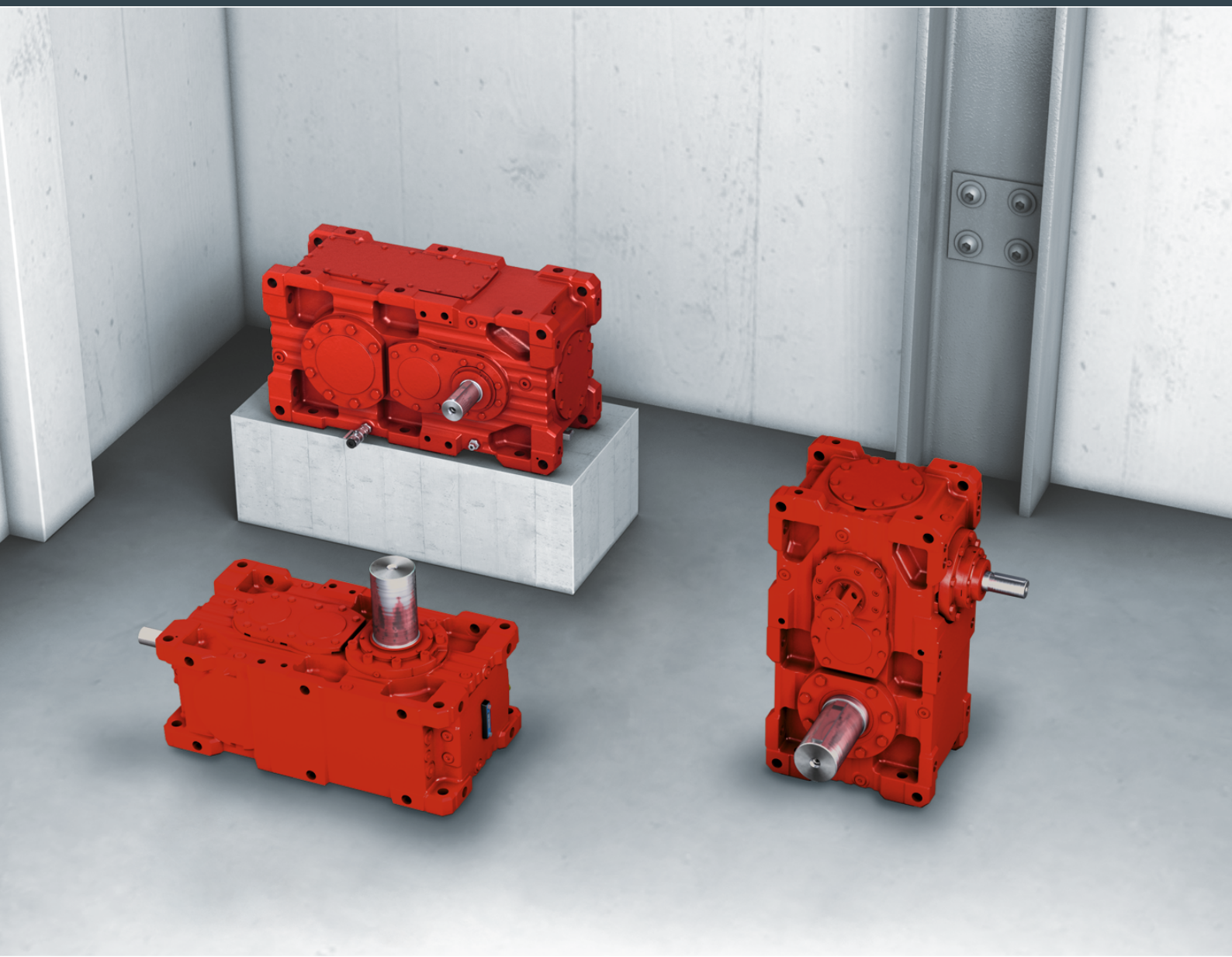
SEW EURODRIVE

Catalog



Industrial Gear Units

X.. Series Helical and Bevel-Helical Gear Units

Torque Classes from 6.8 kNm – 475 kNm

Edition 08/2018

24799734/EN



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1 Introduction

1.1 The SEW-EURODRIVE group of companies

1.1.1 Global presence

Driving the world – with innovative drive solutions for all industries and for every application. Products and systems from SEW-EURODRIVE are used all over the world. Be it in the automotive, building materials, food and beverage or metal-processing industry – the decision to use drive technology "made by SEW-EURODRIVE" stands for reliable products in regard of functionality and investment.

Products and services from SEW-EURODRIVE are represented in all important industries of our time. We also show this presence with subsidiaries and production plants all over the world, as well as with our service, which we see as an integrative part of our portfolio that extends SEW-EURODRIVE's high quality standards.

1.1.2 Always the right drive solution

With the broad product portfolio from SEW-EURODRIVE, which also includes mechatronic drive units, frequency inverters, controllers, software and communication in addition to the tried-and-tested modular system for gearmotors, it is possible to implement the perfect drive solution for every application.

Gear units and motors

Thanks to the modular system, gearmotors can be combined individually according to the required speed and torque ranges, the space requirements and the ambient conditions. Gear units and gearmotors offering a unique and finely tuned performance range and the best economic prerequisites to face any drive challenge.

Motors by SEW-EURODRIVE can be mounted directly or via adapter to SEW-EURODRIVE gear units. They meet all worldwide requirements regarding energy efficiency and technical regulations. A wide range of options and accessories ensures high flexibility for adjusting the motor to the requirements of the user and the application.

Inverters

The proven inverter series MOVITRAC®, MOVIDRIVE® and MOVIAXIS® enhance the gearmotors, forming a combination that blends in perfectly with the existing SEW-EURODRIVE systems program.

Modular automation system

With its brand MOVI-C®, SEW-EURODRIVE launches a new generation of drive and automation technology. MOVI-C® is the modular automation system that allows for the highest level of system and machine automation. It comprises drive technology, MotionControl, control technology and visualization.

MOVIDRIVE® modular is the modular application inverter for all types of applications, ranging from simple open-loop speed control to servo drives with kinematic model. MOVIDRIVE® modular can be supplemented by connecting MOVIDRIVE® system single-axis devices. These possess comparable functionalities as axis modules, but have their own line connection. Especially in the upper power range, MOVIDRIVE® system complements the modular application inverter.

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MOVIDRIVE® modular and system are intended for operation at the MOVI-C® CONTROLLER, the controller from SEW-EURODRIVE. They offer a powerful clock-synchronous connection via the integrated EtherCAT®/SBus^{PLUS} communication interface. Other EtherCAT® stations from SEW-EURODRIVE or other manufacturers can be controlled and diagnosed by the MOVI-C® CONTROLLER.

The MOVISUITE® engineering software, with its unique operating philosophy, prevails over all MOVI-C® hardware and software components. MOVISUITE® was developed with a focus on systematically shortening the startup time and covers the entire engineering process, from planning to diagnostics.

Decentralized drive technology

For economical, decentralized installations, SEW-EURODRIVE offers decentralized drive technology components, such as MOVIMOT®, the gearmotor with integrated frequency inverter or MOVI-SWITCH®, the gearmotor with integrated switching and protection function. SEW-EURODRIVE hybrid cables have been designed specifically to ensure cost-effective solutions, independent of the philosophy behind or the size of the system.

The decentralized drive technology portfolio is complemented by the DRC.. electronic motor, MOVIGEAR® mechatronic drive system, MOVIFIT® decentralized drive controller, MOVIPRO® decentralized drive, positioning, and application controller, as well as MOVITRANS® system components for contactless energy transfer.

The smart energy management system MOVI-DPS® enhances the modular product portfolio from SEW-EURODRIVE. With MOVI-DPS®, SEW-EURODRIVE offers the perfect combination: Conserving resources. Reducing costs.

MOVI-DPS® allows for stable power grids, no power failures, and consequently reliable system availability. MOVI-DPS® shows what it can do in both mobile and stationary applications. In addition, MOVI-DPS® can be combined with other systems such as the contactless energy transfer system MOVITRANS®, resulting in further important synergy effects.

Industrial gear units

Power, quality and sturdy design combined in one standard product: With high torque levels, industrial gear units from SEW-EURODRIVE realize major movements. The modular concept will once again provide optimum adaptation of industrial gear units to meet a wide range of different applications.

Individual system solutions with MAXOLUTION®

MAXOLUTION® from SEW-EURODRIVE provides individual application solutions in all areas of system and machine automation. From electromechanical drives, controllers and communication to visualization and the contactless energy transfer system MOVITRANS® up to a comprehensive service portfolio, MAXOLUTION® offers all modules required to design customer-specific solutions for machines and systems.

MAXOLUTION® combines individual products of the proven modular system with innovative system components to form individual solutions that perfectly match the requirements of the specific application – "powered by SEW-EURODRIVE".

Safe – flexible – effective: safetyDRIVE

Guaranteeing the safety of all employees and preventing work accidents while ensuring trouble-free production processes are demands placed on all production areas. safetyDRIVE, the comprehensive safety concept, allows you to implement your machines "safely", in accordance with the currently valid guidelines. With controllers that meet the respective requirement of the safety categories or the performance levels and that monitor instead of switch off.

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All of our drive and frequency inverters provide the function that safely stops the electrical power to the motor (STO). The MOVISAFE® components complete the portfolio – integrated into the inverter as option cards DFS..B or DCS..B or modular as safety monitors UCS..B. The decentralized MOVIFIT® and MOVIPRO® drive technologies with integrated safety functions are ready for use in decentralized installations.

1.1.3 Your ideal partner

Its global presence, extensive product portfolio and broad spectrum of services make SEW-EURODRIVE the ideal partner for the machinery and plant construction industry when it comes to providing drive systems for demanding drive tasks in all industries and applications.

For detailed information on the entire SEW-EURODRIVE product portfolio, refer to our website www.sew-eurodrive.com where you can find out about components, system solutions, services and industries. Via the Online Support, you can access a large selection of documents and tools such as the product configurator and different selection guides as well as all documentation in different languages for download.

1.2 Documentation

1.2.1 Contents of this publication

This catalog provides a detailed description of the following product groups offered by SEW-EURODRIVE:

- Industrial gear units: X.. series helical and bevel-helical gear units

1.2.2 Additional documentation

The following catalogs and brochures are available on the SEW-EURODRIVE website under "Online Support" in the category "Data and documents" in addition to this "X.. Series Helical and Bevel-Helical Gear Units" catalog:

- Catalog: "External Oil supply and Oil Cooling Systems"
- Catalog: "Bucket Elevator Drives"
- Brochure: "Technology for Agitators and Aerators"
- Brochure: "Technology for Cranes"
- Brochure: "Drive systems for conveyor systems"

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1.3 Product names and trademarks

All product names included in this documentation are trademarks or registered trademarks of the respective titleholders.

1.4 Copyright notice

© 2018 SEW-EURODRIVE. All rights reserved. Unauthorized reproduction, modification, distribution or any other use of the whole or any part of this documentation is strictly prohibited.

1.5 Structure of the notes

The safety notes in this catalog are designed as follows:

Pictogram	Signal word	Meaning
	**INFORMATION**	Useful information or tip. Simplifies handling of the drive system.

1.6 Important information

Note the following points!



INFORMATION

- The illustrations in the catalog are examples. Final dimensions are available from SEW-EURODRIVE on request.
- The specified weights are guide values and may deviate slightly.
- When installing a filter in the cooling system, make sure there is sufficient height for removing the filter element and the filter hood.

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2 Product description

This catalog describes the X.. series industrial gear units.

2.1 Overview of advantages

- Extremely robust gear unit housing.
- Cost-optimized solution due to finely stepped sizes.
- Reduced weight due to high power density.
- Innovative and effective cooling systems.
- Project planning tools that are easy to handle including 2D dimension sheet and 3D model creation.
- Short delivery times for standard designs.
- Worldwide availability and service.
- ATEX designs available.

2.2 Design features

The X series provides the following design features:

- Independent industrial gear unit platform.
- Helical and bevel-helical gear units.
- Single-piece and split gear unit housings.
- Invertible gear unit housing.
- Universal mounting positions.
- Distinctive modular technology.
- Customer-specific adaptations.
- Great number of variants due to predefined accessory equipment and options.
- As travel drive, e.g. for port logistics (gear unit type X.T..).

2.3 Application areas

The X series can be used in the following application areas:

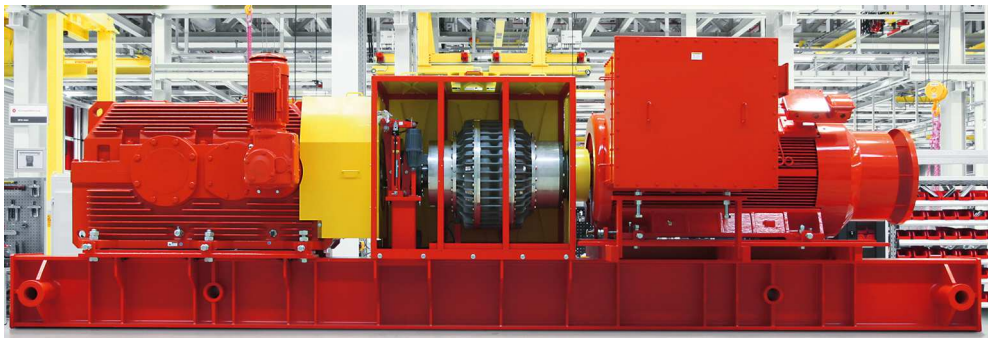
- In conveyor systems as used in the building material, extractive, chemical, food and feed industries.
- In the timber and paper industry.
- Environmental industry.
- In mixers and agitators.
- As travel and lifting drives for indoor, handling and container cranes.
- For shredders and crushers.
- For bucket elevators in bulk handling applications.

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2.4 Customer-specific application solutions

The following examples show application-specific solutions.

2.4.1 Conveyor drives



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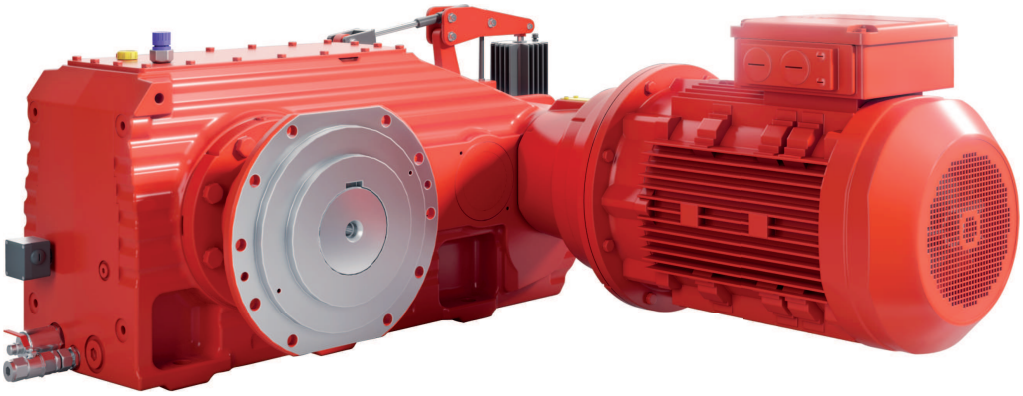
Conveyor belts must often work under very harsh and dusty conditions with high or extremely low ambient temperatures.

Our conveyor drives are specifically designed for such ambient conditions with a torque range from 6.8 kNm to 475 kNm. Due to their thermally optimized housing (starting from 58 kNm) and the special sealing system Taconite, they ensure a high level of operational reliability while requiring little maintenance at the same time.

For detailed information, refer to the technical brochure "Drive system for conveyor systems".

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2.4.2 Hoist gear unit



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Hoists often feature parallel-shaft gear units in which the rope drum and motor are arranged on the same side of the gear unit.

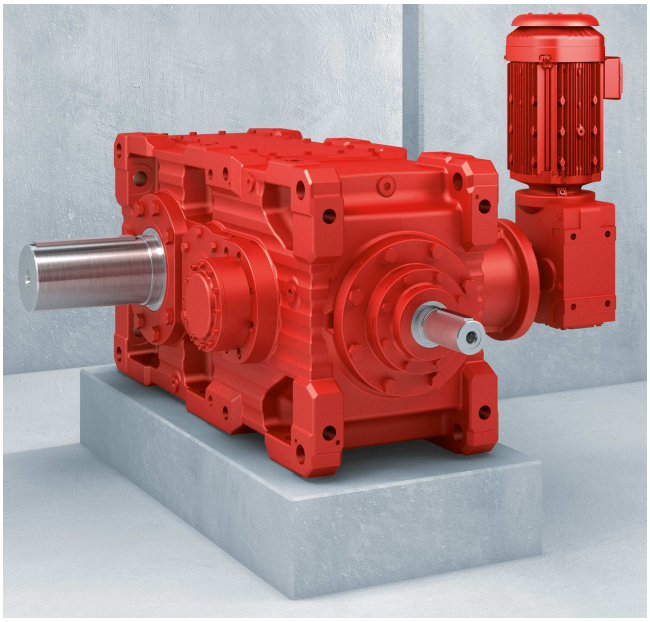
Due to the larger center distance, the X../HC hoist series for the torque range of 12.8 to 112 kNm offers significant advantages to the crane designer when designing the system: Optimized choice of gear unit size with a reduced gear unit weight and, at the same time, sufficient center distance. Furthermore, our X.. series is designed for a torque range of 6.8 to 475 kNm.

Project planning with finite fatigue strength and design for load spectrums with defined service life or crane categorization according to relevant standards such as DIN 13001, FEM 1.001 or DIN 15020 are possible.

For detailed information, refer to the technical brochure "Technology for cranes".

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2.4.3 Bucket elevator gear units



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Bucket elevators are conveyor systems that vertically lift large quantities of bulk material. Depending on the volume of the buckets and on the needed conveyor height, high drive powers may be required. Especially during maintenance, the bucket elevator drive may only be operated at a reduced speed. For this reason, our bucket elevator drives are equipped with a directly mounted auxiliary drive that ensures movement during maintenance when the main motor is switched off. Our standardized bucket elevator drives have a torque range of 6.8 to 270 kNm.

More information can be found in the "X.. Series Bevel-Helical Gear Units – Bucket Elevator Drives" catalog.

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2.4.4 Agitator gear unit



23629458187

Agitators may generate very high radial and axial forces depending on the medium and the type of process. Depending on the type of bearing of the agitating element, the agitator gear unit must absorb these forces.

Our standardized X../HA agitator gear units with extended bearing distance is the right solution for the torque range of 22 to 90 kNm. Due to the thermally optimized housing, our agitator gear units can be used without external cooling even for agitating processes that demand high performance. Furthermore, our X.. series is designed for a torque range of 6.8 to 475 kNm.

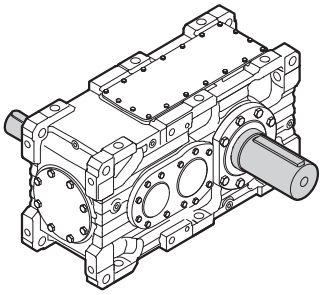
For further information, refer to the technical brochure "Technology for Agitators and Aerators".

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2.5 Gear unit types

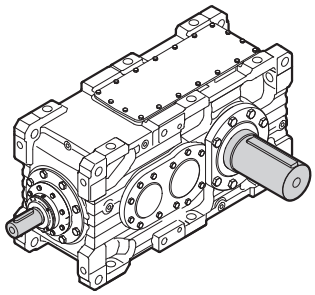
SEW-EURODRIVE distinguishes the following 3 gear unit types:

2.5.1 X.F.. helical gear units



- Helical gear units with parallel shafts
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: Horizontal, vertical and upright
- Input and output shaft designs, see chapter "Input and output shaft designs" (→ 🗎 38)
- Gear ratios from 6.3 to 450, see chapter "Torques and input speeds" (→ 🗎 29)
- Torque classes from 6.8 to 475 kNm, see chapter "Torques and input speeds" (→ 🗎 29)

2.5.2 X.K.. bevel-helical gear units

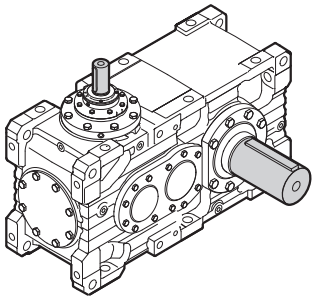


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- Helical gear units with right-angle shaft arrangement
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: Horizontal, vertical and upright
- Input and output shaft designs, see chapter "Input and output shaft designs" (→ 🗎 38)
- Gear ratios from 6.3 to 450, see chapter "Torques and input speeds" (→ 🗎 29)
- Torque classes from 6.8 to 475 kNm, see chapter "Torques and input speeds" (→ 🗎 29)

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2.5.3 X.T.. bevel-helical gear units



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- Helical and bevel-helical gear units with right-angle shaft arrangement
- 16 sizes from X100 to 250
- 3 and 4 stages
- Mounting position: all mounting positions
- Input and output shaft designs, see chapter "Input and output shaft designs" (→ 🗎 38)
- Gear ratios from 14 to 400, see chapter "Torques and input speeds" (→ 🗎 29)
- Torque classes from 6.8 to 175 kNm, see chapter "Torques and input speeds" (→ 🗎 29)

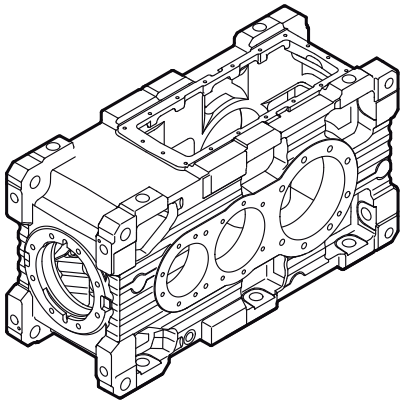
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2.6 Housing designs

2.6.1 Horizontal housing /HH

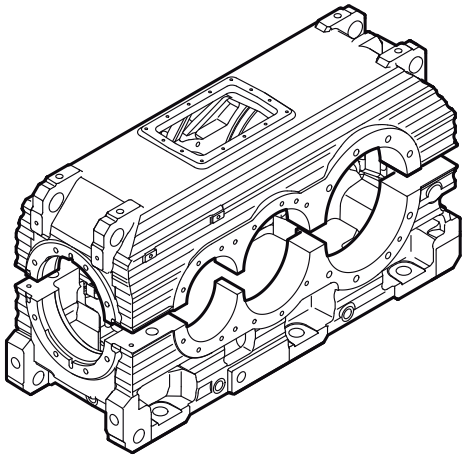
The horizontal housing is designed for mounting position M1. This housing design is non-reversible. For further information, see chapter "Reversible gear units" (→ 🗎 56).

The following figure shows an example of a single-piece housing for sizes X100 to 210:



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The following figure shows an example of a two-piece housing for sizes X220 to 320:



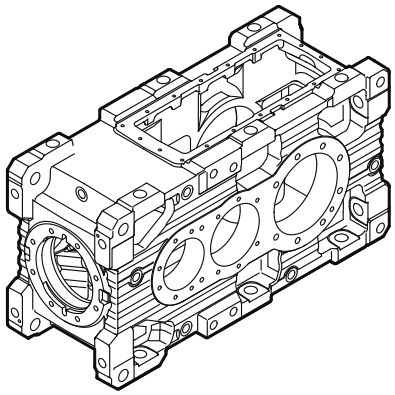
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2.6.2 Universal housing /HU

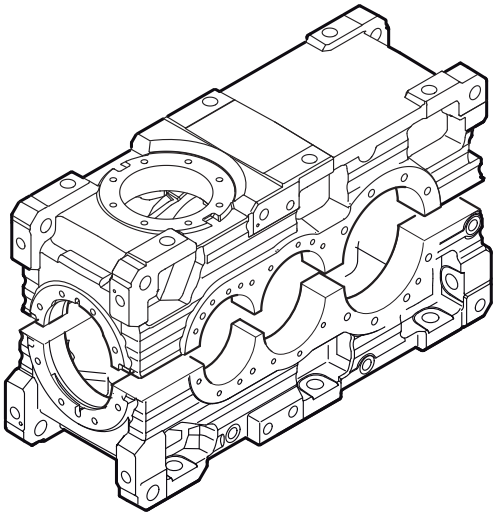
The universal housing can be installed in any mounting position (M1 to M6). The housings can be reversible if required. For further information, see chapter "Reversible gear units" (→ 🗎 56).

The following figure shows an example of a single-piece housing for sizes X100 to 210:



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The following figure shows an example of a two-piece housing for sizes X220 to 320:



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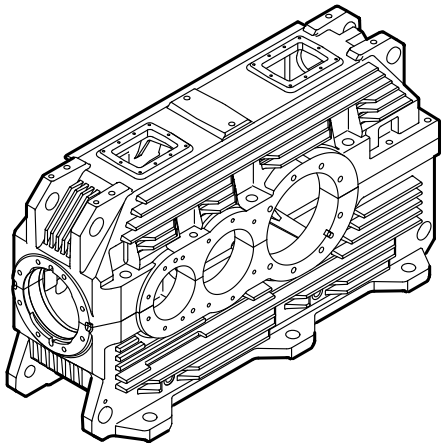
2.6.3 Thermal housing /HT

The thermal housing is designed for mounting position M1. The housing design is not reversible, see chapter "Reversible gear units" (→ 🗎 56). Various measures make this gear unit suitable for increased thermal requirements.

The housing is designed as two-piece housing for gear units in size X180 to 320.

For detailed information, refer to the technical brochure "Drive system for conveyor systems".

The following figure shows an example of a thermal housing for size X220:

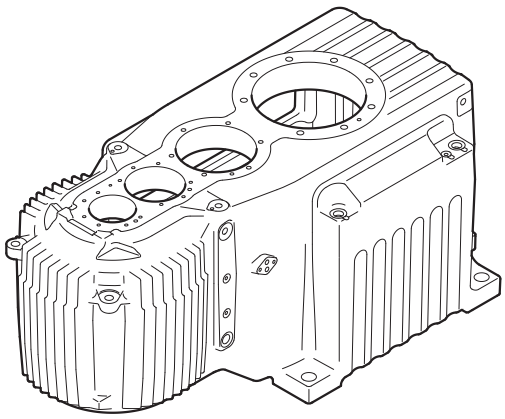


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2.6.4 Agitator housing/HA

The agitator housing is designed as single-piece housing only for mounting position M5 and sizes X3F140 – 210.

For further information, refer to the technical brochure "Technology for Agitators and Aerators".



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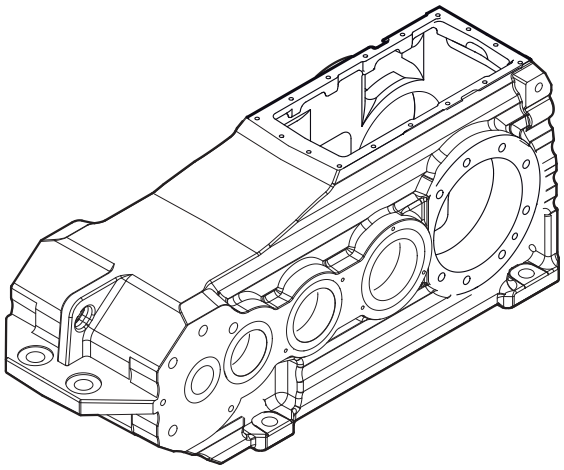
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2.6.5 Hoist housing /HC

The housing of the hoist is designed for mounting position M1. This housing design is non-reversible. Due to its extended center distance, the housing offers greater flexibility when cable drums are used.

The housing is designed as single-piece housing for gear units in size X120 to 220.

The following figure shows an example of a housing for gear unit size 180:



24919461899

2.7 Combination overview of housing types and options

This chapter shows an overview of which options are available for which mounting positions/housing designs.

2.7.1 Horizontal housing /HH and universal housing /HU

Single-piece and split gear unit housings for horizontal applications **(HH)** as well as universal housings **(HU)** offer a wide range of possible variants. The following table shows the options that can be combined with horizontal housings **(HH)** and the options that can be combined with universal housings **(HU)**. The universal housing can be combined with all options listed in the table.

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Horizontal mounting position M1

Options		Sizes																
		X100 – 210						X220 – 250						X260 – 320				
		2F	2K	3F	3K	4F	4K	2F	2K	3F	3K	4F	4K	2F	2K	3F	3K	4F
BF	Base frame	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	HU	**HH**	**HH**	**HH**	**HH**
BS	Backstop	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	HU	**HH**	**HH**	**HH**	**HH**
BSL	Torque-limiting backstop	-	-	-	**HH**	-	-	-	-	-	HH	-	-	-	-	**HH**	**-**	-
CCV	Water cooling cover	HU	HU	**HH**	**HH**	HU	HU	-	-	-	-	-	-	-	-	-	-	-
CCT	Water cooling cartridge	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
F	Mounting flange	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU
FC	Flange coupling	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	HU	**HH**	**HH**	**HH**	**HH**
FAN	Fan	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
FAN-ADV	Fan version Advanced	-	-	-	-	-	-	-	-	-	**HH**	-	-	-	-	**HH**	-	-
HSST	Through-going input shaft	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**
LSST	Through-going output shaft	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**
MA	Motor adapter	HU	HU	**HH**	**HH**	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU
SB	Swing base	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
SEP	Shaft end pump	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
T	Torque arm	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OAC	Oil-air cooler	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OWC	Oil-water cooler	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OAP	Oil-air cooler	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OWC	Oil-water cooler	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
ONP	Motor pump	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OD	Oil dipstick	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
ODV	Oil drain valve	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OH	Oil heater	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
OLG	Oil level glass	HU	HU	**HH**	**HH**	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
VBD	V-belt drives	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU	HU
PT100	Temperature sensor	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
NTB	Temperature switch	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
TSK	Temperature switch	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**
DUO10A	Diagnostic unit	HU	HU	HU	HU	HU	HU	**HH**	HU	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**	**HH**

□ Options are available in all gear unit sizes
▨ Options are not available in all gear unit sizes
HH Horizontal housing (and universal housing)
HU Only universal housing

INFORMATION

Reversible gear units are based exclusively on the universal housing design (HU). The horizontal housing (HH) is not reversible. For further information, see chapter "Reversible gear units" (→ 🗎 56).

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Vertical mounting position M5

Abbreviation	Options	X100-X130	X140-210		X210-250	X260-320
		2F, 2K, 3F, 3K, 4F, 4K, 3F, 3T, 4T	2F, 2K, 3K, 4F, 4K, 3T, 4T	3F	2F, 2K, 3F, 3K, 4F, 4K, 3T, 4T	2F, 2K, 3F, 3K, 4F, 4K
BF	**Mounting frame**				HU	HU
	Monoblock	HU	HU	HA/HU	-	-
	Split	-	-	-	HU	HU
BS	**Backstop**	HU	HU	HA/HU	HU	HU
CCV	**Water cooling cover**	HU	HU	HU	-	-
CCT	**Water cooling cartridge**	HU(**)	HU(**)	HA/HU(**)	HU	HU
F	**Mounting flange B5**	HU	HU	HA/HU	HU	HU
F	**Mounting flange B14**	HU	HU	HA/HU	HU	HU
F	**Mounting flange (special design)**	HU(*)	HU(*)	HA(*)/HU(*)	HU	HU
	Flange coupling with/without key	HU	HU	HA/HU	HU	HU
FAN	**Standard radial fan**	HU	HU	HU	HU	HU
FAN	**Standard radial fan in MA**	HU	HU	HU	HU	HU
FAN	**Axial fan in MA**	HU(*)	HU(*)	HA	-	-
	Through-going HSS	HU	HU	-	HU	HU
	Through-going LSS	HU	HU	HU	HU	HU
MA	**IEC/NEMA motor adapter**	HU	HU	HA/HU	HU	HU
SEP	**Shaft end pump**	HU	HU	HA/HU	HU	HU
	Bath lubrication with oil expansion tank	HU	HU	HA/HU	HU	HU
	Torque arm	HU	HU	HU	HU	HU
OAC	**Oil-air cooler**	HU	HU	HA/HU	HU	HU
OWC	**Oil-water cooler**	HU	HU	HA/HU	HU	HU
OD	**Oil dipstick**	HU	HU	HA/HU	HU	HU
	Oil drain valve	HU	HU	HA/HU	HU	HU
OH	**Oil heater**	HU(**)	HU(**)	HA/HU(**)	HU	HU
	Oil sight glass	HU	HU	HA/HU	HU	HU
VBD	**V-belt drive**	HU(*)	HU(*)	HA(*)/HU(*)	HU(*)	HU(*)
PT100	**Temperature sensor**	HU	HU	HA/HU	HU	HU
NTB	**Temperature switch**	HU	HU	HA/HU	HU	HU
TSK	**Temperature switch**	HU	HU	HA/HU	HU	HU
DUO10A	**Diagnostic unit for oil aging**	HU	HU	HA/HU	HU	HU
	Pressure switch	HU	HU	HA/HU		
	Oil filter (single filter)	HU	HU	HA/HU		
	Oil filter (duplex filter)	HU	HU	HA/HU		
	Standard bearing for solid and hollow low-speed shaft (LSS)	HU	HU	HU	HU	HU
	Reinforced bearing for solid low-speed shaft (LSS)	-	-	-	HU	HU
	Reinforced bearing for hollow low-speed shaft (LSS)	HU	HU	HU	-	-
	EBD bearing for medium loads at solid low-speed shaft (LSS)	HU(*)	HU	HA/HU	HU(*)	HU(*)
	EBD bearing for heavy loads at solid low-speed shaft (LSS)	HU(*)	HU	HA/HU	HU(*)	HU(*)
	Drywell seal for M5 WL23	-	HU	HA/HU	HU(*)	HU(*)
	Central monitoring interface	-	-	HA	-	-
	Central relubrication point	-	-	HA	-	-

* Available on request.

** In combination with Drywell seal only available on request.

HU Universal housing

HA Agitator housing

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2.7.2 Thermal housing /HT

The thermal housing **(HT)** allows for a wide range of possible variants. The following table shows the options that can be combined with the thermal housing **(HT)**.

	Options	X3K180 – 320
BF	Base frame	HT
BS	Backstop	HT
BSL	Torque-limiting backstop	HT
FC	Flange coupling	HT
FAN	Fan	HT
HSST	Through-going input shaft	HT
LSST	Through-going output shaft	HT
MA	Motor adapter	HT
SB	Swing base	HT
SEP	Shaft end pump	HT
T	Torque arm	HT
OD	Oil dipstick	HT
ODV	Oil drain valve	HT
OH	Oil heater	HT
OLG	Oil level glass	HT
VBD	V-belt drives	HT
PT100	Temperature sensor	HT
NTB	Temperature switch	HT
TSK	Temperature switch	HT
DUO10A	Diagnostic unit	HT

□ Options are available in all sizes
▨ Options are not available in all sizes

2.7.3 Hoist housing /HC

The hoist housing **(HC)** allows for a wide range of possible variants. The following table shows the options that can be combined with the hoist housing **(HC)**.

	Options	
FC	Flange coupling	HC
HSST	Through-going input shaft	HC
MA	Motor adapter	HC
T	Torque arm	HC
OD	Oil dipstick	HC
ODV	Oil drain valve	HC
OH	Oil heater	HC
PT100	Temperature sensor	HC
NTB	Temperature switch	HC

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2.7.4 Agitator housing /HA

The agitator housing **(HA)** allows for a wide range of possible variants. The following table shows the options that can be combined with the agitator housing **(HA)**.

	Options	X3F140 – 210
BF	Base frame	HA
BS	Backstop	HA
BSL	Torque-limiting backstop	HA
CCT	Water cooling cartridge	HA
F	Mounting flange B5/B14	HA
FC	Flange coupling	HA
FAN	Fan	HA
MA	Motor adapter	HA
SEP	Shaft end pump	HA
OAC	Oil-air cooler	HA
OWC	Oil-water cooler	HA
OAC	Oil-air cooler	HA
OWC	Oil-water cooler	HA
OD	Oil dipstick	HA
ODV	Oil drain valve	HA
OH	Oil heater	HA
OLG	Oil level glass	HA
PT100	Temperature sensor	HA
NTB	Temperature switch	HA
TSK	Temperature switch	HA
DUO10A	Diagnostic unit	HA
	Filter	HA
EBD	Extended bearing distance	HA

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2.8 Mounting positions

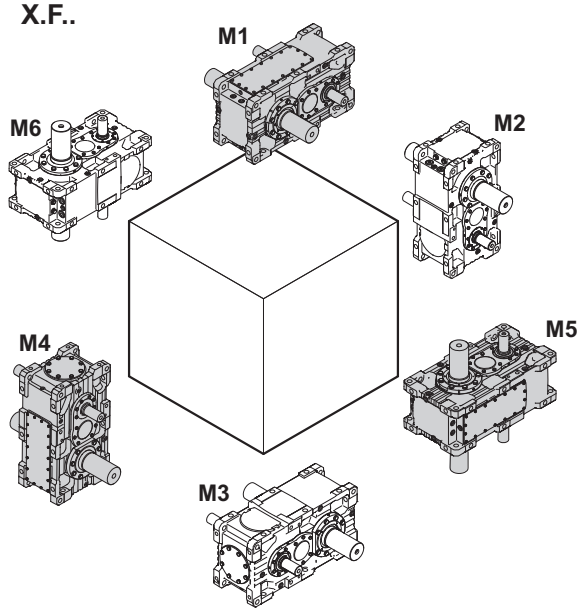
2.8.1 Definition

The mounting position defines the spatial position of the gear unit housing and is designated with **M1 – M6**. The table below shows the mounting positions.

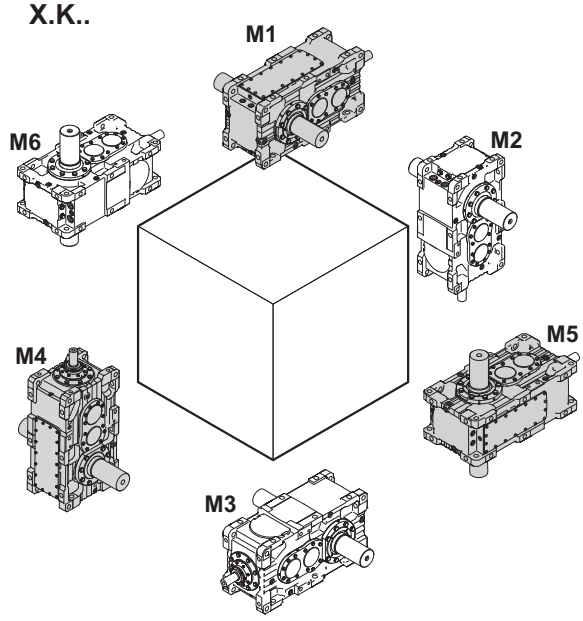
With "alternative mounting positions", there might be limitations regarding certain options. Consult SEW-EURODRIVE in this case. The table below shows the mounting positions.

	Standard mounting position	Alternative mounting position
Horizontal gear unit	M1	M3
Vertical gear unit	M5	M6
Upright gear unit	M4	M2

X.F..

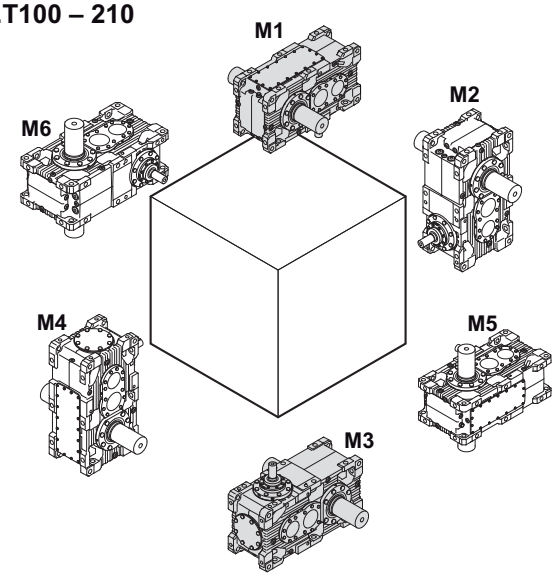


X.K..

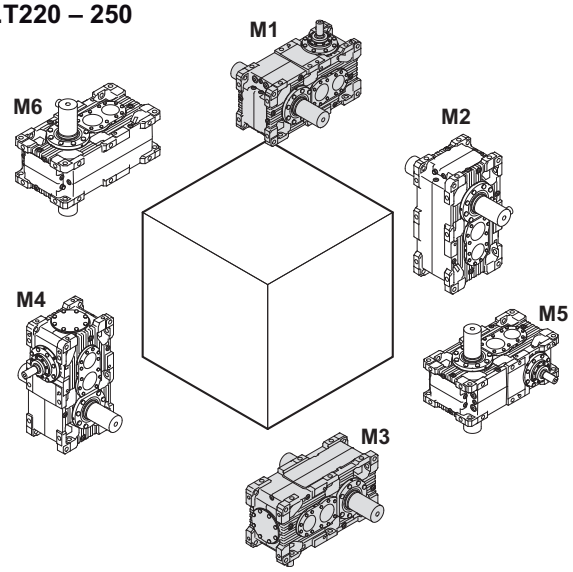


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X.T100 – 210



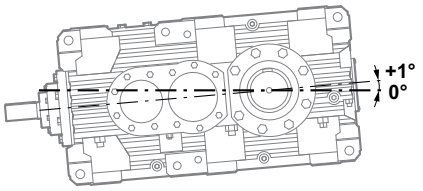
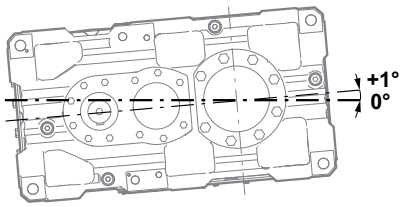
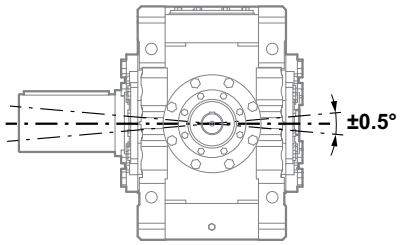
X.T220 – 250



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2.8.2 Deviating mounting positions

Note that the following deviating mounting positions are permitted for X.F.. and X.K.. gear units in mounting positions M1 and M3. Data is based on a gear unit without pivoted mounting position.

X.F100 – 320 and X.K100 – 320		
X.K.. Mounting position M1 and M3	**X.F.. Mounting position M1 and M3**	**X.F.. and X.K.. Mounting position M1 and M3**
		

INFORMATION

Deviations in mounting position of **±1°** are permitted for the following gear units:

- X.F.. and X.K.. in mounting positions M2, M4, M5, M6.
- X.T.. in mounting positions M1, M2, M3, M4, M5, M6.

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2.9 Mounting surfaces

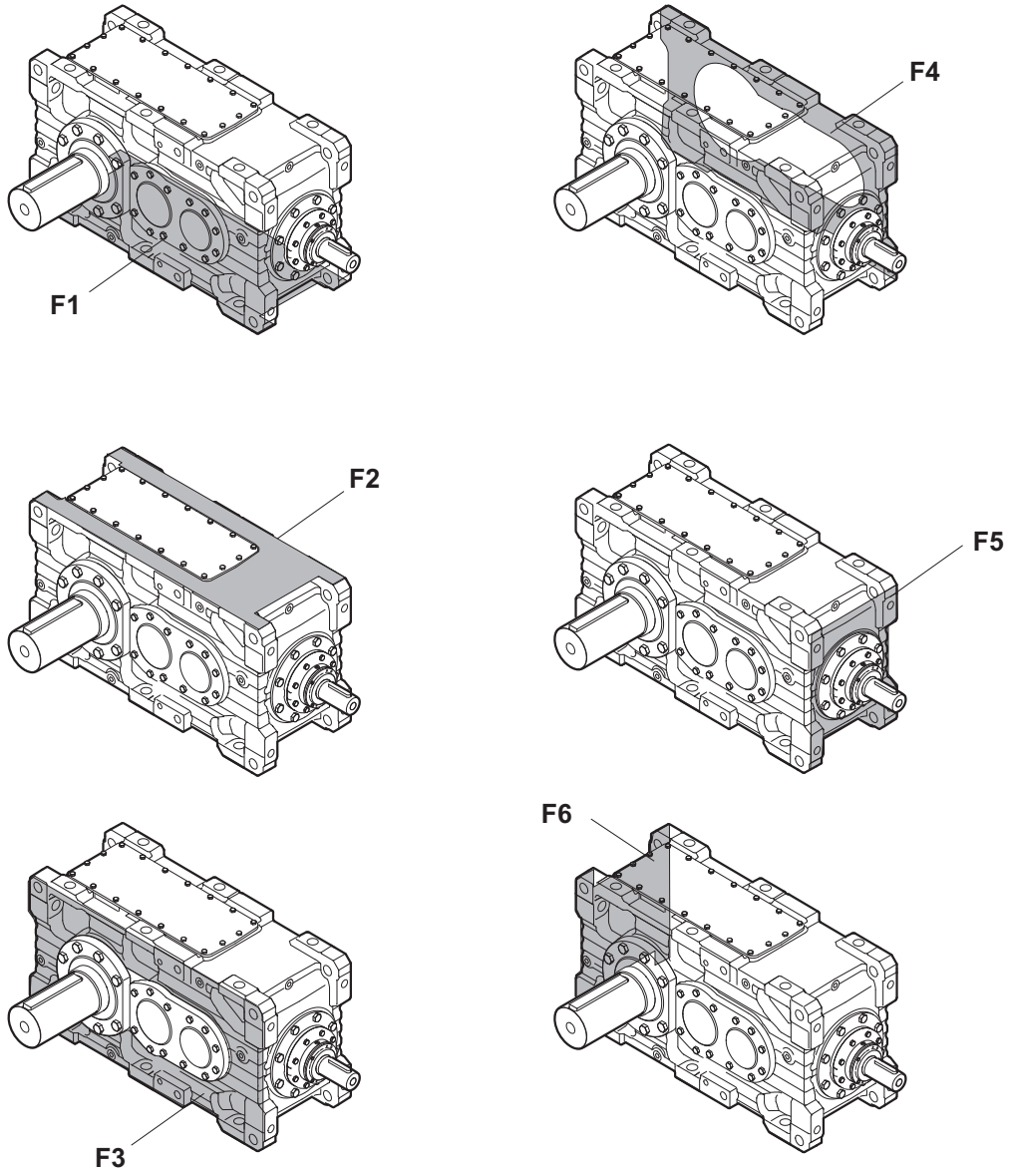
2.9.1 Definition

The mounting surface is defined as the surface(s) of a gear unit with

- Foot mounting (X.... /B) or
- Flange mounting (X.... /F),

on which the gear unit is mounted.

SEW-EURODRIVE defines **6** different mounting surfaces (designation **F1...F6**)



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2.10 Torques and input speeds

The nominal power and torque values mentioned in the catalog depend on the input speed and are valid for a service factor of F_S = 1.0 and constant, unidirectional load. Only 70% of these values apply in the case of changing load directions.

The overview shows nominal torques for input speeds of 1000 min^{-1} to 1800 min^{-1}. The nominal torque classes also apply to drive speeds 3% less than the synchronous speed. For speeds > 1800 min^{-1}, contact SEW-EURODRIVE.

The following table provides an overview of the technical data.

Sizes	Nominal torque classes kNm	Nominal gear ratio ranges		
		X.F..	X.K..	X.T..
X100	6.8	7.1 – 100	7.1 – 80	14 – 80
X110	8.5	8 – 112	8 – 90	16 – 90
X120	12.8	6.3 – 355		12.5 – 355
X130	16	8 – 450		16 – 450
X140	22	6.3 – 355		12.5 – 355
X150	27.5	8 – 450		16 – 450
X160	36	6.3 – 355		12.5 – 355
X170	45	8 – 450		16 – 450
X180	58	6.3 – 355		12.5 – 355
X190	65	7.1 – 400		14 – 400
X200	79	6.3 – 355		12.5 – 355
X210	90	7.1 – 400		14 – 400
X220	112	6.3 – 355		12.5 – 355
X230	131	7.1 – 400		14 – 400
X240	156	6.3 – 355		12.5 – 355
X250	175	7.1 – 400		14 – 400
X260	205	6.3 – 355	12.5 – 355	-
X270	240	7.1 – 400	14 – 400	-
X280	270	8 – 450	16 – 450	-
X290	308	6.3 – 355	12.5 – 355	-
X300	350	7.1 – 400	14 – 400	-
X310	425	6.3 – 355	12.5 – 355	-
X320	475	7.1 – 400	14 – 400	-

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2.11 Mass moments of inertia

The mass moments of inertia in kgm^2 are reduced to X.F.. helical gear units and X.K.. bevel-helical gear units. These refer to the HSS input shaft.

2.11.1 X.F.. Helical gear units

Size X100 – 210

iN	X100	X110	X120	X130	X140	X150	X160	X170	X180	X190	X200	X210
6.3	-	-	0.0413	-	0.0920	-	0.2485	-	0.4518	-	0.8012	-
7.1	0.0153	-	0.0395	-	0.0904	-	0.2328	-	0.4316	0.4726	0.7474	0.8618
8	0.0142	0.0170	0.0278	0.0485	0.0704	0.1066	0.1663	0.2768	0.3134	0.4597	0.5553	0.8014
9	0.0111	0.0157	0.0266	0.0449	0.0694	0.1038	0.1561	0.2580	0.3004	0.3267	0.5202	0.5947
10	0.0104	0.0123	0.0221	0.0324	0.0542	0.0799	0.1223	0.1845	0.2294	0.3185	0.3917	0.5554
11.2	0.0086	0.0114	0.0213	0.0301	0.0535	0.0781	0.1162	0.1724	0.2208	0.2382	0.3697	0.4164
12.5	0.0082	0.0094	0.0148	0.0249	0.0337	0.0604	0.0851	0.1331	0.1619	0.2327	0.2953	0.3917
14	0.0055	0.0088	0.0143	0.0235	0.0333	0.0592	0.0811	0.1259	0.1562	0.1678	0.2815	0.3110
16	0.0052	0.0059	0.0103	0.0166	0.0242	0.0375	0.0606	0.0922	0.1179	0.1642	0.2150	0.2954
18	0.0041	0.0056	0.0100	0.0157	0.0240	0.0368	0.0582	0.0875	0.1146	0.1213	0.2065	0.2244
20	0.0039	0.0044	0.0096	0.0114	0.0202	0.0266	0.0561	0.0649	0.1150	0.1192	0.1723	0.2150
22.4	0.0039	0.0042	0.0094	0.0109	0.0200	0.0261	0.0547	0.0620	0.1129	0.1172	0.1671	0.1781
25	0.0038	0.0040	0.0085	0.0103	0.0178	0.0215	0.0497	0.0587	0.1002	0.1159	0.1566	0.1723
28	0.0035	0.0039	0.0084	0.0100	0.0177	0.0213	0.0488	0.0570	0.0990	0.1015	0.1533	0.1603
31.5	0.0034	0.0036	0.0077	0.0090	0.0156	0.0187	0.0455	0.0515	0.0922	0.1007	0.1377	0.1566
35.5	0.0032	0.0035	0.0076	0.0088	0.0156	0.0185	0.0449	0.0503	0.0913	0.0931	0.1356	0.1402
40	0.0031	0.0032	0.0043	0.0080	0.0101	0.0162	0.0264	0.0466	0.0502	0.0926	0.0741	0.1377
45	0.0019	0.0032	0.0042	0.0079	0.0100	0.0161	0.0261	0.0459	0.0497	0.0507	0.0726	0.0757
50	0.0019	0.0019	0.0040	0.0045	0.0092	0.0104	0.0248	0.0271	0.0468	0.0504	0.0658	0.0741
56	0.0017	0.0019	0.0039	0.0044	0.0091	0.0104	0.0245	0.0267	0.0465	0.0472	0.0649	0.0669
63	0.0017	0.0018	0.0023	0.0041	0.0053	0.0094	0.0131	0.0252	0.0260	0.0470	0.0350	0.0658
71	0.0011	0.0017	0.0023	0.0040	0.0053	0.0094	0.0130	0.0249	0.0258	0.0262	0.0345	0.0356
80	0.0011	0.0011	0.0022	0.0024	0.0049	0.0055	0.0125	0.0134	0.0247	0.0260	0.0320	0.0350
90	0.0011	0.0011	0.0022	0.0024	0.0049	0.0054	0.0124	0.0132	0.0245	0.0248	0.0316	0.0324
100	0.0011	0.0011	0.0014	0.0023	0.0035	0.0050	0.0092	0.0126	0.0174	0.0247	0.0237	0.0320
112	-	0.0011	0.0013	0.0022	0.0035	0.0050	0.0091	0.0125	0.0173	0.0175	0.0235	0.0239
125	-	-	0.0013	0.0014	0.0034	0.0036	0.0089	0.0093	0.0169	0.0174	0.0224	0.0237
140	-	-	0.0013	0.0014	0.0034	0.0036	0.0089	0.0092	0.0169	0.0170	0.0223	0.0226
160	-	-	0.0011	0.0013	0.0031	0.0034	0.0081	0.0090	0.0154	0.0170	0.0186	0.0224
180	-	-	0.0011	0.0013	0.0031	0.0034	0.0081	0.0089	0.0153	0.0154	0.0185	0.0187
200	-	-	0.0006	0.0011	0.0014	0.0031	0.0032	0.0081	0.0075	0.0154	0.0087	0.0186
224	-	-	0.0006	0.0011	0.0014	0.0031	0.0032	0.0081	0.0075	0.0075	0.0086	0.0088
250	-	-	0.0006	0.0006	0.0014	0.0014	0.0032	0.0033	0.0074	0.0075	0.0084	0.0087
280	-	-	0.0006	0.0006	0.0014	0.0014	0.0032	0.0032	0.0074	0.0074	0.0083	0.0084
315	-	-	0.0006	0.0006	0.0013	0.0014	0.0030	0.0032	0.0070	0.0074	0.0074	0.0084
355	-	-	0.0006	0.0006	0.0013	0.0014	0.0030	0.0032	0.0070	0.0070	0.0074	0.0075
400	-	-	-	0.0006	-	0.0013	-	0.0030	-	0.0070	-	0.0074
450	-	-	-	0.0006	-	0.0013	-	0.0030	-	-	-	-

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Size X220 – 320

iN	X220	X230	X240	X250	X260	X270	X280	X290	X300	X310	X320
6.3	1.5144	-	2.9760	-	4.6769	-	-	9.6386	-	11.2564	-
7.1	1.4764	1.6447	2.8280	3.1176	4.5235	4.9823	-	9.0945	10.0319	10.9345	11.9083
8	1.0777	1.6005	1.8735	2.9661	3.0099	4.7686	5.2914	6.0883	9.5327	8.3692	11.5192
9	1.0531	1.1622	1.7820	1.9611	2.9145	3.2000	5.0403	5.7561	6.3285	8.1504	8.8124
10	0.8033	1.1335	1.4861	1.8674	2.2007	3.0670	3.3924	4.2817	6.0237	6.3634	8.5479
11.2	0.7878	0.8564	1.4289	1.5409	2.1383	2.3251	3.2361	4.0651	4.4383	6.2267	6.6402
12.5	0.5367	0.8383	1.0726	1.4823	1.6380	2.2381	2.4510	3.2897	4.2395	4.4842	6.4750
14	0.5269	0.5705	1.0340	1.1095	1.5988	1.7159	2.3488	3.1554	3.3868	4.3990	4.6568
16	0.3776	0.5590	0.7350	1.0700	1.1614	1.6613	1.7947	2.4383	3.2636	4.2518	4.5538
18	0.3717	0.3981	0.7111	0.7578	1.1362	1.2117	1.7307	2.3534	2.4996	4.2010	4.3585
20	0.3373	0.3911	0.5868	0.7334	1.0238	1.1765	1.2625	2.0238	2.4218	3.7855	4.2884
22.4	0.3336	0.3501	0.5734	0.5997	1.0097	1.0519	1.2212	1.9705	2.0623	3.7539	3.8515
25	0.2865	0.3458	0.5192	0.5859	0.9382	1.0322	1.0803	1.7315	2.0134	3.2973	3.8081
28	0.2840	0.2951	0.5107	0.5273	0.6847	0.9566	1.0572	1.3103	1.7541	2.3459	3.3402
31.5	0.2581	0.2922	0.4652	0.5186	0.6382	0.6994	0.9752	1.1554	1.3381	2.0633	2.3794
35.5	0.2564	0.2637	0.4596	0.4705	0.6322	0.6501	0.7156	1.1351	1.1700	2.0506	2.0898
40	0.1403	0.2618	0.2795	0.4648	0.4371	0.6418	0.6622	0.9126	1.1514	1.4454	2.0724
45	0.1394	0.1436	0.2759	0.2829	0.4333	0.4446	0.6524	0.8998	0.9218	1.4375	1.4620
50	0.1294	0.1425	0.2566	0.2792	0.4074	0.4393	0.4522	0.8628	0.9101	1.3151	1.4511
56	0.1288	0.1316	0.2543	0.2589	0.2346	0.4128	0.4460	0.4701	0.8692	0.8901	1.3257
63	0.0668	0.1308	0.1297	0.2565	0.2234	0.2381	0.4183	0.4327	0.4768	0.8164	0.8988
71	0.0664	0.0681	0.1283	0.1310	0.2220	0.2263	0.2421	0.4278	0.4362	0.8131	0.8233
80	0.0625	0.0676	0.1209	0.1296	0.2120	0.2243	0.2292	0.4135	0.4317	0.7620	0.8188
90	0.0622	0.0633	0.1200	0.1218	0.2110	0.2141	0.2269	0.4101	0.4160	0.7599	0.7664
100	0.0494	0.0630	0.1080	0.1208	0.1681	0.2127	0.2162	0.3125	0.4128	0.5281	0.7635
112	0.0493	0.0500	0.1075	0.1085	0.1675	0.1692	0.2145	0.3104	0.3139	0.5269	0.5306
125	0.0477	0.0498	0.1046	0.1080	0.1636	0.1684	0.1704	0.3044	0.3121	0.5088	0.5289
140	0.0476	0.0480	0.1042	0.1049	0.1632	0.1644	0.1694	0.3030	0.3055	0.5080	0.5104
160	0.0437	0.0479	0.0969	0.1046	0.1447	0.1638	0.1652	0.2754	0.3042	0.2509	0.5093
180	0.0436	0.0439	0.0966	0.0971	0.1445	0.1453	0.1646	0.2745	0.2761	0.2504	0.2521
200	0.0174	0.0438	0.0393	0.0969	0.0554	0.1449	0.1458	0.1215	0.2752	0.2294	0.2513
224	0.0174	0.0175	0.0391	0.0394	0.0552	0.0557	0.1454	0.1210	0.1219	0.2290	0.2301
250	0.0170	0.0175	0.0384	0.0393	0.0542	0.0555	0.0560	0.1195	0.1214	0.2239	0.2296
280	0.0169	0.0170	0.0383	0.0385	0.0541	0.0544	0.0557	0.1191	0.1197	0.2237	0.2243
315	0.0159	0.0170	0.0364	0.0384	0.0491	0.0542	0.0546	0.1121	0.1194	0.2090	0.2240
355	0.0159	0.0160	0.0363	0.0364	0.0490	0.0492	0.0544	0.1119	0.1123	0.2089	0.2093
400	-	0.0160	-	0.0364	-	0.0491	0.0494	-	0.1121	-	0.2091
450	-	-	-	-	-	-	0.0493	-	-	-	-

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2.11.2 X.K../X.T.. Bevel-helical gear units

Size X100 – 210

iN	X100	X110	X120	X130	X140	X150	X160	X170	X180	X190	X200	X210
6.3	-	-	0.0772	-	0.1526	-	0.3660	-	0.7893	-	1.2723	-
7.1	0.0306	-	0.0753	-	0.1509	-	0.3510	-	0.7664	0.8113	1.2202	1.3336
8	0.0295	0.0324	0.0475	0.0846	0.1010	0.1675	0.2799	0.3928	0.5743	0.7960	0.9587	1.2750
9	0.0183	0.0310	0.0462	0.0809	0.1000	0.1647	0.2702	0.3749	0.5600	0.5880	0.9263	0.9969
10	0.0176	0.0195	0.0315	0.0522	0.0698	0.1104	0.1932	0.2972	0.3908	0.5785	0.6459	0.9604
11.2	0.0130	0.0186	0.0307	0.0498	0.0691	0.1086	0.1866	0.2856	0.3812	0.4000	0.6242	0.6715
12.5	0.0125	0.0137	0.0266	0.0346	0.0696	0.0760	0.1665	0.2048	0.3358	0.3936	0.6399	0.6470
14	0.0110	0.0131	0.0261	0.0330	0.0692	0.0748	0.1625	0.1970	0.3304	0.3414	0.6254	0.6561
16	0.0107	0.0115	0.0157	0.0284	0.0399	0.0738	0.1005	0.1736	0.1900	0.3379	0.3594	0.6399
18	0.0097	0.0111	0.0154	0.0275	0.0396	0.0730	0.0980	0.1689	0.1868	0.1934	0.3510	0.3689
20	0.0095	0.0100	0.0225	0.0168	0.0350	0.0424	0.0892	0.1050	0.1719	0.1913	0.3215	0.3594
22.4	0.0090	0.0098	0.0223	0.0163	0.0348	0.0419	0.0878	0.1020	0.1697	0.1742	0.3162	0.3275
25	0.0057	0.0092	0.0132	0.0232	0.0324	0.0364	0.0825	0.0919	0.1567	0.1728	0.3056	0.3216
28	0.0054	0.0059	0.0131	0.0229	0.0323	0.0361	0.0815	0.0901	0.1554	0.1581	0.3022	0.3094
31.5	0.0054	0.0056	0.0124	0.0137	0.0195	0.0334	0.0509	0.0843	0.1036	0.1572	0.1387	0.3056
35.5	0.0030	0.0055	0.0123	0.0135	0.0194	0.0332	0.0502	0.0831	0.1028	0.1045	0.1365	0.1412
40	0.0030	0.0031	0.0060	0.0127	0.0180	0.0200	0.0481	0.0520	0.0985	0.1039	0.1264	0.1387
45	0.0028	0.0030	0.0059	0.0126	0.0180	0.0199	0.0477	0.0513	0.0980	0.0991	0.1249	0.1280
50	0.0028	0.0028	0.0046	0.0062	0.0128	0.0184	0.0319	0.0488	0.0681	0.0988	0.0916	0.1264
56	0.0020	0.0028	0.0046	0.0061	0.0127	0.0183	0.0317	0.0484	0.0677	0.0685	0.0907	0.0927
63	0.0020	0.0020	0.0033	0.0047	0.0084	0.0130	0.0207	0.0324	0.0374	0.0682	0.0716	0.0916
71	0.0014	0.0020	0.0033	0.0047	0.0084	0.0130	0.0206	0.0321	0.0372	0.0377	0.0710	0.0722
80	0.0014	0.0014	0.0017	0.0034	0.0057	0.0086	0.0139	0.0210	0.0330	0.0375	0.0376	0.0716
90	-	0.0014	0.0017	0.0034	0.0057	0.0086	0.0139	0.0208	0.0329	0.0331	0.0372	0.0380
100	-	-	0.0017	0.0018	0.0056	0.0058	0.0135	0.0141	0.0321	0.0330	0.0365	0.0376
112	-	-	0.0017	0.0017	0.0056	0.0058	0.0135	0.0140	0.0320	0.0321	0.0363	0.0368
125	-	-	0.0016	0.0017	0.0054	0.0056	0.0133	0.0137	0.0316	0.0321	0.0352	0.0365
140	-	-	0.0016	0.0017	0.0054	0.0056	0.0132	0.0136	0.0315	0.0316	0.0351	0.0354
160	-	-	0.0014	0.0016	0.0051	0.0054	0.0125	0.0133	0.0299	0.0316	0.0315	0.0352
180	-	-	0.0014	0.0016	0.0051	0.0054	0.0124	0.0133	0.0298	0.0299	0.0314	0.0316
200	-	-	0.0006	0.0014	0.0015	0.0051	0.0036	0.0125	0.0089	0.0299	0.0101	0.0315
224	-	-	0.0006	0.0014	0.0015	0.0051	0.0036	0.0125	0.0089	0.0090	0.0100	0.0101
250	-	-	0.0006	0.0006	0.0014	0.0015	0.0036	0.0037	0.0088	0.0089	0.0098	0.0101
280	-	-	0.0006	0.0006	0.0014	0.0015	0.0035	0.0036	0.0088	0.0088	0.0097	0.0098
315	-	-	0.0005	0.0006	0.0014	0.0015	0.0033	0.0036	0.0084	0.0088	0.0088	0.0098
355	-	-	0.0005	0.0006	0.0014	0.0015	0.0033	0.0036	0.0084	0.0084	0.0088	0.0088
400	-	-	-	0.0005	-	0.0014	-	0.0034	-	0.0084	-	0.0088
450	-	-	-	0.0005	-	0.0014	-	0.0033	-	-	-	-

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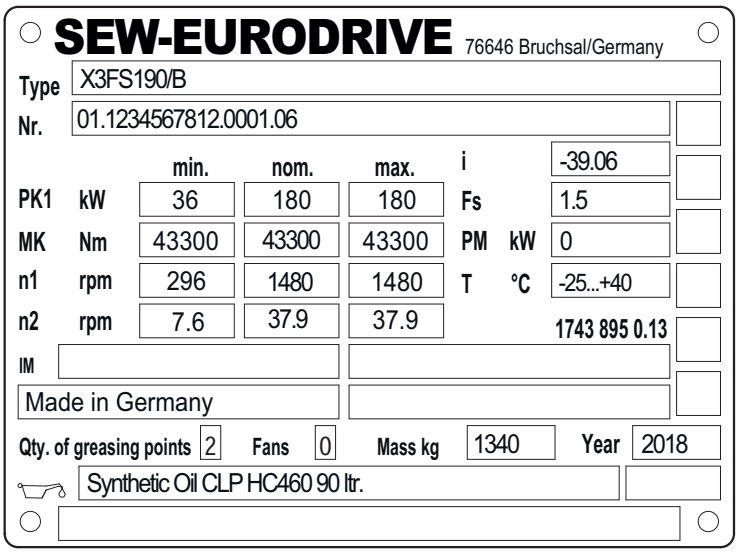
Size X220 – 320

iN	X220	X230	X240	X250	X260	X270	X280	X290	X300	X310	X320
6.3	2.3846	-	4.2003	-	-	-	-	-	-	-	-
7.1	2.3352	2.5142	4.0399	4.3368	-	-	-	-	-	-	-
8	1.8329	2.4586	2.9562	4.1735	-	-	-	-	-	-	-
9	1.8021	1.9136	2.8564	3.0412	-	-	-	-	-	-	-
10	1.2638	1.8790	2.0657	2.9396	-	-	-	-	-	-	-
11.2	1.2432	1.3179	1.9980	2.1233	-	-	-	-	-	-	-
12.5	1.1948	1.2947	2.2453	2.0544	3.8757	-	-	7.5028	-	11.5472	-
14	1.1849	1.2289	2.2039	2.2849	3.8357	3.9555	-	7.3600	7.6060	11.4683	11.7127
16	0.7466	1.2173	1.3136	2.2425	2.2711	3.8997	4.0362	4.2474	7.4750	6.3936	11.6040
18	0.7406	0.7672	1.2885	1.3375	2.2469	2.3194	3.9707	4.1610	4.3099	6.3458	6.4937
20	0.6905	0.7602	1.1614	1.3119	2.0314	2.2856	2.3682	3.7884	4.2306	5.9326	6.4279
22.4	0.6868	0.7031	1.1472	1.1749	2.0172	2.0598	2.3285	3.7361	3.8262	5.9019	5.9971
25	0.6410	0.6988	1.0902	1.1604	1.9449	2.0400	2.0886	3.5045	3.7782	5.4247	5.9548
28	0.6385	0.6494	1.0812	1.0987	1.9355	1.9634	2.0652	3.4738	3.5267	5.4047	5.4666
31.5	0.2958	0.6465	0.5989	1.0896	1.8671	1.9504	1.9822	3.3804	3.4985	5.0859	5.4391
35.5	0.2942	0.3010	0.5933	0.6042	1.8603	1.8805	1.9670	3.3591	3.3959	5.0731	5.1127
40	0.2781	0.2992	0.5634	0.5985	0.9662	1.8711	1.8941	1.8378	3.3763	2.8845	5.0951
45	0.2771	0.2816	0.5597	0.5669	0.9620	0.9745	1.8831	1.8242	1.8477	2.8765	2.9011
50	0.1920	0.2804	0.3835	0.5631	0.6511	0.9687	0.9830	1.2676	1.8352	2.0170	2.8902
56	0.1913	0.1943	0.3811	0.3859	0.6483	0.6567	0.9761	1.2585	1.2742	2.0116	2.0283
63	0.1197	0.1935	0.2498	0.3834	0.3793	0.6528	0.6624	0.7576	1.2659	1.2586	2.0209
71	0.1193	0.1211	0.2483	0.2513	0.3776	0.3827	0.6578	0.7520	0.7616	1.2553	1.2656
80	0.0872	0.1206	0.1637	0.2497	0.3156	0.3803	0.3862	0.4179	0.7565	0.8739	1.2610
90	0.0869	0.0880	0.1628	0.1645	0.3147	0.3173	0.3834	0.4146	0.4203	0.8720	0.8779
100	0.0840	0.0877	0.1593	0.1636	0.3102	0.3161	0.3191	0.3998	0.4173	0.8444	0.8753
112	0.0838	0.0845	0.1588	0.1598	0.3096	0.3113	0.3177	0.3979	0.4012	0.8431	0.8470
125	0.0822	0.0843	0.1558	0.1593	0.3056	0.3105	0.3125	0.3922	0.3994	0.8240	0.8452
140	0.0821	0.0825	0.1555	0.1562	0.3052	0.3065	0.3116	0.3909	0.3932	0.8232	0.8256
160	0.0780	0.0824	0.1479	0.1558	0.2865	0.3059	0.3073	0.3644	0.3920	0.7686	0.8245
180	0.0779	0.0782	0.1477	0.1482	0.2863	0.2871	0.3066	0.3635	0.3651	0.7681	0.7697
200	0.0222	0.0782	0.0402	0.1479	0.0778	0.2867	0.2876	0.1293	0.3642	0.2683	0.7690
224	0.0222	0.0223	0.0400	0.0403	0.0777	0.0781	0.2872	0.1288	0.1297	0.2680	0.2690
250	0.0217	0.0223	0.0393	0.0402	0.0766	0.0779	0.0784	0.1273	0.1292	0.2631	0.2685
280	0.0217	0.0218	0.0392	0.0394	0.0765	0.0768	0.0782	0.1270	0.1276	0.2629	0.2635
315	0.0207	0.0218	0.0373	0.0393	0.0716	0.0767	0.0770	0.1200	0.1273	0.2490	0.2633
355	0.0207	0.0207	0.0372	0.0373	0.0715	0.0717	0.0769	0.1197	0.1201	0.2489	0.2493
400	-	0.0207	-	0.0373	-	0.0716	0.0718	-	0.1199	-	0.2491
450	-	-	-	-	-	-	0.0717	-	-	-	-

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2.12 X.. series nameplate

The following example shows the structure of the nameplate. The oil quantity specified on the nameplate refers only to the basic gear unit.



108086391475537419

Type		Type designation
No.		Serial number
P_{K1}	kW	Operating power on the input shaft (HSS)
M_{K2}	Nm	Gear unit output torque
n_1	rpm	Input speed (HSS)
n_2	rpm	Output speed (LSS)
Min.		Minimum operating point
Norm.		Normal operating point
max.		Maximum operating point
i		Exact gear unit ratio
F_S		Service factor
$\mathbf{P}_M$	kW	Nominal motor power
T_a	°C	Deviation from standard temperature range (−20 °C to +40 °C)
Mass	kg	Weight of the gear unit
Greasing points		Number of regreasing points
Fan		Number of installed fans
		Oil grade and viscosity class/oil quantity
Year		Year of manufacture
IM		Mounting position and mounting surface

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2.13 Type designations

2.13.1 Gear units

The following example shows the structure of the type designation:

X3KS250 /HU /B	
X	Industrial gear unit series
3	Number of gear unit stages • 2 = 2 stages • 3 = 3 stages • 4 = 4 stages
K	Gear unit design • F = Helical gear unit • K = Bevel-helical gear unit • T = Bevel-helical gear unit
S	Type of output shaft • S = Solid shaft with key • R = Smooth solid shaft • L = Splined solid shaft • A = Hollow shaft with keyway • H = Hollow shaft with shrink disk • V = Splined hollow shaft • C = Reinforced solid shaft with key
	Application • B = Bucket elevator gear unit • C = Hoist gear unit
250	Gear unit sizes • 100 – 320
HU	Housing design • HU = Universal housing • HH = Horizontal housing • /HA = Agitator housing • HT = Thermal housing • HC = Hoist housing
B	Gear unit mounting • /B = Foot mounting • /T = Torque arm • /F = Flange

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2.13.2 Flange couplings

The following example shows the structure of the type designation.

FC530/175SM	
FC	Rigid flange coupling
530	Outer diameter of the flange
175	Bore diameter
S	Type of shaft-hub connection: • S = Cylindrical interference fit • K = Keyed connection • T = Conical interference fit
M	Type of centering: • M = External centering • F = Internal centering

2.13.3 Abbreviations for optional accessories

The table shows the abbreviations used and what they mean.

Abbreviation	Meaning
BF	Base frame
BS	Backstop
BSL	Torque-limiting backstop
BPG	Breather
CCV	Water cooling cover
CCT	Water cooling cartridge
F	Mounting flange
FC	Flange coupling
FAN	Fan
FAN-ADV	Fan, Advanced design
ET	Oil expansion tank
HH	Horizontal housing
HU	Universal housing
HA	Agitator housing
HT	Thermal housing
HSST	Through-going input shaft
LSST	Through-going output shaft
MA	Motor adapter
SB	Swing base
SEP	Shaft end pump
T	Torque arm

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Abbreviation	Meaning
OAC	Circulation cooling oil-air cooler with motor pump
OWC	Circulation cooling oil-water cooler with motor pump
OAP	Circulation cooling oil-air cooler with pressure lubrication and motor pump
OWP	Circulation cooling oil-water cooler with pressure lubrication and motor pump
ONP	Pressure lubrication and motor pump
ONP1	Pressure lubrication and motor pump
ONP1L	Pressure lubrication and motor pump
OD	Oil dipstick
ODV	Oil drain valve
OLG	Oil level glass
OH	Oil heater
VBD	V-belt drives

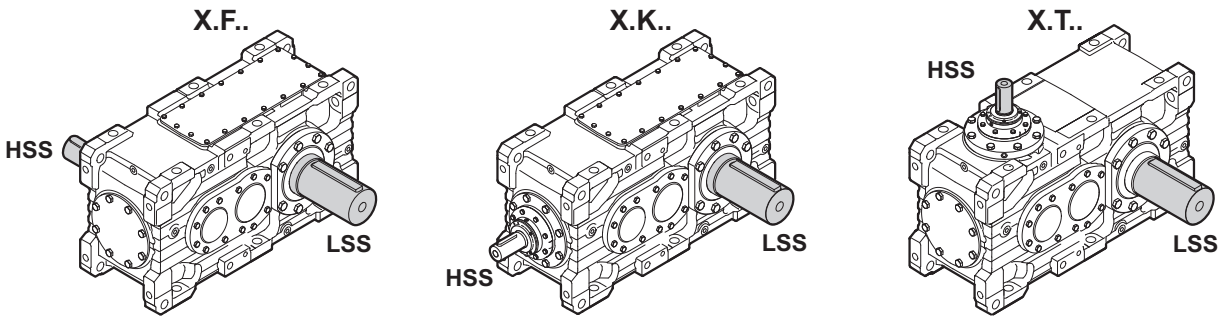
All options are not part of the type designation except for mounting flange, torque arm, horizontal and universal housing.

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2.14 Input and output shafts

There are two types of shafts:

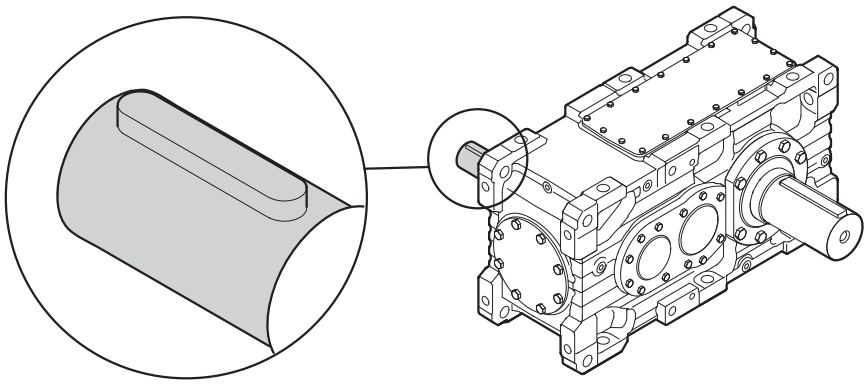
- High-speed shaft (**HSS**), usually the input shaft
- Low-speed shaft (**LSS**), usually the output shaft



20611259531

2.14.1 Input shaft

The input shaft is provided with a closed keyway according to DIN 6885/T1 and a center bore (according to DIN 332). The matching key according to DIN 6885/T1 - form A is included in the delivery.



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2.14.2 Optional input shaft ends X2K.. and X3K..

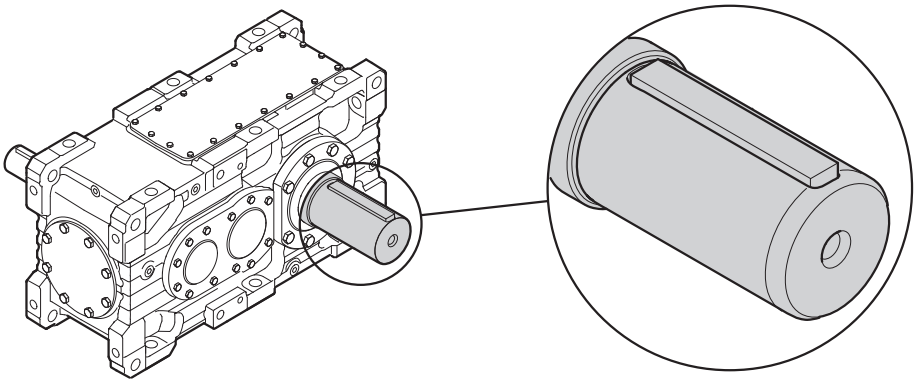
If the standard input shaft is too short because axial fans, brakes and a hydraulic coupling are used, the extended input shaft can be selected as an option.

See chapter "Dimension sheet" for additional information: "Optional input shaft ends X2K.. and X3K.." (→ 🗎 406).

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2.14.3 Output shaft as a solid shaft with key /..S

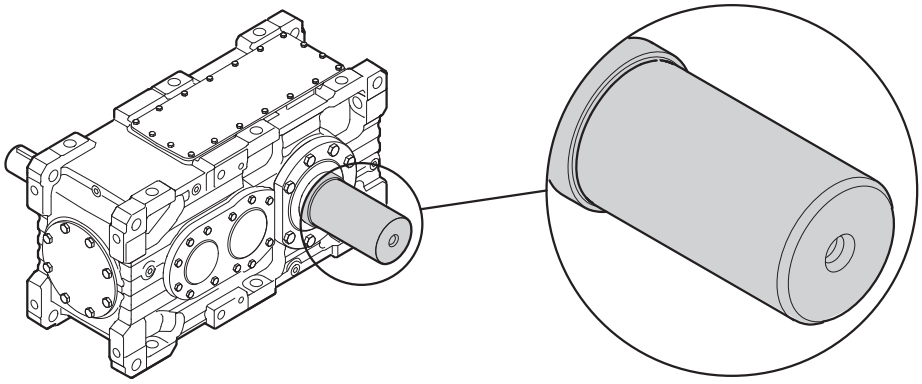
The output shaft is provided with a closed keyway according to DIN 6885/T1 and a centering bore (according to DIN 332). The delivery includes a key according to DIN 6885/T1 – form B. The shaft has an insertion area with a reduced diameter to simplify the mounting of output elements, such as a coupling hub.



18014398833719819

2.14.4 Smooth output shaft /..R

The gear units are available with a smooth output shaft to install non-positive output elements, such as flange couplings with a cylindrical interference fit. The shaft's face has a centering bore according to DIN 332. The insertion area with reduced diameter facilitates the mounting of output elements.

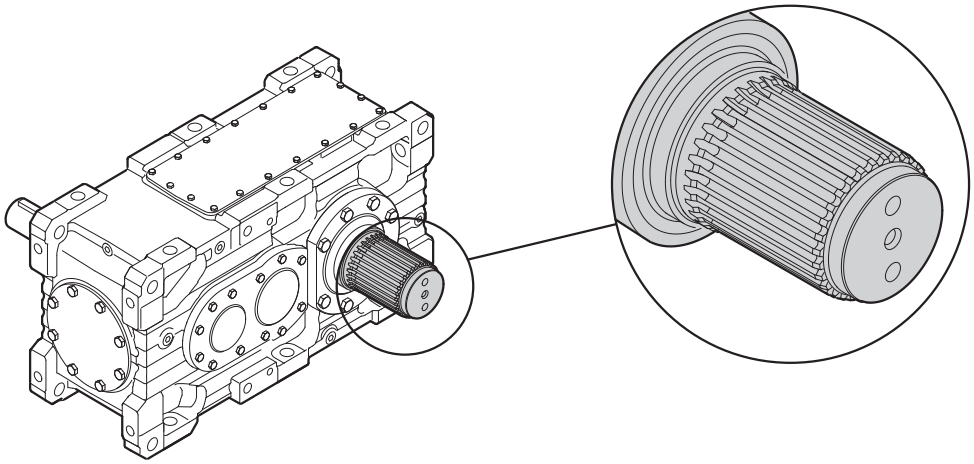


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2.14.5 Output shaft as a splined solid shaft /..L

The output shaft is a splined shaft according to DIN 5480. There is a centering in front of and behind the splined shaft to improve the guide of the output element. Two threads are available on the front end of the shaft for mounting an end plate.



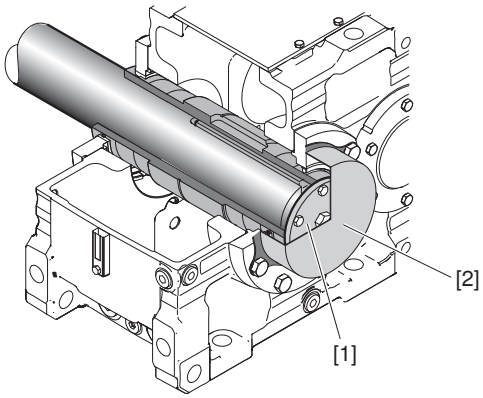
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2.14.6 Output shaft as a hollow shaft with keyway /..A

The hollow shaft is equipped with a keyway according to DIN 6885/T1.

Included in the delivery:

- the hollow shaft guard [2]
- Retaining screws [1] or
- 2 retaining rings



9007207847889035

The protection cover is dust-tight. The standard sealing system is therefore normally used on the protection guard side.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with keyway /..A [mm]" (→ 🗎 407). Dimension L14 refers to the length of the load bearing key.

In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

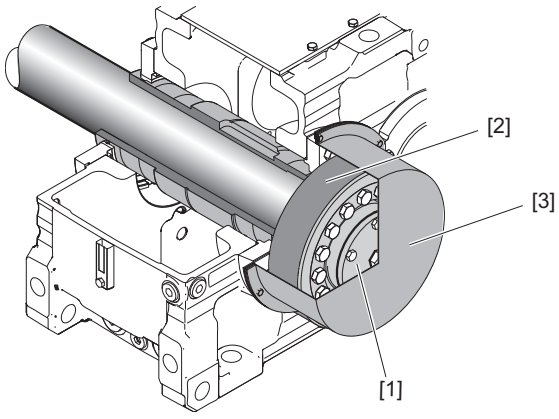
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2.14.7 Output shaft as a hollow shaft with shrink disk /..H

The shrink disk is positioned on the side opposite to the machine shaft.

Included in the delivery:

- Shrink disk [2] and protection cover [3]
- Endplate with retaining screws [1] or
- 2 retaining rings



9007207847897483

The protection cover is dust-tight. The standard sealing system is therefore normally used on the protection guard side.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with shrink disk /..H [mm]" (→ 🗎 408).

In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

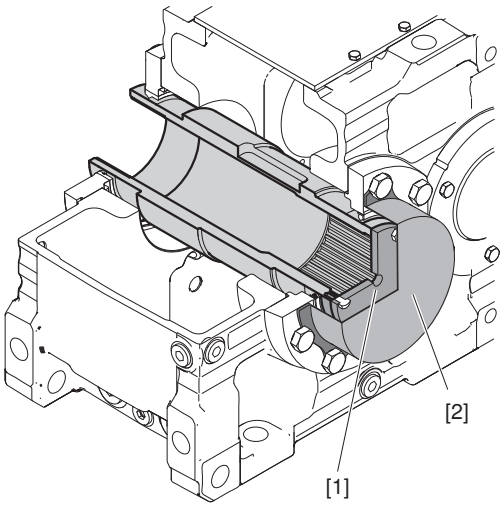
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2.14.8 Output shaft as a splined hollow shaft /..V

The output shaft is a splined shaft according to DIN 5480.

Included in the delivery:

- the hollow shaft guard [2]
- Endplate with retaining screws [1] or
- 2 retaining rings



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INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Splined hollow shaft X..V [mm]" (→ 409).

In case of a through-going machine shaft, the gear unit is delivered without endplate and protection cover. In this case, both gear unit sides are equipped with the same sealing system.

The protection cover is dust-tight, see previous page.

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2.14.9 Gear unit mounting with hollow shaft gear units

Due to the rigid connection between the machine shaft and hollow shaft of the gear unit, constraining forces can occur on the output shaft bearing.

This is why you have to observe the following points when mounting hollow shaft gear units:

- The gear unit is usually foot or flange-mounted and used as bearing point when the machine shaft has no individual bearing or merely provides one bearing point. You have to provide for an accurate coaxial alignment with the bearing point.
- If the machine shaft has at least two bearing points, the gear unit should be connected only to the machine shaft and supported with a torque arm. In order to prevent excess stress on the bearing, gear units with foot or flange mounting are to be avoided.

INFORMATION

Non-observance may result in damages to the output shaft bearing and increased fretting corrosion in the connection between the machine and the hollow shaft of the gear unit.

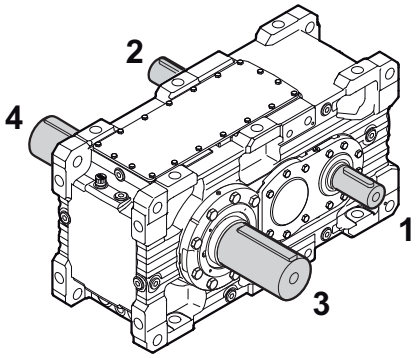
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2.15 Shaft positions

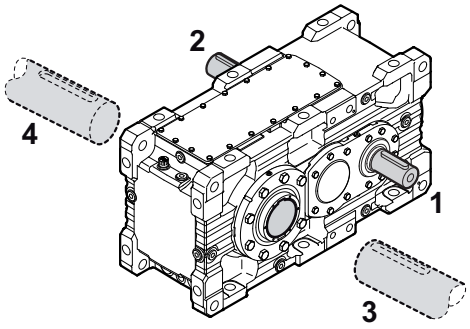
The shaft positions (**0 – 6**) shown in the following figures apply to solid and hollow output shafts. For other shaft positions or gear units with backstop, contact SEW-EURODRIVE.

2.15.1 X.F..

Shaft position X.FS..

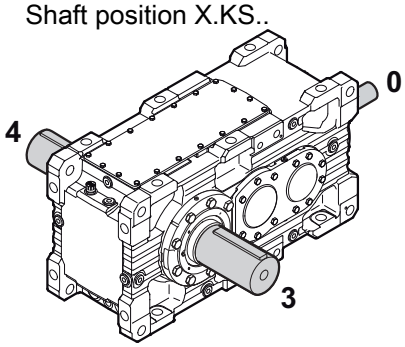


Shaft position X.FA..

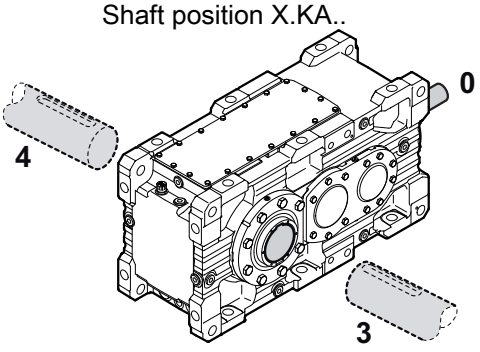


2.15.2 X.K..

Shaft position X.KS..



Shaft position X.KA..



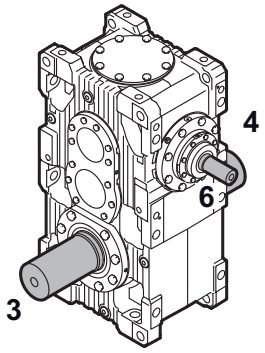
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2.15.3 X.T..

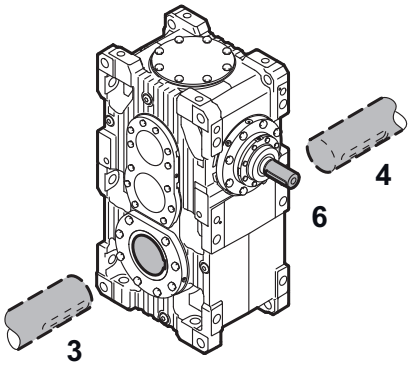
The following shaft positions are possible for gear unit type X.T..

Sizes X100 – 210

Shaft position X.TS..

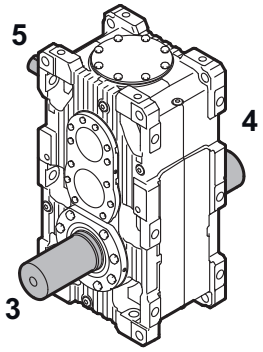


Shaft position X.TA..

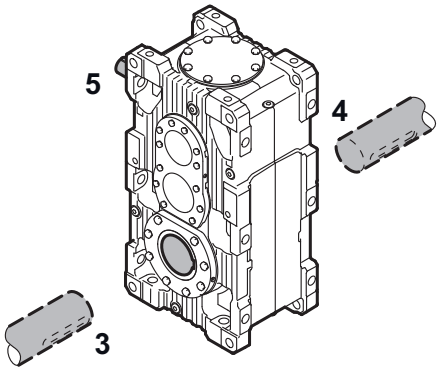


Sizes X220 – 250

Shaft positions X.TS..



Shaft position X.TA..



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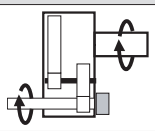
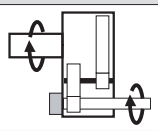
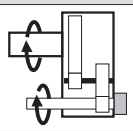
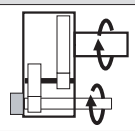
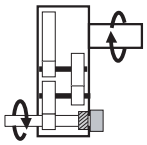
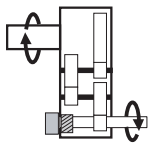
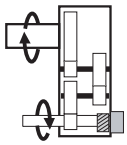
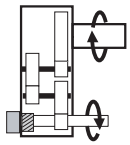
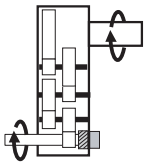
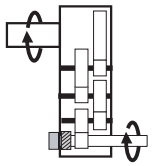
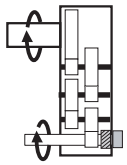
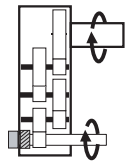
2.16 Corresponding directions of rotation

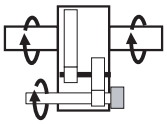
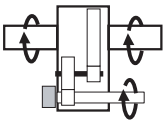
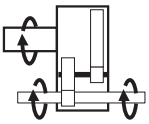
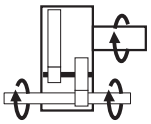
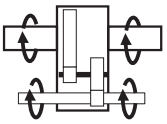
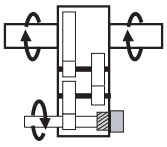
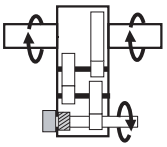
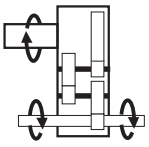
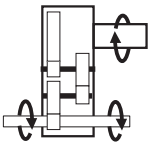
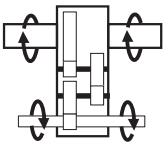
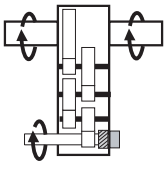
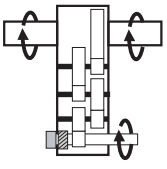
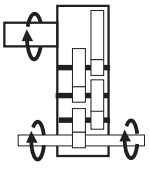
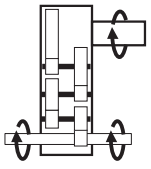
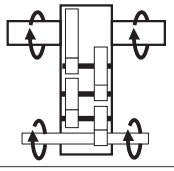
The gear unit can be operated in both directions of rotation. An exception are gear units with backstop.

The following tables show the direction of rotation dependencies between input and output shafts. The gear units as well as the position of the backstop are schematically shown as the solid shaft version.

For the position and blocking direction of the backstop, refer to the order-specific documentation.

2.16.1 X.F..

Shaft position	14	23	13 [1]	24 [1]
Position of final gear	3	4	3	4
X2F..				
X3F..				
X4F..				

Shaft position	134 [1]	243 [1]	213	124	1234 [1]*
Position of final gear	3	4	4	3	3
X2F..					
X3F..					
X4F..					

= Position of the backstop

= Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

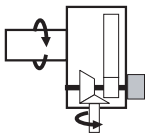
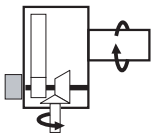
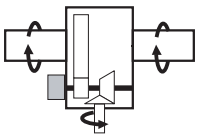
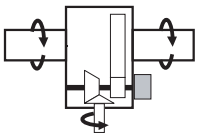
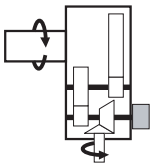
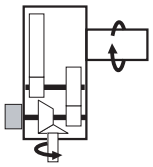
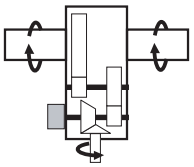
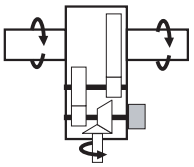
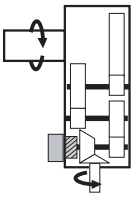
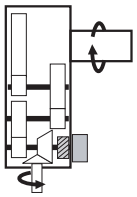
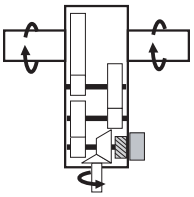
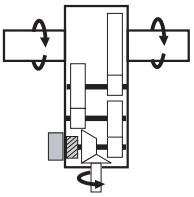
1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter "Shaft positions" (→ 🗎 44).

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2.16.2 X.K..

Standard

Shaft position	03	04	034[1)]	043[1)]
Position of final gear	4	3	3	4
X2K..				
X3K..				
X4K..				

▯ = Position of the backstop

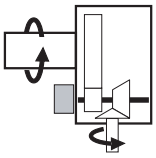
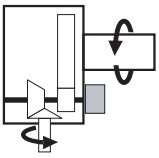
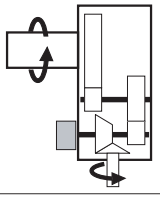
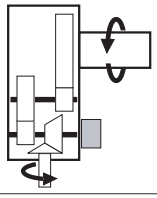
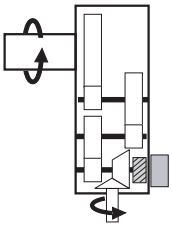
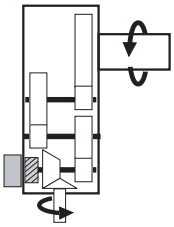
▨ = Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter "Shaft positions" (→ 🗎 44).

Direction of rotation reversal

Shaft position	03[1)]	04[1)]
Position of final gear	3	4
X2K..		
X3K..		
X4K..		

▯ = Position of the backstop

▨ = Alternative backstop position (depending on size and gear ratio)

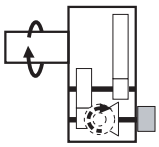
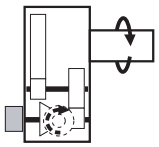
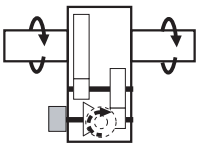
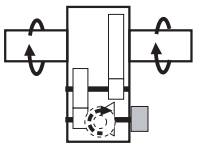
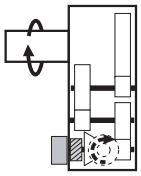
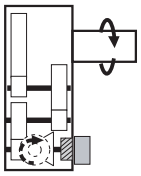
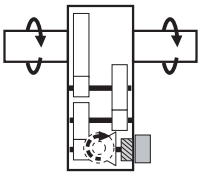
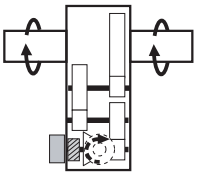
* = Contact SEW-EURODRIVE when using a backstop

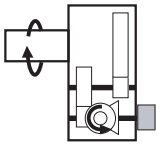
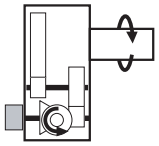
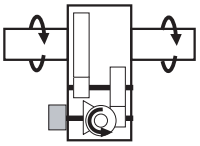
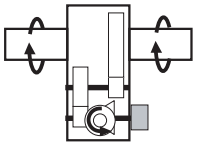
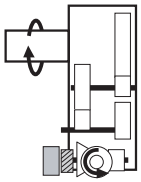
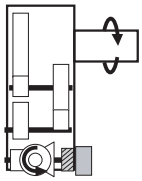
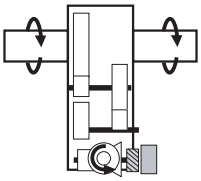
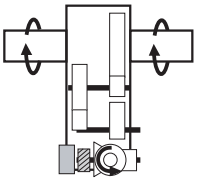
1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter "Shaft positions" (→ 🗎 44).

2.16.3 X.T..

Standard

Shaft position	63	64	634[1)]	643[1)]
Position of final gear	4	3	3	4
X3T100 – 210				
X4T100 – 210				

Shaft position	53	54	534[1)]	543[1)]
Position of final gear	4	3	3	4
X3T220 – 250				
X4T220 – 250				

▯ = Position of the backstop

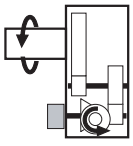
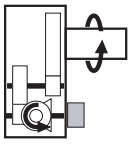
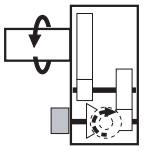
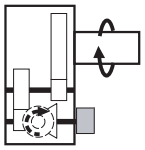
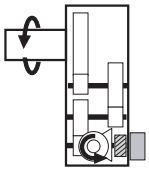
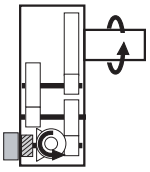
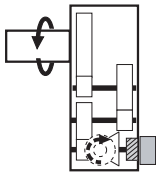
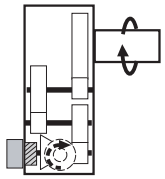
▨ = Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter "Shaft positions" (→ 🗎 44).

Direction of rotation reversal

Shaft position	53[1)]	54[1)]	63[1)]	64[1)]
Position of final gear	3	4	3	4
X3T...				
X4T...				

▯ = Position of the backstop

▨ = Alternative backstop position (depending on size and gear ratio)

* = Contact SEW-EURODRIVE when using a backstop

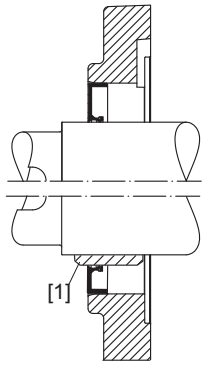
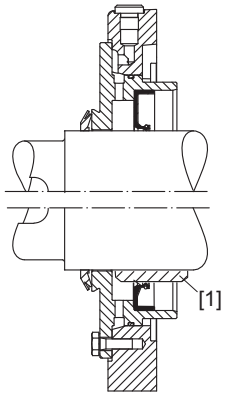
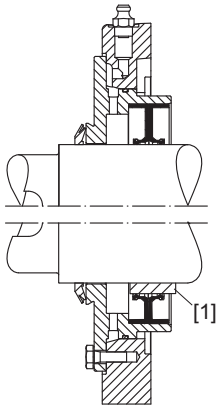
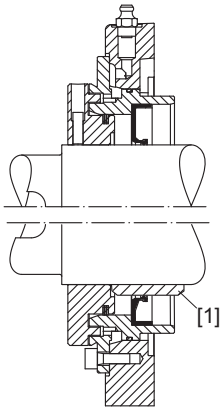
1) Note the restrictions regarding external forces on the LSS

INFORMATION: For more information and a 3D view of the gear unit, refer to chapter "Shaft positions" (→ 🗎 44).

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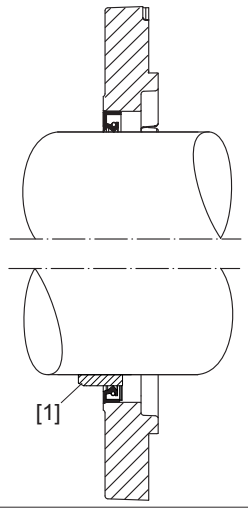
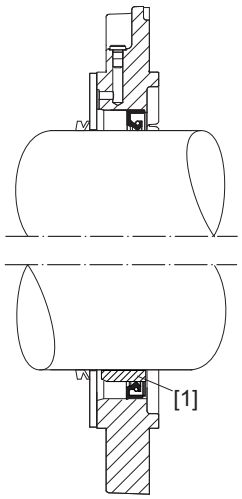
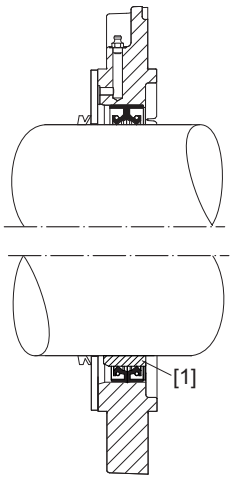
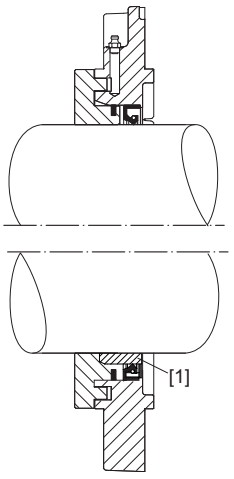
2.17 Sealing systems

2.17.1 Input shaft

Standard	Dust-protected	Dust-protected regreasable	Radial labyrinth seal (Taconite) regreasable
Single oil seal with dust protection lip	Single oil seal with dust protection cover	Double lip seal with dust protection cover	Single oil seal with radial labyrinth seal
• Normal environment	• **Medium** dust load with abrasive particles	• **High** dust load with abrasive particles	• **Very high** dust load with abrasive particles
			

[1] Optional with oil seal sleeve

2.17.2 Output shaft

Standard	Dust-proof	Dust-proof Regreasable	Radial labyrinth seal (Taconite) Regreasable
Single oil seal with dust protection lip	Single oil seal with dust protection cover	Double oil seal with dust protection cover	Single oil seal with radial labyrinth seal.
• Normal environment	• **Medium** dust load with abrasive particles	• **High** dust load with abrasive particles	• **Very high** dust load with abrasive particles
			

[1] Optional with oil seal sleeve

INFORMATION

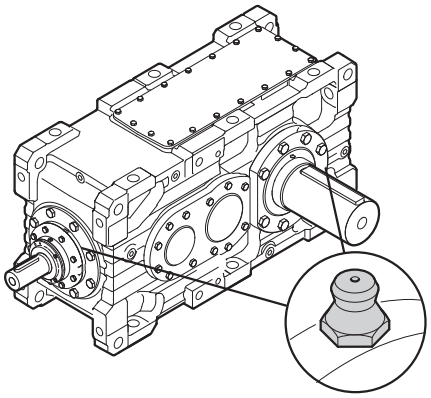
Make sure that the gear shaft is rotating during the regreasing process.

2.17.3 Position of lubrication points

Grease nipple on gear unit cover

Regreasable sealing systems are usually equipped with taper greasing nipples according to DIN 71412 A R1/8. Regreasing should be carried out at regular intervals. The lubrication points are located near the input and output shafts.

Example



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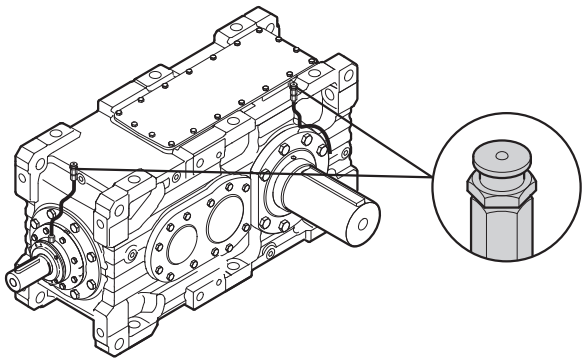
Grease nipple on the top side of the gear unit

If installation space is limited, the lubrication points can be relocated to the top side of the gear unit. Flat grease nipples according to DIN 3404 A G1/8 are used. Regreasing should be carried out at regular intervals.

Note the following points:

- This option is normally used on drives with fans, motor adapters, or V-belt drives.
- The option applies to both input and output shaft(s).

Example

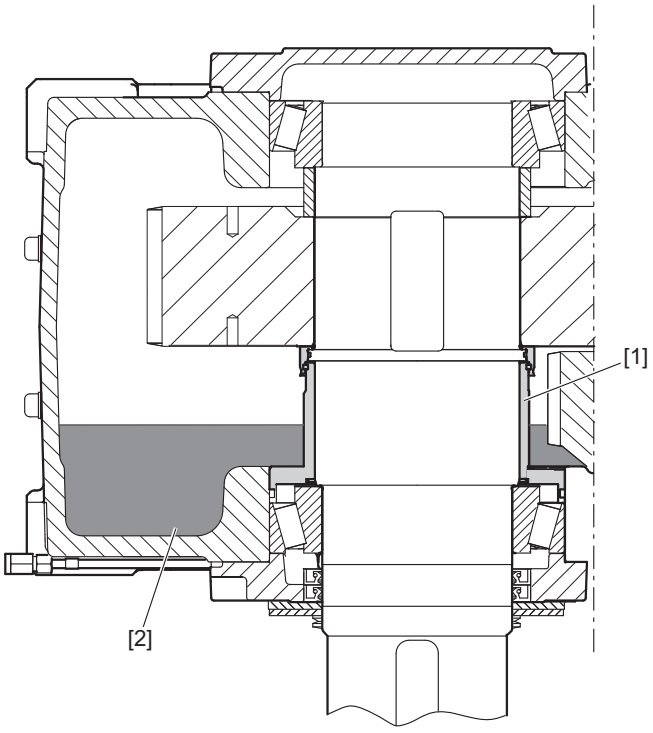


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2.17.4 Drywell sealing system

In addition to normal sealing, vertical gear units with the output shaft pointing downwards can also be fitted with a drywell sealing system. The lower bearing of the output shaft is separated from the oil chamber by a built-in tube [1]. The bearing is lubricated with grease and therefore must be regreased at regular intervals (flat grease nipple, DIN 3404 A G1/8). The oil level is lower than the upper end of the tube to prevent oil [2] from leaking at this point. To ensure sufficient lubrication of the upper bearing and the gearing, each gear unit is equipped with a drywell sealing system with pressure lubrication (shaft end pump or motor pump).

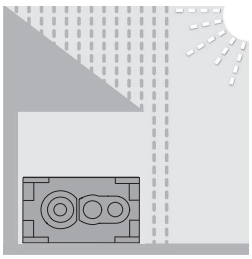
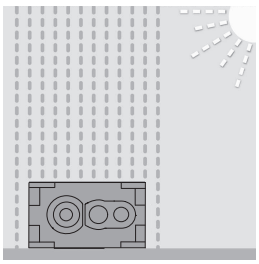
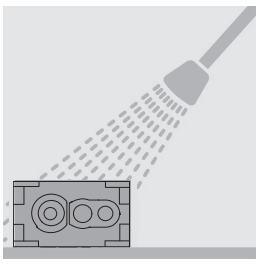


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2.18 Coating and surface protection systems

Gear units are available with surface protection OS1, OS2, and OS3.

The following table gives an overview of coating and surface protection systems.

SEW design	OS 1 Low environmental pollution	OS 2 Medium environmental pollution	OS 3 High environmental pollution
Used as surface protection under typical ambient conditions Corrosivity categories DIN EN ISO 12944-2	 Suited for environments prone to condensation and atmospheres with low humidity or contamination, such as outdoor applications under roof or with protection, unheated buildings where condensation can build up. According to corrosivity category: C2 (low)	 Suited for environments with high humidity or moderate atmospheric contamination, such as applications outdoors subject to direct weathering. According to corrosivity category: C3 (moderate)	 Suitable for environments with high humidity and occasionally severe atmospheric and chemical contamination. Occasionally acidic or caustic wet cleaning. Also for applications in coastal areas with moderate salt load. According to corrosivity category: C4 (high)
Sample applications	• Systems in saw mills • Agitators and mixers	• Applications in gravel plants • Cableways	• Port cranes • Sewage treatment plants • Mining applications
Condensation test ISO 6270	120 h	120 h	240 h
Salt spray test ISO 7253	–	240 h	480 h
Top coat color[1)]	RAL 7031	RAL 7031	RAL 7031
Color according to RAL	Yes	Yes	Yes
Uncoated parts, shaft end/flanges	Water and hand perspiration repelling anticorrosion agent applied at the factory for external preservation.		

1) Standard color, can deviate depending on the order, see order documents.

INFORMATION

Sheet metal parts (e.g. protection covers) are painted in RAL 1003.

Special surface protection is also available, please contact SEW-EURODRIVE.

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2.19 Storage and transport conditions

The gear units can be provided with the following protection and packaging types depending on the storage and transport conditions.

2.19.1 Internal conservation

Standard corrosion protection

After the test run, the test oil is drained out of the gear unit. The remaining oil film protects the gear unit against corrosion for a limited period of time.

Long-term corrosion protection

After the test run, the test oil is drained out of the gear unit and the interior space is filled with a vapor phase inhibitor. The breather filter is replaced by a screw plug and enclosed with the gear unit.

2.19.2 Exterior corrosion protection

The following measures are taken for exterior corrosion protection:

- Corrosion protection is applied to bare, non-painted functional surfaces of shafts, flanges, mounting and foot surfaces on the gear unit. Remove it only using an appropriate solvent which is not harmful to the oil seal.
- Small spare parts and loose pieces, such as bolts, nuts, etc., are packed in corrosion protection plastic bags (VCI corrosion protection bags).
- Threaded holes and blind holes are covered by plastic plugs.

INFORMATION

If the gear unit is stored longer than 6 months, regularly check the protective coating of unpainted areas as well as the paint coating. Areas with protective coating and/or paint that has been removed may have to be repainted.

2.19.3 Packaging

Standard packaging

The gear unit is delivered on a pallet, securely attached and without cover.

Use: Transportation by land

Long-term packaging

The gear unit is delivered in a wooden box that is also appropriate for sea transport.

Application: Sea transport and/or for extended storage

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2.19.4 Storage conditions

INFORMATION

- During storage up to startup, the gear unit must be stored in a shock-free manner to prevent damage to the rolling bearing races.
- The output shaft must be rotated at least one full revolution every 6 months so that the position of the rolling elements in the bearings of the input and output shafts changes.
- The gear units are delivered without oil; different protection systems are required depending on the storage period and storage conditions as shown in the table below.

Corrosion protection + packaging	Storage location	Storage duration
Standard corrosion protection + Standard packaging	Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50% relative humidity). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No aggressive vapors, no shocks.	Max. 6 months with intact surface protection.
Long-term corrosion protection + Standard packaging	Under roof and enclosed at constant temperature and atmospheric humidity (5 °C < ϑ < 60 °C, < 50% relative humidity). No sudden temperature fluctuations. Controlled ventilation with filter (free from dust and dirt). No aggressive vapors, no shocks.	Max. 3 years with regular inspection and checking for intactness.
Long-term corrosion protection + Long-term packaging	With roof, protected against rain and shocks.	Max. 3 years with regular inspection and checking for intactness.

INFORMATION

If stored in tropical zones, provide for sufficient protection against insect damage. Contact SEW-EURODRIVE for differing requirements.

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2.20 Potentially explosive atmospheres (ATEX)

X.. series industrial gear units are available for operation in potentially explosive atmospheres.

The explosion-proof designs comply with the requirements of Directive 2014/34/EU for equipment group I, category M2 and equipment group II, categories 2 and 3.

For the project planning of the gear units, contact SEW-EURODRIVE.

2.21 Ambient conditions

The gear units are suited for operation at ambient temperatures from -40°C to +40°C, though the standard design might have to be modified depending on the ambient temperature.

When operated in areas with low ambient temperatures, high levels of humidity, aggressive or explosive atmospheres, please consult SEW-EURODRIVE.

Sealing, lubrication, ventilation, surface protection, and other properties of the gear unit can then be adjusted to the specific ambient conditions.

2.22 Gearing and shafts

The gearing with edge corrections is made of high-quality, tempered and ground case hardening steels. The output shafts are made of tough quenched and tempered steel.

2.23 Shaft bearings

Self-aligning, cylindrical, and tapered roller bearings from well-known manufacturers are used.

2.24 Thermal rating

The thermal rating needs to be checked for every gear unit. The relevant values are listed in the Selection tables.

2.25 Noise level

The gear unit's sound-power levels, according to ISO 8579-1, are below the 50% line specified in the standard.

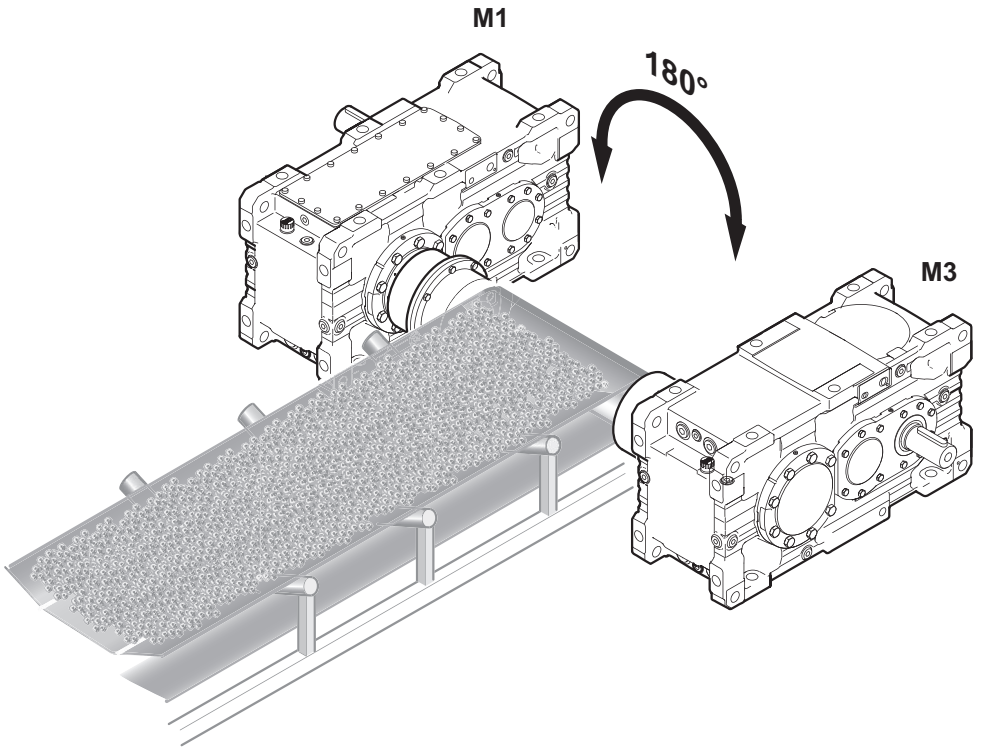
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2.26 Reversible gear units

INFORMATION

Reversible gear units are only available with universal housing / HU.

The universal housings /HU are symmetrical to the central axis and each mounting surface is designed so that "overhead mounting" is possible for mounting positions M1/M3. If you want this to be the case, contact SEW-EURODRIVE for adjusting the gear unit, options and accessories accordingly.



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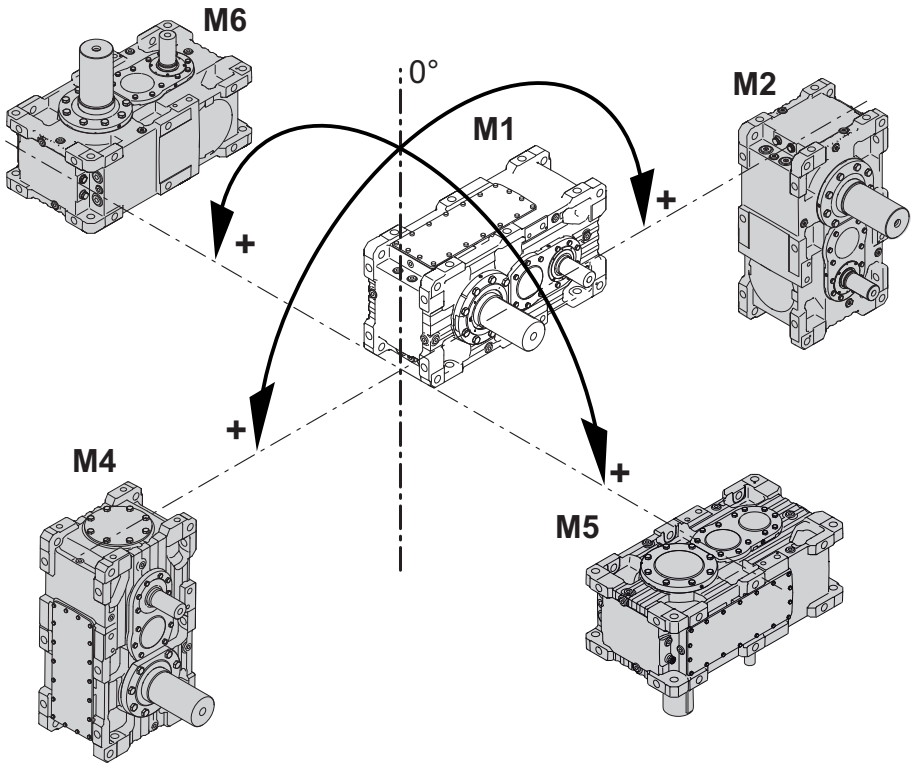
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2.27 Fixed and variable pivoted mounting positions

Mounting positions deviating from the standard are differentiated between **fixed** and **variable** pivoted mounting positions.

INFORMATION

- Fixed and variable pivoted mounting positions are only possible after consultation with SEW-EURODRIVE. Observe the order documents, such as the dimension sheet.
- Fixed and variable pivoted mounting positions might involve restrictions concerning accessories and technical data. Also, delivery times might be longer. Contact SEW-EURODRIVE.



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2.27.1 Fixed pivoted mounting position

Definition:

Gear units with fixed pivoted mounting position have a fixed mounting position that differs from the standard. This means the gear unit does not change its mounting position during operation.

Example:

The type designation is set up as follows:

M1-M4/9°

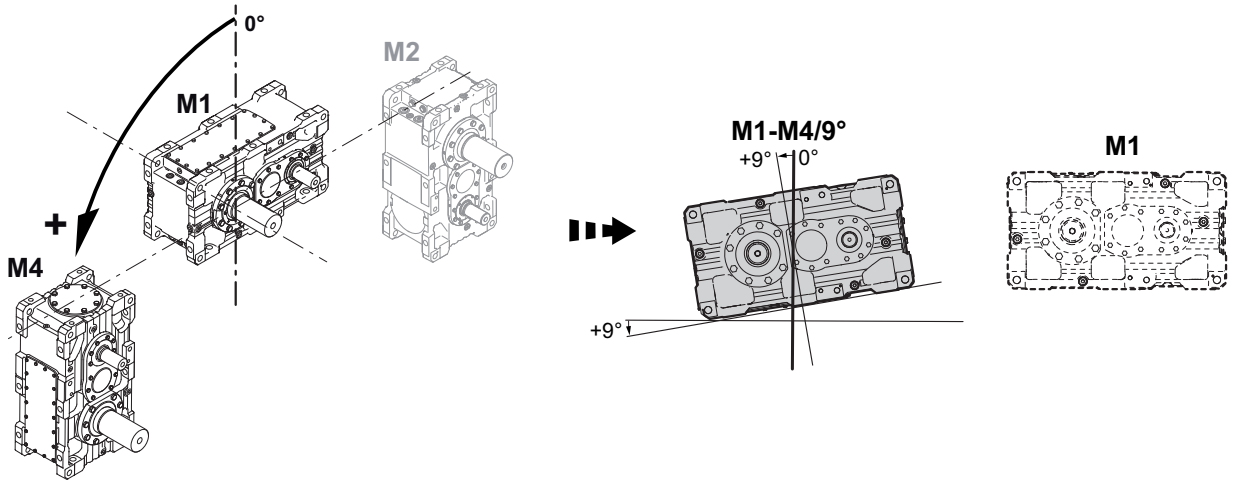
M1 = Initial mounting position

M4 = Pivoting direction

9° = Fixed pivoting angle

Pivoted from mounting position M1 to M4 by 9°

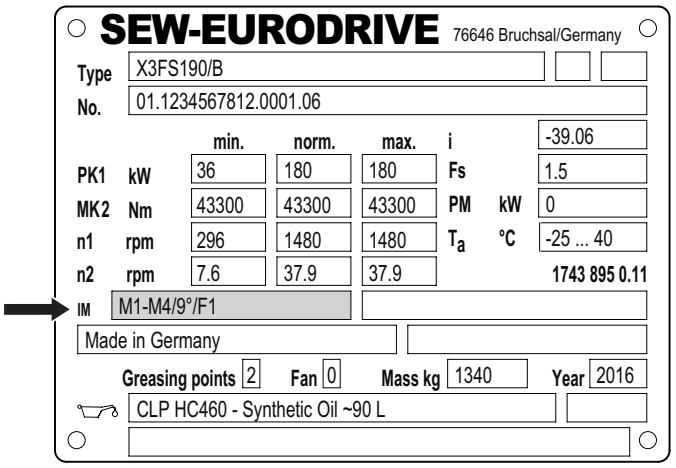
This results in the following fixed pivoted mounting position:



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The oil level is checked in the selected fixed pivoted mounting position.

The fixed pivoted mounting position is shown on the nameplate as follows:



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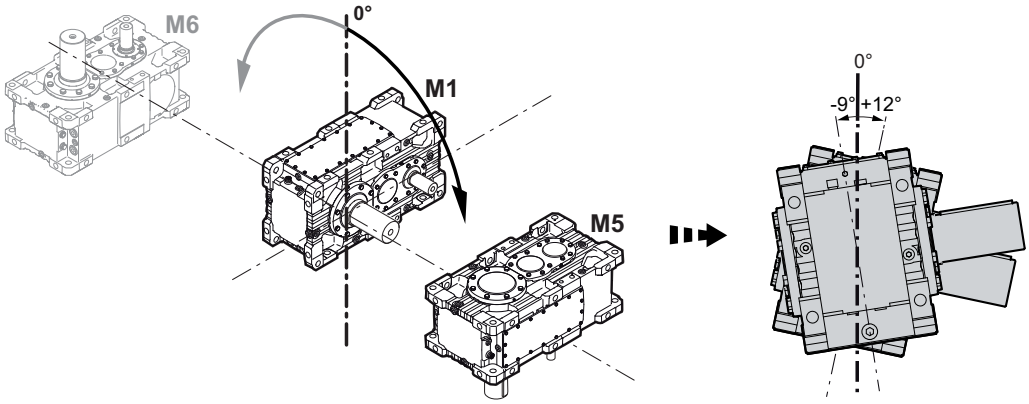
2.27.2 Variable pivoted mounting position

Definition:

Gear units with variable pivoted mounting position can change the mounting position **variably** during operation within the specified max./min. range.

Example:

The gear unit is operated in variable pivoted mounting position M1 to M6 = 9° and M1 to M5 = 12°.



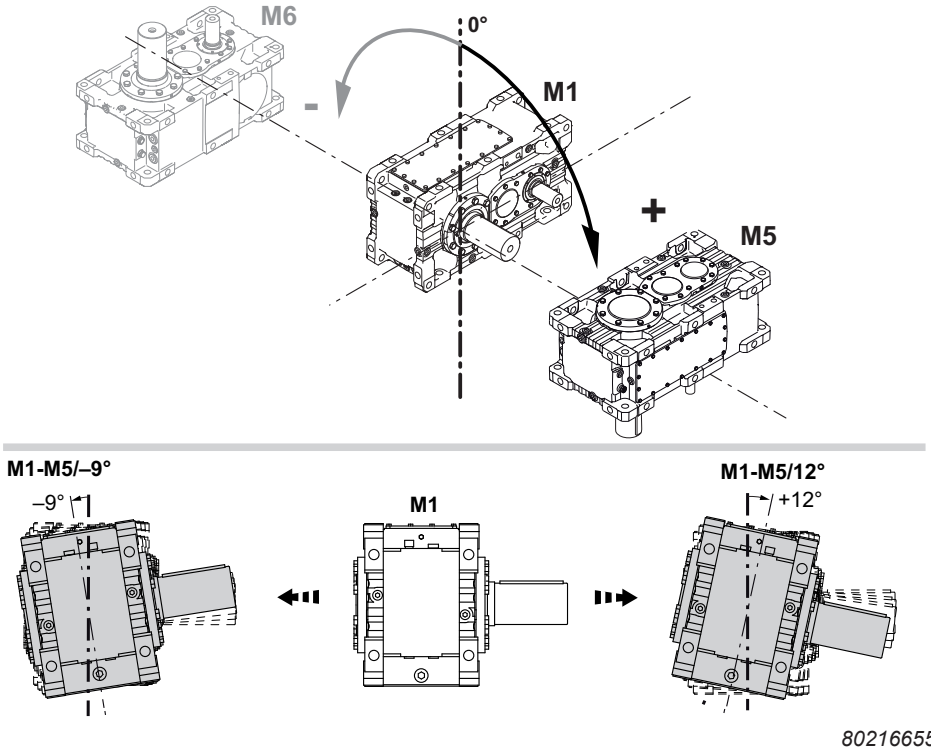
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Step 1:

The largest pivoting angle determines the positive pivoting direction (12° > 9°). In this example, this is 12° towards M5.

12° → from M1 to M5, pivoted by +12°

9° → from M1 to M5, pivoted by -9°



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The type designation for this example is:

M1-M5/–9°...12°

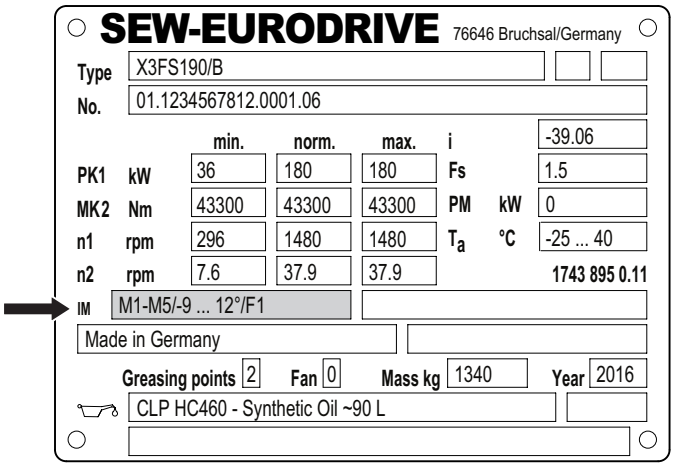
M1 = Initial mounting position

M5 = Pivoting direction

12° = pivoted from M1 to M5 by 12°

-9° = pivoted from M1 to M5 by –9° (= pivoted from M1 to M6 by 9°)

The variable pivoted mounting position is shown on the nameplate as follows:

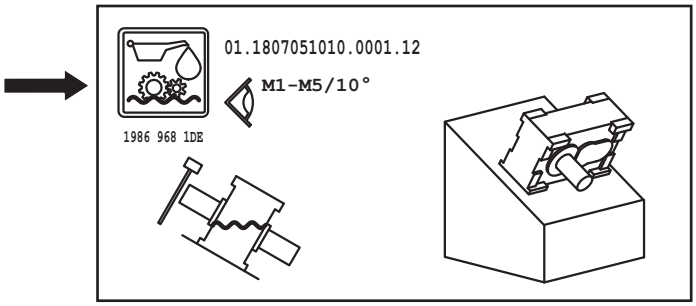


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Step 2:

For variable pivoted mounting positions, the customer must determine the pivoting angle in which the oil level is checked.

An additional nameplate is used to clearly indicate the oil check angle. This nameplate lists the mounting position for the oil level check.



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2.27.3 Combination of variable and fixed pivoted mounting positions

Fixed and variable pivoted mounting positions can be combined.

Example:

The following example shows a combination of fixed and variable pivoted mounting position. The type designation is set up as follows:

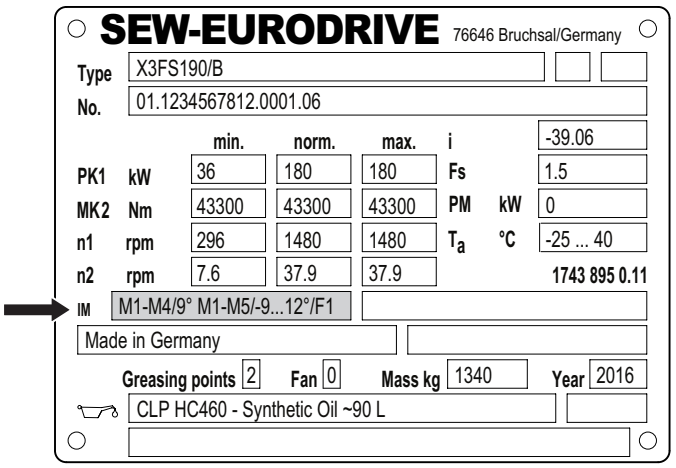
M1-M4/9° (fixed pivoted mounting position)

M1	= Initial mounting position
M4	= Pivoting direction
9°	= Fixed pivoting angle

M1-M5/–9°...12° (variable pivoted mounting position)

M1	= Initial mounting position
M5	= Pivoting direction
12°	= 12° from M1 to M5
-9°	= –9° from M1 to M5 (= 9° from M1 to M6)

The variable and fixed pivoted mounting position is shown on the nameplate as follows:

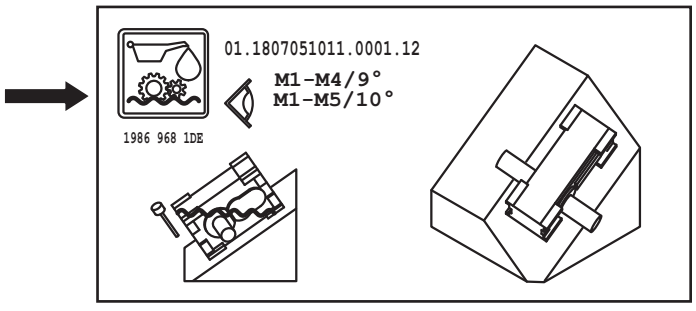


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When combining fixed and variable pivoted mounting position, the customer must determine the variable pivoting angle in which the oil level is checked. The fixed angle for the oil level check is already defined.

The gear unit has an additional nameplate to ensure correct oil level checks. This nameplate lists the mounting position for the oil level check.

In this example, the operator checks the oil level at M1-M4/9° M1-M5/10°.



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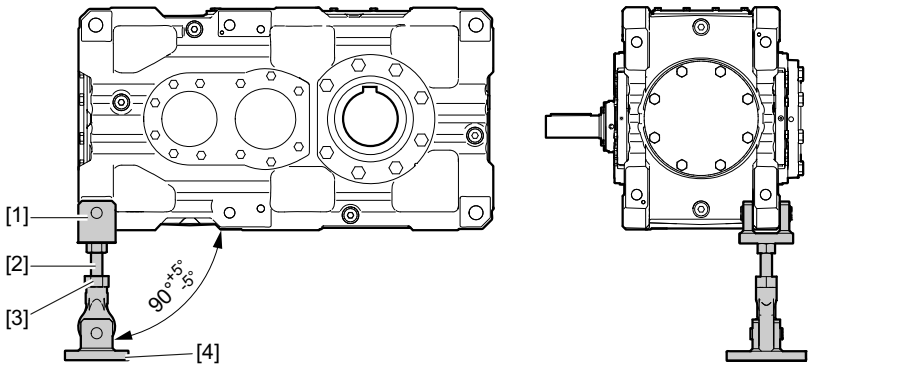
3 Options and accessories

3.1 Torque arm /T

An optional torque arm is available for shaft-mounted gear units to support the reaction torque (see chapter "Torque arm /T–HU [mm]" (→ 🗎 426) for dimensions). The torque arm can bear tensile stress as well as thrust loads.

The length of the torque arm can be adjusted within a certain range.

The torque arm consists of a yoke with bolt [1], a threaded bolt [2], a maintenance-free joint head [3], and a yoke plate with bolt [4]. The design using the joint head allows for compensating assembly tolerances and operational displacements. Constraining forces on the output shaft are avoided in this way.



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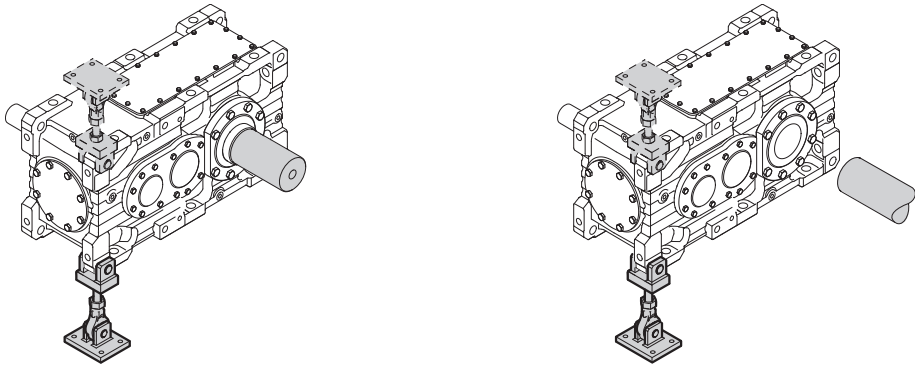
[1] Yoke head with bolt
[2] Stud bolt with nuts
[3] Joint head
[4] Yoke plate with bolt

INFORMATION

The fan X.K.. Advanced cannot be used together with a torque arm because the fan guard is mounted to the attachment point of the torque arm.

To keep the bending moment on the machine shaft to a minimum, always mount the torque arm on the same side as the machine that is driven.

The torque arm can be mounted on the top or bottom of the gear unit.



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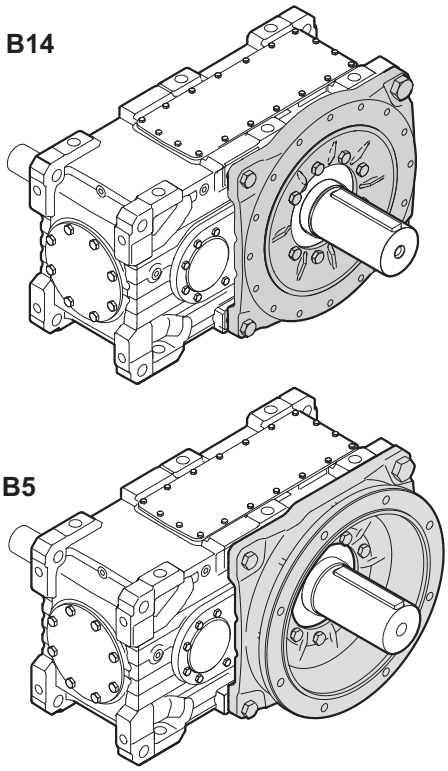
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3.2 Mounting flange /F

As an alternative to foot mounting, a mounting flange is available for gear units with universal housing /HU up to size 210. The gear unit can be attached to the operator's machine via the following 2 design types:

The mounting flange in B14 design has an outer centering and retaining threads.

In addition, a B5 design is available for sizes X130 – 190. The mounting flange is designed with through bores.



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INFORMATION

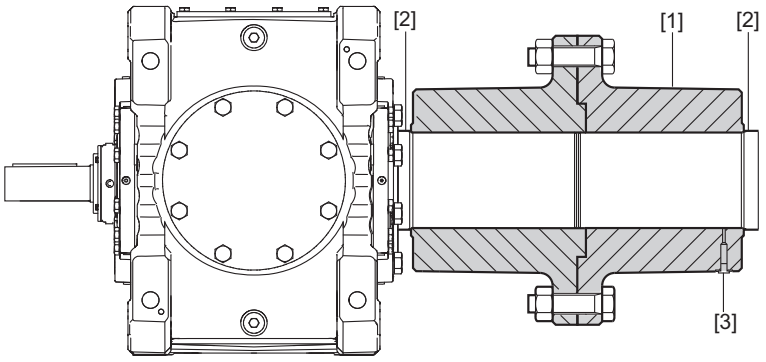
- The mounting flange can be combined with all output shaft types. The mounting flange cannot be used with the standard sealing system.
- For mounting flanges with external overhung loads, contact SEW-EURODRIVE.
- Observe the limitations for hollow-shaft gear units in chapter Gear unit mounting for hollow shaft gear units.
- For gear units with mounting flange, observe the maximum permitted weight of the motor connected via motor adapters (see chapter "Motor adapter"). A combination of foot and flange mounting is not permitted.
- For dimensions of the mounting flange, see chapter "Mounting flange B14 /F [mm]" (→ 🗎 428).

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3.3 Flange coupling with cylindrical interference fit /FC-S

Flange coupling [1] is a rigid coupling for connecting 2 shafts [2].

It is suitable for operation in both directions of rotation, but cannot compensate any shaft misalignments. Torque between the shaft and the coupling is transmitted via a cylindrical shrink fit. Both coupling halves are mounted together at their flanges. The couplings are equipped with several disassembly bores [3] for removing the interference fit hydraulically.



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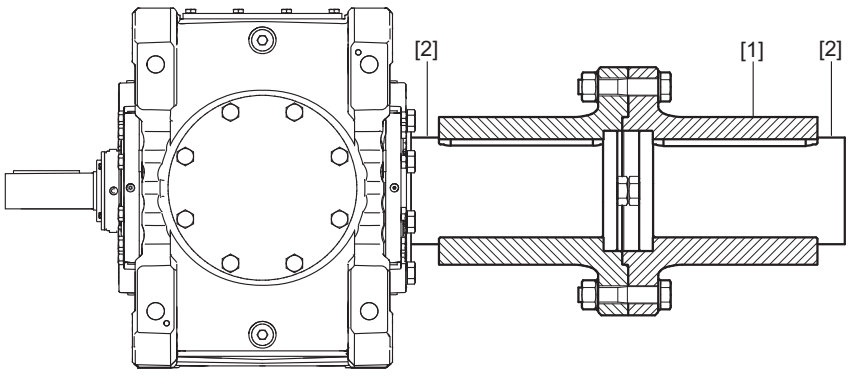
INFORMATION

The dimensions and dimensioning of the machine shaft are available upon request from SEW-EURODRIVE.

3.4 Flange coupling with keyway /FC-K

Flange coupling [1] is a rigid coupling for connecting 2 shafts [2].

It is suitable for operation in both directions of rotation, but cannot compensate any shaft misalignments. Torque between the shaft and the coupling is transmitted via a keyed connection. Both coupling halves are mounted together at their flanges.



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INFORMATION

The dimensions and dimensioning of the machine shaft are available upon request from SEW-EURODRIVE.

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3.5 Backstop /BS

INFORMATION

For information on the exact position, direction of rotation dependencies, and dimensions of the backstop, see chapter "Backstop X.F.. /BS [mm]" (→ 🗎 432).

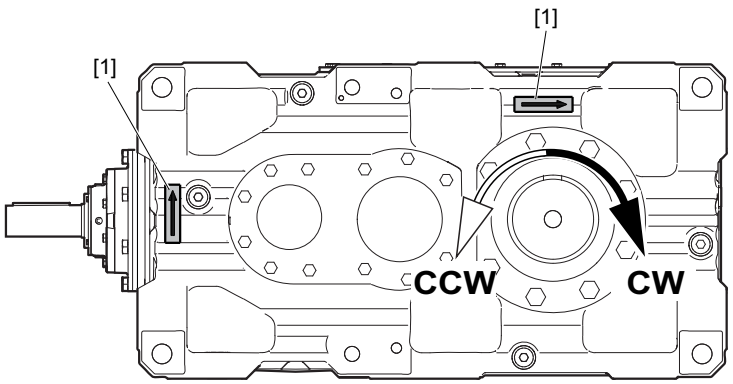
3.5.1 Use

The purpose of a backstop is to prevent unwanted directions of rotation. During operation, the backstop permits rotation in only one specified direction of rotation.

3.5.2 Description

The backstop operates with centrifugal lift-off sprags. Once the lift-off speed is reached, the sprags completely lift off from the contact surface of the outer ring. The backstop is lubricated with gear oil.

3.5.3 Direction of rotation



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SEW-EURODRIVE installs backstops according to the specifications given with the order. This means that it is necessary to specify the direction of rotation for the output shaft. The customer must check that the connected electric motor rotates in the correct direction. If not, the electric motor might damage the backstop.

The direction of rotation is specified as viewed onto the output shaft (LSS):

- CW = Clockwise rotation
- CCW = Counterclockwise rotation

The permitted direction of rotation [1] is indicated on the housing.

INFORMATION

If the drive has a continuous output shaft, the direction of rotation of the backstop should be given as one views shaft position 3.

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3.5.4 Dimensioning

The backstop is dimensioned according to the following basic rules:

- Speed of the input shaft of the gear unit: 0 – 1800 min^{-1}
- Maximum permitted torque of the backstop in relation to the output shaft:

  At least 1.8 times the nominal gear unit torque except

Size	Nominal gear unit ratio i_N	Size	Nominal gear unit ratio i_N
X2F140	6.3/7	X3F260	20
X2F150	8 / 9	X3F270	22.4
X2F260	8	X3F280	25/28
X2F280	10	X3F300	56
X2K220	8/10	X4F120	100
X2K230	9/11.2/12.5	X4F130	125
X3F180	20	X4F290	100
X3F230	45	X4F300	112

Contact SEW-EURODRIVE for differing requirements.

Wear can occur on the backstop when operated below lift-off speed.

In the following cases **always** contact SEW-EURODRIVE for specifying the maintenance intervals:

- Input speed rates n_1 < 950 min^{-1}
- or any of the following gear unit designs:

n_1 min^{-1}	Size				
	X2K..	X3K..		X4K..	
950 – 1150	X2K100 – 230 $i_N \geq 10$	X100 – 130 X140 – 170 X180 – 320	all i_N $i_N \geq 31.5$ $i_N \geq 50$	X120 – 190 X200 – 320	all i_N $i_N \geq 200$
1150 – 1400	-	X100 – 110 X120 – 130 X140 – 170 X180 – 320	$i_N \geq 25$ $i_N \geq 40$ $i_N \geq 50$ $i_N \geq 63$	X120 – 170 X180 – 320	all i_N $i_N \geq 200$
> 1400	-	X100 – 130 X140 – 170	$i_N \geq 35.5$ $i_N \geq 63$	X120 –130 X140 – 250	all i_N $i_N \geq 200$

n_1 = Input speed (HSS) i_N = Nominal gear unit ratio

INFORMATION

For information on torque limiting backstops, for example for dual drives, contact SEW-EURODRIVE.

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3.6 Motor adapters /MA

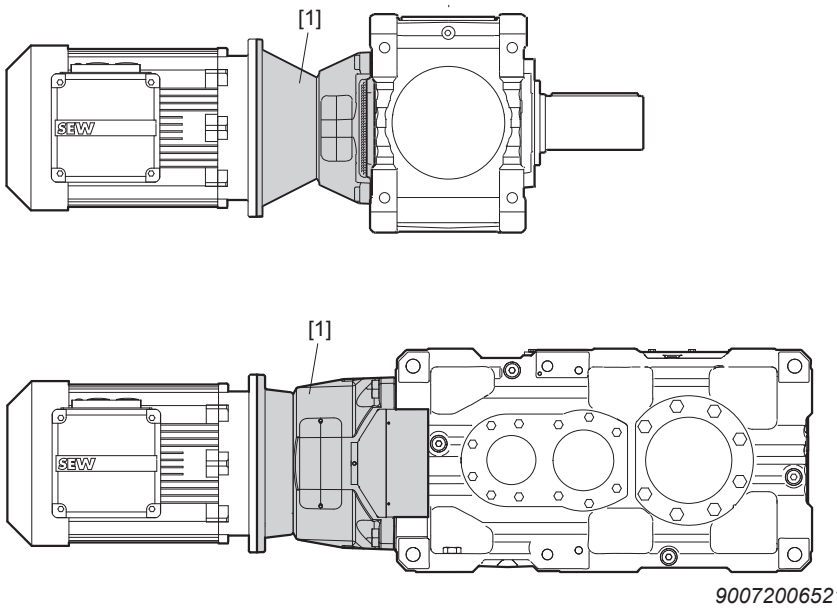
Motor adapters [1] are available for mounting:

- **IEC (B5) motors** of sizes 100 to 355
- **NEMA ("C" face) motors** of sizes 182 to 449

INFORMATION

- For sizes X220 and X270, the motor adapter connection type is available only in combination with the universal housing /HU.
- The gear unit must be installed in such a way that liquids cannot enter the motor adapter (HSS end) and accumulate there.
- An elastic claw coupling is included in the delivery.
- All motor adapters can be equipped with a fan for 2- and 3-stage gear units.
- The dimension sheets are provided in the "Motor adapter /MA" (→ 🗎 459) chapter.

The following figure shows an example of the motor adapter [1] connected to the gear unit:



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3.6.1 Maximum permitted motor weight

Two criteria are to be checked when mounting a motor onto the gear unit:

1. Maximum motor weight depends on gear unit design and mounting type
2. Maximum motor weight depends on motor adapter size

INFORMATION

The motor weight may not exceed either one of these criteria.

1. Maximum motor weight depends on gear unit design and mounting type

INFORMATION

Result:

- The following tables apply only to stationary applications. For mobile applications (e.g. travel drives), contact SEW-EURODRIVE.
- In case of deviating mounting positions/mounting surfaces, contact SEW-EURODRIVE.

The following applies to all tables:

G_M = Motor weight

G_G = Gear unit weight

Horizontal gear units

Type of mounting	Mounting position M. / mounting surface F.		
	M1/F1 and M3/F2		
	X.F..	X.K..	X.T..
Foot-mounted X../ B	$G_M \leq 1.5\ G_G$	$G_M \leq 1.75\ G_G$	$G_M \leq 2.0\ G_G$
Shaft-mounted X../ T	$G_M \leq 0.5\ G_G$	$G_M \leq 1.5\ G_G$	$G_M \leq 1.5\ G_G$
Flange-mounted X../ F	$G_M \leq 0.5\ G_G$	$G_M \leq 0.5\ G_G$	$G_M \leq 0.5\ G_G$

Vertical gear units

INFORMATION

- When using the shaft-mounted version, contact SEW-EURODRIVE.
- Gear unit with mounting position M. / mounting surface F.: For M5/F4 and M6/F3, contact SEW-EURODRIVE.

Type of mounting	Mounting position M. / mounting surface F.		
	M5/F3 and M6/F4		
	X.F..	X.K..	X.T..
Foot-mounted X../ B	$G_M \leq 2.0\ G_G$	$G_M \leq 1.5\ G_G$	$G_M \leq 1.75\ G_G$
Flange-mounted X../ F	$G_M \leq 1.5\ G_G$	$G_M \leq 0.75\ G_G$	$G_M \leq 1.25\ G_G$

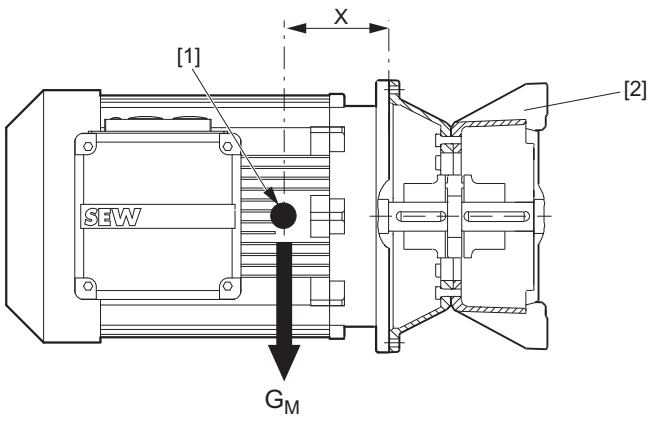
Upright gear units

Type of mounting	Mounting position M. / mounting surface F.		
	M4/F6		
	X.F..	X.K..	X.T..
Foot-mounted X../ B	$G_M \leq 1.25\ G_G$	$G_M \leq 1.75\ G_G$	$G_M \leq 1.5\ G_G$
Shaft-mounted X../ T	$G_M \leq 0.75\ G_G$	$G_M \leq 1.0\ G_G$	$G_M \leq 0.75\ G_G$
Flange-mounted X../ F	$G_M \leq 1.0\ G_G$	$G_M \leq 1.25\ G_G$	$G_M \leq 1.0\ G_G$

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2. Maximum motor weight depends on motor adapter size

The following maximum loads on the motor adapter must not be exceeded.



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[1] Center of gravity of the motor
[2] Motor adapter
X = Distance from the center of gravity
G_M = Weight of the mounted motor

INFORMATION

The table only applies to stationary applications. For mobile applications (e.g. travel drives), contact SEW-EURODRIVE.

Motor adapter		G_M	X
IEC	NEMA	kg	mm
100/112	182/184	60	190
132	213/215	110	230
160/180	254/286	220	310
200	324	280	340
225	326	400	420
250 / 280	364 - 405	820	480
315S-L	444 - 449	1450	680
315		2000	740
355		2500	740

The maximum permitted weight G_M must be linearly reduced if the centroidal distance **X** is increased. G_M cannot be increased if the centroidal distance is reduced.

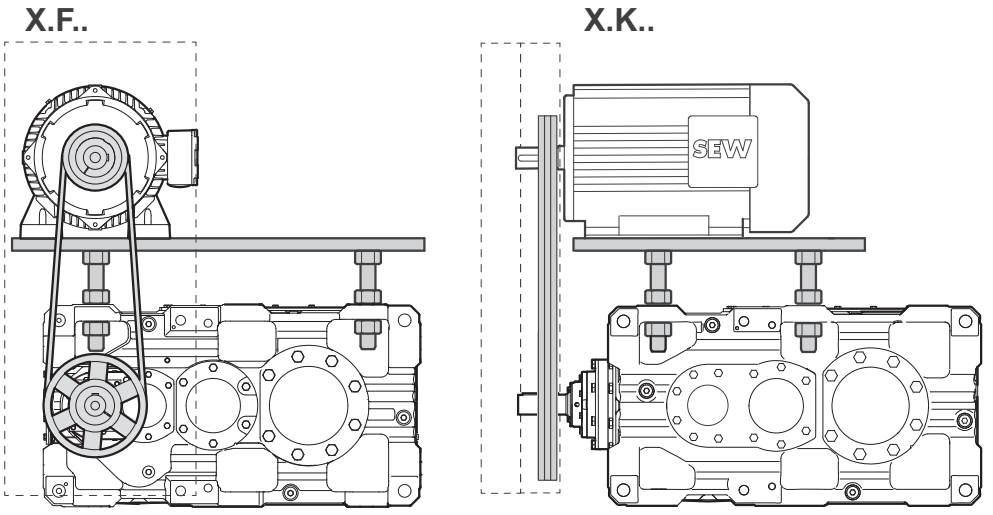
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3.7 V-belt drives /VBD

V-belt drives are usually employed where an equalization of the overall gear ratios is necessary or where physical peripheral conditions require a specific motor arrangement.

The standard delivery comprises motor scoop, belt pulleys, V-belt, and V-belt guard. As an alternative, the drive can be supplied as completely mounted unit with motor.

The following figure shows the basic design of a gear unit with V-belt drive.



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INFORMATION

- In standard design, V-belt drives cannot be combined with a mounting flange or a fan as these options would collide with the V-belt drive.
- For dimensions of the V-belt drives, refer to chapter "V-belt drives /VBD [mm]" (→ 🗎 440). More sizes are available from SEW-EURODRIVE on request.

3.8 Drive packages on a steel construction

For gear units in a horizontal mounting position, complete preassembled drive packages on a steel frame (swing base or base frame) are available from SEW-EURODRIVE.

INFORMATION

The dimensions of the swing base and the base frame are determined by SEW-EURODRIVE specifically for each order.

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3.8.1 Swing base /SB

A swing base is a steel frame [1] that accommodates the gear unit, (hydro) coupling and motor (and brake, if required), including a protection device, such as a cover. A swing base is normally used for

- Hollow shaft gear units or
- Solid shaft gear units with flange coupling on the output shaft

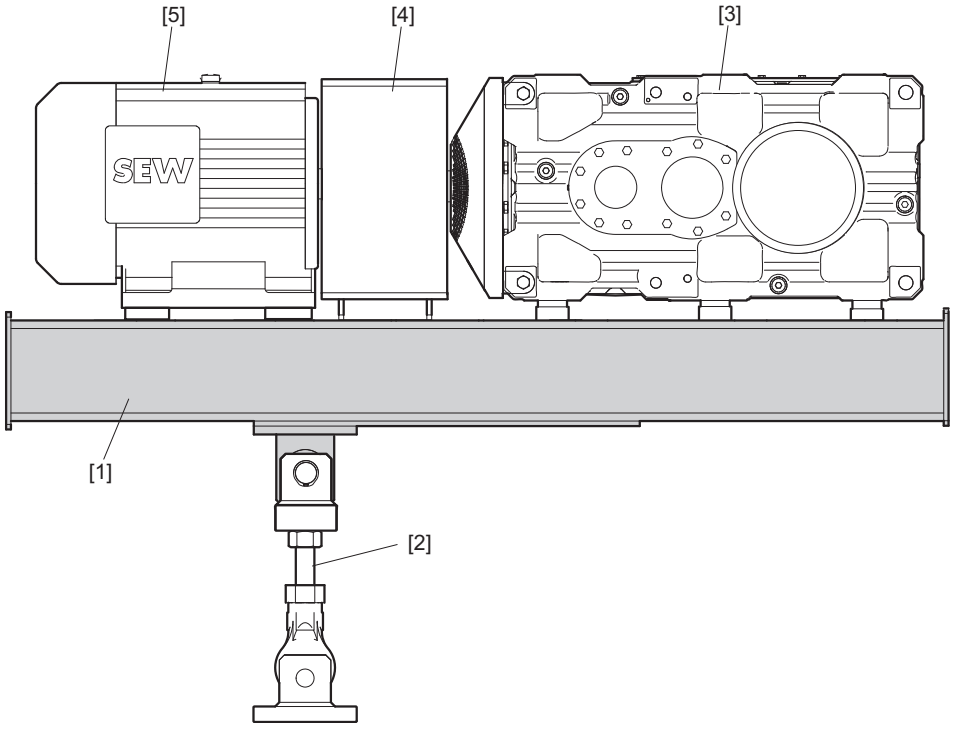
The steel frame [1] is supported by a torque arm [2].

INFORMATION

Observe that

- the system frame is sufficiently dimensioned to absorb the torque
- the swing base is not deformed during installation (hazard of damage to gear unit and coupling).

The following figure shows an example of a gear unit with swing base.



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[1] Swing base
[2] torque arm (optional)
[3] Bevel-helical gear unit
[4] Coupling with protection cover
[5] Motor

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3.8.2 Base frame /BF

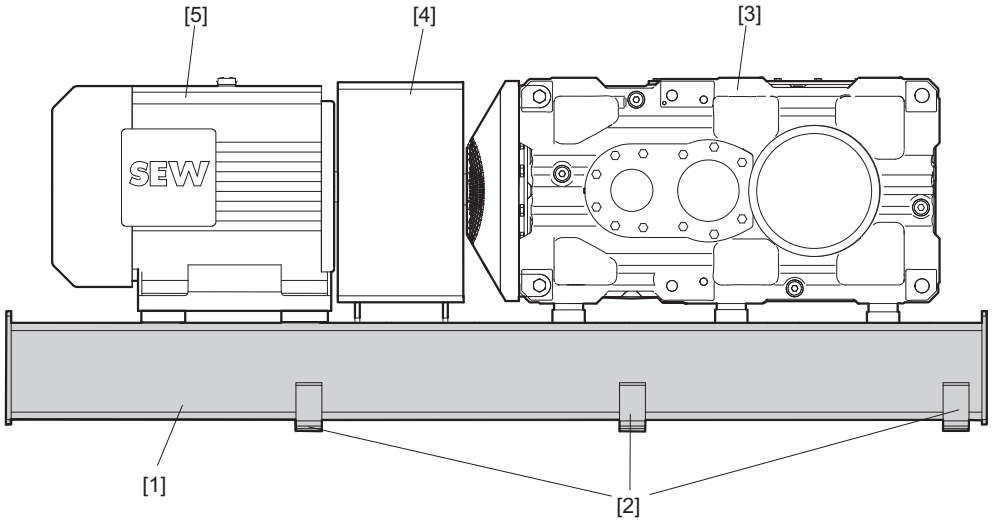
A base frame is a steel frame [1] that accommodates the gear unit, coupling and motor (and brake, if required), including a protection device, such as a cover. The steel frame is supported by several foot mountings [2]. Such a frame is usually used for solid shaft gear units with elastic coupling on the output shaft.

INFORMATION

Observe that

- that the support structure of the foot mounting is adequately dimensioned and rigid.
- that the base frame is not deformed during installation (hazard of damage to gear unit and coupling).

The following figure shows an example of a gear unit with base frame and coupling.



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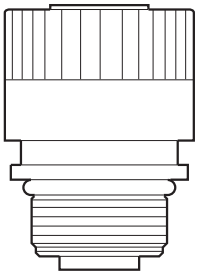
[1] Base frame
[2] Foot mounting
[3] Bevel-helical gear unit
[4] Coupling with protection cover
[5] Motor

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3.9 Breather /BPG

The following breathers can be used.

3.9.1 Standard

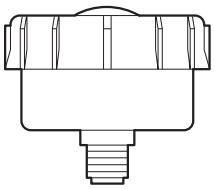


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Structure

Features	
Housing material	Polyamide
Filter inserts	Polyester filter, not exchangeable
Filter size	2 µm
Threads	3/4" or 1"

3.9.2 Breather with filter insert /PI



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The breather has the following characteristics:

- Corrosion-resistant
- Robust filter housing
- High dirt-absorbing capacity

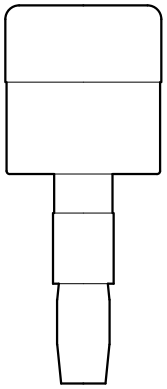
Structure

The breather has a corrosion-proof housing with air intake opening at the top. The cover with protection lip keeps splashing water off.

Features	
Housing material	Polyamide
Filter inserts	Wire mesh, galvanized
Filter size	10 µm
Threads	3/4" or 1"

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3.9.3 Desiccant breather filter /DC



23545314443

The breather has the following characteristics:

- Absorbs water moisture and humidity
- Reduces oil mist

Structure

Features	
Housing material	Polycarbonate
Filter inserts	• Polyester filter: Removes air particles > 3 µm • Silica gel: Absorbs water moisture and humidity. Saturation is indicated by the color changing from blue to pink. • Foam pad: Absorbs oil mist.
Threads	3/8" or 1"

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3.10 Accessories

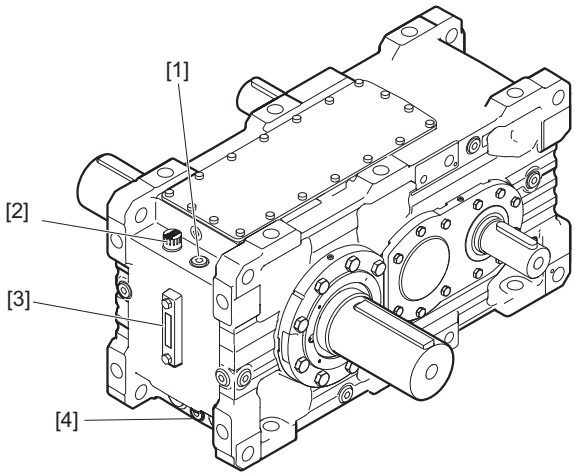
The following section describes the accessories for the several lubrication types.

INFORMATION

The position of the accessories may vary depending on gear unit design and gear unit size. For dimensions of oil dipstick, oil drain valve and oil level glass, see chapter"Oil drain valve /ODV [mm]" (→ 🗎 516).

3.10.1 General accessories

The following figure shows the general accessories.



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[1] Oil dipstick (optional)
[2] Breather
[3] Oil level glass
[4] Oil drain

Visual oil level check

The following types are available as standard for gear units in **M1** mounting position with splash lubrication:

- Oil dipstick for gear unit sizes X.100 to X.170
- Oil level glass for gear unit sizes X.180 to X.320

For other mounting positions and types of lubrication, the gear unit is equipped with an oil dipstick as standard.

Gear unit venting

A breather serves to prevent non-permitted pressure generated by heating during operation. The gear units are equipped with a breather as standard.

Oil drain

The gear unit is equipped with an oil drain plug as standard. An oil drain valve may be provided as option. This valve allows for a drain pipe to be easily attached when changing the gear unit oil.

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4 Project planning for drives

4.1 Additional documentation

In addition to the information in this catalog, SEW-EURODRIVE offers extensive documentation covering the entire topic of electrical drive engineering. This is primarily documentation from the "Drive Engineering – Practical Implementation" series. You can order the latest documentation from SEW-EURODRIVE. The documentation can also be downloaded in PDF format from the SEW-EURODRIVE homepage (www.sew-eurodrive.com).

4.1.1 Drive Engineering – Practical Implementation

The publication "Drive Engineering – Practical Implementation – Drive Arrangements with SEW-EURODRIVE Gear Units" features extensive information on characteristics, different features and application areas of drives by SEW-EURODRIVE. A comprehensive collection and assignment of the most important formulae for drive calculation as well as detailed examples for the most frequently used applications make this documentation an important tool for project planning and an essential addition to SEW-EURODRIVE product catalogs.

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4.1.2 Explanation of the designations

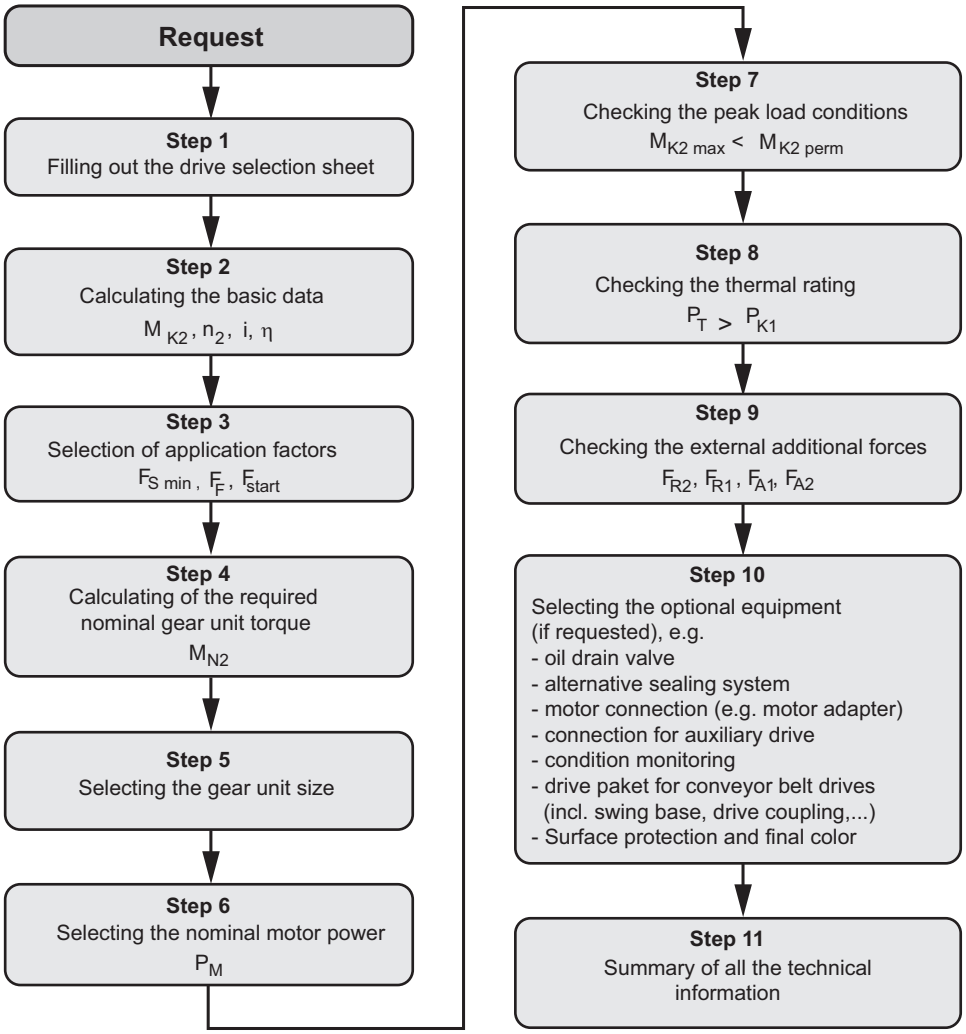
The table below describes the designations.

Designation	Explanation	
α	Application angle of the radial load	°
f_1	Altitude factor (= correction factor for calculation of the thermal rating of the gear unit)	-
F_A	Axial load	kN
F_F	Peak load factor	-
F_R	Overhung load	N
F_{R1}	Overhung load on HSS (Distance from the shaft shoulder must be given)	kN
F_{R2}	Overhung load on LSS (Distance from the shaft shoulder must be given)	kN
F_S	Service factor = $M_{N2}/M_{K2} = P_{N1}/P_{K1}$	-
$F_{S\ min}$	Application-specific service factor	-
F_{start}	Startup factor	-
f_z	Transmission element factor	-
η	Efficiency	-
H	Installation altitude above sea level	m
HSS	High-speed gear shaft (usually input shaft)	-
i	Translation	-
i_{ex}	Exact gear unit ratio	-
i_N	Nominal gear unit ratio	-
LSS	Low-speed gear shaft (usually output shaft)	-
$L_{h\ min}$	Required bearing service life	h
M_{K1}	Input torque (= Operating torque on HSS)	kNm
$M_{K1\ max}$	Peak input torque (= peak operating torque at HSS)	kNm
M_{K2}	Output torque (= Operating torque on LSS)	kNm
$M_{K2\ max}$	Peak output torque (= peak operating torque at LSS)	kNm
$M_{K2\ per}$	Permitted peak output torque	kNm
M_M	Nominal motor torque	kNm
M_{N2}	Nominal torque	kNm
n_1	Input speed (HSS)	min^{-1}
n_2	Output speed (LSS)	min^{-1}
n_M	Motor speed	min^{-1}
P_{K1}	Operating power on HSS	kW

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4.2 Project planning procedure

The following flow diagram illustrates the procedure for the project planning of X.. series industrial gear units.



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4.2.1 Step 1: Drive selection data

1. Machine on LSS (normally a driven machine)

Key: [...] = Values to be filled in
[X] = Mark your selection with ☒

1.1 Area of application/industry [...]

1.2 Application [...]

1.3 Ambient temperature [°C] [...]

normal | min. | max.

1.4 Installation altitude [m] [...]

1.5 Gear unit installation [X]

- ☐ Small space ($v_a \geq 0.5$ m/s)
- ☐ Large spaces and halls ($v_a \geq 1.4$ m/s)
- ☐ Outdoors with sun protection ($v_a \geq 3$ m/s)

1.6 Ambient conditions [X]

- ☐ Normal
- ☐ Dusty
- ☐ Damp
- ☐ Corrosive
- ☐ Dry

2. Load characteristics

2.1 Required speed n_2 [1/min] [...]

normal | min. | max.

2.2 Operating power on HSS P_{K1} [kW] [...]

normal | min. | max.

2.3 Operating torque on LSS M_{K2} [kNm] [...]

normal | min. | max.

2.4 Frequency of load peaks ($M_{K2\ max.}$ or $P_{K1\ max.}$)

per hour

2.5 Number of startups per hour [...]

Startups

2.6 Direction of rotation under load (LSS) [X]

- ☐ CW rotation
- ☐ CCW rotation
- ☐ Both directions of rotation
- ☐ Reversible

2.7 Operating time/day [X]

- ☐ < 3 hours
- ☐ 3 – 10 hours
- ☐ > 10 hours

2.8 Backstop required [X]

- ☐ No
- ☐ Yes

2.9 Exact load cycle attached [X]

- ☐ No
- ☐ Yes

3. Machine on HSS (normally a drive machine)

3.1 Type: [X]

- ☐ AC motor ☐ AC motor/inverter ☐ DC motor
- ☐ Hydraulic motor ☐ Servomotor
- ☐ Combustion engine with 1 – 3 cylinders
- ☐ Combustion engine with ≥ 4 cylinders

3.2 Motor power P_M [kW] [...]

normal | min. | max.

3.3 Motor speed n_M [kW] [...]

normal | min. | max.

3.4 Nominal motor torque M_M [kNm] [...]

normal | min. | max.

3.5 Input speed n_1 [1/min] [...]

normal | min. | max.

3.6 If electric motor: [X] [...]

- ☐ IEC
- ☐ NEMA

Motor size (IEC or NEMA code):

3.7 Motor mounting position [X] [...]

- ☐ B3
- ☐ B5
- ☐ V1
- ☐ Other:

4. Gear unit requirements

4.1 Gear unit type [X]

☐ Helical gear unit X.F.. ☐ Bevel-helical gear unit X.K..

4.2 Mounting position [X]

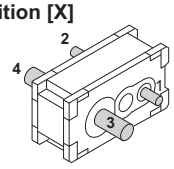
☐ M1 – M6

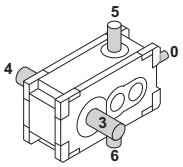
4.3 Mounting surface [X]

☐ F1 – F6

4.4 Shaft position [X]

0 1 2
3 4 5 6





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4.5 Required service factor $F_{S\ min.}$ [X] [...]

based on

☐ Nomial motor power P_M / motor torque M_M

☐ Operating power on LSS P_{K2}
Operating torque on LSS M_{K2}

4.6 Required bearing service life $L_{h\ min}$ [...]

Hours

4.7 Housing fixation [X]

☐ Foot-mounted
☐ Flange-mounted
☐ Torque arm

4.8 LSS connection to customer machine shaft [X] [...]

☐ Elastic coupling (claw coupling or pin coupling)
☐ Flexible coupling
☐ Rigid flange coupling
☐ Drum coupling
☐ Chain sprocket
☐ Pinion

☐ Hollow shaft – torque arm
☐ Hollow shaft – foot mounting
☐ Hollow shaft – flange mounting
☐ Other

4.9 LSS gear unit version [X] [...]

LSS version (if solid shaft)

☐ Solid shaft with keyway
☐ Solid shaft without keyway
☐ Splined solid shaft DIN 5480
☐ Other

LSS version (if hollow shaft)

☐ Hollow shaft with keyway
☐ Hollow shaft for shrink disc connection, includes shrink disc
☐ Splined hollow shaft DIN 5480
☐ Other

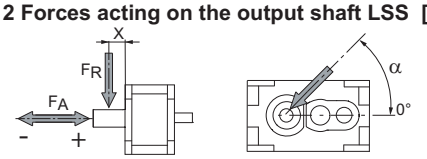
4.10 HSS connection to motor [X]

☐ Customer installation (base frame)
☐ Motor adapter with elastic coupling
☐ Swing base/base frame
☐ Motor bracket with V-belt drive
☐ Motor scoop
☐ Other, see diagram

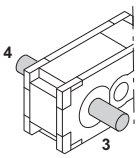
4.11 Machine shaft bearings

☐ 2 bearings, gear unit transfers only torque
☐ 1 bearing opposite gear unit, the gear unit acts as a bearing point
☐ 1 bearing directly at the gear unit, the gear unit acts as a bearing point

4.12 Forces acting on the output shaft LSS [X] [...]

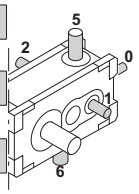


	Shaft 3	Shaft 4
Axial force F_A [kN]		
Radial force F_R [kN]		
Distance from shaft shoulder X [mm]		
Application angle of the radial force α [°]		
or variable	☐	☐



4.13 Forces acting on drive shaft HSS [X] [...]

	0	1	2	3	4	5	6
Axial force F_A [kN]							
Radial force F_R [kN]							
Distance from shaft shoulder X [mm]							
Application angle of the radial force α [°]							
or variable	☐	☐	☐	☐	☐	☐	☐



4.14 Electrical supply [X] [...]

	AC 3-phase	AC 1-phase	DC		
Mains supply V_{Line}	☐	☐	☐	V	Hz
Auxiliary voltage V_{Aux}	☐	☐	☐	V	Hz

Degree of protection IP

Explosion protection required ☐ Yes ☐ No

4.15 Permitted cooling (if required) [X]

	Permitted	Not permitted
Fan	☐	☐
Cooling cover / cartridge	☐	☐
External oil-air cooler	☐	☐
External oil-water cooler	☐	☐

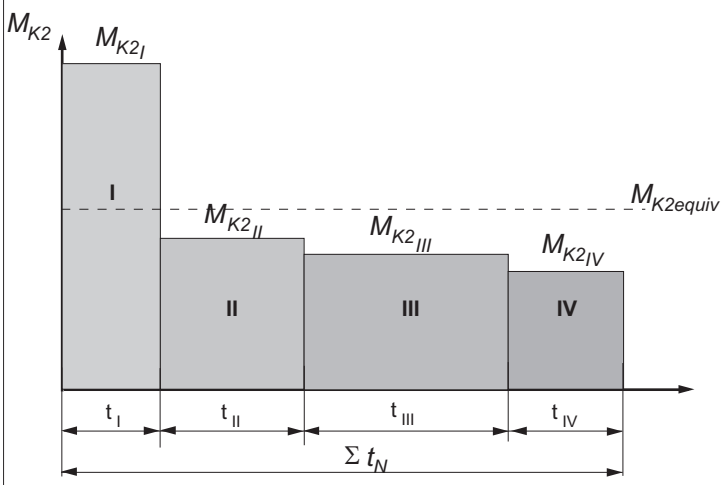
Cooling water available ☐ Yes ☐ No

Cooling water temperature °C

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4.2.2 Step 2: Calculation of basic data – M_{K2}, n_2, i, η

Constant torque	$M_{K2} = \frac{P_{K1} \times 9550 \times \eta}{n_2}\ Nm$ Comment: If P_{K1} is unknown → $P_{K1} = P_M$ M_{K2} = Operating torque on LSS in Nm P_{K1} = Operating power on HSS in kW n_2 = Output speed (LSS) in min^{-1} P_M = Nominal motor power in kW η = Efficiency
Equivalent torque with load spectrum and constant speed n2 for bearing service life calculation	$M_{K2equiv} = \sqrt[3]{(M_{K2_I})^{\frac{10}{3}} \times \frac{t_I}{\Sigma t_N} + (M_{K2_{II}})^{\frac{10}{3}} \times \frac{t_{II}}{\Sigma t_N} + \ldots. (M_{K2_n})^{\frac{10}{3}} \times \frac{t_n}{\Sigma t_N}}$ The following figure shows a load example:  M_{K2} = Operating torque on LSS in Nm $\frac{t_I}{\Sigma t_N} \ldots \frac{t_I}{\Sigma t_N}$ = Time slice of the load I, II,...n = Load situations Safety of gearing, shafts and keys have to be checked with the highest torque of the load spectrum. If single load situations exceed the nominal torque of the gear unit, contact SEW-EURODRIVE.
Translation	$i = \frac{n_1}{n_2}$ n_1 = Input speed (HSS) min^{-1} n_2 = Output speed (LSS) in min^{-1}
The following efficiencies – n apply to gear units	η = f (i; gear unit type) The efficiency of the gear unit is mainly determined by the gearing and bearing friction as well by churning losses. The following **guide values** apply for calculating splash and pressure lubrication: X2F.. = 0.975 X3F.. = 0.96 X4F.. = 0.94 X2K.. = 0.97 X3K.. = 0.955 X4K.. = 0.935

4.2.3 Step 3: Selection of application factors

- Application-specific service factor $F_{S\,min}$
- Peak load factor F_F
- Startup factor F_{start}

Application-specific service factor – $F_{S\ min}$

The application-specific service factor $F_{S\ min}$ takes account of the typical load behavior with regard to the driven machine.

Recommended values with reference to

- Area of application
- Type of driven machine
- Operating hours/day

are given in the following table.

INFORMATION

These tables apply only to gear units driven by electric motors. For other types of drive motors, the following correction values apply:

- Combustion engines with 4 or more cylinders:
  - $F_{S\ min}$ (selection table) + 0.25
- Combustion engines with 1 to 3 cylinders:
  - $F_{S\ min}$ (selection table) + 0.5

INFORMATION

In the event of deviations from the typical load behavior, consult SEW-EURODRIVE.

Area of application	Type of application (driven machine)	Application-specific service factor $F_{S\ min}$ Operating hours/day		
		< 3 h	3 – 10 h	> 10 h
Waste water treatment	Vacuum filters	1.15	1.30	1.50
	Accumulator	1.15	1.25	1.50
	Screw pump	-	1.30	1.50
Mining	Crushers	2.30	2.70	3.00
	Screens and shakers	1.55	1.75	2.00
	Slewing drives	-	1.55	1.80
	Bucket-wheel excavators	1)	1)	1)
Energy	Frequency inverters	-	1.80	2.00
	Water wheels (low speed)	-	-	1)
	Water turbines	-	-	1)
Conveyors	Bucket elevators	-	1.40	1.50
	Belt conveyors ≤ 100 kW	1.15	1.25	1.40
	Belt conveyors > 100 kW	1.15	1.30	1.50
	Apron feeders	-	1.25	1.50
	Screw feeders	1.15	1.25	1.50
	Shakers, screens	1.55	1.75	2.00
	Escalators	1.25	1.25	1.50
	Passenger elevators	1)	1)	1)

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Area of application	Type of application (driven machine)	Application-specific service factor $F_{S\,min}$ Operating hours/day		
		< 3 h	3 – 10 h	> 10 h
Rubber and plastic industry	Extruders (plastic)	-	1.40	1.60
	Extruders (rubber)	-	1.50	1.80
	Rubber rollers (2 in a row)	1.55	1.75	2.00
	Rubber rollers (3 in a row)	-	1.50	1.75
	Heated rollers	1.35	1.50	1.75
	Calender	-	1.65	1.65
	Mills	1.55	1.75	2.00
	Mixing rollers	1)	1)	1)
	Slab rollers	1.55	1.75	2.00
	Refiners	1.55	1.75	2.00
	Tire machine	1)	1)	1)
Timber industry	Timber industry	1)	1)	1)
Crane systems	Cranes and hoists	2)	2)	2)
Food industry	Crushers and mills	-	-	1.75
	Beet slicers	-	1.25	1.50
	Drying drums	-	1.25	1.50
Metal production and processing	Winder	-	1.60	1.75
	Cutting rollers	1.55	1.75	2.00
	Table conveyors, single drive	1)	1)	1)
	Table conveyors, group drives	1)	1)	1)
	Table conveyors, reciprocating	1)	1)	1)
	Wire drawing machines	1.35	1.50	1.75
	Rollers	1)	1)	1)
Mills and drums	Cooling and drying drums	-	1.50	1.60
	Rotary kilns	-	-	2.00
	ball mills	-	-	2.00
	Coal mills	-	1.50	1.75
Pulp and paper industry	Debarking drums and barkers	1.55	1.80	-
	Rolls (pick-up, wire drive, wire suction)	-	1.80	2.00
	Drying cylinder (rolling bearing)	-	1.80	2.00
	Calender (rolling bearing)	-	1.80	2.00
	Filters (pressure and vacuum)	-	1.80	2.00
	Beaters and chippers	1.55	1.75	2.00
	Jordan mills	-	1.50	1.75
	Presses (bark, felt, glue, suction)	-	-	1.75
	Reels	-	-	1.75
	Pulpers	1)	1)	1)
	Washer filters	-	-	1.50
	Yankee cylinders (dryers)	1)	1)	1)
Pumps	Centrifugal pumps	1.15	1.35	1.45
	Reciprocating pumps (1 cylinder)	1.35	1.50	1.80
	Reciprocating pumps (multi-cylinder)	1.20	1.40	1.50
	Screw pumps	-	1.25	1.50
	Rotary pumps (gear wheel, wing pumps)	-	-	1.25
Fans	Heat exchangers	1.50	1.50	1.50
	Blowers (axial and radial)	1.50	1.50	1.50
Compressors	Reciprocating compressors	-	1.80	1.90
	Radial compressors	-	1.40	1.50
	Screw-type compressors	-	1.50	1.75

1) Contact SEW-EURODRIVE

2) Contact SEW-EURODRIVE; dimensioning according to FEM1001

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Peak load factor F_F

The peak load factor F_F takes account of the overload capacity of the gearing and the rotating parts.

Peak load factor F_F					
Frequency of peak load per hour					
1 – 5	6 – 20	21 – 40	41 – 80	81 – 160	> 160
1.0	1.2	1.3	1.5	1.75	2.0

Startup factor – F_{start}

The startup factor F_{start} takes account of the overload caused by startup.

The following startup factors are guide values. The actual values are application-specific.

Startup mode	Startup factor – F_{start}
Direct	3.0
Soft start	1.8
Frequency inverter	1.5 – 2.0[1)]
Star/delta	1.3
Hydraulic coupling without delay chamber	2.0
Hydraulic coupling with delay chamber	1.6

1) Depending on settings

4.2.4 Step 4: Calculation of the required nominal gear unit torque M_{N2}

Constant load direction – constant torque:

$$M_{N2} \geq M_{K2} \times F_{S\min}$$

M_{N2} = Nominal gear unit torque in kNm
M_{K2} = Operating torque at LSS in kNm
$F_{S\ min}$ = Application-specific service factor

Reversing load direction – constant torque:

$$M_{N2} \geq M_{K2} \times F_{S\min} \times 1.43$$

M_{N2} = Nominal gear unit torque in kNm
M_{K2} = Operating torque at LSS in kNm
$F_{S\ min}$ = Application-specific service factor

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4.2.5 Step 5: Selecting the gear unit size – M_{N2}

The selection of the gear unit size is based on the nominal gear unit torque M_{N2} according to the speed/power overview tables in chapter "Selection tables" (→ 🗎 151).

If the input speed n_1 **<** 1000 min^{-1}, the value for 1000 min^{-1} can be used for M_{N2}.

For input speeds n_1 **>** 1800 min^{-1}, contact SEW-EURODRIVE.

The following table shows an excerpt from the selection tables as an example.

X.F100..,n_1= 1000 1/min																			6.80 kNm
					P_{TH}20 °C kW														
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1					M5					M4				
		min^{-1}	kNm	kW															
7.1	**7.09**	141	5.60	85	72	105	-	-	-	61	94	-	-	-	74	110	-	-	-
8	**7.94**	126	5.75	78	75	110	-	-	-	64	99	-	-	-	77	115	-	-	-
9	**8.52**	117	5.90	74	68	98	-	-	-	60	91	-	-	-	71	105	-	-	-
10	**9.53**	105	6.10	69	71	100	-	-	-	63	95	-	-	-	74	110	-	-	-
11.2	**11.03**	91	6.40	62	63	92	-	-	-	58	87	-	-	-	67	98	-	-	-
12.5	**12.34**	81	6.60	57	66	95	-	-	-	61	90	-	-	-	70	100	-	-	-
14	**13.93**	72	6.80	52	53	76	-	-	-	50	73	-	-	-	56	81	-	-	-
16	**15.59**	64	6.80	47	57	81	-	-	-	53	78	-	-	-	60	87	-	-	-
18	**17.21**	58	6.80	42	59	84	-	-	-	56	81	-	-	-	63	91	-	-	-
20	**19.26**	52	6.80	38	61	87	-	-	-	57	84	-	-	-	65	94	-	-	-

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4.2.6 Step 6: Selecting the nominal motor power – P_M

$$P_M \geq P_{K1} = \frac{P_{K2}}{\eta}$$

P_M = Nominal motor power in kW
P_{K1} = Operating power at HSS in kW
P_{K2} = Operating power at LSS in kW
η = Efficiency

INFORMATION

For gear units with bath lubrication, please contact SEW-EURODRIVE.

4.2.7 Step 7: Checking the peak load conditions – $M_{K2\ per}$; $M_{K2\ max}$

Permitted peak output torque $M_{K2\ per}$:

Constant load direction

$$M_{K2per} = \frac{2xM_{N2}}{F_F}$$

M_{K2per} = Permitted peak output torque in kNm
M_{N2} = Nominal gear unit torque in kNm
F_F = Peak load factor

Reversing load direction:

$$M_{K2per} = \frac{2xM_{N2}}{F_F} \times 0.7$$

M_{K2per} = Permitted peak output torque in kNm
M_{N2} = Nominal gear unit torque in kNm
F_F = Peak load factor

Calculating the peak output torque $M_{K2\ max}$:

$$M_{K\max} = \frac{P_M \times 9550 \times \eta}{n_2} \times F_{start}\ ^*$$

M_{K2max} = Peak output torque in kNm
P_M = Nominal motor power in kW
F_{start} = startup factor
n_2 = Output speed in min^{-1}
η = Efficiency

* If the startup factor F_{start} is not specified, observe the information in chapter "Step 3: Selection of application factors" (→ 🗎 81).

Checking the gear unit selection:

$$M_{K\max} \leq M_{K2perm}$$

M_{K2max} = Peak output torque in kNm
M_{K2per} = Permitted peak output torque in kNm

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4.2.8 Step 8: Checking the thermal rating – P_T

The thermal rating P_T of a gear unit is the power that a gear unit can transmit continuously without exceeding a specific oil temperature.

The thermal rating P_T depends on the following factors:

- Ambient temperature
- Air circulation and sunlight exposure at the installation site
- Installation altitude
- Heat conduction to the foundation at the installation site
- Gear unit type, size and gear ratio
- Type of gear unit external cooling
- Type of gear unit lubrication
- Lubricant type
- Cyclic duration factor

For the following ambient conditions, the thermal rating can be directly read from the "Selection tables" (→ 🗎 151):

- Ambient temperature 20 °C
- Installation in a large hall (air velocity ≥ 1.4 m/s)
- Natural cooling or cooling via fan, integrated cooler (water cooling cover or water cooling cartridge), or combination of fan and water cooling cartridge.
- Foundation as steel support structure
- Installation altitude < 1000 m above NN

INFORMATION

- For other ambient temperatures and types of lubricants, you can calculate the thermal rating P_T using the temperature factor f_T and the lubrication factor f_L. The resulting calculation results are approximate values. Contact SEW-EURODRIVE to determine the exact values.
- Sufficient protection from direct sunlight is absolutely necessary when installed outdoors! If the gear unit cannot be protected from direct sunlight, the thermal calculation must take the sunlight in kW/m² into account.

Thermal rating P_{TH} of the gear unit in kW for the following lubrication types and mounting position M1 is given in the selection tables in chapter "Selection tables" (→ 🗎 151). The thermal rating for other combinations can be determined using factors.

Lubrication types / mounting positions			
X.F..		X.K..	
X.F100 – 150	SL 	X.K100 – 150	SL 
X.F160 – 320	PL 	X.K160 – 320	PL 

SL  = Splash lubrication

PL  = Pressure lubrication

$$P_T = P_{TH} \times f_1 \times f_T$$

P_T = Thermal rating of the gear unit in kW

P_{TH} = Nominal thermal rating of the gear unit in kW. The values in the "Selection tables" (→ 🗎 151) depend on the type of cooling, mounting position, and lubrication type.

f_1 = Altitude factor

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f_T = Temperature factor

Altitude factor f_1

The following table lists the altitude factor f_1.

Altitude factor	Altitude H in m above sea level				
	up to 999	1000 – 2000	2000 – 3000	3000 – 4000	4000 – 5000
f_1	1.00	0.95	0.91	0.87	0.83

Temperature factor f_{MOT_T}

The following table shows the temperature factor f_{MOT_T} depending on the lubrication type, ambient temperature, and cooling option.

Temperature factor f_{MOT_T}										
Type of lubrication	Without additional cooling or with fan					With water cooling cover or with water cooling cartridge orwith water cooling cartridge and fan				
	Ambient temperature °C					Ambient temperature °C				
	10	20	30	40	50	10	20	30	40	50
Splash and pressure lubrication[1)]	1.15	1	0.85	0.7	0.55	1.1	1	0.9	0.8	0.7
Bath lubrication	1.18	1	0.85	0.65	0.48					

1) For detailed information, refer to the vertical and upright gear unit catalog

at

$$P_T < \frac{1}{3} \times P_{N1}$$

→ Contact SEW-EURODRIVE

P_T = Thermal rating of the gear unit in kW
P_{N1} = Nominal gear unit power

The gear unit's thermal rating must be at least as large as the operating power on the input shaft HSS.

$$P_T \geq P_{K1}$$

P_T = Thermal rating of the gear unit in kW
P_{K1} = Operating power at HSS in kW

INFORMATION

For other gear unit sizes and mounting positions with pressure lubrication that are not listed in chapter "Selection tables" (→ 🗎 151), the thermal rating P_T can be calculated with the pressure lubrication factor f_L.

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Selecting the cooling system

If the thermal rating P_T of a gear unit is not sufficient with cooling by fan, water cooling cover, or water cooling cartridge, you can use a cooling system with circulation cooling; see chapter "Cooling" (→ 🗎 121).

The proper size of the cooling system can be determined by approximation by means of the power loss P_V of the gear unit.

$$P_V = P_{K1} x (1 - \eta)$$

P_V = Power loss in kW

P_{K1} = Operating power at HSS in kW

η = Efficiency see chapter "Step 2: Calculation of basic data – MK2, n2, i, η" (→ 🗎 81) (applies only to splash or pressure lubrication)

The cooling requirements are determined by means of this power loss P_V. The selection of the required cooling system is then made in the chapter "Cooling" (→ 🗎 121).

The power loss P_V of the gear unit must be smaller than the cooling capacity of the cooling system.

P_V < cooling capacity of cooling system [kW]

In addition, the selection of an appropriate cooling system depends on the following factors:

- Actual power loss to be cooled
- Present cooling water temperature and volume flow
- Ambient temperature
- Ratio of oil quantity in the gear unit to oil volume flow of cooling system > 2

INFORMATION

Contact SEW-EURODRIVE for selecting the appropriate cooling system based on the ambient conditions of your system.

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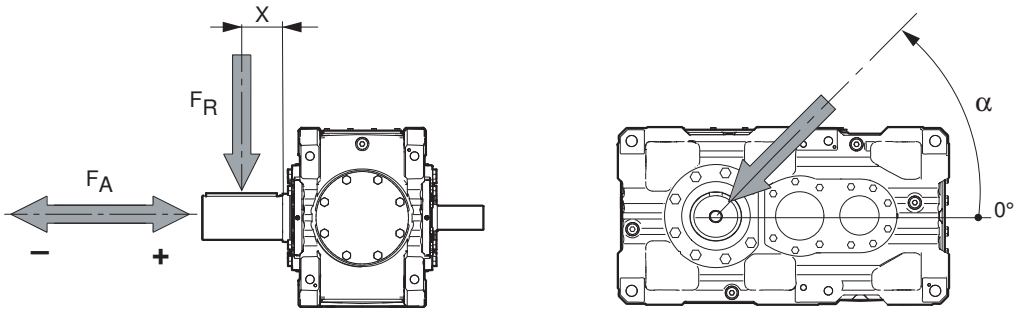
4.2.9 Step 9: Checking the external additional forces - F_R:

Dependencies

The permitted additional forces depend on the following factors:

- Service factor
- Required bearing service life
- Direction of the axial force (from or towards gear unit)
- Application angle of the overhung load (rotating or at a specific application angle)
- Application point of the overhung load in relation to the shaft shoulder
- Relation of axial load and overhung load

Definition of the force application



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INFORMATION

The force application is always defined as viewed onto the output shaft end.

Determining the overhung load

When determining the resulting overhung load, the type of transmission element mounted on the shaft end must be considered. The following transmission element factors f_Z must be considered for various transmission elements.

Drive component	Factor of the drive component f_Z	Comments
Gear unit	1,15	< 17 teeth
Sprockets	1,40	< 13 teeth
Sprockets	1,25	< 20 teeth
Narrow V-belt pulleys	1,75	Influence of pre-tensioning
Flat V-belt pulleys	2,50	Influence of pre-tensioning
Toothed belt pulleys	1,50	Influence of pre-tensioning

The overhung load acting on the gear shaft is calculated as follows:

$$F_R = \frac{M_{K2} \times 2000}{d_0} \times f_z$$

F_R = Overhung load in kN
M_{K2} = Output torque in Nm
d_0 = Mean diameter of the installed transmission element in mm
f_Z = Transmission element factor

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Permitted overhung loads – output shaft (LSS)

The following tables show the permitted overhung load on standard solid shafts that apply under the following conditions:

- The application point of the overhung load is on the center of the shaft end.
- No external axial force F_A acts on the output shaft.
- The gear unit service factor is 1.3 or higher
- The application angle of the overhung load is applied at an unfavorable point.
- For mounting flanges with external overhung loads, contact SEW-EURODRIVE.

For the force F_R

- The shaft speed is less than or equal to the given value

For the force F_{Rmax}

- Applies only to foot-mounted gear units in mounting position M1.
- Static overhung load with constant direction and amount.
- Values apply to favorable operating conditions. Contact SEW-EURODRIVE.

X.F..

Contact SEW-EURODRIVE in case of deviating conditions.

	F_R kN												F_{Rmax} kN
Size	**X2FS..**				**X3FS..**				**X4FS..**				**X..S.**
Rotational speed n_2	**≤ 125 min^{-1}**				**≤ 70 min^{-1}**				**≤ 20 min^{-1}**				**-**
Shaft position	**14, 23**		**13, 24**		**14, 23**		**13, 24**		**14, 23**		**13, 24**		**All shaft positions**
Bearing	**STD**	**HD**	**STD**	**HD**	**STD**	**HD**	**STD**	**HD**	**STD**	**HD**	**STD**	**HD**	
X.F100	9.6	-	8	-	16	-	15	-	-	-	-	-	30
X.F110	15	-	12	-	22	-	17	-	-	-	-	-	39
X.F120	25	-	14	-	32	-	21	-	53	-	42	-	60
X.F130	33	-	25	-	44	-	34	-	68	-	62	-	68
X.F140	35	-	19	-	45	-	30	-	76	-	61	-	87
X.F150	34	-	31	-	53	-	45	-	97	-	82	-	98
X.F160	53	-	37	-	75	-	54	-	124	-	103	-	127
X.F170	53	-	35	-	69	-	51	-	114	-	97	-	131
X.F180	71	-	41	-	93	-	63	-	155	-	125	-	170
X.F190	69	-	41	-	91	-	63	-	153	-	125	-	170
X.F200	80	-	43	-	105	-	68	-	176	-	139	-	190
X.F210	75	-	39	-	99	-	63	-	167	-	132	-	190
X.F220	83	152	39	108	128	195	84	151	230	230	214	230	230
X.F230	77	144	36	102	116	183	74	141	230	230	199	230	230
X.F240	123	217	68	162	184	276	129	221	280	280	280	280	280
X.F250	111	210	58	156	172	269	119	215	280	280	280	280	280
X.F260	56	208	21	145	151	271	88	208	290	290	273	290	290
X.F270	138	258	70	190	213	310	145	262	310	310	310	310	310
X.F280	133	254	67	188	208	310	143	260	310	310	310	310	310
X.F290	73	258	28	171	197	336	110	248	360	360	348	360	360
X.F300	52	257	20	165	175	325	80	230	360	360	318	334	360
X.F310	161	326	60	221	241	400	124	294	400	400	400	400	400
X.F320	149	322	59	212	217	392	92	266	400	400	379	400	400

F_R = Overhung load
n_2 = Output speed
STD = Standard bearing
HD = Reinforced bearings

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X.K..

Contact SEW-EURODRIVE in case of deviating conditions.

	F_R kN						F_{Rmax} kN
Size	**X2KS..**		**X3KS..**		**X4KS..**		**X..S.**
Rotational speed n_2	**≤ 125 min^{-1}**		**≤ 70 min^{-1}**		**≤ 20 min^{-1}**		**-**
Shaft position	**03, 04**		**03, 04**		**03, 04**		**All shaft positions**
Bearing	**STD**	**HD**	**STD**	**HD**	**STD**	**HD**	
X.K100	10	-	16	-	-		30
X.K110	17	-	22	-	-	-	39
X.K120	26	-	32	-	53	-	60
X.K130	36	-	44	-	68	-	68
X.K140	36	-	45	-	76	-	87
X.K150	39	-	53	-	97		98
X.K160	62	-	75	-	124	-	127
X.K170	56	-	69	-	114	-	131
X.K180	75	-	93	-	155	-	170
X.K190	73	-	91	-	153	-	170
X.K200	91	-	105	-	176	-	190
X.K210	87	-	99	-	167	-	190
X.K220	120	180	128	195	230	230	230
X.K230	113	171	116	183	230	230	230
X.K240	156	243	184	276	280	280	280
X.K250	154	241	172	269	280	280	280
X.K260	-	-	151	271	290	290	290
X.K270	-	-	213	310	310	310	310
X.K280	-	-	208	310	310	310	310
X.K290	-	-	197	336	360	360	360
X.K300	-	-	175	325	360	360	360
X.K310	-	-	241	400	400	400	400
X.K320	-	-	217	392	400	400	400

F_R = Overhung load
n_2 = Output speed
STD = Standard bearing
HD = Reinforced bearings

General information

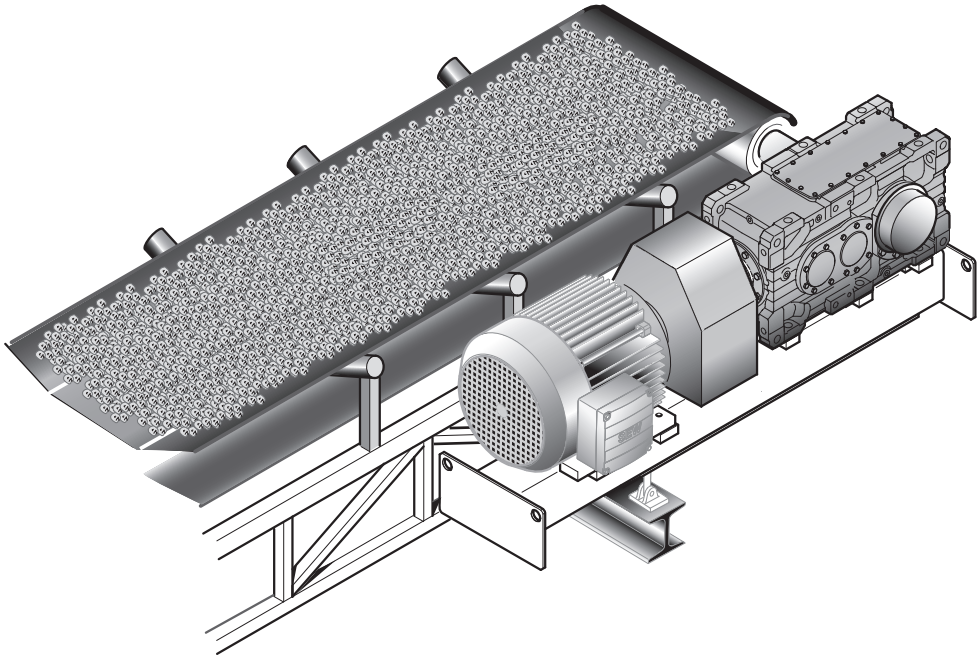
Contact SEW-EURODRIVE in case of the following:

- Permitted axial loads on the output shaft **(LSS)**.
- With permitted overhung and axial loads on the input shaft **(HSS)**.

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4.3 Sample for project planning: Conveyor drive

The following example shows the project planning for a conveyor drive.



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4.3.1 Technical data and application conditions

- Bevel-helical gear unit, foot-mounted (mounting position M1), hollow shaft with key
- Output speed n_2 = 35 min^{-1}
- Input speed motor n_1 = 1470 min^{-1}
- Operating power on the output shaft LSS P_{K2} = 135 kW
- Peak operating torque on the output shaft LSS $M_{K2\ max}$ = 55 kNm
- Operating period: 16 hours per day
- The gear unit is started up once per hour (frequency of maximum output speed)
- Motor control via frequency inverter
- The gear unit is to be operated in a large hall under very dusty conditions and an ambient temperature range of 0 °C – 40 °C.
- Installation altitude H = 1200 m
- Customer requirement: Service factor ≥1.4

Step 1: Filling out the drive selection sheet

See chapter "Drive selection data" (→ 🗎 79)

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Step 2: Calculating the basic data

Constant operating torque M_{K2}:

$$M_{K2} = \frac{P_{K1} \times 9550 \times \eta}{n_2} = \frac{135kW \times 9550}{35\,\text{min}^{-1}} = 36.8kNm$$

M_{K2} = Operating torque at LSS in kNm
P_{K2} = Output power in kW
n_2 = Output speed of the LSS in min^{-1}

Calculate the gear unit ratio using the following formula:

$$i = \frac{n_1}{n_2} = \frac{1470}{35} = 42$$

i = Gear ratio
n_1 = Input speed (HSS) in min^{-1}
n_2 = Output speed (LSS) in min^{-1}

This value is used to determine the nominal gear ratio after having specified the gear unit size.

Step 3: Selection of application factors

User-specific service factor (Belt conveyor P > 100 kW, t > 10 h/day)	$F_{S\,min} = 1.5$
Peak load factor (1 – 5 peak loads per hour)	$F_F = 1.0$
Startup factor (frequency inverter)	$F_{start} = 1.6$

Step 4: Calculating of the required nominal gear unit torque

Required nominal gear unit torque M_{N2}:

$$M_{N2} \geq M_{K2} \times F_{S\min} = 36.8kNm \times 1.5 = 55.2kNm$$

M_{N2} = Nominal gear unit torque in kNm
M_{K2} = Operating torque at LSS in kNm
$F_{S\,min}$ = Application-specific service factor

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Step 5: Selecting the gear unit size

Select a gear unit of the next larger torque class using the foldout page at the end of this catalog.

- Nominal gear unit torque M_{N2} = 58 kNm

See chapter "Selection tables" (→ 🗎 151).

- Gear unit type **X3KA180 /B**
- Nominal gear ratio i_N = 45, see exact gear ratio i_{ex} = 43.6

Step 6: Selecting the nominal motor power

Required motor power:

$$P_M \geq P_{K1} = \frac{P_{K2}}{\eta} = \frac{135kW}{0.955} = 141.4kW$$

P_M = Nominal motor power in kW
P_{K2} = Operating power at LSS in kW
P_{K1} = Operating power at HSS in kW
η = Efficiency from chapter "Step 2: Calculation of basic data – MK2, n2, i, η" (→ 🗎 81)

Select a motor of the next larger power class: P_M = 160 kW

Step 7: Checking the peak load conditions

Permitted peak output torque $M_{K2\,per}$:

$$M_{K2perm} = \frac{2 \times M_{N2}}{F_F} = \frac{2 \times 58kNm}{1} = 116kNm$$

M_{K2per} = Permitted peak output torque in kNm
M_{N2} = Nominal gear unit torque in kNm
F_F = peak load factor

Calculating the peak output torque $M_{K2\,max}$ based on the motor power:

$$M_{K2\max} = \frac{P_M \times 9.55 \times \eta \times F_{start}}{n_2} = \frac{160kW \times 9.55 \times 0.955 \times 1.6}{35\min^{-1}} = 66.7kNm$$

The peak output torque $M_{K2\,max}$ must not exceed the permitted peak output torque $M_{K2\,per}$.

$$M_{K\max} \leq M_{K2perm}$$

M_{K2max} = Peak output torque in kNm
M_{K2per} = Permitted peak output torque in kNm

$$66.7kNm \leq 116kNm$$

→ This means you may use the selected gear unit size.

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Step 8: Checking the thermal rating

$$P_T \geq P_{TH} \times f_1 \times f_T = 120kW \times 0.95 \times 0.7 = 80kW$$

P_T = Thermal rating in kW
P_{TH} = Nominal thermal rating in kW
f_1 = Altitude factor = 0.95; See chapter "Altitude factor" (→ 🗎 88)
f_T = Temperature factor = 0.7; See chapter "Temperature factor" (→ 🗎 88) (ambient temperature with splash lubrication without additional cooling).

The operating power P_{K1} must not exceed the thermal rating P_T ($P_{K1} \leq P_T$). Additional cooling is required if $P_{K1} > P_T$

141.4 kW > 80 kW

→ Thermal rating is not sufficient at 40 °C without additional cooling.

$$P_T \geq P_{TH} \times f_1 \times f_T = 230kW \times 0.95 \times 0.7 = 153kW$$

$$141.4kW < 153kW$$

With one fan:

→ Thermal rating at 40 °C with one fan sufficient

Step 9: Checking the external additional forces

There are no external additional forces.

Step 10: Selecting the optional equipment

- Dusty environment → Taconite seals on the input and output shafts.

Step 11: Summary of all the technical information

- Gear unit type X3KA180 /B
- Gear ratio i_{ex} = 43.6
- Nominal gear unit torque M_{N2} = 58 kNm
- Motor P_M = 160 kW
- Taconite seals on the input and output shafts
- Fan on the input shaft

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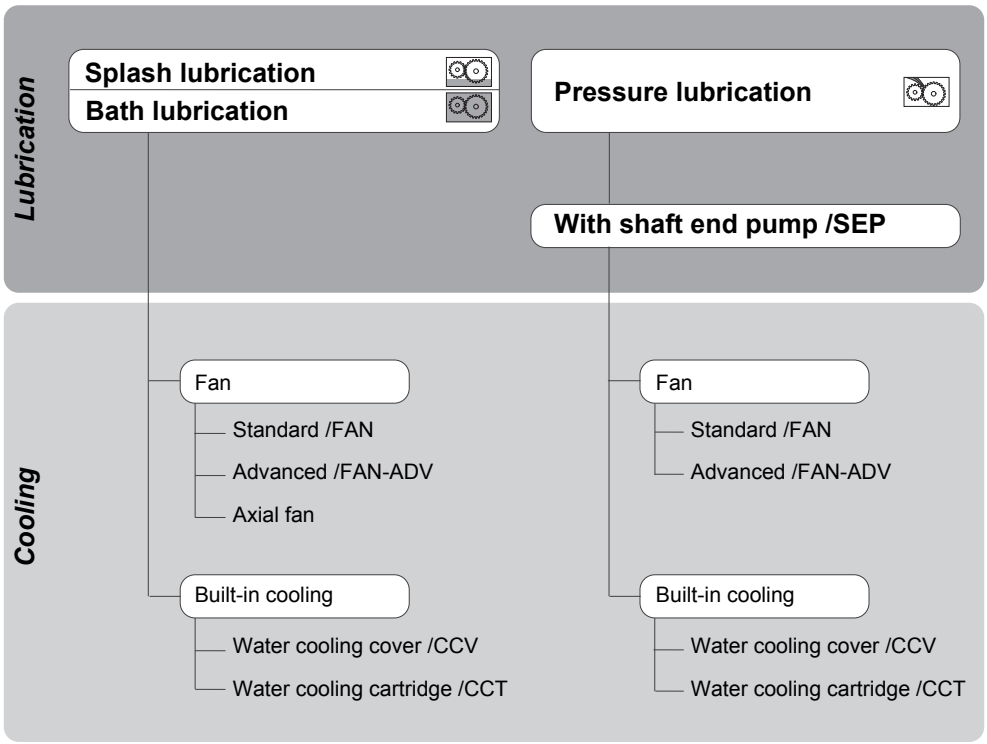
5 Lubrication, cooling, heating and seal

5.1 Overview of the lubrication and cooling types

Depending on the special application requirements, the following types of lubrication and cooling are available.

5.1.1 Overview: Internal oil cooling systems, shaft end pumps and fans

The following combinations of lubrication and cooling types are possible: Further information can be found on the following pages.

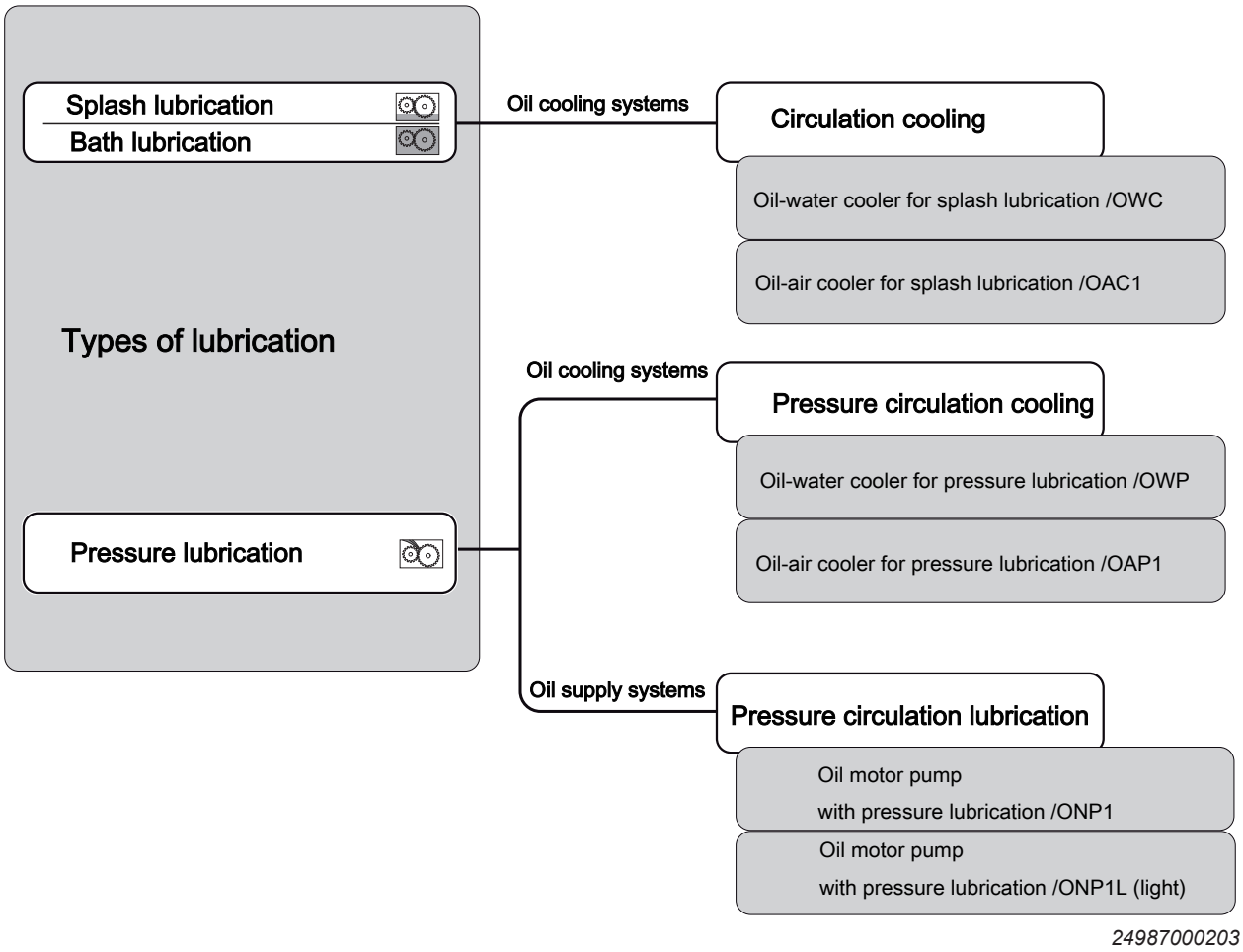


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5.1.2 Overview: External oil supply and oil cooling systems

More information can be found in the "External Oil supply and Oil Cooling Systems" catalog.



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5.2 Lubricant selection/lubricant table

INFORMATION

The oil viscosity and type (mineral/synthetic) to be used are determined by SEW-EURODRIVE specifically for each order. This information is noted in the order confirmation and on the gear unit's nameplate. You must contact SEW-EURODRIVE in case of a deviation from this specification.

5.2.1 General information on selecting the oil

Unless a special arrangement is made, SEW-EURODRIVE delivers the drives without oil fill. This does not apply to auxiliary drives and primary gear units.

INFORMATION

This means the gear unit must be filled with the correct oil grade and quantity before startup. You find the corresponding information on the nameplate of the gear unit.

The following tables provide an overview of mineral and synthetic oils.

Mineral oil

Standards

Lubrication oils are divided into ISO VG viscosity classes according to ISO 3448 and DIN 51519.

ISO class	ISO 6743-6 designation	DIN 51517-3 designation	AGMA 9005-D94 designation
150	ISO-L-CKC 150	DIN 51517-CLP 150	AGMA 4 EP
220	ISO-L-CKC 220	DIN 51517-CLP 220	AGMA 5 EP
320	ISO-L-CKC 320	DIN 51517-CLP 320	AGMA 6 EP
460	ISO-L-CKC 460	DIN 51517-CLP 460	AGMA 7 EP
680	ISO-L-CKC 680	DIN 51517-CLP 680	AGMA 8 EP

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Synthetic oil

Standards

Lubrication oils are divided into ISO VG viscosity classes according to ISO 3448 and DIN 51519.

ISO class	ISO 6743-6 designation	DIN 51519 designation	AGMA 9005-D94 designation
150	ISO-L-CKT 150	CLP HC 150	AGMA 4 EP
220	ISO-L-CKT 220	CLP HC 220	AGMA 5 EP
320	ISO-L-CKT 320	CLP HC 320	AGMA 6 EP
460	ISO-L-CKT 460	CLP HC 460	AGMA 7 EP
680	ISO-L-CKT 680	CLP HC 680	AGMA 8 EP

In addition to having the required viscosity, the oil must fulfill the following criteria:

- CLP oils according to DIN 51517-3
- Micro-pitting test according to FVA, FV no. 54/ I-IV, GFT class high, damage force level >10

If synthetic oil is used, SEW-EURODRIVE recommends polyalphaolefin-based oil (CLP HC).

INFORMATION

If required, a cooling system must be used or the oil change interval must be shortened (see chapter "Lubricant change intervals" in the "Helical and Bevel-Helical X.. Series Gear Units" operating instructions).

Observe the operating temperature of the gear unit when specifying the oil change intervals.

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5.2.2 Permitted lubricants

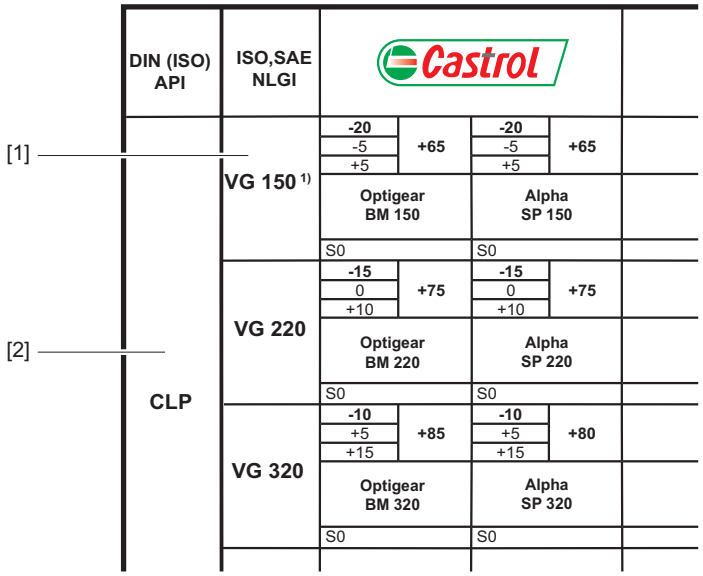
This chapter describes the permitted lubricants and the permitted temperatures for industrial gear units from SEW-EURODRIVE.

INFORMATION

- The standard for viscosity and oil grade is the type of oil that is specified by SEW-EURODRIVE in the order (see order confirmation and nameplate).
- Contact SEW-EURODRIVE if you use bio and food grade lubricants or polyglycol oils.
- Check the compatibility of the greases and oils used.
- The tables contain the lubricants approved by SEW-EURODRIVE.
- Oils of the same viscosity class from different manufacturers do not have the same characteristics. In particular, the minimum permitted oil bath temperatures are manufacturer-specific. These temperatures are specified in the lubricant tables.
- The minimum permitted oil bath temperatures depend on the lubrication type used. These temperatures are specified in the lubricant tables. The values correspond to the maximum viscosity of the individual lubricants.
- The values specified in the lubricant tables apply as of the time of printing of this document. The data of the lubricants are subject to dynamic change on the part of the lubricant manufacturers. For the latest information about the lubricants, visit: www.sew-eurodrive.de/lubricants

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Structure of the tables and abbreviations



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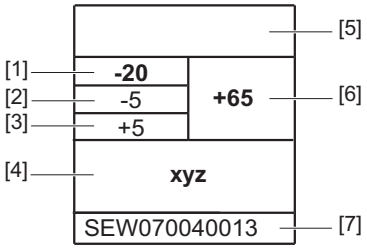
[1] Viscosity class
[2] Lubricant type

Abbreviations

Icons	Designation
CLP	= Mineral oil
CLP HC	= Synthetic polyalphaolefin (PAO)
E	= Ester-based oil
▭	= Mineral lubricant
▬	= Synthetic lubricant
	= Lubricant for the food industry (**NSF H1**-compliant)
	= Biodegradable oil (lubricant for agriculture, forestry, and water management)
1)	= Lubricants may only be used if service factor $F_s \geq 1.3$

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Explanation of the various lubricants



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[1] Lowest cold start temperature in °C for splash lubrication*
[2] Lowest cold start temperature in °C for drives with pumps up to a max. oil viscosity of 5000 cSt*
[3] Lowest cold start temperature in °C for drives with pumps up to a max. oil viscosity of 2000 cSt*
[4] Trade name
[5] Manufacturer
[6] Highest oil bath temperature in °C. MUST NOT BE EXCEEDED.
[7] Approvals

*In case of low temperatures, the oil must be heated to the specified minimum temperature, for example by using an oil heater. The maximally permitted oil viscosity per pump type is specified in the following chapter.

Explanation of the oil supply systems and the oil viscosity

The following pressure lubrications are designed for an oil viscosity of 2000 cSt:

- Motor pump incl. water cooler for pressure lubrication /OWP

The following pressure lubrications are designed for an oil viscosity of 5000 cSt:

- Motor pump for pressure lubrication /ONP1
- Motor pump for pressure lubrication /ONP1L
- Motor pump incl. air cooler for pressure lubrication /OAP1
- Shaft end pumps

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Lubricant tables

This lubricant table is valid when the document is published. Please refer to www.sew-eurodrive.de/lubricants for the latest version of the table.

[1]	[2]	SEW EURODRIVE	Castrol	FUCHS	Mobil®	KLÜBER LUBRICATION	Shell	TOTAL
CLP	VG 150 [1]	-20 -5 +5 +65	-20 -5 +5 +65	-20 -5 +5 +65	-20 -5 +5 +65	-20 -5 +5 +65		
		SEW GearOil Base 150 E[1]	Optigear BM 150	Alpha SP 150	Renolin CLP 150 Plus	Renolin HighGear 150	Mobilgear 600 XP 150	Klüberoil GEM 1-150 N		
		SEW07004001 3					SEW07003001 3			
	VG 220	-15 0 +10 +75	-15 0 +10 +75	-15 0 +10 +75	-15 0 +10 +75	-15 0 +10 +75	-15 0 +10 +75	-15 0 +10 +75	Shell Omala Oil F 220	Carter EP 220
		SEW GearOil Base 220 E[1]	Optigear BM 220	Alpha SP 220	Renolin CLP 220 Plus	Renolin HighGear 220	Mobilgear 600 XP 220	Klüberoil GEM 1-220 N		
		SEW07004001 3					SEW07003001 3			
	VG 320	-10 +5 +15 +85	-10 +5 +15 +85	-10 +5 +15 +80	-10 +5 +15 +80	-10 +5 +15 +80	-10 +5 +15 +80	-10 +5 +15 +80	Shell Omala Oil F 320	Carter EP 320
		SEW GearOil Base 320 E[1]	Optigear BM 320	Alpha SP 320	Renolin CLP 320 Plus	Renolin HighGear 320	Mobilgear 600 XP 320	Klüberoil GEM 1-320 N		
		SEW07004001 3					SEW07003001 3			
	VG 460	-5 +10 +20 +90	-5 +10 +20 +90	-5 +10 +20 +90	-5 +10 +20 +90	-5 +10 +20 +90	-5 +10 +20 +90	-5 +10 +20 +90	Shell Omala Oil F 460	Carter EP 460
		SEW GearOil Base 460 E[1]	Optigear BM 460	Alpha SP 460	Renolin CLP 460 Plus	Renolin HighGear 460	Mobilgear 600 XP 460	Klüberoil GEM 1-460 N		
		SEW07004001 3					SEW07003001 3			
	VG 680	0 +15 +25 +90	0 +15 +25 +90	0 +15 +25 +90	0 +15 +25 +90	0 +15 +25 +90	0 +15 +25 +90	0 +15 +25 +90		Carter EP 680
		SEW GearOil Base 680 E[1]	Optigear BM 680	Alpha SP 680	Renolin CLP 680 Plus	Renolin HighGear 680	Mobilgear 600 XP 680	Klüberoil GEM 1-680 N		
		SEW07004001 3					SEW07003001 3			
	VG 1000	+5 +20 +30 +90								
			Optigear BM 1000							

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[1]	[2]	Castrol	FUCHS	Mobil®	KLÜBER LUBRICATION	Shell	TOTAL
CLP HC	VG 32 [1]			-40 -30 -25 / +30 SHC 624			
	VG 68 [1]		-35 -20 -10 / +50 Renolin Unisyn CLP 68	-40 -25 -15 / +50 SHC 626	-35 -20 -10 / +50 Klübersynth GEM 4-68 N	-40 -20 -10 / +50 Omala S4 GX 68	
	VG 150 [1]	-25 -10 0 / +70 Alphasyn EP 150	-30 -10 +0 / +70 Renolin Unisyn CLP 150	-30 -10 0 / +75 SHC 629	-25 -10 0 / 70 Klübersynth GEM 4-150 N	-30 -10 0 / +75 Omala S4 GX 150	-35 -15 -5 / +75 Carter SH 150
	VG 220	-25 -5 +5 / +80 Alphasyn EP 220	-25 -5 +5 / +80 Renolin Unisyn CLP 220	-25 -5 0 / +85 SHC 630	-25 -5 +5 / +80 Klübersynth GEM 4-220 N	-25 -5 +5 / +85 Omala S4 GX 220	-25 -5 +5 / +80 Carter SH 220
	VG 320	-20 0 +10 / +90 Alphasyn EP 320	-20 0 +10 / +90 Renolin Unisyn CLP 320	-20 0 +10 / +95 SHC 632	-20 0 +10 / +95 Klübersynth GEM 4-320 N	-20 0 +10 / +95 Omala S4 GX 320	-20 0 +10 / +90 Carter SH 320
	VG 460	-15 +5 +15 / +100 Alphasyn EP 460	-15 +5 +15 / +100 Renolin Unisyn CLP 460	-15 +5 +15 / +105 SHC 634	-15 +5 +20 / +105 Klübersynth GEM 4-460 N	-15 +5 +15 / +105 Omala S4 GX 460	-15 +5 +15 / +100 Carter SH 460
	VG 680	-10 +10 +25 / +110 Optigear Synthetic X 680	-5 +10 +25 / +110 Renolin Unisyn CLP 680	-10 +10 +25 / +110 SHC 636	-10 +10 +25 / +110 Klübersynth GEM 4-680 N	-10 +10 +25 / +110 Omala S4 GX 680	-10 +10 +25 / +110 Carter SH 680
	VG 1000			-10 +15 +30 / +110 SHC 639	0 +20 +30 / +110 Klübersynth EG4-1000		

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[1]	[2]	[3]	bremer & leguil	Castrol		FUCHS		KLÜBER LUBRICATION
	CLP HC NSF H1	VG 68 1)	-35 / -20 / -10 / +45 Cassida Fluid HF 68 S0	-40 / -25 / -15 / +45 Optileb HY 68 S0				-35 / -20 / -10 / +45 Klüberoil 4UH1-68 N S0
	CLP HC NSF H1	VG 220 1)	-20 / -5 / +5 / +75 Cassida Fluid GL 220 S0	-25 / -5 / +5 / +75 Optileb GT 220 S0				-25 / -5 / +5 / +75 Klüberoil 4UH1-220 N S0
	CLP HC NSF H1	VG 460 1)	-15 / +5 / +20 / +90 Cassida Fluid GL 460 S0	-15 / +5 / +20 / +95 Optileb GT 460 S0				-15 / +5 / +15 / +95 Klüberoil 4UH1-460 N S0
	E	VG 460				-15 / +5 / +15 / +95 Plantogear 460 S S0		-15 / +5 / +15 / +95 Klüberbio CA2-460 S0

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5.3 Lubricant fill quantities

INFORMATION

- The specified lubricant fill quantities are guide values. The exact values vary depending on the number of gear stages and gear ratio.
- The mark on the oil dipstick or the oil level glass is the decisive indicator of the correct oil quantity.
- For pivoted mounting positions, the lubricant fill quantity on the nameplate may vary from the standard. The fill quantity specified on the nameplate is a guide value. The mark on the oil dipstick or the oil level glass is the decisive indicator of the correct oil quantity.

5.3.1 Horizontal housing /HH and universal housing /HU

Mounting position M1

X.F.. (M1)

X2F..	Oil quantity in liters		X3F..	Oil quantity in liters		X4F..	Oil quantity in liters	
	Splash lubrication	Pressure lubrication		Splash lubrication	Pressure lubrication		Splash lubrication	Pressure lubrication
X2F100	14	-	X3F100	15	-	X4F100	-	-
X2F110	15	-	X3F110	16	-	X4F110	-	-
X2F120	22	-	X3F120	22	-	X4F120	19	-
X2F130	24	-	X3F130	25	-	X4F130	19	-
X2F140	37	-	X3F140	36	-	X4F140	33	-
X2F150	39	-	X3F150	38	-	X4F150	33	-
X2F160	63	63	X3F160	61	61	X4F160	57	57
X2F170	63	63	X3F170	61	61	X4F170	57	57
X2F180	79	79	X3F180	80	80	X4F180	77	77
X2F190	83	83	X3F190	82	82	X4F190	76	76
X2F200	110	110	X3F200	110	110	X4F200	97	97
X2F210	110	110	X3F210	110	110	X4F210	97	97
X2F220	145	145	X3F220	150	150	X4F220	150	150
X2F230	145	145	X3F230	150	150	X4F230	150	150
X2F240	180	180	X3F240	180	180	X4F240	165	165
X2F250	180	180	X3F250	182	182	X4F250	172	172
X2F260	284	284	X3F260	287	287	X4F260	290	290
X2F270	285	285	X3F270	288	288	X4F270	295	295
X2F280	335	335	X3F280	350	350	X4F280	325	325
X2F290	410	410	X3F290	415	415	X4F290	415	415
X2F300	410	410	X3F300	418	418	X4F300	425	425
X2F310	555	555	X3F310	545	545	X4F310	537	537
X2F320	555	555	X3F320	545	545	X4F320	537	537

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X.K.. (M1)

X2K..	Oil quantity in liters		X3K..	Oil quantity in liters		X4K..	Oil quantity in liters	
	Splash lubrication	Pressure lubrication		Splash lubrication	Pressure lubrication		Splash lubrication	Pressure lubrication
X2K100	12	-	X3K100	12	-	X4K100	-	-
X2K110	12	-	X3K110	14	-	X4K110	-	-
X2K120	17	-	X3K120	20	-	X4K120	25	-
X2K130	17	-	X3K130	22	-	X4K130	23	-
X2K140	26	-	X3K140	34	-	X4K140	36	-
X2K150	29	-	X3K150	34	-	X4K150	39	-
X2K160	47	47	X3K160	59	59	X4K160	67	67
X2K170	47	47	X3K170	59	59	X4K170	67	67
X2K180	64	64	X3K180	74	74	X4K180	81	81
X2K190	68	68	X3K190	77	77	X4K190	84	84
X2K200	87	87	X3K200	105	105	X4K200	107	107
X2K210	87	87	X3K210	105	105	X4K210	109	109
X2K220	135	135	X3K220	135	135	X4K220	145	145
X2K230	135	135	X3K230	139	139	X4K230	145	145
X2K240	170	170	X3K240	175	175	X4K240	181	181
X2K250	170	170	X3K250	175	175	X4K250	181	181
X2K260	-	-	X3K260	279	279	X4K260	275	275
X2K270	-	-	X3K270	279	279	X4K270	275	275
X2K280	-	-	X3K280	330	330	X4K280	335	335
X2K290	-	-	X3K290	432	432	X4K290	425	425
X2K300	-	-	X3K300	432	432	X4K300	425	425
X2K310	-	-	X3K310	540	540	X4K310	545	545
X2K320	-	-	X3K320	540	540	X4K320	545	545

X.T.. (M1)

X3T..	Oil quantity in liters			X4T..	Oil quantity in liters		
	Splash lubrication	Pressure lubrication	Bath lubrication		Splash lubrication	Pressure lubrication	Bath lubrication
X3T100	14	-	-	X4T100	-	-	-
X3T110	15	-	-	X4T110	-	-	-
X3T120	20	-	-	X4T120	20	-	-
X3T130	22	-	-	X4T130	22	-	-
X3T140	32	-	-	X4T140	31	-	-
X3T150	32	-	-	X4T150	34	-	-
X3T160	53	53	-	X4T160	56	56	-
X3T170	53	53	-	X4T170	56	56	-
X3T180	67	67	-	X4T180	77	77	-
X3T190	67	67	-	X4T190	77	77	-
X3T200	87	87	-	X4T200	97	97	-
X3T210	87	87	-	X4T210	97	97	-
X3T220	-	140	305	X4T220	-	210	310
X3T230	-	140	305	X4T230	-	210	310
X3T240	-	170	400	X4T240	-	265	405
X3T250	-	170	400	X4T250	-	265	405

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Mounting position M3

X.F.. (M3)

X2F..	Oil quantity in liters	X3F..	Oil quantity in liters	X4F..	Oil quantity in liters
	Splash lubrication		Splash lubrication		Splash lubrication
X2F100	14	X3F100	14	X4F100	-
X2F110	15	X3F110	16	X4F110	-
X2F120	20	X3F120	20	X4F120	24
X2F130	22	X3F130	23	X4F130	26
X2F140	37	X3F140	38	X4F140	42
X2F150	37	X3F150	38	X4F150	42
X2F160	62	X3F160	64	X4F160	82
X2F170	62	X3F170	64	X4F170	82
X2F180	77	X3F180	78	X4F180	108
X2F190	80	X3F190	82	X4F190	105
X2F200	105	X3F200	110	X4F200	140
X2F210	105	X3F210	110	X4F210	140
X2F220	135	X3F220	145	X4F220	185
X2F230	135	X3F230	145	X4F230	185
X2F240	175	X3F240	180	X4F240	231
X2F250	175	X3F250	180	X4F250	227
X2F260	280	X3F260	275	X4F260	360
X2F270	280	X3F270	275	X4F270	360
X2F280	335	X3F280	340	X4F280	425
X2F290	410	X3F290	405	X4F290	520
X2F300	410	X3F300	405	X4F300	520
X2F310	555	X3F310	545	X4F310	690
X2F320	555	X3F320	545	X4F320	690

X.K.. (M3)

X2K..	Oil quantity in liters	X3K..	Oil quantity in liters	X4K..	Oil quantity in liters
	Splash lubrication		Splash lubrication		Splash lubrication
X2K100	12	X3K100	17	X4K100	-
X2K110	12	X3K110	15	X4K110	-
X2K120	16	X3K120	20	X4K120	20
X2K130	17	X3K130	23	X4K130	23
X2K140	25	X3K140	34	X4K140	36
X2K150	28	X3K150	35	X4K150	38
X2K160	46	X3K160	59	X4K160	60
X2K170	46	X3K170	59	X4K170	60
X2K180	62	X3K180	77	X4K180	77
X2K190	64	X3K190	80	X4K190	78
X2K200	82	X3K200	100	X4K200	110
X2K210	82	X3K210	108	X4K210	110
X2K220	140	X3K220	130	X4K220	145
X2K230	140	X3K230	130	X4K230	145
X2K240	175	X3K240	170	X4K240	180
X2K250	175	X3K250	170	X4K250	180
X2K260	-	X3K260	260	X4K260	275
X2K270	-	X3K270	260	X4K270	275
X2K280	-	X3K280	330	X4K280	335
X2K290	-	X3K290	405	X4K290	415
X2K300	-	X3K300	405	X4K300	415
X2K310	-	X3K310	540	X4K310	545
X2K320	-	X3K320	540	X4K320	545

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X.T.. (M3)

X3T..	Oil quantity in liters		X4T..	Oil quantity in liters	
	Splash lubrication	Bath lubrication		Splash lubrication	Bath lubrication
X3T100	-	36	X4T100	-	-
X3T110	-	36	X4T110	-	-
X3T120	-	46	X4T120	-	50
X3T130	-	47	X4T130	-	53
X3T140	-	79	X4T140	-	79
X3T150	-	81	X4T150	-	81
X3T160	-	139	X4T160	-	143
X3T170	-	139	X4T170	-	143
X3T180	-	175	X4T180	-	180
X3T190	-	175	X4T190	-	180
X3T200	-	235	X4T200	-	240
X3T210	-	235	X4T210	-	230
X3T220	120	-	X4T220	145	-
X3T230	120	-	X4T230	145	-
X3T240	155	-	X4T240	180	-
X3T250	155	-	X4T250	180	-

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Mounting positions M5 and M6

Note that the oil quantity has to be increased by 20% for gear unit combinations with mounting positions M5 or M6, pressure lubrication, and oil heating. Adhere to the information on the nameplate.

X.F.. (M5 and M6)

X2F..	Oil quantity in liters			X3F..	Oil quantity in liters			X4F..	Oil quantity in liters		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2F100	33	-	-	X3F100	33	-	-	X4F100	-	-	-
X2F110	34	-	-	X3F110	34	-	-	X4F110	-	-	-
X2F120	48	17	12	X3F120	47	17	12	X4F120	43	17	13
X2F130	52	20	13	X3F130	50	20	15	X4F130	50	18	13
X2F140	79	36	22	X3F140	77	38	22	X4F140	74	25	20
X2F150	84	38	22	X3F150	85	36	24	X4F150	78	26	20
X2F160	157	60	39	X3F160	151	58	38	X4F160	142	44	38
X2F170	157	60	39	X3F170	151	58	38	X4F170	142	44	38
X2F180	185	74	51	X3F180	184	71	54	X4F180	174	66	51
X2F190	190	77	56	X3F190	190	73	56	X4F190	180	68	53
X2F200	255	110	77	X3F200	245	110	71	X4F200	235	105	70
X2F210	255	110	77	X3F210	245	110	72	X4F210	236	105	70
X2F220	340	130	97	X3F220	317	125	95	X4F220	320	155	95
X2F230	340	130	97	X3F230	317	125	95	X4F230	320	155	95
X2F240	415	160	105	X3F240	405	150	113	X4F240	415	190	115
X2F250	415	160	105	X3F250	405	150	113	X4F250	415	190	115
X2F260	-	225	197	X3F260	-	215	188	X4F260	-	255	191
X2F270	-	225	197	X3F270	-	215	188	X4F270	-	255	191
X2F280	-	270	239	X3F280	-	265	235	X4F280	-	310	235
X2F290	-	305	289	X3F290	-	300	280	X4F290	-	395	278
X2F300	-	305	289	X3F300	-	300	280	X4F300	-	395	278
X2F310	-	421	421	X3F310	-	404	404	X4F310	-	520	398
X2F320	-	421	421	X3F320	-	404	404	X4F320	-	520	398

X.K.. (M5 and M6)

X2K..	Oil quantity in liters			X3K..	Oil quantity in liters			X4K..	Oil quantity in liters		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2K100	30	-	-	X3K100	34	-	-	X4K100	-	-	-
X2K110	29	-	-	X3K110	34	-	-	X4K110	-	-	-
X2K120	41	17	11	X3K120	46	17	11	X4K120	46	20	12
X2K130	43	17	13	X3K130	52	18	14	X4K130	48	23	13
X2K140	61	26	19	X3K140	80	34	20	X4K140	77	37	20
X2K150	64	27	19	X3K150	81	36	20	X4K150	83	38	20
X2K160	129	50	34	X3K160	143	55	38	X4K160	147	61	38
X2K170	129	50	34	X3K170	143	55	38	X4K170	147	61	38
X2K180	155	62	41	X3K180	177	72	55	X4K180	179	80	55
X2K190	155	62	41	X3K190	182	76	55	X4K190	188	87	55
X2K200	210	87	62	X3K200	242	97	76	X4K200	241	115	76
X2K210	210	87	62	X3K210	245	105	81	X4K210	244	115	76
X2K220	335	135	137	X3K220	320	120	91	X4K220	318	155	95
X2K230	335	135	137	X3K230	320	120	91	X4K230	318	155	95
X2K240	410	160	145	X3K240	405	150	99	X4K240	415	177	116

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X2K..	Oil quantity in liters			X3K..	Oil quantity in liters			X4K..	Oil quantity in liters		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X2K250	410	160	145	X3K250	405	150	99	X4K250	415	177	116
X2K260	-	-	-	X3K260	-	215	190	X4K260	-	280	190
X2K270	-	-	-	X3K270	-	215	190	X4K270	-	280	190
X2K280	-	-	-	X3K280	-	270	241	X4K280	-	350	236
X2K290	-	-	-	X3K290	-	305	287	X4K290	-	420	281
X2K300	-	-	-	X3K300	-	305	287	X4K300	-	420	281
X2K310	-	-	-	X3K310	-	416	416	X4K310	-	560	413
X2K320	-	-	-	X3K320	-	416	416	X4K320	-	560	413

X.T.. (M5 and M6)

X3T..	Oil quantity in liters			X4T..	Oil quantity in liters		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell		Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X3T100	36	-	-	X4T100	-	-	-
X3T110	36	-	-	X4T110	-	-	-
X3T120	46	17	13	X4T120	50	18	13
X3T130	47	18	14	X4T130	53	22	14
X3T140	79	32	20	X4T140	79	32	20
X3T150	81	33	20	X4T150	81	33	20
X3T160	139	53	34	X4T160	143	55	34
X3T170	139	53	34	X4T170	143	55	34
X3T180	175	72	52	X4T180	180	82	52
X3T190	175	72	52	X4T190	180	82	52
X3T200	235	97	70	X4T200	240	110	68
X3T210	235	97	70	X4T210	240	110	68
X3T220	305	120	91	X4T220	310	150	94
X3T230	305	120	91	X4T230	310	150	94
X3T240	400	150	112	X4T240	405	190	112
X3T250	400	150	112	X4T250	405	190	112

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Mounting position M2

X.F.. (M2)

X2F..	Oil quantity in liters	X3F..	Oil quantity in liters	X4F..	Oil quantity in liters
	Bath lubrication		Bath lubrication		Bath lubrication
X2F100	23	X3F100	20	X4F100	-
X2F110	23	X3F110	22	X4F110	-
X2F120	33	X3F120	35	X4F120	29
X2F130	36	X3F130	36	X4F130	33
X2F140	58	X3F140	56	X4F140	49
X2F150	58	X3F150	57	X4F150	49
X2F160	93	X3F160	93	X4F160	82
X2F170	93	X3F170	93	X4F170	82
X2F180	125	X3F180	125	X4F180	115
X2F190	125	X3F190	125	X4F190	115
X2F200	164	X3F200	164	X4F200	152
X2F210	164	X3F210	164	X4F210	152
X2F220	225	X3F220	207	X4F220	211
X2F230	225	X3F230	207	X4F230	211
X2F240	285	X3F240	270	X4F240	275
X2F250	285	X3F250	270	X4F250	267

X.K.. (M2)

X2K..	Oil quantity in liters	X3K..	Oil quantity in liters	X4K..	Oil quantity in liters
	Bath lubrication		Bath lubrication		Bath lubrication
X2K100	18	X3K100	22	X4K100	-
X2K110	16	X3K110	19	X4K110	-
X2K120	26	X3K120	32	X4K120	33
X2K130	26	X3K130	32	X4K130	34
X2K140	38	X3K140	56	X4K140	54
X2K150	41	X3K150	56	X4K150	56
X2K160	64	X3K160	87	X4K160	88
X2K170	64	X3K170	87	X4K170	88
X2K180	92	X3K180	120	X4K180	125
X2K190	97	X3K190	122	X4K190	129
X2K200	130	X3K200	160	X4K200	165
X2K210	130	X3K210	160	X4K210	165
X2K220	200	X3K220	205	X4K220	220
X2K230	200	X3K230	205	X4K230	220
X2K240	255	X3K240	270	X4K240	280
X2K250	255	X3K250	270	X4K250	280

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X.T.. (M2)

X3T..	Oil quantity in liters	X4T..	Oil quantity in liters
	Bath lubrication		Bath lubrication
X3T100	19	X4T100	-
X3T110	19	X4T110	-
X3T120	30	X4T120	36
X3T130	31	X4T130	36
X3T140	46	X4T140	55
X3T150	48	X4T150	59
X3T160	80	X4T160	89
X3T170	85	X4T170	94
X3T180	115	X4T180	120
X3T190	115	X4T190	120
X3T200	150	X4T200	155
X3T210	150	X4T210	155
X3T220	205	X4T220	215
X3T230	205	X4T230	215
X3T240	265	X4T240	275
X3T250	265	X4T250	275

Mounting position M4

X.F.. (M4)

X2F..	Oil quantity in liters		X3F..	Oil quantity in liters		X4F..	Oil quantity in liters	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X2F100	20	-	X3F100	26	-	X4F100	-	-
X2F110	23	-	X3F110	27	-	X4F110	-	-
X2F120	36	17	X3F120	37	17	X4F120	34	17
X2F130	37	19	X3F130	40	19	X4F130	40	19
X2F140	55	26	X3F140	65	26	X4F140	59	26
X2F150	62	27	X3F150	69	27	X4F150	69	27
X2F160	106	53	X3F160	120	53	X4F160	119	53
X2F170	106	53	X3F170	120	53	X4F170	119	53
X2F180	133	57	X3F180	155	57	X4F180	152	57
X2F190	135	57	X3F190	157	57	X4F190	152	57
X2F200	180	72	X3F200	197	72	X4F200	197	72
X2F210	180	72	X3F210	197	72	X4F210	197	72
X2F220	223	105	X3F220	263	105	X4F220	270	105
X2F230	223	105	X3F230	263	105	X4F230	270	105
X2F240	290	120	X3F240	335	120	X4F240	345	120
X2F250	290	120	X3F250	335	120	X4F250	345	120
X2F260	655	185	X3F260	630	185	X4F260	645	185
X2F270	655	185	X3F270	630	185	X4F270	645	185
X2F280	785	240	X3F280	775	240	X4F280	770	240
X2F290	955	260	X3F290	925	260	X4F290	940	260
X2F300	955	260	X3F300	925	260	X4F300	940	260
X2F310	1290	365	X3F310	1245	365	X4F310	1225	365
X2F320	1290	365	X3F320	1245	365	X4F320	1225	365

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X.K.. (M4)

X2K..	Oil quantity in liters		X3K..	Oil quantity in liters		X4K..	Oil quantity in liters	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X2K100	30	-	X3K100	34	-	X4K100	-	-
X2K110	29	-	X3K110	34	-	X4K110	-	-
X2K120	41	18	X3K120	50	19	X4K120	47	18
X2K130	43	18	X3K130	53	19	X4K130	52	19
X2K140	66	26	X3K140	79	26	X4K140	82	26
X2K150	70	27	X3K150	86	29	X4K150	88	29
X2K160	136	50	X3K160	148	50	X4K160	147	50
X2K170	136	50	X3K170	148	50	X4K170	147	50
X2K180	155	57	X3K180	177	57	X4K180	188	57
X2K190	155	57	X3K190	180	57	X4K190	188	57
X2K200	210	72	X3K200	239	75	X4K200	255	72
X2K210	210	72	X3K210	239	75	X4K210	255	72
X2K220	335	105	X3K220	320	105	X4K220	335	105
X2K230	335	105	X3K230	320	105	X4K230	335	105
X2K240	410	120	X3K240	405	120	X4K240	415	120
X2K250	410	120	X3K250	405	120	X4K250	415	120
X2K260	-	-	X3K260	615	185	X4K260	630	185
X2K270	-	-	X3K270	615	185	X4K270	630	185
X2K280	-	-	X3K280	750	240	X4K280	775	240
X2K290	-	-	X3K290	930	260	X4K290	965	260
X2K300	-	-	X3K300	930	260	X4K300	965	260
X2K310	-	-	X3K310	1250	365	X4K310	1260	365
X2K320	-	-	X3K320	1250	365	X4K320	1260	365

X.T.. (trolley drives M4)

X3T..	Oil quantity in liters		X4T..	Oil quantity in liters	
	Bath lubrication	Pressure lubrication		Bath lubrication	Pressure lubrication
X3T100	23	-	X4T100	-	-
X3T110	23	-	X4T110	-	-
X3T120	33	17	X4T120	37	17
X3T130	34	17	X4T130	34	17
X3T140	49	25	X4T140	54	25
X3T150	59	29	X4T150	55	29
X3T160	92	50	X4T160	95	50
X3T170	92	50	X4T170	95	50
X3T180	125	57	X4T180	130	57
X3T190	125	57	X4T190	130	57
X3T200	165	72	X4T200	165	72
X3T210	165	72	X4T210	165	72
X3T220	220	105	X4T220	220	105
X3T230	220	105	X4T230	220	105
X3T240	275	120	X4T240	290	120
X3T250	275	120	X4T250	290	120

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5.3.2 Thermal housing /HT

X.K..

X3K..	Oil quantity in liter	
	Splash lubrication	Pressure lubrication
X3K180	117	117
X3K190	117	117
X3K200	165	165
X3K210	165	165
X3K220	229	229
X3K230	229	229
X3K240	308	308
X3K250	297	297
X3K260	480	480
X3K270	480	480
X3K280	555	555
X3K290	735	735
X3K300	735	735
X3K310	1020	1020
X3K320	1020	1020

5.3.3 Agitator housing /HA

X.F..

X3F..	Oil quantity in liters		
	Bath lubrication	Pressure lubrication	Pressure lubrication with Drywell
X3F140	112	61	61
X3F150	119	66	66
X3F160	176	92	92
X3F170	183	96	96
X3F180	259	133	133
X3F190	265	137	137
X3F200	391	202	202
X3F210	396	207	207

5.3.4 Hoist housing /HC

Size	Oil quantity in liters	Size	Oil quantity in liters
X4F.C120/HC	25	X3F.C190/HC	83
X4F.C120/HC	29	X4F.C190/HC	80
X4F.C140/HC	39	X3F.C200/HC	109
X4F.C150/HC	47	X4F.C200/HC	109
X3F.C160/HC	53	X3F.C210/HC	112
X4F.C160/HC	51	X4F.C210/HC	113
X3F.C170/HC	64	X3F.C220/HC	173
X4F.C170/HC	65	X4F.C220/HC	169
X3F.C180/HC	81		
X4F.C180/HC	79		

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5.4 Sealing greases/rolling bearing greases

The table shows the grease types recommended by SEW-EURODRIVE for operating temperatures from the lower limit temperature to 100 °C.

Area of operation	Manufacturer	Grease	Lower limit temperature °C
Standard	Fuchs	**Renolit CX TOM 15 OEM**[1)]	-40
	BP	Energrease LS EP-2	-30
	Castrol	Longtime PD 2	-35
		Spheerol EPL 2	-20
	Klüber	Centoplex EP 2	-25
		Petamo GHY 133 N	-40
	Mobil	Moliux EP 2	-20
	Shell	Gadus S2 V220 2	-20
	Total	Multis EP 2	-20
	Bremer & Leguil	Cassida Grease GTS2[1)]	-40
	Fuchs	**Plantogel 2**[1)]	-40

1) Grease used by the factory should be preferred.



INFORMATION

- Do not mix permitted greases from different areas of application.
- If the lubricant used is not listed in the above table, you have to make sure that it is suitable for the intended application.

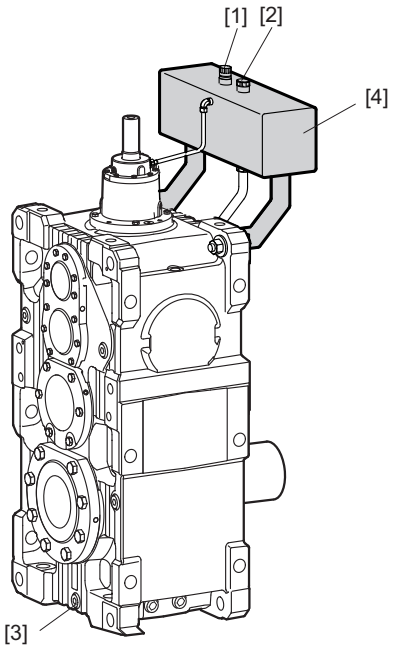
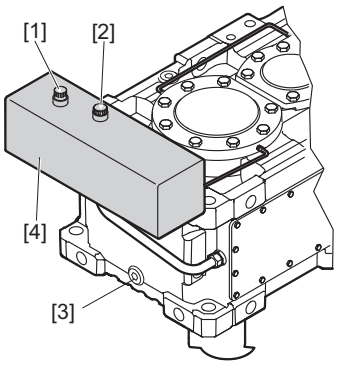
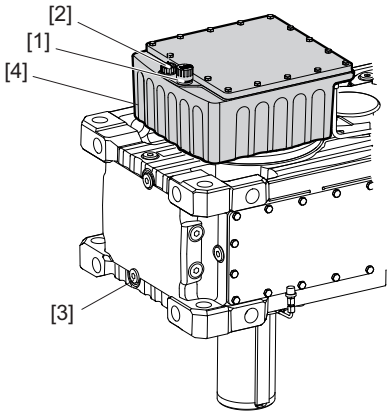
5.5 Bath lubrication accessories

5.5.1 Oil expansion tank /ET

The oil expansion tank is designed to compensate for oil volume variations in the system caused by temperature fluctuations. When the gear unit temperature increases, the oil expansion tank absorbs some of the increasing oil volume and feeds it back to the gear unit as the temperature goes down, which means the gear unit is always completely filled with oil.

Based on the oil level specified by SEW-EURODRIVE, the oil expansion tank is designed to compensate the oil volume change within the permitted operating temperature range. A temperature decrease below the permitted temperature range causes the oil expansion tank to be completely emptied and air being sucked into the gear unit. This might result in insufficient lubrication and a malfunction of the gear unit. An increase above the permitted temperature range causes an overfilling of the expansion tank and oil might leak from the gear unit. Any oil level below or above the level specified by SEW-EURODRIVE is permitted during operation as long as there is oil in the oil expansion tank and the oil expansion tank does not overflow.

The following figure shows the accessories for mounting positions M4 and M5 by way of example.

Mounting position M4	Mounting position M5 standard	Mounting position M5 optional
		The oil expansion tank is compact and can be used for gear units with output shaft as solid shaft. 

[1] Breather
[2] Oil dipstick
[3] Oil drain
[4] Oil expansion tank

INFORMATION

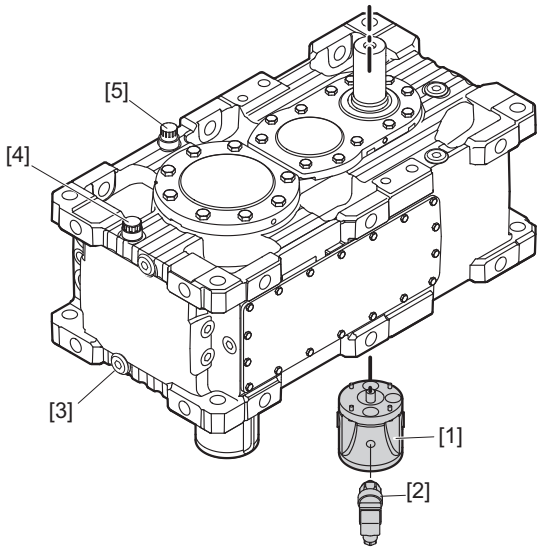
For the dimension sheets of the oil expansion tanks, refer to chapter "Oil expansion tank /ET for mounting position M4 [mm]" (→ 🗎 508).

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5.6 Pressure lubrication accessories

5.6.1 Shaft end pumps for universal housings

The figure shows the accessories for M5 mounting position.



8702189579

[1] Shaft end pump
[2] Pressure switch
[3] Oil drain
[4] Breather
[5] Oil dipstick

With pressure lubrication. a shaft end pump (direction-independent) supplies all bearing points and gearing outside the oil sump with oil via a tube system.

The pump is mounted externally to the gear unit and is driven by the input shaft or intermediate shaft of the gear unit. A high reliability of the pump function is ensured in this way.

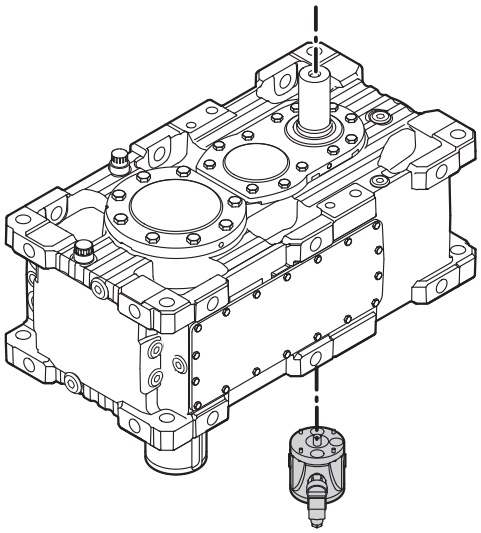
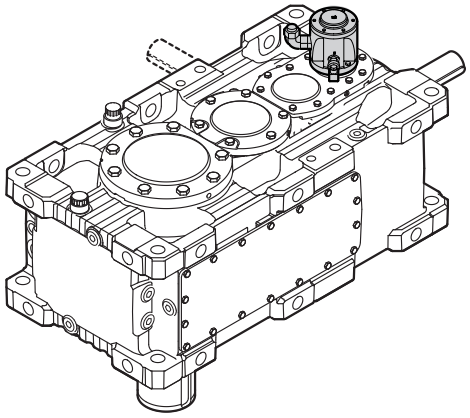
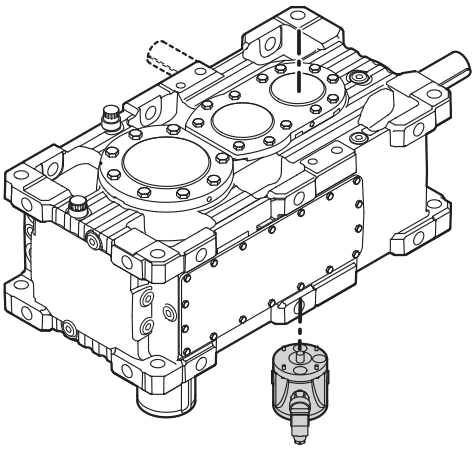
Different pump sizes are available. The adequate flow rate for the specific application depends on the following factors:

- Required oil quantity for supplying lubrication points
- Pump position (connected to input shaft or intermediate shaft)
- Gear unit ratio
- Speed range of the gear unit

INFORMATION

- Proper functioning of the shaft end pump is monitored via the connected pressure switch. For information, refer to chapter "Pressure switch /PS" (→ 🗎 135).
- With regard to the selection of suitable flow rates, consult SEW-EURODRIVE. For the dimensions, refer to chapter "Shaft end pump /SEP [mm]" (→ 🗎 415).
- A minimum input speed is required for the shaft end pump to operate properly. In case of variable and low input speeds (e.g. with inverter-controlled drives), contact SEW-EURODRIVE.

Overview: Position of shaft end pump

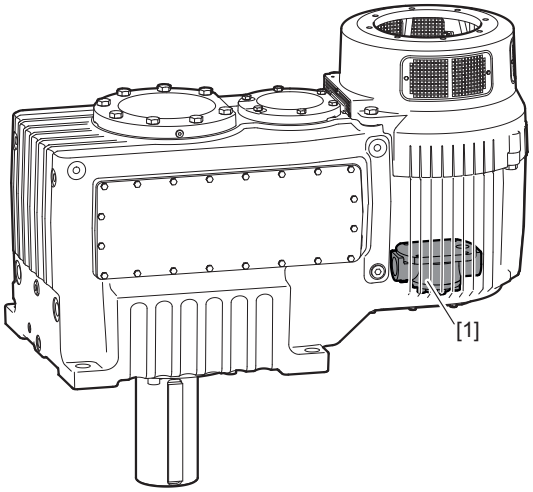
Design	Shaft end pump position	Figure
X.F..	With X.F.. helical gear units, the shaft end pump is positioned opposite the input shaft.	 *9007199962489227*
X2K.. **X4K..** **X4T..**	The shaft end pump of X2K/X4K/X4T bevel-helical gear units is located opposite the output shaft.	 *23560466059*
X3K.. **X3T..**	The shaft end pump of X3K/X3T gear units is located on the output shaft side.	 *9007200644569611*

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5.6.2 Shaft end pump for agitator housing

For further information, refer to the technical brochure "Technology for Agitators and Aerators".

The following figure shows the shaft end pump [1].



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5.7 Cooling

If the permitted thermal rating of the gear unit is exceeded, additional cooling measures must be applied.

The following cooling methods are possible as standard:

- Water cooling cover
- Water cooling cartridge
- Circulation cooling with oil-water cooler with a motor pump
- Circulation cooling oil-air cooler with motor pump
- A fan in combination with a water cooling cover
- A fan in combination with a water cooling cartridge
- Fan on the input shaft HSS

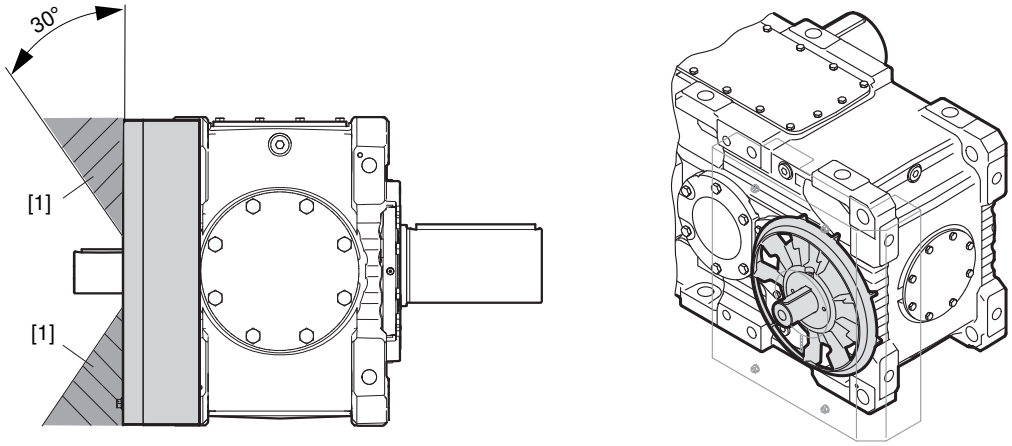
5.7.1 Fan /FAN

Fans with optimized noise and flow engineering geometry are used. A fan may be retrofitted to raise the thermal rating or when the ambient conditions change after gear unit startup. The direction of rotation of the gear unit does not influence the operation of the fan.

SEW-EURODRIVE offers the following fan variants:

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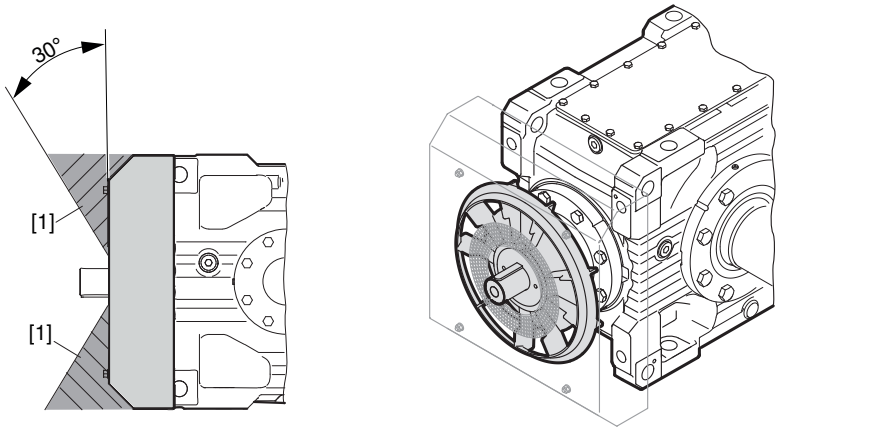
X.F.. Fan (standard) /FAN



18014399183926283

[1] Air intake clearance

X.K.. Fan (standard) /FAN



9007207957231755

INFORMATION

On request, the fan guard is available flush with the gear unit housing on one side. Contact SEW-EURODRIVE, if required. Observe the restricted thermal rating involved.

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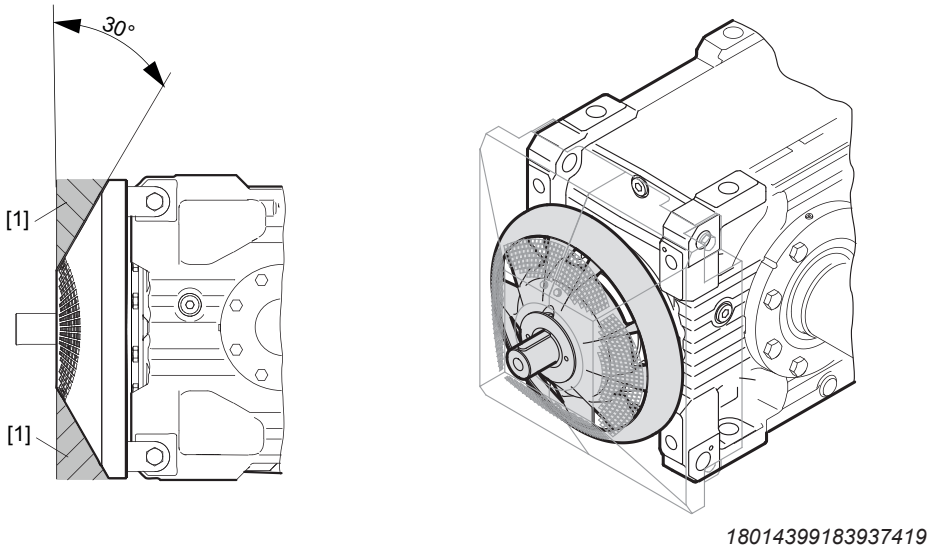
X3K.. Advanced (option) /FAN-ADV

When the type X3K.. Advanced is used, the connection element (e.g. hydraulic start-up coupling) can be mounted flush to the fan guard.

INFORMATION

The Advanced design is available for motor sizes X100 – 210.

The air intake clearance is integrated into the fan guard.



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[1] Air intake clearance

INFORMATION

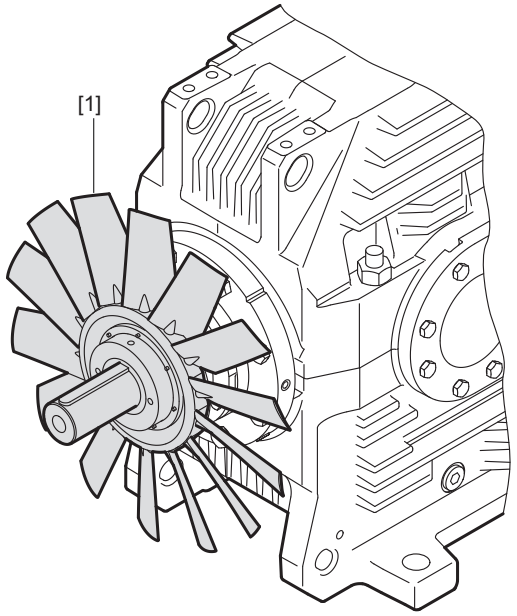
The fan design X3K.. Advanced cannot be used together with a torque arm because the fan guard is mounted to the attachment point of the torque arm.

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Axial fan

An axial fan [1] is integrated to increase the thermal rating. The fan depends on the direction of rotation. This is the reason why fans are available for CW or CCW rotation. Refer to the information on the order documents.

Universal housing HU / horizontal housing HH / thermal housing HT

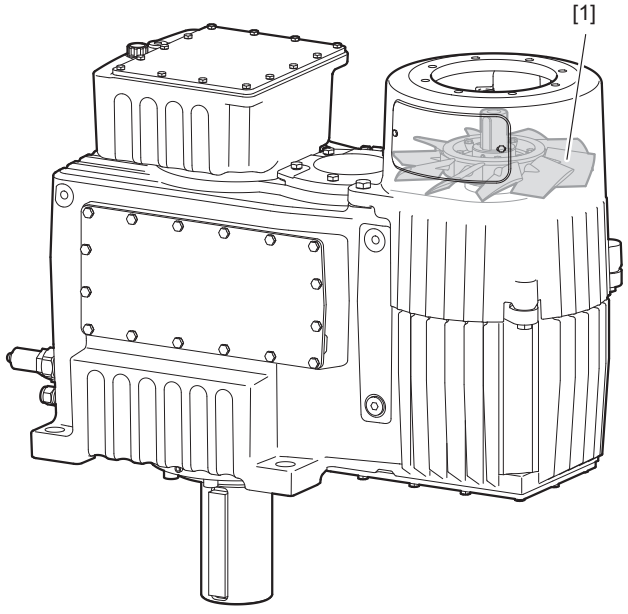


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Agitator housing /HA

The following figure shows the axial fan [1] as an example.

For further information, refer to the technical brochure "Technology for Agitators and Aerators".



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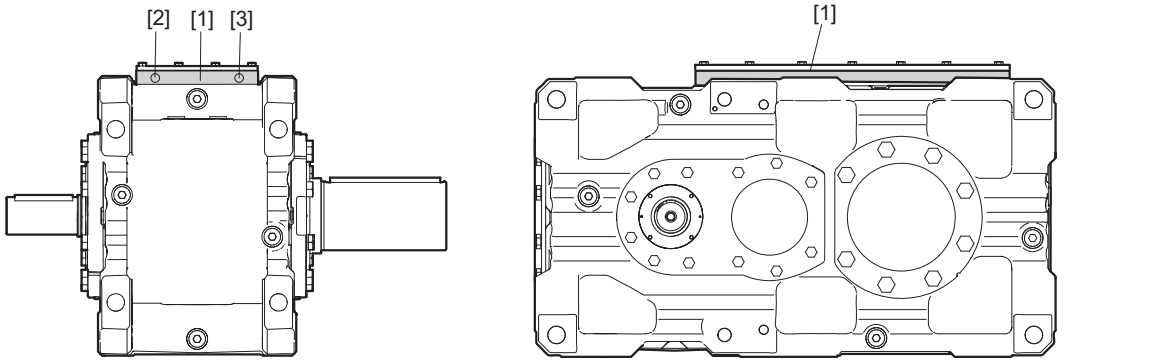
5.7.2 Built-in cooling, water cooling cover /CCV

The water cooling cover is located on the assembly opening of the gear unit and is provided with cooling water through a water connection that is provided by the operator. It is available for gear unit sizes X100 to 130, and X180 to 210. For the connection dimensions, refer to chapter "Water cooling cover /CCV and water cooling cartridge /CCT [mm]" (→ 🗎 424).

The amount of heat that can be dissipated depends on the intake temperature and the flow rate of the cooling medium that flows through the unit. For the permitted thermal rating, please contact SEW-EURODRIVE.

Structure

The figure shows an example of a gear unit with water cooling cover.



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[1] Water cooling cover
[2] Supply
[3] Return

The water cooling cover [1] is made of a corrosion-resistant aluminum alloy. Two bores with pipe threads are available to connect to the cooling circuit:

- Sizes X100 – 130: G3/8"
- Sizes X180 – 210: G1/2"

The piping is not included in the delivery. Gear units with water cooling cover are delivered completely assembled.

A water cooling cover can be retrofitted. Contact SEW-EURODRIVE.

Notes on connection and operation

To reach the thermal ratings given in the selection tables , a cooling water volume flow (water inflow temperature 15 °C) depending on the gear unit size according to the following table is required.

The cooling capacity of the water cooling cover changes when the cooling water quantity or temperature changes or when specific cooling media are used. Contact SEW-EURODRIVE.

Size	Cooling water flow rate l/min	Size	Cooling water flow rate l/min
X100 – 110	4	X180 – 190	8
X120 – 130	5	X20 – 210	11

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Cooling media

INFORMATION

- Note that the service life, the efficiency, and the maintenance intervals of the heat exchanger depend to a great degree on the quality and ingredients of the cooling medium.
- Special procedures are required when sea water or brackish water is used. Contact SEW-EURODRIVE.

Permitted cooling media

- The permitted cooling media is pure water. The use of cooling water additives, such as antifreeze or corrosion inhibitor, might negatively influence the cooling capacity and compatibility of materials. Contact SEW-EURODRIVE.
- Cooling water temperature and flow rate of oil and cooling water according to the order documents.

Dirt

The quantity of suspended solids (ball-shaped, particle size < 0.25 mm) should be less than 10 mg/l. Threadlike contaminants increase the risk of pressure loss.

Corrosion

Limit values: free chlorine < 0.5 ppm, chlorine ions < 200 ppm, sulfate < 100 ppm, ammonia < 10 ppm, free CO < 10 ppm, pH value 7-9.

The following ions do not have a corrosive effect under normal conditions: phosphate, nitrate, nitrite, iron, manganese, sodium, potassium.

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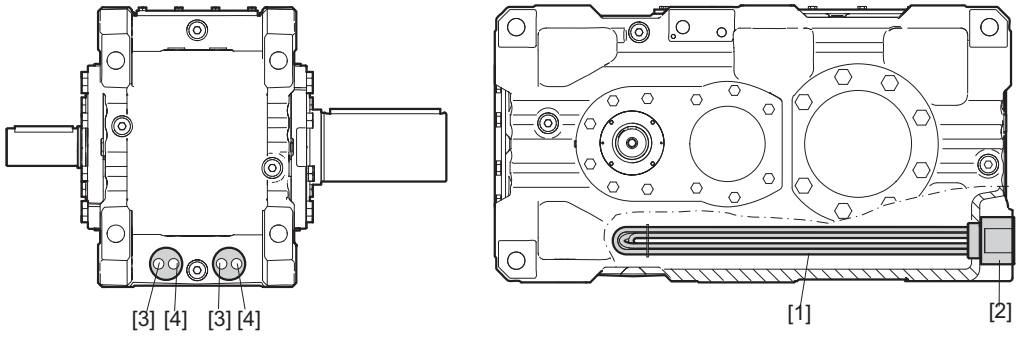
5.7.3 Built-in cooling, water cooling cartridge /CCT

The water cooling cartridge is mounted in the oil sump of the gear unit and is supplied with cooling water through a water connection that is provided by the user. It is available for sizes X140 to 320. For the connection dimensions, refer to chapter "Water cooling cover /CCV and water cooling cartridge /CCT [mm]" (→ 🗎 424).

The amount of heat that can be dissipated depends on the intake temperature and the flow rate of the cooling medium that flows through the unit. For the permitted thermal rating, refer to chapter "Selection tables" (→ 🗎 151).

Structure

The figure shows an example of a gear unit with water cooling cartridge.



[1] Cooling pipes
[2] Connection piece
[3] Supply
[4] Return

The water cooling cartridge consists of 3 main parts:

- Cooling pipes (CuNi alloy)
- Tube plate (brass)
- Connection piece (brass; gray cast iron; steel)

Two bores with pipe threads are available to connect to the cooling circuit:

- Pipe thread G1/4" for sizes X140 – 170
- Pipe thread G1/2" for sizes X180 – 320

. The piping is not included in the delivery.

Gear units with water cooling cartridge are delivered completely assembled.

Water cooling cartridges can be retrofitted to a certain extent. Contact SEW-EURODRIVE.

INFORMATION

- For gear unit sizes 140, 160, 180, 200, 220, 240, 260, 290, 310, the water cooling cartridge option comprises two cartridges as standard; for sizes 150, 170, 190, 210, 230, 250, 270, 280, 300, 320, it comprises one cartridge.
- The possible use as well as the maximum number of water cooling cartridges depends among others from the gear unit size, mounting position, end gear position, and lubrication type. Not all combinations of accessory options might be possible depending on the mounting position and mounting surface. Contact SEW-EURODRIVE.

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Notes on connection and operation

To achieve the thermal rating specified in the selection tables , different cooling water volumes are necessary depending on gear unit size, mounting position, and lubrication type. The following table lists the approximate values for the volume flow required for the M5 mounting position (water inflow temperature 15 °C).

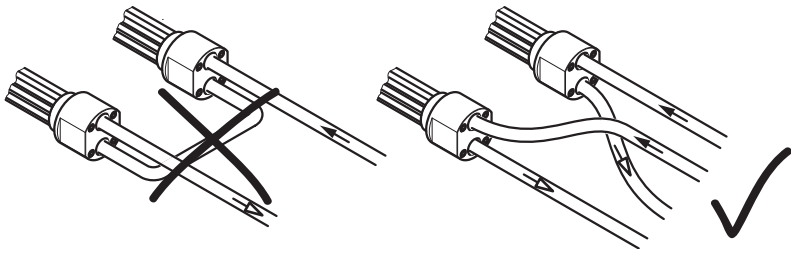
INFORMATION

Contact SEW-EURODRIVE when using another cooling water flow rate, another cooling water temperature, special cooling media (the cooling capacity of the water cooling cartridge changes), aggressive cooling media, such as brackish water or salt water.

Size	Cooling water flow rate l/min / per cooling cartridge			Max. cooling water flow rate l/min
	2 stages	3-stage	4 stages	
X140 – 150	10	8	3	15
X160 – 170	12	10	4	
X180 – 190	16	13	5	28
X200 – 210	19	15	6	
X220 – 230	23	19	8	
X240 – 250	24	21	9	
X260 – 270	17	16	6	25
X280 – 300	18	18	7	
X310 – 320	22	22	9	

The cooling circuit must be connected in parallel for gear units with 2 water cooling cartridges.

The table lists the cooling water volume flow for one water cooling cartridge. Twice the cooling water volume flow is required when using 2 water cooling cartridges.



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Requirements on the water quality

INFORMATION

Special measures have to be taken when using sea water or brackish water. Contact SEW-EURODRIVE.

The following requirements on the water quality are recommendations. In exceptional cases, certain concentrations of substances of content might cause unforeseen reactions.

The quality of the water as well as its substances are important factors for assessing the cooling water available for water cooling cartridges. The water quality is determined by the water hardness and the pH value of the water.

Water hardness

Water hardness is defined by the amount of hardeners (carbonates and bicarbonates) in the water. Hardeners accumulate on the surface of the water cooling cartridge in particular at high temperatures and in this way impair the performance. Take these deposits into account when selecting the water cooling cartridge for extremely hard water.

The following table shows the classification of German degrees of hardness to water quality °dH:

Degree of hardness[1)]	Water quality
0 – 5 °dH	Very soft water
5 – 10 °dH	Soft water
10 – 20 °dH	Medium hard water
20 – 30 °dH	Hard water
> 30 °dH	Very hard water

1) 10 mg/l of hardener corresponds to 1 °dH

pH value

- The water cooling cartridge partially consists of a copper and nickel alloy, to which the following applies:

  → Corrosion problems when **pH value < 6**
- With alkaline water:

  → Corrosion problems when **water hardness < 6°dH**

  Smaller values can cause corrosion due to free carbonic acid.

  The following table describes the classification of the water quality based on the pH value:

pH Value	Water quality
4.5	Very acidic
4.5 – 6.0	Acidic
6.0 – 6.8	Slightly acidic
7.0	Neutral
7.2 – 7.7	Slightly alkaline
7.7 – 8.2	Alkaline
8.2	Very alkaline

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Cooling water assessment based on water substances

The following table provides an overview of the resistance of copper-nickel pipes against substances in non-potable water.

Assessment criterion	Approximate concentration mg/l	Evaluation CuNi10Fe1Mn
pH value	< 6	0
	6 to 9	+
	> 9	0
Chloride	up to 1000	+
	> 1000	+ (< 25000 mg/l)
Sulfate	to 70	+
	70 to 300	+
	> 300	+ (< 25000 mg/l)
Nitrate	Up to 100	+
	> 100	0
Free (aggressive) carbonic acid	to 20	+
	20 to 50	0
	> 50	–
Oxygen	up to 2	+
	> 2	+
Ammonium	up to 2	+
	2 to 20	+
	> 20	–
Iron (dissolved)	to 10	0
	> 10	–
Manganese (dissolved)	to 1	0
	> 1	–
Free chlorine	to 5	permanently < 0.5 mg/l
	> 5	intermittently < 3.0 mg/l
Sulfide		0
Ammonia		+ (< 15 mg/l)

\+ = usually good resistivity

0 = corrosion problems can occur in particular if several factors are assessed with 0

– = we advise against use

Types of cooling water/characteristics

Note the following conditions:

Industrial water

- Usually untreated water (no drinking water)
- Often very contaminated
- A water analysis is necessary for assessment
- Copper, brass and steel are very resistant against industrial water

Stream water and river water

- We recommend using copper brass pipes
- Cast iron parts must be protected against corrosion by suitable coating
- Usually untreated water (no drinking water)

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- Often very contaminated
- A water analysis is necessary for assessment

5.8 Oil heater /OH

An oil heater is required to ensure lubrication during a cold gear unit startup when the ambient temperature is low.

INFORMATION

Note the oil viscosity outside of the gear unit (e.g. in the oil pipes) when performing a cold gear unit startup.

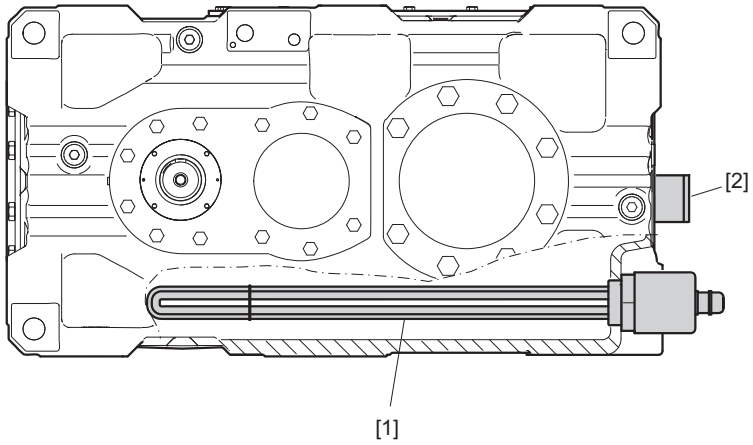
Results

The heater is screwed into the gear unit housing at the factory and is controlled by a thermostat. The trip temperature of the heater is set at the factory depending on the lubricant used.

5.8.1 Structure

The oil heater consists of 2 basic parts:

1. Heating element in the oil sump (Oil heater) with terminal box
2. Thermostat with integrated temperature sensor



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[1] Oil heater
[2] Thermostat with integrated temperature sensor

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INFORMATION

- It is essential that the heating elements are fully immersed in the oil sump to prevent any damage.
- The position of the thermostat varies depending on the design and mounting position of the gear unit.
- The possible use as well as the maximum number of heating elements depends among others on the size, mounting position, end gear position, and lubrication type. Not all combinations of accessory options might be possible depending on the mounting position and mounting surface. Contact SEW-EURODRIVE.
- **1 heating element** is used with the following sizes as standard: 110, 130, 150, 170, 190, 210, 230, 250, 270, 280, 300, 320. **2 heating elements** are used with the following sizes as standard: 100, 120, 140, 160, 180, 200, 220, 240, 260, 290, 310
- To keep the gear unit startup temperature, the thermostat can be energized continuously. The heating process can take several hours.
- For dimensions of the heating elements, see chapter "Oil heater /OH [mm]" (→ 🗎 423).

5.8.2 Information on the function of the oil heater

- The trip point of the oil heater thermostat is factory-set to a temperature of about 5 K above the respective "initial temperature for gear unit startup", see chapter "Limit temperature for gear unit startup" (→ 🗎 134).

  At this temperature, the thermostat disables the oil heater, see chapter "Limit temperature for gear unit startup" (→ 🗎 134). Only then the gear unit may be started up. The thermostat activates the oil heater again once the temperatures is about 5 K below the switching point.
- In order to prevent the oil from burning, the heating elements of the heater have a maximum surface load. This is why the heating process for cold gear unit oil can take between one and several hours. The exact duration of the heating process before the start varies depending on the gear unit size, type, mounting position, oil quantity, and ambient temperature.
- Thermostat and oil heater are installed in the gear unit and ready for operation. Prior to startup, wire them properly and connect them to the current supply.
- Contact SEW-EURODRIVE if a differing oil viscosity class is used or if ambient temperatures fall below the specified limit temperature.

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5.8.3 Connection power

The table shows the power of the heating that may be installed.

Gear unit		P_{inst}		P_{inst}	
		1 heating element		2 heating elements	
Size	Design	kW	K/h	kW	K/h
X100	X2F, X2K, X3K	1 x 0.4	6	2 x 0.4	11
	X3F	1 x 0.3	3	2 x 0.3	7
X110	X2F, X2K, X3K	1 x 0.6	6	-	-
	X3F	1 x 0.3	4	-	-
X120	X2K	1 x 0.6	6	2 x 0.6	11
	X2F, X3K, X3F, X4K	1 x 0.7	6	2 x 0.7	11
	X4F	1 x 0.3	3	2 x 0.3	5
X130	X2F, X2K, X3K, X3F, X4K	1 x 0.7	5	-	-
	X4F	1 x 0.4	3	-	-
X140	X2K	1 x 0.7	4	2 x 0.7	9
	X2F, X3K, X3F, X4K	1 x 0.8	5	2 x 0.8	10
	X4F	1 x 0.4	3	2 x 0.4	5
X150	X2K	1 x 0.8	5	-	-
	X2F, X3K, X3F, X4K	1 x 0.9	5	-	-
	X4F	1 x 0.6	3	-	-
X160	X2K	1 x 0.9	4	2 x 0.9	8
	X2F, X3K, X3F, X4K	1 x 1.1	4	2 x 1.1	8
	X4F	1 x 0.7	3	2 x 0.7	5
X170	X2K	1 x 0.9	4	-	-
	X2F, X3K, X3F, X4K	1 x 1.1	4	-	-
	X4F	1 x 0.7	3	-	-
X180	X2F, X2K, X3K, X3F, X4K	1 x 1.6	5	2 x 1.6	10
	X4F	1 x 1.1	4	2 x 1.1	7
X190	X2F, X2K, X3K, X3F, X4K	1 x 1.6	5	-	-
	X4F	1 x 1.1	3	-	-
X200	X2K	1 x 1.6	4	2 x 1.6	8
	X2F, X3K, X3F,	1 x 1.8	4	2 x 1.8	8
	X4F	1 x 1.3	3	2 x 1.3	6
X210	X2K	1 x 1.5	4	-	-
	X2F, X3K, X3F, X4K	1 x 1.8	4	-	-
	X4F	1 x 1.3	3	-	-
X220	X2K	1 x 1.8	3	2 x 1.8	7
	X2F, X3K, X3F, X4F, X4K	1 x 2.2	4	2 x 2.2	8
X230	X2K	1 x 1.8	3	-	-
	X2F, X3K, X3F, X4F, X4K	1 x 2.2	4	-	-
X240	X2K	1 x 1.8	3	2 x 1.8	5
	X2F, X3K, X3F, X4F, X4K	1 x 2.2	3	2 x 2.2	6
X250	X2K	1 x 2.2	3	-	-
	X2F, X3K, X3F, X4F, X4K	1 x 2.6	3	-	-
X260	X2F, X3K, X3F, X4F, X4K	1 x 3.8	4	2 x 3.8	8
X270	X2F, X3K, X3F, X4F, X4K	1 x 3.8	4	-	-
X280	X2F, X3K, X3F, X4F, X4K	1 x 4.2	4	-	-
X290	X2F, X3K, X3F, X4F, X4K	1 x 4.2	3	2 x 4.2	6
X300	X2F, X3K, X3F, X4F, X4K	1 x 4.2	3	-	-
X310	X2F, X3K, X3F, X4F, X4K	1 x 5.0	3	2 x 5.0	6
X320	X2F, X3K, X3F, X4F, X4K	1 x 5.0	3	-	-

K/h = Heating capacity in Kelvin/hour

P_{inst} = Power of the installed heater

5.8.4 Limit temperature for gear unit start

The minimum permitted ambient temperature/oil temperature for gear unit startup depends on the viscosity of the oil used and the lubrication type of the gear unit.

INFORMATION

- Before startup, it might be necessary to heat up the oil with an oil heater to the temperature specified under "Initial temperature". Observe the lubricant table in chapter "Permitted lubricants" (→ 🗎 101). For the design and dimensioning of the required oil heater, contact SEW-EURODRIVE.
- For the minimally permitted initial temperature for mineral and synthetic oil, refer to the chapter "Permitted lubricants" (→ 🗎 101).

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6 Condition monitoring

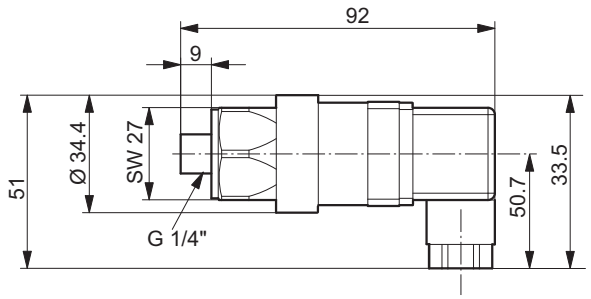
6.1 Pressure switch /PS

All gear units with pressure lubrication are equipped with a pressure switch for function monitoring.

The pressure switch is to be connected and integrated into the system in such a way that the gear unit can only be operated when the oil pump is building up pressure. A short-term compensation (max 20 s) during startup is permitted.

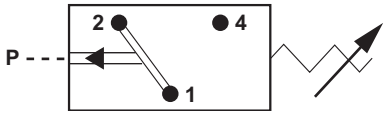
The electrical connection as well as evaluation of the switching signal are to be implemented by the customer.

6.1.1 Dimensions



721994635

6.1.2 Electrical connection



722003723

[1][2] NC contact
[1][4] NO contact

6.1.3 Technical data

- Switching pressure: 0.5 ± 0.2 bar
- Maximum switching capacity: 4 A – V_{AC} 250; 4 A – V_{DC} 24
- Plug connector: DIN EN 175301-803
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

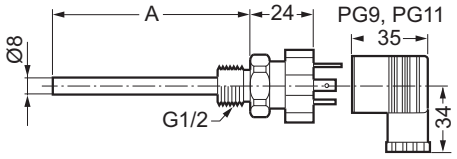
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6.2 /PT100 temperature sensor

The PT100 temperature sensor can be used to measure the temperature of the gear unit oil.

The temperature sensor is located in the oil sump of the gear unit. The exact position depends on the gear unit design and shaft position.

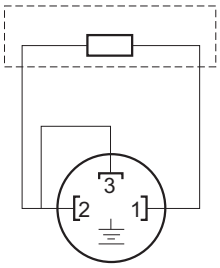
6.2.1 Dimensions



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A in mm
50
150

6.2.2 Electrical connection



359158539

[1][2] Resistor element connection

6.2.3 Technical data

- Design with thermowell and changeable measuring insert
- Sensor tolerance in K ± (0.3 + 0.005 × T), (corresponds to DIN IEC 751 class B),

  T = Oil temperature in °C
- Plug connector: DIN EN 175301-803 PG9 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

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6.3 Temperature switch /NTB

A temperature switch with preset switching temperatures of 70, 80, 90 or 100 °C is used for monitoring the gear unit oil temperature.

For various functions, the temperature switch is also used as limit value switch, for example

- for a pre-alarm

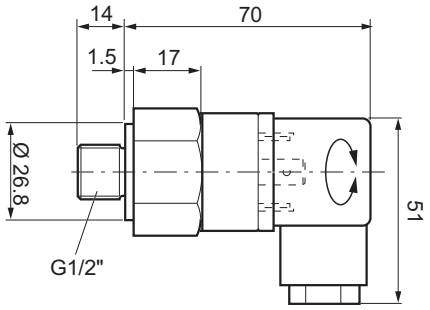
  or

- for a main alarm for switching off the main motor.

To guarantee a long service life and functioning under all conditions, it is recommended to use a relay in the power circuit instead of a direct connection through the temperature switch.

The temperature switch is located in the oil sump of the gear unit. The exact position depends on the gear unit design and shaft position.

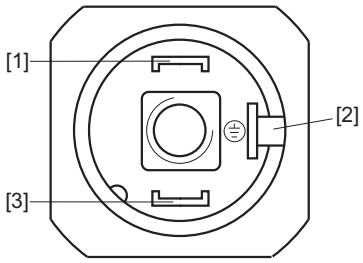
6.3.1 Dimensions



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6.3.2 Electrical connection

To guarantee a long service life and trouble-free functioning, we recommend that you use a relay in the power circuit instead of a direct connection through the temperature switch.



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[1] [3] NC contact
[2] Grounding terminal 6.3 x 0.8

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6.3.3 Technical data

- Trip temperature: 70 °C, 80 °C, 90 °C, 100 °C ± 5 °C
- Contact capacity: 10 A – AC 240 V
- Plug connector: DIN EN 175301-803 PG9 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

6.4 Temperature switch /TSK

The TSK temperature switch is used with oil supply systems for circulation cooling. It is provided with 2 fixed trip points (60 °C and 90 °C) for controlling and monitoring the system.

The temperature switch is integrated in the circuit of the oil supply system as follows:

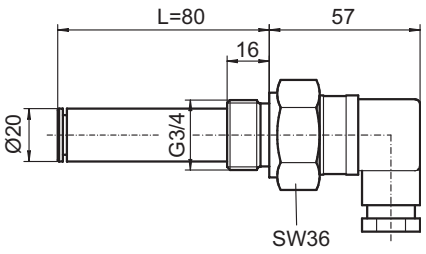
- The cooling system is activated when the oil temperature reaches 60 °C.
- Warning signal or disconnection of the gear unit when the oil temperature exceeds 90 °C (usually a sign of malfunction in the oil supply system)

The temperature switch is located in the gear unit's oil sump. The exact position depends on the gear unit version and position of the shaft.

INFORMATION

With sizes X100 – 210, the temperature switch is only possible in combination with the universal housing.

6.4.1 Dimensions

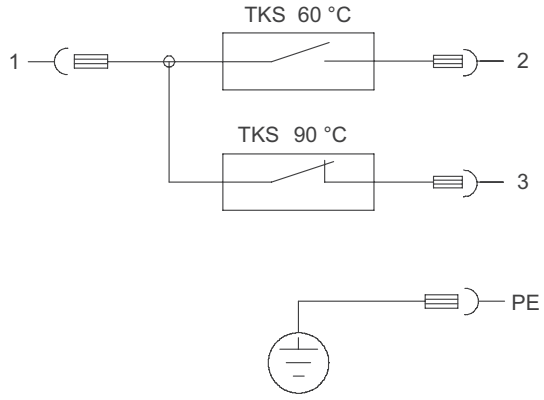


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6.4.2 Electrical connection

To guarantee a long service life and trouble-free functioning, we recommend that you use a relay in the power circuit instead of a direct connection through the temperature switch.



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[1][2] Switch 60 °C NO contact
[1][3] Switch 90 °C NC contact
PE Grounding terminal

6.4.3 Technical data

- Switching temperatures: 60 °C and 90 °C
- Contact capacity: 2 A – AC 240 V
- Plug connector: DIN EN 175301-803 PG11 (IP65)
- The tightening torque for the retaining screw in the back of the plug connector for electrical connection is 0.25 Nm.

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6.5 DUO10A diagnostic unit (oil ageing)

The DUO10A diagnostic unit was developed for timely planning of oil changes.

The diagnostic unit consists of a PT100 temperature sensor and an evaluation unit. The PT100 temperature sensor installed in the gear unit measures the present gear unit oil temperature. The diagnostic unit uses the oil temperature values to calculate the predicted remaining service life of the oil. This calculated value is continuously displayed on the evaluation unit display. If required, the display can display the current gear unit oil temperature.

The oil types used by SEW-EURODRIVE are recorded in the evaluation unit, wherein a type of oil approved by SEW-EURODRIVE can be customized.

Oil grades:

Oil type	Designation	Limit temperature
Mineral oil CLP/ Bio oil	OIL1	100 °C
Synthetic oil CLPHC/CLPPAO	OIL2	130 °C
Polyglycol oil CLPPG	OIL3	130 °C
Food grade oil	OIL4	100 °C
Customer-specific	OIL5	Default setting = OIL1

4 switching outputs (NC/NO contact) with the following functions are available to connect the evaluation unit:

- Early warning:

  Is set to a few days before expiration of the remaining service life. The number of days can be set directly on the evaluation unit.

- Main alarm:

  Is set when the estimated remaining service life reaches zero.

- Limit temperature:

  Shows when the permitted oil temperature has been exceeded.

- Ready for operation:

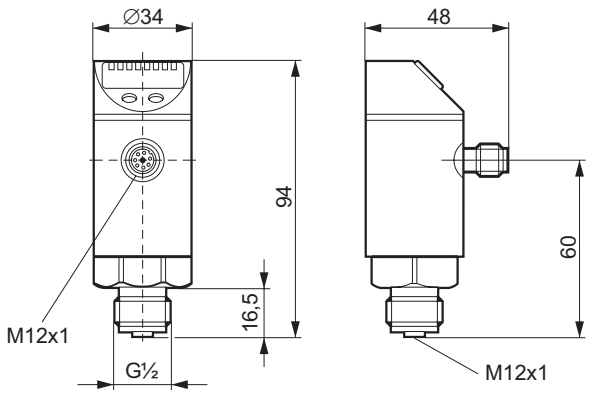
  Displays errors in the wiring and recognizable faults in the evaluation unit.

INFORMATION

Further information about the evaluation unit and accessories is found the "DUO10A Diagnostic Unit" manual, part no. 11473428.

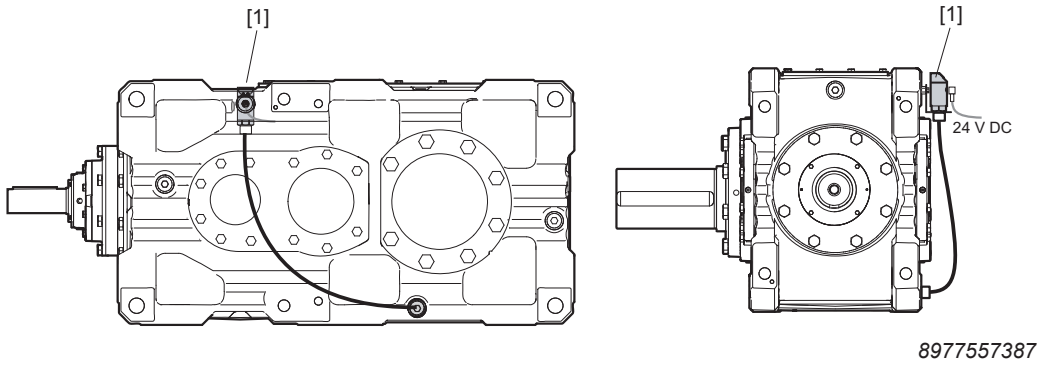
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6.5.1 Dimensions



8977554699

6.5.2 Mounting examples



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[1] DUO10A diagnostic unit

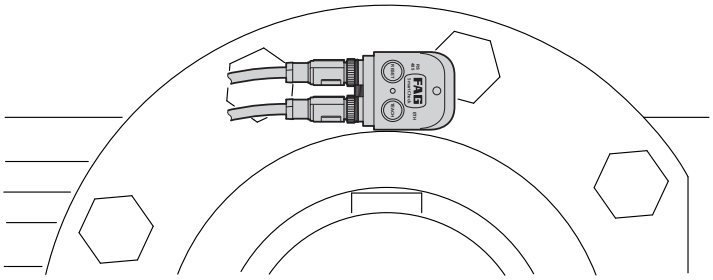
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6.6 Vibration SmartCheck

Vibration SmartCheck vibration monitoring is used to detect damage of gear units and gearmotors early (e.g. bearing damage or imbalances). For this purpose, permanent frequency-selective monitoring of the gearmotor is used. Apart from the vibration analysis, additional measured values of up to 3 signal encoders can be detected, recorded and analyzed. The additional signals can be used as reference values for signal analysis e.g. to trigger time or event-based measuring tasks. After the analysis and depending on user-defined alarm limits, the system can switch outputs and display the state using LEDs.

Vibration SmartCheck is configured using the FAG SmartWeb software. If you use several Vibration SmartCheck systems, you can control them via the FAG software SmartUtility Light centrally from one PC.

The full version of the SmartUtility software allows you to open sensors directly via the FAG SmartWeb software, to analyze measurement data in the SmartUtility Viewer and to download configurations or uploading configurations on other devices.



INFORMATION

Further information about the evaluation unit and accessories can be found in the "Vibration SmartCheck" supplement (installation instructions).

6.6.1 Scope of delivery

- Device Vibration SmartCheck with integrated software FAG SmartWeb
- User documentation Vibration SmartCheck and FAG SmartWeb on CD-ROM
- FAG SmartUtility Light software with user documentation on CD-ROM
- 1 Retaining screw: Hexagon socket head screw M6x45
- 1 O-ring to secure the retaining screw against loss
- 1 plug with logo to close assembly opening
- 3 closing plugs to close unused M12 connections

INFORMATION

Cables for connecting the device are not included in the standard delivery of Vibration SmartCheck devices.

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6.6.2 Technical data

Vibration SmartCheck	
Housings	Fiberglass-reinforced plastic
Fastening	Hexagon socket head screw M6 x 45 Contact surface on the machine: 25 mm Ø
Current consumption	< 200 mA at 24 V
Ambient temperature	-20 to +70° C
Internal operating temperature	-20 to +85 °C
Voltage supply	11 – 32 VDC or Power over Ethernet (PoE) based on 802.3af Mode A
Size	44 mm x 57 mm x 55 mm
Weight	Approx. 210 g
Degree of protection	IP 67
Operating system	Embedded Linux
Software	FAG SmartWeb (Mozilla Firefox ESR 38 (recommended), Internet Explorer 11, Internet Explorer 9 not recommended due to performance reasons) Vibration SmartUtility Light or optionally Vibration SmartUtility Languages: German, English, Chinese, Spanish, and French

Internal sensor technology	
Vibration	Acceleration sensor (piezoelectric sensor) Frequency range 0.8 Hz – 10 kHz Measuring range ±50 g
Temperature	Measuring range -20 to +70° C

Measurement	
Measurement functions	Acceleration Speed and distance by integration System temperature Process parameters (e.g. speed, load, pressure)
Diagnostic methods	Time signal, envelope, spectrum and trend analysis, speed and frequency checking

Characteristic values (time and frequency range)	
Defined characteristic values	DIN/ISO 10816
Calculated characteristic values	RMS, frequency selected RMS, direct component, peak, peak to peak, crest factor, Wellhausen count, carpet level, condition monitoring Other user-specific characteristic values are possible

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Signal processor	
Frequency resolution	1600, 3200, 6400 or 12 800 lines Minimum line width 0.0039 Hz at 50 Hz (depending on the low pass)
Measurement resolution	24 bit (A/D converter)
Frequency range	0.8 Hz – 10 kHz
Low passes	50 Hz – 10 kHz (50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 5 kHz, 10 kHz)
High passes (envelope only)	750 Hz, 1 kHz, 2 kHz (other filters on request)

Memory	
Program and data	64 MB RAM, 128 MB Flash

Inputs and outputs	
Inputs	**2 analog inputs** (0 – 10 V / 0 – 24 V / 0 – 20 mA / 4 – 20 mA), frequency range 0 – 500 Hz, 12 Bit **1 digital input** (0 – 30 V, 0.1 Hz – 1 kHz)
Outputs	**1 analog output** (0 – 10 V / -20 mA / 4 – 20 mA), 12 Bit **1 switching output** (open collector, max. 1 A, 28 V) Optional galvanic isolation between inputs and outputs

Interfaces	
Control elements	2 capacitive pushbuttons (learn mode, alarm reset, restart, factory settings)
Display elements	1 LED for displaying statuses and alarms 1 LED for confirming the pushbuttons 2 LEDs for the communication display
Communication	Ethernet, 100 MB/s RS485 (currently not supported)
Electrical connections	3 M12 plug connectors (polarity reversal protected) for supply, RS485, Inputs/outputs, and Ethernet

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6.6.3 Part numbers

	Description	Part number
Sensor	Vibration SmartCheck	19175892
Cables	8-pin voltage supply cable for SmartCheck, 5 m; M12(B) <-> open end	19179596
Cables	Ethernet cable for SmartCheck, 5 m; M12 <-> RJ45	19179618
Cables	I/O cable 8-pin for SmartCheck 5 m; M12(St) <-> open end	19179626

	Description	Part number
Base for mounting on standard gear units (R, F, K, and S gear units)	Mounting base with sealing ring M10 x 1	20593422
	Mounting base with sealing ring M12 x 1.5	20593430
	Mounting base with sealing ring M22 x 1.5	20593449
	Mounting base with sealing ring M33 x 2	20593457
	Mounting base with sealing ring M42 x 2	20593465

	Description	Part number
Base for mounting on industrial gear units	Mounting base with sealing ring G3/4	20593384
	Mounting base with sealing ring G1	20593392
	Mounting base with sealing ring G1 1/4	20593406
	Mounting base with sealing ring G1 1/2	20593414

	Description	Part number
Base for mounting on standard motors	Mounting base M5	21014175
	Mounting base M6	21014167
	Mounting base M8	20593503
	Mounting base M10	21014248
	Mounting base M12	20593473
	Mounting base M16	20593481
	Mounting base M20	20593511

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7 Design and operating notes

7.1 General information

Not included in the delivery:

- Set of wrenches
- Torque wrench
- Mounting device
- Compensation elements (shims, spacer rings), if necessary
- Fasteners for input and output elements
- Lubricant, e.g. NOCO® fluid from SEW-EURODRIVE → except for hollow-shaft gear units
- For hollow-shaft gear units → aids for assembly / disassembly on the machine shaft
- Fastening parts for the gear unit base
- Connection cables between gear unit and separately installed oil supply systems
- Supply cables and electrical connection of accessories

7.2 Gear unit mounting

The following table shows the thread sizes and tightening torques for the individual gear unit sizes.

Size	Screw/nut	Tightening torque Strength class 8.8
		Nm
X100 – 110	M20	410
X120 – 130	M24	710
X140 – 150	M30	1420
X160 – 190	M36	2500
X200 – 230	M42	4000
X240 – 280	M48	6000
X290 – 320	M56	9600

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7.3 Dimensioning the machine shaft for hollow shaft gear units

7.3.1 Output shaft as a hollow shaft with keyed connection /..A

The material and the keyed connection of the machine shaft (for design X..A) should be dimensioned by the customer according to the loads (e.g. impacts) that will occur.

INFORMATION

Depending on the gear unit size, the material of the shaft must have the following minimum yield point for transferring the nominal torque:

- 320 N/mm^2 for sizes X..A100 – X..A290
- 360 N/mm^2 for sizes X..A300 – X..A320

The material of the key must be selected according to the loads that will occur.

The minimum key length given in the dimension sheets must be observed. If a longer key is used, it should be aligned symmetrically to the hollow shaft.

With a continuous machine shaft or axial forces, SEW-EURODRIVE recommends that the machine shaft is designed with a contact shoulder. To prevent the retaining screw of the machine shaft from loosening upon a reversing load direction, it should be secured with a suitable threadlocker. If necessary, two eccentric retaining screws may be used.

INFORMATION

For detailed information on machine shaft design, refer to the dimension sheets in chapter "Hollow shaft with key X...A" (→ 🗎 407).

7.3.2 Output shaft as a hollow shaft with shrink disk /..H

INFORMATION

The material of the machine shaft should be dimensioned by the customer according to the loads that will occur (e.g. impact). The shaft material must have the following minimum yield point for transferring the nominal torque.

- 360 N/mm^2 for sizes X..100 to X..320

7.3.3 Output shaft as a splined hollow shaft /..V

INFORMATION

The material of the machine shaft should be dimensioned by the customer according to the loads that will occur (e.g. impact). The shaft material must have the following minimum yield point for transferring the nominal torque.

- 320 N/mm^2 for sizes X..100 – X..320

7.4 Dimensioning the customer hub of solid shaft gear units

The material of the customer hub should be dimensioned according to the loads that will occur.

7.5 Dimensioning the machine shaft with flange coupling

The material of the machine shaft as well as the keyed connection (of versions with key) should be dimensioned by the customer according to the loads that will occur. The shaft material should have a yield point of at least 320 N/mm². Choose the dimensions of the machine shaft according to the smooth solid shaft X..R.

INFORMATION

Detailed information regarding the design of the machine shaft can be provided by SEW-EURODRIVE upon request.

7.6 X2K.. with backstop for hollow shaft gear units

The gear unit designs X2K... with backstop and protection cover on one gear unit side are possible for all sizes except for the following gear unit sizes:

- X2KH100/110/120/140/160/240
- X2KA100/120

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8 Dimension sheet information

INFORMATION

- Dimension sheets and gear unit models can be found on https://www.drivegate.biz
- Unless specified otherwise, all dimensions are given in **mm**. NEMA motor adapters are an exception to this rule: Their dimensions are given in **inches**.

8.1 General information

8.1.1 Scope of delivery

= Standard parts supplied by SEW-EURODRIVE.

= Standard parts not supplied by SEW-EURODRIVE.

8.1.2 Mounting positions

The dimension sheets show horizontal gear units (mounting position M1)

For other mounting positions, or inclined or changing mounting positions (see chapter "Fixed and variable pivoted mounting positions" (→ 🗎 57)) as can occur with drives in booms, information and dimension sheets are available from SEW-EURODRIVE.

8.1.3 Weight

The specified weight data are guide values. The information on the nameplate is binding.

INFORMATION

The weight data in the selection tables do not include the oil fill.

8.1.4 Options: Shaft types

Chapter "Dimension sheets: Options" (→ 🗎 398) shows the options in connection with gear unit X.S.. with a solid shaft. Unless indicated otherwise, all options are also possible for gear units with other shaft types.

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8.2 Tolerances

8.2.1 Shaft ends

Diameter tolerance according to DIN 748:

- Ø = Smooth output shaft /..R → ISO k6
- Ø = Output shaft as a solid shaft with key /..S → ISO m6

Center bores according to DIN 332, part 2 (type D..):

Ø	> 16...21 mm	→ M6
Ø	> 21...24 mm	→ M8
Ø	> 24...30 mm	→ M10
Ø	> 30...38 mm	→ M12
Ø	> 38...50 mm	→ M16
Ø	> 50...85 mm[1)]	→ M20
Ø	> 85...130 mm[1)]	→ M24
Ø	> 130...225 mm[1)]	→ M30

1) Dimensions not according to DIN 332; the thread depth including the counterbore is at least twice that of the nominal thread diameter

Keys according to DIN 6885 (domed type)

8.2.2 Hollow shafts

Diameter tolerance:

- Ø → ISO H7 for hollow shafts for shrink disk
- Ø → ISO H8 for hollow shafts with keyway

8.2.3 Mounting flange

Centering shoulder tolerance: ISO f7

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9 Selection tables

9.1 Information on the selection tables

The thermal rating P_{TH} depends on several influencing factors. Contact SEW-EURODRIVE for information on your specific application.

X.F100..,n_1= 1000 1/min																6.80 kNm
					P_{TH}20 °C kW											
					M1				M5				M4			
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +
		min^{-1}	kNm	kW												
7.1	**7.09**	141	5.60	85	72	105	-	-	61	94	-	-	74	110	-	-	
8	**7.94**	126	5.75	78	75	110	-	-	64	99	-	-	77	115	-	-	
9	**8.52**	117	5.90	74	68	98	-	-	60	91	-	-	71	105	-	-	**X2F**
10	**9.53**	105	6.10	69	71	100	-	-	63	95	-	-	74	110	-	-	**M1**
11.2	**11.03**	91	6.40	62	63	92	-	-	58	87	-	-	67	98	-	-	HU 276
12.5	**12.34**	81	6.60	57	66	95	-	-	61	90	-	-	70	100	-	-	**M5**
14	**13.93**	72	6.80	52	53	76	-	-	50	73	-	-	56	81	-	-	342
16	**15.59**	64	6.80	47	57	81	-	-	53	78	-	-	60	87	-	-	**M4**
18	**17.21**	58	6.80	42	59	84	-	-	56	81	-	-	63	91	-	-	366
20	**19.26**	52	6.80	38	61	87	-	-	57	84	-	-	65	94	-	-	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]								[10]

Legend:

P_{TH} Thermal rating at 20°C ambient temperature:

[1] Nominal gear unit ratio

[2] Exact gear unit ratio

[3] Output speed (LSS)

[4] Nominal torque

[5] Nominal gear unit power

Thermal rating at 20°C ambient temperature:

[6] Without additional cooling

[7] With standard fan [2)]

[8] With water cooling cover

[9] With water cooling cartridge / with standard fan[2)]

[10] Gear unit type/Main dimension sheet

Footnote in selection tables:

*) Contact SEW-EURODRIVE

\- No catalog design

Footnote in key:

2) If a fan is installed in the motor adapter or if the fan cover is flush on one side, P_{TH} is reduced by 20%. If such configurations are also to be combined with water cooling covers or water cooling cartridges, contact SEW-EURODRIVE. A fan is not always possible in combination with bath lubrication and certain mounting positions. Observe the information in chapter "Fan / FAN" (→ 🗎 121).

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9.2 X.F.. helical gear units

X.F100..,n_1= 1000 1/min																	6.80 kNm
					P_{TH}20 °C kW												
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	M1				M5				M4				
							H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
7.1	**7.09**	141	5.60	85	72	105	-	-	61	94	-	-	74	110	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
8	**7.94**	126	5.75	78	75	110	-	-	64	99	-	-	77	115	-	-	
9	**8.52**	117	5.90	74	68	98	-	-	60	91	-	-	71	105	-	-	
10	**9.53**	105	6.10	69	71	100	-	-	63	95	-	-	74	110	-	-	
11.2	**11.03**	91	6.40	62	63	92	-	-	58	87	-	-	67	98	-	-	
12.5	**12.34**	81	6.60	57	66	95	-	-	61	90	-	-	70	100	-	-	
14	**13.93**	72	6.80	52	53	76	-	-	50	73	-	-	56	81	-	-	
16	**15.59**	64	6.80	47	57	81	-	-	53	78	-	-	60	87	-	-	
18	**17.21**	58	6.80	42	59	84	-	-	56	81	-	-	63	91	-	-	
20	**19.26**	52	6.80	38	61	87	-	-	57	84	-	-	65	94	-	-	
22.4	**22.60**	44	6.50	31	42	52	-	-	40	50	-	-	45	56	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
25	**25.29**	40	6.80	29	44	55	-	-	43	53	-	-	48	59	-	-	
28	**27.94**	36	6.80	26	38	47	-	-	37	46	-	-	41	51	-	-	
31.5	**31.27**	32	6.80	24	40	50	-	-	39	48	-	-	43	53	-	-	
35.5	**34.95**	29	6.80	21	34	42	-	-	33	41	-	-	37	46	-	-	
40	**39.11**	26	6.80	19	36	44	-	-	35	43	-	-	38	48	-	-	
45	**42.31**	24	6.80	17	33	40	-	-	32	40	-	-	35	43	-	-	
50	**47.35**	21	6.80	16	34	42	-	-	33	41	-	-	37	45	-	-	
56	**52.91**	19	6.80	14	30	37	-	-	29	36	-	-	32	40	-	-	
63	**59.22**	17	6.80	12	31	38	-	-	30	38	-	-	34	41	-	-	
71	**68.53**	15	6.80	11	29	36	-	-	29	35	-	-	31	39	-	-	
80	**76.69**	13	6.80	10	30	36	-	-	29	36	-	-	32	39	-	-	
90	**85.71**	12	6.80	9	26	32	-	-	26	32	-	-	28	35	-	-	
100	**95.92**	10	6.80	8	27	33	-	-	27	33	-	-	29	36	-	-	
X.F100..,n_1= 1200 1/min																	6.80 kNm
7.1	**7.09**	169	5.60	100	73	115	-	-	54	100	-	-	72	120	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
8	**7.94**	151	5.75	93	77	125	-	-	58	105	-	-	76	125	-	-	
9	**8.52**	141	5.90	89	69	110	-	-	56	98	-	-	70	115	-	-	
10	**9.53**	126	6.10	82	72	115	-	-	59	105	-	-	74	120	-	-	
11.2	**11.03**	109	6.40	75	65	105	-	-	57	95	-	-	68	110	-	-	
12.5	**12.34**	97	6.60	69	68	105	-	-	59	99	-	-	71	115	-	-	
14	**13.93**	86	6.80	63	55	86	-	-	50	81	-	-	58	92	-	-	
16	**15.59**	77	6.80	56	59	92	-	-	53	87	-	-	62	98	-	-	
18	**17.21**	70	6.80	51	61	95	-	-	56	91	-	-	64	100	-	-	
20	**19.26**	62	6.80	45	63	98	-	-	58	94	-	-	66	105	-	-	
22.4	**22.60**	53	6.50	37	44	59	-	-	41	57	-	-	46	63	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
25	**25.29**	47	6.80	35	46	63	-	-	43	60	-	-	49	67	-	-	
28	**27.94**	43	6.80	32	40	54	-	-	38	52	-	-	43	58	-	-	
31.5	**31.27**	38	6.80	28	42	57	-	-	40	55	-	-	45	61	-	-	
35.5	**34.95**	34	6.80	25	36	49	-	-	34	47	-	-	38	52	-	-	
40	**39.11**	31	6.80	23	37	51	-	-	35	49	-	-	40	54	-	-	
45	**42.31**	28	6.80	21	34	46	-	-	33	45	-	-	37	50	-	-	
50	**47.35**	25	6.80	19	36	48	-	-	34	47	-	-	38	52	-	-	
56	**52.91**	23	6.80	17	31	43	-	-	30	42	-	-	34	46	-	-	
63	**59.22**	20	6.80	15	33	44	-	-	32	43	-	-	35	48	-	-	
71	**68.53**	18	6.80	13	30	41	-	-	30	40	-	-	33	44	-	-	
80	**76.69**	16	6.80	12	31	42	-	-	30	41	-	-	33	45	-	-	
90	**85.71**	14	6.80	10	28	37	-	-	27	37	-	-	30	40	-	-	
100	**95.92**	13	6.80	9	28	38	-	-	28	38	-	-	31	41	-	-	

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X.F100..,n_1= 1500 1/min																	6.80 kNm
					P_{TH}20 °C kW												
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
7.1	**7.09**	212	5.60	125	73	135	-	-	*)	100	-	-	65	135	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
8	**7.94**	189	5.75	115	77	140	-	-	35	110	-	-	69	140	-	-	
9	**8.52**	176	5.90	110	70	125	-	-	44	105	-	-	67	130	-	-	
10	**9.53**	157	6.10	105	73	130	-	-	48	110	-	-	70	135	-	-	
11.2	**11.03**	136	6.40	93	67	120	-	-	51	105	-	-	67	125	-	-	
12.5	**12.34**	122	6.60	86	69	125	-	-	54	110	-	-	69	130	-	-	
14	**13.93**	108	6.80	79	56	99	-	-	47	91	-	-	58	105	-	-	
16	**15.59**	96	6.80	70	60	105	-	-	51	98	-	-	62	110	-	-	
18	**17.21**	87	6.80	64	63	110	-	-	55	105	-	-	65	115	-	-	
20	**19.26**	78	6.80	57	65	115	-	-	57	105	-	-	67	120	-	-	
22.4	**22.60**	66	6.50	47	45	70	-	-	40	65	-	-	47	74	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
25	**25.29**	59	6.80	44	48	74	-	-	43	69	-	-	50	78	-	-	
28	**27.94**	54	6.80	40	42	64	-	-	38	60	-	-	44	68	-	-	
31.5	**31.27**	48	6.80	35	44	67	-	-	39	63	-	-	46	71	-	-	
35.5	**34.95**	43	6.80	32	37	57	-	-	34	54	-	-	39	61	-	-	
40	**39.11**	38	6.80	28	39	60	-	-	35	56	-	-	41	63	-	-	
45	**42.31**	35	6.80	26	36	55	-	-	34	53	-	-	38	59	-	-	
50	**47.35**	32	6.80	23	37	57	-	-	35	55	-	-	40	61	-	-	
56	**52.91**	28	6.80	21	33	50	-	-	31	49	-	-	35	54	-	-	
63	**59.22**	25	6.80	19	34	52	-	-	32	50	-	-	36	56	-	-	
71	**68.53**	22	6.80	16	32	49	-	-	31	47	-	-	34	52	-	-	
80	**76.69**	20	6.80	14	32	49	-	-	31	48	-	-	35	53	-	-	
90	**85.71**	18	6.80	13	29	44	-	-	28	43	-	-	31	47	-	-	
100	**95.92**	16	6.80	12	30	45	-	-	29	44	-	-	32	49	-	-	
X.F100..,n_1= 1800 1/min																	**6.80 kNm**
7.1	**7.09**	254	5.30	145	70	150	-	-	*)	94	-	-	47	140	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
8	**7.94**	227	5.40	130	75	155	-	-	*)	100	-	-	53	145	-	-	
9	**8.52**	211	5.60	125	69	140	-	-	*)	105	-	-	57	140	-	-	
10	**9.53**	189	5.80	120	72	145	-	-	*)	110	-	-	62	145	-	-	
11.2	**11.03**	163	6.05	105	67	135	-	-	38	110	-	-	63	135	-	-	
12.5	**12.34**	146	6.30	99	69	140	-	-	41	115	-	-	65	140	-	-	
14	**13.93**	129	6.50	90	57	110	-	-	41	98	-	-	56	115	-	-	
16	**15.59**	115	6.80	84	61	120	-	-	45	105	-	-	60	125	-	-	
18	**17.21**	105	6.80	76	63	125	-	-	51	110	-	-	64	130	-	-	
20	**19.26**	93	6.80	68	66	125	-	-	53	115	-	-	67	135	-	-	
22.4	**22.60**	80	6.15	53	46	79	-	-	38	72	-	-	47	83	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
25	**25.29**	71	6.80	53	49	84	-	-	41	76	-	-	50	88	-	-	
28	**27.94**	64	6.80	48	43	73	-	-	36	67	-	-	44	77	-	-	
31.5	**31.27**	58	6.80	43	45	76	-	-	38	70	-	-	46	80	-	-	
35.5	**34.95**	52	6.80	38	38	65	-	-	33	60	-	-	39	69	-	-	
40	**39.11**	46	6.80	34	40	68	-	-	34	62	-	-	41	71	-	-	
45	**42.31**	43	6.80	31	37	62	-	-	34	59	-	-	39	66	-	-	
50	**47.35**	38	6.80	28	38	65	-	-	35	62	-	-	41	69	-	-	
56	**52.91**	34	6.80	25	34	57	-	-	31	55	-	-	36	61	-	-	
63	**59.22**	30	6.80	22	35	59	-	-	32	57	-	-	37	63	-	-	
71	**68.53**	26	6.80	19	33	55	-	-	31	54	-	-	35	60	-	-	
80	**76.69**	23	6.80	17	34	56	-	-	32	55	-	-	36	60	-	-	
90	**85.71**	21	6.80	16	30	50	-	-	28	49	-	-	32	54	-	-	
100	**95.92**	19	6.80	14	31	52	-	-	29	50	-	-	33	56	-	-	

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X.F110..,n_1= 1000 1/min																	8.50 kNm
					P_{TH}20 °C kW												
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
8	**8.16**	123	8.10	105	77	115	-	-	66	100	-	-	79	120	-	-	
9	**9.14**	109	8.25	97	76	110	-	-	65	100	-	-	79	115	-	-	**X2F..**
10	**9.80**	102	8.40	92	73	105	-	-	64	98	-	-	76	110	-	-	**M1**
11.2	**10.98**	91	8.50	83	76	110	-	-	67	100	-	-	79	115	-	-	HU 276
12.5	**12.69**	79	8.50	72	68	97	-	-	62	92	-	-	71	105	-	-	**M5**
14	**14.20**	70	8.50	64	70	100	-	-	64	96	-	-	74	105	-	-	342
16	**16.03**	62	8.50	57	60	87	-	-	57	83	-	-	64	93	-	-	**M4**
18	**17.94**	56	8.50	51	60	86	-	-	56	82	-	-	64	92	-	-	366
20	**19.80**	51	8.50	46	62	89	-	-	59	86	-	-	66	95	-	-	
22.4	**22.17**	45	8.50	41	64	92	-	-	61	89	-	-	68	99	-	-	
25	**26.01**	38	7.50	31	45	56	-	-	43	54	-	-	48	60	-	-	
28	**29.12**	34	7.80	29	46	57	-	-	44	55	-	-	50	61	-	-	
31.5	**32.15**	31	8.20	28	42	51	-	-	40	50	-	-	45	55	-	-	
35.5	**36.00**	28	8.50	26	42	52	-	-	41	51	-	-	46	56	-	-	
40	**40.21**	25	8.50	23	37	46	-	-	36	45	-	-	40	49	-	-	**X3F..**
45	**45.02**	22	8.50	21	38	47	-	-	36	45	-	-	41	50	-	-	**M1**
50	**48.68**	21	8.50	19	34	42	-	-	34	42	-	-	37	46	-	-	HU 282
56	**54.51**	18	8.50	17	36	44	-	-	35	43	-	-	39	48	-	-	**M5**
63	**60.89**	16	8.50	15	32	39	-	-	31	38	-	-	34	42	-	-	346
71	**68.17**	15	8.50	14	33	40	-	-	32	40	-	-	35	44	-	-	**M4**
80	**78.85**	13	8.50	12	31	38	-	-	30	37	-	-	33	41	-	-	370
90	**88.29**	11	8.50	10	32	39	-	-	31	38	-	-	34	42	-	-	
100	**98.62**	10	8.50	9	28	34	-	-	27	34	-	-	30	37	-	-	
112	**110.42**	9.1	8.50	8	28	34	-	-	27	34	-	-	30	37	-	-	
X.F110..,n_1= 1200 1/min																	**8.50 kNm**
8	**8.16**	147	8.10	130	79	125	-	-	58	110	-	-	78	130	-	-	
9	**9.14**	131	8.25	115	78	125	-	-	59	110	-	-	78	130	-	-	**X2F..**
10	**9.80**	122	8.40	110	74	120	-	-	61	105	-	-	76	125	-	-	**M1**
11.2	**10.98**	109	8.50	100	78	125	-	-	64	110	-	-	79	130	-	-	HU 276
12.5	**12.69**	95	8.50	86	70	110	-	-	61	100	-	-	72	115	-	-	**M5**
14	**14.20**	85	8.50	77	72	115	-	-	63	105	-	-	75	120	-	-	342
16	**16.03**	75	8.50	68	63	98	-	-	57	93	-	-	66	105	-	-	**M4**
18	**17.94**	67	8.50	61	62	97	-	-	56	92	-	-	65	105	-	-	366
20	**19.80**	61	8.50	55	64	100	-	-	59	96	-	-	68	105	-	-	
22.4	**22.17**	54	8.50	49	66	105	-	-	61	99	-	-	70	110	-	-	
25	**26.01**	46	7.50	38	47	64	-	-	44	61	-	-	50	68	-	-	
28	**29.12**	41	7.80	35	48	65	-	-	45	63	-	-	51	70	-	-	
31.5	**32.15**	37	8.20	33	43	59	-	-	41	57	-	-	46	63	-	-	
35.5	**36.00**	33	8.50	31	44	60	-	-	42	58	-	-	47	64	-	-	
40	**40.21**	30	8.50	28	39	53	-	-	37	51	-	-	41	56	-	-	**X3F..**
45	**45.02**	27	8.50	25	39	53	-	-	37	51	-	-	42	57	-	-	**M1**
50	**48.68**	25	8.50	23	36	49	-	-	35	48	-	-	39	53	-	-	HU 282
56	**54.51**	22	8.50	20	37	51	-	-	36	50	-	-	40	55	-	-	**M5**
63	**60.89**	20	8.50	18	33	45	-	-	32	44	-	-	36	48	-	-	346
71	**68.17**	18	8.50	16	34	46	-	-	33	45	-	-	37	50	-	-	**M4**
80	**78.85**	15	8.50	14	32	43	-	-	31	43	-	-	35	47	-	-	370
90	**88.29**	14	8.50	13	33	45	-	-	32	44	-	-	36	48	-	-	
100	**98.62**	12	8.50	11	29	39	-	-	28	39	-	-	31	42	-	-	
112	**110.42**	11	8.50	10	29	39	-	-	29	39	-	-	31	43	-	-	

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X.F110..,n_1= 1500 1/min																	8.50 kNm
					P_{TH}20 °C kW												
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
8	**8.16**	184	8.10	160	79	145	-	-	*)	110	-	-	69	145	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**9.14**	164	8.25	145	78	145	-	-	*)	110	-	-	71	145	-	-	
10	**9.80**	153	8.40	140	75	135	-	-	46	115	-	-	72	140	-	-	
11.2	**10.98**	137	8.50	125	79	140	-	-	51	120	-	-	76	145	-	-	
12.5	**12.69**	118	8.50	110	71	125	-	-	55	110	-	-	71	130	-	-	
14	**14.20**	106	8.50	96	74	130	-	-	58	115	-	-	74	135	-	-	
16	**16.03**	94	8.50	85	65	115	-	-	55	105	-	-	66	120	-	-	
18	**17.94**	84	8.50	76	64	110	-	-	54	105	-	-	66	120	-	-	
20	**19.80**	76	8.50	69	66	115	-	-	58	110	-	-	69	125	-	-	
22.4	**22.17**	68	8.50	62	68	120	-	-	60	110	-	-	71	125	-	-	
25	**26.01**	58	7.50	47	49	75	-	-	44	70	-	-	51	80	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
28	**29.12**	52	7.80	44	50	77	-	-	45	72	-	-	52	82	-	-	
31.5	**32.15**	47	8.20	42	45	69	-	-	41	65	-	-	47	74	-	-	
35.5	**36.00**	42	8.50	38	46	71	-	-	42	67	-	-	48	75	-	-	
40	**40.21**	37	8.50	34	40	62	-	-	37	59	-	-	43	66	-	-	
45	**45.02**	33	8.50	31	41	63	-	-	37	59	-	-	43	67	-	-	
50	**48.68**	31	8.50	28	38	57	-	-	36	56	-	-	40	62	-	-	
56	**54.51**	28	8.50	25	39	60	-	-	37	58	-	-	42	64	-	-	
63	**60.89**	25	8.50	23	35	53	-	-	33	51	-	-	37	57	-	-	
71	**68.17**	22	8.50	20	36	55	-	-	34	53	-	-	38	59	-	-	
80	**78.85**	19	8.50	18	34	51	-	-	33	50	-	-	36	55	-	-	
90	**88.29**	17	8.50	16	35	53	-	-	34	52	-	-	38	57	-	-	
100	**98.62**	15	8.50	14	31	46	-	-	29	45	-	-	33	50	-	-	
112	**110.42**	14	8.50	13	31	47	-	-	30	46	-	-	33	50	-	-	
X.F110..,n_1= 1800 1/min																	**8.50 kNm**
8	**8.16**	221	7.70	180	73	160	-	-	*)	105	-	-	48	150	-	-	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**9.14**	197	7.82	165	75	160	-	-	*)	105	-	-	52	150	-	-	
10	**9.80**	184	7.96	155	73	150	-	-	*)	115	-	-	60	150	-	-	
11.2	**10.98**	164	8.07	140	78	160	-	-	*)	120	-	-	66	155	-	-	
12.5	**12.69**	142	8.50	130	71	140	-	-	41	120	-	-	67	145	-	-	
14	**14.20**	127	8.50	115	74	145	-	-	45	125	-	-	70	150	-	-	
16	**16.03**	112	8.50	100	66	125	-	-	49	115	-	-	65	135	-	-	
18	**17.94**	100	8.50	91	64	125	-	-	49	110	-	-	64	130	-	-	
20	**19.80**	91	8.50	83	67	130	-	-	55	120	-	-	68	135	-	-	
22.4	**22.17**	81	8.50	74	69	135	-	-	57	125	-	-	71	140	-	-	
25	**26.01**	69	7.10	53	50	85	-	-	42	78	-	-	51	90	-	-	**X3F.. M1** HU 282 **M5** 346 **M4** 370
28	**29.12**	62	7.41	50	51	87	-	-	43	80	-	-	52	92	-	-	
31.5	**32.15**	56	7.70	47	46	79	-	-	39	72	-	-	48	83	-	-	
35.5	**36.00**	50	7.90	43	47	80	-	-	40	74	-	-	49	85	-	-	
40	**40.21**	45	8.05	39	41	70	-	-	36	65	-	-	43	74	-	-	
45	**45.02**	40	8.50	37	42	71	-	-	36	66	-	-	43	75	-	-	
50	**48.68**	37	8.50	34	39	65	-	-	36	63	-	-	41	70	-	-	
56	**54.51**	33	8.50	30	41	68	-	-	37	65	-	-	43	73	-	-	
63	**60.89**	30	8.50	27	36	60	-	-	33	58	-	-	38	65	-	-	
71	**68.17**	26	8.50	24	37	62	-	-	34	60	-	-	39	67	-	-	
80	**78.85**	23	8.50	21	35	58	-	-	33	57	-	-	37	63	-	-	
90	**88.29**	20	8.50	19	36	61	-	-	34	59	-	-	39	65	-	-	
100	**98.62**	18	8.50	17	32	53	-	-	30	51	-	-	34	57	-	-	
112	**110.42**	16	8.50	15	32	53	-	-	30	52	-	-	34	57	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F120..,n_1= 1000 1/min																	**12.8 kNm**
6.3	**6.44**	155	11.3	190	100	150	-	-	66	120	-	-	97	150	-	-	
7.1	**7.34**	136	11.4	165	105	155	-	-	74	130	-	-	100	160	-	-	
8	**8.04**	124	11.5	155	99	145	-	-	80	130	-	-	100	150	-	-	**X2F..**
9	**9.15**	109	11.6	135	98	145	-	-	79	125	-	-	100	150	-	-	**M1**
10	**10.20**	98	11.7	125	89	130	-	-	76	120	-	-	92	135	-	-	HU 276
11.2	**11.61**	86	11.8	110	92	135	-	-	80	125	-	-	95	140	-	-	**M5**
12.5	**12.83**	78	11.9	100	88	130	-	-	79	120	-	-	92	135	-	-	342
14	**14.61**	68	12.2	90	91	135	-	-	83	125	-	-	96	140	-	-	**M4**
16	**16.28**	61	12.4	82	79	115	-	-	73	110	-	-	83	120	-	-	366
18	**18.53**	54	12.8	74	81	120	-	-	75	110	-	-	86	125	-	-	
20	**20.26**	49	10.9	58	61	76	-	-	57	72	-	-	65	81	-	-	
22.4	**23.06**	43	12.0	57	63	78	-	-	59	74	-	-	67	83	-	-	
25	**25.70**	39	12.8	54	57	71	-	-	53	67	-	-	61	75	-	-	
28	**29.26**	34	12.8	48	58	72	-	-	54	68	-	-	62	77	-	-	**X3F..**
31.5	**30.90**	32	12.8	45	51	63	-	-	48	60	-	-	54	67	-	-	**M1**
35.5	**35.18**	28	12.8	40	52	64	-	-	48	61	-	-	55	68	-	-	HU 282
40	**41.45**	24	12.8	34	51	63	-	-	49	61	-	-	55	68	-	-	HH 322
45	**47.18**	21	12.8	29	52	64	-	-	50	62	-	-	55	68	-	-	**M5**
50	**49.83**	20	12.8	28	45	55	-	-	43	54	-	-	48	59	-	-	346
56	**56.73**	18	12.8	25	45	55	-	-	44	54	-	-	48	60	-	-	**M4**
63	**65.48**	15	12.8	21	43	53	-	-	42	52	-	-	46	57	-	-	370
71	**74.54**	13	12.8	19	43	54	-	-	42	53	-	-	47	58	-	-	
80	**78.73**	13	12.8	18	38	47	-	-	37	46	-	-	41	51	-	-	
90	**89.63**	11	12.8	16	39	48	-	-	38	47	-	-	42	52	-	-	
100	**107.48**	9.3	12.8	13	34	-	-	-	34	-	-	-	37	-	-	-	
112	**122.36**	8.2	12.8	11	35	-	-	-	35	-	-	-	38	-	-	-	
125	**129.23**	7.7	12.8	11	31	-	-	-	31	-	-	-	34	-	-	-	**X4F..**
140	**147.12**	6.8	12.8	10	32	-	-	-	32	-	-	-	35	-	-	-	**M1**
160	**154.68**	6.5	12.8	9	29	-	-	-	28	-	-	-	31	-	-	-	HU 288
180	**176.09**	5.7	12.8	8	29	-	-	-	29	-	-	-	32	-	-	-	**M5**
200	**205.30**	4.9	12.8	7	28	-	-	-	28	-	-	-	30	-	-	-	350
224	**233.72**	4.3	12.8	6	28	-	-	-	28	-	-	-	31	-	-	-	**M4**
250	**246.85**	4.1	12.8	6	25	-	-	-	25	-	-	-	27	-	-	-	374
280	**281.01**	3.6	12.8	5	26	-	-	-	25	-	-	-	28	-	-	-	
315	**295.46**	3.4	12.8	5	23	-	-	-	23	-	-	-	25	-	-	-	
355	**336.35**	3.0	12.8	4	24	-	-	-	23	-	-	-	25	-	-	-	
X.F120..,n_1= 1200 1/min																	**12.8 kNm**
6.3	**6.44**	186	11.3	225	97	165	-	-	*)	120	-	-	84	160	-	-	
7.1	**7.34**	163	11.4	200	105	170	-	-	*)	130	-	-	93	170	-	-	
8	**8.04**	149	11.5	185	100	165	-	-	61	135	-	-	96	165	-	-	**X2F..**
9	**9.15**	131	11.6	165	98	160	-	-	62	135	-	-	95	165	-	-	**M1**
10	**10.20**	118	11.7	150	90	145	-	-	69	125	-	-	90	150	-	-	HU 276
11.2	**11.61**	103	11.8	130	93	150	-	-	73	130	-	-	94	155	-	-	**M5**
12.5	**12.83**	94	11.9	120	90	145	-	-	76	130	-	-	93	150	-	-	342
14	**14.61**	82	12.2	110	93	150	-	-	79	135	-	-	96	155	-	-	**M4**
16	**16.28**	74	12.4	98	81	130	-	-	72	120	-	-	85	135	-	-	366
18	**18.53**	65	12.8	89	84	135	-	-	74	125	-	-	87	140	-	-	
20	**20.26**	59	10.9	70	63	87	-	-	56	80	-	-	66	92	-	-	
22.4	**23.06**	52	12.0	68	65	89	-	-	58	83	-	-	68	94	-	-	
25	**25.70**	47	12.8	65	59	81	-	-	53	75	-	-	62	86	-	-	
28	**29.26**	41	12.8	57	60	82	-	-	54	76	-	-	63	87	-	-	**X3F..**
31.5	**30.90**	39	12.8	54	53	72	-	-	48	67	-	-	55	76	-	-	**M1**
35.5	**35.18**	34	12.8	47	53	73	-	-	48	68	-	-	56	77	-	-	HU 282
40	**41.45**	29	12.8	40	53	72	-	-	50	69	-	-	57	77	-	-	HH 322
45	**47.18**	25	12.8	35	54	73	-	-	51	70	-	-	57	78	-	-	**M5**
50	**49.83**	24	12.8	33	46	63	-	-	44	61	-	-	50	68	-	-	346
56	**56.73**	21	12.8	29	47	64	-	-	45	61	-	-	50	68	-	-	**M4**
63	**65.48**	18	12.8	25	45	61	-	-	43	60	-	-	48	66	-	-	370
71	**74.54**	16	12.8	22	45	61	-	-	44	60	-	-	49	66	-	-	
80	**78.73**	15	12.8	21	40	54	-	-	38	53	-	-	43	58	-	-	
90	**89.63**	13	12.8	19	41	55	-	-	40	54	-	-	44	60	-	-	
100	**107.48**	11	12.8	16	36	-	-	-	35	-	-	-	39	-	-	-	
112	**122.36**	9.8	12.8	14	37	-	-	-	36	-	-	-	40	-	-	-	
125	**129.23**	9.3	12.8	13	33	-	-	-	32	-	-	-	35	-	-	-	**X4F..**
140	**147.12**	8.2	12.8	11	33	-	-	-	33	-	-	-	36	-	-	-	**M1**
160	**154.68**	7.8	12.8	11	30	-	-	-	30	-	-	-	33	-	-	-	HU 288
180	**176.09**	6.8	12.8	10	31	-	-	-	30	-	-	-	33	-	-	-	**M5**
200	**205.30**	5.8	12.8	8	29	-	-	-	29	-	-	-	32	-	-	-	350
224	**233.72**	5.1	12.8	7	30	-	-	-	30	-	-	-	32	-	-	-	**M4**
250	**246.85**	4.9	12.8	7	26	-	-	-	26	-	-	-	29	-	-	-	374
280	**281.01**	4.3	12.8	6	27	-	-	-	27	-	-	-	29	-	-	-	
315	**295.46**	4.1	12.8	6	24	-	-	-	24	-	-	-	26	-	-	-	
355	**336.35**	3.6	12.8	5	25	-	-	-	25	-	-	-	27	-	-	-	

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X.F120..,n_1= 1500 1/min																	12.8 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.44**	233	11.3	280	84	185	-	-	*)	90	-	-	*)	170	-	-	
7.1	**7.34**	204	11.4	250	94	195	-	-	*)	105	-	-	*)	175	-	-	
8	**8.04**	187	11.5	230	94	185	-	-	*)	130	-	-	74	180	-	-	**X2F..**
9	**9.15**	164	11.6	205	95	185	-	-	*)	130	-	-	74	175	-	-	**M1**
10	**10.20**	147	11.7	185	88	165	-	-	*)	135	-	-	80	165	-	-	HU 276
11.2	**11.61**	129	11.8	165	92	170	-	-	47	140	-	-	86	175	-	-	**M5**
12.5	**12.83**	117	11.9	150	91	165	-	-	63	140	-	-	89	170	-	-	342
14	**14.61**	103	12.2	135	94	170	-	-	69	150	-	-	93	175	-	-	**M4**
16	**16.28**	92	12.4	125	82	150	-	-	66	135	-	-	84	155	-	-	366
18	**18.53**	81	12.8	110	85	155	-	-	68	140	-	-	86	160	-	-	
20	**20.26**	74	10.9	88	65	100	-	-	52	89	-	-	66	105	-	-	
22.4	**23.06**	65	12.0	85	67	105	-	-	54	92	-	-	68	110	-	-	
25	**25.70**	58	12.8	81	61	94	-	-	50	84	-	-	62	99	-	-	
28	**29.26**	51	12.8	71	62	96	-	-	51	86	-	-	63	100	-	-	**X3F..**
31.5	**30.90**	49	12.8	67	55	84	-	-	45	76	-	-	56	88	-	-	**M1**
35.5	**35.18**	43	12.8	59	55	85	-	-	46	77	-	-	56	89	-	-	HU 282
40	**41.45**	36	12.8	50	55	85	-	-	51	80	-	-	58	90	-	-	HH 322
45	**47.18**	32	12.8	44	56	86	-	-	51	81	-	-	59	91	-	-	**M5**
50	**49.83**	30	12.8	42	48	74	-	-	44	70	-	-	51	79	-	-	346
56	**56.73**	26	12.8	37	49	75	-	-	45	71	-	-	52	80	-	-	**M4**
63	**65.48**	23	12.8	32	47	72	-	-	45	69	-	-	50	77	-	-	370
71	**74.54**	20	12.8	28	47	72	-	-	45	70	-	-	51	78	-	-	
80	**78.73**	19	12.8	26	42	63	-	-	39	61	-	-	44	68	-	-	
90	**89.63**	17	12.8	23	43	65	-	-	41	63	-	-	46	70	-	-	
100	**107.48**	14	12.8	20	38	-	-	-	37	-	-	-	41	-	-	-	
112	**122.36**	12	12.8	17	39	-	-	-	38	-	-	-	42	-	-	-	
125	**129.23**	12	12.8	16	35	-	-	-	34	-	-	-	37	-	-	-	
140	**147.12**	10	12.8	14	35	-	-	-	35	-	-	-	38	-	-	-	**X4F..**
160	**154.68**	9.7	12.8	14	32	-	-	-	31	-	-	-	34	-	-	-	**M1**
180	**176.09**	8.5	12.8	12	32	-	-	-	32	-	-	-	35	-	-	-	HU 288
200	**205.30**	7.3	12.8	10	31	-	-	-	31	-	-	-	34	-	-	-	**M5**
224	**233.72**	6.4	12.8	9	32	-	-	-	31	-	-	-	34	-	-	-	350
250	**246.85**	6.1	12.8	9	28	-	-	-	28	-	-	-	30	-	-	-	**M4**
280	**281.01**	5.3	12.8	8	29	-	-	-	28	-	-	-	31	-	-	-	374
315	**295.46**	5.1	12.8	7	26	-	-	-	26	-	-	-	28	-	-	-	
355	**336.35**	4.5	12.8	6	26	-	-	-	26	-	-	-	28	-	-	-	
X.F120..,n_1= 1800 1/min																	**12.8 kNm**
6.3	**6.44**	280	10.7	320	*)	200	-	-	*)	*)	-	-	*)	160	-	-	
7.1	**7.34**	245	10.8	285	75	210	-	-	*)	*)	-	-	*)	170	-	-	
8	**8.04**	224	10.9	260	81	205	-	-	*)	99	-	-	*)	185	-	-	**X2F..**
9	**9.15**	197	11.0	230	80	200	-	-	*)	105	-	-	*)	180	-	-	**M1**
10	**10.20**	176	11.1	210	78	180	-	-	*)	130	-	-	56	175	-	-	HU 276
11.2	**11.61**	155	11.2	185	86	190	-	-	*)	135	-	-	64	185	-	-	**M5**
12.5	**12.83**	140	11.3	170	89	185	-	-	*)	145	-	-	79	185	-	-	342
14	**14.61**	123	11.6	155	93	190	-	-	41	155	-	-	85	190	-	-	**M4**
16	**16.28**	111	11.7	140	82	165	-	-	51	140	-	-	80	170	-	-	366
18	**18.53**	97	12.0	125	85	170	-	-	56	145	-	-	82	175	-	-	
20	**20.26**	89	10.9	105	66	115	-	-	42	95	-	-	63	115	-	-	
22.4	**23.06**	78	11.4	97	68	120	-	-	44	98	-	-	65	120	-	-	
25	**25.70**	70	12.8	97	62	105	-	-	42	90	-	-	60	110	-	-	
28	**29.26**	62	12.8	86	63	110	-	-	44	92	-	-	61	110	-	-	**X3F..**
31.5	**30.90**	58	12.8	81	55	96	-	-	40	82	-	-	54	98	-	-	**M1**
35.5	**35.18**	51	12.8	71	56	97	-	-	40	83	-	-	55	99	-	-	HU 282
40	**41.45**	43	12.8	60	57	96	-	-	49	89	-	-	59	100	-	-	HH 322
45	**47.18**	38	12.8	53	57	97	-	-	50	90	-	-	60	105	-	-	**M5**
50	**49.83**	36	12.8	50	50	84	-	-	43	79	-	-	52	89	-	-	346
56	**56.73**	32	12.8	44	50	85	-	-	44	79	-	-	52	90	-	-	**M4**
63	**65.48**	27	12.8	38	49	82	-	-	45	78	-	-	51	88	-	-	370
71	**74.54**	24	12.8	34	49	82	-	-	45	79	-	-	52	88	-	-	
80	**78.73**	23	12.8	32	43	72	-	-	40	69	-	-	46	77	-	-	
90	**89.63**	20	12.8	28	44	74	-	-	41	71	-	-	47	80	-	-	
100	**107.48**	17	12.8	24	39	-	-	-	38	-	-	-	42	-	-	-	
112	**122.36**	15	12.8	21	40	-	-	-	39	-	-	-	43	-	-	-	
125	**129.23**	14	12.8	20	36	-	-	-	35	-	-	-	39	-	-	-	
140	**147.12**	12	12.8	17	37	-	-	-	36	-	-	-	40	-	-	-	**X4F..**
160	**154.68**	12	12.8	16	33	-	-	-	32	-	-	-	36	-	-	-	**M1**
180	**176.09**	10	12.8	14	34	-	-	-	33	-	-	-	36	-	-	-	HU 288
200	**205.30**	8.8	12.8	12	32	-	-	-	32	-	-	-	35	-	-	-	**M5**
224	**233.72**	7.7	12.8	11	33	-	-	-	32	-	-	-	36	-	-	-	350
250	**246.85**	7.3	12.8	10	29	-	-	-	29	-	-	-	32	-	-	-	**M4**
280	**281.01**	6.4	12.8	9	30	-	-	-	29	-	-	-	32	-	-	-	374
315	**295.46**	6.1	12.8	9	27	-	-	-	27	-	-	-	29	-	-	-	
355	**336.35**	5.4	12.8	8	28	-	-	-	27	-	-	-	30	-	-	-	

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X.F130..,n_1= 1000 1/min																	16 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	**8.06**	124	14.3	190	105	160	-	-	75	130	-	-	105	160	-	-	
9	**9.15**	109	14.4	170	110	165	-	-	83	140	-	-	110	170	-	-	
10	**10.05**	100	14.5	155	105	155	-	-	87	140	-	-	110	165	-	-	**X2F..**
11.2	**11.41**	88	14.6	135	100	145	-	-	82	130	-	-	100	155	-	-	**M1**
12.5	**12.75**	78	14.7	125	95	140	-	-	83	130	-	-	99	145	-	-	HU 276
14	**14.48**	69	14.8	110	94	135	-	-	82	125	-	-	98	145	-	-	**M5**
16	**16.04**	62	14.9	100	94	135	-	-	86	130	-	-	99	145	-	-	342
18	**18.22**	55	15.2	90	93	135	-	-	85	125	-	-	98	145	-	-	**M4**
20	**20.35**	49	15.6	82	84	120	-	-	78	115	-	-	90	130	-	-	366
22.4	**23.11**	43	16.0	74	87	125	-	-	81	120	-	-	93	135	-	-	
25	**25.32**	39	13.6	58	65	81	-	-	61	77	-	-	69	86	-	-	
28	**28.76**	35	15.5	59	65	81	-	-	61	77	-	-	70	86	-	-	
31.5	**32.12**	31	16.0	54	61	75	-	-	57	72	-	-	65	81	-	-	
35.5	**36.48**	27	16.0	48	62	77	-	-	58	73	-	-	66	82	-	-	**X3F..**
40	**38.62**	26	16.0	45	54	67	-	-	51	64	-	-	58	72	-	-	**M1**
45	**43.87**	23	16.0	40	55	68	-	-	52	65	-	-	59	73	-	-	HU 282
50	**51.81**	19	16.0	34	54	67	-	-	53	65	-	-	58	72	-	-	HH 322
56	**58.84**	17	16.0	30	55	68	-	-	53	66	-	-	59	73	-	-	**M5**
63	**62.29**	16	16.0	28	49	60	-	-	47	58	-	-	52	65	-	-	346
71	**70.75**	14	16.0	25	48	59	-	-	47	58	-	-	52	64	-	-	**M4**
80	**81.85**	12	16.0	21	46	57	-	-	45	56	-	-	50	61	-	-	370
90	**92.96**	11	16.0	19	45	56	-	-	44	55	-	-	49	60	-	-	
100	**98.41**	10	16.0	18	42	51	-	-	41	50	-	-	45	55	-	-	
112	**111.77**	8.9	16.0	16	41	50	-	-	40	49	-	-	44	54	-	-	
125	**134.35**	7.4	16.0	13	37	-	-	-	37	-	-	-	40	-	-	-	
140	**152.59**	6.6	16.0	12	36	-	-	-	36	-	-	-	39	-	-	-	
160	**161.54**	6.2	16.0	11	33	-	-	-	33	-	-	-	36	-	-	-	
180	**183.47**	5.5	16.0	10	33	-	-	-	33	-	-	-	36	-	-	-	**X4F..**
200	**193.35**	5.2	16.0	9	31	-	-	-	31	-	-	-	34	-	-	-	**M1**
224	**219.59**	4.6	16.0	8	31	-	-	-	31	-	-	-	34	-	-	-	HU 288
250	**256.63**	3.9	16.0	7	30	-	-	-	30	-	-	-	32	-	-	-	**M5**
280	**291.46**	3.4	16.0	6	30	-	-	-	29	-	-	-	32	-	-	-	350
315	**308.56**	3.2	16.0	6	27	-	-	-	27	-	-	-	29	-	-	-	**M4**
355	**350.43**	2.9	16.0	5	27	-	-	-	27	-	-	-	29	-	-	-	374
400	**369.32**	2.7	16.0	5	25	-	-	-	25	-	-	-	27	-	-	-	
450	**419.44**	2.4	16.0	4	25	-	-	-	25	-	-	-	27	-	-	-	
X.F130..,n_1= 1200 1/min																	16 kNm
8	**8.06**	149	14.3	230	105	175	-	-	*)	130	-	-	93	175	-	-	
9	**9.15**	131	14.4	205	110	185	-	-	53	140	-	-	105	185	-	-	
10	**10.05**	119	14.5	185	110	175	-	-	70	145	-	-	105	180	-	-	**X2F..**
11.2	**11.41**	105	14.6	165	100	165	-	-	68	135	-	-	98	170	-	-	**M1**
12.5	**12.75**	94	14.7	150	96	155	-	-	77	140	-	-	97	160	-	-	HU 276
14	**14.48**	83	14.8	130	95	155	-	-	76	135	-	-	97	160	-	-	**M5**
16	**16.04**	75	14.9	120	96	155	-	-	83	140	-	-	100	160	-	-	342
18	**18.22**	66	15.2	105	95	150	-	-	82	140	-	-	99	160	-	-	**M4**
20	**20.35**	59	15.6	99	87	135	-	-	78	130	-	-	91	145	-	-	366
22.4	**23.11**	52	16.0	89	90	140	-	-	80	135	-	-	94	150	-	-	
25	**25.32**	47	13.6	70	68	92	-	-	61	86	-	-	71	98	-	-	
28	**28.76**	42	15.5	70	68	93	-	-	61	86	-	-	71	98	-	-	
31.5	**32.12**	37	16.0	65	63	86	-	-	57	81	-	-	66	92	-	-	
35.5	**36.48**	33	16.0	57	64	88	-	-	58	82	-	-	67	93	-	-	**X3F..**
40	**38.62**	31	16.0	54	56	77	-	-	52	72	-	-	59	82	-	-	**M1**
45	**43.87**	27	16.0	48	57	78	-	-	52	73	-	-	60	83	-	-	HU 282
50	**51.81**	23	16.0	40	57	77	-	-	54	74	-	-	60	82	-	-	HH 322
56	**58.84**	20	16.0	35	57	78	-	-	55	75	-	-	61	84	-	-	**M5**
63	**62.29**	19	16.0	33	51	69	-	-	48	67	-	-	54	74	-	-	346
71	**70.75**	17	16.0	29	50	68	-	-	48	66	-	-	54	73	-	-	**M4**
80	**81.85**	15	16.0	25	48	65	-	-	46	64	-	-	52	70	-	-	370
90	**92.96**	13	16.0	22	47	64	-	-	46	62	-	-	51	69	-	-	
100	**98.41**	12	16.0	21	43	59	-	-	42	57	-	-	47	63	-	-	
112	**111.77**	11	16.0	19	43	58	-	-	41	56	-	-	46	62	-	-	
125	**134.35**	8.9	16.0	16	39	-	-	-	39	-	-	-	42	-	-	-	
140	**152.59**	7.9	16.0	14	38	-	-	-	38	-	-	-	41	-	-	-	
160	**161.54**	7.4	16.0	13	35	-	-	-	34	-	-	-	38	-	-	-	
180	**183.47**	6.5	16.0	11	35	-	-	-	35	-	-	-	38	-	-	-	**X4F..**
200	**193.35**	6.2	16.0	11	33	-	-	-	32	-	-	-	35	-	-	-	**M1**
224	**219.59**	5.5	16.0	10	33	-	-	-	32	-	-	-	35	-	-	-	HU 288
250	**256.63**	4.7	16.0	8	32	-	-	-	31	-	-	-	34	-	-	-	**M5**
280	**291.46**	4.1	16.0	7	31	-	-	-	31	-	-	-	34	-	-	-	350
315	**308.56**	3.9	16.0	7	28	-	-	-	28	-	-	-	30	-	-	-	**M4**
355	**350.43**	3.4	16.0	6	28	-	-	-	28	-	-	-	30	-	-	-	374
400	**369.32**	3.2	16.0	6	26	-	-	-	26	-	-	-	28	-	-	-	
450	**419.44**	2.9	16.0	5	26	-	-	-	26	-	-	-	28	-	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F130..,n_1= 1500 1/min																	**16 kNm**
8	**8.06**	186	14.3	285	94	200	-	-	*)	105	-	-	*)	180	-	-	
9	**9.15**	164	14.4	255	105	210	-	-	*)	120	-	-	67	195	-	-	**X2F..**
10	**10.05**	149	14.5	230	105	200	-	-	*)	140	-	-	84	195	-	-	**M1**
11.2	**11.41**	131	14.6	205	98	185	-	-	*)	135	-	-	80	180	-	-	HU 276
12.5	**12.75**	118	14.7	185	96	180	-	-	49	145	-	-	90	180	-	-	**M5**
14	**14.48**	104	14.8	165	95	175	-	-	53	145	-	-	90	180	-	-	342
16	**16.04**	94	14.9	150	98	175	-	-	72	155	-	-	97	185	-	-	**M4**
18	**18.22**	82	15.2	135	97	175	-	-	73	155	-	-	96	180	-	-	366
20	**20.35**	74	15.6	125	89	160	-	-	72	145	-	-	90	165	-	-	
22.4	**23.11**	65	16.0	110	92	165	-	-	75	150	-	-	94	170	-	-	
25	**25.32**	59	13.6	88	70	110	-	-	57	97	-	-	71	115	-	-	
28	**28.76**	52	15.5	88	70	110	-	-	57	97	-	-	71	115	-	-	
31.5	**32.12**	47	16.0	81	65	100	-	-	54	91	-	-	67	105	-	-	
35.5	**36.48**	41	16.0	71	66	105	-	-	55	92	-	-	68	105	-	-	**X3F..**
40	**38.62**	39	16.0	68	59	90	-	-	49	82	-	-	60	95	-	-	**M1**
45	**43.87**	34	16.0	59	59	91	-	-	50	83	-	-	61	96	-	-	HU 282
50	**51.81**	29	16.0	50	59	90	-	-	54	86	-	-	62	97	-	-	HH 322
56	**58.84**	25	16.0	44	60	91	-	-	55	87	-	-	63	98	-	-	**M5**
63	**62.29**	24	16.0	42	53	81	-	-	49	77	-	-	56	87	-	-	346
71	**70.75**	21	16.0	37	52	80	-	-	48	76	-	-	55	85	-	-	**M4**
80	**81.85**	18	16.0	32	50	77	-	-	48	74	-	-	54	82	-	-	370
90	**92.96**	16	16.0	28	49	75	-	-	47	73	-	-	53	81	-	-	
100	**98.41**	15	16.0	26	46	69	-	-	43	67	-	-	49	75	-	-	
112	**111.77**	13	16.0	23	45	68	-	-	43	66	-	-	48	73	-	-	
125	**134.35**	11	16.0	20	41	-	-	-	40	-	-	-	44	-	-	-	
140	**152.59**	9.8	16.0	17	40	-	-	-	40	-	-	-	44	-	-	-	
160	**161.54**	9.3	16.0	16	37	-	-	-	36	-	-	-	40	-	-	-	
180	**183.47**	8.2	16.0	14	37	-	-	-	36	-	-	-	40	-	-	-	**X4F..**
200	**193.35**	7.8	16.0	14	35	-	-	-	34	-	-	-	37	-	-	-	**M1**
224	**219.59**	6.8	16.0	12	35	-	-	-	34	-	-	-	37	-	-	-	HU 288
250	**256.63**	5.8	16.0	10	34	-	-	-	33	-	-	-	36	-	-	-	**M5**
280	**291.46**	5.1	16.0	9	33	-	-	-	33	-	-	-	36	-	-	-	350
315	**308.56**	4.9	16.0	9	30	-	-	-	30	-	-	-	32	-	-	-	**M4**
355	**350.43**	4.3	16.0	8	30	-	-	-	30	-	-	-	32	-	-	-	374
400	**369.32**	4.1	16.0	7	28	-	-	-	27	-	-	-	30	-	-	-	
450	**419.44**	3.6	16.0	6	28	-	-	-	27	-	-	-	30	-	-	-	
X.F130..,n_1= 1800 1/min																	**16 kNm**
8	**8.06**	223	13.6	325	*)	220	-	-	*)	*)	-	-	*)	175	-	-	
9	**9.15**	197	13.7	290	87	230	-	-	*)	*)	-	-	*)	190	-	-	**X2F..**
10	**10.05**	179	13.8	265	92	220	-	-	*)	115	-	-	*)	200	-	-	**M1**
11.2	**11.41**	158	13.9	235	85	205	-	-	*)	115	-	-	*)	190	-	-	HU 276
12.5	**12.75**	141	14.0	210	88	195	-	-	*)	140	-	-	67	190	-	-	**M5**
14	**14.48**	124	14.0	185	91	195	-	-	*)	140	-	-	71	190	-	-	342
16	**16.04**	112	14.1	170	97	195	-	-	44	160	-	-	89	200	-	-	**M4**
18	**18.22**	99	14.5	155	96	195	-	-	49	160	-	-	89	195	-	-	366
20	**20.35**	88	14.8	140	89	175	-	-	60	155	-	-	87	185	-	-	
22.4	**23.11**	78	15.5	130	92	180	-	-	65	160	-	-	90	190	-	-	
25	**25.32**	71	12.9	100	71	120	-	-	49	105	-	-	68	125	-	-	
28	**28.76**	63	14.5	99	71	125	-	-	49	105	-	-	69	125	-	-	
31.5	**32.12**	56	15.1	92	66	115	-	-	48	98	-	-	65	120	-	-	
35.5	**36.48**	49	15.9	85	67	115	-	-	49	99	-	-	66	120	-	-	**X3F..**
40	**38.62**	47	16.0	81	60	100	-	-	44	89	-	-	59	105	-	-	**M1**
45	**43.87**	41	16.0	71	60	105	-	-	45	90	-	-	59	105	-	-	HU 282
50	**51.81**	35	16.0	60	61	105	-	-	53	96	-	-	63	110	-	-	HH 322
56	**58.84**	31	16.0	53	61	105	-	-	54	97	-	-	64	110	-	-	**M5**
63	**62.29**	29	16.0	50	55	92	-	-	48	86	-	-	57	98	-	-	346
71	**70.75**	25	16.0	44	54	91	-	-	47	85	-	-	56	97	-	-	**M4**
80	**81.85**	22	16.0	38	52	87	-	-	48	84	-	-	55	94	-	-	370
90	**92.96**	19	16.0	34	51	86	-	-	47	82	-	-	54	92	-	-	
100	**98.41**	18	16.0	32	47	79	-	-	44	76	-	-	50	85	-	-	
112	**111.77**	16	16.0	28	46	78	-	-	43	75	-	-	49	83	-	-	
125	**134.35**	13	16.0	24	43	-	-	-	41	-	-	-	46	-	-	-	
140	**152.59**	12	16.0	21	42	-	-	-	41	-	-	-	45	-	-	-	
160	**161.54**	11	16.0	20	38	-	-	-	37	-	-	-	41	-	-	-	
180	**183.47**	9.8	16.0	17	38	-	-	-	37	-	-	-	41	-	-	-	**X4F..**
200	**193.35**	9.3	16.0	16	36	-	-	-	35	-	-	-	39	-	-	-	**M1**
224	**219.59**	8.2	16.0	14	36	-	-	-	35	-	-	-	39	-	-	-	HU 288
250	**256.63**	7.0	16.0	12	35	-	-	-	35	-	-	-	38	-	-	-	**M5**
280	**291.46**	6.2	16.0	11	35	-	-	-	34	-	-	-	37	-	-	-	350
315	**308.56**	5.8	16.0	10	31	-	-	-	31	-	-	-	34	-	-	-	**M4**
355	**350.43**	5.1	16.0	9	31	-	-	-	31	-	-	-	34	-	-	-	374
400	**369.32**	4.9	16.0	9	29	-	-	-	29	-	-	-	31	-	-	-	
450	**419.44**	4.3	16.0	8	29	-	-	-	28	-	-	-	31	-	-	-	

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X.F140..,n_1= 1000 1/min																	22 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	**6.61**	151	20.3	330	135	210	350	410	*)	150	630	690	115	205	345	415	
7.1	**7.07**	141	20.9	315	145	225	360	430	*)	165	660	720	130	220	360	430	
8	**8.21**	122	21.7	285	135	200	305	365	78	160	560	610	125	200	305	370	**X2F..**
9	**8.78**	114	22.0	270	140	210	315	375	86	170	570	630	135	210	315	385	**M1**
10	**10.18**	98	22.0	230	125	185	265	320	96	160	485	540	125	195	270	330	HU 276
11.2	**10.89**	92	22.0	215	125	185	260	315	97	160	470	520	125	190	265	320	**M5**
12.5	**12.95**	77	22.0	180	115	170	225	275	99	155	405	450	120	175	230	280	342
14	**13.85**	72	22.0	170	115	165	220	265	98	150	395	440	120	175	225	275	**M4**
16	**16.49**	61	22.0	145	115	165	205	250	100	155	365	410	120	175	210	260	366
18	**17.63**	57	22.0	135	115	170	210	260	105	160	375	420	125	180	215	270	
20	**21.80**	46	21.8	110	86	105	145	160	78	99	250	265	90	115	145	170	
22.4	**23.31**	43	22.0	105	88	110	145	165	80	100	250	270	93	115	150	170	
25	**27.25**	37	22.0	88	81	100	130	145	74	94	220	235	85	105	135	150	
28	**29.14**	34	22.0	82	83	100	130	150	76	96	220	235	87	110	135	155	**X3F..**
31.5	**33.22**	30	22.0	72	74	92	115	130	69	86	190	205	78	98	115	135	**M1**
35.5	**35.52**	28	22.0	67	76	94	115	130	70	88	190	205	80	100	120	135	HU 282
40	**42.36**	24	22.0	56	71	87	105	120	68	84	170	185	76	94	105	125	HH 322
45	**45.30**	22	22.0	53	72	89	105	120	69	86	170	185	77	95	110	125	**M5**
50	**51.63**	19	22.0	46	65	80	91	105	62	78	150	160	70	86	96	110	346
56	**55.21**	18	22.0	43	66	82	92	105	63	79	150	160	71	88	97	115	**M4**
63	**66.11**	15	22.0	36	65	80	88	100	63	78	140	150	70	86	92	110	370
71	**70.69**	14	22.0	34	66	82	88	105	64	80	140	155	71	88	93	110	
80	**80.57**	12	22.0	30	57	70	75	88	56	69	115	130	62	76	79	93	
90	**86.16**	12	22.0	28	58	72	76	88	56	70	115	130	62	77	80	94	
100	**107.36**	9.3	22.0	23	48	-	57	-	47	-	78	-	52	-	60	-	
112	**114.80**	8.7	22.0	21	49	-	57	-	48	-	78	-	53	-	61	-	
125	**130.85**	7.6	22.0	18	43	-	50	-	43	-	68	-	47	-	54	-	
140	**139.92**	7.1	22.0	17	44	-	50	-	43	-	68	-	47	-	54	-	**X4F..**
160	**163.65**	6.1	22.0	15	40	-	46	-	40	-	61	-	44	-	49	-	**M1**
180	**175.00**	5.7	22.0	14	41	-	46	-	40	-	61	-	44	-	49	-	HU 288
200	**210.13**	4.8	22.0	12	38	-	42	-	37	-	55	-	41	-	45	-	**M5**
224	**224.70**	4.5	22.0	11	39	-	43	-	38	-	56	-	42	-	46	-	350
250	**256.11**	3.9	22.0	9	35	-	39	-	35	-	49	-	38	-	42	-	**M4**
280	**273.87**	3.7	22.0	9	35	-	39	-	35	-	49	-	38	-	42	-	374
315	**320.31**	3.1	22.0	8	32	-	35	-	32	-	44	-	35	-	38	-	
355	**342.53**	2.9	22.0	7	32	-	35	-	32	-	44	-	35	-	38	-	
X.F140..,n_1= 1200 1/min																	22 kNm
6.3	**6.61**	182	20.3	395	120	235	380	465	*)	110	670	750	*)	215	365	460	
7.1	**7.07**	170	20.9	380	130	245	395	485	*)	125	700	780	*)	225	380	475	
8	**8.21**	146	21.7	340	125	220	335	410	*)	155	600	670	100	215	325	415	**X2F..**
9	**8.78**	137	22.0	325	135	230	345	425	*)	165	620	690	110	225	335	425	**M1**
10	**10.18**	118	22.0	280	125	210	290	365	*)	165	530	590	115	210	290	370	HU 276
11.2	**10.89**	110	22.0	260	125	205	285	355	68	165	510	580	120	210	280	360	**M5**
12.5	**12.95**	93	22.0	220	115	190	245	310	84	165	445	500	115	195	245	315	342
14	**13.85**	87	22.0	205	115	185	240	305	86	165	430	490	115	195	240	310	**M4**
16	**16.49**	73	22.0	170	115	185	220	285	96	165	400	460	120	195	225	295	366
18	**17.63**	68	22.0	160	120	190	225	295	100	175	410	470	120	200	230	305	
20	**21.80**	55	21.8	130	89	120	155	185	76	110	270	300	91	125	160	190	
22.4	**23.31**	51	22.0	125	91	125	160	190	78	110	275	300	94	130	160	195	
25	**27.25**	44	22.0	105	84	115	140	170	73	105	240	265	87	120	140	175	
28	**29.14**	41	22.0	98	86	115	140	170	75	105	240	265	89	125	145	175	**X3F..**
31.5	**33.22**	36	22.0	86	77	105	125	150	68	96	205	230	80	110	125	155	**M1**
35.5	**35.52**	34	22.0	81	79	105	125	150	69	98	205	230	82	115	125	155	HU 282
40	**42.36**	28	22.0	68	74	100	110	135	69	95	185	210	78	105	115	140	HH 322
45	**45.30**	26	22.0	63	75	100	110	135	70	97	185	210	80	110	115	145	**M5**
50	**51.63**	23	22.0	56	68	92	99	120	63	88	160	185	72	98	100	130	346
56	**55.21**	22	22.0	52	69	94	99	125	64	89	160	185	73	100	105	130	**M4**
63	**66.11**	18	22.0	43	68	92	94	115	65	89	150	175	73	99	99	125	370
71	**70.69**	17	22.0	41	69	94	95	120	66	91	150	175	74	100	100	125	
80	**80.57**	15	22.0	36	60	81	81	100	57	79	125	145	64	87	85	105	
90	**86.16**	14	22.0	33	61	82	81	100	58	80	125	145	65	88	85	110	
100	**107.36**	11	22.0	27	50	-	60	-	49	-	84	-	54	-	64	-	
112	**114.80**	10	22.0	25	51	-	61	-	50	-	84	-	55	-	64	-	
125	**130.85**	9.2	22.0	22	45	-	53	-	44	-	73	-	49	-	57	-	
140	**139.92**	8.6	22.0	21	46	-	54	-	45	-	73	-	49	-	57	-	**X4F..**
160	**163.65**	7.3	22.0	18	42	-	49	-	41	-	65	-	46	-	52	-	**M1**
180	**175.00**	6.9	22.0	17	43	-	49	-	42	-	65	-	46	-	52	-	HU 288
200	**210.13**	5.7	22.0	14	40	-	45	-	39	-	59	-	43	-	48	-	**M5**
224	**224.70**	5.3	22.0	13	41	-	46	-	40	-	60	-	44	-	49	-	350
250	**256.11**	4.7	22.0	11	37	-	41	-	36	-	53	-	40	-	44	-	**M4**
280	**273.87**	4.4	22.0	11	37	-	41	-	37	-	53	-	40	-	44	-	374
315	**320.31**	3.7	22.0	9	34	-	37	-	34	-	47	-	37	-	40	-	
355	**342.53**	3.5	22.0	8	34	-	38	-	34	-	47	-	37	-	40	-	

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X.F140..,n_1= 1500 1/min																	22 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.61**	227	20.3	495	*)	260	410	530	*)	*)	680	780	*)	190	365	495	
7.1	**7.07**	212	20.9	475	*)	275	435	560	*)	*)	720	830	*)	210	390	520	
8	**8.21**	183	21.7	425	*)	250	370	475	*)	*)	640	740	*)	220	345	465	**X2F..**
9	**8.78**	171	22.0	405	110	260	380	490	*)	105	650	760	*)	230	355	475	**M1**
10	**10.18**	147	22.0	350	110	235	325	420	*)	155	570	660	*)	225	310	420	HU 276
11.2	**10.89**	138	22.0	325	115	235	315	415	*)	160	560	650	83	225	300	410	**M5**
12.5	**12.95**	116	22.0	275	110	215	270	360	*)	170	485	570	98	215	265	365	342
14	**13.85**	108	22.0	255	110	215	265	350	*)	170	475	550	100	215	260	355	**M4**
16	**16.49**	91	22.0	215	115	210	245	330	73	180	445	520	115	215	245	340	366
18	**17.63**	85	22.0	200	120	220	250	340	80	185	450	540	115	225	250	350	
20	**21.80**	69	21.8	165	91	140	175	220	64	120	300	345	89	145	170	220	
22.4	**23.31**	64	22.0	155	93	145	175	220	67	125	305	345	92	150	175	225	
25	**27.25**	55	22.0	130	86	135	155	200	66	115	265	305	86	140	155	200	
28	**29.14**	51	22.0	125	88	135	155	200	67	120	265	305	88	140	155	205	**X3F..**
31.5	**33.22**	45	22.0	110	80	125	135	175	62	105	230	265	79	125	135	180	**M1**
35.5	**35.52**	42	22.0	100	81	125	135	175	63	110	230	265	81	130	135	180	HU 282
40	**42.36**	35	22.0	85	77	120	120	160	68	110	205	240	80	125	125	165	HH 322
45	**45.30**	33	22.0	79	78	120	125	160	69	110	205	245	81	125	125	170	**M5**
50	**51.63**	29	22.0	69	71	110	110	145	63	100	180	215	74	115	110	150	346
56	**55.21**	27	22.0	65	72	110	110	145	64	105	180	215	75	115	110	150	**M4**
63	**66.11**	23	22.0	54	71	110	105	140	66	105	170	200	75	115	105	145	370
71	**70.69**	21	22.0	51	72	110	105	140	67	105	170	205	77	120	110	150	
80	**80.57**	19	22.0	44	62	95	88	120	58	91	140	170	66	100	91	125	
90	**86.16**	17	22.0	42	63	97	88	120	59	93	140	170	67	105	92	125	
100	**107.36**	14	22.0	34	53	-	65	-	51	-	92	-	57	-	69	-	
112	**114.80**	13	22.0	32	53	-	65	-	51	-	92	-	57	-	69	-	
125	**130.85**	11	22.0	28	47	-	57	-	46	-	80	-	51	-	61	-	
140	**139.92**	11	22.0	26	48	-	57	-	46	-	80	-	51	-	61	-	**X4F..**
160	**163.65**	9.2	22.0	22	44	-	52	-	43	-	72	-	48	-	56	-	**M1**
180	**175.00**	8.6	22.0	21	45	-	53	-	43	-	71	-	48	-	56	-	HU 288
200	**210.13**	7.1	22.0	17	42	-	48	-	41	-	65	-	45	-	52	-	**M5**
224	**224.70**	6.7	22.0	16	43	-	50	-	42	-	66	-	47	-	53	-	350
250	**256.11**	5.9	22.0	14	39	-	44	-	38	-	58	-	42	-	47	-	**M4**
280	**273.87**	5.5	22.0	13	39	-	44	-	38	-	58	-	42	-	47	-	374
315	**320.31**	4.7	22.0	11	36	-	40	-	35	-	52	-	39	-	43	-	
355	**342.53**	4.4	22.0	11	36	-	40	-	35	-	52	-	39	-	43	-	
X.F140..,n_1= 1800 1/min																	**22 kNm**
6.3	**6.61**	272	19.2	560	*)	275	415	560	*)	*)	580	720	*)	*)	310	475	
7.1	**7.07**	255	19.8	540	*)	295	435	590	*)	*)	620	770	*)	*)	330	500	
8	**8.21**	219	20.5	480	*)	270	395	530	*)	*)	630	760	*)	190	335	490	**X2F..**
9	**8.78**	205	21.0	460	*)	285	410	550	*)	*)	660	790	*)	210	350	510	**M1**
10	**10.18**	177	22.0	415	*)	260	350	475	*)	*)	600	710	*)	230	320	460	HU 276
11.2	**10.89**	165	22.0	390	*)	255	340	465	*)	105	580	690	*)	230	310	450	**M5**
12.5	**12.95**	139	22.0	330	95	235	290	405	*)	165	520	620	*)	230	280	400	342
14	**13.85**	130	22.0	305	99	235	285	395	*)	165	500	600	*)	225	270	395	**M4**
16	**16.49**	109	22.0	260	110	235	265	375	*)	185	475	580	94	235	260	380	366
18	**17.63**	102	22.0	240	115	240	270	385	*)	190	485	590	100	245	265	390	
20	**21.80**	83	21.6	195	91	160	185	250	*)	125	320	380	81	160	180	250	
22.4	**23.31**	77	22.0	185	94	165	190	255	*)	125	325	385	85	165	180	250	
25	**27.25**	66	22.0	160	87	150	165	225	46	120	285	340	81	150	160	225	
28	**29.14**	62	22.0	150	89	155	170	230	49	125	285	340	83	155	160	230	**X3F..**
31.5	**33.22**	54	22.0	130	81	140	145	200	48	110	245	295	76	140	140	200	**M1**
35.5	**35.52**	51	22.0	120	82	140	145	200	50	115	245	295	77	145	140	205	HU 282
40	**42.36**	42	22.0	100	78	135	130	185	64	120	225	270	80	140	135	190	HH 322
45	**45.30**	40	22.0	95	80	135	130	185	65	125	225	275	81	145	135	190	**M5**
50	**51.63**	35	22.0	83	73	125	115	165	60	110	195	240	74	130	120	170	346
56	**55.21**	33	22.0	78	74	125	115	165	61	115	195	240	75	130	120	170	**M4**
63	**66.11**	27	22.0	65	73	125	110	160	66	115	185	230	77	130	115	165	370
71	**70.69**	25	22.0	61	75	125	110	160	67	120	185	230	78	135	115	170	
80	**80.57**	22	22.0	53	64	110	94	135	58	105	155	195	68	115	97	145	
90	**86.16**	21	22.0	50	65	110	95	135	59	105	155	195	69	115	98	145	
100	**107.36**	17	22.0	41	54	-	69	-	51	-	99	-	58	-	72	-	
112	**114.80**	16	22.0	38	55	-	69	-	52	-	99	-	59	-	73	-	
125	**130.85**	14	22.0	33	49	-	61	-	46	-	86	-	52	-	64	-	
140	**139.92**	13	22.0	31	50	-	61	-	47	-	85	-	53	-	64	-	**X4F..**
160	**163.65**	11	22.0	27	46	-	55	-	43	-	77	-	49	-	58	-	**M1**
180	**175.00**	10	22.0	25	46	-	55	-	44	-	76	-	49	-	59	-	HU 288
200	**210.13**	8.6	22.0	21	44	-	51	-	43	-	70	-	47	-	55	-	**M5**
224	**224.70**	8.0	22.0	19	45	-	53	-	44	-	71	-	49	-	56	-	350
250	**256.11**	7.0	22.0	17	41	-	47	-	40	-	63	-	44	-	50	-	**M4**
280	**273.87**	6.6	22.0	16	41	-	47	-	40	-	62	-	44	-	50	-	374
315	**320.31**	5.6	22.0	14	38	-	43	-	37	-	56	-	40	-	45	-	
355	**342.53**	5.3	22.0	13	38	-	43	-	37	-	55	-	41	-	46	-	

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X.F150..,n_1= 1000 1/min																	27.5 kNm
					P_{TH}20 °C kW												
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
8	**8.21**	122	25.4	330	150	225	260	330	*)	165	430	495	130	225	260	335	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.79**	114	25.9	315	150	225	255	325	*)	170	420	485	135	225	255	330	
10	**10.19**	98	27.2	285	145	215	235	300	91	175	390	450	140	215	235	310	
11.2	**10.91**	92	27.5	270	145	215	230	295	94	175	380	440	140	215	230	305	
12.5	**12.64**	79	27.5	235	135	200	210	270	110	175	345	405	140	210	215	280	
14	**13.54**	74	27.5	220	135	200	205	265	110	175	340	395	135	205	210	275	
16	**16.08**	62	27.5	185	130	190	190	245	110	170	305	360	135	200	195	255	
18	**17.22**	58	27.5	170	130	185	185	240	110	170	300	350	135	195	190	250	
20	**20.48**	49	27.5	145	120	175	170	220	110	165	270	320	125	185	175	235	
22.4	**21.93**	46	27.5	135	120	175	165	220	110	165	265	315	125	185	170	230	
25	**27.08**	37	26.0	105	94	115	125	145	87	110	195	215	100	125	130	155	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.99**	34	27.5	105	94	115	125	145	87	110	190	210	99	125	130	150	
31.5	**33.85**	30	27.5	88	90	110	115	135	83	105	175	195	95	120	120	140	
35.5	**36.24**	28	27.5	82	89	110	115	135	82	105	170	190	94	115	120	140	
40	**41.25**	24	27.5	72	82	100	100	120	76	96	150	170	87	110	105	125	
45	**44.17**	23	27.5	68	81	100	100	120	75	95	150	165	86	105	105	125	
50	**52.61**	19	27.5	57	76	93	92	110	73	90	135	150	81	100	97	115	
56	**56.33**	18	27.5	53	77	95	93	110	74	92	135	150	83	100	99	120	
63	**64.12**	16	27.5	47	70	86	83	99	67	83	120	135	75	92	88	105	
71	**68.66**	15	27.5	44	69	85	82	97	66	82	115	130	74	91	87	105	
80	**82.10**	12	27.5	36	70	86	81	97	68	84	115	130	75	92	86	105	
90	**87.91**	11	27.5	34	69	85	80	95	67	83	110	125	74	91	85	100	
100	**100.07**	10.0	27.5	30	64	79	73	88	62	77	100	115	69	85	78	94	
112	**107.15**	9.3	27.5	28	62	76	71	85	61	75	97	110	67	82	76	91	
125	**133.33**	7.5	27.5	23	51	-	56	-	51	-	69	-	56	-	60	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**142.77**	7.0	27.5	21	51	-	55	-	50	-	68	-	55	-	59	-	
160	**162.51**	6.2	27.5	19	47	-	51	-	47	-	62	-	51	-	55	-	
180	**174.01**	5.7	27.5	17	47	-	50	-	46	-	61	-	51	-	54	-	
200	**203.25**	4.9	27.5	15	43	-	46	-	43	-	55	-	47	-	49	-	
224	**217.63**	4.6	27.5	14	43	-	45	-	42	-	54	-	46	-	49	-	
250	**260.96**	3.8	27.5	12	41	-	43	-	41	-	51	-	45	-	47	-	
280	**279.43**	3.6	27.5	11	41	-	43	-	40	-	50	-	44	-	46	-	
315	**318.07**	3.1	27.5	9	38	-	40	-	38	-	46	-	41	-	43	-	
355	**340.58**	2.9	27.5	9	38	-	39	-	37	-	46	-	41	-	42	-	
400	**397.81**	2.5	27.5	8	34	-	36	-	34	-	41	-	37	-	39	-	
450	**425.96**	2.3	27.5	7	35	-	36	-	34	-	41	-	38	-	39	-	
X.F150..,n_1= 1200 1/min																	27.5 kNm
8	**8.21**	146	25.4	400	135	250	275	370	*)	130	440	530	*)	230	260	365	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.79**	137	25.9	380	135	250	270	365	*)	140	430	520	96	235	255	360	
10	**10.19**	118	27.2	345	135	240	250	335	*)	170	405	485	115	235	240	340	
11.2	**10.91**	110	27.5	325	140	235	245	330	*)	175	395	475	120	230	235	335	
12.5	**12.64**	95	27.5	280	135	225	225	305	78	180	365	445	130	225	225	310	
14	**13.54**	89	27.5	260	135	220	220	300	82	180	355	435	130	225	220	305	
16	**16.08**	75	27.5	220	130	210	200	275	105	185	330	400	135	220	205	285	
18	**17.22**	70	27.5	205	130	210	195	270	105	185	320	390	130	220	200	280	
20	**20.48**	59	27.5	175	125	195	180	250	105	180	290	360	125	210	185	260	
22.4	**21.93**	55	27.5	160	125	195	175	245	105	180	285	350	125	205	180	260	
25	**27.08**	44	26.0	125	98	135	135	165	85	120	210	240	100	140	135	175	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.99**	41	27.5	125	98	135	130	165	85	120	205	235	100	140	135	175	
31.5	**33.85**	35	27.5	105	93	125	120	155	82	115	185	215	96	135	125	160	
35.5	**36.24**	33	27.5	99	92	125	120	150	81	115	180	210	96	130	125	160	
40	**41.25**	29	27.5	87	85	115	110	140	75	105	165	190	89	120	110	145	
45	**44.17**	27	27.5	81	84	115	105	135	75	105	160	185	88	120	110	145	
50	**52.61**	23	27.5	68	79	105	98	125	74	100	145	170	84	115	105	135	
56	**56.33**	21	27.5	64	80	110	99	125	75	105	145	170	85	115	105	135	
63	**64.12**	19	27.5	56	73	99	88	115	68	94	130	150	77	105	93	120	
71	**68.66**	17	27.5	52	72	98	87	110	68	94	125	150	77	105	91	120	
80	**82.10**	15	27.5	44	73	98	86	110	70	96	120	145	78	105	91	120	
90	**87.91**	14	27.5	41	72	97	85	110	69	95	120	145	77	105	90	115	
100	**100.07**	12	27.5	36	67	91	78	100	64	88	110	130	72	97	83	110	
112	**107.15**	11	27.5	33	65	88	75	98	62	86	105	125	70	95	80	105	
125	**133.33**	9.0	27.5	27	54	-	59	-	53	-	74	-	58	-	63	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**142.77**	8.4	27.5	25	53	-	58	-	52	-	72	-	57	-	62	-	
160	**162.51**	7.4	27.5	22	49	-	54	-	48	-	66	-	53	-	57	-	
180	**174.01**	6.9	27.5	21	49	-	53	-	48	-	65	-	53	-	57	-	
200	**203.25**	5.9	27.5	18	45	-	49	-	44	-	59	-	49	-	52	-	
224	**217.63**	5.5	27.5	17	45	-	48	-	44	-	58	-	48	-	51	-	
250	**260.96**	4.6	27.5	14	43	-	46	-	43	-	55	-	47	-	49	-	
280	**279.43**	4.3	27.5	13	43	-	45	-	42	-	54	-	46	-	49	-	
315	**318.07**	3.8	27.5	11	40	-	42	-	39	-	50	-	43	-	45	-	
355	**340.58**	3.5	27.5	11	39	-	42	-	39	-	49	-	43	-	45	-	
400	**397.81**	3.0	27.5	9	36	-	38	-	36	-	44	-	39	-	41	-	
450	**425.96**	2.8	27.5	9	36	-	38	-	36	-	44	-	39	-	41	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F150..,n_1= 1500 1/min																	**27.5 kNm**
8	**8.21**	183	25.4	500	*)	280	290	420	*)	*)	400	530	*)	215	230	380	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.79**	171	25.9	475	*)	280	290	415	*)	*)	405	530	*)	225	240	385	
10	**10.19**	147	27.2	430	115	270	265	385	*)	115	405	520	*)	240	235	370	
11.2	**10.91**	137	27.5	405	120	265	260	380	*)	125	395	510	*)	240	230	365	
12.5	**12.64**	119	27.5	350	125	255	240	350	*)	175	380	485	94	245	225	350	
14	**13.54**	111	27.5	325	125	250	235	345	*)	175	370	475	98	245	220	345	
16	**16.08**	93	27.5	275	130	240	215	320	*)	195	350	445	120	245	210	325	
18	**17.22**	87	27.5	255	130	240	210	315	67	195	340	435	120	245	210	320	
20	**20.48**	73	27.5	215	125	225	190	290	86	195	315	405	125	235	195	300	
22.4	**21.93**	68	27.5	200	125	225	190	285	88	195	305	395	120	235	190	295	
25	**27.08**	55	26.0	155	100	155	145	195	76	135	225	275	100	160	145	200	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.99**	52	27.5	155	100	155	140	195	76	135	220	270	100	160	140	200	
31.5	**33.85**	44	27.5	130	96	150	130	180	75	130	200	250	96	155	130	185	
35.5	**36.24**	41	27.5	125	95	145	130	180	74	130	195	240	95	150	130	185	
40	**41.25**	36	27.5	110	88	135	115	165	70	120	175	220	89	140	120	170	
45	**44.17**	34	27.5	100	87	135	115	160	69	120	170	215	88	140	115	165	
50	**52.61**	29	27.5	85	82	125	105	150	73	120	160	200	86	135	110	155	
56	**56.33**	27	27.5	80	84	130	105	150	75	120	160	200	88	135	110	155	
63	**64.12**	23	27.5	70	76	115	95	135	68	110	140	175	79	125	98	140	
71	**68.66**	22	27.5	65	75	115	93	130	67	110	135	170	79	120	97	140	
80	**82.10**	18	27.5	55	76	115	93	130	71	110	135	170	81	125	97	140	
90	**87.91**	17	27.5	51	75	115	91	130	71	110	130	165	80	125	96	135	
100	**100.07**	15	27.5	45	70	105	84	120	66	105	120	150	75	115	88	125	
112	**107.15**	14	27.5	42	68	105	81	115	64	100	115	145	72	110	85	125	
125	**133.33**	11	27.5	34	57	-	63	-	55	-	80	-	61	-	67	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**142.77**	11	27.5	32	56	-	62	-	54	-	78	-	60	-	66	-	
160	**162.51**	9.2	27.5	28	52	-	57	-	50	-	71	-	56	-	61	-	
180	**174.01**	8.6	27.5	26	51	-	56	-	50	-	70	-	55	-	60	-	
200	**203.25**	7.4	27.5	22	48	-	52	-	46	-	63	-	51	-	55	-	
224	**217.63**	6.9	27.5	21	47	-	51	-	46	-	62	-	51	-	54	-	
250	**260.96**	5.7	27.5	17	46	-	49	-	45	-	59	-	49	-	53	-	
280	**279.43**	5.4	27.5	16	45	-	49	-	45	-	58	-	49	-	52	-	
315	**318.07**	4.7	27.5	14	42	-	45	-	42	-	54	-	46	-	48	-	
355	**340.58**	4.4	27.5	13	42	-	44	-	41	-	53	-	45	-	48	-	
400	**397.81**	3.8	27.5	11	38	-	41	-	38	-	48	-	42	-	44	-	
450	**425.96**	3.5	27.5	11	39	-	41	-	38	-	48	-	42	-	44	-	
X.F150..,n_1= 1800 1/min																	**27.5 kNm**
8	**8.21**	219	24.1	570	*)	300	280	445	*)	*)	265	440	*)	*)	*)	355	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.79**	205	24.6	540	*)	300	285	445	*)	*)	285	450	*)	155	*)	360	
10	**10.19**	177	25.9	490	*)	290	275	425	*)	*)	360	510	*)	220	195	380	
11.2	**10.91**	165	26.1	460	*)	290	270	420	*)	*)	360	500	*)	225	200	380	
12.5	**12.64**	142	27.0	415	*)	280	250	390	*)	125	370	500	*)	250	215	375	
14	**13.54**	133	27.5	390	105	275	245	385	*)	135	360	495	*)	250	210	365	
16	**16.08**	112	27.5	330	120	270	225	355	*)	190	355	480	89	260	215	355	
18	**17.22**	105	27.5	310	125	265	220	350	*)	190	350	470	93	260	210	350	
20	**20.48**	88	27.5	260	120	250	200	325	*)	205	325	440	110	255	195	330	
22.4	**21.93**	82	27.5	240	120	250	200	320	*)	200	320	430	110	255	195	325	
25	**27.08**	66	26.0	190	100	175	150	225	51	140	230	300	94	175	145	225	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.99**	62	27.5	185	100	175	150	220	52	140	225	295	94	175	145	220	
31.5	**33.85**	53	27.5	160	97	170	140	205	57	135	210	270	91	170	135	210	
35.5	**36.24**	50	27.5	150	97	165	135	205	58	135	200	265	91	170	130	205	
40	**41.25**	44	27.5	130	90	155	125	185	58	125	180	240	85	155	120	190	
45	**44.17**	41	27.5	120	89	155	120	185	58	125	175	235	84	155	120	185	
50	**52.61**	34	27.5	100	84	145	110	170	70	130	170	220	86	150	115	175	
56	**56.33**	32	27.5	95	86	145	115	170	71	135	170	225	88	155	115	180	
63	**64.12**	28	27.5	84	78	130	100	155	65	120	145	195	80	140	100	160	
71	**68.66**	26	27.5	78	77	130	99	150	65	120	145	195	79	140	100	155	
80	**82.10**	22	27.5	65	79	130	98	150	71	125	145	195	83	140	100	160	
90	**87.91**	20	27.5	61	78	130	96	150	71	125	140	190	82	140	100	155	
100	**100.07**	18	27.5	54	73	120	89	135	66	115	125	170	77	130	92	145	
112	**107.15**	17	27.5	50	70	120	85	130	64	110	120	165	74	125	89	140	
125	**133.33**	14	27.5	41	58	-	66	-	55	-	84	-	62	-	70	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**142.77**	13	27.5	38	58	-	65	-	55	-	83	-	62	-	69	-	
160	**162.51**	11	27.5	33	54	-	60	-	51	-	75	-	57	-	63	-	
180	**174.01**	10	27.5	31	53	-	59	-	50	-	74	-	57	-	62	-	
200	**203.25**	8.9	27.5	27	49	-	54	-	47	-	67	-	53	-	57	-	
224	**217.63**	8.3	27.5	25	49	-	53	-	46	-	65	-	52	-	57	-	
250	**260.96**	6.9	27.5	21	48	-	52	-	47	-	63	-	52	-	55	-	
280	**279.43**	6.4	27.5	19	47	-	51	-	46	-	62	-	51	-	55	-	
315	**318.07**	5.7	27.5	17	44	-	47	-	43	-	57	-	48	-	51	-	
355	**340.58**	5.3	27.5	16	44	-	47	-	43	-	56	-	47	-	50	-	
400	**397.81**	4.5	27.5	14	40	-	43	-	39	-	51	-	43	-	46	-	
450	**425.96**	4.2	27.5	13	40	-	43	-	39	-	51	-	44	-	46	-	

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X.F160..,n_1= 1000 1/min																	36 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	**6.21**	161	31.6	550	220	335	570	660	*)	165	960	1050	160	300	550	650	
7.1	**7.00**	143	32.5	500	220	330	540	640	*)	175	920	1000	165	300	520	630	**X2F..**
8	**7.73**	129	33.6	465	200	300	470	550	*)	210	810	890	175	290	465	560	**M1**
9	**8.71**	115	35.0	430	200	300	450	540	*)	215	780	850	180	290	445	540	HU 276
10	**10.02**	100	35.6	380	190	280	405	485	125	230	710	790	185	285	410	495	**M5**
11.2	**11.30**	88	36.0	340	190	280	390	470	130	230	680	750	185	280	390	475	342
12.5	**12.34**	81	36.0	315	175	255	345	415	135	220	600	660	175	260	345	425	**M4**
14	**13.91**	72	36.0	280	170	250	330	400	135	215	570	640	170	255	330	410	366
16	**15.93**	63	36.0	240	160	235	300	365	140	215	520	580	165	245	305	375	
18	**17.95**	56	36.0	215	160	230	285	350	135	210	500	560	165	245	290	365	
20	**20.50**	49	35.7	190	140	175	245	275	125	160	420	450	145	185	250	285	
22.4	**23.10**	43	36.0	170	140	175	235	265	120	155	400	430	145	180	240	275	
25	**25.09**	40	36.0	155	130	160	210	240	115	145	360	385	135	170	215	250	
28	**28.27**	35	36.0	140	130	165	210	240	115	150	355	385	135	170	215	250	**X3F..**
31.5	**31.72**	32	36.0	125	110	135	170	190	95	120	280	300	110	140	170	200	**M1**
35.5	**35.75**	28	36.0	110	110	135	165	190	97	125	275	295	115	140	170	200	HU 282
40	**39.72**	25	36.0	98	115	140	165	190	105	135	275	300	120	150	175	200	HH 322
45	**44.76**	22	36.0	87	115	140	165	195	105	135	275	295	120	150	175	200	**M5**
50	**50.22**	20	36.0	78	95	115	135	155	89	110	215	235	100	125	140	165	346
56	**56.59**	18	36.0	69	93	115	130	150	88	110	210	230	99	125	135	160	**M4**
63	**63.38**	16	36.0	62	100	125	135	160	97	120	215	240	110	135	145	170	370
71	**71.42**	14	36.0	55	99	120	135	155	95	120	210	230	105	130	140	165	
80	**80.13**	12	36.0	49	83	100	110	130	80	100	170	185	89	110	115	135	
90	**90.31**	11	36.0	43	80	99	105	120	77	96	160	175	86	105	110	130	
100	**100.04**	10.0	36.0	40	78	-	92	-	76	-	125	-	84	-	98	-	
112	**112.74**	8.9	36.0	35	78	-	92	-	76	-	125	-	84	-	98	-	
125	**126.49**	7.9	36.0	31	66	-	77	-	65	-	100	-	71	-	82	-	**X4F..**
140	**142.55**	7.0	36.0	28	65	-	75	-	64	-	99	-	70	-	80	-	**M1**
160	**152.08**	6.6	36.0	26	61	-	70	-	60	-	91	-	66	-	74	-	HU 288
180	**171.40**	5.8	36.0	23	60	-	68	-	59	-	88	-	64	-	72	-	**M5**
200	**202.75**	4.9	36.0	20	63	-	70	-	62	-	90	-	68	-	75	-	350
224	**228.49**	4.4	36.0	17	62	-	69	-	61	-	88	-	67	-	74	-	**M4**
250	**256.35**	3.9	36.0	15	52	-	58	-	52	-	73	-	57	-	62	-	374
280	**288.90**	3.5	36.0	14	52	-	58	-	52	-	72	-	57	-	62	-	
315	**308.22**	3.2	36.0	13	49	-	53	-	48	-	66	-	52	-	57	-	
355	**347.36**	2.9	36.0	11	48	-	52	-	47	-	64	-	51	-	56	-	
X.F160..,n_1= 1200 1/min																	**36 kNm**
6.3	**6.21**	193	31.6	660	200	370	600	730	*)	*)	950	1050	*)	285	540	680	
7.1	**7.00**	171	32.5	600	205	365	590	720	*)	*)	950	1050	*)	290	540	680	**X2F..**
8	**7.73**	155	33.6	560	190	335	510	630	*)	165	860	960	*)	300	485	610	**M1**
9	**8.71**	138	35.0	520	195	330	495	610	*)	170	820	920	135	300	465	590	HU 276
10	**10.02**	120	35.6	455	185	315	445	550	*)	225	770	860	160	305	435	550	**M5**
11.2	**11.30**	106	36.0	410	190	310	425	530	*)	225	730	830	160	300	415	530	342
12.5	**12.34**	97	36.0	375	175	285	375	470	100	225	650	740	165	285	370	475	**M4**
14	**13.91**	86	36.0	335	175	280	360	450	105	225	620	700	165	280	355	455	366
16	**15.93**	75	36.0	290	165	265	325	415	120	230	570	650	165	270	325	425	
18	**17.95**	67	36.0	260	160	260	310	400	125	225	540	620	160	270	310	410	
20	**20.50**	59	35.7	225	145	200	265	315	115	170	455	500	145	205	265	320	
22.4	**23.10**	52	36.0	205	145	200	255	305	110	170	435	480	145	205	255	310	
25	**25.09**	48	36.0	185	135	185	230	275	105	160	390	430	135	190	230	280	
28	**28.27**	42	36.0	165	135	185	230	275	110	160	385	430	135	190	230	280	**X3F..**
31.5	**31.72**	38	36.0	150	110	155	180	220	90	135	300	335	115	160	185	225	**M1**
35.5	**35.75**	34	36.0	130	115	155	180	220	91	135	295	330	115	160	180	225	HU 282
40	**39.72**	30	36.0	120	115	160	180	220	105	150	300	340	125	170	185	230	HH 322
45	**44.76**	27	36.0	105	120	160	180	220	105	150	295	335	125	170	185	230	**M5**
50	**50.22**	24	36.0	93	99	135	145	180	89	125	235	270	105	145	150	185	346
56	**56.59**	21	36.0	83	97	130	140	175	88	125	225	260	100	140	145	180	**M4**
63	**63.38**	19	36.0	74	105	140	150	185	99	135	240	270	110	150	155	195	370
71	**71.42**	17	36.0	66	105	140	145	180	97	135	230	260	110	150	150	190	
80	**80.13**	15	36.0	59	87	120	120	145	82	115	185	210	92	125	125	155	
90	**90.31**	13	36.0	52	84	115	110	140	79	110	175	200	89	120	115	150	
100	**100.04**	12	36.0	47	81	-	98	-	78	-	135	-	87	-	105	-	
112	**112.74**	11	36.0	42	81	-	97	-	79	-	135	-	87	-	105	-	
125	**126.49**	9.5	36.0	38	69	-	82	-	67	-	110	-	74	-	86	-	**X4F..**
140	**142.55**	8.4	36.0	33	68	-	79	-	65	-	105	-	73	-	84	-	**M1**
160	**152.08**	7.9	36.0	31	64	-	74	-	61	-	98	-	68	-	78	-	HU 288
180	**171.40**	7.0	36.0	28	63	-	72	-	60	-	95	-	67	-	77	-	**M5**
200	**202.75**	5.9	36.0	23	66	-	75	-	65	-	97	-	71	-	80	-	350
224	**228.49**	5.3	36.0	21	65	-	73	-	64	-	94	-	70	-	78	-	**M4**
250	**256.35**	4.7	36.0	19	55	-	61	-	54	-	78	-	59	-	66	-	374
280	**288.90**	4.2	36.0	16	55	-	61	-	54	-	77	-	59	-	65	-	
315	**308.22**	3.9	36.0	15	51	-	56	-	50	-	71	-	55	-	60	-	
355	**347.36**	3.5	36.0	14	50	-	55	-	49	-	69	-	54	-	59	-	

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X.F160..,n_1= 1500 1/min																	36 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.21**	242	31.6	820	*)	410	610	790	*)	*)	790	960	*)	*)	445	650	
7.1	**7.00**	214	32.5	750	*)	405	610	780	*)	*)	800	960	*)	200	450	650	**X2F..**
8	**7.73**	194	33.6	700	*)	375	550	710	*)	*)	830	980	*)	270	470	650	**M1**
9	**8.71**	172	35.0	650	170	370	550	700	*)	*)	830	980	*)	275	470	640	HU 276
10	**10.02**	150	35.6	570	165	355	490	640	*)	155	810	950	*)	315	455	620	**M5**
11.2	**11.30**	133	36.0	510	170	350	470	610	*)	170	770	900	*)	315	435	590	342
12.5	**12.34**	122	36.0	470	165	320	415	540	*)	215	700	820	125	305	395	540	**M4**
14	**13.91**	108	36.0	415	165	315	395	520	*)	215	670	780	130	305	375	520	366
16	**15.93**	94	36.0	365	160	300	355	480	*)	235	620	730	145	300	350	485	
18	**17.95**	84	36.0	325	160	295	340	460	*)	235	590	700	145	295	335	465	
20	**20.50**	73	35.7	285	150	235	295	370	*)	175	495	570	135	230	280	370	
22.4	**23.10**	65	36.0	255	145	230	280	360	70	170	470	540	135	225	270	355	
25	**25.09**	60	36.0	235	135	215	255	325	74	165	425	490	125	210	245	325	
28	**28.27**	53	36.0	205	140	220	250	325	79	170	415	485	130	215	245	325	**X3F..**
31.5	**31.72**	47	36.0	185	115	180	200	260	69	140	325	380	105	180	195	260	**M1**
35.5	**35.75**	42	36.0	165	115	180	195	260	72	140	320	375	110	180	190	260	HU 282
40	**39.72**	38	36.0	150	120	185	200	260	100	170	335	390	125	195	200	270	HH 322
45	**44.76**	34	36.0	130	120	190	195	260	100	170	330	385	125	200	200	270	**M5**
50	**50.22**	30	36.0	115	100	160	160	210	86	140	260	310	105	165	160	220	346
56	**56.59**	27	36.0	105	100	155	155	205	84	140	250	295	105	160	155	210	**M4**
63	**63.38**	24	36.0	93	110	165	160	215	99	160	265	315	115	180	165	225	370
71	**71.42**	21	36.0	82	105	165	155	210	98	155	255	305	115	175	160	220	
80	**80.13**	19	36.0	73	91	140	130	175	83	130	205	245	96	150	135	185	
90	**90.31**	17	36.0	65	87	135	120	165	80	125	195	235	92	140	125	175	
100	**100.04**	15	36.0	59	85	-	105	-	79	-	145	-	90	-	110	-	
112	**112.74**	13	36.0	53	85	-	105	-	80	-	145	-	91	-	110	-	
125	**126.49**	12	36.0	47	72	-	87	-	68	-	120	-	77	-	92	-	**X4F..**
140	**142.55**	11	36.0	42	71	-	85	-	67	-	115	-	76	-	90	-	**M1**
160	**152.08**	9.9	36.0	39	67	-	79	-	63	-	105	-	71	-	83	-	HU 288
180	**171.40**	8.8	36.0	35	66	-	77	-	62	-	105	-	70	-	81	-	**M5**
200	**202.75**	7.4	36.0	29	70	-	80	-	68	-	105	-	75	-	85	-	350
224	**228.49**	6.6	36.0	26	68	-	78	-	66	-	105	-	74	-	83	-	**M4**
250	**256.35**	5.9	36.0	23	58	-	66	-	57	-	86	-	63	-	70	-	374
280	**288.90**	5.2	36.0	21	58	-	66	-	57	-	84	-	63	-	70	-	
315	**308.22**	4.9	36.0	19	54	-	61	-	53	-	77	-	58	-	65	-	
355	**347.36**	4.3	36.0	17	53	-	59	-	52	-	75	-	57	-	63	-	
X.F160..,n_1= 1800 1/min																	**36 kNm**
6.3	**6.21**	290	29.9	930	*)	425	610	840	*)	*)	445	690	*)	*)	*)	540	
7.1	**7.00**	257	30.8	850	*)	430	600	830	*)	*)	490	720	*)	*)	250	550	
8	**7.73**	233	31.8	790	*)	405	560	760	*)	*)	680	870	*)	*)	375	610	**X2F..**
9	**8.71**	207	33.2	740	*)	400	550	750	*)	*)	690	880	*)	195	385	610	**M1**
10	**10.02**	180	33.7	650	*)	385	530	710	*)	*)	800	970	*)	290	445	650	HU 276
11.2	**11.30**	159	34.2	580	*)	380	510	690	*)	*)	770	940	*)	295	430	630	**M5**
12.5	**12.34**	146	36.0	560	145	355	450	610	*)	150	730	880	*)	310	405	590	342
14	**13.91**	129	36.0	500	150	350	430	590	*)	160	690	840	*)	310	385	560	**M4**
16	**15.93**	113	36.0	435	145	330	385	540	*)	225	660	800	*)	320	365	530	366
18	**17.95**	100	36.0	385	150	325	370	520	*)	225	620	760	105	315	345	510	
20	**20.50**	88	33.8	320	140	260	315	420	*)	160	520	610	98	245	290	405	
22.4	**23.10**	78	36.0	305	145	260	305	405	*)	160	490	590	100	240	275	390	
25	**25.09**	72	36.0	280	135	240	275	370	*)	155	440	530	105	225	250	355	
28	**28.27**	64	36.0	250	140	245	270	370	*)	160	435	520	110	230	250	355	**X3F..**
31.5	**31.72**	57	36.0	220	115	200	215	295	*)	135	340	415	92	190	200	285	**M1**
35.5	**35.75**	50	36.0	195	115	205	210	295	*)	140	330	410	96	195	195	285	HU 282
40	**39.72**	45	36.0	175	125	210	215	295	88	180	355	435	120	215	210	300	HH 322
45	**44.76**	40	36.0	155	125	215	210	295	89	185	350	430	120	220	210	300	**M5**
50	**50.22**	36	36.0	140	105	180	170	240	76	155	280	345	100	185	170	245	346
56	**56.59**	32	36.0	125	105	175	165	235	75	150	265	330	100	180	165	240	**M4**
63	**63.38**	28	36.0	110	110	190	175	245	97	175	285	355	115	200	175	260	370
71	**71.42**	25	36.0	99	110	185	165	240	95	175	275	340	115	200	170	250	
80	**80.13**	22	36.0	88	93	160	140	200	81	145	220	280	97	165	140	210	
90	**90.31**	20	36.0	78	90	150	130	190	78	140	210	265	93	160	135	200	
100	**100.04**	18	36.0	71	87	-	110	-	78	-	155	-	91	-	115	-	
112	**112.74**	16	36.0	63	87	-	110	-	78	-	155	-	92	-	115	-	
125	**126.49**	14	36.0	56	74	-	92	-	67	-	125	-	78	-	96	-	**X4F..**
140	**142.55**	13	36.0	50	73	-	90	-	66	-	120	-	77	-	93	-	**M1**
160	**152.08**	12	36.0	47	69	-	84	-	62	-	115	-	72	-	87	-	HU 288
180	**171.40**	11	36.0	42	68	-	81	-	61	-	110	-	71	-	85	-	**M5**
200	**202.75**	8.9	36.0	35	72	-	85	-	69	-	115	-	78	-	90	-	350
224	**228.49**	7.9	36.0	31	71	-	83	-	68	-	110	-	76	-	88	-	**M4**
250	**256.35**	7.0	36.0	28	61	-	70	-	58	-	92	-	65	-	74	-	374
280	**288.90**	6.2	36.0	25	61	-	69	-	58	-	90	-	65	-	74	-	
315	**308.22**	5.8	36.0	23	56	-	64	-	54	-	83	-	60	-	68	-	
355	**347.36**	5.2	36.0	20	55	-	63	-	53	-	80	-	59	-	66	-	

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X.F170..,n_1= 1000 1/min																	45 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	**7.72**	130	39.4	550	230	350	385	490	*)	175	550	650	170	315	355	475	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.67**	115	40.5	500	230	345	375	480	*)	185	530	630	175	315	345	465	
10	**9.61**	104	41.8	465	210	310	330	425	*)	220	490	580	185	300	320	420	
11.2	**10.80**	93	43.7	435	210	310	320	415	*)	220	475	560	185	300	310	415	
12.5	**12.46**	80	44.3	380	210	305	310	400	145	250	470	550	205	310	310	410	
14	**14.00**	71	45.0	345	205	300	300	390	145	250	450	530	200	305	300	395	
16	**15.34**	65	45.0	315	180	260	255	330	140	230	390	460	180	270	260	345	
18	**17.24**	58	45.0	280	175	255	245	325	140	225	370	445	180	265	250	335	
20	**19.79**	51	45.0	245	175	255	235	310	150	230	360	430	180	265	245	325	
22.4	**22.24**	45	45.0	215	170	250	230	305	150	225	345	410	180	260	235	315	
25	**25.47**	39	44.6	190	145	185	190	225	130	165	285	315	150	190	195	235	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.63**	35	45.0	170	145	180	185	220	125	160	270	305	150	190	190	230	
31.5	**31.18**	32	45.0	155	135	165	170	200	120	150	245	275	140	175	175	210	
35.5	**35.04**	29	45.0	140	130	165	165	195	115	150	235	265	135	170	170	205	
40	**39.42**	25	45.0	125	110	140	140	165	99	125	195	220	115	145	140	170	
45	**44.31**	23	45.0	110	110	135	135	160	98	125	185	210	115	145	140	165	
50	**49.36**	20	45.0	99	120	150	145	170	115	140	200	230	125	160	150	180	
56	**55.48**	18	45.0	88	115	140	135	165	110	135	190	215	120	150	145	175	
63	**62.41**	16	45.0	78	98	120	115	140	93	115	160	180	105	130	120	145	
71	**70.14**	14	45.0	70	97	120	115	135	91	115	155	175	105	125	120	145	
80	**78.77**	13	45.0	62	105	130	120	145	100	125	160	185	110	140	125	155	
90	**88.53**	11	45.0	55	100	125	115	140	99	120	155	180	110	135	125	150	
100	**99.59**	10	45.0	49	86	105	97	115	83	105	130	145	92	115	105	125	
112	**111.93**	8.9	45.0	44	85	105	95	115	82	100	125	145	91	110	100	120	
125	**124.34**	8.0	45.0	40	80	-	87	-	78	-	105	-	87	-	93	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**139.74**	7.2	45.0	35	79	-	85	-	77	-	105	-	85	-	91	-	
160	**157.21**	6.4	45.0	31	68	-	73	-	67	-	88	-	74	-	79	-	
180	**176.68**	5.7	45.0	28	67	-	72	-	66	-	86	-	72	-	77	-	
200	**189.02**	5.3	45.0	26	62	-	66	-	60	-	78	-	67	-	71	-	
224	**212.43**	4.7	45.0	23	62	-	66	-	61	-	78	-	67	-	70	-	
250	**251.99**	4.0	45.0	20	64	-	67	-	63	-	79	-	69	-	72	-	
280	**283.20**	3.5	45.0	17	64	-	67	-	63	-	78	-	69	-	72	-	
315	**318.61**	3.1	45.0	16	54	-	57	-	53	-	65	-	58	-	61	-	
355	**358.08**	2.8	45.0	14	53	-	56	-	53	-	64	-	57	-	60	-	
400	**383.08**	2.6	45.0	13	49	-	51	-	49	-	59	-	53	-	55	-	
450	**430.53**	2.3	45.0	11	49	-	51	-	49	-	58	-	53	-	55	-	
X.F170..,n_1= 1200 1/min																	**45 kNm**
8	**7.72**	155	39.4	660	210	385	400	540	*)	*)	490	630	*)	295	320	485	**X2F.. M1** HU 276 **M5** 342 **M4** 366
9	**8.67**	138	40.5	600	215	380	395	540	*)	*)	495	630	*)	305	325	485	
10	**9.61**	125	41.8	560	200	345	350	475	*)	170	485	600	*)	310	315	455	
11.2	**10.80**	111	43.7	520	205	340	340	465	*)	180	470	590	145	310	305	445	
12.5	**12.46**	96	44.3	460	210	340	325	450	*)	245	480	600	180	335	315	450	
14	**14.00**	86	45.0	415	210	335	315	435	*)	245	465	580	185	330	305	435	
16	**15.34**	78	45.0	380	180	295	270	375	110	235	405	500	170	295	270	380	
18	**17.24**	70	45.0	335	180	290	260	365	110	235	390	485	170	290	260	370	
20	**19.79**	61	45.0	295	180	285	250	350	135	245	380	475	180	295	255	365	
22.4	**22.24**	54	45.0	260	175	280	245	340	135	245	365	455	175	290	245	355	
25	**25.47**	47	44.6	230	150	210	205	260	120	175	300	350	150	215	205	265	**X3F.. M1** HU 282 HH 322 **M5** 346 **M4** 370
28	**28.63**	42	45.0	205	150	205	200	250	115	175	285	340	150	210	200	255	
31.5	**31.18**	38	45.0	190	140	190	180	230	110	165	260	305	140	195	180	235	
35.5	**35.04**	34	45.0	165	135	185	175	225	110	160	250	295	135	195	175	230	
40	**39.42**	30	45.0	150	115	160	145	185	94	140	205	245	115	165	145	195	
45	**44.31**	27	45.0	130	115	155	140	185	93	135	195	235	115	160	145	190	
50	**49.36**	24	45.0	120	125	170	155	195	115	160	215	260	130	180	160	205	
56	**55.48**	22	45.0	105	120	160	145	185	110	150	205	245	125	170	150	195	
63	**62.41**	19	45.0	94	100	140	120	160	93	130	170	205	105	150	125	165	
71	**70.14**	17	45.0	84	100	135	120	155	92	130	165	195	105	145	125	165	
80	**78.77**	15	45.0	74	110	145	125	165	105	140	175	210	115	160	135	175	
90	**88.53**	14	45.0	66	105	145	125	160	100	140	170	205	115	155	130	170	
100	**99.59**	12	45.0	59	90	120	105	135	85	115	140	170	96	130	110	145	
112	**111.93**	11	45.0	52	88	120	100	130	84	115	135	165	94	130	105	140	
125	**124.34**	9.7	45.0	48	84	-	92	-	81	-	115	-	90	-	98	-	**X4F.. M1** HU 288 **M5** 350 **M4** 374
140	**139.74**	8.6	45.0	42	82	-	90	-	79	-	110	-	88	-	96	-	
160	**157.21**	7.6	45.0	38	71	-	77	-	69	-	94	-	77	-	83	-	
180	**176.68**	6.8	45.0	34	70	-	76	-	68	-	91	-	75	-	81	-	
200	**189.02**	6.3	45.0	31	65	-	69	-	63	-	83	-	69	-	74	-	
224	**212.43**	5.6	45.0	28	65	-	69	-	63	-	82	-	69	-	74	-	
250	**251.99**	4.8	45.0	24	67	-	71	-	66	-	84	-	72	-	76	-	
280	**283.20**	4.2	45.0	21	67	-	71	-	66	-	83	-	72	-	76	-	
315	**318.61**	3.8	45.0	19	57	-	60	-	56	-	70	-	61	-	64	-	
355	**358.08**	3.4	45.0	17	56	-	59	-	55	-	68	-	60	-	63	-	
400	**383.08**	3.1	45.0	15	52	-	54	-	51	-	63	-	56	-	58	-	
450	**430.53**	2.8	45.0	14	52	-	54	-	51	-	62	-	56	-	58	-	

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X.F170..,n_1= 1500 1/min																	45 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	7.72	194	39.4	820	*)	425	395	590	*)	*)	*)	445	*)	*)	*)	425	X2F.. M1 HU 276 M5 342 M4 366
9	8.67	173	40.5	750	*)	420	390	590	*)	*)	245	470	*)	210	*)	435	
10	9.61	156	41.8	700	180	385	360	540	*)	*)	390	560	*)	285	250	460	
11.2	10.80	139	43.7	650	180	385	360	530	*)	*)	400	570	*)	290	260	465	
12.5	12.46	120	44.3	570	195	385	350	520	*)	190	465	620	*)	345	300	490	
14	14.00	107	45.0	520	195	380	335	500	*)	200	445	600	*)	345	290	475	
16	15.34	98	45.0	470	170	335	290	430	*)	225	410	550	130	320	265	425	
18	17.24	87	45.0	420	175	330	280	420	*)	225	390	520	135	315	255	415	
20	19.79	76	45.0	365	180	325	270	405	*)	260	395	520	160	325	260	410	
22.4	22.24	67	45.0	325	175	320	260	395	91	255	380	510	165	320	250	400	
25	25.47	59	44.6	285	155	240	215	300	74	185	305	385	140	240	205	300	X3F.. M1 HU 282 HH 322 M5 346 M4 370
28	28.63	52	45.0	255	150	240	210	295	78	180	295	375	140	235	200	290	
31.5	31.18	48	45.0	235	140	220	195	270	81	175	265	340	130	220	185	270	
35.5	35.04	43	45.0	210	140	220	185	265	83	170	255	330	130	215	180	260	
40	39.42	38	45.0	185	120	185	155	220	74	145	210	270	110	185	150	220	
45	44.31	34	45.0	165	115	180	150	215	75	145	200	260	110	185	145	215	
50	49.36	30	45.0	150	130	200	165	230	110	180	230	295	130	210	165	240	
56	55.48	27	45.0	130	125	190	155	220	105	170	215	280	125	200	155	230	
63	62.41	24	45.0	115	105	165	130	185	89	150	180	235	110	170	135	195	
71	70.14	21	45.0	105	105	160	125	180	88	145	175	225	105	170	130	190	
80	78.77	19	45.0	93	115	175	135	195	105	165	190	245	120	185	140	205	
90	88.53	17	45.0	83	110	170	130	190	100	160	180	235	115	180	140	200	
100	99.59	15	45.0	74	94	145	110	160	86	135	150	195	99	155	115	170	
112	111.93	13	45.0	66	92	140	110	155	85	135	145	190	97	150	110	165	
125	124.34	12	45.0	60	88	-	97	-	82	-	120	-	93	-	105	-	X4F.. M1 HU 288 M5 350 M4 374
140	139.74	11	45.0	53	86	-	95	-	81	-	120	-	92	-	100	-	
160	157.21	9.5	45.0	47	75	-	82	-	70	-	100	-	80	-	87	-	
180	176.68	8.5	45.0	42	74	-	80	-	69	-	97	-	78	-	85	-	
200	189.02	7.9	45.0	39	68	-	74	-	64	-	89	-	72	-	78	-	
224	212.43	7.1	45.0	35	68	-	73	-	64	-	87	-	72	-	78	-	
250	251.99	6.0	45.0	29	70	-	76	-	69	-	90	-	76	-	81	-	
280	283.20	5.3	45.0	26	71	-	76	-	69	-	90	-	76	-	81	-	
315	318.61	4.7	45.0	23	60	-	64	-	59	-	75	-	65	-	68	-	
355	358.08	4.2	45.0	21	59	-	63	-	58	-	73	-	64	-	67	-	
400	383.08	3.9	45.0	19	55	-	58	-	54	-	67	-	59	-	62	-	
450	430.53	3.5	45.0	17	55	-	58	-	53	-	67	-	59	-	62	-	
X.F170..,n_1= 1800 1/min																	45 kNm
8	7.72	233	37.4	940	*)	445	360	630	*)	*)	*)	*)	*)	*)	*)	245	X2F.. M1 HU 276 M5 342 M4 366
9	8.67	208	38.5	860	*)	450	365	620	*)	*)	*)	*)	*)	*)	*)	280	
10	9.61	187	39.7	800	*)	420	345	580	*)	*)	*)	395	*)	*)	*)	405	
11.2	10.80	167	41.2	740	*)	420	350	570	*)	*)	*)	420	*)	205	*)	415	
12.5	12.46	144	42.0	650	170	425	360	570	*)	*)	390	600	*)	330	245	500	
14	14.00	129	45.0	620	175	420	350	560	*)	*)	375	580	*)	330	245	490	
16	15.34	117	45.0	570	155	365	300	480	*)	165	385	560	*)	325	245	450	
18	17.24	104	45.0	500	160	360	290	465	*)	175	365	540	*)	320	240	440	
20	19.79	91	45.0	440	165	360	280	455	*)	250	395	560	125	345	255	445	
22.4	22.24	81	45.0	390	170	355	270	440	*)	245	375	540	130	340	245	435	
25	25.47	71	42.3	325	150	270	230	340	*)	170	295	405	105	255	195	325	X3F.. M1 HU 282 HH 322 M5 346 M4 370
28	28.63	63	45.0	305	150	270	220	335	*)	170	285	390	110	250	190	315	
31.5	31.18	58	45.0	280	140	250	200	305	*)	165	260	360	110	235	180	295	
35.5	35.04	51	45.0	250	140	245	195	295	*)	165	250	345	110	235	170	285	
40	39.42	46	45.0	225	120	210	165	250	*)	145	205	290	99	200	145	240	
45	44.31	41	45.0	200	115	205	160	245	*)	140	195	280	99	195	140	235	
50	49.36	36	45.0	180	130	225	170	265	96	195	240	325	130	230	170	270	
56	55.48	32	45.0	160	125	215	160	250	91	185	225	310	125	220	160	255	
63	62.41	29	45.0	140	110	185	135	210	80	160	185	260	105	190	135	220	
71	70.14	26	45.0	125	105	180	135	205	79	155	180	250	105	190	130	215	
80	78.77	23	45.0	110	115	195	145	220	100	185	200	275	120	210	145	230	
90	88.53	20	45.0	99	115	195	140	215	99	180	190	265	120	205	145	225	
100	99.59	18	45.0	88	97	165	115	180	84	150	155	220	100	175	120	190	
112	111.93	16	45.0	79	95	160	115	175	83	150	150	215	99	170	115	185	
125	124.34	14	45.0	72	90	-	100	-	81	-	125	-	95	-	105	-	X4F.. M1 HU 288 M5 350 M4 374
140	139.74	13	45.0	64	89	-	99	-	80	-	120	-	93	-	105	-	
160	157.21	11	45.0	57	77	-	86	-	69	-	105	-	81	-	89	-	
180	176.68	10	45.0	50	76	-	84	-	68	-	100	-	80	-	88	-	
200	189.02	9.5	45.0	47	70	-	77	-	63	-	92	-	74	-	81	-	
224	212.43	8.5	45.0	42	70	-	77	-	63	-	91	-	74	-	80	-	
250	251.99	7.1	45.0	35	73	-	79	-	71	-	96	-	79	-	85	-	
280	283.20	6.4	45.0	31	74	-	79	-	71	-	95	-	79	-	85	-	
315	318.61	5.6	45.0	28	63	-	67	-	60	-	79	-	67	-	72	-	
355	358.08	5.0	45.0	25	62	-	66	-	59	-	77	-	66	-	70	-	
400	383.08	4.7	45.0	23	57	-	61	-	55	-	71	-	62	-	65	-	
450	430.53	4.2	45.0	21	57	-	61	-	55	-	70	-	61	-	65	-	

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X.F180..,n_1= 1000 1/min																	58 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3*)	**6.49**	154	53.8	890	240	420	700	850	*)	*)	1150	1300	*)	375	680	840	
7.1*)	**7.27**	138	54.6	810	260	440	720	860	*)	230	1200	1300	*)	405	690	860	
8*)	**8.10**	123	55.5	740	240	395	600	720	*)	280	1000	1100	215	385	600	730	**X2F..**
9*)	**9.08**	110	56.8	670	255	410	600	740	*)	300	1000	1150	230	400	600	740	**M1**
10*)	**9.97**	100	58.0	620	225	360	510	630	*)	295	870	980	215	370	520	640	HU 276
11.2*)	**11.17**	90	58.0	560	235	375	510	630	155	310	870	980	230	380	520	650	**M5**
12.5	**12.19**	82	58.0	510	220	345	455	560	175	305	780	880	225	360	465	580	342
14	**13.65**	73	58.0	455	240	370	475	590	190	330	810	920	245	385	485	610	**M4**
16	**16.06**	62	58.0	385	215	330	410	510	195	310	700	800	230	355	420	540	366
18	**17.98**	56	58.0	345	215	330	395	495	195	310	670	760	225	350	405	520	
20	**19.99**	50	58.0	315	150	230	240	320	125	215	390	460	155	245	250	330	
22.4	**22.39**	45	58.0	280	155	235	240	320	130	220	385	460	160	250	250	335	
25	**25.88**	39	58.0	245	140	220	215	290	125	205	340	410	150	235	225	305	
28	**28.98**	35	58.0	215	150	230	225	300	130	215	350	420	155	245	230	315	**X3F..**
31.5	**31.13**	32	58.0	200	130	195	190	255	115	185	290	350	135	210	195	265	**M1**
35.5	**34.86**	29	58.0	180	130	200	190	255	115	185	290	350	135	215	195	265	HU 282
40	**39.86**	25	58.0	160	130	195	180	245	125	190	275	335	140	210	190	260	HH 322
45	**44.64**	22	58.0	140	130	200	180	245	125	190	270	330	140	215	190	260	**M5**
50	**47.95**	21	58.0	130	115	175	155	210	110	170	230	285	125	185	165	225	346
56	**53.70**	19	58.0	115	115	175	155	210	110	170	230	280	125	190	160	225	**M4**
63	**64.56**	15	58.0	98	115	170	150	200	115	170	215	270	125	185	155	215	370
71	**72.30**	14	58.0	87	115	175	145	205	115	170	215	270	125	190	155	215	
80	**77.67**	13	58.0	81	100	150	130	175	100	150	185	230	110	165	135	190	
90	**86.98**	11	58.0	72	105	155	130	180	105	155	185	235	115	170	140	195	
100	**106.69**	9.4	58.0	60	86	-	105	-	86	-	140	-	94	-	110	-	
112	**119.48**	8.4	58.0	53	88	-	105	-	88	-	145	-	96	-	110	-	
125	**128.35**	7.8	58.0	50	78	-	91	-	78	-	125	-	85	-	98	-	**X4F..**
140	**143.73**	7.0	58.0	44	81	-	94	-	81	-	125	-	88	-	100	-	**M1**
160	**158.55**	6.3	58.0	40	71	-	82	-	71	-	110	-	77	-	88	-	HU 288
180	**177.55**	5.6	58.0	36	73	-	84	-	73	-	110	-	80	-	90	-	**M5**
200	**209.50**	4.8	58.0	30	69	-	78	-	69	-	100	-	75	-	84	-	350
224	**234.60**	4.3	58.0	27	71	-	80	-	71	-	105	-	78	-	86	-	**M4**
250	**252.02**	4.0	58.0	25	64	-	71	-	64	-	91	-	70	-	77	-	374
280	**282.23**	3.5	58.0	23	65	-	72	-	65	-	91	-	71	-	78	-	
315	**311.32**	3.2	58.0	20	58	-	63	-	58	-	80	-	63	-	68	-	
355	**348.63**	2.9	58.0	18	59	-	64	-	59	-	80	-	64	-	69	-	
X.F180..,n_1= 1200 1/min																	58 kNm
6.3*)	**6.49**	185	53.8	1050	*)	435	720	890	*)	*)	1050	1200	*)	305	620	820	
7.1*)	**7.27**	165	54.6	970	*)	460	750	930	*)	*)	1150	1300	*)	340	660	860	
8*)	**8.10**	148	55.5	880	230	420	650	810	*)	*)	1050	1200	*)	365	620	790	**X2F..**
9*)	**9.08**	132	56.8	810	245	435	660	820	*)	210	1050	1200	*)	390	620	800	**M1**
10*)	**9.97**	120	58.0	750	210	385	560	700	*)	250	930	1050	*)	370	540	700	HU 276
11.2*)	**11.17**	107	58.0	670	225	400	560	700	*)	270	930	1050	190	385	540	700	**M5**
12.5	**12.19**	98	58.0	610	215	370	500	630	*)	295	840	960	205	375	500	640	342
14	**13.65**	88	58.0	550	240	395	520	660	140	320	870	1000	225	400	520	670	**M4**
16	**16.06**	75	58.0	465	215	360	445	570	170	320	760	880	220	375	450	590	366
18	**17.98**	67	58.0	415	215	355	425	550	170	315	730	840	220	370	435	570	
20	**19.99**	60	58.0	380	145	250	255	350	*)	210	410	495	140	255	255	360	
22.4	**22.39**	54	58.0	340	150	255	255	350	97	215	405	495	150	265	255	360	
25	**25.88**	46	58.0	290	145	235	230	320	100	205	360	440	145	245	230	325	
28	**28.98**	41	58.0	260	150	250	235	330	110	215	365	450	150	255	235	340	**X3F..**
31.5	**31.13**	39	58.0	245	130	210	200	280	96	185	305	380	130	220	200	285	**M1**
35.5	**34.86**	34	58.0	215	130	215	200	280	99	190	300	375	130	225	200	285	HU 282
40	**39.86**	30	58.0	190	135	215	190	270	120	200	295	365	140	230	200	280	HH 322
45	**44.64**	27	58.0	170	135	215	190	270	120	205	290	365	145	230	200	280	**M5**
50	**47.95**	25	58.0	160	120	190	165	230	105	180	250	310	125	200	170	245	346
56	**53.70**	22	58.0	140	120	190	165	230	110	180	245	310	125	205	170	245	**M4**
63	**64.56**	19	58.0	115	120	185	155	225	115	185	235	295	130	205	165	240	370
71	**72.30**	17	58.0	105	120	190	155	225	115	185	230	295	130	205	165	240	
80	**77.67**	15	58.0	97	105	165	135	195	100	165	200	255	115	180	145	210	
90	**86.98**	14	58.0	87	110	170	140	200	105	170	200	260	115	185	145	215	
100	**106.69**	11	58.0	72	89	-	110	-	88	-	155	-	97	-	115	-	
112	**119.48**	10	58.0	64	91	-	110	-	90	-	155	-	99	-	120	-	
125	**128.35**	9.3	58.0	60	81	-	97	-	80	-	135	-	88	-	105	-	**X4F..**
140	**143.73**	8.3	58.0	53	84	-	100	-	83	-	135	-	91	-	105	-	**M1**
160	**158.55**	7.6	58.0	48	74	-	86	-	73	-	115	-	80	-	93	-	HU 288
180	**177.55**	6.8	58.0	43	76	-	89	-	75	-	120	-	83	-	95	-	**M5**
200	**209.50**	5.7	58.0	37	72	-	83	-	72	-	110	-	79	-	89	-	350
224	**234.60**	5.1	58.0	33	75	-	85	-	75	-	110	-	81	-	91	-	**M4**
250	**252.02**	4.8	58.0	30	67	-	76	-	67	-	98	-	73	-	81	-	374
280	**282.23**	4.3	58.0	27	68	-	76	-	68	-	98	-	74	-	82	-	
315	**311.32**	3.9	58.0	25	60	-	67	-	60	-	86	-	66	-	73	-	
355	**348.63**	3.4	58.0	22	61	-	68	-	61	-	86	-	67	-	73	-	

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X.F180..,n_1= 1500 1/min																	58 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3*)	**6.49**	231	53.8	1350	*)	435	720	930	*)	*)	740	960	*)	*)	420	690	
7.1*)	**7.27**	206	54.6	1200	*)	465	750	980	*)	*)	820	1050	*)	*)	475	750	**X2F..**
8*)	**8.10**	185	55.5	1100	*)	435	680	860	*)	*)	920	1100	*)	*)	540	760	**M1**
9*)	**9.08**	165	56.8	1000	*)	460	700	900	*)	*)	980	1150	*)	300	580	800	HU 276
10*)	**9.97**	150	58.0	940	*)	410	620	790	*)	*)	950	1100	*)	325	560	750	**M5**
11.2*)	**11.17**	134	58.0	840	*)	425	620	790	*)	*)	950	1100	*)	350	560	750	342
12.5	**12.19**	123	58.0	770	200	400	550	710	*)	220	900	1050	*)	370	520	700	**M4**
14	**13.65**	110	58.0	680	220	430	570	740	*)	250	930	1100	*)	400	540	730	366
16	**16.06**	93	58.0	580	205	390	490	640	*)	305	830	970	190	390	485	650	
18	**17.98**	83	58.0	520	210	385	470	620	*)	305	790	930	190	385	465	630	
20	**19.99**	75	58.0	475	125	270	275	390	*)	170	415	530	*)	260	255	380	
22.4	**22.39**	67	58.0	420	135	275	275	395	*)	180	410	520	*)	265	255	385	
25	**25.88**	58	58.0	365	130	255	245	355	*)	185	365	470	110	250	230	350	
28	**28.98**	52	58.0	325	145	270	255	365	*)	195	370	480	120	265	235	360	**X3F..**
31.5	**31.13**	48	58.0	305	125	230	215	310	*)	170	310	405	105	230	200	305	**M1**
35.5	**34.86**	43	58.0	270	130	235	210	310	*)	170	305	400	110	230	200	305	HU 282
40	**39.86**	38	58.0	235	135	235	210	300	105	210	315	405	140	245	210	310	HH 322
45	**44.64**	34	58.0	210	140	240	205	300	110	210	310	400	140	250	210	310	**M5**
50	**47.95**	31	58.0	195	120	210	180	260	95	185	265	345	120	215	180	270	346
56	**53.70**	28	58.0	175	120	210	175	260	96	185	260	340	125	220	180	270	**M4**
63	**64.56**	23	58.0	145	120	205	170	250	115	200	255	335	130	225	175	265	370
71	**72.30**	21	58.0	130	125	210	170	250	115	200	255	330	130	225	175	265	
80	**77.67**	19	58.0	120	110	185	145	220	100	175	215	285	115	200	155	230	
90	**86.98**	17	58.0	110	110	190	150	225	105	180	220	290	120	205	155	235	
100	**106.69**	14	58.0	90	93	-	115	-	89	-	165	-	100	-	125	-	
112	**119.48**	13	58.0	80	95	-	120	-	91	-	165	-	100	-	125	-	
125	**128.35**	12	58.0	74	84	-	105	-	81	-	145	-	91	-	110	-	**X4F..**
140	**143.73**	10	58.0	67	88	-	105	-	84	-	145	-	94	-	115	-	**M1**
160	**158.55**	9.5	58.0	60	77	-	92	-	74	-	125	-	83	-	98	-	HU 288
180	**177.55**	8.4	58.0	54	79	-	95	-	76	-	130	-	85	-	100	-	**M5**
200	**209.50**	7.2	58.0	46	76	-	89	-	75	-	120	-	83	-	95	-	350
224	**234.60**	6.4	58.0	41	79	-	91	-	78	-	120	-	85	-	98	-	**M4**
250	**252.02**	6.0	58.0	38	71	-	81	-	70	-	105	-	77	-	87	-	374
280	**282.23**	5.3	58.0	34	72	-	82	-	71	-	105	-	78	-	88	-	
315	**311.32**	4.8	58.0	31	64	-	72	-	63	-	94	-	69	-	78	-	
355	**348.63**	4.3	58.0	27	65	-	73	-	64	-	94	-	70	-	78	-	
X.F180..,n_1= 1800 1/min																	58 kNm
6.3*)	**6.49**	277	50.8	1500	*)	410	690	950	*)	*)	*)	*)	*)	*)	*)	400	
7.1*)	**7.27**	248	51.6	1350	*)	445	730	1000	*)	*)	*)	485	*)	*)	*)	475	**X2F..**
8*)	**8.10**	222	52.4	1250	*)	440	670	900	*)	*)	630	860	*)	*)	365	650	**M1**
9*)	**9.08**	198	53.7	1150	*)	465	700	940	*)	*)	690	930	*)	*)	405	700	HU 276
10*)	**9.97**	181	54.8	1050	*)	415	620	830	*)	*)	810	1000	*)	*)	470	710	**M5**
11.2*)	**11.17**	161	55.6	960	*)	440	650	850	*)	*)	850	1050	*)	250	500	740	342
12.5	**12.19**	148	55.8	880	*)	420	600	780	*)	*)	900	1050	*)	325	520	730	**M4**
14	**13.65**	132	58.0	820	*)	450	620	820	*)	*)	920	1100	*)	365	540	760	366
16	**16.06**	112	58.0	700	190	415	530	710	*)	245	870	1050	*)	390	500	700	
18	**17.98**	100	58.0	620	195	410	510	680	*)	250	820	980	*)	385	475	670	
20	**19.99**	90	56.6	550	*)	285	290	425	*)	*)	395	520	*)	235	230	390	
22.4	**22.39**	80	58.0	510	*)	290	290	430	*)	*)	385	520	*)	250	230	390	
25	**25.88**	70	58.0	440	115	270	260	385	*)	110	345	470	*)	240	215	360	
28	**28.98**	62	58.0	390	130	285	265	400	*)	125	350	475	*)	255	220	370	**X3F..**
31.5	**31.13**	58	58.0	365	110	245	225	340	*)	115	295	405	*)	220	185	315	**M1**
35.5	**34.86**	52	58.0	325	115	250	220	335	*)	120	285	395	*)	225	185	315	HU 282
40	**39.86**	45	58.0	285	135	255	220	330	*)	205	325	430	125	255	210	335	HH 322
45	**44.64**	40	58.0	255	140	255	220	330	72	205	320	425	130	260	210	335	**M5**
50	**47.95**	38	58.0	235	120	225	190	285	63	180	270	365	115	225	180	290	346
56	**53.70**	34	58.0	210	125	225	185	285	66	185	265	360	115	230	180	285	**M4**
63	**64.56**	28	58.0	175	125	225	180	275	105	210	270	360	130	240	185	290	370
71	**72.30**	25	58.0	155	125	225	180	275	105	210	270	360	130	240	185	290	
80	**77.67**	23	58.0	145	110	200	155	240	95	185	230	310	115	210	160	250	
90	**86.98**	21	58.0	130	115	205	155	245	98	190	230	315	120	220	160	255	
100	**106.69**	17	58.0	110	95	-	125	-	86	-	175	-	100	-	130	-	
112	**119.48**	15	58.0	96	97	-	125	-	88	-	175	-	105	-	130	-	
125	**128.35**	14	58.0	89	86	-	110	-	78	-	150	-	91	-	115	-	**X4F..**
140	**143.73**	13	58.0	80	90	-	110	-	81	-	155	-	95	-	115	-	**M1**
160	**158.55**	11	58.0	72	79	-	97	-	72	-	135	-	84	-	100	-	HU 288
180	**177.55**	10	58.0	65	82	-	100	-	74	-	135	-	86	-	105	-	**M5**
200	**209.50**	8.6	58.0	55	79	-	94	-	77	-	130	-	86	-	100	-	350
224	**234.60**	7.7	58.0	49	82	-	96	-	80	-	130	-	88	-	105	-	**M4**
250	**252.02**	7.1	58.0	46	74	-	86	-	72	-	115	-	80	-	92	-	374
280	**282.23**	6.4	58.0	41	75	-	87	-	73	-	115	-	81	-	92	-	
315	**311.32**	5.8	58.0	37	66	-	76	-	65	-	100	-	72	-	82	-	
355	**348.63**	5.2	58.0	33	67	-	77	-	66	-	100	-	73	-	82	-	

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F190..,n_1= 1000 1/min																	**65 kNm**
7.1*)	**7.25**	138	59.6	880	250	430	475	630	*)	*)	680	830	*)	385	440	610	
8*)	**8.14**	123	60.6	800	265	450	490	650	*)	235	700	850	*)	410	455	630	**X2F..**
9*)	**9.05**	110	61.5	730	260	420	440	590	*)	300	660	800	230	410	435	590	**M1**
10*)	**10.17**	98	63.0	660	275	440	450	600	*)	320	670	810	250	435	440	610	HU 276
11.2*)	**11.14**	90	65.0	630	240	385	385	520	*)	315	590	710	230	390	390	530	**M5**
12.5*)	**12.52**	80	65.0	560	255	400	390	520	165	330	600	720	245	405	395	540	342
14	**13.61**	73	65.0	510	235	365	355	475	185	325	550	660	240	380	365	495	**M4**
16	**15.30**	65	65.0	455	245	375	355	480	195	335	540	660	250	395	365	500	366
18	**17.93**	56	65.0	390	230	350	325	440	205	330	500	610	245	375	340	465	
20	**20.15**	50	65.0	345	230	350	315	430	205	325	480	590	240	370	330	455	
22.4	**22.32**	45	63.6	310	160	245	200	285	135	225	275	355	165	260	205	300	
25	**25.08**	40	65.0	280	160	250	200	290	140	230	275	360	170	265	210	305	
28	**28.90**	35	65.0	245	150	230	185	265	135	215	250	325	160	245	190	275	
31.5	**32.47**	31	65.0	215	155	235	185	265	135	220	250	325	160	250	195	280	**X3F..**
35.5	**34.76**	29	65.0	205	140	215	165	240	125	200	220	290	145	225	175	250	**M1**
40	**39.06**	26	65.0	180	140	215	165	240	125	200	220	290	150	230	175	255	HU 282
45	**44.51**	22	65.0	160	135	205	160	225	130	200	210	275	145	220	170	240	HH 322
50	**50.01**	20	65.0	140	140	210	160	230	130	200	210	275	150	225	170	245	**M5**
56	**53.55**	19	65.0	130	120	180	140	200	115	175	180	235	130	195	145	210	346
63	**60.17**	17	65.0	115	120	185	140	200	115	175	180	235	130	195	145	215	**M4**
71	**72.09**	14	65.0	98	120	180	135	195	120	180	175	230	130	195	145	210	370
80	**81.01**	12	65.0	87	120	180	135	195	120	180	175	230	130	195	145	210	
90	**86.73**	12	65.0	81	110	160	120	175	110	160	155	205	120	175	130	185	
100	**97.45**	10	65.0	72	110	165	120	175	110	160	150	205	120	180	130	190	
112	**119.14**	8.4	65.0	60	91	-	98	-	91	-	120	-	99	-	105	-	
125	**133.87**	7.5	65.0	53	91	-	98	-	91	-	120	-	100	-	105	-	
140	**143.33**	7.0	65.0	50	82	-	88	-	82	-	105	-	90	-	96	-	**X4F..**
160	**161.05**	6.2	65.0	44	82	-	88	-	82	-	105	-	90	-	95	-	**M1**
180	**177.05**	5.6	65.0	40	74	-	79	-	74	-	95	-	81	-	86	-	HU 288
200	**198.95**	5.0	65.0	36	76	-	80	-	76	-	95	-	82	-	87	-	**M5**
224	**233.94**	4.3	65.0	31	73	-	77	-	73	-	90	-	79	-	83	-	350
250	**262.87**	3.8	65.0	27	74	-	78	-	74	-	90	-	80	-	84	-	**M4**
280	**281.43**	3.6	65.0	25	66	-	69	-	66	-	80	-	72	-	75	-	374
315	**316.23**	3.2	65.0	23	67	-	70	-	67	-	81	-	73	-	76	-	
355	**347.64**	2.9	65.0	21	60	-	63	-	61	-	72	-	66	-	68	-	
400	**390.64**	2.6	65.0	18	61	-	63	-	61	-	72	-	66	-	68	-	
X.F190..,n_1= 1200 1/min																	**65 kNm**
7.1*)	**7.25**	166	59.6	1050	*)	445	470	660	*)	*)	530	720	*)	310	340	570	
8*)	**8.14**	147	60.6	960	*)	470	495	690	*)	*)	580	770	*)	345	380	610	**X2F..**
9*)	**9.05**	133	61.5	870	245	450	465	640	*)	*)	640	800	*)	395	420	610	**M1**
10*)	**10.17**	118	63.0	800	265	470	475	660	*)	225	650	820	*)	420	425	630	HU 276
11.2*)	**11.14**	108	65.0	750	230	410	405	560	*)	270	600	740	*)	395	390	560	**M5**
12.5*)	**12.52**	96	65.0	670	245	425	410	570	*)	290	600	750	205	410	395	570	342
14	**13.61**	88	65.0	610	230	395	375	520	*)	315	560	700	220	395	375	530	**M4**
16	**15.30**	78	65.0	550	245	405	375	530	145	325	560	700	230	410	375	540	366
18	**17.93**	67	65.0	465	230	380	345	480	180	340	530	660	235	400	355	510	
20	**20.15**	60	65.0	415	230	375	335	470	185	335	510	640	235	395	345	490	
22.4	**22.32**	54	63.6	370	155	265	210	310	98	225	280	375	150	270	205	315	
25	**25.08**	48	65.0	340	160	270	210	315	105	230	275	375	160	280	210	320	
28	**28.90**	42	65.0	295	150	250	190	285	110	215	250	340	150	260	190	295	
31.5	**32.47**	37	65.0	260	155	255	190	290	115	220	250	340	155	265	190	300	**X3F..**
35.5	**34.76**	35	65.0	245	140	230	175	260	105	200	225	305	140	240	175	270	**M1**
40	**39.06**	31	65.0	215	140	235	175	260	110	205	220	305	145	240	175	270	HU 282
45	**44.51**	27	65.0	190	140	225	165	250	125	210	220	300	150	240	175	265	HH 322
50	**50.01**	24	65.0	170	145	225	170	250	130	215	220	300	150	240	175	265	**M5**
56	**53.55**	22	65.0	160	125	195	145	215	110	185	185	255	130	210	150	230	346
63	**60.17**	20	65.0	140	125	200	145	220	115	190	185	255	130	210	150	230	**M4**
71	**72.09**	17	65.0	120	125	195	140	210	120	190	185	250	135	210	150	230	370
80	**81.01**	15	65.0	105	125	200	140	215	120	195	185	250	135	215	150	230	
90	**86.73**	14	65.0	98	115	175	125	190	110	175	160	225	120	190	135	205	
100	**97.45**	12	65.0	87	115	180	125	190	110	175	160	225	125	195	135	205	
112	**119.14**	10	65.0	72	94	-	105	-	93	-	130	-	105	-	110	-	
125	**133.87**	9.0	65.0	64	95	-	105	-	94	-	125	-	105	-	110	-	
140	**143.33**	8.4	65.0	60	85	-	93	-	84	-	115	-	93	-	100	-	**X4F..**
160	**161.05**	7.5	65.0	53	86	-	92	-	85	-	110	-	93	-	100	-	**M1**
180	**177.05**	6.8	65.0	48	78	-	83	-	77	-	100	-	84	-	90	-	HU 288
200	**198.95**	6.0	65.0	43	79	-	84	-	78	-	100	-	86	-	91	-	**M5**
224	**233.94**	5.1	65.0	37	76	-	81	-	76	-	95	-	83	-	87	-	350
250	**262.87**	4.6	65.0	33	77	-	82	-	77	-	96	-	84	-	89	-	**M4**
280	**281.43**	4.3	65.0	30	69	-	73	-	69	-	86	-	76	-	79	-	374
315	**316.23**	3.8	65.0	27	70	-	74	-	70	-	86	-	77	-	80	-	
355	**347.64**	3.5	65.0	25	63	-	66	-	63	-	77	-	69	-	72	-	
400	**390.64**	3.1	65.0	22	63	-	66	-	63	-	76	-	69	-	72	-	

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X.F190..,n_1= 1500 1/min																	65 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[*)]	**7.25**	207	59.6	1300	*)	445	435	680	*)	*)	*)	*)	*)	*)	*)	390	
8[*)]	**8.14**	184	60.6	1200	*)	475	465	720	*)	*)	*)	405	*)	*)	*)	445	**X2F..**
9[*)]	**9.05**	166	61.5	1100	*)	470	460	680	*)	*)	415	640	*)	290	285	550	**M1**
10[*)]	**10.17**	147	63.0	1000	*)	495	485	710	*)	*)	465	700	*)	325	315	590	HU 276
11.2[*)]	**11.14**	135	65.0	940	*)	440	430	620	*)	*)	540	720	*)	350	340	570	**M5**
12.5[*)]	**12.52**	120	65.0	840	215	455	435	630	*)	*)	540	730	*)	380	350	580	342
14	**13.61**	110	65.0	770	215	425	395	580	*)	240	550	720	*)	395	360	560	**M4**
16	**15.30**	98	65.0	680	230	440	400	580	*)	260	550	730	*)	410	365	570	366
18	**17.93**	84	65.0	580	225	415	365	540	*)	325	550	710	205	415	360	550	
20	**20.15**	74	65.0	520	225	410	355	520	*)	325	520	680	205	410	345	530	
22.4	**22.32**	67	63.6	465	140	285	210	340	*)	185	255	380	*)	275	185	330	
25	**25.08**	60	65.0	420	150	290	215	345	*)	195	255	380	115	280	190	335	
28	**28.90**	52	65.0	365	140	270	195	315	*)	195	235	350	120	265	180	310	
31.5	**32.47**	46	65.0	325	150	275	200	320	*)	200	230	345	125	270	180	315	**X3F..**
35.5	**34.76**	43	65.0	305	135	250	180	285	*)	185	205	315	115	245	165	285	**M1**
40	**39.06**	38	65.0	270	140	255	180	290	*)	190	205	310	125	250	165	285	HU 282
45	**44.51**	34	65.0	240	145	245	175	275	110	220	225	325	145	260	175	285	HH 322
50	**50.01**	30	65.0	210	145	250	175	280	115	220	225	320	145	260	180	290	**M5**
56	**53.55**	28	65.0	200	125	220	150	240	100	195	190	275	130	230	155	250	346
63	**60.17**	25	65.0	175	130	220	155	240	100	195	190	275	130	230	155	250	**M4**
71	**72.09**	21	65.0	145	130	215	150	235	120	210	195	280	135	235	155	250	370
80	**81.01**	19	65.0	130	130	220	150	235	120	210	195	280	140	235	160	255	
90	**86.73**	17	65.0	120	115	195	135	210	110	190	170	245	125	210	140	225	
100	**97.45**	15	65.0	110	115	200	135	215	110	190	170	245	125	215	140	225	
112	**119.14**	13	65.0	90	98	-	110	-	94	-	135	-	105	-	115	-	
125	**133.87**	11	65.0	80	99	-	110	-	94	-	135	-	105	-	115	-	
140	**143.33**	10	65.0	75	89	-	98	-	85	-	120	-	96	-	105	-	
160	**161.05**	9.3	65.0	67	89	-	98	-	85	-	120	-	96	-	105	-	**X4F..**
180	**177.05**	8.5	65.0	61	81	-	88	-	78	-	105	-	87	-	94	-	**M1**
200	**198.95**	7.5	65.0	54	82	-	89	-	79	-	105	-	89	-	95	-	HU 288
224	**233.94**	6.4	65.0	46	80	-	86	-	79	-	105	-	87	-	93	-	**M5**
250	**262.87**	5.7	65.0	41	82	-	87	-	81	-	105	-	89	-	94	-	350
280	**281.43**	5.3	65.0	38	73	-	78	-	73	-	92	-	80	-	84	-	**M4**
315	**316.23**	4.7	65.0	34	74	-	79	-	74	-	92	-	81	-	85	-	374
355	**347.64**	4.3	65.0	31	67	-	71	-	66	-	82	-	73	-	76	-	
400	**390.64**	3.8	65.0	27	67	-	70	-	66	-	82	-	73	-	76	-	
X.F190..,n_1= 1800 1/min																	**65 kNm**
7.1[*)]	**7.25**	248	56.3	1500	*)	420	*)	680	*)	*)	*)	*)	*)	*)	*)	*)	
8[*)]	**8.14**	221	57.3	1350	*)	460	405	730	*)	*)	*)	*)	*)	*)	*)	*)	
9[*)]	**9.05**	199	58.1	1250	*)	475	430	700	*)	*)	*)	*)	*)	*)	*)	390	**X2F..**
10[*)]	**10.17**	177	59.5	1150	*)	500	460	740	*)	*)	*)	340	*)	*)	*)	440	**M1**
11.2[*)]	**11.14**	162	61.4	1050	*)	445	405	650	*)	*)	290	560	*)	*)	*)	500	HU 276
12.5[*)]	**12.52**	144	62.8	970	*)	470	430	670	*)	*)	335	600	*)	270	*)	540	**M5**
14	**13.61**	132	64.5	920	*)	445	410	620	*)	*)	485	690	*)	350	305	560	342
16	**15.30**	118	65.0	820	*)	460	415	630	*)	*)	480	700	*)	375	315	570	**M4**
18	**17.93**	100	65.0	700	205	440	380	580	*)	265	530	730	*)	415	345	570	366
20	**20.15**	89	65.0	620	210	435	365	570	*)	270	510	700	*)	410	335	560	
22.4	**22.32**	81	63.6	560	*)	300	205	365	*)	*)	180	345	*)	255	*)	325	
25	**25.08**	72	65.0	510	*)	310	215	370	*)	*)	175	345	*)	265	135	330	
28	**28.90**	62	65.0	440	125	285	195	340	*)	125	175	325	*)	255	135	310	
31.5	**32.47**	55	65.0	390	135	290	200	340	*)	135	175	325	*)	260	140	310	**X3F..**
35.5	**34.76**	52	65.0	365	125	265	180	310	*)	130	160	295	*)	240	130	285	**M1**
40	**39.06**	46	65.0	325	130	270	180	310	*)	140	160	290	*)	245	135	285	HU 282
45	**44.51**	40	65.0	285	145	265	180	300	73	215	220	335	135	270	175	305	HH 322
50	**50.01**	36	65.0	255	145	270	185	305	78	215	215	335	135	275	175	305	**M5**
56	**53.55**	34	65.0	235	125	235	155	260	68	190	185	290	120	240	150	265	346
63	**60.17**	30	65.0	210	130	235	155	265	72	190	180	285	120	240	150	265	**M4**
71	**72.09**	25	65.0	175	130	235	155	255	110	220	200	300	135	250	160	270	370
80	**81.01**	22	65.0	155	130	235	155	260	115	220	200	300	135	250	160	275	
90	**86.73**	21	65.0	145	120	215	140	230	100	200	175	265	125	225	145	245	
100	**97.45**	18	65.0	130	120	215	140	230	105	200	175	265	125	230	145	245	
112	**119.14**	15	65.0	110	100	-	115	-	91	-	140	-	105	-	120	-	
125	**133.87**	13	65.0	96	100	-	115	-	92	-	140	-	105	-	120	-	
140	**143.33**	13	65.0	90	91	-	100	-	83	-	125	-	97	-	105	-	
160	**161.05**	11	65.0	80	92	-	100	-	83	-	120	-	97	-	105	-	**X4F..**
180	**177.05**	10	65.0	73	83	-	92	-	76	-	110	-	88	-	96	-	**M1**
200	**198.95**	9.0	65.0	65	85	-	93	-	77	-	110	-	90	-	97	-	HU 288
224	**233.94**	7.7	65.0	55	83	-	90	-	81	-	110	-	90	-	97	-	**M5**
250	**262.87**	6.8	65.0	49	85	-	91	-	83	-	110	-	92	-	98	-	350
280	**281.43**	6.4	65.0	46	76	-	82	-	74	-	97	-	82	-	88	-	**M4**
315	**316.23**	5.7	65.0	41	77	-	82	-	75	-	97	-	84	-	89	-	374
355	**347.64**	5.2	65.0	37	70	-	74	-	68	-	87	-	75	-	80	-	
400	**390.64**	4.6	65.0	33	70	-	74	-	68	-	86	-	75	-	79	-	

X.F200..,n_1= 1000 1/min																	79 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.44**	155	66.9	1100	340	590	950	1150	*)	*)	1400	1600	*)	445	840	1050	
7.1	**7.31**	137	70.1	1050	305	530	840	1000	*)	*)	1250	1400	*)	410	760	960	
8	**7.98**	125	71.9	970	350	570	880	1050	*)	285	1400	1550	255	510	830	1050	**X2F..**
9	**9.05**	110	75.0	890	315	510	760	920	*)	270	1200	1350	240	465	720	900	**M1**
10	**10.09**	99	76.8	820	305	490	700	850	*)	350	1150	1300	270	480	690	860	HU 276
11.2	**11.44**	87	79.0	740	295	465	640	790	*)	340	1050	1200	260	455	630	790	**M5**
12.5	**12.69**	79	79.0	670	310	485	640	800	210	405	1050	1200	305	495	650	820	342
14	**14.39**	69	79.0	590	295	460	590	730	205	385	980	1100	290	470	590	750	**M4**
16	**16.28**	61	79.0	520	295	455	560	700	245	410	940	1050	305	475	570	730	366
18	**18.47**	54	79.0	460	280	425	510	650	235	385	860	980	285	450	520	670	
20	**20.73**	48	77.6	405	195	305	340	440	150	265	560	650	200	315	340	450	
22.4	**23.51**	43	79.0	365	190	290	320	415	145	255	520	600	190	300	320	425	
25	**25.94**	39	79.0	330	180	270	290	375	140	240	465	550	180	285	290	390	
28	**29.41**	34	79.0	290	175	270	280	365	145	240	445	520	180	280	280	375	**X3F..**
31.5	**32.13**	31	79.0	265	175	265	270	355	145	240	430	510	180	280	275	370	**M1**
35.5	**36.44**	27	79.0	235	165	255	255	335	140	230	395	475	170	265	255	350	HU 282
40	**39.25**	25	79.0	220	160	245	240	315	150	230	375	450	170	260	250	330	HH 322
45	**44.51**	22	79.0	195	160	240	230	305	145	230	360	430	170	255	240	320	**M5**
50	**48.62**	21	79.0	175	160	235	225	300	145	225	345	415	170	255	235	315	346
56	**55.14**	18	79.0	155	155	235	215	290	145	220	330	400	165	250	225	305	**M4**
63	**64.48**	16	79.0	135	140	210	190	255	135	205	285	350	150	225	200	270	370
71	**73.13**	14	79.0	115	140	205	185	245	135	200	275	335	150	220	195	265	
80	**79.88**	13	79.0	105	135	205	180	245	130	200	265	325	145	220	190	260	
90	**90.59**	11	79.0	95	135	200	175	235	130	195	255	315	145	215	185	250	
100	**99.49**	10	79.0	87	110	-	135	-	110	-	185	-	120	-	145	-	
112	**112.83**	8.9	79.0	77	110	-	130	-	105	-	175	-	115	-	135	-	
125	**123.25**	8.1	79.0	70	110	-	130	-	105	-	170	-	120	-	135	-	
140	**139.78**	7.2	79.0	62	105	-	125	-	105	-	165	-	115	-	135	-	**X4F..**
160	**152.34**	6.6	79.0	57	98	-	115	-	97	-	150	-	105	-	120	-	**M1**
180	**172.77**	5.8	79.0	50	97	-	110	-	95	-	145	-	105	-	120	-	HU 288
200	**199.92**	5.0	79.0	43	88	-	100	-	88	-	130	-	96	-	105	-	**M5**
224	**226.73**	4.4	79.0	38	86	-	97	-	86	-	125	-	94	-	105	-	350
250	**247.66**	4.0	79.0	35	87	-	97	-	86	-	125	-	94	-	105	-	**M4**
280	**280.87**	3.6	79.0	31	85	-	94	-	85	-	120	-	92	-	100	-	374
315	**306.12**	3.3	79.0	28	79	-	87	-	78	-	110	-	86	-	93	-	
355	**347.17**	2.9	79.0	25	77	-	84	-	76	-	105	-	83	-	90	-	
X.F200..,n_1= 1200 1/min																	79 kNm
6.3	**6.44**	186	66.9	1350	*)	610	960	1200	*)	*)	1150	1350	*)	*)	700	980	
7.1	**7.31**	164	70.1	1250	*)	550	860	1050	*)	*)	1050	1250	*)	*)	640	890	
8	**7.98**	150	71.9	1150	330	600	920	1150	*)	*)	1300	1500	*)	440	790	1050	**X2F..**
9	**9.05**	133	75.0	1050	300	540	830	1000	*)	*)	1200	1350	*)	410	720	940	**M1**
10	**10.09**	119	76.8	980	290	520	760	950	*)	*)	1200	1350	*)	465	710	920	HU 276
11.2	**11.44**	105	79.0	890	280	500	700	880	*)	240	1100	1250	*)	445	650	850	**M5**
12.5	**12.69**	95	79.0	800	300	520	700	880	*)	365	1150	1300	260	500	680	880	342
14	**14.39**	83	79.0	710	290	490	640	810	*)	355	1050	1200	250	480	620	810	**M4**
16	**16.28**	74	79.0	620	295	485	610	780	190	405	1000	1150	285	500	610	800	366
18	**18.47**	65	79.0	550	280	460	560	720	185	385	920	1050	275	470	560	730	
20	**20.73**	58	77.6	490	190	325	365	485	*)	255	580	690	175	325	355	485	
22.4	**23.51**	51	79.0	440	190	315	340	455	*)	245	540	650	170	315	330	455	
25	**25.94**	46	79.0	395	175	295	310	415	100	235	490	590	165	295	305	420	
28	**29.41**	41	79.0	350	175	290	300	405	105	235	465	560	170	290	290	405	**X3F..**
31.5	**32.13**	37	79.0	320	175	285	290	395	110	235	450	550	170	290	285	400	**M1**
35.5	**36.44**	33	79.0	285	170	275	270	370	110	225	415	510	165	280	265	375	HU 282
40	**39.25**	31	79.0	260	165	265	255	350	140	240	405	490	170	280	260	365	HH 322
45	**44.51**	27	79.0	230	165	260	250	340	140	240	385	475	170	275	250	350	**M5**
50	**48.62**	25	79.0	210	165	260	240	330	140	235	370	455	170	270	245	345	346
56	**55.14**	22	79.0	185	160	255	230	320	140	235	355	440	165	270	235	335	**M4**
63	**64.48**	19	79.0	160	145	230	205	280	135	220	310	385	155	245	210	295	370
71	**73.13**	16	79.0	140	145	225	195	275	135	215	300	370	155	240	205	290	
80	**79.88**	15	79.0	130	140	220	190	270	135	215	290	360	150	240	200	285	
90	**90.59**	13	79.0	115	140	220	185	260	130	210	275	350	150	235	195	275	
100	**99.49**	12	79.0	105	115	-	145	-	115	-	200	-	125	-	150	-	
112	**112.83**	11	79.0	92	115	-	135	-	110	-	190	-	120	-	145	-	
125	**123.25**	9.7	79.0	85	115	-	135	-	110	-	185	-	120	-	145	-	
140	**139.78**	8.6	79.0	75	110	-	130	-	105	-	180	-	120	-	140	-	**X4F..**
160	**152.34**	7.9	79.0	68	105	-	120	-	99	-	160	-	110	-	130	-	**M1**
180	**172.77**	6.9	79.0	60	100	-	115	-	97	-	155	-	110	-	125	-	HU 288
200	**199.92**	6.0	79.0	52	92	-	105	-	91	-	140	-	100	-	115	-	**M5**
224	**226.73**	5.3	79.0	46	91	-	105	-	90	-	135	-	98	-	110	-	350
250	**247.66**	4.8	79.0	42	91	-	105	-	90	-	130	-	98	-	110	-	**M4**
280	**280.87**	4.3	79.0	37	89	-	100	-	88	-	130	-	97	-	105	-	374
315	**306.12**	3.9	79.0	34	83	-	92	-	82	-	115	-	90	-	99	-	
355	**347.17**	3.5	79.0	30	80	-	89	-	79	-	110	-	87	-	96	-	

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X.F200..,n_1= 1500 1/min																	79 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.44**	233	66.9	1650	*)	610	950	1250	*)	*)	*)	660	*)	*)	*)	650	
7.1	**7.31**	205	70.1	1550	*)	550	860	1100	*)	*)	*)	680	*)	*)	*)	620	
8	**7.98**	188	71.9	1450	*)	630	940	1200	*)	*)	920	1200	*)	*)	570	910	**X2F..**
9	**9.05**	166	75.0	1350	*)	570	840	1100	*)	*)	860	1100	*)	*)	530	830	**M1**
10	**10.09**	149	76.8	1200	*)	560	810	1050	*)	*)	1100	1300	*)	355	650	920	HU 276
11.2	**11.44**	131	79.0	1100	*)	530	770	990	*)	*)	1050	1250	*)	350	630	880	**M5**
12.5	**12.69**	118	79.0	1000	275	560	770	1000	*)	*)	1150	1400	*)	475	700	950	342
14	**14.39**	104	79.0	880	265	530	700	920	*)	*)	1050	1250	*)	455	630	870	**M4**
16	**16.28**	92	79.0	780	275	530	670	880	*)	350	1100	1250	220	500	640	870	366
18	**18.47**	81	79.0	690	265	500	610	810	*)	335	980	1150	215	480	580	800	
20	**20.73**	72	77.6	610	175	355	400	540	*)	175	590	730	*)	325	350	510	
22.4	**23.51**	64	79.0	550	170	340	370	510	*)	175	550	680	*)	310	330	485	
25	**25.94**	58	79.0	495	165	320	340	470	*)	185	500	620	*)	300	305	450	
28	**29.41**	51	79.0	440	170	315	325	450	*)	190	470	590	120	295	290	435	**X3F..**
31.5	**32.13**	47	79.0	400	170	310	315	440	*)	200	455	580	125	295	280	425	**M1**
35.5	**36.44**	41	79.0	355	165	300	290	415	*)	195	420	540	125	285	265	400	HU 282
40	**39.25**	38	79.0	330	170	290	280	395	110	245	435	540	165	300	275	400	HH 322
45	**44.51**	34	79.0	290	170	285	270	380	110	240	415	520	165	295	265	390	**M5**
50	**48.62**	31	79.0	265	165	285	260	370	115	240	400	500	165	290	255	380	346
56	**55.14**	27	79.0	235	165	280	250	360	115	240	380	480	160	285	250	370	**M4**
63	**64.48**	23	79.0	200	150	255	220	315	135	240	340	435	160	270	225	335	370
71	**73.13**	21	79.0	175	150	250	215	310	130	235	325	415	155	265	220	325	
80	**79.88**	19	79.0	160	145	245	205	300	130	230	315	405	155	260	215	315	
90	**90.59**	17	79.0	140	145	240	200	295	130	230	300	390	150	260	205	310	
100	**99.49**	15	79.0	130	120	-	155	-	110	-	215	-	130	-	160	-	
112	**112.83**	13	79.0	115	115	-	145	-	110	-	205	-	125	-	155	-	
125	**123.25**	12	79.0	105	120	-	145	-	110	-	200	-	125	-	155	-	
140	**139.78**	11	79.0	93	115	-	140	-	105	-	190	-	125	-	150	-	**X4F..**
160	**152.34**	9.8	79.0	85	105	-	130	-	100	-	175	-	115	-	135	-	**M1**
180	**172.77**	8.7	79.0	75	105	-	125	-	98	-	165	-	110	-	130	-	HU 288
200	**199.92**	7.5	79.0	65	97	-	115	-	95	-	150	-	105	-	120	-	**M5**
224	**226.73**	6.6	79.0	57	96	-	110	-	93	-	145	-	105	-	120	-	350
250	**247.66**	6.1	79.0	53	96	-	110	-	94	-	145	-	105	-	120	-	**M4**
280	**280.87**	5.3	79.0	46	94	-	110	-	92	-	140	-	100	-	115	-	374
315	**306.12**	4.9	79.0	43	88	-	99	-	85	-	125	-	94	-	105	-	
355	**347.17**	4.3	79.0	38	85	-	96	-	83	-	120	-	92	-	100	-	
X.F200..,n_1= 1800 1/min																	79 kNm
6.3	**6.44**	280	63.2	1900	*)	570	910	1300	*)	*)	*)	*)	*)	*)	*)	*)	
7.1	**7.31**	246	66.3	1750	*)	520	820	1150	*)	*)	*)	*)	*)	*)	*)	*)	
8	**7.98**	226	68.0	1650	*)	630	930	1250	*)	*)	*)	475	*)	*)	*)	580	**X2F..**
9	**9.05**	199	70.9	1500	*)	570	840	1150	*)	*)	*)	510	*)	*)	*)	560	**M1**
10	**10.09**	178	72.6	1400	*)	570	820	1100	*)	*)	740	1000	*)	*)	440	800	HU 276
11.2	**11.44**	157	75.0	1250	*)	540	780	1050	*)	*)	730	990	*)	*)	440	770	**M5**
12.5	**12.69**	142	76.6	1150	*)	580	810	1100	*)	*)	1050	1300	*)	365	640	950	342
14	**14.39**	125	78.0	1050	*)	560	760	1000	*)	*)	990	1250	*)	360	600	880	**M4**
16	**16.28**	111	79.0	940	245	560	720	970	*)	*)	1100	1300	*)	480	640	920	366
18	**18.47**	97	79.0	830	240	530	650	890	*)	*)	980	1200	*)	455	580	840	
20	**20.73**	87	73.4	690	*)	375	425	600	*)	*)	550	720	*)	280	320	520	
22.4	**23.51**	77	74.7	620	*)	360	395	560	*)	*)	500	660	*)	275	295	485	
25	**25.94**	69	76.0	570	145	340	360	510	*)	*)	465	610	*)	275	280	455	
28	**29.41**	61	78.6	520	150	335	345	495	*)	*)	435	580	*)	275	265	440	**X3F..**
31.5	**32.13**	56	79.0	480	150	330	330	480	*)	*)	425	570	*)	280	260	430	**M1**
35.5	**36.44**	49	79.0	425	150	320	310	455	*)	*)	390	530	*)	265	245	405	HU 282
40	**39.25**	46	79.0	395	165	315	300	435	*)	230	450	580	140	310	280	425	HH 322
45	**44.51**	40	79.0	345	170	310	285	420	*)	230	425	550	140	305	265	415	**M5**
50	**48.62**	37	79.0	320	170	305	280	410	*)	230	410	530	145	305	260	405	346
56	**55.14**	33	79.0	280	165	300	265	395	*)	225	385	510	145	300	250	390	**M4**
63	**64.48**	28	79.0	240	155	275	235	350	125	250	365	475	155	290	240	360	370
71	**73.13**	25	79.0	210	150	270	225	340	125	245	350	455	155	285	230	350	
80	**79.88**	23	79.0	195	150	265	220	330	120	240	335	440	155	280	225	345	
90	**90.59**	20	79.0	170	150	265	215	320	120	240	320	425	150	275	215	335	
100	**99.49**	18	77.0	155	125	-	165	-	105	-	225	-	130	-	165	-	
112	**112.83**	16	79.0	140	120	-	155	-	105	-	215	-	125	-	160	-	
125	**123.25**	15	79.0	125	120	-	155	-	105	-	210	-	125	-	160	-	
140	**139.78**	13	79.0	110	120	-	150	-	105	-	200	-	125	-	155	-	**X4F..**
160	**152.34**	12	79.0	105	110	-	135	-	96	-	180	-	115	-	140	-	**M1**
180	**172.77**	10	79.0	90	110	-	135	-	95	-	175	-	115	-	135	-	HU 288
200	**199.92**	9.0	79.0	78	100	-	120	-	97	-	160	-	110	-	130	-	**M5**
224	**226.73**	7.9	79.0	69	100	-	120	-	95	-	155	-	105	-	125	-	350
250	**247.66**	7.3	79.0	63	100	-	115	-	96	-	155	-	105	-	125	-	**M4**
280	**280.87**	6.4	79.0	56	98	-	115	-	94	-	150	-	105	-	120	-	374
315	**306.12**	5.9	79.0	51	91	-	105	-	87	-	135	-	98	-	110	-	
355	**347.17**	5.2	79.0	45	88	-	100	-	85	-	130	-	95	-	105	-	

X.F210..,n_1= 1000 1/min																	90 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
7.1	**7.29**	137	75.5	1100	350	600	640	860	*)	*)	730	940	*)	455	510	760	
8	**8.26**	121	79.3	1050	315	540	570	760	*)	*)	680	860	*)	420	470	690	
9	**9.04**	111	81.1	960	340	550	580	760	*)	275	770	950	245	495	520	730	**X2F..**
10	**10.24**	98	84.2	880	325	520	530	710	*)	280	710	880	245	475	485	680	**M1**
11.2	**11.42**	88	86.8	820	315	500	500	670	*)	355	710	870	275	485	485	670	HU 276
12.5	**12.93**	77	90.0	750	300	475	465	620	*)	345	660	810	270	465	450	630	**M5**
14	**14.37**	70	90.0	670	320	495	470	640	220	410	700	860	310	500	475	660	342
16	**16.27**	61	90.0	590	305	470	440	590	215	395	640	790	300	480	445	610	**M4**
18	**18.44**	54	90.0	520	300	460	420	580	250	415	630	780	310	485	435	600	366
20	**20.88**	48	90.0	460	275	420	375	510	230	380	560	690	280	440	390	540	
22.4	**23.47**	43	88.0	405	195	300	260	360	150	265	365	460	200	310	260	370	
25	**26.57**	38	90.0	370	195	295	255	350	150	260	355	450	195	310	255	365	
28	**29.37**	34	90.0	335	180	280	235	325	145	245	325	410	185	290	235	340	
31.5	**33.25**	30	90.0	295	180	275	225	320	145	245	310	400	185	285	230	330	**X3F..**
35.5	**36.38**	27	90.0	270	175	265	215	305	145	235	295	380	175	275	220	315	**M1**
40	**41.19**	24	90.0	235	170	260	210	295	140	235	280	365	175	270	215	310	HU 282
45	**44.44**	23	90.0	220	165	250	200	280	150	235	275	350	175	265	210	295	HH 322
50	**50.32**	20	90.0	195	160	240	190	270	145	225	260	335	170	255	200	285	**M5**
56	**55.06**	18	90.0	180	160	240	190	270	150	230	260	335	170	260	200	285	346
63	**62.33**	16	90.0	155	155	230	180	255	145	220	240	315	165	245	190	270	**M4**
71	**73.02**	14	90.0	135	145	215	165	235	140	210	220	285	155	230	175	250	370
80	**82.67**	12	90.0	120	140	210	160	230	135	205	215	275	150	225	170	245	
90	**90.45**	11	90.0	110	135	200	155	220	130	200	200	265	145	220	165	235	
100	**102.41**	9.8	90.0	95	135	200	150	215	130	195	195	255	145	215	160	230	
112	**112.66**	8.9	90.0	88	115	-	125	-	110	-	150	-	125	-	135	-	
125	**127.55**	7.8	90.0	78	110	-	120	-	110	-	145	-	120	-	130	-	
140	**139.56**	7.2	90.0	71	110	-	115	-	105	-	140	-	120	-	125	-	
160	**158.01**	6.3	90.0	63	105	-	115	-	105	-	135	-	115	-	125	-	**X4F..**
180	**172.51**	5.8	90.0	57	100	-	105	-	99	-	125	-	110	-	115	-	**M1**
200	**195.31**	5.1	90.0	51	98	-	105	-	97	-	120	-	105	-	110	-	HU 288
224	**226.38**	4.4	90.0	44	90	-	95	-	89	-	110	-	97	-	100	-	**M5**
250	**256.30**	3.9	90.0	39	88	-	93	-	87	-	105	-	95	-	100	-	350
280	**280.44**	3.6	90.0	35	87	-	91	-	86	-	105	-	94	-	98	-	**M4**
315	**317.51**	3.1	90.0	31	85	-	89	-	85	-	100	-	92	-	96	-	374
355	**346.64**	2.9	90.0	29	80	-	84	-	80	-	95	-	87	-	90	-	
400	**392.45**	2.5	90.0	25	78	-	81	-	77	-	91	-	85	-	88	-	
X.F210..,n_1= 1200 1/min																	90 kNm
7.1	**7.29**	165	75.5	1350	*)	620	630	900	*)	*)	335	650	*)	*)	*)	640	
8	**8.26**	145	79.3	1250	*)	560	570	800	*)	*)	355	620	*)	*)	*)	590	
9	**9.04**	133	81.1	1150	320	580	590	820	*)	*)	620	850	*)	425	440	710	**X2F..**
10	**10.24**	117	84.2	1050	310	550	560	780	*)	*)	610	820	*)	415	430	680	**M1**
11.2	**11.42**	105	86.8	980	300	530	530	730	*)	*)	680	880	*)	475	465	690	HU 276
12.5	**12.93**	93	90.0	900	290	510	490	680	*)	245	630	810	*)	455	435	650	**M5**
14	**14.37**	84	90.0	810	310	530	495	700	*)	375	700	890	265	520	475	700	342
16	**16.27**	74	90.0	710	300	500	460	650	*)	360	650	820	260	490	445	650	**M4**
18	**18.44**	65	90.0	630	300	495	445	630	195	415	660	830	290	510	445	650	366
20	**20.88**	57	90.0	550	275	450	395	560	185	375	580	730	270	460	400	580	
22.4	**23.47**	51	88.0	490	190	325	270	395	*)	255	370	485	175	325	260	395	
25	**26.57**	45	90.0	440	195	320	265	385	*)	250	355	470	180	320	255	385	
28	**29.37**	41	90.0	400	185	300	245	355	105	240	325	435	170	305	235	360	
31.5	**33.25**	36	90.0	355	180	295	240	345	110	240	310	420	175	300	230	350	**X3F..**
35.5	**36.38**	33	90.0	320	175	285	225	330	110	235	295	400	170	290	220	335	**M1**
40	**41.19**	29	90.0	285	175	280	220	325	115	230	285	385	165	285	215	330	HU 282
45	**44.44**	27	90.0	265	170	270	210	310	145	245	290	380	175	285	215	320	HH 322
50	**50.32**	24	90.0	235	165	260	200	295	140	235	270	360	170	275	205	305	**M5**
56	**55.06**	22	90.0	215	165	265	200	295	145	240	270	360	170	280	205	310	346
63	**62.33**	19	90.0	190	160	250	190	280	135	230	250	340	165	265	195	295	**M4**
71	**73.02**	16	90.0	160	150	230	175	255	140	225	235	315	160	250	185	275	370
80	**82.67**	15	90.0	140	145	230	170	250	140	220	225	305	155	245	180	265	
90	**90.45**	13	90.0	130	140	220	165	240	135	215	215	290	150	235	175	255	
100	**102.41**	12	90.0	115	140	215	160	235	130	210	210	280	150	235	170	250	
112	**112.66**	11	90.0	105	120	-	130	-	115	-	160	-	130	-	140	-	
125	**127.55**	9.4	90.0	93	115	-	125	-	110	-	150	-	125	-	135	-	
140	**139.56**	8.6	90.0	85	115	-	125	-	110	-	145	-	120	-	130	-	
160	**158.01**	7.6	90.0	75	110	-	120	-	110	-	145	-	120	-	130	-	**X4F..**
180	**172.51**	7.0	90.0	69	105	-	110	-	100	-	130	-	115	-	120	-	**M1**
200	**195.31**	6.1	90.0	61	105	-	110	-	99	-	130	-	110	-	120	-	HU 288
224	**226.38**	5.3	90.0	52	94	-	100	-	93	-	115	-	100	-	110	-	**M5**
250	**256.30**	4.7	90.0	46	92	-	98	-	91	-	115	-	100	-	105	-	350
280	**280.44**	4.3	90.0	42	91	-	96	-	90	-	110	-	99	-	105	-	**M4**
315	**317.51**	3.8	90.0	37	89	-	94	-	88	-	110	-	97	-	100	-	374
355	**346.64**	3.5	90.0	34	84	-	88	-	83	-	100	-	91	-	95	-	
400	**392.45**	3.1	90.0	30	82	-	86	-	81	-	97	-	89	-	92	-	

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X.F210..,n_1= 1500 1/min																	90 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**7.29**	206	75.5	1650	*)	620	580	930	*)	*)	*)	*)	*)	*)	*)	*)	
8	**8.26**	182	79.3	1550	*)	560	530	830	*)	*)	*)	*)	*)	*)	*)	*)	
9	**9.04**	166	81.1	1450	*)	610	580	870	*)	*)	*)	410	*)	*)	*)	530	**X2F..**
10	**10.24**	146	84.2	1300	*)	580	550	820	*)	*)	*)	440	*)	*)	*)	530	**M1**
11.2	**11.42**	131	86.8	1200	*)	570	540	800	*)	*)	465	730	*)	365	330	650	HU 276
12.5	**12.93**	116	90.0	1100	*)	540	520	750	*)	*)	465	710	*)	365	330	630	**M5**
14	**14.37**	104	90.0	1000	280	570	530	770	*)	*)	640	880	*)	490	430	720	342
16	**16.27**	92	90.0	890	275	540	490	720	*)	*)	580	810	*)	470	400	670	**M4**
18	**18.44**	81	90.0	790	285	540	470	700	*)	360	650	870	225	520	440	690	366
20	**20.88**	72	90.0	690	260	490	420	620	*)	330	570	760	210	470	390	620	
22.4	**23.47**	64	88.0	610	175	350	285	435	*)	180	335	480	*)	320	230	405	
25	**26.57**	56	90.0	550	180	350	280	425	*)	185	320	465	*)	320	225	400	
28	**29.37**	51	90.0	500	170	325	255	395	*)	195	300	435	*)	305	215	375	
31.5	**33.25**	45	90.0	440	175	320	250	385	*)	195	285	420	125	300	215	365	**X3F..**
35.5	**36.38**	41	90.0	405	170	310	235	365	*)	205	270	400	130	295	205	350	**M1**
40	**41.19**	36	90.0	355	175	305	230	360	*)	200	260	385	130	290	200	345	HU 282
45	**44.44**	34	90.0	330	175	300	225	345	115	250	295	410	170	305	220	350	HH 322
50	**50.32**	30	90.0	290	170	285	215	330	110	240	275	385	165	295	210	335	**M5**
56	**55.06**	27	90.0	265	170	290	215	330	120	245	275	390	165	300	210	340	346
63	**62.33**	24	90.0	235	165	280	205	315	120	235	255	365	160	285	200	320	**M4**
71	**73.02**	21	90.0	200	155	260	185	285	135	240	250	345	160	275	195	305	370
80	**82.67**	18	90.0	175	150	255	180	280	135	240	240	335	160	270	190	295	
90	**90.45**	17	90.0	160	145	245	175	270	130	230	230	320	155	260	180	285	
100	**102.41**	15	90.0	145	145	240	170	265	130	225	220	310	150	255	175	280	
112	**112.66**	13	90.0	130	125	-	140	-	115	-	165	-	130	-	145	-	
125	**127.55**	12	90.0	115	120	-	130	-	110	-	160	-	125	-	140	-	
140	**139.56**	11	90.0	105	120	-	130	-	110	-	155	-	125	-	135	-	
160	**158.01**	9.5	90.0	94	115	-	125	-	110	-	150	-	125	-	135	-	**X4F..**
180	**172.51**	8.7	90.0	86	110	-	120	-	100	-	140	-	115	-	125	-	**M1**
200	**195.31**	7.7	90.0	76	105	-	115	-	100	-	135	-	115	-	125	-	HU 288
224	**226.38**	6.6	90.0	66	99	-	105	-	97	-	125	-	105	-	115	-	**M5**
250	**256.30**	5.9	90.0	58	97	-	105	-	95	-	120	-	105	-	110	-	350
280	**280.44**	5.3	90.0	53	96	-	100	-	94	-	120	-	105	-	110	-	**M4**
315	**317.51**	4.7	90.0	47	95	-	100	-	92	-	115	-	100	-	105	-	374
355	**346.64**	4.3	90.0	43	89	-	94	-	87	-	110	-	96	-	100	-	
400	**392.45**	3.8	90.0	38	87	-	91	-	84	-	105	-	93	-	98	-	
X.F210..,n_1= 1800 1/min																	**90 kNm**
7.1	**7.29**	247	71.4	1900	*)	590	490	930	*)	*)	*)	*)	*)	*)	*)	*)	
8	**8.26**	218	75.0	1750	*)	540	450	840	*)	*)	*)	*)	*)	*)	*)	*)	
9	**9.04**	199	76.7	1650	*)	610	530	900	*)	*)	*)	*)	*)	*)	*)	*)	**X2F..**
10	**10.24**	176	79.6	1500	*)	580	510	850	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
11.2	**11.42**	158	82.1	1400	*)	580	510	830	*)	*)	*)	*)	*)	*)	*)	475	HU 276
12.5	**12.93**	139	84.8	1250	*)	560	490	790	*)	*)	*)	340	*)	*)	*)	475	**M5**
14	**14.37**	125	85.6	1150	*)	600	530	830	*)	*)	420	740	*)	375	295	670	342
16	**16.27**	111	86.8	1050	*)	570	500	780	*)	*)	405	700	*)	375	285	640	**M4**
18	**18.44**	98	88.0	920	255	570	485	760	*)	*)	580	840	*)	490	390	700	366
20	**20.88**	86	90.0	830	235	520	430	680	*)	*)	510	740	*)	450	345	620	
22.4	**23.47**	77	83.2	690	*)	375	285	470	*)	*)	225	430	*)	280	*)	395	
25	**26.57**	68	85.1	630	155	370	280	460	*)	*)	210	410	*)	285	*)	385	
28	**29.37**	61	86.0	570	155	350	260	425	*)	*)	215	395	*)	285	155	365	
31.5	**33.25**	54	88.8	520	160	345	255	415	*)	*)	205	380	*)	280	155	355	**X3F..**
35.5	**36.38**	49	90.0	485	155	330	245	395	*)	*)	200	370	*)	280	155	345	**M1**
40	**41.19**	44	90.0	425	160	325	235	385	*)	*)	190	350	*)	275	155	340	HU 282
45	**44.44**	41	90.0	395	175	320	235	375	*)	240	285	425	145	315	215	370	HH 322
50	**50.32**	36	90.0	350	170	310	220	355	*)	230	265	400	140	305	200	350	**M5**
56	**55.06**	33	90.0	320	170	315	220	360	*)	235	265	400	150	310	205	355	346
63	**62.33**	29	90.0	280	165	300	210	340	*)	225	245	375	145	295	195	340	**M4**
71	**73.02**	25	90.0	240	160	280	195	315	130	255	260	375	160	295	195	330	370
80	**82.67**	22	90.0	215	155	275	190	305	125	250	250	360	160	290	190	320	
90	**90.45**	20	90.0	195	150	265	180	295	120	240	235	345	155	280	185	310	
100	**102.41**	18	90.0	170	150	260	175	290	120	235	225	335	150	275	180	300	
112	**112.66**	16	85.1	150	125	-	145	-	110	-	170	-	130	-	150	-	
125	**127.55**	14	90.0	140	125	-	140	-	105	-	160	-	125	-	140	-	
140	**139.56**	13	90.0	130	120	-	135	-	105	-	155	-	125	-	140	-	
160	**158.01**	11	90.0	115	120	-	130	-	105	-	150	-	125	-	135	-	**X4F..**
180	**172.51**	10	90.0	105	115	-	125	-	99	-	140	-	115	-	130	-	**M1**
200	**195.31**	9.2	90.0	91	110	-	120	-	97	-	140	-	115	-	125	-	HU 288
224	**226.38**	8.0	90.0	79	105	-	110	-	99	-	130	-	110	-	120	-	**M5**
250	**256.30**	7.0	90.0	69	100	-	110	-	97	-	130	-	110	-	115	-	350
280	**280.44**	6.4	90.0	63	100	-	105	-	96	-	125	-	105	-	115	-	**M4**
315	**317.51**	5.7	90.0	56	98	-	105	-	94	-	120	-	105	-	110	-	374
355	**346.64**	5.2	90.0	51	93	-	99	-	89	-	115	-	100	-	105	-	
400	**392.45**	4.6	90.0	45	90	-	95	-	86	-	110	-	97	-	100	-	

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X.F220..,n_1= 1000 1/min																	112 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.42**	156	87.7	1450	390	690	1150	1400	*)	*)	1450	1700	*)	370	880	1150	
7.1	**7.08**	141	90.0	1350	370	650	1050	1300	*)	*)	1400	1600	*)	370	850	1100	**X2F....**
8	**7.97**	125	93.2	1250	400	660	1050	1250	*)	*)	1500	1700	*)	510	930	1150	**M1**
9	**8.80**	114	95.4	1150	375	620	970	1150	*)	*)	1400	1600	*)	480	860	1100	HU 278
10	**10.06**	99	99.5	1050	415	660	970	1200	*)	365	1500	1700	320	600	920	1150	HH 318
11.2	**11.10**	90	102	990	385	620	890	1100	*)	350	1400	1550	305	560	850	1050	**M5**
12.5	**12.61**	79	106	900	395	610	830	1000	235	465	1350	1500	365	600	820	1000	344
14	**13.92**	72	109	840	390	600	800	980	235	465	1300	1450	365	600	790	990	**M4**
16	**16.21**	62	112	740	370	570	720	890	290	495	1200	1350	375	590	730	920	368
18	**17.89**	56	112	670	350	540	670	830	275	470	1100	1250	355	560	680	860	
20	**20.46**	49	99.2	530	275	425	500	640	195	355	810	930	270	435	500	640	
22.4	**22.58**	44	107	510	265	410	475	600	190	340	760	880	260	420	470	610	
25	**25.06**	40	112	485	245	375	420	540	180	320	670	780	245	385	420	550	
28	**27.66**	36	112	440	240	370	405	520	180	315	640	750	240	380	405	530	**X3F....**
31.5	**30.96**	32	112	395	230	350	375	485	175	305	590	690	230	365	375	495	**M1**
35.5	**34.16**	29	112	355	220	335	355	460	170	290	550	650	220	345	350	470	HU 284
40	**40.46**	25	112	300	225	335	340	445	205	315	540	630	240	360	350	460	HH 324
45	**44.65**	22	112	270	225	330	330	430	200	310	520	610	235	350	340	450	**M5**
50	**49.96**	20	112	245	210	310	300	395	190	290	465	550	220	330	310	410	348
56	**55.14**	18	112	220	200	295	285	375	180	280	435	520	210	315	290	390	**M4**
63	**64.28**	16	112	190	190	285	265	350	185	275	410	490	205	305	275	370	372
71	**70.94**	14	112	170	190	280	260	345	180	275	395	475	205	300	270	360	
80	**79.39**	13	112	155	175	260	235	315	170	255	360	430	190	280	245	335	
90	**87.62**	11	112	140	170	250	225	300	165	245	335	410	185	270	235	320	
100	**101.26**	9.9	112	120	150	-	195	-	150	-	290	-	160	-	205	-	
112	**111.76**	8.9	112	110	150	-	190	-	145	-	280	-	160	-	200	-	
125	**125.06**	8.0	112	98	140	-	180	-	140	-	260	-	155	-	190	-	**X4F....**
140	**138.02**	7.2	112	89	135	-	170	-	135	-	250	-	150	-	180	-	**M1**
160	**158.12**	6.3	112	78	125	-	150	-	120	-	215	-	135	-	160	-	HU 290
180	**174.51**	5.7	112	71	120	-	145	-	115	-	205	-	130	-	155	-	HH 328
200	**201.61**	5.0	112	61	125	-	150	-	125	-	210	-	135	-	160	-	**M5**
224	**222.51**	4.5	112	55	120	-	145	-	120	-	200	-	130	-	155	-	352
250	**248.99**	4.0	112	49	115	-	135	-	115	-	185	-	125	-	145	-	**M4**
280	**274.80**	3.6	112	45	115	-	130	-	110	-	180	-	120	-	140	-	376
315	**314.81**	3.2	112	39	100	-	115	-	100	-	155	-	110	-	125	-	
355	**347.45**	2.9	112	35	99	-	115	-	98	-	150	-	105	-	120	-	
X.F220..,n_1= 1200 1/min																	112 kNm
6.3	**6.42**	187	87.7	1750	*)	700	1150	1450	*)	*)	860	1200	*)	*)	560	940	
7.1	**7.08**	169	90.0	1650	*)	660	1050	1350	*)	*)	870	1150	*)	*)	560	910	**X2F....**
8	**7.97**	151	93.2	1500	*)	680	1050	1300	*)	*)	1250	1500	*)	*)	780	1100	**M1**
9	**8.80**	136	95.4	1400	*)	640	1000	1250	*)	*)	1200	1450	*)	*)	740	1000	HU 278
10	**10.06**	119	99.5	1250	395	700	1050	1300	*)	*)	1500	1750	*)	530	930	1200	HH 318
11.2	**11.10**	108	102	1200	370	650	970	1200	*)	*)	1400	1600	*)	510	840	1100	**M5**
12.5	**12.61**	95	106	1100	390	650	900	1100	*)	380	1400	1600	300	600	850	1100	344
14	**13.92**	86	109	1000	385	640	870	1100	*)	380	1350	1550	300	590	820	1050	**M4**
16	**16.21**	74	112	890	370	610	780	990	*)	470	1300	1450	345	610	770	1000	368
18	**17.89**	67	112	810	350	580	720	920	205	450	1200	1350	325	580	710	930	
20	**20.46**	59	99.2	630	275	455	540	700	*)	315	850	990	235	440	510	690	
22.4	**22.58**	53	107	620	265	440	510	670	*)	305	800	940	225	425	485	660	
25	**25.06**	48	112	580	245	405	455	590	*)	290	700	830	215	395	430	590	
28	**27.66**	43	112	530	245	400	435	580	*)	290	670	800	215	390	415	570	**X3F....**
31.5	**30.96**	39	112	470	235	380	405	540	120	285	620	740	210	375	385	530	**M1**
35.5	**34.16**	35	112	425	225	365	380	510	115	270	570	690	205	360	360	500	HU 284
40	**40.46**	30	112	360	235	365	370	490	190	330	580	700	240	385	370	510	HH 324
45	**44.65**	27	112	325	230	360	355	480	190	325	560	670	235	375	360	490	**M5**
50	**49.96**	24	112	290	215	335	325	435	180	305	500	600	220	350	325	450	348
56	**55.14**	22	112	265	205	320	305	415	170	290	470	570	210	335	310	425	**M4**
63	**64.28**	19	112	225	200	310	285	390	185	300	445	540	210	330	295	410	372
71	**70.94**	17	112	205	195	305	275	380	185	295	430	520	210	325	285	400	
80	**79.39**	15	112	185	185	285	255	350	170	275	390	475	195	305	265	365	
90	**87.62**	14	112	165	175	275	240	335	165	265	365	450	185	295	250	350	
100	**101.26**	12	112	145	155	-	210	-	150	-	315	-	170	-	220	-	
112	**111.76**	11	112	130	155	-	205	-	145	-	305	-	165	-	210	-	
125	**125.06**	9.6	112	120	150	-	190	-	140	-	285	-	160	-	200	-	**X4F....**
140	**138.02**	8.7	112	105	145	-	185	-	135	-	270	-	155	-	190	-	**M1**
160	**158.12**	7.6	112	93	130	-	160	-	125	-	230	-	135	-	170	-	HU 290
180	**174.51**	6.9	112	85	125	-	155	-	120	-	220	-	135	-	160	-	HH 328
200	**201.61**	6.0	112	73	130	-	160	-	130	-	225	-	140	-	170	-	**M5**
224	**222.51**	5.4	112	66	125	-	155	-	125	-	215	-	135	-	160	-	352
250	**248.99**	4.8	112	59	120	-	145	-	120	-	205	-	130	-	155	-	**M4**
280	**274.80**	4.4	112	54	120	-	140	-	115	-	195	-	130	-	150	-	376
315	**314.81**	3.8	112	47	105	-	125	-	105	-	165	-	115	-	130	-	
355	**347.45**	3.5	112	43	105	-	120	-	100	-	160	-	110	-	130	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F220..,n_1= 1500 1/min																	**112 kNm**
6.3	**6.42**	234	87.7	2200	*)	670	1100	1500	*)	*)	*)	*)	*)	*)	*)	*)	
7.1	**7.08**	212	90.0	2050	*)	630	1050	1400	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
8	**7.97**	188	93.2	1900	*)	700	1050	1400	*)	*)	*)	760	*)	*)	*)	740	**M1**
9	**8.80**	170	95.4	1750	*)	660	1000	1300	*)	*)	*)	770	*)	*)	*)	730	HU 278
10	**10.06**	149	99.5	1600	*)	730	1050	1400	*)	*)	1100	1450	*)	*)	700	1050	HH 318
11.2	**11.10**	135	102	1500	*)	680	1000	1300	*)	*)	1050	1350	*)	*)	670	1000	**M5**
12.5	**12.61**	119	106	1350	370	700	1000	1300	*)	*)	1400	1650	*)	520	850	1150	344
14	**13.92**	108	109	1250	370	690	960	1250	*)	*)	1300	1600	*)	520	810	1100	**M4**
16	**16.21**	93	112	1100	360	660	870	1100	*)	350	1350	1550	*)	600	800	1100	368
18	**17.89**	84	112	1000	340	630	800	1050	*)	340	1200	1450	*)	570	740	1000	
20	**20.46**	73	99.2	790	265	495	590	790	*)	*)	830	1000	*)	410	500	720	
22.4	**22.58**	66	107	770	255	480	560	750	*)	*)	780	960	*)	395	470	690	
25	**25.06**	60	112	730	240	440	495	670	*)	*)	690	850	*)	375	420	620	
28	**27.66**	54	112	660	235	430	475	650	*)	180	660	820	*)	370	405	600	**X3F....**
31.5	**30.96**	48	112	590	230	415	440	600	*)	195	610	760	*)	365	375	560	**M1**
35.5	**34.16**	44	112	530	220	395	415	570	*)	185	560	710	140	350	350	530	HU 284
40	**40.46**	37	112	450	240	405	405	560	145	325	620	760	225	410	390	560	HH 324
45	**44.65**	34	112	410	235	400	390	540	145	320	600	740	220	400	375	540	**M5**
50	**49.96**	30	112	365	220	370	355	495	140	305	530	660	210	375	340	495	348
56	**55.14**	27	112	330	210	355	335	465	135	290	500	620	200	360	320	470	**M4**
63	**64.28**	23	112	285	205	345	310	440	175	320	490	610	215	365	315	460	372
71	**70.94**	21	112	255	205	340	300	430	175	315	470	590	210	360	305	445	
80	**79.39**	19	112	230	190	315	275	395	165	295	425	530	195	335	280	410	
90	**87.62**	17	112	210	185	305	260	375	160	280	400	500	190	320	265	390	
100	**101.26**	15	112	180	165	-	225	-	145	-	345	-	170	-	235	-	
112	**111.76**	13	112	165	160	-	220	-	145	-	330	-	170	-	225	-	
125	**125.06**	12	112	150	155	-	205	-	140	-	310	-	160	-	215	-	**X4F....**
140	**138.02**	11	112	135	150	-	200	-	135	-	290	-	155	-	205	-	**M1**
160	**158.12**	9.5	112	115	135	-	175	-	120	-	250	-	140	-	180	-	HU 290
180	**174.51**	8.6	112	105	130	-	165	-	115	-	240	-	135	-	170	-	HH 328
200	**201.61**	7.4	112	92	140	-	175	-	135	-	250	-	150	-	180	-	**M5**
224	**222.51**	6.7	112	83	135	-	165	-	130	-	240	-	145	-	175	-	352
250	**248.99**	6.0	112	74	130	-	160	-	125	-	225	-	140	-	165	-	**M4**
280	**274.80**	5.5	112	67	125	-	150	-	120	-	215	-	135	-	160	-	376
315	**314.81**	4.8	112	59	110	-	130	-	110	-	185	-	120	-	140	-	
355	**347.45**	4.3	112	53	110	-	130	-	105	-	180	-	120	-	135	-	
X.F220..,n_1= 1800 1/min																	**112 kNm**
6.3[1)]	**6.42**	280	82.9	2500	*)	*)	1000	1450	*)	*)	*)	*)	*)	*)	*)	*)	
7.1[1)]	**7.08**	254	85.1	2300	*)	*)	940	1400	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
8[1)]	**7.97**	226	88.1	2150	*)	680	1050	1400	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[1)]	**8.80**	205	90.2	2000	*)	640	960	1350	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
10[1)]	**10.06**	179	94.1	1800	*)	730	1050	1450	*)	*)	*)	700	*)	*)	*)	740	HH 318
11.2[1)]	**11.10**	162	96.5	1700	*)	690	1000	1350	*)	*)	*)	720	*)	*)	*)	720	**M5**
12.5	**12.61**	143	100	1550	*)	730	1000	1350	*)	*)	1050	1350	*)	*)	660	1050	344
14	**13.92**	129	102	1400	*)	720	1000	1300	*)	*)	1050	1400	*)	*)	660	1050	**M4**
16	**16.21**	111	105	1250	335	700	940	1250	*)	*)	1300	1600	*)	520	780	1100	368
18	**17.89**	101	107	1150	315	660	860	1150	*)	*)	1200	1450	*)	500	710	1050	
20	**20.46**	88	93.8	900	240	520	630	870	*)	*)	710	940	*)	310	430	710	
22.4	**22.58**	80	101	870	230	500	600	820	*)	*)	650	880	*)	300	400	670	
25	**25.06**	72	105	820	220	465	530	730	*)	*)	600	800	*)	310	365	610	
28	**27.66**	65	106	750	220	460	510	710	*)	*)	560	760	*)	305	345	590	**X3F....**
31.5	**30.96**	58	107	680	215	440	470	660	*)	*)	530	720	*)	310	330	560	**M1**
35.5	**34.16**	53	112	640	210	420	440	620	*)	*)	480	660	*)	300	300	520	HU 284
40	**40.46**	44	112	540	240	440	435	620	*)	290	640	800	190	415	395	600	HH 324
45	**44.65**	40	112	490	235	430	420	600	*)	285	610	770	185	410	380	580	**M5**
50	**49.96**	36	112	440	220	400	380	540	*)	275	540	700	180	385	345	530	348
56	**55.14**	33	112	395	210	385	355	520	*)	265	500	650	175	370	320	500	**M4**
63	**64.28**	28	112	340	210	375	335	485	155	325	520	660	205	385	330	500	372
71	**70.94**	25	112	310	205	365	325	475	155	320	500	640	205	380	320	485	
80	**79.39**	23	112	275	195	345	295	435	145	300	450	580	190	355	290	445	
90	**87.62**	21	112	250	185	330	280	415	140	290	420	550	185	340	275	425	
100	**101.26**	18	106	210	165	-	240	-	135	-	365	-	170	-	240	-	
112	**111.76**	16	112	200	165	-	235	-	130	-	350	-	165	-	235	-	
125	**125.06**	14	112	175	160	-	220	-	125	-	325	-	160	-	220	-	**X4F....**
140	**138.02**	13	112	160	150	-	210	-	120	-	305	-	155	-	210	-	**M1**
160	**158.12**	11	112	140	135	-	185	-	110	-	265	-	140	-	185	-	HU 290
180	**174.51**	10	112	125	130	-	175	-	110	-	250	-	135	-	175	-	HH 328
200	**201.61**	8.9	112	110	145	-	185	-	135	-	270	-	155	-	195	-	**M5**
224	**222.51**	8.1	112	100	140	-	175	-	130	-	255	-	150	-	185	-	352
250	**248.99**	7.2	112	89	135	-	170	-	125	-	240	-	145	-	175	-	**M4**
280	**274.80**	6.6	112	81	130	-	160	-	125	-	230	-	140	-	170	-	376
315	**314.81**	5.7	112	70	115	-	140	-	110	-	195	-	125	-	150	-	
355	**347.45**	5.2	112	64	115	-	135	-	110	-	190	-	120	-	145	-	

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X.F230..,n_1= 1000 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**7.27**	138	99.0	1450	425	750	790	1100	*)	*)	550	860	*)	395	450	800	
8	**7.98**	125	101	1350	395	700	730	1000	*)	*)	560	840	*)	390	440	760	**X2F....**
9	**9.03**	111	105	1250	410	670	700	930	*)	*)	770	1000	*)	520	560	820	**M1**
10	**9.91**	101	107	1150	405	660	680	920	*)	*)	770	990	*)	520	550	820	HU 278
11.2	**11.39**	88	112	1050	420	670	670	900	*)	370	880	1100	325	610	610	870	HH 318
12.5	**12.50**	80	114	980	395	630	620	840	*)	360	810	1000	310	580	570	810	**M5**
14	**14.28**	70	119	890	400	620	590	790	240	475	840	1050	375	610	580	800	344
16	**15.68**	64	122	830	395	610	580	780	240	475	810	1000	370	610	570	790	**M4**
18	**18.36**	54	127	750	380	580	530	720	300	510	780	950	380	600	540	750	368
20	**20.16**	50	130	690	375	570	520	700	295	500	760	930	375	590	530	730	
22.4	**23.17**	43	112	530	285	435	385	530	200	360	530	660	275	445	380	540	
25	**25.44**	39	123	530	275	420	365	500	195	350	500	630	270	430	365	520	
28	**28.38**	35	131	500	260	395	335	465	190	335	460	580	255	405	335	480	
31.5	**31.17**	32	131	455	250	380	320	445	185	320	435	550	245	390	320	455	**X3F....**
35.5	**35.05**	29	131	405	240	360	305	420	185	310	405	520	240	370	305	430	**M1**
40	**38.49**	26	131	370	230	345	285	400	175	300	380	485	230	355	285	410	HU 284
45	**45.81**	22	131	310	230	345	285	390	210	325	385	490	245	365	295	415	HH 324
50	**50.30**	20	131	285	230	340	275	385	210	320	375	475	240	360	285	405	**M5**
56	**56.58**	18	131	250	215	315	255	355	195	300	340	435	225	335	265	375	348
63	**62.12**	16	131	230	205	305	240	335	185	285	320	410	215	320	250	355	**M4**
71	**72.79**	14	131	195	195	290	230	320	190	285	305	395	210	315	245	340	372
80	**79.92**	13	131	180	195	285	225	315	185	280	300	385	210	310	240	335	
90	**89.89**	11	131	160	175	260	205	285	170	255	265	345	190	280	215	305	
100	**98.71**	10	131	145	175	255	200	280	170	250	260	335	185	275	210	300	
112	**114.66**	8.7	131	125	155	-	170	-	150	-	225	-	165	-	185	-	
125	**125.90**	7.9	131	115	150	-	170	-	150	-	220	-	165	-	180	-	
140	**141.61**	7.1	131	100	145	-	160	-	140	-	200	-	155	-	170	-	**X4F....**
160	**155.49**	6.4	131	93	140	-	155	-	140	-	195	-	150	-	165	-	**M1**
180	**179.04**	5.6	131	80	125	-	135	-	120	-	170	-	135	-	145	-	HU 290
200	**196.60**	5.1	131	73	120	-	135	-	120	-	165	-	130	-	140	-	HH 328
224	**228.29**	4.4	131	63	130	-	140	-	130	-	170	-	140	-	150	-	**M5**
250	**250.68**	4.0	131	57	125	-	135	-	125	-	165	-	135	-	145	-	352
280	**281.94**	3.5	131	51	115	-	125	-	115	-	155	-	125	-	135	-	**M4**
315	**309.59**	3.2	131	46	115	-	125	-	115	-	150	-	125	-	135	-	376
355	**356.48**	2.8	131	40	105	-	110	-	100	-	130	-	110	-	115	-	
400	**391.43**	2.6	131	37	100	-	105	-	100	-	125	-	110	-	115	-	
X.F230..,n_1= 1200 1/min																	131 kNm
7.1	**7.27**	165	99.0	1750	*)	760	760	1100	*)	*)	*)	*)	*)	*)	*)	475	
8	**7.98**	150	101	1650	*)	710	700	1050	*)	*)	*)	*)	*)	*)	*)	480	**X2F....**
9	**9.03**	133	105	1500	380	700	700	980	*)	*)	*)	680	*)	*)	*)	700	**M1**
10	**9.91**	121	107	1400	375	690	690	970	*)	*)	395	710	*)	360	360	710	HU 278
11.2	**11.39**	105	112	1250	405	710	700	980	*)	*)	750	1000	*)	540	540	860	HH 318
12.5	**12.50**	96	114	1200	380	660	650	910	*)	*)	690	950	*)	520	500	800	**M5**
14	**14.28**	84	119	1050	400	660	630	870	*)	385	810	1050	310	610	570	840	344
16	**15.68**	77	122	1000	395	650	610	850	*)	390	790	1000	310	600	550	820	**M4**
18	**18.36**	65	127	890	380	620	560	790	*)	480	790	1000	350	620	550	800	368
20	**20.16**	60	130	830	375	610	550	770	220	480	770	980	350	610	540	780	
22.4	**23.17**	52	112	630	285	470	400	580	*)	325	520	680	245	450	370	560	
25	**25.44**	47	123	630	275	450	385	550	*)	315	485	650	235	435	355	540	
28	**28.38**	42	131	600	260	425	355	510	*)	310	450	600	230	415	330	500	
31.5	**31.17**	38	131	550	250	410	340	485	*)	300	425	570	225	400	315	480	**X3F....**
35.5	**35.05**	34	131	485	240	390	315	460	125	295	395	530	220	385	300	455	**M1**
40	**38.49**	31	131	445	230	375	300	435	120	280	370	500	210	370	280	435	HU 284
45	**45.81**	26	131	375	240	375	300	430	200	340	405	530	245	395	305	450	HH 324
50	**50.30**	24	131	340	235	370	290	420	195	335	390	510	240	385	295	440	**M5**
56	**56.58**	21	131	300	220	345	270	390	185	310	355	470	225	360	275	405	348
63	**62.12**	19	131	275	210	330	255	370	175	300	335	445	215	345	260	385	**M4**
71	**72.79**	16	131	235	205	320	240	350	190	305	325	430	215	340	255	375	372
80	**79.92**	15	131	215	200	315	235	345	190	300	315	420	215	335	250	365	
90	**89.89**	13	131	190	185	285	215	315	170	275	280	375	195	305	225	330	
100	**98.71**	12	131	175	180	280	210	305	170	270	275	365	190	300	220	325	
112	**114.66**	10	131	150	160	-	180	-	155	-	235	-	170	-	195	-	
125	**125.90**	9.5	131	135	160	-	180	-	150	-	230	-	170	-	190	-	
140	**141.61**	8.5	131	120	150	-	165	-	140	-	215	-	160	-	175	-	**X4F....**
160	**155.49**	7.7	131	110	145	-	165	-	140	-	210	-	155	-	175	-	**M1**
180	**179.04**	6.7	131	96	130	-	145	-	125	-	180	-	140	-	150	-	HU 290
200	**196.60**	6.1	131	88	125	-	140	-	120	-	175	-	135	-	150	-	HH 328
224	**228.29**	5.3	131	76	135	-	145	-	135	-	185	-	145	-	155	-	**M5**
250	**250.68**	4.8	131	69	130	-	145	-	130	-	180	-	145	-	155	-	352
280	**281.94**	4.3	131	61	125	-	135	-	120	-	165	-	135	-	145	-	**M4**
315	**309.59**	3.9	131	56	120	-	130	-	120	-	160	-	130	-	140	-	376
355	**356.48**	3.4	131	48	110	-	115	-	105	-	140	-	115	-	125	-	
400	**391.43**	3.1	131	44	105	-	115	-	105	-	135	-	115	-	120	-	

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X.F230..,n_1= 1500 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
7.1	**7.27**	206	99.0	2200	*)	730	660	1100	*)	*)	*)	*)	*)	*)	*)	*)	
8	**7.98**	188	101	2050	*)	680	610	1050	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9	**9.03**	166	105	1850	*)	720	660	1000	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10	**9.91**	151	107	1750	*)	710	650	1000	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
11.2	**11.39**	132	112	1600	*)	740	690	1050	*)	*)	*)	550	*)	*)	*)	670	HH 318
12.5	**12.50**	120	114	1450	*)	700	650	970	*)	*)	*)	550	*)	*)	*)	640	**M5**
14	**14.28**	105	119	1350	380	710	660	970	*)	*)	640	940	*)	530	480	830	344
16	**15.68**	96	122	1250	375	700	640	940	*)	*)	620	920	*)	530	465	810	**M4**
18	**18.36**	82	127	1100	370	670	600	880	*)	360	740	1000	*)	610	520	840	368
20	**20.16**	74	130	1050	365	660	580	860	*)	365	710	980	*)	600	500	820	
22.4	**23.17**	65	112	790	275	510	420	640	*)	*)	415	630	*)	420	315	560	
25	**25.44**	59	123	790	265	490	400	610	*)	*)	390	600	*)	410	300	540	
28	**28.38**	53	131	750	255	465	375	570	*)	190	375	570	*)	400	290	510	
31.5	**31.17**	48	131	680	245	445	355	540	*)	190	350	540	*)	385	275	485	**X3F....**
35.5	**35.05**	43	131	610	240	425	335	510	*)	205	330	510	155	375	265	465	**M1**
40	**38.49**	39	131	550	230	405	315	485	*)	195	305	475	150	360	250	440	HU 284
45	**45.81**	33	131	465	245	415	320	480	150	335	410	560	230	420	305	485	HH 324
50	**50.30**	30	131	425	240	410	310	470	150	330	395	550	230	415	300	475	**M5**
56	**56.58**	27	131	375	225	380	285	435	145	310	355	500	215	385	275	440	348
63	**62.12**	24	131	345	215	365	270	415	140	300	335	475	205	370	260	420	**M4**
71	**72.79**	21	131	295	210	355	260	395	180	325	345	475	220	375	265	415	372
80	**79.92**	19	131	265	210	345	250	385	180	320	335	465	215	365	260	405	
90	**89.89**	17	131	235	190	315	230	350	165	295	300	415	200	335	235	370	
100	**98.71**	15	131	215	190	310	225	345	165	290	290	405	195	330	230	360	
112	**114.66**	13	131	190	165	-	195	-	150	-	250	-	175	-	200	-	
125	**125.90**	12	131	170	165	-	190	-	150	-	245	-	170	-	200	-	
140	**141.61**	11	131	150	155	-	180	-	140	-	225	-	165	-	185	-	**X4F....**
160	**155.49**	9.6	131	140	150	-	175	-	135	-	220	-	160	-	180	-	**M1**
180	**179.04**	8.4	131	120	135	-	150	-	120	-	190	-	140	-	160	-	HU 290
200	**196.60**	7.6	131	110	130	-	150	-	120	-	185	-	140	-	155	-	HH 328
224	**228.29**	6.6	131	95	140	-	155	-	140	-	200	-	155	-	165	-	**M5**
250	**250.68**	6.0	131	86	140	-	155	-	135	-	190	-	150	-	165	-	352
280	**281.94**	5.3	131	77	130	-	140	-	125	-	175	-	140	-	150	-	**M4**
315	**309.59**	4.8	131	70	130	-	140	-	125	-	170	-	140	-	150	-	376
355	**356.48**	4.2	131	61	115	-	125	-	110	-	150	-	120	-	130	-	
400	**391.43**	3.8	131	55	110	-	120	-	110	-	145	-	120	-	130	-	
X.F230..,n_1= 1800 1/min																	131 kNm
7.1[1)]	**7.27**	248	93.6	2500	*)	630	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	
8[1)]	**7.98**	226	96.0	2300	*)	590	*)	990	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9[1)]	**9.03**	199	99.3	2100	*)	700	580	1050	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10[1)]	**9.91**	182	101	2000	*)	690	580	1000	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
11.2[1)]	**11.39**	158	106	1800	*)	750	640	1050	*)	*)	*)	*)	*)	*)	*)	*)	HH 318
12.5[1)]	**12.50**	144	108	1650	*)	700	600	1000	*)	*)	*)	*)	*)	*)	*)	*)	**M5**
14	**14.28**	126	112	1500	*)	750	660	1000	*)	*)	*)	560	*)	*)	*)	680	344
16	**15.68**	115	115	1400	*)	740	650	1000	*)	*)	*)	590	*)	*)	*)	690	**M4**
18	**18.36**	98	120	1250	345	710	620	950	*)	*)	570	910	*)	540	425	820	368
20	**20.16**	89	122	1150	340	700	600	930	*)	*)	550	890	*)	540	410	800	
22.4	**23.17**	78	105	890	250	540	430	690	*)	*)	*)	470	*)	325	*)	510	
25	**25.44**	71	116	890	240	520	410	660	*)	*)	*)	440	*)	315	*)	485	
28	**28.38**	63	123	850	240	490	380	610	*)	*)	*)	445	*)	330	*)	475	
31.5	**31.17**	58	125	790	230	475	360	580	*)	*)	*)	415	*)	320	*)	450	**X3F....**
35.5	**35.05**	51	127	710	225	455	340	550	*)	*)	*)	410	*)	325	180	435	**M1**
40	**38.49**	47	131	670	215	435	320	520	*)	*)	*)	380	*)	310	*)	415	HU 284
45	**45.81**	39	131	560	245	450	335	530	*)	300	380	570	195	430	295	510	HH 324
50	**50.30**	36	131	510	245	445	325	520	*)	295	365	550	195	420	285	500	**M5**
56	**56.58**	32	131	455	230	410	300	475	*)	285	330	510	185	395	265	460	348
63	**62.12**	29	131	410	220	395	285	450	*)	275	310	480	180	380	250	440	**M4**
71	**72.79**	25	131	350	215	385	270	430	160	335	355	510	215	395	270	445	372
80	**79.92**	23	131	320	210	375	265	425	160	330	340	495	210	390	265	435	
90	**89.89**	20	131	285	195	345	240	385	145	305	305	445	195	355	235	395	
100	**98.71**	18	131	260	190	340	235	375	145	300	295	430	190	350	230	390	
112	**114.66**	16	123	215	170	-	200	-	135	-	255	-	170	-	205	-	
125	**125.90**	14	131	205	170	-	200	-	135	-	250	-	170	-	200	-	
140	**141.61**	13	131	185	160	-	185	-	130	-	230	-	160	-	185	-	**X4F....**
160	**155.49**	12	131	165	155	-	180	-	125	-	220	-	160	-	185	-	**M1**
180	**179.04**	10	131	145	140	-	160	-	115	-	190	-	140	-	160	-	HU 290
200	**196.60**	9.2	131	130	135	-	155	-	110	-	185	-	140	-	155	-	HH 328
224	**228.29**	7.9	131	115	145	-	165	-	140	-	210	-	155	-	175	-	**M5**
250	**250.68**	7.2	131	105	145	-	160	-	140	-	205	-	155	-	170	-	352
280	**281.94**	6.4	131	92	135	-	150	-	130	-	185	-	145	-	160	-	**M4**
315	**309.59**	5.8	131	84	135	-	145	-	125	-	180	-	140	-	155	-	376
355	**356.48**	5.0	131	73	120	-	130	-	115	-	155	-	125	-	135	-	
400	**391.43**	4.6	131	66	115	-	125	-	110	-	155	-	125	-	135	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F240..,n_1= 1000 1/min																	**156 kNm**
6.3	**6.30**	159	124	2100	*)	690	1150	1500	*)	*)	790	1150	*)	*)	*)	920	
7.1	**7.26**	138	133	1950	*)	680	1150	1450	*)	*)	870	1200	*)	*)	550	950	**X2F....**
8	**8.01**	125	138	1850	*)	770	1150	1450	*)	*)	1350	1600	*)	*)	860	1200	**M1**
9	**9.22**	108	144	1700	*)	710	1100	1350	*)	*)	1300	1550	*)	*)	820	1100	HU 278
10	**10.14**	99	147	1550	450	740	1050	1300	*)	*)	1500	1750	*)	600	950	1250	HH 318
11.2	**11.67**	86	152	1400	415	700	970	1200	*)	*)	1350	1600	*)	560	850	1100	**M5**
12.5	**12.34**	81	154	1350	485	780	1050	1300	*)	465	1600	1850	390	730	1000	1300	344
14	**14.21**	70	156	1200	450	730	950	1200	*)	440	1450	1650	365	680	900	1150	**M4**
16	**15.69**	64	156	1050	440	690	850	1050	270	540	1350	1550	415	690	840	1100	368
18	**18.06**	55	156	930	410	640	770	980	260	510	1200	1400	390	640	760	990	
20	**20.93**	48	155	800	310	495	560	730	*)	355	860	1000	275	480	540	720	
22.4	**24.09**	42	156	700	295	465	520	670	*)	335	780	930	265	455	495	670	
25	**26.34**	38	156	640	285	450	485	630	*)	340	730	870	265	445	465	630	
28	**30.32**	33	156	560	270	425	450	590	150	320	670	800	250	420	430	580	**X3F....**
31.5	**32.42**	31	156	520	280	435	450	600	170	340	670	800	265	435	435	590	**M1**
35.5	**37.31**	27	156	455	265	415	415	550	160	320	610	740	250	415	400	550	HU 284
40	**40.49**	25	156	420	260	390	385	510	215	355	590	710	265	410	390	530	HH 324
45	**46.60**	21	156	365	245	370	360	475	205	335	540	650	250	390	365	495	**M5**
50	**49.83**	20	156	340	250	380	360	480	215	345	540	650	260	400	365	495	348
56	**57.35**	17	156	295	240	360	335	450	205	330	500	610	245	380	340	465	**M4**
63	**65.18**	15	156	260	230	340	310	415	215	330	470	570	245	365	325	440	372
71	**75.02**	13	156	225	215	325	290	395	205	315	435	530	235	350	305	415	
80	**80.22**	12	156	210	220	330	290	395	210	320	430	530	235	355	305	415	
90	**92.34**	11	156	185	210	315	275	370	200	305	400	490	225	335	285	395	
100	**105.04**	9.5	153	160	175	-	225	-	170	-	325	-	190	-	235	-	
112	**120.90**	8.3	156	140	170	-	215	-	160	-	305	-	180	-	225	-	
125	**129.28**	7.7	156	135	170	-	215	-	165	-	300	-	185	-	225	-	**X4F....**
140	**148.80**	6.7	156	115	165	-	200	-	155	-	280	-	175	-	210	-	**M1**
160	**155.53**	6.4	156	110	155	-	190	-	150	-	265	-	170	-	200	-	HU 290
180	**179.01**	5.6	156	96	155	-	185	-	145	-	255	-	165	-	195	-	HH 328
200	**205.74**	4.9	156	83	145	-	170	-	145	-	230	-	155	-	180	-	**M5**
224	**236.80**	4.2	156	72	140	-	160	-	135	-	220	-	150	-	170	-	352
250	**253.21**	3.9	156	68	140	-	165	-	140	-	220	-	155	-	175	-	**M4**
280	**291.45**	3.4	156	59	135	-	155	-	135	-	205	-	150	-	165	-	376
315	**304.61**	3.3	156	56	125	-	145	-	125	-	190	-	140	-	155	-	
355	**350.61**	2.9	156	49	120	-	140	-	120	-	180	-	130	-	150	-	
X.F240..,n_1= 1200 1/min																	**156 kNm**
6.3	**6.30**	190	124	2550	*)	*)	1100	1500	*)	*)	*)	*)	*)	*)	*)	*)	
7.1	**7.26**	165	133	2350	*)	620	1100	1450	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
8	**8.01**	150	138	2250	*)	780	1150	1500	*)	*)	640	1000	*)	*)	*)	910	**M1**
9	**9.22**	130	144	2000	*)	730	1100	1400	*)	*)	660	1000	*)	*)	*)	880	HU 278
10	**10.14**	118	147	1850	*)	770	1100	1400	*)	*)	1300	1550	*)	*)	810	1150	HH 318
11.2	**11.67**	103	152	1700	*)	720	1050	1300	*)	*)	1200	1450	*)	*)	760	1100	**M5**
12.5	**12.34**	97	154	1600	460	830	1150	1450	*)	*)	1550	1850	*)	650	980	1350	344
14	**14.21**	84	156	1400	430	770	1000	1300	*)	*)	1400	1650	*)	610	870	1200	**M4**
16	**15.69**	76	156	1300	435	730	920	1200	*)	440	1400	1600	340	680	860	1150	368
18	**18.06**	66	156	1100	405	680	830	1100	*)	420	1250	1450	320	640	780	1050	
20	**20.93**	57	155	970	300	530	600	800	*)	*)	840	1050	*)	460	530	750	
22.4	**24.09**	50	156	840	285	495	550	740	*)	230	760	940	*)	440	480	690	
25	**26.34**	46	156	770	280	480	520	700	*)	255	720	890	200	435	455	660	
28	**30.32**	40	156	670	265	455	475	650	*)	245	650	810	195	410	420	610	**X3F....**
31.5	**32.42**	37	156	630	275	470	480	650	*)	275	660	820	210	430	425	620	**M1**
35.5	**37.31**	32	156	550	265	445	440	610	*)	260	600	760	205	410	390	580	HU 284
40	**40.49**	30	156	500	265	425	415	560	175	350	620	760	255	430	405	570	HH 324
45	**46.60**	26	156	435	250	400	385	530	170	335	570	700	240	410	375	530	**M5**
50	**49.83**	24	156	410	255	410	385	530	180	345	570	700	250	420	380	540	348
56	**57.35**	21	156	355	245	390	360	495	175	325	520	650	235	400	350	500	**M4**
63	**65.18**	18	156	310	235	370	330	460	210	350	500	620	245	395	340	480	372
71	**75.02**	16	156	270	225	355	310	435	200	330	465	580	235	375	320	455	
80	**80.22**	15	156	255	230	360	310	435	205	340	465	580	240	380	320	455	
90	**92.34**	13	156	220	215	340	290	410	195	320	430	540	230	365	300	430	
100	**105.04**	11	153	190	180	-	240	-	165	-	345	-	190	-	245	-	
112	**120.90**	9.9	156	170	175	-	225	-	160	-	325	-	185	-	235	-	
125	**129.28**	9.3	156	160	175	-	225	-	160	-	320	-	185	-	235	-	**X4F....**
140	**148.80**	8.1	156	140	170	-	215	-	155	-	300	-	180	-	220	-	**M1**
160	**155.53**	7.7	156	130	160	-	205	-	150	-	280	-	170	-	210	-	HU 290
180	**179.01**	6.7	156	115	160	-	195	-	145	-	270	-	165	-	205	-	HH 328
200	**205.74**	5.8	156	100	150	-	180	-	145	-	250	-	165	-	190	-	**M5**
224	**236.80**	5.1	156	87	145	-	170	-	140	-	235	-	155	-	185	-	352
250	**253.21**	4.7	156	81	150	-	175	-	145	-	235	-	160	-	185	-	**M4**
280	**291.45**	4.1	156	71	145	-	165	-	140	-	225	-	155	-	175	-	376
315	**304.61**	3.9	156	68	135	-	155	-	130	-	205	-	145	-	165	-	
355	**350.61**	3.4	156	59	130	-	145	-	125	-	195	-	140	-	155	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F240..,n_1= 1500 1/min																	**156 kNm**
6.3[1]	**6.30**	238	124	3200	*)	*)	860	1400	*)	*)	*)	*)	*)	*)	*)	*)	
7.1[1]	**7.26**	207	133	2950	*)	*)	850	1350	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
8	**8.01**	187	138	2800	*)	750	1100	1550	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9	**9.22**	163	144	2500	*)	700	1050	1450	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
10	**10.14**	148	147	2350	*)	780	1100	1500	*)	*)	*)	740	*)	*)	*)	790	HH 318
11.2	**11.67**	129	152	2100	*)	720	1050	1400	*)	*)	*)	750	*)	*)	*)	770	**M5**
12.5	**12.34**	122	154	2000	*)	860	1200	1550	*)	*)	1150	1500	*)	*)	730	1200	344
14	**14.21**	106	156	1750	*)	800	1100	1450	*)	*)	1100	1450	*)	*)	690	1100	**M4**
16	**15.69**	96	156	1600	400	780	1000	1300	*)	*)	1300	1600	*)	590	820	1200	368
18	**18.06**	83	156	1400	375	730	900	1200	*)	*)	1150	1450	*)	560	730	1100	
20	**20.93**	72	155	1200	*)	560	650	890	*)	*)	690	930	*)	345	430	720	
22.4	**24.09**	62	156	1050	*)	530	590	820	*)	*)	610	840	*)	330	385	660	
25	**26.34**	57	156	960	255	510	550	780	*)	*)	600	820	*)	355	380	640	
28	**30.32**	49	156	840	245	485	510	720	*)	*)	530	740	*)	340	345	590	**X3F....**
31.5	**32.42**	46	156	780	255	500	510	730	*)	*)	550	760	*)	370	360	610	**M1**
35.5	**37.31**	40	156	680	245	475	470	670	*)	*)	490	690	*)	350	325	560	HU 284
40	**40.49**	37	156	630	260	465	445	630	*)	305	630	800	205	440	405	610	HH 324
45	**46.60**	32	156	550	250	440	415	590	*)	290	570	740	200	420	375	570	**M5**
50	**49.83**	30	156	510	255	450	415	590	*)	305	570	740	210	430	375	580	348
56	**57.35**	26	156	445	245	425	385	560	*)	290	520	680	200	410	345	540	**M4**
63	**65.18**	23	156	390	240	410	360	520	185	360	540	690	240	425	360	530	372
71	**75.02**	20	156	340	230	390	335	485	180	345	500	640	230	405	335	500	
80	**80.22**	19	156	315	235	395	335	490	185	350	495	640	235	415	335	500	
90	**92.34**	16	156	275	225	380	315	460	175	335	455	590	225	395	315	475	
100	**105.04**	14	153	240	185	-	255	-	145	-	365	-	185	-	255	-	
112	**120.90**	12	156	215	180	-	240	-	140	-	340	-	180	-	240	-	
125	**129.28**	12	156	200	180	-	240	-	140	-	335	-	180	-	240	-	**X4F....**
140	**148.80**	10	156	175	175	-	230	-	135	-	310	-	175	-	225	-	**M1**
160	**155.53**	9.6	156	165	165	-	215	-	130	-	295	-	170	-	215	-	HU 290
180	**179.01**	8.4	156	145	165	-	210	-	130	-	280	-	165	-	210	-	HH 328
200	**205.74**	7.3	156	125	160	-	195	-	150	-	275	-	170	-	205	-	**M5**
224	**236.80**	6.3	156	110	150	-	185	-	145	-	255	-	160	-	195	-	352
250	**253.21**	5.9	156	100	155	-	190	-	145	-	260	-	165	-	200	-	**M4**
280	**291.45**	5.1	156	88	150	-	180	-	140	-	240	-	160	-	190	-	376
315	**304.61**	4.9	156	84	140	-	165	-	130	-	225	-	150	-	175	-	
355	**350.61**	4.3	156	73	135	-	160	-	125	-	210	-	145	-	165	-	
X.F240..,n_1= 1800 1/min																	**156 kNm**
6.3[1]	**6.30**	286	117	3600	*)	*)	*)	1150	*)	*)	*)	*)	*)	*)	*)	*)	
7.1[1]	**7.26**	248	126	3350	*)	*)	*)	1150	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
8[1]	**8.01**	225	130	3150	*)	*)	990	1500	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[1]	**9.22**	195	136	2850	*)	*)	930	1400	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
10[1]	**10.14**	178	138	2650	*)	730	1050	1500	*)	*)	*)	*)	*)	*)	*)	*)	HH 318
11.2[1]	**11.67**	154	143	2350	*)	690	960	1400	*)	*)	*)	*)	*)	*)	*)	*)	**M5**
12.5	**12.34**	146	145	2300	*)	860	1150	1600	*)	*)	*)	580	*)	*)	*)	770	344
14	**14.21**	127	147	2000	*)	800	1050	1500	*)	*)	*)	610	*)	*)	*)	750	**M4**
16	**15.69**	115	149	1850	*)	810	1050	1450	*)	*)	990	1400	*)	*)	640	1100	368
18	**18.06**	100	152	1650	*)	750	960	1300	*)	*)	900	1250	*)	*)	580	1000	
20	**20.93**	86	146	1350	*)	570	670	960	*)	*)	*)	630	*)	*)	*)	600	
22.4	**24.09**	75	147	1200	*)	540	610	890	*)	*)	*)	550	*)	*)	*)	540	
25	**26.34**	68	148	1100	*)	530	580	840	*)	*)	275	590	*)	*)	*)	550	
28	**30.32**	59	149	960	*)	500	530	780	*)	*)	*)	520	*)	*)	*)	500	**X3F....**
31.5	**32.42**	56	153	920	*)	520	530	790	*)	*)	265	560	*)	*)	*)	530	**M1**
35.5	**37.31**	48	156	820	215	495	485	730	*)	*)	205	495	*)	205	*)	485	HU 284
40	**40.49**	44	156	750	245	495	470	690	*)	*)	580	790	*)	415	375	620	HH 324
45	**46.60**	39	156	650	235	470	435	640	*)	170	520	720	*)	395	340	580	**M5**
50	**49.83**	36	156	610	245	480	440	650	*)	195	520	730	*)	415	345	590	348
56	**57.35**	31	156	530	235	455	405	610	*)	190	470	670	*)	395	315	550	**M4**
63	**65.18**	28	156	470	240	440	380	570	130	355	560	730	220	445	365	570	372
71	**75.02**	24	156	405	230	420	355	530	125	335	510	680	210	425	340	540	
80	**80.22**	22	156	380	235	430	355	540	135	345	510	680	220	430	340	540	
90	**92.34**	19	156	330	225	410	330	500	130	330	465	630	210	410	315	510	
100	**105.04**	17	146	275	185	-	270	-	98	-	365	-	170	-	255	-	
112	**120.90**	15	156	255	180	-	255	-	95	-	340	-	165	-	240	-	
125	**129.28**	14	156	240	180	-	255	-	98	-	335	-	165	-	240	-	**X4F....**
140	**148.80**	12	156	205	175	-	240	-	95	-	310	-	160	-	225	-	**M1**
160	**155.53**	12	156	200	165	-	225	-	96	-	295	-	155	-	215	-	HU 290
180	**179.01**	10	156	170	165	-	215	-	95	-	275	-	150	-	205	-	HH 328
200	**205.74**	8.7	156	150	165	-	210	-	145	-	290	-	170	-	215	-	**M5**
224	**236.80**	7.6	156	130	160	-	195	-	140	-	270	-	165	-	205	-	352
250	**253.21**	7.1	156	120	160	-	200	-	145	-	275	-	170	-	205	-	**M4**
280	**291.45**	6.2	156	105	155	-	190	-	140	-	255	-	160	-	195	-	376
315	**304.61**	5.9	156	100	145	-	175	-	130	-	235	-	150	-	180	-	
355	**350.61**	5.1	156	88	140	-	165	-	125	-	220	-	145	-	170	-	

X.F250..,n_1= 1000 1/min																	175 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**6.78**	147	134	2150	*)	700	720	1050	*)	*)	*)	*)	*)	*)	*)	*)	
8	**7.78**	129	145	2000	*)	650	670	1000	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9	**8.61**	116	149	1850	*)	770	790	1100	*)	*)	*)	790	*)	*)	*)	790	**M1**
10	**9.89**	101	155	1700	*)	720	730	1000	*)	*)	475	780	*)	*)	420	760	HU 278
11.2	**10.89**	92	159	1550	430	720	710	970	*)	*)	770	1050	*)	580	570	870	HH 318
12.5	**12.51**	80	164	1400	425	700	680	940	*)	*)	730	980	*)	570	540	840	**M5**
14	**13.26**	75	166	1350	470	750	720	980	*)	445	920	1150	375	700	660	950	344
16	**15.24**	66	174	1250	440	710	660	910	*)	430	840	1100	355	660	600	880	**M4**
18	**16.86**	59	175	1100	430	670	610	840	*)	520	840	1050	405	670	600	850	368
20	**19.37**	52	175	970	400	620	560	770	255	495	770	970	380	630	550	780	
22.4	**22.49**	44	166	800	315	500	430	600	*)	360	550	710	280	490	405	600	
25	**25.83**	39	170	710	300	475	400	570	*)	340	500	660	270	465	380	560	
28	**28.31**	35	172	660	280	440	370	520	*)	335	465	610	260	440	355	520	
31.5	**32.52**	31	175	580	270	420	345	490	150	320	430	570	250	415	330	490	**X3F....**
35.5	**34.84**	29	175	550	270	420	345	485	165	325	425	560	255	420	330	490	**M1**
40	**40.02**	25	175	475	255	400	320	455	155	310	390	520	240	400	310	460	HU 284
45	**43.51**	23	175	435	255	385	310	440	215	350	415	530	265	405	320	460	HH 324
50	**49.98**	20	175	380	245	370	295	415	205	335	385	500	250	385	300	435	**M5**
56	**53.55**	19	175	355	250	375	295	420	210	340	385	500	255	395	305	440	348
63	**61.51**	16	175	310	235	355	280	395	200	325	360	470	245	375	285	415	**M4**
71	**70.05**	14	175	270	225	335	265	370	215	325	345	450	240	360	280	395	372
80	**80.46**	12	175	235	215	320	250	350	205	310	325	425	230	345	265	375	
90	**86.21**	12	175	220	220	325	250	355	210	315	325	425	235	350	265	380	
100	**99.03**	10	175	190	210	310	235	335	200	300	305	400	225	335	250	360	
112	**112.88**	8.9	164	160	180	-	200	-	170	-	255	-	190	-	210	-	
125	**129.66**	7.7	175	150	170	-	190	-	160	-	235	-	180	-	200	-	
140	**138.93**	7.2	175	140	170	-	190	-	165	-	235	-	185	-	200	-	**X4F....**
160	**159.59**	6.3	175	120	165	-	185	-	160	-	225	-	180	-	195	-	**M1**
180	**167.13**	6.0	175	115	155	-	170	-	150	-	210	-	170	-	185	-	HU 290
200	**191.98**	5.2	175	100	155	-	165	-	145	-	205	-	165	-	180	-	HH 328
224	**221.09**	4.5	175	87	145	-	155	-	145	-	190	-	155	-	165	-	**M5**
250	**253.96**	3.9	175	76	140	-	150	-	135	-	180	-	150	-	160	-	352
280	**272.11**	3.7	175	71	140	-	150	-	140	-	180	-	155	-	165	-	**M4**
315	**312.57**	3.2	175	62	135	-	145	-	135	-	170	-	145	-	155	-	376
355	**327.35**	3.1	175	59	125	-	135	-	125	-	160	-	140	-	145	-	
400	**376.02**	2.7	175	51	120	-	130	-	120	-	150	-	130	-	140	-	
X.F250..,n_1= 1200 1/min																	175 kNm
7.1	**6.78**	177	134	2550	*)	*)	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	
8	**7.78**	154	145	2400	*)	*)	*)	970	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9	**8.61**	139	149	2250	*)	790	750	1100	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10	**9.89**	121	155	2000	*)	740	700	1050	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
11.2	**10.89**	110	159	1900	*)	740	720	1050	*)	*)	*)	740	*)	*)	*)	760	HH 318
12.5	**12.51**	96	164	1700	*)	730	690	1000	*)	*)	*)	740	*)	*)	*)	750	**M5**
14	**13.26**	90	166	1600	445	790	740	1050	*)	*)	760	1100	*)	620	560	930	344
16	**15.24**	79	174	1450	415	740	680	980	*)	*)	680	990	*)	590	520	860	**M4**
18	**16.86**	71	175	1350	425	710	640	910	*)	430	800	1050	*)	660	580	880	368
20	**19.37**	62	175	1150	395	670	590	840	*)	410	730	970	315	620	530	810	
22.4	**22.49**	53	166	960	305	530	445	660	*)	240	475	680	*)	470	360	600	
25	**25.83**	46	170	860	290	500	415	610	*)	235	430	630	*)	445	335	560	
28	**28.31**	42	172	790	275	475	385	570	*)	250	410	590	200	430	320	530	
31.5	**32.52**	37	175	700	265	450	360	530	*)	245	375	550	195	410	300	500	**X3F....**
35.5	**34.84**	34	175	650	265	450	355	530	*)	265	375	550	205	415	305	500	**M1**
40	**40.02**	30	175	570	255	425	330	495	*)	250	345	510	195	395	285	470	HU 284
45	**43.51**	28	175	520	260	420	325	480	175	350	415	560	250	425	320	490	HH 324
50	**49.98**	24	175	455	250	400	305	455	170	330	385	520	240	405	300	460	**M5**
56	**53.55**	22	175	425	255	405	310	460	180	340	385	530	250	415	305	470	348
63	**61.51**	20	175	370	240	385	295	435	170	325	355	495	235	395	285	440	**M4**
71	**70.05**	17	175	325	235	365	275	405	210	345	365	490	245	390	290	430	372
80	**80.46**	15	175	285	225	350	260	385	200	330	340	460	235	375	270	410	
90	**86.21**	14	175	265	225	355	265	390	205	335	340	460	240	380	275	410	
100	**99.03**	12	175	230	215	340	250	370	195	320	315	435	225	360	260	390	
112	**112.88**	11	164	190	185	-	210	-	165	-	265	-	195	-	220	-	
125	**129.66**	9.3	175	180	175	-	195	-	160	-	245	-	185	-	205	-	
140	**138.93**	8.6	175	165	175	-	200	-	160	-	245	-	185	-	205	-	**X4F....**
160	**159.59**	7.5	175	145	170	-	190	-	155	-	235	-	180	-	200	-	**M1**
180	**167.13**	7.2	175	140	160	-	180	-	145	-	220	-	170	-	190	-	HU 290
200	**191.98**	6.3	175	120	160	-	175	-	145	-	210	-	165	-	185	-	HH 328
224	**221.09**	5.4	175	105	150	-	165	-	145	-	200	-	165	-	175	-	**M5**
250	**253.96**	4.7	175	91	145	-	155	-	140	-	190	-	155	-	170	-	352
280	**272.11**	4.4	175	85	150	-	160	-	145	-	195	-	160	-	170	-	**M4**
315	**312.57**	3.8	175	74	145	-	155	-	140	-	185	-	155	-	165	-	376
355	**327.35**	3.7	175	70	135	-	145	-	130	-	170	-	145	-	150	-	
400	**376.02**	3.2	175	61	130	-	135	-	125	-	160	-	140	-	145	-	

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X.F250..,n_1= 1500 1/min																	175 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[1]	**6.78**	221	134	3200	*)	*)	*)	880	*)	*)	*)	*)	*)	*)	*)	*)	
8[1]	**7.78**	193	145	3000	*)	*)	*)	820	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9	**8.61**	174	149	2800	*)	760	*)	1100	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10	**9.89**	152	155	2500	*)	710	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
11.2	**10.89**	138	159	2350	*)	750	660	1050	*)	*)	*)	*)	*)	*)	*)	*)	HH 318
12.5	**12.51**	120	164	2100	*)	730	640	1050	*)	*)	*)	*)	*)	*)	*)	*)	**M5**
14	**13.26**	113	166	2000	*)	830	730	1150	*)	*)	*)	570	*)	*)	*)	740	344
16	**15.24**	98	174	1850	*)	780	690	1050	*)	*)	*)	570	*)	*)	*)	700	**M4**
18	**16.86**	89	175	1650	*)	760	660	1000	*)	*)	590	930	*)	580	460	850	368
20	**19.37**	77	175	1450	365	710	610	920	*)	*)	520	850	*)	550	415	790	
22.4	**22.49**	67	166	1200	*)	560	450	720	*)	*)	*)	490	*)	355	*)	540	
25	**25.83**	58	170	1050	*)	540	420	670	*)	*)	*)	445	*)	340	*)	500	
28	**28.31**	53	172	990	250	510	390	620	*)	*)	*)	450	*)	350	*)	490	
31.5	**32.52**	46	175	880	240	480	365	580	*)	*)	*)	410	*)	335	*)	455	**X3F....**
35.5	**34.84**	43	175	820	250	485	360	580	*)	*)	*)	430	*)	360	*)	465	**M1**
40	**40.02**	37	175	710	235	460	335	540	*)	*)	*)	395	*)	340	185	435	HU 284
45	**43.51**	34	175	660	255	460	345	530	*)	300	375	560	205	435	300	510	HH 324
50	**49.98**	30	175	570	245	435	320	500	*)	290	345	520	195	415	280	485	**M5**
56	**53.55**	28	175	530	255	445	325	510	*)	305	350	530	210	425	285	490	348
63	**61.51**	24	175	465	245	425	305	480	*)	290	320	495	200	405	270	465	**M4**
71	**70.05**	21	175	405	240	405	290	455	185	360	375	530	240	425	295	470	372
80	**80.46**	19	175	355	230	385	275	430	175	345	350	495	230	405	275	445	
90	**86.21**	17	175	330	230	395	275	435	180	350	345	500	235	410	280	450	
100	**99.03**	15	175	290	220	375	260	410	175	335	325	470	225	390	265	425	
112	**112.88**	13	164	240	190	-	220	-	145	-	265	-	190	-	220	-	
125	**129.66**	12	175	220	180	-	205	-	140	-	245	-	180	-	205	-	
140	**138.93**	11	175	210	180	-	205	-	140	-	245	-	180	-	210	-	**X4F....**
160	**159.59**	9.4	175	180	175	-	200	-	135	-	235	-	175	-	200	-	**M1**
180	**167.13**	9.0	175	175	165	-	190	-	130	-	220	-	170	-	190	-	HU 290
200	**191.98**	7.8	175	150	160	-	185	-	130	-	210	-	165	-	185	-	HH 328
224	**221.09**	6.8	175	130	160	-	175	-	150	-	215	-	170	-	185	-	**M5**
250	**253.96**	5.9	175	115	150	-	165	-	145	-	205	-	160	-	175	-	352
280	**272.11**	5.5	175	105	155	-	170	-	145	-	205	-	165	-	180	-	**M4**
315	**312.57**	4.8	175	92	150	-	165	-	140	-	195	-	160	-	170	-	376
355	**327.35**	4.6	175	88	140	-	150	-	130	-	180	-	150	-	160	-	
400	**376.02**	4.0	175	77	135	-	145	-	125	-	170	-	145	-	155	-	
X.F250..,n_1= 1800 1/min																	175 kNm
7.1[1]	**6.78**	265	127	3600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
8[1]	**7.78**	231	137	3400	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9[1]	**8.61**	209	141	3150	*)	*)	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10[1]	**9.89**	182	146	2850	*)	*)	*)	1000	*)	*)	*)	*)	*)	*)	*)	*)	HU 278
11.2[1]	**10.89**	165	150	2650	*)	710	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	HH 318
12.5[1]	**12.51**	144	155	2400	*)	700	*)	1050	*)	*)	*)	*)	*)	*)	*)	*)	**M5**
14	**13.26**	136	156	2300	*)	820	670	1150	*)	*)	*)	*)	*)	*)	*)	*)	344
16	**15.24**	118	164	2100	*)	770	630	1100	*)	*)	*)	*)	*)	*)	*)	*)	**M4**
18	**16.86**	107	165	1900	*)	790	660	1050	*)	*)	*)	560	*)	*)	*)	710	368
20	**19.37**	93	175	1750	*)	740	610	990	*)	*)	*)	520	*)	*)	*)	660	
22.4	**22.49**	80	156	1350	*)	580	435	760	*)	*)	*)	*)	*)	*)	*)	345	
25	**25.83**	70	160	1200	*)	550	405	710	*)	*)	*)	*)	*)	*)	*)	325	
28	**28.31**	64	163	1150	*)	520	380	660	*)	*)	*)	*)	*)	*)	*)	350	
31.5	**32.52**	55	165	990	*)	500	355	620	*)	*)	*)	*)	*)	*)	*)	325	**X3F....**
35.5	**34.84**	52	167	940	*)	500	355	620	*)	*)	*)	*)	*)	*)	*)	355	**M1**
40	**40.02**	45	172	840	*)	475	330	580	*)	*)	*)	*)	*)	*)	*)	330	HU 284
45	**43.51**	41	175	790	245	490	350	580	*)	*)	270	510	*)	415	235	510	HH 324
50	**49.98**	36	175	680	235	465	330	540	*)	*)	240	475	*)	395	220	475	**M5**
56	**53.55**	34	175	640	245	475	335	550	*)	195	255	485	*)	410	235	490	348
63	**61.51**	29	175	560	235	455	310	520	*)	190	230	450	*)	390	220	460	**M4**
71	**70.05**	26	175	490	240	440	300	495	130	350	365	550	220	440	285	500	372
80	**80.46**	22	175	425	230	420	285	470	125	335	335	520	210	420	270	470	
90	**86.21**	21	175	395	235	425	285	475	135	345	335	520	215	430	270	480	
100	**99.03**	18	175	345	225	405	270	450	130	330	310	485	210	410	255	455	
112	**112.88**	16	155	270	190	-	225	-	100	-	250	-	170	-	210	-	
125	**129.66**	14	172	260	180	-	210	-	96	-	230	-	165	-	200	-	
140	**138.93**	13	175	250	180	-	215	-	99	-	225	-	165	-	200	-	**X4F....**
160	**159.59**	11	175	215	175	-	205	-	98	-	215	-	160	-	190	-	**M1**
180	**167.13**	11	175	205	165	-	195	-	97	-	205	-	155	-	180	-	HU 290
200	**191.98**	9.4	175	180	165	-	185	-	95	-	195	-	150	-	175	-	HH 328
224	**221.09**	8.1	175	155	165	-	185	-	145	-	220	-	170	-	190	-	**M5**
250	**253.96**	7.1	175	135	160	-	175	-	140	-	210	-	165	-	180	-	352
280	**272.11**	6.6	175	125	160	-	180	-	145	-	210	-	170	-	185	-	**M4**
315	**312.57**	5.8	175	110	155	-	170	-	140	-	200	-	160	-	175	-	376
355	**327.35**	5.5	175	105	145	-	160	-	130	-	185	-	150	-	165	-	
400	**376.02**	4.8	175	92	140	-	150	-	125	-	175	-	145	-	160	-	

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X.F260..,n_1= 1000 1/min																	205 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.43**	156	178	2950	*)	770	1550	1900	*)	*)	1050	1400	*)	880	1900	2200	
7.1	**7.28**	137	185	2750	*)	720	1450	1750	*)	*)	1000	1300	*)	820	1750	2050	**X2F....**
8	**8.16**	123	192	2500	*)	860	1550	1850	*)	760	1100	1450	*)	920	1800	2150	**M1**
9	**9.22**	108	198	2300	*)	800	1450	1750	*)	710	1050	1350	*)	870	1700	2000	HU 280
10	**10.08**	99	204	2150	*)	850	1450	1750	*)	760	1100	1350	550	900	1750	2000	HH 320
11.2	**11.40**	88	205	1950	*)	800	1350	1600	*)	720	990	1250	520	840	1550	1800	**M5**
12.5	**12.74**	78	205	1750	510	830	1300	1550	455	760	980	1250	550	870	1450	1700	344
14	**14.41**	69	205	1550	480	780	1150	1400	430	710	890	1150	520	810	1300	1550	**M4**
16	**15.86**	63	205	1400	475	750	1100	1300	425	690	840	1050	510	780	1150	1400	368
18	**17.94**	56	205	1250	465	740	1050	1250	415	670	800	1000	495	770	1100	1300	
20	**21.22**	47	198	1000	340	540	700	880	315	520	590	770	400	620	800	990	
22.4	**24.01**	42	205	930	325	520	660	830	305	500	550	730	385	590	740	920	
25	**26.24**	38	205	850	305	485	590	750	285	465	500	660	360	550	660	830	
28	**29.75**	34	205	750	325	500	600	760	310	490	510	680	375	560	650	820	**X3F....**
31.5	**32.52**	31	205	680	305	470	540	690	290	460	465	620	350	530	580	740	**M1**
35.5	**36.78**	27	205	610	290	450	500	650	280	435	435	580	335	500	540	690	HU 286
40	**41.08**	24	205	540	290	435	475	610	280	430	415	560	325	485	500	650	HH 326
45	**46.47**	22	205	480	275	415	445	570	265	410	390	520	310	465	465	600	**M5**
50	**48.31**	21	205	460	280	425	450	580	275	420	395	530	320	475	465	610	348
56	**60.68**	16	205	365	280	420	425	550	275	415	375	510	315	460	435	570	**M4**
63	**66.33**	15	205	335	255	385	380	495	250	380	340	460	285	420	385	510	372
71	**75.02**	13	205	295	245	365	355	470	240	360	320	435	275	405	360	485	
80	**78.00**	13	205	285	250	375	360	475	245	370	325	440	280	410	365	490	
90	**88.23**	11	205	250	240	355	335	445	235	350	305	415	265	390	340	460	
100	**105.64**	9.5	205	215	200	-	270	-	195	-	245	-	215	-	270	-	
112	**119.49**	8.4	205	190	190	-	255	-	185	-	235	-	205	-	255	-	
125	**124.24**	8.0	205	180	195	-	255	-	190	-	235	-	210	-	255	-	**X4F....**
140	**140.53**	7.1	205	160	185	-	245	-	180	-	225	-	200	-	240	-	**M1**
160	**153.90**	6.5	205	145	185	-	235	-	180	-	220	-	200	-	235	-	HU 292
180	**174.09**	5.7	205	130	180	-	230	-	175	-	210	-	195	-	230	-	HH 330
200	**203.69**	4.9	205	110	165	-	200	-	165	-	190	-	175	-	200	-	**M5**
224	**230.40**	4.3	205	98	160	-	195	-	160	-	185	-	175	-	195	-	352
250	**239.55**	4.2	205	94	160	-	195	-	160	-	185	-	175	-	195	-	**M4**
280	**270.97**	3.7	205	83	155	-	190	-	155	-	175	-	170	-	190	-	376
315	**296.76**	3.4	205	76	155	-	185	-	155	-	175	-	165	-	185	-	
355	**335.68**	3.0	205	67	150	-	175	-	145	-	165	-	160	-	175	-	
X.F260..,n_1= 1200 1/min																	205 kNm
6.3	**6.43**	187	178	3550	*)	*)	1450	1900	*)	*)	940	1350	*)	*)	1850	2250	
7.1	**7.28**	165	185	3250	*)	*)	1350	1750	*)	*)	890	1300	*)	*)	1750	2150	**X2F....**
8	**8.16**	147	192	3050	*)	850	1550	1900	*)	*)	1100	1450	*)	940	1850	2250	**M1**
9	**9.22**	130	198	2750	*)	800	1450	1800	*)	690	1000	1350	*)	890	1750	2100	HU 280
10	**10.08**	119	204	2600	*)	870	1500	1850	*)	770	1100	1400	*)	940	1750	2100	HH 320
11.2	**11.40**	105	205	2300	*)	820	1400	1750	*)	720	1000	1350	*)	880	1650	2000	**M5**
12.5	**12.74**	94	205	2050	*)	870	1400	1750	*)	790	1050	1350	540	920	1650	1950	344
14	**14.41**	83	205	1850	*)	820	1250	1600	*)	740	950	1250	500	860	1450	1750	**M4**
16	**15.86**	76	205	1650	460	800	1200	1450	*)	720	890	1150	500	840	1300	1600	368
18	**17.94**	67	205	1450	450	780	1100	1400	395	710	840	1100	490	820	1200	1500	
20	**21.22**	57	198	1200	325	570	760	970	*)	540	620	840	395	660	890	1100	
22.4	**24.01**	50	205	1100	310	550	700	910	280	520	580	790	380	630	820	1050	
25	**26.24**	46	205	1000	295	510	640	830	270	490	520	720	355	590	730	930	
28	**29.75**	40	205	900	320	540	640	840	300	520	540	740	380	610	720	920	**X3F....**
31.5	**32.52**	37	205	820	305	500	580	760	285	490	495	680	355	570	640	840	**M1**
35.5	**36.78**	33	205	730	290	480	540	710	270	465	460	640	340	540	590	780	HU 286
40	**41.08**	29	205	650	290	475	510	680	280	460	440	610	335	530	550	730	HH 326
45	**46.47**	26	205	580	280	450	480	640	265	440	415	570	320	500	510	680	**M5**
50	**48.31**	25	205	550	285	460	485	640	275	450	420	580	325	520	510	680	348
56	**60.68**	20	205	440	290	455	455	610	280	445	400	560	325	500	475	640	**M4**
63	**66.33**	18	205	405	265	415	410	550	255	410	360	500	300	460	420	570	372
71	**75.02**	16	205	355	255	400	380	520	245	390	340	480	285	440	395	540	
80	**78.00**	15	205	345	260	405	385	520	250	400	345	485	290	450	395	540	
90	**88.23**	14	205	305	245	390	360	495	240	380	325	460	275	430	370	510	
100	**105.64**	11	205	255	205	-	290	-	200	-	260	-	220	-	285	-	
112	**119.49**	10	205	225	195	-	275	-	190	-	245	-	215	-	270	-	
125	**124.24**	9.7	205	220	200	-	275	-	195	-	250	-	215	-	270	-	**X4F....**
140	**140.53**	8.5	205	190	190	-	260	-	190	-	235	-	210	-	255	-	**M1**
160	**153.90**	7.8	205	175	190	-	255	-	185	-	230	-	205	-	250	-	HU 292
180	**174.09**	6.9	205	155	185	-	245	-	180	-	225	-	200	-	240	-	HH 330
200	**203.69**	5.9	205	135	170	-	215	-	170	-	205	-	185	-	215	-	**M5**
224	**230.40**	5.2	205	115	170	-	210	-	165	-	195	-	180	-	210	-	352
250	**239.55**	5.0	205	115	170	-	210	-	170	-	200	-	185	-	210	-	**M4**
280	**270.97**	4.4	205	100	165	-	200	-	160	-	190	-	175	-	200	-	376
315	**296.76**	4.0	205	91	160	-	195	-	160	-	185	-	175	-	195	-	
355	**335.68**	3.6	205	81	155	-	185	-	155	-	175	-	170	-	190	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.F260..,n_1= 1500 1/min																	**205 kNm**
6.3[1)]	**6.43**	233	178	4450	*)	*)	1200	1800	*)	*)	*)	1200	*)	*)	1750	2250	
7.1[1)]	**7.28**	206	185	4100	*)	*)	1150	1700	*)	*)	*)	1150	*)	*)	1650	2100	**X2F....**
8	**8.16**	184	192	3800	*)	*)	1450	1950	*)	*)	*)	1400	*)	*)	1850	2300	**M1**
9	**9.22**	163	198	3450	*)	*)	1350	1800	*)	*)	880	1350	*)	*)	1750	2150	HU 280
10	**10.08**	149	204	3250	*)	850	1450	1900	*)	*)	1000	1450	*)	950	1800	2250	HH 320
11.2	**11.40**	132	205	2900	*)	800	1350	1800	*)	*)	940	1350	*)	900	1700	2100	**M5**
12.5	**12.74**	118	205	2600	*)	900	1450	1850	*)	800	1050	1450	*)	970	1750	2150	344
14	**14.41**	104	205	2300	*)	850	1350	1750	*)	750	980	1350	*)	910	1650	2000	**M4**
16	**15.86**	95	205	2100	*)	840	1300	1650	*)	750	950	1300	*)	890	1500	1850	368
18	**17.94**	84	205	1850	*)	820	1200	1550	*)	740	900	1250	*)	880	1400	1750	
20	**21.22**	71	198	1500	*)	600	820	1100	*)	560	640	920	*)	710	1000	1300	
22.4	**24.01**	62	205	1400	*)	580	760	1000	*)	540	600	860	360	680	930	1200	
25	**26.24**	57	205	1250	*)	540	690	920	*)	510	540	790	340	640	830	1100	
28	**29.75**	50	205	1100	300	580	700	940	*)	550	570	820	375	670	820	1050	**X3F....**
31.5	**32.52**	46	205	1050	290	540	640	860	260	520	520	750	355	620	730	970	**M1**
35.5	**36.78**	41	205	910	275	520	590	800	250	495	480	700	335	590	660	890	HU 286
40	**41.08**	37	205	810	285	520	560	760	265	495	470	680	340	580	620	840	HH 326
45	**46.47**	32	205	720	275	490	520	720	255	475	440	640	325	560	570	780	**M5**
50	**48.31**	31	205	690	285	500	520	720	265	485	445	650	335	570	570	780	348
56	**60.68**	25	205	550	295	500	500	690	280	490	430	630	335	560	530	730	**M4**
63	**66.33**	23	205	500	270	460	445	620	260	450	385	570	310	510	465	660	372
71	**75.02**	20	205	445	255	440	415	580	245	430	365	540	295	490	435	620	
80	**78.00**	19	205	430	265	450	420	590	255	440	365	540	300	500	435	620	
90	**88.23**	17	205	380	250	430	395	560	240	420	345	510	285	475	405	580	
100	**105.64**	14	205	320	210	-	315	-	205	-	280	-	230	-	310	-	
112	**119.49**	13	205	285	200	-	295	-	195	-	265	-	220	-	295	-	
125	**124.24**	12	205	270	205	-	295	-	200	-	265	-	220	-	295	-	**X4F....**
140	**140.53**	11	205	240	195	-	280	-	190	-	250	-	215	-	275	-	**M1**
160	**153.90**	9.7	205	220	195	-	275	-	190	-	245	-	210	-	270	-	HU 292
180	**174.09**	8.6	205	195	190	-	265	-	185	-	235	-	210	-	260	-	HH 330
200	**203.69**	7.4	205	165	180	-	235	-	180	-	220	-	195	-	235	-	**M5**
224	**230.40**	6.5	205	145	180	-	230	-	175	-	210	-	190	-	230	-	352
250	**239.55**	6.3	205	140	180	-	230	-	175	-	215	-	195	-	230	-	**M4**
280	**270.97**	5.5	205	125	175	-	220	-	170	-	205	-	185	-	220	-	376
315	**296.76**	5.1	205	115	170	-	215	-	170	-	200	-	185	-	210	-	
355	**335.68**	4.5	205	100	165	-	205	-	165	-	190	-	180	-	205	-	
X.F260..,n_1= 1800 1/min																	**205 kNm**
6.3[1)]	**6.43**	280	167	5000	*)	*)	*)	1500*)	*)	*)	*)	*)	*)	*)	1450	2100*)	
7.1[1)]	**7.28**	247	174	4600	*)	*)	*)	1450*)	*)	*)	*)	*)	*)	*)	1400	2000*)	**X2F....**
8[1)]	**8.16**	221	181	4300	*)	*)	1250	1850*)	*)	*)	*)	1300*)	*)	*)	1750	2300*)	**M1**
9[1)]	**9.22**	195	187	3900	*)	*)	1200	1750*)	*)	*)	*)	1250*)	*)	*)	1650	2200*)	HU 280
10[1)]	**10.08**	179	194	3700	*)	*)	1350	1900*)	*)	*)	*)	1400*)	*)	*)	1750	2300*)	HH 320
11.2[1)]	**11.40**	158	199	3350	*)	*)	1300	1800*)	*)	*)	*)	1300*)	*)	860*)	1650	2150*)	**M5**
12.5	**12.74**	141	205	3100	*)	890*)	1400	1900*)	*)	*)	980	1450*)	*)	990*)	1750	2200*)	344
14	**14.41**	125	205	2750	*)	840*)	1350	1800*)	*)	720*)	920	1350*)	*)	930*)	1650	2100*)	**M4**
16	**15.86**	113	205	2500	*)	850*)	1300	1750*)	*)	740*)	930	1350*)	*)	920*)	1600	2000*)	368
18	**17.94**	100	205	2200	*)	840*)	1300	1700*)	*)	730*)	910	1300*)	*)	910*)	1550	1950*)	
20	**21.22**	85	198	1800	*)	600	860	1200	*)	540	640	980	*)	740	1150	1450	
22.4	**24.01**	75	205	1650	*)	580	800	1100	*)	520	590	920	*)	710	1050	1350	
25	**26.24**	69	205	1550	*)	550	720	1000	*)	500	540	840	*)	660	920	1200	
28	**29.75**	61	205	1350	*)	600	740	1050	*)	560	580	880	355	710	910	1200	**X3F....**
31.5	**32.52**	55	205	1250	*)	570	670	940	*)	530	530	810	340	660	810	1100	**M1**
35.5	**36.78**	49	205	1100	*)	540	620	870	*)	510	490	760	325	630	730	1000	HU 286
40	**41.08**	44	205	980	270	550	600	840	*)	520	485	740	335	630	680	940	HH 326
45	**46.47**	39	205	860	260	520	550	780	235	500	455	690	320	600	620	870	**M5**
50	**48.31**	37	205	830	270	540	560	790	245	510	460	700	330	610	620	880	348
56	**60.68**	30	205	660	290	540	530	760	270	520	450	680	340	610	580	820	**M4**
63	**66.33**	27	205	600	270	495	475	680	250	480	405	620	315	560	510	730	372
71	**75.02**	24	205	530	255	475	445	640	240	460	380	580	300	530	475	690	
80	**78.00**	23	205	510	265	485	450	650	250	470	385	590	305	540	475	690	
90	**88.23**	20	205	455	250	460	420	610	235	450	360	560	295	520	440	650	
100	**105.64**	17	205	385	210	-	335	-	200	-	290	-	230	-	330	-	
112	**119.49**	15	205	340	205	-	315	-	195	-	275	-	220	-	310	-	
125	**124.24**	14	205	325	205	-	315	-	195	-	275	-	225	-	310	-	**X4F....**
140	**140.53**	13	205	290	200	-	295	-	190	-	260	-	215	-	295	-	**M1**
160	**153.90**	12	205	265	200	-	290	-	190	-	255	-	215	-	285	-	HU 292
180	**174.09**	10	205	235	195	-	280	-	185	-	245	-	210	-	275	-	HH 330
200	**203.69**	8.8	205	200	190	-	255	-	185	-	230	-	205	-	250	-	**M5**
224	**230.40**	7.8	205	175	185	-	245	-	180	-	225	-	200	-	245	-	352
250	**239.55**	7.5	205	170	185	-	245	-	185	-	225	-	200	-	245	-	**M4**
280	**270.97**	6.6	205	150	180	-	235	-	175	-	215	-	195	-	230	-	376
315	**296.76**	6.1	205	135	180	-	230	-	175	-	210	-	195	-	225	-	
355	**335.68**	5.4	205	120	170	-	215	-	170	-	200	-	185	-	215	-	

X.F270..,n_1= 1000 1/min																	240 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**7.07**	141	195	2950	*)	770	880	1300	*)	*)	1050	1400	*)	880	1250	1600	
8	**7.91**	126	200	2700	*)	770	880	1250	*)	*)	1050	1400	*)	880	1250	1600	**X2F....**
9	**8.96**	112	208	2500	*)	860	960	1300	*)	760	1100	1450	*)	930	1250	1600	**M1**
10	**10.03**	100	213	2300	*)	850	950	1300	*)	760	1100	1400	*)	920	1250	1550	HU 280
11.2	**11.07**	90	220	2150	*)	860	940	1250	*)	770	1100	1350	550	910	1200	1500	HH 320
12.5	**12.39**	81	227	1950	495	840	910	1200	*)	760	1050	1300	550	900	1150	1450	**M5**
14	**13.99**	71	236	1800	520	840	880	1150	465	770	990	1250	560	880	1050	1350	344
16	**15.66**	64	240	1650	490	800	810	1100	435	720	910	1150	530	830	950	1200	**M4**
18	**17.42**	57	240	1500	485	770	760	1000	435	700	840	1100	520	800	870	1150	368
20	**19.50**	51	240	1300	475	760	730	990	425	690	810	1050	510	780	830	1100	
22.4	**23.31**	43	215	1000	345	550	510	700	320	530	590	780	405	620	620	820	
25	**26.09**	38	235	980	345	550	500	690	320	530	580	760	405	620	600	800	
28	**28.82**	35	240	900	315	495	445	620	295	480	510	680	365	560	520	710	
31.5	**32.34**	31	240	810	335	520	455	630	320	500	520	690	385	580	530	710	**X3F....**
35.5	**35.72**	28	240	730	305	470	405	560	290	455	460	610	350	520	465	630	**M1**
40	**39.98**	25	240	650	300	460	395	550	285	450	445	590	340	510	450	610	HU 286
45	**45.12**	22	240	580	295	445	380	520	285	440	425	570	335	495	425	580	HH 326
50	**50.51**	20	240	520	290	440	365	510	280	430	410	550	325	485	410	560	**M5**
56	**53.07**	19	240	490	290	435	365	500	280	430	400	540	325	485	400	550	348
63	**65.96**	15	240	395	290	430	350	485	280	425	385	520	320	475	385	530	**M4**
71	**72.85**	14	240	360	255	380	310	430	250	375	340	455	285	420	335	465	372
80	**81.55**	12	240	320	250	375	300	420	245	370	325	445	280	410	325	455	
90	**85.68**	12	240	305	255	380	305	425	250	375	330	450	285	420	330	460	
100	**95.91**	10	240	270	250	375	295	415	245	370	320	435	280	410	320	445	
112	**116.03**	8.6	240	225	200	-	230	-	195	-	245	-	215	-	240	-	
125	**129.88**	7.7	240	205	195	-	225	-	190	-	240	-	210	-	235	-	
140	**136.46**	7.3	240	195	195	-	220	-	190	-	235	-	210	-	230	-	**X4F....**
160	**152.75**	6.5	240	175	195	-	220	-	190	-	235	-	210	-	230	-	**M1**
180	**169.04**	5.9	240	155	190	-	210	-	185	-	225	-	205	-	220	-	HU 292
200	**189.23**	5.3	240	140	185	-	205	-	180	-	215	-	200	-	215	-	HH 330
224	**223.73**	4.5	240	120	165	-	185	-	165	-	195	-	180	-	195	-	**M5**
250	**250.44**	4.0	240	105	165	-	180	-	165	-	190	-	180	-	190	-	352
280	**263.12**	3.8	240	100	165	-	180	-	160	-	185	-	175	-	185	-	**M4**
315	**294.53**	3.4	240	90	160	-	175	-	160	-	180	-	175	-	180	-	376
355	**325.95**	3.1	240	81	155	-	170	-	155	-	175	-	170	-	180	-	
400	**364.87**	2.7	240	72	155	-	165	-	155	-	170	-	165	-	175	-	
X.F270..,n_1= 1200 1/min																	240 kNm
7.1	**7.07**	170	195	3550	*)	*)	*)	1250	*)	*)	940	1350	*)	*)	1200	1650	
8	**7.91**	152	200	3250	*)	*)	*)	1250	*)	*)	940	1350	*)	840	1150	1600	**X2F....**
9	**8.96**	134	208	3000	*)	860	900	1350	*)	*)	1100	1450	*)	950	1250	1650	**M1**
10	**10.03**	120	213	2750	*)	850	900	1300	*)	740	1050	1450	*)	940	1250	1650	HU 280
11.2	**11.07**	108	220	2550	*)	880	920	1300	*)	770	1100	1400	*)	950	1200	1600	HH 320
12.5	**12.39**	97	227	2350	*)	870	910	1300	*)	770	1050	1400	*)	940	1200	1550	**M5**
14	**13.99**	86	236	2150	*)	890	910	1250	*)	800	1050	1350	540	940	1150	1500	344
16	**15.66**	77	240	1950	*)	840	840	1200	*)	750	960	1250	510	880	1050	1350	**M4**
18	**17.42**	69	240	1750	470	820	800	1100	*)	740	900	1200	510	860	950	1250	368
20	**19.50**	62	240	1600	460	800	770	1100	405	720	860	1150	500	840	900	1200	
22.4	**23.31**	51	215	1200	330	580	520	760	*)	550	620	850	405	670	670	910	
25	**26.09**	46	235	1150	330	580	520	750	300	550	610	830	405	670	650	890	
28	**28.82**	42	240	1100	305	530	460	670	280	500	530	740	365	600	560	780	
31.5	**32.34**	37	240	970	330	560	475	690	310	540	550	760	390	630	570	790	**X3F....**
35.5	**35.72**	34	240	880	305	500	425	610	285	485	490	670	355	570	500	700	**M1**
40	**39.98**	30	240	780	300	495	410	600	280	480	470	650	345	560	480	680	HU 286
45	**45.12**	27	240	690	300	485	400	570	285	470	450	620	345	540	455	640	HH 326
50	**50.51**	24	240	620	295	475	385	560	280	465	435	600	335	530	440	620	**M5**
56	**53.07**	23	240	590	295	470	380	550	280	460	425	590	335	530	430	610	348
63	**65.96**	18	240	475	295	465	370	540	285	460	410	570	335	520	410	590	**M4**
71	**72.85**	16	240	430	265	415	325	475	255	410	360	500	295	460	360	520	372
80	**81.55**	15	240	385	260	410	315	460	250	400	345	490	290	450	345	500	
90	**85.68**	14	240	365	265	415	320	465	255	410	350	495	295	460	350	510	
100	**95.91**	13	240	325	260	405	310	455	250	400	340	480	290	450	340	495	
112	**116.03**	10	240	275	205	-	240	-	200	-	260	-	220	-	255	-	
125	**129.88**	9.2	240	245	200	-	235	-	195	-	250	-	220	-	245	-	
140	**136.46**	8.8	240	230	200	-	230	-	195	-	250	-	215	-	245	-	**X4F....**
160	**152.75**	7.9	240	205	200	-	230	-	195	-	245	-	215	-	240	-	**M1**
180	**169.04**	7.1	240	185	195	-	220	-	190	-	235	-	210	-	235	-	HU 292
200	**189.23**	6.3	240	165	190	-	215	-	185	-	230	-	205	-	225	-	HH 330
224	**223.73**	5.4	240	140	175	-	195	-	175	-	205	-	190	-	205	-	**M5**
250	**250.44**	4.8	240	125	170	-	190	-	170	-	200	-	185	-	200	-	352
280	**263.12**	4.6	240	120	170	-	190	-	170	-	200	-	185	-	200	-	**M4**
315	**294.53**	4.1	240	105	170	-	185	-	165	-	195	-	180	-	195	-	376
355	**325.95**	3.7	240	97	165	-	180	-	165	-	190	-	180	-	190	-	
400	**364.87**	3.3	240	87	160	-	175	-	160	-	185	-	175	-	185	-	

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X.F270..,n_1= 1500 1/min																	240 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[1)]	**7.07**	212	195	4450	*)	*)	*)	*)	*)	*)	*)	1200	*)	*)	*)	1550	
8[1)]	**7.91**	190	200	4050	*)	*)	*)	1050	*)	*)	*)	1200	*)	*)	*)	1550	**X2F....**
9	**8.96**	167	208	3750	*)	*)	*)	1300	*)	*)	*)	1400	*)	*)	1150	1700	**M1**
10	**10.03**	150	213	3400	*)	*)	*)	1300	*)	*)	920	1400	*)	910	1150	1650	HU 280
11.2	**11.07**	136	220	3200	*)	860	830	1350	*)	*)	1000	1450	*)	960	1200	1650	HH 320
12.5	**12.39**	121	227	2950	*)	850	820	1300	*)	*)	990	1450	*)	950	1150	1650	**M5**
14	**13.99**	107	236	2700	*)	920	900	1350	*)	810	1050	1450	*)	990	1200	1600	344
16	**15.66**	96	240	2450	*)	870	840	1250	*)	770	990	1350	*)	930	1100	1550	**M4**
18	**17.42**	86	240	2200	*)	860	830	1200	*)	760	960	1300	*)	910	1050	1450	368
20	**19.50**	77	240	2000	*)	840	790	1200	*)	750	910	1250	*)	900	1000	1350	
22.4	**23.31**	64	215	1500	*)	610	530	820	*)	570	650	930	385	720	740	1050	
25	**26.09**	57	235	1450	*)	610	520	810	*)	570	630	910	385	720	710	1000	
28	**28.82**	52	240	1350	*)	560	465	730	*)	520	550	810	355	650	620	890	
31.5	**32.34**	46	240	1200	315	600	495	760	*)	570	580	840	385	680	630	900	**X3F....**
35.5	**35.72**	42	240	1100	290	540	440	680	*)	520	520	740	355	620	550	800	**M1**
40	**39.98**	38	240	980	285	530	425	660	260	510	495	720	345	610	520	770	HU 286
45	**45.12**	33	240	870	295	530	420	640	275	510	480	690	350	600	495	730	HH 326
50	**50.51**	30	240	770	290	520	405	620	270	500	460	670	340	580	475	700	**M5**
56	**53.07**	28	240	740	290	520	400	610	270	500	450	660	340	580	465	690	348
63	**65.96**	23	240	590	300	520	395	600	290	500	440	640	345	570	445	660	**M4**
71	**72.85**	21	240	540	270	460	345	530	260	450	385	560	310	510	390	580	372
80	**81.55**	18	240	480	265	450	335	510	255	440	370	550	300	500	375	570	
90	**85.68**	18	240	455	270	460	340	520	260	450	375	550	310	510	380	570	
100	**95.91**	16	240	410	265	450	330	510	255	440	360	540	300	500	365	560	
112	**116.03**	13	240	340	210	-	255	-	205	-	275	-	230	-	270	-	
125	**129.88**	12	240	305	205	-	250	-	200	-	270	-	225	-	260	-	
140	**136.46**	11	240	290	205	-	245	-	200	-	265	-	225	-	260	-	**X4F....**
160	**152.75**	9.8	240	260	205	-	245	-	200	-	260	-	225	-	255	-	**M1**
180	**169.04**	8.9	240	235	200	-	235	-	195	-	250	-	215	-	245	-	HU 292
200	**189.23**	7.9	240	210	195	-	230	-	190	-	240	-	215	-	240	-	HH 330
224	**223.73**	6.7	240	175	185	-	210	-	185	-	225	-	200	-	220	-	**M5**
250	**250.44**	6.0	240	160	180	-	205	-	180	-	215	-	195	-	215	-	352
280	**263.12**	5.7	240	150	180	-	200	-	180	-	215	-	195	-	210	-	**M4**
315	**294.53**	5.1	240	135	175	-	195	-	175	-	205	-	190	-	205	-	376
355	**325.95**	4.6	240	120	175	-	195	-	175	-	200	-	190	-	200	-	
400	**364.87**	4.1	240	110	170	-	190	-	170	-	195	-	185	-	200	-	
X.F270..,n_1= 1800 1/min																	**240 kNm**
7.1[1)]	**7.07**	255	185	5050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1300[*)]	
8[1)]	**7.91**	228	190	4650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1350[*)]	**X2F....**
9[1)]	**8.96**	201	197	4250	*)	*)	*)	1150[*)]	*)	*)	*)	1300[*)]	*)	*)	*)	1650[*)]	**M1**
10[1)]	**10.03**	179	202	3900	*)	*)	*)	1150[*)]	*)	*)	*)	1300[*)]	*)	*)	1000	1600[*)]	HU 280
11.2[1)]	**11.07**	163	209	3650	*)	*)	*)	1300[*)]	*)	*)	*)	1400[*)]	*)	920[*)]	1100	1650[*)]	HH 320
12.5[1)]	**12.39**	145	215	3350	*)	*)	*)	1300[*)]	*)	*)	850	1400[*)]	*)	910[*)]	1100	1650[*)]	**M5**
14	**13.99**	129	224	3100	*)	900[*)]	820	1350[*)]	*)	780[*)]	980	1450[*)]	*)	1000[*)]	1150	1700[*)]	344
16	**15.66**	115	230	2850	*)	860[*)]	780	1300[*)]	*)	740[*)]	930	1400[*)]	*)	950[*)]	1100	1600[*)]	**M4**
18	**17.42**	103	240	2650	*)	870[*)]	790	1250[*)]	*)	760[*)]	940	1350[*)]	*)	940[*)]	1100	1550[*)]	368
20	**19.50**	92	240	2400	*)	850[*)]	780	1250[*)]	*)	750[*)]	920	1350[*)]	*)	930[*)]	1050	1500[*)]	
22.4	**23.31**	77	215	1800	*)	610	520	870	*)	560	650	980	*)	750	790	1150	
25	**26.09**	69	235	1750	*)	620	510	860	*)	560	630	960	*)	750	760	1100	
28	**28.82**	62	240	1650	*)	570	455	770	*)	520	550	860	*)	680	650	980	
31.5	**32.34**	56	240	1450	*)	620	500	810	*)	580	600	900	370	730	670	1000	**X3F....**
35.5	**35.72**	50	240	1300	*)	570	445	730	*)	540	530	800	340	660	590	880	**M1**
40	**39.98**	45	240	1150	*)	560	430	700	*)	520	500	770	335	650	560	850	HU 286
45	**45.12**	40	240	1050	280	560	430	690	*)	540	495	750	345	640	530	810	HH 326
50	**50.51**	36	240	930	275	550	415	670	250	530	475	730	340	630	510	780	**M5**
56	**53.07**	34	240	880	280	550	410	660	250	530	470	720	340	630	495	760	348
63	**65.96**	27	240	710	300	550	410	650	280	540	460	700	350	620	475	730	**M4**
71	**72.85**	25	240	640	270	495	360	580	255	480	405	620	315	560	415	640	372
80	**81.55**	22	240	580	265	485	350	560	250	470	390	600	310	540	400	620	
90	**85.68**	21	240	550	270	495	350	570	255	480	390	600	315	550	400	630	
100	**95.91**	19	240	490	265	485	340	550	250	470	375	580	310	540	385	610	
112	**116.03**	16	240	410	210	-	265	-	200	-	290	-	230	-	280	-	
125	**129.88**	14	240	365	210	-	255	-	195	-	280	-	225	-	270	-	
140	**136.46**	13	240	350	205	-	255	-	195	-	275	-	225	-	270	-	**X4F....**
160	**152.75**	12	240	310	205	-	250	-	195	-	270	-	225	-	265	-	**M1**
180	**169.04**	11	240	280	200	-	240	-	195	-	260	-	220	-	255	-	HU 292
200	**189.23**	9.5	240	250	200	-	235	-	190	-	250	-	215	-	245	-	HH 330
224	**223.73**	8.0	240	210	195	-	220	-	190	-	235	-	210	-	235	-	**M5**
250	**250.44**	7.2	240	190	190	-	215	-	185	-	230	-	205	-	225	-	352
280	**263.12**	6.8	240	180	190	-	215	-	185	-	225	-	205	-	225	-	**M4**
315	**294.53**	6.1	240	160	185	-	210	-	180	-	220	-	200	-	220	-	376
355	**325.95**	5.5	240	145	180	-	205	-	180	-	215	-	195	-	215	-	
400	**364.87**	4.9	240	130	180	-	200	-	175	-	210	-	195	-	210	-	

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X.F280..,n_1= 1000 1/min																	270 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	**7.91**	126	220	3000	*)	950	1050	1500	*)	830	1250	1650	*)	1050	1450	1850	
9	**8.86**	113	226	2750	*)	950	1050	1450	*)	830	1250	1600	*)	1050	1400	1800	**X2F....**
10	**10.03**	100	235	2500	*)	1000	1100	1500	*)	910	1300	1600	660	1100	1400	1800	**M1**
11.2	**11.23**	89	241	2300	580	1000	1100	1450	*)	900	1250	1600	650	1050	1400	1750	HU 280
12.5	**12.39**	81	249	2150	600	990	1100	1450	*)	900	1250	1550	660	1050	1350	1700	HH 320
14	**13.88**	72	256	2000	600	980	1050	1400	520	890	1200	1500	650	1050	1300	1600	**M5**
16	**15.66**	64	265	1800	610	970	990	1300	550	880	1100	1400	650	1000	1150	1500	344
18	**17.54**	57	270	1650	600	960	960	1300	540	870	1050	1350	640	990	1100	1450	**M4**
20	**19.50**	51	270	1500	590	920	900	1200	530	840	990	1250	620	950	1000	1300	368
22.4	**21.85**	46	270	1350	560	860	830	1100	500	790	910	1150	580	890	930	1200	
25	**26.09**	38	243	1000	420	650	600	820	395	630	700	910	485	730	720	950	
28	**29.22**	34	270	1000	405	630	570	780	385	610	660	870	470	710	680	900	
31.5	**32.26**	31	270	910	365	570	500	700	350	550	580	760	420	640	590	800	
35.5	**36.22**	28	270	810	400	610	530	730	385	590	610	800	455	680	610	820	**X3F....**
40	**39.98**	25	270	730	360	550	475	650	350	540	540	710	410	610	540	730	**M1**
45	**44.78**	22	270	650	355	540	460	630	340	530	520	690	400	600	520	710	HU 286
50	**50.51**	20	270	580	340	510	425	590	330	500	475	640	380	560	475	650	HH 326
56	**56.57**	18	270	520	330	495	415	570	320	490	460	620	370	550	460	630	**M5**
63	**59.40**	17	270	495	330	495	410	570	320	485	455	610	370	540	450	620	348
71	**73.87**	14	270	395	325	485	395	540	320	475	430	580	365	530	430	590	**M4**
80	**81.55**	12	270	360	300	440	355	495	295	435	390	520	330	485	385	530	372
90	**91.33**	11	270	320	290	430	345	480	285	425	375	510	325	475	375	520	
100	**95.91**	10	270	305	290	430	340	475	285	425	370	500	320	470	370	510	
112	**107.42**	9.3	270	275	285	420	330	465	280	415	360	485	315	460	355	500	
125	**129.88**	7.7	270	230	230	-	260	-	225	-	280	-	245	-	275	-	
140	**145.47**	6.9	270	205	225	-	255	-	220	-	270	-	240	-	270	-	
160	**152.75**	6.5	270	195	225	-	250	-	220	-	270	-	240	-	265	-	**X4F....**
180	**171.08**	5.8	270	175	220	-	245	-	215	-	260	-	235	-	260	-	**M1**
200	**189.23**	5.3	270	155	215	-	240	-	210	-	255	-	235	-	255	-	HU 292
224	**211.93**	4.7	270	140	210	-	235	-	210	-	245	-	230	-	245	-	HH 330
250	**250.44**	4.0	270	120	185	-	205	-	185	-	215	-	205	-	215	-	**M5**
280	**280.49**	3.6	270	105	185	-	200	-	185	-	210	-	200	-	210	-	352
315	**294.53**	3.4	270	100	185	-	200	-	185	-	210	-	200	-	210	-	**M4**
355	**329.88**	3.0	270	90	180	-	195	-	180	-	205	-	195	-	205	-	376
400	**364.87**	2.7	270	81	175	-	190	-	175	-	195	-	190	-	200	-	
450	**408.66**	2.4	270	73	175	-	185	-	170	-	190	-	185	-	195	-	
X.F280..,n_1= 1200 1/min																	270 kNm
8	**7.91**	152	220	3600	*)	900	940	1500	*)	*)	1150	1600	*)	1050	1400	1900	
9	**8.86**	135	226	3300	*)	900	940	1450	*)	*)	1150	1600	*)	1050	1350	1850	**X2F....**
10	**10.03**	120	235	3000	*)	1050	1050	1550	*)	910	1250	1650	*)	1100	1400	1850	**M1**
11.2	**11.23**	107	241	2750	*)	1000	1050	1500	*)	900	1250	1650	*)	1100	1400	1850	HU 280
12.5	**12.39**	97	249	2600	*)	1050	1050	1500	*)	920	1250	1600	*)	1100	1350	1800	HH 320
14	**13.88**	86	256	2350	*)	1000	1050	1500	*)	910	1200	1600	620	1100	1350	1750	**M5**
16	**15.66**	77	265	2200	590	1050	1050	1450	*)	930	1200	1550	640	1100	1300	1700	344
18	**17.54**	68	270	2000	590	1000	1000	1400	520	920	1150	1500	640	1050	1200	1600	**M4**
20	**19.50**	62	270	1800	580	980	940	1300	520	890	1050	1400	620	1000	1100	1450	368
22.4	**21.85**	55	270	1600	550	920	870	1200	485	840	970	1300	580	960	1000	1350	
25	**26.09**	46	243	1200	410	700	620	890	380	670	740	1000	490	790	780	1050	
28	**29.22**	41	270	1200	400	680	600	850	370	650	700	950	475	770	740	1000	
31.5	**32.26**	37	270	1100	365	610	530	760	340	590	610	840	425	690	640	880	
35.5	**36.22**	33	270	970	400	660	560	800	380	640	650	880	465	730	660	920	**X3F....**
40	**39.98**	30	270	880	365	590	500	710	345	580	570	780	420	660	580	810	**M1**
45	**44.78**	27	270	790	355	580	480	690	340	560	550	750	410	650	560	780	HU 286
50	**50.51**	24	270	700	345	550	450	650	335	540	510	700	390	610	510	720	HH 326
56	**56.57**	21	270	620	340	540	435	630	325	530	490	680	385	600	495	700	**M5**
63	**59.40**	20	270	590	340	540	430	620	325	530	480	670	380	600	485	690	348
71	**73.87**	16	270	475	340	530	415	600	330	520	460	640	380	580	460	660	**M4**
80	**81.55**	15	270	430	310	480	375	540	300	475	415	580	345	530	415	590	372
90	**91.33**	13	270	385	305	470	365	530	295	465	400	560	340	520	400	580	
100	**95.91**	13	270	365	300	470	360	520	295	460	395	550	335	520	395	570	
112	**107.42**	11	270	330	295	460	350	510	290	455	380	540	330	500	380	550	
125	**129.88**	9.2	270	275	235	-	275	-	230	-	295	-	255	-	290	-	
140	**145.47**	8.2	270	245	230	-	270	-	225	-	290	-	250	-	285	-	
160	**152.75**	7.9	270	235	230	-	265	-	225	-	285	-	250	-	280	-	**X4F....**
180	**171.08**	7.0	270	210	225	-	260	-	220	-	275	-	245	-	270	-	**M1**
200	**189.23**	6.3	270	190	225	-	255	-	220	-	270	-	240	-	265	-	HU 292
224	**211.93**	5.7	270	170	220	-	245	-	215	-	260	-	235	-	260	-	HH 330
250	**250.44**	4.8	270	140	195	-	220	-	195	-	230	-	215	-	230	-	**M5**
280	**280.49**	4.3	270	125	195	-	215	-	190	-	225	-	210	-	225	-	352
315	**294.53**	4.1	270	120	195	-	215	-	195	-	225	-	210	-	225	-	**M4**
355	**329.88**	3.6	270	110	190	-	210	-	190	-	220	-	205	-	220	-	376
400	**364.87**	3.3	270	98	185	-	200	-	185	-	210	-	200	-	210	-	
450	**408.66**	2.9	270	87	180	-	195	-	180	-	205	-	195	-	205	-	

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X.F280..,n_1= 1500 1/min																	270 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
8[1)]	**7.91**	190	220	4500	*)	*)	*)	1350	*)	*)	*)	1450	*)	*)	1200	1850	
9[1)]	**8.86**	169	226	4100	*)	*)	*)	1350	*)	*)	*)	1450	*)	*)	1200	1850	**X2F....**
10	**10.03**	150	235	3750	*)	980	*)	1550	*)	*)	1150	1650	*)	1100	1350	1950	**M1**
11.2	**11.23**	134	241	3450	*)	980	930	1550	*)	*)	1100	1650	*)	1100	1350	1900	HU 280
12.5	**12.39**	121	249	3250	*)	1050	1000	1550	*)	910	1150	1650	*)	1150	1350	1900	HH 320
14	**13.88**	108	256	2950	*)	1050	990	1550	*)	900	1150	1650	*)	1150	1350	1850	**M5**
16	**15.66**	96	265	2700	*)	1100	1050	1550	*)	970	1200	1650	*)	1150	1350	1800	344
18	**17.54**	86	270	2500	*)	1050	1000	1500	*)	960	1200	1650	*)	1150	1350	1800	**M4**
20	**19.50**	77	270	2250	*)	1050	990	1450	*)	940	1150	1550	600	1100	1250	1700	368
22.4	**21.85**	69	270	2000	510	980	910	1350	*)	880	1050	1400	560	1050	1150	1550	
25	**26.09**	57	243	1500	*)	740	650	980	*)	700	780	1100	475	860	860	1200	
28	**29.22**	51	270	1500	*)	720	610	940	*)	680	730	1050	465	830	810	1150	
31.5	**32.26**	46	270	1350	*)	650	540	830	*)	620	640	920	420	750	700	1000	
35.5	**36.22**	41	270	1200	390	710	590	890	360	680	690	980	465	810	730	1050	**X3F....**
40	**39.98**	38	270	1100	355	640	520	790	330	620	610	870	425	730	640	920	**M1**
45	**44.78**	33	270	980	350	630	500	770	325	610	580	840	415	710	610	890	HU 286
50	**50.51**	30	270	870	345	600	475	720	330	590	540	780	400	680	560	820	HH 326
56	**56.57**	27	270	780	340	590	460	700	320	580	520	760	395	660	540	790	**M5**
63	**59.40**	25	270	740	340	590	455	690	325	570	520	750	395	660	530	780	348
71	**73.87**	20	270	600	345	580	445	670	335	570	495	720	395	650	500	740	**M4**
80	**81.55**	18	270	540	320	530	400	610	305	520	445	650	360	590	450	670	372
90	**91.33**	16	270	480	310	520	390	590	300	510	430	630	350	580	430	650	
100	**95.91**	16	270	460	310	520	385	580	300	510	420	620	350	570	425	640	
112	**107.42**	14	270	410	305	510	375	570	295	500	410	600	345	560	410	620	
125	**129.88**	12	270	345	245	-	295	-	235	-	320	-	265	-	310	-	
140	**145.47**	10	270	305	240	-	285	-	230	-	305	-	260	-	300	-	
160	**152.75**	9.8	270	290	240	-	280	-	230	-	305	-	260	-	295	-	**X4F....**
180	**171.08**	8.8	270	260	235	-	275	-	225	-	295	-	255	-	290	-	**M1**
200	**189.23**	7.9	270	235	230	-	270	-	225	-	285	-	250	-	285	-	HU 292
224	**211.93**	7.1	270	210	225	-	260	-	220	-	280	-	245	-	275	-	HH 330
250	**250.44**	6.0	270	180	210	-	235	-	205	-	250	-	225	-	245	-	**M5**
280	**280.49**	5.3	270	160	205	-	230	-	200	-	240	-	220	-	240	-	352
315	**294.53**	5.1	270	150	205	-	230	-	205	-	240	-	225	-	240	-	**M4**
355	**329.88**	4.5	270	135	200	-	225	-	200	-	235	-	220	-	235	-	376
400	**364.87**	4.1	270	120	195	-	215	-	195	-	225	-	210	-	225	-	
450	**408.66**	3.7	270	110	190	-	210	-	190	-	220	-	210	-	220	-	
X.F280..,n_1= 1800 1/min																	270 kNm
8[1)]	**7.91**	228	209	5100	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1650[*)]	
9[1)]	**8.86**	203	214	4650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1650[*)]	**X2F....**
10[1)]	**10.03**	179	223	4300	*)	*)	*)	1450[*)]	*)	*)	*)	1600[*)]	*)	*)	1200	1900[*)]	**M1**
11.2[1)]	**11.23**	160	228	3900	*)	*)	*)	1450[*)]	*)	*)	*)	1550[*)]	*)	1050[*)]	1200	1900[*)]	HU 280
12.5[1)]	**12.39**	145	236	3700	*)	990[*)]	*)	1550[*)]	*)	*)	1050	1650[*)]	*)	1150[*)]	1300	1900[*)]	HH 320
14[1)]	**13.88**	130	243	3400	*)	980[*)]	860	1500[*)]	*)	*)	1050	1650[*)]	*)	1100[*)]	1300	1900[*)]	**M5**
16	**15.66**	115	251	3100	*)	1100[*)]	980	1600[*)]	*)	960[*)]	1150	1700[*)]	*)	1200[*)]	1350	1900[*)]	344
18	**17.54**	103	260	2850	*)	1100[*)]	970	1550[*)]	*)	950[*)]	1150	1650[*)]	*)	1150[*)]	1300	1900[*)]	**M4**
20	**19.50**	92	270	2650	*)	1050[*)]	970	1500[*)]	*)	950[*)]	1150	1600[*)]	*)	1150[*)]	1300	1800[*)]	368
22.4	**21.85**	82	270	2400	*)	1000[*)]	920	1450[*)]	*)	900[*)]	1050	1500[*)]	*)	1100[*)]	1200	1700[*)]	
25	**26.09**	69	243	1800	*)	760	650	1050	*)	710	800	1200	*)	910	940	1350	
28	**29.22**	62	270	1800	*)	740	610	1000	*)	690	750	1100	*)	880	870	1250	
31.5	**32.26**	56	270	1650	*)	680	540	890	*)	630	660	990	*)	800	750	1100	
35.5	**36.22**	50	270	1450	365	750	600	960	*)	710	720	1050	455	860	790	1150	**X3F....**
40	**39.98**	45	270	1300	335	680	540	860	*)	650	630	940	415	780	690	1000	**M1**
45	**44.78**	40	270	1200	330	670	520	830	295	640	600	910	410	770	650	980	HU 286
50	**50.51**	36	270	1050	340	650	495	780	310	620	570	850	405	730	600	910	HH 326
56	**56.57**	32	270	930	330	630	475	760	305	610	550	820	395	720	580	880	**M5**
63	**59.40**	30	270	890	335	630	470	750	310	610	540	810	395	710	560	860	348
71	**73.87**	24	270	710	350	630	465	730	330	620	520	790	405	700	540	820	**M4**
80	**81.55**	22	270	650	320	580	420	660	305	560	470	710	370	640	480	740	372
90	**91.33**	20	270	580	315	560	405	650	300	550	450	690	360	630	460	720	
100	**95.91**	19	270	550	315	560	400	640	300	550	445	680	360	620	455	710	
112	**107.42**	17	270	490	305	550	390	620	295	540	430	660	350	610	435	690	
125	**129.88**	14	270	410	245	-	305	-	235	-	335	-	265	-	325	-	
140	**145.47**	12	270	365	240	-	295	-	230	-	320	-	260	-	315	-	
160	**152.75**	12	270	350	240	-	295	-	230	-	315	-	260	-	310	-	**X4F....**
180	**171.08**	11	270	310	235	-	285	-	225	-	305	-	255	-	300	-	**M1**
200	**189.23**	9.5	270	280	235	-	280	-	225	-	300	-	255	-	295	-	HU 292
224	**211.93**	8.5	270	250	230	-	270	-	220	-	290	-	250	-	285	-	HH 330
250	**250.44**	7.2	270	215	215	-	250	-	215	-	265	-	235	-	260	-	**M5**
280	**280.49**	6.4	270	190	215	-	240	-	210	-	255	-	230	-	255	-	352
315	**294.53**	6.1	270	180	215	-	245	-	210	-	255	-	235	-	255	-	**M4**
355	**329.88**	5.5	270	160	210	-	235	-	210	-	250	-	230	-	250	-	376
400	**364.87**	4.9	270	145	205	-	230	-	200	-	240	-	220	-	240	-	
450	**408.66**	4.4	270	130	200	-	220	-	200	-	235	-	215	-	235	-	

X.F290..,n_1= 1000 1/min																	308 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.34**	158	238	4050	*)	*)	1650	2200	*)	*)	1050	1600	*)	1050	2150	2650	
7.1	**7.16**	140	246	3700	*)	*)	1650	2150	*)	*)	1050	1600	*)	1050	2150	2600	**X2F....**
8	**8.11**	123	255	3350	*)	1050	1750	2150	*)	910	1250	1650	*)	1150	2100	2500	**M1**
9	**9.17**	109	262	3050	*)	1100	1800	2250	*)	950	1300	1750	*)	1200	2200	2600	HU 280
10	**10.05**	100	272	2900	*)	1100	1700	2100	*)	980	1300	1650	*)	1150	2050	2400	HH 320
11.2	**11.36**	88	278	2650	*)	1100	1700	2100	*)	970	1250	1650	700	1150	2000	2350	**M5**
12.5	**12.76**	78	286	2400	630	1050	1550	1900	*)	940	1150	1500	680	1100	1750	2100	344
14	**14.42**	69	298	2200	650	1050	1550	1900	570	970	1150	1500	710	1100	1700	2050	**M4**
16	**16.05**	62	307	2050	620	990	1350	1700	550	900	1050	1350	660	1050	1500	1800	368
18	**18.14**	55	308	1800	630	1000	1350	1700	560	930	1050	1350	680	1050	1450	1800	
20	**20.27**	49	284	1500	435	710	900	1150	395	680	750	1000	520	810	1050	1300	
22.4	**22.91**	44	308	1450	450	730	900	1150	410	700	750	1000	540	840	1050	1300	
25	**26.45**	38	308	1250	425	680	800	1050	395	660	680	910	500	780	910	1150	
28	**28.45**	35	308	1200	445	700	800	1050	425	680	690	920	520	790	900	1150	**X3F....**
31.5	**32.86**	30	308	1000	420	650	720	920	400	630	620	830	480	730	780	1000	**M1**
35.5	**37.13**	27	308	900	425	660	710	920	405	640	610	830	485	730	770	990	HU 286
40	**41.45**	24	308	810	405	620	650	840	390	600	570	770	460	690	690	900	HH 326
45	**46.84**	21	308	710	410	620	640	840	395	610	560	770	465	690	680	890	**M5**
50	**49.69**	20	308	670	375	570	580	760	360	560	510	690	425	630	610	800	348
56	**57.86**	17	308	580	385	580	570	750	375	570	510	690	430	640	600	790	**M4**
63	**66.82**	15	308	500	350	520	500	670	340	520	455	620	390	580	520	700	372
71	**75.52**	13	308	445	360	540	510	680	350	530	460	630	405	600	530	710	
80	**80.10**	12	308	420	315	475	440	590	310	465	400	550	355	520	455	620	
90	**90.53**	11	308	370	325	485	445	600	315	480	405	560	365	540	460	620	
100	**103.31**	9.7	308	330	285	-	380	-	280	-	350	-	310	-	385	-	
112	**116.77**	8.6	308	290	285	-	375	-	280	-	345	-	310	-	380	-	
125	**123.85**	8.1	308	275	260	-	340	-	255	-	310	-	280	-	340	-	**X4F....**
140	**139.98**	7.1	308	240	260	-	335	-	255	-	310	-	280	-	335	-	**M1**
160	**152.96**	6.5	308	220	245	-	310	-	240	-	285	-	265	-	310	-	HU 292
180	**172.88**	5.8	308	195	240	-	305	-	235	-	280	-	260	-	305	-	HH 330
200	**205.34**	4.9	308	165	230	-	275	-	225	-	260	-	245	-	280	-	**M5**
224	**232.08**	4.3	308	145	225	-	275	-	225	-	255	-	245	-	275	-	352
250	**246.17**	4.1	308	135	210	-	250	-	210	-	235	-	225	-	255	-	**M4**
280	**278.23**	3.6	308	120	210	-	245	-	205	-	235	-	225	-	250	-	376
315	**304.02**	3.3	308	110	195	-	230	-	195	-	220	-	210	-	235	-	
355	**343.61**	2.9	308	98	195	-	225	-	195	-	215	-	210	-	230	-	
X.F290..,n_1= 1200 1/min																	308 kNm
6.3[1)]	**6.34**	189	238	4850	*)	*)	1450	2100	*)	*)	*)	1400	*)	*)	2050	2650	
7.1[1)]	**7.16**	168	246	4400	*)	*)	1450	2100	*)	*)	*)	1400	*)	*)	2050	2600	**X2F....**
8	**8.11**	148	255	4050	*)	*)	1650	2200	*)	*)	1150	1650	*)	1150	2100	2600	**M1**
9	**9.17**	131	262	3700	*)	1050	1750	2300	*)	*)	1200	1750	*)	1200	2200	2700	HU 280
10	**10.05**	119	272	3500	*)	1100	1700	2200	*)	980	1250	1700	*)	1200	2050	2550	HH 320
11.2	**11.36**	106	278	3150	*)	1100	1700	2150	*)	970	1250	1700	*)	1200	2050	2500	**M5**
12.5	**12.76**	94	286	2900	*)	1100	1600	2000	*)	960	1200	1600	*)	1150	1900	2300	344
14	**14.42**	83	298	2650	*)	1100	1650	2100	*)	1000	1250	1650	670	1200	1950	2350	**M4**
16	**16.05**	75	307	2450	*)	1050	1450	1850	*)	940	1100	1500	640	1100	1650	2050	368
18	**18.14**	66	308	2200	600	1050	1450	1850	*)	970	1100	1500	660	1150	1650	2000	
20	**20.27**	59	284	1850	*)	740	960	1250	*)	700	770	1100	510	870	1200	1500	
22.4	**22.91**	52	308	1750	*)	770	960	1250	*)	720	780	1100	530	900	1150	1500	
25	**26.45**	45	308	1500	405	720	850	1150	*)	680	700	990	495	830	1000	1300	
28	**28.45**	42	308	1400	440	740	860	1150	405	720	720	1000	520	850	990	1300	**X3F....**
31.5	**32.86**	37	308	1200	415	700	770	1000	390	670	650	910	490	790	860	1150	**M1**
35.5	**37.13**	32	308	1100	420	700	760	1000	395	680	640	900	495	790	840	1100	HU 286
40	**41.45**	29	308	970	410	670	700	930	390	650	600	840	470	750	760	1000	HH 326
45	**46.84**	26	308	860	415	670	690	920	395	660	600	840	475	750	740	1000	**M5**
50	**49.69**	24	308	810	375	610	620	830	360	600	540	760	435	690	660	900	348
56	**57.86**	21	308	690	395	630	610	830	380	620	540	760	445	700	650	880	**M4**
63	**66.82**	18	308	600	360	570	540	740	345	560	480	680	405	630	560	780	372
71	**75.52**	16	308	530	370	590	540	750	355	580	485	690	420	650	570	790	
80	**80.10**	15	308	500	325	510	470	650	315	500	420	600	365	570	490	680	
90	**90.53**	13	308	445	335	530	475	660	320	520	425	610	375	580	495	690	
100	**103.31**	12	308	395	295	-	405	-	285	-	365	-	315	-	410	-	
112	**116.77**	10	308	350	295	-	400	-	285	-	360	-	315	-	400	-	
125	**123.85**	9.7	308	330	265	-	360	-	260	-	325	-	290	-	360	-	**X4F....**
140	**139.98**	8.6	308	290	265	-	355	-	260	-	325	-	290	-	355	-	**M1**
160	**152.96**	7.8	308	265	250	-	325	-	245	-	300	-	270	-	325	-	HU 292
180	**172.88**	6.9	308	235	250	-	320	-	240	-	295	-	270	-	320	-	HH 330
200	**205.34**	5.8	308	200	240	-	295	-	235	-	275	-	260	-	295	-	**M5**
224	**232.08**	5.2	308	175	235	-	290	-	235	-	275	-	255	-	295	-	352
250	**246.17**	4.9	308	165	220	-	265	-	215	-	250	-	235	-	270	-	**M4**
280	**278.23**	4.3	308	145	220	-	265	-	215	-	245	-	235	-	265	-	376
315	**304.02**	3.9	308	135	205	-	245	-	200	-	230	-	220	-	245	-	
355	**343.61**	3.5	308	120	205	-	240	-	200	-	230	-	220	-	245	-	

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X.F290..,n_1= 1500 1/min																	308 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3[1)]	**6.34**	237	238	6050	*)	*)	*)	1600	*)	*)	*)	*)	*)	*)	1600	2400	
7.1[1)]	**7.16**	209	246	5550	*)	*)	*)	1650	*)	*)	*)	*)	*)	*)	1600	2400	**X2F....**
8[1)]	**8.11**	185	255	5050	*)	*)	1450	2100	*)	*)	*)	1500	*)	*)	1950	2600	**M1**
9[1)]	**9.17**	164	262	4600	*)	*)	1500	2200	*)	*)	*)	1600	*)	*)	2050	2750	HU 280
10	**10.05**	149	272	4350	*)	*)	1650	2250	*)	*)	1100	1700	*)	1200	2050	2650	HH 320
11.2	**11.36**	132	278	3950	*)	1050	1600	2200	*)	*)	1100	1700	*)	1200	2000	2600	**M5**
12.5	**12.76**	118	286	3600	*)	1100	1600	2100	*)	940	1100	1650	*)	1200	1900	2450	344
14	**14.42**	104	298	3350	*)	1100	1650	2200	*)	980	1150	1700	*)	1250	2000	2500	**M4**
16	**16.05**	93	307	3100	*)	1100	1550	2000	*)	950	1100	1600	*)	1150	1850	2300	368
18	**18.14**	83	308	2750	*)	1100	1550	2050	*)	980	1150	1650	*)	1200	1850	2350	
20	**20.27**	74	284	2300	*)	760	1000	1400	*)	690	780	1150	*)	920	1350	1700	
22.4	**22.91**	65	308	2200	*)	790	1000	1400	*)	720	780	1200	*)	950	1300	1700	
25	**26.45**	57	308	1900	*)	750	900	1250	*)	690	700	1050	*)	890	1100	1500	
28	**28.45**	53	308	1750	*)	790	930	1250	*)	750	750	1100	510	920	1100	1500	**X3F....**
31.5	**32.86**	46	308	1550	390	750	830	1150	*)	710	680	1000	485	860	970	1300	**M1**
35.5	**37.13**	40	308	1350	395	750	810	1150	355	720	670	1000	490	860	940	1300	HU 286
40	**41.45**	36	308	1200	400	720	750	1050	370	700	630	930	475	820	850	1150	HH 326
45	**46.84**	32	308	1050	405	730	740	1050	375	700	620	930	480	830	830	1150	**M5**
50	**49.69**	30	308	1000	370	670	660	930	345	640	560	840	440	760	740	1000	348
56	**57.86**	26	308	870	395	690	660	930	375	670	570	850	460	770	720	1000	**M4**
63	**66.82**	22	308	750	360	630	580	830	345	610	510	760	420	700	620	890	372
71	**75.52**	20	308	660	375	640	590	840	355	630	510	770	430	720	630	900	
80	**80.10**	19	308	630	330	570	510	730	315	550	445	670	380	630	540	780	
90	**90.53**	17	308	550	335	580	510	740	320	570	450	680	385	650	540	790	
100	**103.31**	15	308	490	295	-	435	-	285	-	385	-	320	-	440	-	
112	**116.77**	13	308	435	295	-	430	-	285	-	380	-	320	-	430	-	
125	**123.85**	12	308	410	270	-	385	-	260	-	340	-	295	-	385	-	**X4F....**
140	**139.98**	11	308	365	270	-	380	-	260	-	335	-	290	-	380	-	**M1**
160	**152.96**	9.8	308	330	255	-	350	-	245	-	310	-	275	-	350	-	HU 292
180	**172.88**	8.7	308	295	255	-	345	-	245	-	305	-	275	-	340	-	HH 330
200	**205.34**	7.3	308	245	250	-	320	-	245	-	295	-	270	-	320	-	**M5**
224	**232.08**	6.5	308	220	250	-	315	-	245	-	290	-	270	-	315	-	352
250	**246.17**	6.1	308	205	230	-	290	-	225	-	265	-	250	-	290	-	**M4**
280	**278.23**	5.4	308	180	230	-	285	-	225	-	265	-	245	-	285	-	376
315	**304.02**	4.9	308	165	215	-	265	-	210	-	245	-	235	-	265	-	
355	**343.61**	4.4	308	150	215	-	260	-	210	-	240	-	230	-	260	-	
X.F290..,n_1= 1800 1/min																	308 kNm
6.3[1)]	**6.34**	284	225	6850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1700[*)]	
7.1[1)]	**7.16**	251	233	6300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1750[*)]	**X2F....**
8[1)]	**8.11**	222	241	5750	*)	*)	*)	1850[*)]	*)	*)	*)	*)	*)	*)	1700	2500[*)]	**M1**
9[1)]	**9.17**	196	248	5200	*)	*)	*)	1950[*)]	*)	*)	*)	*)	*)	*)	1750	2600[*)]	HU 280
10[1)]	**10.05**	179	257	4950	*)	*)	1450	2200[*)]	*)	*)	*)	1550[*)]	*)	*)	1950	2650[*)]	HH 320
11.2[1)]	**11.36**	158	263	4450	*)	*)	1450	2150[*)]	*)	*)	*)	1550[*)]	*)	*)	1950	2600[*)]	**M5**
12.5[1)]	**12.76**	141	271	4100	*)	*)	1500	2150[*)]	*)	*)	*)	1600[*)]	*)	1150[*)]	1900	2500[*)]	344
14[1)]	**14.42**	125	282	3800	*)	1050[*)]	1550	2200[*)]	*)	*)	1000	1650[*)]	*)	1200[*)]	1950	2600[*)]	**M4**
16[1)]	**16.05**	112	290	3500	*)	1050[*)]	1500	2100[*)]	*)	910[*)]	1000	1600[*)]	*)	1200[*)]	1850	2400[*)]	368
18[1)]	**18.14**	99	302	3200	*)	1100[*)]	1550	2150[*)]	*)	940[*)]	1050	1650[*)]	*)	1200[*)]	1900	2450[*)]	
20[1)]	**20.27**	89	280	2700	*)	740[*)]	1050	1450[*)]	*)	*)	730	1200[*)]	*)	940[*)]	1450	1900[*)]	
22.4[1)]	**22.91**	79	308	2650	*)	770[*)]	1050	1500[*)]	*)	670[*)]	740	1200[*)]	*)	970[*)]	1450	1900[*)]	
25[1)]	**26.45**	68	308	2300	*)	740[*)]	930	1350[*)]	*)	660[*)]	680	1100[*)]	*)	920[*)]	1250	1650[*)]	
28	**28.45**	63	308	2100	*)	820[*)]	980	1400[*)]	*)	760[*)]	750	1150[*)]	*)	970[*)]	1250	1650[*)]	**X3F....**
31.5	**32.86**	55	308	1850	*)	770[*)]	870	1250[*)]	*)	720[*)]	680	1050[*)]	460	910[*)]	1050	1450[*)]	**M1**
35.5	**37.13**	48	308	1600	*)	780[*)]	850	1250[*)]	*)	730[*)]	670	1050[*)]	465	920[*)]	1050	1450[*)]	HU 286
40	**41.45**	43	308	1450	375	760[*)]	800	1150[*)]	*)	730[*)]	650	1000[*)]	465	880[*)]	930	1300[*)]	HH 326
45	**46.84**	38	308	1300	380	770[*)]	780	1150[*)]	335	740[*)]	640	1000[*)]	470	890[*)]	900	1300[*)]	**M5**
50	**49.69**	36	308	1200	350	710[*)]	700	1000[*)]	310	670[*)]	570	900[*)]	430	810[*)]	800	1150[*)]	348
56	**57.86**	31	308	1050	385	740[*)]	710	1000[*)]	355	710[*)]	590	920[*)]	460	830[*)]	790	1150[*)]	**M4**
63	**66.82**	27	308	900	355	670[*)]	620	910[*)]	330	650[*)]	520	820[*)]	420	760[*)]	680	990[*)]	372
71	**75.52**	24	308	800	365	690[*)]	620	920[*)]	340	670[*)]	530	840[*)]	435	780[*)]	680	1000[*)]	
80	**80.10**	22	308	750	325	610[*)]	540	800[*)]	300	590[*)]	460	730[*)]	380	680[*)]	580	860[*)]	
90	**90.53**	20	308	670	330	620[*)]	540	810[*)]	310	600[*)]	460	740[*)]	390	700[*)]	580	870[*)]	
100	**103.31**	17	308	590	290	-	460	-	270	-	395	-	315	-	465	-	
112	**116.77**	15	308	520	290	-	450	-	270	-	385	-	315	-	450	-	
125	**123.85**	15	308	490	265	-	405	-	250	-	350	-	285	-	405	-	**X4F....**
140	**139.98**	13	308	435	265	-	395	-	250	-	345	-	285	-	395	-	**M1**
160	**152.96**	12	308	400	250	-	365	-	235	-	320	-	270	-	360	-	HU 292
180	**172.88**	10	308	350	250	-	355	-	235	-	310	-	270	-	355	-	HH 330
200	**205.34**	8.8	308	295	255	-	340	-	250	-	310	-	275	-	340	-	**M5**
224	**232.08**	7.8	308	260	255	-	335	-	250	-	305	-	275	-	335	-	352
250	**246.17**	7.3	308	245	235	-	305	-	230	-	280	-	255	-	305	-	**M4**
280	**278.23**	6.5	308	220	235	-	300	-	230	-	275	-	255	-	300	-	376
315	**304.02**	5.9	308	200	220	-	280	-	215	-	255	-	240	-	280	-	
355	**343.61**	5.2	308	175	220	-	275	-	215	-	255	-	240	-	275	-	

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X.F300..,n_1= 1000 1/min																	350 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**6.75**	148	254	4050	*)	*)	*)	1450	*)	*)	1100	1600	*)	1050	1400	1950	
8	**7.66**	131	260	3650	*)	*)	*)	1450	*)	*)	1100	1600	*)	1050	1400	1900	**X2F....**
9	**8.64**	116	272	3400	*)	1100	1150	1650	*)	980	1300	1750	*)	1250	1550	2000	**M1**
10	**9.80**	102	278	3050	*)	1100	1150	1600	*)	970	1300	1750	*)	1200	1500	2000	HU 280
11.2	**10.71**	93	289	2900	*)	1100	1150	1550	*)	1000	1300	1700	*)	1200	1450	1850	HH 320
12.5	**12.13**	82	294	2600	*)	1100	1100	1550	*)	980	1250	1650	710	1150	1400	1800	**M5**
14	**13.59**	74	305	2400	640	1050	1050	1400	*)	950	1200	1500	690	1100	1300	1650	344
16	**15.41**	65	316	2200	660	1100	1050	1450	580	980	1200	1550	720	1150	1250	1650	**M4**
18	**17.11**	58	328	2050	650	1050	1000	1350	580	960	1100	1450	700	1100	1150	1500	368
20	**19.39**	52	338	1850	640	1050	970	1350	570	940	1050	1400	690	1100	1100	1450	
22.4	**21.60**	46	303	1500	445	720	650	910	410	690	760	1000	530	830	820	1100	
25	**24.48**	41	330	1450	460	740	660	930	425	710	760	1000	550	850	820	1100	
28	**28.19**	35	337	1300	435	690	600	850	405	670	680	920	510	790	720	990	
31.5	**30.40**	33	350	1250	445	690	600	840	420	670	680	910	510	780	710	960	**X3F....**
35.5	**35.01**	29	350	1100	430	660	560	790	410	650	630	850	495	740	650	890	**M1**
40	**39.68**	25	350	960	420	650	540	760	405	630	610	820	485	730	630	860	HU 286
45	**44.16**	23	350	860	415	630	520	730	400	620	580	790	470	700	590	820	HH 326
50	**50.05**	20	350	760	420	640	520	730	405	630	580	780	475	710	590	810	**M5**
56	**52.94**	19	350	720	385	580	475	660	370	570	520	710	435	650	530	740	348
63	**61.83**	16	350	610	375	560	455	630	365	550	495	670	420	620	500	700	**M4**
71	**71.20**	14	350	530	360	540	425	600	350	530	460	630	400	590	470	650	372
80	**80.69**	12	350	470	350	520	415	580	345	520	445	610	395	580	455	630	
90	**85.35**	12	350	445	325	485	380	540	315	475	410	560	365	530	415	580	
100	**96.74**	10	350	395	325	485	375	530	320	480	405	560	365	540	410	580	
112	**110.09**	9.1	350	350	290	-	335	-	285	-	355	-	315	-	355	-	
125	**124.76**	8.0	350	310	285	-	325	-	280	-	345	-	310	-	345	-	
140	**131.98**	7.6	350	290	265	-	300	-	260	-	320	-	290	-	320	-	**X4F....**
160	**149.57**	6.7	350	255	265	-	300	-	260	-	315	-	290	-	315	-	**M1**
180	**162.99**	6.1	350	235	250	-	275	-	245	-	290	-	270	-	290	-	HU 292
200	**184.72**	5.4	350	210	245	-	270	-	240	-	280	-	265	-	285	-	HH 330
224	**218.80**	4.6	350	175	235	-	255	-	230	-	265	-	250	-	270	-	**M5**
250	**247.98**	4.0	350	155	230	-	250	-	230	-	265	-	250	-	265	-	352
280	**262.31**	3.8	350	145	215	-	235	-	215	-	240	-	230	-	245	-	**M4**
315	**297.28**	3.4	350	130	215	-	230	-	210	-	240	-	230	-	245	-	376
355	**323.95**	3.1	350	120	200	-	215	-	200	-	225	-	215	-	225	-	
400	**367.15**	2.7	350	105	195	-	210	-	195	-	215	-	210	-	220	-	
X.F300..,n_1= 1200 1/min																	350 kNm
7.1[1)]	**6.75**	178	254	4850	*)	*)	*)	1300	*)	*)	*)	1450	*)	*)	*)	1900	
8[1)]	**7.66**	157	260	4350	*)	*)	*)	1300	*)	*)	*)	1450	*)	*)	1200	1850	**X2F....**
9	**8.64**	139	272	4050	*)	1050	*)	1650	*)	*)	1200	1750	*)	1250	1500	2050	**M1**
10	**9.80**	122	278	3650	*)	1050	1000	1600	*)	*)	1200	1750	*)	1200	1450	2050	HU 280
11.2	**10.71**	112	289	3450	*)	1150	1100	1600	*)	990	1250	1700	*)	1250	1450	1950	HH 320
12.5	**12.13**	99	294	3100	*)	1100	1050	1600	*)	980	1250	1700	*)	1200	1400	1900	**M5**
14	**13.59**	88	305	2900	*)	1100	1050	1500	*)	980	1200	1600	*)	1150	1350	1800	344
16	**15.41**	78	316	2650	*)	1150	1100	1550	*)	1000	1250	1650	680	1200	1400	1850	**M4**
18	**17.11**	70	328	2450	620	1100	1050	1500	*)	1000	1150	1550	680	1150	1250	1700	368
20	**19.39**	62	338	2250	610	1100	1000	1450	*)	980	1100	1500	670	1150	1200	1600	
22.4	**21.60**	56	303	1850	*)	760	660	980	*)	710	780	1100	520	880	880	1200	
25	**24.48**	49	330	1750	*)	780	670	1000	*)	740	790	1100	540	910	880	1200	
28	**28.19**	43	337	1550	415	730	620	910	*)	700	710	1000	510	840	780	1100	
31.5	**30.40**	39	350	1500	440	740	620	910	405	710	710	990	520	840	760	1050	**X3F....**
35.5	**35.01**	34	350	1300	425	710	580	860	400	690	660	930	500	800	700	990	**M1**
40	**39.68**	30	350	1150	420	700	560	830	395	680	640	900	490	790	670	950	HU 286
45	**44.16**	27	350	1050	420	680	550	800	400	670	610	860	485	770	640	900	HH 326
50	**50.05**	24	350	910	425	690	550	800	405	670	610	860	490	770	630	900	**M5**
56	**52.94**	23	350	860	390	630	495	720	370	610	550	770	445	700	560	810	348
63	**61.83**	19	350	740	385	610	475	690	370	600	520	740	435	680	540	770	**M4**
71	**71.20**	17	350	640	370	580	450	660	355	570	490	690	415	650	500	720	372
80	**80.69**	15	350	570	360	570	435	640	350	560	470	670	405	630	480	700	
90	**85.35**	14	350	530	335	530	400	590	325	520	430	620	375	580	440	640	
100	**96.74**	12	350	470	335	530	395	580	325	520	425	610	375	580	435	640	
112	**110.09**	11	350	420	300	-	350	-	290	-	375	-	325	-	370	-	
125	**124.76**	9.6	350	370	295	-	340	-	285	-	360	-	320	-	360	-	
140	**131.98**	9.1	350	350	275	-	315	-	265	-	335	-	295	-	335	-	**X4F....**
160	**149.57**	8.0	350	310	275	-	310	-	265	-	330	-	295	-	330	-	**M1**
180	**162.99**	7.4	350	285	255	-	290	-	250	-	305	-	275	-	305	-	HU 292
200	**184.72**	6.5	350	250	250	-	280	-	245	-	295	-	270	-	295	-	HH 330
224	**218.80**	5.5	350	210	245	-	270	-	240	-	280	-	265	-	285	-	**M5**
250	**247.98**	4.8	350	185	245	-	265	-	240	-	280	-	260	-	280	-	352
280	**262.31**	4.6	350	175	225	-	245	-	220	-	255	-	245	-	260	-	**M4**
315	**297.28**	4.0	350	155	225	-	245	-	220	-	250	-	240	-	255	-	376
355	**323.95**	3.7	350	140	210	-	225	-	205	-	235	-	225	-	240	-	
400	**367.15**	3.3	350	125	205	-	220	-	205	-	230	-	220	-	235	-	

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X.F300..,n_1= 1500 1/min																	350 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
7.1[1]	**6.75**	222	254	6050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1500	
8[1]	**7.66**	196	260	5450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1550	**X2F....**
9[1]	**8.64**	174	272	5050	*)	*)	*)	1450	*)	*)	*)	1600	*)	*)	*)	2000	**M1**
10[1]	**9.80**	153	278	4550	*)	*)	*)	1500	*)	*)	*)	1600	*)	*)	1250	2000	HU 280
11.2	**10.71**	140	289	4350	*)	*)	*)	1600	*)	*)	1100	1700	*)	1200	1350	2000	HH 320
12.5	**12.13**	124	294	3900	*)	1050	*)	1600	*)	*)	1100	1700	*)	1200	1350	2000	**M5**
14	**13.59**	110	305	3600	*)	1100	970	1550	*)	960	1150	1650	*)	1200	1300	1900	344
16	**15.41**	97	316	3300	*)	1150	1000	1600	*)	1000	1150	1700	*)	1250	1350	1950	**M4**
18	**17.11**	88	328	3100	*)	1150	1000	1600	*)	1000	1150	1650	*)	1250	1350	1900	368
20	**19.39**	77	338	2800	*)	1150	1000	1550	*)	1000	1150	1650	*)	1200	1300	1850	
22.4	**21.60**	69	303	2300	*)	780	660	1050	*)	710	790	1200	*)	940	960	1350	
25	**24.48**	61	330	2200	*)	810	660	1050	*)	740	790	1200	*)	970	950	1350	
28	**28.19**	53	337	1950	*)	760	610	990	*)	710	720	1100	*)	910	840	1200	
31.5	**30.40**	49	350	1900	*)	790	640	990	*)	750	740	1100	510	910	830	1200	**X3F....**
35.5	**35.01**	43	350	1650	*)	760	600	940	*)	730	690	1000	495	880	760	1100	**M1**
40	**39.68**	38	350	1450	400	750	580	910	*)	720	660	990	485	860	720	1050	HU 286
45	**44.16**	34	350	1300	410	740	570	880	380	720	650	960	490	840	690	1000	HH 326
50	**50.05**	30	350	1150	415	750	570	880	385	720	640	950	495	850	680	1000	**M5**
56	**52.94**	28	350	1100	380	680	510	800	355	660	570	860	450	780	610	920	348
63	**61.83**	24	350	920	385	670	500	770	365	650	560	820	445	750	580	870	**M4**
71	**71.20**	21	350	800	370	640	470	730	355	630	520	770	430	720	540	810	372
80	**80.69**	19	350	710	365	630	455	710	345	610	500	750	420	700	520	790	
90	**85.35**	18	350	670	335	580	415	650	320	570	455	680	390	650	470	720	
100	**96.74**	16	350	590	340	580	415	650	320	570	450	680	390	650	465	720	
112	**110.09**	14	350	520	305	-	365	-	290	-	395	-	330	-	390	-	
125	**124.76**	12	350	460	295	-	355	-	285	-	380	-	320	-	375	-	
140	**131.98**	11	350	435	275	-	330	-	265	-	350	-	300	-	350	-	**X4F....**
160	**149.57**	10	350	385	275	-	325	-	265	-	345	-	300	-	345	-	**M1**
180	**162.99**	9.2	350	355	260	-	300	-	250	-	320	-	280	-	320	-	HU 292
200	**184.72**	8.1	350	310	255	-	295	-	245	-	310	-	275	-	310	-	HH 330
224	**218.80**	6.9	350	265	255	-	285	-	250	-	300	-	275	-	300	-	**M5**
250	**247.98**	6.0	350	235	255	-	285	-	250	-	295	-	275	-	300	-	352
280	**262.31**	5.7	350	220	235	-	260	-	230	-	275	-	255	-	275	-	**M4**
315	**297.28**	5.0	350	195	235	-	260	-	230	-	270	-	255	-	270	-	376
355	**323.95**	4.6	350	180	220	-	240	-	215	-	250	-	240	-	255	-	
400	**367.15**	4.1	350	155	215	-	235	-	210	-	245	-	235	-	245	-	
X.F300..,n_1= 1800 1/min																	350 kNm
7.1[1]	**6.75**	267	240	6850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
8[1]	**7.66**	235	246	6200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9[1]	**8.64**	208	257	5750	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1800*)	**M1**
10[1]	**9.80**	184	263	5200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1800*)	HU 280
11.2[1]	**10.71**	168	274	4950	*)	*)	*)	1500*)	*)	*)	*)	1600*)	*)	*)	*)	1950*)	HH 320
12.5[1]	**12.13**	148	278	4450	*)	*)	*)	1500*)	*)	*)	*)	1600*)	*)	1100*)	1200	1950*)	**M5**
14[1]	**13.59**	132	289	4100	*)	1050*)	*)	1550*)	*)	*)	*)	1600*)	*)	1200*)	1250	1900*)	344
16[1]	**15.41**	117	299	3750	*)	1100*)	*)	1600*)	*)	*)	1000	1700*)	*)	1250*)	1300	2000*)	**M4**
18[1]	**17.11**	105	310	3500	*)	1150*)	920	1600*)	*)	970*)	1100	1700*)	*)	1250*)	1300	1950*)	368
20[1]	**19.39**	93	320	3200	*)	1100*)	910	1600*)	*)	960*)	1050	1650*)	*)	1250*)	1300	1900*)	
22.4[1]	**21.60**	83	300	2700	*)	760*)	*)	1100*)	*)	*)	750	1200*)	*)	960*)	1000	1500*)	
25[1]	**24.48**	74	322	2550	*)	790*)	*)	1100*)	*)	700*)	760	1250*)	*)	990*)	1000	1500*)	
28[1]	**28.19**	64	329	2300	*)	760*)	570	1050*)	*)	680*)	690	1150*)	*)	940*)	880	1350*)	
31.5	**30.40**	59	340	2200	*)	820*)	630	1050*)	*)	760*)	750	1150*)	*)	960*)	890	1350*)	**X3F....**
35.5	**35.01**	51	342	1900	*)	800*)	600	1000*)	*)	750*)	700	1100*)	*)	930*)	810	1250*)	**M1**
40	**39.68**	45	350	1700	*)	780*)	580	970*)	*)	730*)	670	1050*)	465	910*)	760	1200*)	HU 286
45	**44.16**	41	350	1550	*)	790*)	580	950*)	*)	750*)	660	1050*)	480	900*)	730	1150*)	HH 326
50	**50.05**	36	350	1350	395	790*)	570	950*)	350	760*)	650	1000*)	485	910*)	720	1100*)	**M5**
56	**52.94**	34	350	1300	360	730*)	520	860*)	*)	690*)	590	920*)	445	830*)	640	1000*)	348
63	**61.83**	29	350	1100	375	720*)	510	840*)	350	690*)	580	890*)	450	810*)	610	960*)	**M4**
71	**71.20**	25	350	960	365	690*)	485	790*)	340	670*)	540	840*)	430	780*)	570	900*)	372
80	**80.69**	22	350	850	360	670*)	465	770*)	335	650*)	520	810*)	425	760*)	540	870*)	
90	**85.35**	21	350	800	335	620*)	430	710*)	310	600*)	470	740*)	390	700*)	495	790*)	
100	**96.74**	19	350	710	335	620*)	425	700*)	310	600*)	460	740*)	390	700*)	490	790*)	
112	**110.09**	16	350	630	300	-	370	-	280	-	400	-	325	-	400	-	
125	**124.76**	14	350	550	290	-	360	-	275	-	385	-	315	-	385	-	
140	**131.98**	14	350	520	275	-	335	-	255	-	355	-	295	-	355	-	**X4F....**
160	**149.57**	12	350	465	270	-	330	-	255	-	350	-	295	-	350	-	**M1**
180	**162.99**	11	350	425	255	-	305	-	240	-	325	-	280	-	325	-	HU 292
200	**184.72**	9.7	350	375	250	-	295	-	235	-	315	-	270	-	315	-	HH 330
224	**218.80**	8.2	350	315	260	-	300	-	255	-	315	-	285	-	315	-	**M5**
250	**247.98**	7.3	350	280	260	-	295	-	255	-	310	-	280	-	310	-	352
280	**262.31**	6.9	350	265	240	-	270	-	235	-	285	-	260	-	285	-	**M4**
315	**297.28**	6.1	350	235	240	-	270	-	235	-	280	-	260	-	285	-	376
355	**323.95**	5.6	350	215	225	-	250	-	220	-	265	-	245	-	265	-	
400	**367.15**	4.9	350	190	220	-	245	-	215	-	255	-	240	-	260	-	

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X.F310..,n_1= 1000 1/min																	425 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.63**	151	310	5000	*)	*)	1950	2550	*)	*)	1300	1850	*)	*)	2500	3050	
7.1	**7.51**	133	318	4550	*)	*)	1950	2500	*)	*)	1300	1850	*)	1250	2500	3000	**X2F....**
8	**8.04**	124	327	4350	*)	1150	1950	2450	*)	*)	1350	1850	*)	1300	2350	2850	**M1**
9	**9.10**	110	335	3950	*)	1150	1900	2400	*)	990	1350	1850	*)	1250	2350	2800	HU 280
10	**10.17**	98	347	3650	*)	1250	2000	2500	*)	1100	1500	1950	*)	1350	2400	2850	HH 320
11.2	**11.52**	87	355	3300	*)	1250	2000	2450	*)	1100	1450	1900	*)	1350	2350	2800	**M5**
12.5	**12.89**	78	368	3050	*)	1200	1850	2250	*)	1100	1400	1800	780	1250	2150	2550	344
14	**14.59**	69	380	2800	*)	1200	1750	2150	*)	1050	1300	1700	770	1250	2000	2400	**M4**
16	**16.49**	61	392	2550	660	1100	1600	2000	*)	1000	1200	1600	730	1200	1800	2200	368
18	**18.16**	55	400	2350	630	1050	1500	1850	*)	960	1150	1500	700	1150	1650	2000	
20	**20.94**	48	420	2200	*)	820	1100	1400	*)	770	870	1200	600	980	1350	1650	
22.4	**23.07**	43	425	2000	*)	790	1000	1300	*)	730	820	1150	570	930	1200	1550	
25	**25.98**	38	425	1800	455	790	970	1250	*)	740	790	1100	570	920	1150	1450	
28	**29.33**	34	425	1550	490	780	920	1150	460	750	780	1050	570	880	1050	1300	**X3F....**
31.5	**33.03**	30	425	1400	500	800	900	1150	475	770	770	1050	590	900	1000	1300	**M1**
35.5	**36.39**	27	425	1250	485	760	840	1100	455	740	720	980	560	860	930	1200	HU 286
40	**41.78**	24	425	1100	490	760	810	1050	470	740	710	960	560	850	880	1150	HH 326
45	**46.03**	22	425	1000	470	720	760	1000	450	700	660	900	540	810	820	1050	**M5**
50	**52.25**	19	425	880	450	690	710	930	430	680	620	850	520	770	750	1000	348
56	**57.42**	17	425	800	450	680	680	900	435	670	610	820	510	750	720	950	**M4**
63	**64.67**	15	425	710	445	670	660	860	430	660	580	800	500	740	680	910	372
71	**71.25**	14	425	650	425	640	620	820	410	630	550	760	475	710	640	860	
80	**80.87**	12	425	570	400	600	560	750	385	590	510	700	445	660	580	790	
90	**89.10**	11	425	520	400	600	560	750	390	590	500	700	450	660	580	790	
100	**108.56**	9.2	425	430	330	-	445	-	320	-	405	-	355	-	450	-	
112	**119.60**	8.4	425	390	325	-	435	-	315	-	395	-	350	-	435	-	
125	**135.76**	7.4	425	345	310	-	410	-	300	-	375	-	335	-	410	-	**X4F....**
140	**149.56**	6.7	425	310	300	-	390	-	290	-	355	-	325	-	390	-	**M1**
160	**162.03**	6.2	425	290	305	-	390	-	300	-	360	-	330	-	390	-	HU 292
180	**178.50**	5.6	425	260	295	-	370	-	290	-	345	-	320	-	370	-	HH 330
200	**203.96**	4.9	425	230	280	-	345	-	275	-	320	-	300	-	345	-	**M5**
224	**224.70**	4.5	425	210	270	-	330	-	265	-	310	-	290	-	330	-	352
250	**255.06**	3.9	425	185	260	-	315	-	255	-	295	-	280	-	315	-	**M4**
280	**281.00**	3.6	425	165	250	-	300	-	250	-	280	-	270	-	305	-	376
315	**313.92**	3.2	425	150	245	-	285	-	240	-	270	-	265	-	290	-	
355	**345.84**	2.9	425	135	235	-	275	-	230	-	260	-	255	-	280	-	
X.F310..,n_1= 1200 1/min																	425 kNm
6.3	**6.63**	181	310	6000	*)	*)	1750	2450	*)	*)	*)	1700	*)	*)	2400	3050	
7.1	**7.51**	160	318	5450	*)	*)	1750	2450	*)	*)	*)	1750	*)	*)	2400	3050	**X2F....**
8	**8.04**	149	327	5250	*)	*)	1850	2450	*)	*)	*)	1800	*)	*)	2350	2900	**M1**
9	**9.10**	132	335	4750	*)	*)	1850	2450	*)	*)	1200	1800	*)	1250	2300	2900	HU 280
10	**10.17**	118	347	4400	*)	1250	2000	2550	*)	*)	1400	1950	*)	1400	2400	3000	HH 320
11.2	**11.52**	104	355	3950	*)	1250	1950	2550	*)	1100	1400	1950	*)	1400	2400	2950	**M5**
12.5	**12.89**	93	368	3700	*)	1250	1850	2350	*)	1100	1350	1850	*)	1350	2200	2700	344
14	**14.59**	82	380	3350	*)	1200	1850	2350	*)	1100	1350	1850	*)	1300	2200	2650	**M4**
16	**16.49**	73	392	3050	*)	1150	1700	2200	*)	1000	1250	1700	*)	1250	2000	2450	368
18	**18.16**	66	400	2850	*)	1100	1600	2000	*)	970	1150	1600	*)	1200	1850	2250	
20	**20.94**	57	420	2600	*)	830	1150	1500	*)	750	870	1250	*)	1000	1450	1850	
22.4	**23.07**	52	425	2400	*)	800	1050	1400	*)	720	810	1200	*)	970	1350	1700	
25	**25.98**	46	425	2150	*)	800	1000	1350	*)	730	780	1150	540	970	1250	1600	
28	**29.33**	41	425	1900	*)	820	980	1300	*)	790	810	1150	570	950	1150	1450	**X3F....**
31.5	**33.03**	36	425	1700	490	850	960	1300	450	810	800	1150	590	970	1100	1450	**M1**
35.5	**36.39**	33	425	1500	470	810	900	1200	430	770	750	1050	560	920	1000	1350	HU 286
40	**41.78**	29	425	1350	485	810	870	1150	455	790	740	1050	570	920	960	1300	HH 326
45	**46.03**	26	425	1200	465	780	810	1100	435	750	690	980	540	880	900	1200	**M5**
50	**52.25**	23	425	1050	450	740	750	1000	420	720	650	920	520	840	820	1100	348
56	**57.42**	21	425	960	455	730	730	990	435	720	640	900	520	820	780	1050	**M4**
63	**64.67**	19	425	860	450	720	700	950	430	710	620	880	510	810	740	1000	372
71	**71.25**	17	425	780	430	690	660	900	415	680	580	830	490	770	700	960	
80	**80.87**	15	425	690	405	650	600	830	390	630	530	760	460	720	630	880	
90	**89.10**	13	425	620	405	650	600	830	390	640	530	760	465	720	620	870	
100	**108.56**	11	425	520	335	-	475	-	320	-	420	-	360	-	475	-	
112	**119.60**	10	425	470	330	-	460	-	315	-	410	-	355	-	460	-	
125	**135.76**	8.8	425	415	315	-	430	-	305	-	390	-	340	-	430	-	**X4F....**
140	**149.56**	8.0	425	375	305	-	410	-	295	-	370	-	330	-	410	-	**M1**
160	**162.03**	7.4	425	345	320	-	415	-	310	-	380	-	345	-	415	-	HU 292
180	**178.50**	6.7	425	315	305	-	395	-	300	-	365	-	330	-	395	-	HH 330
200	**203.96**	5.9	425	275	290	-	365	-	285	-	340	-	315	-	370	-	**M5**
224	**224.70**	5.3	425	250	280	-	350	-	275	-	325	-	305	-	350	-	352
250	**255.06**	4.7	425	220	270	-	335	-	265	-	310	-	290	-	335	-	**M4**
280	**281.00**	4.3	425	200	260	-	320	-	255	-	300	-	280	-	320	-	376
315	**313.92**	3.8	425	180	255	-	305	-	250	-	285	-	275	-	305	-	
355	**345.84**	3.5	425	160	245	-	295	-	240	-	275	-	265	-	295	-	

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X.F310..,n_1= 1500 1/min																	425 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3[1)]	**6.63**	226	310	7500	*)	*)	*)	2000	*)	*)	*)	*)	*)	*)	1950	2850	
7.1[1)]	**7.51**	200	318	6800	*)	*)	*)	2050	*)	*)	*)	*)	*)	*)	1950	2850	**X2F....**
8[1)]	**8.04**	187	327	6550	*)	*)	*)	2300	*)	*)	*)	*)	*)	*)	2150	2900	**M1**
9[1)]	**9.10**	165	335	5900	*)	*)	1500	2300	*)	*)	*)	1600	*)	*)	2150	2900	HU 280
10[1)]	**10.17**	147	347	5500	*)	*)	1800	2550	*)	*)	*)	1900	*)	*)	2350	3050	HH 320
11.2[1)]	**11.52**	130	355	4950	*)	*)	1800	2550	*)	*)	*)	1900	*)	1350	2350	3050	**M5**
12.5[1)]	**12.89**	116	368	4600	*)	1200	1800	2450	*)	*)	1250	1850	*)	1350	2200	2850	344
14[1)]	**14.59**	103	380	4200	*)	1200	1800	2400	*)	*)	1200	1850	*)	1350	2200	2800	**M4**
16[1)]	**16.49**	91	392	3850	*)	1150	1700	2300	*)	970	1150	1750	*)	1250	2100	2650	368
18[1)]	**18.16**	83	400	3550	*)	1100	1600	2150	*)	930	1100	1650	*)	1200	1950	2500	
20[1)]	**20.94**	72	420	3250	*)	*)	1150	1650	*)	*)	*)	1300	*)	1050	1650	2150	
22.4[1)]	**23.07**	65	425	3000	*)	750	1050	1500	*)	*)	*)	1200	*)	990	1500	1950	
25[1)]	**25.98**	58	425	2650	*)	770	1000	1450	*)	*)	720	1200	*)	990	1400	1850	
28	**29.33**	51	425	2350	*)	860	1050	1450	*)	810	820	1250	*)	1000	1300	1700	**X3F....**
31.5	**33.03**	45	425	2100	*)	890	1050	1400	*)	840	820	1250	570	1050	1250	1650	**M1**
35.5	**36.39**	41	425	1900	*)	850	960	1350	*)	800	770	1150	540	1000	1150	1550	HU 286
40	**41.78**	36	425	1650	460	870	930	1300	*)	830	770	1150	560	1000	1100	1450	HH 326
45	**46.03**	33	425	1500	440	830	870	1200	395	790	720	1100	540	960	1000	1350	**M5**
50	**52.25**	29	425	1350	425	800	800	1150	385	760	670	1000	520	920	910	1250	348
56	**57.42**	26	425	1200	450	800	790	1100	420	780	670	1000	530	900	870	1200	**M4**
63	**64.67**	23	425	1050	445	790	760	1050	420	770	650	970	520	890	820	1150	372
71	**71.25**	21	425	970	430	760	710	1000	405	740	610	920	500	850	770	1100	
80	**80.87**	19	425	860	405	710	650	930	380	690	560	850	470	800	690	1000	
90	**89.10**	17	425	780	405	710	640	930	385	690	560	850	475	800	680	990	
100	**108.56**	14	425	650	330	-	500	-	310	-	435	-	355	-	500	-	
112	**119.60**	13	425	590	325	-	485	-	305	-	425	-	350	-	490	-	
125	**135.76**	11	425	520	315	-	455	-	295	-	400	-	340	-	455	-	**X4F....**
140	**149.56**	10	425	470	300	-	435	-	285	-	380	-	325	-	430	-	**M1**
160	**162.03**	9.3	425	430	330	-	445	-	320	-	405	-	355	-	450	-	HU 292
180	**178.50**	8.4	425	390	320	-	425	-	310	-	385	-	345	-	425	-	HH 330
200	**203.96**	7.4	425	345	300	-	395	-	295	-	360	-	325	-	395	-	**M5**
224	**224.70**	6.7	425	310	290	-	380	-	285	-	345	-	315	-	380	-	352
250	**255.06**	5.9	425	275	280	-	355	-	275	-	330	-	305	-	360	-	**M4**
280	**281.00**	5.3	425	250	270	-	340	-	265	-	315	-	295	-	340	-	376
315	**313.92**	4.8	425	225	265	-	325	-	255	-	300	-	285	-	330	-	
355	**345.84**	4.3	425	205	255	-	315	-	250	-	290	-	275	-	315	-	
X.F310..,n_1= 1800 1/min																	425 kNm
6.3[*)]	**6.63**	271	294	8550	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
7.1[*)]	**7.51**	240	300	7700	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	2200[*)]	**X2F....**
8[*)]	**8.04**	224	309	7400	*)	*)	*)	1850[*)]	*)	*)	*)	*)	*)	*)	*)	2650[*)]	**M1**
9[*)]	**9.10**	198	316	6700	*)	*)	*)	1900[*)]	*)	*)	*)	*)	*)	*)	1750	2650[*)]	HU 280
10[*)]	**10.17**	177	328	6250	*)	*)	*)	2400[*)]	*)	*)	*)	1650[*)]	*)	*)	2150	3000[*)]	HH 320
11.2[*)]	**11.52**	156	335	5600	*)	*)	1500	2400[*)]	*)	*)	*)	1650[*)]	*)	*)	2150	3000[*)]	**M5**
12.5[*)]	**12.89**	140	350	5250	*)	*)	1600	2400[*)]	*)	*)	*)	1750[*)]	*)	*)	2150	2900[*)]	344
14[*)]	**14.59**	123	358	4750	*)	*)	1600	2400[*)]	*)	*)	*)	1750[*)]	*)	1250[*)]	2100	2850[*)]	**M4**
16[*)]	**16.49**	109	371	4350	*)	*)	1550	2250[*)]	*)	*)	*)	1700[*)]	*)	1200[*)]	2000	2700[*)]	368
18[*)]	**18.16**	99	379	4050	*)	*)	1450	2150[*)]	*)	*)	*)	1600[*)]	*)	1150[*)]	1900	2550[*)]	
20[1)]	**20.94**	86	398	3700	*)	*)	1050	1600[*)]	*)	*)	*)	1200[*)]	*)	970[*)]	1650	2250[*)]	
22.4[1)]	**23.07**	78	407	3450	*)	*)	990	1550[*)]	*)	*)	*)	1150[*)]	*)	940[*)]	1600	2150[*)]	
25[1)]	**25.98**	69	423	3200	*)	*)	970	1500[*)]	*)	*)	*)	1150[*)]	*)	960[*)]	1500	2050[*)]	
28[1)]	**29.33**	61	425	2850	*)	870[*)]	1100	1550[*)]	*)	790[*)]	800	1300[*)]	*)	1050[*)]	1450	1900[*)]	**X3F....**
31.5[1)]	**33.03**	54	425	2500	*)	910[*)]	1050	1550[*)]	*)	830[*)]	810	1300[*)]	*)	1100[*)]	1350	1850[*)]	**M1**
35.5[1)]	**36.39**	49	425	2300	*)	870[*)]	990	1450[*)]	*)	800[*)]	750	1200[*)]	*)	1050[*)]	1250	1700[*)]	HU 286
40	**41.78**	43	425	2000	*)	900[*)]	970	1400[*)]	*)	850[*)]	770	1200[*)]	540	1050[*)]	1200	1650[*)]	HH 326
45	**46.03**	39	425	1800	*)	860[*)]	910	1300[*)]	*)	810[*)]	720	1150[*)]	510	1000[*)]	1100	1550[*)]	**M5**
50	**52.25**	34	425	1600	*)	830[*)]	840	1250[*)]	*)	780[*)]	670	1100[*)]	500	970[*)]	980	1400[*)]	348
56	**57.42**	31	425	1450	430	850[*)]	840	1200[*)]	385	820[*)]	690	1100[*)]	520	970[*)]	950	1350[*)]	**M4**
63	**64.67**	28	425	1300	430	840[*)]	800	1150[*)]	390	810[*)]	670	1050[*)]	520	960[*)]	900	1300[*)]	372
71	**71.25**	25	425	1150	415	810[*)]	750	1100[*)]	375	780[*)]	630	1000[*)]	500	920[*)]	840	1200[*)]	
80	**80.87**	22	425	1050	390	760[*)]	680	1000[*)]	360	730[*)]	570	920[*)]	470	860[*)]	750	1100[*)]	
90	**89.10**	20	425	930	395	760[*)]	670	1000[*)]	360	730[*)]	570	920[*)]	475	860[*)]	740	1100[*)]	
100	**108.56**	17	425	770	310	-	520	-	280	-	435	-	335	-	520	-	
112	**119.60**	15	425	700	305	-	500	-	275	-	420	-	330	-	500	-	
125	**135.76**	13	425	620	295	-	465	-	265	-	395	-	320	-	465	-	**X4F....**
140	**149.56**	12	425	560	285	-	445	-	260	-	375	-	310	-	440	-	**M1**
160	**162.03**	11	425	520	335	-	475	-	320	-	420	-	360	-	475	-	HU 292
180	**178.50**	10	425	470	320	-	450	-	310	-	405	-	350	-	450	-	HH 330
200	**203.96**	8.8	425	410	305	-	420	-	295	-	375	-	330	-	415	-	**M5**
224	**224.70**	8.0	425	375	295	-	400	-	285	-	360	-	320	-	400	-	352
250	**255.06**	7.1	425	330	285	-	375	-	275	-	340	-	310	-	375	-	**M4**
280	**281.00**	6.4	425	300	275	-	360	-	265	-	325	-	300	-	360	-	376
315	**313.92**	5.7	425	270	270	-	345	-	260	-	315	-	290	-	345	-	
355	**345.84**	5.2	425	245	260	-	330	-	250	-	300	-	280	-	330	-	

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X.F320..,n_1= 1000 1/min																	475 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**7.17**	139	332	4950	*)	*)	*)	1700	*)	*)	1300	1900	*)	1250	1650	2250	
8	**8.11**	123	337	4450	*)	*)	*)	1700	*)	*)	1300	1900	*)	1250	1650	2250	**X2F....**
9	**8.70**	115	350	4300	*)	1200	1250	1800	*)	*)	1450	1950	*)	1350	1700	2250	**M1**
10	**9.84**	102	356	3900	*)	1150	1200	1700	*)	1000	1350	1850	*)	1300	1600	2100	HU 280
11.2	**11.00**	91	370	3600	*)	1300	1300	1800	*)	1150	1500	1950	*)	1400	1700	2200	HH 320
12.5	**12.45**	80	381	3300	*)	1250	1300	1800	*)	1150	1450	1950	*)	1350	1650	2150	**M5**
14	**13.94**	72	393	3000	*)	1200	1200	1700	*)	1100	1400	1800	790	1300	1550	1950	344
16	**15.76**	63	407	2750	710	1200	1200	1650	*)	1100	1350	1750	780	1300	1450	1900	**M4**
18	**17.60**	57	415	2550	700	1200	1150	1600	*)	1050	1300	1700	780	1250	1400	1800	368
20	**19.28**	52	424	2350	700	1150	1100	1550	610	1050	1250	1650	770	1250	1350	1750	
22.4	**22.36**	45	447	2150	*)	840	760	1100	*)	790	890	1200	610	1000	1000	1350	
25	**24.49**	41	455	2000	*)	840	740	1100	*)	780	860	1200	600	980	970	1300	
28	**27.74**	36	475	1850	470	810	700	1000	*)	760	810	1100	590	950	900	1250	
31.5	**31.13**	32	475	1650	520	820	720	1000	490	800	820	1100	610	930	860	1150	**X3F....**
35.5	**35.27**	28	475	1450	520	820	700	980	490	790	790	1050	600	920	820	1100	**M1**
40	**38.63**	26	475	1350	510	800	680	960	485	780	760	1050	600	900	800	1100	HU 286
45	**44.62**	22	475	1150	500	780	650	910	480	760	720	980	580	870	740	1000	HH 326
50	**48.86**	20	475	1050	495	760	630	890	475	740	700	950	570	860	720	1000	**M5**
56	**55.79**	18	475	920	475	730	590	840	455	710	650	890	540	810	670	930	348
63	**60.96**	16	475	850	460	700	560	790	445	680	620	840	520	770	630	870	**M4**
71	**69.06**	14	475	750	455	680	550	770	440	670	600	820	510	760	610	840	372
80	**75.63**	13	475	680	445	670	540	750	435	660	580	800	500	740	590	830	
90	**86.36**	12	475	600	420	630	495	700	405	620	530	730	470	690	540	760	
100	**94.58**	11	475	550	400	600	470	660	390	590	500	700	450	660	520	720	
112	**115.92**	8.6	475	450	335	-	390	-	325	-	415	-	365	-	410	-	
125	**126.96**	7.9	475	410	330	-	380	-	320	-	405	-	360	-	400	-	
140	**144.96**	6.9	475	360	320	-	360	-	310	-	380	-	345	-	380	-	**X4F....**
160	**158.77**	6.3	475	330	315	-	355	-	305	-	370	-	340	-	370	-	**M1**
180	**173.01**	5.8	475	300	320	-	355	-	315	-	375	-	345	-	375	-	HU 292
200	**189.49**	5.3	475	275	315	-	350	-	310	-	365	-	340	-	365	-	HH 330
224	**217.79**	4.6	475	240	285	-	315	-	280	-	330	-	310	-	330	-	**M5**
250	**238.53**	4.2	475	220	280	-	310	-	280	-	320	-	305	-	325	-	352
280	**272.35**	3.7	475	190	265	-	290	-	260	-	300	-	290	-	305	-	**M4**
315	**298.29**	3.4	475	175	260	-	285	-	260	-	295	-	285	-	300	-	376
355	**335.20**	3.0	475	155	255	-	275	-	250	-	280	-	275	-	285	-	
400	**367.12**	2.7	475	140	250	-	265	-	245	-	275	-	270	-	280	-	
X.F320..,n_1= 1200 1/min																	475 kNm
7.1	**7.17**	167	332	5950	*)	*)	*)	1550	*)	*)	*)	1700	*)	*)	*)	2200	
8	**8.11**	148	337	5350	*)	*)	*)	1600	*)	*)	*)	1750	*)	*)	1450	2200	**X2F....**
9	**8.70**	138	350	5200	*)	*)	*)	1800	*)	*)	*)	1950	*)	1350	1600	2300	**M1**
10	**9.84**	122	356	4650	*)	*)	*)	1700	*)	*)	1250	1850	*)	1250	1550	2150	HU 280
11.2	**11.00**	109	370	4350	*)	1250	1200	1850	*)	1100	1400	2000	*)	1400	1650	2250	HH 320
12.5	**12.45**	96	381	3950	*)	1250	1200	1850	*)	1100	1400	1950	*)	1400	1650	2250	**M5**
14	**13.94**	86	393	3650	*)	1250	1200	1750	*)	1100	1350	1850	*)	1350	1550	2100	344
16	**15.76**	76	407	3300	*)	1250	1200	1750	*)	1100	1350	1850	*)	1350	1550	2050	**M4**
18	**17.60**	68	415	3050	*)	1200	1150	1700	*)	1100	1300	1800	*)	1300	1500	2000	368
20	**19.28**	62	424	2850	*)	1200	1150	1650	*)	1100	1250	1750	720	1300	1450	1950	
22.4	**22.36**	54	447	2600	*)	860	740	1150	*)	780	890	1300	*)	1050	1050	1500	
25	**24.49**	49	455	2400	*)	850	720	1150	*)	770	860	1250	*)	1050	1050	1450	
28	**27.74**	43	475	2250	*)	830	690	1100	*)	760	800	1200	*)	1000	940	1350	
31.5	**31.13**	39	475	2000	500	870	740	1100	*)	830	850	1200	610	1000	930	1300	**X3F....**
35.5	**35.27**	34	475	1750	510	870	720	1050	465	830	820	1150	600	990	880	1250	**M1**
40	**38.63**	31	475	1600	500	860	700	1050	460	820	800	1100	600	980	850	1200	HU 286
45	**44.62**	27	475	1400	500	830	670	990	470	810	760	1050	590	940	790	1150	HH 326
50	**48.86**	25	475	1250	495	820	650	970	465	790	730	1050	580	930	770	1100	**M5**
56	**55.79**	22	475	1100	475	780	610	910	445	760	680	970	550	880	710	1050	348
63	**60.96**	20	475	1000	465	750	590	860	445	740	650	920	530	840	670	970	**M4**
71	**69.06**	17	475	900	460	740	570	840	445	720	630	890	530	820	650	930	372
80	**75.63**	16	475	820	455	730	560	820	435	710	610	870	520	810	630	910	
90	**86.36**	14	475	720	425	680	520	760	410	660	560	800	485	760	570	840	
100	**94.58**	13	475	650	410	650	490	730	395	640	530	760	465	720	550	800	
112	**115.92**	10	475	540	340	-	405	-	330	-	430	-	370	-	430	-	
125	**126.96**	9.5	475	495	335	-	395	-	325	-	420	-	365	-	420	-	
140	**144.96**	8.3	475	430	325	-	375	-	310	-	395	-	350	-	395	-	**X4F....**
160	**158.77**	7.6	475	395	320	-	365	-	305	-	385	-	345	-	385	-	**M1**
180	**173.01**	6.9	475	360	330	-	375	-	325	-	395	-	360	-	395	-	HU 292
200	**189.49**	6.3	475	330	325	-	365	-	320	-	385	-	355	-	385	-	HH 330
224	**217.79**	5.5	475	290	295	-	330	-	290	-	345	-	320	-	350	-	**M5**
250	**238.53**	5.0	475	265	290	-	325	-	285	-	340	-	315	-	340	-	352
280	**272.35**	4.4	475	230	275	-	305	-	270	-	315	-	300	-	320	-	**M4**
315	**298.29**	4.0	475	210	270	-	300	-	265	-	310	-	295	-	315	-	376
355	**335.20**	3.6	475	185	265	-	285	-	260	-	295	-	285	-	300	-	
400	**367.12**	3.3	475	170	260	-	280	-	255	-	290	-	280	-	295	-	

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X.F320..,n_1= 1500 1/min																	475 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[1)]	**7.17**	209	332	7450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
8[1)]	**8.11**	185	337	6700	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1900	**X2F....**
9[1)]	**8.70**	172	350	6450	*)	*)	*)	*)	*)	*)	*)	1650	*)	*)	*)	2200	**M1**
10[1)]	**9.84**	152	356	5800	*)	*)	*)	1500	*)	*)	*)	1600	*)	*)	*)	2100	HU 280
11.2[1)]	**11.00**	136	370	5400	*)	*)	*)	1800	*)	*)	*)	1900	*)	*)	1500	2300	HH 320
12.5[1)]	**12.45**	120	381	4900	*)	*)	*)	1800	*)	*)	*)	1900	*)	1350	1500	2300	**M5**
14[1)]	**13.94**	108	393	4550	*)	1200	*)	1750	*)	*)	1250	1900	*)	1350	1500	2200	344
16[1)]	**15.76**	95	407	4150	*)	1200	1050	1750	*)	*)	1250	1850	*)	1350	1500	2150	**M4**
18[1)]	**17.60**	85	415	3800	*)	1200	1050	1750	*)	1050	1250	1850	*)	1350	1450	2150	368
20[1)]	**19.28**	78	424	3550	*)	1200	1050	1700	*)	1050	1200	1800	*)	1350	1450	2100	
22.4[1)]	**22.36**	67	447	3250	*)	*)	*)	1200	*)	*)	*)	1350	*)	1050	1100	1650	
25[1)]	**24.49**	61	455	3050	*)	800	*)	1150	*)	*)	780	1300	*)	1050	1050	1600	
28[1)]	**27.74**	54	475	2800	*)	800	*)	1100	*)	*)	740	1200	*)	1000	980	1500	
31.5	**31.13**	48	475	2500	*)	920	740	1200	*)	860	870	1300	*)	1100	1000	1450	**X3F....**
35.5	**35.27**	43	475	2200	*)	920	720	1150	*)	860	840	1250	580	1050	950	1400	**M1**
40	**38.63**	39	475	2000	*)	910	700	1150	*)	850	810	1200	580	1050	920	1350	HU 286
45	**44.62**	34	475	1750	475	900	690	1100	*)	860	780	1150	580	1050	860	1250	HH 326
50	**48.86**	31	475	1600	470	880	670	1050	420	840	760	1150	570	1000	830	1250	**M5**
56	**55.79**	27	475	1400	455	840	630	1000	410	810	700	1050	550	960	760	1150	348
63	**60.96**	25	475	1250	465	820	620	960	435	800	690	1000	540	930	730	1100	**M4**
71	**69.06**	22	475	1100	460	810	600	930	430	790	660	990	540	910	700	1050	372
80	**75.63**	20	475	1000	455	800	580	910	425	770	640	970	530	900	670	1050	
90	**86.36**	17	475	900	425	740	540	840	400	720	590	890	495	830	610	940	
100	**94.58**	16	475	820	410	710	510	800	385	690	560	850	475	800	580	900	
112	**115.92**	13	475	680	340	-	415	-	315	-	445	-	365	-	440	-	
125	**126.96**	12	475	620	330	-	405	-	310	-	430	-	360	-	430	-	
140	**144.96**	10	475	540	320	-	385	-	300	-	405	-	345	-	405	-	**X4F....**
160	**158.77**	9.4	475	495	315	-	375	-	295	-	395	-	340	-	395	-	**M1**
180	**173.01**	8.7	475	450	345	-	395	-	335	-	420	-	370	-	420	-	HU 292
200	**189.49**	7.9	475	415	335	-	385	-	330	-	410	-	365	-	410	-	HH 330
224	**217.79**	6.9	475	360	310	-	350	-	300	-	370	-	335	-	370	-	**M5**
250	**238.53**	6.3	475	330	305	-	340	-	295	-	360	-	330	-	360	-	352
280	**272.35**	5.5	475	285	285	-	320	-	280	-	335	-	310	-	340	-	**M4**
315	**298.29**	5.0	475	260	280	-	315	-	275	-	330	-	305	-	330	-	376
355	**335.20**	4.5	475	235	275	-	300	-	265	-	315	-	295	-	320	-	
400	**367.12**	4.1	475	215	270	-	295	-	265	-	305	-	290	-	310	-	
X.F320..,n_1= 1800 1/min																	475 kNm
7.1[*)]	**7.17**	251	314	8450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
8[*)]	**8.11**	222	320	7600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2F....**
9[*)]	**8.70**	207	331	7350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
10[*)]	**9.84**	183	338	6650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1800[*)]	HU 280
11.2[*)]	**11.00**	164	350	6150	*)	*)	*)	1550[*)]	*)	*)	*)	1650[*)]	*)	*)	*)	2200[*)]	HH 320
12.5[*)]	**12.45**	145	362	5600	*)	*)	*)	1550[*)]	*)	*)	*)	1700[*)]	*)	*)	*)	2200[*)]	**M5**
14[*)]	**13.94**	129	378	5250	*)	*)	*)	1700[*)]	*)	*)	*)	1800[*)]	*)	*)	1350	2200[*)]	344
16[*)]	**15.76**	114	385	4700	*)	*)	*)	1700[*)]	*)	*)	*)	1800[*)]	*)	1300[*)]	1350	2150[*)]	**M4**
18[*)]	**17.60**	102	393	4300	*)	1100[*)]	*)	1650[*)]	*)	*)	*)	1750[*)]	*)	1300[*)]	1350	2150[*)]	368
20[*)]	**19.28**	93	401	4000	*)	1100[*)]	*)	1650[*)]	*)	*)	*)	1750[*)]	*)	1300[*)]	1350	2100[*)]	
22.4[1)]	**22.36**	81	423	3700	*)	*)	*)	1100[*)]	*)	*)	*)	1250[*)]	*)	1000[*)]	1050	1700[*)]	
25[1)]	**24.49**	73	430	3450	*)	*)	*)	1100[*)]	*)	*)	*)	1200[*)]	*)	1000[*)]	1050	1650[*)]	
28[1)]	**27.74**	65	450	3150	*)	*)	*)	1100[*)]	*)	*)	*)	1200[*)]	*)	990[*)]	970	1600[*)]	
31.5[1)]	**31.13**	58	461	2900	*)	920[*)]	*)	1250[*)]	*)	840[*)]	850	1350[*)]	*)	1100[*)]	1050	1600[*)]	**X3F....**
35.5[1)]	**35.27**	51	465	2600	*)	930[*)]	700	1200[*)]	*)	860[*)]	830	1350[*)]	*)	1100[*)]	1000	1550[*)]	**M1**
40[1)]	**38.63**	47	475	2400	*)	920[*)]	680	1200[*)]	*)	850[*)]	800	1300[*)]	*)	1100[*)]	960	1500[*)]	HU 286
45	**44.62**	40	475	2100	*)	930[*)]	680	1150[*)]	*)	870[*)]	790	1250[*)]	560	1100[*)]	900	1400[*)]	HH 326
50	**48.86**	37	475	1900	*)	920[*)]	660	1150[*)]	*)	860[*)]	760	1200[*)]	550	1050[*)]	870	1350[*)]	**M5**
56	**55.79**	32	475	1650	*)	880[*)]	620	1050[*)]	*)	830[*)]	700	1150[*)]	530	1050[*)]	800	1250[*)]	348
63	**60.96**	30	475	1500	445	870[*)]	630	1050[*)]	400	840[*)]	710	1100[*)]	540	1000[*)]	770	1200[*)]	**M4**
71	**69.06**	26	475	1350	445	860[*)]	610	1000[*)]	405	830[*)]	680	1050[*)]	540	980[*)]	730	1150[*)]	372
80	**75.63**	24	475	1250	435	850[*)]	590	990[*)]	400	820[*)]	660	1050[*)]	530	960[*)]	710	1150[*)]	
90	**86.36**	21	475	1100	415	790[*)]	540	910[*)]	380	760[*)]	600	960[*)]	495	900[*)]	640	1050[*)]	
100	**94.58**	19	475	980	395	760[*)]	520	870[*)]	365	740[*)]	570	910[*)]	475	860[*)]	610	980[*)]	
112	**115.92**	16	475	810	320	-	410	-	285	-	445	-	345	-	445	-	
125	**126.96**	14	475	740	315	-	400	-	285	-	430	-	340	-	430	-	
140	**144.96**	12	475	650	305	-	380	-	275	-	405	-	330	-	405	-	**X4F....**
160	**158.77**	11	475	590	300	-	370	-	270	-	390	-	325	-	395	-	**M1**
180	**173.01**	10	475	540	350	-	410	-	335	-	440	-	375	-	435	-	HU 292
200	**189.49**	9.5	475	495	340	-	400	-	330	-	425	-	370	-	425	-	HH 330
224	**217.79**	8.3	475	430	315	-	360	-	300	-	385	-	340	-	385	-	**M5**
250	**238.53**	7.5	475	395	310	-	355	-	295	-	375	-	335	-	375	-	352
280	**272.35**	6.6	475	345	290	-	330	-	280	-	350	-	315	-	350	-	**M4**
315	**298.29**	6.0	475	315	285	-	325	-	275	-	340	-	310	-	340	-	376
355	**335.20**	5.4	475	280	280	-	310	-	270	-	325	-	300	-	330	-	
400	**367.12**	4.9	475	255	275	-	305	-	265	-	320	-	295	-	320	-	

9.3 X.T.. bevel-helical gear units

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} 20 °C kW M1				M5 M4								
X.K100..,n_1= 1000 1/min																	**6.80 kNm**
7.1	**6.88**	145	5.55	86	55	94	-	-	43	83	-	-	-	-	-	-	**X2K..**
8	**7.69**	130	5.75	80	58	99	-	-	45	87	-	-	-	-	-	-	**M1**
9	**8.71**	115	5.95	73	52	86	-	-	44	79	-	-	-	-	-	-	HU 294
10	**9.75**	103	6.20	68	52	86	-	-	44	78	-	-	-	-	-	-	**M5** 354
11.2	**10.64**	94	6.35	65	45	73	-	-	39	67	-	-	-	-	-	-	**M4** 378
12.5	**11.91**	84	6.60	60	48	78	-	-	41	72	-	-	-	-	-	-	
14	**13.47**	74	6.45	52	48	76	-	-	42	70	-	-	-	-	-	-	
16	**15.08**	66	6.80	49	48	75	-	-	42	70	-	-	-	-	-	-	
18	**17.05**	59	6.80	43	44	69	-	-	39	64	-	-	-	-	-	-	
20	**19.09**	52	6.80	39	45	71	-	-	39	66	-	-	-	-	-	-	
22.4	**21.09**	47	6.80	35	40	63	-	-	35	59	-	-	-	-	-	-	**X3K..**
25	**24.55**	41	6.80	30	41	64	-	-	38	62	-	-	-	-	-	-	**M1**
28	**27.12**	37	6.80	27	37	58	-	-	34	55	-	-	-	-	-	-	HU 298
31.5	**30.35**	33	6.80	24	37	57	-	-	34	55	-	-	-	-	-	-	HH 332
35.5	**34.35**	29	6.80	21	32	49	-	-	30	48	-	-	-	-	-	-	**M5**
40	**38.45**	26	6.80	19	33	51	-	-	31	50	-	-	-	-	-	-	358
45	**42.96**	23	6.80	17	29	45	-	-	27	43	-	-	-	-	-	-	**M4**
50	**48.08**	21	6.80	15	30	46	-	-	28	45	-	-	-	-	-	-	382
56	**52.49**	19	6.80	14	27	41	-	-	26	40	-	-	-	-	-	-	
63	**58.74**	17	6.80	13	28	43	-	-	26	42	-	-	-	-	-	-	
71	**67.20**	15	6.80	11	23	36	-	-	22	35	-	-	-	-	-	-	
80	**75.21**	13	6.80	10	24	37	-	-	23	36	-	-	-	-	-	-	
X.K100..,n_1= 1200 1/min																	**6.80 kNm**
7.1	**6.88**	174	5.55	105	52	105	-	-	*)	84	-	-	-	-	-	-	**X2K..**
8	**7.69**	156	5.75	96	55	105	-	-	27	88	-	-	-	-	-	-	**M1**
9	**8.71**	138	5.95	88	51	95	-	-	37	84	-	-	-	-	-	-	HU 294
10	**9.75**	123	6.20	82	51	94	-	-	37	83	-	-	-	-	-	-	**M5**
11.2	**10.64**	113	6.35	77	44	81	-	-	34	73	-	-	-	-	-	-	354
12.5	**11.91**	101	6.60	72	47	87	-	-	38	78	-	-	-	-	-	-	**M4** 378
14	**13.47**	89	6.45	62	49	85	-	-	39	76	-	-	-	-	-	-	
16	**15.08**	80	6.80	59	48	84	-	-	38	75	-	-	-	-	-	-	
18	**17.05**	70	6.80	52	45	77	-	-	36	70	-	-	-	-	-	-	
20	**19.09**	63	6.80	46	45	79	-	-	37	71	-	-	-	-	-	-	
22.4	**21.09**	57	6.80	42	41	71	-	-	33	64	-	-	-	-	-	-	**X3K..**
25	**24.55**	49	6.80	36	42	72	-	-	38	68	-	-	-	-	-	-	**M1**
28	**27.12**	44	6.80	33	38	65	-	-	34	61	-	-	-	-	-	-	HU 298
31.5	**30.35**	40	6.80	29	38	64	-	-	34	61	-	-	-	-	-	-	HH 332
35.5	**34.35**	35	6.80	26	33	56	-	-	30	53	-	-	-	-	-	-	**M5**
40	**38.45**	31	6.80	23	34	58	-	-	31	55	-	-	-	-	-	-	358
45	**42.96**	28	6.80	21	30	50	-	-	28	48	-	-	-	-	-	-	**M4**
50	**48.08**	25	6.80	18	31	52	-	-	28	50	-	-	-	-	-	-	382
56	**52.49**	23	6.80	17	28	47	-	-	26	45	-	-	-	-	-	-	
63	**58.74**	20	6.80	15	29	48	-	-	27	47	-	-	-	-	-	-	
71	**67.20**	18	6.80	13	24	41	-	-	23	40	-	-	-	-	-	-	
80	**75.21**	16	6.80	12	25	42	-	-	24	41	-	-	-	-	-	-	

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X.K100..,n_1= 1500 1/min																		6.80 kNm
					P_{TH}20 °C kW													
					M1				M5		M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW														
7.1	**6.88**	218	5.55	130	36	110	-	-	*)	74	-	-	-	-	-	-	**X2K..**
8	**7.69**	195	5.75	120	41	115	-	-	*)	78	-	-	-	-	-	-	**M1**
9	**8.71**	172	5.95	110	44	105	-	-	*)	84	-	-	-	-	-	-	HU 294
10	**9.75**	154	6.20	100	45	105	-	-	*)	84	-	-	-	-	-	-	**M5** 354
11.2	**10.64**	141	6.35	97	40	89	-	-	*)	76	-	-	-	-	-	-	**M4** 378
12.5	**11.91**	126	6.60	90	45	96	-	-	23	81	-	-	-	-	-	-	
14	**13.47**	111	6.45	78	48	95	-	-	27	78	-	-	-	-	-	-	
16	**15.08**	99	6.80	73	48	94	-	-	27	78	-	-	-	-	-	-	
18	**17.05**	88	6.80	65	45	87	-	-	27	73	-	-	-	-	-	-	
20	**19.09**	79	6.80	58	46	89	-	-	29	74	-	-	-	-	-	-	
22.4	**21.09**	71	6.80	52	41	80	-	-	27	67	-	-	-	-	-	-	**X3K..**
25	**24.55**	61	6.80	45	43	82	-	-	35	75	-	-	-	-	-	-	**M1**
28	**27.12**	55	6.80	41	39	74	-	-	32	67	-	-	-	-	-	-	HU 298
31.5	**30.35**	49	6.80	36	38	73	-	-	31	67	-	-	-	-	-	-	HH 332
35.5	**34.35**	44	6.80	32	34	63	-	-	30	60	-	-	-	-	-	-	**M5**
40	**38.45**	39	6.80	29	35	66	-	-	31	62	-	-	-	-	-	-	358
45	**42.96**	35	6.80	26	31	57	-	-	27	54	-	-	-	-	-	-	**M4**
50	**48.08**	31	6.80	23	32	59	-	-	28	56	-	-	-	-	-	-	382
56	**52.49**	29	6.80	21	29	53	-	-	26	51	-	-	-	-	-	-	
63	**58.74**	26	6.80	19	30	55	-	-	27	52	-	-	-	-	-	-	
71	**67.20**	22	6.80	17	25	47	-	-	23	45	-	-	-	-	-	-	
80	**75.21**	20	6.80	15	26	48	-	-	24	46	-	-	-	-	-	-	
X.K100..,n_1= 1800 1/min																		6.80 kNm
7.1	**6.88**	262	5.20	145	*)	110	-	-	*)	*)	-	-	-	-	-	-	**X2K..**
8	**7.69**	234	5.40	135	*)	115	-	-	*)	43	-	-	-	-	-	-	**M1**
9	**8.71**	207	5.60	125	31	105	-	-	*)	75	-	-	-	-	-	-	HU 294
10	**9.75**	185	5.85	115	33	105	-	-	*)	76	-	-	-	-	-	-	**M5**
11.2	**10.64**	169	6.00	110	31	93	-	-	*)	73	-	-	-	-	-	-	354
12.5	**11.91**	151	6.25	100	36	100	-	-	*)	78	-	-	-	-	-	-	**M4** 378
14	**13.47**	134	6.35	92	47	100	-	-	*)	73	-	-	-	-	-	-	
16	**15.08**	119	6.70	87	46	100	-	-	*)	73	-	-	-	-	-	-	
18	**17.05**	106	6.80	78	43	93	-	-	*)	69	-	-	-	-	-	-	
20	**19.09**	94	6.80	70	44	95	-	-	*)	70	-	-	-	-	-	-	
22.4	**21.09**	85	6.80	63	40	85	-	-	*)	64	-	-	-	-	-	-	**X3K..**
25	**24.55**	73	6.80	54	43	88	-	-	30	77	-	-	-	-	-	-	**M1**
28	**27.12**	66	6.80	49	39	80	-	-	28	70	-	-	-	-	-	-	HU 298
31.5	**30.35**	59	6.80	44	39	79	-	-	27	69	-	-	-	-	-	-	HH 332
35.5	**34.35**	52	6.80	39	34	69	-	-	28	63	-	-	-	-	-	-	**M5**
40	**38.45**	47	6.80	35	36	71	-	-	29	66	-	-	-	-	-	-	358
45	**42.96**	42	6.80	31	31	62	-	-	26	57	-	-	-	-	-	-	**M4**
50	**48.08**	37	6.80	28	32	64	-	-	27	59	-	-	-	-	-	-	382
56	**52.49**	34	6.80	26	29	58	-	-	25	54	-	-	-	-	-	-	
63	**58.74**	31	6.80	23	30	60	-	-	26	56	-	-	-	-	-	-	
71	**67.20**	27	6.80	20	26	51	-	-	23	48	-	-	-	-	-	-	
80	**75.21**	24	6.80	18	27	52	-	-	23	49	-	-	-	-	-	-	

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X.K110..,n_1= 1000 1/min																	8.50 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
8	**7.91**	126	7.35	99	60	100	-	-	47	90	-	-	-	-	-	-	**X2K..**
9	**8.86**	113	7.40	89	63	105	-	-	50	94	-	-	-	-	-	-	**M1**
10	**10.02**	100	7.48	80	56	92	-	-	48	85	-	-	-	-	-	-	HU 294
11.2	**11.22**	89	7.60	73	56	91	-	-	48	84	-	-	-	-	-	-	**M5** 354
12.5	**12.24**	82	7.70	68	50	81	-	-	43	75	-	-	-	-	-	-	**M4** 378
14	**13.71**	73	7.80	62	51	83	-	-	45	77	-	-	-	-	-	-	
16	**15.50**	65	7.50	52	52	82	-	-	46	76	-	-	-	-	-	-	
18	**17.36**	58	7.80	49	51	81	-	-	45	75	-	-	-	-	-	-	
20	**19.62**	51	8.00	44	46	72	-	-	41	68	-	-	-	-	-	-	
22.4	**21.97**	46	8.50	42	47	74	-	-	42	69	-	-	-	-	-	-	
25	**24.26**	41	8.50	38	42	66	-	-	38	62	-	-	-	-	-	-	**X3K..**
28	**28.26**	35	8.50	33	43	68	-	-	40	65	-	-	-	-	-	-	**M1**
31.5	**31.21**	32	8.50	30	39	61	-	-	36	58	-	-	-	-	-	-	HU 298
35.5	**34.94**	29	8.50	26	39	60	-	-	36	58	-	-	-	-	-	-	HH 332
40	**39.53**	25	8.50	23	33	52	-	-	32	50	-	-	-	-	-	-	**M5**
45	**44.26**	23	8.50	21	35	54	-	-	33	52	-	-	-	-	-	-	358
50	**49.44**	20	8.50	19	31	48	-	-	29	47	-	-	-	-	-	-	**M4**
56	**55.35**	18	8.50	17	31	49	-	-	30	47	-	-	-	-	-	-	382
63	**60.40**	17	8.50	15	28	44	-	-	27	43	-	-	-	-	-	-	
71	**67.62**	15	8.50	14	29	45	-	-	28	44	-	-	-	-	-	-	
80	**77.33**	13	8.50	12	25	38	-	-	24	37	-	-	-	-	-	-	
90	**86.58**	12	8.50	11	25	38	-	-	24	37	-	-	-	-	-	-	
X.K110..,n_1= 1200 1/min																	8.50 kNm
8	**7.91**	152	7.35	120	56	110	-	-	*)	92	-	-	-	-	-	-	**X2K..**
9	**8.86**	135	7.40	105	59	115	-	-	32	96	-	-	-	-	-	-	**M1**
10	**10.02**	120	7.48	96	55	100	-	-	41	91	-	-	-	-	-	-	HU 294
11.2	**11.22**	107	7.60	87	54	100	-	-	42	90	-	-	-	-	-	-	**M5**
12.5	**12.24**	98	7.70	82	49	90	-	-	40	81	-	-	-	-	-	-	354
14	**13.71**	88	7.80	74	51	92	-	-	41	84	-	-	-	-	-	-	**M4** 378
16	**15.50**	77	7.50	63	53	92	-	-	42	82	-	-	-	-	-	-	
18	**17.36**	69	7.80	58	52	91	-	-	42	82	-	-	-	-	-	-	
20	**19.62**	61	8.00	53	47	81	-	-	38	73	-	-	-	-	-	-	
22.4	**21.97**	55	8.50	50	48	83	-	-	39	75	-	-	-	-	-	-	
25	**24.26**	49	8.50	46	43	74	-	-	36	68	-	-	-	-	-	-	**X3K..**
28	**28.26**	42	8.50	39	45	76	-	-	40	72	-	-	-	-	-	-	**M1**
31.5	**31.21**	38	8.50	35	40	69	-	-	36	65	-	-	-	-	-	-	HU 298
35.5	**34.94**	34	8.50	32	40	68	-	-	36	64	-	-	-	-	-	-	HH 332
40	**39.53**	30	8.50	28	35	58	-	-	32	56	-	-	-	-	-	-	**M5**
45	**44.26**	27	8.50	25	36	61	-	-	33	58	-	-	-	-	-	-	358
50	**49.44**	24	8.50	22	32	54	-	-	30	52	-	-	-	-	-	-	**M4**
56	**55.35**	22	8.50	20	32	55	-	-	30	53	-	-	-	-	-	-	382
63	**60.40**	20	8.50	18	29	49	-	-	28	48	-	-	-	-	-	-	
71	**67.62**	18	8.50	17	30	51	-	-	28	49	-	-	-	-	-	-	
80	**77.33**	16	8.50	14	26	43	-	-	24	42	-	-	-	-	-	-	
90	**86.58**	14	8.50	13	26	43	-	-	24	42	-	-	-	-	-	-	

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X.K110..,n_1= 1500 1/min																		8.50 kNm
					P_{TH}20 °C kW													
					M1				M5		M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
8	**7.91**	190	7.35	150	39	120	-	-	*)	83	-	-	-	-	-	-	**X2K..**
9	**8.86**	169	7.40	135	45	125	-	-	*)	88	-	-	-	-	-	-	**M1**
10	**10.02**	150	7.48	120	48	110	-	-	*)	92	-	-	-	-	-	-	HU 294
11.2	**11.22**	134	7.60	110	49	110	-	-	*)	92	-	-	-	-	-	-	**M5** 354
12.5	**12.24**	123	7.70	100	46	99	-	-	*)	85	-	-	-	-	-	-	**M4** 378
14	**13.71**	109	7.80	92	48	100	-	-	27	88	-	-	-	-	-	-	
16	**15.50**	97	7.50	79	53	105	-	-	32	86	-	-	-	-	-	-	
18	**17.36**	86	7.80	73	52	100	-	-	32	85	-	-	-	-	-	-	
20	**19.62**	76	8.00	66	47	91	-	-	30	77	-	-	-	-	-	-	
22.4	**21.97**	68	8.50	63	48	94	-	-	32	79	-	-	-	-	-	-	
25	**24.26**	62	8.50	57	43	84	-	-	29	71	-	-	-	-	-	-	**X3K..**
28	**28.26**	53	8.50	49	46	86	-	-	37	79	-	-	-	-	-	-	**M1**
31.5	**31.21**	48	8.50	44	41	78	-	-	34	71	-	-	-	-	-	-	HU 298
35.5	**34.94**	43	8.50	40	41	77	-	-	34	71	-	-	-	-	-	-	HH 332
40	**39.53**	38	8.50	35	36	67	-	-	32	63	-	-	-	-	-	-	**M5**
45	**44.26**	34	8.50	31	37	69	-	-	33	65	-	-	-	-	-	-	358
50	**49.44**	30	8.50	28	33	62	-	-	29	58	-	-	-	-	-	-	**M4**
56	**55.35**	27	8.50	25	33	62	-	-	30	59	-	-	-	-	-	-	382
63	**60.40**	25	8.50	23	30	56	-	-	28	54	-	-	-	-	-	-	
71	**67.62**	22	8.50	21	31	58	-	-	28	55	-	-	-	-	-	-	
80	**77.33**	19	8.50	18	27	49	-	-	25	47	-	-	-	-	-	-	
90	**86.58**	17	8.50	16	27	49	-	-	25	48	-	-	-	-	-	-	
X.K110..,n_1= 1800 1/min																		8.50 kNm
8	**7.91**	228	6.98	170	*)	120	-	-	*)	46	-	-	-	-	-	-	**X2K..**
9	**8.86**	203	7.03	155	*)	125	-	-	*)	54	-	-	-	-	-	-	**M1**
10	**10.02**	180	7.10	135	35	115	-	-	*)	84	-	-	-	-	-	-	HU 294
11.2	**11.22**	160	7.22	125	37	115	-	-	*)	84	-	-	-	-	-	-	**M5**
12.5	**12.24**	147	7.30	115	36	105	-	-	*)	83	-	-	-	-	-	-	354
14	**13.71**	131	7.40	105	40	105	-	-	*)	85	-	-	-	-	-	-	**M4** 378
16	**15.50**	116	7.50	94	51	110	-	-	*)	81	-	-	-	-	-	-	
18	**17.36**	104	7.90	89	51	110	-	-	*)	81	-	-	-	-	-	-	
20	**19.62**	92	8.20	82	46	97	-	-	*)	73	-	-	-	-	-	-	
22.4	**21.97**	82	8.50	75	47	100	-	-	*)	76	-	-	-	-	-	-	
25	**24.26**	74	8.50	68	43	90	-	-	*)	69	-	-	-	-	-	-	**X3K..**
28	**28.26**	64	8.50	59	46	93	-	-	32	82	-	-	-	-	-	-	**M1**
31.5	**31.21**	58	8.50	53	41	84	-	-	30	74	-	-	-	-	-	-	HU 298
35.5	**34.94**	52	8.50	47	41	83	-	-	29	73	-	-	-	-	-	-	HH 332
40	**39.53**	46	8.50	42	36	72	-	-	30	67	-	-	-	-	-	-	**M5**
45	**44.26**	41	8.50	37	38	75	-	-	31	69	-	-	-	-	-	-	358
50	**49.44**	36	8.50	34	34	67	-	-	28	62	-	-	-	-	-	-	**M4**
56	**55.35**	33	8.50	30	34	68	-	-	28	63	-	-	-	-	-	-	382
63	**60.40**	30	8.50	28	31	61	-	-	27	58	-	-	-	-	-	-	
71	**67.62**	27	8.50	25	32	63	-	-	28	59	-	-	-	-	-	-	
80	**77.33**	23	8.50	22	27	54	-	-	24	51	-	-	-	-	-	-	
90	**86.58**	21	8.50	19	28	54	-	-	24	51	-	-	-	-	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5 M4								
		min^{-1}	kNm	kW			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
X.K120..,n_1= 1000 1/min																	**12.8 kNm**
6.3	**6.36**	157	10.2	170	74	135	-	-	*)	105	-	-	-	-	-	-	**X2K..**
7.1	**7.24**	138	10.5	155	76	135	-	-	*)	105	-	-	-	-	-	-	**M1**
8	**7.95**	126	10.7	145	71	120	-	-	45	105	-	-	-	-	-	-	HU 294
9	**9.05**	110	11.0	130	74	125	-	-	50	105	-	-	-	-	-	-	**M5** 354
10	**9.85**	102	11.2	125	62	105	-	-	45	91	-	-	-	-	-	-	**M4** 378
11.2	**11.21**	89	11.5	110	64	105	-	-	49	94	-	-	-	-	-	-	
12.5	**12.72**	79	11.3	96	63	100	-	-	50	90	-	-	-	-	-	-	
14	**14.48**	69	11.5	86	65	105	-	-	51	92	-	-	-	-	-	-	
16	**16.36**	61	11.6	77	60	94	-	-	53	88	-	-	-	-	-	-	
18	**18.63**	54	12.0	70	61	96	-	-	54	90	-	-	-	-	-	-	
20	**20.02**	50	12.1	66	57	92	-	-	46	82	-	-	-	-	-	-	**X3K..**
22.4	**22.79**	44	12.3	59	58	94	-	-	47	83	-	-	-	-	-	-	**M1**
25	**25.75**	39	12.4	52	54	85	-	-	48	80	-	-	-	-	-	-	HU 298
28	**29.32**	34	12.4	46	54	86	-	-	49	81	-	-	-	-	-	-	HH 332
31.5	**30.96**	32	12.4	43	48	76	-	-	43	71	-	-	-	-	-	-	**M5**
35.5	**35.25**	28	12.4	38	49	77	-	-	44	72	-	-	-	-	-	-	358
40	**40.01**	25	12.4	34	42	66	-	-	39	63	-	-	-	-	-	-	**M4**
45	**45.55**	22	12.8	30	43	68	-	-	40	65	-	-	-	-	-	-	382
50	**47.92**	21	12.8	29	38	60	-	-	36	58	-	-	-	-	-	-	
56	**54.55**	18	12.8	26	39	60	-	-	36	58	-	-	-	-	-	-	
63	**61.35**	16	12.8	23	34	54	-	-	32	52	-	-	-	-	-	-	
71	**69.84**	14	12.8	20	34	54	-	-	33	52	-	-	-	-	-	-	
80	**82.12**	12	10.9	15	33	-	-	-	33	-	-	-	-	-	-	-	
90	**93.49**	11	12.3	14	34	-	-	-	34	-	-	-	-	-	-	-	
100	**104.18**	9.6	12.8	13	32	-	-	-	32	-	-	-	-	-	-	-	
112	**118.60**	8.4	12.8	12	33	-	-	-	32	-	-	-	-	-	-	-	
125	**125.27**	8.0	12.8	11	29	-	-	-	29	-	-	-	-	-	-	-	**X4K..**
140	**142.60**	7.0	12.8	10	30	-	-	-	30	-	-	-	-	-	-	-	**M1**
160	**149.93**	6.7	12.8	9	27	-	-	-	27	-	-	-	-	-	-	-	HU 304
180	**170.68**	5.9	12.8	8	28	-	-	-	27	-	-	-	-	-	-	-	**M5**
200	**206.42**	4.8	12.8	7	24	-	-	-	24	-	-	-	-	-	-	-	362
224	**234.98**	4.3	12.8	6	25	-	-	-	24	-	-	-	-	-	-	-	**M4**
250	**248.19**	4.0	12.8	6	22	-	-	-	22	-	-	-	-	-	-	-	386
280	**282.53**	3.5	12.8	5	22	-	-	-	22	-	-	-	-	-	-	-	
315	**297.06**	3.4	12.8	5	21	-	-	-	20	-	-	-	-	-	-	-	
355	**338.17**	3.0	12.8	4	21	-	-	-	21	-	-	-	-	-	-	-	
X.K120..,n_1= 1200 1/min																	**12.8 kNm**
6.3	**6.36**	189	10.2	205	56	145	-	-	*)	86	-	-	-	-	-	-	**X2K..**
7.1	**7.24**	166	10.5	185	59	145	-	-	*)	90	-	-	-	-	-	-	**M1**
8	**7.95**	151	10.7	175	60	130	-	-	*)	105	-	-	-	-	-	-	HU 294
9	**9.05**	133	11.0	155	67	135	-	-	*)	110	-	-	-	-	-	-	**M5** 354
10	**9.85**	122	11.2	150	56	115	-	-	*)	96	-	-	-	-	-	-	**M4** 378
11.2	**11.21**	107	11.5	135	60	115	-	-	*)	99	-	-	-	-	-	-	
12.5	**12.72**	94	11.3	115	63	115	-	-	35	93	-	-	-	-	-	-	
14	**14.48**	83	11.5	105	64	115	-	-	38	95	-	-	-	-	-	-	
16	**16.36**	73	11.6	92	60	105	-	-	49	96	-	-	-	-	-	-	
18	**18.63**	64	12.0	84	62	110	-	-	50	98	-	-	-	-	-	-	
20	**20.02**	60	12.1	79	57	100	-	-	39	85	-	-	-	-	-	-	**X3K..**
22.4	**22.79**	53	12.3	70	58	105	-	-	40	87	-	-	-	-	-	-	**M1**
25	**25.75**	47	12.4	63	55	95	-	-	46	87	-	-	-	-	-	-	HU 298
28	**29.32**	41	12.4	55	55	96	-	-	46	88	-	-	-	-	-	-	HH 332
31.5	**30.96**	39	12.4	52	49	85	-	-	41	78	-	-	-	-	-	-	**M5**
35.5	**35.25**	34	12.4	46	50	86	-	-	42	79	-	-	-	-	-	-	358
40	**40.01**	30	12.4	40	43	74	-	-	39	70	-	-	-	-	-	-	**M4**
45	**45.55**	26	12.8	37	45	76	-	-	40	72	-	-	-	-	-	-	382
50	**47.92**	25	12.8	35	40	68	-	-	36	64	-	-	-	-	-	-	
56	**54.55**	22	12.8	31	40	68	-	-	36	65	-	-	-	-	-	-	
63	**61.35**	20	12.8	27	36	60	-	-	33	58	-	-	-	-	-	-	
71	**69.84**	17	12.8	24	36	61	-	-	33	58	-	-	-	-	-	-	
80	**82.12**	15	10.9	17	35	-	-	-	34	-	-	-	-	-	-	-	
90	**93.49**	13	12.3	17	36	-	-	-	35	-	-	-	-	-	-	-	
100	**104.18**	12	12.8	16	34	-	-	-	33	-	-	-	-	-	-	-	
112	**118.60**	10	12.8	14	34	-	-	-	33	-	-	-	-	-	-	-	
125	**125.27**	9.6	12.8	13	31	-	-	-	30	-	-	-	-	-	-	-	**X4K..**
140	**142.60**	8.4	12.8	12	31	-	-	-	31	-	-	-	-	-	-	-	**M1**
160	**149.93**	8.0	12.8	11	28	-	-	-	28	-	-	-	-	-	-	-	HU 304
180	**170.68**	7.0	12.8	10	29	-	-	-	28	-	-	-	-	-	-	-	**M5**
200	**206.42**	5.8	12.8	8	25	-	-	-	25	-	-	-	-	-	-	-	362
224	**234.98**	5.1	12.8	7	26	-	-	-	25	-	-	-	-	-	-	-	**M4**
250	**248.19**	4.8	12.8	7	23	-	-	-	23	-	-	-	-	-	-	-	386
280	**282.53**	4.2	12.8	6	23	-	-	-	23	-	-	-	-	-	-	-	
315	**297.06**	4.0	12.8	6	22	-	-	-	21	-	-	-	-	-	-	-	
355	**338.17**	3.5	12.8	5	22	-	-	-	22	-	-	-	-	-	-	-	

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X.K120..,n_1= 1500 1/min																	12.8 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	**6.36**	236	10.2	260	*)	150	-	-	*)	*)	-	-	-	-	-	-	**X2K..**
7.1	**7.24**	207	10.5	235	*)	150	-	-	*)	*)	-	-	-	-	-	-	**M1**
8	**7.95**	189	10.7	215	*)	140	-	-	*)	82	-	-	-	-	-	-	HU 294
9	**9.05**	166	11.0	195	*)	145	-	-	*)	92	-	-	-	-	-	-	**M5** 354
10	**9.85**	152	11.2	185	*)	125	-	-	*)	94	-	-	-	-	-	-	**M4** 378
11.2	**11.21**	134	11.5	165	46	125	-	-	*)	97	-	-	-	-	-	-	
12.5	**12.72**	118	11.3	145	57	125	-	-	*)	86	-	-	-	-	-	-	
14	**14.48**	104	11.5	130	61	130	-	-	*)	89	-	-	-	-	-	-	
16	**16.36**	92	11.6	115	60	120	-	-	35	100	-	-	-	-	-	-	
18	**18.63**	81	12.0	105	61	120	-	-	38	105	-	-	-	-	-	-	
20	**20.02**	75	12.1	98	55	115	-	-	*)	82	-	-	-	-	-	-	**X3K..**
22.4	**22.79**	66	12.3	88	57	115	-	-	*)	83	-	-	-	-	-	-	**M1**
25	**25.75**	58	12.4	78	55	105	-	-	38	92	-	-	-	-	-	-	HU 298
28	**29.32**	51	12.4	69	56	110	-	-	39	94	-	-	-	-	-	-	HH 332
31.5	**30.96**	48	12.4	65	49	96	-	-	35	83	-	-	-	-	-	-	**M5**
35.5	**35.25**	43	12.4	57	50	97	-	-	35	84	-	-	-	-	-	-	358
40	**40.01**	37	12.4	50	44	83	-	-	37	77	-	-	-	-	-	-	**M4**
45	**45.55**	33	12.8	46	45	86	-	-	38	80	-	-	-	-	-	-	382
50	**47.92**	31	12.8	44	41	77	-	-	35	72	-	-	-	-	-	-	
56	**54.55**	27	12.8	39	41	77	-	-	35	72	-	-	-	-	-	-	
63	**61.35**	24	12.8	34	37	69	-	-	32	65	-	-	-	-	-	-	
71	**69.84**	21	12.8	30	37	69	-	-	32	65	-	-	-	-	-	-	
80	**82.12**	18	10.9	22	36	-	-	-	35	-	-	-	-	-	-	-	
90	**93.49**	16	12.3	22	37	-	-	-	36	-	-	-	-	-	-	-	
100	**104.18**	14	12.8	20	35	-	-	-	34	-	-	-	-	-	-	-	
112	**118.60**	13	12.8	18	35	-	-	-	34	-	-	-	-	-	-	-	
125	**125.27**	12	12.8	17	32	-	-	-	31	-	-	-	-	-	-	-	**X4K..**
140	**142.60**	11	12.8	15	33	-	-	-	31	-	-	-	-	-	-	-	**M1**
160	**149.93**	10	12.8	14	30	-	-	-	28	-	-	-	-	-	-	-	HU 304
180	**170.68**	8.8	12.8	12	30	-	-	-	29	-	-	-	-	-	-	-	**M5**
200	**206.42**	7.3	12.8	10	27	-	-	-	26	-	-	-	-	-	-	-	362
224	**234.98**	6.4	12.8	9	27	-	-	-	26	-	-	-	-	-	-	-	**M4**
250	**248.19**	6.0	12.8	9	24	-	-	-	24	-	-	-	-	-	-	-	386
280	**282.53**	5.3	12.8	8	25	-	-	-	24	-	-	-	-	-	-	-	
315	**297.06**	5.0	12.8	7	23	-	-	-	22	-	-	-	-	-	-	-	
355	**338.17**	4.4	12.8	6	23	-	-	-	23	-	-	-	-	-	-	-	
X.K120..,n_1= 1800 1/min																	12.8 kNm
6.3	**6.36**	283	9.70	295	*)	135	-	-	*)	*)	-	-	-	-	-	-	**X2K..**
7.1	**7.24**	249	10.0	265	*)	140	-	-	*)	*)	-	-	-	-	-	-	**M1**
8	**7.95**	226	10.1	245	*)	140	-	-	*)	*)	-	-	-	-	-	-	HU 294
9	**9.05**	199	10.4	220	*)	145	-	-	*)	*)	-	-	-	-	-	-	**M5** 354
10	**9.85**	183	10.6	210	*)	125	-	-	*)	68	-	-	-	-	-	-	**M4** 378
11.2	**11.21**	161	10.9	190	*)	130	-	-	*)	76	-	-	-	-	-	-	
12.5	**12.72**	142	11.3	175	44	130	-	-	*)	55	-	-	-	-	-	-	
14	**14.48**	124	11.5	155	49	135	-	-	*)	61	-	-	-	-	-	-	
16	**16.36**	110	11.6	140	55	125	-	-	*)	97	-	-	-	-	-	-	
18	**18.63**	97	12.0	125	59	130	-	-	*)	99	-	-	-	-	-	-	
20	**20.02**	90	12.1	120	49	120	-	-	*)	64	-	-	-	-	-	-	**X3K..**
22.4	**22.79**	79	12.3	105	52	120	-	-	*)	66	-	-	-	-	-	-	**M1**
25	**25.75**	70	12.4	94	53	115	-	-	*)	90	-	-	-	-	-	-	HU 298
28	**29.32**	61	12.4	83	54	115	-	-	*)	92	-	-	-	-	-	-	HH 332
31.5	**30.96**	58	12.4	78	48	105	-	-	*)	82	-	-	-	-	-	-	**M5**
35.5	**35.25**	51	12.4	69	49	105	-	-	20	83	-	-	-	-	-	-	358
40	**40.01**	45	12.4	60	44	90	-	-	33	80	-	-	-	-	-	-	**M4**
45	**45.55**	40	12.8	55	45	93	-	-	34	83	-	-	-	-	-	-	382
50	**47.92**	38	12.8	53	41	83	-	-	32	75	-	-	-	-	-	-	
56	**54.55**	33	12.8	46	41	83	-	-	33	76	-	-	-	-	-	-	
63	**61.35**	29	12.8	41	37	74	-	-	31	69	-	-	-	-	-	-	
71	**69.84**	26	12.8	36	37	75	-	-	31	69	-	-	-	-	-	-	
80	**82.12**	22	10.9	26	37	-	-	-	35	-	-	-	-	-	-	-	
90	**93.49**	19	12.3	26	38	-	-	-	36	-	-	-	-	-	-	-	
100	**104.18**	17	12.8	24	36	-	-	-	34	-	-	-	-	-	-	-	
112	**118.60**	15	12.8	21	36	-	-	-	34	-	-	-	-	-	-	-	
125	**125.27**	14	12.8	20	33	-	-	-	31	-	-	-	-	-	-	-	**X4K..**
140	**142.60**	13	12.8	18	34	-	-	-	31	-	-	-	-	-	-	-	**M1**
160	**149.93**	12	12.8	17	31	-	-	-	28	-	-	-	-	-	-	-	HU 304
180	**170.68**	11	12.8	15	31	-	-	-	29	-	-	-	-	-	-	-	**M5**
200	**206.42**	8.7	12.8	12	28	-	-	-	27	-	-	-	-	-	-	-	362
224	**234.98**	7.7	12.8	11	28	-	-	-	27	-	-	-	-	-	-	-	**M4**
250	**248.19**	7.3	12.8	10	25	-	-	-	24	-	-	-	-	-	-	-	386
280	**282.53**	6.4	12.8	9	26	-	-	-	25	-	-	-	-	-	-	-	
315	**297.06**	6.1	12.8	9	24	-	-	-	23	-	-	-	-	-	-	-	
355	**338.17**	5.3	12.8	8	24	-	-	-	23	-	-	-	-	-	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5	M4							
		min^{-1}	kNm	kW			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
X.K130..,n_1= 1000 1/min																	**16 kNm**
8	**7.95**	126	12.8	170	82	145	-	-	*)	115	-	-	-	-	-	-	**X2K..**
9	**9.03**	111	13.1	155	83	145	-	-	*)	115	-	-	-	-	-	-	**M1**
10	**9.93**	101	13.5	145	76	130	-	-	53	110	-	-	-	-	-	-	HU 294
11.2	**11.28**	89	13.8	130	80	135	-	-	58	115	-	-	-	-	-	-	**M5** 354
12.5	**12.31**	81	13.9	120	69	115	-	-	55	105	-	-	-	-	-	-	**M4** 378
14	**13.98**	72	14.5	110	68	115	-	-	56	100	-	-	-	-	-	-	
16	**15.90**	63	14.2	97	68	110	-	-	55	97	-	-	-	-	-	-	
18	**18.06**	55	14.4	86	70	110	-	-	56	99	-	-	-	-	-	-	
20	**20.45**	49	14.5	77	64	100	-	-	57	95	-	-	-	-	-	-	
22.4	**23.23**	43	15.0	70	65	105	-	-	58	97	-	-	-	-	-	-	
25	**25.03**	40	15.2	66	61	98	-	-	51	88	-	-	-	-	-	-	**X3K..**
28	**28.43**	35	15.5	59	63	100	-	-	52	90	-	-	-	-	-	-	**M1**
31.5	**32.19**	31	15.5	52	58	91	-	-	52	85	-	-	-	-	-	-	HU 298
35.5	**36.56**	27	15.5	46	58	92	-	-	53	87	-	-	-	-	-	-	HH 332
40	**38.71**	26	15.5	43	53	83	-	-	48	79	-	-	-	-	-	-	**M5**
45	**43.96**	23	15.5	38	51	80	-	-	46	76	-	-	-	-	-	-	358
50	**50.02**	20	15.5	34	46	71	-	-	43	69	-	-	-	-	-	-	**M4**
56	**56.81**	18	16.0	31	45	71	-	-	42	68	-	-	-	-	-	-	382
63	**59.90**	17	16.0	29	41	64	-	-	39	62	-	-	-	-	-	-	
71	**68.03**	15	16.0	26	41	64	-	-	39	62	-	-	-	-	-	-	
80	**76.69**	13	16.0	23	37	57	-	-	35	55	-	-	-	-	-	-	
90	**87.09**	11	16.0	20	37	57	-	-	35	56	-	-	-	-	-	-	
100	**102.65**	9.7	13.6	15	37	-	-	-	36	-	-	-	-	-	-	-	
112	**116.58**	8.6	15.5	15	37	-	-	-	36	-	-	-	-	-	-	-	
125	**130.23**	7.7	16.0	13	35	-	-	-	34	-	-	-	-	-	-	-	
140	**147.90**	6.8	16.0	12	34	-	-	-	34	-	-	-	-	-	-	-	
160	**156.58**	6.4	16.0	11	31	-	-	-	31	-	-	-	-	-	-	-	**X4K..**
180	**177.83**	5.6	16.0	10	31	-	-	-	31	-	-	-	-	-	-	-	**M1**
200	**187.42**	5.3	16.0	9	29	-	-	-	29	-	-	-	-	-	-	-	HU 304
224	**212.85**	4.7	16.0	8	29	-	-	-	29	-	-	-	-	-	-	-	**M5**
250	**258.02**	3.9	16.0	7	26	-	-	-	26	-	-	-	-	-	-	-	362
280	**293.04**	3.4	16.0	6	26	-	-	-	25	-	-	-	-	-	-	-	**M4**
315	**310.23**	3.2	16.0	6	24	-	-	-	23	-	-	-	-	-	-	-	386
355	**352.34**	2.8	16.0	5	23	-	-	-	23	-	-	-	-	-	-	-	
400	**371.33**	2.7	16.0	5	22	-	-	-	22	-	-	-	-	-	-	-	
450	**421.72**	2.4	16.0	4	22	-	-	-	22	-	-	-	-	-	-	-	
X.K130..,n_1= 1200 1/min																	**16 kNm**
8	**7.95**	151	12.8	205	64	155	-	-	*)	100	-	-	-	-	-	-	**X2K..**
9	**9.03**	133	13.1	185	68	155	-	-	*)	105	-	-	-	-	-	-	**M1**
10	**9.93**	121	13.5	175	68	140	-	-	*)	115	-	-	-	-	-	-	HU 294
11.2	**11.28**	106	13.8	155	75	145	-	-	*)	120	-	-	-	-	-	-	**M5** 354
12.5	**12.31**	97	13.9	145	65	125	-	-	38	110	-	-	-	-	-	-	**M4** 378
14	**13.98**	86	14.5	135	67	125	-	-	40	105	-	-	-	-	-	-	
16	**15.90**	75	14.2	115	68	120	-	-	42	100	-	-	-	-	-	-	
18	**18.06**	66	14.4	105	70	125	-	-	45	105	-	-	-	-	-	-	
20	**20.45**	59	14.5	92	65	115	-	-	54	105	-	-	-	-	-	-	
22.4	**23.23**	52	15.0	84	66	115	-	-	55	105	-	-	-	-	-	-	
25	**25.03**	48	15.2	79	62	110	-	-	43	93	-	-	-	-	-	-	**X3K..**
28	**28.43**	42	15.5	71	63	110	-	-	44	95	-	-	-	-	-	-	**M1**
31.5	**32.19**	37	15.5	63	59	100	-	-	50	93	-	-	-	-	-	-	HU 298
35.5	**36.56**	33	15.5	55	60	105	-	-	50	95	-	-	-	-	-	-	HH 332
40	**38.71**	31	15.5	52	54	93	-	-	46	86	-	-	-	-	-	-	**M5**
45	**43.96**	27	15.5	46	52	90	-	-	44	83	-	-	-	-	-	-	358
50	**50.02**	24	15.5	40	47	80	-	-	43	76	-	-	-	-	-	-	**M4**
56	**56.81**	21	16.0	37	47	80	-	-	42	76	-	-	-	-	-	-	382
63	**59.90**	20	16.0	35	42	72	-	-	39	69	-	-	-	-	-	-	
71	**68.03**	18	16.0	31	43	73	-	-	39	69	-	-	-	-	-	-	
80	**76.69**	16	16.0	27	38	64	-	-	35	62	-	-	-	-	-	-	
90	**87.09**	14	16.0	24	38	65	-	-	35	62	-	-	-	-	-	-	
100	**102.65**	12	13.6	17	38	-	-	-	37	-	-	-	-	-	-	-	
112	**116.58**	10	15.5	17	38	-	-	-	37	-	-	-	-	-	-	-	
125	**130.23**	9.2	16.0	16	36	-	-	-	35	-	-	-	-	-	-	-	
140	**147.90**	8.1	16.0	14	36	-	-	-	35	-	-	-	-	-	-	-	
160	**156.58**	7.7	16.0	13	33	-	-	-	32	-	-	-	-	-	-	-	**X4K..**
180	**177.83**	6.7	16.0	12	33	-	-	-	32	-	-	-	-	-	-	-	**M1**
200	**187.42**	6.4	16.0	11	30	-	-	-	30	-	-	-	-	-	-	-	HU 304
224	**212.85**	5.6	16.0	10	30	-	-	-	30	-	-	-	-	-	-	-	**M5**
250	**258.02**	4.7	16.0	8	27	-	-	-	27	-	-	-	-	-	-	-	362
280	**293.04**	4.1	16.0	7	27	-	-	-	27	-	-	-	-	-	-	-	**M4**
315	**310.23**	3.9	16.0	7	25	-	-	-	24	-	-	-	-	-	-	-	386
355	**352.34**	3.4	16.0	6	25	-	-	-	24	-	-	-	-	-	-	-	
400	**371.33**	3.2	16.0	6	23	-	-	-	23	-	-	-	-	-	-	-	
450	**421.72**	2.8	16.0	5	23	-	-	-	23	-	-	-	-	-	-	-	

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X.K130..,n_1= 1500 1/min																	16 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	**7.95**	189	12.8	260	*)	160	-	-	*)	*)	-	-	-	-	-	-	**X2K..**
9	**9.03**	166	13.1	235	*)	160	-	-	*)	*)	-	-	-	-	-	-	**M1**
10	**9.93**	151	13.5	220	*)	150	-	-	*)	98	-	-	-	-	-	-	HU 294
11.2	**11.28**	133	13.8	195	52	160	-	-	*)	105	-	-	-	-	-	-	**M5** 354
12.5	**12.31**	122	13.9	185	50	135	-	-	*)	105	-	-	-	-	-	-	**M4** 378
14	**13.98**	107	14.5	170	53	135	-	-	*)	105	-	-	-	-	-	-	
16	**15.90**	94	14.2	145	64	135	-	-	*)	96	-	-	-	-	-	-	
18	**18.06**	83	14.4	130	67	140	-	-	*)	99	-	-	-	-	-	-	
20	**20.45**	73	14.5	115	65	125	-	-	41	110	-	-	-	-	-	-	
22.4	**23.23**	65	15.0	105	66	130	-	-	44	110	-	-	-	-	-	-	
25	**25.03**	60	15.2	99	60	120	-	-	*)	91	-	-	-	-	-	-	**X3K..**
28	**28.43**	53	15.5	89	61	125	-	-	*)	92	-	-	-	-	-	-	**M1**
31.5	**32.19**	47	15.5	78	59	115	-	-	43	100	-	-	-	-	-	-	HU 298
35.5	**36.56**	41	15.5	69	60	115	-	-	43	100	-	-	-	-	-	-	HH 332
40	**38.71**	39	15.5	65	55	105	-	-	40	93	-	-	-	-	-	-	**M5**
45	**43.96**	34	15.5	57	52	100	-	-	38	89	-	-	-	-	-	-	358
50	**50.02**	30	15.5	50	48	91	-	-	41	85	-	-	-	-	-	-	**M4**
56	**56.81**	26	16.0	46	48	90	-	-	40	84	-	-	-	-	-	-	382
63	**59.90**	25	16.0	44	44	82	-	-	38	77	-	-	-	-	-	-	
71	**68.03**	22	16.0	39	44	82	-	-	38	77	-	-	-	-	-	-	
80	**76.69**	20	16.0	34	39	73	-	-	35	69	-	-	-	-	-	-	
90	**87.09**	17	16.0	30	39	74	-	-	35	70	-	-	-	-	-	-	
100	**102.65**	15	13.6	22	40	-	-	-	38	-	-	-	-	-	-	-	
112	**116.58**	13	15.5	22	40	-	-	-	38	-	-	-	-	-	-	-	
125	**130.23**	12	16.0	20	38	-	-	-	36	-	-	-	-	-	-	-	
140	**147.90**	10	16.0	18	37	-	-	-	36	-	-	-	-	-	-	-	
160	**156.58**	9.6	16.0	17	34	-	-	-	33	-	-	-	-	-	-	-	**X4K..**
180	**177.83**	8.4	16.0	15	34	-	-	-	33	-	-	-	-	-	-	-	**M1**
200	**187.42**	8.0	16.0	14	32	-	-	-	30	-	-	-	-	-	-	-	HU 304
224	**212.85**	7.0	16.0	12	32	-	-	-	30	-	-	-	-	-	-	-	**M5**
250	**258.02**	5.8	16.0	10	28	-	-	-	28	-	-	-	-	-	-	-	362
280	**293.04**	5.1	16.0	9	28	-	-	-	28	-	-	-	-	-	-	-	**M4**
315	**310.23**	4.8	16.0	9	26	-	-	-	25	-	-	-	-	-	-	-	386
355	**352.34**	4.3	16.0	8	26	-	-	-	25	-	-	-	-	-	-	-	
400	**371.33**	4.0	16.0	7	24	-	-	-	24	-	-	-	-	-	-	-	
450	**421.72**	3.6	16.0	6	25	-	-	-	24	-	-	-	-	-	-	-	
X.K130..,n_1= 1800 1/min																	16 kNm
8	**7.95**	226	12.1	295	*)	150	-	-	*)	*)	-	-	-	-	-	-	**X2K..**
9	**9.03**	199	12.5	265	*)	150	-	-	*)	*)	-	-	-	-	-	-	**M1**
10	**9.93**	181	12.8	250	*)	150	-	-	*)	*)	-	-	-	-	-	-	HU 294
11.2	**11.28**	160	13.0	220	*)	160	-	-	*)	*)	-	-	-	-	-	-	**M5** 354
12.5	**12.31**	146	13.2	210	*)	140	-	-	*)	87	-	-	-	-	-	-	**M4** 378
14	**13.98**	129	13.6	190	*)	140	-	-	*)	92	-	-	-	-	-	-	
16	**15.90**	113	13.5	165	51	140	-	-	*)	71	-	-	-	-	-	-	
18	**18.06**	100	14.2	155	57	145	-	-	*)	77	-	-	-	-	-	-	
20	**20.45**	88	14.5	140	62	135	-	-	*)	105	-	-	-	-	-	-	
22.4	**23.23**	77	15.0	125	64	140	-	-	*)	110	-	-	-	-	-	-	
25	**25.03**	72	15.2	120	56	130	-	-	*)	74	-	-	-	-	-	-	**X3K..**
28	**28.43**	63	15.5	105	58	130	-	-	*)	76	-	-	-	-	-	-	**M1**
31.5	**32.19**	56	15.5	94	58	125	-	-	25	99	-	-	-	-	-	-	HU 298
35.5	**36.56**	49	15.5	83	59	125	-	-	28	100	-	-	-	-	-	-	HH 332
40	**38.71**	46	15.5	78	54	115	-	-	26	92	-	-	-	-	-	-	**M5**
45	**43.96**	41	15.5	69	52	110	-	-	26	88	-	-	-	-	-	-	358
50	**50.02**	36	15.5	60	49	99	-	-	37	89	-	-	-	-	-	-	**M4**
56	**56.81**	32	16.0	55	48	98	-	-	37	88	-	-	-	-	-	-	382
63	**59.90**	30	16.0	53	44	89	-	-	36	81	-	-	-	-	-	-	
71	**68.03**	26	16.0	46	44	89	-	-	36	82	-	-	-	-	-	-	
80	**76.69**	23	16.0	41	40	80	-	-	33	74	-	-	-	-	-	-	
90	**87.09**	21	16.0	36	40	80	-	-	34	74	-	-	-	-	-	-	
100	**102.65**	18	13.6	26	41	-	-	-	38	-	-	-	-	-	-	-	
112	**116.58**	15	15.5	26	41	-	-	-	38	-	-	-	-	-	-	-	
125	**130.23**	14	16.0	24	39	-	-	-	37	-	-	-	-	-	-	-	
140	**147.90**	12	16.0	21	38	-	-	-	36	-	-	-	-	-	-	-	
160	**156.58**	11	16.0	20	35	-	-	-	33	-	-	-	-	-	-	-	**X4K..**
180	**177.83**	10	16.0	18	35	-	-	-	33	-	-	-	-	-	-	-	**M1**
200	**187.42**	9.6	16.0	17	33	-	-	-	31	-	-	-	-	-	-	-	HU 304
224	**212.85**	8.5	16.0	15	33	-	-	-	31	-	-	-	-	-	-	-	**M5**
250	**258.02**	7.0	16.0	12	30	-	-	-	28	-	-	-	-	-	-	-	362
280	**293.04**	6.1	16.0	11	29	-	-	-	28	-	-	-	-	-	-	-	**M4**
315	**310.23**	5.8	16.0	10	27	-	-	-	26	-	-	-	-	-	-	-	386
355	**352.34**	5.1	16.0	9	27	-	-	-	26	-	-	-	-	-	-	-	
400	**371.33**	4.8	16.0	9	25	-	-	-	24	-	-	-	-	-	-	-	
450	**421.72**	4.3	16.0	8	26	-	-	-	25	-	-	-	-	-	-	-	

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X.K140..,n_1= 1000 1/min																	22 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	**6.53**	153	18.5	305	78	190	270	340	*)	125	500	560	-	-	-	-	**X2K..**
7.1	**6.98**	143	19.0	290	80	190	265	335	*)	130	485	550	-	-	-	-	**M1**
8	**8.27**	121	19.7	255	81	170	220	280	*)	140	410	460	-	-	-	-	HU 294
9	**8.84**	113	20.1	245	82	170	215	275	*)	140	400	450	-	-	-	-	**M5** 354
10	**10.10**	99	20.4	220	80	160	190	245	*)	135	350	400	-	-	-	-	**M4** 378
11.2	**10.80**	93	20.8	210	81	155	185	240	*)	135	340	390	-	-	-	-	
12.5	**12.35**	81	20.8	185	84	155	175	225	*)	130	310	360	-	-	-	-	
14	**13.21**	76	21.0	170	88	155	175	230	48	130	315	360	-	-	-	-	
16	**15.89**	63	21.0	145	79	140	150	195	64	125	265	305	-	-	-	-	
18	**16.99**	59	21.3	135	81	140	150	195	67	130	265	310	-	-	-	-	
20	**21.13**	47	21.9	110	77	135	135	180	65	125	235	275	-	-	-	-	**X3K..**
22.4	**22.60**	44	22.0	105	77	135	130	175	65	125	230	270	-	-	-	-	**M1**
25	**26.42**	38	22.0	90	73	125	120	160	62	120	205	245	-	-	-	-	HU 298
28	**28.25**	35	22.0	84	73	125	120	160	62	115	200	240	-	-	-	-	HH 332
31.5	**33.46**	30	22.0	71	65	110	100	135	59	105	170	205	-	-	-	-	**M5**
35.5	**35.78**	28	22.0	67	65	110	99	135	58	105	165	200	-	-	-	-	358
40	**40.78**	25	22.0	58	60	105	90	125	55	99	150	180	-	-	-	-	**M4**
45	**43.61**	23	22.0	55	60	105	88	120	54	98	145	175	-	-	-	-	382
50	**49.82**	20	22.0	48	55	95	79	110	51	91	130	160	-	-	-	-	
56	**53.28**	19	22.0	45	55	94	78	110	51	90	125	155	-	-	-	-	
63	**63.79**	16	22.0	38	49	83	67	93	45	80	105	130	-	-	-	-	
71	**68.21**	15	22.0	35	49	84	67	94	46	81	105	130	-	-	-	-	
80	**83.36**	12	22.0	29	46	-	61	-	45	-	95	-	-	-	-	-	
90	**89.14**	11	22.0	27	46	-	60	-	45	-	93	-	-	-	-	-	
100	**104.20**	9.6	22.0	23	41	-	52	-	40	-	80	-	-	-	-	-	
112	**111.42**	9.0	22.0	22	41	-	52	-	40	-	79	-	-	-	-	-	
125	**127.00**	7.9	22.0	19	39	-	49	-	38	-	73	-	-	-	-	-	**X4K..**
140	**135.81**	7.4	22.0	18	40	-	49	-	39	-	73	-	-	-	-	-	**M1**
160	**158.84**	6.3	22.0	15	37	-	45	-	36	-	65	-	-	-	-	-	HU 304
180	**169.85**	5.9	22.0	14	37	-	45	-	36	-	65	-	-	-	-	-	**M5**
200	**206.44**	4.8	22.0	12	30	-	36	-	30	-	51	-	-	-	-	-	362
224	**220.76**	4.5	22.0	11	30	-	36	-	30	-	50	-	-	-	-	-	**M4**
250	**251.62**	4.0	22.0	10	30	-	34	-	29	-	48	-	-	-	-	-	386
280	**269.07**	3.7	22.0	9	30	-	34	-	29	-	47	-	-	-	-	-	
315	**314.70**	3.2	22.0	8	27	-	31	-	27	-	43	-	-	-	-	-	
355	**336.53**	3.0	22.0	7	28	-	31	-	27	-	42	-	-	-	-	-	
X.K140..,n_1= 1200 1/min																	22 kNm
6.3	**6.53**	184	18.5	365	*)	200	285	375	*)	*)	520	600	-	-	-	-	**X2K..**
7.1	**6.98**	172	19.0	350	*)	200	280	370	*)	*)	500	580	-	-	-	-	**M1**
8	**8.27**	145	19.7	305	*)	185	235	310	*)	130	435	500	-	-	-	-	HU 294
9	**8.84**	136	20.1	290	*)	185	230	305	*)	130	420	490	-	-	-	-	**M5** 354
10	**10.10**	119	20.4	260	70	175	205	270	*)	140	375	440	-	-	-	-	**M4** 378
11.2	**10.80**	111	20.8	250	71	170	200	265	*)	140	365	425	-	-	-	-	
12.5	**12.35**	97	20.8	220	74	170	190	255	*)	125	330	390	-	-	-	-	
14	**13.21**	91	21.0	205	79	175	190	255	*)	130	330	395	-	-	-	-	
16	**15.89**	76	21.0	170	78	155	160	215	47	135	285	340	-	-	-	-	
18	**16.99**	71	21.3	165	81	160	160	220	50	140	285	340	-	-	-	-	
20	**21.13**	57	21.9	135	78	150	145	200	55	135	255	305	-	-	-	-	**X3K..**
22.4	**22.60**	53	22.0	125	77	150	140	195	56	135	245	300	-	-	-	-	**M1**
25	**26.42**	45	22.0	110	74	140	130	180	56	125	220	270	-	-	-	-	HU 298
28	**28.25**	42	22.0	100	73	140	125	180	56	125	215	265	-	-	-	-	HH 332
31.5	**33.46**	36	22.0	86	66	125	110	155	56	115	185	230	-	-	-	-	**M5**
35.5	**35.78**	34	22.0	80	66	125	105	150	56	115	180	225	-	-	-	-	358
40	**40.78**	29	22.0	70	62	115	96	140	53	110	160	200	-	-	-	-	**M4**
45	**43.61**	28	22.0	66	61	115	94	135	52	110	155	195	-	-	-	-	382
50	**49.82**	24	22.0	58	57	105	85	125	50	100	140	175	-	-	-	-	
56	**53.28**	23	22.0	54	56	105	83	120	50	100	135	175	-	-	-	-	
63	**63.79**	19	22.0	45	50	93	71	105	45	89	115	145	-	-	-	-	
71	**68.21**	18	22.0	42	51	94	71	105	46	90	115	145	-	-	-	-	
80	**83.36**	14	22.0	35	48	-	65	-	46	-	105	-	-	-	-	-	
90	**89.14**	13	22.0	32	48	-	64	-	46	-	100	-	-	-	-	-	
100	**104.20**	12	22.0	28	42	-	56	-	41	-	86	-	-	-	-	-	
112	**111.42**	11	22.0	26	43	-	56	-	41	-	86	-	-	-	-	-	
125	**127.00**	9.4	22.0	23	41	-	52	-	39	-	79	-	-	-	-	-	**X4K..**
140	**135.81**	8.8	22.0	21	41	-	52	-	39	-	79	-	-	-	-	-	**M1**
160	**158.84**	7.6	22.0	18	38	-	48	-	37	-	70	-	-	-	-	-	HU 304
180	**169.85**	7.1	22.0	17	39	-	48	-	37	-	70	-	-	-	-	-	**M5**
200	**206.44**	5.8	22.0	14	32	-	38	-	31	-	55	-	-	-	-	-	362
224	**220.76**	5.4	22.0	13	32	-	38	-	31	-	55	-	-	-	-	-	**M4**
250	**251.62**	4.8	22.0	12	31	-	36	-	30	-	52	-	-	-	-	-	386
280	**269.07**	4.5	22.0	11	31	-	36	-	30	-	51	-	-	-	-	-	
315	**314.70**	3.8	22.0	9	29	-	33	-	28	-	46	-	-	-	-	-	
355	**336.53**	3.6	22.0	9	29	-	33	-	28	-	46	-	-	-	-	-	

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X.K140..,n_1= 1500 1/min																	22 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	**6.53**	230	18.5	455	*)	200	285	400	*)	*)	475	580	-	-	-	-	**X2K..**
7.1	**6.98**	215	19.0	435	*)	200	285	400	*)	*)	475	580	-	-	-	-	**M1**
8	**8.27**	181	19.7	385	*)	195	250	345	*)	*)	450	540	-	-	-	-	HU 294
9	**8.84**	170	20.1	365	*)	195	245	340	*)	*)	435	520	-	-	-	-	**M5** 354
10	**10.10**	149	20.4	330	*)	185	220	305	*)	120	400	480	-	-	-	-	**M4** 378
11.2	**10.80**	139	20.8	315	*)	185	210	300	*)	125	390	470	-	-	-	-	
12.5	**12.35**	121	20.8	275	*)	185	205	285	*)	87	335	415	-	-	-	-	
14	**13.21**	114	21.0	260	*)	190	205	290	*)	94	340	420	-	-	-	-	
16	**15.89**	94	21.0	215	65	170	175	245	*)	140	310	375	-	-	-	-	
18	**16.99**	88	21.3	205	70	175	175	250	*)	140	310	380	-	-	-	-	
20	**21.13**	71	21.9	170	74	170	155	230	*)	140	270	340	-	-	-	-	**X3K..**
22.4	**22.60**	66	22.0	160	75	165	155	225	*)	135	265	330	-	-	-	-	**M1**
25	**26.42**	57	22.0	135	73	160	140	205	*)	130	240	300	-	-	-	-	HU 298
28	**28.25**	53	22.0	125	72	160	135	205	*)	130	230	295	-	-	-	-	HH 332
31.5	**33.46**	45	22.0	105	66	140	115	175	48	125	200	255	-	-	-	-	**M5**
35.5	**35.78**	42	22.0	100	66	140	115	175	49	125	195	250	-	-	-	-	358
40	**40.78**	37	22.0	88	62	130	105	160	46	120	175	225	-	-	-	-	**M4**
45	**43.61**	34	22.0	82	62	130	100	155	46	115	170	220	-	-	-	-	382
50	**49.82**	30	22.0	72	58	120	91	140	47	110	155	200	-	-	-	-	
56	**53.28**	28	22.0	68	57	120	90	140	46	110	150	195	-	-	-	-	
63	**63.79**	24	22.0	57	51	105	77	120	43	99	125	165	-	-	-	-	
71	**68.21**	22	22.0	53	52	105	77	120	44	100	125	165	-	-	-	-	
80	**83.36**	18	22.0	43	50	-	70	-	46	-	115	-	-	-	-	-	
90	**89.14**	17	22.0	41	49	-	69	-	45	-	110	-	-	-	-	-	
100	**104.20**	14	22.0	35	44	-	60	-	41	-	95	-	-	-	-	-	
112	**111.42**	13	22.0	32	45	-	60	-	41	-	94	-	-	-	-	-	
125	**127.00**	12	22.0	28	43	-	56	-	39	-	86	-	-	-	-	-	**X4K..**
140	**135.81**	11	22.0	27	43	-	56	-	39	-	86	-	-	-	-	-	**M1**
160	**158.84**	9.4	22.0	23	40	-	51	-	37	-	77	-	-	-	-	-	HU 304
180	**169.85**	8.8	22.0	21	40	-	51	-	37	-	76	-	-	-	-	-	**M5**
200	**206.44**	7.3	22.0	18	33	-	41	-	32	-	61	-	-	-	-	-	362
224	**220.76**	6.8	22.0	17	33	-	41	-	32	-	60	-	-	-	-	-	**M4**
250	**251.62**	6.0	22.0	15	32	-	39	-	31	-	57	-	-	-	-	-	386
280	**269.07**	5.6	22.0	14	33	-	39	-	31	-	56	-	-	-	-	-	
315	**314.70**	4.8	22.0	12	30	-	36	-	29	-	50	-	-	-	-	-	
355	**336.53**	4.5	22.0	11	30	-	36	-	29	-	50	-	-	-	-	-	
X.K140..,n_1= 1800 1/min																	22 kNm
6.3	**6.53**	276	17.5	520	*)	160	250	390	*)	*)	330	460	-	-	-	-	**X2K..**
7.1	**6.98**	258	18.0	495	*)	165	255	390	*)	*)	335	465	-	-	-	-	**M1**
8	**8.27**	218	18.6	435	*)	185	250	365	*)	*)	430	530	-	-	-	-	HU 294
9	**8.84**	204	19.0	415	*)	185	245	360	*)	*)	420	520	-	-	-	-	**M5** 354
10	**10.10**	178	19.3	370	*)	185	225	330	*)	*)	410	500	-	-	-	-	**M4** 378
11.2	**10.80**	167	19.7	355	*)	190	220	320	*)	*)	395	490	-	-	-	-	
12.5	**12.35**	146	19.8	315	*)	190	215	310	*)	*)	320	410	-	-	-	-	
14	**13.21**	136	19.9	295	*)	195	215	315	*)	*)	320	410	-	-	-	-	
16	**15.89**	113	19.9	245	*)	180	185	270	*)	125	320	400	-	-	-	-	
18	**16.99**	106	20.2	230	*)	185	185	275	*)	130	320	405	-	-	-	-	
20	**21.13**	85	20.7	190	60	180	165	250	*)	125	280	360	-	-	-	-	**X3K..**
22.4	**22.60**	80	21.1	180	63	175	160	245	*)	125	275	350	-	-	-	-	**M1**
25	**26.42**	68	22.0	160	65	170	145	225	*)	125	245	320	-	-	-	-	HU 298
28	**28.25**	64	22.0	150	67	170	145	220	*)	125	235	310	-	-	-	-	HH 332
31.5	**33.46**	54	22.0	130	65	150	125	195	*)	130	215	280	-	-	-	-	**M5**
35.5	**35.78**	50	22.0	120	65	150	120	190	*)	130	210	270	-	-	-	-	358
40	**40.78**	44	22.0	105	61	140	110	175	29	120	185	245	-	-	-	-	**M4**
45	**43.61**	41	22.0	98	60	140	105	170	30	120	180	240	-	-	-	-	382
50	**49.82**	36	22.0	87	57	130	97	155	39	115	165	220	-	-	-	-	
56	**53.28**	34	22.0	81	57	130	95	155	40	115	160	215	-	-	-	-	
63	**63.79**	28	22.0	68	51	115	81	130	39	105	135	185	-	-	-	-	
71	**68.21**	26	22.0	64	52	115	81	135	40	105	135	185	-	-	-	-	
80	**83.36**	22	22.0	52	51	-	75	-	44	-	120	-	-	-	-	-	
90	**89.14**	20	22.0	49	51	-	74	-	43	-	120	-	-	-	-	-	
100	**104.20**	17	22.0	42	45	-	64	-	39	-	100	-	-	-	-	-	
112	**111.42**	16	22.0	39	46	-	64	-	39	-	100	-	-	-	-	-	
125	**127.00**	14	22.0	34	44	-	60	-	37	-	92	-	-	-	-	-	**X4K..**
140	**135.81**	13	22.0	32	44	-	60	-	38	-	92	-	-	-	-	-	**M1**
160	**158.84**	11	22.0	27	41	-	54	-	35	-	82	-	-	-	-	-	HU 304
180	**169.85**	11	22.0	26	41	-	54	-	36	-	81	-	-	-	-	-	**M5**
200	**206.44**	8.7	22.0	21	34	-	44	-	33	-	65	-	-	-	-	-	362
224	**220.76**	8.2	22.0	20	35	-	43	-	33	-	65	-	-	-	-	-	**M4**
250	**251.62**	7.2	22.0	17	34	-	42	-	32	-	61	-	-	-	-	-	386
280	**269.07**	6.7	22.0	16	34	-	41	-	32	-	61	-	-	-	-	-	
315	**314.70**	5.7	22.0	14	31	-	38	-	30	-	54	-	-	-	-	-	
355	**336.53**	5.3	22.0	13	31	-	38	-	30	-	54	-	-	-	-	-	

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X.K150..,n_1= 1000 1/min																	27.5 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
8	**8.11**	123	23.5	310	90	210	190	270	*)	150	320	390	-	-	-	-	**X2K..**
9	**8.68**	115	24.0	295	92	210	190	265	*)	150	310	385	-	-	-	-	**M1**
10	**10.27**	97	24.6	255	91	185	165	230	*)	155	270	335	-	-	-	-	HU 294
11.2	**10.99**	91	25.1	245	92	185	160	225	*)	155	265	325	-	-	-	-	**M5** 354
12.5	**12.54**	80	25.4	220	90	170	145	205	60	150	240	295	-	-	-	-	**M4** 378
14	**13.43**	74	26.0	210	90	170	140	200	61	150	235	290	-	-	-	-	
16	**15.34**	65	25.5	180	95	170	145	200	57	145	230	280	-	-	-	-	
18	**16.43**	61	25.8	170	95	170	140	200	58	145	220	275	-	-	-	-	
20	**19.73**	51	26.1	145	88	155	125	175	74	140	200	245	-	-	-	-	
22.4	**21.13**	47	26.5	135	85	150	120	170	72	135	190	235	-	-	-	-	
25	**26.25**	38	27.2	110	83	145	110	160	71	135	175	220	-	-	-	-	**X3K..**
28	**28.10**	36	27.5	105	83	145	110	160	71	135	170	215	-	-	-	-	**M1**
31.5	**32.81**	30	27.5	91	79	135	105	150	68	125	155	200	-	-	-	-	HU 298
35.5	**35.13**	28	27.5	85	78	135	100	145	68	125	150	195	-	-	-	-	HH 332
40	**41.56**	24	27.5	72	72	120	90	130	65	115	135	170	-	-	-	-	**M5**
45	**44.50**	22	27.5	67	69	120	87	125	63	115	130	165	-	-	-	-	358
50	**50.65**	20	27.5	59	65	110	80	115	59	105	115	150	-	-	-	-	**M4**
56	**54.23**	18	27.5	55	64	110	79	115	59	105	115	150	-	-	-	-	382
63	**61.88**	16	27.5	49	60	100	72	105	55	98	100	135	-	-	-	-	
71	**66.26**	15	27.5	45	59	100	71	105	55	97	100	130	-	-	-	-	
80	**79.22**	13	27.5	38	53	90	63	92	50	87	87	115	-	-	-	-	
90	**84.83**	12	27.5	35	53	89	62	91	50	87	85	115	-	-	-	-	
100	**103.52**	9.7	27.5	29	51	-	58	-	50	-	80	-	-	-	-	-	
112	**110.85**	9.0	27.5	27	50	-	57	-	49	-	79	-	-	-	-	-	
125	**129.41**	7.7	27.5	23	47	-	53	-	46	-	72	-	-	-	-	-	
140	**138.56**	7.2	27.5	22	48	-	54	-	47	-	72	-	-	-	-	-	
160	**157.72**	6.3	27.5	19	44	-	49	-	43	-	64	-	-	-	-	-	**X4K..**
180	**168.89**	5.9	27.5	18	43	-	48	-	42	-	63	-	-	-	-	-	**M1**
200	**197.26**	5.1	27.5	15	41	-	45	-	40	-	58	-	-	-	-	-	HU 304
224	**211.23**	4.7	27.5	14	41	-	44	-	40	-	57	-	-	-	-	-	**M5**
250	**256.39**	3.9	27.5	12	35	-	38	-	34	-	48	-	-	-	-	-	362
280	**274.54**	3.6	27.5	11	34	-	37	-	34	-	47	-	-	-	-	-	**M4**
315	**312.49**	3.2	27.5	10	32	-	34	-	32	-	43	-	-	-	-	-	386
355	**334.61**	3.0	27.5	9	32	-	35	-	32	-	43	-	-	-	-	-	
400	**390.84**	2.6	27.5	8	30	-	32	-	30	-	39	-	-	-	-	-	
450	**418.50**	2.4	27.5	7	30	-	32	-	30	-	39	-	-	-	-	-	
X.K150..,n_1= 1200 1/min																	27.5 kNm
8	**8.11**	148	23.5	370	*)	220	190	295	*)	105	305	400	-	-	-	-	**X2K..**
9	**8.68**	138	24.0	355	*)	220	185	290	*)	110	295	390	-	-	-	-	**M1**
10	**10.27**	117	24.6	310	*)	200	165	250	*)	150	275	355	-	-	-	-	HU 294
11.2	**10.99**	109	25.1	295	77	200	165	250	*)	150	270	350	-	-	-	-	**M5** 354
12.5	**12.54**	96	25.4	265	79	190	150	225	*)	155	245	320	-	-	-	-	**M4** 378
14	**13.43**	89	26.0	250	80	185	145	225	*)	155	240	315	-	-	-	-	
16	**15.34**	78	25.5	215	88	185	150	225	*)	145	230	300	-	-	-	-	
18	**16.43**	73	25.8	205	90	185	145	220	*)	145	225	295	-	-	-	-	
20	**19.73**	61	26.1	170	88	170	130	195	60	150	210	270	-	-	-	-	
22.4	**21.13**	57	26.5	165	85	165	125	190	58	145	200	260	-	-	-	-	
25	**26.25**	46	27.2	135	84	160	120	180	64	145	185	240	-	-	-	-	**X3K..**
28	**28.10**	43	27.5	125	83	160	115	180	64	145	180	235	-	-	-	-	**M1**
31.5	**32.81**	37	27.5	110	80	155	110	165	62	140	165	220	-	-	-	-	HU 298
35.5	**35.13**	34	27.5	100	79	150	105	165	62	135	160	215	-	-	-	-	HH 332
40	**41.56**	29	27.5	86	73	140	95	145	63	130	145	190	-	-	-	-	**M5**
45	**44.50**	27	27.5	80	71	135	91	140	61	125	135	185	-	-	-	-	358
50	**50.65**	24	27.5	71	66	125	84	130	57	115	125	170	-	-	-	-	**M4**
56	**54.23**	22	27.5	66	66	125	83	130	57	115	120	165	-	-	-	-	382
63	**61.88**	19	27.5	58	61	115	75	120	55	110	110	150	-	-	-	-	
71	**66.26**	18	27.5	54	61	115	74	115	54	110	105	145	-	-	-	-	
80	**79.22**	15	27.5	46	55	100	66	105	50	98	93	130	-	-	-	-	
90	**84.83**	14	27.5	43	54	100	65	105	50	97	91	125	-	-	-	-	
100	**103.52**	12	27.5	35	53	-	61	-	51	-	86	-	-	-	-	-	
112	**110.85**	11	27.5	33	52	-	60	-	50	-	84	-	-	-	-	-	
125	**129.41**	9.3	27.5	28	49	-	56	-	47	-	77	-	-	-	-	-	
140	**138.56**	8.7	27.5	26	50	-	57	-	48	-	77	-	-	-	-	-	
160	**157.72**	7.6	27.5	23	45	-	51	-	44	-	69	-	-	-	-	-	**X4K..**
180	**168.89**	7.1	27.5	21	45	-	51	-	43	-	67	-	-	-	-	-	**M1**
200	**197.26**	6.1	27.5	18	43	-	47	-	41	-	62	-	-	-	-	-	HU 304
224	**211.23**	5.7	27.5	17	42	-	47	-	41	-	61	-	-	-	-	-	**M5**
250	**256.39**	4.7	27.5	14	36	-	40	-	36	-	51	-	-	-	-	-	362
280	**274.54**	4.4	27.5	13	36	-	39	-	35	-	50	-	-	-	-	-	**M4**
315	**312.49**	3.8	27.5	12	33	-	36	-	33	-	46	-	-	-	-	-	386
355	**334.61**	3.6	27.5	11	34	-	36	-	33	-	46	-	-	-	-	-	
400	**390.84**	3.1	27.5	9	32	-	34	-	31	-	42	-	-	-	-	-	
450	**418.50**	2.9	27.5	9	31	-	34	-	31	-	41	-	-	-	-	-	

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X.K150..,n_1= 1500 1/min																	27.5 kNm
					P_{TH}20 °C kW												
					M1				M5	M4							
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
8	**8.11**	185	23.5	465	*)	225	160	305	*)	*)	215	350	-	-	-	-	**X2K..**
9	**8.68**	173	24.0	445	*)	225	165	305	*)	*)	225	350	-	-	-	-	**M1**
10	**10.27**	146	24.6	385	*)	215	155	275	*)	100	255	360	-	-	-	-	HU 294
11.2	**10.99**	136	25.1	365	*)	215	155	270	*)	105	250	355	-	-	-	-	**M5** 354
12.5	**12.54**	120	25.4	330	*)	205	145	250	*)	145	245	340	-	-	-	-	**M4** 378
14	**13.43**	112	26.0	315	*)	200	145	245	*)	145	240	335	-	-	-	-	
16	**15.34**	98	25.5	270	*)	205	155	250	*)	115	215	310	-	-	-	-	
18	**16.43**	91	25.8	255	69	205	150	245	*)	115	210	300	-	-	-	-	
20	**19.73**	76	26.1	215	80	190	140	220	*)	155	220	295	-	-	-	-	
22.4	**21.13**	71	26.5	205	77	185	130	210	*)	150	205	285	-	-	-	-	
25	**26.25**	57	27.2	170	83	180	125	205	*)	150	190	265	-	-	-	-	**X3K..**
28	**28.10**	53	27.5	160	82	180	120	200	*)	150	185	260	-	-	-	-	**M1**
31.5	**32.81**	46	27.5	135	79	170	115	190	37	145	170	240	-	-	-	-	HU 298
35.5	**35.13**	43	27.5	125	78	170	110	185	39	145	165	235	-	-	-	-	HH 332
40	**41.56**	36	27.5	110	74	155	100	165	56	140	150	215	-	-	-	-	**M5**
45	**44.50**	34	27.5	100	71	150	96	160	54	135	145	205	-	-	-	-	358
50	**50.65**	30	27.5	88	67	140	89	150	52	130	130	190	-	-	-	-	**M4**
56	**54.23**	28	27.5	82	67	140	87	145	51	125	125	185	-	-	-	-	382
63	**61.88**	24	27.5	73	62	130	80	135	51	120	115	170	-	-	-	-	
71	**66.26**	23	27.5	68	62	130	78	135	51	120	115	165	-	-	-	-	
80	**79.22**	19	27.5	57	56	115	70	120	48	110	99	145	-	-	-	-	
90	**84.83**	18	27.5	53	56	115	68	115	48	110	97	145	-	-	-	-	
100	**103.52**	14	27.5	44	55	-	65	-	51	-	93	-	-	-	-	-	
112	**110.85**	14	27.5	41	54	-	64	-	50	-	91	-	-	-	-	-	
125	**129.41**	12	27.5	35	51	-	60	-	47	-	83	-	-	-	-	-	
140	**138.56**	11	27.5	33	52	-	60	-	48	-	82	-	-	-	-	-	
160	**157.72**	9.5	27.5	29	47	-	55	-	44	-	73	-	-	-	-	-	**X4K..**
180	**168.89**	8.9	27.5	27	47	-	54	-	43	-	72	-	-	-	-	-	**M1**
200	**197.26**	7.6	27.5	23	44	-	50	-	41	-	66	-	-	-	-	-	HU 304
224	**211.23**	7.1	27.5	21	44	-	50	-	41	-	65	-	-	-	-	-	**M5**
250	**256.39**	5.9	27.5	18	38	-	42	-	37	-	55	-	-	-	-	-	362
280	**274.54**	5.5	27.5	17	38	-	42	-	37	-	54	-	-	-	-	-	**M4**
315	**312.49**	4.8	27.5	15	35	-	39	-	34	-	50	-	-	-	-	-	386
355	**334.61**	4.5	27.5	14	35	-	39	-	34	-	49	-	-	-	-	-	
400	**390.84**	3.8	27.5	12	33	-	36	-	32	-	45	-	-	-	-	-	
450	**418.50**	3.6	27.5	11	33	-	36	-	32	-	44	-	-	-	-	-	
X.K150..,n_1= 1800 1/min																	27.5 kNm
8	**8.11**	222	22.2	530	*)	190	*)	290	*)	*)	*)	180	-	-	-	-	**X2K..**
9	**8.68**	207	22.7	500	*)	195	*)	290	*)	*)	*)	190	-	-	-	-	**M1**
10	**10.27**	175	23.2	435	*)	205	135	280	*)	*)	195	330	-	-	-	-	HU 294
11.2	**10.99**	164	23.8	415	*)	210	135	280	*)	*)	195	325	-	-	-	-	**M5** 354
12.5	**12.54**	144	24.0	375	*)	205	135	260	*)	96	225	340	-	-	-	-	**M4** 378
14	**13.43**	134	24.7	360	*)	205	135	260	*)	99	220	330	-	-	-	-	
16	**15.34**	117	24.2	310	*)	215	150	265	*)	*)	175	285	-	-	-	-	
18	**16.43**	110	24.5	290	*)	210	150	260	*)	*)	165	275	-	-	-	-	
20	**19.73**	91	24.7	245	64	200	140	240	*)	145	215	305	-	-	-	-	
22.4	**21.13**	85	25.1	230	60	195	135	230	*)	140	200	290	-	-	-	-	
25	**26.25**	69	27.2	200	70	190	125	220	*)	140	185	275	-	-	-	-	**X3K..**
28	**28.10**	64	27.5	190	72	190	125	215	*)	140	180	270	-	-	-	-	**M1**
31.5	**32.81**	55	27.5	165	74	185	115	205	*)	135	165	245	-	-	-	-	HU 298
35.5	**35.13**	51	27.5	155	75	180	115	200	*)	135	160	240	-	-	-	-	HH 332
40	**41.56**	43	27.5	130	73	165	105	180	38	145	155	230	-	-	-	-	**M5**
45	**44.50**	40	27.5	120	70	160	99	175	36	140	145	220	-	-	-	-	358
50	**50.65**	36	27.5	105	66	150	91	160	37	130	135	200	-	-	-	-	**M4**
56	**54.23**	33	27.5	99	66	150	90	160	38	130	130	195	-	-	-	-	382
63	**61.88**	29	27.5	88	62	140	82	145	45	125	120	180	-	-	-	-	
71	**66.26**	27	27.5	82	62	140	81	145	45	125	115	180	-	-	-	-	
80	**79.22**	23	27.5	68	56	125	72	130	45	115	105	160	-	-	-	-	
90	**84.83**	21	27.5	64	56	125	71	125	44	115	100	155	-	-	-	-	
100	**103.52**	17	27.5	52	56	-	69	-	49	-	97	-	-	-	-	-	
112	**110.85**	16	27.5	49	56	-	68	-	48	-	95	-	-	-	-	-	
125	**129.41**	14	27.5	42	52	-	63	-	46	-	86	-	-	-	-	-	
140	**138.56**	13	27.5	39	53	-	63	-	46	-	86	-	-	-	-	-	
160	**157.72**	11	27.5	34	49	-	57	-	42	-	76	-	-	-	-	-	**X4K..**
180	**168.89**	11	27.5	32	48	-	56	-	42	-	75	-	-	-	-	-	**M1**
200	**197.26**	9.1	27.5	28	46	-	53	-	40	-	69	-	-	-	-	-	HU 304
224	**211.23**	8.5	27.5	26	45	-	52	-	39	-	67	-	-	-	-	-	**M5**
250	**256.39**	7.0	27.5	21	40	-	45	-	38	-	59	-	-	-	-	-	362
280	**274.54**	6.6	27.5	20	39	-	44	-	38	-	58	-	-	-	-	-	**M4**
315	**312.49**	5.8	27.5	18	37	-	41	-	35	-	53	-	-	-	-	-	386
355	**334.61**	5.4	27.5	16	37	-	41	-	35	-	52	-	-	-	-	-	
400	**390.84**	4.6	27.5	14	35	-	38	-	33	-	48	-	-	-	-	-	
450	**418.50**	4.3	27.5	13	34	-	37	-	33	-	47	-	-	-	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW M1				P_{TH} 20 °C kW M5 M4				P_{TH} 20 °C kW M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K160..,n_1= 1000 1/min																	**36 kNm**
6.3	**6.38**	157	30.0	500	*)	280	405	510	*)	*)	700	800	145	330	530	640	**X2K..**
7.1	**7.19**	139	30.8	460	*)	280	385	490	*)	115	660	760	150	325	495	610	**M1**
8	**7.93**	126	31.3	425	110	260	345	440	*)	170	610	690	150	300	425	520	HU 294
9	**8.94**	112	31.9	380	110	260	330	420	*)	175	580	660	150	295	400	500	**M5** 354
10	**9.69**	103	32.1	360	110	235	285	370	*)	190	510	590	140	265	340	425	**M4** 378
11.2	**10.92**	92	32.5	320	115	230	275	355	*)	185	490	560	140	265	320	405	
12.5	**12.35**	81	32.5	285	130	240	280	360	*)	175	475	550	150	270	315	400	
14	**13.92**	72	33.0	255	135	245	280	360	*)	180	470	550	155	275	310	400	
16	**15.53**	64	33.5	235	125	220	235	310	84	190	415	480	140	240	255	335	
18	**17.51**	57	36.0	225	125	215	230	300	86	190	400	465	140	240	245	325	
20	**20.23**	49	36.0	195	125	220	225	295	95	195	385	450	140	245	235	315	**X3K..**
22.4	**22.80**	44	36.0	170	120	210	210	280	91	185	355	420	135	235	220	295	**M1**
25	**24.77**	40	36.0	160	115	200	195	260	89	180	330	390	130	225	205	275	HU 298
28	**27.91**	36	36.0	140	115	200	190	255	88	175	315	375	130	220	195	265	HH 332
31.5	**30.94**	32	36.0	125	110	190	175	235	94	175	290	345	120	205	175	245	**M5**
35.5	**34.87**	29	36.0	110	105	180	165	220	90	170	270	325	115	200	165	230	358
40	**39.12**	26	36.0	100	90	155	135	185	78	145	225	270	100	170	140	195	**M4**
45	**44.08**	23	36.0	89	89	155	130	180	77	145	215	260	99	170	135	190	382
50	**48.46**	21	36.0	81	79	135	115	160	72	130	185	225	88	150	115	165	
56	**54.62**	18	36.0	72	80	135	115	160	72	130	180	225	89	150	115	165	
63	**62.05**	16	36.0	63	72	120	99	140	66	115	155	195	79	135	99	140	
71	**69.92**	14	36.0	56	72	120	98	140	66	115	155	190	79	135	98	140	
80	**81.90**	12	36.0	48	78	-	105	-	74	-	160	-	85	-	100	-	
90	**92.30**	11	36.0	43	77	-	100	-	73	-	155	-	83	-	99	-	
100	**100.25**	10.0	36.0	39	73	-	93	-	69	-	140	-	79	-	93	-	
112	**112.98**	8.9	36.0	35	73	-	93	-	69	-	140	-	79	-	93	-	
125	**126.75**	7.9	36.0	31	62	-	78	-	59	-	115	-	68	-	78	-	**X4K..**
140	**142.85**	7.0	36.0	28	61	-	76	-	58	-	110	-	67	-	76	-	**M1**
160	**152.40**	6.6	36.0	26	58	-	71	-	55	-	100	-	63	-	71	-	HU 304
180	**171.76**	5.8	36.0	23	57	-	69	-	54	-	98	-	62	-	69	-	**M5**
200	**198.63**	5.0	36.0	20	53	-	63	-	51	-	88	-	57	-	63	-	362
224	**223.85**	4.5	36.0	18	53	-	62	-	51	-	87	-	57	-	63	-	**M4**
250	**251.14**	4.0	36.0	16	46	-	53	-	45	-	73	-	50	-	54	-	386
280	**283.03**	3.5	36.0	14	46	-	53	-	44	-	72	-	50	-	54	-	
315	**301.95**	3.3	36.0	13	42	-	48	-	41	-	65	-	46	-	49	-	
355	**340.30**	2.9	36.0	12	42	-	47	-	40	-	64	-	45	-	48	-	
X.K160..,n_1= 1200 1/min																	**36 kNm**
6.3	**6.38**	188	30.0	600	*)	290	410	550	*)	*)	660	790	*)	350	570	710	**X2K..**
7.1	**7.19**	167	30.8	550	*)	290	400	540	*)	*)	640	770	*)	350	550	700	**M1**
8	**7.93**	151	31.3	510	*)	275	360	480	*)	*)	620	730	*)	325	475	600	HU 294
9	**8.94**	134	31.9	460	*)	275	345	465	*)	*)	590	700	125	325	445	570	**M5** 354
10	**9.69**	124	32.1	430	*)	255	305	410	*)	170	540	630	125	295	375	490	**M4** 378
11.2	**10.92**	110	32.5	385	*)	250	290	395	*)	175	510	610	130	290	355	465	
12.5	**12.35**	97	32.5	340	110	260	295	400	*)	150	485	580	140	295	345	460	
14	**13.92**	86	33.0	310	120	270	295	400	*)	160	480	580	150	305	340	455	
16	**15.53**	77	33.5	280	115	240	255	345	*)	195	440	530	140	270	285	385	
18	**17.51**	69	36.0	265	120	240	245	335	*)	195	425	510	140	270	270	370	
20	**20.23**	59	36.0	230	125	245	240	335	58	200	410	495	145	275	260	360	**X3K..**
22.4	**22.80**	53	36.0	205	120	235	225	315	56	195	380	460	135	260	240	335	**M1**
25	**24.77**	48	36.0	190	115	225	210	295	62	185	350	425	130	250	220	315	HU 298
28	**27.91**	43	36.0	170	115	220	200	285	63	185	335	415	130	245	210	305	HH 332
31.5	**30.94**	39	36.0	150	110	210	185	265	86	190	315	385	125	230	190	280	**M5**
35.5	**34.87**	34	36.0	135	105	200	175	250	82	180	290	360	120	225	180	260	358
40	**39.12**	31	36.0	120	91	175	145	210	72	160	240	300	105	190	150	220	**M4**
45	**44.08**	27	36.0	105	90	170	140	205	71	155	230	290	100	190	145	215	382
50	**48.46**	25	36.0	98	81	150	125	180	69	140	200	255	91	170	125	185	
56	**54.62**	22	36.0	87	82	155	120	180	70	145	195	250	91	170	125	185	
63	**62.05**	19	36.0	76	73	135	105	155	65	130	170	215	82	150	105	160	
71	**69.92**	17	36.0	68	74	135	105	155	65	130	165	215	82	150	105	160	
80	**81.90**	15	36.0	58	81	-	110	-	74	-	170	-	88	-	110	-	
90	**92.30**	13	36.0	51	79	-	105	-	73	-	165	-	86	-	105	-	
100	**100.25**	12	36.0	47	75	-	100	-	69	-	150	-	82	-	99	-	
112	**112.98**	11	36.0	42	76	-	99	-	69	-	150	-	82	-	98	-	
125	**126.75**	9.5	36.0	37	65	-	83	-	59	-	125	-	71	-	83	-	**X4K..**
140	**142.85**	8.4	36.0	33	64	-	81	-	58	-	120	-	69	-	81	-	**M1**
160	**152.40**	7.9	36.0	31	60	-	75	-	55	-	110	-	65	-	75	-	HU 304
180	**171.76**	7.0	36.0	28	59	-	73	-	54	-	105	-	64	-	73	-	**M5**
200	**198.63**	6.0	36.0	24	55	-	67	-	53	-	96	-	60	-	67	-	362
224	**223.85**	5.4	36.0	21	55	-	66	-	53	-	94	-	60	-	67	-	**M4**
250	**251.14**	4.8	36.0	19	48	-	57	-	46	-	79	-	52	-	57	-	386
280	**283.03**	4.2	36.0	17	48	-	56	-	46	-	78	-	52	-	57	-	
315	**301.95**	4.0	36.0	16	44	-	52	-	42	-	71	-	48	-	52	-	
355	**340.30**	3.5	36.0	14	44	-	50	-	42	-	68	-	47	-	51	-	

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X.K160..,n_1= 1500 1/min																	36 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
6.3	6.38	235	30.0	760	*)	255	360	540	*)	*)	425	600	*)	355	550	740	X2K.. M1 HU 294 M5 354 M4 378
7.1	7.19	209	30.8	690	*)	260	360	540	*)	*)	435	610	*)	355	550	730	
8	7.93	189	31.3	630	*)	275	355	520	*)	*)	550	700	*)	345	510	680	
9	8.94	168	31.9	570	*)	275	350	510	*)	*)	540	690	*)	340	500	660	
10	9.69	155	32.1	540	*)	270	315	455	*)	*)	540	670	*)	320	430	570	
11.2	10.92	137	32.5	485	*)	265	300	435	*)	*)	520	640	*)	315	400	540	
12.5	12.35	121	32.5	430	*)	285	315	450	*)	*)	455	580	110	325	395	540	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	13.92	108	33.0	385	*)	290	315	450	*)	*)	445	570	125	335	385	530	
16	15.53	97	33.5	350	93	265	275	390	*)	180	460	570	125	300	320	450	
18	17.51	86	36.0	335	96	265	265	385	*)	180	440	550	130	300	305	430	
20	20.23	74	36.0	290	110	270	260	380	*)	190	425	540	140	305	290	420	
22.4	22.80	66	36.0	255	110	260	240	355	*)	180	390	500	135	290	265	390	
25	24.77	61	36.0	235	110	250	225	335	*)	175	360	465	130	280	245	365	
28	27.91	54	36.0	210	110	245	215	325	*)	175	345	445	130	275	235	350	
31.5	30.94	48	36.0	190	110	235	200	300	52	200	335	430	125	260	215	320	
35.5	34.87	43	36.0	170	105	225	185	285	52	190	310	405	120	250	200	305	
40	39.12	38	36.0	150	91	195	155	240	48	165	255	335	105	215	165	255	
45	44.08	34	36.0	135	89	190	150	235	50	165	245	320	105	215	155	245	
50	48.46	31	36.0	120	82	170	130	205	61	155	220	285	93	190	135	215	
56	54.62	27	36.0	110	82	175	130	205	61	155	215	280	93	190	135	215	
63	62.05	24	36.0	95	75	155	115	180	61	145	185	245	84	170	115	185	
71	69.92	21	36.0	85	75	155	110	180	61	145	180	240	85	170	115	185	
80	81.90	18	36.0	72	84	-	120	-	71	-	185	-	91	-	120	-	X4K.. M1 HU 304 M5 362 M4 386
90	92.30	16	36.0	64	83	-	115	-	70	-	180	-	90	-	115	-	
100	100.25	15	36.0	59	79	-	110	-	66	-	165	-	85	-	105	-	
112	112.98	13	36.0	52	79	-	105	-	66	-	160	-	86	-	105	-	
125	126.75	12	36.0	47	68	-	90	-	57	-	135	-	74	-	89	-	
140	142.85	11	36.0	41	67	-	87	-	56	-	130	-	72	-	87	-	
160	152.40	9.8	36.0	39	63	-	81	-	53	-	115	-	68	-	81	-	
180	171.76	8.7	36.0	34	62	-	79	-	52	-	115	-	67	-	79	-	
200	198.63	7.6	36.0	30	58	-	72	-	54	-	105	-	63	-	72	-	
224	223.85	6.7	36.0	27	58	-	71	-	54	-	105	-	63	-	71	-	
250	251.14	6.0	36.0	24	50	-	61	-	47	-	87	-	55	-	61	-	
280	283.03	5.3	36.0	21	50	-	60	-	47	-	85	-	55	-	61	-	
315	301.95	5.0	36.0	20	47	-	55	-	44	-	77	-	51	-	56	-	
355	340.30	4.4	36.0	18	46	-	54	-	43	-	75	-	50	-	55	-	
X.K160..,n_1= 1800 1/min																	36 kNm
6.3	6.38	282	28.5	860	*)	*)	250	510	*)	*)	*)	*)	*)	305	510	730	X2K.. M1 HU 294 M5 354 M4 378
7.1	7.19	250	29.3	790	*)	*)	265	510	*)	*)	*)	210	*)	315	510	730	
8	7.93	227	29.7	720	*)	230	300	500	*)	*)	325	520	*)	330	495	690	
9	8.94	201	30.3	650	*)	235	305	500	*)	*)	340	530	*)	335	490	680	
10	9.69	186	30.5	610	*)	255	310	470	*)	*)	490	640	*)	325	455	620	
11.2	10.92	165	31.0	550	*)	255	305	460	*)	*)	480	620	*)	320	440	600	
12.5	12.35	146	30.8	485	*)	285	325	480	*)	*)	355	510	*)	340	435	600	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	13.92	129	31.3	440	*)	295	320	480	*)	*)	340	495	*)	350	420	590	
16	15.53	116	31.8	400	*)	280	290	425	*)	*)	455	580	*)	320	355	500	
18	17.51	103	34.0	380	*)	280	280	415	*)	97	430	560	105	320	340	485	
20	20.23	89	36.0	345	*)	285	270	410	*)	130	415	540	120	325	320	465	
22.4	22.80	79	36.0	310	79	275	250	385	*)	125	380	500	120	310	290	435	
25	24.77	73	36.0	285	87	265	235	360	*)	135	350	470	120	300	265	405	
28	27.91	64	36.0	250	89	260	225	350	*)	135	330	450	125	295	250	390	
31.5	30.94	58	36.0	225	100	250	210	330	*)	190	345	455	125	280	230	355	
35.5	34.87	52	36.0	200	99	240	195	310	*)	185	320	425	120	270	215	335	
40	39.12	46	36.0	180	87	210	165	260	*)	160	265	355	105	235	175	280	
45	44.08	41	36.0	160	86	205	160	255	*)	160	250	340	100	230	170	270	
50	48.46	37	36.0	145	80	185	140	225	38	160	230	310	93	205	145	240	
56	54.62	33	36.0	130	81	185	140	220	41	160	225	305	94	205	145	235	
63	62.05	29	36.0	115	74	165	120	195	52	150	195	270	85	185	125	205	
71	69.92	26	36.0	100	74	170	120	195	53	150	190	265	85	185	120	205	
80	81.90	22	36.0	87	86	-	130	-	63	-	200	-	94	-	125	-	X4K.. M1 HU 304 M5 362 M4 386
90	92.30	20	36.0	77	85	-	125	-	62	-	190	-	92	-	120	-	
100	100.25	18	36.0	71	81	-	115	-	59	-	175	-	88	-	115	-	
112	112.98	16	36.0	63	81	-	115	-	60	-	170	-	88	-	115	-	
125	126.75	14	36.0	56	70	-	96	-	51	-	140	-	76	-	95	-	
140	142.85	13	36.0	50	69	-	93	-	51	-	135	-	75	-	92	-	
160	152.40	12	36.0	47	65	-	87	-	48	-	125	-	71	-	86	-	
180	171.76	10	36.0	41	64	-	84	-	47	-	120	-	69	-	83	-	
200	198.63	9.1	36.0	36	60	-	76	-	54	-	115	-	65	-	76	-	
224	223.85	8.0	36.0	32	60	-	76	-	54	-	110	-	65	-	75	-	
250	251.14	7.2	36.0	29	52	-	65	-	48	-	93	-	57	-	65	-	
280	283.03	6.4	36.0	25	52	-	64	-	47	-	91	-	57	-	64	-	
315	301.95	6.0	36.0	24	48	-	59	-	44	-	83	-	53	-	59	-	
355	340.30	5.3	36.0	21	48	-	57	-	43	-	80	-	52	-	58	-	

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X.K170..,n_1= 1000 1/min																	45 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
8	**7.93**	126	37.5	510	*)	275	240	355	*)	*)	350	455	145	325	350	470	**X2K..**
9	**8.92**	112	38.5	460	*)	275	235	345	*)	125	335	440	150	320	335	450	**M1**
10	**9.86**	101	39.1	425	115	270	230	330	*)	185	345	445	155	315	305	415	HU 294
11.2	**11.08**	90	39.9	385	120	270	220	325	*)	185	330	425	160	310	295	400	**M5** 354
12.5	**12.05**	83	40.1	360	115	245	200	290	*)	200	310	395	145	275	255	350	**M4** 378
14	**13.54**	74	40.6	325	120	240	195	280	*)	195	295	380	150	275	245	335	
16	**15.35**	65	40.8	290	135	250	200	290	*)	185	285	370	155	275	240	335	
18	**17.25**	58	41.3	260	135	245	195	280	*)	185	275	355	155	275	230	325	
20	**19.30**	52	41.9	235	130	225	180	255	91	200	265	340	145	250	205	290	
22.4	**21.70**	46	45.0	225	125	225	175	250	92	200	255	330	145	250	200	280	
25	**25.15**	40	45.0	195	130	230	175	250	100	205	250	325	145	255	195	280	**X3K..**
28	**28.26**	35	45.0	175	130	225	170	245	99	200	240	315	145	250	190	270	**M1**
31.5	**30.78**	32	45.0	160	120	210	155	225	93	185	220	285	135	230	170	250	HU 298
35.5	**34.60**	29	45.0	140	120	205	150	220	92	185	210	275	135	225	165	240	HH 332
40	**38.45**	26	45.0	125	115	195	140	205	98	180	200	260	125	215	155	225	**M5**
45	**43.22**	23	45.0	115	110	190	135	200	96	180	195	255	125	210	150	220	358
50	**48.62**	21	45.0	100	93	160	115	165	81	150	155	210	105	175	125	180	**M4**
56	**54.64**	18	45.0	89	92	160	110	165	80	150	150	200	100	175	120	175	382
63	**60.23**	17	45.0	82	82	140	98	145	74	135	135	180	91	155	105	155	
71	**67.69**	15	45.0	73	83	140	97	145	75	135	130	175	92	155	105	155	
80	**77.11**	13	45.0	64	74	125	86	125	68	120	115	155	82	140	92	135	
90	**86.67**	12	45.0	57	73	125	84	125	67	120	110	150	81	135	90	135	
100	**101.79**	9.8	45.0	48	79	-	89	-	75	-	115	-	85	-	94	-	
112	**114.40**	8.7	45.0	43	79	-	89	-	75	-	115	-	86	-	94	-	
125	**124.60**	8.0	45.0	40	75	-	84	-	71	-	110	-	82	-	89	-	
140	**140.03**	7.1	45.0	35	74	-	82	-	70	-	105	-	80	-	87	-	
160	**157.54**	6.3	45.0	31	65	-	71	-	61	-	89	-	70	-	75	-	**X4K..**
180	**177.05**	5.6	45.0	28	63	-	70	-	60	-	87	-	69	-	73	-	**M1**
200	**189.42**	5.3	45.0	26	59	-	64	-	56	-	79	-	64	-	68	-	HU 304
224	**212.88**	4.7	45.0	23	59	-	64	-	56	-	78	-	64	-	67	-	**M5**
250	**246.86**	4.1	45.0	20	54	-	59	-	53	-	72	-	59	-	62	-	362
280	**277.45**	3.6	45.0	18	54	-	58	-	52	-	70	-	58	-	61	-	**M4**
315	**312.13**	3.2	45.0	16	47	-	50	-	45	-	60	-	51	-	53	-	386
355	**350.79**	2.9	45.0	14	47	-	50	-	45	-	59	-	50	-	52	-	
400	**375.29**	2.7	45.0	13	44	-	46	-	42	-	55	-	47	-	49	-	
450	**421.78**	2.4	45.0	12	43	-	46	-	42	-	54	-	47	-	49	-	
X.K170..,n_1= 1200 1/min																	45 kNm
8	**7.93**	151	37.5	610	*)	285	210	375	*)	*)	250	405	*)	345	360	510	**X2K..**
9	**8.92**	135	38.5	550	*)	285	215	370	*)	*)	255	400	*)	345	355	500	**M1**
10	**9.86**	122	39.1	510	*)	290	220	360	*)	*)	310	440	130	340	330	470	HU 294
11.2	**11.08**	108	39.9	465	*)	285	215	350	*)	125	295	425	130	335	310	450	**M5** 354
12.5	**12.05**	100	40.1	430	*)	265	200	315	*)	185	300	410	135	305	270	395	**M4** 378
14	**13.54**	89	40.6	390	98	260	195	310	*)	185	290	395	135	300	260	380	
16	**15.35**	78	40.8	345	115	270	205	320	*)	160	265	375	150	305	260	380	
18	**17.25**	70	41.3	310	120	270	200	310	*)	165	250	360	155	305	250	365	
20	**19.30**	62	41.9	280	125	250	185	285	*)	205	270	365	145	280	220	325	
22.4	**21.70**	55	45.0	270	125	250	180	280	*)	205	260	355	145	280	215	320	
25	**25.15**	48	45.0	235	130	255	180	280	65	210	255	350	150	285	210	315	**X3K..**
28	**28.26**	42	45.0	205	130	250	175	275	69	210	245	340	145	280	200	305	**M1**
31.5	**30.78**	39	45.0	190	120	235	160	250	68	195	220	310	135	260	180	280	HU 298
35.5	**34.60**	35	45.0	170	120	230	155	245	71	190	210	300	135	255	175	275	HH 332
40	**38.45**	31	45.0	150	115	215	145	230	90	195	210	290	130	240	165	255	**M5**
45	**43.22**	28	45.0	135	110	215	145	225	89	195	200	280	125	235	160	245	358
50	**48.62**	25	45.0	120	95	180	120	190	75	165	165	230	105	200	130	205	**M4**
56	**54.64**	22	45.0	105	93	175	115	185	74	160	155	220	105	195	125	200	382
63	**60.23**	20	45.0	98	84	160	100	160	72	150	140	200	94	175	110	175	
71	**67.69**	18	45.0	87	85	160	100	160	73	150	140	195	95	175	110	175	
80	**77.11**	16	45.0	77	76	140	90	145	68	135	120	175	85	155	97	155	
90	**86.67**	14	45.0	68	75	140	88	140	67	130	115	170	83	155	95	150	
100	**101.79**	12	45.0	58	82	-	94	-	75	-	125	-	89	-	99	-	
112	**114.40**	10	45.0	52	82	-	94	-	76	-	125	-	89	-	99	-	
125	**124.60**	9.6	45.0	48	78	-	89	-	72	-	115	-	85	-	93	-	
140	**140.03**	8.6	45.0	42	77	-	87	-	71	-	110	-	83	-	91	-	
160	**157.54**	7.6	45.0	38	67	-	75	-	62	-	94	-	73	-	79	-	**X4K..**
180	**177.05**	6.8	45.0	33	66	-	73	-	61	-	91	-	72	-	77	-	**M1**
200	**189.42**	6.3	45.0	31	61	-	68	-	56	-	83	-	66	-	71	-	HU 304
224	**212.88**	5.6	45.0	28	61	-	67	-	56	-	82	-	66	-	71	-	**M5**
250	**246.86**	4.9	45.0	24	57	-	62	-	55	-	76	-	62	-	65	-	362
280	**277.45**	4.3	45.0	22	56	-	61	-	54	-	74	-	61	-	64	-	**M4**
315	**312.13**	3.8	45.0	19	49	-	53	-	47	-	64	-	53	-	56	-	386
355	**350.79**	3.4	45.0	17	49	-	52	-	47	-	63	-	53	-	55	-	
400	**375.29**	3.2	45.0	16	46	-	49	-	44	-	58	-	50	-	52	-	
450	**421.78**	2.8	45.0	14	46	-	48	-	44	-	57	-	49	-	51	-	

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X.K170..,n_1= 1500 1/min																	45 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
8	**7.93**	189	37.5	760	*)	250	*)	355	*)	*)	*)	*)	*)	350	320	530	**X2K..**
9	**8.92**	168	38.5	690	*)	260	*)	360	*)	*)	*)	*)	*)	355	325	520	**M1**
10	**9.86**	152	39.1	640	*)	285	170	370	*)	*)	*)	355	*)	360	335	520	HU 294
11.2	**11.08**	135	39.9	580	*)	290	170	370	*)	*)	145	350	*)	355	330	510	**M5** 354
12.5	**12.05**	124	40.1	540	*)	280	175	340	*)	*)	255	405	*)	330	290	450	**M4** 378
14	**13.54**	111	40.6	485	*)	275	175	330	*)	*)	245	390	*)	325	275	430	
16	**15.35**	98	40.8	430	*)	295	205	350	*)	*)	170	330	120	340	280	435	
18	**17.25**	87	41.3	390	*)	290	200	340	*)	*)	160	315	125	335	265	420	
20	**19.30**	78	41.9	355	100	275	190	315	*)	190	255	380	130	310	240	375	
22.4	**21.70**	69	45.0	335	105	275	185	310	*)	190	245	370	135	310	230	365	
25	**25.15**	60	45.0	290	115	280	185	315	*)	200	240	365	145	315	225	360	**X3K..**
28	**28.26**	53	45.0	260	120	280	180	305	*)	200	230	350	145	310	215	350	**M1**
31.5	**30.78**	49	45.0	240	115	260	165	280	*)	185	205	320	135	290	195	320	HU 298
35.5	**34.60**	43	45.0	210	115	255	160	275	*)	185	195	310	135	285	190	310	HH 332
40	**38.45**	39	45.0	190	115	245	155	260	59	210	210	315	130	270	175	290	**M5**
45	**43.22**	35	45.0	170	110	240	150	255	62	205	205	305	130	265	170	285	358
50	**48.62**	31	45.0	150	94	200	125	210	53	175	165	250	110	225	140	235	**M4**
56	**54.64**	27	45.0	135	93	200	120	205	55	170	160	245	105	220	135	230	382
63	**60.23**	25	45.0	125	85	180	105	185	64	160	145	220	96	195	120	200	
71	**67.69**	22	45.0	110	85	180	105	185	65	165	145	220	97	200	115	200	
80	**77.11**	19	45.0	96	77	160	94	165	64	150	130	195	87	175	105	180	
90	**86.67**	17	45.0	85	76	160	92	160	63	145	125	190	86	175	100	175	
100	**101.79**	15	45.0	73	85	-	100	-	72	-	130	-	92	-	105	-	
112	**114.40**	13	45.0	65	86	-	100	-	73	-	130	-	93	-	105	-	
125	**124.60**	12	45.0	59	81	-	94	-	69	-	120	-	88	-	99	-	
140	**140.03**	11	45.0	53	80	-	92	-	68	-	115	-	87	-	97	-	
160	**157.54**	9.5	45.0	47	70	-	80	-	60	-	99	-	76	-	84	-	**X4K..**
180	**177.05**	8.5	45.0	42	69	-	78	-	59	-	95	-	75	-	82	-	**M1**
200	**189.42**	7.9	45.0	39	64	-	72	-	54	-	87	-	70	-	76	-	HU 304
224	**212.88**	7.0	45.0	35	64	-	71	-	55	-	86	-	70	-	75	-	**M5**
250	**246.86**	6.1	45.0	30	60	-	66	-	56	-	82	-	65	-	69	-	362
280	**277.45**	5.4	45.0	27	59	-	64	-	55	-	80	-	64	-	68	-	**M4**
315	**312.13**	4.8	45.0	24	51	-	56	-	48	-	68	-	56	-	59	-	386
355	**350.79**	4.3	45.0	21	51	-	56	-	48	-	67	-	56	-	59	-	
400	**375.29**	4.0	45.0	20	48	-	52	-	45	-	62	-	52	-	55	-	
450	**421.78**	3.6	45.0	18	48	-	52	-	45	-	61	-	52	-	55	-	
X.K170..,n_1= 1800 1/min																	**45 kNm**
8	**7.93**	227	35.6	870	*)	*)	*)	280	*)	*)	*)	*)	*)	305	230	510	**X2K..**
9	**8.92**	202	36.6	790	*)	*)	*)	290	*)	*)	*)	*)	*)	315	245	510	**M1**
10	**9.86**	183	37.1	730	*)	245	*)	340	*)	*)	*)	*)	*)	350	285	520	HU 294
11.2	**11.08**	162	37.7	660	*)	250	*)	345	*)	*)	*)	*)	*)	350	290	510	**M5** 354
12.5	**12.05**	149	38.0	610	*)	265	*)	345	*)	*)	*)	335	*)	340	295	480	**M4** 378
14	**13.54**	133	38.6	560	*)	270	*)	335	*)	*)	*)	325	*)	335	285	465	
16	**15.35**	117	38.5	490	*)	300	175	365	*)	*)	*)	185	*)	350	295	475	
18	**17.25**	104	39.2	445	*)	295	175	355	*)	*)	*)	170	*)	350	280	455	
20	**19.30**	93	39.7	400	*)	290	185	340	*)	110	215	360	105	330	255	415	
22.4	**21.70**	83	42.7	385	*)	290	180	335	*)	115	200	350	110	330	245	400	
25	**25.15**	72	45.0	350	89	295	185	335	*)	145	200	345	130	340	235	395	**X3K..**
28	**28.26**	64	45.0	310	95	295	180	325	*)	150	185	335	135	335	225	385	**M1**
31.5	**30.78**	58	45.0	285	94	275	165	300	*)	145	170	305	130	310	205	350	HU 298
35.5	**34.60**	52	45.0	255	98	270	160	295	*)	145	155	295	130	305	195	340	HH 332
40	**38.45**	47	45.0	230	110	260	155	280	*)	200	205	325	130	290	185	320	**M5**
45	**43.22**	42	45.0	205	105	255	150	275	*)	200	195	315	125	290	175	310	358
50	**48.62**	37	45.0	180	91	215	125	230	*)	170	155	255	105	240	145	255	**M4**
56	**54.64**	33	45.0	160	90	215	120	225	*)	165	150	250	105	240	140	250	382
63	**60.23**	30	45.0	145	84	190	110	200	43	165	145	235	97	215	125	220	
71	**67.69**	27	45.0	130	84	195	110	200	46	165	145	230	97	215	120	220	
80	**77.11**	23	45.0	115	77	175	97	175	56	155	130	210	88	190	110	195	
90	**86.67**	21	45.0	100	76	170	95	175	55	155	125	200	87	190	105	190	
100	**101.79**	18	45.0	87	87	-	105	-	65	-	135	-	95	-	110	-	
112	**114.40**	16	45.0	78	88	-	105	-	65	-	130	-	96	-	110	-	
125	**124.60**	14	45.0	71	84	-	99	-	62	-	120	-	91	-	105	-	
140	**140.03**	13	45.0	63	83	-	96	-	61	-	115	-	90	-	100	-	
160	**157.54**	11	45.0	56	72	-	84	-	54	-	100	-	79	-	88	-	**X4K..**
180	**177.05**	10	45.0	50	71	-	82	-	53	-	96	-	77	-	86	-	**M1**
200	**189.42**	9.5	45.0	47	66	-	75	-	50	-	88	-	72	-	79	-	HU 304
224	**212.88**	8.5	45.0	42	66	-	75	-	50	-	86	-	72	-	79	-	**M5**
250	**246.86**	7.3	45.0	36	62	-	69	-	56	-	86	-	67	-	73	-	362
280	**277.45**	6.5	45.0	32	61	-	68	-	56	-	84	-	66	-	71	-	**M4**
315	**312.13**	5.8	45.0	29	53	-	59	-	49	-	72	-	58	-	62	-	386
355	**350.79**	5.1	45.0	26	53	-	58	-	49	-	70	-	58	-	62	-	
400	**375.29**	4.8	45.0	24	50	-	55	-	46	-	65	-	54	-	58	-	
450	**421.78**	4.3	45.0	21	50	-	54	-	46	-	64	-	54	-	57	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5 M4				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K180..,n_1= 1000 1/min																	**58 kNm**
6.3	**6.32**	158	50.1	850	*)	265	510	650	*)	*)	790	920	*)	300	630	760	**X2K.. M1** HU 294 **M5** 354 **M4** 378
7.1	**7.07**	141	51.0	770	*)	285	530	670	*)	*)	810	940	*)	325	640	780	
8	**8.00**	125	51.7	690	*)	270	435	550	*)	*)	730	840	*)	290	500	620	
9	**8.96**	112	52.5	630	*)	285	435	560	*)	*)	730	840	*)	305	495	620	
10	**9.77**	102	53.2	590	*)	265	385	490	*)	170	660	760	*)	280	420	530	
11.2	**10.95**	91	54.2	540	135	275	385	490	*)	180	660	760	155	290	415	520	
12.5	**12.57**	80	52.9	455	130	250	310	405	*)	*)	485	570	165	285	360	465	**X3K.. M1** HU 298 HH 332 **M5** 358 **M4** 382
14	**14.08**	71	54.1	415	135	255	310	410	*)	120	475	570	170	290	355	460	
16	**16.17**	62	54.4	365	145	240	280	365	*)	195	460	540	165	270	305	400	
18	**18.11**	55	58.0	345	150	250	280	370	87	200	460	540	175	275	305	400	
20	**19.74**	51	58.0	320	140	230	255	335	87	190	415	490	160	260	275	365	
22.4	**22.10**	45	58.0	285	150	240	260	345	94	200	420	500	170	270	280	375	
25	**25.55**	39	58.0	245	135	220	225	305	87	180	360	435	155	245	240	325	
28	**28.61**	35	58.0	220	135	220	225	305	91	185	355	430	155	245	235	320	
31.5	**32.36**	31	58.0	195	120	195	190	260	99	175	305	370	135	215	200	275	
35.5	**36.24**	28	58.0	175	125	200	195	265	100	180	305	375	140	225	200	280	
40	**38.93**	26	58.0	160	115	180	170	235	92	160	265	325	125	200	175	245	
45	**43.60**	23	58.0	145	115	180	170	235	93	165	260	320	130	200	175	245	
50	**47.57**	21	58.0	135	100	160	150	205	89	150	230	285	115	180	150	215	
56	**53.27**	19	58.0	120	105	165	150	210	91	155	230	285	115	185	150	215	
63	**60.90**	16	58.0	105	91	145	125	175	82	135	190	240	100	155	125	180	
71	**68.20**	15	58.0	93	93	145	125	175	84	140	190	240	105	160	130	185	
80	**79.89**	13	58.0	80	88	-	115	-	82	-	175	-	95	-	115	-	**X4K.. M1** HU 304 **M5** 362 **M4** 386
90	**89.46**	11	58.0	71	90	-	115	-	84	-	175	-	97	-	115	-	
100	**103.42**	9.7	58.0	61	83	-	105	-	78	-	155	-	90	-	105	-	
112	**115.81**	8.6	58.0	55	85	-	105	-	79	-	155	-	92	-	105	-	
125	**124.41**	8.0	58.0	51	77	-	96	-	72	-	135	-	83	-	96	-	
140	**139.32**	7.2	58.0	46	78	-	96	-	73	-	135	-	85	-	97	-	
160	**153.68**	6.5	58.0	41	70	-	85	-	65	-	120	-	76	-	85	-	
180	**172.10**	5.8	58.0	37	70	-	84	-	65	-	115	-	76	-	85	-	
200	**204.90**	4.9	58.0	31	62	-	74	-	61	-	100	-	68	-	75	-	
224	**229.46**	4.4	58.0	28	64	-	75	-	63	-	105	-	70	-	76	-	
250	**246.49**	4.1	58.0	26	58	-	68	-	57	-	92	-	63	-	69	-	
280	**276.03**	3.6	58.0	23	58	-	67	-	57	-	90	-	63	-	69	-	
315	**304.49**	3.3	58.0	21	52	-	60	-	51	-	79	-	57	-	61	-	
355	**340.98**	2.9	58.0	19	54	-	61	-	52	-	80	-	58	-	62	-	
X.K180..,n_1= 1200 1/min																	**58 kNm**
6.3	**6.32**	190	50.1	1000	*)	*)	485	660	*)	*)	580	760	*)	290	620	790	**X2K.. M1** HU 294 **M5** 354 **M4** 378
7.1	**7.07**	170	51.0	930	*)	260	510	690	*)	*)	620	800	*)	310	640	830	
8	**8.00**	150	51.7	830	*)	265	455	600	*)	*)	710	850	*)	295	560	700	
9	**8.96**	134	52.5	750	*)	280	450	610	*)	*)	700	850	*)	315	540	700	
10	**9.77**	123	53.2	710	*)	275	405	540	*)	*)	680	810	*)	300	465	600	
11.2	**10.95**	110	54.2	640	*)	290	400	540	*)	*)	670	800	*)	310	455	600	
12.5	**12.57**	95	52.9	550	*)	265	330	450	*)	*)	455	570	145	310	400	530	**X3K.. M1** HU 298 HH 332 **M5** 358 **M4** 382
14	**14.08**	85	54.1	500	*)	275	325	455	*)	*)	445	570	155	320	390	530	
16	**16.17**	74	54.4	440	130	265	295	410	*)	185	480	580	160	300	340	460	
18	**18.11**	66	58.0	415	135	275	295	410	*)	190	480	590	165	310	335	460	
20	**19.74**	61	58.0	380	130	255	270	380	*)	185	430	530	160	290	300	415	
22.4	**22.10**	54	58.0	340	140	265	275	390	*)	195	435	540	170	300	305	425	
25	**25.55**	47	58.0	295	130	240	240	340	*)	175	370	470	155	270	260	370	
28	**28.61**	42	58.0	265	135	245	235	340	*)	180	365	460	155	275	255	365	
31.5	**32.36**	37	58.0	235	120	215	200	290	79	185	325	405	140	240	215	310	
35.5	**36.24**	33	58.0	210	125	225	205	295	84	190	325	410	145	250	215	315	
40	**38.93**	31	58.0	195	115	200	180	265	77	170	285	360	130	225	190	280	
45	**43.60**	28	58.0	175	115	200	180	260	79	170	275	355	130	225	185	275	
50	**47.57**	25	58.0	160	105	180	155	230	83	165	245	315	115	200	160	240	
56	**53.27**	23	58.0	145	105	185	160	235	85	165	245	315	120	205	165	245	
63	**60.90**	20	58.0	125	93	160	135	200	80	150	205	265	105	175	135	205	
71	**68.20**	18	58.0	110	95	165	135	200	82	150	205	265	105	180	135	210	
80	**79.89**	15	58.0	96	91	-	125	-	80	-	185	-	98	-	125	-	**X4K.. M1** HU 304 **M5** 362 **M4** 386
90	**89.46**	13	58.0	85	93	-	125	-	82	-	185	-	100	-	125	-	
100	**103.42**	12	58.0	74	86	-	115	-	76	-	165	-	93	-	115	-	
112	**115.81**	10	58.0	66	88	-	115	-	78	-	165	-	95	-	115	-	
125	**124.41**	9.6	58.0	61	79	-	100	-	71	-	145	-	86	-	100	-	
140	**139.32**	8.6	58.0	55	81	-	105	-	72	-	145	-	88	-	105	-	
160	**153.68**	7.8	58.0	50	72	-	90	-	64	-	125	-	79	-	90	-	
180	**172.10**	7.0	58.0	44	73	-	90	-	65	-	125	-	79	-	90	-	
200	**204.90**	5.9	58.0	38	65	-	78	-	63	-	110	-	71	-	79	-	
224	**229.46**	5.2	58.0	34	67	-	80	-	65	-	110	-	73	-	81	-	
250	**246.49**	4.9	58.0	31	61	-	72	-	59	-	99	-	66	-	73	-	
280	**276.03**	4.3	58.0	28	61	-	71	-	59	-	97	-	66	-	72	-	
315	**304.49**	3.9	58.0	25	55	-	64	-	53	-	86	-	59	-	65	-	
355	**340.98**	3.5	58.0	23	56	-	65	-	54	-	86	-	61	-	66	-	

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X.K180..,n_1= 1500 1/min																	58 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	6.32	237	50.1	1250	*)	*)	360	640	*)	*)	*)	*)	*)	*)	560	790	X2K.. M1 HU 294 M5 354 M4 378
7.1	7.07	212	51.0	1150	*)	*)	395	670	*)	*)	*)	*)	*)	*)	590	830	
8	8.00	188	51.7	1050	*)	*)	400	610	*)	*)	470	670	*)	270	540	730	
9	8.96	167	52.5	940	*)	235	420	630	*)	*)	500	700	*)	290	560	760	
10	9.77	154	53.2	880	*)	265	420	600	*)	*)	650	820	*)	300	520	700	
11.2	10.95	137	54.2	800	*)	280	415	600	*)	*)	640	810	*)	315	510	690	
12.5	12.57	119	52.9	680	*)	270	340	500	*)	*)	325	485	*)	335	445	620	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	14.08	107	54.1	620	*)	280	335	500	*)	*)	310	475	*)	340	435	610	
16	16.17	93	54.4	550	*)	285	315	460	*)	*)	480	610	140	330	380	540	
18	18.11	83	58.0	520	*)	295	315	465	*)	*)	475	610	150	340	375	540	
20	19.74	76	58.0	480	*)	280	285	425	*)	120	430	560	145	320	335	485	
22.4	22.10	68	58.0	425	120	290	290	435	*)	130	430	570	155	335	335	495	
25	25.55	59	58.0	370	110	265	250	385	*)	130	365	490	140	300	285	425	
28	28.61	52	58.0	330	115	265	250	380	*)	135	355	480	145	305	280	420	
31.5	32.36	46	58.0	290	110	240	215	330	*)	180	335	445	135	270	235	360	
35.5	36.24	41	58.0	260	120	250	220	335	*)	185	335	450	140	280	235	365	
40	38.93	39	58.0	240	105	225	190	300	*)	170	295	395	130	250	205	320	
45	43.60	34	58.0	215	110	225	190	295	*)	170	285	385	130	255	200	320	
50	47.57	32	58.0	200	100	205	170	260	59	170	260	350	120	225	175	280	
56	53.27	28	58.0	180	105	210	170	265	63	175	260	355	120	235	175	285	
63	60.90	25	58.0	155	93	180	145	225	72	160	225	300	105	200	150	240	
71	68.20	22	58.0	140	95	185	145	230	74	165	220	300	110	205	150	240	
80	79.89	19	58.0	120	94	-	135	-	73	-	200	-	100	-	135	-	X4K.. M1 HU 304 M5 362 M4 386
90	89.46	17	58.0	105	96	-	135	-	74	-	200	-	105	-	135	-	
100	103.42	15	58.0	92	89	-	120	-	69	-	175	-	96	-	120	-	
112	115.81	13	58.0	82	91	-	120	-	70	-	175	-	99	-	120	-	
125	124.41	12	58.0	77	82	-	110	-	64	-	155	-	89	-	110	-	
140	139.32	11	58.0	68	84	-	110	-	65	-	155	-	91	-	110	-	
160	153.68	9.8	58.0	62	75	-	97	-	59	-	135	-	81	-	97	-	
180	172.10	8.7	58.0	55	75	-	96	-	59	-	130	-	82	-	96	-	
200	204.90	7.3	58.0	47	68	-	84	-	64	-	120	-	74	-	85	-	
224	229.46	6.5	58.0	42	70	-	86	-	66	-	120	-	76	-	86	-	
250	246.49	6.1	58.0	39	64	-	77	-	60	-	110	-	69	-	78	-	
280	276.03	5.4	58.0	35	64	-	77	-	60	-	105	-	69	-	77	-	
315	304.49	4.9	58.0	32	57	-	68	-	54	-	93	-	62	-	69	-	
355	340.98	4.4	58.0	28	59	-	69	-	55	-	94	-	64	-	70	-	
X.K180..,n_1= 1800 1/min																	58 kNm
6.3[1]	6.32	285	47.3	1450	*)	*)	*)	520	*)	*)	*)	*)	*)	*)	415	740	X2K.. M1 HU 294 M5 354 M4 378
7.1[1]	7.07	255	48.2	1300	*)	*)	*)	560	*)	*)	*)	*)	*)	*)	455	780	
8[1]	8.00	225	48.8	1200	*)	*)	*)	570	*)	*)	*)	*)	*)	*)	470	720	
9[1]	8.96	201	49.6	1050	*)	*)	315	600	*)	*)	*)	270	*)	*)	500	740	
10[1]	9.77	184	50.3	1000	*)	*)	360	590	*)	*)	450	660	*)	265	500	700	
11.2[1]	10.95	164	51.2	910	*)	235	380	610	*)	*)	480	690	*)	285	520	730	
12.5	12.57	143	50.1	780	*)	235	325	520	*)	*)	*)	220	*)	320	485	680	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	14.08	128	51.1	710	*)	250	325	520	*)	*)	*)	195	*)	335	470	670	
16	16.17	111	51.4	620	*)	290	325	495	*)	*)	430	590	*)	345	420	600	
18	18.11	99	54.8	590	*)	300	325	500	*)	*)	420	590	*)	355	410	600	
20	19.74	91	56.0	550	*)	285	295	460	*)	*)	380	540	*)	335	365	540	
22.4	22.10	81	58.0	510	*)	300	300	470	*)	*)	375	540	130	350	365	550	
25	25.55	70	58.0	445	*)	270	260	410	*)	*)	315	465	120	315	305	470	
28	28.61	63	58.0	395	*)	275	255	410	*)	*)	305	455	125	320	295	465	
31.5	32.36	56	58.0	350	95	250	225	355	*)	145	330	455	125	290	250	395	
35.5	36.24	50	58.0	310	100	260	225	365	*)	150	330	460	135	300	250	400	
40	38.93	46	58.0	290	93	235	200	325	*)	140	285	405	120	270	220	355	
45	43.60	41	58.0	260	97	235	195	320	*)	140	275	395	125	270	215	350	
50	47.57	38	58.0	240	94	215	175	285	*)	165	265	370	115	245	190	310	
56	53.27	34	58.0	215	99	220	175	290	*)	165	265	375	120	250	190	310	
63	60.90	30	58.0	190	91	195	150	245	54	165	235	325	105	215	160	265	
71	68.20	26	58.0	165	93	200	150	250	56	170	235	325	110	220	155	265	
80	79.89	23	58.0	145	95	-	140	-	54	-	205	-	105	-	140	-	X4K.. M1 HU 304 M5 362 M4 386
90	89.46	20	58.0	130	97	-	145	-	57	-	205	-	105	-	140	-	
100	103.42	17	58.0	110	90	-	130	-	54	-	180	-	98	-	130	-	
112	115.81	16	58.0	99	92	-	130	-	55	-	180	-	100	-	130	-	
125	124.41	14	58.0	92	84	-	115	-	50	-	155	-	91	-	115	-	
140	139.32	13	58.0	82	85	-	115	-	51	-	155	-	93	-	115	-	
160	153.68	12	58.0	74	77	-	100	-	47	-	135	-	83	-	100	-	
180	172.10	10	58.0	67	77	-	100	-	47	-	130	-	83	-	100	-	
200	204.90	8.8	58.0	56	71	-	90	-	64	-	130	-	77	-	90	-	
224	229.46	7.8	58.0	50	72	-	91	-	66	-	130	-	79	-	91	-	
250	246.49	7.3	58.0	47	66	-	82	-	60	-	115	-	72	-	82	-	
280	276.03	6.5	58.0	42	66	-	81	-	60	-	115	-	71	-	81	-	
315	304.49	5.9	58.0	38	59	-	72	-	54	-	99	-	64	-	73	-	
355	340.98	5.3	58.0	34	61	-	73	-	55	-	100	-	66	-	74	-	

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X.K190..,n_1= 1000 1/min																	65 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
7.1	**7.05**	142	55.4	840	*)	290	305	475	*)	*)	340	510	*)	325	440	590	**X2K..**
8	**7.92**	126	56.2	760	*)	295	305	470	*)	*)	340	500	*)	330	425	580	**M1**
9	**8.93**	112	57.3	690	*)	290	285	420	*)	*)	405	530	*)	315	365	495	HU 294
10	**10.04**	100	58.4	620	*)	290	275	410	*)	*)	385	510	*)	315	350	480	**M5** 354
11.2	**10.91**	92	59.3	590	*)	285	265	385	*)	185	400	510	155	300	315	435	**M4** 378
12.5	**12.26**	82	60.8	540	140	280	260	375	*)	185	380	495	160	295	305	420	
14	**14.04**	71	59.2	455	140	260	235	340	*)	125	295	395	175	300	290	405	
16	**15.77**	63	60.6	415	145	270	235	345	*)	130	290	395	180	305	290	405	
18	**18.05**	55	60.8	365	150	255	215	310	*)	205	310	400	175	285	255	360	
20	**20.29**	49	65.0	345	160	260	220	320	95	215	315	405	180	290	260	360	
22.4	**22.04**	45	65.0	320	150	245	205	295	93	200	285	370	170	270	235	330	**X3K..**
25	**24.77**	40	65.0	285	150	245	205	295	98	205	280	370	175	275	235	330	**M1**
28	**28.53**	35	65.0	245	140	230	185	270	94	190	250	335	160	255	210	300	HU 298
31.5	**32.06**	31	65.0	220	145	235	185	270	98	195	250	330	160	260	210	300	HH 332
35.5	**36.14**	28	65.0	195	125	205	160	235	105	185	220	290	145	225	175	255	**M5**
40	**40.61**	25	65.0	175	130	210	165	240	110	190	225	295	150	235	180	265	358
45	**43.48**	23	65.0	160	120	190	145	215	97	170	195	260	130	210	160	235	**M4**
50	**48.85**	20	65.0	145	120	190	145	215	98	170	195	260	135	210	160	235	382
56	**53.11**	19	65.0	135	110	175	130	195	95	160	175	235	120	190	140	210	
63	**59.68**	17	65.0	120	110	175	130	195	96	160	175	235	120	190	140	210	
71	**68.00**	15	65.0	105	94	150	110	165	86	140	145	195	105	165	120	175	
80	**76.41**	13	65.0	93	96	150	110	165	88	145	145	200	105	165	120	180	
90	**89.21**	11	65.0	80	94	-	105	-	88	-	140	-	100	-	115	-	
100	**100.24**	10.0	65.0	71	95	-	105	-	89	-	135	-	105	-	115	-	
112	**115.48**	8.7	65.0	62	90	-	100	-	84	-	125	-	97	-	105	-	
125	**129.76**	7.7	65.0	55	90	-	100	-	84	-	125	-	97	-	105	-	
140	**138.93**	7.2	65.0	51	82	-	91	-	77	-	115	-	89	-	96	-	**X4K..**
160	**156.11**	6.4	65.0	46	83	-	91	-	77	-	110	-	90	-	96	-	**M1**
180	**171.61**	5.8	65.0	42	75	-	82	-	70	-	99	-	81	-	86	-	HU 304
200	**192.84**	5.2	65.0	37	74	-	80	-	69	-	96	-	80	-	85	-	**M5**
224	**228.80**	4.4	65.0	31	68	-	73	-	66	-	88	-	73	-	77	-	362
250	**257.10**	3.9	65.0	28	69	-	73	-	67	-	88	-	74	-	78	-	**M4**
280	**275.25**	3.6	65.0	26	63	-	67	-	61	-	80	-	68	-	71	-	386
315	**309.29**	3.2	65.0	23	63	-	67	-	61	-	79	-	68	-	71	-	
355	**340.02**	2.9	65.0	21	56	-	60	-	55	-	70	-	61	-	63	-	
400	**382.06**	2.6	65.0	19	57	-	60	-	55	-	70	-	62	-	64	-	
X.K190..,n_1= 1200 1/min																	**65 kNm**
7.1	**7.05**	170	55.4	1000	*)	260	*)	475	*)	*)	*)	*)	*)	315	395	610	**X2K..**
8	**7.92**	152	56.2	910	*)	270	235	475	*)	*)	*)	265	*)	320	400	610	**M1**
9	**8.93**	134	57.3	820	*)	285	255	450	*)	*)	300	485	*)	320	385	550	HU 294
10	**10.04**	120	58.4	750	*)	290	250	440	*)	*)	285	470	*)	325	365	530	**M5** 354
11.2	**10.91**	110	59.3	710	*)	295	255	420	*)	*)	370	520	*)	320	335	490	**M4** 378
12.5	**12.26**	98	60.8	640	*)	300	250	410	*)	*)	355	500	*)	320	320	470	
14	**14.04**	85	59.2	550	*)	280	230	370	*)	*)	220	365	155	325	310	455	
16	**15.77**	76	60.6	500	*)	290	235	375	*)	*)	215	360	165	335	310	455	
18	**18.05**	66	60.8	440	140	280	225	345	*)	195	305	425	170	315	275	405	
20	**20.29**	59	65.0	415	145	285	225	355	*)	205	305	430	180	325	275	410	
22.4	**22.04**	54	65.0	385	140	270	210	325	*)	195	280	395	170	300	250	375	**X3K..**
25	**24.77**	48	65.0	340	145	270	210	330	*)	200	275	390	175	305	245	375	**M1**
28	**28.53**	42	65.0	295	135	255	190	300	*)	190	245	350	160	285	220	340	HU 298
31.5	**32.06**	37	65.0	265	140	255	190	300	*)	190	240	350	165	290	220	340	HH 332
35.5	**36.14**	33	65.0	235	125	225	165	260	85	195	225	315	145	250	185	290	**M5**
40	**40.61**	30	65.0	210	130	235	170	270	90	200	225	325	150	260	190	300	358
45	**43.48**	28	65.0	195	120	210	150	240	82	180	200	285	135	235	170	265	**M4**
50	**48.85**	25	65.0	175	120	210	150	240	84	180	195	280	135	235	165	265	382
56	**53.11**	23	65.0	160	110	195	135	215	89	175	185	260	125	215	150	235	
63	**59.68**	20	65.0	145	110	195	135	215	89	175	180	255	125	215	150	235	
71	**68.00**	18	65.0	125	96	165	115	185	84	155	155	220	110	185	125	200	
80	**76.41**	16	65.0	110	99	170	115	185	85	160	155	220	110	190	125	205	
90	**89.21**	13	65.0	96	98	-	115	-	87	-	145	-	105	-	120	-	
100	**100.24**	12	65.0	85	98	-	115	-	87	-	145	-	105	-	120	-	
112	**115.48**	10	65.0	74	93	-	105	-	82	-	130	-	100	-	110	-	
125	**129.76**	9.2	65.0	66	93	-	105	-	83	-	130	-	100	-	110	-	
140	**138.93**	8.6	65.0	62	85	-	96	-	76	-	115	-	93	-	100	-	**X4K..**
160	**156.11**	7.7	65.0	55	86	-	95	-	76	-	115	-	93	-	100	-	**M1**
180	**171.61**	7.0	65.0	50	77	-	86	-	69	-	105	-	84	-	90	-	HU 304
200	**192.84**	6.2	65.0	44	76	-	84	-	68	-	100	-	83	-	89	-	**M5**
224	**228.80**	5.2	65.0	38	70	-	77	-	68	-	94	-	76	-	81	-	362
250	**257.10**	4.7	65.0	34	72	-	77	-	69	-	94	-	78	-	82	-	**M4**
280	**275.25**	4.4	65.0	31	66	-	71	-	63	-	85	-	71	-	75	-	386
315	**309.29**	3.9	65.0	28	65	-	70	-	63	-	84	-	71	-	74	-	
355	**340.02**	3.5	65.0	25	59	-	63	-	57	-	74	-	64	-	67	-	
400	**382.06**	3.1	65.0	23	59	-	63	-	57	-	74	-	64	-	67	-	

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X.K190..,n_1= 1500 1/min																	65 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**7.05**	213	55.4	1250	*)	*)	*)	390	*)	*)	*)	*)	*)	*)	*)	590	**X2K..**
8	**7.92**	189	56.2	1150	*)	*)	*)	405	*)	*)	*)	*)	*)	*)	*)	590	**M1**
9	**8.93**	168	57.3	1050	*)	*)	*)	430	*)	*)	*)	*)	*)	290	315	560	HU 294
10	**10.04**	149	58.4	930	*)	245	*)	435	*)	*)	*)	*)	*)	300	320	560	**M5** 354
11.2	**10.91**	137	59.3	880	*)	285	*)	445	*)	*)	230	455	*)	320	340	550	**M4** 378
12.5	**12.26**	122	60.8	800	*)	290	210	435	*)	*)	220	445	*)	325	325	530	
14	**14.04**	107	59.2	690	*)	285	200	400	*)	*)	*)	185	*)	350	330	520	
16	**15.77**	95	60.6	620	*)	300	205	405	*)	*)	*)	175	*)	360	325	520	
18	**18.05**	83	60.8	550	*)	300	220	385	*)	*)	265	420	150	345	300	465	
20	**20.29**	74	65.0	520	*)	310	225	390	*)	*)	260	420	160	360	295	470	
22.4	**22.04**	68	65.0	480	*)	295	205	365	*)	135	240	390	150	335	270	430	**X3K..**
25	**24.77**	61	65.0	425	120	295	210	365	*)	140	230	385	160	340	265	430	**M1**
28	**28.53**	53	65.0	370	115	275	190	335	*)	140	205	345	150	315	235	385	HU 298
31.5	**32.06**	47	65.0	330	120	280	190	335	*)	145	200	345	155	320	230	385	HH 332
35.5	**36.14**	42	65.0	290	120	250	170	295	*)	190	215	340	145	280	200	330	**M5**
40	**40.61**	37	65.0	260	125	260	175	300	*)	195	220	345	150	295	200	340	358
45	**43.48**	34	65.0	245	115	235	155	270	*)	175	190	305	135	260	180	300	**M4**
50	**48.85**	31	65.0	215	115	235	155	270	*)	180	185	300	135	265	175	300	382
56	**53.11**	28	65.0	200	110	215	140	245	65	180	185	285	125	240	160	270	
63	**59.68**	25	65.0	180	110	215	140	245	67	185	180	280	125	245	155	270	
71	**68.00**	22	65.0	155	97	190	120	210	75	170	160	245	110	210	135	230	
80	**76.41**	20	65.0	140	99	190	120	210	77	175	160	250	115	215	135	230	
90	**89.21**	17	65.0	120	100	-	120	-	79	-	150	-	110	-	125	-	
100	**100.24**	15	65.0	105	100	-	120	-	79	-	145	-	110	-	125	-	
112	**115.48**	13	65.0	93	96	-	110	-	75	-	135	-	105	-	115	-	
125	**129.76**	12	65.0	82	96	-	110	-	75	-	130	-	105	-	115	-	
140	**138.93**	11	65.0	77	88	-	100	-	69	-	120	-	96	-	105	-	**X4K..**
160	**156.11**	9.6	65.0	68	89	-	100	-	69	-	115	-	96	-	105	-	**M1**
180	**171.61**	8.7	65.0	62	80	-	90	-	63	-	105	-	87	-	95	-	HU 304
200	**192.84**	7.8	65.0	55	79	-	89	-	62	-	100	-	86	-	93	-	**M5**
224	**228.80**	6.6	65.0	47	74	-	81	-	70	-	100	-	80	-	86	-	362
250	**257.10**	5.8	65.0	42	75	-	82	-	71	-	100	-	81	-	87	-	**M4**
280	**275.25**	5.4	65.0	39	69	-	75	-	65	-	91	-	75	-	79	-	386
315	**309.29**	4.8	65.0	35	69	-	75	-	65	-	90	-	74	-	79	-	
355	**340.02**	4.4	65.0	32	62	-	67	-	58	-	79	-	67	-	70	-	
400	**382.06**	3.9	65.0	28	62	-	67	-	59	-	79	-	68	-	71	-	
X.K190..,n_1= 1800 1/min																	65 kNm
7.1[1)]	**7.05**	255	52.4	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	475	
8[1)]	**7.92**	227	53.1	1300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	490	**X2K..**
9[1)]	**8.93**	202	54.2	1150	*)	*)	*)	345	*)	*)	*)	*)	*)	*)	*)	520	**M1**
10[1)]	**10.04**	179	55.2	1050	*)	*)	*)	360	*)	*)	*)	*)	*)	*)	*)	530	HU 294
11.2[1)]	**10.91**	165	56.0	1000	*)	*)	*)	415	*)	*)	*)	*)	*)	285	280	540	**M5** 354
12.5[1)]	**12.26**	147	57.5	910	*)	245	*)	420	*)	*)	*)	*)	*)	295	290	540	**M4** 378
14	**14.04**	128	56.0	780	*)	255	*)	400	*)	*)	*)	*)	*)	345	330	560	
16	**15.77**	114	57.4	710	*)	270	*)	410	*)	*)	*)	*)	*)	360	325	550	
18	**18.05**	100	57.5	620	*)	305	200	405	*)	*)	*)	355	*)	360	315	510	
20	**20.29**	89	61.4	590	*)	320	205	410	*)	*)	*)	355	*)	375	310	510	
22.4	**22.04**	82	62.5	550	*)	300	190	385	*)	*)	*)	335	*)	350	280	470	**X3K..**
25	**24.77**	73	65.0	510	*)	305	195	385	*)	*)	*)	325	135	355	275	465	**M1**
28	**28.53**	63	65.0	445	*)	285	175	350	*)	*)	*)	295	130	330	240	420	HU 298
31.5	**32.06**	56	65.0	395	*)	290	180	355	*)	*)	*)	290	135	335	235	420	HH 332
35.5	**36.14**	50	65.0	350	100	265	170	315	*)	155	190	330	135	300	210	360	**M5**
40	**40.61**	44	65.0	310	110	275	170	320	*)	165	185	335	145	310	210	370	358
45	**43.48**	41	65.0	290	99	245	155	285	*)	150	165	300	130	280	185	330	**M4**
50	**48.85**	37	65.0	260	105	250	150	285	*)	150	160	295	130	280	180	325	382
56	**53.11**	34	65.0	240	100	230	140	265	*)	175	175	295	125	260	165	295	
63	**59.68**	30	65.0	215	105	230	140	265	*)	175	170	290	125	260	165	295	
71	**68.00**	26	65.0	190	95	200	125	225	58	175	160	260	110	225	140	250	
80	**76.41**	24	65.0	170	97	205	125	230	60	175	160	265	115	230	140	255	
90	**89.21**	20	65.0	145	105	-	125	-	61	-	145	-	110	-	130	-	
100	**100.24**	18	65.0	130	105	-	125	-	62	-	140	-	110	-	130	-	
112	**115.48**	16	65.0	110	97	-	115	-	59	-	130	-	105	-	120	-	
125	**129.76**	14	65.0	99	98	-	115	-	60	-	125	-	105	-	120	-	
140	**138.93**	13	65.0	92	90	-	105	-	55	-	115	-	98	-	110	-	**X4K..**
160	**156.11**	12	65.0	82	90	-	105	-	55	-	110	-	98	-	110	-	**M1**
180	**171.61**	10	65.0	75	82	-	94	-	51	-	99	-	89	-	99	-	HU 304
200	**192.84**	9.3	65.0	67	81	-	92	-	50	-	96	-	88	-	97	-	**M5**
224	**228.80**	7.9	65.0	57	76	-	85	-	70	-	105	-	83	-	90	-	362
250	**257.10**	7.0	65.0	50	77	-	86	-	71	-	105	-	84	-	91	-	**M4**
280	**275.25**	6.5	65.0	47	71	-	78	-	65	-	95	-	77	-	83	-	386
315	**309.29**	5.8	65.0	42	71	-	78	-	65	-	94	-	77	-	82	-	
355	**340.02**	5.3	65.0	38	64	-	70	-	58	-	83	-	69	-	73	-	
400	**382.06**	4.7	65.0	34	64	-	70	-	59	-	82	-	70	-	74	-	

X.K200..,n_1= 1000 1/min																	79 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	6.40	156	56.6	950	*)	325	610	800	*)	*)	790	970	*)	380	760	950	X2K.. M1 HU 294 M5 354 M4 378
7.1	7.26	138	58.0	860	*)	330	600	790	*)	*)	790	970	*)	385	760	940	
8	8.11	123	59.1	780	*)	345	560	720	*)	*)	880	1050	*)	380	670	830	
9	9.20	109	60.4	700	*)	345	530	700	*)	*)	830	980	*)	380	620	790	
10	9.91	101	60.9	660	*)	340	480	620	*)	180	800	930	185	360	540	680	
11.2	11.24	89	62.2	600	165	340	460	600	*)	185	760	890	190	360	510	650	
12.5	12.45	80	66.5	580	155	315	400	530	*)	*)	550	680	200	365	480	620	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	14.12	71	68.9	530	155	310	385	510	*)	*)	520	640	205	360	455	590	
16	16.32	61	72.2	480	175	305	350	465	*)	215	560	670	210	340	395	520	
18	18.50	54	75.1	440	175	300	340	450	*)	215	540	640	205	340	375	495	
20	20.56	49	78.1	410	170	290	315	425	*)	215	495	600	200	325	350	465	
22.4	23.31	43	79.0	365	165	280	295	400	*)	205	460	560	195	315	325	435	
25	25.72	39	79.0	335	155	260	270	370	*)	195	415	510	180	295	290	395	
28	29.17	34	79.0	295	155	255	260	355	*)	190	395	485	180	290	280	380	
31.5	31.97	31	79.0	270	150	240	235	320	120	215	375	455	165	265	245	340	
35.5	36.26	28	79.0	235	145	235	225	310	120	210	355	435	165	260	235	325	
40	39.61	25	79.0	215	145	230	220	300	120	210	340	420	165	255	225	320	
45	44.92	22	79.0	190	140	225	205	285	115	200	320	395	155	245	215	300	
50	48.39	21	79.0	180	135	215	195	270	115	195	300	375	150	235	200	285	
56	54.88	18	79.0	160	135	215	190	270	115	200	295	365	150	235	195	280	
63	61.95	16	79.0	140	120	195	170	240	110	180	260	325	135	215	175	250	
71	70.26	14	79.0	125	120	190	165	230	105	180	245	310	135	210	170	240	
80	79.69	13	78.0	105	115	-	155	-	110	-	225	-	125	-	155	-	X4K.. M1 HU 304 M5 362 M4 386
90	90.37	11	79.0	96	115	-	150	-	110	-	220	-	125	-	150	-	
100	99.70	10	79.0	87	110	-	135	-	100	-	200	-	115	-	140	-	
112	113.07	8.8	79.0	77	105	-	135	-	100	-	190	-	115	-	135	-	
125	123.51	8.1	79.0	70	105	-	130	-	100	-	185	-	115	-	135	-	
140	140.07	7.1	79.0	62	105	-	130	-	99	-	180	-	115	-	130	-	
160	152.66	6.6	79.0	57	99	-	120	-	93	-	165	-	105	-	120	-	
180	173.13	5.8	79.0	50	97	-	115	-	91	-	160	-	105	-	115	-	
200	197.54	5.1	79.0	44	82	-	97	-	81	-	130	-	89	-	98	-	
224	224.02	4.5	79.0	39	81	-	94	-	79	-	125	-	87	-	96	-	
250	244.71	4.1	79.0	36	81	-	93	-	79	-	125	-	88	-	95	-	
280	277.52	3.6	79.0	32	78	-	90	-	77	-	120	-	85	-	92	-	
315	302.47	3.3	79.0	29	73	-	83	-	72	-	110	-	79	-	85	-	
355	343.03	2.9	79.0	26	73	-	82	-	71	-	105	-	79	-	84	-	
X.K200..,n_1= 1200 1/min																	79 kNm
6.3	6.40	188	56.6	1150	*)	*)	540	790	*)	*)	*)	590	*)	340	720	960	X2K.. M1 HU 294 M5 354 M4 378
7.1	7.26	165	58.0	1050	*)	270	540	780	*)	*)	315	610	*)	355	720	960	
8	8.11	148	59.1	940	*)	310	530	750	*)	*)	720	930	*)	370	680	890	
9	9.20	130	60.4	840	*)	320	530	740	*)	*)	720	920	*)	375	670	880	
10	9.91	121	60.9	800	*)	350	500	680	*)	*)	790	960	*)	385	600	780	
11.2	11.24	107	62.2	720	*)	350	480	660	*)	*)	750	920	*)	380	560	740	
12.5	12.45	96	66.5	690	*)	330	415	580	*)	*)	445	610	*)	390	530	700	X3K.. M1 HU 298 HH 332 M5 358 M4 382
14	14.12	85	68.9	630	*)	325	395	560	*)	*)	410	570	170	390	495	670	
16	16.32	74	72.2	580	150	330	370	520	*)	165	570	700	195	375	435	590	
18	18.50	65	75.1	530	155	325	355	500	*)	165	540	670	195	370	415	570	
20	20.56	58	78.1	495	155	315	335	470	*)	175	495	630	195	360	380	530	
22.4	23.31	51	79.0	440	150	305	310	445	*)	165	460	580	185	345	350	495	
25	25.72	47	79.0	400	140	285	285	410	*)	165	410	530	175	325	315	450	
28	29.17	41	79.0	350	145	280	270	395	*)	165	390	510	175	320	300	430	
31.5	31.97	38	79.0	320	145	265	250	360	93	225	400	500	170	295	265	385	
35.5	36.26	33	79.0	285	145	260	240	350	95	220	380	480	165	290	255	370	
40	39.61	30	79.0	260	145	260	230	340	97	220	360	460	165	290	245	360	
45	44.92	27	79.0	230	140	250	220	320	95	210	335	435	160	275	230	340	
50	48.39	25	79.0	215	135	240	205	305	105	215	320	415	155	265	215	320	
56	54.88	22	79.0	190	135	240	205	300	110	215	315	405	155	265	210	315	
63	61.95	19	79.0	165	125	215	180	270	105	200	275	360	140	240	185	280	
71	70.26	17	79.0	150	120	215	175	260	100	195	265	345	140	235	180	275	
80	79.69	15	78.0	130	120	-	165	-	110	-	245	-	130	-	165	-	X4K.. M1 HU 304 M5 362 M4 386
90	90.37	13	79.0	115	120	-	160	-	110	-	235	-	130	-	160	-	
100	99.70	12	79.0	105	110	-	145	-	100	-	210	-	120	-	145	-	
112	113.07	11	79.0	92	110	-	140	-	100	-	205	-	120	-	145	-	
125	123.51	9.7	79.0	84	110	-	140	-	100	-	200	-	120	-	140	-	
140	140.07	8.6	79.0	74	110	-	135	-	99	-	190	-	120	-	140	-	
160	152.66	7.9	79.0	68	105	-	125	-	93	-	175	-	110	-	130	-	
180	173.13	6.9	79.0	60	100	-	125	-	91	-	170	-	110	-	125	-	
200	197.54	6.1	79.0	53	86	-	105	-	83	-	140	-	93	-	105	-	
224	224.02	5.4	79.0	47	84	-	100	-	82	-	135	-	91	-	100	-	
250	244.71	4.9	79.0	43	84	-	99	-	82	-	135	-	92	-	100	-	
280	277.52	4.3	79.0	38	82	-	95	-	80	-	130	-	89	-	97	-	
315	302.47	4.0	79.0	35	77	-	88	-	74	-	115	-	83	-	90	-	
355	343.03	3.5	79.0	31	76	-	87	-	74	-	115	-	83	-	89	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5 M4				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K200..,n_1= 1500 1/min																	**79 kNm**
6.3[1)]	**6.40**	234	56.6	1400	*)	*)	*)	700	*)	*)	*)	*)	*)	*)	590	920	**X2K..**
7.1[1)]	**7.26**	207	58.0	1300	*)	*)	320	710	*)	*)	*)	*)	*)	*)	600	920	**M1**
8[1)]	**8.11**	185	59.1	1150	*)	*)	390	700	*)	*)	*)	445	*)	*)	600	880	HU 294
9[1)]	**9.20**	163	60.4	1050	*)	*)	400	700	*)	*)	*)	475	*)	295	600	880	**M5** 354
10[1)]	**9.91**	151	60.9	1000	*)	320	475	710	*)	*)	620	850	*)	370	610	840	**M4** 378
11.2[1)]	**11.24**	133	62.2	900	*)	325	475	710	*)	*)	620	850	*)	375	610	840	
12.5	**12.45**	120	66.5	870	*)	305	410	620	*)	*)	*)	275	*)	405	580	810	
14	**14.12**	106	68.9	790	*)	310	390	600	*)	*)	*)	235	*)	400	540	760	
16	**16.32**	92	72.2	720	*)	350	390	580	*)	*)	510	690	*)	410	490	690	
18	**18.50**	81	75.1	660	*)	345	370	560	*)	*)	475	650	*)	405	460	660	
20	**20.56**	73	78.1	620	*)	340	350	530	*)	*)	440	610	165	395	420	610	**X3K..**
22.4	**23.31**	64	79.0	550	*)	325	325	495	*)	*)	400	570	155	380	385	570	**M1**
25	**25.72**	58	79.0	500	*)	310	295	455	*)	*)	355	520	150	355	340	520	HU 298
28	**29.17**	51	79.0	440	*)	305	280	440	*)	*)	330	485	155	350	325	495	HH 332
31.5	**31.97**	47	79.0	400	130	295	265	405	*)	220	415	550	165	330	295	445	**M5**
35.5	**36.26**	41	79.0	355	135	290	255	395	*)	215	395	520	165	325	280	430	358
40	**39.61**	38	79.0	325	135	285	245	385	*)	220	375	500	165	325	265	415	**M4**
45	**44.92**	33	79.0	285	130	275	230	365	*)	210	350	475	155	310	250	390	382
50	**48.39**	31	79.0	270	130	265	220	345	74	225	340	460	155	300	235	370	
56	**54.88**	27	79.0	235	135	265	215	340	78	225	330	450	155	300	230	365	
63	**61.95**	24	79.0	210	125	245	190	305	86	215	295	405	140	270	200	325	
71	**70.26**	21	79.0	185	120	240	185	295	87	210	280	390	140	265	195	315	
80	**79.69**	19	78.0	160	125	-	175	-	100	-	260	-	135	-	180	-	
90	**90.37**	17	79.0	145	125	-	175	-	100	-	250	-	135	-	175	-	
100	**99.70**	15	79.0	130	115	-	160	-	95	-	225	-	125	-	160	-	
112	**113.07**	13	79.0	115	115	-	155	-	93	-	215	-	125	-	155	-	
125	**123.51**	12	79.0	105	115	-	150	-	94	-	210	-	125	-	150	-	**X4K..**
140	**140.07**	11	79.0	93	115	-	145	-	92	-	205	-	125	-	150	-	**M1**
160	**152.66**	9.8	79.0	85	105	-	135	-	87	-	185	-	115	-	135	-	HU 304
180	**173.13**	8.7	79.0	75	105	-	130	-	86	-	180	-	115	-	135	-	**M5**
200	**197.54**	7.6	79.0	66	90	-	110	-	86	-	155	-	98	-	110	-	362
224	**224.02**	6.7	79.0	59	89	-	110	-	84	-	150	-	96	-	110	-	**M4**
250	**244.71**	6.1	79.0	54	89	-	105	-	85	-	145	-	96	-	110	-	386
280	**277.52**	5.4	79.0	47	86	-	105	-	82	-	140	-	93	-	105	-	
315	**302.47**	5.0	79.0	43	81	-	95	-	77	-	130	-	87	-	96	-	
355	**343.03**	4.4	79.0	38	80	-	94	-	76	-	125	-	87	-	95	-	
X.K200..,n_1= 1800 1/min																	**79 kNm**
6.3[*)]	**6.40**	281	53.5	1600	*)	*)	*)	445	*)	*)	*)	*)	*)	*)	*)	800	**X2K..**
7.1[*)]	**7.26**	248	54.8	1450	*)	*)	*)	475	*)	*)	*)	*)	*)	*)	*)	800	**M1**
8[*)]	**8.11**	222	55.9	1350	*)	*)	*)	570	*)	*)	*)	*)	*)	*)	435	810	HU 294
9[*)]	**9.20**	196	57.1	1200	*)	*)	*)	580	*)	*)	*)	*)	*)	*)	450	800	**M5** 354
10[*)]	**9.91**	182	57.6	1150	*)	*)	375	680	*)	*)	*)	520	*)	310	560	840	**M4**
11.2[*)]	**11.24**	160	58.8	1000	*)	*)	380	680	*)	*)	*)	540	*)	320	560	830	378
12.5[1)]	**12.45**	145	62.9	990	*)	*)	335	620	*)	*)	*)	*)	*)	360	590	850	
14[1)]	**14.12**	127	65.1	900	*)	230	340	610	*)	*)	*)	*)	*)	370	570	830	
16	**16.32**	110	68.3	820	*)	335	390	610	*)	*)	340	580	*)	420	530	760	
18	**18.50**	97	71.0	750	*)	340	375	590	*)	*)	305	540	*)	415	495	720	
20	**20.56**	88	73.6	700	*)	335	350	560	*)	*)	280	510	*)	410	450	670	**X3K..**
22.4	**23.31**	77	75.3	630	*)	325	320	520	*)	*)	235	460	*)	390	410	620	**M1**
25	**25.72**	70	77.2	590	*)	310	295	485	*)	*)	205	420	*)	370	365	570	HU 298
28	**29.17**	62	78.5	530	*)	305	280	465	*)	*)	175	390	*)	365	340	540	HH 332
31.5	**31.97**	56	79.0	480	*)	310	275	440	*)	175	410	570	150	355	315	495	**M5**
35.5	**36.26**	50	79.0	425	110	305	265	425	*)	180	390	540	150	345	300	475	358
40	**39.61**	45	79.0	390	115	300	255	415	*)	185	370	520	155	345	285	460	**M4**
45	**44.92**	40	79.0	345	110	290	235	390	*)	180	340	490	150	330	265	430	382
50	**48.39**	37	79.0	320	120	280	230	375	*)	215	350	490	150	320	250	405	
56	**54.88**	33	79.0	285	125	285	225	370	*)	215	340	480	150	320	240	400	
63	**61.95**	29	79.0	250	120	260	200	330	*)	215	305	430	140	295	215	355	
71	**70.26**	26	79.0	220	115	255	190	320	*)	210	290	415	140	290	205	345	
80	**79.69**	23	74.5	185	130	-	190	-	84	-	270	-	140	-	190	-	
90	**90.37**	20	79.0	175	130	-	185	-	85	-	260	-	140	-	185	-	
100	**99.70**	18	79.0	155	120	-	170	-	80	-	235	-	130	-	170	-	
112	**113.07**	16	79.0	140	115	-	160	-	78	-	225	-	125	-	165	-	
125	**123.51**	15	79.0	125	120	-	160	-	79	-	220	-	130	-	160	-	**X4K..**
140	**140.07**	13	79.0	110	115	-	155	-	78	-	210	-	125	-	155	-	**M1**
160	**152.66**	12	79.0	100	110	-	145	-	75	-	190	-	120	-	145	-	HU 304
180	**173.13**	10	79.0	90	110	-	140	-	74	-	180	-	115	-	140	-	**M5**
200	**197.54**	9.1	79.0	80	93	-	120	-	87	-	170	-	100	-	120	-	362
224	**224.02**	8.0	79.0	70	92	-	115	-	85	-	160	-	100	-	115	-	**M4**
250	**244.71**	7.4	79.0	64	92	-	115	-	85	-	160	-	100	-	115	-	386
280	**277.52**	6.5	79.0	57	89	-	110	-	83	-	150	-	97	-	110	-	
315	**302.47**	6.0	79.0	52	84	-	100	-	77	-	135	-	91	-	100	-	
355	**343.03**	5.2	79.0	46	83	-	99	-	77	-	135	-	90	-	100	-	

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5 M4				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K210..,n_1= 1000 1/min																	**90 kNm**
7.1	**7.25**	138	64.4	950	*)	365	355	580	*)	*)	*)	430	*)	420	530	740	**X2K..**
8	**8.21**	122	66.1	860	*)	345	335	550	*)	*)	*)	420	*)	400	500	700	**M1**
9	**9.19**	109	67.4	790	*)	355	335	520	*)	*)	410	590	*)	390	455	630	HU 294
10	**10.40**	96	68.5	710	*)	340	315	485	*)	*)	375	540	*)	370	415	580	**M5** 354
11.2	**11.22**	89	69.1	670	*)	350	320	470	*)	190	445	590	190	370	390	540	**M4** 378
12.5	**12.71**	79	70.5	600	165	335	300	445	*)	185	410	550	185	355	360	500	
14	**14.10**	71	75.8	580	160	320	285	420	*)	*)	270	410	205	370	365	510	
16	**15.96**	63	78.2	530	160	315	275	410	*)	*)	255	390	210	365	350	495	
18	**18.48**	54	81.8	480	180	310	265	380	*)	225	355	470	210	350	315	445	
20	**20.92**	48	85.0	440	180	305	255	375	*)	220	340	450	210	345	305	430	
22.4	**23.28**	43	88.8	415	175	295	245	355	*)	220	320	425	205	335	285	405	**X3K..**
25	**26.36**	38	90.0	370	175	290	235	350	*)	215	305	410	205	330	275	395	**M1**
28	**29.13**	34	90.0	335	160	265	215	315	*)	200	270	370	185	300	245	355	HU 298
31.5	**32.97**	30	90.0	295	155	255	200	300	*)	190	250	345	180	285	230	335	HH 332
35.5	**36.20**	28	90.0	270	150	245	190	280	125	220	260	345	170	270	215	310	**M5**
40	**40.99**	24	90.0	240	150	240	185	275	120	215	250	335	170	265	205	300	358
45	**44.85**	22	90.0	220	145	235	180	270	120	215	245	325	165	260	200	295	**M4**
50	**50.78**	20	90.0	190	140	225	175	255	115	205	230	310	160	250	190	280	382
56	**54.79**	18	90.0	180	135	215	165	245	120	200	220	295	155	240	180	265	
63	**62.03**	16	90.0	160	135	220	165	240	120	200	215	290	155	240	180	265	
71	**70.15**	14	90.0	140	125	200	145	220	110	185	190	260	140	220	160	235	
80	**79.42**	13	90.0	125	125	195	145	215	110	180	185	255	135	215	155	230	
90	**90.23**	11	88.0	105	120	-	135	-	115	-	175	-	130	-	145	-	
100	**102.16**	9.8	90.0	97	115	-	130	-	110	-	165	-	125	-	140	-	
112	**112.90**	8.9	90.0	87	110	-	125	-	105	-	155	-	120	-	130	-	
125	**127.82**	7.8	90.0	77	110	-	120	-	100	-	150	-	115	-	125	-	
140	**139.86**	7.2	90.0	71	105	-	120	-	100	-	145	-	115	-	125	-	**X4K..**
160	**158.34**	6.3	90.0	62	105	-	115	-	99	-	140	-	115	-	120	-	**M1**
180	**172.87**	5.8	90.0	57	99	-	110	-	93	-	130	-	105	-	115	-	HU 304
200	**195.72**	5.1	90.0	50	97	-	105	-	92	-	125	-	105	-	110	-	**M5**
224	**223.68**	4.5	90.0	45	84	-	90	-	82	-	110	-	91	-	95	-	362
250	**253.24**	3.9	90.0	39	82	-	88	-	81	-	105	-	89	-	93	-	**M4**
280	**277.10**	3.6	90.0	36	81	-	87	-	79	-	105	-	88	-	92	-	386
315	**313.72**	3.2	90.0	32	80	-	85	-	78	-	100	-	87	-	90	-	
355	**342.51**	2.9	90.0	29	74	-	79	-	73	-	93	-	81	-	84	-	
400	**387.77**	2.6	90.0	26	73	-	77	-	72	-	90	-	79	-	82	-	
X.K210..,n_1= 1200 1/min																	**90 kNm**
7.1	**7.25**	166	64.4	1150	*)	305	*)	560	*)	*)	*)	*)	*)	390	455	740	**X2K..**
8	**8.21**	146	66.1	1050	*)	285	*)	530	*)	*)	*)	*)	*)	365	430	700	**M1**
9	**9.19**	131	67.4	940	*)	320	255	520	*)	*)	*)	410	*)	380	435	660	HU 294
10	**10.40**	115	68.5	850	*)	315	250	500	*)	*)	*)	405	*)	370	415	630	**M5** 354
11.2	**11.22**	107	69.1	800	*)	360	300	510	*)	*)	375	570	*)	390	410	600	**M4** 378
12.5	**12.71**	94	70.5	720	*)	345	280	475	*)	*)	340	530	*)	375	370	560	
14	**14.10**	85	75.8	700	*)	335	265	450	*)	*)	*)	275	*)	400	385	570	
16	**15.96**	75	78.2	640	*)	335	260	440	*)	*)	*)	260	175	395	365	550	
18	**18.48**	65	81.8	580	155	335	265	420	*)	170	320	475	200	385	335	500	
20	**20.92**	57	85.0	530	160	330	260	410	*)	175	305	455	200	380	325	485	
22.4	**23.28**	52	88.8	495	160	325	245	395	*)	180	285	430	200	365	300	460	**X3K..**
25	**26.36**	46	90.0	445	160	320	240	385	*)	180	270	415	200	360	290	445	**M1**
28	**29.13**	41	90.0	400	145	290	215	350	*)	170	240	370	180	330	255	400	HU 298
31.5	**32.97**	36	90.0	355	145	280	205	330	*)	165	220	350	175	315	240	375	HH 332
35.5	**36.20**	33	90.0	325	150	270	200	315	97	230	270	380	175	300	225	350	**M5**
40	**40.99**	29	90.0	285	150	265	190	305	99	225	255	365	170	295	220	340	358
45	**44.85**	27	90.0	260	145	265	185	300	100	225	245	355	170	295	210	330	**M4**
50	**50.78**	24	90.0	230	140	255	180	285	98	215	230	335	160	280	200	315	382
56	**54.79**	22	90.0	215	140	245	170	270	110	220	225	325	155	270	190	300	
63	**62.03**	19	90.0	190	140	245	170	270	110	220	220	320	155	270	185	300	
71	**70.15**	17	90.0	170	125	220	150	245	105	205	200	290	145	245	165	265	
80	**79.42**	15	90.0	150	125	215	150	240	105	200	190	280	140	240	160	260	
90	**90.23**	13	88.0	130	125	-	145	-	110	-	185	-	135	-	150	-	
100	**102.16**	12	90.0	115	120	-	140	-	110	-	175	-	130	-	145	-	
112	**112.90**	11	90.0	105	115	-	130	-	105	-	165	-	125	-	140	-	
125	**127.82**	9.4	90.0	93	110	-	125	-	100	-	160	-	120	-	135	-	
140	**139.86**	8.6	90.0	85	110	-	125	-	100	-	155	-	120	-	130	-	**X4K..**
160	**158.34**	7.6	90.0	75	110	-	120	-	99	-	150	-	120	-	130	-	**M1**
180	**172.87**	6.9	90.0	69	105	-	115	-	93	-	135	-	110	-	120	-	HU 304
200	**195.72**	6.1	90.0	61	100	-	110	-	92	-	130	-	110	-	115	-	**M5**
224	**223.68**	5.4	90.0	54	87	-	95	-	85	-	115	-	95	-	100	-	362
250	**253.24**	4.7	90.0	47	86	-	93	-	83	-	115	-	93	-	98	-	**M4**
280	**277.10**	4.3	90.0	43	85	-	91	-	82	-	110	-	92	-	97	-	386
315	**313.72**	3.8	90.0	38	83	-	90	-	81	-	105	-	91	-	95	-	
355	**342.51**	3.5	90.0	35	78	-	83	-	76	-	99	-	85	-	88	-	
400	**387.77**	3.1	90.0	31	77	-	81	-	74	-	96	-	83	-	86	-	

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X.K210..,n_1= 1500 1/min																	90 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O			H_2O	H_2O			H_2O	H_2O	
		min^{-1}	kNm	kW													
7.1[1)]	**7.25**	207	64.4	1450	*)	*)	*)	410	*)	*)	*)	*)	*)	*)	*)	680	**X2K..**
8[1)]	**8.21**	183	66.1	1300	*)	*)	*)	385	*)	*)	*)	*)	*)	*)	*)	640	**M1**
9[1)]	**9.19**	163	67.4	1200	*)	*)	*)	440	*)	*)	*)	*)	*)	*)	*)	640	HU 294
10[1)]	**10.40**	144	68.5	1050	*)	*)	*)	430	*)	*)	*)	*)	*)	295	285	610	**M5** 354
11.2[1)]	**11.22**	134	69.1	1000	*)	330	*)	510	*)	*)	*)	375	*)	385	380	640	**M4**
12.5[1)]	**12.71**	118	70.5	900	*)	325	*)	495	*)	*)	*)	375	*)	370	365	610	378
14	**14.10**	106	75.8	870	*)	310	*)	470	*)	*)	*)	*)	*)	415	395	640	
16	**15.96**	94	78.2	800	*)	315	*)	455	*)	*)	*)	*)	*)	410	375	610	
18	**18.48**	81	81.8	720	*)	360	245	460	*)	*)	*)	410	*)	420	360	570	
20	**20.92**	72	85.0	660	*)	355	240	450	*)	*)	*)	390	170	415	340	550	
22.4	**23.28**	64	88.8	620	*)	345	235	430	*)	*)	*)	375	170	405	320	520	**X3K..**
25	**26.36**	57	90.0	560	*)	340	230	420	*)	*)	140	355	175	395	305	500	**M1**
28	**29.13**	51	90.0	500	*)	315	205	380	*)	*)	*)	320	155	365	270	450	HU 298
31.5	**32.97**	45	90.0	445	110	300	195	360	*)	*)	*)	300	155	350	250	425	HH 332
35.5	**36.20**	41	90.0	405	135	300	200	350	*)	225	260	405	170	340	240	400	**M5**
40	**40.99**	37	90.0	355	135	295	195	340	*)	225	245	390	170	330	230	390	358
45	**44.85**	33	90.0	325	140	290	190	335	*)	225	240	380	170	330	225	380	**M4**
50	**50.78**	30	90.0	290	135	280	180	320	*)	215	220	355	160	315	210	360	382
56	**54.79**	27	90.0	270	135	270	175	305	78	230	230	355	155	305	200	340	
63	**62.03**	24	90.0	240	135	275	175	305	82	230	225	350	160	305	195	340	
71	**70.15**	21	90.0	210	125	250	155	275	90	220	205	320	145	275	175	305	
80	**79.42**	19	90.0	185	125	245	155	270	90	215	195	310	145	270	170	295	
90	**90.23**	17	88.0	160	130	-	150	-	105	-	190	-	140	-	160	-	
100	**102.16**	15	90.0	145	125	-	145	-	100	-	180	-	135	-	155	-	
112	**112.90**	13	90.0	130	120	-	140	-	97	-	170	-	130	-	145	-	
125	**127.82**	12	90.0	115	115	-	135	-	95	-	165	-	125	-	140	-	
140	**139.86**	11	90.0	105	115	-	130	-	94	-	155	-	125	-	140	-	**X4K..**
160	**158.34**	9.5	90.0	93	115	-	130	-	93	-	150	-	125	-	135	-	**M1**
180	**172.87**	8.7	90.0	86	105	-	120	-	88	-	140	-	115	-	125	-	HU 304
200	**195.72**	7.7	90.0	76	105	-	115	-	87	-	135	-	115	-	125	-	**M5**
224	**223.68**	6.7	90.0	67	92	-	100	-	88	-	125	-	100	-	105	-	362
250	**253.24**	5.9	90.0	59	90	-	99	-	86	-	120	-	98	-	105	-	**M4**
280	**277.10**	5.4	90.0	54	89	-	97	-	85	-	120	-	97	-	105	-	386
315	**313.72**	4.8	90.0	48	88	-	95	-	84	-	115	-	95	-	100	-	
355	**342.51**	4.4	90.0	44	82	-	89	-	78	-	105	-	89	-	94	-	
400	**387.77**	3.9	90.0	39	81	-	87	-	77	-	100	-	87	-	92	-	
X.K210..,n_1= 1800 1/min																	90 kNm
7.1[*)]	**7.25**	248	60.9	1600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	470	
8[*)]	**8.21**	219	62.5	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	440	**X2K..**
9[*)]	**9.19**	196	63.7	1350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	520	**M1**
10[*)]	**10.40**	173	64.8	1200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	510	HU 294
11.2[*)]	**11.22**	160	65.3	1150	*)	*)	*)	455	*)	*)	*)	*)	*)	320	*)	620	**M5** 354
12.5[*)]	**12.71**	142	66.6	1000	*)	*)	*)	445	*)	*)	*)	*)	*)	315	275	600	**M4** 378
14[1)]	**14.10**	128	71.7	990	*)	*)	*)	430	*)	*)	*)	*)	*)	370	350	660	
16[1)]	**15.96**	113	73.9	900	*)	240	*)	430	*)	*)	*)	*)	*)	380	345	640	
18	**18.48**	97	77.3	820	*)	345	205	475	*)	*)	*)	*)	*)	430	365	620	
20	**20.92**	86	80.4	750	*)	350	205	465	*)	*)	*)	*)	*)	425	350	600	
22.4	**23.28**	77	83.6	700	*)	345	200	445	*)	*)	*)	185	*)	415	325	560	**X3K..**
25	**26.36**	68	85.1	630	*)	345	195	435	*)	*)	*)	170	*)	410	310	540	**M1**
28	**29.13**	62	87.4	590	*)	315	170	395	*)	*)	*)	150	*)	380	265	485	HU 298
31.5	**32.97**	55	88.6	520	*)	305	165	375	*)	*)	*)	135	*)	360	250	455	HH 332
35.5	**36.20**	50	90.0	485	*)	315	195	375	*)	185	225	400	155	360	250	435	**M5**
40	**40.99**	44	90.0	430	115	310	190	365	*)	185	215	385	155	355	240	425	358
45	**44.85**	40	90.0	390	120	305	190	360	*)	195	205	375	155	350	230	410	**M4**
50	**50.78**	35	90.0	345	115	295	180	340	*)	185	190	350	155	335	215	390	382
56	**54.79**	33	90.0	325	125	290	175	330	*)	220	215	370	155	325	205	375	
63	**62.03**	29	90.0	285	130	290	175	330	*)	220	210	365	155	325	205	370	
71	**70.15**	26	90.0	255	120	265	160	300	*)	220	200	335	145	300	185	335	
80	**79.42**	23	90.0	225	120	260	155	290	58	215	190	325	140	295	175	325	
90	**90.23**	20	84.0	185	130	-	160	-	88	-	190	-	145	-	170	-	
100	**102.16**	18	90.0	175	130	-	155	-	86	-	180	-	140	-	165	-	
112	**112.90**	16	90.0	155	120	-	145	-	82	-	165	-	130	-	155	-	
125	**127.82**	14	90.0	140	120	-	140	-	81	-	160	-	130	-	150	-	
140	**139.86**	13	90.0	125	120	-	135	-	80	-	155	-	130	-	145	-	**X4K..**
160	**158.34**	11	90.0	110	115	-	135	-	79	-	150	-	125	-	140	-	**M1**
180	**172.87**	10	90.0	105	110	-	125	-	76	-	140	-	120	-	130	-	HU 304
200	**195.72**	9.2	90.0	91	110	-	120	-	75	-	130	-	115	-	130	-	**M5**
224	**223.68**	8.0	90.0	80	95	-	105	-	88	-	130	-	105	-	110	-	362
250	**253.24**	7.1	90.0	71	94	-	105	-	87	-	130	-	100	-	110	-	**M4**
280	**277.10**	6.5	90.0	65	92	-	100	-	86	-	125	-	100	-	110	-	386
315	**313.72**	5.7	90.0	57	91	-	100	-	84	-	120	-	99	-	105	-	
355	**342.51**	5.3	90.0	52	85	-	93	-	79	-	110	-	92	-	98	-	
400	**387.77**	4.6	90.0	46	84	-	91	-	78	-	105	-	91	-	96	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5 M4				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K220..,n_1= 1000 1/min																	**112 kNm**
6.3	**6.40**	156	84.4	1400	*)	*)	650	920	*)	*)	470	760	*)	440	880	1150	**X2K..**
7.1	**7.07**	141	87.6	1350	*)	345	650	920	*)	*)	495	780	*)	445	880	1150	**M1**
8	**8.11**	123	90.4	1200	*)	*)	560	790	*)	*)	900	1100	*)	370	760	990	HU 296
9	**8.95**	112	93.2	1100	*)	285	550	780	*)	*)	880	1100	*)	375	740	960	**M5** 356
10	**9.91**	101	94.6	1050	*)	430	610	800	*)	*)	950	1150	*)	470	710	910	**M4** 380
11.2	**10.94**	91	98.0	970	*)	430	590	780	*)	*)	920	1100	*)	470	680	880	
12.5	**12.56**	80	92.4	800	*)	410	550	710	*)	*)	620	780	260	480	670	850	
14	**13.86**	72	97.0	760	*)	395	510	680	*)	*)	560	730	250	465	620	800	
16	**16.15**	62	100	670	210	395	475	620	*)	*)	700	840	265	450	550	710	
18	**17.82**	56	107	650	205	380	450	600	*)	*)	660	790	255	435	520	670	
20	**20.64**	48	112	590	220	390	440	590	*)	175	630	770	270	445	495	650	**X3K..**
22.4	**22.78**	44	112	530	220	390	430	570	*)	175	600	740	270	440	475	630	**M1**
25	**25.28**	40	112	480	200	350	375	510	*)	160	520	650	240	395	410	550	HU 300
28	**27.90**	36	112	435	210	355	370	510	*)	170	510	640	245	400	405	550	HH 334
31.5	**32.02**	31	112	380	205	330	335	450	135	275	520	630	230	365	355	480	**M5**
35.5	**35.34**	28	112	345	200	325	325	440	135	270	500	610	230	360	340	465	360
40	**39.55**	25	112	305	185	295	290	395	125	250	440	540	210	330	300	415	**M4**
45	**43.65**	23	112	280	180	295	280	385	125	245	425	520	205	325	290	405	384
50	**48.32**	21	112	255	175	280	260	360	140	250	400	490	195	310	270	375	
56	**53.33**	19	112	230	170	275	250	350	140	245	385	475	195	305	260	365	
63	**61.86**	16	112	200	150	240	215	300	135	225	330	405	170	265	220	310	
71	**68.27**	15	112	180	150	235	210	290	130	220	315	395	165	260	215	305	
80	**81.61**	12	112	150	160	-	210	-	140	-	310	-	170	-	210	-	**X4K..**
90	**90.07**	11	112	135	155	-	205	-	140	-	300	-	170	-	205	-	**M1**
100	**99.97**	10	112	125	150	-	190	-	130	-	275	-	160	-	190	-	HU 306
112	**110.34**	9.1	112	110	145	-	185	-	125	-	260	-	155	-	185	-	**M5**
125	**123.47**	8.1	112	99	140	-	175	-	125	-	245	-	150	-	175	-	364
140	**136.27**	7.3	112	90	135	-	165	-	120	-	230	-	145	-	165	-	**M4**
160	**156.11**	6.4	112	79	120	-	145	-	105	-	200	-	130	-	145	-	388
180	**172.29**	5.8	112	71	115	-	145	-	105	-	195	-	125	-	145	-	
200	**198.08**	5.0	112	63	110	-	130	-	105	-	185	-	120	-	135	-	
224	**218.61**	4.6	112	57	105	-	125	-	105	-	175	-	115	-	130	-	
250	**244.62**	4.1	112	51	105	-	120	-	100	-	165	-	110	-	125	-	
280	**269.99**	3.7	112	46	100	-	115	-	98	-	160	-	110	-	120	-	
315	**309.29**	3.2	112	40	90	-	105	-	88	-	140	-	98	-	105	-	
355	**341.36**	2.9	112	36	89	-	100	-	86	-	135	-	96	-	105	-	
X.K220..,n_1= 1200 1/min																	**112 kNm**
6.3	**6.40**	188	84.4	1700	*)	*)	*)	800	*)	*)	*)	*)	*)	*)	730	1100	**X2K..**
7.1	**7.07**	170	87.6	1600	*)	*)	435	810	*)	*)	*)	*)	*)	*)	730	1100	**M1**
8	**8.11**	148	90.4	1450	*)	*)	*)	680	*)	*)	380	710	*)	*)	620	930	HU 296
9	**8.95**	134	93.2	1350	*)	*)	360	690	*)	*)	400	730	*)	*)	630	940	**M5** 356
10	**9.91**	121	94.6	1250	*)	405	580	840	*)	*)	840	1100	*)	465	750	1000	**M4** 380
11.2	**10.94**	110	98.0	1150	*)	405	570	830	*)	*)	810	1050	*)	465	720	970	
12.5	**12.56**	96	92.4	960	*)	415	560	780	*)	*)	285	550	*)	510	740	970	
14	**13.86**	87	97.0	910	*)	400	520	740	*)	*)	230	500	*)	495	680	900	
16	**16.15**	74	100	810	*)	425	500	690	*)	*)	630	820	235	490	610	810	
18	**17.82**	67	107	780	*)	410	475	660	*)	*)	590	770	230	475	570	770	
20	**20.64**	58	112	710	185	420	460	650	*)	*)	560	740	250	485	540	740	**X3K..**
22.4	**22.78**	53	112	640	190	420	445	640	*)	*)	530	720	250	485	520	720	**M1**
25	**25.28**	47	112	580	170	380	390	560	*)	*)	455	620	225	435	445	630	HU 300
28	**27.90**	43	112	520	185	385	390	560	*)	*)	440	610	235	440	435	620	HH 334
31.5	**32.02**	37	112	455	200	365	355	500	*)	275	540	680	235	410	385	550	**M5**
35.5	**35.34**	34	112	410	200	360	340	490	*)	270	520	660	230	405	370	530	360
40	**39.55**	30	112	370	180	330	305	440	*)	250	455	580	210	370	325	475	**M4**
45	**43.65**	27	112	335	180	325	295	430	*)	245	435	560	205	365	310	460	384
50	**48.32**	25	112	305	175	310	275	400	115	260	420	540	200	345	290	425	
56	**53.33**	23	112	275	175	305	265	390	115	260	405	520	195	340	280	415	
63	**61.86**	19	112	240	155	270	230	335	125	245	350	455	175	295	235	355	
71	**68.27**	18	112	215	150	265	220	330	125	240	340	440	170	295	230	345	
80	**81.61**	15	112	180	165	-	225	-	135	-	330	-	180	-	225	-	**X4K..**
90	**90.07**	13	112	165	160	-	220	-	130	-	320	-	175	-	220	-	**M1**
100	**99.97**	12	112	145	155	-	205	-	125	-	290	-	165	-	205	-	HU 306
112	**110.34**	11	112	135	150	-	195	-	120	-	275	-	160	-	195	-	**M5**
125	**123.47**	9.7	112	120	145	-	185	-	115	-	255	-	155	-	185	-	364
140	**136.27**	8.8	112	110	140	-	175	-	110	-	245	-	150	-	175	-	**M4**
160	**156.11**	7.7	112	94	125	-	155	-	100	-	210	-	135	-	155	-	388
180	**172.29**	7.0	112	86	120	-	150	-	99	-	205	-	130	-	150	-	
200	**198.08**	6.1	112	75	115	-	140	-	110	-	200	-	125	-	140	-	
224	**218.61**	5.5	112	68	110	-	135	-	105	-	190	-	120	-	135	-	
250	**244.62**	4.9	112	61	110	-	130	-	105	-	180	-	115	-	130	-	
280	**269.99**	4.4	112	55	105	-	125	-	100	-	170	-	115	-	125	-	
315	**309.29**	3.9	112	48	94	-	110	-	90	-	150	-	100	-	110	-	
355	**341.36**	3.5	112	44	93	-	110	-	89	-	145	-	100	-	110	-	

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X.K220..,n_1= 1500 1/min																	112 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3[1)]	**6.40**	234	84.4	2100	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	820	**X2K..**
7.1[1)]	**7.07**	212	87.6	2000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	840	**M1**
8[1)]	**8.11**	185	90.4	1800	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	670	HU 296
9[1)]	**8.95**	168	93.2	1650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	680	**M5** 356
10[1)]	**9.91**	151	94.6	1550	*)	*)	420	780	*)	*)	*)	630	*)	*)	640	980	**M4** 380
11.2[1)]	**10.94**	137	98.0	1450	*)	*)	430	780	*)	*)	*)	650	*)	395	650	980	
12.5	**12.56**	119	92.4	1200	*)	365	540	830	*)	*)	*)	*)	*)	510	810	1100	
14	**13.86**	108	97.0	1150	*)	355	500	790	*)	*)	*)	*)	*)	495	750	1050	
16	**16.15**	93	100	1000	*)	435	520	770	*)	*)	340	630	*)	530	680	940	
18	**17.82**	84	107	980	*)	420	485	730	*)	*)	285	580	*)	510	630	890	
20	**20.64**	73	112	880	*)	440	475	720	*)	*)	265	560	*)	530	590	850	**X3K..**
22.4	**22.78**	66	112	800	*)	440	455	700	*)	*)	225	520	*)	520	560	830	**M1**
25	**25.28**	59	112	720	*)	400	400	620	*)	*)	*)	450	*)	470	480	720	HU 300
28	**27.90**	54	112	650	*)	405	395	620	*)	*)	*)	435	195	480	470	710	HH 334
31.5	**32.02**	47	112	570	170	400	375	570	*)	210	530	720	220	455	425	630	**M5**
35.5	**35.34**	42	112	520	175	395	360	560	*)	210	500	690	220	450	405	610	360
40	**39.55**	38	112	460	160	365	320	495	*)	200	440	610	205	410	355	540	**M4**
45	**43.65**	34	112	415	160	360	310	485	*)	200	420	590	205	405	340	530	384
50	**48.32**	31	112	380	165	345	290	455	*)	255	430	590	200	390	315	490	
56	**53.33**	28	112	345	165	340	285	445	*)	250	415	570	195	385	305	480	
63	**61.86**	24	112	295	155	300	245	385	96	260	375	510	175	335	255	410	
71	**68.27**	22	112	270	150	295	235	375	97	255	360	490	175	330	245	400	
80	**81.61**	18	112	225	170	-	245	-	100	-	345	-	185	-	245	-	
90	**90.07**	17	112	205	165	-	240	-	100	-	330	-	180	-	240	-	
100	**99.97**	15	112	185	160	-	220	-	96	-	300	-	170	-	220	-	
112	**110.34**	14	112	165	155	-	210	-	93	-	285	-	165	-	210	-	
125	**123.47**	12	112	150	150	-	200	-	90	-	265	-	160	-	200	-	**X4K..**
140	**136.27**	11	112	135	145	-	190	-	87	-	250	-	155	-	190	-	**M1**
160	**156.11**	9.6	112	120	130	-	170	-	79	-	215	-	140	-	165	-	HU 306
180	**172.29**	8.7	112	105	125	-	165	-	78	-	205	-	135	-	165	-	**M5**
200	**198.08**	7.6	112	94	120	-	150	-	110	-	215	-	130	-	150	-	364
224	**218.61**	6.9	112	85	115	-	145	-	110	-	205	-	125	-	145	-	**M4**
250	**244.62**	6.1	112	76	115	-	140	-	105	-	195	-	125	-	140	-	388
280	**269.99**	5.6	112	69	110	-	135	-	100	-	185	-	120	-	135	-	
315	**309.29**	4.8	112	60	99	-	120	-	92	-	160	-	105	-	120	-	
355	**341.36**	4.4	112	55	98	-	115	-	91	-	155	-	105	-	115	-	
X.K220..,n_1= 1800 1/min																	112 kNm
6.3[*)]	**6.40**	281	79.8	2400	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
7.1[*)]	**7.07**	255	82.8	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[*)]	**8.11**	222	85.5	2050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[*)]	**8.95**	201	88.1	1900	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
10[*)]	**9.91**	182	89.5	1750	*)	*)	*)	600	*)	*)	*)	*)	*)	*)	450	870	**M5** 356
11.2[*)]	**10.94**	165	92.7	1650	*)	*)	*)	610	*)	*)	*)	*)	*)	*)	460	870	**M4** 380
12.5[1)]	**12.56**	143	87.4	1350	*)	*)	385	770	*)	*)	*)	*)	*)	435	750	1100	
14[1)]	**13.86**	130	91.7	1300	*)	*)	375	750	*)	*)	*)	*)	*)	420	730	1050	
16	**16.15**	111	95.1	1150	*)	385	495	800	*)	*)	*)	*)	*)	520	730	1050	
18	**17.82**	101	101	1100	*)	375	460	760	*)	*)	*)	*)	*)	500	680	980	
20	**20.64**	87	105	1000	*)	410	455	750	*)	*)	*)	*)	*)	530	630	940	**X3K..**
22.4	**22.78**	79	109	930	*)	415	440	730	*)	*)	*)	*)	*)	530	600	900	**M1**
25	**25.28**	71	112	860	*)	380	375	650	*)	*)	*)	*)	*)	480	510	780	HU 300
28	**27.90**	65	112	780	*)	395	380	650	*)	*)	*)	*)	*)	490	495	780	HH 334
31.5	**32.02**	56	112	680	*)	415	385	620	*)	*)	465	690	190	485	455	700	**M5**
35.5	**35.34**	51	112	620	*)	410	370	600	*)	*)	440	660	195	475	435	680	360
40	**39.55**	46	112	550	*)	375	330	540	*)	*)	380	580	180	435	375	600	**M4**
45	**43.65**	41	112	500	125	370	315	520	*)	*)	355	560	180	430	360	580	384
50	**48.32**	37	112	455	145	365	300	495	*)	205	415	600	190	415	335	540	
56	**53.33**	34	112	415	145	360	290	480	*)	210	395	580	190	410	320	530	
63	**61.86**	29	112	355	140	320	255	415	*)	255	390	540	175	360	275	450	
71	**68.27**	26	112	325	145	315	245	405	*)	255	370	520	175	355	265	440	
80	**81.61**	22	112	270	170	-	260	-	*)	-	340	-	185	-	265	-	
90	**90.07**	20	112	245	170	-	255	-	*)	-	325	-	180	-	255	-	
100	**99.97**	18	112	220	160	-	235	-	*)	-	295	-	175	-	235	-	
112	**110.34**	16	112	200	155	-	225	-	*)	-	275	-	170	-	225	-	
125	**123.47**	15	112	180	150	-	210	-	*)	-	255	-	165	-	210	-	**X4K..**
140	**136.27**	13	112	160	145	-	200	-	*)	-	235	-	155	-	200	-	**M1**
160	**156.11**	12	112	140	130	-	175	-	*)	-	205	-	140	-	175	-	HU 306
180	**172.29**	10	112	130	130	-	175	-	33	-	195	-	140	-	170	-	**M5**
200	**198.08**	9.1	112	115	125	-	160	-	110	-	230	-	135	-	160	-	364
224	**218.61**	8.2	112	100	120	-	155	-	105	-	220	-	130	-	155	-	**M4**
250	**244.62**	7.4	112	91	115	-	150	-	105	-	205	-	125	-	150	-	388
280	**269.99**	6.7	112	83	115	-	140	-	100	-	195	-	125	-	140	-	
315	**309.29**	5.8	112	72	105	-	125	-	91	-	170	-	110	-	125	-	
355	**341.36**	5.3	112	65	100	-	125	-	89	-	165	-	110	-	125	-	

X.K230..,n_1= 1000 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
7.1	**7.25**	138	95.5	1400	*)	*)	*)	620	*)	*)	*)	*)	*)	445	550	840	**X2K..**
8	**7.96**	126	99.0	1350	*)	350	*)	620	*)	*)	*)	*)	*)	450	560	840	**M1**
9	**9.19**	109	102	1200	*)	*)	*)	530	*)	*)	*)	550	*)	380	480	730	HU 296
10	**10.09**	99	106	1150	*)	295	*)	530	*)	*)	*)	540	*)	385	465	720	**M5** 356
11.2	**11.22**	89	108	1050	*)	435	395	610	*)	*)	500	710	*)	475	510	720	**M4** 380
12.5	**12.32**	81	111	970	*)	435	385	600	*)	*)	485	690	245	480	495	700	
14	**14.22**	70	104	790	205	420	370	550	*)	*)	*)	365	275	490	495	680	
16	**15.61**	64	110	760	210	420	365	550	*)	*)	*)	350	275	490	480	670	
18	**18.29**	55	113	670	230	405	345	500	*)	180	380	540	275	460	425	600	
20	**20.08**	50	119	640	220	390	330	485	*)	175	360	510	270	445	405	570	
22.4	**23.37**	43	126	580	220	385	320	470	*)	185	335	490	265	440	380	540	**X3K..**
25	**25.66**	39	131	550	225	385	315	465	*)	185	325	475	270	440	375	540	**M1**
28	**28.63**	35	131	495	210	360	285	430	*)	180	290	430	250	405	335	490	HU 300
31.5	**31.43**	32	131	450	210	355	280	420	*)	180	280	420	245	400	325	475	HH 334
35.5	**36.26**	28	131	390	210	340	265	390	145	285	350	465	240	375	300	435	**M5**
40	**39.82**	25	131	355	205	335	260	385	145	280	335	455	235	370	290	425	360
45	**44.78**	22	131	315	190	305	235	345	135	255	300	405	215	340	260	380	**M4**
50	**49.17**	20	131	290	185	300	230	340	135	255	290	395	210	335	255	375	384
56	**54.71**	18	131	260	175	280	210	315	145	250	275	370	195	310	235	340	
63	**60.08**	17	131	240	175	275	205	305	140	245	265	360	195	305	225	335	
71	**70.05**	14	131	205	155	245	185	270	140	230	240	320	175	270	200	295	
80	**76.91**	13	131	185	155	240	180	265	135	225	230	315	170	265	195	290	
90	**92.41**	11	131	155	160	-	185	-	145	-	235	-	175	-	195	-	
100	**101.47**	9.9	131	140	160	-	180	-	145	-	225	-	175	-	190	-	
112	**113.21**	8.8	131	125	150	-	165	-	135	-	205	-	160	-	175	-	
125	**124.31**	8.0	131	115	145	-	165	-	130	-	200	-	160	-	175	-	
140	**139.81**	7.2	131	105	140	-	155	-	125	-	190	-	155	-	165	-	**X4K..**
160	**153.52**	6.5	131	94	140	-	155	-	125	-	185	-	150	-	160	-	**M1**
180	**176.77**	5.7	131	81	120	-	135	-	110	-	160	-	130	-	140	-	HU 306
200	**194.10**	5.2	131	74	120	-	130	-	105	-	155	-	130	-	140	-	**M5**
224	**224.29**	4.5	131	65	110	-	120	-	110	-	145	-	120	-	125	-	364
250	**246.28**	4.1	131	59	110	-	120	-	105	-	145	-	120	-	125	-	**M4**
280	**277.00**	3.6	131	52	105	-	110	-	100	-	135	-	115	-	120	-	388
315	**304.16**	3.3	131	48	105	-	110	-	100	-	130	-	110	-	115	-	
355	**350.23**	2.9	131	41	92	-	98	-	90	-	115	-	100	-	105	-	
400	**384.57**	2.6	131	38	91	-	97	-	88	-	115	-	99	-	100	-	
X.K230..,n_1= 1200 1/min																	131 kNm
7.1	**7.25**	166	95.5	1700	*)	*)	*)	455	*)	*)	*)	*)	*)	*)	*)	750	**X2K..**
8	**7.96**	151	99.0	1600	*)	*)	*)	470	*)	*)	*)	*)	*)	*)	*)	760	**M1**
9	**9.19**	131	102	1450	*)	*)	*)	380	*)	*)	*)	*)	*)	*)	*)	650	HU 296
10	**10.09**	119	106	1350	*)	*)	*)	395	*)	*)	*)	*)	*)	*)	*)	660	**M5** 356
11.2	**11.22**	107	108	1250	*)	410	330	620	*)	*)	*)	570	*)	475	500	780	**M4** 380
12.5	**12.32**	97	111	1150	*)	415	325	610	*)	*)	*)	560	*)	475	485	760	
14	**14.22**	84	104	950	*)	430	340	590	*)	*)	*)	*)	*)	520	520	760	
16	**15.61**	77	110	920	*)	430	335	580	*)	*)	*)	*)	230	520	500	750	
18	**18.29**	66	113	810	*)	435	340	550	*)	*)	235	465	260	500	455	670	
20	**20.08**	60	119	770	195	420	325	530	*)	*)	215	440	250	490	430	640	
22.4	**23.37**	51	126	700	195	420	315	520	*)	*)	195	420	250	480	400	610	**X3K..**
25	**25.66**	47	131	660	195	420	310	510	*)	*)	180	410	250	480	390	600	**M1**
28	**28.63**	42	131	600	185	390	285	470	*)	*)	160	370	235	450	350	550	HU 300
31.5	**31.43**	38	131	540	190	385	280	460	*)	*)	145	355	235	440	340	530	HH 334
35.5	**36.26**	33	131	470	205	375	275	435	*)	285	340	495	240	420	320	490	**M5**
40	**39.82**	30	131	430	205	370	270	425	*)	280	325	480	235	415	310	480	360
45	**44.78**	27	131	380	190	340	240	385	*)	255	290	430	215	375	275	430	**M4**
50	**49.17**	24	131	345	185	335	235	380	*)	255	280	415	215	370	265	420	384
56	**54.71**	22	131	315	175	310	220	350	120	265	275	405	200	345	245	385	
63	**60.08**	20	131	285	175	305	215	345	120	260	270	390	200	340	240	380	
71	**70.05**	17	131	245	160	275	190	305	130	250	245	355	180	305	210	330	
80	**76.91**	16	131	225	155	270	185	300	130	245	240	345	175	300	205	325	
90	**92.41**	13	131	185	170	-	195	-	135	-	240	-	180	-	205	-	
100	**101.47**	12	131	170	165	-	190	-	135	-	235	-	180	-	200	-	
112	**113.21**	11	131	150	155	-	175	-	125	-	210	-	165	-	185	-	
125	**124.31**	9.7	131	140	150	-	170	-	125	-	205	-	165	-	180	-	
140	**139.81**	8.6	131	125	145	-	165	-	120	-	190	-	160	-	175	-	**X4K..**
160	**153.52**	7.8	131	110	145	-	160	-	115	-	185	-	155	-	170	-	**M1**
180	**176.77**	6.8	131	98	125	-	140	-	105	-	160	-	135	-	150	-	HU 306
200	**194.10**	6.2	131	89	125	-	140	-	100	-	155	-	135	-	145	-	**M5**
224	**224.29**	5.4	131	78	115	-	125	-	110	-	155	-	125	-	135	-	364
250	**246.28**	4.9	131	71	115	-	125	-	110	-	150	-	125	-	130	-	**M4**
280	**277.00**	4.3	131	63	110	-	120	-	105	-	140	-	120	-	125	-	388
315	**304.16**	3.9	131	57	105	-	115	-	105	-	140	-	115	-	120	-	
355	**350.23**	3.4	131	50	97	-	105	-	93	-	120	-	105	-	110	-	
400	**384.57**	3.1	131	45	95	-	100	-	91	-	120	-	105	-	105	-	

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X.K230..,n_1= 1500 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[1)]	**7.25**	207	95.5	2100	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[1)]	**7.96**	188	99.0	2000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[1)]	**9.19**	163	102	1800	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
10[1)]	**10.09**	149	106	1700	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M5** 356
11.2[1)]	**11.22**	134	108	1550	*)	*)	*)	520	*)	*)	*)	*)	*)	395	*)	730	**M4** 380
12.5[1)]	**12.32**	122	111	1450	*)	*)	*)	530	*)	*)	*)	*)	*)	400	*)	740	
14	**14.22**	105	104	1200	*)	385	*)	600	*)	*)	*)	*)	*)	530	520	850	
16	**15.61**	96	110	1150	*)	390	*)	590	*)	*)	*)	*)	*)	530	500	830	
18	**18.29**	82	113	1000	*)	450	310	600	*)	*)	*)	*)	*)	540	480	760	
20	**20.08**	75	119	960	*)	440	295	570	*)	*)	*)	*)	*)	530	450	720	
22.4	**23.37**	64	126	880	*)	440	285	560	*)	*)	*)	*)	*)	520	415	690	**X3K..**
25	**25.66**	58	131	830	*)	440	280	550	*)	*)	*)	*)	*)	520	405	680	**M1**
28	**28.63**	52	131	740	*)	410	260	510	*)	*)	*)	*)	200	485	365	620	HU 300
31.5	**31.43**	48	131	680	*)	405	255	500	*)	*)	*)	*)	200	480	350	600	HH 334
35.5	**36.26**	41	131	590	185	415	275	485	*)	225	285	490	230	470	340	560	**M5**
40	**39.82**	38	131	530	185	405	270	475	*)	225	270	475	230	460	325	550	360
45	**44.78**	33	131	475	170	370	245	430	*)	210	235	425	210	420	290	490	**M4**
50	**49.17**	31	131	435	170	365	235	420	*)	210	225	410	210	415	280	480	384
56	**54.71**	27	131	395	170	345	225	395	*)	260	260	425	200	390	260	440	
63	**60.08**	25	131	360	170	340	220	385	*)	255	250	415	200	385	250	430	
71	**70.05**	21	131	305	160	310	200	345	105	270	250	395	180	345	220	380	
80	**76.91**	20	131	280	155	305	195	335	105	265	245	385	180	340	215	370	
90	**92.41**	16	131	235	175	-	205	-	105	-	235	-	190	-	220	-	
100	**101.47**	15	131	210	170	-	200	-	105	-	225	-	185	-	215	-	
112	**113.21**	13	131	190	160	-	185	-	98	-	205	-	175	-	195	-	
125	**124.31**	12	131	175	155	-	180	-	96	-	195	-	170	-	195	-	
140	**139.81**	11	131	155	150	-	175	-	93	-	185	-	165	-	185	-	**X4K..**
160	**153.52**	9.8	131	140	150	-	170	-	92	-	180	-	160	-	180	-	**M1**
180	**176.77**	8.5	131	120	130	-	150	-	82	-	155	-	145	-	155	-	HU 306
200	**194.10**	7.7	131	110	130	-	145	-	81	-	150	-	140	-	155	-	**M5**
224	**224.29**	6.7	131	97	120	-	135	-	115	-	165	-	130	-	140	-	364
250	**246.28**	6.1	131	88	120	-	135	-	110	-	160	-	130	-	140	-	**M4**
280	**277.00**	5.4	131	79	115	-	125	-	105	-	150	-	125	-	130	-	388
315	**304.16**	4.9	131	72	115	-	125	-	105	-	145	-	120	-	130	-	
355	**350.23**	4.3	131	62	100	-	110	-	94	-	130	-	110	-	115	-	
400	**384.57**	3.9	131	57	100	-	110	-	93	-	125	-	110	-	115	-	
X.K230..,n_1= 1800 1/min																	131 kNm
7.1[*)]	**7.25**	248	90.3	2400	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[*)]	**7.96**	226	93.6	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[*)]	**9.19**	196	96.9	2050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
10[*)]	**10.09**	178	100	1900	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M5** 356
11.2[*)]	**11.22**	160	102	1750	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	590	**M4** 380
12.5[*)]	**12.32**	146	105	1650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	600	
14[1)]	**14.22**	127	98.4	1350	*)	*)	*)	500	*)	*)	*)	*)	*)	460	410	820	
16[1)]	**15.61**	115	103	1300	*)	*)	*)	510	*)	*)	*)	*)	*)	465	415	830	
18	**18.29**	98	107	1150	*)	415	*)	600	*)	*)	*)	*)	*)	540	480	820	
20	**20.08**	90	112	1100	*)	405	*)	580	*)	*)	*)	*)	*)	530	445	770	
22.4	**23.37**	77	119	990	*)	415	*)	560	*)	*)	*)	*)	*)	530	410	730	**X3K..**
25	**25.66**	70	123	940	*)	415	*)	560	*)	*)	*)	*)	*)	530	390	720	**M1**
28	**28.63**	63	126	860	*)	395	*)	520	*)	*)	*)	*)	*)	495	350	650	HU 300
31.5	**31.43**	57	129	800	*)	395	*)	500	*)	*)	*)	*)	*)	490	335	640	HH 334
35.5	**36.26**	50	129	690	*)	430	265	520	*)	*)	*)	425	210	495	350	610	**M5**
40	**39.82**	45	131	640	*)	425	260	500	*)	*)	*)	405	210	490	340	590	360
45	**44.78**	40	131	570	*)	390	230	455	*)	*)	*)	365	190	445	300	530	**M4**
50	**49.17**	37	131	520	140	385	225	450	*)	*)	*)	350	190	440	290	520	384
56	**54.71**	33	131	470	150	365	220	420	*)	215	210	415	190	415	270	480	
63	**60.08**	30	131	430	150	360	215	410	*)	215	200	400	190	410	260	470	
71	**70.05**	26	131	370	150	330	200	370	*)	265	245	410	180	370	230	415	
80	**76.91**	23	131	335	150	325	195	365	*)	260	235	400	180	365	225	405	
90	**92.41**	19	131	280	175	-	215	-	*)	-	205	-	190	-	230	-	
100	**101.47**	18	131	255	175	-	210	-	*)	-	200	-	185	-	225	-	
112	**113.21**	16	131	230	160	-	195	-	*)	-	175	-	175	-	205	-	
125	**124.31**	14	131	210	160	-	190	-	*)	-	170	-	175	-	200	-	
140	**139.81**	13	131	185	155	-	180	-	*)	-	160	-	165	-	190	-	**X4K..**
160	**153.52**	12	131	170	150	-	175	-	*)	-	150	-	165	-	185	-	**M1**
180	**176.77**	10	131	145	135	-	155	-	*)	-	130	-	145	-	165	-	HU 306
200	**194.10**	9.3	131	135	130	-	150	-	37	-	125	-	145	-	160	-	**M5**
224	**224.29**	8.0	131	115	125	-	140	-	110	-	175	-	135	-	150	-	364
250	**246.28**	7.3	131	105	125	-	140	-	110	-	170	-	135	-	145	-	**M4**
280	**277.00**	6.5	131	94	120	-	130	-	105	-	155	-	130	-	140	-	388
315	**304.16**	5.9	131	86	115	-	130	-	105	-	155	-	125	-	135	-	
355	**350.23**	5.1	131	75	105	-	115	-	93	-	135	-	115	-	120	-	
400	**384.57**	4.7	131	68	105	-	115	-	92	-	130	-	110	-	120	-	

X.K240..,n_1= 1000 1/min																	156 kNm
					P_{TH}20 °C kW												
					M1				M5	M4			M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3	**6.38**	157	122	2050	*)	*)	*)	830	*)	*)	*)	*)	*)	*)	800	1150	**X2K..**
7.1	**7.34**	136	128	1850	*)	*)	*)	800	*)	*)	*)	*)	*)	*)	760	1100	**M1**
8	**8.09**	124	130	1750	*)	*)	600	920	*)	*)	460	800	*)	445	860	1150	HU 296
9	**9.31**	107	135	1550	*)	*)	560	840	*)	*)	445	740	*)	415	780	1050	**M5** 356
10	**9.82**	102	136	1500	*)	475	680	940	*)	*)	920	1150	*)	540	840	1100	**M4** 380
11.2	**11.31**	88	143	1350	*)	455	620	870	*)	*)	830	1050	*)	520	750	990	
12.5	**11.92**	84	128	1150	*)	420	590	800	*)	*)	*)	520	*)	540	780	1000	
14	**13.71**	73	137	1100	*)	405	540	750	*)	*)	*)	445	*)	520	700	920	
16	**15.32**	65	138	980	*)	450	540	730	*)	*)	690	870	295	530	650	850	
18	**17.64**	57	156	960	*)	435	510	690	*)	*)	640	810	285	510	600	790	
20	**20.36**	49	156	830	235	450	495	680	*)	*)	610	790	300	520	570	770	**X3K..**
22.4	**23.44**	43	156	720	230	430	455	630	*)	*)	550	720	290	495	520	710	**M1**
25	**25.64**	39	156	660	220	400	415	580	*)	*)	490	640	270	460	465	640	HU 300
28	**29.51**	34	156	570	215	395	395	550	*)	*)	450	610	270	450	440	610	HH 334
31.5	**32.47**	31	156	520	230	385	375	520	*)	285	550	680	270	430	405	560	**M5**
35.5	**37.38**	27	156	450	225	375	360	500	*)	280	520	640	265	420	385	540	360
40	**39.96**	25	156	425	225	375	350	490	105	280	500	630	260	420	375	520	**M4**
45	**46.00**	22	156	370	215	355	325	460	105	265	455	580	250	400	345	490	384
50	**48.83**	20	156	350	205	335	305	425	145	280	440	560	235	375	320	450	
56	**56.20**	18	156	305	200	320	285	400	140	270	410	520	225	355	300	425	
63	**62.51**	16	156	275	190	305	265	375	155	275	390	490	215	340	275	395	
71	**71.95**	14	156	235	185	295	250	355	150	260	360	460	205	325	260	375	
80	**82.39**	12	156	210	185	-	245	-	155	-	345	-	205	-	250	-	
90	**94.83**	11	156	180	185	-	235	-	150	-	325	-	200	-	240	-	
100	**103.71**	9.6	156	165	170	-	215	-	140	-	295	-	185	-	220	-	
112	**119.37**	8.4	156	145	165	-	210	-	135	-	280	-	180	-	210	-	
125	**127.64**	7.8	156	135	170	-	210	-	140	-	275	-	180	-	210	-	**X4K..**
140	**146.91**	6.8	156	115	160	-	200	-	135	-	260	-	175	-	200	-	**M1**
160	**153.55**	6.5	156	110	150	-	185	-	125	-	240	-	165	-	185	-	HU 306
180	**176.74**	5.7	156	97	145	-	175	-	120	-	225	-	155	-	175	-	**M5**
200	**205.47**	4.9	156	84	125	-	150	-	120	-	200	-	135	-	150	-	364
224	**236.50**	4.2	156	73	120	-	140	-	115	-	190	-	130	-	145	-	**M4**
250	**252.89**	4.0	156	68	120	-	140	-	115	-	185	-	130	-	145	-	388
280	**291.08**	3.4	156	59	120	-	135	-	115	-	180	-	130	-	140	-	
315	**304.22**	3.3	156	57	115	-	130	-	110	-	170	-	125	-	130	-	
355	**350.17**	2.9	156	49	110	-	125	-	105	-	160	-	120	-	125	-	
X.K240..,n_1= 1200 1/min																	156 kNm
6.3[1)]	**6.38**	188	122	2450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	920	**X2K..**
7.1[1)]	**7.34**	163	128	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	880	**M1**
8[1)]	**8.09**	148	130	2050	*)	*)	*)	760	*)	*)	*)	*)	*)	*)	660	1100	HU 296
9[1)]	**9.31**	129	135	1850	*)	*)	*)	700	*)	*)	*)	*)	*)	*)	610	980	**M5** 356
10[1)]	**9.82**	122	136	1800	*)	*)	560	910	*)	*)	510	860	*)	495	790	1150	**M4** 380
11.2[1)]	**11.31**	106	143	1650	*)	*)	540	870	*)	*)	500	840	*)	475	760	1050	
12.5	**11.92**	101	128	1400	*)	375	550	840	*)	*)	*)	*)	*)	530	820	1100	
14	**13.71**	88	137	1300	*)	365	500	780	*)	*)	*)	*)	*)	510	740	1000	
16	**15.32**	78	138	1200	*)	465	550	790	*)	*)	500	750	*)	570	710	960	
18	**17.64**	68	156	1150	*)	450	510	750	*)	*)	435	680	*)	550	650	900	
20	**20.36**	59	156	1000	*)	475	510	740	*)	*)	425	670	265	570	620	870	**X3K..**
22.4	**23.44**	51	156	870	*)	455	465	690	*)	*)	360	600	260	540	560	800	**M1**
25	**25.64**	47	156	790	*)	425	420	630	*)	*)	320	540	245	500	495	720	HU 300
28	**29.51**	41	156	690	180	420	400	600	*)	*)	280	500	245	490	465	680	HH 334
31.5	**32.47**	37	156	620	215	420	390	580	*)	245	540	710	260	480	435	630	**M5**
35.5	**37.38**	32	156	540	215	410	375	550	*)	240	500	670	260	470	410	610	360
40	**39.96**	30	156	510	210	410	365	540	*)	245	480	650	260	465	400	590	**M4**
45	**46.00**	26	156	440	205	390	340	510	*)	235	440	600	245	445	370	550	384
50	**48.83**	25	156	420	200	370	315	475	*)	280	450	600	235	415	340	510	
56	**56.20**	21	156	365	195	355	295	445	*)	270	415	560	225	400	315	480	
63	**62.51**	19	156	330	190	340	280	420	130	290	405	540	220	380	295	450	
71	**71.95**	17	156	285	180	325	260	400	125	275	375	500	210	365	275	425	
80	**82.39**	15	156	250	195	-	260	-	130	-	355	-	210	-	265	-	
90	**94.83**	13	156	215	190	-	250	-	130	-	335	-	205	-	255	-	
100	**103.71**	12	156	200	175	-	230	-	120	-	305	-	190	-	230	-	
112	**119.37**	10	156	170	170	-	220	-	115	-	285	-	185	-	225	-	
125	**127.64**	9.4	156	160	175	-	220	-	120	-	280	-	185	-	220	-	**X4K..**
140	**146.91**	8.2	156	140	165	-	210	-	115	-	265	-	180	-	210	-	**M1**
160	**153.55**	7.8	156	135	155	-	195	-	110	-	245	-	170	-	195	-	HU 306
180	**176.74**	6.8	156	115	150	-	185	-	105	-	230	-	160	-	185	-	**M5**
200	**205.47**	5.8	156	100	130	-	160	-	125	-	215	-	140	-	160	-	364
224	**236.50**	5.1	156	88	125	-	150	-	120	-	200	-	135	-	150	-	**M4**
250	**252.89**	4.7	156	82	125	-	150	-	120	-	200	-	135	-	150	-	388
280	**291.08**	4.1	156	71	125	-	145	-	115	-	190	-	135	-	145	-	
315	**304.22**	3.9	156	68	120	-	135	-	110	-	180	-	130	-	140	-	
355	**350.17**	3.4	156	59	115	-	130	-	105	-	170	-	125	-	135	-	

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X.K240..,n_1= 1500 1/min																	156 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
6.3*)	**6.38**	235	122	3100	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
7.1*)	**7.34**	204	128	2800	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
8*)	**8.09**	185	130	2600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	720	HU 296
9*)	**9.31**	161	135	2350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	680	**M5** 356
10*)	**9.82**	153	136	2250	*)	*)	*)	710	*)	*)	*)	*)	*)	*)	*)	1000	**M4** 380
11.2*)	**11.31**	133	143	2050	*)	*)	*)	690	*)	*)	*)	*)	*)	*)	530	970	
12.51)	**11.92**	126	128	1750	*)	*)	*)	770	*)	*)	*)	*)	*)	440	760	1150	
141)	**13.71**	109	137	1600	*)	*)	*)	750	*)	*)	*)	*)	*)	435	730	1100	
16	**15.32**	98	138	1450	*)	435	520	850	*)	*)	*)	*)	*)	580	770	1100	
18	**17.64**	85	156	1450	*)	425	480	800	*)	*)	*)	*)	*)	560	700	1000	
20	**20.36**	74	156	1250	*)	465	480	800	*)	*)	*)	*)	*)	590	660	980	**X3K..**
22.4	**23.44**	64	156	1100	*)	445	440	740	*)	*)	*)	*)	*)	560	590	900	**M1**
25	**25.64**	59	156	990	*)	425	400	680	*)	*)	*)	*)	*)	530	520	810	HU 300
28	**29.51**	51	156	860	*)	420	375	650	*)	*)	*)	*)	*)	520	485	770	HH 334
31.5	**32.47**	46	156	780	*)	450	400	640	*)	*)	445	680	235	530	470	730	**M5**
35.5	**37.38**	40	156	680	170	440	380	610	*)	*)	405	640	235	510	440	690	360
40	**39.96**	38	156	630	170	440	370	600	*)	*)	385	620	235	510	425	680	**M4**
45	**46.00**	33	156	550	165	420	340	560	*)	*)	345	570	225	485	390	630	384
50	**48.83**	31	156	520	180	405	325	530	*)	230	425	620	225	465	365	580	
56	**56.20**	27	156	455	175	390	305	500	*)	225	385	580	220	445	335	550	
63	**62.51**	24	156	410	180	375	290	475	*)	290	410	590	215	425	315	510	
71	**71.95**	21	156	355	175	360	275	450	*)	275	380	550	210	410	295	485	
80	**82.39**	18	156	310	195	-	280	-	*)	-	345	-	210	-	285	-	**X4K..**
90	**94.83**	16	156	270	190	-	270	-	*)	-	325	-	205	-	270	-	**M1**
100	**103.71**	14	156	245	180	-	245	-	*)	-	290	-	195	-	250	-	HU 306
112	**119.37**	13	156	215	175	-	235	-	*)	-	275	-	190	-	235	-	**M5**
125	**127.64**	12	156	200	175	-	235	-	54	-	265	-	190	-	235	-	364
140	**146.91**	10	156	175	170	-	220	-	53	-	245	-	185	-	220	-	**M4**
160	**153.55**	9.8	156	165	160	-	210	-	51	-	230	-	170	-	210	-	388
180	**176.74**	8.5	156	145	155	-	195	-	50	-	210	-	165	-	195	-	
200	**205.47**	7.3	156	125	135	-	170	-	120	-	230	-	145	-	170	-	
224	**236.50**	6.3	156	110	130	-	160	-	120	-	220	-	140	-	160	-	
250	**252.89**	5.9	156	105	130	-	160	-	120	-	215	-	140	-	160	-	
280	**291.08**	5.2	156	89	130	-	155	-	115	-	205	-	140	-	155	-	
315	**304.22**	4.9	156	85	125	-	145	-	110	-	190	-	135	-	150	-	
355	**350.17**	4.3	156	74	120	-	140	-	105	-	180	-	130	-	140	-	
X.K240..,n_1= 1800 1/min																	156 kNm
6.3*)	**6.38**	282	115	3500	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
7.1*)	**7.34**	245	120	3150	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
8*)	**8.09**	222	123	2950	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
9*)	**9.31**	193	127	2650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M5** 356
10*)	**9.82**	183	128	2550	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	730	**M4** 380
11.2*)	**11.31**	159	135	2300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	720	
12.51)	**11.92**	151	121	2000	*)	*)	*)	550	*)	*)	*)	*)	*)	*)	550	1050	
141)	**13.71**	131	129	1850	*)	*)	*)	540	*)	*)	*)	*)	*)	*)	540	1000	
161)	**15.32**	117	130	1650	*)	*)	*)	830	*)	*)	*)	*)	*)	520	760	1150	
181)	**17.64**	102	147	1650	*)	*)	*)	800	*)	*)	*)	*)	*)	510	720	1100	
201)	**20.36**	88	147	1400	*)	385	405	800	*)	*)	*)	*)	*)	560	680	1050	**X3K..**
22.41)	**23.44**	77	156	1300	*)	375	365	740	*)	*)	*)	*)	*)	540	600	960	**M1**
251)	**25.64**	70	156	1200	*)	370	335	680	*)	*)	*)	*)	*)	510	530	870	HU 300
281)	**29.51**	61	156	1050	*)	370	315	650	*)	*)	*)	*)	*)	510	485	820	HH 334
31.51)	**32.47**	55	156	940	*)	450	390	680	*)	*)	*)	530	*)	540	495	790	**M5**
35.51)	**37.38**	48	156	810	*)	445	370	650	*)	*)	*)	490	*)	530	460	750	360
401)	**39.96**	45	156	760	*)	445	360	630	*)	*)	*)	475	*)	530	440	730	**M4**
451)	**46.00**	39	156	660	*)	425	330	590	*)	*)	*)	425	185	510	400	680	384
501)	**48.83**	37	156	630	*)	420	325	570	*)	*)	345	580	200	490	380	640	
561)	**56.20**	32	156	550	140	400	305	530	*)	*)	305	540	195	465	350	600	
631)	**62.51**	29	156	490	155	395	295	510	*)	250	395	600	205	455	330	560	
711)	**71.95**	25	156	425	155	380	275	480	*)	240	360	560	200	435	305	530	
80	**82.39**	22	156	375	195	-	295	-	*)	-	300	-	210	-	300	-	**X4K..**
90	**94.83**	19	156	325	190	-	285	-	*)	-	275	-	205	-	285	-	**M1**
100	**103.71**	17	156	295	180	-	260	-	*)	-	245	-	190	-	260	-	HU 306
112	**119.37**	15	156	260	175	-	245	-	*)	-	225	-	190	-	250	-	**M5**
125	**127.64**	14	156	240	175	-	245	-	*)	-	215	-	190	-	245	-	364
140	**146.91**	12	156	210	170	-	230	-	*)	-	195	-	180	-	230	-	**M4**
160	**153.55**	12	156	200	160	-	215	-	*)	-	180	-	170	-	215	-	388
180	**176.74**	10	156	175	155	-	205	-	*)	-	165	-	165	-	205	-	
200	**205.47**	8.8	156	150	140	-	175	-	115	-	245	-	150	-	180	-	
224	**236.50**	7.6	156	130	135	-	170	-	110	-	230	-	145	-	170	-	
250	**252.89**	7.1	156	125	135	-	165	-	110	-	225	-	145	-	170	-	
280	**291.08**	6.2	156	105	130	-	160	-	110	-	215	-	140	-	160	-	
315	**304.22**	5.9	156	100	125	-	155	-	105	-	200	-	135	-	155	-	
355	**350.17**	5.1	156	89	120	-	145	-	100	-	190	-	130	-	145	-	

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X.K250..,n_1= 1000 1/min																	175 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1	**6.86**	146	131	2050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	760	**X2K..**
8	**7.88**	127	137	1850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	720	**M1**
9	**8.69**	115	140	1700	*)	*)	*)	580	*)	*)	*)	*)	*)	*)	500	820	HU 296
10	**9.99**	100	145	1550	*)	*)	*)	580	*)	*)	*)	*)	*)	435	500	820	**M5** 356
11.2	**10.56**	95	146	1500	*)	460	390	670	*)	*)	*)	600	*)	520	560	820	**M4** 380
12.5	**12.13**	82	154	1350	*)	460	380	650	*)	*)	*)	570	*)	520	530	790	
14	**12.80**	78	138	1150	*)	425	360	610	*)	*)	*)	*)	*)	540	560	800	
16	**14.71**	68	148	1100	*)	410	335	570	*)	*)	*)	*)	*)	520	510	740	
18	**16.47**	61	149	980	*)	455	375	580	*)	*)	300	520	295	530	500	710	
20	**18.92**	53	162	930	*)	440	355	550	*)	*)	270	480	285	510	465	660	
22.4	**21.88**	46	169	840	230	440	350	540	*)	*)	265	470	295	510	445	640	**X3K..**
25	**25.14**	40	175	750	225	425	330	510	*)	*)	235	435	285	490	410	600	**M1**
28	**27.55**	36	175	690	220	410	315	485	*)	*)	220	410	275	470	385	570	HU 300
31.5	**31.64**	32	175	600	215	390	295	460	*)	*)	195	375	265	445	355	530	HH 334
35.5	**34.89**	29	175	540	235	390	300	450	*)	290	360	500	275	440	345	510	**M5**
40	**40.08**	25	175	475	225	375	285	425	*)	275	330	470	260	420	325	475	360
45	**42.95**	23	175	440	225	370	280	420	*)	275	320	460	260	415	320	470	**M4**
50	**49.33**	20	175	385	215	355	265	400	105	265	300	430	245	395	300	445	384
56	**52.47**	19	175	365	205	335	250	375	145	280	305	425	235	370	280	410	
63	**60.27**	17	175	320	200	325	240	360	140	275	290	405	230	365	270	400	
71	**67.18**	15	175	285	190	305	225	335	155	270	280	385	215	340	245	365	
80	**77.17**	13	175	250	185	300	215	325	150	265	265	370	210	330	240	355	
90	**88.53**	11	175	215	190	-	215	-	155	-	260	-	205	-	230	-	
100	**101.70**	9.8	175	190	180	-	205	-	150	-	245	-	195	-	220	-	
112	**111.45**	9.0	175	170	175	-	195	-	145	-	225	-	185	-	205	-	
125	**128.02**	7.8	175	150	165	-	185	-	135	-	215	-	180	-	195	-	
140	**137.16**	7.3	175	140	165	-	185	-	140	-	210	-	180	-	195	-	**X4K..**
160	**157.56**	6.3	175	120	160	-	175	-	135	-	200	-	175	-	185	-	**M1**
180	**165.01**	6.1	175	115	150	-	165	-	125	-	185	-	165	-	175	-	HU 306
200	**189.54**	5.3	175	100	145	-	160	-	120	-	175	-	155	-	165	-	**M5**
224	**220.81**	4.5	175	88	125	-	135	-	120	-	165	-	135	-	145	-	364
250	**253.64**	3.9	175	76	120	-	130	-	115	-	155	-	130	-	140	-	**M4**
280	**271.76**	3.7	175	71	120	-	130	-	115	-	155	-	130	-	140	-	388
315	**312.17**	3.2	175	62	115	-	125	-	115	-	145	-	125	-	130	-	
355	**326.93**	3.1	175	59	115	-	120	-	110	-	140	-	125	-	130	-	
400	**375.54**	2.7	175	52	110	-	115	-	105	-	135	-	120	-	125	-	
X.K250..,n_1= 1200 1/min																	175 kNm
7.1[1)]	**6.86**	175	131	2450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[1)]	**7.88**	152	137	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[1)]	**8.69**	138	140	2050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	710	HU 296
10[1)]	**9.99**	120	145	1850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	710	**M5** 356
11.2[1)]	**10.56**	114	146	1800	*)	*)	*)	610	*)	*)	*)	*)	*)	480	470	820	**M4** 380
12.5[1)]	**12.13**	99	154	1650	*)	*)	*)	610	*)	*)	*)	*)	*)	480	470	820	
14	**12.80**	94	138	1400	*)	380	*)	600	*)	*)	*)	*)	*)	540	540	870	
16	**14.71**	82	148	1300	*)	370	*)	570	*)	*)	*)	*)	*)	520	490	800	
18	**16.47**	73	149	1200	*)	470	345	620	*)	*)	*)	*)	*)	570	520	790	
20	**18.92**	63	162	1100	*)	455	325	590	*)	*)	*)	*)	*)	550	475	740	
22.4	**21.88**	55	169	1000	*)	465	325	580	*)	*)	*)	270	260	550	455	710	**X3K..**
25	**25.14**	48	175	910	*)	450	310	550	*)	*)	*)	240	255	530	420	670	**M1**
28	**27.55**	44	175	830	*)	435	295	530	*)	*)	*)	230	250	510	395	630	HU 300
31.5	**31.64**	38	175	720	*)	415	280	495	*)	*)	*)	205	240	485	365	590	HH 334
35.5	**34.89**	34	175	650	220	425	300	500	*)	250	310	500	265	485	360	570	**M5**
40	**40.08**	30	175	570	210	410	285	470	*)	240	285	470	255	465	335	540	360
45	**42.95**	28	175	530	210	405	280	465	*)	245	275	460	255	460	330	530	**M4**
50	**49.33**	24	175	460	200	385	265	440	*)	235	250	430	245	440	310	495	384
56	**52.47**	23	175	440	200	370	250	415	*)	280	290	445	235	415	290	460	
63	**60.27**	20	175	380	195	360	245	400	*)	275	275	430	230	405	280	450	
71	**67.18**	18	175	340	190	340	230	375	130	290	280	420	220	380	255	415	
80	**77.17**	16	175	300	185	330	220	365	130	280	265	405	215	370	250	400	
90	**88.53**	14	175	260	195	-	225	-	135	-	255	-	210	-	240	-	
100	**101.70**	12	175	225	185	-	215	-	130	-	240	-	205	-	230	-	
112	**111.45**	11	175	205	180	-	205	-	120	-	220	-	195	-	215	-	
125	**128.02**	9.4	175	180	170	-	195	-	120	-	210	-	185	-	205	-	
140	**137.16**	8.7	175	170	170	-	195	-	120	-	205	-	185	-	205	-	**X4K..**
160	**157.56**	7.6	175	145	165	-	185	-	115	-	195	-	180	-	195	-	**M1**
180	**165.01**	7.3	175	140	155	-	175	-	110	-	180	-	170	-	185	-	HU 306
200	**189.54**	6.3	175	120	150	-	165	-	105	-	170	-	160	-	175	-	**M5**
224	**220.81**	5.4	175	105	130	-	145	-	125	-	170	-	140	-	150	-	364
250	**253.64**	4.7	175	92	125	-	135	-	120	-	165	-	135	-	145	-	**M4**
280	**271.76**	4.4	175	86	125	-	135	-	120	-	160	-	135	-	145	-	388
315	**312.17**	3.8	175	75	120	-	130	-	115	-	155	-	130	-	140	-	
355	**326.93**	3.7	175	71	120	-	125	-	110	-	145	-	130	-	135	-	
400	**375.54**	3.2	175	62	115	-	120	-	105	-	140	-	125	-	130	-	

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X.K250..,n_1= 1500 1/min																	175 kNm
					P_{TH}20 °C kW												
					M1				M5 M4				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
7.1[*)]	**6.86**	219	131	3050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[*)]	**7.88**	190	137	2800	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[*)]	**8.69**	173	140	2600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
10[*)]	**9.99**	150	145	2350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M5** 356
11.2[*)]	**10.56**	142	146	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	680	**M4** 380
12.5[*)]	**12.13**	124	154	2050	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	680	
14[1)]	**12.80**	117	138	1750	*)	*)	*)	475	*)	*)	*)	*)	*)	450	*)	860	
16[1)]	**14.71**	102	148	1650	*)	*)	*)	470	*)	*)	*)	*)	*)	440	*)	830	
18	**16.47**	91	149	1450	*)	440	*)	640	*)	*)	*)	*)	*)	580	510	880	
20	**18.92**	79	162	1400	*)	430	*)	610	*)	*)	*)	*)	*)	570	465	820	
22.4	**21.88**	69	169	1250	*)	455	*)	610	*)	*)	*)	*)	*)	580	445	790	**X3K..**
25	**25.14**	60	175	1150	*)	440	*)	580	*)	*)	*)	*)	*)	560	405	740	**M1**
28	**27.55**	54	175	1050	*)	435	*)	550	*)	*)	*)	*)	*)	540	380	700	HU 300
31.5	**31.64**	47	175	900	*)	415	*)	520	*)	*)	*)	*)	*)	520	350	650	HH 334
35.5	**34.89**	43	175	820	*)	460	280	540	*)	*)	*)	425	240	530	370	640	**M5**
40	**40.08**	37	175	710	*)	440	265	520	*)	*)	*)	390	230	510	345	600	360
45	**42.95**	35	175	660	170	435	260	510	*)	*)	*)	385	230	510	335	590	**M4**
50	**49.33**	30	175	580	165	415	245	480	*)	*)	*)	355	225	485	315	560	384
56	**52.47**	29	175	550	175	405	245	460	*)	230	220	440	225	460	300	520	
63	**60.27**	25	175	475	175	395	240	445	*)	230	205	420	220	450	285	510	
71	**67.18**	22	175	430	180	375	230	420	*)	285	260	445	215	425	265	470	
80	**77.17**	19	175	370	175	365	220	405	*)	280	245	425	210	415	255	455	
90	**88.53**	17	175	325	200	-	240	-	*)	-	225	-	215	-	255	-	
100	**101.70**	15	175	285	190	-	225	-	*)	-	205	-	205	-	240	-	
112	**111.45**	13	175	260	180	-	210	-	*)	-	190	-	195	-	225	-	
125	**128.02**	12	175	225	175	-	200	-	*)	-	175	-	190	-	215	-	
140	**137.16**	11	175	210	175	-	200	-	56	-	175	-	190	-	215	-	**X4K..**
160	**157.56**	9.5	175	185	170	-	190	-	54	-	160	-	180	-	205	-	**M1**
180	**165.01**	9.1	175	175	160	-	180	-	53	-	150	-	170	-	190	-	HU 306
200	**189.54**	7.9	175	150	155	-	170	-	52	-	140	-	165	-	180	-	**M5**
224	**220.81**	6.8	175	130	135	-	150	-	120	-	180	-	150	-	160	-	364
250	**253.64**	5.9	175	115	130	-	145	-	120	-	170	-	140	-	150	-	**M4**
280	**271.76**	5.5	175	105	130	-	145	-	120	-	170	-	145	-	150	-	388
315	**312.17**	4.8	175	93	125	-	140	-	115	-	160	-	135	-	145	-	
355	**326.93**	4.6	175	89	125	-	135	-	110	-	155	-	135	-	140	-	
400	**375.54**	4.0	175	77	120	-	130	-	105	-	145	-	130	-	135	-	
X.K250..,n_1= 1800 1/min																	175 kNm
7.1[*)]	**6.86**	262	123	3450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K..**
8[*)]	**7.88**	228	129	3150	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M1**
9[*)]	**8.69**	207	132	2950	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	HU 296
10[*)]	**9.99**	180	137	2650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M5** 356
11.2[*)]	**10.56**	170	138	2550	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**M4** 380
12.5[*)]	**12.13**	148	145	2350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
14[1)]	**12.80**	141	130	2000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	720	
16[1)]	**14.71**	122	139	1850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	700	
18[1)]	**16.47**	109	140	1650	*)	*)	*)	570	*)	*)	*)	*)	*)	530	445	900	
20[1)]	**18.92**	95	153	1600	*)	*)	*)	550	*)	*)	*)	*)	*)	520	420	850	
22.4[1)]	**21.88**	82	159	1400	*)	380	*)	570	*)	*)	*)	*)	*)	550	400	820	**X3K..**
25[1)]	**25.14**	72	175	1350	*)	370	*)	540	*)	*)	*)	*)	*)	530	360	760	**M1**
28[1)]	**27.55**	65	174	1250	*)	375	*)	520	*)	*)	*)	*)	*)	520	335	720	HU 300
31.5[1)]	**31.64**	57	175	1100	*)	365	*)	495	*)	*)	*)	*)	*)	500	305	670	HH 334
35.5[1)]	**34.89**	52	175	980	*)	460	*)	560	*)	*)	*)	*)	*)	550	365	690	**M5**
40[1)]	**40.08**	45	175	850	*)	440	230	530	*)	*)	*)	*)	*)	530	335	640	360
45[1)]	**42.95**	42	175	790	*)	440	220	520	*)	*)	*)	*)	*)	530	325	630	**M4**
50[1)]	**49.33**	36	175	690	*)	420	210	495	*)	*)	*)	*)	185	500	305	590	384
56[1)]	**52.47**	34	175	660	*)	415	225	480	*)	*)	*)	370	200	485	300	560	
63[1)]	**60.27**	30	175	570	*)	405	220	465	*)	*)	*)	350	200	475	285	540	
71[1)]	**67.18**	27	175	510	155	395	220	445	*)	250	205	435	205	450	270	510	
80[1)]	**77.17**	23	175	445	155	385	215	430	*)	245	195	415	200	440	260	490	
90	**88.53**	20	175	390	200	-	245	-	*)	-	140	-	215	-	260	-	
100	**101.70**	18	175	340	190	-	230	-	*)	-	130	-	205	-	245	-	
112	**111.45**	16	175	310	180	-	215	-	*)	-	115	-	195	-	230	-	
125	**128.02**	14	175	270	175	-	205	-	*)	-	100	-	190	-	220	-	
140	**137.16**	13	175	250	175	-	205	-	*)	-	97	-	190	-	220	-	**X4K..**
160	**157.56**	11	175	220	170	-	195	-	*)	-	87	-	180	-	205	-	**M1**
180	**165.01**	11	175	210	160	-	185	-	*)	-	81	-	170	-	195	-	HU 306
200	**189.54**	9.5	175	180	155	-	175	-	*)	-	72	-	165	-	185	-	**M5**
224	**220.81**	8.2	175	160	140	-	155	-	115	-	185	-	150	-	165	-	364
250	**253.64**	7.1	175	140	135	-	150	-	110	-	175	-	145	-	155	-	**M4**
280	**271.76**	6.6	175	130	135	-	150	-	115	-	170	-	145	-	155	-	388
315	**312.17**	5.8	175	110	130	-	145	-	110	-	165	-	140	-	150	-	
355	**326.93**	5.5	175	105	125	-	140	-	105	-	155	-	135	-	145	-	
400	**375.54**	4.8	175	93	120	-	130	-	100	-	150	-	130	-	140	-	

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X.K260..,n_1= 1000 1/min																	205 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5	**12.59**	79	166	1450	*)	495	740	990	*)	495	580	840	*)	640	1000	1300	
14	**14.24**	70	175	1350	*)	475	680	920	*)	475	540	790	*)	620	920	1150	
16	**16.19**	62	185	1250	*)	550	700	920	*)	550	580	800	325	660	860	1100	
18	**18.32**	55	195	1150	*)	530	650	850	*)	530	540	750	315	630	780	1000	
20	**21.10**	47	205	1050	*)	540	620	820	*)	540	520	730	320	630	730	950	**X3K..**
22.4	**23.86**	42	205	930	235	530	590	790	235	530	495	700	315	620	680	900	**M1**
25	**26.09**	38	205	850	220	480	510	700	220	480	435	620	290	560	590	790	HU 302
28	**29.51**	34	205	750	215	470	490	670	215	470	415	600	285	550	550	750	HH 336
31.5	**30.68**	33	205	720	220	470	480	660	220	470	410	600	285	550	540	730	**M5**
35.5	**34.70**	29	205	640	215	460	455	630	215	460	390	570	280	540	510	700	362
40	**38.86**	26	205	570	245	460	445	600	245	460	390	550	295	520	475	650	**M4**
45	**43.96**	23	205	510	235	440	415	560	235	440	365	520	280	495	440	600	388
50	**47.48**	21	205	470	235	425	390	530	235	425	350	495	275	475	410	570	
56	**53.70**	19	205	420	230	420	375	520	230	420	335	480	270	465	395	540	
63	**60.78**	16	205	370	215	385	335	460	215	385	305	430	250	425	345	485	
71	**68.75**	15	205	325	210	365	315	435	210	365	285	410	240	405	325	455	
80	**84.73**	12	205	265	205	-	290	-	195	-	260	-	220	-	290	-	
90	**95.84**	10	205	235	195	-	275	-	190	-	245	-	215	-	275	-	
100	**104.76**	9.5	205	215	185	-	250	-	175	-	225	-	200	-	250	-	
112	**118.50**	8.4	205	190	175	-	240	-	170	-	215	-	190	-	235	-	
125	**123.21**	8.1	205	180	180	-	240	-	170	-	215	-	195	-	235	-	**X4K..**
140	**139.37**	7.2	205	160	175	-	230	-	170	-	210	-	190	-	230	-	**M1**
160	**152.63**	6.6	205	145	170	-	220	-	165	-	200	-	185	-	220	-	HU 306
180	**172.65**	5.8	205	130	165	-	210	-	160	-	190	-	180	-	210	-	**M5**
200	**203.69**	4.9	205	110	145	-	180	-	140	-	165	-	155	-	180	-	364
224	**230.40**	4.3	205	99	140	-	175	-	140	-	160	-	150	-	175	-	**M4**
250	**239.55**	4.2	205	95	140	-	175	-	140	-	160	-	155	-	175	-	388
280	**270.97**	3.7	205	84	135	-	165	-	135	-	155	-	150	-	165	-	
315	**296.76**	3.4	205	77	135	-	160	-	135	-	150	-	145	-	165	-	
355	**335.68**	3.0	205	68	130	-	155	-	130	-	145	-	140	-	155	-	
X.K260..,n_1= 1200 1/min																	205 kNm
12.5[1)]	**12.59**	95	166	1700	*)	*)	680	1000	*)	*)	485	840	*)	620	1100	1400	
14[1)]	**14.24**	84	175	1600	*)	*)	620	940	*)	*)	440	780	*)	600	970	1300	
16	**16.19**	74	185	1500	*)	560	700	990	*)	560	560	860	*)	700	940	1250	
18	**18.32**	66	195	1400	*)	540	650	920	*)	540	520	800	*)	670	850	1150	
20	**21.10**	57	205	1250	*)	550	620	890	*)	550	500	780	*)	670	780	1050	**X3K..**
22.4	**23.86**	50	205	1100	*)	540	580	850	*)	540	475	750	*)	660	730	1000	**M1**
25	**26.09**	46	205	1000	*)	495	510	750	*)	495	420	670	*)	600	620	880	HU 302
28	**29.51**	41	205	900	*)	485	485	720	*)	485	400	640	240	590	580	840	HH 336
31.5	**30.68**	39	205	870	*)	490	475	710	*)	490	395	640	245	590	570	820	**M5**
35.5	**34.70**	35	205	770	*)	480	450	680	*)	480	375	610	240	580	530	780	362
40	**38.86**	31	205	690	225	500	460	660	225	500	400	610	280	580	510	730	**M4**
45	**43.96**	27	205	610	215	480	425	620	215	480	370	570	270	550	470	680	388
50	**47.48**	25	205	570	225	470	410	600	225	470	360	550	270	530	440	640	
56	**53.70**	22	205	500	220	460	390	570	220	460	345	530	265	520	420	620	
63	**60.78**	20	205	445	215	425	355	520	215	425	315	480	250	475	370	550	
71	**68.75**	17	205	390	205	410	330	490	205	410	295	455	240	455	345	520	
80	**84.73**	14	205	320	210	-	310	-	195	-	270	-	225	-	310	-	
90	**95.84**	13	205	280	200	-	295	-	190	-	255	-	215	-	290	-	
100	**104.76**	11	205	255	185	-	270	-	175	-	235	-	200	-	265	-	
112	**118.50**	10	205	230	180	-	255	-	170	-	225	-	195	-	250	-	
125	**123.21**	9.7	205	220	180	-	255	-	175	-	225	-	195	-	250	-	**X4K..**
140	**139.37**	8.6	205	195	180	-	245	-	170	-	220	-	195	-	240	-	**M1**
160	**152.63**	7.9	205	175	175	-	235	-	165	-	210	-	190	-	230	-	HU 306
180	**172.65**	7.0	205	155	170	-	225	-	160	-	200	-	180	-	220	-	**M5**
200	**203.69**	5.9	205	135	150	-	190	-	145	-	175	-	160	-	190	-	364
224	**230.40**	5.2	205	120	145	-	185	-	140	-	170	-	160	-	185	-	**M4**
250	**239.55**	5.0	205	115	145	-	185	-	145	-	170	-	160	-	185	-	388
280	**270.97**	4.4	205	100	140	-	175	-	140	-	160	-	155	-	175	-	
315	**296.76**	4.0	205	92	140	-	170	-	135	-	160	-	150	-	170	-	
355	**335.68**	3.6	205	81	135	-	165	-	130	-	150	-	145	-	165	-	

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X.K260..,n_1= 1500 1/min																	205 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
12.5[1)]	**12.59**	119	166	2150	*)	*)	*)	850	*)	*)	*)	650	*)	*)	940	1400	
14[1)]	**14.24**	105	175	2000	*)	*)	*)	820	*)	*)	*)	630	*)	*)	900	1350	
16[1)]	**16.19**	93	185	1850	*)	500	650	1050	*)	500	475	870	*)	690	1000	1400	
18[1)]	**18.32**	82	195	1750	*)	485	600	960	*)	485	435	810	*)	660	910	1300	
20[1)]	**21.10**	71	205	1600	*)	510	570	930	*)	510	425	800	*)	680	830	1200	**X3K..**
22.4[1)]	**23.86**	63	205	1400	*)	500	530	890	*)	500	395	770	*)	670	760	1150	**M1**
25[1)]	**26.09**	57	205	1300	*)	470	465	790	*)	470	350	680	*)	610	650	980	HU 302
28[1)]	**29.51**	51	205	1150	*)	460	435	750	*)	460	325	660	*)	600	600	930	HH 336
31.5[1)]	**30.68**	49	205	1100	*)	465	430	740	*)	465	325	650	*)	600	580	910	**M5**
35.5[1)]	**34.70**	43	205	960	*)	460	400	710	*)	460	305	620	*)	590	540	860	362
40[1)]	**38.86**	39	205	860	*)	530	465	730	*)	530	385	660	245	630	550	830	**M4**
45[1)]	**43.96**	34	205	760	*)	510	430	690	*)	510	360	620	235	600	500	780	388
50[1)]	**47.48**	32	205	710	190	510	425	660	190	510	365	610	255	590	480	740	
56[1)]	**53.70**	28	205	630	190	500	405	640	190	500	345	590	250	580	450	700	
63[1)]	**60.78**	25	205	550	195	470	370	580	195	470	325	540	245	530	400	630	
71[1)]	**68.75**	22	205	490	190	450	345	550	190	450	305	510	235	510	375	590	
80	**84.73**	18	205	400	210	-	335	-	190	-	285	-	225	-	335	-	
90	**95.84**	16	205	350	200	-	315	-	185	-	270	-	215	-	310	-	
100	**104.76**	14	205	320	185	-	285	-	175	-	245	-	200	-	285	-	
112	**118.50**	13	205	285	180	-	270	-	165	-	235	-	195	-	265	-	
125	**123.21**	12	205	275	185	-	270	-	170	-	235	-	200	-	270	-	**X4K..**
140	**139.37**	11	205	240	180	-	260	-	165	-	225	-	195	-	255	-	**M1**
160	**152.63**	9.8	205	220	175	-	250	-	160	-	215	-	190	-	245	-	HU 306
180	**172.65**	8.7	205	195	170	-	235	-	155	-	205	-	180	-	230	-	**M5**
200	**203.69**	7.4	205	165	155	-	205	-	145	-	185	-	165	-	200	-	364
224	**230.40**	6.5	205	150	150	-	195	-	145	-	175	-	160	-	195	-	**M4**
250	**239.55**	6.3	205	140	150	-	195	-	145	-	180	-	165	-	195	-	388
280	**270.97**	5.5	205	125	145	-	190	-	140	-	170	-	160	-	185	-	
315	**296.76**	5.1	205	115	145	-	185	-	140	-	165	-	155	-	180	-	
355	**335.68**	4.5	205	100	140	-	175	-	135	-	160	-	150	-	175	-	
X.K260..,n_1= 1800 1/min																	205 kNm
12.5[*)]	**12.59**	143	157	2450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	640	1200	
14[*)]	**14.24**	126	166	2250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	620	1150	
16[*)]	**16.19**	111	175	2100	*)	*)	*)	940	*)	*)	*)	760	*)	600	960	1400	
18[*)]	**18.32**	98	186	2000	*)	*)	*)	910	*)	*)	*)	740	*)	580	930	1350	
20[*)]	**21.10**	85	199	1850	*)	*)	*)	890	*)	*)	*)	740	*)	620	840	1300	**X3K..**
22.4[*)]	**23.86**	75	205	1700	*)	*)	*)	850	*)	*)	*)	700	*)	610	760	1200	**M1**
25[*)]	**26.09**	69	205	1550	*)	*)	*)	760	*)	*)	*)	630	*)	560	640	1050	HU 302
28[*)]	**29.51**	61	205	1350	*)	360	*)	720	*)	360	*)	600	*)	550	580	970	HH 336
31.5[*)]	**30.68**	59	205	1300	*)	375	330	710	*)	375	*)	600	*)	560	570	950	**M5**
35.5[*)]	**34.70**	52	205	1150	*)	365	300	680	*)	365	*)	580	*)	550	510	900	362
40[*)]	**38.86**	46	205	1050	*)	530	445	760	*)	530	350	680	*)	640	570	900	**M4**
45[*)]	**43.96**	41	205	910	*)	500	405	710	*)	500	325	640	*)	620	520	840	388
50[*)]	**47.48**	38	205	850	*)	520	420	700	*)	520	350	640	220	620	500	800	
56[*)]	**53.70**	34	205	750	*)	510	400	680	*)	510	330	620	215	600	470	770	
63[*)]	**60.78**	30	205	660	165	495	375	620	165	495	320	570	225	570	425	690	
71[*)]	**68.75**	26	205	590	160	475	350	590	160	475	300	540	215	540	395	650	
80	**84.73**	21	205	480	200	-	350	-	175	-	290	-	215	-	350	-	
90	**95.84**	19	205	420	195	-	330	-	170	-	270	-	210	-	330	-	
100	**104.76**	17	205	385	180	-	300	-	160	-	250	-	195	-	300	-	
112	**118.50**	15	205	340	175	-	285	-	155	-	235	-	190	-	280	-	
125	**123.21**	15	205	330	180	-	285	-	160	-	235	-	195	-	280	-	**X4K..**
140	**139.37**	13	205	290	175	-	270	-	155	-	225	-	190	-	265	-	**M1**
160	**152.63**	12	205	265	170	-	260	-	155	-	220	-	185	-	255	-	HU 306
180	**172.65**	10	205	235	165	-	245	-	145	-	205	-	180	-	240	-	**M5**
200	**203.69**	8.8	205	200	155	-	215	-	145	-	190	-	170	-	210	-	364
224	**230.40**	7.8	205	175	150	-	205	-	145	-	185	-	165	-	205	-	**M4**
250	**239.55**	7.5	205	170	155	-	205	-	145	-	185	-	165	-	205	-	388
280	**270.97**	6.6	205	150	150	-	195	-	140	-	175	-	160	-	195	-	
315	**296.76**	6.1	205	140	145	-	190	-	140	-	170	-	160	-	190	-	
355	**335.68**	5.4	205	120	140	-	185	-	135	-	165	-	155	-	180	-	

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X.K270..,n_1= 1000 1/min																	240 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14	**13.83**	72	186	1450	*)	510	410	690	*)	510	600	860	*)	660	690	970	
16	**15.48**	65	193	1350	*)	490	380	650	*)	490	550	800	*)	630	630	900	
18	**17.78**	56	203	1250	*)	580	465	710	*)	580	600	840	345	690	640	900	
20	**19.91**	50	212	1150	*)	560	440	670	*)	560	560	780	330	660	590	840	
22.4	**23.17**	43	231	1100	*)	550	420	640	*)	550	530	740	330	640	550	780	**X3K..**
25	**25.94**	39	240	1000	*)	540	405	630	*)	540	510	720	330	640	530	760	**M1**
28	**28.65**	35	240	910	230	495	360	560	230	495	445	640	300	580	460	670	HU 302
31.5	**32.07**	31	240	810	225	485	350	540	225	485	430	620	295	560	440	640	HH 336
35.5	**33.70**	30	240	770	230	485	345	540	230	485	420	610	295	560	430	630	**M5**
40	**37.72**	27	240	690	225	475	335	520	225	475	405	590	290	550	410	610	362
45	**42.68**	23	240	610	250	460	335	495	250	460	390	550	295	520	385	560	**M4**
50	**47.78**	21	240	540	250	460	330	495	250	460	380	540	295	520	380	560	388
56	**52.14**	19	240	500	240	435	310	460	240	435	355	500	280	485	350	510	
63	**58.37**	17	240	450	240	425	300	450	240	425	345	490	275	475	340	500	
71	**66.76**	15	240	395	220	385	270	400	220	385	300	430	250	425	300	435	
80	**74.73**	13	240	350	220	385	265	395	220	385	300	425	250	425	295	435	
90	**93.07**	11	237	280	205	-	240	-	195	-	260	-	220	-	255	-	
100	**104.18**	9.6	240	255	200	-	235	-	195	-	250	-	215	-	250	-	
112	**115.07**	8.7	240	230	185	-	215	-	175	-	225	-	200	-	225	-	
125	**128.81**	7.8	240	205	185	-	210	-	175	-	225	-	200	-	220	-	
140	**135.33**	7.4	240	195	180	-	210	-	175	-	220	-	200	-	220	-	**X4K..**
160	**151.49**	6.6	240	175	180	-	205	-	175	-	215	-	195	-	215	-	**M1**
180	**167.65**	6.0	240	155	170	-	195	-	165	-	200	-	185	-	200	-	HU 306
200	**187.66**	5.3	240	140	170	-	190	-	165	-	200	-	185	-	200	-	**M5**
224	**223.73**	4.5	240	120	145	-	160	-	145	-	170	-	160	-	170	-	364
250	**250.44**	4.0	240	105	145	-	160	-	140	-	165	-	155	-	165	-	**M4**
280	**263.12**	3.8	240	100	145	-	155	-	140	-	160	-	155	-	165	-	388
315	**294.53**	3.4	240	90	140	-	155	-	140	-	160	-	155	-	165	-	
355	**325.95**	3.1	240	82	135	-	150	-	135	-	150	-	150	-	155	-	
400	**364.87**	2.7	240	73	135	-	145	-	130	-	150	-	145	-	150	-	
X.K270..,n_1= 1200 1/min																	240 kNm
14[1)]	**13.83**	87	186	1750	*)	*)	*)	650	*)	*)	495	850	*)	640	670	1050	
16[1)]	**15.48**	78	193	1600	*)	415	*)	610	*)	415	455	800	*)	620	600	960	
18	**17.78**	67	203	1500	*)	590	420	740	*)	590	580	890	*)	730	660	990	
20	**19.91**	60	212	1400	*)	570	390	700	*)	570	540	840	*)	700	610	920	
22.4	**23.17**	52	231	1300	*)	570	380	680	*)	570	510	790	*)	690	560	860	**X3K..**
25	**25.94**	46	240	1200	*)	560	365	660	*)	560	490	770	*)	680	530	830	**M1**
28	**28.65**	42	240	1100	*)	510	325	590	*)	510	430	680	*)	620	460	740	HU 302
31.5	**32.07**	37	240	970	*)	500	315	570	*)	500	410	660	255	600	440	710	HH 336
35.5	**33.70**	36	240	930	*)	500	310	570	*)	500	405	650	255	600	430	700	**M5**
40	**37.72**	32	240	830	*)	495	300	550	*)	495	385	630	250	590	410	670	362
45	**42.68**	28	240	730	225	500	330	540	225	500	395	600	285	570	400	630	**M4**
50	**47.78**	25	240	650	230	500	325	540	230	500	390	600	285	580	395	620	388
56	**52.14**	23	240	600	230	480	315	510	230	480	365	560	275	540	365	580	
63	**58.37**	21	240	540	225	470	305	495	225	470	355	540	270	530	355	560	
71	**66.76**	18	240	470	215	425	275	445	215	425	315	480	250	475	310	495	
80	**74.73**	16	240	420	215	425	275	440	215	425	310	475	250	475	310	490	
90	**93.07**	13	237	335	210	-	250	-	195	-	270	-	225	-	265	-	
100	**104.18**	12	240	305	205	-	245	-	195	-	260	-	220	-	260	-	
112	**115.07**	10	240	275	185	-	220	-	180	-	235	-	205	-	235	-	
125	**128.81**	9.3	240	245	185	-	220	-	180	-	235	-	205	-	230	-	
140	**135.33**	8.9	240	235	185	-	220	-	175	-	230	-	200	-	230	-	**X4K..**
160	**151.49**	7.9	240	210	185	-	210	-	175	-	225	-	200	-	220	-	**M1**
180	**167.65**	7.2	240	190	175	-	200	-	165	-	210	-	190	-	210	-	HU 306
200	**187.66**	6.4	240	170	175	-	200	-	165	-	205	-	190	-	210	-	**M5**
224	**223.73**	5.4	240	145	150	-	170	-	145	-	175	-	165	-	180	-	364
250	**250.44**	4.8	240	125	150	-	165	-	145	-	170	-	160	-	175	-	**M4**
280	**263.12**	4.6	240	120	150	-	165	-	145	-	170	-	160	-	170	-	388
315	**294.53**	4.1	240	110	145	-	160	-	145	-	170	-	160	-	170	-	
355	**325.95**	3.7	240	98	140	-	155	-	135	-	160	-	155	-	160	-	
400	**364.87**	3.3	240	87	140	-	150	-	135	-	155	-	150	-	160	-	

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X.K270..,n_1= 1500 1/min																	240 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14[1)]	**13.83**	108	186	2200	*)	*)	*)	*)	*)	*)	*)	660	*)	*)	*)	960	
16[1)]	**15.48**	97	193	2050	*)	*)	*)	*)	*)	*)	*)	640	*)	*)	*)	920	
18[1)]	**17.78**	84	203	1850	*)	530	*)	720	*)	530	495	910	*)	730	650	1100	
20[1)]	**19.91**	75	212	1750	*)	510	*)	680	*)	510	455	850	*)	700	590	1000	
22.4[1)]	**23.17**	65	231	1600	*)	530	*)	670	*)	530	430	810	*)	700	530	940	**X3K..**
25[1)]	**25.94**	58	240	1500	*)	520	*)	650	*)	520	410	790	*)	690	500	900	**M1**
28[1)]	**28.65**	52	240	1350	*)	485	*)	590	*)	485	360	700	*)	630	435	800	HU 302
31.5[1)]	**32.07**	47	240	1200	*)	480	*)	570	*)	480	340	680	*)	620	405	760	HH 336
35.5[1)]	**33.70**	45	240	1150	*)	485	*)	570	*)	485	335	670	*)	620	400	750	**M5**
40[1)]	**37.72**	40	240	1050	*)	475	*)	550	*)	475	315	640	*)	610	375	720	362
45[1)]	**42.68**	35	240	910	*)	540	300	590	*)	540	385	660	250	630	405	700	**M4**
50[1)]	**47.78**	31	240	820	*)	540	300	580	*)	540	375	650	250	630	395	700	388
56[1)]	**52.14**	29	240	760	200	520	305	560	200	520	370	620	260	600	380	650	
63[1)]	**58.37**	26	240	670	195	510	295	550	195	510	355	600	255	590	365	630	
71[1)]	**66.76**	22	240	590	200	470	275	495	200	470	325	540	245	530	325	560	
80[1)]	**74.73**	20	240	530	200	475	270	490	200	475	315	530	245	530	320	560	
90	**93.07**	16	237	420	210	-	260	-	190	-	280	-	225	-	280	-	
100	**104.18**	14	240	380	205	-	255	-	190	-	275	-	220	-	270	-	
112	**115.07**	13	240	345	190	-	230	-	175	-	245	-	205	-	245	-	
125	**128.81**	12	240	305	190	-	230	-	175	-	240	-	205	-	240	-	
140	**135.33**	11	240	290	185	-	225	-	175	-	240	-	200	-	240	-	**X4K..**
160	**151.49**	9.9	240	260	185	-	220	-	170	-	230	-	200	-	230	-	**M1**
180	**167.65**	8.9	240	235	175	-	210	-	165	-	215	-	190	-	220	-	HU 306
200	**187.66**	8.0	240	210	175	-	205	-	165	-	215	-	190	-	215	-	**M5**
224	**223.73**	6.7	240	180	155	-	180	-	150	-	185	-	170	-	185	-	364
250	**250.44**	6.0	240	160	155	-	175	-	145	-	180	-	165	-	180	-	**M4**
280	**263.12**	5.7	240	150	155	-	170	-	145	-	180	-	165	-	180	-	388
315	**294.53**	5.1	240	135	150	-	170	-	145	-	175	-	165	-	180	-	
355	**325.95**	4.6	240	120	145	-	160	-	140	-	165	-	160	-	170	-	
400	**364.87**	4.1	240	110	145	-	160	-	135	-	165	-	155	-	165	-	
X.K270..,n_1= 1800 1/min																	240 kNm
14[*)]	**13.83**	130	178	2500	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	720	
16[*)]	**15.48**	116	184	2300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	700	
18[*)]	**17.78**	101	194	2150	*)	*)	*)	580	*)	*)	*)	800	*)	640	*)	1050	
20[*)]	**19.91**	90	203	2000	*)	*)	*)	560	*)	*)	*)	770	*)	620	510	1000	
22.4[*)]	**23.17**	78	222	1850	*)	*)	*)	570	*)	*)	*)	750	*)	640	*)	950	**X3K..**
25[*)]	**25.94**	69	233	1750	*)	*)	*)	560	*)	*)	*)	730	*)	630	*)	910	**M1**
28[*)]	**28.65**	63	240	1650	*)	*)	*)	510	*)	*)	*)	650	*)	590	*)	800	HU 302
31.5[*)]	**32.07**	56	240	1450	*)	380	*)	490	*)	380	*)	620	*)	580	*)	760	HH 336
35.5[*)]	**33.70**	53	240	1400	*)	390	*)	495	*)	390	*)	620	*)	580	*)	750	**M5**
40[*)]	**37.72**	48	240	1250	*)	385	*)	480	*)	385	*)	600	*)	580	*)	720	362
45[*)]	**42.68**	42	240	1100	*)	530	*)	590	*)	530	350	680	*)	640	395	750	**M4**
50[*)]	**47.78**	38	240	980	*)	530	*)	590	*)	530	340	670	*)	650	380	740	388
56[*)]	**52.14**	35	240	910	*)	540	275	580	*)	540	355	650	*)	630	380	700	
63[*)]	**58.37**	31	240	810	*)	530	265	570	*)	530	340	630	220	620	360	680	
71[*)]	**66.76**	27	240	710	*)	495	260	520	*)	495	320	570	225	570	330	610	
80[*)]	**74.73**	24	240	630	170	495	260	520	170	495	315	570	230	570	325	600	
90	**93.07**	19	237	500	200	-	265	-	175	-	285	-	215	-	285	-	
100	**104.18**	17	240	455	200	-	260	-	175	-	275	-	215	-	275	-	
112	**115.07**	16	240	410	180	-	235	-	160	-	250	-	200	-	250	-	
125	**128.81**	14	240	370	185	-	230	-	160	-	245	-	200	-	245	-	
140	**135.33**	13	240	350	180	-	230	-	160	-	240	-	195	-	240	-	**X4K..**
160	**151.49**	12	240	315	180	-	220	-	160	-	230	-	195	-	235	-	**M1**
180	**167.65**	11	240	285	170	-	210	-	155	-	220	-	185	-	220	-	HU 306
200	**187.66**	9.6	240	250	170	-	210	-	155	-	215	-	185	-	220	-	**M5**
224	**223.73**	8.0	240	215	160	-	185	-	150	-	190	-	170	-	195	-	364
250	**250.44**	7.2	240	190	155	-	180	-	145	-	185	-	170	-	190	-	**M4**
280	**263.12**	6.8	240	180	155	-	180	-	145	-	185	-	165	-	185	-	388
315	**294.53**	6.1	240	165	155	-	175	-	145	-	180	-	165	-	185	-	
355	**325.95**	5.5	240	145	145	-	165	-	140	-	170	-	160	-	175	-	
400	**364.87**	4.9	240	130	145	-	165	-	135	-	165	-	155	-	170	-	

X.K280..,n_1= 1000 1/min																	270 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
16	**15.48**	65	209	1450	*)	620	500	810	*)	620	700	990	*)	780	790	1100	
18	**17.34**	58	217	1350	*)	620	485	790	*)	620	670	960	*)	770	750	1050	
20	**19.91**	50	230	1250	*)	660	530	790	*)	660	670	920	400	770	710	980	
22.4	**22.30**	45	240	1150	305	650	510	770	305	650	650	900	395	760	680	950	
25	**25.94**	39	260	1100	320	660	500	760	320	660	620	870	405	760	640	910	**X3K..**
28	**29.05**	34	270	1000	305	630	475	720	305	630	580	820	385	730	600	860	**M1**
31.5	**32.07**	31	270	910	290	590	435	660	290	590	530	750	360	680	540	780	HU 302
35.5	**35.92**	28	270	810	275	560	405	620	275	560	490	700	345	640	500	730	HH 336
40	**37.72**	27	270	780	285	580	415	640	285	580	495	710	355	660	500	740	**M5**
45	**42.25**	24	270	690	280	560	400	620	280	560	475	690	350	650	485	720	362
50	**47.78**	21	270	610	295	540	390	580	295	540	450	630	345	600	445	650	**M4**
56	**53.51**	19	270	550	290	530	375	560	290	530	435	610	340	590	430	630	388
63	**58.37**	17	270	510	285	510	360	530	285	510	410	580	325	560	405	590	
71	**65.38**	15	270	450	275	485	345	510	275	485	385	550	315	540	385	560	
80	**74.73**	13	270	395	255	440	310	460	255	440	345	490	290	490	340	500	
90	**83.70**	12	270	355	250	435	300	445	250	435	335	475	280	480	330	485	
100	**104.18**	9.6	264	280	235	-	275	-	230	-	295	-	255	-	290	-	
112	**116.68**	8.6	270	255	235	-	270	-	225	-	290	-	250	-	285	-	
125	**128.81**	7.8	270	230	215	-	245	-	205	-	260	-	230	-	260	-	
140	**144.27**	6.9	270	205	210	-	240	-	200	-	250	-	225	-	250	-	
160	**151.49**	6.6	270	195	210	-	240	-	205	-	255	-	230	-	250	-	**X4K..**
180	**169.67**	5.9	270	175	205	-	235	-	200	-	245	-	225	-	245	-	**M1**
200	**187.66**	5.3	270	160	200	-	220	-	190	-	230	-	215	-	235	-	HU 306
224	**210.18**	4.8	270	140	195	-	215	-	190	-	225	-	210	-	225	-	**M5**
250	**250.44**	4.0	270	120	165	-	180	-	160	-	190	-	180	-	190	-	364
280	**280.49**	3.6	270	105	165	-	180	-	160	-	185	-	180	-	190	-	**M4**
315	**294.53**	3.4	270	100	165	-	180	-	160	-	185	-	175	-	185	-	388
355	**329.88**	3.0	270	91	160	-	175	-	155	-	180	-	175	-	185	-	
400	**364.87**	2.7	270	82	155	-	170	-	155	-	175	-	170	-	175	-	
450	**408.66**	2.4	270	73	155	-	165	-	150	-	170	-	165	-	175	-	
X.K280..,n_1= 1200 1/min																	270 kNm
16[1)]	**15.48**	78	209	1750	*)	560	*)	800	*)	560	620	1000	*)	780	780	1200	
18[1)]	**17.34**	69	217	1650	*)	570	*)	780	*)	570	590	980	*)	770	740	1150	
20	**19.91**	60	230	1500	*)	680	495	840	*)	680	660	990	*)	820	740	1100	
22.4	**22.30**	54	240	1400	*)	680	480	820	*)	680	640	960	*)	820	700	1050	
25	**25.94**	46	260	1300	*)	690	470	810	*)	690	620	940	355	820	660	1000	**X3K..**
28	**29.05**	41	270	1200	*)	660	440	770	*)	660	570	880	345	780	610	950	**M1**
31.5	**32.07**	37	270	1100	*)	620	405	710	*)	620	520	810	325	730	550	860	HU 302
35.5	**35.92**	33	270	980	*)	590	380	670	*)	590	480	760	310	700	510	810	HH 336
40	**37.72**	32	270	930	*)	610	390	680	*)	610	490	770	325	720	510	820	**M5**
45	**42.25**	28	270	830	230	600	375	660	230	600	465	740	315	700	490	790	362
50	**47.78**	25	270	740	280	590	390	640	280	590	465	700	340	670	465	730	**M4**
56	**53.51**	22	270	660	275	580	380	620	275	580	445	680	330	660	450	700	388
63	**58.37**	21	270	610	280	560	370	590	280	560	425	650	330	630	425	670	
71	**65.38**	18	270	540	265	540	350	560	265	540	400	610	315	600	400	630	
80	**74.73**	16	270	475	255	495	320	510	255	495	365	550	290	550	360	570	
90	**83.70**	14	270	425	250	485	310	500	250	485	350	540	285	540	350	550	
100	**104.18**	12	264	335	240	-	290	-	230	-	310	-	260	-	305	-	
112	**116.68**	10	270	305	240	-	285	-	230	-	305	-	260	-	300	-	
125	**128.81**	9.3	270	275	220	-	255	-	210	-	275	-	235	-	270	-	
140	**144.27**	8.3	270	245	215	-	250	-	205	-	265	-	230	-	265	-	
160	**151.49**	7.9	270	235	215	-	250	-	210	-	265	-	235	-	265	-	**X4K..**
180	**169.67**	7.1	270	210	215	-	245	-	205	-	255	-	230	-	255	-	**M1**
200	**187.66**	6.4	270	190	205	-	230	-	195	-	240	-	220	-	245	-	HU 306
224	**210.18**	5.7	270	170	200	-	225	-	190	-	235	-	215	-	235	-	**M5**
250	**250.44**	4.8	270	145	170	-	190	-	165	-	200	-	185	-	200	-	364
280	**280.49**	4.3	270	130	170	-	190	-	165	-	195	-	185	-	200	-	**M4**
315	**294.53**	4.1	270	120	170	-	185	-	165	-	195	-	185	-	195	-	388
355	**329.88**	3.6	270	110	165	-	185	-	165	-	190	-	180	-	190	-	
400	**364.87**	3.3	270	98	160	-	175	-	160	-	180	-	175	-	185	-	
450	**408.66**	2.9	270	88	160	-	175	-	155	-	180	-	170	-	180	-	

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X.K280..,n_1= 1500 1/min																	270 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
16[1)]	**15.48**	97	209	2200	*)	*)	*)	610	*)	*)	*)	860	*)	670	580	1150	
18[1)]	**17.34**	87	217	2050	*)	*)	*)	620	*)	*)	*)	860	*)	670	590	1150	
20[1)]	**19.91**	75	230	1900	*)	650	*)	840	*)	650	600	1050	*)	840	740	1200	
22.4[1)]	**22.30**	67	240	1750	*)	650	*)	820	*)	650	570	1000	*)	840	700	1150	
25[1)]	**25.94**	58	260	1650	*)	670	*)	820	*)	670	550	980	*)	850	660	1100	**X3K..**
28[1)]	**29.05**	52	270	1500	*)	650	*)	780	*)	650	510	920	*)	820	600	1050	**M1**
31.5[1)]	**32.07**	47	270	1350	*)	610	*)	720	*)	610	465	850	*)	770	530	940	HU 302
35.5[1)]	**35.92**	42	270	1200	*)	590	*)	680	*)	590	425	790	*)	730	490	880	HH 336
40[1)]	**37.72**	40	270	1150	*)	610	305	700	*)	610	435	810	*)	760	490	900	**M5**
45[1)]	**42.25**	36	270	1050	*)	600	290	680	*)	600	410	780	*)	740	465	860	362
50[1)]	**47.78**	31	270	920	230	640	370	690	230	640	460	770	310	740	480	820	**M4**
56[1)]	**53.51**	28	270	820	225	620	360	670	225	620	440	750	305	720	460	790	388
63[1)]	**58.37**	26	270	760	250	620	365	660	250	620	435	720	315	700	445	760	
71[1)]	**65.38**	23	270	680	240	590	345	620	240	590	410	680	300	670	415	720	
80[1)]	**74.73**	20	270	590	240	550	325	570	240	550	375	620	290	620	380	640	
90[1)]	**83.70**	18	270	530	235	540	315	560	235	540	365	600	285	600	365	630	
100	**104.18**	14	264	415	245	-	305	-	230	-	330	-	265	-	325	-	
112	**116.68**	13	270	380	240	-	295	-	225	-	320	-	260	-	315	-	
125	**128.81**	12	270	345	220	-	270	-	210	-	285	-	240	-	285	-	
140	**144.27**	10	270	310	215	-	260	-	205	-	275	-	235	-	275	-	
160	**151.49**	9.9	270	295	220	-	260	-	205	-	275	-	240	-	275	-	**X4K..**
180	**169.67**	8.8	270	260	215	-	255	-	205	-	270	-	235	-	270	-	**M1**
200	**187.66**	8.0	270	235	205	-	240	-	195	-	255	-	225	-	255	-	HU 306
224	**210.18**	7.1	270	210	200	-	235	-	190	-	245	-	220	-	245	-	**M5**
250	**250.44**	6.0	270	180	180	-	200	-	170	-	210	-	195	-	210	-	364
280	**280.49**	5.3	270	160	175	-	200	-	170	-	210	-	190	-	210	-	**M4**
315	**294.53**	5.1	270	150	175	-	200	-	170	-	205	-	190	-	205	-	388
355	**329.88**	4.5	270	135	175	-	195	-	165	-	200	-	185	-	200	-	
400	**364.87**	4.1	270	125	170	-	185	-	165	-	190	-	180	-	195	-	
450	**408.66**	3.7	270	110	165	-	180	-	160	-	185	-	180	-	190	-	
X.K280..,n_1= 1800 1/min																	270 kNm
16[*)]	**15.48**	116	200	2500	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	940	
18[*)]	**17.34**	104	208	2350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	950	
20[*)]	**19.91**	90	218	2150	*)	*)	*)	740	*)	*)	*)	950	*)	780	640	1200	
22.4[*)]	**22.30**	81	230	2000	*)	520	*)	740	*)	520	*)	950	*)	780	640	1200	
25[*)]	**25.94**	69	250	1900	*)	570	*)	750	*)	570	*)	950	*)	810	600	1150	**X3K..**
28[*)]	**29.05**	62	264	1750	*)	550	*)	710	*)	550	*)	890	*)	780	540	1050	**M1**
31.5[*)]	**32.07**	56	270	1650	*)	530	*)	670	*)	530	*)	820	*)	740	480	970	HU 302
35.5[*)]	**35.92**	50	270	1450	*)	510	*)	630	*)	510	*)	760	*)	710	430	900	HH 336
40[*)]	**37.72**	48	270	1400	*)	540	*)	650	*)	540	*)	780	*)	730	435	920	**M5**
45[*)]	**42.25**	43	270	1250	*)	530	*)	630	*)	530	*)	750	*)	720	400	880	362
50[*)]	**47.78**	38	270	1100	*)	640	325	710	*)	640	435	810	*)	770	480	880	**M4**
56[*)]	**53.51**	34	270	980	*)	630	315	690	*)	630	415	780	255	750	455	850	388
63[*)]	**58.37**	31	270	910	*)	640	340	690	*)	640	430	770	285	740	450	820	
71[*)]	**65.38**	28	270	810	*)	620	320	660	*)	620	400	720	275	710	420	770	
80[*)]	**74.73**	24	270	710	215	580	315	610	215	580	380	670	275	660	390	700	
90[*)]	**83.70**	22	270	640	210	570	305	590	210	570	365	650	270	650	370	680	
100	**104.18**	17	264	500	240	-	310	-	220	-	335	-	260	-	335	-	
112	**116.68**	15	270	455	240	-	305	-	215	-	325	-	260	-	325	-	
125	**128.81**	14	270	415	220	-	275	-	200	-	295	-	235	-	295	-	
140	**144.27**	12	270	370	215	-	265	-	195	-	285	-	235	-	285	-	
160	**151.49**	12	270	350	220	-	270	-	200	-	285	-	235	-	285	-	**X4K..**
180	**169.67**	11	270	315	215	-	260	-	195	-	275	-	230	-	275	-	**M1**
200	**187.66**	9.6	270	285	205	-	245	-	190	-	255	-	220	-	260	-	HU 306
224	**210.18**	8.6	270	255	200	-	240	-	185	-	250	-	220	-	250	-	**M5**
250	**250.44**	7.2	270	215	180	-	210	-	175	-	220	-	195	-	220	-	364
280	**280.49**	6.4	270	190	180	-	205	-	170	-	215	-	195	-	215	-	**M4**
315	**294.53**	6.1	270	185	180	-	205	-	170	-	215	-	195	-	215	-	388
355	**329.88**	5.5	270	165	175	-	200	-	170	-	205	-	190	-	210	-	
400	**364.87**	4.9	270	150	170	-	195	-	165	-	200	-	185	-	200	-	
450	**408.66**	4.4	270	130	170	-	190	-	160	-	195	-	180	-	195	-	

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X.K290..,n_1= 1000 1/min																	308 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5	**12.37**	81	240	2100	*)	550	840	1200	*)	550	630	1000	*)	790	1250	1600	
14	**13.98**	72	253	1950	*)	580	830	1200	*)	580	630	1000	*)	820	1250	1600	
16	**15.91**	63	263	1800	*)	720	880	1200	*)	720	730	1050	*)	880	1150	1450	
18	**17.98**	56	278	1700	*)	720	840	1150	*)	720	700	1000	*)	870	1050	1400	
20	**20.45**	49	292	1550	*)	710	780	1050	*)	710	660	960	415	850	970	1250	**X3K..**
22.4	**23.12**	43	308	1450	*)	730	780	1100	*)	730	660	960	430	870	950	1250	**M1**
25	**26.69**	37	308	1250	*)	680	690	960	*)	680	590	870	405	800	820	1100	HU 302
28	**30.17**	33	308	1100	300	690	680	950	300	690	580	860	410	810	800	1100	HH 336
31.5	**32.00**	31	308	1050	275	630	600	850	275	630	520	770	375	740	700	960	**M5**
35.5	**36.17**	28	308	920	275	610	570	820	275	610	495	740	370	720	660	920	362
40	**40.09**	25	308	830	315	600	550	770	315	600	490	710	380	690	610	840	**M4**
45	**45.31**	22	308	740	320	610	540	760	320	610	485	700	385	690	590	820	388
50	**48.97**	20	308	690	310	560	495	690	310	560	445	640	360	630	530	740	
56	**55.35**	18	308	610	310	570	490	680	310	570	440	640	365	630	520	730	
63	**62.70**	16	308	540	280	500	420	580	280	500	385	550	325	550	440	620	
71	**70.87**	14	308	475	285	510	420	590	285	510	385	560	330	560	440	620	
80	**81.36**	12	308	415	270	-	380	-	260	-	340	-	295	-	380	-	
90	**91.96**	11	308	365	275	-	375	-	265	-	335	-	295	-	375	-	
100	**106.18**	9.4	308	320	260	-	345	-	250	-	310	-	280	-	345	-	
112	**120.01**	8.3	308	280	255	-	340	-	250	-	310	-	280	-	340	-	
125	**127.30**	7.9	308	265	235	-	310	-	230	-	280	-	255	-	310	-	**X4K..**
140	**143.88**	7.0	308	235	240	-	310	-	230	-	280	-	260	-	310	-	**M1**
160	**157.21**	6.4	308	215	220	-	280	-	215	-	255	-	240	-	280	-	HU 306
180	**177.69**	5.6	308	190	225	-	280	-	220	-	260	-	245	-	285	-	**M5**
200	**206.45**	4.8	308	165	200	-	245	-	195	-	225	-	215	-	245	-	364
224	**233.34**	4.3	308	145	200	-	240	-	195	-	225	-	215	-	240	-	**M4**
250	**247.50**	4.0	308	140	185	-	220	-	180	-	205	-	200	-	225	-	388
280	**279.74**	3.6	308	120	185	-	220	-	180	-	205	-	200	-	220	-	
315	**305.67**	3.3	308	110	175	-	205	-	170	-	190	-	190	-	205	-	
355	**345.48**	2.9	308	99	175	-	200	-	170	-	190	-	185	-	205	-	
X.K290..,n_1= 1200 1/min																	308 kNm
12.5[1)]	**12.37**	97	240	2500	*)	*)	*)	1100	*)	*)	*)	870	*)	700	1200	1650	
14[1)]	**13.98**	86	253	2350	*)	*)	640	1150	*)	*)	*)	910	*)	730	1250	1700	
16	**15.91**	75	263	2150	*)	710	850	1250	*)	710	670	1100	*)	910	1200	1650	
18	**17.98**	67	278	2000	*)	710	810	1200	*)	710	640	1050	*)	910	1150	1550	
20	**20.45**	59	292	1850	*)	710	760	1150	*)	710	610	1000	*)	890	1000	1400	**X3K..**
22.4	**23.12**	52	308	1750	*)	730	750	1150	*)	730	600	1000	*)	920	1000	1400	**M1**
25	**26.69**	45	308	1500	*)	690	670	1000	*)	690	540	920	*)	850	860	1250	HU 302
28	**30.17**	40	308	1350	*)	700	650	1000	*)	700	530	910	335	860	820	1200	HH 336
31.5	**32.00**	38	308	1250	*)	640	580	910	*)	640	475	820	*)	780	720	1050	**M5**
35.5	**36.17**	33	308	1100	*)	630	550	870	*)	630	450	780	305	770	680	1000	362
40	**40.09**	30	308	1000	280	660	570	840	280	660	490	780	365	760	650	940	**M4**
45	**45.31**	26	308	880	285	660	560	840	285	660	485	770	365	760	630	930	388
50	**48.97**	25	308	830	290	620	510	760	290	620	455	710	355	700	570	830	
56	**55.35**	22	308	730	290	620	500	750	290	620	445	700	355	700	550	820	
63	**62.70**	19	308	640	275	550	440	650	275	550	395	610	325	620	470	700	
71	**70.87**	17	308	570	280	560	440	660	280	560	395	620	330	630	470	710	
80	**81.36**	15	308	500	275	-	405	-	265	-	355	-	300	-	410	-	
90	**91.96**	13	308	440	280	-	400	-	265	-	350	-	300	-	400	-	
100	**106.18**	11	308	380	265	-	365	-	250	-	325	-	285	-	365	-	
112	**120.01**	10.0	308	340	265	-	360	-	250	-	320	-	285	-	360	-	
125	**127.30**	9.4	308	320	240	-	325	-	230	-	290	-	260	-	325	-	**X4K..**
140	**143.88**	8.3	308	280	245	-	325	-	235	-	295	-	265	-	325	-	**M1**
160	**157.21**	7.6	308	260	225	-	295	-	215	-	270	-	245	-	295	-	HU 306
180	**177.69**	6.8	308	230	230	-	295	-	220	-	270	-	250	-	295	-	**M5**
200	**206.45**	5.8	308	200	205	-	260	-	200	-	240	-	225	-	260	-	364
224	**233.34**	5.1	308	175	205	-	255	-	200	-	235	-	220	-	255	-	**M4**
250	**247.50**	4.8	308	165	190	-	235	-	185	-	215	-	205	-	235	-	388
280	**279.74**	4.3	308	145	190	-	230	-	185	-	215	-	205	-	235	-	
315	**305.67**	3.9	308	135	180	-	215	-	175	-	200	-	195	-	220	-	
355	**345.48**	3.5	308	120	180	-	215	-	175	-	200	-	195	-	215	-	

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X.K290..,n_1= 1500 1/min																	308 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5[1)]	**12.37**	121	240	3150	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	820	1450	
14[1)]	**13.98**	107	253	2950	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	860	1500	
16[1)]	**15.91**	94	263	2700	*)	*)	*)	1200	*)	*)	*)	1000	*)	870	1200	1750	
18[1)]	**17.98**	83	278	2500	*)	*)	670	1200	*)	*)	*)	1000	*)	870	1200	1750	
20[1)]	**20.45**	73	292	2300	*)	610	640	1150	*)	610	*)	990	*)	870	1050	1600	**X3K..**
22.4[1)]	**23.12**	65	308	2150	*)	640	630	1150	*)	640	*)	990	*)	900	1000	1550	**M1**
25[1)]	**26.69**	56	308	1900	*)	620	560	1050	*)	620	*)	900	*)	850	860	1350	HU 302
28[1)]	**30.17**	50	308	1650	*)	630	540	1050	*)	630	*)	900	*)	870	820	1300	HH 336
31.5[1)]	**32.00**	47	308	1550	*)	590	475	920	*)	590	*)	810	*)	790	720	1150	**M5**
35.5[1)]	**36.17**	41	308	1400	*)	580	440	880	*)	580	*)	780	*)	780	660	1100	362
40[1)]	**40.09**	37	308	1250	*)	690	560	920	*)	690	460	840	*)	820	680	1050	**M4**
45[1)]	**45.31**	33	308	1100	*)	690	540	910	*)	690	450	830	310	820	660	1050	388
50[1)]	**48.97**	31	308	1050	*)	670	520	840	*)	670	445	780	320	770	600	950	
56[1)]	**55.35**	27	308	910	235	670	500	830	235	670	435	770	325	780	580	930	
63[1)]	**62.70**	24	308	810	250	610	455	730	250	610	400	680	310	690	500	800	
71[1)]	**70.87**	21	308	710	255	620	455	740	255	620	400	690	320	710	500	810	
80	**81.36**	18	308	620	275	-	435	-	255	-	370	-	300	-	440	-	
90	**91.96**	16	308	550	280	-	425	-	255	-	365	-	300	-	430	-	
100	**106.18**	14	308	475	265	-	390	-	245	-	340	-	285	-	390	-	
112	**120.01**	12	308	420	265	-	385	-	245	-	330	-	285	-	385	-	
125	**127.30**	12	308	400	245	-	345	-	225	-	300	-	265	-	350	-	**X4K..**
140	**143.88**	10	308	350	245	-	345	-	230	-	305	-	270	-	345	-	**M1**
160	**157.21**	9.5	308	320	230	-	315	-	215	-	275	-	250	-	315	-	HU 306
180	**177.69**	8.4	308	285	230	-	315	-	215	-	275	-	250	-	315	-	**M5**
200	**206.45**	7.3	308	250	215	-	275	-	205	-	250	-	230	-	275	-	364
224	**233.34**	6.4	308	220	210	-	270	-	205	-	245	-	230	-	270	-	**M4**
250	**247.50**	6.1	308	205	200	-	250	-	190	-	230	-	215	-	250	-	388
280	**279.74**	5.4	308	185	195	-	245	-	190	-	225	-	215	-	245	-	
315	**305.67**	4.9	308	165	185	-	230	-	180	-	210	-	200	-	230	-	
355	**345.48**	4.3	308	150	185	-	225	-	180	-	205	-	200	-	225	-	
X.K290..,n_1= 1800 1/min																	308 kNm
12.5[*)]	**12.37**	146	226	3550	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1050[*)]	
14[*)]	**13.98**	129	238	3300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1150[*)]	
16[*)]	**15.91**	113	248	3050	*)	*)	*)	980[*)]	*)	*)	*)	*)	*)	*)	980	1650[*)]	
18[*)]	**17.98**	100	263	2850	*)	*)	*)	990[*)]	*)	*)	*)	770[*)]	*)	*)	990	1650[*)]	
20[*)]	**20.45**	88	276	2650	*)	*)	*)	1050[*)]	*)	*)	*)	830[*)]	*)	740[*)]	1000	1650[*)]	**X3K..**
22.4[*)]	**23.12**	78	299	2500	*)	*)	*)	1050[*)]	*)	*)	*)	840[*)]	*)	770[*)]	980	1600[*)]	**M1**
25[*)]	**26.69**	67	308	2250	*)	*)	*)	950[*)]	*)	*)	*)	780[*)]	*)	750[*)]	820	1400[*)]	HU 302
28[*)]	**30.17**	60	308	2000	*)	*)	*)	930[*)]	*)	*)	*)	770[*)]	*)	760[*)]	760	1350[*)]	HH 336
31.5[*)]	**32.00**	56	308	1900	*)	*)	*)	840[*)]	*)	*)	*)	700[*)]	*)	710[*)]	650	1200[*)]	**M5**
35.5[*)]	**36.17**	50	308	1650	*)	*)	*)	800[*)]	*)	*)	*)	670[*)]	*)	700[*)]	590	1150[*)]	362
40[*)]	**40.09**	45	308	1500	*)	660[*)]	500	940[*)]	*)	660[*)]	390	840[*)]	*)	830[*)]	700	1150[*)]	**M4**
45[*)]	**45.31**	40	308	1350	*)	670[*)]	485	930[*)]	*)	670[*)]	375	830[*)]	*)	840[*)]	660	1100[*)]	388
50[*)]	**48.97**	37	308	1250	*)	670[*)]	495	880[*)]	*)	670[*)]	405	800[*)]	*)	800[*)]	620	1050[*)]	
56[*)]	**55.35**	33	308	1100	*)	680[*)]	480	870[*)]	*)	680[*)]	395	800[*)]	*)	810[*)]	600	1000[*)]	
63[*)]	**62.70**	29	308	970	*)	640[*)]	450	780[*)]	*)	640[*)]	385	720[*)]	285	740[*)]	530	880[*)]	
71[*)]	**70.87**	25	308	860	*)	650[*)]	450	780[*)]	*)	650[*)]	385	730[*)]	290	750[*)]	520	880[*)]	
80	**81.36**	22	308	750	265	-	455	-	230	-	375	-	285	-	465	-	
90	**91.96**	20	308	660	265	-	445	-	235	-	370	-	290	-	455	-	
100	**106.18**	17	308	570	255	-	405	-	230	-	340	-	280	-	410	-	
112	**120.01**	15	308	510	260	-	400	-	230	-	335	-	280	-	400	-	
125	**127.30**	14	308	480	240	-	360	-	210	-	305	-	260	-	360	-	**X4K..**
140	**143.88**	13	308	420	240	-	360	-	220	-	305	-	260	-	360	-	**M1**
160	**157.21**	11	308	385	225	-	325	-	205	-	280	-	245	-	325	-	HU 306
180	**177.69**	10	308	340	230	-	325	-	205	-	280	-	245	-	325	-	**M5**
200	**206.45**	8.7	308	300	215	-	290	-	205	-	255	-	235	-	290	-	364
224	**233.34**	7.7	308	265	215	-	285	-	200	-	255	-	230	-	285	-	**M4**
250	**247.50**	7.3	308	250	200	-	265	-	190	-	235	-	215	-	260	-	388
280	**279.74**	6.4	308	220	200	-	260	-	190	-	230	-	215	-	255	-	
315	**305.67**	5.9	308	200	190	-	240	-	180	-	215	-	205	-	240	-	
355	**345.48**	5.2	308	180	185	-	235	-	175	-	210	-	205	-	235	-	

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X.K300..,n_1= 1000 1/min																	350 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}													
		min^{-1}	kNm	kW			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
14	**13.18**	76	260	2150	*)	560	*)	790	*)	560	640	1000	*)	800	830	1200	
16	**14.94**	67	273	2000	*)	570	*)	780	*)	570	610	970	*)	800	780	1150	
18	**16.95**	59	281	1800	*)	740	560	890	*)	740	730	1050	*)	890	820	1150	
20	**19.21**	52	302	1700	*)	730	540	870	*)	730	700	1000	*)	880	780	1100	
22.4	**21.79**	46	320	1600	*)	720	520	840	*)	720	670	970	425	860	720	1050	**X3K..**
25	**24.70**	40	345	1500	*)	720	510	820	*)	720	640	940	425	860	700	1000	**M1**
28	**28.44**	35	350	1350	*)	700	485	780	*)	700	600	880	415	820	640	950	HU 302
31.5	**32.24**	31	350	1200	300	680	465	760	300	680	570	850	410	810	610	910	HH 336
35.5	**34.10**	29	350	1100	285	640	435	700	285	640	530	790	385	760	560	840	**M5**
40	**38.65**	26	350	980	280	630	415	680	280	630	500	760	380	740	530	810	362
45	**42.71**	23	350	890	325	620	430	660	325	620	500	720	390	700	510	750	**M4**
50	**48.41**	21	350	780	320	610	415	640	320	610	480	700	385	690	490	730	388
56	**52.18**	19	350	730	315	580	400	600	315	580	455	650	370	650	460	680	
63	**59.14**	17	350	650	310	560	390	590	310	560	440	630	360	630	440	660	
71	**66.81**	15	350	570	290	510	350	520	290	510	390	560	330	570	390	580	
80	**75.72**	13	350	510	290	510	345	520	290	510	385	560	330	570	385	570	
90	**86.70**	12	330	415	275	-	325	-	265	-	345	-	300	-	345	-	
100	**98.25**	10	350	390	280	-	325	-	270	-	345	-	300	-	345	-	
112	**113.15**	8.8	350	340	265	-	300	-	255	-	320	-	285	-	320	-	
125	**128.23**	7.8	350	300	265	-	300	-	255	-	315	-	285	-	315	-	
140	**135.65**	7.4	350	285	240	-	275	-	235	-	285	-	260	-	290	-	**X4K..**
160	**153.73**	6.5	350	250	240	-	270	-	235	-	280	-	260	-	285	-	**M1**
180	**167.52**	6.0	350	230	225	-	255	-	220	-	260	-	245	-	265	-	HU 306
200	**189.86**	5.3	350	200	225	-	250	-	220	-	260	-	245	-	265	-	**M5**
224	**219.99**	4.5	350	175	205	-	225	-	200	-	230	-	220	-	235	-	364
250	**249.32**	4.0	350	155	205	-	220	-	200	-	230	-	220	-	235	-	**M4**
280	**263.73**	3.8	350	145	190	-	205	-	185	-	210	-	205	-	215	-	388
315	**298.90**	3.3	350	130	190	-	205	-	185	-	210	-	205	-	215	-	
355	**325.71**	3.1	350	120	180	-	190	-	175	-	195	-	190	-	200	-	
400	**369.14**	2.7	350	105	175	-	190	-	175	-	195	-	190	-	200	-	
X.K300..,n_1= 1200 1/min																	350 kNm
14[1)]	**13.18**	91	260	2550	*)	*)	*)	*)	*)	*)	*)	880	*)	720	660	1200	
16[1)]	**14.94**	80	273	2400	*)	*)	*)	640	*)	*)	*)	890	*)	720	660	1200	
18	**16.95**	71	281	2150	*)	720	*)	910	*)	720	670	1100	*)	920	820	1250	
20	**19.21**	62	302	2050	*)	720	*)	890	*)	720	640	1050	*)	920	780	1200	
22.4	**21.79**	55	320	1900	*)	730	*)	870	*)	730	620	1000	*)	910	720	1150	**X3K..**
25	**24.70**	49	345	1800	*)	720	*)	850	*)	720	590	990	*)	900	680	1100	**M1**
28	**28.44**	42	350	1600	*)	710	410	810	*)	710	550	930	*)	870	630	1050	HU 302
31.5	**32.24**	37	350	1400	*)	700	395	780	*)	700	520	900	*)	860	590	990	HH 336
35.5	**34.10**	35	350	1350	*)	660	370	730	*)	660	485	830	*)	800	540	920	**M5**
40	**38.65**	31	350	1200	*)	640	355	710	*)	640	460	800	315	790	520	880	362
45	**42.71**	28	350	1050	290	670	420	720	290	670	500	790	375	770	520	840	**M4**
50	**48.41**	25	350	940	285	660	405	700	285	660	480	760	365	760	500	810	388
56	**52.18**	23	350	880	300	630	400	660	300	630	465	720	365	720	475	760	
63	**59.14**	20	350	780	290	620	385	640	290	620	445	700	355	700	455	730	
71	**66.81**	18	350	690	280	570	355	580	280	570	405	620	330	630	410	650	
80	**75.72**	16	350	610	280	560	350	580	280	560	395	620	330	630	400	640	
90	**86.70**	14	330	500	280	-	335	-	265	-	360	-	305	-	360	-	
100	**98.25**	12	350	470	285	-	335	-	270	-	360	-	310	-	360	-	
112	**113.15**	11	350	405	270	-	315	-	255	-	330	-	290	-	335	-	
125	**128.23**	9.4	350	360	270	-	310	-	255	-	325	-	290	-	330	-	
140	**135.65**	8.8	350	340	245	-	285	-	235	-	300	-	270	-	300	-	**X4K..**
160	**153.73**	7.8	350	300	245	-	280	-	235	-	295	-	265	-	295	-	**M1**
180	**167.52**	7.2	350	275	230	-	265	-	220	-	275	-	250	-	275	-	HU 306
200	**189.86**	6.3	350	245	230	-	260	-	220	-	270	-	250	-	275	-	**M5**
224	**219.99**	5.5	350	210	210	-	235	-	205	-	240	-	230	-	245	-	364
250	**249.32**	4.8	350	185	210	-	230	-	205	-	240	-	225	-	245	-	**M4**
280	**263.73**	4.6	350	175	195	-	215	-	190	-	220	-	210	-	225	-	388
315	**298.90**	4.0	350	155	195	-	210	-	190	-	220	-	210	-	225	-	
355	**325.71**	3.7	350	145	185	-	200	-	180	-	205	-	200	-	210	-	
400	**369.14**	3.3	350	125	185	-	200	-	180	-	200	-	200	-	210	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K300..,n_1= 1500 1/min																	**350 kNm**
14[1)]	**13.18**	114	260	3200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	940	
16[1)]	**14.94**	100	273	2950	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	940	
18[1)]	**16.95**	88	281	2700	*)	*)	*)	800	*)	*)	*)	1050	*)	880	700	1300	
20[1)]	**19.21**	78	302	2550	*)	*)	*)	810	*)	*)	*)	1050	*)	880	700	1300	
22.4[1)]	**21.79**	69	320	2400	*)	630	*)	810	*)	630	*)	1000	*)	890	650	1200	**X3K..**
25[1)]	**24.70**	61	345	2250	*)	630	*)	790	*)	630	*)	970	*)	890	610	1200	**M1**
28[1)]	**28.44**	53	350	2000	*)	640	*)	770	*)	640	*)	920	*)	880	560	1100	HU 302
31.5[1)]	**32.24**	47	350	1750	*)	630	*)	740	*)	630	*)	890	*)	860	510	1050	HH 336
35.5[1)]	**34.10**	44	350	1650	*)	600	*)	700	*)	600	*)	830	*)	810	470	970	**M5**
40[1)]	**38.65**	39	350	1450	*)	600	*)	680	*)	600	*)	790	*)	800	440	930	362
45[1)]	**42.71**	35	350	1350	*)	710	365	760	*)	710	470	860	*)	840	520	930	**M4**
50[1)]	**48.41**	31	350	1200	*)	690	350	740	*)	690	450	820	310	820	495	900	388
56[1)]	**52.18**	29	350	1100	*)	680	370	720	*)	680	455	790	330	790	480	850	
63[1)]	**59.14**	25	350	970	*)	670	355	700	*)	670	435	770	325	780	460	820	
71[1)]	**66.81**	22	350	860	255	620	350	640	255	620	405	700	320	710	420	740	
80[1)]	**75.72**	20	350	760	255	620	345	640	255	620	400	690	320	710	415	730	
90	**86.70**	17	330	630	280	-	350	-	260	-	375	-	305	-	375	-	
100	**98.25**	15	350	590	285	-	350	-	260	-	375	-	310	-	375	-	
112	**113.15**	13	350	510	270	-	325	-	250	-	345	-	295	-	350	-	
125	**128.23**	12	350	450	270	-	325	-	250	-	340	-	295	-	345	-	
140	**135.65**	11	350	425	250	-	295	-	230	-	310	-	270	-	315	-	**X4K..**
160	**153.73**	9.8	350	375	250	-	290	-	230	-	305	-	270	-	310	-	**M1**
180	**167.52**	9.0	350	345	235	-	270	-	220	-	280	-	255	-	285	-	HU 306
200	**189.86**	7.9	350	305	235	-	270	-	220	-	280	-	255	-	285	-	**M5**
224	**219.99**	6.8	350	265	220	-	245	-	210	-	255	-	235	-	260	-	364
250	**249.32**	6.0	350	235	215	-	240	-	210	-	250	-	235	-	255	-	**M4**
280	**263.73**	5.7	350	220	200	-	225	-	195	-	235	-	220	-	235	-	388
315	**298.90**	5.0	350	195	200	-	225	-	195	-	230	-	220	-	235	-	
355	**325.71**	4.6	350	180	190	-	210	-	185	-	215	-	205	-	220	-	
400	**369.14**	4.1	350	160	190	-	205	-	180	-	210	-	205	-	220	-	
X.K300..,n_1= 1800 1/min																	**350 kNm**
14[*)]	**13.18**	137	246	3650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[*)]	**14.94**	120	255	3350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
18[*)]	**16.95**	106	266	3050	*)	*)	*)	*)	*)	*)	*)	770[*)]	*)	*)	*)	1150[*)]	
20[*)]	**19.21**	94	278	2800	*)	*)	*)	*)	*)	*)	*)	780[*)]	*)	710[*)]	*)	1150[*)]	
22.4[*)]	**21.79**	83	295	2650	*)	*)	*)	*)	*)	*)	*)	850[*)]	*)	760[*)]	*)	1200[*)]	**X3K..**
25[*)]	**24.70**	73	318	2500	*)	*)	*)	*)	*)	*)	*)	830[*)]	*)	760[*)]	*)	1150[*)]	**M1**
28[*)]	**28.44**	63	335	2300	*)	*)	*)	610[*)]	*)	*)	*)	800[*)]	*)	780[*)]	*)	1050[*)]	HU 302
31.5[*)]	**32.24**	56	350	2100	*)	*)	*)	580[*)]	*)	*)	*)	760[*)]	*)	760[*)]	*)	1000[*)]	HH 336
35.5[*)]	**34.10**	53	350	2000	*)	*)	*)	560[*)]	*)	*)	*)	720[*)]	*)	730[*)]	*)	940[*)]	**M5**
40[*)]	**38.65**	47	350	1750	*)	*)	*)	540[*)]	*)	*)	*)	690[*)]	*)	720[*)]	*)	900[*)]	362
45[*)]	**42.71**	42	350	1600	*)	680[*)]	*)	750[*)]	*)	680[*)]	*)	860[*)]	*)	850[*)]	485	980[*)]	**M4**
50[*)]	**48.41**	37	350	1400	*)	670[*)]	*)	730[*)]	*)	670[*)]	375	830[*)]	*)	840[*)]	455	940[*)]	388
56[*)]	**52.18**	34	350	1300	*)	690[*)]	*)	740[*)]	*)	690[*)]	415	820[*)]	*)	820[*)]	470	900[*)]	
63[*)]	**59.14**	30	350	1150	*)	680[*)]	300	720[*)]	*)	680[*)]	395	790[*)]	*)	810[*)]	445	870[*)]	
71[*)]	**66.81**	27	350	1050	*)	650[*)]	325	680[*)]	*)	650[*)]	395	740[*)]	290	750[*)]	420	790[*)]	
80[*)]	**75.72**	24	350	910	*)	650[*)]	315	670[*)]	*)	650[*)]	385	730[*)]	295	750[*)]	410	780[*)]	
90	**86.70**	21	330	750	270	-	355	-	235	-	380	-	295	-	390	-	
100	**98.25**	18	350	700	275	-	355	-	240	-	380	-	300	-	385	-	
112	**113.15**	16	350	610	260	-	330	-	235	-	350	-	285	-	355	-	
125	**128.23**	14	350	540	265	-	325	-	235	-	345	-	285	-	350	-	
140	**135.65**	13	350	510	245	-	300	-	220	-	310	-	265	-	320	-	**X4K..**
160	**153.73**	12	350	450	245	-	295	-	220	-	305	-	265	-	315	-	**M1**
180	**167.52**	11	350	410	230	-	275	-	210	-	285	-	250	-	290	-	HU 306
200	**189.86**	9.5	350	365	230	-	270	-	210	-	280	-	250	-	285	-	**M5**
224	**219.99**	8.2	350	315	220	-	255	-	210	-	260	-	240	-	265	-	364
250	**249.32**	7.2	350	280	220	-	250	-	205	-	260	-	235	-	265	-	**M4**
280	**263.73**	6.8	350	265	205	-	230	-	195	-	240	-	220	-	245	-	388
315	**298.90**	6.0	350	235	205	-	230	-	190	-	235	-	220	-	240	-	
355	**325.71**	5.5	350	215	195	-	215	-	185	-	220	-	210	-	225	-	
400	**369.14**	4.9	350	190	190	-	215	-	180	-	215	-	210	-	225	-	

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X.K310..,n_1= 1000 1/min																	425 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
12.5[1)]	**13.23**	76	368	3000	*)	*)	870	1300	*)	*)	*)	1050	*)	830	1500	1900	
14[1)]	**14.58**	69	376	2800	*)	*)	800	1200	*)	*)	*)	1000	*)	800	1350	1750	
16	**17.02**	59	392	2500	*)	800	1000	1400	*)	800	810	1200	*)	1000	1350	1750	
18	**18.75**	53	405	2350	*)	770	940	1300	*)	770	760	1150	*)	970	1250	1600	
20	**21.20**	47	422	2150	*)	770	880	1250	*)	770	720	1100	*)	950	1150	1500	**X3K..**
22.4	**23.35**	43	425	1950	*)	760	840	1200	*)	760	690	1050	*)	930	1050	1450	**M1**
25	**26.30**	38	425	1750	*)	740	780	1100	*)	740	650	990	*)	910	970	1300	HU 302
28	**28.97**	35	425	1600	*)	730	750	1050	*)	730	630	960	415	890	920	1250	HH 336
31.5	**32.89**	30	425	1400	*)	710	690	1000	*)	710	580	900	405	860	830	1150	**M5**
35.5	**36.23**	28	425	1250	*)	680	650	940	*)	680	540	850	390	820	770	1100	362
40	**41.69**	24	425	1100	350	720	660	920	350	720	580	850	440	820	740	1050	**M4**
45	**45.93**	22	425	1000	345	700	640	900	345	700	560	830	435	810	710	990	388
50	**50.63**	20	425	920	350	670	600	840	350	670	530	770	425	760	650	910	
56	**55.78**	18	425	830	345	660	580	810	345	660	510	760	415	750	630	880	
63	**64.44**	16	425	720	340	620	520	730	340	620	475	690	395	690	560	780	
71	**70.99**	14	425	660	330	590	495	700	330	590	450	660	380	660	530	740	
80	**85.15**	12	425	550	320	-	455	-	305	-	400	-	345	-	455	-	
90	**93.81**	11	425	495	305	-	430	-	290	-	385	-	335	-	435	-	
100	**105.65**	9.5	425	440	305	-	415	-	290	-	370	-	330	-	415	-	
112	**116.40**	8.6	425	400	300	-	405	-	285	-	360	-	325	-	405	-	
125	**132.12**	7.6	425	355	290	-	380	-	275	-	345	-	310	-	380	-	**X4K..**
140	**145.56**	6.9	425	320	280	-	365	-	265	-	330	-	300	-	365	-	**M1**
160	**162.61**	6.1	425	285	275	-	355	-	260	-	320	-	295	-	355	-	HU 306
180	**179.15**	5.6	425	260	265	-	340	-	255	-	305	-	285	-	340	-	**M5**
200	**209.33**	4.8	425	225	240	-	300	-	235	-	275	-	260	-	300	-	364
224	**230.61**	4.3	425	205	235	-	290	-	230	-	270	-	255	-	290	-	**M4**
250	**261.77**	3.8	425	180	230	-	275	-	220	-	255	-	245	-	280	-	388
280	**288.39**	3.5	425	165	220	-	265	-	215	-	245	-	240	-	270	-	
315	**322.18**	3.1	425	145	215	-	255	-	210	-	240	-	235	-	260	-	
355	**354.94**	2.8	425	135	210	-	245	-	205	-	230	-	225	-	250	-	
X.K310..,n_1= 1200 1/min																	425 kNm
12.5[1)]	**13.23**	91	368	3600	*)	*)	*)	1100	*)	*)	*)	*)	*)	*)	1250	1850	
14[1)]	**14.58**	82	376	3350	*)	*)	*)	1050	*)	*)	*)	*)	*)	*)	1200	1750	
16[1)]	**17.02**	71	392	3000	*)	*)	920	1400	*)	*)	*)	1200	*)	1000	1450	1950	
18[1)]	**18.75**	64	405	2800	*)	710	850	1350	*)	710	*)	1150	*)	970	1300	1800	
20[1)]	**21.20**	57	422	2600	*)	730	810	1250	*)	730	*)	1100	*)	970	1200	1650	**X3K..**
22.4[1)]	**23.35**	51	425	2350	*)	710	760	1200	*)	710	*)	1050	*)	950	1100	1550	**M1**
25[1)]	**26.30**	46	425	2100	*)	720	720	1150	*)	720	560	1000	*)	930	1000	1450	HU 302
28[1)]	**28.97**	41	425	1900	*)	710	680	1100	*)	710	530	980	*)	920	940	1400	HH 336
31.5[1)]	**32.89**	36	425	1700	*)	690	630	1050	*)	690	495	920	*)	890	840	1250	**M5**
35.5[1)]	**36.23**	33	425	1550	*)	660	580	970	*)	660	455	860	*)	850	770	1200	362
40[1)]	**41.69**	29	425	1350	*)	760	660	1000	*)	760	560	920	400	900	780	1150	**M4**
45[1)]	**45.93**	26	425	1200	*)	750	630	980	*)	750	540	890	395	880	740	1100	388
50[1)]	**50.63**	24	425	1100	310	730	610	920	310	730	530	850	400	840	690	1000	
56[1)]	**55.78**	22	425	1000	305	720	580	890	305	720	510	820	395	830	660	990	
63[1)]	**64.44**	19	425	870	325	680	540	810	325	680	485	760	390	770	590	880	
71[1)]	**70.99**	17	425	790	310	650	510	780	310	650	460	720	375	740	560	840	
80	**85.15**	14	425	660	320	-	480	-	295	-	415	-	345	-	485	-	
90	**93.81**	13	425	600	310	-	455	-	290	-	395	-	335	-	460	-	
100	**105.65**	11	425	530	305	-	440	-	285	-	385	-	330	-	440	-	
112	**116.40**	10	425	480	300	-	425	-	280	-	375	-	325	-	425	-	
125	**132.12**	9.1	425	425	290	-	400	-	270	-	355	-	315	-	400	-	**X4K..**
140	**145.56**	8.2	425	385	280	-	385	-	265	-	335	-	305	-	380	-	**M1**
160	**162.61**	7.4	425	345	275	-	370	-	260	-	330	-	300	-	370	-	HU 306
180	**179.15**	6.7	425	310	270	-	355	-	250	-	315	-	290	-	355	-	**M5**
200	**209.33**	5.7	425	270	245	-	315	-	235	-	285	-	265	-	315	-	364
224	**230.61**	5.2	425	245	245	-	305	-	235	-	280	-	265	-	305	-	**M4**
250	**261.77**	4.6	425	215	235	-	290	-	225	-	265	-	255	-	290	-	388
280	**288.39**	4.2	425	195	225	-	280	-	220	-	255	-	245	-	280	-	
315	**322.18**	3.7	425	175	220	-	270	-	215	-	245	-	240	-	270	-	
355	**354.94**	3.4	425	160	215	-	260	-	205	-	240	-	230	-	260	-	

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X.K310..,n_1= 1500 1/min																	425 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5[*)]	**13.23**	113	368	4500	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1500	
14[*)]	**14.58**	103	376	4200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1450	
16[*)]	**17.02**	88	392	3750	*)	*)	*)	1250	*)	*)	*)	1000	*)	*)	1300	1950	
18[*)]	**18.75**	80	405	3500	*)	*)	*)	1200	*)	*)	*)	980	*)	*)	1250	1900	
20[*)]	**21.20**	71	422	3250	*)	*)	*)	1200	*)	*)	*)	990	*)	880	1150	1800	**X3K..**
22.4[*)]	**23.35**	64	425	2950	*)	*)	*)	1150	*)	*)	*)	950	*)	860	1100	1700	**M1**
25[*)]	**26.30**	57	425	2650	*)	*)	*)	1100	*)	*)	*)	920	*)	870	970	1550	HU 302
28[*)]	**28.97**	52	425	2400	*)	*)	*)	1050	*)	*)	*)	890	*)	860	900	1500	HH 336
31.5[*)]	**32.89**	46	425	2100	*)	550	*)	990	*)	550	*)	840	*)	840	790	1350	**M5**
35.5[*)]	**36.23**	41	425	1900	*)	530	*)	930	*)	530	*)	790	*)	810	710	1250	362
40[*)]	**41.69**	36	425	1650	*)	770	610	1050	*)	770	485	960	*)	950	800	1300	**M4**
45[*)]	**45.93**	33	425	1500	*)	760	580	1050	*)	760	460	940	*)	940	760	1250	388
50[*)]	**50.63**	30	425	1400	*)	770	590	1000	*)	770	490	910	*)	910	720	1150	
56[*)]	**55.78**	27	425	1250	*)	760	560	970	*)	760	470	890	335	900	680	1100	
63[*)]	**64.44**	23	425	1100	270	740	550	900	270	740	475	840	360	850	630	1000	
71[*)]	**70.99**	21	425	980	260	710	520	860	260	710	450	800	350	820	590	950	
80	**85.15**	18	425	820	305	-	510	-	270	-	425	-	330	-	520	-	
90	**93.81**	16	425	750	295	-	480	-	260	-	400	-	325	-	490	-	
100	**105.65**	14	425	660	295	-	460	-	265	-	390	-	325	-	465	-	
112	**116.40**	13	425	600	295	-	450	-	260	-	380	-	320	-	450	-	
125	**132.12**	11	425	530	285	-	420	-	255	-	355	-	305	-	420	-	**X4K..**
140	**145.56**	10	425	480	275	-	400	-	245	-	340	-	295	-	400	-	**M1**
160	**162.61**	9.2	425	430	270	-	390	-	245	-	330	-	295	-	385	-	HU 306
180	**179.15**	8.4	425	390	265	-	370	-	240	-	315	-	285	-	365	-	**M5**
200	**209.33**	7.2	425	335	250	-	335	-	235	-	295	-	270	-	330	-	364
224	**230.61**	6.5	425	305	245	-	325	-	230	-	290	-	265	-	325	-	**M4**
250	**261.77**	5.7	425	270	240	-	305	-	225	-	275	-	260	-	305	-	388
280	**288.39**	5.2	425	245	230	-	295	-	220	-	265	-	250	-	295	-	
315	**322.18**	4.7	425	220	225	-	280	-	210	-	255	-	245	-	280	-	
355	**354.94**	4.2	425	200	220	-	270	-	205	-	245	-	235	-	270	-	
X.K310..,n_1= 1800 1/min																	425 kNm
12.5[*)]	**13.23**	136	348	5150	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
14[*)]	**14.58**	123	355	4750	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[*)]	**17.02**	106	372	4250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1750[*)]	
18[*)]	**18.75**	96	383	4000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1700[*)]	
20[*)]	**21.20**	85	399	3650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	940	1700[*)]	**X3K..**
22.4[*)]	**23.35**	77	408	3400	*)	*)	*)	900[*)]	*)	*)	*)	*)	*)	*)	930	1700[*)]	**M1**
25[*)]	**26.30**	68	425	3150	*)	*)	*)	900[*)]	*)	*)	*)	*)	*)	*)	850	1550[*)]	HU 302
28[*)]	**28.97**	62	425	2850	*)	*)	*)	850[*)]	*)	*)	*)	*)	*)	*)	760	1450[*)]	HH 336
31.5[*)]	**32.89**	55	425	2500	*)	*)	*)	810[*)]	*)	*)	*)	*)	*)	670[*)]	650	1350[*)]	**M5**
35.5[*)]	**36.23**	50	425	2300	*)	*)	*)	750[*)]	*)	*)	*)	580[*)]	*)	640[*)]	*)	1250[*)]	362
40[*)]	**41.69**	43	425	2000	*)	690[*)]	*)	1050[*)]	*)	690[*)]	*)	930[*)]	*)	930[*)]	780	1350[*)]	**M4**
45[*)]	**45.93**	39	425	1800	*)	680[*)]	465	1000[*)]	*)	680[*)]	*)	900[*)]	*)	920[*)]	740	1300[*)]	388
50[*)]	**50.63**	36	425	1650	*)	740[*)]	530	1000[*)]	*)	740[*)]	*)	920[*)]	*)	930[*)]	720	1250[*)]	
56[*)]	**55.78**	32	425	1500	*)	730[*)]	500	990[*)]	*)	730[*)]	390	890[*)]	*)	920[*)]	680	1200[*)]	
63[*)]	**64.44**	28	425	1300	*)	750[*)]	530	950[*)]	*)	750[*)]	440	870[*)]	*)	890[*)]	640	1100[*)]	
71[*)]	**70.99**	25	425	1200	*)	720[*)]	495	900[*)]	*)	720[*)]	415	830[*)]	300	860[*)]	600	1050[*)]	
80[1)]	**85.15**	21	425	990	275	-	520	-	*)	-	415	-	300	-	540	-	
90[1)]	**93.81**	19	425	890	270	-	495	-	*)	-	395	-	295	-	510	-	
100[1)]	**105.65**	17	425	790	270	-	475	-	225	-	380	-	295	-	480	-	
112[1)]	**116.40**	15	425	720	270	-	460	-	225	-	370	-	295	-	465	-	
125[1)]	**132.12**	14	425	630	265	-	430	-	220	-	350	-	290	-	430	-	**X4K..**
140[1)]	**145.56**	12	425	580	255	-	410	-	215	-	330	-	280	-	410	-	**M1**
160[1)]	**162.61**	11	425	520	260	-	395	-	220	-	325	-	280	-	390	-	HU 306
180[1)]	**179.15**	10	425	470	250	-	375	-	215	-	310	-	270	-	375	-	**M5**
200[1)]	**209.33**	8.6	425	405	250	-	345	-	225	-	300	-	270	-	345	-	364
224[1)]	**230.61**	7.8	425	370	245	-	335	-	225	-	290	-	265	-	335	-	**M4**
250[1)]	**261.77**	6.9	425	325	235	-	320	-	215	-	275	-	255	-	315	-	388
280[1)]	**288.39**	6.2	425	295	230	-	305	-	210	-	265	-	250	-	305	-	
315[1)]	**322.18**	5.6	425	265	225	-	290	-	205	-	255	-	240	-	290	-	
355[1)]	**354.94**	5.1	425	240	215	-	280	-	200	-	245	-	235	-	280	-	

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X.K320..,n_1= 1000 1/min																	475 kNm
					P_{TH}20 °C kW												
					M1				M5				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14[1]	**14.13**	71	391	3000	*)	*)	*)	800	*)	*)	*)	1100	*)	850	900	1400	
16[1]	**15.48**	65	398	2800	*)	*)	*)	790	*)	*)	*)	1050	*)	840	850	1350	
18	**18.17**	55	418	2500	*)	820	*)	1000	*)	820	820	1200	*)	1050	950	1350	
20	**19.90**	50	429	2350	*)	810	*)	1000	*)	810	790	1200	*)	1000	910	1350	
22.4	**22.63**	44	448	2150	*)	800	560	960	*)	800	750	1100	*)	990	840	1250	**X3K..**
25	**24.79**	40	457	2000	*)	800	550	940	*)	800	720	1100	*)	980	810	1200	**M1**
28	**28.08**	36	475	1850	*)	760	520	880	*)	760	660	1000	*)	930	730	1100	HU 302
31.5	**30.76**	33	475	1650	*)	750	500	860	*)	750	640	980	430	920	700	1050	HH 336
35.5	**35.12**	28	475	1450	*)	730	475	810	*)	730	600	920	420	880	650	1000	**M5**
40	**38.46**	26	475	1350	*)	720	460	790	*)	720	580	890	415	860	620	970	362
45	**44.52**	22	475	1150	370	750	510	810	370	750	600	890	465	870	630	940	**M4**
50	**48.76**	21	475	1050	355	720	485	770	355	720	570	840	445	830	590	890	388
56	**54.06**	18	475	960	360	690	470	720	360	690	540	790	435	780	550	820	
63	**59.21**	17	475	880	355	680	460	710	355	680	520	770	425	770	540	800	
71	**68.80**	15	475	760	350	630	430	650	350	630	485	700	405	700	490	720	
80	**75.36**	13	475	690	345	620	420	640	345	620	470	680	400	690	475	710	
90	**90.93**	11	475	570	325	-	385	-	310	-	410	-	350	-	410	-	
100	**99.58**	10	475	520	320	-	375	-	305	-	400	-	345	-	400	-	
112	**112.81**	8.9	475	460	315	-	365	-	300	-	385	-	340	-	390	-	
125	**123.56**	8.1	475	420	305	-	350	-	290	-	370	-	330	-	370	-	
140	**141.08**	7.1	475	370	295	-	335	-	280	-	350	-	320	-	355	-	**X4K..**
160	**154.51**	6.5	475	335	290	-	330	-	275	-	340	-	315	-	345	-	**M1**
180	**173.63**	5.8	475	300	280	-	315	-	270	-	325	-	305	-	330	-	HU 306
200	**190.17**	5.3	475	275	275	-	310	-	265	-	320	-	300	-	325	-	**M5**
224	**223.52**	4.5	475	235	250	-	275	-	240	-	285	-	270	-	290	-	364
250	**244.81**	4.1	475	215	240	-	265	-	235	-	275	-	260	-	280	-	**M4**
280	**279.52**	3.6	475	190	235	-	255	-	225	-	260	-	250	-	270	-	388
315	**306.14**	3.3	475	170	230	-	250	-	225	-	255	-	250	-	265	-	
355	**344.02**	2.9	475	155	220	-	235	-	215	-	240	-	240	-	250	-	
400	**376.78**	2.7	475	140	215	-	235	-	210	-	240	-	235	-	245	-	
X.K320..,n_1= 1200 1/min																	475 kNm
14[1]	**14.13**	85	391	3600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1250	
16[1]	**15.48**	78	398	3350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1250	
18[1]	**18.17**	66	418	3000	*)	*)	*)	980	*)	*)	*)	1250	*)	1050	920	1450	
20[1]	**19.90**	60	429	2800	*)	750	*)	970	*)	750	*)	1200	*)	1000	870	1400	
22.4[1]	**22.63**	53	448	2600	*)	760	*)	940	*)	760	*)	1150	*)	1000	800	1350	**X3K..**
25[1]	**24.79**	48	457	2400	*)	760	*)	920	*)	760	610	1100	*)	1000	760	1300	**M1**
28[1]	**28.08**	43	475	2200	*)	740	*)	870	*)	740	570	1050	*)	960	690	1200	HU 302
31.5[1]	**30.76**	39	475	2000	*)	730	*)	850	*)	730	540	1000	*)	940	660	1150	HH 336
35.5[1]	**35.12**	34	475	1750	*)	710	*)	810	*)	710	500	940	*)	910	600	1050	**M5**
40[1]	**38.46**	31	475	1600	*)	700	*)	790	*)	700	485	910	*)	900	580	1050	362
45[1]	**44.52**	27	475	1400	*)	800	475	860	*)	800	590	960	420	940	630	1050	**M4**
50[1]	**48.76**	25	475	1250	*)	770	450	820	*)	770	550	910	405	900	590	980	388
56[1]	**54.06**	22	475	1150	320	750	455	790	320	750	540	860	410	860	560	920	
63[1]	**59.21**	20	475	1050	315	740	440	770	315	740	520	840	405	850	540	890	
71[1]	**68.80**	17	475	910	330	690	430	720	330	690	495	780	400	780	500	810	
80[1]	**75.36**	16	475	830	325	680	420	700	325	680	480	760	395	770	490	790	
90	**90.93**	13	475	690	325	-	395	-	305	-	425	-	355	-	425	-	
100	**99.58**	12	475	630	320	-	390	-	300	-	410	-	350	-	415	-	
112	**112.81**	11	475	550	320	-	380	-	300	-	400	-	345	-	400	-	
125	**123.56**	9.7	475	510	305	-	365	-	290	-	380	-	335	-	385	-	
140	**141.08**	8.5	475	445	295	-	345	-	280	-	360	-	320	-	365	-	**X4K..**
160	**154.51**	7.8	475	405	290	-	340	-	275	-	350	-	315	-	355	-	**M1**
180	**173.63**	6.9	475	360	285	-	325	-	265	-	335	-	305	-	340	-	HU 306
200	**190.17**	6.3	475	330	280	-	320	-	265	-	325	-	300	-	335	-	**M5**
224	**223.52**	5.4	475	285	255	-	285	-	245	-	295	-	275	-	300	-	364
250	**244.81**	4.9	475	260	250	-	275	-	240	-	285	-	270	-	290	-	**M4**
280	**279.52**	4.3	475	225	240	-	265	-	230	-	270	-	260	-	280	-	388
315	**306.14**	3.9	475	205	235	-	260	-	225	-	265	-	255	-	275	-	
355	**344.02**	3.5	475	185	225	-	245	-	215	-	250	-	245	-	260	-	
400	**376.78**	3.2	475	170	220	-	240	-	215	-	245	-	240	-	255	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M5				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.K320..,n_1= 1500 1/min																	**475 kNm**
14[*)]	**14.13**	106	391	4500	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[*)]	**15.48**	97	398	4200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
18[*)]	**18.17**	83	418	3750	*)	*)	*)	*)	*)	*)	*)	1050	*)	*)	*)	1400	
20[*)]	**19.90**	75	429	3500	*)	*)	*)	*)	*)	*)	*)	1050	*)	900	*)	1400	
22.4[*)]	**22.63**	66	448	3200	*)	*)	*)	*)	*)	*)	*)	1050	*)	920	*)	1350	**X3K..**
25[*)]	**24.79**	61	457	3000	*)	*)	*)	760	*)	*)	*)	1000	*)	920	*)	1300	**M1**
28[*)]	**28.08**	53	475	2750	*)	*)	*)	740	*)	*)	*)	940	*)	900	*)	1200	HU 302
31.5[*)]	**30.76**	49	475	2500	*)	*)	*)	720	*)	*)	*)	910	*)	890	*)	1150	HH 336
35.5[*)]	**35.12**	43	475	2200	*)	570	*)	700	*)	570	*)	870	*)	870	*)	1100	**M5**
40[*)]	**38.46**	39	475	2000	*)	570	*)	680	*)	570	*)	840	*)	860	*)	1050	362
45[*)]	**44.52**	34	475	1750	*)	810	*)	890	*)	810	510	1000	*)	1000	600	1150	**M4**
50[*)]	**48.76**	31	475	1600	*)	780	*)	840	*)	780	475	960	*)	960	560	1050	388
56[*)]	**54.06**	28	475	1450	*)	790	390	840	*)	790	500	930	*)	930	550	1000	
63[*)]	**59.21**	25	475	1300	*)	780	380	820	*)	780	480	910	345	920	530	990	
71[*)]	**68.80**	22	475	1150	*)	760	405	780	*)	760	485	850	370	870	510	910	
80[*)]	**75.36**	20	475	1050	275	740	395	770	275	740	470	830	365	860	495	890	
90	**90.93**	16	475	860	310	-	405	-	275	-	430	-	340	-	440	-	
100	**99.58**	15	475	780	310	-	395	-	275	-	420	-	335	-	425	-	
112	**112.81**	13	475	690	310	-	385	-	275	-	405	-	335	-	410	-	
125	**123.56**	12	475	630	300	-	370	-	270	-	385	-	325	-	395	-	
140	**141.08**	11	475	550	290	-	350	-	260	-	365	-	315	-	375	-	**X4K..**
160	**154.51**	9.7	475	510	285	-	345	-	260	-	355	-	310	-	365	-	**M1**
180	**173.63**	8.6	475	450	280	-	330	-	255	-	340	-	300	-	350	-	HU 306
200	**190.17**	7.9	475	410	275	-	325	-	250	-	330	-	300	-	340	-	**M5**
224	**223.52**	6.7	475	355	260	-	295	-	245	-	305	-	280	-	315	-	364
250	**244.81**	6.1	475	320	250	-	285	-	240	-	295	-	275	-	300	-	**M4**
280	**279.52**	5.4	475	280	245	-	275	-	230	-	280	-	265	-	290	-	388
315	**306.14**	4.9	475	260	240	-	270	-	225	-	275	-	260	-	280	-	
355	**344.02**	4.4	475	230	230	-	255	-	215	-	260	-	250	-	270	-	
400	**376.78**	4.0	475	210	225	-	250	-	215	-	255	-	245	-	265	-	
X.K320..,n_1= 1800 1/min																	**475 kNm**
14[*)]	**14.13**	127	370	5100	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[*)]	**15.48**	116	377	4750	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
18[*)]	**18.17**	99	397	4250	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1150[*)]	
20[*)]	**19.90**	90	406	4000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1150[*)]	
22.4[*)]	**22.63**	80	425	3650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1200[*)]	**X3K..**
25[*)]	**24.79**	73	432	3400	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1200[*)]	**M1**
28[*)]	**28.08**	64	452	3150	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1100[*)]	HU 302
31.5[*)]	**30.76**	59	460	2900	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	1050[*)]	HH 336
35.5[*)]	**35.12**	51	475	2650	*)	*)	*)	*)	*)	*)	*)	*)	*)	700[*)]	*)	990[*)]	**M5**
40[*)]	**38.46**	47	475	2400	*)	*)	*)	*)	*)	*)	*)	620[*)]	*)	690[*)]	*)	950[*)]	362
45[*)]	**44.52**	40	475	2100	*)	730[*)]	*)	830[*)]	*)	730[*)]	*)	980[*)]	*)	980[*)]	*)	1150[*)]	**M4**
50[*)]	**48.76**	37	475	1900	*)	700[*)]	*)	790[*)]	*)	700[*)]	*)	920[*)]	*)	940[*)]	*)	1100[*)]	388
56[*)]	**54.06**	33	475	1750	*)	760[*)]	*)	820[*)]	*)	760[*)]	*)	940[*)]	*)	950[*)]	510	1050[*)]	
63[*)]	**59.21**	30	475	1600	*)	760[*)]	*)	810[*)]	*)	760[*)]	400	910[*)]	*)	940[*)]	490	1050[*)]	
71[*)]	**68.80**	26	475	1350	*)	770[*)]	350	810[*)]	*)	770[*)]	450	890[*)]	*)	910[*)]	500	970[*)]	
80[*)]	**75.36**	24	475	1250	*)	760[*)]	340	790[*)]	*)	760[*)]	435	870[*)]	315	900[*)]	480	950[*)]	
90[1)]	**90.93**	20	475	1050	280	-	395	-	*)	-	420	-	310	-	435	-	
100[1)]	**99.58**	18	475	940	280	-	385	-	*)	-	410	-	305	-	425	-	
112[1)]	**112.81**	16	475	830	285	-	380	-	235	-	395	-	310	-	410	-	
125[1)]	**123.56**	15	475	760	275	-	365	-	230	-	380	-	300	-	395	-	
140[1)]	**141.08**	13	475	660	270	-	345	-	225	-	355	-	295	-	370	-	**X4K..**
160[1)]	**154.51**	12	475	610	270	-	340	-	225	-	345	-	295	-	360	-	**M1**
180[1)]	**173.63**	10	475	540	265	-	325	-	225	-	330	-	285	-	345	-	HU 306
200[1)]	**190.17**	9.5	475	495	260	-	320	-	225	-	320	-	285	-	335	-	**M5**
224[1)]	**223.52**	8.1	475	425	255	-	300	-	235	-	310	-	280	-	320	-	364
250[1)]	**244.81**	7.4	475	385	250	-	290	-	230	-	300	-	270	-	305	-	**M4**
280[1)]	**279.52**	6.4	475	340	240	-	280	-	220	-	285	-	260	-	290	-	388
315[1)]	**306.14**	5.9	475	310	240	-	270	-	220	-	275	-	260	-	285	-	
355[1)]	**344.02**	5.2	475	275	230	-	260	-	210	-	260	-	245	-	270	-	
400[1)]	**376.78**	4.8	475	250	225	-	255	-	205	-	255	-	245	-	265	-	

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9.4 X.T.. bevel-helical gear units

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH}20 °C kW M3				M4								
							H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T100..,n_1= 1000 1/min																	**6.80 kNm**
14	**13.47**	74	6.45	52	-	-	-	-	42	54	-	-	52	75	-	-	**X3T.. M1** 310 **M4** 390
16	**15.08**	66	6.80	49	-	-	-	-	42	54	-	-	52	75	-	-	
18	**17.05**	59	6.80	43	-	-	-	-	39	50	-	-	47	69	-	-	
20	**19.09**	52	6.80	39	-	-	-	-	39	51	-	-	48	70	-	-	
22.4	**21.09**	47	6.80	35	-	-	-	-	35	46	-	-	43	63	-	-	
25	**24.55**	41	6.80	30	-	-	-	-	38	48	-	-	45	64	-	-	
28	**27.12**	37	6.80	27	-	-	-	-	34	43	-	-	40	58	-	-	
31.5	**30.35**	33	6.80	24	-	-	-	-	34	43	-	-	40	57	-	-	
35.5	**34.35**	29	6.80	21	-	-	-	-	30	38	-	-	34	49	-	-	
40	**38.45**	26	6.80	19	-	-	-	-	31	39	-	-	36	51	-	-	
45	**42.96**	23	6.80	17	-	-	-	-	27	34	-	-	31	45	-	-	
50	**48.08**	21	6.80	15	-	-	-	-	28	35	-	-	32	46	-	-	
56	**52.49**	19	6.80	14	-	-	-	-	26	32	-	-	29	41	-	-	
63	**58.74**	17	6.80	13	-	-	-	-	26	33	-	-	30	43	-	-	
71	**67.20**	15	6.80	11	-	-	-	-	22	28	-	-	25	36	-	-	
80	**75.21**	13	6.80	10	-	-	-	-	23	29	-	-	26	37	-	-	
X.T100..,n_1= 1200 1/min																	**6.80 kNm**
14	**13.47**	89	6.45	62	-	-	-	-	39	57	-	-	52	84	-	-	**X3T.. M1** 310 **M4** 390
16	**15.08**	80	6.80	59	-	-	-	-	38	57	-	-	52	84	-	-	
18	**17.05**	70	6.80	52	-	-	-	-	36	53	-	-	48	77	-	-	
20	**19.09**	63	6.80	46	-	-	-	-	37	54	-	-	49	79	-	-	
22.4	**21.09**	57	6.80	42	-	-	-	-	33	49	-	-	44	70	-	-	
25	**24.55**	49	6.80	36	-	-	-	-	38	53	-	-	46	72	-	-	
28	**27.12**	44	6.80	33	-	-	-	-	34	48	-	-	41	65	-	-	
31.5	**30.35**	40	6.80	29	-	-	-	-	34	47	-	-	41	64	-	-	
35.5	**34.35**	35	6.80	26	-	-	-	-	30	42	-	-	36	56	-	-	
40	**38.45**	31	6.80	23	-	-	-	-	31	44	-	-	37	58	-	-	
45	**42.96**	28	6.80	21	-	-	-	-	28	38	-	-	32	50	-	-	
50	**48.08**	25	6.80	18	-	-	-	-	28	39	-	-	33	52	-	-	
56	**52.49**	23	6.80	17	-	-	-	-	26	36	-	-	30	47	-	-	
63	**58.74**	20	6.80	15	-	-	-	-	27	37	-	-	31	48	-	-	
71	**67.20**	18	6.80	13	-	-	-	-	23	31	-	-	26	41	-	-	
80	**75.21**	16	6.80	12	-	-	-	-	24	32	-	-	27	42	-	-	

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X.T100..,n_1= 1500 1/min																	6.80 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
14	**13.47**	111	6.45	78	-	-	-	-	27	58	-	-	52	96	-	-	**X3T.. M1** 310 **M4** 390
16	**15.08**	99	6.80	73	-	-	-	-	27	58	-	-	51	95	-	-	
18	**17.05**	88	6.80	65	-	-	-	-	27	55	-	-	48	88	-	-	
20	**19.09**	79	6.80	58	-	-	-	-	29	56	-	-	49	89	-	-	
22.4	**21.09**	71	6.80	52	-	-	-	-	27	50	-	-	44	80	-	-	
25	**24.55**	61	6.80	45	-	-	-	-	35	58	-	-	47	83	-	-	
28	**27.12**	55	6.80	41	-	-	-	-	32	53	-	-	42	75	-	-	
31.5	**30.35**	49	6.80	36	-	-	-	-	31	52	-	-	42	74	-	-	
35.5	**34.35**	44	6.80	32	-	-	-	-	30	47	-	-	37	64	-	-	
40	**38.45**	39	6.80	29	-	-	-	-	31	49	-	-	38	67	-	-	
45	**42.96**	35	6.80	26	-	-	-	-	27	43	-	-	33	58	-	-	
50	**48.08**	31	6.80	23	-	-	-	-	28	44	-	-	34	60	-	-	
56	**52.49**	29	6.80	21	-	-	-	-	26	41	-	-	31	54	-	-	
63	**58.74**	26	6.80	19	-	-	-	-	27	42	-	-	32	56	-	-	
71	**67.20**	22	6.80	17	-	-	-	-	23	36	-	-	28	48	-	-	
80	**75.21**	20	6.80	15	-	-	-	-	24	37	-	-	28	49	-	-	
X.T100..,n_1= 1800 1/min																	**6.80 kNm**
14	**13.47**	134	6.35	92	-	-	-	-	*)	54	-	-	49	105	-	-	**X3T.. M1** 310 **M4** 390
16	**15.08**	119	6.70	87	-	-	-	-	*)	53	-	-	49	105	-	-	
18	**17.05**	106	6.80	78	-	-	-	-	*)	51	-	-	46	96	-	-	
20	**19.09**	94	6.80	70	-	-	-	-	*)	52	-	-	47	98	-	-	
22.4	**21.09**	85	6.80	63	-	-	-	-	*)	48	-	-	42	88	-	-	
25	**24.55**	73	6.80	54	-	-	-	-	30	61	-	-	46	92	-	-	
28	**27.12**	66	6.80	49	-	-	-	-	28	56	-	-	42	83	-	-	
31.5	**30.35**	59	6.80	44	-	-	-	-	27	55	-	-	41	82	-	-	
35.5	**34.35**	52	6.80	39	-	-	-	-	28	51	-	-	37	72	-	-	
40	**38.45**	47	6.80	35	-	-	-	-	29	53	-	-	39	75	-	-	
45	**42.96**	42	6.80	31	-	-	-	-	26	47	-	-	34	65	-	-	
50	**48.08**	37	6.80	28	-	-	-	-	27	48	-	-	35	67	-	-	
56	**52.49**	34	6.80	26	-	-	-	-	25	45	-	-	32	61	-	-	
63	**58.74**	31	6.80	23	-	-	-	-	26	46	-	-	33	63	-	-	
71	**67.20**	27	6.80	20	-	-	-	-	23	40	-	-	28	54	-	-	
80	**75.21**	24	6.80	18	-	-	-	-	23	41	-	-	29	55	-	-	

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X.T110..,n_1= 1000 1/min																	8.50 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
16	**15.50**	65	7.50	52	-	-	-	-	46	59	-	-	56	81	-	-	**X3T.. M1** 310 **M4** 390
18	**17.36**	58	7.80	49	-	-	-	-	45	58	-	-	56	81	-	-	
20	**19.62**	51	8.00	44	-	-	-	-	41	52	-	-	50	72	-	-	
22.4	**21.97**	46	8.50	42	-	-	-	-	42	54	-	-	51	74	-	-	
25	**24.26**	41	8.50	38	-	-	-	-	38	48	-	-	46	66	-	-	
28	**28.26**	35	8.50	33	-	-	-	-	40	51	-	-	47	68	-	-	
31.5	**31.21**	32	8.50	30	-	-	-	-	36	46	-	-	42	61	-	-	
35.5	**34.94**	29	8.50	26	-	-	-	-	36	45	-	-	42	60	-	-	
40	**39.53**	25	8.50	23	-	-	-	-	32	40	-	-	36	52	-	-	
45	**44.26**	23	8.50	21	-	-	-	-	33	41	-	-	38	54	-	-	
50	**49.44**	20	8.50	19	-	-	-	-	29	37	-	-	34	48	-	-	
56	**55.35**	18	8.50	17	-	-	-	-	30	37	-	-	34	49	-	-	
63	**60.40**	17	8.50	15	-	-	-	-	27	34	-	-	31	44	-	-	
71	**67.62**	15	8.50	14	-	-	-	-	28	35	-	-	31	45	-	-	
80	**77.33**	13	8.50	12	-	-	-	-	24	30	-	-	27	38	-	-	
90	**86.58**	12	8.50	11	-	-	-	-	24	30	-	-	27	38	-	-	
X.T110..,n_1= 1200 1/min																	**8.50 kNm**
16	**15.50**	77	7.50	63	-	-	-	-	42	63	-	-	57	91	-	-	**X3T.. M1** 310 **M4** 390
18	**17.36**	69	7.80	58	-	-	-	-	42	62	-	-	56	90	-	-	
20	**19.62**	61	8.00	53	-	-	-	-	38	56	-	-	50	81	-	-	
22.4	**21.97**	55	8.50	50	-	-	-	-	39	58	-	-	52	83	-	-	
25	**24.26**	49	8.50	46	-	-	-	-	36	52	-	-	47	74	-	-	
28	**28.26**	42	8.50	39	-	-	-	-	40	56	-	-	48	76	-	-	
31.5	**31.21**	38	8.50	35	-	-	-	-	36	51	-	-	44	68	-	-	
35.5	**34.94**	34	8.50	32	-	-	-	-	36	50	-	-	43	68	-	-	
40	**39.53**	30	8.50	28	-	-	-	-	32	44	-	-	38	59	-	-	
45	**44.26**	27	8.50	25	-	-	-	-	33	46	-	-	39	61	-	-	
50	**49.44**	24	8.50	22	-	-	-	-	30	41	-	-	35	54	-	-	
56	**55.35**	22	8.50	20	-	-	-	-	30	41	-	-	35	55	-	-	
63	**60.40**	20	8.50	18	-	-	-	-	28	38	-	-	32	49	-	-	
71	**67.62**	18	8.50	17	-	-	-	-	28	39	-	-	33	51	-	-	
80	**77.33**	16	8.50	14	-	-	-	-	24	33	-	-	28	43	-	-	
90	**86.58**	14	8.50	13	-	-	-	-	24	33	-	-	28	43	-	-	

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X.T110..,n_1= 1500 1/min																	8.50 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
16	**15.50**	97	7.50	79	-	-	-	-	32	64	-	-	56	105	-	-	**X3T.. M1** 310 **M4** 390
18	**17.36**	86	7.80	73	-	-	-	-	32	64	-	-	56	105	-	-	
20	**19.62**	76	8.00	66	-	-	-	-	30	58	-	-	50	92	-	-	
22.4	**21.97**	68	8.50	63	-	-	-	-	32	60	-	-	52	94	-	-	
25	**24.26**	62	8.50	57	-	-	-	-	29	54	-	-	47	85	-	-	
28	**28.26**	53	8.50	49	-	-	-	-	37	62	-	-	49	88	-	-	
31.5	**31.21**	48	8.50	44	-	-	-	-	34	56	-	-	45	79	-	-	
35.5	**34.94**	43	8.50	40	-	-	-	-	34	55	-	-	44	78	-	-	
40	**39.53**	38	8.50	35	-	-	-	-	32	50	-	-	39	68	-	-	
45	**44.26**	34	8.50	31	-	-	-	-	33	52	-	-	40	70	-	-	
50	**49.44**	30	8.50	28	-	-	-	-	29	46	-	-	36	63	-	-	
56	**55.35**	27	8.50	25	-	-	-	-	30	47	-	-	36	63	-	-	
63	**60.40**	25	8.50	23	-	-	-	-	28	43	-	-	33	57	-	-	
71	**67.62**	22	8.50	21	-	-	-	-	28	44	-	-	34	59	-	-	
80	**77.33**	19	8.50	18	-	-	-	-	25	38	-	-	29	50	-	-	
90	**86.58**	17	8.50	16	-	-	-	-	25	38	-	-	29	50	-	-	
X.T110..,n_1= 1800 1/min																	**8.50 kNm**
16	**15.50**	116	7.50	94	-	-	-	-	*)	60	-	-	54	115	-	-	**X3T.. M1** 310 **M4** 390
18	**17.36**	104	7.90	89	-	-	-	-	*)	60	-	-	53	115	-	-	
20	**19.62**	92	8.20	82	-	-	-	-	*)	55	-	-	48	100	-	-	
22.4	**21.97**	82	8.50	75	-	-	-	-	*)	57	-	-	50	105	-	-	
25	**24.26**	74	8.50	68	-	-	-	-	*)	52	-	-	45	93	-	-	
28	**28.26**	64	8.50	59	-	-	-	-	32	65	-	-	49	98	-	-	
31.5	**31.21**	58	8.50	53	-	-	-	-	30	59	-	-	45	88	-	-	
35.5	**34.94**	52	8.50	47	-	-	-	-	29	58	-	-	44	87	-	-	
40	**39.53**	46	8.50	42	-	-	-	-	30	55	-	-	39	76	-	-	
45	**44.26**	41	8.50	37	-	-	-	-	31	57	-	-	41	79	-	-	
50	**49.44**	36	8.50	34	-	-	-	-	28	51	-	-	37	70	-	-	
56	**55.35**	33	8.50	30	-	-	-	-	28	51	-	-	37	71	-	-	
63	**60.40**	30	8.50	28	-	-	-	-	27	47	-	-	34	64	-	-	
71	**67.62**	27	8.50	25	-	-	-	-	28	49	-	-	35	66	-	-	
80	**77.33**	23	8.50	22	-	-	-	-	24	42	-	-	30	56	-	-	
90	**86.58**	21	8.50	19	-	-	-	-	24	42	-	-	30	57	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW												
					M3				M4								
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T120..,n_1= 1000 1/min																	**12.8 kNm**
12.5	**12.72**	79	11.3	96	-	-	-	-	50	67	-	-	68	100	-	-	**X3T.. M1** 310 **M4** 390
14	**14.48**	69	11.5	86	-	-	-	-	51	69	-	-	70	105	-	-	
16	**16.36**	61	11.6	77	-	-	-	-	53	68	-	-	65	94	-	-	
18	**18.63**	54	12.0	70	-	-	-	-	54	69	-	-	66	96	-	-	
20	**20.02**	50	12.1	66	-	-	-	-	46	62	-	-	62	91	-	-	
22.4	**22.79**	44	12.3	59	-	-	-	-	47	63	-	-	63	93	-	-	
25	**25.75**	39	12.4	52	-	-	-	-	48	62	-	-	58	85	-	-	
28	**29.32**	34	12.4	46	-	-	-	-	49	62	-	-	59	86	-	-	
31.5	**30.96**	32	12.4	43	-	-	-	-	43	55	-	-	52	76	-	-	
35.5	**35.25**	28	12.4	38	-	-	-	-	44	56	-	-	53	77	-	-	
40	**40.01**	25	12.4	34	-	-	-	-	39	49	-	-	45	65	-	-	
45	**45.55**	22	12.8	30	-	-	-	-	40	51	-	-	47	68	-	-	
50	**47.92**	21	12.8	29	-	-	-	-	36	45	-	-	42	60	-	-	
56	**54.55**	18	12.8	26	-	-	-	-	36	46	-	-	42	60	-	-	
63	**61.35**	16	12.8	23	-	-	-	-	32	41	-	-	37	54	-	-	
71	**69.84**	14	12.8	20	-	-	-	-	33	41	-	-	37	54	-	-	
80	**82.12**	12	10.9	15	-	-	-	-	33	-	-	-	36	-	-	-	**X4T.. M1** 314 **M4** 394
90	**93.49**	11	12.3	14	-	-	-	-	34	-	-	-	37	-	-	-	
100	**104.18**	9.6	12.8	13	-	-	-	-	32	-	-	-	35	-	-	-	
112	**118.60**	8.4	12.8	12	-	-	-	-	32	-	-	-	36	-	-	-	
125	**125.27**	8.0	12.8	11	-	-	-	-	29	-	-	-	32	-	-	-	
140	**142.60**	7.0	12.8	10	-	-	-	-	30	-	-	-	33	-	-	-	
160	**149.93**	6.7	12.8	9	-	-	-	-	27	-	-	-	30	-	-	-	
180	**170.68**	5.9	12.8	8	-	-	-	-	27	-	-	-	30	-	-	-	
200	**206.42**	4.8	12.8	7	-	-	-	-	24	-	-	-	26	-	-	-	
224	**234.98**	4.3	12.8	6	-	-	-	-	24	-	-	-	27	-	-	-	
250	**248.19**	4.0	12.8	6	-	-	-	-	22	-	-	-	24	-	-	-	
280	**282.53**	3.5	12.8	5	-	-	-	-	22	-	-	-	24	-	-	-	
315	**297.06**	3.4	12.8	5	-	-	-	-	20	-	-	-	22	-	-	-	
355	**338.17**	3.0	12.8	4	-	-	-	-	21	-	-	-	23	-	-	-	
X.T120..,n_1= 1200 1/min																	**12.8 kNm**
12.5	**12.72**	94	11.3	115	-	-	-	-	35	67	-	-	67	110	-	-	**X3T.. M1** 310 **M4** 390
14	**14.48**	83	11.5	105	-	-	-	-	38	69	-	-	69	115	-	-	
16	**16.36**	73	11.6	92	-	-	-	-	49	73	-	-	65	105	-	-	
18	**18.63**	64	12.0	84	-	-	-	-	50	74	-	-	67	105	-	-	
20	**20.02**	60	12.1	79	-	-	-	-	39	62	-	-	61	100	-	-	
22.4	**22.79**	53	12.3	70	-	-	-	-	40	64	-	-	63	105	-	-	
25	**25.75**	47	12.4	63	-	-	-	-	46	66	-	-	59	95	-	-	
28	**29.32**	41	12.4	55	-	-	-	-	46	67	-	-	60	96	-	-	
31.5	**30.96**	39	12.4	52	-	-	-	-	41	60	-	-	53	85	-	-	
35.5	**35.25**	34	12.4	46	-	-	-	-	42	61	-	-	54	86	-	-	
40	**40.01**	30	12.4	40	-	-	-	-	39	54	-	-	47	74	-	-	
45	**45.55**	26	12.8	37	-	-	-	-	40	56	-	-	48	76	-	-	
50	**47.92**	25	12.8	35	-	-	-	-	36	50	-	-	43	68	-	-	
56	**54.55**	22	12.8	31	-	-	-	-	36	51	-	-	43	68	-	-	
63	**61.35**	20	12.8	27	-	-	-	-	33	45	-	-	39	60	-	-	
71	**69.84**	17	12.8	24	-	-	-	-	33	46	-	-	39	61	-	-	
80	**82.12**	15	10.9	17	-	-	-	-	34	-	-	-	38	-	-	-	**X4T.. M1** 314 **M4** 394
90	**93.49**	13	12.3	17	-	-	-	-	35	-	-	-	39	-	-	-	
100	**104.18**	12	12.8	16	-	-	-	-	33	-	-	-	37	-	-	-	
112	**118.60**	10	12.8	14	-	-	-	-	33	-	-	-	37	-	-	-	
125	**125.27**	9.6	12.8	13	-	-	-	-	30	-	-	-	33	-	-	-	
140	**142.60**	8.4	12.8	12	-	-	-	-	31	-	-	-	34	-	-	-	
160	**149.93**	8.0	12.8	11	-	-	-	-	28	-	-	-	31	-	-	-	
180	**170.68**	7.0	12.8	10	-	-	-	-	28	-	-	-	31	-	-	-	
200	**206.42**	5.8	12.8	8	-	-	-	-	25	-	-	-	27	-	-	-	
224	**234.98**	5.1	12.8	7	-	-	-	-	25	-	-	-	28	-	-	-	
250	**248.19**	4.8	12.8	7	-	-	-	-	23	-	-	-	25	-	-	-	
280	**282.53**	4.2	12.8	6	-	-	-	-	23	-	-	-	25	-	-	-	
315	**297.06**	4.0	12.8	6	-	-	-	-	21	-	-	-	23	-	-	-	
355	**338.17**	3.5	12.8	5	-	-	-	-	22	-	-	-	24	-	-	-	

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X.T120..,n_1= 1500 1/min																		12.8 kNm
					P_{TH}20 °C kW													
									M3				M4					
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +		
		min^{-1}	kNm	kW														
12.5	**12.72**	118	11.3	145	-	-	-	-	*)	53	-	-	61	125	-	-		
14	**14.48**	104	11.5	130	-	-	-	-	*)	57	-	-	65	125	-	-		
16	**16.36**	92	11.6	115	-	-	-	-	35	76	-	-	65	120	-	-		
18	**18.63**	81	12.0	105	-	-	-	-	38	77	-	-	66	120	-	-		
20	**20.02**	75	12.1	98	-	-	-	-	*)	56	-	-	58	115	-	-		
22.4	**22.79**	66	12.3	88	-	-	-	-	*)	57	-	-	60	115	-	-		
25	**25.75**	58	12.4	78	-	-	-	-	38	70	-	-	59	110	-	-	**X3T..**	
28	**29.32**	51	12.4	69	-	-	-	-	39	71	-	-	60	110	-	-	**M1**	
31.5	**30.96**	48	12.4	65	-	-	-	-	35	63	-	-	53	97	-	-	310	
35.5	**35.25**	43	12.4	57	-	-	-	-	35	64	-	-	54	98	-	-	**M4**	
40	**40.01**	37	12.4	50	-	-	-	-	37	60	-	-	48	85	-	-	390	
45	**45.55**	33	12.8	46	-	-	-	-	38	62	-	-	49	88	-	-		
50	**47.92**	31	12.8	44	-	-	-	-	35	56	-	-	44	78	-	-		
56	**54.55**	27	12.8	39	-	-	-	-	35	57	-	-	44	78	-	-		
63	**61.35**	24	12.8	34	-	-	-	-	32	51	-	-	40	70	-	-		
71	**69.84**	21	12.8	30	-	-	-	-	32	51	-	-	40	70	-	-		
80	**82.12**	18	10.9	22	-	-	-	-	35	-	-	-	40	-	-	-		
90	**93.49**	16	12.3	22	-	-	-	-	36	-	-	-	40	-	-	-		
100	**104.18**	14	12.8	20	-	-	-	-	34	-	-	-	38	-	-	-		
112	**118.60**	13	12.8	18	-	-	-	-	34	-	-	-	39	-	-	-		
125	**125.27**	12	12.8	17	-	-	-	-	31	-	-	-	35	-	-	-		
140	**142.60**	11	12.8	15	-	-	-	-	31	-	-	-	36	-	-	-	**X4T..**	
160	**149.93**	10	12.8	14	-	-	-	-	28	-	-	-	32	-	-	-	**M1**	
180	**170.68**	8.8	12.8	12	-	-	-	-	29	-	-	-	33	-	-	-	314	
200	**206.42**	7.3	12.8	10	-	-	-	-	26	-	-	-	29	-	-	-	**M4**	
224	**234.98**	6.4	12.8	9	-	-	-	-	26	-	-	-	29	-	-	-	394	
250	**248.19**	6.0	12.8	9	-	-	-	-	24	-	-	-	27	-	-	-		
280	**282.53**	5.3	12.8	8	-	-	-	-	24	-	-	-	27	-	-	-		
315	**297.06**	5.0	12.8	7	-	-	-	-	22	-	-	-	25	-	-	-		
355	**338.17**	4.4	12.8	6	-	-	-	-	23	-	-	-	25	-	-	-		
X.T120..,n_1= 1800 1/min																		12.8 kNm
12.5	**12.72**	142	11.3	175	-	-	-	-	*)	*)	-	-	44	135	-	-		
14	**14.48**	124	11.5	155	-	-	-	-	*)	*)	-	-	49	135	-	-		
16	**16.36**	110	11.6	140	-	-	-	-	*)	73	-	-	60	130	-	-		
18	**18.63**	97	12.0	125	-	-	-	-	*)	75	-	-	63	135	-	-		
20	**20.02**	90	12.1	120	-	-	-	-	*)	31	-	-	50	120	-	-		
22.4	**22.79**	79	12.3	105	-	-	-	-	*)	34	-	-	53	125	-	-		
25	**25.75**	70	12.4	94	-	-	-	-	*)	69	-	-	57	120	-	-	**X3T..**	
28	**29.32**	61	12.4	83	-	-	-	-	*)	70	-	-	58	120	-	-	**M1**	
31.5	**30.96**	58	12.4	78	-	-	-	-	*)	63	-	-	52	105	-	-	310	
35.5	**35.25**	51	12.4	69	-	-	-	-	20	63	-	-	52	110	-	-	**M4**	
40	**40.01**	45	12.4	60	-	-	-	-	33	64	-	-	47	94	-	-	390	
45	**45.55**	40	12.8	55	-	-	-	-	34	67	-	-	49	98	-	-		
50	**47.92**	38	12.8	53	-	-	-	-	32	61	-	-	44	87	-	-		
56	**54.55**	33	12.8	46	-	-	-	-	33	61	-	-	45	87	-	-		
63	**61.35**	29	12.8	41	-	-	-	-	31	56	-	-	40	78	-	-		
71	**69.84**	26	12.8	36	-	-	-	-	31	56	-	-	40	78	-	-		
80	**82.12**	22	10.9	26	-	-	-	-	35	-	-	-	41	-	-	-		
90	**93.49**	19	12.3	26	-	-	-	-	36	-	-	-	42	-	-	-		
100	**104.18**	17	12.8	24	-	-	-	-	34	-	-	-	40	-	-	-		
112	**118.60**	15	12.8	21	-	-	-	-	34	-	-	-	40	-	-	-		
125	**125.27**	14	12.8	20	-	-	-	-	31	-	-	-	36	-	-	-		
140	**142.60**	13	12.8	18	-	-	-	-	31	-	-	-	37	-	-	-	**X4T..**	
160	**149.93**	12	12.8	17	-	-	-	-	28	-	-	-	33	-	-	-	**M1**	
180	**170.68**	11	12.8	15	-	-	-	-	29	-	-	-	34	-	-	-	314	
200	**206.42**	8.7	12.8	12	-	-	-	-	27	-	-	-	30	-	-	-	**M4**	
224	**234.98**	7.7	12.8	11	-	-	-	-	27	-	-	-	30	-	-	-	394	
250	**248.19**	7.3	12.8	10	-	-	-	-	24	-	-	-	28	-	-	-		
280	**282.53**	6.4	12.8	9	-	-	-	-	25	-	-	-	28	-	-	-		
315	**297.06**	6.1	12.8	9	-	-	-	-	23	-	-	-	26	-	-	-		
355	**338.17**	5.3	12.8	8	-	-	-	-	23	-	-	-	26	-	-	-		

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X.T130..,n_1= 1000 1/min																	16 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
16	**15.90**	63	14.2	97	-	-	-	-	55	73	-	-	73	110	-	-	**X3T.. M1** 310 **M4** 390
18	**18.06**	55	14.4	86	-	-	-	-	56	75	-	-	75	110	-	-	
20	**20.45**	49	14.5	77	-	-	-	-	57	73	-	-	69	100	-	-	
22.4	**23.23**	43	15.0	70	-	-	-	-	58	75	-	-	71	105	-	-	
25	**25.03**	40	15.2	66	-	-	-	-	51	67	-	-	66	97	-	-	
28	**28.43**	35	15.5	59	-	-	-	-	52	68	-	-	68	99	-	-	
31.5	**32.19**	31	15.5	52	-	-	-	-	52	66	-	-	62	90	-	-	
35.5	**36.56**	27	15.5	46	-	-	-	-	53	67	-	-	63	92	-	-	
40	**38.71**	26	15.5	43	-	-	-	-	48	61	-	-	57	83	-	-	
45	**43.96**	23	15.5	38	-	-	-	-	46	59	-	-	55	80	-	-	
50	**50.02**	20	15.5	34	-	-	-	-	43	54	-	-	50	71	-	-	
56	**56.81**	18	16.0	31	-	-	-	-	42	53	-	-	49	71	-	-	
63	**59.90**	17	16.0	29	-	-	-	-	39	49	-	-	45	64	-	-	
71	**68.03**	15	16.0	26	-	-	-	-	39	49	-	-	45	64	-	-	
80	**76.69**	13	16.0	23	-	-	-	-	35	44	-	-	40	57	-	-	
90	**87.09**	11	16.0	20	-	-	-	-	35	44	-	-	40	57	-	-	
100	**102.65**	9.7	13.6	15	-	-	-	-	36	-	-	-	40	-	-	-	**X4T.. M1** 314 **M4** 394
112	**116.58**	8.6	15.5	15	-	-	-	-	36	-	-	-	40	-	-	-	
125	**130.23**	7.7	16.0	13	-	-	-	-	34	-	-	-	38	-	-	-	
140	**147.90**	6.8	16.0	12	-	-	-	-	34	-	-	-	37	-	-	-	
160	**156.58**	6.4	16.0	11	-	-	-	-	31	-	-	-	34	-	-	-	
180	**177.83**	5.6	16.0	10	-	-	-	-	31	-	-	-	34	-	-	-	
200	**187.42**	5.3	16.0	9	-	-	-	-	29	-	-	-	31	-	-	-	
224	**212.85**	4.7	16.0	8	-	-	-	-	29	-	-	-	31	-	-	-	
250	**258.02**	3.9	16.0	7	-	-	-	-	26	-	-	-	28	-	-	-	
280	**293.04**	3.4	16.0	6	-	-	-	-	25	-	-	-	28	-	-	-	
315	**310.23**	3.2	16.0	6	-	-	-	-	23	-	-	-	26	-	-	-	
355	**352.34**	2.8	16.0	5	-	-	-	-	23	-	-	-	25	-	-	-	
400	**371.33**	2.7	16.0	5	-	-	-	-	22	-	-	-	24	-	-	-	
450	**421.72**	2.4	16.0	4	-	-	-	-	22	-	-	-	24	-	-	-	
X.T130..,n_1= 1200 1/min																	**16 kNm**
16	**15.90**	75	14.2	115	-	-	-	-	42	74	-	-	73	120	-	-	**X3T.. M1** 310 **M4** 390
18	**18.06**	66	14.4	105	-	-	-	-	45	76	-	-	75	125	-	-	
20	**20.45**	59	14.5	92	-	-	-	-	54	79	-	-	70	110	-	-	
22.4	**23.23**	52	15.0	84	-	-	-	-	55	81	-	-	72	115	-	-	
25	**25.03**	48	15.2	79	-	-	-	-	43	69	-	-	66	110	-	-	
28	**28.43**	42	15.5	71	-	-	-	-	44	70	-	-	68	110	-	-	
31.5	**32.19**	37	15.5	63	-	-	-	-	50	72	-	-	64	100	-	-	
35.5	**36.56**	33	15.5	55	-	-	-	-	50	73	-	-	64	105	-	-	
40	**38.71**	31	15.5	52	-	-	-	-	46	66	-	-	59	93	-	-	
45	**43.96**	27	15.5	46	-	-	-	-	44	64	-	-	56	90	-	-	
50	**50.02**	24	15.5	40	-	-	-	-	43	60	-	-	51	80	-	-	
56	**56.81**	21	16.0	37	-	-	-	-	42	59	-	-	51	80	-	-	
63	**59.90**	20	16.0	35	-	-	-	-	39	54	-	-	46	72	-	-	
71	**68.03**	18	16.0	31	-	-	-	-	39	54	-	-	46	73	-	-	
80	**76.69**	16	16.0	27	-	-	-	-	35	49	-	-	41	65	-	-	
90	**87.09**	14	16.0	24	-	-	-	-	35	49	-	-	41	65	-	-	
100	**102.65**	12	13.6	17	-	-	-	-	37	-	-	-	41	-	-	-	**X4T.. M1** 314 **M4** 394
112	**116.58**	10	15.5	17	-	-	-	-	37	-	-	-	41	-	-	-	
125	**130.23**	9.2	16.0	16	-	-	-	-	35	-	-	-	39	-	-	-	
140	**147.90**	8.1	16.0	14	-	-	-	-	35	-	-	-	39	-	-	-	
160	**156.58**	7.7	16.0	13	-	-	-	-	32	-	-	-	36	-	-	-	
180	**177.83**	6.7	16.0	12	-	-	-	-	32	-	-	-	36	-	-	-	
200	**187.42**	6.4	16.0	11	-	-	-	-	30	-	-	-	33	-	-	-	
224	**212.85**	5.6	16.0	10	-	-	-	-	30	-	-	-	33	-	-	-	
250	**258.02**	4.7	16.0	8	-	-	-	-	27	-	-	-	29	-	-	-	
280	**293.04**	4.1	16.0	7	-	-	-	-	27	-	-	-	29	-	-	-	
315	**310.23**	3.9	16.0	7	-	-	-	-	24	-	-	-	27	-	-	-	
355	**352.34**	3.4	16.0	6	-	-	-	-	24	-	-	-	27	-	-	-	
400	**371.33**	3.2	16.0	6	-	-	-	-	23	-	-	-	25	-	-	-	
450	**421.72**	2.8	16.0	5	-	-	-	-	23	-	-	-	25	-	-	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW												
					M3				M4								
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T130..,n_1= 1500 1/min																	**16 kNm**
16	**15.90**	94	14.2	145	-	-	-	-	*)	64	-	-	68	135	-	-	**X3T.. M1** 310 **M4** 390
18	**18.06**	83	14.4	130	-	-	-	-	*)	68	-	-	71	135	-	-	
20	**20.45**	73	14.5	115	-	-	-	-	41	83	-	-	70	130	-	-	
22.4	**23.23**	65	15.0	105	-	-	-	-	44	85	-	-	71	130	-	-	
25	**25.03**	60	15.2	99	-	-	-	-	*)	64	-	-	64	120	-	-	
28	**28.43**	53	15.5	89	-	-	-	-	*)	65	-	-	65	125	-	-	
31.5	**32.19**	47	15.5	78	-	-	-	-	43	76	-	-	64	115	-	-	
35.5	**36.56**	41	15.5	69	-	-	-	-	43	78	-	-	65	115	-	-	
40	**38.71**	39	15.5	65	-	-	-	-	40	71	-	-	59	105	-	-	
45	**43.96**	34	15.5	57	-	-	-	-	38	68	-	-	56	100	-	-	
50	**50.02**	30	15.5	50	-	-	-	-	41	67	-	-	52	92	-	-	
56	**56.81**	26	16.0	46	-	-	-	-	40	66	-	-	52	92	-	-	
63	**59.90**	25	16.0	44	-	-	-	-	38	61	-	-	47	83	-	-	
71	**68.03**	22	16.0	39	-	-	-	-	38	61	-	-	48	84	-	-	
80	**76.69**	20	16.0	34	-	-	-	-	35	55	-	-	43	75	-	-	
90	**87.09**	17	16.0	30	-	-	-	-	35	55	-	-	43	75	-	-	
100	**102.65**	15	13.6	22	-	-	-	-	38	-	-	-	43	-	-	-	**X4T.. M1** 314 **M4** 394
112	**116.58**	13	15.5	22	-	-	-	-	38	-	-	-	43	-	-	-	
125	**130.23**	12	16.0	20	-	-	-	-	36	-	-	-	41	-	-	-	
140	**147.90**	10	16.0	18	-	-	-	-	36	-	-	-	41	-	-	-	
160	**156.58**	9.6	16.0	17	-	-	-	-	33	-	-	-	37	-	-	-	
180	**177.83**	8.4	16.0	15	-	-	-	-	33	-	-	-	37	-	-	-	
200	**187.42**	8.0	16.0	14	-	-	-	-	30	-	-	-	35	-	-	-	
224	**212.85**	7.0	16.0	12	-	-	-	-	30	-	-	-	35	-	-	-	
250	**258.02**	5.8	16.0	10	-	-	-	-	28	-	-	-	31	-	-	-	
280	**293.04**	5.1	16.0	9	-	-	-	-	28	-	-	-	31	-	-	-	
315	**310.23**	4.8	16.0	9	-	-	-	-	25	-	-	-	28	-	-	-	
355	**352.34**	4.3	16.0	8	-	-	-	-	25	-	-	-	28	-	-	-	
400	**371.33**	4.0	16.0	7	-	-	-	-	24	-	-	-	26	-	-	-	
450	**421.72**	3.6	16.0	6	-	-	-	-	24	-	-	-	27	-	-	-	
X.T130..,n_1= 1800 1/min																	**16 kNm**
16	**15.90**	113	13.5	165	-	-	-	-	*)	*)	-	-	53	145	-	-	**X3T.. M1** 310 **M4** 390
18	**18.06**	100	14.2	155	-	-	-	-	*)	*)	-	-	58	145	-	-	
20	**20.45**	88	14.5	140	-	-	-	-	*)	81	-	-	67	140	-	-	
22.4	**23.23**	77	15.0	125	-	-	-	-	*)	83	-	-	69	145	-	-	
25	**25.03**	72	15.2	120	-	-	-	-	*)	43	-	-	58	130	-	-	
28	**28.43**	63	15.5	105	-	-	-	-	*)	47	-	-	59	135	-	-	
31.5	**32.19**	56	15.5	94	-	-	-	-	25	77	-	-	62	130	-	-	
35.5	**36.56**	49	15.5	83	-	-	-	-	28	78	-	-	63	130	-	-	
40	**38.71**	46	15.5	78	-	-	-	-	26	71	-	-	58	120	-	-	
45	**43.96**	41	15.5	69	-	-	-	-	26	68	-	-	55	115	-	-	
50	**50.02**	36	15.5	60	-	-	-	-	37	71	-	-	52	105	-	-	
56	**56.81**	32	16.0	55	-	-	-	-	37	71	-	-	52	100	-	-	
63	**59.90**	30	16.0	53	-	-	-	-	36	66	-	-	48	93	-	-	
71	**68.03**	26	16.0	46	-	-	-	-	36	66	-	-	48	94	-	-	
80	**76.69**	23	16.0	41	-	-	-	-	33	60	-	-	43	84	-	-	
90	**87.09**	21	16.0	36	-	-	-	-	34	60	-	-	43	84	-	-	
100	**102.65**	18	13.6	26	-	-	-	-	38	-	-	-	45	-	-	-	**X4T.. M1** 314 **M4** 394
112	**116.58**	15	15.5	26	-	-	-	-	38	-	-	-	45	-	-	-	
125	**130.23**	14	16.0	24	-	-	-	-	37	-	-	-	42	-	-	-	
140	**147.90**	12	16.0	21	-	-	-	-	36	-	-	-	42	-	-	-	
160	**156.58**	11	16.0	20	-	-	-	-	33	-	-	-	38	-	-	-	
180	**177.83**	10	16.0	18	-	-	-	-	33	-	-	-	38	-	-	-	
200	**187.42**	9.6	16.0	17	-	-	-	-	31	-	-	-	36	-	-	-	
224	**212.85**	8.5	16.0	15	-	-	-	-	31	-	-	-	36	-	-	-	
250	**258.02**	7.0	16.0	12	-	-	-	-	28	-	-	-	32	-	-	-	
280	**293.04**	6.1	16.0	11	-	-	-	-	28	-	-	-	32	-	-	-	
315	**310.23**	5.8	16.0	10	-	-	-	-	26	-	-	-	29	-	-	-	
355	**352.34**	5.1	16.0	9	-	-	-	-	26	-	-	-	29	-	-	-	
400	**371.33**	4.8	16.0	9	-	-	-	-	24	-	-	-	28	-	-	-	
450	**421.72**	4.3	16.0	8	-	-	-	-	25	-	-	-	28	-	-	-	

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X.T140..,n_1= 1000 1/min																	22 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
12.5	**12.35**	81	20.8	185	-	-	-	-	*)	93	235	255	91	150	155	195	
14	**13.21**	76	21.0	170	-	-	-	-	48	96	235	255	94	155	155	200	
16	**15.89**	63	21.0	145	-	-	-	-	64	97	205	220	86	140	130	170	
18	**16.99**	59	21.3	135	-	-	-	-	67	100	205	225	88	140	135	175	
20	**21.13**	47	21.9	110	-	-	-	-	65	95	180	200	84	135	120	160	
22.4	**22.60**	44	22.0	105	-	-	-	-	65	95	180	195	83	135	120	155	
25	**26.42**	38	22.0	90	-	-	-	-	62	91	160	180	80	125	110	145	**X3T.. M1** 310 **M4** 390
28	**28.25**	35	22.0	84	-	-	-	-	62	90	160	175	79	125	110	145	
31.5	**33.46**	30	22.0	71	-	-	-	-	59	83	135	150	71	110	95	125	
35.5	**35.78**	28	22.0	67	-	-	-	-	58	82	130	145	70	110	93	125	
40	**40.78**	25	22.0	58	-	-	-	-	55	77	120	135	66	105	85	115	
45	**43.61**	23	22.0	55	-	-	-	-	54	76	115	130	65	100	84	110	
50	**49.82**	20	22.0	48	-	-	-	-	51	71	105	115	60	94	76	100	
56	**53.28**	19	22.0	45	-	-	-	-	51	71	100	115	60	94	75	100	
63	**63.79**	16	22.0	38	-	-	-	-	45	63	87	98	53	83	65	88	
71	**68.21**	15	22.0	35	-	-	-	-	46	64	87	98	53	83	65	88	
80	**83.36**	12	22.0	29	-	-	-	-	45	-	79	-	50	-	60	-	
90	**89.14**	11	22.0	27	-	-	-	-	45	-	78	-	50	-	59	-	
100	**104.20**	9.6	22.0	23	-	-	-	-	40	-	67	-	44	-	52	-	
112	**111.42**	9.0	22.0	22	-	-	-	-	40	-	67	-	45	-	52	-	
125	**127.00**	7.9	22.0	19	-	-	-	-	38	-	62	-	43	-	49	-	
140	**135.81**	7.4	22.0	18	-	-	-	-	39	-	62	-	43	-	49	-	**X4T.. M1** 314 **M4** 394
160	**158.84**	6.3	22.0	15	-	-	-	-	36	-	56	-	40	-	45	-	
180	**169.85**	5.9	22.0	14	-	-	-	-	36	-	56	-	40	-	46	-	
200	**206.44**	4.8	22.0	12	-	-	-	-	30	-	44	-	33	-	36	-	
224	**220.76**	4.5	22.0	11	-	-	-	-	30	-	44	-	33	-	37	-	
250	**251.62**	4.0	22.0	10	-	-	-	-	29	-	42	-	32	-	35	-	
280	**269.07**	3.7	22.0	9	-	-	-	-	29	-	42	-	32	-	35	-	
315	**314.70**	3.2	22.0	8	-	-	-	-	27	-	38	-	30	-	32	-	
355	**336.53**	3.0	22.0	7	-	-	-	-	27	-	38	-	30	-	32	-	
X.T140..,n_1= 1200 1/min																	**22 kNm**
12.5	**12.35**	97	20.8	220	-	-	-	-	*)	78	240	270	81	165	160	220	
14	**13.21**	91	21.0	205	-	-	-	-	*)	84	240	275	86	170	160	220	
16	**15.89**	76	21.0	170	-	-	-	-	47	100	215	245	85	155	140	190	
18	**16.99**	71	21.3	165	-	-	-	-	50	105	215	245	87	155	140	195	
20	**21.13**	57	21.9	135	-	-	-	-	55	100	195	220	84	150	130	180	
22.4	**22.60**	53	22.0	125	-	-	-	-	56	100	190	215	83	150	125	175	
25	**26.42**	45	22.0	110	-	-	-	-	56	96	170	195	80	140	115	165	**X3T.. M1** 310 **M4** 390
28	**28.25**	42	22.0	100	-	-	-	-	56	95	165	190	79	140	115	160	
31.5	**33.46**	36	22.0	86	-	-	-	-	56	91	145	165	72	125	100	140	
35.5	**35.78**	34	22.0	80	-	-	-	-	56	90	140	165	71	125	98	140	
40	**40.78**	29	22.0	70	-	-	-	-	53	84	125	150	67	115	90	130	
45	**43.61**	28	22.0	66	-	-	-	-	52	83	125	145	66	115	89	125	
50	**49.82**	24	22.0	58	-	-	-	-	50	79	110	130	62	105	80	115	
56	**53.28**	23	22.0	54	-	-	-	-	50	78	110	130	61	105	79	115	
63	**63.79**	19	22.0	45	-	-	-	-	45	70	93	110	54	93	68	99	
71	**68.21**	18	22.0	42	-	-	-	-	46	71	93	110	55	94	69	100	
80	**83.36**	14	22.0	35	-	-	-	-	46	-	85	-	52	-	64	-	
90	**89.14**	13	22.0	32	-	-	-	-	46	-	84	-	52	-	63	-	
100	**104.20**	12	22.0	28	-	-	-	-	41	-	72	-	46	-	55	-	
112	**111.42**	11	22.0	26	-	-	-	-	41	-	72	-	47	-	55	-	
125	**127.00**	9.4	22.0	23	-	-	-	-	39	-	66	-	44	-	52	-	
140	**135.81**	8.8	22.0	21	-	-	-	-	39	-	66	-	45	-	52	-	**X4T.. M1** 314 **M4** 394
160	**158.84**	7.6	22.0	18	-	-	-	-	37	-	60	-	42	-	48	-	
180	**169.85**	7.1	22.0	17	-	-	-	-	37	-	60	-	42	-	48	-	
200	**206.44**	5.8	22.0	14	-	-	-	-	31	-	47	-	34	-	39	-	
224	**220.76**	5.4	22.0	13	-	-	-	-	31	-	47	-	34	-	39	-	
250	**251.62**	4.8	22.0	12	-	-	-	-	30	-	45	-	34	-	37	-	
280	**269.07**	4.5	22.0	11	-	-	-	-	30	-	45	-	34	-	37	-	
315	**314.70**	3.8	22.0	9	-	-	-	-	28	-	40	-	31	-	34	-	
355	**336.53**	3.6	22.0	9	-	-	-	-	28	-	40	-	31	-	34	-	

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X.T140..,n_1= 1500 1/min																	22 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5	**12.35**	121	20.8	275	-	-	-	-	*)	*)	230	280	*)	180	165	245	
14	**13.21**	114	21.0	260	-	-	-	-	*)	*)	230	280	*)	185	165	250	
16	**15.89**	94	21.0	215	-	-	-	-	*)	99	225	265	72	175	145	220	
18	**16.99**	88	21.3	205	-	-	-	-	*)	105	225	270	77	175	150	220	
20	**21.13**	71	21.9	170	-	-	-	-	*)	100	200	240	81	170	135	205	
22.4	**22.60**	66	22.0	160	-	-	-	-	*)	100	195	235	81	170	135	200	
25	**26.42**	57	22.0	135	-	-	-	-	*)	98	175	215	78	160	125	190	**X3T.. M1** 310 **M4** 390
28	**28.25**	53	22.0	125	-	-	-	-	*)	97	170	210	77	160	120	185	
31.5	**33.46**	45	22.0	105	-	-	-	-	48	98	155	190	72	145	105	165	
35.5	**35.78**	42	22.0	100	-	-	-	-	49	98	150	185	71	140	105	160	
40	**40.78**	37	22.0	88	-	-	-	-	46	92	135	165	67	135	95	150	
45	**43.61**	34	22.0	82	-	-	-	-	46	91	130	165	66	130	93	145	
50	**49.82**	30	22.0	72	-	-	-	-	47	87	120	150	62	120	85	135	
56	**53.28**	28	22.0	68	-	-	-	-	46	87	115	145	62	120	84	130	
63	**63.79**	24	22.0	57	-	-	-	-	43	78	100	125	55	105	73	115	
71	**68.21**	22	22.0	53	-	-	-	-	44	79	100	125	56	110	73	115	
80	**83.36**	18	22.0	43	-	-	-	-	46	-	93	-	54	-	68	-	
90	**89.14**	17	22.0	41	-	-	-	-	45	-	91	-	54	-	67	-	
100	**104.20**	14	22.0	35	-	-	-	-	41	-	78	-	48	-	59	-	
112	**111.42**	13	22.0	32	-	-	-	-	41	-	77	-	48	-	59	-	
125	**127.00**	12	22.0	28	-	-	-	-	39	-	72	-	46	-	55	-	
140	**135.81**	11	22.0	27	-	-	-	-	39	-	71	-	47	-	56	-	**X4T.. M1** 314 **M4** 394
160	**158.84**	9.4	22.0	23	-	-	-	-	37	-	64	-	43	-	51	-	
180	**169.85**	8.8	22.0	21	-	-	-	-	37	-	64	-	44	-	51	-	
200	**206.44**	7.3	22.0	18	-	-	-	-	32	-	52	-	36	-	41	-	
224	**220.76**	6.8	22.0	17	-	-	-	-	32	-	51	-	36	-	41	-	
250	**251.62**	6.0	22.0	15	-	-	-	-	31	-	49	-	35	-	40	-	
280	**269.07**	5.6	22.0	14	-	-	-	-	31	-	48	-	35	-	40	-	
315	**314.70**	4.8	22.0	12	-	-	-	-	29	-	44	-	33	-	37	-	
355	**336.53**	4.5	22.0	11	-	-	-	-	29	-	43	-	33	-	37	-	
X.T140..,n_1= 1800 1/min																	22 kNm
12.5	**12.35**	146	19.8	315	-	-	-	-	*)	*)	195	255	*)	190	160	265	
14	**13.21**	136	19.9	295	-	-	-	-	*)	*)	190	260	*)	195	160	265	
16	**15.89**	113	19.9	245	-	-	-	-	*)	73	225	280	*)	190	150	240	
18	**16.99**	106	20.2	230	-	-	-	-	*)	79	225	280	*)	190	155	245	
20	**21.13**	85	20.7	190	-	-	-	-	*)	90	200	255	65	185	140	225	
22.4	**22.60**	80	21.1	180	-	-	-	-	*)	91	195	245	67	185	135	220	
25	**26.42**	68	22.0	160	-	-	-	-	*)	91	175	225	70	175	125	210	**X3T.. M1** 310 **M4** 390
28	**28.25**	64	22.0	150	-	-	-	-	*)	90	170	220	71	175	125	205	
31.5	**33.46**	54	22.0	130	-	-	-	-	*)	100	160	205	70	160	110	180	
35.5	**35.78**	50	22.0	120	-	-	-	-	*)	100	155	200	69	155	110	180	
40	**40.78**	44	22.0	105	-	-	-	-	29	95	140	180	65	145	98	165	
45	**43.61**	41	22.0	98	-	-	-	-	30	94	135	175	65	145	97	160	
50	**49.82**	36	22.0	87	-	-	-	-	39	93	125	165	62	135	88	150	
56	**53.28**	34	22.0	81	-	-	-	-	40	93	120	160	61	135	87	145	
63	**63.79**	28	22.0	68	-	-	-	-	39	85	105	140	55	120	76	130	
71	**68.21**	26	22.0	64	-	-	-	-	40	86	105	140	56	120	76	130	
80	**83.36**	22	22.0	52	-	-	-	-	44	-	98	-	55	-	71	-	
90	**89.14**	20	22.0	49	-	-	-	-	43	-	95	-	55	-	70	-	
100	**104.20**	17	22.0	42	-	-	-	-	39	-	82	-	49	-	62	-	
112	**111.42**	16	22.0	39	-	-	-	-	39	-	81	-	50	-	62	-	
125	**127.00**	14	22.0	34	-	-	-	-	37	-	75	-	47	-	58	-	
140	**135.81**	13	22.0	32	-	-	-	-	38	-	75	-	48	-	58	-	**X4T.. M1** 314 **M4** 394
160	**158.84**	11	22.0	27	-	-	-	-	35	-	67	-	44	-	53	-	
180	**169.85**	11	22.0	26	-	-	-	-	36	-	67	-	45	-	53	-	
200	**206.44**	8.7	22.0	21	-	-	-	-	33	-	55	-	37	-	44	-	
224	**220.76**	8.2	22.0	20	-	-	-	-	33	-	55	-	38	-	44	-	
250	**251.62**	7.2	22.0	17	-	-	-	-	32	-	52	-	37	-	42	-	
280	**269.07**	6.7	22.0	16	-	-	-	-	32	-	52	-	37	-	42	-	
315	**314.70**	5.7	22.0	14	-	-	-	-	30	-	46	-	34	-	38	-	
355	**336.53**	5.3	22.0	13	-	-	-	-	30	-	46	-	34	-	38	-	

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X.T150..,n_1= 1000 1/min																	27.5 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
16	**15.34**	65	25.5	180	-	-	-	-	57	105	180	200	100	170	135	185	
18	**16.43**	61	25.8	170	-	-	-	-	58	105	175	200	100	165	135	180	
20	**19.73**	51	26.1	145	-	-	-	-	74	110	160	180	95	150	120	165	
22.4	**21.13**	47	26.5	135	-	-	-	-	72	105	150	175	92	145	115	155	
25	**26.25**	38	27.2	110	-	-	-	-	71	105	140	160	90	145	110	150	
28	**28.10**	36	27.5	105	-	-	-	-	71	105	140	160	90	145	110	150	
31.5	**32.81**	30	27.5	91	-	-	-	-	68	98	130	145	86	135	100	140	**X3T.. M1** 310 **M4** 390
35.5	**35.13**	28	27.5	85	-	-	-	-	68	97	125	145	85	135	100	140	
40	**41.56**	24	27.5	72	-	-	-	-	65	91	115	130	78	120	90	125	
45	**44.50**	22	27.5	67	-	-	-	-	63	89	110	125	75	120	87	120	
50	**50.65**	20	27.5	59	-	-	-	-	59	83	98	115	71	110	81	110	
56	**54.23**	18	27.5	55	-	-	-	-	59	82	96	110	70	110	80	110	
63	**61.88**	16	27.5	49	-	-	-	-	55	77	88	100	65	100	73	100	
71	**66.26**	15	27.5	45	-	-	-	-	55	76	86	100	64	100	72	100	
80	**79.22**	13	27.5	38	-	-	-	-	50	69	75	88	58	90	64	89	
90	**84.83**	12	27.5	35	-	-	-	-	50	68	74	86	57	89	63	88	
100	**103.52**	9.7	27.5	29	-	-	-	-	50	-	71	-	55	-	60	-	
112	**110.85**	9.0	27.5	27	-	-	-	-	49	-	69	-	55	-	59	-	
125	**129.41**	7.7	27.5	23	-	-	-	-	46	-	64	-	51	-	55	-	
140	**138.56**	7.2	27.5	22	-	-	-	-	47	-	64	-	52	-	56	-	
160	**157.72**	6.3	27.5	19	-	-	-	-	43	-	57	-	48	-	51	-	
180	**168.89**	5.9	27.5	18	-	-	-	-	42	-	56	-	47	-	50	-	**X4T.. M1** 314 **M4** 394
200	**197.26**	5.1	27.5	15	-	-	-	-	40	-	52	-	44	-	47	-	
224	**211.23**	4.7	27.5	14	-	-	-	-	40	-	52	-	44	-	47	-	
250	**256.39**	3.9	27.5	12	-	-	-	-	34	-	43	-	38	-	40	-	
280	**274.54**	3.6	27.5	11	-	-	-	-	34	-	43	-	37	-	39	-	
315	**312.49**	3.2	27.5	10	-	-	-	-	32	-	39	-	35	-	36	-	
355	**334.61**	3.0	27.5	9	-	-	-	-	32	-	39	-	35	-	37	-	
400	**390.84**	2.6	27.5	8	-	-	-	-	30	-	36	-	33	-	34	-	
450	**418.50**	2.4	27.5	7	-	-	-	-	30	-	36	-	32	-	34	-	
X.T150..,n_1= 1200 1/min																	**27.5 kNm**
16	**15.34**	78	25.5	215	-	-	-	-	*)	98	175	210	96	185	135	205	
18	**16.43**	73	25.8	205	-	-	-	-	*)	100	170	205	97	185	135	200	
20	**19.73**	61	26.1	170	-	-	-	-	60	115	165	195	95	170	125	180	
22.4	**21.13**	57	26.5	165	-	-	-	-	58	110	155	190	92	165	120	175	
25	**26.25**	46	27.2	135	-	-	-	-	64	110	145	175	91	160	115	170	
28	**28.10**	43	27.5	125	-	-	-	-	64	110	145	175	90	160	110	165	
31.5	**32.81**	37	27.5	110	-	-	-	-	62	105	130	160	86	150	105	155	**X3T.. M1** 310 **M4** 390
35.5	**35.13**	34	27.5	100	-	-	-	-	62	105	130	155	86	150	105	155	
40	**41.56**	29	27.5	86	-	-	-	-	63	100	120	145	79	135	94	140	
45	**44.50**	27	27.5	80	-	-	-	-	61	97	115	135	77	135	91	135	
50	**50.65**	24	27.5	71	-	-	-	-	57	91	105	125	72	125	84	125	
56	**54.23**	22	27.5	66	-	-	-	-	57	90	100	125	71	125	83	125	
63	**61.88**	19	27.5	58	-	-	-	-	55	85	92	115	66	115	76	115	
71	**66.26**	18	27.5	54	-	-	-	-	54	84	90	110	66	115	75	115	
80	**79.22**	15	27.5	46	-	-	-	-	50	77	79	98	60	100	67	100	
90	**84.83**	14	27.5	43	-	-	-	-	50	76	78	96	59	100	66	100	
100	**103.52**	12	27.5	35	-	-	-	-	51	-	75	-	57	-	63	-	
112	**110.85**	11	27.5	33	-	-	-	-	50	-	73	-	57	-	62	-	
125	**129.41**	9.3	27.5	28	-	-	-	-	47	-	67	-	53	-	58	-	
140	**138.56**	8.7	27.5	26	-	-	-	-	48	-	68	-	54	-	59	-	
160	**157.72**	7.6	27.5	23	-	-	-	-	44	-	61	-	49	-	53	-	
180	**168.89**	7.1	27.5	21	-	-	-	-	43	-	60	-	49	-	53	-	**X4T.. M1** 314 **M4** 394
200	**197.26**	6.1	27.5	18	-	-	-	-	41	-	55	-	46	-	50	-	
224	**211.23**	5.7	27.5	17	-	-	-	-	41	-	54	-	46	-	49	-	
250	**256.39**	4.7	27.5	14	-	-	-	-	36	-	46	-	39	-	42	-	
280	**274.54**	4.4	27.5	13	-	-	-	-	35	-	45	-	39	-	41	-	
315	**312.49**	3.8	27.5	12	-	-	-	-	33	-	42	-	36	-	38	-	
355	**334.61**	3.6	27.5	11	-	-	-	-	33	-	42	-	37	-	38	-	
400	**390.84**	3.1	27.5	9	-	-	-	-	31	-	38	-	34	-	36	-	
450	**418.50**	2.9	27.5	9	-	-	-	-	31	-	38	-	34	-	35	-	

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X.T150..,n_1= 1500 1/min																	27.5 kNm
					P_{TH}20 °C kW												
									M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
		min^{-1}	kNm	kW													
16	**15.34**	98	25.5	270	-	-	-	-	*)	*)	145	205	68	205	135	225	**X3T.. M1** 310 **M4** 390
18	**16.43**	91	25.8	255	-	-	-	-	*)	*)	140	200	71	200	130	225	
20	**19.73**	76	26.1	215	-	-	-	-	*)	115	165	215	88	190	125	205	
22.4	**21.13**	71	26.5	205	-	-	-	-	*)	110	155	200	84	185	120	200	
25	**26.25**	57	27.2	170	-	-	-	-	*)	115	145	190	88	180	115	190	
28	**28.10**	53	27.5	160	-	-	-	-	*)	110	140	185	88	180	115	190	
31.5	**32.81**	46	27.5	135	-	-	-	-	37	110	130	175	84	175	110	180	
35.5	**35.13**	43	27.5	125	-	-	-	-	39	105	125	170	84	170	105	175	
40	**41.56**	36	27.5	110	-	-	-	-	56	110	120	160	80	160	98	160	
45	**44.50**	34	27.5	100	-	-	-	-	54	105	115	155	77	150	94	155	
50	**50.65**	30	27.5	88	-	-	-	-	52	100	105	140	72	145	87	145	
56	**54.23**	28	27.5	82	-	-	-	-	51	99	105	140	72	140	86	145	
63	**61.88**	24	27.5	73	-	-	-	-	51	95	96	125	67	130	79	130	
71	**66.26**	23	27.5	68	-	-	-	-	51	94	94	125	67	130	78	130	
80	**79.22**	19	27.5	57	-	-	-	-	48	86	83	110	61	115	70	115	
90	**84.83**	18	27.5	53	-	-	-	-	48	86	82	110	60	115	69	115	
100	**103.52**	14	27.5	44	-	-	-	-	51	-	79	-	59	-	67	-	**X4T.. M1** 314 **M4** 394
112	**110.85**	14	27.5	41	-	-	-	-	50	-	78	-	59	-	66	-	
125	**129.41**	12	27.5	35	-	-	-	-	47	-	71	-	56	-	61	-	
140	**138.56**	11	27.5	33	-	-	-	-	48	-	71	-	56	-	62	-	
160	**157.72**	9.5	27.5	29	-	-	-	-	44	-	64	-	51	-	56	-	
180	**168.89**	8.9	27.5	27	-	-	-	-	43	-	63	-	51	-	56	-	
200	**197.26**	7.6	27.5	23	-	-	-	-	41	-	58	-	48	-	52	-	
224	**211.23**	7.1	27.5	21	-	-	-	-	41	-	57	-	48	-	52	-	
250	**256.39**	5.9	27.5	18	-	-	-	-	37	-	50	-	42	-	44	-	
280	**274.54**	5.5	27.5	17	-	-	-	-	37	-	49	-	41	-	44	-	
315	**312.49**	4.8	27.5	15	-	-	-	-	34	-	45	-	38	-	41	-	
355	**334.61**	4.5	27.5	14	-	-	-	-	34	-	45	-	38	-	41	-	
400	**390.84**	3.8	27.5	12	-	-	-	-	32	-	41	-	36	-	38	-	
450	**418.50**	3.6	27.5	11	-	-	-	-	32	-	40	-	36	-	38	-	
X.T150..,n_1= 1800 1/min																	**27.5 kNm**
16	**15.34**	117	24.2	310	-	-	-	-	*)	*)	*)	165	*)	215	110	240	**X3T.. M1** 310 **M4** 390
18	**16.43**	110	24.5	290	-	-	-	-	*)	*)	*)	160	*)	210	110	235	
20	**19.73**	91	24.7	245	-	-	-	-	*)	98	155	215	69	210	125	225	
22.4	**21.13**	85	25.1	230	-	-	-	-	*)	94	145	205	66	200	120	220	
25	**26.25**	69	27.2	200	-	-	-	-	*)	105	135	195	76	200	115	210	
28	**28.10**	64	27.5	190	-	-	-	-	*)	105	130	190	78	200	115	210	
31.5	**32.81**	55	27.5	165	-	-	-	-	*)	105	120	175	79	190	105	195	
35.5	**35.13**	51	27.5	155	-	-	-	-	*)	100	115	175	79	190	105	195	
40	**41.56**	43	27.5	130	-	-	-	-	38	115	120	170	78	175	99	180	
45	**44.50**	40	27.5	120	-	-	-	-	36	110	115	165	75	170	95	175	
50	**50.65**	36	27.5	105	-	-	-	-	37	105	105	150	71	160	88	160	
56	**54.23**	33	27.5	99	-	-	-	-	38	105	100	145	71	155	87	160	
63	**61.88**	29	27.5	88	-	-	-	-	45	100	97	140	67	145	81	145	
71	**66.26**	27	27.5	82	-	-	-	-	45	100	95	135	66	145	80	145	
80	**79.22**	23	27.5	68	-	-	-	-	45	94	85	120	61	130	72	130	
90	**84.83**	21	27.5	64	-	-	-	-	44	93	84	120	61	130	71	130	
100	**103.52**	17	27.5	52	-	-	-	-	49	-	82	-	61	-	69	-	**X4T.. M1** 314 **M4** 394
112	**110.85**	16	27.5	49	-	-	-	-	48	-	80	-	60	-	68	-	
125	**129.41**	14	27.5	42	-	-	-	-	46	-	74	-	57	-	64	-	
140	**138.56**	13	27.5	39	-	-	-	-	46	-	73	-	57	-	64	-	
160	**157.72**	11	27.5	34	-	-	-	-	42	-	66	-	53	-	58	-	
180	**168.89**	11	27.5	32	-	-	-	-	42	-	64	-	52	-	58	-	
200	**197.26**	9.1	27.5	28	-	-	-	-	40	-	60	-	50	-	54	-	
224	**211.23**	8.5	27.5	26	-	-	-	-	39	-	58	-	49	-	54	-	
250	**256.39**	7.0	27.5	21	-	-	-	-	38	-	52	-	43	-	46	-	
280	**274.54**	6.6	27.5	20	-	-	-	-	38	-	51	-	43	-	46	-	
315	**312.49**	5.8	27.5	18	-	-	-	-	35	-	47	-	40	-	42	-	
355	**334.61**	5.4	27.5	16	-	-	-	-	35	-	47	-	40	-	43	-	
400	**390.84**	4.6	27.5	14	-	-	-	-	33	-	43	-	38	-	40	-	
450	**418.50**	4.3	27.5	13	-	-	-	-	33	-	43	-	37	-	39	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW												
					M3				M3				M4				
		min^{-1}	kNm	kW			H_2O	H_2O			H_2O	H_2O			H_2O	H_2O	
X.T160..,n_1= 1000 1/min																	**36 kNm**
12.5	**12.35**	81	32.5	285	130	220	245	310	*)	115	340	375	140	235	235	305	
14	**13.92**	72	33.0	255	135	225	240	305	*)	125	340	375	140	240	235	310	
16	**15.53**	64	33.5	235	125	200	205	260	84	145	310	340	135	215	205	270	
18	**17.51**	57	36.0	225	125	200	195	250	86	140	300	330	130	215	200	265	
20	**20.23**	49	36.0	195	125	205	190	245	95	145	290	320	135	220	200	265	
22.4	**22.80**	44	36.0	170	120	195	175	230	91	140	270	300	130	210	190	250	
25	**24.77**	40	36.0	160	115	185	160	215	89	135	250	275	125	200	175	235	**X3T.. M1** 310 **M4** 390
28	**27.91**	36	36.0	140	115	185	155	210	88	135	240	270	125	200	170	230	
31.5	**30.94**	32	36.0	125	110	175	145	190	94	135	225	250	120	185	160	210	
35.5	**34.87**	29	36.0	110	105	165	135	180	90	130	210	235	115	180	150	200	
40	**39.12**	26	36.0	100	90	145	115	155	78	110	175	195	98	155	130	170	
45	**44.08**	23	36.0	89	89	140	110	150	77	110	170	190	96	150	125	165	
50	**48.46**	21	36.0	81	79	125	95	130	72	100	150	165	86	135	110	145	
56	**54.62**	18	36.0	72	80	125	94	130	72	100	145	165	87	135	110	145	
63	**62.05**	16	36.0	63	72	110	83	115	66	92	125	145	78	120	96	130	
71	**69.92**	14	36.0	56	72	110	82	115	66	92	125	140	78	120	95	130	
80	**81.90**	12	36.0	48	78	-	87	-	74	-	130	-	84	-	100	-	
90	**92.30**	11	36.0	43	77	-	85	-	73	-	125	-	83	-	98	-	
100	**100.25**	10.0	36.0	39	73	-	79	-	69	-	115	-	79	-	92	-	
112	**112.98**	8.9	36.0	35	73	-	79	-	69	-	115	-	79	-	92	-	
125	**126.75**	7.9	36.0	31	62	-	67	-	59	-	96	-	68	-	78	-	
140	**142.85**	7.0	36.0	28	61	-	65	-	58	-	93	-	67	-	76	-	**X4T.. M1** 314 **M4** 394
160	**152.40**	6.6	36.0	26	58	-	61	-	55	-	86	-	63	-	71	-	
180	**171.76**	5.8	36.0	23	57	-	60	-	54	-	83	-	61	-	69	-	
200	**198.63**	5.0	36.0	20	53	-	55	-	51	-	76	-	57	-	64	-	
224	**223.85**	4.5	36.0	18	53	-	55	-	51	-	75	-	57	-	63	-	
250	**251.14**	4.0	36.0	16	46	-	47	-	45	-	64	-	50	-	55	-	
280	**283.03**	3.5	36.0	14	46	-	47	-	44	-	63	-	50	-	54	-	
315	**301.95**	3.3	36.0	13	42	-	43	-	41	-	57	-	46	-	50	-	
355	**340.30**	2.9	36.0	12	42	-	43	-	40	-	56	-	45	-	49	-	
X.T160..,n_1= 1200 1/min																	**36 kNm**
12.5	**12.35**	97	32.5	340	110	240	270	355	*)	*)	330	380	115	255	240	335	
14	**13.92**	86	33.0	310	120	245	265	350	*)	*)	325	380	125	260	240	340	
16	**15.53**	77	33.5	280	115	220	225	300	*)	140	320	365	125	240	215	300	
18	**17.51**	69	36.0	265	120	220	215	290	*)	140	310	355	130	235	210	295	
20	**20.23**	59	36.0	230	125	225	205	280	58	145	300	345	135	245	210	295	
22.4	**22.80**	53	36.0	205	120	215	190	260	56	140	280	320	125	230	195	275	
25	**24.77**	48	36.0	190	115	205	175	245	62	135	260	300	125	220	185	260	**X3T.. M1** 310 **M4** 390
28	**27.91**	43	36.0	170	115	205	165	235	63	135	245	290	120	220	180	255	
31.5	**30.94**	39	36.0	150	110	195	155	220	86	145	240	275	120	210	170	240	
35.5	**34.87**	34	36.0	135	105	185	145	205	82	140	225	260	115	200	160	225	
40	**39.12**	31	36.0	120	91	160	120	175	72	120	185	215	99	175	135	195	
45	**44.08**	27	36.0	105	90	155	115	170	71	120	180	210	97	170	130	190	
50	**48.46**	25	36.0	98	81	140	100	150	69	110	155	185	88	150	115	165	
56	**54.62**	22	36.0	87	82	140	100	145	70	110	155	180	88	155	115	165	
63	**62.05**	19	36.0	76	73	125	87	130	65	100	135	160	80	135	100	145	
71	**69.92**	17	36.0	68	74	125	86	130	65	100	130	155	80	135	100	145	
80	**81.90**	15	36.0	58	81	-	92	-	74	-	140	-	88	-	105	-	
90	**92.30**	13	36.0	51	79	-	90	-	73	-	135	-	86	-	105	-	
100	**100.25**	12	36.0	47	75	-	84	-	69	-	125	-	82	-	98	-	
112	**112.98**	11	36.0	42	76	-	84	-	69	-	120	-	82	-	97	-	
125	**126.75**	9.5	36.0	37	65	-	71	-	59	-	100	-	70	-	82	-	
140	**142.85**	8.4	36.0	33	64	-	69	-	58	-	98	-	69	-	80	-	**X4T.. M1** 314 **M4** 394
160	**152.40**	7.9	36.0	31	60	-	65	-	55	-	91	-	65	-	75	-	
180	**171.76**	7.0	36.0	28	59	-	63	-	54	-	88	-	64	-	73	-	
200	**198.63**	6.0	36.0	24	55	-	58	-	53	-	81	-	60	-	67	-	
224	**223.85**	5.4	36.0	21	55	-	58	-	53	-	80	-	60	-	67	-	
250	**251.14**	4.8	36.0	19	48	-	50	-	46	-	68	-	52	-	58	-	
280	**283.03**	4.2	36.0	17	48	-	50	-	46	-	67	-	52	-	57	-	
315	**301.95**	4.0	36.0	16	44	-	46	-	42	-	61	-	48	-	53	-	
355	**340.30**	3.5	36.0	14	44	-	45	-	42	-	59	-	47	-	52	-	

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X.T160..,n_1= 1500 1/min																	36 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
12.5	**12.35**	121	32.5	430	*)	260	300	415	*)	*)	265	345	*)	270	240	370	**X3T.. M1** 310 **M4** 390
14	**13.92**	108	33.0	385	*)	270	290	410	*)	*)	260	340	*)	275	240	370	
16	**15.53**	97	33.5	350	93	250	250	350	*)	98	320	385	99	265	225	340	
18	**17.51**	86	36.0	335	96	245	235	340	*)	100	305	370	100	265	220	330	
20	**20.23**	74	36.0	290	110	255	225	330	*)	120	295	365	115	270	215	330	
22.4	**22.80**	66	36.0	255	110	240	205	305	*)	120	270	335	115	260	200	310	
25	**24.77**	61	36.0	235	110	235	190	285	*)	120	250	315	115	250	190	295	
28	**27.91**	54	36.0	210	110	230	180	275	*)	120	240	300	115	245	185	290	
31.5	**30.94**	48	36.0	190	110	220	165	255	52	150	250	305	115	235	175	275	
35.5	**34.87**	43	36.0	170	105	210	155	240	52	145	230	285	110	230	165	260	
40	**39.12**	38	36.0	150	91	185	130	200	48	125	190	240	97	195	140	220	
45	**44.08**	34	36.0	135	89	180	125	195	50	125	185	230	96	195	135	215	
50	**48.46**	31	36.0	120	82	160	110	170	61	120	165	205	88	175	120	190	
56	**54.62**	27	36.0	110	82	160	105	170	61	120	165	205	89	175	120	190	
63	**62.05**	24	36.0	95	75	145	93	150	61	115	145	180	81	155	105	170	
71	**69.92**	21	36.0	85	75	145	92	150	61	115	140	180	81	160	105	170	
80	**81.90**	18	36.0	72	84	-	99	-	71	-	150	-	91	-	115	-	**X4T.. M1** 314 **M4** 394
90	**92.30**	16	36.0	64	83	-	96	-	70	-	145	-	89	-	110	-	
100	**100.25**	15	36.0	59	79	-	90	-	66	-	130	-	85	-	105	-	
112	**112.98**	13	36.0	52	79	-	90	-	66	-	130	-	85	-	105	-	
125	**126.75**	12	36.0	47	68	-	76	-	57	-	110	-	73	-	88	-	
140	**142.85**	11	36.0	41	67	-	74	-	56	-	105	-	72	-	85	-	
160	**152.40**	9.8	36.0	39	63	-	69	-	53	-	96	-	68	-	80	-	
180	**171.76**	8.7	36.0	34	62	-	67	-	52	-	93	-	67	-	78	-	
200	**198.63**	7.6	36.0	30	58	-	62	-	54	-	88	-	63	-	72	-	
224	**223.85**	6.7	36.0	27	58	-	61	-	54	-	86	-	63	-	71	-	
250	**251.14**	6.0	36.0	24	50	-	53	-	47	-	73	-	55	-	62	-	
280	**283.03**	5.3	36.0	21	50	-	53	-	47	-	72	-	54	-	61	-	
315	**301.95**	5.0	36.0	20	47	-	49	-	44	-	66	-	50	-	56	-	
355	**340.30**	4.4	36.0	18	46	-	48	-	43	-	64	-	50	-	55	-	
X.T160..,n_1= 1800 1/min																	36 kNm
12.5	**12.35**	146	30.8	485	*)	275	325	470	*)	*)	*)	230	*)	270	210	385	**X3T.. M1** 310 **M4** 390
14	**13.92**	129	31.3	440	*)	280	310	460	*)	*)	*)	220	*)	280	215	390	
16	**15.53**	116	31.8	400	*)	270	270	400	*)	*)	285	375	*)	285	225	370	
18	**17.51**	103	34.0	380	*)	270	255	385	*)	*)	270	360	*)	280	220	360	
20	**20.23**	89	36.0	345	*)	275	240	370	*)	*)	265	355	*)	290	215	360	
22.4	**22.80**	79	36.0	310	79	265	220	345	*)	*)	240	325	*)	275	200	340	
25	**24.77**	73	36.0	285	87	255	200	320	*)	*)	220	305	86	270	190	320	
28	**27.91**	64	36.0	250	89	250	190	310	*)	*)	210	290	88	265	180	315	
31.5	**30.94**	58	36.0	225	100	245	175	290	*)	145	245	320	110	260	180	300	
35.5	**34.87**	52	36.0	200	99	235	165	270	*)	140	225	300	105	250	170	285	
40	**39.12**	46	36.0	180	87	200	135	230	*)	120	190	250	92	215	145	245	
45	**44.08**	41	36.0	160	86	200	130	220	*)	120	180	240	91	215	140	240	
50	**48.46**	37	36.0	145	80	180	115	195	38	125	170	225	86	195	125	210	
56	**54.62**	33	36.0	130	81	180	110	195	41	125	165	220	87	195	125	210	
63	**62.05**	29	36.0	115	74	160	98	170	52	120	150	200	80	175	110	190	
71	**69.92**	26	36.0	100	74	165	96	170	53	120	145	195	80	175	110	190	
80	**81.90**	22	36.0	87	86	-	105	-	63	-	155	-	92	-	120	-	**X4T.. M1** 314 **M4** 394
90	**92.30**	20	36.0	77	85	-	100	-	62	-	145	-	91	-	115	-	
100	**100.25**	18	36.0	71	81	-	95	-	59	-	135	-	87	-	110	-	
112	**112.98**	16	36.0	63	81	-	94	-	60	-	135	-	87	-	110	-	
125	**126.75**	14	36.0	56	70	-	80	-	51	-	110	-	75	-	92	-	
140	**142.85**	13	36.0	50	69	-	78	-	51	-	105	-	74	-	89	-	
160	**152.40**	12	36.0	47	65	-	73	-	48	-	98	-	70	-	84	-	
180	**171.76**	10	36.0	41	64	-	71	-	47	-	94	-	68	-	81	-	
200	**198.63**	9.1	36.0	36	60	-	65	-	54	-	93	-	65	-	76	-	
224	**223.85**	8.0	36.0	32	60	-	65	-	54	-	92	-	65	-	75	-	
250	**251.14**	7.2	36.0	29	52	-	56	-	48	-	78	-	57	-	65	-	
280	**283.03**	6.4	36.0	25	52	-	55	-	47	-	76	-	57	-	64	-	
315	**301.95**	6.0	36.0	24	48	-	51	-	44	-	70	-	52	-	59	-	
355	**340.30**	5.3	36.0	21	48	-	50	-	43	-	67	-	52	-	58	-	

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X.T170..,n_1= 1000 1/min																	45 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
16	**15.35**	65	40.8	290	135	225	200	270	*)	125	215	250	145	245	185	260	
18	**17.25**	58	41.3	260	135	225	195	260	*)	125	205	240	145	240	180	255	
20	**19.30**	52	41.9	235	130	205	175	235	91	150	210	240	140	225	170	235	
22.4	**21.70**	46	45.0	225	125	205	170	230	92	150	205	235	135	225	170	235	
25	**25.15**	40	45.0	195	130	210	165	225	100	155	200	235	140	225	170	235	
28	**28.26**	35	45.0	175	130	205	160	220	99	150	195	225	140	225	165	230	
31.5	**30.78**	32	45.0	160	120	190	145	200	93	140	175	205	130	205	150	210	**X3T.. M1** 310 **M4** 390
35.5	**34.60**	29	45.0	140	120	190	140	195	92	140	170	200	125	205	150	210	
40	**38.45**	26	45.0	125	115	180	130	185	98	140	165	195	120	195	140	195	
45	**43.22**	23	45.0	115	110	175	130	180	96	140	160	185	120	190	135	190	
50	**48.62**	21	45.0	100	93	150	105	150	81	115	130	155	100	160	115	160	
56	**54.64**	18	45.0	89	92	145	105	145	80	115	125	150	100	160	110	155	
63	**60.23**	17	45.0	82	82	130	91	125	74	105	115	135	89	140	99	140	
71	**67.69**	15	45.0	73	83	130	91	125	75	105	115	130	90	140	99	140	
80	**77.11**	13	45.0	64	74	115	80	115	68	95	99	115	80	125	88	125	
90	**86.67**	12	45.0	57	73	115	78	110	67	94	96	115	79	125	86	120	
100	**101.79**	9.8	45.0	48	79	-	84	-	75	-	105	-	85	-	93	-	
112	**114.40**	8.7	45.0	43	79	-	84	-	75	-	105	-	86	-	93	-	
125	**124.60**	8.0	45.0	40	75	-	79	-	71	-	99	-	81	-	88	-	
140	**140.03**	7.1	45.0	35	74	-	78	-	70	-	96	-	80	-	86	-	
160	**157.54**	6.3	45.0	31	65	-	67	-	61	-	82	-	70	-	75	-	
180	**177.05**	5.6	45.0	28	63	-	66	-	60	-	80	-	69	-	73	-	**X4T.. M1** 314 **M4** 394
200	**189.42**	5.3	45.0	26	59	-	61	-	56	-	73	-	64	-	67	-	
224	**212.88**	4.7	45.0	23	59	-	61	-	56	-	72	-	64	-	67	-	
250	**246.86**	4.1	45.0	20	54	-	56	-	53	-	67	-	59	-	62	-	
280	**277.45**	3.6	45.0	18	54	-	55	-	52	-	65	-	58	-	61	-	
315	**312.13**	3.2	45.0	16	47	-	48	-	45	-	56	-	51	-	53	-	
355	**350.79**	2.9	45.0	14	47	-	47	-	45	-	55	-	50	-	53	-	
400	**375.29**	2.7	45.0	13	44	-	44	-	42	-	52	-	47	-	49	-	
450	**421.78**	2.4	45.0	12	43	-	44	-	42	-	51	-	47	-	49	-	
X.T170..,n_1= 1200 1/min																	45 kNm
16	**15.35**	78	40.8	345	115	250	210	300	*)	*)	180	235	120	265	185	285	
18	**17.25**	70	41.3	310	120	245	200	290	*)	*)	170	230	125	260	180	280	
20	**19.30**	62	41.9	280	125	230	185	265	*)	150	205	255	135	245	175	260	
22.4	**21.70**	55	45.0	270	125	230	180	255	*)	150	200	250	135	245	170	260	
25	**25.15**	48	45.0	235	130	235	175	255	65	155	195	245	140	250	170	260	
28	**28.26**	42	45.0	205	130	230	170	250	69	150	190	240	135	250	165	255	
31.5	**30.78**	39	45.0	190	120	215	155	225	68	145	170	220	130	230	155	235	
35.5	**34.60**	35	45.0	170	120	210	145	220	71	140	165	210	125	225	150	230	
40	**38.45**	31	45.0	150	115	200	140	205	90	150	170	210	125	215	145	220	
45	**43.22**	28	45.0	135	110	195	135	200	89	150	165	205	120	215	140	215	
50	**48.62**	25	45.0	120	95	165	110	165	75	125	135	170	100	180	120	180	
56	**54.64**	22	45.0	105	93	165	110	165	74	125	130	165	100	175	115	175	
63	**60.23**	20	45.0	98	84	145	95	145	72	115	115	145	91	155	105	155	
71	**67.69**	18	45.0	87	85	145	95	145	73	115	115	145	92	160	105	155	
80	**77.11**	16	45.0	77	76	130	84	125	68	105	105	130	82	140	91	140	
90	**86.67**	14	45.0	68	75	130	82	125	67	105	100	125	81	140	90	135	
100	**101.79**	12	45.0	58	82	-	89	-	75	-	110	-	89	-	98	-	
112	**114.40**	10	45.0	52	82	-	89	-	76	-	110	-	89	-	98	-	
125	**124.60**	9.6	45.0	48	78	-	83	-	72	-	105	-	85	-	92	-	
140	**140.03**	8.6	45.0	42	77	-	82	-	71	-	100	-	83	-	90	-	
160	**157.54**	7.6	45.0	38	67	-	71	-	62	-	86	-	73	-	78	-	
180	**177.05**	6.8	45.0	33	66	-	69	-	61	-	83	-	72	-	77	-	**X4T.. M1** 314 **M4** 394
200	**189.42**	6.3	45.0	31	61	-	64	-	56	-	76	-	66	-	71	-	
224	**212.88**	5.6	45.0	28	61	-	64	-	56	-	75	-	66	-	71	-	
250	**246.86**	4.9	45.0	24	57	-	59	-	55	-	71	-	62	-	65	-	
280	**277.45**	4.3	45.0	22	56	-	58	-	54	-	69	-	61	-	64	-	
315	**312.13**	3.8	45.0	19	49	-	50	-	47	-	59	-	53	-	56	-	
355	**350.79**	3.4	45.0	17	49	-	50	-	47	-	59	-	53	-	55	-	
400	**375.29**	3.2	45.0	16	46	-	47	-	44	-	54	-	49	-	52	-	
450	**421.78**	2.8	45.0	14	46	-	46	-	44	-	54	-	49	-	51	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW M3				M3				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T170..,n_1= 1500 1/min																	**45 kNm**
16	**15.35**	98	40.8	430	*)	270	220	345	*)	*)	*)	150	*)	280	150	305	**X3T.. M1** 310 **M4** 390
18	**17.25**	87	41.3	390	*)	270	210	335	*)	*)	*)	145	*)	280	150	300	
20	**19.30**	78	41.9	355	100	260	195	305	*)	110	180	255	105	275	170	290	
22.4	**21.70**	69	45.0	335	105	255	190	295	*)	115	170	245	110	275	170	290	
25	**25.15**	60	45.0	290	115	265	185	295	*)	135	170	245	125	280	170	290	
28	**28.26**	53	45.0	260	120	260	175	285	*)	135	160	235	130	275	165	285	
31.5	**30.78**	49	45.0	240	115	240	160	260	*)	130	150	220	120	260	155	265	
35.5	**34.60**	43	45.0	210	115	240	155	255	*)	130	140	210	120	255	150	260	
40	**38.45**	39	45.0	190	115	230	145	240	59	155	165	225	120	245	145	250	
45	**43.22**	35	45.0	170	110	225	140	230	62	155	160	220	120	245	145	245	
50	**48.62**	31	45.0	150	94	190	115	195	53	130	130	180	100	205	120	205	
56	**54.64**	27	45.0	135	93	185	110	190	55	130	125	175	100	200	115	200	
63	**60.23**	25	45.0	125	85	165	100	165	64	125	120	165	92	180	105	180	
71	**67.69**	22	45.0	110	85	170	99	165	65	125	115	160	92	180	105	180	
80	**77.11**	19	45.0	96	77	150	88	150	64	115	105	145	84	165	95	160	
90	**86.67**	17	45.0	85	76	150	85	145	63	115	105	140	83	160	93	155	
100	**101.79**	15	45.0	73	85	-	94	-	72	-	115	-	92	-	105	-	**X4T.. M1** 314 **M4** 394
112	**114.40**	13	45.0	65	86	-	94	-	73	-	115	-	92	-	105	-	
125	**124.60**	12	45.0	59	81	-	89	-	69	-	105	-	88	-	97	-	
140	**140.03**	11	45.0	53	80	-	87	-	68	-	105	-	86	-	95	-	
160	**157.54**	9.5	45.0	47	70	-	75	-	60	-	89	-	76	-	83	-	
180	**177.05**	8.5	45.0	42	69	-	73	-	59	-	86	-	75	-	81	-	
200	**189.42**	7.9	45.0	39	64	-	68	-	54	-	79	-	69	-	75	-	
224	**212.88**	7.0	45.0	35	64	-	67	-	55	-	78	-	69	-	74	-	
250	**246.86**	6.1	45.0	30	60	-	62	-	56	-	75	-	65	-	69	-	
280	**277.45**	5.4	45.0	27	59	-	61	-	55	-	73	-	64	-	68	-	
315	**312.13**	4.8	45.0	24	51	-	53	-	48	-	63	-	56	-	59	-	
355	**350.79**	4.3	45.0	21	51	-	53	-	48	-	62	-	56	-	59	-	
400	**375.29**	4.0	45.0	20	48	-	49	-	45	-	58	-	52	-	55	-	
450	**421.78**	3.6	45.0	18	48	-	49	-	45	-	57	-	52	-	55	-	
X.T170..,n_1= 1800 1/min																	**45 kNm**
16	**15.35**	117	38.5	490	*)	285	215	380	*)	*)	*)	*)	*)	285	*)	315	**X3T.. M1** 310 **M4** 390
18	**17.25**	104	39.2	445	*)	285	205	365	*)	*)	*)	*)	*)	280	*)	305	
20	**19.30**	93	39.7	400	*)	280	200	340	*)	*)	*)	220	*)	295	145	315	
22.4	**21.70**	83	42.7	385	*)	280	195	330	*)	*)	*)	215	*)	295	140	310	
25	**25.15**	72	45.0	350	89	285	185	325	*)	*)	88	215	88	300	155	315	
28	**28.26**	64	45.0	310	95	285	180	315	*)	*)	84	210	94	300	155	310	
31.5	**30.78**	58	45.0	285	94	265	160	290	*)	*)	80	195	94	280	145	285	
35.5	**34.60**	52	45.0	255	98	260	155	280	*)	74	76	185	98	275	140	280	
40	**38.45**	47	45.0	230	110	250	150	265	*)	150	150	230	115	270	145	275	
45	**43.22**	42	45.0	205	105	250	145	260	*)	150	140	225	115	265	140	270	
50	**48.62**	37	45.0	180	91	210	120	215	*)	130	115	185	96	225	120	225	
56	**54.64**	33	45.0	160	90	205	115	210	*)	125	110	180	95	220	115	220	
63	**60.23**	30	45.0	145	84	185	100	185	43	130	115	175	90	200	105	200	
71	**67.69**	27	45.0	130	84	185	100	185	46	130	115	170	90	200	105	200	
80	**77.11**	23	45.0	115	77	170	90	165	56	125	105	160	83	180	96	180	
90	**86.67**	21	45.0	100	76	165	88	160	55	125	100	155	82	180	94	175	
100	**101.79**	18	45.0	87	87	-	99	-	65	-	115	-	94	-	105	-	**X4T.. M1** 314 **M4** 394
112	**114.40**	16	45.0	78	88	-	99	-	65	-	115	-	94	-	105	-	
125	**124.60**	14	45.0	71	84	-	93	-	62	-	105	-	90	-	100	-	
140	**140.03**	13	45.0	63	83	-	91	-	61	-	105	-	88	-	99	-	
160	**157.54**	11	45.0	56	72	-	79	-	54	-	88	-	78	-	86	-	
180	**177.05**	10	45.0	50	71	-	77	-	53	-	85	-	76	-	84	-	
200	**189.42**	9.5	45.0	47	66	-	71	-	50	-	78	-	71	-	78	-	
224	**212.88**	8.5	45.0	42	66	-	70	-	50	-	77	-	71	-	77	-	
250	**246.86**	7.3	45.0	36	62	-	65	-	56	-	79	-	67	-	72	-	
280	**277.45**	6.5	45.0	32	61	-	64	-	56	-	76	-	66	-	71	-	
315	**312.13**	5.8	45.0	29	53	-	56	-	49	-	66	-	58	-	62	-	
355	**350.79**	5.1	45.0	26	53	-	55	-	49	-	65	-	58	-	61	-	
400	**375.29**	4.8	45.0	24	50	-	52	-	46	-	60	-	54	-	57	-	
450	**421.78**	4.3	45.0	21	50	-	51	-	46	-	59	-	54	-	57	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M3				M3				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T180..,n_1= 1000 1/min																	**58 kNm**
12.5	**12.57**	80	52.9	455	130	235	285	365	*)	*)	340	385	135	250	260	355	
14	**14.08**	71	54.1	415	135	240	280	365	*)	*)	335	385	145	255	260	355	
16	**16.17**	62	54.4	365	145	230	245	320	*)	145	345	390	155	245	245	330	
18	**18.11**	55	58.0	345	150	235	245	325	87	150	345	390	160	255	250	335	
20	**19.74**	51	58.0	320	140	220	220	295	87	145	315	355	150	235	225	305	
22.4	**22.10**	45	58.0	285	150	230	225	300	94	150	320	360	160	250	235	315	
25	**25.55**	39	58.0	245	135	210	190	260	87	140	275	315	145	225	205	280	**X3T..**
28	**28.61**	35	58.0	220	135	210	190	260	91	140	270	310	145	225	205	280	**M1**
31.5	**32.36**	31	58.0	195	120	185	160	220	99	135	240	275	130	200	175	245	310
35.5	**36.24**	28	58.0	175	125	190	160	225	100	140	240	275	135	205	180	250	**M4**
40	**38.93**	26	58.0	160	115	170	145	200	92	130	210	245	120	185	160	220	390
45	**43.60**	23	58.0	145	115	175	140	200	93	130	210	240	125	185	160	220	
50	**47.57**	21	58.0	135	100	155	125	175	89	120	185	215	110	165	140	195	
56	**53.27**	19	58.0	120	105	160	125	180	91	125	185	215	115	170	145	200	
63	**60.90**	16	58.0	105	91	135	105	150	82	110	155	180	98	145	120	170	
71	**68.20**	15	58.0	93	93	140	105	150	84	110	155	180	100	150	125	170	
80	**79.89**	13	58.0	80	88	-	99	-	82	-	150	-	95	-	115	-	
90	**89.46**	11	58.0	71	90	-	100	-	84	-	150	-	97	-	115	-	
100	**103.42**	9.7	58.0	61	83	-	92	-	78	-	135	-	90	-	105	-	
112	**115.81**	8.6	58.0	55	85	-	93	-	79	-	135	-	92	-	110	-	
125	**124.41**	8.0	58.0	51	77	-	83	-	72	-	120	-	83	-	97	-	**X4T..**
140	**139.32**	7.2	58.0	46	78	-	84	-	73	-	120	-	85	-	98	-	**M1**
160	**153.68**	6.5	58.0	41	70	-	75	-	65	-	105	-	76	-	86	-	314
180	**172.10**	5.8	58.0	37	70	-	74	-	65	-	105	-	76	-	86	-	**M4**
200	**204.90**	4.9	58.0	31	62	-	66	-	61	-	91	-	68	-	76	-	394
224	**229.46**	4.4	58.0	28	64	-	67	-	63	-	92	-	70	-	78	-	
250	**246.49**	4.1	58.0	26	58	-	61	-	57	-	82	-	63	-	70	-	
280	**276.03**	3.6	58.0	23	58	-	61	-	57	-	81	-	63	-	70	-	
315	**304.49**	3.3	58.0	21	52	-	54	-	51	-	72	-	57	-	62	-	
355	**340.98**	2.9	58.0	19	54	-	55	-	52	-	72	-	58	-	63	-	
X.T180..,n_1= 1200 1/min																	**58 kNm**
12.5	**12.57**	95	52.9	550	*)	240	310	410	*)	*)	285	350	*)	245	260	370	
14	**14.08**	85	54.1	500	*)	245	300	405	*)	*)	280	345	*)	255	260	375	
16	**16.17**	74	54.4	440	130	240	270	360	*)	*)	350	405	140	260	255	355	
18	**18.11**	66	58.0	415	135	250	265	360	*)	110	350	405	145	265	255	360	
20	**19.74**	61	58.0	380	130	235	240	325	*)	110	315	370	140	250	235	330	
22.4	**22.10**	54	58.0	340	140	245	240	330	*)	120	320	375	150	260	240	340	
25	**25.55**	47	58.0	295	130	220	205	290	*)	115	275	325	140	235	210	300	**X3T..**
28	**28.61**	42	58.0	265	135	225	200	285	*)	120	270	320	140	240	210	305	**M1**
31.5	**32.36**	37	58.0	235	120	200	170	245	79	135	250	290	130	215	185	265	310
35.5	**36.24**	33	58.0	210	125	205	170	250	84	140	250	295	135	220	190	270	**M4**
40	**38.93**	31	58.0	195	115	185	150	220	77	125	220	260	120	200	165	240	390
45	**43.60**	28	58.0	175	115	185	150	220	79	125	215	255	120	200	165	240	
50	**47.57**	25	58.0	160	105	165	130	190	83	125	195	230	110	180	145	215	
56	**53.27**	23	58.0	145	105	170	130	195	85	125	195	230	115	185	150	215	
63	**60.90**	20	58.0	125	93	145	110	165	80	115	165	195	100	160	125	185	
71	**68.20**	18	58.0	110	95	150	110	165	82	115	165	200	105	165	130	185	
80	**79.89**	15	58.0	96	91	-	105	-	80	-	160	-	98	-	120	-	
90	**89.46**	13	58.0	85	93	-	105	-	82	-	160	-	100	-	125	-	
100	**103.42**	12	58.0	74	86	-	97	-	76	-	140	-	93	-	110	-	
112	**115.81**	10	58.0	66	88	-	98	-	78	-	140	-	95	-	115	-	
125	**124.41**	9.6	58.0	61	79	-	88	-	71	-	125	-	86	-	100	-	
140	**139.32**	8.6	58.0	55	81	-	89	-	72	-	125	-	88	-	105	-	**X4T..**
160	**153.68**	7.8	58.0	50	72	-	79	-	64	-	110	-	78	-	91	-	**M1**
180	**172.10**	7.0	58.0	44	73	-	78	-	65	-	110	-	78	-	91	-	314
200	**204.90**	5.9	58.0	38	65	-	69	-	63	-	97	-	71	-	80	-	**M4**
224	**229.46**	5.2	58.0	34	67	-	71	-	65	-	98	-	73	-	82	-	394
250	**246.49**	4.9	58.0	31	61	-	64	-	59	-	88	-	66	-	74	-	
280	**276.03**	4.3	58.0	28	61	-	64	-	59	-	87	-	66	-	74	-	
315	**304.49**	3.9	58.0	25	55	-	57	-	53	-	77	-	59	-	66	-	
355	**340.98**	3.5	58.0	23	56	-	58	-	54	-	77	-	61	-	67	-	

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X.T180..,n_1= 1500 1/min																	58 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
12.5	**12.57**	119	52.9	680	*)	220	335	460	*)	*)	*)	*)	*)	205	220	380	**X3T.. M1** 310 **M4** 390
14	**14.08**	107	54.1	620	*)	230	325	450	*)	*)	*)	*)	*)	220	225	380	
16	**16.17**	93	54.4	550	*)	250	295	405	*)	*)	320	390	*)	265	255	380	
18	**18.11**	83	58.0	520	*)	260	290	405	*)	*)	315	390	*)	275	260	385	
20	**19.74**	76	58.0	480	*)	245	260	365	*)	*)	290	355	*)	255	235	355	
22.4	**22.10**	68	58.0	425	120	255	260	370	*)	*)	290	360	120	270	240	370	
25	**25.55**	59	58.0	370	110	230	220	320	*)	*)	245	310	110	245	210	325	
28	**28.61**	52	58.0	330	115	235	210	315	*)	*)	240	305	115	245	210	325	
31.5	**32.36**	46	58.0	290	110	210	185	275	*)	110	245	305	120	225	190	290	
35.5	**36.24**	41	58.0	260	120	220	185	275	*)	115	245	305	130	235	195	295	
40	**38.93**	39	58.0	240	105	195	160	245	*)	105	215	270	115	210	170	265	
45	**43.60**	34	58.0	215	110	200	155	245	*)	110	210	265	115	215	170	260	
50	**47.57**	32	58.0	200	100	180	140	215	59	120	200	245	110	195	155	235	
56	**53.27**	28	58.0	180	105	185	140	215	63	120	200	245	115	200	155	240	
63	**60.90**	25	58.0	155	93	160	120	185	72	120	175	215	100	175	135	205	
71	**68.20**	22	58.0	140	95	165	120	185	74	120	175	215	105	180	135	205	
80	**79.89**	19	58.0	120	94	-	115	-	73	-	165	-	100	-	130	-	**X4T.. M1** 314 **M4** 394
90	**89.46**	17	58.0	105	96	-	115	-	74	-	165	-	105	-	130	-	
100	**103.42**	15	58.0	92	89	-	105	-	69	-	145	-	96	-	120	-	
112	**115.81**	13	58.0	82	91	-	105	-	70	-	145	-	98	-	120	-	
125	**124.41**	12	58.0	77	82	-	93	-	64	-	130	-	88	-	110	-	
140	**139.32**	11	58.0	68	84	-	94	-	65	-	130	-	90	-	110	-	
160	**153.68**	9.8	58.0	62	75	-	83	-	59	-	115	-	81	-	96	-	
180	**172.10**	8.7	58.0	55	75	-	83	-	59	-	110	-	81	-	96	-	
200	**204.90**	7.3	58.0	47	68	-	74	-	64	-	105	-	74	-	86	-	
224	**229.46**	6.5	58.0	42	70	-	75	-	66	-	105	-	76	-	87	-	
250	**246.49**	6.1	58.0	39	64	-	68	-	60	-	95	-	69	-	79	-	
280	**276.03**	5.4	58.0	35	64	-	68	-	60	-	93	-	69	-	78	-	
315	**304.49**	4.9	58.0	32	57	-	60	-	54	-	83	-	62	-	70	-	
355	**340.98**	4.4	58.0	28	59	-	62	-	55	-	83	-	64	-	71	-	
X.T180..,n_1= 1800 1/min																	58 kNm
12.5	**12.57**	143	50.1	780	*)	*)	345	495	*)	*)	*)	*)	*)	*)	*)	350	**X3T.. M1** 310 **M4** 390
14	**14.08**	128	51.1	710	*)	190	330	485	*)	*)	*)	*)	*)	*)	*)	355	
16	**16.17**	111	51.4	620	*)	240	315	450	*)	*)	225	330	*)	250	235	395	
18	**18.11**	99	54.8	590	*)	250	310	445	*)	*)	215	325	*)	260	235	400	
20	**19.74**	91	56.0	550	*)	240	275	400	*)	*)	200	300	*)	250	220	370	
22.4	**22.10**	81	58.0	510	*)	260	270	405	*)	*)	195	300	*)	265	230	380	
25	**25.55**	70	58.0	445	*)	235	225	350	*)	*)	165	260	*)	240	200	335	
28	**28.61**	63	58.0	395	*)	240	220	345	*)	*)	155	250	*)	245	200	335	
31.5	**32.36**	56	58.0	350	95	220	190	300	*)	*)	225	295	98	235	190	305	
35.5	**36.24**	50	58.0	310	100	230	190	300	*)	*)	225	295	105	240	190	315	
40	**38.93**	46	58.0	290	93	205	165	265	*)	*)	195	260	97	220	170	280	
45	**43.60**	41	58.0	260	97	210	160	265	*)	*)	190	255	100	220	170	275	
50	**47.57**	38	58.0	240	94	190	145	235	*)	100	195	255	100	205	155	250	
56	**53.27**	34	58.0	215	99	195	145	235	*)	105	195	255	105	210	155	255	
63	**60.90**	30	58.0	190	91	170	125	200	54	115	180	230	98	185	135	220	
71	**68.20**	26	58.0	165	93	175	125	205	56	120	180	230	100	190	140	225	
80	**79.89**	23	58.0	145	95	-	120	-	54	-	165	-	100	-	135	-	**X4T.. M1** 314 **M4** 394
90	**89.46**	20	58.0	130	97	-	120	-	57	-	165	-	105	-	135	-	
100	**103.42**	17	58.0	110	90	-	110	-	54	-	145	-	96	-	125	-	
112	**115.81**	16	58.0	99	92	-	110	-	55	-	145	-	98	-	125	-	
125	**124.41**	14	58.0	92	84	-	98	-	50	-	130	-	89	-	110	-	
140	**139.32**	13	58.0	82	85	-	99	-	51	-	130	-	91	-	115	-	
160	**153.68**	12	58.0	74	77	-	87	-	47	-	110	-	81	-	100	-	
180	**172.10**	10	58.0	67	77	-	86	-	47	-	110	-	81	-	99	-	
200	**204.90**	8.8	58.0	56	71	-	77	-	64	-	110	-	77	-	90	-	
224	**229.46**	7.8	58.0	50	72	-	79	-	66	-	110	-	79	-	92	-	
250	**246.49**	7.3	58.0	47	66	-	71	-	60	-	100	-	72	-	83	-	
280	**276.03**	6.5	58.0	42	66	-	71	-	60	-	99	-	71	-	82	-	
315	**304.49**	5.9	58.0	38	59	-	63	-	54	-	87	-	64	-	73	-	
355	**340.98**	5.3	58.0	34	61	-	64	-	55	-	87	-	66	-	75	-	

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X.T190..,n_1= 1000 1/min																	65 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
14	**14.04**	71	59.2	455	140	245	235	325	*)	*)	195	250	145	260	205	310	**X3T.. M1** 310 **M4** 390
16	**15.77**	63	60.6	415	145	255	235	325	*)	*)	195	250	155	270	210	315	
18	**18.05**	55	60.8	365	150	240	215	295	*)	155	240	285	165	260	205	295	
20	**20.29**	49	65.0	345	160	250	215	300	95	160	240	290	170	265	210	305	
22.4	**22.04**	45	65.0	320	150	230	195	275	93	150	220	265	160	250	195	280	
25	**24.77**	40	65.0	285	150	235	195	275	98	155	220	265	165	255	195	285	
28	**28.53**	35	65.0	245	140	220	175	250	94	145	195	240	150	235	180	260	
31.5	**32.06**	31	65.0	220	145	220	175	250	98	150	195	240	155	240	180	265	
35.5	**36.14**	28	65.0	195	125	195	150	215	105	145	180	215	135	210	160	230	
40	**40.61**	25	65.0	175	130	200	155	220	110	150	180	220	140	215	160	235	
45	**43.48**	23	65.0	160	120	180	135	195	97	135	160	195	125	195	145	210	
50	**48.85**	20	65.0	145	120	180	135	195	98	135	160	195	130	195	145	210	
56	**53.11**	19	65.0	135	110	165	120	175	95	130	145	180	120	180	130	190	
63	**59.68**	17	65.0	120	110	165	120	175	96	130	145	175	120	180	130	190	
71	**68.00**	15	65.0	105	94	140	105	150	86	115	125	150	100	155	110	165	
80	**76.41**	13	65.0	93	96	145	105	150	88	115	125	155	105	155	115	165	
90	**89.21**	11	65.0	80	94	-	100	-	88	-	125	-	100	-	110	-	**X4T.. M1** 314 **M4** 394
100	**100.24**	10.0	65.0	71	95	-	100	-	89	-	125	-	105	-	110	-	
112	**115.48**	8.7	65.0	62	90	-	95	-	84	-	115	-	97	-	105	-	
125	**129.76**	7.7	65.0	55	90	-	95	-	84	-	115	-	97	-	105	-	
140	**138.93**	7.2	65.0	51	82	-	86	-	77	-	105	-	89	-	96	-	
160	**156.11**	6.4	65.0	46	83	-	86	-	77	-	100	-	90	-	95	-	
180	**171.61**	5.8	65.0	42	75	-	78	-	70	-	91	-	81	-	86	-	
200	**192.84**	5.2	65.0	37	74	-	76	-	69	-	89	-	80	-	84	-	
224	**228.80**	4.4	65.0	31	68	-	69	-	66	-	82	-	73	-	77	-	
250	**257.10**	3.9	65.0	28	69	-	70	-	67	-	82	-	74	-	78	-	
280	**275.25**	3.6	65.0	26	63	-	64	-	61	-	75	-	68	-	71	-	
315	**309.29**	3.2	65.0	23	63	-	64	-	61	-	74	-	68	-	71	-	
355	**340.02**	2.9	65.0	21	56	-	57	-	55	-	66	-	61	-	63	-	
400	**382.06**	2.6	65.0	19	57	-	58	-	55	-	66	-	62	-	64	-	
X.T190..,n_1= 1200 1/min																	65 kNm
14	**14.04**	85	59.2	550	*)	255	240	355	*)	*)	*)	165	*)	260	185	320	**X3T.. M1** 310 **M4** 390
16	**15.77**	76	60.6	500	*)	260	240	355	*)	*)	*)	165	*)	270	190	325	
18	**18.05**	66	60.8	440	140	255	225	320	*)	115	220	280	150	270	205	315	
20	**20.29**	59	65.0	415	145	260	225	325	*)	120	220	285	155	280	210	320	
22.4	**22.04**	54	65.0	385	140	245	205	300	*)	120	205	265	150	260	195	300	
25	**24.77**	48	65.0	340	145	250	200	300	*)	125	200	260	155	265	195	300	
28	**28.53**	42	65.0	295	135	230	180	270	*)	125	180	235	145	250	180	280	
31.5	**32.06**	37	65.0	265	140	235	180	270	*)	130	180	235	150	250	180	280	
35.5	**36.14**	33	65.0	235	125	205	155	235	85	140	175	225	135	225	160	245	
40	**40.61**	30	65.0	210	130	215	160	240	90	145	180	230	140	230	165	255	
45	**43.48**	28	65.0	195	120	190	140	215	82	130	160	200	125	205	145	225	
50	**48.85**	25	65.0	175	120	195	140	210	84	135	155	200	130	210	145	225	
56	**53.11**	23	65.0	160	110	175	125	190	89	130	150	190	120	190	135	205	
63	**59.68**	20	65.0	145	110	180	125	190	89	130	145	185	120	195	135	205	
71	**68.00**	18	65.0	125	96	155	105	165	84	120	130	160	105	165	115	175	
80	**76.41**	16	65.0	110	99	155	110	165	85	120	130	165	105	170	120	180	
90	**89.21**	13	65.0	96	98	-	105	-	87	-	130	-	105	-	115	-	**X4T.. M1** 314 **M4** 394
100	**100.24**	12	65.0	85	98	-	105	-	87	-	130	-	105	-	115	-	
112	**115.48**	10	65.0	74	93	-	99	-	82	-	120	-	100	-	110	-	
125	**129.76**	9.2	65.0	66	93	-	99	-	83	-	115	-	100	-	110	-	
140	**138.93**	8.6	65.0	62	85	-	90	-	76	-	105	-	92	-	100	-	
160	**156.11**	7.7	65.0	55	86	-	90	-	76	-	105	-	93	-	100	-	
180	**171.61**	7.0	65.0	50	77	-	81	-	69	-	93	-	84	-	90	-	
200	**192.84**	6.2	65.0	44	76	-	80	-	68	-	91	-	83	-	88	-	
224	**228.80**	5.2	65.0	38	70	-	73	-	68	-	87	-	77	-	81	-	
250	**257.10**	4.7	65.0	34	72	-	74	-	69	-	87	-	78	-	82	-	
280	**275.25**	4.4	65.0	31	66	-	67	-	63	-	79	-	71	-	75	-	
315	**309.29**	3.9	65.0	28	65	-	67	-	63	-	78	-	71	-	75	-	
355	**340.02**	3.5	65.0	25	59	-	60	-	57	-	69	-	64	-	67	-	
400	**382.06**	3.1	65.0	23	59	-	61	-	57	-	70	-	64	-	67	-	

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X.T190..,n_1= 1500 1/min																	65 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14	**14.04**	107	59.2	690	*)	235	230	380	*)	*)	*)	*)	*)	225	*)	305	**X3T.. M1** 310 **M4** 390
16	**15.77**	95	60.6	620	*)	250	230	380	*)	*)	*)	*)	*)	235	*)	315	
18	**18.05**	83	60.8	550	*)	265	230	355	*)	*)	135	235	*)	280	185	330	
20	**20.29**	74	65.0	520	*)	275	230	360	*)	*)	135	235	*)	285	190	340	
22.4	**22.04**	68	65.0	480	*)	255	210	330	*)	*)	130	225	*)	270	175	315	
25	**24.77**	61	65.0	425	120	260	205	325	*)	*)	125	220	125	275	180	320	
28	**28.53**	53	65.0	370	115	245	185	295	*)	*)	115	200	120	255	170	295	
31.5	**32.06**	47	65.0	330	120	245	180	295	*)	*)	110	200	125	260	170	295	
35.5	**36.14**	42	65.0	290	120	220	160	255	*)	115	160	220	125	240	160	265	
40	**40.61**	37	65.0	260	125	230	165	265	*)	125	160	225	135	245	165	275	
45	**43.48**	34	65.0	245	115	205	145	235	*)	115	140	200	120	220	145	245	
50	**48.85**	31	65.0	215	115	210	145	235	*)	115	140	200	120	225	145	245	
56	**53.11**	28	65.0	200	110	190	130	210	65	125	145	195	115	205	135	225	
63	**59.68**	25	65.0	180	110	195	130	210	67	130	140	195	120	210	135	225	
71	**68.00**	22	65.0	155	97	165	110	180	75	125	130	175	105	180	120	195	
80	**76.41**	20	65.0	140	99	170	115	185	77	125	130	175	105	185	120	200	
90	**89.21**	17	65.0	120	100	-	115	-	79	-	130	-	110	-	120	-	**X4T.. M1** 314 **M4** 394
100	**100.24**	15	65.0	105	100	-	110	-	79	-	130	-	110	-	120	-	
112	**115.48**	13	65.0	93	96	-	105	-	75	-	120	-	105	-	115	-	
125	**129.76**	12	65.0	82	96	-	105	-	75	-	115	-	105	-	115	-	
140	**138.93**	11	65.0	77	88	-	95	-	69	-	105	-	95	-	105	-	
160	**156.11**	9.6	65.0	68	89	-	95	-	69	-	105	-	95	-	105	-	
180	**171.61**	8.7	65.0	62	80	-	85	-	63	-	93	-	86	-	94	-	
200	**192.84**	7.8	65.0	55	79	-	84	-	62	-	90	-	85	-	92	-	
224	**228.80**	6.6	65.0	47	74	-	77	-	70	-	92	-	80	-	86	-	
250	**257.10**	5.8	65.0	42	75	-	78	-	71	-	92	-	81	-	86	-	
280	**275.25**	5.4	65.0	39	69	-	71	-	65	-	84	-	75	-	79	-	
315	**309.29**	4.8	65.0	35	69	-	71	-	65	-	83	-	75	-	79	-	
355	**340.02**	4.4	65.0	32	62	-	63	-	58	-	73	-	67	-	70	-	
400	**382.06**	3.9	65.0	28	62	-	64	-	59	-	73	-	68	-	71	-	
X.T190..,n_1= 1800 1/min																	**65 kNm**
14	**14.04**	128	56.0	780	*)	*)	200	395	*)	*)	*)	*)	*)	*)	*)	245	**X3T.. M1** 310 **M4** 390
16	**15.77**	114	57.4	710	*)	205	195	390	*)	*)	*)	*)	*)	*)	*)	255	
18	**18.05**	100	57.5	620	*)	255	225	380	*)	*)	*)	*)	*)	265	*)	335	
20	**20.29**	89	61.4	590	*)	270	220	380	*)	*)	*)	*)	*)	275	*)	340	
22.4	**22.04**	82	62.5	550	*)	255	200	350	*)	*)	*)	*)	*)	265	140	320	
25	**24.77**	73	65.0	510	*)	265	200	350	*)	*)	*)	*)	*)	270	145	320	
28	**28.53**	63	65.0	445	*)	245	175	315	*)	*)	*)	*)	*)	255	135	295	
31.5	**32.06**	56	65.0	395	*)	250	175	310	*)	*)	*)	*)	*)	260	140	300	
35.5	**36.14**	50	65.0	350	100	230	160	275	*)	*)	110	200	105	245	150	275	
40	**40.61**	44	65.0	310	110	240	165	280	*)	*)	110	200	115	255	155	285	
45	**43.48**	41	65.0	290	99	215	145	250	*)	*)	96	180	105	230	140	255	
50	**48.85**	37	65.0	260	105	215	140	250	*)	65	94	175	105	230	140	255	
56	**53.11**	34	65.0	240	100	205	130	230	*)	110	125	195	110	220	135	240	
63	**59.68**	30	65.0	215	105	205	130	225	*)	115	125	190	110	220	135	240	
71	**68.00**	26	65.0	190	95	180	115	195	58	120	125	180	105	195	120	210	
80	**76.41**	24	65.0	170	97	180	115	200	60	125	125	180	105	195	120	210	
90	**89.21**	20	65.0	145	105	-	120	-	61	-	125	-	110	-	125	-	**X4T.. M1** 314 **M4** 394
100	**100.24**	18	65.0	130	105	-	115	-	62	-	120	-	110	-	125	-	
112	**115.48**	16	65.0	110	97	-	110	-	59	-	110	-	105	-	115	-	
125	**129.76**	14	65.0	99	98	-	110	-	60	-	110	-	105	-	115	-	
140	**138.93**	13	65.0	92	90	-	99	-	55	-	98	-	96	-	105	-	
160	**156.11**	12	65.0	82	90	-	98	-	55	-	96	-	96	-	105	-	
180	**171.61**	10	65.0	75	82	-	88	-	51	-	86	-	87	-	96	-	
200	**192.84**	9.3	65.0	67	81	-	86	-	50	-	83	-	86	-	94	-	
224	**228.80**	7.9	65.0	57	76	-	80	-	70	-	95	-	83	-	89	-	
250	**257.10**	7.0	65.0	50	77	-	81	-	71	-	95	-	84	-	90	-	
280	**275.25**	6.5	65.0	47	71	-	74	-	65	-	87	-	77	-	82	-	
315	**309.29**	5.8	65.0	42	71	-	74	-	65	-	86	-	77	-	82	-	
355	**340.02**	5.3	65.0	38	64	-	66	-	58	-	76	-	69	-	73	-	
400	**382.06**	4.7	65.0	34	64	-	66	-	59	-	76	-	70	-	74	-	

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X.T200..,n_1= 1000 1/min																	79 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
12.5	**12.45**	80	66.5	580	155	295	360	475	*)	*)	325	390	150	305	315	440	
14	**14.12**	71	68.9	530	155	290	340	450	*)	*)	305	370	155	300	305	425	
16	**16.32**	61	72.2	480	175	285	305	405	*)	140	395	450	185	310	300	405	
18	**18.50**	54	75.1	440	175	285	290	390	*)	145	375	430	185	305	290	395	
20	**20.56**	49	78.1	410	170	275	270	365	*)	145	350	405	185	295	275	375	
22.4	**23.31**	43	79.0	365	165	265	250	340	*)	140	325	375	175	285	260	360	
25	**25.72**	39	79.0	335	155	250	225	315	*)	135	295	345	170	265	240	330	**X3T..** **M1** 310 **M4** 390
28	**29.17**	34	79.0	295	155	245	215	300	*)	135	280	330	165	260	230	320	
31.5	**31.97**	31	79.0	270	150	225	195	270	120	170	280	325	160	245	215	295	
35.5	**36.26**	28	79.0	235	145	225	190	265	120	165	270	310	160	240	205	290	
40	**39.61**	25	79.0	215	145	220	185	255	120	165	260	300	155	240	200	280	
45	**44.92**	22	79.0	190	140	210	170	245	115	160	245	285	150	230	190	270	
50	**48.39**	21	79.0	180	135	205	160	230	115	155	235	270	145	220	180	255	
56	**54.88**	18	79.0	160	135	205	160	230	115	160	230	265	145	220	180	255	
63	**61.95**	16	79.0	140	120	185	140	205	110	145	205	235	135	200	160	230	
71	**70.26**	14	79.0	125	120	180	140	200	105	145	195	230	130	195	155	220	
80	**79.69**	13	78.0	105	115	-	135	-	110	-	190	-	125	-	150	-	
90	**90.37**	11	79.0	96	115	-	130	-	110	-	185	-	125	-	150	-	
100	**99.70**	10	79.0	87	110	-	120	-	100	-	170	-	115	-	135	-	
112	**113.07**	8.8	79.0	77	105	-	115	-	100	-	165	-	115	-	135	-	
125	**123.51**	8.1	79.0	70	105	-	115	-	100	-	160	-	115	-	135	-	
140	**140.07**	7.1	79.0	62	105	-	115	-	99	-	155	-	115	-	130	-	**X4T..** **M1** 314 **M4** 394
160	**152.66**	6.6	79.0	57	99	-	105	-	93	-	145	-	105	-	120	-	
180	**173.13**	5.8	79.0	50	97	-	105	-	91	-	140	-	105	-	120	-	
200	**197.54**	5.1	79.0	44	82	-	86	-	81	-	115	-	89	-	99	-	
224	**224.02**	4.5	79.0	39	81	-	84	-	79	-	115	-	87	-	97	-	
250	**244.71**	4.1	79.0	36	81	-	84	-	79	-	110	-	88	-	96	-	
280	**277.52**	3.6	79.0	32	78	-	81	-	77	-	105	-	85	-	93	-	
315	**302.47**	3.3	79.0	29	73	-	76	-	72	-	98	-	79	-	86	-	
355	**343.03**	2.9	79.0	26	73	-	75	-	71	-	96	-	79	-	86	-	
X.T200..,n_1= 1200 1/min																	**79 kNm**
12.5	**12.45**	96	66.5	690	*)	285	385	520	*)	*)	*)	235	*)	280	290	445	
14	**14.12**	85	68.9	630	*)	290	360	490	*)	*)	*)	215	*)	280	280	435	
16	**16.32**	74	72.2	580	150	300	330	450	*)	*)	370	440	160	315	300	435	
18	**18.50**	65	75.1	530	155	295	310	430	*)	*)	350	420	160	315	290	420	
20	**20.56**	58	78.1	495	155	290	285	400	*)	*)	325	395	160	305	275	400	
22.4	**23.31**	51	79.0	440	150	275	265	375	*)	*)	300	365	155	290	260	380	
25	**25.72**	47	79.0	400	140	260	240	340	*)	*)	270	335	150	275	240	355	**X3T..** **M1** 310 **M4** 390
28	**29.17**	41	79.0	350	145	255	225	330	*)	*)	255	320	150	270	230	340	
31.5	**31.97**	38	79.0	320	145	245	210	300	93	165	290	345	160	260	220	320	
35.5	**36.26**	33	79.0	285	145	240	200	290	95	160	280	330	155	255	215	310	
40	**39.61**	30	79.0	260	145	235	195	280	97	160	265	320	155	255	210	305	
45	**44.92**	27	79.0	230	140	225	180	265	95	155	250	300	150	245	200	290	
50	**48.39**	25	79.0	215	135	220	170	250	105	160	245	290	145	235	190	275	
56	**54.88**	22	79.0	190	135	220	170	250	110	160	240	285	145	235	190	275	
63	**61.95**	19	79.0	165	125	200	150	225	105	150	215	255	135	215	170	250	
71	**70.26**	17	79.0	150	120	195	145	215	100	150	205	245	130	210	165	240	
80	**79.69**	15	78.0	130	120	-	140	-	110	-	205	-	130	-	160	-	
90	**90.37**	13	79.0	115	120	-	140	-	110	-	200	-	130	-	160	-	
100	**99.70**	12	79.0	105	110	-	125	-	100	-	180	-	120	-	145	-	
112	**113.07**	11	79.0	92	110	-	125	-	100	-	175	-	120	-	140	-	
125	**123.51**	9.7	79.0	84	110	-	125	-	100	-	170	-	120	-	140	-	
140	**140.07**	8.6	79.0	74	110	-	120	-	99	-	165	-	120	-	135	-	**X4T..** **M1** 314 **M4** 394
160	**152.66**	7.9	79.0	68	105	-	110	-	93	-	150	-	110	-	130	-	
180	**173.13**	6.9	79.0	60	100	-	110	-	91	-	145	-	110	-	125	-	
200	**197.54**	6.1	79.0	53	86	-	91	-	83	-	125	-	93	-	105	-	
224	**224.02**	5.4	79.0	47	84	-	89	-	82	-	120	-	92	-	100	-	
250	**244.71**	4.9	79.0	43	84	-	89	-	82	-	120	-	92	-	100	-	
280	**277.52**	4.3	79.0	38	82	-	86	-	80	-	115	-	89	-	98	-	
315	**302.47**	4.0	79.0	35	77	-	80	-	74	-	105	-	83	-	91	-	
355	**343.03**	3.5	79.0	31	76	-	79	-	74	-	105	-	83	-	90	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW M3				M3				M4				
		min^{-1}	kNm	kW			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
X.T200..,n_1= 1500 1/min																	**79 kNm**
12.5	**12.45**	120	66.5	870	*)	235	395	560	*)	*)	*)	*)	*)	*)	*)	415	**X3T.. M1** 310 **M4** 390
14	**14.12**	106	68.9	790	*)	240	365	530	*)	*)	*)	*)	*)	*)	*)	405	
16	**16.32**	92	72.2	720	*)	300	355	500	*)	*)	245	360	*)	305	280	455	
18	**18.50**	81	75.1	660	*)	300	335	480	*)	*)	230	340	*)	310	275	440	
20	**20.56**	73	78.1	620	*)	295	305	445	*)	*)	215	325	*)	305	260	420	
22.4	**23.31**	64	79.0	550	*)	280	275	415	*)	*)	185	295	*)	290	245	400	
25	**25.72**	58	79.0	500	*)	270	250	375	*)	*)	170	270	*)	275	225	370	
28	**29.17**	51	79.0	440	*)	265	235	360	*)	*)	155	250	*)	270	220	360	
31.5	**31.97**	47	79.0	400	130	260	225	335	*)	130	290	360	145	280	230	350	
35.5	**36.26**	41	79.0	355	135	255	210	320	*)	135	275	345	145	275	220	340	
40	**39.61**	38	79.0	325	135	255	205	310	*)	140	265	330	145	270	215	335	
45	**44.92**	33	79.0	285	130	245	190	295	*)	135	245	310	140	260	200	315	
50	**48.39**	31	79.0	270	130	235	180	280	74	155	250	310	145	255	195	305	
56	**54.88**	27	79.0	235	135	235	175	275	78	155	240	305	145	255	195	305	
63	**61.95**	24	79.0	210	125	215	155	250	86	155	220	275	135	235	175	275	
71	**70.26**	21	79.0	185	120	215	150	240	87	150	210	265	130	230	170	265	
80	**79.69**	19	78.0	160	125	-	150	-	100	-	215	-	135	-	170	-	**X4T.. M1** 314 **M4** 394
90	**90.37**	17	79.0	145	125	-	150	-	100	-	210	-	135	-	170	-	
100	**99.70**	15	79.0	130	115	-	135	-	95	-	190	-	125	-	155	-	
112	**113.07**	13	79.0	115	115	-	130	-	93	-	180	-	125	-	150	-	
125	**123.51**	12	79.0	105	115	-	130	-	94	-	180	-	125	-	150	-	
140	**140.07**	11	79.0	93	115	-	125	-	92	-	170	-	120	-	145	-	
160	**152.66**	9.8	79.0	85	105	-	120	-	87	-	155	-	115	-	135	-	
180	**173.13**	8.7	79.0	75	105	-	115	-	86	-	150	-	115	-	130	-	
200	**197.54**	7.6	79.0	66	90	-	97	-	86	-	135	-	98	-	110	-	
224	**224.02**	6.7	79.0	59	89	-	95	-	84	-	130	-	96	-	110	-	
250	**244.71**	6.1	79.0	54	89	-	95	-	85	-	130	-	96	-	110	-	
280	**277.52**	5.4	79.0	47	86	-	91	-	82	-	125	-	94	-	105	-	
315	**302.47**	5.0	79.0	43	81	-	85	-	77	-	115	-	87	-	97	-	
355	**343.03**	4.4	79.0	38	80	-	84	-	76	-	110	-	87	-	96	-	
X.T200..,n_1= 1800 1/min																	**79 kNm**
12.5[1)]	**12.45**	145	62.9	990	*)	*)	340	560	*)	*)	*)	*)	*)	*)	*)	285	**X3T.. M1** 310 **M4** 390
14[1)]	**14.12**	127	65.1	900	*)	*)	335	550	*)	*)	*)	*)	*)	*)	*)	290	
16	**16.32**	110	68.3	820	*)	275	365	540	*)	*)	*)	*)	*)	260	225	450	
18	**18.50**	97	71.0	750	*)	275	340	520	*)	*)	*)	*)	*)	265	220	440	
20	**20.56**	88	73.6	700	*)	280	305	480	*)	*)	*)	*)	*)	270	210	420	
22.4	**23.31**	77	75.3	630	*)	270	275	440	*)	*)	*)	*)	*)	260	190	395	
25	**25.72**	70	77.2	590	*)	260	240	400	*)	*)	*)	*)	*)	250	180	370	
28	**29.17**	62	78.5	530	*)	260	230	380	*)	*)	*)	*)	*)	255	175	355	
31.5	**31.97**	56	79.0	480	*)	270	235	365	*)	*)	260	350	*)	285	225	370	
35.5	**36.26**	50	79.0	425	110	265	220	350	*)	*)	245	335	120	280	215	360	
40	**39.61**	45	79.0	390	115	265	210	340	*)	*)	235	320	120	280	210	350	
45	**44.92**	40	79.0	345	110	255	195	320	*)	*)	215	300	120	270	200	335	
50	**48.39**	37	79.0	320	120	250	185	305	*)	135	240	320	130	265	195	325	
56	**54.88**	33	79.0	285	125	250	180	300	*)	135	235	310	135	270	195	325	
63	**61.95**	29	79.0	250	120	230	160	270	*)	145	220	290	130	250	180	295	
71	**70.26**	26	79.0	220	115	225	155	260	*)	140	210	275	125	245	170	285	
80	**79.69**	23	74.5	185	130	-	160	-	84	-	220	-	135	-	180	-	**X4T.. M1** 314 **M4** 394
90	**90.37**	20	79.0	175	130	-	155	-	85	-	210	-	135	-	175	-	
100	**99.70**	18	79.0	155	120	-	145	-	80	-	190	-	125	-	160	-	
112	**113.07**	16	79.0	140	115	-	140	-	78	-	180	-	125	-	155	-	
125	**123.51**	15	79.0	125	120	-	140	-	79	-	180	-	125	-	155	-	
140	**140.07**	13	79.0	110	115	-	135	-	78	-	170	-	125	-	150	-	
160	**152.66**	12	79.0	100	110	-	125	-	75	-	155	-	115	-	140	-	
180	**173.13**	10	79.0	90	110	-	120	-	74	-	150	-	115	-	135	-	
200	**197.54**	9.1	79.0	80	93	-	105	-	87	-	145	-	100	-	120	-	
224	**224.02**	8.0	79.0	70	92	-	100	-	85	-	140	-	100	-	115	-	
250	**244.71**	7.4	79.0	64	92	-	99	-	85	-	135	-	100	-	115	-	
280	**277.52**	6.5	79.0	57	89	-	96	-	83	-	130	-	97	-	110	-	
315	**302.47**	6.0	79.0	52	84	-	89	-	77	-	120	-	91	-	100	-	
355	**343.03**	5.2	79.0	46	83	-	88	-	77	-	115	-	90	-	100	-	

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X.T210..,n_1= 1000 1/min																	90 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
14	**14.10**	71	75.8	580	160	300	290	410	*)	*)	*)	205	155	310	235	375	**X3T.. M1** 310 **M4** 390
16	**15.96**	63	78.2	530	160	300	275	395	*)	*)	*)	195	160	310	235	365	
18	**18.48**	54	81.8	480	180	295	260	365	*)	150	260	325	190	315	245	360	
20	**20.92**	48	85.0	440	180	290	250	355	*)	150	250	310	190	310	240	355	
22.4	**23.28**	43	88.8	415	175	280	235	335	*)	150	240	295	190	300	230	340	
25	**26.36**	38	90.0	370	175	275	225	325	*)	150	230	285	185	295	225	330	
28	**29.13**	34	90.0	335	160	255	205	290	*)	140	205	260	170	270	205	300	
31.5	**32.97**	30	90.0	295	155	240	190	275	*)	140	190	240	165	260	195	285	
35.5	**36.20**	28	90.0	270	150	230	180	260	125	170	215	260	165	250	190	275	
40	**40.99**	24	90.0	240	150	225	175	250	120	170	205	250	160	245	185	265	
45	**44.85**	22	90.0	220	145	225	170	245	120	170	200	245	160	245	180	265	
50	**50.78**	20	90.0	190	140	215	160	235	115	160	190	230	155	235	175	250	
56	**54.79**	18	90.0	180	135	205	155	225	120	160	185	225	150	225	165	240	
63	**62.03**	16	90.0	160	135	205	150	220	120	160	180	220	150	225	165	240	
71	**70.15**	14	90.0	140	125	190	135	200	110	150	165	200	135	205	150	215	
80	**79.42**	13	90.0	125	125	185	135	195	110	145	160	195	135	200	145	210	
90	**90.23**	11	88.0	105	120	-	130	-	115	-	155	-	130	-	140	-	**X4T.. M1** 314 **M4** 394
100	**102.16**	9.8	90.0	97	115	-	125	-	110	-	150	-	125	-	135	-	
112	**112.90**	8.9	90.0	87	110	-	115	-	105	-	140	-	120	-	130	-	
125	**127.82**	7.8	90.0	77	110	-	115	-	100	-	135	-	115	-	125	-	
140	**139.86**	7.2	90.0	71	105	-	110	-	100	-	135	-	115	-	125	-	
160	**158.34**	6.3	90.0	62	105	-	110	-	99	-	130	-	115	-	120	-	
180	**172.87**	5.8	90.0	57	99	-	100	-	93	-	120	-	105	-	115	-	
200	**195.72**	5.1	90.0	50	97	-	100	-	92	-	115	-	105	-	110	-	
224	**223.68**	4.5	90.0	45	84	-	86	-	82	-	100	-	91	-	95	-	
250	**253.24**	3.9	90.0	39	82	-	84	-	81	-	99	-	89	-	93	-	
280	**277.10**	3.6	90.0	36	81	-	83	-	79	-	97	-	88	-	92	-	
315	**313.72**	3.2	90.0	32	80	-	82	-	78	-	94	-	87	-	90	-	
355	**342.51**	2.9	90.0	29	74	-	76	-	73	-	87	-	81	-	84	-	
400	**387.77**	2.6	90.0	26	73	-	74	-	72	-	85	-	79	-	82	-	
X.T210..,n_1= 1200 1/min																	**90 kNm**
14	**14.10**	85	75.8	700	*)	295	285	435	*)	*)	*)	*)	*)	290	180	370	**X3T.. M1** 310 **M4** 390
16	**15.96**	75	78.2	640	*)	295	275	420	*)	*)	*)	*)	*)	290	180	360	
18	**18.48**	65	81.8	580	155	305	270	395	*)	*)	205	295	165	325	235	380	
20	**20.92**	57	85.0	530	160	300	260	380	*)	*)	195	280	165	320	230	370	
22.4	**23.28**	52	88.8	495	160	295	245	360	*)	*)	185	270	165	310	225	355	
25	**26.36**	46	90.0	445	160	290	235	350	*)	*)	180	260	170	305	220	350	
28	**29.13**	41	90.0	400	145	265	205	315	*)	*)	160	235	155	280	200	315	
31.5	**32.97**	36	90.0	355	145	255	195	295	*)	*)	145	220	150	270	190	300	
35.5	**36.20**	33	90.0	325	150	245	190	280	97	170	210	270	165	265	190	295	
40	**40.99**	29	90.0	285	150	245	180	275	99	165	205	260	160	265	185	290	
45	**44.85**	27	90.0	260	145	240	175	265	100	165	195	255	160	260	185	285	
50	**50.78**	24	90.0	230	140	230	165	255	98	160	185	240	150	250	175	270	
56	**54.79**	22	90.0	215	140	220	160	240	110	165	185	235	150	240	170	260	
63	**62.03**	19	90.0	190	140	225	160	240	110	165	185	235	150	240	170	260	
71	**70.15**	17	90.0	170	125	205	140	215	105	155	165	210	135	220	155	235	
80	**79.42**	15	90.0	150	125	200	140	210	105	150	160	205	135	215	150	230	
90	**90.23**	13	88.0	130	125	-	135	-	110	-	165	-	135	-	150	-	**X4T.. M1** 314 **M4** 394
100	**102.16**	12	90.0	115	120	-	130	-	110	-	155	-	130	-	145	-	
112	**112.90**	11	90.0	105	115	-	125	-	105	-	145	-	125	-	135	-	
125	**127.82**	9.4	90.0	93	110	-	120	-	100	-	140	-	120	-	130	-	
140	**139.86**	8.6	90.0	85	110	-	120	-	100	-	140	-	120	-	130	-	
160	**158.34**	7.6	90.0	75	110	-	115	-	99	-	135	-	120	-	125	-	
180	**172.87**	6.9	90.0	69	105	-	110	-	93	-	125	-	110	-	120	-	
200	**195.72**	6.1	90.0	61	100	-	105	-	92	-	120	-	110	-	115	-	
224	**223.68**	5.4	90.0	54	87	-	91	-	85	-	110	-	95	-	100	-	
250	**253.24**	4.7	90.0	47	86	-	89	-	83	-	105	-	93	-	98	-	
280	**277.10**	4.3	90.0	43	85	-	87	-	82	-	100	-	92	-	97	-	
315	**313.72**	3.8	90.0	38	83	-	86	-	81	-	100	-	91	-	95	-	
355	**342.51**	3.5	90.0	35	78	-	80	-	76	-	92	-	85	-	88	-	
400	**387.77**	3.1	90.0	31	77	-	78	-	74	-	90	-	83	-	87	-	

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X.T210..,n_1= 1500 1/min																	90 kNm
					P_{TH}20 °C kW												
					M3				M3				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14	**14.10**	106	75.8	870	*)	245	250	455	*)	*)	*)	*)	*)	*)	*)	300	**X3T.. M1** 310 **M4** 390
16	**15.96**	94	78.2	800	*)	250	235	435	*)	*)	*)	*)	*)	*)	*)	300	
18	**18.48**	81	81.8	720	*)	305	265	430	*)	*)	*)	*)	*)	315	185	385	
20	**20.92**	72	85.0	660	*)	305	255	415	*)	*)	*)	*)	*)	315	185	375	
22.4	**23.28**	64	88.8	620	*)	300	235	390	*)	*)	*)	*)	*)	310	185	365	
25	**26.36**	57	90.0	560	*)	300	230	380	*)	*)	*)	*)	*)	305	185	360	
28	**29.13**	51	90.0	500	*)	275	200	340	*)	*)	*)	*)	*)	285	165	325	
31.5	**32.97**	45	90.0	445	110	265	185	320	*)	*)	*)	*)	*)	270	160	310	
35.5	**36.20**	41	90.0	405	135	265	195	310	*)	135	190	265	145	285	190	315	
40	**40.99**	37	90.0	355	135	260	185	300	*)	140	180	255	150	280	185	310	
45	**44.85**	33	90.0	325	140	260	180	295	*)	145	175	250	150	280	180	305	
50	**50.78**	30	90.0	290	135	250	170	280	*)	140	165	235	145	265	175	290	
56	**54.79**	27	90.0	270	135	240	165	265	78	160	180	245	145	260	170	285	
63	**62.03**	24	90.0	240	135	240	165	265	82	160	175	240	145	260	170	285	
71	**70.15**	21	90.0	210	125	220	145	240	90	155	165	225	135	240	155	255	
80	**79.42**	19	90.0	185	125	215	140	235	90	155	160	215	135	235	150	250	
90	**90.23**	17	88.0	160	130	-	145	-	105	-	165	-	140	-	155	-	**X4T.. M1** 314 **M4** 394
100	**102.16**	15	90.0	145	125	-	140	-	100	-	160	-	135	-	150	-	
112	**112.90**	13	90.0	130	120	-	130	-	97	-	150	-	130	-	140	-	
125	**127.82**	12	90.0	115	115	-	125	-	95	-	145	-	125	-	140	-	
140	**139.86**	11	90.0	105	115	-	125	-	94	-	140	-	125	-	135	-	
160	**158.34**	9.5	90.0	93	115	-	120	-	93	-	135	-	120	-	135	-	
180	**172.87**	8.7	90.0	86	105	-	115	-	88	-	125	-	115	-	125	-	
200	**195.72**	7.7	90.0	76	105	-	110	-	87	-	120	-	115	-	120	-	
224	**223.68**	6.7	90.0	67	92	-	96	-	88	-	115	-	100	-	105	-	
250	**253.24**	5.9	90.0	59	90	-	94	-	86	-	110	-	98	-	105	-	
280	**277.10**	5.4	90.0	54	89	-	93	-	85	-	110	-	97	-	100	-	
315	**313.72**	4.8	90.0	48	88	-	91	-	84	-	105	-	95	-	100	-	
355	**342.51**	4.4	90.0	44	82	-	85	-	78	-	98	-	89	-	94	-	
400	**387.77**	3.9	90.0	39	81	-	83	-	77	-	95	-	87	-	92	-	
X.T210..,n_1= 1800 1/min																	**90 kNm**
14[1)]	**14.10**	128	71.7	990	*)	*)	*)	420	*)	*)	*)	*)	*)	*)	*)	*)	**X3T.. M1** 310 **M4** 390
16[1)]	**15.96**	113	73.9	900	*)	*)	*)	420	*)	*)	*)	*)	*)	*)	*)	*)	
18	**18.48**	97	77.3	820	*)	280	245	450	*)	*)	*)	*)	*)	270	*)	360	
20	**20.92**	86	80.4	750	*)	285	230	435	*)	*)	*)	*)	*)	275	*)	360	
22.4	**23.28**	77	83.6	700	*)	285	215	410	*)	*)	*)	*)	*)	275	*)	355	
25	**26.36**	68	85.1	630	*)	290	205	395	*)	*)	*)	*)	*)	280	*)	345	
28	**29.13**	62	87.4	590	*)	265	175	355	*)	*)	*)	*)	*)	260	*)	315	
31.5	**32.97**	55	88.6	520	*)	260	165	330	*)	*)	*)	*)	*)	255	*)	300	
35.5	**36.20**	50	90.0	485	*)	275	190	330	*)	*)	130	240	*)	295	170	330	
40	**40.99**	44	90.0	430	115	270	185	320	*)	*)	125	230	120	290	170	325	
45	**44.85**	40	90.0	390	120	270	180	315	*)	*)	125	230	125	285	170	320	
50	**50.78**	35	90.0	345	115	260	170	295	*)	*)	110	215	125	275	165	305	
56	**54.79**	33	90.0	325	125	255	165	285	*)	140	160	240	135	275	165	300	
63	**62.03**	29	90.0	285	130	255	165	285	*)	145	155	240	140	275	165	300	
71	**70.15**	26	90.0	255	120	235	150	260	*)	150	155	230	130	255	155	275	
80	**79.42**	23	90.0	225	120	230	145	250	58	145	145	220	130	250	150	270	
90	**90.23**	20	84.0	185	130	-	150	-	88	-	160	-	140	-	160	-	**X4T.. M1** 314 **M4** 394
100	**102.16**	18	90.0	175	130	-	145	-	86	-	155	-	135	-	155	-	
112	**112.90**	16	90.0	155	120	-	135	-	82	-	145	-	130	-	145	-	
125	**127.82**	14	90.0	140	120	-	130	-	81	-	140	-	130	-	140	-	
140	**139.86**	13	90.0	125	120	-	130	-	80	-	135	-	125	-	140	-	
160	**158.34**	11	90.0	110	115	-	125	-	79	-	130	-	125	-	135	-	
180	**172.87**	10	90.0	105	110	-	120	-	76	-	120	-	115	-	130	-	
200	**195.72**	9.2	90.0	91	110	-	115	-	75	-	115	-	115	-	125	-	
224	**223.68**	8.0	90.0	80	95	-	100	-	88	-	120	-	105	-	110	-	
250	**253.24**	7.1	90.0	71	94	-	98	-	87	-	115	-	100	-	110	-	
280	**277.10**	6.5	90.0	65	92	-	97	-	86	-	115	-	100	-	105	-	
315	**313.72**	5.7	90.0	57	91	-	95	-	84	-	110	-	99	-	105	-	
355	**342.51**	5.3	90.0	52	85	-	88	-	79	-	100	-	92	-	98	-	
400	**387.77**	4.6	90.0	46	84	-	86	-	78	-	99	-	91	-	96	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH}20 °C kW M1				M1				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T220..,n_1= 1000 1/min																	**112 kNm**
12.5	**12.56**	80	92.4	800	*)	385	550	690	*)	*)	620	700	*)	380	530	690	**X3T.. M1** 312 **M4** 392
14	**13.86**	72	97.0	760	*)	370	510	660	*)	*)	560	650	*)	365	500	660	
16	**16.15**	62	100	670	210	370	475	610	*)	*)	700	770	220	390	485	620	
18	**17.82**	56	107	650	205	360	450	580	*)	*)	660	720	210	380	460	600	
20	**20.64**	48	112	590	220	370	440	570	*)	*)	630	700	225	390	445	590	
22.4	**22.78**	44	112	530	220	365	430	560	*)	*)	600	670	230	385	435	570	
25	**25.28**	40	112	480	200	330	375	490	*)	*)	520	580	205	350	380	510	
28	**27.90**	36	112	435	210	335	370	490	*)	*)	510	570	215	355	375	500	
31.5	**32.02**	31	112	380	205	315	335	435	135	210	520	580	220	340	345	455	
35.5	**35.34**	28	112	345	200	310	325	425	135	210	500	550	215	335	335	445	
40	**39.55**	25	112	305	185	280	290	380	125	190	440	490	200	305	300	400	
45	**43.65**	23	112	280	180	280	280	370	125	190	425	470	195	300	290	390	
50	**48.32**	21	112	255	175	265	260	345	140	195	400	445	190	285	270	365	
56	**53.33**	19	112	230	170	260	250	335	140	195	385	430	185	280	265	355	
63	**61.86**	16	112	200	150	230	215	290	135	180	330	370	165	250	225	305	
71	**68.27**	15	112	180	150	225	210	280	130	175	315	355	160	245	220	300	
80	**81.61**	12	112	150	160	-	210	-	140	-	310	-	170	-	225	-	**X4T.. M1** 316 **M4** 396
90	**90.07**	11	112	135	155	-	205	-	140	-	300	-	170	-	215	-	
100	**99.97**	10	112	125	150	-	190	-	130	-	275	-	160	-	200	-	
112	**110.34**	9.1	112	110	145	-	185	-	125	-	260	-	155	-	195	-	
125	**123.47**	8.1	112	99	140	-	175	-	125	-	245	-	150	-	185	-	
140	**136.27**	7.3	112	90	135	-	165	-	120	-	230	-	145	-	175	-	
160	**156.11**	6.4	112	79	120	-	145	-	105	-	200	-	130	-	155	-	
180	**172.29**	5.8	112	71	115	-	145	-	105	-	195	-	125	-	150	-	
200	**198.08**	5.0	112	63	110	-	130	-	105	-	185	-	120	-	140	-	
224	**218.61**	4.6	112	57	105	-	125	-	105	-	175	-	115	-	135	-	
250	**244.62**	4.1	112	51	105	-	120	-	100	-	165	-	110	-	130	-	
280	**269.99**	3.7	112	46	100	-	115	-	98	-	160	-	110	-	125	-	
315	**309.29**	3.2	112	40	90	-	105	-	88	-	140	-	98	-	110	-	
355	**341.36**	2.9	112	36	89	-	100	-	86	-	135	-	96	-	110	-	
X.T220..,n_1= 1200 1/min																	**112 kNm**
12.5	**12.56**	96	92.4	960	*)	360	560	740	*)	*)	285	425	*)	310	510	710	**X3T.. M1** 312 **M4** 392
14	**13.86**	87	97.0	910	*)	350	520	700	*)	*)	230	370	*)	305	480	670	
16	**16.15**	74	100	810	*)	380	500	660	*)	*)	630	730	*)	390	495	670	
18	**17.82**	67	107	780	*)	370	475	620	*)	*)	590	680	*)	380	470	630	
20	**20.64**	58	112	710	185	380	460	610	*)	*)	560	650	*)	390	455	620	
22.4	**22.78**	53	112	640	190	380	445	600	*)	*)	530	620	180	385	440	610	
25	**25.28**	47	112	580	170	345	390	530	*)	*)	455	540	160	350	385	540	
28	**27.90**	43	112	520	185	350	390	530	*)	*)	440	520	175	355	380	540	
31.5	**32.02**	37	112	455	200	335	355	475	*)	180	540	610	210	355	365	500	
35.5	**35.34**	34	112	410	200	330	340	460	*)	180	520	590	210	350	355	485	
40	**39.55**	30	112	370	180	300	305	415	*)	170	455	520	195	320	315	435	
45	**43.65**	27	112	335	180	295	295	405	*)	170	435	500	190	320	305	425	
50	**48.32**	25	112	305	175	285	275	380	115	190	420	480	190	305	285	400	
56	**53.33**	23	112	275	175	280	265	370	115	190	405	460	185	300	280	390	
63	**61.86**	19	112	240	155	245	230	315	125	185	350	400	165	265	240	335	
71	**68.27**	18	112	215	150	245	220	310	125	185	340	390	165	265	230	325	
80	**81.61**	15	112	180	165	-	225	-	135	-	330	-	175	-	235	-	**X4T.. M1** 316 **M4** 396
90	**90.07**	13	112	165	160	-	220	-	130	-	320	-	175	-	230	-	
100	**99.97**	12	112	145	155	-	205	-	125	-	290	-	165	-	215	-	
112	**110.34**	11	112	135	150	-	195	-	120	-	275	-	160	-	205	-	
125	**123.47**	9.7	112	120	145	-	185	-	115	-	255	-	155	-	195	-	
140	**136.27**	8.8	112	110	140	-	175	-	110	-	245	-	150	-	185	-	
160	**156.11**	7.7	112	94	125	-	155	-	100	-	210	-	135	-	165	-	
180	**172.29**	7.0	112	86	120	-	150	-	99	-	205	-	130	-	160	-	
200	**198.08**	6.1	112	75	115	-	140	-	110	-	200	-	125	-	150	-	
224	**218.61**	5.5	112	68	110	-	135	-	105	-	190	-	120	-	145	-	
250	**244.62**	4.9	112	61	110	-	130	-	105	-	180	-	115	-	140	-	
280	**269.99**	4.4	112	55	105	-	125	-	100	-	170	-	115	-	130	-	
315	**309.29**	3.9	112	48	94	-	110	-	90	-	150	-	100	-	120	-	
355	**341.36**	3.5	112	44	93	-	110	-	89	-	145	-	100	-	115	-	

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X.T220..,n_1= 1500 1/min																	112 kNm
					P_{TH}20 °C kW												
					M1				M1				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
12.5	**12.56**	119	92.4	1200	*)	*)	540	760	*)	*)	*)	*)	*)	*)	380	660	**X3T.. M1** 312 **M4** 392
14	**13.86**	108	97.0	1150	*)	*)	500	720	*)	*)	*)	*)	*)	*)	345	620	
16	**16.15**	93	100	1000	*)	355	520	710	*)	*)	340	495	*)	325	480	690	
18	**17.82**	84	107	980	*)	345	485	670	*)	*)	285	445	*)	315	445	660	
20	**20.64**	73	112	880	*)	375	475	660	*)	*)	265	425	*)	345	435	650	
22.4	**22.78**	66	112	800	*)	375	455	650	*)	*)	225	390	*)	350	420	630	
25	**25.28**	59	112	720	*)	340	400	570	*)	*)	*)	325	*)	320	365	560	
28	**27.90**	54	112	650	*)	350	395	570	*)	*)	*)	305	*)	330	360	550	
31.5	**32.02**	47	112	570	170	355	375	530	*)	*)	530	620	175	375	380	540	
35.5	**35.34**	42	112	520	175	350	360	510	*)	*)	500	600	180	370	365	530	
40	**39.55**	38	112	460	160	320	320	455	*)	*)	440	520	165	340	325	475	
45	**43.65**	34	112	415	160	315	310	445	*)	*)	420	500	165	335	315	460	
50	**48.32**	31	112	380	165	305	290	420	*)	160	430	510	180	330	300	440	
56	**53.33**	28	112	345	165	300	285	410	*)	160	415	490	175	325	290	425	
63	**61.86**	24	112	295	155	270	245	350	96	185	375	440	165	290	255	370	
71	**68.27**	22	112	270	150	265	235	340	97	180	360	425	165	285	245	360	
80	**81.61**	18	112	225	170	-	245	-	100	-	345	-	180	-	255	-	**X4T.. M1** 316 **M4** 396
90	**90.07**	17	112	205	165	-	240	-	100	-	330	-	175	-	245	-	
100	**99.97**	15	112	185	160	-	220	-	96	-	300	-	170	-	230	-	
112	**110.34**	14	112	165	155	-	210	-	93	-	285	-	160	-	220	-	
125	**123.47**	12	112	150	150	-	200	-	90	-	265	-	155	-	205	-	
140	**136.27**	11	112	135	145	-	190	-	87	-	250	-	150	-	200	-	
160	**156.11**	9.6	112	120	130	-	170	-	79	-	215	-	135	-	175	-	
180	**172.29**	8.7	112	105	125	-	165	-	78	-	205	-	135	-	170	-	
200	**198.08**	7.6	112	94	120	-	150	-	110	-	215	-	130	-	160	-	
224	**218.61**	6.9	112	85	115	-	145	-	110	-	205	-	125	-	155	-	
250	**244.62**	6.1	112	76	115	-	140	-	105	-	195	-	125	-	150	-	
280	**269.99**	5.6	112	69	110	-	135	-	100	-	185	-	120	-	140	-	
315	**309.29**	4.8	112	60	99	-	120	-	92	-	160	-	105	-	125	-	
355	**341.36**	4.4	112	55	98	-	115	-	91	-	155	-	105	-	125	-	
X.T220..,n_1= 1800 1/min																	112 kNm
12.5[1)]	**12.56**	143	87.4	1350	*)	*)	385	700	*)	*)	*)	*)	*)	*)	*)	415	**X3T.. M1** 312 **M4** 392
14[1)]	**13.86**	130	91.7	1300	*)	*)	375	680	*)	*)	*)	*)	*)	*)	*)	405	
16	**16.15**	111	95.1	1150	*)	295	495	740	*)	*)	*)	*)	*)	*)	385	670	
18	**17.82**	101	101	1100	*)	285	460	700	*)	*)	*)	*)	*)	*)	350	640	
20	**20.64**	87	105	1000	*)	325	455	690	*)	*)	*)	*)	*)	*)	350	630	
22.4	**22.78**	79	109	930	*)	330	440	670	*)	*)	*)	*)	*)	235	330	610	
25	**25.28**	71	112	860	*)	300	375	590	*)	*)	*)	*)	*)	215	275	540	
28	**27.90**	65	112	780	*)	320	380	590	*)	*)	*)	*)	*)	240	280	530	
31.5	**32.02**	56	112	680	*)	365	385	560	*)	*)	465	580	*)	375	380	580	
35.5	**35.34**	51	112	620	*)	360	370	550	*)	*)	440	550	*)	370	365	560	
40	**39.55**	46	112	550	*)	330	330	490	*)	*)	380	485	*)	340	325	500	
45	**43.65**	41	112	500	125	325	315	475	*)	*)	355	460	*)	335	310	485	
50	**48.32**	37	112	455	145	320	300	450	*)	*)	415	510	150	340	305	470	
56	**53.33**	34	112	415	145	315	290	440	*)	*)	395	490	150	335	295	455	
63	**61.86**	29	112	355	140	285	255	380	*)	170	390	470	155	305	265	400	
71	**68.27**	26	112	325	145	280	245	370	*)	170	370	450	155	300	255	390	
80	**81.61**	22	112	270	170	-	260	-	*)	-	340	-	175	-	265	-	**X4T.. M1** 316 **M4** 396
90	**90.07**	20	112	245	170	-	255	-	*)	-	325	-	175	-	260	-	
100	**99.97**	18	112	220	160	-	235	-	*)	-	295	-	165	-	240	-	
112	**110.34**	16	112	200	155	-	225	-	*)	-	275	-	160	-	230	-	
125	**123.47**	15	112	180	150	-	210	-	*)	-	255	-	155	-	215	-	
140	**136.27**	13	112	160	145	-	200	-	*)	-	235	-	150	-	205	-	
160	**156.11**	12	112	140	130	-	175	-	*)	-	205	-	135	-	180	-	
180	**172.29**	10	112	130	130	-	175	-	33	-	195	-	135	-	175	-	
200	**198.08**	9.1	112	115	125	-	160	-	110	-	230	-	135	-	170	-	
224	**218.61**	8.2	112	100	120	-	155	-	105	-	220	-	130	-	165	-	
250	**244.62**	7.4	112	91	115	-	150	-	105	-	205	-	125	-	155	-	
280	**269.99**	6.7	112	83	115	-	140	-	100	-	195	-	125	-	150	-	
315	**309.29**	5.8	112	72	105	-	125	-	91	-	170	-	110	-	135	-	
355	**341.36**	5.3	112	65	100	-	125	-	89	-	165	-	110	-	130	-	

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X.T230..,n_1= 1000 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M1				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14	**14.22**	70	104	790	205	390	370	530	*)	*)	*)	260	*)	390	355	530	**X3T.. M1** 312 **M4** 392
16	**15.61**	64	110	760	210	395	365	520	*)	*)	*)	240	*)	390	345	520	
18	**18.29**	55	113	670	230	380	345	485	*)	*)	380	460	235	400	355	500	
20	**20.08**	50	119	640	220	370	330	465	*)	*)	360	435	230	390	340	485	
22.4	**23.37**	43	126	580	220	365	320	450	*)	*)	335	415	230	385	325	470	
25	**25.66**	39	131	550	225	365	315	445	*)	*)	325	405	230	385	320	465	
28	**28.63**	35	131	495	210	340	285	410	*)	*)	290	365	215	360	295	425	
31.5	**31.43**	32	131	450	210	335	280	400	*)	*)	280	350	215	355	285	420	
35.5	**36.26**	28	131	390	210	320	265	375	145	220	350	410	225	345	280	400	
40	**39.82**	25	131	355	205	315	260	365	145	215	335	395	220	340	275	390	
45	**44.78**	22	131	315	190	290	235	330	135	200	300	350	205	310	250	355	
50	**49.17**	20	131	290	185	285	230	325	135	195	290	340	200	305	245	345	
56	**54.71**	18	131	260	175	265	210	300	145	200	275	325	190	285	225	320	
63	**60.08**	17	131	240	175	260	205	295	140	195	265	315	185	285	220	315	
71	**70.05**	14	131	205	155	235	185	260	140	185	240	280	170	255	195	280	
80	**76.91**	13	131	185	155	230	180	255	135	180	230	275	165	250	190	270	
90	**92.41**	11	131	155	160	-	185	-	145	-	235	-	175	-	200	-	**X4T.. M1** 316 **M4** 396
100	**101.47**	9.9	131	140	160	-	180	-	145	-	225	-	175	-	195	-	
112	**113.21**	8.8	131	125	150	-	165	-	135	-	205	-	160	-	180	-	
125	**124.31**	8.0	131	115	145	-	165	-	130	-	200	-	160	-	175	-	
140	**139.81**	7.2	131	105	140	-	155	-	125	-	190	-	150	-	165	-	
160	**153.52**	6.5	131	94	140	-	155	-	125	-	185	-	150	-	165	-	
180	**176.77**	5.7	131	81	120	-	135	-	110	-	160	-	130	-	145	-	
200	**194.10**	5.2	131	74	120	-	130	-	105	-	155	-	130	-	140	-	
224	**224.29**	4.5	131	65	110	-	120	-	110	-	145	-	120	-	130	-	
250	**246.28**	4.1	131	59	110	-	120	-	105	-	145	-	120	-	125	-	
280	**277.00**	3.6	131	52	105	-	110	-	100	-	135	-	115	-	120	-	
315	**304.16**	3.3	131	48	105	-	110	-	100	-	130	-	110	-	120	-	
355	**350.23**	2.9	131	41	92	-	98	-	90	-	115	-	100	-	105	-	
400	**384.57**	2.6	131	38	91	-	97	-	88	-	115	-	99	-	105	-	
X.T230..,n_1= 1200 1/min																	131 kNm
14	**14.22**	84	104	950	*)	375	340	540	*)	*)	*)	*)	*)	330	280	510	**X3T.. M1** 312 **M4** 392
16	**15.61**	77	110	920	*)	380	335	540	*)	*)	*)	*)	*)	335	275	510	
18	**18.29**	66	113	810	*)	395	340	510	*)	*)	235	355	*)	400	335	520	
20	**20.08**	60	119	770	195	380	325	490	*)	*)	215	330	*)	390	320	500	
22.4	**23.37**	51	126	700	195	380	315	475	*)	*)	195	315	185	390	310	490	
25	**25.66**	47	131	660	195	380	310	475	*)	*)	180	300	185	385	305	485	
28	**28.63**	42	131	600	185	355	285	435	*)	*)	160	270	180	360	280	445	
31.5	**31.43**	38	131	540	190	350	280	425	*)	*)	145	260	180	355	275	435	
35.5	**36.26**	33	131	470	205	345	275	405	*)	190	340	415	220	365	290	430	
40	**39.82**	30	131	430	205	340	270	395	*)	190	325	405	220	360	280	420	
45	**44.78**	27	131	380	190	310	240	360	*)	175	290	360	200	330	255	380	
50	**49.17**	24	131	345	185	305	235	350	*)	175	280	345	195	325	245	370	
56	**54.71**	22	131	315	175	285	220	325	120	195	275	340	190	305	230	345	
63	**60.08**	20	131	285	175	280	215	320	120	190	270	330	185	305	225	340	
71	**70.05**	17	131	245	160	250	190	280	130	190	245	300	170	275	205	300	
80	**76.91**	16	131	225	155	250	185	275	130	190	240	295	170	270	200	295	
90	**92.41**	13	131	185	170	-	195	-	135	-	240	-	180	-	205	-	**X4T.. M1** 316 **M4** 396
100	**101.47**	12	131	170	165	-	190	-	135	-	235	-	180	-	205	-	
112	**113.21**	11	131	150	155	-	175	-	125	-	210	-	165	-	185	-	
125	**124.31**	9.7	131	140	150	-	170	-	125	-	205	-	165	-	185	-	
140	**139.81**	8.6	131	125	145	-	165	-	120	-	190	-	155	-	175	-	
160	**153.52**	7.8	131	110	145	-	160	-	115	-	185	-	155	-	170	-	
180	**176.77**	6.8	131	98	125	-	140	-	105	-	160	-	135	-	150	-	
200	**194.10**	6.2	131	89	125	-	140	-	100	-	155	-	135	-	145	-	
224	**224.29**	5.4	131	78	115	-	125	-	110	-	155	-	125	-	135	-	
250	**246.28**	4.9	131	71	115	-	125	-	110	-	150	-	125	-	135	-	
280	**277.00**	4.3	131	63	110	-	120	-	105	-	140	-	120	-	125	-	
315	**304.16**	3.9	131	57	105	-	115	-	105	-	140	-	115	-	125	-	
355	**350.23**	3.4	131	50	97	-	105	-	93	-	120	-	105	-	110	-	
400	**384.57**	3.1	131	45	95	-	100	-	91	-	120	-	105	-	110	-	

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X.T230..,n_1= 1500 1/min																	131 kNm
					P_{TH}20 °C kW												
					M1				M1				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
14	**14.22**	105	104	1200	*)	300	*)	520	*)	*)	*)	*)	*)	*)	*)	395	**X3T..** **M1** 312 **M4** 392
16	**15.61**	96	110	1150	*)	305	*)	520	*)	*)	*)	*)	*)	*)	*)	390	
18	**18.29**	82	113	1000	*)	380	310	530	*)	*)	*)	*)	*)	355	265	520	
20	**20.08**	75	119	960	*)	370	295	510	*)	*)	*)	*)	*)	345	250	495	
22.4	**23.37**	64	126	880	*)	375	285	500	*)	*)	*)	*)	*)	350	240	485	
25	**25.66**	58	131	830	*)	375	280	495	*)	*)	*)	*)	*)	350	235	480	
28	**28.63**	52	131	740	*)	355	260	455	*)	*)	*)	*)	*)	335	220	440	
31.5	**31.43**	48	131	680	*)	350	255	445	*)	*)	*)	*)	*)	335	215	430	
35.5	**36.26**	41	131	590	185	365	275	440	*)	*)	285	390	190	385	285	460	
40	**39.82**	38	131	530	185	360	270	430	*)	*)	270	375	190	380	275	450	
45	**44.78**	33	131	475	170	330	245	390	*)	*)	235	330	175	345	250	405	
50	**49.17**	31	131	435	170	325	235	380	*)	*)	225	320	175	345	245	400	
56	**54.71**	27	131	395	170	305	225	355	*)	165	260	345	180	330	235	375	
63	**60.08**	25	131	360	170	305	220	350	*)	165	250	335	180	325	230	370	
71	**70.05**	21	131	305	160	275	200	310	105	190	250	325	170	295	210	330	
80	**76.91**	20	131	280	155	270	195	305	105	190	245	315	170	295	205	325	
90	**92.41**	16	131	235	175	-	205	-	105	-	235	-	185	-	215	-	**X4T..** **M1** 316 **M4** 396
100	**101.47**	15	131	210	170	-	200	-	105	-	225	-	180	-	210	-	
112	**113.21**	13	131	190	160	-	185	-	98	-	205	-	170	-	195	-	
125	**124.31**	12	131	175	155	-	180	-	96	-	195	-	165	-	190	-	
140	**139.81**	11	131	155	150	-	175	-	93	-	185	-	160	-	185	-	
160	**153.52**	9.8	131	140	150	-	170	-	92	-	180	-	160	-	180	-	
180	**176.77**	8.5	131	120	130	-	150	-	82	-	155	-	140	-	155	-	
200	**194.10**	7.7	131	110	130	-	145	-	81	-	150	-	135	-	155	-	
224	**224.29**	6.7	131	97	120	-	135	-	115	-	165	-	130	-	145	-	
250	**246.28**	6.1	131	88	120	-	135	-	110	-	160	-	130	-	140	-	
280	**277.00**	5.4	131	79	115	-	125	-	105	-	150	-	125	-	135	-	
315	**304.16**	4.9	131	72	115	-	125	-	105	-	145	-	120	-	130	-	
355	**350.23**	4.3	131	62	100	-	110	-	94	-	130	-	110	-	120	-	
400	**384.57**	3.9	131	57	100	-	110	-	93	-	125	-	110	-	115	-	
X.T230..,n_1= 1800 1/min																	131 kNm
14[1)]	**14.22**	127	98.4	1350	*)	*)	*)	410	*)	*)	*)	*)	*)	*)	*)	*)	**X3T..** **M1** 312 **M4** 392
16[1)]	**15.61**	115	103	1300	*)	*)	*)	420	*)	*)	*)	*)	*)	*)	*)	*)	
18	**18.29**	98	107	1150	*)	335	*)	530	*)	*)	*)	*)	*)	*)	*)	450	
20	**20.08**	90	112	1100	*)	325	*)	500	*)	*)	*)	*)	*)	*)	*)	430	
22.4	**23.37**	77	119	990	*)	335	*)	495	*)	*)	*)	*)	*)	250	*)	425	
25	**25.66**	70	123	940	*)	335	*)	490	*)	*)	*)	*)	*)	250	*)	420	
28	**28.63**	63	126	860	*)	325	*)	455	*)	*)	*)	*)	*)	250	*)	395	
31.5	**31.43**	57	129	800	*)	325	*)	445	*)	*)	*)	*)	*)	255	*)	385	
35.5	**36.26**	50	129	690	*)	375	265	465	*)	*)	*)	295	*)	385	260	475	
40	**39.82**	45	131	640	*)	370	260	455	*)	*)	*)	285	*)	380	255	465	
45	**44.78**	40	131	570	*)	340	230	410	*)	*)	*)	250	*)	350	225	420	
50	**49.17**	37	131	520	140	335	225	400	*)	*)	*)	240	135	345	220	410	
56	**54.71**	33	131	470	150	320	220	375	*)	*)	210	320	155	340	225	395	
63	**60.08**	30	131	430	150	315	215	370	*)	*)	200	310	155	335	220	390	
71	**70.05**	26	131	370	150	290	200	335	*)	180	245	335	165	315	210	355	
80	**76.91**	23	131	335	150	290	195	325	*)	175	235	325	160	310	205	350	
90	**92.41**	19	131	280	175	-	215	-	*)	-	205	-	180	-	220	-	**X4T..** **M1** 316 **M4** 396
100	**101.47**	18	131	255	175	-	210	-	*)	-	200	-	180	-	215	-	
112	**113.21**	16	131	230	160	-	195	-	*)	-	175	-	170	-	200	-	
125	**124.31**	14	131	210	160	-	190	-	*)	-	170	-	165	-	195	-	
140	**139.81**	13	131	185	155	-	180	-	*)	-	160	-	160	-	185	-	
160	**153.52**	12	131	170	150	-	175	-	*)	-	150	-	155	-	180	-	
180	**176.77**	10	131	145	135	-	155	-	*)	-	130	-	140	-	160	-	
200	**194.10**	9.3	131	135	130	-	150	-	37	-	125	-	135	-	155	-	
224	**224.29**	8.0	131	115	125	-	140	-	110	-	175	-	135	-	150	-	
250	**246.28**	7.3	131	105	125	-	140	-	110	-	170	-	135	-	150	-	
280	**277.00**	6.5	131	94	120	-	130	-	105	-	155	-	130	-	140	-	
315	**304.16**	5.9	131	86	115	-	130	-	105	-	155	-	125	-	140	-	
355	**350.23**	5.1	131	75	105	-	115	-	93	-	135	-	115	-	125	-	
400	**384.57**	4.7	131	68	105	-	115	-	92	-	130	-	110	-	120	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M1				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T240..,n_1= 1000 1/min																	**156 kNm**
12.5	**11.92**	84	128	1150	*)	385	590	770	*)	*)	*)	385	*)	340	540	740	
14	**13.71**	73	137	1100	*)	375	540	720	*)	*)	*)	315	*)	330	490	690	
16	**15.32**	65	138	980	*)	420	540	700	*)	*)	690	780	*)	435	540	720	
18	**17.64**	57	156	960	*)	410	510	660	*)	*)	630	720	*)	420	510	680	
20	**20.36**	49	156	830	235	425	495	650	*)	*)	610	700	235	440	495	670	
22.4	**23.44**	43	156	720	230	405	455	610	*)	*)	550	630	225	420	455	620	
25	**25.64**	39	156	660	220	380	415	550	*)	*)	485	570	215	390	415	570	**X3T.. M1** 312 **M4** 392
28	**29.51**	34	156	570	215	370	395	530	*)	*)	450	530	215	385	395	540	
31.5	**32.47**	31	156	520	230	365	375	500	*)	200	550	610	245	390	390	520	
35.5	**37.38**	27	156	450	225	355	360	480	*)	200	510	580	240	380	370	500	
40	**39.96**	25	156	425	225	355	350	470	105	200	495	560	240	380	365	495	
45	**46.00**	22	156	370	215	340	325	440	105	190	455	520	230	360	340	465	
50	**48.83**	20	156	350	205	320	305	410	145	215	440	500	220	345	315	430	
56	**56.20**	18	156	305	200	305	285	385	140	205	410	465	210	330	295	405	
63	**62.51**	16	156	275	190	290	265	360	155	215	390	440	205	315	280	385	
71	**71.95**	14	156	235	185	280	250	340	150	205	360	410	200	300	265	360	
80	**82.39**	12	156	210	185	-	245	-	155	-	345	-	200	-	260	-	
90	**94.83**	11	156	180	185	-	235	-	150	-	325	-	195	-	250	-	
100	**103.71**	9.6	156	165	170	-	215	-	140	-	295	-	185	-	230	-	
112	**119.37**	8.4	156	145	165	-	210	-	135	-	280	-	180	-	220	-	
125	**127.64**	7.8	156	135	170	-	210	-	140	-	275	-	180	-	220	-	
140	**146.91**	6.8	156	115	160	-	195	-	135	-	260	-	175	-	210	-	**X4T.. M1** 316 **M4** 396
160	**153.55**	6.5	156	110	150	-	185	-	125	-	240	-	165	-	195	-	
180	**176.74**	5.7	156	97	145	-	175	-	120	-	225	-	155	-	185	-	
200	**205.47**	4.9	156	84	125	-	150	-	120	-	200	-	135	-	160	-	
224	**236.50**	4.2	156	73	120	-	140	-	115	-	190	-	130	-	150	-	
250	**252.89**	4.0	156	68	120	-	140	-	115	-	185	-	130	-	150	-	
280	**291.08**	3.4	156	59	120	-	135	-	115	-	180	-	130	-	145	-	
315	**304.22**	3.3	156	57	115	-	130	-	110	-	170	-	125	-	140	-	
355	**350.17**	2.9	156	49	110	-	125	-	105	-	160	-	120	-	130	-	
X.T240..,n_1= 1200 1/min																	**156 kNm**
12.5	**11.92**	101	128	1400	*)	*)	550	780	*)	*)	*)	*)	*)	*)	410	690	
14	**13.71**	88	137	1300	*)	*)	500	730	*)	*)	*)	*)	*)	*)	365	640	
16	**15.32**	78	138	1200	*)	410	550	750	*)	*)	495	620	*)	395	530	740	
18	**17.64**	68	156	1150	*)	395	510	700	*)	*)	430	560	*)	385	485	700	
20	**20.36**	59	156	1000	*)	420	500	700	*)	*)	420	550	*)	415	485	690	
22.4	**23.44**	51	156	870	*)	405	465	640	*)	*)	360	485	*)	400	440	640	
25	**25.64**	47	156	790	*)	380	420	590	*)	*)	315	435	*)	380	400	590	**X3T.. M1** 312 **M4** 392
28	**29.51**	41	156	690	180	375	400	560	*)	*)	275	390	*)	370	380	560	
31.5	**32.47**	37	156	620	215	380	390	540	*)	*)	530	620	225	405	400	560	
35.5	**37.38**	32	156	540	215	375	375	520	*)	*)	500	580	220	395	380	540	
40	**39.96**	30	156	510	210	370	365	510	*)	*)	480	570	220	395	370	530	
45	**46.00**	26	156	440	205	355	340	475	*)	120	440	520	215	375	345	495	
50	**48.83**	25	156	420	200	340	315	445	*)	190	450	520	215	365	330	465	
56	**56.20**	21	156	365	195	325	295	420	*)	185	415	485	205	345	305	440	
63	**62.51**	19	156	330	190	310	280	395	130	210	405	470	205	335	290	415	
71	**71.95**	17	156	285	180	300	260	370	125	205	375	440	195	320	275	395	
80	**82.39**	15	156	250	195	-	260	-	130	-	355	-	205	-	275	-	
90	**94.83**	13	156	215	190	-	250	-	130	-	335	-	200	-	265	-	
100	**103.71**	12	156	200	175	-	230	-	120	-	300	-	185	-	240	-	
112	**119.37**	10	156	170	170	-	220	-	115	-	285	-	180	-	230	-	
125	**127.64**	9.4	156	160	175	-	220	-	120	-	280	-	185	-	230	-	
140	**146.91**	8.2	156	140	165	-	210	-	115	-	260	-	175	-	220	-	**X4T.. M1** 316 **M4** 396
160	**153.55**	7.8	156	135	155	-	195	-	110	-	245	-	165	-	205	-	
180	**176.74**	6.8	156	115	150	-	185	-	105	-	225	-	160	-	195	-	
200	**205.47**	5.8	156	100	130	-	160	-	125	-	215	-	140	-	170	-	
224	**236.50**	5.1	156	88	125	-	150	-	120	-	200	-	135	-	160	-	
250	**252.89**	4.7	156	82	125	-	150	-	120	-	200	-	135	-	160	-	
280	**291.08**	4.1	156	71	125	-	145	-	115	-	190	-	135	-	155	-	
315	**304.22**	3.9	156	68	120	-	135	-	110	-	180	-	130	-	145	-	
355	**350.17**	3.4	156	59	115	-	130	-	105	-	170	-	125	-	140	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M1				M4				
		min^{-1}	kNm	kW			H_2O	+ H_2O			H_2O	+ H_2O			H_2O	+ H_2O	
X.T240..,n_1= 1500 1/min																	**156 kNm**
12.5[1)]	**11.92**	126	128	1750	*)	*)	*)	680	*)	*)	*)	*)	*)	*)	*)	*)	
14[1)]	**13.71**	109	137	1600	*)	*)	*)	660	*)	*)	*)	*)	*)	*)	*)	*)	
16	**15.32**	98	138	1450	*)	*)	520	780	*)	*)	*)	*)	*)	*)	425	730	
18	**17.64**	85	156	1450	*)	*)	480	730	*)	*)	*)	*)	*)	*)	385	680	
20	**20.36**	74	156	1250	*)	375	480	730	*)	*)	*)	*)	*)	*)	390	680	
22.4	**23.44**	64	156	1100	*)	365	435	670	*)	*)	*)	*)	*)	300	355	620	**X3T..**
25	**25.64**	59	156	990	*)	350	400	620	*)	*)	*)	*)	*)	295	320	570	**M1**
28	**29.51**	51	156	860	*)	350	375	590	*)	*)	*)	*)	*)	295	300	540	312
31.5	**32.47**	46	156	780	*)	395	400	580	*)	*)	440	560	*)	405	395	600	**M4**
35.5	**37.38**	40	156	680	170	385	380	560	*)	*)	405	520	*)	395	375	570	392
40	**39.96**	38	156	630	170	385	370	550	*)	*)	385	500	165	395	365	560	
45	**46.00**	33	156	550	165	365	340	510	*)	*)	345	455	160	380	335	530	
50	**48.83**	31	156	520	180	355	325	485	*)	*)	425	520	185	380	330	500	
56	**56.20**	27	156	455	175	340	305	455	*)	*)	385	480	180	360	310	475	
63	**62.51**	24	156	410	180	335	290	435	*)	185	410	500	195	360	300	455	
71	**71.95**	21	156	355	175	320	270	410	*)	175	380	465	185	345	280	430	
80	**82.39**	18	156	310	195	-	280	-	*)	-	345	-	205	-	290	-	
90	**94.83**	16	156	270	190	-	270	-	*)	-	325	-	200	-	275	-	
100	**103.71**	14	156	245	180	-	245	-	*)	-	290	-	185	-	250	-	
112	**119.37**	13	156	215	175	-	235	-	*)	-	275	-	180	-	240	-	
125	**127.64**	12	156	200	175	-	235	-	54	-	265	-	185	-	240	-	**X4T..**
140	**146.91**	10	156	175	170	-	220	-	53	-	245	-	175	-	230	-	**M1**
160	**153.55**	9.8	156	165	160	-	210	-	51	-	230	-	165	-	215	-	316
180	**176.74**	8.5	156	145	155	-	195	-	50	-	210	-	160	-	200	-	**M4**
200	**205.47**	7.3	156	125	135	-	170	-	120	-	230	-	150	-	180	-	396
224	**236.50**	6.3	156	110	130	-	160	-	120	-	215	-	140	-	170	-	
250	**252.89**	5.9	156	105	130	-	160	-	120	-	215	-	145	-	170	-	
280	**291.08**	5.2	156	89	130	-	155	-	115	-	205	-	140	-	165	-	
315	**304.22**	4.9	156	85	125	-	145	-	110	-	190	-	135	-	155	-	
355	**350.17**	4.3	156	74	120	-	140	-	105	-	180	-	130	-	150	-	
X.T240..,n_1= 1800 1/min																	**156 kNm**
12.5[1)]	**11.92**	151	121	2000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
14[1)]	**13.71**	131	129	1850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[1)]	**15.32**	117	130	1650	*)	*)	*)	740	*)	*)	*)	*)	*)	*)	*)	580	
18[1)]	**17.64**	102	147	1650	*)	*)	*)	710	*)	*)	*)	*)	*)	*)	*)	560	
20[1)]	**20.36**	88	147	1400	*)	*)	405	720	*)	*)	*)	*)	*)	*)	*)	580	
22.4[1)]	**23.44**	77	156	1300	*)	*)	365	660	*)	*)	*)	*)	*)	*)	*)	530	
25[1)]	**25.64**	70	156	1200	*)	*)	335	610	*)	*)	*)	*)	*)	*)	*)	490	**X3T..**
28[1)]	**29.51**	61	156	1050	*)	280	315	580	*)	*)	*)	*)	*)	*)	*)	465	**M1**
31.5[1)]	**32.47**	55	156	940	*)	380	390	610	*)	*)	*)	380	*)	370	355	610	312
35.5[1)]	**37.38**	48	156	810	*)	375	370	590	*)	*)	*)	340	*)	370	335	580	**M4**
40[1)]	**39.96**	45	156	760	*)	380	355	570	*)	*)	*)	325	*)	370	325	570	392
45[1)]	**46.00**	39	156	660	*)	360	330	540	*)	*)	*)	280	*)	355	300	530	
50[1)]	**48.83**	37	156	630	*)	365	325	510	*)	*)	345	470	*)	375	320	530	
56[1)]	**56.20**	32	156	550	140	345	305	480	*)	*)	305	430	*)	360	300	495	
63[1)]	**62.51**	29	156	490	155	345	295	465	*)	*)	390	500	165	370	300	485	
71[1)]	**71.95**	25	156	425	155	330	275	435	*)	110	355	460	160	355	280	455	
80	**82.39**	22	156	375	195	-	295	-	*)	-	300	-	195	-	295	-	
90	**94.83**	19	156	325	190	-	285	-	*)	-	275	-	190	-	280	-	
100	**103.71**	17	156	295	180	-	260	-	*)	-	245	-	175	-	255	-	
112	**119.37**	15	156	260	175	-	245	-	*)	-	225	-	175	-	245	-	
125	**127.64**	14	156	240	175	-	245	-	*)	-	215	-	175	-	245	-	
140	**146.91**	12	156	210	170	-	230	-	*)	-	195	-	170	-	230	-	**X4T..**
160	**153.55**	12	156	200	160	-	215	-	*)	-	180	-	160	-	215	-	**M1**
180	**176.74**	10	156	175	155	-	205	-	*)	-	165	-	155	-	205	-	316
200	**205.47**	8.8	156	150	140	-	175	-	115	-	245	-	150	-	185	-	**M4**
224	**236.50**	7.6	156	130	135	-	170	-	110	-	230	-	145	-	180	-	396
250	**252.89**	7.1	156	125	135	-	165	-	110	-	225	-	145	-	175	-	
280	**291.08**	6.2	156	105	130	-	160	-	110	-	215	-	140	-	170	-	
315	**304.22**	5.9	156	100	125	-	155	-	105	-	200	-	135	-	160	-	
355	**350.17**	5.1	156	89	120	-	145	-	100	-	190	-	130	-	155	-	

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X.T250..,n_1= 1000 1/min																	175 kNm
					P_{TH}20 °C kW												
					M1				M1				M4				
i_N	i_{ex}	n_2	M_{N2}	P_{N1}			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O			H_2O	H_2O + H_2O	
		min^{-1}	kNm	kW													
14	**12.80**	78	138	1150	*)	390	360	580	*)	*)	*)	*)	*)	345	295	540	**X3T.. M1** 312 **M4** 392
16	**14.71**	68	148	1100	*)	380	335	540	*)	*)	*)	*)	*)	335	275	510	
18	**16.47**	61	149	980	*)	425	375	560	*)	*)	300	415	*)	440	375	570	
20	**18.92**	53	162	930	*)	410	355	530	*)	*)	270	380	*)	425	355	540	
22.4	**21.88**	46	169	840	230	415	350	520	*)	*)	265	370	230	430	350	530	
25	**25.14**	40	175	750	225	400	330	490	*)	*)	235	340	225	410	330	500	
28	**27.55**	36	175	690	220	385	315	465	*)	*)	220	320	220	400	315	480	
31.5	**31.64**	32	175	600	215	365	295	435	*)	*)	195	290	210	380	295	450	
35.5	**34.89**	29	175	540	235	370	300	430	*)	205	360	430	250	395	315	460	
40	**40.08**	25	175	475	225	355	285	405	*)	195	330	400	240	380	300	430	
45	**42.95**	23	175	440	225	350	280	400	*)	200	320	390	240	375	295	425	
50	**49.33**	20	175	385	215	335	265	380	105	190	300	365	225	360	275	405	
56	**52.47**	19	175	365	205	315	250	355	145	215	305	365	220	340	265	380	
63	**60.27**	17	175	320	200	310	240	345	140	210	290	350	215	335	255	370	
71	**67.18**	15	175	285	190	290	225	320	155	215	280	335	205	315	240	345	
80	**77.17**	13	175	250	185	285	215	310	150	210	265	320	200	305	230	335	
90	**88.53**	11	175	215	190	-	215	-	155	-	260	-	205	-	230	-	**X4T.. M1** 316 **M4** 396
100	**101.70**	9.8	175	190	180	-	205	-	150	-	245	-	195	-	220	-	
112	**111.45**	9.0	175	170	175	-	195	-	145	-	225	-	185	-	205	-	
125	**128.02**	7.8	175	150	165	-	185	-	135	-	215	-	180	-	195	-	
140	**137.16**	7.3	175	140	165	-	185	-	140	-	210	-	180	-	195	-	
160	**157.56**	6.3	175	120	160	-	175	-	135	-	200	-	170	-	190	-	
180	**165.01**	6.1	175	115	150	-	165	-	125	-	185	-	165	-	175	-	
200	**189.54**	5.3	175	100	145	-	160	-	120	-	175	-	155	-	170	-	
224	**220.81**	4.5	175	88	125	-	135	-	120	-	165	-	135	-	145	-	
250	**253.64**	3.9	175	76	120	-	130	-	115	-	155	-	130	-	140	-	
280	**271.76**	3.7	175	71	120	-	130	-	115	-	155	-	130	-	140	-	
315	**312.17**	3.2	175	62	115	-	125	-	115	-	145	-	125	-	135	-	
355	**326.93**	3.1	175	59	115	-	120	-	110	-	140	-	125	-	130	-	
400	**375.54**	2.7	175	52	110	-	115	-	105	-	135	-	120	-	125	-	
X.T250..,n_1= 1200 1/min																	**175 kNm**
14	**12.80**	94	138	1400	*)	*)	*)	540	*)	*)	*)	*)	*)	*)	*)	425	**X3T.. M1** 312 **M4** 392
16	**14.71**	82	148	1300	*)	*)	*)	510	*)	*)	*)	*)	*)	*)	*)	400	
18	**16.47**	73	149	1200	*)	415	345	570	*)	*)	*)	*)	*)	400	320	570	
20	**18.92**	63	162	1100	*)	400	325	540	*)	*)	*)	*)	*)	390	300	540	
22.4	**21.88**	55	169	1000	*)	415	325	540	*)	*)	*)	*)	*)	405	300	540	
25	**25.14**	48	175	910	*)	400	310	510	*)	*)	*)	*)	*)	390	285	500	
28	**27.55**	44	175	830	*)	390	295	485	*)	*)	*)	*)	*)	385	275	485	
31.5	**31.64**	38	175	720	*)	370	280	455	*)	*)	*)	*)	*)	370	255	455	
35.5	**34.89**	34	175	650	220	390	300	460	*)	*)	310	410	230	410	310	485	
40	**40.08**	30	175	570	210	370	285	435	*)	*)	285	375	220	395	295	455	
45	**42.95**	28	175	530	210	370	280	430	*)	*)	275	370	220	390	290	450	
50	**49.33**	24	175	460	200	350	265	405	*)	120	250	340	210	375	270	425	
56	**52.47**	23	175	440	200	335	250	385	*)	190	290	370	215	360	265	405	
63	**60.27**	20	175	380	195	330	245	370	*)	190	275	350	210	355	255	395	
71	**67.18**	18	175	340	190	310	230	345	130	210	280	350	205	335	245	370	
80	**77.17**	16	175	300	185	305	220	335	130	205	265	335	200	325	235	360	
90	**88.53**	14	175	260	195	-	225	-	135	-	255	-	210	-	240	-	**X4T.. M1** 316 **M4** 396
100	**101.70**	12	175	225	185	-	215	-	130	-	240	-	200	-	225	-	
112	**111.45**	11	175	205	180	-	205	-	120	-	220	-	190	-	215	-	
125	**128.02**	9.4	175	180	170	-	195	-	120	-	210	-	180	-	205	-	
140	**137.16**	8.7	175	170	170	-	195	-	120	-	205	-	185	-	205	-	
160	**157.56**	7.6	175	145	165	-	185	-	115	-	195	-	175	-	195	-	
180	**165.01**	7.3	175	140	155	-	175	-	110	-	180	-	165	-	185	-	
200	**189.54**	6.3	175	120	150	-	165	-	105	-	170	-	160	-	175	-	
224	**220.81**	5.4	175	105	130	-	145	-	125	-	170	-	140	-	155	-	
250	**253.64**	4.7	175	92	125	-	135	-	120	-	165	-	135	-	145	-	
280	**271.76**	4.4	175	86	125	-	135	-	120	-	160	-	135	-	145	-	
315	**312.17**	3.8	175	75	120	-	130	-	115	-	155	-	130	-	140	-	
355	**326.93**	3.7	175	71	120	-	125	-	110	-	145	-	130	-	135	-	
400	**375.54**	3.2	175	62	115	-	120	-	105	-	140	-	125	-	130	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} 20 °C kW												
					M1				M1				M4				
							H_2O	H_2O +			H_2O	H_2O +			H_2O	H_2O +	
		min^{-1}	kNm	kW													
X.T250..,n_1= 1500 1/min																	**175 kNm**
14[1]	**12.80**	117	138	1750	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[1]	**14.71**	102	148	1650	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
18	**16.47**	91	149	1450	*)	*)	*)	550	*)	*)	*)	*)	*)	*)	*)	490	
20	**18.92**	79	162	1400	*)	*)	*)	530	*)	*)	*)	*)	*)	*)	*)	460	
22.4	**21.88**	69	169	1250	*)	370	*)	530	*)	*)	*)	*)	*)	*)	*)	475	
25	**25.14**	60	175	1150	*)	360	*)	500	*)	*)	*)	*)	*)	295	*)	450	
28	**27.55**	54	175	1050	*)	360	*)	485	*)	*)	*)	*)	*)	300	*)	435	**X3T..**
31.5	**31.64**	47	175	900	*)	345	*)	455	*)	*)	*)	*)	*)	290	*)	410	**M1**
35.5	**34.89**	43	175	820	*)	400	280	485	*)	*)	*)	280	*)	415	275	500	312
40	**40.08**	37	175	710	*)	380	265	460	*)	*)	*)	255	*)	395	260	475	**M4**
45	**42.95**	35	175	660	170	380	260	455	*)	*)	*)	250	*)	395	255	470	392
50	**49.33**	30	175	580	165	365	245	430	*)	*)	*)	225	160	375	240	440	
56	**52.47**	29	175	550	175	355	245	410	*)	*)	220	335	185	375	255	435	
63	**60.27**	25	175	475	175	345	240	400	*)	*)	205	315	185	370	245	420	
71	**67.18**	22	175	430	180	330	230	375	*)	185	260	355	190	355	240	400	
80	**77.17**	19	175	370	175	325	220	365	*)	180	245	335	190	350	235	390	
90	**88.53**	17	175	325	200	-	240	-	*)	-	225	-	205	-	245	-	
100	**101.70**	15	175	285	190	-	225	-	*)	-	205	-	200	-	235	-	
112	**111.45**	13	175	260	180	-	210	-	*)	-	190	-	190	-	220	-	
125	**128.02**	12	175	225	175	-	200	-	*)	-	175	-	180	-	210	-	
140	**137.16**	11	175	210	175	-	200	-	56	-	175	-	185	-	210	-	
160	**157.56**	9.5	175	185	170	-	190	-	54	-	160	-	175	-	200	-	**X4T..**
180	**165.01**	9.1	175	175	160	-	180	-	53	-	150	-	165	-	185	-	**M1**
200	**189.54**	7.9	175	150	155	-	170	-	52	-	140	-	160	-	180	-	316
224	**220.81**	6.8	175	130	135	-	150	-	120	-	180	-	150	-	160	-	**M4**
250	**253.64**	5.9	175	115	130	-	145	-	120	-	170	-	140	-	155	-	396
280	**271.76**	5.5	175	105	130	-	145	-	120	-	170	-	145	-	155	-	
315	**312.17**	4.8	175	93	125	-	140	-	115	-	160	-	135	-	150	-	
355	**326.93**	4.6	175	89	125	-	135	-	110	-	155	-	135	-	145	-	
400	**375.54**	4.0	175	77	120	-	130	-	105	-	145	-	130	-	135	-	
X.T250..,n_1= 1800 1/min																	**175 kNm**
14[1]	**12.80**	141	130	2000	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
16[1]	**14.71**	122	139	1850	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
18[1]	**16.47**	109	140	1650	*)	*)	*)	470	*)	*)	*)	*)	*)	*)	*)	*)	
20[1]	**18.92**	95	153	1600	*)	*)	*)	455	*)	*)	*)	*)	*)	*)	*)	*)	
22.4[1]	**21.88**	82	159	1400	*)	*)	*)	475	*)	*)	*)	*)	*)	*)	*)	*)	
25[1]	**25.14**	72	175	1350	*)	*)	*)	450	*)	*)	*)	*)	*)	*)	*)	*)	
28[1]	**27.55**	65	174	1250	*)	*)	*)	440	*)	*)	*)	*)	*)	*)	*)	*)	
31.5[1]	**31.64**	57	175	1100	*)	280	*)	420	*)	*)	*)	*)	*)	*)	*)	285	**X3T..**
35.5[1]	**34.89**	52	175	980	*)	385	*)	495	*)	*)	*)	*)	*)	380	*)	495	**M1**
40[1]	**40.08**	45	175	850	*)	375	230	470	*)	*)	*)	*)	*)	365	*)	465	312
45[1]	**42.95**	42	175	790	*)	375	220	465	*)	*)	*)	*)	*)	370	*)	460	**M4**
50[1]	**49.33**	36	175	690	*)	360	210	435	*)	*)	*)	*)	*)	355	180	435	392
56[1]	**52.47**	34	175	660	*)	360	225	430	*)	*)	*)	240	*)	375	220	445	
63[1]	**60.27**	30	175	570	*)	355	220	415	*)	*)	*)	220	*)	370	215	430	
71[1]	**67.18**	27	175	510	155	345	220	395	*)	*)	205	330	165	370	230	420	
80[1]	**77.17**	23	175	445	155	335	215	385	*)	115	195	315	165	360	220	405	
90	**88.53**	20	175	390	200	-	245	-	*)	-	140	-	200	-	245	-	
100	**101.70**	18	175	340	190	-	230	-	*)	-	130	-	190	-	230	-	
112	**111.45**	16	175	310	180	-	215	-	*)	-	115	-	180	-	215	-	
125	**128.02**	14	175	270	175	-	205	-	*)	-	100	-	175	-	205	-	
140	**137.16**	13	175	250	175	-	205	-	*)	-	97	-	175	-	205	-	
160	**157.56**	11	175	220	170	-	195	-	*)	-	87	-	170	-	195	-	**X4T..**
180	**165.01**	11	175	210	160	-	185	-	*)	-	81	-	160	-	185	-	**M1**
200	**189.54**	9.5	175	180	155	-	175	-	*)	-	72	-	155	-	175	-	316
224	**220.81**	8.2	175	160	140	-	155	-	115	-	185	-	150	-	165	-	**M4**
250	**253.64**	7.1	175	140	135	-	150	-	110	-	175	-	145	-	160	-	396
280	**271.76**	6.6	175	130	135	-	150	-	115	-	170	-	145	-	160	-	
315	**312.17**	5.8	175	110	130	-	145	-	110	-	165	-	140	-	155	-	
355	**326.93**	5.5	175	105	125	-	140	-	105	-	155	-	135	-	150	-	
400	**375.54**	4.8	175	93	120	-	130	-	100	-	150	-	130	-	140	-	

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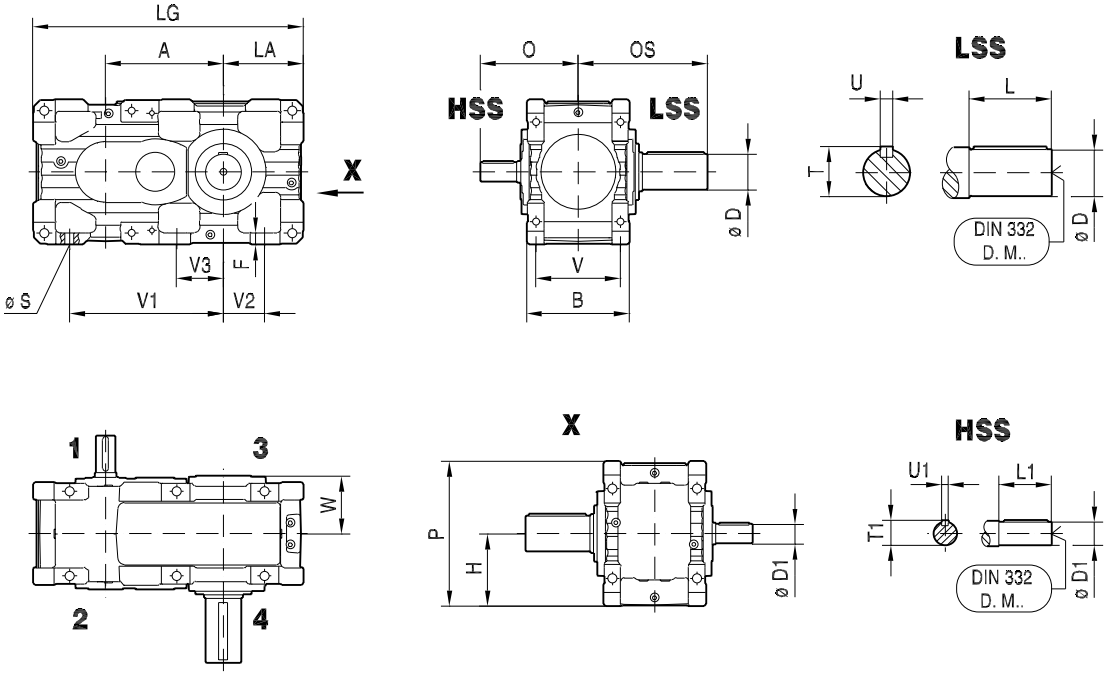
10 Dimension sheets: Universal housing /HU

10.1 X.F.. helical gear units [mm]

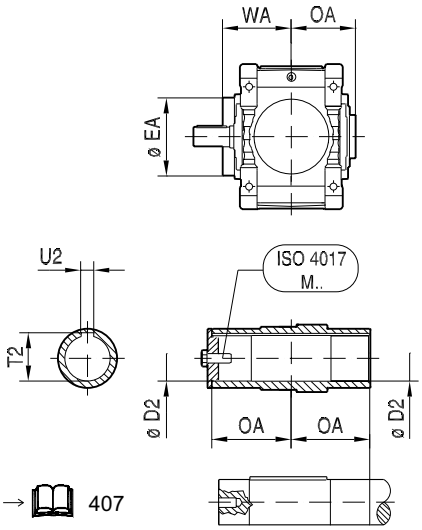
10.1.1 X2F100 – 210

X2FS../HU

48 025 03 07

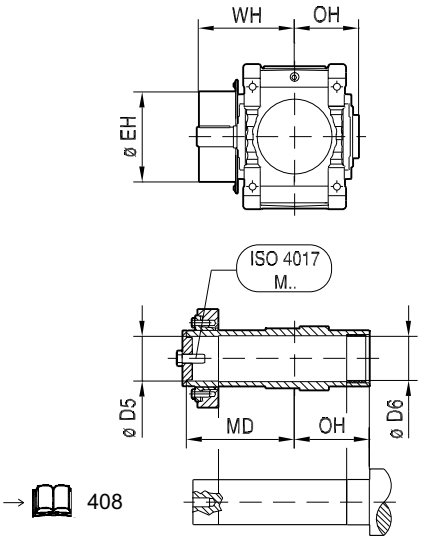


X2FA../HU



→ 407

X2FH../HU



→ 408

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X.F..														X.FS.. LSS						
X2F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	278	260	29	$190_{-0.5}$	$190_{-0.5}$	658	380	24 (4x)	210	370	90	-	153	80_{m6}	170	343	85	22_{h9}	M20	210
X110	298	260	29	$190_{-0.5}$	$215_{-0.5}$	703	380	24 (4x)	210	390	115	-	153	90_{m6}	170	346	95	25_{h9}	M24	220
X120	327	300	33	$225_{-0.5}$	$215_{-0.5}$	767	450	28 (4x)	245	440	105	-	174	100_{m6}	210	401	106	28_{h9}	M24	320
X130	363	300	33	$225_{-0.5}$	$250_{-0.5}$	838	450	28 (4x)	245	475	140	-	174	110_{m6}	210	404	116	28_{h9}	M24	370
X140	388	360	42	$265_{-0.5}$	$250_{-0.5}$	903	530	35 (4x)	290	510	110	-	202	120_{m6}	210	432	127	32_{h9}	M24	520
X150	430	360	42	$265_{-0.5}$	$295_{-0.5}$	990	530	35 (4x)	290	555	155	-	202	130_{m6}	250	475	137	32_{h9}	M24	590
X160	474	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	630	42 (4x)	340	620	185	-	240	140_{m6}	250	506	148	36_{h9}	M30	890
X170	525	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	630	42 (4x)	340	670	185	-	240	160_{m6}	300	556	169	40_{h9}	M30	1040
X180	544	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	670	42 (6x)	390	710	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1350
X190	576	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	670	42 (6x)	390	740	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1410
X200	614	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	750	48 (6x)	420	780	205	230	298	180_{m6}	300	612	190	45_{h9}	M30	1890
X210	650	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	750	48 (6x)	420	815	205	230	298	190_{m6}	350	662	200	45_{h9}	M30	1920

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X100**	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X110***	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X120*	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X130***	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X140*	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X150***	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X160*	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X170***	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X180*	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X200*	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24
X210**	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24

X2FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	200
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	210
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	300
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	345
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	485
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	540
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	820
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	960
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1250
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1310
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1805
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805

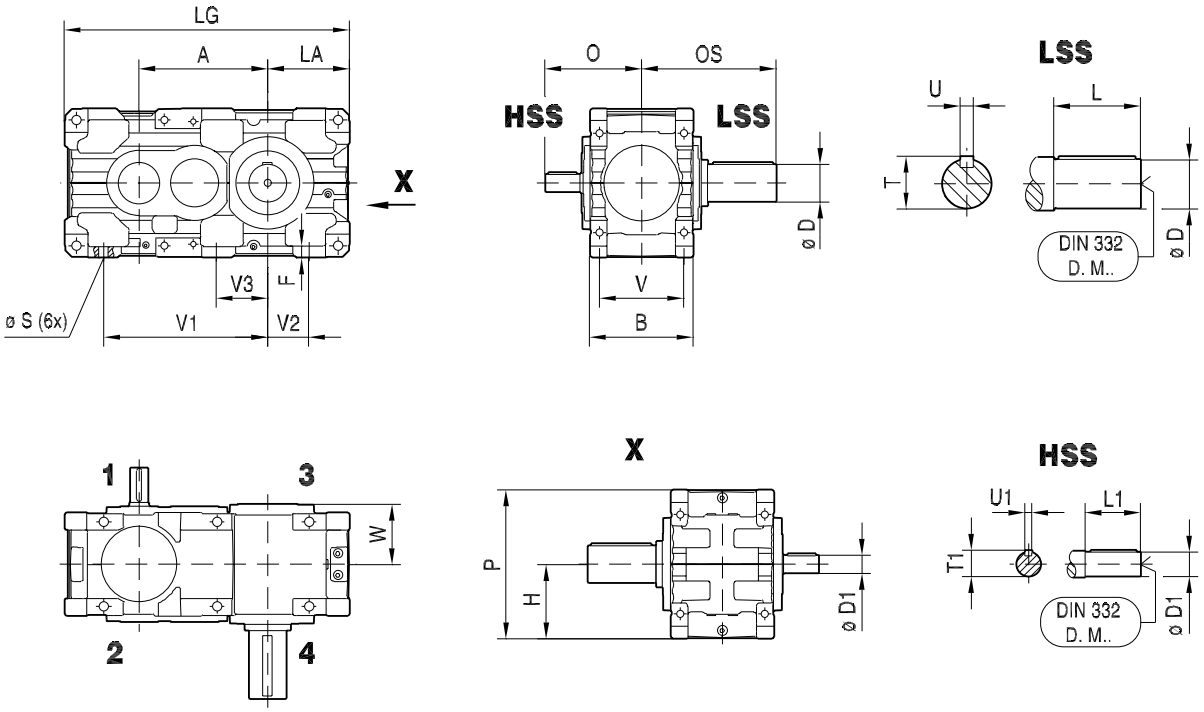
X2FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	210
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	220
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	310
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	360
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	510
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	570
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	850
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1015
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1300
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1360
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1875
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

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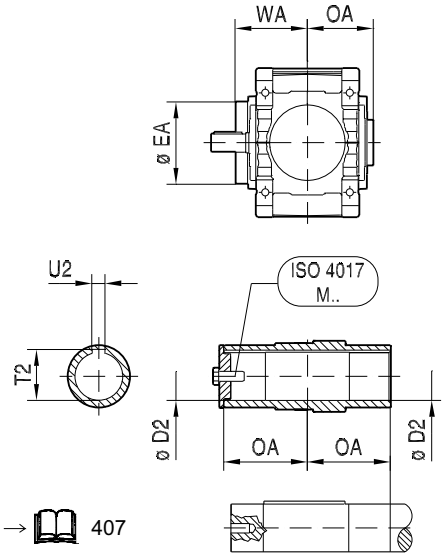
10.1.2 X2F220 – 250

X2FS../HU

48 028 03 07

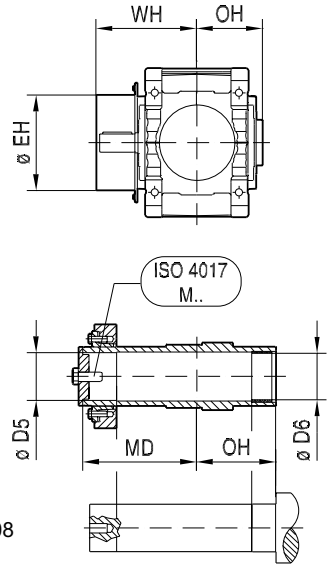


X2FA../HU



→ 407

X2FH../HU



→ 408

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X.F..														X.FS.. LSS						
X2F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2650
X230	734	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	2830
X240	776	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	510	990	250	305	377	230_{m6}	410	811	241	50_{h9}	M36	3630
X250	799	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	510	1010	250	305	377	240_{m6}	410	811	252	56_{h9}	M36	3780

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X220*	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24

X2FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2470
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2610
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3345
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3475

X2FH..

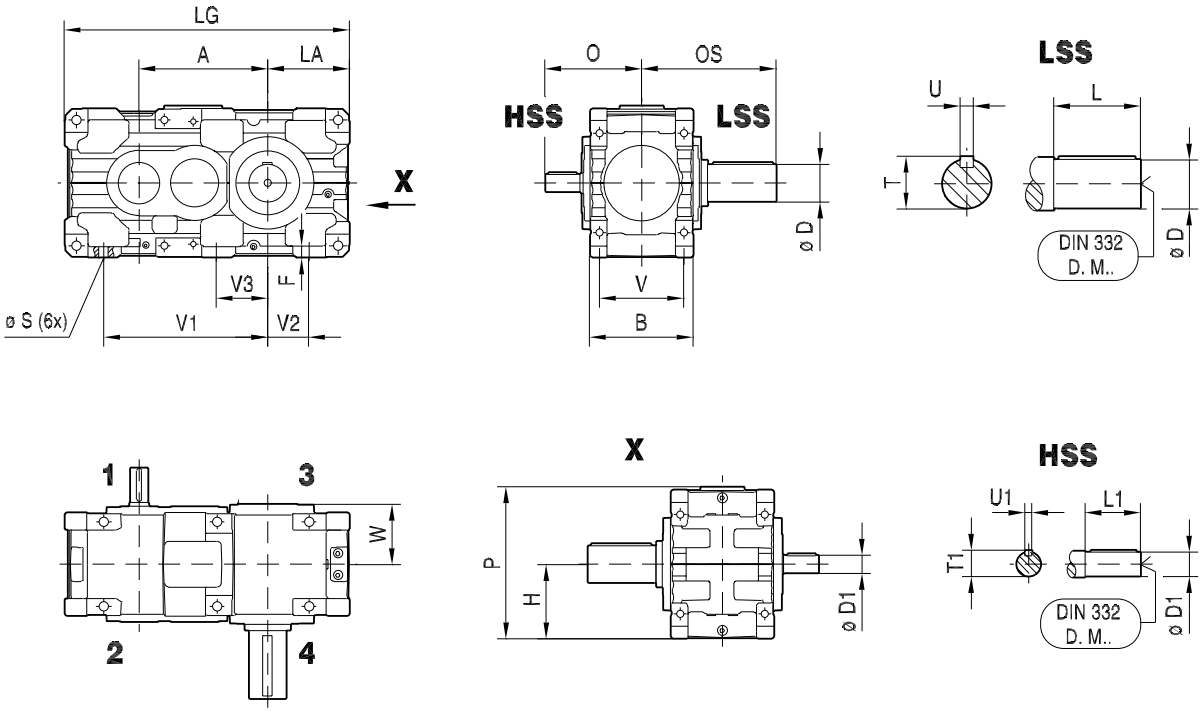
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2575
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2720
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3510
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3635

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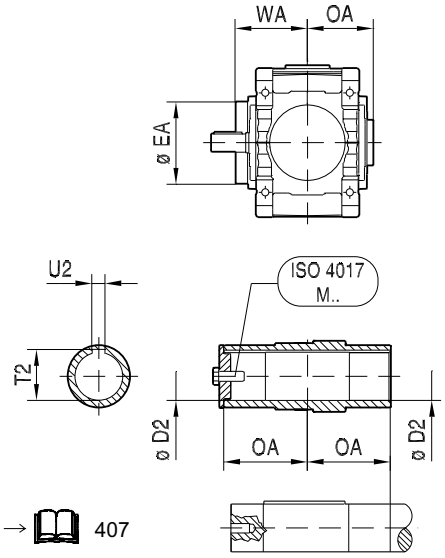
10.1.3 X2F260 – 320

X2FS../HU

48 029 02 08

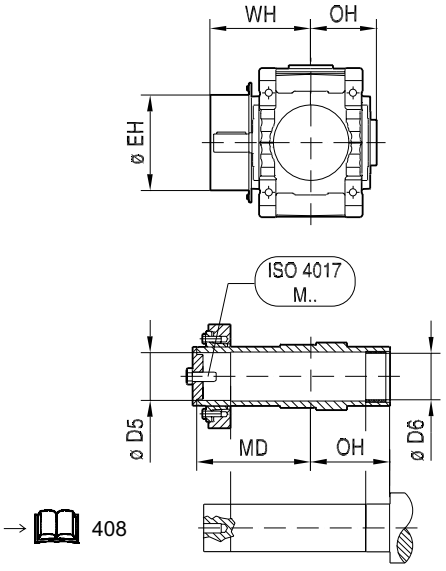


X2FA../HU



→ 407

X2FH../HU



→ 408

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X.F..														X.FS.. LSS						
X2F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	855	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4450
X270	890	705	73	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	4900
X280	942	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5350
X290	987	785	86	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	6550
X300	1016	785	86	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	7250
X310	1100	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	7500
X320	1134	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	8300

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X260*	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

X2FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110–8.8	4050
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	4450
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	4850
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	5900
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	6550
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	6750
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	7500

X2FH..

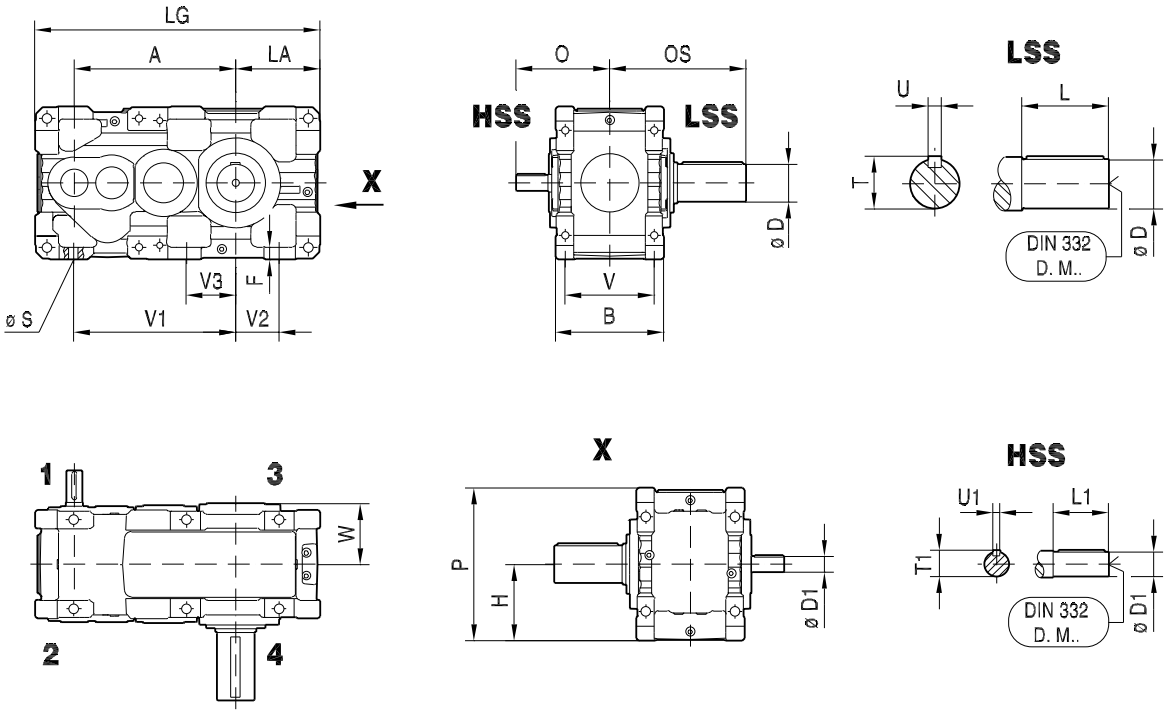
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110–8.8	4200
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	4700
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	5100
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	6150
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	6800
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	7100
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	7850

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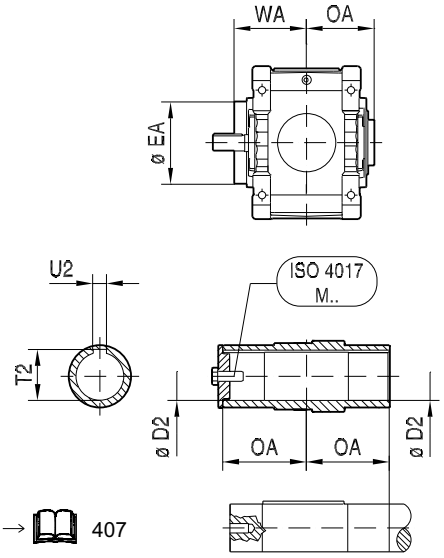
10.1.4 X3F100 – 210

X3FS../HU

48 026 03 07

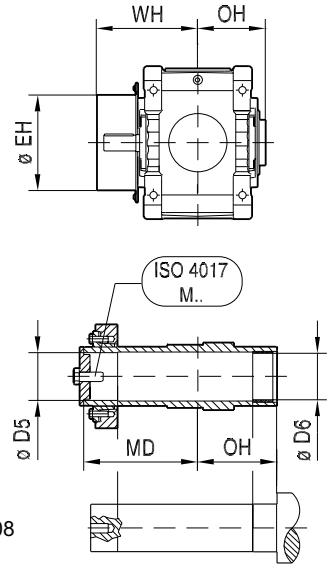


X3FA../HU



→ 407

X3FH../HU



→ 408

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X.F..													
X3F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W
X100	360	260	29	$190_{-0.5}$	$190_{-0.5}$	663	380	24 (4x)	210	370	90	-	153
X110	380	260	29	$190_{-0.5}$	$215_{-0.5}$	708	380	24 (4x)	210	390	115	-	153
X120	427	300	33	$225_{-0.5}$	$215_{-0.5}$	767	450	28 (4x)	245	440	105	-	174
X130	463	300	33	$225_{-0.5}$	$250_{-0.5}$	838	450	28 (4x)	245	475	140	-	174
X140	502	360	42	$265_{-0.5}$	$250_{-0.5}$	903	530	35 (4x)	290	510	110	-	202
X150	544	360	42	$265_{-0.5}$	$295_{-0.5}$	990	530	35 (4x)	290	555	155	-	202
X160	611	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	630	42 (4x)	340	620	185	-	240
X170	662	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	630	42 (4x)	340	670	185	-	240
X180	707	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	670	42 (6x)	390	710	190	215	277
X190	739	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	670	42 (6x)	390	740	190	215	277
X200	794	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	750	48 (6x)	420	780	205	230	298
X210	830	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	750	48 (6x)	420	815	205	230	298

X.FS.. LSS						
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
80_{m6}	170	343	85	22_{h9}	M20	220
90_{m6}	170	346	95	25_{h9}	M24	225
100_{m6}	210	401	106	28_{h9}	M24	340
110_{m6}	210	404	116	28_{h9}	M24	405
120_{m6}	210	432	127	32_{h9}	M24	570
130_{m6}	250	475	137	32_{h9}	M24	625
140_{m6}	250	506	148	36_{h9}	M30	970
160_{m6}	300	556	169	40_{h9}	M30	1125
170_{m6}	300	592	179	40_{h9}	M30	1450
170_{m6}	300	592	179	40_{h9}	M30	1515
180_{m6}	300	612	190	45_{h9}	M30	1850
190_{m6}	350	662	200	45_{h9}	M30	1930

HSS	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***						i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X100**	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

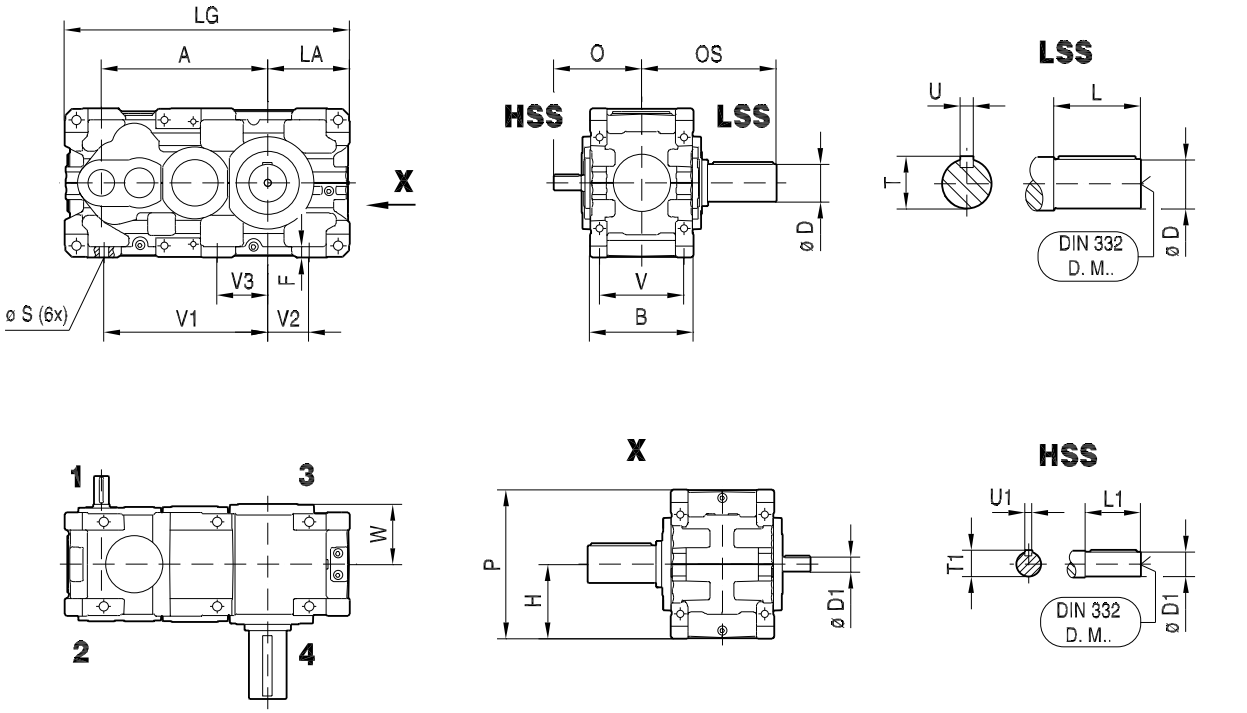
X3FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	210
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	320
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	380
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	575
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	900
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1045
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1350
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1415
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1765
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1815

X3FH..								
LSS	Ø D5	Ø D6	ØEH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	220
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	330
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	395
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	575
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	930
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1100
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1400
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1465
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1835
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1900

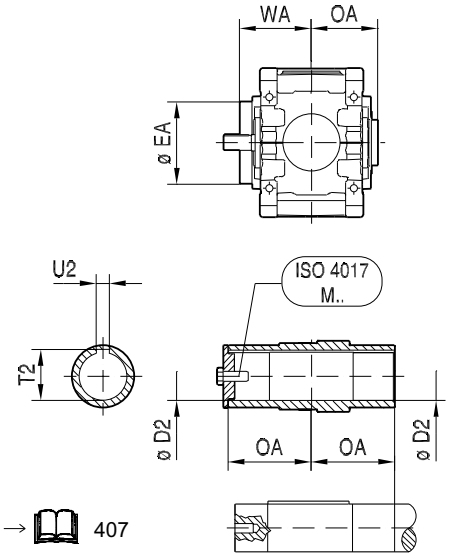
10.1.5 X3F220 – 250

X3FS../HU

48 029 03 07

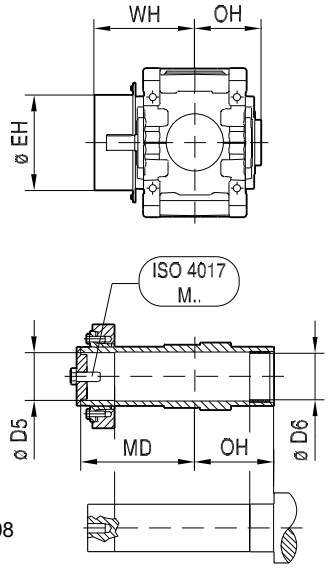


X3FA../HU



→ 407

X3FH../HU



→ 408

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X.F..													
X3F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	440	910	250	280	331
X230	934	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	440	950	250	280	331
X240	1004	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	510	990	250	305	377
X250	1027	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	510	1010	250	305	377

X.FS.. LSS						
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
210_{m6}	350	703	221	50_{h9}	M30	2630
230_{m6}	410	763	241	50_{h9}	M36	2850
230_{m6}	410	811	241	50_{h9}	M36	3690
240_{m6}	410	811	252	56_{h9}	M36	3800

HSS	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20

X3FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2450
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2630
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3405
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3495

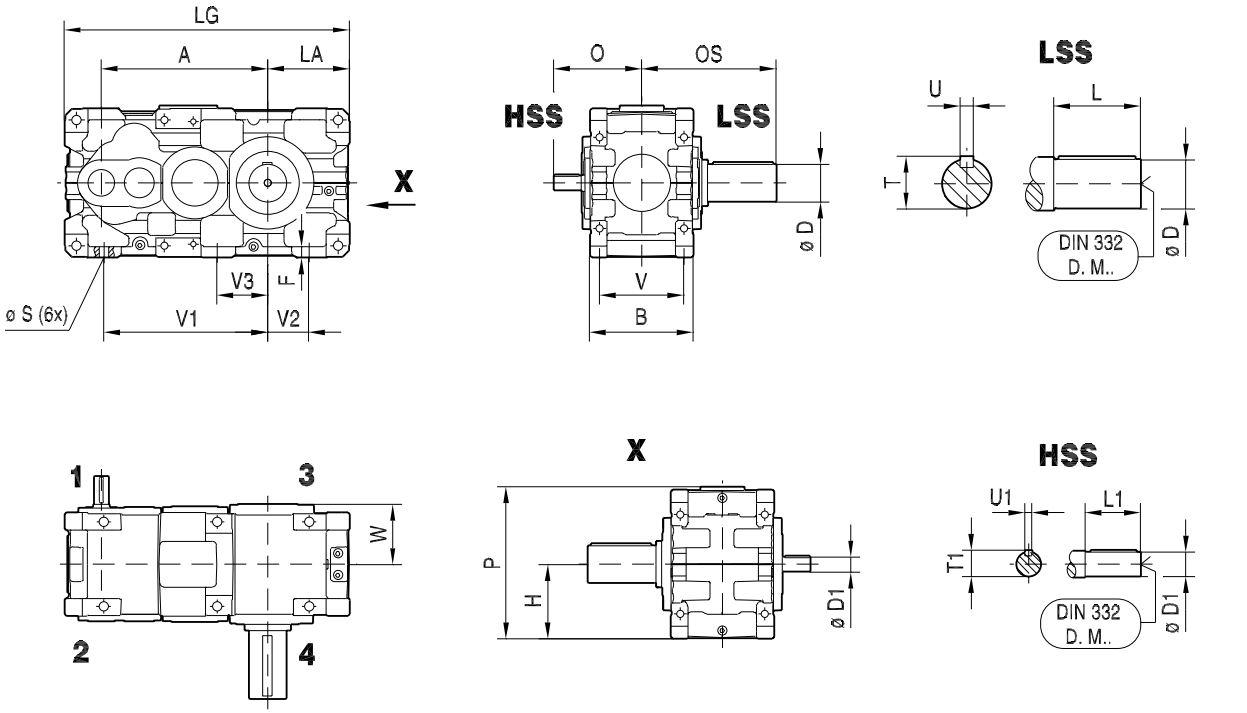
X3FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2555
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2740
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3570
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3655

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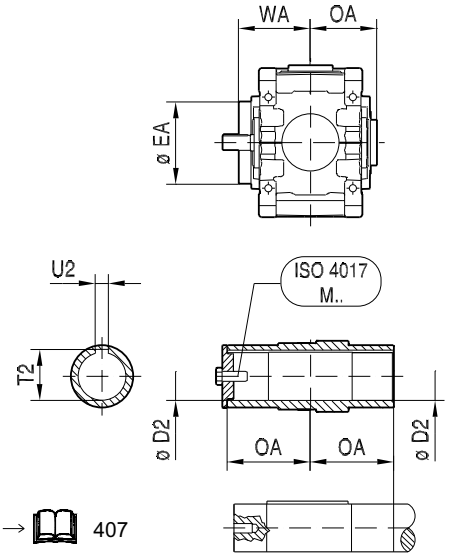
10.1.6 X3F260 – 320

X3FS../HU

48 031 03 08

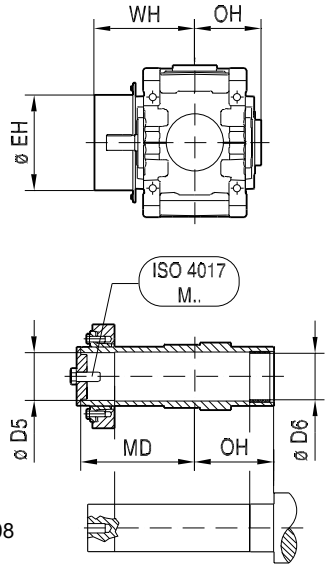


X3FA../HU



→ 407

X3FH../HU



→ 408

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X.F..														X.FS.. LSS						
X3F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4520
X270	1148	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	5020
X.280	1200	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5505
X290	1279	785	76	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	6920
X300	1308	785	76	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	7620
X310	1435	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	8470
X320	1469	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	9370

HSS	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***						i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

X3FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110–8.8	4070
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	4470
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	4970
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	6270
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	6870
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	7670
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	8470

X3FH..

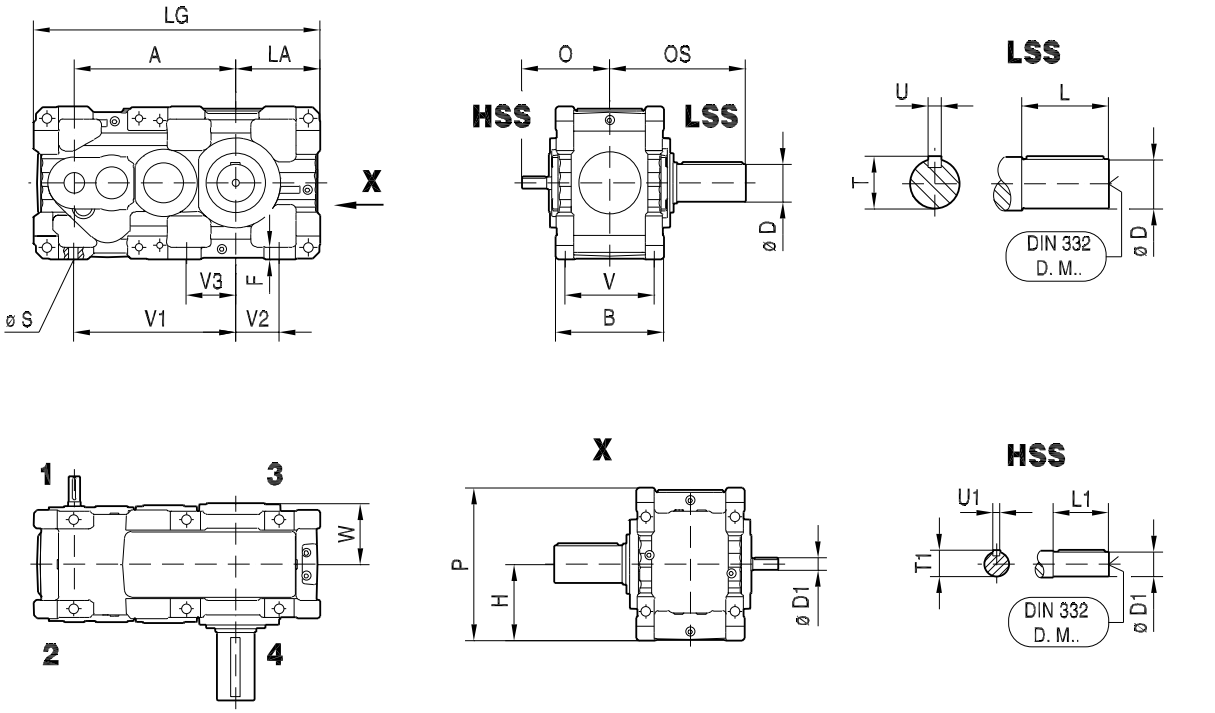
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110–8.8	4220
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	4770
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	5320
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	6520
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	7120
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	8020
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	8320

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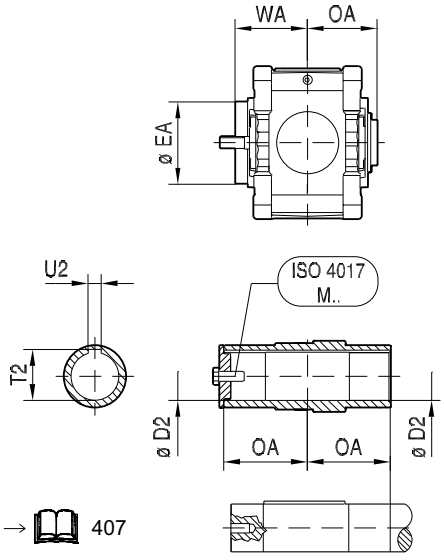
10.1.7 X4F120 – 210

X4FS../HU

48 027 03 07

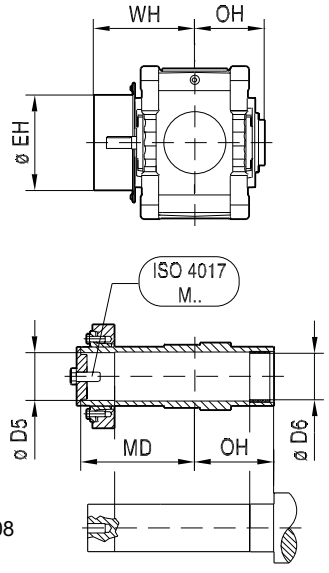


X4FA../HU



→ 407

X4FH../HU



→ 408

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X.F..													
X4F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W
X120	427	300	33	$225_{-0.5}$	$215_{-0.5}$	772	450	28 (4x)	245	440	105	-	174
X130	463	300	33	$225_{-0.5}$	$250_{-0.5}$	843	450	28 (4x)	245	475	140	-	174
X140	502	360	42	$265_{-0.5}$	$250_{-0.5}$	908	530	35 (4x)	290	510	110	-	202
X150	544	360	42	$265_{-0.5}$	$295_{-0.5}$	995	530	35 (4x)	290	555	155	-	202
X160	611	425	50	$315_{-0.5}$	$355_{-0.5}$	1149	630	42 (4x)	340	620	185	-	240
X170	662	425	50	$315_{-0.5}$	$355_{-0.5}$	1200	630	42 (4x)	340	670	185	-	240
X180	707	475	55	$335_{-0.5}$	$370_{-0.5}$	1254	670	42 (6x)	390	710	190	215	277
X190	739	475	55	$335_{-0.5}$	$370_{-0.5}$	1287	670	42 (6x)	390	740	190	215	277
X200	794	515	60	$375_{-0.5}$	$420_{-0.5}$	1415	750	48 (6x)	420	780	205	230	298
X210	830	515	60	$375_{-0.5}$	$420_{-0.5}$	1451	750	48 (6x)	420	815	205	230	298

X.FS.. LSS						
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
100_{m6}	210	401	106	28_{h9}	M24	355
110_{m6}	210	404	116	28_{h9}	M24	395
120_{m6}	210	432	127	32_{h9}	M24	560
130_{m6}	250	475	137	32_{h9}	M24	640
140_{m6}	250	506	148	36_{h9}	M30	960
160_{m6}	300	556	169	40_{h9}	M30	1160
170_{m6}	300	592	179	40_{h9}	M30	1410
170_{m6}	300	592	179	40_{h9}	M30	1450
180_{m6}	300	612	190	45_{h9}	M30	1900
190_{m6}	350	662	200	45_{h9}	M30	2090

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X120*	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X130***	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X140*	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X150***	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X160*	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X170***	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X180*	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X190**	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X200*	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16
X210**	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16

X4FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	370
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	525
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	890
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1080
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1310
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1350
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1815
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1975

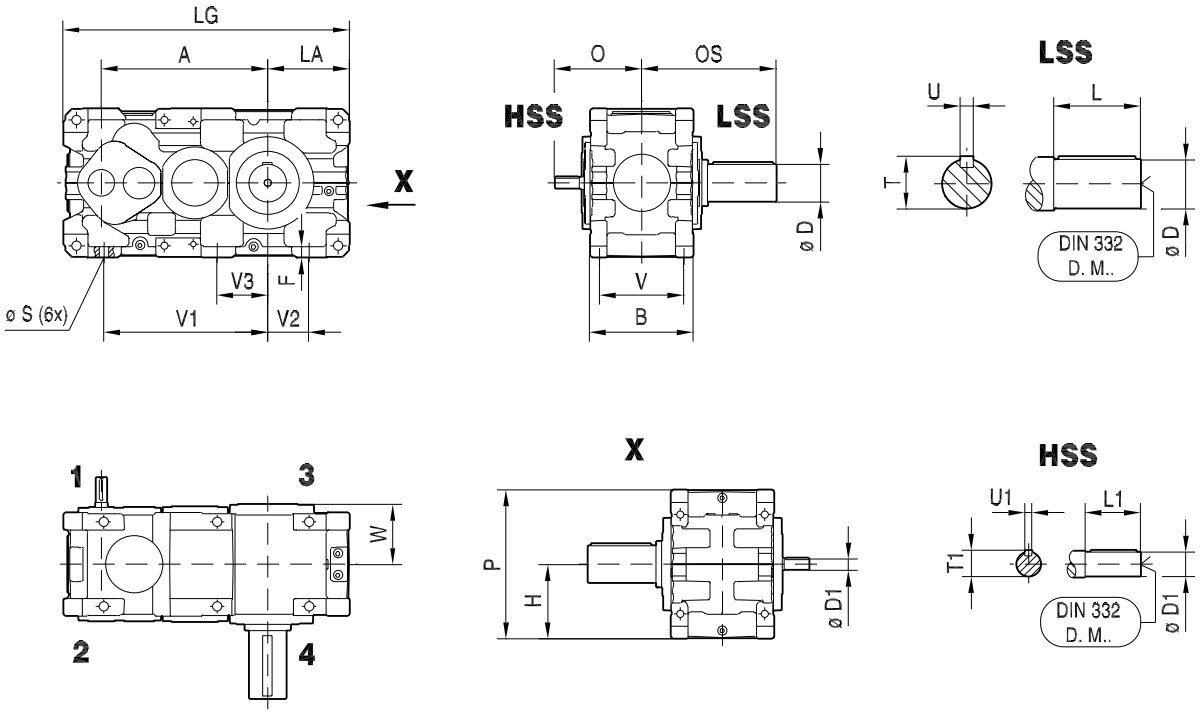
X4FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	385
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	550
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	920
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1135
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1360
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1400
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1885
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2060

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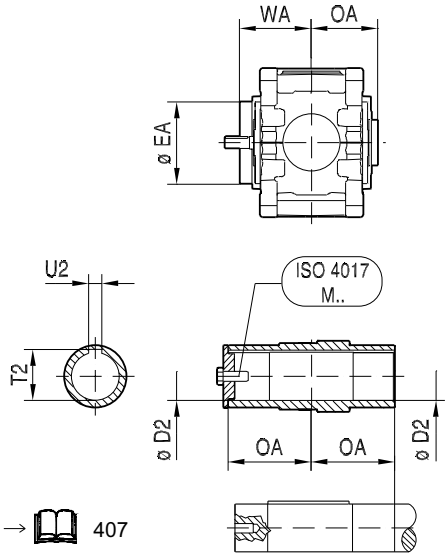
10.1.8 X4F220 – 250

X4FS../HU

48 030 03 07

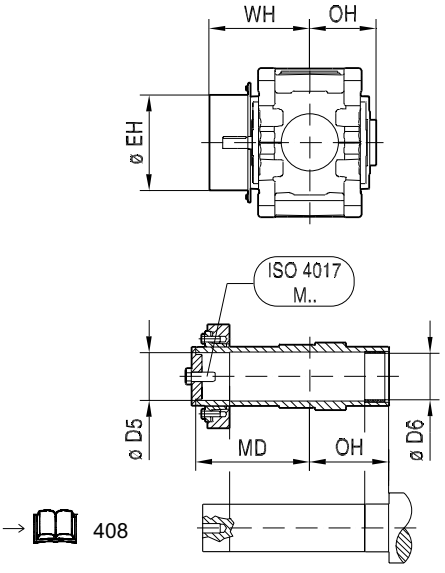


X4FA../HU



→ 407

X4FH../HU



→ 408

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X.F..														X.FS.. LSS						
X4F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	850	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2680
X230	934	540	62	$425_{-0.5}$	$465_{-0.5}$	1631	850	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	3040
X240	1004	625	68	$450_{-0.5}$	$495_{-0.5}$	1729	900	56	510	990	250	305	377	230_{m6}	410	811	241	50_{h9}	M36	3750
X250	1027	625	68	$450_{-0.5}$	$495_{-0.5}$	1752	900	56	510	1010	250	305	377	240_{m6}	410	811	252	56_{h9}	M36	3875

HSS	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20

X4FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2500
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2820
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3465
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3570

X4FH..

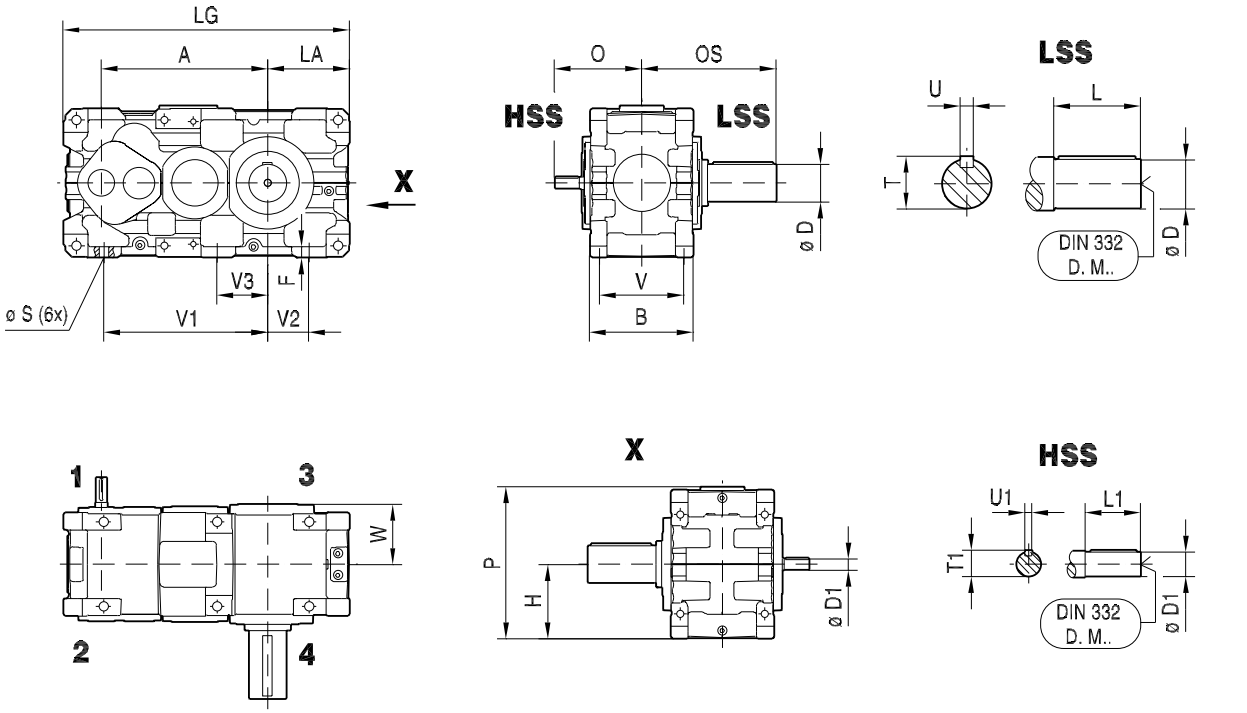
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2605
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2930
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3630
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3730

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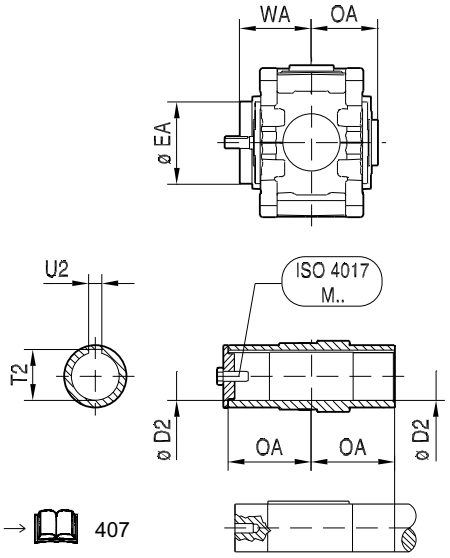
10.1.9 X4F260 – 320

X4FS../HU

48 033 03 08

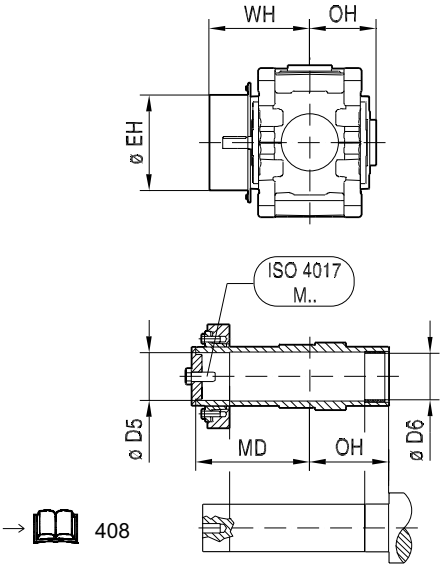


X4FA../HU



→ 407

X4FH../HU



→ 408

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X.F..														X.FS.. LSS						
X4F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1909	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4620
X270	1148	705	63	$500_{-0.5}$	$545_{-0.5}$	1944	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	5120
X280	1200	705	73	$555_{-0.5}$	$610_{-0.5}$	2061	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5670
X290	1279	785	76	$580_{-0.5}$	$620_{-0.5}$	2196	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	7070
X300	1308	785	76	$580_{-0.5}$	$620_{-0.5}$	2225	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	7820
X310	1435	850	86	$630_{-0.5}$	$680_{-0.5}$	2419	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	8670
X320	1469	850	86	$630_{-0.5}$	$680_{-0.5}$	2453	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	9620

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR. M..	Ø D1	L1	O	T1	U1	DIN 332 DR. M..
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

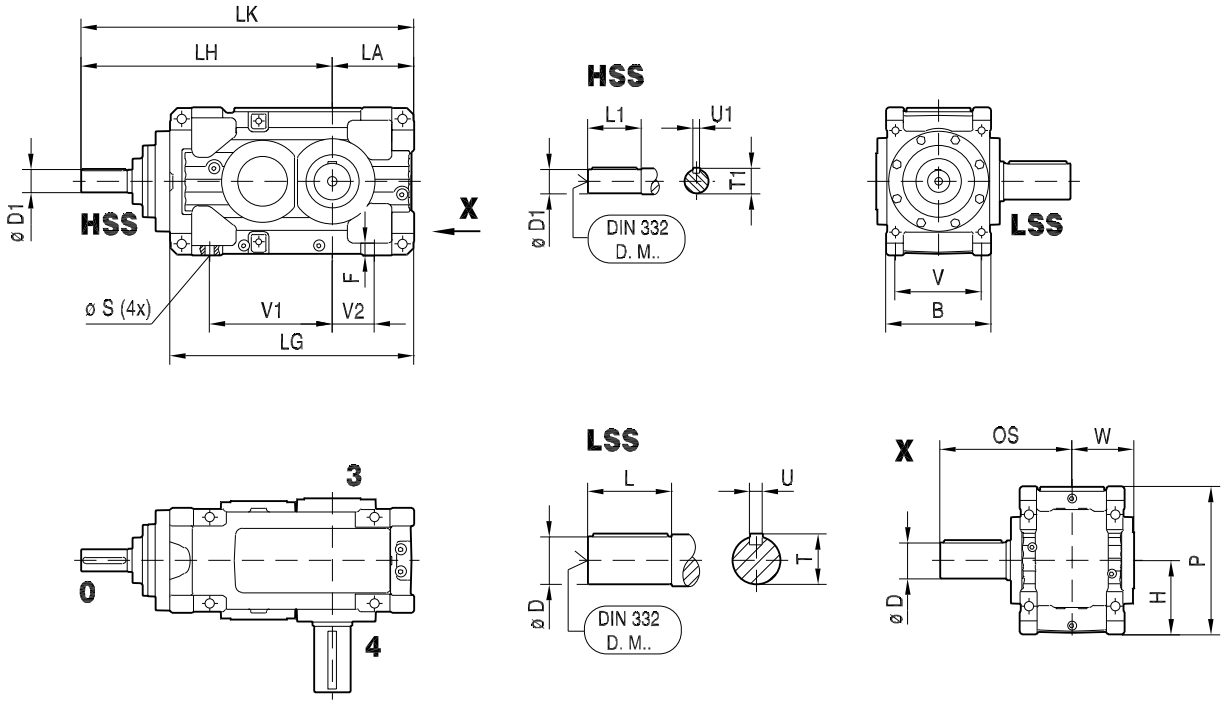
X4FA..									X4FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110–8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110–8.8	4320
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	4620	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110–8.8	5120	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110–8.8	5370
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	6370	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	6620
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110–8.8	7070	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110–8.8	7320
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	7820	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	8170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130–8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130–8.8	8820

10.2 X.K.. bevel-helical gear units [mm]

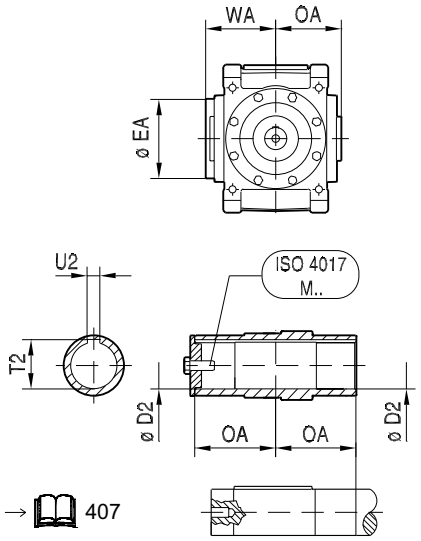
10.2.1 X2K100 – 210

X2KS../HU

48 001 04 07

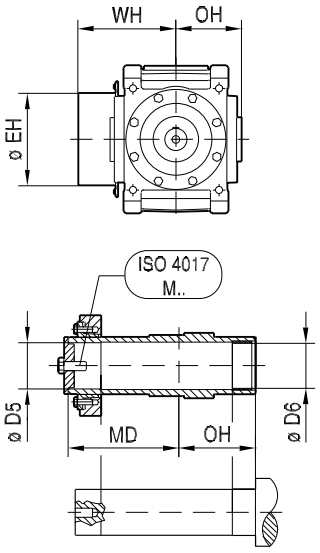


X2KA../HU



→ 407

X2KH../HU



→ 408

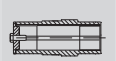
24799734/EN – 08/2018

X.K..														
X2K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (4x)**	**V**	**V1**	**V2**	**W**	**kg**
X100	260	29	$190_{-0.5}$	$190_{-0.5}$	601	655	845	380	24	210	315	90	153	235
X110	260	29	$190_{-0.5}$	$215_{-0.5}$	646	675	890	380	24	210	335	115	153	250
X120	300	33	$225_{-0.5}$	$215_{-0.5}$	697	752	967	450	28	245	370	105	174	350
X130	300	33	$225_{-0.5}$	$250_{-0.5}$	768	788	1038	450	28	245	405	140	174	405
X140	360	42	$265_{-0.5}$	$250_{-0.5}$	784	816	1066	530	35	290	390	110	202	560
X150	360	42	$265_{-0.5}$	$295_{-0.5}$	871	858	1153	530	35	290	435	155	202	650
X160	425	50	$315_{-0.5}$	$355_{-0.5}$	1023	1010	1365	630	42	340	495	185	240	995
X170	425	50	$315_{-0.5}$	$355_{-0.5}$	1074	1061	1416	630	42	340	545	185	240	1115
X180	475	55	$335_{-0.5}$	$370_{-0.5}$	1105	1137	1507	670	42	390	555	190	277	1365
X190	475	55	$335_{-0.5}$	$370_{-0.5}$	1137	1169	1539	670	42	390	585	190	277	1480
X200	515	60	$375_{-0.5}$	$420_{-0.5}$	1241	1268	1688	750	48	420	605	205	298	1910
X210	515	60	$375_{-0.5}$	$420_{-0.5}$	1277	1304	1724	750	48	420	640	205	298	2020

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

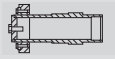
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X100	50_{k6}	110	53.5	14_{h9}	M16
X110	50_{k6}	110	53.5	14_{h9}	M16
X120	60_{m6}	140	64	18_{h9}	M20
X130	60_{m6}	140	64	18_{h9}	M20
X140	70_{m6}	140	74.5	20_{h9}	M20
X150	70_{m6}	140	74.5	20_{h9}	M20
X160	85_{m6}	170	90	22_{h9}	M20
X170	85_{m6}	170	90	22_{h9}	M20
X180	100_{m6}	210	106	28_{h9}	M24
X190	100_{m6}	210	106	28_{h9}	M24
X200	110_{m6}	210	116	28_{h9}	M24
X210	110_{m6}	210	116	28_{h9}	M24

X2KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	225
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	240
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	330
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	380
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	525
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	925
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1035
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1265
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1380
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1825
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1905

X2KH..



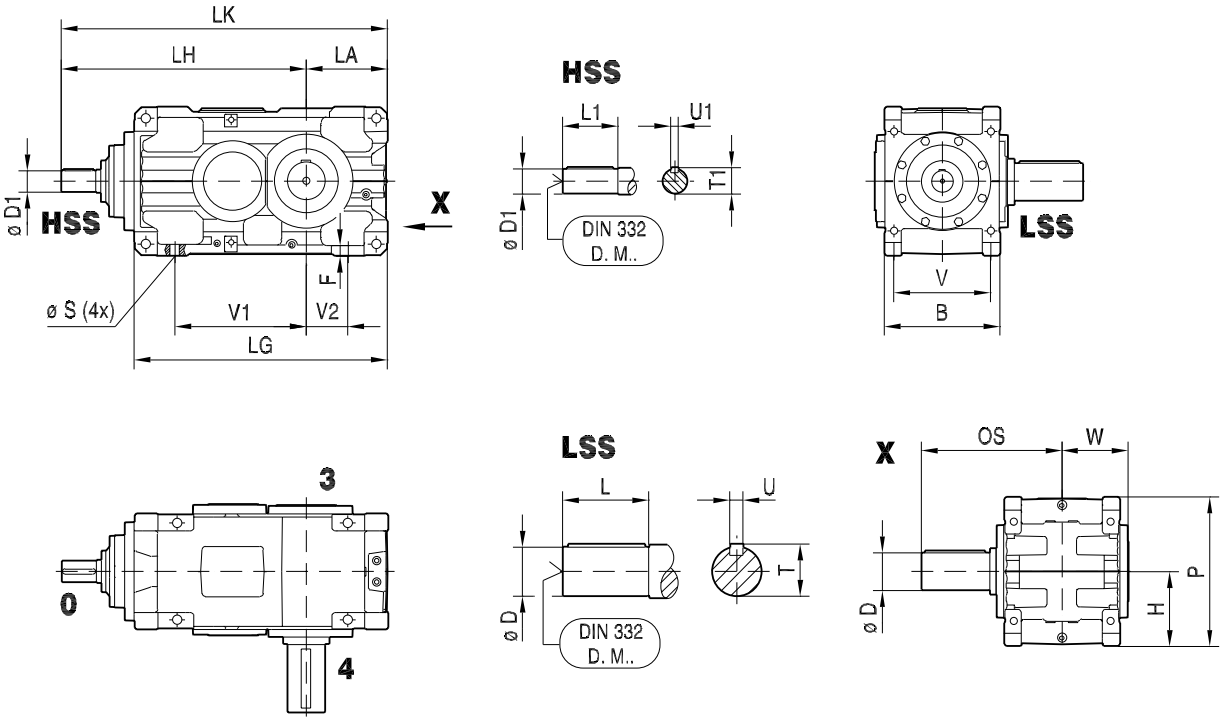
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	235
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	250
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	340
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	395
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	550
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	955
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1090
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1315
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1430
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1895
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1990

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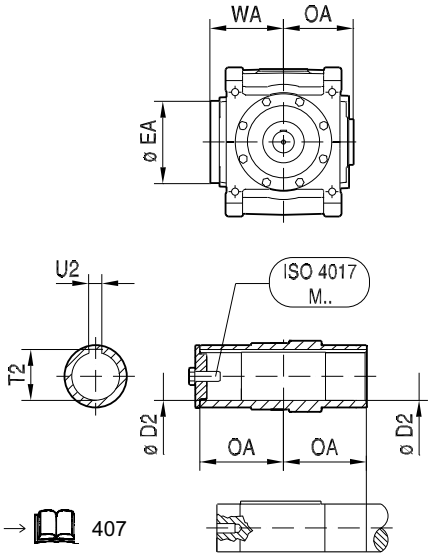
10.2.2 X2K220 – 250

X2KS../HU

48 004 03 07

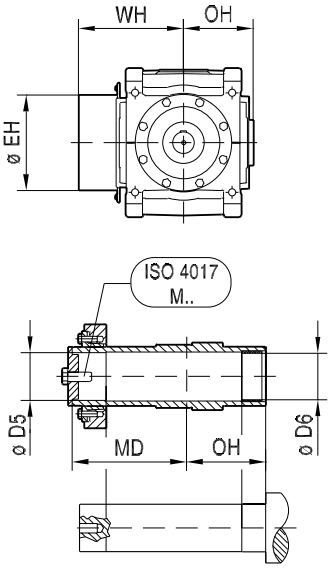


X2KA../HU



→ 407

X2KH../HU



→ 408

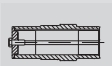
24799734/EN – 08/2018

X.K..														
X2K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (4x)**	**V**	**V1**	**V2**	**W**	**kg**
X220	610	62	$425_{-0.5}$	$465_{-0.5}$	1412	1436	1901	850	48	510	730	250	370	2860
X230	610	62	$425_{-0.5}$	$465_{-0.5}$	1452	1476	1941	850	48	510	770	250	370	3040
X240	700	68	$450_{-0.5}$	$495_{-0.5}$	1531	1476	1971	900	56	585	780	250	421	3940
X250	700	68	$450_{-0.5}$	$495_{-0.5}$	1554	1499	1994	900	56	585	805	250	421	3945

LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X220	210_{m6}	350	738	221	50_{h9}	M30
X230	230_{m6}	410	798	241	50_{h9}	M36
X240	230_{m6}	410	848	241	50_{h9}	M36
X250	240_{m6}	410	848	252	56_{h9}	M36

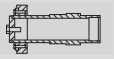
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..
X220	120_{m6}	210	127	32_{h9}	M24
X230	120_{m6}	210	127	32_{h9}	M24
X240	130_{m6}	210	137	32_{h9}	M24
X250	130_{m6}	210	137	32_{h9}	M24

X2KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2665
X230	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2810
X240	230^{H8}	420	438	241.4	50^{JS9}	507	M36x110-8.8	3635
X250	240^{H8}	420	438	252.4	56^{JS9}	507	M36x110-8.8	3620

X2KH..



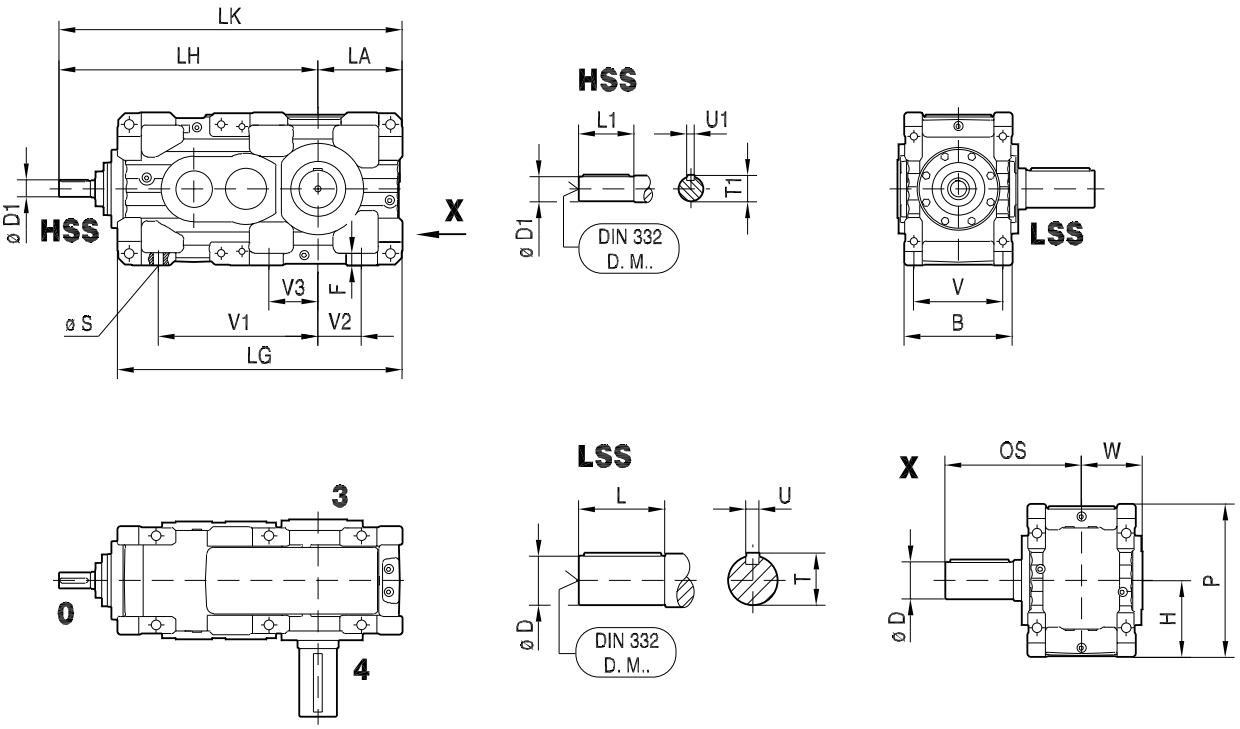
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2775
X230	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2915
X240	230^{H7}	231^{H9}	558	609	438	692	M36x110-8.8	3800
X250	240^{H7}	241^{H9}	558	609	438	692	M36x110-8.8	3780

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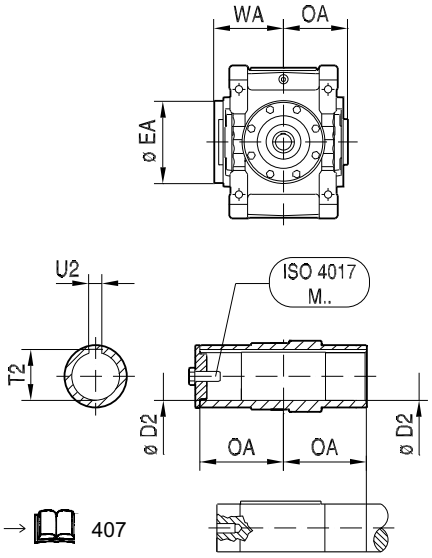
10.2.3 X3K100 – 210

X3KS../HU

48 002 03 07

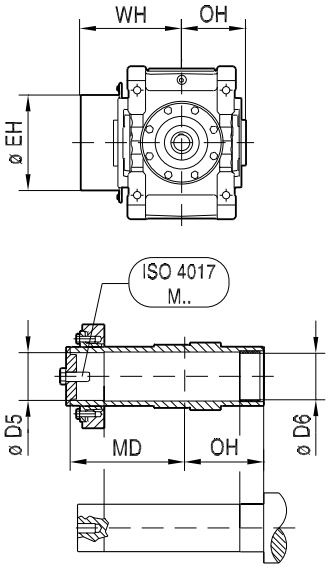


X3KA../HU



→ 407

X3KH../HU



→ 408

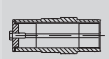
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X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X100	260	29	$190_{-0.5}$	$190_{-0.5}$	658	632	822	380	24 (4x)	210	370	90	-	153	235
X110	260	29	$190_{-0.5}$	$215_{-0.5}$	703	652	867	380	24 (4x)	210	390	115	-	153	255
X120	300	33	$225_{-0.5}$	$215_{-0.5}$	767	745	960	450	28 (4x)	245	440	105	-	174	360
X130	300	33	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	450	28 (4x)	245	475	140	-	174	410
X140	360	42	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	530	35 (4x)	290	510	110	-	202	600
X150	360	42	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	530	35 (4x)	290	555	155	-	202	640
X160	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	630	42 (4x)	340	620	185	-	240	985
X170	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	630	42 (4x)	340	670	185	-	240	1130
X180	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	670	42 (6x)	390	710	190	215	277	1400
X190	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	670	42 (6x)	390	740	190	215	277	1510
X200	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	750	48 (6x)	420	780	205	230	298	2020
X210	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	750	48 (6x)	420	815	205	230	298	2120

LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

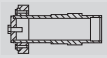
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X3KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	225
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	565
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1300
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1410
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1935
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2005

X3KH..



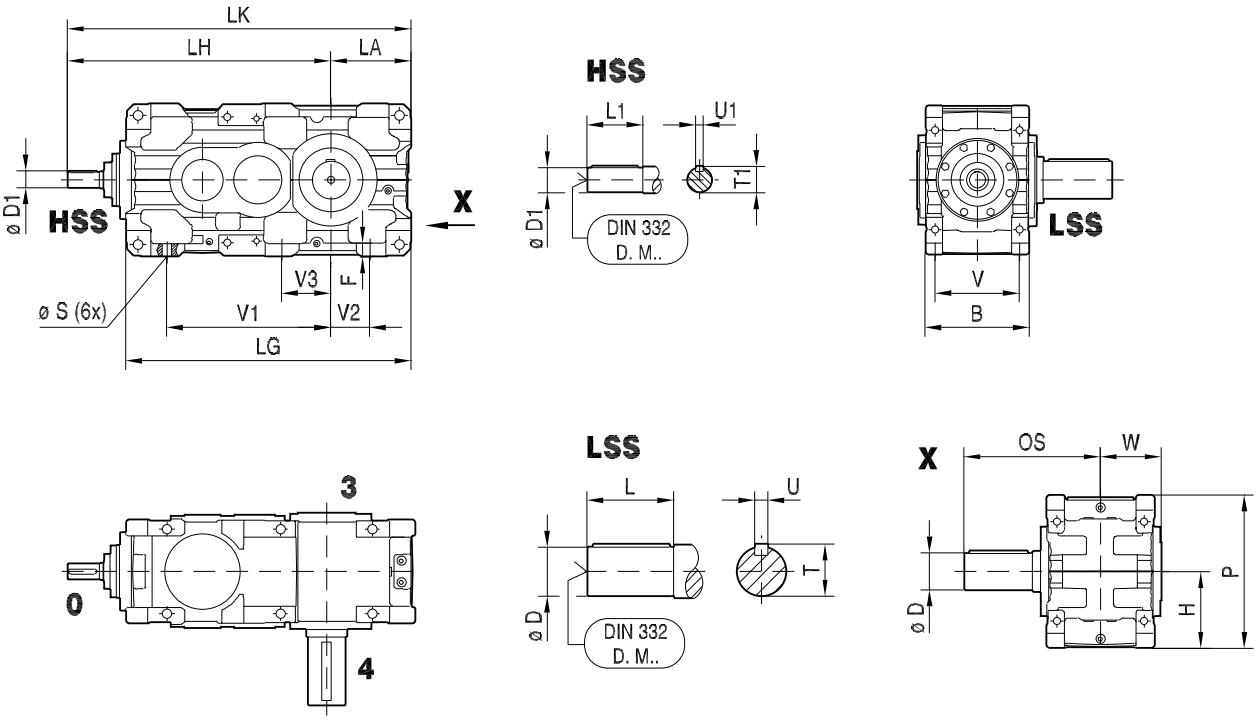
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	235
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	590
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1350
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1460
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2005
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2090

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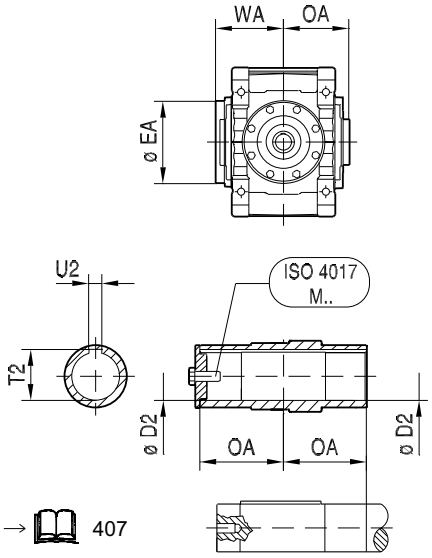
10.2.4 X3K220 – 250

X3KS../HU

48 005 03 07

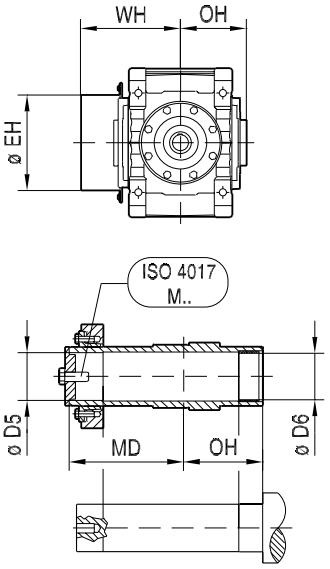


X3KA../HU



→ 407

X3KH../HU



→ 408

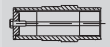
24799734/EN – 08/2018

X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	48	440	910	250	280	331	2890
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	48	440	950	250	280	331	3060
X240	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	56	510	990	250	305	377	3910
X250	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	56	510	1010	250	305	377	4040

LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

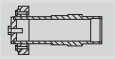
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X3KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2710
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2840
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3625
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3735

X3KH..



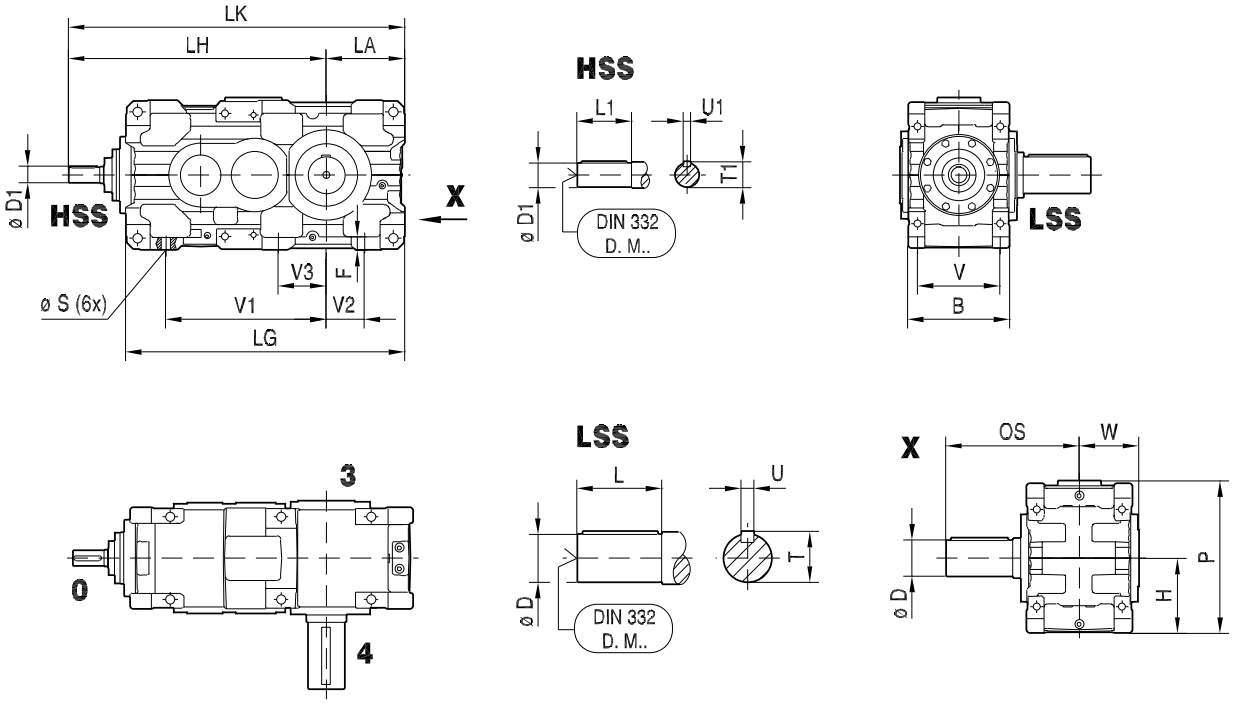
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2815
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2950
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3790
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3895

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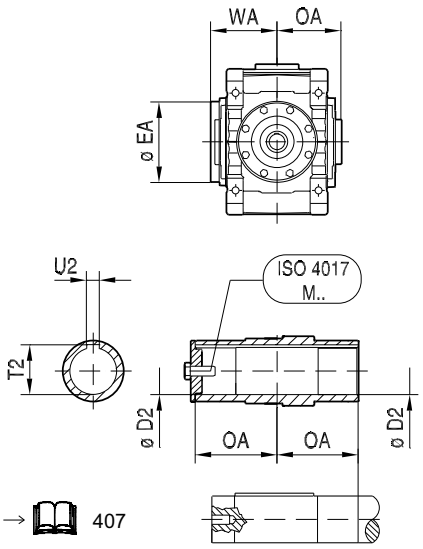
10.2.5 X3K260 – 320

X3KS../HU

48 025 03 08

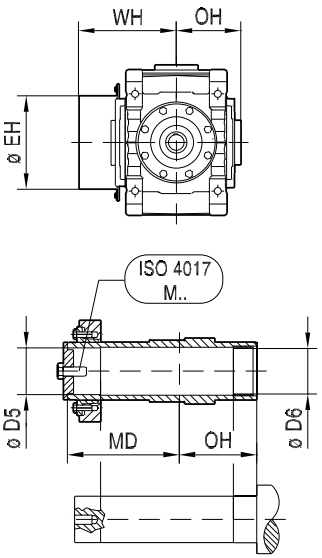


X3KA../HU



→ 407

X3KH../HU



→ 408

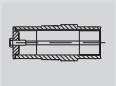
24799734/EN – 08/2018

X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X260	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1017	56	590	1110	300	350	417	4870
X270	705	73	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1017	56	590	1110	300	350	419	5370
X280	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1127	56	590	1190	360	380	419	5870
X290	785	86	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1177	65	655	1280	330	355	465	7020
X300	785	86	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1177	65	655	1280	330	355	465	7720
X310**	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	2175 2135	2855 2815	1277	65	720	1435	385	455	499	8570
X320**	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	2209 2169	2889 2849	1277	65	720	1435	385	455	499	9470

LSS	Ø D	L	OS	T	U	DIN 332 DR. M..
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

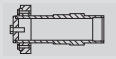
HSS	Ø D1	L1	T1	U1	DIN 332 DR. M..	i
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
	130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X3KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6970
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7720
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8420

X3KH..



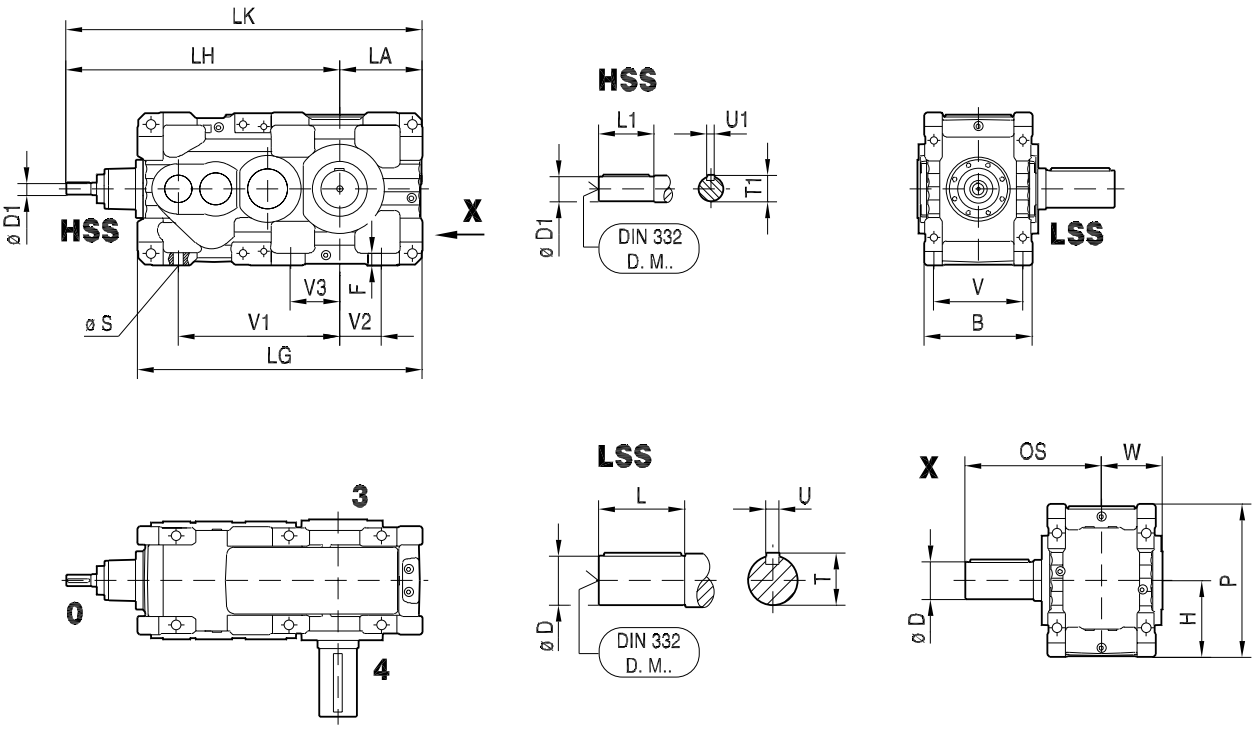
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4570
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5570
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6420
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7220
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8070
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8770

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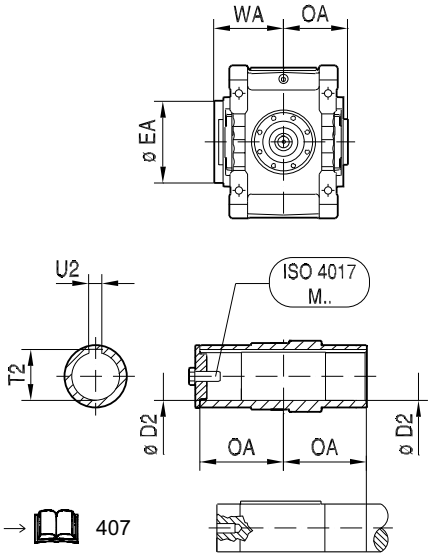
10.2.6 X4K120 – 210

X4KS../HU

48 003 03 07

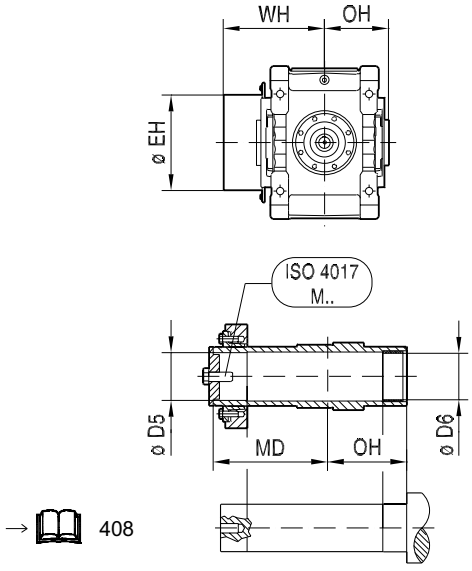


X4KA../HU



→ 407

X4KH../HU



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X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X120	300	33	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28 (4x)	245	440	105	-	174	340
X130	300	33	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28 (4x)	245	475	140	-	174	380
X140	360	42	$265_{-0.5}$	$250_{-0.5}$	903	856	1106	530	35 (4x)	290	510	110	-	202	555
X150	360	42	$265_{-0.5}$	$295_{-0.5}$	990	898	1193	530	35 (4x)	290	555	155	-	202	625
X160	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	1029	1384	630	42 (4x)	340	620	185	-	240	960
X170	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	1080	1435	630	42 (4x)	340	670	185	-	240	1120
X180	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	1198	1568	670	42 (6x)	390	710	190	215	277	1410
X190	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	1230	1600	670	42 (6x)	390	740	190	215	277	1420
X200	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	1285	1705	750	48 (6x)	420	780	205	230	298	1850
X210	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	1321	1741	750	48 (6x)	420	815	205	230	298	1900

LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

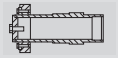
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X4KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	320
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	355
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	520
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	575
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	890
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1040
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1310
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1320
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1765
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1785

X4KH..



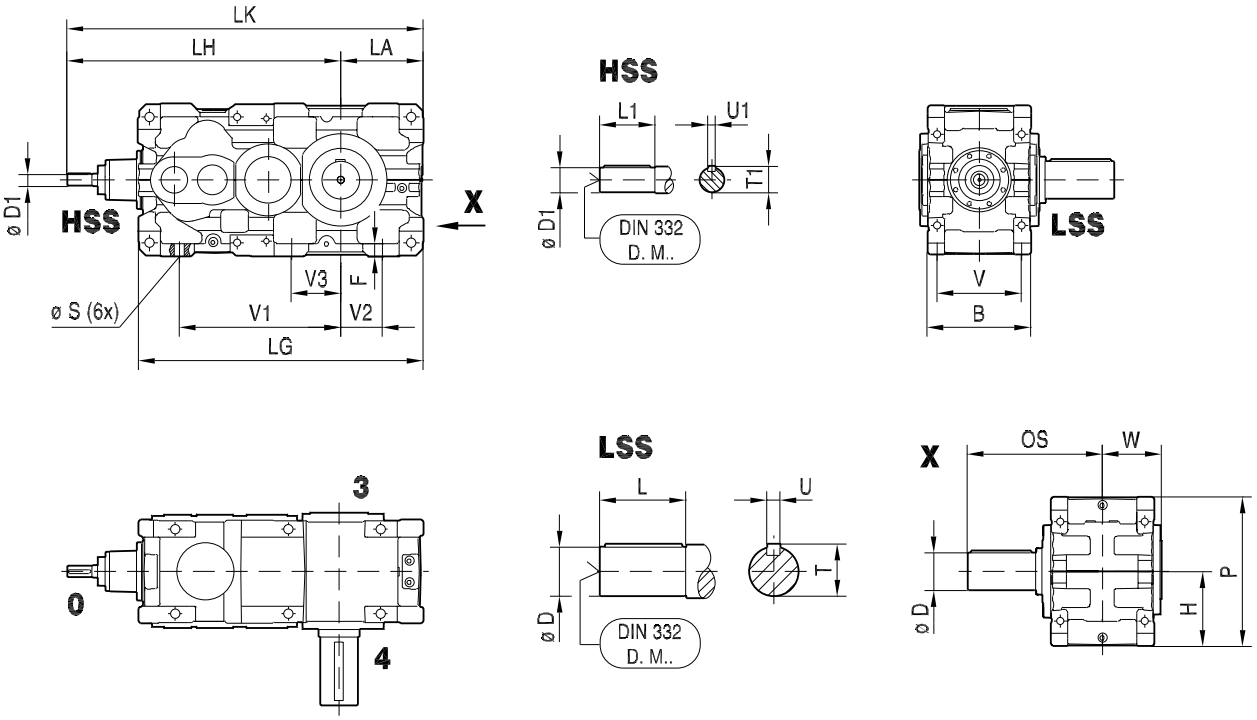
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	330
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	370
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	545
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	605
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	920
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1095
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1360
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1370
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1835
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1870

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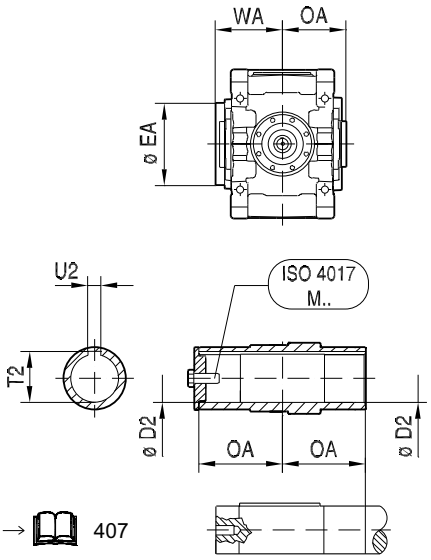
10.2.7 X4K220 – 250

X4KS../HU

48 006 03 07

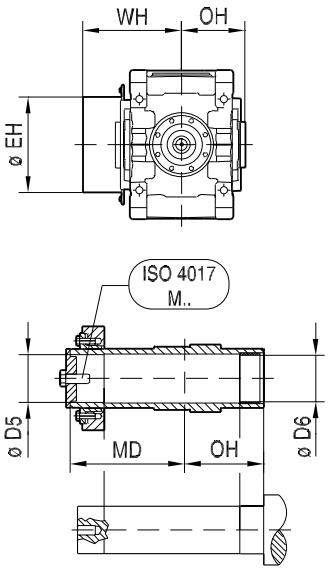


X4KA../HU



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X4KH../HU



→ 408

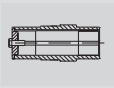
24799734/EN – 08/2018

X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	48	440	910	250	280	331	2700
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1496	1963	850	48	440	950	250	280	331	2940
X240	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	1595	2090	900	56	510	990	250	305	377	3780
X250	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	1618	2113	900	56	510	1010	250	305	377	4010

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

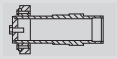
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X4KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2520
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2720
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3495
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3705

X4KH..



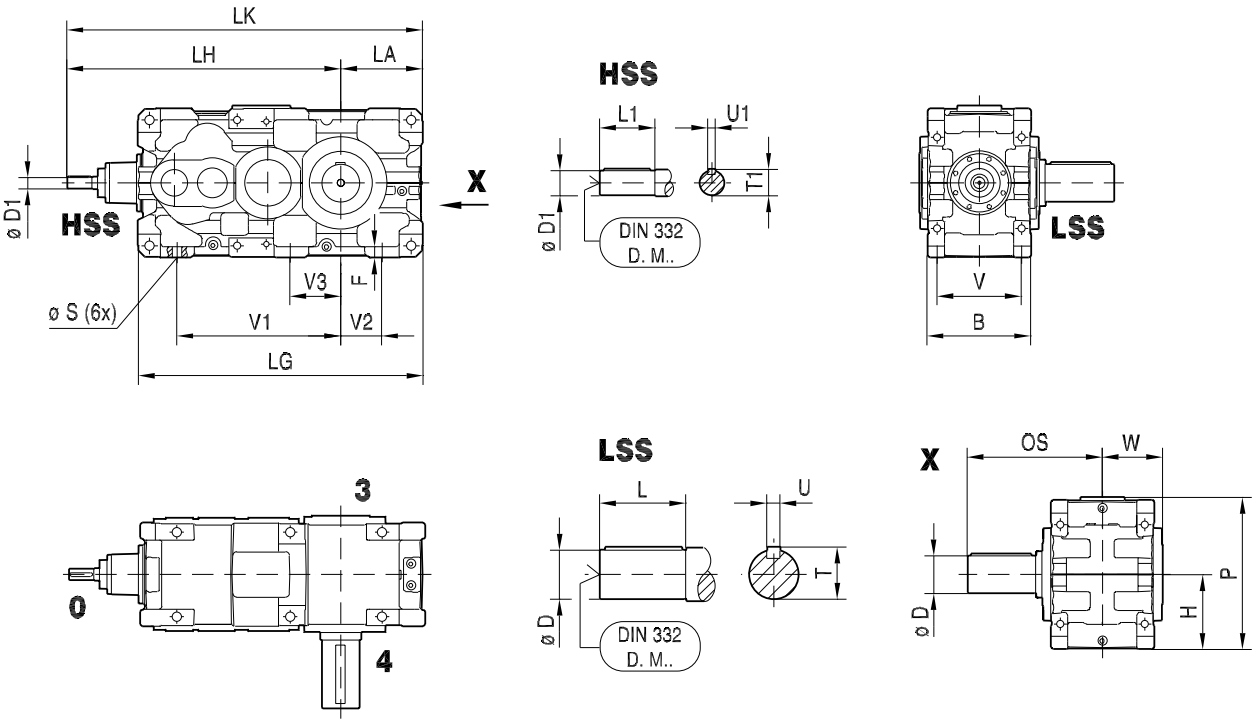
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2625
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2830
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3660
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3865

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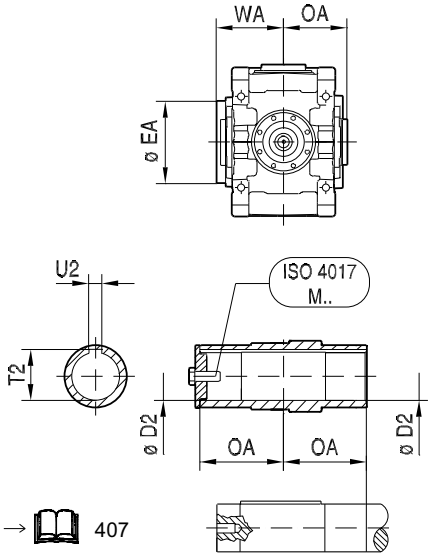
10.2.8 X4K260 – 320

X4KS../HU

48 027 03 08

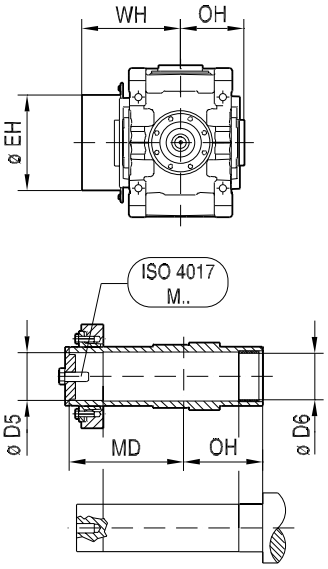


X4KA../HU



→ 407

X4KH../HU



→ 408

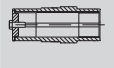
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X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X260	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1017	56	590	1110	300	350	417	4620
X270	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1017	56	590	1110	300	350	419	5120
X280	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1872	2482	1127	56	590	1190	360	380	419	5670
X290	785	76	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1177	65	655	1280	330	355	465	7070
X300	785	76	$580_{-0.5}$	$620_{-0.5}$	2216	2044	2664	1177	65	655	1280	330	355	465	7820
X310	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1277	65	720	1435	385	455	499	8670
X320	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1277	65	720	1435	385	455	499	9620

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

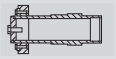
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X260	80_{m6}	170	85	22_{h9}	M20
X270	80_{m6}	170	85	22_{h9}	M20
X280	80_{m6}	170	85	22_{h9}	M20
X290	85_{m6}	170	90	22_{h9}	M20
X300	85_{m6}	170	90	22_{h9}	M20
X310	100_{m6}	210	106	28_{h9}	M24
X320	100_{m6}	210	106	28_{h9}	M24

X4KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

X4KH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

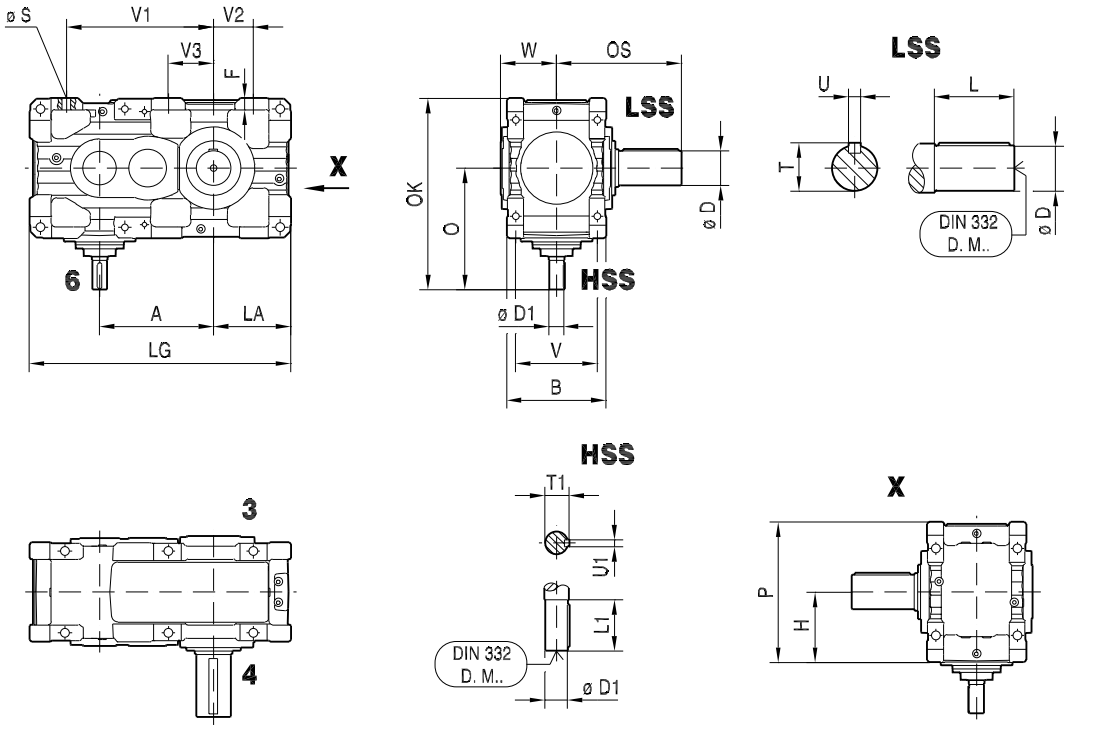
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10.3 X.T.. bevel-helical gear units [mm]

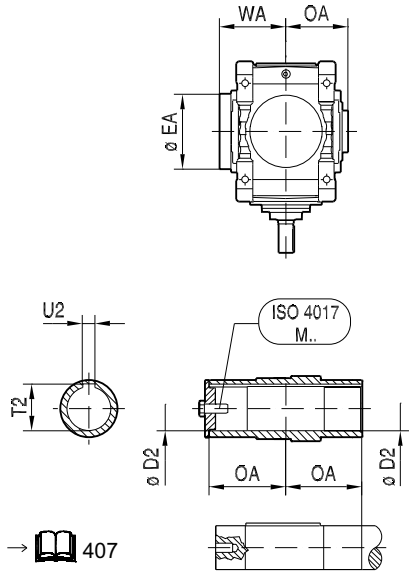
10.3.1 X3T100 - 210

48 029 01 09

X3TS..

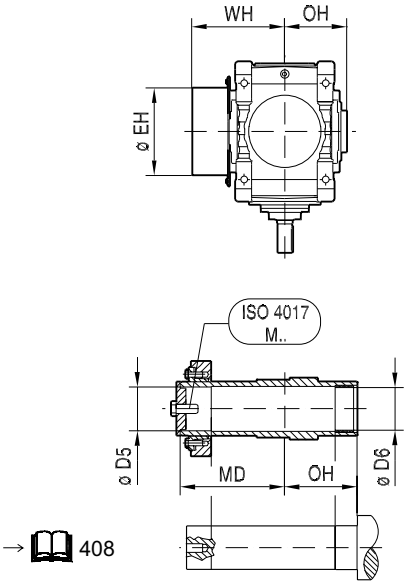


X3TA..



→ 407

X3TH..



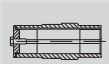
→ 408

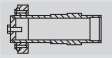
24799734/EN – 08/2018

X.T..																
X3T..	A	B	F	H	LA	LG	O	OK	P	Ø S	V	V1	V2	V3	W	kg
X100	278	260	29	$190_{-0.5}$	$190_{-0.5}$	658	354	544	380	24 (4x)	210	370	90	-	153	240
X110	298	260	29	$190_{-0.5}$	$215_{-0.5}$	703	354	544	380	24 (4x)	210	390	115	-	153	260
X120	327	300	33	$225_{-0.5}$	$215_{-0.5}$	767	418	643	450	28 (4x)	245	440	105	-	174	370
X130	363	300	33	$225_{-0.5}$	$250_{-0.5}$	838	418	643	450	28 (4x)	245	475	140	-	174	420
X140	388	360	42	$265_{-0.5}$	$250_{-0.5}$	903	491	756	530	35 (4x)	290	510	110	-	202	610
X150	430	360	42	$265_{-0.5}$	$295_{-0.5}$	990	491	756	530	35 (4x)	290	555	155	-	202	650
X160	474	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	562	877	630	42 (4x)	340	620	185	-	240	1005
X170	525	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	562	877	630	42 (4x)	340	670	185	-	240	1150
X180	544	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	591	926	670	42 (6x)	390	710	190	215	277	1326
X190	576	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	591	926	670	42 (6x)	390	740	190	215	277	1400
X200	614	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	672	1047	750	48 (6x)	420	780	205	230	298	1870
X210	650	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	672	1047	750	48 (6x)	420	815	205	230	298	1915

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.TA.. 								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	350
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	395
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	935
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1070
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1225
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1300
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1800

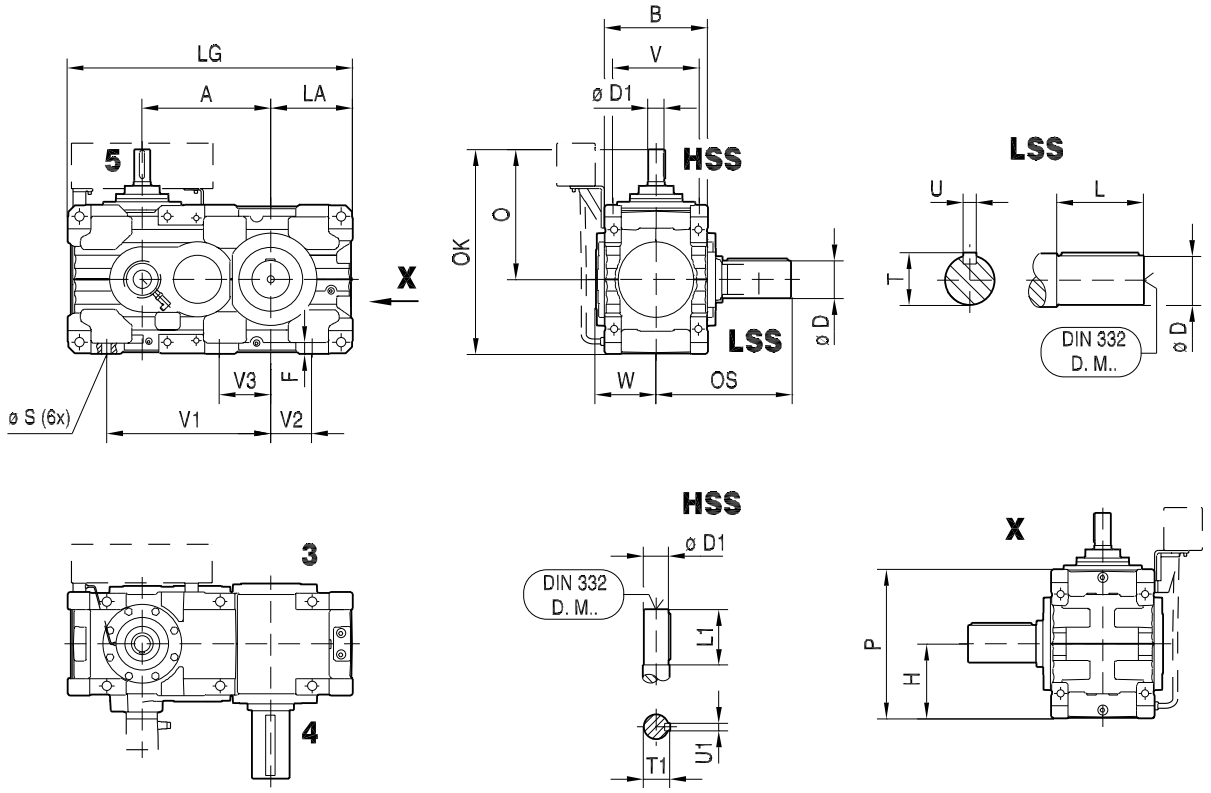
X.TH.. 								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	360
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	410
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	965
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1125
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1275
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1350
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1885

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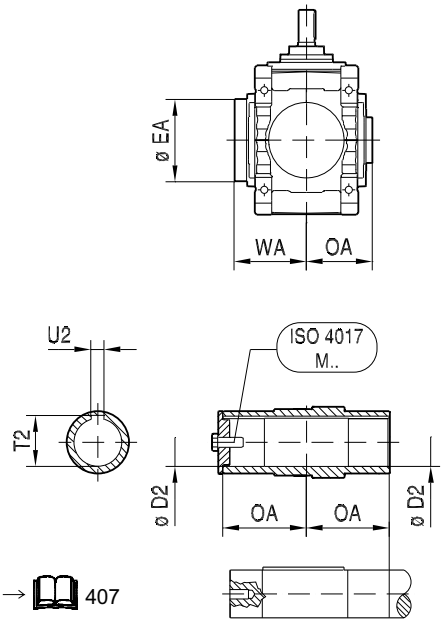
10.3.2 X3T220 - 250

48 030 01 09

X3TS..

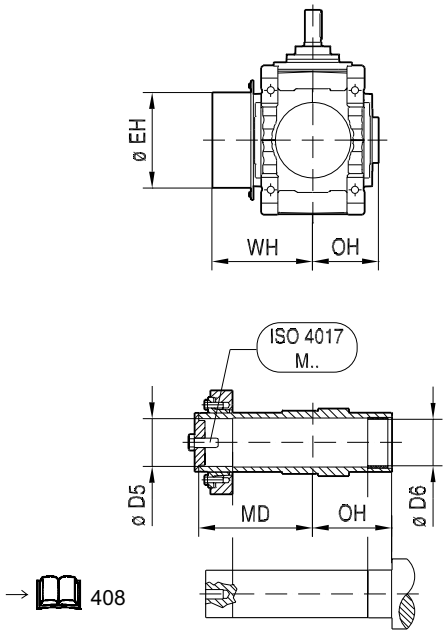


X3TA..



→ 407

X3TH..



→ 408

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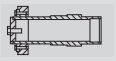
X.T..																
X3T..	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	736	1161	850	48	440	910	250	280	331	2620
X230	734	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	736	1161	850	48	440	950	250	280	331	2810
X240	776	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	821	1271	900	56	510	990	250	305	377	3610
X250	799	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	821	1271	900	56	510	1010	250	305	377	3740

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X.TA.. 

LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2440
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2590
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3325
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3435

X.TH.. 

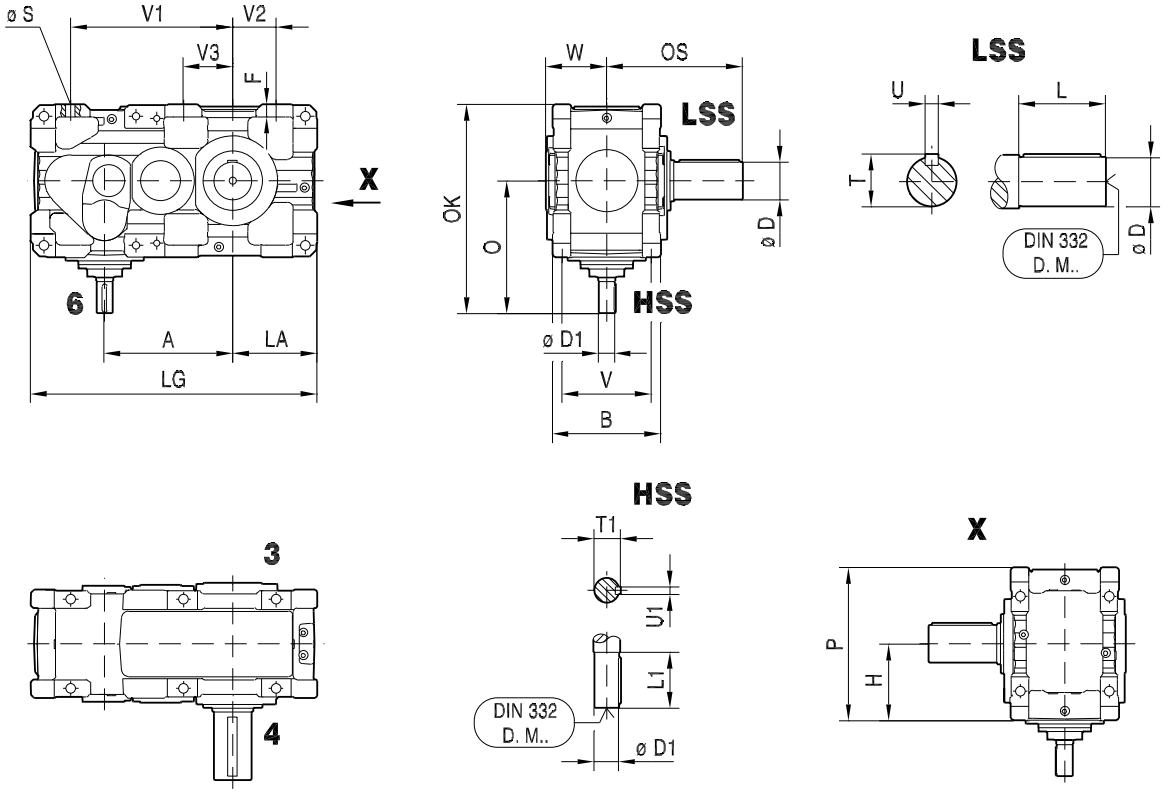
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2545
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2700
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3490
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3595

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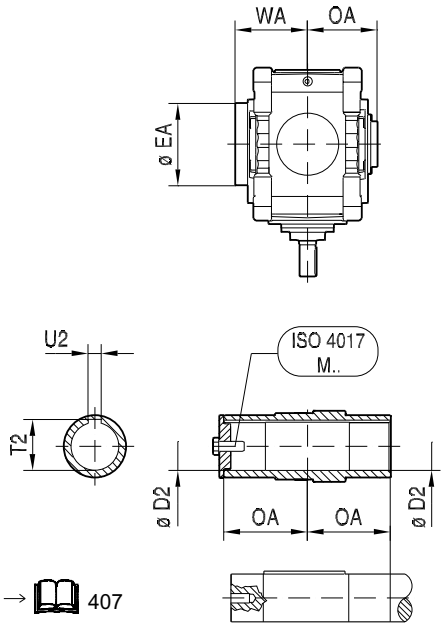
10.3.3 X4T120 - 210

48 031 01 09

X4TS..

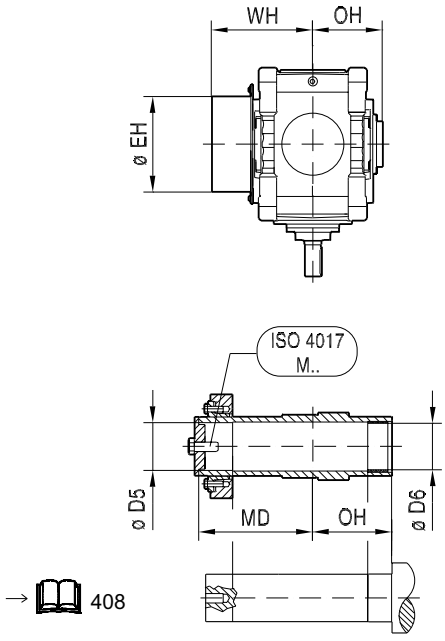


X4TA..



→ 407

X4TH..



→ 408

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X.T..															
X4T..	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X120	337	300	33	$225_{-0.5}$	$215_{-0.5}$	767	383	608	450	28 (4x)	245	440	105	-	174	355
X130	373	300	33	$225_{-0.5}$	$250_{-0.5}$	838	383	608	450	28 (4x)	245	475	140	-	174	395
X140	403	360	42	$265_{-0.5}$	$250_{-0.5}$	903	467	732	530	35 (4x)	290	510	110	-	202	570
X150	445	360	42	$265_{-0.5}$	$295_{-0.5}$	990	467	732	530	35 (4x)	290	555	155	-	202	640
X160	490	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	554	869	630	42 (4x)	340	620	185	-	240	985
X170	541	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	554	869	630	42 (4x)	340	670	185	-	240	1145
X180	562	475	55	$335_{-0.5}$	$370_{-0.5}$	1249	653	988	670	42 (6x)	390	710	190	215	277	1360
X190	594	475	55	$335_{-0.5}$	$370_{-0.5}$	1281	653	988	670	42 (6x)	390	740	190	215	277	1425
X200	627	515	60	$375_{-0.5}$	$420_{-0.5}$	1409	671	1046	750	48 (6x)	420	780	205	230	298	1900
X210	663	515	60	$375_{-0.5}$	$420_{-0.5}$	1445	671	1046	750	48 (6x)	420	815	205	230	298	1950

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

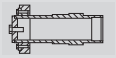
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	370
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1260
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1320
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1815
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835

X.TH..



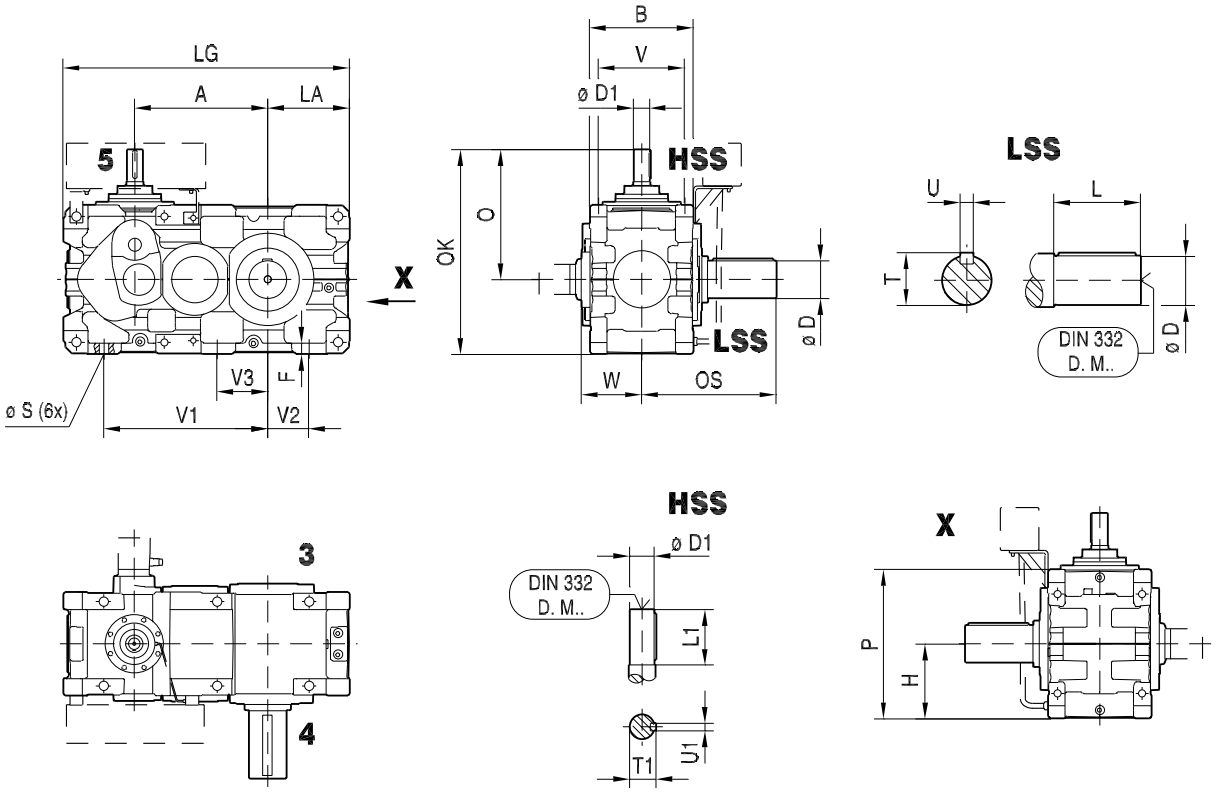
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	385
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1310
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1370
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1885
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

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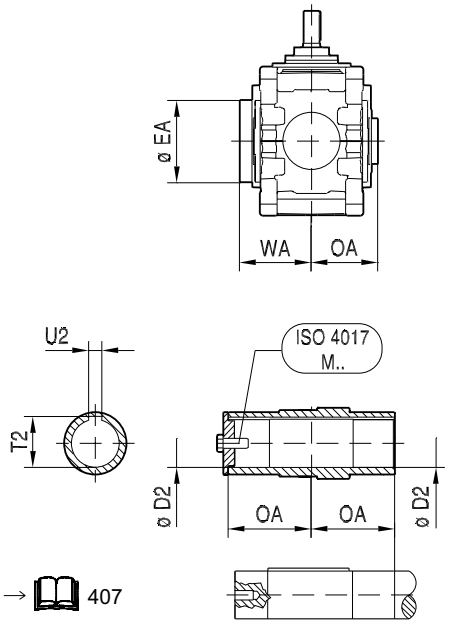
10.3.4 X4T220 - 250

48 032 01 09

X4TS..

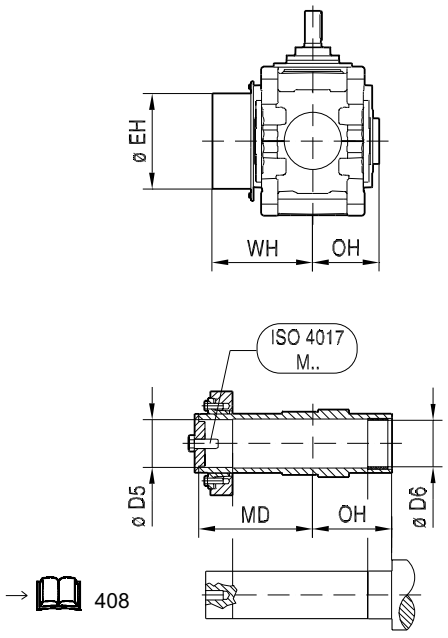


X4TA..



→ 407

X4TH..



→ 408

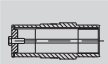
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X.T..															
X4T..	**A**	**B**	**F**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	718	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	761	1186	850	48	440	910	250	280	331	2665
X230	758	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	761	1186	850	48	440	950	250	280	331	2845
X240	806	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	817	1267	900	56	510	990	250	305	377	3645
X250	829	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	817	1267	900	56	510	1010	250	305	377	3800

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

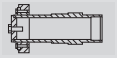
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2625
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3360
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3495

X.TH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2735
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3525
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3655

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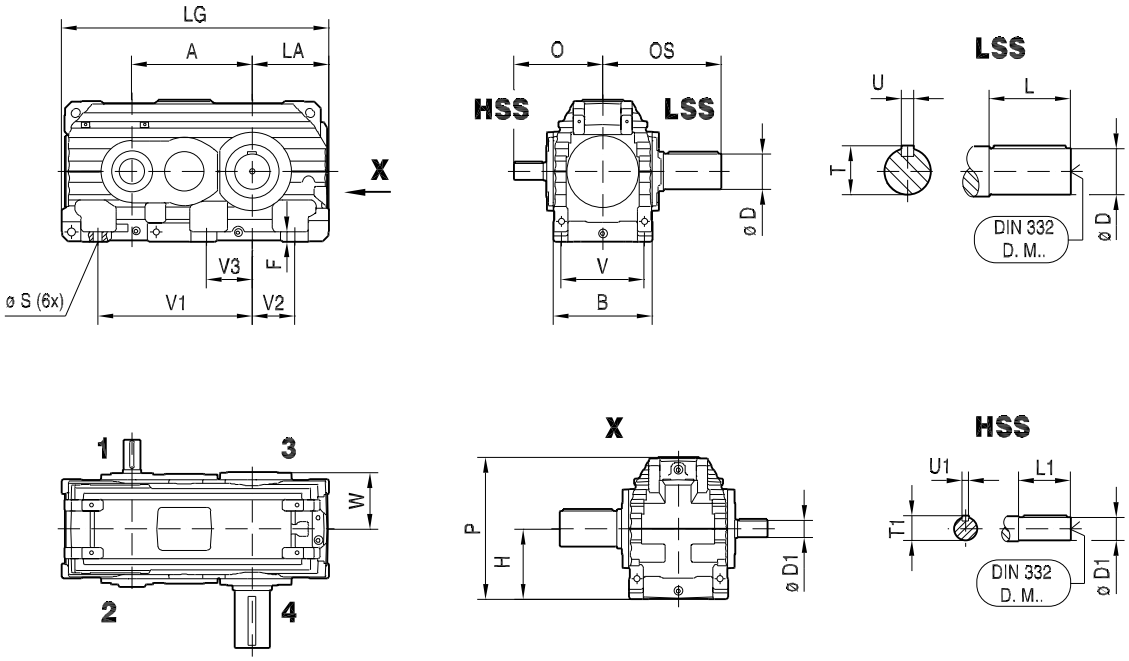
11 Dimension sheets: Horizontal housing /HH

11.1 X.F.. helical gear units [mm]

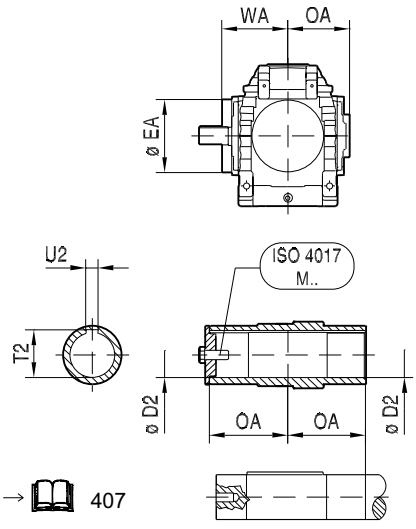
11.1.1 X2F220 – 250

X2FS../HH

48 029 00 13

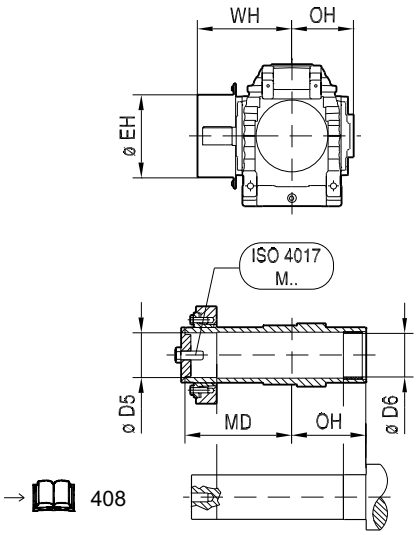


X2FA../HH



→ 407

X2FH../HH



→ 408

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X.F..													
X2F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	854	48	440	910	250	280	331
X230	734	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	854	48	440	950	250	280	331
X240	776	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	510	990	250	305	377
X250	799	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	510	1010	250	305	377

X.FS.. LSS							
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
210_{m6}	350	703	221	50_{h9}	M30	2398
230_{m6}	410	763	241	50_{h9}	M36	2568
230_{m6}	410	811	241	50_{h9}	M36	3299
240_{m6}	410	811	252	56_{h9}	M36	3446

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24

X4FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2214
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2346
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3011
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3137

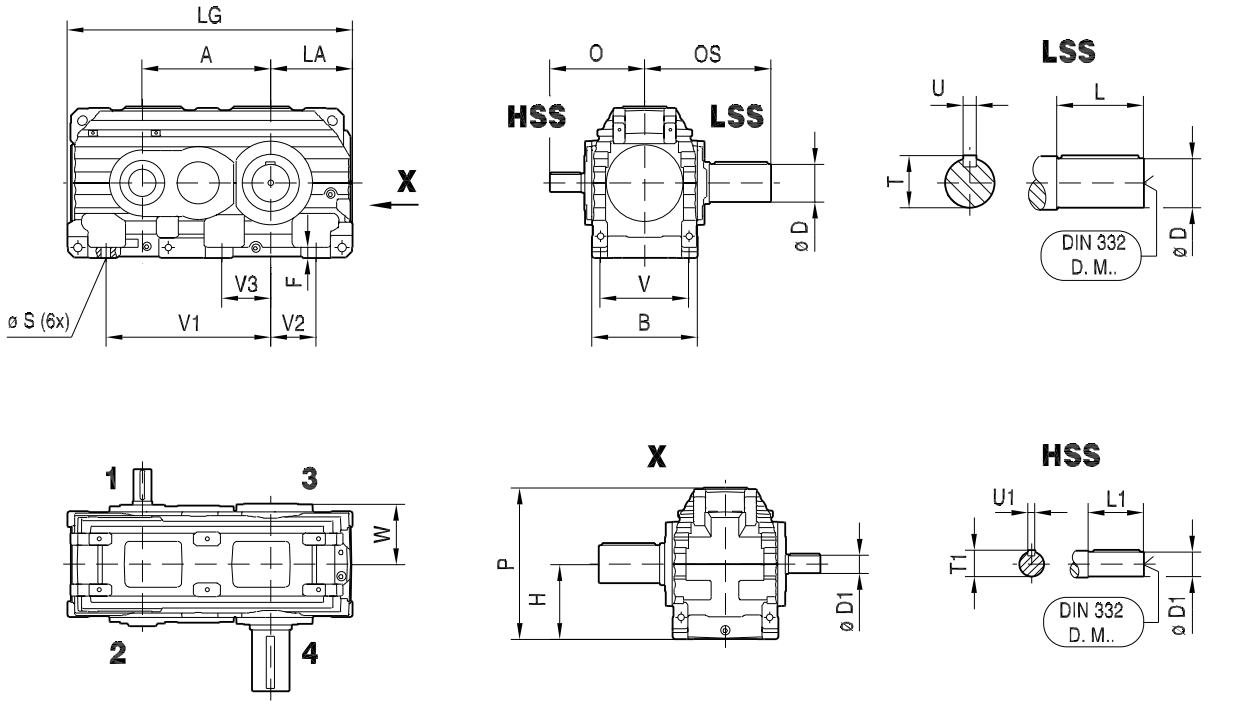
X4FH..

LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2322
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2454
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3177
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3298

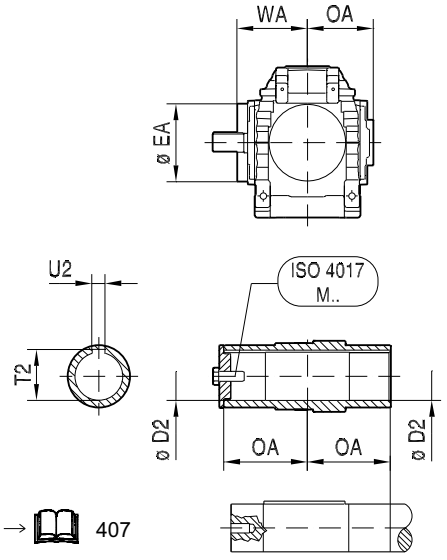
11.1.2 X2F260 – 320

X2FS../HH

48 007 03 08

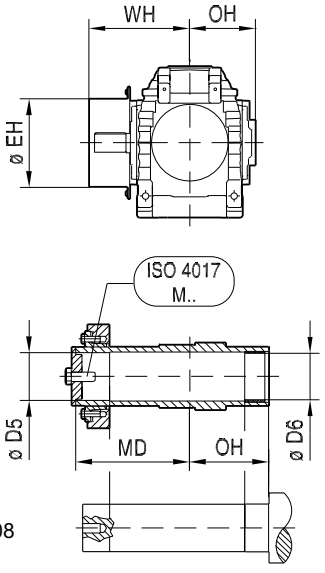


X2FA../HH



→ 407

X2FH../HH



→ 408

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X.F..														X.FS.. LSS						
X2F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	855	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4170
X270	890	705	73	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	4620
X280	942	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5020
X290	987	785	86	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	6120
X300	1016	785	86	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	6820
X310	1100	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	6970
X320	1134	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	7770

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X260*	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

X2FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	3770
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4170
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4520
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5470
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6120
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6220
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6970

X2FH..

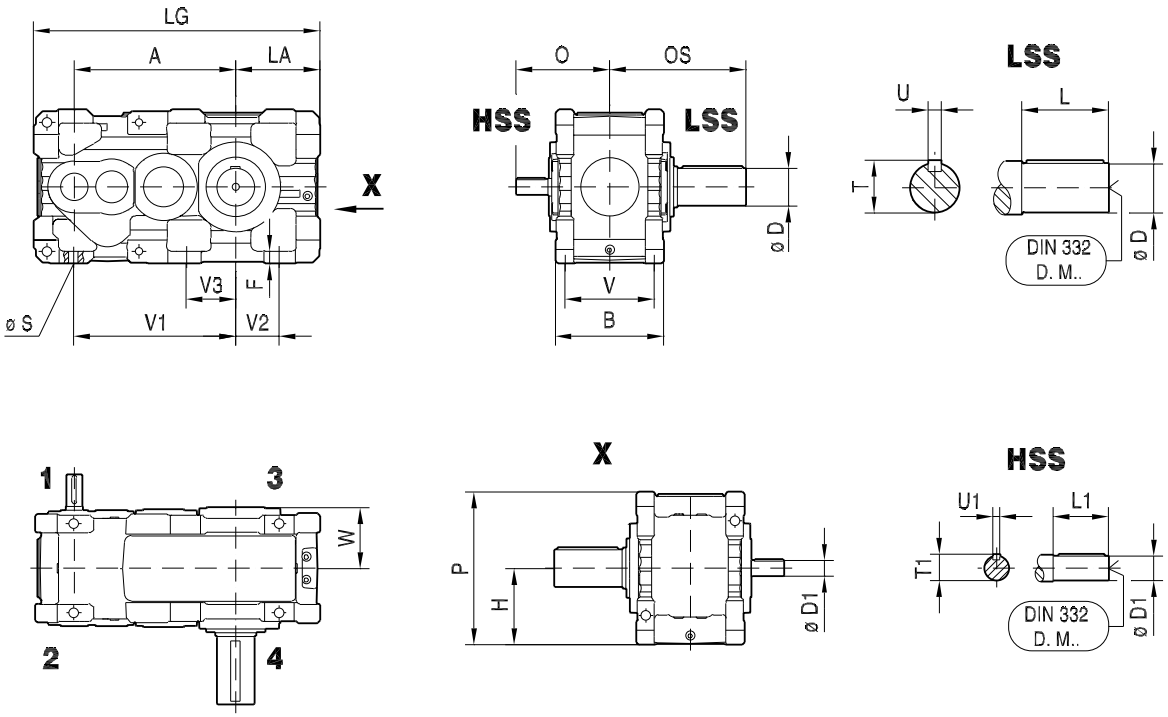
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	3920
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4420
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	5720
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6370
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	6570
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7320

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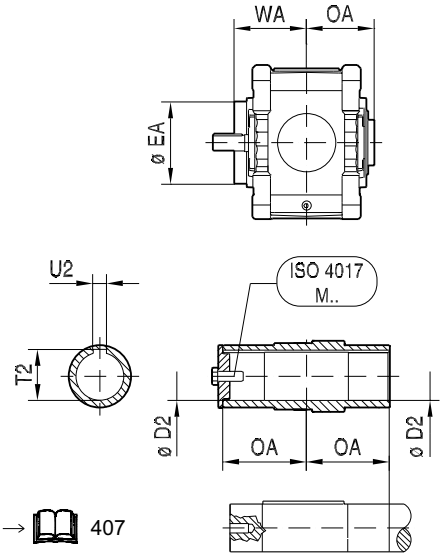
11.1.3 X3F100 – 210

X3FS../HH

48 027 00 13

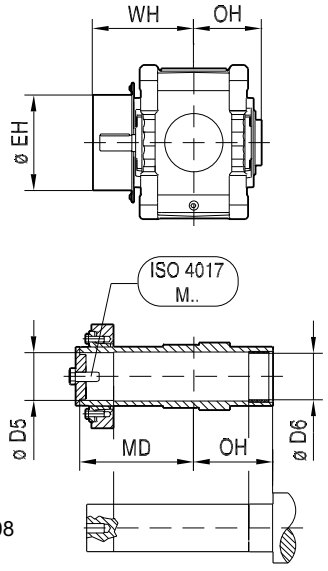


X3FA..



→ 407

X3FH..



→ 408

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X.F..														X.FS.. LSS						
X3F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	360	268	29	$190_{-0.5}$	$190_{-0.5}$	663	384	24 (4x)	210	370	90	-	153	80_{m6}	170	343	85	22_{h9}	M20	220
X110	380	268	29	$190_{-0.5}$	$215_{-0.5}$	708	384	24 (4x)	210	390	115	-	153	90_{m6}	170	346	95	25_{h9}	M24	225
X120	427	308	33	$225_{-0.5}$	$215_{-0.5}$	772	454	28 (4x)	245	440	105	-	174	100_{m6}	210	401	106	28_{h9}	M24	340
X130	463	308	33	$225_{-0.5}$	$250_{-0.5}$	843	454	28 (4x)	245	475	140	-	174	110_{m6}	210	404	116	28_{h9}	M24	405
X140	502	368	42	$265_{-0.5}$	$250_{-0.5}$	908	534	35 (4x)	290	510	110	-	202	120_{m6}	210	432	127	32_{h9}	M24	570
X150	544	368	42	$265_{-0.5}$	$295_{-0.5}$	995	534	35 (4x)	290	555	155	-	202	130_{m6}	250	475	137	32_{h9}	M24	625
X160	611	433	50	$315_{-0.5}$	$355_{-0.5}$	1149	634	42 (4x)	340	620	185	-	240	140_{m6}	250	506	148	36_{h9}	M30	970
X170	662	433	50	$315_{-0.5}$	$355_{-0.5}$	1200	634	42 (4x)	340	670	185	-	240	160_{m6}	300	556	169	40_{h9}	M30	1125
X180	707	483	55	$335_{-0.5}$	$370_{-0.5}$	1254	674	42 (6x)	390	710	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1450
X190	739	483	55	$335_{-0.5}$	$370_{-0.5}$	1286	674	42 (6x)	390	740	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1515
X200	794	523	60	$375_{-0.5}$	$420_{-0.5}$	1414	754	48 (6x)	420	780	205	230	298	180_{m6}	300	612	190	45_{h9}	M30	1850
X210	830	523	60	$375_{-0.5}$	$420_{-0.5}$	1450	754	48 (6x)	420	815	205	230	298	190_{m6}	350	662	200	45_{h9}	M30	1930

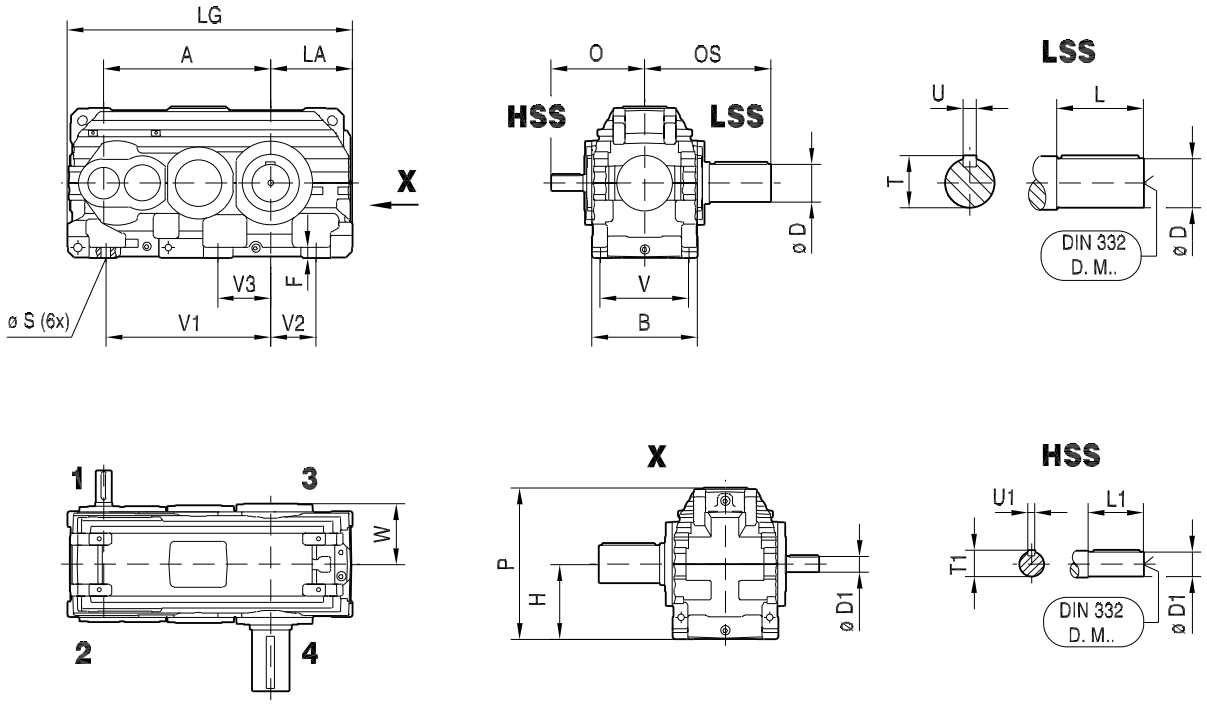
HSS	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***						i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X100**	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

X3FA..									X3FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	210	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	220
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	320	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	330
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	380	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	395
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	575	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	575
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	900	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1045	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1100
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1350	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1400
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1415	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1465
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1765	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1815	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1900

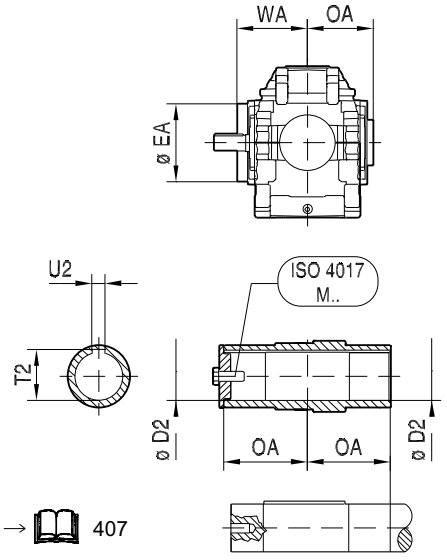
11.1.4 X3F220 – 250

X3FS../HH

48 028 00 13

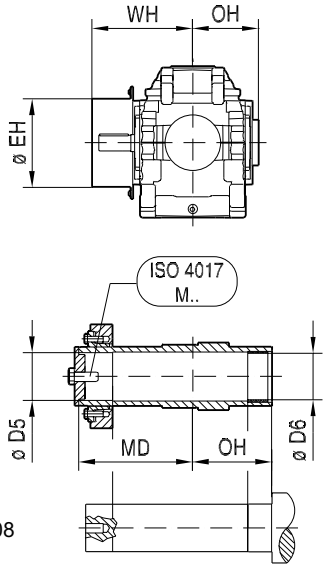


X3FA../HH



→ 407

X3FH../HH



→ 408

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X.F..														X.FS.. LSS						
X3F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	854	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2370
X230	934	540	62	$425_{-0.5}$	$465_{-0.5}$	1631	854	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	2582
X240	1004	625	68	$450_{-0.5}$	$495_{-0.5}$	1728	900	56	510	990	250	305	377	230_{m6}	410	811	241	50_{h9}	M36	3338
X250	1027	625	68	$450_{-0.5}$	$495_{-0.5}$	1752	900	56	510	1010	250	305	377	240_{m6}	410	811	252	56_{h9}	M36	3444

HSS	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20

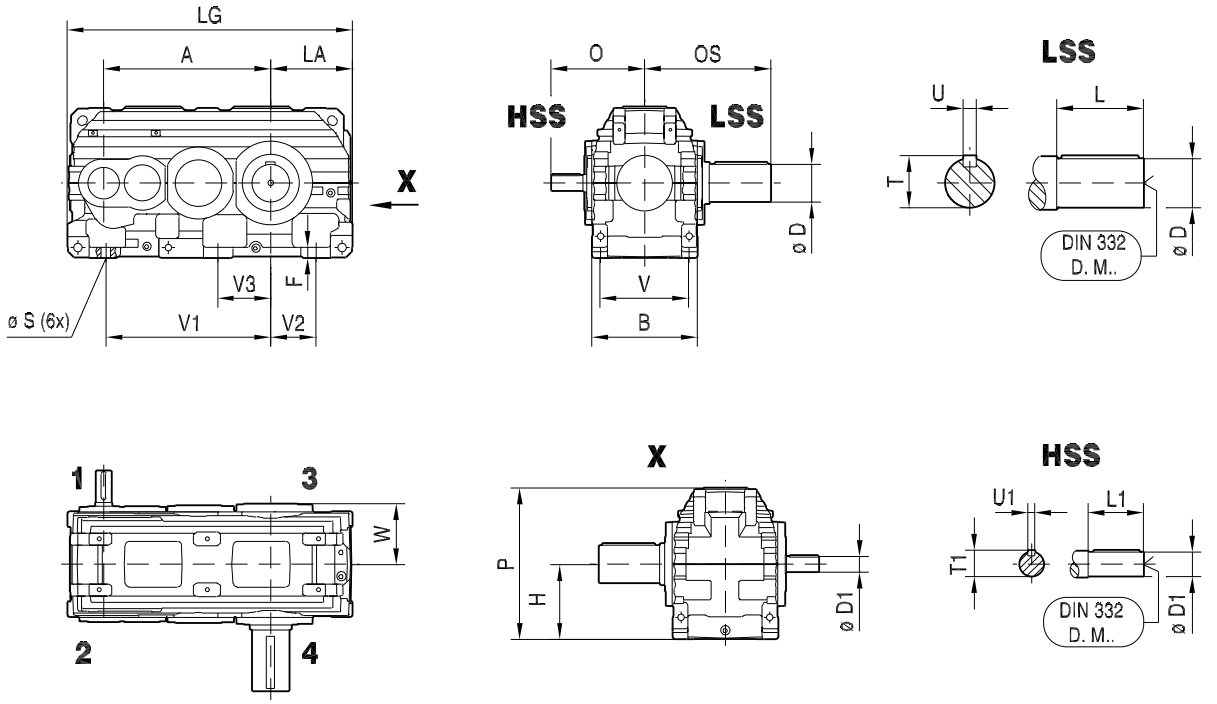
X3FA..									X3FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2186	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2294
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2360	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2468
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3050	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3216
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3135	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3296

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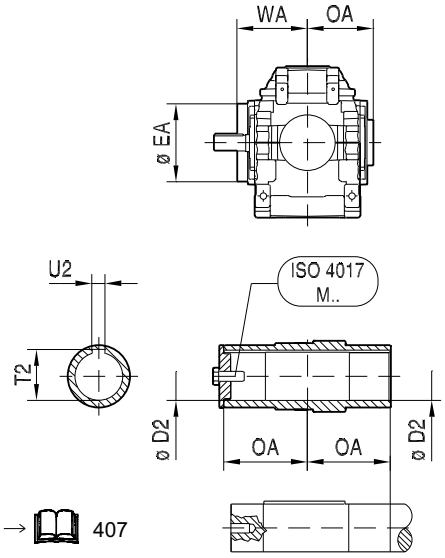
11.1.5 X3F260 – 320

X3FS../HH

48 008 03 08

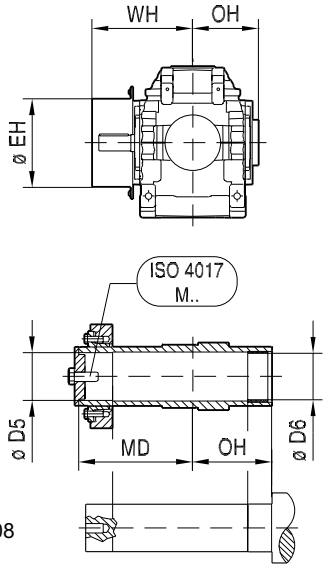


X3FA../HH



→ 407

X3FH../HH



→ 408

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X.F..														X.FS.. LSS						
X3F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4170
X270	1148	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	4670
X280	1200	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5120
X290	1279	785	76	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	6370
X300	1308	785	76	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	7070
X310	1435	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	7820
X320	1469	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	8720

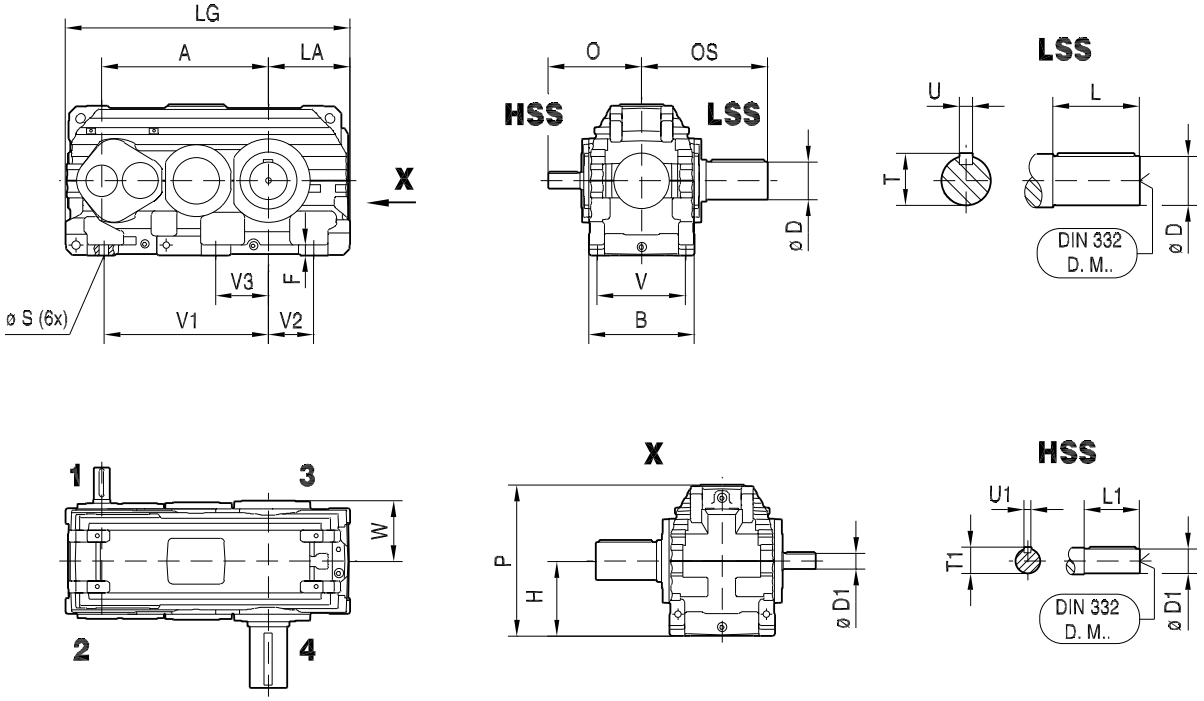
HSS	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***						i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

X3FA..									X3FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	3720	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	3870
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4120	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4420
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4570	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5720	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	5970
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6320	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6570
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7020	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7370
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7670

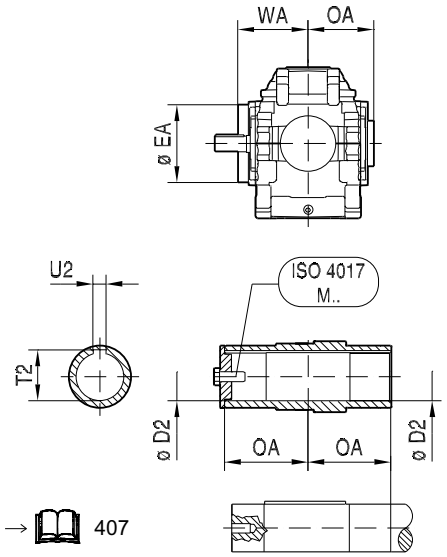
11.1.6 X4F220 – 250

X4FS../HH

48 030 00 13

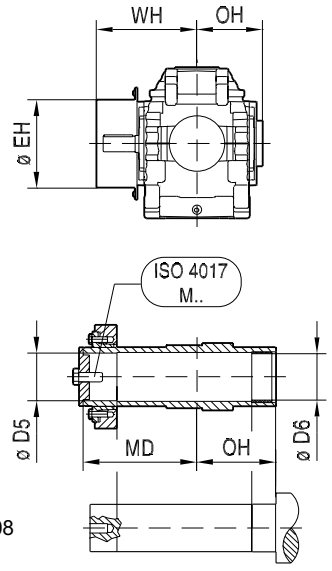


X4FA../HH



→ 407

X4FH../HH



→ 408

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X.F..														X.FS.. LSS						
X4F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	854	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2418
X230	934	540	62	$425_{-0.5}$	$465_{-0.5}$	1631	854	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	2769
X240	1004	625	68	$450_{-0.5}$	$495_{-0.5}$	1729	900	56	510	990	250	305	377	230_{m6}	410	811	241	50_{h9}	M36	3394
X250	1027	625	68	$450_{-0.5}$	$495_{-0.5}$	1752	900	56	510	1010	250	305	377	240_{m6}	410	811	252	56_{h9}	M36	3516

HSS	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20

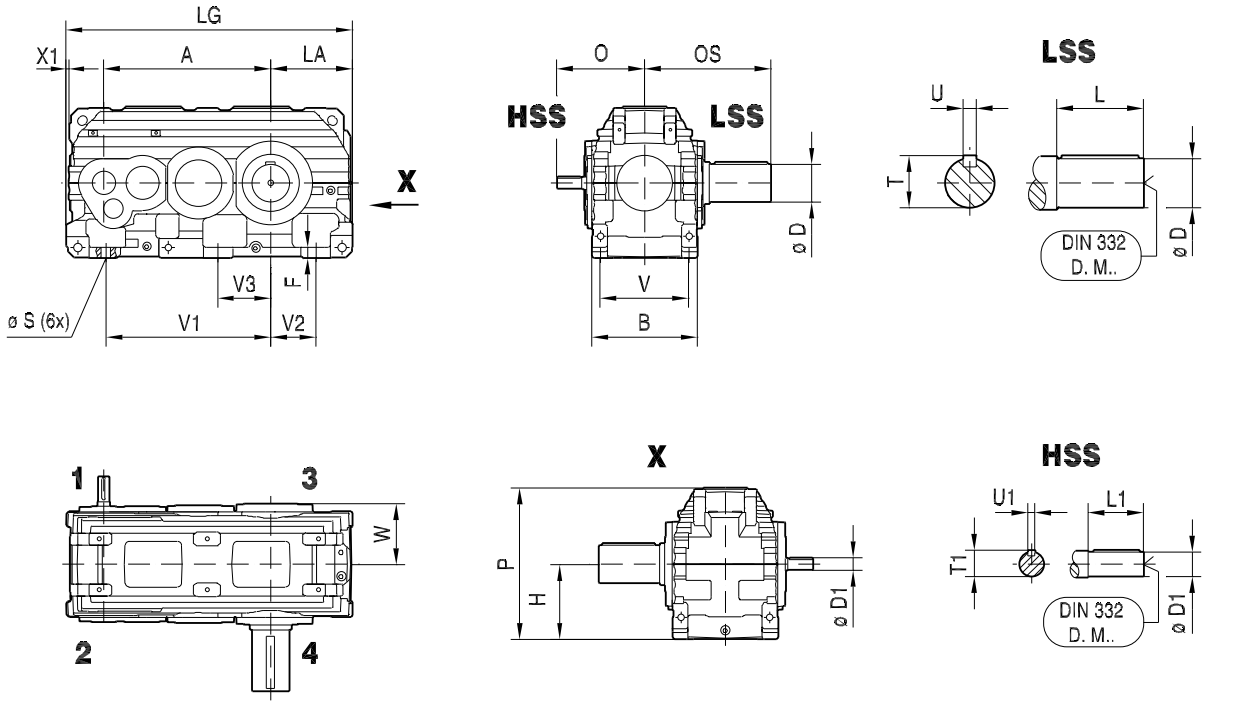
X4FA..									X4FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2234	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2342
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2547	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2655
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3106	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3272
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3566	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3727

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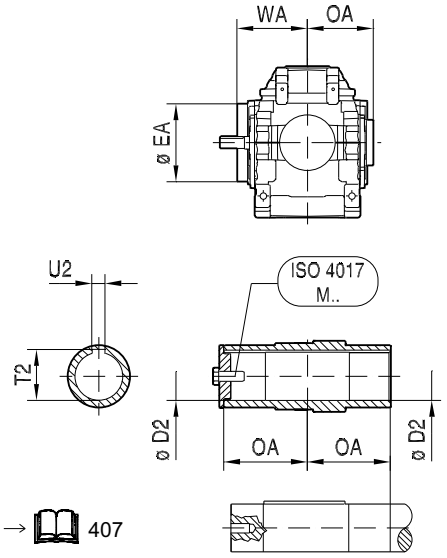
11.1.7 X4F260 – 320

X4FS../HH

48 009 03 08

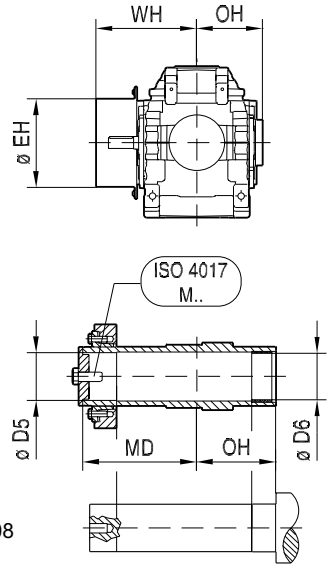


X4FA../HH



→ 407

X4FH../HH



→ 408

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X.F..													X.FS.. LSS						
X4F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1909	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4270
X270	1148	705	63	$500_{-0.5}$	$545_{-0.5}$	1944	1017	56	590	1110	300	350	419	270_{m6}	470	920	282	63_{h9}	M36	4770
X280	1200	705	73	$555_{-0.5}$	610-0.5	2061	1127	56	590	1190	360	380	419	290_{m6}	470	920	302	63_{h9}	M36	5270
X290	1279	785	76	$580_{-0.5}$	$620_{-0.5}$	2196	1177	65	655	1280	330	355	465	290_{m6}	470	962	302	63_{h9}	M36	6520
X300	1308	785	76	$580_{-0.5}$	$620_{-0.5}$	2225	1177	65	655	1280	330	355	465	300_{m6}	470	962	314	70_{h9}	M36	7270
X310	1435	850	86	$630_{-0.5}$	$680_{-0.5}$	2419	1277	65	720	1435	385	455	499	320_{m6}	470	999	334	70_{h9}	M42	8020
X320	1469	850	86	$630_{-0.5}$	$680_{-0.5}$	2453	1277	65	720	1435	385	455	499	340_{m6}	550	1079	355	80_{h9}	M42	8970

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

X4FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	3820
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4270
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4670
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5820
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6520
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820

X4FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	3970
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4520
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4970
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6070
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6770
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7520
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170

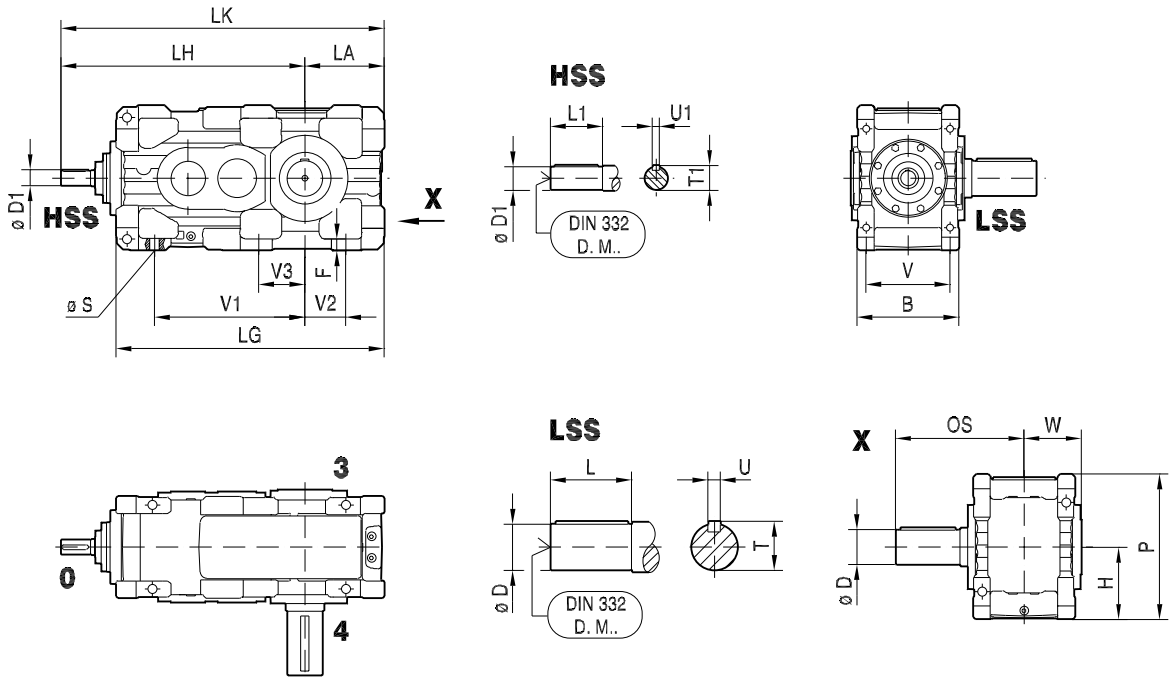
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11.2 X.K.. bevel-helical gear units [mm]

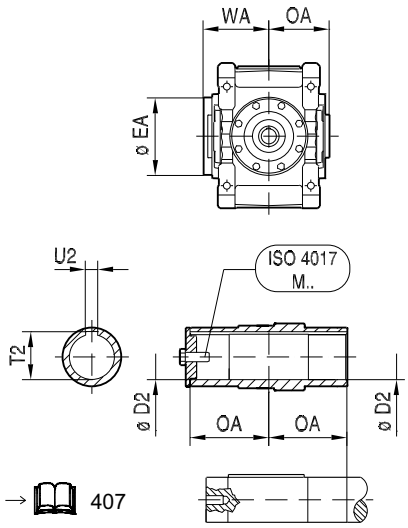
11.2.1 X3K100 – 210

X3KS../HH

48 031 00 13

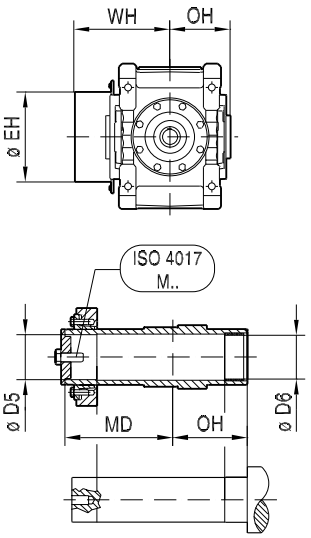


X3KA..



→ 407

X3KH..



→ 408

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X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X100	268	29	$190_{-0.5}$	$190_{-0.5}$	658	632	822	384	24 (4x)	210	370	90	-	153	235
X110	268	29	$190_{-0.5}$	$215_{-0.5}$	703	652	867	384	24 (4x)	210	390	115	-	153	255
X120	308	33	$225_{-0.5}$	$215_{-0.5}$	767	745	960	454	28 (4x)	245	440	105	-	174	360
X130	308	33	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	454	28 (4x)	245	475	140	-	174	410
X140	368	42	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	534	35 (4x)	290	510	110	-	202	600
X150	368	42	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	534	35 (4x)	290	555	155	-	202	640
X160	433	50	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	634	42 (4x)	340	620	185	-	240	985
X170	433	50	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	634	42 (4x)	340	670	185	-	240	1130
X180	483	55	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	674	42 (6x)	390	710	190	215	277	1400
X190	483	55	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	674	42 (6x)	390	740	190	215	277	1510
X200	523	60	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	754	48 (6x)	420	780	205	230	298	2020
X210	523	60	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	754	48 (6x)	420	815	205	230	298	2120

LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

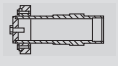
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X3KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	225
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	565
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1300
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1410
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1935
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2005

X3KH..



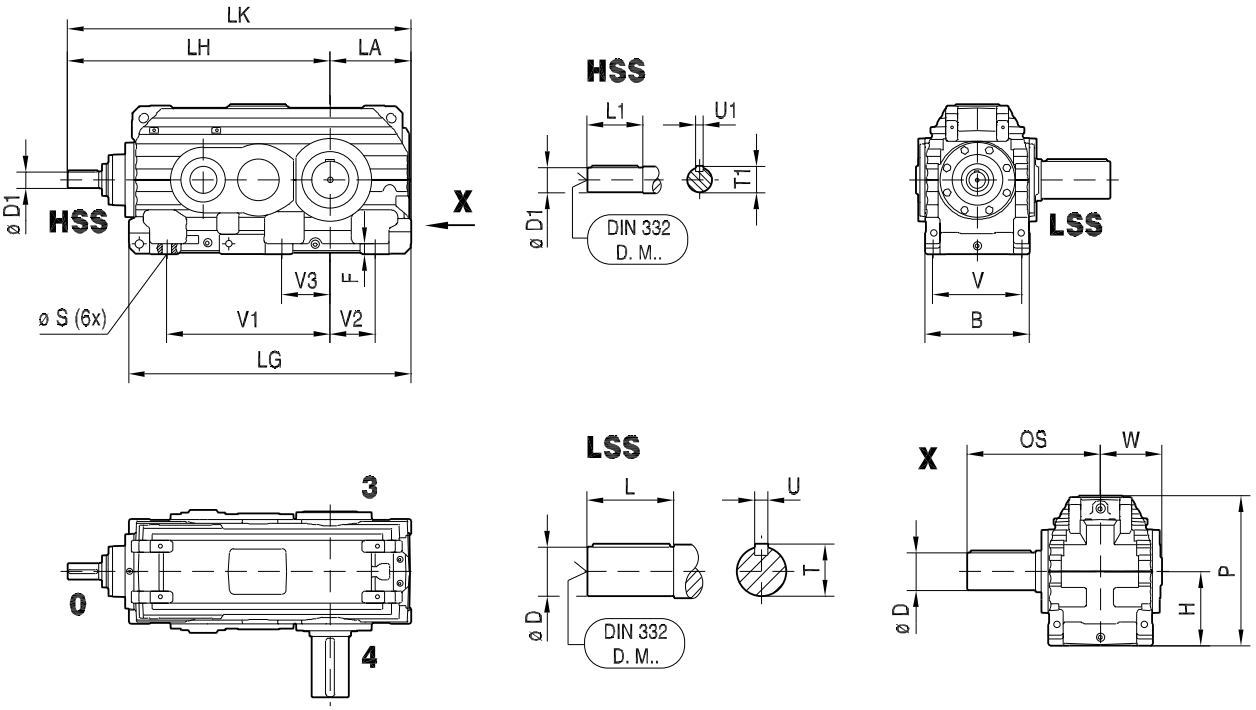
LSS	Ø D 5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	235
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	590
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1350
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1460
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2005
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2090

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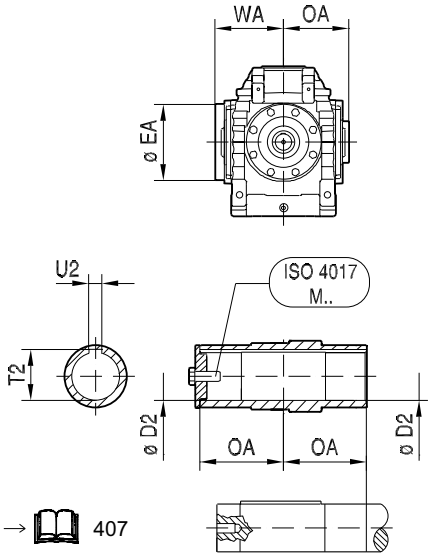
11.2.2 X3K220 – 250

X3KS../HH

48 032 00 13

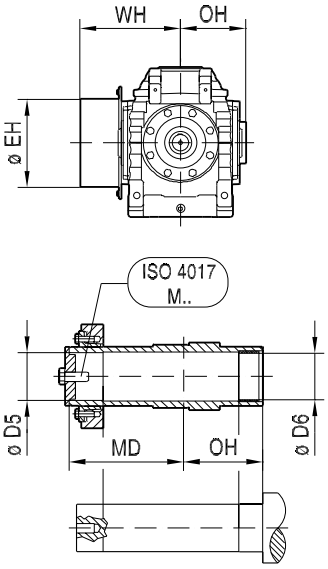


X3KA../HH



→ 407

X3KH../HH



→ 408

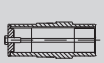
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X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	854	48	440	910	250	280	331	2640
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	854	48	440	950	250	280	331	2800
X240	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	56	510	990	250	305	377	3600
X250	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	56	510	1010	250	305	377	3705

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

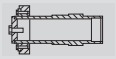
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X3KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2455
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2580
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3290
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3400

X3KH..



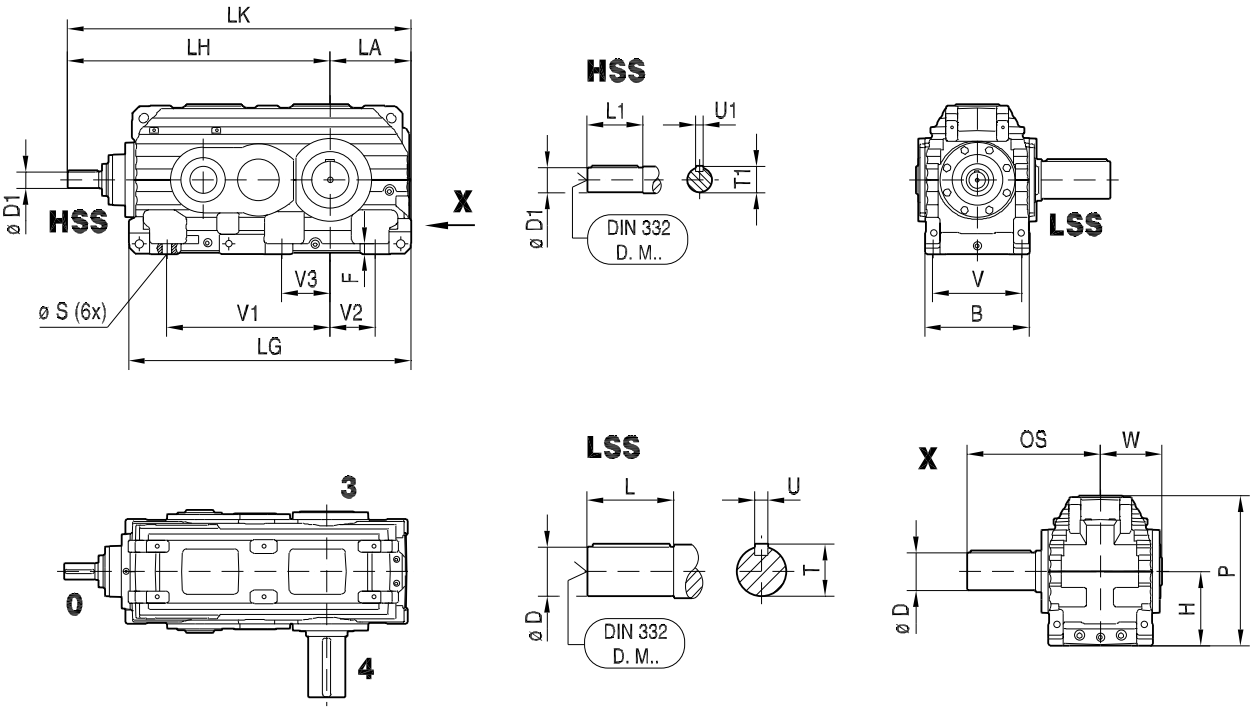
LSS	**Ø D 5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2560
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2685
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3460
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3560

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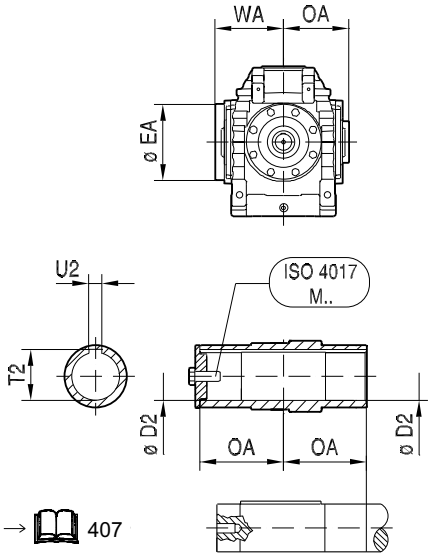
11.2.3 X3K260 – 320

X3KS../HH

48 003 03 08

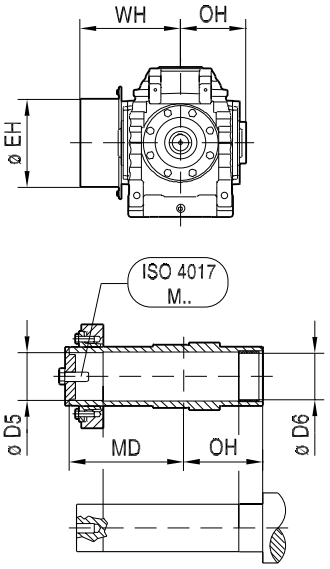


X3KA../HH



→ 407

X3KH../HH



→ 408

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X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X260	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1017	56	590	1110	300	350	417	4570
X270	705	73	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1017	56	590	1110	300	350	419	5070
X280	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1127	56	590	1190	360	380	419	5520
X290	785	86	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1177	65	655	1280	330	355	465	6570
X300	785	86	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1177	65	655	1280	330	355	465	7270
X310**	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	2175	2855	1277	65	720	1435	385	455	499	8020
						2135	2815								
X320**	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	2209	2889	1277	65	720	1435	385	455	499	8920
						2169	2849								

LSS	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

HSS	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**	**i**
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
	130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X3KA..

LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4120
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4570
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4920
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5920
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6520
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7870

X4KH..

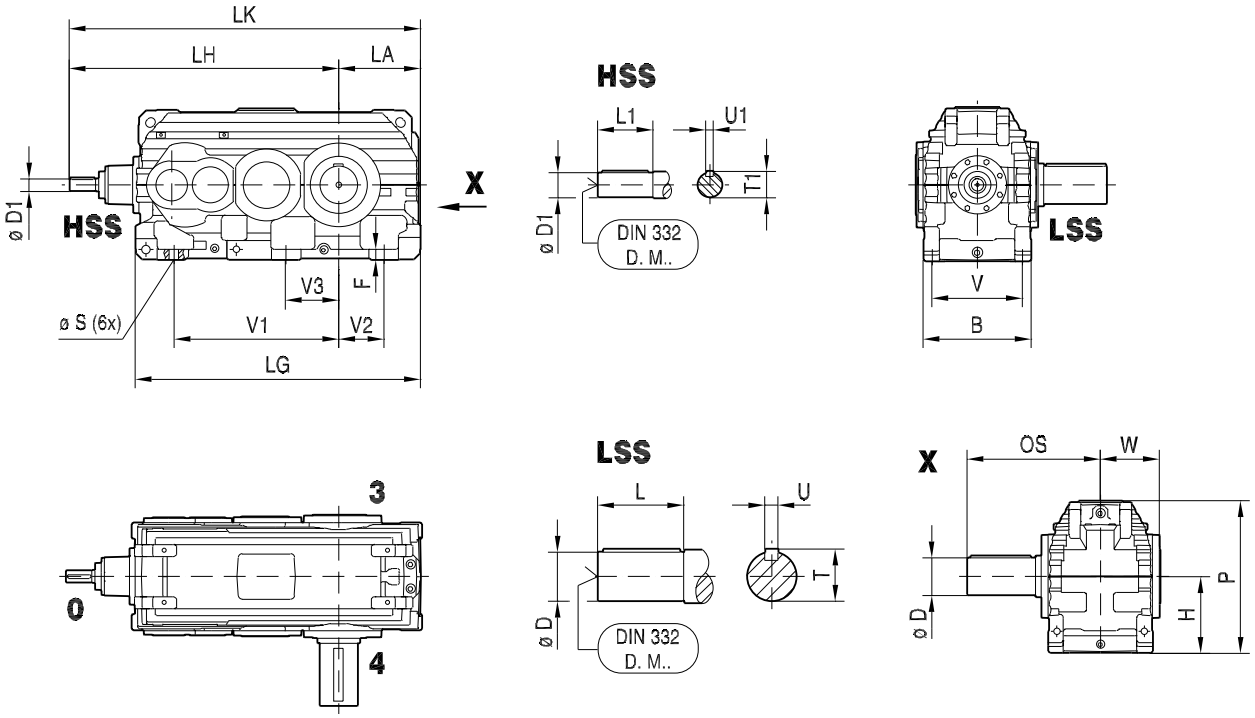
LSS	**Ø D 5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4270
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4820
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5220
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	5970
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6770
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7520
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8220

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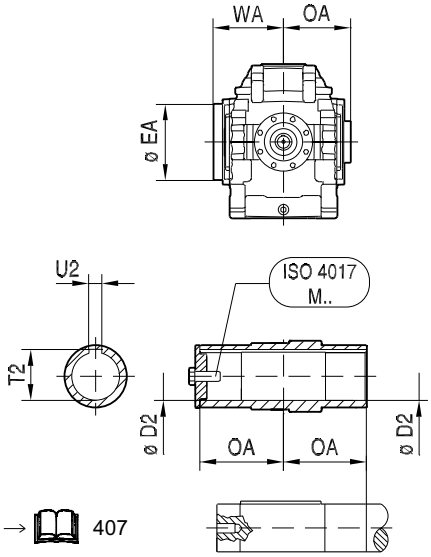
11.2.4 X4K220 – 250

48 033 00 13

X4KS../HH

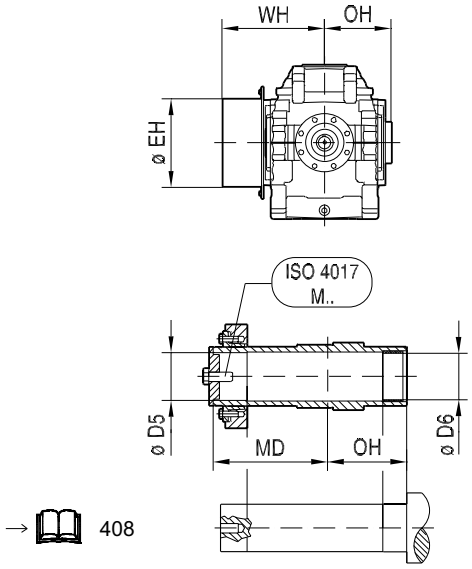


X4KA../HH



→ 407

X4KH../HH



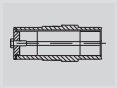
→ 408

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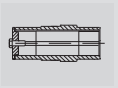
X.K..														
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	1456	1921	854	48	440	910	250	280	331	2440
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1631	1496	1963	854	48	440	950	250	280	331	2670
X240	625	68	$450_{-0.5}$	$495_{-0.5}$	1728	1595	2090	900	56	510	990	250	305	377	3430
X250	625	68	$450_{-0.5}$	$495_{-0.5}$	1752	1618	2113	900	56	510	1010	250	305	377	3650

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X4KA.. 

LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2250
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2450
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3140
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3345

X4KA.. 

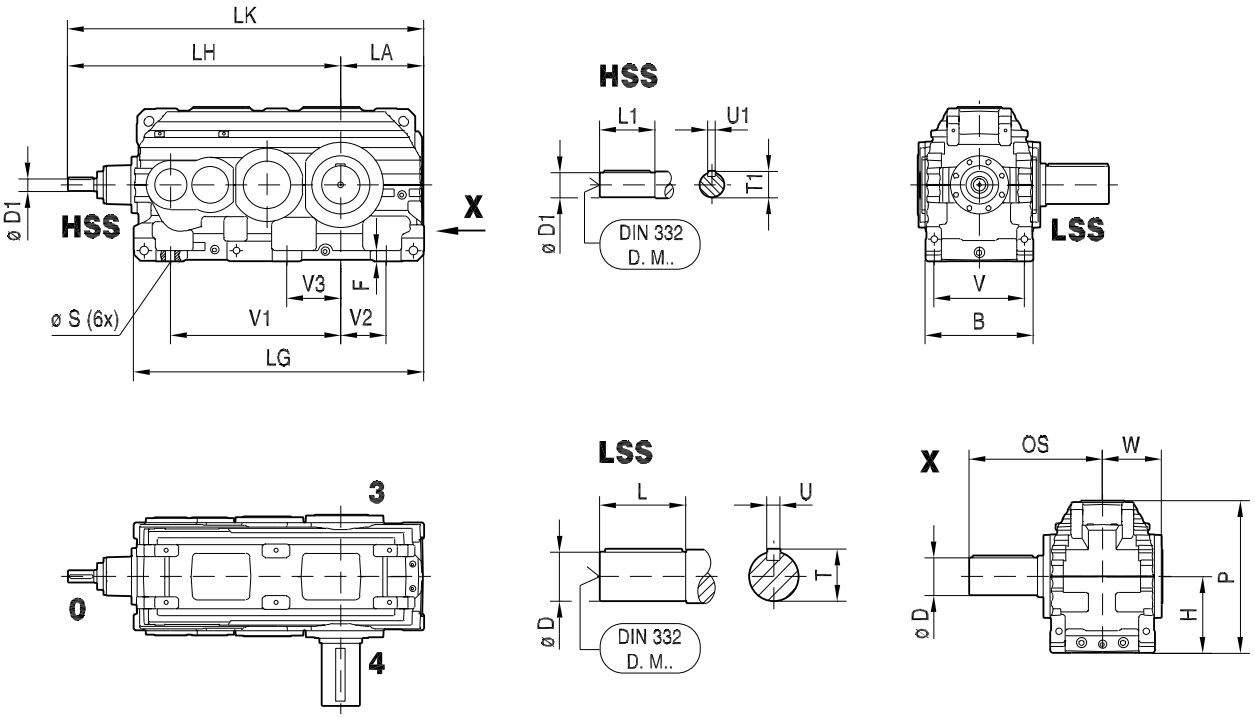
LSS	**Ø D 5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2365
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2560
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3310
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3505

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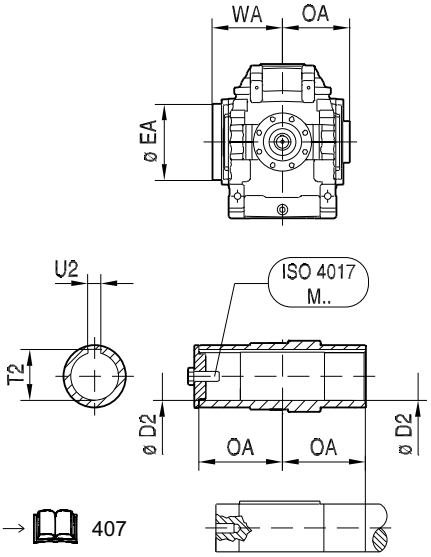
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X4KS../HH

48 004 03 08

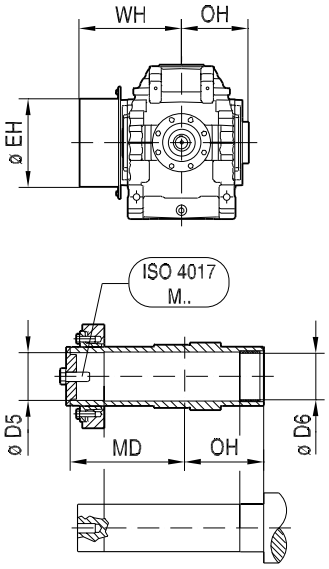


X4KA../HH



→ 407

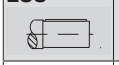
X4KH../HH



→ 408

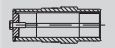
24799734/EN – 08/2018

X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X260	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1017	56	590	1110	300	350	417	4270
X270	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1017	56	590	1110	300	350	419	4770
X280	705	73	$555_{-0.5}$	610-0.5	2052	1872	2482	1127	56	590	1190	360	380	419	5270
X290	785	76	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1177	65	655	1280	330	355	465	6520
X300	785	76	$580_{-0.5}$	620-0.5	2216	2044	2664	1177	65	655	1280	330	355	465	7270
X310	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1277	65	720	1435	385	455	499	8020
X320	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1277	65	720	1435	385	455	499	8970

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

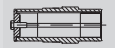
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR. M..**
X260	80_{m6}	170	85	22_{h9}	M20
X270	80_{m6}	170	85	22_{h9}	M20
X280	80_{m6}	170	85	22_{h9}	M20
X290	85_{m6}	170	90	22_{h9}	M20
X300	85_{m6}	170	90	22_{h9}	M20
X310	100_{m6}	210	106	28_{h9}	M24
X320	100_{m6}	210	106	28_{h9}	M24

X4KA..



LSS	**Ø D2**	**ØEA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	3820
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4270
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4670
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5820
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6520
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820

X4KA..



LSS	**Ø D 5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	3970
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4520
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4970
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6070
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6770
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7520
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170

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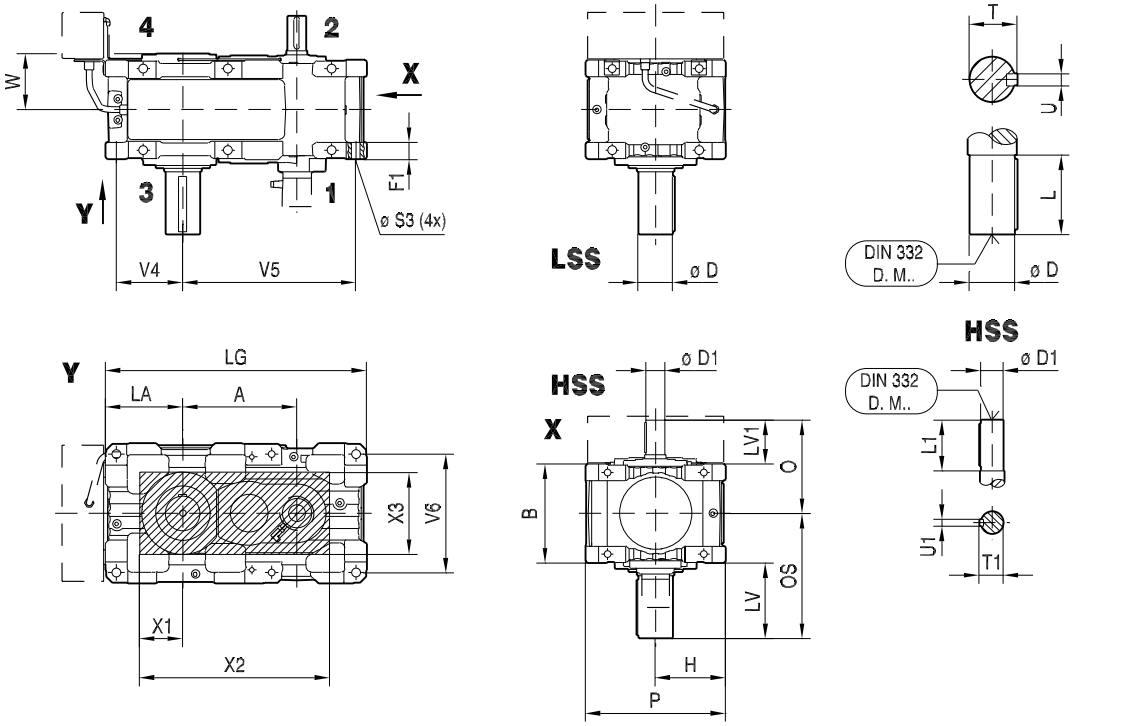
12 Dimension sheets: Vertical gear units, mounting position M5

12.1 X.F.. helical gear units [mm]

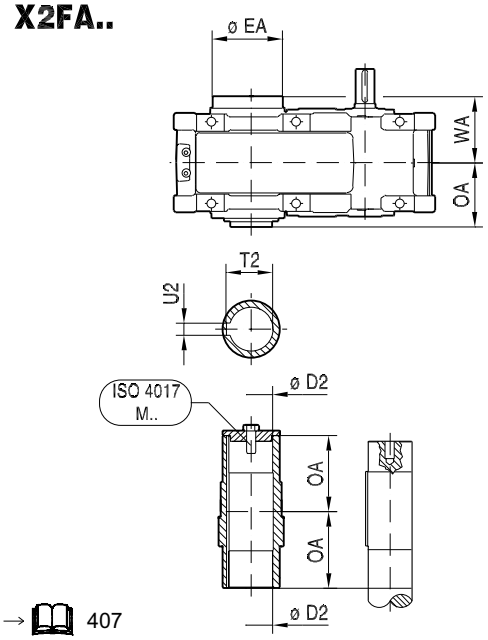
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X2FS..

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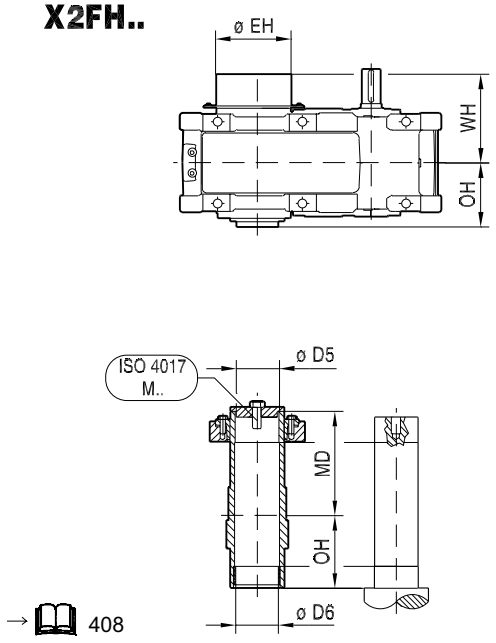


X2FA..



→ 📖 407

X2FH..



→ 📖 408

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X.F..															X.FS.. LSS							
X.F..	**A**	**B**	**F1**	**H**	**LA**	**LG**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X100	278	260	47	$190_{-0.5}$	$190_{-0.5}$	658	380	24	160	441	315	153	120	490	240	80_{m6}	170	213	343	85	22_{h9}	M20	210
X110	298	260	47	$190_{-0.5}$	$215_{-0.5}$	703	380	24	185	461	315	153	125	510	250	90_{m6}	170	216	346	95	25_{h9}	M24	225
X120	327	300	53	$225_{-0.5}$	$215_{-0.5}$	767	450	28	184	521	380	174	150	590	305	100_{m6}	210	251	401	106	28_{h9}	M24	325
X130	363	300	53	$225_{-0.5}$	$250_{-0.5}$	838	450	28	219	557	380	174	165	640	325	110_{m6}	210	254	404	116	28_{h9}	M24	375
X140	388	360	67	$265_{-0.5}$	$250_{-0.5}$	903	530	35	210	613	445	202	165	675	320	120_{m6}	210	252	432	127	32_{h9}	M24	520
X150	430	360	67	$265_{-0.5}$	$295_{-0.5}$	990	530	35	255	655	445	202	180	735	360	130_{m6}	250	295	475	137	32_{h9}	M24	600
X160	474	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	303	737	525	240	195	815	390	140_{m6}	250	294	506	148	36_{h9}	M30	905
X170	525	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	303	788	525	240	195	860	390	160_{m6}	300	344	556	169	40_{h9}	M30	1055
X180	544	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	318	827	565	277	205	895	410	170_{m6}	300	355	592	179	40_{h9}	M30	1350
X190	576	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	318	859	565	277	205	930	410	170_{m6}	300	355	592	179	40_{h9}	M30	1425
X200	614	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	360	930	630	298	235	1020	470	180_{m6}	300	354	612	190	45_{h9}	M30	1910
X210	650	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	360	966	630	298	235	1055	470	190_{m6}	350	404	662	200	45_{h9}	M30	1940

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***							i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***						
	Ø D1	**L1**	**LV1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**LV1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X100**	42_{k6}	110	144	274	45	12_{h9}	M16	32_{k6}	80	114	244	35	10_{h9}	M12
X110***	42_{k6}	110	144	274	45	12_{h9}	M16	32_{k6}	80	114	244	35	10_{h9}	M12
X120*	55_{m6}	110	140	290	59	16_{h9}	M20	42_{k6}	110	140	290	45	12_{h9}	M16
X130***	55_{m6}	110	140	290	59	16_{h9}	M20	42_{k6}	110	140	290	45	12_{h9}	M16
X140*	70_{m6}	140	168	348	74.5	20_{h9}	M20	55_{m6}	110	138	318	59	16_{h9}	M20
X150***	70_{m6}	140	168	348	74.5	20_{h9}	M20	55_{m6}	110	138	318	59	16_{h9}	M20
X160*	80_{m6}	170	199	412	85	22_{h9}	M20	70_{m6}	140	169	382	74.5	20_{h9}	M20
X170***	80_{m6}	170	199	412	85	22_{h9}	M20	70_{m6}	140	169	382	74.5	20_{h9}	M20
X180*	90_{m6}	170	207	445	95	25_{h9}	M24	75_{m6}	140	177	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	207	445	95	25_{h9}	M24	75_{m6}	140	177	415	79.5	20_{h9}	M20
X200*	100_{m6}	210	246	504	106	28_{h9}	M24	90_{m6}	170	206	464	95	25_{h9}	M24
X210**	100_{m6}	210	246	504	106	28_{h9}	M24	90_{m6}	170	206	464	95	25_{h9}	M24

X.FA..								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	200
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	305
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	350
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	485
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	550
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	835
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	975
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1250
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1825
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1825

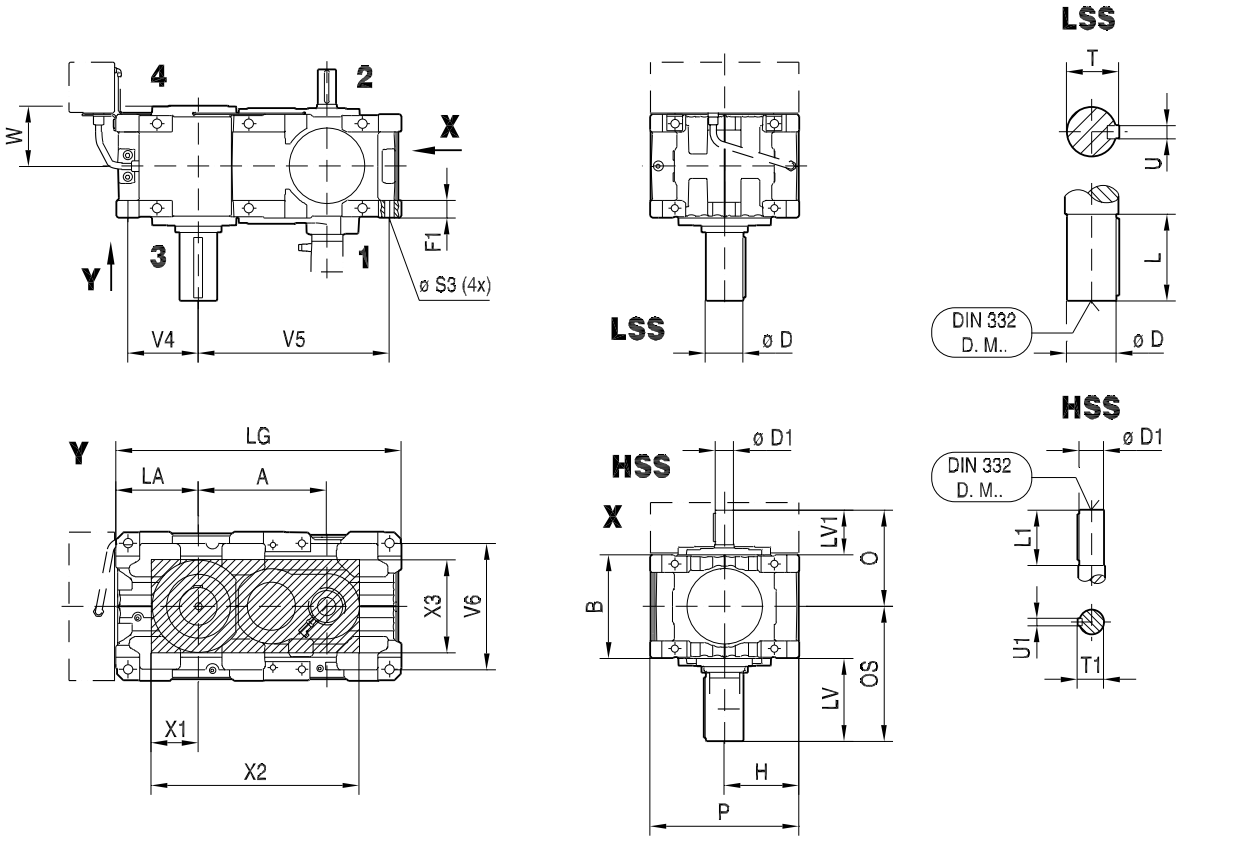
X.FH..							
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	210
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	315
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	365
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	510
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	580
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	865
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1030
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1300
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1895
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1910

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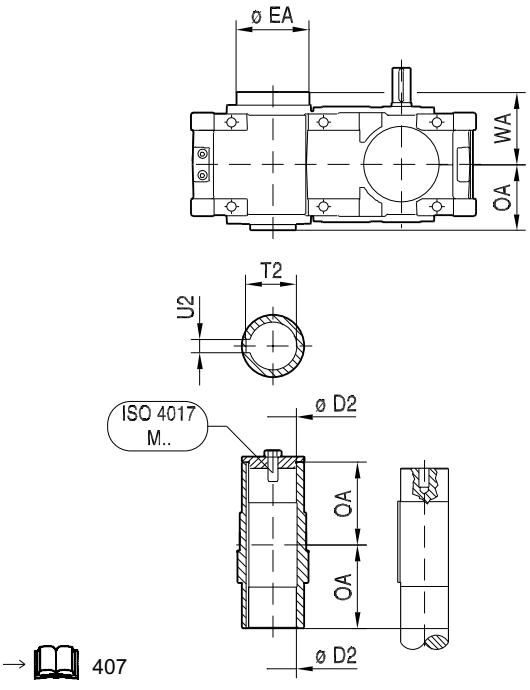
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X2FS..

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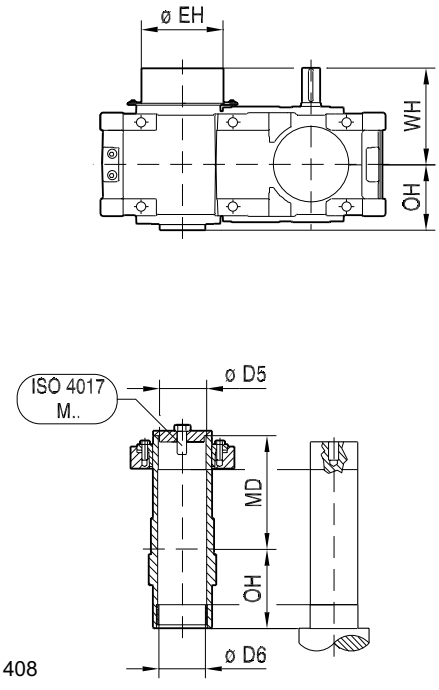


X2FA..



→ 407

X2FH..



→ 408

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X.F..															X.FS.. LSS							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	U	DIN 332 DR.M..	kg
X220	694	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	403	1057	725	331	260	1150	520	210_{m6}	350	433	703	221	50_{h9}	M30	2685
X230	734	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	403	1097	725	331	260	1190	520	230_{m6}	410	493	763	241	50_{h9}	M36	2865
X240	776	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	425	1155	760	377	290	1270	580	230_{m6}	410	498	811	241	50_{h9}	M36	3665
X250	799	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	425	1178	760	377	290	1290	580	240_{m6}	410	498	811	252	56_{h9}	M36	3815
X260	855	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	475	1285	860	417	290	1375	580	250_{m6}	410	495	847	262	56_{h9}	M36	4470
X270	890	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	475	1320	860	419	310	1430	620	270_{m6}	470	568	920	282	63_{h9}	M36	4600
X280	942	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	540	1372	970	419	310	1480	620	290_{m6}	470	568	920	302	63_{h9}	M36	5370
X290	987	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	539	1486	995	465	330	1560	660	290_{m6}	470	570	962	302	63_{h9}	M36	6570
X300	1016	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	539	1515	995	465	330	1590	660	300_{m6}	470	570	962	314	70_{h9}	M36	7270
X310	1100	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	598	1647	1095	499	360	1720	720	320_{m6}	470	574	999	334	70_{h9}	M42	7520
X320	1134	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	598	1681	1095	499	360	1755	720	340_{m6}	550	654	1079	355	80_{h9}	M42	8320

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***							i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	110_{m6}	210	268	538	116	28_{h9}	M24	100_{m6}	210	268	538	106	28_{h9}	M24
X230**	110_{m6}	210	268	538	116	28_{h9}	M24	100_{m6}	210	268	538	106	28_{h9}	M24
X240*	120_{m6}	210	270	583	127	32_{h9}	M24	110_{m6}	210	270	583	116	28_{h9}	M24
X250**	120_{m6}	210	270	583	127	32_{h9}	M24	110_{m6}	210	270	583	116	28_{h9}	M24
X260*	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X270**	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X280***	130_{m6}	250	320	673	137	32_{h9}	M24	120_{m6}	210	280	633	127	32_{h9}	M24
X290*	150_{m6}	250	320	713	158	36_{h9}	M30	150_{m6}	250	320	713	158	36_{h9}	M30
X300**	150_{m6}	250	320	713	158	36_{h9}	M30	150_{m6}	250	320	713	158	36_{h9}	M30
X310*	170_{m6}	300	370	795	179	40_{h9}	M30	170_{m6}	300	370	795	179	40_{h9}	M30
X320**	170_{m6}	300	370	795	179	40_{h9}	M30	170_{m6}	300	370	795	179	40_{h9}	M30

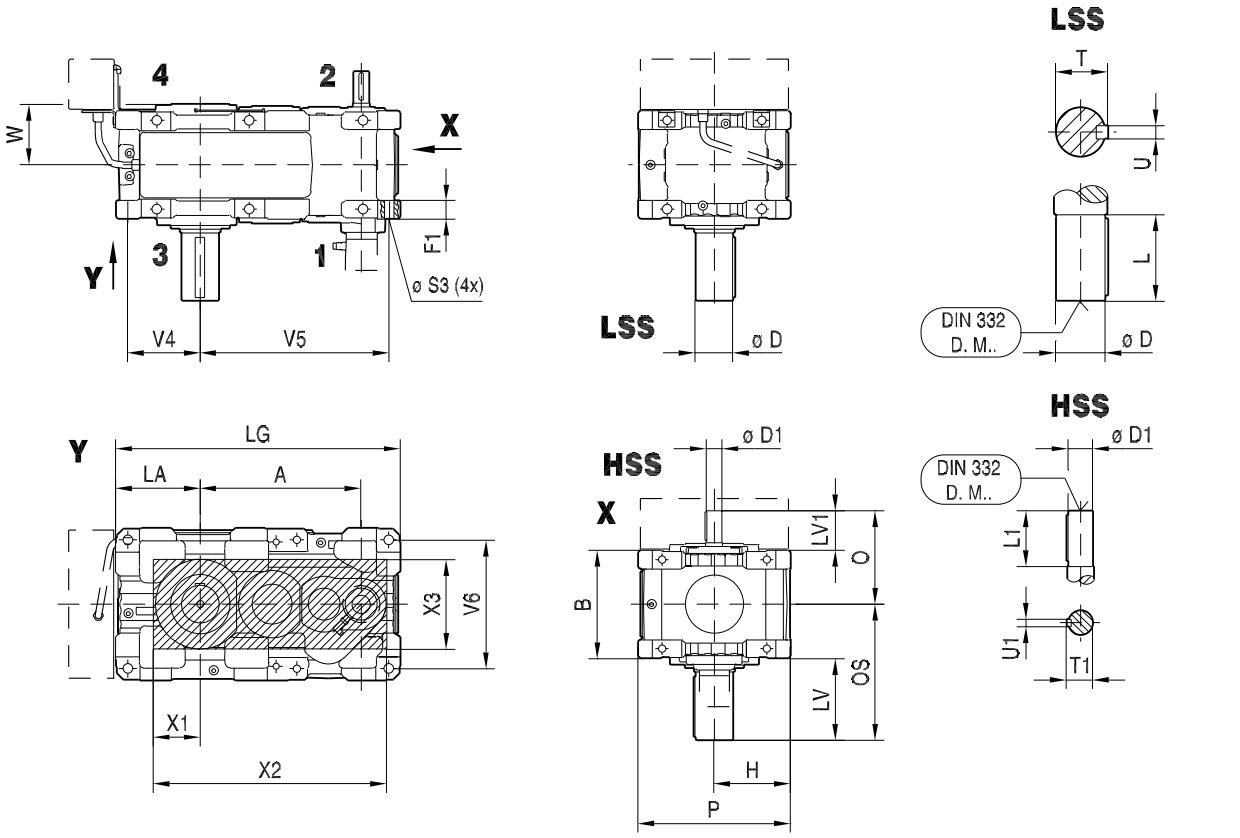
X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2505	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2610
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2645	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3380	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3545
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3510	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3670
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4720
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5920	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6170
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6570	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6820
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6770	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7120
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7520	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7870

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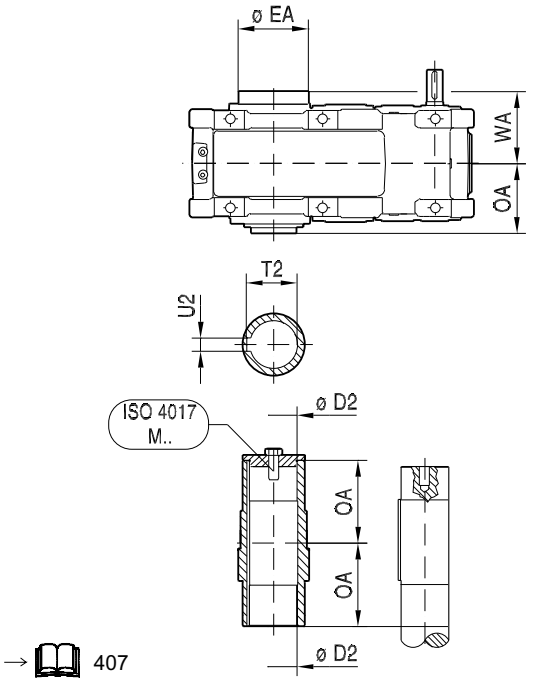
12.1.3 X3F100 - 210

48 073 01 07

X3FS..

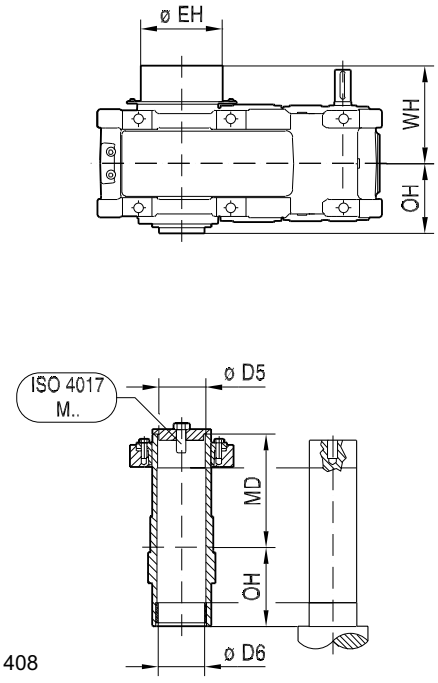


X3FA..



→ 407

X3FH..



→ 408

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X.F..															X.FS.. LSS							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	U	DIN 332 DR.M..	kg
X100	360	260	47	$190_{-0.5}$	$190_{-0.5}$	663	380	24	160	441	315	153	120	560	240	80_{m6}	170	213	343	85	22_{h9}	M20	225
X110	380	260	47	$190_{-0.5}$	$215_{-0.5}$	708	380	24	185	461	315	153	125	585	250	90_{m6}	170	216	346	95	25_{h9}	M24	230
X120	427	300	53	$225_{-0.5}$	$215_{-0.5}$	767	450	28	184	521	380	174	150	670	305	100_{m6}	210	251	401	106	28_{h9}	M24	345
X130	463	300	53	$225_{-0.5}$	$250_{-0.5}$	838	450	28	219	557	380	174	165	715	325	110_{m6}	210	254	404	116	28_{h9}	M24	410
X140	502	360	67	$265_{-0.5}$	$250_{-0.5}$	903	530	35	210	613	445	202	165	765	320	120_{m6}	210	252	432	127	32_{h9}	M24	580
X150	544	360	67	$265_{-0.5}$	$295_{-0.5}$	990	530	35	255	655	445	202	180	820	360	130_{m6}	250	295	475	137	32_{h9}	M24	635
X160	611	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	303	737	525	240	195	920	390	140_{m6}	250	294	506	148	36_{h9}	M30	985
X170	662	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	303	788	525	240	195	970	390	160_{m6}	300	344	556	169	40_{h9}	M30	1140
X180	707	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	318	827	565	277	205	1030	410	170_{m6}	300	355	592	179	40_{h9}	M30	1465
X190	739	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	318	859	565	277	205	1065	410	170_{m6}	300	355	592	179	40_{h9}	M30	1530
X200	794	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	360	930	630	298	235	1160	470	180_{m6}	300	354	612	190	45_{h9}	M30	1870
X210	830	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	360	966	630	298	235	1195	470	190_{m6}	350	404	662	200	45_{h9}	M30	1950

HSS	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***							i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X100**	32_{k6}	80	114	244	35	10_{h9}	M12	32_{k6}	80	114	244	35	10_{h9}	M12
X110***	32_{k6}	80	114	244	35	10_{h9}	M12	32_{k6}	80	114	244	35	10_{h9}	M12
X120*	38_{k6}	80	108	258	41	10_{h9}	M12	38_{k6}	80	108	258	41	10_{h9}	M12
X130***	38_{k6}	80	108	258	41	10_{h9}	M12	38_{k6}	80	108	258	41	10_{h9}	M12
X140*	45_{k6}	110	138	318	48.5	14_{h9}	M16	45_{k6}	110	138	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	138	318	48.5	14_{h9}	M16	45_{k6}	110	138	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	168	381	64	18_{h9}	M20	50_{k6}	110	138	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	168	381	64	18_{h9}	M20	50_{k6}	110	138	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	173	411	74.5	20_{h9}	M20	55_{m6}	110	143	381	59	16_{h9}	M20
X190**	70_{m6}	140	173	411	74.5	20_{h9}	M20	55_{m6}	110	143	381	59	16_{h9}	M20
X200*	75_{m6}	140	172	430	79.5	20_{h9}	M20	60_{m6}	140	172	430	64	18_{h9}	M20
X210**	75_{m6}	140	172	430	79.5	20_{h9}	M20	60_{m6}	140	172	430	64	18_{h9}	M20

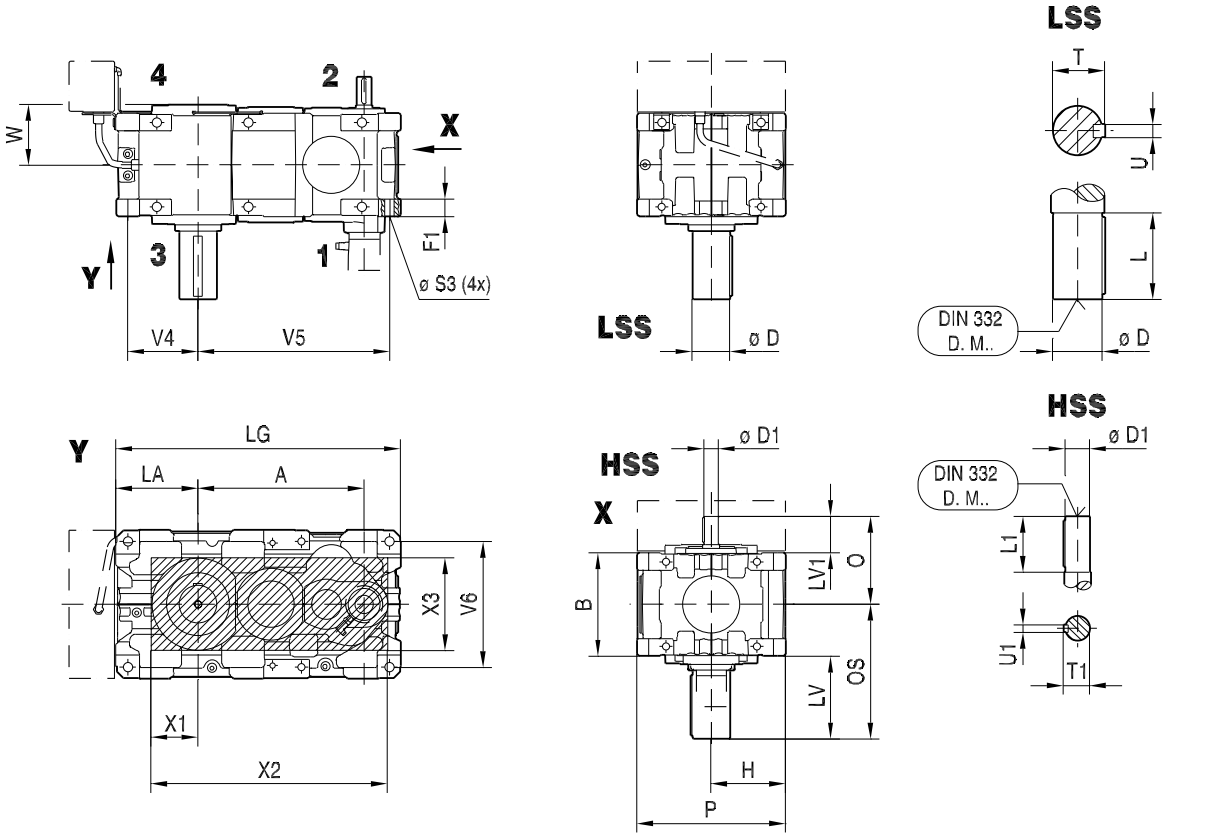
X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	215	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	225
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	220	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	230
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	410	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1060	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1115
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1430	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1480
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

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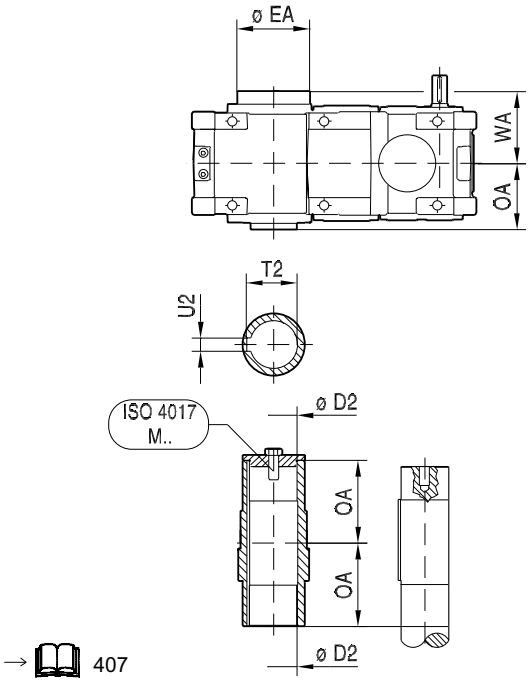
12.1.4 X3F220 - 320

X3FS..

48 076 01 07

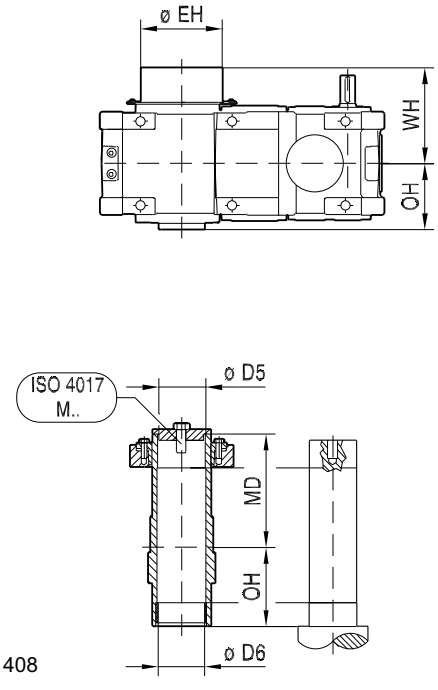


X3FA..



→ 407

X3FH..



→ 408

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X.F..																X.FS.. LSS							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	403	1057	725	331	260	1295	520	210_{m6}	350	433	703	221	50_{h9}	M30	2665
X230	934	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	403	1097	725	331	260	1335	520	230_{m6}	410	493	763	241	50_{h9}	M36	2885
X240	1004	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	425	1155	760	377	290	1445	580	230_{m6}	410	498	811	241	50_{h9}	M36	3725
X250	1027	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	425	1178	760	377	290	1465	580	240_{m6}	410	498	811	252	56_{h9}	M36	3835
X260	1113	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1000	56	475	1285	860	417	290	1575	580	250_{m6}	410	495	847	262	56_{h9}	M36	4520
X270	1148	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1000	56	475	1320	860	419	310	1630	620	270_{m6}	470	568	920	282	63_{h9}	M36	5020
X280	1200	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1110	56	540	1372	970	419	310	1685	620	290_{m6}	470	568	920	302	63_{h9}	M36	5505
X290	1279	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	1160	65	539	1486	995	465	330	1805	660	290_{m6}	470	570	962	302	63_{h9}	M36	6920
X300	1308	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	1160	65	539	1515	995	465	330	1835	660	300_{m6}	470	570	962	314	70_{h9}	M36	7620
X310	1435	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	1260	65	598	1647	1095	499	360	2005	720	320_{m6}	470	574	999	334	70_{h9}	M42	8470
X320	1469	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	1260	65	598	1681	1095	499	360	2040	720	340_{m6}	550	654	1079	355	80_{h9}	M42	9370

HSS	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***							i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	80_{m6}	170	217	487	85	22_{h9}	M20	70_{m6}	140	187	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	217	487	85	22_{h9}	M20	70_{m6}	140	187	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	219	532	95	25_{h9}	M24	75_{m6}	140	189	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	219	532	95	25_{h9}	M24	75_{m6}	140	189	502	79.5	20_{h9}	M20
X260*	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X270**	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X280***	100_{m6}	210	260	613	106	28_{h9}	M24	80_{m6}	170	220	573	85	22_{h9}	M20
X290*	100_{m6}	210	268	661	106	28_{h9}	M24	100_{m6}	210	268	661	106	28_{h9}	M24
X300**	100_{m6}	210	268	661	106	28_{h9}	M24	100_{m6}	210	268	661	106	28_{h9}	M24
X310*	110_{m6}	210	269	694	116	28_{h9}	M24	110_{m6}	210	269	694	116	28_{h9}	M24
X320**	110_{m6}	210	269	694	116	28_{h9}	M24	110_{m6}	210	269	694	116	28_{h9}	M24

X.FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2665
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3440
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4970
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6270
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6870
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7670
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

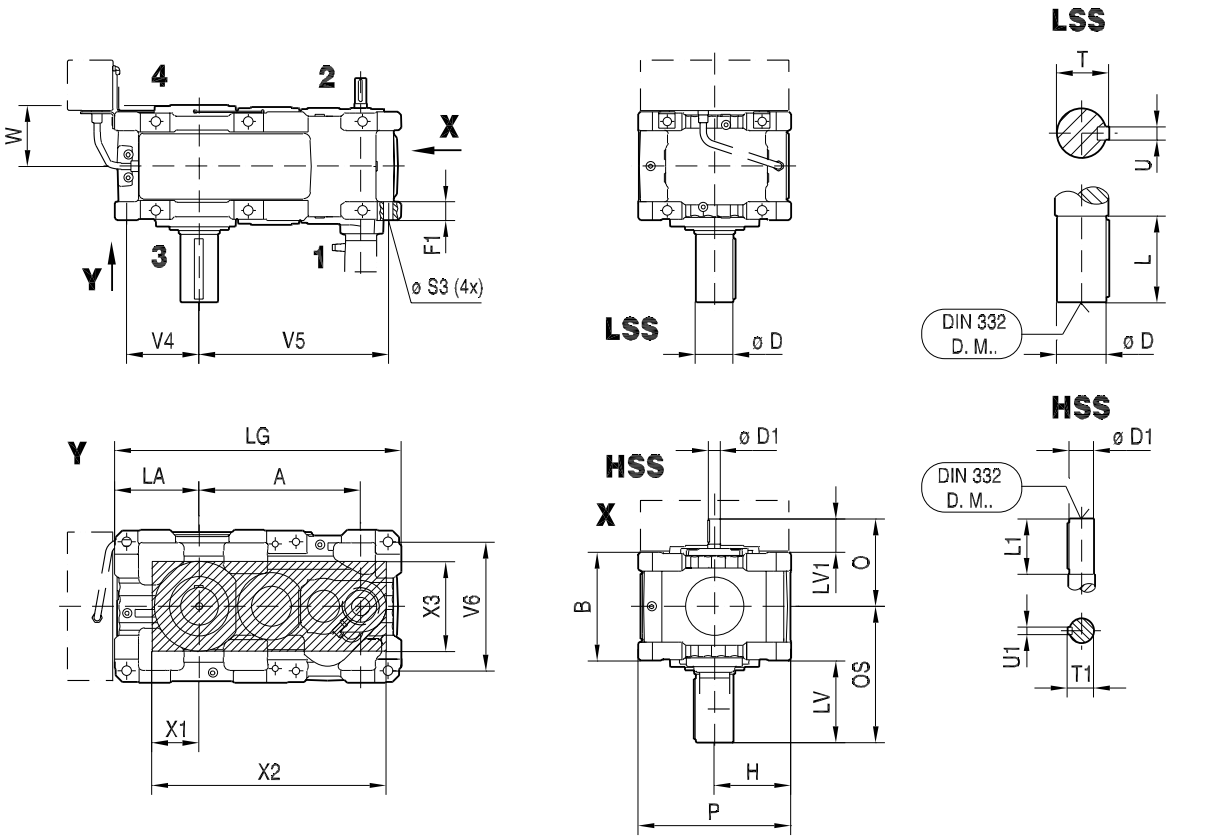
X.FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2775
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3605
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5320
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6520
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7120
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8020
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8320

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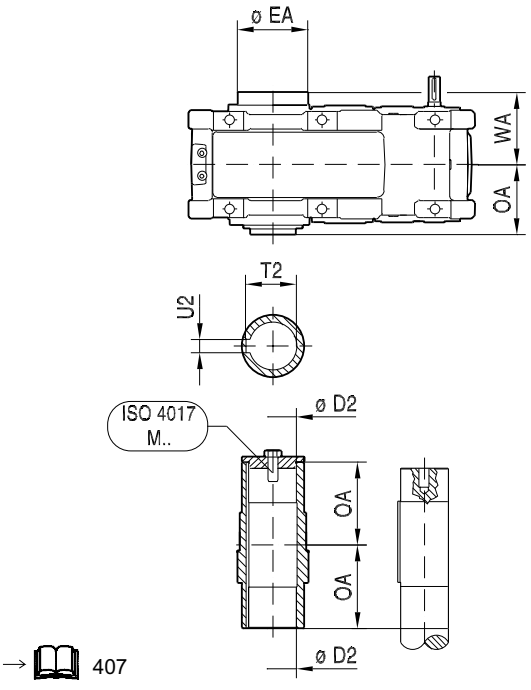
12.1.5 X4F120 - 210

X4FS..

48 074 01 07

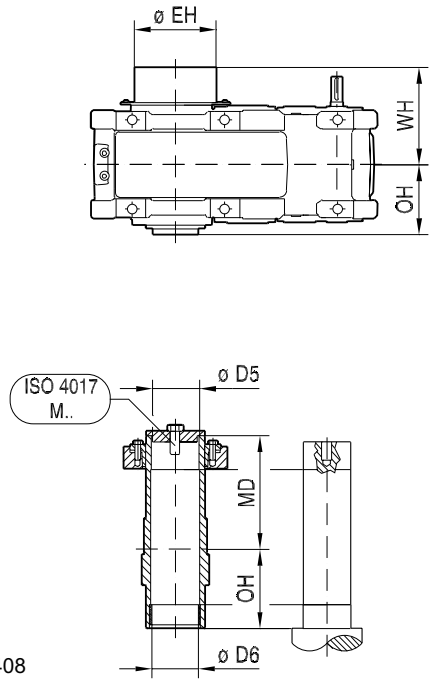


X4FA..



→ 407

X4FH..



→ 408

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X.F..															X.FS.. LSS							
X.F..	**A**	**B**	**F1**	**H**	**LA**	**LG**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X120	427	300	53	$225_{-0.5}$	$215_{-0.5}$	772	450	28	184	521	380	174	150	670	305	100_{m6}	210	251	401	106	28_{h9}	M24	360
X130	463	300	53	$225_{-0.5}$	$250_{-0.5}$	843	450	28	219	557	380	174	165	715	325	110_{m6}	210	254	404	116	28_{h9}	M24	400
X140	502	360	67	$265_{-0.5}$	$250_{-0.5}$	908	530	35	210	613	445	202	165	765	320	120_{m6}	210	252	432	127	32_{h9}	M24	570
X150	544	360	67	$265_{-0.5}$	$295_{-0.5}$	995	530	35	255	655	445	202	180	820	360	130_{m6}	250	295	475	137	32_{h9}	M24	650
X160	611	425	81	$315_{-0.5}$	$355_{-0.5}$	1149	630	42	303	737	525	240	195	920	390	140_{m6}	250	294	506	148	36_{h9}	M30	975
X170	662	425	81	$315_{-0.5}$	$355_{-0.5}$	1200	630	42	303	788	525	240	195	970	390	160_{m6}	300	344	556	169	40_{h9}	M30	1175
X180	707	475	81	$335_{-0.5}$	$370_{-0.5}$	1254	670	42	318	827	565	277	205	1035	410	170_{m6}	300	355	592	179	40_{h9}	M30	1425
X190	739	475	81	$335_{-0.5}$	$370_{-0.5}$	1287	670	42	318	859	565	277	205	1065	410	170_{m6}	300	355	592	179	40_{h9}	M30	1465
X200	794	515	91	$375_{-0.5}$	$420_{-0.5}$	1415	750	48	360	930	630	298	235	1160	470	180_{m6}	300	354	612	190	45_{h9}	M30	1920
X210	830	515	91	$375_{-0.5}$	$420_{-0.5}$	1451	750	48	360	966	630	298	235	1195	470	190_{m6}	350	404	662	200	45_{h9}	M30	2110

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***							i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***						
	Ø D1	**L1**	**LV1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**LV1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X120*	28_{k6}	60	88	238	31	8_{h9}	M10	28_{k6}	60	88	238	31	8_{h9}	M10
X130***	28_{k6}	60	88	238	31	8_{h9}	M10	28_{k6}	60	88	238	31	8_{h9}	M10
X140*	32_{k6}	80	108	288	35	10_{h9}	M12	32_{k6}	80	108	288	35	10_{h9}	M12
X150***	32_{k6}	80	108	288	35	10_{h9}	M12	32_{k6}	80	108	288	35	10_{h9}	M12
X160*	38_{k6}	80	107	320	41	10_{h9}	M12	38_{k6}	80	107	320	41	10_{h9}	M12
X170***	38_{k6}	80	107	320	41	10_{h9}	M12	38_{k6}	80	107	320	41	10_{h9}	M12
X180*	50_{k6}	110	143	381	53.5	14_{h9}	M16	38_{k6}	80	113	351	41	10_{h9}	M12
X190**	50_{k6}	110	143	381	53.5	14_{h9}	M16	38_{k6}	80	113	351	41	10_{h9}	M12
X200*	55_{m6}	110	142	400	59	16_{h9}	M20	42_{k6}	110	142	400	45	12_{h9}	M16
X210**	55_{m6}	110	142	400	59	16_{h9}	M20	42_{k6}	110	142	400	45	12_{h9}	M16

X.FA..								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1095
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1995

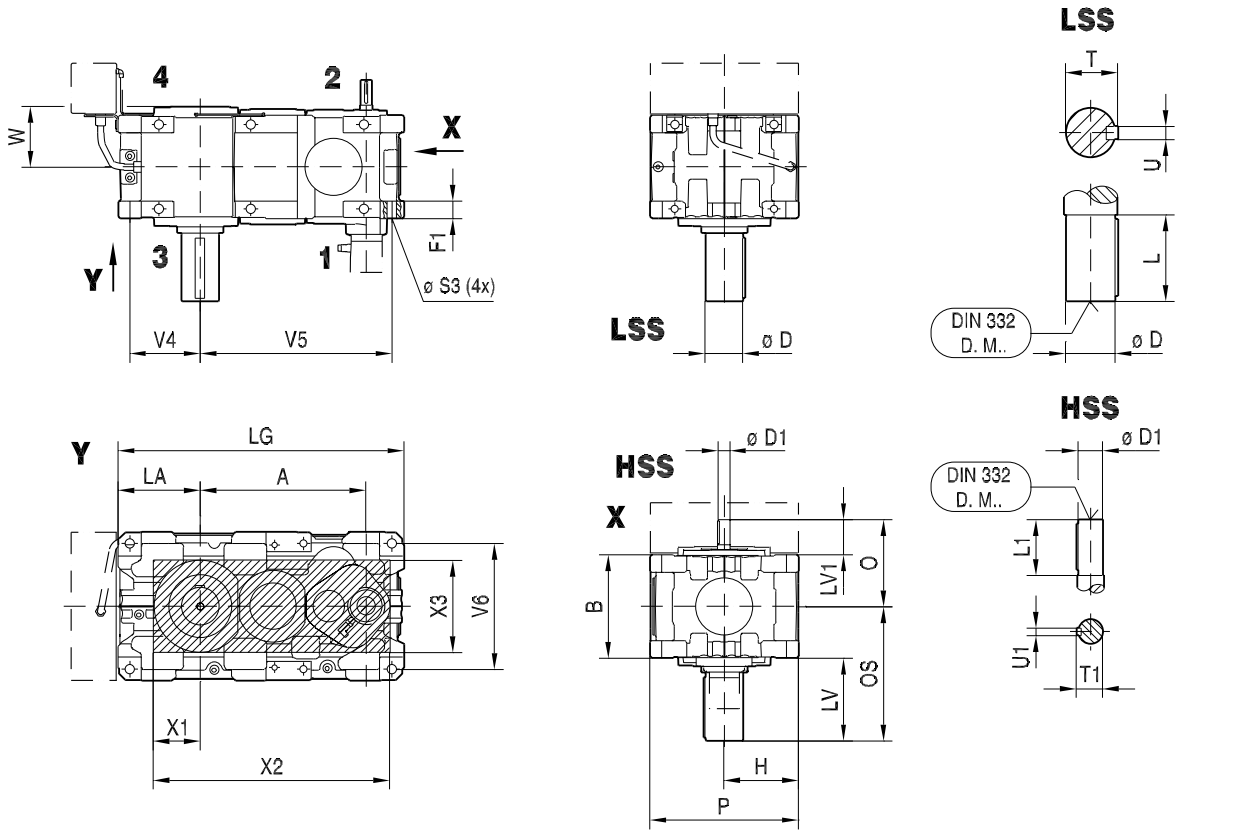
X.FH..							
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1150
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2080

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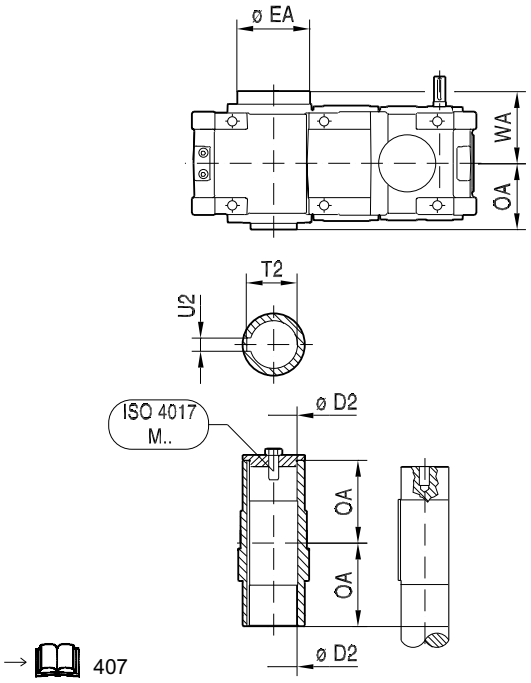
12.1.6 X4F220 - 320

X4FS..

48 077 01 07

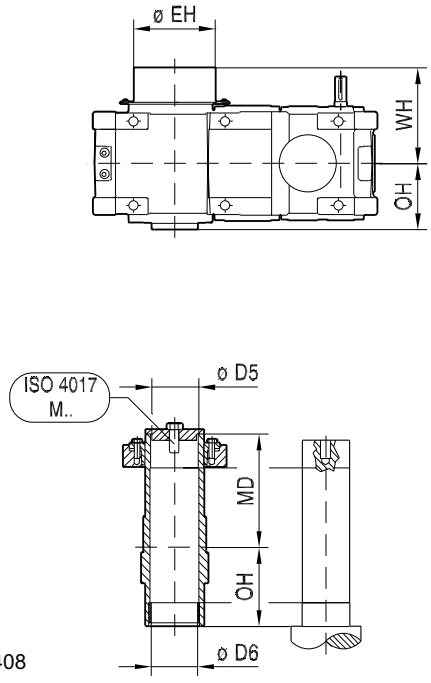


X4FA..



→ 407

X4FH..



→ 408

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X.F..																X.FS.. LSS							
X.F..	A	B	F1	H	LA	LG	P	Ø S3 (4x)	V4	V5	V6	W	X1	X2	X3	Ø D	L	LV	OS	T	U	DIN 332 DR.M..	kg
X220	894	540	100	$425_{-0.5}$	$465_{-0.5}$	1591	850	48	403	1057	725	331	260	1295	520	210_{m6}	350	433	703	221	50_{h9}	M30	2715
X230	934	540	100	$425_{-0.5}$	$465_{-0.5}$	1631	850	48	403	1097	725	331	260	1335	520	230_{m6}	410	493	763	241	50_{h9}	M36	3075
X240	1004	625	105	$450_{-0.5}$	$495_{-0.5}$	1729	900	56	425	1155	760	377	290	1445	580	230_{m6}	410	498	811	241	50_{h9}	M36	3785
X250	1027	625	105	$450_{-0.5}$	$495_{-0.5}$	1752	900	56	425	1178	760	377	290	1465	580	240_{m6}	410	498	811	252	56_{h9}	M36	3910
X260	1113	705	105	$500_{-0.5}$	$545_{-0.5}$	1909	1000	56	475	1285	860	417	290	1575	580	250_{m6}	410	495	847	262	56_{h9}	M36	4620
X270	1148	705	105	$500_{-0.5}$	$545_{-0.5}$	1941	1000	56	475	1320	860	419	310	1630	620	270_{m6}	470	568	920	282	63_{h9}	M36	5120
X280	1200	705	105	$555_{-0.5}$	$610_{-0.5}$	2058	1110	56	540	1372	970	419	310	1685	620	290_{m6}	470	568	920	302	63_{h9}	M36	5670
X290	1279	785	124	$580_{-0.5}$	$620_{-0.5}$	2196	1160	65	539	1486	995	465	330	1805	660	290_{m6}	470	570	962	302	63_{h9}	M36	7070
X300	1308	785	124	$580_{-0.5}$	$620_{-0.5}$	2225	1160	65	539	1515	995	465	330	1835	660	300_{m6}	470	570	962	314	70_{h9}	M36	7820
X310	1435	850	124	$630_{-0.5}$	$680_{-0.5}$	2419	1260	65	598	1647	1095	499	360	2005	720	320_{m6}	470	574	999	334	70_{h9}	M42	8670
X320	1469	850	124	$630_{-0.5}$	$680_{-0.5}$	2453	1260	65	598	1681	1095	499	360	2040	720	340_{m6}	550	654	1079	355	80_{h9}	M42	9620

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***							i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***						
	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	LV1	O	T1	U1	DIN 332 DR.M..
X220*	60_{m6}	140	187	457	64	18_{h9}	M20	50_{k6}	110	157	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	187	457	64	18_{h9}	M20	50_{k6}	110	157	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	189	502	74.5	20_{h9}	M20	55_{m6}	110	159	472	59	16_{h9}	M20
X250**	70_{m6}	140	189	502	74.5	20_{h9}	M20	55_{m6}	110	159	472	59	16_{h9}	M20
X260*	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X270**	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X280***	75_{m6}	140	190	543	79.5	20_{h9}	M20	60_{m6}	140	190	543	64	18_{h9}	M20
X290*	80_{m6}	170	221	614	85	22_{h9}	M20	80_{m6}	170	221	614	85	22_{h9}	M20
X300**	80_{m6}	170	221	614	85	22_{h9}	M20	80_{m6}	170	221	614	85	22_{h9}	M20
X310*	90_{m6}	170	220	645	95	25_{h9}	M24	90_{m6}	170	220	645	95	25_{h9}	M24
X320**	90_{m6}	170	220	645	95	25_{h9}	M24	90_{m6}	170	220	645	95	25_{h9}	M24

X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2535	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2640
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2855	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2965
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3500	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3665
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3605	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3765
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

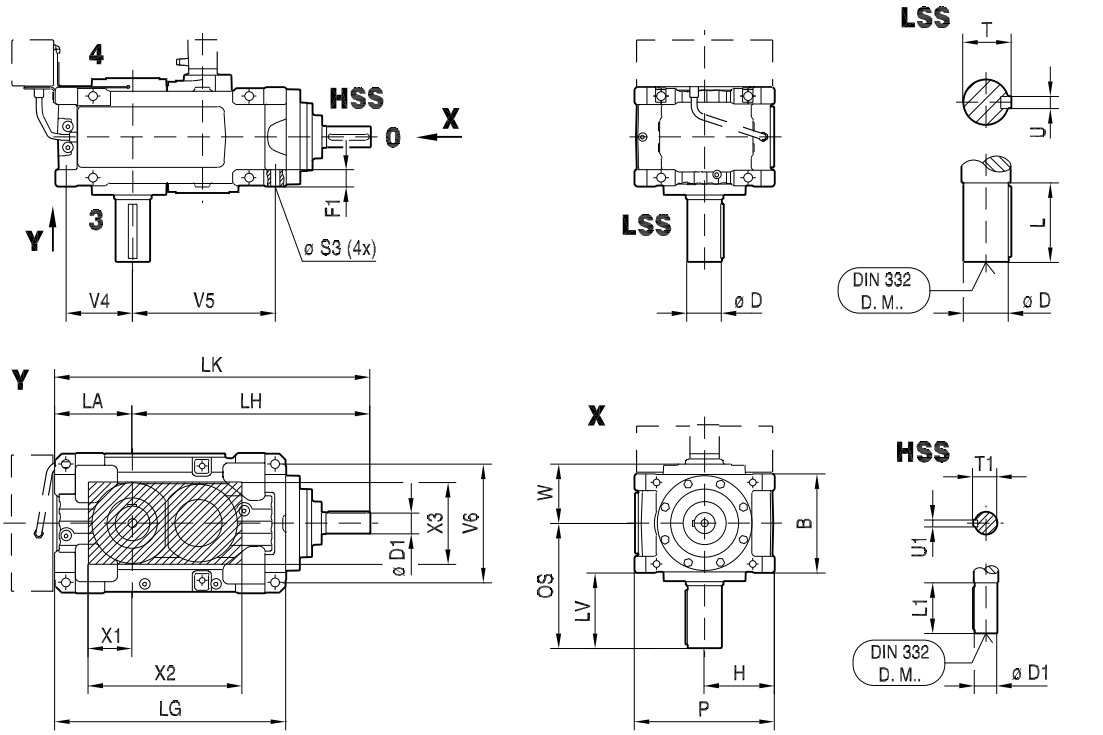
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12.2 X.K.. bevel-helical gear units [mm]

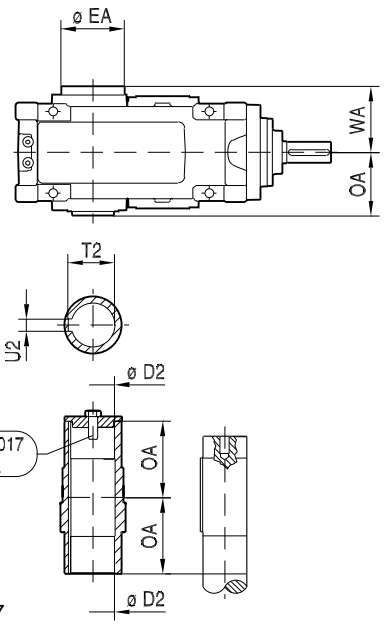
12.2.1 X2K100 - 210

X2KS..

48 060 01 07

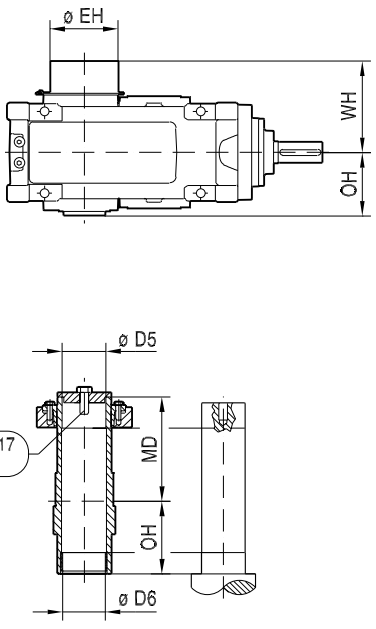


X2KA..



→ 407

X2KH..



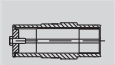
→ 408

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X.K..																	
X2K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X100	260	47	$190_{-0.5}$	$190_{-0.5}$	601	655	845	380	24	160	384	315	153	120	395	240	240
X110	260	47	$190_{-0.5}$	$215_{-0.5}$	646	675	890	380	24	185	404	315	153	125	420	250	255
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	697	752	967	450	28	184	451	380	174	150	475	305	355
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	768	788	1038	450	28	219	487	380	174	165	525	325	410
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	784	816	1066	530	35	210	494	445	202	165	535	320	570
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	871	858	1153	530	35	255	536	445	202	180	595	360	660
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1023	1010	1365	630	42	303	617	525	240	195	645	390	1010
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1074	1061	1416	630	42	303	668	525	240	195	695	390	1130
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1105	1137	1507	670	42	318	682	565	277	205	715	410	1380
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1137	1169	1539	670	42	318	714	565	277	205	750	410	1495
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1241	1268	1688	750	48	360	760	630	298	235	790	470	1930
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1277	1304	1724	750	48	360	795	630	298	235	825	470	2040

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	213	343	85	22_{h9}	M20
X110	90_{m6}	170	216	346	95	25_{h9}	M24
X120	100_{m6}	210	251	401	106	28_{h9}	M24
X130	110_{m6}	210	254	404	116	28_{h9}	M24
X140	120_{m6}	210	252	432	127	32_{h9}	M24
X150	130_{m6}	250	295	475	137	32_{h9}	M24
X160	140_{m6}	250	294	506	148	36_{h9}	M30
X170	160_{m6}	300	344	556	169	40_{h9}	M30
X180	170_{m6}	300	355	592	179	40_{h9}	M30
X190	170_{m6}	300	355	592	179	40_{h9}	M30
X200	180_{m6}	300	354	612	190	45_{h9}	M30
X210	190_{m6}	350	404	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	50_{k6}	110	53.5	14_{h9}	M16
X110	50_{k6}	110	53.5	14_{h9}	M16
X120	60_{m6}	140	64	18_{h9}	M20
X130	60_{m6}	140	64	18_{h9}	M20
X140	70_{m6}	140	74.5	20_{h9}	M20
X150	70_{m6}	140	74.5	20_{h9}	M20
X160	85_{m6}	170	90	22_{h9}	M20
X170	85_{m6}	170	90	22_{h9}	M20
X180	100_{m6}	210	106	28_{h9}	M24
X190	100_{m6}	210	106	28_{h9}	M24
X200	110_{m6}	210	116	28_{h9}	M24
X210	110_{m6}	210	116	28_{h9}	M24

X.KA.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	940
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1280
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1395
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1845
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1925

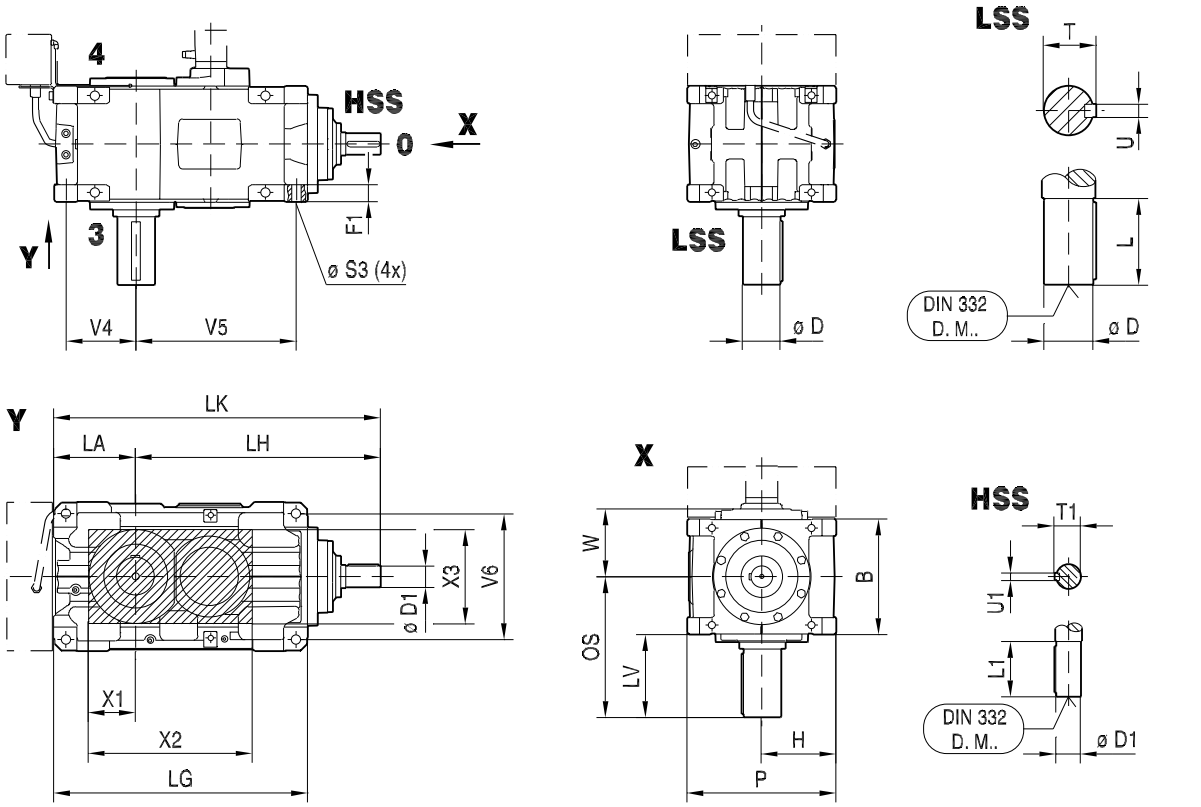
X.KA.. 								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	970
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1330
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1445
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1915
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2010

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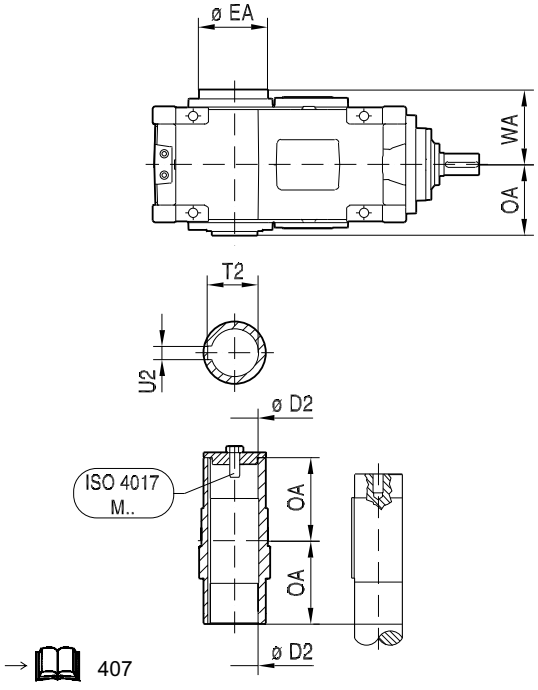
12.2.2 X2K220 - 250

X2KS..

48 063 01 07

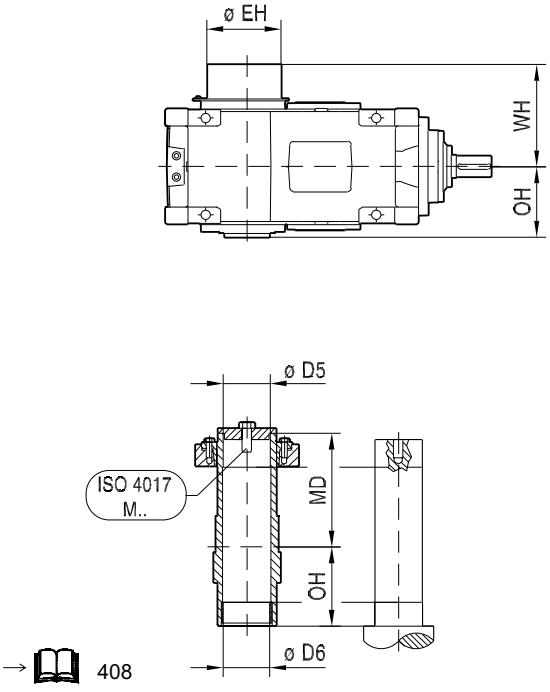


X2KA..



→ 407

X2KH..



→ 408

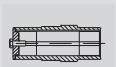
24799734/EN – 08/2018

X.K..																	
X2K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	610	100	$425_{-0.5}$	$465_{-0.5}$	1412	1436	1901	850	48	403	887	725	366	260	890	515	2895
X230	610	100	$425_{-0.5}$	$465_{-0.5}$	1452	1476	1941	850	48	403	927	725	366	260	930	515	3075
X240	700	105	$450_{-0.5}$	$495_{-0.5}$	1531	1476	1971	900	56	425	965	760	415	290	980	575	3975
X250	700	105	$450_{-0.5}$	$495_{-0.5}$	1554	1499	1994	900	56	425	988	760	415	290	1000	575	3980

LSS 	Ø D	L	LV	OS	T	U	DIN 332 DR.M..
X220	210_{m6}	350	433	738	221	50_{h9}	M30
X230	230_{m6}	410	493	798	241	50_{h9}	M36
X240	230_{m6}	410	498	848	241	50_{h9}	M36
X250	240_{m6}	410	498	848	252	56_{h9}	M36

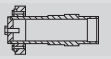
HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X220	120_{m6}	210	127	32_{h9}	M24
X230	120_{m6}	210	127	32_{h9}	M24
X240	130_{m6}	210	137	32_{h9}	M24
X250	130_{m6}	210	137	32_{h9}	M24

X.KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2700
X230	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2845
X240	230^{H8}	420	438	241.4	50^{JS9}	507	M36x110-8.8	3670
X250	240^{H8}	420	438	252.4	56^{JS9}	507	M36x110-8.8	3655

X.KH..



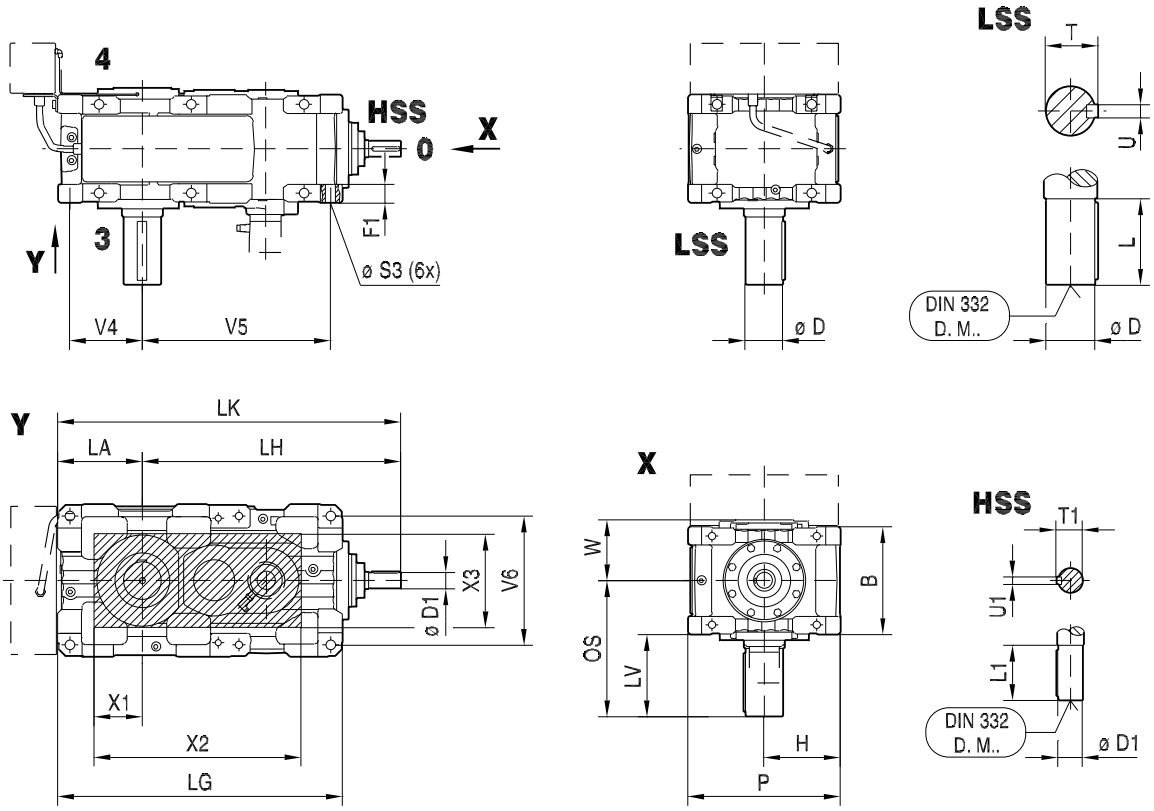
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211_{H9}	484	533	387.5	597	M30x90-8.8	2810
X230	210^{H7}	211_{H9}	484	533	387.5	597	M30x90-8.8	2950
X240	230^{H7}	231_{H9}	558	609	438	692	M36x110-8.8	3835
X250	240^{H7}	241_{H9}	558	609	438	692	M36x110-8.8	3815

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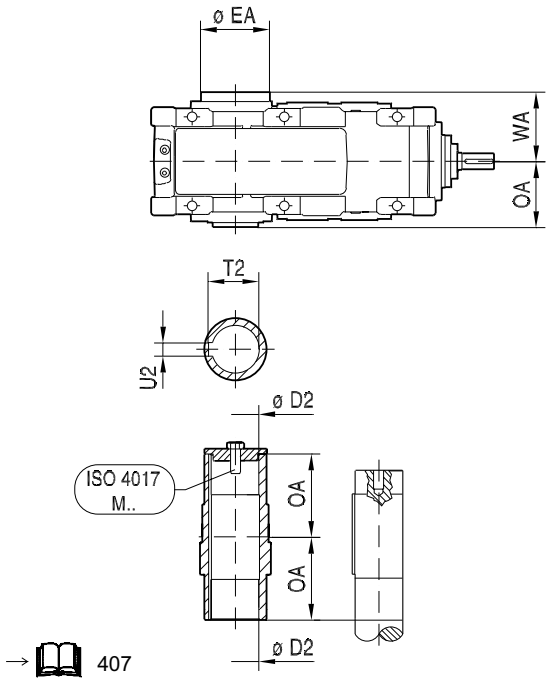
12.2.3 X3K100 - 210

X3KS..

48 061 01 07

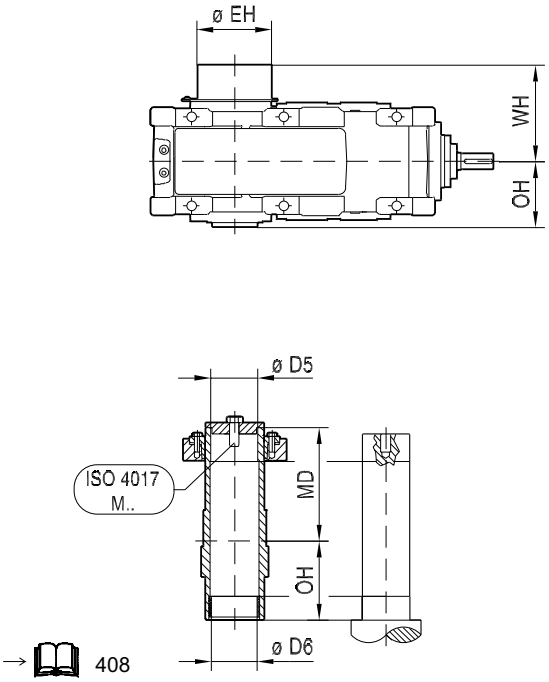


X3KA..



→ 407

X3KH..



→ 408

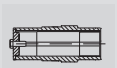
24799734/EN – 08/2018

X.K..																	
X3K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X100	260	47	$190_{-0.5}$	$190_{-0.5}$	658	632	822	380	24	160	441	315	153	120	490	240	240
X110	260	47	$190_{-0.5}$	$215_{-0.5}$	703	652	867	380	24	185	461	315	153	125	510	250	260
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	767	745	960	450	28	184	521	380	174	150	590	305	365
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	450	28	219	557	380	174	165	640	325	415
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	530	35	210	613	445	202	165	675	320	610
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	530	35	255	655	445	202	180	735	360	650
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	630	42	303	737	525	240	195	815	390	1000
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	630	42	303	788	525	240	195	860	390	1145
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	670	42	318	827	565	277	205	895	410	1415
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	670	42	318	859	565	277	205	930	410	1525
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	750	48	360	930	630	298	235	1020	470	2040
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	750	48	360	966	630	298	235	1055	470	2140

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	213	343	85	22_{h9}	M20
X110	90_{m6}	170	216	346	95	25_{h9}	M24
X120	100_{m6}	210	251	401	106	28_{h9}	M24
X130	110_{m6}	210	254	404	116	28_{h9}	M24
X140	120_{m6}	210	252	432	127	32_{h9}	M24
X150	130_{m6}	250	295	475	137	32_{h9}	M24
X160	140_{m6}	250	294	506	148	36_{h9}	M30
X170	160_{m6}	300	344	556	169	40_{h9}	M30
X180	170_{m6}	300	355	592	179	40_{h9}	M30
X190	170_{m6}	300	355	592	179	40_{h9}	M30
X200	180_{m6}	300	354	612	190	45_{h9}	M30
X210	190_{m6}	350	404	662	200	45_{h9}	M30

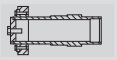
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	390
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1425
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1955
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2025

X.KH..



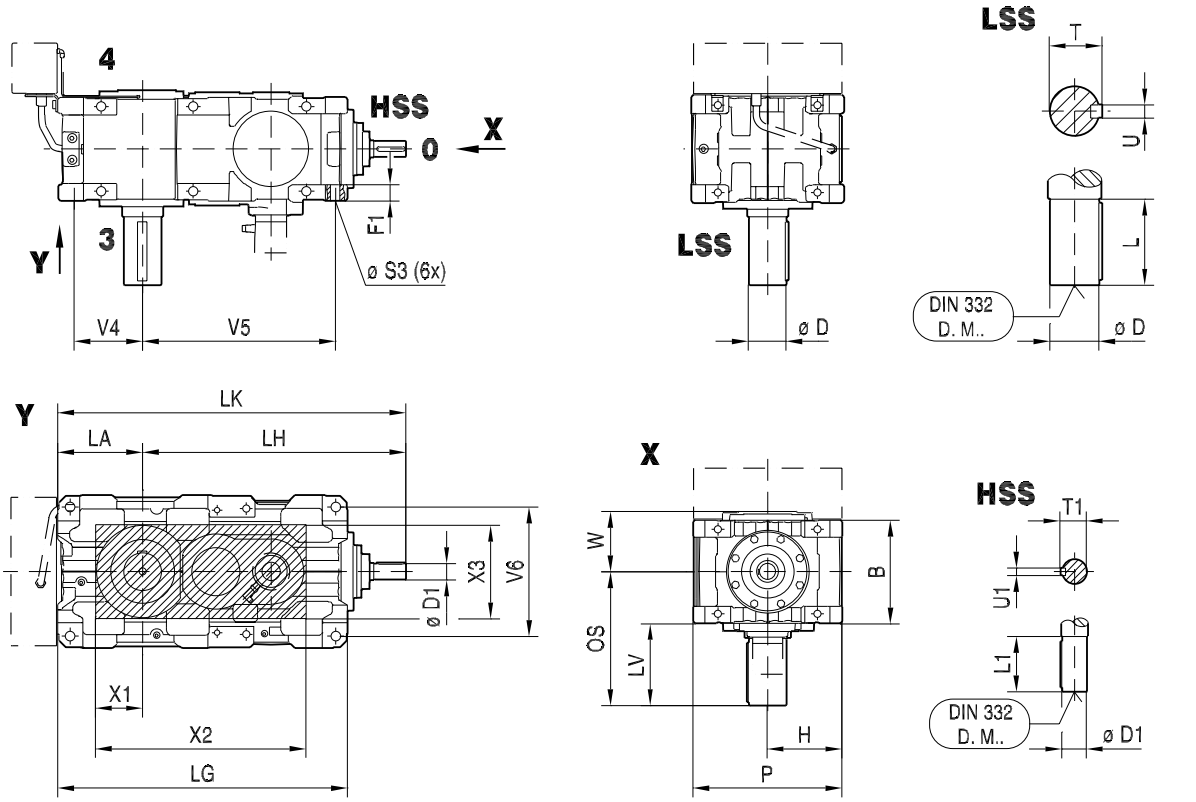
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	355
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	405
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1475
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2025
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2110

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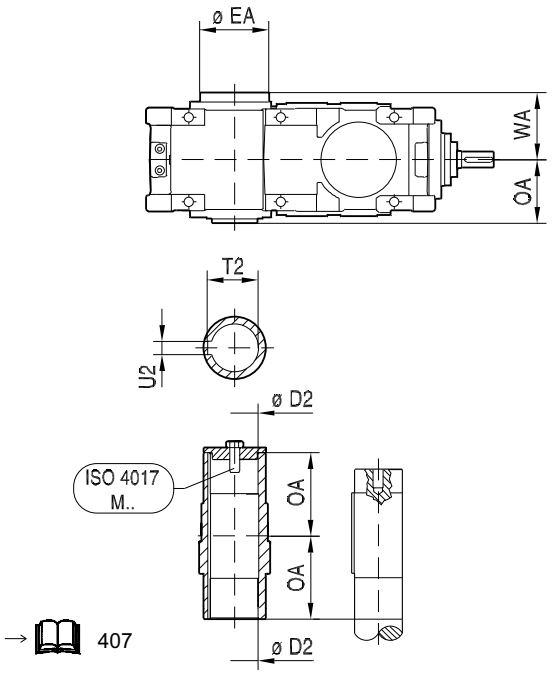
12.2.4 X3K220 - 320

X3KS..

48 064 01 07

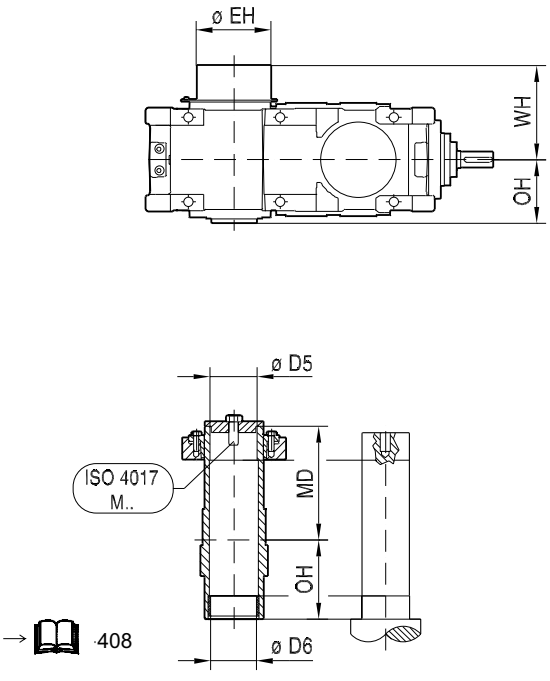


X3KA..



→ 407

X3KH..



→ 408

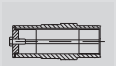
24799734/EN – 08/2018

X.K..																	
X3K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	48	403	1057	725	331	260	1150	520	2925
X230	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	48	403	1097	725	331	260	1190	520	3095
X240	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	56	425	1155	760	377	290	1270	580	3945
X250	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	56	425	1178	760	377	290	1290	580	4075
X260	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1000	56	475	1285	860	417	290	1375	580	4870
X270	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1000	56	475	1320	860	419	310	1430	620	5370
X280	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1110	56	540	1372	970	419	310	1480	620	5870
X290	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1160	65	539	1486	995	465	330	1560	660	7020
X300	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1160	65	539	1515	995	465	330	1590	660	7720
X310	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	2135	2815	1260	65	598	1647	1095	499	360	1720	720	8570
X320	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	2169	2849	1260	65	598	1681	1095	499	360	1755	720	9470

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	433	703	221	50_{h9}	M30
X230	230_{m6}	410	493	763	241	50_{h9}	M36
X240	230_{m6}	410	498	811	241	50_{h9}	M36
X250	240_{m6}	410	498	811	252	56_{h9}	M36
X260	250_{m6}	410	495	847	262	56_{h9}	M36
X270	270_{m6}	470	568	920	282	63_{h9}	M36
X280	290_{m6}	470	568	920	302	63_{h9}	M36
X290	290_{m6}	470	570	962	302	63_{h9}	M36
X300	300_{m6}	470	570	962	314	70_{h9}	M36
X310	320_{m6}	470	574	999	334	70_{h9}	M42
X320	340_{m6}	550	654	1079	355	80_{h9}	M42

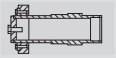
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**	i
X220	85_{m6}	170	90	22_{h9}	M20	-
X230	85_{m6}	170	90	22_{h9}	M20	-
X240	100_{m6}	210	106	28_{h9}	M24	-
X250	100_{m6}	210	106	28_{h9}	M24	-
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
	130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2745
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2875
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3660
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3770
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6970
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7720
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8420

X.KH..



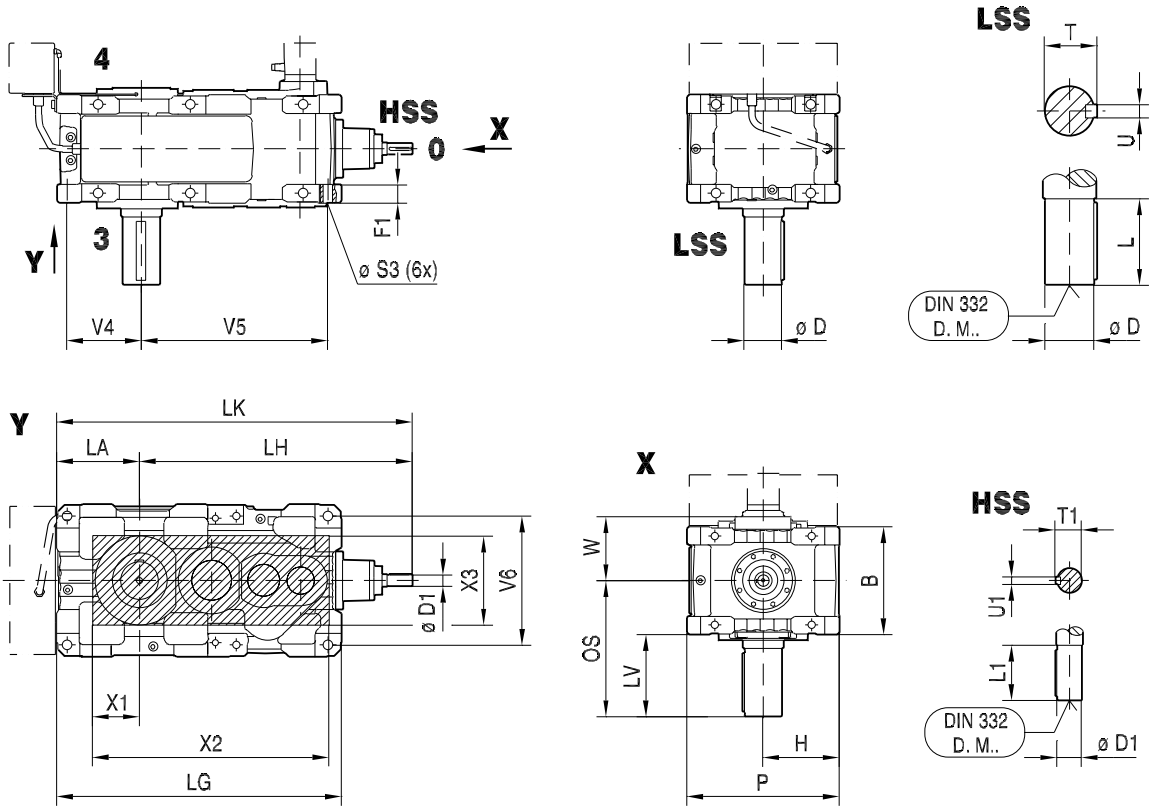
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2850
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2985
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3825
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3930
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4570
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5570
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6420
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7220
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8070
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8770

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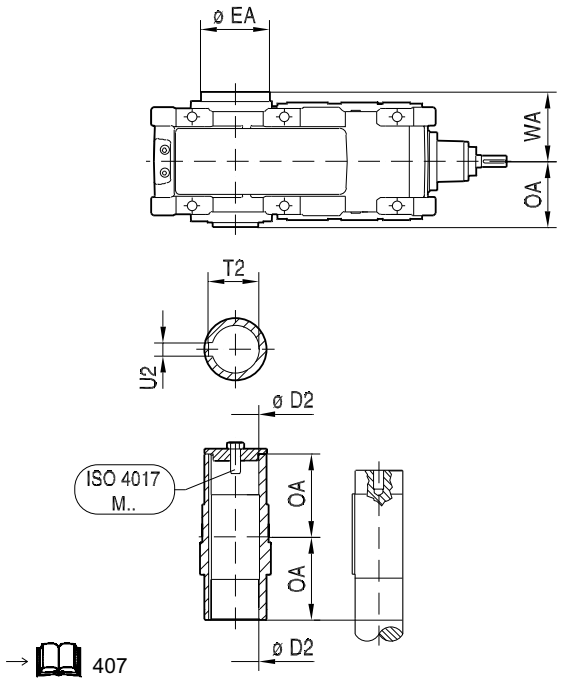
12.2.5 X4K120 - 210

X4KS..

48 062 01 07

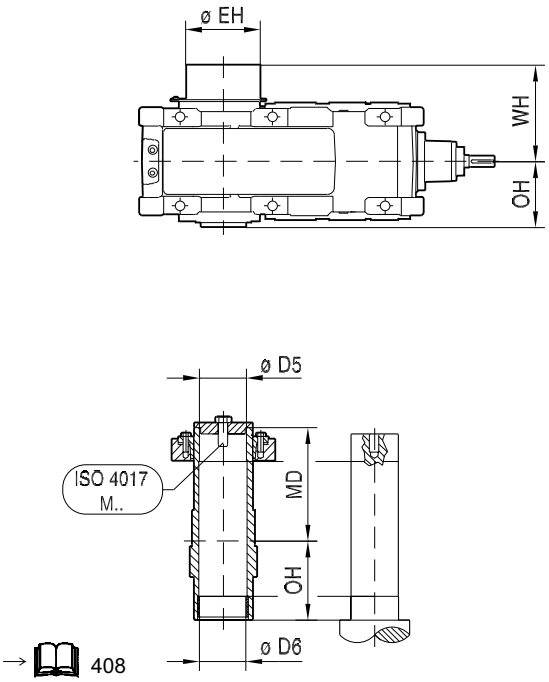


X4KA..



→ 407

X4KH..



→ 408

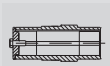
24799734/EN – 08/2018

X.K..																	
X4K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X120	300	53	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28	184	521	380	174	150	670	305	345
X130	300	53	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28	219	557	380	174	165	715	325	385
X140	360	67	$265_{-0.5}$	$250_{-0.5}$	903	856	1106	530	35	210	613	445	202	165	765	320	565
X150	360	67	$265_{-0.5}$	$295_{-0.5}$	990	898	1193	530	35	255	655	445	202	180	820	360	635
X160	425	81	$315_{-0.5}$	$355_{-0.5}$	1144	1029	1384	630	42	303	737	525	240	195	920	390	975
X170	425	81	$315_{-0.5}$	$355_{-0.5}$	1195	1080	1435	630	42	303	788	525	240	195	970	390	1135
X180	475	81	$335_{-0.5}$	$370_{-0.5}$	1249	1198	1568	670	42	318	827	565	277	205	1030	410	1425
X190	475	81	$335_{-0.5}$	$370_{-0.5}$	1281	1230	1600	670	42	318	859	565	277	205	1065	410	1435
X200	515	91	$375_{-0.5}$	$420_{-0.5}$	1409	1285	1705	750	48	360	930	630	298	235	1160	470	1870
X210	515	91	$375_{-0.5}$	$420_{-0.5}$	1445	1321	1741	750	48	360	966	630	298	235	1195	470	1920

LSS 	**Ø D**	**L**	**LV**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X120	100_{m6}	210	251	401	106	28_{h9}	M24
X130	110_{m6}	210	254	404	116	28_{h9}	M24
X140	120_{m6}	210	252	432	127	32_{h9}	M24
X150	130_{m6}	250	295	475	137	32_{h9}	M24
X160	140_{m6}	250	294	506	148	36_{h9}	M30
X170	160_{m6}	300	344	556	169	40_{h9}	M30
X180	170_{m6}	300	355	592	179	40_{h9}	M30
X190	170_{m6}	300	355	592	179	40_{h9}	M30
X200	180_{m6}	300	354	612	190	45_{h9}	M30
X210	190_{m6}	350	404	662	200	45_{h9}	M30

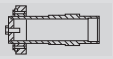
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	360
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	530
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1055
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805

X.KH..



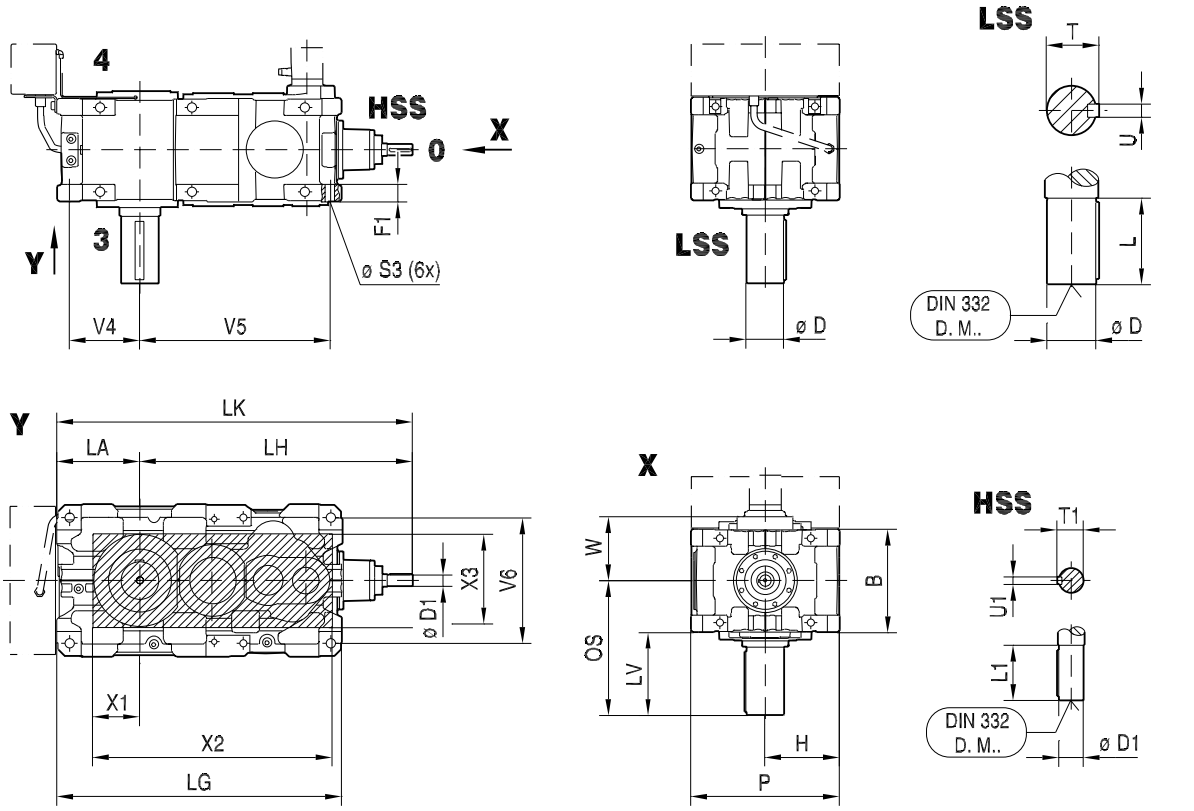
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	375
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	555
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	615
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1110
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

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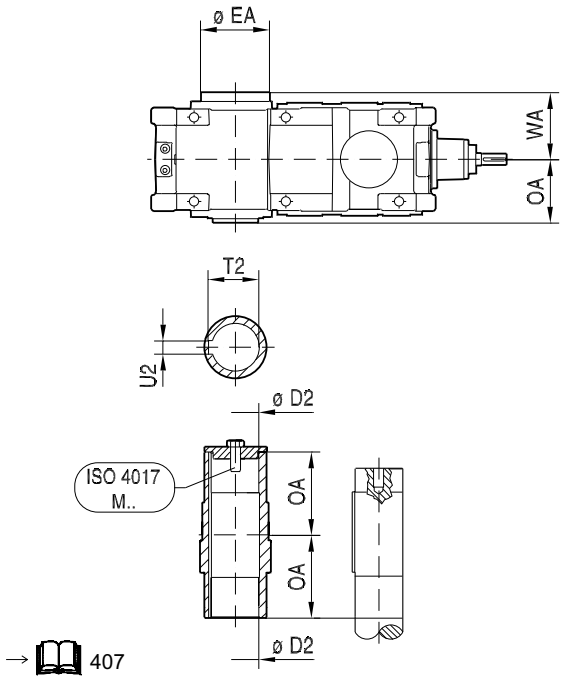
12.2.6 X4K220 - 320

X4KS..

48 065 01 07

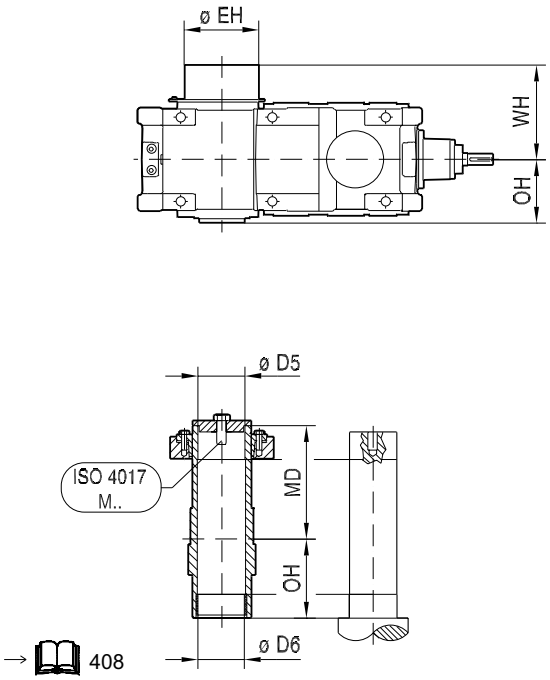


X4KA..



→ 407

X4KH..



→ 408

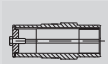
24799734/EN – 08/2018

X.K..																	
X4K..	**B**	**F1**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S3 (4x)**	**V4**	**V5**	**V6**	**W**	**X1**	**X2**	**X3**	**kg**
X220	540	100	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	48	403	1057	725	331	260	1295	520	2735
X230	540	100	$425_{-0.5}$	$465_{-0.5}$	1624	1498	1963	850	48	403	1097	725	331	260	1335	520	2975
X240	625	105	$450_{-0.5}$	$495_{-0.5}$	1721	1595	2090	900	56	425	1155	760	377	290	1445	580	3815
X250	625	105	$450_{-0.5}$	$495_{-0.5}$	1744	1618	2113	900	56	425	1178	760	377	290	1465	580	4045
X260	705	105	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1000	56	475	1285	860	417	290	1575	580	4620
X270	705	105	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1000	56	475	1320	860	419	310	1630	620	5120
X280	705	105	$555_{-0.5}$	$610_{-0.5}$	2052	1872	2482	1110	56	540	1372	970	419	310	1685	620	5670
X290	785	124	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1160	65	539	1486	995	465	330	1805	660	7070
X300	785	124	$580_{-0.5}$	$620_{-0.5}$	2216	2044	2664	1160	65	539	1515	995	465	330	1835	660	7820
X310	850	124	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1260	65	598	1647	1095	499	360	2005	720	8670
X320	850	124	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1260	65	598	1681	1095	499	360	2040	720	9620

LSS 	Ø D	L	LV	OS	T	U	DIN 332 DR.M..
X220	210_{m6}	350	433	703	221	50_{h9}	M30
X230	230_{m6}	410	493	763	241	50_{h9}	M36
X240	230_{m6}	410	498	811	241	50_{h9}	M36
X250	240_{m6}	410	498	811	252	56_{h9}	M36
X260	250_{m6}	410	495	847	262	56_{h9}	M36
X270	270_{m6}	470	568	920	282	63_{h9}	M36
X280	290_{m6}	470	568	920	302	63_{h9}	M36
X290	290_{m6}	470	570	962	302	63_{h9}	M36
X300	300_{m6}	470	570	962	314	70_{h9}	M36
X310	320_{m6}	470	574	999	334	70_{h9}	M42
X320	340_{m6}	550	654	1079	355	80_{h9}	M42

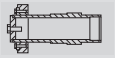
HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20
X260	80_{m6}	170	85	22_{h9}	M20
X270	80_{m6}	170	85	22_{h9}	M20
X280	80_{m6}	170	85	22_{h9}	M20
X290	85_{m6}	170	90	22_{h9}	M20
X300	85_{m6}	170	90	22_{h9}	M20
X310	100_{m6}	210	106	28_{h9}	M24
X320	100_{m6}	210	106	28_{h9}	M24

X.KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2555
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3530
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3740
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

X.KH..



LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2660
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2865
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3695
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3900
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

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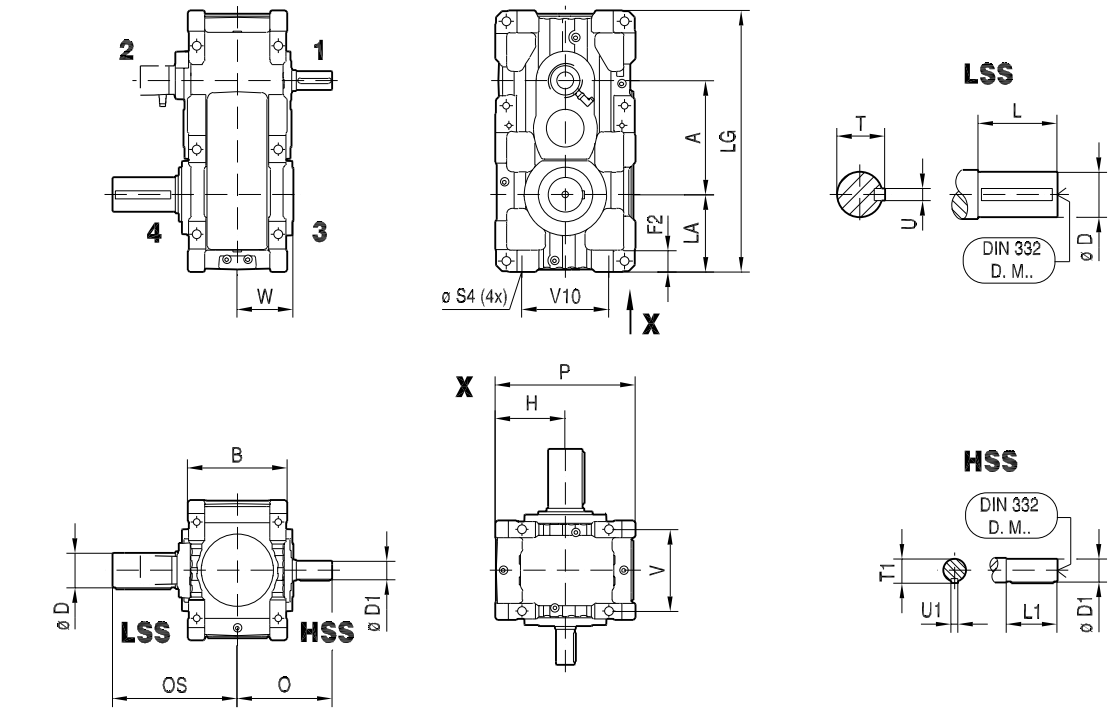
13 Dimension sheets: Upright gear units, mounting position M4

13.1 X.F.. helical gear units [mm]

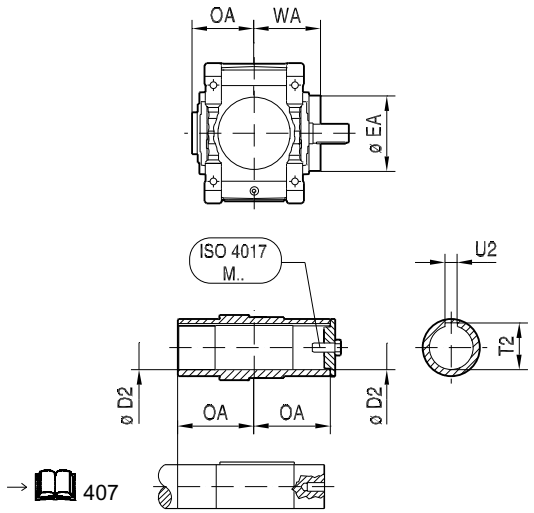
13.1.1 X2F100 - 210

X2FS..

48 033 02 09

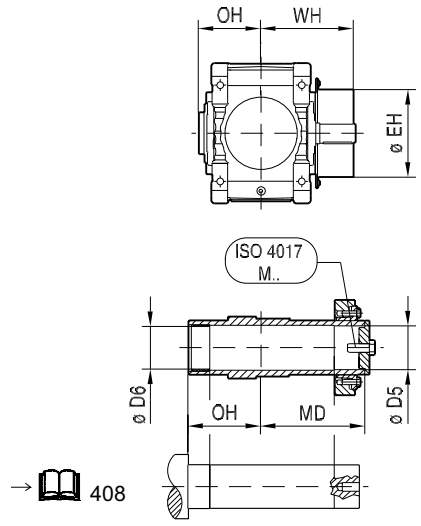


X2FA..



→ 407

X2FH..



→ 408

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X.F..												X.FS.. LSS						
X.F..	A	B	F2	H	LA	LG	P	Ø S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	278	260	62	$190_{-0.5}$	$190_{-0.5}$	658	380	24	250	210	153	80_{m6}	170	343	85	22_{h9}	M20	210
X110	298	260	62	$190_{-0.5}$	$215_{-0.5}$	703	380	24	250	210	153	90_{m6}	170	346	95	25_{h9}	M24	225
X120	327	300	68	$225_{-0.5}$	$215_{-0.5}$	767	450	28	300	245	174	100_{m6}	210	401	106	28_{h9}	M24	325
X130	363	300	68	$225_{-0.5}$	$250_{-0.5}$	838	450	28	300	245	174	110_{m6}	210	404	116	28_{h9}	M24	375
X140	388	360	86	$265_{-0.5}$	$250_{-0.5}$	903	530	35	335	290	202	120_{m6}	210	432	127	32_{h9}	M24	520
X150	430	360	86	$265_{-0.5}$	$295_{-0.5}$	990	530	35	335	290	202	130_{m6}	250	475	137	32_{h9}	M24	600
X160	474	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	400	340	240	140_{m6}	250	506	148	36_{h9}	M30	905
X170	525	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	400	340	240	160_{m6}	300	556	169	40_{h9}	M30	1055
X180	544	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1350
X190	576	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1425
X200	614	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	455	420	298	180_{m6}	300	612	190	45_{h9}	M30	1910
X210	650	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	455	420	298	190_{m6}	350	662	200	45_{h9}	M30	1940

HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X100**	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X110***	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X120*	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X130***	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X140*	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X150***	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X160*	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X170***	80_{m6}	170	412	85	22_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X180*	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X200*	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24
X210**	100_{m6}	210	504	106	28_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24

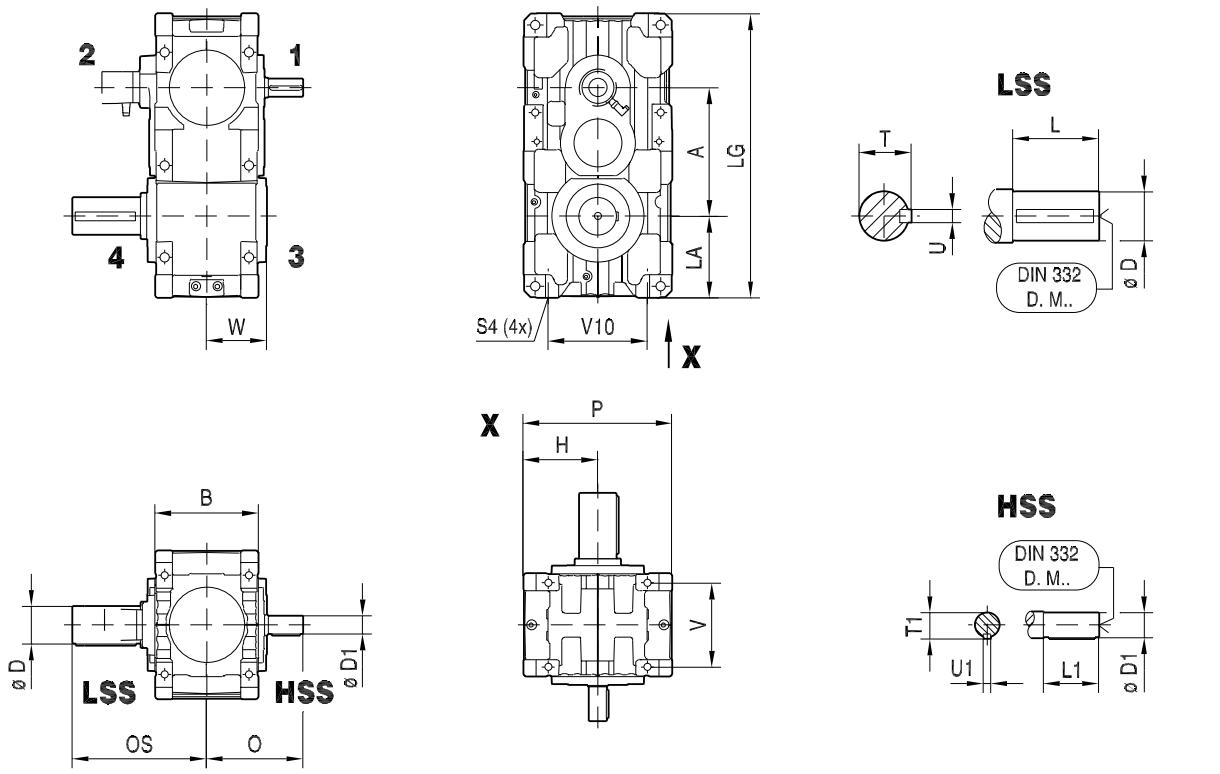
X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	200	**X100**	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	210
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	215	**X110**	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	225
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	305	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	315
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	350	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	365
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	485	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	510
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	550	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	580
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	835	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	865
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	975	**X170**	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1030
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1250	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1300
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1825	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1895
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1825	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1910

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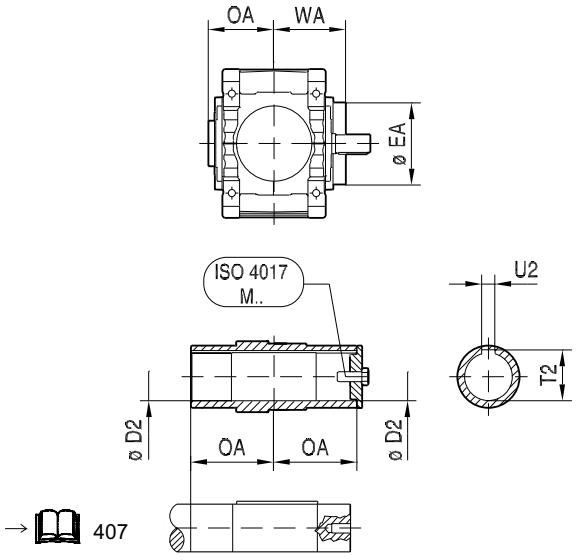
13.1.2 X2F220 - 320

X2FS..

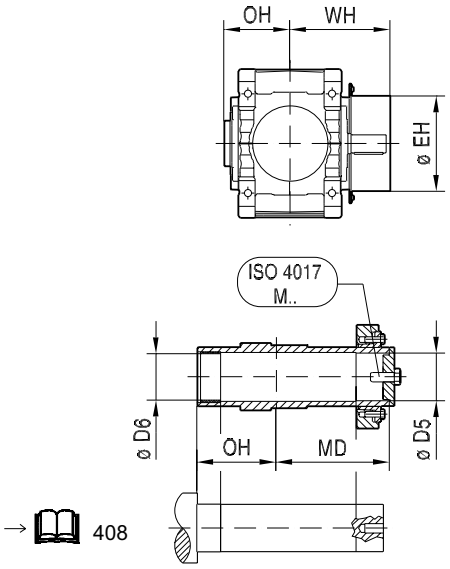
48 034 03 09



X2FA..



X2FH..



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X.F..											X.FS.. LSS						
X.F..	A	B	H	LA	LG	P	S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	694	540	$425_{-0.5}$	$465_{-0.5}$	1584	850	M42x63	610	440	331	210_{m6}	350	703	221	50_{h9}	M30	2685
X230	734	540	$425_{-0.5}$	$465_{-0.5}$	1624	850	M42x63	610	440	331	230_{m6}	410	763	241	50_{h9}	M36	2865
X240	776	625	$450_{-0.5}$	$495_{-0.5}$	1721	900	M48x72	600	510	377	230_{m6}	410	811	241	50_{h9}	M36	3665
X250	799	625	$450_{-0.5}$	$495_{-0.5}$	1744	900	M48x72	600	510	377	240_{m6}	410	811	252	56_{h9}	M36	3815
X260	855	705	$500_{-0.5}$	$545_{-0.5}$	1900	1000	M48x72	710	590	417	250_{m6}	410	847	262	56_{h9}	M36	4470
X270	890	705	$500_{-0.5}$	$545_{-0.5}$	1935	1000	M48x72	710	590	419	270_{m6}	470	920	282	63_{h9}	M36	4600
X280	942	705	$555_{-0.5}$	$610_{-0.5}$	2052	1110	M48x72	710	590	419	290_{m6}	470	920	302	63_{h9}	M36	5370
X290	987	785	$580_{-0.5}$	$620_{-0.5}$	2187	1160	M48x72	765	655	465	290_{m6}	470	962	302	63_{h9}	M36	6570
X300	1016	785	$580_{-0.5}$	$620_{-0.5}$	2216	1160	M48x72	765	655	465	300_{m6}	470	962	314	70_{h9}	M36	7270
X310	1100	850	$630_{-0.5}$	$680_{-0.5}$	2410	1260	M48x72	860	720	499	320_{m6}	470	999	334	70_{h9}	M42	7520
X320	1134	850	$630_{-0.5}$	$680_{-0.5}$	2444	1260	M48x72	860	720	499	340_{m6}	550	1079	355	80_{h9}	M42	8320

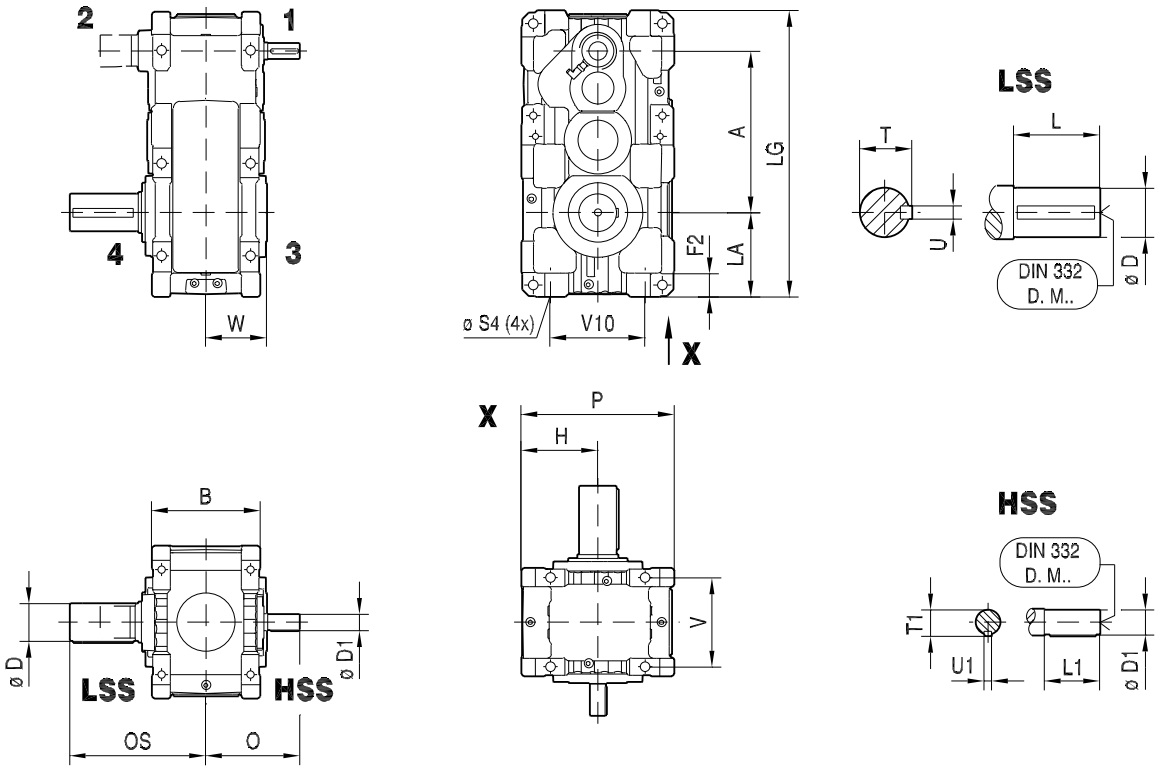
HSS	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	110_{m6}	210	538	116	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	120_{m6}	210	583	127	32_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X260*	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

X.FA..									X.FH..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg	LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2505	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2610
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2645	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3380	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3545
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3510	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3670
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470	**X270**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4720
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870	**X280**	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	5920	**X290**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6170
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6570	**X300**	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6820
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	6770	**X310**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7120
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7520	**X320**	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	7870

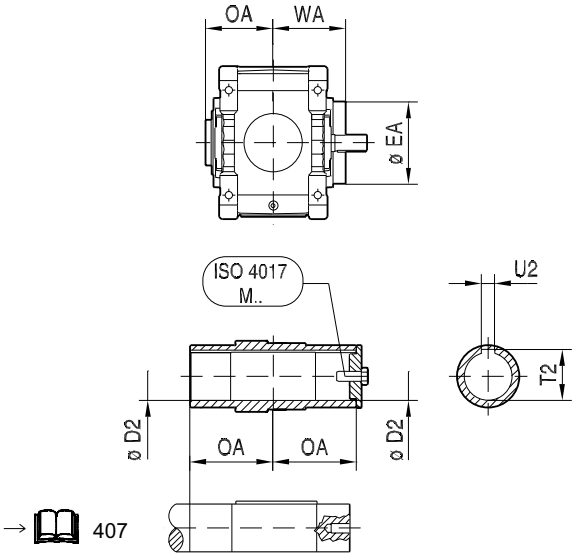
13.1.3 X3F100 - 210

X3FS..

48 035 02 09

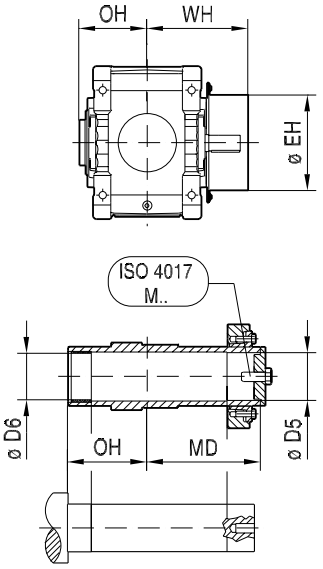


X3FA..



→ 407

X3FH..



→ 408

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X.F..												X.FS.. LSS						
X.F..	A	B	F2	H	LA	LG	P	Ø S4 (4x)	V10	V14	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	360	260	62	$190_{-0.5}$	$190_{-0.5}$	663	380	24	250	210	153	80_{m6}	170	343	85	22_{h9}	M20	225
X110	380	260	62	$190_{-0.5}$	$215_{-0.5}$	708	380	24	250	210	153	90_{m6}	170	346	95	25_{h9}	M24	230
X120	427	300	68	$225_{-0.5}$	$215_{-0.5}$	767	450	28	300	245	174	100_{m6}	210	401	106	28_{h9}	M24	345
X130	463	300	68	$225_{-0.5}$	$250_{-0.5}$	838	450	28	300	245	174	110_{m6}	210	404	116	28_{h9}	M24	410
X140	502	360	86	$265_{-0.5}$	$250_{-0.5}$	903	530	35	335	290	202	120_{m6}	210	432	127	32_{h9}	M24	580
X150	544	360	86	$265_{-0.5}$	$295_{-0.5}$	990	530	35	335	290	202	130_{m6}	250	475	137	32_{h9}	M24	635
X160	611	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	630	42	400	340	240	140_{m6}	250	506	148	36_{h9}	M30	985
X170	662	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	630	42	400	340	240	160_{m6}	300	556	169	40_{h9}	M30	1140
X180	707	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1465
X190	739	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	670	42	415	390	277	170_{m6}	300	592	179	40_{h9}	M30	1530
X200	794	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	750	48	455	420	298	180_{m6}	300	612	190	45_{h9}	M30	1870
X210	830	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	750	48	455	420	298	190_{m6}	350	662	200	45_{h9}	M30	1950

HSS	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***						i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X100**	32_{k6}	80	244	35	10_{h9}	M12	32k6	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X180*	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	70_{m6}	140	411	74.5	20_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

X.FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	215
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	220
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	410
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	915
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1060
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1430
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1835

X.FH..

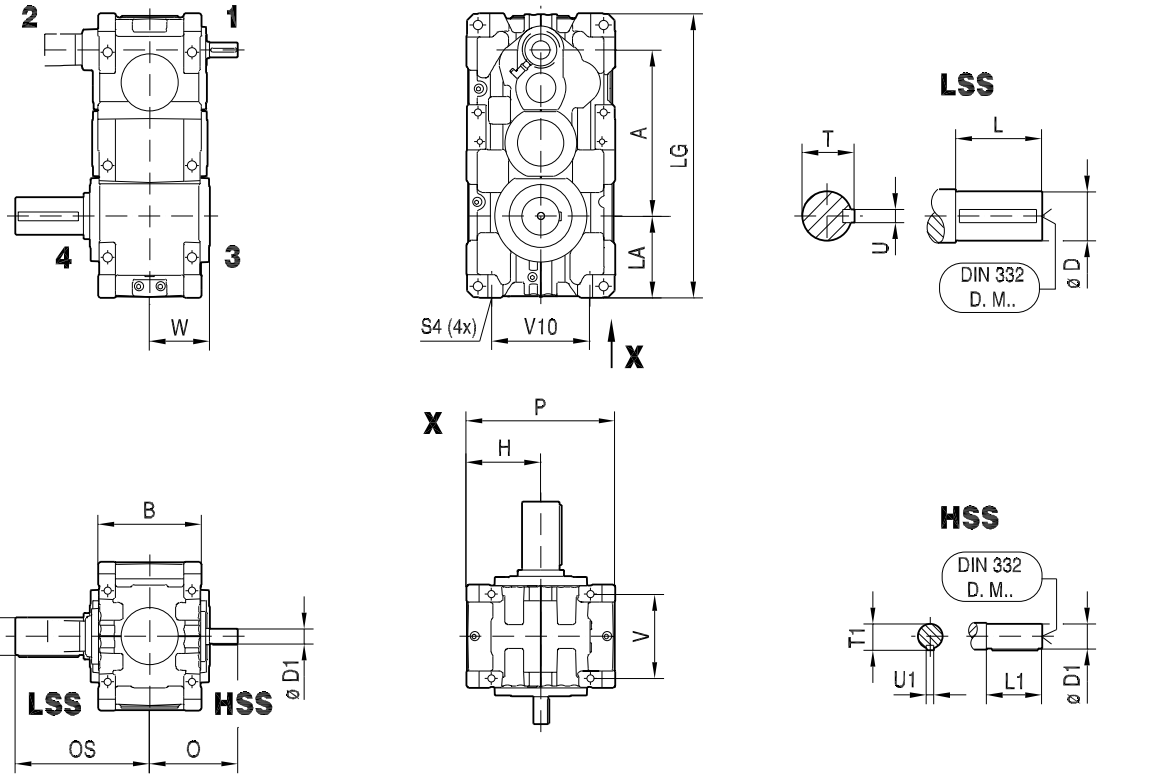
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	225
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	230
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	585
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	945
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1115
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1480
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1920

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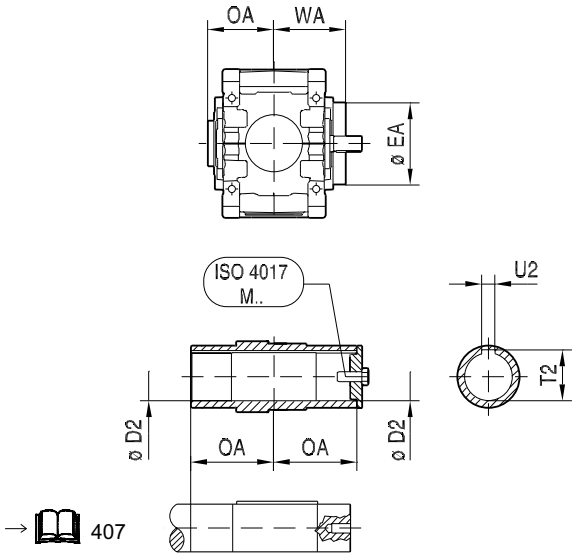
13.1.4 X3F220 - 320

X3FS..

48 036 03 09

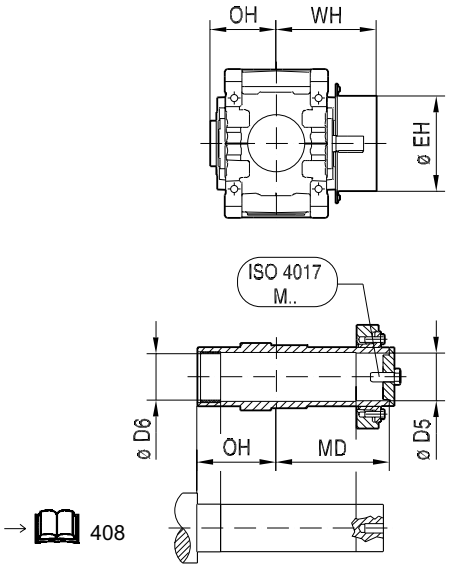


X3FA..



→ 407

X3FH..



→ 408

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X.F..											X.FS.. LSS						
X.F..	**A**	**B**	**H**	**LA**	**LG**	**P**	**S4 (4x)**	**V10**	**V14**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	$425_{-0.5}$	$465_{-0.5}$	1584	850	M42x63	610	440	331	210_{m6}	350	703	221	50_{h9}	M30	2665
X230	934	540	$425_{-0.5}$	$465_{-0.5}$	1624	850	M42x63	610	440	331	230_{m6}	410	763	241	50_{h9}	M36	2885
X240	1004	625	$450_{-0.5}$	$495_{-0.5}$	1721	900	M48x72	600	510	377	230_{m6}	410	811	241	50_{h9}	M36	3725
X250	1027	625	$450_{-0.5}$	$495_{-0.5}$	1744	900	M48x72	600	510	377	240_{m6}	410	811	252	56_{h9}	M36	3835
X260	1113	705	$500_{-0.5}$	$545_{-0.5}$	1900	1000	M48x72	710	590	417	250_{m6}	410	847	262	56_{h9}	M36	4520
X270	1148	705	$500_{-0.5}$	$545_{-0.5}$	1935	1000	M48x72	710	590	419	270_{m6}	470	920	282	63_{h9}	M36	5020
X280	1200	705	$555_{-0.5}$	$610_{-0.5}$	2052	1110	M48x72	710	590	419	290_{m6}	470	920	302	63_{h9}	M36	5505
X290	1279	785	$580_{-0.5}$	$620_{-0.5}$	2187	1160	M48x72	765	655	465	290_{m6}	470	962	302	63_{h9}	M36	6920
X300	1308	785	$580_{-0.5}$	$620_{-0.5}$	2216	1160	M48x72	765	655	465	300_{m6}	470	962	314	70_{h9}	M36	7620
X310	1435	850	$630_{-0.5}$	$680_{-0.5}$	2410	1260	M48x72	860	720	499	320_{m6}	470	999	334	70_{h9}	M42	8470
X320	1469	850	$630_{-0.5}$	$680_{-0.5}$	2444	1260	M48x72	860	720	499	340_{m6}	550	1079	355	80_{h9}	M42	9370

HSS	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***						i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***					
	Ø D1	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

X.FA..								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2485
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2665
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3440
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4070
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4470
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4970
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6270
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6870
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7670
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

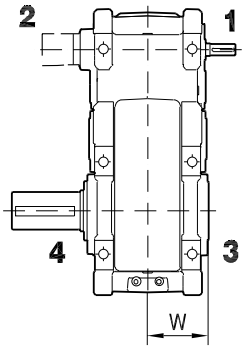
X.FH..								
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2590
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2775
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3605
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4220
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5320
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6520
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7120
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8020
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8320

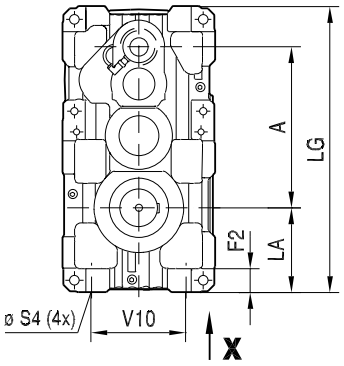
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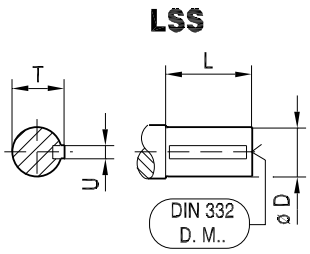
13.1.5 X4F120 - 210

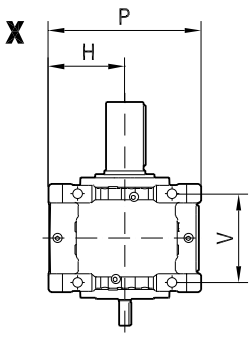
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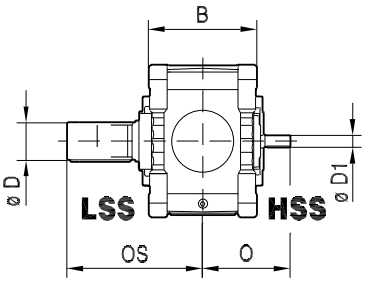
X4FS..

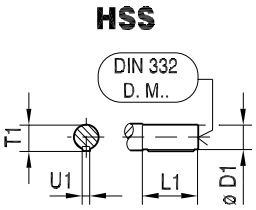




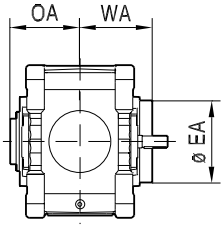


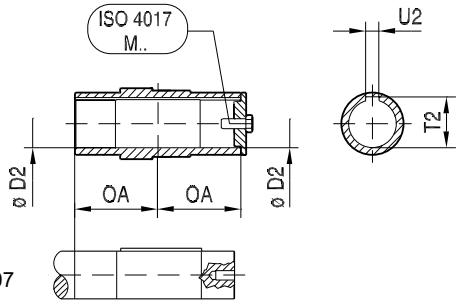






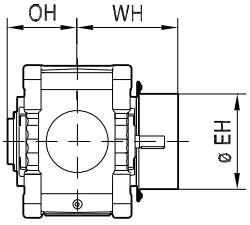
X4FA..

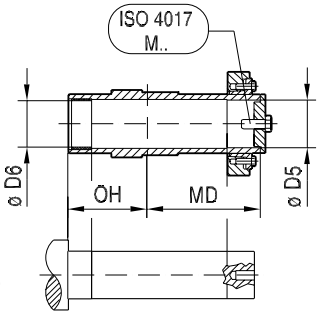




→ 407

X4FH..





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X.F..											
X.F..	A	B	F2	H	LA	LG	P	Ø S4 (4x)	V10	V14	W
X120	427	300	68	$225_{-0.5}$	$215_{-0.5}$	772	450	28	300	245	174
X130	463	300	68	$225_{-0.5}$	$250_{-0.5}$	843	450	28	300	245	174
X140	502	360	86	$265_{-0.5}$	$250_{-0.5}$	908	530	35	335	290	202
X150	544	360	86	$265_{-0.5}$	$295_{-0.5}$	995	530	35	335	290	202
X160	611	425	105	$315_{-0.5}$	$355_{-0.5}$	1149	630	42	400	340	240
X170	662	425	105	$315_{-0.5}$	$355_{-0.5}$	1200	630	42	400	340	240
X180	707	475	107	$335_{-0.5}$	$370_{-0.5}$	1254	670	42	415	390	277
X190	739	475	107	$335_{-0.5}$	$370_{-0.5}$	1287	670	42	415	390	277
X200	794	515	128	$375_{-0.5}$	$420_{-0.5}$	1415	750	48	455	420	298
X210	830	515	128	$375_{-0.5}$	$420_{-0.5}$	1451	750	48	455	420	298

X.FS.. LSS						
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
100_{m6}	210	401	106	28_{h9}	M24	360
110_{m6}	210	404	116	28_{h9}	M24	400
120_{m6}	210	432	127	32_{h9}	M24	570
130_{m6}	250	475	137	32_{h9}	M24	650
140_{m6}	250	506	148	36_{h9}	M30	975
160_{m6}	300	556	169	40_{h9}	M30	1175
170_{m6}	300	592	179	40_{h9}	M30	1425
170_{m6}	300	592	179	40_{h9}	M30	1465
180_{m6}	300	612	190	45_{h9}	M30	1920
190_{m6}	350	662	200	45_{h9}	M30	2110

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X120*	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X130***	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X140*	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X150***	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X160*	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X170***	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X180*	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X190**	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X200*	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16
X210**	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16

X.FA..

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1095
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1365
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1995

X.FH..

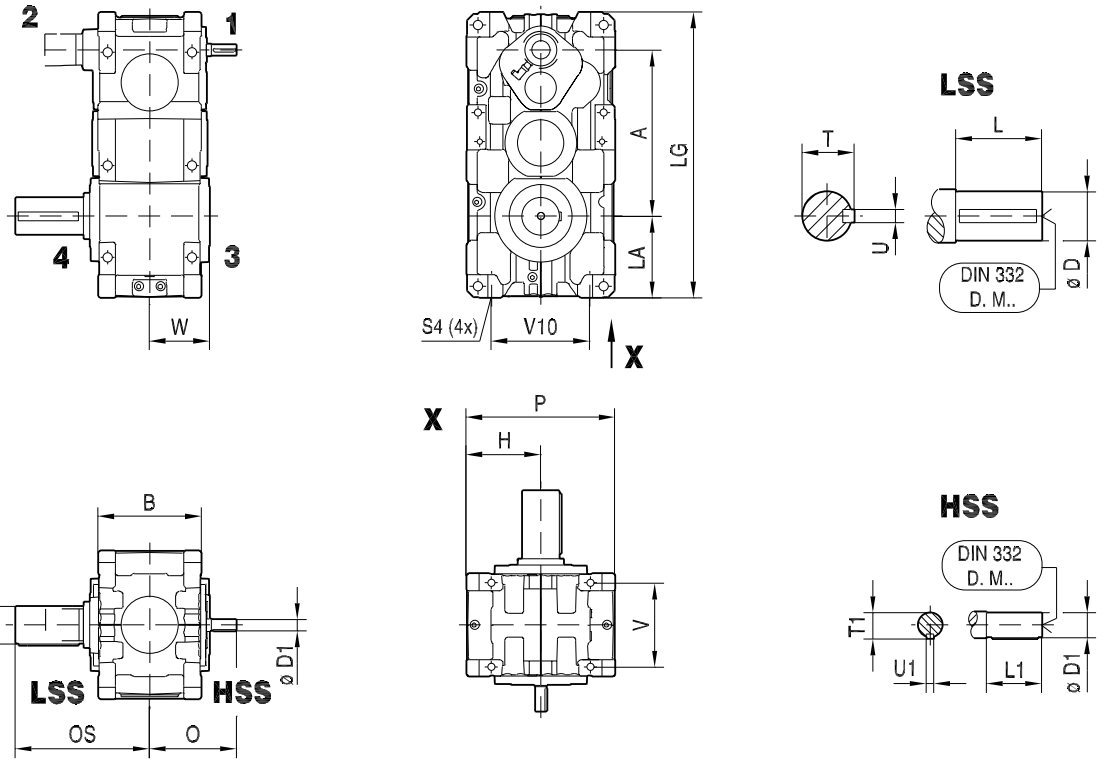
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1150
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1415
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2080

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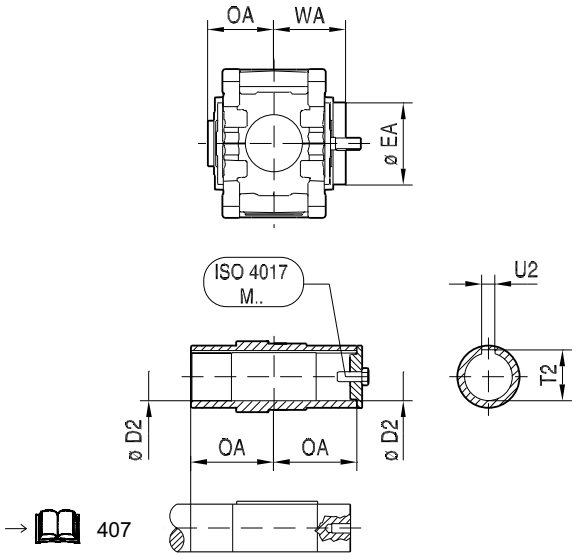
13.1.6 X4F220 - 320

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X4FS..

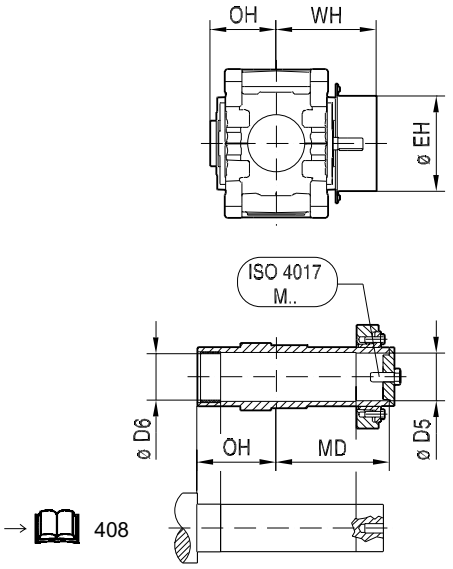


X4FA..



→ 407

X4FH..



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X.F..										
X.F..	A	B	H	LA	LG	P	S4 (4x)	V10	V14	W
X220	894	540	$425_{-0.5}$	$465_{-0.5}$	1591	850	M42x63	610	440	331
X230	934	540	$425_{-0.5}$	$465_{-0.5}$	1631	850	M42x63	610	440	331
X240	1004	625	$450_{-0.5}$	$495_{-0.5}$	1729	900	M48x72	600	510	377
X250	1027	625	$450_{-0.5}$	$495_{-0.5}$	1752	900	M48x72	600	510	377
X260	1113	705	$500_{-0.5}$	$545_{-0.5}$	1909	1000	M48x72	710	590	417
X270	1148	705	$500_{-0.5}$	$545_{-0.5}$	1941	1000	M48x72	710	590	419
X280	1200	705	$555_{-0.5}$	$610_{-0.5}$	2058	1110	M48x72	710	590	419
X290	1279	785	$580_{-0.5}$	$620_{-0.5}$	2196	1160	M48x72	765	655	465
X300	1308	785	$580_{-0.5}$	$620_{-0.5}$	2225	1160	M48x72	765	655	465
X310	1435	850	$630_{-0.5}$	$680_{-0.5}$	2419	1260	M48x72	860	720	499
X320	1469	850	$630_{-0.5}$	$680_{-0.5}$	2453	1260	M48x72	860	720	499

X.FS.. LSS						
Ø D	L	OS	T	U	DIN 332 DR.M..	kg
210_{m6}	350	703	221	50_{h9}	M30	2715
230_{m6}	410	763	241	50_{h9}	M36	3075
230_{m6}	410	811	241	50_{h9}	M36	3785
240_{m6}	410	811	252	56_{h9}	M36	3910
250_{m6}	410	847	262	56_{h9}	M36	4620
270_{m6}	470	920	282	63_{h9}	M36	5120
290_{m6}	470	920	302	63_{h9}	M36	5670
290_{m6}	470	962	302	63_{h9}	M36	7070
300_{m6}	470	962	314	70_{h9}	M36	7820
320_{m6}	470	999	334	70_{h9}	M42	8670
340_{m6}	550	1079	355	80_{h9}	M42	9620

HSS	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D1	L1	O	T1	U1	DIN 332 DR.M..	Ø D1	L1	O	T1	U1	DIN 332 DR.M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

X.FA..								
LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2535
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2855
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3500
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3605
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

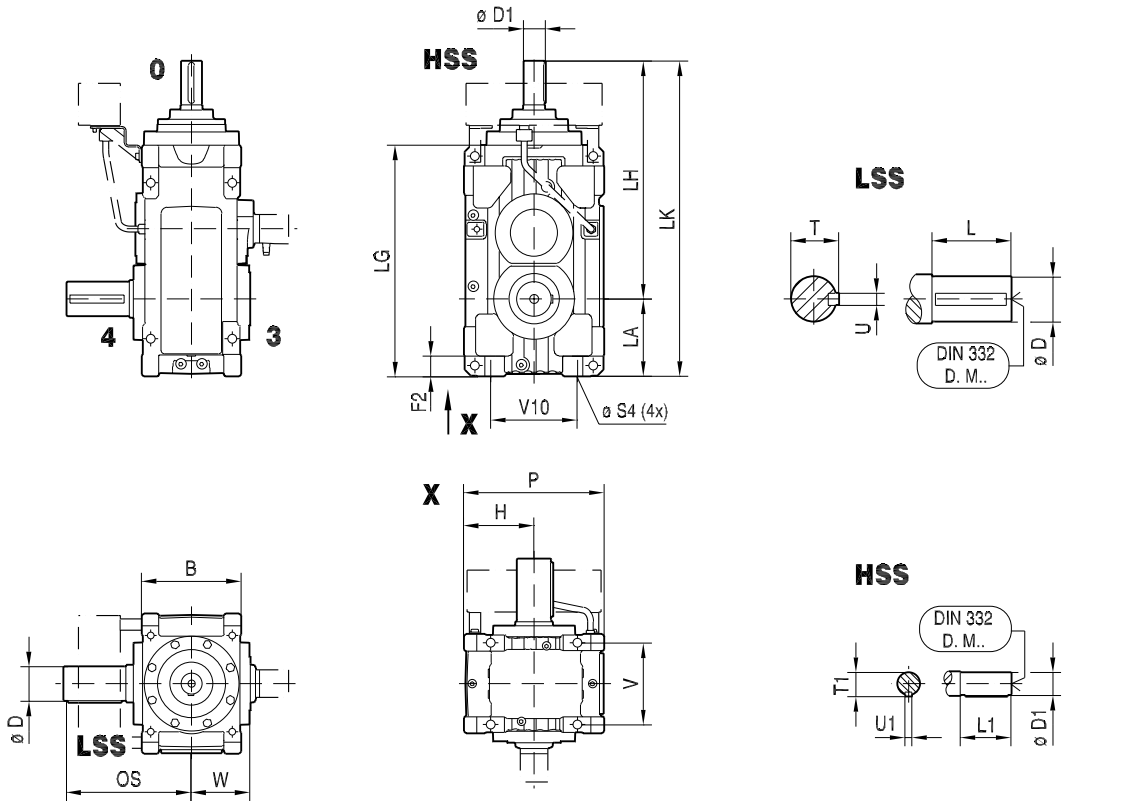
X.FH..								
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2640
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2965
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3665
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3765
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

13.2 X.K.. bevel-helical gear units [mm]

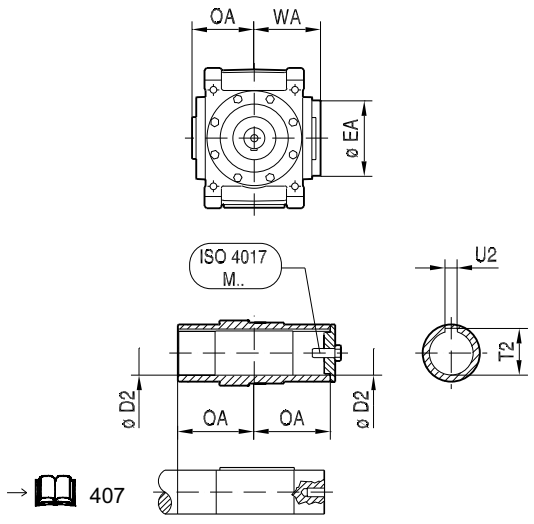
13.2.1 X2K100 - 210

48 039 02 09

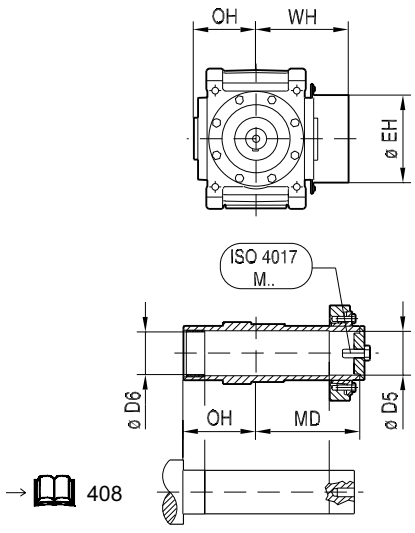
X2KS..



X2KA..



X2KH..

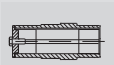


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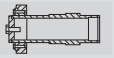
X.K..													
X2K..	**B**	**F2**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X100	260	62	$190_{-0.5}$	$190_{-0.5}$	601	655	845	380	24	250	210	153	240
X110	260	62	$190_{-0.5}$	$215_{-0.5}$	646	675	890	380	24	250	210	153	255
X120	300	68	$225_{-0.5}$	$215_{-0.5}$	697	752	967	450	28	300	245	174	355
X130	300	68	$225_{-0.5}$	$250_{-0.5}$	768	788	1038	450	28	300	245	174	410
X140	360	86	$265_{-0.5}$	$250_{-0.5}$	784	816	1066	530	35	335	290	202	570
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	871	858	1153	530	35	335	290	202	660
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1023	1010	1365	630	42	400	340	240	1010
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1074	1061	1416	630	42	400	340	240	1130
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1105	1137	1507	670	42	415	390	277	1380
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1137	1169	1539	670	42	415	390	277	1495
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1241	1268	1688	750	48	455	420	298	1930
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1277	1304	1724	750	48	455	420	298	2040

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	50_{k6}	110	53.5	14_{h9}	M16
X110	50_{k6}	110	53.5	14_{h9}	M16
X120	60_{m6}	140	64	18_{h9}	M20
X130	60_{m6}	140	64	18_{h9}	M20
X140	70_{m6}	140	74.5	20_{h9}	M20
X150	70m6	140	74.5	20_{h9}	M20
X160	85_{m6}	170	90	22_{h9}	M20
X170	85_{m6}	170	90	22_{h9}	M20
X180	100_{m6}	210	106	28_{h9}	M24
X190	100_{m6}	210	106	28_{h9}	M24
X200	110_{m6}	210	116	28_{h9}	M24
X210	110_{m6}	210	116	28_{h9}	M24

X.KA.. 

LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	245
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	385
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	535
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	940
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1050
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1280
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1395
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1845
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1925

X.KH.. 

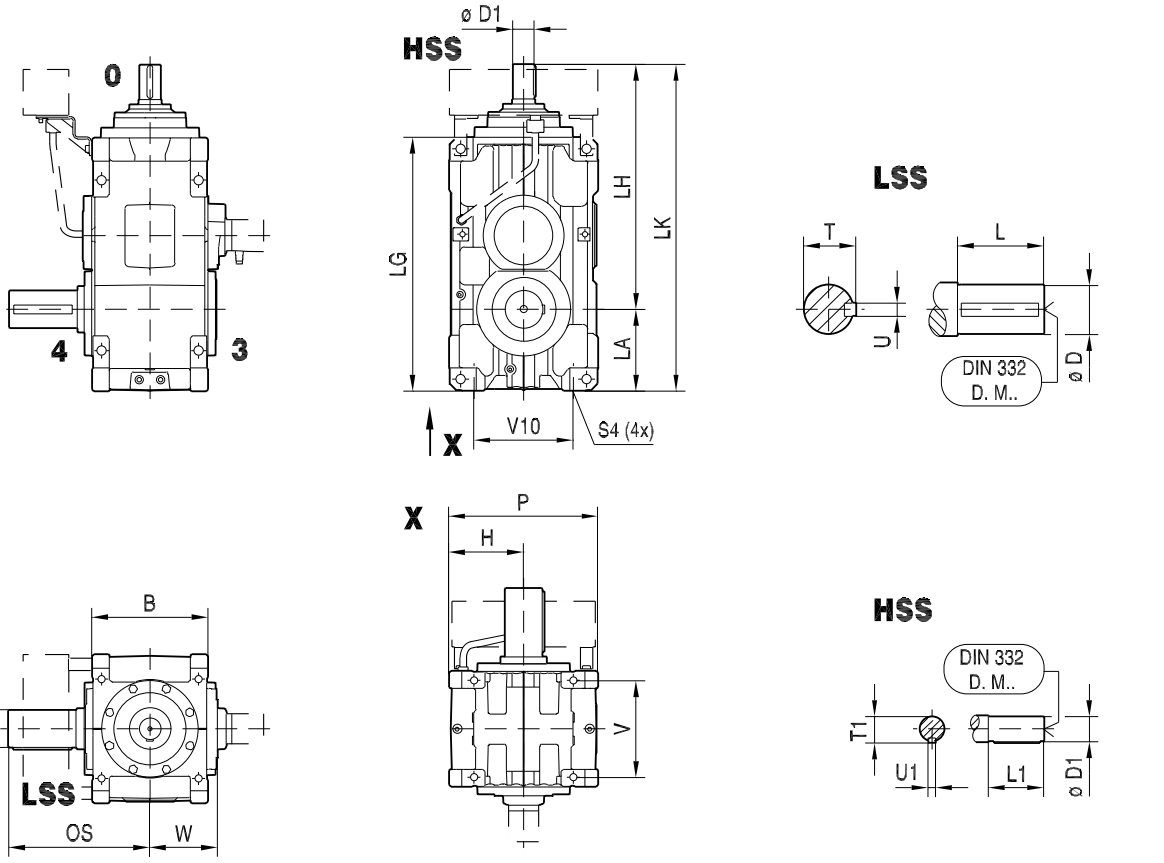
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	255
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	400
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	560
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	970
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1105
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1330
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1445
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1915
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2010

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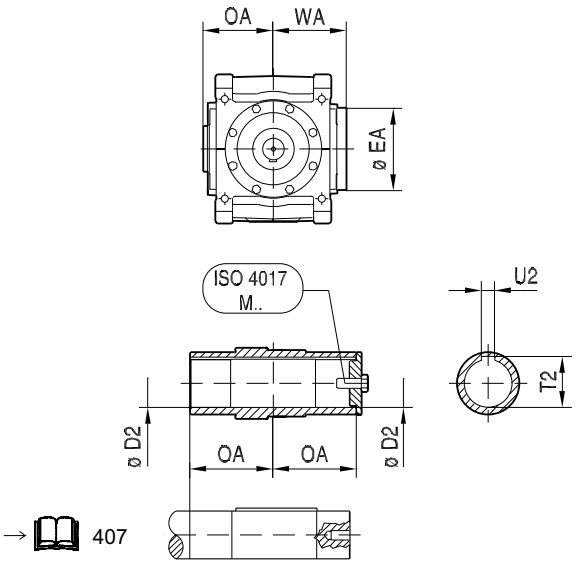
13.2.2 X2K220 - 250

48 040 03 09

X2KS..

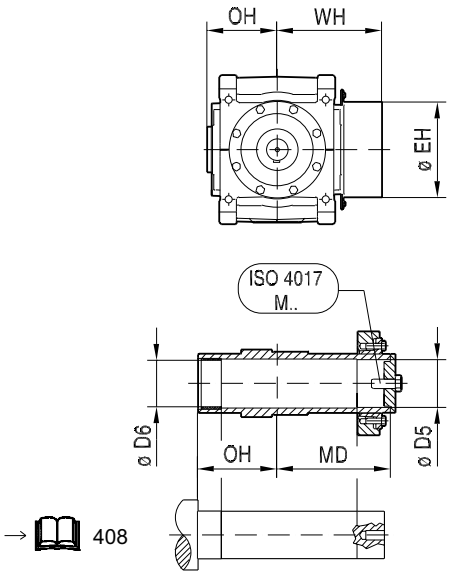


X2KA..



→ 407

X2KH..



→ 408

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X.K..												
X2K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	610	$425_{-0.5}$	$465_{-0.5}$	1412	1436	1901	850	M42x63	610	510	370	2895
X230	610	$425_{-0.5}$	$465_{-0.5}$	1452	1476	1941	850	M42x63	610	510	370	3075
X240	700	$450_{-0.5}$	$495_{-0.5}$	1531	1476	1971	900	M48x72	600	585	421	3975
X250	700	$450_{-0.5}$	$495_{-0.5}$	1554	1499	1994	900	M48x72	600	585	421	3980

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X220	210_{m6}	350	738	221	50_{h9}	M30
X230	230_{m6}	410	798	241	50_{h9}	M36
X240	230_{m6}	410	848	241	50_{h9}	M36
X250	240_{m6}	410	848	252	56_{h9}	M36

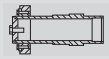
HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X220	120_{m6}	210	127	32_{h9}	M24
X230	120_{m6}	210	127	32_{h9}	M24
X240	130_{m6}	210	137	32_{h9}	M24
X250	130_{m6}	210	137	32_{h9}	M24

X.KA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X220	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2700
X230	210^{H8}	360	387.5	221.4	50^{JS9}	452	M30x90-8.8	2845
X240	230^{H8}	420	438	241.4	50^{JS9}	507	M36x110-8.8	3670
X250	240^{H8}	420	438	252.4	56^{JS9}	507	M36x110-8.8	3655

X.KH..



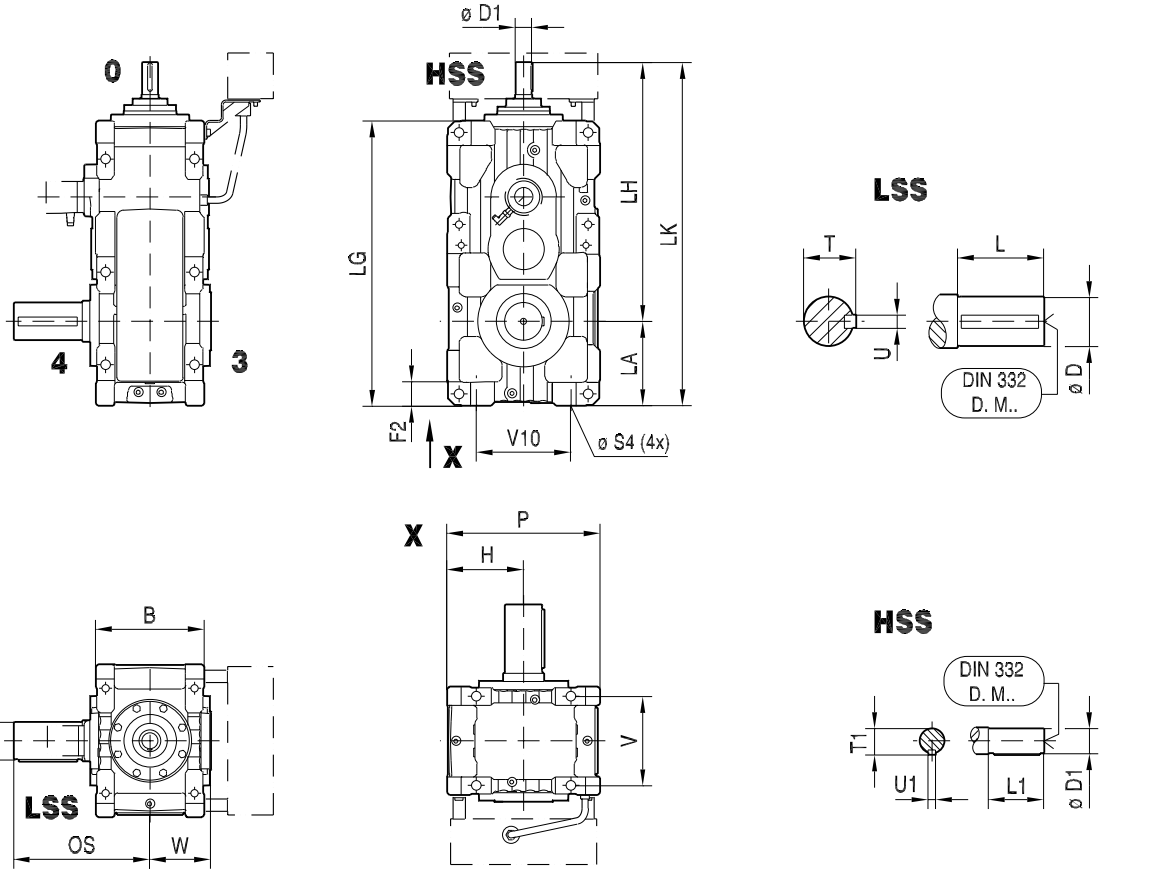
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X220	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2810
X230	210^{H7}	211^{H9}	484	533	387.5	597	M30x90-8.8	2950
X240	230^{H7}	231^{H9}	558	609	438	692	M36x110-8.8	3835
X250	240^{H7}	241^{H9}	558	609	438	692	M36x110-8.8	3815

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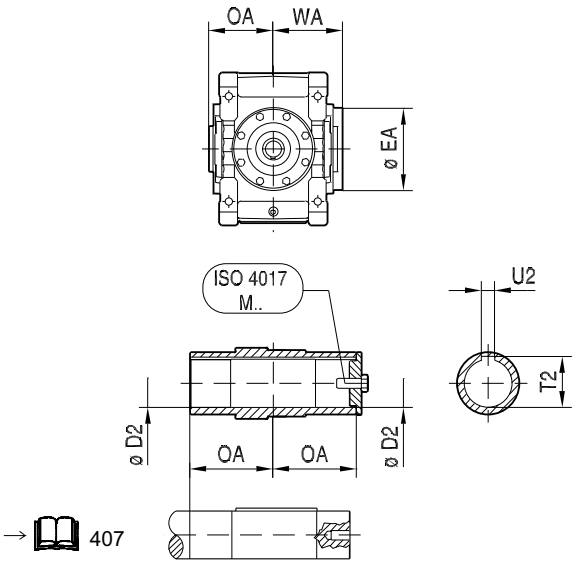
13.2.3 X3K100 - 210

48 041 02 09

X3KS..

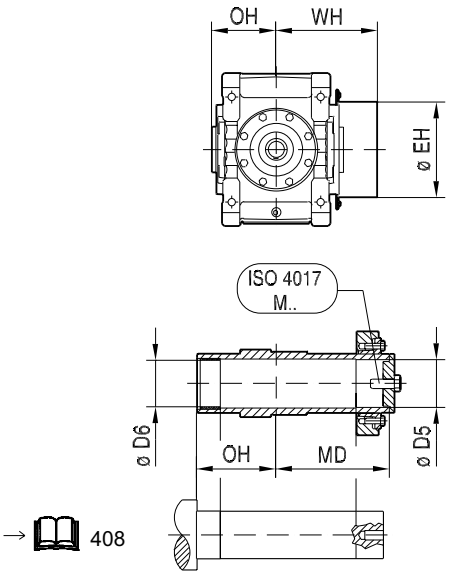


X3KA..



→ 407

X3KH..



→ 408

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X.K..													
X3K..	**B**	**F2**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X100	260	62	$190_{-0.5}$	$190_{-0.5}$	658	632	822	380	24	250	210	153	240
X110	260	62	$190_{-0.5}$	$215_{-0.5}$	703	652	867	380	24	250	210	153	260
X120	300	68	$225_{-0.5}$	$215_{-0.5}$	767	745	960	450	28	300	245	174	365
X130	300	68	$225_{-0.5}$	$250_{-0.5}$	838	781	1031	450	28	300	245	174	415
X140	360	86	$265_{-0.5}$	$250_{-0.5}$	903	879	1129	530	35	335	290	202	610
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	990	921	1216	530	35	335	290	202	650
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	1036	1391	630	42	400	340	240	1000
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	1087	1442	630	42	400	340	240	1145
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	1135	1505	670	42	415	390	277	1415
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	1167	1537	670	42	415	390	277	1525
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	1286	1706	750	48	455	420	298	2040
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	1322	1742	750	48	455	420	298	2140

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	79.9	20^{JS9}	207	M20x60-8.8	230
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	250
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	390
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	575
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1065
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1425
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1955
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	2025

X.KH..



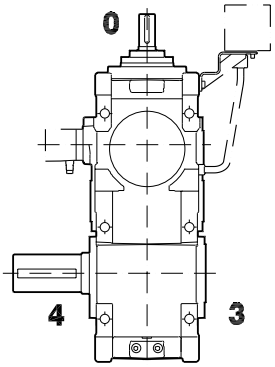
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	240
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	260
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	355
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	405
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	600
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1120
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1475
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	2025
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2110

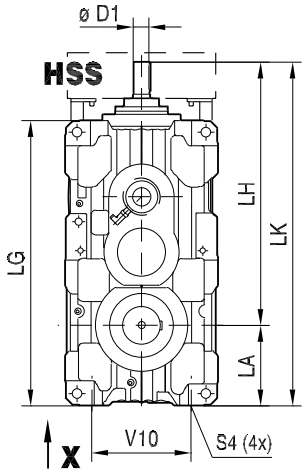
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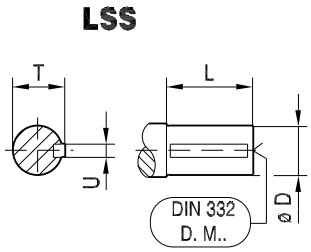
13.2.4 X3K220 - 320

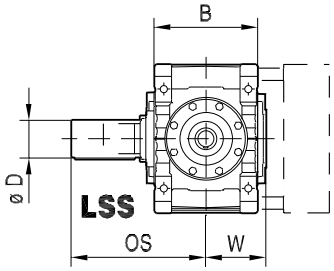
48 042 03 09

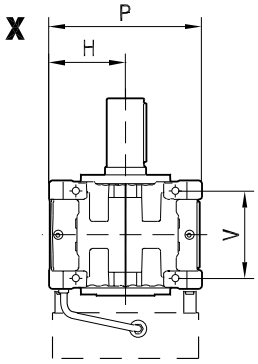
X3KS..

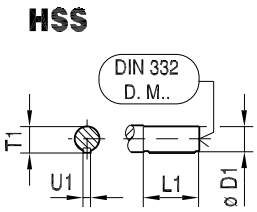




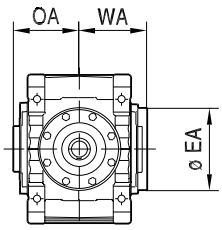


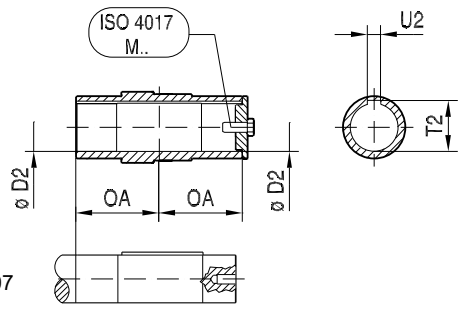






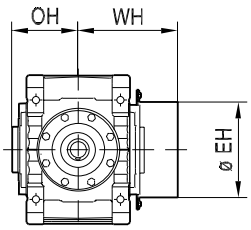
X3KA..

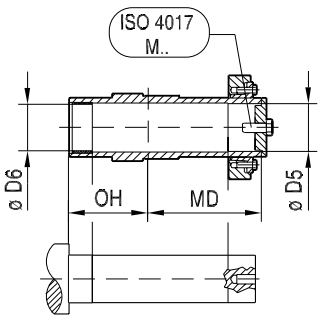




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X3KH..





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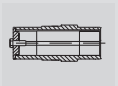
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X.K..												
X3K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	540	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	M42x63	610	440	331	2925
X230	540	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	M42x63	610	440	331	3095
X240	625	$450_{-0.5}$	$495_{-0.5}$	1721	1597	2092	900	M48x72	600	510	377	3945
X250	625	$450_{-0.5}$	$495_{-0.5}$	1744	1620	2115	900	M48x72	600	510	377	4075
X260	705	$500_{-0.5}$	$545_{-0.5}$	1900	1767	2312	1017	M48x72	710	590	417	4870
X270	705	$500_{-0.5}$	$545_{-0.5}$	1935	1802	2347	1017	M48x72	710	590	419	5370
X280	705	$555_{-0.5}$	$610_{-0.5}$	2052	1854	2464	1127	M48x72	710	590	419	5870
X290	785	$580_{-0.5}$	$620_{-0.5}$	2187	2021	2641	1177	M48x72	765	655	465	7020
X300	785	$580_{-0.5}$	$620_{-0.5}$	2216	2050	2670	1177	M48x72	765	655	465	7720
X310	850	$630_{-0.5}$	$680_{-0.5}$	2410	2135	2815	1277	M48x72	860	720	499	8570
X320	850	$630_{-0.5}$	$680_{-0.5}$	2444	2169	2849	1277	M48x72	860	720	499	9470

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

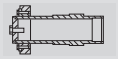
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**	**i**
X220	85_{m6}	170	90	22_{h9}	M20	-
X230	85_{m6}	170	90	22_{h9}	M20	-
X240	100_{m6}	210	106	28_{h9}	M24	-
X250	100_{m6}	210	106	28_{h9}	M24	-
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 40 ... 71**
X320	130_{m6}	250	137	32_{h9}	M24	i = 14 ... 40*
	130_{m6}	210	137	32_{h9}	M24	i = 45 ... 80**

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2745
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2875
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3660
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3770
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6970
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7720
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8420

X.KH..



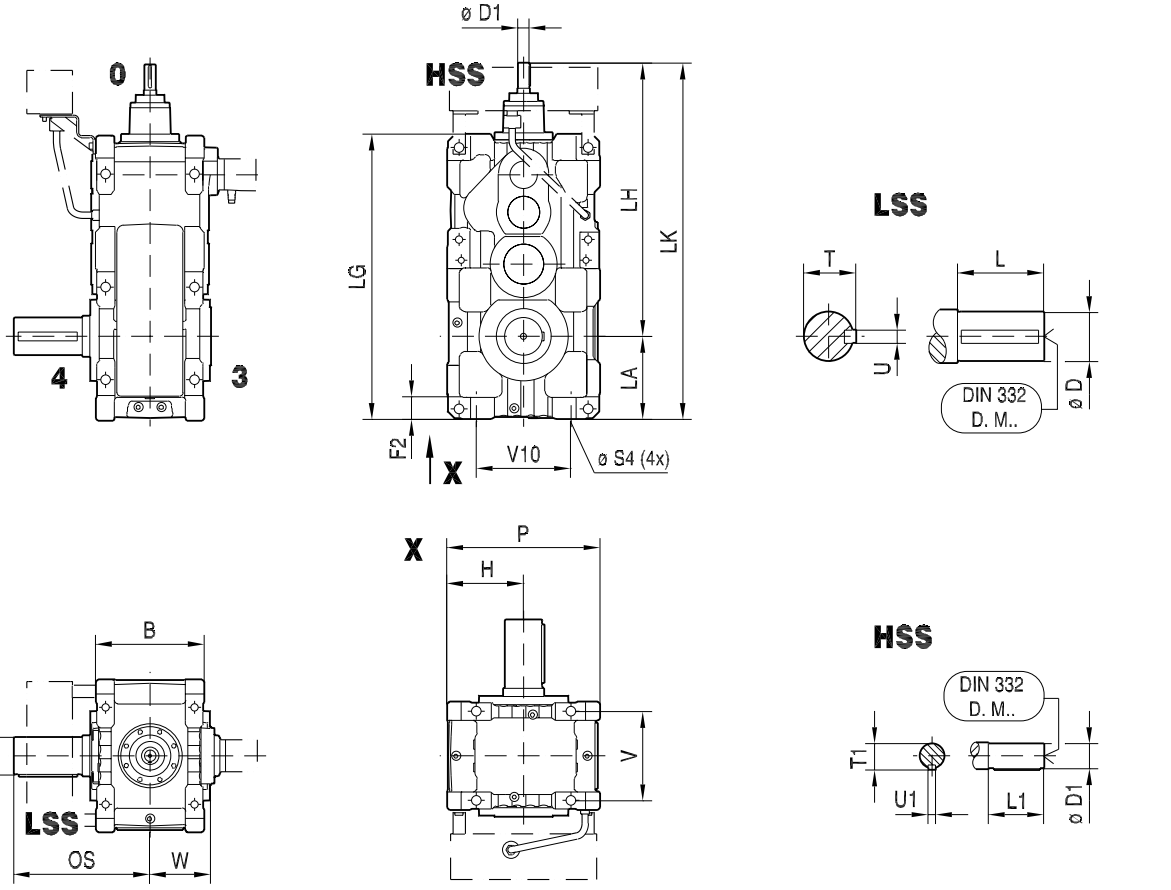
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2850
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2985
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3825
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3930
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4570
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5120
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5570
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6420
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7220
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8070
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8770

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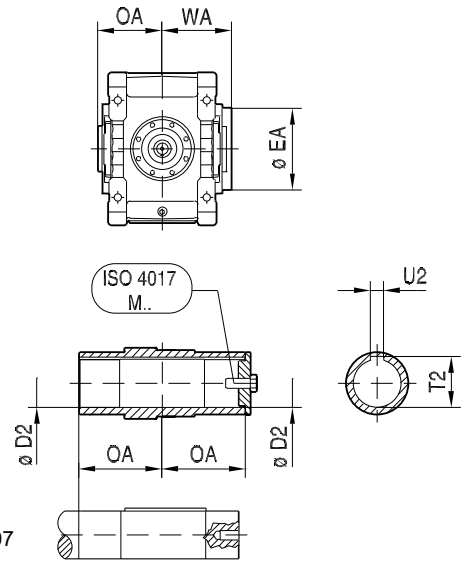
13.2.5 X4K120 - 210

48 043 02 09

X4KS..

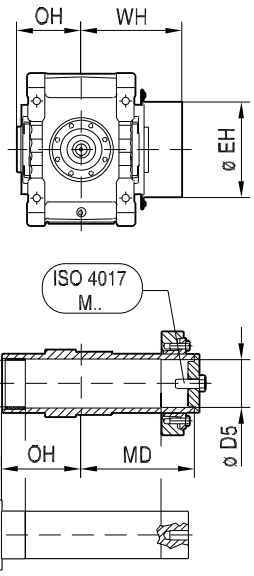


X4KA..



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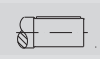
X4KH..



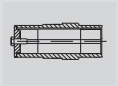
→ 408

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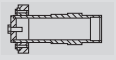
X.K..													
X4K..	**B**	**F2**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X120	300	68	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28	300	245	174	345
X130	300	68	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28	300	245	174	385
X140	360	86	$265_{-0.5}$	$250_{-0.5}$	903	856	1106	530	35	335	290	202	565
X150	360	86	$265_{-0.5}$	$295_{-0.5}$	990	898	1193	530	35	335	290	202	635
X160	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	1029	1384	630	42	400	340	240	975
X170	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	1080	1435	630	42	400	340	240	1135
X180	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	1198	1568	670	42	415	390	277	1425
X190	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	1230	1600	670	42	415	390	277	1435
X200	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	1285	1705	750	48	455	420	298	1870
X210	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	1321	1741	750	48	455	420	298	1920

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.KA.. 

LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	325
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	360
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	530
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	585
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	905
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1055
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1325
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1785
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805

X.KH.. 

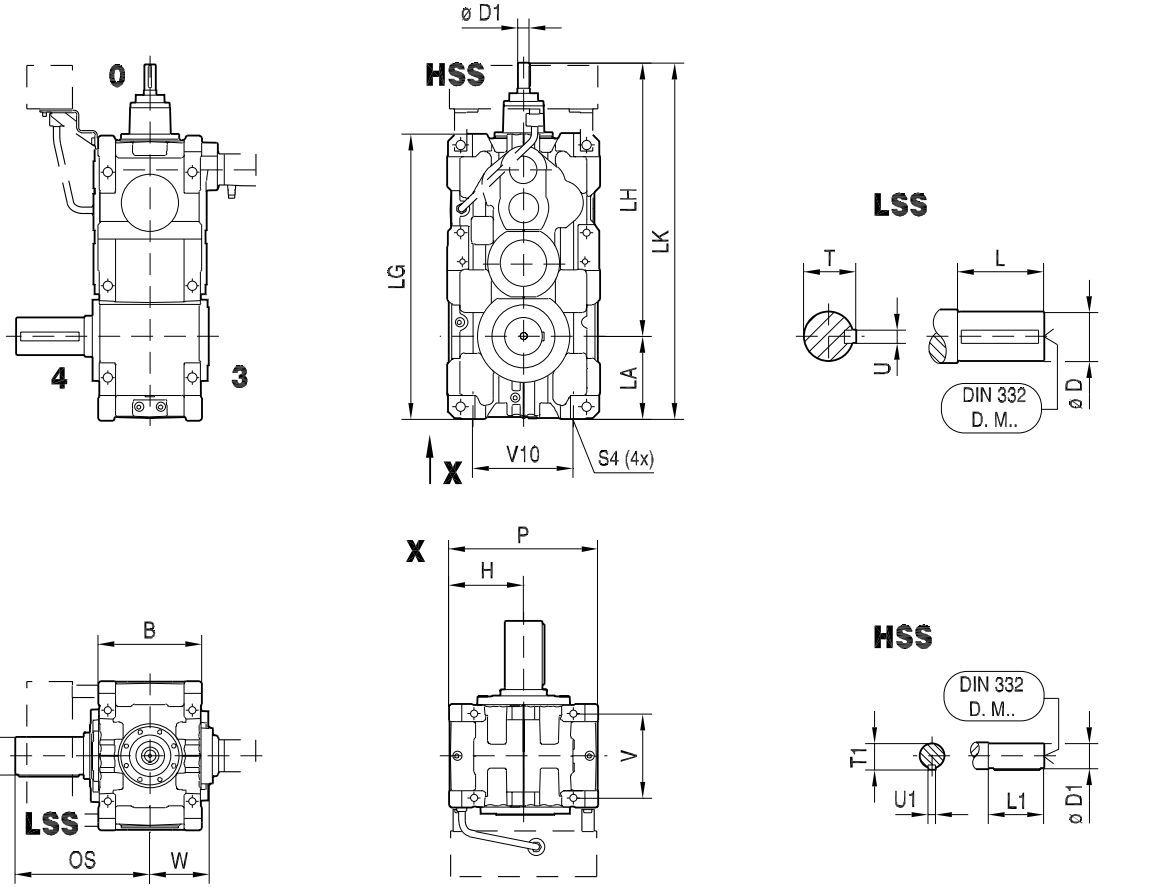
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	335
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	375
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	555
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	615
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	935
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1110
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1375
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1855
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

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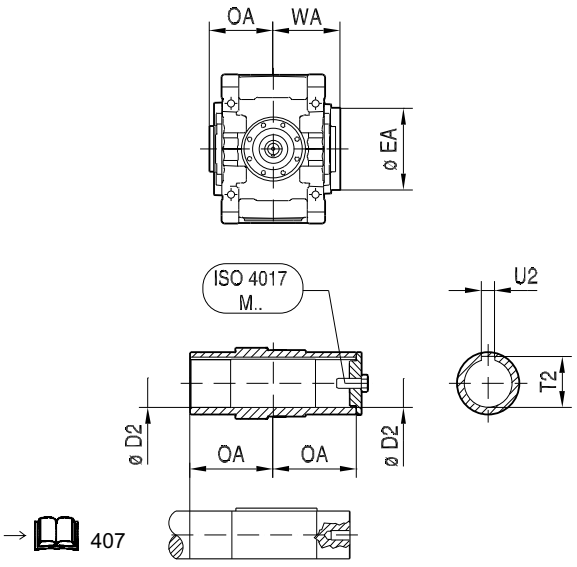
13.2.6 X4K220 - 320

48 044 03 09

X4KS..

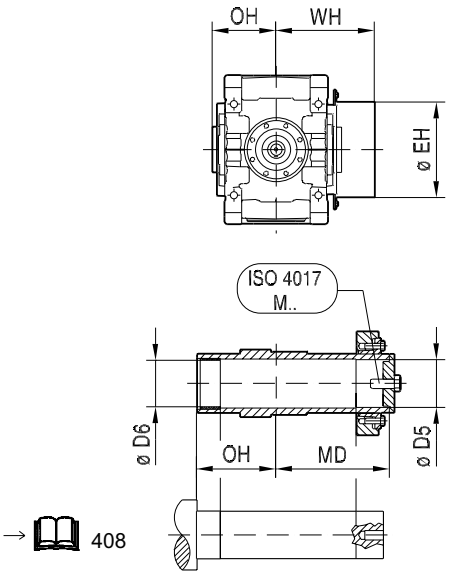


X4KA..



→ 407

X4KH..



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X.K..												
X4K..	**B**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	540	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	M42x63	610	440	331	2735
X230	540	$425_{-0.5}$	$465_{-0.5}$	1624	1498	1963	850	M42x63	610	440	331	2975
X240	625	$450_{-0.5}$	$495_{-0.5}$	1721	1595	2090	900	M48x72	600	510	377	3815
X250	625	$450_{-0.5}$	$495_{-0.5}$	1744	1618	2113	900	M48x72	600	510	377	4045
X260	705	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1000	M48x72	710	590	417	4620
X270	705	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1000	M48x72	710	590	419	5120
X280	705	$555_{-0.5}$	$610_{-0.5}$	2052	1872	2482	1110	M48x72	710	590	419	5670
X290	785	$580_{-0.5}$	$620_{-0.5}$	2187	2015	2635	1160	M48x72	765	655	465	7070
X300	785	$580_{-0.5}$	$620_{-0.5}$	2216	2044	2664	1160	M48x72	765	655	465	7820
X310	850	$630_{-0.5}$	$680_{-0.5}$	2410	2256	2936	1260	M48x72	860	720	499	8670
X320	850	$630_{-0.5}$	$680_{-0.5}$	2444	2290	2970	1260	M48x72	860	720	499	9620

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

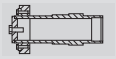
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20
X260	80_{m6}	170	85	22_{h9}	M20
X270	80_{m6}	170	85	22_{h9}	M20
X280	80_{m6}	170	85	22_{h9}	M20
X290	85_{m6}	170	90	22_{h9}	M20
X300	85_{m6}	170	90	22_{h9}	M20
X310	100_{m6}	210	106	28_{h9}	M24
X320	100_{m6}	210	106	28_{h9}	M24

X.KA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2555
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2755
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3530
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3740
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	6370
X300	290^{H8}	486	492	302.4	63^{JS9}	565	M36x110-8.8	7070
X310	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	7820
X320	320^{H8}	544	528.5	334.4	70^{JS9}	612	M42x130-8.8	8470

X.KH..



LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2660
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2865
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3695
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3900
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	4320
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4870
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	5370
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	6620
X300	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	7320
X310	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8170
X320	320^{H7}	325^{H9}	692	740.5	528.5	825	M42x130-8.8	8820

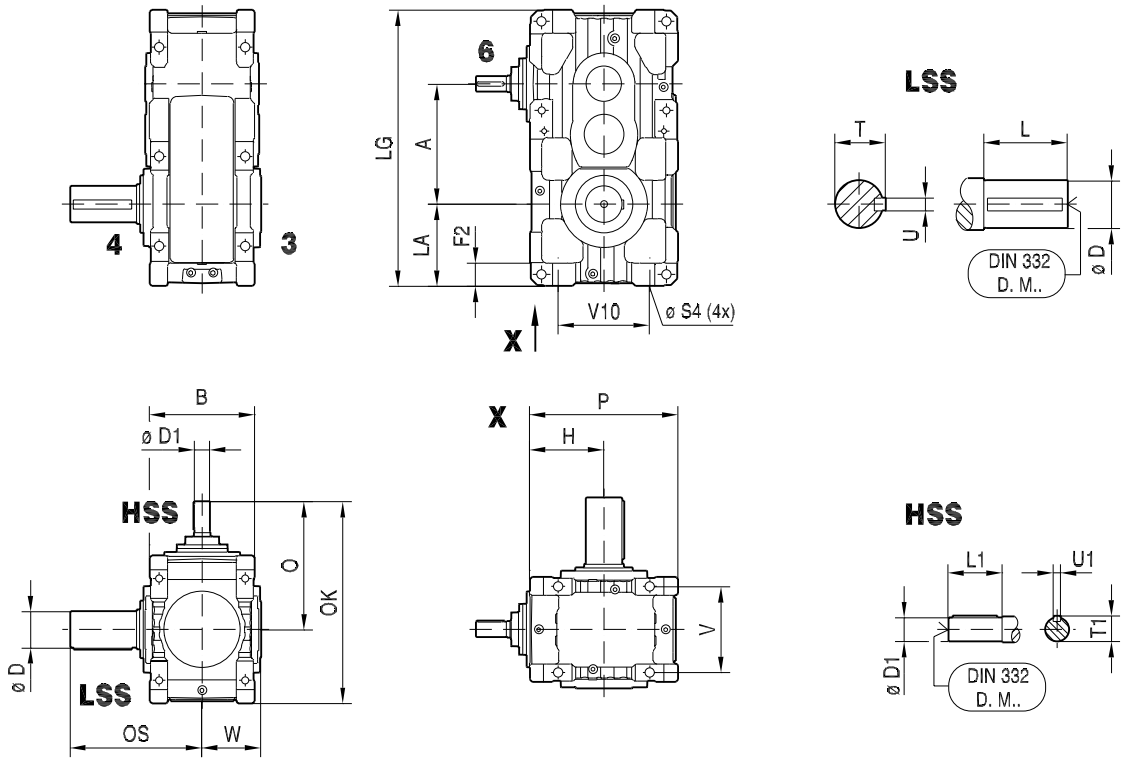
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13.3 X.T.. bevel-helical gear units, mounting position M4 (trolley drive) [mm]

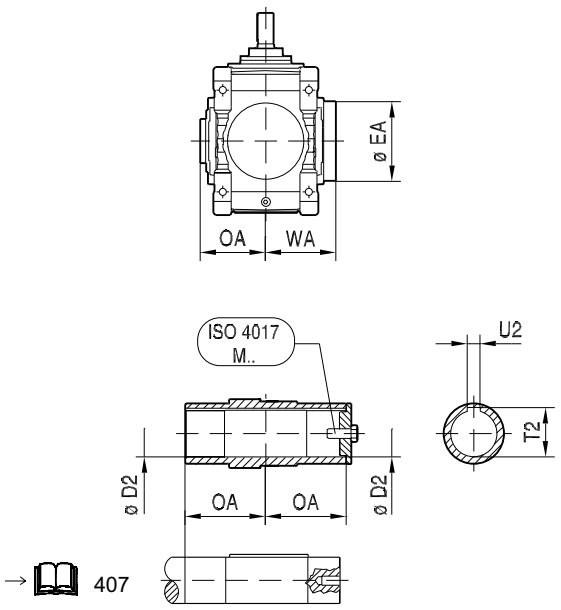
13.3.1 X3T100 - 210

48 045 02 09

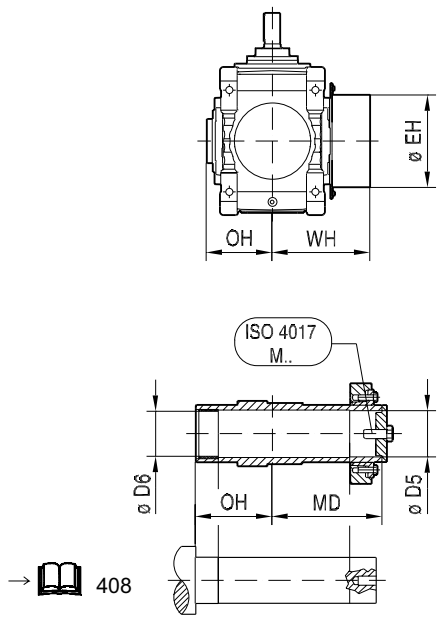
X3TS..



X3TA..



X3TH..

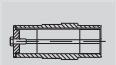


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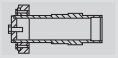
X.T..														
X3T..	**A**	**B**	**F2**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X100	278	260	62	$190_{-0.5}$	$190_{-0.5}$	658	354	544	380	24	250	210	153	245
X110	298	260	62	$190_{-0.5}$	$215_{-0.5}$	703	354	544	380	24	250	210	153	265
X120	327	300	68	$225_{-0.5}$	$215_{-0.5}$	767	418	643	450	28	300	245	174	375
X130	363	300	68	$225_{-0.5}$	$250_{-0.5}$	838	418	643	450	28	300	245	174	425
X140	388	360	86	$265_{-0.5}$	$250_{-0.5}$	903	491	756	530	35	335	290	202	620
X150	430	360	86	$265_{-0.5}$	$295_{-0.5}$	990	491	756	530	35	335	290	202	660
X160	474	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	562	877	630	42	400	340	240	1020
X170	525	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	562	877	630	42	400	340	240	1165
X180	544	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	591	926	670	42	415	390	277	1340
X190	576	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	591	926	670	42	415	390	277	1415
X200	614	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	672	1047	750	48	455	420	298	1890
X210	650	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	672	1047	750	48	455	420	298	1935

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X100	32_{k6}	80	35	10_{h9}	M12
X110	32_{k6}	80	35	10_{h9}	M12
X120	38_{k6}	100	41	10_{h9}	M12
X130	38_{k6}	100	41	10_{h9}	M12
X140	50_{k6}	110	53.5	14_{h9}	M16
X150	50_{k6}	110	53.5	14_{h9}	M16
X160	60_{m6}	140	64	18_{h9}	M20
X170	60_{m6}	140	64	18_{h9}	M20
X180	70_{m6}	140	74.5	20_{h9}	M20
X190	70_{m6}	140	74.5	20_{h9}	M20
X200	80_{m6}	170	85	22_{h9}	M20
X210	80_{m6}	170	85	22_{h9}	M20

X.TA.. 

LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X100	75^{H8}	158	173	80.4	20^{JS9}	207	M20x60-8.8	235
X110	85^{H8}	170	176	90.4	22^{JS9}	209	M24x70-8.8	255
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	355
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	400
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	585
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	610
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	950
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1085
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1240
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1315
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1805
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1820

X.TH.. 

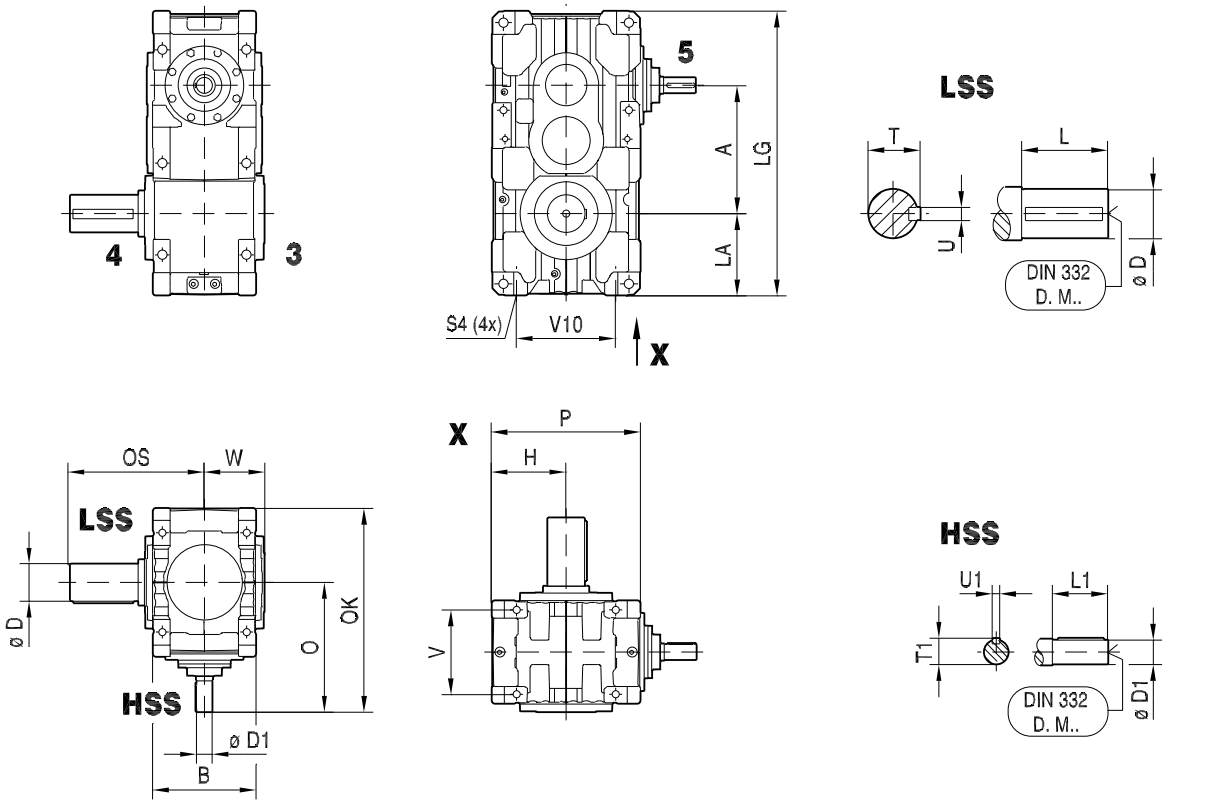
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X100	80^{H7}	81^{H9}	220	261	173	294	M24x70-8.8	245
X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	265
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	365
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	415
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	610
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	640
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	980
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1140
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1290
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1365
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1875
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1905

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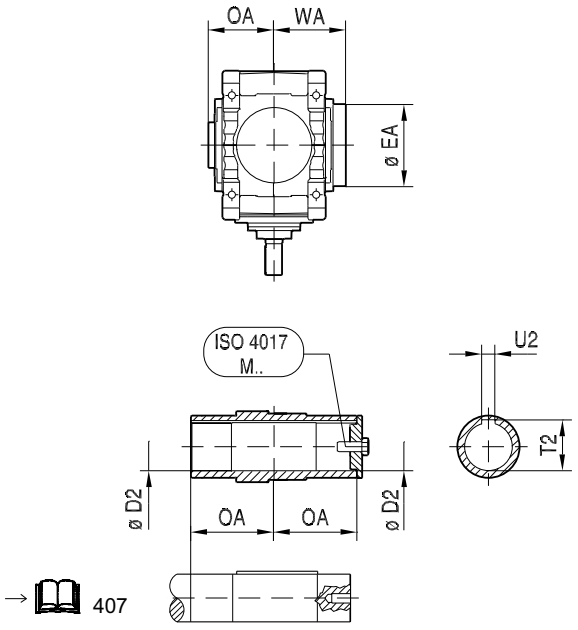
13.3.2 X3T220 - 250

48 046 03 09

X3TS..

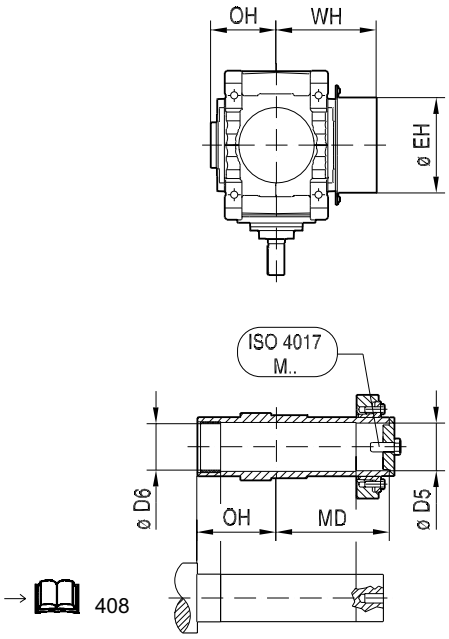


X3TA..



→ 407

X3TH..



→ 408

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X.T..													
X3T..	**A**	**B**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	694	540	$425_{-0.5}$	$465_{-0.5}$	1584	736	1161	850	M42x63	610	440	331	2655
X230	734	540	$425_{-0.5}$	$465_{-0.5}$	1624	736	1161	850	M42x63	610	440	331	2845
X240	776	625	$450_{-0.5}$	$495_{-0.5}$	1721	821	1271	900	M48x72	600	510	377	3645
X250	799	625	$450_{-0.5}$	$495_{-0.5}$	1744	821	1271	900	M48x72	600	510	377	3775

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

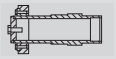
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	85_{m6}	170	90	22_{h9}	M20
X230	85_{m6}	170	90	22_{h9}	M20
X240	100_{m6}	210	106	28_{h9}	M24
X250	100_{m6}	210	106	28_{h9}	M24

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2475
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2625
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3645
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3470

X.TH..



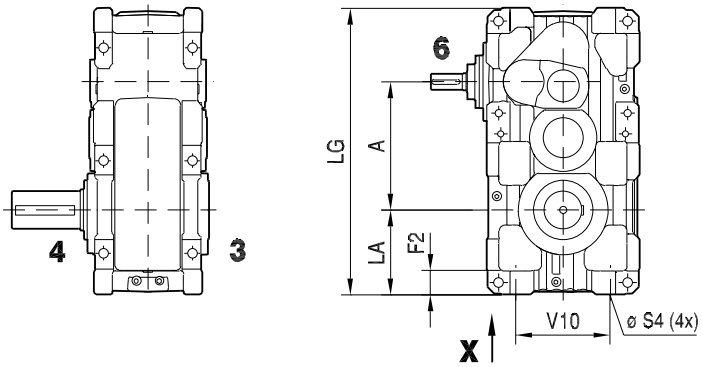
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2580
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2735
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3525
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3630

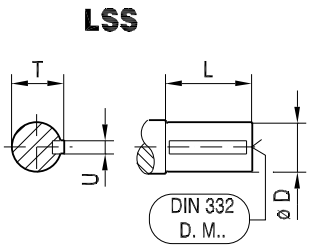
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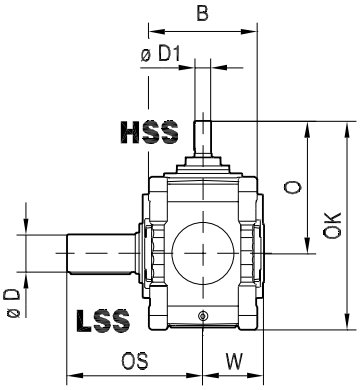
13.3.3 X4T120 - 210

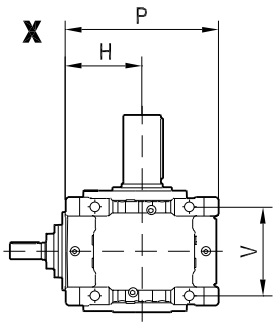
X4TS..

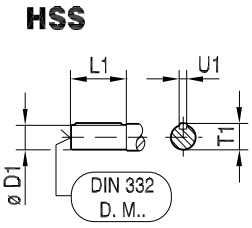
48 047 02 09



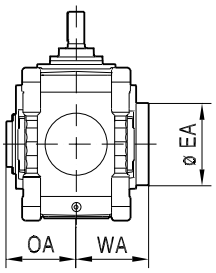


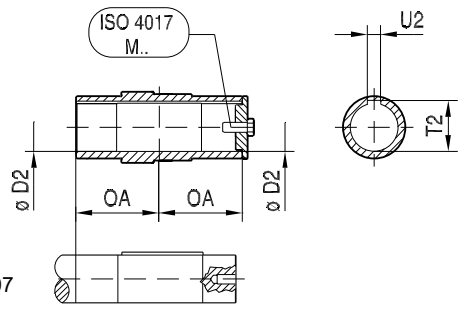






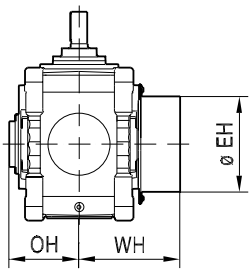
X4TA..

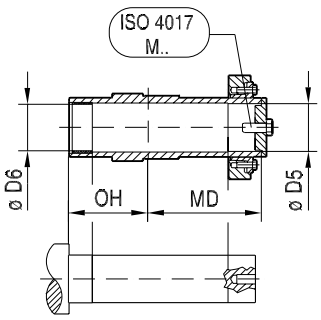




→ 407

X4TH..





→ 408

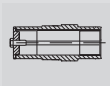
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X.T..														
X3T..	**A**	**B**	**F2**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X120	337	300	68	$225_{-0.5}$	$215_{-0.5}$	767	383	608	450	28	300	245	174	360
X130	373	300	68	$225_{-0.5}$	$250_{-0.5}$	838	383	608	450	28	300	245	174	400
X140	403	360	86	$265_{-0.5}$	$250_{-0.5}$	903	467	732	530	35	335	290	202	580
X150	445	360	86	$265_{-0.5}$	$295_{-0.5}$	990	467	732	530	35	335	290	202	650
X160	490	425	105	$315_{-0.5}$	$355_{-0.5}$	1144	554	869	630	42	400	340	240	1000
X170	541	425	105	$315_{-0.5}$	$355_{-0.5}$	1195	554	869	630	42	400	340	240	1160
X180	562	475	107	$335_{-0.5}$	$370_{-0.5}$	1249	653	988	670	42	415	390	277	1375
X190	594	475	107	$335_{-0.5}$	$370_{-0.5}$	1281	653	988	670	42	415	390	277	1440
X200	627	515	128	$375_{-0.5}$	$420_{-0.5}$	1409	671	1046	750	48	455	420	298	1920
X210	663	515	128	$375_{-0.5}$	$420_{-0.5}$	1445	671	1046	750	48	455	420	298	1970

LSS 	Ø D	L	OS	T	U	DIN 332 DR.M..
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30

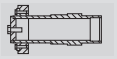
HSS 	Ø D1	L1	T1	U1	DIN 332 DR.M..
X120	28_{k6}	60	31	8_{h9}	M10
X130	28_{k6}	60	31	8_{h9}	M10
X140	32_{k6}	80	35	10_{h9}	M12
X150	32_{k6}	80	35	10_{h9}	M12
X160	38_{k6}	100	41	10_{h9}	M12
X170	38_{k6}	100	41	10_{h9}	M12
X180	50_{k6}	110	53.5	14_{h9}	M16
X190	50_{k6}	110	53.5	14_{h9}	M16
X200	50_{k6}	110	53.5	14_{h9}	M16
X210	50_{k6}	110	53.5	14_{h9}	M16

X.TA..



LSS	Ø D2	Ø EA	OA	T2	U2	WA	ISO 4017 M..	kg
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	340
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	375
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	545
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	600
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	930
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1080
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1275
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1335
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1835
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1855

X.TH..



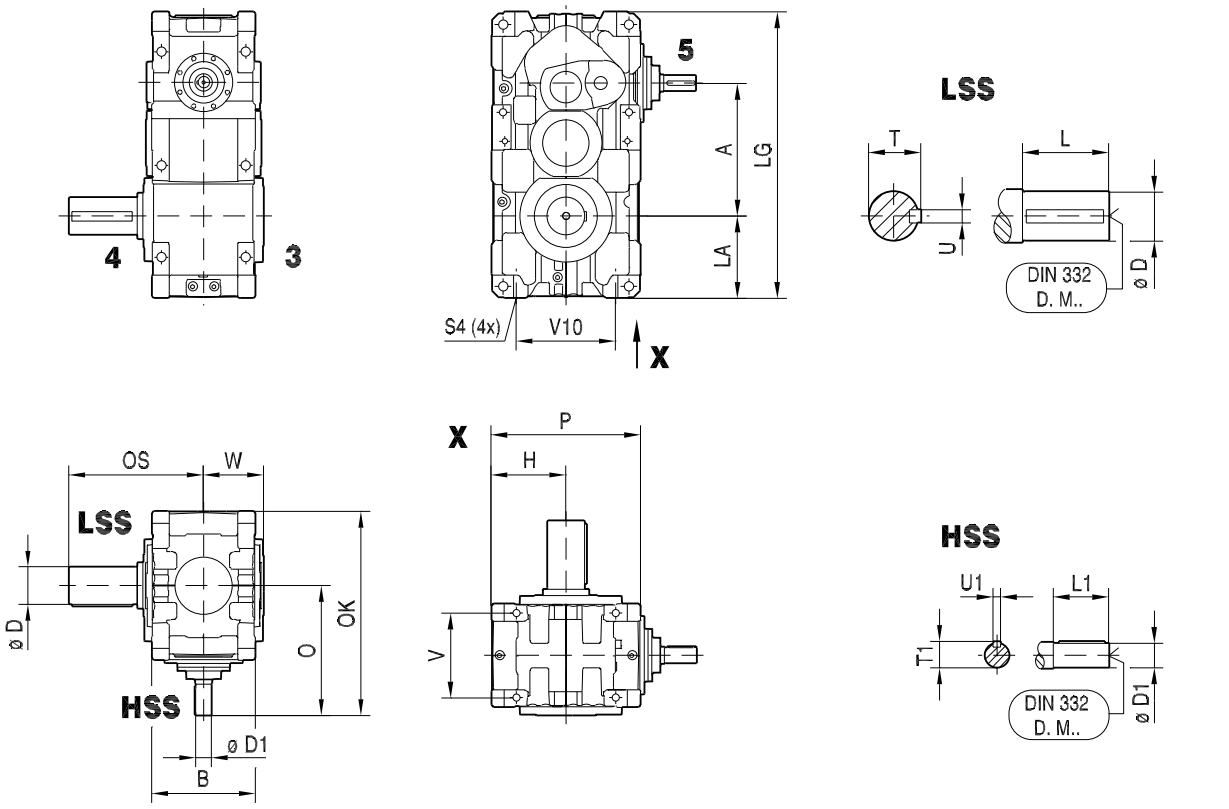
LSS	Ø D5	Ø D6	Ø EH	MD	OH	WH	ISO 4017 M..	kg
X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	350
X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	390
X140	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	570
X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	630
X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	960
X170	150^{H7}	153^{H9}	368	364	256	427	M30x90-8.8	1135
X180	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1325
X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1385
X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1905
X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1940

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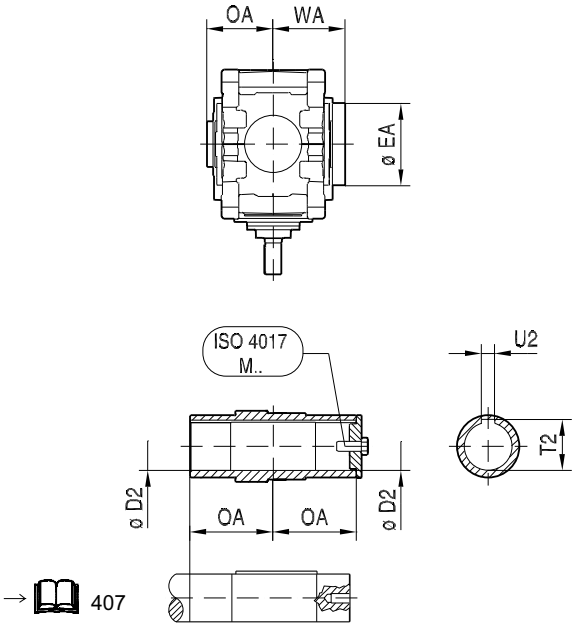
13.3.4 X4T220 - 250

X4TS..

48 048 03 09

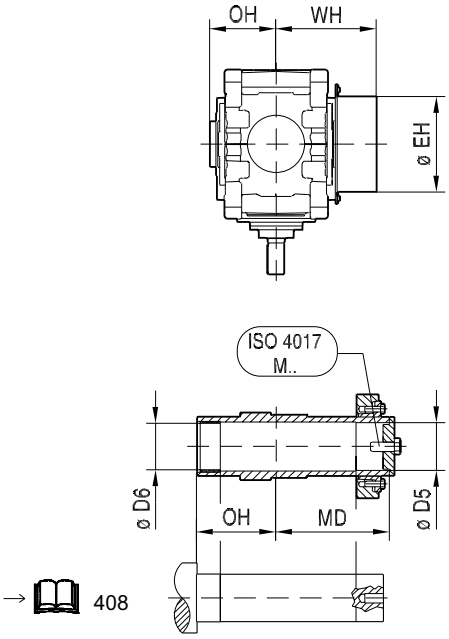


X4TA..



→ 407

X4TH..



→ 408

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X.T..													
X4T..	**A**	**B**	**H**	**LA**	**LG**	**O**	**OK**	**P**	**Ø S4 (4x)**	**V10**	**V14**	**W**	**kg**
X220	718	540	$425_{-0.5}$	$465_{-0.5}$	1584	761	1186	850	M42x63	610	440	331	2700
X230	758	540	$425_{-0.5}$	$465_{-0.5}$	1624	761	1186	850	M42x63	610	440	331	2880
X240	806	625	$450_{-0.5}$	$495_{-0.5}$	1721	817	1267	900	M48x72	600	510	377	3680
X250	829	625	$450_{-0.5}$	$495_{-0.5}$	1744	817	1267	900	M48x72	600	510	377	3835

LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**
X220	210_{m6}	350	703	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36

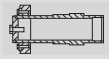
HSS 	**Ø D1**	**L1**	**T1**	**U1**	**DIN 332 DR.M..**
X220	60_{m6}	140	64	18_{h9}	M20
X230	60_{m6}	140	64	18_{h9}	M20
X240	70_{m6}	140	74.5	20_{h9}	M20
X250	70_{m6}	140	74.5	20_{h9}	M20

X.TA..



LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X220	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2520
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2660
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3395
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3530

X.TH..



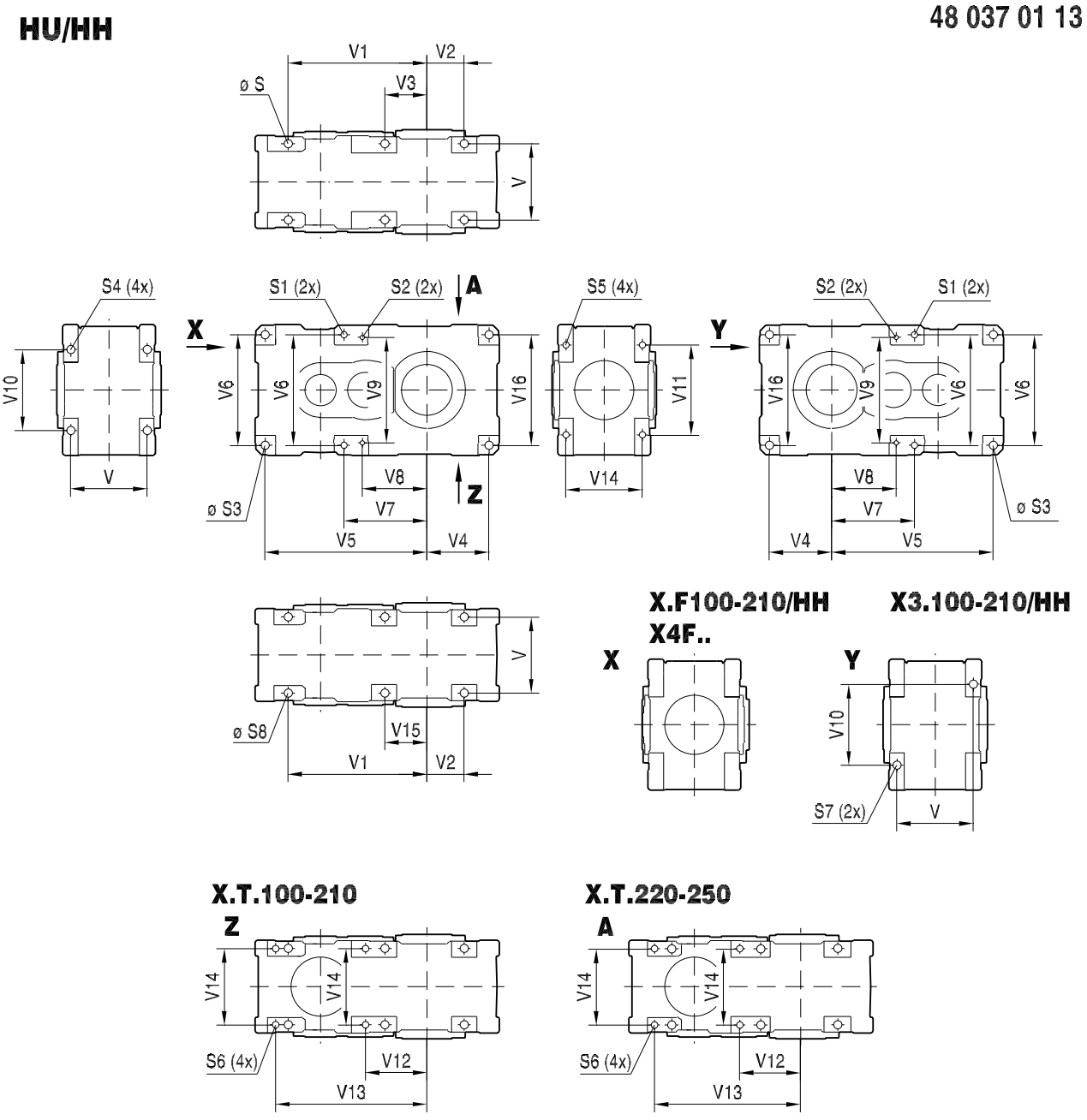
LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2625
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2770
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3560
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3690

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14 Dimension sheets: Options

14.1 Housing bores [mm]

14.1.1 Universal and horizontal housing X100 – 320 HU/HH



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Universal housing X100 – 320 /HU

INFORMATION

The dimension **V5** is identical for all gear unit designs except for X2K..

	Ø S	S1 (2x)	S2 (2x)	Ø S3	S4 (4x)	S5 (4x)	S7 (2x)	Ø S8	V	V1	V2	V3	V4	V5
X100	24 (4x)	M20	-	24 (4x)	ø 24	M20	-	24 (4x)	210	370	90	-	160	441
X110	24 (4x)	M20	-	24 (4x)	ø 24	M20	-	24 (4x)	210	390	115	-	185	461
X120	28(4x)	M24	-	28 (4x)	ø 28	M24	-	28(4x)	245	440	105	-	184	521
X130	28 (4x)	M24	-	28 (4x)	ø 28	M24	-	28 (4x)	245	475	140	-	219	557
X140	35 (4x)	M30	-	35 (4x)	ø 35	M30	-	35 (4x)	290	510	110	-	210	613
X150	35 (4x)	M30	M20	35 (4x)	ø 35	M30	-	35 (4x)	290	555	155	-	255	655
X160	42 (4x)	M36	M24	42 (4x)	ø 42	M36	-	42 (4x)	340	620	185	-	303	737
X170	42 (4x)	M36	M24	42 (4x)	ø 42	M36	-	42 (4x)	340	670	185	-	303	788
X180	42 (6x)	M36	M30	42 (4x)	ø 42	M36	-	42 (6x)	390	710	190	215	318	827
X190	42 (6x)	M36	M30	42 (4x)	ø 42	M36	-	42 (6x)	390	740	190	215	318	859
X200	48 (6x)	M42	M30	48 (4x)	ø 48	M42	-	48 (6x)	420	780	205	230	360	930
X210	48 (6x)	M42	M30	48 (4x)	ø 48	M42	-	48 (6x)	420	815	205	230	360	966
X220	48 (6x)	M42	M36	48 (4x)	M42x63	M42	-	48 (6x)	440	910	250	280	403	1057
X230	48 (6x)	M42	M36	48 (4x)	M42x63	M42	-	48 (6x)	440	950	250	280	403	1097
X240	56 (6x)	M48	M36	56(4x)	M48x72	M48	-	56 (6x)	510	990	250	305	425	1155
X250	56 (6x)	M48	M36	56 (4x)	M48x72	M48	-	56 (6x)	510	1010	250	305	425	1178
X260	56 (6x)	M48	M48	56 (4x)	M48x72	M48	-	56 (6x)	590	1110	300	350	475	1285
X270	56 (6x)	M48	M48	56 (4x)	M48x72	M48	-	56 (6x)	590	1110	300	350	475	1320
X280	56 (6x)	M48	-	56 (4x)	M48x72	M48	-	56 (6x)	590	1190	360	380	540	1372
X290	65 (6x)	M48	-	65 (4x)	M48x72	M48	-	65 (6x)	655	1280	330	355	539	1486
X300	65 (6x)	M48	-	65 (4x)	M48x72	M48	-	65 (6x)	655	1280	330	355	539	1515
X310	65 (6x)	M48	-	65 (4x)	M48x72	M48	-	65 (6x)	720	1435	385	455	598	1647
X320	65 (6x)	M48	-	65 (4x)	M48x72	M48	-	65 (6x)	720	1435	385	455	598	1681

	V6	V7	V8	V9	V10	V11[1)]	V11[2)]	V12[3)]	V13[4)]	V12[5)]	V13[6)]	V14	V15	V16
X100	315	197	-	-	250	-	250	153	403	-	-	210	-	315
X110	315	217	-	-	250	-	250	173	423	-	-	210	-	315
X120	380	233	-	-	300	300	310	172	482	187	487	245	-	380
X130	380	269	-	-	300	300	310	208	518	223	523	245		380
X140	445	277	-	-	335	350	350	213	563	228	578	290	-	445
X150	445	319	250	430	335	350	350	255	605	270	620	290	-	445
X160	525	348	265	500	400	390	415	266.5	681.5	294.5	584.5	345	-	525
X170	525	399	265	500	400	390	415	317.5	732.5	345.5	735.5	345	-	525
X180	565	424	333	546	415	425	460	314	774	349.5	774.5	390	215	565
X190	565	456	333	546	415	425	460	346	806	381.5	806.5	390	215	565
X200	630	478	350	610	455	490	510	359	869	382.5	872.5	420	230	630
X210	630	514	350	610	455	490	510	395	905	418.5	908.5	420	230	630
X220	725	531	415	680	610	540	600	394	994	448.5	988.5	440	280	725
X230	725	571	415	680	610	540	600	434	1034	488.5	1028.5	440	280	725
X240	760	625	450	740	600	550	600	476	1076	532	1081	510	305	760
X250	760	648	450	740	600	550	600	499	1099	554	1104	510	305	760
X260	860	683	500	860	710	710	710	-	-	-	-	590	350	860
X270	860	718	500	860	710	710	710	-	-	-	-	590	350	860
X280	970	569	-	970	710	710	710	-	-	-	-	590	380	970
X290	995	558	-	995	765	830	830	-	-	-	-	655	355	995
X300	995	587	-	995	765	830	830	-	-	-	-	655	355	995
X310	1095	621	-	1095	860	860	860	-	-	-	-	720	455	1095
X320	1095	655	-	1095	860	860	860	-	-	-	-	720	455	1095

1) X3F, X4K
2) X2F, X3K
3) X2T, X3T
4) X2T, X3T
5) X2T, X3T
6) X2T, X3T

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Horizontal housing X100 – 210 /HH

	Ø S	S1 (2x)[1]	S1 (2x)[2]	S2 (2x)	Ø S3	S4 (4x)	S5 (4x)	Ø S7 (2x)	Ø S8	V	V1	V2	V3
X100	24 (4x)	M20	-	-	24 (2x)	-	M20	24	24 (4x)	210	370	90	-
X110	24 (4x)	M20	-	-	24 (2x)	-	M20	24	24 (4x)	210	390	115	-
X120	28 (4x)	M24	-	-	28 (2x)	-	M24	28	28 (4x)	245	440	105	-
X130	28(4x)	M24	-	-	28 (2x)	-	M24	28	28 (4x)	245	475	140	-
X140	35 (4x)	M30	-	-	35 (2x)	-	M30	35	35 (4x)	290	510	110	-
X150	35 (4x)	M30	-	-	35 (2x)	-	M30	35	35 (4x)	290	555	155	-
X160	42 (4x)	M36	-	-	42 (2x)	-	M36	42	42 (4x)	340	620	185	-
X170	42 (4x)	M36	-	-	42 (2x)	-	M36	42	42 (4x)	340	670	185	-
X180	42 (6x)	M36	-	-	42 (2x)	-	M36	42	42 (4x)	390	710	190	215
X190	42 (6x)	M36	-	-	42 (2x)	-	M36	42	42 (4x)	390	740	190	215
X200	48 (6x)	M42	-	-	48 (2x)	-	M42	48	48 (4x)	420	780	205	230
X210	4 8(6x)	M42	-	-	48 (2x)	-	M42	48	48 (4x)	420	815	205	230

1) X3F
2) X3K

	V4	V5	V6	V7	V8	V9	V10	V11[1]	V11[2]	V14	V15
X100	-	441	315	197	-	-	250	-	250	210	-
X110	-	461	315	217	-	-	250	-	250	210	-
X120	-	521	380	233	-	-	300	-	310	245	-
X130	-	557	380	269	-	-	300	-	310	245	-
X140	-	613	445	277	-	-	335	-	350	290	-
X150	-	655	445	319	-	-	335	-	350	290	-
X160	-	737	525	348	-	-	400	-	415	345	-
X170	-	788	525	399	-	-	400	-	415	345	-
X180	-	827	565	424	-	-	415	-	460	390	-
X190	-	859	565	456	-	-	415	-	460	390	-
X200	-	930	630	478	-	-	455	-	510	420	-
X210	-	966	630	514	-	-	455	-	510	420	-

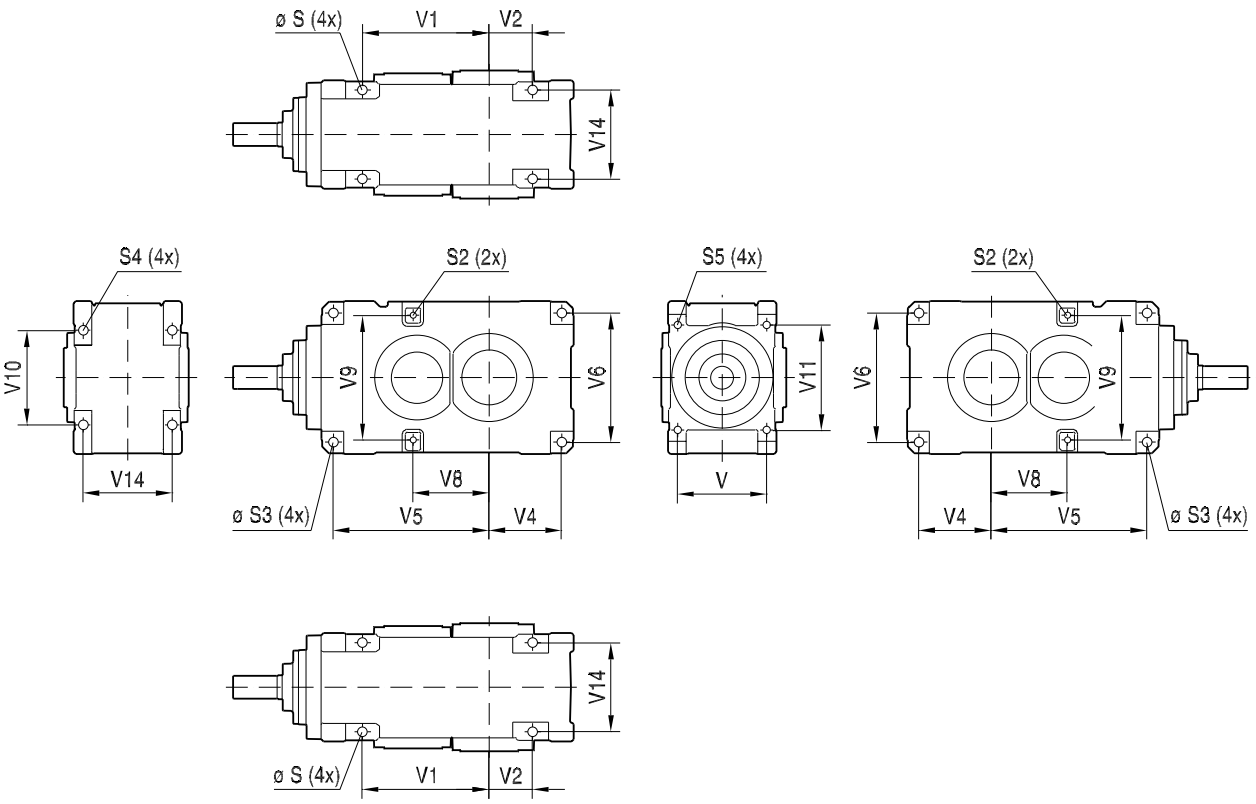
1) X3F
2) X3K

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Universal housing X2K100 – 250 /HU

HU

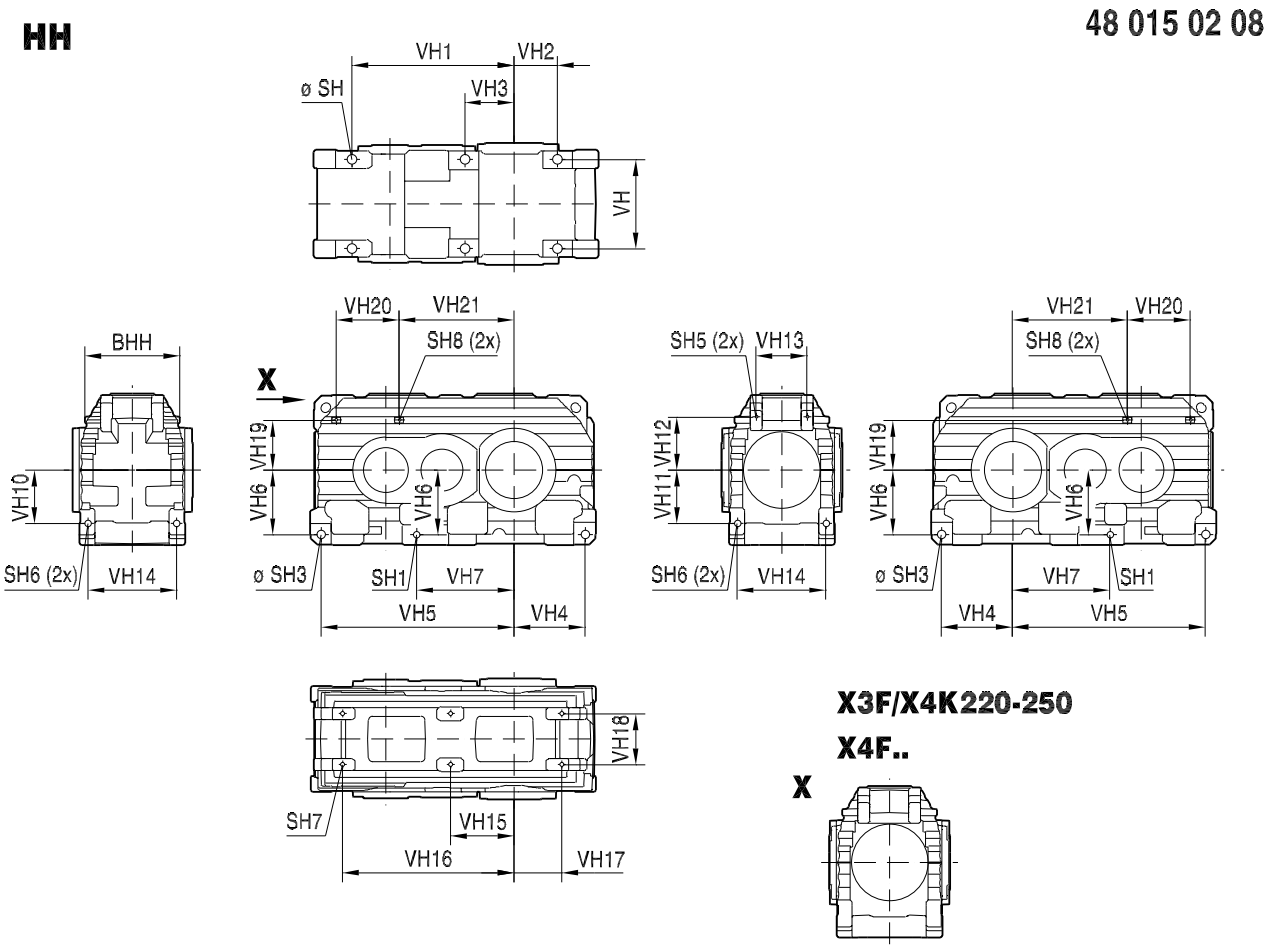
48 002 02 10



	Ø S (4x)	S2 (2x)	Ø S3 (4x)	S4 (4x)	S5 (4x)	V	V1	V2	V4	V5	V6	V8	V9	V10	V11	V14
X2K.100	24	M20	24	ø 24	M20	210	315	90	160	384	315	197	315	250	250	210
X2K.110	24	M20	24	ø 24	M20	210	335	115	185	404	315	217	315	250	250	210
X2K.120	28	M24	28	ø 28	M24	245	370	105	184	451	380	233	380	300	310	245
X2K.130	28	M24	28	ø 28	M24	245	405	140	219	487	380	269	380	300	310	245
X2K.140	35	M30	35	ø 35	M30	290	390	110	210	494	445	277	445	335	350	290
X2K.150	35	M20	35	ø 35	M30	290	435	155	255	536	445	250	430	335	350	290
X2K.160	42	M24	42	ø 42	M36	340	495	185	303	617	525	265	500	400	415	345
X2K.170	42	M24	42	ø 42	M36	340	545	185	303	668	525	265	500	400	415	345
X2K.180	42	M30	42	ø 42	M36	390	555	190	318	682	565	333	546	415	460	390
X2K.190	42	M30	42	ø 42	M36	390	585	190	318	714	565	333	546	415	460	390
X2K.200	48	M30	48	ø 48	M42	420	605	205	360	760	630	350	610	455	510	420
X2K.210	48	M30	48	ø 48	M42	420	640	205	360	795	630	350	610	455	510	420
X2K.220	48	M36	48	M42x63	M42	510	730	250	403	887	725	415	680	610	600	510
X2K.230	48	M36	48	M42x63	M42	510	770	250	403	927	725	415	680	610	600	510
X2K.240	56	M36	56	M48x72	M48	585	780	250	425	965	760	450	740	600	600	585
X2K.250	56	M36	56	M48x72	M48	585	805	250	425	988	760	450	740	600	600	585

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14.1.2 Horizontal housing X220 – 320 /HH



	VH	VH1	VH2	VH3	VH4	VH5	VH6	VH7	VH10	VH11	VH12	VH13	VH14	VH15	VH16	VH17	VH18
X220	440	910	250	440	-	1057	362.5	531	305	300	274	245	440	-	980	300	245
X230	440	950	250	440	-	1097	362.5	571	305	300	274	245	440	-	1080	300	-
X240	510	990	250	510	-	1155	380	625	300	300	280	314	510	-	1097	320	-
X250	510	1010	250	510	-	1178	380	648	300	300	280	314	510	-	1120	320	-
X260	590	1110	300	350	475	1285	430	683	355	355	355	340	590	422	1142	318	340
X270	590	1110	300	350	475	1320	430	718	355	355	355	340	590	457	1177	283	340
X280	590	1190	360	380	540	1372	485	569	355	355	355	340	590	435	1235	365	340
X290	655	1280	330	355	539	1486	497.5	558	382.5	415	415	360	655	495	1325	345	360
X300	655	1280	330	355	539	1515	497.5	587	382.5	415	415	360	655	525	1355	315	360
X310	720	1435	385	455	598	1647	547.5	621	430	430	430	400	720	400	1470	390	550
X320	720	1435	385	455	598	1681	547.5	655	430	430	430	400	720	400	1504	356	584

	VH19	VH20	VH21	Ø SH (6x)	SH1	Ø SH3	SH5 (2x)	SH6 (2x)	SH7	SH8 (2x)	BHH
X220	269	316	636	48	M42	48 (1x)	M16	M42	M24 (4x)	M16	488
X230	269	316	676	48	M42	48 (1x)	M16	M42	M24 (4x)	M16	488
X240	277	350	715	56	M48	56 (1x)	M16	M48	M30 (4x)	M16	568
X250	277	350	738	56	M48	56 (1x)	M16	M48	M30 (4x)	M16	568
X260	334	420	764	56	M48	56 (2x)	M20	M48	M30 (6x)	M20	632
X270	334	420	799	56	M48	56 (2x)	M20	M48	M30 (6x)	M20	632
X280	377	420	851	56	M48	56 (2x)	M20	M48	M30 (6x)	M20	632
X290	385	471	888	65	M48	65 (2x)	M24	M48	M36 (6x)	M24	700
X300	385	471	917	65	M48	65 (2x)	M24	M48	M36 (6x)	M24	700
X310	420	559	975	65	M48	65 (2x)	M24	M48	M36 (6x)	M24	756
X320	420	559	1009	65	M48	65 (2x)	M24	M48	M36 (6x)	M24	756

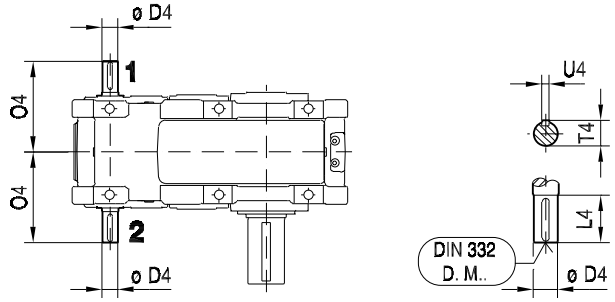
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14.2 Input shaft /HSST [mm]

14.2.1 X2F..

HSST

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X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X100**	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X110***	42_{k6}	110	274	45	12_{h9}	M16	32_{k6}	80	244	35	10_{h9}	M12
X120*	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X130***	55_{m6}	110	290	59	16_{h9}	M20	42_{k6}	110	290	45	12_{h9}	M16
X140*	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X150***	70_{m6}	140	348	74.5	20_{h9}	M20	55_{m6}	110	318	59	16_{h9}	M20
X160*	70_{m6}	140	382	74.5	20_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20
X170***	70_{m6}	140	382	74.5	20_{h9}	M20	70_{m6}	140	382	74.5	20_{h9}	M20

X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X190**	90_{m6}	170	445	95	25_{h9}	M24	75_{m6}	140	415	79.5	20_{h9}	M20
X200*	90_{m6}	170	464	95	25_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24
X210**	90_{m6}	170	464	95	25_{h9}	M24	90_{m6}	170	464	95	25_{h9}	M24

X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5**						i = 12.5 ... 18* / i = 14 ... 20**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	100_{m6}	210	538	106	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X230**	100_{m6}	210	538	106	28_{h9}	M24	100_{m6}	210	538	106	28_{h9}	M24
X240*	110_{m6}	210	583	116	28_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24
X250**	110_{m6}	210	583	116	28_{h9}	M24	110_{m6}	210	583	116	28_{h9}	M24

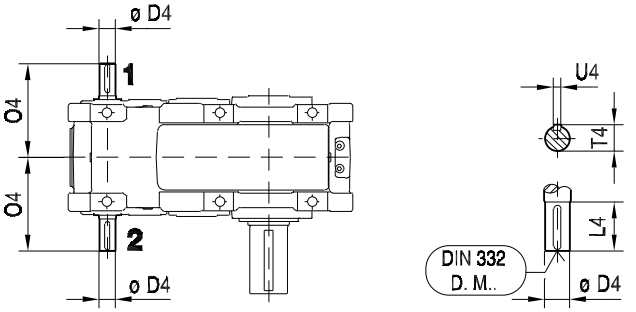
X2F..	i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14***						i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X270**	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X280***	130_{m6}	250	673	137	32_{h9}	M24	130_{m6}	250	673	137	32_{h9}	M24
X290*	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X300**	150_{m6}	250	713	158	36_{h9}	M30	150_{m6}	250	713	158	36_{h9}	M30
X310*	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30
X320**	170_{m6}	300	795	179	40_{h9}	M30	170_{m6}	300	795	179	40_{h9}	M30

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14.2.2 X3F..

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X3F..	i = 20 ... 56* / i = 22.4 ... 63** / i = 25 ... 71***						i = 63 ... 90* / i = 71 ... 100** / i = 80 ... 112***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X100**	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X110***	32_{k6}	80	244	35	10_{h9}	M12	32_{k6}	80	244	35	10_{h9}	M12
X120*	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X130***	38_{k6}	80	258	41	10_{h9}	M12	38_{k6}	80	258	41	10_{h9}	M12
X140*	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X150***	45_{k6}	110	318	48.5	14_{h9}	M16	45_{k6}	110	318	48.5	14_{h9}	M16
X160*	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16
X170***	60_{m6}	140	381	64	18_{h9}	M20	50_{k6}	110	351	53.5	14_{h9}	M16

X3F..	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	60_{m6}	140	411	64	18_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X190**	60_{m6}	140	411	64	18_{h9}	M20	55_{m6}	110	381	59	16_{h9}	M20
X200*	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20
X210**	75_{m6}	140	430	79.5	20_{h9}	M20	60_{m6}	140	430	64	18_{h9}	M20

X3F..	i = 20 ... 56* / i = 22.4 ... 63**						i = 63 ... 90* / i = 71 ... 100**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X230**	80_{m6}	170	487	85	22_{h9}	M20	70_{m6}	140	457	74.5	20_{h9}	M20
X240*	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20
X250**	90_{m6}	170	532	95	25_{h9}	M24	75_{m6}	140	502	79.5	20_{h9}	M20

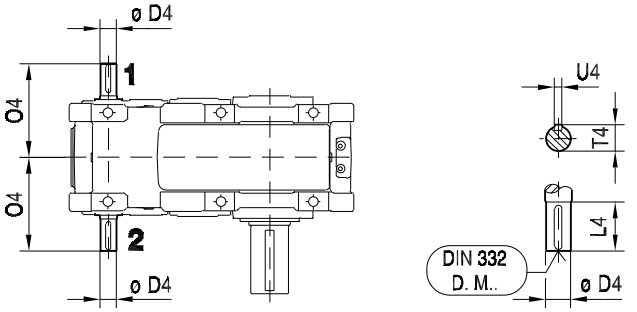
X3F..	i = 20 ... 50* / i = 22.4 ... 56** / i = 25 ... 63***						i = 56 ... 90* / i = 63 ... 100** / i = 71 ... 112***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X270**	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X280***	100_{m6}	210	613	106	28_{h9}	M24	80_{m6}	170	573	85	22_{h9}	M20
X290*	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X300**	100_{m6}	210	661	106	28_{h9}	M24	100_{m6}	210	661	106	28_{h9}	M24
X310*	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24
X320**	110_{m6}	210	694	116	28_{h9}	M24	110_{m6}	210	694	116	28_{h9}	M24

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14.2.3 X4F..

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X4F..	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X120*	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X130***	28_{k6}	60	238	31	8_{h9}	M10	28_{k6}	60	238	31	8_{h9}	M10
X140*	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X150***	32_{k6}	80	288	35	10_{h9}	M12	32_{k6}	80	288	35	10_{h9}	M12
X160*	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12
X170***	38_{k6}	80	320	41	10_{h9}	M12	38_{k6}	80	320	41	10_{h9}	M12

X4F..	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X180*	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X190**	50_{k6}	110	381	53.5	14_{h9}	M16	38_{k6}	80	351	41	10_{h9}	M12
X200*	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16
X210**	55_{m6}	110	400	59	16_{h9}	M20	42_{k6}	110	400	45	12_{h9}	M16

X4F..	i = 100 ... 180* / i = 112 ... 200**						i = 200 ... 355* / i = 224 ... 400**					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X240*	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20
X250**	70_{m6}	140	502	74.5	20_{h9}	M20	55_{m6}	110	472	59	16_{h9}	M20

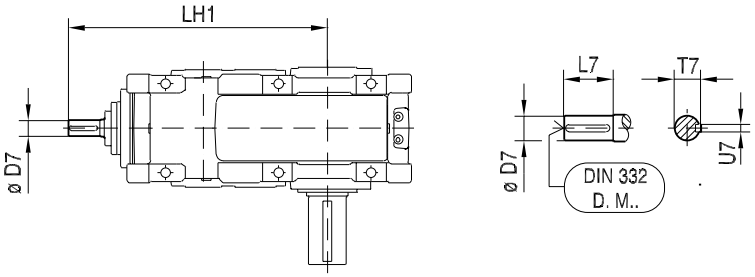
X4F..	i = 100 ... 180* / i = 112 ... 200** / i = 125 ... 224***						i = 200 ... 355* / i = 224 ... 400** / i = 250 ... 450***					
	Ø D4	L4	O4	T4	U4	DIN 332 D. M..	Ø D4	L4	O4	T4	U4	DIN 332 D. M..
X260*	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X270**	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X280***	75_{m6}	140	543	79.5	20_{h9}	M20	60_{m6}	140	543	64	18_{h9}	M20
X290*	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X300**	80_{m6}	170	614	85	22_{h9}	M20	80_{m6}	170	614	85	22_{h9}	M20
X310*	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24
X320**	90_{m6}	170	645	95	25_{h9}	M24	90_{m6}	170	645	95	25_{h9}	M24

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14.3 Optional input shaft ends X2K.. and X3K.. /HSS [mm]

HSS

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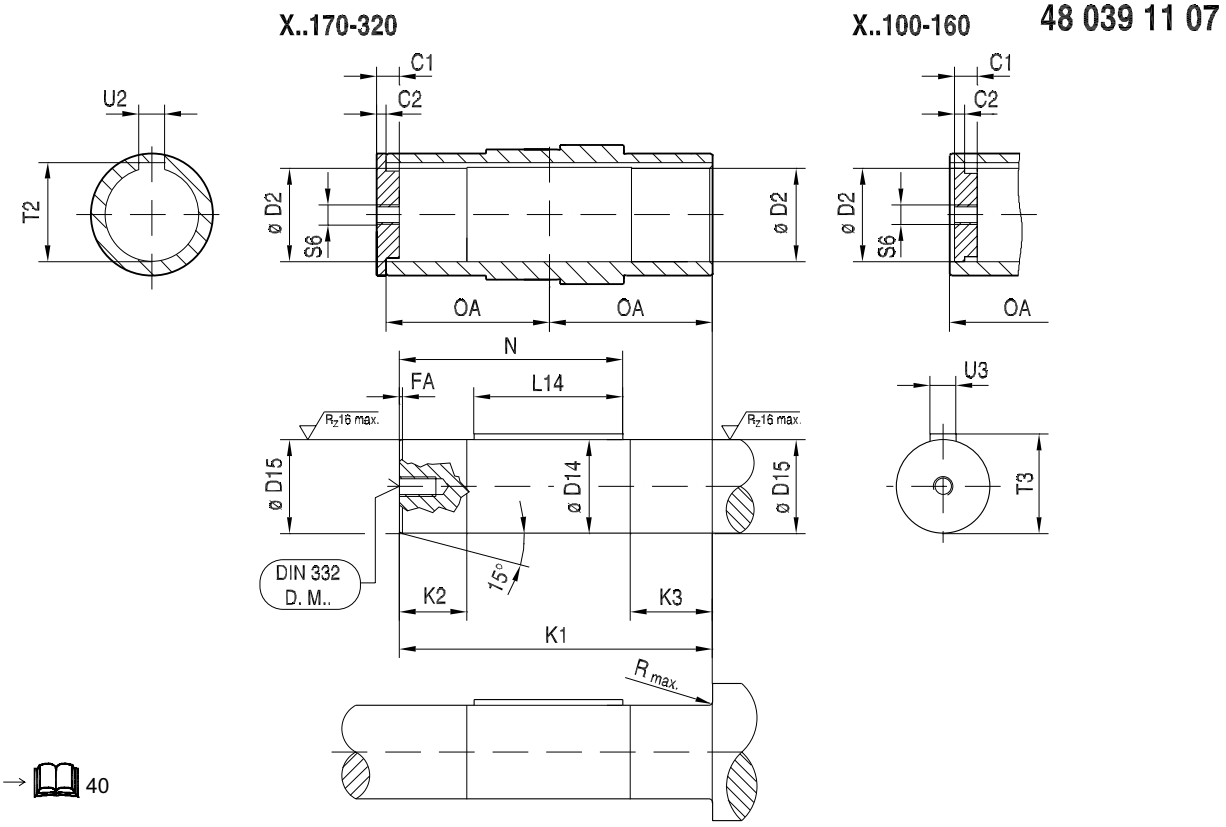


X2K..	Ø D7	L7	LH1	T7	U7	DIN 332 D.M..
X100	50_{k6}	140	685	53.5	14_{h9}	M16
X110	50_{k6}	140	705	53.5	14_{h9}	M16
X120	60_{m6}	180	792	64	18_{h9}	M20
X130	60_{m6}	180	828	64	18_{h9}	M20
X140	70_{m6}	200	876	74.5	20_{h9}	M20
X150	70_{m6}	200	918	74.5	20_{h9}	M20
X160	85_{m6}	210	1050	90	22_{h9}	M20
X170	85_{m6}	210	1101	90	22_{h9}	M20
X180	100_{m6}	250	1177	106	28_{h9}	M24
X190	100_{m6}	250	1209	106	28_{h9}	M24
X200	110_{m6}	300	1358	116	28_{h9}	M24
X210	110_{m6}	300	1394	116	28_{h9}	M24
X220	120_{m6}	320	1546	127	32_{h9}	M24
X230	120_{m6}	320	1586	127	32_{h9}	M24
X240	130_{m6}	340	1606	127	32_{h9}	M24
X250	130_{m6}	340	1729	127	32_{h9}	M24

X3K..	Ø D7	L7	LH1	T7	U7	DIN 332 D.M..
X100	32_{k6}	100	652	35	10_{h9}	M12
X110	32_{k6}	100	672	35	10_{h9}	M12
X120	38_{m6}	130	775	41	10_{h9}	M12
X130	38_{m6}	130	811	41	10_{h9}	M12
X140	50_{k6}	140	909	53.5	14_{h9}	M16
X150	50_{k6}	140	951	53.5	14_{h9}	M16
X160	60_{m6}	180	1076	64	18_{h9}	M20
X170	60_{m6}	180	1127	64	18_{h9}	M20
X180	70_{m6}	200	1195	74.5	20_{h9}	M20
X190	70_{m6}	200	1227	74.5	20_{h9}	M20
X200	80_{m6}	200	1316	85	22_{h9}	M20
X210	80_{m6}	200	1352	85	22_{h9}	M20
X220	85_{m6}	210	1470	90	22_{h9}	M20
X230	85_{m6}	210	1510	90	22_{h9}	M20
X240	100_{m6}	250	1637	106	28_{h9}	M24
X250	100_{m6}	250	1660	106	28_{h9}	M24
X260	110_{m6}	300	1857	116	28_{h9}	M24
X270	110_{m6}	300	1892	116	28_{h9}	M24
X280	110_{m6}	300	1944	116	28_{h9}	M24
X290	120_{m6}	320	2131	127	32_{h9}	M24
X300	120_{m6}	320	2160	127	32_{h9}	M24
X310	130_{m6}	340	2265	137	32_{h9}	M24
X320	130_{m6}	340	2299	137	32_{h9}	M24

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14.4 Hollow shaft with keyway /..A [mm]



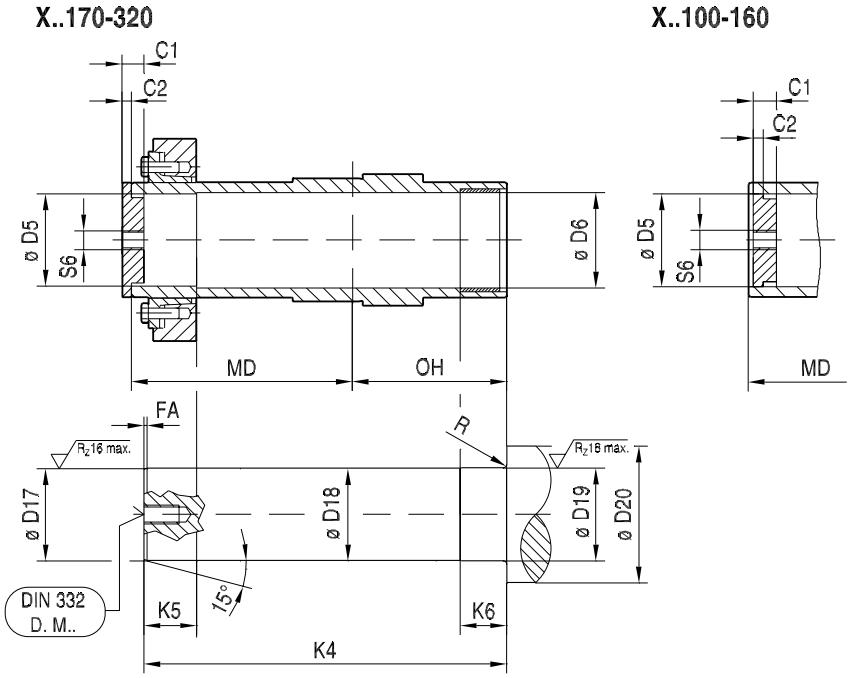
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	C1	C2	Ø D2	Ø D14	Ø D15	FA	K1	K2	K3	L14	N	OA	$R_{max.}$	S6	T2	T3	U2	U3	DIN 332 D.M..
X100	25	12	75^{H8}	75_{h11}	75_{js7}	2	312	47.5	81	120	220	173	1.6	M24	79.9	79.5	20^{JS9}	20_{h9}	M20
X110	30	14	85^{H8}	85_{h11}	85_{js7}	2	312.5	45	84	100	210	176	1.6	M30	90.4	90	22^{JS9}	22_{h9}	M20
X120	30	14	95^{H8}	95_{h11}	95_{js7}	2	342	53	92	140	244.5	190.5	1.6	M30	100.4	100	25^{JS9}	25_{h9}	M24
X130	30	14	105^{H8}	105_{h11}	105_{js7}	2	347	68	109	160	258	194	1.6	M30	111.4	111	28^{JS9}	28_{h9}	M24
X140	30	14	115^{H8}	115_{h11}	115_{js7}	2	403	61	102	200	306	222	1.6	M30	122.4	122	32^{JS9}	32_{h9}	M24
X150	30	14	125^{H8}	125_{h11}	125_{js7}	3	408	76	117	200	308.5	224.5	1.6	M30	132.4	132	32^{JS9}	32_{h9}	M24
X160	36	16	135^{H8}	135_{h11}	135_{js7}	3	465	80	127	250	361	256	1.6	M36	143.4	143	36^{JS9}	36_{h9}	M30
X170	36	17	150^{H8}	150_{h11}	150_{js7}	3	493	96	115	280	377	256	1.6	M36	158.4	158	36^{JS9}	36_{h9}	M30
X180	36	17	165^{H8}	165_{h11}	165_{js7}	3	565	109	128	300	423	292	2	M36	174.4	174	40^{JS9}	40_{h9}	M30
X190	36	17	165^{H8}	165_{h11}	165_{js7}	3	565	109	128	300	423	292	2	M36	174.4	174	40^{JS9}	40_{h9}	M30
X200	36	17	180^{H8}	180_{h11}	180_{js7}	3	620	130	149	320	460.5	319.5	2	M36	190.4	190	45^{JS9}	45_{h9}	M30
X210	36	17	190^{H8}	190_{h11}	190_{js7}	3	620	130	149	320	460.5	319.5	2	M36	200.4	200	45^{JS9}	45_{h9}	M30
X220	36	17	210^{H8}	210_{h11}	210_{js7}	3	686	133	152	370	518.5	352.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X2KA220	36	17	210^{H8}	210_{h11}	210_{js7}	3	756	133	152	370	554	387.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X230	36	17	210^{H8}	210_{h11}	210_{js7}	3	686	133	152	370	518.5	352.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X2KA230	36	17	210^{H8}	210_{h11}	210_{js7}	3	756	133	152	370	554	387.5	2.5	M36	221.4	221	50^{JS9}	50_{h9}	M30
X240	45	22	230^{H8}	230_{h11}	230_{js7}	3	778	147	170	370	562.5	400.5	2.5	M42	241.4	241	50^{JS9}	50_{h9}	M36
X2KA240	45	22	230^{H8}	230_{h11}	230_{js7}	3	853	147	170	370	600	438	2.5	M42	241.4	241	50^{JS9}	50_{h9}	M36
X250	45	22	240^{H8}	240_{h11}	240_{js7}	3	778	147	170	370	562.5	400.5	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X2KA250	45	22	240^{H8}	240_{h11}	240_{js7}	3	853	147	170	370	600	438	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X260	45	22	240^{H8}	240_{h11}	240_{js7}	3	851	143	166	450	639	437	2.5	M42	252.4	252	56^{JS9}	56_{h9}	M36
X270	45	22	275^{H8}	275_{h11}	275_{js7}	4	877	158	181	450	652	450	5	M42	287.4	287	63^{JS9}	63_{h9}	M36
X280	45	22	275^{H8}	275_{h11}	275_{js7}	4	877	158	181	500	677	450	5	M42	287.4	287	63^{JS9}	63_{h9}	M36
X290	45	22	290^{H8}	290_{h11}	290_{js7}	4	961	160	183	500	719	492	5	M42	302.4	302	63^{JS9}	63_{h9}	M36
X300	45	22	290^{H8}	290_{h11}	290_{js7}	4	961	160	183	500	719	492	5	M42	302.4	302	63^{JS9}	63_{h9}	M36
X310	55	28	320^{H8}	320_{h11}	320_{js7}	4	1030	170	197	560	781.5	528.5	5	M48	334.4	334	70^{JS9}	70_{h9}	M42
X320	55	28	320^{H8}	320_{h11}	320_{js7}	4	1030	170	197	560	781.5	528.5	5	M48	334.4	334	70^{JS9}	70_{h9}	M42

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14.5 Hollow shaft with shrink disk /..H [mm]

48 040 05 07

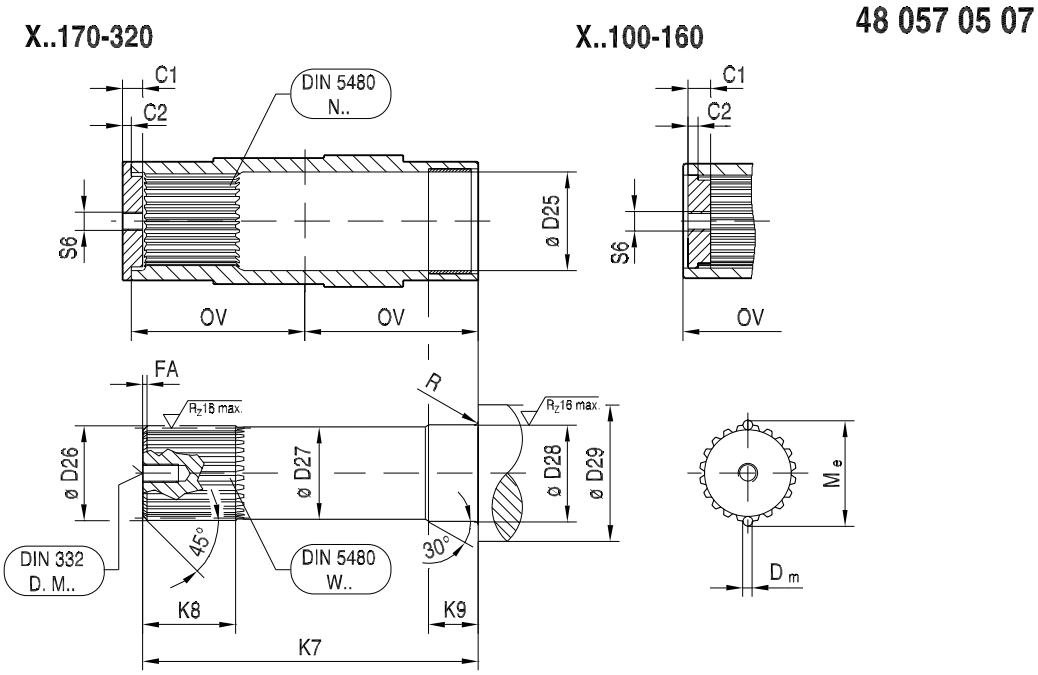


→ 41

	C1	C2	Ø D5	Ø D6	Ø D17	Ø D18	Ø D19	Ø D20	FA	K4	K5	K6	MD	OH	R	S6	DIN 332 D.M..
X100	30	14	80^{H7}	81^{H9}	80_{h6}	80_{h11}	81_{m6}	95	2	394.5_{-1}	46	42_{-1}	261	173	3	M30	M24
X110	30	14	90^{H7}	91^{H9}	90_{h6}	90_{h11}	91_{m6}	105	2	400.5_{-1}	46	42_{-1}	265	176	3	M30	M24
X120	30	14	100^{H7}	101^{H9}	100_{h6}	100_{h11}	101_{m6}	115	2	437_{-1}	51	52_{-1}	286.5	190.5	3	M30	M24
X130	30	14	110^{H7}	111^{H9}	110_{h6}	110_{h11}	111_{m6}	125	2	449_{-1}	55	52_{-1}	297	194	3	M30	M24
X140	30	14	120^{H7}	121^{H9}	120_{h6}	120_{h11}	121_{m6}	135	2	509_{-1}	59	62_{-1}	329	222	3	M30	M24
X150	30	14	130^{H7}	131^{H9}	130_{h6}	130_{h11}	131_{m6}	145	3	520_{-1}	66	62_{-1}	337.5	224.5	3	M30	M24
X160	36	16	140^{H7}	141^{H9}	140_{h6}	140_{h11}	141_{m6}	155	3	583_{-1}	66	73_{-1}	375	256	4	M36	M30
X170	36	17	150^{H7}	151^{H9}	150_{h6}	150_{h11}	151_{m6}	165	3	600_{-1}	83	73_{-1}	364	256	4	M36	M30
X180	36	17	165^{H7}	166^{H9}	165_{g6}	165_{h11}	166_{m6}	180	3	672_{-1}	83	83_{-1}	400	292	4	M36	M30
X190	36	17	165^{H7}	166^{H9}	165_{g6}	165_{h11}	166_{m6}	180	3	672_{-1}	83	83_{-1}	400	292	4	M36	M30
X200	36	17	180^{H7}	181^{H9}	180_{g6}	180_{h11}	181_{m6}	195	3	750_{-1}	101	83_{-1}	450.5	319.5	4	M36	M30
X210	36	17	190^{H7}	191^{H9}	190_{g6}	190_{h11}	191_{m6}	205	3	753_{-1}	106	83_{-1}	453.5	319.5	4	M36	M30
X220	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	830_{-1}	118	108_{-1}	497.5	352.5	5	M36	M30
X2KH220	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	900_{-1}	118	108_{-1}	532.5	387.5	5	M36	M30
X230	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	830_{-1}	118	108_{-1}	497.5	352.5	5	M36	M30
X2KH230	36	17	210^{H7}	211^{H9}	210_{g6}	210_{h11}	211_{m6}	230	3	900_{-1}	118	108_{-1}	532.5	387.5	5	M36	M30
X240	45	22	230^{H7}	231^{H9}	230_{g6}	230_{h11}	231_{m6}	250	3	948_{-1}	140	108_{-1}	571.5	400.5	5	M42	M36
X2KH240	45	22	230^{H7}	231^{H9}	230_{g6}	230_{h11}	231_{m6}	250	3	1023_{-1}	140	108_{-1}	609	438	5	M42	M36
X250	45	22	240^{H7}	241^{H9}	240_{g6}	240_{h11}	241_{m6}	260	3	948_{-1}	140	108_{-1}	571.5	400.5	5	M42	M36
X2KH250	45	22	240^{H7}	241^{H9}	240_{g6}	240_{h11}	241_{m6}	260	3	1023_{-1}	140	108_{-1}	609	438	5	M42	M36
X260	45	22	250^{H7}	255^{H9}	250_{g6}	250_{h11}	255_{m6}	280	4	1021_{-1}	140	108_{-1}	608	437	5	M42	M36
X270	45	22	280^{H7}	285^{H9}	280_{g6}	280_{h11}	285_{m6}	310	4	1056_{-1}	146	143_{-1}	630	450	5	M42	M36
X280	45	22	280^{H7}	285^{H9}	280_{g6}	280_{h11}	285_{m6}	310	4	1056_{-1}	146	143_{-1}	630	450	5	M42	M36
X290	45	22	300^{H7}	305^{H9}	300_{g6}	300_{h11}	305_{m6}	330	4	1147_{-1}	152	143_{-1}	679	492	5	M42	M36
X300	45	22	300^{H7}	305^{H9}	300_{g6}	300_{h11}	305_{m6}	330	4	1147_{-1}	152	143_{-1}	679	492	5	M42	M36
X310	55	28	320^{H7}	325^{H9}	320_{g6}	320_{h11}	325_{m6}	350	4	1241_{-1}	165	143_{-1}	740.5	528.5	5	M48	M42
X320	55	28	320^{H7}	325^{H9}	320_{g6}	320_{h11}	325_{m6}	350	4	1241_{-1}	165	143_{-1}	740.5	528.5	5	M48	M42

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14.6 Splined hollow shaft /..V [mm]



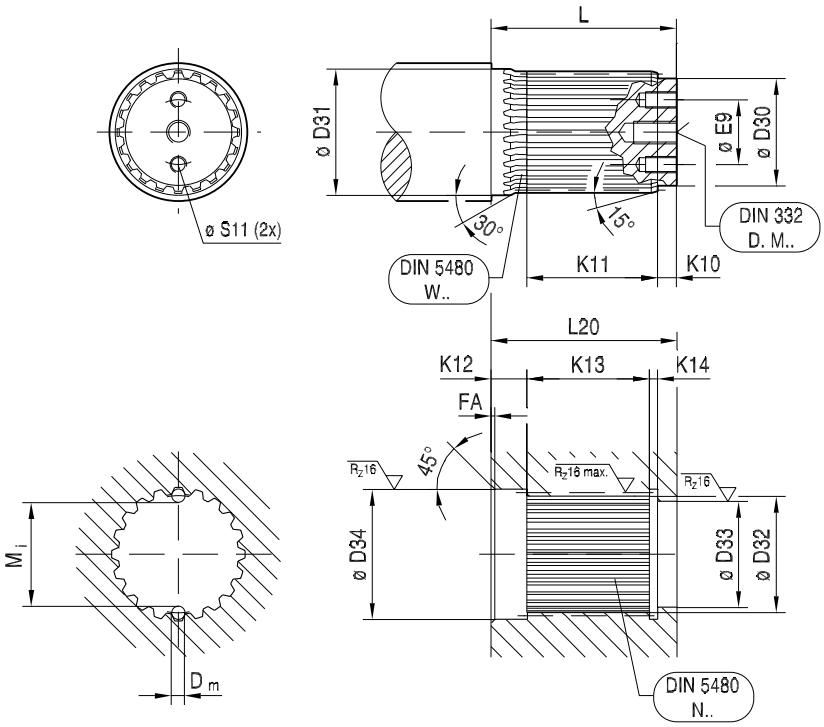
	Ø D25	Ø D26	Ø D27	Ø D28	Ø D29	FA	K7	K8	K9
X100	81^{H9}	74.4_{h10}	73	81_{m6}	95	3	306_{-1}	81	42_{-1}
X110	91^{H9}	84.4_{h10}	83	91_{m6}	105	3	311.5_{-1}	81	42_{-1}
X120	101^{H9}	94.4_{h10}	93	101_{m6}	115	3	341_{-1}	91	52_{-1}
X130	111^{H9}	109.4_{h10}	108	111_{m6}	125	3	346_{-1}	86	52_{-1}
X140	121^{H9}	119.4_{h10}	118	121_{m6}	135	3	402_{-1}	101	62_{-1}
X150	131^{H9}	129.4_{h10}	128	131_{m6}	145	3	407_{-1}	101	62_{-1}
X160	141^{H9}	139.4_{h10}	138	141_{m6}	155	3	464_{-1}	111	73_{-1}
X170	151^{H9}	149.4_{h10}	148	151_{m6}	165	3	492_{-1}	121	73_{-1}
X180	166^{H9}	159_{h10}	158	166_{m6}	180	5	564_{-1}	166	83_{-1}
X190	166^{H9}	159_{h10}	158	166_{m6}	180	5	564_{-1}	166	83_{-1}
X200	191^{H9}	179_{h10}	178	191_{m6}	205	5	619_{-1}	176	83_{-1}
X210	191^{H9}	179_{h10}	178	191_{m6}	205	5	619_{-1}	176	83_{-1}
X220	211^{H9}	199_{h10}	198	211_{m6}	230	5	685_{-1}	201	108_{-1}
X2KV220	211^{H9}	199_{h10}	198	211_{m6}	230	5	755_{-1}	201	108_{-1}
X230	211^{H9}	199_{h10}	198	211_{m6}	230	5	685_{-1}	201	108_{-1}
X2KV230	211^{H9}	199_{h10}	198	211_{m6}	230	5	755_{-1}	201	108_{-1}
X240	231^{H9}	219_{h10}	218	231_{m6}	250	5	777_{-1}	216	108_{-1}
X2KV240	231^{H9}	219_{h10}	218	231_{m6}	250	5	852_{-1}	216	108_{-1}
X250	241^{H9}	219_{h10}	218	241_{m6}	260	5	777_{-1}	216	108_{-1}
X2KV250	241^{H9}	219_{h10}	218	241_{m6}	260	5	852_{-1}	216	108_{-1}
X260	255^{H9}	239_{h10}	238	255_{m6}	275	5	850_{-1}	216	108_{-1}
X270	285^{H9}	258.4_{h10}	258	285_{m6}	305	8	876_{-1}	248	143_{-1}
X280	285^{H9}	258.4_{h10}	258	285_{m6}	305	8	876_{-1}	248	143_{-1}
X290	305^{H9}	278.4_{h10}	278	305_{m6}	325	8	960_{-1}	268	143_{-1}
X300	305^{H9}	278.4_{h10}	278	305_{m6}	325	8	960_{-1}	268	143_{-1}
X310	325^{H9}	298.4_{h10}	298	325_{m6}	345	8	1029_{-1}	318	143_{-1}
X320	325^{H9}	298.4_{h10}	298	325_{m6}	345	8	1029_{-1}	318	143_{-1}

	Dm	M e	OV	R	C1	C2	S6	DIN 332 D.M..	DIN 5480
X100	6	$81.326^{-0.069}_{-0.125}$	173	3	30	14	M30	M24	W 75x3x30x24x8f N 75x3x30x24x9H
X110	6	$91.092^{-0.068}_{-0.123}$	176	3	30	14	M30	M24	W 85x3x30x27x8f N 85x3x30x27x9H
X120	6	$101.141^{-0.068}_{-0.122}$	190.5	3	30	14	M30	M24	W 95x3x30x30x8f N 95x3x30x30x9H
X130	6	$116.076^{-0.078}_{-0.139}$	194	3	30	14	M30	M24	W 110x3x30x35x8f N 110x3x30x35x9H
X140	6	$126.095^{-0.078}_{-0.138}$	222	3	30	14	M30	M24	W 120x3x30x38x8f N 120x3x30x38x9H
X150	6	$136.329^{-0.081}_{-0.144}$	224.5	3	30	14	M30	M24	W 130x3x30x42x8f N 130x3x30x42x9H
X160	6	$146.167^{-0.080}_{-0.143}$	256	4	36	16	M36	M30	W 140x3x30x45x8f N 140x3x30x45x9H
X170	6	$156.172^{-0.079}_{-0.141}$	256	4	36	17	M36	M30	W 150x3x30x48x8f N 150x3x30x48x9H
X180	10	$170.009^{-0.086}_{-0.152}$	292	4	36	17	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X190	10	$170.009^{-0.086}_{-0.152}$	292	4	36	17	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X200	10	$190.090^{-0.087}_{-0.155}$	319.5	4	36	17	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X210	10	$190.090^{-0.087}_{-0.155}$	319.5	4	36	17	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X220	10	$210.158^{-0.088}_{-0.157}$	352.5	5	36	17	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV220	10	$210.158^{-0.088}_{-0.157}$	387.5	5	36	17	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X230	10	$210.158^{-0.088}_{-0.157}$	352.5	5	36	17	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV230	10	$210.158^{-0.088}_{-0.157}$	387.5	5	36	17	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X240	10	$230.215^{-0.102}_{-0.179}$	400.5	5	45	22	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV240	10	$230.215^{-0.102}_{-0.179}$	438	5	45	22	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X250	10	$230.215^{-0.102}_{-0.179}$	400.5	5	45	22	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV250	10	$230.215^{-0.102}_{-0.179}$	438	5	45	22	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X260	10	$250.264^{-0.102}_{-0.180}$	437	5	45	22	M42	M36	W 240x5x30x46x8f N 240x5x30x46x9H
X270	16	$276.230^{-0.101}_{-0.177}$	450	5	45	22	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X280	16	$276.230^{-0.101}_{-0.177}$	450	5	45	22	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X290	16	$297.014^{-0.105}_{-0.184}$	492	5	45	22	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X300	16	$297.014^{-0.105}_{-0.184}$	492	5	45	22	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X310	16	$316.655^{-0.102}_{-0.180}$	528.5	5	55	28	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H
X320	16	$316.655^{-0.102}_{-0.180}$	528.5	5	55	28	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H

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14.7 Splined solid shaft /..L [mm]

48 084 05 07



	Ø D30	Ø D31	Ø D32	Ø D33	Ø D34	Ø E9	FA	K10	K11	K12	K13	K14
X100	60_{k6}	80_{k6}	69^{H10}	60^{H7}	80^{H7}	-	2	12	71	28	65	10
X110	70_{k6}	90_{k6}	79^{H10}	70^{H7}	90^{H7}	-	2	12	71	28	65	10
X120	85_{k6}	105_{k6}	94^{H10}	85^{H7}	105^{H7}	-	2	15	76	31	70	10
X130	95_{k6}	115_{k6}	104^{H10}	95^{H7}	115^{H7}	-	2	15	81	31	75	10
X140	100_{k6}	125_{k6}	110^{H10}	100^{H7}	125^{H7}	-	2	20	103	38	95	12
X150	110_{k6}	135_{k6}	120^{H10}	110^{H7}	135^{H7}	-	2	20	108	38	100	12
X160	120^{k6}	145_{k6}	130^{H10}	120^{H7}	145^{H7}	-	2	25	118	43	110	12
X170	130_{k6}	155_{k6}	140^{H10}	130^{H7}	155^{H7}	-	2	25	128	43	120	12
X180	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	80	3	25	163	48	155	12
X190	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	80	3	25	163	48	155	12
X200	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	95	3	25	173	48	165	12
X210	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	95	3	25	173	48	165	12
X220	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	125	3	30	163	53	155	12
X230	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	125	3	30	163	53	155	12
X240	225_{k6}	255_{k6}	240^{H10}	225^{H7}	25^{H7}	140	3	35	168	58	160	12
X250	225_{k6}	255_{k6}	240^{H10}	225^{H7}	255^{H7}	140	3	35	168	58	160	12
X260	230_{k6}	265_{k6}	244^{H10}	230^{H7}	265^{H7}	160	3	35	193	64	183	12
X270	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	160	3	35	203	64	193	12
X280	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	160	3	35	203	64	193	12
X290	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	190	3	40	233	69	223	12
X300	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	190	3	40	233	69	223	12
X310	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	220	3	40	243	69	233	12
X320	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	220	3	40	243	69	233	12

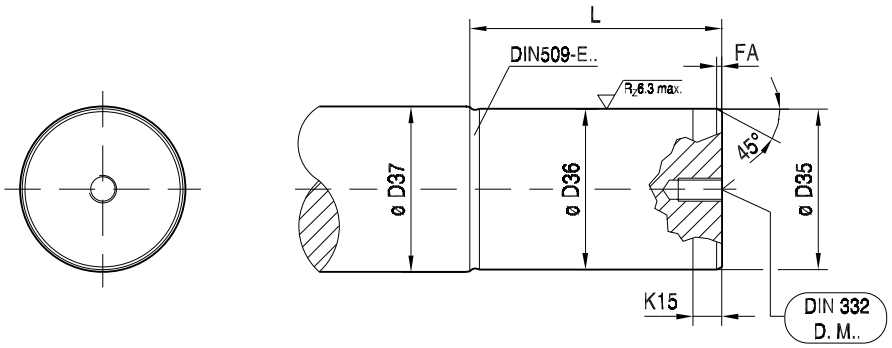
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	L	L20	Dm	M i	Ø S11 (2x)	DIN 332 D.M..	DIN 5480
X100	110	111^{+1}	5.25	$63.932^{0.160}_{0.060}$	-	M20	W 75x3x30x24x8m N 75x3x30x24x9H
X110	110	111^{+1}	5.25	$73.922^{0.148}_{0.056}$	-	M20	W 85x3x30x27x8m N 85x3x30x27x9H
X120	121	122^{+1}	5.25	$89.066^{0.146}_{0.055}$	-	M20	W 100x3x30x32x8m N 100x3x30x32x9H
X130	126	127^{+1}	5.25	$99.001^{0.158}_{0.060}$	-	M24	W 110x3x30x35x8m N 110x3x30x35x9H
X140	160	161^{+1}	9	$101.103^{0.173}_{0.064}$	-	M24	W 120x5x30x22x8m N 120x5x30x22x9H
X150	165	166^{+1}	9	$111.103^{0.173}_{0.064}$	-	M24	W 130x5x30x24x8m N 130x5x30x24x9H
X160	185	186^{+1}	9	$121.003^{0.173}_{0.064}$	-	M24	W 140x5x30x26x8m N 140x5x30x26x9H
X170	195	196^{+1}	9	$131.103^{0.173}_{0.064}$	-	M24	W 150x5x30x28x8m N 150x5x30x28x9H
X180	230	231^{+1}	9	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X190	230	231^{+1}	9	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X200	240	241^{+1}	9	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X210	240	241^{+1}	9	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X220	240	241^{+1}	9	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X230	240	241^{+1}	9	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X240	255	256^{+1}	9	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X250	255	256^{+1}	9	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X260	283	284^{+1}	14	$230.592^{0.202}_{0.074}$	M30x36	M36	W 260x8x30x31x8m N 260x8x30x31x9H
X270	293	294^{+1}	14	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X280	293	294^{+1}	14	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X290	333	334^{+1}	14	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X300	333	334^{+1}	14	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X310	343	344^{+1}	14	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H
X320	343	344^{+1}	14	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H

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14.8 Solid shaft, smooth design /..R [mm]

48 016 02 08



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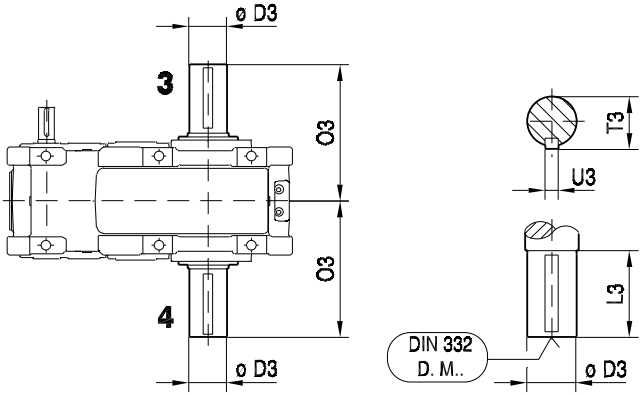
	Ø D35	Ø D36	Ø D37	FA	K15	L	DIN 332 D.M..	DIN 509
X100	85_{h9}	85_{v6}	90	2	9	131	M20	E2.5x0.4
X110	85_{h9}	85_{v6}	100	2	9	131	M20	E2.5x0.4
X120	115_{h9}	115_{v6}	120	2	9	165	M24	E2.5x0.4
X130	115_{h9}	115_{v6}	130	2	9	165	M24	E2.5x0.4
X140	135_{h9}	135_{v6}	140	3	11	202	M30	E2.5x0.4
X150	135_{h9}	135_{v6}	160	3	11	202	M30	E2.5x0.4
X160	165_{h9}	165_{v6}	170	3	11	222	M30	E2.5x0.4
X170	165_{h9}	165_{v6}	170	3	11	222	M30	E2.5x0.4
X180	175_{h9}	175_{v6}	180	3	14	253	M30	E2.5x0.4
X190	175_{h9}	175_{v6}	180	3	14	253	M30	E2.5x0.4
X200	195_{h9}	195_{v6}	200	3	14	283	M30	E2.5x0.4
X210	195_{h9}	195_{v6}	200	3	14	283	M30	E2.5x0.4
X220	235_{h9}	235_{v6}	240	3	14	298	M36	E2.5x0.4
X230	235_{h9}	235_{v6}	240	3	14	298	M36	E2.5x0.4
X240	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X250	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X260	275_{h9}	275_{v6}	280	4	14	318	M36	E2.5x0.4
X270	295_{h9}	295_{v6}	300	4	19	343	M36	E2.5x0.4
X280	295_{h9}	295_{v6}	300	4	19	343	M36	E2.5x0.4
X290	315_{h9}	315_{v6}	320	4	19	373	M36	E2.5x0.4
X300	315_{h9}	315_{v6}	320	4	19	373	M36	E2.5x0.4
X310	355_{h9}	355_{v6}	360	4	19	413	M42	E2.5x0.4
X320	355_{h9}	355_{v6}	360	4	19	413	M42	E2.5x0.4

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14.9 Output shaft /LSST [mm]

LSST

48 060 01 09



→ 38

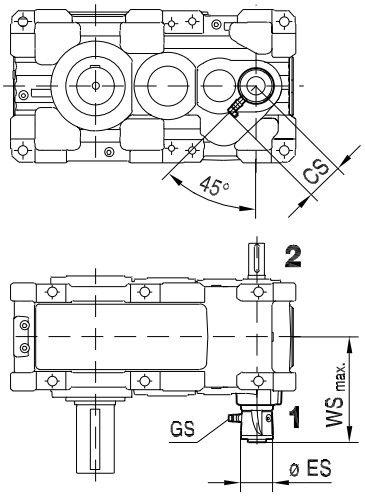
	Ø D3	L3	O3	T3	U3	DIN 332 D.M..
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	148	36_{h9}	M30
X170	160_{m6}	300	556	169	40_{h9}	M30
X180	170_{m6}	300	592	179	40_{h9}	M30
X190	170_{m6}	300	592	179	40_{h9}	M30
X200	180_{m6}	300	612	190	45_{h9}	M30
X210	190_{m6}	350	662	200	45_{h9}	M30
X220	210_{m6}	350	703	221	50_{h9}	M30
X2KS220	210_{m6}	350	738	221	50_{h9}	M30
X230	230_{m6}	410	763	241	50_{h9}	M36
X2KS230	230_{m6}	410	798	241	50_{h9}	M36
X240	230_{m6}	410	811	241	50_{h9}	M36
X2KS240	230_{m6}	410	848	241	50_{h9}	M36
X250	240_{m6}	410	811	252	56_{h9}	M36
X2KS250	240_{m6}	410	848	252	56_{h9}	M36
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

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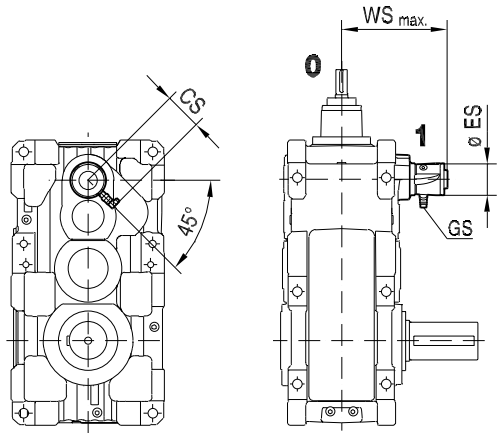
14.10 Shaft end pump /SEP [mm]

SEP
M1

48 017 00 18

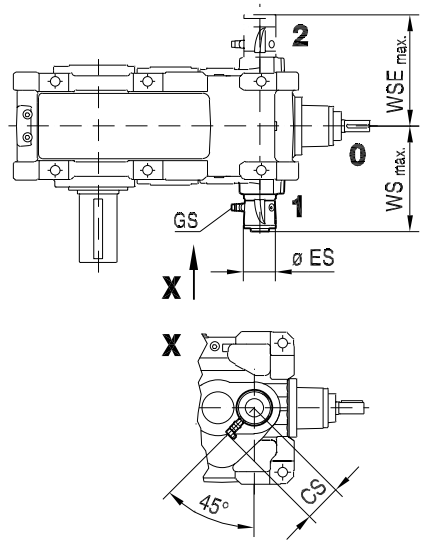


M4



→ 119

M5/M6



	CS	GS	$WS_{max.}$	Ø ES
X160	163	G3/4"	442.5	140
X170	163	G3/4"	442.5	140
X180	163	G3/4"	468	140
X190	163	G3/4"	468	140
X200	163	G3/4"	503.5	140
X210	163	G3/4"	503.5	140
X220	163	G3/4"	538.5	140
X230	163	G3/4"	538.5	140
X240	163	G3/4"	583.5	140
X250	163	G3/4"	583.5	140
X260	163	G3/4"	598.5	140
X270	163	G3/4"	598.5	140
X280	163	G3/4"	598.5	140
X290	163	G3/4"	639.5	140
X300	163	G3/4"	639.5	140
X310	163	G3/4"	672	140
X320	163	G3/4"	672	140

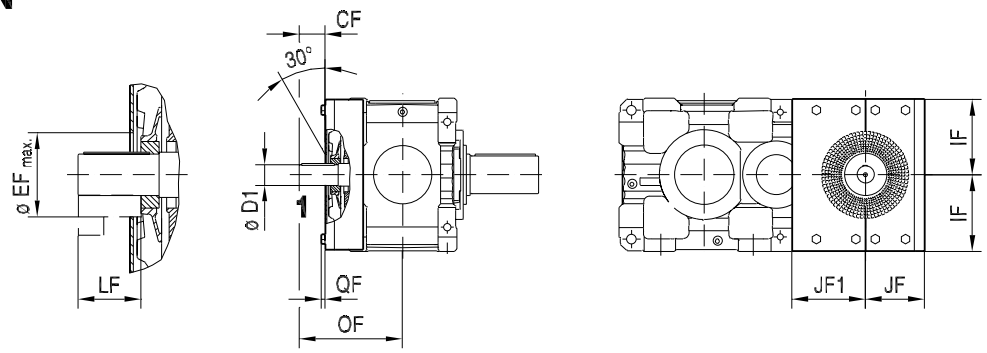
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14.11 Fan X..P /FAN [mm]

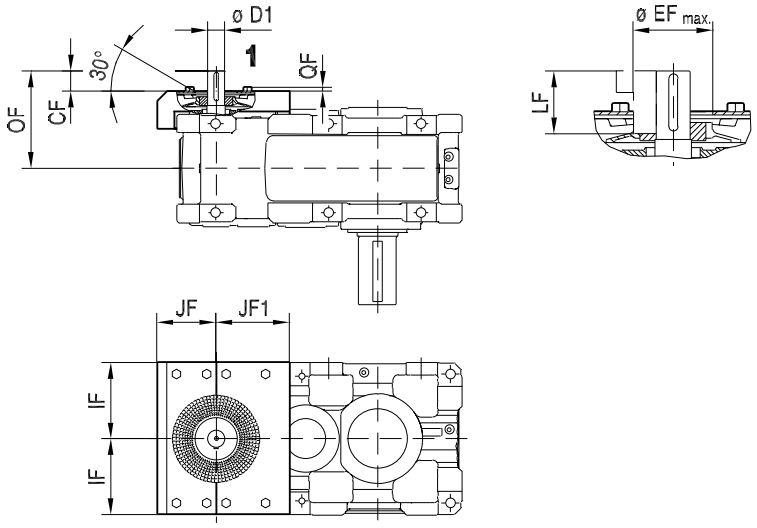
X..F /FAN

48 009 00 18

M1



M5



→ 122

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/FAN						i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***				i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	**Ø EF_{max}**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X100**	110	185	215	155	8.5	61	42_{k6}	80	274	31	32_{k6}	50	244
X110***	110	185	215	155	8.5	61	42_{k6}	80	274	31	32_{k6}	50	244
X120*	130	220	247	186	12.5	56	55_{m6}	75	290	56	42_{k6}	75	290
X130***	130	220	247	186	12.5	56	55_{m6}	75	290	56	42_{k6}	75	290
X140*	150	253	290	231.5	12.5	81	70_{m6}	100	348	51	55_{m6}	70	318
X150***	150	253	290	231.5	12.5	81	70_{m6}	100	348	51	55_{m6}	70	318
X160*	170	310	340	262.5	12.5	106	80_{m6}	125	412	76	70_{m6}	95	382
X170***	170	310	340	262.5	12.5	106	80_{m6}	125	412	76	70_{m6}	95	382
X180*	215	327.5	400	310	14.5	96	90_{m6}	120	445	66	75_{m6}	90	415
X190**	215	327.5	400	310	14.5	96	90_{m6}	120	445	66	75_{m6}	90	415
X200*	215	367.5	445	310	14.5	136	100_{m6}	160	504	96	90_{m6}	120	464
X210**	215	367.5	445	310	14.5	136	100_{m6}	160	504	96	90_{m6}	120	464
X220*	245	420	500	355	17.5	131	110_{m6}	155	538	131	100_{m6}	155	538
X230**	245	420	500	355	17.5	131	110_{m6}	155	538	131	100_{m6}	155	538
X240*	270	445	530	405	17.5	126	120_{m6}	150	583	126	110_{m6}	150	583
X250**	270	445	530	405	17.5	126	120_{m6}	150	583	126	110_{m6}	150	583
X260*	305	495	585	412	15.5	160	130_{m6}	185	673	120	120_{m6}	145	633
X270**	305	495	585	412	15.5	160	130_{m6}	185	673	120	120_{m6}	145	633
X280***	305	550	585	432	15.5	160	130_{m6}	185	673	120	120_{m6}	145	633
X290*	340	575	670	482	15.5	160	150_{m6}	185	713	160	150_{m6}	185	713
X300**	340	575	670	482	15.5	160	150_{m6}	185	713	160	150_{m6}	185	713
X310*	340	625	725	535	15.5	210	170_{m6}	235	795	210	170_{m6}	235	795
X320**	340	625	725	535	15.5	210	170_{m6}	235	795	210	170_{m6}	235	795

/FAN						i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***				i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X100**	85	185	160	190	8.5	31	32k6	55	244	31	32_{k6}	55	244
X110***	85	185	160	190	8.5	31	32_{k6}	55	244	31	32_{k6}	55	244
X120*	95	220	185	225	12.5	24	38_{k6}	50	258	24	38_{k6}	50	258
X130***	95	220	185	225	12.5	24	38_{k6}	50	258	24	38_{k6}	50	258
X140*	110	255	213	260	12.5	51	45_{k6}	75	318	51	45_{k6}	75	318
X150***	110	255	213	260	12.5	51	45_{k6}	75	318	51	45_{k6}	75	318
X160*	150	310	235	305	12.5	75	60_{m6}	100	381	45	50_{k6}	70	351
X170***	150	310	235	305	12.5	75	60_{m6}	100	381	45	50_{k6}	70	351
X180*	190	327.5	260	325	14.5	71	70_{m6}	95	411	41	55_{m6}	65	381
X190**	190	327.5	260	325	14.5	71	70_{m6}	95	411	41	55_{m6}	65	381
X200*	215	367.5	305	362	14.5	66	75_{m6}	90	430	66	60_{m6}	90	430
X210**	215	367.5	305	362	14.5	66	75_{m6}	90	430	66	60_{m6}	90	430
X220*	245	420	311	409	17.5	96	80_{m6}	120	487	66	70_{m6}	90	457
X230**	245	420	311	409	17.5	96	80_{m6}	120	487	66	70_{m6}	90	457
X240*	245	445	350	433	17.5	89	90_{m6}	115	532	59	75_{m6}	85	502
X250**	245	445	350	433	17.5	89	90_{m6}	115	532	59	75_{m6}	85	502

/FAN						i = 20 ... 50* i = 22.4 ... 56** i = 25 ... 63***				i = 56 ... 90* i = 63 ... 100** i = 71 ... 112***			
X3F..	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**QF**	**CF**	**Ø D1**	**LF**	**OF**	**CF**	**Ø D1**	**LF**	**OF**
X260*	245	495	400	490	15.5	125	100_{m6}	150	613	85	80_{m6}	110	573
X270**	245	495	400	490	15.5	125	100_{m6}	150	613	85	80_{m6}	110	573
X280***	245	550	400	690	15.5	125	100_{m6}	150	613	85	80_{m6}	110	573
X290*	270	575	413	785	15.5	120	100_{m6}	145	661	120	100_{m6}	145	661
X300**	270	575	413	785	15.5	120	100_{m6}	145	661	120	100_{m6}	145	661
X310*	305	625	412	878	15.5	120	110_{m6}	145	694	120	110_{m6}	145	694
X320**	305	625	412	878	15.5	120	110_{m6}	145	694	120	110_{m6}	145	694

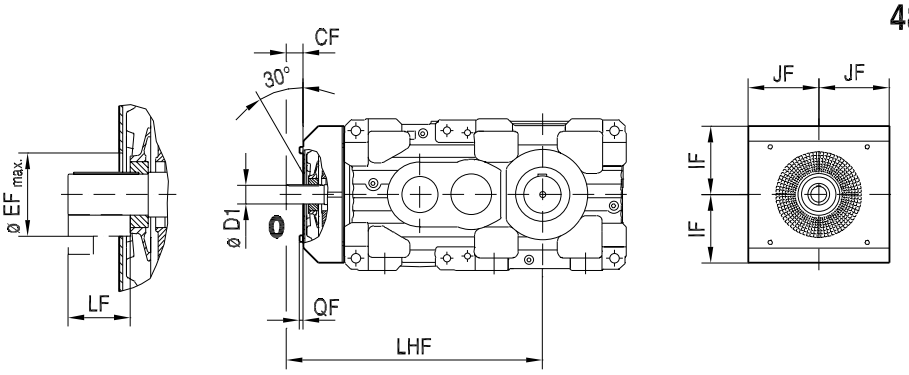
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14.12 Fan X..K /FAN [mm]

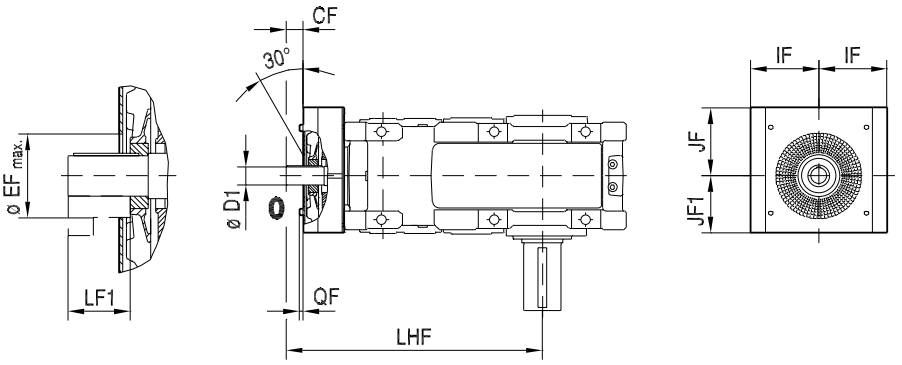
X..K /FAN

48 010 00 18

M1



M5



→ 122

	/FAN									
X2K..	**CF**	**Ø D1**	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**LF**	**LF1**	**LHF**	**QF**
X100	61	50_{k6}	110	185	165	130	80	85	655	11
X110	61	50_{k6}	110	185	165	130	80	85	675	11
X120	86	60_{m6}	130	220	200	150	105	110	752	11
X130	86	60_{m6}	130	220	200	150	105	110	788	11
X140	81	70_{m6}	150	260	233	180	100	105	816	11
X150	81	70_{m6}	150	260	233	180	100	105	858	11
X160	106	85_{m6}	170	310	270	213	125	130	1010	11
X170	106	85_{m6}	170	310	270	213	125	130	1061	11
X180	141	100_{m6}	190	330	303	238	160	160	1137	11
X190	141	100_{m6}	190	330	303	238	160	160	1169	11
X200	136	110_{m6}	215	370	338	258	155	155	1268	11
X210	136	110_{m6}	215	370	338	258	155	155	1304	11
X220	131	120_{m6}	245	420	385	305	150	150	1436	16
X230	131	120_{m6}	245	420	385	305	150	150	1476	16
X240	126	130_{m6}	270	445	435	350	145	150	1476	16
X250	126	130_{m6}	270	445	435	350	145	150	1499	16

	/FAN										
X3K..	**CF**	**Ø D1**	**Ø $EF_{max.}$**	**IF**	**JF**	**JF1**	**LF**	**LF1**	**LHF**	**QF**	**i**
X100	31	32_{k6}	105	185	165	130	50	55	632	11	–
X110	31	32_{k6}	105	185	165	130	50	55	652	11	–
X120	46	38_{k6}	135	220	200	150	65	70	745	11	–
X130	46	38_{k6}	135	220	200	150	65	70	781	11	–
X140	51	50_{k6}	155	260	230	180	70	75	879	11	–
X150	51	50_{k6}	155	260	230	180	70	75	921	11	–

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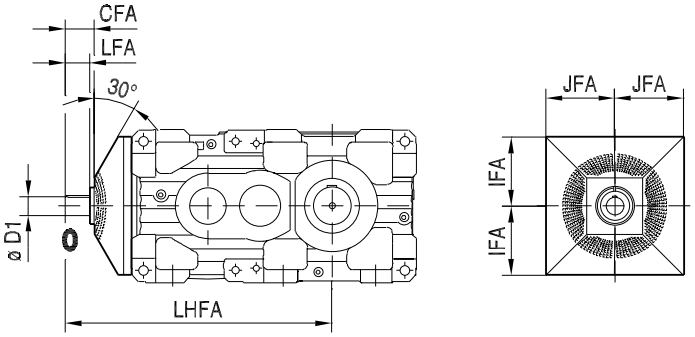
X160	76	60_{m6}	170	310	270	213	95	100	1036	11	–
X170	76	60_{m6}	170	310	270	213	95	100	1087	11	–
X180	71	70_{m6}	190	330	303	238	90	90	1135	11	–
X190	71	70_{m6}	190	330	303	238	90	90	1167	11	–
X200	96	80_{m6}	215	370	338	258	115	120	1286	11	–
X210	96	80_{m6}	215	370	338	258	115	120	1322	11	–
X220	96	85_{m6}	245	420	350	305	115	120	1430	16	–
X230	96	85_{m6}	245	420	350	305	115	120	1470	16	–
X240	131	100_{m6}	245	445	398	350	150	155	1597	14	–
X250	131	100_{m6}	245	445	398	350	150	155	1620	14	–
X260	124	110_{m6}	245	495	438	353	145	150	1767	14	–
X270	124	110_{m6}	245	495	438	353	145	150	1802	14	–
X280	124	110_{m6}	245	495	438	353	145	150	1854	14	–
X290	124	120_{m6}	270	575	483	403	145	150	2021	14	–
X300	124	120_{m6}	270	575	483	403	145	150	2050	14	–
X310	164	130_{m6}	305	625	520	435	185	145	2135	14	i = 12.5 ... 35.5
	124	130_{m6}	305	625	520	435	145	145	2095	14	i = 40 ... 71
X320	164	130_{m6}	305	625	520	435	185	180	2169	14	i = 14 ... 40
	124	130_{m6}	305	625	520	435	145	180	2129	14	i = 45 ... 80

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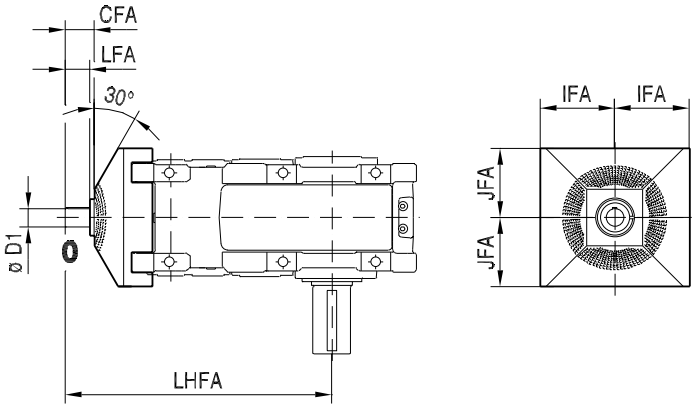
14.13 Fan X..K /FAN–ADV [mm]

X..K /FAN-ADV 48 008 00 18

M1



M5



→ 123

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/FAN–ADV							
X3K..	**CFA**	**Ø D1**	**IFA**	**JFA**	**LFA**	**LHFA**	**i**
X100	54	32_{k6}	189	167	50	632	–
X110	54	32_{k6}	189	167	50	652	–
X120	71	38_{k6}	224	192	65	745	–
X130	71	38_{k6}	224	192	65	781	–
X140	69	50_{k6}	264	232	65	879	–
X150	69	50_{k6}	264	232	65	921	–
X160	100	60_{m6}	314	277	95	1036	–
X170	100	60_{m6}	314	277	95	1087	–
X180	91	70_{m6}	334	304	85	1135	–
X190	91	70_{m6}	334	304	85	1167	–
X200	116	80_{m6}	374	327	110	1286	–
X210	116	80_{m6}	374	327	110	1322	–
X220	116	85_{m6}	424	345	110	1430	–
X230	116	85_{m6}	424	345	110	1470	–
X240	146	100_{m6}	449	392	140	1597	–
X250	146	100_{m6}	449	392	140	1620	–
X260	141	110_{m6}	499	438	135	1767	–
X270	141	110_{m6}	499	438	135	1802	–
X280	141	110_{m6}	554	438	135	1854	–
X290	135	120_{m6}	579	483	130	2021	–
X300	135	120_{m6}	579	483	130	2050	–
X310	175	130_{m6}	629	515	170	2135	i = 12.5 ... 35.5
	135	130_{m6}	629	515	130	2095	i = 40 ... 71
X320	175	130_{m6}	629	515	170	2169	i = 14 ... 40
	135	130_{m6}	629	515	130	2129	i = 45 ... 80

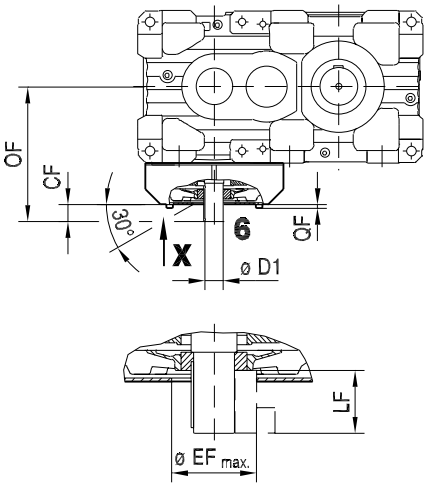
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14.14 Fan X..T /FAN [mm]

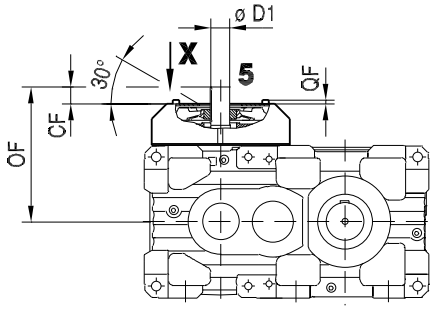
X..T /FAN

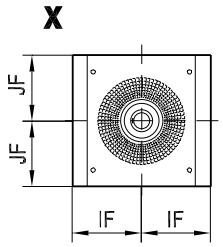
48 023 04 10

X3T.100-210



X3T.220-320





/FAN								
X3T..	**CF**	**Ø D1**	**Ø EFmax.**	**IF**	**JF**	**LF**	**OF**	**QF**
X100	31	32_{k6}	85	185	165	50	354	11
X110	31	32_{k6}	85	185	165	50	354	11
X120	46	38_{k6}	95	220	200	65	418	11
X130	46	38_{k6}	95	220	200	65	418	11
X140	51	50_{k6}	130	260	230	70	491	11
X150	51	50_{k6}	130	260	230	70	491	11
X160	76	60_{m6}	150	310	270	95	562	11
X170	76	60_{m6}	150	310	270	95	562	11
X180	71	70_{m6}	190	330	303	90	591	11
X190	71	70_{m6}	190	330	303	90	591	11
X200	96	80_{m6}	215	370	338	115	672	11
X210	96	80_{m6}	215	370	338	115	672	11
X220	96	85_{m6}	245	420	350	115	736	16
X230	96	85_{m6}	245	420	350	115	736	16
X240	131	100_{m6}	245	445	398	150	821	14
X250	131	100_{m6}	245	445	398	150	821	14

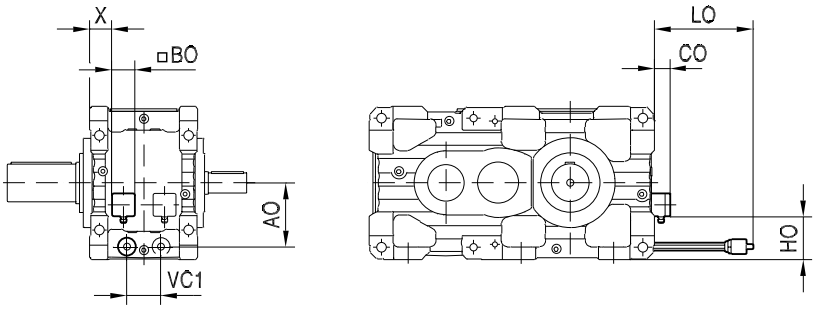
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14.15 Oil heater /OH [mm]

48 013 00 18

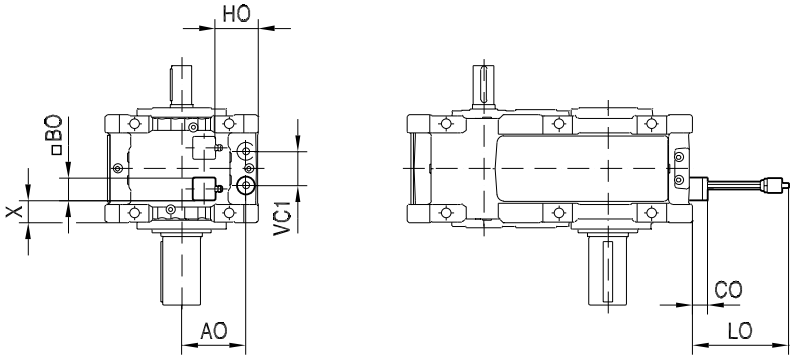
OH

M1



→ 131

M5



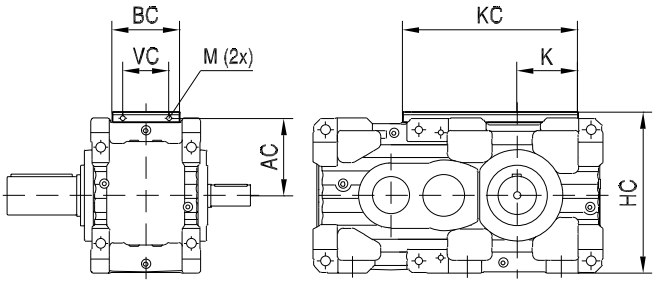
→ 131

	AO	BO	CO	HO	LO X2F	LO X3F	LO X4F	LO X2K	LO X3K	LO X4K	LO	VC1	X	max.
X100	151	100	91	82	490	400	–	490	490	–	490	75	13	2
X110	151	100	91	82	580	400	–	580	580	–	580	75	13	1
X120	175	100	112	75	680	680	400	580	680	680	680	90	35	2
X130	175	100	112	75	680	680	490	680	680	680	680	90	35	1
X140	209	100	85	80	780	780	490	680	780	780	780	100	75	2
X150	209	100	85	85	890	890	580	780	890	890	890	100	75	1
X160	250	100	85	115	1010	1010	680	890	1010	1010	1010	115	90	2
X170	250	100	85	115	1010	1010	680	890	1010	1010	1010	115	90	1
X180	280	100	82	120	960	960	710	960	960	960	960	150	90	2
X190	280	100	82	120	960	960	710	960	960	960	960	150	90	1
X200	320	100	82	130	1110	1110	810	960	1110	1110	1110	150	110	2
X210	320	100	82	130	1110	1110	810	960	1110	1110	1110	150	110	1
X220	362	100	82	140	1310	1310	1310	1110	1310	1310	1310	180	110	2
X230	362	100	82	140	1310	1310	1310	1110	1310	1310	1310	180	110	1
X240	380	100	82	150	1310	1310	1310	1110	1310	1310	1310	200	130	2
X250	380	100	82	150	1510	1510	1510	1310	1510	1510	1510	200	130	1
X260	430	100	77	170	1660	1660	1660	–	1660	1660	1660	280	122.5	2
X270	430	100	77	170	1660	1660	1660	–	1660	1660	1660	280	122.5	1
X280	485	100	77	170	1810	1810	1810	–	1810	1810	1810	280	122.5	1
X290	505	100	76	192.5	1810	1810	1810	–	1810	1810	1810	300	142.5	2
X300	505	100	76	192.5	1810	1810	1810	–	1810	1810	1810	300	142.5	1
X310	545	100	75	190	2110	2110	2110	–	2110	2110	2110	360	142.5	2
X320	545	100	75	190	2110	2110	2110	–	2110	2110	2110	360	142.5	1

14.16 Water cooling cover /CCV and water cooling cartridge /CCT [mm]

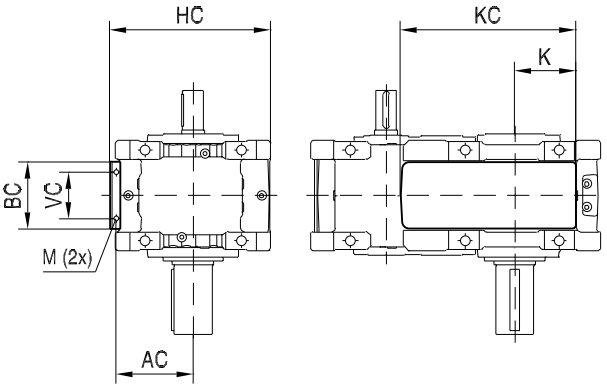
48 016 00 18

CCV
M1

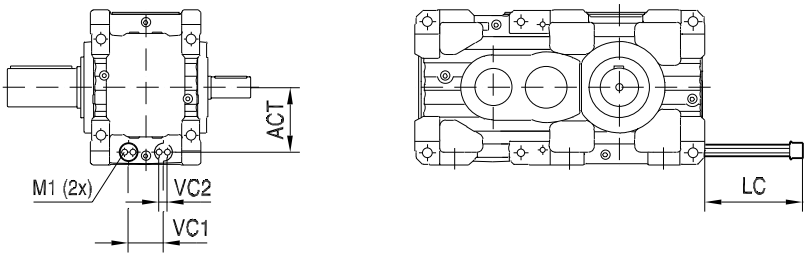


→ 125

M5

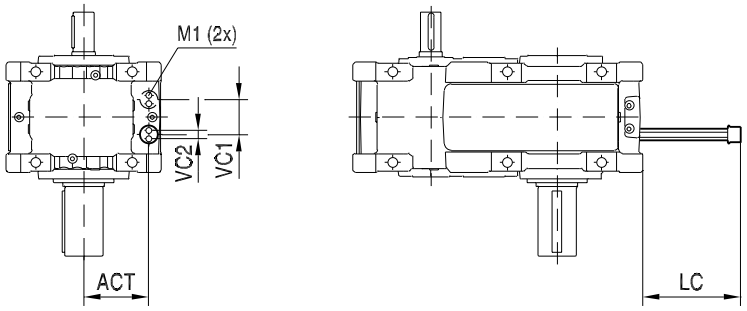


CCT
M1



→ 127

CCT
M5



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14.16.1 Water cooling cover /CCV

	AC	BC	HC	K	KC	M (2x)	VC
X100	191	165	410	128	361	G3/8"	50
X110	191	165	410	153	397	G3/8"	50
X120	226	193	480	147	420	G3/8"	110
X130	229	193	480	182	481	G3/8"	120
X180	332	290	702	262	755	G1/2"	200
X2K.180	332	290	702	262	706	G1/2"	200
X190	332	290	702	262	755	G1/2"	200
X2K.190	332	290	702	262	706	G1/2"	200
X200	372	310	782	297	847	G1/2"	200
X2K.200	372	310	782	297	796	G1/2"	200
X210	372	310	782	297	847	G1/2"	200
X2K.210	372	310	782	297	796	G1/2"	200

14.16.2 Water cooling cartridge /CCT

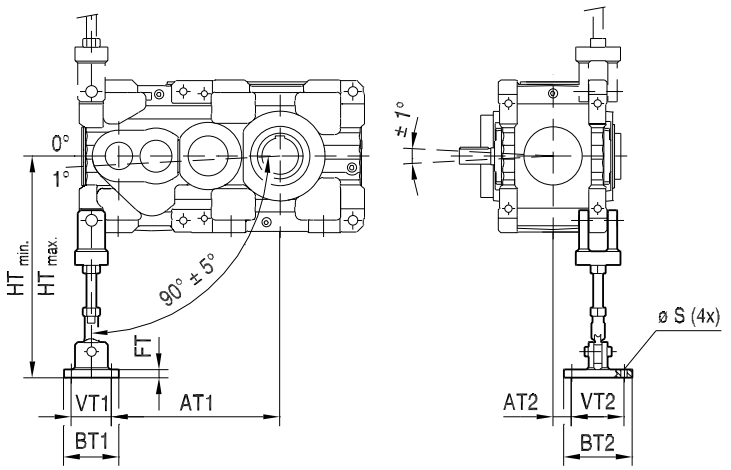
	ACT	LC X2F	LC X3F	LC X4F	LC X2K	LC X3K	LC X4K	M1 (2x)	VC2	VC1	VC
X140	209	695	695	465	615	695	695	G1/4"	24	100	2
X150	209	825	825	555	695	825	825	G1/4"	24	100	1
X160	250	945	945	615	825	945	945	G1/4"	24	115	2
X170	250	945	945	695	825	945	945	G1/4"	24	115	1
X180	280	950	950	700	900	950	950	G1/2"	34	150	2
X190	280	1000	950	700	900	1000	950	G1/2"	34	150	1
X200	320	1100	1050	800	1000	1100	1050	G1/2"	34	150	2
X210	320	1150	1100	800	1000	1150	1100	G1/2"	34	150	1
X220	362	1350	1350	1350	1150	1350	1350	G1/2"	34	180	2
X230	362	1350	1350	1350	1200	1350	1350	G1/2"	34	180	1
X240	385	1400	1400	1400	1200	1400	1400	G1/2"	34	200	2
X250	385	1450	1450	1450	1250	1450	1450	G1/2"	34	200	1
X260	430	1600	1600	1600	–	1600	1600	G1/2"	35	280	2
X270	430	1600	1600	1600	–	1600	1600	G1/2"	35	280	1
X280	485	1750	1750	1750	–	1750	1750	G1/2"	35	280	1
X290	505	1750	1750	1750	–	1750	1750	G1/2"	35	300	2
X300	505	1750	1750	1750	–	1750	1750	G1/2"	35	300	1
X310	545	2050	2050	2050	–	2050	2050	G1/2"	35	360	2
X320	545	2050	2050	2050	–	2050	2050	G1/2"	35	360	1

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14.17 Torque arm /T–HU [mm]

T

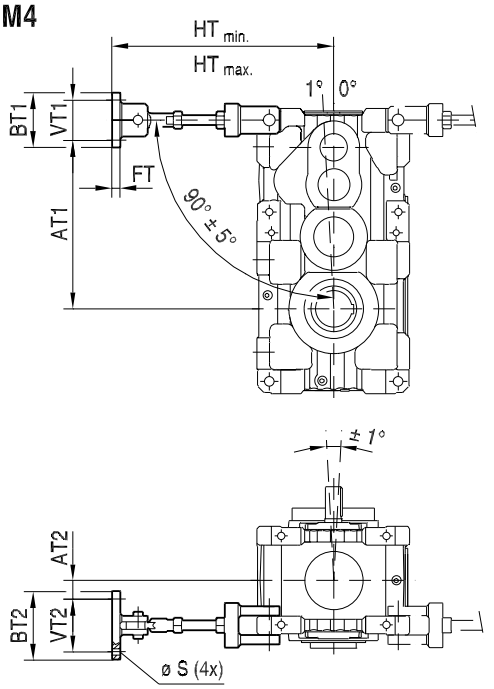
M1



→ 62

48 007 00 18

M4



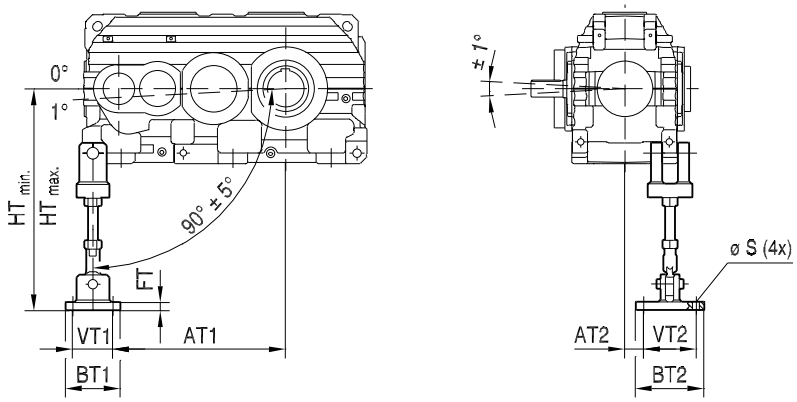
	AT1	AT1 (X2K)	AT2	AT2 (X2K)	BT1	BT2	FT	$HT_{min.}$	$HT_{max.}$	Ø S (4x)	VT1	VT2
X100	406	349	46.5	46.5	120	160	25	435	475	13.5	70	120
X110	426	369	46.5	46.5	120	160	25	435	475	13.5	70	120
X120	486	416	63.5	63.5	120	160	25	509	549	13.5	70	120
X130	522	452	63.5	63.5	120	160	25	509	549	13.5	70	120
X140	578	459	86.5	86.5	120	160	25	547	587	13.5	70	120
X150	620	501	86.5	86.5	120	160	25	547	587	13.5	70	120
X160	672	552	78	78	180	240	30	725	775	22	130	188
X170	723	603	78	78	180	240	30	725	775	22	130	188
X180	762	617	103	103	180	240	30	745	795	22	130	188
X190	794	649	103	103	180	240	30	745	795	22	130	188
X200	865	695	118	118	200	250	30	795	845	22	130	188
X210	901	730	118	118	200	250	30	795	845	22	130	188
X220	992	822	126	161	200	250	30	840	890	22	130	188
X230	1032	862	126	161	200	250	30	840	890	22	130	188
X240	1045	855	150	187.5	300	300	30	920	970	26	220	220
X250	1068	878	150	187.5	300	300	30	920	970	26	220	220
X260	1175	–	190	–	300	300	30	970	1020	26	220	220
X270	1210	–	190	–	300	300	30	970	1020	26	220	220
X280	1262	–	190	–	300	300	30	1025	1075	26	220	220
X290	1376	–	220.5	–	300	300	40	1143	1193	26	220	220
X300	1405	–	220.5	–	300	300	40	1143	1193	26	220	220
X310	1537	–	253	–	300	300	40	1193	1243	26	220	220
X320	1571	–	253	–	300	300	40	1193	1243	26	220	220

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14.18 Torque arm /T–HH [mm]

T-HH

48 059 04 09



→ 62

	AT1	AT2	BT1	BT2	FT	$HT_{min.}$	$HT_{max.}$	Ø S (4x)	VT1	VT2
X220	992	126	200	250	30	840	890	22	130	188
X230	1032	126	200	250	30	840	890	22	130	188
X240	1045	150	300	300	30	920	970	26	220	220
X250	1068	150	300	300	30	920	970	26	220	220
X260	1175	190	300	300	30	970	1020	26	220	220
X270	1210	190	300	300	30	970	1020	26	220	220
X280	1262	190	300	300	30	1025	1075	26	220	220
X290	1376	220.5	300	300	40	1143	1193	26	220	220
X300	1405	220.5	300	300	40	1143	1193	26	220	220
X310	1537	253	300	300	40	1193	1243	26	220	220
X320	1571	253	300	300	40	1193	1243	26	220	220

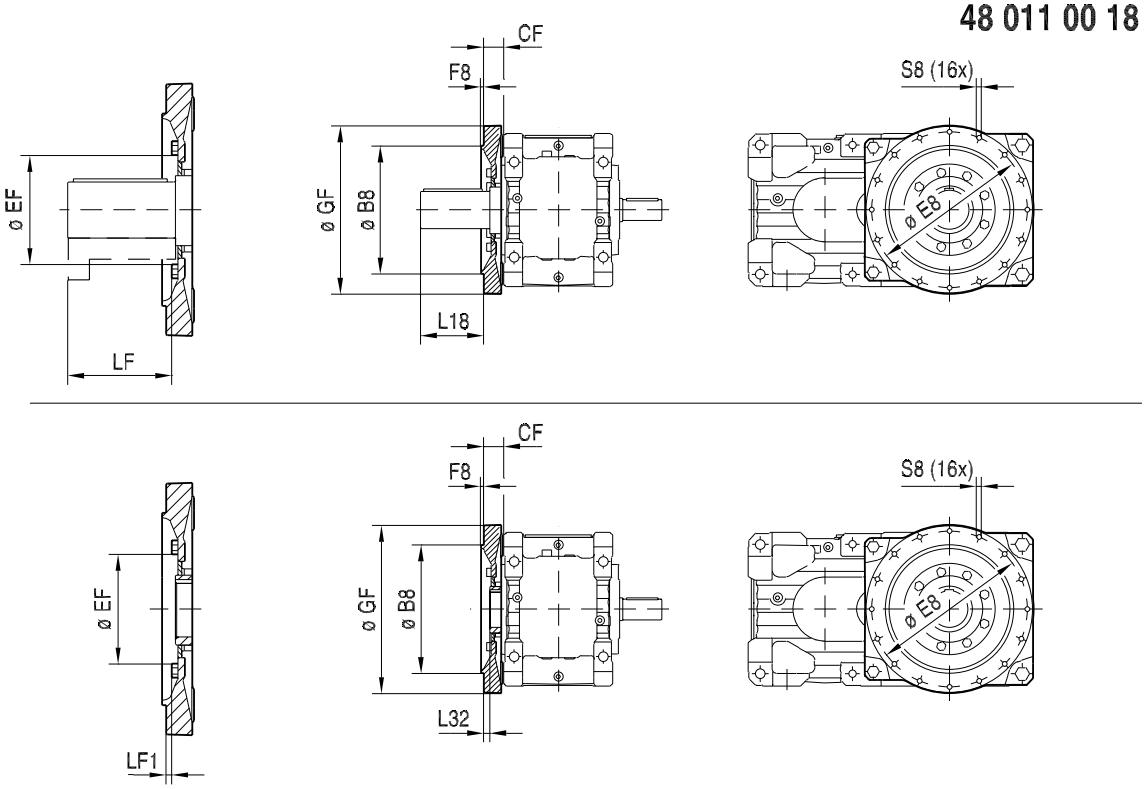
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14.19 Mounting flange B14 /F [mm]

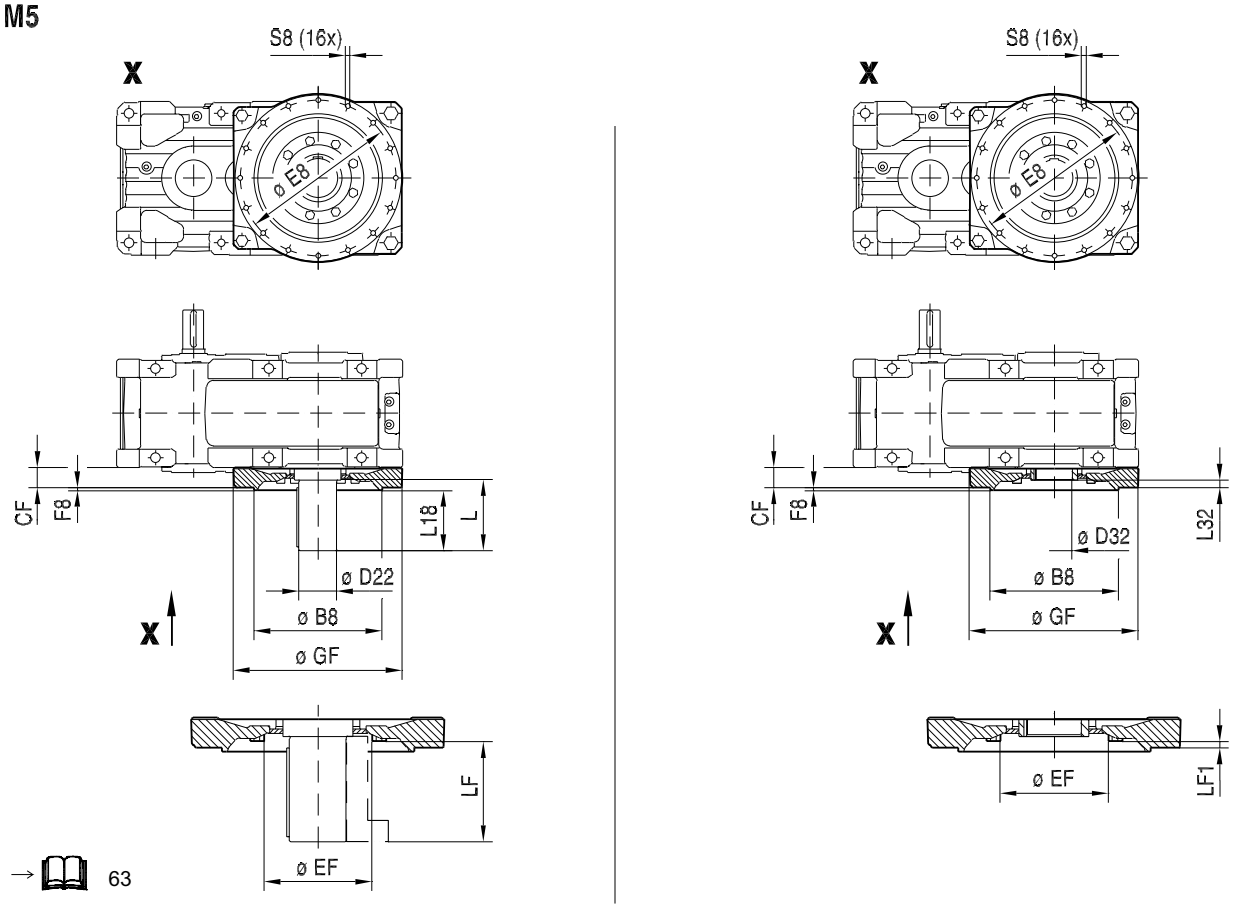
F

48 011 00 18

M1



M5



→ 63

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INFORMATION

The diameters for the input shafts can be found in the respective chapters.

	Ø B8	CF	Ø E8	Ø EF	F8	Ø GF	L18	L32	LF	LF1	S8 (16x)	kg
X100	300_{f7}	41	350	164	5	395	172	-2	179	7	M12x22	25
X110	300_{f7}	41	350	174	5	395	175	-5	182	7	M12x22	25
X120	340_{f7}	50	400	208	5	445	201	9	215	14	M16x28	35
X130	340_{f7}	50	400	228	5	445	205	5	217	12	M16x28	35
X140	430_{f7}	57	515	228	5	565	196	14	212	16	M16x28	60
X150	430_{f7}	57	515	258	5	565	238	12	255	17	M16x28	60
X160	520_{f7}	64	620	280	5	670	230	20	246	16	M20x32	85
X170	520_{f7}	64	620	280	5	670	280	20	296	16	M20x32	85
X180	560_{f7}	70	680	285	5	734	285	15	290	5	M24x38	105
X190	560_{f7}	70	680	285	5	734	285	15	290	5	M24x38	105
X200	560_{f7}	77	680	345	5	740	278	14	290	12	M24x38	110
X210	560_{f7}	77	680	345	5	740	328	14	340	12	M24x38	110

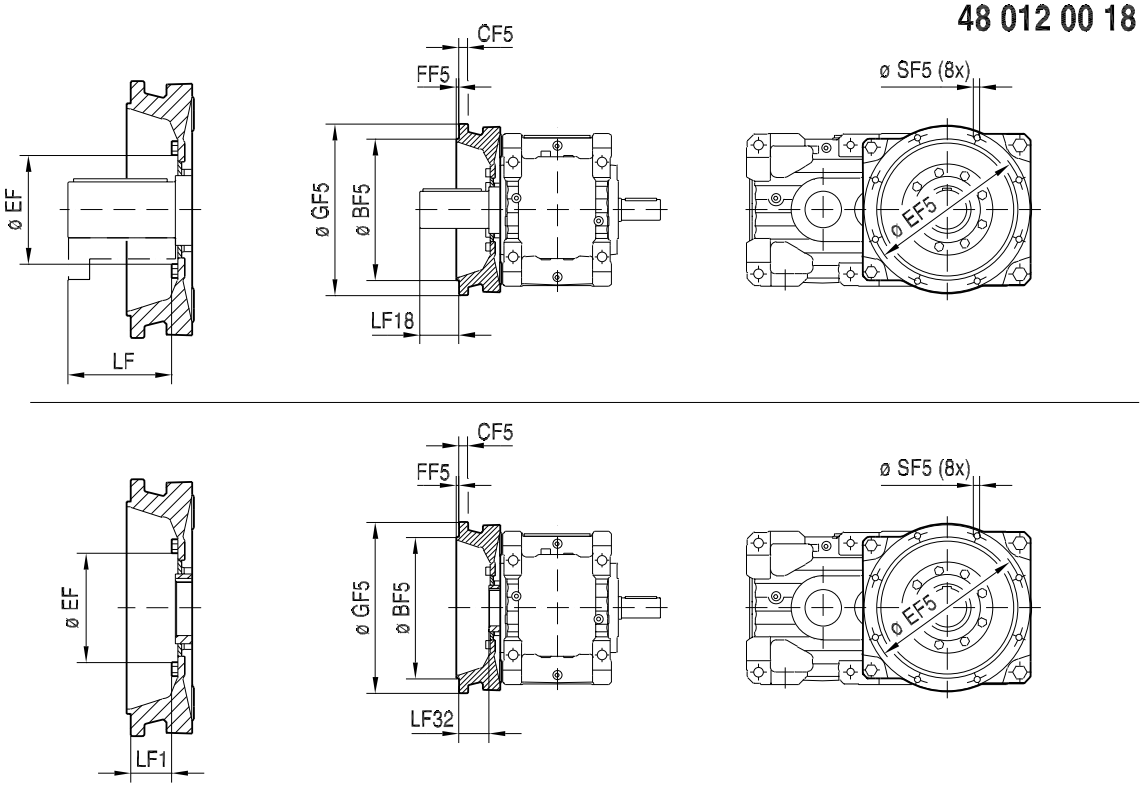
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14.20 Mounting flange B5 /F [mm]

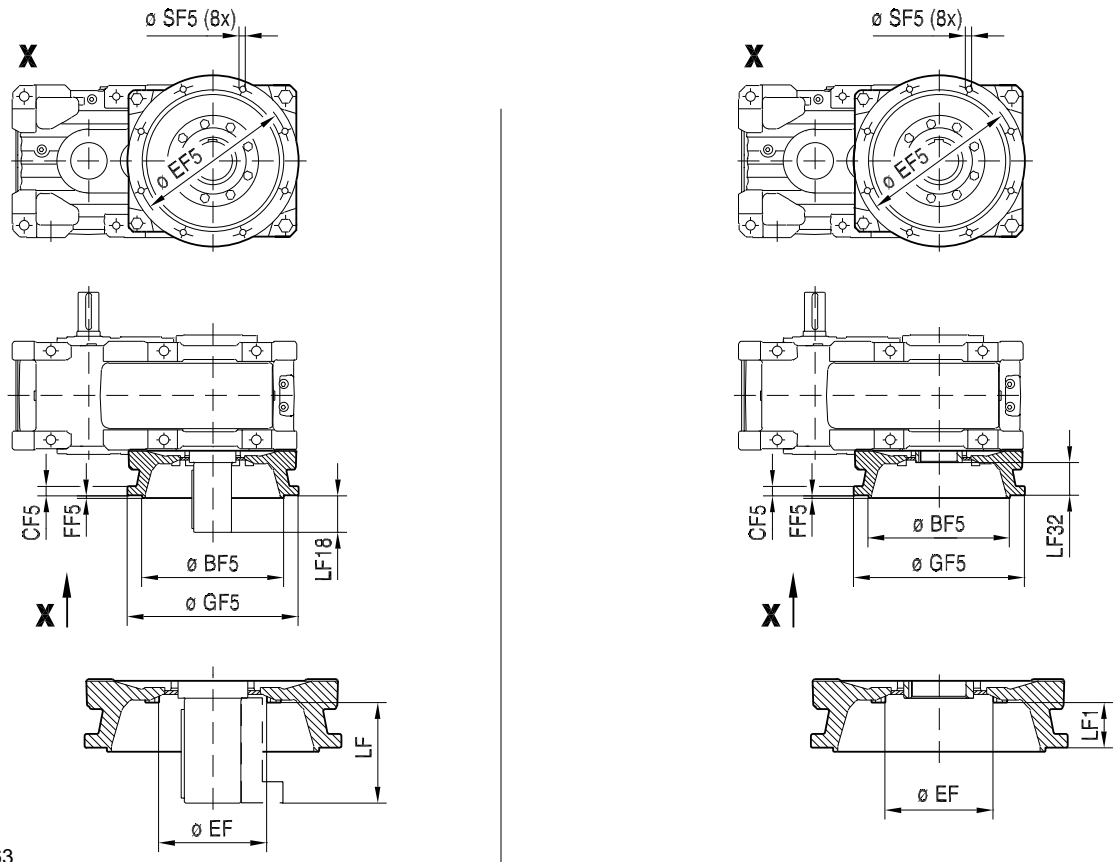
F-B5

48 012 00 18

M1



M5



→ 63

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INFORMATION

The diameters for the input shafts can be found in the respective chapters.

	Ø BF5	CF5	Ø EF5	Ø EF	FF5	Ø GF5	LF	LF1	LF18	LF32	Ø SF5 (8x)	kg
X130	400_{js7}	24.5	450	228	6	500	217	85	127	83	18	65
X140	450_{js7}	29.5	500	228	6	550	212	94	113	97	22	100
X150	500_{js7}	29.5	550	258	7	600	255	136	113	137	22	115
X160	550_{js7}	29.5	600	280	7	660	246	91	148	102	22	135
X170	620_{js7}	34.5	680	280	7	730	296	150	139	161	27	160
X180	620_{f7}	35	680	285	7	750	290	101	184	116	27	175
X190	620_{f7}	35	680	285	7	750	290	101	184	116	27	175

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14.21 Backstop X.F.. /BS [mm]

X.F../BS

48 037 03 07

Fig. A
extern

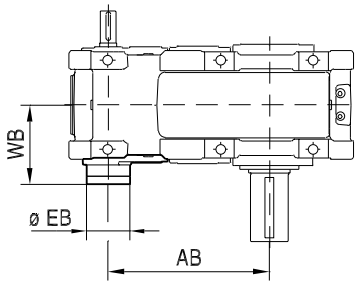
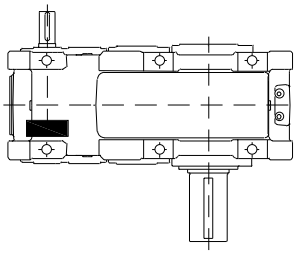


Fig. B
intern



X2F..	i_{ges}	Fig	AB	Ø EB	WB
X100	7.1 – 10	A	278	143	214
	11.2 – 20	A	278	133	213
X110	8 – 11.2	A	298	143	214
	12.5 – 22.4	A	298	133	213
X120	6.3 – 9	A	327	175	251
	10 – 18	A	327	153	235
X130	8 – 11.2	A	363	175	251
	12.5 – 22.4	A	363	153	235
X140	6.3 – 11.2	A	388	190	294
	12.5 – 18	A	388	175	284
X150	8 – 14	A	430	190	294
	16 – 22.4	A	430	175	284
X160	6.3 – 14	A	474	210	321
	16 – 18	A	474	190	320
X170	8 – 18	A	525	210	321
	20 – 22.4	A	525	190	320
X180	6.3 – 8	A	544	245	373
	9 – 18	A	544	210	360
X190	7.1 – 9	A	576	245	373
	10 – 20	A	576	210	360
X200	6.3 – 7.1	A	614	288	401
	8 – 11.2	A	614	245	394
	12.5 – 18	A	614	210	381

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X2F..	i_{ges}	Fig	AB	Ø EB	WB
X210	7.1 – 8	A	650	288	401
	9 – 12.5	A	650	245	394
	14 – 20	A	650	210	381
X220	6.3 – 11.2	A	694	288	428
	12.5 – 18	A	694	245	426
X230	7.1 – 12.5	A	734	288	428
	14 – 20	A	734	245	426
X240	6.3 – 7.1	A	776	322	472
	8 – 18	A	776	288	472
X250	7.1 – 10	A	799	322	472
	11.2 – 20	A	799	288	472
X260	6.3 – 7.1	A	855	412	562
	8 – 11.2	A	855	322	563
	12.5 – 18	A	855	288	534
X270	7.1 – 8	A	890	412	562
	9 – 12.5	A	890	322	563
	14 – 20	A	890	288	534
X280	8 – 9	A	942	412	562
	10 – 14	A	942	322	563
	16 – 22.5	A	942	288	534
X290	6.3 – 7.1	A	987	420	655
	8 – 14	A	987	412	610
	16 – 18	A	987	322	606
X300	7.1 – 8	A	1016	420	655
	9 – 16	A	1016	412	610
	18 – 20	A	1016	322	606
X310	6.3 – 11.2	A	1100	420	688
	12.5 – 18	A	1100	412	643
X320	7.1 – 12.5	A	1134	420	688
	14 – 20	A	1134	412	643

X3F..	i_{ges}	Fig	AB	Ø EB	WB
X100	22.4 – 100	A	360	96	210
X110	25 – 112	A	380	96	210
X120	20 – 28	A	427	133	228
	31.5 – 90	B	–	–	–
X130	25 – 35.5	A	463	133	228
	40 – 112	B	–	–	–
X140	20 – 35.5	A	502	143	257
	40 – 90	B	–	–	–
X150	25 – 45	A	544	143	257
	50 – 112	B	–	–	–
X160	20 – 28	A	611	175	316
	31.5 – 90	B	–	–	–
X170	25 – 35.5	A	662	175	316
	40 – 112	B	–	–	–
X180	20 – 35.5	A	707	190	349
	40 – 90	B	–	–	–
X190	22.4 – 40	A	739	190	349
	45 – 100	B	–	–	–
X200	20 – 35.5	A	794	210	368
	40 – 90	B	–	–	–
X210	22.4 – 40	A	830	210	368
	45 – 100	B	–	–	–

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X3F..	i_{ges}	Fig	AB	Ø EB	WB
X220	20 – 35.5	A	894	210	396
	40 – 56	A	894	190	394
	63 – 90	A	894	175	384
X230	22.4 – 40	A	934	210	396
	45 – 63	A	934	190	394
	71 – 100	A	934	175	384
X240	20 – 22.4	A	1004	245	460
	25 – 56	A	1004	210	447
	63 – 90	A	1004	190	446
X250	22.4 – 25	A	1027	245	460
	28 – 63	A	1027	210	447
	71 – 100	A	1027	190	446
X260	20 – 35.5	A	1113	245	503
	40 – 90	A	1113	210	491
X270	22.4 – 40	A	1148	245	503
	45 – 100	A	1148	210	491
X280	25 – 45	A	1200	245	503
	50 – 112	A	1200	210	491
X290	20 – 35.5	A	1279	288	550
	40 – 50	A	1279	245	548
	56 – 90	A	1279	210	536
X300	22.4 – 40	A	1308	288	550
	45 – 56	A	1308	245	548
	63 – 100	A	1308	210	536
X310	20 – 25	A	1435	322	584
	28 – 50	A	1435	288	585
	56 – 90	A	1435	245	583
X320	22.4 – 28	A	1469	322	584
	31.5 – 56	A	1469	288	585
	63 – 100	A	1469	245	583

X4F..	i_{ges}	Fig	AB	Ø EB	WB
X120	100 – 355	A	427	85	215
X130	125 – 450	A	463	85	215
X140	100 – 355	A	502	96	255
X150	125 – 450	A	544	96	255
X160	100 – 355	B	–	–	–
X170	125 – 450	B	–	–	–
X180	100 – 355	B	–	–	–
X190	112 – 400	B	–	–	–
X200	100 – 355	B	–	–	–
X210	112 – 400	B	–	–	–
X220	100 – 355	B	–	–	–
X230	112 – 400	B	–	–	–
X240	100 – 355	B	–	–	–
X250	112 – 400	B	–	–	–
X260	100 – 355	B	–	–	–
X270	112 – 400	B	–	–	–
X280	125 – 450	B	–	–	–
X290	100 – 355	B	–	–	–
X300	112 – 400	B	–	–	–
X310	100 – 355	B	–	–	–
X320	112 – 400	B	–	–	–

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14.22 Backstop X.K.. /BS [mm]

X.K../BS

48 038 02 07

Fig. A
extern

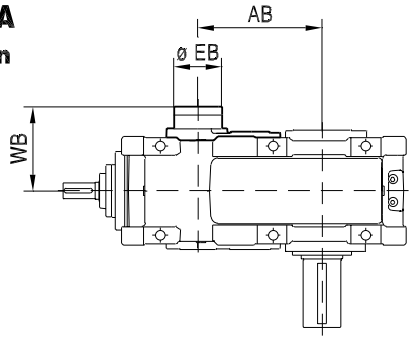
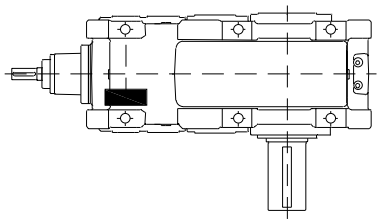


Fig. C
intern



X2KS..	i_{ges}	Fig	AB	Ø EB	WB
X100	7.1 – 12.5	A	164	175	244
X110	8 – 14	A	184	175	244
X120	6.3 – 11.2	A	190	190	268
X130	8 – 14	A	226	190	268
X140	6.3 – 11.2	A	225	210	295
X150	8 – 14	A	267	210	295
X160	6.3 – 11.2	A	274	245	343
X170	8 – 14	A	325	245	343
X180	6.3 – 11.2	A	316	288	386
X190	7.1 – 12.5	A	348	288	386
X200	6.3 – 11.2	A	356	288	403
X210	7.1 – 12.5	A	392	288	403
X220	6.3 – 11.2	A	402	322	495
X230	7.1 – 12.5	A	442	322	495
X240	6.3 – 11.2	A	441	420	598
X250	7.1 – 12.5	A	464	420	598

X3K..	i_{ges}	Fig	AB	Ø EB	WB
X100	14 – 80	A	278	133	213
X110	16 – 90	A	298	133	213
X120	12.5 –71	A	327	153	235
X130	16 – 90	A	363	153	235
X140	12.5 – 18	A	388	190	294
	20 – 71	A	388	175	284

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X3K..	i_{ges}	Fig	AB	Ø EB	WB
X150	16 – 22.4	A	430	190	294
	25 – 90	A	430	175	284
X160	12.5 – 22.4	A	474	210	321
	25 – 71	A	474	190	320
X170	16 – 28	A	525	210	321
	31.5 – 90	A	525	190	320
X180	12.5 – 71	A	544	210	360
X190	14 – 80	A	576	210	360
X200	12.5 – 22.4	A	614	245	394
	25 – 71	A	614	210	381
X210	14 – 25	A	650	245	394
	28 – 80	A	650	210	381
X220	12.5 – 22.4	A	694	288	428
	25 – 71	A	694	245	426
X230	14 – 25	A	734	288	428
	28 – 80	A	734	245	426
X240	12.5 – 35.5	A	776	288	472
	40 – 71	A	776	245	470
X250	14 – 80	A	799	288	472
X260	12.5 – 22.4	A	855	322	563
	25 – 71	A	855	288	553
X270	14 – 25	A	890	322	563
	28 – 80	A	890	288	553
X280	16 – 28	A	942	322	563
	31.5 – 90	A	942	288	553
X290	12.5 – 28	A	987	412	610
	31.5 – 71	A	987	322	606
X300	14 – 31.5	A	1016	412	610
	35.5 – 80	A	1016	322	606
X310	12.5 – 22.4	A	1100	420	688
	25 – 71	A	1100	412	643
X320	14 – 25	A	1134	420	688
	28 – 80	A	1134	412	643

X4K..	i_{ges}	Fig	AB	Ø EB	WB
X120	80 – 355	C	–	–	–
X130	100 – 450	C	–	–	–
X140	80 – 355	C	–	–	–
X150	100 – 450	C	–	–	–
X160	80 – 355	C	–	–	–
X170	100 – 450	C	–	–	–
X180	80 – 355	C	–	–	–
X190	90 – 400	C	–	–	–
X200	80 – 355	C	–	–	–
X210	90 – 400	C	–	–	–
X220	80 – 90	A	894	190	394
	100 – 355	A	894	175	384
X230	90 – 112	A	934	190	394
	125 – 400	A	934	175	384
X240	80 – 90	A	1004	210	447
	100 – 355	A	1004	190	446
X250	90 – 100	A	1027	210	447
	112 – 400	A	1027	190	446
X260	80 – 355	A	1113	210	491

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X4K..	i_{ges}	Fig	AB	Ø EB	WB
X270	90 – 400	A	1148	210	491
X280	100 – 450	A	1200	210	491
X290	80	A	1279	245	548
	90 – 355	A	1279	210	536
X300	90 – 100	A	1308	245	548
	112 – 400	A	1308	210	536
X310	80	A	1435	288	585
	90 – 355	A	1435	245	583
X320	90 – 100	A	1469	288	585
	112 – 400	A	1469	245	583

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14.23 Backstop X.T../BS [mm]

X.T../BS

48 003 00 10

Fig. A
extern

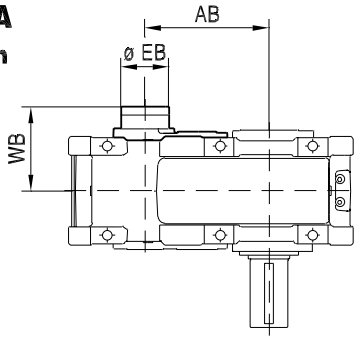
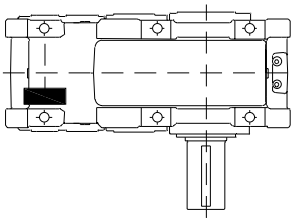


Fig. C
intern



X3T..	i_{ges}	Fig	AB	Ø EB	WB
X100	14 - 80	A	278	133	213
X110	16 - 90	A	298	133	213
X120	12.5 -71	A	327	153	235
X130	16 - 90	A	363	153	235
X140	12.5 - 18	A	388	190	273
	20 - 71	A	388	175	284
X150	16 - 22.4	A	430	190	273
	25 - 90	A	430	175	284
X160	12.5 - 22.4	A	474	210	321
	25 - 71	A	474	190	320
X170	16 - 28	A	525	210	321
	31.5 - 90	A	525	190	320
X180	12.5 -71	A	544	210	360
X190	14 - 80	A	576	210	360
X200	12.5 - 22.4	A	614	245	394
	25 - 71	A	614	210	381
X210	14 - 25	A	650	245	394
	28 - 80	A	650	210	381
X220	12.5 - 22.4	A	694	290	428
	25 - 71	A	694	245	426
X230	14 - 25	A	734	290	428
	28 - 80	A	734	245	426
X240	12.5 - 35.5	A	776	290	472
	40 - 71	A	776	245	470
X250	14 - 80	A	799	290	472

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X4T..	i_{ges}	Fig	AB	Ø EB	WB
X120	80 - 355	C	-	-	-
X130	100 - 450	C	-	-	-
X140	80 - 355	C	-	-	-
X150	100 - 450	C	-	-	-
X160	80 - 355	C	-	-	-
X170	100 - 450	C	-	-	-
X180	80 - 355	C	-	-	-
X190	90 - 400	C	-	-	-
X200	80 - 355	C	-	-	-
X210	90 - 400	C	-	-	-
X220	80 - 90	A	894	190	394
	100 - 355	A	894	175	384
X230	90 - 112	A	934	190	394
	125 - 400	A	934	175	384
X240	80 - 90	A	1004	210	447
	100 - 355	A	1004	190	446
X250	90 - 100	A	1027	210	447
	112 - 400	A	1027	190	446

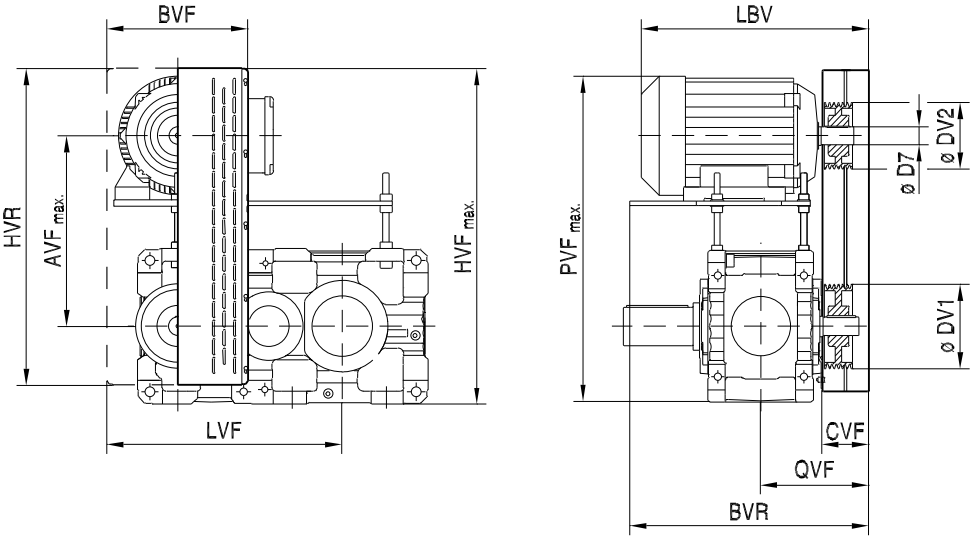
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14.24 V-belt drives /VBD [mm]

14.24.1 X3F.. V-belt drives /VBD [mm]

X3F..

48 002 01 11



X3F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F100	LVF X3F110	PVF max.	QVF	
X100 – 110	112M	4	1.25	468	440	524	132	28	125	100	789	783	519	580	600	837	296	SPZ (2x)
	132S	5.5		474	440	524	132	38	160	125	789	783	569	580	600	843	296	SPZ (2x)
	132M	7.5		473	440	524	132	38	200	160	789	783	571	580	600	891	296	SPZ (2x)
	132L	9.2		473	440	524	132	38	180	140	789	783	596	580	600	891	296	SPZ (3x)
	160M	11		473	440	524	132	42	200	160	789	783	664	580	600	917	296	SPZ (3x)
	160L	15		477	440	524	132	42	250	200	789	783	664	580	600	921	296	SPZ (3x)
	112M	4	1.4	480	440	524	132	28	140	100	789	783	519	580	600	849	296	SPZ (2x)
	132S	5.5		478	440	524	132	38	180	125	789	783	569	580	600	847	296	SPZ (2x)
	132M	7.5		472	440	524	132	38	224	160	789	783	571	580	600	890	296	SPZ (2x)
	132L	9.2		475	440	524	132	38	200	140	789	783	596	580	600	893	296	SPZ (3x)
	160M	11		472	440	524	132	42	224	160	789	783	664	580	600	916	296	SPZ (3x)
	160L	15		477	440	524	132	42	280	200	789	783	664	580	600	921	296	SPZ (3x)
	112M	4	1.6	476	440	524	132	28	160	100	789	783	519	580	600	845	296	SPZ (2x)
	132S	5.5		474	440	524	132	38	200	125	789	783	569	580	600	843	296	SPZ (2x)
	132M	7.5		469	440	524	132	38	250	160	789	783	571	580	600	887	296	SPZ (2x)
	132L	9.2		481	440	524	132	38	224	140	789	783	596	580	600	899	296	SPZ (3x)
	160M	11		469	440	524	132	42	250	160	789	783	664	580	600	913	296	SPZ (3x)
	160L	15		479	440	524	132	42	250	160	789	783	664	580	600	923	296	SPA (3x)
	112M	4	1.8	477	440	524	132	28	180	100	789	783	519	580	600	846	296	SPZ (2x)
	132S	5.5		479	440	524	132	38	224	125	789	783	569	580	600	848	296	SPZ (2x)
	132M	7.5		475	440	524	132	38	280	160	789	783	571	580	600	893	296	SPZ (2x)
	132L	9.2		471	440	524	132	38	250	140	789	783	596	580	600	889	296	SPZ (3x)
	160M	11		475	440	524	132	42	280	160	789	783	664	580	600	919	296	SPZ (3x)
	160L	15		475	440	524	132	42	280	160	789	783	664	580	600	919	296	SPA (3x)

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X3F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	ØD7	ØDV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F120	LVF X3F130	PVF max.	QVF	
X120 – 130	132S	5.5	1.25	551	500	526	132	38	160	125	917	914	569	677	713	955	310	SPZ (2x)
	132M	7.5		548	500	526	132	38	200	160	917	914	571	677	713	1001	310	SPZ (2x)
	132L	9.2		554	500	526	132	38	180	140	917	914	596	677	713	1007	310	SPZ (3x)
	160M	11		548	500	526	132	42	200	160	917	914	664	677	713	1027	310	SPZ (3x)
	160L	15		552	500	526	132	42	250	200	917	914	664	677	713	1031	310	SPZ (3x)
	180M	18.5		548	500	621	132	48	224	180	917	914	689	677	713	1041	310	SPA (3x)
	180L	22		549	500	621	132	48	250	200	917	914	689	677	713	1042	310	SPA (3x)
	200L	30		552	500	621	132	55	250	200	917	914	781	677	713	1060	310	SPZ (6x)
	132S	5.5	1.4	553	500	526	132	38	180	125	917	914	569	677	713	957	310	SPZ (2x)
	132M	7.5		553	500	526	132	38	224	160	917	914	571	677	713	1006	310	SPZ (2x)
	132L	9.2		551	500	526	132	38	200	140	917	914	596	677	713	1004	310	SPZ (3x)
	160M	11		553	500	526	132	42	224	160	917	914	664	677	713	1032	310	SPZ (3x)
	160L	15		552	500	526	132	42	280	200	917	914	664	677	713	1031	310	SPZ (3x)
	180M	18.5		552	500	621	132	48	250	180	917	914	689	677	713	1045	310	SPA (3x)
	180L	22		550	500	621	132	48	280	200	917	914	689	677	713	1043	310	SPA (3x)
	200L	30		552	500	621	132	55	280	200	917	914	781	677	713	1060	310	SPZ (6x)
	132S	5.5	1.6	549	500	526	132	38	200	125	917	914	569	677	713	953	310	SPZ (2x)
	132M	7.5		551	500	526	132	38	250	160	917	914	571	677	713	1004	310	SPZ (2x)
	132L	9.2		556	500	526	132	38	224	140	917	914	596	677	713	1009	310	SPZ (3x)
	160M	11		551	500	526	132	42	250	160	917	914	664	677	713	1030	310	SPZ (3x)
	160L	15		551	500	526	132	42	250	160	917	914	664	677	713	1030	310	SPA (3x)
	180M	18.5		552	500	621	132	48	280	180	917	914	689	677	713	1045	310	SPA (3x)
	180L	22		546	500	621	132	48	315	200	917	914	689	677	713	1039	310	SPA (3x)
	200L	30		542	500	621	132	55	335	212	917	914	781	677	713	1050	310	SPB (3x)
	132S	5.5	1.8	549	500	526	132	38	224	125	917	914	569	677	713	953	310	SPZ (2x)
	132M	7.5		544	500	526	132	38	280	160	917	914	571	677	713	997	310	SPZ (2x)
	132L	9.2		547	500	526	132	38	250	140	917	914	596	677	713	1000	310	SPZ (3x)
	160M	11		544	500	526	132	42	280	160	917	914	664	677	713	1023	310	SPZ (3x)
	160L	15		555	500	526	132	42	280	160	917	914	664	677	713	1034	310	SPA (3x)
	180M	18.5		548	500	621	132	48	315	180	917	914	689	677	713	1041	310	SPA (3x)
	180L	22		549	500	621	132	48	355	200	917	914	689	677	713	1042	310	SPA (3x)
	200L	30		558	500	621	132	55	375	212	917	914	781	677	713	1066	310	SPB (3x)

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X3F..	IEC	P_M	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø V2	HVF max.	HVR	LBV	LVF 3F140	LVF X3F150	PVF max.	QVF	
X140 – 150	180M	18.5	1.25	661	530	664	154	48	224	180	1082	1043	711	767	809	1194	371	SPA (3x)
	180L	22		662	530	664	154	48	250	200	1082	1043	711	767	809	1195	371	SPA (3x)
	200L	30		665	530	664	154	55	250	200	1082	1043	803	767	809	1213	371	SPZ (6x)
	225S	37		660	530	664	154	60	265	212	1082	1043	771	767	809	1208	371	SPB (4x)
	225M	45		663	530	664	154	60	300	236	1082	1043	771	767	809	1211	371	SPB (4x)
	180M	18.5	1.4	665	530	664	154	48	250	180	1082	1043	711	767	809	1198	371	SPA (3x)
	180L	22		663	530	664	154	48	280	200	1082	1043	711	767	809	1196	371	SPA (3x)
	200L	30		665	530	664	154	55	280	200	1082	1043	803	767	809	1213	371	SPZ (6x)
	225S	37		651	530	664	154	60	300	212	1082	1043	771	767	809	1199	371	SPB (4x)
	225M	45		681	530	664	154	60	300	212	1082	1043	771	767	809	1229	371	SPB (4x)
	180M	18.5	1.6	662	530	664	154	48	280	180	1082	1043	711	767	809	1195	371	SPA (3x)
	180L	22		659	530	664	154	48	315	200	1082	1043	711	767	809	1192	371	SPA (3x)
	200L	30		667	530	664	154	55	335	212	1082	1043	803	767	809	1215	371	SPB (3x)
	225S	37		670	530	664	154	60	355	224	1082	1043	771	767	809	1218	371	SPA (4x)
	225M	45		652	530	664	154	60	335	212	1082	1043	771	767	809	1200	371	SPB (4x)
	180M	18.5	1.8	661	530	664	154	48	315	180	1082	1043	711	767	809	1194	371	SPA (3x)
	180L	22		675	530	664	154	48	355	200	1082	1043	711	767	809	1208	371	SPA (3x)
	200L	30		679	530	664	154	55	375	212	1082	1043	803	767	809	1227	371	SPB (3x)
	225S	37		680	530	664	154	60	400	224	1082	1043	771	767	809	1228	371	SPA (4x)
	225M	45		659	530	664	154	60	355	200	1082	1043	771	767	809	1207	371	SPB (5x)

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X3F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F160	LVF X3F170	PVF max.	QVF	
X160 – 170	180M	18.5	1.25	661	530	615	154	48	224	180	1132	1043	711	876	927	1244	405	SPA (3x)
	180L	22		662	530	615	154	48	250	200	1132	1043	711	876	927	1245	405	SPA (3x)
	200L	30		665	530	818	154	55	250	200	1132	1043	803	876	927	1263	405	SPZ (6x)
	225S	37		660	530	818	154	60	265	212	1132	1043	771	876	927	1258	405	SPB (4x)
	225M	45		753	580	851	187	60	300	236	1265	1207	804	901	952	1351	438	SPB (4x)
	250M	55		763	580	851	187	65	335	265	1265	1207	939	901	952	1472	438	SPB (4x)
	280S	75		771	580	851	187	75	315	250	1265	1207	939	901	952	1480	438	SPB (6x)
	280M	90		771	580	851	187	75	315	250	1265	1207	1034	901	952	1480	438	SPB (6x)
	180M	18.5	1.4	665	530	615	154	48	250	180	1132	1043	711	876	927	1248	405	SPA (3x)
	180L	22		663	530	615	154	48	280	200	1132	1043	711	876	927	1246	405	SPA (3x)
	200L	30		665	530	818	154	55	280	200	1132	1043	803	876	927	1263	405	SPZ (6x)
	225S	37		651	530	818	154	60	300	212	1132	1043	771	876	927	1249	405	SPB (4x)
	225M	45		742	580	851	187	60	300	212	1265	1207	804	901	952	1340	438	SPB (4x)
	250M	55		780	580	851	187	65	375	265	1265	1207	939	901	952	1489	438	SPB (4x)
	280S	75		738	580	851	187	75	355	250	1265	1207	939	901	952	1447	438	SPB (6x)
	280M	90		738	580	851	187	75	355	250	1265	1207	1034	901	952	1447	438	SPB (6x)
	180M	18.5	1.6	662	530	615	154	48	280	180	1132	1043	711	876	927	1245	405	SPA (3x)
	180L	22		659	530	615	154	48	315	200	1132	1043	711	876	927	1242	405	SPA (3x)
	200L	30		667	530	818	154	55	335	212	1132	1043	803	876	927	1265	405	SPB (3x)
	225S	37		670	530	818	154	60	355	224	1132	1043	771	876	927	1268	405	SPA (4x)
	225M	45		783	580	851	187	60	335	212	1265	1207	804	901	952	1381	438	SPB (4x)
	250M	55		757	580	851	187	65	355	224	1265	1207	939	901	952	1466	438	SPB (5x)
	280S	75		771	580	851	187	75	400	250	1265	1207	939	901	952	1480	438	SPB (6x)
	280M	90		771	580	851	187	75	400	250	1265	1207	1034	901	952	1480	438	SPB (6x)
	180M	18.5	1.8	661	530	615	154	48	315	180	1132	1043	711	876	927	1244	405	SPA (3x)
	180L	22		675	530	615	154	48	355	200	1132	1043	711	876	927	1258	405	SPA (3x)
	200L	30		679	530	818	154	55	375	212	1132	1043	803	876	927	1277	405	SPB (3x)
	225S	37		680	530	818	154	60	400	224	1132	1043	771	876	927	1278	405	SPA (4x)
	225M	45		775	580	851	187	60	355	200	1265	1207	804	901	952	1373	438	SPB (5x)
	250M	55		760	580	851	187	65	425	236	1265	1207	939	901	952	1469	438	SPB (4x)
	280S	75		728	580	851	187	75	450	250	1265	1207	939	901	952	1437	438	SPB (6x)
	280M	90		728	580	851	187	75	450	250	1265	1207	1034	901	952	1437	438	SPB (6x)

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X3F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F180	LVF X3F190	PVF max.	QVF	
X180 – 190	200L	30	1.25	657	530	663	154	55	224	180	1152	1043	803	972	1004	1275	423	SPB (4x)
	225S	37		800	530	696	187	60	265	212	1327	1223	804	972	1004	1418	456	SPB (4x)
	225M	45		793	530	696	187	60	300	236	1327	1223	804	972	1004	1411	456	SPB (4x)
	250M	55		813	530	949	187	65	335	265	1327	1223	939	972	1004	1542	456	SPB (4x)
	280S	75		916	750	959	197	75	315	250	1524	1523	949	1082	1114	1645	466	SPB (6x)
	280M	90		904	750	959	197	75	375	300	1524	1523	1044	1082	1114	1633	466	SPB (6x)
	315S	110		872	750	959	197	80	400	315	1524	1523	1138	1082	1114	1713	466	SPB (6x)
	315M	132		872	750	959	197	80	400	315	1524	1523	1138	1082	1114	1713	466	SPB (6x)
	200L	30	1.4	666	530	663	154	55	315	224	1152	1043	803	972	1004	1284	423	SPA (4x)
	225S	37		812	530	696	187	60	300	212	1327	1223	804	972	1004	1430	456	SPB (4x)
	225M	45		812	530	696	187	60	300	212	1327	1223	804	972	1004	1430	456	SPB (4x)
	250M	55		780	530	949	187	65	375	265	1327	1223	939	972	1004	1509	456	SPB (4x)
	280S	75		898	750	959	197	75	355	250	1524	1523	949	1082	1114	1627	466	SPB (6x)
	280M	90		899	750	959	197	75	400	280	1524	1523	1044	1082	1114	1628	466	SPB (6x)
	315S	110		932	750	959	197	80	450	315	1524	1523	1138	1082	1114	1773	466	SPB (6x)
	315M	132		932	750	959	197	80	450	315	1524	1523	1138	1082	1114	1773	466	SPB (6x)
	200L	30	1.6	667	530	663	154	55	335	212	1152	1043	803	972	1004	1285	423	SPB (3x)
	225S	37		793	530	696	187	60	355	224	1327	1223	804	972	1004	1411	456	SPA (4x)
	225M	45		783	530	696	187	60	335	212	1327	1223	804	972	1004	1401	456	SPB (4x)
	250M	55		777	530	949	187	65	355	224	1327	1223	939	972	1004	1506	456	SPB (5x)
	280S	75		912	750	959	197	75	400	250	1524	1523	949	1082	1114	1650	466	SPB (6x)
	280M	90		908	750	959	197	75	450	280	1524	1523	1044	1082	1114	1637	466	SPB (6x)
	315S	110		890	750	959	197	80	500	315	1524	1523	1138	1082	1114	1731	466	SPB (6x)
	315M	132		890	750	959	197	80	500	315	1524	1523	1138	1082	1114	1731	466	SPB (6x)
	200L	30	1.8	679	530	663	154	55	375	212	1152	1043	803	972	1004	1297	423	SPB (3x)
	225S	37		790	530	696	187	60	400	224	1327	1223	804	972	1004	1408	456	SPA (4x)
	225M	45		795	530	696	187	60	355	200	1327	1223	804	972	1004	1413	456	SPB (5x)
	250M	55		790	530	949	187	65	400	224	1327	1223	939	972	1004	1519	456	SPB (5x)
	280S	75		899	750	959	197	75	450	250	1524	1523	949	1082	1114	1628	466	SPB (6x)
	280M	90		916	750	959	197	75	500	280	1524	1523	1044	1082	1114	1645	466	SPB (6x)
	315S	110		924	750	959	197	80	560	315	1524	1523	1138	1082	1114	1765	466	SPB (6x)
	315M	132		924	750	959	197	80	560	315	1524	1523	1138	1082	1114	1765	466	SPB (6x)

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X3F..	IEC	P_M kW	i	AVF max.	BVF	BV R	CV F	Ø D7	Ø DV1	Ø DV2	HVF	HVR	LBV	LVF X3F200	LVF X3F210	PVF max.	QVF	
X200 – 210	225S	37	1.25	800	530	729	187	60	265	212	1367	1223	804	1059	1095	1458	474	SPB (4x)
	225M	45		793	530	729	187	60	300	236	1367	1223	804	1059	1095	1451	474	SPB (4x)
	250M	55		888	750	977	197	65	335	265	1564	1523	949	1169	1205	1657	484	SPB (4x)
	280S	75		916	750	977	197	75	315	250	1564	1523	949	1169	1205	1685	484	SPB (6x)
	280M	90		904	750	977	197	75	375	300	1564	1523	1044	1169	1205	1673	484	SPB (6x)
	315S	110		897	750	977	197	80	400	315	1564	1523	1138	1169	1205	1778	484	SPB (8x)
	315M	132		897	750	977	197	80	400	315	1564	1523	1138	1169	1205	1778	484	SPB (8x)
	315L	160		937	750	977	197	80	425	335	1564	1523	1268	1169	1205	1833	484	SPC (6x)
	225S	37	1.4	797	530	729	187	60	280	200	1367	1223	804	1059	1095	1455	474	SPB (4x)
	225M	45		812	530	729	187	60	300	212	1367	1223	804	1059	1095	1470	474	SPB (4x)
	250M	55		910	750	977	197	65	335	236	1564	1523	949	1169	1205	1679	484	SPB (4x)
	280S	75		898	750	977	197	75	355	250	1564	1523	949	1169	1205	1667	484	SPB (6x)
	280M	90		899	750	977	197	75	400	280	1564	1523	1044	1169	1205	1668	484	SPB (6x)
	315S	110		881	750	977	197	80	450	315	1564	1523	1138	1169	1205	1762	484	SPB (8x)
	315M	132		881	750	977	197	80	450	315	1564	1523	1138	1169	1205	1762	484	SPB (8x)
	315L	160		896	750	977	197	80	475	335	1564	1523	1268	1169	1205	1792	484	SPC (6x)
	225S	37	1.6	793	530	729	187	60	355	224	1367	1223	804	1059	1095	1451	474	SPA (4x)
	225M	45		783	530	729	187	60	335	212	1367	1223	804	1059	1095	1441	474	SPB (4x)
	250M	55		903	750	977	197	65	355	224	1564	1523	949	1169	1205	1672	484	SPB (5x)
	280S	75		921	750	977	197	75	400	250	1564	1523	949	1169	1205	1690	484	SPB (6x)
	280M	90		908	750	977	197	75	450	280	1564	1523	1044	1169	1205	1677	484	SPB (6x)
	315S	110		890	750	977	197	80	500	315	1564	1523	1138	1169	1205	1771	484	SPB (8x)
	315M	132		890	750	977	197	80	500	315	1564	1523	1138	1169	1205	1771	484	SPB (8x)
	315L	160		910	750	977	197	80	560	335	1564	1523	1268	1169	1205	1806	484	SPC (6x)
	225S	37	1.8	790	530	729	187	60	400	224	1367	1223	804	1059	1095	1448	474	SPA (4x)
	225M	45		795	530	729	187	60	355	200	1367	1223	804	1059	1095	1453	474	SPB (5x)
	250M	55		911	750	977	197	65	425	236	1564	1523	949	1169	1205	1680	484	SPB (4x)
	280S	75		899	750	977	197	75	450	250	1564	1523	949	1169	1205	1668	484	SPB (6x)
	280M	90		916	750	977	197	75	500	280	1564	1523	1044	1169	1205	1685	484	SPB (6x)
	315S	110		924	750	977	197	80	560	315	1564	1523	1138	1169	1205	1805	484	SPB (8x)
	315M	132		924	750	977	197	80	560	315	1564	1523	1138	1169	1205	1805	484	SPB (8x)

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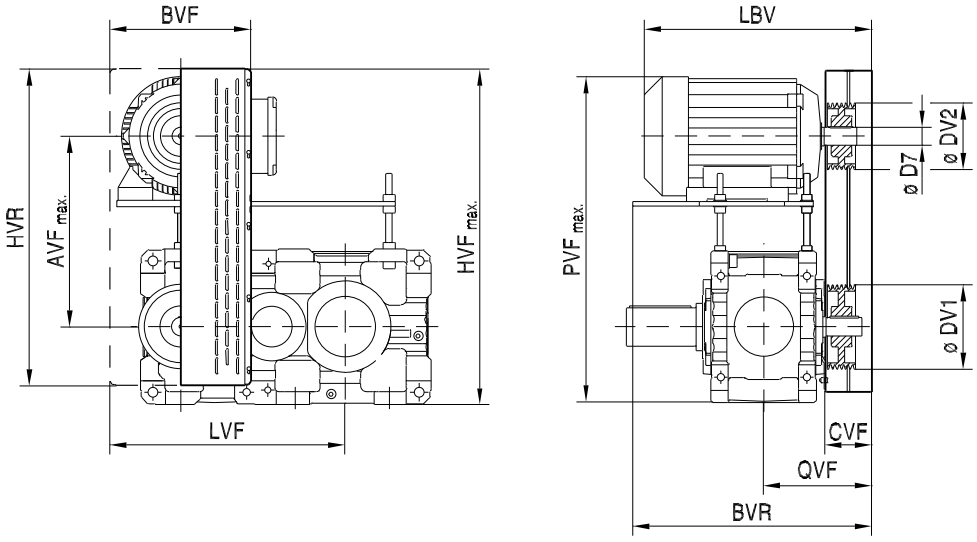
X3F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F220	LVF X3F230	PVF max.	QVF	
X220 – 230	250M	55	1.25	888	750	973	197	65	335	265	1614	1523	949	1269	1309	1707	508	SPB (4x)
	280S	75		916	750	973	197	75	315	250	1614	1523	949	1269	1309	1735	508	SPB (6x)
	280M	90		904	750	973	197	75	375	300	1614	1523	1044	1269	1309	1723	508	SPB (6x)
	315S	110		897	750	973	197	80	400	315	1614	1523	1138	1269	1309	1828	508	SPB (8x)
	315M	132		897	750	973	197	80	400	315	1614	1523	1138	1269	1309	1828	508	SPB (8x)
	315L	160		937	750	973	197	80	425	335	1614	1523	1268	1269	1309	1883	508	SPC (6x)
	315H	200		937	750	973	197	80	425	335	1614	1523	1268	1269	1309	1883	508	SPC (6x)
	250M	55	1.4	910	750	973	197	65	335	236	1614	1523	949	1269	1309	1729	508	SPB (4x)
	280S	75		898	750	973	197	75	355	250	1614	1523	949	1269	1309	1717	508	SPB (6x)
	280M	90		899	750	973	197	75	400	280	1614	1523	1044	1269	1309	1718	508	SPB (6x)
	315S	110		881	750	973	197	80	450	315	1614	1523	1138	1269	1309	1812	508	SPB (8x)
	315M	132		881	750	973	197	80	450	315	1614	1523	1138	1269	1309	1812	508	SPB (8x)
	315L	160		896	750	973	197	80	475	335	1614	1523	1268	1269	1309	1842	508	SPC (6x)
	315H	200		896	750	973	197	80	475	335	1614	1523	1268	1269	1309	1842	508	SPC (6x)
	250M	55	1.6	903	750	973	197	65	355	224	1614	1523	949	1269	1309	1722	508	SPB (5x)
	280S	75		921	750	973	197	75	400	250	1614	1523	949	1269	1309	1740	508	SPB (6x)
	280M	90		908	750	973	197	75	450	280	1614	1523	1044	1269	1309	1727	508	SPB (6x)
	315S	110		890	750	973	197	80	500	315	1614	1523	1138	1269	1309	1821	508	SPB (8x)
	315M	132		890	750	973	197	80	500	315	1614	1523	1138	1269	1309	1821	508	SPB (8x)
	315L	160		910	750	973	197	80	560	335	1614	1523	1268	1269	1309	1856	508	SPC (6x)
	315H	200		910	750	973	197	80	560	335	1614	1523	1268	1269	1309	1856	508	SPC (6x)
	250M	55	1.8	911	750	973	197	65	425	236	1614	1523	949	1269	1309	1730	508	SPB (4x)
	280S	75		899	750	973	197	75	450	250	1614	1523	949	1269	1309	1718	508	SPB (6x)
	280M	90		916	750	973	197	75	500	280	1614	1523	1044	1269	1309	1735	508	SPB (6x)
	315S	110		924	750	973	197	80	560	315	1614	1523	1138	1269	1309	1855	508	SPB (8x)
	315M	132		924	750	973	197	80	560	315	1614	1523	1138	1269	1309	1855	508	SPB (8x)
	315L	160		950	750	973	197	80	630	335	1614	1523	1268	1269	1309	1896	508	SPC (6x)
	315H	200		950	750	973	197	80	630	335	1614	1523	1268	1269	1309	1896	508	SPC (6x)

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14.24.2 X4F.. V-belt drives /VBD [mm]

X4F..

48 003 01 11



X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F120	LVF X4F130	PVF max.	QVF	
X120 – 130	100LS	2.2	1.25	551	500	526	132	28	160	125	917	914	441	677	713	941.5	310	SPZ (1x)
	100L	3		551	500	526	132	28	160	125	917	914	491	677	713	941.5	310	SPZ (1x)
	112M	4		551	500	526	132	28	160	125	917	914	519	677	713	955	310	SPZ (2x)
	100LS	2.2	1.4	553	500	526	132	28	180	125	917	914	441	677	713	943.5	310	SPZ (1x)
	100L	3		553	500	526	132	28	180	125	917	914	491	677	713	943.5	310	SPZ (1x)
	112M	4		553	500	526	132	28	180	125	917	914	519	677	713	957	310	SPZ (2x)
	100LS	2.2	1.6	549	500	526	132	28	200	125	917	914	441	677	713	939.5	310	SPZ (1x)
	100L	3		549	500	526	132	28	200	125	917	914	491	677	713	939.5	310	SPZ (1x)
	112M	4		549	500	526	132	28	200	125	917	914	519	677	713	953	310	SPZ (2x)
	100LS	2.2	1.8	549	500	526	132	28	224	125	917	914	441	677	713	939.5	310	SPZ (1x)
	100L	3		549	500	526	132	28	224	125	917	914	491	677	713	939.5	310	SPZ (1x)

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X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F140	LVF X4F150	PVF max.	QVF	
X140 – 150	100LS	2.2	1.25	551	500	529	132	28	160	125	957	914	441	752	794	981.5	349	SPZ (1x)
	100L	3		551	500	529	132	28	160	125	957	914	491	752	794	981.5	349	SPZ (1x)
	112M	4		551	500	529	132	28	160	125	957	914	519	752	794	995	349	SPZ (2x)
	132S	5.5		551	500	529	132	38	160	125	957	914	569	752	794	995	349	SPZ (2x)
	132M	7.5		548	500	529	132	38	200	160	957	914	571	752	794	1041	349	SPZ (2x)
	132L	9.2		554	500	529	132	38	180	140	957	914	596	752	794	1047	349	SPZ (3x)
	160M	11		548	500	529	132	42	200	160	957	914	664	752	794	1067	349	SPZ (3x)
	160L	15		552	500	529	132	42	250	200	957	914	664	752	794	1071	349	SPZ (3x)
	100LS	2.2	1.4	553	500	529	132	28	180	125	957	914	441	752	794	983.5	349	SPZ (1x)
	100L	3		553	500	529	132	28	180	125	957	914	491	752	794	983.5	349	SPZ (1x)
	112M	4		553	500	529	132	28	180	125	957	914	519	752	794	997	349	SPZ (2x)
	132S	5.5		553	500	529	132	38	180	125	957	914	569	752	794	997	349	SPZ (2x)
	132M	7.5		553	500	529	132	38	224	160	957	914	571	752	794	1046	349	SPZ (2x)
	132L	9.2		551	500	529	132	38	200	140	957	914	596	752	794	1044	349	SPZ (3x)
	160M	11		553	500	529	132	42	224	160	957	914	664	752	794	1072	349	SPZ (3x)
	160L	15		552	500	529	132	42	280	200	957	914	664	752	794	1071	349	SPZ (3x)
	100LS	2.2	1.6	549	500	529	132	28	200	125	957	914	441	752	794	979.5	349	SPZ (1x)
	100L	3		549	500	529	132	28	200	125	957	914	491	752	794	979.5	349	SPZ (1x)
	112M	4		549	500	529	132	28	200	125	957	914	519	752	794	993	349	SPZ (2x)
	132S	5.5		549	500	529	132	38	200	125	957	914	569	752	794	993	349	SPZ (2x)
	132M	7.5		551	500	529	132	38	250	160	957	914	571	752	794	1044	349	SPZ (2x)
	132L	9.2		556	500	529	132	38	224	140	957	914	596	752	794	1049	349	SPZ (3x)
	160M	11		551	500	529	132	42	250	160	957	914	664	752	794	1070	349	SPZ (3x)
	160L	15		551	500	529	132	42	250	160	957	914	664	752	794	1070	349	SPZ (3x)
	100LS	2.2	1.8	549	500	529	132	28	224	125	957	914	441	752	794	979.5	349	SPZ (1x)
	100L	3		549	500	529	132	28	224	125	957	914	491	752	794	979.5	349	SPZ (1x)
	112M	4		549	500	529	132	28	224	125	957	914	519	752	794	993	349	SPZ (2x)
	132S	5.5		549	500	529	132	38	224	125	957	914	569	752	794	993	349	SPZ (2x)
	132M	7.5		544	500	529	132	38	280	160	957	914	571	752	794	1037	349	SPZ (2x)
	132L	9.2		547	500	529	132	38	250	140	957	914	596	752	794	1040	349	SPZ (3x)
	160M	11		544	500	529	132	42	280	160	957	914	664	752	794	1063	349	SPZ (3x)

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X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F160	LVF X4F170	PVF max.	QVF	
X160 – 170	112M	4	1.25	551	500	593	132	28	160	125	1007	914	519	861	912	1045	383	SPZ (2x)
	132S	5.5		667	530	615	154	38	180	140	1132	1043	591	876	927	1161	405	SPZ (2x)
	132M	7.5		667	530	615	154	38	200	160	1132	1043	593	876	927	1210	405	SPZ (2x)
	132L	9.2		667	530	615	154	38	200	160	1132	1043	618	876	927	1210	405	SPZ (3x)
	160M	11		667	530	615	154	42	200	160	1132	1043	686	876	927	1236	405	SPZ (3x)
	160L	15		665	530	615	154	42	250	200	1132	1043	686	876	927	1236	405	SPZ (3x)
	112M	4	1.4	553	500	593	132	28	180	125	1007	914	519	861	912	1047	383	SPZ (2x)
	132S	5.5		663	530	615	154	38	200	140	1132	1043	591	876	927	1157	405	SPZ (2x)
	132M	7.5		666	530	615	154	38	224	160	1132	1043	593	876	927	1209	405	SPZ (2x)
	132L	9.2		666	530	615	154	38	224	160	1132	1043	618	876	927	1209	405	SPZ (3x)
	160M	11		666	530	615	154	42	224	160	1132	1043	686	876	927	1235	405	SPZ (3x)
	160L	15		665	530	615	154	42	280	200	1132	1043	686	876	927	1234	405	SPZ (3x)
	112M	4	1.6	549	500	593	132	28	200	125	1007	914	519	861	912	1043	383	SPZ (2x)
	132S	5.5		663	530	615	154	38	224	140	1132	1043	591	876	927	1157	405	SPZ (2x)
	132M	7.5		670	530	615	154	38	250	160	1132	1043	593	876	927	1213	405	SPZ (2x)
	132L	9.2		670	530	615	154	38	250	160	1132	1043	618	876	927	1213	405	SPZ (3x)
	160M	11		670	530	615	154	42	250	160	1132	1043	686	876	927	1239	405	SPZ (3x)
	160L	15		667	530	615	154	42	250	160	1132	1043	686	876	927	1236	405	SPA (3x)
	112M	4	1.8	549	500	593	132	28	224	125	1007	914	519	861	912	1043	383	SPZ (2x)
	132S	5.5		666	530	615	154	38	250	140	1132	1043	591	876	927	1160	405	SPZ (2x)
	132M	7.5		670	530	615	154	38	280	160	1132	1043	593	876	927	1213	405	SPZ (2x)
	132L	9.2		670	530	615	154	38	280	160	1132	1043	618	876	927	1213	405	SPZ (3x)
	160M	11		670	530	615	154	42	280	160	1132	1043	686	876	927	1239	405	SPZ (3x)
	160L	15		668	530	615	154	42	280	160	1132	1043	686	876	927	1237	405	SPA (3x)

X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F180	LVF X4F190	PVF max.	QVF	
X180 – 190	132M	7.5	1.25	667	530	663	154	38	200	160	1152	1043	593	972	1004	1230	423	SPZ (2x)
	132L	9.2		657	530	663	154	38	224	180	1152	1043	618	972	1004	1220	423	SPZ (2x)
	160M	11		667	530	663	154	42	200	160	1152	1043	703	972	1004	1256	423	SPZ (3x)
	160L	15		665	530	663	154	42	250	200	1152	1043	703	972	1004	1254	423	SPZ (3x)
	180M	18.5		661	530	663	154	48	224	180	1152	1043	711	972	1004	1264	423	SPA (3x)
	180L	22		662	530	663	154	48	250	200	1152	1043	711	972	1004	1265	423	SPA (3x)
	132M	7.5	1.4	666	530	663	154	38	224	160	1152	1043	593	972	1004	1229	423	SPZ (2x)
	132L	9.2		655	530	663	154	38	250	180	1152	1043	618	972	1004	1218	423	SPZ (2x)
	160M	11		666	530	663	154	42	224	160	1152	1043	703	972	1004	1255	423	SPZ (3x)
	160L	15		665	530	663	154	42	280	200	1152	1043	703	972	1004	1254	423	SPZ (3x)
	180M	18.5		665	530	663	154	48	250	180	1152	1043	711	972	1004	1268	423	SPA (3x)
	180L	22		663	530	663	154	48	280	200	1152	1043	711	972	1004	1266	423	SPA (3x)
	132M	7.5	1.6	670	530	663	154	38	250	160	1152	1043	593	972	1004	1233	423	SPZ (2x)
	132L	9.2		662	530	663	154	38	280	180	1152	1043	618	972	1004	1225	423	SPZ (2x)
	160M	11		670	530	663	154	42	250	160	1152	1043	703	972	1004	1259	423	SPZ (3x)
	160L	15		667	530	663	154	42	250	160	1152	1043	703	972	1004	1256	423	SPA (3x)
	180M	18.5		662	530	663	154	48	280	180	1152	1043	711	972	1004	1265	423	SPA (3x)
	180L	22		659	530	663	154	48	315	200	1152	1043	711	972	1004	1262	423	SPA (3x)
	132M	7.5	1.8	670	530	663	154	38	280	160	1152	1043	593	972	1004	1233	423	SPZ (2x)
	132L	9.2		651	530	663	154	38	315	180	1152	1043	618	972	1004	1214	423	SPZ (2x)
	160M	11		670	530	663	154	42	280	160	1152	1043	703	972	1004	1259	423	SPZ (3x)
	160L	15		668	530	663	154	42	280	160	1152	1043	703	972	1004	1257	423	SPA (3x)
	180M	18.5		661	530	663	154	48	315	180	1152	1043	711	972	1004	1264	423	SPA (3x)

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X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F200	LVF X4F210	PVF max.	QVF	
X200 – 210	160M	11	1.25	767	530	729	187	42	224	180	1367	1223	736	1059	1095	1396	474	SPZ (2x)
	160L	15		770	530	729	187	42	200	160	1367	1223	736	1059	1095	1399	474	SPZ (3x)
	180M	18.5		773	530	729	187	48	224	180	1367	1223	744	1059	1095	1416	474	SPZ (3x)
	180L	22		797	530	729	187	48	250	200	1367	1223	744	1059	1095	1440	474	SPZ (3x)
	200L	30		801	530	729	187	55	250	200	1367	1223	836	1059	1095	1459	474	SPA (6x)
	225S	37		800	530	729	187	60	265	212	1367	1223	804	1059	1095	1458	474	SPA (4x)
	225M	45		793	530	729	187	60	300	236	1367	1223	804	1059	1095	1451	474	SPZ (4x)
	160M	11	1.4	777	530	729	187	42	250	180	1367	1223	736	1059	1095	1406	474	SPZ (2x)
	160L	15		800	530	729	187	42	280	200	1367	1223	736	1059	1095	1429	474	SPZ (3x)
	180M	18.5		790	530	729	187	48	250	180	1367	1223	744	1059	1095	1433	474	SPZ (3x)
	180L	22		798	530	729	187	48	280	200	1367	1223	744	1059	1095	1441	474	SPZ (3x)
	200L	30		800	530	729	187	55	280	200	1367	1223	836	1059	1095	1458	474	SPA (6x)
	225S	37		797	530	729	187	60	280	200	1367	1223	804	1059	1095	1455	474	SPA (4x)
	225M	45		812	530	729	187	60	300	212	1367	1223	804	1059	1095	1470	474	SPZ (4x)
	160M	11	1.6	766	530	729	187	42	280	180	1367	1223	736	1059	1095	1395	474	SPZ (2x)
	160L	15		793	530	729	187	42	250	160	1367	1223	736	1059	1095	1422	474	SPZ (3x)
	180M	18.5		782	530	729	187	48	280	180	1367	1223	744	1059	1095	1425	474	SPZ (3x)
	180L	22		794	530	729	187	48	315	200	1367	1223	744	1059	1095	1437	474	SPZ (3x)
	200L	30		798	530	729	187	55	335	212	1367	1223	836	1059	1095	1456	474	SPA (6x)
	225S	37		793	530	729	187	60	355	224	1367	1223	804	1059	1095	1451	474	SPA (4x)
	225M	45		783	530	729	187	60	335	212	1367	1223	804	1059	1095	1441	474	SPZ (4x)
	160M	11	1.8	797	530	729	187	42	280	160	1367	1223	736	1059	1095	1426	474	SPZ (2x)
	160L	15		781	530	729	187	42	280	160	1367	1223	736	1059	1095	1410	474	SPZ (3x)

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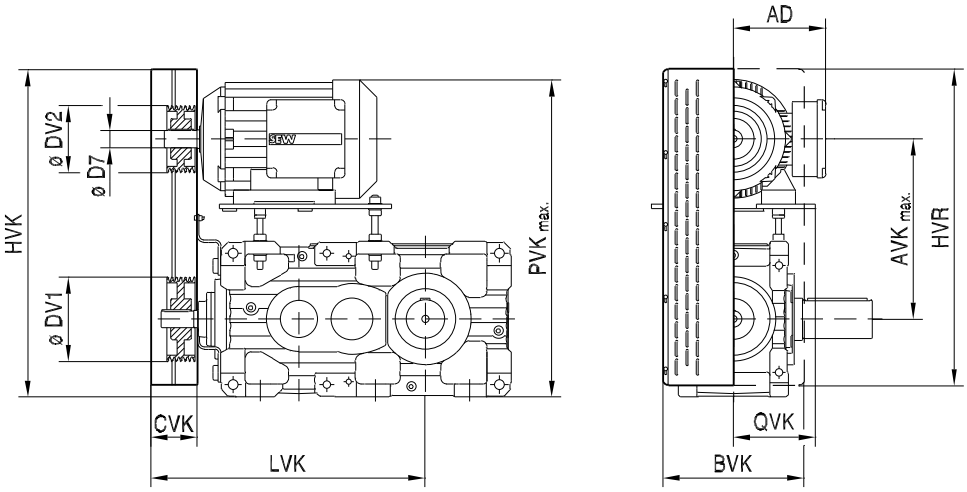
X4F..	IEC	P_M kW	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F220	LVF X4F230	PVF max.	QVF	
X220 – 230	160M	11	1.25	767	530	763	187	42	224	180	1417	1223	736	1159	1199	1446	498	SPA (2x)
	160L	15		770	530	763	187	42	200	160	1417	1223	736	1159	1199	1449	498	SPA (3x)
	180M	18.5		773	530	763	187	48	224	180	1417	1223	744	1159	1199	1466	498	SPA (3x)
	180L	22		782	530	763	187	48	250	200	1417	1223	744	1159	1199	1475	498	SPA (3x)
	200L	30		801	530	763	187	55	250	200	1417	1223	836	1159	1199	1509	498	SPZ (6x)
	225S	37		800	530	763	187	60	265	212	1417	1223	804	1159	1199	1508	498	SPB (4x)
	225M	45		793	530	763	187	60	300	236	1417	1223	804	1159	1199	1501	498	SPB (4x)
	160M	11	1.4	777	530	763	187	42	250	180	1417	1223	736	1159	1199	1456	498	SPA (2x)
	160L	15		800	530	763	187	42	280	200	1417	1223	736	1159	1199	1479	498	SPZ (3x)
	180M	18.5		790	530	763	187	48	250	180	1417	1223	744	1159	1199	1483	498	SPA (3x)
	180L	22		798	530	763	187	48	280	200	1417	1223	744	1159	1199	1491	498	SPA (3x)
	200L	30		800	530	763	187	55	280	200	1417	1223	836	1159	1199	1508	498	SPZ (6x)
	225S	37		797	530	763	187	60	280	200	1417	1223	804	1159	1199	1505	498	SPB (4x)
	225M	45		812	530	763	187	60	300	212	1417	1223	804	1159	1199	1520	498	SPB (4x)
	160M	11	1.6	766	530	763	187	42	280	180	1417	1223	736	1159	1199	1445	498	SPA (2x)
	160L	15		793	530	763	187	42	250	160	1417	1223	736	1159	1199	1472	498	SPA (3x)
	180M	18.5		782	530	763	187	48	280	180	1417	1223	744	1159	1199	1475	498	SPA (3x)
	180L	22		794	530	763	187	48	315	200	1417	1223	744	1159	1199	1487	498	SPA (3x)
	200L	30		798	530	763	187	55	335	212	1417	1223	836	1159	1199	1506	498	SPB (3x)
	225S	37		793	530	763	187	60	355	224	1417	1223	804	1159	1199	1501	498	SPA (4x)
	225M	45		783	530	763	187	60	335	212	1417	1223	804	1159	1199	1491	498	SPB (4x)
	160M	11	1.8	797	530	763	187	42	280	160	1417	1223	736	1159	1199	1476	498	SPZ (3x)
	160L	15		781	530	763	187	42	280	160	1417	1223	736	1159	1199	1460	498	SPA (3x)
	180M	18.5		797	530	763	187	48	315	180	1417	1223	744	1159	1199	1490	498	SPA (3x)
	180L	22		786	530	763	187	48	355	200	1417	1223	744	1159	1199	1479	498	SPA (3x)
	200L	30		820	530	763	187	55	375	212	1417	1223	836	1159	1199	1528	498	SPB (3x)
	225S	37		790	530	763	187	60	400	224	1417	1223	804	1159	1199	1498	498	SPA (4x)

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14.24.3 X3K.. V-belt drives /VBD [mm]

X3K..

48 021 02 08



X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	ØDV1	ØDV2	HVK	HVR	LVK X3K100	LVK X3K110	PVK max.	QVK	
X100 – 110	112M	4	1.25	170	468	440	132	28	125	100	789	783	683	703	837	175	SPZ (2x)
	132S	5.5		228	474	440	132	38	160	125	789	783	683	703	843	175	SPZ (2x)
	132M	7.5		253	473	440	132	38	200	160	789	783	683	703	891	175	SPZ (2x)
	132L	9.2		253	473	440	132	38	180	140	789	783	683	703	891	175	SPZ (3x)
	160M	11		268	473	440	132	42	200	160	789	783	683	703	917	175	SPZ (3x)
	160L	15		268	477	440	132	42	250	200	789	783	683	703	921	175	SPZ (3x)
	180M	18.5		268	471	440	132	48	250	200	789	783	683	703	929	175	SPA (3x)
	112M	4	1.4	170	480	440	132	28	140	100	789	783	683	703	849	175	SPZ (2x)
	132S	5.5		228	478	440	132	38	180	125	789	783	683	703	847	175	SPZ (2x)
	132M	7.5		253	472	440	132	38	224	160	789	783	683	703	890	175	SPZ (2x)
	132L	9.2		253	473	440	132	38	200	140	789	783	683	703	891	175	SPZ (3x)
	160M	11		268	472	440	132	42	224	160	789	783	683	703	916	175	SPZ (3x)
	160L	15		268	477	440	132	42	280	200	789	783	683	703	921	175	SPZ (3x)
	180M	18.5		268	477	440	132	48	250	180	789	783	683	703	935	175	SPA (3x)
	112M	4	1.6	170	476	440	132	28	160	100	789	783	683	703	845	175	SPZ (2x)
	132S	5.5		228	474	440	132	38	200	125	789	783	683	703	843	175	SPZ (2x)
	132M	7.5		253	469	440	132	38	250	160	789	783	683	703	887	175	SPZ (2x)
	132L	9.2		253	481	440	132	38	224	140	789	783	683	703	899	175	SPZ (3x)
	160M	11		268	469	440	132	42	250	160	789	783	683	703	913	175	SPZ (3x)
	160L	15		268	479	440	132	42	250	160	789	783	683	703	923	175	SPA (3x)
	180M	18.5		268	477	440	132	48	280	180	789	783	683	703	935	175	SPA (3x)
	112M	4	1.8	170	477	440	132	28	180	100	789	783	683	703	846	175	SPZ (2x)
	132S	5.5		228	479	440	132	38	224	125	789	783	683	703	848	175	SPZ (2x)
	132M	7.5		253	475	440	132	38	280	160	789	783	683	703	893	175	SPZ (2x)
	132L	9.2		253	471	440	132	38	250	140	789	783	683	703	889	175	SPZ (3x)
	160M	11		268	475	440	132	42	280	160	789	783	683	703	919	175	SPZ (3x)
	160L	15		268	475	440	132	42	280	160	789	783	683	703	919	175	SPA (3x)
	180M	18.5		268	472	440	132	48	315	180	789	783	683	703	930	175	SPA (3x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K120	LVK X3K130	PVK max.	QVK	
X120 – 130	132S	5.5	1.25	228	551	500	132	38	160	125	917	914	777	813	955	218	SPZ (2x)
	132M	7.5		253	548	500	132	38	200	160	917	914	777	813	1001	218	SPZ (2x)
	132L	9.2		253	554	500	132	38	180	140	917	914	777	813	1007	218	SPZ (3x)
	160M	11		268	548	500	132	42	200	160	917	914	777	813	1027	218	SPZ (3x)
	160L	15		268	552	500	132	42	250	200	917	914	777	813	1031	218	SPZ (3x)
	180M	18.5		268	548	500	132	48	224	180	917	914	777	813	1041	218	SPA (3x)
	180L	22		268	549	500	132	48	250	200	917	914	777	813	1042	218	SPA (3x)
	200L	30		283	552	500	132	55	250	200	917	914	777	813	1060	218	SPZ (6x)
	225S	37		305	550	500	132	60	265	212	917	914	777	813	1058	218	SPB (4x)
	225M	45		305	663	530	154	60	300	236	1042	914	799	835	1171	218	SPB (4x)
	132S	5.5	1.4	228	553	500	132	38	180	125	917	914	777	813	957	218	SPZ (2x)
	132M	7.5		253	553	500	132	38	224	160	917	914	777	813	1006	218	SPZ (2x)
	132L	9.2		253	551	500	132	38	200	140	917	914	777	813	1004	218	SPZ (3x)
	160M	11		268	553	500	132	42	224	160	917	914	777	813	1032	218	SPZ (3x)
	160L	15		268	552	500	132	42	280	200	917	914	777	813	1031	218	SPZ (3x)
	180M	18.5		268	552	500	132	48	250	180	917	914	777	813	1045	218	SPA (3x)
	180L	22		268	550	500	132	48	280	200	917	914	777	813	1043	218	SPA (3x)
	200L	30		283	552	500	132	55	280	200	917	914	777	813	1060	218	SPZ (6x)
	225S	37		305	546	500	132	60	300	212	917	914	777	813	1054	218	SPB (4x)
	225M	45		305	681	530	154	60	300	212	1042	914	799	835	1189	218	SPB (4x)
	132S	5.5	1.6	228	549	500	132	38	200	125	917	914	777	813	953	218	SPZ (2x)
	132M	7.5		253	551	500	132	38	250	160	917	914	777	813	1004	218	SPZ (2x)
	132L	9.2		253	556	500	132	38	224	140	917	914	777	813	1009	218	SPZ (3x)
	160M	11		268	551	500	132	42	250	160	917	914	777	813	1030	218	SPZ (3x)
	160L	15		268	551	500	132	42	250	160	917	914	777	813	1030	218	SPA (3x)
	180M	18.5		268	552	500	132	48	280	180	917	914	777	813	1045	218	SPA (3x)
	180L	22		268	546	500	132	48	315	200	917	914	777	813	1039	218	SPA (3x)
	200L	30		283	542	500	132	55	335	212	917	914	777	813	1050	218	SPB (3x)
	225S	37		305	545	500	132	60	355	224	917	914	777	813	1053	218	SPA (4x)
	225M	45		305	652	530	154	60	335	212	1042	914	799	835	1160	218	SPB (4x)
	132S	5.5	1.8	228	549	500	132	38	224	125	917	914	777	813	953	218	SPZ (2x)
	132M	7.5		253	544	500	132	38	280	160	917	914	777	813	997	218	SPZ (2x)
	132L	9.2		253	547	500	132	38	250	140	917	914	777	813	1000	218	SPZ (3x)
	160M	11		268	544	500	132	42	280	160	917	914	777	813	1023	218	SPZ (3x)
	160L	15		268	555	500	132	42	280	160	917	914	777	813	1034	218	SPA (3x)
	180M	18.5		268	548	500	132	48	315	180	917	914	777	813	1041	218	SPA (3x)
	180L	22		268	549	500	132	48	355	200	917	914	777	813	1042	218	SPA (3x)
	200L	30		283	558	500	132	55	375	212	917	914	777	813	1066	218	SPB (3x)
	225S	37		305	556	500	132	60	400	224	917	0	777	813	1064	218	SPA (4x)
	225M	45		305	659	530	154	60	355	200	1042	0	799	835	1167	218	SPB (5x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K140	LVK X3K150	PVK max.	QVK	
X140 – 150	160L	15	1.25	268	552	500	132	42	250	200	957	914	902	944	1071	279	SPZ (3x)
	180M	18.5		268	661	530	154	48	224	180	1082	1043	924	966	1194	279	SPA (3x)
	180L	22		268	662	530	154	48	250	200	1082	1043	924	966	1195	279	SPA (3x)
	200L	30		283	665	530	154	55	250	200	1082	1043	924	966	1213	279	SPZ (6x)
	225S	37		305	660	530	154	60	265	212	1082	1043	924	966	1208	279	SPB (4x)
	225M	45		305	663	530	154	60	300	236	1082	1043	924	966	1211	279	SPB (4x)
	250M	55		394	758	580	187	65	335	265	1215	1207	957	999	1417	279	SPB (4x)
	280S	75		394	771	580	187	75	315	250	1215	1207	957	999	1430	279	SPB (6x)
	280M	90		394	771	580	187	75	315	250	1215	1207	957	999	1430	279	SPB (6x)
	160L	15	1.4	268	552	500	132	42	280	200	957	914	902	944	1071	279	SPZ (3x)
	180M	18.5		268	665	530	154	48	250	180	1082	1043	924	966	1198	279	SPA (3x)
	180L	22		268	663	530	154	48	280	200	1082	1043	924	966	1196	279	SPA (3x)
	200L	30		283	665	530	154	55	280	200	1082	1043	924	966	1213	279	SPZ (6x)
	225S	37		305	651	530	154	60	300	212	1082	1043	924	966	1199	279	SPB (4x)
	225M	45		305	681	530	154	60	300	212	1082	1043	924	966	1229	279	SPB (4x)
	250M	55		394	730	580	187	65	375	265	1215	1207	957	999	1389	279	SPB (4x)
	280S	75		394	738	580	187	75	355	250	1215	1207	957	999	1397	279	SPB (6x)
	280M	90		394	738	580	187	75	355	250	1215	1207	957	999	1397	279	SPB (6x)
	160L	15	1.6	268	551	500	132	42	250	160	957	914	902	944	1070	279	SPA (3x)
	180M	18.5		268	662	530	154	48	280	180	1082	914	924	966	1195	279	SPA (3x)
	180L	22		268	659	530	154	48	315	200	1082	1043	924	966	1192	279	SPA (3x)
	200L	30		283	667	530	154	55	335	212	1082	1043	924	966	1215	279	SPB (3x)
	225S	37		305	670	530	154	60	355	224	1082	1043	924	966	1218	279	SPA (4x)
	225M	45		305	652	530	154	60	335	212	1082	1043	924	966	1200	279	SPB (4x)
	250M	55		394	757	580	187	65	355	224	1215	1043	957	999	1416	279	SPB (5x)
	280S	75		394	771	580	187	75	400	250	1215	1207	957	999	1430	279	SPB (6x)
	280M	90		394	771	580	187	75	400	250	1215	1207	957	999	1430	279	SPB (6x)
	160L	15	1.8	268	555	500	132	42	280	160	957	1207	902	944	1074	279	SPA (3x)
	180M	18.5		268	661	530	154	48	315	180	1082	914	924	966	1194	279	SPA (3x)
	180L	22		268	675	530	154	48	355	200	1082	1043	924	966	1208	279	SPA (3x)
	200L	30		283	679	530	154	55	375	212	1082	1043	924	966	1227	279	SPB (3x)
	225S	37		305	680	530	154	60	400	224	1082	1043	924	966	1228	279	SPA (4x)
	225M	45		305	659	530	154	60	355	200	1082	1043	924	966	1207	279	SPB (5x)
	250M	55		394	739	580	187	65	400	224	1215	1043	957	999	1398	279	SPB (5x)
	280S	75		394	728	580	187	75	450	250	1215	1207	957	999	1387	279	SPB (6x)
	280M	90		394	728	580	187	75	450	250	1215	1207	957	999	1387	279	SPB (6x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K160	LVK X3K170	PVK max.	QVK	
X160 – 170	180L	22	1.25	268	662	530	154	48	250	200	1132	1043	1052	1103	1245	320	SPA (3x)
	200L	30		283	665	530	154	55	250	200	1132	1043	1052	1103	1263	320	SPZ (6x)
	225S	37		305	660	530	154	60	265	212	1132	1043	1052	1103	1258	320	SPB (4x)
	225M	45		305	753	580	187	60	300	236	1265	1207	1085	1136	1351	320	SPB (4x)
	250M	55		394	758	580	187	65	335	265	1265	1207	1085	1136	1467	320	SPB (4x)
	280S	75		394	771	580	187	75	315	250	1265	1207	1085	1136	1480	320	SPB (6x)
	280M	90		394	771	580	187	75	315	250	1265	1207	1085	1136	1480	320	SPB (6x)
	315S	110		506	754	580	187	80	375	300	1265	1207	1085	1136	1575	320	SPB (6x)
	315M	132		506	752	580	187	80	425	335	1265	1207	1085	1136	1573	320	SPB (4x)
	180L	22	1.4	268	663	530	154	48	280	200	1132	1043	1052	1103	1246	320	SPA (3x)
	200L	30		283	665	530	154	55	280	200	1132	1043	1052	1103	1263	320	SPZ (6x)
	225S	37		305	651	530	154	60	300	212	1132	1043	1052	1103	1249	320	SPB (4x)
	225M	45		305	742	580	187	60	300	212	1265	1207	1085	1136	1340	320	SPB (4x)
	250M	55		394	730	580	187	65	375	265	1265	1207	1085	1136	1439	320	SPB (4x)
	280S	75		394	738	580	187	75	355	250	1265	1207	1085	1136	1447	320	SPB (6x)
	280M	90		394	738	580	187	75	355	250	1265	1207	1085	1136	1447	320	SPB (6x)
	315S	110		506	756	580	187	80	450	335	1265	1207	1085	1136	1577	320	SPB (6x)
	315M	132		506	746	580	187	80	450	315	1265	1207	1085	1136	1567	320	SPB (4x)
	180L	22	1.6	268	659	530	154	48	315	200	1132	1043	1132	1103	1242	320	SPA (3x)
	200L	30		283	667	530	154	55	335	212	1132	1043	1132	1103	1265	320	SPB (3x)
	225S	37		305	670	530	154	60	355	224	1132	1043	1132	1103	1268	320	SPA (4x)
	225M	45		305	783	580	187	60	335	212	1265	1207	1265	1136	1381	320	SPB (4x)
	250M	55		394	757	580	187	65	355	224	1265	1207	1265	1136	1466	320	SPB (5x)
	280S	75		394	771	580	187	75	400	250	1265	1207	1265	1136	1480	320	SPB (6x)
	280M	90		394	771	580	187	75	400	250	1265	1207	1265	1136	1480	320	SPB (6x)
	315S	110		506	756	580	187	80	400	250	1265	1207	1265	1136	1577	320	SPB (6x)
	315M	132		506	761	580	187	80	400	250	1265	1207	1265	1136	1582	320	SPB (6x)
	180L	22	1.8	268	675	530	154	48	355	200	1132	1043	1052	1103	1258	320	SPA (3x)
	200L	30		283	679	530	154	55	375	212	1132	1043	1052	1103	1277	320	SPB (3x)
	225S	37		305	680	530	154	60	400	224	1132	1043	1052	1103	1278	320	SPA (4x)
	225M	45		305	775	580	187	60	355	200	1265	1207	1085	1136	1373	320	SPB (5x)
	250M	55		394	739	580	187	65	400	224	1265	1207	1085	1136	1448	320	SPB (5x)
	280S	75		394	728	580	187	75	450	250	1265	1207	1085	1136	1437	320	SPB (6x)
	280M	90		394	728	580	187	75	450	250	1265	1207	1085	1136	1437	320	SPB (6x)
	315S	110		506	750	580	187	80	425	236	1265	1207	1085	1136	1571	320	SPB (6x)
	315M	132		506	750	580	187	80	425	236	1265	1207	1085	1136	1571	320	SPB (6x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K180	LVK X3K190	PVK max.	QVK	
X180 – 190	200L	30	1.25	283	657	530	154	55	224	180	1152	1043	1146	1178	1275	319	SPB (4x)
	225S	37		305	800	530	187	60	265	212	1327	1223	1179	1211	1418	319	SPB (4x)
	225M	45		305	793	530	187	60	300	236	1327	1223	1179	1211	1411	319	SPB (4x)
	280S	75		394	916	750	197	75	315	250	1524	1523	1189	1221	1645	319	SPB (6x)
	280M	90		394	904	750	197	75	375	300	1524	1523	1189	1221	1633	319	SPB (6x)
	315S	110		506	872	750	197	80	400	315	1524	1523	1189	1221	1713	319	SPB (6x)
	315M	132		506	872	750	197	80	400	315	1524	1523	1189	1221	1713	319	SPB (6x)
	200L	30	1.4	283	666	530	154	55	315	224	1152	1043	1146	1178	1284	319	SPA (4x)
	225S	37		305	812	530	187	60	300	212	1327	1223	1179	1211	1430	319	SPB (4x)
	225M	45		305	812	530	187	60	300	212	1327	1223	1179	1211	1430	319	SPB (4x)
	280S	75		394	898	750	197	75	355	250	1524	1523	1189	1221	1627	319	SPB (6x)
	280M	90		394	899	750	197	75	400	280	1524	1523	1189	1221	1628	319	SPB (6x)
	315S	110		506	932	750	197	80	450	315	1524	1523	1189	1221	1773	319	SPB (6x)
	315M	132		506	932	750	197	80	450	315	1524	1523	1189	1221	1773	319	SPB (6x)
	200L	30	1.6	283	667	530	154	55	335	212	1152	1043	1146	1178	1285	319	SPB (3x)
	225S	37		305	793	530	187	60	355	224	1327	1223	1179	1211	1411	319	SPA (4x)
	225M	45		305	783	530	187	60	335	212	1327	1223	1179	1211	1401	319	SPB (4x)
	280S	75		394	921	750	197	75	400	250	1524	1523	1189	1221	1650	319	SPB (6x)
	280M	90		394	908	750	197	75	450	280	1524	1523	1189	1221	1637	319	SPB (6x)
	315S	110		506	890	750	197	80	500	315	1524	1523	1189	1221	1731	319	SPB (6x)
	315M	132		506	890	750	197	80	500	315	1524	1523	1189	1221	1731	319	SPB (6x)
	200L	30	1.8	283	679	530	154	55	375	212	1152	1043	1146	1178	1297	319	SPB (3x)
	225S	37		305	790	530	187	60	400	224	1327	1223	1179	1211	1408	319	SPA (4x)
	225M	45		305	795	530	187	60	355	200	1327	1223	1179	1211	1413	319	SPB (5x)
	280S	75		394	899	750	197	75	450	250	1524	1523	1189	1221	1628	319	SPB (6x)
	280M	90		394	916	750	197	75	500	280	1524	1523	1189	1221	1645	319	SPB (6x)
	315S	110		506	924	750	197	80	560	315	1524	1523	1189	1221	1765	319	SPB (6x)
	315M	132		506	924	750	197	80	560	315	1524	1523	1189	1221	1765	319	SPB (6x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K200	LVK X3K210	PVK max.	QVK	
X200 – 210	200L	30	1.25	283	792	530	187	55	280	224	1367	1223	1297	1333	1450	319	SPA (5x)
	225S	37		305	792	530	187	60	280	224	1367	1223	1297	1333	1450	319	SPA (5x)
	225M	45		305	791	530	187	60	315	250	1367	1223	1297	1333	1449	319	SPB (4x)
	280S	75		394	916	750	197	75	315	250	1564	1523	1307	1343	1685	319	SPB (6x)
	280M	90		394	904	750	197	75	375	300	1564	1523	1307	1343	1673	319	SPB (6x)
	315S	110		506	897	750	197	80	400	315	1564	1523	1307	1343	1778	319	SPB (8x)
	315M	132		506	897	750	197	80	400	315	1564	1523	1307	1343	1778	319	SPB (8x)
	315L	160		506	937	750	197	80	425	335	1564	1523	1307	1343	1883	319	SPC (6x)
	315H	200		506	937	750	197	80	425	335	1564	1523	1307	1343	1883	319	SPC (6x)
	200L	30	1.4	283	790	530	187	55	315	224	1367	1223	1297	1333	1448	319	SPB (4x)
	225S	37		305	790	530	187	60	315	224	1367	1223	1297	1333	1448	319	SPB (4x)
	225M	45		305	785	530	187	60	335	236	1367	1223	1297	1333	1443	319	SPB (4x)
	280S	75		394	898	750	197	75	355	250	1564	1523	1307	1343	1667	319	SPB (6x)
	280M	90		394	899	750	197	75	400	280	1564	1523	1307	1343	1668	319	SPB (6x)
	315S	110		506	881	750	197	80	450	315	1564	1523	1307	1343	1762	319	SPB (8x)
	315M	132		506	881	750	197	80	450	315	1564	1523	1307	1343	1762	319	SPB (8x)
	315L	160		506	896	750	197	80	475	335	1564	1523	1307	1343	1792	319	SPC (6x)
	315H	200		506	896	750	197	80	475	335	1564	1523	1307	1343	1792	319	SPC (6x)
	200L	30	1.6	283	808	530	187	55	315	200	1367	1223	1297	1333	1466	319	SPB (4x)
	225S	37		305	808	530	187	60	315	200	1367	1223	1297	1333	1466	319	SPB (4x)
	225M	45		305	783	530	187	60	335	212	1367	1223	1297	1333	1441	319	SPB (4x)
	280S	75		394	921	750	197	75	400	250	1564	1523	1307	1343	1690	319	SPB (6x)
	280M	90		394	908	750	197	75	450	280	1564	1523	1307	1343	1677	319	SPB (6x)
	315S	110		506	890	750	197	80	500	315	1564	1523	1307	1343	1771	319	SPB (8x)
	315M	132		506	890	750	197	80	500	315	1564	1523	1307	1343	1771	319	SPB (8x)
	315L	160		506	910	750	197	80	560	335	1564	1523	1307	1343	1806	319	SPC (6x)
	315H	200		506	910	750	197	80	560	335	1564	1523	1307	1343	1806	319	SPC (6x)
	200L	30	1.8	283	795	530	187	55	355	200	1367	1223	1297	1333	1453	319	SPB (4x)
	225S	37		305	795	530	187	60	355	200	1367	1223	1297	1333	1453	319	SPB (4x)
	225M	45		305	795	530	187	60	355	200	1367	1223	1297	1333	1453	319	SPB (5x)
	280S	75		394	899	750	197	75	450	250	1564	1523	1307	1343	1668	319	SPB (6x)
	280M	90		394	916	750	197	75	500	280	1564	1523	1307	1343	1685	319	SPB (6x)
	315S	110		506	924	750	197	80	560	315	1564	1523	1307	1343	1805	319	SPB (8x)
	315M	132		506	924	750	197	80	560	315	1564	1523	1307	1343	1805	319	SPB (8x)
	315L	160		506	950	750	197	80	630	335	1564	1523	1307	1343	1846	319	SPC (6x)
	315H	200		506	950	750	197	80	630	335	1564	1523	1307	1343	1846	319	SPC (6x)

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X3K..	IEC	P_M kW	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	HVR	LVK X3K220	LVK X3K230	PVK max.	QVK	
X220 – 230	200L	30	1.25	283	792	530	187	55	280	224	1367	1223	1417	1482	1500	319	SPA (5x)
	225S	37		305	792	530	187	60	280	224	1367	1223	1417	1482	1500	319	SPA (5x)
	225M	45		305	791	530	187	60	315	250	1367	1223	1417	1482	1499	319	SPB (4x)
	280S	75		394	916	750	197	75	315	250	1564	1523	1614	1492	1735	319	SPB (6x)
	280M	90		394	904	750	197	75	375	300	1564	1523	1614	1492	1723	319	SPB (6x)
	315S	110		506	897	750	197	80	400	315	1564	1523	1614	1492	1828	319	SPB (8x)
	315M	132		506	897	750	197	80	400	315	1564	1523	1614	1492	1828	319	SPB (8x)
	315L	160		506	937	750	197	80	425	335	1564	1523	1614	1492	1883	319	SPC (6x)
	315H	200		506	937	750	197	80	425	335	1564	1523	1614	1492	1883	319	SPC (6x)
	200L	30	1.4	283	790	530	187	55	315	224	1367	1223	1417	1482	1498	319	SPB (4x)
	225S	37		305	790	530	187	60	315	224	1367	1223	1417	1482	1498	319	SPB (4x)
	225M	45		305	785	530	187	60	335	236	1367	1223	1417	1482	1493	319	SPB (4x)
	280S	75		394	898	750	197	75	355	250	1564	1523	1614	1492	1717	319	SPB (6x)
	280M	90		394	899	750	197	75	400	280	1564	1523	1614	1492	1718	319	SPB (6x)
	315S	110		506	881	750	197	80	450	315	1564	1523	1614	1492	1812	319	SPB (8x)
	315M	132		506	881	750	197	80	450	315	1564	1523	1614	1492	1812	319	SPB (8x)
	315L	160		506	896	750	197	80	475	335	1564	1523	1614	1492	1842	319	SPC (6x)
	315H	200		506	896	750	197	80	475	335	1564	1523	1614	1492	1842	319	SPC (6x)
	200L	30	1.6	283	808	530	187	55	315	200	1367	1223	1417	1482	1516	319	SPB (4x)
	225S	37		305	808	530	187	60	315	200	1367	1223	1417	1482	1516	319	SPB (4x)
	225M	45		305	783	530	187	60	335	212	1367	1223	1417	1482	1491	319	SPB (4x)
	280S	75		394	921	750	197	75	400	250	1564	1523	1614	1492	1740	319	SPB (6x)
	280M	90		394	908	750	197	75	450	280	1564	1523	1614	1492	1727	319	SPB (6x)
	315S	110		506	890	750	197	80	500	315	1564	1523	1614	1492	1821	319	SPB (8x)
	315M	132		506	890	750	197	80	500	315	1564	1523	1614	1492	1821	319	SPB (8x)
	315L	160		506	910	750	197	80	560	335	1564	1523	1614	1492	1856	319	SPC (6x)
	315H	200		506	910	750	197	80	560	335	1564	1523	1614	1492	1856	319	SPC (6x)
	200L	30	1.8	283	795	530	187	55	355	200	1367	1223	1417	1482	1503	319	SPB (4x)
	225S	37		305	795	530	187	60	355	200	1367	1223	1417	1482	1503	319	SPB (4x)
	225M	45		305	795	530	187	60	355	200	1367	1523	1417	1482	1503	319	SPB (5x)
	280S	75		394	899	750	197	75	450	250	1564	1523	1614	1492	1718	319	SPB (6x)
	280M	90		394	916	750	197	75	500	280	1564	1523	1614	1492	1735	319	SPB (6x)
	315S	110		506	924	750	197	80	560	315	1564	1523	1614	1492	1855	319	SPB (8x)
	315M	132		506	924	750	197	80	560	315	1564	1523	1614	1492	1855	319	SPB (8x)
	315L	160		506	950	750	197	80	630	335	1564	1523	1614	1492	1896	319	SPC (6x)
	315H	200		506	950	750	197	80	630	335	1564	1223	1614	1492	1896	319	SPC (6x)

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14.25 IEC motor adapter /MA [mm]

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter".

With horizontal housings /HH, the motor adapter is available for sizes X3F100 – 210 and X3K100 – 210.

14.25.1 Information for connecting a SEW motor to the IEC motor adapter

Motor on motor adapter	P_M kW	M_{ne} min^{-1}	Motor weight kg	Brakemotor weight kg	Brake	STD braking torque Nm	Motor adapter	IEC flange	Ø shaft end
IEC motor standard IE3									
DRN100L4	3	1456	34	40	BE5	40	IEC100	250	28
DRN112M 4	4	1464	45	52	BE5	55	IEC112	250	28
DRN132S 4	5,5	1461	56	71	BE11	80	IEC132	300	38
DRN132M 4	7,5	1468	73	91	BE11	110	IEC132	300	38
DRN132L 4	9,2	1470	81	110	BE20	150	IEC132	300	38
DRN160M 4	11	1473	115	145	BE20	150	IEC160	350	42
DRN160L 4	15	1474	130	165	BE20	200	IEC160	350	42
DRN180M 4	18,5	1478	155	195	BE30	300	IEC180	350	48
DRN180L 4	22	1477	170	210	BE30	300	IEC180	350	48
DRN200L 4	30	1480	280	335	BE32	400	IEC200	400	55
DRN225S 4	37	1482	310	365	BE32	500	IEC225	450	60
DRN225M 4	45	1482	310	365	BE32	600	IEC225	450	60
DRN250M 4	55	1482	460	550	BE62	800	IEC250	550	65
DRN280S 4	75	1482	520	600	BE62	1000	IEC280	550	75
DRN280M 4	90	1481	630	720	BE62	1200	IEC280	550	75
DRN315S 4	110	1488	870	1000	BE122	1600	IEC315S–L	660	80
DRN315L 4	160	1486	1020	1150	BE122	2000	IEC315S–L	660	80
DRN315H 4	200	1489	1140	1270	BE122	2000	IEC315S–L	660	80

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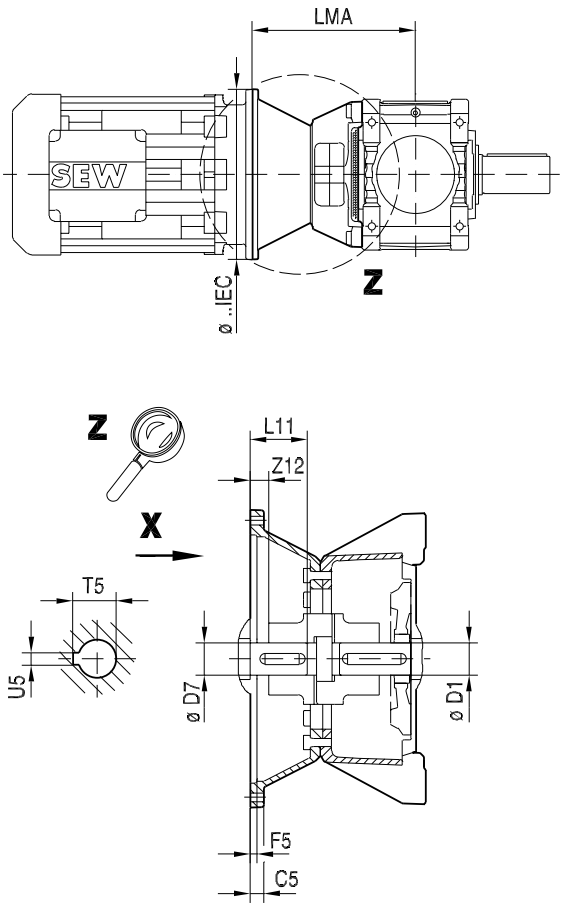
14.25.2 IEC motor adapter X2F100 – 250

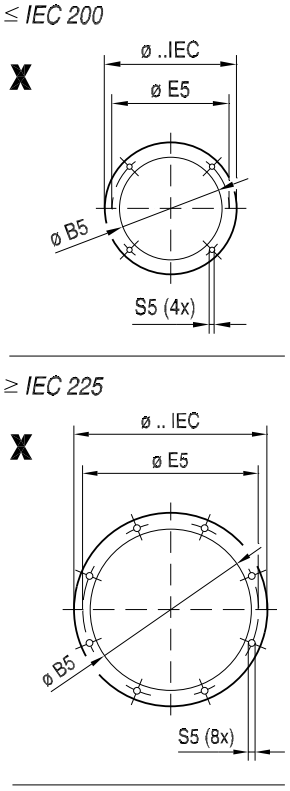
INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X2F..

48 016 03 07





→ 📖 67

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												i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			kg
X2F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X100**	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	–	–	–	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	–	–	–	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	42	391	53	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	42	421	72	32	421	72	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	42	451	64	32	451	77	75
X110***	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	–	–	–	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	–	–	–	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	42	391	53	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	42	421	72	32	421	72	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	42	451	64	32	451	77	75
X120*	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	55	403	13	42	403	54	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	55	433	17	42	433	17	75
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	463	44.5	42	463	37.5	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	463	47	42	463	47	90
X130***	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	55	403	13	42	403	54	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	55	433	17	42	433	17	75
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	463	44.5	42	463	37.5	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	463	47	42	463	47	90
X140*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	520.5	53.5	55	520.5	60.5	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	520.5	48.5	55	520.5	62.5	110
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	520.5	31	55	520.5	31	135
X150***	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	520.5	53.5	55	520.5	60.5	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	520.5	48.5	55	520.5	62.5	110
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	520.5	31	55	520.5	31	135
X160*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	70	550.5	42	135
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	70	550.5	50	135
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	589.5	47.5	70	589.5	62	165
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	625.5	46	70	625.5	72	210
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	665.5	88	–	–	–	235
X170***	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	70	550.5	42	135
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	70	550.5	50	135
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	589.5	47.5	70	589.5	62	165
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	625.5	46	70	625.5	72	210
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	665.5	88	–	–	–	235
X180*	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	621.5	39	75	621.5	62	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	657.5	38	75	657.5	73	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	697.5	83	75	697.5	88	240
X190**	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	621.5	39	75	621.5	62	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	657.5	38	75	657.5	73	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	697.5	83	75	697.5	88	240
X200*	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	676.5	18	90	676.5	33	240
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	716.5	56	90	716.5	78	240
X210**	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	676.5	18	90	676.5	33	240
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	716.5	56	90	716.5	78	240
X220*	315	800	680^{H7}	25	85H7	740	7	170	M20 (8x)	90.4	22^{JS9}	110	711	18	100	711	18	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	751	56	100	751	56	275
X230**	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	711	18	100	711	18	245
	355	800	680^{H7}	25	10^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	751	56	100	751	56	275
X240*	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	795.5	38	110	795.5	56	295
X250**	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	795.5	38	110	795.5	56	295

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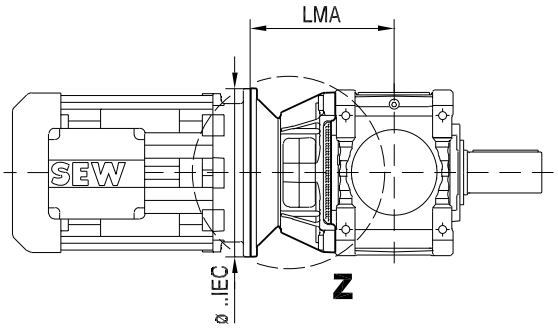
14.25.3 IEC motor adapter X3F100 – 270

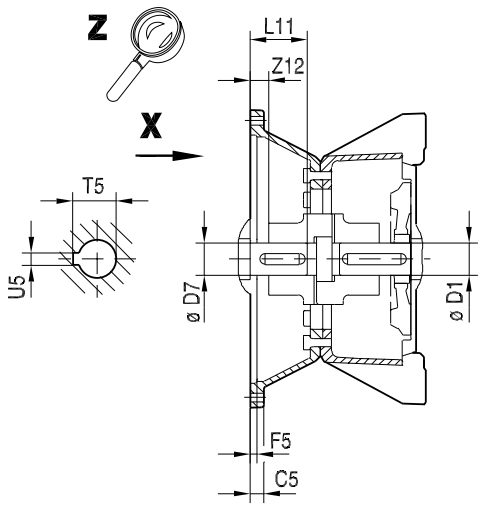
INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X3F..

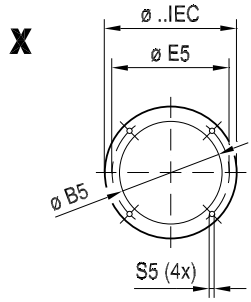
48 017 03 07



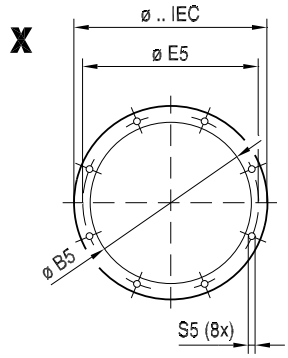


→ 📖 67

≤ *IEC 200*



≥ *IEC 225*



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												i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X100**	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	351	30.5	32	351	30.5	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	379	66	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	379	47.5	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	391	58	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	421	72	32	421	72	55
X110***	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	351	30.5	32	351	30.5	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	379	66	32	379	66	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	379	47.5	32	379	47.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	391	58	32	391	58	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	421	72	32	421	72	55
X120*	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	363	36	38	363	36	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	391	64	38	391	64	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	391	48	38	391	48	50
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	403	56	38	403	56	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	38	433	70	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	38	463	49	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	463	50	38	463	50	90
X130***	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	363	36	38	363	36	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	391	64	38	391	64	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	391	48	38	391	48	50
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	403	56	38	403	56	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	38	433	70	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	38	463	49	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	463	50	38	463	50	90
X140*	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	45	448.5	62	45	448.5	62	70
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	45	448.5	48	45	448.5	48	70
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	45	460.5	59	45	460.5	59	80
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	45	490.5	42.5	45	490.5	42.5	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	45	520.5	73	45	520.5	73	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	45	520.5	64	45	520.5	64	110
X150***	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	45	448.5	62	45	448.5	62	70
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	45	448.5	48	45	448.5	48	70
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	45	460.5	59	45	460.5	59	80
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	45	490.5	42.5	45	490.5	42.5	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	45	520.5	73	45	520.5	73	110
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	45	520.5	64	45	520.5	64	110
X160*	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	483.5	48.5	105
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	510.5	37	50	510.5	61	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	540.5	42	50	540.5	53	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	550.5	46	50	550.5	63	140
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	550.5	46	50	550.5	63	140
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	589.5	67	60	589.5	69	165
X170***	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	50	483.5	48.5	105
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	510.5	37	50	510.5	61	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	540.5	42	50	540.5	53	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	550.5	46	50	550.5	63	140
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	550.5	46	50	550.5	63	140
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	589.5	67	60	589.5	69	165
X180*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	543	37	55	543	68	125
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	572.5	37	55	573	67	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	582.5	52	55	583	62	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	582.5	52	55	583	62	145
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	621.5	66	70	621.5	66	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	70	657.5	87	215
X190**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	543	37	55	542.5	68	125
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	572.5	37	55	572.5	67	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	582.5	52	55	582.5	62	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	582.5	52	55	582.5	62	145
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	621.5	66	70	621.5	66	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	70	657.5	87	215
X200*	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	75	591.5	56	60	591.5	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	601.5	52	60	601.5	52	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	601.5	52	60	601.5	57	175
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	640.5	61	60	640.5	61	200
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	676.5	62	60	676.5	62	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	60	716.5	112	270

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												i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X210**	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	75	591.5	56	60	591.5	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	601.5	52	60	601.5	52	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	601.5	52	60	601.5	57	175
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	640.5	61	60	640.5	61	200
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	676.5	62	60	676.5	62	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	60	716.5	112	270
X220*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	636	29	70	636	54	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	636	24	70	636	59	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	675	48	70	675	63	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	711	59	70	711	79	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	70	751	94	275
X230**	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	636	29	70	636	54	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	636	24	70	636	59	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	675	48	70	675	63	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	711	59	70	711	79	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	70	751	94	275
X240*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	90	680.5	4	75	680.5	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	90	680.5	4	75	680.5	54	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	719.5	53	75	719.5	58	230
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	755.5	44	75	755.5	74	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	795.5	89	75	795.5	84	295
X250**	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	90	681	4	75	681	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	90	681	4	75	681	54	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	90	720	53	75	720	58	230
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	90	756	44	75	756	74	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	90	796	89	75	796	84	295

												i = 20 ... 50* i = 22.4 ... 56**			i = 56 ... 90* i = 63 ... 100**			kg
X3F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X260*	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	785.5	33	80	785.5	73	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	821.5	39	80	821.5	59	300
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	861.5	56	80	861.5	109	325
X270**	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	785.5	33	80	785.5	73	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	821.5	39	80	821.5	59	300
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	861.5	56	80	861.5	109	325

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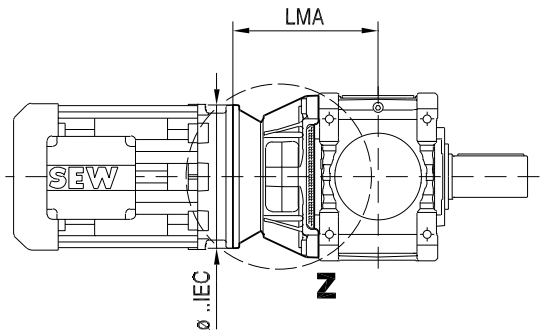
14.25.4 IEC motor adapter X4K120 – 270

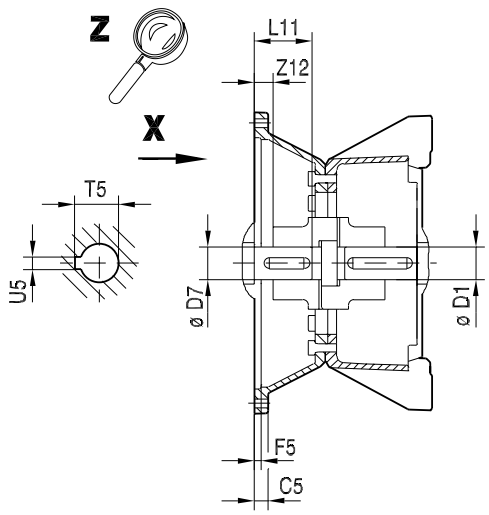
INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X4F..

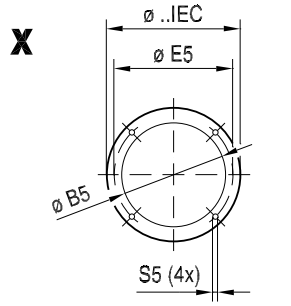
48 018 03 07



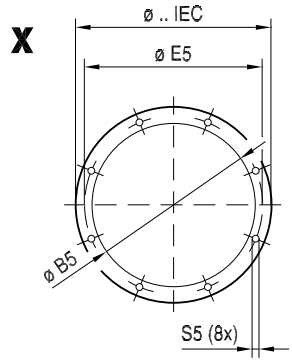


→ 📖 67

≤ IEC 200



≥ IEC 225



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IEC motor adapter /MA [mm]

												i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			kg
X4F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X120*	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	363	41	28	363	41	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	391	74	28	391	74	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	391	59	28	391	59	50
X130***	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	353	31	28	353	31	45
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	363	41	28	363	41	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	391	74	28	391	74	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	391	59	28	391	59	50
X140*	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	410.5	39	32	410.5	39	65
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	410.5	39	32	410.5	39	65
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	420.5	49	32	420.5	49	70
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	448.5	77	32	448.5	77	75
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	448.5	72	32	448.5	72	75
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	32	460.5	69	32	460.5	69	80
X150***	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	410.5	39	32	410.5	39	65
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	410.5	39	32	410.5	39	65
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	420.5	49	32	420.5	49	70
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	448.5	77	32	448.5	77	75
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	448.5	72	32	448.5	72	75
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	32	460.5	69	32	460.5	69	80
X160*	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	450.5	47	38	450.5	47	47
	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	483.5	65	38	483.5	65	65
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	510.5	71	38	510.5	71	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	540.5	75.5	38	540.5	75.5	75.5
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	550.5	76	38	550.5	76	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	550.5	86	38	550.5	86	86
X170***	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	450.5	47	38	450.5	47	47
	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	483.5	65	38	483.5	65	65
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	510.5	71	38	510.5	71	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	540.5	75.5	38	540.5	75.5	75.5
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	550.5	76	38	550.5	76	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	550.5	86	38	550.5	86	86
X180*	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	515.5	53	38	515.5	63	115
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	542.5	55	38	542.5	67	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	572.5	82	38	572.5	97	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	38	582.5	92	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	38	582.5	87	145
X190**	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	515.5	53	38	515.5	63	115
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	542.5	55	38	542.5	67	120
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	572.5	82	38	572.5	97	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	38	582.5	92	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	38	582.5	87	145
X200*	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	53	42	534.5	66	140
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	55	534.5	53	42	534.5	53	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	55	561.5	68	42	561.5	68	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	55	591.5	77	42	591.5	80	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	601.5	75	42	601.5	75	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	42	601.5	65	175
X210**	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	27	42	534.5	66	140
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	55	534.5	17	42	534.5	53	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	55	561.5	68	42	561.5	68	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	55	591.5	77	42	591.5	80	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	55	601.5	75	42	601.5	75	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	42	601.5	65	175
X220*	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	569	27	50	569	57	150
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	569	17	50	569	57	150
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	596	55	50	596	55	160
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	626	75	50	626	69	165
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	636	64	50	636	69	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	636	64	50	636	65	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	675	80	50	675	100	210

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SEW EURODRIVE

												i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			kg
X4F..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X230**	160	350	250^{H7}	22	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	569	27	50	569	57	150
	180	350	250^{H7}	22	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	569	17	50	569	57	150
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	596	55	50	596	55	160
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	626	75	50	626	69	165
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	636	64	50	636	69	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	636	64	50	636	65	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	675	80	50	675	100	210
X240*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	640.5	44	55	640.5	70	180
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	670.5	74.5	55	670.5	74	185
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	680.5	54	55	680.5	74	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	680.5	54	55	680.5	65	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	719.5	73	55	719.5	103	230
X250**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	640.5	44	55	640.5	70	180
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	670.5	74.5	55	670.5	74	185
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	680.5	54	55	680.5	74	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	680.5	54	55	680.5	65	200
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	719.5	73	55	719.5	103	230
X260*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	75	706.5	44	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	75	736.5	64	60	736.5	69	215
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	746.5	69	60	746.5	69	230
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	746.5	69	60	746.5	65	230
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	785.5	78	60	785.5	90	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	821.5	82	60	821.5	82	300
X270*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	75	706.5	44	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	75	736.5	64	60	736.5	69	215
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	75	746.5	69	60	746.5	69	230
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	75	746.5	69	60	746.5	65	230
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	75	785.5	78	60	785.5	90	260
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	75	821.5	82	60	821.5	82	300

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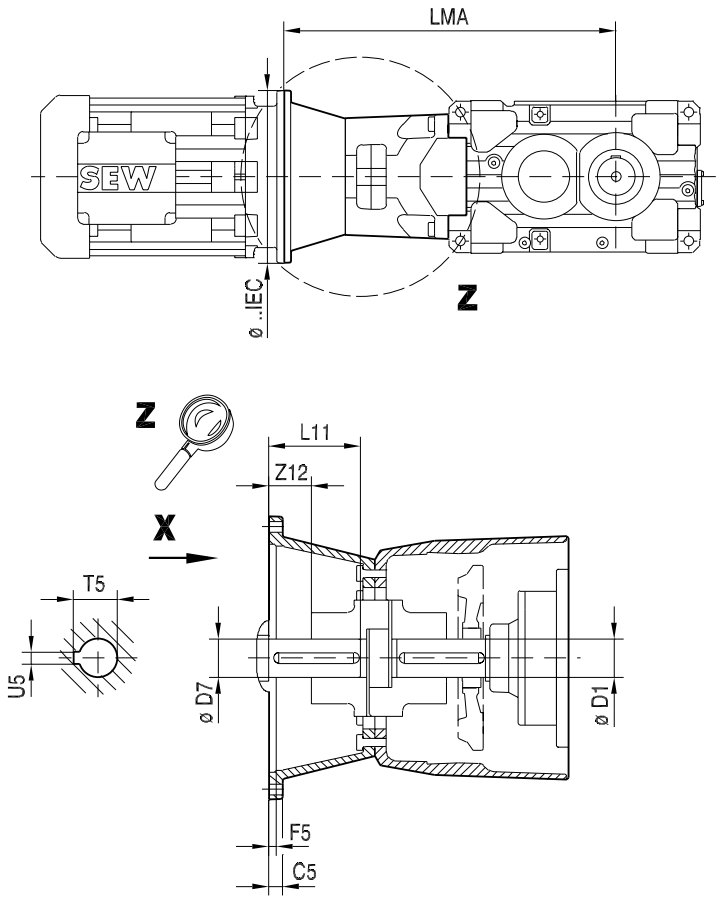
14.25.5 IEC motor adapter X2K100 – 230

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

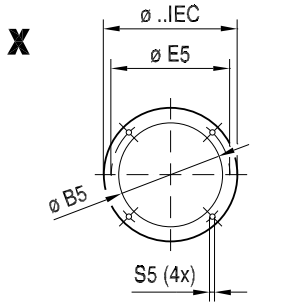
X2K..

48 013 03 07

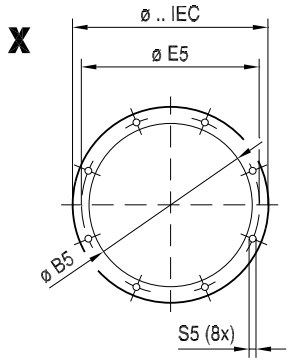


→ 📖 67

≤ *IEC 200*



≥ *IEC 225*



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X2K..	IEC	Ø IEC	Ø IB5	C5	Ø D7	Ø IE5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	768	38	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	798	66	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	828	73	73
X110	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	788	38	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	818	66	55
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	848	73	73
X120	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	60	895	36	70
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	925	48	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	925	47	85
X130	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	60	931	36	70
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	961	48	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	961	47	85
X140	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	989	54	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	989	49	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	989	32.5	130
X150	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1031	54	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1031	49	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1031	32.5	130
X160	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1183	43	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1219	46	190
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1259	84	220
X170	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1234	43	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1270	46	190
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1310	84	220
X180	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1310	34	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1346	40	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1386	80	240
X190	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1342	34	170
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1378	40	215
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1418	80	240
X200	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1441	18	230
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	1481	42.5	260
X210	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1477	18	230
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	1517	42.5	260
X220	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	120	1649	38	300
X230	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	120	1689	38	300

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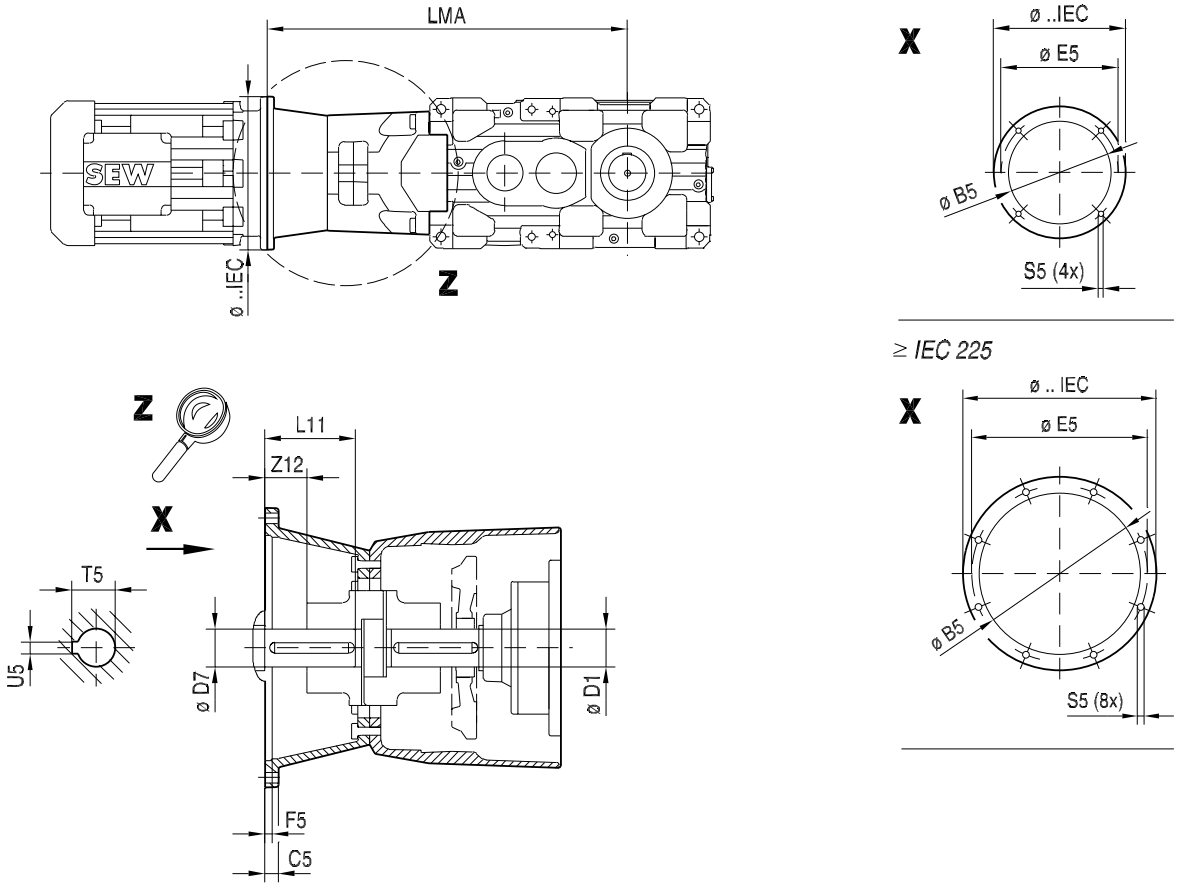
14.25.6 IEC motor adapter X3K100 – 270

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X3K..

48 014 03 07



→ 📖 67

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X3K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	735	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	763	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	763	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	775	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	805	68	50
X110	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	755	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	783	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	783	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	795	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	825	68	50
X120	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	848	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	876	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	876	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	888	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	918	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	948	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	948	68	85
X130	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	884	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	912	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	912	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	924	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	954	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	984	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	984	68	85
X140	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	1010	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	1010	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	1022	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	1052	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1082	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1082	64	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1082	38	125
X150	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	1052	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	1052	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	1064	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	1094	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1124	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1124	64	100
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1124	38	125
X160	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1166	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1196	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1206	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1206	50	120
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1245	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	1281	80	190
X170	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1217	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1247	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1257	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1257	50	120
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1296	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	1332	80	190
X180	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1297	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1307	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1307	52	130
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1346	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1382	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	1422	92	225
X190	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1329	71	115
	250	550	350^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1339	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1339	52	130
	315S–L	660	450^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1378	66	160
	315	800	550^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1414	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	1454	92	225
X200	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1454	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1454	50	150
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1493	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	1529	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	1569	110	250
X210	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1490	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1490	50	150
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1529	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	1565	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	1605	110	250

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IEC motor adapter /MA [mm]

X3K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X220	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	1600	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	1600	50	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1639	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1675	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1715	100	275
X230	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	1640	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	1640	50	180
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	1679	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	1715	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1755	100	275
X240	315S–L	660	680^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1770	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1806	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1846	74	295
X250	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	1793	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1829	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1869	74	295
X260	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	110	1940	33	265
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	1976	54	305
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	2016	89	330
X270	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	110	1975	33	265
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	110	2011	54	305
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	110	2051	89	330

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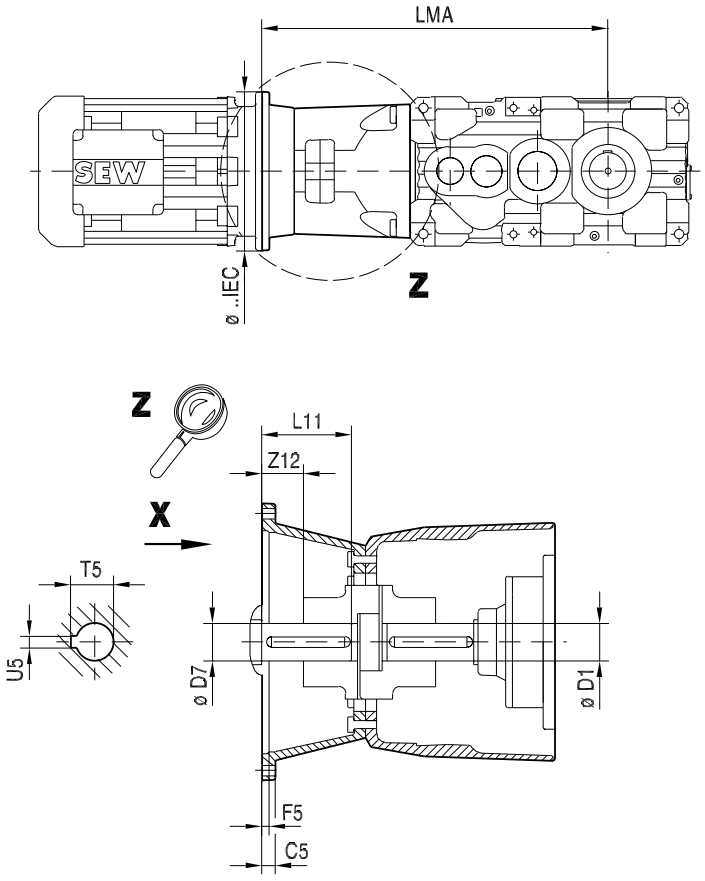
14.25.7 IEC motor adapter X4K120 - 280

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

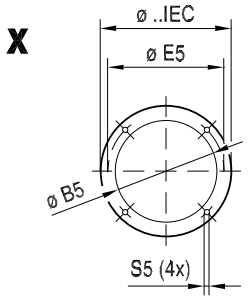
X4K..

48 015 03 07

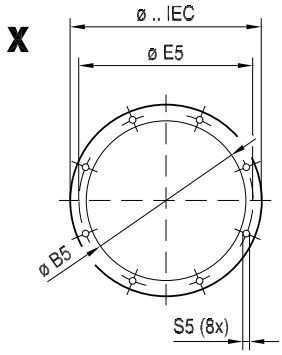


→ 📖 67

≤ *IEC 200*



≥ *IEC 225*



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IEC motor adapter /MA [mm]

X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X120	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	803	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	803	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	813	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	841	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	841	48	45
X130	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	839	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	839	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	849	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	877	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	877	48	45
X140	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	949	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	949	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	959	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	987	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	987	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	999	54	65
X150	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	991	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	991	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	1001	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	1029	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	1029	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	1041	54	65
X160	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	1121	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	1154	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	1154	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	1181	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	1211	62	110
X170	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	1172	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	1205	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	1205	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	1232	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	1262	62	110
X180	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1329	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1329	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1356	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1386	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1396	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1396	65	125
X190	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1361	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1361	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1388	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1418	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1428	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1428	65	125
X200	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1416	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1416	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1443	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1473	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1483	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1483	63	155
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1522	90.5	185
X210	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	1452	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	1452	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	1479	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	1509	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	1519	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	1519	63	155
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	1558	90.5	185
X220	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	1587	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	1587	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1614	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1644	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1654	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1654	63	170
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1693	90	200
X230	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	1627	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	1627	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	1654	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	1684	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	1694	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	1694	63	170
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	1733	90	200

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X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X240	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	1727	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1757	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1767	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1767	51	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1806	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1842	74	260
X250	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	1750	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1780	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1790	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	1790	51	190
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1829	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1865	74	260
X260	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	1917	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	1947	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1957	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1957	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	1996	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2032	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2072	107	345
X270	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	1952	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	1982	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	1992	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	1992	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	2031	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2067	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2107	107	345
X280	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	80	2004	12	240
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	80	2034	42	245
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	2044	42	250
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	2044	49	250
	315S–L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	2083	66	280
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	2119	57	320
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	2159	107	345

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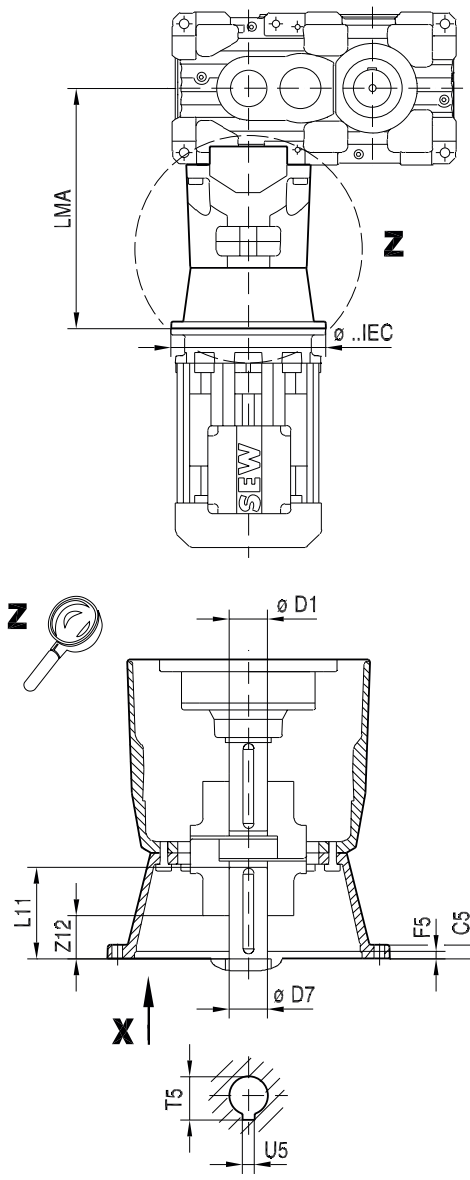
14.25.8 IEC motor adapter X3T100 – 210

INFORMATION

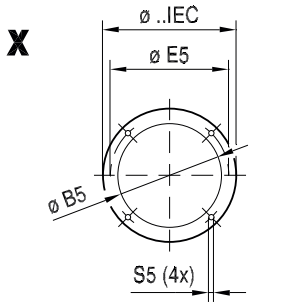
During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X3T..

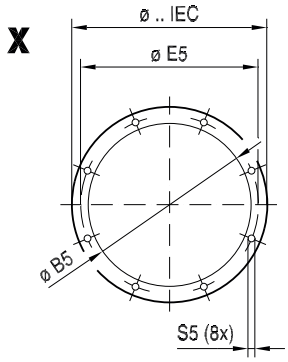
48 004 02 10



≤ *IEC 200*



≥ *IEC 225*



X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X100	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	457	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	485	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	485	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	497	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	527	68	50

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X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X110	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	457	31	30
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	485	62	40
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	485	46	40
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	497	54	45
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	527	68	50
X120	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	521	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	549	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	549	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	561	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	591	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	621	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	621	68	85
X130	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	521	34	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	38	549	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	38	549	46.5	45
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	38	561	59	55
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	591	79	60
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	621	68	85
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	621	68	85
X140	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	622	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	622	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	634	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	664	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	694	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	694	64	100
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	694	38	125
X150	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	50	622	51.5	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	50	622	51	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	50	634	42.5	70
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	50	664	43	85
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	694	57	100
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	694	64	100
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	694	38	125
X160	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	692	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	722	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	732	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	732	50	120
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	771	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	807	80	190
X170	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	692	42	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	722	44	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	732	46	120
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	732	50	120
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	771	69	150
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	60	807	80	190
X180	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	753	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	763	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	763	52	130
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	802	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	838	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	878	92	225
X190	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	753	71	115
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	763	52	130
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	763	52	130
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	802	66	160
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	838	75	200
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	70	878	92	225
X200	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	840	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	840	50	150
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	879	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	915	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	955	110	250
X210	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	80	840	50	150
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	80	840	50	150
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	80	879	62	180
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	80	915	73	220
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	955	110	250

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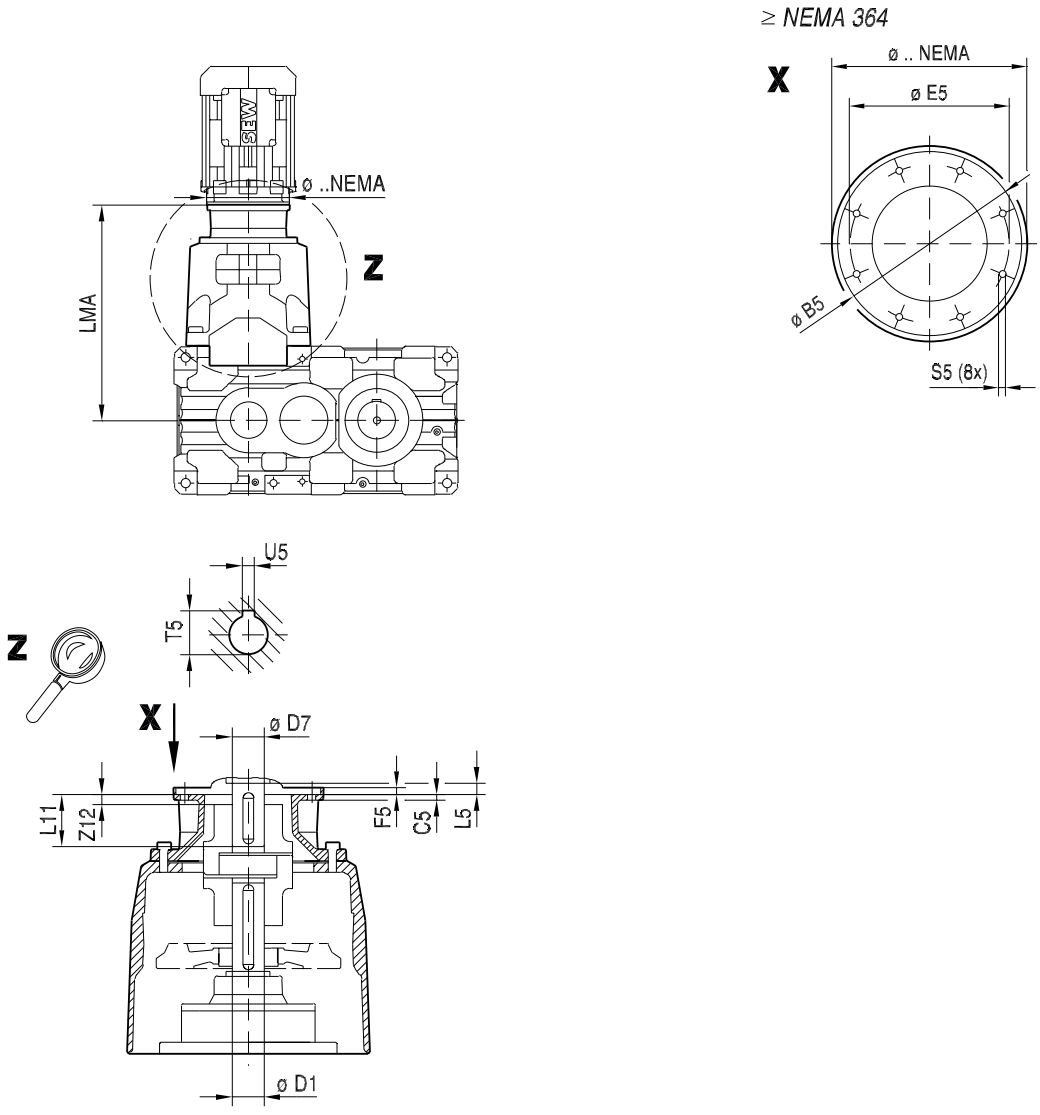
14.25.9 IEC motor adapter X3T220 – 250

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X3T..

48 009 02 10



X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X220	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	906	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	906	50	180
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	945	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	981	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1021	100	275

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X3T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X230	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	85	906	50	180
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	85	906	50	180
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	85	945	64.5	210
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	85	981	60	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	85	1021	100	275
X240	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	994	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1030	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1070	74	295
X250	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	100	994	32.5	225
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	100	1030	39	270
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	100	1070	74	295

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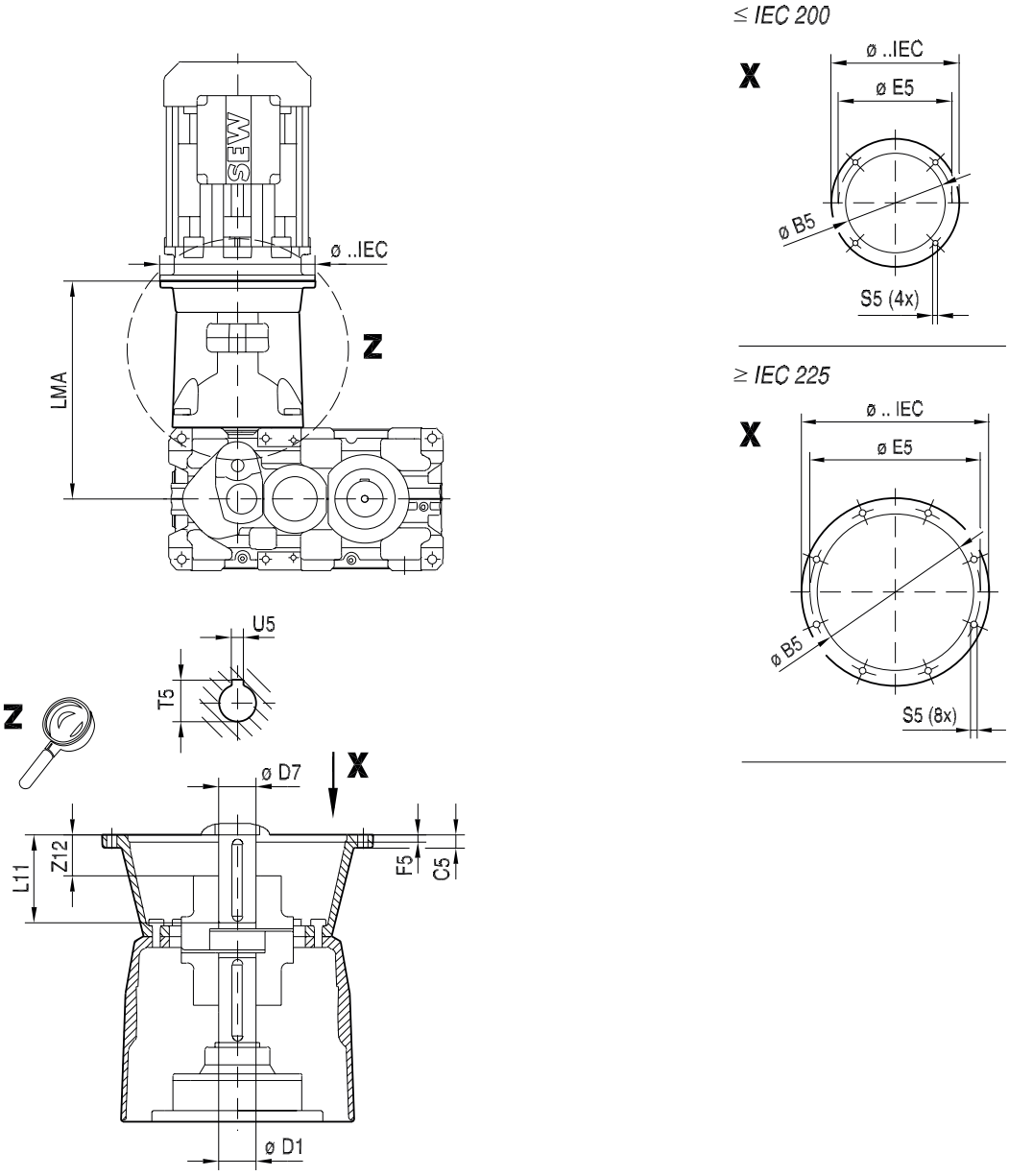
14.25.10 IEC motor adapter X4T120 – 210

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X4T..

48 007 02 10



X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X120	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	486	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	514	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	514	48	45

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X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X130	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	28	476	19	35
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	28	486	28	40
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	28	514	62	45
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	514	48	45
X140	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	571	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	599	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	599	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	611	54	65
X150	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	32	561	21	50
	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	32	571	31	50
	160	350	250^{H7}	16	42^{H7}	300	6	110	M16 (4x)	45.3	12^{JS9}	32	599	62	60
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	32	599	47	60
	200	400	300^{H7}	20	55^{H7}	350	7	110	M16 (4x)	59.3	16^{JS9}	32	611	54	65
X160	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	647	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	680	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	680	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	707	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	737	62	110
X170	132	300	230^{H7}	15	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	38	647	28	80
	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	680	44.5	85
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	38	680	48.5	85
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	38	707	68	95
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	38	737	62	110
X180	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	785	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	785	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	812	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	842	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	852	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	852	65	125
X190	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	785	50.5	95
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	785	42	95
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	812	55	105
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	842	80	110
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	852	73	125
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	852	65	125
X200	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	802	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	802	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	829	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	859	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	869	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	869	63	155
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	908	90.5	185
X210	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	802	50.5	125
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	50	802	50.5	125
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	50	829	53	135
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	50	859	80	140
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	869	63	155
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	869	63	155
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	50	908	90.5	185

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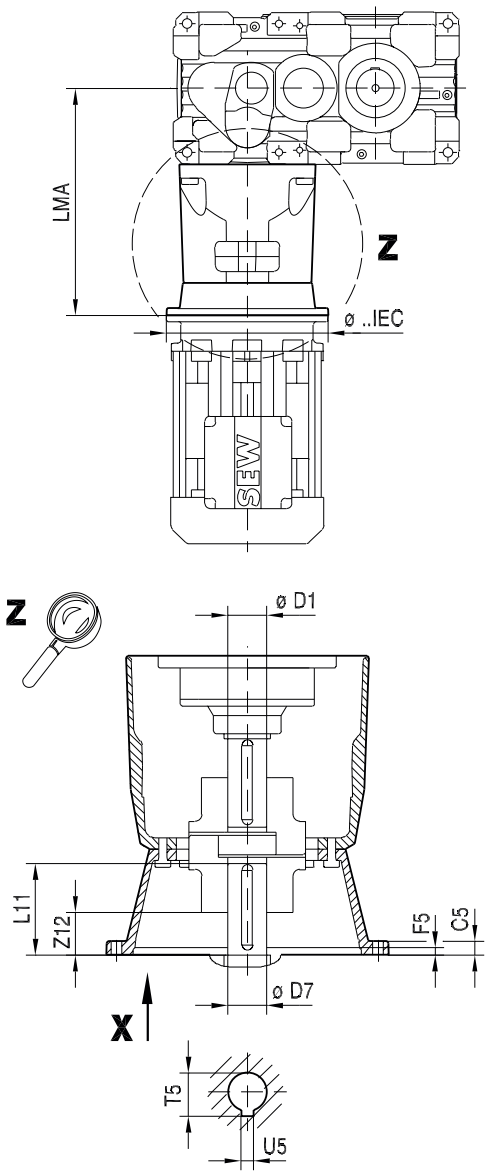
14.25.11 IEC motor adapter X4T220 – 250

INFORMATION

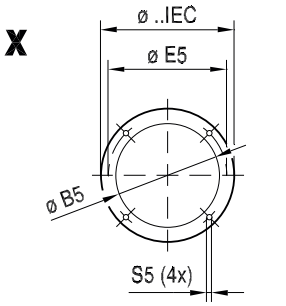
During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 459).

X4T..

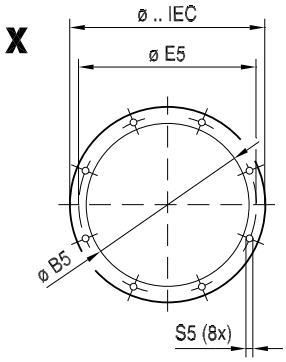
48 006 02 10



≤ IEC 200



≥ IEC 225



24799734/EN – 08/2018

X4T..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X220	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	893	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	893	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	920	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	950	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	960	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	960	63	170
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	999	90	200
X230	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	60	893	50.5	140
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	60	893	50.5	140
	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	60	920	64	150
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	60	950	71	160
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	60	960	63	170
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	60	960	63	170
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	60	999	90	200
X240	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	951	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	981	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	991	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	991	51	190
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1030	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1066	74	260
X250	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	951	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	981	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	991	51	190
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	70	991	51	190
	315S-L	660	550^{H7}	25	80^{H7}	600	7	170	M20 (8x)	85.4	22^{JS9}	70	1030	69.5	220
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	1066	74	260

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14.26 NEMA motor adapter /MA [inch]

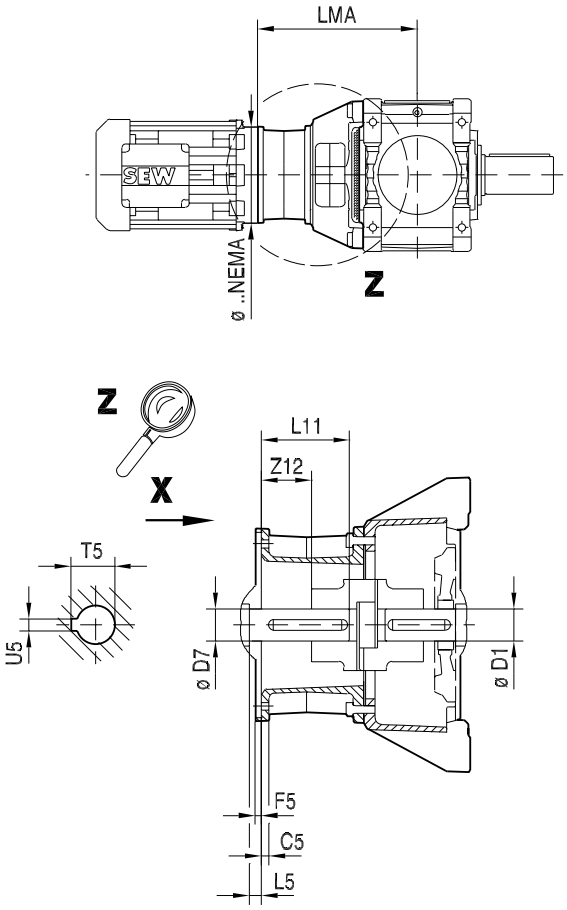
INFORMATION

The NEMA motor adapters can only be ordered with gear units with universal housing /HU.

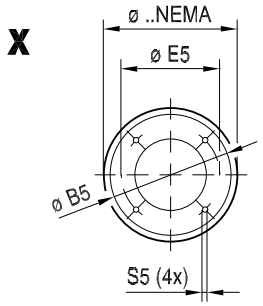
14.26.1 NEMA motor adapter X2F100 – 230

X2F..

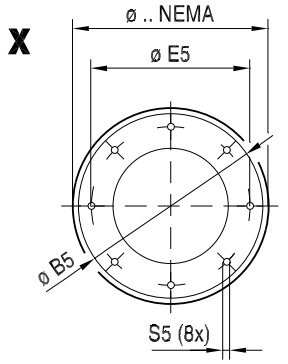
48 054 04 07



≤ *NEMA 326*



≥ *NEMA 364*



→ 📖 67

24799734/EN – 08/2018

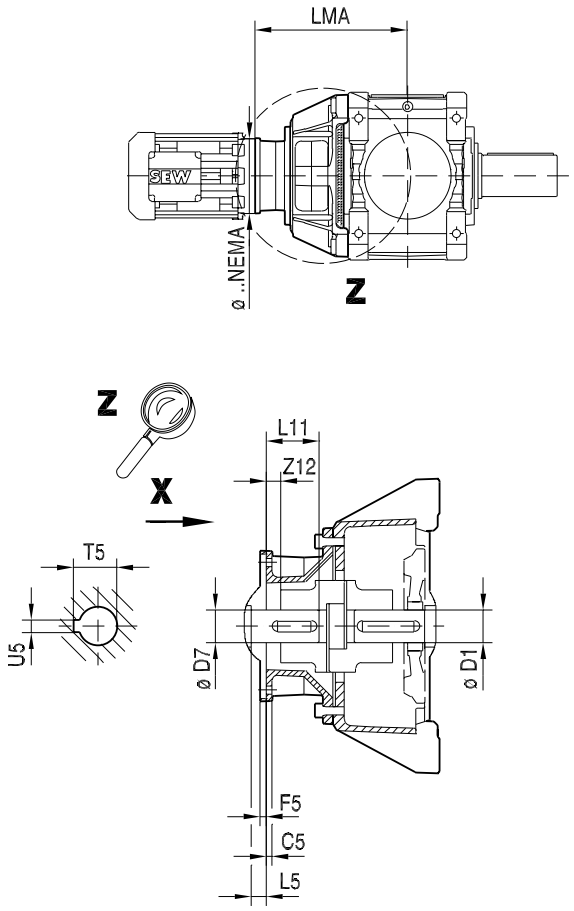
inch																			kg
												i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z1 2	Ø D1	LMA	Z12	
X100**	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.26	15.39	2.43	40
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.65	16.38	2.66	1.26	16.38	3.27	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.65	17.24	2.51	1.26	17.24	2.51	55
X110***	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.26	15.39	2.43	40
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.65	16.38	2.66	1.26	16.38	3.27	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.65	17.24	2.51	1.26	17.24	2.51	55
X120*	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	16.85	1.49	1.65	16.85	2.33	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	17.72	1.37	1.65	17.72	1.37	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	20.00	3.65	1.65	20.00	3.65	75
X130***	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	16.85	1.49	1.65	16.85	2.71	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	17.72	1.37	1.65	17.72	1.37	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	20.00	3.65	1.65	20.00	3.65	75
X140*	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	19.98	1.35	2.17	19.98	3.05	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	22.26	3.87	2.17	22.26	4.11	95
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	23.44	4.14	2.17	23.44	4.37	115
X150***	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	19.98	1.35	2.17	19.98	3.05	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	22.26	3.87	2.17	22.26	4.11	95
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	23.44	4.14	2.17	23.44	4.37	115
X160*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	20.81	1.01	125
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.76	23.17	3.57	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.57	2.76	26.20	4.54	160
	447–449	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.04	2.76	26.20	3.96	170
X170***	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	20.81	1.01	125
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	–	–	–	2.76	23.17	3.57	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.57	2.76	26.20	4.54	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	26.20	4.04	2.76	26.20	3.96	170
X180*	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	4.35	2.95	27.46	4.31	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	3.84	2.95	27.46	4.31	180
X190**	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	4.35	2.95	27.46	4.31	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	27.46	3.84	2.95	27.46	4.31	180
X200*	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	28.21	2.30	3.54	28.21	3.84	205
X210**	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	28.21	2.30	3.54	28.21	3.84	205
X220*	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	29.57	2.07	3.94	29.57	2.07	210
X230**	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	29.57	2.07	3.94	29.57	2.07	210

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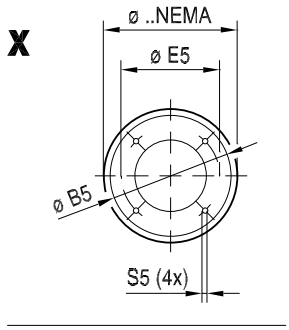
14.26.2 NEMA motor adapter X3F100 - 270

X3F..

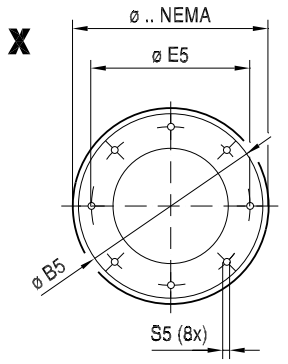
48 055 04 07



≤ *NEMA 326*



≥ *NEMA 364*



→ 📖 67

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inch																			kg
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X100**	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	13.66	1.33	1.26	13.66	1.33	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	13.66	0.69	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	15.39	2.42	1.26	15.39	2.42	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	16.38	3.26	1.26	16.38	3.26	50
X110***	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	13.66	1.33	1.26	13.66	1.33	35
	254–256	9	10 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	13.66	0.69	1.26	13.66	0.69	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	15.39	2.42	1.26	15.39	2.42	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	16.38	3.26	1.26	16.38	3.26	50
X120*	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	14.13	1.29	1.50	14.13	1.55	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	14.13	0.62	1.50	14.13	0.64	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	15.87	2.23	1.50	15.87	2.24	50
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	16.85	3.18	1.50	16.85	3.18	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	17.72	1.45	1.50	17.72	1.45	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	20.00	3.73	1.50	20.00	3.73	75
X130***	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	14.13	1.29	1.50	14.13	1.29	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	14.13	0.62	1.50	14.13	0.62	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	15.87	2.23	1.50	15.87	2.23	50
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	16.85	3.18	1.50	16.85	3.18	60
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	17.72	1.45	1.50	17.72	1.45	70
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	20.00	3.73	1.50	20.00	3.73	75
X140*	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.77	16.40	0.78	1.77	16.40	0.78	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.77	18.13	2.36	1.77	18.13	2.36	70
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.77	19.11	3.11	1.77	19.11	3.11	75
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.77	19.98	3.03	1.77	19.98	3.02	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.77	22.26	4.08	1.77	22.26	4.08	95
X150***	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.77	16.40	0.78	1.77	16.40	0.78	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.77	18.13	2.36	1.77	18.13	2.36	70
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.77	19.11	3.11	1.77	19.11	3.11	75
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.77	19.98	3.03	1.77	19.98	3.02	85
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.77	22.26	4.08	1.77	22.26	4.08	95
X160*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.97	18.01	1.07	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	19.07	2.15	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	20.81	2.28	1.97	20.81	3.31	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	20.81	1.53	1.97	20.81	1.81	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	23.17	3.66	2.36	23.17	4.04	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	26.20	4.98	2.36	26.20	6.08	160
X170***	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.97	18.01	1.07	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	–	–	–	1.97	19.07	2.15	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	20.81	2.28	1.97	20.81	3.31	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	20.81	1.53	1.97	20.81	1.81	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	23.17	3.66	2.36	23.17	4.04	130
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	26.20	4.98	2.36	26.20	6.08	160
X180*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	22.07	1.57	2.17	22.07	3.39	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	22.07	1.33	2.17	22.07	1.57	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	24.43	3.54	2.17	24.43	3.93	140
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	2.17	27.46	4.58	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	2.17	27.46	5.37	180
X190**	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	22.07	1.57	2.17	22.07	3.39	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	22.07	1.33	2.17	22.07	1.57	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	24.43	3.54	2.17	24.43	3.93	140
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	2.17	27.46	4.58	165
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	27.46	4.58	2.17	27.46	5.37	180
X200*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	22.81	1.18	2.36	22.81	1.37	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	25.18	3.54	2.36	25.18	3.54	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	195
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	205
X210**	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	22.81	1.18	2.36	22.81	1.37	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	25.18	3.54	2.36	25.18	3.54	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	195
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	28.21	4.39	2.36	28.21	4.39	205
X220*	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	24.17	1.45	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	26.54	1.64	2.76	26.54	3.62	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.69	2.76	29.57	4.47	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.10	2.76	29.57	4.66	210

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inch																			kg
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X230**	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	–	–	–	2.76	24.17	1.45	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	26.54	1.64	2.76	26.54	3.62	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.69	2.76	29.57	4.47	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	29.57	4.10	2.76	29.57	4.66	210
X240*	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.54	28.29	1.64	2.95	28.29	3.81	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.83	2.95	31.32	4.47	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.47	2.95	31.32	4.47	235
X250**	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.54	28.29	1.64	2.95	28.29	3.81	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.83	2.95	31.32	4.47	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.54	31.32	4.47	2.95	31.32	4.47	235

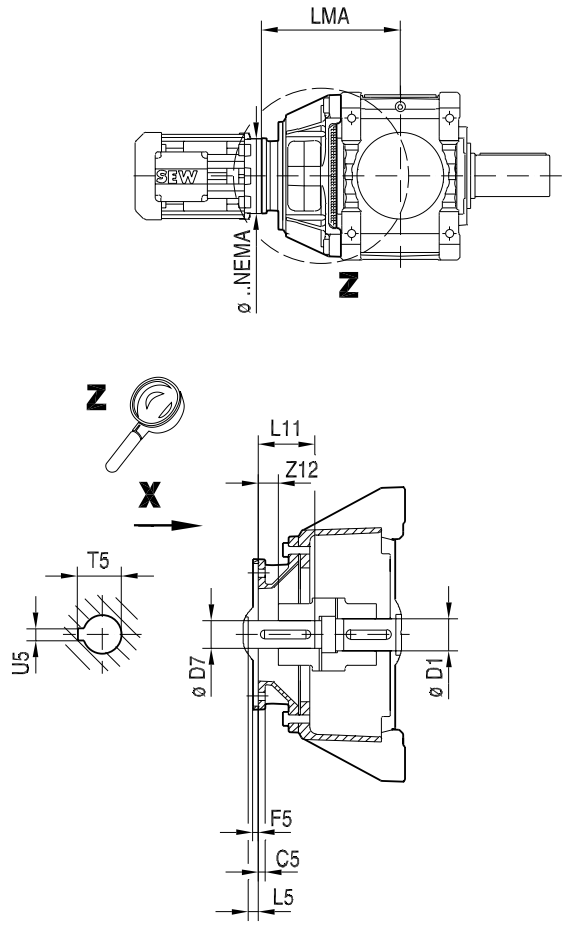
inch																			kg
													i = 20 ... 50* i = 22.4 ... 56**			i = 56 ... 90* i = 63 ... 100**			
X3F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z1 2	
X260*	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	33.92	4.27	3.15	33.92	4.82	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	33.92	3.68	3.15	33.92	4.47	265
X270**	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	33.92	4.27	3.15	33.92	4.82	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	33.92	3.68	3.15	33.92	4.47	265

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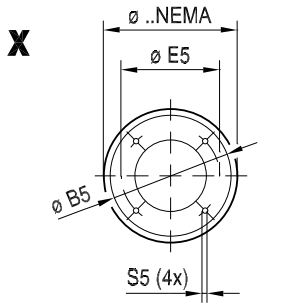
X4F..

48 056 04 07

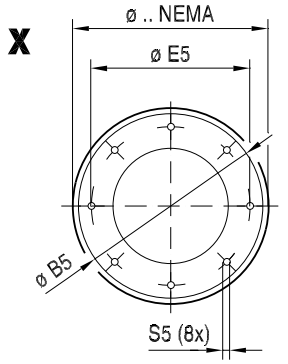


→ 📖 67

≤ *NEMA 326*



≥ *NEMA 364*



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inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X120*	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.02	14.13	0.73	1.10	14.13	1.02	45
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.68	14.13	1.69	1.10	14.13	1.69	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	2.04	14.13	1.62	1.10	14.13	2.03	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.42	15.87	2.44	1.10	15.87	2.42	50
X130***	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.02	14.13	0.73	1.10	14.13	1.02	45
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.68	14.13	1.69	1.10	14.13	1.69	45
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	2.04	14.13	1.62	1.10	14.13	2.03	45
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.42	15.87	2.44	1.10	15.87	2.42	50
X140*	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	16.40	1.10	1.26	16.40	1.14	65
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	16.40	1.41	1.26	16.40	1.43	65
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	16.40	2.15	1.26	16.40	2.15	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	18.13	2.70	1.26	18.13	2.70	75
X150***	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	16.40	1.10	1.26	16.40	1.14	65
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	16.40	1.41	1.26	16.40	1.43	65
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	16.40	2.15	1.26	16.40	2.15	65
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	18.13	2.70	1.26	18.13	2.70	75
X160*	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	18.01	1.69	1.50	18.01	1.69	105
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	18.01	2.31	1.50	18.01	2.51	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	19.07	2.58	1.50	19.07	2.58	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	20.81	3.50	1.50	20.81	3.50	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	20.81	2.44	1.50	20.81	2.43	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	23.17	4.36	1.50	23.17	4.36	140
X170***	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	18.01	1.69	1.50	18.01	1.69	105
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	18.01	2.31	1.50	18.01	2.51	105
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	19.07	2.58	1.50	19.07	2.58	110
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	20.81	3.50	1.50	20.81	3.50	125
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	20.81	2.44	1.50	20.81	2.43	125
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	23.17	4.36	1.50	23.17	4.36	140
X180*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	19.27	1.13	1.50	19.27	2.35	115
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	20.33	2.07	1.50	20.33	2.48	115
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	22.07	3.38	1.50	22.07	3.34	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	22.07	2.554	1.50	22.07	3.14	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	24.43	4.09	1.50	24.43	4.91	140
X190**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	19.27	1.13	1.50	19.27	2.35	115
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	20.33	2.10	1.50	20.33	2.48	115
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	22.07	2.88	1.50	22.07	3.34	120
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	22.07	2.55	1.50	22.07	3.14	130
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	24.43	4.09	1.50	24.43	4.91	140
X200*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	2.17	20.02	1.05	1.65	20.02	1.07	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.17	21.08	2.12	1.65	21.08	2.12	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	22.81	3.38	1.65	22.81	3.38	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	22.81	2.16	1.65	22.81	2.16	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	25.18	4.09	1.65	25.18	4.08	165
X210**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	2.17	20.02	1.05	1.65	20.02	1.07	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.17	21.08	2.12	1.65	21.08	2.12	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.17	22.81	3.38	1.65	22.81	3.38	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.17	22.81	2.16	1.65	22.81	2.16	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.17	25.18	4.09	1.65	25.18	4.08	165
X220*	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.97	21.38	1.37	150
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	22.44	0.69	1.97	22.44	2.28	150
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	24.17	2.87	1.97	24.17	3.46	155
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	24.17	1.84	1.97	24.17	2.44	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	26.54	3.81	1.97	26.54	4.09	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	29.57	4.89	1.97	29.57	5.84	200
X230**	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	–	–	–	1.97	21.38	1.37	150
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	22.44	0.69	1.97	22.44	2.28	150
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	24.17	2.87	1.97	24.17	3.46	155
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	24.17	1.84	1.97	24.17	2.44	165
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	26.54	3.81	1.97	26.54	4.09	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	29.57	4.89	1.97	29.57	5.84	200
X240*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	25.93	2.44	2.17	25.93	3.46	180
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	25.93	1.37	2.17	25.93	2.87	190
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	28.29	3.62	2.17	28.29	4.29	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	31.32	4.83	2.17	31.32	5.84	225

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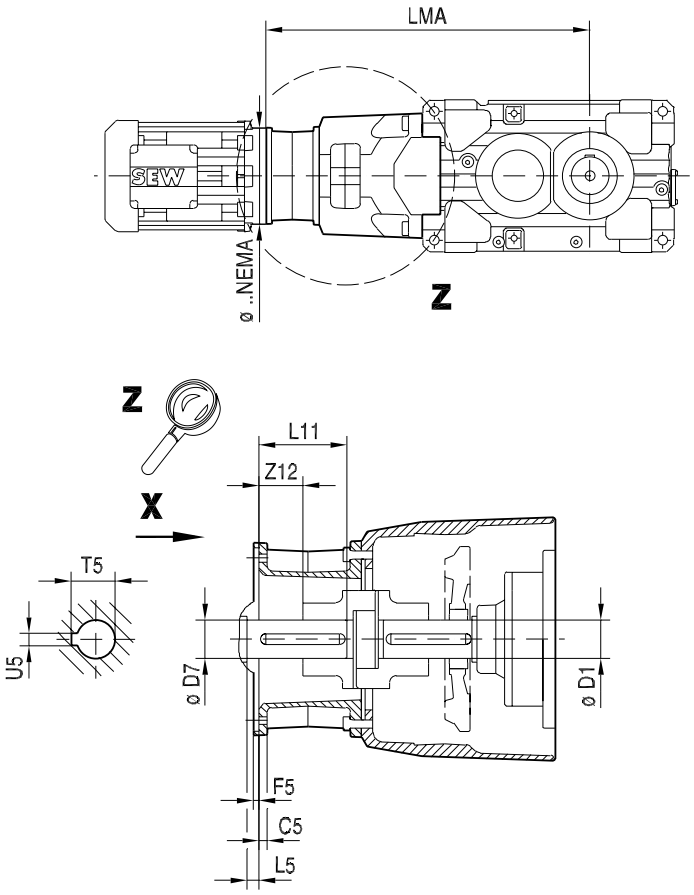
inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
X250**	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	25.93	2.44	2.17	25.93	3.46	180
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	25.93	1.37	2.17	25.93	2.87	190
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	28.29	3.62	2.17	28.29	4.29	195
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	31.32	4.83	2.17	31.32	5.48	225
X260*	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.95	28.52	2.44	2.36	28.52	3.46	210
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	28.52	2.24	2.36	28.52	2.24	215
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	30.89	4.21	2.36	30.89	3.81	225
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	5.06	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	4.86	265
X270**	324–326	13	12 1/2^{H7}	0.67	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.95	28.52	2.44	2.36	28.52	3.46	210
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.95	28.52	2.24	2.36	28.52	2.24	215
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.95	30.89	4.21	2.36	30.89	3.81	225
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	5.06	250
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.95	33.92	4.87	2.36	33.92	4.86	265

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14.26.4 NEMA motor adapter X2K100 – 210

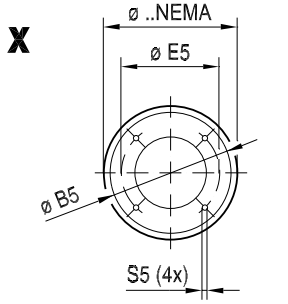
X2K..

48 051 04 07

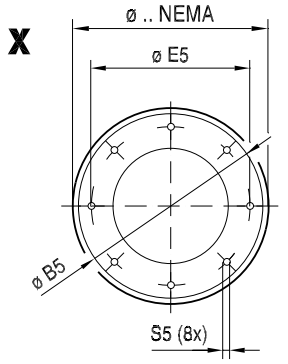


→ 📖 67

≤ *NEMA 326*



≥ *NEMA 364*



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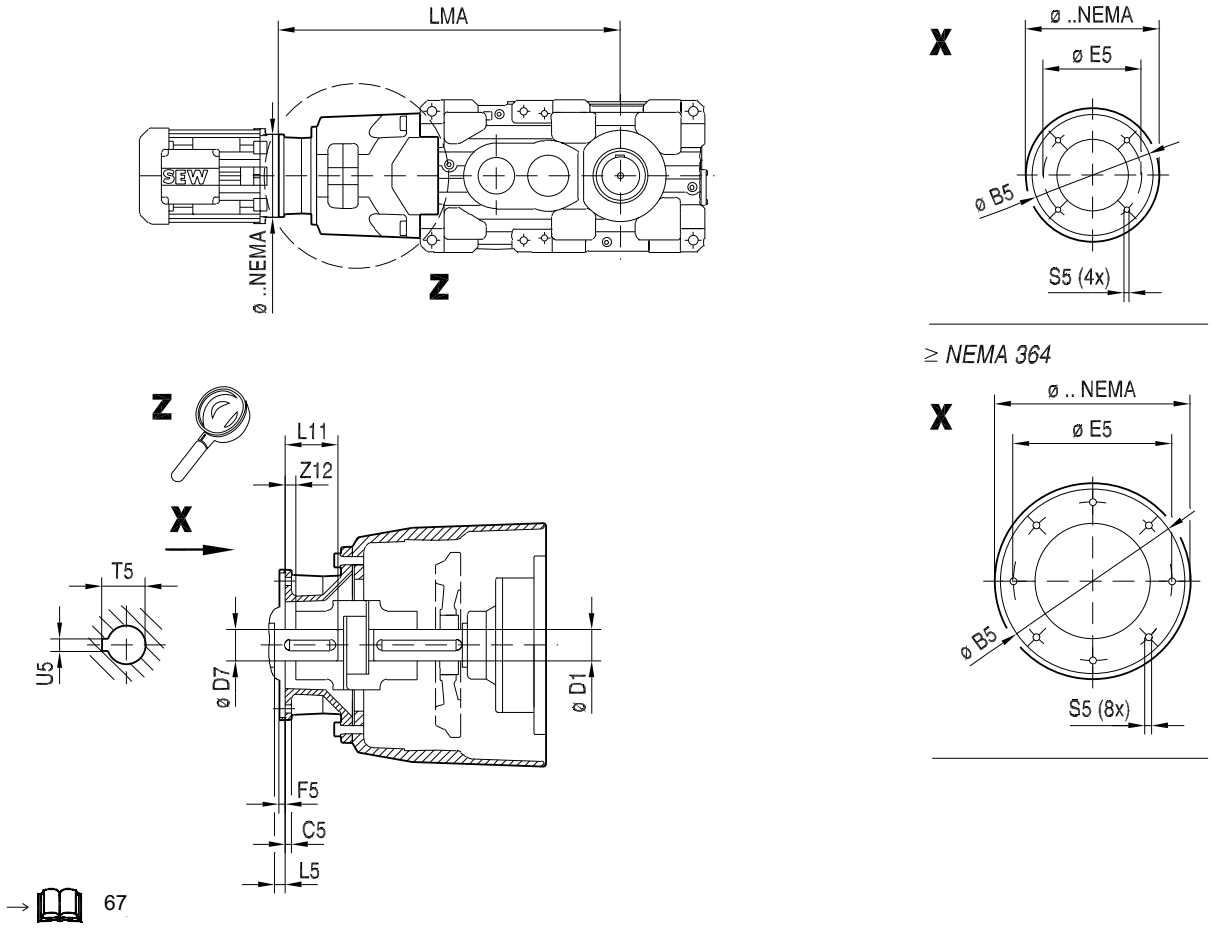
inch																kg
X2K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X100	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	31.22	2.36	45
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.09	1.37	60
X110	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.01	2.36	45
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.87	1.37	60
X120	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	35.91	2.56	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	38.19	3.65	70
X130	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	37.32	2.56	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.61	3.65	70
X140	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.71	3.77	90
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	41.89	4.16	110
X150	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	42.36	3.77	90
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.16	110
X160	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	49.57	4.32	145
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	49.57	3.68	155
X170	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	51.57	4.32	145
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	51.57	3.68	155
X180	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	54.57	4.15	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	54.57	3.68	180
X190	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	55.83	4.15	160
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	55.83	3.68	180
X200	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	58.31	2.07	195
X210	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	59.72	2.07	195

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14.26.5 NEMA motor adapter X3K100 – 270

X3K..

48 052 04 07



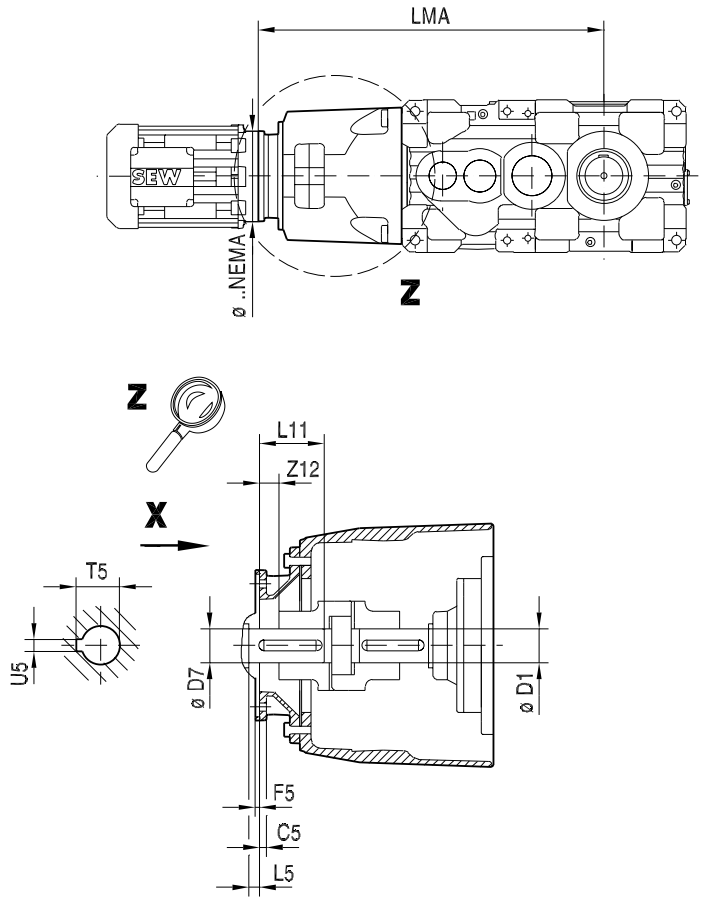
inch																kg
X3K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X100	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	28.78	1.35	30
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	28.78	0.54	30
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	30.51	2.27	35
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	31.50	3.11	45
X110	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	29.57	1.35	30
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	29.57	0.54	30
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	31.30	2.27	35
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	32.28	3.11	45
X120	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	33.23	1.37	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	33.23	0.97	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	34.96	2.40	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	35.95	2.90	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	36.81	3.16	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	39.09	4.44	70
X130	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	34.65	1.37	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	34.65	0.97	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	36.38	2.40	45
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	37.36	2.90	50
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	38.23	3.16	60
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	40.51	4.44	70
X140	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	38.50	0.78	55
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	40.24	2.49	60
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	41.22	2.78	65
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	42.09	2.93	75
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	44.37	4.01	85
	444–445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	45.55	4.30	105
X150	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	40.16	0.78	55
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	41.89	2.49	60
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	42.87	2.78	65
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	43.74	2.93	75
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	46.02	4.01	85
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	47.21	4.30	105
X160	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	46.61	1.42	105
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	46.61	1.59	105
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	48.98	3.66	115
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	52.01	5.09	140
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	52.01	4.73	155
X170	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	48.62	1.42	105
	364–365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	48.62	1.59	105
	404–405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	50.98	3.66	115
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	54.02	5.09	140
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	54.02	4.73	155
X180	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	50.59	1.18	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	52.95	3.54	120
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	55.98	4.59	150
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	55.98	4.59	165
X190	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	51.85	1.18	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	54.21	3.54	120
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	57.24	4.59	150
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	57.24	4.59	165
X200	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	58.74	3.46	145
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	61.77	4.83	175
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	61.77	4.43	185
X210	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	60.16	3.46	145
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	63.19	4.82	175
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	63.19	4.31	185
X220	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	64.49	3.46	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	67.52	4.90	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	67.52	4.51	215
X230	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	66.06	3.46	175
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	69.09	4.90	200
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	69.09	4.51	215
X240	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	72.68	4.30	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	72.68	3.71	230
X250	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	73.58	4.30	220
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	73.58	3.71	230
X260	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	79.37	4.30	255
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	79.37	3.71	265
X270	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	80.75	4.30	255
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	4.33	80.75	3.71	265

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14.26.6 NEMA motor adapter X4K120 – 280

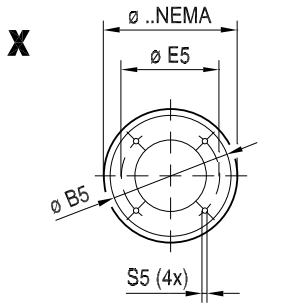
X4K..

48 053 04 07

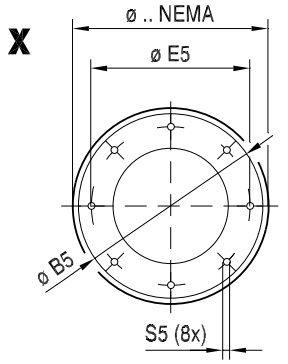


→ 67

≤ *NEMA 326*



≥ *NEMA 364*



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inch																kg
X4K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X120	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	31.85	1.02	35
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	31.85	1.27	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	31.85	0.74	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	33.58	2.11	45
X130	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	33.27	1.02	35
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	33.27	1.27	35
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	33.27	0.74	40
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	35.00	2.11	45
X140	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	37.60	1.10	50
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	37.60	0.84	50
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	37.60	1.05	50
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	39.33	2.07	55
X150	182–184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	39.25	1.10	50
	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	39.25	0.84	50
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	39.25	1.05	50
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	40.98	2.07	55
X160	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	44.41	1.31	80
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	44.41	1.52	85
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	45.47	2.16	85
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	47.21	2.79	90
X170	213–215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	46.42	1.31	80
	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	46.42	1.52	85
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	47.48	2.16	85
	324–326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	49.21	2.79	90
X180	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	51.30	0.97	95
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	52.36	2.04	95
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	54.09	3.22	100
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	54.09	2.20	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	56.46	4.09	120
X190	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	52.56	0.99	95
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	53.62	2.04	95
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	55.35	3.22	100
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	55.35	2.20	115
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	57.72	4.09	120
X200	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	54.72	0.99	125
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	55.79	2.04	125
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	57.52	3.22	130
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	57.52	2.00	145
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	59.88	3.97	150
	444–445[1)]	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	62.91	4.85	180
X210	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	56.14	0.99	125
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	57.20	2.04	125
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	58.94	3.22	130
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	58.94	2.00	145
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	61.30	3.97	150
	444–445[1)]	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	64.33	4.85	180
X220	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	61.46	0.89	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	62.52	1.99	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	64.25	3.23	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	64.25	2.20	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	66.61	3.97	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	69.65	4.83	195
X230	254–256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	63.03	0.89	140
	284–286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	64.09	1.99	140
	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	65.83	3.23	150
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	65.83	2.20	160
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	68.19	3.97	165
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	71.22	4.83	195
X240	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	68.70	2.29	170
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	68.70	1.18	180
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	71.06	3.50	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	74.09	4.61	215
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	74.09	4.61	225
X250	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	69.61	2.29	170
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	69.61	1.18	180
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	71.97	3.50	185
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	75	4.61	215
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	75	4.61	225

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inch																kg
X4K..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X260	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	76.18	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	76.18	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	78.54	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	81.58	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	81.58	4.61	285
X270	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	77.56	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	77.56	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	79.92	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	82.95	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	82.95	4.61	285
X280	324–326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	3.15	79.60	1.18	235
	364–365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	3.15	79.69	1.18	235
	404–405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	81.96	3.54	245
	444–445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	84.99	4.81	270
	447–449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	84.99	4.61	285

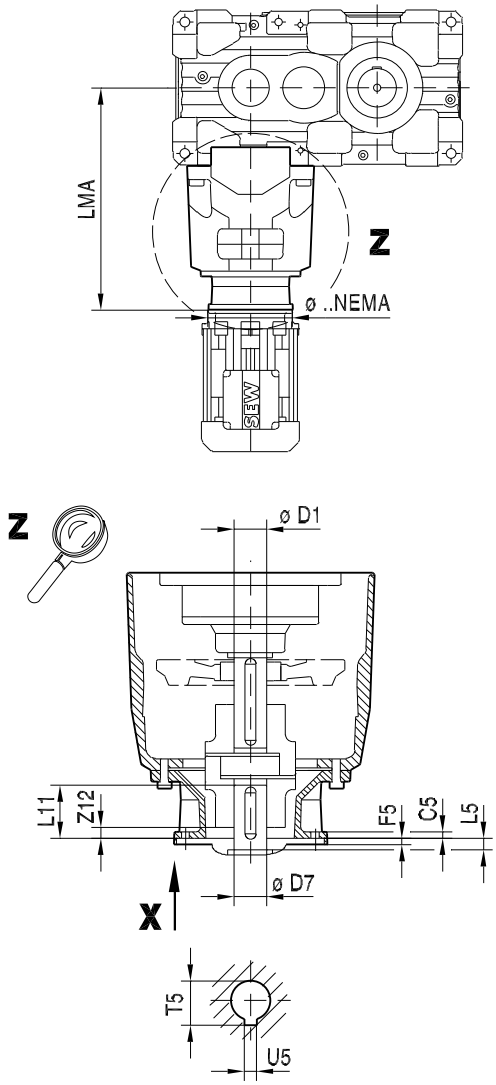
1) Rücksprache mit SEW–EURODRIVE

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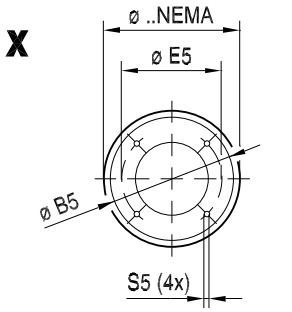
14.26.7 NEMA motor adapter X3T100 – 210

X3T..

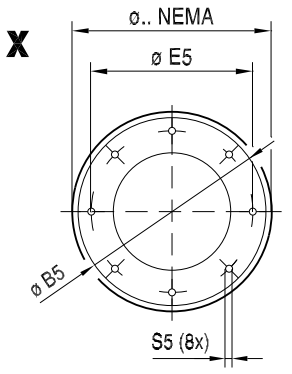
48 008 03 10



≤ *NEMA 326*



≥ *NEMA 364*



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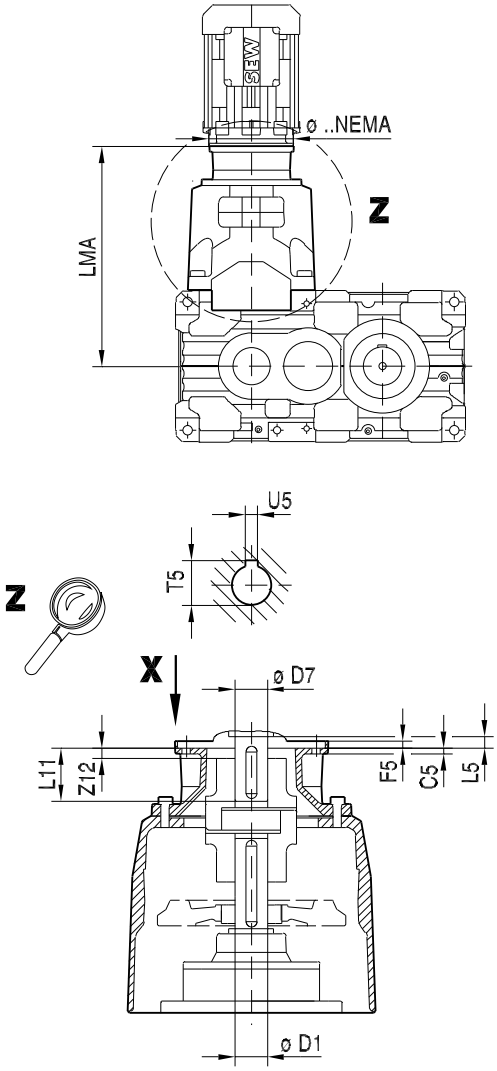
inch																kg
X3T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7		F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X100	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	17.83	1.37	30
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	17.83	0.54	30
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	19.57	2.27	35
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	20.55	3.11	45
X110	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	17.83	1.37	30
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	17.83	0.54	30
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	19.57	2.27	35
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.26	20.55	3.11	45
X120	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	20.35	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	20.35	0.97	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	22.09	2.38	45
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	23.07	3.30	50
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	23.94	3.14	60
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	26.22	4.44	70
X130	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	20.35	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	20.35	0.97	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	22.09	2.38	45
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	23.07	3.30	50
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.50	23.94	3.14	60
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.50	26.22	4.44	70
X140	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	23.23	0.78	55
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	24.96	2.50	60
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	25.95	3.11	65
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	26.81	2.93	75
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	29.09	4.01	85
	444-445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	30.28	4.27	105
X150	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.97	23.23	0.78	55
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	24.96	2.50	60
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	25.95	3.11	65
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	26.81	2.93	75
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	29.09	4.01	85
	444-445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	30.28	4.27	105
X160	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	27.95	2.28	105
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	27.95	1.59	105
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	30.32	3.66	115
	444-445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	5.06	140
	447-449	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	4.71	155
X170	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	27.95	2.28	105
	364-365	13	12 1/2^{H7}	0.71	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	27.95	1.59	105
	404-405	13	12 1/2^{H7}	0.79	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	30.32	3.66	115
	444-445	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	5.06	140
	447-449	16.6	16^{H7}	0.79	3,38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	33.35	4.71	155
X180	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	29.17	1.18	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	31.54	3.54	120
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	150
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	165
X190	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	29.17	1.18	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	31.54	3.54	120
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	150
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	34.57	4.59	165
X200	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	34.57	3.46	145
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.85	175
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.46	185
X210	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.15	34.57	3.46	145
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.85	175
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.15	37.60	4.46	185

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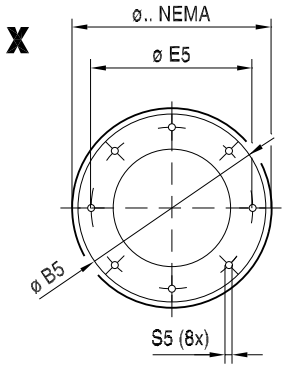
14.26.8 NEMA motor adapter X3T220 – 250

X3T..

48 009 03 10



≥ *NEMA 364*



24799734/EN – 08/2018

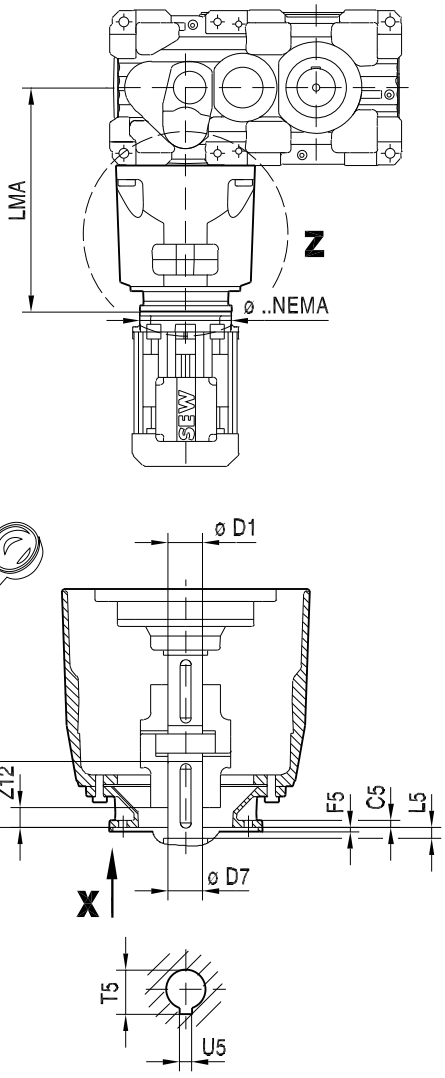
inch																kg
X3T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X220	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	37.17	3.46	175
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.90	200
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.51	215
X230	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	3.35	37.17	3.46	175
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.90	200
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.35	40.20	4.51	215
X240	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	4.27	220
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	3.68	230
X250	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	4.27	220
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	3.94	42.13	3.68	230

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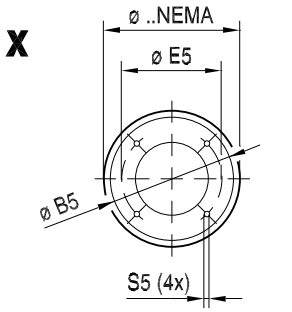
14.26.9 NEMA motor adapter X4T120 – 210

X4T..

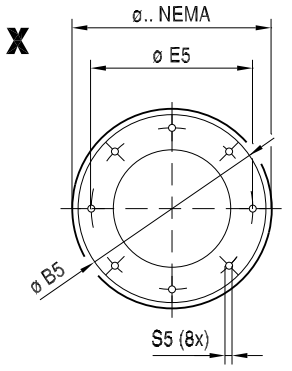
48 010 03 10



≤ *NEMA 326*



≥ *NEMA 364*



24799734/EN – 08/2018

inch																kg
X4T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X120	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.02	35
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	18.98	0.74	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	20.71	2.11	45
X130	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.02	35
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.10	18.98	1.27	35
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.10	18.98	0.74	40
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.10	20.71	2.11	45
X140	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	1.10	50
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	0.84	50
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	22.32	1.05	50
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	24.06	2.07	55
X150	182-184	9	8 1/2^{H7}	0.55	1.12^{M7}	7 1/4	0.2	1/4	2 5/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	1.10	50
	213-215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	22.32	0.84	50
	254-256	9	8 1/2^{H7}	0.55	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.26	22.32	1.05	50
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.26	24.06	2.07	55
X160	213-215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	25.75	1.31	80
	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	25.75	1.52	85
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	26.81	2.16	85
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	28.54	2.79	90
X170	213-215	9	8 1/2^{H7}	0.47	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.50	25.75	1.31	80
	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.794	3/8$^{+0.00197}$	1.50	25.75	1.52	85
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.50	26.81	2.16	85
	324-326	13	12 1/2^{H7}	0.71	2.12^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.50	28.54	2.79	90
X180	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	29.88	0.99	95
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	30.95	2.04	95
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.68	3.22	100
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.68	2.20	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.04	4.09	120
X190	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	29.88	0.99	95
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	30.95	2.04	95
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	32.68	3.22	100
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	32.68	2.20	115
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.04	4.09	120
X200	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	30.55	0.97	125
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	31.61	2.03	125
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	33.35	3.22	130
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	33.35	2.00	145
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.71	3.97	150
	444-445[1)]	16.6	16H7	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	38.74	4.85	180
X210	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	1.97	30.55	0.99	125
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	1.97	31.61	2.03	125
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	1.97	33.35	3.22	130
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	1.97	33.35	2.00	145
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	1.97	35.71	3.97	150
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	1.97	38.74	4.85	180

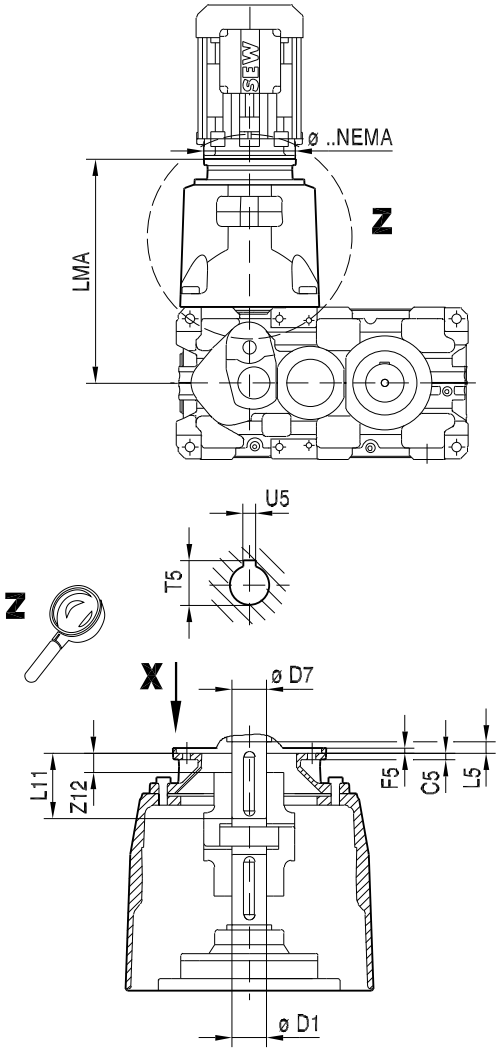
1) Rücksprache mit SEW-EURODRIVE

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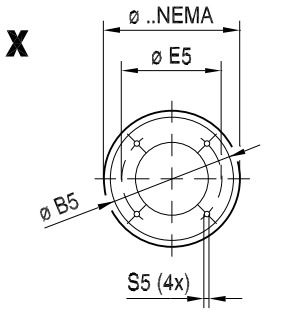
14.26.10 NEMA motor adapter X4T220 – 250

X4T..

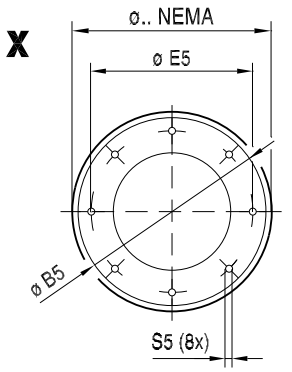
48 011 03 10



≤ *NEMA 326*



≥ *NEMA 364*



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inch																kg
X4T..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	
X220	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	34.13	0.89	140
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	35.20	2.02	140
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	36.93	3.23	150
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	36.93	2.20	160
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.29	3.97	165
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	42.32	4.85	195
X230	254-256	9	8 1/2^{H7}	0.47	1.62^{M7}	7 1/4	0.2	1/4	3 3/4	0.59 (4x)	1.803	3/8$^{+0.00197}$	2.36	34.13	0.89	140
	284-286	11 1/4	10 1/2^{H7}	0.59	1.88^{M7}	9	0.2	1/4	4 3/8	0.59 (4x)	2.106	1/2$^{+0.00197}$	2.36	35.20	2.02	140
	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.36	36.93	3.23	150
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.36	36.93	2.20	160
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.36	39.29	3.97	165
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.36	42.32	4.85	195
X240	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	38.15	2.29	170
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	38.15	1.18	180
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.51	3.50	185
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59	215
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59	225
X250	324-326	13	12 1/2^{H7}	0.67	2.13^{M7}	11	0.2	1/4	5	0.69 (4x)	2.362	1/2$^{+0.00197}$	2.76	38.15	2.29	170
	364-365	13	12 1/2^{H7}	0.67	2.38^{M7}	11	0.2	1/4	5 5/8	0.69 (8x)	2.661	5/8$^{+0.00197}$	2.76	38.15	1.18	180
	404-405	13	12 1/2^{H7}	0.67	2.88^{M7}	11	0.2	1/4	7	0.69 (8x)	3.213	3/4$^{+0.00197}$	2.76	40.51	3.50	185
	444-445	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59	215
	447-449	16.6	16^{H7}	0.79	3.38^{M7}	14	0.2	1/4	8 1/4	0.69 (8x)	3.772	7/8$^{+0.00197}$	2.76	43.54	4.59	225

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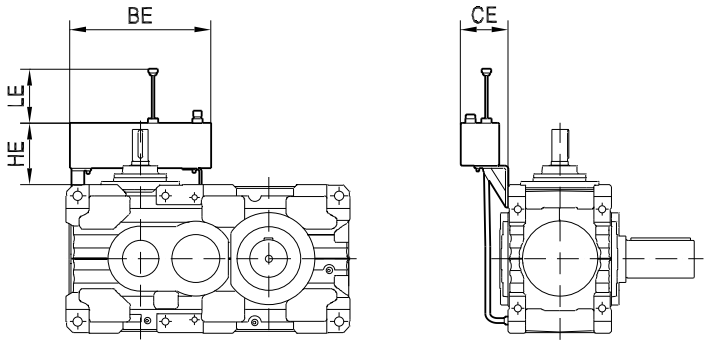
14.27 Oil expansion tank /ET for mounting position M1/M3 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEW-EURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 🗎 118).

ET

48 013 02 10



X3T	Mounting position	BE	CE	HE	LE
X100	M3	380	200	194	193
X110	M3	380	200	194	193
X120	M3	380	215	197	193
X130	M3	380	215	197	193
X140	M3	530	285	223	202
X150	M3	530	285	223	202
X160	M3	580	344	263	260
X170	M3	580	344	263	260
X180	M3	580	290	268	260
X190	M3	580	290	268	260
X200	M3	690	336	293	290
X210	M3	690	336	293	290
X220	M1	820	355	328	312
X230	M1	820	355	328	312
X240	M1	820	360	345	312
X250	M1	820	360	345	312

X4T	Mounting position	BE	CE	HE	LE
X120	M3	380	215	197	193
X130	M3	380	215	197	193
X140	M3	530	220	253	202
X150	M3	530	220	253	202
X160	M3	580	285	313	260
X170	M3	580	285	313	260
X180	M3	580	283	365	260
X190	M3	580	283	365	260
X200	M3	690	313	374	290
X210	M3	690	313	374	290
X220	M1	820	333	417	312
X230	M1	820	333	417	312
X240	M1	820	340	425	312
X250	M1	820	340	425	312

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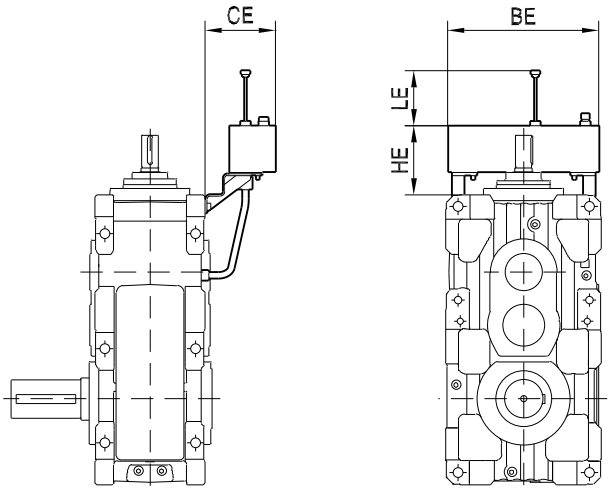
14.28 Oil expansion tank /ET for mounting position M4 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEW-EURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 🗎 118).

ET

48 012 03 10



X2K	Mounting position	BE	CE	HE	LE
X100	M4	380	176	231	193
X110	M4	380	176	231	193
X120	M4	380	175	224	193
X130	M4	380	175	224	193
X140	M4	530	220	255	202
X150	M4	530	220	255	202
X160	M4	580	285	314	260
X170	M4	580	285	314	260
X180	M4	580	290	327	260
X190	M4	580	290	327	260
X200	M4	690	335	394	290
X210	M4	690	335	394	290
X220	M4	820	350	449	312
X230	M4	820	350	449	312
X240	M4	820	360	401	312
X250	M4	820	360	401	312

X3K	Mounting position	BE	CE	HE	LE
X100	M4	380	200	190	193
X110	M4	380	200	190	193
X120	M4	380	215	201	193
X130	M4	380	215	201	193
X140	M4	530	170	225	202
X150	M4	530	170	225	202
X160	M4	580	240	272	260
X170	M4	580	240	272	260
X180	M4	580	290	268	260

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X3K	Mounting position	BE	CE	HE	LE
X190	M4	580	290	268	260
X200	M4	690	336	294	290
X210	M4	690	336	294	290
X220	M4	820	355	328	312
X230	M4	820	355	328	312
X240	M4	820	360	344	312
X250	M4	820	360	344	312

X4K	Mounting position	BE	CE	HE	LE
X120	M4	380	215	201	193
X130	M4	380	215	201	193
X140	M4	530	220	255	202
X150	M4	530	220	255	202
X160	M4	580	285	314	260
X170	M4	580	285	314	260
X180	M4	580	283	365	260
X190	M4	580	283	365	260
X200	M4	690	313	375	290
X210	M4	690	313	375	290
X220	M4	820	333	417	312
X230	M4	820	333	417	312
X240	M4	820	285	424	312
X250	M4	820	285	424	312

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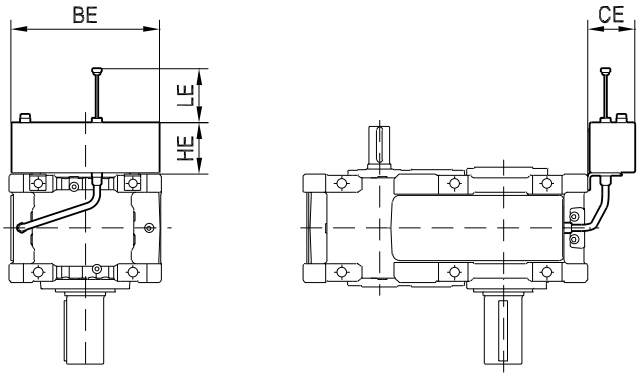
14.29 Oil expansion tank /ET for mounting position M5/M6 [mm]

INFORMATION

The dimensions of the oil expansion tanks are provided for information purposes only. Final dimensions are specified order-specifically by SEW-EURODRIVE. For further information, refer to chapter "Oil expansion tank /ET" (→ 🗎 118).

ET

48 058 05 09



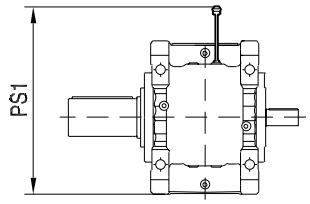
	Mounting position	BE	CE	HE	LE
X100	M5/M6	380	165	170	193
X110	M5/M6	380	165	170	193
X120	M5/M6	380	165	167	193
X130	M5/M6	380	165	167	193
X140	M5/M6	530	175	180	202
X150	M5/M6	530	175	180	202
X160	M5/M6	580	225	228	260
X170	M5/M6	580	225	228	260
X180	M5/M6	580	225	228	260
X190	M5/M6	580	225	228	260
X200	M5/M6	690	240	253	290
X210	M5/M6	690	240	253	290
X220	M5/M6	820	275	280	312
X230	M5/M6	820	275	280	312
X240	M5/M6	820	275	273	312
X250	M5/M6	820	275	273	312

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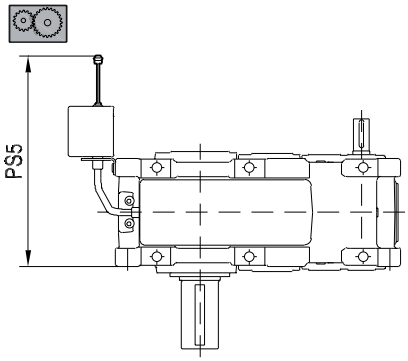
14.30 Oil dipstick /OD, oil level glass /OLG and breather /BPG [mm]

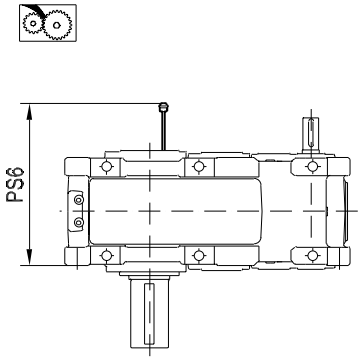
48 014 00 18

OD
M1



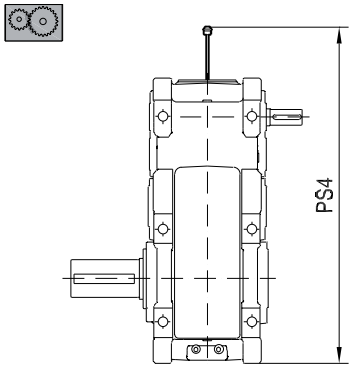
OD
M5



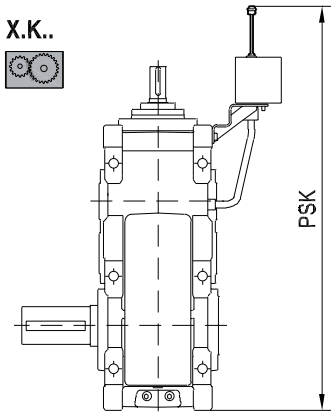


OD
M4

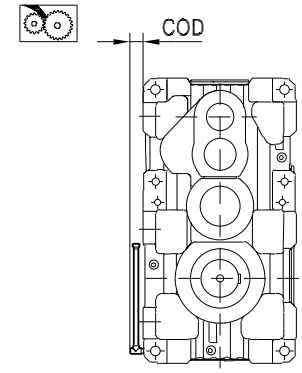
X.F.. / X.T..



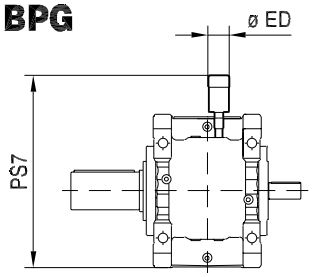
X.K..



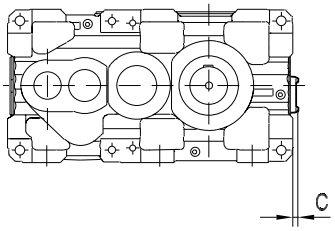
X.F.. / X.K.. / X.T..



BPG



OLG



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14.30.1 Oil dipstick /OD

	M1	M5		M4		
	PS1	PS5	PS6	PS4	PSK	COD
X100	520	620	420	790	1060	-
X110	520	620	420	830	1100	-
X120	620	660	480	880	1270	54
X130	620	660	480	950	1240	54
X140	710	750	560	1040	1370	41
X150	710	750	560	1120	1450	41
X160	830	810	660	1300	1620	49
X170	830	810	660	1350	1670	49
X180	890	970	750	1470	1830	51
X190	890	970	750	1500	1865	51
X200	980	1010	800	1640	1985	48
X210	980	1010	800	1680	2020	48
X220	1120	1100	1000	1940	2220	90
X230	1120	1100	1000	1980	2260	90
X240	1150	1170	1150	2110	2380	92
X250	1150	1170	1150	2130	2400	92
X260	1300	-	1180	2270	-	89
X270	1300	-	1180	2300	-	89
X280	1470	-	1180	2420	-	89
X290	1510	-	1320	2610	-	89
X300	1510	-	1320	2640	-	89
X310	1680	-	1430	2880	-	71
X320	1680	-	1430	2920	-	71

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14.30.2 Breather /BPG

	BPG	ø ED	PS7	Housing design
X100 – 110	DC HG-8	104	633^{+5}	HU/HH
	DC2	102	542^{+5}	HU/HH
	DC3	102	593^{+5}	HU/HH
	DC4	102	644^{+5}	HU/HH
	PI	118	480^{+5}	HU/HH
	NIRO	62	453^{+5}	HU/HH
X120 – 130	DC HG-8	104	693^{+5}	HU/HH
	DC2	102	602^{+5}	HU/HH
	DC3	102	653^{+5}	HU/HH
	DC4	102	704^{+5}	HU/HH
	PI	118	540 $^{+5}$	HU/HH
	NIRO	62	513^{+5}	HU/HH
X140 – 150	DC HG-8	104	758^{+5}	HU/HH
	DC2	102	667^{+5}	HU/HH
	DC3	102	718^{+5}	HU/HH
	DC4	102	769^{+5}	HU/HH
	PI	118	605^{+5}	HU/HH
	NIRO	62	578^{+5}	HU/HH
X160 – 170	DC HG-8	104	882^{+5}	HU/HH
	DC2	102	791^{+5}	HU/HH
	DC3	102	842^{+5}	HU/HH
	DC4	102	893^{+5}	HU/HH
	PI	118	729^{+5}	HU/HH
	NIRO	71	689^{+5}	HU/HH
X180 – 190	DC HG-8	104	922^{+5}	HU/HH
	DC2	102	831^{+5}	HU/HH
	DC3	102	882 $^{+5}$	HU/HH
	DC4	102	933 $^{+5}$	HU/HH
	PI	118	769 $^{+5}$	HU/HH
	NIRO	71	729 $^{+5}$	HU/HH
X200 – 210	DC HG-8	104	987^{+5}	HU/HH
	DC2	102	896^{+5}	HU/HH
	DC3	102	947 $^{+5}$	HU/HH
	DC4	102	998^{+5}	HU/HH
	PI	118	834^{+5}	HU/HH
	NIRO	71	662^{+5}	HU/HH
X3T.200 – 210	NIRO	71	794^{+5}	HU/HH
X220 – 230	DC HG-8	104	1072^{+5}	HU/HH
	DC2	102	981^{+5}	HU/HH
	DC3	102	1032^{+5}	HU/HH
	DC4	102	1083^{+5}	HU/HH
	PI	118	919^{+5}	HU/HH
	NIRO	71	747^{+5}	HU/HH
X3T.220 – 230	NIRO	71	879^{+5}	HU/HH
X240 – 250	DC HG-8	104	1066^{+5}	HU/HH
	DC2	102	975^{+5}	HU/HH
	DC3	102	1024 $^{+5}$	HU/HH
	DC4	102	1077 $^{+5}$	HU/HH
	PI	118	911^{+5}	HU/HH
	NIRO	71	779^{+5}	HU/HH
X3T.240 – 250	NIRO	71	911^{+5}	HU/HH

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	BPG	ø ED	PS7	Housing design
X260 – 270	DC HG-8	104	1204^{+5}	HH
	DC HG-8	104	1166^{+5}	HU
	DC2	102	1113^{+5}	HH
	DC2	102	1075 $^{+5}$	HU
	DC3	102	1164 $^{+5}$	HH
	DC3	102	1124 $^{+5}$	HU
	DC4	102	1215 $^{+5}$	HH
	DC4	102	1177 $^{+5}$	HU
	PI	118	1051^{+5}	HH
	PI	118	1011^{+5}	HU
	NIRO	71	879^{+5}	HU/HH
X280 – 290	DC HG-8	104	1314^{+5}	HH
	DC HG-8	104	1276^{+5}	HU
	DC2	102	1223^{+5}	HH
	DC2	102	1185^{+5}	HU
	DC3	102	1274 $^{+5}$	HH
	DC3	102	1234^{+5}	HU
	DC4	102	1325^{+5}	HH
	DC4	102	1287^{+5}	HU
	PI	118	1161^{+5}	HH
	PI	118	1211^{+5}	HU
	NIRO	71	989^{+5}	HU/HH
X300 – 310	DC HG-8	104	1342^{+5}	HH
	DC HG-8	104	1304^{+5}	HU
	DC2	102	1251^{+5}	HH
	DC2	102	1213^{+5}	HU
	DC3	102	1302^{+5}	HH
	DC3	102	1262 $^{+5}$	HU
	DC4	102	1353 $^{+5}$	HH
	DC4	102	1315 $^{+5}$	HU
	PI	118	1189 $^{+5}$	HH
	PI	118	1149 $^{+5}$	HU
	NIRO	71	1017 $^{+5}$	HU/HH
X320	DC HG-8	104	1444 $^{+5}$	HH
	DC HG-8	104	1406 $^{+5}$	HU
	DC2	102	1353 $^{+5}$	HH
	DC2	102	1315 $^{+5}$	HU
	DC3	102	1404 $^{+5}$	HH
	DC3	102	1364 $^{+5}$	HU
	DC4	102	1455 $^{+5}$	HH
	DC4	102	1417 $^{+5}$	HU
	PI	118	1291 $^{+5}$	HH
	PI	118	1251 $^{+5}$	HU
	NIRO	71	1119 $^{+5}$	HU/HH

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14.30.3 Oil level glass /OLG

	C
X100	-
X110	-
X120	-
X130	-
X140	-
X150	-
X160	-
X170	-
X180	17^{+2}
X190	17^{+2}
X200	17^{+2}
X210	17^{+2}
X220	16^{+2}
X230	16^{+2}
X240	16^{+2}
X250	16^{+2}
X260	13^{+2}
X270	13^{+2}
X280	13^{+2}
X290	11^{+2}
X300	11^{+2}
X310	11^{+2}
X320	11^{+2}

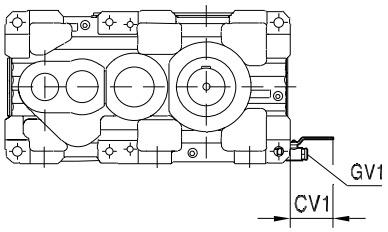
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14.31 Oil drain valve /ODV [mm]

ODV

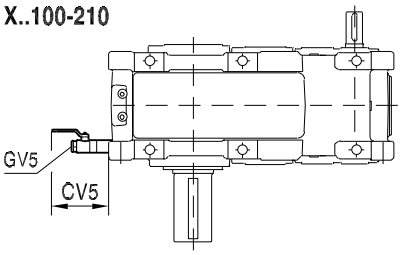
48 015 00 18

M1

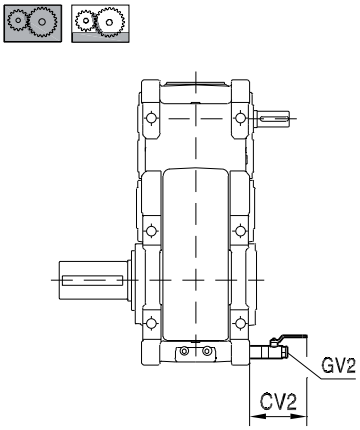


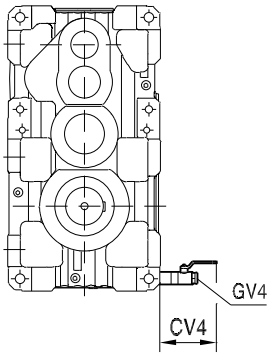
M5

X..100-210

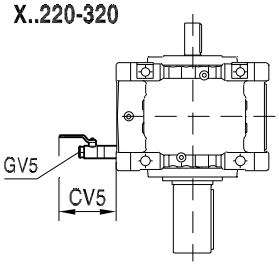


M4





X..220-320



	Mounting position M1		Mounting position M4				Mounting position M5	
	CV1	GV1	CV2	GV2	CV4	GV4	CV5	GV5
X100	89	G1/2"	89	G1/2"	-	-	143	G1/2"
X110	89	G1/2"	89	G1/2"	-	-	143	G1/2"
X120	83	G1/2"	83	G1/2"	-	-	142	G1/2"
X130	83	G1/2"	83	G1/2"	-	-	142	G1/2"
X140	66	G1/2"	66	G1/2"	-	-	136	G1/2"
X150	66	G1/2"	66	G1/2"	-	-	136	G1/2"
X160	91	G1"	91	G1"	-	-	182	G1"
X170	91	G1"	91	G1"	-	-	182	G1"
X180	92	G1"	92	G1"	-	-	179	G1"
X190	92	G1"	92	G1"	-	-	179	G1"
X200	75	G1"	75	G1"	-	-	178	G1"
X210	75	G1"	75	G1"	-	-	178	G1"
X220	107	G1 1/4"	107	G1 1/4"	-	-	214	G1 1/4"
X230	107	G1 1/4"	107	G1 1/4"	288	G1"	214	G1 1/4"
X240	86	G1 1/4"	86	G1 1/4"	288	G1"	211	G1 1/4"
X250	86	G1 1/4"	86	G1 1/4"	288	G1"	211	G1 1/4"
X260	85	G1 1/4"	85	G1 1/4"	288	G1"	213	G1 1/4"
X270	85	G1 1/4"	85	G1 1/4"	288	G1"	213	G1 1/4"
X280	85	G1 1/4"	85	G1 1/4"	288	G1"	213	G1 1/4"
X290	70	G1 1/4"	70	G1 1/4"	268	G1"	208	G1 1/4"
X300	70	G1 1/4"	70	G1 1/4"	268	G1"	208	G1 1/4"
X310	66	G1 1/4"	66	G1 1/4"	270	G1"	212	G1 1/4"
X320	66	G1 1/4"	66	G1 1/4"	270	G1"	212	G1 1/4"

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15 Abbreviation key

α	Application angle of the radial load	°
f_1	Altitude factor (= correction factor for calculation of the thermal rating of the gear unit)	-
F_A	Axial load	kN
F_F	Peak load factor	-
F_R	Overhung load	N
F_{R1}	Overhung load on HSS (Distance from the shaft shoulder must be given)	kN
F_{R2}	Overhung load on LSS (Distance from the shaft shoulder must be given)	kN
F_S	Service factor = M_{N2} / M_{K2} = P_{N1} / P_{K1}	-
$F_{S\ min}$	Application-specific service factor	-
F_{start}	Startup factor	-
f_z	Transmission element factor	-
η	Efficiency	-
H	Installation altitude above sea level	m
HSS	High-speed gear unit shaft (usually input shaft)	-
i	Gear ratio	-
i_{ex}	Exact gear unit ratio	-
i_N	Nominal gear unit ratio	-
LSS	Low-speed gear unit shaft (usually output shaft)	-
$L_{h\ min}$	Required bearing service life	h
M_{K1}	Input torque (= operating torque on HSS)	kNm
$M_{K1\ max}$	Peak input torque (= peak operating torque on HSS)	kNm
M_{K2}	Output torque (= operating torque on LSS)	kNm
$M_{K2\ max}$	Peak output torque (= peak operating torque on LSS)	kNm
$M_{K2\ per}$	Permitted peak output torque	kNm
M_M	Nominal motor torque	kNm
M_{N2}	Nominal gear unit torque	kNm
n_1	Input speed (HSS)	rpm
n_2	Output speed (LSS)	rpm
n_M	Motor speed	rpm
P_{K1}	Operating power on HSS	kW
$P_{K1\ max}$	Peak operating power on HSS	kW
$P_{K1\ per}$	Permitted peak operating power on HSS	kW
P_{K2}	Operating power on LSS	kW
P_M	Nominal motor power	kW
P_T	Nominal gear unit power (referring to HSS)	kW
P_{TH}	Thermal rating of the gear unit at defined ambient conditions	kW

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SEW EURODRIVE

16 Address directory SEW-EURODRIVE

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	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Taiyuan	SEW-EURODRIVE (Taiyuan) Co,. Ltd. No.3, HuaZhang Street, TaiYuan Economic & Technical Development Zone ShanXi, 030032	Tel. +86-351-7117520 Fax +86-351-7117522 taiyuan@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478388 Fax +86 27 84478389 wuhan@sew-eurodrive.cn
	Xi'An	SEW-EURODRIVE (Xi'An) Co., Ltd. No. 12 Jinye 2nd Road Xi'An High-Technology Industrial Development Zone Xi'An 710065	Tel. +86 29 68686262 Fax +86 29 68686311 xian@sew-eurodrive.cn
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Colombia			
Assembly Sales Service	Bogota	SEW-EURODRIVE COLOMBIA LTDA. Calle 17 No. 132-18 Interior 2 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sew@sew-eurodrive.com.co
Croatia			
Sales Service	Zagreb	KOMPEKS d. o. o. Zeleni dol 10 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr
Czech Republic			
Assembly Sales Service	Hostivice	SEW-EURODRIVE CZ s.r.o. Floriánova 2459 253 01 Hostivice	Tel. +420 255 709 601 Fax +420 235 350 613 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
	Drive Service Hotline / 24 Hour Service	+420 800 739 739 (800 SEW SEW)	Service Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz

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	Ostrava	SEW-EURODRIVE CZ s.r.o. Studentská 6202/17 708 00 Ostrava-Poruba	Tel. +420 597 329 044 david.kenkus@sew-eurodrive.cz
	Klatovy	SEW-EURODRIVE CZ s.r.o. Vídeňská 841 33901 Klatovy	Tel. +420 376 331 634 Fax +420 376 331 634 viktor.kubernat@sew-eurodrive.cz
Service	Přerov	SEW-EURODRIVE CZ s.r.o. Areál STS Přerov a.s. ul. 9. května 2452 750 02 Přerov I – Město	Tel. +420 581 224 374 Fax +420 581 224 374 servis@sew-eurodrive.cz
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Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies Building 10, Block 13005, First Industrial Zone, Obour City Cairo	Tel. +202 44812673 / 79 (7 lines) Fax +202 44812685 http://www.copam-egypt.com copam@copam-egypt.com
Estonia			
Sales	Tallin	ALAS-KUUL AS Reti tee 4 75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 http://www.alas-kuul.ee veiko.soots@alas-kuul.ee
Finland			
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Service	Hollola	SEW-EURODRIVE OY Keskikankaantie 21 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production Assembly	Karkkila	SEW Industrial Gears Oy Santasalonkatu 6, PL 8 03620 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 http://www.sew-eurodrive.fi sew@sew.fi
Technical Offices	Helsinki	SEW-EURODRIVE OY Luutnantintie 5 00410 Helsinki	Tel. +358 201 589-300 sew@sew.fi
	Oulu	SEW Industrial Gears Oy Paulaharjuntie 22 90530 Oulu	Tel. +358 201 589 300 sew@sew.fi
	Vaasa	SEW Industrial Gears Oy Asemakatu 7 65100 Vaasa	Tel. +358 201 589-300 sew@sew.fi
	Kuopio	SEW Industrial Gears Oy Leväsentie 23 70780 Kuopio	Tel. +358 201 589-300 sew@sew.fi
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Production	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00
	Brumath	SEW-USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
Assembly Sales Service	Bordeaux	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
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	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
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	Burgundy	SEW-USOCOME	Tel. +33 3 85 49 92 18 Fax +33 3 85 49 92 19
	Centre / Poitou	SEW-USOCOME	Tel. +33 2 40 78 42 11 Fax +33 2 40 78 42 20
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	Franche-Comté	SEW-USOCOME	Tel. +33 3 84 68 57 71 Fax +33 3 84 68 57 95
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	Île-de-France South	SEW-USOCOME	Tel. +33 1 60 81 10 56 Fax +33 1 60 81 10 57
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	Provence-Alpes-Côte d'Azur	SEW-USOCOME	Tel. +33 4 91 18 00 11 Fax +33 4 91 18 00 12
	Rhône-Alpes East	SEW-USOCOME	Tel. +33 4 75 05 65 95 Fax +33 4 75 05 65 96
	Rhône-Alpes North	SEW-USOCOME	Tel. +33 4 74 99 60 03 Fax +33 4 74 99 60 15
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	Östringen	SEW-EURODRIVE GmbH & Co KG, Werk Östringen Franz-Gurk-Straße 2 76684 Östringen	Tel. +49 7253 9254-0 Fax +49 7253 9254-90 oestringen@sew-eurodrive.de
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Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
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	Dresden	SEW-EURODRIVE GmbH & Co KG Hauptstraße 32 01445 Radebeul	Tel. +49 351 26338-0 Fax +49 351 26338-38 tb-dresden@sew-eurodrive.de
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	Hannover / Garbsen	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Str.40-42 30823 Garbsen	Tel. +49 5137 8798-10 Fax +49 5137 8798-50 tb-hannover@sew-eurodrive.de
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	Karlsruhe	SEW-EURODRIVE GmbH & Co KG Ettlinger Weg 2 76467 Bietigheim P.O. Box Postfach 43 – D-76463 Bietigheim	Tel. +49 7245 9190-10 Fax +49 7245 9190-20 tb-karlsruhe@sew-eurodrive.de
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	Nuremberg	SEW-EURODRIVE GmbH & Co KG Lina-Ammon-Straße 22 90471 Nürnberg	Tel. +49 911 98884-50 Fax +49 911 98884-60 tb-nuernberg@sew-eurodrive.de
	Regensburg	SEW-EURODRIVE GmbH & Co KG Im Gewerbepark A15 93059 Regensburg	Tel. +49 941 46668-68 Fax +49 941 46668-66 tb-regensburg@sew-eurodrive.de
	Rhine-Main	SEW-EURODRIVE GmbH & Co KG Niederstedter Weg 5 61348 Bad Homburg	Tel. +49 6172 9617-0 Fax +49 6172 9617-50 tb-rheinmain@sew-eurodrive.de
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	Northern Ireland	Heyn Engineering (NI) Ltd. 1 Corry Place, Belfast, BT3 9AH	Tel. +44 02890350022 Fax +44 02890350012 http://www.heyn.co.uk info@heyn.co.uk
Greece			
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Technical Office	Thessaloniki	Christ. Boznos & Son S.A. Asklipiou 26 562 24 Evosmos, Thessaloniki	Tel. +30 2 310 7054-00 Fax +30 2 310 7055-15 info@boznos.gr
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Gandhidham	SEW-EURODRIVE India Private Limited TCX-S-28, FF, Ward 12/A, Gandhidham - 370201, Kutch - Gujarat	Tel. +91 81282 36850 salesgandhidham@seweurodriveindia.com
Gandhinagar	SEW-EURODRIVE India Private Limited Office No. 304, Siddhraj Zavod, Between Kh-0 & G-0 Circle, Sarkhej Gandhinagar Highway, Sargasan, Gandhinagar – 382423	Tel. +91 787 8601656 salesgandhinagar@seweurodriveindia.com
Gurgaon	SEW-EURODRIVE India Private Limited 136, Hope Appartment, Sec. 15, Part – II, Jharsa Road, Near Reliance Fresh, Gurgaon-122001, Haryana	Tel. +91 99588 78855 salesgurgaon@seweurodriveindia.com
Hyderabad	SEW-EURODRIVE India Private Limited 408, 4th Floor, Meridian Place Green Park Road, Amerpeet Hyderabad - 500016, Telangana	Tel. +91 40 23414698 Fax +91 40 23413884 saleshyderabad@seweurodriveindia.com
Indore	SEW-EURODRIVE India Private Limited 103, Abhishek Avenue, Slide-4, Sch. No. 78, Indore - 452010, Madhya Pradesh	Tel. +91 97524 12068 salesindore@seweurodriveindia.com
Jamshedpur	SEW-EURODRIVE India Private Limited Flat No :- S1 "Kashi Kunj",h. No. 60, New Rani Kudar Road No - 3, P.o. + P.s. - Kadma Jamshedpur - 831005, Jharkhand	Tel. +91 99341 23671 salesjamshedpur@seweurodriveindia.com
Kolhapur	SEW-EURODRIVE India Private Limited C/O. Mr.S.V.Pawar.461/37, Abhideep Residency, Opp-Shriram Petrol Pump, Kasaba Bawada, Kolhapur - 416 122, Maharashtra	Tel. +91 86000 20846 saleskolhapur@seweurodriveindia.com
Kolkata	SEW-EURODRIVE India Private Limited 2nd floor, Room No. 35 Chowringhee Court 55, Chowringhee Road Kolkata - 700 071, West Bengal	Tel. +91 33 22827457 Fax +91 33 22894204 saleskolkata@seweurodriveindia.com
Lucknow	SEW-EURODRIVE India Private Limited 69, Shiv Vihar Colony Vikas Nagar – Sector 5 Lucknow - 226022, Uttar Pradesh	Tel. +91 97936 27333 saleslucknow@seweurodriveindia.com
Mumbai	SEW-EURODRIVE India Private Limited 312 A, 3rd Floor, Acme Plaza, J.B. Nagar, Andheri Kurla Road, Andheri (E) Mumbai - 400059, Maharashtra	Tel. +91 22 28348440 Fax +91 22 28217858 salesmumbai@seweurodriveindia.com
Nagpur	SEW-EURODRIVE India Private Limited Plot No 49, New Kailash Nager, Samta colony, Nagpur-440027, Maharashtra	Tel. +91 95610 89525 salesnagpur@seweurodriveindia.com
Nashik	SEW-EURODRIVE India Private Limited 107, "YOG" Bunglow, Mahatama Nagar, Trimbak Road, Nashik – 422 007, Maharashtra	Tel. +91 96657 52978 salesnashik@seweurodriveindia.com
New Delhi	SEW-EURODRIVE India Private Limited # B-206 DLF Towers-B District Centre Jasola New Delhi -110044	Tel. +91 11 26944551 Fax +91 11 26944467 salesdelhi@seweurodriveindia.com
Navi Mumbai	SEW-EURODRIVE India Private Limited No.202, Shivam Yeshoram Plot No. 262/257, Sector 19 Kopar Khairane, Navi Mumbai - 400 709, Maharashtra	Tel. +91 99677 21324 salesmumbai@seweurodriveindia.com

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	Pondicherry	SEW-EURODRIVE India Private Limited Plot No 1, Flat No S2, Shubhamangala Apartment, 14th Cross Extension, Krishna Nagar, Pondicherry 605008	Tel. +91 9840971370 salespondicherry@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plot No. 7,"Shri Shantadurga Niwas" Shivaji Co –operative Housing Society Ltd., Behind J.W. Marriot. Off Senapati Bapat Marg. Pune –411 016, Maharashtra	Tel. +91 20 25635466 / 467 salespune@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Jai Tulajabhavani Complex. Office No:- 15 First Floor, Opp. Century Enka Company, MIDC Bhosari , Pune 411 026	Tel. +91 20-65118890 / 91 Fax +91 20 25380721 salespune@seweurodriveindia.com
	Raipur	SEW-EURODRIVE India Private Limited A-42, Ashoka Millenium Complex, Ring Road-1, Raipur 492 001 - Chhattisgarh	Tel. +91 771 4090765 Fax +91 771 4090765 salesraipur@seweurodriveindia.com
	Ranchi	SEW-EURODRIVE India Private Limited 1D- Shail Madhuri Apartment, Near Kokar Pool, H.B Road, Kokar Ranchi - 834001, Jharkhand.	Tel. +91 82946 30772 salesranchi@seweurodriveindia.com
	Tiruchirappalli	SEW-EURODRIVE India Private Limited Plot No.24, Door No.64A Rajaram Salai, K.K Nagar Trichy-620 021, Tamilnadu	Tel. +91 97899 79855 salestrichy@seweurodriveindia.com
	Vadodara	SEW-EURODRIVE India Private Limited Unit No. 301, Savorite Bldg, Plot No. 143, Vinayak Society, off old Padra Road, Vadodara - 390 007, Gujarat	Tel. +91 265 2325258 / 6560482 salesvadodara@seweurodriveindia.com
	Vizag	SEW-EURODRIVE India Private Limited D.No.7-13-50/1, Near Padmaja hospital, Ramalayam street, Chittinaidu colony,Old gajuwaka, Visakhapatnam – 530026, Andhra Pradesh	Tel. +91 99895 01748 salesvizag@seweurodriveindia.com
Indonesia			
Sales	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com
	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
	Surabaya	PT. TRIAGRI JAYA ABADI Jl. Sukosemolo No. 63, Galaxi Bumi Permai G6 No. 11 Surabaya 60111	Tel. +62 31 5990128 Fax +62 31 5962666 sales@triagri.co.id http://www.triagri.co.id
	Surabaya	CV. Multi Mas Jl. Raden Saleh 43A Kav. 18 Surabaya 60174	Tel. +62 31 5458589 Fax +62 31 5317220 sianhwa@sby.centrin.net.id http://www.cvmultimas.com
Ireland			
Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie

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Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Milan	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 20020 Solaro (Milano)	Tel. +39 02 96 980229 Fax +39 02 96 980 999 http://www.sew-eurodrive.it milano@sew-eurodrive.it
Drive Center	Bologna	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via della Grafica, 47 40064 Ozzano dell'Emilia (Bo)	Tel. +39 051 65-23-801 Fax +39 02 96 980 499 bologna@sew-eurodrive.it
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III Km. 23,300 81020 S. Nicola la Strada (Caserta)	Tel. +39 0823 219011 Fax +39 02 96 980 599 caserta@sew-eurodrive.it
	Pescara	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Europa,132 65010 Villa Raspa di Spoltore (PE)	Tel. +39 085 41-59-427 Fax +39 02 96 980 699 pescara@sew-eurodrive.it
	Turin	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Filiale Torino c.so Unione Sovietica 612/15 - int. C 10135 Torino	Tel. +39 011 3473780 Fax +39 02 96 980 799 torino@sew-eurodrive.it
	Verona	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Antonio Meucci, 5 37042 - Caldiero (VR)	Tel. +39 045 89-239-11 Fax +39 02 96 980 814 verona@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pêcheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 21 21 81 05 Fax +225 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp hamamatsu@sew-eurodrive.co.jp
Technical Offices	Fukuoka	SEW-EURODRIVE JAPAN CO., LTD C-go, 5th-floor, Yakuin-Hiruzu-Bldg. 1-5-11, Yakuin, Chuo-ku Fukuoka, 810-0022	Tel. +81 92 713-6955 Fax +81 92 713-6860 fukuoka@sew-eurodrive.co.jp
	Kyoto	SEW-EURODRIVE JAPAN CO., LTD Kyoto Operation Center 9-1-11 Seikadai, Seika-cho, Souraku-gun, Kyoto 619-0238	Tel. +81 774 98-2750 Fax +81 774 93-2100 sewjapan@sew-eurodrive.co.jp
	Osaka	SEW-EURODRIVE JAPAN CO., LTD Higobashi Shimizu Bldg. 10th flor 1-3-7 Tosabori, Nishi-ku Osaka, 550-0001	Tel. +81 6 6444--8330 Fax +81 6 6444--8338 osaka@sew-eurodrive.co.jp
	Tokio	SEW-EURODRIVE JAPAN CO., LTD Renai Partire Shiodome 5th floor 2-18-3 Higashi-Shinbashi, Minato-Ku, Tokyo 105-0021	Tel. +81 3 3239-0469 Fax +81 3 3239-0943 tokyo@sew-eurodrive.co.jp
Kazakhstan			
Sales	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz
	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz

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	Ulaanbaatar	IM Trading LLC Olympic street 28B/3 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Fax +976-77109997 imt@imt.mn
Technical Offices	Karagandy	SEW-EURODRIVE LLP 82, Molokov Street 100004, Karagandy	Tel. +7 (7212) 955 956 Fax +7 (7212) 955 956 karagandy@sew-eurodrive.kz
	Oskemen	SEW-EURODRIVE LLP 181/3, Abai avenue, 070005, Oskemen	Tel. +7 (7212) 913 748 Fax +7 (7212) 913 748 oskemen@sew-eurodrive.kz
Kenya			
Sales	Nairobi	SEW-EURODRIVE Pty Ltd Transnational Plaza, 5th Floor Mama Ngina Street P.O. Box 8998-00100 Nairobi	Tel. +254 791 398840 http://www.sew-eurodrive.co.tz info@sew.co.tz
Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C 1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com
Lebanon			
Sales (Lebanon)	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales (Jordan, Kuwait , Saudi Arabia, Syria)	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C 63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.irseva.lt irmantas@irseva.lt
Luxembourg			
representation: Belgium			
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Technical Offices	Kuala Lumpur	SEW-EURODRIVE SDN BHD No. 2, Jalan Anggerik Mokara 31/46 Kota Kemuning Seksyen 31 40460 Shah Alam Selangor Darul Ehsan West Malaysia	Tel. +60 3 51229633 Fax +60 3 51229622 sewsa@sew-eurodrive.com.my
	Penang	SEW-EURODRIVE SDN BHD No. 38, Jalan Bawal Kimsar Garden 13700 Prai, Penang West Malaysia	Tel. +60 4 3999349 Fax +60 4 3999348 sewpg@sew-eurodrive.com.my
	Kuching	SEW-EURODRIVE SDN BHD No. 69, Lot 10899 1st Floor, Jalan Tun Jugah 93350 Kuching Sarawak East Malaysia	Tel. +60 82 572780 Fax +60 82 571780 sewswk@sew-eurodrive.com.my

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	Kota Kinabalu	SEW-EURODRIVE SDN BHD East Malaysia	Tel. +60 19 7539395 sales@sew-eurodrive.com.my
	Ipoh	SEW-EURODRIVE SDN BHD West Malaysia	Tel. +60 19 7177366 sewsa@sew-eurodrive.com.my
Mexiko			
Assembly Sales Service	Quéretaro	SEW-EURODRIVE MEXICO S.A. de C.V. SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Querétaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Sales Service	Puebla	SEW-EURODRIVE MEXICO S.A. de C.V. Calzada Zavaleta No. 3922 Piso 2 Local 6 Col. Santa Cruz Buenavista C.P. 72154 Puebla, México	Tel. +52 (222) 221 248 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Mongolia			
Technical Office	Ulaanbaatar	IM Trading LLC Olympic street 28B/3 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Tel. +976-99070395 Fax +976-77109997 http://imt.mn/ imt@imt.mn
Morocco			
Sales Service	Bouskoura	SEW-EURODRIVE Morocco Parc Industriel CFCIM, Lot 55 and 59 Bouskoura	Tel. +212 522 88 85 00 Fax +212 522 88 84 50 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB Mining & Industrial Services Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam Postbus 10085 3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
New Zealand			
Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Technical Office	Palmerston North	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 6 355-2165 Fax +64 6 355-2316 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	Greenpeg Nig. Ltd Plot 296A, Adeyemo Akapo Str. Omole GRA Ikeja Lagos-Nigeria	Tel. +234-701-821-9200-1 http://www.greenpegltd.com bolaji.adekunle@greenpegltd.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no

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Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 seweurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L De la Victoria 112, Esquina nueva Asunción Departamento Central Fernando de la Mora, Barrio Bernardino	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com
Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Technical Offices	Tychy	SEW-EURODRIVE Polska Sp.z.o.o. ul. Strzelecka 66 43-109 Tychy	Tel. +48 32 32 32 610 Fax +48 32 32 32 648
	Bydgoszcz	SEW-EURODRIVE Polska Sp.z.o.o. ul. Fordońska 246 85-766 Bydgoszcz	Tel.+48 52 567 30 00 Fax +48 52 567 30 09
	Gdansk	SEW-EURODRIVE Polska Sp.z.o.o. ul. Galaktyczna 30A 80-299 Gdańsk	Tel. +48 58 762 70 00 Fax +48 58 762 70 09
	Posen	SEW-EURODRIVE Polska Sp.z.o.o. ul. Wschodnia 7B 62-080 Swadzim k. Poznania	Tel. +48 61 6465500 Fax +48 61 6465519
	Radom	SEW-EURODRIVE Polska Sp.z.o.o. ul. Słowackiego 84 26-600 Radom	Tel. +48 48 679 47 00 Fax +48 48 679 47 09
	Rzeszów	SEW-EURODRIVE Polska Sp.z.o.o. ul. Armii Krajowej 80 35-307 Rzeszów	Tel. +48 17 784 27 00 Fax +48 17 784 27 09
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Service Competence Center	Lisbon	SEW-EURODRIVE, LDA. Núcleo Empresarial I de São Julião do Tojal Rua de Entremuros, 54 Fracção I 2660-533 São Julião do Tojal	Tel. +351 21 958-0198 / +351 939 598 717 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
Technical Office	Porto	SEW-EURODRIVE, LDA. Rua Monte da Bela, N.º 191, Fração X 4445-294 Ermesinde	Tel. +351 229 350 383 / +351 932 559 110 Fax +351 229 350 384 esc.porto@sew-eurodrive.pt

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Romania			
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Russia			
Assembly Sales Service	St. Petersburg	ЗАО «СЕВ-ЕВРОДРАЙФ» а. я. 36 195220 Санкт-Петербург	Tel. +7 812 3332522 / +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Technical Offices	Ekaterinburg	ЗАО «СЕВ-ЕВРОДРАЙФ» Kominterna Str. 16 Office 614 620078 Ekaterinburg	Tel. +7 343 310 3977 Fax +7 343 310 3978 eso@sew-eurodrive.ru
	Irkutsk	ЗАО «СЕВ-ЕВРОДРАЙФ» 5-Armii Str., 31 664011 Irkutsk	Tel. +7 3952 25 5880 Fax +7 3952 25 5881 iso@sew-eurodrive.ru
	Moscow	ЗАО «СЕВ-ЕВРОДРАЙФ» Malaja Semjonowskaja Str. д. 9, корпус 2 107023 Moskau	Tel. +7 495 9337090 Fax +7 495 9337094 mso@sew-eurodrive.ru
	Novosibirsk	ЗАО «СЕВ-ЕВРОДРАЙФ» pr. K Marksa 30 630087 Novosibirsk	Tel. +7 383 3350200 Fax +7 383 3462544 nso@sew-eurodrive.ru
	Perm	ЗАО «СЕВ-ЕВРОДРАЙФ» Stakhanovskaya str., 45 Office 512 614066 Perm	Tel. +7 342 2219494 Fax +7 342 2219444 pso@sew-eurodrive.ru
	Togliatti	ЗАО «СЕВ-ЕВРОДРАЙФ» Sportivnaya Str. 4B, office 2 Samarskaya obl. 445057 Togliatti	Tel. +7 8482 710529 Fax +7 8482 810590 tso@sew-eurodrive.ru
Sambia			
representation: South Africa			
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor 11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs
Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bratislava	SEW-Eurodrive SK s.r.o. Rybničná 40 831 06 Bratislava	Tel.+421 2 33595 202, 217, 201 Fax +421 2 33595 200 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 Mobile +421 907 671 976 sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

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South Africa			
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	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za
Technical Office	Port Elizabeth	SEW-EURODRIVE (PROPRIETARY) LIMITED 8 Ruan Access Park Old Cape Road Greenbushes 6000 Port Elizabeth	Tel. +27 41 3722246 Fax +27 41 3722247 http://www.sew.co.za fsieberhagen@sew-co-za
South Korea			
Assembly Sales Service	Ansan	SEW-EURODRIVE KOREA CO., LTD. 7, Dangjaengi-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-eurodrive.kr master.korea@sew-eurodrive.com
	Busan	SEW-EURODRIVE KOREA CO., LTD. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230
Technical Offices	Daegu	SEW-EURODRIVE KOREA CO., LTD. No.303 Sungan officetel, 1834, Dalgubeol-daero, Dalseo-gu, Daegu, Zip 704-712	Tel. +82 53 650-7111 Fax +82 53 650-7112
	Daejeon	SEW-EURODRIVE KOREA CO., LTD. No.302 Hongin officetel, 28, Daehak-ro, Yuseong-gu, Daejeon, Zip 305-710	Tel. +82 42 828-6461 Fax +82 42 828-6463
	Gwangju	SEW-EURODRIVE KOREA CO., LTD. 5fl., Hyundai B/D B, 40, Bungmun-daero, Buk-gu, Gwangju, Zip 500-855	Tel. +82 62 511-9172 Fax +82 62 511-9174
	Seoul	SEW-EURODRIVE KOREA CO., LTD. No.1804 Ace Hiend Tower 8th, 84, Gasan digital 1-ro, Geumcheon-gu, Seoul, Zip 153-797	Tel. +82 2 862-8051 Fax +82 2 862-8199
Spain			
Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Technical Offices	Barcelona	SEW-EURODRIVE ESPAÑA, S.L. Avda. Francesc Macià, 60 – Planta 16, porta 1 Eix Macià – "Torre Milenium" 08208 Sabadell (Barcelona)	Tel. +34 93 7162200 Fax +34 93 7233007

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	Madrid	SEW-EURODRIVE ESPAÑA, S.L. Gran Via. 48-2° A-D 28220 Majadahonda (Madrid)	Tel. +34 91 6342250 Fax +34 91 6340899
Sri Lanka			
Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
Swaziland			
Sales	Manzini	C G Trading Co. (Pty) Ltd PO Box 2960 Manzini M200	Tel. +268 2 518 6343 Fax +268 2 518 5033 engineering@cgtrading.co.sz
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 553 03 Jönköping Box 3100 S-550 03 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
Sales	Gothemburg	SEW-EURODRIVE AB Gustaf Werners gata 8 421 32 Västra Frölunda	Tel. +46 31 709 68 80 Fax +46 31 709 68 93 goteborg@sew.se
	Stockholm	SEW-EURODRIVE AB Björkholmsvägen 10 141 46 Huddinge	Tel. +46 8 449 86 80 Fax +46 8 449 86 93 stockholm@sew.se
	Malmö	SEW-EURODRIVE AB Borrgatan 5 211 24 Malmö	Tel. +46 40 680 64 80 Fax +46 40 680 64 93 malmo@sew.se
	Skellefteå	SEW-EURODRIVE AB Trädgårdsgatan 8 931 31 Skellefteå	Tel. +46 910 71 53 80 Fax +46 910 71 53 93 skelleftea@sew.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
Technical Offices	Rhaetian Switzerland	Ivan Grumelli Z.I. Moulin du choc C 1122 Romanel-sur-Morges, VD	Tel. +41 79 725 4499 Fax +41 61 417 1700
	Bern / Solothurn	Rudolf Bühler Muntersweg 5 2540 Grenchen	Tel. +41 32 652 2339 Fax +41 32 652 2331
	Central Switzerland, Aargau	Armin Pfister Stierenweid 4950 Huttwil, BE	Tel. +41 62 962 54 55 Fax +41 62 962 54 56
	Zürich, Ticino	Gian-Michele Muletta Fischerstrasse 61 8132 Egg bei Zürich	Tel. +41 44 994 81 15 Fax +41 44 994 81 16
	Lake Constance and East Switzerland	Markus Künzle Eichweg 4 9403 Goldach	Tel. +41 71 845 2808 Fax +41 71 845 2809
Taiwan			
Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw

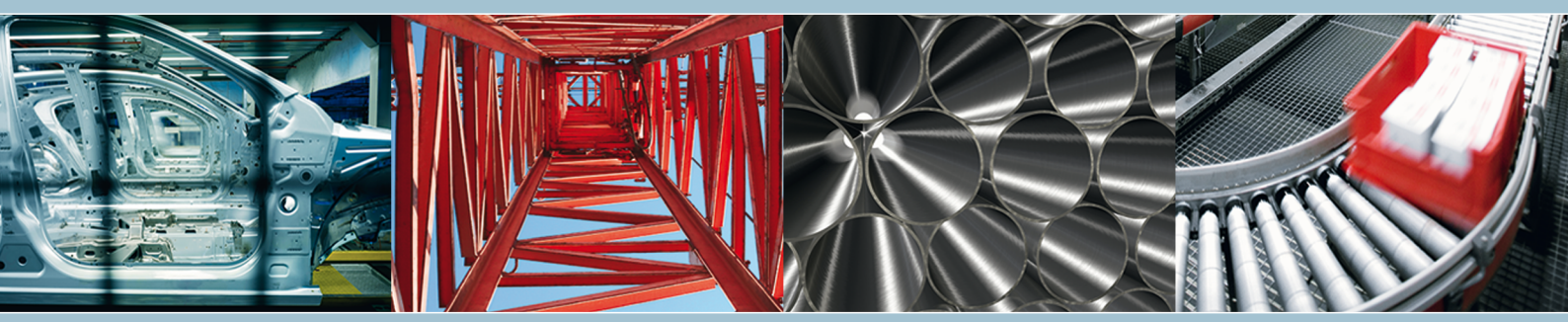
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Tanzania			
Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz info@sew.co.tz
Thailand			
Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Technical Offices	Bangkok	SEW-EURODRIVE (Thailand) Ltd. 6th floor, TPS Building 1023, Phattanakarn Road Suanluang Bangkok,10250	Tel. +66 2 7178149 Fax +66 2 7178152 sewthailand@sew-eurodrive.com
	Hat Yai	SEW-EURODRIVE (Thailand) Ltd. Hadyai Country Home Condominium 59/101 Soi.17/1 Rachas-Utid Road. Hadyai, Songkhla 90110	Tel. +66 74 359441 Fax +66 74 359442 sewthailand@sew-eurodrive.com
	Khon Kaen	SEW-EURODRIVE (Thailand) Ltd. 4th Floor, Kaow-U-HA MOTOR Bldg, 359/2, Mitraphab Road. Muang District Khonkaen 40000	Tel. +66 43 225745 Fax +66 43 324871 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn
Turkey			
Assembly Sales Service	Kocaeli-Gebze	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Gebze Organize Sanayi Böl. 400 Sok No. 401 41480 Gebze Kocaeli	Tel. +90 262 9991000 04 Fax +90 262 9991009 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr
Technical Offices	Adana	SEW-EURODRİVE Hareket	Tel. +90 533 491 81 77 / +90 542 660 34 89 Fax +90 262 999 10 09
	Ankara	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti 1368.Cadde Eminel İşmerkezi No: 18/68 İvogsan / Ankara	Tel. +90 312 385 33 90 Fax +90 312 385 32 58
	Bursa	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Üçevler Mah. Bayraktepe Sok. Akay İş Merkezi Kat:3 No: 7/6 Nilüfer / Bursa	Tel. +90 224 443 45 60 Fax +90 224 443 45 58
	Istanbul	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Tekstilkent Ticaret Merkezi B-13 Blok No:70 Esenler / İstanbul	Tel. +90 262 9991000 04 Fax +90 262 9991009
	Izmir	SEW-EURODRİVE Hareket IAOSB Küçük Parseller Grubu Sosyal Tesis merkezi merkezi 10030 sokak No: 16 / 110 Kara Hasan Atlı İş Merkezi Kat :6 Çigli / İzmir	Tel. +90 232 469 62 64 Fax +90 232 433 61 05
United Arab Emirates			
Sales Service	Dubai	SEW-EURODRIVE FZE PO Box 263835 Office No. S3A1SR03 Jebel Ali Free Zone – South, Dubai, United Arab Emirates	Tel. +971 (0)4 8806461 Fax +971 (0)4 8806464 http://www.sew-eurodrive.ae info@sew-eurodrive.ae

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Ukraine			
Assembly Sales Service	Dnipropetrovsk	ООО «СЕВ-Евродрайв» ул. Рабочая, 23-В, офис 409 49008 Днепр	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua
Sales	Kiev	ООО «СЕВ-Евродрайв» ул. С.Олейника, 21 02068 Киев	Tel. +380 44 503 95 77 Fax +380 44 503 95 78 kso@sew-eurodrive.ua
	Ivano-Frankivsk	ООО «СЕВ-Евродрайв» ул. Независимости, 4, оф.303 76000 Ивано-Франковск	Tel. +380 342 725 190 Fax +380 342 725 191 ifso@sew-eurodrive.ua
Uruguay			
Assembly Sales	Montevideo	SEW-EURODRIVE Uruguay, S. A. Jose Serrato 3569 Esqina Corumbe CP 12000 Montevideo	Tel. +598 2 21181-89 Fax +598 2 21181-90 sewuy@sew-eurodrive.com.uy
USA			
Production Assembly Sales Service	Southeast Region	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Production +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly Sales Service	Northeast Region	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 332-0038 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
	Wellford	SEW-EURODRIVE INC. 148/150 Finch Rd. Wellford, S.C. 29385	Tel. +1 864 439-7537 Fax +1 864 661 1167 IGOrders@seweurodrive.com
	Additional addresses for service provided on request!		
Vietnam			
Sales	Ho Chi Minh City	Nam Trung Co., Ltd Huế - South Vietnam / Construction Materials 250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province HCM office: 91 Tran Minh Quyen Street District 10, Ho Chi Minh City	Tel. +84 8 8301026 Fax +84 8 8392223 khanh-nguyen@namtrung.com.vn http://www.namtrung.com.vn
	Hanoi	MICO LTD Quảng Trị - North Vietnam / All sectors except Construction Materials 8th Floor, Ocean Park Building, 01 Dao Duy Anh St, Ha Noi, Viet Nam	Tel. +84 4 39386666 Fax +84 4 3938 6888 nam_ph@micogroup.com.vn http://www.micogroup.com.vn

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