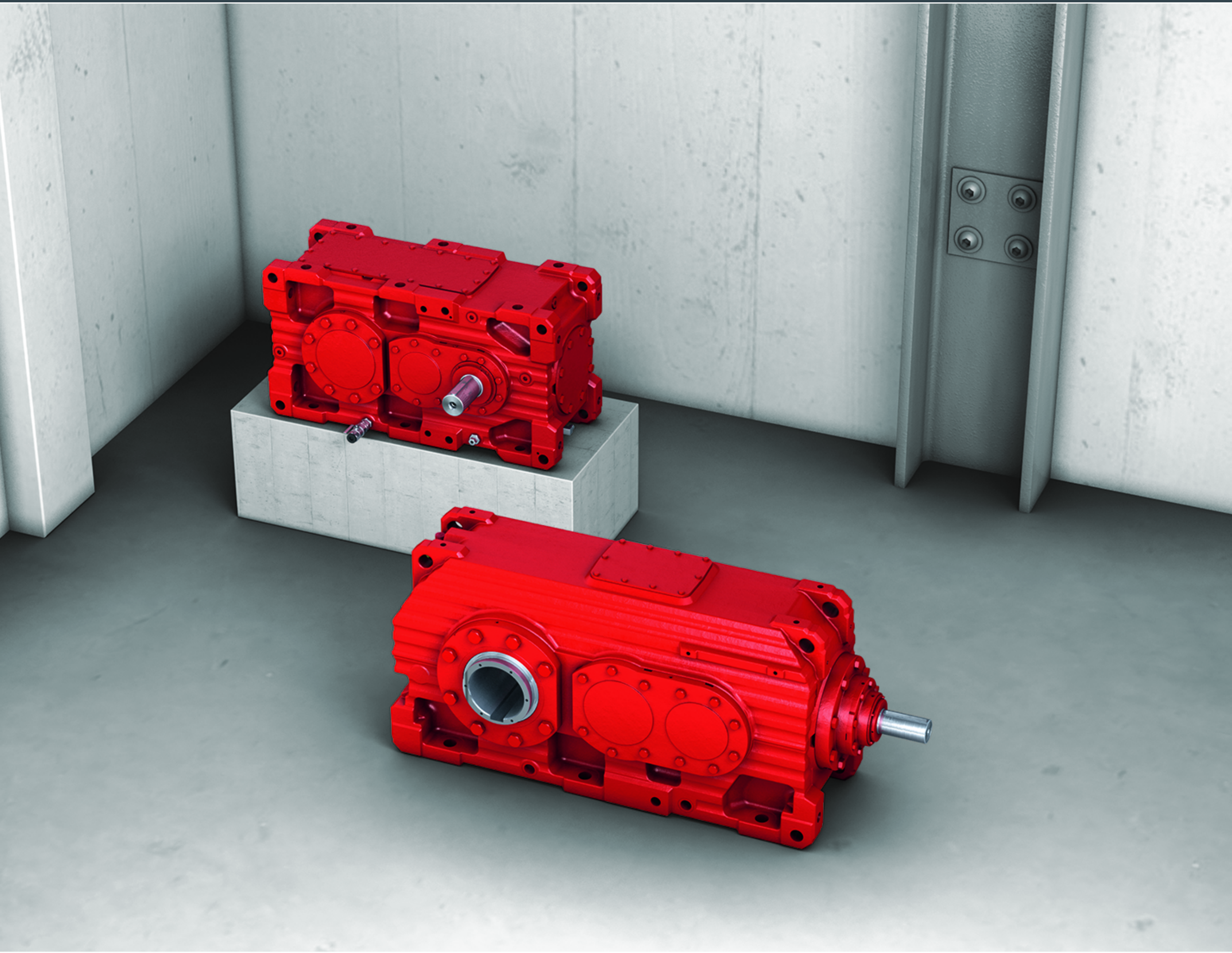
Drive Technology \ Drive Automation \ System Integration \ Services

Catalog



Industrial Gear Units

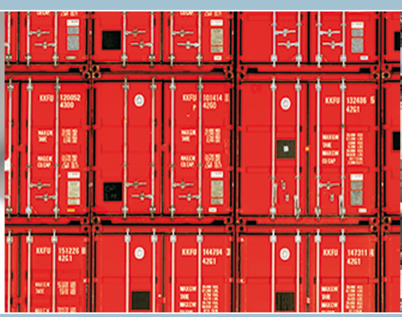
X.. Series Horizontal Gear Units

Torque Classes from 6.8 kNm – 475 kNm

Edition 03/2017

22758666/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 reliability for both functionality and investment.

We are represented in the most important branches of industry all over the world: with 15 manufacturing plants and 77 Drive Technology Centers worldwide as well as our customer support, which we consider an integrative service that continues our commitment to outstanding quality.

1.1.2 Always the right drive

The SEW-EURODRIVE modular concept offers millions of combinations. This wide selection enables you to choose the correct drive for all applications, each based on the required speed and torque range, available space, and ambient conditions. Gear units and gearmotors offering a unique and finely tuned performance range and the best economic prerequisites to meet your drive requirements.

The modular DR.. motor series includes the energy-efficient motor types IE1 to IE4 and was designed and constructed with all worldwide requirements for energy efficiency classes in mind. The DR.. motor easily meets the requirements for approval and certification in all relevant countries. The energy-efficient drives achieve the highest efficiency in combination with SEW-EURODRIVE gear units.

The gearmotors are electronically enhanced by MOVITRAC® frequency inverters, MOVIDRIVE® drive inverters, and MOVIAXIS® multi-axis servo inverters – a combination that blends perfectly with the existing SEW-EURODRIVE program. As is the case with the mechanical systems, all development, production, and assembly is carried out entirely by SEW-EURODRIVE. In combination with our drive electronics, these drives provide the utmost in flexibility.

Products of the servo drive system, such as low backlash servo gear units, compact servomotors, or MOVIAXIS® multi-axis servo inverters ensure precision and dynamics. From single-axis or multi-axis applications to synchronized process sequences, servo drive systems from SEW-EURODRIVE enable flexible and customized implementation of your applications.

For economical, decentralized installations, SEW-EURODRIVE offers components from its decentralized drive system, such as MOVIMOT®, the gearmotor with integrated frequency inverter, or MOVI-SWITCH®, the gearmotor with integrated switching and protection function. SEW-EURODRIVE has developed hybrid cables to provide cost-effective functional solutions, irrespective of the system philosophy or scope. The latest developments from SEW-EURODRIVE: 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.

Power, quality, and robustness combined in a single standard product: with SEW-EURODRIVE, powerful movements are delivered by industrial gear units with high torques. The modular concept once again ensures optimum adaptation of industrial gear units to meet a wide range of different applications.

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1.1.3 Your ideal partner

Its global presence, extensive product range 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.

1.2 Products and systems from SEW-EURODRIVE

The products and systems by SEW-EURODRIVE are divided into the following product groups:

- Industrial gear units
- Gearmotors and frequency inverters
- Servo drive systems
- Decentralized drive systems
- MAXOLUTION®

Products and systems used in applications of several groups are listed in a separate group entitled "products and systems covering several product groups". The following tables indicate the products and systems included in the respective product group:

Industrial gear units
• X, MC, ML series helical and bevel-helical gear units
• P002 – 102 series planetary gear units
• XP130 – 250 series planetary gear units
• P-X series planetary bevel-helical gear units
• Application solutions with connections
– Girth gears
– Swing base
– Gearmotor
– Motor
– Coupling
– Brake
– Lubrication system
For conveyor drives, bucket conveyors, agitators, cooling towers, crane systems, and much more

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Gearmotors and frequency inverters		
Gear units/gearmotors	**Motors**	**Frequency inverters**
• Helical gear units / helical gearmotors • Parallel-shaft helical gear units / parallel-shaft helical gearmotors • Helical-bevel gear units / helical-bevel gearmotors • Helical-worm gear units / helical-worm gearmotors • SPIROPLAN® right-angle gearmotors • EMS drives • Geared torque motors • Pole-changing gearmotors • Variable speed gear units/variable speed gearmotors • Aseptic gearmotors • Explosion-proof gear units / gearmotors • Explosion-proof variable-speed gear units / variable-speed gearmotors	• Asynchronous AC motors / AC brakemotors • Pole-changing AC motors / AC brakemotors • Energy-efficient motors • Explosion-proof AC motors / AC brakemotors • Torque motors • Single-phase motors / single-phase brakemotors • Asynchronous linear motors	• MOVITRAC® frequency inverters • MOVI4R-U® frequency inverters • MOVIDRIVE® drive inverters • Control, technology and communication options for inverters

Servo drive systems		
Servo gear units / servo gearmotors	**Servomotors**	**Servo drive inverters / servo inverters**
• Low backlash planetary servo gear units / planetary servo gearmotors • Low backlash helical-bevel servo gear units / helical-bevel servo gearmotors • R, F, K, S, W gear units / R, F, K, S, W gearmotors • Explosion-proof servo gear units / servo gearmotors	• Asynchronous servomotors / servo brakemotors • Synchronous servomotors / servo brakemotors • Explosion-proof servomotors / servo brakemotors • Synchronous linear motors	• MOVIDRIVE® servo drive inverters • MOVIAXIS® multi-axis servo inverters • Control, technology and communication options for servo drive inverters and servo inverters

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Decentralized drive systems		
Decentralized drives	**Communication and installation**	**Contactless energy transfer system**
• DRC.. electronic motor / MOVIGEAR® mechatronic drive system – DBC – Direct Binary Communication – DAC – Direct AS-Interface Communication – DSC – Direct SBus Communication – SNI – Single Line Network Installation • MOVIMOT® gearmotors with integrated frequency inverter • MOVIMOT® motors / brakemotors with integrated frequency inverter • MOVI-SWITCH® gearmotors with integrated switching and protection functions • MOVI-SWITCH® motors and brakemotors with integrated switching and protection functions • Explosion-proof MOVIMOT® and MOVI-SWITCH® gearmotors	• Fieldbus interfaces • Field distributors for decentralized installation • MOVIFIT® product range – MOVIFIT® FDC for controlling MOVIGEAR® and DRC.. drive units – MOVIFIT® MC for controlling MOVIMOT® drives – MOVIFIT® SC with integrated electronic motor switch – MOVIFIT® FC with integrated frequency inverter • MOVIPRO® product range – MOVIPRO® SDC decentralized drive and positioning control	• MOVITRANS® system – Stationary components for energy supply – Mobile components for energy consumption – Line cables and installation material

MAXOLUTION®
• MAXOLUTION® packages for predefined application solutions
• MAXOLUTION® systems for customer-specific system solutions and plants

Products and systems covering several product groups
• Operator panels
• MOVI-PLC® drive-based control system
• Components of the type "functional safety"
• Diagnostic units

In addition to its products and systems, SEW-EURODRIVE offers a comprehensive range of services. These include:

- Technical consulting
- User software
- Seminars and training
- Extensive technical documentation
- Worldwide customer service

Visit our website at **www.sew-eurodrive.com**

The website provides comprehensive information and services.

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

1.5 Structure of the notes

The safety notes in this catalog are designed as follows:

Pictogram	Signal word	Meaning
i	**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.
- Oil fill quantities are recommended values. Use the marks on the oil dipstick or oil level glass to determine the oil level.
- The gear units are ready for operation when delivered, but are not filled with oil.
- Oil viscosity and oil grade must comply with those specified on the nameplate.
- The specified weights are guide values. The exact gear unit weight is given on the order-specific dimension sheet. The weight of your basic gear unit including the options mounted to the gear unit is indicated on the nameplate.
- The buyer must provide protection against unintentional contact with moving parts. Observe the applicable safety regulations of the country in which the device will be used.

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2 Product description

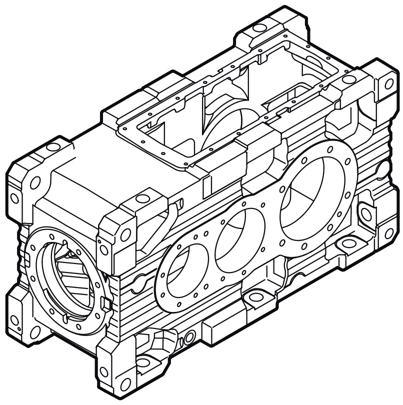
This catalog describes gear units for horizontal applications (mounting position M1). For information and dimension sheets for vertical gear units (mounting position M5) and upright gear units with input and output shaft arranged on top of one another (mounting position M4), refer to the vertical and upright gear units catalog edition 04/2014.

SEW distinguishes between 2 housing designs which can be used for horizontal gear units:

2.1 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" (→ 🗎 40).

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



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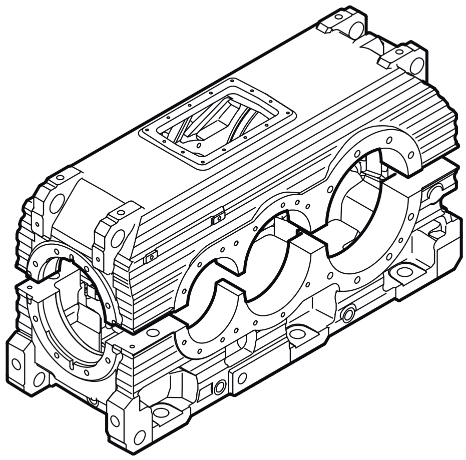
The following figure shows an example of a two-piece housing for sizes X220 to 320:



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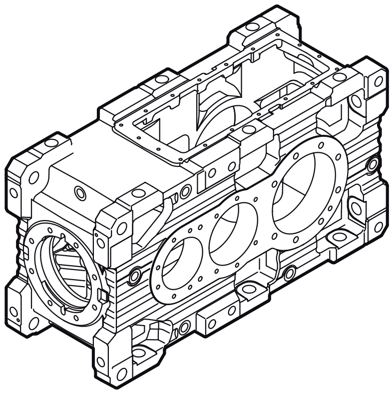
2.2 Universal housing /HU

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" (→ 🗎 40).

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



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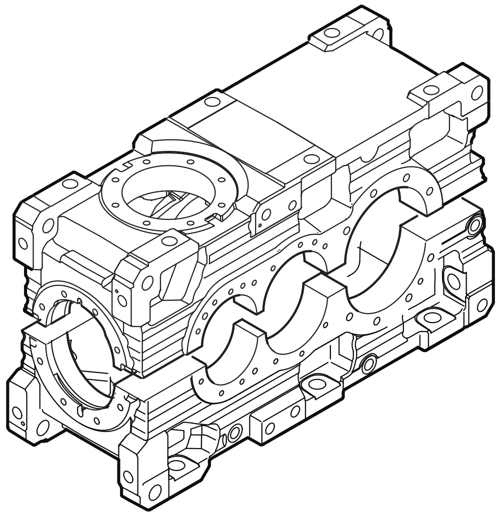
The following figure shows an example of a two-piece housing for sizes X220 to 320:



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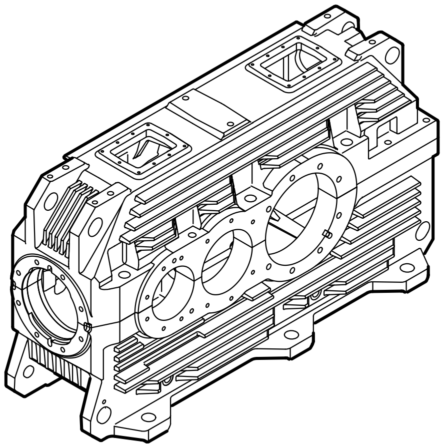
2.3 Thermal housing /HT

The thermal housing is designed for mounting position M1. The housing design is not reversible, see chapter "Reversible gear units" (→ 🗎 40) 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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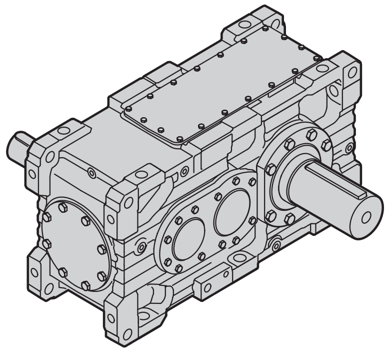
2.4 Gear unit types

SEW-EURODRIVE distinguishes between the following **2** gear unit types:

- **X.F..**



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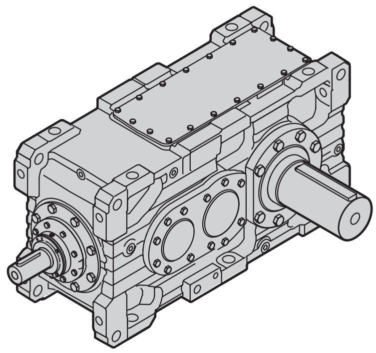
- Helical gear units with parallel shafts
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: Horizontal
- "Input and output shaft" (→ 🗎 24) design
- Gear ratio 6.3 to 475. See chapter "Torques and input speeds" (→ 🗎 20)
- Torque classes from 6.8 to 475 kNm. See chapter "Torques and input speeds" (→ 🗎 20)
- **X.K..**



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- Bevel-helical gear units with right-angle shaft arrangement
- 23 sizes from X100 to 320
- Number of stages 2, 3 and 4
- Mounting position: Horizontal
- "Input and output shaft" (→ 🗎 24) design
- Gear ratio 6.3 to 475. See chapter "Torques and input speeds" (→ 🗎 20)
- Torque classes from 6.8 to 475 kNm. See chapter "Torques and input speeds" (→ 🗎 20)

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2.5 Combination overview of housing designs and options only in mounting position M1

2.5.1 Horizontal housing /HH and universal housing /HU

Single-piece and two-piece 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.

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
HU 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" (→ 🗎 40).

2.5.2 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
APL	Torque-limiting backstop	HT
FC	Flange coupling	HT
FAN	Fan	HT
HSST	Through-going input shaft	HT
LSST	Through-going output shaft	HT
AI	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

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2.6 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 housing
- Distinctive modular technology
- Customer-specific adaptations
- Large number of variants due to predefined accessory equipment and options

2.7 Overview of advantages

The X series was designed completely new. Advantages are:

- Extremely robust gear unit housing.
- Reduced costs and weight due to high power density and finely stepped sizes.
- Effective cooling systems.
- Efficient project planning tools including generation of 2D and 3D dimension drawings.
- Short delivery times for standard designs.
- Worldwide service.

2.8 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
- In the environmental industry
- In agitators and mixers
- As traction and hoist drives for assembly halls, handling and container cranes
- For shredders and crushers
- Bucket conveyors in bulk handling applications

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2.9 Mounting position

2.9.1 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.

	Mounting position **(marked in gray in the figure)**	**Alternative mounting position**
Horizontal gear unit	M1	M3[1]
Vertical gear units[2]	M5	M6
Upright gear units[3]	M4	M2

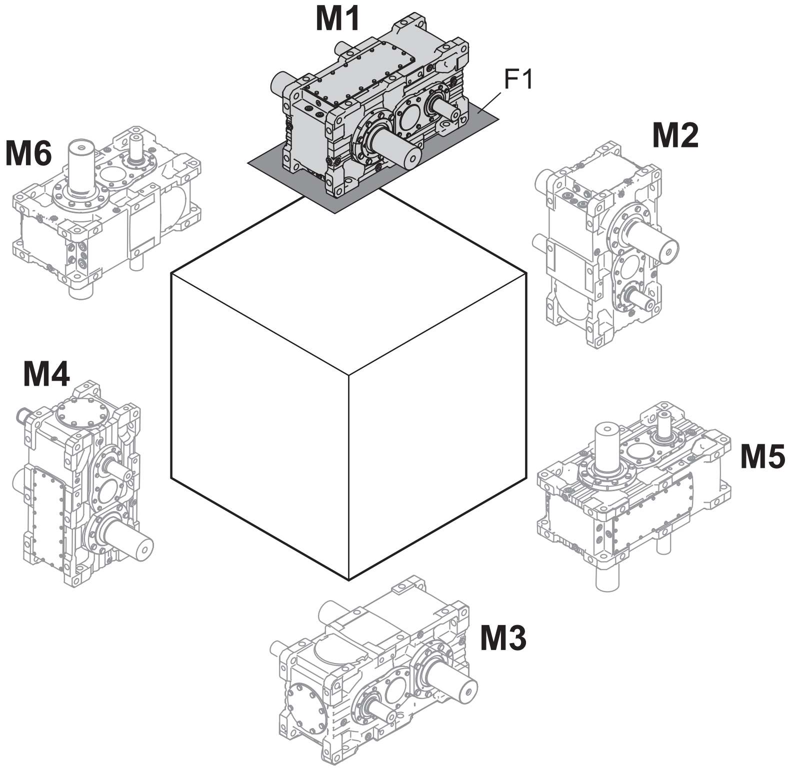
1) Only possible with universal housings /HU. Observe the notes in chapter "Reversible gear units"
2) Information can be found in the vertical and upright gear units catalog edition 01/2017
3) Information can be found in the vertical and upright gear units catalog edition 01/2017

The mounting surface is defined as the surface where the gear unit is attached.

INFORMATION

- The mounting position and/or mounting surface must not differ from the order.
- A deviation of ±1° is permitted.
- The gray shaded gear unit shows the pre-defined standard design.

The following figure shows the X.F.. gear unit in mounting position M1 and on the mounting surface F1.



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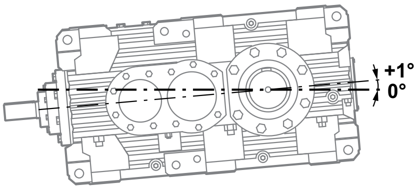
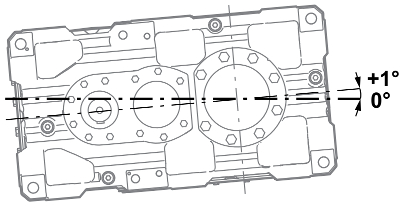
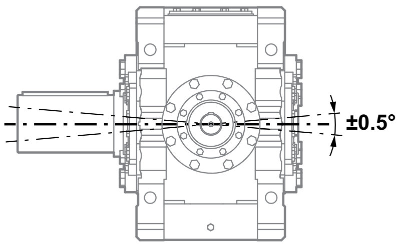
2.9.2 Deviating mounting positions

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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2.10 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.

Housing design	Size	Nominal torque classes kNm	Nominal gear ratio ranges	
			X.F..	X.K..
Single-piece housing	**X100**	6.8	7.1 – 100	7.1 – 80
	X110	8.5	8 – 112	8 – 90
	X120	12.8	6.3 – 355	
	X130	16	8 – 450	
	X140	22	6.3 – 355	
	X150	27.5	8 – 450	
	X160	36	6.3 – 355	
	X170	45	8 – 450	
	X180	58	6.3 – 355	
	X190	65	7.1 – 400	
	X200	79	6.3 – 355	
	X210	90	7.1 – 400	
Two-piece housing	**X220**	112	6.3 – 355	
	X230	131	7.1 – 400	
	X240	156	6.3 – 355	
	X250	175	7.1 – 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 Type designations

2.11.1 Gear unit

The following example shows the structure of the type designation:

X3KS260 /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
	Application: • = General design • B = Bucket elevator drive
320	Gear unit sizes • 100 – 320
HH	Housing design • HH = Horizontal housing • HU = Universal housing • HT = Thermal housing
B	Gear unit mounting • /B = Foot • /T = Torque arm • /F = Flange

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2.11.2 Oil supply system

The following example describes the type designation of the oil supply systems.

OWC020-00/M	
O	Oil supply system
W	Cooling medium • W = Water • A = Air • N = Motor pump
C	Type • C = Circulation cooling • P = Pressure lubrication
020	Size • 005 – 070
	Application: • = General design
-0	Mounting position • 0 = M1/M2/M3/M4 • 1 = M5/M6
0	Option • 0 = 50 Hz • 1 = 60 Hz • 2 = 50 Hz / 60 Hz • 9 = Special design
M	Mounting type • M = Mounted to the gear unit • S = For separate installation

2.11.3 Flange coupling

The following example shows the structure of the flange couplings. The type code of a coupling half is structured as follows:

FC 530 / 175 S M	
FC	Flange coupling
530	Outer diameter of the flange
175	Bore diameter
S	Shaft/hub connection type • S = Cylindrical interference fit • K = Keyed connection
M	Type of centering: • M = External centering • F = Internal centering

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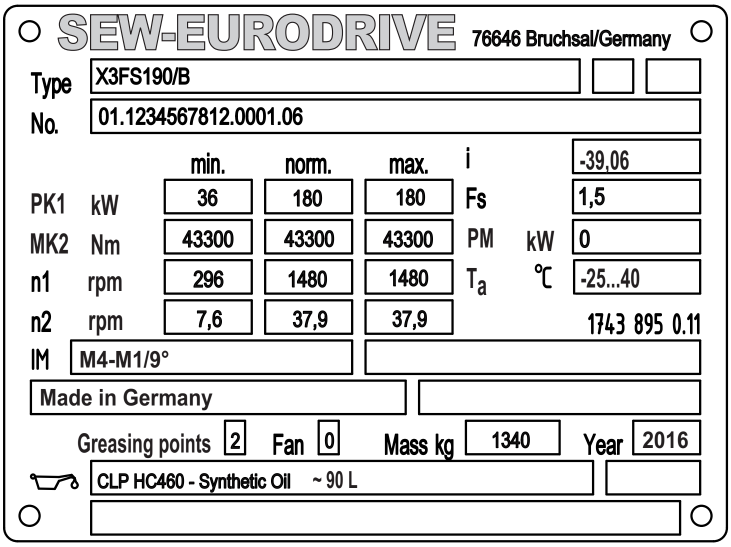
2.12 X.. series nameplate

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



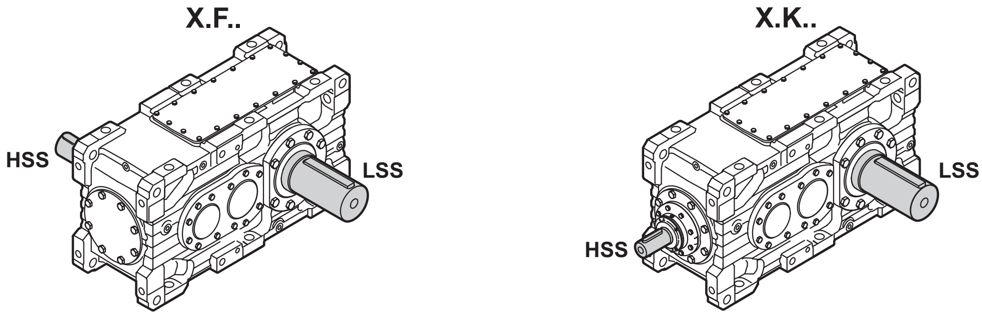
81064793711314443

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 can symbol)		Oil grade and viscosity class/oil quantity
Year		Year of manufacture
IM		Mounting position and mounting surface

2.13 Input and output shaft

There are **2** types of shafts:

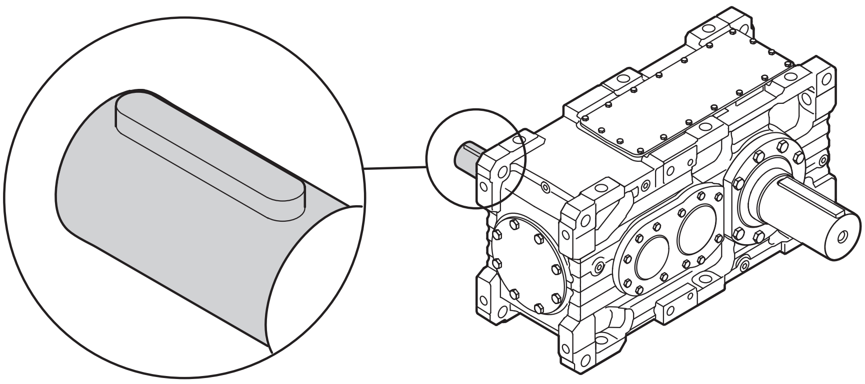
- High-speed shaft (**HSS**), usually an input shaft
- Low-speed shaft (**LSS**), usually an output shaft



8983083275

2.13.1 Input shaft

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



9007207847861771

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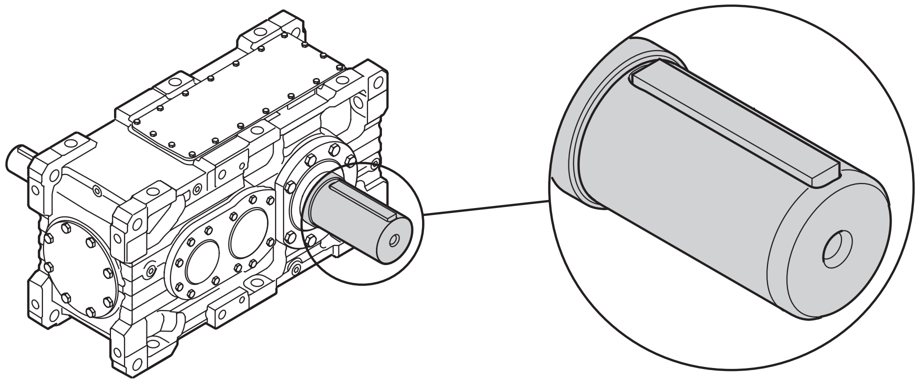
2.13.2 Output shaft as a solid shaft with key /..S

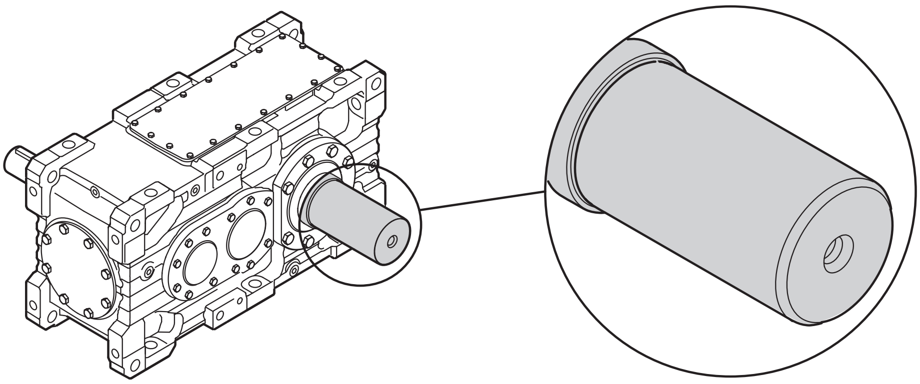
The output shaft is provided with a closed keyway according to DIN 6885/T1 and a centering bore (according to DIN 332). The scope of delivery includes a key according to DIN 6885/T1 – form B. The shaft has an insertion area with a reduced diameter to simplify the mounting of output elements, such as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



9007207847864459

2.13.3 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 face of the shaft has a centering bore according to DIN 332. The insertion area with reduced diameter facilitates the mounting of output elements.



9007207847876235

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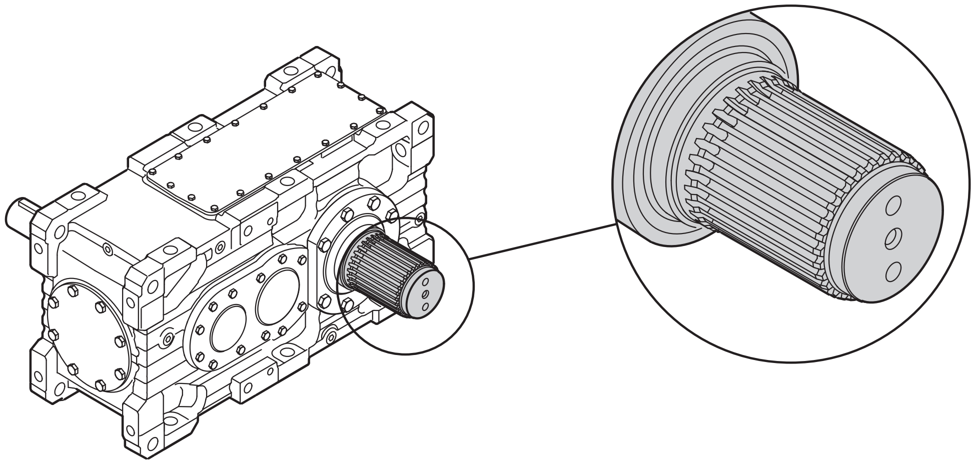
2.13.4 Output shaft as a splined solid shaft /..L

The output shaft is splined 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.



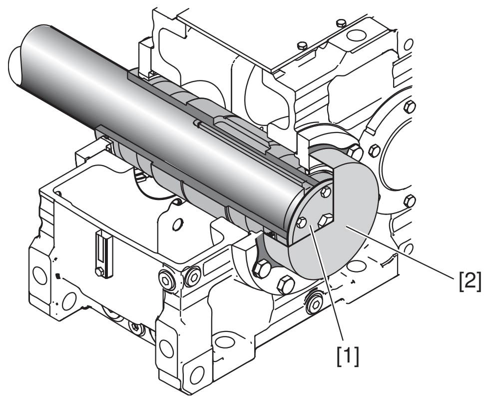
9007207847878923

2.13.5 Output shaft as hollow shaft with keyway /..A

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

Included in the delivery:

- Protection cover [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 side of the safety cover.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with key X...A [mm]" (→ 🗎 308). 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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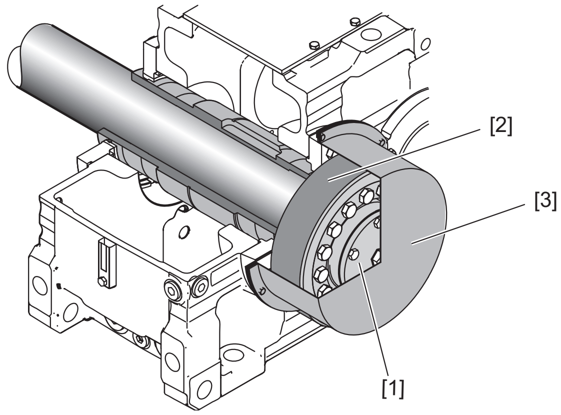
2.13.6 Output shaft as a hollow shaft with shrink disk /..H

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 side of the safety cover.

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Hollow shaft with shrink disk X..H [mm]" (→ 🗎 309).

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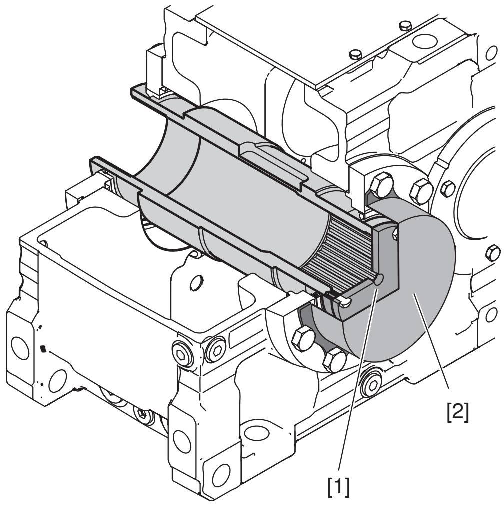
2.13.7 Output shaft as a splined hollow shaft /..V

The output shaft is splined according to DIN 5480.

Included in the delivery:

- Protection cover [2]
- Endplate with screws [1] or
- 2 retaining rings



9007207847901835

INFORMATION

For detailed specifications on the geometry of the machine shaft, refer to chapter "Splined hollow shaft X..V [mm]" (→ 🗎 312).

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-proof, see previous page.

2.13.8 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

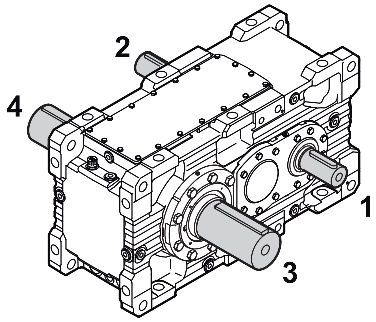
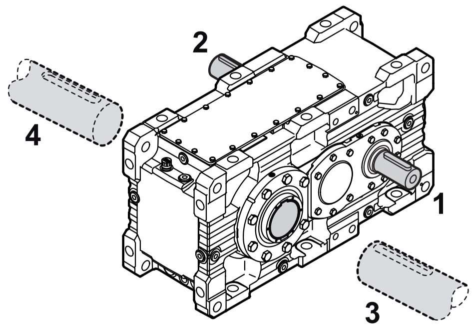
Non-observance may result in damages to the output shaft bearing and increased fretting corrosion in the connection between the machine and the hollow shaft of the gear unit.

2.14 Shaft positions

The shaft positions and corresponding directions of rotation shown in the following figures apply to output shafts (LSS) with solid and hollow shaft. The shaft positions in gear units with backstop and shaft end pump may be limited.

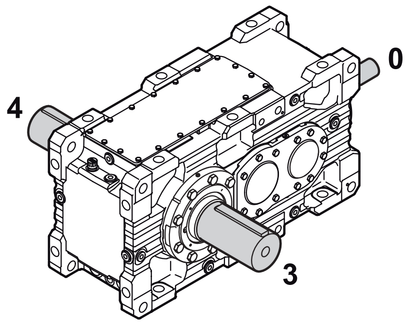
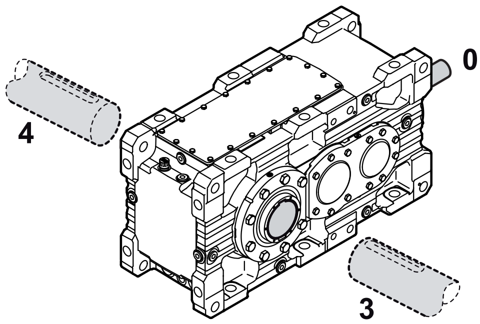
2.14.1 X.F..

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

Shaft position X.FS..	Shaft position X.FH.. / X.FA..
	

2.14.2 X.K..

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

Shaft position X.KS..	Shaft position X.KH.. / X.KA..
	

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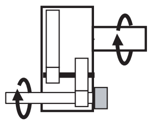
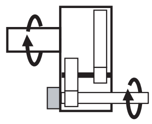
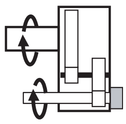
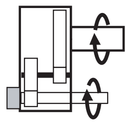
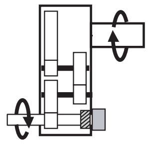
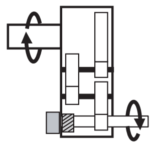
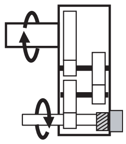
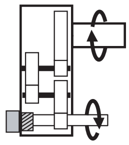
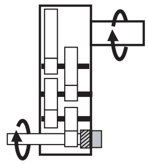
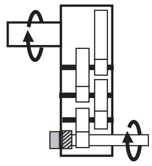
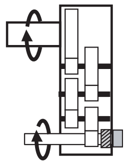
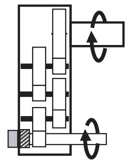
2.15 Corresponding directions of rotation

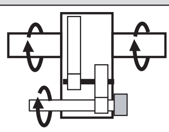
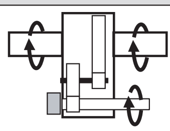
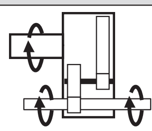
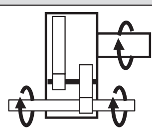
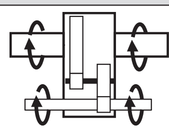
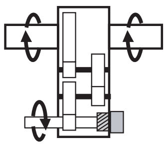
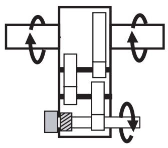
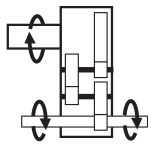
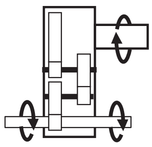
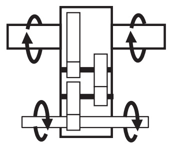
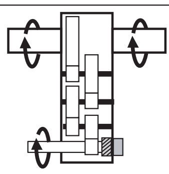
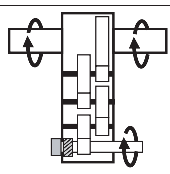
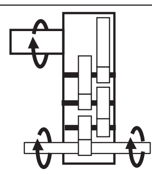
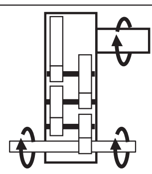
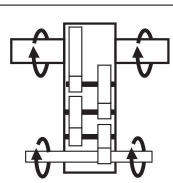
The gear unit can be operated in both directions of rotation. An exception are gear units with backstop.

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.

2.15.1 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)

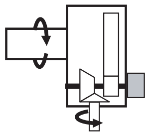
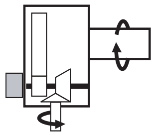
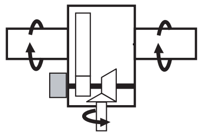
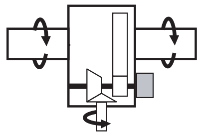
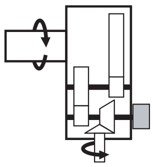
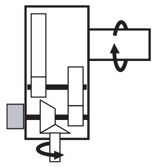
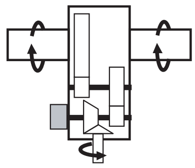
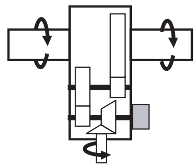
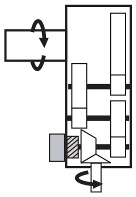
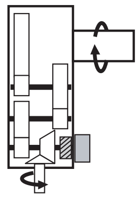
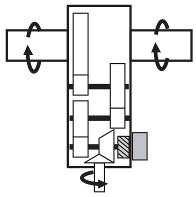
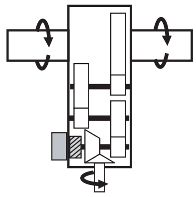
* = Contact SEW-EURODRIVE when using a backstop

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.

2.15.2 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

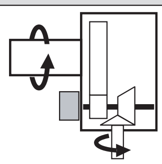
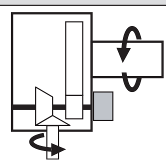
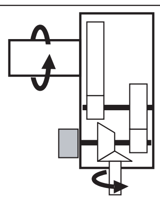
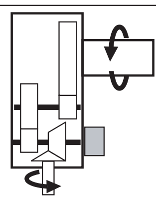
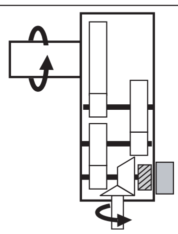
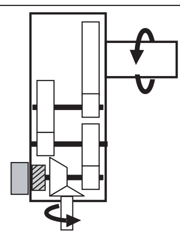
= Alternative backstop position (depending on size and gear ratio)

* = 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.

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)

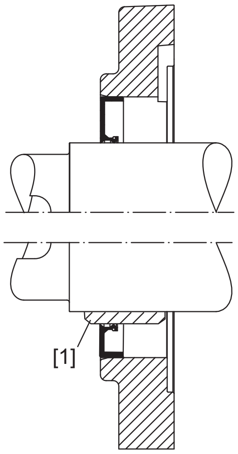
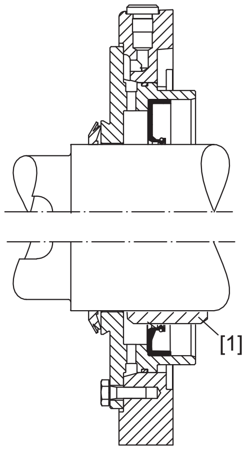
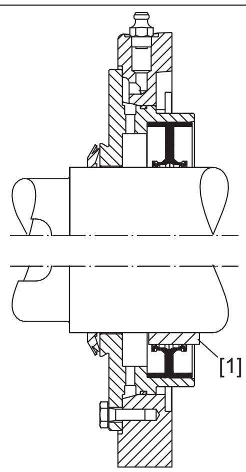
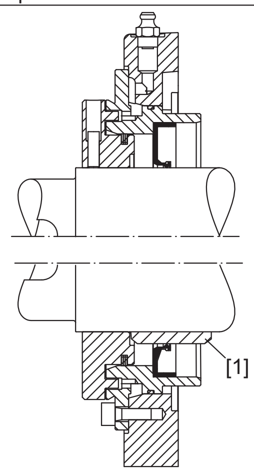
* = Contact SEW-EURODRIVE when using a backstop

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.

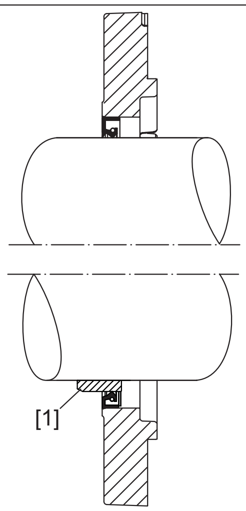
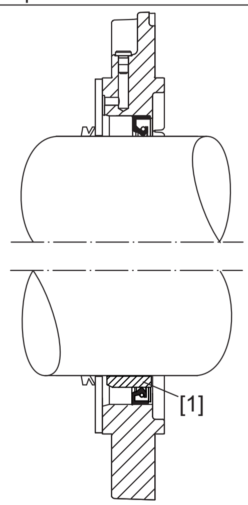
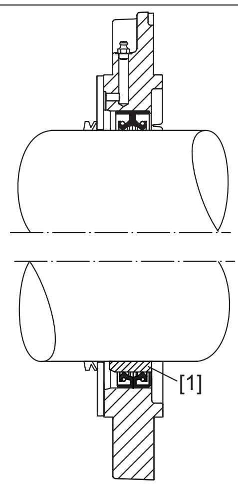
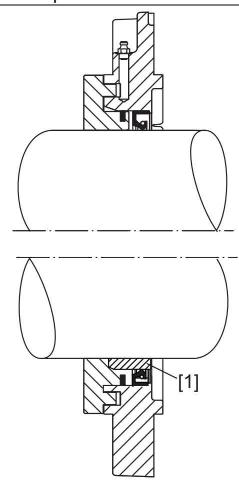
2.16 Sealing systems

2.16.1 Input 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

2.16.2 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.

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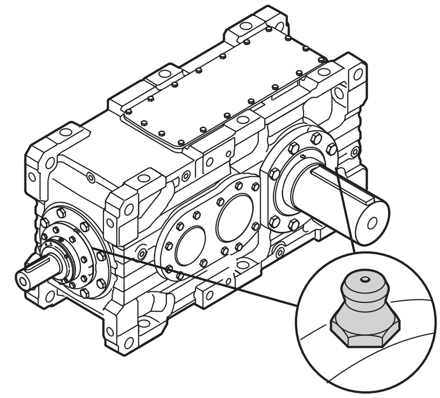
2.16.3 Position of lubrication points

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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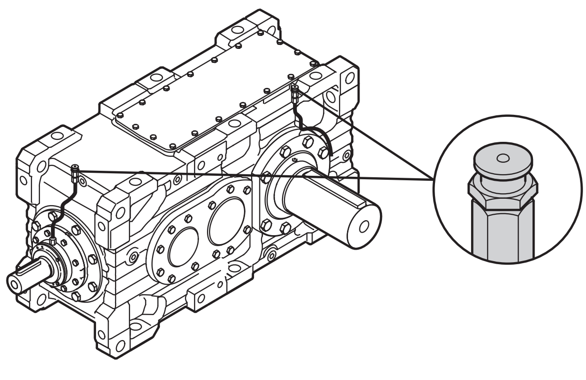
Grease nipple on the top side of the gear unit

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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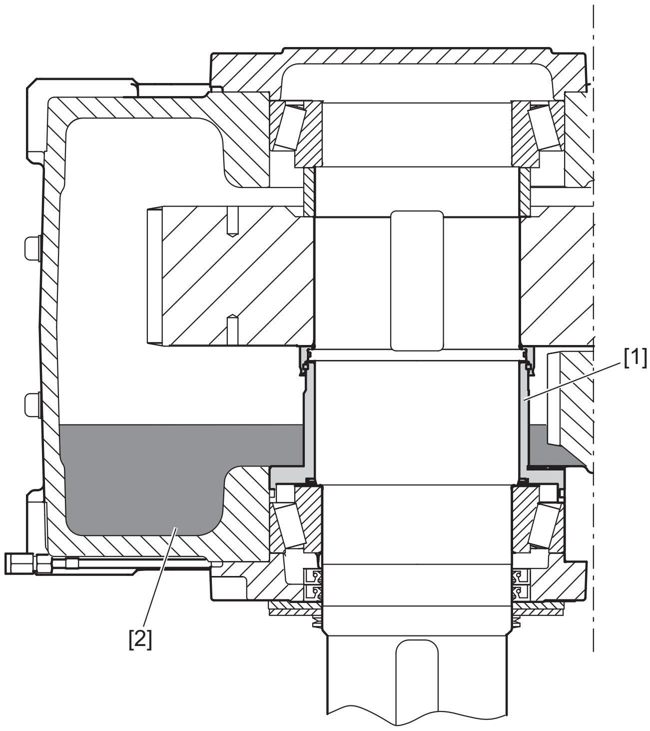
2.16.4 Drywell sealing system

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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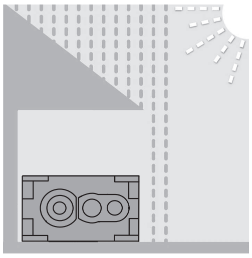
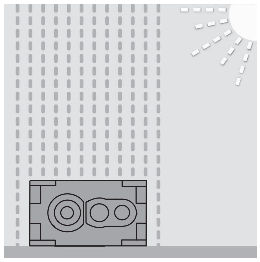
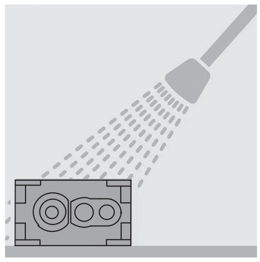
2.17 Coating and surface protection systems

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.

2.18 Storage and transport conditions

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

2.18.1 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.

2.18.2 Exterior corrosion protection

The following measures are taken for exterior corrosion protection:

- Anti-corrosion agent is applied to bare, non-painted functional surfaces of shafts, flanges, mounting and foot surfaces of the housing. 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 in which the protective coating and/or painting has been damaged may have to be repainted.

2.18.3 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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2.18.4 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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2.19 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.

2.20 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.

2.21 Thermal rating

The thermal rating needs to be checked for every gear unit. The relevant values are listed in the "Selection tables" (→ 🗎 147).

2.22 Shaft bearings

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

2.23 Very low output speeds

The gear units described in this catalog cover a nominal gear ratio range of up to 400:1. With a 4-pole motor connected to the gear unit, minimum output speeds of about 4 min^{-1} can be reached.

Lower output speeds can be achieved by a combination with frequency inverter, multipolar motors or with an SEW-EURODRIVE primary gear unit or gearmotor type R…, F…, K… or S…. Contact SEW-EURODRIVE in this case.

2.24 Noise level

Normally, the sound-power levels of the gear unit, according to ISO 8579-1, are below the 50% line given in the standard.

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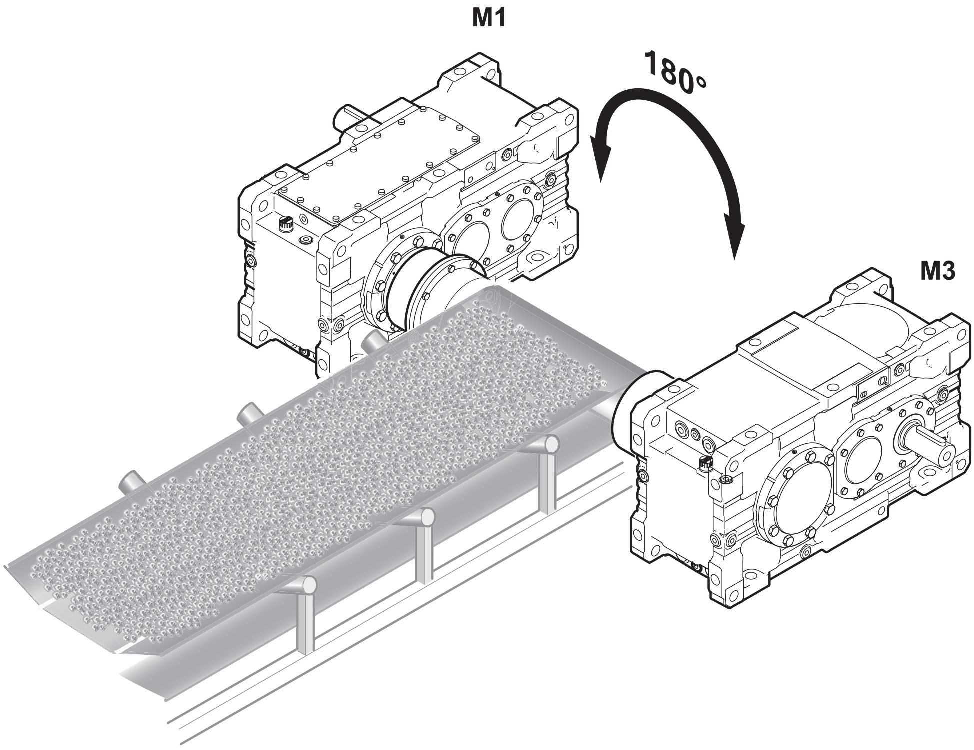
2.25 Reversible gear units

INFORMATION

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

The universal housings 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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2.26 Mounting position sheets

The following mounting position sheet provides an overview of the positions of oil filling plug, oil drain plug, oil dipstick, breather plug, etc. on the gear unit.

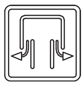
2.26.1 Key to the mounting position sheet

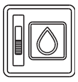
The following symbols are used in the mounting position sheet according to the design.

 = Oil fill plug

 = Oil dipstick

 = Oil drain

 = Breather

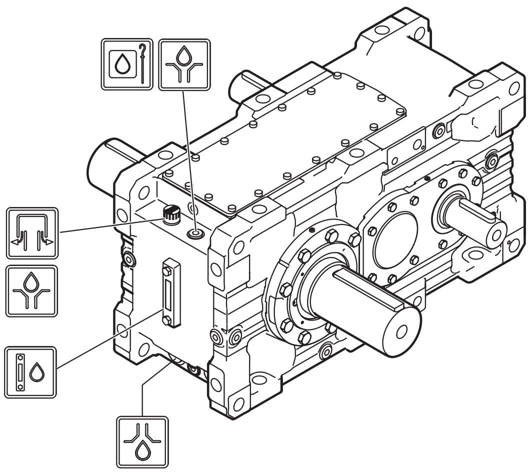
 = Oil level glass

2.26.2 Mounting position sheet information

INFORMATION

More mounting dimension sheets are available from SEW-EURODRIVE on request.

2.26.3 Gear unit: Mounting position M1 / Splash or pressure lubrication



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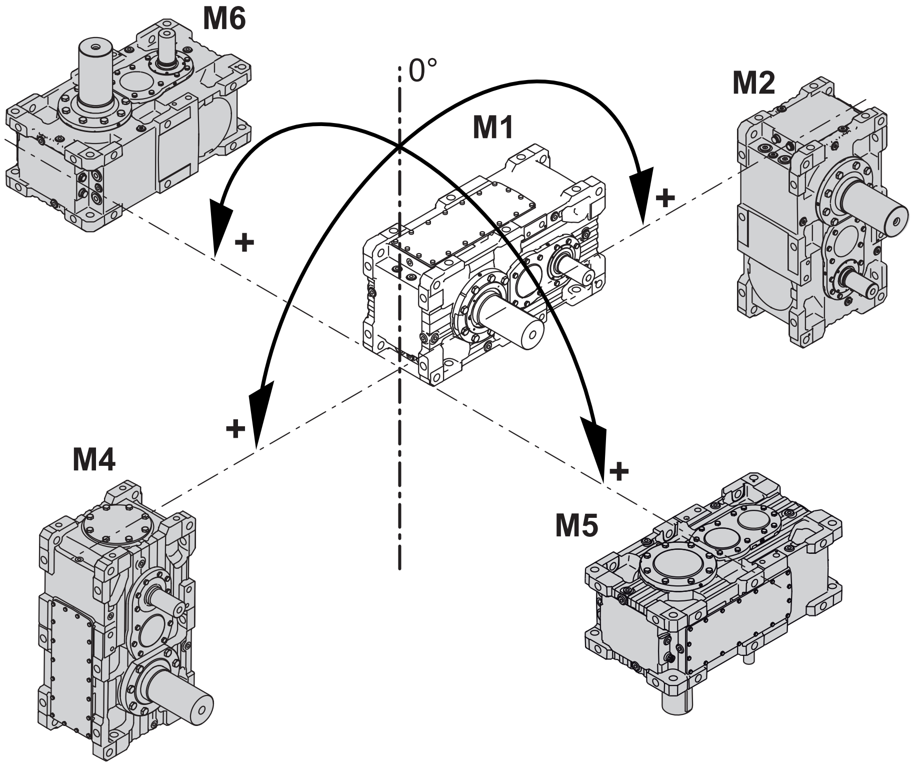
2.27 Fixed and variable pivoted mounting positions

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°

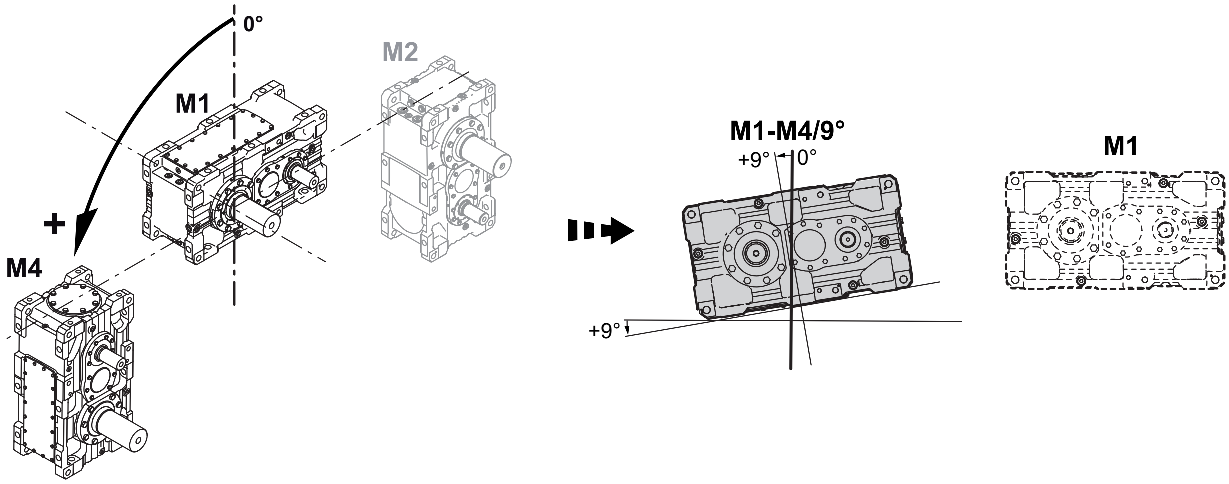
M1 = Initial mounting position

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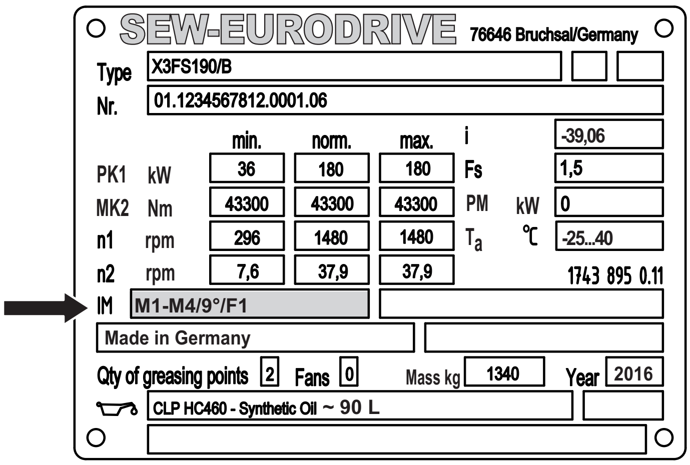
The oil level is checked in the selected fixed pivoted mounting position.

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



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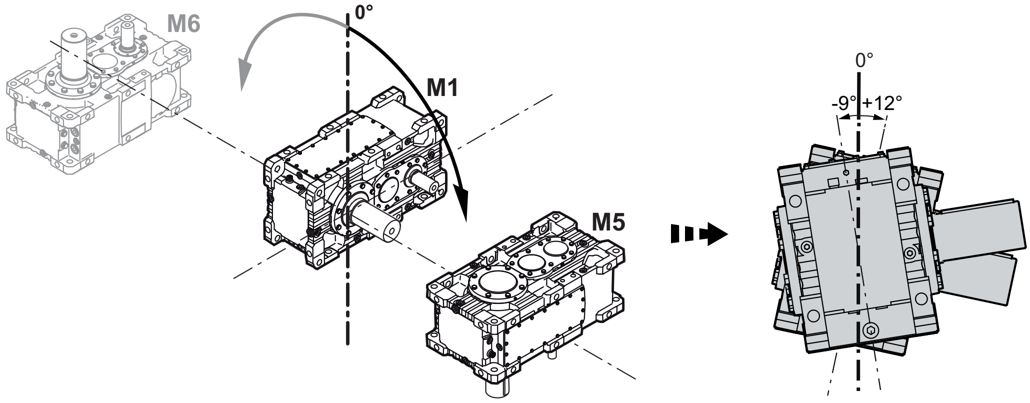
2.27.2 Variable pivoted mounting position

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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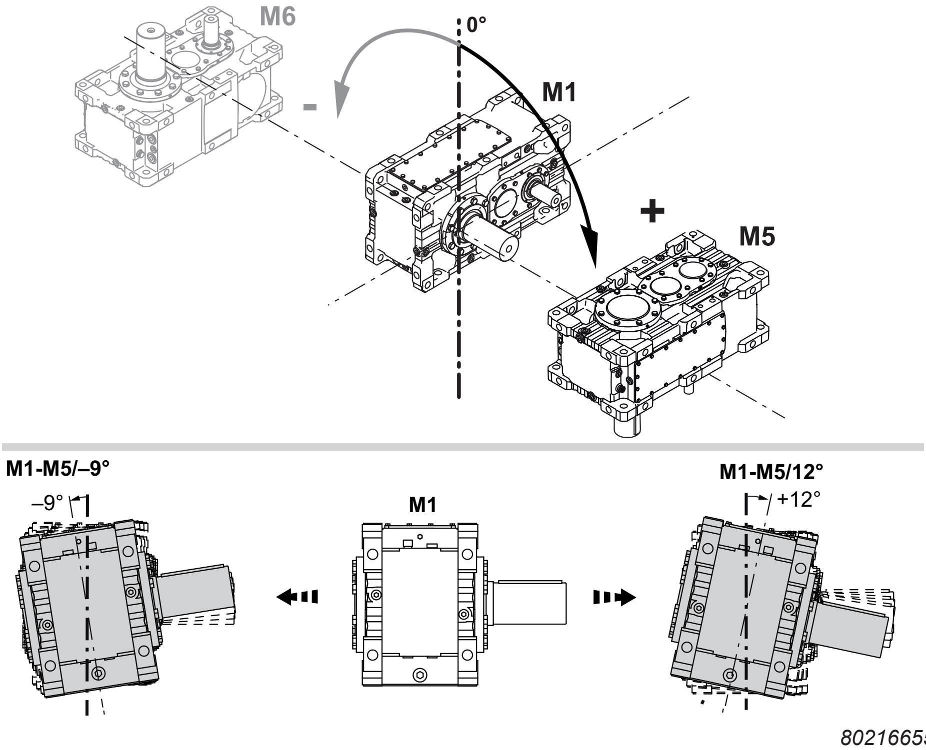
Step 1:

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°

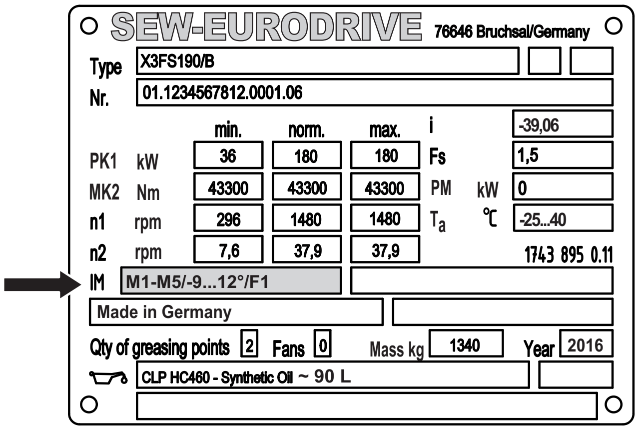
M1 = Initial mounting position

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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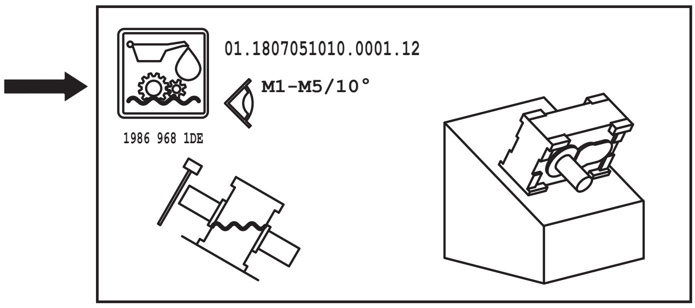
Step 2:

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:

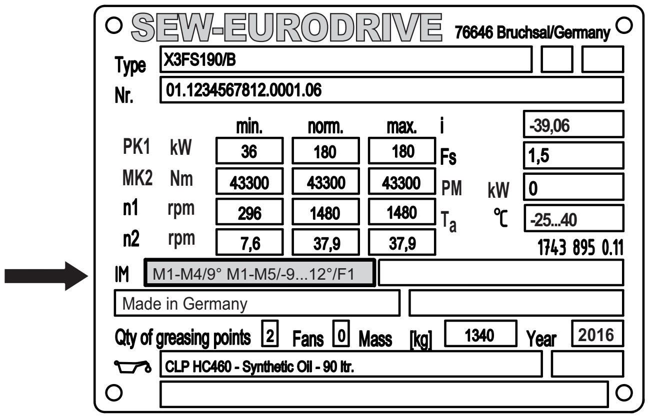
M1-M4/9° (fixed pivoted mounting position)

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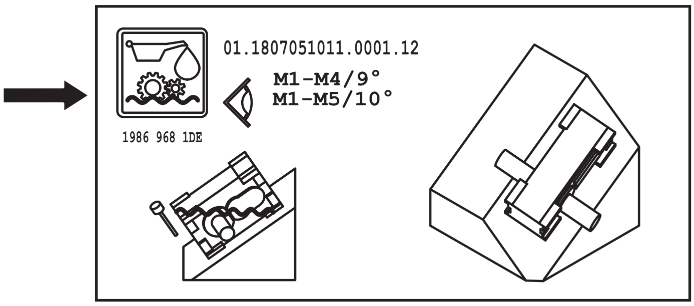
When combining fixed and variable pivoted mounting position, the customer must determine the variable pivoting angle in which the oil level is checked. The fixed angle for the oil level check is already defined.

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 Project planning for drives

3.1 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).

3.1.1 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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3.1.2 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	Gear ratio	-
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 gear unit 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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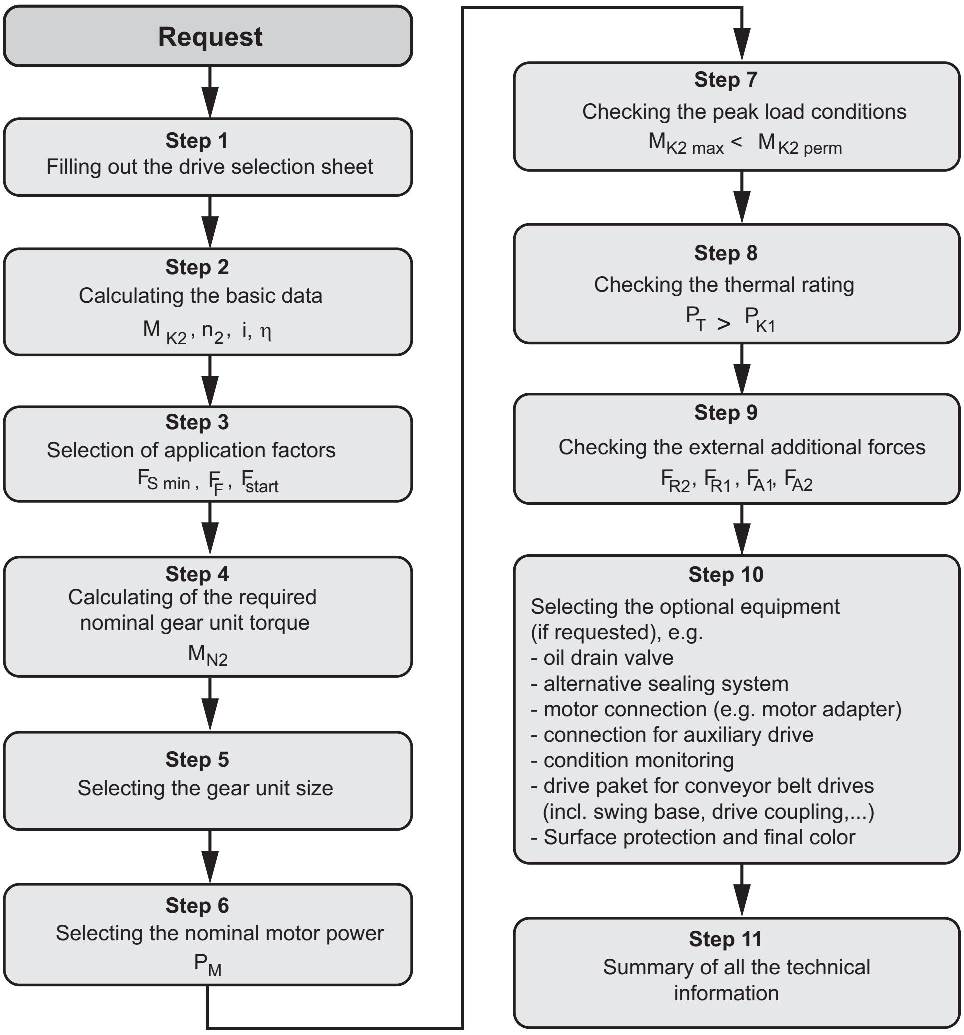
3.2 Project planning procedure

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



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3.2.1 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

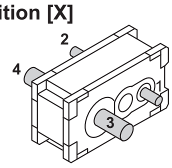
4.1 Gear unit type [X]
- ☐ Helical gear unit X.F..
- ☐ Bevel-helical gear unit X.K..

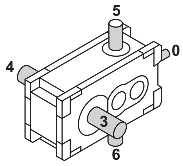
4.2 Mounting position [X]
- ☐ M1 – M6

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

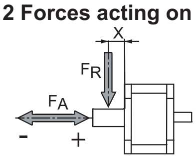
4.10 HSS connection to motor [X]

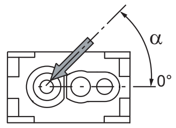
- ☐ Customer installation (base frame)
- ☐ Motor adapter with elastic coupling
- ☐ Swing base/base frame
- ☐ Motor bracket with V-belt drive
- ☐ Motor scoop
- ☐ Other, see diagram

4.11 Machine shaft bearings

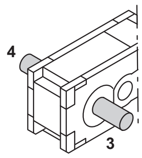
- ☐ 2 bearings, gear unit transfers only torque
- ☐ 1 bearing opposite gear unit, the gear unit acts as a bearing point
- ☐ 1 bearing directly at the gear unit, the gear unit acts as a bearing point

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



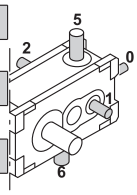


	Shaft 3	Shaft 4
Axial force F_A [kN]		
Radial force F_R [kN]		
Distance from shaft shoulder X [mm]		
Application angle of the radial force α [°]		
or variable	☐	☐



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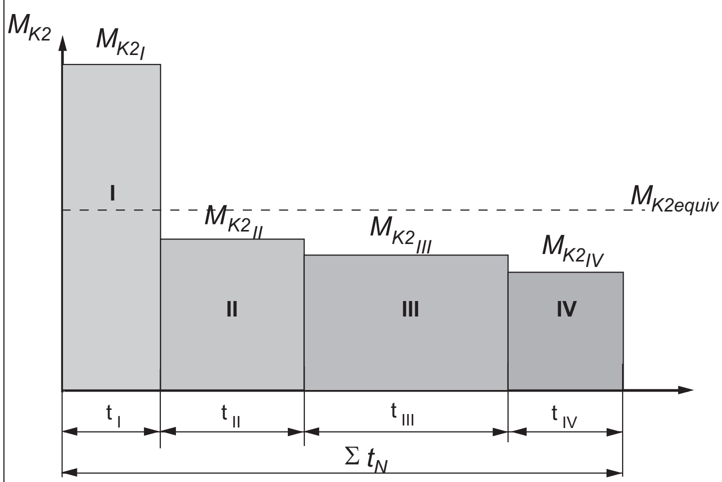
3.2.2 Step 2: Calculation of basic data – M_{K2}, n_2, i, η

Constant torque	$M_{K2} = \frac{P_{K1} \times 9550 \times \eta}{n_2} Nm$ Note: If P_{K1} 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	$M_{K2equiv} = \sqrt[\frac{10}{3}]{(M_{K2_I})^{\frac{10}{3}} \times \frac{t_I}{\Sigma t_N} + (M_{K2_{II}})^{\frac{10}{3}} \times \frac{t_{II}}{\Sigma t_N} + ... (M_{K2_n})^{\frac{10}{3}} \times \frac{t_n}{\Sigma t_N}}$ The following figure shows a load example:  M_{K2} = Operating torque on LSS in Nm $\frac{t_I}{\Sigma t_N}$ .... $\frac{t_I}{\Sigma t_N}$ = 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.
Gear ratio	$i = \frac{n_1}{n_2}$ n_1 = Input speed (HSS) min^{-1} n_2 = Output speed (LSS) 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

3.2.3 Step 3: Selection of application factors

Application-specific service factor	$F_{S\ min}$	
Peak load factor	F_F	on page 49
Startup factor	F_{start}	on page 49

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

The application-specific service factor F_{Smin} 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 four or more cylinders:
  – $F_{S\ min}$ (selection table) + 0.25
- Combustion engines with one to three cylinders:
  – $F_{S\ min}$ (selection table) + 0.5

INFORMATION

In the event of deviations from the typical load behavior, please 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
	Collector	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 excavator	[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
	Heating 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 machines	1)	1)	1)
Timber industry	Timber industry	1)	1)	1)
Cranes	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 drives	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 machines	1.55	1.80	-
	Rolls (pick-up, wire drive, wire suction)	-	1.80	2.00
	Drying cylinders (rolling bearings)	-	1.80	2.00
	Calenders (rolling bearings)	-	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 (single-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 pump, vane pump)	-	-	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

3.2.4 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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3.2.5 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".

The selection table guide on the foldout page of the catalog can be used to quickly locate the speed/power overview table and to make a preliminary selection of the gear unit size.

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} kW										
					M1 **20 °C**					**M1** **40 °C**					
i_N	**i_{ex}**	**n_2** min^{-1}	**M_{N2}** kNm	**P_{N1}** kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.09**	141	5.60	85	72	105	-	-	-	52	76	-	-	-	**X2F.** /HU 246
8	**7.94**	126	5.75	78	75	110	-	-	-	54	80	-	-	-	
9	**8.52**	117	5.90	74	68	98	-	-	-	49	72	-	-	-	
10	**9.53**	105	6.10	69	71	100	-	-	-	51	75	-	-	-	
11.2	**11.03**	91	6.40	62	63	92	-	-	-	46	67	-	-	-	
12.5	**12.34**	81	6.60	57	66	95	-	-	-	48	70	-	-	-	
14	**13.93**	72	6.80	52	53	76	-	-	-	39	56	-	-	-	
16	**15.59**	64	6.80	47	57	81	-	-	-	41	60	-	-	-	
18	**17.21**	58	6.80	42	59	84	-	-	-	43	62	-	-	-	
20	**19.26**	52	6.80	38	61	87	-	-	-	44	64	-	-	-	

3.2.6 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.

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3.2.7 Step 7: Checking the peak load conditions $M_{K2\ perm}$; $M_{K2\ max}$

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

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 specifications in Step 3: Selecting the application factors.

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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3.2.8 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:

- 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 sea level

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. Please 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" (→ 147). The thermal rating for other combinations can be determined using factors.

Types of lubrication / 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 depend on type of cooling, mounting position and lubrication type.

f_1 = Altitude factor

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 factors f_T

The following table shows the temperature factor f_T depending on the lubrication type, ambient temperature, and cooling option.

Temperature factor f_T										
Lubrication type	Without additional cooling or with fan					with water cooling cover or with water cooling cartridge or with 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 which are not listed in chapter "Selection tables" (→ 🗎 147), the thermal rating P_T can be calculated with 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" (→ 🗎 90).

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 (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" (→ 🗎 90).

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 in kW

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

- Actual power loss to be cooled
- The current 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

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

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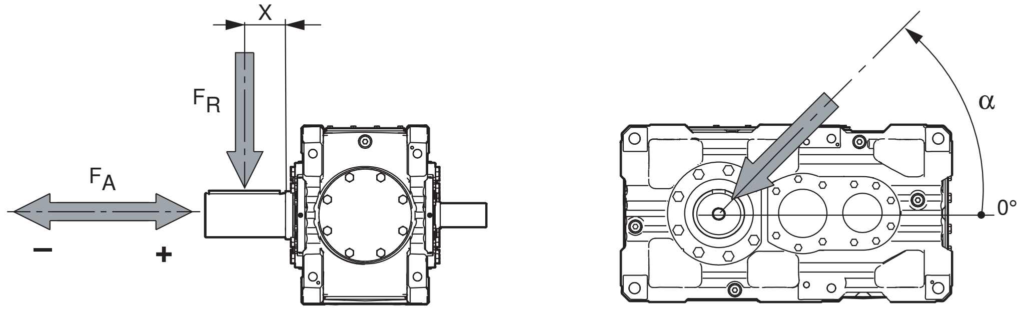
3.2.9 Step 9: Checking the external additional forces - F_R:

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

Another important factor for determining the remaining overhung load is the drive component type installed at the shaft end. The following transmission element factors f_Z must be considered for the various drive components.

Transmission element	Transmission element factor 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:

$$F_R = \frac{M_d \times 2000}{d_0} \times f_z$$

F_R = Overhung load in N
M_d = Torque in kNm
d_0 = Mean diameter of the installed transmission element in mm
f_Z = Drive component 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..

	F_R kN												F_{Rmax} kN
Gear unit size	**X2FS..**				**X3FS..**				**X4FS..**				**X..S.**
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

3

X.K..

	F_R kN						F_{Rmax} kN
Gear unit size	**X2KS..**		**X3KS..**		**X4KS..**		**X..S.**
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   STD = Standard bearing
n_2 = Output speed   HD = Reinforced bearings

INFORMATION

Contact SEW-EURODRIVE in case of deviating conditions.

For permitted axial loads on the output shaft (LSS), contact SEW-EURODRIVE.

For permitted overhung and axial loads on the input shaft (HSS), contact SEW-EURODRIVE.

Permitted axial forces output shaft (LSS)

Contact SEW-EURODRIVE.

Permitted overhung and axial loads

For permitted overhung and axial loads on the input shaft (HSS), contact SEW-EURODRIVE.

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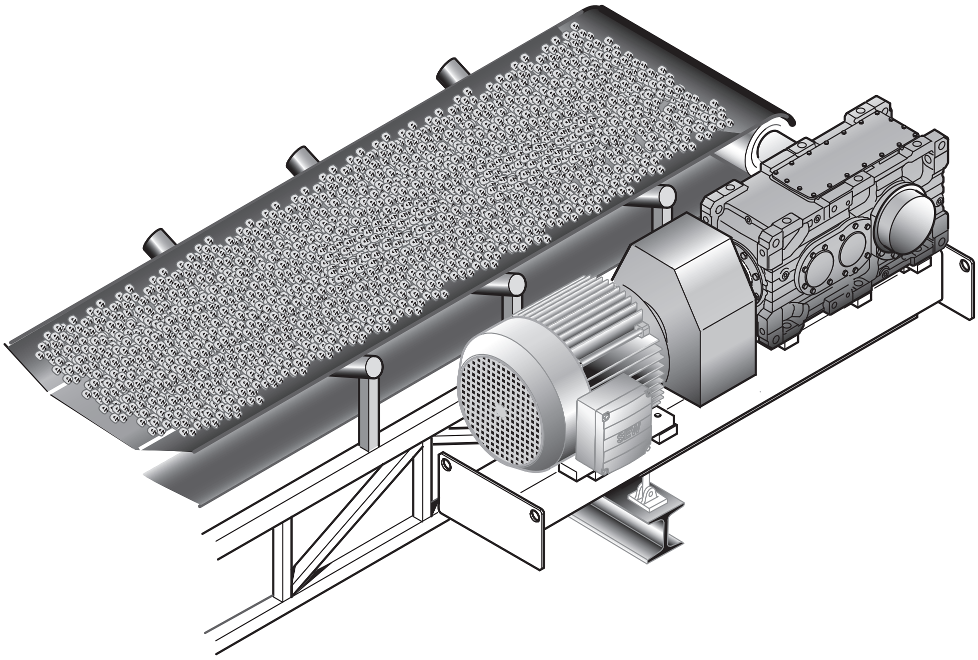
3.3 Sample for project planning: Conveyor drive

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



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3.3.1 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" (→ 🗎 50)

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 selection table page 129.

- 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" (→ 🗎 52)

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_{K2max} 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_{K2max} must not exceed the permitted peak output torque M_{K2per}.

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

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" (→ 🗎 59)
f_T = Temperature factor = 0.7; See chapter "Temperature factor" (→ 🗎 59) (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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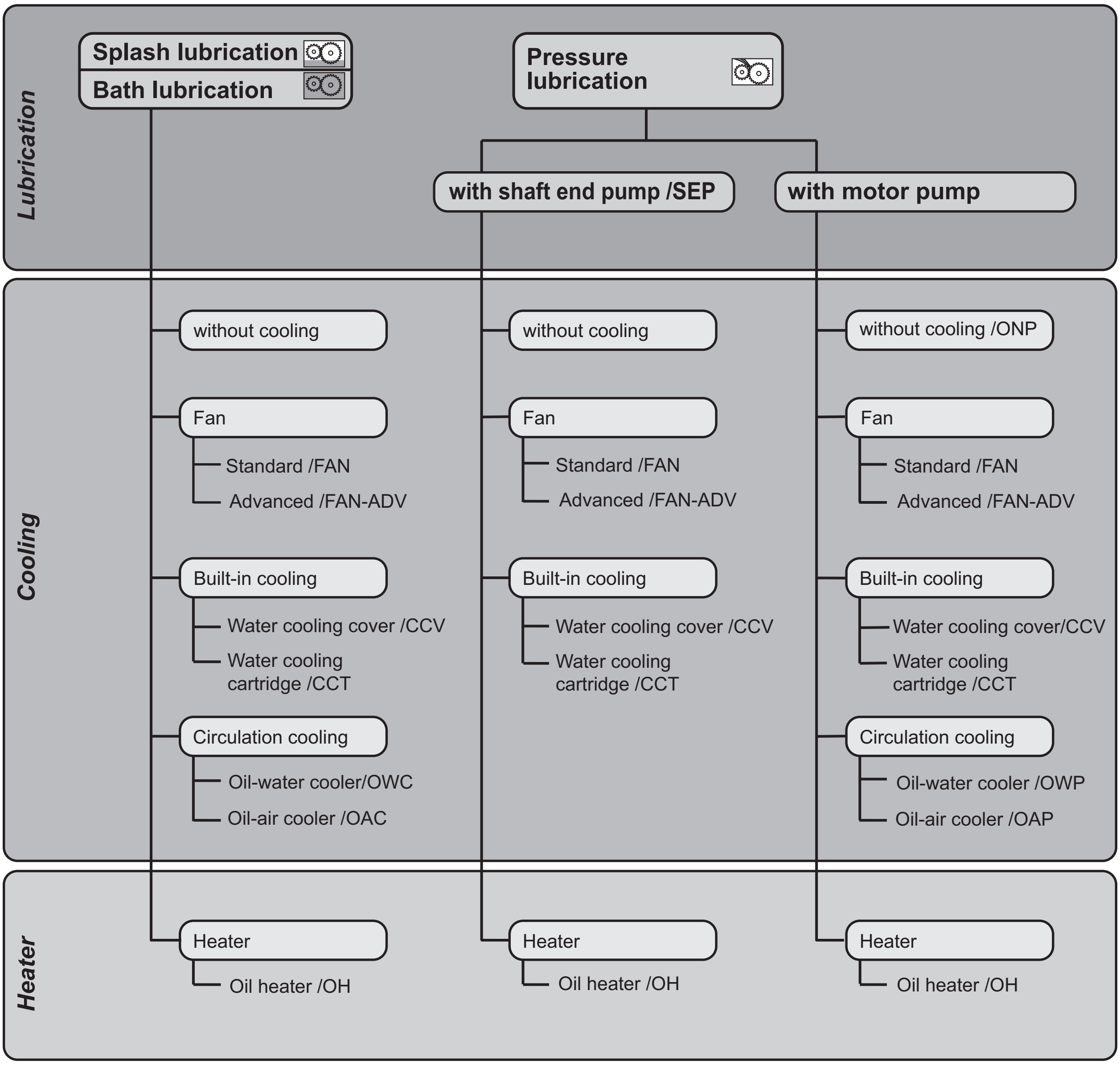
4 Lubrication, cooling, heating and seal

4.1 Overview of the lubrication and cooling types

The following combinations of lubrication and types of cooling are possible:



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4.2 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.

4.2.1 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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4.2.2 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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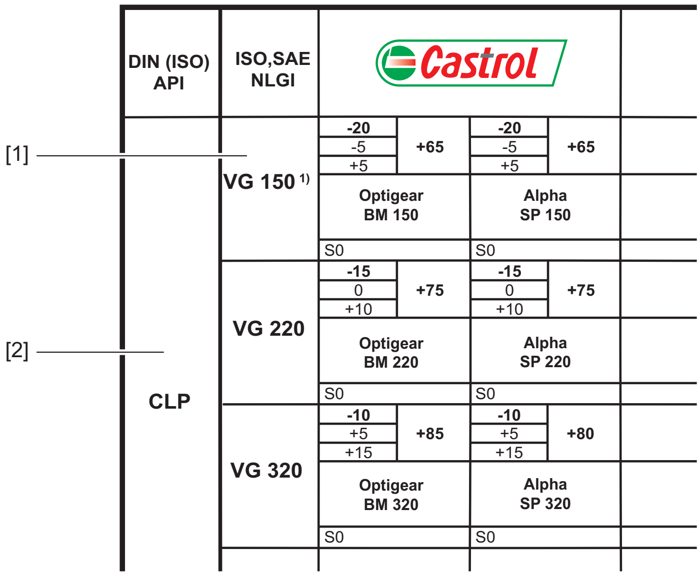
Structure of the tables and abbreviations



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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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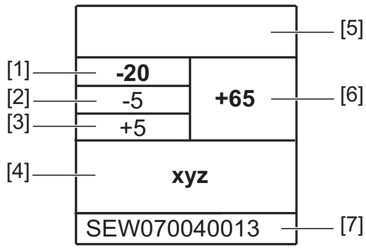
Explanation of the various lubricants



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

Shaft end pumps in HU, HH, and HT housing design for the X.. series are exceptions. They are designed for an oil viscosity of 5000 cSt.

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Lubricant tables

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

DIN (ISO) API	ISO,SAE NLGI	Castrol		FUCHS		Mobil®		KLÜBER LUBRICATION	Shell	TEXACO	TOTAL
CLP	VG 150 [1]	-20 -5 +5 +65 Optigear BM 150 S0	-20 -5 +5 +65 Alpha SP 150 S0	-20 -5 +5 +65 Renolin CLP 150 Plus S0	-20 -5 +5 +65 Renolin HighGear 150 S0	-20 -5 +5 +65 Mobilgear 600 XP 150 SEW070030013		-20 -5 +5 +65 Klüberoil GEM 1-150 N S0		-20 -5 +5 +65 Meropa 150 S0	
	VG 220	-15 0 +10 +75 Optigear BM 220 S0	-15 0 +10 +75 Alpha SP 220 S0	-15 0 +10 +75 Renolin CLP 220 Plus S0	-15 0 +10 +75 Renolin HighGear 220 S0	-15 0 +10 +75 Mobilgear 600 XP 220 SEW070030013		-15 0 +10 +75 Klüberoil GEM 1-220 N S0	-15 0 +10 +75 Shell Omala Oil F 220 S0	-15 0 +10 +75 Meropa 220 S0	-15 0 +10 +75 Carter EP 220 S0
	VG 320	-10 +5 +15 +85 Optigear BM 320 S0	-10 +5 +15 +80 Alpha SP 320 S0	-10 +5 +15 +80 Renolin CLP 320 Plus S0	-10 +5 +15 +80 Renolin HighGear 320 S0	-10 +5 +15 +80 Mobilgear 600 XP 320 SEW070030013		-10 +5 +15 +80 Klüberoil GEM 1-320 N S0	-10 +5 +15 +80 Shell Omala Oil F 320 S0	-10 +5 +15 +80 Meropa 320 S0	-10 +5 +15 +80 Carter EP 320 S0
	VG 460	-5 +10 +20 +90 Optigear BM 460 S0	-5 +10 +20 +90 Alpha SP 460 S0	-5 +10 +20 +90 Renolin CLP 460 Plus S0	-5 +10 +20 +90 Renolin HighGear 460 S0	-5 +10 +20 +90 Mobilgear 600 XP 460 SEW070030013		-5 +10 +20 +90 Klüberoil GEM 1-460 N S0	-5 +10 +20 +90 Shell Omala Oil F 460 S0	-5 +10 +20 +90 Meropa 460 S0	-5 +10 +20 +90 Carter EP 460 S0
	VG 680	0 +15 +25 +90 Optigear BM 680 S0	0 +15 +25 +90 Alpha SP 680 S0	0 +15 +25 +90 Renolin CLP 680 Plus S0	0 +15 +25 +90 Renolin HighGear 680 S0	0 +15 +25 +90 Mobilgear 600 XP 680 SEW070030013		0 +15 +25 +90 Klüberoil GEM 1-680 N S0		0 +15 +25 +90 Meropa 680 S0	0 +15 +25 +90 Carter EP 680 S0
	VG 1000	+5 +20 +30 +90 Optigear BM 1000 S0									

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DIN (ISO) API	ISO,SAE NLGI	Castrol		Fuchs		Mobil®		Klüber Lubrication	Shell	Texaco	Total
CLP HC	VG 32 1)					-40 -30 -25 / +30 SHC 624 S0					
	VG 68 1)			-35 -20 -10 / +50 Renolin Unisyn CLP 68 S0		-40 -25 -15 / +50 SHC 626 S0		-35 -20 -10 / +50 Klübersynth GEM 4-68 N S0	-40 -20 -10 / +50 Omala S4 GX 68 S0		
	VG 150 1)	-25 -10 0 / +70 Alphasyn EP 150 S0	-30 -10 0 / +70 Optigear Synthetic X 150 S0	-30 -10 +0 / +70 Renolin Unisyn CLP 150 S0		-30 -10 0 / +75 SHC 629 S0	-35 -15 -5 / +75 SHC Gear 150 S0	-25 -10 0 / 70 Klübersynth GEM 4-150 N S0	-30 -10 0 / +75 Omala S4 GX 150 S0	-25 -10 0 / +70 Pinnacle EP 150 S0	-35 -15 -5 / +75 Carter SH 150 S0
	VG 220	-25 -5 +5 / +80 Alphasyn EP 220 S0	-25 -5 +5 / +80 Optigear Synthetic X 220 S0	-25 -5 +5 / +80 Renolin Unisyn CLP 220 S0	-20 0 +10 / +75 HighGear Synth 220 S0	-25 -5 0 / +85 SHC 630 S0	-30 -10 +5 / +85 SHC Gear 220 S0	-25 -5 +5 / +80 Klübersynth GEM 4-220 N S0	-25 -5 +5 / +85 Omala S4 GX 220 S0	-25 -5 +5 / +80 Pinnacle EP 220 S0	-25 -5 +5 / +80 Carter SH 220 S0
	VG 320	-20 0 +10 / +90 Alphasyn EP 320 S0	-20 0 +10 / +90 Optigear Synthetic X 320 S0	-20 0 +10 / +90 Renolin Unisyn CLP 320 S0	-15 0 +15 / +85 HighGear Synth 320 S0	-20 0 +10 / +95 SHC 632 S0	-25 -5 +10 / +95 SHC Gear 320 S0	-20 0 +10 / +95 Klübersynth GEM 4-320 N S0	-20 0 +10 / +95 Omala S4 GX 320 S0	-20 0 +10 / +90 Pinnacle EP 320 S0	-20 0 +10 / +90 Carter SH 320 S0
	VG 460	-15 +5 +15 / +100 Alphasyn EP 460 S0	-15 +5 +15 / +100 Optigear Synthetic X 460 S0	-15 +5 +15 / +100 Renolin Unisyn CLP 460 S0	-10 +5 +20 / +95 HighGear Synth 460 S0	-15 +5 +15 / +105 SHC 634 S0	-20 0 +15 / +110 SHC Gear 460 S0	-15 +5 +20 / +105 Klübersynth GEM 4-460 N S0	-15 +5 +15 / +105 Omala S4 GX 460 S0	-15 +5 +15 / +100 Pinnacle EP 460 S0	-15 +5 +15 / +100 Carter SH 460 S0
	VG 680		-10 +10 +25 / +110 Optigear Synthetic X 680 S0	-10 +10 +25 / +110 Renolin Unisyn CLP 680 S0	-5 +10 +25 / +110 HighGear Synth 680 S0	-10 +10 +25 / +110 SHC 636 S0	-15 +10 +25 / +110 SHC Gear 680 S0	-10 +10 +25 / +110 Klübersynth GEM 4-680 N S0	-10 +10 +25 / +110 Omala S4 GX 680 S0		-10 +10 +25 / +110 Carter SH 680 S0
	VG 1000					-10 +15 +30 / +110 SHC 639 S0	-10 +15 +30 / +110 SHC Gear 1000 S0	0 +20 +30 / +110 Klübersynth EG4-1000 S0			

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DIN (ISO) API	ISO,SAE NLGI	bremer & leguil	Castrol	Castrol	FUCHS	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
	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
	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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4.2.3 Horizontal housing/HH and universal housing/HU

INFORMATION

- The specified fill quantities are guide values. The precise values vary depending on the number of stages and gear ratio.
- The mark on the oil dipstick or the oil level glass is the decisive indicator of the correct oil quantity.
- In case of 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.

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Oil quantities for mounting position M1

X.F..

X2F..	Oil quantity in liter		X3F..	Oil quantity in liter		X4F..	Oil quantity in liter	
	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	80	80
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

X.K..

X2K..	Oil quantity in liter		X3K..	Oil quantity in liter		X4K..	Oil quantity in liter	
	Splash lubric-ation	Pressure lubrication		Splash lubric-ation	Pressure lub-rication		Splash lubric-ation	Pressure lub-rication
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	65	65
X2K170	47	47	X3K170	59	59	X4K170	65	65
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..

X3T..	Oil quantity in liter			X4T..	Oil quantity in liter		
	Splash lubric-ation	Pressure lub-rication	Bath lubrica-tion		Splash lubric-ation	Pressure lub-rication	Bath lubrica-tion
X3T100	13	-	-	X4T100	-	-	-
X3T110	14	-	-	X4T110	-	-	-
X3T120	20	-	-	X4T120	20	-	-
X3T130	21	-	-	X4T130	21	-	-
X3T140	33	-	-	X4T140	31	-	-
X3T150	34	-	-	X4T150	32	-	-
X3T160	60	51	-	X4T160	54	54	-
X3T170	60	51	-	X4T170	54	54	-
X3T180	75	65	-	X4T180	75	75	-
X3T190	75	65	-	X4T190	75	75	-
X3T200	100	85	-	X4T200	95	95	-
X3T210	100	85	-	X4T210	95	95	-
X3T220	-	135	315	X4T220	-	205	325
X3T230	-	135	315	X4T230	-	205	325
X3T240	-	165	395	X4T240	-	260	400
X3T250	-	165	395	X4T250	-	260	400

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4.2.4 Thermal housing/HT

Oil quantities for mounting position M1

INFORMATION

- The specified fill quantities are guide values. The precise values vary depending on the number of stages and gear ratio.
- The mark on the oil dipstick or the oil level glass is the decisive indicator of the correct oil quantity.
- In case of 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.

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

4.3 Sealing greases/rolling bearing greases

The table shows the grease types recommended by SEW-EURODRIVE for operating temperatures from -40 °C to 100 °C.

	Manufacturer	Grease
Default	Fuchs	**Renolit CX TOM 15 OEM**[1]
	Castrol	Spheerol EPL 2
	Klüber	Petamo GHY 133 N
	Shell	Gadus S2 V220 2
	Texaco	Mulifak EP2
	Total	Multis EP 2
	Bremer & Leguil	Cassida Grease GTS2[1]
	Fuchs	**Plantogel 2**[1]

1) Grease used by the factory should be preferred.

INFORMATION

- The greases may only be interchanged within the same group. It is not permitted to mix different groups.
- If a customer wants to use a grease that is not listed in the table, the customer has to make sure that it is suitable for the intended application.

4.4 Accessories

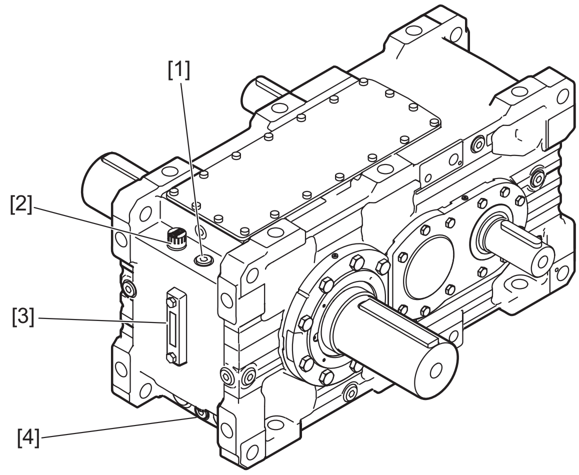
The following section describes the accessories for the several lubrication types.

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, refer to chapter "Oil drain valve ODV / oil level glass OLG / oil dipstick OD [mm]" (→ 🗎 395).

4.4.1 General accessories

The following figure shows the general accessories.



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[1]	Oil dipstick (optional)	[3]	Oil level glass
[2]	Gear unit venting	[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 X100 – 170
- Oil level glass for sizes X180 – 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 normally equipped with a breather with a filter mesh of 2 µm.

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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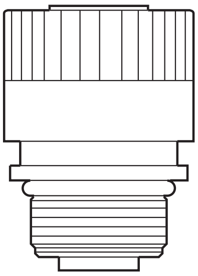
4.5 Breather

The following breathers can be used.

4.5.1 Breather (standard)



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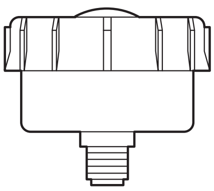
Structure

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

4.5.2 Breather with filter insert (manufacturer: MAHLE)



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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.

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

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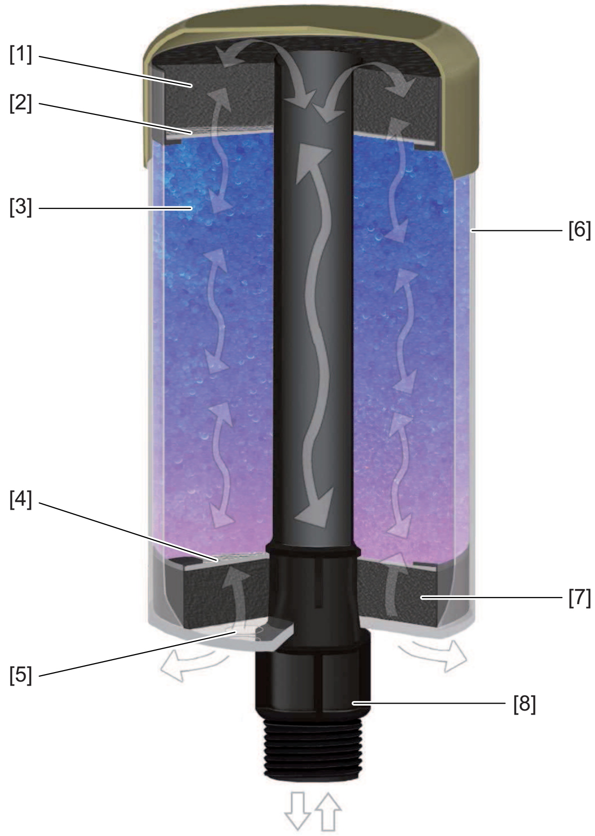
4.5.3 Desiccant breather filter (manufacturer: Des Case)

Structure



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[1]	Foam inlay	Reduces oil mist that comes in contact with silica gel when air escapes and ensures that the escaping air is distributed equally to the filter and the desiccant.
[2]	Filter element	Second polyester filter element that prevents the spreading of desiccant dust. Maximum efficiency due to backwashing.
[3]	Steam absorbent	Silica gel absorbs water of the flowing in air. The desiccant changes its color from blue to pink to indicate the state.
[4]	Filter element	Patented polyester filter element that filters contamination of up to 3 µm (absolute) from the air (74% efficiency at 0.5 µm). Special openings release particles if air escapes extending the service life of the filter.
[5]	Ventilation openings	Individual openings are opened depending on the required air volume in the system. Dimensioned for 20 cfm (0.566438 m). (Unit is inactive due to plug until it is used).
[6]	Loadable polycarbonate housing	Shock-absorbing, transparent casing for reliable operation and easy maintenance.
[7]	Foam inlay	Absorbs oil mist and distributes the flowing in air equally to the filter and desiccant.
[8]	Fastening via thread	Simple replacement of standard filter/breather caps with one or two adapters.

Standard one-way breather filter

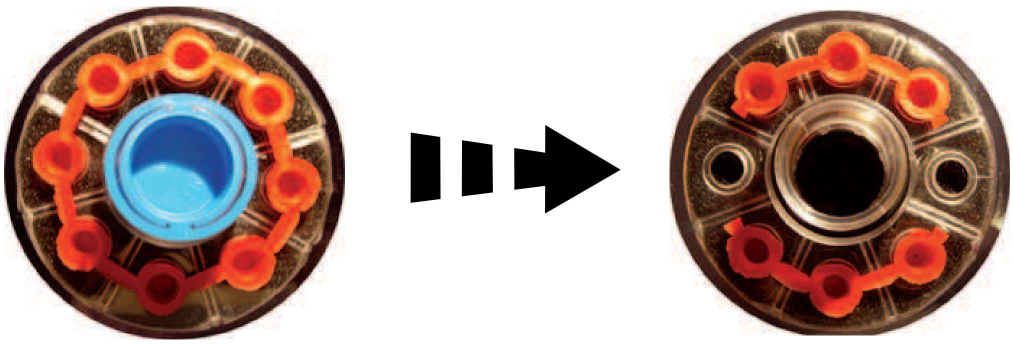
Design	DC-2	DC-3	DC-4
Size (height × diameter in cm)	11.4 × 10.2	16.5 × 10.2	21.6 × 10.2
Filter area (cm^2 per filter)	25.4	25.4	25.4
Amount of silica gel (kg)	0.45	0.68	0.91
Amount of remaining water (l)	0.18	0.27	0.36
Amount of retained water (l)	0.65	1.15	1.6
Operating temperature range (°C)	-50 to +100	+50 to +100	+50 to +100
Max. flow rate (l/mn at 70 mb)	600	600	600
Desiccant	Silica gel	Silica gel	Silica gel
Filtering (µ absolute)	3	3	3
Connection dimension	1'' NPT	1'' NPT	1'' NPT

DES-CASE breather filters comply with the European REACH requirements (valid as of 2007).

Usage

Before startup

Open only 2 of the air openings (180° opposite) at the bottom of the breather filter. Remove the blue cap that protects the rising pipe. If required install a suitable adapter to the filter before installing the filter at the gear unit.



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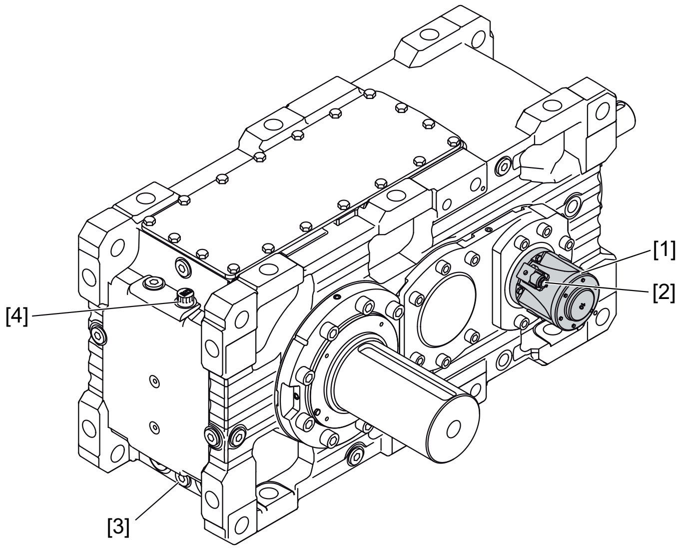
4.6 Additional pressure lubrication accessories

4.6.1 Shaft end pump /SEP

The following figure shows the accessories.



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[1]	Shaft end pump	[3]	Oil drain
[2]	Pressure switch	[4]	Gear unit venting

With pressure lubrication, a shaft end pump (independent of the direction of rotation) 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 via coupling. This ensures a high degree of reliability of the pump functions.

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
- Position of the pump (connected with input shaft or intermediate shaft)
- Gear unit ratio
- Speed range of the gear unit

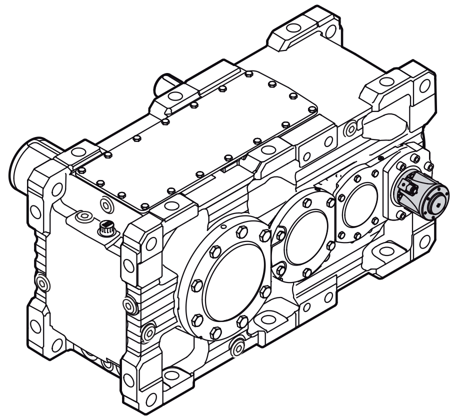
INFORMATION

- Proper functioning of the shaft end pump is monitored via the connected pressure switch.
- Contact SEW-EURODRIVE for selecting the suitable flow rate. For dimensions, refer to chapter "Shaft end pump /SEP [mm]" (→ 🗎 315).
- 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.

Position of shaft end pump

X.F..

With helical gear units, the shaft end pump is positioned opposite the input shaft.



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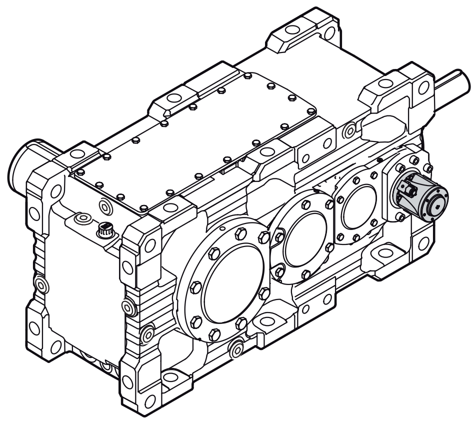
X2K/X4K

For X2K/X4K bevel-helical gear units, the shaft end pump is located opposite the output shaft.



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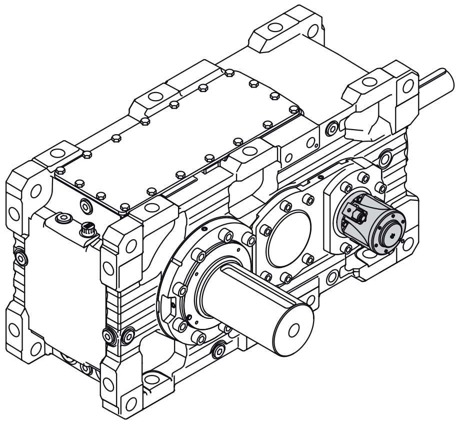
X3K

With X3K gear units, the shaft end pump is positioned on the side of the output shaft.



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4.6.2 Motor pump /ONP

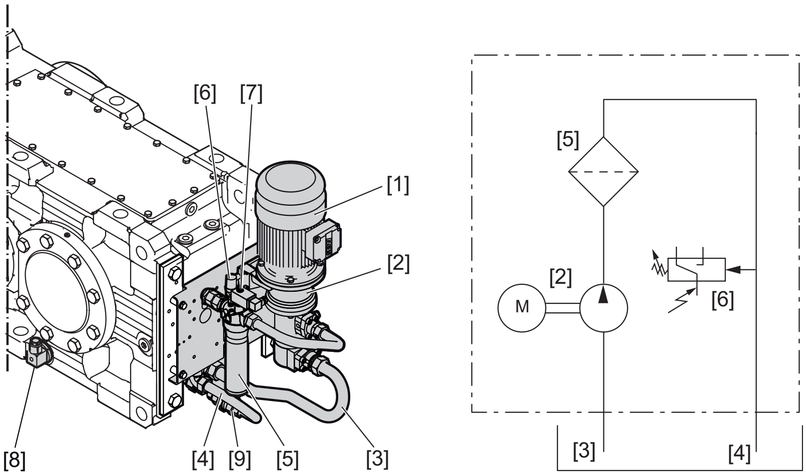
With pressure lubrication, a motor pump supplies all bearing points and gearing above the oil sump with oil via a tube system inside the gear unit.

The motor pump is used, for example, when the required speed of the shaft end pump (≤ 400 min^{-1}) is not reached. It is also used in inverter operation where a shaft end pump cannot be used or can only be used under certain circumstances.

The motor pump is mounted externally to the gear unit and is independent from the speed of the gear unit.

Structure

The figure shows an example of a motor pump.



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[1] Motor
[2] Pump
[3] Suction pipe
[4] Pressure pipe
[5] Oil filter
[6] Pressure switch
[7] Contamination indicator
[8] Temperature switch, optional (NTB)
[9] Check valve

The motor pump is delivered as a complete unit but without electrical connections.

In its basic variant, the scope of the motor pump includes the following components:

- Pump with directly connected asynchronous motor (pump always running)
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure reaches < 0.5 bar
- Option: Temperature switch with trip point for monitoring the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90 °C

The following motor pump types are available:

- Directly mounted on the gear unit, incl. piping, or
- on the mounting frame, for separate installation, but without piping to the gear unit

The customer has to carry out the following electrical wiring:

- Pressure switch for customer evaluation unit
- Electrical contamination indicator of the oil filter
- Pump motor
- Option: Between temperature switch and pump motor

Sizes and selection

The specified delivery rates of the motor pump apply to a line frequency of 50 Hz.

Size Motor pump	Flow rate Motor pump l/min	Connected load Pump motor kW
ONP 005	8	0.75
ONP 010	5	0.75
ONP 015	16	1.1
ONP 020	10	1.1
ONP 030	15	1.1
ONP 040	25	1.5
ONP 050	40	2.2
ONP 060	50	3.0

INFORMATION

- Motor pumps ONP 005 – 060 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

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Installation and connection information for separate installation

The motor pump is mounted directly on the gear unit as standard.

The motor pump can be delivered as a complete unit on a mounting frame for separate installation but without electrical connections and piping. Provide for a low-vibration installation location max. 1 meter from the gear unit. The cooling system must be installed at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the motor pump to the gear unit:

- Do not reduce the specified cable cross section.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the motor pump:

Size Motor pump	Pump suction connection	Suction pipe[1]	Pump pressure connection	Pressure pipe[2]
ONP 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18
ONP 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1“	DN16 / Ø18
ONP 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22
ONP 020	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1“	DN16 / Ø18
ONP 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28
ONP 040	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28
ONP 050	GE35-LR 1 1/4”	DN32 / Ø35	GE35-LR 1 1/2"	DN32 / Ø35
ONP 060	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

For dimension sheets of the motor pump, refer to chapter "Motor pump /ONP..-00/M - [mm]" (→ 🗎 316). Detailed technical data is available from SEW-EURODRIVE on request.

4.7 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

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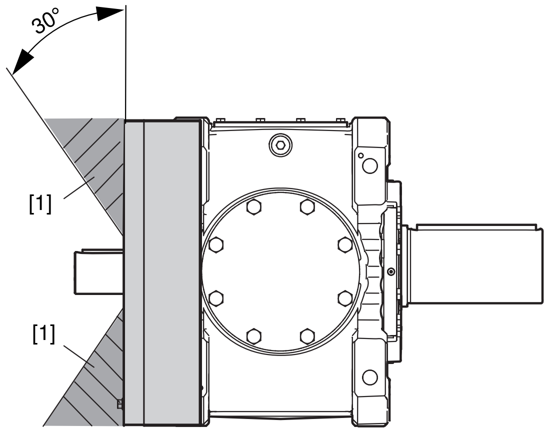
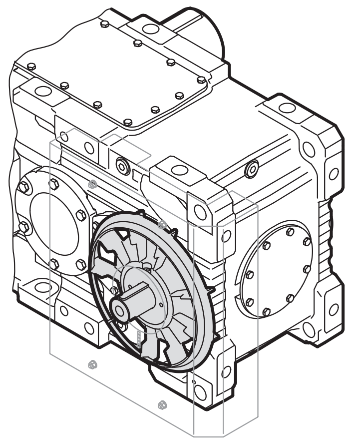
4.7.1 Fan /FAN

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:

X.F.. Fan (standard) /FAN





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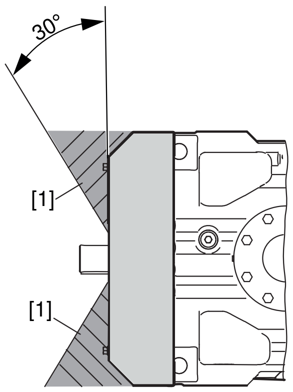
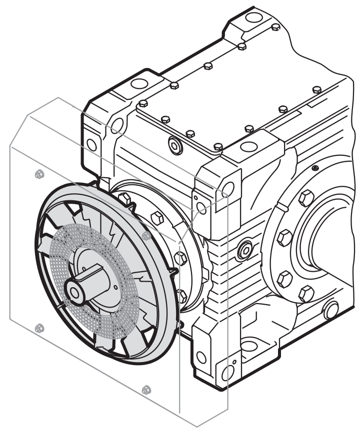
[1] Air intake clearance

X.K.. Fan (standard) /FAN





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INFORMATION

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

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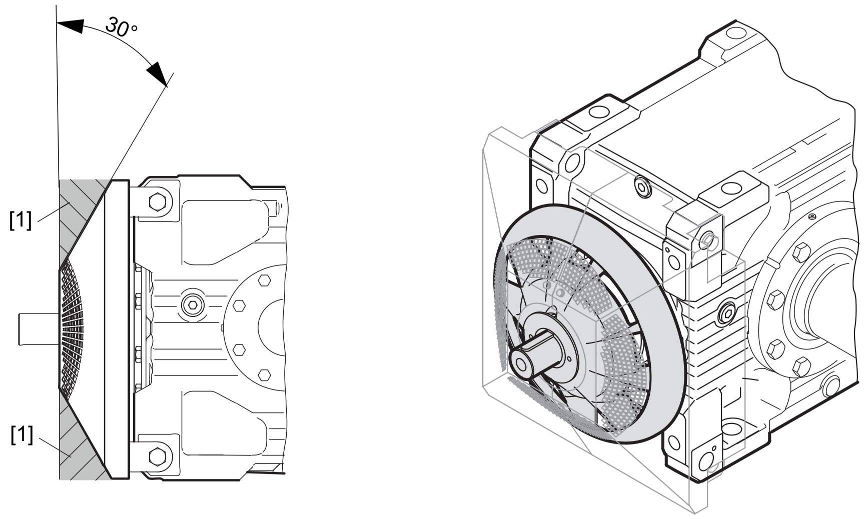
X3K.. Advanced (option) /FAN-ADV

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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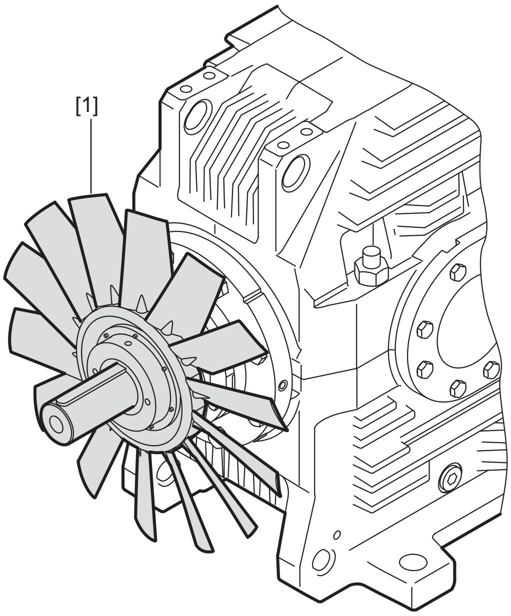
Axial fan

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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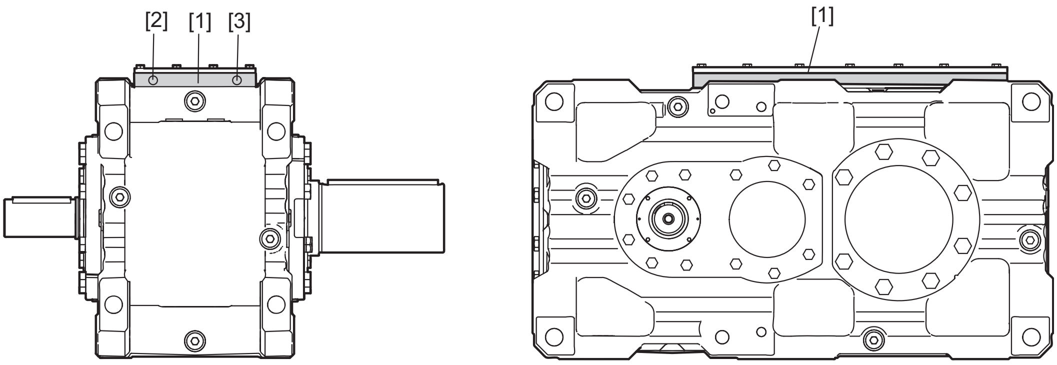
4.7.2 Built-in cooling, water cooling cover /CCV

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 information on connection dimensions, refer to chapter "Water cooling cover, water cooling cartridge and oil heater [mm]" (→ 🗎 322).

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. The permitted thermal rating is listed in the selection tables in chapter "Selection tables" (→ 🗎 147).

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. 2 bores with pipe threads are available to connect to the cooling circuit.

- Sizes X100 to 130: G3/8"
- Sizes X180 to 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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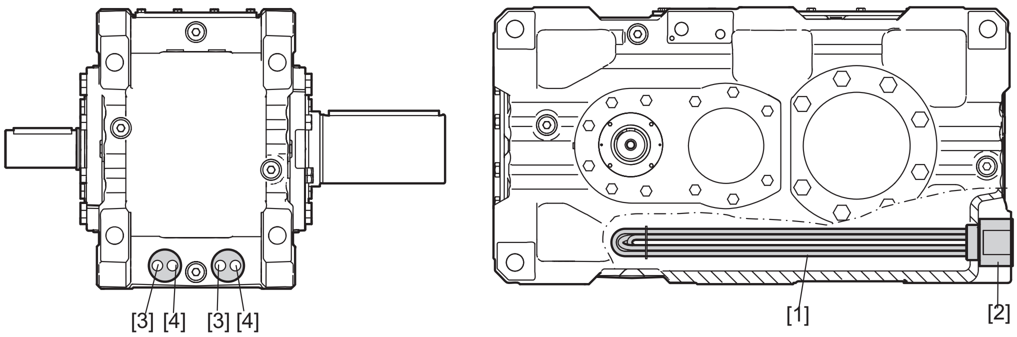
4.7.3 Built-in cooling, water cooling cartridge /CCT

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 operator. It is available for sizes X140 to 320. For connection dimensions, refer to chapter "Water cooling cover, water cooling cartridge and oil heater [mm]" (→ 🗎 322).

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. The permitted thermal rating is listed in the selection tables in chapter "Selection tables" (→ 🗎 147).

Structure

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



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[1]	Cooling pipes	[3]	Supply
[2]	Connection piece	[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)

For connection to the cooling circuit, the following 2 bores with

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

are available. 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.

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).

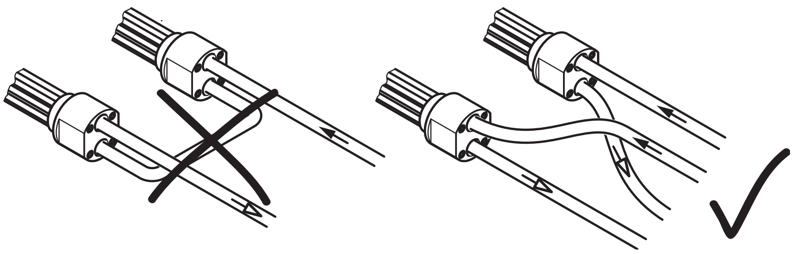
INFORMATION

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-stage	3-stage	4-stage	
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 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	up to 70	+
	70 to 300	+
	> 300	+ (< 25000 mg/l)
Nitrate	up to 100	+
	> 100	0
Free (aggressive) carbonic acid	up to 20	+
	20 to 50	0
	> 50	–
Oxygen	up to 2	+
	> 2	+
Ammonium	up to 2	+
	2 to 20	+
	> 20	–
Iron (dissolved)	up to 10	0
	> 10	–
Manganese (dissolved)	up to 1	0
	> 1	–
Free chlorine	up to 5	permanently < 0.5 mg/l
	> 5	intermittently < 3.0 mg/l
Sulfide		0
Ammonia		+ (< 15 mg/l)

Key

+	= 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)
- Often very contaminated
- A water analysis is necessary for assessment

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4.7.4 Circulation cooling, oil-water cooler for splash lubrication /OWC

An oil-water cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient. The prerequisite for using an oil-water cooling system is that appropriate cooling water is available on-site.

Note the following information.

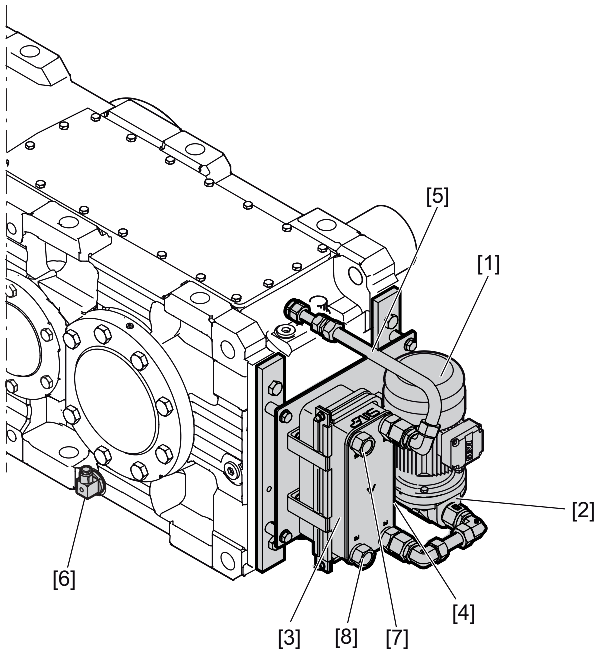
INFORMATION

- Contact SEW-EURODRIVE if aggressive cooling media, such as brackish or salt water, are used.
- The following information applies for gear units with splash lubrication. The cooling system with motor pump only cools the gear unit oil.
- When installing a filter in the OWC cooling system, make sure there is sufficient height for removing the filter element and the filter hood.

Structure

SEW-EURODRIVE uses 2 different types of heat exchangers:

- For **gear unit sizes X140 – 170**, a plate heat exchanger is used for oil supply systems /OWC 005/015/025.



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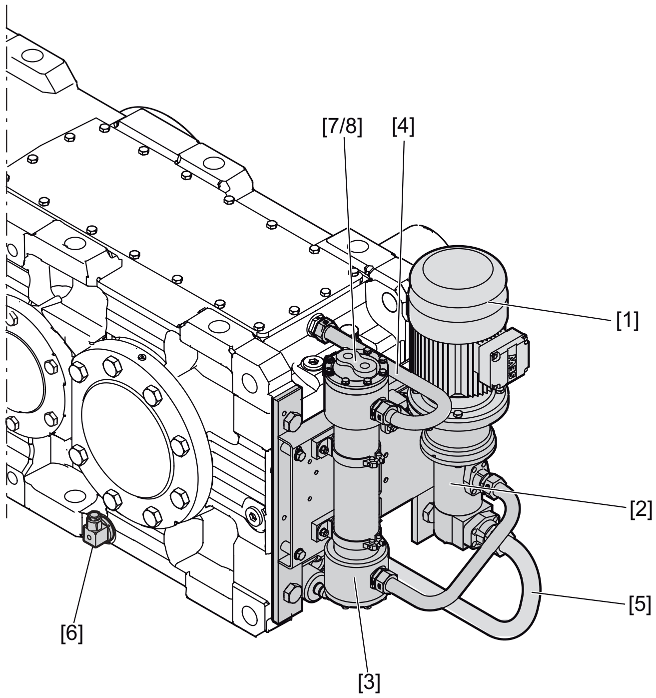
[1]	Motor	[6]	Temperature switch with 2 switching points (TSK2)
[2]	Pump	[7]	Water supply
[3]	Oil-water heat exchanger	[8]	Water return
[4]	Suction pipe (not visible in this view)		
[5]	Pressure pipe		

- For **gear unit sizes X180 – 320**, a shell and tube heat exchanger is used for oil supply systems /OWC 10/20/30/40/50/60/70.



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[1]	Motor (provided)	[5]	Suction pipe
[2]	Pump	[6]	Temperature switch with 2 switching points (TSK2)
[3]	Oil-water heat exchanger	[7]	Water supply
[4]	Pressure pipe	[8]	Water return

The cooling system is delivered as a complete unit but without electrical wiring.

The standard design of the basic cooling system comprises:

- Pump with directly mounted asynchronous motor
- Oil-water heat exchanger

A temperature switch with 2 switching points is possible for the following cooling system designs:

- Directly mounted on the gear unit, incl. cooling circuit piping, or
- On the mounting frame, for separate mounting, but without piping to the gear unit

The customer has to perform the following electrical wiring:

- Between temperature switch and pump motor
- Pump motor

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Sizes, cooling capacity and selection

The cooling capacity values given in the table apply to a cooling water temperature of 30 °C, an oil temperature of 70 °C, equivalent volume flow of oil and cooling water, mineral oil CLP-CC-320, and 50 Hz line frequency.

Size Cooling system	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight[1] kg
OWC 005[2]	4	8	0.75	23
OWC 010	5	10	0.75	36
OWC 015[2]	9	16	1.1	28
OWC 020	10	21	1.1	57
OWC 025[2]	11	29	1.5	31
OWC 030	14	28	1.5	57
OWC 040	24	53	2.2	85
OWC 050	30	77	3.0	88
OWC 060	49	91	4.0	132
OWC 070	76	136	5.5	139

1) The cooling system is mounted on the gear unit
2) Cooling system with plate heat exchanger

INFORMATION

- Cooling systems OWC 005 – 070 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on the selection of an appropriate cooling system, refer to chapter "Selecting the cooling system" (→ 🗎 60).

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 when selecting the appropriate cooling system based on the ambient conditions present for your system.

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Installation and connection information for separate installation

The cooling system is mounted directly on the gear unit as standard.

Optionally, the cooling system can be delivered as a complete unit on a mounting frame for separate mounting but without electrical wiring and piping. Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. Install the cooling system at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the specified cable cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction pipe[1)]	Pressure connection	Pressure pipe[2)]	Cooling water connection of cooler	Inner Ø of the cooling water line
OWC 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G3/4"	Ø25
OWC 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G1/2“	Ø13
OWC 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22	G3/4"	Ø25
OWC 020	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1/2"	Ø19
OWC 025	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1 1/4“	DN25 / Ø28	G3/4"	Ø25
OWC 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1"	Ø25
OWC 040	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G3/4"	Ø25
OWC 050	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G1 1/4"	Ø32
OWC 060	SAE 2" SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1 1/2"	Ø38
OWC 070	SAE 2 1/2“ SFL	DN50 / Ø2"	GE42-LR 1 1/2”	DN40 / Ø42	G1"	Ø38

1) Max. length 1.5 m
2) Max. length 2.5 m

INFORMATION

- For information on the dimension sheets, refer to chapter "Oil-water cooler /OWC – 00/M [mm]" (→ 325). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OWC 005/015/025 cooling systems for separate installation are available from SEW-EURODRIVE on request.

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4.7.5 Circulation cooling oil-water cooler for pressure lubrication /OWP

An oil-water cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient. The prerequisite for using an oil-water cooling system is that appropriate cooling water is available on site.

Note the following information.

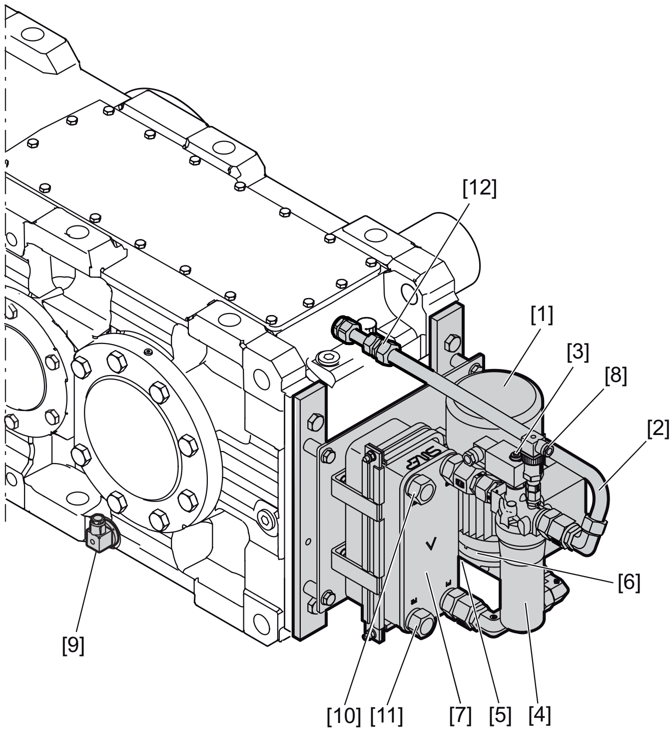
INFORMATION

- Contact SEW-EURODRIVE if you use chemically aggressive cooling media such as brackish water or salt water.
- The cooling system with motor pump cools the gear unit oil and the pressure lubrication of the gear unit.
- When installing a filter in the OWP cooling system, make sure there is sufficient height for removing the filter element and the filter hood.

Structure

SEW-EURODRIVE uses 2 different types of heat exchangers:

- For sizes **X140 – 170**, a plate heat exchanger is used for oil supply systems OWP 005/015/025.



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[1]	Motor	[7]	Oil-water heat exchanger
[2]	Pressure pipe	[8]	Pressure switch
[3]	Contamination indicator	[9]	Temperature switch, optional (NTB)
[4]	Oil filter	[10]	Cooling water inflow
[5]	Suction pipe (not visible in this view)	[11]	Cooling water return
[6]	Pump	[12]	Check valve

- For sizes **X180 – 320**, a shell and tube heat exchanger is used for oil supply systems OWP 10/20/30/40/50/60/70.

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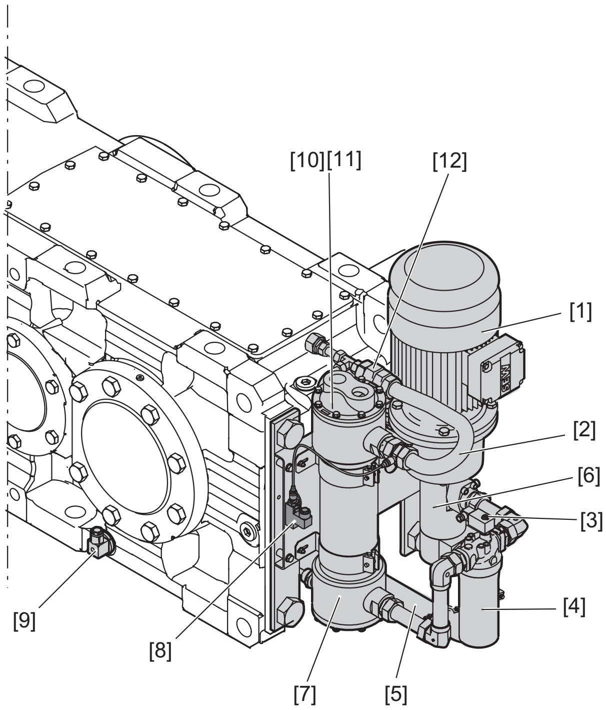

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[1]	Motor	[7]	Oil-water heat exchanger
[2]	Pressure pipe	[8]	Pressure switch
[3]	Contamination indicator	[9]	Temperature switch, optional (NTB)
[4]	Oil filter	[10]	Cooling water inflow
[5]	Suction pipe	[11]	Cooling water return
[6]	Pump	[12]	Check valve

The cooling system is delivered as a complete unit but without electrical wiring.

The standard delivery of the basic cooling system includes:

- Pump with directly connected asynchronous motor (pump always running)
- Oil-water heat exchanger
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure reaches < 0.5 bar
- Option: Temperature switch with trip point for monitoring the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90 °C

The following cooling system types are available:

- Directly mounted on the gear unit, incl. cooling circuit piping, or
- On the mounting frame, for separate mounting, but without piping to the gear unit

The customer has to carry out the following electrical wiring:

- Pressure switch to the customer's evaluation unit
- Electrical contamination indicator of the oil filter
- Pump motor
- Option: Between temperature switch and pump motor

Further instrumentation available on request, such as:

- Flow monitoring
- Thermostatic valve in the oil or water circuit

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- Manometer
- Thermometer

Sizes, cooling capacity and selection

The performance data of the standardized cooling systems is summarized in the following tables.

The cooling capacity values given in the table apply to a cooling water temperature of 30 °C, an oil temperature of 70 °C, equivalent volume flow of oil and cooling water, mineral oil CLP-CC-320, and 50 Hz line frequency.

Size Cooling system	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight[1] kg
OWP 005[2]	4	8	0.75	25
OWP 010	5	10	0.75	38
OWP 015[2]	9	16	1.1	30
OWP 020	10	21	1.1	59
OWP 025[2]	11	29	1.5	33
OWP 030	14	28	1.5	59
OWP 040	24	53	3.0	87
OWP 050	30	77	4.0	90
OWP 060	49	91	5.5	134
OWP 070	76	136	7.5	141

1) The cooling system is mounted on the gear unit
2) Cooling system with plate heat exchanger

INFORMATION

- Cooling systems OWP 005 – 070 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on the selection of an appropriate cooling system, refer to chapter "Selecting the cooling system" (→ 🗎 60).

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 when selecting the appropriate cooling system based on the ambient conditions present for your system.

Installation and connection information for separate installation

The cooling system is mounted directly on the gear unit as standard.

Optionally, the cooling system can be delivered as a complete unit on a mounting frame for separate mounting but without electrical wiring and piping. Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. Install the cooling system at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the specified cable cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction pipe[1)]	Pressure connection	Pressure pipe[2)]	Cooling water connection of cooler	Inner Ø of the cooling water line
OWP 005	GE22-LR 3/4”	DN20 / Ø22	GE18-LR 1/2"	DN16 / Ø18	G3/4“	Ø25
OWP 010	GE22-LR 1/2”	DN20 / Ø22	GE18-LR 1/2“	DN16 / Ø18	G1/2“	Ø13
OWP 015	GE28-LR 1”	DN25 / Ø28	GE22-LR 3/4“	DN20 / Ø22	G3/4“	Ø25
OWP 020	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1/2“	Ø19
OWP 025	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G3/4“	Ø25
OWP 030	GE35-LR 1 1/4”	DN32 / Ø35	GE28-LR 1“	DN25 / Ø28	G1“	Ø25
OWP 040	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G3/4“	Ø25
OWP 050	GE42-LR 1 1/2”	DN40 / Ø42	GE35-LR 1 1/2“	DN32 / Ø35	G1 1/4“	Ø32
OWP 060	SAE 2“ SFL	DN50 / Ø2”	GE42-LR 1 1/2”	DN40 / Ø42	G1 1/2”	Ø38
OWP 070	SAE 2 1/2“ SFL	DN50 / Ø2”	GE42-LR 1 1/2”	DN40 / Ø42	G1“	Ø38

1) Max. length 1.5 m

2) Max. length 2.5 m

INFORMATION

- For information on the dimension sheets, refer to chapter "Oil-water cooler /OWP – 00/M [mm]" (→ 🗎 327). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OWP 005/015/025 cooling systems for separate installation are available from SEW-EURODRIVE on request.

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4.7.6 Circulation cooling oil-air cooler for splash lubrication /OAC

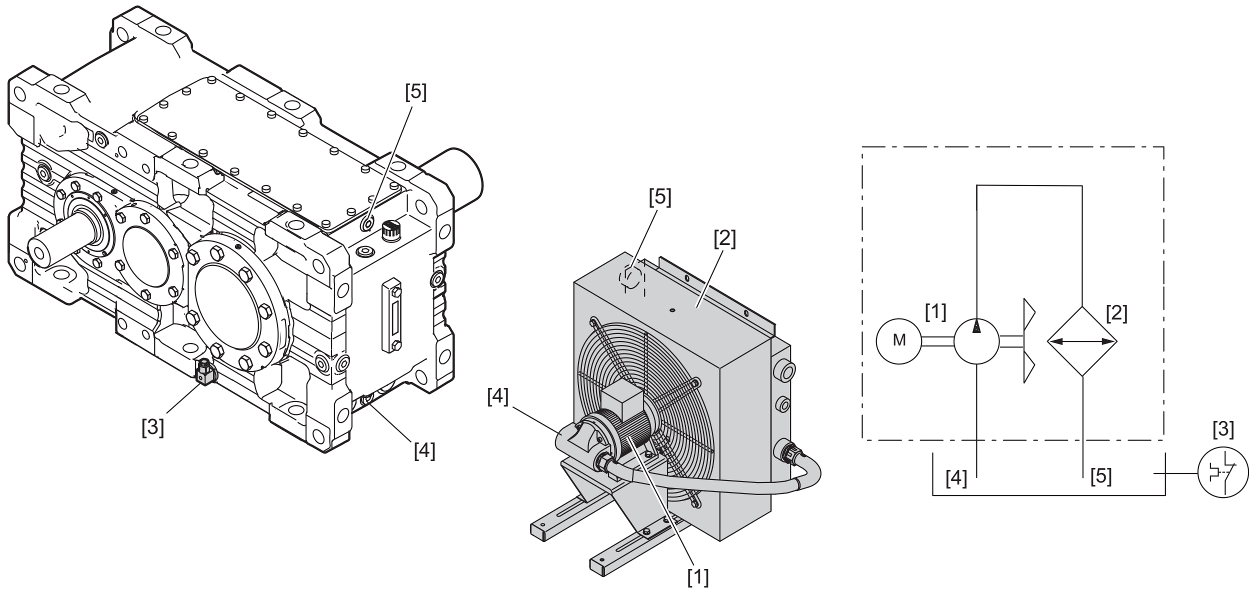
An oil-air cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient.

INFORMATION

The following information applies for gear units with splash lubrication. The cooling system with a motor pump cools the gear unit oil.

Structure

The figure shows an example of an oil-air cooler with motor pump for splash lubrication.



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[1] Motor pump
[2] Oil-air heat exchanger
[3] Temperature switch with two switching points
[4] Suction pipe connection
[5] Pressure pipe connection

The cooling system is delivered as a complete unit on a mounting frame for separate installation but without electrical wiring and piping.

The standard delivery of the basic cooling system includes:

- Pump with directly mounted asynchronous motor
- Oil-air heat exchanger
- Separate fan motor (for OAC 025/060)
- Temperature switch

The temperature switch has 2 switching points:

- Controlled startup of the pump and fan motor at an oil temperature > 40 °C
- Monitoring of the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90 °C

The customer has to carry out the following electrical wiring:

- Between the temperature switch, pump motor, and fan motor
- Pump motor and fan motor
- Separate fan motor (for OAC 025/060)

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Sizes, cooling capacity and selection

The performance data of the standardized cooling systems is summarized in the following table.

The specified cooling capacity levels apply to an air temperature of 40 °C, an oil temperature of 70 °C, mineral oil CLP-CC-320, and a line frequency of 50 Hz.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight kg
OAC 005	4	16	0.75	38
OAC 010	7	28	0.75	38
OAC 020	9	28	0.75	43
OAC 025	11	28	0.75	71
OAC 030	14	58	2.2	71
OAC 040	19	58	2.2	86
OAC 050	33	58	3	118
OAC 060	53	158	7.5	234

INFORMATION

- Cooling systems OAC 005 – 060 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on the selection of an appropriate cooling system, refer to chapter "Selecting the cooling system" (→ 🗎 60).

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

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

INFORMATION

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

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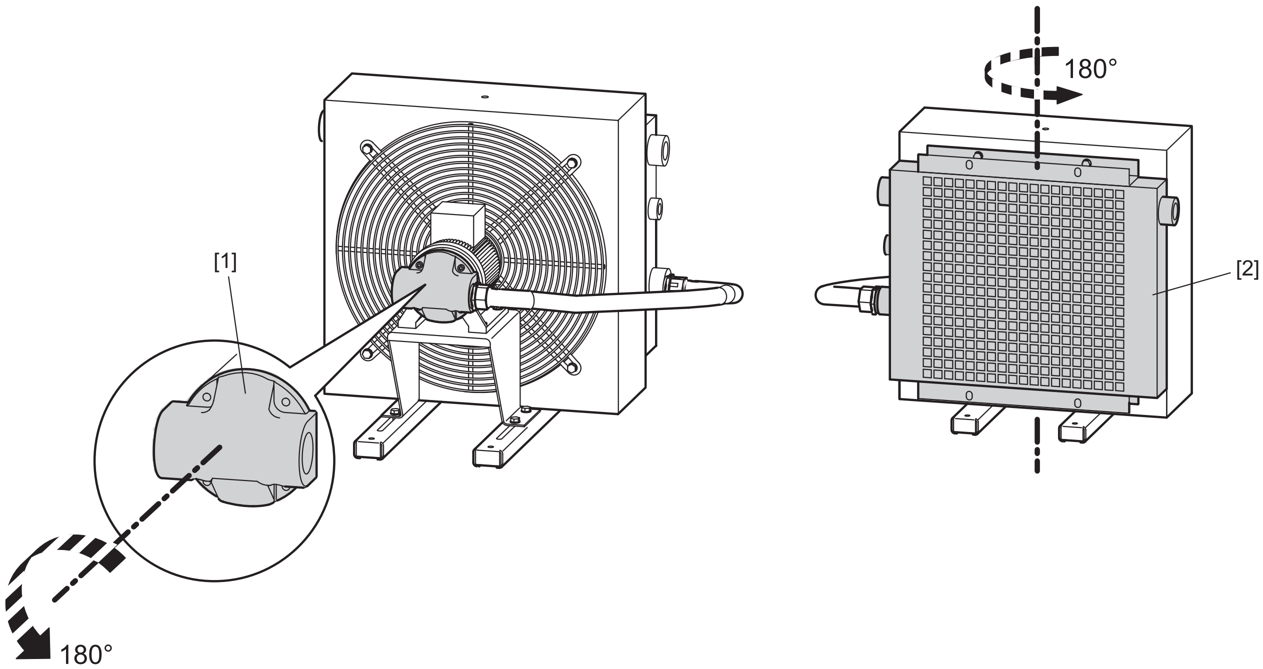
Installation and connection information

Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. The cooling system must be installed at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

The cooler must be installed in such a way that input and output air can flow unobstructedly. Sufficient ventilation and protection against contamination must be ensured. Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Avoid a short circuit in the cooling circuit. The suction and pressure lines must be installed on the gear unit as far apart as possible.
- Do not reduce the specified cable cross sections.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

The oil-air cooling system is delivered in the design as illustrated as standard. The connections of the cooling system are on the left-hand side. Suction and pressure connections should point towards the gear unit to avoid extensive pipe lengths. If required, the suction and pressure connection can be moved to the opposite side of the system. To do so, loosen the pump head [1] and the register [2], rotate them by 180° and re-attach them.



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SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit:

Size Cooling system	Pump suction connection	Suction pipe[1)]	Cooler pressure connection	Pressure pipe[2)]
OAC 005	G 1 1/4"	DN32	G 1"	DN25
OAC 010	G 1 1/4"	DN32	G 1"	DN25
OAC 020	G 1 1/4"	DN32	G 1"	DN25
OAC 025	G 1 1/4"	DN32	G 1"	DN25
OAC 030	G 1 1/2"	DN40	G 1"	DN32
OAC 040	G 1 1/2"	DN40	G 1 1/4"	DN32
OAC 050	G 1 1/2"	DN40	G 1 1/4"	DN32

Size Cooling system	Pump suction connection	Suction pipe[1]	Cooler pressure connection	Pressure pipe[2]
OAC 060	SAE 2 1/2"	DN50	G 1 1/2"	DN40

1) Maximum length 1.5 m
2) Maximum length 2.5 m

INFORMATION

- The cooler must be installed in such a way that the input and output air flow is not obstructed. You have to provide for sufficient ventilation and protection against dirt.
- For information on the dimensions. refer to chapter "Oil-air cooler /OAC..–00/S [mm]" (→ 🗎 330). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OAC 005/025 cooling systems are available from SEW-EURODRIVE on request.

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4.7.7 Circulation cooling oil-air cooler for pressure lubrication /OAP

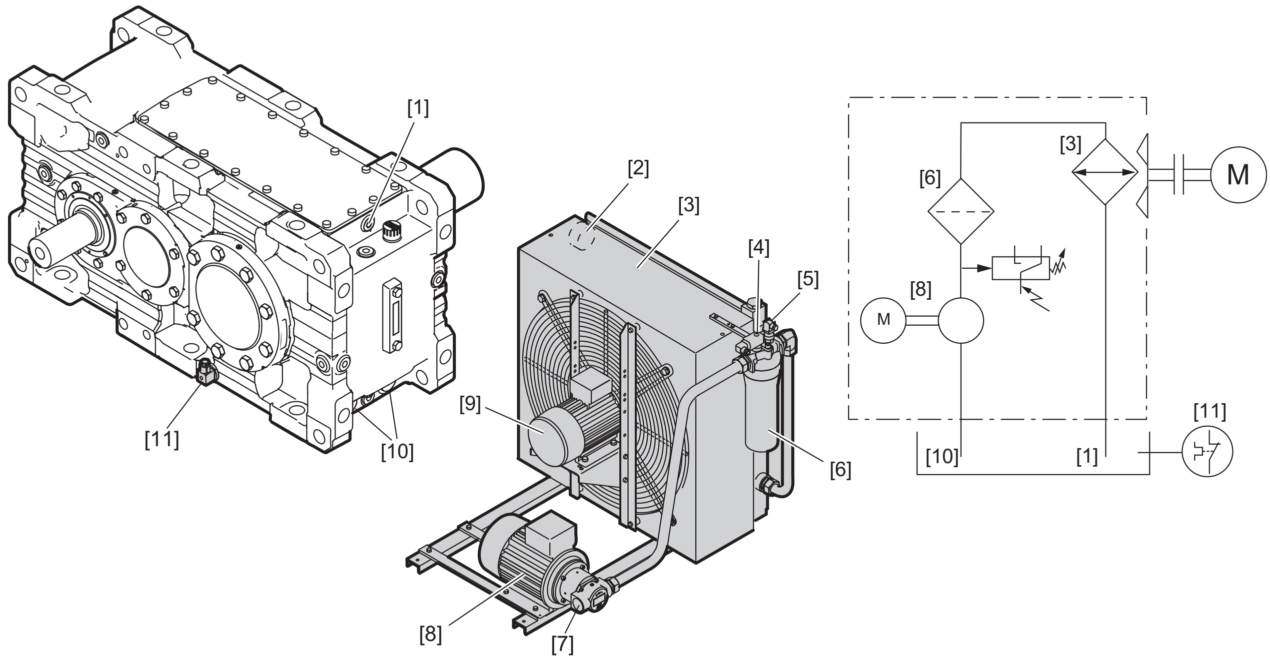
An oil-air cooling system can be used if the thermal rating of the naturally cooled gear unit or cooling using a fan on the input shaft is not sufficient.

INFORMATION

The following information applies for gear units with pressure lubrication. The cooling system with motor pump cools the gear unit oil and provides the pressure lubrication.

Structure

The figure shows an example of an oil-air cooler with motor pump for pressure lubrication.



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[1] Pressure pipe connection	[7] Suction pipe connection
[2] Pressure pipe connection	[8] Motor pump
[3] Oil-air heat exchanger	[9] Fan motor
[4] Contamination indicator	[10] Suction pipe connections
[5] Pressure switch	[11] Temperature switch with two switching points
[6] Oil filter	

The cooling system is delivered as a complete unit on a mounting frame for separate installation but without electrical wiring and piping.

The standard delivery of the basic cooling system includes:

- Pump with directly mounted asynchronous motor
- Oil-air heat exchanger
- Oil filter with filter element and electrical/optical contamination indicator
- Pressure switch that monitors the pump pressure. Warning or switch-off signal when the oil pressure is < 0.5 bar
- Temperature switch with 2 switching points for
  - controlled start of the fan motor at an oil temperature of > 40 °C

– Monitoring of the cooling group, i.e. warning or gear unit shutdown when the oil temperature exceeds 90 °C

The customer has to carry out the following electrical wiring:

- Between temperature switch and cooling system
- Electrical maintenance indicator of the oil filter
- Pressure switch

Further instrumentation available on request, such as:

- Flow monitoring
- Manometer
- Thermometer

Sizes, cooling capacity and selection

The specified cooling capacity levels apply to an air temperature of 40 °C, an oil temperature of 70 °C, mineral oil CLP-CC-320, and a line frequency of 50 Hz.

Cooling system size	Cooling capacity of the cooling system kW	Oil flow rate of the cooling system l/min	Connected load pump motor kW	Weight kg
OAP 005	4	15	1.1	58
OAP 010	7	28	1.5	58
OAP 020	9	28	1.5	64
OAP 025	11	28	1.5	96
OAP 030	14	58	4	96
OAP 040	20	58	4	126
OAP 050	31	58	6	128
OAP 060	53	158	7.5	230

INFORMATION

- Cooling systems OAP 005 – 060 are designed for sizes X140 – 320.
- The values differ slightly for operation with a line frequency of 60 Hz. Contact SEW-EURODRIVE.

For information on the selection of an appropriate cooling system, refer to chapter "Selecting the cooling system" (→ 🗎 60).

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

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

INFORMATION

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

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Installation and connection information

The cooling system and the gear unit have to be set up separately as standard. As an option, the cooling system can be mounted to the gear unit as a complete unit. In this case, the cooling system is delivered with piping but without wiring.

Ensure that the installation site has low vibrations and is a maximum distance of 1 m away from the gear unit. The cooling system must be installed at the same level as the gear unit or lower. If this is not possible, contact SEW-EURODRIVE.

The cooler must be installed in such a way that input and output air can flow unobstructedly. Sufficient ventilation and protection against contamination must be ensured.

Adhere to the following basic conditions when connecting the cooling system to the gear unit:

- Do not reduce the indicated cable cross-section.
- It is important that you choose the correct wall thickness and material when selecting pipes, hoses and screw fittings. Preferably use composite material seals for screw fittings.

SEW-EURODRIVE recommends the following cable cross sections for connecting the cooling system to the gear unit and the cooling circuit:

Size Cooling system	Pump suction connection	Suction pipe[1]	Pressure connection	Pressure pipe[2]
OAP 005	G 1 1/4"	DN32	G 1"	DN25
OAP 010	G 1 1/4"	DN32	G 1"	DN25
OAP 020	G 1 1/4"	DN32	G 1"	DN25
OAP 025	G 1 1/4"	DN32	G 1"	DN25
OAP 030	G 1 1/2"	DN40	G 1"	DN32
OAP 040	G 1 1/2"	DN40	G 1 1/4"	DN32
OAP 050	G 1 1/2"	DN40	G 1 1/4"	DN32
OAP 060	SAE 2 1/2"	DN50	G 1 1/2"	DN40

1) Maximum length 1.5 m
2) Maximum length 2.5 m

INFORMATION

- The cooler must be installed in such a way that the input and output air flow is not obstructed. You have to provide for sufficient ventilation and protection against dirt.
- For the dimensions of the oil-air cooler with motor pump, refer to chapter "Oil-air cooler /OAP..00/S [mm]" (→ 🗎 331). Detailed technical data on the various cooling systems is available from SEW-EURODRIVE on request.
- Dimensions for OAP 005/025 cooling systems are available from SEW-EURODRIVE on request.

4.8 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.

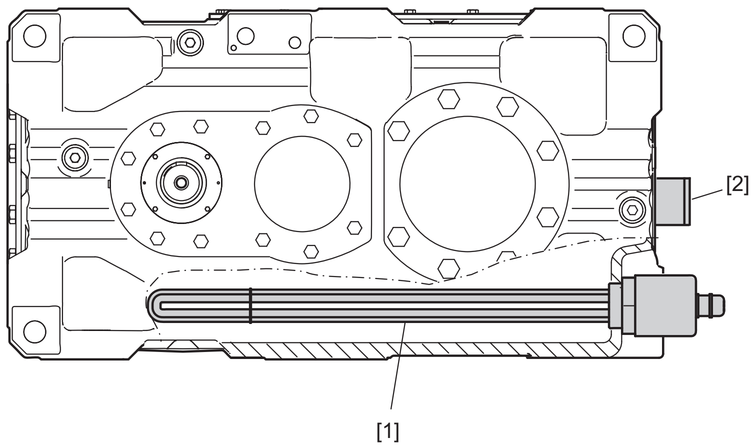
Consequences

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

4.8.1 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 with 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 "Water cooling cover, water cooling cartridge and oil heater [mm]" (→ 🗎 322).

4.8.2 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" (→ 🗎 119).

  At this temperature – see table "Minimum permitted initial temperature for gear unit startup" from page 105 – the thermostat disables the oil heater. Only then, the gear unit can be started. 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, design, 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.

4.8.3 Connection power

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

Gear unit		P_{inst} 1 heating element		P_{inst} 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

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4.8.4 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" (→ 🗎 71). 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" (→ 🗎 71).

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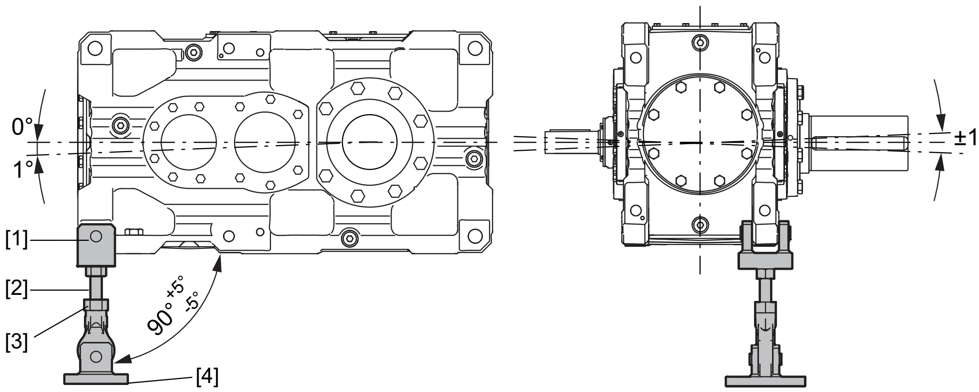
5 Options and accessories

5.1 Torque arm /T

A torque arm is available as option for shaft-mounted gear units to support the reaction torque (for dimensions see chapter "Torque arm /T [mm]" (→ 🗎 332)). The torque arm can bear tensile as well as compression stress.

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

The torque arm consists of a yoke with bolt [1], a stud 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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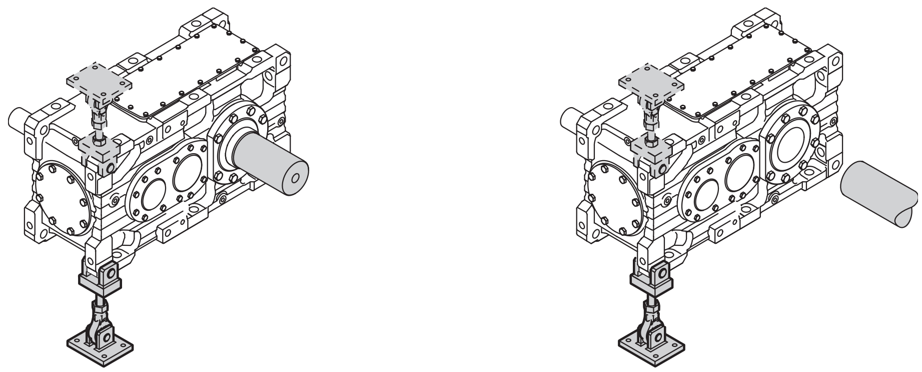
[1] Yoke with bolt
[2] Stud bolt with nut
[3] Joint head
[4] Yoke plate with bolt

INFORMATION

Fan design X.K.. advanced cannot be used together with a torque bracket 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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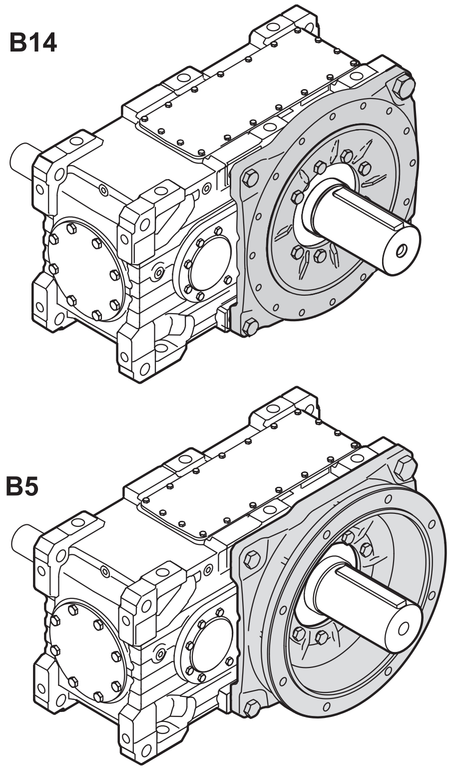
5.2 Mounting flange /F

As an alternative to foot mounting, a mounting flange is available for gear units 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 have an outer centering and retaining threads.

In addition, a B5 design is available for the 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.
- Observe the limitations for hollow-shaft gear units in chapter Gear unit mounting for hollow shaft gear units.
- For gear units in flange-mounted design, 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]" (→ 🗎 334).

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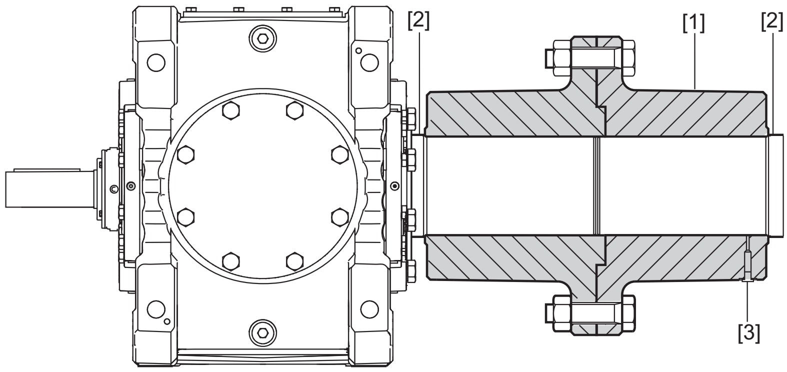
5.3 Flange coupling with cylindrical interference fit /FC-S

Flange couplings [1] are rigid couplings for connecting 2 shafts [2].

They are 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

For more information on the flange coupling and dimensioning the machine shaft, see chapter "Flange coupling with cylindrical interference fit /FC-S [mm]" (→ 🗎 336).

In case of flange coupling with key, note the specifications in the catalog XX.. series vertical and upright gear units. This type of coupling is common for vertical agitator applications.

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5.4 Motor adapter /MA

Motor adapters are available for mounting

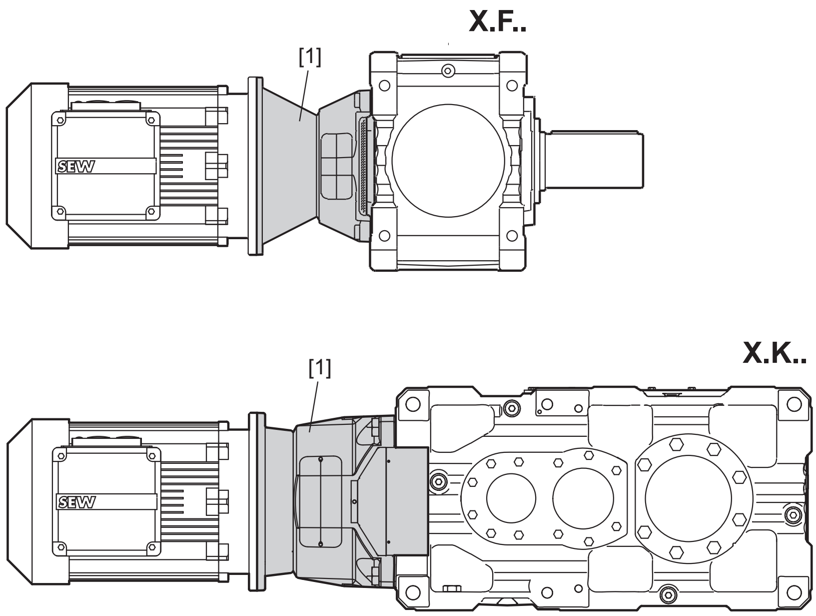
- **IEC (B5) motors** of sizes 100 to 355
- **NEMA ("C" face) motors** of sizes 182 to 449

Observe the following information:

INFORMATION

- The gear unit must be mounted in such a way that liquids cannot enter the motor adapter (HSS end) and accumulate there. Otherwise, the oil seal can be damaged, and subsequent damage can create a possible ignition source.
- An elastic claw coupling is included in the delivery.
- All motor adapters may be equipped with a fan for two-stage and three-stage gear units.
- For dimension sheets of the motor adapters, refer to page "IEC motor adapter / MA [mm]" (→ 365).

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



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5.4.1 Maximum permitted motor weight

Two criteria must be checked when mounting a motor onto the gear unit.

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

INFORMATION

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

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

INFORMATION

Consequences

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

The following applies to all tables:

G_M = Motor weight

G_G = Gear unit weight

Horizontal gear unit

Mounting type	Mounting position M1 / mounting surface F1	
	X.F..	X.K..
Foot-mounted design X../ B	$G_M \le 1.5\ G_G$	$G_M \le 1.75\ G_G$
Shaft-mounted design X../ T	$G_M \le 0.5\ G_G$	$G_M \le 1.5\ G_G$
Flange-mounted design X../F	$G_M \le 0.5\ G_G$	$G_M \le 0.5\ G_G$

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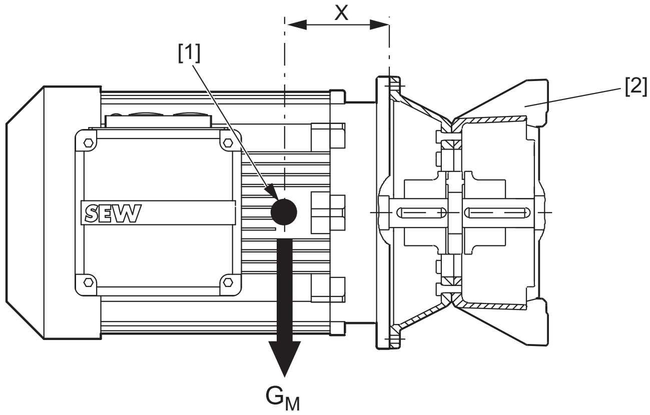
2. Maximum motor weight depending on motor adapter size

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

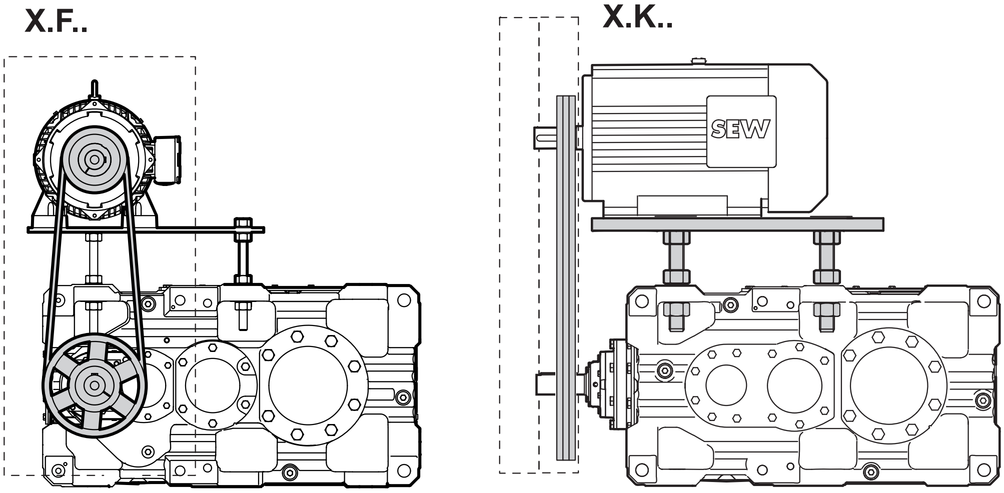
The maximum permitted weight G_M must be linearly reduced if the centroidal distance **X** is increased. G_M cannot be increased if the centroidal distance is reduced.

5.5 V-belt drives /VBD

V-belt drives are used wherever you need to adjust the total ratio or wherever the installation space requires a certain motor configuration.

The standard scope of 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 each other.
- For dimensions of the V-belt drives, refer to chapter "V-belt drives /VBD [mm]" (→ 🗎 344). More sizes are available from SEW-EURODRIVE on request.

5.6 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

For the dimensions of the swing base and base frame, refer to chapter "Drive packages on a steel construction" (→ 🗎 396). Final dimensions are specified order-specifically by SEWEURODRIVE.

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5.6.1 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

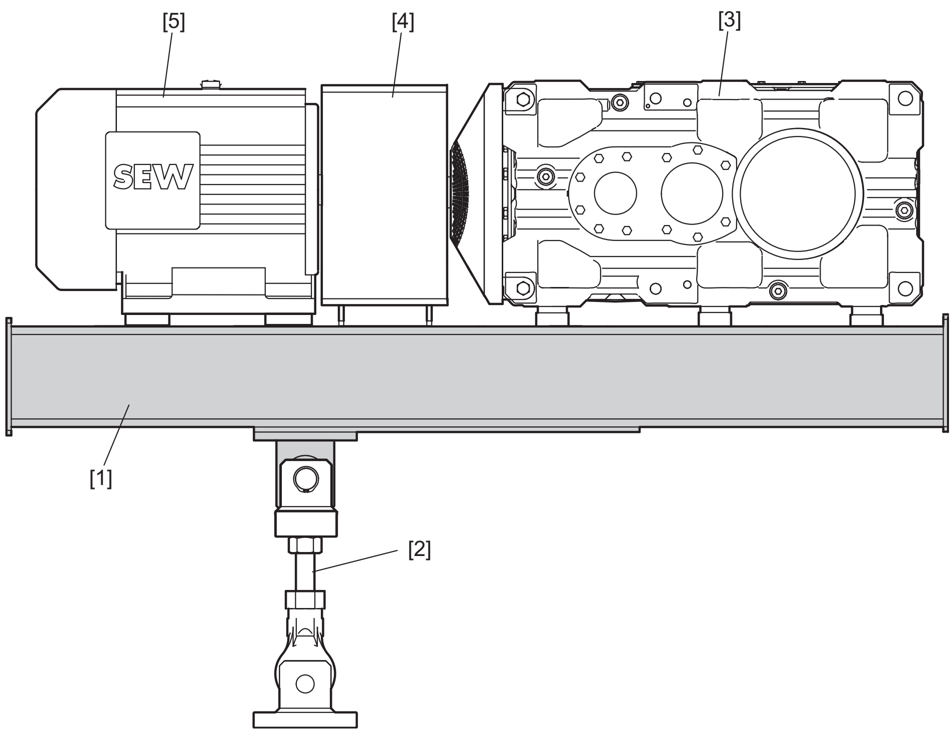
The steel frame [1] is supported by a torque arm [2].

INFORMATION

Observe

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

Example: Swing base with coupling



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

5.6.2 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.

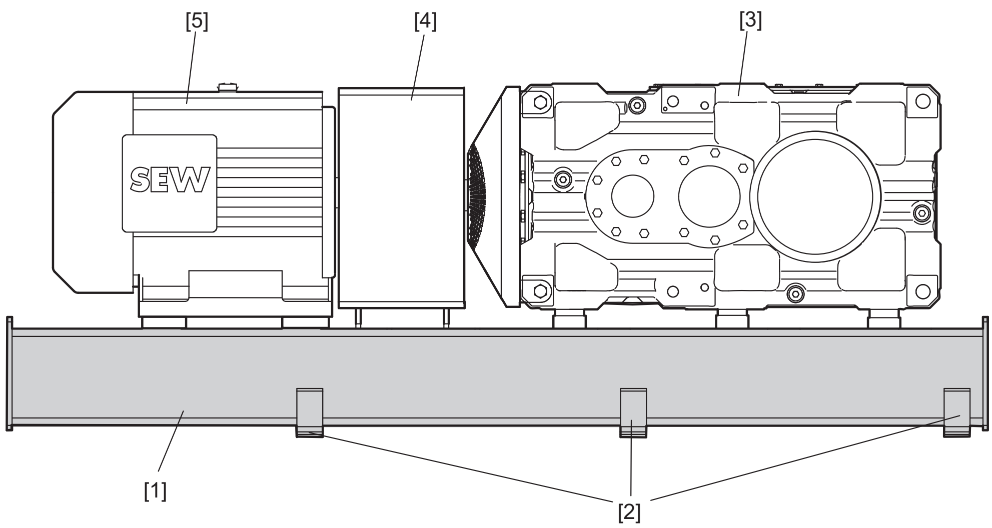
INFORMATION

Observe

- that 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).

Example: Base frame with coupling

The following figure shows an example of a base frame with 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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5.7 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]" (→ 🗎 337).

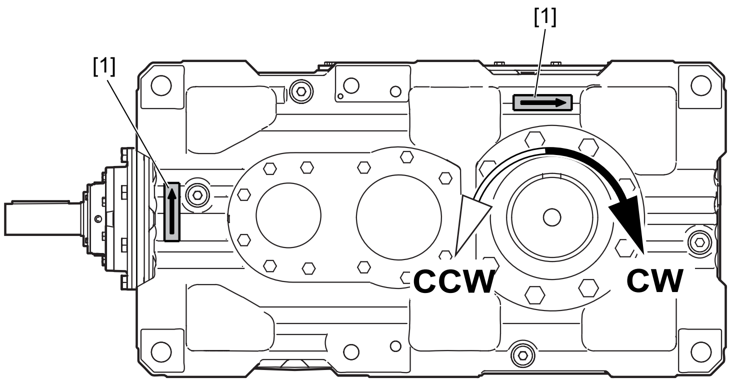
5.7.1 Use

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.

5.7.2 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.

5.7.3 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.

5.7.4 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

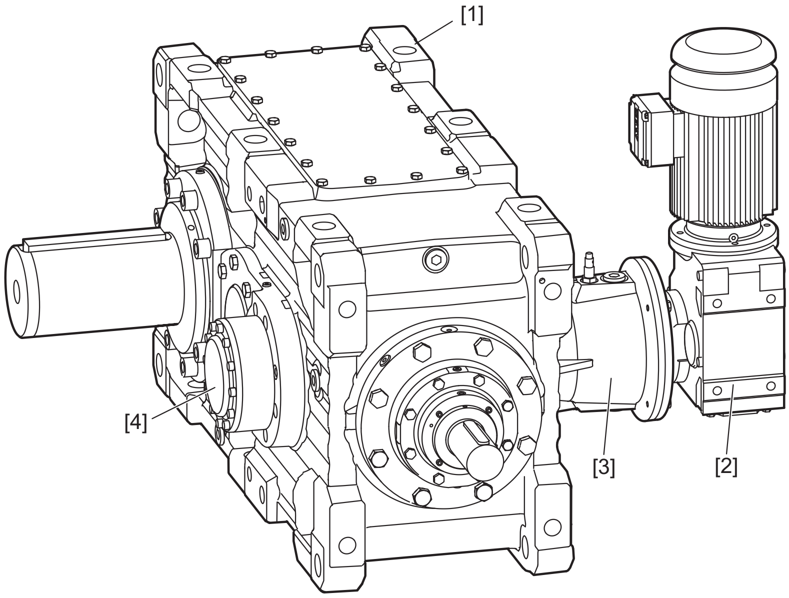
For information on torque limiting backstops, for example for dual drives, contact SEW-EURODRIVE.

5.8 Auxiliary drives

SEW-EURODRIVE gear units can also be delivered with an auxiliary drive (see separate publication "Bucket Elevator Drives" catalog). This is the standard configuration for 3-stage bevel-helical gear units in the gear ratio range from 28:1 to 80:1, and is mainly used for bucket conveyors. Other configurations are available on request.

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

The following figure illustrates an example of bucket elevator drive.



8743621259

Unlike the basic design of the X gear unit series, bucket elevator drives come equipped with the following components as standard:

[1] Bevel-helical gear units X.K..

[2] Auxiliary drive

[3] Auxiliary drive adapter with overrunning clutch and incremental encoder for speed monitoring

[4] Backstop

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6 Condition monitoring

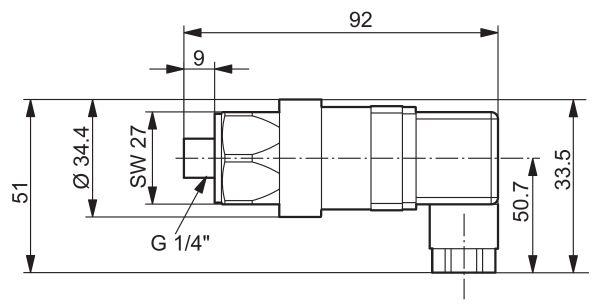
6.1 Pressure switch /PS

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.

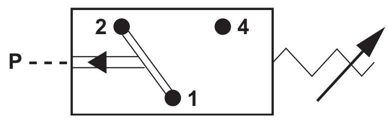
Customers are responsible for the electrical connection and the evaluation of the signal.

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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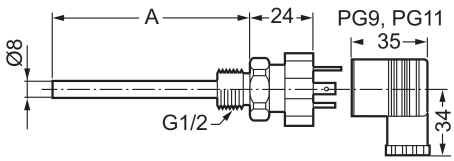
6.2 Temperature sensor /PT100

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.

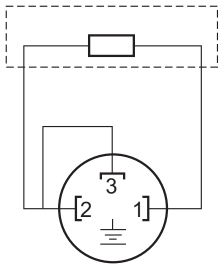
6.2.1 Dimensions



18014398868636427

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

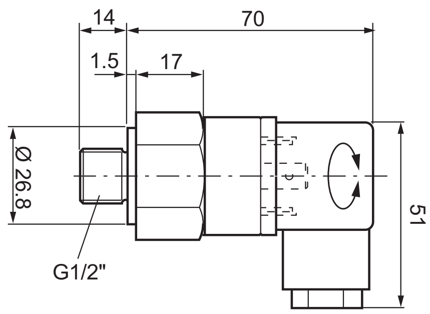
- for a pre-alarm

  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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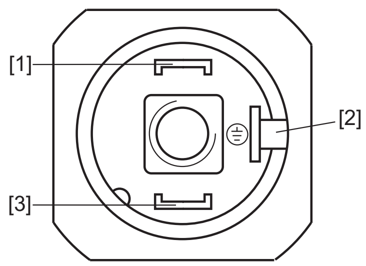
6.3.2 Electrical connection

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.



366532491

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

6.3.3 Technical data

- Trip temperature: 70 °C, 80 °C, 90 °C, 100 °C ± 5 °C
- Contact capacity: 10 A – AC 240 V

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- 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 into 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)

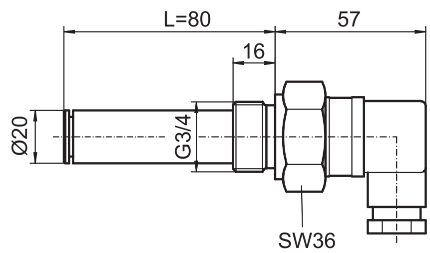
To guarantee a long service life and functioning under all conditions, it is recommended to use a relay in the power circuit instead of a direct connection through the temperature switch.

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.

INFORMATION

With sizes X100 – 210, the temperature switch is only possible in combination with the universal housing. For further information, refer to the vertical and upright gear unit catalog.

6.4.1 Dimensions



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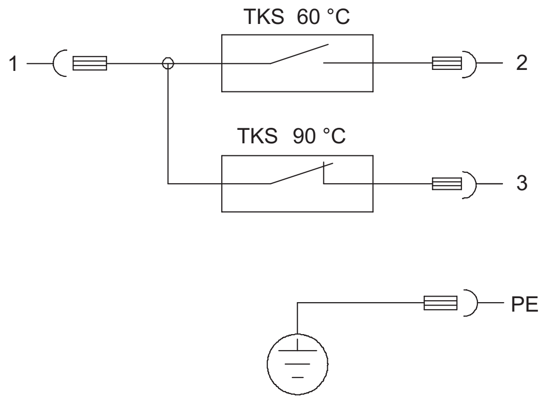
6.4.2 Electrical connection

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.



27021598658101131

[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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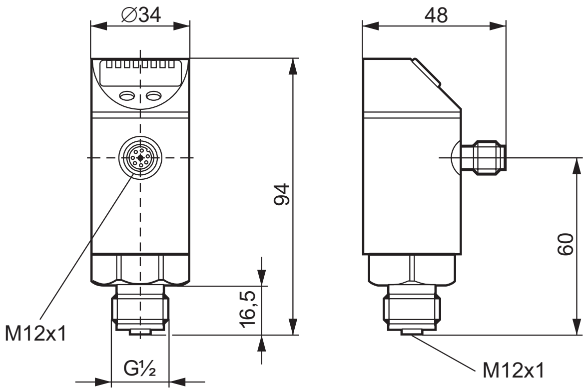
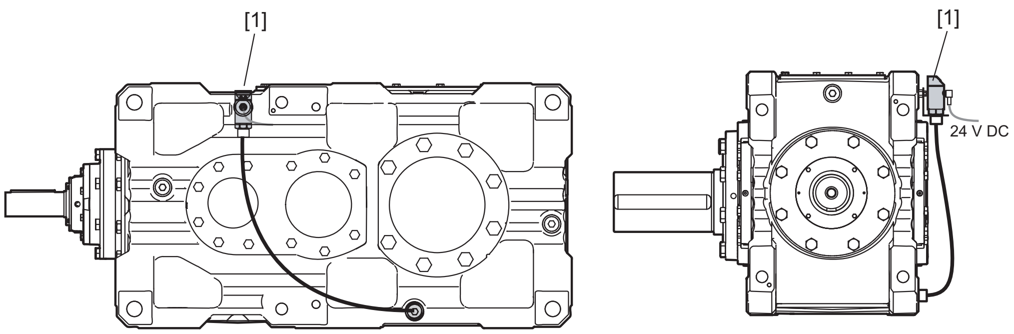
6.5.1 Dimensions



8977554699

6.5.2 Mounting examples



8977557387

[1] DUO10A diagnostic unit

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6.6 Vibration SmartCheck /DUV40A

Vibration SmartCheck vibration monitoring is used to detect damage of gear units and gearmotors early (e.g. bearing damage or imbalances). For this, 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 value 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 software SmartWeb. 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 software SmartWeb, 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 is found the "Vibration SmartCheck" operating instructions, part no. 23085312.

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 closing 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	Glass fiber 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	
oscillation	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

Signal processor	
Frequency resolution	1600, 3200, 6400, or 12800 lines Line width min. 0.0039 Hz at 50 Hz (depending on 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 (only envelope)	750 Hz, 1 kHz, 2 kHz (other filters upon 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 (learning mode, alarm reset, restart, factory settings)
Display elements	1 LED to display status and alarm 1 LED to acknowledge the pushbuttons 2 LEDs to display communication
Communication	Ethernet 100 Mb/s RS485 (currently not yet 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
Cable	Voltage supply cable 8-pin for SmartCheck 5 m; M12(B) <-> open end	19179596
Cable	Ethernet cable for SmartCheck 5 m; M12 <-> RJ45	19179618
Cable	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

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

7.3 Dimensioning the machine shaft for hollow shaft gear units

The material of the machine shaft as well as the keyed connection (of X..A design) should be dimensioned by the user according to the loads that will occur. The shaft material should have a yield point of at least 320 N/mm².

7.3.1 Hollow shaft with key

The key length should have at least the minimum length shown in the dimension sheets. 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 be designed with a contact shoulder. Contact SEW-EURODRIVE in the case of reversing directions of the load.

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INFORMATION

For detailed information on machine shaft design, refer to the dimension sheets in chapter "Hollow shaft with key X...A" (→ 🗎 308).

7.4 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

For detailed information on the design of the machine shaft, refer to the dimension sheets in chapter "Flange coupling with cylindrical interference fit" (→ 🗎 336).

7.5 X2K.. with backstop for hollow shaft gear units

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

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

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8 Important notes

8.1 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**.

8.1.1 General information

Scope of delivery

= Standard parts supplied by SEW-EURODRIVE.

= Standard parts not supplied by SEW-EURODRIVE.

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" (→ 🗎 42)) as can occur with drives in booms, information and dimension sheets are available from SEW-EURODRIVE.

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.

Options

Chapter "Dimension sheets: options" (→ 🗎 298) 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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8.1.2 Tolerances

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)

Hollow shafts

Diameter tolerance:

Ø → ISO H7 for hollow shafts for shrink disk

Ø → ISO H8 for hollow shafts with keyway

Mounting flange

Centering shoulder tolerance: ISO f7

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.F110..,n_1 = 1000 min^{-1}															8.50 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	M1 20 °C					M1 40 °C					
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]

Key:

[1] Nominal gear unit ratio
[2] Exact gear unit ratio
[3] Output speed (LSS)
[4] Nominal gear unit torque
[5] Nominal gear unit power

M1 mounting pos.
Splash lubrication

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

M1 mounting pos.
Splash lubrication

Thermal rating at 40 °C ambient temperature:
[11] without additional cooling
[12] With standard fan[2)]
[13] With water cooling cover
[14] With water cooling cartridge
[15] With water cooling cartridge / with standard fan[2)]
[16] Gear unit type / Main dimension sheet: Horizontal housing and universal housing

Footnote in selection tables:

1) For information on the lubrication type, please contact SEW-EURODRIVE
*) Contact SEW-EURODRIVE
– = No catalog version

Footnote in key:

2) If a fan is installed in the motor adapter or if the fan guard 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 oil bath lubrication and certain mounting positions. Observe the notes in chapter "Fan /FAN" (→ 91).

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9.2 XF.. Helical gear unit

X.F100..,n_1= 1000 1/min															6.80 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	7.09	141	5.60	85	72	105	-	-	-	52	76	-	-	-	X2F. /HU 264
8	7.94	126	5.75	78	75	110	-	-	-	54	80	-	-	-	
9	8.52	117	5.90	74	68	98	-	-	-	49	72	-	-	-	
10	9.53	105	6.10	69	71	100	-	-	-	51	75	-	-	-	
11.2	11.03	91	6.40	62	63	92	-	-	-	46	67	-	-	-	
12.5	12.34	81	6.60	57	66	95	-	-	-	48	70	-	-	-	
14	13.93	72	6.80	52	53	76	-	-	-	39	56	-	-	-	
16	15.59	64	6.80	47	57	81	-	-	-	41	60	-	-	-	
18	17.21	58	6.80	42	59	84	-	-	-	43	62	-	-	-	
20	19.26	52	6.80	38	61	87	-	-	-	44	64	-	-	-	
22.4	22.60	44	6.50	31	42	52	-	-	-	31	38	-	-	-	X3F. /HH 244 /HU 270
25	25.29	40	6.80	29	44	55	-	-	-	33	41	-	-	-	
28	27.94	36	6.80	26	38	47	-	-	-	28	35	-	-	-	
31.5	31.27	32	6.80	24	40	50	-	-	-	30	37	-	-	-	
35.5	34.95	29	6.80	21	34	42	-	-	-	25	31	-	-	-	
40	39.11	26	6.80	19	36	44	-	-	-	26	33	-	-	-	
45	42.31	24	6.80	17	33	40	-	-	-	24	30	-	-	-	
50	47.35	21	6.80	16	34	42	-	-	-	25	31	-	-	-	
56	52.91	19	6.80	14	30	37	-	-	-	22	28	-	-	-	
63	59.22	17	6.80	12	31	38	-	-	-	23	29	-	-	-	
71	68.53	15	6.80	11	29	36	-	-	-	22	27	-	-	-	
80	76.69	13	6.80	10	30	36	-	-	-	22	27	-	-	-	
90	85.71	12	6.80	9	26	32	-	-	-	20	24	-	-	-	
100	95.92	10	6.80	8	27	33	-	-	-	20	25	-	-	-	
X.F100..,n_1= 1200 1/min															6.80 kNm
7.1	7.09	169	5.60	100	73	115	-	-	-	52	85	-	-	-	X2F. /HU 264
8	7.94	151	5.75	93	77	125	-	-	-	54	89	-	-	-	
9	8.52	141	5.90	89	69	110	-	-	-	49	80	-	-	-	
10	9.53	126	6.10	82	72	115	-	-	-	52	84	-	-	-	
11.2	11.03	109	6.40	75	65	105	-	-	-	47	76	-	-	-	
12.5	12.34	97	6.60	69	68	105	-	-	-	49	79	-	-	-	
14	13.93	86	6.80	63	55	86	-	-	-	40	63	-	-	-	
16	15.59	77	6.80	56	59	92	-	-	-	42	68	-	-	-	
18	17.21	70	6.80	51	61	95	-	-	-	44	70	-	-	-	
20	19.26	62	6.80	45	63	98	-	-	-	45	72	-	-	-	
22.4	22.60	53	6.50	37	44	59	-	-	-	32	44	-	-	-	X3F. /HH 244 /HU 270
25	25.29	47	6.80	35	46	63	-	-	-	34	46	-	-	-	
28	27.94	43	6.80	32	40	54	-	-	-	29	40	-	-	-	
31.5	31.27	38	6.80	28	42	57	-	-	-	31	42	-	-	-	
35.5	34.95	34	6.80	25	36	49	-	-	-	26	36	-	-	-	
40	39.11	31	6.80	23	37	51	-	-	-	27	37	-	-	-	
45	42.31	28	6.80	21	34	46	-	-	-	25	34	-	-	-	
50	47.35	25	6.80	19	36	48	-	-	-	26	36	-	-	-	
56	52.91	23	6.80	17	31	43	-	-	-	23	32	-	-	-	
63	59.22	20	6.80	15	33	44	-	-	-	24	33	-	-	-	
71	68.53	18	6.80	13	30	41	-	-	-	22	31	-	-	-	
80	76.69	16	6.80	12	31	42	-	-	-	23	31	-	-	-	
90	85.71	14	6.80	10	28	37	-	-	-	20	28	-	-	-	
100	95.92	13	6.80	9	28	38	-	-	-	21	29	-	-	-	

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X.F100.., n_1 = 1500 1/min															6.80 kNm
					P_{TH} kW]										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.09**	212	5.60	125	73	135	-	-	-	47	96	-	-	-	**X2F.** /HU 264
8	**7.94**	189	5.75	115	77	140	-	-	-	51	100	-	-	-	
9	**8.52**	176	5.90	110	70	125	-	-	-	47	91	-	-	-	
10	**9.53**	157	6.10	105	73	130	-	-	-	51	96	-	-	-	
11.2	**11.03**	136	6.40	93	67	120	-	-	-	47	86	-	-	-	
12.5	**12.34**	122	6.60	86	69	125	-	-	-	49	90	-	-	-	
14	**13.93**	108	6.80	79	56	99	-	-	-	40	73	-	-	-	
16	**15.59**	96	6.80	70	60	105	-	-	-	43	78	-	-	-	
18	**17.21**	87	6.80	64	63	110	-	-	-	45	80	-	-	-	
20	**19.26**	78	6.80	57	65	115	-	-	-	46	83	-	-	-	
22.4	**22.60**	66	6.50	47	45	70	-	-	-	33	51	-	-	-	**X3F.** /HH 244 /HU 270
25	**25.29**	59	6.80	44	48	74	-	-	-	35	54	-	-	-	
28	**27.94**	54	6.80	40	42	64	-	-	-	30	47	-	-	-	
31.5	**31.27**	48	6.80	35	44	67	-	-	-	32	49	-	-	-	
35.5	**34.95**	43	6.80	32	37	57	-	-	-	27	42	-	-	-	
40	**39.11**	38	6.80	28	39	60	-	-	-	28	44	-	-	-	
45	**42.31**	35	6.80	26	36	55	-	-	-	26	40	-	-	-	
50	**47.35**	32	6.80	23	37	57	-	-	-	27	42	-	-	-	
56	**52.91**	28	6.80	21	33	50	-	-	-	24	37	-	-	-	
63	**59.22**	25	6.80	19	34	52	-	-	-	25	38	-	-	-	
71	**68.53**	22	6.80	16	32	49	-	-	-	23	36	-	-	-	
80	**76.69**	20	6.80	14	32	49	-	-	-	24	36	-	-	-	
90	**85.71**	18	6.80	13	29	44	-	-	-	21	33	-	-	-	
100	**95.92**	16	6.80	12	30	45	-	-	-	22	34	-	-	-	
X.F100.., n_1 = 1800 1/min															**6.80 kNm**
7.1	**7.09**	254	5.30	145	70	150	-	-	-	39	105	-	-	-	**X2F.** /HU 264
8	**7.94**	227	5.40	130	75	155	-	-	-	44	110	-	-	-	
9	**8.52**	211	5.60	125	69	140	-	-	-	42	100	-	-	-	
10	**9.53**	189	5.80	120	72	145	-	-	-	46	105	-	-	-	
11.2	**11.03**	163	6.05	105	67	135	-	-	-	44	96	-	-	-	
12.5	**12.34**	146	6.30	99	69	140	-	-	-	47	100	-	-	-	
14	**13.93**	129	6.50	90	57	110	-	-	-	38	81	-	-	-	
16	**15.59**	115	6.80	84	61	120	-	-	-	43	86	-	-	-	
18	**17.21**	105	6.80	76	63	125	-	-	-	45	90	-	-	-	
20	**19.26**	93	6.80	68	66	125	-	-	-	46	93	-	-	-	
22.4	**22.60**	80	6.15	53	46	79	-	-	-	33	58	-	-	-	**X3F.** /HH 244 /HU 270
25	**25.29**	71	6.80	53	49	84	-	-	-	35	61	-	-	-	
28	**27.94**	64	6.80	48	43	73	-	-	-	31	53	-	-	-	
31.5	**31.27**	58	6.80	43	45	76	-	-	-	32	56	-	-	-	
35.5	**34.95**	52	6.80	38	38	65	-	-	-	27	47	-	-	-	
40	**39.11**	46	6.80	34	40	68	-	-	-	28	49	-	-	-	
45	**42.31**	43	6.80	31	37	62	-	-	-	27	46	-	-	-	
50	**47.35**	38	6.80	28	38	65	-	-	-	28	48	-	-	-	
56	**52.91**	34	6.80	25	34	57	-	-	-	25	42	-	-	-	
63	**59.22**	30	6.80	22	35	59	-	-	-	26	44	-	-	-	
71	**68.53**	26	6.80	19	33	55	-	-	-	24	41	-	-	-	
80	**76.69**	23	6.80	17	34	56	-	-	-	24	41	-	-	-	
90	**85.71**	21	6.80	16	30	50	-	-	-	22	37	-	-	-	
100	**95.92**	19	6.80	14	31	52	-	-	-	23	38	-	-	-	

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X.F110..,n_1= 1000 1/min															8.50 kNm
					P_{TH}kW										
					M1				20 °C	M1				40 °C	
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	**8.16**	123	8.10	105	77	115	-	-	-	56	82	-	-	-	**X2F.** /HU 264
9	**9.14**	109	8.25	97	76	110	-	-	-	55	81	-	-	-	
10	**9.80**	102	8.40	92	73	105	-	-	-	53	77	-	-	-	
11.2	**10.98**	91	8.50	83	76	110	-	-	-	55	80	-	-	-	
12.5	**12.69**	79	8.50	72	68	97	-	-	-	49	72	-	-	-	
14	**14.20**	70	8.50	64	70	100	-	-	-	51	74	-	-	-	
16	**16.03**	62	8.50	57	60	87	-	-	-	44	64	-	-	-	
18	**17.94**	56	8.50	51	60	86	-	-	-	44	63	-	-	-	
20	**19.80**	51	8.50	46	62	89	-	-	-	45	66	-	-	-	
22.4	**22.17**	45	8.50	41	64	92	-	-	-	47	68	-	-	-	
25	**26.01**	38	7.50	31	45	56	-	-	-	33	41	-	-	-	**X3F.** /HH 244 /HU 270
28	**29.12**	34	7.80	29	46	57	-	-	-	34	42	-	-	-	
31.5	**32.15**	31	8.20	28	42	51	-	-	-	31	38	-	-	-	
35.5	**36.00**	28	8.50	26	42	52	-	-	-	31	39	-	-	-	
40	**40.21**	25	8.50	23	37	46	-	-	-	27	34	-	-	-	
45	**45.02**	22	8.50	21	38	47	-	-	-	28	34	-	-	-	
50	**48.68**	21	8.50	19	34	42	-	-	-	26	32	-	-	-	
56	**54.51**	18	8.50	17	36	44	-	-	-	27	33	-	-	-	
63	**60.89**	16	8.50	15	32	39	-	-	-	23	29	-	-	-	
71	**68.17**	15	8.50	14	33	40	-	-	-	24	30	-	-	-	
80	**78.85**	13	8.50	12	31	38	-	-	-	23	28	-	-	-	
90	**88.29**	11	8.50	10	32	39	-	-	-	24	29	-	-	-	
100	**98.62**	10	8.50	9	28	34	-	-	-	21	25	-	-	-	
112	**110.42**	9.1	8.50	8	28	34	-	-	-	21	26	-	-	-	
X.F110..,n_1= 1200 1/min															**8.50 kNm**
8	**8.16**	147	8.10	130	79	125	-	-	-	54	92	-	-	-	**X2F.** /HU 264
9	**9.14**	131	8.25	115	78	125	-	-	-	55	91	-	-	-	
10	**9.80**	122	8.40	110	74	120	-	-	-	53	86	-	-	-	
11.2	**10.98**	109	8.50	100	78	125	-	-	-	55	90	-	-	-	
12.5	**12.69**	95	8.50	86	70	110	-	-	-	50	80	-	-	-	
14	**14.20**	85	8.50	77	72	115	-	-	-	52	83	-	-	-	
16	**16.03**	75	8.50	68	63	98	-	-	-	45	72	-	-	-	
18	**17.94**	67	8.50	61	62	97	-	-	-	45	71	-	-	-	
20	**19.80**	61	8.50	55	64	100	-	-	-	46	74	-	-	-	
22.4	**22.17**	54	8.50	49	66	105	-	-	-	48	76	-	-	-	
25	**26.01**	46	7.50	38	47	64	-	-	-	34	47	-	-	-	**X3F.** /HH 244 /HU 270
28	**29.12**	41	7.80	35	48	65	-	-	-	35	48	-	-	-	
31.5	**32.15**	37	8.20	33	43	59	-	-	-	32	43	-	-	-	
35.5	**36.00**	33	8.50	31	44	60	-	-	-	32	44	-	-	-	
40	**40.21**	30	8.50	28	39	53	-	-	-	28	39	-	-	-	
45	**45.02**	27	8.50	25	39	53	-	-	-	29	39	-	-	-	
50	**48.68**	25	8.50	23	36	49	-	-	-	27	36	-	-	-	
56	**54.51**	22	8.50	20	37	51	-	-	-	28	38	-	-	-	
63	**60.89**	20	8.50	18	33	45	-	-	-	24	33	-	-	-	
71	**68.17**	18	8.50	16	34	46	-	-	-	25	34	-	-	-	
80	**78.85**	15	8.50	14	32	43	-	-	-	24	32	-	-	-	
90	**88.29**	14	8.50	13	33	45	-	-	-	25	33	-	-	-	
100	**98.62**	12	8.50	11	29	39	-	-	-	21	29	-	-	-	
112	**110.42**	11	8.50	10	29	39	-	-	-	22	29	-	-	-	

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X.F110..,n_1= 1500 1/min															8.50 kNm
					P_{TH}kW										
					M1 20 °C					M1 40 °C					
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	**8.16**	184	8.10	160	79	145	-	-	-	48	105	-	-	-	X2F. /HU 264
9	**9.14**	164	8.25	145	78	145	-	-	-	50	105	-	-	-	
10	**9.80**	153	8.40	140	75	135	-	-	-	49	98	-	-	-	
11.2	**10.98**	137	8.50	125	79	140	-	-	-	53	100	-	-	-	
12.5	**12.69**	118	8.50	110	71	125	-	-	-	50	92	-	-	-	
14	**14.20**	106	8.50	96	74	130	-	-	-	52	95	-	-	-	
16	**16.03**	94	8.50	85	65	115	-	-	-	46	83	-	-	-	
18	**17.94**	84	8.50	76	64	110	-	-	-	45	82	-	-	-	
20	**19.80**	76	8.50	69	66	115	-	-	-	47	85	-	-	-	
22.4	**22.17**	68	8.50	62	68	120	-	-	-	49	88	-	-	-	
25	**26.01**	58	7.50	47	49	75	-	-	-	35	55	-	-	-	X3F. /HH 244 /HU 270
28	**29.12**	52	7.80	44	50	77	-	-	-	36	56	-	-	-	
31.5	**32.15**	47	8.20	42	45	69	-	-	-	33	51	-	-	-	
35.5	**36.00**	42	8.50	38	46	71	-	-	-	33	52	-	-	-	
40	**40.21**	37	8.50	34	40	62	-	-	-	29	46	-	-	-	
45	**45.02**	33	8.50	31	41	63	-	-	-	30	46	-	-	-	
50	**48.68**	31	8.50	28	38	57	-	-	-	28	42	-	-	-	
56	**54.51**	28	8.50	25	39	60	-	-	-	29	44	-	-	-	
63	**60.89**	25	8.50	23	35	53	-	-	-	25	39	-	-	-	
71	**68.17**	22	8.50	20	36	55	-	-	-	26	41	-	-	-	
80	**78.85**	19	8.50	18	34	51	-	-	-	25	38	-	-	-	
90	**88.29**	17	8.50	16	35	53	-	-	-	26	39	-	-	-	
100	**98.62**	15	8.50	14	31	46	-	-	-	22	34	-	-	-	
112	**110.42**	14	8.50	13	31	47	-	-	-	23	35	-	-	-	
X.F110..,n_1= 1800 1/min															**8.50 kNm**
8	**8.16**	221	7.70	180	73	160	-	-	-	*)	115	-	-	-	X2F. /HU 264
9	**9.14**	197	7.82	165	75	160	-	-	-	*)	115	-	-	-	
10	**9.80**	184	7.96	155	73	150	-	-	-	43	110	-	-	-	
11.2	**10.98**	164	8.07	140	78	160	-	-	-	47	115	-	-	-	
12.5	**12.69**	142	8.50	130	71	140	-	-	-	46	100	-	-	-	
14	**14.20**	127	8.50	115	74	145	-	-	-	49	105	-	-	-	
16	**16.03**	112	8.50	100	66	125	-	-	-	45	93	-	-	-	
18	**17.94**	100	8.50	91	64	125	-	-	-	45	91	-	-	-	
20	**19.80**	91	8.50	83	67	130	-	-	-	47	95	-	-	-	
22.4	**22.17**	81	8.50	74	69	135	-	-	-	49	98	-	-	-	
25	**26.01**	69	7.10	53	50	85	-	-	-	36	62	-	-	-	X3F. /HH 244 /HU 270
28	**29.12**	62	7.41	50	51	87	-	-	-	36	64	-	-	-	
31.5	**32.15**	56	7.70	47	46	79	-	-	-	33	58	-	-	-	
35.5	**36.00**	50	7.90	43	47	80	-	-	-	34	59	-	-	-	
40	**40.21**	45	8.05	39	41	70	-	-	-	30	51	-	-	-	
45	**45.02**	40	8.50	37	42	71	-	-	-	30	52	-	-	-	
50	**48.68**	37	8.50	34	39	65	-	-	-	28	48	-	-	-	
56	**54.51**	33	8.50	30	41	68	-	-	-	29	50	-	-	-	
63	**60.89**	30	8.50	27	36	60	-	-	-	26	44	-	-	-	
71	**68.17**	26	8.50	24	37	62	-	-	-	27	46	-	-	-	
80	**78.85**	23	8.50	21	35	58	-	-	-	26	43	-	-	-	
90	**88.29**	20	8.50	19	36	61	-	-	-	26	45	-	-	-	
100	**98.62**	18	8.50	17	32	53	-	-	-	23	39	-	-	-	
112	**110.42**	16	8.50	15	32	53	-	-	-	23	39	-	-	-	

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X.F120..,n_1= 1000 1/min															12.8 kNm
					P_{TH}kW										
					M1				20 °C	M1				40 °C	
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	11.3	190	100	150	-	-	-	65	105	-	-	-	**X2F.** /HU 264
7.1	**7.34**	136	11.4	165	105	155	-	-	-	71	110	-	-	-	
8	**8.04**	124	11.5	155	99	145	-	-	-	69	105	-	-	-	
9	**9.15**	109	11.6	135	98	145	-	-	-	69	105	-	-	-	
10	**10.20**	98	11.7	125	89	130	-	-	-	63	94	-	-	-	
11.2	**11.61**	86	11.8	110	92	135	-	-	-	65	98	-	-	-	
12.5	**12.83**	78	11.9	100	88	130	-	-	-	63	93	-	-	-	
14	**14.61**	68	12.2	90	91	135	-	-	-	66	97	-	-	-	
16	**16.28**	61	12.4	82	79	115	-	-	-	57	84	-	-	-	
18	**18.53**	54	12.8	74	81	120	-	-	-	59	86	-	-	-	
20	**20.26**	49	10.9	58	61	76	-	-	-	45	56	-	-	-	**X3F.** /HH 244 /HU 270
22.4	**23.06**	43	12.0	57	63	78	-	-	-	46	57	-	-	-	
25	**25.70**	39	12.8	54	57	71	-	-	-	42	52	-	-	-	
28	**29.26**	34	12.8	48	58	72	-	-	-	42	53	-	-	-	
31.5	**30.90**	32	12.8	45	51	63	-	-	-	37	46	-	-	-	
35.5	**35.18**	28	12.8	40	52	64	-	-	-	38	47	-	-	-	
40	**41.45**	24	12.8	34	51	63	-	-	-	38	46	-	-	-	
45	**47.18**	21	12.8	29	52	64	-	-	-	38	47	-	-	-	
50	**49.83**	20	12.8	28	45	55	-	-	-	33	41	-	-	-	
56	**56.73**	18	12.8	25	45	55	-	-	-	33	41	-	-	-	
63	**65.48**	15	12.8	21	43	53	-	-	-	32	39	-	-	-	
71	**74.54**	13	12.8	19	43	54	-	-	-	32	40	-	-	-	
80	**78.73**	13	12.8	18	38	47	-	-	-	28	35	-	-	-	
90	**89.63**	11	12.8	16	39	48	-	-	-	29	36	-	-	-	
100	**107.48**	9.3	12.8	13	34	-	-	-	-	25	-	-	-	-	**X4F.** /HU 276
112	**122.36**	8.2	12.8	11	35	-	-	-	-	26	-	-	-	-	
125	**129.23**	7.7	12.8	11	31	-	-	-	-	23	-	-	-	-	
140	**147.12**	6.8	12.8	10	32	-	-	-	-	24	-	-	-	-	
160	**154.68**	6.5	12.8	9	29	-	-	-	-	21	-	-	-	-	
180	**176.09**	5.7	12.8	8	29	-	-	-	-	22	-	-	-	-	
200	**205.30**	4.9	12.8	7	28	-	-	-	-	21	-	-	-	-	
224	**233.72**	4.3	12.8	6	28	-	-	-	-	21	-	-	-	-	
250	**246.85**	4.1	12.8	6	25	-	-	-	-	19	-	-	-	-	
280	**281.01**	3.6	12.8	5	26	-	-	-	-	19	-	-	-	-	
315	**295.46**	3.4	12.8	5	23	-	-	-	-	17	-	-	-	-	
355	**336.35**	3.0	12.8	4	24	-	-	-	-	18	-	-	-	-	
X.F120..,n_1= 1200 1/min															**12.8 kNm**
6.3	**6.44**	186	11.3	225	97	165	-	-	-	57	115	-	-	-	**X2F.** /HU 264
7.1	**7.34**	163	11.4	200	105	170	-	-	-	64	120	-	-	-	
8	**8.04**	149	11.5	185	100	165	-	-	-	64	115	-	-	-	
9	**9.15**	131	11.6	165	98	160	-	-	-	64	115	-	-	-	
10	**10.20**	118	11.7	150	90	145	-	-	-	60	105	-	-	-	
11.2	**11.61**	103	11.8	130	93	150	-	-	-	65	110	-	-	-	
12.5	**12.83**	94	11.9	120	90	145	-	-	-	64	105	-	-	-	
14	**14.61**	82	12.2	110	93	150	-	-	-	66	110	-	-	-	
16	**16.28**	74	12.4	98	81	130	-	-	-	58	94	-	-	-	
18	**18.53**	65	12.8	89	84	135	-	-	-	60	97	-	-	-	
20	**20.26**	59	10.9	70	63	87	-	-	-	46	63	-	-	-	**X3F.** /HH 244 /HU 270
22.4	**23.06**	52	12.0	68	65	89	-	-	-	47	65	-	-	-	
25	**25.70**	47	12.8	65	59	81	-	-	-	43	59	-	-	-	
28	**29.26**	41	12.8	57	60	82	-	-	-	44	60	-	-	-	
31.5	**30.90**	39	12.8	54	53	72	-	-	-	38	53	-	-	-	
35.5	**35.18**	34	12.8	47	53	73	-	-	-	39	54	-	-	-	
40	**41.45**	29	12.8	40	53	72	-	-	-	39	53	-	-	-	
45	**47.18**	25	12.8	35	54	73	-	-	-	39	54	-	-	-	
50	**49.83**	24	12.8	33	46	63	-	-	-	34	47	-	-	-	
56	**56.73**	21	12.8	29	47	64	-	-	-	34	47	-	-	-	
63	**65.48**	18	12.8	25	45	61	-	-	-	33	45	-	-	-	
71	**74.54**	16	12.8	22	45	61	-	-	-	33	46	-	-	-	
80	**78.73**	15	12.8	21	40	54	-	-	-	29	40	-	-	-	
90	**89.63**	13	12.8	19	41	55	-	-	-	30	41	-	-	-	
100	**107.48**	11	12.8	16	36	-	-	-	-	27	-	-	-	-	**X4F.** /HU 276
112	**122.36**	9.8	12.8	14	37	-	-	-	-	27	-	-	-	-	
125	**129.23**	9.3	12.8	13	33	-	-	-	-	24	-	-	-	-	
140	**147.12**	8.2	12.8	11	33	-	-	-	-	25	-	-	-	-	
160	**154.68**	7.8	12.8	11	30	-	-	-	-	22	-	-	-	-	
180	**176.09**	6.8	12.8	10	31	-	-	-	-	23	-	-	-	-	
200	**205.30**	5.8	12.8	8	29	-	-	-	-	22	-	-	-	-	
224	**233.72**	5.1	12.8	7	30	-	-	-	-	22	-	-	-	-	
250	**246.85**	4.9	12.8	7	26	-	-	-	-	20	-	-	-	-	
280	**281.01**	4.3	12.8	6	27	-	-	-	-	20	-	-	-	-	
315	**295.46**	4.1	12.8	6	24	-	-	-	-	18	-	-	-	-	
355	**336.35**	3.6	12.8	5	25	-	-	-	-	18	-	-	-	-	

22758666/EN – 03/2017

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
		min^{-1}	kNm	kW											
X.F120..,n_1= 1500 1/min															**12.8 kNm**
6.3	**6.44**	233	11.3	280	84	185	-	-	-	*)	125	-	-	-	**X2F.** /HU 264
7.1	**7.34**	204	11.4	250	94	195	-	-	-	*)	135	-	-	-	
8	**8.04**	187	11.5	230	94	185	-	-	-	*)	130	-	-	-	
9	**9.15**	164	11.6	205	95	185	-	-	-	*)	130	-	-	-	
10	**10.20**	147	11.7	185	88	165	-	-	-	50	120	-	-	-	
11.2	**11.61**	129	11.8	165	92	170	-	-	-	56	120	-	-	-	
12.5	**12.83**	117	11.9	150	91	165	-	-	-	60	120	-	-	-	
14	**14.61**	103	12.2	135	94	170	-	-	-	65	125	-	-	-	
16	**16.28**	92	12.4	125	82	150	-	-	-	57	105	-	-	-	
18	**18.53**	81	12.8	110	85	155	-	-	-	60	110	-	-	-	
20	**20.26**	74	10.9	88	65	100	-	-	-	46	74	-	-	-	**X3F.** /HH 244 /HU 270
22.4	**23.06**	65	12.0	85	67	105	-	-	-	48	76	-	-	-	
25	**25.70**	58	12.8	81	61	94	-	-	-	44	69	-	-	-	
28	**29.26**	51	12.8	71	62	96	-	-	-	44	70	-	-	-	
31.5	**30.90**	49	12.8	67	55	84	-	-	-	39	62	-	-	-	
35.5	**35.18**	43	12.8	59	55	85	-	-	-	40	62	-	-	-	
40	**41.45**	36	12.8	50	55	85	-	-	-	40	62	-	-	-	
45	**47.18**	32	12.8	44	56	86	-	-	-	41	63	-	-	-	
50	**49.83**	30	12.8	42	48	74	-	-	-	35	55	-	-	-	
56	**56.73**	26	12.8	37	49	75	-	-	-	35	55	-	-	-	
63	**65.48**	23	12.8	32	47	72	-	-	-	34	53	-	-	-	
71	**74.54**	20	12.8	28	47	72	-	-	-	35	53	-	-	-	
80	**78.73**	19	12.8	26	42	63	-	-	-	30	47	-	-	-	
90	**89.63**	17	12.8	23	43	65	-	-	-	31	48	-	-	-	
100	**107.48**	14	12.8	20	38	-	-	-	-	28	-	-	-	-	**X4F.** /HU 276
112	**122.36**	12	12.8	17	39	-	-	-	-	29	-	-	-	-	
125	**129.23**	12	12.8	16	35	-	-	-	-	26	-	-	-	-	
140	**147.12**	10	12.8	14	35	-	-	-	-	26	-	-	-	-	
160	**154.68**	9.7	12.8	14	32	-	-	-	-	24	-	-	-	-	
180	**176.09**	8.5	12.8	12	32	-	-	-	-	24	-	-	-	-	
200	**205.30**	7.3	12.8	10	31	-	-	-	-	23	-	-	-	-	
224	**233.72**	6.4	12.8	9	32	-	-	-	-	23	-	-	-	-	
250	**246.85**	6.1	12.8	9	28	-	-	-	-	21	-	-	-	-	
280	**281.01**	5.3	12.8	8	29	-	-	-	-	21	-	-	-	-	
315	**295.46**	5.1	12.8	7	26	-	-	-	-	19	-	-	-	-	
355	**336.35**	4.5	12.8	6	26	-	-	-	-	20	-	-	-	-	
X.F120..,n_1= 1800 1/min															**12.8 kNm**
6.3	**6.44**	280	10.7	320	*)	200	-	-	-	*)	130	-	-	-	**X2F.** /HU 264
7.1	**7.34**	245	10.8	285	75	210	-	-	-	*)	145	-	-	-	
8	**8.04**	224	10.9	260	81	205	-	-	-	*)	140	-	-	-	
9	**9.15**	197	11.0	230	80	200	-	-	-	*)	140	-	-	-	
10	**10.20**	176	11.1	210	78	180	-	-	-	*)	130	-	-	-	
11.2	**11.61**	155	11.2	185	86	190	-	-	-	*)	135	-	-	-	
12.5	**12.83**	140	11.3	170	89	185	-	-	-	51	130	-	-	-	
14	**14.61**	123	11.6	155	93	190	-	-	-	57	135	-	-	-	
16	**16.28**	111	11.7	140	82	165	-	-	-	51	120	-	-	-	
18	**18.53**	97	12.0	125	85	170	-	-	-	56	120	-	-	-	
20	**20.26**	89	10.9	105	66	115	-	-	-	45	83	-	-	-	**X3F.** /HH 244 /HU 270
22.4	**23.06**	78	11.4	97	68	120	-	-	-	47	85	-	-	-	
25	**25.70**	70	12.8	97	62	105	-	-	-	42	77	-	-	-	
28	**29.26**	62	12.8	86	63	110	-	-	-	44	78	-	-	-	
31.5	**30.90**	58	12.8	81	55	96	-	-	-	39	69	-	-	-	
35.5	**35.18**	51	12.8	71	56	97	-	-	-	40	70	-	-	-	
40	**41.45**	43	12.8	60	57	96	-	-	-	41	70	-	-	-	
45	**47.18**	38	12.8	53	57	97	-	-	-	41	71	-	-	-	
50	**49.83**	36	12.8	50	50	84	-	-	-	36	62	-	-	-	
56	**56.73**	32	12.8	44	50	85	-	-	-	36	62	-	-	-	
63	**65.48**	27	12.8	38	49	82	-	-	-	35	60	-	-	-	
71	**74.54**	24	12.8	34	49	82	-	-	-	35	61	-	-	-	
80	**78.73**	23	12.8	32	43	72	-	-	-	31	53	-	-	-	
90	**89.63**	20	12.8	28	44	74	-	-	-	32	55	-	-	-	
100	**107.48**	17	12.8	24	39	-	-	-	-	29	-	-	-	-	**X4F.** /HU 276
112	**122.36**	15	12.8	21	40	-	-	-	-	29	-	-	-	-	
125	**129.23**	14	12.8	20	36	-	-	-	-	26	-	-	-	-	
140	**147.12**	12	12.8	17	37	-	-	-	-	27	-	-	-	-	
160	**154.68**	12	12.8	16	33	-	-	-	-	24	-	-	-	-	
180	**176.09**	10	12.8	14	34	-	-	-	-	25	-	-	-	-	
200	**205.30**	8.8	12.8	12	32	-	-	-	-	24	-	-	-	-	
224	**233.72**	7.7	12.8	11	33	-	-	-	-	24	-	-	-	-	
250	**246.85**	7.3	12.8	10	29	-	-	-	-	22	-	-	-	-	
280	**281.01**	6.4	12.8	9	30	-	-	-	-	22	-	-	-	-	
315	**295.46**	6.1	12.8	9	27	-	-	-	-	20	-	-	-	-	
355	**336.35**	5.4	12.8	8	28	-	-	-	-	20	-	-	-	-	

X.F130..,n_1= 1000 1/min															16 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.06**	124	14.3	190	105	160	-	-	-	72	115	-	-	-	**X2F.** /HU 264
9	**9.15**	109	14.4	170	110	165	-	-	-	78	120	-	-	-	
10	**10.05**	100	14.5	155	105	155	-	-	-	76	115	-	-	-	
11.2	**11.41**	88	14.6	135	100	145	-	-	-	71	105	-	-	-	
12.5	**12.75**	78	14.7	125	95	140	-	-	-	68	100	-	-	-	
14	**14.48**	69	14.8	110	94	135	-	-	-	67	100	-	-	-	
16	**16.04**	62	14.9	100	94	135	-	-	-	68	100	-	-	-	
18	**18.22**	55	15.2	90	93	135	-	-	-	67	99	-	-	-	
20	**20.35**	49	15.6	82	84	120	-	-	-	61	90	-	-	-	
22.4	**23.11**	43	16.0	74	87	125	-	-	-	63	92	-	-	-	
25	**25.32**	39	13.6	58	65	81	-	-	-	48	60	-	-	-	**X3F.** /HH 244 /HU 270
28	**28.76**	35	15.5	59	65	81	-	-	-	48	60	-	-	-	
31.5	**32.12**	31	16.0	54	61	75	-	-	-	45	56	-	-	-	
35.5	**36.48**	27	16.0	48	62	77	-	-	-	45	56	-	-	-	
40	**38.62**	26	16.0	45	54	67	-	-	-	40	50	-	-	-	
45	**43.87**	23	16.0	40	55	68	-	-	-	41	50	-	-	-	
50	**51.81**	19	16.0	34	54	67	-	-	-	40	50	-	-	-	
56	**58.84**	17	16.0	30	55	68	-	-	-	41	50	-	-	-	
63	**62.29**	16	16.0	28	49	60	-	-	-	36	44	-	-	-	
71	**70.75**	14	16.0	25	48	59	-	-	-	35	44	-	-	-	
80	**81.85**	12	16.0	21	46	57	-	-	-	34	42	-	-	-	
90	**92.96**	11	16.0	19	45	56	-	-	-	33	41	-	-	-	
100	**98.41**	10	16.0	18	42	51	-	-	-	31	38	-	-	-	
112	**111.77**	8.9	16.0	16	41	50	-	-	-	30	37	-	-	-	
125	**134.35**	7.4	16.0	13	37	-	-	-	-	28	-	-	-	-	**X4F.** /HU 276
140	**152.59**	6.6	16.0	12	36	-	-	-	-	27	-	-	-	-	
160	**161.54**	6.2	16.0	11	33	-	-	-	-	25	-	-	-	-	
180	**183.47**	5.5	16.0	10	33	-	-	-	-	25	-	-	-	-	
200	**193.35**	5.2	16.0	9	31	-	-	-	-	23	-	-	-	-	
224	**219.59**	4.6	16.0	8	31	-	-	-	-	23	-	-	-	-	
250	**256.63**	3.9	16.0	7	30	-	-	-	-	22	-	-	-	-	
280	**291.46**	3.4	16.0	6	30	-	-	-	-	22	-	-	-	-	
315	**308.56**	3.2	16.0	6	27	-	-	-	-	20	-	-	-	-	
355	**350.43**	2.9	16.0	5	27	-	-	-	-	20	-	-	-	-	
400	**369.32**	2.7	16.0	5	25	-	-	-	-	18	-	-	-	-	
450	**419.44**	2.4	16.0	4	25	-	-	-	-	18	-	-	-	-	
X.F130..,n_1= 1200 1/min															**16 kNm**
8	**8.06**	149	14.3	230	105	175	-	-	-	64	125	-	-	-	**X2F.** /HU 264
9	**9.15**	131	14.4	205	110	185	-	-	-	71	130	-	-	-	
10	**10.05**	119	14.5	185	110	175	-	-	-	71	125	-	-	-	
11.2	**11.41**	105	14.6	165	100	165	-	-	-	67	120	-	-	-	
12.5	**12.75**	94	14.7	150	96	155	-	-	-	66	110	-	-	-	
14	**14.48**	83	14.8	130	95	155	-	-	-	67	110	-	-	-	
16	**16.04**	75	14.9	120	96	155	-	-	-	69	110	-	-	-	
18	**18.22**	66	15.2	105	95	150	-	-	-	68	110	-	-	-	
20	**20.35**	59	15.6	99	87	135	-	-	-	62	100	-	-	-	
22.4	**23.11**	52	16.0	89	90	140	-	-	-	64	105	-	-	-	
25	**25.32**	47	13.6	70	68	92	-	-	-	49	68	-	-	-	**X3F.** /HH 244 /HU 270
28	**28.76**	42	15.5	70	68	93	-	-	-	49	68	-	-	-	
31.5	**32.12**	37	16.0	65	63	86	-	-	-	46	63	-	-	-	
35.5	**36.48**	33	16.0	57	64	88	-	-	-	47	64	-	-	-	
40	**38.62**	31	16.0	54	56	77	-	-	-	41	57	-	-	-	
45	**43.87**	27	16.0	48	57	78	-	-	-	42	57	-	-	-	
50	**51.81**	23	16.0	40	57	77	-	-	-	42	57	-	-	-	
56	**58.84**	20	16.0	35	57	78	-	-	-	42	57	-	-	-	
63	**62.29**	19	16.0	33	51	69	-	-	-	37	51	-	-	-	
71	**70.75**	17	16.0	29	50	68	-	-	-	37	50	-	-	-	
80	**81.85**	15	16.0	25	48	65	-	-	-	35	48	-	-	-	
90	**92.96**	13	16.0	22	47	64	-	-	-	35	47	-	-	-	
100	**98.41**	12	16.0	21	43	59	-	-	-	32	44	-	-	-	
112	**111.77**	11	16.0	19	43	58	-	-	-	31	43	-	-	-	
125	**134.35**	8.9	16.0	16	39	-	-	-	-	29	-	-	-	-	**X4F.** /HU 276
140	**152.59**	7.9	16.0	14	38	-	-	-	-	28	-	-	-	-	
160	**161.54**	7.4	16.0	13	35	-	-	-	-	26	-	-	-	-	
180	**183.47**	6.5	16.0	11	35	-	-	-	-	26	-	-	-	-	
200	**193.35**	6.2	16.0	11	33	-	-	-	-	24	-	-	-	-	
224	**219.59**	5.5	16.0	10	33	-	-	-	-	24	-	-	-	-	
250	**256.63**	4.7	16.0	8	32	-	-	-	-	24	-	-	-	-	
280	**291.46**	4.1	16.0	7	31	-	-	-	-	23	-	-	-	-	
315	**308.56**	3.9	16.0	7	28	-	-	-	-	21	-	-	-	-	
355	**350.43**	3.4	16.0	6	28	-	-	-	-	21	-	-	-	-	
400	**369.32**	3.2	16.0	6	26	-	-	-	-	19	-	-	-	-	
450	**419.44**	2.9	16.0	5	26	-	-	-	-	19	-	-	-	-	

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X.F130..,n_1= 1500 1/min															16 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		Fan	H_2O	H_2O	Fan + H_2O		Fan	H_2O	H_2O	Fan + H_2O	
8	**8.06**	186	14.3	285	94	200	-	-	-	*)	140	-	-	-	**X2F.** /HU 264
9	**9.15**	164	14.4	255	105	210	-	-	-	*)	145	-	-	-	
10	**10.05**	149	14.5	230	105	200	-	-	-	60	140	-	-	-	
11.2	**11.41**	131	14.6	205	98	185	-	-	-	54	130	-	-	-	
12.5	**12.75**	118	14.7	185	96	180	-	-	-	57	125	-	-	-	
14	**14.48**	104	14.8	165	95	175	-	-	-	60	125	-	-	-	
16	**16.04**	94	14.9	150	98	175	-	-	-	67	125	-	-	-	
18	**18.22**	82	15.2	135	97	175	-	-	-	67	125	-	-	-	
20	**20.35**	74	15.6	125	89	160	-	-	-	62	115	-	-	-	
22.4	**23.11**	65	16.0	110	92	165	-	-	-	64	120	-	-	-	
25	**25.32**	59	13.6	88	70	110	-	-	-	50	79	-	-	-	**X3F.** /HH 244 /HU 270
28	**28.76**	52	15.5	88	70	110	-	-	-	50	79	-	-	-	
31.5	**32.12**	47	16.0	81	65	100	-	-	-	47	74	-	-	-	
35.5	**36.48**	41	16.0	71	66	105	-	-	-	48	75	-	-	-	
40	**38.62**	39	16.0	68	59	90	-	-	-	42	66	-	-	-	
45	**43.87**	34	16.0	59	59	91	-	-	-	43	67	-	-	-	
50	**51.81**	29	16.0	50	59	90	-	-	-	43	67	-	-	-	
56	**58.84**	25	16.0	44	60	91	-	-	-	44	67	-	-	-	
63	**62.29**	24	16.0	42	53	81	-	-	-	39	60	-	-	-	
71	**70.75**	21	16.0	37	52	80	-	-	-	38	59	-	-	-	
80	**81.85**	18	16.0	32	50	77	-	-	-	37	57	-	-	-	
90	**92.96**	16	16.0	28	49	75	-	-	-	36	56	-	-	-	
100	**98.41**	15	16.0	26	46	69	-	-	-	33	51	-	-	-	
112	**111.77**	13	16.0	23	45	68	-	-	-	33	50	-	-	-	
125	**134.35**	11	16.0	20	41	-	-	-	-	30	-	-	-	-	**X4F.** /HU 276
140	**152.59**	9.8	16.0	17	40	-	-	-	-	30	-	-	-	-	
160	**161.54**	9.3	16.0	16	37	-	-	-	-	27	-	-	-	-	
180	**183.47**	8.2	16.0	14	37	-	-	-	-	27	-	-	-	-	
200	**193.35**	7.8	16.0	14	35	-	-	-	-	26	-	-	-	-	
224	**219.59**	6.8	16.0	12	35	-	-	-	-	26	-	-	-	-	
250	**256.63**	5.8	16.0	10	34	-	-	-	-	25	-	-	-	-	
280	**291.46**	5.1	16.0	9	33	-	-	-	-	25	-	-	-	-	
315	**308.56**	4.9	16.0	9	30	-	-	-	-	22	-	-	-	-	
355	**350.43**	4.3	16.0	8	30	-	-	-	-	22	-	-	-	-	
400	**369.32**	4.1	16.0	7	28	-	-	-	-	21	-	-	-	-	
450	**419.44**	3.6	16.0	6	28	-	-	-	-	21	-	-	-	-	
X.F130..,n_1= 1800 1/min															**16 kNm**
8	**8.06**	223	13.6	325	*)	220	-	-	-	*)	145	-	-	-	**X2F.** /HU 264
9	**9.15**	197	13.7	290	87	230	-	-	-	*)	155	-	-	-	
10	**10.05**	179	13.8	265	92	220	-	-	-	*)	155	-	-	-	
11.2	**11.41**	158	13.9	235	85	205	-	-	-	*)	145	-	-	-	
12.5	**12.75**	141	14.0	210	88	195	-	-	-	*)	140	-	-	-	
14	**14.48**	124	14.0	185	91	195	-	-	-	48	135	-	-	-	
16	**16.04**	112	14.1	170	97	195	-	-	-	58	140	-	-	-	
18	**18.22**	99	14.5	155	96	195	-	-	-	60	140	-	-	-	
20	**20.35**	88	14.8	140	89	175	-	-	-	58	125	-	-	-	
22.4	**23.11**	78	15.5	130	92	180	-	-	-	62	130	-	-	-	
25	**25.32**	71	12.9	100	71	120	-	-	-	49	89	-	-	-	**X3F.** /HH 244 /HU 270
28	**28.76**	63	14.5	99	71	125	-	-	-	50	89	-	-	-	
31.5	**32.12**	56	15.1	92	66	115	-	-	-	47	83	-	-	-	
35.5	**36.48**	49	15.9	85	67	115	-	-	-	48	84	-	-	-	
40	**38.62**	47	16.0	81	60	100	-	-	-	42	74	-	-	-	
45	**43.87**	41	16.0	71	60	105	-	-	-	43	75	-	-	-	
50	**51.81**	35	16.0	60	61	105	-	-	-	44	75	-	-	-	
56	**58.84**	31	16.0	53	61	105	-	-	-	44	76	-	-	-	
63	**62.29**	29	16.0	50	55	92	-	-	-	39	68	-	-	-	
71	**70.75**	25	16.0	44	54	91	-	-	-	39	67	-	-	-	
80	**81.85**	22	16.0	38	52	87	-	-	-	38	64	-	-	-	
90	**92.96**	19	16.0	34	51	86	-	-	-	37	63	-	-	-	
100	**98.41**	18	16.0	32	47	79	-	-	-	34	58	-	-	-	
112	**111.77**	16	16.0	28	46	78	-	-	-	34	57	-	-	-	
125	**134.35**	13	16.0	24	43	-	-	-	-	31	-	-	-	-	**X4F.** /HU 276
140	**152.59**	12	16.0	21	42	-	-	-	-	31	-	-	-	-	
160	**161.54**	11	16.0	20	38	-	-	-	-	28	-	-	-	-	
180	**183.47**	9.8	16.0	17	38	-	-	-	-	28	-	-	-	-	
200	**193.35**	9.3	16.0	16	36	-	-	-	-	27	-	-	-	-	
224	**219.59**	8.2	16.0	14	36	-	-	-	-	27	-	-	-	-	
250	**256.63**	7.0	16.0	12	35	-	-	-	-	26	-	-	-	-	
280	**291.46**	6.2	16.0	11	35	-	-	-	-	26	-	-	-	-	
315	**308.56**	5.8	16.0	10	31	-	-	-	-	23	-	-	-	-	
355	**350.43**	5.1	16.0	9	31	-	-	-	-	23	-	-	-	-	
400	**369.32**	4.9	16.0	9	29	-	-	-	-	22	-	-	-	-	
450	**419.44**	4.3	16.0	8	29	-	-	-	-	21	-	-	-	-	

X.F140..,n_1= 1000 1/min															22 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.61**	151	20.3	330	135	210	-	350	410	*)	145	-	310	360	**X2F.** /HU 264
7.1	**7.07**	141	20.9	315	145	225	-	360	430	83	160	-	320	370	
8	**8.21**	122	21.7	285	135	200	-	305	365	80	145	-	270	315	
9	**8.78**	114	22.0	270	140	210	-	315	375	88	150	-	280	325	
10	**10.18**	98	22.0	230	125	185	-	265	320	83	135	-	235	275	
11.2	**10.89**	92	22.0	215	125	185	-	260	315	85	135	-	230	270	
12.5	**12.95**	77	22.0	180	115	170	-	225	275	80	120	-	195	230	
14	**13.85**	72	22.0	170	115	165	-	220	265	81	120	-	190	225	
16	**16.49**	61	22.0	145	115	165	-	205	250	81	120	-	175	210	
18	**17.63**	57	22.0	135	115	170	-	210	260	84	125	-	180	215	
20	**21.80**	46	21.8	110	86	105	-	145	160	63	78	-	120	135	**X3F.** /HH 244 /HU 270
22.4	**23.31**	43	22.0	105	88	110	-	145	165	64	80	-	125	140	
25	**27.25**	37	22.0	88	81	100	-	130	145	59	74	-	110	120	
28	**29.14**	34	22.0	82	83	100	-	130	150	61	76	-	110	125	
31.5	**33.22**	30	22.0	72	74	92	-	115	130	55	68	-	95	105	
35.5	**35.52**	28	22.0	67	76	94	-	115	130	56	69	-	96	110	
40	**42.36**	24	22.0	56	71	87	-	105	120	52	65	-	85	97	
45	**45.30**	22	22.0	53	72	89	-	105	120	53	66	-	86	98	
50	**51.63**	19	22.0	46	65	80	-	91	105	48	60	-	75	86	
56	**55.21**	18	22.0	43	66	82	-	92	105	49	61	-	76	87	
63	**66.11**	15	22.0	36	65	80	-	88	100	48	59	-	72	82	
71	**70.69**	14	22.0	34	66	82	-	88	105	49	60	-	72	83	
80	**80.57**	12	22.0	30	57	70	-	75	88	42	52	-	61	70	
90	**86.16**	12	22.0	28	58	72	-	76	88	43	53	-	61	71	
100	**107.36**	9.3	22.0	23	48	-	-	57	-	36	-	-	45	-	**X4F.** /HU 276
112	**114.80**	8.7	22.0	21	49	-	-	57	-	36	-	-	45	-	
125	**130.85**	7.6	22.0	18	43	-	-	50	-	32	-	-	39	-	
140	**139.92**	7.1	22.0	17	44	-	-	50	-	32	-	-	39	-	
160	**163.65**	6.1	22.0	15	40	-	-	46	-	30	-	-	36	-	
180	**175.00**	5.7	22.0	14	41	-	-	46	-	30	-	-	36	-	
200	**210.13**	4.8	22.0	12	38	-	-	42	-	28	-	-	33	-	
224	**224.70**	4.5	22.0	11	39	-	-	43	-	29	-	-	34	-	
250	**256.11**	3.9	22.0	9	35	-	-	39	-	26	-	-	30	-	
280	**273.87**	3.7	22.0	9	35	-	-	39	-	26	-	-	30	-	
315	**320.31**	3.1	22.0	8	32	-	-	35	-	24	-	-	27	-	
355	**342.53**	2.9	22.0	7	32	-	-	35	-	24	-	-	27	-	
X.F140..,n_1= 1200 1/min															**22 kNm**
6.3	**6.61**	182	20.3	395	120	235	-	380	465	*)	155	-	345	405	**X2F.** /HU 264
7.1	**7.07**	170	20.9	380	130	245	-	395	485	*)	170	-	355	420	
8	**8.21**	146	21.7	340	125	220	-	335	410	*)	155	-	295	355	
9	**8.78**	137	22.0	325	135	230	-	345	425	*)	165	-	305	365	
10	**10.18**	118	22.0	280	125	210	-	290	365	74	150	-	260	310	
11.2	**10.89**	110	22.0	260	125	205	-	285	355	76	150	-	250	305	
12.5	**12.95**	93	22.0	220	115	190	-	245	310	74	135	-	215	260	
14	**13.85**	87	22.0	205	115	185	-	240	305	76	135	-	210	255	
16	**16.49**	73	22.0	170	115	185	-	220	285	80	135	-	195	240	
18	**17.63**	68	22.0	160	120	190	-	225	295	84	140	-	195	245	
20	**21.80**	55	21.8	130	89	120	-	155	185	64	89	-	135	155	**X3F.** /HH 244 /HU 270
22.4	**23.31**	51	22.0	125	91	125	-	160	190	66	91	-	135	160	
25	**27.25**	44	22.0	105	84	115	-	140	170	61	84	-	120	140	
28	**29.14**	41	22.0	98	86	115	-	140	170	62	86	-	120	140	
31.5	**33.22**	36	22.0	86	77	105	-	125	150	56	77	-	105	125	
35.5	**35.52**	34	22.0	81	79	105	-	125	150	57	79	-	105	125	
40	**42.36**	28	22.0	68	74	100	-	110	135	54	74	-	93	110	
45	**45.30**	26	22.0	63	75	100	-	110	135	55	75	-	93	110	
50	**51.63**	23	22.0	56	68	92	-	99	120	50	68	-	82	99	
56	**55.21**	22	22.0	52	69	94	-	99	125	51	69	-	82	100	
63	**66.11**	18	22.0	43	68	92	-	94	115	50	68	-	78	94	
71	**70.69**	17	22.0	41	69	94	-	95	120	51	69	-	78	95	
80	**80.57**	15	22.0	36	60	81	-	81	100	44	60	-	66	81	
90	**86.16**	14	22.0	33	61	82	-	81	100	45	61	-	66	81	
100	**107.36**	11	22.0	27	50	-	-	60	-	37	-	-	48	-	**X4F.** /HU 276
112	**114.80**	10	22.0	25	51	-	-	61	-	38	-	-	48	-	
125	**130.85**	9.2	22.0	22	45	-	-	53	-	33	-	-	42	-	
140	**139.92**	8.6	22.0	21	46	-	-	54	-	34	-	-	42	-	
160	**163.65**	7.3	22.0	18	42	-	-	49	-	31	-	-	38	-	
180	**175.00**	6.9	22.0	17	43	-	-	49	-	32	-	-	38	-	
200	**210.13**	5.7	22.0	14	40	-	-	45	-	30	-	-	35	-	
224	**224.70**	5.3	22.0	13	41	-	-	46	-	30	-	-	36	-	
250	**256.11**	4.7	22.0	11	37	-	-	41	-	27	-	-	32	-	
280	**273.87**	4.4	22.0	11	37	-	-	41	-	28	-	-	32	-	
315	**320.31**	3.7	22.0	9	34	-	-	37	-	25	-	-	29	-	
355	**342.53**	3.5	22.0	8	34	-	-	38	-	25	-	-	29	-	

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X.F140..,n_1= 1500 1/min															22 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.61**	227	20.3	495	*)	260	-	410	530	*)	155	-	370	455	**X2F.** /HU 264
7.1	**7.07**	212	20.9	475	*)	275	-	435	560	*)	170	-	390	480	
8	**8.21**	183	21.7	425	*)	250	-	370	475	*)	160	-	330	410	
9	**8.78**	171	22.0	405	110	260	-	380	490	*)	175	-	340	420	
10	**10.18**	147	22.0	350	110	235	-	325	420	*)	165	-	285	360	
11.2	**10.89**	138	22.0	325	115	235	-	315	415	*)	165	-	280	350	
12.5	**12.95**	116	22.0	275	110	215	-	270	360	*)	155	-	240	305	
14	**13.85**	108	22.0	255	110	215	-	265	350	*)	150	-	230	295	
16	**16.49**	91	22.0	215	115	210	-	245	330	71	150	-	215	280	
18	**17.63**	85	22.0	200	120	220	-	250	340	77	155	-	220	285	
20	**21.80**	69	21.8	165	91	140	-	175	220	62	105	-	150	185	**X3F.** /HH 244 /HU 270
22.4	**23.31**	64	22.0	155	93	145	-	175	220	65	105	-	150	185	
25	**27.25**	55	22.0	130	86	135	-	155	200	61	98	-	130	165	
28	**29.14**	51	22.0	125	88	135	-	155	200	63	100	-	135	165	
31.5	**33.22**	45	22.0	110	80	125	-	135	175	57	90	-	115	145	
35.5	**35.52**	42	22.0	100	81	125	-	135	175	58	92	-	115	145	
40	**42.36**	35	22.0	85	77	120	-	120	160	56	86	-	105	130	
45	**45.30**	33	22.0	79	78	120	-	125	160	57	88	-	105	130	
50	**51.63**	29	22.0	69	71	110	-	110	145	51	80	-	90	115	
56	**55.21**	27	22.0	65	72	110	-	110	145	52	81	-	91	115	
63	**66.11**	23	22.0	54	71	110	-	105	140	52	80	-	85	110	
71	**70.69**	21	22.0	51	72	110	-	105	140	53	81	-	86	115	
80	**80.57**	19	22.0	44	62	95	-	88	120	46	70	-	72	95	
90	**86.16**	17	22.0	42	63	97	-	88	120	46	71	-	72	96	
100	**107.36**	14	22.0	34	53	-	-	65	-	39	-	-	51	-	**X4F.** /HU 276
112	**114.80**	13	22.0	32	53	-	-	65	-	39	-	-	52	-	
125	**130.85**	11	22.0	28	47	-	-	57	-	35	-	-	45	-	
140	**139.92**	11	22.0	26	48	-	-	57	-	35	-	-	45	-	
160	**163.65**	9.2	22.0	22	44	-	-	52	-	33	-	-	41	-	
180	**175.00**	8.6	22.0	21	45	-	-	53	-	33	-	-	41	-	
200	**210.13**	7.1	22.0	17	42	-	-	48	-	31	-	-	38	-	
224	**224.70**	6.7	22.0	16	43	-	-	50	-	32	-	-	39	-	
250	**256.11**	5.9	22.0	14	39	-	-	44	-	29	-	-	34	-	
280	**273.87**	5.5	22.0	13	39	-	-	44	-	29	-	-	34	-	
315	**320.31**	4.7	22.0	11	36	-	-	40	-	27	-	-	31	-	
355	**342.53**	4.4	22.0	11	36	-	-	40	-	27	-	-	31	-	
X.F140..,n_1= 1800 1/min															**22 kNm**
6.3	**6.61**	272	19.2	560	*)	275	-	415	560	*)	145	-	370	475	**X2F.** /HU 264
7.1	**7.07**	255	19.8	540	*)	295	-	435	590	*)	160	-	390	500	
8	**8.21**	219	20.5	480	*)	270	-	395	530	*)	160	-	355	450	
9	**8.78**	205	21.0	460	*)	285	-	410	550	*)	175	-	370	470	
10	**10.18**	177	22.0	415	*)	260	-	350	475	*)	170	-	310	405	
11.2	**10.89**	165	22.0	390	*)	255	-	340	465	*)	175	-	305	395	
12.5	**12.95**	139	22.0	330	95	235	-	290	405	*)	165	-	260	340	
14	**13.85**	130	22.0	305	99	235	-	285	395	*)	165	-	250	330	
16	**16.49**	109	22.0	260	110	235	-	265	375	*)	165	-	230	310	
18	**17.63**	102	22.0	240	115	240	-	270	385	62	170	-	235	320	
20	**21.80**	83	21.6	195	91	160	-	185	250	56	115	-	165	210	**X3F.** /HH 244 /HU 270
22.4	**23.31**	77	22.0	185	94	165	-	190	255	60	120	-	165	210	
25	**27.25**	66	22.0	160	87	150	-	165	225	58	110	-	145	185	
28	**29.14**	62	22.0	150	89	155	-	170	230	61	110	-	145	190	
31.5	**33.22**	54	22.0	130	81	140	-	145	200	56	100	-	125	165	
35.5	**35.52**	51	22.0	120	82	140	-	145	200	58	105	-	125	165	
40	**42.36**	42	22.0	100	78	135	-	130	185	56	98	-	110	150	
45	**45.30**	40	22.0	95	80	135	-	130	185	57	100	-	110	150	
50	**51.63**	35	22.0	83	73	125	-	115	165	52	90	-	98	135	
56	**55.21**	33	22.0	78	74	125	-	115	165	53	92	-	98	135	
63	**66.11**	27	22.0	65	73	125	-	110	160	53	91	-	92	125	
71	**70.69**	25	22.0	61	75	125	-	110	160	54	92	-	93	130	
80	**80.57**	22	22.0	53	64	110	-	94	135	47	80	-	78	110	
90	**86.16**	21	22.0	50	65	110	-	95	135	47	81	-	78	110	
100	**107.36**	17	22.0	41	54	-	-	69	-	40	-	-	55	-	**X4F.** /HU 276
112	**114.80**	16	22.0	38	55	-	-	69	-	40	-	-	55	-	
125	**130.85**	14	22.0	33	49	-	-	61	-	36	-	-	48	-	
140	**139.92**	13	22.0	31	50	-	-	61	-	36	-	-	48	-	
160	**163.65**	11	22.0	27	46	-	-	55	-	33	-	-	43	-	
180	**175.00**	10	22.0	25	46	-	-	55	-	34	-	-	43	-	
200	**210.13**	8.6	22.0	21	44	-	-	51	-	32	-	-	40	-	
224	**224.70**	8.0	22.0	19	45	-	-	53	-	33	-	-	41	-	
250	**256.11**	7.0	22.0	17	41	-	-	47	-	30	-	-	37	-	
280	**273.87**	6.6	22.0	16	41	-	-	47	-	30	-	-	37	-	
315	**320.31**	5.6	22.0	14	38	-	-	43	-	28	-	-	33	-	
355	**342.53**	5.3	22.0	13	38	-	-	43	-	28	-	-	33	-	

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X.F150..,n_1= 1000 1/min															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW		Fan	H_2O cover	H_2O	Fan + H_2O		Fan	H_2O cover	H_2O	Fan + H_2O	
8	**8.21**	122	25.4	330	150	225	-	260	330	86	160	-	220	270	**X2F.** /HU 264
9	**8.79**	114	25.9	315	150	225	-	255	325	89	160	-	215	265	
10	**10.19**	98	27.2	285	145	215	-	235	300	90	155	-	195	245	
11.2	**10.91**	92	27.5	270	145	215	-	230	295	92	155	-	190	240	
12.5	**12.64**	79	27.5	235	135	200	-	210	270	92	145	-	175	215	
14	**13.54**	74	27.5	220	135	200	-	205	265	94	145	-	170	215	
16	**16.08**	62	27.5	185	130	190	-	190	245	93	135	-	155	195	
18	**17.22**	58	27.5	170	130	185	-	185	240	92	135	-	150	190	
20	**20.48**	49	27.5	145	120	175	-	170	220	87	130	-	135	175	
22.4	**21.93**	46	27.5	135	120	175	-	165	220	87	125	-	135	170	
25	**27.08**	37	26.0	105	94	115	-	125	145	69	86	-	100	115	**X3F.** /HH 244 /HU 270
28	**28.99**	34	27.5	105	94	115	-	125	145	69	86	-	100	115	
31.5	**33.85**	30	27.5	88	90	110	-	115	135	66	82	-	92	105	
35.5	**36.24**	28	27.5	82	89	110	-	115	135	65	81	-	90	105	
40	**41.25**	24	27.5	72	82	100	-	100	120	60	75	-	82	96	
45	**44.17**	23	27.5	68	81	100	-	100	120	60	74	-	80	94	
50	**52.61**	19	27.5	57	76	93	-	92	110	56	69	-	73	86	
56	**56.33**	18	27.5	53	77	95	-	93	110	57	71	-	74	87	
63	**64.12**	16	27.5	47	70	86	-	83	99	52	64	-	66	77	
71	**68.66**	15	27.5	44	69	85	-	82	97	51	63	-	64	76	
80	**82.10**	12	27.5	36	70	86	-	81	97	51	64	-	64	75	
90	**87.91**	11	27.5	34	69	85	-	80	95	51	63	-	63	74	
100	**100.07**	10.0	27.5	30	64	79	-	73	88	47	59	-	57	68	
112	**107.15**	9.3	27.5	28	62	76	-	71	85	46	57	-	55	66	
125	**133.33**	7.5	27.5	23	51	-	-	56	-	38	-	-	43	-	**X4F.** /HU 276
140	**142.77**	7.0	27.5	21	51	-	-	55	-	38	-	-	42	-	
160	**162.51**	6.2	27.5	19	47	-	-	51	-	35	-	-	39	-	
180	**174.01**	5.7	27.5	17	47	-	-	50	-	35	-	-	38	-	
200	**203.25**	4.9	27.5	15	43	-	-	46	-	32	-	-	35	-	
224	**217.63**	4.6	27.5	14	43	-	-	45	-	32	-	-	35	-	
250	**260.96**	3.8	27.5	12	41	-	-	43	-	31	-	-	33	-	
280	**279.43**	3.6	27.5	11	41	-	-	43	-	30	-	-	33	-	
315	**318.07**	3.1	27.5	9	38	-	-	40	-	28	-	-	30	-	
355	**340.58**	2.9	27.5	9	38	-	-	39	-	28	-	-	30	-	
400	**397.81**	2.5	27.5	8	34	-	-	36	-	26	-	-	27	-	
450	**425.96**	2.3	27.5	7	35	-	-	36	-	26	-	-	27	-	
X.F150..,n_1= 1200 1/min															**27.5 kNm**
8	**8.21**	146	25.4	400	135	250	-	275	370	*)	170	-	230	300	**X2F.** /HU 264
9	**8.79**	137	25.9	380	135	250	-	270	365	*)	175	-	225	295	
10	**10.19**	118	27.2	345	135	240	-	250	335	*)	170	-	205	270	
11.2	**10.91**	110	27.5	325	140	235	-	245	330	*)	170	-	200	265	
12.5	**12.64**	95	27.5	280	135	225	-	225	305	84	160	-	185	245	
14	**13.54**	89	27.5	260	135	220	-	220	300	86	160	-	180	240	
16	**16.08**	75	27.5	220	130	210	-	200	275	90	155	-	165	220	
18	**17.22**	70	27.5	205	130	210	-	195	270	91	150	-	160	215	
20	**20.48**	59	27.5	175	125	195	-	180	250	88	145	-	145	200	
22.4	**21.93**	55	27.5	160	125	195	-	175	245	87	140	-	145	195	
25	**27.08**	44	26.0	125	98	135	-	135	165	71	98	-	110	135	**X3F.** /HH 244 /HU 270
28	**28.99**	41	27.5	125	98	135	-	130	165	71	98	-	105	130	
31.5	**33.85**	35	27.5	105	93	125	-	120	155	68	93	-	98	125	
35.5	**36.24**	33	27.5	99	92	125	-	120	150	67	92	-	96	120	
40	**41.25**	29	27.5	87	85	115	-	110	140	62	85	-	87	110	
45	**44.17**	27	27.5	81	84	115	-	105	135	62	85	-	86	110	
50	**52.61**	23	27.5	68	79	105	-	98	125	58	79	-	78	98	
56	**56.33**	21	27.5	64	80	110	-	99	125	59	81	-	79	99	
63	**64.12**	19	27.5	56	73	99	-	88	115	53	73	-	70	89	
71	**68.66**	17	27.5	52	72	98	-	87	110	53	72	-	69	87	
80	**82.10**	15	27.5	44	73	98	-	86	110	54	73	-	68	86	
90	**87.91**	14	27.5	41	72	97	-	85	110	53	72	-	67	85	
100	**100.07**	12	27.5	36	67	91	-	78	100	49	67	-	61	78	
112	**107.15**	11	27.5	33	65	88	-	75	98	48	65	-	59	75	
125	**133.33**	9.0	27.5	27	54	-	-	59	-	40	-	-	45	-	**X4F.** /HU 276
140	**142.77**	8.4	27.5	25	53	-	-	58	-	39	-	-	45	-	
160	**162.51**	7.4	27.5	22	49	-	-	54	-	37	-	-	41	-	
180	**174.01**	6.9	27.5	21	49	-	-	53	-	36	-	-	40	-	
200	**203.25**	5.9	27.5	18	45	-	-	49	-	33	-	-	37	-	
224	**217.63**	5.5	27.5	17	45	-	-	48	-	33	-	-	36	-	
250	**260.96**	4.6	27.5	14	43	-	-	46	-	32	-	-	35	-	
280	**279.43**	4.3	27.5	13	43	-	-	45	-	32	-	-	35	-	
315	**318.07**	3.8	27.5	11	40	-	-	42	-	30	-	-	32	-	
355	**340.58**	3.5	27.5	11	39	-	-	42	-	29	-	-	32	-	
400	**397.81**	3.0	27.5	9	36	-	-	38	-	27	-	-	29	-	
450	**425.96**	2.8	27.5	9	36	-	-	38	-	27	-	-	29	-	

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X.F150.., n_1 = 1500 1/min															27.5 kNm
					P_{TH} kW										
					M1, 20 °C					M1, 40 °C					
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	**8.21**	183	25.4	500	*)	280	-	290	420	*)	175	-	240	335	**X2F.** /HU 264
9	**8.79**	171	25.9	475	*)	280	-	290	415	*)	180	-	240	335	
10	**10.19**	147	27.2	430	115	270	-	265	385	*)	180	-	220	310	
11.2	**10.91**	137	27.5	405	120	265	-	260	380	*)	185	-	215	305	
12.5	**12.64**	119	27.5	350	125	255	-	240	350	*)	180	-	200	280	
14	**13.54**	111	27.5	325	125	250	-	235	345	*)	180	-	195	275	
16	**16.08**	93	27.5	275	130	240	-	215	320	79	175	-	180	255	
18	**17.22**	87	27.5	255	130	240	-	210	315	81	170	-	175	250	
20	**20.48**	73	27.5	215	125	225	-	190	290	80	165	-	155	230	
22.4	**21.93**	68	27.5	200	125	225	-	190	285	82	160	-	155	225	
25	**27.08**	55	26.0	155	100	155	-	145	195	71	115	-	115	155	**X3F.** /HH 244 /HU 270
28	**28.99**	52	27.5	155	100	155	-	140	195	71	115	-	115	155	
31.5	**33.85**	44	27.5	130	96	150	-	130	180	69	110	-	105	145	
35.5	**36.24**	41	27.5	125	95	145	-	130	180	68	105	-	105	140	
40	**41.25**	36	27.5	110	88	135	-	115	165	63	100	-	94	130	
45	**44.17**	34	27.5	100	87	135	-	115	160	63	99	-	92	125	
50	**52.61**	29	27.5	85	82	125	-	105	150	60	93	-	84	115	
56	**56.33**	27	27.5	80	84	130	-	105	150	61	94	-	85	115	
63	**64.12**	23	27.5	70	76	115	-	95	135	55	86	-	75	105	
71	**68.66**	22	27.5	65	75	115	-	93	130	55	85	-	74	105	
80	**82.10**	18	27.5	55	76	115	-	93	130	56	86	-	73	100	
90	**87.91**	17	27.5	51	75	115	-	91	130	55	85	-	72	100	
100	**100.07**	15	27.5	45	70	105	-	84	120	51	79	-	66	92	
112	**107.15**	14	27.5	42	68	105	-	81	115	50	77	-	63	89	
125	**133.33**	11	27.5	34	57	-	-	63	-	42	-	-	48	-	**X4F.** /HU 276
140	**142.77**	11	27.5	32	56	-	-	62	-	41	-	-	47	-	
160	**162.51**	9.2	27.5	28	52	-	-	57	-	38	-	-	43	-	
180	**174.01**	8.6	27.5	26	51	-	-	56	-	38	-	-	43	-	
200	**203.25**	7.4	27.5	22	48	-	-	52	-	35	-	-	39	-	
224	**217.63**	6.9	27.5	21	47	-	-	51	-	35	-	-	39	-	
250	**260.96**	5.7	27.5	17	46	-	-	49	-	34	-	-	37	-	
280	**279.43**	5.4	27.5	16	45	-	-	49	-	34	-	-	37	-	
315	**318.07**	4.7	27.5	14	42	-	-	45	-	31	-	-	34	-	
355	**340.58**	4.4	27.5	13	42	-	-	44	-	31	-	-	34	-	
400	**397.81**	3.8	27.5	11	38	-	-	41	-	29	-	-	31	-	
450	**425.96**	3.5	27.5	11	39	-	-	41	-	29	-	-	31	-	
X.F150.., n_1 = 1800 1/min															**27.5 kNm**
8	**8.21**	219	24.1	570	*)	300	-	280	445	*)	170	-	210	355	**X2F.** /HU 264
9	**8.79**	205	24.6	540	*)	300	-	285	445	*)	175	-	215	355	
10	**10.19**	177	25.9	490	*)	290	-	275	425	*)	185	-	220	340	
11.2	**10.91**	165	26.1	460	*)	290	-	270	420	*)	185	-	220	335	
12.5	**12.64**	142	27.0	415	*)	280	-	250	390	*)	190	-	205	310	
14	**13.54**	133	27.5	390	105	275	-	245	385	*)	195	-	200	305	
16	**16.08**	112	27.5	330	120	270	-	225	355	*)	190	-	185	285	
18	**17.22**	105	27.5	310	125	265	-	220	350	*)	190	-	185	280	
20	**20.48**	88	27.5	260	120	250	-	200	325	66	180	-	165	255	
22.4	**21.93**	82	27.5	240	120	250	-	200	320	69	180	-	160	250	
25	**27.08**	66	26.0	190	100	175	-	150	225	66	130	-	125	175	**X3F.** /HH 244 /HU 270
28	**28.99**	62	27.5	185	100	175	-	150	220	67	130	-	120	175	
31.5	**33.85**	53	27.5	160	97	170	-	140	205	67	120	-	115	165	
35.5	**36.24**	50	27.5	150	97	165	-	135	205	67	120	-	110	160	
40	**41.25**	44	27.5	130	90	155	-	125	185	64	110	-	99	145	
45	**44.17**	41	27.5	120	89	155	-	120	185	63	110	-	97	145	
50	**52.61**	34	27.5	100	84	145	-	110	170	61	105	-	89	130	
56	**56.33**	32	27.5	95	86	145	-	115	170	62	105	-	90	135	
63	**64.12**	28	27.5	84	78	130	-	100	155	56	97	-	80	120	
71	**68.66**	26	27.5	78	77	130	-	99	150	56	96	-	78	115	
80	**82.10**	22	27.5	65	79	130	-	98	150	57	97	-	77	115	
90	**87.91**	20	27.5	61	78	130	-	96	150	57	96	-	76	115	
100	**100.07**	18	27.5	54	73	120	-	89	135	53	90	-	69	105	
112	**107.15**	17	27.5	50	70	120	-	85	130	51	87	-	67	100	
125	**133.33**	14	27.5	41	58	-	-	66	-	43	-	-	50	-	**X4F.** /HU 276
140	**142.77**	13	27.5	38	58	-	-	65	-	42	-	-	49	-	
160	**162.51**	11	27.5	33	54	-	-	60	-	39	-	-	45	-	
180	**174.01**	10	27.5	31	53	-	-	59	-	39	-	-	45	-	
200	**203.25**	8.9	27.5	27	49	-	-	54	-	36	-	-	41	-	
224	**217.63**	8.3	27.5	25	49	-	-	53	-	36	-	-	40	-	
250	**260.96**	6.9	27.5	21	48	-	-	52	-	35	-	-	39	-	
280	**279.43**	6.4	27.5	19	47	-	-	51	-	35	-	-	39	-	
315	**318.07**	5.7	27.5	17	44	-	-	47	-	33	-	-	36	-	
355	**340.58**	5.3	27.5	16	44	-	-	47	-	32	-	-	36	-	
400	**397.81**	4.5	27.5	14	40	-	-	43	-	30	-	-	32	-	
450	**425.96**	4.2	27.5	13	40	-	-	43	-	30	-	-	32	-	

X.F160..,n_1= 1000 1/min															36 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
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	*)	235	-	510	580	**X2F.** /HU 264
7.1	**7.00**	143	32.5	500	220	330	-	540	640	140	235	-	490	560	
8	**7.73**	129	33.6	465	200	300	-	470	550	130	215	-	420	480	
9	**8.71**	115	35.0	430	200	300	-	450	540	135	215	-	400	465	
10	**10.02**	100	35.6	380	190	280	-	405	485	125	205	-	360	420	
11.2	**11.30**	88	36.0	340	190	280	-	390	470	130	200	-	345	400	
12.5	**12.34**	81	36.0	315	175	255	-	345	415	120	185	-	300	350	
14	**13.91**	72	36.0	280	170	250	-	330	400	120	180	-	285	340	
16	**15.93**	63	36.0	240	160	235	-	300	365	115	170	-	260	310	
18	**17.95**	56	36.0	215	160	230	-	285	350	115	170	-	245	295	
20	**20.50**	49	35.7	190	140	175	-	245	275	105	130	-	210	235	**X3F.** /HH 244 /HU 270
22.4	**23.10**	43	36.0	170	140	175	-	235	265	100	125	-	200	225	
25	**25.09**	40	36.0	155	130	160	-	210	240	94	120	-	180	200	
28	**28.27**	35	36.0	140	130	165	-	210	240	96	120	-	180	200	
31.5	**31.72**	32	36.0	125	110	135	-	170	190	79	98	-	140	160	
35.5	**35.75**	28	36.0	110	110	135	-	165	190	80	100	-	140	160	
40	**39.72**	25	36.0	98	115	140	-	165	190	83	105	-	140	160	
45	**44.76**	22	36.0	87	115	140	-	165	195	84	105	-	140	155	
50	**50.22**	20	36.0	78	95	115	-	135	155	70	87	-	110	125	
56	**56.59**	18	36.0	69	93	115	-	130	150	69	85	-	110	125	
63	**63.38**	16	36.0	62	100	125	-	135	160	74	92	-	115	130	
71	**71.42**	14	36.0	55	99	120	-	135	155	73	90	-	110	125	
80	**80.13**	12	36.0	49	83	100	-	110	130	61	76	-	89	105	
90	**90.31**	11	36.0	43	80	99	-	105	120	59	73	-	85	98	
100	**100.04**	10.0	36.0	40	78	-	-	92	-	58	-	-	72	-	**X4F.** /HU 276
112	**112.74**	8.9	36.0	35	78	-	-	92	-	58	-	-	72	-	
125	**126.49**	7.9	36.0	31	66	-	-	77	-	49	-	-	60	-	
140	**142.55**	7.0	36.0	28	65	-	-	75	-	48	-	-	59	-	
160	**152.08**	6.6	36.0	26	61	-	-	70	-	45	-	-	54	-	
180	**171.40**	5.8	36.0	23	60	-	-	68	-	44	-	-	53	-	
200	**202.75**	4.9	36.0	20	63	-	-	70	-	47	-	-	55	-	
224	**228.49**	4.4	36.0	17	62	-	-	69	-	46	-	-	53	-	
250	**256.35**	3.9	36.0	15	52	-	-	58	-	39	-	-	45	-	
280	**288.90**	3.5	36.0	14	52	-	-	58	-	39	-	-	44	-	
315	**308.22**	3.2	36.0	13	49	-	-	53	-	36	-	-	41	-	
355	**347.36**	2.9	36.0	11	48	-	-	52	-	36	-	-	40	-	
X.F160..,n_1= 1200 1/min															**36 kNm**
6.3	**6.21**	193	31.6	660	200	370	-	600	730	*)	250	-	540	640	**X2F.** /HU 264
7.1	**7.00**	171	32.5	600	205	365	-	590	720	*)	250	-	540	630	
8	**7.73**	155	33.6	560	190	335	-	510	630	*)	235	-	460	540	
9	**8.71**	138	35.0	520	195	330	-	495	610	*)	235	-	440	520	
10	**10.02**	120	35.6	455	185	315	-	445	550	*)	225	-	395	470	
11.2	**11.30**	106	36.0	410	190	310	-	425	530	115	220	-	375	455	
12.5	**12.34**	97	36.0	375	175	285	-	375	470	110	205	-	330	400	
14	**13.91**	86	36.0	335	175	280	-	360	450	115	200	-	315	385	
16	**15.93**	75	36.0	290	165	265	-	325	415	110	190	-	280	350	
18	**17.95**	67	36.0	260	160	260	-	310	400	110	190	-	270	335	
20	**20.50**	59	35.7	225	145	200	-	265	315	105	145	-	230	265	**X3F.** /HH 244 /HU 270
22.4	**23.10**	52	36.0	205	145	200	-	255	305	105	145	-	220	255	
25	**25.09**	48	36.0	185	135	185	-	230	275	96	135	-	195	230	
28	**28.27**	42	36.0	165	135	185	-	230	275	98	135	-	195	230	
31.5	**31.72**	38	36.0	150	110	155	-	180	220	81	110	-	155	180	
35.5	**35.75**	34	36.0	130	115	155	-	180	220	82	115	-	150	180	
40	**39.72**	30	36.0	120	115	160	-	180	220	85	115	-	150	180	
45	**44.76**	27	36.0	105	120	160	-	180	220	86	120	-	150	180	
50	**50.22**	24	36.0	93	99	135	-	145	180	72	99	-	120	145	
56	**56.59**	21	36.0	83	97	130	-	140	175	71	97	-	115	140	
63	**63.38**	19	36.0	74	105	140	-	150	185	77	105	-	120	150	
71	**71.42**	17	36.0	66	105	140	-	145	180	75	105	-	115	145	
80	**80.13**	15	36.0	59	87	120	-	120	145	64	87	-	96	120	
90	**90.31**	13	36.0	52	84	115	-	110	140	61	84	-	91	110	
100	**100.04**	12	36.0	47	81	-	-	98	-	60	-	-	77	-	**X4F.** /HU 276
112	**112.74**	11	36.0	42	81	-	-	97	-	60	-	-	77	-	
125	**126.49**	9.5	36.0	38	69	-	-	82	-	51	-	-	64	-	
140	**142.55**	8.4	36.0	33	68	-	-	79	-	50	-	-	62	-	
160	**152.08**	7.9	36.0	31	64	-	-	74	-	47	-	-	58	-	
180	**171.40**	7.0	36.0	28	63	-	-	72	-	46	-	-	56	-	
200	**202.75**	5.9	36.0	23	66	-	-	75	-	49	-	-	58	-	
224	**228.49**	5.3	36.0	21	65	-	-	73	-	48	-	-	57	-	
250	**256.35**	4.7	36.0	19	55	-	-	61	-	41	-	-	48	-	
280	**288.90**	4.2	36.0	16	55	-	-	61	-	41	-	-	47	-	
315	**308.22**	3.9	36.0	15	51	-	-	56	-	38	-	-	44	-	
355	**347.36**	3.5	36.0	14	50	-	-	55	-	37	-	-	43	-	

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X.F160..,n_1= 1500 1/min															36 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.21**	242	31.6	820	*)	410	-	610	790	*)	260	-	550	680	**X2F.** /HU 264
7.1	**7.00**	214	32.5	750	*)	405	-	610	780	*)	265	-	540	670	
8	**7.73**	194	33.6	700	*)	375	-	550	710	*)	250	-	495	610	
9	**8.71**	172	35.0	650	170	370	-	550	700	*)	250	-	490	600	
10	**10.02**	150	35.6	570	165	355	-	490	640	*)	245	-	440	550	
11.2	**11.30**	133	36.0	510	170	350	-	470	610	*)	245	-	415	520	
12.5	**12.34**	122	36.0	470	165	320	-	415	540	*)	230	-	365	465	
14	**13.91**	108	36.0	415	165	315	-	395	520	*)	225	-	350	445	
16	**15.93**	94	36.0	365	160	300	-	355	480	95	215	-	315	405	
18	**17.95**	84	36.0	325	160	295	-	340	460	99	210	-	300	385	
20	**20.50**	73	35.7	285	150	235	-	295	370	95	170	-	255	310	**X3F.** /HH 244 /HU 270
22.4	**23.10**	65	36.0	255	145	230	-	280	360	97	165	-	245	300	
25	**25.09**	60	36.0	235	135	215	-	255	325	92	155	-	220	270	
28	**28.27**	53	36.0	205	140	220	-	250	325	97	155	-	215	270	
31.5	**31.72**	47	36.0	185	115	180	-	200	260	79	130	-	170	215	
35.5	**35.75**	42	36.0	165	115	180	-	195	260	82	130	-	165	210	
40	**39.72**	38	36.0	150	120	185	-	200	260	87	135	-	165	215	
45	**44.76**	34	36.0	130	120	190	-	195	260	88	140	-	165	210	
50	**50.22**	30	36.0	115	100	160	-	160	210	74	115	-	135	170	
56	**56.59**	27	36.0	105	100	155	-	155	205	72	115	-	130	165	
63	**63.38**	24	36.0	93	110	165	-	160	215	79	125	-	135	175	
71	**71.42**	21	36.0	82	105	165	-	155	210	78	120	-	130	170	
80	**80.13**	19	36.0	73	91	140	-	130	175	66	100	-	105	140	
90	**90.31**	17	36.0	65	87	135	-	120	165	63	98	-	100	130	
100	**100.04**	15	36.0	59	85	-	-	105	-	62	-	-	83	-	**X4F.** /HU 276
112	**112.74**	13	36.0	53	85	-	-	105	-	62	-	-	82	-	
125	**126.49**	12	36.0	47	72	-	-	87	-	53	-	-	69	-	
140	**142.55**	11	36.0	42	71	-	-	85	-	52	-	-	67	-	
160	**152.08**	9.9	36.0	39	67	-	-	79	-	49	-	-	62	-	
180	**171.40**	8.8	36.0	35	66	-	-	77	-	48	-	-	60	-	
200	**202.75**	7.4	36.0	29	70	-	-	80	-	51	-	-	63	-	
224	**228.49**	6.6	36.0	26	68	-	-	78	-	51	-	-	61	-	
250	**256.35**	5.9	36.0	23	58	-	-	66	-	43	-	-	51	-	
280	**288.90**	5.2	36.0	21	58	-	-	66	-	43	-	-	51	-	
315	**308.22**	4.9	36.0	19	54	-	-	61	-	40	-	-	47	-	
355	**347.36**	4.3	36.0	17	53	-	-	59	-	39	-	-	46	-	
X.F160..,n_1= 1800 1/min															**36 kNm**
6.3	**6.21**	290	29.9	930	*)	425	-	610	840	*)	250	-	540	710	**X2F.** /HU 264
7.1	**7.00**	257	30.8	850	*)	430	-	600	830	*)	260	-	540	700	
8	**7.73**	233	31.8	790	*)	405	-	560	760	*)	255	-	500	640	
9	**8.71**	207	33.2	740	*)	400	-	550	750	*)	260	-	495	640	
10	**10.02**	180	33.7	650	*)	385	-	530	710	*)	255	-	470	610	
11.2	**11.30**	159	34.2	580	*)	380	-	510	690	*)	255	-	450	580	
12.5	**12.34**	146	36.0	560	145	355	-	450	610	*)	245	-	400	520	
14	**13.91**	129	36.0	500	150	350	-	430	590	*)	245	-	380	495	
16	**15.93**	113	36.0	435	145	330	-	385	540	*)	235	-	340	450	
18	**17.95**	100	36.0	385	150	325	-	370	520	*)	230	-	320	435	
20	**20.50**	88	33.8	320	140	260	-	315	420	81	185	-	275	355	**X3F.** /HH 244 /HU 270
22.4	**23.10**	78	36.0	305	145	260	-	305	405	85	185	-	265	340	
25	**25.09**	72	36.0	280	135	240	-	275	370	82	170	-	235	305	
28	**28.27**	64	36.0	250	140	245	-	270	370	88	175	-	235	305	
31.5	**31.72**	57	36.0	220	115	200	-	215	295	73	145	-	185	240	
35.5	**35.75**	50	36.0	195	115	205	-	210	295	77	145	-	180	240	
40	**39.72**	45	36.0	175	125	210	-	215	295	87	155	-	180	240	
45	**44.76**	40	36.0	155	125	215	-	210	295	88	155	-	180	240	
50	**50.22**	36	36.0	140	105	180	-	170	240	74	130	-	145	195	
56	**56.59**	32	36.0	125	105	175	-	165	235	73	130	-	140	190	
63	**63.38**	28	36.0	110	110	190	-	175	245	80	140	-	145	200	
71	**71.42**	25	36.0	99	110	185	-	165	240	79	135	-	140	190	
80	**80.13**	22	36.0	88	93	160	-	140	200	67	115	-	115	160	
90	**90.31**	20	36.0	78	90	150	-	130	190	65	110	-	105	150	
100	**100.04**	18	36.0	71	87	-	-	110	-	63	-	-	88	-	**X4F.** /HU 276
112	**112.74**	16	36.0	63	87	-	-	110	-	63	-	-	87	-	
125	**126.49**	14	36.0	56	74	-	-	92	-	54	-	-	73	-	
140	**142.55**	13	36.0	50	73	-	-	90	-	53	-	-	70	-	
160	**152.08**	12	36.0	47	69	-	-	84	-	50	-	-	65	-	
180	**171.40**	11	36.0	42	68	-	-	81	-	49	-	-	63	-	
200	**202.75**	8.9	36.0	35	72	-	-	85	-	53	-	-	67	-	
224	**228.49**	7.9	36.0	31	71	-	-	83	-	52	-	-	65	-	
250	**256.35**	7.0	36.0	28	61	-	-	70	-	45	-	-	54	-	
280	**288.90**	6.2	36.0	25	61	-	-	69	-	45	-	-	54	-	
315	**308.22**	5.8	36.0	23	56	-	-	64	-	42	-	-	50	-	
355	**347.36**	5.2	36.0	20	55	-	-	63	-	41	-	-	48	-	

X.F170.., n_1 = 1000 1/min															**45 kNm**
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
8	**7.72**	130	39.4	550	230	350	-	385	490	145	245	-	320	400	**X2F.** /HU 264
9	**8.67**	115	40.5	500	230	345	-	375	480	145	245	-	310	390	
10	**9.61**	104	41.8	465	210	310	-	330	425	140	225	-	275	340	
11.2	**10.80**	93	43.7	435	210	310	-	320	415	140	225	-	265	335	
12.5	**12.46**	80	44.3	380	210	305	-	310	400	145	225	-	255	320	
14	**14.00**	71	45.0	345	205	300	-	300	390	145	220	-	245	310	
16	**15.34**	65	45.0	315	180	260	-	255	330	125	190	-	210	265	
18	**17.24**	58	45.0	280	175	255	-	245	325	125	190	-	200	255	
20	**19.79**	51	45.0	245	175	255	-	235	310	125	185	-	190	245	
22.4	**22.24**	45	45.0	215	170	250	-	230	305	125	185	-	185	240	
25	**25.47**	39	44.6	190	145	185	-	190	225	105	135	-	155	180	**X3F.** /HH 244 /HU 270
28	**28.63**	35	45.0	170	145	180	-	185	220	105	130	-	150	175	
31.5	**31.18**	32	45.0	155	135	165	-	170	200	98	120	-	135	160	
35.5	**35.04**	29	45.0	140	130	165	-	165	195	96	120	-	130	155	
40	**39.42**	25	45.0	125	110	140	-	140	165	82	100	-	110	130	
45	**44.31**	23	45.0	110	110	135	-	135	160	80	100	-	105	125	
50	**49.36**	20	45.0	99	120	150	-	145	170	88	110	-	115	135	
56	**55.48**	18	45.0	88	115	140	-	135	165	84	105	-	105	125	
63	**62.41**	16	45.0	78	98	120	-	115	140	72	90	-	90	105	
71	**70.14**	14	45.0	70	97	120	-	115	135	71	88	-	88	105	
80	**78.77**	13	45.0	62	105	130	-	120	145	77	95	-	93	110	
90	**88.53**	11	45.0	55	100	125	-	115	140	75	93	-	91	110	
100	**99.59**	10	45.0	49	86	105	-	97	115	64	79	-	76	90	
112	**111.93**	8.9	45.0	44	85	105	-	95	115	63	77	-	74	88	
125	**124.34**	8.0	45.0	40	80	-	-	87	-	59	-	-	67	-	**X4F.** /HU 276
140	**139.74**	7.2	45.0	35	79	-	-	85	-	59	-	-	65	-	
160	**157.21**	6.4	45.0	31	68	-	-	73	-	51	-	-	56	-	
180	**176.68**	5.7	45.0	28	67	-	-	72	-	50	-	-	55	-	
200	**189.02**	5.3	45.0	26	62	-	-	66	-	46	-	-	50	-	
224	**212.43**	4.7	45.0	23	62	-	-	66	-	46	-	-	50	-	
250	**251.99**	4.0	45.0	20	64	-	-	67	-	47	-	-	51	-	
280	**283.20**	3.5	45.0	17	64	-	-	67	-	47	-	-	51	-	
315	**318.61**	3.1	45.0	16	54	-	-	57	-	40	-	-	43	-	
355	**358.08**	2.8	45.0	14	53	-	-	56	-	40	-	-	42	-	
400	**383.08**	2.6	45.0	13	49	-	-	51	-	37	-	-	39	-	
450	**430.53**	2.3	45.0	11	49	-	-	51	-	37	-	-	39	-	
X.F170.., n_1 = 1200 1/min															**45 kNm**
8	**7.72**	155	39.4	660	210	385	-	400	540	*)	260	-	330	440	**X2F.** /HU 264
9	**8.67**	138	40.5	600	215	380	-	395	540	*)	265	-	330	435	
10	**9.61**	125	41.8	560	200	345	-	350	475	*)	245	-	290	385	
11.2	**10.80**	111	43.7	520	205	340	-	340	465	*)	245	-	280	375	
12.5	**12.46**	96	44.3	460	210	340	-	325	450	135	245	-	270	360	
14	**14.00**	86	45.0	415	210	335	-	315	435	140	245	-	260	350	
16	**15.34**	78	45.0	380	180	295	-	270	375	120	210	-	220	300	
18	**17.24**	70	45.0	335	180	290	-	260	365	120	210	-	210	290	
20	**19.79**	61	45.0	295	180	285	-	250	350	125	205	-	205	280	
22.4	**22.24**	54	45.0	260	175	280	-	245	340	125	205	-	195	270	
25	**25.47**	47	44.6	230	150	210	-	205	260	110	150	-	165	205	**X3F.** /HH 244 /HU 270
28	**28.63**	42	45.0	205	150	205	-	200	250	105	150	-	160	200	
31.5	**31.18**	38	45.0	190	140	190	-	180	230	100	140	-	145	180	
35.5	**35.04**	34	45.0	165	135	185	-	175	225	98	135	-	140	175	
40	**39.42**	30	45.0	150	115	160	-	145	185	84	115	-	115	145	
45	**44.31**	27	45.0	130	115	155	-	140	185	82	115	-	110	140	
50	**49.36**	24	45.0	120	125	170	-	155	195	91	125	-	120	155	
56	**55.48**	22	45.0	105	120	160	-	145	185	87	120	-	115	145	
63	**62.41**	19	45.0	94	100	140	-	120	160	75	100	-	96	125	
71	**70.14**	17	45.0	84	100	135	-	120	155	73	100	-	93	120	
80	**78.77**	15	45.0	74	110	145	-	125	165	79	110	-	99	125	
90	**88.53**	14	45.0	66	105	145	-	125	160	78	105	-	96	125	
100	**99.59**	12	45.0	59	90	120	-	105	135	66	90	-	80	105	
112	**111.93**	11	45.0	52	88	120	-	100	130	65	88	-	78	100	
125	**124.34**	9.7	45.0	48	84	-	-	92	-	62	-	-	70	-	**X4F.** /HU 276
140	**139.74**	8.6	45.0	42	82	-	-	90	-	61	-	-	69	-	
160	**157.21**	7.6	45.0	38	71	-	-	77	-	53	-	-	59	-	
180	**176.68**	6.8	45.0	34	70	-	-	76	-	52	-	-	58	-	
200	**189.02**	6.3	45.0	31	65	-	-	69	-	48	-	-	53	-	
224	**212.43**	5.6	45.0	28	65	-	-	69	-	48	-	-	53	-	
250	**251.99**	4.8	45.0	24	67	-	-	71	-	50	-	-	54	-	
280	**283.20**	4.2	45.0	21	67	-	-	71	-	50	-	-	54	-	
315	**318.61**	3.8	45.0	19	57	-	-	60	-	42	-	-	46	-	
355	**358.08**	3.4	45.0	17	56	-	-	59	-	42	-	-	45	-	
400	**383.08**	3.1	45.0	15	52	-	-	54	-	39	-	-	41	-	
450	**430.53**	2.8	45.0	14	52	-	-	54	-	39	-	-	41	-	

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i_N	i_{ex}	n_2 min⁻¹	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
						Fan	H_2O cooling coil	H_2O cartridge	Fan + H_2O		Fan	H_2O cooling coil	H_2O cartridge	Fan + H_2O	
X.F170..,n_1= 1500 1/min															**45 kNm**
8	**7.72**	194	39.4	820	*)	425	-	395	590	*)	270	-	310	470	**X2F.** /HU 264
9	**8.67**	173	40.5	750	*)	420	-	390	590	*)	275	-	310	465	
10	**9.61**	156	41.8	700	180	385	-	360	540	*)	260	-	295	425	
11.2	**10.80**	139	43.7	650	180	385	-	360	530	*)	265	-	295	425	
12.5	**12.46**	120	44.3	570	195	385	-	350	520	*)	275	-	285	410	
14	**14.00**	107	45.0	520	195	380	-	335	500	*)	270	-	275	400	
16	**15.34**	98	45.0	470	170	335	-	290	430	*)	240	-	235	340	
18	**17.24**	87	45.0	420	175	330	-	280	420	*)	235	-	225	330	
20	**19.79**	76	45.0	365	180	325	-	270	405	115	235	-	215	320	
22.4	**22.24**	67	45.0	325	175	320	-	260	395	115	230	-	210	310	
25	**25.47**	59	44.6	285	155	240	-	215	300	100	175	-	175	235	**X3F.** /HH 244 /HU 270
28	**28.63**	52	45.0	255	150	240	-	210	295	100	175	-	170	230	
31.5	**31.18**	48	45.0	235	140	220	-	195	270	97	160	-	155	210	
35.5	**35.04**	43	45.0	210	140	220	-	185	265	98	160	-	150	205	
40	**39.42**	38	45.0	185	120	185	-	155	220	83	135	-	125	170	
45	**44.31**	34	45.0	165	115	180	-	150	215	83	130	-	120	165	
50	**49.36**	30	45.0	150	130	200	-	165	230	93	145	-	130	180	
56	**55.48**	27	45.0	130	125	190	-	155	220	89	140	-	120	170	
63	**62.41**	24	45.0	115	105	165	-	130	185	76	120	-	100	145	
71	**70.14**	21	45.0	105	105	160	-	125	180	75	120	-	99	140	
80	**78.77**	19	45.0	93	115	175	-	135	195	82	125	-	105	150	
90	**88.53**	17	45.0	83	110	170	-	130	190	81	125	-	105	145	
100	**99.59**	15	45.0	74	94	145	-	110	160	68	105	-	86	120	
112	**111.93**	13	45.0	66	92	140	-	110	155	67	105	-	83	120	
125	**124.34**	12	45.0	60	88	-	-	97	-	64	-	-	74	-	**X4F.** /HU 276
140	**139.74**	11	45.0	53	86	-	-	95	-	63	-	-	73	-	
160	**157.21**	9.5	45.0	47	75	-	-	82	-	55	-	-	62	-	
180	**176.68**	8.5	45.0	42	74	-	-	80	-	54	-	-	61	-	
200	**189.02**	7.9	45.0	39	68	-	-	74	-	50	-	-	56	-	
224	**212.43**	7.1	45.0	35	68	-	-	73	-	50	-	-	56	-	
250	**251.99**	6.0	45.0	29	70	-	-	76	-	52	-	-	58	-	
280	**283.20**	5.3	45.0	26	71	-	-	76	-	52	-	-	57	-	
315	**318.61**	4.7	45.0	23	60	-	-	64	-	45	-	-	49	-	
355	**358.08**	4.2	45.0	21	59	-	-	63	-	44	-	-	48	-	
400	**383.08**	3.9	45.0	19	55	-	-	58	-	41	-	-	44	-	
450	**430.53**	3.5	45.0	17	55	-	-	58	-	41	-	-	44	-	
X.F170..,n_1= 1800 1/min															**45 kNm**
8	**7.72**	233	37.4	940	*)	445	-	360	630	*)	265	-	265	485	**X2F.** /HU 264
9	**8.67**	208	38.5	860	*)	450	-	365	620	*)	275	-	275	485	
10	**9.61**	187	39.7	800	*)	420	-	345	580	*)	270	-	270	450	
11.2	**10.80**	167	41.2	740	*)	420	-	350	570	*)	270	-	270	450	
12.5	**12.46**	144	42.0	650	170	425	-	360	570	*)	290	-	290	455	
14	**14.00**	129	45.0	620	175	420	-	350	560	*)	290	-	280	440	
16	**15.34**	117	45.0	570	155	365	-	300	480	*)	255	-	240	380	
18	**17.24**	104	45.0	500	160	360	-	290	465	*)	255	-	230	365	
20	**19.79**	91	45.0	440	165	360	-	280	455	*)	255	-	225	355	
22.4	**22.24**	81	45.0	390	170	355	-	270	440	98	250	-	215	345	
25	**25.47**	71	42.3	325	150	270	-	230	340	87	195	-	185	265	**X3F.** /HH 244 /HU 270
28	**28.63**	63	45.0	305	150	270	-	220	335	90	190	-	175	260	
31.5	**31.18**	58	45.0	280	140	250	-	200	305	87	180	-	160	235	
35.5	**35.04**	51	45.0	250	140	245	-	195	295	90	175	-	155	230	
40	**39.42**	46	45.0	225	120	210	-	165	250	78	150	-	130	195	
45	**44.31**	41	45.0	200	115	205	-	160	245	79	150	-	125	190	
50	**49.36**	36	45.0	180	130	225	-	170	265	93	165	-	135	205	
56	**55.48**	32	45.0	160	125	215	-	160	250	89	155	-	125	190	
63	**62.41**	29	45.0	140	110	185	-	135	210	77	135	-	105	165	
71	**70.14**	26	45.0	125	105	180	-	135	205	76	135	-	105	160	
80	**78.77**	23	45.0	110	115	195	-	145	220	83	145	-	110	170	
90	**88.53**	20	45.0	99	115	195	-	140	215	82	140	-	110	165	
100	**99.59**	18	45.0	88	97	165	-	115	180	70	120	-	90	140	
112	**111.93**	16	45.0	79	95	160	-	115	175	69	120	-	87	135	
125	**124.34**	14	45.0	72	90	-	-	100	-	65	-	-	77	-	**X4F.** /HU 276
140	**139.74**	13	45.0	64	89	-	-	99	-	64	-	-	75	-	
160	**157.21**	11	45.0	57	77	-	-	86	-	56	-	-	65	-	
180	**176.68**	10	45.0	50	76	-	-	84	-	55	-	-	63	-	
200	**189.02**	9.5	45.0	47	70	-	-	77	-	51	-	-	58	-	
224	**212.43**	8.5	45.0	42	70	-	-	77	-	51	-	-	58	-	
250	**251.99**	7.1	45.0	35	73	-	-	79	-	54	-	-	60	-	
280	**283.20**	6.4	45.0	31	74	-	-	79	-	54	-	-	60	-	
315	**318.61**	5.6	45.0	28	63	-	-	67	-	46	-	-	51	-	
355	**358.08**	5.0	45.0	25	62	-	-	66	-	46	-	-	50	-	
400	**383.08**	4.7	45.0	23	57	-	-	61	-	42	-	-	46	-	
450	**430.53**	4.2	45.0	21	57	-	-	61	-	42	-	-	46	-	

X.F180..,n_1= 1000 1/min															58 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.49**	154	53.8	890	240	420	650	700	850	*)	295	580	640	750	**X2F.** /HU 264
7.1	**7.27**	138	54.6	810	260	440	660	720	860	*)	315	590	650	760	
8	**8.10**	123	55.5	740	240	395	550	600	720	*)	290	485	540	640	
9	**9.08**	110	56.8	670	255	410	550	600	740	175	305	485	540	640	
10	**9.97**	100	58.0	620	225	360	460	510	630	*)	270	405	460	550	
11.2	**11.17**	90	58.0	560	235	375	460	510	630	160	280	400	460	550	
12.5	**12.19**	82	58.0	510	220	345	405	455	560	155	260	355	405	490	
14	**13.65**	73	58.0	455	240	370	425	475	590	170	280	365	425	510	
16	**16.06**	62	58.0	385	215	330	360	410	510	155	250	310	360	440	
18	**17.98**	56	58.0	345	215	330	345	395	495	160	250	295	345	425	
20	**19.99**	50	58.0	315	150	230	235	265	345	97	170	195	230	285	**X3F.** /HH 244 /HU 270
22.4	**22.39**	45	58.0	280	155	235	235	265	345	105	175	195	230	285	
25	**25.88**	39	58.0	245	140	220	210	235	310	99	160	170	200	255	
28	**28.98**	35	58.0	215	150	230	215	245	320	105	170	175	205	265	
31.5	**31.13**	32	58.0	200	130	195	180	205	270	91	145	145	170	220	
35.5	**34.86**	29	58.0	180	130	200	180	205	270	94	150	145	170	220	
40	**39.86**	25	58.0	160	130	195	170	195	255	96	145	140	165	210	
45	**44.64**	22	58.0	140	130	200	170	195	255	98	150	140	160	210	
50	**47.95**	21	58.0	130	115	175	145	165	220	85	130	120	140	180	
56	**53.70**	19	58.0	115	115	175	145	165	220	86	130	115	135	180	
63	**64.56**	15	58.0	98	115	170	140	155	210	86	130	110	130	170	
71	**72.30**	14	58.0	87	115	175	140	155	210	86	130	110	130	170	
80	**77.67**	13	58.0	81	100	150	120	135	185	76	115	95	110	150	
90	**86.98**	11	58.0	72	105	155	125	140	190	78	120	97	115	150	
100	**106.69**	9.4	58.0	60	86	-	-	105	-	65	-	-	82	-	**X4F.** /HU 276
112	**119.48**	8.4	58.0	53	88	-	-	105	-	66	-	-	83	-	
125	**128.35**	7.8	58.0	50	78	-	-	91	-	58	-	-	73	-	
140	**143.73**	7.0	58.0	44	81	-	-	94	-	61	-	-	75	-	
160	**158.55**	6.3	58.0	40	71	-	-	82	-	53	-	-	65	-	
180	**177.55**	5.6	58.0	36	73	-	-	84	-	55	-	-	66	-	
200	**209.50**	4.8	58.0	30	69	-	-	78	-	52	-	-	62	-	
224	**234.60**	4.3	58.0	27	71	-	-	80	-	54	-	-	63	-	
250	**252.02**	4.0	58.0	25	64	-	-	71	-	49	-	-	56	-	
280	**282.23**	3.5	58.0	23	65	-	-	72	-	49	-	-	57	-	
315	**311.32**	3.2	58.0	20	58	-	-	63	-	44	-	-	50	-	
355	**348.63**	2.9	58.0	18	59	-	-	64	-	44	-	-	50	-	
X.F180..,n_1= 1200 1/min															**58 kNm**
6.3	**6.49**	185	53.8	1050	*)	435	660	720	890	*)	295	590	650	780	**X2F.** /HU 264
7.1	**7.27**	165	54.6	970	*)	460	690	750	930	*)	315	620	680	810	
8	**8.10**	148	55.5	880	230	420	600	650	810	*)	300	540	590	710	
9	**9.08**	132	56.8	810	245	435	600	660	820	*)	315	540	590	710	
10	**9.97**	120	58.0	750	210	385	510	560	700	*)	275	450	500	610	
11.2	**11.17**	107	58.0	670	225	400	500	560	700	*)	290	445	500	610	
12.5	**12.19**	98	58.0	610	215	370	445	500	630	*)	275	390	445	540	
14	**13.65**	88	58.0	550	240	395	465	520	660	160	295	405	460	570	
16	**16.06**	75	58.0	465	215	360	390	445	570	150	270	340	390	490	
18	**17.98**	67	58.0	415	215	355	375	425	550	155	265	325	375	470	
20	**19.99**	60	58.0	380	145	250	255	290	380	*)	180	210	245	315	**X3F.** /HH 244 /HU 270
22.4	**22.39**	54	58.0	340	150	255	250	285	380	93	185	210	245	315	
25	**25.88**	46	58.0	290	145	235	225	255	340	91	170	185	215	280	
28	**28.98**	41	58.0	260	150	250	230	260	350	100	180	185	220	290	
31.5	**31.13**	39	58.0	245	130	210	190	220	295	86	155	155	185	245	
35.5	**34.86**	34	58.0	215	130	215	190	220	295	89	160	155	185	245	
40	**39.86**	30	58.0	190	135	215	185	210	285	98	160	150	175	235	
45	**44.64**	27	58.0	170	135	215	180	210	285	99	160	150	175	230	
50	**47.95**	25	58.0	160	120	190	155	180	245	87	140	125	150	200	
56	**53.70**	22	58.0	140	120	190	155	175	245	88	140	125	145	200	
63	**64.56**	19	58.0	115	120	185	150	170	235	87	140	120	140	190	
71	**72.30**	17	58.0	105	120	190	150	165	235	88	140	115	140	190	
80	**77.67**	15	58.0	97	105	165	130	145	205	78	125	100	120	165	
90	**86.98**	14	58.0	87	110	170	130	145	205	80	130	105	120	165	
100	**106.69**	11	58.0	72	89	-	-	110	-	67	-	-	87	-	**X4F.** /HU 276
112	**119.48**	10	58.0	64	91	-	-	110	-	68	-	-	88	-	
125	**128.35**	9.3	58.0	60	81	-	-	97	-	60	-	-	77	-	
140	**143.73**	8.3	58.0	53	84	-	-	100	-	63	-	-	79	-	
160	**158.55**	7.6	58.0	48	74	-	-	86	-	55	-	-	68	-	
180	**177.55**	6.8	58.0	43	76	-	-	89	-	57	-	-	70	-	
200	**209.50**	5.7	58.0	37	72	-	-	83	-	55	-	-	65	-	
224	**234.60**	5.1	58.0	33	75	-	-	85	-	56	-	-	67	-	
250	**252.02**	4.8	58.0	30	67	-	-	76	-	51	-	-	60	-	
280	**282.23**	4.3	58.0	27	68	-	-	76	-	51	-	-	60	-	
315	**311.32**	3.9	58.0	25	60	-	-	67	-	46	-	-	53	-	
355	**348.63**	3.4	58.0	22	61	-	-	68	-	46	-	-	53	-	

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X.F180..,n_1= 1500 1/min															58 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	650	720	930	*)	*)	570	640	810	**X2F.** /HU 264
7.1	**7.27**	206	54.6	1200	*)	465	690	750	980	*)	*)	600	670	840	
8	**8.10**	185	55.5	1100	*)	435	620	680	860	*)	300	550	610	750	
9	**9.08**	165	56.8	1000	*)	460	650	700	900	*)	315	580	630	780	
10	**9.97**	150	58.0	940	*)	410	570	620	790	*)	280	510	560	690	
11.2	**11.17**	134	58.0	840	*)	425	560	620	790	*)	295	500	560	690	
12.5	**12.19**	123	58.0	770	200	400	500	550	710	*)	285	445	495	620	
14	**13.65**	110	58.0	680	220	430	520	570	740	*)	315	455	510	640	
16	**16.06**	93	58.0	580	205	390	435	490	640	*)	290	380	435	550	
18	**17.98**	83	58.0	520	210	385	415	470	620	135	285	360	415	530	
20	**19.99**	75	58.0	475	125	270	280	315	425	*)	185	235	270	355	**X3F.** /HH 244 /HU 270
22.4	**22.39**	67	58.0	420	135	275	275	310	425	*)	195	230	270	355	
25	**25.88**	58	58.0	365	130	255	240	275	385	*)	185	200	235	315	
28	**28.98**	52	58.0	325	145	270	245	285	395	85	195	205	240	325	
31.5	**31.13**	48	58.0	305	125	230	205	235	335	*)	165	170	200	275	
35.5	**34.86**	43	58.0	270	130	235	205	235	330	76	170	165	200	270	
40	**39.86**	38	58.0	235	135	235	200	230	320	94	175	165	195	260	
45	**44.64**	34	58.0	210	140	240	200	225	320	99	175	160	190	260	
50	**47.95**	31	58.0	195	120	210	170	195	275	85	155	135	160	225	
56	**53.70**	28	58.0	175	120	210	170	190	275	88	155	135	160	225	
63	**64.56**	23	58.0	145	120	205	160	180	265	89	155	130	150	210	
71	**72.30**	21	58.0	130	125	210	160	180	265	90	155	125	150	210	
80	**77.67**	19	58.0	120	110	185	140	155	230	79	135	110	130	185	
90	**86.98**	17	58.0	110	110	190	140	160	235	82	140	110	130	185	
100	**106.69**	14	58.0	90	93	-	-	115	-	69	-	-	94	-	**X4F.** /HU 276
112	**119.48**	13	58.0	80	95	-	-	120	-	70	-	-	94	-	
125	**128.35**	12	58.0	74	84	-	-	105	-	62	-	-	83	-	
140	**143.73**	10	58.0	67	88	-	-	105	-	65	-	-	85	-	
160	**158.55**	9.5	58.0	60	77	-	-	92	-	57	-	-	73	-	
180	**177.55**	8.4	58.0	54	79	-	-	95	-	59	-	-	75	-	
200	**209.50**	7.2	58.0	46	76	-	-	89	-	57	-	-	70	-	
224	**234.60**	6.4	58.0	41	79	-	-	91	-	59	-	-	72	-	
250	**252.02**	6.0	58.0	38	71	-	-	81	-	53	-	-	64	-	
280	**282.23**	5.3	58.0	34	72	-	-	82	-	54	-	-	65	-	
315	**311.32**	4.8	58.0	31	64	-	-	72	-	48	-	-	57	-	
355	**348.63**	4.3	58.0	27	65	-	-	73	-	49	-	-	57	-	
X.F180..,n_1= 1800 1/min															**58 kNm**
6.3	**6.49**	277	50.8	1500	*)	410	620	690	950	*)	*)	530	600	810	**X2F.** /HU 246
7.1	**7.27**	248	51.6	1350	*)	445	660	730	1000	*)	*)	560	640	850	
8	**8.10**	222	52.4	1250	*)	440	620	670	900	*)	*)	540	600	780	
9	**9.08**	198	53.7	1150	*)	465	640	700	940	*)	305	570	630	810	
10	**9.97**	181	54.8	1050	*)	415	570	620	830	*)	270	510	560	720	
11.2	**11.17**	161	55.6	960	*)	440	600	650	850	*)	290	530	580	740	
12.5	**12.19**	148	55.8	880	*)	420	550	600	780	*)	285	490	540	680	
14	**13.65**	132	58.0	820	*)	450	560	620	820	*)	320	500	560	710	
16	**16.06**	112	58.0	700	190	415	475	530	710	*)	295	415	470	610	
18	**17.98**	100	58.0	620	195	410	450	510	680	*)	295	395	450	590	
20	**19.99**	90	56.6	550	*)	285	300	335	465	*)	180	250	290	390	**X3F.** /HH 226 /HU 252
22.4	**22.39**	80	58.0	510	*)	290	295	330	465	*)	195	245	285	390	
25	**25.88**	70	58.0	440	115	270	260	295	420	*)	185	215	250	345	
28	**28.98**	62	58.0	390	130	285	265	300	430	*)	200	215	255	355	
31.5	**31.13**	58	58.0	365	110	245	220	250	365	*)	175	180	215	300	
35.5	**34.86**	52	58.0	325	115	250	215	250	365	*)	175	175	210	295	
40	**39.86**	45	58.0	285	135	255	215	245	350	86	185	175	205	290	
45	**44.64**	40	58.0	255	140	255	210	240	350	91	190	170	205	285	
50	**47.95**	38	58.0	235	120	225	180	205	300	78	165	145	175	245	
56	**53.70**	34	58.0	210	125	225	180	205	300	82	165	145	170	245	
63	**64.56**	28	58.0	175	125	225	170	195	290	88	165	135	160	235	
71	**72.30**	25	58.0	155	125	225	170	195	290	89	170	135	160	235	
80	**77.67**	23	58.0	145	110	200	145	165	250	79	150	115	140	200	
90	**86.98**	21	58.0	130	115	205	150	170	255	81	150	115	140	205	
100	**106.69**	17	58.0	110	95	-	-	125	-	69	-	-	99	-	**X4F.** /HU 258
112	**119.48**	15	58.0	96	97	-	-	125	-	71	-	-	99	-	
125	**128.35**	14	58.0	89	86	-	-	110	-	63	-	-	87	-	
140	**143.73**	13	58.0	80	90	-	-	110	-	65	-	-	89	-	
160	**158.55**	11	58.0	72	79	-	-	97	-	58	-	-	77	-	
180	**177.55**	10	58.0	65	82	-	-	100	-	60	-	-	79	-	
200	**209.50**	8.6	58.0	55	79	-	-	94	-	59	-	-	75	-	
224	**234.60**	7.7	58.0	49	82	-	-	96	-	61	-	-	76	-	
250	**252.02**	7.1	58.0	46	74	-	-	86	-	55	-	-	68	-	
280	**282.23**	6.4	58.0	41	75	-	-	87	-	56	-	-	68	-	
315	**311.32**	5.8	58.0	37	66	-	-	76	-	50	-	-	60	-	
355	**348.63**	5.2	58.0	33	67	-	-	77	-	50	-	-	60	-	

X.F190..,n_1= 1000 1/min — **65 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
					–	Fan	Cooling cover H_2O	Cooling cartridge H_2O	Fan + H_2O	–	Fan	Cooling cover H_2O	Cooling cartridge H_2O	Fan + H_2O	
7.1	**7.25**	138	59.6	880	250	430	660	475	630	*)	305	590	400	520	**X2F.** /HU 264
8	**8.14**	123	60.6	800	265	450	660	490	650	*)	325	590	410	540	
9	**9.05**	110	61.5	730	260	420	580	440	590	*)	310	520	375	485	
10	**10.17**	98	63.0	660	275	440	580	450	600	190	330	520	380	495	
11.2	**11.14**	90	65.0	630	240	385	485	385	520	165	285	430	325	425	
12.5	**12.52**	80	65.0	560	255	400	485	390	520	175	300	425	325	430	
14	**13.61**	73	65.0	510	235	365	430	355	475	165	275	375	295	390	
16	**15.30**	65	65.0	455	245	375	430	355	480	175	285	370	295	395	
18	**17.93**	56	65.0	390	230	350	380	325	440	170	265	325	270	360	
20	**20.15**	50	65.0	345	230	350	365	315	430	170	265	310	260	350	
22.4	**22.32**	45	63.6	310	160	245	245	210	295	105	180	205	170	235	**X3F.** /HH 244 /HU 270
25	**25.08**	40	65.0	280	160	250	245	215	300	110	185	205	170	235	
28	**28.90**	35	65.0	245	150	230	220	195	270	105	170	180	155	215	
31.5	**32.47**	31	65.0	215	155	235	215	195	275	110	175	180	155	215	
35.5	**34.76**	29	65.0	205	140	215	195	175	245	100	155	155	140	195	
40	**39.06**	26	65.0	180	140	215	190	175	250	100	160	155	140	195	
45	**44.51**	22	65.0	160	135	205	180	165	235	100	155	145	130	185	
50	**50.01**	20	65.0	140	140	210	180	165	235	105	155	145	130	185	
56	**53.55**	19	65.0	130	120	180	155	145	205	90	135	125	115	160	
63	**60.17**	17	65.0	115	120	185	150	145	205	91	140	120	115	160	
71	**72.09**	14	65.0	98	120	180	145	140	195	90	135	115	110	155	
80	**81.01**	12	65.0	87	120	180	145	140	200	91	135	115	110	155	
90	**86.73**	12	65.0	81	110	160	130	125	175	81	125	100	97	140	
100	**97.45**	10	65.0	72	110	165	130	125	175	82	125	100	97	140	
112	**119.14**	8.4	65.0	60	91	-	-	98	-	68	-	-	76	-	**X4F.** /HU 276
125	**133.87**	7.5	65.0	53	91	-	-	98	-	69	-	-	76	-	
140	**143.33**	7.0	65.0	50	82	-	-	88	-	62	-	-	68	-	
160	**161.05**	6.2	65.0	44	82	-	-	88	-	62	-	-	68	-	
180	**177.05**	5.6	65.0	40	74	-	-	79	-	56	-	-	61	-	
200	**198.95**	5.0	65.0	36	76	-	-	80	-	57	-	-	62	-	
224	**233.94**	4.3	65.0	31	73	-	-	77	-	55	-	-	59	-	
250	**262.87**	3.8	65.0	27	74	-	-	78	-	56	-	-	60	-	
280	**281.43**	3.6	65.0	25	66	-	-	69	-	50	-	-	54	-	
315	**316.23**	3.2	65.0	23	67	-	-	70	-	51	-	-	54	-	
355	**347.64**	2.9	65.0	21	60	-	-	63	-	46	-	-	49	-	
400	**390.64**	2.6	65.0	18	61	-	-	63	-	46	-	-	49	-	

X.F190..,n_1= 1200 1/min — **65 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
7.1	**7.25**	166	59.6	1050	*)	445	670	470	660	*)	300	590	385	540	**X2F.** /HU 264
8	**8.14**	147	60.6	960	*)	470	700	495	690	*)	325	620	410	560	
9	**9.05**	133	61.5	870	245	450	640	465	640	*)	320	580	390	530	
10	**10.17**	118	63.0	800	265	470	640	475	660	*)	340	570	400	540	
11.2	**11.14**	108	65.0	750	230	410	540	405	560	*)	300	475	340	465	
12.5	**12.52**	96	65.0	670	245	425	530	410	570	*)	315	470	345	470	
14	**13.61**	88	65.0	610	230	395	470	375	520	155	295	415	315	425	
16	**15.30**	78	65.0	550	245	405	470	375	530	165	305	410	315	430	
18	**17.93**	67	65.0	465	230	380	415	345	480	160	285	360	285	395	
20	**20.15**	60	65.0	415	230	375	395	335	470	165	285	340	275	380	
22.4	**22.32**	54	63.6	370	155	265	265	220	320	94	190	225	175	255	**X3F.** /HH 244 /HU 270
25	**25.08**	48	65.0	340	160	270	265	225	325	100	195	220	180	255	
28	**28.90**	42	65.0	295	150	250	235	200	295	99	180	195	160	230	
31.5	**32.47**	37	65.0	260	155	255	235	205	300	105	185	190	160	235	
35.5	**34.76**	35	65.0	245	140	230	205	180	270	95	170	170	145	210	
40	**39.06**	31	65.0	215	140	235	205	185	270	100	170	165	145	210	
45	**44.51**	27	65.0	190	140	225	190	175	255	105	165	155	140	200	
50	**50.01**	24	65.0	170	145	225	190	175	255	105	170	155	140	200	
56	**53.55**	22	65.0	160	125	195	165	150	220	91	145	130	120	175	
63	**60.17**	20	65.0	140	125	200	160	150	225	92	150	130	120	175	
71	**72.09**	17	65.0	120	125	195	155	145	215	92	145	125	115	170	
80	**81.01**	15	65.0	105	125	200	155	145	220	93	150	125	115	170	
90	**86.73**	14	65.0	98	115	175	135	130	195	83	135	110	100	150	
100	**97.45**	12	65.0	87	115	180	135	130	195	84	135	105	100	150	
112	**119.14**	10	65.0	72	94	-	-	105	-	71	-	-	80	-	**X4F.** /HU 276
125	**133.87**	9.0	65.0	64	95	-	-	105	-	71	-	-	80	-	
140	**143.33**	8.4	65.0	60	85	-	-	93	-	64	-	-	71	-	
160	**161.05**	7.5	65.0	53	86	-	-	92	-	64	-	-	71	-	
180	**177.05**	6.8	65.0	48	78	-	-	83	-	58	-	-	64	-	
200	**198.95**	6.0	65.0	43	79	-	-	84	-	59	-	-	65	-	
224	**233.94**	5.1	65.0	37	76	-	-	81	-	57	-	-	62	-	
250	**262.87**	4.6	65.0	33	77	-	-	82	-	58	-	-	63	-	
280	**281.43**	4.3	65.0	30	69	-	-	73	-	52	-	-	56	-	
315	**316.23**	3.8	65.0	27	70	-	-	74	-	53	-	-	57	-	
355	**347.64**	3.5	65.0	25	63	-	-	66	-	48	-	-	51	-	
400	**390.64**	3.1	65.0	22	63	-	-	66	-	48	-	-	51	-	

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X.F190.., n_1 = 1500 1/min															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.25**	207	59.6	1300	*)	445	660	435	680	*)	*)	580	340	540	**X2F.** /HU 264
8	**8.14**	184	60.6	1200	*)	475	690	465	720	*)	305	610	365	580	
9	**9.05**	166	61.5	1100	*)	470	660	460	680	*)	320	580	375	560	
10	**10.17**	147	63.0	1000	*)	495	690	485	710	*)	345	610	400	580	
11.2	**11.14**	135	65.0	940	*)	440	600	430	620	*)	300	540	350	510	
12.5	**12.52**	120	65.0	840	215	455	600	435	630	*)	320	530	355	520	
14	**13.61**	110	65.0	770	215	425	530	395	580	*)	305	470	325	470	
16	**15.30**	98	65.0	680	230	440	520	400	580	*)	320	460	335	475	
18	**17.93**	84	65.0	580	225	415	460	365	540	*)	305	400	300	435	
20	**20.15**	74	65.0	520	225	410	440	355	520	150	305	380	290	425	
22.4	**22.32**	67	63.6	465	140	285	290	230	355	*)	200	245	175	280	**X3F.** /HH 244 /HU 270
25	**25.08**	60	65.0	420	150	290	290	235	360	*)	210	240	180	280	
28	**28.90**	52	65.0	365	140	270	255	210	330	*)	195	210	165	255	
31.5	**32.47**	46	65.0	325	150	275	250	210	330	90	200	205	165	255	
35.5	**34.76**	43	65.0	305	135	250	225	190	295	83	180	185	150	230	
40	**39.06**	38	65.0	270	140	255	220	190	300	88	185	180	150	230	
45	**44.51**	34	65.0	240	145	245	210	185	285	100	185	170	145	225	
50	**50.01**	30	65.0	210	145	250	205	185	285	105	185	170	145	225	
56	**53.55**	28	65.0	200	125	220	175	160	250	90	160	145	125	195	
63	**60.17**	25	65.0	175	130	220	175	160	250	92	165	140	125	195	
71	**72.09**	21	65.0	145	130	215	165	155	240	93	160	135	120	190	
80	**81.01**	19	65.0	130	130	220	165	155	245	94	165	130	120	190	
90	**86.73**	17	65.0	120	115	195	145	140	215	85	145	115	110	170	
100	**97.45**	15	65.0	110	115	200	145	140	215	86	150	115	110	170	
112	**119.14**	13	65.0	90	98	-	-	110	-	73	-	-	84	-	**X4F.** /HU 276
125	**133.87**	11	65.0	80	99	-	-	110	-	73	-	-	84	-	
140	**143.33**	10	65.0	75	89	-	-	98	-	66	-	-	75	-	
160	**161.05**	9.3	65.0	67	89	-	-	98	-	66	-	-	75	-	
180	**177.05**	8.5	65.0	61	81	-	-	88	-	60	-	-	67	-	
200	**198.95**	7.5	65.0	54	82	-	-	89	-	61	-	-	68	-	
224	**233.94**	6.4	65.0	46	80	-	-	86	-	60	-	-	66	-	
250	**262.87**	5.7	65.0	41	82	-	-	87	-	61	-	-	67	-	
280	**281.43**	5.3	65.0	38	73	-	-	78	-	55	-	-	60	-	
315	**316.23**	4.7	65.0	34	74	-	-	79	-	56	-	-	60	-	
355	**347.64**	4.3	65.0	31	67	-	-	71	-	50	-	-	54	-	
400	**390.64**	3.8	65.0	27	67	-	-	70	-	50	-	-	54	-	
X.F190.., n_1 = 1800 1/min															**65 kNm**
7.1	**7.25**	248	56.3	1500	*)	420	620	*)	680	*)	*)	530	*)	520	**X2F.** /HU 264
8	**8.14**	221	57.3	1350	*)	460	670	405	730	*)	*)	570	*)	560	
9	**9.05**	199	58.1	1250	*)	475	650	430	700	*)	*)	570	340	560	
10	**10.17**	177	59.5	1150	*)	500	680	460	740	*)	330	600	365	590	
11.2	**11.14**	162	61.4	1050	*)	445	600	405	650	*)	290	540	320	520	
12.5	**12.52**	144	62.8	970	*)	470	630	430	670	*)	315	560	345	540	
14	**13.61**	132	64.5	920	*)	445	580	410	620	*)	310	520	330	510	
16	**15.30**	118	65.0	820	*)	460	570	415	630	*)	325	500	340	520	
18	**17.93**	100	65.0	700	205	440	500	380	580	*)	315	440	310	470	
20	**20.15**	89	65.0	620	210	435	475	365	570	*)	320	415	300	460	
22.4	**22.32**	81	63.6	560	*)	300	315	230	385	*)	195	265	165	300	**X3F.** /HH 244 /HU 270
25	**25.08**	72	65.0	510	*)	310	310	235	390	*)	210	260	170	300	
28	**28.90**	62	65.0	440	125	285	270	215	355	*)	200	225	160	275	
31.5	**32.47**	55	65.0	390	135	290	270	215	355	*)	205	220	160	275	
35.5	**34.76**	52	65.0	365	125	265	235	195	320	*)	190	195	145	245	
40	**39.06**	46	65.0	325	130	270	235	195	320	*)	190	190	145	250	
45	**44.51**	40	65.0	285	145	265	225	195	310	93	195	185	150	240	
50	**50.01**	36	65.0	255	145	270	220	195	310	98	200	180	150	245	
56	**53.55**	34	65.0	235	125	235	190	165	270	84	170	155	130	210	
63	**60.17**	30	65.0	210	130	235	185	165	270	88	175	150	130	210	
71	**72.09**	25	65.0	175	130	235	175	160	265	93	175	140	125	205	
80	**81.01**	22	65.0	155	130	235	175	160	265	94	175	140	125	205	
90	**86.73**	21	65.0	145	120	215	155	145	235	85	160	125	110	185	
100	**97.45**	18	65.0	130	120	215	155	145	235	86	160	120	110	185	
112	**119.14**	15	65.0	110	100	-	-	115	-	74	-	-	87	-	**X4F.** /HU 276
125	**133.87**	13	65.0	96	100	-	-	115	-	74	-	-	87	-	
140	**143.33**	13	65.0	90	91	-	-	100	-	67	-	-	78	-	
160	**161.05**	11	65.0	80	92	-	-	100	-	67	-	-	77	-	
180	**177.05**	10	65.0	73	83	-	-	92	-	61	-	-	70	-	
200	**198.95**	9.0	65.0	65	85	-	-	93	-	62	-	-	70	-	
224	**233.94**	7.7	65.0	55	83	-	-	90	-	62	-	-	69	-	
250	**262.87**	6.8	65.0	49	85	-	-	91	-	63	-	-	70	-	
280	**281.43**	6.4	65.0	46	76	-	-	82	-	57	-	-	63	-	
315	**316.23**	5.7	65.0	41	77	-	-	82	-	58	-	-	63	-	
355	**347.64**	5.2	65.0	37	70	-	-	74	-	52	-	-	57	-	
400	**390.64**	4.6	65.0	33	70	-	-	74	-	52	-	-	56	-	

X.F200..,n_1= 1000 1/min															79 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.44**	155	66.9	1100	340	590	970	950	1150	*)	415	880	850	1000	**X2F.** /HU 264
7.1	**7.31**	137	70.1	1050	305	530	860	840	1000	*)	375	780	760	900	
8	**7.98**	125	71.9	970	350	570	890	880	1050	*)	420	800	790	930	
9	**9.05**	110	75.0	890	315	510	760	760	920	*)	380	690	680	810	
10	**10.09**	99	76.8	820	305	490	690	700	850	205	365	620	620	740	
11.2	**11.44**	87	79.0	740	295	465	630	640	790	200	350	560	570	690	
12.5	**12.69**	79	79.0	670	310	485	620	640	800	215	365	550	570	690	
14	**14.39**	69	79.0	590	295	460	570	590	730	210	345	500	520	630	
16	**16.28**	61	79.0	520	295	455	530	560	700	215	345	465	490	600	
18	**18.47**	54	79.0	460	280	425	485	510	650	205	325	420	450	550	
20	**20.73**	48	77.6	405	195	305	330	340	440	130	225	280	290	365	**X3F.** /HH 244 /HU 270
22.4	**23.51**	43	79.0	365	190	290	305	320	415	130	215	260	270	340	
25	**25.94**	39	79.0	330	180	270	275	290	375	125	200	230	245	310	
28	**29.41**	34	79.0	290	175	270	265	280	365	125	200	220	235	300	
31.5	**32.13**	31	79.0	265	175	265	255	270	355	125	195	210	225	290	
35.5	**36.44**	27	79.0	235	165	255	240	255	335	120	190	195	210	275	
40	**39.25**	25	79.0	220	160	245	225	240	315	120	185	185	200	260	
45	**44.51**	22	79.0	195	160	240	215	230	305	120	180	180	190	250	
50	**48.62**	21	79.0	175	160	235	210	225	300	120	180	170	185	245	
56	**55.14**	18	79.0	155	155	235	200	215	290	115	175	165	180	235	
63	**64.48**	16	79.0	135	140	210	175	190	255	105	160	145	155	205	
71	**73.13**	14	79.0	115	140	205	170	185	245	105	155	140	150	200	
80	**79.88**	13	79.0	105	135	205	165	180	245	105	155	135	145	195	
90	**90.59**	11	79.0	95	135	200	160	175	235	100	150	130	140	190	
100	**99.49**	10	79.0	87	110	-	-	135	-	84	-	-	110	-	**X4F.** /HU 276
112	**112.83**	8.9	79.0	77	110	-	-	130	-	81	-	-	105	-	
125	**123.25**	8.1	79.0	70	110	-	-	130	-	82	-	-	100	-	
140	**139.78**	7.2	79.0	62	105	-	-	125	-	81	-	-	99	-	
160	**152.34**	6.6	79.0	57	98	-	-	115	-	74	-	-	90	-	
180	**172.77**	5.8	79.0	50	97	-	-	110	-	73	-	-	88	-	
200	**199.92**	5.0	79.0	43	88	-	-	100	-	67	-	-	79	-	
224	**226.73**	4.4	79.0	38	86	-	-	97	-	66	-	-	77	-	
250	**247.66**	4.0	79.0	35	87	-	-	97	-	66	-	-	76	-	
280	**280.87**	3.6	79.0	31	85	-	-	94	-	65	-	-	74	-	
315	**306.12**	3.3	79.0	28	79	-	-	87	-	60	-	-	69	-	
355	**347.17**	2.9	79.0	25	77	-	-	84	-	58	-	-	66	-	
X.F200..,n_1= 1200 1/min															**79 kNm**
6.3	**6.44**	186	66.9	1350	*)	610	990	960	1200	*)	415	890	860	1050	**X2F.** /HU 264
7.1	**7.31**	164	70.1	1250	*)	550	880	860	1050	*)	375	790	770	930	
8	**7.98**	150	71.9	1150	330	600	940	920	1150	*)	430	850	830	1000	
9	**9.05**	133	75.0	1050	300	540	850	830	1000	*)	390	770	740	900	
10	**10.09**	119	76.8	980	290	520	770	760	950	*)	380	690	680	830	
11.2	**11.44**	105	79.0	890	280	500	700	700	880	*)	365	620	630	760	
12.5	**12.69**	95	79.0	800	300	520	690	700	880	*)	385	610	620	760	
14	**14.39**	83	79.0	710	290	490	620	640	810	195	365	550	570	700	
16	**16.28**	74	79.0	620	295	485	580	610	780	200	365	510	540	670	
18	**18.47**	65	79.0	550	280	460	530	560	720	195	345	465	490	610	
20	**20.73**	58	77.6	490	190	325	360	365	485	*)	240	305	315	405	**X3F.** /HH 244 /HU 270
22.4	**23.51**	51	79.0	440	190	315	335	340	455	120	230	285	290	380	
25	**25.94**	46	79.0	395	175	295	300	310	415	115	215	255	265	345	
28	**29.41**	41	79.0	350	175	290	285	300	405	120	215	240	255	330	
31.5	**32.13**	37	79.0	320	175	285	275	290	395	120	210	230	245	320	
35.5	**36.44**	33	79.0	285	170	275	255	270	370	115	200	210	225	300	
40	**39.25**	31	79.0	260	165	265	245	255	350	120	200	200	215	285	
45	**44.51**	27	79.0	230	165	260	235	250	340	120	195	190	205	275	
50	**48.62**	25	79.0	210	165	260	225	240	330	120	195	185	200	270	
56	**55.14**	22	79.0	185	160	255	215	230	320	120	190	175	190	260	
63	**64.48**	19	79.0	160	145	230	190	205	280	110	170	155	170	225	
71	**73.13**	16	79.0	140	145	225	185	195	275	105	170	150	160	220	
80	**79.88**	15	79.0	130	140	220	180	190	270	105	165	145	155	215	
90	**90.59**	13	79.0	115	140	220	170	185	260	105	165	140	150	210	
100	**99.49**	12	79.0	105	115	-	-	145	-	87	-	-	115	-	**X4F.** /HU 276
112	**112.83**	11	79.0	92	115	-	-	135	-	84	-	-	110	-	
125	**123.25**	9.7	79.0	85	115	-	-	135	-	85	-	-	110	-	
140	**139.78**	8.6	79.0	75	110	-	-	130	-	83	-	-	105	-	
160	**152.34**	7.9	79.0	68	105	-	-	120	-	77	-	-	96	-	
180	**172.77**	6.9	79.0	60	100	-	-	115	-	76	-	-	93	-	
200	**199.92**	6.0	79.0	52	92	-	-	105	-	70	-	-	84	-	
224	**226.73**	5.3	79.0	46	91	-	-	105	-	69	-	-	82	-	
250	**247.66**	4.8	79.0	42	91	-	-	105	-	69	-	-	81	-	
280	**280.87**	4.3	79.0	37	89	-	-	100	-	68	-	-	79	-	
315	**306.12**	3.9	79.0	34	83	-	-	92	-	63	-	-	73	-	
355	**347.17**	3.5	79.0	30	80	-	-	89	-	61	-	-	70	-	

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X.F200..,n_1= 1500 1/min															**79 kNm**
					P_{TH} kW										
					M1				**20 °C**	**M1**				**40 °C**	
i_N	i_{ex}	n_2 min⁻¹	M_{N2} kNm	P_{N1} kW		Fan	Cooling cover (H_2O)	Cooling cartridge (H_2O)	Fan + cartridge (H_2O)		Fan	Cooling cover (H_2O)	Cooling cartridge (H_2O)	Fan + cartridge (H_2O)	
6.3	**6.44**	233	66.9	1650	*)	610	980	950	1250	*)	*)	870	840	1100	**X2F.** /HU 264
7.1	**7.31**	205	70.1	1550	*)	550	880	860	1100	*)	*)	780	760	970	
8	**7.98**	188	71.9	1450	*)	630	960	940	1200	*)	430	860	840	1050	
9	**9.05**	166	75.0	1350	*)	570	860	840	1100	*)	390	780	750	940	
10	**10.09**	149	76.8	1200	*)	560	830	810	1050	*)	380	750	730	910	
11.2	**11.44**	131	79.0	1100	*)	530	790	770	990	*)	370	710	690	860	
12.5	**12.69**	118	79.0	1000	275	560	780	770	1000	*)	400	700	690	860	
14	**14.39**	104	79.0	880	265	530	700	700	920	*)	385	630	630	790	
16	**16.28**	92	79.0	780	275	530	660	670	880	*)	390	580	590	750	
18	**18.47**	81	79.0	690	265	500	590	610	810	*)	370	520	540	690	
20	**20.73**	72	77.6	610	175	355	400	400	540	*)	250	345	345	455	**X3F.** /HH 244 /HU 270
22.4	**23.51**	64	79.0	550	170	340	370	370	510	*)	245	315	320	425	
25	**25.94**	58	79.0	495	165	320	330	340	470	*)	230	280	290	385	
28	**29.41**	51	79.0	440	170	315	315	325	450	*)	230	265	275	370	
31.5	**32.13**	47	79.0	400	170	310	300	315	440	100	225	250	265	360	
35.5	**36.44**	41	79.0	355	165	300	280	290	415	100	220	235	245	340	
40	**39.25**	38	79.0	330	170	290	265	280	395	115	215	225	235	320	
45	**44.51**	34	79.0	290	170	285	255	270	380	115	215	210	225	310	
50	**48.62**	31	79.0	265	165	285	245	260	370	120	210	205	220	300	
56	**55.14**	27	79.0	235	165	280	235	250	360	120	210	195	210	290	
63	**64.48**	23	79.0	200	150	255	205	220	315	110	190	170	185	255	
71	**73.13**	21	79.0	175	150	250	200	215	310	110	185	160	175	250	
80	**79.88**	19	79.0	160	145	245	195	205	300	110	185	155	170	240	
90	**90.59**	17	79.0	140	145	240	185	200	295	105	180	150	165	235	
100	**99.49**	15	79.0	130	120	-	-	155	-	90	-	-	125	-	**X4F.** /HU 276
112	**112.83**	13	79.0	115	115	-	-	145	-	87	-	-	120	-	
125	**123.25**	12	79.0	105	120	-	-	145	-	88	-	-	115	-	
140	**139.78**	11	79.0	93	115	-	-	140	-	86	-	-	115	-	
160	**152.34**	9.8	79.0	85	105	-	-	130	-	80	-	-	105	-	
180	**172.77**	8.7	79.0	75	105	-	-	125	-	78	-	-	100	-	
200	**199.92**	7.5	79.0	65	97	-	-	115	-	73	-	-	91	-	
224	**226.73**	6.6	79.0	57	96	-	-	110	-	72	-	-	88	-	
250	**247.66**	6.1	79.0	53	96	-	-	110	-	72	-	-	87	-	
280	**280.87**	5.3	79.0	46	94	-	-	110	-	71	-	-	85	-	
315	**306.12**	4.9	79.0	43	88	-	-	99	-	66	-	-	78	-	
355	**347.17**	4.3	79.0	38	85	-	-	96	-	64	-	-	75	-	
X.F200..,n_1= 1800 1/min															**79 kNm**
6.3	**6.44**	280	63.2	1900	*)	570	940	910	1300	*)	*)	820	790	1100	**X2F.** /HU 264
7.1	**7.31**	246	66.3	1750	*)	520	850	820	1150	*)	*)	740	710	970	
8	**7.98**	226	68.0	1650	*)	630	960	930	1250	*)	*)	850	820	1100	
9	**9.05**	199	70.9	1500	*)	570	860	840	1150	*)	*)	770	740	970	
10	**10.09**	178	72.6	1400	*)	570	840	820	1100	*)	365	750	730	940	
11.2	**11.44**	157	75.0	1250	*)	540	800	780	1050	*)	360	710	690	890	
12.5	**12.69**	142	76.6	1150	*)	580	840	810	1100	*)	395	750	730	940	
14	**14.39**	125	78.0	1050	*)	560	770	760	1000	*)	380	690	680	870	
16	**16.28**	111	79.0	940	245	560	720	720	970	*)	395	640	640	830	
18	**18.47**	97	79.0	830	240	530	650	650	890	*)	380	570	580	760	
20	**20.73**	87	73.4	690	*)	375	435	425	600	*)	250	375	365	495	**X3F.** /HH 244 /HU 270
22.4	**23.51**	77	74.7	620	*)	360	400	395	560	*)	245	345	340	465	
25	**25.94**	69	76.0	570	145	340	360	360	510	*)	235	305	305	425	
28	**29.41**	61	78.6	520	150	335	340	345	495	*)	235	290	295	405	
31.5	**32.13**	56	79.0	480	150	330	325	330	480	*)	240	270	280	395	
35.5	**36.44**	49	79.0	425	150	320	300	310	455	*)	230	250	260	370	
40	**39.25**	46	79.0	395	165	315	290	300	435	100	230	240	255	355	
45	**44.51**	40	79.0	345	170	310	275	285	420	105	230	230	240	340	
50	**48.62**	37	79.0	320	170	305	265	280	410	110	225	220	235	330	
56	**55.14**	33	79.0	280	165	300	255	265	395	110	225	210	225	320	
63	**64.48**	28	79.0	240	155	275	220	235	350	110	205	180	195	285	
71	**73.13**	25	79.0	210	150	270	215	225	340	110	200	175	190	275	
80	**79.88**	23	79.0	195	150	265	205	220	330	110	200	165	180	265	
90	**90.59**	20	79.0	170	150	265	200	215	320	110	195	160	175	260	
100	**99.49**	18	77.0	155	125	-	-	165	-	91	-	-	130	-	**X4F.** /HU 276
112	**112.83**	16	79.0	140	120	-	-	155	-	88	-	-	125	-	
125	**123.25**	15	79.0	125	120	-	-	155	-	89	-	-	125	-	
140	**139.78**	13	79.0	110	120	-	-	150	-	87	-	-	120	-	
160	**152.34**	12	79.0	105	110	-	-	135	-	81	-	-	110	-	
180	**172.77**	10	79.0	90	110	-	-	135	-	80	-	-	105	-	
200	**199.92**	9.0	79.0	78	100	-	-	120	-	76	-	-	96	-	
224	**226.73**	7.9	79.0	69	100	-	-	120	-	75	-	-	93	-	
250	**247.66**	7.3	79.0	63	100	-	-	115	-	75	-	-	93	-	
280	**280.87**	6.4	79.0	56	98	-	-	115	-	74	-	-	90	-	
315	**306.12**	5.9	79.0	51	91	-	-	105	-	69	-	-	83	-	
355	**347.17**	5.2	79.0	45	88	-	-	100	-	66	-	-	79	-	

X.F210..,n_1= 1000 1/min															90 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	7.29	137	75.5	1100	350	600	980	640	860	*)	425	880	540	700	X2F. /HU 264
8	8.26	121	79.3	1050	315	540	870	570	760	*)	385	790	480	630	
9	9.04	111	81.1	960	340	550	850	580	760	*)	405	760	485	630	
10	10.24	98	84.2	880	325	520	770	530	710	225	385	690	450	590	
11.2	11.42	88	86.8	820	315	500	700	500	670	215	375	620	420	550	
12.5	12.93	77	90.0	750	300	475	630	465	620	205	355	560	390	510	
14	14.37	70	90.0	670	320	495	630	470	640	225	370	550	395	520	
16	16.27	61	90.0	590	305	470	570	440	590	215	355	500	365	485	
18	18.44	54	90.0	520	300	460	540	420	580	220	350	465	350	470	
20	20.88	48	90.0	460	275	420	470	375	510	200	315	405	310	420	
22.4	23.47	43	88.0	405	195	300	320	260	360	130	225	275	210	285	X3F. /HH 244 /HU 270
25	26.57	38	90.0	370	195	295	310	255	350	135	220	260	200	280	
28	29.37	34	90.0	335	180	280	280	235	325	125	205	235	185	255	
31.5	33.25	30	90.0	295	180	275	270	225	320	130	205	225	180	250	
35.5	36.38	27	90.0	270	175	265	250	215	305	125	195	210	170	240	
40	41.19	24	90.0	235	170	260	240	210	295	125	195	200	165	230	
45	44.44	23	90.0	220	165	250	225	200	280	125	185	185	160	220	
50	50.32	20	90.0	195	160	240	215	190	270	120	180	175	150	210	
56	55.06	18	90.0	180	160	240	215	190	270	120	180	175	150	210	
63	62.33	16	90.0	155	155	230	200	180	255	115	175	160	145	200	
71	73.02	14	90.0	135	145	215	180	165	235	110	160	145	130	185	
80	82.67	12	90.0	120	140	210	175	160	230	105	160	140	125	180	
90	90.45	11	90.0	110	135	200	165	155	220	105	155	130	120	170	
100	102.41	9.8	90.0	95	135	200	160	150	215	100	150	130	120	170	
112	112.66	8.9	90.0	88	115	-	-	125	-	86	-	-	96	-	X4F. /HU 276
125	127.55	7.8	90.0	78	110	-	-	120	-	83	-	-	92	-	
140	139.56	7.2	90.0	71	110	-	-	115	-	82	-	-	91	-	
160	158.01	6.3	90.0	63	105	-	-	115	-	81	-	-	88	-	
180	172.51	5.8	90.0	57	100	-	-	105	-	76	-	-	83	-	
200	195.31	5.1	90.0	51	98	-	-	105	-	74	-	-	81	-	
224	226.38	4.4	90.0	44	90	-	-	95	-	68	-	-	73	-	
250	256.30	3.9	90.0	39	88	-	-	93	-	67	-	-	72	-	
280	280.44	3.6	90.0	35	87	-	-	91	-	66	-	-	71	-	
315	317.51	3.1	90.0	31	85	-	-	89	-	65	-	-	69	-	
355	346.64	2.9	90.0	29	80	-	-	84	-	61	-	-	65	-	
400	392.45	2.5	90.0	25	78	-	-	81	-	59	-	-	63	-	
X.F210..,n_1= 1200 1/min															**90 kNm**
7.1	7.29	165	75.5	1350	*)	620	990	630	900	*)	425	890	520	730	X2F. /HU 264
8	8.26	145	79.3	1250	*)	560	890	570	800	*)	385	800	465	650	
9	9.04	133	81.1	1150	320	580	900	590	820	*)	415	810	495	670	
10	10.24	117	84.2	1050	310	550	850	560	780	*)	400	770	470	640	
11.2	11.42	105	86.8	980	300	530	770	530	730	*)	390	690	440	600	
12.5	12.93	93	90.0	900	290	510	700	490	680	*)	375	630	410	560	
14	14.37	84	90.0	810	310	530	690	495	700	205	395	620	415	570	
16	16.27	74	90.0	710	300	500	630	460	650	200	375	560	385	530	
18	18.44	65	90.0	630	300	495	590	445	630	210	375	520	370	510	
20	20.88	57	90.0	550	275	450	510	395	560	190	340	450	325	455	
22.4	23.47	51	88.0	490	190	325	350	270	395	*)	240	300	215	310	X3F. /HH 244 /HU 270
25	26.57	45	90.0	440	195	320	335	265	385	125	235	285	210	305	
28	29.37	41	90.0	400	185	300	305	245	355	120	220	255	195	280	
31.5	33.25	36	90.0	355	180	295	290	240	345	120	220	245	190	270	
35.5	36.38	33	90.0	320	175	285	270	225	330	120	210	225	180	260	
40	41.19	29	90.0	285	175	280	260	220	325	120	205	215	175	255	
45	44.44	27	90.0	265	170	270	245	210	310	125	200	205	170	240	
50	50.32	24	90.0	235	165	260	230	200	295	120	195	190	160	230	
56	55.06	22	90.0	215	165	265	230	200	295	125	195	185	160	230	
63	62.33	19	90.0	190	160	250	215	190	280	120	190	175	150	220	
71	73.02	16	90.0	160	150	230	190	175	255	110	175	155	140	200	
80	82.67	15	90.0	140	145	230	185	170	250	110	170	150	135	195	
90	90.45	13	90.0	130	140	220	175	165	240	105	165	140	130	190	
100	102.41	12	90.0	115	140	215	170	160	235	105	165	135	125	185	
112	112.66	11	90.0	105	120	-	-	130	-	89	-	-	100	-	X4F. /HU 276
125	127.55	9.4	90.0	93	115	-	-	125	-	86	-	-	97	-	
140	139.56	8.6	90.0	85	115	-	-	125	-	85	-	-	95	-	
160	158.01	7.6	90.0	75	110	-	-	120	-	83	-	-	93	-	
180	172.51	7.0	90.0	69	105	-	-	110	-	79	-	-	87	-	
200	195.31	6.1	90.0	61	105	-	-	110	-	77	-	-	85	-	
224	226.38	5.3	90.0	52	94	-	-	100	-	71	-	-	77	-	
250	256.30	4.7	90.0	46	92	-	-	98	-	70	-	-	76	-	
280	280.44	4.3	90.0	42	91	-	-	96	-	69	-	-	74	-	
315	317.51	3.8	90.0	37	89	-	-	94	-	68	-	-	73	-	
355	346.64	3.5	90.0	34	84	-	-	88	-	64	-	-	68	-	
400	392.45	3.1	90.0	30	82	-	-	86	-	62	-	-	66	-	

X.F210..,n_1= 1500 1/min															90 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.29**	206	75.5	1650	*)	620	990	580	930	*)	*)	880	450	730	**X2F.** /HU 264
8	**8.26**	182	79.3	1550	*)	560	880	530	830	*)	*)	790	410	660	
9	**9.04**	166	81.1	1450	*)	610	920	580	870	*)	415	820	465	700	
10	**10.24**	146	84.2	1300	*)	580	870	550	820	*)	400	780	445	660	
11.2	**11.42**	131	86.8	1200	*)	570	840	540	800	*)	390	760	435	650	
12.5	**12.93**	116	90.0	1100	*)	540	790	520	750	*)	380	710	420	620	
14	**14.37**	104	90.0	1000	280	570	780	530	770	*)	410	700	430	630	
16	**16.27**	92	90.0	890	275	540	710	490	720	*)	390	630	400	580	
18	**18.44**	81	90.0	790	285	540	660	470	700	*)	400	580	390	570	
20	**20.88**	72	90.0	690	260	490	570	420	620	*)	360	500	345	500	
22.4	**23.47**	64	88.0	610	175	350	390	285	435	*)	250	335	215	345	**X3F.** /HH 244 /HU 270
25	**26.57**	56	90.0	550	180	350	370	280	425	*)	250	320	215	335	
28	**29.37**	51	90.0	500	170	325	335	255	395	*)	235	285	195	310	
31.5	**33.25**	45	90.0	440	175	320	320	250	385	*)	235	270	195	300	
35.5	**36.38**	41	90.0	405	170	310	295	235	365	100	225	250	185	285	
40	**41.19**	36	90.0	355	175	305	285	230	360	105	225	235	180	280	
45	**44.44**	34	90.0	330	175	300	270	225	345	120	220	225	180	270	
50	**50.32**	30	90.0	290	170	285	250	215	330	115	215	210	170	255	
56	**55.06**	27	90.0	265	170	290	250	215	330	120	215	205	170	260	
63	**62.33**	24	90.0	235	165	280	235	205	315	120	205	190	160	245	
71	**73.02**	21	90.0	200	155	260	210	185	285	115	195	170	145	225	
80	**82.67**	18	90.0	175	150	255	200	180	280	110	190	165	145	220	
90	**90.45**	17	90.0	160	145	245	190	175	270	110	185	155	135	210	
100	**102.41**	15	90.0	145	145	240	185	170	265	105	180	150	135	205	
112	**112.66**	13	90.0	130	125	-	-	140	-	92	-	-	105	-	**X4F.** /HU 276
125	**127.55**	12	90.0	115	120	-	-	130	-	89	-	-	100	-	
140	**139.56**	11	90.0	105	120	-	-	130	-	88	-	-	100	-	
160	**158.01**	9.5	90.0	94	115	-	-	125	-	86	-	-	98	-	
180	**172.51**	8.7	90.0	86	110	-	-	120	-	81	-	-	91	-	
200	**195.31**	7.7	90.0	76	105	-	-	115	-	80	-	-	89	-	
224	**226.38**	6.6	90.0	66	99	-	-	105	-	75	-	-	82	-	
250	**256.30**	5.9	90.0	58	97	-	-	105	-	73	-	-	80	-	
280	**280.44**	5.3	90.0	53	96	-	-	100	-	73	-	-	79	-	
315	**317.51**	4.7	90.0	47	95	-	-	100	-	71	-	-	77	-	
355	**346.64**	4.3	90.0	43	89	-	-	94	-	67	-	-	73	-	
400	**392.45**	3.8	90.0	38	87	-	-	91	-	65	-	-	70	-	
X.F210..,n_1= 1800 1/min															**90 kNm**
7.1	**7.29**	247	71.4	1900	*)	590	950	490	930	*)	*)	830	*)	700	**X2F.** /HU 264
8	**8.26**	218	75.0	1750	*)	540	860	450	840	*)	*)	740	*)	630	
9	**9.04**	199	76.7	1650	*)	610	910	530	900	*)	*)	810	*)	700	
10	**10.24**	176	79.6	1500	*)	580	860	510	850	*)	380	770	395	670	
11.2	**11.42**	158	82.1	1400	*)	580	840	510	830	*)	380	760	395	660	
12.5	**12.93**	139	84.8	1250	*)	560	800	490	790	*)	370	720	385	630	
14	**14.37**	125	85.6	1150	*)	600	840	530	830	*)	405	760	425	670	
16	**16.27**	111	86.8	1050	*)	570	780	500	780	*)	390	700	400	630	
18	**18.44**	98	88.0	920	255	570	720	485	760	*)	405	640	390	610	
20	**20.88**	86	90.0	830	235	520	630	430	680	*)	370	550	345	540	
22.4	**23.47**	77	83.2	690	*)	375	425	285	470	*)	250	370	210	370	**X3F.** /HH 244 /HU 270
25	**26.57**	68	85.1	630	155	370	405	280	460	*)	255	345	205	360	
28	**29.37**	61	86.0	570	155	350	360	260	425	*)	240	310	190	335	
31.5	**33.25**	54	88.8	520	160	345	345	255	415	*)	245	290	190	325	
35.5	**36.38**	49	90.0	485	155	330	320	245	395	*)	240	270	180	305	
40	**41.19**	44	90.0	425	160	325	305	235	385	*)	235	255	175	300	
45	**44.44**	41	90.0	395	175	320	290	235	375	110	235	245	185	295	
50	**50.32**	36	90.0	350	170	310	270	220	355	105	225	225	175	280	
56	**55.06**	33	90.0	320	170	315	270	220	360	115	230	220	175	280	
63	**62.33**	29	90.0	280	165	300	250	210	340	115	220	205	165	265	
71	**73.02**	25	90.0	240	160	280	225	195	315	115	210	185	155	245	
80	**82.67**	22	90.0	215	155	275	215	190	305	115	205	175	150	240	
90	**90.45**	20	90.0	195	150	265	205	180	295	110	200	165	140	230	
100	**102.41**	18	90.0	170	150	260	195	175	290	110	195	160	140	225	
112	**112.66**	16	85.1	150	125	-	-	145	-	93	-	-	110	-	**X4F.** /HU 276
125	**127.55**	14	90.0	140	125	-	-	140	-	90	-	-	105	-	
140	**139.56**	13	90.0	130	120	-	-	135	-	89	-	-	105	-	
160	**158.01**	11	90.0	115	120	-	-	130	-	88	-	-	100	-	
180	**172.51**	10	90.0	105	115	-	-	125	-	83	-	-	95	-	
200	**195.31**	9.2	90.0	91	110	-	-	120	-	82	-	-	92	-	
224	**226.38**	8.0	90.0	79	105	-	-	110	-	77	-	-	86	-	
250	**256.30**	7.0	90.0	69	100	-	-	110	-	76	-	-	84	-	
280	**280.44**	6.4	90.0	63	100	-	-	105	-	75	-	-	83	-	
315	**317.51**	5.7	90.0	56	98	-	-	105	-	74	-	-	81	-	
355	**346.64**	5.2	90.0	51	93	-	-	99	-	70	-	-	76	-	
400	**392.45**	4.6	90.0	45	90	-	-	95	-	68	-	-	73	-	

X.F220..,n_1= 1000 1/min															112 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min⁻¹	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.42**	156	87.7	1450	390	690	-	1150	1400	*)	480	-	1000	1200	**X2F.** /HH 240 /HU 266
7.1	**7.08**	141	90.0	1350	370	650	-	1050	1300	*)	455	-	960	1150	
8	**7.97**	125	93.2	1250	400	660	-	1050	1250	*)	480	-	940	1100	
9	**8.80**	114	95.4	1150	375	620	-	970	1150	*)	450	-	870	1050	
10	**10.06**	99	99.5	1050	415	660	-	970	1200	290	490	-	880	1050	
11.2	**11.10**	90	102	990	385	620	-	890	1100	270	460	-	800	950	
12.5	**12.61**	79	106	900	395	610	-	830	1000	285	460	-	740	880	
14	**13.92**	72	109	840	390	600	-	800	980	285	450	-	710	850	
16	**16.21**	62	112	740	370	570	-	720	890	275	430	-	640	770	
18	**17.89**	56	112	670	350	540	-	670	830	260	405	-	590	720	
20	**20.46**	49	99.2	530	275	425	-	500	640	195	315	-	435	540	**X3F.** /HH 246 /HU 272
22.4	**22.58**	44	107	510	265	410	-	475	600	190	305	-	410	510	
25	**25.06**	40	112	485	245	375	-	420	540	175	280	-	360	450	
28	**27.66**	36	112	440	240	370	-	405	520	175	275	-	345	435	
31.5	**30.96**	32	112	395	230	350	-	375	485	170	265	-	320	405	
35.5	**34.16**	29	112	355	220	335	-	355	460	160	250	-	300	380	
40	**40.46**	25	112	300	225	335	-	340	445	170	255	-	290	365	
45	**44.65**	22	112	270	225	330	-	330	430	165	250	-	280	355	
50	**49.96**	20	112	245	210	310	-	300	395	155	235	-	255	325	
56	**55.14**	18	112	220	200	295	-	285	375	150	225	-	240	305	
63	**64.28**	16	112	190	190	285	-	265	350	145	215	-	220	290	
71	**70.94**	14	112	170	190	280	-	260	345	140	210	-	215	280	
80	**79.39**	13	112	155	175	260	-	235	315	135	200	-	195	255	
90	**87.62**	11	112	140	170	250	-	225	300	130	190	-	185	245	
100	**101.26**	9.9	112	120	150	-	-	195	-	115	-	-	160	-	**X4F.** /HH 250 /HU 278
112	**111.76**	8.9	112	110	150	-	-	190	-	110	-	-	155	-	
125	**125.06**	8.0	112	98	140	-	-	180	-	105	-	-	145	-	
140	**138.02**	7.2	112	89	135	-	-	170	-	105	-	-	140	-	
160	**158.12**	6.3	112	78	125	-	-	150	-	93	-	-	120	-	
180	**174.51**	5.7	112	71	120	-	-	145	-	90	-	-	115	-	
200	**201.61**	5.0	112	61	125	-	-	150	-	95	-	-	120	-	
224	**222.51**	4.5	112	55	120	-	-	145	-	92	-	-	115	-	
250	**248.99**	4.0	112	49	115	-	-	135	-	89	-	-	110	-	
280	**274.80**	3.6	112	45	115	-	-	130	-	86	-	-	105	-	
315	**314.81**	3.2	112	39	100	-	-	115	-	76	-	-	92	-	
355	**347.45**	2.9	112	35	99	-	-	115	-	75	-	-	90	-	
X.F220..,n_1= 1200 1/min															**112 kNm**
6.3	**6.42**	187	87.7	1750	*)	700	-	1150	1450	*)	465	-	1000	1250	**X2F.** /HH 240 /HU 266
7.1	**7.08**	169	90.0	1650	*)	660	-	1050	1350	*)	440	-	960	1150	
8	**7.97**	151	93.2	1500	*)	680	-	1050	1300	*)	485	-	960	1150	
9	**8.80**	136	95.4	1400	*)	640	-	1000	1250	*)	455	-	900	1100	
10	**10.06**	119	99.5	1250	395	700	-	1050	1300	*)	500	-	950	1150	
11.2	**11.10**	108	102	1200	370	650	-	970	1200	*)	475	-	870	1050	
12.5	**12.61**	95	106	1100	390	650	-	900	1100	275	485	-	810	980	
14	**13.92**	86	109	1000	385	640	-	870	1100	275	480	-	780	950	
16	**16.21**	74	112	890	370	610	-	780	990	265	460	-	700	860	
18	**17.89**	67	112	810	350	580	-	720	920	250	435	-	640	800	
20	**20.46**	59	99.2	630	275	455	-	540	700	190	335	-	470	590	**X3F.** /HH 246 /HU 272
22.4	**22.58**	53	107	620	265	440	-	510	670	180	325	-	445	560	
25	**25.06**	48	112	580	245	405	-	455	590	170	300	-	390	500	
28	**27.66**	43	112	530	245	400	-	435	580	170	295	-	375	480	
31.5	**30.96**	39	112	470	235	380	-	405	540	165	280	-	345	445	
35.5	**34.16**	35	112	425	225	365	-	380	510	160	270	-	325	420	
40	**40.46**	30	112	360	235	365	-	370	490	170	275	-	315	405	
45	**44.65**	27	112	325	230	360	-	355	480	170	270	-	300	395	
50	**49.96**	24	112	290	215	335	-	325	435	160	255	-	275	360	
56	**55.14**	22	112	265	205	320	-	305	415	150	245	-	255	340	
63	**64.28**	19	112	225	200	310	-	285	390	150	235	-	240	320	
71	**70.94**	17	112	205	195	305	-	275	380	145	230	-	230	310	
80	**79.39**	15	112	185	185	285	-	255	350	135	215	-	210	285	
90	**87.62**	14	112	165	175	275	-	240	335	130	210	-	200	270	
100	**101.26**	12	112	145	155	-	-	210	-	115	-	-	170	-	**X4F.** /HH 250 /HU 278
112	**111.76**	11	112	130	155	-	-	205	-	115	-	-	165	-	
125	**125.06**	9.6	112	120	150	-	-	190	-	110	-	-	155	-	
140	**138.02**	8.7	112	105	145	-	-	185	-	105	-	-	150	-	
160	**158.12**	7.6	112	93	130	-	-	160	-	96	-	-	130	-	
180	**174.51**	6.9	112	85	125	-	-	155	-	93	-	-	125	-	
200	**201.61**	6.0	112	73	130	-	-	160	-	99	-	-	130	-	
224	**222.51**	5.4	112	66	125	-	-	155	-	96	-	-	125	-	
250	**248.99**	4.8	112	59	120	-	-	145	-	93	-	-	115	-	
280	**274.80**	4.4	112	54	120	-	-	140	-	90	-	-	110	-	
315	**314.81**	3.8	112	47	105	-	-	125	-	80	-	-	98	-	
355	**347.45**	3.5	112	43	105	-	-	120	-	79	-	-	96	-	

X.F220..,n_1= 1500 1/min															112 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
6.3	**6.42**	234	87.7	2200	*)	670	-	1100	1500	*)	*)	-	960	1250	**X2F.** /HH 240 /HU 266
7.1	**7.08**	212	90.0	2050	*)	630	-	1050	1400	*)	*)	-	900	1200	
8	**7.97**	188	93.2	1900	*)	700	-	1050	1400	*)	*)	-	940	1200	
9	**8.80**	170	95.4	1750	*)	660	-	1000	1300	*)	440	-	890	1100	
10	**10.06**	149	99.5	1600	*)	730	-	1050	1400	*)	510	-	960	1200	
11.2	**11.10**	135	102	1500	*)	680	-	1000	1300	*)	480	-	900	1150	
12.5	**12.61**	119	106	1350	370	700	-	1000	1300	*)	510	-	900	1100	
14	**13.92**	108	109	1250	370	690	-	960	1250	*)	500	-	860	1050	
16	**16.21**	93	112	1100	360	660	-	870	1100	*)	490	-	770	970	
18	**17.89**	84	112	1000	340	630	-	800	1050	*)	460	-	710	900	
20	**20.46**	73	99.2	790	265	495	-	590	790	*)	355	-	520	670	**X3F.** /HH 246 /HU 272
22.4	**22.58**	66	107	770	255	480	-	560	750	*)	340	-	485	630	
25	**25.06**	60	112	730	240	440	-	495	670	*)	315	-	430	560	
28	**27.66**	54	112	660	235	430	-	475	650	*)	315	-	410	540	
31.5	**30.96**	48	112	590	230	415	-	440	600	150	300	-	380	500	
35.5	**34.16**	44	112	530	220	395	-	415	570	145	290	-	350	470	
40	**40.46**	37	112	450	240	405	-	405	560	170	300	-	345	460	
45	**44.65**	34	112	410	235	400	-	390	540	170	295	-	330	445	
50	**49.96**	30	112	365	220	370	-	355	495	160	280	-	300	405	
56	**55.14**	27	112	330	210	355	-	335	465	150	265	-	280	385	
63	**64.28**	23	112	285	205	345	-	310	440	150	260	-	260	360	
71	**70.94**	21	112	255	205	340	-	300	430	150	255	-	255	350	
80	**79.39**	19	112	230	190	315	-	275	395	140	240	-	230	320	
90	**87.62**	17	112	210	185	305	-	260	375	135	230	-	215	305	
100	**101.26**	15	112	180	165	-	-	225	-	120	-	-	185	-	**X4F.** /HH 250 /HU 278
112	**111.76**	13	112	165	160	-	-	220	-	120	-	-	180	-	
125	**125.06**	12	112	150	155	-	-	205	-	115	-	-	170	-	
140	**138.02**	11	112	135	150	-	-	200	-	110	-	-	160	-	
160	**158.12**	9.5	112	115	135	-	-	175	-	99	-	-	140	-	
180	**174.51**	8.6	112	105	130	-	-	165	-	96	-	-	135	-	
200	**201.61**	7.4	112	92	140	-	-	175	-	105	-	-	140	-	
224	**222.51**	6.7	112	83	135	-	-	165	-	100	-	-	135	-	
250	**248.99**	6.0	112	74	130	-	-	160	-	97	-	-	125	-	
280	**274.80**	5.5	112	67	125	-	-	150	-	94	-	-	120	-	
315	**314.81**	4.8	112	59	110	-	-	130	-	84	-	-	105	-	
355	**347.45**	4.3	112	53	110	-	-	130	-	82	-	-	105	-	
X.F220..,n_1= 1800 1/min															**112 kNm**
6.3[1)]	**6.42**	280	82.9	2500	*)	*)	-	1000	1450	*)	*)	-	840	1200	**X2F.** /HH 240 /HU 266
7.1[1)]	**7.08**	254	85.1	2300	*)	*)	-	940	1400	*)	*)	-	800	1150	
8[1)]	**7.97**	226	88.1	2150	*)	680	-	1050	1400	*)	*)	-	900	1200	
9[1)]	**8.80**	205	90.2	2000	*)	640	-	960	1350	*)	*)	-	840	1150	
10[1)]	**10.06**	179	94.1	1800	*)	730	-	1050	1450	*)	485	-	940	1250	
11.2[1)]	**11.10**	162	96.5	1700	*)	690	-	1000	1350	*)	455	-	880	1150	
12.5	**12.61**	143	100	1550	*)	730	-	1000	1350	*)	520	-	910	1150	
14	**13.92**	129	102	1400	*)	720	-	1000	1300	*)	510	-	900	1150	
16	**16.21**	111	105	1250	335	700	-	940	1250	*)	500	-	840	1050	
18	**17.89**	101	107	1150	315	660	-	860	1150	*)	475	-	770	990	
20	**20.46**	88	93.8	900	240	520	-	630	870	*)	360	-	550	730	**X3F.** /HH 246 /HU 272
22.4	**22.58**	80	101	870	230	500	-	600	820	*)	350	-	520	690	
25	**25.06**	72	105	820	220	465	-	530	730	*)	325	-	460	620	
28	**27.66**	65	106	750	220	460	-	510	710	*)	325	-	440	590	
31.5	**30.96**	58	107	680	215	440	-	470	660	*)	315	-	405	550	
35.5	**34.16**	53	112	640	210	420	-	440	620	*)	300	-	375	520	
40	**40.46**	44	112	540	240	440	-	435	620	165	325	-	370	510	
45	**44.65**	40	112	490	235	430	-	420	600	160	320	-	360	495	
50	**49.96**	36	112	440	220	400	-	380	540	155	295	-	320	450	
56	**55.14**	33	112	395	210	385	-	355	520	150	285	-	300	420	
63	**64.28**	28	112	340	210	375	-	335	485	150	280	-	280	400	
71	**70.94**	25	112	310	205	365	-	325	475	150	275	-	270	385	
80	**79.39**	23	112	275	195	345	-	295	435	140	255	-	245	355	
90	**87.62**	21	112	250	185	330	-	280	415	135	245	-	230	335	
100	**101.26**	18	106	210	165	-	-	240	-	120	-	-	200	-	**X4F.** /HH 250 /HU 278
112	**111.76**	16	112	200	165	-	-	235	-	120	-	-	195	-	
125	**125.06**	14	112	175	160	-	-	220	-	115	-	-	180	-	
140	**138.02**	13	112	160	150	-	-	210	-	110	-	-	170	-	
160	**158.12**	11	112	140	135	-	-	185	-	100	-	-	150	-	
180	**174.51**	10	112	125	130	-	-	175	-	97	-	-	145	-	
200	**201.61**	8.9	112	110	145	-	-	185	-	105	-	-	150	-	
224	**222.51**	8.1	112	100	140	-	-	175	-	105	-	-	145	-	
250	**248.99**	7.2	112	89	135	-	-	170	-	100	-	-	135	-	
280	**274.80**	6.6	112	81	130	-	-	160	-	97	-	-	130	-	
315	**314.81**	5.7	112	70	115	-	-	140	-	87	-	-	115	-	
355	**347.45**	5.2	112	64	115	-	-	135	-	85	-	-	110	-	

X.F230..,n_1= 1000 1/min															131 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
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	*)	520	-	650	880	**X2F.** /HH 240 /HU 266
8	**7.98**	125	101	1350	395	700	-	730	1000	*)	490	-	600	810	
9	**9.03**	111	105	1250	410	670	-	700	930	*)	490	-	590	770	
10	**9.91**	101	107	1150	405	660	-	680	920	*)	480	-	570	760	
11.2	**11.39**	88	112	1050	420	670	-	670	900	295	500	-	560	740	
12.5	**12.50**	80	114	980	395	630	-	620	840	280	465	-	520	690	
14	**14.28**	70	119	890	400	620	-	590	790	295	465	-	495	650	
16	**15.68**	64	122	830	395	610	-	580	780	290	460	-	480	640	
18	**18.36**	54	127	750	380	580	-	530	720	280	440	-	440	590	
20	**20.16**	50	130	690	375	570	-	520	700	275	435	-	430	580	
22.4	**23.17**	43	112	530	285	435	-	385	530	205	325	-	310	420	**X3F.** /HH 246 /HU 272
25	**25.44**	39	123	530	275	420	-	365	500	195	310	-	295	400	
28	**28.38**	35	131	500	260	395	-	335	465	185	295	-	270	370	
31.5	**31.17**	32	131	455	250	380	-	320	445	180	285	-	260	355	
35.5	**35.05**	29	131	405	240	360	-	305	420	175	270	-	240	335	
40	**38.49**	26	131	370	230	345	-	285	400	165	260	-	230	315	
45	**45.81**	22	131	310	230	345	-	285	390	175	260	-	225	310	
50	**50.30**	20	131	285	230	340	-	275	385	170	255	-	220	305	
56	**56.58**	18	131	250	215	315	-	255	355	160	240	-	200	280	
63	**62.12**	16	131	230	205	305	-	240	335	155	230	-	190	265	
71	**72.79**	14	131	195	195	290	-	230	320	150	220	-	180	250	
80	**79.92**	13	131	180	195	285	-	225	315	145	215	-	180	245	
90	**89.89**	11	131	160	175	260	-	205	285	135	200	-	160	225	
100	**98.71**	10	131	145	175	255	-	200	280	130	195	-	155	220	
112	**114.66**	8.7	131	125	155	-	-	170	-	115	-	-	135	-	**X4F.** /HH 250 /HU 278
125	**125.90**	7.9	131	115	150	-	-	170	-	115	-	-	135	-	
140	**141.61**	7.1	131	100	145	-	-	160	-	110	-	-	125	-	
160	**155.49**	6.4	131	93	140	-	-	155	-	105	-	-	120	-	
180	**179.04**	5.6	131	80	125	-	-	135	-	93	-	-	105	-	
200	**196.60**	5.1	131	73	120	-	-	135	-	92	-	-	105	-	
224	**228.29**	4.4	131	63	130	-	-	140	-	98	-	-	110	-	
250	**250.68**	4.0	131	57	125	-	-	135	-	96	-	-	105	-	
280	**281.94**	3.5	131	51	115	-	-	125	-	89	-	-	98	-	
315	**309.59**	3.2	131	46	115	-	-	125	-	88	-	-	96	-	
355	**356.48**	2.8	131	40	105	-	-	110	-	78	-	-	85	-	
400	**391.43**	2.6	131	37	100	-	-	105	-	77	-	-	83	-	
X.F230..,n_1= 1200 1/min															**131 kNm**
7.1	**7.27**	165	99.0	1750	*)	760	-	760	1100	*)	510	-	600	880	**X2F.** /HH 240 /HU 266
8	**7.98**	150	101	1650	*)	710	-	700	1050	*)	470	-	560	820	
9	**9.03**	133	105	1500	380	700	-	700	980	*)	495	-	570	800	
10	**9.91**	121	107	1400	375	690	-	690	970	*)	490	-	570	790	
11.2	**11.39**	105	112	1250	405	710	-	700	980	*)	520	-	590	800	
12.5	**12.50**	96	114	1200	380	660	-	650	910	*)	485	-	540	740	
14	**14.28**	84	119	1050	400	660	-	630	870	285	495	-	520	720	
16	**15.68**	77	122	1000	395	650	-	610	850	280	490	-	510	700	
18	**18.36**	65	127	890	380	620	-	560	790	275	470	-	465	640	
20	**20.16**	60	130	830	375	610	-	550	770	270	460	-	455	630	
22.4	**23.17**	52	112	630	285	470	-	400	580	195	345	-	325	455	**X3F.** /HH 246 /HU 272
25	**25.44**	47	123	630	275	450	-	385	550	190	330	-	310	435	
28	**28.38**	42	131	600	260	425	-	355	510	180	315	-	285	405	
31.5	**31.17**	38	131	550	250	410	-	340	485	175	305	-	270	385	
35.5	**35.05**	34	131	485	240	390	-	315	460	170	290	-	255	365	
40	**38.49**	31	131	445	230	375	-	300	435	165	275	-	240	345	
45	**45.81**	26	131	375	240	375	-	300	430	175	285	-	240	340	
50	**50.30**	24	131	340	235	370	-	290	420	175	280	-	235	335	
56	**56.58**	21	131	300	220	345	-	270	390	165	260	-	215	305	
63	**62.12**	19	131	275	210	330	-	255	370	155	250	-	205	290	
71	**72.79**	16	131	235	205	320	-	240	350	150	240	-	190	275	
80	**79.92**	15	131	215	200	315	-	235	345	150	235	-	190	270	
90	**89.89**	13	131	190	185	285	-	215	315	140	215	-	170	245	
100	**98.71**	12	131	175	180	280	-	210	305	135	215	-	165	240	
112	**114.66**	10	131	150	160	-	-	180	-	120	-	-	145	-	**X4F.** /HH 250 /HU 278
125	**125.90**	9.5	131	135	160	-	-	180	-	120	-	-	140	-	
140	**141.61**	8.5	131	120	150	-	-	165	-	110	-	-	130	-	
160	**155.49**	7.7	131	110	145	-	-	165	-	110	-	-	130	-	
180	**179.04**	6.7	131	96	130	-	-	145	-	97	-	-	110	-	
200	**196.60**	6.1	131	88	125	-	-	140	-	95	-	-	110	-	
224	**228.29**	5.3	131	76	135	-	-	145	-	100	-	-	115	-	
250	**250.68**	4.8	131	69	130	-	-	145	-	100	-	-	110	-	
280	**281.94**	4.3	131	61	125	-	-	135	-	93	-	-	105	-	
315	**309.59**	3.9	131	56	120	-	-	130	-	92	-	-	100	-	
355	**356.48**	3.4	131	48	110	-	-	115	-	82	-	-	90	-	
400	**391.43**	3.1	131	44	105	-	-	115	-	80	-	-	88	-	

X.F230.., n_1= 1500 1/min — 131 kNm

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.27**	206	99.0	2200	*)	730	-	660	1100	*)	*)	-	*)	850	**X2F.** /HH 240 /HU 266
8	**7.98**	188	101	2050	*)	680	-	610	1050	*)	*)	-	*)	790	
9	**9.03**	166	105	1850	*)	720	-	660	1000	*)	480	-	520	810	
10	**9.91**	151	107	1750	*)	710	-	650	1000	*)	475	-	520	800	
11.2	**11.39**	132	112	1600	*)	740	-	690	1050	*)	520	-	560	830	
12.5	**12.50**	120	114	1450	*)	700	-	650	970	*)	490	-	520	780	
14	**14.28**	105	119	1350	380	710	-	660	970	*)	520	-	550	790	
16	**15.68**	96	122	1250	375	700	-	640	940	*)	520	-	540	770	
18	**18.36**	82	127	1100	370	670	-	600	880	*)	500	-	490	710	
20	**20.16**	74	130	1050	365	660	-	580	860	*)	490	-	475	700	
22.4	**23.17**	65	112	790	275	510	-	420	640	*)	365	-	335	500	**X3F.** /HH 246 /HU 272
25	**25.44**	59	123	790	265	490	-	400	610	*)	355	-	320	480	
28	**28.38**	53	131	750	255	465	-	375	570	*)	335	-	295	445	
31.5	**31.17**	48	131	680	245	445	-	355	540	*)	325	-	280	425	
35.5	**35.05**	43	131	610	240	425	-	335	510	160	310	-	260	400	
40	**38.49**	39	131	550	230	405	-	315	485	155	300	-	245	380	
45	**45.81**	33	131	465	245	415	-	320	480	175	310	-	255	380	
50	**50.30**	30	131	425	240	410	-	310	470	175	305	-	250	370	
56	**56.58**	27	131	375	225	380	-	285	435	165	285	-	225	340	
63	**62.12**	24	131	345	215	365	-	270	415	155	275	-	215	325	
71	**72.79**	21	131	295	210	355	-	260	395	155	265	-	205	310	
80	**79.92**	19	131	265	210	345	-	250	385	155	260	-	200	305	
90	**89.89**	17	131	235	190	315	-	230	350	140	240	-	180	275	
100	**98.71**	15	131	215	190	310	-	225	345	140	235	-	175	270	
112	**114.66**	13	131	190	165	-	-	195	-	125	-	-	150	-	**X4F.** /HH 250 /HU 278
125	**125.90**	12	131	170	165	-	-	190	-	120	-	-	150	-	
140	**141.61**	11	131	150	155	-	-	180	-	115	-	-	140	-	
160	**155.49**	9.6	131	140	150	-	-	175	-	115	-	-	135	-	
180	**179.04**	8.4	131	120	135	-	-	150	-	100	-	-	120	-	
200	**196.60**	7.6	131	110	130	-	-	150	-	98	-	-	115	-	
224	**228.29**	6.6	131	95	140	-	-	155	-	105	-	-	125	-	
250	**250.68**	6.0	131	86	140	-	-	155	-	105	-	-	120	-	
280	**281.94**	5.3	131	77	130	-	-	140	-	98	-	-	110	-	
315	**309.59**	4.8	131	70	130	-	-	140	-	96	-	-	110	-	
355	**356.48**	4.2	131	61	115	-	-	125	-	86	-	-	96	-	
400	**391.43**	3.8	131	55	110	-	-	120	-	85	-	-	94	-	

X.F230.., n_1= 1800 1/min — 131 kNm

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	**7.27**	248	93.6	2500	*)	630	-	*)	1050	*)	*)	-	*)	750	**X2F.** /HH 240 /HU 266
8[1)]	**7.98**	226	96.0	2300	*)	590	-	*)	990	*)	*)	-	*)	700	
9[1)]	**9.03**	199	99.3	2100	*)	700	-	580	1050	*)	*)	-	*)	790	
10[1)]	**9.91**	182	101	2000	*)	690	-	580	1000	*)	*)	-	*)	780	
11.2[1)]	**11.39**	158	106	1800	*)	750	-	640	1050	*)	495	-	500	840	
12.5[1)]	**12.50**	144	108	1650	*)	700	-	600	1000	*)	470	-	470	780	
14	**14.28**	126	112	1500	*)	750	-	660	1000	*)	530	-	540	820	
16	**15.68**	115	115	1400	*)	740	-	650	1000	*)	530	-	530	810	
18	**18.36**	98	120	1250	345	710	-	620	950	*)	510	-	500	770	
20	**20.16**	89	122	1150	340	700	-	600	930	*)	510	-	485	750	
22.4	**23.17**	78	105	890	250	540	-	430	690	*)	375	-	340	540	**X3F.** /HH 246 /HU 272
25	**25.44**	71	116	890	240	520	-	410	660	*)	360	-	320	520	
28	**28.38**	63	123	850	240	490	-	380	610	*)	345	-	295	480	
31.5	**31.17**	58	125	790	230	475	-	360	580	*)	335	-	280	455	
35.5	**35.05**	51	127	710	225	455	-	340	550	*)	325	-	265	430	
40	**38.49**	47	131	670	215	435	-	320	520	*)	310	-	250	405	
45	**45.81**	39	131	560	245	450	-	335	530	170	335	-	265	415	
50	**50.30**	36	131	510	245	445	-	325	520	170	330	-	260	405	
56	**56.58**	32	131	455	230	410	-	300	475	160	305	-	235	370	
63	**62.12**	29	131	410	220	395	-	285	450	155	295	-	225	355	
71	**72.79**	25	131	350	215	385	-	270	430	155	285	-	215	340	
80	**79.92**	23	131	320	210	375	-	265	425	155	280	-	210	330	
90	**89.89**	20	131	285	195	345	-	240	385	140	260	-	185	300	
100	**98.71**	18	131	260	190	340	-	235	375	140	255	-	180	290	
112	**114.66**	16	123	215	170	-	-	200	-	125	-	-	160	-	**X4F.** /HH 250 /HU 278
125	**125.90**	14	131	205	170	-	-	200	-	120	-	-	155	-	
140	**141.61**	13	131	185	160	-	-	185	-	115	-	-	145	-	
160	**155.49**	12	131	165	155	-	-	180	-	115	-	-	140	-	
180	**179.04**	10	131	145	140	-	-	160	-	100	-	-	120	-	
200	**196.60**	9.2	131	130	135	-	-	155	-	99	-	-	120	-	
224	**228.29**	7.9	131	115	145	-	-	165	-	110	-	-	130	-	
250	**250.68**	7.2	131	105	145	-	-	160	-	110	-	-	125	-	
280	**281.94**	6.4	131	92	135	-	-	150	-	100	-	-	115	-	
315	**309.59**	5.8	131	84	135	-	-	145	-	99	-	-	115	-	
355	**356.48**	5.0	131	73	120	-	-	130	-	89	-	-	100	-	
400	**391.43**	4.6	131	66	115	-	-	125	-	87	-	-	98	-	

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X.F240..,n$_1$= 1000 1/min															156 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.30**	159	124	2100	*)	690	-	1150	1500	*)	*)	-	1000	1250	**X2F.** /HH 240 /HU 266
7.1	**7.26**	138	133	1950	*)	680	-	1150	1450	*)	*)	-	1000	1250	
8	**8.01**	125	138	1850	*)	770	-	1150	1450	*)	540	-	1050	1250	
9	**9.22**	108	144	1700	*)	710	-	1100	1350	*)	500	-	960	1150	
10	**10.14**	99	147	1550	450	740	-	1050	1300	*)	540	-	960	1150	
11.2	**11.67**	86	152	1400	415	700	-	970	1200	*)	500	-	860	1050	
12.5	**12.34**	81	154	1350	485	780	-	1050	1300	335	580	-	930	1150	
14	**14.21**	70	156	1200	450	730	-	950	1200	310	540	-	830	1000	
16	**15.69**	64	156	1050	440	690	-	850	1050	320	520	-	750	920	
18	**18.06**	55	156	930	410	640	-	770	980	295	480	-	680	830	
20	**20.93**	48	155	800	310	495	-	560	730	210	360	-	480	600	**X3F.** /HH 246 /HU 272
22.4	**24.09**	42	156	700	295	465	-	520	670	200	340	-	440	560	
25	**26.34**	38	156	640	285	450	-	485	630	195	330	-	410	520	
28	**30.32**	33	156	560	270	425	-	450	590	185	310	-	375	485	
31.5	**32.42**	31	156	520	280	435	-	450	600	195	320	-	380	485	
35.5	**37.31**	27	156	455	265	415	-	415	550	185	305	-	345	450	
40	**40.49**	25	156	420	260	390	-	385	510	190	290	-	325	415	
45	**46.60**	21	156	365	245	370	-	360	475	180	280	-	300	390	
50	**49.83**	20	156	340	250	380	-	360	480	185	285	-	300	390	
56	**57.35**	17	156	295	240	360	-	335	450	175	270	-	280	365	
63	**65.18**	15	156	260	230	340	-	310	415	170	255	-	255	340	
71	**75.02**	13	156	225	215	325	-	290	395	160	245	-	240	315	
80	**80.22**	12	156	210	220	330	-	290	395	165	250	-	240	320	
90	**92.34**	11	156	185	210	315	-	275	370	155	235	-	225	300	
100	**105.04**	9.5	153	160	175	-	-	225	-	130	-	-	180	-	**X4F.** /HH 250 /HU 278
112	**120.90**	8.3	156	140	170	-	-	215	-	125	-	-	170	-	
125	**129.28**	7.7	156	135	170	-	-	215	-	130	-	-	170	-	
140	**148.80**	6.7	156	115	165	-	-	200	-	120	-	-	160	-	
160	**155.53**	6.4	156	110	155	-	-	190	-	115	-	-	155	-	
180	**179.01**	5.6	156	96	155	-	-	185	-	115	-	-	150	-	
200	**205.74**	4.9	156	83	145	-	-	170	-	110	-	-	135	-	
224	**236.80**	4.2	156	72	140	-	-	160	-	105	-	-	130	-	
250	**253.21**	3.9	156	68	140	-	-	165	-	110	-	-	130	-	
280	**291.45**	3.4	156	59	135	-	-	155	-	105	-	-	125	-	
315	**304.61**	3.3	156	56	125	-	-	145	-	97	-	-	115	-	
355	**350.61**	2.9	156	49	120	-	-	140	-	93	-	-	110	-	
X.F240..,n$_1$= 1200 1/min															**156 kNm**
6.3	**6.30**	190	124	2550	*)	*)	-	1100	1500	*)	*)	-	920	1250	**X2F.** /HH 240 /HU 266
7.1	**7.26**	165	133	2350	*)	620	-	1100	1450	*)	*)	-	910	1200	
8	**8.01**	150	138	2250	*)	780	-	1150	1500	*)	*)	-	1000	1300	
9	**9.22**	130	144	2000	*)	730	-	1100	1400	*)	*)	-	950	1200	
10	**10.14**	118	147	1850	*)	770	-	1100	1400	*)	540	-	990	1250	
11.2	**11.67**	103	152	1700	*)	720	-	1050	1300	*)	500	-	920	1150	
12.5	**12.34**	97	154	1600	460	830	-	1150	1450	*)	600	-	1000	1250	
14	**14.21**	84	156	1400	430	770	-	1000	1300	*)	550	-	900	1100	
16	**15.69**	76	156	1300	435	730	-	920	1200	*)	540	-	810	1000	
18	**18.06**	66	156	1100	405	680	-	830	1100	280	510	-	730	920	
20	**20.93**	57	155	970	300	530	-	600	800	*)	370	-	510	660	**X3F.** /HH 246 /HU 272
22.4	**24.09**	50	156	840	285	495	-	550	740	*)	355	-	470	610	
25	**26.34**	46	156	770	280	480	-	520	700	*)	345	-	440	570	
28	**30.32**	40	156	670	265	455	-	475	650	175	330	-	400	530	
31.5	**32.42**	37	156	630	275	470	-	480	650	185	340	-	400	530	
35.5	**37.31**	32	156	550	265	445	-	440	610	175	320	-	370	495	
40	**40.49**	30	156	500	265	425	-	415	560	185	315	-	345	460	
45	**46.60**	26	156	435	250	400	-	385	530	175	300	-	320	430	
50	**49.83**	24	156	410	255	410	-	385	530	185	305	-	320	430	
56	**57.35**	21	156	355	245	390	-	360	495	175	290	-	295	400	
63	**65.18**	18	156	310	235	370	-	330	460	175	280	-	275	375	
71	**75.02**	16	156	270	225	355	-	310	435	165	265	-	255	350	
80	**80.22**	15	156	255	230	360	-	310	435	170	270	-	255	350	
90	**92.34**	13	156	220	215	340	-	290	410	160	255	-	240	330	
100	**105.04**	11	153	190	180	-	-	240	-	135	-	-	195	-	**X4F.** /HH 250 /HU 278
112	**120.90**	9.9	156	170	175	-	-	225	-	130	-	-	185	-	
125	**129.28**	9.3	156	160	175	-	-	225	-	130	-	-	180	-	
140	**148.80**	8.1	156	140	170	-	-	215	-	125	-	-	170	-	
160	**155.53**	7.7	156	130	160	-	-	205	-	120	-	-	165	-	
180	**179.01**	6.7	156	115	160	-	-	195	-	115	-	-	155	-	
200	**205.74**	5.8	156	100	150	-	-	180	-	115	-	-	145	-	
224	**236.80**	5.1	156	87	145	-	-	170	-	110	-	-	140	-	
250	**253.21**	4.7	156	81	150	-	-	175	-	110	-	-	140	-	
280	**291.45**	4.1	156	71	145	-	-	165	-	110	-	-	135	-	
315	**304.61**	3.9	156	68	135	-	-	155	-	100	-	-	125	-	
355	**350.61**	3.4	156	59	130	-	-	145	-	97	-	-	115	-	

22758666/EN – 03/2017

X.F240..,n_1= 1500 1/min — 156 kNm

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1]	**6.30**	238	124	3200	*)	*)	-	860	1400	*)	*)	-	*)	1100	
7.1[1]	**7.26**	207	133	2950	*)	*)	-	850	1350	*)	*)	-	*)	1050	
8	**8.01**	187	138	2800	*)	750	-	1100	1550	*)	*)	-	950	1300	
9	**9.22**	163	144	2500	*)	700	-	1050	1450	*)	*)	-	890	1200	**X2F.**
10	**10.14**	148	147	2350	*)	780	-	1100	1500	*)	*)	-	960	1250	/HH
11.2	**11.67**	129	152	2100	*)	720	-	1050	1400	*)	*)	-	900	1200	240
12.5	**12.34**	122	154	2000	*)	860	-	1200	1550	*)	590	-	1050	1350	/HU
14	**14.21**	106	156	1750	*)	800	-	1100	1450	*)	550	-	970	1250	266
16	**15.69**	96	156	1600	400	780	-	1000	1300	*)	560	-	890	1150	
18	**18.06**	83	156	1400	375	730	-	900	1200	*)	530	-	790	1050	
20	**20.93**	72	155	1200	*)	560	-	650	890	*)	375	-	550	740	
22.4	**24.09**	62	156	1050	*)	530	-	590	820	*)	360	-	500	680	
25	**26.34**	57	156	960	255	510	-	550	780	*)	355	-	470	640	
28	**30.32**	49	156	840	245	485	-	510	720	*)	340	-	425	590	
31.5	**32.42**	46	156	780	255	500	-	510	730	*)	355	-	425	590	
35.5	**37.31**	40	156	680	245	475	-	470	670	*)	335	-	390	550	**X3F.**
40	**40.49**	37	156	630	260	465	-	445	630	170	340	-	375	520	/HH
45	**46.60**	32	156	550	250	440	-	415	590	165	320	-	345	480	246
50	**49.83**	30	156	510	255	450	-	415	590	175	330	-	345	480	/HU
56	**57.35**	26	156	445	245	425	-	385	560	165	315	-	320	450	272
63	**65.18**	23	156	390	240	410	-	360	520	170	305	-	300	420	
71	**75.02**	20	156	340	230	390	-	335	485	165	290	-	275	395	
80	**80.22**	19	156	315	235	395	-	335	490	170	295	-	275	395	
90	**92.34**	16	156	275	225	380	-	315	460	160	280	-	255	370	
100	**105.04**	14	153	240	185	-	-	255	-	135	-	-	210	-	
112	**120.90**	12	156	215	180	-	-	240	-	130	-	-	195	-	
125	**129.28**	12	156	200	180	-	-	240	-	130	-	-	195	-	
140	**148.80**	10	156	175	175	-	-	230	-	125	-	-	180	-	
160	**155.53**	9.6	156	165	165	-	-	215	-	120	-	-	175	-	**X4F.**
180	**179.01**	8.4	156	145	165	-	-	210	-	120	-	-	165	-	/HH
200	**205.74**	7.3	156	125	160	-	-	195	-	120	-	-	160	-	250
224	**236.80**	6.3	156	110	150	-	-	185	-	115	-	-	150	-	/HU
250	**253.21**	5.9	156	100	155	-	-	190	-	115	-	-	150	-	278
280	**291.45**	5.1	156	88	150	-	-	180	-	110	-	-	145	-	
315	**304.61**	4.9	156	84	140	-	-	165	-	105	-	-	130	-	
355	**350.61**	4.3	156	73	135	-	-	160	-	100	-	-	125	-	
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	*)	*)	-	*)	*)	
8[1]	**8.01**	225	130	3150	*)	*)	-	990	1500	*)	*)	-	820	1250	
9[1]	**9.22**	195	136	2850	*)	*)	-	930	1400	*)	*)	-	770	1150	**X2F.**
10[1]	**10.14**	178	138	2650	*)	730	-	1050	1500	*)	*)	-	880	1250	/HH
11.2[1]	**11.67**	154	143	2350	*)	690	-	960	1400	*)	*)	-	820	1150	240
12.5	**12.34**	146	145	2300	*)	860	-	1150	1600	*)	*)	-	1000	1350	/HU
14	**14.21**	127	147	2000	*)	800	-	1050	1500	*)	510	-	930	1250	266
16	**15.69**	115	149	1850	*)	810	-	1050	1450	*)	560	-	920	1200	
18	**18.06**	100	152	1650	*)	750	-	960	1300	*)	520	-	840	1100	
20	**20.93**	86	146	1350	*)	570	-	670	960	*)	365	-	570	800	
22.4	**24.09**	75	147	1200	*)	540	-	610	890	*)	350	-	520	730	
25	**26.34**	68	148	1100	*)	530	-	580	840	*)	350	-	480	690	
28	**30.32**	59	149	960	*)	500	-	530	780	*)	335	-	440	630	
31.5	**32.42**	56	153	920	*)	520	-	530	790	*)	350	-	440	640	
35.5	**37.31**	48	156	820	215	495	-	485	730	*)	335	-	400	590	**X3F.**
40	**40.49**	44	156	750	245	495	-	470	690	*)	355	-	395	560	/HH
45	**46.60**	39	156	650	235	470	-	435	640	*)	340	-	365	520	246
50	**49.83**	36	156	610	245	480	-	440	650	155	350	-	365	530	/HU
56	**57.35**	31	156	530	235	455	-	405	610	150	330	-	335	490	272
63	**65.18**	28	156	470	240	440	-	380	570	165	325	-	315	460	
71	**75.02**	24	156	405	230	420	-	355	530	160	310	-	295	430	
80	**80.22**	22	156	380	235	430	-	355	540	165	315	-	290	430	
90	**92.34**	19	156	330	225	410	-	330	500	155	300	-	270	405	
100	**105.04**	17	146	275	185	-	-	270	-	130	-	-	220	-	
112	**120.90**	15	156	255	180	-	-	255	-	125	-	-	205	-	
125	**129.28**	14	156	240	180	-	-	255	-	125	-	-	205	-	
140	**148.80**	12	156	205	175	-	-	240	-	120	-	-	190	-	
160	**155.53**	12	156	200	165	-	-	225	-	120	-	-	180	-	**X4F.**
180	**179.01**	10	156	170	165	-	-	215	-	115	-	-	175	-	/HH
200	**205.74**	8.7	156	150	165	-	-	210	-	120	-	-	170	-	250
224	**236.80**	7.6	156	130	160	-	-	195	-	115	-	-	160	-	/HU
250	**253.21**	7.1	156	120	160	-	-	200	-	120	-	-	160	-	278
280	**291.45**	6.2	156	105	155	-	-	190	-	115	-	-	150	-	
315	**304.61**	5.9	156	100	145	-	-	175	-	105	-	-	140	-	
355	**350.61**	5.1	156	88	140	-	-	165	-	105	-	-	135	-	

X.F250..,n_1= 1000 1/min															175 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.78**	147	134	2150	*)	700	-	720	1050	*)	*)	-	540	820	**X2F.** /HH 240 /HU 266
8	**7.78**	129	145	2000	*)	650	-	670	1000	*)	*)	-	500	770	
9	**8.61**	116	149	1850	*)	770	-	790	1100	*)	550	-	640	880	
10	**9.89**	101	155	1700	*)	720	-	730	1000	*)	510	-	600	820	
11.2	**10.89**	92	159	1550	430	720	-	710	970	*)	520	-	580	790	
12.5	**12.51**	80	164	1400	425	700	-	680	940	*)	510	-	560	760	
14	**13.26**	75	166	1350	470	750	-	720	980	*)	560	-	590	800	
16	**15.24**	66	174	1250	440	710	-	660	910	*)	520	-	540	730	
18	**16.86**	59	175	1100	430	670	-	610	840	310	500	-	500	680	
20	**19.37**	52	175	970	400	620	-	560	770	290	470	-	460	630	
22.4	**22.49**	44	166	800	315	500	-	430	600	215	365	-	340	475	**X3F.** /HH 246 /HU 272
25	**25.83**	39	170	710	300	475	-	400	570	205	345	-	315	445	
28	**28.31**	35	172	660	280	440	-	370	520	195	325	-	290	410	
31.5	**32.52**	31	175	580	270	420	-	345	490	185	310	-	270	385	
35.5	**34.84**	29	175	550	270	420	-	345	485	190	310	-	270	380	
40	**40.02**	25	175	475	255	400	-	320	455	180	295	-	250	355	
45	**43.51**	23	175	435	255	385	-	310	440	185	290	-	245	345	
50	**49.98**	20	175	380	245	370	-	295	415	180	275	-	230	325	
56	**53.55**	19	175	355	250	375	-	295	420	185	280	-	235	330	
63	**61.51**	16	175	310	235	355	-	280	395	175	270	-	220	310	
71	**70.05**	14	175	270	225	335	-	265	370	170	255	-	205	290	
80	**80.46**	12	175	235	215	320	-	250	350	160	245	-	195	275	
90	**86.21**	12	175	220	220	325	-	250	355	165	245	-	195	275	
100	**99.03**	10	175	190	210	310	-	235	335	155	235	-	185	265	
112	**112.88**	8.9	164	160	180	-	-	200	-	135	-	-	155	-	**X4F.** /HH 250 /HU 278
125	**129.66**	7.7	175	150	170	-	-	190	-	125	-	-	145	-	
140	**138.93**	7.2	175	140	170	-	-	190	-	125	-	-	145	-	
160	**159.59**	6.3	175	120	165	-	-	185	-	125	-	-	140	-	
180	**167.13**	6.0	175	115	155	-	-	170	-	115	-	-	135	-	
200	**191.98**	5.2	175	100	155	-	-	165	-	115	-	-	130	-	
224	**221.09**	4.5	175	87	145	-	-	155	-	110	-	-	120	-	
250	**253.96**	3.9	175	76	140	-	-	150	-	105	-	-	115	-	
280	**272.11**	3.7	175	71	140	-	-	150	-	110	-	-	120	-	
315	**312.57**	3.2	175	62	135	-	-	145	-	105	-	-	115	-	
355	**327.35**	3.1	175	59	125	-	-	135	-	97	-	-	105	-	
400	**376.02**	2.7	175	51	120	-	-	130	-	93	-	-	100	-	
X.F250..,n_1= 1200 1/min															**175 kNm**
7.1	**6.78**	177	134	2550	*)	*)	-	*)	1050	*)	*)	-	*)	750	**X2F.** /HH 240 /HU 266
8	**7.78**	154	145	2400	*)	*)	-	*)	970	*)	*)	-	*)	700	
9	**8.61**	139	149	2250	*)	790	-	750	1100	*)	*)	-	600	890	
10	**9.89**	121	155	2000	*)	740	-	700	1050	*)	*)	-	560	830	
11.2	**10.89**	110	159	1900	*)	740	-	720	1050	*)	520	-	580	830	
12.5	**12.51**	96	164	1700	*)	730	-	690	1000	*)	510	-	560	810	
14	**13.26**	90	166	1600	445	790	-	740	1050	*)	570	-	610	860	
16	**15.24**	79	174	1450	415	740	-	680	980	*)	540	-	550	790	
18	**16.86**	71	175	1350	425	710	-	640	910	*)	530	-	520	740	
20	**19.37**	62	175	1150	395	670	-	590	840	*)	495	-	480	680	
22.4	**22.49**	53	166	960	305	530	-	445	660	*)	380	-	345	510	**X3F.** /HH 246 /HU 272
25	**25.83**	46	170	860	290	500	-	415	610	*)	360	-	320	480	
28	**28.31**	42	172	790	275	475	-	385	570	*)	340	-	295	440	
31.5	**32.52**	37	175	700	265	450	-	360	530	*)	325	-	275	415	
35.5	**34.84**	34	175	650	265	450	-	355	530	180	325	-	275	410	
40	**40.02**	30	175	570	255	425	-	330	495	170	310	-	255	385	
45	**43.51**	28	175	520	260	420	-	325	480	185	310	-	260	375	
50	**49.98**	24	175	455	250	400	-	305	455	175	295	-	240	355	
56	**53.55**	22	175	425	255	405	-	310	460	180	305	-	245	360	
63	**61.51**	20	175	370	240	385	-	295	435	175	290	-	230	335	
71	**70.05**	17	175	325	235	365	-	275	405	170	275	-	215	320	
80	**80.46**	15	175	285	225	350	-	260	385	165	265	-	205	300	
90	**86.21**	14	175	265	225	355	-	265	390	165	270	-	205	305	
100	**99.03**	12	175	230	215	340	-	250	370	160	255	-	195	285	
112	**112.88**	11	164	190	185	-	-	210	-	135	-	-	160	-	**X4F.** /HH 250 /HU 278
125	**129.66**	9.3	175	180	175	-	-	195	-	130	-	-	150	-	
140	**138.93**	8.6	175	165	175	-	-	200	-	130	-	-	155	-	
160	**159.59**	7.5	175	145	170	-	-	190	-	125	-	-	150	-	
180	**167.13**	7.2	175	140	160	-	-	180	-	120	-	-	140	-	
200	**191.98**	6.3	175	120	160	-	-	175	-	115	-	-	135	-	
224	**221.09**	5.4	175	105	150	-	-	165	-	115	-	-	130	-	
250	**253.96**	4.7	175	91	145	-	-	155	-	110	-	-	120	-	
280	**272.11**	4.4	175	85	150	-	-	160	-	110	-	-	125	-	
315	**312.57**	3.8	175	74	145	-	-	155	-	110	-	-	120	-	
355	**327.35**	3.7	175	70	135	-	-	145	-	100	-	-	110	-	
400	**376.02**	3.2	175	61	130	-	-	135	-	97	-	-	105	-	

X.F250.., n_1 = 1500 1/min — 175 kNm

					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				20 °C	M1				40 °C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	6.78	221	134	3200	*)	*)	-	*)	880	*)	*)	-	*)	*)	X2F. /HH 240 /HU 266
8[1)]	7.78	193	145	3000	*)	*)	-	*)	820	*)	*)	-	*)	*)	
9	8.61	174	149	2800	*)	760	-	*)	1100	*)	*)	-	*)	850	
10	9.89	152	155	2500	*)	710	-	*)	1050	*)	*)	-	*)	800	
11.2	10.89	138	159	2350	*)	750	-	660	1050	*)	*)	-	*)	830	
12.5	12.51	120	164	2100	*)	730	-	640	1050	*)	*)	-	*)	810	
14	13.26	113	166	2000	*)	830	-	730	1150	*)	570	-	580	900	
16	15.24	98	174	1850	*)	780	-	690	1050	*)	530	-	540	850	
18	16.86	89	175	1650	*)	760	-	660	1000	*)	550	-	540	810	
20	19.37	77	175	1450	365	710	-	610	920	*)	510	-	490	740	
22.4	22.49	67	166	1200	*)	560	-	450	720	*)	385	-	340	550	X3F. /HH 246 /HU 272
25	25.83	58	170	1050	*)	540	-	420	670	*)	365	-	315	520	
28	28.31	53	172	990	250	510	-	390	620	*)	350	-	295	480	
31.5	32.52	46	175	880	240	480	-	365	580	*)	335	-	270	450	
35.5	34.84	43	175	820	250	485	-	360	580	*)	340	-	270	445	
40	40.02	37	175	710	235	460	-	335	540	*)	325	-	250	415	
45	43.51	34	175	660	255	460	-	345	530	170	335	-	265	415	
50	49.98	30	175	570	245	435	-	320	500	165	320	-	250	390	
56	53.55	28	175	530	255	445	-	325	510	170	330	-	250	395	
63	61.51	24	175	465	245	425	-	305	480	165	310	-	235	370	
71	70.05	21	175	405	240	405	-	290	455	170	305	-	230	355	
80	80.46	19	175	355	230	385	-	275	430	165	290	-	215	335	
90	86.21	17	175	330	230	395	-	275	435	170	295	-	215	335	
100	99.03	15	175	290	220	375	-	260	410	160	280	-	205	320	
112	112.88	13	164	240	190	-	-	220	-	135	-	-	170	-	X4F. /HH 250 /HU 278
125	129.66	12	175	220	180	-	-	205	-	130	-	-	160	-	
140	138.93	11	175	210	180	-	-	205	-	130	-	-	160	-	
160	159.59	9.4	175	180	175	-	-	200	-	125	-	-	155	-	
180	167.13	9.0	175	175	165	-	-	190	-	120	-	-	145	-	
200	191.98	7.8	175	150	160	-	-	185	-	120	-	-	140	-	
224	221.09	6.8	175	130	160	-	-	175	-	120	-	-	135	-	
250	253.96	5.9	175	115	150	-	-	165	-	115	-	-	130	-	
280	272.11	5.5	175	105	155	-	-	170	-	115	-	-	130	-	
315	312.57	4.8	175	92	150	-	-	165	-	110	-	-	125	-	
355	327.35	4.6	175	88	140	-	-	150	-	105	-	-	115	-	
400	376.02	4.0	175	77	135	-	-	145	-	100	-	-	110	-	

X.F250.., n_1 = 1800 1/min — 175 kNm

7.1[1)]	6.78	265	127	3600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2F. /HH 240 /HU 266
8[1)]	7.78	231	137	3400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	8.61	209	141	3150	*)	*)	-	*)	1050	*)	*)	-	*)	*)	
10[1)]	9.89	182	146	2850	*)	*)	-	*)	1000	*)	*)	-	*)	*)	
11.2[1)]	10.89	165	150	2650	*)	710	-	*)	1050	*)	*)	-	*)	780	
12.5[1)]	12.51	144	155	2400	*)	700	-	*)	1050	*)	*)	-	*)	770	
14	13.26	136	156	2300	*)	820	-	670	1150	*)	*)	-	*)	890	
16	15.24	118	164	2100	*)	770	-	630	1100	*)	*)	-	*)	840	
18	16.86	107	165	1900	*)	790	-	660	1050	*)	550	-	530	840	
20	19.37	93	175	1750	*)	740	-	610	990	*)	510	-	480	780	
22.4	22.49	80	156	1350	*)	580	-	435	760	*)	375	-	*)	570	X3F. /HH 246 /HU 272
25	25.83	70	160	1200	*)	550	-	405	710	*)	360	-	*)	540	
28	28.31	64	163	1150	*)	520	-	380	660	*)	345	-	*)	500	
31.5	32.52	55	165	990	*)	500	-	355	620	*)	330	-	255	470	
35.5	34.84	52	167	940	*)	500	-	355	620	*)	340	-	255	465	
40	40.02	45	172	840	*)	475	-	330	580	*)	325	-	235	435	
45	43.51	41	175	790	245	490	-	350	580	*)	350	-	265	445	
50	49.98	36	175	680	235	465	-	330	540	*)	335	-	245	420	
56	53.55	34	175	640	245	475	-	335	550	*)	345	-	250	425	
63	61.51	29	175	560	235	455	-	310	520	150	330	-	235	400	
71	70.05	26	175	490	240	440	-	300	495	165	325	-	235	385	
80	80.46	22	175	425	230	420	-	285	470	155	310	-	220	360	
90	86.21	21	175	395	235	425	-	285	475	160	315	-	220	365	
100	99.03	18	175	345	225	405	-	270	450	155	300	-	210	345	
112	112.88	16	155	270	190	-	-	225	-	130	-	-	170	-	X4F. /HH 250 /HU 278
125	129.66	14	172	260	180	-	-	210	-	125	-	-	160	-	
140	138.93	13	175	250	180	-	-	215	-	125	-	-	160	-	
160	159.59	11	175	215	175	-	-	205	-	125	-	-	155	-	
180	167.13	11	175	205	165	-	-	195	-	120	-	-	145	-	
200	191.98	9.4	175	180	165	-	-	185	-	115	-	-	140	-	
224	221.09	8.1	175	155	165	-	-	185	-	120	-	-	140	-	
250	253.96	7.1	175	135	160	-	-	175	-	115	-	-	135	-	
280	272.11	6.6	175	125	160	-	-	180	-	120	-	-	140	-	
315	312.57	5.8	175	110	155	-	-	170	-	115	-	-	130	-	
355	327.35	5.5	175	105	145	-	-	160	-	105	-	-	120	-	
400	376.02	4.8	175	92	140	-	-	150	-	105	-	-	115	-	

X.F260..,n_1= 1000 1/min															205 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	*)	*)	-	1350	1600	**X2F.** /HH 242 /HU 268
7.1	**7.28**	137	185	2750	*)	720	-	1450	1750	*)	*)	-	1250	1500	
8	**8.16**	123	192	2500	*)	860	-	1550	1850	*)	*)	-	1400	1600	
9	**9.22**	108	198	2300	*)	800	-	1450	1750	*)	*)	-	1300	1500	
10	**10.08**	99	204	2150	*)	850	-	1450	1750	*)	590	-	1300	1550	
11.2	**11.40**	88	205	1950	*)	800	-	1350	1600	*)	550	-	1200	1400	
12.5	**12.74**	78	205	1750	510	830	-	1300	1550	*)	600	-	1150	1350	
14	**14.41**	69	205	1550	480	780	-	1150	1400	*)	560	-	1050	1250	
16	**15.86**	63	205	1400	475	750	-	1100	1300	*)	550	-	960	1150	
18	**17.94**	56	205	1250	465	740	-	1050	1250	320	540	-	910	1100	
20	**21.22**	47	198	1000	340	540	-	700	880	*)	380	-	610	740	**X3F.** /HH 248 /HU 274
22.4	**24.01**	42	205	930	325	520	-	660	830	*)	365	-	560	690	
25	**26.24**	38	205	850	305	485	-	590	750	*)	340	-	510	620	
28	**29.75**	34	205	750	325	500	-	600	760	220	360	-	510	630	
31.5	**32.52**	31	205	680	305	470	-	540	690	210	340	-	460	570	
35.5	**36.78**	27	205	610	290	450	-	500	650	200	320	-	425	530	
40	**41.08**	24	205	540	290	435	-	475	610	205	320	-	400	500	
45	**46.47**	22	205	480	275	415	-	445	570	195	305	-	375	470	
50	**48.31**	21	205	460	280	425	-	450	580	200	310	-	375	475	
56	**60.68**	16	205	365	280	420	-	425	550	205	310	-	355	450	
63	**66.33**	15	205	335	255	385	-	380	495	185	285	-	315	400	
71	**75.02**	13	205	295	245	365	-	355	470	180	270	-	295	380	
80	**78.00**	13	205	285	250	375	-	360	475	180	275	-	295	380	
90	**88.23**	11	205	250	240	355	-	335	445	175	265	-	275	360	
100	**105.64**	9.5	205	215	200	-	-	270	-	145	-	-	220	-	**X4F.** /HH 252 /HU 280
112	**119.49**	8.4	205	190	190	-	-	255	-	140	-	-	205	-	
125	**124.24**	8.0	205	180	195	-	-	255	-	140	-	-	210	-	
140	**140.53**	7.1	205	160	185	-	-	245	-	135	-	-	195	-	
160	**153.90**	6.5	205	145	185	-	-	235	-	135	-	-	190	-	
180	**174.09**	5.7	205	130	180	-	-	230	-	130	-	-	185	-	
200	**203.69**	4.9	205	110	165	-	-	200	-	120	-	-	165	-	
224	**230.40**	4.3	205	98	160	-	-	195	-	120	-	-	155	-	
250	**239.55**	4.2	205	94	160	-	-	195	-	120	-	-	155	-	
280	**270.97**	3.7	205	83	155	-	-	190	-	115	-	-	150	-	
315	**296.76**	3.4	205	76	155	-	-	185	-	115	-	-	145	-	
355	**335.68**	3.0	205	67	150	-	-	175	-	110	-	-	140	-	
X.F260..,n_1= 1200 1/min															**205 kNm**
6.3	**6.43**	187	178	3550	*)	*)	-	1450	1900	*)	*)	-	1250	1600	**X2F.** /HH 242 /HU 268
7.1	**7.28**	165	185	3250	*)	*)	-	1350	1750	*)	*)	-	1200	1500	
8	**8.16**	147	192	3050	*)	850	-	1550	1900	*)	*)	-	1350	1650	
9	**9.22**	130	198	2750	*)	800	-	1450	1800	*)	*)	-	1300	1550	
10	**10.08**	119	204	2600	*)	870	-	1500	1850	*)	*)	-	1350	1600	
11.2	**11.40**	105	205	2300	*)	820	-	1400	1750	*)	*)	-	1250	1500	
12.5	**12.74**	94	205	2050	*)	870	-	1400	1750	*)	610	-	1250	1500	
14	**14.41**	83	205	1850	*)	820	-	1250	1600	*)	570	-	1150	1350	
16	**15.86**	76	205	1650	460	800	-	1200	1450	*)	570	-	1050	1250	
18	**17.94**	67	205	1450	450	780	-	1100	1400	*)	560	-	990	1200	
20	**21.22**	57	198	1200	325	570	-	760	970	*)	390	-	660	820	**X3F.** /HH 248 /HU 274
22.4	**24.01**	50	205	1100	310	550	-	700	910	*)	375	-	610	760	
25	**26.24**	46	205	1000	295	510	-	640	830	*)	355	-	540	690	
28	**29.75**	40	205	900	320	540	-	640	840	*)	380	-	550	690	
31.5	**32.52**	37	205	820	305	500	-	580	760	*)	360	-	500	630	
35.5	**36.78**	33	205	730	290	480	-	540	710	190	340	-	460	590	
40	**41.08**	29	205	650	290	475	-	510	680	200	340	-	435	560	
45	**46.47**	26	205	580	280	450	-	480	640	190	325	-	405	520	
50	**48.31**	25	205	550	285	460	-	485	640	200	335	-	405	530	
56	**60.68**	20	205	440	290	455	-	455	610	205	335	-	380	495	
63	**66.33**	18	205	405	265	415	-	410	550	190	305	-	340	445	
71	**75.02**	16	205	355	255	400	-	380	520	180	290	-	315	420	
80	**78.00**	15	205	345	260	405	-	385	520	185	300	-	320	420	
90	**88.23**	14	205	305	245	390	-	360	495	175	285	-	300	395	
100	**105.64**	11	205	255	205	-	-	290	-	145	-	-	235	-	**X4F.** /HH 252 /HU 280
112	**119.49**	10	205	225	195	-	-	275	-	140	-	-	220	-	
125	**124.24**	9.7	205	220	200	-	-	275	-	145	-	-	225	-	
140	**140.53**	8.5	205	190	190	-	-	260	-	140	-	-	210	-	
160	**153.90**	7.8	205	175	190	-	-	255	-	140	-	-	205	-	
180	**174.09**	6.9	205	155	185	-	-	245	-	135	-	-	195	-	
200	**203.69**	5.9	205	135	170	-	-	215	-	130	-	-	175	-	
224	**230.40**	5.2	205	115	170	-	-	210	-	125	-	-	170	-	
250	**239.55**	5.0	205	115	170	-	-	210	-	125	-	-	170	-	
280	**270.97**	4.4	205	100	165	-	-	200	-	120	-	-	160	-	
315	**296.76**	4.0	205	91	160	-	-	195	-	120	-	-	155	-	
355	**335.68**	3.6	205	81	155	-	-	185	-	115	-	-	150	-	

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X.F260.., n_1 = 1500 1/min — **205 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
6.3[1)]	**6.43**	233	178	4450	*)	*)	-	1200	1800	*)	*)	-	*)	1450	**X2F.** /HH 242 /HU 268
7.1[1)]	**7.28**	206	185	4100	*)	*)	-	1150	1700	*)	*)	-	*)	1350	
8	**8.16**	184	192	3800	*)	*)	-	1450	1950	*)	*)	-	1250	1650	
9	**9.22**	163	198	3450	*)	*)	-	1350	1800	*)	*)	-	1200	1550	
10	**10.08**	149	204	3250	*)	850	-	1450	1900	*)	*)	-	1300	1650	
11.2	**11.40**	132	205	2900	*)	800	-	1350	1800	*)	*)	-	1200	1550	
12.5	**12.74**	118	205	2600	*)	900	-	1450	1850	*)	*)	-	1300	1600	
14	**14.41**	104	205	2300	*)	850	-	1350	1750	*)	*)	-	1200	1500	
16	**15.86**	95	205	2100	*)	840	-	1300	1650	*)	570	-	1150	1450	
18	**17.94**	84	205	1850	*)	820	-	1200	1550	*)	560	-	1100	1350	
20	**21.22**	71	198	1500	*)	600	-	820	1100	*)	390	-	710	910	**X3F.** /HH 248 /HU 274
22.4	**24.01**	62	205	1400	*)	580	-	760	1000	*)	375	-	660	840	
25	**26.24**	57	205	1250	*)	540	-	690	920	*)	355	-	590	760	
28	**29.75**	50	205	1100	300	580	-	700	940	*)	395	-	600	780	
31.5	**32.52**	46	205	1050	290	540	-	640	860	*)	375	-	540	710	
35.5	**36.78**	41	205	910	275	520	-	590	800	*)	355	-	500	660	
40	**41.08**	37	205	810	285	520	-	560	760	*)	365	-	475	630	
45	**46.47**	32	205	720	275	490	-	520	720	*)	350	-	440	580	
50	**48.31**	31	205	690	285	500	-	520	720	185	355	-	445	590	
56	**60.68**	25	205	550	295	500	-	500	690	200	365	-	420	560	
63	**66.33**	23	205	500	270	460	-	445	620	185	335	-	375	500	
71	**75.02**	20	205	445	255	440	-	415	580	180	320	-	345	470	
80	**78.00**	19	205	430	265	450	-	420	590	185	325	-	350	475	
90	**88.23**	17	205	380	250	430	-	395	560	175	310	-	325	445	
100	**105.64**	14	205	320	210	-	-	315	-	145	-	-	255	-	**X4F.** /HH 252 /HU 280
112	**119.49**	13	205	285	200	-	-	295	-	140	-	-	240	-	
125	**124.24**	12	205	270	205	-	-	295	-	145	-	-	240	-	
140	**140.53**	11	205	240	195	-	-	280	-	140	-	-	225	-	
160	**153.90**	9.7	205	220	195	-	-	275	-	140	-	-	220	-	
180	**174.09**	8.6	205	195	190	-	-	265	-	135	-	-	210	-	
200	**203.69**	7.4	205	165	180	-	-	235	-	135	-	-	190	-	
224	**230.40**	6.5	205	145	180	-	-	230	-	130	-	-	185	-	
250	**239.55**	6.3	205	140	180	-	-	230	-	130	-	-	185	-	
280	**270.97**	5.5	205	125	175	-	-	220	-	125	-	-	175	-	
315	**296.76**	5.1	205	115	170	-	-	215	-	125	-	-	170	-	
355	**335.68**	4.5	205	100	165	-	-	205	-	120	-	-	160	-	

X.F260.., n_1 = 1800 1/min — **205 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
6.3[1)]	**6.43**	280	167	5000	*)	*)	-	*)	1500*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
7.1[1)]	**7.28**	247	174	4600	*)	*)	-	*)	1450*)	*)	*)	-	*)	*)	
8[1)]	**8.16**	221	181	4300	*)	*)	-	1250	1850*)	*)	*)	-	*)	1500*)	
9[1)]	**9.22**	195	187	3900	*)	*)	-	1200	1750*)	*)	*)	-	1000	1450*)	
10[1)]	**10.08**	179	194	3700	*)	*)	-	1350	1900*)	*)	*)	-	1200	1600*)	
11.2[1)]	**11.40**	158	199	3350	*)	*)	-	1300	1800*)	*)	*)	-	1100	1500*)	
12.5	**12.74**	141	205	3100	*)	890*)	-	1400	1900*)	*)	*)	-	1250	1650*)	
14	**14.41**	125	205	2750	*)	840*)	-	1350	1800*)	*)	*)	-	1200	1550*)	
16	**15.86**	113	205	2500	*)	850*)	-	1300	1750*)	*)	*)	-	1150	1500*)	
18	**17.94**	100	205	2200	*)	840*)	-	1300	1700*)	*)	*)	-	1150	1450*)	
20	**21.22**	85	198	1800	*)	600	-	860	1200	*)	*)	-	750	980	**X3F.** /HH 248 /HU 274
22.4	**24.01**	75	205	1650	*)	580	-	800	1100	*)	*)	-	680	910	
25	**26.24**	69	205	1550	*)	550	-	720	1000	*)	*)	-	620	820	
28	**29.75**	61	205	1350	*)	600	-	740	1050	*)	395	-	640	850	
31.5	**32.52**	55	205	1250	*)	570	-	670	940	*)	380	-	580	770	
35.5	**36.78**	49	205	1100	*)	540	-	620	870	*)	360	-	530	720	
40	**41.08**	44	205	980	270	550	-	600	840	*)	375	-	510	690	
45	**46.47**	39	205	860	260	520	-	550	780	*)	360	-	470	640	
50	**48.31**	37	205	830	270	540	-	560	790	*)	370	-	470	650	
56	**60.68**	30	205	660	290	540	-	530	760	190	385	-	450	620	
63	**66.33**	27	205	600	270	495	-	475	680	180	355	-	400	550	
71	**75.02**	24	205	530	255	475	-	445	640	170	340	-	370	520	
80	**78.00**	23	205	510	265	485	-	450	650	175	345	-	370	520	
90	**88.23**	20	205	455	250	460	-	420	610	170	330	-	345	490	
100	**105.64**	17	205	385	210	-	-	335	-	140	-	-	275	-	**X4F.** /HH 252 /HU 280
112	**119.49**	15	205	340	205	-	-	315	-	135	-	-	255	-	
125	**124.24**	14	205	325	205	-	-	315	-	140	-	-	255	-	
140	**140.53**	13	205	290	200	-	-	295	-	135	-	-	240	-	
160	**153.90**	12	205	265	200	-	-	290	-	135	-	-	235	-	
180	**174.09**	10	205	235	195	-	-	280	-	135	-	-	225	-	
200	**203.69**	8.8	205	200	190	-	-	255	-	140	-	-	205	-	
224	**230.40**	7.8	205	175	185	-	-	245	-	135	-	-	200	-	
250	**239.55**	7.5	205	170	185	-	-	245	-	135	-	-	200	-	
280	**270.97**	6.6	205	150	180	-	-	235	-	130	-	-	190	-	
315	**296.76**	6.1	205	135	180	-	-	230	-	130	-	-	185	-	
355	**335.68**	5.4	205	120	170	-	-	215	-	125	-	-	175	-	

X.F270..,n_1= 1000 1/min															240 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.07**	141	195	2950	*)	770	-	880	1300	*)	*)	-	*)	980	**X2F.** /HH 242 /HU 268
8	**7.91**	126	200	2700	*)	770	-	880	1250	*)	*)	-	*)	980	
9	**8.96**	112	208	2500	*)	860	-	960	1300	*)	*)	-	780	1050	
10	**10.03**	100	213	2300	*)	850	-	950	1300	*)	*)	-	770	1050	
11.2	**11.07**	90	220	2150	*)	860	-	940	1250	*)	590	-	780	1000	
12.5	**12.39**	81	227	1950	495	840	-	910	1200	*)	580	-	750	990	
14	**13.99**	71	236	1800	520	840	-	880	1150	*)	600	-	720	950	
16	**15.66**	64	240	1650	490	800	-	810	1100	*)	570	-	660	880	
18	**17.42**	57	240	1500	485	770	-	760	1000	*)	560	-	630	830	
20	**19.50**	51	240	1300	475	760	-	730	990	*)	550	-	600	800	
22.4	**23.31**	43	215	1000	345	550	-	510	700	*)	385	-	400	540	**X3F.** /HH 248 /HU 274
25	**26.09**	38	235	980	345	550	-	500	690	*)	385	-	390	540	
28	**28.82**	35	240	900	315	495	-	445	620	*)	350	-	345	475	
31.5	**32.34**	31	240	810	335	520	-	455	630	230	370	-	360	490	
35.5	**35.72**	28	240	730	305	470	-	405	560	210	340	-	320	440	
40	**39.98**	25	240	650	300	460	-	395	550	205	330	-	310	425	
45	**45.12**	22	240	580	295	445	-	380	520	210	325	-	300	410	
50	**50.51**	20	240	520	290	440	-	365	510	205	320	-	290	395	
56	**53.07**	19	240	490	290	435	-	365	500	205	320	-	285	390	
63	**65.96**	15	240	395	290	430	-	350	485	210	315	-	275	380	
71	**72.85**	14	240	360	255	380	-	310	430	185	280	-	240	335	
80	**81.55**	12	240	320	250	375	-	300	420	185	275	-	235	325	
90	**85.68**	12	240	305	255	380	-	305	425	185	280	-	235	330	
100	**95.91**	10	240	270	250	375	-	295	415	185	275	-	230	320	
112	**116.03**	8.6	240	225	200	-	-	230	-	145	-	-	175	-	**X4F.** /HH 252 /HU 280
125	**129.88**	7.7	240	205	195	-	-	225	-	140	-	-	170	-	
140	**136.46**	7.3	240	195	195	-	-	220	-	140	-	-	170	-	
160	**152.75**	6.5	240	175	195	-	-	220	-	140	-	-	170	-	
180	**169.04**	5.9	240	155	190	-	-	210	-	140	-	-	160	-	
200	**189.23**	5.3	240	140	185	-	-	205	-	135	-	-	160	-	
224	**223.73**	4.5	240	120	165	-	-	185	-	125	-	-	140	-	
250	**250.44**	4.0	240	105	165	-	-	180	-	120	-	-	140	-	
280	**263.12**	3.8	240	100	165	-	-	180	-	120	-	-	135	-	
315	**294.53**	3.4	240	90	160	-	-	175	-	120	-	-	135	-	
355	**325.95**	3.1	240	81	155	-	-	170	-	115	-	-	130	-	
400	**364.87**	2.7	240	72	155	-	-	165	-	115	-	-	130	-	
X.F270..,n_1= 1200 1/min															**240 kNm**
7.1	**7.07**	170	195	3550	*)	*)	-	*)	1250	*)	*)	-	*)	900	**X2F.** /HH 242 /HU 268
8	**7.91**	152	200	3250	*)	*)	-	*)	1250	*)	*)	-	*)	900	
9	**8.96**	134	208	3000	*)	860	-	900	1350	*)	*)	-	*)	1050	
10	**10.03**	120	213	2750	*)	850	-	900	1300	*)	*)	-	700	1050	
11.2	**11.07**	108	220	2550	*)	880	-	920	1300	*)	*)	-	740	1050	
12.5	**12.39**	97	227	2350	*)	870	-	910	1300	*)	*)	-	740	1050	
14	**13.99**	86	236	2150	*)	890	-	910	1250	*)	620	-	750	1050	
16	**15.66**	77	240	1950	*)	840	-	840	1200	*)	580	-	690	950	
18	**17.42**	69	240	1750	470	820	-	800	1100	*)	580	-	650	900	
20	**19.50**	62	240	1600	460	800	-	770	1100	*)	570	-	620	860	
22.4	**23.31**	51	215	1200	330	580	-	520	760	*)	400	-	410	590	**X3F.** /HH 248 /HU 274
25	**26.09**	46	235	1150	330	580	-	520	750	*)	400	-	400	580	
28	**28.82**	42	240	1100	305	530	-	460	670	*)	365	-	355	510	
31.5	**32.34**	37	240	970	330	560	-	475	690	*)	390	-	375	530	
35.5	**35.72**	34	240	880	305	500	-	425	610	*)	360	-	335	475	
40	**39.98**	30	240	780	300	495	-	410	600	200	350	-	320	460	
45	**45.12**	27	240	690	300	485	-	400	570	205	350	-	310	445	
50	**50.51**	24	240	620	295	475	-	385	560	205	340	-	300	430	
56	**53.07**	23	240	590	295	470	-	380	550	205	340	-	295	425	
63	**65.96**	18	240	475	295	465	-	370	540	210	340	-	290	415	
71	**72.85**	16	240	430	265	415	-	325	475	190	305	-	255	365	
80	**81.55**	15	240	385	260	410	-	315	460	185	300	-	245	355	
90	**85.68**	14	240	365	265	415	-	320	465	190	305	-	250	360	
100	**95.91**	13	240	325	260	405	-	310	455	185	300	-	240	350	
112	**116.03**	10	240	275	205	-	-	240	-	150	-	-	185	-	**X4F.** /HH 252 /HU 280
125	**129.88**	9.2	240	245	200	-	-	235	-	145	-	-	180	-	
140	**136.46**	8.8	240	230	200	-	-	230	-	145	-	-	180	-	
160	**152.75**	7.9	240	205	200	-	-	230	-	145	-	-	175	-	
180	**169.04**	7.1	240	185	195	-	-	220	-	140	-	-	170	-	
200	**189.23**	6.3	240	165	190	-	-	215	-	140	-	-	165	-	
224	**223.73**	5.4	240	140	175	-	-	195	-	130	-	-	150	-	
250	**250.44**	4.8	240	125	170	-	-	190	-	130	-	-	145	-	
280	**263.12**	4.6	240	120	170	-	-	190	-	125	-	-	145	-	
315	**294.53**	4.1	240	105	170	-	-	185	-	125	-	-	140	-	
355	**325.95**	3.7	240	97	165	-	-	180	-	125	-	-	140	-	
400	**364.87**	3.3	240	87	160	-	-	175	-	120	-	-	135	-	

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i N	i ex	n2 min⁻¹	M N2 kNm	P N1 kW	P TH kW, M1, 20 °C	20 °C fan	20 °C cooling cover H_2O	20 °C cooling cartridge H_2O	20 °C fan + H_2O	M1, 40 °C	40 °C fan	40 °C cooling cover H_2O	40 °C cooling cartridge H_2O	40 °C fan + H_2O	📖
X.F270..,n₁= 1500 1/min															**240 kNm**
7.1[1)]	**7.07**	212	195	4450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1)]	**7.91**	190	200	4050	*)	*)	-	*)	1050	*)	*)	-	*)	*)	
9	**8.96**	167	208	3750	*)	*)	-	*)	1300	*)	*)	-	*)	960	
10	**10.03**	150	213	3400	*)	*)	-	*)	1300	*)	*)	-	*)	950	**X2F.**
11.2	**11.07**	136	220	3200	*)	860	-	830	1350	*)	*)	-	*)	1000	/HH
12.5	**12.39**	121	227	2950	*)	850	-	820	1300	*)	*)	-	*)	1000	242
14	**13.99**	107	236	2700	*)	920	-	900	1350	*)	*)	-	720	1050	/HU
16	**15.66**	96	240	2450	*)	870	-	840	1250	*)	*)	-	680	1000	268
18	**17.42**	86	240	2200	*)	860	-	830	1200	*)	590	-	670	980	
20	**19.50**	77	240	2000	*)	840	-	790	1200	*)	580	-	640	940	
22.4	**23.31**	64	215	1500	*)	610	-	530	820	*)	400	-	410	630	
25	**26.09**	57	235	1450	*)	610	-	520	810	*)	400	-	400	620	
28	**28.82**	52	240	1350	*)	560	-	465	730	*)	370	-	355	550	
31.5	**32.34**	46	240	1200	315	600	-	495	760	*)	410	-	385	580	
35.5	**35.72**	42	240	1100	290	540	-	440	680	*)	375	-	340	520	
40	**39.98**	38	240	980	285	530	-	425	660	*)	370	-	330	500	**X3F.**
45	**45.12**	33	240	870	295	530	-	420	640	*)	375	-	325	490	/HH
50	**50.51**	30	240	770	290	520	-	405	620	*)	365	-	310	475	248
56	**53.07**	28	240	740	290	520	-	400	610	190	365	-	310	470	/HU
63	**65.96**	23	240	590	300	520	-	395	600	210	375	-	305	460	274
71	**72.85**	21	240	540	270	460	-	345	530	185	335	-	270	405	
80	**81.55**	18	240	480	265	450	-	335	510	185	325	-	260	395	
90	**85.68**	18	240	455	270	460	-	340	520	190	335	-	260	400	
100	**95.91**	16	240	410	265	450	-	330	510	185	325	-	255	390	
112	**116.03**	13	240	340	210	-	-	255	-	150	-	-	195	-	
125	**129.88**	12	240	305	205	-	-	250	-	145	-	-	190	-	
140	**136.46**	11	240	290	205	-	-	245	-	145	-	-	185	-	
160	**152.75**	9.8	240	260	205	-	-	245	-	145	-	-	185	-	
180	**169.04**	8.9	240	235	200	-	-	235	-	140	-	-	180	-	**X4F.**
200	**189.23**	7.9	240	210	195	-	-	230	-	140	-	-	175	-	/HH
224	**223.73**	6.7	240	175	185	-	-	210	-	135	-	-	160	-	252
250	**250.44**	6.0	240	160	180	-	-	205	-	135	-	-	160	-	/HU
280	**263.12**	5.7	240	150	180	-	-	200	-	135	-	-	155	-	280
315	**294.53**	5.1	240	135	175	-	-	195	-	130	-	-	150	-	
355	**325.95**	4.6	240	120	175	-	-	195	-	130	-	-	150	-	
400	**364.87**	4.1	240	110	170	-	-	190	-	125	-	-	145	-	
X.F270..,n₁= 1800 1/min															**240 kNm**
7.1[1)]	**7.07**	255	185	5050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1)]	**7.91**	228	190	4650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	**8.96**	201	197	4250	*)	*)	-	*)	1150[*)]	*)	*)	-	*)	*)	
10[1)]	**10.03**	179	202	3900	*)	*)	-	*)	1150[*)]	*)	*)	-	*)	*)	**X2F.**
11.2[1)]	**11.07**	163	209	3650	*)	*)	-	*)	1300[*)]	*)	*)	-	*)	930[*)]	/HH
12.5[1)]	**12.39**	145	215	3350	*)	*)	-	*)	1300[*)]	*)	*)	-	*)	930[*)]	242
14	**13.99**	129	224	3100	*)	900[*)]	-	820	1350[*)]	*)	*)	-	*)	1050[*)]	/HU
16	**15.66**	115	230	2850	*)	860[*)]	-	780	1300[*)]	*)	*)	-	*)	990[*)]	268
18	**17.42**	103	240	2650	*)	870[*)]	-	790	1250[*)]	*)	*)	-	*)	990[*)]	
20	**19.50**	92	240	2400	*)	850[*)]	-	780	1250[*)]	*)	*)	-	620	980[*)]	
22.4	**23.31**	77	215	1800	*)	610	-	520	870	*)	*)	-	*)	650	
25	**26.09**	69	235	1750	*)	620	-	510	860	*)	*)	-	*)	640	
28	**28.82**	62	240	1650	*)	570	-	455	770	*)	*)	-	*)	570	
31.5	**32.34**	56	240	1450	*)	620	-	500	810	*)	410	-	380	620	
35.5	**35.72**	50	240	1300	*)	570	-	445	730	*)	380	-	340	550	
40	**39.98**	45	240	1150	*)	560	-	430	700	*)	375	-	325	530	**X3F.**
45	**45.12**	40	240	1050	280	560	-	430	690	*)	390	-	330	530	/HH
50	**50.51**	36	240	930	275	550	-	415	670	*)	380	-	315	510	248
56	**53.07**	34	240	880	280	550	-	410	660	*)	380	-	310	500	/HU
63	**65.96**	27	240	710	300	550	-	410	650	200	395	-	315	500	274
71	**72.85**	25	240	640	270	495	-	360	580	180	355	-	275	440	
80	**81.55**	22	240	580	265	485	-	350	560	175	350	-	265	430	
90	**85.68**	21	240	550	270	495	-	350	570	180	355	-	270	435	
100	**95.91**	19	240	490	265	485	-	340	550	180	350	-	260	420	
112	**116.03**	16	240	410	210	-	-	265	-	145	-	-	200	-	
125	**129.88**	14	240	365	210	-	-	255	-	140	-	-	195	-	
140	**136.46**	13	240	350	205	-	-	255	-	140	-	-	190	-	
160	**152.75**	12	240	310	205	-	-	250	-	140	-	-	190	-	
180	**169.04**	11	240	280	200	-	-	240	-	140	-	-	185	-	**X4F.**
200	**189.23**	9.5	240	250	200	-	-	235	-	135	-	-	175	-	/HH
224	**223.73**	8.0	240	210	195	-	-	220	-	140	-	-	170	-	252
250	**250.44**	7.2	240	190	190	-	-	215	-	140	-	-	165	-	/HU
280	**263.12**	6.8	240	180	190	-	-	215	-	135	-	-	165	-	280
315	**294.53**	6.1	240	160	185	-	-	210	-	135	-	-	160	-	
355	**325.95**	5.5	240	145	180	-	-	205	-	135	-	-	155	-	
400	**364.87**	4.9	240	130	180	-	-	200	-	130	-	-	150	-	

X.F280..,n_1= 1000 1/min															270 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.91**	126	220	3000	*)	950	-	1050	1500	*)	*)	-	830	1150	**X2F.** /HH 242 /HU 268
9	**8.86**	113	226	2750	*)	950	-	1050	1450	*)	*)	-	820	1150	
10	**10.03**	100	235	2500	*)	1000	-	1100	1500	*)	700	-	910	1200	
11.2	**11.23**	89	241	2300	580	1000	-	1100	1450	*)	690	-	900	1200	
12.5	**12.39**	81	249	2150	600	990	-	1100	1450	*)	700	-	890	1150	
14	**13.88**	72	256	2000	600	980	-	1050	1400	*)	700	-	860	1100	
16	**15.66**	64	265	1800	610	970	-	990	1300	*)	700	-	820	1050	
18	**17.54**	57	270	1650	600	960	-	960	1300	420	700	-	790	1050	
20	**19.50**	51	270	1500	590	920	-	900	1200	415	680	-	740	980	
22.4	**21.85**	46	270	1350	560	860	-	830	1100	390	630	-	680	900	
25	**26.09**	38	243	1000	420	650	-	600	820	285	465	-	475	640	**X3F.** /HH 248 /HU 274
28	**29.22**	34	270	1000	405	630	-	570	780	275	450	-	455	610	
31.5	**32.26**	31	270	910	365	570	-	500	700	250	410	-	400	540	
35.5	**36.22**	28	270	810	400	610	-	530	730	280	440	-	425	570	
40	**39.98**	25	270	730	360	550	-	475	650	255	400	-	375	510	
45	**44.78**	22	270	650	355	540	-	460	630	250	390	-	360	495	
50	**50.51**	20	270	580	340	510	-	425	590	245	370	-	340	460	
56	**56.57**	18	270	520	330	495	-	415	570	240	365	-	325	445	
63	**59.40**	17	270	495	330	495	-	410	570	240	365	-	320	440	
71	**73.87**	14	270	395	325	485	-	395	540	240	360	-	310	425	
80	**81.55**	12	270	360	300	440	-	355	495	220	325	-	280	385	
90	**91.33**	11	270	320	290	430	-	345	480	215	320	-	270	375	
100	**95.91**	10	270	305	290	430	-	340	475	215	320	-	265	370	
112	**107.42**	9.3	270	275	285	420	-	330	465	210	310	-	260	360	
125	**129.88**	7.7	270	230	230	-	-	260	-	165	-	-	205	-	**X4F.** /HH 252 /HU 280
140	**145.47**	6.9	270	205	225	-	-	255	-	165	-	-	195	-	
160	**152.75**	6.5	270	195	225	-	-	250	-	165	-	-	195	-	
180	**171.08**	5.8	270	175	220	-	-	245	-	160	-	-	190	-	
200	**189.23**	5.3	270	155	215	-	-	240	-	160	-	-	185	-	
224	**211.93**	4.7	270	140	210	-	-	235	-	155	-	-	180	-	
250	**250.44**	4.0	270	120	185	-	-	205	-	140	-	-	160	-	
280	**280.49**	3.6	270	105	185	-	-	200	-	135	-	-	155	-	
315	**294.53**	3.4	270	100	185	-	-	200	-	140	-	-	155	-	
355	**329.88**	3.0	270	90	180	-	-	195	-	135	-	-	150	-	
400	**364.87**	2.7	270	81	175	-	-	190	-	130	-	-	145	-	
450	**408.66**	2.4	270	73	175	-	-	185	-	130	-	-	140	-	
X.F280..,n_1= 1200 1/min															**270 kNm**
8	**7.91**	152	220	3600	*)	900	-	940	1500	*)	*)	-	*)	1100	**X2F.** /HH 242 /HU 268
9	**8.86**	135	226	3300	*)	900	-	940	1450	*)	*)	-	*)	1100	
10	**10.03**	120	235	3000	*)	1050	-	1050	1550	*)	*)	-	850	1200	
11.2	**11.23**	107	241	2750	*)	1000	-	1050	1500	*)	*)	-	840	1200	
12.5	**12.39**	97	249	2600	*)	1050	-	1050	1500	*)	710	-	870	1200	
14	**13.88**	86	256	2350	*)	1000	-	1050	1500	*)	700	-	860	1200	
16	**15.66**	77	265	2200	590	1050	-	1050	1450	*)	730	-	860	1150	
18	**17.54**	68	270	2000	590	1000	-	1000	1400	*)	720	-	830	1150	
20	**19.50**	62	270	1800	580	980	-	940	1300	*)	710	-	780	1050	
22.4	**21.85**	55	270	1600	550	920	-	870	1200	*)	670	-	720	980	
25	**26.09**	46	243	1200	410	700	-	620	890	*)	490	-	495	700	**X3F.** /HH 248 /HU 274
28	**29.22**	41	270	1200	400	680	-	600	850	*)	475	-	470	660	
31.5	**32.26**	37	270	1100	365	610	-	530	760	*)	430	-	415	590	
35.5	**36.22**	33	270	970	400	660	-	560	800	275	470	-	445	620	
40	**39.98**	30	270	880	365	590	-	500	710	250	425	-	395	560	
45	**44.78**	27	270	790	355	580	-	480	690	245	420	-	380	540	
50	**50.51**	24	270	700	345	550	-	450	650	245	400	-	355	500	
56	**56.57**	21	270	620	340	540	-	435	630	240	395	-	345	490	
63	**59.40**	20	270	590	340	540	-	430	620	240	390	-	340	480	
71	**73.87**	16	270	475	340	530	-	415	600	245	390	-	330	465	
80	**81.55**	15	270	430	310	480	-	375	540	225	355	-	295	420	
90	**91.33**	13	270	385	305	470	-	365	530	220	350	-	285	410	
100	**95.91**	13	270	365	300	470	-	360	520	220	345	-	280	405	
112	**107.42**	11	270	330	295	460	-	350	510	215	340	-	275	395	
125	**129.88**	9.2	270	275	235	-	-	275	-	170	-	-	215	-	**X4F.** /HH 252 /HU 280
140	**145.47**	8.2	270	245	230	-	-	270	-	170	-	-	210	-	
160	**152.75**	7.9	270	235	230	-	-	265	-	170	-	-	205	-	
180	**171.08**	7.0	270	210	225	-	-	260	-	165	-	-	200	-	
200	**189.23**	6.3	270	190	225	-	-	255	-	165	-	-	195	-	
224	**211.93**	5.7	270	170	220	-	-	245	-	160	-	-	190	-	
250	**250.44**	4.8	270	140	195	-	-	220	-	145	-	-	170	-	
280	**280.49**	4.3	270	125	195	-	-	215	-	145	-	-	165	-	
315	**294.53**	4.1	270	120	195	-	-	215	-	145	-	-	165	-	
355	**329.88**	3.6	270	110	190	-	-	210	-	140	-	-	160	-	
400	**364.87**	3.3	270	98	185	-	-	200	-	140	-	-	155	-	
450	**408.66**	2.9	270	87	180	-	-	195	-	135	-	-	150	-	

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X.F280..,n_1= 1500 1/min															270 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
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											
81)	**7.91**	190	220	4500	*)	*)	-	*)	1350	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
91)	**8.86**	169	226	4100	*)	*)	-	*)	1350	*)	*)	-	*)	*)	
10	**10.03**	150	235	3750	*)	980	-	*)	1550	*)	*)	-	*)	1150	
11.2	**11.23**	134	241	3450	*)	980	-	930	1550	*)	*)	-	*)	1150	
12.5	**12.39**	121	249	3250	*)	1050	-	1000	1550	*)	*)	-	*)	1200	
14	**13.88**	108	256	2950	*)	1050	-	990	1550	*)	*)	-	770	1200	
16	**15.66**	96	265	2700	*)	1100	-	1050	1550	*)	740	-	840	1250	
18	**17.54**	86	270	2500	*)	1050	-	1000	1500	*)	730	-	830	1200	
20	**19.50**	77	270	2250	*)	1050	-	990	1450	*)	730	-	810	1150	
22.4	**21.85**	69	270	2000	510	980	-	910	1350	*)	690	-	740	1050	
25	**26.09**	57	243	1500	*)	740	-	650	980	*)	500	-	510	760	**X3F.** /HH 248 /HU 274
28	**29.22**	51	270	1500	*)	720	-	610	940	*)	490	-	480	720	
31.5	**32.26**	46	270	1350	*)	650	-	540	830	*)	445	-	420	640	
35.5	**36.22**	41	270	1200	390	710	-	590	890	*)	500	-	465	690	
40	**39.98**	38	270	1100	355	640	-	520	790	*)	455	-	410	610	
45	**44.78**	33	270	980	350	630	-	500	770	*)	445	-	395	590	
50	**50.51**	30	270	870	345	600	-	475	720	235	435	-	375	560	
56	**56.57**	27	270	780	340	590	-	460	700	230	425	-	360	540	
63	**59.40**	25	270	740	340	590	-	455	690	230	425	-	355	540	
71	**73.87**	20	270	600	345	580	-	445	670	245	425	-	350	520	
80	**81.55**	18	270	540	320	530	-	400	610	225	390	-	315	470	
90	**91.33**	16	270	480	310	520	-	390	590	220	380	-	305	455	
100	**95.91**	16	270	460	310	520	-	385	580	220	380	-	300	450	
112	**107.42**	14	270	410	305	510	-	375	570	215	375	-	290	440	
125	**129.88**	12	270	345	245	-	-	295	-	175	-	-	225	-	**X4F.** /HH 252 /HU 280
140	**145.47**	10	270	305	240	-	-	285	-	170	-	-	220	-	
160	**152.75**	9.8	270	290	240	-	-	280	-	170	-	-	215	-	
180	**171.08**	8.8	270	260	235	-	-	275	-	165	-	-	210	-	
200	**189.23**	7.9	270	235	230	-	-	270	-	165	-	-	205	-	
224	**211.93**	7.1	270	210	225	-	-	260	-	165	-	-	200	-	
250	**250.44**	6.0	270	180	210	-	-	235	-	155	-	-	180	-	
280	**280.49**	5.3	270	160	205	-	-	230	-	150	-	-	175	-	
315	**294.53**	5.1	270	150	205	-	-	230	-	150	-	-	175	-	
355	**329.88**	4.5	270	135	200	-	-	225	-	150	-	-	175	-	
400	**364.87**	4.1	270	120	195	-	-	215	-	145	-	-	165	-	
450	**408.66**	3.7	270	110	190	-	-	210	-	140	-	-	160	-	
X.F280..,n_1= 1800 1/min															**270 kNm**
81)	**7.91**	228	209	5100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
91)	**8.86**	203	214	4650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
101)	**10.03**	179	223	4300	*)	*)	-	*)	1450*)	*)	*)	-	*)	*)	
11.21)	**11.23**	160	228	3900	*)	*)	-	*)	1450*)	*)	*)	-	*)	1000*)	
12.51)	**12.39**	145	236	3700	*)	990*)	-	*)	1550*)	*)	*)	-	*)	1150*)	
141)	**13.88**	130	243	3400	*)	980*)	-	860	1500*)	*)	*)	-	*)	1150*)	
16	**15.66**	115	251	3100	*)	1100*)	-	980	1600*)	*)	*)	-	*)	1250*)	
18	**17.54**	103	260	2850	*)	1100*)	-	970	1550*)	*)	*)	-	760	1200*)	
20	**19.50**	92	270	2650	*)	1050*)	-	970	1500*)	*)	720*)	-	780	1200*)	
22.4	**21.85**	82	270	2400	*)	1000*)	-	920	1450*)	*)	680*)	-	730	1150*)	
25	**26.09**	69	243	1800	*)	760	-	650	1050	*)	495	-	495	800	**X3F.** /HH 248 /HU 274
28	**29.22**	62	270	1800	*)	740	-	610	1000	*)	480	-	465	760	
31.5	**32.26**	56	270	1650	*)	680	-	540	890	*)	445	-	415	680	
35.5	**36.22**	50	270	1450	365	750	-	600	960	*)	510	-	465	740	
40	**39.98**	45	270	1300	335	680	-	540	860	*)	470	-	415	660	
45	**44.78**	40	270	1200	330	670	-	520	830	*)	460	-	395	640	
50	**50.51**	36	270	1050	340	650	-	495	780	*)	455	-	385	600	
56	**56.57**	32	270	930	330	630	-	475	760	*)	445	-	370	580	
63	**59.40**	30	270	890	335	630	-	470	750	*)	450	-	365	580	
71	**73.87**	24	270	710	350	630	-	465	730	240	455	-	365	570	
80	**81.55**	22	270	650	320	580	-	420	660	220	420	-	325	510	
90	**91.33**	20	270	580	315	560	-	405	650	215	410	-	315	495	
100	**95.91**	19	270	550	315	560	-	400	640	215	410	-	310	490	
112	**107.42**	17	270	490	305	550	-	390	620	210	400	-	300	475	
125	**129.88**	14	270	410	245	-	-	305	-	170	-	-	235	-	**X4F.** /HH 252 /HU 280
140	**145.47**	12	270	365	240	-	-	295	-	170	-	-	225	-	
160	**152.75**	12	270	350	240	-	-	295	-	170	-	-	220	-	
180	**171.08**	11	270	310	235	-	-	285	-	165	-	-	215	-	
200	**189.23**	9.5	270	280	235	-	-	280	-	165	-	-	210	-	
224	**211.93**	8.5	270	250	230	-	-	270	-	160	-	-	205	-	
250	**250.44**	7.2	270	215	215	-	-	250	-	160	-	-	190	-	
280	**280.49**	6.4	270	190	215	-	-	240	-	155	-	-	185	-	
315	**294.53**	6.1	270	180	215	-	-	245	-	160	-	-	185	-	
355	**329.88**	5.5	270	160	210	-	-	235	-	155	-	-	180	-	
400	**364.87**	4.9	270	145	205	-	-	230	-	150	-	-	175	-	
450	**408.66**	4.4	270	130	200	-	-	220	-	150	-	-	170	-	

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X.F290..,n_1= 1000 1/min															308 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	*)	*)	-	1400	1800	**X2F.** /HH 242 /HU 268
7.1	**7.16**	140	246	3700	*)	*)	-	1650	2150	*)	*)	-	1400	1800	
8	**8.11**	123	255	3350	*)	1050	-	1750	2150	*)	*)	-	1500	1850	
9	**9.17**	109	262	3050	*)	1100	-	1800	2250	*)	*)	-	1600	1900	
10	**10.05**	100	272	2900	*)	1100	-	1700	2100	*)	750	-	1550	1800	
11.2	**11.36**	88	278	2650	*)	1100	-	1700	2100	*)	740	-	1500	1800	
12.5	**12.76**	78	286	2400	630	1050	-	1550	1900	*)	730	-	1350	1600	
14	**14.42**	69	298	2200	650	1050	-	1550	1900	*)	760	-	1350	1650	
16	**16.05**	62	307	2050	620	990	-	1350	1700	*)	710	-	1200	1450	
18	**18.14**	55	308	1800	630	1000	-	1350	1700	*)	730	-	1200	1450	
20	**20.27**	49	284	1500	435	710	-	900	1150	*)	490	-	770	950	**X3F.** /HH 248 /HU 274
22.4	**22.91**	44	308	1450	450	730	-	900	1150	*)	510	-	770	950	
25	**26.45**	38	308	1250	425	680	-	800	1050	*)	475	-	680	850	
28	**28.45**	35	308	1200	445	700	-	800	1050	305	495	-	680	850	
31.5	**32.86**	30	308	1000	420	650	-	720	920	290	465	-	600	760	
35.5	**37.13**	27	308	900	425	660	-	710	920	290	470	-	590	750	
40	**41.45**	24	308	810	405	620	-	650	840	285	450	-	540	690	
45	**46.84**	21	308	710	410	620	-	640	840	290	455	-	530	680	
50	**49.69**	20	308	670	375	570	-	580	760	265	415	-	475	610	
56	**57.86**	17	308	580	385	580	-	570	750	275	425	-	475	610	
63	**66.82**	15	308	500	350	520	-	500	670	255	385	-	415	540	
71	**75.52**	13	308	445	360	540	-	510	680	260	395	-	415	540	
80	**80.10**	12	308	420	315	475	-	440	590	230	350	-	360	470	
90	**90.53**	11	308	370	325	485	-	445	600	235	355	-	360	475	
100	**103.31**	9.7	308	330	285	-	-	380	-	205	-	-	310	-	**X4F.** /HH 252 /HU 280
112	**116.77**	8.6	308	290	285	-	-	375	-	205	-	-	305	-	
125	**123.85**	8.1	308	275	260	-	-	340	-	190	-	-	275	-	
140	**139.98**	7.1	308	240	260	-	-	335	-	190	-	-	270	-	
160	**152.96**	6.5	308	220	245	-	-	310	-	175	-	-	245	-	
180	**172.88**	5.8	308	195	240	-	-	305	-	175	-	-	240	-	
200	**205.34**	4.9	308	165	230	-	-	275	-	170	-	-	220	-	
224	**232.08**	4.3	308	145	225	-	-	275	-	170	-	-	215	-	
250	**246.17**	4.1	308	135	210	-	-	250	-	155	-	-	200	-	
280	**278.23**	3.6	308	120	210	-	-	245	-	155	-	-	195	-	
315	**304.02**	3.3	308	110	195	-	-	230	-	145	-	-	180	-	
355	**343.61**	2.9	308	98	195	-	-	225	-	145	-	-	180	-	
X.F290..,n_1= 1200 1/min															**308 kNm**
6.3[1)]	**6.34**	189	238	4850	*)	*)	-	1450	2100	*)	*)	-	*)	1650	**X2F.** /HH 242 /HU 268
7.1[1)]	**7.16**	168	246	4400	*)	*)	-	1450	2100	*)	*)	-	1150	1650	
8	**8.11**	148	255	4050	*)	*)	-	1650	2200	*)	*)	-	1450	1850	
9	**9.17**	131	262	3700	*)	1050	-	1750	2300	*)	*)	-	1500	1900	
10	**10.05**	119	272	3500	*)	1100	-	1700	2200	*)	*)	-	1500	1850	
11.2	**11.36**	106	278	3150	*)	1100	-	1700	2150	*)	*)	-	1500	1850	
12.5	**12.76**	94	286	2900	*)	1100	-	1600	2000	*)	740	-	1400	1750	
14	**14.42**	83	298	2650	*)	1100	-	1650	2100	*)	760	-	1450	1800	
16	**16.05**	75	307	2450	*)	1050	-	1450	1850	*)	730	-	1300	1600	
18	**18.14**	66	308	2200	600	1050	-	1450	1850	*)	750	-	1300	1600	
20	**20.27**	59	284	1850	*)	740	-	960	1250	*)	495	-	820	1050	**X3F.** /HH 248 /HU 274
22.4	**22.91**	52	308	1750	*)	770	-	960	1250	*)	520	-	820	1050	
25	**26.45**	45	308	1500	405	720	-	850	1150	*)	490	-	720	930	
28	**28.45**	42	308	1400	440	740	-	860	1150	*)	520	-	730	940	
31.5	**32.86**	37	308	1200	415	700	-	770	1000	*)	490	-	650	840	
35.5	**37.13**	32	308	1100	420	700	-	760	1000	275	495	-	640	820	
40	**41.45**	29	308	970	410	670	-	700	930	280	480	-	580	760	
45	**46.84**	26	308	860	415	670	-	690	920	285	485	-	570	750	
50	**49.69**	24	308	810	375	610	-	620	830	260	440	-	510	670	
56	**57.86**	21	308	690	395	630	-	610	830	275	455	-	510	670	
63	**66.82**	18	308	600	360	570	-	540	740	255	415	-	445	590	
71	**75.52**	16	308	530	370	590	-	540	750	260	430	-	445	600	
80	**80.10**	15	308	500	325	510	-	470	650	230	375	-	385	520	
90	**90.53**	13	308	445	335	530	-	475	660	235	385	-	385	520	
100	**103.31**	12	308	395	295	-	-	405	-	210	-	-	330	-	**X4F.** /HH 252 /HU 280
112	**116.77**	10	308	350	295	-	-	400	-	210	-	-	325	-	
125	**123.85**	9.7	308	330	265	-	-	360	-	190	-	-	290	-	
140	**139.98**	8.6	308	290	265	-	-	355	-	190	-	-	285	-	
160	**152.96**	7.8	308	265	250	-	-	325	-	180	-	-	260	-	
180	**172.88**	6.9	308	235	250	-	-	320	-	180	-	-	255	-	
200	**205.34**	5.8	308	200	240	-	-	295	-	175	-	-	235	-	
224	**232.08**	5.2	308	175	235	-	-	290	-	175	-	-	230	-	
250	**246.17**	4.9	308	165	220	-	-	265	-	160	-	-	210	-	
280	**278.23**	4.3	308	145	220	-	-	265	-	160	-	-	210	-	
315	**304.02**	3.9	308	135	205	-	-	245	-	150	-	-	195	-	
355	**343.61**	3.5	308	120	205	-	-	240	-	150	-	-	190	-	

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X.F290..,n_1= 1500 1/min															**308 kNm**
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	**M1** 20 °C					**M1** 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1]	**6.34**	237	238	6050	*)	*)	-	*)	1600	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
7.1[1]	**7.16**	209	246	5550	*)	*)	-	*)	1650	*)	*)	-	*)	*)	
8[1]	**8.11**	185	255	5050	*)	*)	-	1450	2100	*)	*)	-	*)	1700	
9[1]	**9.17**	164	262	4600	*)	*)	-	1500	2200	*)	*)	-	1250	1800	
10	**10.05**	149	272	4350	*)	*)	-	1650	2250	*)	*)	-	1400	1850	
11.2	**11.36**	132	278	3950	*)	1050	-	1600	2200	*)	*)	-	1400	1850	
12.5	**12.76**	118	286	3600	*)	1100	-	1600	2100	*)	*)	-	1400	1800	
14	**14.42**	104	298	3350	*)	1100	-	1650	2200	*)	*)	-	1450	1850	
16	**16.05**	93	307	3100	*)	1100	-	1550	2000	*)	*)	-	1350	1700	
18	**18.14**	83	308	2750	*)	1100	-	1550	2050	*)	740	-	1400	1750	
20	**20.27**	74	284	2300	*)	760	-	1000	1400	*)	*)	-	870	1150	**X3F.** /HH 248 /HU 274
22.4	**22.91**	65	308	2200	*)	790	-	1000	1400	*)	*)	-	860	1150	
25	**26.45**	57	308	1900	*)	750	-	900	1250	*)	480	-	760	1000	
28	**28.45**	53	308	1750	*)	790	-	930	1250	*)	540	-	790	1050	
31.5	**32.86**	46	308	1550	390	750	-	830	1150	*)	510	-	700	930	
35.5	**37.13**	40	308	1350	395	750	-	810	1150	*)	520	-	680	920	
40	**41.45**	36	308	1200	400	720	-	750	1050	*)	510	-	630	850	
45	**46.84**	32	308	1050	405	730	-	740	1050	*)	520	-	620	840	
50	**49.69**	30	308	1000	370	670	-	660	930	*)	470	-	550	750	
56	**57.86**	26	308	870	395	690	-	660	930	265	495	-	550	750	
63	**66.82**	22	308	750	360	630	-	580	830	245	450	-	480	660	
71	**75.52**	20	308	660	375	640	-	590	840	255	465	-	485	670	
80	**80.10**	19	308	630	330	570	-	510	730	225	410	-	415	580	
90	**90.53**	17	308	550	335	580	-	510	740	230	420	-	415	590	
100	**103.31**	15	308	490	295	-	-	435	-	205	-	-	355	-	**X4F.** /HH 252 /HU 280
112	**116.77**	13	308	435	295	-	-	430	-	205	-	-	345	-	
125	**123.85**	12	308	410	270	-	-	385	-	185	-	-	310	-	
140	**139.98**	11	308	365	270	-	-	380	-	185	-	-	300	-	
160	**152.96**	9.8	308	330	255	-	-	350	-	175	-	-	275	-	
180	**172.88**	8.7	308	295	255	-	-	345	-	175	-	-	270	-	
200	**205.34**	7.3	308	245	250	-	-	320	-	180	-	-	255	-	
224	**232.08**	6.5	308	220	250	-	-	315	-	180	-	-	250	-	
250	**246.17**	6.1	308	205	230	-	-	290	-	165	-	-	230	-	
280	**278.23**	5.4	308	180	230	-	-	285	-	165	-	-	225	-	
315	**304.02**	4.9	308	165	215	-	-	265	-	155	-	-	210	-	
355	**343.61**	4.4	308	150	215	-	-	260	-	155	-	-	205	-	
X.F290..,n_1= 1800 1/min															**308 kNm**
6.3[1]	**6.34**	284	225	6850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
7.1[1]	**7.16**	251	233	6300	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1]	**8.11**	222	241	5750	*)	*)	-	*)	1850*)	*)	*)	-	*)	*)	
9[1]	**9.17**	196	248	5200	*)	*)	-	*)	1950*)	*)	*)	-	*)	1450*)	
10[1]	**10.05**	179	257	4950	*)	*)	-	1450	2200*)	*)	*)	-	*)	1750*)	
11.2[1]	**11.36**	158	263	4450	*)	*)	-	1450	2150*)	*)	*)	-	1200	1750*)	
12.5[1]	**12.76**	141	271	4100	*)	*)	-	1500	2150*)	*)	*)	-	1250	1750*)	
14[1]	**14.42**	125	282	3800	*)	1050*)	-	1550	2200*)	*)	*)	-	1300	1800*)	
16[1]	**16.05**	112	290	3500	*)	1050*)	-	1500	2100*)	*)	*)	-	1300	1750*)	
18[1]	**18.14**	99	302	3200	*)	1100*)	-	1550	2150*)	*)	*)	-	1350	1800*)	
20[1]	**20.27**	89	280	2700	*)	740*)	-	1050	1450*)	*)	*)	-	870	1200*)	**X3F.** /HH 248 /HU 274
22.4[1]	**22.91**	79	308	2650	*)	770*)	-	1050	1500*)	*)	*)	-	870	1200*)	
25[1]	**26.45**	68	308	2300	*)	740*)	-	930	1350*)	*)	*)	-	770	1100*)	
28	**28.45**	63	308	2100	*)	820*)	-	980	1400*)	*)	*)	-	830	1100*)	
31.5	**32.86**	55	308	1850	*)	770*)	-	870	1250*)	*)	510*)	-	730	1000*)	
35.5	**37.13**	48	308	1600	*)	780*)	-	850	1250*)	*)	520*)	-	710	990*)	
40	**41.45**	43	308	1450	375	760*)	-	800	1150*)	*)	520*)	-	670	930*)	
45	**46.84**	38	308	1300	380	770*)	-	780	1150*)	*)	530*)	-	650	910*)	
50	**49.69**	36	308	1200	350	710*)	-	700	1000*)	*)	485*)	-	580	820*)	
56	**57.86**	31	308	1050	385	740*)	-	710	1000*)	*)	520*)	-	590	820*)	
63	**66.82**	27	308	900	355	670*)	-	620	910*)	230	475*)	-	510	730*)	
71	**75.52**	24	308	800	365	690*)	-	620	920*)	240	490*)	-	510	740*)	
80	**80.10**	22	308	750	325	610*)	-	540	800*)	210	430*)	-	440	640*)	
90	**90.53**	20	308	670	330	620*)	-	540	810*)	215	445*)	-	440	640*)	
100	**103.31**	17	308	590	290	-	-	460	-	185	-	-	370	-	**X4F.** /HH 252 /HU 280
112	**116.77**	15	308	520	290	-	-	450	-	190	-	-	360	-	
125	**123.85**	15	308	490	265	-	-	405	-	170	-	-	320	-	
140	**139.98**	13	308	435	265	-	-	395	-	175	-	-	315	-	
160	**152.96**	12	308	400	250	-	-	365	-	165	-	-	285	-	
180	**172.88**	10	308	350	250	-	-	355	-	165	-	-	280	-	
200	**205.34**	8.8	308	295	255	-	-	340	-	185	-	-	275	-	
224	**232.08**	7.8	308	260	255	-	-	335	-	185	-	-	265	-	
250	**246.17**	7.3	308	245	235	-	-	305	-	170	-	-	245	-	
280	**278.23**	6.5	308	220	235	-	-	300	-	170	-	-	240	-	
315	**304.02**	5.9	308	200	220	-	-	280	-	160	-	-	220	-	
355	**343.61**	5.2	308	175	220	-	-	275	-	160	-	-	215	-	

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X.F300..,n_1= 1000 1/min															350 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2	M_{N2}	P_{N1}		Fan	H_2O cover	H_2O	Fan + H_2O		Fan	H_2O cover	H_2O	Fan + H_2O	
		min^{-1}	kNm	kW											
7.1	**6.75**	148	254	4050	*)	*)	-	*)	1450	*)	*)	-	*)	1000	**X2F.** /HH 242 /HU 268
8	**7.66**	131	260	3650	*)	*)	-	*)	1450	*)	*)	-	*)	1000	
9	**8.64**	116	272	3400	*)	1100	-	1150	1650	*)	*)	-	880	1250	
10	**9.80**	102	278	3050	*)	1100	-	1150	1600	*)	*)	-	880	1250	
11.2	**10.71**	93	289	2900	*)	1100	-	1150	1550	*)	760	-	920	1250	
12.5	**12.13**	82	294	2600	*)	1100	-	1100	1550	*)	750	-	900	1250	
14	**13.59**	74	305	2400	640	1050	-	1050	1400	*)	740	-	860	1150	
16	**15.41**	65	316	2200	660	1100	-	1050	1450	*)	770	-	860	1150	
18	**17.11**	58	328	2050	650	1050	-	1000	1350	*)	760	-	820	1100	
20	**19.39**	52	338	1850	640	1050	-	970	1350	*)	740	-	780	1050	
22.4	**21.60**	46	303	1500	445	720	-	650	910	*)	500	-	510	700	**X3F.** /HH 248 /HU 274
25	**24.48**	41	330	1450	460	740	-	660	930	*)	520	-	510	720	
28	**28.19**	35	337	1300	435	690	-	600	850	*)	485	-	465	650	
31.5	**30.40**	33	350	1250	445	690	-	600	840	*)	495	-	470	650	
35.5	**35.01**	29	350	1100	430	660	-	560	790	295	480	-	440	610	
40	**39.68**	25	350	960	420	650	-	540	760	290	470	-	425	590	
45	**44.16**	23	350	860	415	630	-	520	730	295	460	-	410	570	
50	**50.05**	20	350	760	420	640	-	520	730	295	465	-	405	560	
56	**52.94**	19	350	720	385	580	-	475	660	270	425	-	365	510	
63	**61.83**	16	350	610	375	560	-	455	630	270	415	-	355	490	
71	**71.20**	14	350	530	360	540	-	425	600	260	395	-	330	460	
80	**80.69**	12	350	470	350	520	-	415	580	255	385	-	320	450	
90	**85.35**	12	350	445	325	485	-	380	540	235	355	-	295	410	
100	**96.74**	10	350	395	325	485	-	375	530	235	355	-	290	410	
112	**110.09**	9.1	350	350	290	-	-	335	-	210	-	-	255	-	**X4F.** /HH 252 /HU 280
125	**124.76**	8.0	350	310	285	-	-	325	-	205	-	-	250	-	
140	**131.98**	7.6	350	290	265	-	-	300	-	195	-	-	230	-	
160	**149.57**	6.7	350	255	265	-	-	300	-	195	-	-	230	-	
180	**162.99**	6.1	350	235	250	-	-	275	-	180	-	-	210	-	
200	**184.72**	5.4	350	210	245	-	-	270	-	175	-	-	205	-	
224	**218.80**	4.6	350	175	235	-	-	255	-	175	-	-	195	-	
250	**247.98**	4.0	350	155	230	-	-	250	-	170	-	-	195	-	
280	**262.31**	3.8	350	145	215	-	-	235	-	160	-	-	180	-	
315	**297.28**	3.4	350	130	215	-	-	230	-	160	-	-	175	-	
355	**323.95**	3.1	350	120	200	-	-	215	-	150	-	-	165	-	
400	**367.15**	2.7	350	105	195	-	-	210	-	145	-	-	160	-	
X.F300..,n_1= 1200 1/min															**350 kNm**
7.1[1]	**6.75**	178	254	4850	*)	*)	-	*)	1300	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8[1]	**7.66**	157	260	4350	*)	*)	-	*)	1300	*)	*)	-	*)	*)	
9	**8.64**	139	272	4050	*)	1050	-	*)	1650	*)	*)	-	*)	1200	
10	**9.80**	122	278	3650	*)	1050	-	1000	1600	*)	*)	-	*)	1200	
11.2	**10.71**	112	289	3450	*)	1150	-	1100	1600	*)	*)	-	*)	1250	
12.5	**12.13**	99	294	3100	*)	1100	-	1050	1600	*)	*)	-	840	1250	
14	**13.59**	88	305	2900	*)	1100	-	1050	1500	*)	750	-	840	1200	
16	**15.41**	78	316	2650	*)	1150	-	1100	1550	*)	780	-	870	1250	
18	**17.11**	70	328	2450	620	1100	-	1050	1500	*)	780	-	840	1200	
20	**19.39**	62	338	2250	610	1100	-	1000	1450	*)	760	-	800	1150	
22.4	**21.60**	56	303	1850	*)	760	-	660	980	*)	510	-	510	750	**X3F.** /HH 248 /HU 274
25	**24.48**	49	330	1750	*)	780	-	670	1000	*)	530	-	510	760	
28	**28.19**	43	337	1550	415	730	-	620	910	*)	500	-	470	700	
31.5	**30.40**	39	350	1500	440	740	-	620	910	*)	520	-	480	700	
35.5	**35.01**	34	350	1300	425	710	-	580	860	*)	500	-	455	660	
40	**39.68**	30	350	1150	420	700	-	560	830	*)	495	-	435	640	
45	**44.16**	27	350	1050	420	680	-	550	800	290	490	-	425	620	
50	**50.05**	24	350	910	425	690	-	550	800	290	495	-	420	610	
56	**52.94**	23	350	860	390	630	-	495	720	265	455	-	380	560	
63	**61.83**	19	350	740	385	610	-	475	690	270	445	-	370	530	
71	**71.20**	17	350	640	370	580	-	450	660	260	425	-	345	500	
80	**80.69**	15	350	570	360	570	-	435	640	255	420	-	335	490	
90	**85.35**	14	350	530	335	530	-	400	590	235	385	-	305	450	
100	**96.74**	12	350	470	335	530	-	395	580	235	385	-	300	445	
112	**110.09**	11	350	420	300	-	-	350	-	215	-	-	265	-	**X4F.** /HH 252 /HU 280
125	**124.76**	9.6	350	370	295	-	-	340	-	210	-	-	260	-	
140	**131.98**	9.1	350	350	275	-	-	315	-	195	-	-	240	-	
160	**149.57**	8.0	350	310	275	-	-	310	-	195	-	-	235	-	
180	**162.99**	7.4	350	285	255	-	-	290	-	185	-	-	220	-	
200	**184.72**	6.5	350	250	250	-	-	280	-	180	-	-	210	-	
224	**218.80**	5.5	350	210	245	-	-	270	-	180	-	-	205	-	
250	**247.98**	4.8	350	185	245	-	-	265	-	180	-	-	205	-	
280	**262.31**	4.6	350	175	225	-	-	245	-	165	-	-	190	-	
315	**297.28**	4.0	350	155	225	-	-	245	-	165	-	-	185	-	
355	**323.95**	3.7	350	140	210	-	-	225	-	155	-	-	175	-	
400	**367.15**	3.3	350	125	205	-	-	220	-	150	-	-	170	-	

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					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1[1)]	**6.75**	222	254	6050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8[1)]	**7.66**	196	260	5450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	**8.64**	174	272	5050	*)	*)	-	*)	1450	*)	*)	-	*)	*)	
10[1)]	**9.80**	153	278	4550	*)	*)	-	*)	1500	*)	*)	-	*)	*)	
11.2	**10.71**	140	289	4350	*)	*)	-	*)	1600	*)	*)	-	*)	1200	
12.5	**12.13**	124	294	3900	*)	1050	-	*)	1600	*)	*)	-	*)	1200	
14	**13.59**	110	305	3600	*)	1100	-	970	1550	*)	*)	-	*)	1200	
16	**15.41**	97	316	3300	*)	1150	-	1000	1600	*)	*)	-	*)	1250	
18	**17.11**	88	328	3100	*)	1150	-	1000	1600	*)	*)	-	800	1250	
20	**19.39**	77	338	2800	*)	1150	-	1000	1550	*)	750	-	790	1200	
22.4	**21.60**	69	303	2300	*)	780	-	660	1050	*)	*)	-	*)	790	**X3F.** /HH 248 /HU 274
25	**24.48**	61	330	2200	*)	810	-	660	1050	*)	*)	-	*)	800	
28	**28.19**	53	337	1950	*)	760	-	610	990	*)	495	-	*)	740	
31.5	**30.40**	49	350	1900	*)	790	-	640	990	*)	540	-	485	760	
35.5	**35.01**	43	350	1650	*)	760	-	600	940	*)	530	-	455	720	
40	**39.68**	38	350	1450	400	750	-	580	910	*)	520	-	440	690	
45	**44.16**	34	350	1300	410	740	-	570	880	*)	520	-	435	680	
50	**50.05**	30	350	1150	415	750	-	570	880	*)	530	-	435	670	
56	**52.94**	28	350	1100	380	680	-	510	800	*)	485	-	390	610	
63	**61.83**	24	350	920	385	670	-	500	770	260	480	-	385	590	
71	**71.20**	21	350	800	370	640	-	470	730	255	465	-	360	560	
80	**80.69**	19	350	710	365	630	-	455	710	250	455	-	350	540	
90	**85.35**	18	350	670	335	580	-	415	650	230	420	-	320	495	
100	**96.74**	16	350	590	340	580	-	415	650	230	420	-	315	490	
112	**110.09**	14	350	520	305	-	-	365	-	210	-	-	275	-	**X4F.** /HH 252 /HU 280
125	**124.76**	12	350	460	295	-	-	355	-	205	-	-	265	-	
140	**131.98**	11	350	435	275	-	-	330	-	190	-	-	245	-	
160	**149.57**	10	350	385	275	-	-	325	-	190	-	-	240	-	
180	**162.99**	9.2	350	355	260	-	-	300	-	180	-	-	225	-	
200	**184.72**	8.1	350	310	255	-	-	295	-	175	-	-	220	-	
224	**218.80**	6.9	350	265	255	-	-	285	-	185	-	-	220	-	
250	**247.98**	6.0	350	235	255	-	-	285	-	185	-	-	215	-	
280	**262.31**	5.7	350	220	235	-	-	260	-	170	-	-	200	-	
315	**297.28**	5.0	350	195	235	-	-	260	-	170	-	-	195	-	
355	**323.95**	4.6	350	180	220	-	-	240	-	160	-	-	185	-	
400	**367.15**	4.1	350	155	215	-	-	235	-	155	-	-	180	-	
X.F300..,n_1= 1800 1/min															**350 kNm**
7.1[1)]	**6.75**	267	240	6850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8[1)]	**7.66**	235	246	6200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	**8.64**	208	257	5750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[1)]	**9.80**	184	263	5200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[1)]	**10.71**	168	274	4950	*)	*)	-	*)	1500[*)]	*)	*)	-	*)	*)	
12.5[1)]	**12.13**	148	278	4450	*)	*)	-	*)	1500[*)]	*)	*)	-	*)	*)	
14[1)]	**13.59**	132	289	4100	*)	1050[*)]	-	*)	1550[*)]	*)	*)	-	*)	1100[*)]	
16[1)]	**15.41**	117	299	3750	*)	1100[*)]	-	*)	1600[*)]	*)	*)	-	*)	1150[*)]	
18[1)]	**17.11**	105	310	3500	*)	1150[*)]	-	920	1600[*)]	*)	*)	-	*)	1200[*)]	
20[1)]	**19.39**	93	320	3200	*)	1100[*)]	-	910	1600[*)]	*)	*)	-	*)	1200[*)]	
22.4[1)]	**21.60**	83	300	2700	*)	760[*)]	-	*)	1100[*)]	*)	*)	-	*)	780[*)]	**X3F.** /HH 248 /HU 274
25[1)]	**24.48**	74	322	2550	*)	790[*)]	-	*)	1100[*)]	*)	*)	-	*)	800[*)]	
28[1)]	**28.19**	64	329	2300	*)	760[*)]	-	570	1050[*)]	*)	*)	-	*)	750[*)]	
31.5	**30.40**	59	340	2200	*)	820[*)]	-	630	1050[*)]	*)	*)	-	*)	790[*)]	
35.5	**35.01**	51	342	1900	*)	800[*)]	-	600	1000[*)]	*)	530[*)]	-	*)	750[*)]	
40	**39.68**	45	350	1700	*)	780[*)]	-	580	970[*)]	*)	520[*)]	-	*)	720[*)]	
45	**44.16**	41	350	1550	*)	790[*)]	-	580	950[*)]	*)	540[*)]	-	435	720[*)]	
50	**50.05**	36	350	1350	395	790[*)]	-	570	950[*)]	*)	550[*)]	-	430	720[*)]	
56	**52.94**	34	350	1300	360	730[*)]	-	520	860[*)]	*)	500[*)]	-	385	650[*)]	
63	**61.83**	29	350	1100	375	720[*)]	-	510	840[*)]	*)	510[*)]	-	390	640[*)]	
71	**71.20**	25	350	960	365	690[*)]	-	485	790[*)]	*)	490[*)]	-	365	600[*)]	
80	**80.69**	22	350	850	360	670[*)]	-	465	770[*)]	235	480[*)]	-	350	580[*)]	
90	**85.35**	21	350	800	335	620[*)]	-	430	710[*)]	220	445[*)]	-	320	530[*)]	
100	**96.74**	19	350	710	335	620[*)]	-	425	700[*)]	220	445[*)]	-	315	530[*)]	
112	**110.09**	16	350	630	300	-	-	370	-	195	-	-	275	-	**X4F.** /HH 252 /HU 280
125	**124.76**	14	350	550	290	-	-	360	-	190	-	-	265	-	
140	**131.98**	14	350	520	275	-	-	335	-	175	-	-	245	-	
160	**149.57**	12	350	465	270	-	-	330	-	180	-	-	240	-	
180	**162.99**	11	350	425	255	-	-	305	-	170	-	-	225	-	
200	**184.72**	9.7	350	375	250	-	-	295	-	165	-	-	215	-	
224	**218.80**	8.2	350	315	260	-	-	300	-	190	-	-	230	-	
250	**247.98**	7.3	350	280	260	-	-	295	-	185	-	-	225	-	
280	**262.31**	6.9	350	265	240	-	-	270	-	175	-	-	205	-	
315	**297.28**	6.1	350	235	240	-	-	270	-	170	-	-	205	-	
355	**323.95**	5.6	350	215	225	-	-	250	-	165	-	-	190	-	
400	**367.15**	4.9	350	190	220	-	-	245	-	160	-	-	185	-	

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i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
6.3	**6.63**	151	310	5000	*)	*)	-	1950	2550	*)	*)	-	1650	2100	**X2F.** /HH 242 /HU 268
7.1	**7.51**	133	318	4550	*)	*)	-	1950	2500	*)	*)	-	1650	2100	
8	**8.04**	124	327	4350	*)	1150	-	1950	2450	*)	*)	-	1700	2050	
9	**9.10**	110	335	3950	*)	1150	-	1900	2400	*)	*)	-	1650	2050	
10	**10.17**	98	347	3650	*)	1250	-	2000	2500	*)	*)	-	1750	2150	
11.2	**11.52**	87	355	3300	*)	1250	-	2000	2450	*)	830	-	1750	2100	
12.5	**12.89**	78	368	3050	*)	1200	-	1850	2250	*)	830	-	1650	1950	
14	**14.59**	69	380	2800	*)	1200	-	1750	2150	*)	820	-	1550	1850	
16	**16.49**	61	392	2550	660	1100	-	1600	2000	*)	780	-	1400	1700	
18	**18.16**	55	400	2350	630	1050	-	1500	1850	*)	740	-	1300	1600	
20	**20.94**	48	420	2200	*)	820	-	1100	1400	*)	*)	-	920	1150	**X3F.** /HH 248 /HU 274
22.4	**23.07**	43	425	2000	*)	790	-	1000	1300	*)	520	-	860	1100	
25	**25.98**	38	425	1800	455	790	-	970	1250	*)	520	-	810	1050	
28	**29.33**	34	425	1550	490	780	-	920	1150	*)	550	-	770	970	
31.5	**33.03**	30	425	1400	500	800	-	900	1150	*)	560	-	760	950	
35.5	**36.39**	27	425	1250	485	760	-	840	1100	325	540	-	710	900	
40	**41.78**	24	425	1100	490	760	-	810	1050	340	540	-	680	860	
45	**46.03**	22	425	1000	470	720	-	760	1000	325	520	-	640	810	
50	**52.25**	19	425	880	450	690	-	710	930	310	500	-	580	750	
56	**57.42**	17	425	800	450	680	-	680	900	320	495	-	570	720	
63	**64.67**	15	425	710	445	670	-	660	860	315	490	-	540	700	
71	**71.25**	14	425	650	425	640	-	620	820	300	470	-	510	660	
80	**80.87**	12	425	570	400	600	-	560	750	285	440	-	460	600	
90	**89.10**	11	425	520	400	600	-	560	750	285	440	-	455	600	
100	**108.56**	9.2	425	430	330	-	-	445	-	235	-	-	360	-	**X4F.** /HH 252 /HU 280
112	**119.60**	8.4	425	390	325	-	-	435	-	230	-	-	350	-	
125	**135.76**	7.4	425	345	310	-	-	410	-	220	-	-	325	-	
140	**149.56**	6.7	425	310	300	-	-	390	-	215	-	-	310	-	
160	**162.03**	6.2	425	290	305	-	-	390	-	225	-	-	310	-	
180	**178.50**	5.6	425	260	295	-	-	370	-	220	-	-	295	-	
200	**203.96**	4.9	425	230	280	-	-	345	-	205	-	-	275	-	
224	**224.70**	4.5	425	210	270	-	-	330	-	200	-	-	260	-	
250	**255.06**	3.9	425	185	260	-	-	315	-	190	-	-	250	-	
280	**281.00**	3.6	425	165	250	-	-	300	-	185	-	-	235	-	
315	**313.92**	3.2	425	150	245	-	-	285	-	180	-	-	225	-	
355	**345.84**	2.9	425	135	235	-	-	275	-	175	-	-	215	-	
X.F310..,n_1= 1200 1/min															**425 kNm**
6.3	**6.63**	181	310	6000	*)	*)	-	1750	2450	*)	*)	-	*)	1950	**X2F.** /HH 242 /HU 268
7.1	**7.51**	160	318	5450	*)	*)	-	1750	2450	*)	*)	-	1450	2000	
8	**8.04**	149	327	5250	*)	*)	-	1850	2450	*)	*)	-	1550	2050	
9	**9.10**	132	335	4750	*)	*)	-	1850	2450	*)	*)	-	1550	2000	
10	**10.17**	118	347	4400	*)	1250	-	2000	2550	*)	*)	-	1700	2150	
11.2	**11.52**	104	355	3950	*)	1250	-	1950	2550	*)	*)	-	1700	2150	
12.5	**12.89**	93	368	3700	*)	1250	-	1850	2350	*)	*)	-	1650	2000	
14	**14.59**	82	380	3350	*)	1200	-	1850	2350	*)	*)	-	1600	2000	
16	**16.49**	73	392	3050	*)	1150	-	1700	2200	*)	770	-	1500	1850	
18	**18.16**	66	400	2850	*)	1100	-	1600	2000	*)	730	-	1400	1700	
20	**20.94**	57	420	2600	*)	830	-	1150	1500	*)	*)	-	960	1250	**X3F.** /HH 248 /HU 274
22.4	**23.07**	52	425	2400	*)	800	-	1050	1400	*)	*)	-	890	1150	
25	**25.98**	46	425	2150	*)	800	-	1000	1350	*)	*)	-	840	1100	
28	**29.33**	41	425	1900	*)	820	-	980	1300	*)	570	-	830	1050	
31.5	**33.03**	36	425	1700	490	850	-	960	1300	*)	590	-	810	1050	
35.5	**36.39**	33	425	1500	470	810	-	900	1200	*)	560	-	760	980	
40	**41.78**	29	425	1350	485	810	-	870	1150	*)	580	-	730	950	
45	**46.03**	26	425	1200	465	780	-	810	1100	310	550	-	680	890	
50	**52.25**	23	425	1050	450	740	-	750	1000	300	530	-	620	830	
56	**57.42**	21	425	960	455	730	-	730	990	315	530	-	610	800	
63	**64.67**	19	425	860	450	720	-	700	950	315	520	-	580	770	
71	**71.25**	17	425	780	430	690	-	660	900	300	500	-	540	730	
80	**80.87**	15	425	690	405	650	-	600	830	285	470	-	495	660	
90	**89.10**	13	425	620	405	650	-	600	830	285	475	-	485	660	
100	**108.56**	11	425	520	335	-	-	475	-	230	-	-	380	-	**X4F.** /HH 252 /HU 280
112	**119.60**	10	425	470	330	-	-	460	-	230	-	-	370	-	
125	**135.76**	8.8	425	415	315	-	-	430	-	220	-	-	345	-	
140	**149.56**	8.0	425	375	305	-	-	410	-	215	-	-	325	-	
160	**162.03**	7.4	425	345	320	-	-	415	-	230	-	-	335	-	
180	**178.50**	6.7	425	315	305	-	-	395	-	225	-	-	315	-	
200	**203.96**	5.9	425	275	290	-	-	365	-	210	-	-	295	-	
224	**224.70**	5.3	425	250	280	-	-	350	-	205	-	-	280	-	
250	**255.06**	4.7	425	220	270	-	-	335	-	195	-	-	265	-	
280	**281.00**	4.3	425	200	260	-	-	320	-	190	-	-	250	-	
315	**313.92**	3.8	425	180	255	-	-	305	-	185	-	-	240	-	
355	**345.84**	3.5	425	160	245	-	-	295	-	180	-	-	230	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1)]	**6.63**	226	310	7500	*)	*)	-	*)	2000	*)	*)	-	*)	*)	X2F. /HH 242 /HU 268
7.1[1)]	**7.51**	200	318	6800	*)	*)	-	*)	2050	*)	*)	-	*)	*)	
8[1)]	**8.04**	187	327	6550	*)	*)	-	*)	2300	*)	*)	-	*)	1800	
9[1)]	**9.10**	165	335	5900	*)	*)	-	1500	2300	*)	*)	-	*)	1800	
10[1)]	**10.17**	147	347	5500	*)	*)	-	1800	2550	*)	*)	-	1550	2100	
11.2[1)]	**11.52**	130	355	4950	*)	*)	-	1800	2550	*)	*)	-	1550	2100	
12.5[1)]	**12.89**	116	368	4600	*)	1200	-	1800	2450	*)	*)	-	1550	2050	
14[1)]	**14.59**	103	380	4200	*)	1200	-	1800	2400	*)	*)	-	1550	2000	
16[1)]	**16.49**	91	392	3850	*)	1150	-	1700	2300	*)	*)	-	1450	1900	
18[1)]	**18.16**	83	400	3550	*)	1100	-	1600	2150	*)	*)	-	1400	1800	
20[1)]	**20.94**	72	420	3250	*)	*)	-	1150	1650	*)	*)	-	960	1300	X3F. /HH 248 /HU 274
22.4[1)]	**23.07**	65	425	3000	*)	750	-	1050	1500	*)	*)	-	880	1200	
25[1)]	**25.98**	58	425	2650	*)	770	-	1000	1450	*)	*)	-	840	1150	
28	**29.33**	51	425	2350	*)	860	-	1050	1450	*)	*)	-	880	1150	
31.5	**33.03**	45	425	2100	*)	890	-	1050	1400	*)	600	-	860	1150	
35.5	**36.39**	41	425	1900	*)	850	-	960	1350	*)	570	-	800	1100	
40	**41.78**	36	425	1650	460	870	-	930	1300	*)	600	-	780	1050	
45	**46.03**	33	425	1500	440	830	-	870	1200	*)	570	-	720	990	
50	**52.25**	29	425	1350	425	800	-	800	1150	*)	550	-	670	920	
56	**57.42**	26	425	1200	450	800	-	790	1100	*)	570	-	660	900	
63	**64.67**	23	425	1050	445	790	-	760	1050	295	560	-	630	860	
71	**71.25**	21	425	970	430	760	-	710	1000	285	540	-	590	810	
80	**80.87**	19	425	860	405	710	-	650	930	270	510	-	530	740	
90	**89.10**	17	425	780	405	710	-	640	930	270	510	-	520	740	
100	**108.56**	14	425	650	330	-	-	500	-	215	-	-	400	-	X4F. /HH 252 /HU 280
112	**119.60**	13	425	590	325	-	-	485	-	215	-	-	390	-	
125	**135.76**	11	425	520	315	-	-	455	-	205	-	-	360	-	
140	**149.56**	10	425	470	300	-	-	435	-	200	-	-	340	-	
160	**162.03**	9.3	425	430	330	-	-	445	-	235	-	-	360	-	
180	**178.50**	8.4	425	390	320	-	-	425	-	225	-	-	340	-	
200	**203.96**	7.4	425	345	300	-	-	395	-	215	-	-	315	-	
224	**224.70**	6.7	425	310	290	-	-	380	-	210	-	-	300	-	
250	**255.06**	5.9	425	275	280	-	-	355	-	200	-	-	285	-	
280	**281.00**	5.3	425	250	270	-	-	340	-	195	-	-	270	-	
315	**313.92**	4.8	425	225	265	-	-	325	-	190	-	-	255	-	
355	**345.84**	4.3	425	205	255	-	-	315	-	185	-	-	245	-	
X.F310..,n_1= 1800 1/min															**425 kNm**
6.3[*)]	**6.63**	271	294	8550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2F. /HH 242 /HU 268
7.1[*)]	**7.51**	240	300	7700	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	**8.04**	224	309	7400	*)	*)	-	*)	1850[*)]	*)	*)	-	*)	*)	
9[*)]	**9.10**	198	316	6700	*)	*)	-	*)	1900[*)]	*)	*)	-	*)	*)	
10[*)]	**10.17**	177	328	6250	*)	*)	-	*)	2400[*)]	*)	*)	-	*)	1850[*)]	
11.2[*)]	**11.52**	156	335	5600	*)	*)	-	1500	2400[*)]	*)	*)	-	*)	1900[*)]	
12.5[*)]	**12.89**	140	350	5250	*)	*)	-	1600	2400[*)]	*)	*)	-	1350	1950[*)]	
14[*)]	**14.59**	123	358	4750	*)	*)	-	1600	2400[*)]	*)	*)	-	1350	1950[*)]	
16[*)]	**16.49**	109	371	4350	*)	*)	-	1550	2250[*)]	*)	*)	-	1300	1850[*)]	
18[*)]	**18.16**	99	379	4050	*)	*)	-	1450	2150[*)]	*)	*)	-	1250	1750[*)]	
20[1)]	**20.94**	86	398	3700	*)	*)	-	1050	1600[*)]	*)	*)	-	*)	1250[*)]	X3F. /HH 248 /HU 274
22.4[1)]	**23.07**	78	407	3450	*)	*)	-	990	1550[*)]	*)	*)	-	*)	1200[*)]	
25[1)]	**25.98**	69	423	3200	*)	*)	-	970	1500[*)]	*)	*)	-	*)	1150[*)]	
28[1)]	**29.33**	61	425	2850	*)	870[*)]	-	1100	1550[*)]	*)	*)	-	900	1250[*)]	
31.5[1)]	**33.03**	54	425	2500	*)	910[*)]	-	1050	1550[*)]	*)	*)	-	890	1250[*)]	
35.5[1)]	**36.39**	49	425	2300	*)	870[*)]	-	990	1450[*)]	*)	*)	-	820	1150[*)]	
40	**41.78**	43	425	2000	*)	900[*)]	-	970	1400[*)]	*)	600[*)]	-	810	1150[*)]	
45	**46.03**	39	425	1800	*)	860[*)]	-	910	1300[*)]	*)	570[*)]	-	750	1050[*)]	
50	**52.25**	34	425	1600	*)	830[*)]	-	840	1250[*)]	*)	560[*)]	-	690	990[*)]	
56	**57.42**	31	425	1450	430	850[*)]	-	840	1200[*)]	*)	590[*)]	-	700	980[*)]	
63	**64.67**	28	425	1300	430	840[*)]	-	800	1150[*)]	*)	590[*)]	-	660	940[*)]	
71	**71.25**	25	425	1150	415	810[*)]	-	750	1100[*)]	*)	560[*)]	-	620	880[*)]	
80	**80.87**	22	425	1050	390	760[*)]	-	680	1000[*)]	*)	530[*)]	-	560	800[*)]	
90	**89.10**	20	425	930	395	760[*)]	-	670	1000[*)]	245	530[*)]	-	550	800[*)]	
100	**108.56**	17	425	770	310	-	-	520	-	*)	-	-	410	-	X4F. /HH 252 /HU 280
112	**119.60**	15	425	700	305	-	-	500	-	180	-	-	395	-	
125	**135.76**	13	425	620	295	-	-	465	-	180	-	-	365	-	
140	**149.56**	12	425	560	285	-	-	445	-	170	-	-	345	-	
160	**162.03**	11	425	520	335	-	-	475	-	230	-	-	380	-	
180	**178.50**	10	425	470	320	-	-	450	-	225	-	-	360	-	
200	**203.96**	8.8	425	410	305	-	-	420	-	215	-	-	335	-	
224	**224.70**	8.0	425	375	295	-	-	400	-	210	-	-	315	-	
250	**255.06**	7.1	425	330	285	-	-	375	-	200	-	-	300	-	
280	**281.00**	6.4	425	300	275	-	-	360	-	195	-	-	285	-	
315	**313.92**	5.7	425	270	270	-	-	345	-	190	-	-	270	-	
355	**345.84**	5.2	425	245	260	-	-	330	-	185	-	-	255	-	

i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C					P_{TH} kW M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
X.F320..,n_1= 1000 1/min															**475 kNm**
7.1	**7.17**	139	332	4950	*)	*)	-	*)	1700	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8	**8.11**	123	337	4450	*)	*)	-	*)	1700	*)	*)	-	*)	1250	
9	**8.70**	115	350	4300	*)	1200	-	1250	1800	*)	*)	-	*)	1400	
10	**9.84**	102	356	3900	*)	1150	-	1200	1700	*)	*)	-	*)	1300	
11.2	**11.00**	91	370	3600	*)	1300	-	1300	1800	*)	*)	-	1050	1450	
12.5	**12.45**	80	381	3300	*)	1250	-	1300	1800	*)	850	-	1050	1400	
14	**13.94**	72	393	3000	*)	1200	-	1200	1700	*)	840	-	990	1350	
16	**15.76**	63	407	2750	710	1200	-	1200	1650	*)	840	-	950	1300	
18	**17.60**	57	415	2550	700	1200	-	1150	1600	*)	830	-	920	1250	
20	**19.28**	52	424	2350	700	1150	-	1100	1550	*)	820	-	890	1250	
22.4	**22.36**	45	447	2150	*)	840	-	760	1100	*)	550	-	570	830	**X3F.** /HH 248 /HU 274
25	**24.49**	41	455	2000	*)	840	-	740	1100	*)	550	-	560	810	
28	**27.74**	36	475	1850	470	810	-	700	1000	*)	540	-	530	770	
31.5	**31.13**	32	475	1650	520	820	-	720	1000	*)	580	-	560	780	
35.5	**35.27**	28	475	1450	520	820	-	700	980	*)	580	-	540	750	
40	**38.63**	26	475	1350	510	800	-	680	960	345	570	-	530	740	
45	**44.62**	22	475	1150	500	780	-	650	910	350	560	-	500	700	
50	**48.86**	20	475	1050	495	760	-	630	890	345	550	-	490	680	
56	**55.79**	18	475	920	475	730	-	590	840	330	530	-	455	640	
63	**60.96**	16	475	850	460	700	-	560	790	325	510	-	440	610	
71	**69.06**	14	475	750	455	680	-	550	770	325	500	-	425	590	
80	**75.63**	13	475	680	445	670	-	540	750	320	490	-	415	580	
90	**86.36**	12	475	600	420	630	-	495	700	300	460	-	380	530	
100	**94.58**	11	475	550	400	600	-	470	660	290	440	-	360	510	
112	**115.92**	8.6	475	450	335	-	-	390	-	240	-	-	295	-	**X4F.** /HH 252 /HU 280
125	**126.96**	7.9	475	410	330	-	-	380	-	235	-	-	290	-	
140	**144.96**	6.9	475	360	320	-	-	360	-	230	-	-	275	-	
160	**158.77**	6.3	475	330	315	-	-	355	-	225	-	-	265	-	
180	**173.01**	5.8	475	300	320	-	-	355	-	235	-	-	275	-	
200	**189.49**	5.3	475	275	315	-	-	350	-	230	-	-	265	-	
224	**217.79**	4.6	475	240	285	-	-	315	-	210	-	-	240	-	
250	**238.53**	4.2	475	220	280	-	-	310	-	205	-	-	235	-	
280	**272.35**	3.7	475	190	265	-	-	290	-	195	-	-	220	-	
315	**298.29**	3.4	475	175	260	-	-	285	-	195	-	-	215	-	
355	**335.20**	3.0	475	155	255	-	-	275	-	185	-	-	205	-	
400	**367.12**	2.7	475	140	250	-	-	265	-	185	-	-	205	-	
X.F320..,n_1= 1200 1/min															**475 kNm**
7.1	**7.17**	167	332	5950	*)	*)	-	*)	1550	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8	**8.11**	148	337	5350	*)	*)	-	*)	1600	*)	*)	-	*)	*)	
9	**8.70**	138	350	5200	*)	*)	-	*)	1800	*)	*)	-	*)	1300	
10	**9.84**	122	356	4650	*)	*)	-	*)	1700	*)	*)	-	*)	1250	
11.2	**11.00**	109	370	4350	*)	1250	-	1200	1850	*)	*)	-	*)	1400	
12.5	**12.45**	96	381	3950	*)	1250	-	1200	1850	*)	*)	-	*)	1400	
14	**13.94**	86	393	3650	*)	1250	-	1200	1750	*)	*)	-	940	1350	
16	**15.76**	76	407	3300	*)	1250	-	1200	1750	*)	*)	-	940	1350	
18	**17.60**	68	415	3050	*)	1200	-	1150	1700	*)	820	-	910	1350	
20	**19.28**	62	424	2850	*)	1200	-	1150	1650	*)	810	-	880	1300	
22.4	**22.36**	54	447	2600	*)	860	-	740	1150	*)	*)	-	*)	860	**X3F.** /HH 248 /HU 274
25	**24.49**	49	455	2400	*)	850	-	720	1150	*)	*)	-	*)	840	
28	**27.74**	43	475	2250	*)	830	-	690	1100	*)	*)	-	*)	800	
31.5	**31.13**	39	475	2000	500	870	-	740	1100	*)	600	-	570	830	
35.5	**35.27**	34	475	1750	510	870	-	720	1050	*)	600	-	550	810	
40	**38.63**	31	475	1600	500	860	-	700	1050	*)	600	-	540	790	
45	**44.62**	27	475	1400	500	830	-	670	990	*)	590	-	520	760	
50	**48.86**	25	475	1250	495	820	-	650	970	330	580	-	500	740	
56	**55.79**	22	475	1100	475	780	-	610	910	320	560	-	470	690	
63	**60.96**	20	475	1000	465	750	-	590	860	325	540	-	455	660	
71	**69.06**	17	475	900	460	740	-	570	840	320	540	-	440	640	
80	**75.63**	16	475	820	455	730	-	560	820	315	530	-	430	630	
90	**86.36**	14	475	720	425	680	-	520	760	300	495	-	395	580	
100	**94.58**	13	475	650	410	650	-	490	730	285	475	-	375	550	
112	**115.92**	10	475	540	340	-	-	405	-	240	-	-	305	-	**X4F.** /HH 252 /HU 280
125	**126.96**	9.5	475	495	335	-	-	395	-	235	-	-	295	-	
140	**144.96**	8.3	475	430	325	-	-	375	-	225	-	-	280	-	
160	**158.77**	7.6	475	395	320	-	-	365	-	225	-	-	275	-	
180	**173.01**	6.9	475	360	330	-	-	375	-	240	-	-	285	-	
200	**189.49**	6.3	475	330	325	-	-	365	-	235	-	-	280	-	
224	**217.79**	5.5	475	290	295	-	-	330	-	215	-	-	250	-	
250	**238.53**	5.0	475	265	290	-	-	325	-	215	-	-	245	-	
280	**272.35**	4.4	475	230	275	-	-	305	-	200	-	-	230	-	
315	**298.29**	4.0	475	210	270	-	-	300	-	200	-	-	225	-	
355	**335.20**	3.6	475	185	265	-	-	285	-	190	-	-	215	-	
400	**367.12**	3.3	475	170	260	-	-	280	-	190	-	-	215	-	

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X.F320..,n_1= 1500 1/min															475 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8[1]	**8.11**	185	337	6700	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1]	**8.70**	172	350	6450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[1]	**9.84**	152	356	5800	*)	*)	-	*)	1500	*)	*)	-	*)	*)	
11.2[1]	**11.00**	136	370	5400	*)	*)	-	*)	1800	*)	*)	-	*)	*)	
12.5[1]	**12.45**	120	381	4900	*)	*)	-	*)	1800	*)	*)	-	*)	1300	
14[1]	**13.94**	108	393	4550	*)	1200	-	*)	1750	*)	*)	-	*)	1300	
16[1]	**15.76**	95	407	4150	*)	1200	-	1050	1750	*)	*)	-	*)	1300	
18[1]	**17.60**	85	415	3800	*)	1200	-	1050	1750	*)	*)	-	*)	1300	
20[1]	**19.28**	78	424	3550	*)	1200	-	1050	1700	*)	*)	-	*)	1300	
22.4[1]	**22.36**	67	447	3250	*)	*)	-	*)	1200	*)	*)	-	*)	840	**X3F.** /HH 248 /HU 274
25[1]	**24.49**	61	455	3050	*)	800	-	*)	1150	*)	*)	-	*)	820	
28[1]	**27.74**	54	475	2800	*)	800	-	*)	1100	*)	*)	-	*)	780	
31.5	**31.13**	48	475	2500	*)	920	-	740	1200	*)	*)	-	*)	890	
35.5	**35.27**	43	475	2200	*)	920	-	720	1150	*)	620	-	*)	870	
40	**38.63**	39	475	2000	*)	910	-	700	1150	*)	610	-	520	850	
45	**44.62**	34	475	1750	475	900	-	690	1100	*)	620	-	520	820	
50	**48.86**	31	475	1600	470	880	-	670	1050	*)	610	-	500	800	
56	**55.79**	27	475	1400	455	840	-	630	1000	*)	590	-	470	750	
63	**60.96**	25	475	1250	465	820	-	620	960	*)	580	-	470	730	
71	**69.06**	22	475	1100	460	810	-	600	930	305	580	-	455	710	
80	**75.63**	20	475	1000	455	800	-	580	910	300	570	-	440	690	
90	**86.36**	17	475	900	425	740	-	540	840	285	530	-	405	640	
100	**94.58**	16	475	820	410	710	-	510	800	275	510	-	385	610	
112	**115.92**	13	475	680	340	-	-	415	-	220	-	-	305	-	**X4F.** /HH 252 /HU 280
125	**126.96**	12	475	620	330	-	-	405	-	220	-	-	300	-	
140	**144.96**	10	475	540	320	-	-	385	-	210	-	-	280	-	
160	**158.77**	9.4	475	495	315	-	-	375	-	210	-	-	275	-	
180	**173.01**	8.7	475	450	345	-	-	395	-	245	-	-	300	-	
200	**189.49**	7.9	475	415	335	-	-	385	-	240	-	-	295	-	
224	**217.79**	6.9	475	360	310	-	-	350	-	220	-	-	265	-	
250	**238.53**	6.3	475	330	305	-	-	340	-	215	-	-	260	-	
280	**272.35**	5.5	475	285	285	-	-	320	-	205	-	-	240	-	
315	**298.29**	5.0	475	260	280	-	-	315	-	205	-	-	235	-	
355	**335.20**	4.5	475	235	275	-	-	300	-	195	-	-	225	-	
400	**367.12**	4.1	475	215	270	-	-	295	-	195	-	-	220	-	
X.F320..,n_1= 1800 1/min															**475 kNm**
7.1[*]	**7.17**	251	314	8450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2F.** /HH 242 /HU 268
8[*]	**8.11**	222	320	7600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*]	**8.70**	207	331	7350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*]	**9.84**	183	338	6650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[*]	**11.00**	164	350	6150	*)	*)	-	*)	1550[*]	*)	*)	-	*)	*)	
12.5[*]	**12.45**	145	362	5600	*)	*)	-	*)	1550[*]	*)	*)	-	*)	*)	
14[*]	**13.94**	129	378	5250	*)	*)	-	*)	1700[*]	*)	*)	-	*)	*)	
16[*]	**15.76**	114	385	4700	*)	*)	-	*)	1700[*]	*)	*)	-	*)	1200[*]	
18[*]	**17.60**	102	393	4300	*)	1100[*]	-	*)	1650[*]	*)	*)	-	*)	1200[*]	
20[*]	**19.28**	93	401	4000	*)	1100[*]	-	*)	1650[*]	*)	*)	-	*)	1150[*]	
22.4[1]	**22.36**	81	423	3700	*)	*)	-	*)	1100[*]	*)	*)	-	*)	*)	**X3F.** /HH 248 /HU 274
25[1]	**24.49**	73	430	3450	*)	*)	-	*)	1100[*]	*)	*)	-	*)	*)	
28[1]	**27.74**	65	450	3150	*)	*)	-	*)	1100[*]	*)	*)	-	*)	*)	
31.5[1]	**31.13**	58	461	2900	*)	920[*]	-	*)	1250[*]	*)	*)	-	*)	910[*]	
35.5[1]	**35.27**	51	465	2600	*)	930[*]	-	700	1200[*]	*)	*)	-	*)	890[*]	
40[1]	**38.63**	47	475	2400	*)	920[*]	-	680	1200[*]	*)	*)	-	*)	870[*]	
45	**44.62**	40	475	2100	*)	930[*]	-	680	1150[*]	*)	620[*]	-	*)	860[*]	
50	**48.86**	37	475	1900	*)	920[*]	-	660	1150[*]	*)	610[*]	-	480	840[*]	
56	**55.79**	32	475	1650	*)	880[*]	-	620	1050[*]	*)	590[*]	-	450	790[*]	
63	**60.96**	30	475	1500	445	870[*]	-	630	1050[*]	*)	610[*]	-	470	780[*]	
71	**69.06**	26	475	1350	445	860[*]	-	610	1000[*]	*)	600[*]	-	455	760[*]	
80	**75.63**	24	475	1250	435	850[*]	-	590	990[*]	*)	600[*]	-	440	740[*]	
90	**86.36**	21	475	1100	415	790[*]	-	540	910[*]	*)	560[*]	-	405	680[*]	
100	**94.58**	19	475	980	395	760[*]	-	520	870[*]	250	540[*]	-	385	650[*]	
112	**115.92**	16	475	810	320	-	-	410	-	*)	-	-	295	-	**X4F.** /HH 252 /HU 280
125	**126.96**	14	475	740	315	-	-	400	-	185	-	-	285	-	
140	**144.96**	12	475	650	305	-	-	380	-	185	-	-	270	-	
160	**158.77**	11	475	590	300	-	-	370	-	180	-	-	260	-	
180	**173.01**	10	475	540	350	-	-	410	-	240	-	-	310	-	
200	**189.49**	9.5	475	495	340	-	-	400	-	240	-	-	300	-	
224	**217.79**	8.3	475	430	315	-	-	360	-	220	-	-	270	-	
250	**238.53**	7.5	475	395	310	-	-	355	-	215	-	-	265	-	
280	**272.35**	6.6	475	345	290	-	-	330	-	205	-	-	250	-	
315	**298.29**	6.0	475	315	285	-	-	325	-	200	-	-	240	-	
355	**335.20**	5.4	475	280	280	-	-	310	-	195	-	-	235	-	
400	**367.12**	4.9	475	255	275	-	-	305	-	195	-	-	225	-	

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9.3 X.K.. Bevel-helical gear unit

X.K100..,n_1= 1000 1/min															6.80 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.88**	145	5.55	86	55	94	-	-	-	35	66	-	-	-	**X2K.** /HU 282
8	**7.69**	130	5.75	80	58	99	-	-	-	38	69	-	-	-	
9	**8.71**	115	5.95	73	52	86	-	-	-	36	62	-	-	-	
10	**9.75**	103	6.20	68	52	86	-	-	-	36	61	-	-	-	
11.2	**10.64**	94	6.35	65	45	73	-	-	-	31	52	-	-	-	
12.5	**11.91**	84	6.60	60	48	78	-	-	-	33	56	-	-	-	
14	**13.47**	74	6.45	52	48	76	-	-	-	34	55	-	-	-	**X3K.** /HH 244 /HU 286
16	**15.08**	66	6.80	49	48	75	-	-	-	34	55	-	-	-	
18	**17.05**	59	6.80	43	44	69	-	-	-	32	51	-	-	-	
20	**19.09**	52	6.80	39	45	71	-	-	-	32	52	-	-	-	
22.4	**21.09**	47	6.80	35	40	63	-	-	-	29	46	-	-	-	
25	**24.55**	41	6.80	30	41	64	-	-	-	30	47	-	-	-	
28	**27.12**	37	6.80	27	37	58	-	-	-	27	43	-	-	-	
31.5	**30.35**	33	6.80	24	37	57	-	-	-	27	42	-	-	-	
35.5	**34.35**	29	6.80	21	32	49	-	-	-	23	36	-	-	-	
40	**38.45**	26	6.80	19	33	51	-	-	-	24	38	-	-	-	
45	**42.96**	23	6.80	17	29	45	-	-	-	21	33	-	-	-	
50	**48.08**	21	6.80	15	30	46	-	-	-	22	34	-	-	-	
56	**52.49**	19	6.80	14	27	41	-	-	-	20	31	-	-	-	
63	**58.74**	17	6.80	13	28	43	-	-	-	20	32	-	-	-	
71	**67.20**	15	6.80	11	23	36	-	-	-	17	27	-	-	-	
80	**75.21**	13	6.80	10	24	37	-	-	-	18	28	-	-	-	
X.K100..,n_1= 1200 1/min															**6.80 kNm**
7.1	**6.88**	174	5.55	105	52	105	-	-	-	*)	70	-	-	-	**X2K.** /HU 282
8	**7.69**	156	5.75	96	55	105	-	-	-	29	74	-	-	-	
9	**8.71**	138	5.95	88	51	95	-	-	-	31	67	-	-	-	
10	**9.75**	123	6.20	82	51	94	-	-	-	31	66	-	-	-	
11.2	**10.64**	113	6.35	77	44	81	-	-	-	28	58	-	-	-	
12.5	**11.91**	101	6.60	72	47	87	-	-	-	31	62	-	-	-	
14	**13.47**	89	6.45	62	49	85	-	-	-	34	62	-	-	-	**X3K.** /HH 244 /HU 286
16	**15.08**	80	6.80	59	48	84	-	-	-	34	61	-	-	-	
18	**17.05**	70	6.80	52	45	77	-	-	-	32	56	-	-	-	
20	**19.09**	63	6.80	46	45	79	-	-	-	32	58	-	-	-	
22.4	**21.09**	57	6.80	42	41	71	-	-	-	29	52	-	-	-	
25	**24.55**	49	6.80	36	42	72	-	-	-	31	53	-	-	-	
28	**27.12**	44	6.80	33	38	65	-	-	-	28	48	-	-	-	
31.5	**30.35**	40	6.80	29	38	64	-	-	-	27	47	-	-	-	
35.5	**34.35**	35	6.80	26	33	56	-	-	-	24	41	-	-	-	
40	**38.45**	31	6.80	23	34	58	-	-	-	25	43	-	-	-	
45	**42.96**	28	6.80	21	30	50	-	-	-	22	37	-	-	-	
50	**48.08**	25	6.80	18	31	52	-	-	-	22	38	-	-	-	
56	**52.49**	23	6.80	17	28	47	-	-	-	20	35	-	-	-	
63	**58.74**	20	6.80	15	29	48	-	-	-	21	36	-	-	-	
71	**67.20**	18	6.80	13	24	41	-	-	-	18	30	-	-	-	
80	**75.21**	16	6.80	12	25	42	-	-	-	18	31	-	-	-	

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X.K100..,n_1= 1500 1/min															6.80 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**6.88**	218	5.55	130	36	110	-	-	-	*)	72	-	-	-	**X2K.** /HU 282
8	**7.69**	195	5.75	120	41	115	-	-	-	*)	75	-	-	-	
9	**8.71**	172	5.95	110	44	105	-	-	-	*)	71	-	-	-	
10	**9.75**	154	6.20	100	45	105	-	-	-	*)	71	-	-	-	
11.2	**10.64**	141	6.35	97	40	89	-	-	-	*)	62	-	-	-	
12.5	**11.91**	126	6.60	90	45	96	-	-	-	*)	67	-	-	-	
14	**13.47**	111	6.45	78	48	95	-	-	-	32	68	-	-	-	**X3K.** /HH 244 /HU 286
16	**15.08**	99	6.80	73	48	94	-	-	-	32	68	-	-	-	
18	**17.05**	88	6.80	65	45	87	-	-	-	30	63	-	-	-	
20	**19.09**	79	6.80	58	46	89	-	-	-	31	64	-	-	-	
22.4	**21.09**	71	6.80	52	41	80	-	-	-	28	57	-	-	-	
25	**24.55**	61	6.80	45	43	82	-	-	-	31	60	-	-	-	
28	**27.12**	55	6.80	41	39	74	-	-	-	28	54	-	-	-	
31.5	**30.35**	49	6.80	36	38	73	-	-	-	27	53	-	-	-	
35.5	**34.35**	44	6.80	32	34	63	-	-	-	24	46	-	-	-	
40	**38.45**	39	6.80	29	35	66	-	-	-	25	48	-	-	-	
45	**42.96**	35	6.80	26	31	57	-	-	-	22	42	-	-	-	
50	**48.08**	31	6.80	23	32	59	-	-	-	23	43	-	-	-	
56	**52.49**	29	6.80	21	29	53	-	-	-	21	39	-	-	-	
63	**58.74**	26	6.80	19	30	55	-	-	-	21	41	-	-	-	
71	**67.20**	22	6.80	17	25	47	-	-	-	18	35	-	-	-	
80	**75.21**	20	6.80	15	26	48	-	-	-	19	35	-	-	-	
X.K100..,n_1= 1800 1/min															**6.80 kNm**
7.1	**6.88**	262	5.20	145	*)	110	-	-	-	*)	63	-	-	-	**X2K.** /HU 282
8	**7.69**	234	5.40	135	*)	115	-	-	-	*)	69	-	-	-	
9	**8.71**	207	5.60	125	31	105	-	-	-	*)	71	-	-	-	
10	**9.75**	185	5.85	115	33	105	-	-	-	*)	70	-	-	-	
11.2	**10.64**	169	6.00	110	31	93	-	-	-	*)	63	-	-	-	
12.5	**11.91**	151	6.25	100	36	100	-	-	-	*)	68	-	-	-	
14	**13.47**	134	6.35	92	47	100	-	-	-	26	72	-	-	-	**X3K.** /HH 244 /HU 286
16	**15.08**	119	6.70	87	46	100	-	-	-	26	71	-	-	-	
18	**17.05**	106	6.80	78	43	93	-	-	-	26	66	-	-	-	
20	**19.09**	94	6.80	70	44	95	-	-	-	28	67	-	-	-	
22.4	**21.09**	85	6.80	63	40	85	-	-	-	26	61	-	-	-	
25	**24.55**	73	6.80	54	43	88	-	-	-	30	64	-	-	-	
28	**27.12**	66	6.80	49	39	80	-	-	-	27	58	-	-	-	
31.5	**30.35**	59	6.80	44	39	79	-	-	-	27	57	-	-	-	
35.5	**34.35**	52	6.80	39	34	69	-	-	-	24	50	-	-	-	
40	**38.45**	47	6.80	35	36	71	-	-	-	25	52	-	-	-	
45	**42.96**	42	6.80	31	31	62	-	-	-	22	45	-	-	-	
50	**48.08**	37	6.80	28	32	64	-	-	-	23	47	-	-	-	
56	**52.49**	34	6.80	26	29	58	-	-	-	21	43	-	-	-	
63	**58.74**	31	6.80	23	30	60	-	-	-	22	44	-	-	-	
71	**67.20**	27	6.80	20	26	51	-	-	-	19	37	-	-	-	
80	**75.21**	24	6.80	18	27	52	-	-	-	19	38	-	-	-	

X.K110.., n_1= 1000 1/min															8.50 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.91**	126	7.35	99	60	100	-	-	-	37	71	-	-	-	**X2K.** /HU 282
9	**8.86**	113	7.40	89	63	105	-	-	-	41	75	-	-	-	
10	**10.02**	100	7.48	80	56	92	-	-	-	38	66	-	-	-	
11.2	**11.22**	89	7.60	73	56	91	-	-	-	38	65	-	-	-	
12.5	**12.24**	82	7.70	68	50	81	-	-	-	35	58	-	-	-	
14	**13.71**	73	7.80	62	51	83	-	-	-	36	60	-	-	-	
16	**15.50**	65	7.50	52	52	82	-	-	-	37	60	-	-	-	**X3K.** /HH 244 /HU 286
18	**17.36**	58	7.80	49	51	81	-	-	-	37	59	-	-	-	
20	**19.62**	51	8.00	44	46	72	-	-	-	33	53	-	-	-	
22.4	**21.97**	46	8.50	42	47	74	-	-	-	34	55	-	-	-	
25	**24.26**	41	8.50	38	42	66	-	-	-	31	49	-	-	-	
28	**28.26**	35	8.50	33	43	68	-	-	-	32	50	-	-	-	
31.5	**31.21**	32	8.50	30	39	61	-	-	-	29	45	-	-	-	
35.5	**34.94**	29	8.50	26	39	60	-	-	-	28	44	-	-	-	
40	**39.53**	25	8.50	23	33	52	-	-	-	25	38	-	-	-	
45	**44.26**	23	8.50	21	35	54	-	-	-	25	40	-	-	-	
50	**49.44**	20	8.50	19	31	48	-	-	-	23	36	-	-	-	
56	**55.35**	18	8.50	17	31	49	-	-	-	23	36	-	-	-	
63	**60.40**	17	8.50	15	28	44	-	-	-	21	32	-	-	-	
71	**67.62**	15	8.50	14	29	45	-	-	-	21	33	-	-	-	
80	**77.33**	13	8.50	12	25	38	-	-	-	18	28	-	-	-	
90	**86.58**	12	8.50	11	25	38	-	-	-	18	28	-	-	-	
X.K110.., n_1= 1200 1/min															**8.50 kNm**
8	**7.91**	152	7.35	120	56	110	-	-	-	*)	76	-	-	-	**X2K.** /HU 282
9	**8.86**	135	7.40	105	59	115	-	-	-	31	80	-	-	-	
10	**10.02**	120	7.48	96	55	100	-	-	-	33	72	-	-	-	
11.2	**11.22**	107	7.60	87	54	100	-	-	-	34	71	-	-	-	
12.5	**12.24**	98	7.70	82	49	90	-	-	-	31	64	-	-	-	
14	**13.71**	88	7.80	74	51	92	-	-	-	34	66	-	-	-	
16	**15.50**	77	7.50	63	53	92	-	-	-	37	67	-	-	-	**X3K.** /HH 244 /HU 286
18	**17.36**	69	7.80	58	52	91	-	-	-	37	66	-	-	-	
20	**19.62**	61	8.00	53	47	81	-	-	-	33	59	-	-	-	
22.4	**21.97**	55	8.50	50	48	83	-	-	-	34	61	-	-	-	
25	**24.26**	49	8.50	46	43	74	-	-	-	31	54	-	-	-	
28	**28.26**	42	8.50	39	45	76	-	-	-	32	56	-	-	-	
31.5	**31.21**	38	8.50	35	40	69	-	-	-	29	50	-	-	-	
35.5	**34.94**	34	8.50	32	40	68	-	-	-	29	50	-	-	-	
40	**39.53**	30	8.50	28	35	58	-	-	-	25	43	-	-	-	
45	**44.26**	27	8.50	25	36	61	-	-	-	26	45	-	-	-	
50	**49.44**	24	8.50	22	32	54	-	-	-	23	40	-	-	-	
56	**55.35**	22	8.50	20	32	55	-	-	-	24	40	-	-	-	
63	**60.40**	20	8.50	18	29	49	-	-	-	21	36	-	-	-	
71	**67.62**	18	8.50	17	30	51	-	-	-	22	38	-	-	-	
80	**77.33**	16	8.50	14	26	43	-	-	-	19	32	-	-	-	
90	**86.58**	14	8.50	13	26	43	-	-	-	19	32	-	-	-	

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X.K110..,n_1= 1500 1/min															8.50 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		fan	H_2O	H_2O	fan + H_2O		fan	H_2O	H_2O	fan + H_2O	
8	**7.91**	190	7.35	150	39	120	-	-	-	*)	78	-	-	-	**X2K.** /HU 282
9	**8.86**	169	7.40	135	45	125	-	-	-	*)	82	-	-	-	
10	**10.02**	150	7.48	120	48	110	-	-	-	*)	77	-	-	-	
11.2	**11.22**	134	7.60	110	49	110	-	-	-	*)	76	-	-	-	
12.5	**12.24**	123	7.70	100	46	99	-	-	-	*)	69	-	-	-	
14	**13.71**	109	7.80	92	48	100	-	-	-	25	71	-	-	-	
16	**15.50**	97	7.50	79	53	105	-	-	-	36	74	-	-	-	**X3K.** /HH 244 /HU 286
18	**17.36**	86	7.80	73	52	100	-	-	-	36	74	-	-	-	
20	**19.62**	76	8.00	66	47	91	-	-	-	32	66	-	-	-	
22.4	**21.97**	68	8.50	63	48	94	-	-	-	33	68	-	-	-	
25	**24.26**	62	8.50	57	43	84	-	-	-	30	61	-	-	-	
28	**28.26**	53	8.50	49	46	86	-	-	-	32	63	-	-	-	
31.5	**31.21**	48	8.50	44	41	78	-	-	-	29	57	-	-	-	
35.5	**34.94**	43	8.50	40	41	77	-	-	-	29	56	-	-	-	
40	**39.53**	38	8.50	35	36	67	-	-	-	26	49	-	-	-	
45	**44.26**	34	8.50	31	37	69	-	-	-	27	51	-	-	-	
50	**49.44**	30	8.50	28	33	62	-	-	-	24	45	-	-	-	
56	**55.35**	27	8.50	25	33	62	-	-	-	24	46	-	-	-	
63	**60.40**	25	8.50	23	30	56	-	-	-	22	41	-	-	-	
71	**67.62**	22	8.50	21	31	58	-	-	-	23	43	-	-	-	
80	**77.33**	19	8.50	18	27	49	-	-	-	19	36	-	-	-	
90	**86.58**	17	8.50	16	27	49	-	-	-	20	37	-	-	-	
X.K110..,n_1= 1800 1/min															**8.50 kNm**
8	**7.91**	228	6.98	170	*)	120	-	-	-	*)	68	-	-	-	**X2K.** /HU 282
9	**8.86**	203	7.03	155	*)	125	-	-	-	*)	76	-	-	-	
10	**10.02**	180	7.10	135	35	115	-	-	-	*)	77	-	-	-	
11.2	**11.22**	160	7.22	125	37	115	-	-	-	*)	76	-	-	-	
12.5	**12.24**	147	7.30	115	36	105	-	-	-	*)	71	-	-	-	
14	**13.71**	131	7.40	105	40	105	-	-	-	*)	73	-	-	-	
16	**15.50**	116	7.50	94	51	110	-	-	-	30	78	-	-	-	**X3K.** /HH 244 /HU 286
18	**17.36**	104	7.90	89	51	110	-	-	-	31	77	-	-	-	
20	**19.62**	92	8.20	82	46	97	-	-	-	28	69	-	-	-	
22.4	**21.97**	82	8.50	75	47	100	-	-	-	29	71	-	-	-	
25	**24.26**	74	8.50	68	43	90	-	-	-	27	64	-	-	-	
28	**28.26**	64	8.50	59	46	93	-	-	-	32	68	-	-	-	
31.5	**31.21**	58	8.50	53	41	84	-	-	-	29	61	-	-	-	
35.5	**34.94**	52	8.50	47	41	83	-	-	-	28	60	-	-	-	
40	**39.53**	46	8.50	42	36	72	-	-	-	26	53	-	-	-	
45	**44.26**	41	8.50	37	38	75	-	-	-	27	55	-	-	-	
50	**49.44**	36	8.50	34	34	67	-	-	-	24	49	-	-	-	
56	**55.35**	33	8.50	30	34	68	-	-	-	24	49	-	-	-	
63	**60.40**	30	8.50	28	31	61	-	-	-	22	45	-	-	-	
71	**67.62**	27	8.50	25	32	63	-	-	-	23	46	-	-	-	
80	**77.33**	23	8.50	22	27	54	-	-	-	20	39	-	-	-	
90	**86.58**	21	8.50	19	28	54	-	-	-	20	40	-	-	-	

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X.K120.., n_1 = 1000 1/min															12.8 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		Fan	H_2O	H_2O	Fan + H_2O		Fan	H_2O	H_2O	Fan + H_2O	
6.3	**6.36**	157	10.2	170	74	135	-	-	-	*)	93	-	-	-	**X2K.** /HU 282
7.1	**7.24**	138	10.5	155	76	135	-	-	-	*)	92	-	-	-	
8	**7.95**	126	10.7	145	71	120	-	-	-	38	84	-	-	-	
9	**9.05**	110	11.0	130	74	125	-	-	-	43	88	-	-	-	
10	**9.85**	102	11.2	125	62	105	-	-	-	36	73	-	-	-	
11.2	**11.21**	89	11.5	110	64	105	-	-	-	39	75	-	-	-	
12.5	**12.72**	79	11.3	96	63	100	-	-	-	44	74	-	-	-	**X3K.** /HH 286 /HU 244
14	**14.48**	69	11.5	86	65	105	-	-	-	46	76	-	-	-	
16	**16.36**	61	11.6	77	60	94	-	-	-	43	69	-	-	-	
18	**18.63**	54	12.0	70	61	96	-	-	-	44	71	-	-	-	
20	**20.02**	50	12.1	66	57	92	-	-	-	41	67	-	-	-	
22.4	**22.79**	44	12.3	59	58	94	-	-	-	41	68	-	-	-	
25	**25.75**	39	12.4	52	54	85	-	-	-	39	62	-	-	-	
28	**29.32**	34	12.4	46	54	86	-	-	-	39	63	-	-	-	
31.5	**30.96**	32	12.4	43	48	76	-	-	-	35	56	-	-	-	
35.5	**35.25**	28	12.4	38	49	77	-	-	-	35	57	-	-	-	
40	**40.01**	25	12.4	34	42	66	-	-	-	30	48	-	-	-	
45	**45.55**	22	12.8	30	43	68	-	-	-	32	50	-	-	-	
50	**47.92**	21	12.8	29	38	60	-	-	-	28	44	-	-	-	
56	**54.55**	18	12.8	26	39	60	-	-	-	28	45	-	-	-	
63	**61.35**	16	12.8	23	34	54	-	-	-	25	40	-	-	-	
71	**69.84**	14	12.8	20	34	54	-	-	-	25	40	-	-	-	
80	**82.12**	12	10.9	15	33	-	-	-	-	25	-	-	-	-	**X4K.** /HU 292
90	**93.49**	11	12.3	14	34	-	-	-	-	25	-	-	-	-	
100	**104.18**	9.6	12.8	13	32	-	-	-	-	24	-	-	-	-	
112	**118.60**	8.4	12.8	12	33	-	-	-	-	24	-	-	-	-	
125	**125.27**	8.0	12.8	11	29	-	-	-	-	22	-	-	-	-	
140	**142.60**	7.0	12.8	10	30	-	-	-	-	22	-	-	-	-	
160	**149.93**	6.7	12.8	9	27	-	-	-	-	20	-	-	-	-	
180	**170.68**	5.9	12.8	8	28	-	-	-	-	20	-	-	-	-	
200	**206.42**	4.8	12.8	7	24	-	-	-	-	18	-	-	-	-	
224	**234.98**	4.3	12.8	6	25	-	-	-	-	18	-	-	-	-	
250	**248.19**	4.0	12.8	6	22	-	-	-	-	16	-	-	-	-	
280	**282.53**	3.5	12.8	5	22	-	-	-	-	17	-	-	-	-	
315	**297.06**	3.4	12.8	5	21	-	-	-	-	15	-	-	-	-	
355	**338.17**	3.0	12.8	4	21	-	-	-	-	16	-	-	-	-	

X.K120.., n_1 = 1200 1/min															12.8 kNm
6.3	**6.36**	189	10.2	205	56	145	-	-	-	*)	94	-	-	-	**X2K.** /HU 282
7.1	**7.24**	166	10.5	185	59	145	-	-	-	*)	96	-	-	-	
8	**7.95**	151	10.7	175	60	130	-	-	-	*)	90	-	-	-	
9	**9.05**	133	11.0	155	67	135	-	-	-	*)	94	-	-	-	
10	**9.85**	122	11.2	150	56	115	-	-	-	*)	79	-	-	-	
11.2	**11.21**	107	11.5	135	60	115	-	-	-	*)	81	-	-	-	
12.5	**12.72**	94	11.3	115	63	115	-	-	-	39	81	-	-	-	**X3K.** /HH 254 /HU 286
14	**14.48**	83	11.5	105	64	115	-	-	-	42	83	-	-	-	
16	**16.36**	73	11.6	92	60	105	-	-	-	42	77	-	-	-	
18	**18.63**	64	12.0	84	62	110	-	-	-	44	78	-	-	-	
20	**20.02**	60	12.1	79	57	100	-	-	-	40	73	-	-	-	
22.4	**22.79**	53	12.3	70	58	105	-	-	-	41	75	-	-	-	
25	**25.75**	47	12.4	63	55	95	-	-	-	39	69	-	-	-	
28	**29.32**	41	12.4	55	55	96	-	-	-	39	70	-	-	-	
31.5	**30.96**	39	12.4	52	49	85	-	-	-	35	62	-	-	-	
35.5	**35.25**	34	12.4	46	50	86	-	-	-	35	63	-	-	-	
40	**40.01**	30	12.4	40	43	74	-	-	-	31	54	-	-	-	
45	**45.55**	26	12.8	37	45	76	-	-	-	32	56	-	-	-	
50	**47.92**	25	12.8	35	40	68	-	-	-	29	50	-	-	-	
56	**54.55**	22	12.8	31	40	68	-	-	-	29	50	-	-	-	
63	**61.35**	20	12.8	27	36	60	-	-	-	26	44	-	-	-	
71	**69.84**	17	12.8	24	36	61	-	-	-	26	45	-	-	-	
80	**82.12**	15	10.9	17	35	-	-	-	-	25	-	-	-	-	**X4K.** /HU 292
90	**93.49**	13	12.3	17	36	-	-	-	-	26	-	-	-	-	
100	**104.18**	12	12.8	16	34	-	-	-	-	25	-	-	-	-	
112	**118.60**	10	12.8	14	34	-	-	-	-	25	-	-	-	-	
125	**125.27**	9.6	12.8	13	31	-	-	-	-	22	-	-	-	-	
140	**142.60**	8.4	12.8	12	31	-	-	-	-	23	-	-	-	-	
160	**149.93**	8.0	12.8	11	28	-	-	-	-	21	-	-	-	-	
180	**170.68**	7.0	12.8	10	29	-	-	-	-	21	-	-	-	-	
200	**206.42**	5.8	12.8	8	25	-	-	-	-	19	-	-	-	-	
224	**234.98**	5.1	12.8	7	26	-	-	-	-	19	-	-	-	-	
250	**248.19**	4.8	12.8	7	23	-	-	-	-	17	-	-	-	-	
280	**282.53**	4.2	12.8	6	23	-	-	-	-	17	-	-	-	-	
315	**297.06**	4.0	12.8	6	22	-	-	-	-	16	-	-	-	-	
355	**338.17**	3.5	12.8	5	22	-	-	-	-	16	-	-	-	-	

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X.K120..,n_1= 1500 1/min															**12.8 kNm**
					P_{TH} kW										
					M1 20 °C					**M1** 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.36**	236	10.2	260	*)	150	-	-	-	*)	78	-	-	-	**X2K.** /HU 282
7.1	**7.24**	207	10.5	235	*)	150	-	-	-	*)	83	-	-	-	
8	**7.95**	189	10.7	215	*)	140	-	-	-	*)	87	-	-	-	
9	**9.05**	166	11.0	195	*)	145	-	-	-	*)	96	-	-	-	
10	**9.85**	152	11.2	185	*)	125	-	-	-	*)	81	-	-	-	
11.2	**11.21**	134	11.5	165	46	125	-	-	-	*)	86	-	-	-	
12.5	**12.72**	118	11.3	145	57	125	-	-	-	*)	88	-	-	-	**X3K.** /HH 254 /HU 286
14	**14.48**	104	11.5	130	61	130	-	-	-	*)	90	-	-	-	
16	**16.36**	92	11.6	115	60	120	-	-	-	36	85	-	-	-	
18	**18.63**	81	12.0	105	61	120	-	-	-	39	87	-	-	-	
20	**20.02**	75	12.1	98	55	115	-	-	-	32	80	-	-	-	
22.4	**22.79**	66	12.3	88	57	115	-	-	-	35	82	-	-	-	
25	**25.75**	58	12.4	78	55	105	-	-	-	38	77	-	-	-	
28	**29.32**	51	12.4	69	56	110	-	-	-	38	78	-	-	-	
31.5	**30.96**	48	12.4	65	49	96	-	-	-	34	69	-	-	-	
35.5	**35.25**	43	12.4	57	50	97	-	-	-	35	70	-	-	-	
40	**40.01**	37	12.4	50	44	83	-	-	-	31	61	-	-	-	
45	**45.55**	33	12.8	46	45	86	-	-	-	32	63	-	-	-	
50	**47.92**	31	12.8	44	41	77	-	-	-	29	56	-	-	-	
56	**54.55**	27	12.8	39	41	77	-	-	-	29	56	-	-	-	
63	**61.35**	24	12.8	34	37	69	-	-	-	26	50	-	-	-	
71	**69.84**	21	12.8	30	37	69	-	-	-	26	50	-	-	-	
80	**82.12**	18	10.9	22	36	-	-	-	-	26	-	-	-	-	**X4K.** /HU 292
90	**93.49**	16	12.3	22	37	-	-	-	-	27	-	-	-	-	
100	**104.18**	14	12.8	20	35	-	-	-	-	26	-	-	-	-	
112	**118.60**	13	12.8	18	35	-	-	-	-	26	-	-	-	-	
125	**125.27**	12	12.8	17	32	-	-	-	-	23	-	-	-	-	
140	**142.60**	11	12.8	15	33	-	-	-	-	24	-	-	-	-	
160	**149.93**	10	12.8	14	30	-	-	-	-	22	-	-	-	-	
180	**170.68**	8.8	12.8	12	30	-	-	-	-	22	-	-	-	-	
200	**206.42**	7.3	12.8	10	27	-	-	-	-	20	-	-	-	-	
224	**234.98**	6.4	12.8	9	27	-	-	-	-	20	-	-	-	-	
250	**248.19**	6.0	12.8	9	24	-	-	-	-	18	-	-	-	-	
280	**282.53**	5.3	12.8	8	25	-	-	-	-	18	-	-	-	-	
315	**297.06**	5.0	12.8	7	23	-	-	-	-	17	-	-	-	-	
355	**338.17**	4.4	12.8	6	23	-	-	-	-	17	-	-	-	-	
X.K120..,n_1= 1800 1/min															**12.8 kNm**
6.3	**6.36**	283	9.70	295	*)	135	-	-	-	*)	*)	-	-	-	**X2K.** /HU 282
7.1	**7.24**	249	10.0	265	*)	140	-	-	-	*)	*)	-	-	-	
8	**7.95**	226	10.1	245	*)	140	-	-	-	*)	70	-	-	-	
9	**9.05**	199	10.4	220	*)	145	-	-	-	*)	80	-	-	-	
10	**9.85**	183	10.6	210	*)	125	-	-	-	*)	73	-	-	-	
11.2	**11.21**	161	10.9	190	*)	130	-	-	-	*)	80	-	-	-	
12.5	**12.72**	142	11.3	175	44	130	-	-	-	*)	90	-	-	-	**X3K.** /HH 254 /HU 286
14	**14.48**	124	11.5	155	49	135	-	-	-	*)	92	-	-	-	
16	**16.36**	110	11.6	140	55	125	-	-	-	*)	89	-	-	-	
18	**18.63**	97	12.0	125	59	130	-	-	-	*)	91	-	-	-	
20	**20.02**	90	12.1	120	49	120	-	-	-	*)	83	-	-	-	
22.4	**22.79**	79	12.3	105	52	120	-	-	-	*)	84	-	-	-	
25	**25.75**	70	12.4	94	53	115	-	-	-	32	81	-	-	-	
28	**29.32**	61	12.4	83	54	115	-	-	-	34	82	-	-	-	
31.5	**30.96**	58	12.4	78	48	105	-	-	-	30	73	-	-	-	
35.5	**35.25**	51	12.4	69	49	105	-	-	-	32	74	-	-	-	
40	**40.01**	45	12.4	60	44	90	-	-	-	30	65	-	-	-	
45	**45.55**	40	12.8	55	45	93	-	-	-	31	67	-	-	-	
50	**47.92**	38	12.8	53	41	83	-	-	-	29	60	-	-	-	
56	**54.55**	33	12.8	46	41	83	-	-	-	29	61	-	-	-	
63	**61.35**	29	12.8	41	37	74	-	-	-	26	54	-	-	-	
71	**69.84**	26	12.8	36	37	75	-	-	-	26	54	-	-	-	
80	**82.12**	22	10.9	26	37	-	-	-	-	27	-	-	-	-	**X4K.** /HU 292
90	**93.49**	19	12.3	26	38	-	-	-	-	27	-	-	-	-	
100	**104.18**	17	12.8	24	36	-	-	-	-	26	-	-	-	-	
112	**118.60**	15	12.8	21	36	-	-	-	-	26	-	-	-	-	
125	**125.27**	14	12.8	20	33	-	-	-	-	24	-	-	-	-	
140	**142.60**	13	12.8	18	34	-	-	-	-	24	-	-	-	-	
160	**149.93**	12	12.8	17	31	-	-	-	-	22	-	-	-	-	
180	**170.68**	11	12.8	15	31	-	-	-	-	22	-	-	-	-	
200	**206.42**	8.7	12.8	12	28	-	-	-	-	20	-	-	-	-	
224	**234.98**	7.7	12.8	11	28	-	-	-	-	20	-	-	-	-	
250	**248.19**	7.3	12.8	10	25	-	-	-	-	18	-	-	-	-	
280	**282.53**	6.4	12.8	9	26	-	-	-	-	19	-	-	-	-	
315	**297.06**	6.1	12.8	9	24	-	-	-	-	17	-	-	-	-	
355	**338.17**	5.3	12.8	8	24	-	-	-	-	18	-	-	-	-	

X.K130..,n_1= 1000 1/min															16 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.95**	126	12.8	170	82	145	-	-	-	*)	100	-	-	-	**X2K.** /HU 282
9	**9.03**	111	13.1	155	83	145	-	-	-	44	100	-	-	-	
10	**9.93**	101	13.5	145	76	130	-	-	-	44	91	-	-	-	
11.2	**11.28**	89	13.8	130	80	135	-	-	-	49	95	-	-	-	
12.5	**12.31**	81	13.9	120	69	115	-	-	-	43	81	-	-	-	
14	**13.98**	72	14.5	110	68	115	-	-	-	44	81	-	-	-	
16	**15.90**	63	14.2	97	68	110	-	-	-	48	79	-	-	-	**X3K.** /HH 254 /HU 286
18	**18.06**	55	14.4	86	70	110	-	-	-	49	81	-	-	-	
20	**20.45**	49	14.5	77	64	100	-	-	-	46	74	-	-	-	
22.4	**23.23**	43	15.0	70	65	105	-	-	-	47	76	-	-	-	
25	**25.03**	40	15.2	66	61	98	-	-	-	44	71	-	-	-	
28	**28.43**	35	15.5	59	63	100	-	-	-	45	73	-	-	-	
31.5	**32.19**	31	15.5	52	58	91	-	-	-	42	67	-	-	-	
35.5	**36.56**	27	15.5	46	58	92	-	-	-	42	68	-	-	-	
40	**38.71**	26	15.5	43	53	83	-	-	-	38	61	-	-	-	
45	**43.96**	23	15.5	38	51	80	-	-	-	37	59	-	-	-	
50	**50.02**	20	15.5	34	46	71	-	-	-	33	53	-	-	-	
56	**56.81**	18	16.0	31	45	71	-	-	-	33	52	-	-	-	
63	**59.90**	17	16.0	29	41	64	-	-	-	30	47	-	-	-	
71	**68.03**	15	16.0	26	41	64	-	-	-	30	48	-	-	-	
80	**76.69**	13	16.0	23	37	57	-	-	-	27	42	-	-	-	
90	**87.09**	11	16.0	20	37	57	-	-	-	27	42	-	-	-	
100	**102.65**	9.7	13.6	15	37	-	-	-	-	27	-	-	-	-	**X4K.** /HU 292
112	**116.58**	8.6	15.5	15	37	-	-	-	-	27	-	-	-	-	
125	**130.23**	7.7	16.0	13	35	-	-	-	-	26	-	-	-	-	
140	**147.90**	6.8	16.0	12	34	-	-	-	-	25	-	-	-	-	
160	**156.58**	6.4	16.0	11	31	-	-	-	-	23	-	-	-	-	
180	**177.83**	5.6	16.0	10	31	-	-	-	-	23	-	-	-	-	
200	**187.42**	5.3	16.0	9	29	-	-	-	-	21	-	-	-	-	
224	**212.85**	4.7	16.0	8	29	-	-	-	-	21	-	-	-	-	
250	**258.02**	3.9	16.0	7	26	-	-	-	-	19	-	-	-	-	
280	**293.04**	3.4	16.0	6	26	-	-	-	-	19	-	-	-	-	
315	**310.23**	3.2	16.0	6	24	-	-	-	-	18	-	-	-	-	
355	**352.34**	2.8	16.0	5	23	-	-	-	-	17	-	-	-	-	
400	**371.33**	2.7	16.0	5	22	-	-	-	-	16	-	-	-	-	
450	**421.72**	2.4	16.0	4	22	-	-	-	-	16	-	-	-	-	
X.K130..,n_1= 1200 1/min															**16 kNm**
8	**7.95**	151	12.8	205	64	155	-	-	-	*)	105	-	-	-	**X2K.** /HU 282
9	**9.03**	133	13.1	185	68	155	-	-	-	*)	105	-	-	-	
10	**9.93**	121	13.5	175	68	140	-	-	-	*)	97	-	-	-	
11.2	**11.28**	106	13.8	155	75	145	-	-	-	*)	100	-	-	-	
12.5	**12.31**	97	13.9	145	65	125	-	-	-	*)	88	-	-	-	
14	**13.98**	86	14.5	135	67	125	-	-	-	35	88	-	-	-	
16	**15.90**	75	14.2	115	68	120	-	-	-	44	87	-	-	-	**X3K.** /HH 254 /HU 286
18	**18.06**	66	14.4	105	70	125	-	-	-	47	89	-	-	-	
20	**20.45**	59	14.5	92	65	115	-	-	-	46	82	-	-	-	
22.4	**23.23**	52	15.0	84	66	115	-	-	-	47	84	-	-	-	
25	**25.03**	48	15.2	79	62	110	-	-	-	43	79	-	-	-	
28	**28.43**	42	15.5	71	63	110	-	-	-	44	81	-	-	-	
31.5	**32.19**	37	15.5	63	59	100	-	-	-	42	74	-	-	-	
35.5	**36.56**	33	15.5	55	60	105	-	-	-	43	75	-	-	-	
40	**38.71**	31	15.5	52	54	93	-	-	-	39	68	-	-	-	
45	**43.96**	27	15.5	46	52	90	-	-	-	37	66	-	-	-	
50	**50.02**	24	15.5	40	47	80	-	-	-	34	59	-	-	-	
56	**56.81**	21	16.0	37	47	80	-	-	-	34	59	-	-	-	
63	**59.90**	20	16.0	35	42	72	-	-	-	31	53	-	-	-	
71	**68.03**	18	16.0	31	43	73	-	-	-	31	53	-	-	-	
80	**76.69**	16	16.0	27	38	64	-	-	-	28	48	-	-	-	
90	**87.09**	14	16.0	24	38	65	-	-	-	28	48	-	-	-	
100	**102.65**	12	13.6	17	38	-	-	-	-	28	-	-	-	-	**X4K.** /HU 292
112	**116.58**	10	15.5	17	38	-	-	-	-	28	-	-	-	-	
125	**130.23**	9.2	16.0	16	36	-	-	-	-	26	-	-	-	-	
140	**147.90**	8.1	16.0	14	36	-	-	-	-	26	-	-	-	-	
160	**156.58**	7.7	16.0	13	33	-	-	-	-	24	-	-	-	-	
180	**177.83**	6.7	16.0	12	33	-	-	-	-	24	-	-	-	-	
200	**187.42**	6.4	16.0	11	30	-	-	-	-	22	-	-	-	-	
224	**212.85**	5.6	16.0	10	30	-	-	-	-	22	-	-	-	-	
250	**258.02**	4.7	16.0	8	27	-	-	-	-	20	-	-	-	-	
280	**293.04**	4.1	16.0	7	27	-	-	-	-	20	-	-	-	-	
315	**310.23**	3.9	16.0	7	25	-	-	-	-	18	-	-	-	-	
355	**352.34**	3.4	16.0	6	25	-	-	-	-	18	-	-	-	-	
400	**371.33**	3.2	16.0	6	23	-	-	-	-	17	-	-	-	-	
450	**421.72**	2.8	16.0	5	23	-	-	-	-	17	-	-	-	-	

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X.K130..,n_1= 1500 1/min															16 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
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	-	-	-	*)	90	-	-	-	**X2K.** /HU 282
9	**9.03**	166	13.1	235	*)	160	-	-	-	*)	95	-	-	-	
10	**9.93**	151	13.5	220	*)	150	-	-	-	*)	98	-	-	-	
11.2	**11.28**	133	13.8	195	52	160	-	-	-	*)	105	-	-	-	
12.5	**12.31**	122	13.9	185	50	135	-	-	-	*)	94	-	-	-	
14	**13.98**	107	14.5	170	53	135	-	-	-	*)	93	-	-	-	
16	**15.90**	94	14.2	145	64	135	-	-	-	*)	95	-	-	-	**X3K.** /HH 254 /HU 286
18	**18.06**	83	14.4	130	67	140	-	-	-	37	97	-	-	-	
20	**20.45**	73	14.5	115	65	125	-	-	-	41	91	-	-	-	
22.4	**23.23**	65	15.0	105	66	130	-	-	-	44	93	-	-	-	
25	**25.03**	60	15.2	99	60	120	-	-	-	37	87	-	-	-	
28	**28.43**	53	15.5	89	61	125	-	-	-	40	88	-	-	-	
31.5	**32.19**	47	15.5	78	59	115	-	-	-	41	83	-	-	-	
35.5	**36.56**	41	15.5	69	60	115	-	-	-	42	84	-	-	-	
40	**38.71**	39	15.5	65	55	105	-	-	-	38	76	-	-	-	
45	**43.96**	34	15.5	57	52	100	-	-	-	36	73	-	-	-	
50	**50.02**	30	15.5	50	48	91	-	-	-	34	67	-	-	-	
56	**56.81**	26	16.0	46	48	90	-	-	-	34	66	-	-	-	
63	**59.90**	25	16.0	44	44	82	-	-	-	31	60	-	-	-	
71	**68.03**	22	16.0	39	44	82	-	-	-	31	60	-	-	-	
80	**76.69**	20	16.0	34	39	73	-	-	-	28	54	-	-	-	
90	**87.09**	17	16.0	30	39	74	-	-	-	28	54	-	-	-	
100	**102.65**	15	13.6	22	40	-	-	-	-	29	-	-	-	-	**X4K.** /HU 292
112	**116.58**	13	15.5	22	40	-	-	-	-	29	-	-	-	-	
125	**130.23**	12	16.0	20	38	-	-	-	-	27	-	-	-	-	
140	**147.90**	10	16.0	18	37	-	-	-	-	27	-	-	-	-	
160	**156.58**	9.6	16.0	17	34	-	-	-	-	25	-	-	-	-	
180	**177.83**	8.4	16.0	15	34	-	-	-	-	25	-	-	-	-	
200	**187.42**	8.0	16.0	14	32	-	-	-	-	23	-	-	-	-	
224	**212.85**	7.0	16.0	12	32	-	-	-	-	23	-	-	-	-	
250	**258.02**	5.8	16.0	10	28	-	-	-	-	21	-	-	-	-	
280	**293.04**	5.1	16.0	9	28	-	-	-	-	21	-	-	-	-	
315	**310.23**	4.8	16.0	9	26	-	-	-	-	19	-	-	-	-	
355	**352.34**	4.3	16.0	8	26	-	-	-	-	19	-	-	-	-	
400	**371.33**	4.0	16.0	7	24	-	-	-	-	18	-	-	-	-	
450	**421.72**	3.6	16.0	6	25	-	-	-	-	18	-	-	-	-	
X.K130..,n_1= 1800 1/min															**16 kNm**
8	**7.95**	226	12.1	295	*)	150	-	-	-	*)	*)	-	-	-	**X2K.** /HU 282
9	**9.03**	199	12.5	265	*)	150	-	-	-	*)	*)	-	-	-	
10	**9.93**	181	12.8	250	*)	150	-	-	-	*)	82	-	-	-	
11.2	**11.28**	160	13.0	220	*)	160	-	-	-	*)	93	-	-	-	
12.5	**12.31**	146	13.2	210	*)	140	-	-	-	*)	87	-	-	-	
14	**13.98**	129	13.6	190	*)	140	-	-	-	*)	91	-	-	-	
16	**15.90**	113	13.5	165	51	140	-	-	-	*)	97	-	-	-	**X3K.** /HH 254 /HU 286
18	**18.06**	100	14.2	155	57	145	-	-	-	*)	100	-	-	-	
20	**20.45**	88	14.5	140	62	135	-	-	-	*)	96	-	-	-	
22.4	**23.23**	77	15.0	125	64	140	-	-	-	36	98	-	-	-	
25	**25.03**	72	15.2	120	56	130	-	-	-	*)	90	-	-	-	
28	**28.43**	63	15.5	105	58	130	-	-	-	29	91	-	-	-	
31.5	**32.19**	56	15.5	94	58	125	-	-	-	36	88	-	-	-	
35.5	**36.56**	49	15.5	83	59	125	-	-	-	39	89	-	-	-	
40	**38.71**	46	15.5	78	54	115	-	-	-	36	81	-	-	-	
45	**43.96**	41	15.5	69	52	110	-	-	-	35	78	-	-	-	
50	**50.02**	36	15.5	60	49	99	-	-	-	34	71	-	-	-	
56	**56.81**	32	16.0	55	48	98	-	-	-	33	71	-	-	-	
63	**59.90**	30	16.0	53	44	89	-	-	-	31	65	-	-	-	
71	**68.03**	26	16.0	46	44	89	-	-	-	31	65	-	-	-	
80	**76.69**	23	16.0	41	40	80	-	-	-	28	58	-	-	-	
90	**87.09**	21	16.0	36	40	80	-	-	-	28	58	-	-	-	
100	**102.65**	18	13.6	26	41	-	-	-	-	29	-	-	-	-	**X4K.** /HU 292
112	**116.58**	15	15.5	26	41	-	-	-	-	29	-	-	-	-	
125	**130.23**	14	16.0	24	39	-	-	-	-	28	-	-	-	-	
140	**147.90**	12	16.0	21	38	-	-	-	-	28	-	-	-	-	
160	**156.58**	11	16.0	20	35	-	-	-	-	25	-	-	-	-	
180	**177.83**	10	16.0	18	35	-	-	-	-	25	-	-	-	-	
200	**187.42**	9.6	16.0	17	33	-	-	-	-	24	-	-	-	-	
224	**212.85**	8.5	16.0	15	33	-	-	-	-	24	-	-	-	-	
250	**258.02**	7.0	16.0	12	30	-	-	-	-	22	-	-	-	-	
280	**293.04**	6.1	16.0	11	29	-	-	-	-	22	-	-	-	-	
315	**310.23**	5.8	16.0	10	27	-	-	-	-	20	-	-	-	-	
355	**352.34**	5.1	16.0	9	27	-	-	-	-	20	-	-	-	-	
400	**371.33**	4.8	16.0	9	25	-	-	-	-	19	-	-	-	-	
450	**421.72**	4.3	16.0	8	26	-	-	-	-	19	-	-	-	-	

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X.K140..,n_1= 1000 1/min															22 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1				20 °C	M1				40 °C	
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.53**	153	18.5	305	78	190	-	270	340	*)	130	-	240	290	X2K. /HU 282
7.1	**6.98**	143	19.0	290	80	190	-	265	335	*)	130	-	235	285	
8	**8.27**	121	19.7	255	81	170	-	220	280	*)	120	-	195	235	
9	**8.84**	113	20.1	245	82	170	-	215	275	*)	120	-	190	230	
10	**10.10**	99	20.4	220	80	160	-	190	245	*)	115	-	165	205	
11.2	**10.80**	93	20.8	210	81	155	-	185	240	*)	115	-	160	200	
12.5	**12.35**	81	20.8	185	84	155	-	175	225	48	115	-	150	190	X3K. /HH 254 /HU 286
14	**13.21**	76	21.0	170	88	155	-	175	230	52	115	-	155	190	
16	**15.89**	63	21.0	145	79	140	-	150	195	51	105	-	125	160	
18	**16.99**	59	21.3	135	81	140	-	150	195	54	105	-	130	160	
20	**21.13**	47	21.9	110	77	135	-	135	180	55	100	-	115	145	
22.4	**22.60**	44	22.0	105	77	135	-	130	175	55	100	-	110	145	
25	**26.42**	38	22.0	90	73	125	-	120	160	52	95	-	100	130	
28	**28.25**	35	22.0	84	73	125	-	120	160	52	95	-	99	130	
31.5	**33.46**	30	22.0	71	65	110	-	100	135	47	84	-	84	110	
35.5	**35.78**	28	22.0	67	65	110	-	99	135	47	83	-	82	110	
40	**40.78**	25	22.0	58	60	105	-	90	125	44	78	-	74	99	
45	**43.61**	23	22.0	55	60	105	-	88	120	43	77	-	73	97	
50	**49.82**	20	22.0	48	55	95	-	79	110	40	71	-	65	88	
56	**53.28**	19	22.0	45	55	94	-	78	110	40	71	-	64	86	
63	**63.79**	16	22.0	38	49	83	-	67	93	35	62	-	54	74	
71	**68.21**	15	22.0	35	49	84	-	67	94	36	63	-	54	74	
80	**83.36**	12	22.0	29	46	-	-	61	-	34	-	-	49	-	X4K. /HU 292
90	**89.14**	11	22.0	27	46	-	-	60	-	34	-	-	48	-	
100	**104.20**	9.6	22.0	23	41	-	-	52	-	30	-	-	42	-	
112	**111.42**	9.0	22.0	22	41	-	-	52	-	30	-	-	42	-	
125	**127.00**	7.9	22.0	19	39	-	-	49	-	29	-	-	39	-	
140	**135.81**	7.4	22.0	18	40	-	-	49	-	29	-	-	39	-	
160	**158.84**	6.3	22.0	15	37	-	-	45	-	27	-	-	35	-	
180	**169.85**	5.9	22.0	14	37	-	-	45	-	27	-	-	35	-	
200	**206.44**	4.8	22.0	12	30	-	-	36	-	22	-	-	28	-	
224	**220.76**	4.5	22.0	11	30	-	-	36	-	22	-	-	28	-	
250	**251.62**	4.0	22.0	10	30	-	-	34	-	22	-	-	27	-	
280	**269.07**	3.7	22.0	9	30	-	-	34	-	22	-	-	27	-	
315	**314.70**	3.2	22.0	8	27	-	-	31	-	20	-	-	24	-	
355	**336.53**	3.0	22.0	7	28	-	-	31	-	20	-	-	24	-	
X.K140..,n_1= 1200 1/min															**22 kNm**
6.3	**6.53**	184	18.5	365	*)	200	-	285	375	*)	125	-	255	320	X2K. /HU 282
7.1	**6.98**	172	19.0	350	*)	200	-	280	370	*)	130	-	245	310	
8	**8.27**	145	19.7	305	*)	185	-	235	310	*)	125	-	205	260	
9	**8.84**	136	20.1	290	*)	185	-	230	305	*)	125	-	200	255	
10	**10.10**	119	20.4	260	70	175	-	205	270	*)	125	-	180	230	
11.2	**10.80**	111	20.8	250	71	170	-	200	265	*)	125	-	175	225	
12.5	**12.35**	97	20.8	220	74	170	-	190	255	*)	125	-	165	210	X3K. /HH 254 /HU 286
14	**13.21**	91	21.0	205	79	175	-	190	255	*)	125	-	165	215	
16	**15.89**	76	21.0	170	78	155	-	160	215	43	115	-	140	180	
18	**16.99**	71	21.3	165	81	160	-	160	220	47	115	-	140	180	
20	**21.13**	57	21.9	135	78	150	-	145	200	50	110	-	125	165	
22.4	**22.60**	53	22.0	125	77	150	-	140	195	51	110	-	120	160	
25	**26.42**	45	22.0	110	74	140	-	130	180	52	105	-	110	150	
28	**28.25**	42	22.0	100	73	140	-	125	180	51	105	-	105	145	
31.5	**33.46**	36	22.0	86	66	125	-	110	155	47	94	-	90	125	
35.5	**35.78**	34	22.0	80	66	125	-	105	150	47	93	-	88	120	
40	**40.78**	29	22.0	70	62	115	-	96	140	44	87	-	80	110	
45	**43.61**	28	22.0	66	61	115	-	94	135	44	86	-	78	110	
50	**49.82**	24	22.0	58	57	105	-	85	125	41	80	-	70	99	
56	**53.28**	23	22.0	54	56	105	-	83	120	40	79	-	68	97	
63	**63.79**	19	22.0	45	50	93	-	71	105	36	70	-	58	83	
71	**68.21**	18	22.0	42	51	94	-	71	105	36	71	-	58	84	
80	**83.36**	14	22.0	35	48	-	-	65	-	35	-	-	53	-	X4K. /HU 292
90	**89.14**	13	22.0	32	48	-	-	64	-	35	-	-	52	-	
100	**104.20**	12	22.0	28	42	-	-	56	-	31	-	-	45	-	
112	**111.42**	11	22.0	26	43	-	-	56	-	31	-	-	45	-	
125	**127.00**	9.4	22.0	23	41	-	-	52	-	30	-	-	42	-	
140	**135.81**	8.8	22.0	21	41	-	-	52	-	30	-	-	42	-	
160	**158.84**	7.6	22.0	18	38	-	-	48	-	28	-	-	38	-	
180	**169.85**	7.1	22.0	17	39	-	-	48	-	28	-	-	38	-	
200	**206.44**	5.8	22.0	14	32	-	-	38	-	23	-	-	30	-	
224	**220.76**	5.4	22.0	13	32	-	-	38	-	23	-	-	30	-	
250	**251.62**	4.8	22.0	12	31	-	-	36	-	23	-	-	29	-	
280	**269.07**	4.5	22.0	11	31	-	-	36	-	23	-	-	29	-	
315	**314.70**	3.8	22.0	9	29	-	-	33	-	21	-	-	26	-	
355	**336.53**	3.6	22.0	9	29	-	-	33	-	21	-	-	26	-	

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X.K140..,n_1= 1500 1/min															22 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW				H_2O	+ H_2O				H_2O	+ H_2O	
6.3	**6.53**	230	18.5	455	*)	200	-	285	400	*)	*)	-	250	335	**X2K.** /HU 282
7.1	**6.98**	215	19.0	435	*)	200	-	285	400	*)	*)	-	250	335	
8	**8.27**	181	19.7	385	*)	195	-	250	345	*)	120	-	220	290	
9	**8.84**	170	20.1	365	*)	195	-	245	340	*)	120	-	210	285	
10	**10.10**	149	20.4	330	*)	185	-	220	305	*)	125	-	190	255	
11.2	**10.80**	139	20.8	315	*)	185	-	210	300	*)	125	-	185	250	
12.5	**12.35**	121	20.8	275	*)	185	-	205	285	*)	130	-	175	240	**X3K.** /HH 254 /HU 286
14	**13.21**	114	21.0	260	*)	190	-	205	290	*)	135	-	180	240	
16	**15.89**	94	21.0	215	65	170	-	175	245	*)	125	-	150	205	
18	**16.99**	88	21.3	205	70	175	-	175	250	*)	130	-	150	205	
20	**21.13**	71	21.9	170	74	170	-	155	230	*)	125	-	135	185	
22.4	**22.60**	66	22.0	160	75	165	-	155	225	*)	125	-	130	185	
25	**26.42**	57	22.0	135	73	160	-	140	205	42	115	-	120	170	
28	**28.25**	53	22.0	125	72	160	-	135	205	44	115	-	115	165	
31.5	**33.46**	45	22.0	105	66	140	-	115	175	44	105	-	98	140	
35.5	**35.78**	42	22.0	100	66	140	-	115	175	44	105	-	96	140	
40	**40.78**	37	22.0	88	62	130	-	105	160	43	98	-	87	125	
45	**43.61**	34	22.0	82	62	130	-	100	155	43	97	-	84	125	
50	**49.82**	30	22.0	72	58	120	-	91	140	40	90	-	76	115	
56	**53.28**	28	22.0	68	57	120	-	90	140	40	89	-	74	110	
63	**63.79**	24	22.0	57	51	105	-	77	120	36	79	-	63	95	
71	**68.21**	22	22.0	53	52	105	-	77	120	36	80	-	63	96	
80	**83.36**	18	22.0	43	50	-	-	70	-	36	-	-	57	-	**X4K.** /HU 292
90	**89.14**	17	22.0	41	49	-	-	69	-	36	-	-	56	-	
100	**104.20**	14	22.0	35	44	-	-	60	-	32	-	-	49	-	
112	**111.42**	13	22.0	32	45	-	-	60	-	32	-	-	48	-	
125	**127.00**	12	22.0	28	43	-	-	56	-	31	-	-	45	-	
140	**135.81**	11	22.0	27	43	-	-	56	-	31	-	-	45	-	
160	**158.84**	9.4	22.0	23	40	-	-	51	-	29	-	-	41	-	
180	**169.85**	8.8	22.0	21	40	-	-	51	-	29	-	-	41	-	
200	**206.44**	7.3	22.0	18	33	-	-	41	-	24	-	-	32	-	
224	**220.76**	6.8	22.0	17	33	-	-	41	-	24	-	-	32	-	
250	**251.62**	6.0	22.0	15	32	-	-	39	-	24	-	-	31	-	
280	**269.07**	5.6	22.0	14	33	-	-	39	-	24	-	-	31	-	
315	**314.70**	4.8	22.0	12	30	-	-	36	-	22	-	-	28	-	
355	**336.53**	4.5	22.0	11	30	-	-	36	-	22	-	-	28	-	
X.K140..,n_1= 1800 1/min															**22 kNm**
6.3	**6.53**	276	17.5	520	*)	160	-	250	390	*)	*)	-	205	315	**X2K.** /HU 282
7.1	**6.98**	258	18.0	495	*)	165	-	255	390	*)	*)	-	205	315	
8	**8.27**	218	18.6	435	*)	185	-	250	365	*)	*)	-	220	305	
9	**8.84**	204	19.0	415	*)	185	-	245	360	*)	*)	-	215	300	
10	**10.10**	178	19.3	370	*)	185	-	225	330	*)	110	-	195	270	
11.2	**10.80**	167	19.7	355	*)	190	-	220	320	*)	115	-	190	265	
12.5	**12.35**	146	19.8	315	*)	190	-	215	310	*)	120	-	185	255	**X3K.** /HH 254 /HU 286
14	**13.21**	136	19.9	295	*)	195	-	215	315	*)	130	-	185	260	
16	**15.89**	113	19.9	245	*)	180	-	185	270	*)	130	-	160	225	
18	**16.99**	106	20.2	230	*)	185	-	185	275	*)	135	-	160	225	
20	**21.13**	85	20.7	190	60	180	-	165	250	*)	130	-	140	205	
22.4	**22.60**	80	21.1	180	63	175	-	160	245	*)	130	-	140	200	
25	**26.42**	68	22.0	160	65	170	-	145	225	*)	125	-	125	185	
28	**28.25**	64	22.0	150	67	170	-	145	220	*)	120	-	120	180	
31.5	**33.46**	54	22.0	130	65	150	-	125	195	35	110	-	105	155	
35.5	**35.78**	50	22.0	120	65	150	-	120	190	37	110	-	100	150	
40	**40.78**	44	22.0	105	61	140	-	110	175	37	105	-	92	140	
45	**43.61**	41	22.0	98	60	140	-	105	170	38	105	-	89	135	
50	**49.82**	36	22.0	87	57	130	-	97	155	38	96	-	80	125	
56	**53.28**	34	22.0	81	57	130	-	95	155	38	95	-	78	120	
63	**63.79**	28	22.0	68	51	115	-	81	130	35	85	-	67	105	
71	**68.21**	26	22.0	64	52	115	-	81	135	36	86	-	66	105	
80	**83.36**	22	22.0	52	51	-	-	75	-	36	-	-	61	-	**X4K.** /HU 292
90	**89.14**	20	22.0	49	51	-	-	74	-	36	-	-	60	-	
100	**104.20**	17	22.0	42	45	-	-	64	-	32	-	-	52	-	
112	**111.42**	16	22.0	39	46	-	-	64	-	33	-	-	52	-	
125	**127.00**	14	22.0	34	44	-	-	60	-	31	-	-	48	-	
140	**135.81**	13	22.0	32	44	-	-	60	-	31	-	-	48	-	
160	**158.84**	11	22.0	27	41	-	-	54	-	29	-	-	43	-	
180	**169.85**	11	22.0	26	41	-	-	54	-	30	-	-	43	-	
200	**206.44**	8.7	22.0	21	34	-	-	44	-	25	-	-	35	-	
224	**220.76**	8.2	22.0	20	35	-	-	43	-	25	-	-	34	-	
250	**251.62**	7.2	22.0	17	34	-	-	42	-	24	-	-	33	-	
280	**269.07**	6.7	22.0	16	34	-	-	41	-	25	-	-	33	-	
315	**314.70**	5.7	22.0	14	31	-	-	38	-	23	-	-	30	-	
355	**336.53**	5.3	22.0	13	31	-	-	38	-	23	-	-	30	-	

X.K150..,n_1= 1000 1/min															27.5 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**8.11**	123	23.5	310	90	210	-	190	270	*)	145	-	155	215	**X2K.** /HU 282
9	**8.68**	115	24.0	295	92	210	-	190	265	*)	145	-	150	210	
10	**10.27**	97	24.6	255	91	185	-	165	230	*)	135	-	130	180	
11.2	**10.99**	91	25.1	245	92	185	-	160	225	*)	135	-	130	180	
12.5	**12.54**	80	25.4	220	90	170	-	145	205	*)	125	-	115	160	
14	**13.43**	74	26.0	210	90	170	-	140	200	54	125	-	115	160	
16	**15.34**	65	25.5	180	95	170	-	145	200	58	125	-	115	160	**X3K.** /HH 254 /HU 286
18	**16.43**	61	25.8	170	95	170	-	140	200	59	125	-	115	155	
20	**19.73**	51	26.1	145	88	155	-	125	175	60	115	-	100	140	
22.4	**21.13**	47	26.5	135	85	150	-	120	170	58	110	-	96	130	
25	**26.25**	38	27.2	110	83	145	-	110	160	60	110	-	90	125	
28	**28.10**	36	27.5	105	83	145	-	110	160	59	105	-	88	125	
31.5	**32.81**	30	27.5	91	79	135	-	105	150	57	100	-	82	115	
35.5	**35.13**	28	27.5	85	78	135	-	100	145	56	100	-	80	115	
40	**41.56**	24	27.5	72	72	120	-	90	130	52	92	-	71	100	
45	**44.50**	22	27.5	67	69	120	-	87	125	50	89	-	68	98	
50	**50.65**	20	27.5	59	65	110	-	80	115	47	84	-	63	90	
56	**54.23**	18	27.5	55	64	110	-	79	115	47	83	-	62	89	
63	**61.88**	16	27.5	49	60	100	-	72	105	43	76	-	56	81	
71	**66.26**	15	27.5	45	59	100	-	71	105	43	76	-	55	80	
80	**79.22**	13	27.5	38	53	90	-	63	92	39	68	-	49	71	
90	**84.83**	12	27.5	35	53	89	-	62	91	39	68	-	48	70	
100	**103.52**	9.7	27.5	29	51	-	-	58	-	37	-	-	45	-	**X4K.** /HU 292
112	**110.85**	9.0	27.5	27	50	-	-	57	-	37	-	-	44	-	
125	**129.41**	7.7	27.5	23	47	-	-	53	-	35	-	-	41	-	
140	**138.56**	7.2	27.5	22	48	-	-	54	-	35	-	-	41	-	
160	**157.72**	6.3	27.5	19	44	-	-	49	-	32	-	-	37	-	
180	**168.89**	5.9	27.5	18	43	-	-	48	-	32	-	-	37	-	
200	**197.26**	5.1	27.5	15	41	-	-	45	-	30	-	-	34	-	
224	**211.23**	4.7	27.5	14	41	-	-	44	-	30	-	-	34	-	
250	**256.39**	3.9	27.5	12	35	-	-	38	-	26	-	-	29	-	
280	**274.54**	3.6	27.5	11	34	-	-	37	-	25	-	-	28	-	
315	**312.49**	3.2	27.5	10	32	-	-	34	-	24	-	-	26	-	
355	**334.61**	3.0	27.5	9	32	-	-	35	-	24	-	-	26	-	
400	**390.84**	2.6	27.5	8	30	-	-	32	-	22	-	-	25	-	
450	**418.50**	2.4	27.5	7	30	-	-	32	-	22	-	-	24	-	
X.K150..,n_1= 1200 1/min															**27.5 kNm**
8	**8.11**	148	23.5	370	*)	220	-	190	295	*)	145	-	145	230	**X2K.** /HU 282
9	**8.68**	138	24.0	355	*)	220	-	185	290	*)	145	-	140	225	
10	**10.27**	117	24.6	310	*)	200	-	165	250	*)	140	-	130	195	
11.2	**10.99**	109	25.1	295	77	200	-	165	250	*)	140	-	125	195	
12.5	**12.54**	96	25.4	265	79	190	-	150	225	*)	135	-	115	175	
14	**13.43**	89	26.0	250	80	185	-	145	225	*)	135	-	115	175	
16	**15.34**	78	25.5	215	88	185	-	150	225	*)	135	-	120	175	**X3K.** /HH 254 /HU 286
18	**16.43**	73	25.8	205	90	185	-	145	220	*)	135	-	120	175	
20	**19.73**	61	26.1	170	88	170	-	130	195	54	125	-	105	155	
22.4	**21.13**	57	26.5	165	85	165	-	125	190	52	120	-	100	145	
25	**26.25**	46	27.2	135	84	160	-	120	180	56	120	-	94	140	
28	**28.10**	43	27.5	125	83	160	-	115	180	57	120	-	93	140	
31.5	**32.81**	37	27.5	110	80	155	-	110	165	56	115	-	86	130	
35.5	**35.13**	34	27.5	100	79	150	-	105	165	56	115	-	84	125	
40	**41.56**	29	27.5	86	73	140	-	95	145	52	105	-	75	115	
45	**44.50**	27	27.5	80	71	135	-	91	140	51	100	-	72	110	
50	**50.65**	24	27.5	71	66	125	-	84	130	47	94	-	66	100	
56	**54.23**	22	27.5	66	66	125	-	83	130	47	93	-	65	99	
63	**61.88**	19	27.5	58	61	115	-	75	120	44	86	-	59	91	
71	**66.26**	18	27.5	54	61	115	-	74	115	44	85	-	58	90	
80	**79.22**	15	27.5	46	55	100	-	66	105	40	77	-	51	80	
90	**84.83**	14	27.5	43	54	100	-	65	105	39	76	-	50	78	
100	**103.52**	12	27.5	35	53	-	-	61	-	38	-	-	48	-	**X4K.** /HU 292
112	**110.85**	11	27.5	33	52	-	-	60	-	38	-	-	47	-	
125	**129.41**	9.3	27.5	28	49	-	-	56	-	36	-	-	43	-	
140	**138.56**	8.7	27.5	26	50	-	-	57	-	36	-	-	44	-	
160	**157.72**	7.6	27.5	23	45	-	-	51	-	33	-	-	39	-	
180	**168.89**	7.1	27.5	21	45	-	-	51	-	33	-	-	39	-	
200	**197.26**	6.1	27.5	18	43	-	-	47	-	31	-	-	36	-	
224	**211.23**	5.7	27.5	17	42	-	-	47	-	31	-	-	36	-	
250	**256.39**	4.7	27.5	14	36	-	-	40	-	27	-	-	30	-	
280	**274.54**	4.4	27.5	13	36	-	-	39	-	27	-	-	30	-	
315	**312.49**	3.8	27.5	12	33	-	-	36	-	25	-	-	28	-	
355	**334.61**	3.6	27.5	11	34	-	-	36	-	25	-	-	28	-	
400	**390.84**	3.1	27.5	9	32	-	-	34	-	23	-	-	26	-	
450	**418.50**	2.9	27.5	9	31	-	-	34	-	23	-	-	26	-	

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i N	i ex	n2 (min⁻¹)	M_{N2} (kNm)	P_{N1} (kW)	P_{TH} kW, M1, 20 °C					M1, 40 °C					
						fan	H_2O	H_2O	fan + H_2O		fan	H_2O	H_2O	fan + H_2O	
X.K150..,n1= 1500 1/min															**27.5 kNm**
8	**8.11**	185	23.5	465	*)	225	-	160	305	*)	120	-	*)	230	**X2K.** /HU 282
9	**8.68**	173	24.0	445	*)	225	-	165	305	*)	125	-	*)	230	
10	**10.27**	146	24.6	385	*)	215	-	155	275	*)	135	-	115	210	
11.2	**10.99**	136	25.1	365	*)	215	-	155	270	*)	140	-	115	205	
12.5	**12.54**	120	25.4	330	*)	205	-	145	250	*)	140	-	110	190	
14	**13.43**	112	26.0	315	*)	200	-	145	245	*)	140	-	110	190	
16	**15.34**	98	25.5	270	*)	205	-	155	250	*)	150	-	120	195	**X3K.** /HH 254 /HU 286
18	**16.43**	91	25.8	255	69	205	-	150	245	*)	145	-	120	190	
20	**19.73**	76	26.1	215	80	190	-	140	220	*)	140	-	110	175	
22.4	**21.13**	71	26.5	205	77	185	-	130	210	*)	135	-	105	165	
25	**26.25**	57	27.2	170	83	180	-	125	205	45	135	-	99	155	
28	**28.10**	53	27.5	160	82	180	-	120	200	46	130	-	97	155	
31.5	**32.81**	46	27.5	135	79	170	-	115	190	49	125	-	89	145	
35.5	**35.13**	43	27.5	125	78	170	-	110	185	50	125	-	88	145	
40	**41.56**	36	27.5	110	74	155	-	100	165	51	115	-	79	130	
45	**44.50**	34	27.5	100	71	150	-	96	160	50	110	-	76	125	
50	**50.65**	30	27.5	88	67	140	-	89	150	47	105	-	69	115	
56	**54.23**	28	27.5	82	67	140	-	87	145	46	105	-	68	115	
63	**61.88**	24	27.5	73	62	130	-	80	135	44	97	-	62	105	
71	**66.26**	23	27.5	68	62	130	-	78	135	43	96	-	61	100	
80	**79.22**	19	27.5	57	56	115	-	70	120	40	87	-	54	90	
90	**84.83**	18	27.5	53	56	115	-	68	115	40	86	-	53	89	
100	**103.52**	14	27.5	44	55	-	-	65	-	39	-	-	51	-	**X4K.** /HU 292
112	**110.85**	14	27.5	41	54	-	-	64	-	39	-	-	50	-	
125	**129.41**	12	27.5	35	51	-	-	60	-	37	-	-	46	-	
140	**138.56**	11	27.5	33	52	-	-	60	-	37	-	-	46	-	
160	**157.72**	9.5	27.5	29	47	-	-	55	-	34	-	-	42	-	
180	**168.89**	8.9	27.5	27	47	-	-	54	-	34	-	-	41	-	
200	**197.26**	7.6	27.5	23	44	-	-	50	-	32	-	-	38	-	
224	**211.23**	7.1	27.5	21	44	-	-	50	-	32	-	-	38	-	
250	**256.39**	5.9	27.5	18	38	-	-	42	-	28	-	-	32	-	
280	**274.54**	5.5	27.5	17	38	-	-	42	-	28	-	-	32	-	
315	**312.49**	4.8	27.5	15	35	-	-	39	-	26	-	-	29	-	
355	**334.61**	4.5	27.5	14	35	-	-	39	-	26	-	-	30	-	
400	**390.84**	3.8	27.5	12	33	-	-	36	-	24	-	-	27	-	
450	**418.50**	3.6	27.5	11	33	-	-	36	-	24	-	-	27	-	
X.K150..,n1= 1800 1/min															**27.5 kNm**
8	**8.11**	222	22.2	530	*)	190	-	*)	290	*)	*)	-	*)	185	**X2K.** /HU 282
9	**8.68**	207	22.7	500	*)	195	-	*)	290	*)	*)	-	*)	190	
10	**10.27**	175	23.2	435	*)	205	-	135	280	*)	115	-	*)	205	
11.2	**10.99**	164	23.8	415	*)	210	-	135	280	*)	115	-	*)	205	
12.5	**12.54**	144	24.0	375	*)	205	-	135	260	*)	130	-	*)	195	
14	**13.43**	134	24.7	360	*)	205	-	135	260	*)	130	-	92	195	
16	**15.34**	117	24.2	310	*)	215	-	150	265	*)	145	-	105	205	**X3K.** /HH 254 /HU 286
18	**16.43**	110	24.5	290	*)	210	-	150	260	*)	150	-	105	200	
20	**19.73**	91	24.7	245	64	200	-	140	240	*)	145	-	110	185	
22.4	**21.13**	85	25.1	230	60	195	-	135	230	*)	140	-	105	175	
25	**26.25**	69	27.2	200	70	190	-	125	220	*)	140	-	100	170	
28	**28.10**	64	27.5	190	72	190	-	125	215	*)	140	-	98	165	
31.5	**32.81**	55	27.5	165	74	185	-	115	205	*)	135	-	91	155	
35.5	**35.13**	51	27.5	155	75	180	-	115	200	*)	135	-	89	155	
40	**41.56**	43	27.5	130	73	165	-	105	180	44	125	-	82	140	
45	**44.50**	40	27.5	120	70	160	-	99	175	43	120	-	78	135	
50	**50.65**	36	27.5	105	66	150	-	91	160	42	110	-	71	125	
56	**54.23**	33	27.5	99	66	150	-	90	160	43	110	-	70	120	
63	**61.88**	29	27.5	88	62	140	-	82	145	43	105	-	64	110	
71	**66.26**	27	27.5	82	62	140	-	81	145	42	105	-	63	110	
80	**79.22**	23	27.5	68	56	125	-	72	130	39	93	-	56	98	
90	**84.83**	21	27.5	64	56	125	-	71	125	39	93	-	55	97	
100	**103.52**	17	27.5	52	56	-	-	69	-	40	-	-	53	-	**X4K.** /HU 292
112	**110.85**	16	27.5	49	56	-	-	68	-	40	-	-	52	-	
125	**129.41**	14	27.5	42	52	-	-	63	-	37	-	-	48	-	
140	**138.56**	13	27.5	39	53	-	-	63	-	38	-	-	48	-	
160	**157.72**	11	27.5	34	49	-	-	57	-	35	-	-	44	-	
180	**168.89**	11	27.5	32	48	-	-	56	-	35	-	-	43	-	
200	**197.26**	9.1	27.5	28	46	-	-	53	-	33	-	-	40	-	
224	**211.23**	8.5	27.5	26	45	-	-	52	-	33	-	-	40	-	
250	**256.39**	7.0	27.5	21	40	-	-	45	-	29	-	-	34	-	
280	**274.54**	6.6	27.5	20	39	-	-	44	-	29	-	-	34	-	
315	**312.49**	5.8	27.5	18	37	-	-	41	-	27	-	-	31	-	
355	**334.61**	5.4	27.5	16	37	-	-	41	-	27	-	-	31	-	
400	**390.84**	4.6	27.5	14	35	-	-	38	-	25	-	-	29	-	
450	**418.50**	4.3	27.5	13	34	-	-	37	-	25	-	-	28	-	

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X.K160..,n_1= 1000 1/min															36 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.38**	157	30.0	500	*)	280	-	405	510	*)	180	-	355	435	**X2K.** /HU 282
7.1	**7.19**	139	30.8	460	*)	280	-	385	490	*)	185	-	340	415	
8	**7.93**	126	31.3	425	110	260	-	345	440	*)	180	-	300	370	
9	**8.94**	112	31.9	380	110	260	-	330	420	*)	180	-	285	355	
10	**9.69**	103	32.1	360	110	235	-	285	370	*)	170	-	250	310	
11.2	**10.92**	92	32.5	320	115	230	-	275	355	*)	165	-	235	295	
12.5	**12.35**	81	32.5	285	130	240	-	280	360	*)	175	-	240	300	**X3K.** /HH 254 /HU 286
14	**13.92**	72	33.0	255	135	245	-	280	360	79	180	-	240	300	
16	**15.53**	64	33.5	235	125	220	-	235	310	77	160	-	205	255	
18	**17.51**	57	36.0	225	125	215	-	230	300	79	160	-	195	250	
20	**20.23**	49	36.0	195	125	220	-	225	295	87	165	-	190	245	
22.4	**22.80**	44	36.0	170	120	210	-	210	280	84	155	-	175	230	
25	**24.77**	40	36.0	160	115	200	-	195	260	82	150	-	165	215	
28	**27.91**	36	36.0	140	115	200	-	190	255	80	150	-	160	205	
31.5	**30.94**	32	36.0	125	110	190	-	175	235	78	140	-	145	190	
35.5	**34.87**	29	36.0	110	105	180	-	165	220	75	135	-	135	180	
40	**39.12**	26	36.0	100	90	155	-	135	185	65	115	-	115	150	
45	**44.08**	23	36.0	89	89	155	-	130	180	64	115	-	110	145	
50	**48.46**	21	36.0	81	79	135	-	115	160	57	100	-	95	125	
56	**54.62**	18	36.0	72	80	135	-	115	160	58	105	-	93	125	
63	**62.05**	16	36.0	63	72	120	-	99	140	52	92	-	81	110	
71	**69.92**	14	36.0	56	72	120	-	98	140	52	92	-	80	110	
80	**81.90**	12	36.0	48	78	-	-	105	-	57	-	-	83	-	**X4K.** /HU 292
90	**92.30**	11	36.0	43	77	-	-	100	-	56	-	-	81	-	
100	**100.25**	10.0	36.0	39	73	-	-	93	-	53	-	-	75	-	
112	**112.98**	8.9	36.0	35	73	-	-	93	-	54	-	-	74	-	
125	**126.75**	7.9	36.0	31	62	-	-	78	-	46	-	-	62	-	
140	**142.85**	7.0	36.0	28	61	-	-	76	-	45	-	-	60	-	
160	**152.40**	6.6	36.0	26	58	-	-	71	-	43	-	-	56	-	
180	**171.76**	5.8	36.0	23	57	-	-	69	-	42	-	-	54	-	
200	**198.63**	5.0	36.0	20	53	-	-	63	-	39	-	-	49	-	
224	**223.85**	4.5	36.0	18	53	-	-	62	-	39	-	-	49	-	
250	**251.14**	4.0	36.0	16	46	-	-	53	-	34	-	-	42	-	
280	**283.03**	3.5	36.0	14	46	-	-	53	-	34	-	-	41	-	
315	**301.95**	3.3	36.0	13	42	-	-	48	-	31	-	-	38	-	
355	**340.30**	2.9	36.0	12	42	-	-	47	-	31	-	-	37	-	
X.K160..,n_1= 1200 1/min															**36 kNm**
6.3	**6.38**	188	30.0	600	*)	290	-	410	550	*)	160	-	355	455	**X2K.** /HU 282
7.1	**7.19**	167	30.8	550	*)	290	-	400	540	*)	170	-	350	450	
8	**7.93**	151	31.3	510	*)	275	-	360	480	*)	175	-	315	405	
9	**8.94**	134	31.9	460	*)	275	-	345	465	*)	180	-	295	385	
10	**9.69**	124	32.1	430	*)	255	-	305	410	*)	175	-	265	340	
11.2	**10.92**	110	32.5	385	*)	250	-	290	395	*)	175	-	250	325	
12.5	**12.35**	97	32.5	340	110	260	-	295	400	*)	190	-	255	335	**X3K.** /HH 254 /HU 286
14	**13.92**	86	33.0	310	120	270	-	295	400	*)	195	-	255	335	
16	**15.53**	77	33.5	280	115	240	-	255	345	*)	180	-	220	285	
18	**17.51**	69	36.0	265	120	240	-	245	335	*)	175	-	210	280	
20	**20.23**	59	36.0	230	125	245	-	240	335	75	180	-	205	275	
22.4	**22.80**	53	36.0	205	120	235	-	225	315	73	175	-	190	255	
25	**24.77**	48	36.0	190	115	225	-	210	295	75	165	-	175	240	
28	**27.91**	43	36.0	170	115	220	-	200	285	76	165	-	170	230	
31.5	**30.94**	39	36.0	150	110	210	-	185	265	77	155	-	155	215	
35.5	**34.87**	34	36.0	135	105	200	-	175	250	74	150	-	145	200	
40	**39.12**	31	36.0	120	91	175	-	145	210	64	130	-	120	170	
45	**44.08**	27	36.0	105	90	170	-	140	205	63	130	-	115	165	
50	**48.46**	25	36.0	98	81	150	-	125	180	58	115	-	100	145	
56	**54.62**	22	36.0	87	82	155	-	120	180	58	115	-	100	140	
63	**62.05**	19	36.0	76	73	135	-	105	155	53	105	-	86	125	
71	**69.92**	17	36.0	68	74	135	-	105	155	53	105	-	85	125	
80	**81.90**	15	36.0	58	81	-	-	110	-	59	-	-	89	-	**X4K.** /HU 292
90	**92.30**	13	36.0	51	79	-	-	105	-	58	-	-	87	-	
100	**100.25**	12	36.0	47	75	-	-	100	-	55	-	-	81	-	
112	**112.98**	11	36.0	42	76	-	-	99	-	55	-	-	80	-	
125	**126.75**	9.5	36.0	37	65	-	-	83	-	48	-	-	67	-	
140	**142.85**	8.4	36.0	33	64	-	-	81	-	47	-	-	65	-	
160	**152.40**	7.9	36.0	31	60	-	-	75	-	44	-	-	60	-	
180	**171.76**	7.0	36.0	28	59	-	-	73	-	43	-	-	58	-	
200	**198.63**	6.0	36.0	24	55	-	-	67	-	41	-	-	53	-	
224	**223.85**	5.4	36.0	21	55	-	-	66	-	41	-	-	52	-	
250	**251.14**	4.8	36.0	19	48	-	-	57	-	35	-	-	45	-	
280	**283.03**	4.2	36.0	17	48	-	-	56	-	35	-	-	44	-	
315	**301.95**	4.0	36.0	16	44	-	-	52	-	33	-	-	40	-	
355	**340.30**	3.5	36.0	14	44	-	-	50	-	32	-	-	39	-	

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X.K160..,n_1= 1500 1/min															36 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.38**	235	30.0	760	*)	255	-	360	540	*)	*)	-	290	440	**X2K.** /HU 282
7.1	**7.19**	209	30.8	690	*)	260	-	360	540	*)	*)	-	295	440	
8	**7.93**	189	31.3	630	*)	275	-	355	520	*)	*)	-	305	425	
9	**8.94**	168	31.9	570	*)	275	-	350	510	*)	150	-	300	415	
10	**9.69**	155	32.1	540	*)	270	-	315	455	*)	165	-	275	375	
11.2	**10.92**	137	32.5	485	*)	265	-	300	435	*)	170	-	260	360	
12.5	**12.35**	121	32.5	430	*)	285	-	315	450	*)	195	-	275	370	**X3K.** /HH 254 /HU 286
14	**13.92**	108	33.0	385	*)	290	-	315	450	*)	205	-	270	370	
16	**15.53**	97	33.5	350	93	265	-	275	390	*)	195	-	240	325	
18	**17.51**	86	36.0	335	96	265	-	265	385	*)	195	-	230	315	
20	**20.23**	74	36.0	290	110	270	-	260	380	*)	200	-	220	310	
22.4	**22.80**	66	36.0	255	110	260	-	240	355	*)	190	-	205	290	
25	**24.77**	61	36.0	235	110	250	-	225	335	*)	185	-	190	270	
28	**27.91**	54	36.0	210	110	245	-	215	325	56	180	-	180	260	
31.5	**30.94**	48	36.0	190	110	235	-	200	300	67	175	-	170	240	
35.5	**34.87**	43	36.0	170	105	225	-	185	285	65	165	-	155	230	
40	**39.12**	38	36.0	150	91	195	-	155	240	58	145	-	130	190	
45	**44.08**	34	36.0	135	89	190	-	150	235	60	145	-	125	185	
50	**48.46**	31	36.0	120	82	170	-	130	205	56	130	-	110	165	
56	**54.62**	27	36.0	110	82	175	-	130	205	57	130	-	105	160	
63	**62.05**	24	36.0	95	75	155	-	115	180	52	115	-	93	140	
71	**69.92**	21	36.0	85	75	155	-	110	180	53	115	-	92	140	
80	**81.90**	18	36.0	72	84	-	-	120	-	61	-	-	98	-	**X4K.** /HU 292
90	**92.30**	16	36.0	64	83	-	-	115	-	60	-	-	94	-	
100	**100.25**	15	36.0	59	79	-	-	110	-	57	-	-	88	-	
112	**112.98**	13	36.0	52	79	-	-	105	-	57	-	-	87	-	
125	**126.75**	12	36.0	47	68	-	-	90	-	49	-	-	72	-	
140	**142.85**	11	36.0	41	67	-	-	87	-	48	-	-	70	-	
160	**152.40**	9.8	36.0	39	63	-	-	81	-	46	-	-	65	-	
180	**171.76**	8.7	36.0	34	62	-	-	79	-	45	-	-	63	-	
200	**198.63**	7.6	36.0	30	58	-	-	72	-	42	-	-	57	-	
224	**223.85**	6.7	36.0	27	58	-	-	71	-	42	-	-	56	-	
250	**251.14**	6.0	36.0	24	50	-	-	61	-	37	-	-	48	-	
280	**283.03**	5.3	36.0	21	50	-	-	60	-	37	-	-	48	-	
315	**301.95**	5.0	36.0	20	47	-	-	55	-	34	-	-	44	-	
355	**340.30**	4.4	36.0	18	46	-	-	54	-	34	-	-	42	-	
X.K160..,n_1= 1800 1/min															**36 kNm**
6.3	**6.38**	282	28.5	860	*)	*)	-	250	510	*)	*)	-	*)	375	**X2K.** /HU 282
7.1	**7.19**	250	29.3	790	*)	*)	-	265	510	*)	*)	-	*)	385	
8	**7.93**	227	29.7	720	*)	230	-	300	500	*)	*)	-	235	400	
9	**8.94**	201	30.3	650	*)	235	-	305	500	*)	*)	-	240	395	
10	**9.69**	186	30.5	610	*)	255	-	310	470	*)	*)	-	260	385	
11.2	**10.92**	165	31.0	550	*)	255	-	305	460	*)	140	-	255	375	
12.5	**12.35**	146	30.8	485	*)	285	-	325	480	*)	170	-	280	395	**X3K.** /HH 254 /HU 286
14	**13.92**	129	31.3	440	*)	295	-	320	480	*)	185	-	280	395	
16	**15.53**	116	31.8	400	*)	280	-	290	425	*)	195	-	250	350	
18	**17.51**	103	34.0	380	*)	280	-	280	415	*)	195	-	240	340	
20	**20.23**	89	36.0	345	*)	285	-	270	410	*)	205	-	230	335	
22.4	**22.80**	79	36.0	310	79	275	-	250	385	*)	195	-	215	310	
25	**24.77**	73	36.0	285	87	265	-	235	360	*)	190	-	200	290	
28	**27.91**	64	36.0	250	89	260	-	225	350	*)	185	-	190	280	
31.5	**30.94**	58	36.0	225	100	250	-	210	330	*)	185	-	180	265	
35.5	**34.87**	52	36.0	200	99	240	-	195	310	*)	175	-	165	250	
40	**39.12**	46	36.0	180	87	210	-	165	260	45	155	-	135	210	
45	**44.08**	41	36.0	160	86	205	-	160	255	48	150	-	130	200	
50	**48.46**	37	36.0	145	80	185	-	140	225	48	135	-	115	180	
56	**54.62**	33	36.0	130	81	185	-	140	220	51	140	-	115	175	
63	**62.05**	29	36.0	115	74	165	-	120	195	49	125	-	99	155	
71	**69.92**	26	36.0	100	74	170	-	120	195	51	125	-	97	155	
80	**81.90**	22	36.0	87	86	-	-	130	-	61	-	-	105	-	**X4K.** /HU 292
90	**92.30**	20	36.0	77	85	-	-	125	-	61	-	-	100	-	
100	**100.25**	18	36.0	71	81	-	-	115	-	58	-	-	94	-	
112	**112.98**	16	36.0	63	81	-	-	115	-	58	-	-	93	-	
125	**126.75**	14	36.0	56	70	-	-	96	-	50	-	-	77	-	
140	**142.85**	13	36.0	50	69	-	-	93	-	49	-	-	75	-	
160	**152.40**	12	36.0	47	65	-	-	87	-	47	-	-	69	-	
180	**171.76**	10	36.0	41	64	-	-	84	-	46	-	-	67	-	
200	**198.63**	9.1	36.0	36	60	-	-	76	-	44	-	-	61	-	
224	**223.85**	8.0	36.0	32	60	-	-	76	-	44	-	-	60	-	
250	**251.14**	7.2	36.0	29	52	-	-	65	-	38	-	-	51	-	
280	**283.03**	6.4	36.0	25	52	-	-	64	-	38	-	-	51	-	
315	**301.95**	6.0	36.0	24	48	-	-	59	-	35	-	-	46	-	
355	**340.30**	5.3	36.0	21	48	-	-	57	-	35	-	-	45	-	

X.K170..,n_1= 1000 1/min															45 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
8	**7.93**	126	37.5	510	*)	275	-	240	355	*)	180	-	180	275	**X2K.** /HU 282
9	**8.92**	112	38.5	460	*)	275	-	235	345	*)	180	-	175	265	
10	**9.86**	101	39.1	425	115	270	-	230	330	*)	185	-	175	255	
11.2	**11.08**	90	39.9	385	120	270	-	220	325	*)	190	-	170	250	
12.5	**12.05**	83	40.1	360	115	245	-	200	290	*)	175	-	155	225	
14	**13.54**	74	40.6	325	120	240	-	195	280	*)	175	-	150	215	
16	**15.35**	65	40.8	290	135	250	-	200	290	76	180	-	160	225	**X3K.** /HH 254 /HU 286
18	**17.25**	58	41.3	260	135	245	-	195	280	80	180	-	155	220	
20	**19.30**	52	41.9	235	130	225	-	180	255	82	170	-	140	200	
22.4	**21.70**	46	45.0	225	125	225	-	175	250	83	165	-	140	195	
25	**25.15**	40	45.0	195	130	230	-	175	250	91	170	-	135	195	
28	**28.26**	35	45.0	175	130	225	-	170	245	91	170	-	135	190	
31.5	**30.78**	32	45.0	160	120	210	-	155	225	85	155	-	120	175	
35.5	**34.60**	29	45.0	140	120	205	-	150	220	84	155	-	120	170	
40	**38.45**	26	45.0	125	115	195	-	140	205	81	145	-	110	160	
45	**43.22**	23	45.0	115	110	190	-	135	200	80	145	-	105	155	
50	**48.62**	21	45.0	100	93	160	-	115	165	67	120	-	88	130	
56	**54.64**	18	45.0	89	92	160	-	110	165	66	120	-	86	125	
63	**60.23**	17	45.0	82	82	140	-	98	145	60	105	-	76	110	
71	**67.69**	15	45.0	73	83	140	-	97	145	60	105	-	75	110	
80	**77.11**	13	45.0	64	74	125	-	86	125	54	95	-	66	97	
90	**86.67**	12	45.0	57	73	125	-	84	125	53	94	-	65	95	
100	**101.79**	9.8	45.0	48	79	-	-	89	-	58	-	-	69	-	**X4K.** /HU 292
112	**114.40**	8.7	45.0	43	79	-	-	89	-	58	-	-	69	-	
125	**124.60**	8.0	45.0	40	75	-	-	84	-	55	-	-	65	-	
140	**140.03**	7.1	45.0	35	74	-	-	82	-	54	-	-	63	-	
160	**157.54**	6.3	45.0	31	65	-	-	71	-	47	-	-	55	-	
180	**177.05**	5.6	45.0	28	63	-	-	70	-	47	-	-	53	-	
200	**189.42**	5.3	45.0	26	59	-	-	64	-	43	-	-	49	-	
224	**212.88**	4.7	45.0	23	59	-	-	64	-	43	-	-	49	-	
250	**246.86**	4.1	45.0	20	54	-	-	59	-	40	-	-	45	-	
280	**277.45**	3.6	45.0	18	54	-	-	58	-	40	-	-	44	-	
315	**312.13**	3.2	45.0	16	47	-	-	50	-	35	-	-	38	-	
355	**350.79**	2.9	45.0	14	47	-	-	50	-	34	-	-	38	-	
400	**375.29**	2.7	45.0	13	44	-	-	46	-	32	-	-	35	-	
450	**421.78**	2.4	45.0	12	43	-	-	46	-	32	-	-	35	-	
X.K170..,n_1= 1200 1/min															**45 kNm**
8	**7.93**	151	37.5	610	*)	285	-	210	375	*)	160	-	*)	275	**X2K.** /HU 282
9	**8.92**	135	38.5	550	*)	285	-	215	370	*)	170	-	145	275	
10	**9.86**	122	39.1	510	*)	290	-	220	360	*)	185	-	155	270	
11.2	**11.08**	108	39.9	465	*)	285	-	215	350	*)	190	-	150	265	
12.5	**12.05**	100	40.1	430	*)	265	-	200	315	*)	180	-	145	240	
14	**13.54**	89	40.6	390	98	260	-	195	310	*)	185	-	140	235	
16	**15.35**	78	40.8	345	115	270	-	205	320	*)	195	-	160	245	**X3K.** /HH 254 /HU 286
18	**17.25**	70	41.3	310	120	270	-	200	310	*)	195	-	155	240	
20	**19.30**	62	41.9	280	125	250	-	185	285	*)	185	-	145	220	
22.4	**21.70**	55	45.0	270	125	250	-	180	280	70	185	-	145	215	
25	**25.15**	48	45.0	235	130	255	-	180	280	80	190	-	140	215	
28	**28.26**	42	45.0	205	130	250	-	175	275	83	185	-	135	210	
31.5	**30.78**	39	45.0	190	120	235	-	160	250	79	175	-	125	195	
35.5	**34.60**	35	45.0	170	120	230	-	155	245	81	170	-	120	190	
40	**38.45**	31	45.0	150	115	215	-	145	230	80	160	-	115	175	
45	**43.22**	28	45.0	135	110	215	-	145	225	79	160	-	110	175	
50	**48.62**	25	45.0	120	95	180	-	120	190	67	135	-	92	145	
56	**54.64**	22	45.0	105	93	175	-	115	185	66	135	-	89	140	
63	**60.23**	20	45.0	98	84	160	-	100	160	60	120	-	79	125	
71	**67.69**	18	45.0	87	85	160	-	100	160	60	120	-	79	125	
80	**77.11**	16	45.0	77	76	140	-	90	145	55	105	-	69	110	
90	**86.67**	14	45.0	68	75	140	-	88	140	54	105	-	68	105	
100	**101.79**	12	45.0	58	82	-	-	94	-	60	-	-	73	-	**X4K.** /HU 292
112	**114.40**	10	45.0	52	82	-	-	94	-	60	-	-	72	-	
125	**124.60**	9.6	45.0	48	78	-	-	89	-	57	-	-	68	-	
140	**140.03**	8.6	45.0	42	77	-	-	87	-	56	-	-	66	-	
160	**157.54**	7.6	45.0	38	67	-	-	75	-	49	-	-	57	-	
180	**177.05**	6.8	45.0	33	66	-	-	73	-	48	-	-	56	-	
200	**189.42**	6.3	45.0	31	61	-	-	68	-	45	-	-	52	-	
224	**212.88**	5.6	45.0	28	61	-	-	67	-	45	-	-	51	-	
250	**246.86**	4.9	45.0	24	57	-	-	62	-	42	-	-	47	-	
280	**277.45**	4.3	45.0	22	56	-	-	61	-	41	-	-	46	-	
315	**312.13**	3.8	45.0	19	49	-	-	53	-	36	-	-	40	-	
355	**350.79**	3.4	45.0	17	49	-	-	52	-	36	-	-	40	-	
400	**375.29**	3.2	45.0	16	46	-	-	49	-	34	-	-	37	-	
450	**421.78**	2.8	45.0	14	46	-	-	48	-	34	-	-	37	-	

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X.K170..,n1= 1500 1/min															45 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		fan	H_2O	H_2O	fan + H_2O		fan	H_2O	H_2O	fan + H_2O	
8	**7.93**	189	37.5	760	*)	250	-	*)	355	*)	*)	-	*)	220	**X2K.** /HU 282
9	**8.92**	168	38.5	690	*)	260	-	*)	360	*)	*)	-	*)	230	
10	**9.86**	152	39.1	640	*)	285	-	170	370	*)	*)	-	*)	260	
11.2	**11.08**	135	39.9	580	*)	290	-	170	370	*)	160	-	*)	265	
12.5	**12.05**	124	40.1	540	*)	280	-	175	340	*)	175	-	*)	255	
14	**13.54**	111	40.6	485	*)	275	-	175	330	*)	180	-	*)	245	
16	**15.35**	98	40.8	430	*)	295	-	205	350	*)	205	-	140	265	**X3K.** /HH 254 /HU 286
18	**17.25**	87	41.3	390	*)	290	-	200	340	*)	205	-	140	260	
20	**19.30**	78	41.9	355	100	275	-	190	315	*)	200	-	140	245	
22.4	**21.70**	69	45.0	335	105	275	-	185	310	*)	200	-	140	240	
25	**25.15**	60	45.0	290	115	280	-	185	315	*)	205	-	145	240	
28	**28.26**	53	45.0	260	120	280	-	180	305	*)	205	-	140	235	
31.5	**30.78**	49	45.0	240	115	260	-	165	280	60	190	-	125	215	
35.5	**34.60**	43	45.0	210	115	255	-	160	275	64	185	-	125	210	
40	**38.45**	39	45.0	190	115	245	-	155	260	71	180	-	120	200	
45	**43.22**	35	45.0	170	110	240	-	150	255	73	180	-	115	195	
50	**48.62**	31	45.0	150	94	200	-	125	210	61	150	-	95	160	
56	**54.64**	27	45.0	135	93	200	-	120	205	63	150	-	92	155	
63	**60.23**	25	45.0	125	85	180	-	105	185	59	135	-	82	140	
71	**67.69**	22	45.0	110	85	180	-	105	185	59	135	-	81	140	
80	**77.11**	19	45.0	96	77	160	-	94	165	54	120	-	72	125	
90	**86.67**	17	45.0	85	76	160	-	92	160	54	120	-	70	120	
100	**101.79**	15	45.0	73	85	-	-	100	-	61	-	-	77	-	**X4K.** /HU 292
112	**114.40**	13	45.0	65	86	-	-	100	-	62	-	-	77	-	
125	**124.60**	12	45.0	59	81	-	-	94	-	59	-	-	72	-	
140	**140.03**	11	45.0	53	80	-	-	92	-	58	-	-	71	-	
160	**157.54**	9.5	45.0	47	70	-	-	80	-	51	-	-	61	-	
180	**177.05**	8.5	45.0	42	69	-	-	78	-	50	-	-	60	-	
200	**189.42**	7.9	45.0	39	64	-	-	72	-	47	-	-	55	-	
224	**212.88**	7.0	45.0	35	64	-	-	71	-	47	-	-	54	-	
250	**246.86**	6.1	45.0	30	60	-	-	66	-	44	-	-	50	-	
280	**277.45**	5.4	45.0	27	59	-	-	64	-	43	-	-	49	-	
315	**312.13**	4.8	45.0	24	51	-	-	56	-	38	-	-	43	-	
355	**350.79**	4.3	45.0	21	51	-	-	56	-	38	-	-	42	-	
400	**375.29**	4.0	45.0	20	48	-	-	52	-	35	-	-	39	-	
450	**421.78**	3.6	45.0	18	48	-	-	52	-	35	-	-	39	-	
X.K170..,n1= 1800 1/min															**45 kNm**
8	**7.93**	227	35.6	870	*)	*)	-	*)	280	*)	*)	-	*)	*)	**X2K.** /HU 282
9	**8.92**	202	36.6	790	*)	*)	-	*)	290	*)	*)	-	*)	*)	
10	**9.86**	183	37.1	730	*)	245	-	*)	340	*)	*)	-	*)	200	
11.2	**11.08**	162	37.7	660	*)	250	-	*)	345	*)	*)	-	*)	210	
12.5	**12.05**	149	38.0	610	*)	265	-	*)	345	*)	*)	-	*)	235	
14	**13.54**	133	38.6	560	*)	270	-	*)	335	*)	150	-	*)	235	
16	**15.35**	117	38.5	490	*)	300	-	175	365	*)	180	-	*)	270	**X3K.** /HH 254 /HU 286
18	**17.25**	104	39.2	445	*)	295	-	175	355	*)	190	-	*)	265	
20	**19.30**	93	39.7	400	*)	290	-	185	340	*)	205	-	125	255	
22.4	**21.70**	83	42.7	385	*)	290	-	180	335	*)	205	-	120	250	
25	**25.15**	72	45.0	350	89	295	-	185	335	*)	210	-	130	255	
28	**28.26**	64	45.0	310	95	295	-	180	325	*)	210	-	130	245	
31.5	**30.78**	58	45.0	285	94	275	-	165	300	*)	195	-	120	225	
35.5	**34.60**	52	45.0	255	98	270	-	160	295	*)	195	-	120	220	
40	**38.45**	47	45.0	230	110	260	-	155	280	*)	190	-	120	210	
45	**43.22**	42	45.0	205	105	255	-	150	275	58	190	-	115	205	
50	**48.62**	37	45.0	180	91	215	-	125	230	49	160	-	95	170	
56	**54.64**	33	45.0	160	90	215	-	120	225	52	155	-	92	170	
63	**60.23**	30	45.0	145	84	190	-	110	200	51	140	-	83	150	
71	**67.69**	27	45.0	130	84	195	-	110	200	54	145	-	83	150	
80	**77.11**	23	45.0	115	77	175	-	97	175	52	130	-	74	135	
90	**86.67**	21	45.0	100	76	170	-	95	175	52	125	-	72	130	
100	**101.79**	18	45.0	87	87	-	-	105	-	62	-	-	81	-	**X4K.** /HU 292
112	**114.40**	16	45.0	78	88	-	-	105	-	63	-	-	80	-	
125	**124.60**	14	45.0	71	84	-	-	99	-	60	-	-	76	-	
140	**140.03**	13	45.0	63	83	-	-	96	-	59	-	-	74	-	
160	**157.54**	11	45.0	56	72	-	-	84	-	52	-	-	64	-	
180	**177.05**	10	45.0	50	71	-	-	82	-	51	-	-	62	-	
200	**189.42**	9.5	45.0	47	66	-	-	75	-	48	-	-	57	-	
224	**212.88**	8.5	45.0	42	66	-	-	75	-	48	-	-	57	-	
250	**246.86**	7.3	45.0	36	62	-	-	69	-	45	-	-	53	-	
280	**277.45**	6.5	45.0	32	61	-	-	68	-	44	-	-	51	-	
315	**312.13**	5.8	45.0	29	53	-	-	59	-	39	-	-	45	-	
355	**350.79**	5.1	45.0	26	53	-	-	58	-	39	-	-	44	-	
400	**375.29**	4.8	45.0	24	50	-	-	55	-	37	-	-	41	-	
450	**421.78**	4.3	45.0	21	50	-	-	54	-	37	-	-	41	-	

X.K180..,n_1= 1000 1/min															58 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
6.3	**6.32**	158	50.1	850	*)	265	420	510	650	*)	*)	355	460	560	**X2K.** /HU 282
7.1	**7.07**	141	51.0	770	*)	285	430	530	670	*)	*)	370	470	580	
8	**8.00**	125	51.7	690	*)	270	355	435	550	*)	*)	305	390	480	
9	**8.96**	112	52.5	630	*)	285	355	435	560	*)	180	305	385	480	
10	**9.77**	102	53.2	590	*)	265	315	385	490	*)	180	270	340	420	
11.2	**10.95**	91	54.2	540	135	275	310	385	490	*)	190	265	340	425	
12.5	**12.57**	80	52.9	455	130	250	275	310	405	*)	170	235	270	340	**X3K.** /HH 254 /HU 286
14	**14.08**	71	54.1	415	135	255	275	310	410	*)	180	230	270	340	
16	**16.17**	62	54.4	365	145	240	245	280	365	93	175	210	240	305	
18	**18.11**	55	58.0	345	150	250	245	280	370	97	185	205	240	310	
20	**19.74**	51	58.0	320	140	230	225	255	335	93	170	185	220	280	
22.4	**22.10**	45	58.0	285	150	240	230	260	345	100	180	190	220	290	
25	**25.55**	39	58.0	245	135	220	200	225	305	92	160	160	190	250	
28	**28.61**	35	58.0	220	135	220	195	225	305	96	165	160	190	250	
31.5	**32.36**	31	58.0	195	120	195	165	190	260	87	145	135	160	215	
35.5	**36.24**	28	58.0	175	125	200	170	195	265	91	150	135	160	215	
40	**38.93**	26	58.0	160	115	180	150	170	235	82	135	120	140	190	
45	**43.60**	23	58.0	145	115	180	150	170	235	83	135	120	140	190	
50	**47.57**	21	58.0	135	100	160	130	150	205	75	120	105	125	165	
56	**53.27**	19	58.0	120	105	165	130	150	210	77	125	105	125	170	
63	**60.90**	16	58.0	105	91	145	110	125	175	67	110	89	105	140	
71	**68.20**	15	58.0	93	93	145	110	125	175	69	110	89	105	145	
80	**79.89**	13	58.0	80	88	-	-	115	-	65	-	-	95	-	**X4K.** /HU 292
90	**89.46**	11	58.0	71	90	-	-	115	-	67	-	-	95	-	
100	**103.42**	9.7	58.0	61	83	-	-	105	-	62	-	-	86	-	
112	**115.81**	8.6	58.0	55	85	-	-	105	-	64	-	-	87	-	
125	**124.41**	8.0	58.0	51	77	-	-	96	-	57	-	-	77	-	
140	**139.32**	7.2	58.0	46	78	-	-	96	-	59	-	-	78	-	
160	**153.68**	6.5	58.0	41	70	-	-	85	-	52	-	-	68	-	
180	**172.10**	5.8	58.0	37	70	-	-	84	-	52	-	-	68	-	
200	**204.90**	4.9	58.0	31	62	-	-	74	-	47	-	-	59	-	
224	**229.46**	4.4	58.0	28	64	-	-	75	-	49	-	-	60	-	
250	**246.49**	4.1	58.0	26	58	-	-	68	-	44	-	-	54	-	
280	**276.03**	3.6	58.0	23	58	-	-	67	-	44	-	-	54	-	
315	**304.49**	3.3	58.0	21	52	-	-	60	-	40	-	-	48	-	
355	**340.98**	2.9	58.0	19	54	-	-	61	-	41	-	-	48	-	
X.K180..,n_1= 1200 1/min															**58 kNm**
6.3	**6.32**	190	50.1	1000	*)	*)	365	485	660	*)	*)	290	415	560	**X2K.** /HU 282
7.1	**7.07**	170	51.0	930	*)	260	395	510	690	*)	*)	315	445	590	
8	**8.00**	150	51.7	830	*)	265	365	455	600	*)	*)	305	405	520	
9	**8.96**	134	52.5	750	*)	280	365	450	610	*)	*)	300	400	520	
10	**9.77**	123	53.2	710	*)	275	330	405	540	*)	*)	275	360	465	
11.2	**10.95**	110	54.2	640	*)	290	325	400	540	*)	185	270	355	465	
12.5	**12.57**	95	52.9	550	*)	265	295	330	450	*)	175	250	285	375	**X3K.** /HH 254 /HU 286
14	**14.08**	85	54.1	500	*)	275	290	325	455	*)	180	245	280	375	
16	**16.17**	74	54.4	440	130	265	265	295	410	*)	190	225	255	340	
18	**18.11**	66	58.0	415	135	275	265	295	410	*)	195	220	255	345	
20	**19.74**	61	58.0	380	130	255	240	270	380	*)	185	200	230	315	
22.4	**22.10**	54	58.0	340	140	265	240	275	390	88	195	200	235	320	
25	**25.55**	47	58.0	295	130	240	210	240	340	80	175	170	200	280	
28	**28.61**	42	58.0	265	135	245	205	235	340	85	180	170	200	280	
31.5	**32.36**	37	58.0	235	120	215	175	200	290	81	160	145	170	240	
35.5	**36.24**	33	58.0	210	125	225	180	205	295	87	165	145	170	240	
40	**38.93**	31	58.0	195	115	200	160	180	265	78	150	125	150	215	
45	**43.60**	28	58.0	175	115	200	155	180	260	80	150	125	150	210	
50	**47.57**	25	58.0	160	105	180	135	155	230	74	135	110	130	185	
56	**53.27**	23	58.0	145	105	185	140	160	235	77	140	110	130	190	
63	**60.90**	20	58.0	125	93	160	115	135	200	68	120	94	110	160	
71	**68.20**	18	58.0	110	95	165	120	135	200	69	125	94	110	160	
80	**79.89**	15	58.0	96	91	-	-	125	-	67	-	-	100	-	**X4K.** /HU 292
90	**89.46**	13	58.0	85	93	-	-	125	-	69	-	-	100	-	
100	**103.42**	12	58.0	74	86	-	-	115	-	64	-	-	92	-	
112	**115.81**	10	58.0	66	88	-	-	115	-	65	-	-	92	-	
125	**124.41**	9.6	58.0	61	79	-	-	100	-	59	-	-	82	-	
140	**139.32**	8.6	58.0	55	81	-	-	105	-	60	-	-	83	-	
160	**153.68**	7.8	58.0	50	72	-	-	90	-	54	-	-	73	-	
180	**172.10**	7.0	58.0	44	73	-	-	90	-	54	-	-	72	-	
200	**204.90**	5.9	58.0	38	65	-	-	78	-	49	-	-	63	-	
224	**229.46**	5.2	58.0	34	67	-	-	80	-	50	-	-	64	-	
250	**246.49**	4.9	58.0	31	61	-	-	72	-	46	-	-	58	-	
280	**276.03**	4.3	58.0	28	61	-	-	71	-	46	-	-	57	-	
315	**304.49**	3.9	58.0	25	55	-	-	64	-	41	-	-	51	-	
355	**340.98**	3.5	58.0	23	56	-	-	65	-	42	-	-	51	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW										
		min⁻¹	kNm	kW	M1 20 °C		H_2O	H_2O	+ H_2O	M1 40 °C		H_2O	H_2O	+ H_2O	
X.K180..,n_1= 1500 1/min															**58 kNm**
6.3	**6.32**	237	50.1	1250	*)	*)	*)	360	640	*)	*)	*)	*)	500	X2K. /HU 282
7.1	**7.07**	212	51.0	1150	*)	*)	*)	395	670	*)	*)	*)	310	540	
8	**8.00**	188	51.7	1050	*)	*)	290	400	610	*)	*)	*)	335	510	
9	**8.96**	167	52.5	940	*)	235	310	420	630	*)	*)	240	355	530	
10	**9.77**	154	53.2	880	*)	265	325	420	600	*)	*)	270	365	510	
11.2	**10.95**	137	54.2	800	*)	280	325	415	600	*)	*)	265	365	510	
12.5	**12.57**	119	52.9	680	*)	270	305	340	500	*)	*)	250	290	415	X3K. /HH 254 /HU 286
14	**14.08**	107	54.1	620	*)	280	300	335	500	*)	165	245	285	415	
16	**16.17**	93	54.4	550	*)	285	280	315	460	*)	195	235	275	380	
18	**18.11**	83	58.0	520	*)	295	280	315	465	*)	200	235	275	385	
20	**19.74**	76	58.0	480	*)	280	255	285	425	*)	190	210	245	350	
22.4	**22.10**	68	58.0	425	120	290	255	290	435	*)	205	215	250	360	
25	**25.55**	59	58.0	370	110	265	220	250	385	*)	190	180	215	315	
28	**28.61**	52	58.0	330	115	265	215	250	380	*)	190	175	210	310	
31.5	**32.36**	46	58.0	290	110	240	190	215	330	*)	175	155	180	270	
35.5	**36.24**	41	58.0	260	120	250	190	220	335	72	180	155	185	275	
40	**38.93**	39	58.0	240	105	225	165	190	300	66	160	135	160	240	
45	**43.60**	34	58.0	215	110	225	165	190	295	69	165	130	155	240	
50	**47.57**	32	58.0	200	100	205	145	170	260	67	150	115	140	210	
56	**53.27**	28	58.0	180	105	210	145	170	265	71	155	115	140	215	
63	**60.90**	25	58.0	155	93	180	125	145	225	65	135	99	120	180	
71	**68.20**	22	58.0	140	95	185	125	145	230	68	135	99	120	185	
80	**79.89**	19	58.0	120	94	-	-	135	-	68	-	-	110	-	X4K. /HU 292
90	**89.46**	17	58.0	105	96	-	-	135	-	70	-	-	110	-	
100	**103.42**	15	58.0	92	89	-	-	120	-	65	-	-	99	-	
112	**115.81**	13	58.0	82	91	-	-	120	-	67	-	-	100	-	
125	**124.41**	12	58.0	77	82	-	-	110	-	60	-	-	89	-	
140	**139.32**	11	58.0	68	84	-	-	110	-	62	-	-	89	-	
160	**153.68**	9.8	58.0	62	75	-	-	97	-	55	-	-	78	-	
180	**172.10**	8.7	58.0	55	75	-	-	96	-	55	-	-	77	-	
200	**204.90**	7.3	58.0	47	68	-	-	84	-	51	-	-	68	-	
224	**229.46**	6.5	58.0	42	70	-	-	86	-	52	-	-	69	-	
250	**246.49**	6.1	58.0	39	64	-	-	77	-	48	-	-	62	-	
280	**276.03**	5.4	58.0	35	64	-	-	77	-	48	-	-	61	-	
315	**304.49**	4.9	58.0	32	57	-	-	68	-	43	-	-	54	-	
355	**340.98**	4.4	58.0	28	59	-	-	69	-	44	-	-	55	-	
X.K180..,n_1= 1800 1/min															**58 kNm**
6.3[1]	**6.32**	285	47.3	1450	*)	*)	*)	*)	520	*)	*)	*)	*)	*)	X2K. /HU 282
7.1[1]	**7.07**	255	48.2	1300	*)	*)	*)	*)	560	*)	*)	*)	*)	385	
8[1]	**8.00**	225	48.8	1200	*)	*)	*)	*)	570	*)	*)	*)	*)	440	
9[1]	**8.96**	201	49.6	1050	*)	*)	*)	315	600	*)	*)	*)	*)	465	
10[1]	**9.77**	184	50.3	1000	*)	*)	255	360	590	*)	*)	*)	300	485	
11.2[1]	**10.95**	164	51.2	910	*)	235	275	380	610	*)	*)	*)	320	500	
12.5	**12.57**	143	50.1	780	*)	235	290	325	520	*)	*)	230	265	425	X3K. /HH 254 /HU 286
14	**14.08**	128	51.1	710	*)	250	285	325	520	*)	*)	220	265	425	
16	**16.17**	111	51.4	620	*)	290	290	325	495	*)	180	240	280	410	
18	**18.11**	99	54.8	590	*)	300	290	325	500	*)	185	235	275	410	
20	**19.74**	91	56.0	550	*)	285	260	295	460	*)	180	210	250	375	
22.4	**22.10**	81	58.0	510	*)	300	265	300	470	*)	195	210	255	385	
25	**25.55**	70	58.0	445	*)	270	225	260	410	*)	180	175	215	335	
28	**28.61**	63	58.0	395	*)	275	220	255	410	*)	190	175	210	330	
31.5	**32.36**	56	58.0	350	95	250	195	225	355	*)	180	155	190	290	
35.5	**36.24**	50	58.0	310	100	260	195	225	365	*)	185	155	190	295	
40	**38.93**	46	58.0	290	93	235	170	200	325	*)	165	135	165	260	
45	**43.60**	41	58.0	260	97	235	170	195	320	*)	170	135	160	255	
50	**47.57**	38	58.0	240	94	215	150	175	285	*)	155	120	145	230	
56	**53.27**	34	58.0	215	99	220	150	175	290	59	160	120	145	230	
63	**60.90**	30	58.0	190	91	195	130	150	245	58	140	105	125	195	
71	**68.20**	26	58.0	165	93	200	130	150	250	61	145	100	125	200	
80	**79.89**	23	58.0	145	95	-	-	140	-	68	-	-	115	-	X4K. /HU 292
90	**89.46**	20	58.0	130	97	-	-	145	-	70	-	-	115	-	
100	**103.42**	17	58.0	110	90	-	-	130	-	65	-	-	105	-	
112	**115.81**	16	58.0	99	92	-	-	130	-	67	-	-	105	-	
125	**124.41**	14	58.0	92	84	-	-	115	-	60	-	-	94	-	
140	**139.32**	13	58.0	82	85	-	-	115	-	62	-	-	94	-	
160	**153.68**	12	58.0	74	77	-	-	100	-	55	-	-	82	-	
180	**172.10**	10	58.0	67	77	-	-	100	-	55	-	-	81	-	
200	**204.90**	8.8	58.0	56	71	-	-	90	-	52	-	-	72	-	
224	**229.46**	7.8	58.0	50	72	-	-	91	-	54	-	-	73	-	
250	**246.49**	7.3	58.0	47	66	-	-	82	-	49	-	-	66	-	
280	**276.03**	6.5	58.0	42	66	-	-	81	-	49	-	-	65	-	
315	**304.49**	5.9	58.0	38	59	-	-	72	-	44	-	-	57	-	
355	**340.98**	5.3	58.0	34	61	-	-	73	-	45	-	-	58	-	

i N	i ex	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
X.K190..,n_1= 1000 1/min															**65 kNm**
7.1	**7.05**	142	55.4	840	*)	290	445	305	475	*)	*)	380	225	370	**X2K.** /HU 282
8	**7.92**	126	56.2	760	*)	295	430	305	470	*)	*)	370	225	370	
9	**8.93**	112	57.3	690	*)	290	375	285	420	*)	185	325	220	335	
10	**10.04**	100	58.4	620	*)	290	360	275	410	*)	185	305	215	330	
11.2	**10.91**	92	59.3	590	*)	285	330	265	385	*)	195	280	210	310	
12.5	**12.26**	82	60.8	540	140	280	315	260	375	*)	195	270	205	300	
14	**14.04**	71	59.2	455	140	260	290	235	340	*)	180	245	180	265	**X3K.** /HH 254 /HU 286
16	**15.77**	63	60.6	415	145	270	290	235	345	*)	190	245	185	270	
18	**18.05**	55	60.8	365	150	255	260	215	310	99	185	215	175	250	
20	**20.29**	49	65.0	345	160	260	260	220	320	105	190	215	180	250	
22.4	**22.04**	45	65.0	320	150	245	235	205	295	99	180	195	165	230	
25	**24.77**	40	65.0	285	150	245	230	205	295	105	180	190	160	235	
28	**28.53**	35	65.0	245	140	230	205	185	270	98	170	170	145	210	
31.5	**32.06**	31	65.0	220	145	235	205	185	270	100	170	165	145	215	
35.5	**36.14**	28	65.0	195	125	205	175	160	235	92	150	140	125	185	
40	**40.61**	25	65.0	175	130	210	175	165	240	96	155	145	130	190	
45	**43.48**	23	65.0	160	120	190	155	145	215	86	140	125	115	165	
50	**48.85**	20	65.0	145	120	190	155	145	215	87	140	125	115	165	
56	**53.11**	19	65.0	135	110	175	140	130	195	80	130	110	105	150	
63	**59.68**	17	65.0	120	110	175	135	130	195	81	130	110	105	150	
71	**68.00**	15	65.0	105	94	150	115	110	165	70	110	92	87	130	
80	**76.41**	13	65.0	93	96	150	115	110	165	72	115	92	88	130	
90	**89.21**	11	65.0	80	94	-	-	105	-	71	-	-	84	-	**X4K.** /HU 292
100	**100.24**	10.0	65.0	71	95	-	-	105	-	71	-	-	84	-	
112	**115.48**	8.7	65.0	62	90	-	-	100	-	67	-	-	78	-	
125	**129.76**	7.7	65.0	55	90	-	-	100	-	67	-	-	78	-	
140	**138.93**	7.2	65.0	51	82	-	-	91	-	62	-	-	71	-	
160	**156.11**	6.4	65.0	46	83	-	-	91	-	62	-	-	71	-	
180	**171.61**	5.8	65.0	42	75	-	-	82	-	56	-	-	63	-	
200	**192.84**	5.2	65.0	37	74	-	-	80	-	55	-	-	62	-	
224	**228.80**	4.4	65.0	31	68	-	-	73	-	51	-	-	57	-	
250	**257.10**	3.9	65.0	28	69	-	-	73	-	52	-	-	57	-	
280	**275.25**	3.6	65.0	26	63	-	-	67	-	48	-	-	52	-	
315	**309.29**	3.2	65.0	23	63	-	-	67	-	47	-	-	52	-	
355	**340.02**	2.9	65.0	21	56	-	-	60	-	43	-	-	46	-	
400	**382.06**	2.6	65.0	19	57	-	-	60	-	43	-	-	46	-	
X.K190..,n_1= 1200 1/min															**65 kNm**
7.1	**7.05**	170	55.4	1000	*)	260	390	*)	475	*)	*)	310	*)	335	**X2K.** /HU 282
8	**7.92**	152	56.2	910	*)	270	395	235	475	*)	*)	320	*)	345	
9	**8.93**	134	57.3	820	*)	285	390	255	450	*)	*)	325	*)	345	
10	**10.04**	120	58.4	750	*)	290	370	250	440	*)	*)	305	*)	340	
11.2	**10.91**	110	59.3	710	*)	295	345	255	420	*)	190	290	195	330	
12.5	**12.26**	98	60.8	640	*)	300	330	250	410	*)	195	275	190	325	
14	**14.04**	85	59.2	550	*)	280	310	230	370	*)	185	260	170	290	**X3K.** /HH 254 /HU 286
16	**15.77**	76	60.6	500	*)	290	305	235	375	*)	195	255	175	290	
18	**18.05**	66	60.8	440	140	280	275	225	345	*)	200	235	175	275	
20	**20.29**	59	65.0	415	145	285	275	225	355	*)	210	230	180	280	
22.4	**22.04**	54	65.0	385	140	270	250	210	325	*)	195	210	165	255	
25	**24.77**	48	65.0	340	145	270	245	210	330	91	200	205	165	255	
28	**28.53**	42	65.0	295	135	255	220	190	300	86	185	180	150	235	
31.5	**32.06**	37	65.0	265	140	255	215	190	300	90	185	175	150	235	
35.5	**36.14**	33	65.0	235	125	225	185	165	260	86	165	150	130	205	
40	**40.61**	30	65.0	210	130	235	185	170	270	92	175	150	135	210	
45	**43.48**	28	65.0	195	120	210	165	150	240	83	155	135	120	185	
50	**48.85**	25	65.0	175	120	210	160	150	240	85	155	130	115	185	
56	**53.11**	23	65.0	160	110	195	145	135	215	80	145	115	105	170	
63	**59.68**	20	65.0	145	110	195	145	135	215	80	145	115	105	170	
71	**68.00**	18	65.0	125	96	165	120	115	185	71	125	97	91	145	
80	**76.41**	16	65.0	110	99	170	120	115	185	72	130	97	92	145	
90	**89.21**	13	65.0	96	98	-	-	115	-	73	-	-	88	-	**X4K.** /HU 292
100	**100.24**	12	65.0	85	98	-	-	115	-	73	-	-	88	-	
112	**115.48**	10	65.0	74	93	-	-	105	-	69	-	-	82	-	
125	**129.76**	9.2	65.0	66	93	-	-	105	-	69	-	-	81	-	
140	**138.93**	8.6	65.0	62	85	-	-	96	-	64	-	-	74	-	
160	**156.11**	7.7	65.0	55	86	-	-	95	-	64	-	-	74	-	
180	**171.61**	7.0	65.0	50	77	-	-	86	-	58	-	-	66	-	
200	**192.84**	6.2	65.0	44	76	-	-	84	-	57	-	-	65	-	
224	**228.80**	5.2	65.0	38	70	-	-	77	-	53	-	-	60	-	
250	**257.10**	4.7	65.0	34	72	-	-	77	-	54	-	-	60	-	
280	**275.25**	4.4	65.0	31	66	-	-	71	-	49	-	-	55	-	
315	**309.29**	3.9	65.0	28	65	-	-	70	-	49	-	-	54	-	
355	**340.02**	3.5	65.0	25	59	-	-	63	-	44	-	-	49	-	
400	**382.06**	3.1	65.0	23	59	-	-	63	-	45	-	-	49	-	

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X.K190..,n_1= 1500 1/min															65 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					📖
		min⁻¹	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	**7.05**	213	55.4	1250	*)	*)	*)	*)	390	*)	*)	*)	*)	*)	**X2K.** /HU 282
8	**7.92**	189	56.2	1150	*)	*)	*)	*)	405	*)	*)	*)	*)	*)	
9	**8.93**	168	57.3	1050	*)	*)	305	*)	430	*)	*)	*)	*)	295	
10	**10.04**	149	58.4	930	*)	245	315	*)	435	*)	*)	240	*)	300	
11.2	**10.91**	137	59.3	880	*)	285	340	*)	445	*)	*)	280	*)	335	
12.5	**12.26**	122	60.8	800	*)	290	330	210	435	*)	*)	265	*)	330	
14	**14.04**	107	59.2	690	*)	285	320	200	400	*)	*)	260	*)	300	**X3K.** /HH 254 /HU 286
16	**15.77**	95	60.6	620	*)	300	315	205	405	*)	175	255	*)	305	
18	**18.05**	83	60.8	550	*)	300	295	220	385	*)	205	250	165	300	
20	**20.29**	74	65.0	520	*)	310	295	225	390	*)	215	245	165	305	
22.4	**22.04**	68	65.0	480	*)	295	265	205	365	*)	205	220	155	280	
25	**24.77**	61	65.0	425	120	295	260	210	365	*)	210	215	155	280	
28	**28.53**	53	65.0	370	115	275	230	190	335	*)	195	190	140	255	
31.5	**32.06**	47	65.0	330	120	280	225	190	335	*)	200	185	145	255	
35.5	**36.14**	42	65.0	290	120	250	195	170	295	*)	180	160	130	225	
40	**40.61**	37	65.0	260	125	260	195	175	300	77	190	160	135	235	
45	**43.48**	34	65.0	245	115	235	175	155	270	70	170	140	120	205	
50	**48.85**	31	65.0	215	115	235	170	155	270	73	170	135	120	205	
56	**53.11**	28	65.0	200	110	215	155	140	245	73	160	125	110	190	
63	**59.68**	25	65.0	180	110	215	150	140	245	75	160	120	110	190	
71	**68.00**	22	65.0	155	97	190	130	120	210	68	140	105	94	160	
80	**76.41**	20	65.0	140	99	190	130	120	210	71	145	105	94	165	
90	**89.21**	17	65.0	120	100	-	-	120	-	74	-	-	93	-	**X4K.** /HU 292
100	**100.24**	15	65.0	105	100	-	-	120	-	74	-	-	93	-	
112	**115.48**	13	65.0	93	96	-	-	110	-	70	-	-	86	-	
125	**129.76**	12	65.0	82	96	-	-	110	-	71	-	-	86	-	
140	**138.93**	11	65.0	77	88	-	-	100	-	65	-	-	78	-	
160	**156.11**	9.6	65.0	68	89	-	-	100	-	65	-	-	78	-	
180	**171.61**	8.7	65.0	62	80	-	-	90	-	59	-	-	70	-	
200	**192.84**	7.8	65.0	55	79	-	-	89	-	58	-	-	68	-	
224	**228.80**	6.6	65.0	47	74	-	-	81	-	55	-	-	63	-	
250	**257.10**	5.8	65.0	42	75	-	-	82	-	56	-	-	64	-	
280	**275.25**	5.4	65.0	39	69	-	-	75	-	51	-	-	58	-	
315	**309.29**	4.8	65.0	35	69	-	-	75	-	51	-	-	58	-	
355	**340.02**	4.4	65.0	32	62	-	-	67	-	46	-	-	51	-	
400	**382.06**	3.9	65.0	28	62	-	-	67	-	47	-	-	52	-	
X.K190..,n_1= 1800 1/min															**65 kNm**
7.1[1]	**7.05**	255	52.4	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K.** /HU 282
8[1]	**7.92**	227	53.1	1300	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
9[1]	**8.93**	202	54.2	1150	*)	*)	*)	*)	345	*)	*)	*)	*)	*)	
10[1]	**10.04**	179	55.2	1050	*)	*)	*)	*)	360	*)	*)	*)	*)	*)	
11.2[1]	**10.91**	165	56.0	1000	*)	*)	270	*)	415	*)	*)	*)	*)	280	
12.5[1]	**12.26**	147	57.5	910	*)	245	280	*)	420	*)	*)	*)	*)	290	
14	**14.04**	128	56.0	780	*)	255	305	*)	400	*)	*)	240	*)	280	**X3K.** /HH 254 /HU 286
16	**15.77**	114	57.4	710	*)	270	300	*)	410	*)	*)	235	*)	285	
18	**18.05**	100	57.5	620	*)	305	305	200	405	*)	190	250	*)	310	
20	**20.29**	89	61.4	590	*)	320	300	205	410	*)	200	245	*)	315	
22.4	**22.04**	82	62.5	550	*)	300	275	190	385	*)	195	220	*)	295	
25	**24.77**	73	65.0	510	*)	305	265	195	385	*)	200	215	135	290	
28	**28.53**	63	65.0	445	*)	285	235	175	350	*)	195	185	120	265	
31.5	**32.06**	56	65.0	395	*)	290	230	180	355	*)	200	180	125	265	
35.5	**36.14**	50	65.0	350	100	265	200	170	315	*)	190	165	120	240	
40	**40.61**	44	65.0	310	110	275	205	170	320	*)	195	165	125	245	
45	**43.48**	41	65.0	290	99	245	180	155	285	*)	175	145	110	220	
50	**48.85**	37	65.0	260	105	250	175	150	285	*)	175	140	110	220	
56	**53.11**	34	65.0	240	100	230	160	140	265	*)	165	130	105	200	
63	**59.68**	30	65.0	215	105	230	155	140	265	63	170	125	105	200	
71	**68.00**	26	65.0	190	95	200	135	125	225	62	150	105	94	175	
80	**76.41**	24	65.0	170	97	205	135	125	230	64	150	105	95	175	
90	**89.21**	20	65.0	145	105	-	-	125	-	74	-	-	97	-	**X4K.** /HU 292
100	**100.24**	18	65.0	130	105	-	-	125	-	74	-	-	96	-	
112	**115.48**	16	65.0	110	97	-	-	115	-	70	-	-	89	-	
125	**129.76**	14	65.0	99	98	-	-	115	-	71	-	-	88	-	
140	**138.93**	13	65.0	92	90	-	-	105	-	65	-	-	81	-	
160	**156.11**	12	65.0	82	90	-	-	105	-	65	-	-	80	-	
180	**171.61**	10	65.0	75	82	-	-	94	-	59	-	-	72	-	
200	**192.84**	9.3	65.0	67	81	-	-	92	-	59	-	-	70	-	
224	**228.80**	7.9	65.0	57	76	-	-	85	-	56	-	-	66	-	
250	**257.10**	7.0	65.0	50	77	-	-	86	-	57	-	-	66	-	
280	**275.25**	6.5	65.0	47	71	-	-	78	-	53	-	-	60	-	
315	**309.29**	5.8	65.0	42	71	-	-	78	-	53	-	-	60	-	
355	**340.02**	5.3	65.0	38	64	-	-	70	-	47	-	-	53	-	
400	**382.06**	4.7	65.0	34	64	-	-	70	-	48	-	-	54	-	

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i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	P_{TH} kW M1 40 °C		H_2O	H_2O	+ H_2O	
		min⁻¹	kNm	kW											
X.K200..,n_1= 1000 1/min															**79 kNm**
6.3	**6.40**	156	56.6	950	*)	325	560	610	800	*)	*)	485	530	680	**X2K.** /HU 282
7.1	**7.26**	138	58.0	860	*)	330	560	600	790	*)	*)	485	530	670	
8	**8.11**	123	59.1	780	*)	345	520	560	720	*)	200	445	490	620	
9	**9.20**	109	60.4	700	*)	345	485	530	700	*)	210	420	465	590	
10	**9.91**	101	60.9	660	*)	340	440	480	620	*)	230	380	425	530	
11.2	**11.24**	89	62.2	600	165	340	420	460	600	*)	230	360	405	510	
12.5	**12.45**	80	66.5	580	155	315	395	400	530	*)	210	340	345	440	**X3K.** /HH 254 /HU 286
14	**14.12**	71	68.9	530	155	310	375	385	510	*)	210	320	330	425	
16	**16.32**	61	72.2	480	175	305	340	350	465	*)	220	290	305	390	
18	**18.50**	54	75.1	440	175	300	325	340	450	*)	220	275	290	375	
20	**20.56**	49	78.1	410	170	290	300	315	425	110	210	255	270	350	
22.4	**23.31**	43	79.0	365	165	280	280	295	400	105	205	235	250	330	
25	**25.72**	39	79.0	335	155	260	255	270	370	100	190	210	230	300	
28	**29.17**	34	79.0	295	155	255	240	260	355	105	190	200	220	290	
31.5	**31.97**	31	79.0	270	150	240	220	235	320	105	180	180	200	260	
35.5	**36.26**	28	79.0	235	145	235	210	225	310	105	175	175	190	255	
40	**39.61**	25	79.0	215	145	230	200	220	300	105	175	165	185	245	
45	**44.92**	22	79.0	190	140	225	190	205	285	100	165	155	170	230	
50	**48.39**	21	79.0	180	135	215	180	195	270	98	160	145	160	220	
56	**54.88**	18	79.0	160	135	215	175	190	270	99	160	140	160	215	
63	**61.95**	16	79.0	140	120	195	155	170	240	90	145	125	140	190	
71	**70.26**	14	79.0	125	120	190	150	165	230	89	145	120	135	185	
80	**79.69**	13	78.0	105	115	-	-	155	-	88	-	-	125	-	**X4K.** /HU 292
90	**90.37**	11	79.0	96	115	-	-	150	-	87	-	-	120	-	
100	**99.70**	10	79.0	87	110	-	-	135	-	81	-	-	110	-	
112	**113.07**	8.8	79.0	77	105	-	-	135	-	80	-	-	110	-	
125	**123.51**	8.1	79.0	70	105	-	-	130	-	81	-	-	105	-	
140	**140.07**	7.1	79.0	62	105	-	-	130	-	79	-	-	105	-	
160	**152.66**	6.6	79.0	57	99	-	-	120	-	74	-	-	96	-	
180	**173.13**	5.8	79.0	50	97	-	-	115	-	73	-	-	93	-	
200	**197.54**	5.1	79.0	44	82	-	-	97	-	62	-	-	77	-	
224	**224.02**	4.5	79.0	39	81	-	-	94	-	61	-	-	75	-	
250	**244.71**	4.1	79.0	36	81	-	-	93	-	61	-	-	74	-	
280	**277.52**	3.6	79.0	32	78	-	-	90	-	59	-	-	71	-	
315	**302.47**	3.3	79.0	29	73	-	-	83	-	56	-	-	66	-	
355	**343.03**	2.9	79.0	26	73	-	-	82	-	55	-	-	65	-	
X.K200..,n_1= 1200 1/min															**79 kNm**
6.3	**6.40**	188	56.6	1150	*)	*)	485	540	790	*)	*)	385	440	650	**X2K.** /HU 282
7.1	**7.26**	165	58.0	1050	*)	270	495	540	780	*)	*)	395	455	650	
8	**8.11**	148	59.1	940	*)	310	490	530	750	*)	*)	415	460	630	
9	**9.20**	130	60.4	840	*)	320	490	530	740	*)	*)	415	460	620	
10	**9.91**	121	60.9	800	*)	350	460	500	680	*)	215	400	440	580	
11.2	**11.24**	107	62.2	720	*)	350	435	480	660	*)	220	375	420	560	
12.5	**12.45**	96	66.5	690	*)	330	415	415	580	*)	195	355	355	480	**X3K.** /HH 254 /HU 286
14	**14.12**	85	68.9	630	*)	325	390	395	560	*)	200	335	340	460	
16	**16.32**	74	72.2	580	150	330	360	370	520	*)	230	310	320	430	
18	**18.50**	65	75.1	530	155	325	345	355	500	*)	230	295	305	415	
20	**20.56**	58	78.1	495	155	315	320	335	470	*)	225	270	285	390	
22.4	**23.31**	51	79.0	440	150	305	295	310	445	*)	215	245	265	365	
25	**25.72**	47	79.0	400	140	285	265	285	410	*)	205	220	240	335	
28	**29.17**	41	79.0	350	145	280	255	270	395	*)	200	210	230	320	
31.5	**31.97**	38	79.0	320	145	265	235	250	360	96	195	195	210	295	
35.5	**36.26**	33	79.0	285	145	260	225	240	350	97	190	185	200	285	
40	**39.61**	30	79.0	260	145	260	215	230	340	99	190	175	195	275	
45	**44.92**	27	79.0	230	140	250	200	220	320	96	185	165	180	260	
50	**48.39**	25	79.0	215	135	240	190	205	305	96	175	155	170	245	
56	**54.88**	22	79.0	190	135	240	185	205	300	98	175	150	170	240	
63	**61.95**	19	79.0	165	125	215	165	180	270	90	160	135	150	215	
71	**70.26**	17	79.0	150	120	215	160	175	260	89	160	130	145	210	
80	**79.69**	15	78.0	130	120	-	-	165	-	91	-	-	135	-	**X4K.** /HU 292
90	**90.37**	13	79.0	115	120	-	-	160	-	90	-	-	130	-	
100	**99.70**	12	79.0	105	110	-	-	145	-	84	-	-	120	-	
112	**113.07**	11	79.0	92	110	-	-	140	-	82	-	-	115	-	
125	**123.51**	9.7	79.0	84	110	-	-	140	-	83	-	-	115	-	
140	**140.07**	8.6	79.0	74	110	-	-	135	-	82	-	-	110	-	
160	**152.66**	7.9	79.0	68	105	-	-	125	-	77	-	-	100	-	
180	**173.13**	6.9	79.0	60	100	-	-	125	-	75	-	-	99	-	
200	**197.54**	6.1	79.0	53	86	-	-	105	-	65	-	-	83	-	
224	**224.02**	5.4	79.0	47	84	-	-	100	-	64	-	-	80	-	
250	**244.71**	4.9	79.0	43	84	-	-	99	-	64	-	-	79	-	
280	**277.52**	4.3	79.0	38	82	-	-	95	-	62	-	-	76	-	
315	**302.47**	4.0	79.0	35	77	-	-	88	-	58	-	-	70	-	
355	**343.03**	3.5	79.0	31	76	-	-	87	-	58	-	-	69	-	

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X.K200..,n_1= 1500 1/min															79 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	56.6	1400	*)	*)	*)	*)	700	*)	*)	*)	*)	510	**X2K.** /HU 282
7.1[1)]	**7.26**	207	58.0	1300	*)	*)	*)	320	710	*)	*)	*)	*)	530	
8[1)]	**8.11**	185	59.1	1150	*)	*)	335	390	700	*)	*)	*)	*)	560	
9[1)]	**9.20**	163	60.4	1050	*)	*)	350	400	700	*)	*)	*)	305	560	
10[1)]	**9.91**	151	60.9	1000	*)	320	435	475	710	*)	*)	360	405	590	
11.2[1)]	**11.24**	133	62.2	900	*)	325	440	475	710	*)	*)	365	410	590	
12.5	**12.45**	120	66.5	870	*)	305	425	410	620	*)	*)	355	335	510	**X3K.** /HH 254 /HU 286
14	**14.12**	106	68.9	790	*)	310	400	390	600	*)	*)	330	320	490	
16	**16.32**	92	72.2	720	*)	350	385	390	580	*)	220	330	335	475	
18	**18.50**	81	75.1	660	*)	345	365	370	560	*)	225	310	315	460	
20	**20.56**	73	78.1	620	*)	340	340	350	530	*)	225	285	295	430	
22.4	**23.31**	64	79.0	550	*)	325	310	325	495	*)	215	260	270	400	
25	**25.72**	58	79.0	500	*)	310	280	295	455	*)	210	230	245	370	
28	**29.17**	51	79.0	440	*)	305	265	280	440	*)	210	215	235	355	
31.5	**31.97**	47	79.0	400	130	295	250	265	405	*)	215	210	225	330	
35.5	**36.26**	41	79.0	355	135	290	240	255	395	*)	210	195	215	320	
40	**39.61**	38	79.0	325	135	285	230	245	385	82	210	185	205	310	
45	**44.92**	33	79.0	285	130	275	215	230	365	79	200	175	190	290	
50	**48.39**	31	79.0	270	130	265	200	220	345	84	195	165	180	275	
56	**54.88**	27	79.0	235	135	265	200	215	340	88	195	160	180	275	
63	**61.95**	24	79.0	210	125	245	175	190	305	84	180	140	160	245	
71	**70.26**	21	79.0	185	120	240	170	185	295	84	175	135	150	235	
80	**79.69**	19	78.0	160	125	-	-	175	-	93	-	-	145	-	**X4K.** /HU 292
90	**90.37**	17	79.0	145	125	-	-	175	-	92	-	-	140	-	
100	**99.70**	15	79.0	130	115	-	-	160	-	86	-	-	130	-	
112	**113.07**	13	79.0	115	115	-	-	155	-	85	-	-	125	-	
125	**123.51**	12	79.0	105	115	-	-	150	-	85	-	-	125	-	
140	**140.07**	11	79.0	93	115	-	-	145	-	84	-	-	120	-	
160	**152.66**	9.8	79.0	85	105	-	-	135	-	79	-	-	110	-	
180	**173.13**	8.7	79.0	75	105	-	-	130	-	78	-	-	105	-	
200	**197.54**	7.6	79.0	66	90	-	-	110	-	68	-	-	89	-	
224	**224.02**	6.7	79.0	59	89	-	-	110	-	67	-	-	87	-	
250	**244.71**	6.1	79.0	54	89	-	-	105	-	67	-	-	86	-	
280	**277.52**	5.4	79.0	47	86	-	-	105	-	65	-	-	82	-	
315	**302.47**	5.0	79.0	43	81	-	-	95	-	61	-	-	76	-	
355	**343.03**	4.4	79.0	38	80	-	-	94	-	60	-	-	74	-	
X.K200..,n_1= 1800 1/min															**79 kNm**
6.3[*)]	**6.40**	281	53.5	1600	*)	*)	*)	*)	445	*)	*)	*)	*)	*)	**X2K.** /HU 282
7.1[*)]	**7.26**	248	54.8	1450	*)	*)	*)	*)	475	*)	*)	*)	*)	*)	
8[*)]	**8.11**	222	55.9	1350	*)	*)	*)	*)	570	*)	*)	*)	*)	365	
9[*)]	**9.20**	196	57.1	1200	*)	*)	*)	*)	580	*)	*)	*)	*)	385	
10[*)]	**9.91**	182	57.6	1150	*)	*)	325	375	680	*)	*)	*)	285	550	
11.2[*)]	**11.24**	160	58.8	1000	*)	*)	335	380	680	*)	*)	*)	300	550	
12.5[1)]	**12.45**	145	62.9	990	*)	*)	370	335	620	*)	*)	285	255	490	**X3K.** /HH 254 /HU 286
14[1)]	**14.12**	127	65.1	900	*)	230	365	340	610	*)	*)	285	255	480	
16	**16.32**	110	68.3	820	*)	335	400	390	610	*)	*)	330	320	500	
18	**18.50**	97	71.0	750	*)	340	375	375	590	*)	195	310	305	480	
20	**20.56**	88	73.6	700	*)	335	345	350	560	*)	200	280	285	450	
22.4	**23.31**	77	75.3	630	*)	325	315	320	520	*)	190	250	260	420	
25	**25.72**	70	77.2	590	*)	310	280	295	485	*)	185	220	235	385	
28	**29.17**	62	78.5	530	*)	305	265	280	465	*)	190	205	225	370	
31.5	**31.97**	56	79.0	480	*)	310	260	275	440	*)	215	215	230	355	
35.5	**36.26**	50	79.0	425	110	305	250	265	425	*)	215	205	220	345	
40	**39.61**	45	79.0	390	115	300	240	255	415	*)	215	195	210	335	
45	**44.92**	40	79.0	345	110	290	220	235	390	*)	205	180	195	315	
50	**48.39**	37	79.0	320	120	280	210	230	375	*)	205	170	190	300	
56	**54.88**	33	79.0	285	125	285	205	225	370	71	205	165	185	295	
63	**61.95**	29	79.0	250	120	260	185	200	330	72	190	145	165	265	
71	**70.26**	26	79.0	220	115	255	175	190	320	73	185	140	155	255	
80	**79.69**	23	74.5	185	130	-	-	190	-	94	-	-	155	-	**X4K.** /HU 292
90	**90.37**	20	79.0	175	130	-	-	185	-	93	-	-	150	-	
100	**99.70**	18	79.0	155	120	-	-	170	-	87	-	-	135	-	
112	**113.07**	16	79.0	140	115	-	-	160	-	85	-	-	130	-	
125	**123.51**	15	79.0	125	120	-	-	160	-	86	-	-	130	-	
140	**140.07**	13	79.0	110	115	-	-	155	-	85	-	-	125	-	
160	**152.66**	12	79.0	100	110	-	-	145	-	80	-	-	115	-	
180	**173.13**	10	79.0	90	110	-	-	140	-	79	-	-	110	-	
200	**197.54**	9.1	79.0	80	93	-	-	120	-	70	-	-	95	-	
224	**224.02**	8.0	79.0	70	92	-	-	115	-	68	-	-	92	-	
250	**244.71**	7.4	79.0	64	92	-	-	115	-	69	-	-	91	-	
280	**277.52**	6.5	79.0	57	89	-	-	110	-	66	-	-	87	-	
315	**302.47**	6.0	79.0	52	84	-	-	100	-	62	-	-	80	-	
355	**343.03**	5.2	79.0	46	83	-	-	99	-	62	-	-	79	-	

X.K210..,n_1= 1000 1/min															90 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
7.1	7.25	138	64.4	950	*)	365	600	355	580	*)	*)	510	250	445	X2K. /HU 282
8	8.21	122	66.1	860	*)	345	570	335	550	*)	*)	490	230	420	
9	9.19	109	67.4	790	*)	355	520	335	520	*)	210	450	250	405	
10	10.40	96	68.5	710	*)	340	470	315	485	*)	205	405	230	380	
11.2	11.22	89	69.1	670	*)	350	445	320	470	*)	235	385	250	375	
12.5	12.71	79	70.5	600	165	335	405	300	445	*)	230	350	235	350	
14	14.10	71	75.8	580	160	320	400	285	420	*)	215	340	215	325	X3K. /HH 254 /HU 286
16	15.96	63	78.2	530	160	315	375	275	410	*)	215	320	210	315	
18	18.48	54	81.8	480	180	310	340	265	380	*)	225	290	210	300	
20	20.92	48	85.0	440	180	305	325	255	375	115	220	275	205	295	
22.4	23.28	43	88.8	415	175	295	305	245	355	115	215	255	195	280	
25	26.36	38	90.0	370	175	290	290	235	350	115	215	240	185	270	
28	29.13	34	90.0	335	160	265	255	215	315	105	195	210	170	245	
31.5	32.97	30	90.0	295	155	255	240	200	300	105	185	195	160	235	
35.5	36.20	28	90.0	270	150	245	220	190	280	105	180	185	150	220	
40	40.99	24	90.0	240	150	240	210	185	275	105	180	175	145	215	
45	44.85	22	90.0	220	145	235	205	180	270	105	175	165	145	210	
50	50.78	20	90.0	190	140	225	195	175	255	105	170	155	135	200	
56	54.79	18	90.0	180	135	215	180	165	245	100	165	145	130	190	
63	62.03	16	90.0	160	135	220	180	165	240	100	165	145	130	190	
71	70.15	14	90.0	140	125	200	160	145	220	92	150	125	115	170	
80	79.42	13	90.0	125	125	195	155	145	215	91	145	120	110	165	
90	90.23	11	88.0	105	120	-	-	135	-	90	-	-	105	-	X4K. /HU 292
100	102.16	9.8	90.0	97	115	-	-	130	-	87	-	-	105	-	
112	112.90	8.9	90.0	87	110	-	-	125	-	83	-	-	97	-	
125	127.82	7.8	90.0	77	110	-	-	120	-	81	-	-	94	-	
140	139.86	7.2	90.0	71	105	-	-	120	-	81	-	-	92	-	
160	158.34	6.3	90.0	62	105	-	-	115	-	79	-	-	90	-	
180	172.87	5.8	90.0	57	99	-	-	110	-	74	-	-	84	-	
200	195.72	5.1	90.0	50	97	-	-	105	-	73	-	-	82	-	
224	223.68	4.5	90.0	45	84	-	-	90	-	63	-	-	70	-	
250	253.24	3.9	90.0	39	82	-	-	88	-	62	-	-	69	-	
280	277.10	3.6	90.0	36	81	-	-	87	-	61	-	-	67	-	
315	313.72	3.2	90.0	32	80	-	-	85	-	61	-	-	66	-	
355	342.51	2.9	90.0	29	74	-	-	79	-	57	-	-	61	-	
400	387.77	2.6	90.0	26	73	-	-	77	-	56	-	-	60	-	
X.K210..,n_1= 1200 1/min															90 kNm
7.1	7.25	166	64.4	1150	*)	305	520	*)	560	*)	*)	420	*)	380	X2K. /HU 282
8	8.21	146	66.1	1050	*)	285	495	*)	530	*)	*)	395	*)	355	
9	9.19	131	67.4	940	*)	320	495	255	520	*)	*)	415	*)	385	
10	10.40	115	68.5	850	*)	315	470	250	500	*)	*)	400	*)	370	
11.2	11.22	107	69.1	800	*)	360	465	300	510	*)	225	400	220	395	
12.5	12.71	94	70.5	720	*)	345	425	280	475	*)	220	365	205	370	
14	14.10	85	75.8	700	*)	335	420	265	450	*)	205	360	185	345	X3K. /HH 254 /HU 286
16	15.96	75	78.2	640	*)	335	395	260	440	*)	210	335	180	335	
18	18.48	65	81.8	580	155	335	365	265	420	*)	235	310	200	330	
20	20.92	57	85.0	530	160	330	345	260	410	*)	235	295	195	320	
22.4	23.28	52	88.8	495	160	325	320	245	395	*)	230	270	190	305	
25	26.36	46	90.0	445	160	320	305	240	385	*)	230	255	185	300	
28	29.13	41	90.0	400	145	290	270	215	350	*)	210	225	160	270	
31.5	32.97	36	90.0	355	145	280	250	205	330	*)	200	205	155	255	
35.5	36.20	33	90.0	325	150	270	235	200	315	99	200	195	155	245	
40	40.99	29	90.0	285	150	265	225	190	305	100	195	185	150	240	
45	44.85	27	90.0	260	145	265	215	185	300	100	195	180	145	235	
50	50.78	24	90.0	230	140	255	205	180	285	98	185	165	140	220	
56	54.79	22	90.0	215	140	245	190	170	270	98	180	155	135	210	
63	62.03	19	90.0	190	140	245	190	170	270	100	180	155	130	210	
71	70.15	17	90.0	170	125	220	165	150	245	92	165	135	120	190	
80	79.42	15	90.0	150	125	215	160	150	240	90	160	130	115	185	
90	90.23	13	88.0	130	125	-	-	145	-	92	-	-	110	-	X4K. /HU 292
100	102.16	12	90.0	115	120	-	-	140	-	90	-	-	110	-	
112	112.90	11	90.0	105	115	-	-	130	-	86	-	-	100	-	
125	127.82	9.4	90.0	93	110	-	-	125	-	84	-	-	99	-	
140	139.86	8.6	90.0	85	110	-	-	125	-	83	-	-	97	-	
160	158.34	7.6	90.0	75	110	-	-	120	-	82	-	-	95	-	
180	172.87	6.9	90.0	69	105	-	-	115	-	77	-	-	88	-	
200	195.72	6.1	90.0	61	100	-	-	110	-	76	-	-	86	-	
224	223.68	5.4	90.0	54	87	-	-	95	-	66	-	-	74	-	
250	253.24	4.7	90.0	47	86	-	-	93	-	65	-	-	72	-	
280	277.10	4.3	90.0	43	85	-	-	91	-	64	-	-	71	-	
315	313.72	3.8	90.0	38	83	-	-	90	-	63	-	-	70	-	
355	342.51	3.5	90.0	35	78	-	-	83	-	59	-	-	65	-	
400	387.77	3.1	90.0	31	77	-	-	81	-	58	-	-	63	-	

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X.K210..,n_1= 1500 1/min															90 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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	*)	*)	*)	*)	*)	**X2K.** /HU 282
8[1)]	**8.21**	183	66.1	1300	*)	*)	*)	*)	385	*)	*)	*)	*)	*)	
9[1)]	**9.19**	163	67.4	1200	*)	*)	335	*)	440	*)	*)	*)	*)	*)	
10[1)]	**10.40**	144	68.5	1050	*)	*)	330	*)	430	*)	*)	*)	*)	*)	
11.2[1)]	**11.22**	134	69.1	1000	*)	330	440	*)	510	*)	*)	360	*)	370	
12.5[1)]	**12.71**	118	70.5	900	*)	325	425	*)	495	*)	*)	350	*)	360	
14	**14.10**	106	75.8	870	*)	310	430	*)	470	*)	*)	355	*)	330	**X3K.** /HH 254 /HU 286
16	**15.96**	94	78.2	800	*)	315	400	*)	455	*)	*)	330	*)	325	
18	**18.48**	81	81.8	720	*)	360	390	245	460	*)	230	335	*)	355	
20	**20.92**	72	85.0	660	*)	355	370	240	450	*)	230	315	170	345	
22.4	**23.28**	64	88.8	620	*)	345	340	235	430	*)	230	285	165	330	
25	**26.36**	57	90.0	560	*)	340	325	230	420	*)	235	270	160	320	
28	**29.13**	51	90.0	500	*)	315	280	205	380	*)	215	230	140	290	
31.5	**32.97**	45	90.0	445	110	300	260	195	360	*)	210	215	135	275	
35.5	**36.20**	41	90.0	405	135	300	255	200	350	*)	215	210	150	270	
40	**40.99**	37	90.0	355	135	295	240	195	340	*)	215	200	150	265	
45	**44.85**	33	90.0	325	140	290	230	190	335	85	210	190	145	260	
50	**50.78**	30	90.0	290	135	280	215	180	320	82	205	175	140	245	
56	**54.79**	27	90.0	270	135	270	205	175	305	87	200	165	135	235	
63	**62.03**	24	90.0	240	135	275	200	175	305	91	200	160	135	235	
71	**70.15**	21	90.0	210	125	250	180	155	275	86	185	145	120	215	
80	**79.42**	19	90.0	185	125	245	170	155	270	87	180	135	115	205	
90	**90.23**	17	88.0	160	130	-	-	150	-	95	-	-	120	-	**X4K.** /HU 292
100	**102.16**	15	90.0	145	125	-	-	145	-	92	-	-	115	-	
112	**112.90**	13	90.0	130	120	-	-	140	-	88	-	-	110	-	
125	**127.82**	12	90.0	115	115	-	-	135	-	86	-	-	105	-	
140	**139.86**	11	90.0	105	115	-	-	130	-	86	-	-	100	-	
160	**158.34**	9.5	90.0	93	115	-	-	130	-	84	-	-	100	-	
180	**172.87**	8.7	90.0	86	105	-	-	120	-	79	-	-	93	-	
200	**195.72**	7.7	90.0	76	105	-	-	115	-	78	-	-	91	-	
224	**223.68**	6.7	90.0	67	92	-	-	100	-	69	-	-	79	-	
250	**253.24**	5.9	90.0	59	90	-	-	99	-	68	-	-	77	-	
280	**277.10**	5.4	90.0	54	89	-	-	97	-	67	-	-	75	-	
315	**313.72**	4.8	90.0	48	88	-	-	95	-	66	-	-	74	-	
355	**342.51**	4.4	90.0	44	82	-	-	89	-	62	-	-	69	-	
400	**387.77**	3.9	90.0	39	81	-	-	87	-	61	-	-	67	-	
X.K210..,n_1= 1800 1/min															**90 kNm**
7.1[*)]	**7.25**	248	60.9	1600	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	**X2K.** /HU 282
8[*)]	**8.21**	219	62.5	1450	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
9[*)]	**9.19**	196	63.7	1350	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
10[*)]	**10.40**	173	64.8	1200	*)	*)	*)	*)	*)	*)	*)	*)	*)	*)	
11.2[*)]	**11.22**	160	65.3	1150	*)	*)	325	*)	455	*)	*)	*)	*)	*)	
12.5[*)]	**12.71**	142	66.6	1000	*)	*)	325	*)	445	*)	*)	*)	*)	275	
14[1)]	**14.10**	128	71.7	990	*)	*)	370	*)	430	*)	*)	285	*)	255	**X3K.** /HH 254 /HU 286
16[1)]	**15.96**	113	73.9	900	*)	240	370	*)	430	*)	*)	285	*)	265	
18	**18.48**	97	77.3	820	*)	345	400	205	475	*)	*)	335	*)	345	
20	**20.92**	86	80.4	750	*)	350	380	205	465	*)	200	310	*)	340	
22.4	**23.28**	77	83.6	700	*)	345	350	200	445	*)	205	280	*)	330	
25	**26.36**	68	85.1	630	*)	345	330	195	435	*)	210	265	*)	325	
28	**29.13**	62	87.4	590	*)	315	285	170	395	*)	190	220	*)	295	
31.5	**32.97**	55	88.6	520	*)	305	260	165	375	*)	190	200	*)	275	
35.5	**36.20**	50	90.0	485	*)	315	265	195	375	*)	220	215	140	285	
40	**40.99**	44	90.0	430	115	310	250	190	365	*)	220	205	135	280	
45	**44.85**	40	90.0	390	120	305	240	190	360	*)	220	195	135	275	
50	**50.78**	35	90.0	345	115	295	225	180	340	*)	210	180	125	260	
56	**54.79**	33	90.0	325	125	290	215	175	330	*)	210	175	130	250	
63	**62.03**	29	90.0	285	130	290	210	175	330	74	210	170	130	250	
71	**70.15**	26	90.0	255	120	265	185	160	300	74	195	150	120	225	
80	**79.42**	23	90.0	225	120	260	180	155	290	75	190	140	115	220	
90	**90.23**	20	84.0	185	130	-	-	160	-	96	-	-	125	-	**X4K.** /HU 292
100	**102.16**	18	90.0	175	130	-	-	155	-	93	-	-	120	-	
112	**112.90**	16	90.0	155	120	-	-	145	-	89	-	-	110	-	
125	**127.82**	14	90.0	140	120	-	-	140	-	87	-	-	110	-	
140	**139.86**	13	90.0	125	120	-	-	135	-	87	-	-	105	-	
160	**158.34**	11	90.0	110	115	-	-	135	-	85	-	-	105	-	
180	**172.87**	10	90.0	105	110	-	-	125	-	81	-	-	97	-	
200	**195.72**	9.2	90.0	91	110	-	-	120	-	79	-	-	94	-	
224	**223.68**	8.0	90.0	80	95	-	-	105	-	71	-	-	83	-	
250	**253.24**	7.1	90.0	71	94	-	-	105	-	70	-	-	80	-	
280	**277.10**	6.5	90.0	65	92	-	-	100	-	69	-	-	79	-	
315	**313.72**	5.7	90.0	57	91	-	-	100	-	68	-	-	77	-	
355	**342.51**	5.3	90.0	52	85	-	-	93	-	64	-	-	72	-	
400	**387.77**	4.6	90.0	46	84	-	-	91	-	62	-	-	70	-	

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X.K220..,n_1= 1000 1/min															112 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.40**	156	84.4	1400	*)	*)	-	650	920	*)	*)	-	540	750	**X2K.** /HU 284
7.1	**7.07**	141	87.6	1350	*)	345	-	650	920	*)	*)	-	540	750	
8	**8.11**	123	90.4	1200	*)	*)	-	560	790	*)	*)	-	455	640	
9	**8.95**	112	93.2	1100	*)	285	-	550	780	*)	*)	-	445	630	
10	**9.91**	101	94.6	1050	*)	430	-	610	800	*)	280	-	530	680	
11.2	**10.94**	91	98.0	970	*)	430	-	590	780	*)	285	-	510	660	
12.5	**12.56**	80	92.4	800	*)	410	-	550	710	*)	265	-	470	600	**X3K.** /HH 256 /HU 288
14	**13.86**	72	97.0	760	*)	395	-	510	680	*)	255	-	440	570	
16	**16.15**	62	100	670	210	395	-	475	620	*)	275	-	410	520	
18	**17.82**	56	107	650	205	380	-	450	600	*)	265	-	390	500	
20	**20.64**	48	112	590	220	390	-	440	590	*)	280	-	375	485	
22.4	**22.78**	44	112	530	220	390	-	430	570	*)	280	-	365	475	
25	**25.28**	40	112	480	200	350	-	375	510	*)	250	-	315	415	
28	**27.90**	36	112	435	210	355	-	370	510	130	255	-	315	415	
31.5	**32.02**	31	112	380	205	330	-	335	450	140	245	-	280	370	
35.5	**35.34**	28	112	345	200	325	-	325	440	140	240	-	270	360	
40	**39.55**	25	112	305	185	295	-	290	395	130	220	-	240	320	
45	**43.65**	23	112	280	180	295	-	280	385	130	220	-	235	315	
50	**48.32**	21	112	255	175	280	-	260	360	130	210	-	215	290	
56	**53.33**	19	112	230	170	275	-	250	350	125	205	-	210	285	
63	**61.86**	16	112	200	150	240	-	215	300	110	180	-	180	240	
71	**68.27**	15	112	180	150	235	-	210	290	110	180	-	170	235	
80	**81.61**	12	112	150	160	-	-	210	-	120	-	-	175	-	**X4K.** /HH 260 /HU 294
90	**90.07**	11	112	135	155	-	-	205	-	115	-	-	170	-	
100	**99.97**	10	112	125	150	-	-	190	-	110	-	-	160	-	
112	**110.34**	9.1	112	110	145	-	-	185	-	105	-	-	150	-	
125	**123.47**	8.1	112	99	140	-	-	175	-	105	-	-	140	-	
140	**136.27**	7.3	112	90	135	-	-	165	-	100	-	-	135	-	
160	**156.11**	6.4	112	79	120	-	-	145	-	90	-	-	120	-	
180	**172.29**	5.8	112	71	115	-	-	145	-	88	-	-	115	-	
200	**198.08**	5.0	112	63	110	-	-	130	-	84	-	-	105	-	
224	**218.61**	4.6	112	57	105	-	-	125	-	81	-	-	100	-	
250	**244.62**	4.1	112	51	105	-	-	120	-	79	-	-	98	-	
280	**269.99**	3.7	112	46	100	-	-	115	-	76	-	-	94	-	
315	**309.29**	3.2	112	40	90	-	-	105	-	69	-	-	83	-	
355	**341.36**	2.9	112	36	89	-	-	100	-	68	-	-	81	-	
X.K220..,n_1= 1200 1/min															**112 kNm**
6.3	**6.40**	188	84.4	1700	*)	*)	-	*)	800	*)	*)	-	*)	590	**X2K.** /HU 284
7.1	**7.07**	170	87.6	1600	*)	*)	-	435	810	*)	*)	-	*)	600	
8	**8.11**	148	90.4	1450	*)	*)	-	*)	680	*)	*)	-	*)	500	
9	**8.95**	134	93.2	1350	*)	*)	-	360	690	*)	*)	-	*)	510	
10	**9.91**	121	94.6	1250	*)	405	-	580	840	*)	*)	-	500	700	
11.2	**10.94**	110	98.0	1150	*)	405	-	570	830	*)	*)	-	485	680	
12.5	**12.56**	96	92.4	960	*)	415	-	560	780	*)	240	-	480	650	**X3K.** /HH 256 /HU 286
14	**13.86**	87	97.0	910	*)	400	-	520	740	*)	235	-	450	610	
16	**16.15**	74	100	810	*)	425	-	500	690	*)	280	-	430	580	
18	**17.82**	67	107	780	*)	410	-	475	660	*)	270	-	405	550	
20	**20.64**	58	112	710	185	420	-	460	650	*)	290	-	395	540	
22.4	**22.78**	53	112	640	190	420	-	445	640	*)	290	-	380	520	
25	**25.28**	47	112	580	170	380	-	390	560	*)	265	-	330	460	
28	**27.90**	43	112	520	185	385	-	390	560	*)	270	-	325	460	
31.5	**32.02**	37	112	455	200	365	-	355	500	125	270	-	300	415	
35.5	**35.34**	34	112	410	200	360	-	340	490	125	265	-	290	400	
40	**39.55**	30	112	370	180	330	-	305	440	115	240	-	255	360	
45	**43.65**	27	112	335	180	325	-	295	430	120	240	-	245	350	
50	**48.32**	25	112	305	175	310	-	275	400	120	230	-	230	325	
56	**53.33**	23	112	275	175	305	-	265	390	120	225	-	220	315	
63	**61.86**	19	112	240	155	270	-	230	335	110	200	-	190	270	
71	**68.27**	18	112	215	150	265	-	220	330	110	200	-	185	265	
80	**81.61**	15	112	180	165	-	-	225	-	120	-	-	190	-	**X4K.** /HH 260 /HU 294
90	**90.07**	13	112	165	160	-	-	220	-	120	-	-	180	-	
100	**99.97**	12	112	145	155	-	-	205	-	115	-	-	170	-	
112	**110.34**	11	112	135	150	-	-	195	-	110	-	-	160	-	
125	**123.47**	9.7	112	120	145	-	-	185	-	105	-	-	150	-	
140	**136.27**	8.8	112	110	140	-	-	175	-	105	-	-	145	-	
160	**156.11**	7.7	112	94	125	-	-	155	-	92	-	-	125	-	
180	**172.29**	7.0	112	86	120	-	-	150	-	91	-	-	125	-	
200	**198.08**	6.1	112	75	115	-	-	140	-	87	-	-	115	-	
224	**218.61**	5.5	112	68	110	-	-	135	-	84	-	-	110	-	
250	**244.62**	4.9	112	61	110	-	-	130	-	82	-	-	105	-	
280	**269.99**	4.4	112	55	105	-	-	125	-	79	-	-	100	-	
315	**309.29**	3.9	112	48	94	-	-	110	-	71	-	-	88	-	
355	**341.36**	3.5	112	44	93	-	-	110	-	70	-	-	86	-	

22758666/EN – 03/2017

X.K220..,n_1= 1500 1/min															112 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[1)]	**6.40**	234	84.4	2100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
7.1[1)]	**7.07**	212	87.6	2000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1)]	**8.11**	185	90.4	1800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1)]	**8.95**	168	93.2	1650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[1)]	**9.91**	151	94.6	1550	*)	*)	-	420	780	*)	*)	-	*)	600	
11.2[1)]	**10.94**	137	98.0	1450	*)	*)	-	430	780	*)	*)	-	*)	600	
12.5	**12.56**	119	92.4	1200	*)	365	-	540	830	*)	*)	-	440	680	**X3K.** /HH 256 /HU 288
14	**13.86**	108	97.0	1150	*)	355	-	500	790	*)	*)	-	405	640	
16	**16.15**	93	100	1000	*)	435	-	520	770	*)	*)	-	435	630	
18	**17.82**	84	107	980	*)	420	-	485	730	*)	*)	-	405	600	
20	**20.64**	73	112	880	*)	440	-	475	720	*)	270	-	400	590	
22.4	**22.78**	66	112	800	*)	440	-	455	700	*)	275	-	385	570	
25	**25.28**	59	112	720	*)	400	-	400	620	*)	250	-	330	500	
28	**27.90**	54	112	650	*)	405	-	395	620	*)	265	-	325	500	
31.5	**32.02**	47	112	570	170	400	-	375	570	*)	290	-	315	465	
35.5	**35.34**	42	112	520	175	395	-	360	560	*)	285	-	305	450	
40	**39.55**	38	112	460	160	365	-	320	495	*)	260	-	270	400	
45	**43.65**	34	112	415	160	360	-	310	485	*)	260	-	260	390	
50	**48.32**	31	112	380	165	345	-	290	455	100	250	-	245	370	
56	**53.33**	28	112	345	165	340	-	285	445	105	250	-	235	360	
63	**61.86**	24	112	295	155	300	-	245	385	99	225	-	200	310	
71	**68.27**	22	112	270	150	295	-	235	375	100	220	-	195	300	
80	**81.61**	18	112	225	170	-	-	245	-	125	-	-	205	-	**X4K.** /HH 260 /HU 294
90	**90.07**	17	112	205	165	-	-	240	-	120	-	-	195	-	
100	**99.97**	15	112	185	160	-	-	220	-	115	-	-	185	-	
112	**110.34**	14	112	165	155	-	-	210	-	110	-	-	175	-	
125	**123.47**	12	112	150	150	-	-	200	-	110	-	-	165	-	
140	**136.27**	11	112	135	145	-	-	190	-	105	-	-	155	-	
160	**156.11**	9.6	112	120	130	-	-	170	-	95	-	-	135	-	
180	**172.29**	8.7	112	105	125	-	-	165	-	93	-	-	130	-	
200	**198.08**	7.6	112	94	120	-	-	150	-	91	-	-	125	-	
224	**218.61**	6.9	112	85	115	-	-	145	-	88	-	-	120	-	
250	**244.62**	6.1	112	76	115	-	-	140	-	85	-	-	110	-	
280	**269.99**	5.6	112	69	110	-	-	135	-	83	-	-	110	-	
315	**309.29**	4.8	112	60	99	-	-	120	-	74	-	-	95	-	
355	**341.36**	4.4	112	55	98	-	-	115	-	73	-	-	93	-	
X.K220..,n_1= 1800 1/min															**112 kNm**
6.3[*)]	**6.40**	281	79.8	2400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
7.1[*)]	**7.07**	255	82.8	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	**8.11**	222	85.5	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	**8.95**	201	88.1	1900	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*)]	**9.91**	182	89.5	1750	*)	*)	-	*)	600	*)	*)	-	*)	*)	
11.2[*)]	**10.94**	165	92.7	1650	*)	*)	-	*)	610	*)	*)	-	*)	*)	
12.5[1)]	**12.56**	143	87.4	1350	*)	*)	-	385	770	*)	*)	-	*)	590	**X3K.** /HH 256 /HU 288
14[1)]	**13.86**	130	91.7	1300	*)	*)	-	375	750	*)	*)	-	*)	570	
16	**16.15**	111	95.1	1150	*)	385	-	495	800	*)	*)	-	400	650	
18	**17.82**	101	101	1100	*)	375	-	460	760	*)	*)	-	365	620	
20	**20.64**	87	105	1000	*)	410	-	455	750	*)	*)	-	360	600	
22.4	**22.78**	79	109	930	*)	415	-	440	730	*)	*)	-	345	590	
25	**25.28**	71	112	860	*)	380	-	375	650	*)	*)	-	290	510	
28	**27.90**	65	112	780	*)	395	-	380	650	*)	220	-	295	510	
31.5	**32.02**	56	112	680	*)	415	-	385	620	*)	285	-	325	500	
35.5	**35.34**	51	112	620	*)	410	-	370	600	*)	285	-	310	485	
40	**39.55**	46	112	550	*)	375	-	330	540	*)	265	-	275	430	
45	**43.65**	41	112	500	125	370	-	315	520	*)	260	-	260	415	
50	**48.32**	37	112	455	145	365	-	300	495	*)	260	-	250	395	
56	**53.33**	34	112	415	145	360	-	290	480	*)	255	-	240	385	
63	**61.86**	29	112	355	140	320	-	255	415	*)	235	-	210	335	
71	**68.27**	26	112	325	145	315	-	245	405	82	230	-	200	325	
80	**81.61**	22	112	270	170	-	-	260	-	120	-	-	215	-	**X4K.** /HH 260 /HU 294
90	**90.07**	20	112	245	170	-	-	255	-	120	-	-	210	-	
100	**99.97**	18	112	220	160	-	-	235	-	115	-	-	195	-	
112	**110.34**	16	112	200	155	-	-	225	-	110	-	-	185	-	
125	**123.47**	15	112	180	150	-	-	210	-	110	-	-	175	-	
140	**136.27**	13	112	160	145	-	-	200	-	105	-	-	165	-	
160	**156.11**	12	112	140	130	-	-	175	-	95	-	-	145	-	
180	**172.29**	10	112	130	130	-	-	175	-	93	-	-	140	-	
200	**198.08**	9.1	112	115	125	-	-	160	-	93	-	-	130	-	
224	**218.61**	8.2	112	100	120	-	-	155	-	90	-	-	125	-	
250	**244.62**	7.4	112	91	115	-	-	150	-	87	-	-	120	-	
280	**269.99**	6.7	112	83	115	-	-	140	-	84	-	-	115	-	
315	**309.29**	5.8	112	72	105	-	-	125	-	76	-	-	100	-	
355	**341.36**	5.3	112	65	100	-	-	125	-	75	-	-	98	-	

X.K230..,n_1= 1000 1/min — **131 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	M1 40 °C		H_2O	H_2O	+ H_2O	
7.1	**7.25**	138	95.5	1400	*)	*)	-	*)	620	*)	*)	-	*)	420	**X2K.** /HU 284
8	**7.96**	126	99.0	1350	*)	350	-	*)	620	*)	*)	-	*)	430	
9	**9.19**	109	102	1200	*)	*)	-	*)	530	*)	*)	-	*)	355	
10	**10.09**	99	106	1150	*)	295	-	*)	530	*)	*)	-	*)	355	
11.2	**11.22**	89	108	1050	*)	435	-	395	610	*)	290	-	300	470	
12.5	**12.32**	81	111	970	*)	435	-	385	600	*)	290	-	295	465	
14	**14.22**	70	104	790	205	420	-	370	550	*)	280	-	280	430	**X3K.** /HH 256 /HU 288
16	**15.61**	64	110	760	210	420	-	365	550	*)	280	-	275	425	
18	**18.29**	55	113	670	230	405	-	345	500	*)	290	-	270	395	
20	**20.08**	50	119	640	220	390	-	330	485	*)	280	-	260	380	
22.4	**23.37**	43	126	580	220	385	-	320	470	*)	280	-	250	365	
25	**25.66**	39	131	550	225	385	-	315	465	140	280	-	245	365	
28	**28.63**	35	131	495	210	360	-	285	430	135	260	-	220	330	
31.5	**31.43**	32	131	450	210	355	-	280	420	135	255	-	220	325	
35.5	**36.26**	28	131	390	210	340	-	265	390	150	250	-	210	305	
40	**39.82**	25	131	355	205	335	-	260	385	150	250	-	205	300	
45	**44.78**	22	131	315	190	305	-	235	345	135	225	-	185	270	
50	**49.17**	20	131	290	185	300	-	230	340	135	225	-	180	265	
56	**54.71**	18	131	260	175	280	-	210	315	130	210	-	165	245	
63	**60.08**	17	131	240	175	275	-	205	305	125	205	-	165	240	
71	**70.05**	14	131	205	155	245	-	185	270	115	185	-	145	210	
80	**76.91**	13	131	185	155	240	-	180	265	115	180	-	140	205	
90	**92.41**	11	131	155	160	-	-	185	-	120	-	-	145	-	**X4K.** /HH 260 /HU 294
100	**101.47**	9.9	131	140	160	-	-	180	-	120	-	-	145	-	
112	**113.21**	8.8	131	125	150	-	-	165	-	110	-	-	130	-	
125	**124.31**	8.0	131	115	145	-	-	165	-	110	-	-	130	-	
140	**139.81**	7.2	131	105	140	-	-	155	-	105	-	-	125	-	
160	**153.52**	6.5	131	94	140	-	-	155	-	105	-	-	120	-	
180	**176.77**	5.7	131	81	120	-	-	135	-	92	-	-	105	-	
200	**194.10**	5.2	131	74	120	-	-	130	-	91	-	-	100	-	
224	**224.29**	4.5	131	65	110	-	-	120	-	84	-	-	94	-	
250	**246.28**	4.1	131	59	110	-	-	120	-	83	-	-	92	-	
280	**277.00**	3.6	131	52	105	-	-	110	-	79	-	-	87	-	
315	**304.16**	3.3	131	48	105	-	-	110	-	78	-	-	86	-	
355	**350.23**	2.9	131	41	92	-	-	98	-	70	-	-	76	-	
400	**384.57**	2.6	131	38	91	-	-	97	-	69	-	-	75	-	

X.K230..,n_1= 1200 1/min — **131 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C		H_2O	H_2O	+ H_2O	M1 40 °C		H_2O	H_2O	+ H_2O	
7.1	**7.25**	166	95.5	1700	*)	*)	-	*)	455	*)	*)	-	*)	*)	**X2K.** /HU 284
8	**7.96**	151	99.0	1600	*)	*)	-	*)	470	*)	*)	-	*)	*)	
9	**9.19**	131	102	1450	*)	*)	-	*)	380	*)	*)	-	*)	*)	
10	**10.09**	119	106	1350	*)	*)	-	*)	395	*)	*)	-	*)	*)	
11.2	**11.22**	107	108	1250	*)	410	-	330	620	*)	*)	-	*)	455	
12.5	**12.32**	97	111	1150	*)	415	-	325	610	*)	*)	-	*)	450	
14	**14.22**	84	104	950	*)	430	-	340	590	*)	260	-	240	445	**X3K.** /HH 256 /HU 288
16	**15.61**	77	110	920	*)	430	-	335	580	*)	265	-	235	440	
18	**18.29**	66	113	810	*)	435	-	340	550	*)	300	-	260	430	
20	**20.08**	60	119	770	195	420	-	325	530	*)	290	-	245	410	
22.4	**23.37**	51	126	700	195	420	-	315	520	*)	290	-	235	400	
25	**25.66**	47	131	660	195	420	-	310	510	*)	290	-	230	395	
28	**28.63**	42	131	600	185	390	-	285	470	*)	275	-	210	360	
31.5	**31.43**	38	131	540	190	385	-	280	460	*)	275	-	205	350	
35.5	**36.26**	33	131	470	205	375	-	275	435	135	275	-	215	340	
40	**39.82**	30	131	430	205	370	-	270	425	140	270	-	210	330	
45	**44.78**	27	131	380	190	340	-	240	385	125	250	-	190	300	
50	**49.17**	24	131	345	185	335	-	235	380	125	245	-	185	295	
56	**54.71**	22	131	315	175	310	-	220	350	125	230	-	170	270	
63	**60.08**	20	131	285	175	305	-	215	345	125	230	-	165	265	
71	**70.05**	17	131	245	160	275	-	190	305	115	205	-	150	235	
80	**76.91**	16	131	225	155	270	-	185	300	115	205	-	145	230	
90	**92.41**	13	131	185	170	-	-	195	-	125	-	-	155	-	**X4K.** /HH 260 /HU 294
100	**101.47**	12	131	170	165	-	-	190	-	125	-	-	150	-	
112	**113.21**	11	131	150	155	-	-	175	-	115	-	-	140	-	
125	**124.31**	9.7	131	140	150	-	-	170	-	115	-	-	135	-	
140	**139.81**	8.6	131	125	145	-	-	165	-	110	-	-	130	-	
160	**153.52**	7.8	131	110	145	-	-	160	-	105	-	-	125	-	
180	**176.77**	6.8	131	98	125	-	-	140	-	95	-	-	110	-	
200	**194.10**	6.2	131	89	125	-	-	140	-	93	-	-	105	-	
224	**224.29**	5.4	131	78	115	-	-	125	-	88	-	-	99	-	
250	**246.28**	4.9	131	71	115	-	-	125	-	87	-	-	97	-	
280	**277.00**	4.3	131	63	110	-	-	120	-	82	-	-	92	-	
315	**304.16**	3.9	131	57	105	-	-	115	-	81	-	-	90	-	
355	**350.23**	3.4	131	50	97	-	-	105	-	73	-	-	80	-	
400	**384.57**	3.1	131	45	95	-	-	100	-	72	-	-	79	-	

i N	i ex	n2	MN2	PN1	PTH kW M1 20 °C			H_2O	+ H_2O	M1 40 °C			H_2O	+ H_2O	
		min-1	kNm	kW											
X.K230..,n1= 1500 1/min															**131 kNm**
7.1[1]	**7.25**	207	95.5	2100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
8[1]	**7.96**	188	99.0	2000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1]	**9.19**	163	102	1800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[1]	**10.09**	149	106	1700	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[1]	**11.22**	134	108	1550	*)	*)	-	*)	520	*)	*)	-	*)	*)	
12.5[1]	**12.32**	122	111	1450	*)	*)	-	*)	530	*)	*)	-	*)	*)	
14	**14.22**	105	104	1200	*)	385	-	*)	600	*)	*)	-	*)	415	**X3K.** /HH 256 /HU 288
16	**15.61**	96	110	1150	*)	390	-	*)	590	*)	*)	-	*)	410	
18	**18.29**	82	113	1000	*)	450	-	310	600	*)	285	-	*)	450	
20	**20.08**	75	119	960	*)	440	-	295	570	*)	275	-	*)	430	
22.4	**23.37**	64	126	880	*)	440	-	285	560	*)	280	-	*)	420	
25	**25.66**	58	131	830	*)	440	-	280	550	*)	280	-	*)	415	
28	**28.63**	52	131	740	*)	410	-	260	510	*)	270	-	*)	380	
31.5	**31.43**	48	131	680	*)	405	-	255	500	*)	270	-	170	370	
35.5	**36.26**	41	131	590	185	415	-	275	485	*)	300	-	210	375	
40	**39.82**	38	131	530	185	405	-	270	475	*)	295	-	205	365	
45	**44.78**	33	131	475	170	370	-	245	430	*)	270	-	180	330	
50	**49.17**	31	131	435	170	365	-	235	420	*)	265	-	175	325	
56	**54.71**	27	131	395	170	345	-	225	395	110	255	-	170	305	
63	**60.08**	25	131	360	170	340	-	220	385	110	250	-	170	295	
71	**70.05**	21	131	305	160	310	-	200	345	110	230	-	155	265	
80	**76.91**	20	131	280	155	305	-	195	335	110	225	-	150	260	
90	**92.41**	16	131	235	175	-	-	205	-	125	-	-	160	-	**X4K.** /HH 260 /HU 294
100	**101.47**	15	131	210	170	-	-	200	-	125	-	-	160	-	
112	**113.21**	13	131	190	160	-	-	185	-	115	-	-	145	-	
125	**124.31**	12	131	175	155	-	-	180	-	115	-	-	140	-	
140	**139.81**	11	131	155	150	-	-	175	-	110	-	-	135	-	
160	**153.52**	9.8	131	140	150	-	-	170	-	110	-	-	130	-	
180	**176.77**	8.5	131	120	130	-	-	150	-	97	-	-	115	-	
200	**194.10**	7.7	131	110	130	-	-	145	-	96	-	-	115	-	
224	**224.29**	6.7	131	97	120	-	-	135	-	91	-	-	105	-	
250	**246.28**	6.1	131	88	120	-	-	135	-	90	-	-	105	-	
280	**277.00**	5.4	131	79	115	-	-	125	-	86	-	-	97	-	
315	**304.16**	4.9	131	72	115	-	-	125	-	85	-	-	96	-	
355	**350.23**	4.3	131	62	100	-	-	110	-	76	-	-	85	-	
400	**384.57**	3.9	131	57	100	-	-	110	-	75	-	-	84	-	
X.K230..,n1= 1800 1/min															**131 kNm**
7.1*)	**7.25**	248	90.3	2400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
8*)	**7.96**	226	93.6	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9*)	**9.19**	196	96.9	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10*)	**10.09**	178	100	1900	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2*)	**11.22**	160	102	1750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
12.5*)	**12.32**	146	105	1650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
14[1]	**14.22**	127	98.4	1350	*)	*)	-	*)	500	*)	*)	-	*)	*)	**X3K.** /HH 256 /HU 288
16[1]	**15.61**	115	103	1300	*)	*)	-	*)	510	*)	*)	-	*)	*)	
18	**18.29**	98	107	1150	*)	415	-	*)	600	*)	*)	-	*)	425	
20	**20.08**	90	112	1100	*)	405	-	*)	580	*)	*)	-	*)	405	
22.4	**23.37**	77	119	990	*)	415	-	*)	560	*)	*)	-	*)	395	
25	**25.66**	70	123	940	*)	415	-	*)	560	*)	*)	-	*)	390	
28	**28.63**	63	126	860	*)	395	-	*)	520	*)	225	-	*)	365	
31.5	**31.43**	57	129	800	*)	395	-	*)	500	*)	230	-	*)	360	
35.5	**36.26**	50	129	690	*)	430	-	265	520	*)	295	-	190	395	
40	**39.82**	45	131	640	*)	425	-	260	500	*)	295	-	185	385	
45	**44.78**	40	131	570	*)	390	-	230	455	*)	275	-	160	345	
50	**49.17**	37	131	520	140	385	-	225	450	*)	270	-	160	340	
56	**54.71**	33	131	470	150	365	-	220	420	*)	265	-	160	320	
63	**60.08**	30	131	430	150	360	-	215	410	*)	260	-	155	315	
71	**70.05**	26	131	370	150	330	-	200	370	95	240	-	150	285	
80	**76.91**	23	131	335	150	325	-	195	365	96	240	-	145	280	
90	**92.41**	19	131	280	175	-	-	215	-	125	-	-	170	-	**X4K.** /HH 260 /HU 294
100	**101.47**	18	131	255	175	-	-	210	-	125	-	-	165	-	
112	**113.21**	16	131	230	160	-	-	195	-	115	-	-	150	-	
125	**124.31**	14	131	210	160	-	-	190	-	115	-	-	145	-	
140	**139.81**	13	131	185	155	-	-	180	-	110	-	-	140	-	
160	**153.52**	12	131	170	150	-	-	175	-	110	-	-	135	-	
180	**176.77**	10	131	145	135	-	-	155	-	97	-	-	120	-	
200	**194.10**	9.3	131	135	130	-	-	150	-	96	-	-	115	-	
224	**224.29**	8.0	131	115	125	-	-	140	-	93	-	-	110	-	
250	**246.28**	7.3	131	105	125	-	-	140	-	92	-	-	110	-	
280	**277.00**	6.5	131	94	120	-	-	130	-	88	-	-	100	-	
315	**304.16**	5.9	131	86	115	-	-	130	-	87	-	-	99	-	
355	**350.23**	5.1	131	75	105	-	-	115	-	78	-	-	89	-	
400	**384.57**	4.7	131	68	105	-	-	115	-	77	-	-	87	-	

X.K240..,n_1= 1000 1/min															156 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3	**6.38**	157	122	2050	*)	*)	-	*)	830	*)	*)	-	*)	590	X2K. /HU 284
7.1	**7.34**	136	128	1850	*)	*)	-	*)	800	*)	*)	-	*)	570	
8	**8.09**	124	130	1750	*)	*)	-	600	920	*)	*)	-	470	720	
9	**9.31**	107	135	1550	*)	*)	-	560	840	*)	*)	-	435	660	
10	**9.82**	102	136	1500	*)	475	-	680	940	*)	*)	-	570	770	
11.2	**11.31**	88	143	1350	*)	455	-	620	870	*)	*)	-	520	710	
12.5	**11.92**	84	128	1150	*)	420	-	590	800	*)	*)	-	490	660	X3K. /HH 256 /HU 288
14	**13.71**	73	137	1100	*)	405	-	540	750	*)	*)	-	445	610	
16	**15.32**	65	138	980	*)	450	-	540	730	*)	300	-	460	600	
18	**17.64**	57	156	960	*)	435	-	510	690	*)	290	-	425	560	
20	**20.36**	49	156	830	235	450	-	495	680	*)	310	-	415	560	
22.4	**23.44**	43	156	720	230	430	-	455	630	*)	295	-	380	510	
25	**25.64**	39	156	660	220	400	-	415	580	*)	280	-	345	465	
28	**29.51**	34	156	570	215	395	-	395	550	*)	275	-	325	445	
31.5	**32.47**	31	156	520	230	385	-	375	520	155	280	-	315	420	
35.5	**37.38**	27	156	450	225	375	-	360	500	155	275	-	300	405	
40	**39.96**	25	156	425	225	375	-	350	490	155	275	-	290	395	
45	**46.00**	22	156	370	215	355	-	325	460	150	260	-	270	370	
50	**48.83**	20	156	350	205	335	-	305	425	145	250	-	250	345	
56	**56.20**	18	156	305	200	320	-	285	400	140	240	-	235	320	
63	**62.51**	16	156	275	190	305	-	265	375	140	230	-	220	300	
71	**71.95**	14	156	235	185	295	-	250	355	135	220	-	205	285	
80	**82.39**	12	156	210	185	-	-	245	-	140	-	-	200	-	X4K. /HH 260 /HU 294
90	**94.83**	11	156	180	185	-	-	235	-	135	-	-	195	-	
100	**103.71**	9.6	156	165	170	-	-	215	-	125	-	-	175	-	
112	**119.37**	8.4	156	145	165	-	-	210	-	125	-	-	170	-	
125	**127.64**	7.8	156	135	170	-	-	210	-	125	-	-	170	-	
140	**146.91**	6.8	156	115	160	-	-	200	-	120	-	-	160	-	
160	**153.55**	6.5	156	110	150	-	-	185	-	115	-	-	150	-	
180	**176.74**	5.7	156	97	145	-	-	175	-	110	-	-	140	-	
200	**205.47**	4.9	156	84	125	-	-	150	-	95	-	-	120	-	
224	**236.50**	4.2	156	73	120	-	-	140	-	92	-	-	115	-	
250	**252.89**	4.0	156	68	120	-	-	140	-	92	-	-	115	-	
280	**291.08**	3.4	156	59	120	-	-	135	-	90	-	-	110	-	
315	**304.22**	3.3	156	57	115	-	-	130	-	86	-	-	105	-	
355	**350.17**	2.9	156	49	110	-	-	125	-	83	-	-	98	-	
X.K240..,n_1= 1200 1/min															**156 kNm**
6.3[1]	**6.38**	188	122	2450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2K. /HU 284
7.1[1]	**7.34**	163	128	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[1]	**8.09**	148	130	2050	*)	*)	-	*)	760	*)	*)	-	*)	*)	
9[1]	**9.31**	129	135	1850	*)	*)	-	*)	700	*)	*)	-	*)	480	
10[1]	**9.82**	122	136	1800	*)	*)	-	560	910	*)	*)	-	*)	720	
11.2[1]	**11.31**	106	143	1650	*)	*)	-	540	870	*)	*)	-	430	690	
12.5	**11.92**	101	128	1400	*)	375	-	550	840	*)	*)	-	435	670	X3K. /HH 256 /HU 288
14	**13.71**	88	137	1300	*)	365	-	500	780	*)	*)	-	395	620	
16	**15.32**	78	138	1200	*)	465	-	550	790	*)	*)	-	460	650	
18	**17.64**	68	156	1150	*)	450	-	510	750	*)	*)	-	420	610	
20	**20.36**	59	156	1000	*)	475	-	510	740	*)	305	-	415	600	
22.4	**23.44**	51	156	870	*)	455	-	465	690	*)	295	-	380	550	
25	**25.64**	47	156	790	*)	425	-	420	630	*)	280	-	340	510	
28	**29.51**	41	156	690	180	420	-	400	600	*)	280	-	325	480	
31.5	**32.47**	37	156	620	215	420	-	390	580	*)	300	-	325	465	
35.5	**37.38**	32	156	540	215	410	-	375	550	*)	295	-	310	445	
40	**39.96**	30	156	510	210	410	-	365	540	130	295	-	300	435	
45	**46.00**	26	156	440	205	390	-	340	510	130	280	-	275	405	
50	**48.83**	25	156	420	200	370	-	315	475	135	270	-	260	380	
56	**56.20**	21	156	365	195	355	-	295	445	130	260	-	240	360	
63	**62.51**	19	156	330	190	340	-	280	420	130	250	-	230	335	
71	**71.95**	17	156	285	180	325	-	260	400	130	240	-	215	315	
80	**82.39**	15	156	250	195	-	-	260	-	140	-	-	215	-	X4K. /HH 260 /HU 294
90	**94.83**	13	156	215	190	-	-	250	-	140	-	-	205	-	
100	**103.71**	12	156	200	175	-	-	230	-	130	-	-	185	-	
112	**119.37**	10	156	170	170	-	-	220	-	125	-	-	180	-	
125	**127.64**	9.4	156	160	175	-	-	220	-	125	-	-	180	-	
140	**146.91**	8.2	156	140	165	-	-	210	-	120	-	-	170	-	
160	**153.55**	7.8	156	135	155	-	-	195	-	115	-	-	155	-	
180	**176.74**	6.8	156	115	150	-	-	185	-	110	-	-	150	-	
200	**205.47**	5.8	156	100	130	-	-	160	-	98	-	-	125	-	
224	**236.50**	5.1	156	88	125	-	-	150	-	95	-	-	120	-	
250	**252.89**	4.7	156	82	125	-	-	150	-	95	-	-	120	-	
280	**291.08**	4.1	156	71	125	-	-	145	-	93	-	-	115	-	
315	**304.22**	3.9	156	68	120	-	-	135	-	89	-	-	110	-	
355	**350.17**	3.4	156	59	115	-	-	130	-	85	-	-	105	-	

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X.K240..,n_1= 1500 1/min															156 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
6.3[*)]	6.38	235	122	3100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2K. /HU 284
7.1[*)]	7.34	204	128	2800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	8.09	185	130	2600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	9.31	161	135	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*)]	9.82	153	136	2250	*)	*)	-	*)	710	*)	*)	-	*)	*)	
11.2[*)]	11.31	133	143	2050	*)	*)	-	*)	690	*)	*)	-	*)	*)	
12.5[1)]	11.92	126	128	1750	*)	*)	-	*)	770	*)	*)	-	*)	550	X3K. /HH 256 /HU 288
14[1)]	13.71	109	137	1600	*)	*)	-	*)	750	*)	*)	-	*)	540	
16	15.32	98	138	1450	*)	435	-	520	850	*)	*)	-	415	680	
18	17.64	85	156	1450	*)	425	-	480	800	*)	*)	-	380	640	
20	20.36	74	156	1250	*)	465	-	480	800	*)	*)	-	375	630	
22.4	23.44	64	156	1100	*)	445	-	440	740	*)	*)	-	340	580	
25	25.64	59	156	990	*)	425	-	400	680	*)	250	-	310	530	
28	29.51	51	156	860	*)	420	-	375	650	*)	250	-	290	510	
31.5	32.47	46	156	780	*)	450	-	400	640	*)	310	-	325	510	
35.5	37.38	40	156	680	170	440	-	380	610	*)	305	-	310	490	
40	39.96	38	156	630	170	440	-	370	600	*)	305	-	300	480	
45	46.00	33	156	550	165	420	-	340	560	*)	290	-	275	445	
50	48.83	31	156	520	180	405	-	325	530	*)	290	-	265	425	
56	56.20	27	156	455	175	390	-	305	500	*)	275	-	245	395	
63	62.51	24	156	410	180	375	-	290	475	115	275	-	235	375	
71	71.95	21	156	355	175	360	-	275	450	110	260	-	220	355	
80	82.39	18	156	310	195	-	-	280	-	140	-	-	230	-	X4K. /HH 260 /HU 294
90	94.83	16	156	270	190	-	-	270	-	135	-	-	220	-	
100	103.71	14	156	245	180	-	-	245	-	130	-	-	200	-	
112	119.37	13	156	215	175	-	-	235	-	125	-	-	190	-	
125	127.64	12	156	200	175	-	-	235	-	125	-	-	190	-	
140	146.91	10	156	175	170	-	-	220	-	120	-	-	180	-	
160	153.55	9.8	156	165	160	-	-	210	-	115	-	-	165	-	
180	176.74	8.5	156	145	155	-	-	195	-	110	-	-	155	-	
200	205.47	7.3	156	125	135	-	-	170	-	100	-	-	135	-	
224	236.50	6.3	156	110	130	-	-	160	-	97	-	-	130	-	
250	252.89	5.9	156	105	130	-	-	160	-	98	-	-	125	-	
280	291.08	5.2	156	89	130	-	-	155	-	95	-	-	120	-	
315	304.22	4.9	156	85	125	-	-	145	-	91	-	-	115	-	
355	350.17	4.3	156	74	120	-	-	140	-	88	-	-	110	-	
X.K240..,n_1= 1800 1/min															156 kNm
6.3[*)]	6.38	282	115	3500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2K. /HU 284
7.1[*)]	7.34	245	120	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
8[*)]	8.09	222	123	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	9.31	193	127	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*)]	9.82	183	128	2550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[*)]	11.31	159	135	2300	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
12.5[1)]	11.92	151	121	2000	*)	*)	-	*)	550[*)]	*)	*)	-	*)	*)	X3K. /HH 256 /HU 288
14[1)]	13.71	131	129	1850	*)	*)	-	*)	540[*)]	*)	*)	-	*)	*)	
16[1)]	15.32	117	130	1650	*)	*)	-	*)	830[*)]	*)	*)	-	*)	620[*)]	
18[1)]	17.64	102	147	1650	*)	*)	-	*)	800[*)]	*)	*)	-	*)	600[*)]	
20[1)]	20.36	88	147	1400	*)	385[*)]	-	405	800[*)]	*)	*)	-	*)	610[*)]	
22.4[1)]	23.44	77	156	1300	*)	375[*)]	-	365	740[*)]	*)	*)	-	*)	560[*)]	
25[1)]	25.64	70	156	1200	*)	370[*)]	-	335	680[*)]	*)	*)	-	*)	510[*)]	
28[1)]	29.51	61	156	1050	*)	370[*)]	-	315	650[*)]	*)	*)	-	*)	490[*)]	
31.5[1)]	32.47	55	156	940	*)	450[*)]	-	390	680[*)]	*)	285[*)]	-	305	530[*)]	
35.5[1)]	37.38	48	156	810	*)	445[*)]	-	370	650[*)]	*)	280[*)]	-	285	510[*)]	
40[1)]	39.96	45	156	760	*)	445[*)]	-	360	630[*)]	*)	285[*)]	-	275	495[*)]	
45[1)]	46.00	39	156	660	*)	425[*)]	-	330	590[*)]	*)	275[*)]	-	250	460[*)]	
50[1)]	48.83	37	156	630	*)	420[*)]	-	325	570[*)]	*)	285[*)]	-	255	445[*)]	
56[1)]	56.20	32	156	550	140	400[*)]	-	305	530[*)]	*)	275[*)]	-	240	415[*)]	
63[1)]	62.51	29	156	490	155	395[*)]	-	295	510[*)]	*)	280[*)]	-	235	400[*)]	
71[1)]	71.95	25	156	425	155	380[*)]	-	275	480[*)]	*)	270[*)]	-	220	375[*)]	
80	82.39	22	156	375	195	-	-	295	-	130	-	-	240	-	X4K. /HH 260 /HU 294
90	94.83	19	156	325	190	-	-	285	-	130	-	-	230	-	
100	103.71	17	156	295	180	-	-	260	-	125	-	-	210	-	
112	119.37	15	156	260	175	-	-	245	-	120	-	-	200	-	
125	127.64	14	156	240	175	-	-	245	-	125	-	-	200	-	
140	146.91	12	156	210	170	-	-	230	-	120	-	-	185	-	
160	153.55	12	156	200	160	-	-	215	-	110	-	-	170	-	
180	176.74	10	156	175	155	-	-	205	-	105	-	-	160	-	
200	205.47	8.8	156	150	140	-	-	175	-	100	-	-	140	-	
224	236.50	7.6	156	130	135	-	-	170	-	97	-	-	135	-	
250	252.89	7.1	156	125	135	-	-	165	-	98	-	-	135	-	
280	291.08	6.2	156	105	130	-	-	160	-	96	-	-	130	-	
315	304.22	5.9	156	100	125	-	-	155	-	91	-	-	120	-	
355	350.17	5.1	156	89	120	-	-	145	-	88	-	-	115	-	

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X.K250..,n_1= 1000 1/min															175 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
7.1	**6.86**	146	131	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
8	**7.88**	127	137	1850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9	**8.69**	115	140	1700	*)	*)	-	*)	580	*)	*)	-	*)	*)	
10	**9.99**	100	145	1550	*)	*)	-	*)	580	*)	*)	-	*)	*)	
11.2	**10.56**	95	146	1500	*)	460	-	390	670	*)	*)	-	*)	495	
12.5	**12.13**	82	154	1350	*)	460	-	380	650	*)	*)	-	*)	480	
14	**12.80**	78	138	1150	*)	425	-	360	610	*)	*)	-	*)	440	**X3K.** /HH 256 /HU 288
16	**14.71**	68	148	1100	*)	410	-	335	570	*)	*)	-	*)	415	
18	**16.47**	61	149	980	*)	455	-	375	580	*)	300	-	280	445	
20	**18.92**	53	162	930	*)	440	-	355	550	*)	295	-	265	420	
22.4	**21.88**	46	169	840	230	440	-	350	540	*)	300	-	260	415	
25	**25.14**	40	175	750	225	425	-	330	510	*)	290	-	245	390	
28	**27.55**	36	175	690	220	410	-	315	485	*)	285	-	230	370	
31.5	**31.64**	32	175	600	215	390	-	295	460	*)	270	-	220	350	
35.5	**34.89**	29	175	540	235	390	-	300	450	160	285	-	235	350	
40	**40.08**	25	175	475	225	375	-	285	425	155	275	-	220	330	
45	**42.95**	23	175	440	225	370	-	280	420	150	270	-	215	325	
50	**49.33**	20	175	385	215	355	-	265	400	145	260	-	205	305	
56	**52.47**	19	175	365	205	335	-	250	375	145	245	-	195	290	
63	**60.27**	17	175	320	200	325	-	240	360	145	240	-	185	280	
71	**67.18**	15	175	285	190	305	-	225	335	140	225	-	175	260	
80	**77.17**	13	175	250	185	300	-	215	325	135	220	-	170	250	
90	**88.53**	11	175	215	190	-	-	215	-	140	-	-	170	-	**X4K.** /HH 260 /HU 294
100	**101.70**	9.8	175	190	180	-	-	205	-	135	-	-	160	-	
112	**111.45**	9.0	175	170	175	-	-	195	-	130	-	-	150	-	
125	**128.02**	7.8	175	150	165	-	-	185	-	125	-	-	145	-	
140	**137.16**	7.3	175	140	165	-	-	185	-	125	-	-	145	-	
160	**157.56**	6.3	175	120	160	-	-	175	-	120	-	-	135	-	
180	**165.01**	6.1	175	115	150	-	-	165	-	115	-	-	130	-	
200	**189.54**	5.3	175	100	145	-	-	160	-	110	-	-	120	-	
224	**220.81**	4.5	175	88	125	-	-	135	-	96	-	-	105	-	
250	**253.64**	3.9	175	76	120	-	-	130	-	92	-	-	100	-	
280	**271.76**	3.7	175	71	120	-	-	130	-	92	-	-	100	-	
315	**312.17**	3.2	175	62	115	-	-	125	-	89	-	-	97	-	
355	**326.93**	3.1	175	59	115	-	-	120	-	86	-	-	94	-	
400	**375.54**	2.7	175	52	110	-	-	115	-	83	-	-	90	-	
X.K250..,n_1= 1200 1/min															**175 kNm**
7.1[1]	**6.86**	175	131	2450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X2K.** /HU 284
8[1]	**7.88**	152	137	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[1]	**8.69**	138	140	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[1]	**9.99**	120	145	1850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[1]	**10.56**	114	146	1800	*)	*)	-	*)	610	*)	*)	-	*)	*)	
12.5[1]	**12.13**	99	154	1650	*)	*)	-	*)	610	*)	*)	-	*)	*)	
14	**12.80**	94	138	1400	*)	380	-	*)	600	*)	*)	-	*)	400	**X3K.** /HH 256 /HU 288
16	**14.71**	82	148	1300	*)	370	-	*)	570	*)	*)	-	*)	375	
18	**16.47**	73	149	1200	*)	470	-	345	620	*)	*)	-	*)	460	
20	**18.92**	63	162	1100	*)	455	-	325	590	*)	285	-	*)	435	
22.4	**21.88**	55	169	1000	*)	465	-	325	580	*)	300	-	*)	435	
25	**25.14**	48	175	910	*)	450	-	310	550	*)	290	-	*)	410	
28	**27.55**	44	175	830	*)	435	-	295	530	*)	285	-	*)	395	
31.5	**31.64**	38	175	720	*)	415	-	280	495	*)	275	-	190	370	
35.5	**34.89**	34	175	650	220	425	-	300	500	*)	305	-	225	380	
40	**40.08**	30	175	570	210	410	-	285	470	*)	295	-	210	360	
45	**42.95**	28	175	530	210	405	-	280	465	*)	290	-	205	355	
50	**49.33**	24	175	460	200	385	-	265	440	125	280	-	195	335	
56	**52.47**	23	175	440	200	370	-	250	415	130	270	-	190	320	
63	**60.27**	20	175	380	195	360	-	245	400	130	265	-	185	310	
71	**67.18**	18	175	340	190	340	-	230	375	130	250	-	175	290	
80	**77.17**	16	175	300	185	330	-	220	365	130	245	-	170	280	
90	**88.53**	14	175	260	195	-	-	225	-	145	-	-	175	-	**X4K.** /HH 260 /HU 294
100	**101.70**	12	175	225	185	-	-	215	-	140	-	-	170	-	
112	**111.45**	11	175	205	180	-	-	205	-	130	-	-	160	-	
125	**128.02**	9.4	175	180	170	-	-	195	-	125	-	-	150	-	
140	**137.16**	8.7	175	170	170	-	-	195	-	125	-	-	150	-	
160	**157.56**	7.6	175	145	165	-	-	185	-	120	-	-	140	-	
180	**165.01**	7.3	175	140	155	-	-	175	-	115	-	-	135	-	
200	**189.54**	6.3	175	120	150	-	-	165	-	110	-	-	125	-	
224	**220.81**	5.4	175	105	130	-	-	145	-	99	-	-	110	-	
250	**253.64**	4.7	175	92	125	-	-	135	-	95	-	-	105	-	
280	**271.76**	4.4	175	86	125	-	-	135	-	95	-	-	105	-	
315	**312.17**	3.8	175	75	120	-	-	130	-	92	-	-	100	-	
355	**326.93**	3.7	175	71	120	-	-	125	-	89	-	-	98	-	
400	**375.54**	3.2	175	62	115	-	-	120	-	86	-	-	94	-	

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X.K250..,n_1 = 1500 1/min															175 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW		fan	H_2O cooling cover	H_2O cooling cartridge	fan + H_2O cooling cartridge		fan	H_2O cooling cover	H_2O cooling cartridge	fan + H_2O cooling cartridge	
7.1[*)]	6.86	219	131	3050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2K. /HU 284
8[*)]	7.88	190	137	2800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	8.69	173	140	2600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*)]	9.99	150	145	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[*)]	10.56	142	146	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
12.5[*)]	12.13	124	154	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
14[1)]	12.80	117	138	1750	*)	*)	-	*)	475	*)	*)	-	*)	*)	X3K. /HH 256 /HU 288
16[1)]	14.71	102	148	1650	*)	*)	-	*)	470	*)	*)	-	*)	*)	
18	16.47	91	149	1450	*)	440	-	*)	640	*)	*)	-	*)	440	
20	18.92	79	162	1400	*)	430	-	*)	610	*)	*)	-	*)	415	
22.4	21.88	69	169	1250	*)	455	-	*)	610	*)	*)	-	*)	425	
25	25.14	60	175	1150	*)	440	-	*)	580	*)	*)	-	*)	400	
28	27.55	54	175	1050	*)	435	-	*)	550	*)	*)	-	*)	385	
31.5	31.64	47	175	900	*)	415	-	*)	520	*)	245	-	*)	365	
35.5	34.89	43	175	820	*)	460	-	280	540	*)	315	-	*)	410	
40	40.08	37	175	710	*)	440	-	265	520	*)	300	-	185	385	
45	42.95	35	175	660	170	435	-	260	510	*)	300	-	180	380	
50	49.33	30	175	580	165	415	-	245	480	*)	290	-	170	360	
56	52.47	29	175	550	175	405	-	245	460	*)	290	-	175	345	
63	60.27	25	175	475	175	395	-	240	445	*)	280	-	170	335	
71	67.18	22	175	430	180	375	-	230	420	110	275	-	170	320	
80	77.17	19	175	370	175	365	-	220	405	110	265	-	165	310	
90	88.53	17	175	325	200	-	-	240	-	140	-	-	185	-	X4K. /HH 260 /HU 294
100	101.70	15	175	285	190	-	-	225	-	135	-	-	175	-	
112	111.45	13	175	260	180	-	-	210	-	130	-	-	165	-	
125	128.02	12	175	225	175	-	-	200	-	125	-	-	155	-	
140	137.16	11	175	210	175	-	-	200	-	125	-	-	155	-	
160	157.56	9.5	175	185	170	-	-	190	-	120	-	-	145	-	
180	165.01	9.1	175	175	160	-	-	180	-	115	-	-	140	-	
200	189.54	7.9	175	150	155	-	-	170	-	110	-	-	130	-	
224	220.81	6.8	175	130	135	-	-	150	-	100	-	-	115	-	
250	253.64	5.9	175	115	130	-	-	145	-	97	-	-	110	-	
280	271.76	5.5	175	105	130	-	-	145	-	98	-	-	110	-	
315	312.17	4.8	175	93	125	-	-	140	-	94	-	-	105	-	
355	326.93	4.6	175	89	125	-	-	135	-	91	-	-	100	-	
400	375.54	4.0	175	77	120	-	-	130	-	88	-	-	98	-	
X.K250..,n_1 = 1800 1/min															175 kNm
7.1[*)]	6.86	262	123	3450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X2K. /HU 284
8[*)]	7.88	228	129	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
9[*)]	8.69	207	132	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
10[*)]	9.99	180	137	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
11.2[*)]	10.56	170	138	2550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
12.5[*)]	12.13	148	145	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
14[1)]	12.80	141	130	2000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 256 /HU 288
16[1)]	14.71	122	139	1850	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[1)]	16.47	109	140	1650	*)	*)	-	*)	570[*)]	*)	*)	-	*)	*)	
20[1)]	18.92	95	153	1600	*)	*)	-	*)	550[*)]	*)	*)	-	*)	*)	
22.4[1)]	21.88	82	159	1400	*)	380[*)]	-	*)	570[*)]	*)	*)	-	*)	*)	
25[1)]	25.14	72	175	1350	*)	370[*)]	-	*)	540[*)]	*)	*)	-	*)	*)	
28[1)]	27.55	65	174	1250	*)	375[*)]	-	*)	520[*)]	*)	*)	-	*)	330[*)]	
31.5[1)]	31.64	57	175	1100	*)	365[*)]	-	*)	495[*)]	*)	*)	-	*)	310[*)]	
35.5[1)]	34.89	52	175	980	*)	460[*)]	-	*)	560[*)]	*)	290[*)]	-	*)	405[*)]	
40[1)]	40.08	45	175	850	*)	440[*)]	-	230	530[*)]	*)	280[*)]	-	*)	385[*)]	
45[1)]	42.95	42	175	790	*)	440[*)]	-	220	520[*)]	*)	280[*)]	-	*)	380[*)]	
50[1)]	49.33	36	175	690	*)	420[*)]	-	210	495[*)]	*)	270[*)]	-	*)	360[*)]	
56[1)]	52.47	34	175	660	*)	415[*)]	-	225	480[*)]	*)	285[*)]	-	*)	355[*)]	
63[1)]	60.27	30	175	570	*)	405[*)]	-	220	465[*)]	*)	280[*)]	-	*)	345[*)]	
71[1)]	67.18	27	175	510	155	395[*)]	-	220	445[*)]	*)	280[*)]	-	150	335[*)]	
80[1)]	77.17	23	175	445	155	385[*)]	-	215	430[*)]	*)	275[*)]	-	150	325[*)]	
90	88.53	20	175	390	200	-	-	245	-	135	-	-	185	-	X4K. /HH 260 /HU 294
100	101.70	18	175	340	190	-	-	230	-	130	-	-	175	-	
112	111.45	16	175	310	180	-	-	215	-	125	-	-	165	-	
125	128.02	14	175	270	175	-	-	205	-	120	-	-	155	-	
140	137.16	13	175	250	175	-	-	205	-	125	-	-	155	-	
160	157.56	11	175	220	170	-	-	195	-	120	-	-	150	-	
180	165.01	11	175	210	160	-	-	185	-	110	-	-	140	-	
200	189.54	9.5	175	180	155	-	-	175	-	105	-	-	130	-	
224	220.81	8.2	175	160	140	-	-	155	-	100	-	-	120	-	
250	253.64	7.1	175	140	135	-	-	150	-	98	-	-	115	-	
280	271.76	6.6	175	130	135	-	-	150	-	98	-	-	115	-	
315	312.17	5.8	175	110	130	-	-	145	-	95	-	-	110	-	
355	326.93	5.5	175	105	125	-	-	140	-	92	-	-	105	-	
400	375.54	4.8	175	93	120	-	-	130	-	88	-	-	100	-	

X.K260..,n_1= 1000 1/min															**205 kNm**
					P_{TH} kW										
					M1				**20 °C**	**M1**				**40 °C**	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.59**	79	166	1450	*)	495	-	740	990	*)	*)	-	620	810	**X3K.** /HH 258 /HU 290
14	**14.24**	70	175	1350	*)	475	-	680	920	*)	*)	-	570	740	
16	**16.19**	62	185	1250	*)	550	-	700	920	*)	370	-	600	760	
18	**18.32**	55	195	1150	*)	530	-	650	850	*)	360	-	550	700	
20	**21.10**	47	205	1050	*)	540	-	620	820	*)	365	-	520	670	
22.4	**23.86**	42	205	930	235	530	-	590	790	*)	360	-	490	640	
25	**26.09**	38	205	850	220	480	-	510	700	*)	330	-	425	560	
28	**29.51**	34	205	750	215	470	-	490	670	*)	325	-	400	540	
31.5	**30.68**	33	205	720	220	470	-	480	660	*)	325	-	395	530	
35.5	**34.70**	29	205	640	215	460	-	455	630	*)	320	-	370	500	
40	**38.86**	26	205	570	245	460	-	445	600	160	335	-	370	485	
45	**43.96**	23	205	510	235	440	-	415	560	155	320	-	340	455	
50	**47.48**	21	205	470	235	425	-	390	530	160	315	-	325	430	
56	**53.70**	19	205	420	230	420	-	375	520	155	310	-	310	415	
63	**60.78**	16	205	370	215	385	-	335	460	150	285	-	275	370	
71	**68.75**	15	205	325	210	365	-	315	435	145	275	-	260	350	
80	**84.73**	12	205	265	205	-	-	290	-	145	-	-	240	-	**X4K.** /HH 262 /HU 296
90	**95.84**	10	205	235	195	-	-	275	-	140	-	-	225	-	
100	**104.76**	9.5	205	215	185	-	-	250	-	130	-	-	205	-	
112	**118.50**	8.4	205	190	175	-	-	240	-	125	-	-	195	-	
125	**123.21**	8.1	205	180	180	-	-	240	-	130	-	-	195	-	
140	**139.37**	7.2	205	160	175	-	-	230	-	125	-	-	185	-	
160	**152.63**	6.6	205	145	170	-	-	220	-	125	-	-	175	-	
180	**172.65**	5.8	205	130	165	-	-	210	-	120	-	-	170	-	
200	**203.69**	4.9	205	110	145	-	-	180	-	105	-	-	140	-	
224	**230.40**	4.3	205	99	140	-	-	175	-	105	-	-	135	-	
250	**239.55**	4.2	205	95	140	-	-	175	-	105	-	-	140	-	
280	**270.97**	3.7	205	84	135	-	-	165	-	100	-	-	130	-	
315	**296.76**	3.4	205	77	135	-	-	160	-	99	-	-	130	-	
355	**335.68**	3.0	205	68	130	-	-	155	-	96	-	-	120	-	
X.K260..,n_1= 1200 1/min															**205 kNm**
12.5[1]	**12.59**	95	166	1700	*)	*)	-	680	1000	*)	*)	-	550	800	**X3K.** /HH 258 /HU 290
14[1]	**14.24**	84	175	1600	*)	*)	-	620	940	*)	*)	-	490	730	
16	**16.19**	74	185	1500	*)	560	-	700	990	*)	*)	-	590	800	
18	**18.32**	66	195	1400	*)	540	-	650	920	*)	*)	-	540	740	
20	**21.10**	57	205	1250	*)	550	-	620	890	*)	350	-	510	710	
22.4	**23.86**	50	205	1100	*)	540	-	580	850	*)	345	-	480	680	
25	**26.09**	46	205	1000	*)	495	-	510	750	*)	320	-	420	600	
28	**29.51**	41	205	900	*)	485	-	485	720	*)	315	-	390	570	
31.5	**30.68**	39	205	870	*)	490	-	475	710	*)	320	-	385	560	
35.5	**34.70**	35	205	770	*)	480	-	450	680	*)	315	-	360	530	
40	**38.86**	31	205	690	225	500	-	460	660	*)	360	-	380	530	
45	**43.96**	27	205	610	215	480	-	425	620	*)	345	-	350	500	
50	**47.48**	25	205	570	225	470	-	410	600	140	345	-	340	475	
56	**53.70**	22	205	500	220	460	-	390	570	140	335	-	320	460	
63	**60.78**	20	205	445	215	425	-	355	520	140	315	-	290	410	
71	**68.75**	17	205	390	205	410	-	330	490	135	300	-	270	390	
80	**84.73**	14	205	320	210	-	-	310	-	145	-	-	255	-	**X4K.** /HH 262 /HU 296
90	**95.84**	13	205	280	200	-	-	295	-	140	-	-	240	-	
100	**104.76**	11	205	255	185	-	-	270	-	130	-	-	215	-	
112	**118.50**	10	205	230	180	-	-	255	-	125	-	-	205	-	
125	**123.21**	9.7	205	220	180	-	-	255	-	130	-	-	205	-	
140	**139.37**	8.6	205	195	180	-	-	245	-	125	-	-	195	-	
160	**152.63**	7.9	205	175	175	-	-	235	-	125	-	-	185	-	
180	**172.65**	7.0	205	155	170	-	-	225	-	120	-	-	175	-	
200	**203.69**	5.9	205	135	150	-	-	190	-	110	-	-	150	-	
224	**230.40**	5.2	205	120	145	-	-	185	-	105	-	-	145	-	
250	**239.55**	5.0	205	115	145	-	-	185	-	105	-	-	145	-	
280	**270.97**	4.4	205	100	140	-	-	175	-	105	-	-	140	-	
315	**296.76**	4.0	205	92	140	-	-	170	-	100	-	-	135	-	
355	**335.68**	3.6	205	81	135	-	-	165	-	98	-	-	130	-	

X.K260..,n_1= 1500 1/min															205 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
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)]	12.59	119	166	2150	*)	*)	-	*)	850	*)	*)	-	*)	580	X3K. /HH 258 /HU 290
14[1)]	14.24	105	175	2000	*)	*)	-	*)	820	*)	*)	-	*)	560	
16[1)]	16.19	93	185	1850	*)	500	-	650	1050	*)	*)	-	530	810	
18[1)]	18.32	82	195	1750	*)	485	-	600	960	*)	*)	-	480	750	
20[1)]	21.10	71	205	1600	*)	510	-	570	930	*)	*)	-	455	720	
22.4[1)]	23.86	63	205	1400	*)	500	-	530	890	*)	*)	-	415	680	
25[1)]	26.09	57	205	1300	*)	470	-	465	790	*)	*)	-	360	600	
28[1)]	29.51	51	205	1150	*)	460	-	435	750	*)	*)	-	330	570	
31.5[1)]	30.68	49	205	1100	*)	465	-	430	740	*)	*)	-	325	560	
35.5[1)]	34.70	43	205	960	*)	460	-	400	710	*)	255	-	300	530	
40[1)]	38.86	39	205	860	*)	530	-	465	730	*)	365	-	380	580	
45[1)]	43.96	34	205	760	*)	510	-	430	690	*)	350	-	345	540	
50[1)]	47.48	32	205	710	190	510	-	425	660	*)	365	-	345	530	
56[1)]	53.70	28	205	630	190	500	-	405	640	*)	355	-	325	500	
63[1)]	60.78	25	205	550	195	470	-	370	580	*)	340	-	305	460	
71[1)]	68.75	22	205	490	190	450	-	345	550	*)	330	-	280	435	
80	84.73	18	205	400	210	-	-	335	-	135	-	-	275	-	X4K. /HH 262 /HU 296
90	95.84	16	205	350	200	-	-	315	-	135	-	-	255	-	
100	104.76	14	205	320	185	-	-	285	-	125	-	-	230	-	
112	118.50	13	205	285	180	-	-	270	-	120	-	-	220	-	
125	123.21	12	205	275	185	-	-	270	-	125	-	-	220	-	
140	139.37	11	205	240	180	-	-	260	-	120	-	-	210	-	
160	152.63	9.8	205	220	175	-	-	250	-	120	-	-	200	-	
180	172.65	8.7	205	195	170	-	-	235	-	115	-	-	185	-	
200	203.69	7.4	205	165	155	-	-	205	-	110	-	-	165	-	
224	230.40	6.5	205	150	150	-	-	195	-	105	-	-	155	-	
250	239.55	6.3	205	140	150	-	-	195	-	110	-	-	155	-	
280	270.97	5.5	205	125	145	-	-	190	-	105	-	-	150	-	
315	296.76	5.1	205	115	145	-	-	185	-	105	-	-	145	-	
355	335.68	4.5	205	100	140	-	-	175	-	100	-	-	135	-	
X.K260..,n_1= 1800 1/min															205 kNm
12.5[*)]	12.59	143	157	2450	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
14[*)]	14.24	126	166	2250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[*)]	16.19	111	175	2100	*)	*)	-	*)	940[*)]	*)	*)	-	*)	690[*)]	
18[*)]	18.32	98	186	2000	*)	*)	-	*)	910[*)]	*)	*)	-	*)	670[*)]	
20[*)]	21.10	85	199	1850	*)	*)	-	*)	890[*)]	*)	*)	-	*)	660[*)]	
22.4[*)]	23.86	75	205	1700	*)	*)	-	*)	850[*)]	*)	*)	-	*)	620[*)]	
25[*)]	26.09	69	205	1550	*)	*)	-	*)	760[*)]	*)	*)	-	*)	540[*)]	
28[*)]	29.51	61	205	1350	*)	360[*)]	-	*)	720[*)]	*)	*)	-	*)	510[*)]	
31.5[*)]	30.68	59	205	1300	*)	375[*)]	-	330	710[*)]	*)	*)	-	*)	510[*)]	
35.5[*)]	34.70	52	205	1150	*)	365[*)]	-	300	680[*)]	*)	*)	-	*)	475[*)]	
40[*)]	38.86	46	205	1050	*)	530[*)]	-	445	760[*)]	*)	335[*)]	-	350	590[*)]	
45[*)]	43.96	41	205	910	*)	500[*)]	-	405	710[*)]	*)	320[*)]	-	315	550[*)]	
50[*)]	47.48	38	205	850	*)	520[*)]	-	420	700[*)]	*)	355[*)]	-	340	550[*)]	
56[*)]	53.70	34	205	750	*)	510[*)]	-	400	680[*)]	*)	350[*)]	-	315	530[*)]	
63[*)]	60.78	30	205	660	165	495[*)]	-	375	620[*)]	*)	350[*)]	-	305	490[*)]	
71[*)]	68.75	26	205	590	160	475[*)]	-	350	590[*)]	*)	335[*)]	-	280	460[*)]	
80	84.73	21	205	480	200	-	-	350	-	120	-	-	285	-	X4K. /HH 262 /HU 296
90	95.84	19	205	420	195	-	-	330	-	120	-	-	265	-	
100	104.76	17	205	385	180	-	-	300	-	110	-	-	245	-	
112	118.50	15	205	340	175	-	-	285	-	110	-	-	225	-	
125	123.21	15	205	330	180	-	-	285	-	110	-	-	225	-	
140	139.37	13	205	290	175	-	-	270	-	110	-	-	215	-	
160	152.63	12	205	265	170	-	-	260	-	110	-	-	205	-	
180	172.65	10	205	235	165	-	-	245	-	105	-	-	195	-	
200	203.69	8.8	205	200	155	-	-	215	-	105	-	-	170	-	
224	230.40	7.8	205	175	150	-	-	205	-	105	-	-	165	-	
250	239.55	7.5	205	170	155	-	-	205	-	105	-	-	165	-	
280	270.97	6.6	205	150	150	-	-	195	-	105	-	-	155	-	
315	296.76	6.1	205	140	145	-	-	190	-	100	-	-	150	-	
355	335.68	5.4	205	120	140	-	-	185	-	99	-	-	145	-	

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X.K270..,n_1= 1000 1/min — **240 kNm**

i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	P_{TH} kW M1 20 °C	20 °C fan	20 °C H_2O cooling cover	20 °C H_2O cartridge	20 °C fan + H_2O	M1 40 °C	40 °C fan	40 °C H_2O cooling cover	40 °C H_2O cartridge	40 °C fan + H_2O	📖
14	**13.83**	72	186	1450	*)	510	-	410	690	*)	*)	-	*)	490	**X3K.** /HH 258 /HU 290
16	**15.48**	65	193	1350	*)	490	-	380	650	*)	*)	-	*)	455	
18	**17.78**	56	203	1250	*)	580	-	465	710	*)	390	-	350	530	
20	**19.91**	50	212	1150	*)	560	-	440	670	*)	375	-	325	500	
22.4	**23.17**	43	231	1100	*)	550	-	420	640	*)	375	-	310	480	
25	**25.94**	39	240	1000	*)	540	-	405	630	*)	375	-	300	470	
28	**28.65**	35	240	910	230	495	-	360	560	*)	340	-	265	415	
31.5	**32.07**	31	240	810	225	485	-	350	540	*)	335	-	255	405	
35.5	**33.70**	30	240	770	230	485	-	345	540	*)	335	-	250	400	
40	**37.72**	27	240	690	225	475	-	335	520	*)	330	-	240	385	
45	**42.68**	23	240	610	250	460	-	335	495	160	335	-	255	380	
50	**47.78**	21	240	540	250	460	-	330	495	160	340	-	250	375	
56	**52.14**	19	240	500	240	435	-	310	460	165	325	-	240	355	
63	**58.37**	17	240	450	240	425	-	300	450	160	315	-	230	340	
71	**66.76**	15	240	395	220	385	-	270	400	150	285	-	205	305	
80	**74.73**	13	240	350	220	385	-	265	395	150	285	-	205	300	
90	**93.07**	11	237	280	205	-	-	240	-	145	-	-	185	-	**X4K.** /HH 262 /HU 296
100	**104.18**	9.6	240	255	200	-	-	235	-	145	-	-	180	-	
112	**115.07**	8.7	240	230	185	-	-	215	-	130	-	-	165	-	
125	**128.81**	7.8	240	205	185	-	-	210	-	130	-	-	160	-	
140	**135.33**	7.4	240	195	180	-	-	210	-	130	-	-	160	-	
160	**151.49**	6.6	240	175	180	-	-	205	-	130	-	-	155	-	
180	**167.65**	6.0	240	155	170	-	-	195	-	125	-	-	145	-	
200	**187.66**	5.3	240	140	170	-	-	190	-	125	-	-	145	-	
224	**223.73**	4.5	240	120	145	-	-	160	-	105	-	-	125	-	
250	**250.44**	4.0	240	105	145	-	-	160	-	105	-	-	120	-	
280	**263.12**	3.8	240	100	145	-	-	155	-	105	-	-	120	-	
315	**294.53**	3.4	240	90	140	-	-	155	-	105	-	-	120	-	
355	**325.95**	3.1	240	82	135	-	-	150	-	100	-	-	110	-	
400	**364.87**	2.7	240	73	135	-	-	145	-	98	-	-	110	-	
X.K270..,n_1= 1200 1/min															**240 kNm**
14[1]	**13.83**	87	186	1750	*)	*)	-	*)	650	*)	*)	-	*)	*)	**X3K.** /HH 258 /HU 290
16[1]	**15.48**	78	193	1600	*)	415	-	*)	610	*)	*)	-	*)	*)	
18	**17.78**	67	203	1500	*)	590	-	420	740	*)	*)	-	*)	540	
20	**19.91**	60	212	1400	*)	570	-	390	700	*)	355	-	*)	500	
22.4	**23.17**	52	231	1300	*)	570	-	380	680	*)	365	-	*)	490	
25	**25.94**	46	240	1200	*)	560	-	365	660	*)	360	-	*)	475	
28	**28.65**	42	240	1100	*)	510	-	325	590	*)	335	-	*)	425	
31.5	**32.07**	37	240	970	*)	500	-	315	570	*)	330	-	*)	410	
35.5	**33.70**	36	240	930	*)	500	-	310	570	*)	330	-	*)	405	
40	**37.72**	32	240	830	*)	495	-	300	550	*)	325	-	*)	395	
45	**42.68**	28	240	730	225	500	-	330	540	*)	360	-	245	410	
50	**47.78**	25	240	650	230	500	-	325	540	*)	360	-	240	405	
56	**52.14**	23	240	600	230	480	-	315	510	*)	350	-	235	385	
63	**58.37**	21	240	540	225	470	-	305	495	145	345	-	225	375	
71	**66.76**	18	240	470	215	425	-	275	445	145	315	-	210	335	
80	**74.73**	16	240	420	215	425	-	275	440	145	315	-	205	335	
90	**93.07**	13	237	335	210	-	-	250	-	145	-	-	195	-	**X4K.** /HH 262 /HU 296
100	**104.18**	12	240	305	205	-	-	245	-	145	-	-	190	-	
112	**115.07**	10	240	275	185	-	-	220	-	130	-	-	170	-	
125	**128.81**	9.3	240	245	185	-	-	220	-	130	-	-	165	-	
140	**135.33**	8.9	240	235	185	-	-	220	-	130	-	-	165	-	
160	**151.49**	7.9	240	210	185	-	-	210	-	130	-	-	160	-	
180	**167.65**	7.2	240	190	175	-	-	200	-	125	-	-	150	-	
200	**187.66**	6.4	240	170	175	-	-	200	-	125	-	-	150	-	
224	**223.73**	5.4	240	145	150	-	-	170	-	110	-	-	130	-	
250	**250.44**	4.8	240	125	150	-	-	165	-	110	-	-	125	-	
280	**263.12**	4.6	240	120	150	-	-	165	-	105	-	-	125	-	
315	**294.53**	4.1	240	110	145	-	-	160	-	105	-	-	125	-	
355	**325.95**	3.7	240	98	140	-	-	155	-	105	-	-	115	-	
400	**364.87**	3.3	240	87	140	-	-	150	-	100	-	-	115	-	

X.K270..,n_1= 1500 1/min															240 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
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	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[1)]	**15.48**	97	193	2050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[1)]	**17.78**	84	203	1850	*)	530	-	*)	720	*)	*)	-	*)	470	
20[1)]	**19.91**	75	212	1750	*)	510	-	*)	680	*)	*)	-	*)	440	
22.4[1)]	**23.17**	65	231	1600	*)	530	-	*)	670	*)	*)	-	*)	440	
25[1)]	**25.94**	58	240	1500	*)	520	-	*)	650	*)	*)	-	*)	425	
28[1)]	**28.65**	52	240	1350	*)	485	-	*)	590	*)	*)	-	*)	385	**X3K.**
31.5[1)]	**32.07**	47	240	1200	*)	480	-	*)	570	*)	*)	-	*)	370	/HH
35.5[1)]	**33.70**	45	240	1150	*)	485	-	*)	570	*)	*)	-	*)	370	258
40[1)]	**37.72**	40	240	1050	*)	475	-	*)	550	*)	270	-	*)	355	/HU
45[1)]	**42.68**	35	240	910	*)	540	-	300	590	*)	365	-	*)	425	290
50[1)]	**47.78**	31	240	820	*)	540	-	300	580	*)	370	-	*)	420	
56[1)]	**52.14**	29	240	760	200	520	-	305	560	*)	370	-	215	415	
63[1)]	**58.37**	26	240	670	195	510	-	295	550	*)	365	-	205	400	
71[1)]	**66.76**	22	240	590	200	470	-	275	495	*)	345	-	200	370	
80[1)]	**74.73**	20	240	530	200	475	-	270	490	*)	345	-	200	365	
90	**93.07**	16	237	420	210	-	-	260	-	135	-	-	200	-	
100	**104.18**	14	240	380	205	-	-	255	-	135	-	-	195	-	
112	**115.07**	13	240	345	190	-	-	230	-	125	-	-	175	-	
125	**128.81**	12	240	305	190	-	-	230	-	125	-	-	170	-	
140	**135.33**	11	240	290	185	-	-	225	-	125	-	-	170	-	
160	**151.49**	9.9	240	260	185	-	-	220	-	125	-	-	165	-	**X4K.**
180	**167.65**	8.9	240	235	175	-	-	210	-	120	-	-	155	-	/HH
200	**187.66**	8.0	240	210	175	-	-	205	-	120	-	-	150	-	262
224	**223.73**	6.7	240	180	155	-	-	180	-	110	-	-	135	-	/HU
250	**250.44**	6.0	240	160	155	-	-	175	-	110	-	-	130	-	296
280	**263.12**	5.7	240	150	155	-	-	170	-	110	-	-	130	-	
315	**294.53**	5.1	240	135	150	-	-	170	-	110	-	-	130	-	
355	**325.95**	4.6	240	120	145	-	-	160	-	105	-	-	120	-	
400	**364.87**	4.1	240	110	145	-	-	160	-	100	-	-	120	-	
X.K270..,n_1= 1800 1/min															**240 kNm**
14[*)]	**13.83**	130	178	2500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[*)]	**15.48**	116	184	2300	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[*)]	**17.78**	101	194	2150	*)	*)	-	*)	580[*)]	*)	*)	-	*)	*)	
20[*)]	**19.91**	90	203	2000	*)	*)	-	*)	560[*)]	*)	*)	-	*)	*)	
22.4[*)]	**23.17**	78	222	1850	*)	*)	-	*)	570[*)]	*)	*)	-	*)	*)	
25[*)]	**25.94**	69	233	1750	*)	*)	-	*)	560[*)]	*)	*)	-	*)	*)	
28[*)]	**28.65**	63	240	1650	*)	*)	-	*)	510[*)]	*)	*)	-	*)	*)	**X3K.**
31.5[*)]	**32.07**	56	240	1450	*)	380[*)]	-	*)	490[*)]	*)	*)	-	*)	*)	/HH
35.5[*)]	**33.70**	53	240	1400	*)	390[*)]	-	*)	495[*)]	*)	*)	-	*)	*)	258
40[*)]	**37.72**	48	240	1250	*)	385[*)]	-	*)	480[*)]	*)	*)	-	*)	*)	/HU
45[*)]	**42.68**	42	240	1100	*)	530[*)]	-	*)	590[*)]	*)	335[*)]	-	*)	410[*)]	290
50[*)]	**47.78**	38	240	980	*)	530[*)]	-	*)	590[*)]	*)	340[*)]	-	*)	405[*)]	
56[*)]	**52.14**	35	240	910	*)	540[*)]	-	275	580[*)]	*)	365[*)]	-	*)	415[*)]	
63[*)]	**58.37**	31	240	810	*)	530[*)]	-	265	570[*)]	*)	360[*)]	-	*)	405[*)]	
71[*)]	**66.76**	27	240	710	*)	495[*)]	-	260	520[*)]	*)	350[*)]	-	180	380[*)]	
80[*)]	**74.73**	24	240	630	170	495[*)]	-	260	520[*)]	*)	350[*)]	-	180	380[*)]	
90	**93.07**	19	237	500	200	-	-	265	-	*)	-	-	195	-	
100	**104.18**	17	240	455	200	-	-	260	-	120	-	-	190	-	
112	**115.07**	16	240	410	180	-	-	235	-	115	-	-	170	-	
125	**128.81**	14	240	370	185	-	-	230	-	115	-	-	170	-	
140	**135.33**	13	240	350	180	-	-	230	-	115	-	-	165	-	
160	**151.49**	12	240	315	180	-	-	220	-	115	-	-	160	-	**X4K.**
180	**167.65**	11	240	285	170	-	-	210	-	110	-	-	155	-	/HH
200	**187.66**	9.6	240	250	170	-	-	210	-	110	-	-	150	-	262
224	**223.73**	8.0	240	215	160	-	-	185	-	110	-	-	140	-	/HU
250	**250.44**	7.2	240	190	155	-	-	180	-	110	-	-	135	-	296
280	**263.12**	6.8	240	180	155	-	-	180	-	105	-	-	130	-	
315	**294.53**	6.1	240	165	155	-	-	175	-	105	-	-	130	-	
355	**325.95**	5.5	240	145	145	-	-	165	-	105	-	-	125	-	
400	**364.87**	4.9	240	130	145	-	-	165	-	100	-	-	120	-	

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X.K280..,n_1= 1000 1/min															270 kNm
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C					M1 40 °C					📖
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16	15.48	65	209	1450	*)	620	-	500	810	*)	375	-	*)	590	X3K. /HH 258 /HU 290
18	17.34	58	217	1350	*)	620	-	485	790	*)	375	-	*)	570	
20	19.91	50	230	1250	*)	660	-	530	790	*)	455	-	400	600	
22.4	22.30	45	240	1150	305	650	-	510	770	*)	450	-	390	580	
25	25.94	39	260	1100	320	660	-	500	760	*)	460	-	380	570	
28	29.05	34	270	1000	305	630	-	475	720	*)	440	-	355	540	
31.5	32.07	31	270	910	290	590	-	435	660	*)	415	-	325	495	
35.5	35.92	28	270	810	275	560	-	405	620	*)	395	-	300	465	
40	37.72	27	270	780	285	580	-	415	640	*)	405	-	305	475	
45	42.25	24	270	690	280	560	-	400	620	*)	400	-	295	460	
50	47.78	21	270	610	295	540	-	390	580	200	395	-	300	440	
56	53.51	19	270	550	290	530	-	375	560	195	390	-	290	430	
63	58.37	17	270	510	285	510	-	360	530	200	380	-	280	410	
71	65.38	15	270	450	275	485	-	345	510	190	360	-	265	390	
80	74.73	13	270	395	255	440	-	310	460	180	330	-	240	350	
90	83.70	12	270	355	250	435	-	300	445	175	325	-	230	340	
100	104.18	9.6	264	280	235	-	-	275	-	170	-	-	215	-	X4K. /HH 262 /HU 296
112	116.68	8.6	270	255	235	-	-	270	-	170	-	-	210	-	
125	128.81	7.8	270	230	215	-	-	245	-	155	-	-	190	-	
140	144.27	6.9	270	205	210	-	-	240	-	150	-	-	185	-	
160	151.49	6.6	270	195	210	-	-	240	-	155	-	-	185	-	
180	169.67	5.9	270	175	205	-	-	235	-	150	-	-	180	-	
200	187.66	5.3	270	160	200	-	-	220	-	145	-	-	170	-	
224	210.18	4.8	270	140	195	-	-	215	-	140	-	-	165	-	
250	250.44	4.0	270	120	165	-	-	180	-	120	-	-	140	-	
280	280.49	3.6	270	105	165	-	-	180	-	120	-	-	140	-	
315	294.53	3.4	270	100	165	-	-	180	-	120	-	-	135	-	
355	329.88	3.0	270	91	160	-	-	175	-	120	-	-	135	-	
400	364.87	2.7	270	82	155	-	-	170	-	115	-	-	130	-	
450	408.66	2.4	270	73	155	-	-	165	-	115	-	-	125	-	
X.K280..,n_1= 1200 1/min															270 kNm
16[1]	15.48	78	209	1750	*)	560	-	*)	800	*)	*)	-	*)	530	X3K. /HH 258 /HU 290
18[1]	17.34	69	217	1650	*)	570	-	*)	780	*)	*)	-	*)	520	
20	19.91	60	230	1500	*)	680	-	495	840	*)	445	-	*)	620	
22.4	22.30	54	240	1400	*)	680	-	480	820	*)	445	-	*)	600	
25	25.94	46	260	1300	*)	690	-	470	810	*)	460	-	335	600	
28	29.05	41	270	1200	*)	660	-	440	770	*)	445	-	310	560	
31.5	32.07	37	270	1100	*)	620	-	405	710	*)	420	-	285	520	
35.5	35.92	33	270	980	*)	590	-	380	670	*)	400	-	265	485	
40	37.72	32	270	930	*)	610	-	390	680	*)	415	-	270	495	
45	42.25	28	270	830	230	600	-	375	660	*)	410	-	255	480	
50	47.78	25	270	740	280	590	-	390	640	*)	430	-	295	480	
56	53.51	22	270	660	275	580	-	380	620	170	420	-	280	465	
63	58.37	21	270	610	280	560	-	370	590	185	415	-	280	450	
71	65.38	18	270	540	265	540	-	350	560	175	395	-	265	425	
80	74.73	16	270	475	255	495	-	320	510	175	365	-	245	390	
90	83.70	14	270	425	250	485	-	310	500	170	360	-	235	380	
100	104.18	12	264	335	240	-	-	290	-	170	-	-	225	-	X4K. /HH 262 /HU 296
112	116.68	10	270	305	240	-	-	285	-	170	-	-	220	-	
125	128.81	9.3	270	275	220	-	-	255	-	155	-	-	195	-	
140	144.27	8.3	270	245	215	-	-	250	-	155	-	-	190	-	
160	151.49	7.9	270	235	215	-	-	250	-	155	-	-	190	-	
180	169.67	7.1	270	210	215	-	-	245	-	150	-	-	185	-	
200	187.66	6.4	270	190	205	-	-	230	-	145	-	-	175	-	
224	210.18	5.7	270	170	200	-	-	225	-	145	-	-	170	-	
250	250.44	4.8	270	145	170	-	-	190	-	125	-	-	145	-	
280	280.49	4.3	270	130	170	-	-	190	-	125	-	-	145	-	
315	294.53	4.1	270	120	170	-	-	185	-	125	-	-	145	-	
355	329.88	3.6	270	110	165	-	-	185	-	120	-	-	140	-	
400	364.87	3.3	270	98	160	-	-	175	-	120	-	-	135	-	
450	408.66	2.9	270	88	160	-	-	175	-	115	-	-	130	-	

X.K280..,n_1= 1500 1/min															270 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
16[1)]	15.48	97	209	2200	*)	*)	-	*)	610	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
18[1)]	17.34	87	217	2050	*)	*)	-	*)	620	*)	*)	-	*)	*)	
20[1)]	19.91	75	230	1900	*)	650	-	*)	840	*)	*)	-	*)	580	
22.4[1)]	22.30	67	240	1750	*)	650	-	*)	820	*)	*)	-	*)	560	
25[1)]	25.94	58	260	1650	*)	670	-	*)	820	*)	*)	-	*)	570	
28[1)]	29.05	52	270	1500	*)	650	-	*)	780	*)	385	-	*)	530	
31.5[1)]	32.07	47	270	1350	*)	610	-	*)	720	*)	370	-	*)	495	
35.5[1)]	35.92	42	270	1200	*)	590	-	*)	680	*)	355	-	*)	465	
40[1)]	37.72	40	270	1150	*)	610	-	305	700	*)	375	-	*)	475	
45[1)]	42.25	36	270	1050	*)	600	-	290	680	*)	370	-	*)	460	
50[1)]	47.78	31	270	920	230	640	-	370	690	*)	445	-	265	510	
56[1)]	53.51	28	270	820	225	620	-	360	670	*)	440	-	250	495	
63[1)]	58.37	26	270	760	250	620	-	365	660	*)	445	-	265	490	
71[1)]	65.38	23	270	680	240	590	-	345	620	*)	425	-	250	465	
80[1)]	74.73	20	270	590	240	550	-	325	570	150	405	-	240	430	
90[1)]	83.70	18	270	530	235	540	-	315	560	150	395	-	230	420	
100	104.18	14	264	415	245	-	-	305	-	170	-	-	230	-	X4K. /HH 262 /HU 296
112	116.68	13	270	380	240	-	-	295	-	165	-	-	225	-	
125	128.81	12	270	345	220	-	-	270	-	155	-	-	205	-	
140	144.27	10	270	310	215	-	-	260	-	150	-	-	195	-	
160	151.49	9.9	270	295	220	-	-	260	-	155	-	-	200	-	
180	169.67	8.8	270	260	215	-	-	255	-	150	-	-	190	-	
200	187.66	8.0	270	235	205	-	-	240	-	145	-	-	180	-	
224	210.18	7.1	270	210	200	-	-	235	-	140	-	-	175	-	
250	250.44	6.0	270	180	180	-	-	200	-	130	-	-	155	-	
280	280.49	5.3	270	160	175	-	-	200	-	130	-	-	150	-	
315	294.53	5.1	270	150	175	-	-	200	-	125	-	-	150	-	
355	329.88	4.5	270	135	175	-	-	195	-	125	-	-	145	-	
400	364.87	4.1	270	125	170	-	-	185	-	120	-	-	140	-	
450	408.66	3.7	270	110	165	-	-	180	-	120	-	-	135	-	
X.K280..,n_1= 1800 1/min															270 kNm
16[*)]	15.48	116	200	2500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
18[*)]	17.34	104	208	2350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
20[*)]	19.91	90	218	2150	*)	*)	-	*)	740[*)]	*)	*)	-	*)	*)	
22.4[*)]	22.30	81	230	2000	*)	520[*)]	-	*)	740[*)]	*)	*)	-	*)	*)	
25[*)]	25.94	69	250	1900	*)	570[*)]	-	*)	750[*)]	*)	*)	-	*)	*)	
28[*)]	29.05	62	264	1750	*)	550[*)]	-	*)	710[*)]	*)	*)	-	*)	*)	
31.5[*)]	32.07	56	270	1650	*)	530[*)]	-	*)	670[*)]	*)	*)	-	*)	*)	
35.5[*)]	35.92	50	270	1450	*)	510[*)]	-	*)	630[*)]	*)	*)	-	*)	370[*)]	
40[*)]	37.72	48	270	1400	*)	540[*)]	-	*)	650[*)]	*)	*)	-	*)	390[*)]	
45[*)]	42.25	43	270	1250	*)	530[*)]	-	*)	630[*)]	*)	*)	-	*)	370[*)]	
50[*)]	47.78	38	270	1100	*)	640[*)]	-	325	710[*)]	*)	430[*)]	-	*)	510[*)]	
56[*)]	53.51	34	270	980	*)	630[*)]	-	315	690[*)]	*)	420[*)]	-	*)	490[*)]	
63[*)]	58.37	31	270	910	*)	640[*)]	-	340	690[*)]	*)	450[*)]	-	235	500[*)]	
71[*)]	65.38	28	270	810	*)	620[*)]	-	320	660[*)]	*)	430[*)]	-	220	475[*)]	
80[*)]	74.73	24	270	710	215	580[*)]	-	315	610[*)]	*)	420[*)]	-	225	450[*)]	
90[*)]	83.70	22	270	640	210	570[*)]	-	305	590[*)]	*)	410[*)]	-	215	440[*)]	
100	104.18	17	264	500	240	-	-	310	-	155	-	-	235	-	X4K. /HH 262 /HU 296
112	116.68	15	270	455	240	-	-	305	-	155	-	-	230	-	
125	128.81	14	270	415	220	-	-	275	-	145	-	-	205	-	
140	144.27	12	270	370	215	-	-	265	-	140	-	-	200	-	
160	151.49	12	270	350	220	-	-	270	-	145	-	-	200	-	
180	169.67	11	270	315	215	-	-	260	-	140	-	-	195	-	
200	187.66	9.6	270	285	205	-	-	245	-	135	-	-	180	-	
224	210.18	8.6	270	255	200	-	-	240	-	135	-	-	175	-	
250	250.44	7.2	270	215	180	-	-	210	-	130	-	-	160	-	
280	280.49	6.4	270	190	180	-	-	205	-	130	-	-	155	-	
315	294.53	6.1	270	185	180	-	-	205	-	125	-	-	155	-	
355	329.88	5.5	270	165	175	-	-	200	-	125	-	-	150	-	
400	364.87	4.9	270	150	170	-	-	195	-	120	-	-	145	-	
450	408.66	4.4	270	130	170	-	-	190	-	120	-	-	140	-	

X.K290..,n_1= 1000 1/min															308 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5	**12.37**	81	240	2100	*)	550	-	840	1200	*)	*)	-	670	930	**X3K.** /HH 258 /HU 290
14	**13.98**	72	253	1950	*)	580	-	830	1200	*)	*)	-	650	920	
16	**15.91**	63	263	1800	*)	720	-	880	1200	*)	465	-	730	960	
18	**17.98**	56	278	1700	*)	720	-	840	1150	*)	465	-	700	920	
20	**20.45**	49	292	1550	*)	710	-	780	1050	*)	470	-	650	860	
22.4	**23.12**	43	308	1450	*)	730	-	780	1100	*)	485	-	640	860	
25	**26.69**	37	308	1250	*)	680	-	690	960	*)	460	-	560	760	
28	**30.17**	33	308	1100	300	690	-	680	950	*)	465	-	550	750	
31.5	**32.00**	31	308	1050	275	630	-	600	850	*)	425	-	480	670	
35.5	**36.17**	28	308	920	275	610	-	570	820	*)	415	-	455	640	
40	**40.09**	25	308	830	315	600	-	550	770	*)	440	-	455	610	
45	**45.31**	22	308	740	320	610	-	540	760	200	440	-	440	600	
50	**48.97**	20	308	690	310	560	-	495	690	205	415	-	405	550	
56	**55.35**	18	308	610	310	570	-	490	680	210	420	-	395	540	
63	**62.70**	16	308	540	280	500	-	420	580	195	370	-	345	465	
71	**70.87**	14	308	475	285	510	-	420	590	200	380	-	340	465	
80	**81.36**	12	308	415	270	-	-	380	-	195	-	-	310	-	**X4K.** /HH 262 /HU 296
90	**91.96**	11	308	365	275	-	-	375	-	195	-	-	305	-	
100	**106.18**	9.4	308	320	260	-	-	345	-	185	-	-	275	-	
112	**120.01**	8.3	308	280	255	-	-	340	-	185	-	-	270	-	
125	**127.30**	7.9	308	265	235	-	-	310	-	170	-	-	245	-	
140	**143.88**	7.0	308	235	240	-	-	310	-	175	-	-	245	-	
160	**157.21**	6.4	308	215	220	-	-	280	-	160	-	-	225	-	
180	**177.69**	5.6	308	190	225	-	-	280	-	165	-	-	225	-	
200	**206.45**	4.8	308	165	200	-	-	245	-	145	-	-	195	-	
224	**233.34**	4.3	308	145	200	-	-	240	-	145	-	-	190	-	
250	**247.50**	4.0	308	140	185	-	-	220	-	135	-	-	175	-	
280	**279.74**	3.6	308	120	185	-	-	220	-	135	-	-	170	-	
315	**305.67**	3.3	308	110	175	-	-	205	-	130	-	-	160	-	
355	**345.48**	2.9	308	99	175	-	-	200	-	125	-	-	155	-	
X.K290..,n_1= 1200 1/min															**308 kNm**
12.5[1]	**12.37**	97	240	2500	*)	*)	-	*)	1100	*)	*)	-	*)	780	**X3K.** /HH 258 /HU 290
14[1]	**13.98**	86	253	2350	*)	*)	-	640	1150	*)	*)	-	*)	820	
16	**15.91**	75	263	2150	*)	710	-	850	1250	*)	*)	-	700	1000	
18	**17.98**	67	278	2000	*)	710	-	810	1200	*)	*)	-	660	960	
20	**20.45**	59	292	1850	*)	710	-	760	1150	*)	*)	-	610	900	
22.4	**23.12**	52	308	1750	*)	730	-	750	1150	*)	445	-	600	900	
25	**26.69**	45	308	1500	*)	690	-	670	1000	*)	430	-	520	800	
28	**30.17**	40	308	1350	*)	700	-	650	1000	*)	440	-	510	780	
31.5	**32.00**	38	308	1250	*)	640	-	580	910	*)	405	-	445	700	
35.5	**36.17**	33	308	1100	*)	630	-	550	870	*)	400	-	420	660	
40	**40.09**	30	308	1000	280	660	-	570	840	*)	465	-	460	670	
45	**45.31**	26	308	880	285	660	-	560	840	*)	465	-	445	660	
50	**48.97**	25	308	830	290	620	-	510	760	*)	450	-	415	600	
56	**55.35**	22	308	730	290	620	-	500	750	*)	450	-	405	590	
63	**62.70**	19	308	640	275	550	-	440	650	180	410	-	355	520	
71	**70.87**	17	308	570	280	560	-	440	660	185	415	-	355	520	
80	**81.36**	15	308	500	275	-	-	405	-	190	-	-	330	-	**X4K.** /HH 262 /HU 296
90	**91.96**	13	308	440	280	-	-	400	-	195	-	-	325	-	
100	**106.18**	11	308	380	265	-	-	365	-	185	-	-	295	-	
112	**120.01**	10.0	308	340	265	-	-	360	-	185	-	-	290	-	
125	**127.30**	9.4	308	320	240	-	-	325	-	170	-	-	260	-	
140	**143.88**	8.3	308	280	245	-	-	325	-	175	-	-	260	-	
160	**157.21**	7.6	308	260	225	-	-	295	-	160	-	-	235	-	
180	**177.69**	6.8	308	230	230	-	-	295	-	165	-	-	235	-	
200	**206.45**	5.8	308	200	205	-	-	260	-	150	-	-	205	-	
224	**233.34**	5.1	308	175	205	-	-	255	-	150	-	-	200	-	
250	**247.50**	4.8	308	165	190	-	-	235	-	140	-	-	185	-	
280	**279.74**	4.3	308	145	190	-	-	230	-	140	-	-	180	-	
315	**305.67**	3.9	308	135	180	-	-	215	-	130	-	-	170	-	
355	**345.48**	3.5	308	120	180	-	-	215	-	130	-	-	165	-	

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X.K290..,n_1= 1500 1/min															308 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5[1]	12.37	121	240	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
14[1]	13.98	107	253	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[1]	15.91	94	263	2700	*)	*)	-	*)	1200*)	*)	*)	-	*)	900*)	
18[1]	17.98	83	278	2500	*)	*)	-	670	1200*)	*)	*)	-	*)	900*)	
20[1]	20.45	73	292	2300	*)	610*)	-	640	1150*)	*)	*)	-	*)	860*)	
22.4[1]	23.12	65	308	2150	*)	640*)	-	630	1150*)	*)	*)	-	*)	860*)	
25[1]	26.69	56	308	1900	*)	620*)	-	560	1050*)	*)	*)	-	*)	770*)	
28[1]	30.17	50	308	1650	*)	630*)	-	540	1050*)	*)	*)	-	*)	750*)	
31.5[1]	32.00	47	308	1550	*)	590*)	-	475	920*)	*)	*)	-	*)	670*)	
35.5[1]	36.17	41	308	1400	*)	580*)	-	440	880*)	*)	*)	-	*)	630*)	
40[1]	40.09	37	308	1250	*)	690*)	-	560	920*)	*)	460*)	-	435	710*)	
45[1]	45.31	33	308	1100	*)	690*)	-	540	910*)	*)	465*)	-	420	700*)	
50[1]	48.97	31	308	1050	*)	670*)	-	520	840*)	*)	465*)	-	410	660*)	
56[1]	55.35	27	308	910	235	670*)	-	500	830*)	*)	470*)	-	400	650*)	
63[1]	62.70	24	308	810	250	610*)	-	455	730*)	*)	440*)	-	365	570*)	
71[1]	70.87	21	308	710	255	620*)	-	455	740*)	*)	450*)	-	360	580*)	
80	81.36	18	308	620	275	-	-	435	-	180	-	-	355	-	X4K. /HH 262 /HU 296
90	91.96	16	308	550	280	-	-	425	-	180	-	-	345	-	
100	106.18	14	308	475	265	-	-	390	-	175	-	-	315	-	
112	120.01	12	308	420	265	-	-	385	-	180	-	-	305	-	
125	127.30	12	308	400	245	-	-	345	-	165	-	-	275	-	
140	143.88	10	308	350	245	-	-	345	-	170	-	-	275	-	
160	157.21	9.5	308	320	230	-	-	315	-	155	-	-	250	-	
180	177.69	8.4	308	285	230	-	-	315	-	160	-	-	250	-	
200	206.45	7.3	308	250	215	-	-	275	-	150	-	-	220	-	
224	233.34	6.4	308	220	210	-	-	270	-	150	-	-	215	-	
250	247.50	6.1	308	205	200	-	-	250	-	140	-	-	195	-	
280	279.74	5.4	308	185	195	-	-	245	-	140	-	-	195	-	
315	305.67	4.9	308	165	185	-	-	230	-	135	-	-	180	-	
355	345.48	4.3	308	150	185	-	-	225	-	130	-	-	175	-	
X.K290..,n_1= 1800 1/min															308 kNm
12.5*)	12.37	146	226	3550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
14*)	13.98	129	238	3300	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	15.91	113	248	3050	*)	*)	-	*)	980*)	*)	*)	-	*)	*)	
18*)	17.98	100	263	2850	*)	*)	-	*)	990*)	*)	*)	-	*)	*)	
20*)	20.45	88	276	2650	*)	*)	-	*)	1050*)	*)	*)	-	*)	690*)	
22.4*)	23.12	78	299	2500	*)	*)	-	*)	1050*)	*)	*)	-	*)	690*)	
25*)	26.69	67	308	2250	*)	*)	-	*)	950*)	*)	*)	-	*)	630*)	
28*)	30.17	60	308	2000	*)	*)	-	*)	930*)	*)	*)	-	*)	600*)	
31.5*)	32.00	56	308	1900	*)	*)	-	*)	840*)	*)	*)	-	*)	540*)	
35.5*)	36.17	50	308	1650	*)	*)	-	*)	800*)	*)	*)	-	*)	500*)	
40*)	40.09	45	308	1500	*)	660*)	-	500	940*)	*)	400*)	-	*)	710*)	
45*)	45.31	40	308	1350	*)	670*)	-	485	930*)	*)	405*)	-	350	690*)	
50*)	48.97	37	308	1250	*)	670*)	-	495	880*)	*)	445*)	-	380	670*)	
56*)	55.35	33	308	1100	*)	680*)	-	480	870*)	*)	445*)	-	365	660*)	
63*)	62.70	29	308	970	*)	640*)	-	450	780*)	*)	445*)	-	355	600*)	
71*)	70.87	25	308	860	*)	650*)	-	450	780*)	*)	455*)	-	350	600*)	
80	81.36	22	308	750	265	-	-	455	-	*)	-	-	370	-	X4K. /HH 262 /HU 296
90	91.96	20	308	660	265	-	-	445	-	*)	-	-	360	-	
100	106.18	17	308	570	255	-	-	405	-	160	-	-	325	-	
112	120.01	15	308	510	260	-	-	400	-	160	-	-	320	-	
125	127.30	14	308	480	240	-	-	360	-	150	-	-	285	-	
140	143.88	13	308	420	240	-	-	360	-	155	-	-	285	-	
160	157.21	11	308	385	225	-	-	325	-	145	-	-	255	-	
180	177.69	10	308	340	230	-	-	325	-	150	-	-	255	-	
200	206.45	8.7	308	300	215	-	-	290	-	150	-	-	230	-	
224	233.34	7.7	308	265	215	-	-	285	-	150	-	-	225	-	
250	247.50	7.3	308	250	200	-	-	265	-	140	-	-	205	-	
280	279.74	6.4	308	220	200	-	-	260	-	140	-	-	200	-	
315	305.67	5.9	308	200	190	-	-	240	-	130	-	-	185	-	
355	345.48	5.2	308	180	185	-	-	235	-	130	-	-	185	-	

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X.K300..,n_1= 1000 1/min															350 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	📖
14	**13.18**	76	260	2150	*)	560	-	*)	790	*)	*)	-	*)	*)	
16	**14.94**	67	273	2000	*)	570	-	*)	780	*)	*)	-	*)	*)	
18	**16.95**	59	281	1800	*)	740	-	560	890	*)	475	-	*)	650	
20	**19.21**	52	302	1700	*)	730	-	540	870	*)	475	-	*)	630	
22.4	**21.79**	46	320	1600	*)	720	-	520	840	*)	480	-	*)	610	
25	**24.70**	40	345	1500	*)	720	-	510	820	*)	480	-	*)	600	
28	**28.44**	35	350	1350	*)	700	-	485	780	*)	470	-	335	570	**X3K.** /HH 258 /HU 290
31.5	**32.24**	31	350	1200	300	680	-	465	760	*)	465	-	320	550	
35.5	**34.10**	29	350	1100	285	640	-	435	700	*)	435	-	300	510	
40	**38.65**	26	350	980	280	630	-	415	680	*)	430	-	285	490	
45	**42.71**	23	350	890	325	620	-	430	660	*)	450	-	320	495	
50	**48.41**	21	350	780	320	610	-	415	640	200	440	-	310	480	
56	**52.18**	19	350	730	315	580	-	400	600	210	425	-	300	455	
63	**59.14**	17	350	650	310	560	-	390	590	210	415	-	290	445	
71	**66.81**	15	350	570	290	510	-	350	520	200	380	-	265	400	
80	**75.72**	13	350	510	290	510	-	345	520	200	380	-	260	395	
90	**86.70**	12	330	415	275	-	-	325	-	200	-	-	250	-	
100	**98.25**	10	350	390	280	-	-	325	-	200	-	-	250	-	
112	**113.15**	8.8	350	340	265	-	-	300	-	190	-	-	230	-	
125	**128.23**	7.8	350	300	265	-	-	300	-	190	-	-	230	-	
140	**135.65**	7.4	350	285	240	-	-	275	-	175	-	-	210	-	
160	**153.73**	6.5	350	250	240	-	-	270	-	175	-	-	205	-	**X4K.** /HH 262 /HU 296
180	**167.52**	6.0	350	230	225	-	-	255	-	165	-	-	190	-	
200	**189.86**	5.3	350	200	225	-	-	250	-	165	-	-	190	-	
224	**219.99**	4.5	350	175	205	-	-	225	-	150	-	-	170	-	
250	**249.32**	4.0	350	155	205	-	-	220	-	150	-	-	170	-	
280	**263.73**	3.8	350	145	190	-	-	205	-	140	-	-	155	-	
315	**298.90**	3.3	350	130	190	-	-	205	-	140	-	-	155	-	
355	**325.71**	3.1	350	120	180	-	-	190	-	130	-	-	145	-	
400	**369.14**	2.7	350	105	175	-	-	190	-	130	-	-	145	-	
X.K300..,n_1= 1200 1/min															**350 kNm**
14[1]	**13.18**	91	260	2550	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16[1]	**14.94**	80	273	2400	*)	*)	-	*)	640	*)	*)	-	*)	*)	
18	**16.95**	71	281	2150	*)	720	-	*)	910	*)	*)	-	*)	620	
20	**19.21**	62	302	2050	*)	720	-	*)	890	*)	*)	-	*)	610	
22.4	**21.79**	55	320	1900	*)	730	-	*)	870	*)	*)	-	*)	600	
25	**24.70**	49	345	1800	*)	720	-	*)	850	*)	*)	-	*)	580	
28	**28.44**	42	350	1600	*)	710	-	410	810	*)	445	-	*)	560	**X3K.** /HH 258 /HU 290
31.5	**32.24**	37	350	1400	*)	700	-	395	780	*)	440	-	*)	540	
35.5	**34.10**	35	350	1350	*)	660	-	370	730	*)	415	-	*)	500	
40	**38.65**	31	350	1200	*)	640	-	355	710	*)	410	-	*)	485	
45	**42.71**	28	350	1050	290	670	-	420	720	*)	475	-	300	530	
50	**48.41**	25	350	940	285	660	-	405	700	*)	465	-	285	510	
56	**52.18**	23	350	880	300	630	-	400	660	*)	460	-	290	495	
63	**59.14**	20	350	780	290	620	-	385	640	*)	450	-	280	480	
71	**66.81**	18	350	690	280	570	-	355	580	185	420	-	265	440	
80	**75.72**	16	350	610	280	560	-	350	580	185	420	-	260	435	
90	**86.70**	14	330	500	280	-	-	335	-	195	-	-	255	-	
100	**98.25**	12	350	470	285	-	-	335	-	200	-	-	255	-	
112	**113.15**	11	350	405	270	-	-	315	-	190	-	-	240	-	
125	**128.23**	9.4	350	360	270	-	-	310	-	190	-	-	235	-	
140	**135.65**	8.8	350	340	245	-	-	285	-	175	-	-	215	-	
160	**153.73**	7.8	350	300	245	-	-	280	-	175	-	-	210	-	**X4K.** /HH 262 /HU 296
180	**167.52**	7.2	350	275	230	-	-	265	-	165	-	-	200	-	
200	**189.86**	6.3	350	245	230	-	-	260	-	165	-	-	195	-	
224	**219.99**	5.5	350	210	210	-	-	235	-	155	-	-	175	-	
250	**249.32**	4.8	350	185	210	-	-	230	-	155	-	-	175	-	
280	**263.73**	4.6	350	175	195	-	-	215	-	140	-	-	165	-	
315	**298.90**	4.0	350	155	195	-	-	210	-	140	-	-	160	-	
355	**325.71**	3.7	350	145	185	-	-	200	-	135	-	-	150	-	
400	**369.14**	3.3	350	125	185	-	-	200	-	135	-	-	150	-	

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X.K300..,n_1= 1500 1/min															350 kNm
					P_{TH} kW										
					M1 20 °C					M1 40 °C					
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14[1)]	13.18	114	260	3200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
16[1)]	14.94	100	273	2950	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[1)]	16.95	88	281	2700	*)	*)	-	*)	800[*)]	*)	*)	-	*)	*)	
20[1)]	19.21	78	302	2550	*)	*)	-	*)	810[*)]	*)	*)	-	*)	*)	
22.4[1)]	21.79	69	320	2400	*)	630[*)]	-	*)	810[*)]	*)	*)	-	*)	*)	
25[1)]	24.70	61	345	2250	*)	630[*)]	-	*)	790[*)]	*)	*)	-	*)	*)	
28[1)]	28.44	53	350	2000	*)	640[*)]	-	*)	770[*)]	*)	*)	-	*)	*)	
31.5[1)]	32.24	47	350	1750	*)	630[*)]	-	*)	740[*)]	*)	*)	-	*)	*)	
35.5[1)]	34.10	44	350	1650	*)	600[*)]	-	*)	700[*)]	*)	*)	-	*)	420[*)]	
40[1)]	38.65	39	350	1450	*)	600[*)]	-	*)	680[*)]	*)	*)	-	*)	400[*)]	
45[1)]	42.71	35	350	1350	*)	710[*)]	-	365	760[*)]	*)	475[*)]	-	*)	540[*)]	
50[1)]	48.41	31	350	1200	*)	690[*)]	-	350	740[*)]	*)	465[*)]	-	*)	520[*)]	
56[1)]	52.18	29	350	1100	*)	680[*)]	-	370	720[*)]	*)	480[*)]	-	*)	520[*)]	
63[1)]	59.14	25	350	970	*)	670[*)]	-	355	700[*)]	*)	470[*)]	-	*)	510[*)]	
71[1)]	66.81	22	350	860	255	620[*)]	-	350	640[*)]	*)	450[*)]	-	250	475[*)]	
80[1)]	75.72	20	350	760	255	620[*)]	-	345	640[*)]	*)	450[*)]	-	245	470[*)]	
90	86.70	17	330	630	280	-	-	350	-	185	-	-	260	-	X4K. /HH 262 /HU 296
100	98.25	15	350	590	285	-	-	350	-	185	-	-	260	-	
112	113.15	13	350	510	270	-	-	325	-	180	-	-	245	-	
125	128.23	12	350	450	270	-	-	325	-	185	-	-	240	-	
140	135.65	11	350	425	250	-	-	295	-	170	-	-	220	-	
160	153.73	9.8	350	375	250	-	-	290	-	170	-	-	215	-	
180	167.52	9.0	350	345	235	-	-	270	-	160	-	-	200	-	
200	189.86	7.9	350	305	235	-	-	270	-	160	-	-	200	-	
224	219.99	6.8	350	265	220	-	-	245	-	155	-	-	185	-	
250	249.32	6.0	350	235	215	-	-	240	-	155	-	-	180	-	
280	263.73	5.7	350	220	200	-	-	225	-	145	-	-	170	-	
315	298.90	5.0	350	195	200	-	-	225	-	145	-	-	165	-	
355	325.71	4.6	350	180	190	-	-	210	-	135	-	-	155	-	
400	369.14	4.1	350	160	190	-	-	205	-	135	-	-	155	-	
X.K300..,n_1= 1800 1/min															350 kNm
14[*)]	13.18	137	246	3650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
16[*)]	14.94	120	255	3350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[*)]	16.95	106	266	3050	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
20[*)]	19.21	94	278	2800	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
22.4[*)]	21.79	83	295	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
25[*)]	24.70	73	318	2500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
28[*)]	28.44	63	335	2300	*)	*)	-	*)	610[*)]	*)	*)	-	*)	*)	
31.5[*)]	32.24	56	350	2100	*)	*)	-	*)	580[*)]	*)	*)	-	*)	*)	
35.5[*)]	34.10	53	350	2000	*)	*)	-	*)	560[*)]	*)	*)	-	*)	*)	
40[*)]	38.65	47	350	1750	*)	*)	-	*)	540[*)]	*)	*)	-	*)	*)	
45[*)]	42.71	42	350	1600	*)	680[*)]	-	*)	750[*)]	*)	415[*)]	-	*)	495[*)]	
50[*)]	48.41	37	350	1400	*)	670[*)]	-	*)	730[*)]	*)	405[*)]	-	*)	475[*)]	
56[*)]	52.18	34	350	1300	*)	690[*)]	-	*)	740[*)]	*)	460[*)]	-	*)	510[*)]	
63[*)]	59.14	30	350	1150	*)	680[*)]	-	300	720[*)]	*)	450[*)]	-	*)	495[*)]	
71[*)]	66.81	27	350	1050	*)	650[*)]	-	325	680[*)]	*)	455[*)]	-	*)	485[*)]	
80[*)]	75.72	24	350	910	*)	650[*)]	-	315	670[*)]	*)	455[*)]	-	*)	480[*)]	
90	86.70	21	330	750	270	-	-	355	-	*)	-	-	255	-	X4K. /HH 262 /HU 296
100	98.25	18	350	700	275	-	-	355	-	*)	-	-	255	-	
112	113.15	16	350	610	260	-	-	330	-	165	-	-	240	-	
125	128.23	14	350	540	265	-	-	325	-	165	-	-	240	-	
140	135.65	13	350	510	245	-	-	300	-	155	-	-	215	-	
160	153.73	12	350	450	245	-	-	295	-	155	-	-	215	-	
180	167.52	11	350	410	230	-	-	275	-	150	-	-	200	-	
200	189.86	9.5	350	365	230	-	-	270	-	150	-	-	195	-	
224	219.99	8.2	350	315	220	-	-	255	-	155	-	-	190	-	
250	249.32	7.2	350	280	220	-	-	250	-	155	-	-	185	-	
280	263.73	6.8	350	265	205	-	-	230	-	145	-	-	170	-	
315	298.90	6.0	350	235	205	-	-	230	-	140	-	-	170	-	
355	325.71	5.5	350	215	195	-	-	215	-	135	-	-	160	-	
400	369.14	4.9	350	190	190	-	-	215	-	135	-	-	155	-	

X.K310..,n_1= 1000 1/min															425 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW	M1 20 °C					M1 40 °C					
							H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5[1]	**13.23**	76	368	3000	*)	*)	-	870	1300	*)	*)	-	*)	990	**X3K.** /HH 258 /HU 290
14[1]	**14.58**	69	376	2800	*)	*)	-	800	1200	*)	*)	-	*)	910	
16	**17.02**	59	392	2500	*)	800	-	1000	1400	*)	*)	-	830	1100	
18	**18.75**	53	405	2350	*)	770	-	940	1300	*)	*)	-	760	1050	
20	**21.20**	47	422	2150	*)	770	-	880	1250	*)	*)	-	710	980	
22.4	**23.35**	43	425	1950	*)	760	-	840	1200	*)	*)	-	680	930	
25	**26.30**	38	425	1750	*)	740	-	780	1100	*)	475	-	630	870	
28	**28.97**	35	425	1600	*)	730	-	750	1050	*)	470	-	600	840	
31.5	**32.89**	30	425	1400	*)	710	-	690	1000	*)	460	-	540	780	
35.5	**36.23**	28	425	1250	*)	680	-	650	940	*)	440	-	500	730	
40	**41.69**	24	425	1100	350	720	-	660	920	*)	500	-	530	730	
45	**45.93**	22	425	1000	345	700	-	640	900	*)	495	-	510	710	
50	**50.63**	20	425	920	350	670	-	600	840	*)	490	-	485	660	
56	**55.78**	18	425	830	345	660	-	580	810	220	480	-	465	640	
63	**64.44**	16	425	720	340	620	-	520	730	230	455	-	425	580	
71	**70.99**	14	425	660	330	590	-	495	700	220	440	-	400	550	
80	**85.15**	12	425	550	320	-	-	455	-	220	-	-	365	-	**X4K.** /HH 262 /HU 296
90	**93.81**	11	425	495	305	-	-	430	-	215	-	-	350	-	
100	**105.65**	9.5	425	440	305	-	-	415	-	215	-	-	335	-	
112	**116.40**	8.6	425	400	300	-	-	405	-	210	-	-	325	-	
125	**132.12**	7.6	425	355	290	-	-	380	-	205	-	-	305	-	
140	**145.56**	6.9	425	320	280	-	-	365	-	195	-	-	290	-	
160	**162.61**	6.1	425	285	275	-	-	355	-	195	-	-	280	-	
180	**179.15**	5.6	425	260	265	-	-	340	-	190	-	-	265	-	
200	**209.33**	4.8	425	225	240	-	-	300	-	175	-	-	235	-	
224	**230.61**	4.3	425	205	235	-	-	290	-	170	-	-	230	-	
250	**261.77**	3.8	425	180	230	-	-	275	-	165	-	-	215	-	
280	**288.39**	3.5	425	165	220	-	-	265	-	160	-	-	210	-	
315	**322.18**	3.1	425	145	215	-	-	255	-	155	-	-	200	-	
355	**354.94**	2.8	425	135	210	-	-	245	-	150	-	-	190	-	
X.K310..,n_1= 1200 1/min															**425 kNm**
12.5[1]	**13.23**	91	368	3600	*)	*)	-	*)	1100	*)	*)	-	*)	*)	**X3K.** /HH 258 /HU 290
14[1]	**14.58**	82	376	3350	*)	*)	-	*)	1050	*)	*)	-	*)	*)	
16[1]	**17.02**	71	392	3000	*)	*)	-	920	1400	*)	*)	-	*)	1100	
18[1]	**18.75**	64	405	2800	*)	710	-	850	1350	*)	*)	-	*)	1050	
20[1]	**21.20**	57	422	2600	*)	730	-	810	1250	*)	*)	-	*)	980	
22.4[1]	**23.35**	51	425	2350	*)	710	-	760	1200	*)	*)	-	*)	930	
25[1]	**26.30**	46	425	2100	*)	720	-	720	1150	*)	*)	-	540	880	
28[1]	**28.97**	41	425	1900	*)	710	-	680	1100	*)	*)	-	510	840	
31.5[1]	**32.89**	36	425	1700	*)	690	-	630	1050	*)	*)	-	465	780	
35.5[1]	**36.23**	33	425	1550	*)	660	-	580	970	*)	*)	-	425	720	
40[1]	**41.69**	29	425	1350	*)	760	-	660	1000	*)	520	-	520	780	
45[1]	**45.93**	26	425	1200	*)	750	-	630	980	*)	510	-	495	760	
50[1]	**50.63**	24	425	1100	310	730	-	610	920	*)	520	-	485	720	
56[1]	**55.78**	22	425	1000	305	720	-	580	890	*)	510	-	465	700	
63[1]	**64.44**	19	425	870	325	680	-	540	810	*)	495	-	435	640	
71[1]	**70.99**	17	425	790	310	650	-	510	780	*)	475	-	410	610	
80	**85.15**	14	425	660	320	-	-	480	-	210	-	-	390	-	**X4K.** /HH 262 /HU 296
90	**93.81**	13	425	600	310	-	-	455	-	205	-	-	365	-	
100	**105.65**	11	425	530	305	-	-	440	-	205	-	-	350	-	
112	**116.40**	10	425	480	300	-	-	425	-	205	-	-	340	-	
125	**132.12**	9.1	425	425	290	-	-	400	-	200	-	-	320	-	
140	**145.56**	8.2	425	385	280	-	-	385	-	195	-	-	305	-	
160	**162.61**	7.4	425	345	275	-	-	370	-	190	-	-	290	-	
180	**179.15**	6.7	425	310	270	-	-	355	-	185	-	-	280	-	
200	**209.33**	5.7	425	270	245	-	-	315	-	175	-	-	250	-	
224	**230.61**	5.2	425	245	245	-	-	305	-	175	-	-	240	-	
250	**261.77**	4.6	425	215	235	-	-	290	-	170	-	-	230	-	
280	**288.39**	4.2	425	195	225	-	-	280	-	165	-	-	220	-	
315	**322.18**	3.7	425	175	220	-	-	270	-	160	-	-	210	-	
355	**354.94**	3.4	425	160	215	-	-	260	-	155	-	-	200	-	

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X.K310..,n_1= 1500 1/min															425 kNm
					P_{TH} kW										
					M1				20 °C	M1				40 °C	
i_N	i_{ex}	n_2 min^{-1}	M_{N2} kNm	P_{N1} kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
12.5*)	13.23	113	368	4500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
14*)	14.58	103	376	4200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	17.02	88	392	3750	*)	*)	-	*)	1250*)	*)	*)	-	*)	*)	
18*)	18.75	80	405	3500	*)	*)	-	*)	1200*)	*)	*)	-	*)	*)	
20*)	21.20	71	422	3250	*)	*)	-	*)	1200*)	*)	*)	-	*)	850*)	
22.4*)	23.35	64	425	2950	*)	*)	-	*)	1150*)	*)	*)	-	*)	800*)	
25*)	26.30	57	425	2650	*)	*)	-	*)	1100*)	*)	*)	-	*)	760*)	
28*)	28.97	52	425	2400	*)	*)	-	*)	1050*)	*)	*)	-	*)	720*)	
31.5*)	32.89	46	425	2100	*)	550*)	-	*)	990*)	*)	*)	-	*)	680*)	
35.5*)	36.23	41	425	1900	*)	530*)	-	*)	930*)	*)	*)	-	*)	620*)	
40*)	41.69	36	425	1650	*)	770*)	-	610	1050*)	*)	475*)	-	455	810*)	
45*)	45.93	33	425	1500	*)	760*)	-	580	1050*)	*)	470*)	-	430	780*)	
50*)	50.63	30	425	1400	*)	770*)	-	590	1000*)	*)	510*)	-	455	760*)	
56*)	55.78	27	425	1250	*)	760*)	-	560	970*)	*)	500*)	-	430	740*)	
63*)	64.44	23	425	1100	270	740*)	-	550	900*)	*)	520*)	-	435	700*)	
71*)	70.99	21	425	980	260	710*)	-	520	860*)	*)	500*)	-	405	660*)	
80	85.15	18	425	820	305	-	-	510	-	*)	-	-	410	-	X4K. /HH 262 /HU 296
90	93.81	16	425	750	295	-	-	480	-	*)	-	-	385	-	
100	105.65	14	425	660	295	-	-	460	-	185	-	-	370	-	
112	116.40	13	425	600	295	-	-	450	-	185	-	-	355	-	
125	132.12	11	425	530	285	-	-	420	-	180	-	-	330	-	
140	145.56	10	425	480	275	-	-	400	-	175	-	-	315	-	
160	162.61	9.2	425	430	270	-	-	390	-	175	-	-	305	-	
180	179.15	8.4	425	390	265	-	-	370	-	170	-	-	290	-	
200	209.33	7.2	425	335	250	-	-	335	-	175	-	-	260	-	
224	230.61	6.5	425	305	245	-	-	325	-	170	-	-	255	-	
250	261.77	5.7	425	270	240	-	-	305	-	165	-	-	240	-	
280	288.39	5.2	425	245	230	-	-	295	-	160	-	-	230	-	
315	322.18	4.7	425	220	225	-	-	280	-	155	-	-	220	-	
355	354.94	4.2	425	200	220	-	-	270	-	150	-	-	210	-	
X.K310..,n_1= 1800 1/min															425 kNm
12.5*)	13.23	136	348	5150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
14*)	14.58	123	355	4750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
16*)	17.02	106	372	4250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18*)	18.75	96	383	4000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
20*)	21.20	85	399	3650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
22.4*)	23.35	77	408	3400	*)	*)	-	*)	900*)	*)	*)	-	*)	*)	
25*)	26.30	68	425	3150	*)	*)	-	*)	900*)	*)	*)	-	*)	*)	
28*)	28.97	62	425	2850	*)	*)	-	*)	850*)	*)	*)	-	*)	*)	
31.5*)	32.89	55	425	2500	*)	*)	-	*)	810*)	*)	*)	-	*)	*)	
35.5*)	36.23	50	425	2300	*)	*)	-	*)	750*)	*)	*)	-	*)	*)	
40*)	41.69	43	425	2000	*)	690*)	-	*)	1050*)	*)	*)	-	*)	760*)	
45*)	45.93	39	425	1800	*)	680*)	-	465	1000*)	*)	*)	-	*)	720*)	
50*)	50.63	36	425	1650	*)	740*)	-	530	1000*)	*)	450*)	-	*)	760*)	
56*)	55.78	32	425	1500	*)	730*)	-	500	990*)	*)	445*)	-	*)	730*)	
63*)	64.44	28	425	1300	*)	750*)	-	530	950*)	*)	510*)	-	405	720*)	
71*)	70.99	25	425	1200	*)	720*)	-	495	900*)	*)	490*)	-	375	680*)	
80[1]	85.15	21	425	990	275	-	-	520	-	*)	-	-	415	-	X4K. /HH 262 /HU 296
90[1]	93.81	19	425	890	270	-	-	495	-	*)	-	-	390	-	
100[1]	105.65	17	425	790	270	-	-	475	-	*)	-	-	375	-	
112[1]	116.40	15	425	720	270	-	-	460	-	*)	-	-	360	-	
125[1]	132.12	14	425	630	265	-	-	430	-	*)	-	-	335	-	
140[1]	145.56	12	425	580	255	-	-	410	-	145	-	-	315	-	
160[1]	162.61	11	425	520	260	-	-	395	-	150	-	-	305	-	
180[1]	179.15	10	425	470	250	-	-	375	-	145	-	-	290	-	
200[1]	209.33	8.6	425	405	250	-	-	345	-	165	-	-	270	-	
224[1]	230.61	7.8	425	370	245	-	-	335	-	165	-	-	260	-	
250[1]	261.77	6.9	425	325	235	-	-	320	-	160	-	-	245	-	
280[1]	288.39	6.2	425	295	230	-	-	305	-	155	-	-	235	-	
315[1]	322.18	5.6	425	265	225	-	-	290	-	150	-	-	225	-	
355[1]	354.94	5.1	425	240	215	-	-	280	-	145	-	-	215	-	

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i N	i ex	n_2	M_{N2}	P_{N1}	P_{TH} kW M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
X.K320..,n_1= 1000 1/min															**475 kNm**
14[1]	**14.13**	71	391	3000	*)	*)	-	*)	800	*)	*)	-	*)	*)	**X3K.** /HH 258 /HU 290
16[1]	**15.48**	65	398	2800	*)	*)	-	*)	790	*)	*)	-	*)	*)	
18	**18.17**	55	418	2500	*)	820	-	*)	1000	*)	*)	-	*)	710	
20	**19.90**	50	429	2350	*)	810	-	*)	1000	*)	*)	-	*)	700	
22.4	**22.63**	44	448	2150	*)	800	-	560	960	*)	*)	-	*)	670	
25	**24.79**	40	457	2000	*)	800	-	550	940	*)	*)	-	*)	660	
28	**28.08**	36	475	1850	*)	760	-	520	880	*)	490	-	*)	620	
31.5	**30.76**	33	475	1650	*)	750	-	500	860	*)	485	-	*)	600	
35.5	**35.12**	28	475	1450	*)	730	-	475	810	*)	475	-	*)	570	
40	**38.46**	26	475	1350	*)	720	-	460	790	*)	470	-	*)	550	
45	**44.52**	22	475	1150	370	750	-	510	810	*)	530	-	365	590	
50	**48.76**	21	475	1050	355	720	-	485	770	*)	510	-	345	560	
56	**54.06**	18	475	960	360	690	-	470	720	*)	500	-	345	540	
63	**59.21**	17	475	880	355	680	-	460	710	225	490	-	335	530	
71	**68.80**	15	475	760	350	630	-	430	650	235	465	-	325	490	
80	**75.36**	13	475	690	345	620	-	420	640	230	460	-	315	480	
90	**90.93**	11	475	570	325	-	-	385	-	225	-	-	295	-	**X4K.** /HH 262 /HU 296
100	**99.58**	10	475	520	320	-	-	375	-	225	-	-	285	-	
112	**112.81**	8.9	475	460	315	-	-	365	-	225	-	-	275	-	
125	**123.56**	8.1	475	420	305	-	-	350	-	215	-	-	265	-	
140	**141.08**	7.1	475	370	295	-	-	335	-	210	-	-	250	-	
160	**154.51**	6.5	475	335	290	-	-	330	-	205	-	-	245	-	
180	**173.63**	5.8	475	300	280	-	-	315	-	200	-	-	235	-	
200	**190.17**	5.3	475	275	275	-	-	310	-	195	-	-	230	-	
224	**223.52**	4.5	475	235	250	-	-	275	-	180	-	-	210	-	
250	**244.81**	4.1	475	215	240	-	-	265	-	175	-	-	200	-	
280	**279.52**	3.6	475	190	235	-	-	255	-	170	-	-	190	-	
315	**306.14**	3.3	475	170	230	-	-	250	-	165	-	-	190	-	
355	**344.02**	2.9	475	155	220	-	-	235	-	160	-	-	180	-	
400	**376.78**	2.7	475	140	215	-	-	235	-	155	-	-	175	-	
X.K320..,n_1= 1200 1/min															**475 kNm**
14[1]	**14.13**	85	391	3600	*)	*)	-	*)	*)	*)	*)	-	*)	*)	**X3K.** /HH 258 /HU 290
16[1]	**15.48**	78	398	3350	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18[1]	**18.17**	66	418	3000	*)	*)	-	*)	980	*)	*)	-	*)	*)	
20[1]	**19.90**	60	429	2800	*)	750	-	*)	970	*)	*)	-	*)	*)	
22.4[1]	**22.63**	53	448	2600	*)	760	-	*)	940	*)	*)	-	*)	*)	
25[1]	**24.79**	48	457	2400	*)	760	-	*)	920	*)	*)	-	*)	*)	
28[1]	**28.08**	43	475	2200	*)	740	-	*)	870	*)	*)	-	*)	560	
31.5[1]	**30.76**	39	475	2000	*)	730	-	*)	850	*)	*)	-	*)	550	
35.5[1]	**35.12**	34	475	1750	*)	710	-	*)	810	*)	*)	-	*)	520	
40[1]	**38.46**	31	475	1600	*)	700	-	*)	790	*)	405	-	*)	510	
45[1]	**44.52**	27	475	1400	*)	800	-	475	860	*)	550	-	*)	620	
50[1]	**48.76**	25	475	1250	*)	770	-	450	820	*)	520	-	*)	590	
56[1]	**54.06**	22	475	1150	320	750	-	455	790	*)	530	-	320	580	
63[1]	**59.21**	20	475	1050	315	740	-	440	770	*)	520	-	310	560	
71[1]	**68.80**	17	475	910	330	690	-	430	720	*)	510	-	315	530	
80[1]	**75.36**	16	475	830	325	680	-	420	700	*)	500	-	305	520	
90	**90.93**	13	475	690	325	-	-	395	-	215	-	-	295	-	**X4K.** /HH 262 /HU 296
100	**99.58**	12	475	630	320	-	-	390	-	215	-	-	290	-	
112	**112.81**	11	475	550	320	-	-	380	-	215	-	-	285	-	
125	**123.56**	9.7	475	510	305	-	-	365	-	210	-	-	270	-	
140	**141.08**	8.5	475	445	295	-	-	345	-	205	-	-	255	-	
160	**154.51**	7.8	475	405	290	-	-	340	-	200	-	-	250	-	
180	**173.63**	6.9	475	360	285	-	-	325	-	195	-	-	240	-	
200	**190.17**	6.3	475	330	280	-	-	320	-	195	-	-	235	-	
224	**223.52**	5.4	475	285	255	-	-	285	-	185	-	-	215	-	
250	**244.81**	4.9	475	260	250	-	-	275	-	180	-	-	205	-	
280	**279.52**	4.3	475	225	240	-	-	265	-	170	-	-	200	-	
315	**306.14**	3.9	475	205	235	-	-	260	-	170	-	-	195	-	
355	**344.02**	3.5	475	185	225	-	-	245	-	160	-	-	185	-	
400	**376.78**	3.2	475	170	220	-	-	240	-	160	-	-	180	-	

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X.K320..,n_1= 1500 1/min															475 kNm
					P_{TH} kW										
i_N	i_{ex}	n_2	M_{N2}	P_{N1}	M1 20 °C					M1 40 °C					
		min^{-1}	kNm	kW			H_2O	H_2O	+ H_2O			H_2O	H_2O	+ H_2O	
14*)	14.13	106	391	4500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
16*)	15.48	97	398	4200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18*)	18.17	83	418	3750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
20*)	19.90	75	429	3500	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
22.4*)	22.63	66	448	3200	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
25*)	24.79	61	457	3000	*)	*)	-	*)	760*)	*)	*)	-	*)	*)	
28*)	28.08	53	475	2750	*)	*)	-	*)	740*)	*)	*)	-	*)	*)	
31.5*)	30.76	49	475	2500	*)	*)	-	*)	720*)	*)	*)	-	*)	*)	
35.5*)	35.12	43	475	2200	*)	570*)	-	*)	700*)	*)	*)	-	*)	*)	
40*)	38.46	39	475	2000	*)	570*)	-	*)	680*)	*)	*)	-	*)	*)	
45*)	44.52	34	475	1750	*)	810*)	-	*)	890*)	*)	500*)	-	*)	590*)	
50*)	48.76	31	475	1600	*)	780*)	-	*)	840*)	*)	485*)	-	*)	560*)	
56*)	54.06	28	475	1450	*)	790*)	-	390	840*)	*)	530*)	-	*)	580*)	
63*)	59.21	25	475	1300	*)	780*)	-	380	820*)	*)	520*)	-	*)	570*)	
71*)	68.80	22	475	1150	*)	760*)	-	405	780*)	*)	530*)	-	*)	570*)	
80*)	75.36	20	475	1050	275	740*)	-	395	770*)	*)	530*)	-	265	560*)	
90	90.93	16	475	860	310	-	-	405	-	*)	-	-	290	-	X4K. /HH 262 /HU 296
100	99.58	15	475	780	310	-	-	395	-	*)	-	-	285	-	
112	112.81	13	475	690	310	-	-	385	-	190	-	-	280	-	
125	123.56	12	475	630	300	-	-	370	-	190	-	-	265	-	
140	141.08	11	475	550	290	-	-	350	-	185	-	-	255	-	
160	154.51	9.7	475	510	285	-	-	345	-	185	-	-	250	-	
180	173.63	8.6	475	450	280	-	-	330	-	180	-	-	240	-	
200	190.17	7.9	475	410	275	-	-	325	-	180	-	-	235	-	
224	223.52	6.7	475	355	260	-	-	295	-	180	-	-	220	-	
250	244.81	6.1	475	320	250	-	-	285	-	175	-	-	210	-	
280	279.52	5.4	475	280	245	-	-	275	-	170	-	-	200	-	
315	306.14	4.9	475	260	240	-	-	270	-	165	-	-	200	-	
355	344.02	4.4	475	230	230	-	-	255	-	160	-	-	185	-	
400	376.78	4.0	475	210	225	-	-	250	-	160	-	-	185	-	
X.K320..,n_1= 1800 1/min															475 kNm
14*)	14.13	127	370	5100	*)	*)	-	*)	*)	*)	*)	-	*)	*)	X3K. /HH 258 /HU 290
16*)	15.48	116	377	4750	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
18*)	18.17	99	397	4250	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
20*)	19.90	90	406	4000	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
22.4*)	22.63	80	425	3650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
25*)	24.79	73	432	3400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
28*)	28.08	64	452	3150	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
31.5*)	30.76	59	460	2900	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
35.5*)	35.12	51	475	2650	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
40*)	38.46	47	475	2400	*)	*)	-	*)	*)	*)	*)	-	*)	*)	
45*)	44.52	40	475	2100	*)	730*)	-	*)	830*)	*)	*)	-	*)	*)	
50*)	48.76	37	475	1900	*)	700*)	-	*)	790*)	*)	*)	-	*)	*)	
56*)	54.06	33	475	1750	*)	760*)	-	*)	820*)	*)	470*)	-	*)	540*)	
63*)	59.21	30	475	1600	*)	760*)	-	*)	810*)	*)	460*)	-	*)	520*)	
71*)	68.80	26	475	1350	*)	770*)	-	350	810*)	*)	520*)	-	*)	560*)	
80*)	75.36	24	475	1250	*)	760*)	-	340	790*)	*)	510*)	-	*)	550*)	
90[1)]	90.93	20	475	1050	280	-	-	395	-	*)	-	-	270	-	X4K. /HH 262 /HU 296
100[1)]	99.58	18	475	940	280	-	-	385	-	*)	-	-	265	-	
112[1)]	112.81	16	475	830	285	-	-	380	-	*)	-	-	260	-	
125[1)]	123.56	15	475	760	275	-	-	365	-	*)	-	-	250	-	
140[1)]	141.08	13	475	660	270	-	-	345	-	*)	-	-	240	-	
160[1)]	154.51	12	475	610	270	-	-	340	-	150	-	-	235	-	
180[1)]	173.63	10	475	540	265	-	-	325	-	155	-	-	225	-	
200[1)]	190.17	9.5	475	495	260	-	-	320	-	155	-	-	220	-	
224[1)]	223.52	8.1	475	425	255	-	-	300	-	170	-	-	220	-	
250[1)]	244.81	7.4	475	385	250	-	-	290	-	165	-	-	210	-	
280[1)]	279.52	6.4	475	340	240	-	-	280	-	165	-	-	200	-	
315[1)]	306.14	5.9	475	310	240	-	-	270	-	160	-	-	195	-	
355[1)]	344.02	5.2	475	275	230	-	-	260	-	155	-	-	185	-	
400[1)]	376.78	4.8	475	250	225	-	-	255	-	150	-	-	180	-	

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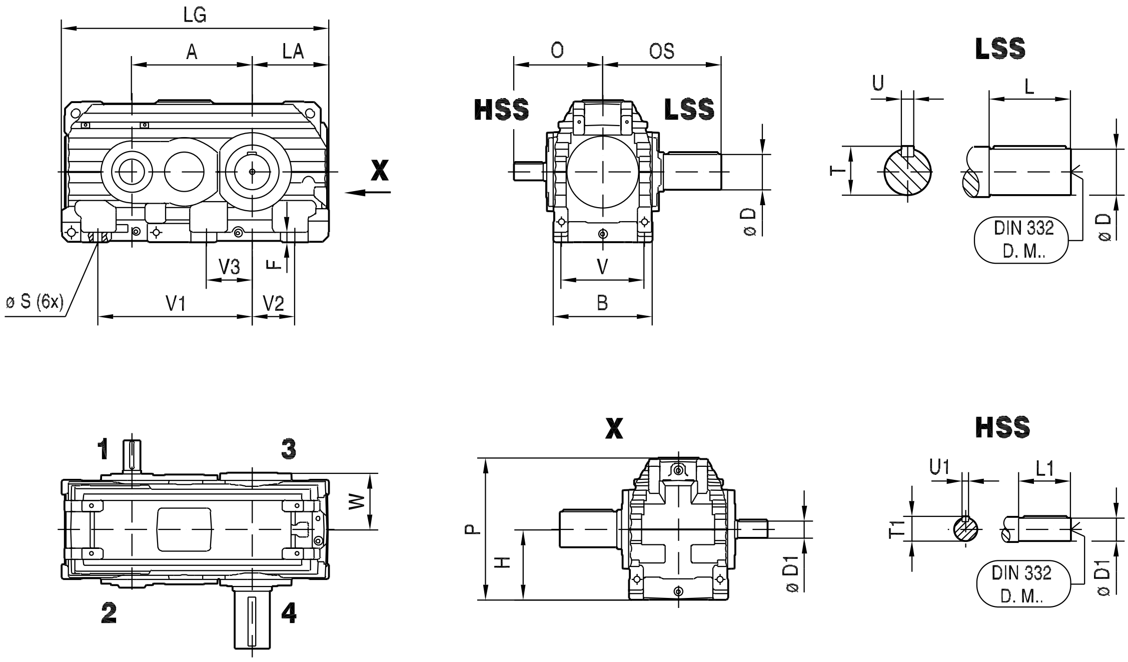
10 Dimension sheets: Horizontal housing /HH

10.1 X.F.. helical gear units [mm]

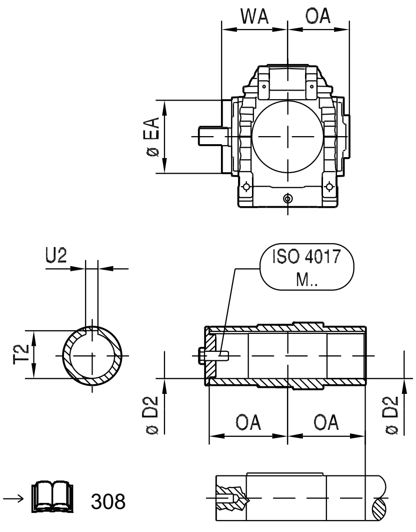
10.1.1 X2F220 – 250

X2FS../HH

48 029 00 13

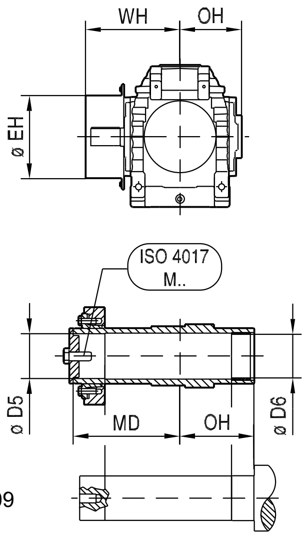


X2FA../HH



→ 308

X2FH../HH



→ 309

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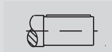
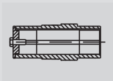
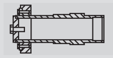
X.F..													X.FS.. LSS 						
X2F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	854	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2398
X230	734	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	854	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	2568
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	3299
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	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

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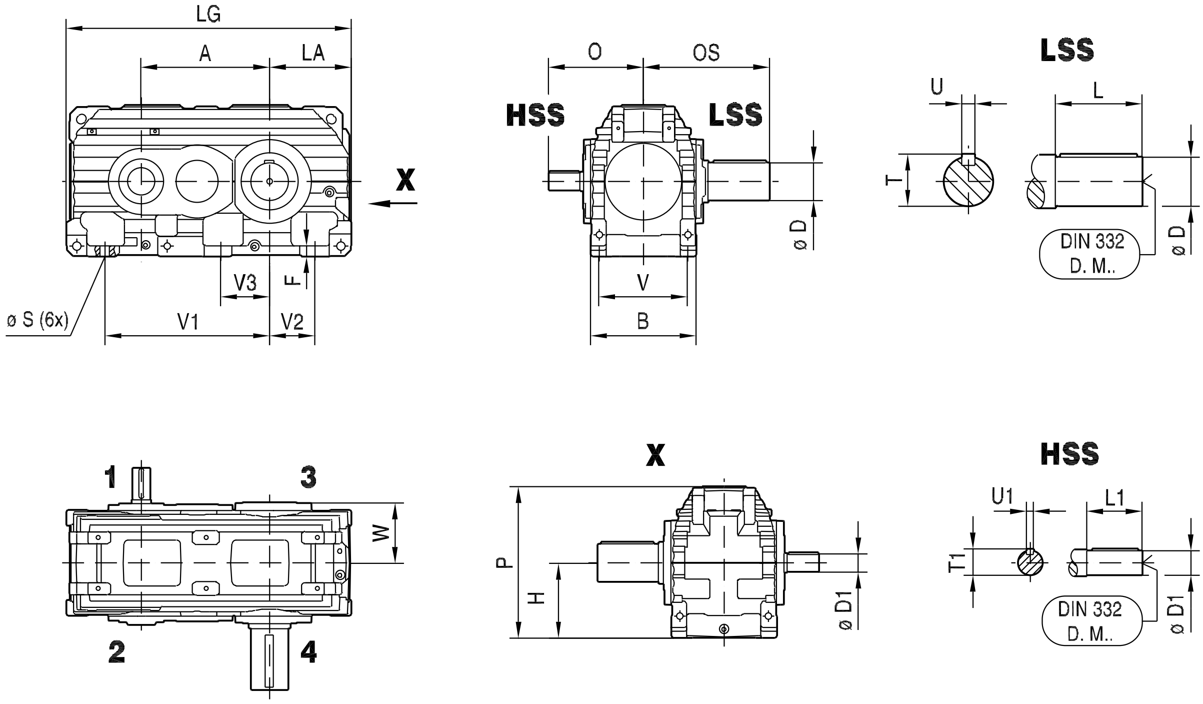
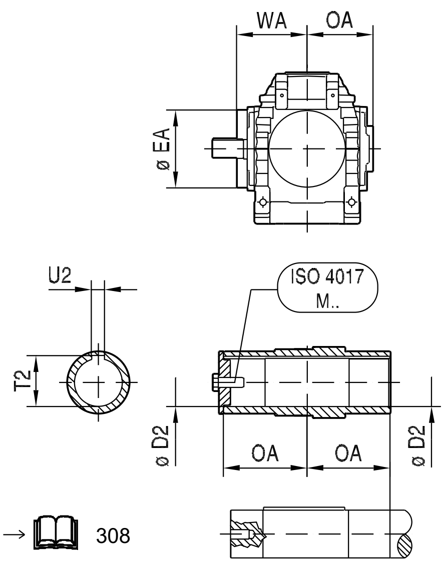
10.1.2 X2F260 – 320

X2FS../HH

48 007 03 08

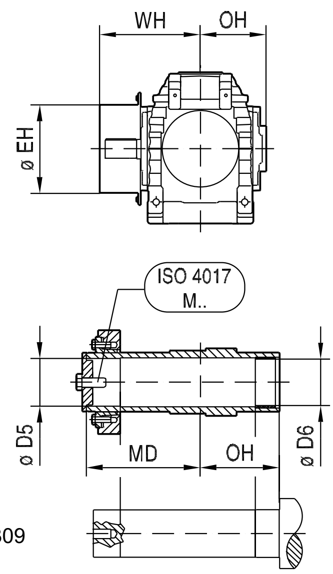


X2FA../HH



→ 308

X2FH../HH



→ 309

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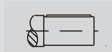
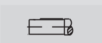
X.F..												
X2F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**
X260	855	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417
X270	890	705	73	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419
X280	942	705	73	$555_{-0.5}$	$610_{-0.5}$	2052	1127	56	590	1190	360	380	419
X290	987	785	86	$580_{-0.5}$	$620_{-0.5}$	2187	1177	65	655	1280	330	355	465
X300	1016	785	86	$580_{-0.5}$	$620_{-0.5}$	2216	1177	65	655	1280	330	355	465
X310	1100	850	86	$630_{-0.5}$	$680_{-0.5}$	2410	1277	65	720	1435	385	455	499
X320	1134	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	1277	65	720	1435	385	455	499

X.FS..
LSS

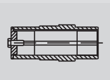


Ø D	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
250_{m6}	410	847	262	56_{h9}	M36	4170
270_{m6}	470	920	282	63_{h9}	M36	4620
290_{m6}	470	920	302	63_{h9}	M36	5020
290_{m6}	470	962	302	63_{h9}	M36	6120
300_{m6}	470	962	314	70_{h9}	M36	6820
320_{m6}	470	999	334	70_{h9}	M42	6970
340_{m6}	550	1079	355	80_{h9}	M42	7770



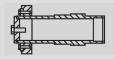
HSS	**i = 6.3 ... 11.2* / i = 7.1 ... 12.5** / i = 8 ... 14*** **						**i = 12.5 ... 18* / i = 14 ... 20** / i = 16 ... 22.4*** **					
	Ø D1	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X260*	130_{m6}	250	673	137	32_{h9}	M24	120_{m6}	210	633	127	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..

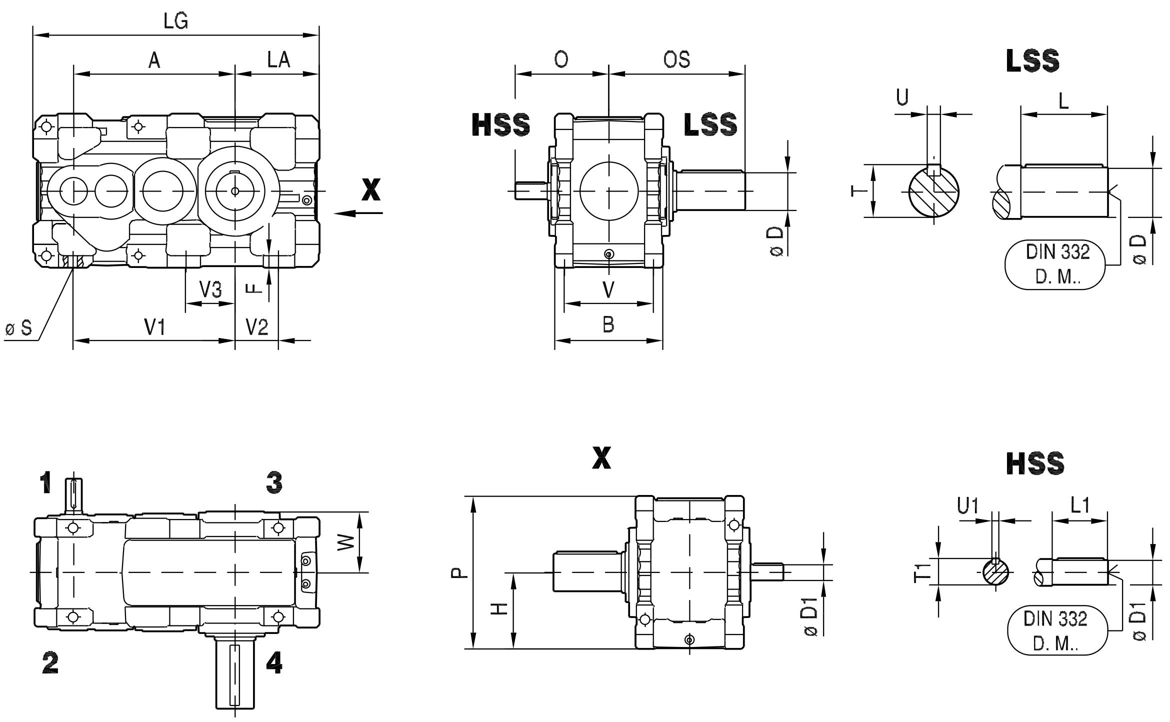


LSS	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X260	250^{H7}	255^{H9}	558	608	437	694	M36x110-8.8	3920
X270	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4420
X280	280^{H7}	285^{H9}	602	630	450	706	M36x110-8.8	4770
X290	300^{H7}	305^{H9}	634	679	492	753	M36x110-8.8	5720
X300	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

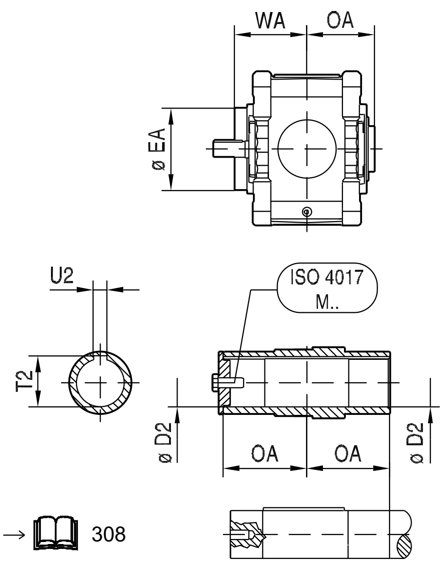
10.1.3 X3F100 – 210

X3FS../HH

48 027 00 13



X3FA..



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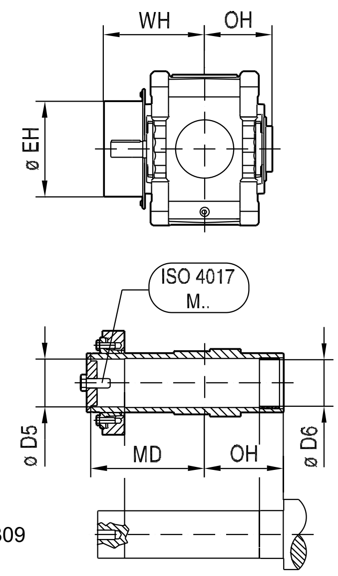
X3FH..



→ 309

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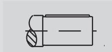
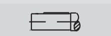
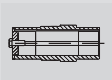
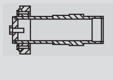
X.F..													X.FS.. LSS 						
X3F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	360	268	29	$190_{-0.5}$	$190_{-0.5}$	663	384	24 (4x)	210	370	90	-	153	80_{m6}	170	343	85	22_{h9}	M20	220
X110	380	268	29	$190_{-0.5}$	$215_{-0.5}$	708	384	24 (4x)	210	390	115	-	153	90_{m6}	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	80.4	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

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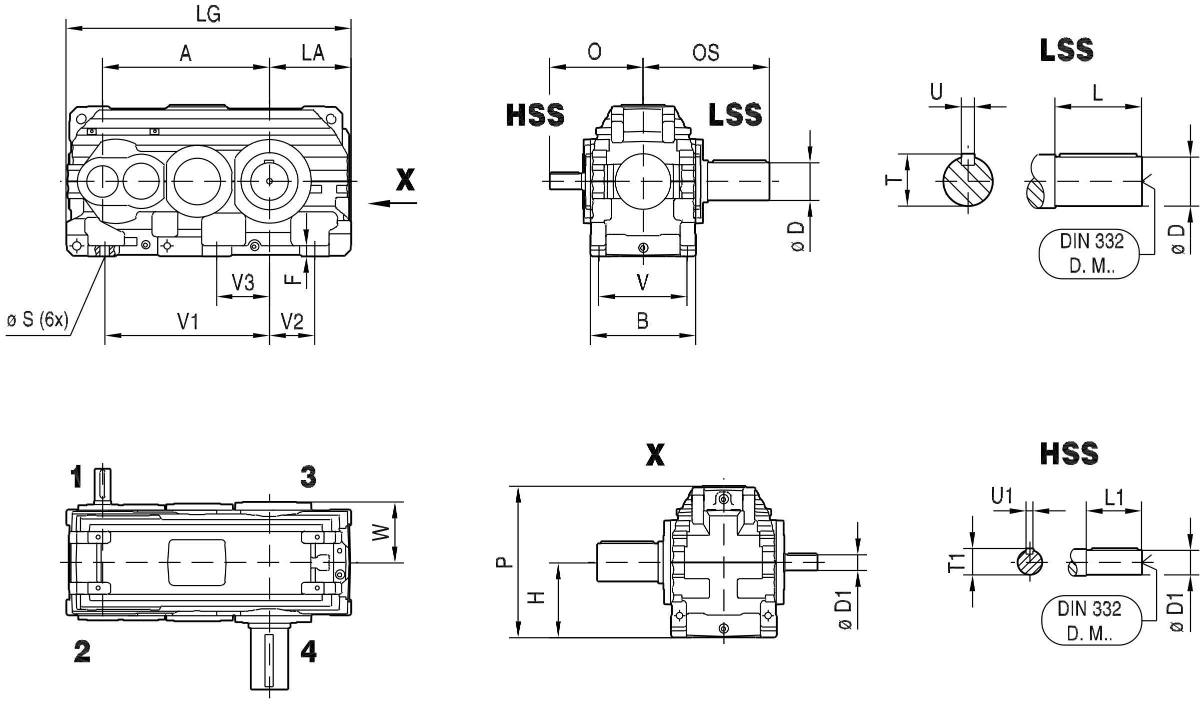
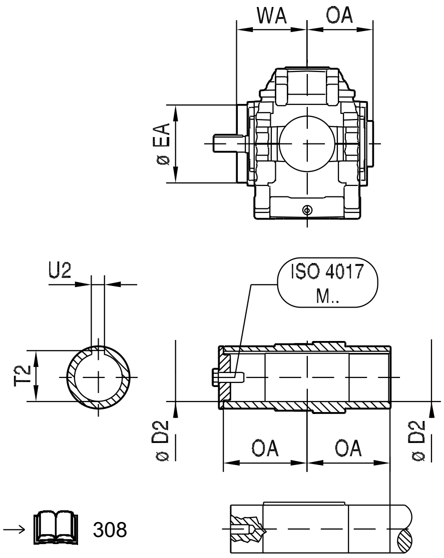
10.1.4 X3F220 – 250

X3FS../HH

48 028 00 13

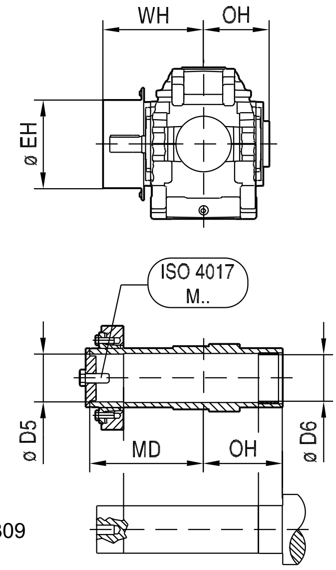


X3FA../HH



→ 308

X3FH../HH



→ 309

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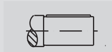
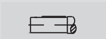
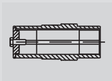
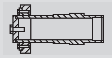
X.F..														X.FS.. LSS 						
X3F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	854	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2370
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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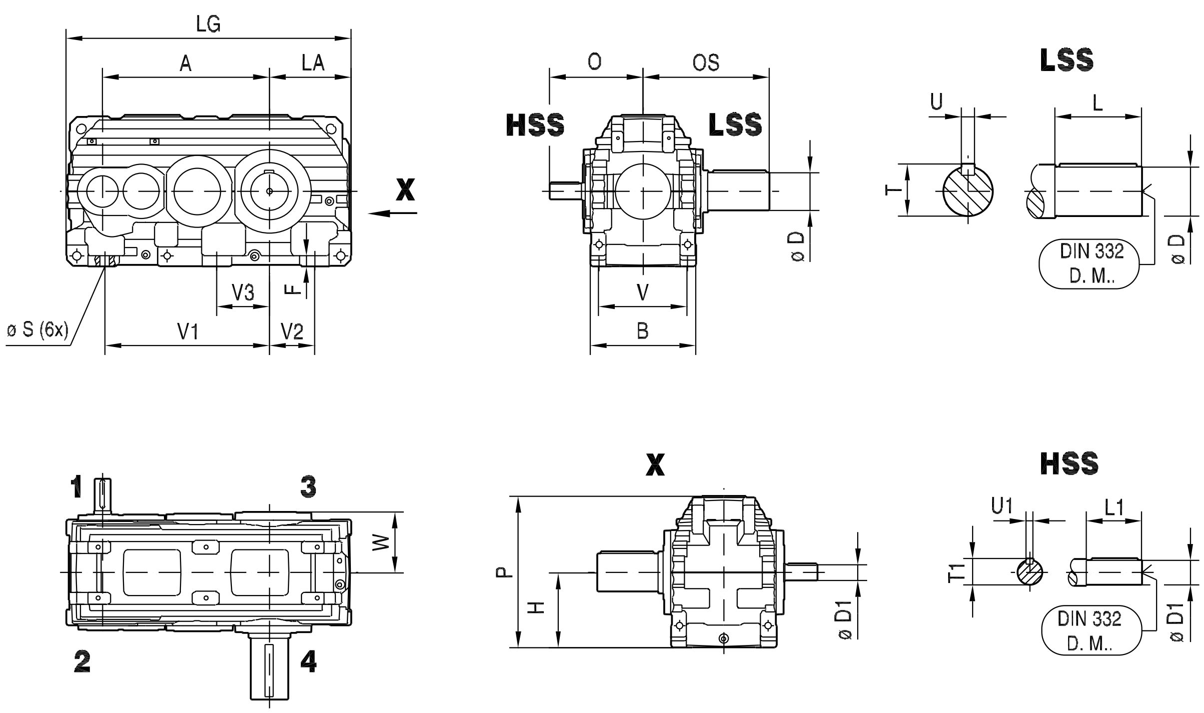
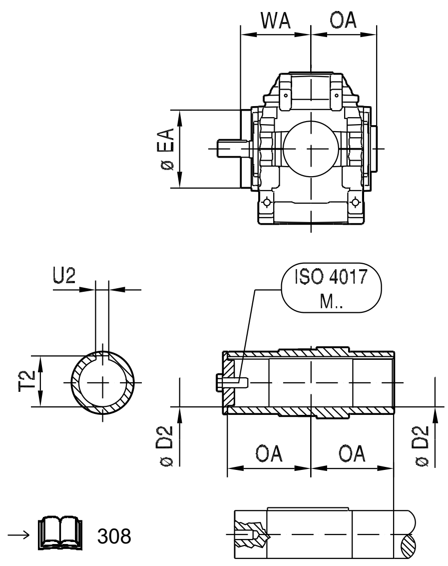
10.1.5 X3F260 – 320

X3FS../HH

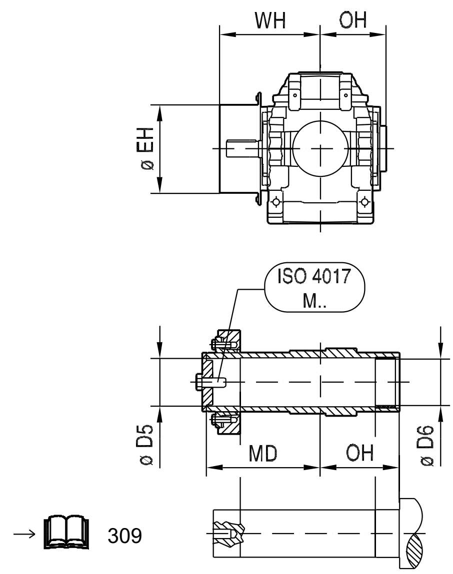
48 008 03 08



X3FA../HH



X3FH../HH



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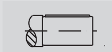
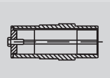
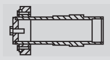
X.F..													X.FS.. LSS 						
X3F..	A	B	F	H	LA	LG	P	Ø S (6x)	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4170
X270	1148	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1017	56	590	1110	300	350	419	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	$5805_{-0.5}$	$620_{-0.5}$	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	$6305_{-0.5}$	$6805_{-0.5}$	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

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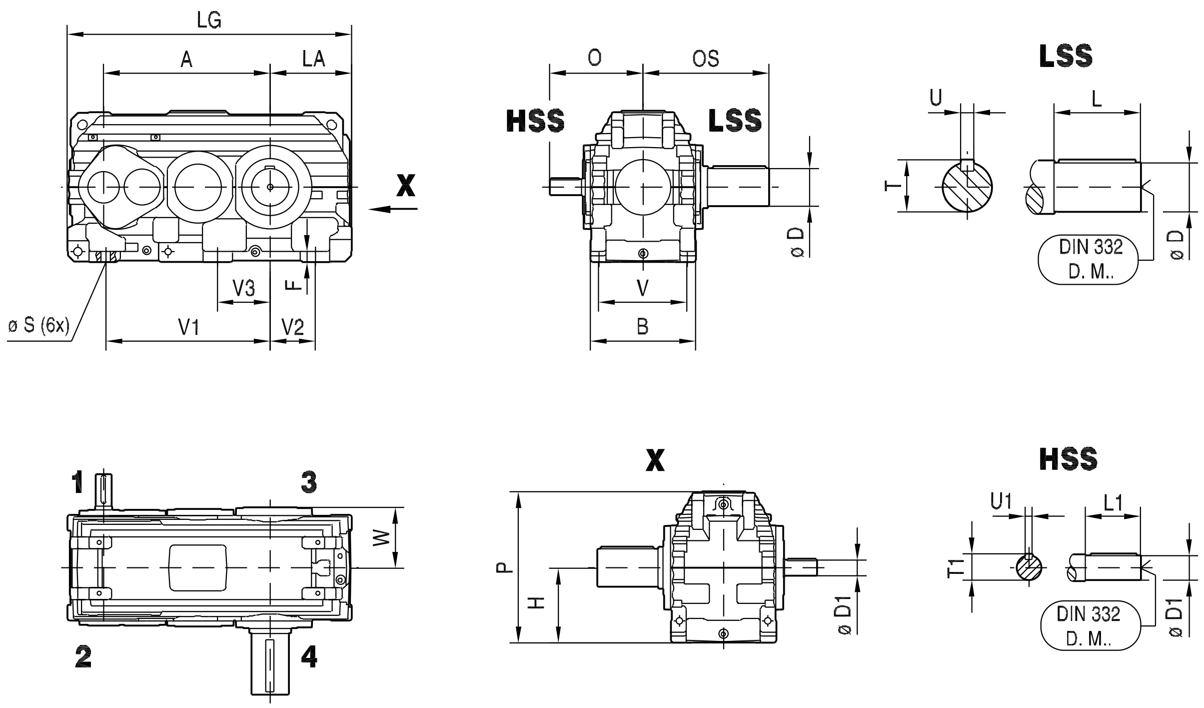
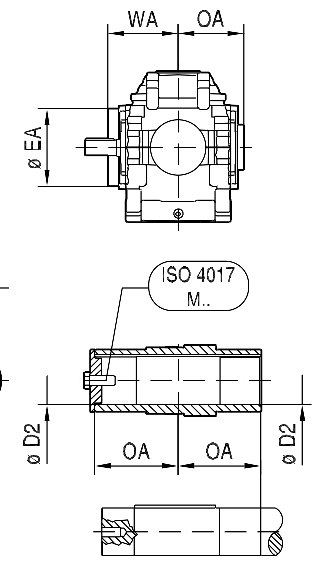
10.1.6 X4F220 – 250

X4FS../HH

48 030 00 13



X4FA../HH



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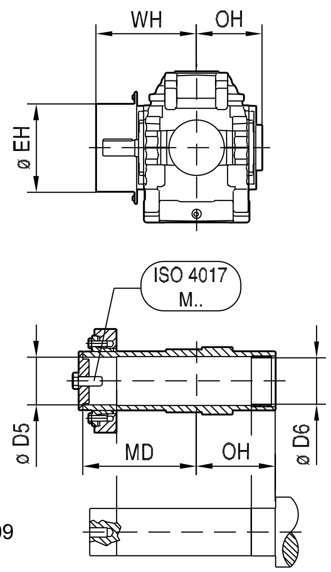
X4FH../HH



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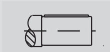
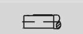
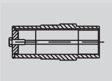
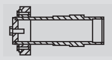
X.F..														X.FS.. LSS 						
X4F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	854	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2418
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

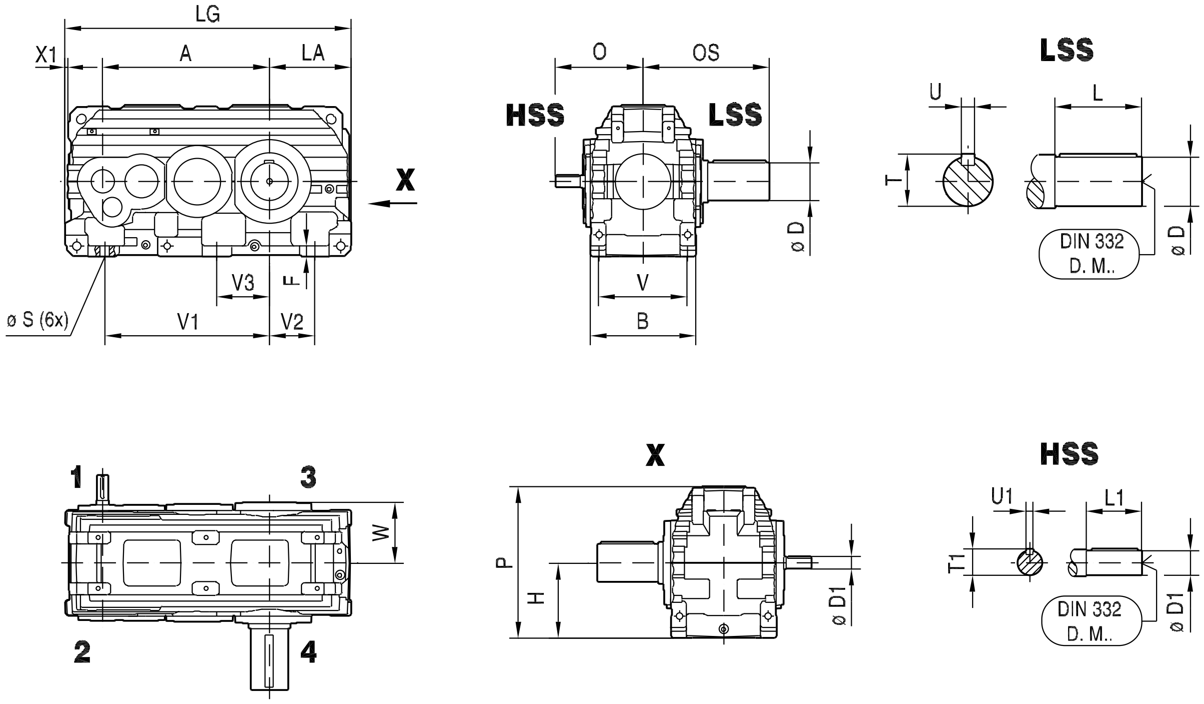
HSS	**i = 100 ... 180* / i = 112 ... 200****						**i = 200 ... 355* / i = 224 ... 400****					
	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**	**Ø D1**	**L1**	**O**	**T1**	**U1**	**DIN 332 DR.M..**
X220*	60_{m6}	140	457	64	18_{h9}	M20	50_{k6}	110	427	53.5	14_{h9}	M16
X230**	60_{m6}	140	457	64	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

10.1.7 X4F260 – 320

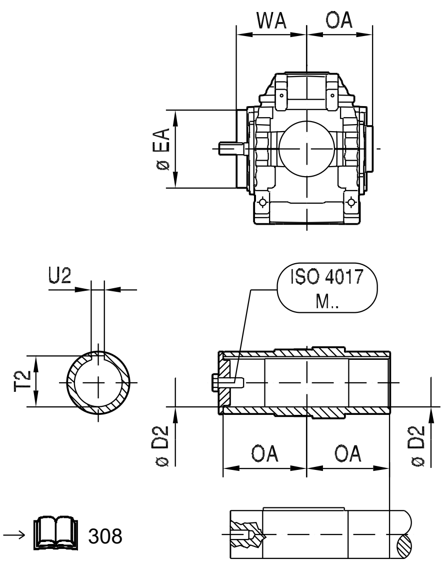
X4FS../HH

48 009 03 08



X4FA../HH

X4FH../HH



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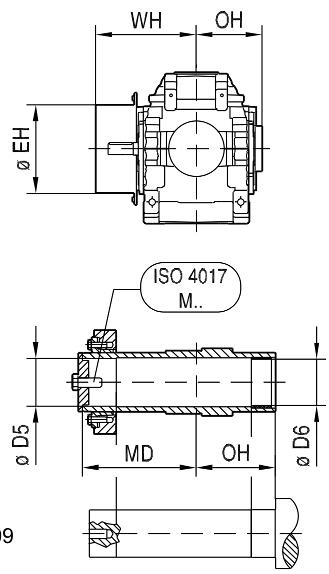

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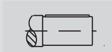
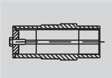
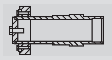
	X.F..													X.FS.. LSS 						
X4F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1909	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	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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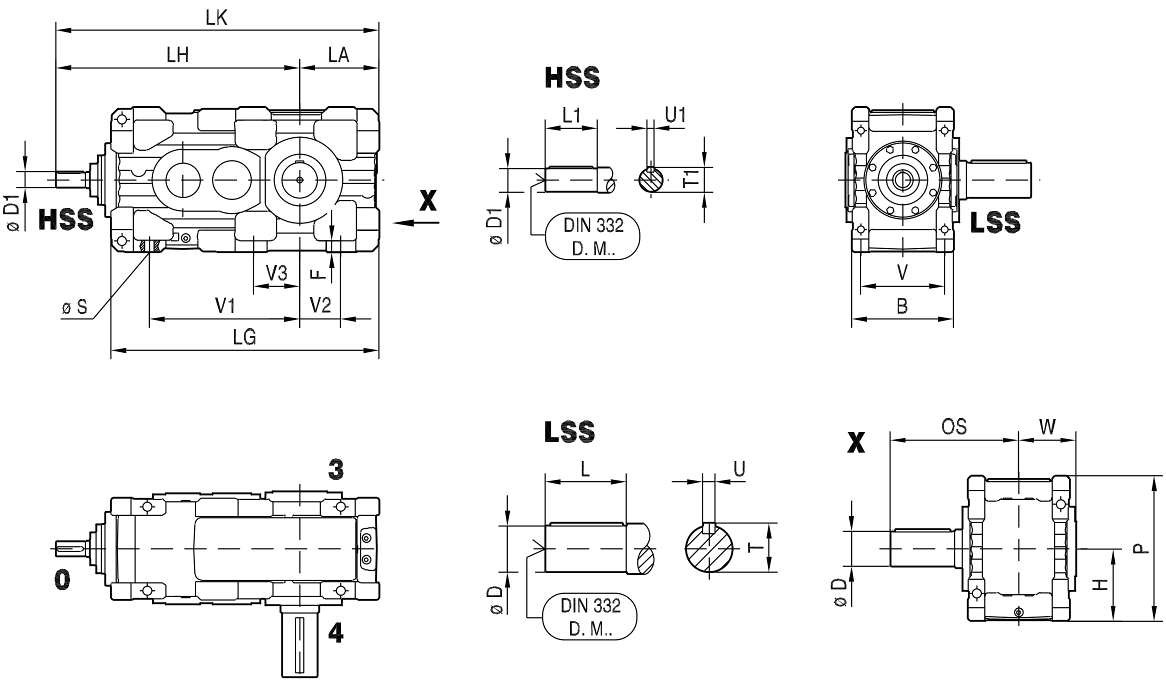
10.2 X.K.. bevel-helical gear units [mm]

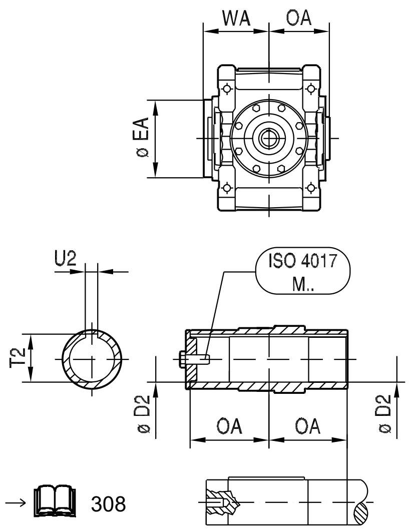
10.2.1 X3K100 – 210

X3KS../HH

48 031 00 13

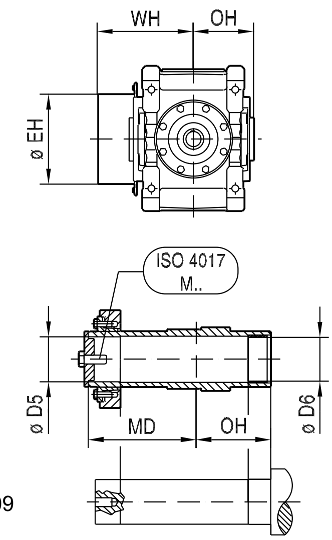


X3KA..



→ 308

X3KH..



→ 309

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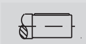
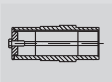
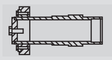
X.K..														
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X100	268	29	$190_{-0.5}$	$190_{-0.5}$	658	632	822	384	24 (4x)	210	370	90	-	153	235
X110	268	29	$190_{-0.5}$	$215_{-0.5}$	703	652	867	384	24 (4x)	210	390	115	-	153	255
X120	308	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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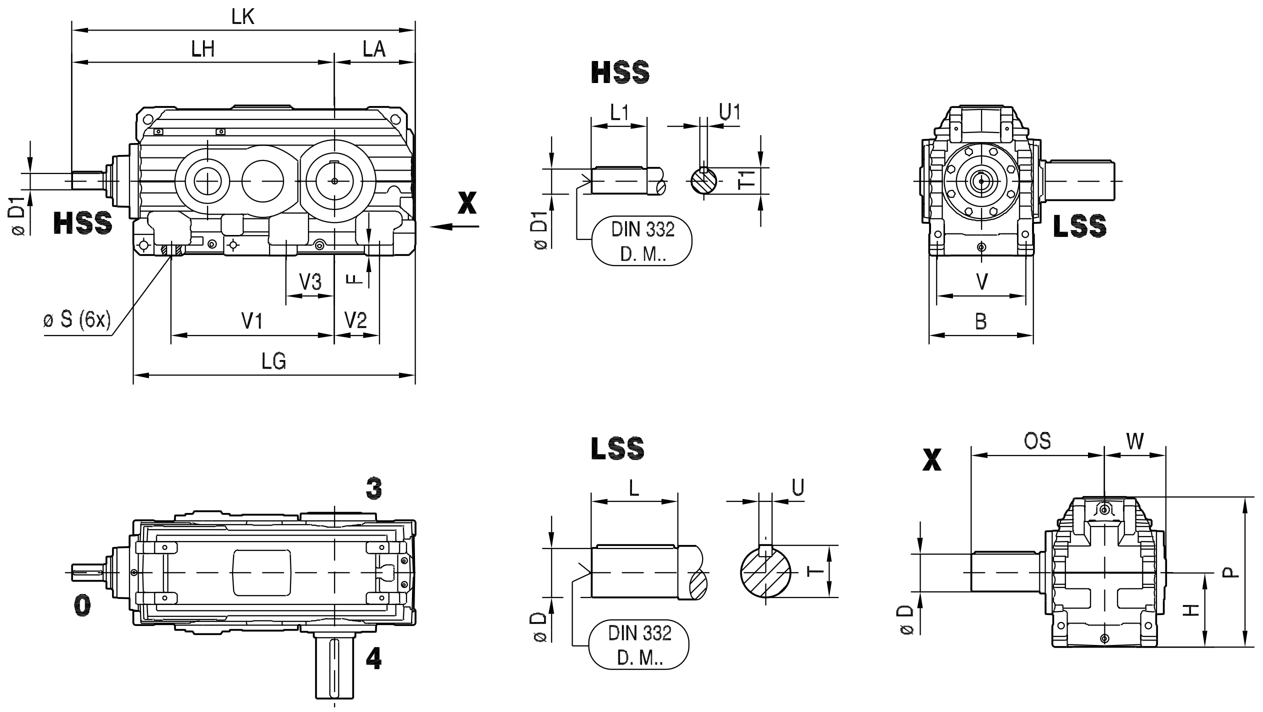
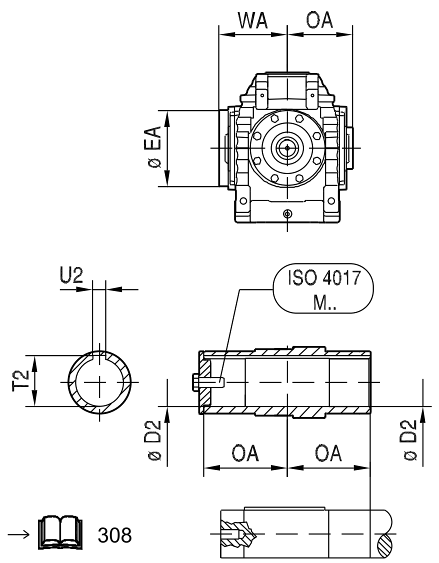
10.2.2 X3K220 – 250

X3KS../HH

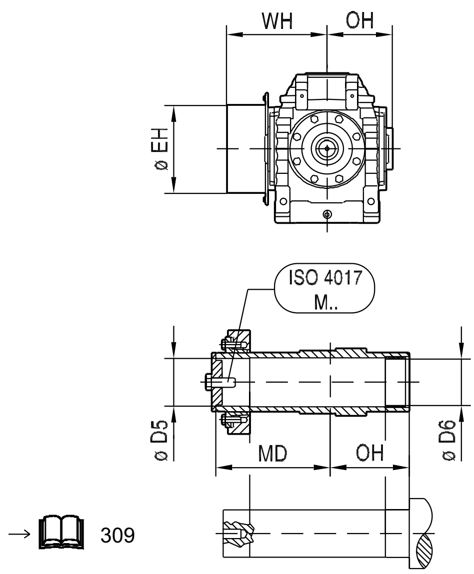
48 032 00 13



X3KA../HH



X3KH../HH



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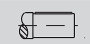
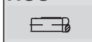
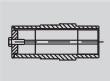
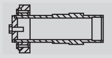
X.K..														
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	854	48	440	910	250	280	331	2640
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	854	48	440	950	250	280	331	2800
X240	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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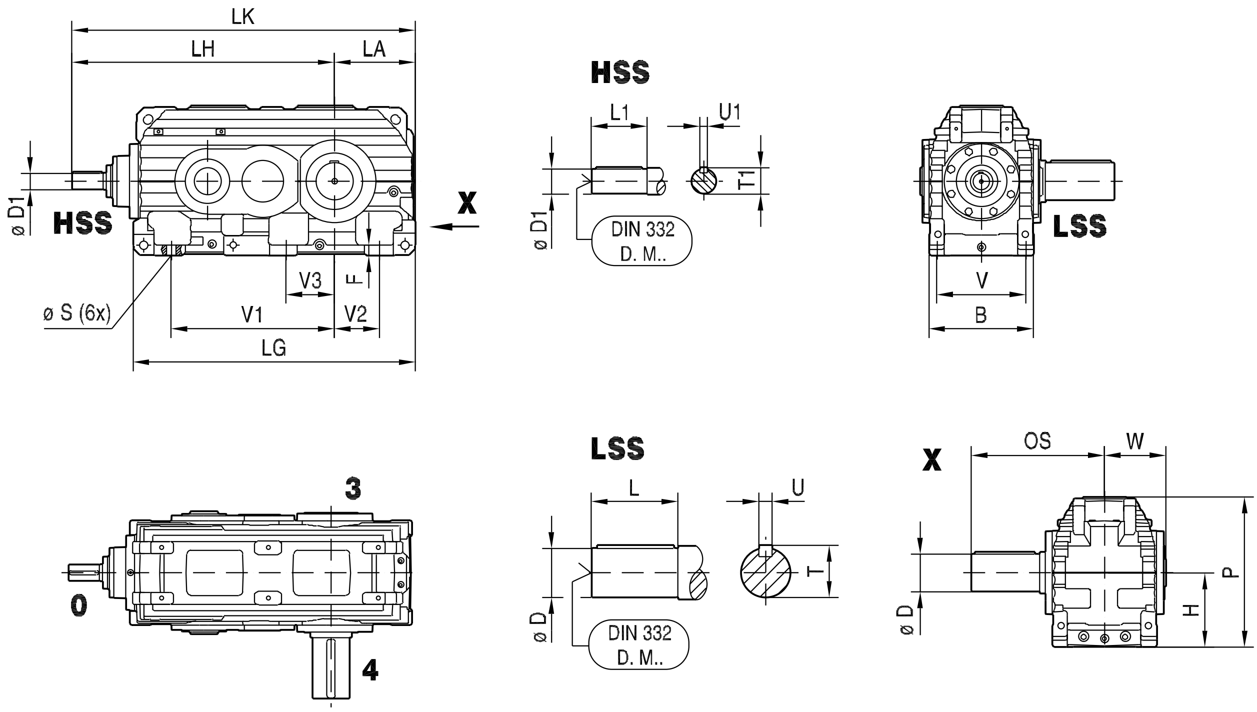
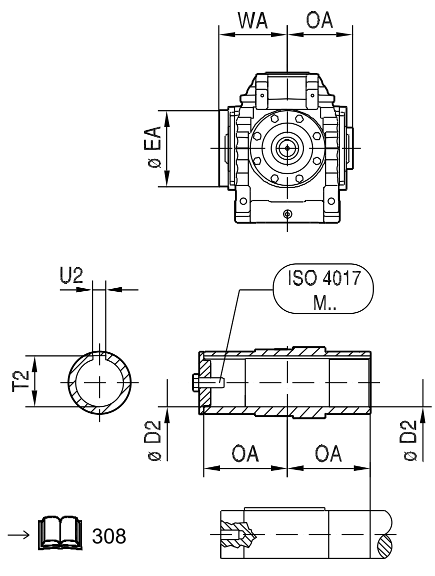
10.2.3 X3K260 – 320

X3KS../HH

48 003 03 08



X3KA../HH



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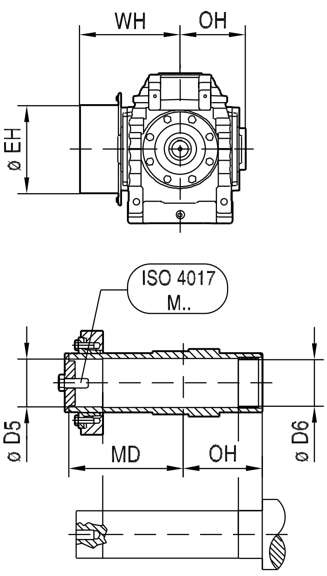
X3KH../HH



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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								

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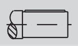
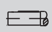
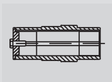
LSS 	Ø D	L	OS	T	U	DIN 332 DR. M..
X260	250_{m6}	410	847	262	56_{h9}	M36
X270	270_{m6}	470	920	282	63_{h9}	M36
X280	290_{m6}	470	920	302	63_{h9}	M36
X290	290_{m6}	470	962	302	63_{h9}	M36
X300	300_{m6}	470	962	314	70_{h9}	M36
X310	320_{m6}	470	999	334	70_{h9}	M42
X320	340_{m6}	550	1079	355	80_{h9}	M42

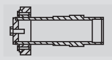
HSS 	Ø D1	L1	T1	U1	DIN 332 DR. M..	i
X260	110_{m6}	210	116	28_{h9}	M24	-
X270	110_{m6}	210	116	28_{h9}	M24	-
X280	110_{m6}	210	116	28_{h9}	M24	-
X290	120_{m6}	210	127	32_{h9}	M24	-
X300	120_{m6}	210	127	32_{h9}	M24	-
X310	130_{m6}	250	137	32_{h9}	M24	i = 12.5 ... 35.5*
	130_{m6}	210	137	32_{h9}	M24	i = 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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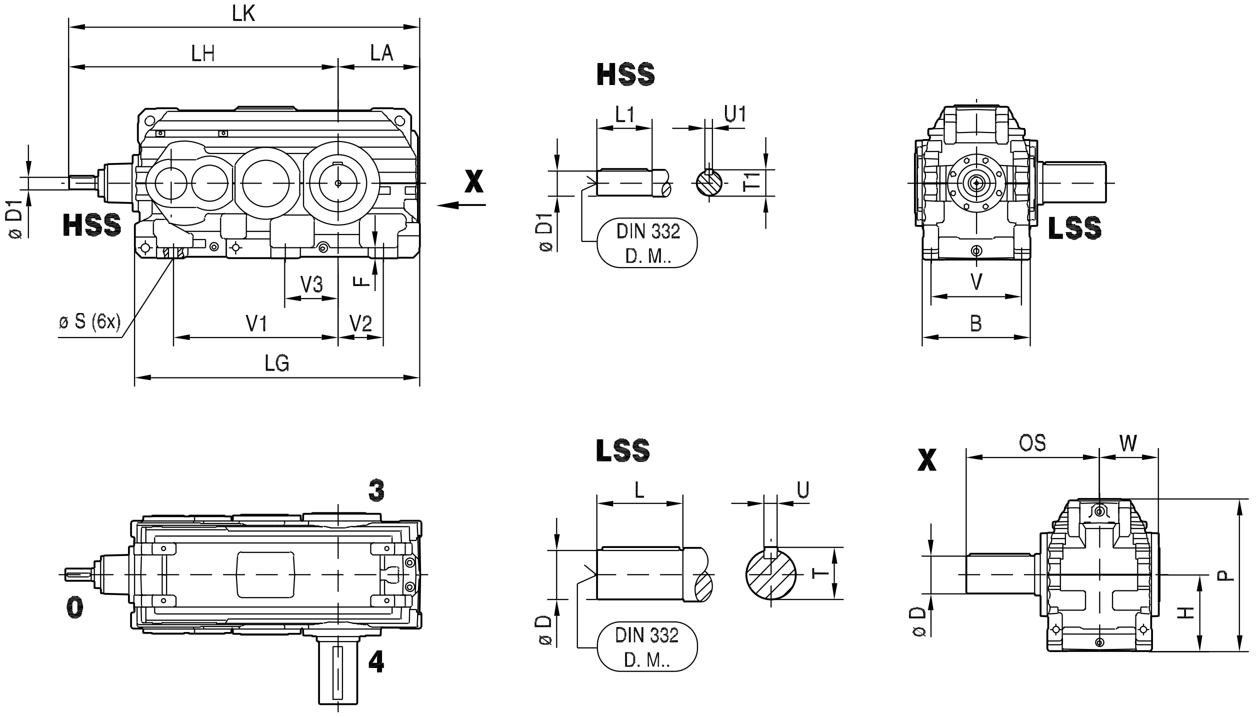
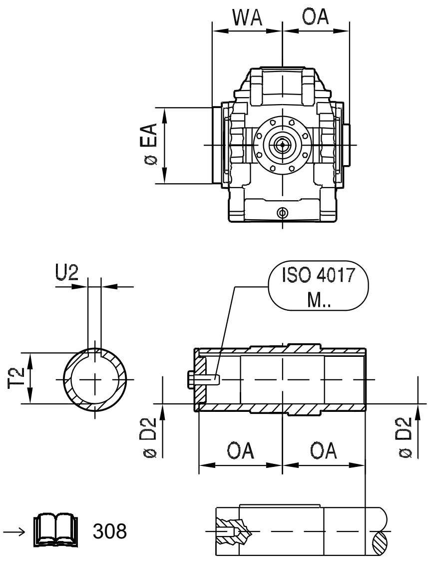
10.2.4 X4K220 – 250

X4KS../HH

48 033 00 13



X4KA../HH



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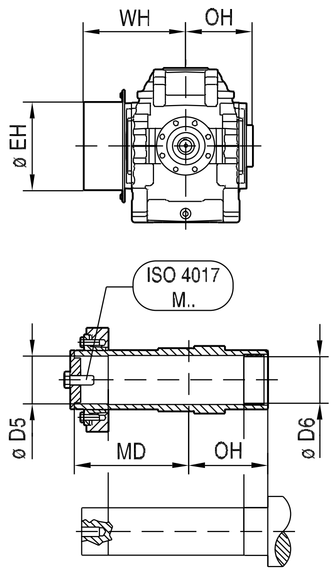
X4KH../HH



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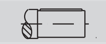
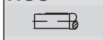
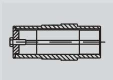
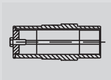
X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	1456	1921	854	48	440	910	250	280	331	2440
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1631	1496	1963	854	48	440	950	250	280	331	2670
X240	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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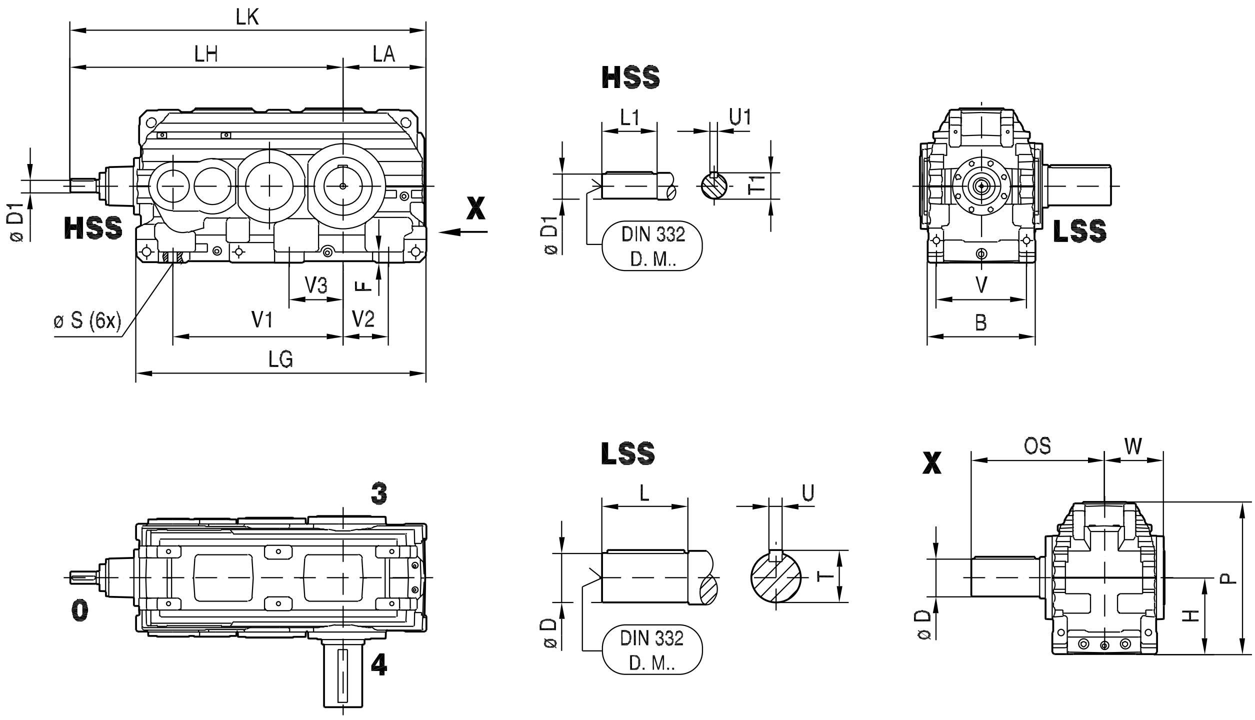
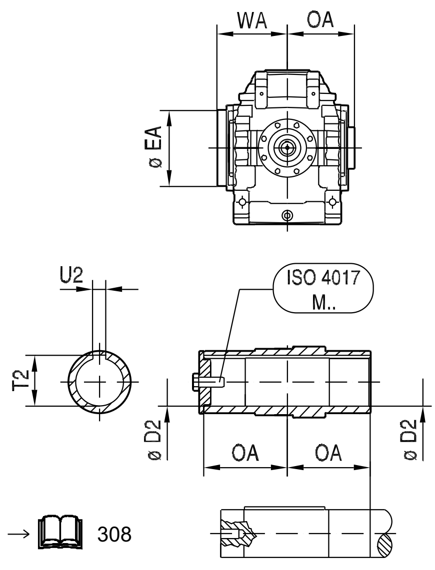
10.2.5 X4K260 – 320

X4KS../HH

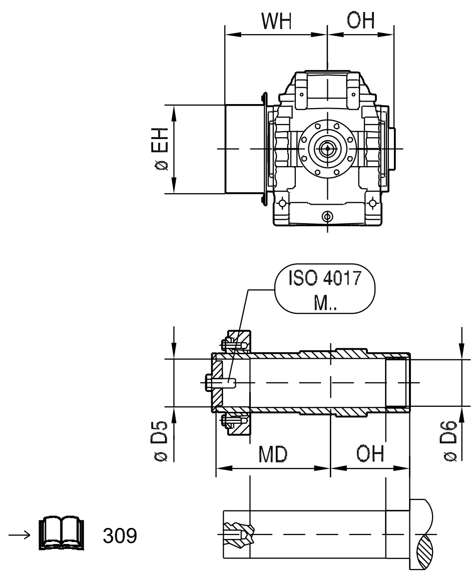
48 004 03 08



X4KA../HH



X4KH../HH



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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

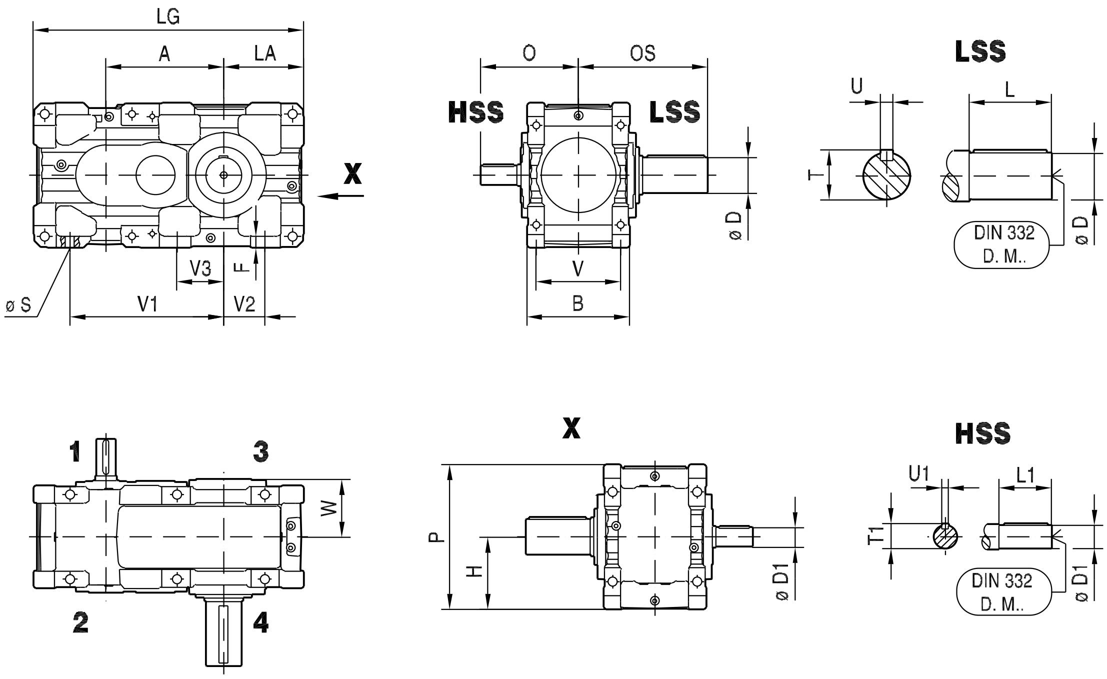
11 Dimension sheets: Universal housing /HU

11.1 X.F.. helical gear units [mm]

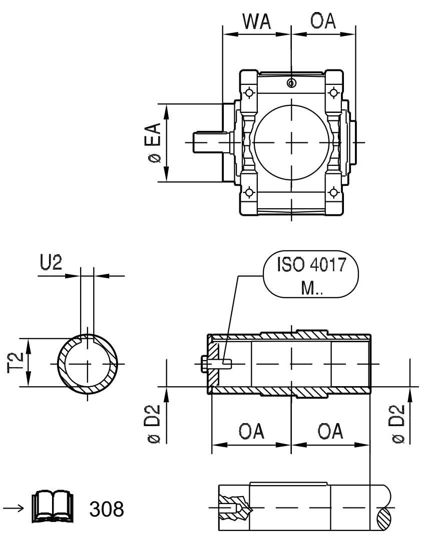
11.1.1 X2F100 – 210

X2FS../HU

48 025 03 07



X2FA../HU



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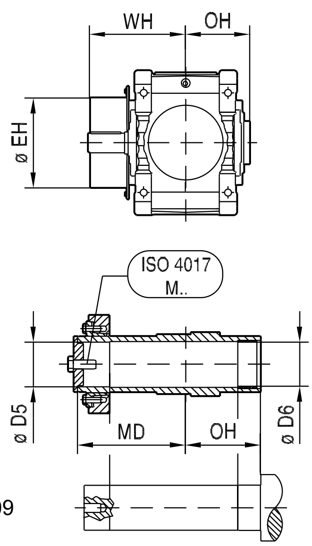
X2FH../HU



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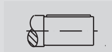
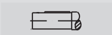
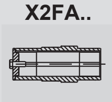
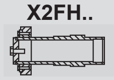
X.F..													X.FS.. LSS 						
X2F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	278	260	29	$190_{-0.5}$	$190_{-0.5}$	658	380	24 (4x)	210	370	90	-	153	80_{m6}	170	343	85	22_{h9}	M20	210
X110	298	260	29	$190_{-0.5}$	$215_{-0.5}$	703	380	24 (4x)	210	390	115	-	153	90_{m6}	170	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.. 									X2FH.. 								
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	210	X110	90^{H7}	91^{H9}	225	265	176	298	M24x70-8.8	220
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	300	X120	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	310
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	345	X130	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	360
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	540	X150	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	570
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	820	X160	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	850
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	960	X170	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1015
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	1310	X190	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1360
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1805	X200	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1875
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1805	X210	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	1890

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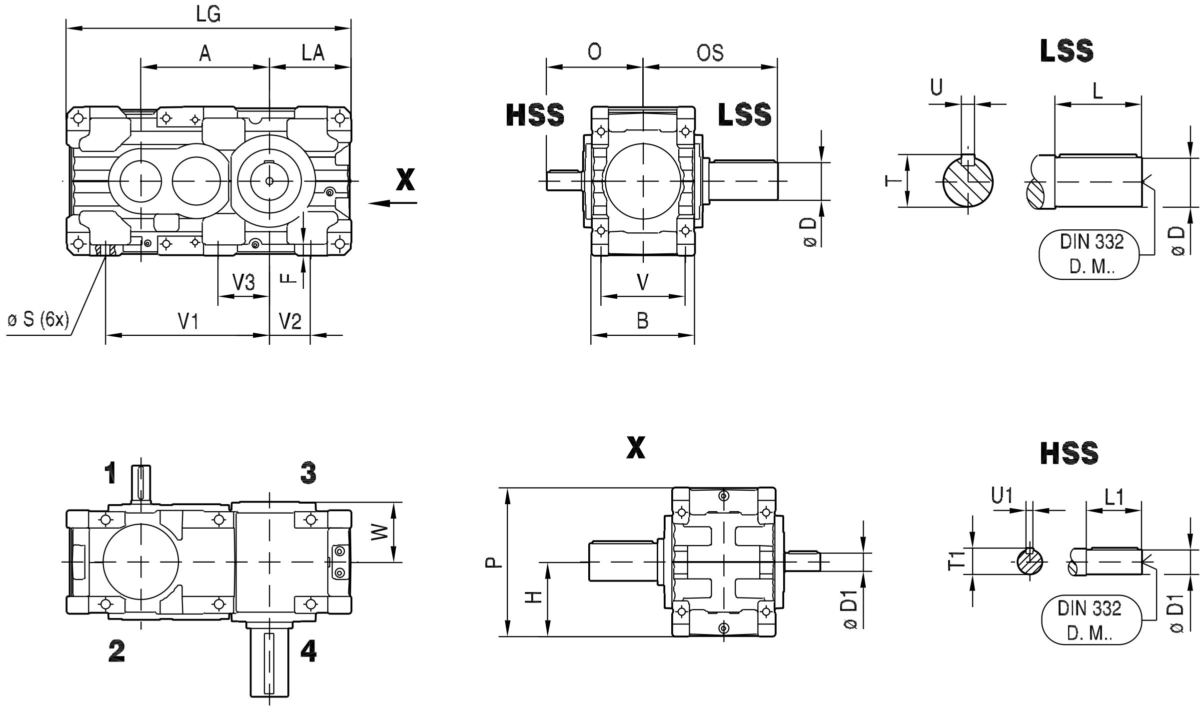
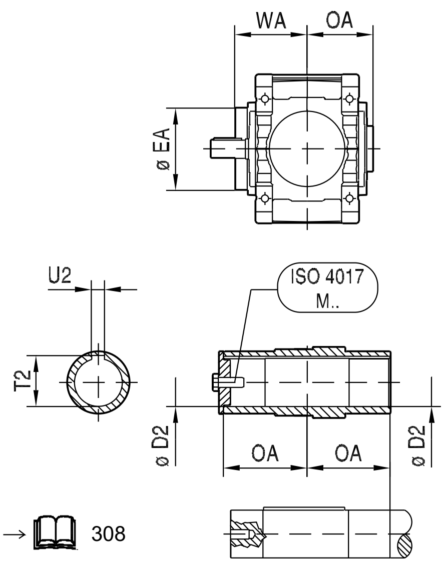
11.1.2 X2F220 – 250

X2FS../HU

48 028 03 07



X2FA../HU



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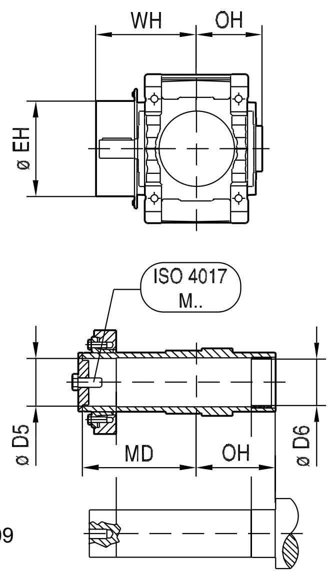
X2FH../HU



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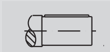
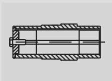
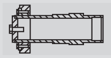
X.F..														X.FS.. LSS 						
X2F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	694	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2650
X230	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.. 									X2FH.. 								
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	2470	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2575
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2610	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2720
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3345	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3510
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3475	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3635

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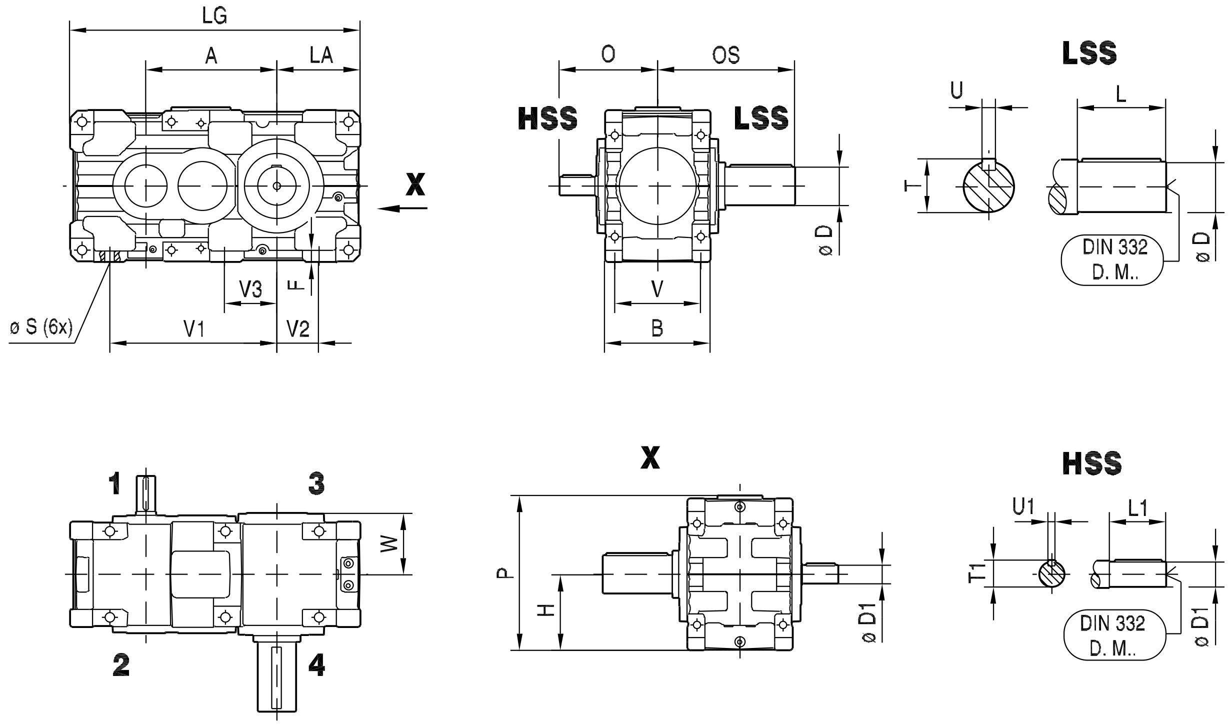
11.1.3 X2F260 – 320

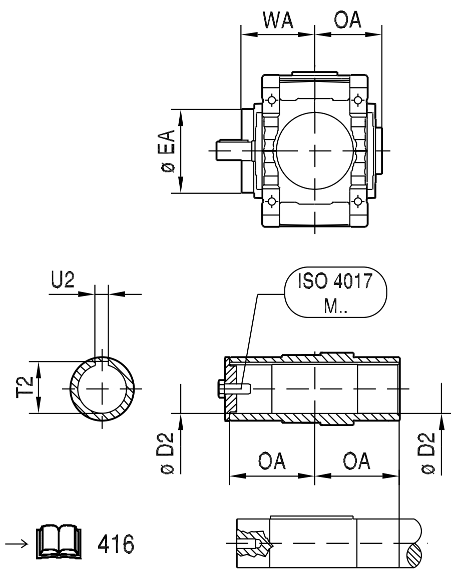
X2FS../HU

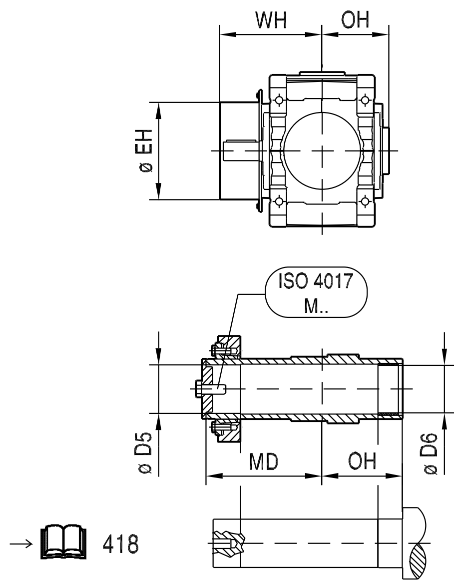
48 029 02 08



X2FA../HU

X2FH../HU





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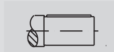
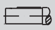
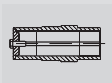
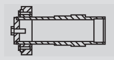
X.F..													X.FS.. LSS 						
X2F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X260	855	705	73	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4450
X270	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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11.1.4 X3F100 – 210

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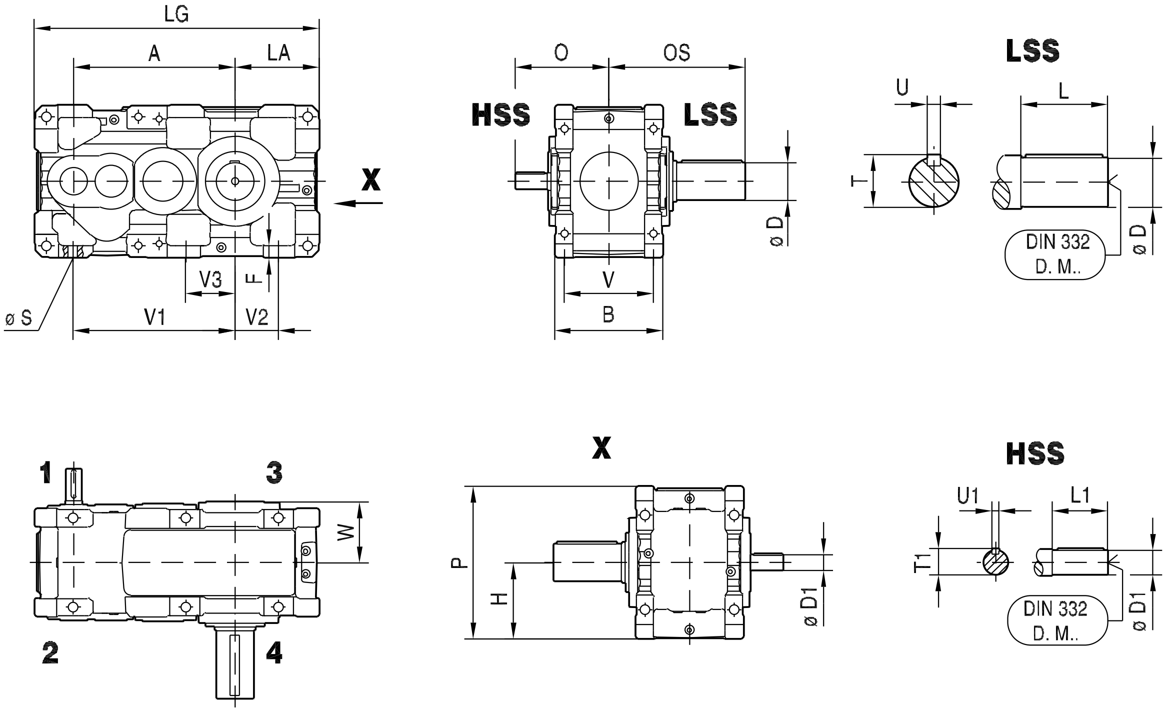
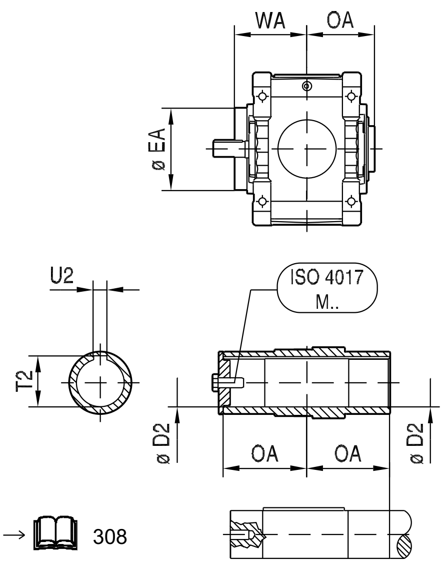
48 026 03 07



X3FA../HU

X3FH../HU



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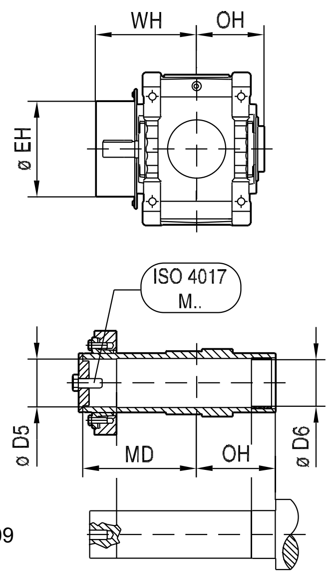

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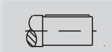
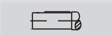
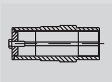
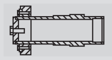
X.F..													X.FS.. LSS 						
X3F..	A	B	F	H	LA	LG	P	Ø S	V	V1	V2	V3	W	Ø D	L	OS	T	U	DIN 332 DR.M..	kg
X100	360	260	29	$190_{-0.5}$	$190_{-0.5}$	663	380	24 (4x)	210	370	90	-	153	80_{m6}	170	343	85	22_{h9}	M20	220
X110	380	260	29	$190_{-0.5}$	$215_{-0.5}$	708	380	24 (4x)	210	390	115	-	153	90_{m6}	170	346	95	25_{h9}	M24	225
X120	427	300	33	$225_{-0.5}$	$215_{-0.5}$	767	450	28 (4x)	245	440	105	-	174	100_{m6}	210	401	106	28_{h9}	M24	340
X130	463	300	33	$225_{-0.5}$	$250_{-0.5}$	838	450	28 (4x)	245	475	140	-	174	110_{m6}	210	404	116	28_{h9}	M24	405
X140	502	360	42	$265_{-0.5}$	$250_{-0.5}$	903	530	35 (4x)	290	510	110	-	202	120_{m6}	210	432	127	32_{h9}	M24	570
X150	544	360	42	$265_{-0.5}$	$295_{-0.5}$	990	530	35 (4x)	290	555	155	-	202	130_{m6}	250	475	137	32_{h9}	M24	625
X160	611	425	50	$315_{-0.5}$	$355_{-0.5}$	1144	630	42 (4x)	340	620	185	-	240	140_{m6}	250	506	148	36_{h9}	M30	970
X170	662	425	50	$315_{-0.5}$	$355_{-0.5}$	1195	630	42 (4x)	340	670	185	-	240	160_{m6}	300	556	169	40_{h9}	M30	1125
X180	707	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	1450
X190	739	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	1515
X200	794	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	1850
X210	830	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	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	ØEH	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

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11.1.5 X3F220 – 250

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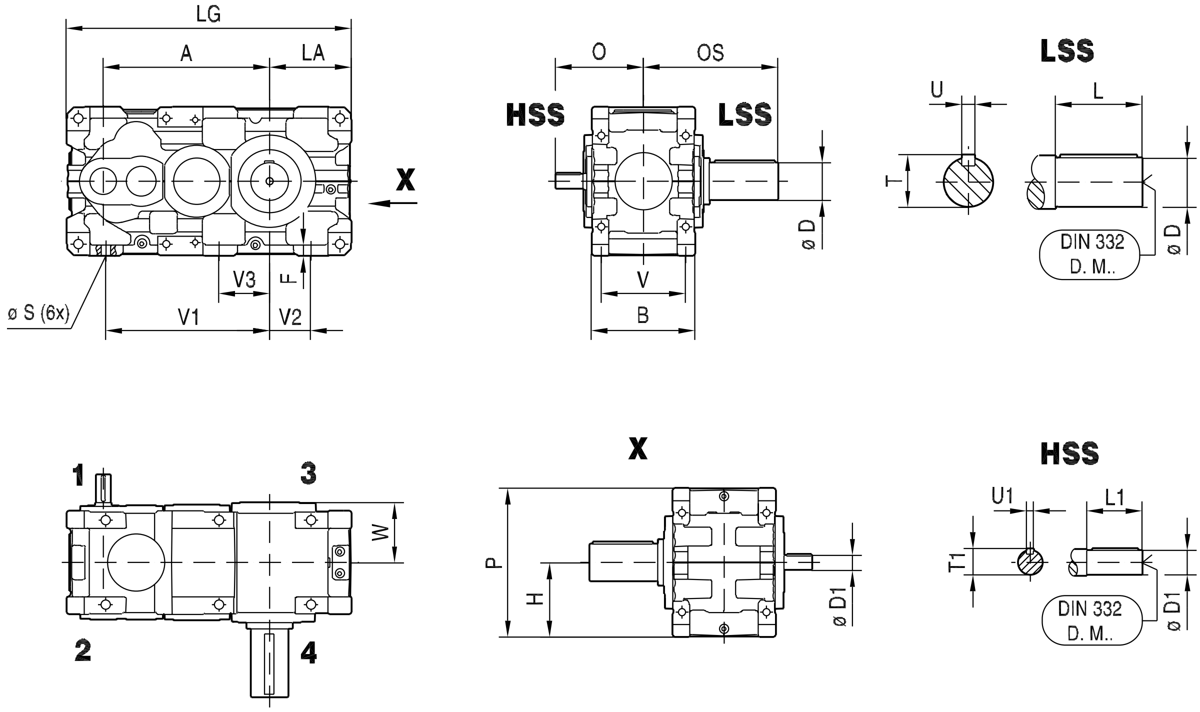
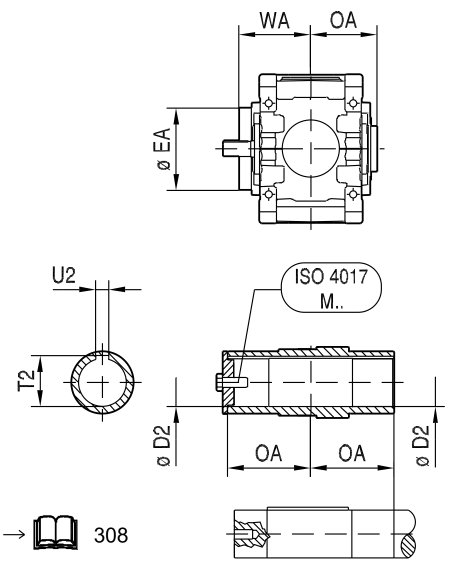
48 029 03 07



X3FA../HU



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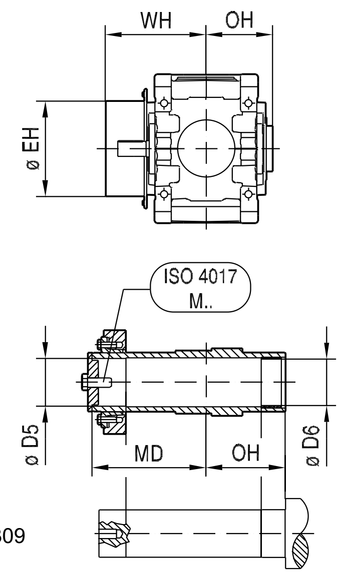
X3FH../HU



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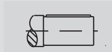
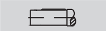
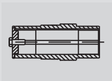
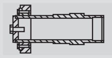
X.F..													X.FS.. LSS 						
X3F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	850	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2630
X230	934	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	850	48	440	950	250	280	331	230_{m6}	410	763	241	50_{h9}	M36	2850
X240	1004	625	68	$450_{-0.5}$	$495_{-0.5}$	1721	900	56	510	990	250	305	377	230_{m6}	410	811	241	50_{h9}	M36	3690
X250	1027	625	68	$450_{-0.5}$	$495_{-0.5}$	1744	900	56	510	1010	250	305	377	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.. 									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	2450	**X220**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2555
X230	210^{H8}	360	352.5	221.4	50^{JS9}	417	M30x90-8.8	2630	**X230**	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2740
X240	230^{H8}	420	400.5	241.4	50^{JS9}	469	M36x110-8.8	3405	**X240**	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3570
X250	240^{H8}	420	400.5	252.4	56^{JS9}	469	M36x110-8.8	3495	**X250**	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3655

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11.1.6 X3F260 – 320

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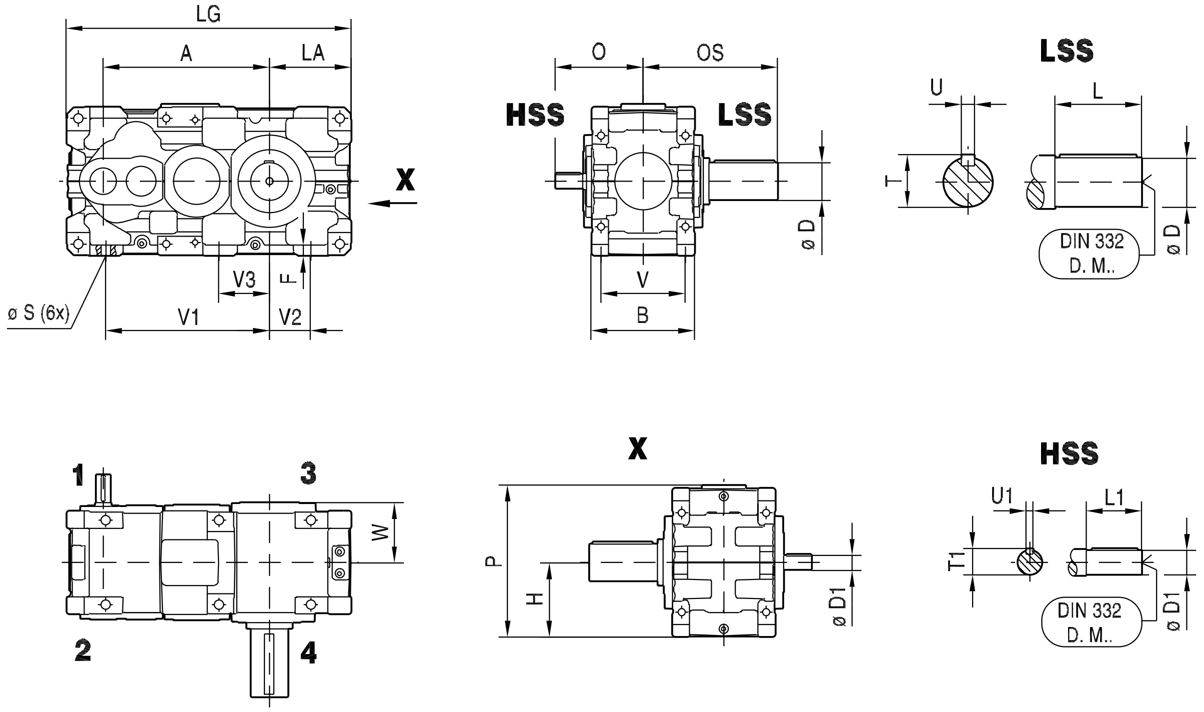
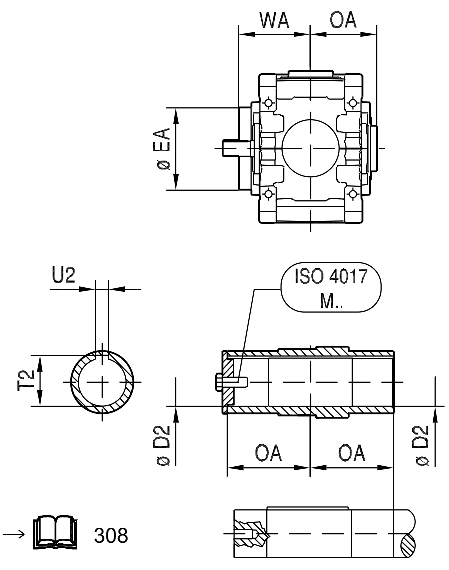
48 031 03 08



X3FA../HU



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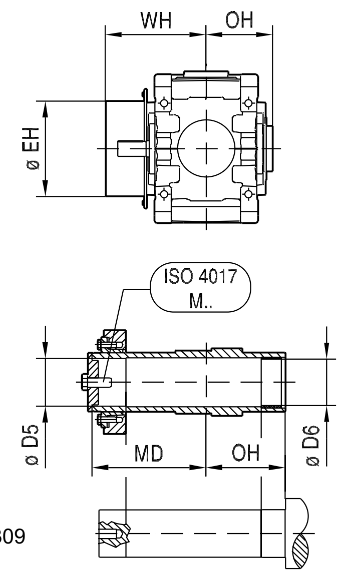
X3FH../HU



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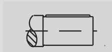
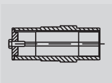
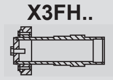
X.F..													X.FS.. LSS 						
X3F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4520
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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11.1.7 X4F120 – 210

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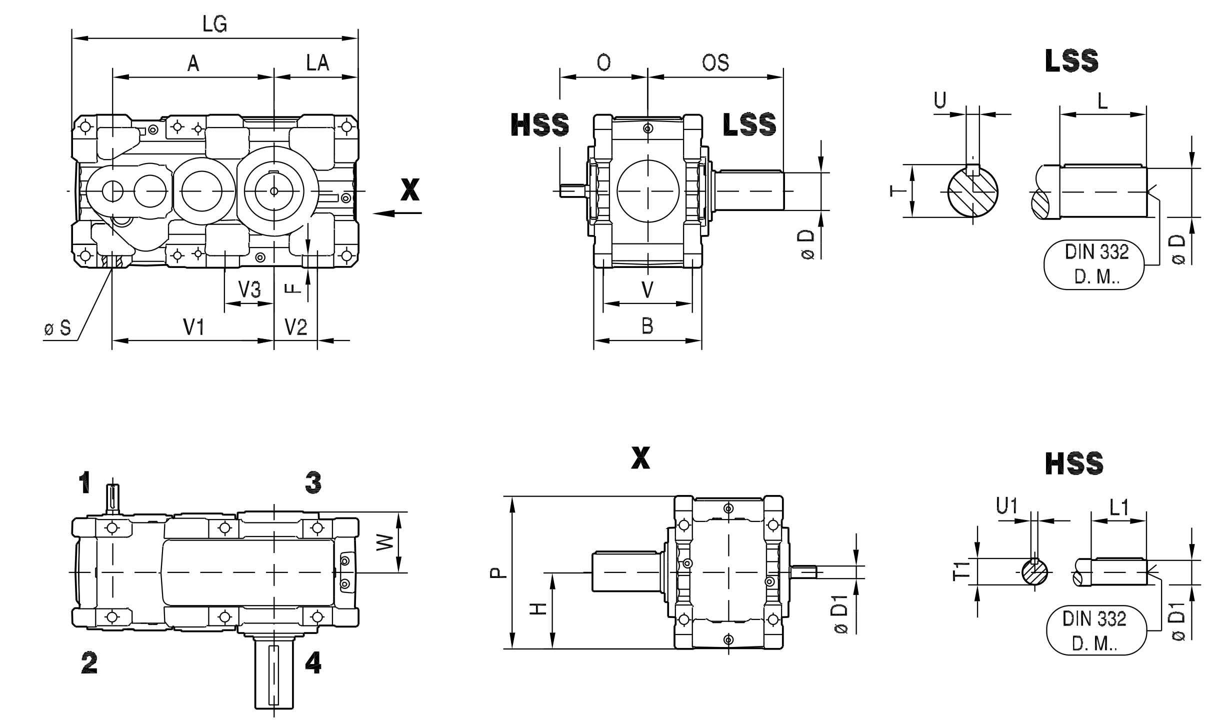
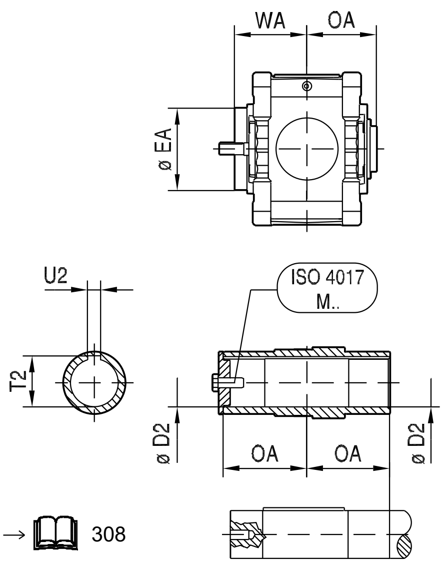
48 027 03 07



X4FA../HU



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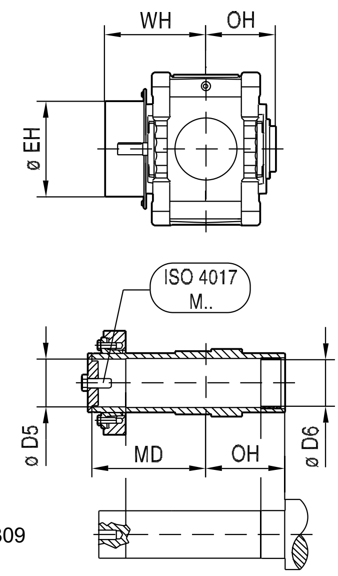
X4FH../HU



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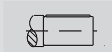
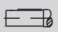
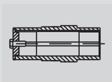
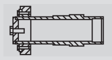
	X.F..												X.FS.. LSS 						
X4F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X120	427	300	33	$225_{-0.5}$	$215_{-0.5}$	772	450	28 (4x)	245	440	105	-	174	100_{m6}	210	401	106	28_{h9}	M24	355
X130	463	300	33	$225_{-0.5}$	$250_{-0.5}$	843	450	28 (4x)	245	475	140	-	174	110_{m6}	210	404	116	28_{h9}	M24	395
X140	502	360	42	$265_{-0.5}$	$250_{-0.5}$	908	530	35 (4x)	290	510	110	-	202	120_{m6}	210	432	127	32_{h9}	M24	560
X150	544	360	42	$265_{-0.5}$	$295_{-0.5}$	995	530	35 (4x)	290	555	155	-	202	130_{m6}	250	475	137	32_{h9}	M24	640
X160	611	425	50	$315_{-0.5}$	$355_{-0.5}$	1149	630	42 (4x)	340	620	185	-	240	140_{m6}	250	506	148	36_{h9}	M30	960
X170	662	425	50	$315_{-0.5}$	$355_{-0.5}$	1200	630	42 (4x)	340	670	185	-	240	160_{m6}	300	556	169	40_{h9}	M30	1160
X180	707	475	55	$335_{-0.5}$	$370_{-0.5}$	1254	670	42 (6x)	390	710	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1410
X190	739	475	55	$335_{-0.5}$	$370_{-0.5}$	1287	670	42 (6x)	390	740	190	215	277	170_{m6}	300	592	179	40_{h9}	M30	1450
X200	794	515	60	$375_{-0.5}$	$420_{-0.5}$	1415	750	48 (6x)	420	780	205	230	298	180_{m6}	300	612	190	45_{h9}	M30	1900
X210	830	515	60	$375_{-0.5}$	$420_{-0.5}$	1451	750	48 (6x)	420	815	205	230	298	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.. 									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**
X120	95^{H8}	202	190.5	100.4	25^{JS9}	223	M24x70-8.8	335	**X120**	100^{H7}	101^{H9}	272	286.5	190.5	319	M24x70-8.8	345
X130	105^{H8}	222	194	111.4	28^{JS9}	225	M24x70-8.8	370	**X130**	110^{H7}	111^{H9}	292	297	194	328	M24x70-8.8	385
X140	115^{H8}	222	222	122.4	32^{JS9}	225	M24x70-8.8	525	**X140**	120^{H7}	121^{H9}	304	329	222	356	M24x70-8.8	550
X150	125^{H8}	250	224.5	132.4	32^{JS9}	255	M24x70-8.8	590	**X150**	130^{H7}	131^{H9}	322	337.5	224.5	368	M24x70-8.8	620
X160	135^{H8}	270	256	143.4	36^{JS9}	319	M30x90-8.8	890	**X160**	140^{H7}	141^{H9}	368	375	256	427	M30x90-8.8	920
X170	150^{H8}	270	256	158.4	36^{JS9}	319	M30x90-8.8	1080	**X170**	150^{H7}	151^{H9}	368	364	256	427	M30x90-8.8	1135
X180	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1310	**X180**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1360
X190	165^{H8}	278	292	174.4	40^{JS9}	356	M30x90-8.8	1350	**X190**	165^{H7}	166^{H9}	382	400	292	463	M30x90-8.8	1400
X200	180^{H8}	332	319.5	190.4	45^{JS9}	383	M30x90-8.8	1815	**X200**	180^{H7}	181^{H9}	446	450.5	319.5	517	M30x90-8.8	1885
X210	190^{H8}	332	319.5	200.4	45^{JS9}	383	M30x90-8.8	1975	**X210**	190^{H7}	191^{H9}	446	453.5	319.5	517	M30x90-8.8	2060

11.1.8 X4F220 – 250

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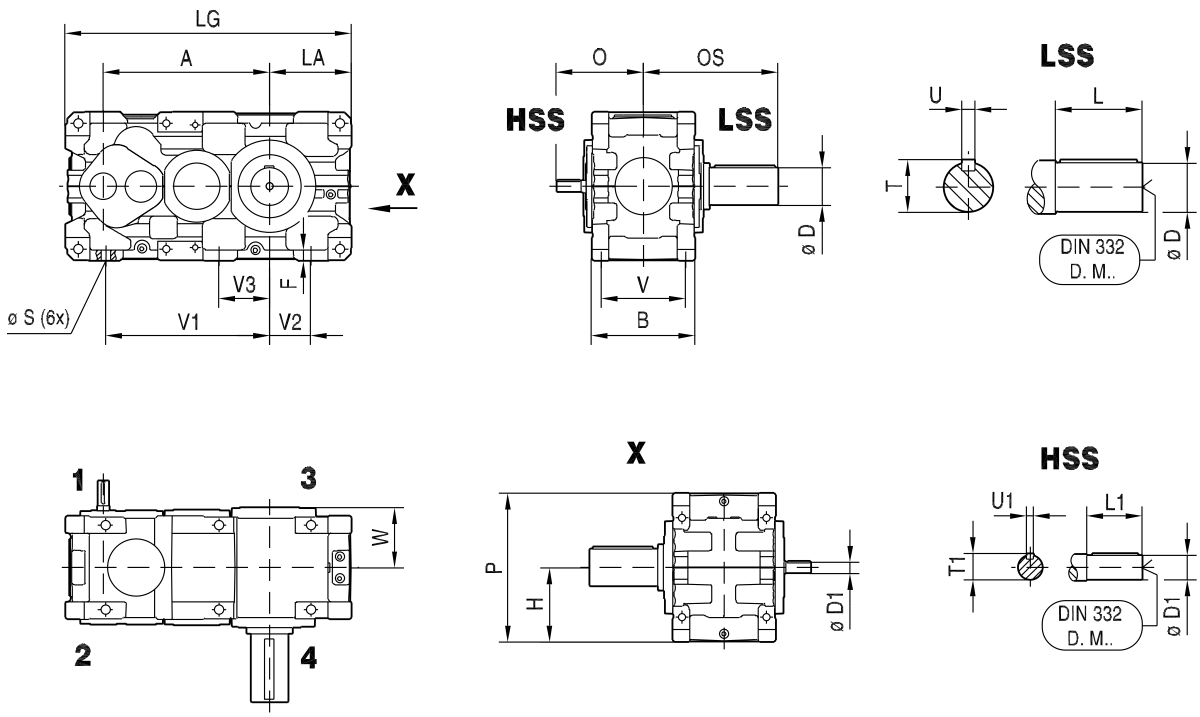
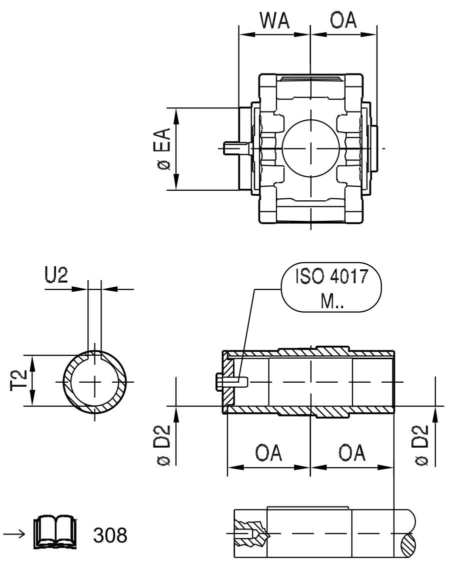
48 030 03 07



X4FA../HU



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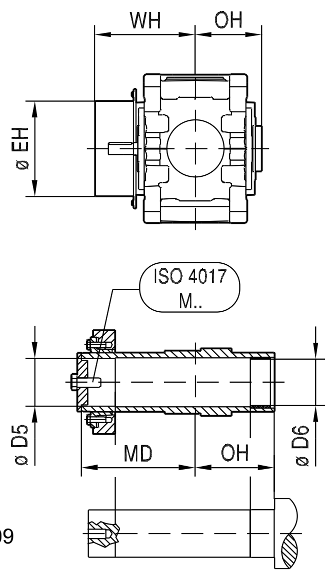
X4FH../HU



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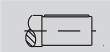
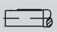
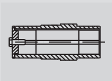
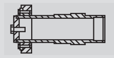
X.F..													X.FS.. LSS 						
X4F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X220	894	540	62	$425_{-0.5}$	$465_{-0.5}$	1591	850	48	440	910	250	280	331	210_{m6}	350	703	221	50_{h9}	M30	2680
X230	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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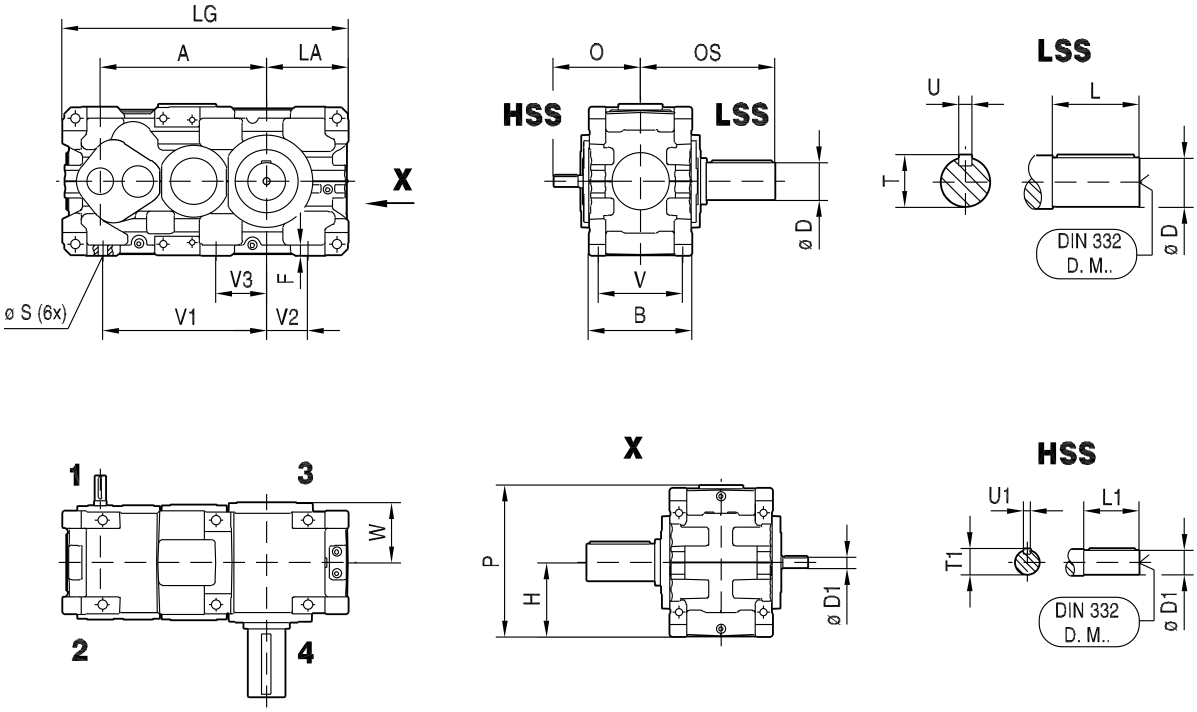
48 033 03 08



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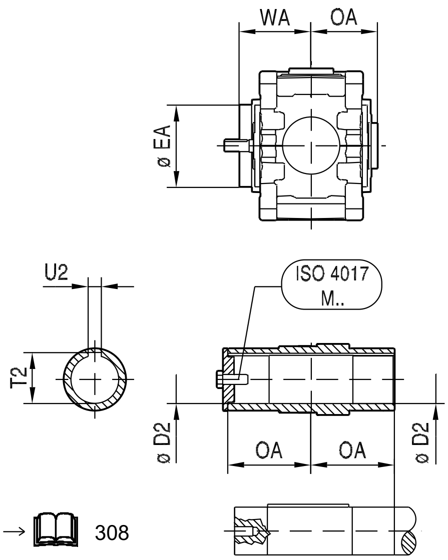

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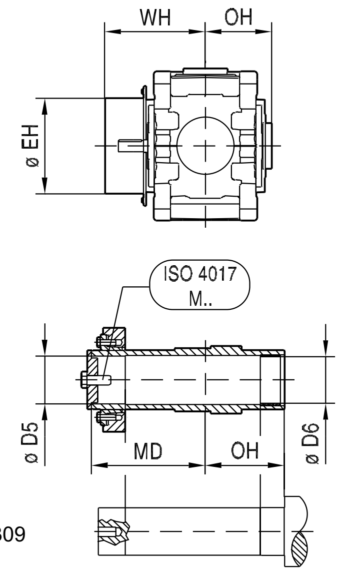
X4FH../HU



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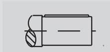
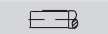
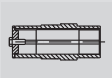
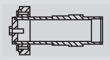
	X.F..													X.FS.. LSS 						
X4F..	**A**	**B**	**F**	**H**	**LA**	**LG**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR.M..**	**kg**
X260	1113	705	63	$500_{-0.5}$	$545_{-0.5}$	1909	1017	56	590	1110	300	350	417	250_{m6}	410	847	262	56_{h9}	M36	4620
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

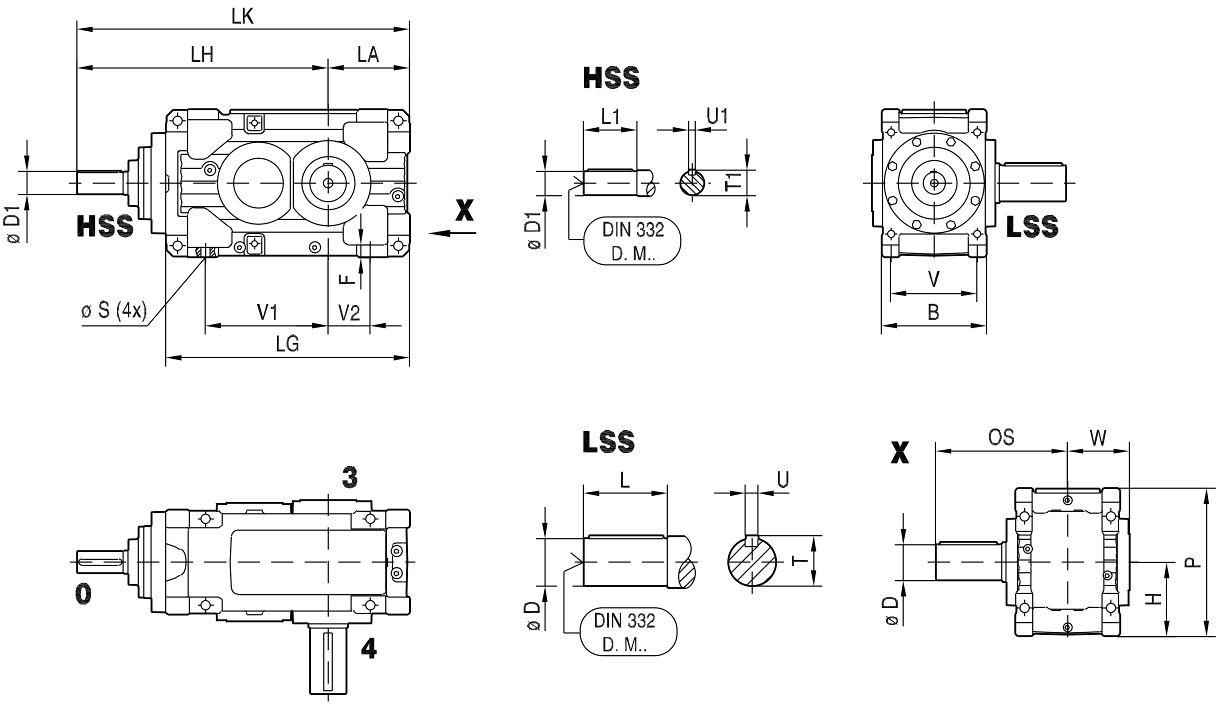
X4FA.. 								X4FH.. 								
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**	**LSS**	**Ø D5**	**Ø D6**	**Ø EH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110–8.8	4170	**X260**	250^{H7}	255^{H9}	558	608	437	694	M36x110–8.8	4320
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

11.2 X.K.. bevel-helical gear units [mm]

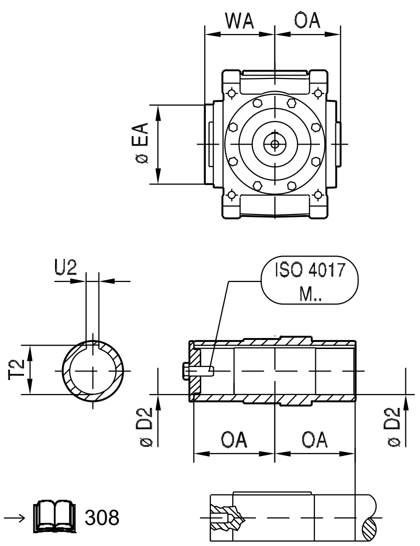
11.2.1 X2K100 – 210

X2KS../HU

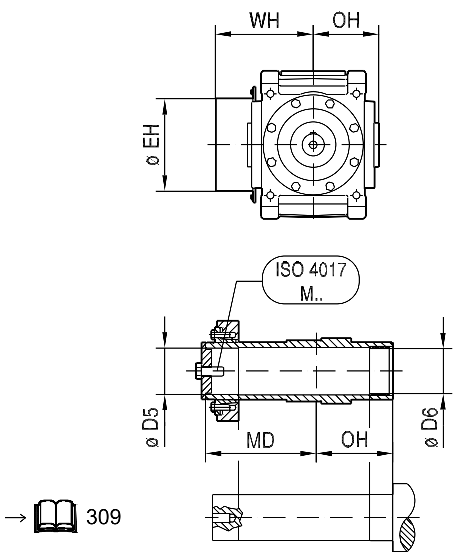
48 001 04 07



X2KA../HU



X2KH../HU



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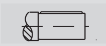
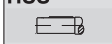
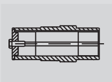
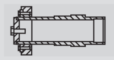
X.K..														
X2K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (4x)**	**V**	**V1**	**V2**	**W**	**kg**
X100	260	29	$190_{-0.5}$	$190_{-0.5}$	601	655	845	380	24	210	315	90	153	235
X110	260	29	$190_{-0.5}$	$215_{-0.5}$	646	675	890	380	24	210	335	115	153	250
X120	300	33	$225_{-0.5}$	$215_{-0.5}$	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

11

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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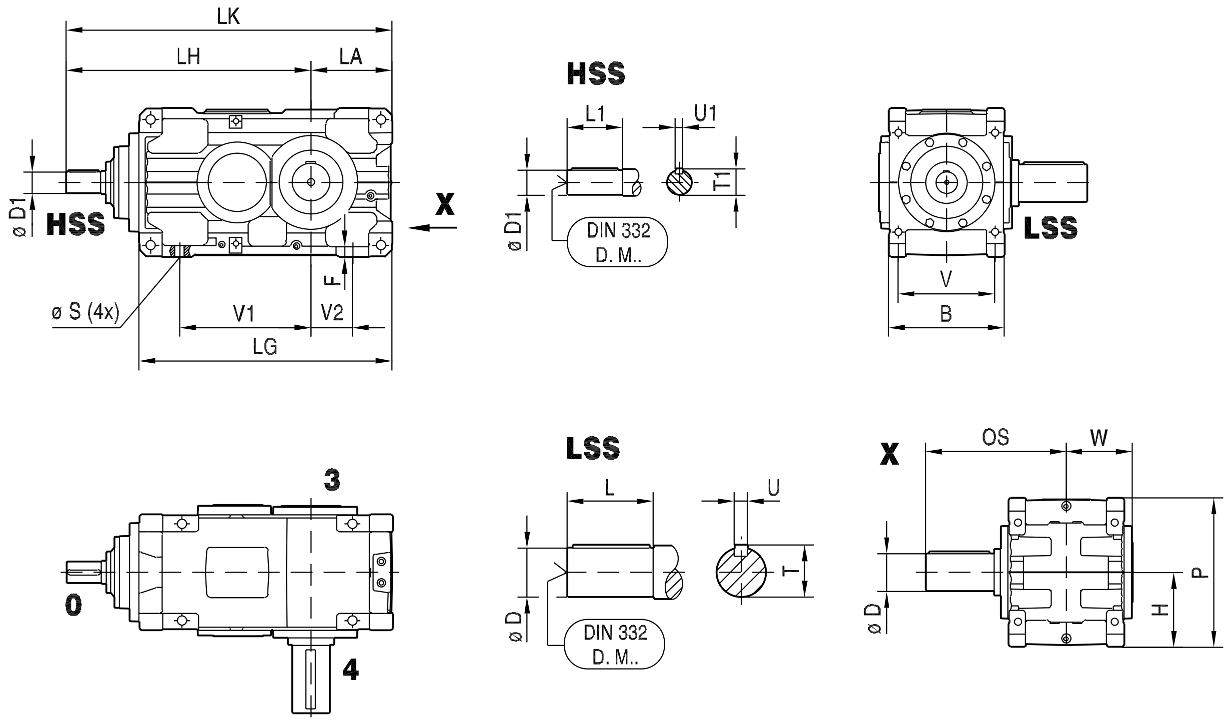
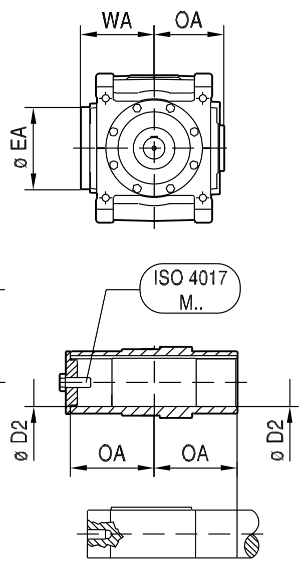
11.2.2 X2K220 – 250

X2KS../HU

48 004 03 07



X2KA../HU



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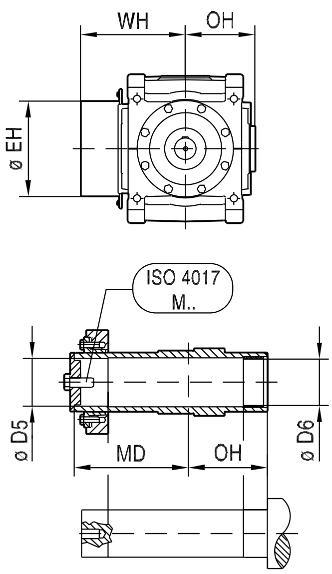
X2KH../HU



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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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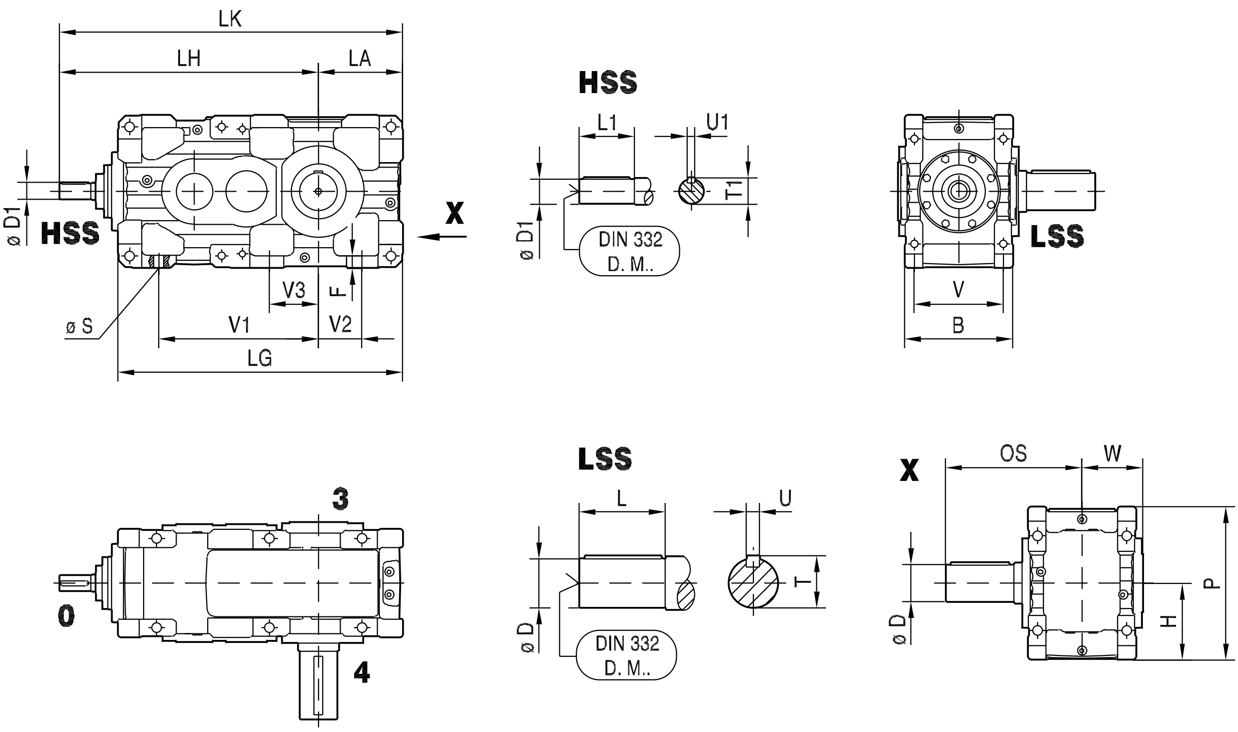
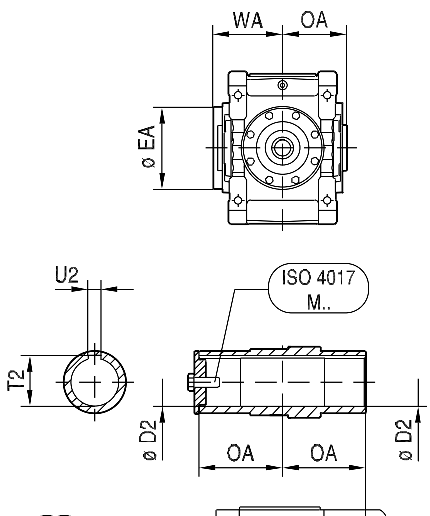
11.2.3 X3K100 – 210

X3KS../HU

48 002 03 07



X3KA../HU



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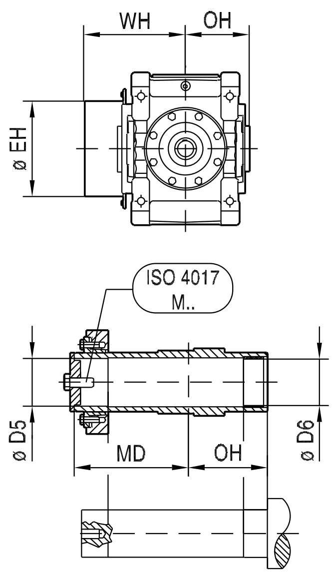
X3KH../HU



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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

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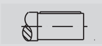
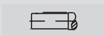
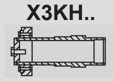
LSS 	**Ø D**	**L**	**OS**	**T**	**U**	**DIN 332 DR. M..**
X100	80_{m6}	170	343	85	22_{h9}	M20
X110	90_{m6}	170	346	95	25_{h9}	M24
X120	100_{m6}	210	401	106	28_{h9}	M24
X130	110_{m6}	210	404	116	28_{h9}	M24
X140	120_{m6}	210	432	127	32_{h9}	M24
X150	130_{m6}	250	475	137	32_{h9}	M24
X160	140_{m6}	250	506	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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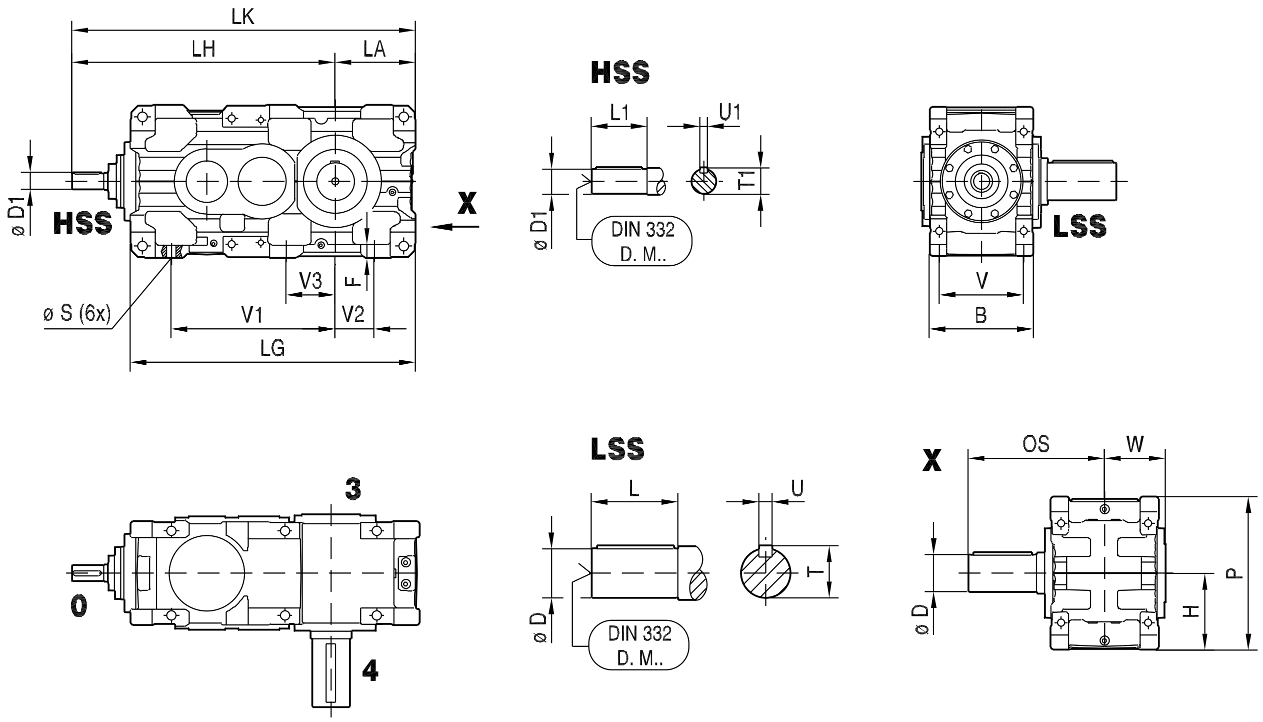
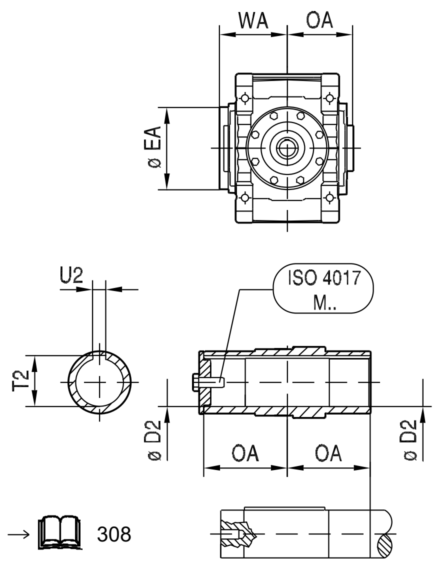
11.2.4 X3K220 – 250

X3KS../HU

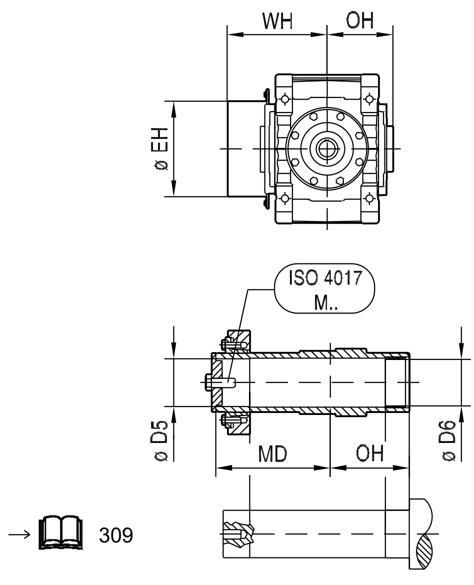
48 005 03 07



X3KA../HU



X3KH../HU



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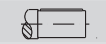
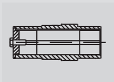
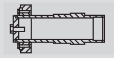
					X.K..									
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1430	1895	850	48	440	910	250	280	331	2890
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1470	1935	850	48	440	950	250	280	331	3060
X240	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

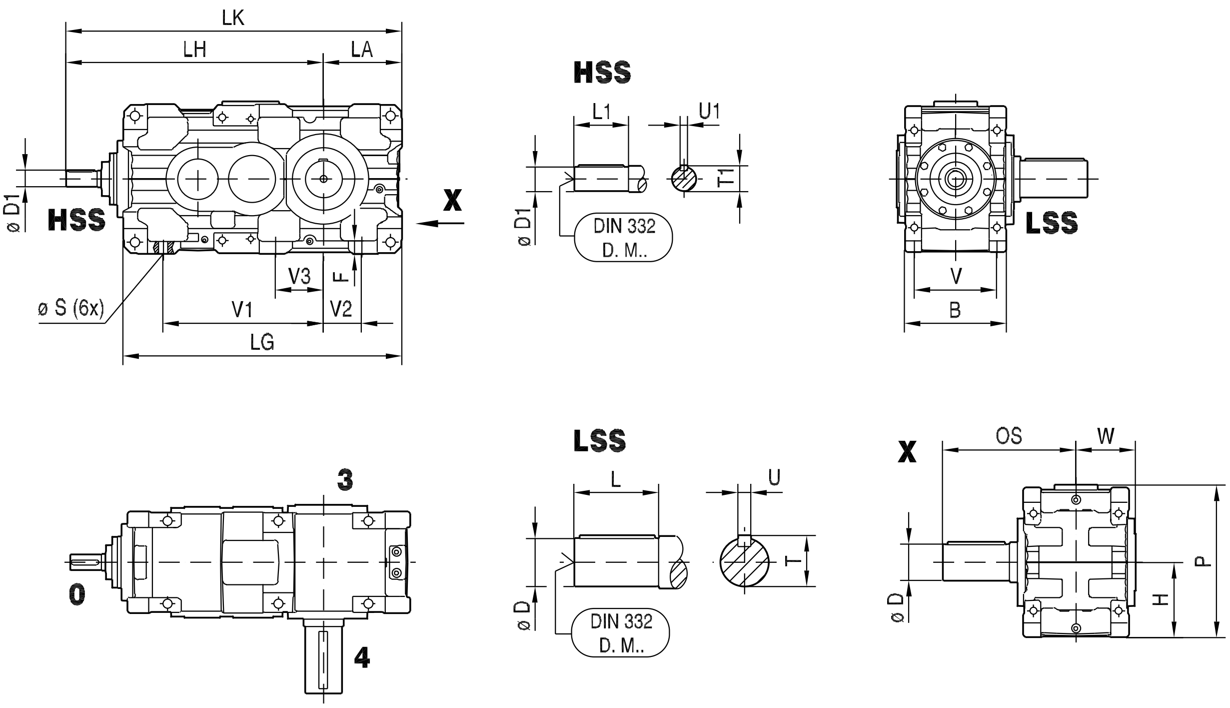
11

				X3KA.. 				
LSS	**ØD2**	**ØEA**	**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

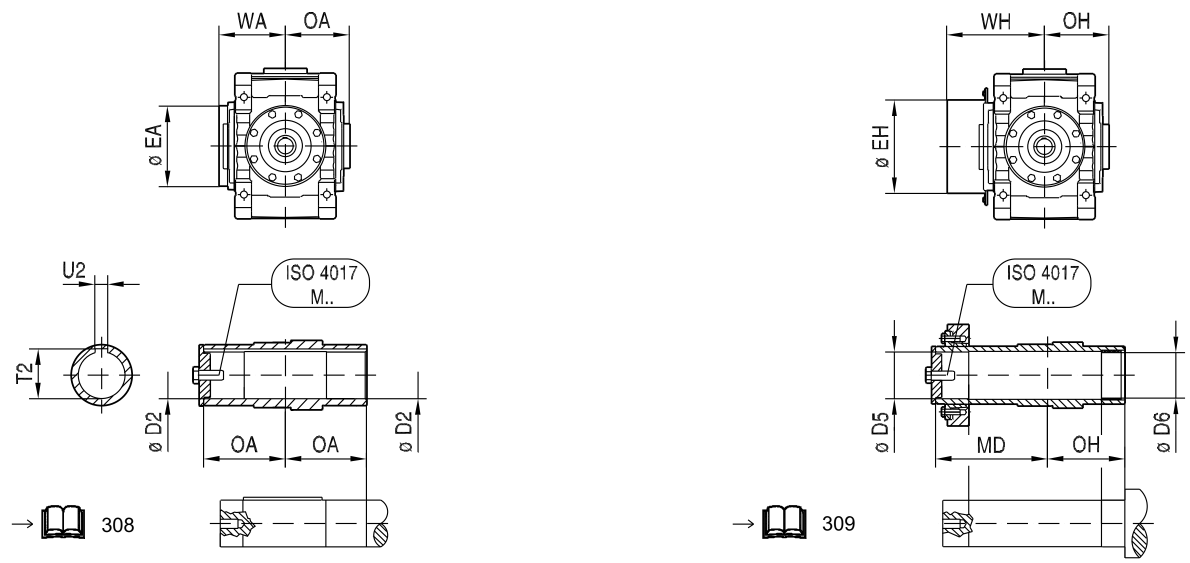
				X3KH.. 				
LSS	**ØD5**	**ØD6**	**ØEH**	**MD**	**OH**	**WH**	**ISO 4017 M..**	**kg**
X220	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2815
X230	210^{H7}	211^{H9}	484	497.5	352.5	562	M30x90-8.8	2950
X240	230^{H7}	231^{H9}	558	571.5	400.5	654	M36x110-8.8	3790
X250	240^{H7}	241^{H9}	558	571.5	400.5	654	M36x110-8.8	3895

11.2.5 X3K260 – 320

X3KS../HU 48 025 03 08

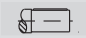


X3KA../HU **X3KH../HU**

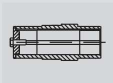


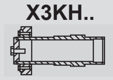
22758666/EN – 03/2017

X.K..															
X3K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**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	2135	2815	1277	65	720	1435	385	455	499	8570
X320	850	86	$630_{-0.5}$	$680_{-0.5}$	2444	2169	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**

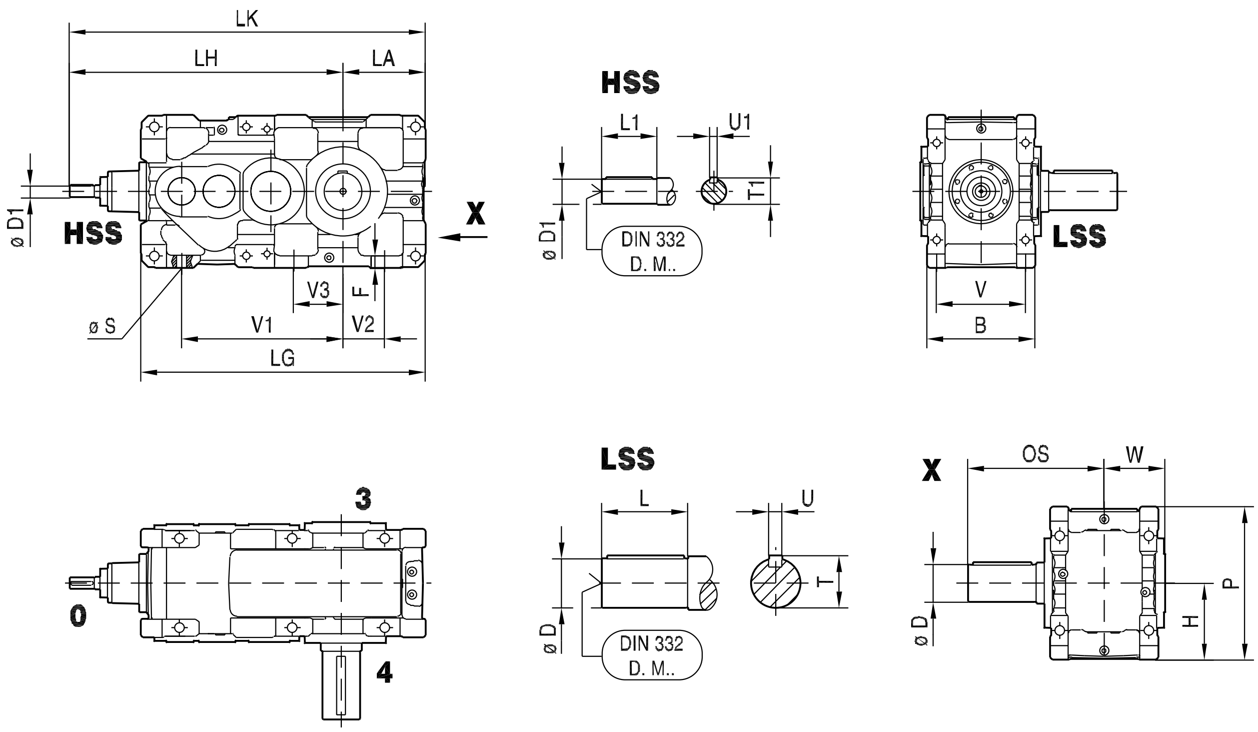
X3KA.. 							
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4420
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4870
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5320
X290	290^{H8}	486	492	302.4	63^{JS9}	565	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

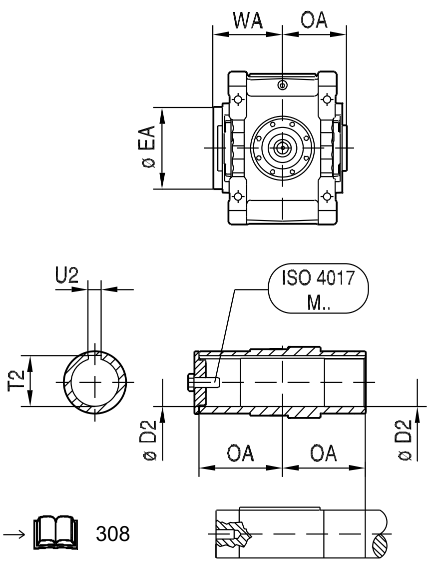
11.2.6 X4K120 – 210

X4KS../HU

48 003 03 07



X4KA../HU



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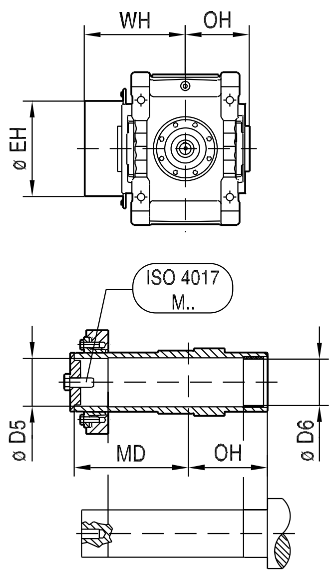
X4KH../HU



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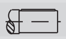
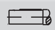
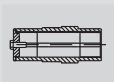
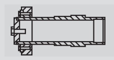
X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X120	300	33	$225_{-0.5}$	$215_{-0.5}$	767	710	925	450	28 (4x)	245	440	105	-	174	340
X130	300	33	$225_{-0.5}$	$250_{-0.5}$	838	746	996	450	28 (4x)	245	475	140	-	174	380
X140	360	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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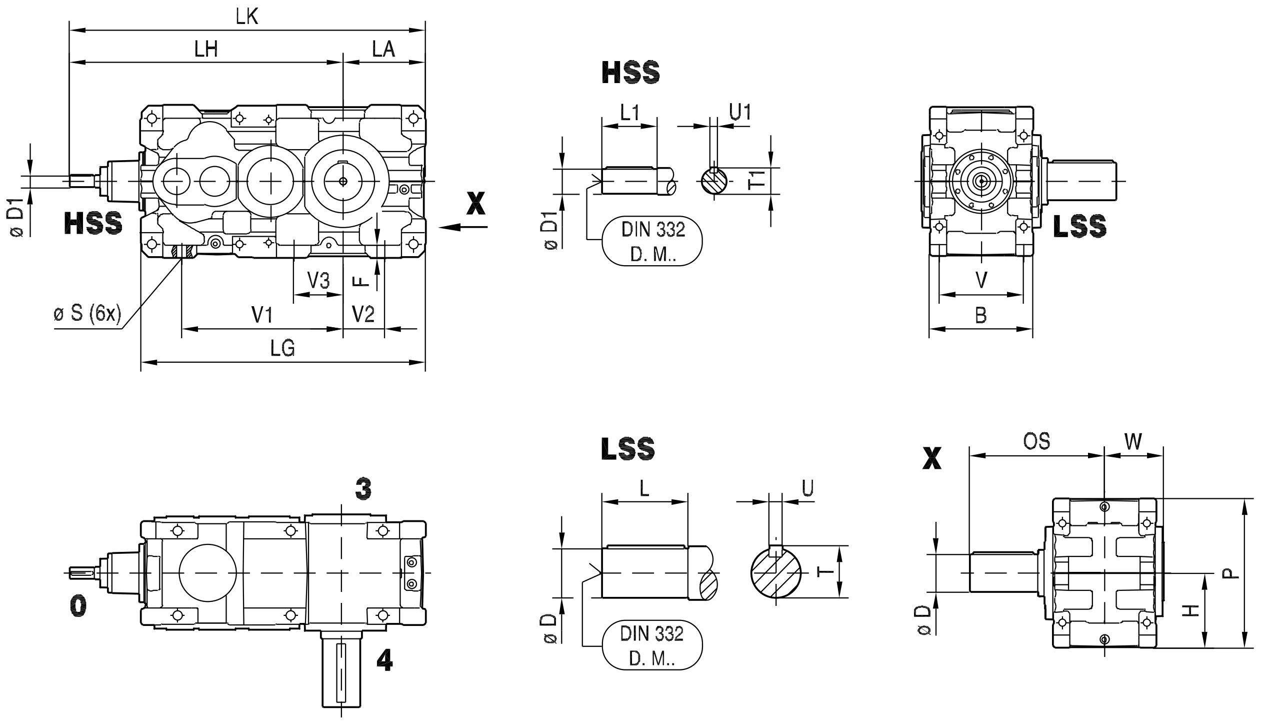
11.2.7 X4K220 – 250

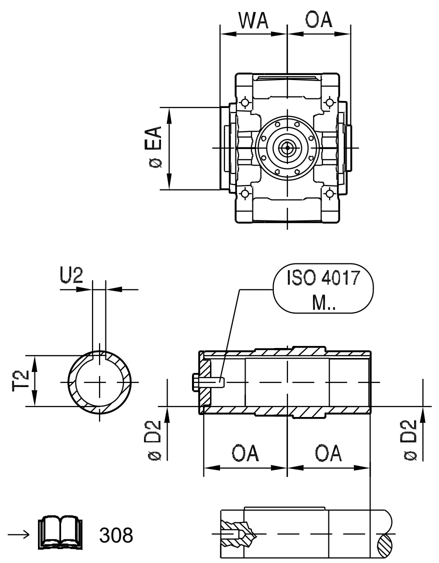
X4KS../HU

48 006 03 07



X4KA../HU

X4KH../HU



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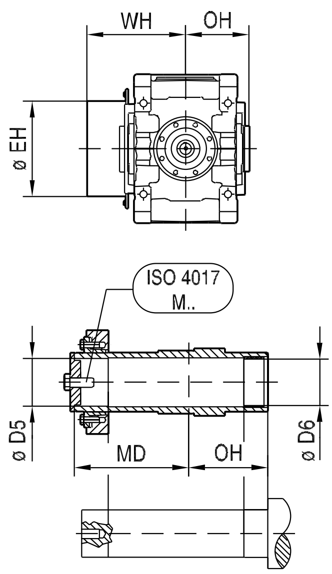

→ 309

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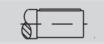
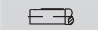
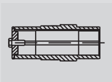
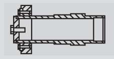
X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X220	540	62	$425_{-0.5}$	$465_{-0.5}$	1584	1456	1921	850	48	440	910	250	280	331	2700
X230	540	62	$425_{-0.5}$	$465_{-0.5}$	1624	1496	1963	850	48	440	950	250	280	331	2940
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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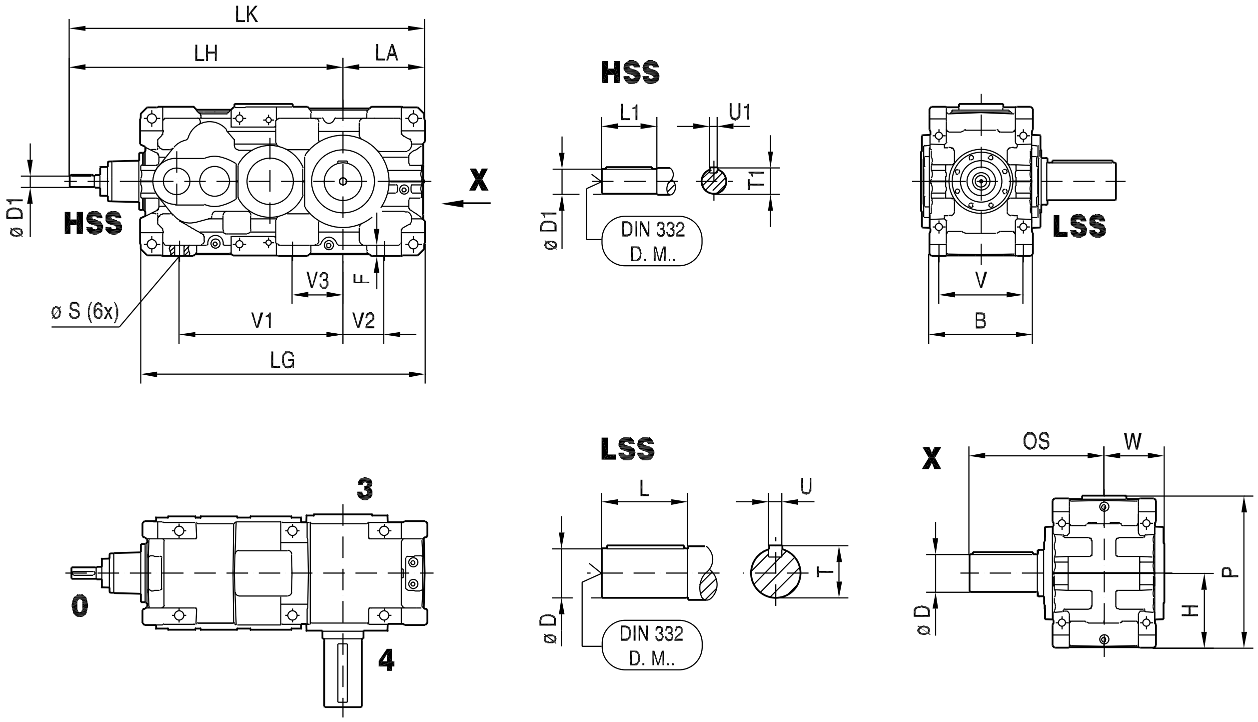
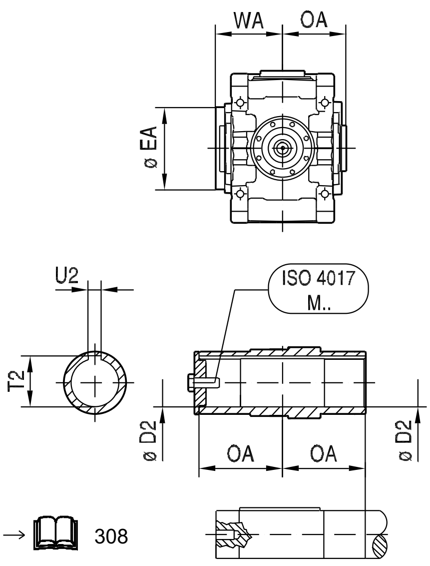
11.2.8 X4K260 – 320

X4KS../HU

48 027 03 08

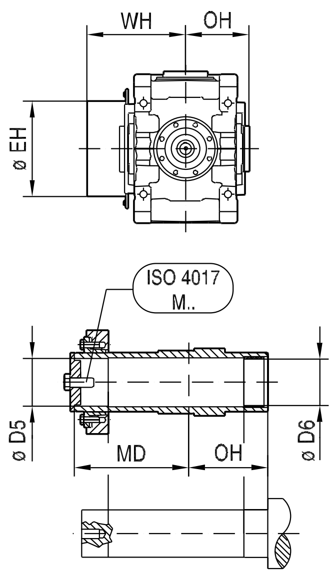


X4KA../HU



→ 308

X4KH../HU



→ 309

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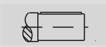
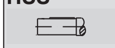
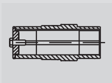
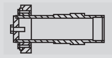
X.K..															
X4K..	**B**	**F**	**H**	**LA**	**LG**	**LH**	**LK**	**P**	**Ø S (6x)**	**V**	**V1**	**V2**	**V3**	**W**	**kg**
X260	705	63	$500_{-0.5}$	$545_{-0.5}$	1900	1785	2330	1017	56	590	1110	300	350	417	4620
X270	705	63	$500_{-0.5}$	$545_{-0.5}$	1935	1820	2365	1017	56	590	1110	300	350	419	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

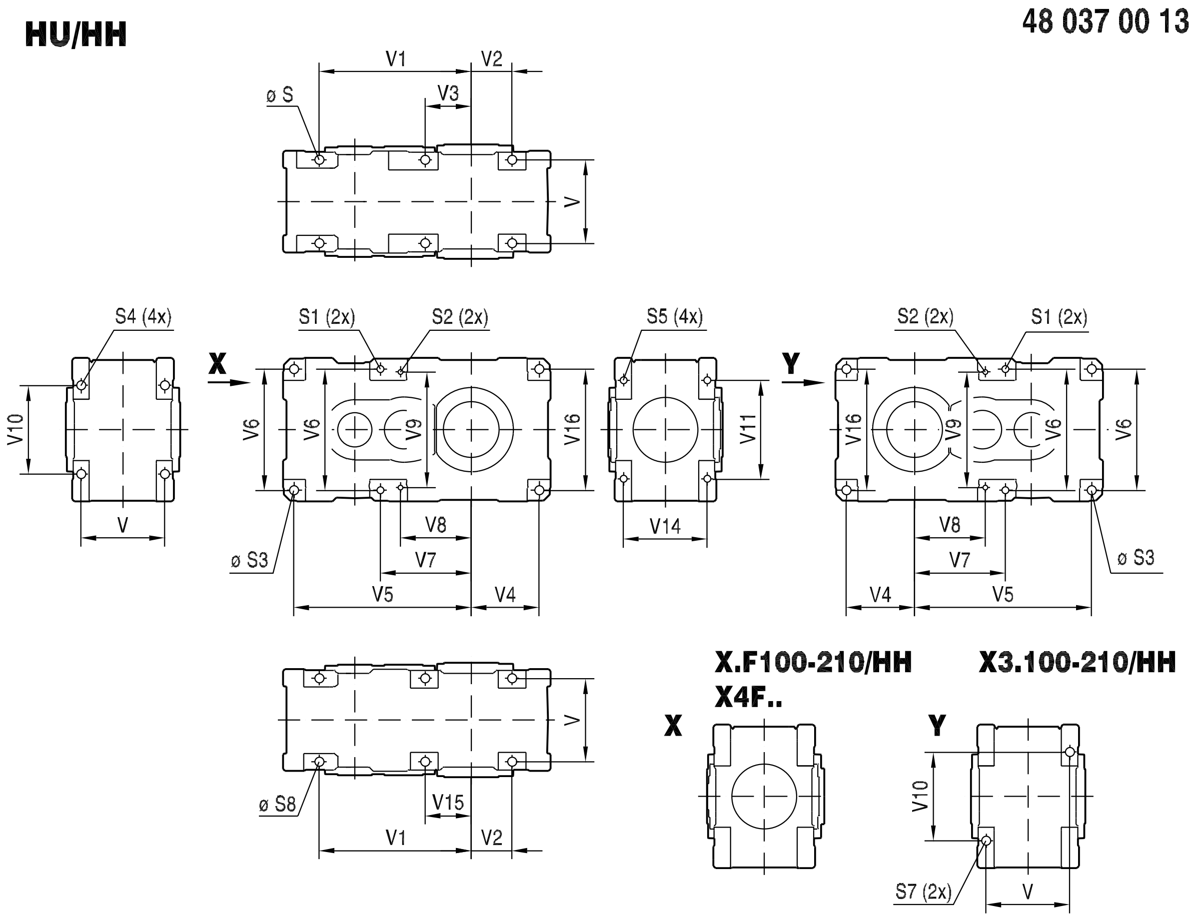
X4KA.. 							
LSS	**Ø D2**	**Ø EA**	**OA**	**T2**	**U2**	**WA**	**ISO 4017 M..**	**kg**
X260	240^{H8}	420	437	252.4	56^{JS9}	509	M36x110-8.8	4170
X270	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	4620
X280	275^{H8}	460	450	287.4	63^{JS9}	523	M36x110-8.8	5120
X290	290^{H8}	486	492	302.4	63^{JS9}	565	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

12 Dimension sheets: options

12.1 Housing bores [mm]

12.1.1 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)]	V14	V15	V16
X100	315	197	-	-	250	-	250	210	-	315
X110	315	217	-	-	250	-	250	210	-	315
X120	380	233	-	-	300	300	310	245	-	380
X130	380	269	-	-	300	300	310	245		380
X140	445	277	-	-	335	350	350	290	-	445
X150	445	319	250	430	335	350	350	290	-	445
X160	525	348	265	500	400	390	415	345	-	525
X170	525	399	265	500	400	390	415	345		525
X180	565	424	333	546	415	425	460	390	-	565
X190	565	456	333	546	415	425	460	390	-	565
X200	630	478	350	610	455	490	510	420	-	630
X210	630	514	350	610	455	490	510	420		630
X220	725	531	415	680	610	540	600	440	-	725
X230	725	571	415	680	610	540	600	440	-	725
X240	760	625	450	740	600	550	600	510	-	760
X250	760	648	450	740	600	550	600	510		760
X260	860	683	500	860	710	710	710	590	-	860
X270	860	718	500	860	710	710	710	590	-	860
X280	970	569	-	970	710	710	710	590	-	970
X290	995	558	-	995	765	830	830	655		995
X300	995	587	-	995	765	830	830	655	-	995
X310	1095	621	-	1095	860	860	860	720	-	1095
X320	1095	655	-	1095	860	860	860	720	-	1095

1) X3F, X4K
2) X2F, X3K

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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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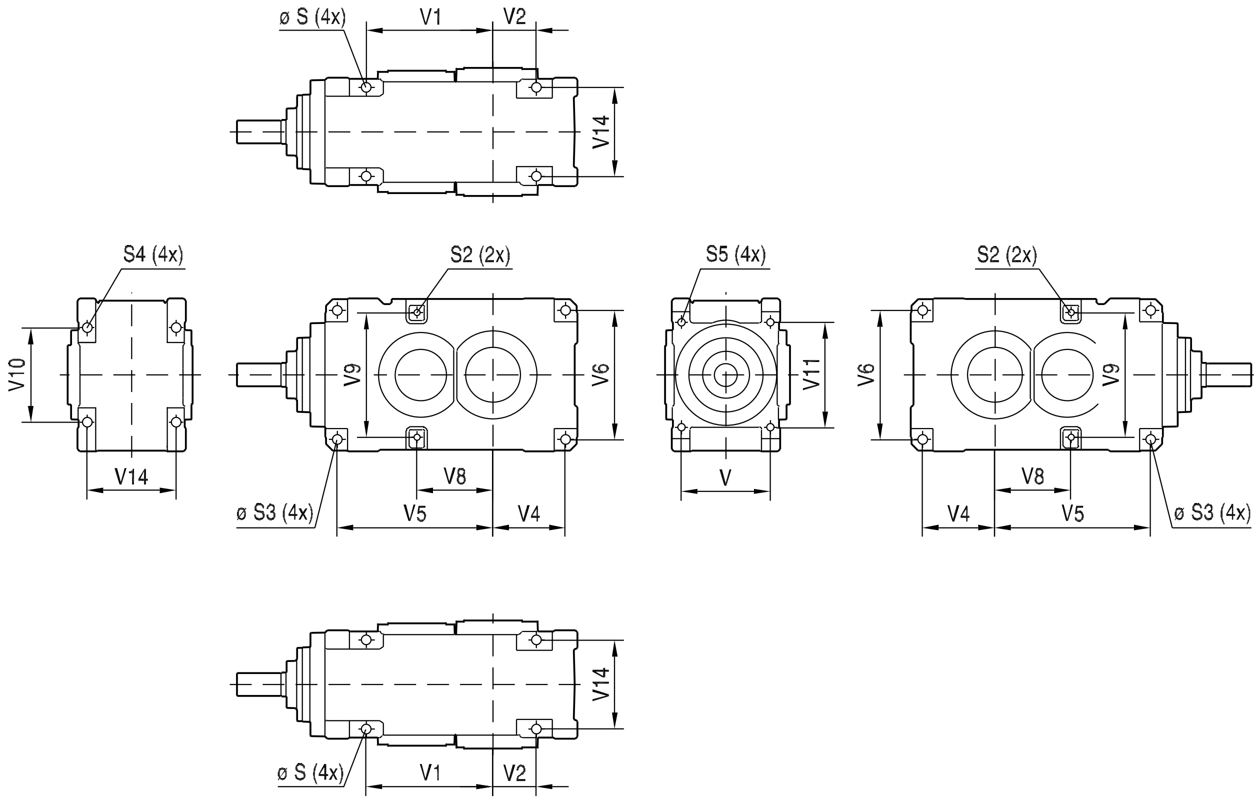
Universal housing X2K100 – 250 /HU

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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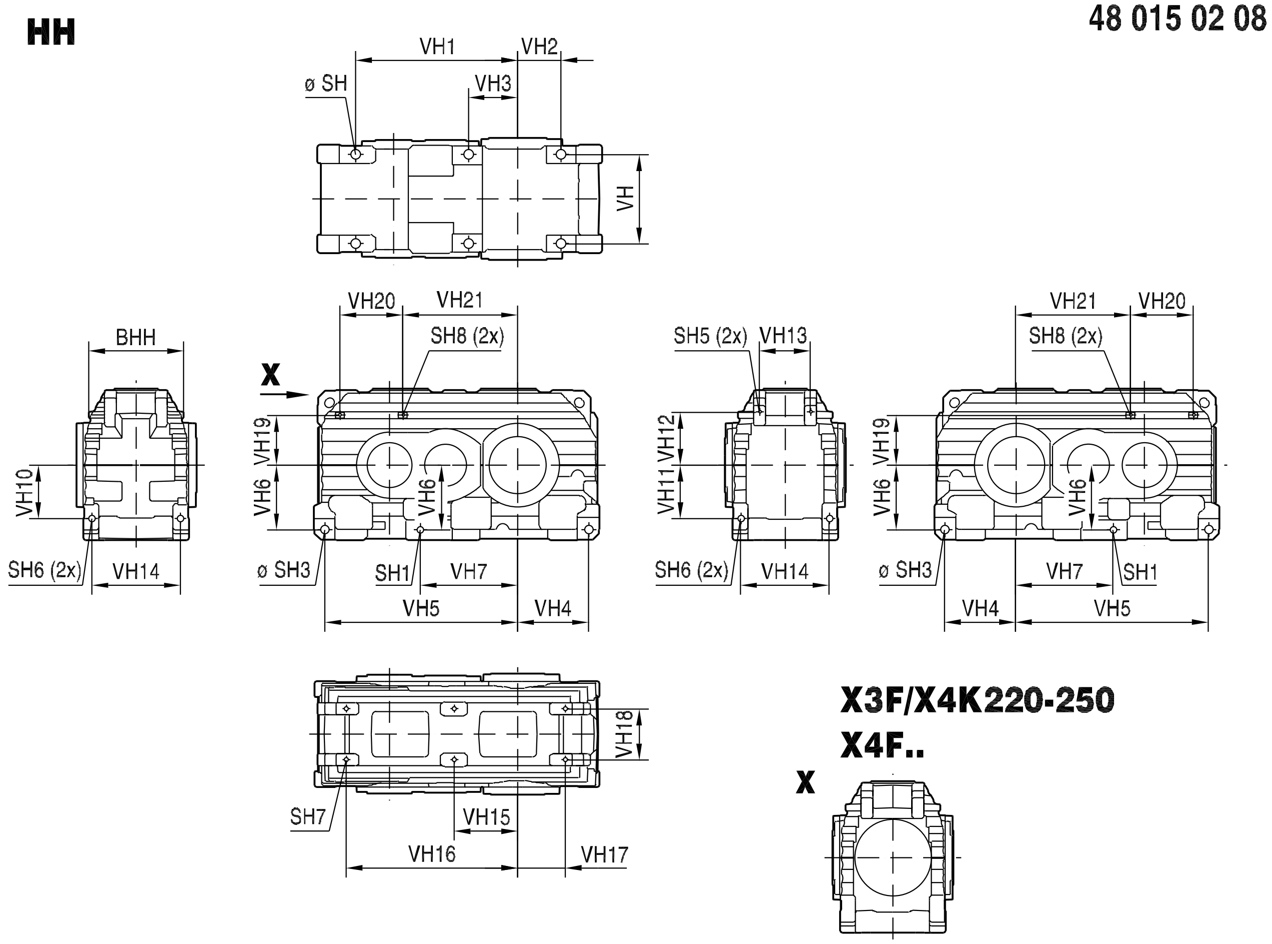
12.1.2 Horizontal housing X220 – 320 /HH



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	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

12.2 Input shaft /HSST [mm]

12.2.1 X2F..

HSST

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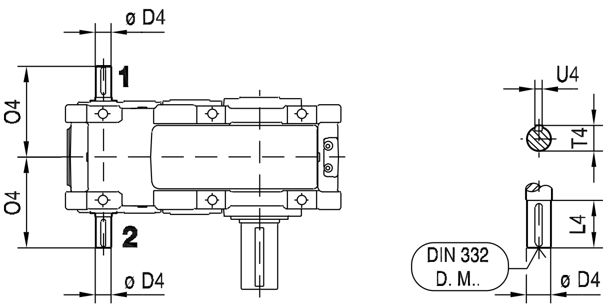

→ 23

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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12.2.2 X3F..

HSST

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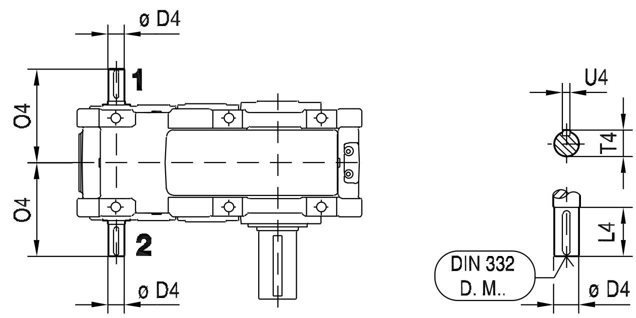

→ 23

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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12.2.3 X4F..

HSST

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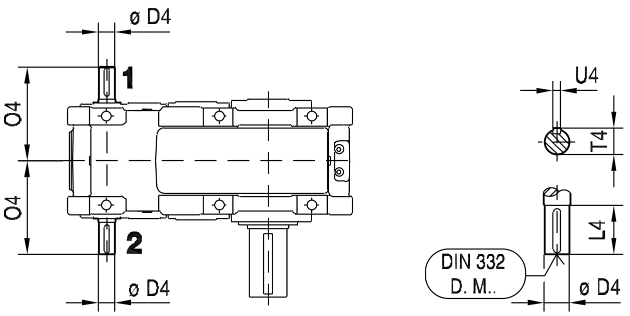

→ 23

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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12.3 Output shaft /LSST [mm]

LSST

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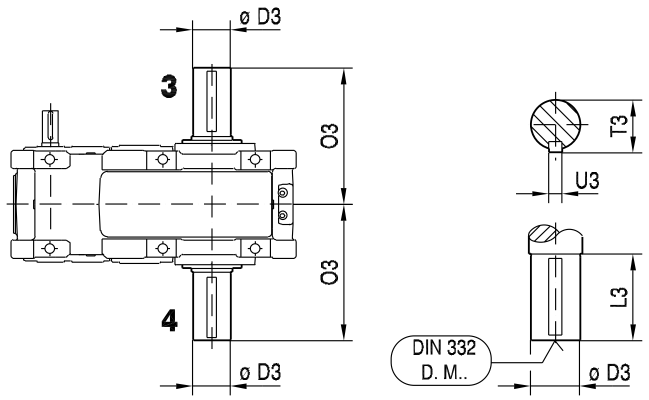

→ 📖 23

	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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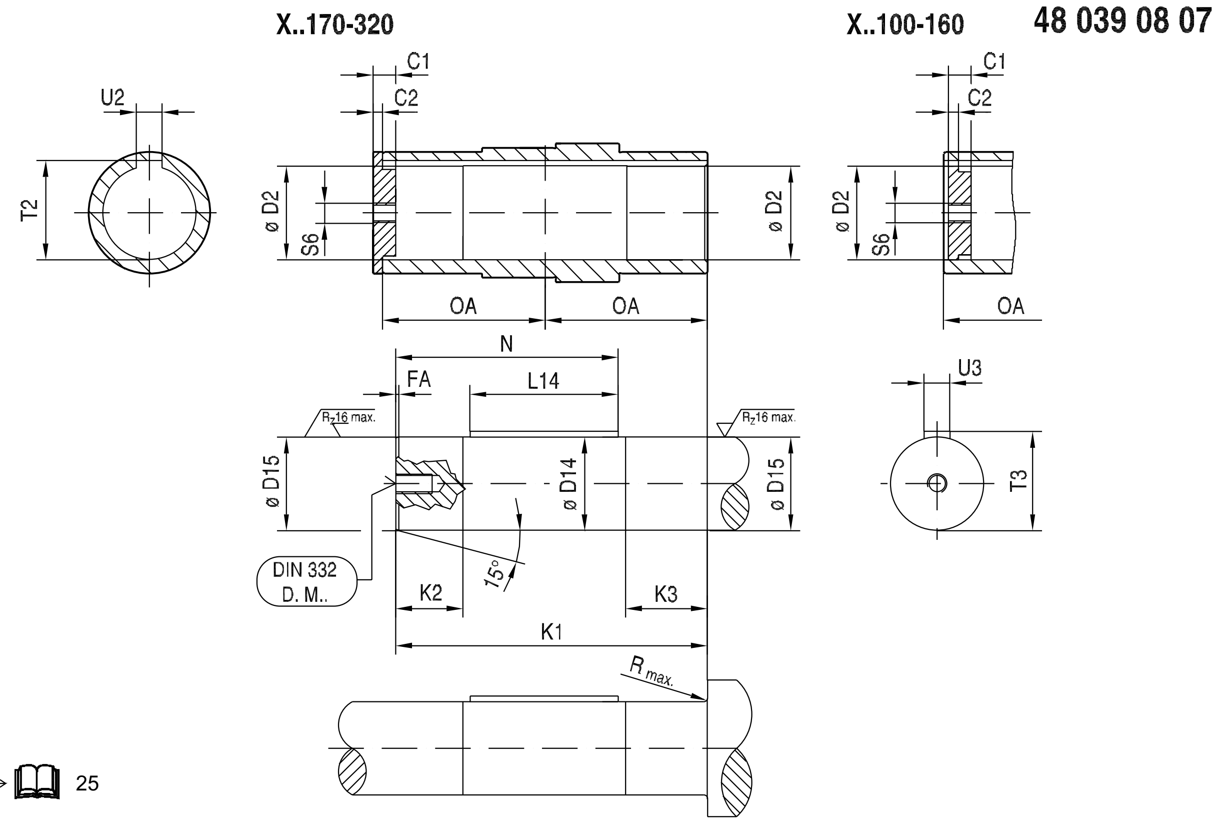
12.4 Hollow shaft with key X...A [mm]



→ 📖 25

	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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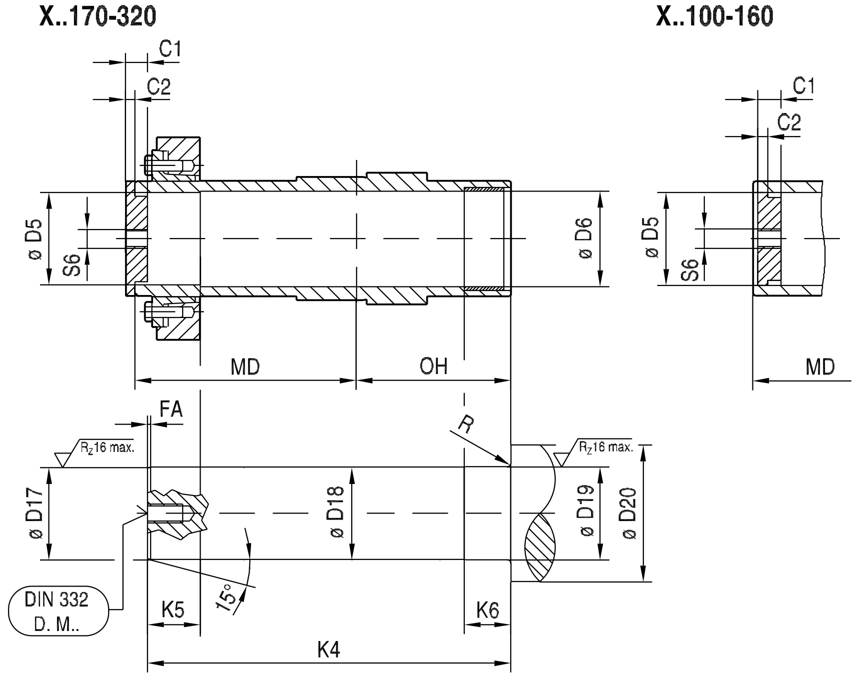
12.5 Hollow shaft with shrink disk X..H [mm]

48 040 05 07



→ 26

	C1	C2	ØD5	Ø D6	ØD17	ØD18	ØD19	ØD20	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}	10^{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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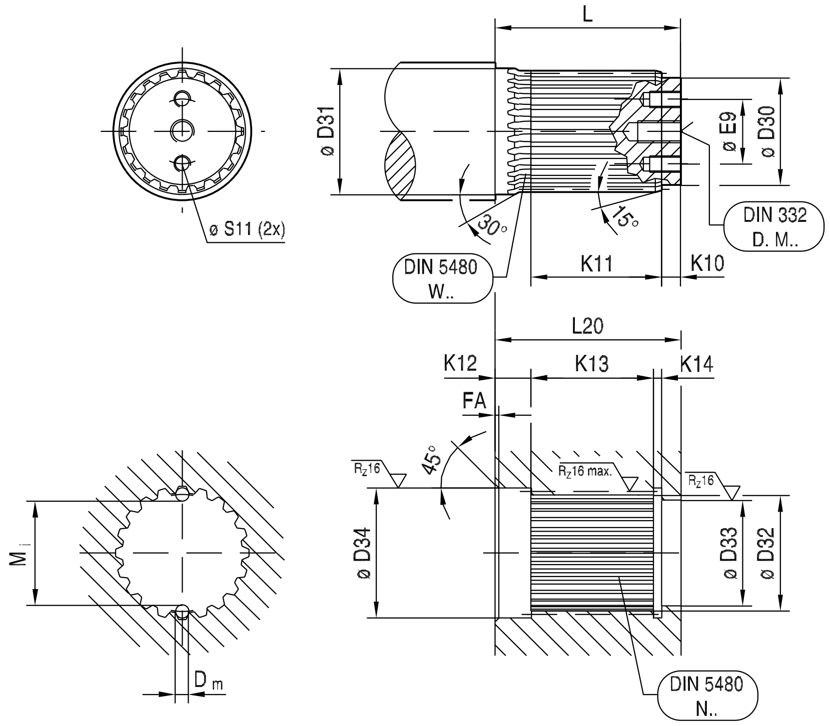
12.6 Splined solid shaft X..L [mm]

48 084 05 07



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	ØD30	ØD31	ØD32	ØD33	ØD34	Dm	ØE9	FA	K10	K11	K12	K13	K14	L	L20	M i	Ø S11 (2x)	DIN 332 D.M..	DIN 5480
X100	60_{k6}	80_{k6}	69^{H10}	60^{H7}	80^{H7}	5.25	-	2	12	71	28	65	10	110	111^{+1}	$63.932^{0.160}_{0.060}$	-	M20	W 75x3x30x24x8m N 75x3x30x24x9H
X110	70_{k6}	90_{k6}	79^{H10}	70^{H7}	90^{H7}	5.25	-	2	12	71	28	65	10	110	111^{+1}	$73.922^{0.148}_{0.056}$	-	M20	W 85x3x30x27x8m N 85x3x30x27x9H
X120	85_{k6}	105_{k6}	94^{H10}	85^{H7}	105^{H7}	5.25	-	2	15	76	31	70	10	121	122^{+1}	$89.066^{0.146}_{0.055}$	-	M20	W 100x3x30x32x8m N 100x3x30x32x9H
X130	95_{k6}	115_{k6}	104^{H10}	95^{H7}	115^{H7}	5.25	-	2	15	81	31	75	10	126	127^{+1}	$99.001^{0.158}_{0.060}$	-	M24	W 110x3x30x35x8m N 110x3x30x35x9H
X140	100_{k6}	125_{k6}	110^{H10}	100^{H7}	125^{H7}	9	-	2	20	103	38	95	12	160	161^{+1}	$101.103^{0.173}_{0.064}$	-	M24	W 120x5x30x22x8m N 120x5x30x22x9H
X150	110_{k6}	135_{k6}	120^{H10}	110^{H7}	135^{H7}	9	-	2	20	108	38	100	12	165	166^{+1}	$111.103^{0.173}_{0.064}$	-	M24	W 130x5x30x24x8m N 130x5x30x24x9H
X160	120^{k6}	145_{k6}	130^{H10}	120^{H7}	145^{H7}	9	-	2	25	118	43	110	12	185	186^{+1}	$121.003^{0.173}_{0.064}$	-	M24	W 140x5x30x26x8m N 140x5x30x26x9H
X170	130_{k6}	155_{k6}	140^{H10}	130^{H7}	155^{H7}	9	-	2	25	128	43	120	12	195	196^{+1}	$131.103^{0.173}_{0.064}$	-	M24	W 150x5x30x28x8m N 150x5x30x28x9H
X180	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	9	80	3	25	163	48	155	12	230	231^{+1}	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X190	140_{k6}	165_{k6}	150^{H10}	140^{H7}	165^{H7}	9	80	3	25	163	48	155	12	230	231^{+1}	$141.103^{0.173}_{0.064}$	M24x30	M30	W 160x5x30x30x8m N 160x5x30x30x9H
X200	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	9	95	3	25	173	48	165	12	240	241^{+1}	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X210	155_{k6}	185_{k6}	170^{H10}	155^{H7}	185^{H7}	9	95	3	25	173	48	165	12	240	241^{+1}	$161.103^{0.173}_{0.064}$	M24x30	M30	W 180x5x30x34x8m N 180x5x30x34x9H
X220	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	9	125	3	30	163	53	155	12	240	241^{+1}	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X230	195_{k6}	225_{k6}	210^{H10}	195^{H7}	225^{H7}	9	125	3	30	163	53	155	12	240	241^{+1}	$201.103^{0.194}_{0.071}$	M24x30	M30	W 220x5x30x42x8m N 220x5x30x42x9H
X240	225_{k6}	255_{k6}	240^{H10}	225^{H7}	25^{H7}	9	140	3	35	168	58	160	12	255	256^{+1}	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X250	225_{k6}	255_{k6}	240^{H10}	225^{H7}	255^{H7}	9	140	3	35	168	58	160	12	255	256^{+1}	$231.103^{0.194}_{0.071}$	M30x36	M36	W 250x5x30x48x8m N 250x5x30x48x9H
X260	230_{k6}	265_{k6}	244^{H10}	230^{H7}	265^{H7}	14	160	3	35	193	64	183	12	283	284^{+1}	$230.592^{0.202}_{0.074}$	M30x36	M36	W 260x8x30x31x8m N 260x8x30x31x9H
X270	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	14	160	3	35	203	64	193	12	293	294^{+1}	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X280	250_{k6}	285_{k6}	264^{H10}	250^{H7}	285^{H7}	14	160	3	35	203	64	193	12	293	294^{+1}	$250.650^{0.213}_{0.078}$	M30x36	M36	W 280x8x30x34x8m N 280x8x30x34x9H
X290	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	14	190	3	40	233	69	223	12	333	334^{+1}	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X300	270_{k6}	305_{k6}	284^{H10}	270^{H7}	305^{H7}	14	190	3	40	233	69	223	12	333	334^{+1}	$270.915^{0.200}_{0.073}$	M30x36	M36	W 300x8x30x36x8m N 300x8x30x36x9H
X310	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	14	220	3	40	243	69	233	12	343	344^{+1}	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H
X320	310_{k6}	345_{k6}	324^{H10}	310^{H7}	345^{H7}	14	220	3	40	243	69	233	12	343	344^{+1}	$310.683^{0.199}_{0.073}$	M30x36	M36	W 340x8x30x41x8m N 340x8x30x41x9H

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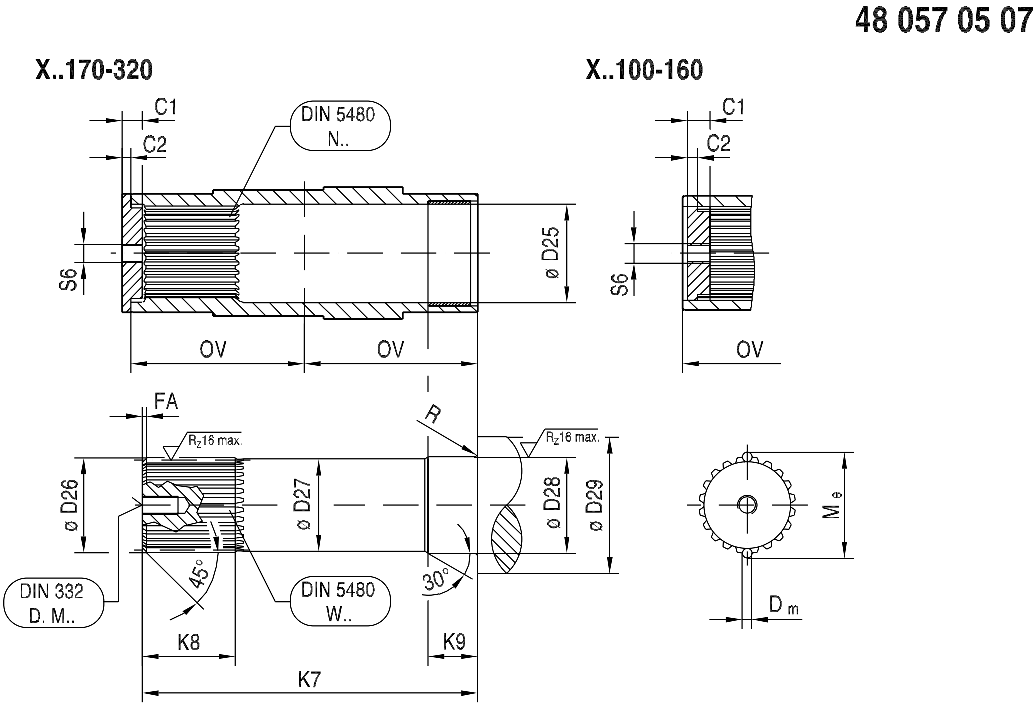
12.7 Splined hollow shaft X..V [mm]



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	C1	C2	Ø D25	Ø D26	Ø D27	Ø D28	Ø D29	Dm	FA	K7	K8	K9	M e	OV	R	S6	DIN 332 D.M..	DIN 5480
X100	30	14	81^{H9}	74.4_{h10}	73	81_{m6}	95	6	3	306_{-1}	81	42_{-1}	$81.326^{-0.069}_{-0.125}$	173	3	M30	M24	W 75x3x30x24x8f N 75x3x30x24x9H
X110	30	14	91^{H9}	84.4_{h10}	83	91_{m6}	105	6	3	311.5_{-1}	81	42_{-1}	$91.092^{-0.068}_{-0.123}$	176	3	M30	M24	W 85x3x30x27x8f N 85x3x30x27x9H
X120	30	14	101^{H9}	94.4_{h10}	93	101_{m6}	115	6	3	341_{-1}	91	52_{-1}	$101.141^{-0.068}_{-0.122}$	190.5	3	M30	M24	W 95x3x30x30x8f N 95x3x30x30x9H
X130	30	14	111^{H9}	109.4_{h10}	108	111_{m6}	125	6	3	346_{-1}	86	52_{-1}	$116.076^{-0.078}_{-0.139}$	194	3	M30	M24	W 110x3x30x35x8f N 110x3x30x35x9H
X140	30	14	121^{H9}	119.4_{h10}	118	121_{m6}	135	6	3	402_{-1}	101	62_{-1}	$126.095^{-0.078}_{-0.138}$	222	3	M30	M24	W 120x3x30x38x8f N 120x3x30x38x9H
X150	30	14	131^{H9}	129.4_{h10}	128	131_{m6}	145	6	3	407_{-1}	101	62_{-1}	$136.329^{-0.081}_{-0.144}$	224.5	3	M30	M24	W 130x3x30x42x8f N 130x3x30x42x9H
X160	36	16	141^{H9}	139.4_{h10}	138	141_{m6}	155	6	3	464_{-1}	111	73_{-1}	$146.167^{-0.080}_{-0.143}$	256	4	M36	M30	W 140x3x30x45x8f N 140x3x30x45x9H
X170	36	17	151^{H9}	149.4_{h10}	148	151_{m6}	165	6	3	492_{-1}	121	73_{-1}	$156.172^{-0.079}_{-0.141}$	256	4	M36	M30	W 150x3x30x48x8f N 150x3x30x48x9H
X180	36	17	166^{H9}	159_{h10}	158	166_{m6}	180	10	5	564_{-1}	166	83_{-1}	$170.009^{-0.086}_{-0.152}$	292	4	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X190	36	17	166^{H9}	159_{h10}	158	166_{m6}	180	10	5	564_{-1}	166	83_{-1}	$170.009^{-0.086}_{-0.152}$	292	4	M36	M30	W 160x5x30x30x8f N 160x5x30x30x9H
X200	36	17	191^{H9}	179_{h10}	178	191_{m6}	205	10	5	619_{-1}	176	83_{-1}	$190.090^{-0.087}_{-0.155}$	319.5	4	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X210	36	17	191^{H9}	179_{h10}	178	191_{m6}	205	10	5	619_{-1}	176	83_{-1}	$190.090^{-0.087}_{-0.155}$	319.5	4	M36	M30	W 180x5x30x34x8f N 180x5x30x34x9H
X220	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	685_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	352.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV 220	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	755_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	387.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X230	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	685_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	352.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X2KV 230	36	17	211^{H9}	199_{h10}	198	211_{m6}	230	10	5	755_{-1}	201	108_{-1}	$210.158^{-0.088}_{-0.157}$	387.5	5	M36	M30	W 200x5x30x38x8f N 200x5x30x38x9H
X240	45	22	231^{H9}	219_{h10}	218	231_{m6}	250	10	5	777_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	400.5	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV 240	45	22	231^{H9}	219_{h10}	218	231_{m6}	250	10	5	852_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	438	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X250	45	22	241^{H9}	219_{h10}	218	241_{m6}	260	10	5	777_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	400.5	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X2KV 250	45	22	241^{H9}	219_{h10}	218	241_{m6}	260	10	5	852_{-1}	216	108_{-1}	$230.215^{-0.102}_{-0.179}$	438	5	M42	M36	W 220x5x30x42x8f N 220x5x30x42x9H
X260	45	22	255^{H9}	239_{h10}	238	255_{m6}	275	10	5	850_{-1}	216	108_{-1}	$250.264^{-0.102}_{-0.180}$	437	5	M42	M36	W 240x5x30x46x8f N 240x5x30x46x9H
X270	45	22	285^{H9}	258.4_{h10}	258	285_{m6}	305	16	8	876_{-1}	248	143_{-1}	$276.230^{-0.101}_{-0.177}$	450	5	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X280	45	22	285^{H9}	258.4_{h10}	258	285_{m6}	305	16	8	876_{-1}	248	143_{-1}	$276.230^{-0.101}_{-0.177}$	450	5	M42	M36	W 260x8x30x31x8f N 260x8x30x31x9H
X290	45	22	305^{H9}	278.4_{h10}	278	305_{m6}	325	16	8	960_{-1}	268	143_{-1}	$297.014^{-0.105}_{-0.184}$	492	5	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X300	45	22	305^{H9}	278.4_{h10}	278	305_{m6}	325	16	8	960_{-1}	268	143_{-1}	$297.014^{-0.105}_{-0.184}$	492	5	M42	M36	W 280x8x30x34x8f N 280x8x30x34x9H
X310	55	28	325^{H9}	298.4_{h10}	298	325_{m6}	345	16	8	1029_{-1}	318	143_{-1}	$316.655^{-0.102}_{-0.180}$	528.5	5	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H
X320	55	28	325^{H9}	298.4_{h10}	298	325_{m6}	345	16	8	1029_{-1}	318	143_{-1}	$316.655^{-0.102}_{-0.180}$	528.5	5	M48	M42	W 300x8x30x36x8f N 300x8x30x36x9H

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12.8 Solid shaft, smooth design X..R [mm]

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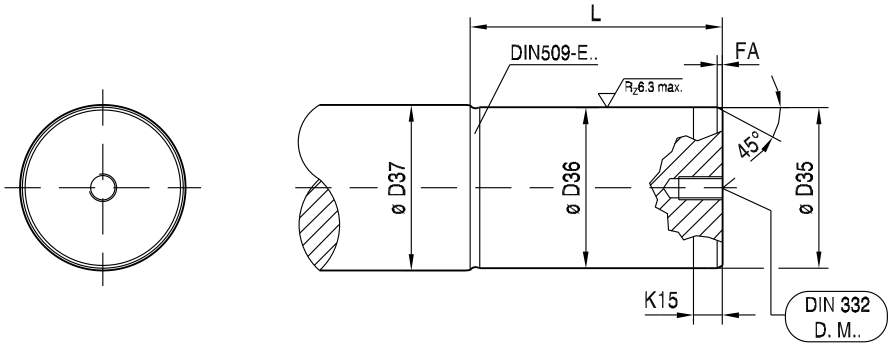

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	Ø D35	Ø D36	Ø D37	FA	K15	L	DIN 332 D.M..	DIN 509
X100	85_{h9}	85_{v6}	90	2	9	131	M20	E2.5x0.4
X110	85_{h9}	85_{v6}	100	2	9	131	M20	E2.5x0.4
X120	115_{h9}	115_{v6}	120	2	9	165	M24	E2.5x0.4
X130	115_{h9}	115_{v6}	130	2	9	165	M24	E2.5x0.4
X140	135_{h9}	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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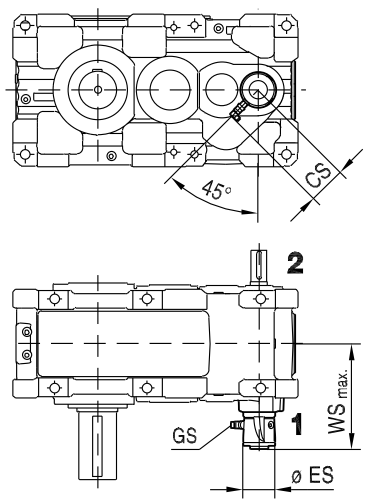
12.9 Shaft end pump /SEP [mm]

SEP

48 057 04 09



→ 85

	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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12.10 Motor pump /ONP..-00/M - [mm]

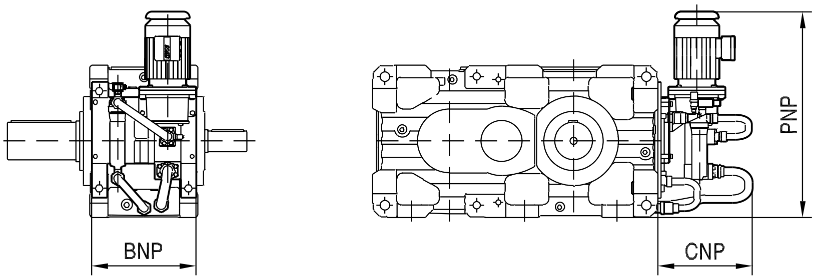
INFORMATION

The motor pump can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X160 – 320 and X2K220 – 250

ONP.. -00/M

48 020 02 10



→ 88

		BNP	CNP	PNP	kg
X160–170	**ONP005–00/M**	395	284	596	20
X160–170	**ONP015–00/M**	395	293	596	22
X180–190	**ONP020–00/M**	457	401	691	44
X200–210		497	401	705	
X220–230		519	401	772	
X180–190	**ONP030–00/M**	457	415	868	44
X200–210		497	415	882	
X220–230		519	415	949	
X240–250		604	415	954	
X260–270		680	415	956	
X280		680	415	956	
X290–300		745	415	966	
X310–320		810	415	1014	
X180–190	**ONP040–00/M**	457	415	838	67
X200–210		497	415	852	
X220–230		519	415	919	
X240–250		604	415	924	
X260–270		680	415	926	
X280		680	415	926	
X290–300		745	415	936	
X310–320		810	415	984	
X310–320	**ONP050–00/M**	810	462	1014	70

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12.11 Fan X..F /FAN [mm]

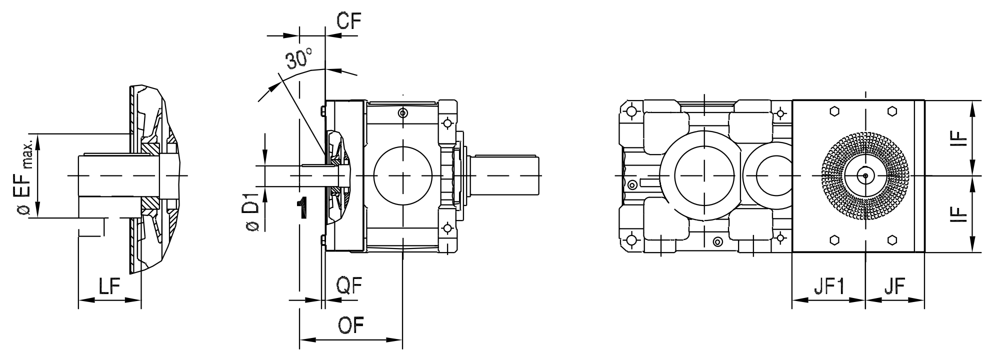
INFORMATION

The fan can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X2F220 – 320
  - X3F100 – 320
- Universal housing /HU of sizes
  - X2F100 – 320
  - X3F100 – 320

X..F /FAN

48 051 04 09



→ 91

/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	11	61	42_{k6}	80	274	31	32_{k6}	50	244
X110***	110	185	215	155	11	61	42_{k6}	80	274	31	32_{k6}	50	244
X120*	130	220	247	186	11	56	55_{m6}	75	290	56	42_{k6}	75	290
X130***	130	220	247	186	11	56	55_{m6}	75	290	56	42_{k6}	75	290
X140*	150	253	290	231.5	11	81	70_{m6}	100	348	51	55_{m6}	70	318
X150***	150	253	290	231.5	11	81	70_{m6}	100	348	51	55_{m6}	70	318
X160*	170	310	340	262.5	11	106	80_{m6}	125	412	76	70_{m6}	95	382
X170***	170	310	340	262.5	11	106	80_{m6}	125	412	76	70_{m6}	95	382
X180*	215	327.5	400	310	11	96	90_{m6}	120	445	66	75_{m6}	90	415
X190**	215	327.5	400	310	11	96	90_{m6}	120	445	66	75_{m6}	90	415
X200*	215	367.5	445	310	11	136	100_{m6}	160	504	96	90_{m6}	120	464
X210**	215	367.5	445	310	11	136	100_{m6}	160	504	96	90_{m6}	120	464
X220*	245	420	500	355	16	131	110_{m6}	155	538	131	100_{m6}	155	538
X230**	245	420	500	355	16	131	110_{m6}	155	538	131	100_{m6}	155	538
X240*	270	445	530	405	16	126	120_{m6}	150	583	126	110_{m6}	150	583
X250**	270	445	530	405	16	126	120_{m6}	150	583	126	110_{m6}	150	583
X260*	305	495	585	412	16	160	130_{m6}	185	673	120	120_{m6}	145	633
X270**	305	495	585	412	16	160	130_{m6}	185	673	120	120_{m6}	145	633
X280***	305	550	585	432	16	160	130_{m6}	185	673	120	120_{m6}	145	633

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X290*	340	575	670	482	16	160	150_{m6}	185	713	160	150_{m6}	185	713
X300**	340	575	670	482	16	160	150_{m6}	185	713	160	150_{m6}	185	713
X310*	340	625	725	535	16	210	170_{m6}	235	795	210	170_{m6}	235	795
X320**	340	625	725	535	16	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	11	31	32k6	55	244	31	32_{k6}	55	244
X110***	85	185	160	190	11	31	32_{k6}	55	244	31	32_{k6}	55	244
X120*	95	220	185	225	11	24	38_{k6}	50	258	24	38_{k6}	50	258
X130***	95	220	185	225	11	24	38_{k6}	50	258	24	38_{k6}	50	258
X140*	110	255	213	260	11	51	45_{k6}	75	318	51	45_{k6}	75	318
X150***	110	255	213	260	11	51	45_{k6}	75	318	51	45_{k6}	75	318
X160*	150	310	235	305	11	75	60_{m6}	100	381	45	50_{k6}	70	351
X170***	150	310	235	305	11	75	60_{m6}	100	381	45	50_{k6}	70	351
X180*	190	327.5	260	325	11	71	70_{m6}	95	411	41	55_{m6}	65	381
X190**	190	327.5	260	325	11		70_{m6}	95	411	41	55_{m6}	65	381
X200*	215	367.5	305	362	11	66	75_{m6}	90	430	66	60_{m6}	90	430
X210**	215	367.5	305	362	11	66	75_{m6}	90	430	66	60_{m6}	90	430
X220*	245	420	311	409	16	96	80_{m6}	120	487	66	70_{m6}	90	457
X230**	245	420	311	409	16	96	80_{m6}	120	487	66	70_{m6}	90	457
X240*	245	445	350	433	16	89	90_{m6}	115	532	59	75_{m6}	85	502
X250**	245	445	350	433	16	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	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X270**	245	495	400	490	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X280***	245	550	400	690	16	125	100_{m6}	150	613	85	80_{m6}	110	573
X290*	270	575	413	785	16	120	100_{m6}	145	661	120	100_{m6}	145	661
X300**	270	575	413	785	16	120	100_{m6}	145	661	120	100_{m6}	145	661
X310*	305	625	412	878	16	120	110_{m6}	145	694	120	110_{m6}	145	694
X320**	305	625	412	878	16	120	110_{m6}	145	694	120	110_{m6}	145	694

12.12 Fan X..K /FAN [mm]

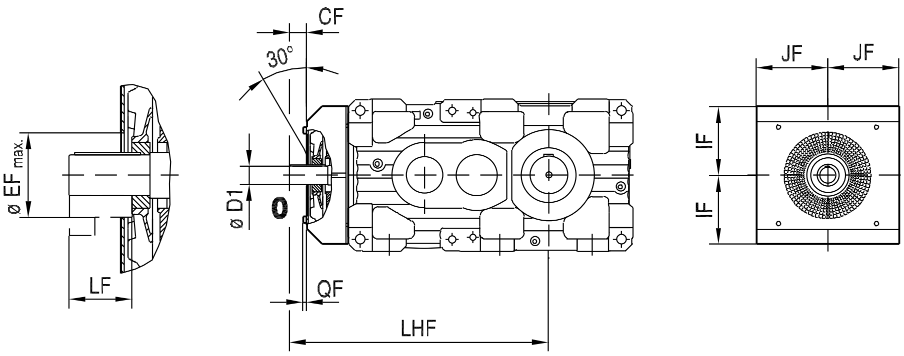
INFORMATION

The fan can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X3K100 – 320
- Universal housing /HU of sizes
  - X2K100 – 250
  - X3K100 – 320

X..K /FAN 48 052 04 09

12



→ 91

/FAN								
X2K..	**CF**	**Ø D1**	**Ø EF$_{max.}$**	**IF**	**JF**	**LF**	**LHF**	**QF**
X100	61	50_{k6}	110	185	165	80	655	11
X110	61	50_{k6}	110	185	165	80	675	11
X120	86	60_{m6}	130	220	200	105	752	11
X130	86	60_{m6}	130	220	200	105	788	11
X140	81	70_{m6}	150	260	233	100	816	11
X150	81	70_{m6}	150	260	233	100	858	11
X160	106	85_{m6}	170	310	270	125	1010	11
X170	106	85_{m6}	170	310	270	125	1061	11
X180	141	100_{m6}	190	330	303	160	1137	11
X190	141	100_{m6}	190	330	303	160	1169	11
X200	136	110_{m6}	215	370	338	155	1268	11
X210	136	110_{m6}	215	370	338	155	1304	11
X220	131	120_{m6}	245	420	385	150	1436	16
X230	131	120_{m6}	245	420	385	150	1476	16
X240	126	130_{m6}	270	445	435	145	1476	16
X250	126	130_{m6}	270	445	435	145	1499	16

/FAN									
X3K..	**CF**	**Ø D1**	**Ø EF$_{max.}$**	**IF**	**JF**	**LF**	**LHF**	**QF**	**i**
X100	31	32_{k6}	105	185	165	50	632	11	–

X110	31	32_{k6}	105	185	165	50	652	11	–
X120	46	38_{k6}	135	220	200	65	745	11	–
X130	46	38_{k6}	135	220	200	65	781	11	–
X140	51	50_{k6}	155	260	230	70	879	11	–
X150	51	50_{k6}	155	260	230	70	921	11	–
X160	76	60_{m6}	170	310	270	95	1036	11	–
X170	76	60_{m6}	170	310	270	95	1087	11	–
X180	71	70_{m6}	190	330	303	90	1135	11	–
X190	71	70_{m6}	190	330	303	90	1167	11	–
X200	96	80_{m6}	215	370	338	115	1286	11	–
X210	96	80_{m6}	215	370	338	115	1322	11	–
X220	96	85_{m6}	245	420	350	115	1430	16	–
X230	96	85_{m6}	245	420	350	115	1470	16	–
X240	131	100_{m6}	245	445	398	150	1597	14	–
X250	131	100_{m6}	245	445	398	150	1620	14	–
X260	124	110_{m6}	245	495	438	145	1767	14	–
X270	124	110_{m6}	245	495	438	145	1802	14	–
X280	124	110_{m6}	245	495	438	145	1854	14	–
X290	124	120_{m6}	270	575	483	145	2021	14	–
X300	124	120_{m6}	270	575	483	145	2050	14	–
X310	164	130_{m6}	305	625	520	185	2135	14	i = 12.5 – 35.5
	124	130_{m6}	305	625	520	145	2095	14	i = 40 – 71
X320	164	130_{m6}	305	625	520	185	2169	14	i = 14 – 40
	124	130_{m6}	305	625	520	145	2129	14	i = 45 – 80

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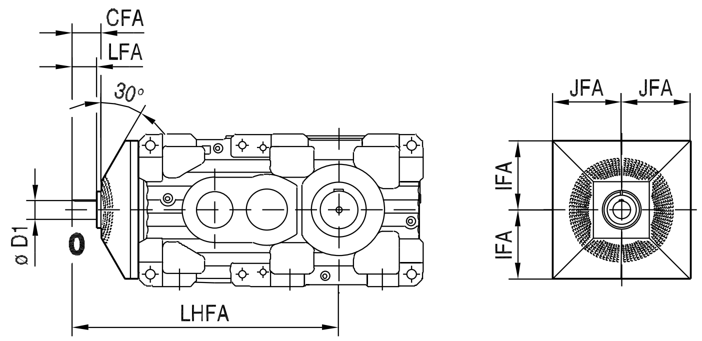
12.13 Fan X..K /FAN-ADV [mm]

INFORMATION

The fan can only be ordered with the following housing designs:

- Horizontal housing /HH of sizes X3K100 – 320
- Universal housing /HU of sizes X3K100 – 320

X..K /FAN-ADV 48 053 04 09



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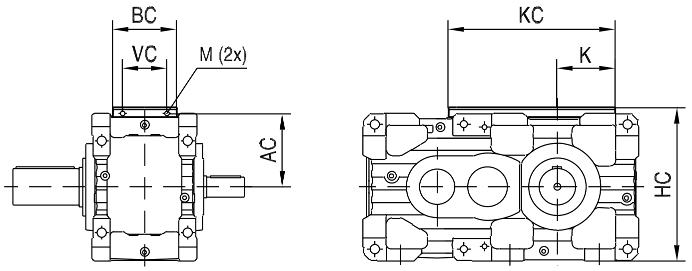
/FAN–ADV							
X3K..	**CFA**	**Ø D1**	**IFA**	**JFA**	**LFA**	**LHFA**	**i**
X100	54	32_{k6}	189	167	50	632	–
X110	54	32_{k6}	189	167	50	652	–
X120	71	38_{k6}	224	192	65	745	–
X130	71	38_{k6}	224	192	65	781	–
X140	69	50_{k6}	264	232	65	879	–
X150	69	50_{k6}	264	232	65	921	–
X160	100	60_{m6}	314	277	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

12.14 Water cooling cover, water cooling cartridge and oil heater [mm]

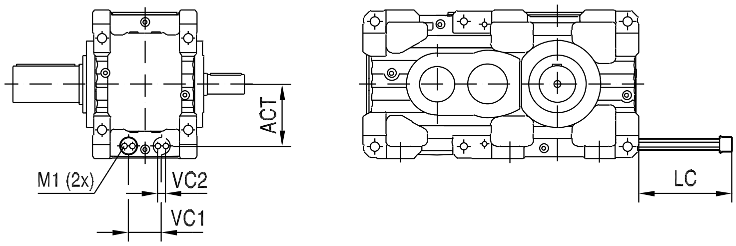
48 036 00 13

CCV



→ 📖 94

CCT



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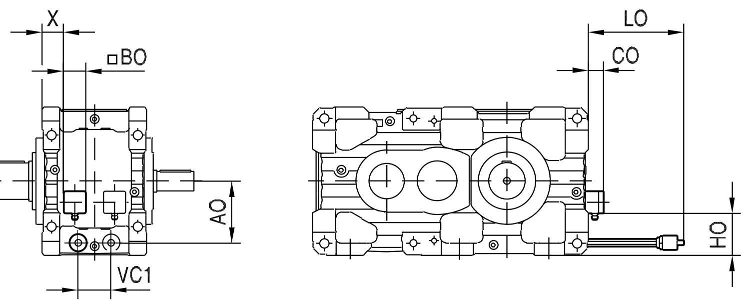
OH



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12.14.1 Water cooling cover /CCV

INFORMATION

The water cooling cover can only be ordered with universal housing /HU.

	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

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12.14.2 Water cooling cartridge /CCT

INFORMATION

The water cooling cartridge can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320

	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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12.14.3 Oil heater /OH

INFORMATION

The oil heater can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320

	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

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12.15 Oil-water cooler /OWC – 00/M [mm]

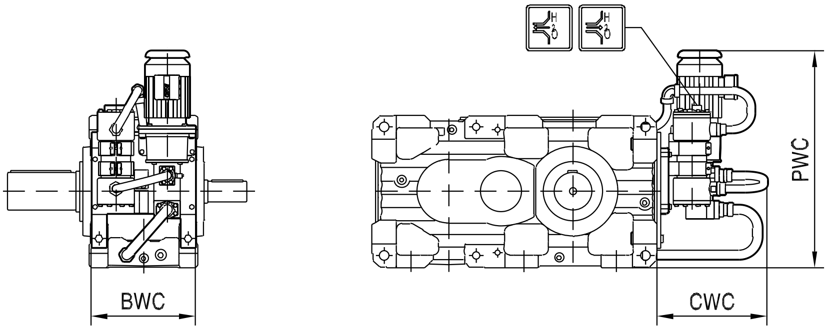
INFORMATION

The oil-water cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OWC.. -00/M

48 085 03 07



→ 101

		BWC	CWC	WC		kg
X140 – 150	**OWC005 – 00/M**	345	284	500	G3/4"	23
X140 – 150	**OWC015 – 00/M**	345	312	504	G3/4"	28
X160 – 170		395	312	601		
X160 – 170	**OWC025 – 00/M**	395	291	601	3/4"	31
X180 – 190	**OWC010 – 00/M**	457	354	697	G1/2"	36
X200 – 210		497	354	712		
X220 – 230		519	354	778		
X240 – 250		604	354	786		
X180 – 190	**WC020 – 00/M**	457	426	818	1/2"	7
X200 – 210		497	426	832		
X220 – 230		519	426	899		
X240 – 250		604	426	907		
X180 – 190	**WC030 – 00/M**	457	426	838	G1"	57
X200 – 210		497	426	852		
X220 – 230		519	426	919		
X240 – 250		604	426	927		
X180 – 190	**OWC040 – 00/M**	457	479	959	G3/4"	85
X200 – 210		497	479	956		
X220 – 230		519	479	968		
X240 – 250		604	479	976		
X260 – 270		680	480	976		
X280		680	480	976		
X290 – 300		745	480	986		
X310 – 320		810	480	1033		
X220 – 230	**OWC050 – 00/M**	519	479	1016	1 1/4"	88
X240 – 250		604	479	1024		
X260 – 270		680	470	1024		
X280		680	470	1024		
X290 – 300		745	470	1034		
X310 – 320		810	470	1081		
X240 – 250	**WC060 – 00/M**	604	531	1135	G1 1/2"	132
X260 – 270		680	490	1165		
X280		680	490	1165		
X290 – 300		745	490	1187		
X310 – 320		810	490	1195		
X260 – 270	**OWC – 070 – 00/M**	680	540	1242	G1"	39
X280		680	540	1242		
X290 – 300		745	540	1255		
X310 – 320		810	540	1257		

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12.16 Oil-water cooler /OWC..–00/S [mm]

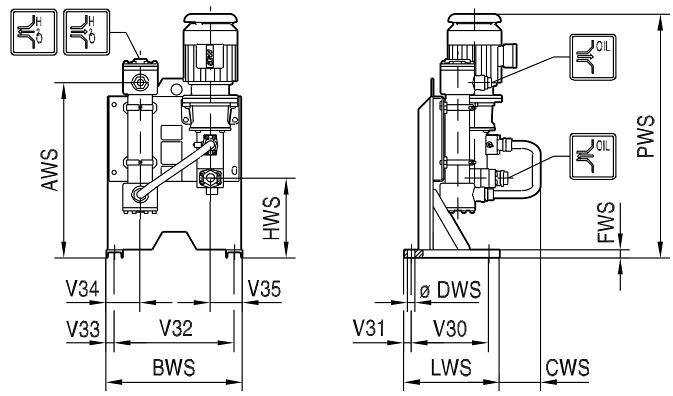
INFORMATION

The oil-water cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OWC.. -00/S

48 014 03 08



→ 101

	AWS	BWS	CWS	Ø WS	FWS	HWS	LWS	PWS	V30	V31	V32	V33	V34	V35
OWC010–00/S	790	480	100	12	30	217	350	883	275	30	430	25	127	117
OWC020–00/S	670	480	150	12	30	292	350	890	275	30	430	25	125	117
OWC030–00/S	641	480	150	12	30	292	350	916	275	30	430	25	125	117
OWC040–00/S	603	480	215	12	30	250	350	981	275	30	430	25	120	137
OWC050–00/S	603	480	215	12	30	250	350	1030	275	30	430	25	120	137
OWC060–00/S	814	630	115	12	30	322	470	1153	390	30	577	25	164	137
OWC070–00/S	916	630	165	12	30	288	470	1226	390	30	577	25	164	157

	H2O / H2O / OIL / OIL			kg
OWC010–00/S	G1/2"	GE18–LR 1"	GE22–LR 1/2"	60
OWC020–00/S	G1/2"	GE28–LR 1"	GE35–LR 1 1/4"	80
OWC030–00/S	G1"	GE28–LR 1"	GE35–LR 1 1/4"	80
OWC040–00/S	G3/4"	GE35–LR 1 1/2"	GE42–LR 1 1/2"	107
OWC050–00/S	G1 1/4"	GE35–LR 1 1/2"	GE42–LR 1 1/2"	110
OWC060–00/S	G1 1/2"	GE42–LR 1 1/2"	SAE 2"SFL	167
OWC070–00/S	G1"	GE42–LR 2 1/2"	SAE 2 1/2"SFL	174

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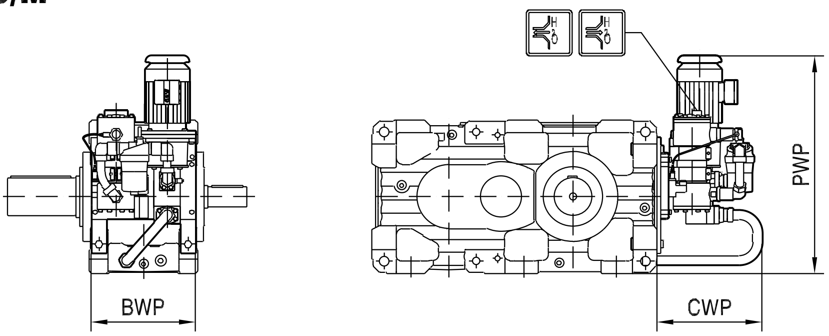
12.17 Oil-water cooler /OWP – 00/M [mm]

INFORMATION

The oil-water cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OWP.. -00/M **48 018 02 10**



→ 105

		OWP	CWP	PWP		kg
X160 – 170	**OWP015 – 00/M**	395	455	601	G3/4"	30
X160 – 170	**OWP025 – 00/M**	395	502	601	G3/4"	33
X180 – 190	**OWP010 – 00/M**	457	354	697	G1/2"	38
X200 – 210		497	354	712		
X220 – 230		519	354	778		
X240 – 250		604	354	786		
X180 – 190	**OWP020 – 00/M**	457	415	818	G1/2"	59
X200 – 210		497	415	832		
X220 – 230		519	415	899		
X240 – 250		604	415	907		
X180 – 190	**OWP030 – 00/M**	457	415	838	G1"	59
X200 – 210		497	415	852		
X220 – 230		519	415	919		
X240 – 250		604	415	927		
X180 – 190	**OWP040 – 00/M**	457	486	1007	G3/4"	87
X200 – 210		497	486	1004		
X220 – 230		519	486	1016		
X240 – 250		604	490	1024		
X260 – 270		680	500	1024		
X280		680	500	1024		
X290 – 300		745	500	1034		
X310 – 320		810	500	1081		

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		OWP	CWP	PWP		kg
X220 – 230	**WP050 – 00/M**	519	486	1039	G1 1/4"	90
X240 – 250		604	490	1047		
X260 – 270		680	500	1047		
X280		680	500	1047		
X290 – 300		745	500	1057		
X310 – 320		810	500	1104		
X240 – 250	**OWP060 – 00/M**	604	565	1185	G1 1/2"	134
X260 – 270		680	565	1215		
X280		680	565	1215		
X290 – 300		745	565	1237		
X310 – 320		810	565	1245		
X260 – 270	**OWP – 070 – 00/M**	680	540	1242	G1"	141
X280		680	540	1242		
X290 – 300		745	540	1255		
X310 – 320		810	540	1257		

12.18 Oil-water cooler /OWP..–00/S [mm]

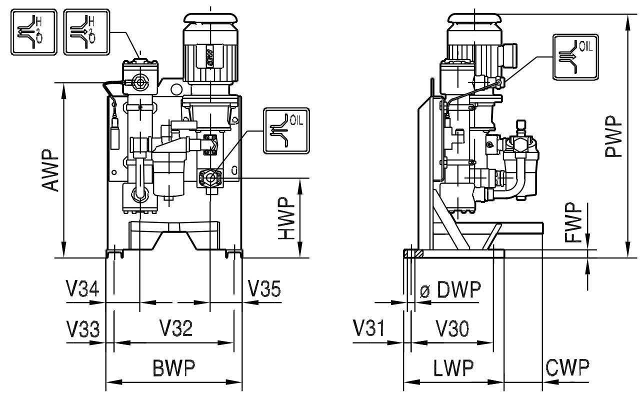
INFORMATION

The oil-water cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OWP.. -00/S

48 017 02 10



→ 105

	AWP	BWP	CWP	Ø DWP	FWP	HWP	LWP	PWP
OWP010–00/S	790	480	158	12	30	217	350	883
OWP020–00/S	670	480	158	12	30	292	350	890
OWP030–00/S	641	480	158	12	30	292	350	916
OWP040–00/S	603	480	158	12	30	250	350	1000
OWP050–00/S	603	480	158	12	30	250	350	1023
OWP060–00/S	814	630	178	12	30	322	470	1161
OWP070–00/S	916	630	178	12	30	288	470	1176

	V30	V31	V32	V33	V34	V35				kg
OWP010–00/S	275	30	430	25	127	117	G1/2"	GE18–LR 1"	GE22–LR 1/2"	60
OWP020–00/S	275	30	430	25	125	117	G1/2"	GE28–LR 1"	GE35–LR 1 1/4"	80
OWP030–00/S	275	30	430	25	125	117	G1"	GE28–LR 1"	GE35–LR 1 1/4"	80
OWP040–00/S	275	30	430	25	120	137	G3/4"	GE35–LR 1 1/2"	GE42–LR 1 1/2"	107
OWP050–00/S	275	30	430	25	120	137	G1 1/4"	GE35–LR 1 1/2"	GE42–LR 1 1/2"	110
OWP060–00/S	390	30	577	25	164	137	G1 1/2"	GE42–LR 1 1/2"	SAE 2"SFL	167
OWP070–00/S	390	30	577	25	164	157	G1"	GE42–LR 2 1/2"	SAE 2 1/2"SFL	174

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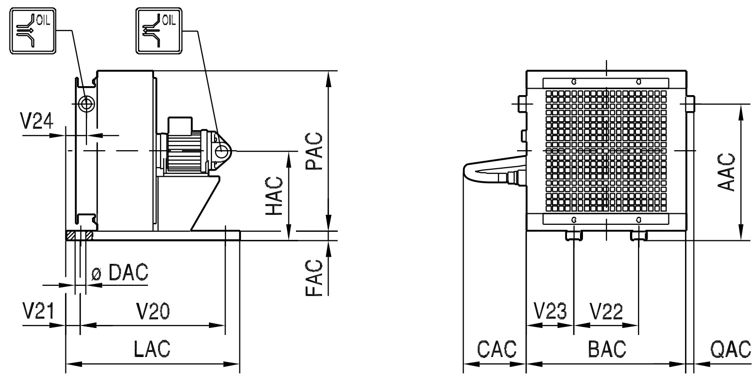
12.19 Oil-air cooler /OAC..–00/S [mm]

INFORMATION

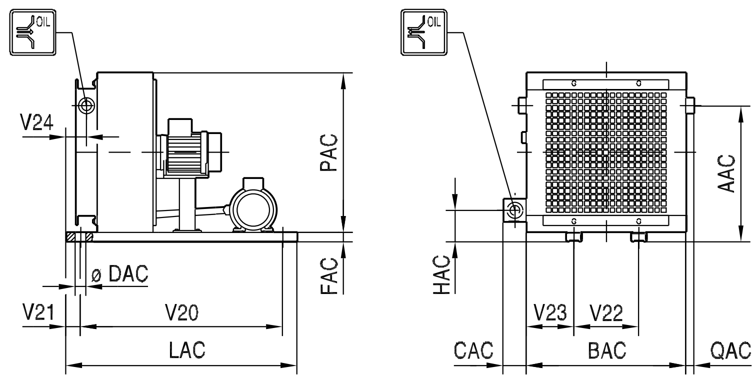
The oil-air cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OAC..-00/S **48 086 04 07**



OAC 025+060



→ 109

	AAC	BAC	CAC	Ø DAC	FAC	HAC	LAC	PAC	QAC	V20	V21	V22	V23	V24	OIL	OIL	kg
OAC005–00/S	365	440	119	9	30	247	550	440	25	510	20	203	118.5	66.5	G1 1/4"	G1"	38
OAC010–00/S	365	440	119	9	30	247	550	440	25	510	20	203	118.5	66.5	G1 1/4"	G1"	38
OAC020–00/S	426	500	119	9	30	277	550	500	25	510	20	203	148.5	66.5	G1 1/4"	G1"	43
OAC025–00/S	510	580	134	9	30	287	760	580	24	720	20	356	112	66.5	G1 1/4"	G1"	71
OAC030–00/S	510	580	134	9	30	317	550	580	24	510	20	356	112	66.5	G1 1/2"	G1"	71
OAC040–00/S	620	700	132	9	30	377	550	700	10	510	20	356	172	66.5	G1 1/2"	G1 1/4"	86
OAC050–00/S	798.5	870	134	9	30	462	550	870	11	510	20	508	181	66.5	G1 1/2"	G1 1/4"	118
OAC060–00/S	951	1010	91	12	30	172	1200	1020	5	1160	20	518	246	109.5	SAE 2 1/2"	G1 1/2"	234

12.20 Oil-air cooler /OAP..00/S [mm]

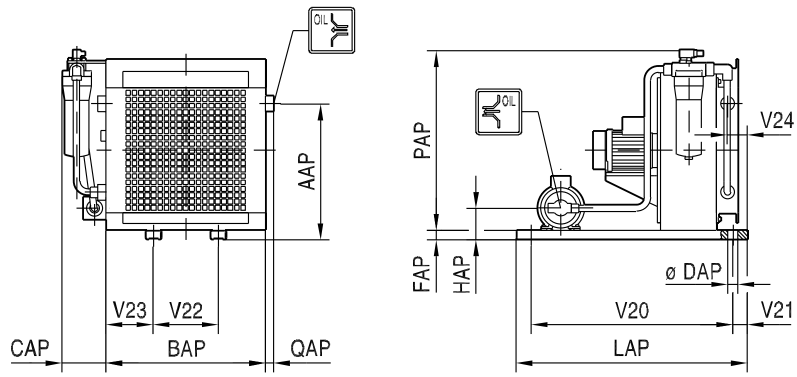
INFORMATION

The oil-air cooler can be ordered with the following housing designs:

- Horizontal housing /HH of sizes X220 – 320
- Universal housing /HU of sizes X140 – 320 and X2K220 – 250

OAP..-00/S

48 016 02 10



→ 113

	AAP	BAP	CAP	Ø DAP	FAP	HAP	LAP	PAP	QAP	V20	V21	V22	V23	V24	OIL	OIL	kg
OAP005–00/S	365	440	170	9	30	118	680	512	25	640	20	203	118.5	66.5	G1 1/4"	G1"	58
OAP010–00/S	365	440	170	9	30	118	680	521	25	640	20	203	118.5	66.5	G1 1/4"	G1"	58
OAP020–00/S	426	500	170	9	30	118	705	572	25	665	20	203	148.5	66.5	G1 1/4"	G1"	64
OAP025–00/S	510	580	185	9	30	117	760	652	24	720	20	356	112	66.5	G1 1/4"	G1"	96
OAP030–00/S	510	580	200	9	30	149	845	654	24	805	20	356	112	66.5	G1 1/2"	G1"	96
OAP040–00/S	779	700	182	9	30	149	895	914	10	855	20	356	172	66.5	G1 1/2"	G1 1/4"	126
OAP050–00/S	798	870	192	9	30	149	1050	944	13	1010	20	508	181	66.5	G1 1/2"	G1 1/4"	128
OAP060–00/S	951	1010	170	12	30	172	1200	1138	120	1160	20	518	246	109.5	SAE 2 1/2"	G1 1/2"	230

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12.21 Torque arm /T [mm]

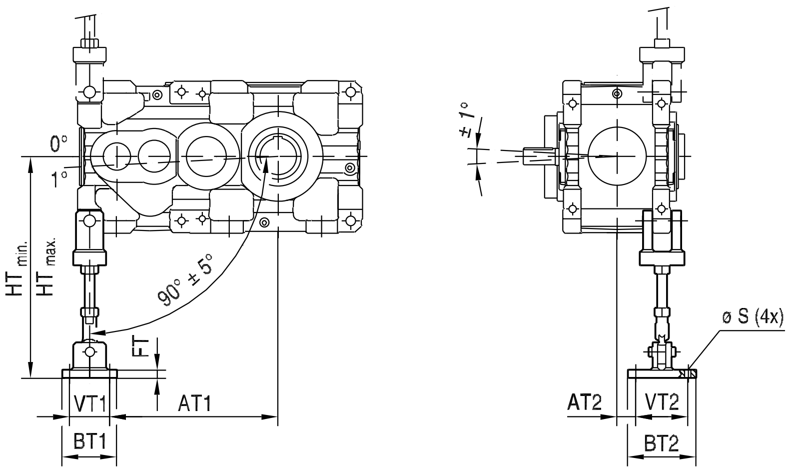
INFORMATION

The torque arm can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X3F/X3K100 – 320
  - X2/X4K/X4F220 – 320
- Universal housing /HU of sizes X3F/X3K/X4K/X4F/X2F100 – 320 and X2K100 – 250

T

48 054 04 09



→ 120

	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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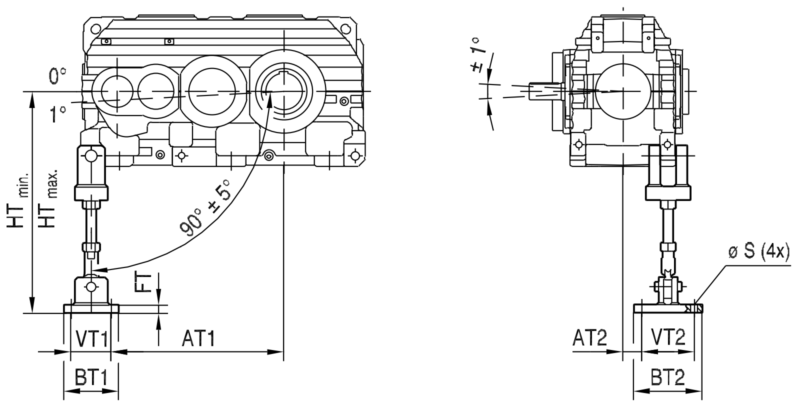
12.22 Torque arm /T-HH [mm]

INFORMATION

The torque arm can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X2F/X3F/X3K/X4F/X4K220 – 320
  - X2K220 – 250

T-HH 48 059 04 09



→ 120

	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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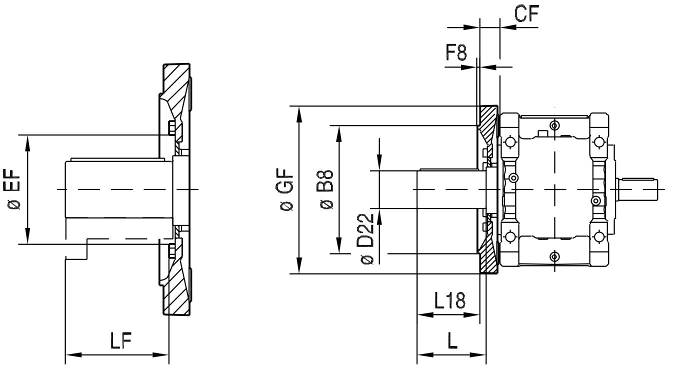
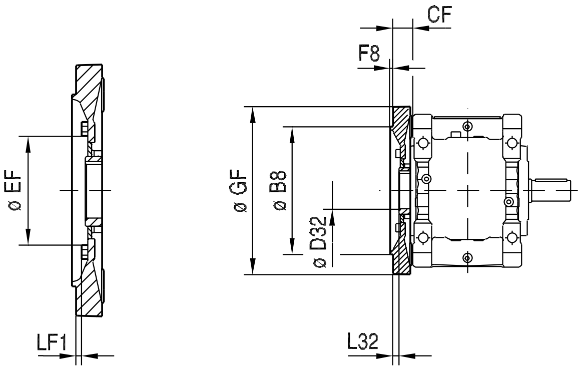
12.23 Mounting flange B14/F [mm]

INFORMATION

With sizes X100 – 210, the mounting flange can only be ordered with universal housing /HU.

F 48 039 00 13





→ 105

	Ø B8	CF	Ø D22	Ø D32	Ø E8	Ø EF	F8	Ø GF	L	L18	L32	LF	LF1	S8 (16x)	kg
X100	300_{f7}	41	80_{m6}	75^{H8}	350	164	5	395	170	172	-2	179	7	M12x22	25
X110	300_{f7}	41	90_{m6}	85^{H8}	350	174	5	395	170	175	-5	182	7	M12x22	25
X120	340_{f7}	50	100_{m6}	95^{H8}	400	208	5	445	210	201	9	215	14	M16x28	35
X130	340_{f7}	50	110_{m6}	105^{H8}	400	228	5	445	210	205	5	217	12	M16x28	35
X140	430_{f7}	57	120_{m6}	115^{H8}	515	228	5	565	210	196	14	212	16	M16x28	60
X150	430_{f7}	57	130_{m6}	125^{H8}	515	258	5	565	250	238	12	255	17	M16x28	60
X160	520_{f7}	64	140_{m6}	135^{H8}	620	280	5	670	250	230	20	246	16	M20x32	85
X170	520_{f7}	64	160_{m6}	150^{H8}	620	280	5	670	300	280	20	296	16	M20x32	85
X180	560_{f7}	70	170_{m6}	165^{H8}	680	285	5	734	300	285	15	290	5	M24x38	105
X190	560_{f7}	70	170_{m6}	165^{H8}	680	285	5	734	300	285	15	290	5	M24x38	105
X200	560_{f7}	77	180_{m6}	180^{H8}	680	345	5	740	300	278	14	290	12	M24x38	110
X210	560_{f7}	77	190_{m6}	190^{H8}	680	345	5	740	350	328	14	340	12	M24x38	110

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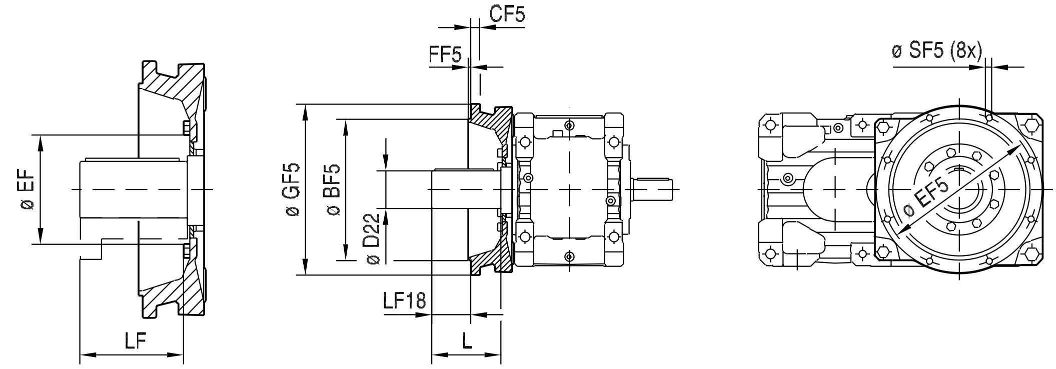
12.24 Mounting flange B5/F [mm]

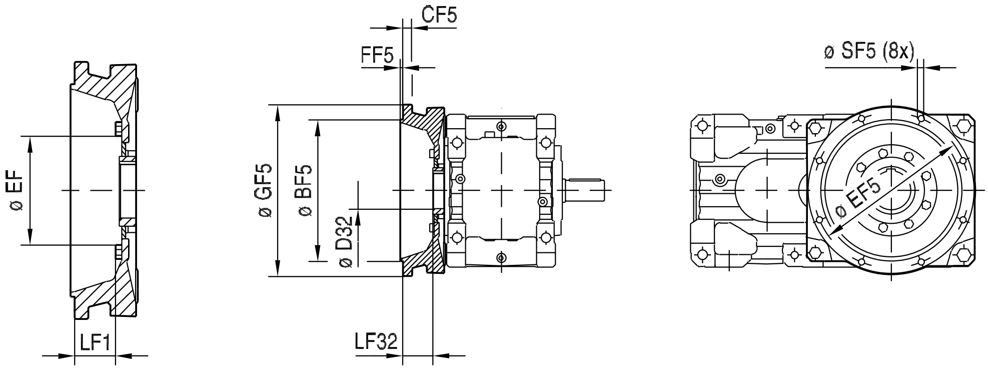
INFORMATION

With sizes X130 – 190, the mounting flange can only be ordered with universal housing /HU.

F-B5

48 040 00 13





→ 121

	Ø BF5	CF5	Ø D22	Ø D32	Ø EF5	Ø EF	FF5	Ø GF5	L	LF	LF1	LF18	LF32	Ø SF5 (8x)	kg
X130	400_{js7}	24.5	110_{m6}	105^{H8}	450	228	6	500	210	217	85	127	83	18	65
X140	450_{js7}	29.5	120_{m6}	115^{H8}	500	228	6	550	210	212	94	113	97	22	100
X150	500_{js7}	29.5	130_{m6}	125^{H8}	550	258	7	600	250	255	136	113	137	22	115
X160	550_{js7}	29.5	140_{m6}	135^{H8}	600	280	7	660	250	246	91	148	102	22	135
X170	620_{js7}	34.5	160_{m6}	150^{H8}	680	280	7	730	300	296	150	139	161	27	160
X180	620_{f7}	35	170_{m6}	165^{H8}	680	285	7	750	300	290	101	184	116	27	175
X190	620_{f7}	35	170_{m6}	165^{H8}	680	285	7	750	300	290	101	184	116	27	175

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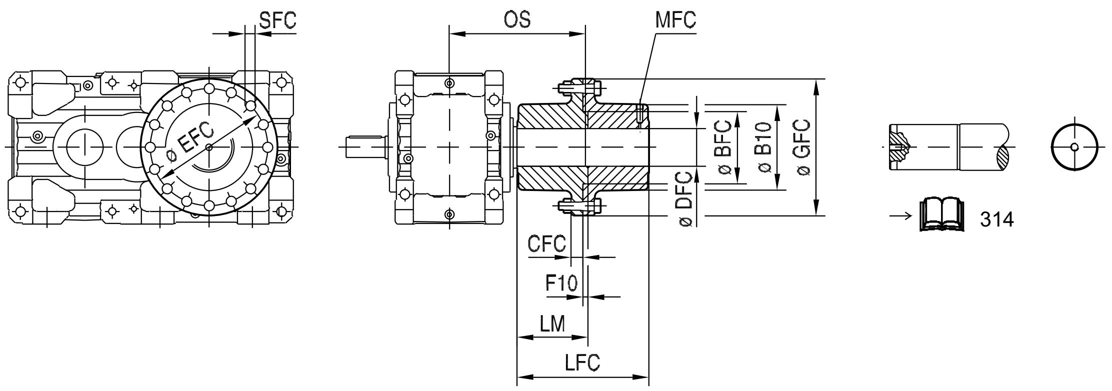
12.25 Flange coupling with cylindrical interference fit /FC-S [mm]

INFORMATION

The flange coupling can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X3F/X3K100 – 320
  - X2F/X4K/X4F220 – 320
- Universal housing /HU of sizes 3F/3K/ X4K/ X4F/X2F100 – 320 and X2K100 – 250

FC **48 013 05 08**



→ 314

→ 122

		Ø B10	Ø BFC	CFC	Ø DFC	Ø EFC	F10	Ø GFC	LFC	LM	MFC	OS	SFC 10.9	kg
X100	**FC290**	180	$150_{js6/H7}$	25	85^{H7}	250	10	290	266	143	G1/4" (3x)	304	M20 (12x)	2x27
X110	**FC290**	180	$150_{js6/H7}$	25	85^{H7}	250	10	290	266	143	G1/4" (3x)	307	M20 (12x)	2x27
X120	**FC345**	220	$175_{js6/H7}$	30	115^{H7}	300	10	345	334	177	G1/4" (3x)	356	M24 (16x)	2x45
X130	**FC345**	220	$175_{js6/H7}$	30	115^{H7}	300	10	345	334	177	G1/4" (3x)	359	M24 (16x)	2x45
X140	**FC415**	252	$215_{js6/H7}$	38	135^{H7}	355	12	415	408	216	G1/4" (3x)	424	M30 (14x)	2x75
X150	**FC415**	252	$215_{js6/H7}$	38	135^{H7}	355	12	415	408	216	G1/4" (3x)	427	M30 (14x)	2x75
X160	**FC505**	304	$250_{js6/H7}$	45	165^{H7}	425	12	505	448	236	G1/4" (3x)	478	M36 (12x)	2x123
X170	**FC505**	304	$250_{js6/H7}$	45	165^{H7}	425	12	505	448	236	G1/4" (3x)	478	M36 (12x)	2x123
X180	**FC530**	331	$280_{js6/H7}$	45	175^{H7}	455	15	530	510	270	G1/4" (3x)	545	M36 (16x)	2x178
X190	**FC530**	331	$280_{js6/H7}$	45	175^{H7}	455	15	530	510	270	G1/4" (3x)	545	M36 (16x)	2x178
X200	**FC600**	370	$325_{js6/H7}$	50	195^{H7}	510	15	600	570	300	G1/4" (3x)	595	M42 (14x)	2x250
X210	**FC600**	370	$325_{js6/H7}$	50	195^{H7}	510	15	600	570	300	G1/4" (3x)	595	M42 (14x)	2x250
X220	**FC655**	423	$360_{js6/H7}$	50	235^{H7}	565	15	655	600	315	G1/4" (3x)	651	M42 (18x)	2x314
X230	**FC655**	423	$360_{js6/H7}$	50	235^{H7}	565	15	655	600	315	G1/4" (3x)	651	M42 (18x)	2x314
X240	**FC775**	495	$425_{js6/H7}$	60	275^{H7}	675	15	775	640	335	G1/4" (3x)	719	M48 (18x)	2x473
X250	**FC775**	495	$425_{js6/H7}$	60	275^{H7}	675	15	775	640	335	G1/4" (3x)	719	M48 (18x)	2x473
X260	**FC775**	495	$425_{js6/H7}$	60	275^{H7}	675	15	775	640	335	G1/4" (3x)	755	M48 (18x)	2x473
X270	**FC815**	531	$460_{js6/H7}$	60	295^{H7}	715	20	815	690	365	G1/4" (3x)	793	M48 (20x)	2x568
X280	**FC815**	531	$460_{js6/H7}$	60	295^{H7}	715	20	815	690	365	G1/4" (3x)	793	M48 (20x)	2x568
X290	**FC870**	567	$490_{js6/H7}$	70	315^{H7}	760	20	870	750	395	G1/4" (3x)	865	M56 (18x)	2x711
X300	**FC870**	567	$490_{js6/H7}$	70	315^{H7}	760	20	870	750	395	G1/4" (3x)	865	M56 (18x)	2x711
X310	**FC950**	639	$550_{js6/H7}$	70	355^{H7}	840	20	950	830	435	G1/4" (3x)	942	M56 (20x)	2x944
X320	**FC950**	639	$550_{js6/H7}$	70	355^{H7}	840	20	950	830	435	G1/4" (3x)	942	M56 (20x)	2x944

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12.26 Backstop X.F../BS [mm]

INFORMATION

The backstop can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X3F100 – 320
  - X2F/X4F220 – 320
- Universal housing /HU of sizes 2F/3F/X4F100 – 320

X.F../BS

48 037 02 07

Fig. A
extern

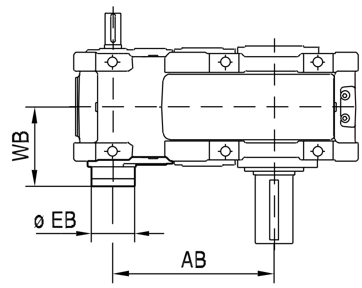
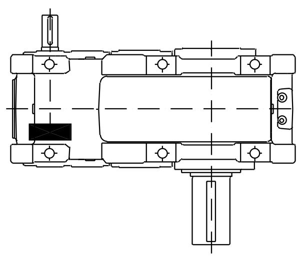


Fig. B
intern



X2F..	i_{tot}	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

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X2F..	i_{tot}	Fig	AB	Ø EB	WB
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
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_{tot}	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	–	–	–

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X3F..	i_{tot}	Fig	AB	Ø EB	WB
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	–	–	–
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_{tot}	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	–	–	–

X4F..	i_{tot}	Fig	AB	Ø EB	WB
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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12.27 Backstop X.K../BS [mm]

INFORMATION

The backstop can be ordered with the following housing designs:

- Horizontal housing /HH of sizes
  - X3K100 – 320
  - X4K220 – 320
- Universal housing /HU of sizes 3K/X4K 100 – 320 and X2K100 – 250

X.K../BS

48 038 02 07

Fig. A
extern

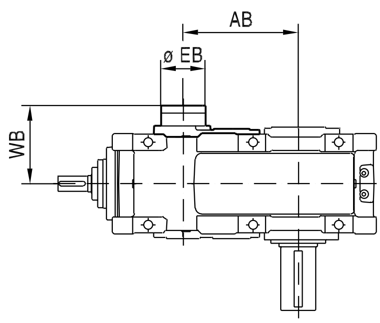
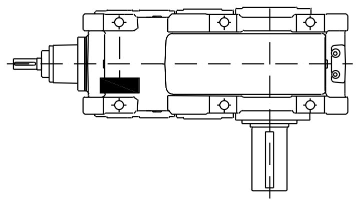


Fig. C
intern



X2KS..	i_{tot}	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

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X2KS..	i_{tot}	Fig	AB	Ø EB	WB
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_{tot}	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
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_{tot}	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	–	–	–

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X4K..	i_{tot}	Fig	AB	Ø EB	WB
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
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

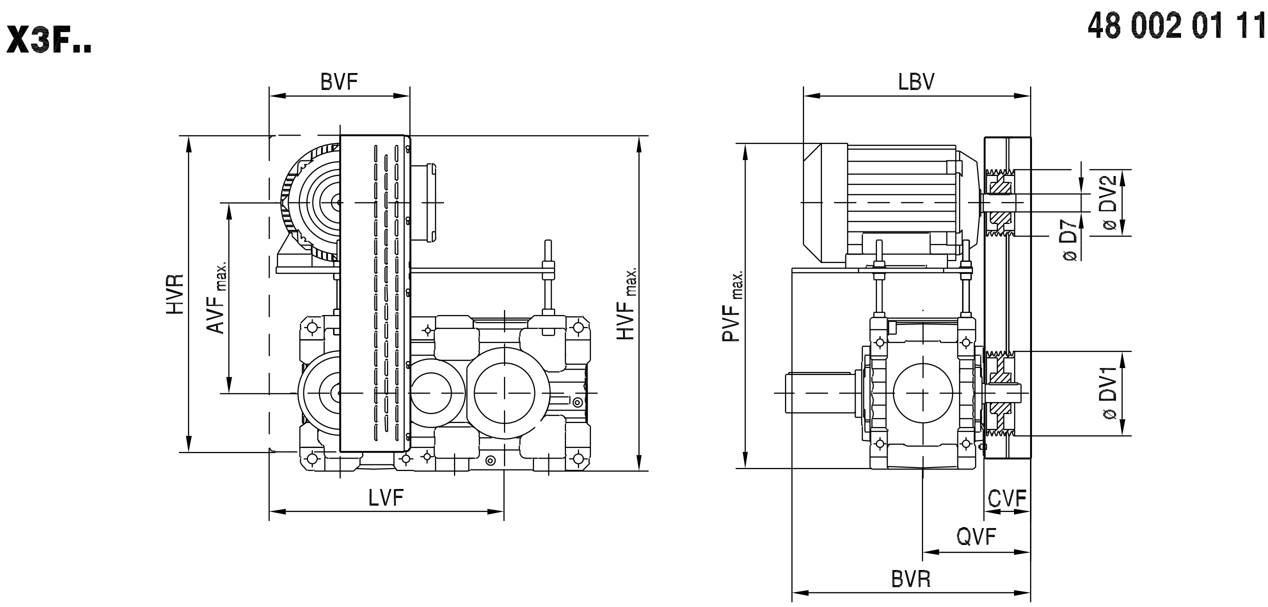
12.28 V-belt drives /VBD [mm]

INFORMATION

The V-belt drive can be ordered with the following housing designs:

- Universal housing /HU of sizes X3F/X4F/X3K100 – 230

12.28.1 X3F.. V-belt drives /VBD [mm]



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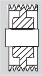
X3F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F100	LVF X3F110	PVF max.	QVF	
X100 – 110	132S	1.25	468	440	524	132	28	125	100	789	783	517	580	600	828	296	SPZ (2x)
	132M		474	440	524	132	38	160	125	789	783	567	580	600	834	296	SPZ (2x)
	160S		473	440	524	132	38	200	160	789	783	589	580	600	891	296	SPZ (2x)
	160M		473	440	524	132	38	180	140	789	783	589	580	600	891	296	SPZ (3x)
	180S		473	440	524	132	42	200	160	789	783	652	580	600	916	296	SPZ (3x)
	180M		477	440	524	132	42	250	200	789	783	652	580	600	920	296	SPZ (3x)
	132S	1.4	480	440	524	132	28	140	100	789	783	517	580	600	840	296	SPZ (2x)
	132M		478	440	524	132	38	180	125	789	783	567	580	600	838	296	SPZ (2x)
	160S		472	440	524	132	38	224	160	789	783	589	580	600	890	296	SPZ (2x)
	160M		475	440	524	132	38	200	140	789	783	589	580	600	893	296	SPZ (3x)
	180S		472	440	524	132	42	224	160	789	783	652	580	600	915	296	SPZ (3x)
	180M		477	440	524	132	42	280	200	789	783	652	580	600	920	296	SPZ (3x)
	132S	1.6	476	440	524	132	28	160	100	789	783	517	580	600	836	296	SPZ (2x)
	132M		474	440	524	132	38	200	125	789	783	567	580	600	834	296	SPZ (2x)
	160S		469	440	524	132	38	250	160	789	783	589	580	600	887	296	SPZ (2x)
	160M		481	440	524	132	38	224	140	789	783	589	580	600	899	296	SPZ (3x)
	180S		469	440	524	132	42	250	160	789	783	652	580	600	912	296	SPZ (3x)
	180M		479	440	524	132	42	250	160	789	783	652	580	600	922	296	SPA (3x)
	132S	1.8	477	440	524	132	28	180	100	789	783	517	580	600	837	296	SPZ (2x)
	132M		479	440	524	132	38	224	125	789	783	567	580	600	839	296	SPZ (2x)
	160S		475	440	524	132	38	280	160	789	783	589	580	600	893	296	SPZ (2x)
	160M		471	440	524	132	38	250	140	789	783	589	580	600	889	296	SPZ (3x)
	180S		475	440	524	132	42	280	160	789	783	652	580	600	918	296	SPZ (3x)
	180M		475	440	524	132	42	280	160	789	783	652	580	600	918	296	SPA (3x)

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X3F..	IEC	i	AVF max.	BVF	BVR	CVF	ØD7	ØDV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F120	LVF X3F130	PVF max.	QVF	
X120 – 130	132M	1.25	551	500	526	132	38	160	125	917	914	567	677	713	946	310	SPZ (2x)
	160S		548	500	526	132	38	200	160	917	914	589	677	713	1001	310	SPZ (2x)
	160M		554	500	526	132	38	180	140	917	914	589	677	713	1007	310	SPZ (3x)
	180S		548	500	526	132	42	200	160	917	914	652	677	713	1026	310	SPZ (3x)
	180M		552	500	526	132	42	250	200	917	914	652	677	713	1030	310	SPZ (3x)
	180L		548	500	621	132	48	224	180	917	914	712	677	713	1026	310	SPA (3x)
	180LC		549	500	621	132	48	250	200	917	914	712	677	713	1027	310	SPA (3x)
	200L		552	500	621	132	55	250	200	917	914	778	677	713	1060	310	SPZ (6x)
	132M	1.4	553	500	526	132	38	180	125	917	914	567	677	713	948	310	SPZ (2x)
	160S		553	500	526	132	38	224	160	917	914	589	677	713	1006	310	SPZ (2x)
	160M		551	500	526	132	38	200	140	917	914	589	677	713	1004	310	SPZ (3x)
	180S		553	500	526	132	42	224	160	917	914	652	677	713	1031	310	SPZ (3x)
	180M		552	500	526	132	42	280	200	917	914	652	677	713	1030	310	SPZ (3x)
	180L		552	500	621	132	48	250	180	917	914	712	677	713	1030	310	SPA (3x)
	180LC		550	500	621	132	48	280	200	917	914	712	677	713	1028	310	SPA (3x)
	200L		552	500	621	132	55	280	200	917	914	778	677	713	1060	310	SPZ (6x)
	132M	1.6	549	500	526	132	38	200	125	917	914	567	677	713	944	310	SPZ (2x)
	160S		551	500	526	132	38	250	160	917	914	589	677	713	1004	310	SPZ (2x)
	160M		556	500	526	132	38	224	140	917	914	589	677	713	1009	310	SPZ (3x)
	180S		551	500	526	132	42	250	160	917	914	652	677	713	1029	310	SPZ (3x)
	180M		551	500	526	132	42	250	160	917	914	652	677	713	1029	310	SPA (3x)
	180L		552	500	621	132	48	280	180	917	914	712	677	713	1030	310	SPA (3x)
	180LC		546	500	621	132	48	315	200	917	914	712	677	713	1024	310	SPA (3x)
	200L		542	500	621	132	55	335	212	917	914	778	677	713	1050	310	SPB (3x)
	132M	1.8	549	500	526	132	38	224	125	917	914	567	677	713	944	310	SPZ (2x)
	160S		544	500	526	132	38	280	160	917	914	589	677	713	997	310	SPZ (2x)
	160M		547	500	526	132	38	250	140	917	914	589	677	713	1000	310	SPZ (3x)
	180S		544	500	526	132	42	280	160	917	914	652	677	713	1022	310	SPZ (3x)
	180M		555	500	526	132	42	280	160	917	914	652	677	713	1033	310	SPA (3x)
	180L		548	500	621	132	48	315	180	917	914	712	677	713	1026	310	SPA (3x)
	180LC		549	500	621	132	48	355	200	917	914	712	677	713	1027	310	SPA (3x)
	200L		558	500	621	132	55	375	212	917	914	778	677	713	1066	310	SPB (3x)

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X3F..	IEC	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	180L	1.25	661	530	664	154	48	224	180	1082	1043	734	767	809	1179	371	SPA (3x)
	180LC		662	530	664	154	48	250	200	1082	1043	734	767	809	1180	371	SPA (3x)
	200L		665	530	664	154	55	250	200	1082	1043	800	767	809	1213	371	SPZ (6x)
	225S		660	530	664	154	60	265	212	1082	1043	800	767	809	1208	371	SPB (4x)
	225M		663	530	664	154	60	300	236	1082	1043	850	767	809	1211	371	SPB (4x)
	180L	1.4	665	530	664	154	48	250	180	1082	1043	734	767	809	1183	371	SPA (3x)
	180LC		663	530	664	154	48	280	200	1082	1043	734	767	809	1181	371	SPA (3x)
	200L		665	530	664	154	55	280	200	1082	1043	800	767	809	1213	371	SPZ (6x)
	225S		651	530	664	154	60	300	212	1082	1043	800	767	809	1199	371	SPB (4x)
	225M		681	530	664	154	60	300	212	1082	1043	850	767	809	1229	371	SPB (4x)
	180L	1.6	662	530	664	154	48	280	180	1082	1043	734	767	809	1180	371	SPA (3x)
	180LC		659	530	664	154	48	315	200	1082	1043	734	767	809	1177	371	SPA (3x)
	200L		667	530	664	154	55	335	212	1082	1043	800	767	809	1215	371	SPB (3x)
	225S		670	530	664	154	60	355	224	1082	1043	800	767	809	1218	371	SPA (4x)
	225M		652	530	664	154	60	335	212	1082	1043	850	767	809	1200	371	SPB (4x)
	180L	1.8	661	530	664	154	48	315	180	1082	1043	734	767	809	1179	371	SPA (3x)
	180LC		675	530	664	154	48	355	200	1082	1043	734	767	809	1193	371	SPA (3x)
	200L		679	530	664	154	55	375	212	1082	1043	800	767	809	1227	371	SPB (3x)
	225S		680	530	664	154	60	400	224	1082	1043	800	767	809	1228	371	SPA (4x)
	225M		659	530	664	154	60	355	200	1082	1043	850	767	809	1207	371	SPB (5x)

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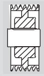
X3F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X3F160	LVF X3F170	PVF max.	QVF	
X160 – 170	180L	1.25	661	530	615	154	48	224	180	1132	1043	734	876	927	1229	405	SPA (3x)
	180LC		662	530	615	154	48	250	200	1132	1043	734	876	927	1230	405	SPA (3x)
	200L		665	530	818	154	55	250	200	1132	1043	800	876	927	1263	405	SPZ (6x)
	225S		660	530	818	154	60	265	212	1132	1043	800	876	927	1258	405	SPB (4x)
	225M		753	580	851	187	60	300	236	1265	1207	883	901	952	1351	438	SPB (4x)
	250M		763	580	851	187	65	335	265	1265	1207	957	901	952	1475	438	SPB (4x)
	280S		771	580	851	187	75	315	250	1265	1207	957	901	952	1483	438	SPB (6x)
	280M		771	580	851	187	75	315	250	1265	1207	957	901	952	1483	438	SPB (6x)
	180L	1.4	665	530	615	154	48	250	180	1132	1043	734	876	927	1233	405	SPA (3x)
	180LC		663	530	615	154	48	280	200	1132	1043	734	876	927	1231	405	SPA (3x)
	200L		665	530	818	154	55	280	200	1132	1043	800	876	927	1263	405	SPZ (6x)
	225S		651	530	818	154	60	300	212	1132	1043	800	876	927	1249	405	SPB (4x)
	225M		742	580	851	187	60	300	212	1265	1207	883	901	952	1340	438	SPB (4x)
	250M		780	580	851	187	65	375	265	1265	1207	957	901	952	1492	438	SPB (4x)
	280S		738	580	851	187	75	355	250	1265	1207	957	901	952	1450	438	SPB (6x)
	280M		738	580	851	187	75	355	250	1265	1207	957	901	952	1450	438	SPB (6x)
	180L	1.6	662	530	615	154	48	280	180	1132	1043	734	876	927	1230	405	SPA (3x)
	180LC		659	530	615	154	48	315	200	1132	1043	734	876	927	1227	405	SPA (3x)
	200L		667	530	818	154	55	335	212	1132	1043	800	876	927	1265	405	SPB (3x)
	225S		670	530	818	154	60	355	224	1132	1043	800	876	927	1268	405	SPA (4x)
	225M		783	580	851	187	60	335	212	1265	1207	883	901	952	1381	438	SPB (4x)
	250M		757	580	851	187	65	355	224	1265	1207	957	901	952	1469	438	SPB (5x)
	280S		771	580	851	187	75	400	250	1265	1207	957	901	952	1483	438	SPB (6x)
	280M		771	580	851	187	75	400	250	1265	1207	957	901	952	1483	438	SPB (6x)
	180L	1.8	661	530	615	154	48	315	180	1132	1043	734	876	927	1229	405	SPA (3x)
	180LC		675	530	615	154	48	355	200	1132	1043	734	876	927	1243	405	SPA (3x)
	200L		679	530	818	154	55	375	212	1132	1043	800	876	927	1277	405	SPB (3x)
	225S		680	530	818	154	60	400	224	1132	1043	800	876	927	1278	405	SPA (4x)
	225M		775	580	851	187	60	355	200	1265	1207	883	901	952	1373	438	SPB (5x)
	250M		760	580	851	187	65	425	236	1265	1207	957	901	952	1472	438	SPB (4x)
	280S		728	580	851	187	75	450	250	1265	1207	957	901	952	1440	438	SPB (6x)
	280M		728	580	851	187	75	450	250	1265	1207	957	901	952	1440	438	SPB (6x)

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X3F..	IEC	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**	1.25	657	530	663	154	55	224	180	1152	1043	800	972	1004	1275	423	SPB (4x)
	225S		800	530	696	187	60	265	212	1327	1223	833	972	1004	1418	456	SPB (4x)
	225M		793	530	696	187	60	300	236	1327	1223	883	972	1004	1411	456	SPB (4x)
	250		813	530	949	187	65	335	265	1327	1223	957	972	1004	1545	456	SPB (4x)
	280S		916	750	959	197	75	315	250	1524	1523	967	1082	1114	1648	466	SPB (6x)
	280M		904	750	959	197	75	375	300	1524	1523	967	1082	1114	1636	466	SPB (6x)
	315K		872	750	959	197	80	400	315	1524	1523	1136	1082	1114	1713	466	SPB (6x)
	315S		872	750	959	197	80	400	315	1524	1523	1136	1082	1114	1713	466	SPB (6x)
	200L	1.4	666	530	663	154	55	315	224	1152	1043	800	972	1004	1284	423	SPA (4x)
	225S		812	530	696	187	60	300	212	1327	1223	833	972	1004	1430	456	SPB (4x)
	225M		812	530	696	187	60	300	212	1327	1223	883	972	1004	1430	456	SPB (4x)
	250		780	530	949	187	65	375	265	1327	1223	957	972	1004	1512	456	SPB (4x)
	280S		898	750	959	197	75	355	250	1524	1523	967	1082	1114	1630	466	SPB (6x)
	280M		899	750	959	197	75	400	280	1524	1523	967	1082	1114	1631	466	SPB (6x)
	315K		932	750	959	197	80	450	315	1524	1523	1136	1082	1114	1773	466	SPB (6x)
	315S		932	750	959	197	80	450	315	1524	1523	1136	1082	1114	1773	466	SPB (6x)
	200L	1.6	667	530	663	154	55	335	212	1152	1043	800	972	1004	1285	423	SPB (3x)
	225S		793	530	696	187	60	355	224	1327	1223	833	972	1004	1411	456	SPA (4x)
	225M		783	530	696	187	60	335	212	1327	1223	883	972	1004	1401	456	SPB (4x)
	250		777	530	949	187	65	355	224	1327	1223	957	972	1004	1509	456	SPB (5x)
	280S		912	750	959	197	75	400	250	1524	1523	967	1082	1114	1653	466	SPB (6x)
	280M		908	750	959	197	75	450	280	1524	1523	967	1082	1114	1640	466	SPB (6x)
	315K		890	750	959	197	80	500	315	1524	1523	1136	1082	1114	1731	466	SPB (6x)
	315S		890	750	959	197	80	500	315	1524	1523	1136	1082	1114	1731	466	SPB (6x)
	200L	1.8	679	530	663	154	55	375	212	1152	1043	800	972	1004	1297	423	SPB (3x)
	225S		790	530	696	187	60	400	224	1327	1223	833	972	1004	1408	456	SPA (4x)
	225M		795	530	696	187	60	355	200	1327	1223	883	972	1004	1413	456	SPB (5x)
	250		790	530	949	187	65	400	224	1327	1223	957	972	1004	1522	456	SPB (5x)
	280S		899	750	959	197	75	450	250	1524	1523	967	1082	1114	1631	466	SPB (6x)
	280M		916	750	959	197	75	500	280	1524	1523	967	1082	1114	1648	466	SPB (6x)
	315K		924	750	959	197	80	560	315	1524	1523	1136	1082	1114	1765	466	SPB (6x)
	315S		924	750	959	197	80	560	315	1524	1523	1136	1082	1114	1765	466	SPB (6x)

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X3F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF	HVR	LBV	LVF X3F200	LVF X3F210	PVF max.	QVF	
X200 – 210	**225S**	**1.25**	800	530	729	187	60	265	212	1367	1223	833	1059	1095	1458	474	SPB (4x)
	225M		793	530	729	187	60	300	236	1367	1223	883	1059	1095	1451	474	SPB (4x)
	250		888	750	977	197	65	335	265	1564	1523	967	1169	1205	1660	484	SPB (4x)
	280S		916	750	977	197	75	315	250	1564	1523	967	1169	1205	1688	484	SPB (6x)
	280M		904	750	977	197	75	375	300	1564	1523	967	1169	1205	1676	484	SPB (6x)
	315K		897	750	977	197	80	400	315	1564	1523	1136	1169	1205	1778	484	SPB (8x)
	315S		897	750	977	197	80	400	315	1564	1523	1136	1169	1205	1778	484	SPB (8x)
	315M		937	750	977	197	80	425	335	1564	1523	1266	1169	1205	1833	484	SPC (6x)
	225S	**1.4**	797	530	729	187	60	280	200	1367	1223	833	1059	1095	1455	474	SPB (4x)
	225M		812	530	729	187	60	300	212	1367	1223	883	1059	1095	1470	474	SPB (4x)
	250		910	750	977	197	65	335	236	1564	1523	967	1169	1205	1682	484	SPB (4x)
	280S		898	750	977	197	75	355	250	1564	1523	967	1169	1205	1670	484	SPB (6x)
	280M		899	750	977	197	75	400	280	1564	1523	967	1169	1205	1671	484	SPB (6x)
	315K		881	750	977	197	80	450	315	1564	1523	1136	1169	1205	1762	484	SPB (8x)
	315S		881	750	977	197	80	450	315	1564	1523	1136	1169	1205	1762	484	SPB (8x)
	315M		896	750	977	197	80	475	335	1564	1523	1266	1169	1205	1792	484	SPC (6x)
	225S	**1.6**	793	530	729	187	60	355	224	1367	1223	833	1059	1095	1451	474	SPA (4x)
	225M		783	530	729	187	60	335	212	1367	1223	883	1059	1095	1441	474	SPB (4x)
	250		903	750	977	197	65	355	224	1564	1523	967	1169	1205	1675	484	SPB (5x)
	280S		921	750	977	197	75	400	250	1564	1523	967	1169	1205	1693	484	SPB (6x)
	280M		908	750	977	197	75	450	280	1564	1523	967	1169	1205	1680	484	SPB (6x)
	315K		890	750	977	197	80	500	315	1564	1523	1136	1169	1205	1771	484	SPB (8x)
	315S		890	750	977	197	80	500	315	1564	1523	1136	1169	1205	1771	484	SPB (8x)
	315M		910	750	977	197	80	560	335	1564	1523	1266	1169	1205	1806	484	SPC (6x)
	225S	**1.8**	790	530	729	187	60	400	224	1367	1223	833	1059	1095	1448	474	SPA (4x)
	225M		795	530	729	187	60	355	200	1367	1223	883	1059	1095	1453	474	SPB (5x)
	250		911	750	977	197	65	425	236	1564	1523	967	1169	1205	1683	484	SPB (4x)
	280S		899	750	977	197	75	450	250	1564	1523	967	1169	1205	1671	484	SPB (6x)
	280M		916	750	977	197	75	500	280	1564	1523	967	1169	1205	1688	484	SPB (6x)
	315K		924	750	977	197	80	560	315	1564	1523	1136	1169	1205	1805	484	SPB (8x)
	315S		924	750	977	197	80	560	315	1564	1523	1136	1169	1205	1805	484	SPB (8x)
	315M		950	750	977	197	80	630	335	1564	1523	1266	1169	1205	1846	484	SPC (6x)

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X3F..	IEC	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	**250**	**1.25**	888	750	973	197	65	335	265	1614	1523	967	1269	1309	1710	508	SPB (4x)
	280S		916	750	973	197	75	315	250	1614	1523	967	1269	1309	1738	508	SPB (6x)
	280M		904	750	973	197	75	375	300	1614	1523	967	1269	1309	1726	508	SPB (6x)
	315K		897	750	973	197	80	400	315	1614	1523	1136	1269	1309	1828	508	SPB (8x)
	315S		897	750	973	197	80	400	315	1614	1523	1136	1269	1309	1828	508	SPB (8x)
	315M		937	750	973	197	80	425	335	1614	1523	1266	1269	1309	1883	508	SPC (6x)
	315L		937	750	973	197	80	425	335	1614	1523	1266	1269	1309	1883	508	SPC (6x)
	250	**1.4**	910	750	973	197	65	335	236	1614	1523	967	1269	1309	1732	508	SPB (4x)
	280S		898	750	973	197	75	355	250	1614	1523	967	1269	1309	1720	508	SPB (6x)
	280M		899	750	973	197	75	400	280	1614	1523	967	1269	1309	1721	508	SPB (6x)
	315K		881	750	973	197	80	450	315	1614	1523	1136	1269	1309	1812	508	SPB (8x)
	315S		881	750	973	197	80	450	315	1614	1523	1136	1269	1309	1812	508	SPB (8x)
	315M		896	750	973	197	80	475	335	1614	1523	1266	1269	1309	1842	508	SPC (6x)
	315L		896	750	973	197	80	475	335	1614	1523	1266	1269	1309	1842	508	SPC (6x)
	250	**1.6**	903	750	973	197	65	355	224	1614	1523	967	1269	1309	1725	508	SPB (5x)
	280S		921	750	973	197	75	400	250	1614	1523	967	1269	1309	1743	508	SPB (6x)
	280M		908	750	973	197	75	450	280	1614	1523	967	1269	1309	1730	508	SPB (6x)
	315K		890	750	973	197	80	500	315	1614	1523	1136	1269	1309	1821	508	SPB (8x)
	315S		890	750	973	197	80	500	315	1614	1523	1136	1269	1309	1821	508	SPB (8x)
	315M		910	750	973	197	80	560	335	1614	1523	1266	1269	1309	1856	508	SPC (6x)
	315L		910	750	973	197	80	560	335	1614	1523	1266	1269	1309	1856	508	SPC (6x)
	250	**1.8**	911	750	973	197	65	425	236	1614	1523	967	1269	1309	1733	508	SPB (4x)
	280S		899	750	973	197	75	450	250	1614	1523	967	1269	1309	1721	508	SPB (6x)
	280M		916	750	973	197	75	500	280	1614	1523	967	1269	1309	1738	508	SPB (6x)
	315K		924	750	973	197	80	560	315	1614	1523	1136	1269	1309	1855	508	SPB (8x)
	315S		924	750	973	197	80	560	315	1614	1523	1136	1269	1309	1855	508	SPB (8x)
	315M		950	750	973	197	80	630	335	1614	1523	1266	1269	1309	1896	508	SPC (6x)
	315L		950	750	973	197	80	630	335	1614	1523	1266	1269	1309	1896	508	SPC (6x)

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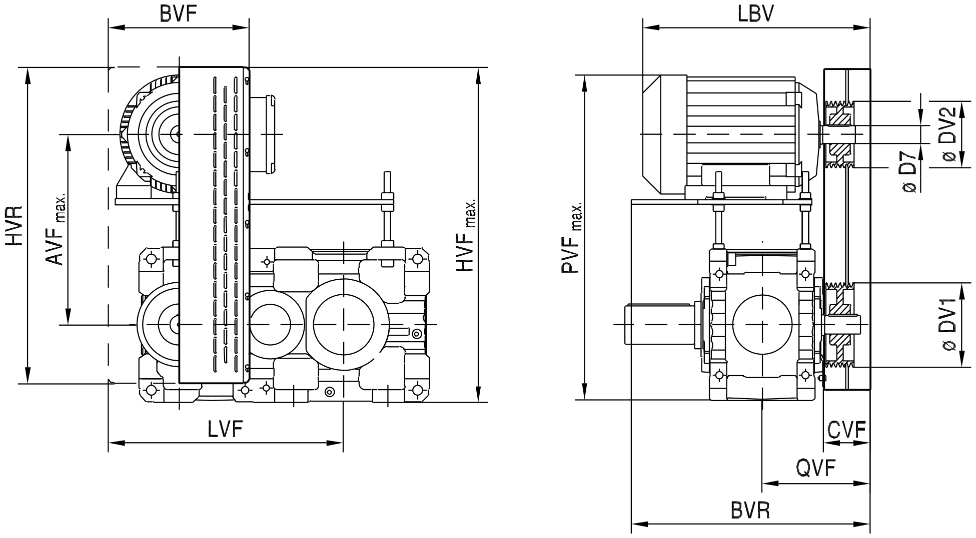
12.28.2 X4F.. V-belt drives /VBD [mm]

X4F..

48 003 01 11



X4F..	IEC	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	**100M**	**1.25**	551	500	526	132	28	160	125	917	914	446	677	713	933	310	SPZ (1x)
	112M		551	500	526	132	28	160	125	917	914	482	677	713	946	310	SPZ (1x)
	132S		551	500	526	132	28	160	125	917	914	517	677	713	946	310	SPZ (2x)
	100M	**1.4**	553	500	526	132	28	180	125	917	914	446	677	713	935	310	SPZ (1x)
	112M		553	500	526	132	28	180	125	917	914	482	677	713	948	310	SPZ (1x)
	132S		553	500	526	132	28	180	125	917	914	517	677	713	948	310	SPZ (2x)
	100M	**1.6**	549	500	526	132	28	200	125	917	914	446	677	713	931	310	SPZ (1x)
	112M		549	500	526	132	28	200	125	917	914	482	677	713	944	310	SPZ (1x)
	132S		549	500	526	132	28	200	125	917	914	517	677	713	944	310	SPZ (2x)
	100M	**1.8**	549	500	526	132	28	224	125	917	914	446	677	713	931	310	SPZ (1x)
	112M		549	500	526	132	28	224	125	917	914	482	677	713	944	310	SPZ (1x)
	132S		549	500	526	132	28	224	125	917	914	517	677	713	944	310	SPZ (2x)

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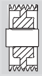
X4F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F140	LVF X4F150	PVF max.	QVF	
X140 – 150	100M	1.25	551	500	529	132	28	160	125	957	914	446	752	794	973	349	SPZ (1x)
	112M		551	500	529	132	28	160	125	957	914	482	752	794	986	349	SPZ (1x)
	132S		551	500	529	132	28	160	125	957	914	517	752	794	986	349	SPZ (2x)
	132M		551	500	529	132	38	160	125	957	914	567	752	794	986	349	SPZ (2x)
	160S		548	500	529	132	38	200	160	957	914	589	752	794	1041	349	SPZ (2x)
	160M		554	500	529	132	38	180	140	957	914	589	752	794	1047	349	SPZ (3x)
	180S		548	500	529	132	42	200	160	957	914	652	752	794	1066	349	SPZ (3x)
	180M		552	500	529	132	42	250	200	957	914	652	752	794	1070	349	SPZ (3x)
	100M	1.4	553	500	529	132	28	180	125	957	914	446	752	794	975	349	SPZ (1x)
	112M		553	500	529	132	28	180	125	957	914	482	752	794	988	349	SPZ (1x)
	132S		553	500	529	132	28	180	125	957	914	517	752	794	988	349	SPZ (2x)
	132M		553	500	529	132	38	180	125	957	914	567	752	794	988	349	SPZ (2x)
	160S		553	500	529	132	38	224	160	957	914	589	752	794	1046	349	SPZ (2x)
	160M		551	500	529	132	38	200	140	957	914	589	752	794	1044	349	SPZ (3x)
	180S		553	500	529	132	42	224	160	957	914	652	752	794	1071	349	SPZ (3x)
	180M		552	500	529	132	42	280	200	957	914	652	752	794	1070	349	SPZ (3x)
	100M	1.6	549	500	529	132	28	200	125	957	914	446	752	794	971	349	SPZ (1x)
	112M		549	500	529	132	28	200	125	957	914	482	752	794	984	349	SPZ (1x)
	132S		549	500	529	132	28	200	125	957	914	517	752	794	984	349	SPZ (2x)
	132M		549	500	529	132	38	200	125	957	914	567	752	794	984	349	SPZ (2x)
	160S		551	500	529	132	38	250	160	957	914	589	752	794	1044	349	SPZ (2x)
	160M		556	500	529	132	38	224	140	957	914	589	752	794	1049	349	SPZ (3x)
	180S		551	500	529	132	42	250	160	957	914	652	752	794	1069	349	SPZ (3x)
	180M		551	500	529	132	42	250	160	957	914	652	752	794	1069	349	SPA (3x)
	100M	1.8	549	500	529	132	28	224	125	957	914	446	752	794	971	349	SPZ (1x)
	112M		549	500	529	132	28	224	125	957	914	482	752	794	984	349	SPZ (1x)
	132S		549	500	529	132	28	224	125	957	914	517	752	794	984	349	SPZ (2x)
	132M		549	500	529	132	38	224	125	957	914	567	752	794	984	349	SPZ (2x)
	160S		544	500	529	132	38	280	160	957	914	589	752	794	1037	349	SPZ (2x)
	160M		547	500	529	132	38	250	140	957	914	589	752	794	1040	349	SPZ (3x)
	180S		544	500	529	132	42	280	160	957	914	652	752	794	1062	349	SPZ (3x)
	180M		555	500	529	132	42	280	160	957	914	652	752	794	1073	349	SPA (3x)

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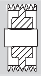
X4F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F160	LVF X4F170	PVF max.	QVF	
X160 – 170	132S	1.25	551	500	593	132	28	160	125	1007	914	517	861	912	1036	383	SPZ (2x)
	132M		667	530	615	154	38	180	140	1132	1043	589	876	927	1152	405	SPZ (2x)
	160S		667	530	615	154	38	200	160	1132	1043	611	876	927	1210	405	SPZ (2x)
	160M		667	530	615	154	38	200	160	1132	1043	611	876	927	1210	405	SPZ (3x)
	180S		667	530	615	154	42	200	160	1132	1043	674	876	927	1235	405	SPZ (3x)
	180M		665	530	615	154	42	250	200	1132	1043	674	876	927	1235	405	SPZ (3x)
	132S	1.4	553	500	593	132	28	180	125	1007	914	517	861	912	1038	383	SPZ (2x)
	132M		663	530	615	154	38	200	140	1132	1043	589	876	927	1148	405	SPZ (2x)
	160S		666	530	615	154	38	224	160	1132	1043	611	876	927	1209	405	SPZ (2x)
	160M		666	530	615	154	38	224	160	1132	1043	611	876	927	1209	405	SPZ (3x)
	180S		666	530	615	154	42	224	160	1132	1043	674	876	927	1234	405	SPZ (3x)
	180M		665	530	615	154	42	280	200	1132	1043	674	876	927	1233	405	SPZ (3x)
	132S	1.6	549	500	593	132	28	200	125	1007	914	517	861	912	1034	383	SPZ (2x)
	132M		663	530	615	154	38	224	140	1132	1043	589	876	927	1148	405	SPZ (2x)
	160S		670	530	615	154	38	250	160	1132	1043	611	876	927	1213	405	SPZ (2x)
	160M		670	530	615	154	38	250	160	1132	1043	611	876	927	1213	405	SPZ (3x)
	180S		670	530	615	154	42	250	160	1132	1043	674	876	927	1238	405	SPZ (3x)
	180M		667	530	615	154	42	250	160	1132	1043	674	876	927	1235	405	SPA (3x)
	132S	1.8	549	500	593	132	28	224	125	1007	914	517	861	912	1034	383	SPZ (2x)
	132M		666	530	615	154	38	250	140	1132	1043	589	876	927	1151	405	SPZ (2x)
	160S		670	530	615	154	38	280	160	1132	1043	611	876	927	1213	405	SPZ (2x)
	160M		670	530	615	154	38	280	160	1132	1043	611	876	927	1213	405	SPZ (3x)
	180S		670	530	615	154	42	280	160	1132	1043	674	876	927	1238	405	SPZ (3x)
	180M		668	530	615	154	42	280	160	1132	1043	674	876	927	1236	405	SPA (3x)

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X4F..	IEC	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	**160S**	**1.25**	667	530	663	154	38	200	160	1152	1043	611	972	1004	1230	423	SPZ (2x)
	160M		657	530	663	154	38	224	180	1152	1043	611	972	1004	1220	423	SPZ (2x)
	180S		667	530	663	154	42	200	160	1152	1043	691	972	1004	1255	423	SPZ (3x)
	180M		665	530	663	154	42	250	200	1152	1043	691	972	1004	1253	423	SPZ (3x)
	180L		661	530	663	154	48	224	180	1152	1043	734	972	1004	1249	423	SPA (3x)
	180LC		662	530	663	154	48	250	200	1152	1043	734	972	1004	1250	423	SPA (3x)
	160S	**1.4**	666	530	663	154	38	224	160	1152	1043	611	972	1004	1229	423	SPZ (2x)
	160M		655	530	663	154	38	250	180	1152	1043	611	972	1004	1218	423	SPZ (2x)
	180S		666	530	663	154	42	224	160	1152	1043	691	972	1004	1254	423	SPZ (3x)
	180M		665	530	663	154	42	280	200	1152	1043	691	972	1004	1253	423	SPZ (3x)
	180L		665	530	663	154	48	250	180	1152	1043	734	972	1004	1253	423	SPA (3x)
	180LC		663	530	663	154	48	280	200	1152	1043	734	972	1004	1251	423	SPA (3x)
	160S	**1.6**	670	530	663	154	38	250	160	1152	1043	611	972	1004	1233	423	SPZ (2x)
	160M		662	530	663	154	38	280	180	1152	1043	611	972	1004	1225	423	SPZ (2x)
	180S		670	530	663	154	42	250	160	1152	1043	691	972	1004	1258	423	SPZ (3x)
	180M		667	530	663	154	42	250	160	1152	1043	691	972	1004	1255	423	SPA (3x)
	180L		662	530	663	154	48	280	180	1152	1043	734	972	1004	1250	423	SPA (3x)
	180LC		659	530	663	154	48	315	200	1152	1043	734	972	1004	1247	423	SPA (3x)
	160S	**1.8**	670	530	663	154	38	280	160	1152	1043	611	972	1004	1233	423	SPZ (2x)
	160M		651	530	663	154	38	315	180	1152	1043	611	972	1004	1214	423	SPZ (2x)
	180S		670	530	663	154	42	280	160	1152	1043	691	972	1004	1258	423	SPZ (3x)
	180M		668	530	663	154	42	280	160	1152	1043	691	972	1004	1256	423	SPA (3x)
	180L		661	530	663	154	48	315	180	1152	1043	734	972	1004	1249	423	SPA (3x)
	180LC		675	530	663	154	48	355	200	1152	1043	734	972	1004	1263	423	SPA (3x)

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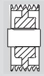
X4F..	IEC	i	AVF max.	BVF	BVR	CVF	Ø D7	Ø DV1	Ø DV2	HVF max.	HVR	LBV	LVF X4F200	LVF X4F210	PVF max.	QVF	
X200 – 210	**180S**	**1.25**	767	530	729	187	42	224	180	1367	1223	724	1059	1095	1395	474	SPA (2x)
	180M		770	530	729	187	42	200	160	1367	1223	724	1059	1095	1398	474	SPA (3x)
	180L		773	530	729	187	48	224	180	1367	1223	767	1059	1095	1401	474	SPA (3x)
	180LC		797	530	729	187	48	250	200	1367	1223	767	1059	1095	1425	474	SPA (3x)
	200L		801	530	729	187	55	250	200	1367	1223	833	1059	1095	1459	474	SPZ (6x)
	225S		800	530	729	187	60	265	212	1367	1223	833	1059	1095	1458	474	SPB (4x)
	225M		793	530	729	187	60	300	236	1367	1223	883	1059	1095	1451	474	SPB (4x)
	180S	**1.4**	777	530	729	187	42	250	180	1367	1223	724	1059	1095	1405	474	SPA (2x)
	180M		800	530	729	187	42	280	200	1367	1223	724	1059	1095	1428	474	SPZ (3x)
	180L		790	530	729	187	48	250	180	1367	1223	767	1059	1095	1418	474	SPA (3x)
	180LC		798	530	729	187	48	280	200	1367	1223	767	1059	1095	1426	474	SPA (3x)
	200L		800	530	729	187	55	280	200	1367	1223	833	1059	1095	1458	474	SPZ (6x)
	225S		797	530	729	187	60	280	200	1367	1223	833	1059	1095	1455	474	SPB (4x)
	225M		812	530	729	187	60	300	212	1367	1223	883	1059	1095	1470	474	SPB (4x)
	180S	**1.6**	766	530	729	187	42	280	180	1367	1223	724	1059	1095	1394	474	SPA (2x)
	180M		793	530	729	187	42	250	160	1367	1223	724	1059	1095	1421	474	SPA (3x)
	180L		782	530	729	187	48	280	180	1367	1223	767	1059	1095	1410	474	SPA (3x)
	180LC		794	530	729	187	48	315	200	1367	1223	767	1059	1095	1422	474	SPA (3x)
	200L		798	530	729	187	55	335	212	1367	1223	833	1059	1095	1456	474	SPB (3x)
	225S		793	530	729	187	60	355	224	1367	1223	833	1059	1095	1451	474	SPA (4x)
	225M		783	530	729	187	60	335	212	1367	1223	883	1059	1095	1441	474	SPB (4x)
	180S	**1.8**	797	530	729	187	42	280	160	1367	1223	724	1059	1095	1425	474	SPZ (3x)
	180M		781	530	729	187	42	280	160	1367	1223	724	1059	1095	1409	474	SPA (3x)
	180L		797	530	729	187	48	315	180	1367	1223	767	1059	1095	1425	474	SPA (3x)
	180LC		786	530	729	187	48	355	200	1367	1223	767	1059	1095	1414	474	SPA (3x)
	200L		820	530	729	187	55	375	212	1367	1223	833	1059	1095	1478	474	SPB (3x)
	225S		790	530	729	187	60	400	224	1367	1223	833	1059	1095	1448	474	SPA (4x)
	225M		795	530	729	187	60	355	200	1367	1223	883	1059	1095	1453	474	SPB (5x)

X4F..	IEC	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	**180S**	**1.25**	767	530	763	187	42	224	180	1417	1223	724	1159	1199	1445	498	SPA (2x)
	180M		770	530	763	187	42	200	160	1417	1223	724	1159	1199	1448	498	SPA (3x)
	180L		773	530	763	187	48	224	180	1417	1223	767	1159	1199	1451	498	SPA (3x)
	180LC		782	530	763	187	48	250	200	1417	1223	767	1159	1199	1460	498	SPA (3x)
	200L		801	530	763	187	55	250	200	1417	1223	833	1159	1199	1509	498	SPZ (6x)
	225S		800	530	763	187	60	265	212	1417	1223	833	1159	1199	1508	498	SPB (4x)
	225M		793	530	763	187	60	300	236	1417	1223	883	1159	1199	1501	498	SPB (4x)
	180S	**1.4**	777	530	763	187	42	250	180	1417	1223	724	1159	1199	1455	498	SPA (2x)
	180M		800	530	763	187	42	280	200	1417	1223	724	1159	1199	1478	498	SPZ (3x)
	180L		790	530	763	187	48	250	180	1417	1223	767	1159	1199	1468	498	SPA (3x)
	180LC		798	530	763	187	48	280	200	1417	1223	767	1159	1199	1476	498	SPA (3x)
	200L		800	530	763	187	55	280	200	1417	1223	833	1159	1199	1508	498	SPZ (6x)
	225S		797	530	763	187	60	280	200	1417	1223	833	1159	1199	1505	498	SPB (4x)
	225M		812	530	763	187	60	300	212	1417	1223	883	1159	1199	1520	498	SPB (4x)
	180S	1.6	766	530	763	187	42	280	180	1417	1223	724	1159	1199	1444	498	SPA (2x)
	180M		793	530	763	187	42	250	160	1417	1223	724	1159	1199	1471	498	SPA (3x)
	180L		782	530	763	187	48	280	180	1417	1223	767	1159	1199	1460	498	SPA (3x)
	180LC		794	530	763	187	48	315	200	1417	1223	767	1159	1199	1472	498	SPA (3x)
	200L		798	530	763	187	55	335	212	1417	1223	833	1159	1199	1506	498	SPB (3x)
	225S		793	530	763	187	60	355	224	1417	1223	833	1159	1199	1501	498	SPA (4x)
	225M		783	530	763	187	60	335	212	1417	1223	883	1159	1199	1491	498	SPB (4x)
	180S	**1.8**	797	530	763	187	42	280	160	1417	1223	724	1159	1199	1475	498	SPZ (3x)
	180M		781	530	763	187	42	280	160	1417	1223	724	1159	1199	1459	498	SPA (3x)
	180L		797	530	763	187	48	315	180	1417	1223	767	1159	1199	1475	498	SPA (3x)
	180LC		786	530	763	187	48	355	200	1417	1223	767	1159	1199	1464	498	SPA (3x)
	200L		820	530	763	187	55	375	212	1417	1223	833	1159	1199	1528	498	SPB (3x)
	225S		790	530	763	187	60	400	224	1417	1223	833	1159	1199	1498	498	SPA (4x)
	225M		795	530	763	187	60	355	200	1417	1223	883	1159	1199	1503	498	SPB (5x)

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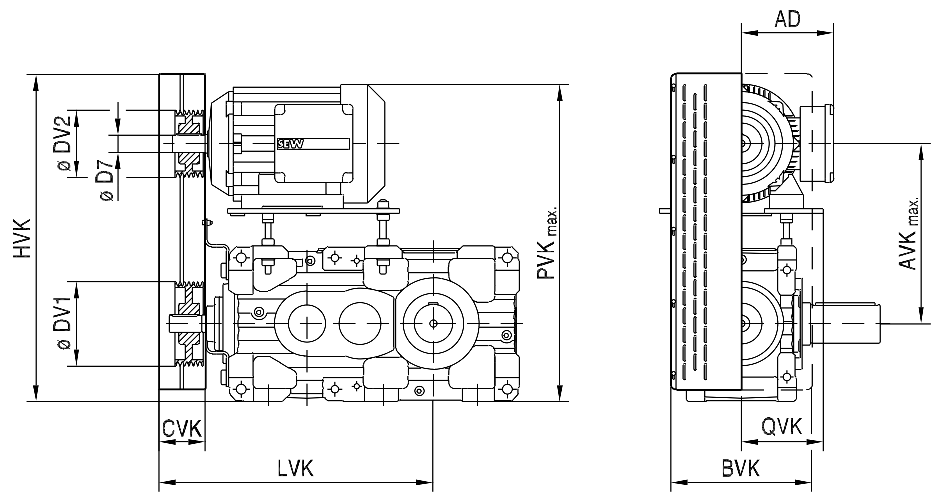
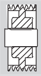
12.28.3 X3K.. V-belt drives /VBD [mm]

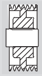
X3K..

48 021 01 08



X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K100	LVK X3K110	PVK max.	QVK	
X100–110	**132S**	**1.25**	170	468	440	132	28	125	100	789	683	703	828	175	SPZ (2x)
	132M		170	474	440	132	38	160	125	789	683	703	834	175	SPZ (2x)
	160S		228	473	440	132	38	200	160	789	683	703	891	175	SPZ (2x)
	160M		228	473	440	132	38	180	140	789	683	703	891	175	SPZ (3x)
	180S		253	473	440	132	42	200	160	789	683	703	916	175	SPZ (3x)
	180M		253	477	440	132	42	250	200	789	683	703	920	175	SPZ (3x)
	180L		253	471	440	132	48	250	200	789	683	703	914	175	SPA (3x)
	132S	**1.4**	170	480	440	132	28	140	100	789	683	703	840	175	SPZ (2x)
	132M		170	478	440	132	38	180	125	789	683	703	838	175	SPZ (2x)
	160S		228	472	440	132	38	224	160	789	683	703	890	175	SPZ (2x)
	160M		228	473	440	132	38	200	140	789	683	703	891	175	SPZ (3x)
	180S		253	472	440	132	42	224	160	789	683	703	915	175	SPZ (3x)
	180M		253	477	440	132	42	280	200	789	683	703	920	175	SPZ (3x)
	180L		253	477	440	132	48	250	180	789	683	703	920	175	SPA (3x)
	132S	**1.6**	170	476	440	132	28	160	100	789	683	703	836	175	SPZ (2x)
	132M		170	474	440	132	38	200	125	789	683	703	834	175	SPZ (2x)
	160S		228	469	440	132	38	250	160	789	683	703	887	175	SPZ (2x)
	160M		228	481	440	132	38	224	140	789	683	703	899	175	SPZ (3x)
	180S		253	469	440	132	42	250	160	789	683	703	912	175	SPZ (3x)
	180M		253	479	440	132	42	250	160	789	683	703	922	175	SPA (3x)
	180L		253	477	440	132	48	280	180	789	683	703	920	175	SPA (3x)
	132S	**1.8**	170	477	440	132	28	180	100	789	683	703	837	175	SPZ (2x)
	132M		170	479	440	132	38	224	125	789	683	703	839	175	SPZ (2x)
	160S		228	475	440	132	38	280	160	789	683	703	893	175	SPZ (2x)
	160M		228	471	440	132	38	250	140	789	683	703	889	175	SPZ (3x)
	180S		253	475	440	132	42	280	160	789	683	703	918	175	SPZ (3x)
	180M		253	475	440	132	42	280	160	789	683	703	918	175	SPA (3x)
	180L		253	472	440	132	48	315	180	789	683	703	915	175	SPA (3x)

X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K120	LVK X3K130	PVK max.	QVK	
X120–130	**132M**	**1.25**	170	551	500	132	38	160	125	917	777	813	946	218	SPZ (2x)
	160S		228	548	500	132	38	200	160	917	777	813	1001	218	SPZ (2x)
	160M		228	554	500	132	38	180	140	917	777	813	1007	218	SPZ (3x)
	180S		253	548	500	132	42	200	160	917	777	813	1026	218	SPZ (3x)
	180M		253	552	500	132	42	250	200	917	777	813	1030	218	SPZ (3x)
	180L		253	548	500	132	48	224	180	917	777	813	1026	218	SPA (3x)
	180LC		253	549	500	132	48	250	200	917	777	813	1027	218	SPA (3x)
	200L		283	552	500	132	55	250	200	917	777	813	1060	218	SPZ (6x)
	225S		283	550	500	132	60	265	212	917	777	813	1058	218	SPB (4x)
	225M		283	663	530	154	60	300	236	1042	799	835	1171	218	SPB (4x)
	132M	**1.4**	170	553	500	132	38	180	125	917	777	813	948	218	SPZ (2x)
	160S		228	553	500	132	38	224	160	917	777	813	1006	218	SPZ (2x)
	160M		228	551	500	132	38	200	140	917	777	813	1004	218	SPZ (3x)
	180S		253	553	500	132	42	224	160	917	777	813	1031	218	SPZ (3x)
	180M		253	552	500	132	42	280	200	917	777	813	1030	218	SPZ (3x)
	180L		253	552	500	132	48	250	180	917	777	813	1030	218	SPA (3x)
	180LC		253	550	500	132	48	280	200	917	777	813	1028	218	SPA (3x)
	200L		283	552	500	132	55	280	200	917	777	813	1060	218	SPZ (6x)
	225S		283	546	500	132	60	300	212	917	777	813	1054	218	SPB (4x)
	225M		283	681	530	154	60	300	212	1042	799	835	1189	218	SPB (4x)
	132M	**1.6**	170	549	500	132	38	200	125	917	777	813	944	218	SPZ (2x)
	160S		228	551	500	132	38	250	160	917	777	813	1004	218	SPZ (2x)
	160M		228	556	500	132	38	224	140	917	777	813	1009	218	SPZ (3x)
	180S		253	551	500	132	42	250	160	917	777	813	1029	218	SPZ (3x)
	180M		253	551	500	132	42	250	160	917	777	813	1029	218	SPA (3x)
	180L		253	552	500	132	48	280	180	917	777	813	1030	218	SPA (3x)
	180LC		253	546	500	132	48	315	200	917	777	813	1024	218	SPA (3x)
	200L		283	542	500	132	55	335	212	917	777	813	1050	218	SPB (3x)
	225S		283	545	500	132	60	355	224	917	777	813	1053	218	SPA (4x)
	225M		283	652	530	154	60	335	212	1042	799	835	1160	218	SPB (4x)
	132M	**1.8**	170	549	500	132	38	224	125	917	777	813	944	218	SPZ (2x)
	160S		228	544	500	132	38	280	160	917	777	813	997	218	SPZ (2x)
	160M		228	547	500	132	38	250	140	917	777	813	1000	218	SPZ (3x)
	180S		253	544	500	132	42	280	160	917	777	813	1022	218	SPZ (3x)
	180M		253	555	500	132	42	280	160	917	777	813	1033	218	SPA (3x)
	180L		253	548	500	132	48	315	180	917	777	813	1026	218	SPA (3x)
	180LC		253	549	500	132	48	355	200	917	777	813	1027	218	SPA (3x)
	200L		283	558	500	132	55	375	212	917	777	813	1066	218	SPB (3x)
	225S		283	556	500	132	60	400	224	917	777	813	1064	218	SPA (4x)
	225M		283	659	530	154	60	355	200	1042	799	835	1167	218	SPB (5x)

X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K140	LVK X3K150	PVK max.	QVK	
X140–150	**180M**	**1.25**	253	552	500	132	42	250	200	957	902	944	1070	279	SPZ (3x)
	180L		253	661	530	154	48	224	180	1082	924	966	1179	279	SPA (3x)
	180LC		253	662	530	154	48	250	200	1082	924	966	1180	279	SPA (3x)
	200L		283	665	530	154	55	250	200	1082	924	966	1213	279	SPZ (6x)
	225S		283	660	530	154	60	265	212	1082	924	966	1208	279	SPB (4x)
	225M		283	663	530	154	60	300	236	1082	924	966	1211	279	SPB (4x)
	250M		397	758	580	187	65	335	265	1215	957	999	1420	279	SPB (4x)
	280S		397	771	580	187	75	315	250	1215	957	999	1433	279	SPB (6x)
	280M		397	771	580	187	75	315	250	1215	957	999	1433	279	SPB (6x)
	180M	**1.4**	253	552	500	132	42	280	200	957	902	944	1070	279	SPZ (3x)
	180L		253	665	530	154	48	250	180	1082	924	966	1183	279	SPA (3x)
	180LC		253	663	530	154	48	280	200	1082	924	966	1181	279	SPA (3x)
	200L		283	665	530	154	55	280	200	1082	924	966	1213	279	SPZ (6x)
	225S		283	651	530	154	60	300	212	1082	924	966	1199	279	SPB (4x)
	225M		283	681	530	154	60	300	212	1082	924	966	1229	279	SPB (4x)
	250M		397	730	580	187	65	375	265	1215	957	999	1392	279	SPB (4x)
	280S		397	738	580	187	75	355	250	1215	957	999	1400	279	SPB (6x)
	280M		397	738	580	187	75	355	250	1215	957	999	1400	279	SPB (6x)
	180M	**1.6**	253	551	500	132	42	250	160	957	902	944	1069	279	SPA (3x)
	180L		253	662	530	154	48	280	180	1082	924	966	1180	279	SPA (3x)
	180LC		253	659	530	154	48	315	200	1082	924	966	1177	279	SPA (3x)
	200L		283	667	530	154	55	335	212	1082	924	966	1215	279	SPB (3x)
	225S		283	670	530	154	60	355	224	1082	924	966	1218	279	SPA (4x)
	225M		283	652	530	154	60	335	212	1082	924	966	1200	279	SPB (4x)
	250M		397	757	580	187	65	355	224	1215	957	999	1419	279	SPB (5x)
	280S		397	771	580	187	75	400	250	1215	957	999	1433	279	SPB (6x)
	280M		397	771	580	187	75	400	250	1215	957	999	1433	279	SPB (6x)
	180M	**1.8**	253	555	500	132	42	280	160	957	902	944	1073	279	SPA (3x)
	180L		253	661	530	154	48	315	180	1082	924	966	1179	279	SPA (3x)
	180LC		253	675	530	154	48	355	200	1082	924	966	1193	279	SPA (3x)
	200L		283	679	530	154	55	375	212	1082	924	966	1227	279	SPB (3x)
	225S		283	680	530	154	60	400	224	1082	924	966	1228	279	SPA (4x)
	225M		283	659	530	154	60	355	200	1082	924	966	1207	279	SPB (5x)
	250M		397	739	580	187	65	400	224	1215	957	999	1401	279	SPB (5x)
	280S		397	728	580	187	75	450	250	1215	957	999	1390	279	SPB (6x)
	280M		397	728	580	187	75	450	250	1215	957	999	1390	279	SPB (6x)

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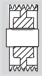
X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K160	LVK X3K170	PVK max.	QVK	
	180LC		253	662	530	154	48	250	200	1132	1052	1103	1230	320	SPA (3x)
	200L		283	665	530	154	55	250	200	1132	1052	1103	1263	320	SPZ (6x)
	225S		283	660	530	154	60	265	212	1132	1052	1103	1258	320	SPB (4x)
	225M		283	753	580	187	60	300	236	1265	1085	1136	1351	320	SPB (4x)
	250M	**1.25**	397	758	580	187	65	335	265	1265	1085	1136	1470	320	SPB (4x)
	280S		397	771	580	187	75	315	250	1265	1085	1136	1483	320	SPB (6x)
	280M		397	771	580	187	75	315	250	1265	1085	1136	1483	320	SPB (6x)
	315K		506	754	580	187	80	375	300	1265	1085	1136	1575	320	SPB (6x)
	315S		506	752	580	187	80	425	335	1265	1085	1136	1573	320	SPB (4x)
	180LC		253	663	530	154	48	280	200	1132	1052	1103	1231	320	SPA (3x)
	200L		283	665	530	154	55	280	200	1132	1052	1103	1263	320	SPZ (6x)
	225S		283	651	530	154	60	300	212	1132	1052	1103	1249	320	SPB (4x)
	225M		283	742	580	187	60	300	212	1265	1085	1136	1340	320	SPB (4x)
	250M	**1.4**	397	730	580	187	65	375	265	1265	1085	1136	1442	320	SPB (4x)
	280S		397	738	580	187	75	355	250	1265	1085	1136	1450	320	SPB (6x)
	280M		397	738	580	187	75	355	250	1265	1085	1136	1450	320	SPB (6x)
	315K		506	756	580	187	80	450	335	1265	1085	1136	1577	320	SPB (6x)
	315S		506	746	580	187	80	450	315	1265	1085	1136	1567	320	SPB (4x)
X160–170	**180LC**		253	659	530	154	48	315	200	1132	1132	1103	1227	320	SPA (3x)
	200L		283	667	530	154	55	335	212	1132	1132	1103	1265	320	SPB (3x)
	225S		283	670	530	154	60	355	224	1132	1132	1103	1268	320	SPA (4x)
	225M		283	783	580	187	60	335	212	1265	1265	1136	1381	320	SPB (4x)
	250M	**1.6**	397	757	580	187	65	355	224	1265	1265	1136	1469	320	SPB (5x)
	280S		397	771	580	187	75	400	250	1265	1265	1136	1483	320	SPB (6x)
	280M		397	771	580	187	75	400	250	1265	1265	1136	1483	320	SPB (6x)
	315K		506	756	580	187	80	400	250	1265	1265	1136	1577	320	SPB (6x)
	315S		506	761	580	187	80	400	250	1265	1265	1136	1582	320	SPB (6x)
	180LC		253	675	530	154	48	355	200	1132	1052	1103	1243	320	SPA (3x)
	200L		283	679	530	154	55	375	212	1132	1052	1103	1277	320	SPB (3x)
	225S		283	680	530	154	60	400	224	1132	1052	1103	1278	320	SPA (4x)
	225M		283	775	580	187	60	355	200	1265	1085	1136	1373	320	SPB (5x)
	250M	**1.8**	397	739	580	187	65	400	224	1265	1085	1136	1451	320	SPB (5x)
	280S		397	728	580	187	75	450	250	1265	1085	1136	1440	320	SPB (6x)
	280M		397	728	580	187	75	450	250	1265	1085	1136	1440	320	SPB (6x)
	315K		506	750	580	187	80	425	236	1265	1085	1136	1571	320	SPB (6x)
	315S		506	750	580	187	80	425	236	1265	1085	1136	1571	320	SPB (6x)

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X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K180	LVK X3K190	PVK max.	QVK	
X180–190	**200L**	**1.25**	283	657	530	154	55	224	180	1152	1146	1178	1275	319	SPB (4x)
	225S		283	800	530	187	60	265	212	1327	1179	1211	1418	319	SPB (4x)
	225M		283	793	530	187	60	300	236	1327	1179	1211	1411	319	SPB (4x)
	250		397	813	530	187	65	335	265	1327	1179	1211	1545	319	SPB (4x)
	280S		397	916	750	197	75	315	250	1524	1189	1221	1648	319	SPB (6x)
	280M		397	904	750	197	75	375	300	1524	1189	1221	1636	319	SPB (6x)
	315K		506	872	750	197	80	400	315	1524	1189	1221	1713	319	SPB (6x)
	315S		506	872	750	197	80	400	315	1524	1189	1221	1713	319	SPB (6x)
	200L	**1.4**	283	666	530	154	55	315	224	1152	1146	1178	1284	319	SPA (4x)
	225S		283	812	530	187	60	300	212	1327	1179	1211	1430	319	SPB (4x)
	225M		283	812	530	187	60	300	212	1327	1179	1211	1430	319	SPB (4x)
	250		397	780	530	187	65	375	265	1327	1179	1211	1512	319	SPB (4x)
	280S		397	898	750	197	75	355	250	1524	1189	1221	1630	319	SPB (6x)
	280M		397	899	750	197	75	400	280	1524	1189	1221	1631	319	SPB (6x)
	315K		506	932	750	197	80	450	315	1524	1189	1221	1773	319	SPB (6x)
	315S		506	932	750	197	80	450	315	1524	1189	1221	1773	319	SPB (6x)
	200L	**1.6**	283	667	530	154	55	335	212	1152	1146	1178	1285	319	SPB (3x)
	225S		283	793	530	187	60	355	224	1327	1179	1211	1411	319	SPA (4x)
	225M		283	783	530	187	60	335	212	1327	1179	1211	1401	319	SPB (4x)
	250		397	777	530	187	65	355	224	1327	1179	1211	1509	319	SPB (5x)
	280S		397	921	750	197	75	400	250	1524	1189	1221	1653	319	SPB (6x)
	280M		397	908	750	197	75	450	280	1524	1189	1221	1640	319	SPB (6x)
	315K		506	890	750	197	80	500	315	1524	1189	1221	1731	319	SPB (6x)
	315S		506	890	750	197	80	500	315	1524	1189	1221	1731	319	SPB (6x)
	200L	**1.8**	283	679	530	154	55	375	212	1152	1146	1178	1297	319	SPB (3x)
	225S		283	790	530	187	60	400	224	1327	1179	1211	1408	319	SPA (4x)
	225M		283	795	530	187	60	355	200	1327	1179	1211	1413	319	SPB (5x)
	250		397	790	530	187	65	400	224	1327	1179	1211	1522	319	SPB (5x)
	280S		397	899	750	197	75	450	250	1524	1189	1221	1631	319	SPB (6x)
	280M		397	916	750	197	75	500	280	1524	1189	1221	1648	319	SPB (6x)
	315K		506	924	750	197	80	560	315	1524	1189	1221	1765	319	SPB (6x)
	315S		506	924	750	197	80	560	315	1524	1189	1221	1765	319	SPB (6x)

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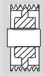
X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K200	LVK X3K210	PVK max.	QVK	
X200–210	**200L**	1.25	283	792	530	187	55	280	224	1367	1297	1333	1450	319	SPA (5x)
	225S		283	792	530	187	60	280	224	1367	1297	1333	1450	319	SPA (5x)
	225M		283	791	530	187	60	315	250	1367	1297	1333	1449	319	SPB (4x)
	250		397	888	750	197	65	335	265	1564	1307	1343	1660	319	SPB (4x)
	280S		397	916	750	197	75	315	250	1564	1307	1343	1688	319	SPB (6x)
	280M		397	904	750	197	75	375	300	1564	1307	1343	1676	319	SPB (6x)
	315K		506	897	750	197	80	400	315	1564	1307	1343	1778	319	SPB (8x)
	315S		506	897	750	197	80	400	315	1564	1307	1343	1778	319	SPB (8x)
	315M		521	937	750	197	80	425	335	1564	1307	1343	1883	319	SPC (6x)
	315L		521	937	750	197	80	425	335	1564	1307	1343	1883	319	SPC (6x)
	200L	1.4	283	790	530	187	55	315	224	1367	1297	1333	1448	319	SPB (4x)
	225S		283	790	530	187	60	315	224	1367	1297	1333	1448	319	SPB (4x)
	225M		283	785	530	187	60	335	236	1367	1297	1333	1443	319	SPB (4x)
	250		397	910	750	197	65	335	236	1564	1307	1343	1682	319	SPB (4x)
	280S		397	898	750	197	75	355	250	1564	1307	1343	1670	319	SPB (6x)
	280M		397	899	750	197	75	400	280	1564	1307	1343	1671	319	SPB (6x)
	315K		506	881	750	197	80	450	315	1564	1307	1343	1762	319	SPB (8x)
	315S		506	881	750	197	80	450	315	1564	1307	1343	1762	319	SPB (8x)
	315M		521	896	750	197	80	475	335	1564	1307	1343	1792	319	SPC (6x)
	315L		521	896	750	197	80	475	335	1564	1307	1343	1792	319	SPC (6x)
	200L	1.6	283	808	530	187	55	315	200	1367	1297	1333	1466	319	SPB (4x)
	225S		283	808	530	187	60	315	200	1367	1297	1333	1466	319	SPB (4x)
	225M		283	783	530	187	60	335	212	1367	1297	1333	1441	319	SPB (4x)
	250		397	903	750	197	65	355	224	1564	1307	1343	1675	319	SPB (5x)
	280S		397	921	750	197	75	400	250	1564	1307	1343	1693	319	SPB (6x)
	280M		397	908	750	197	75	450	280	1564	1307	1343	1680	319	SPB (6x)
	315K		506	890	750	197	80	500	315	1564	1307	1343	1771	319	SPB (8x)
	315S		506	890	750	197	80	500	315	1564	1307	1343	1771	319	SPB (8x)
	315M		521	910	750	197	80	560	335	1564	1307	1343	1806	319	SPC (6x)
	315L		521	910	750	197	80	560	335	1564	1307	1343	1806	319	SPC (6x)
	200L	1.8	283	795	530	187	55	355	200	1367	1297	1333	1453	319	SPB (4x)
	225S		283	795	530	187	60	355	200	1367	1297	1333	1453	319	SPB (4x)
	225M		283	795	530	187	60	355	200	1367	1297	1333	1453	319	SPB (5x)
	250		397	911	750	197	65	425	236	1564	1307	1343	1683	319	SPB (4x)
	280S		397	899	750	197	75	450	250	1564	1307	1343	1671	319	SPB (6x)
	280M		397	916	750	197	75	500	280	1564	1307	1343	1688	319	SPB (6x)
	315K		506	924	750	197	80	560	315	1564	1307	1343	1805	319	SPB (8x)
	315S		506	924	750	197	80	560	315	1564	1307	1343	1805	319	SPB (8x)
	315M		521	950	750	197	80	630	335	1564	1307	1343	1846	319	SPC (6x)
	315L		521	950	750	197	80	630	335	1564	1307	1343	1846	319	SPC (6x)

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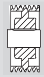
X3K..	IEC	i	AD	AVK max.	BVK	CVK	Ø D7	Ø DV1	Ø DV2	HVK	LVK X3K220	LVK X3K230	PVK max.	QVK	
X220–230	**200L**	**1.25**	283	792	530	187	55	280	224	1367	1417	1482	1500	319	SPA (5x)
	225S		283	792	530	187	60	280	224	1367	1417	1482	1500	319	SPA (5x)
	225M		283	791	530	187	60	315	250	1367	1417	1482	1499	319	SPB (4x)
	250		397	888	750	197	65	335	265	1564	1614	1492	1710	319	SPB (4x)
	280S		397	916	750	197	75	315	250	1564	1614	1492	1738	319	SPB (6x)
	280M		397	904	750	197	75	375	300	1564	1614	1492	1726	319	SPB (6x)
	315K		506	897	750	197	80	400	315	1564	1614	1492	1828	319	SPB (8x)
	315S		506	897	750	197	80	400	315	1564	1614	1492	1828	319	SPB (8x)
	315M		521	937	750	197	80	425	335	1564	1614	1492	1883	319	SPC (6x)
	315L		521	937	750	197	80	425	335	1564	1614	1492	1883	319	SPC (6x)
	200L	**1.4**	283	790	530	187	55	315	224	1367	1417	1482	1498	319	SPB (4x)
	225S		283	790	530	187	60	315	224	1367	1417	1482	1498	319	SPB (4x)
	225M		283	785	530	187	60	335	236	1367	1417	1482	1493	319	SPB (4x)
	250		397	910	750	197	65	335	236	1564	1614	1492	1732	319	SPB (4x)
	280S		397	898	750	197	75	355	250	1564	1614	1492	1720	319	SPB (6x)
	280M		397	899	750	197	75	400	280	1564	1614	1492	1721	319	SPB (6x)
	315K		506	881	750	197	80	450	315	1564	1614	1492	1812	319	SPB (8x)
	315S		506	881	750	197	80	450	315	1564	1614	1492	1812	319	SPB (8x)
	315M		521	896	750	197	80	475	335	1564	1614	1492	1842	319	SPC (6x)
	315L		521	896	750	197	80	475	335	1564	1614	1492	1842	319	SPC (6x)
	200L	**1.6**	283	808	530	187	55	315	200	1367	1417	1482	1516	319	SPB (4x)
	225S		283	808	530	187	60	315	200	1367	1417	1482	1516	319	SPB (4x)
	225M		283	783	530	187	60	335	212	1367	1417	1482	1491	319	SPB (4x)
	250		397	903	750	197	65	355	224	1564	1417	1492	1725	319	SPB (5x)
	280S		397	921	750	197	75	400	250	1564	1614	1492	1743	319	SPB (6x)
	280M		397	908	750	197	75	450	280	1564	1614	1492	1730	319	SPB (6x)
	315K		506	890	750	197	80	500	315	1564	1614	1492	1821	319	SPB (8x)
	315S		506	890	750	197	80	500	315	1564	1614	1492	1821	319	SPB (8x)
	315M		521	910	750	197	80	560	335	1564	1614	1492	1856	319	SPC (6x)
	315L		521	910	750	197	80	560	335	1564	1614	1492	1856	319	SPC (6x)
	200L	**1.8**	283	795	530	187	55	355	200	1367	1417	1482	1503	319	SPB (4x)
	225S		283	795	530	187	60	355	200	1367	1417	1482	1503	319	SPB (4x)
	225M		283	795	530	187	60	355	200	1367	1417	1482	1503	319	SPB (5x)
	250		397	911	750	197	65	425	236	1564	1614	1492	1733	319	SPB (4x)
	280S		397	899	750	197	75	450	250	1564	1614	1492	1721	319	SPB (6x)
	280M		397	916	750	197	75	500	280	1564	1614	1492	1738	319	SPB (6x)
	315K		506	924	750	197	80	560	315	1564	1614	1492	1855	319	SPB (8x)
	315S		506	924	750	197	80	560	315	1564	1614	1492	1855	319	SPB (8x)
	315M		521	950	750	197	80	630	335	1564	1614	1492	1896	319	SPC (6x)
	315L		521	950	750	197	80	630	335	1564	1614	1492	1896	319	SPC (6x)

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12.29 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.

The motor adapter can only be ordered with universal housing /HU.

12.29.1 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	452	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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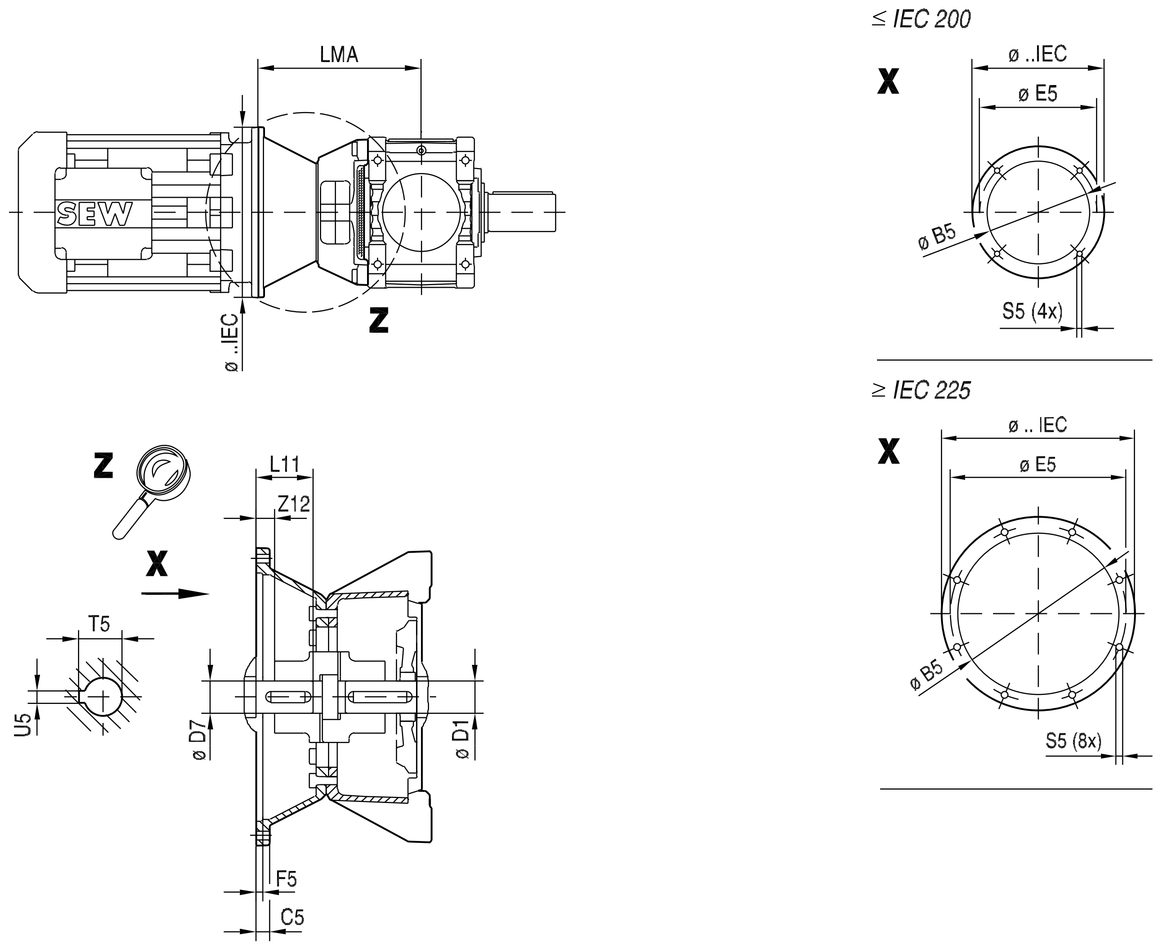
12.29.2 IEC motor adapter X2F100 – 250

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 365).

X2F..

48 016 03 07



→ 📖 123

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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}	–	–	–	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}	–	–	–	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}	–	–	–	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}	–	–	–	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	56	295
X250**	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	–	–	–	110	795.5	56	295

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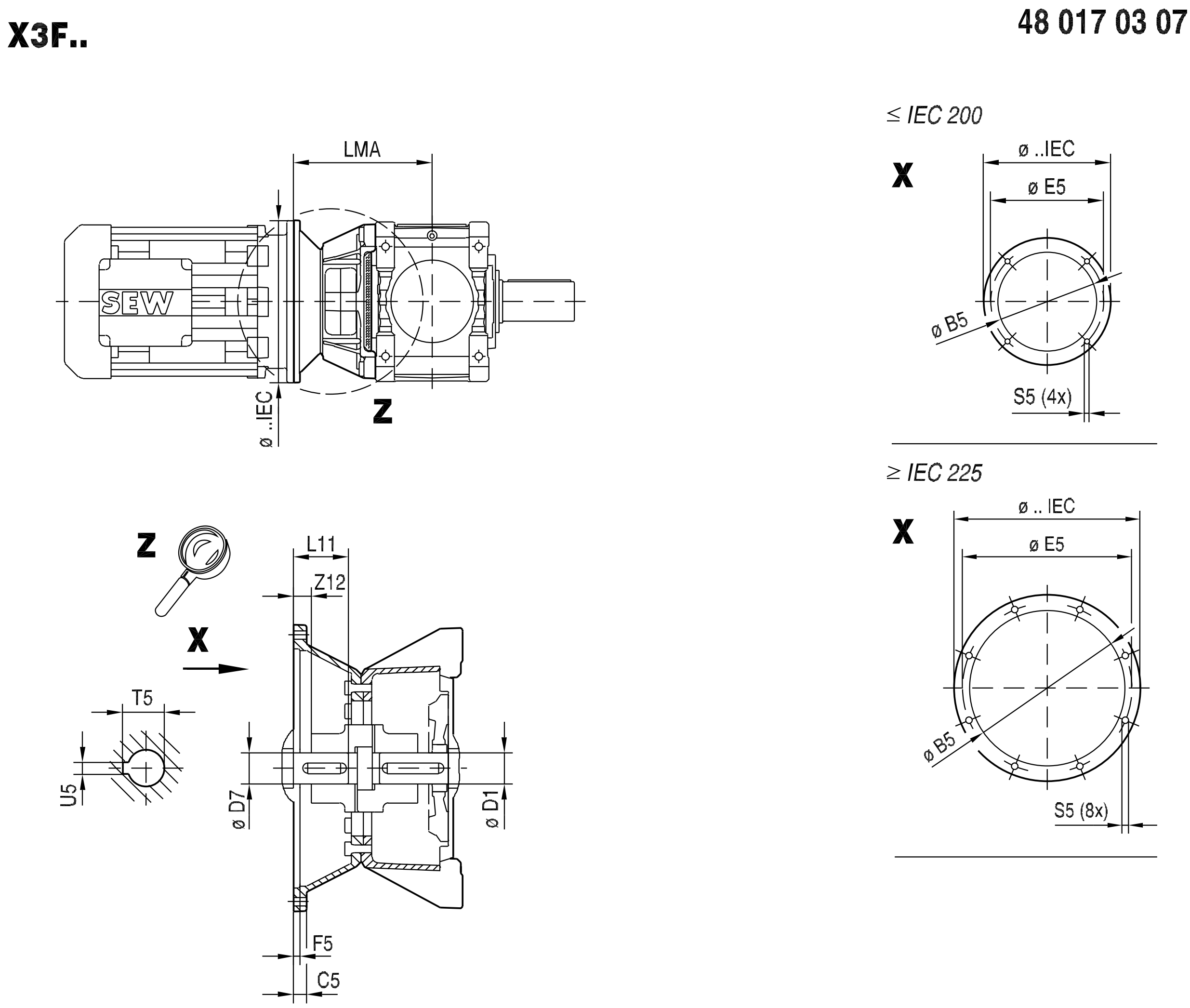
12.29.3 IEC motor adapter X3F100 – 270

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 365).



→ 📖 123

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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	–	–	–	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	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	–	–	–	50
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	32	421	72	–	–	–	55
X120*	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	–	–	–	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	–	–	–	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	–	–	–	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	–	–	–	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	463	50	–	–	–	90
X130***	132	300	230^{H7}	16	38^{H7}	265	5	80	M12 (4x)	41.3	10^{JS9}	–	–	–	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	–	–	–	60
	225	450	350^{H7}	20	60^{H7}	400	7	140	M16 (8x)	64.4	18^{JS9}	38	433	70	–	–	–	65
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	38	463	49	–	–	–	90
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	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	–	–	–	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	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	–	–	–	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	–	–	–	95
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	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	–	–	–	110
X160*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	45	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	–	–	–	165
X170***	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	483.5	51.5	105
	180	350	250^{H7}	45	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	–	–	–	165
X180*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	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	–	–	–	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	–	–	–	215
X190**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	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	–	–	–	175
	315	800	680^{H7}	25	85^{H7}	740	7	170	M20 (8x)	90.4	22^{JS9}	70	657.5	77	–	–	–	215
X200*	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	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	–	–	–	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	–	–	–	270

												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}	–	–	–	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	–	–	–	245
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	75	716.5	87	–	–	–	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	–	–	–	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	–	–	–	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	–	–	–	250
	355	800	680^{H7}	25	100^{H7}	740	7	210	M20 (8x)	106.4	28^{JS9}	80	751	89	–	–	–	275
X240*	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	75	680.5	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	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	–	–	–	295
X250**	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	–	–	–	75	681	49	200
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	–	–	–	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	–	–	–	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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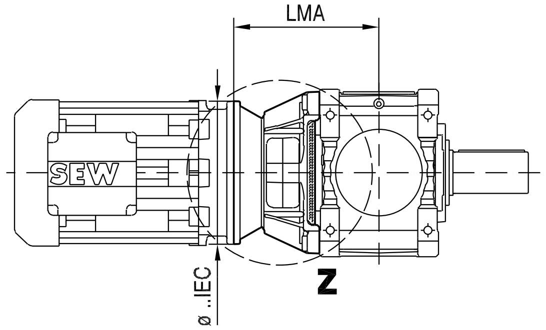
12.29.4 IEC motor adapter X4K120 – 270

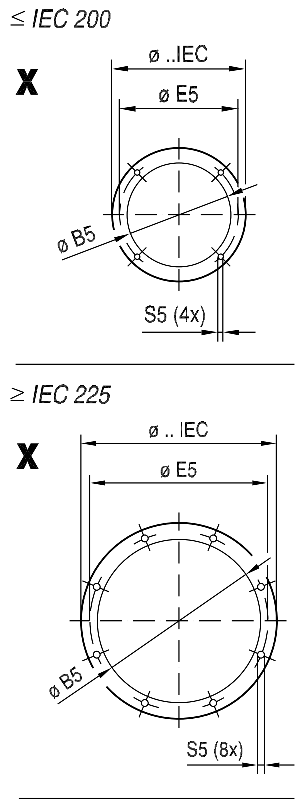
INFORMATION

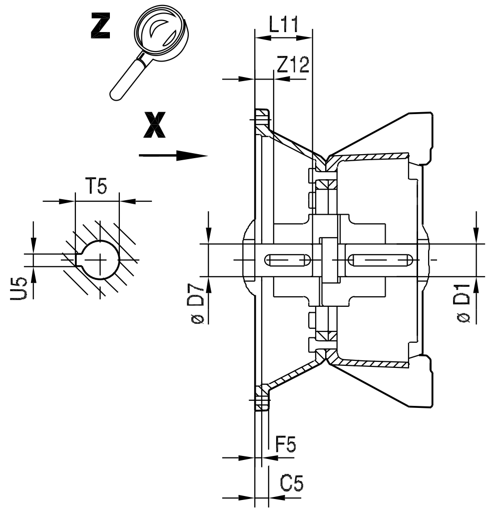
During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 365).

X4F..

48 018 03 07







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												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	–	–	–	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	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	–	–	–	50
	180	350	250^{H7}	16	48^{H7}	300	6	110	M16 (4x)	51.8	14^{JS9}	28	391	59	–	–	–	50
X140*	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	–	410.5	39	65
	112	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	–	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	–	–	–	80
X150***	100	250	180^{H7}	30	28^{H7}	215	4.5	60	M12 (4x)	31.3	8^{JS9}	–	–	–	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	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	–	–	–	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}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	45	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	–	–	–	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	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	–	–	–	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	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}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	38	483.5	80	38	483.5	80	80
	180	350	250^{H7}	45	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	–	–	–	71
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	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	–	–	–	76
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	38	550.5	86	–	–	–	86
X180*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	45	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	–	–	–	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	–	–	–	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	–	–	–	145
X190**	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	50	515.5	53	38	515.5	66	115
	180	350	250^{H7}	45	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	–	–	–	130
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	50	582.5	75	–	–	–	145
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	50	582.5	65	–	–	–	145
X200*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	53	42	534.5	66	140
	180	350	250^{H7}	45	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	–	–	–	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	–	–	–	175
X210**	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	55	534.5	53	42	534.5	66	140
	180	350	250^{H7}	45	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	–	–	–	175
	280	550	450^{H7}	25	75^{H7}	500	7	140	M16 (8x)	79.9	20^{JS9}	55	601.5	65	–	–	–	175
X220*	160	350	250^{H7}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	569	57	150
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	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	–	–	–	210

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												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}	45	42^{H7}	300	5	110	M16 (4x)	45.3	12^{JS9}	–	–	–	50	569	57	150
	180	350	250^{H7}	45	48^{H7}	300	5	110	M16 (4x)	51.8	14^{JS9}	–	–	–	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	–	–	–	210
X240*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	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	–	–	–	230
X250**	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	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	–	–	–	230
X260*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	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	–	–	–	300
X270*	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	–	–	–	60	706.5	70	210
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	–	–	–	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	–	–	–	300

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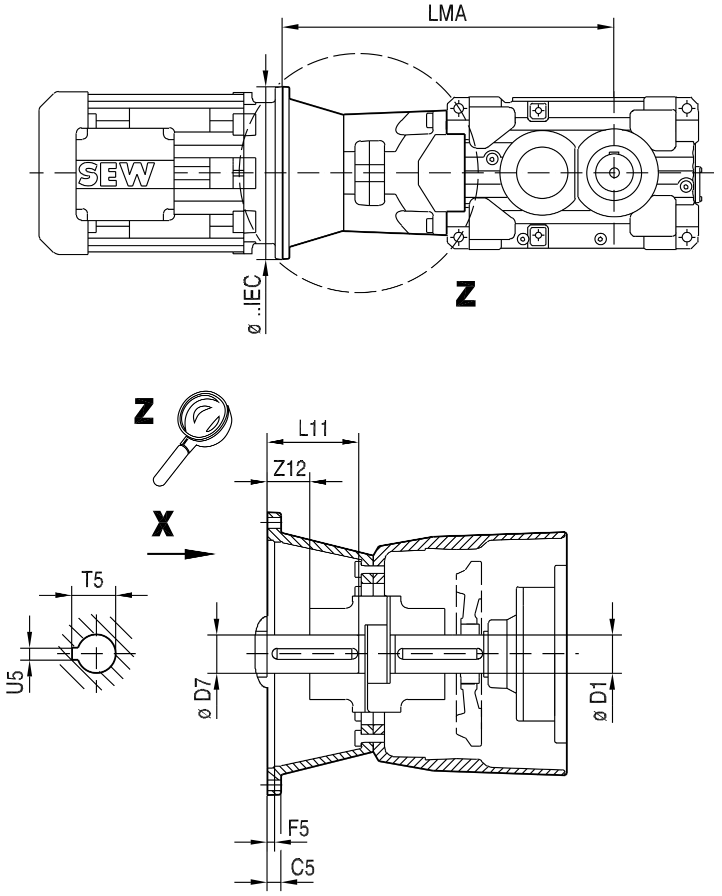
12.29.5 IEC motor adapter X2K100 – 230

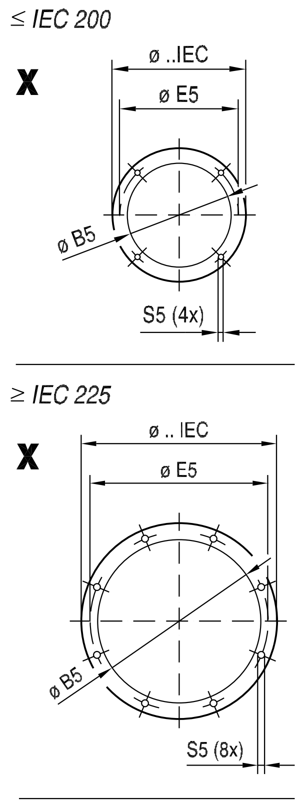
INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 365).

X2K..

48 013 03 07





→ 📖 123

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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

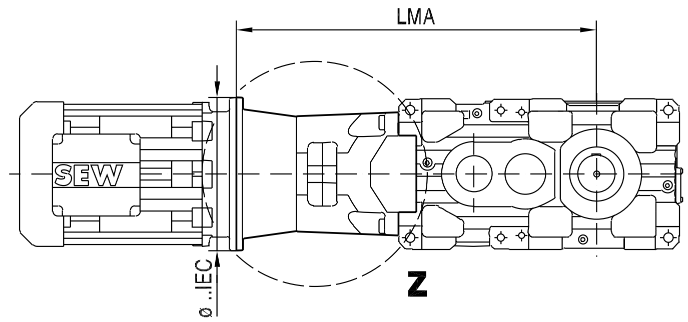
12.29.6 IEC motor adapter X3K100 – 270

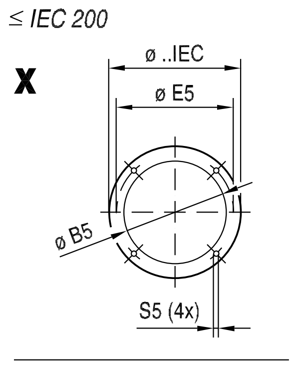
INFORMATION

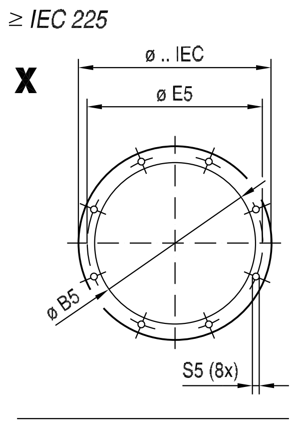
During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 365).

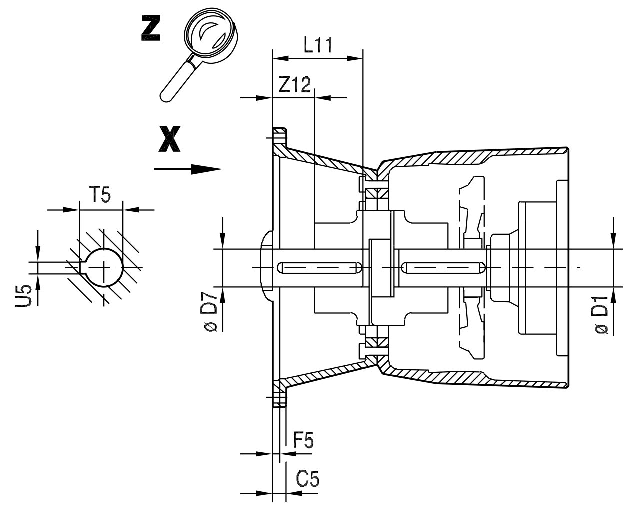
X3K..

48 014 03 07









→ 📖 123

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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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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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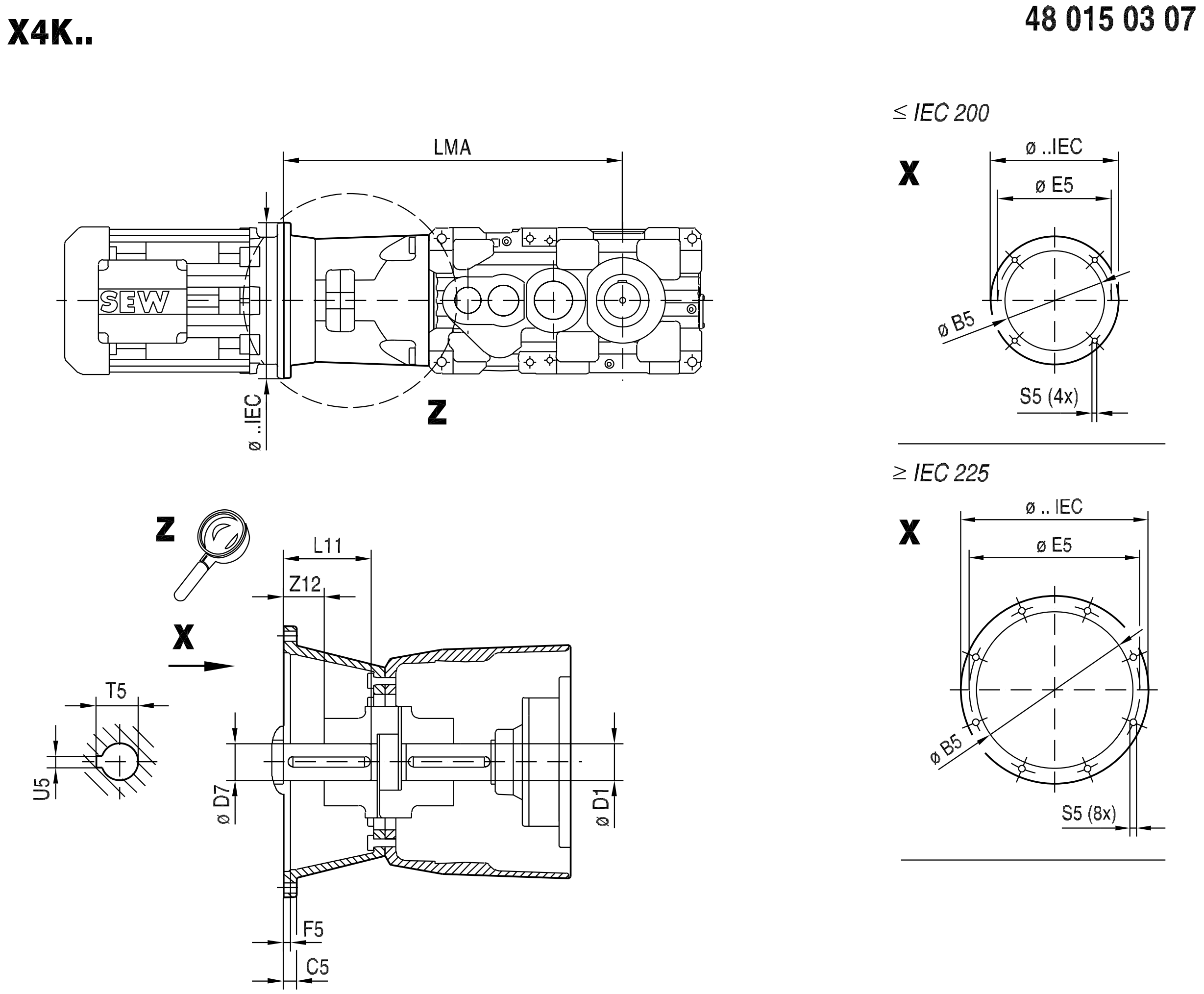
12.29.7 IEC motor adapter X4K120 - 280

INFORMATION

During the installation of motors by SEW-EURODRIVE, observe the "Information for connecting a SEW motor to the IEC motor adapter" (→ 🗎 365).



→ 📖 123

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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
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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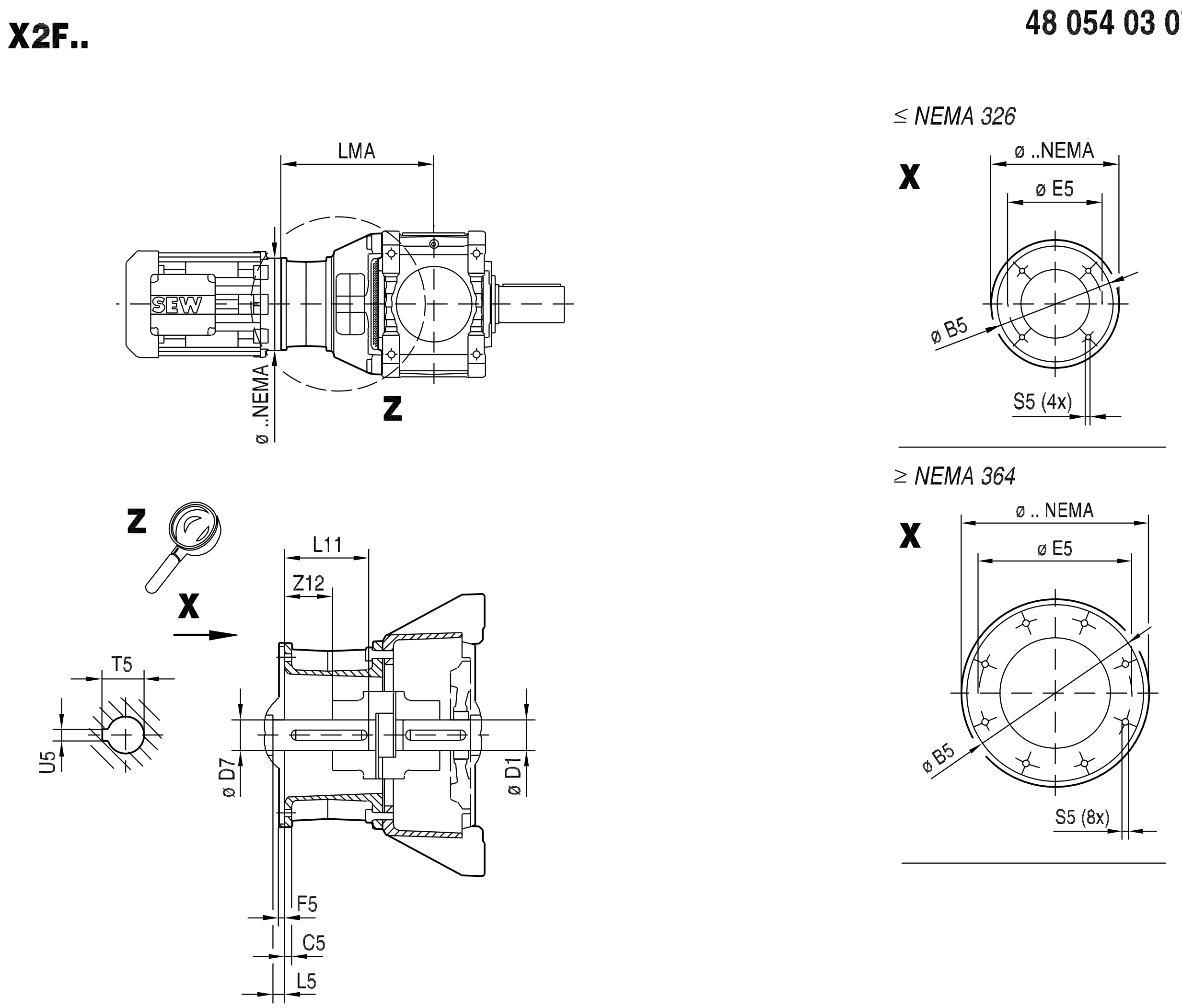
X4K..	IEC	Ø IEC	Ø B5	C5	Ø D7	Ø E5	F5	L11	S5	T5	U5	Ø D1	LMA	Z12	kg
X240	200	400	300^{H7}	20	55^{H7}	350	6	110	M16 (4x)	59.3	16^{JS9}	70	1727	41	170
	225	450	350^{H7}	20	60^{H7}	400	6	140	M16 (8x)	64.4	18^{JS9}	70	1757	71	180
	250	550	450^{H7}	25	65^{H7}	500	7	140	M16 (8x)	69.4	18^{JS9}	70	1767	51	190
	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
280	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

12.30 NEMA motor adapter /MA [inch]

INFORMATION

The motor adapter can only be ordered with universal housing /HU

12.30.1 NEMA motor adapter X2F100 – 230



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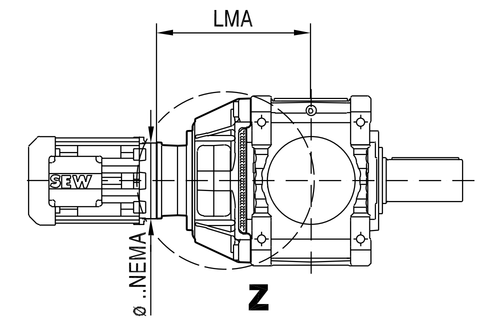
inch																			kg
													i = 6.3 ... 11.2* i = 7.1 ... 12.5** i = 8 ... 14***			i = 12.5 ... 18* i = 14 ... 20** i = 16 ... 22.4***			
X2F..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	**Ø D1**	**LMA**	**Z12**	
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$^{+0.00197}$	–	–	–	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$^{+0.00197}$	–	–	–	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$^{+0.00197}$	–	–	–	2.17	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	16H7	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$^{+0.00197}$	–	–	–	2.17	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	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	210

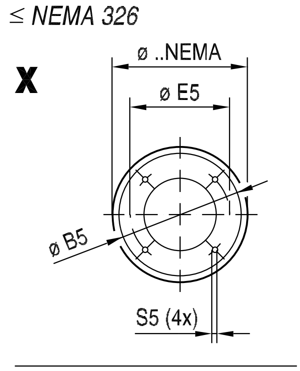
12

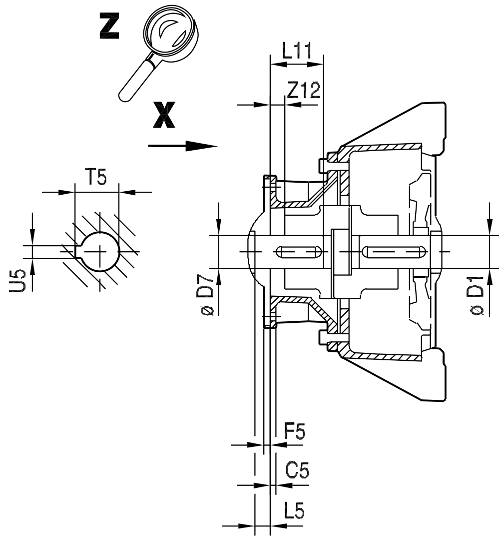
12.30.2 NEMA motor adapter X3F100 - 270

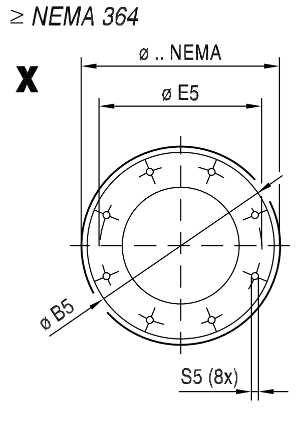
X3F..

48 055 03 07









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inch																			
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			kg
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	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	12 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	–	–	–	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	–	–	–	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	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	–	–	–	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	–	–	–	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	1.55	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	–	–	–	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	–	–	–	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	–	–	–	75

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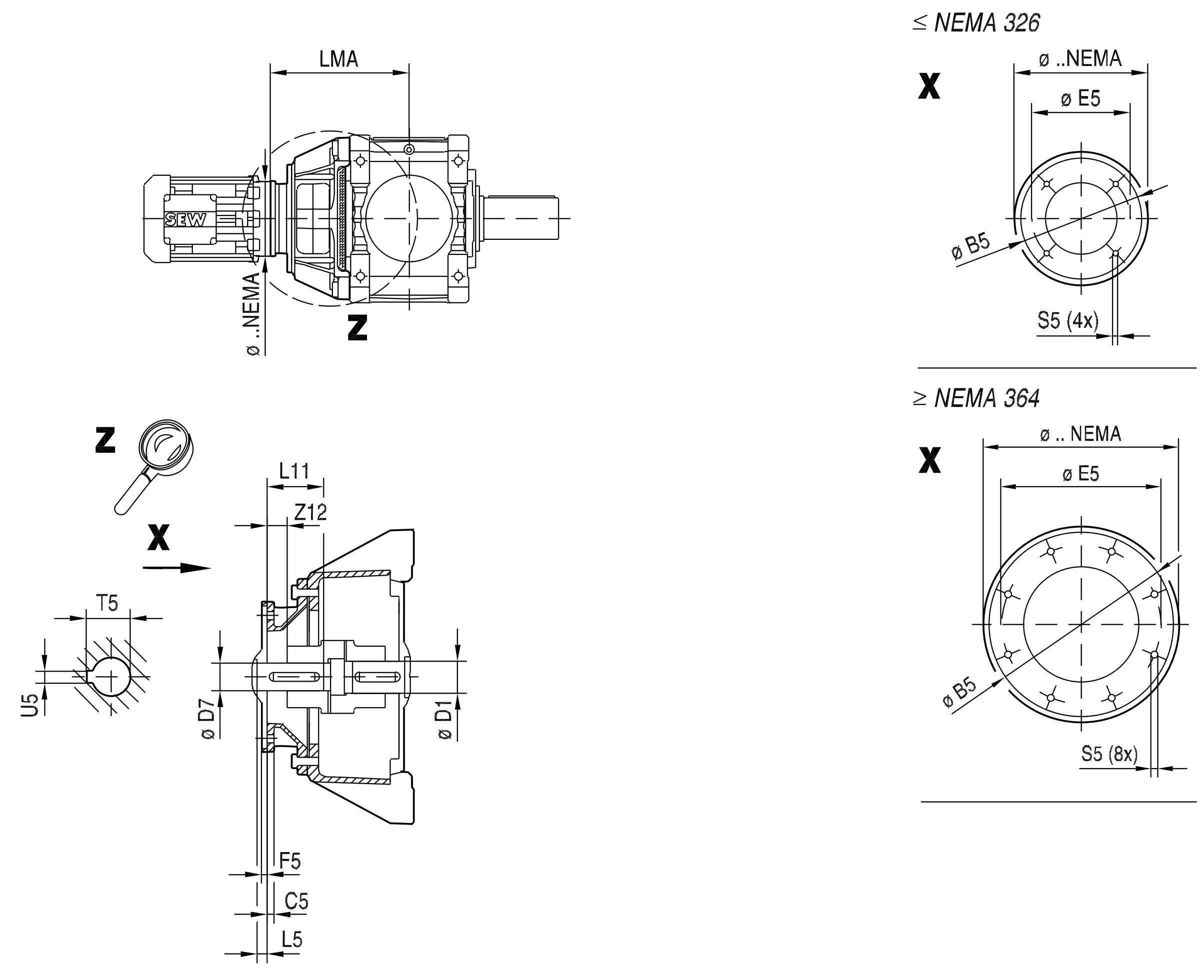
inch																			kg
													i = 20 ... 56* i = 22.4 ... 63** i = 25 ... 71***			i = 63 ... 90* i = 71 ... 100** i = 80 ... 112***			
X3F..	NEMA	Ø NEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
X130***	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	–	–	–	1.50	14.13	1.29	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	2.17	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	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	2.17	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	–	–	–	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	–	–	–	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	–	–	–	205
X210**	364–365	13	16^{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	–	–	–	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	–	–	–	210
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	–	–	–	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$^{+0.00197}$	–	–	–	2.95	28.29	3.81	195
	444–445	16.6	12 1/2^{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$^{+0.00197}$	–	–	–	2.95	28.29	3.81	195
	444–445	16.6	12 1/2^{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	Z12	
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

12.30.3 NEMA motor adapter X4F100 – 270

X4F.. 48 056 03 07



→ 123

inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	NEMA	ØNEMA	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	–	–	–	45
	284–286	11 1/4	8 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	–	–	–	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	–	–	–	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	–	–	–	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	1.14	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	–	–	–	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	1.14	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	–	–	–	75

22758666/EN – 03/2017

inch																			kg
													i = 100 ... 180* i = 112 ... 200** i = 125 ... 224***			i = 200 ... 355* i = 224 ... 400** i = 250 ... 450***			
X4F..	NEMA	ØNEMA	Ø B5	C5	Ø D7	Ø E5	F5	L5	L11	S5	T5	U5	Ø D1	LMA	Z12	Ø D1	LMA	Z12	
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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	–	–	–	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	8 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	–	–	–	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	–	–	–	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	8 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	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	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	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	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	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	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	–	–	–	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$^{+0.00197}$	–	–	–	2.17	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	–	–	–	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$^{+0.00197}$	–	–	–	2.17	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	–	–	–	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$^{+0.00197}$	–	–	–	2.36	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	–	–	–	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$^{+0.00197}$	–	–	–	2.36	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	–	–	–	265

12.30.4 NEMA motor adapter X2K100 – 210

X2K..

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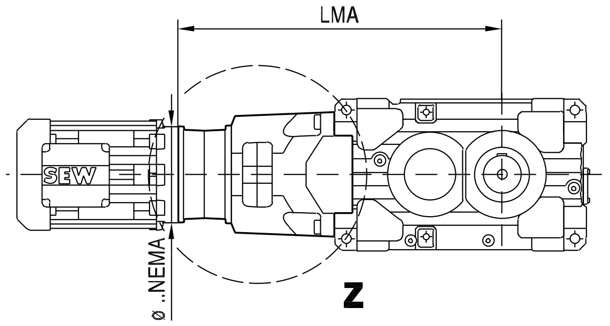
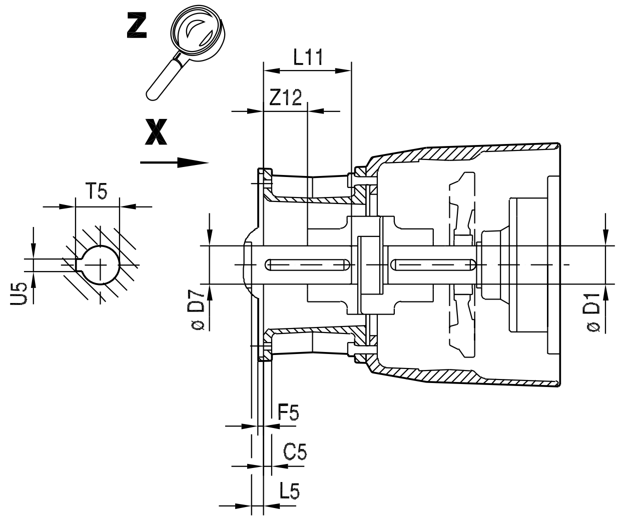
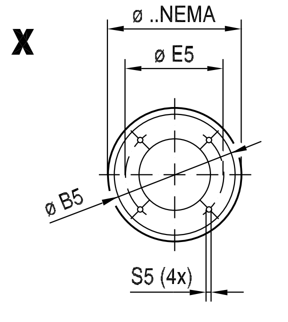
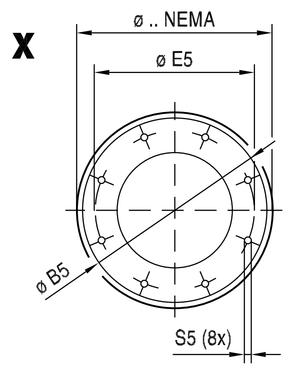




≤ NEMA 326



≥ 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	16^{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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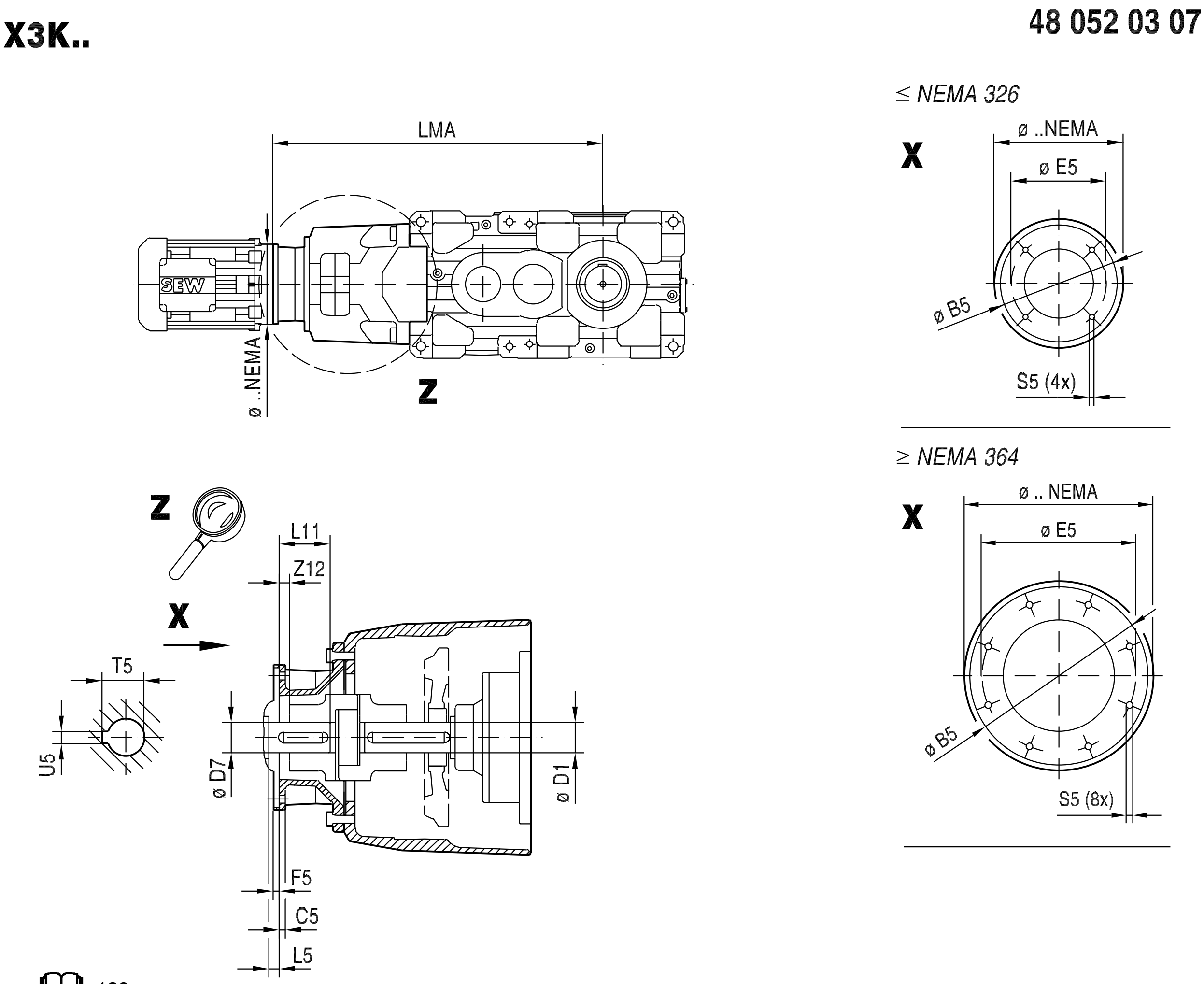
12.30.5 NEMA motor adapter X3K100 – 270



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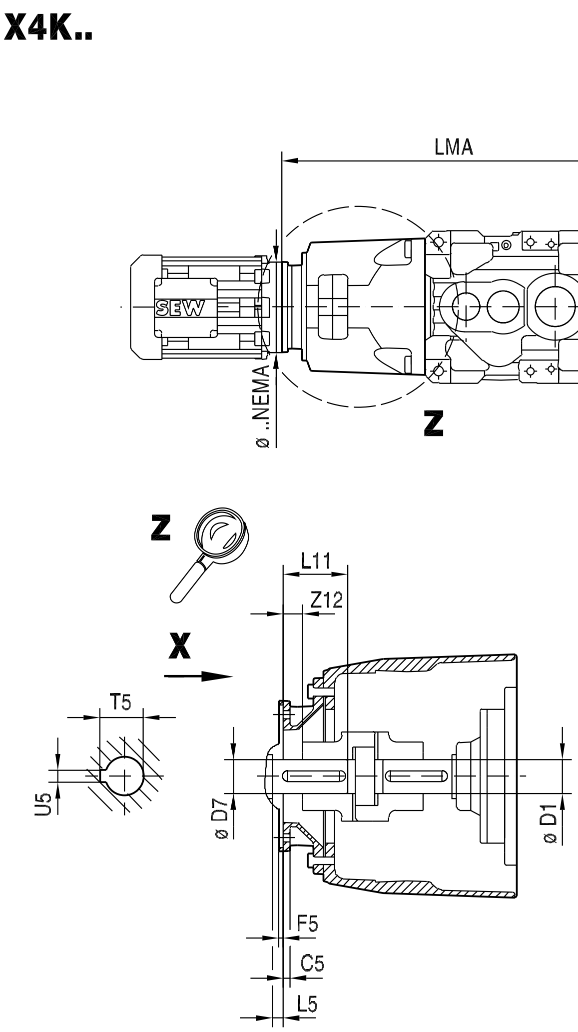
	inch															kg
X3K..	**NEMA**	**Ø NEMA**	**Ø B5**	**C5**	**Ø D7**	**Ø E5**	**F5**	**L5**	**L11**	**S5**	**T5**	**U5**	**Ø D1**	**LMA**	**Z12**	
X100	213–215	9	8 1/2^{H7}	0.55	1.37^{M7}	7 1/4	0.2	1/4	3 1/8	0.59 (4x)	1.524	3/8$^{+0.00197}$	1.26	28.78	1.35	30
	254–256	9	8 1/2^{H7}	0.55	1.62^{M7}	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

12.30.6 NEMA motor adapter X4K120 – 280



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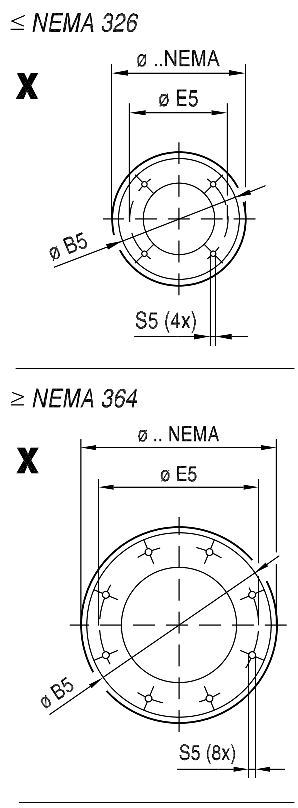

→ 123

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	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	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) Contact SEW-EURODRIVE

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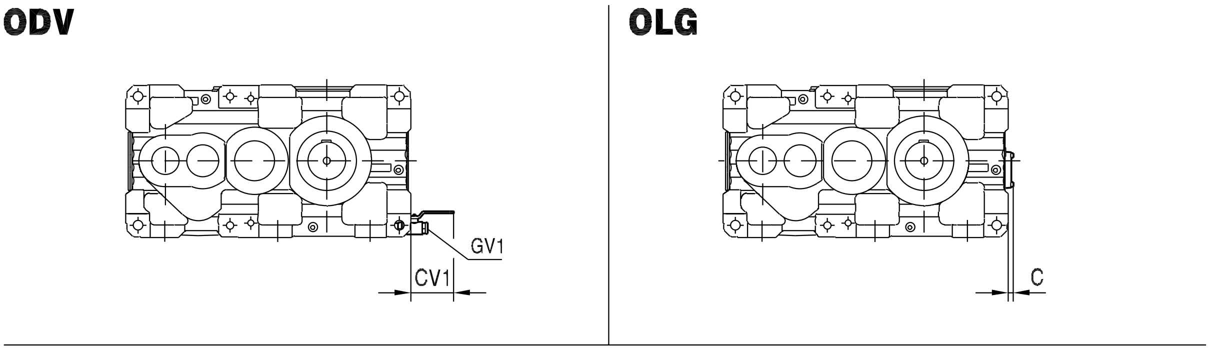
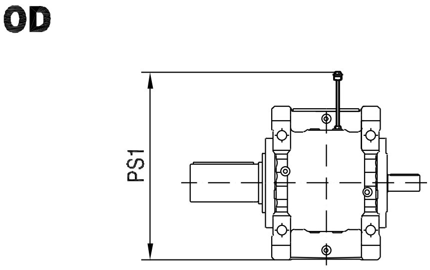
12.31 Oil drain valve ODV / oil level glass OLG / oil dipstick OD [mm]

48 035 00 13





	ODV		OLG	OD
	CV1	GV1	C	PS1
X100	89	G1/2"	-	520
X110	89	G1/2"	-	520
X120	83	G1/2"	-	620
X130	83	G1/2"	-	620
X140	66	G1/2"	-	710
X150	66	G1/2"	-	710
X160	91	G1"	-	830
X170	91	G1"	-	830
X180	92	G1"	13	890
X190	92	G1"	13	890
X200	75	G1"	13	980
X210	75	G1"	13	980
X220	107	G1 1/4"	14	1120
X230	107	G1 1/4"	14	1120
X240	86	G1 1/4"	14	1150
X250	86	G1 1/4"	14	1150
X260	85	G1 1/4"	11	1300
X270	85	G1 1/4"	11	1300
X280	85	G1 1/4"	11	1470
X290	70	G1 1/4"	9	1510
X300	70	G1 1/4"	9	1510
X310	66	G1 1/4"	9	1680
X320	66	G1 1/4"	9	1680

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13 Drive packages on a steel construction

13.1 X3K.. Swing base with elastic coupling [mm]

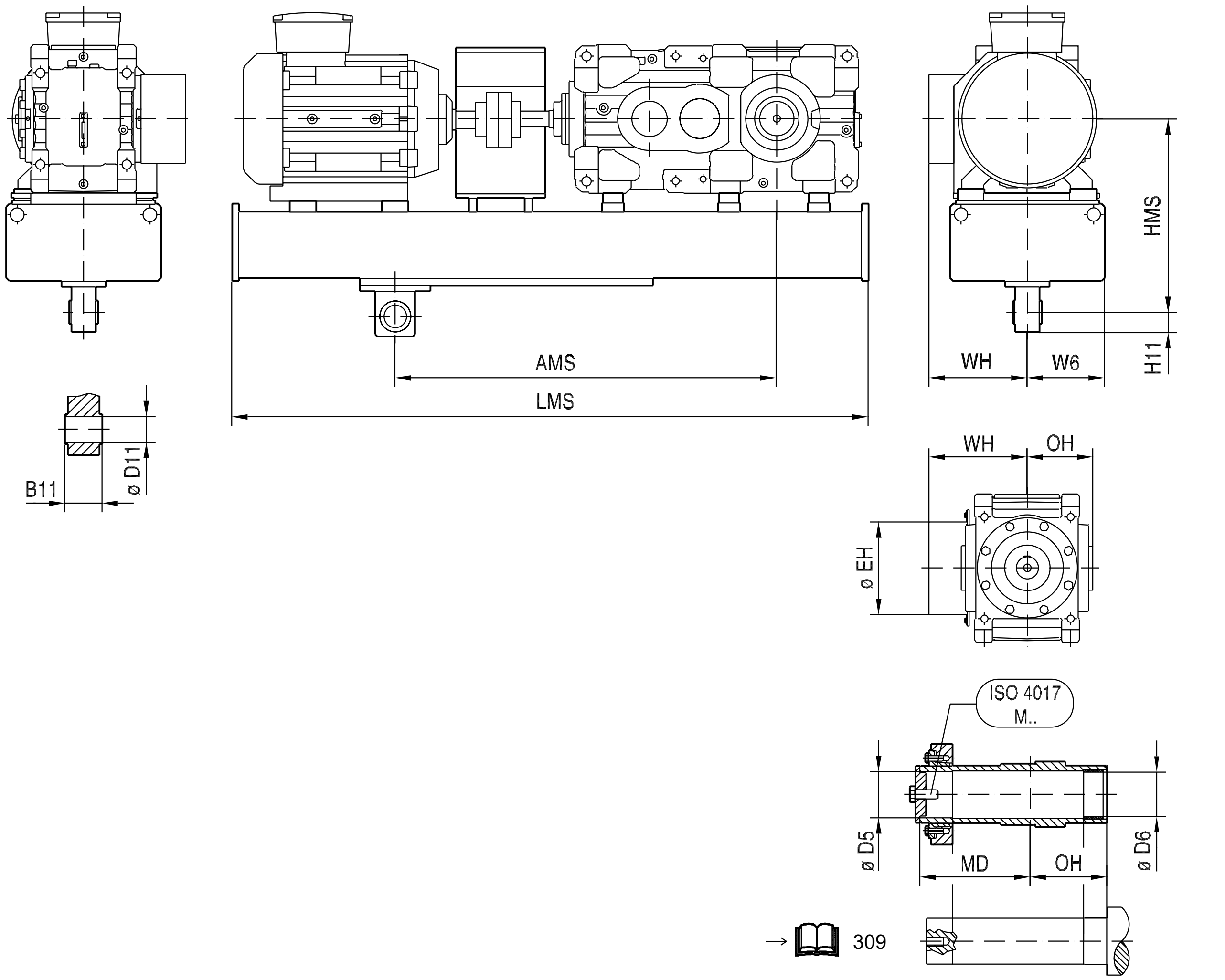
INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.

X3KH..

48 019 02 07



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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X100	132S	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1500	261	173	250	294	M24x70-8.8	150
	132M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1500	261	173	250	294	M24x70-8.8	150
	160M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1600	261	173	250	294	M24x70-8.8	150
	160L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1600	261	173	250	294	M24x70-8.8	150
	180M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1700	261	173	250	294	M24x70-8.8	150
	180L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1700	261	173	250	294	M24x70-8.8	150
	200L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1800	261	173	250	294	M24x70-8.8	150
X110	132S	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1550	265	176	250	298	M24x70-8.8	150
	132M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1550	265	176	250	298	M24x70-8.8	150
	160M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1650	265	176	250	298	M24x70-8.8	150
	160L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1650	265	176	250	298	M24x70-8.8	150
	180M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	250	298	M24x70-8.8	150
	180L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	250	298	M24x70-8.8	150
	200L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1800	265	176	250	298	M24x70-8.8	150
X120	160M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1750	286.5	190.5	250	319	M24x70-8.8	200
	160L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1750	286.5	190.5	250	319	M24x70-8.8	200
	180M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1850	286.5	190.5	250	319	M24x70-8.8	200
	180L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1850	286.5	190.5	250	319	M24x70-8.8	200
	200L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1900	286.5	190.5	250	319	M24x70-8.8	200
	225S	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1950	286.5	190.5	250	319	M24x70-8.8	200
	225M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1950	286.5	190.5	250	319	M24x70-8.8	200
	250M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2050	286.5	190.5	250	319	M24x70-8.8	200
X130	160M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1800	297	194	300	328	M24x70-8.8	200
	160L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1800	297	194	300	328	M24x70-8.8	200
	180M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1950	297	194	300	328	M24x70-8.8	200
	180L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1950	297	194	300	328	M24x70-8.8	200
	200L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2000	297	194	300	328	M24x70-8.8	200
	225S	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2050	297	194	300	328	M24x70-8.8	200
	225M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2050	297	194	300	328	M24x70-8.8	200
	250M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2150	297	194	300	328	M24x70-8.8	200
X140	180M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2050	329	222	300	356	M24x70-8.8	300
	180L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2050	329	222	300	356	M24x70-8.8	300
	200L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2100	329	222	300	356	M24x70-8.8	300
	225S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2150	329	222	300	356	M24x70-8.8	300
	225M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2150	329	222	300	356	M24x70-8.8	300
	250M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2250	329	222	300	356	M24x70-8.8	300
	280S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2350	329	222	300	356	M24x70-8.8	300
	280M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2350	329	222	300	356	M24x70-8.8	300
X150	180M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2150	337.5	224.5	300	368	M24x70-8.8	300
	180L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2150	337.5	224.5	300	368	M24x70-8.8	300
	200L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2200	337.5	224.5	300	368	M24x70-8.8	300
	225S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2250	337.5	224.5	300	368	M24x70-8.8	300
	225M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2250	337.5	224.5	300	368	M24x70-8.8	300
	250M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2350	337.5	224.5	300	368	M24x70-8.8	300
	280S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2450	337.5	224.5	300	368	M24x70-8.8	300
	280M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2450	337.5	224.5	300	368	M24x70-8.8	300

Drive packages on a steel construction

X3K.. Swing base with elastic coupling [mm]

X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X160	200L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2400	375	256	350	427	M30x90-8.8	350
	225S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2400	375	256	350	427	M30x90-8.8	350
	225M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2400	375	256	350	427	M30x90-8.8	350
	250M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2500	375	256	350	427	M30x90-8.8	350
	280S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2600	375	256	350	427	M30x90-8.8	350
	280M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2600	375	256	350	427	M30x90-8.8	350
	315S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2700	375	256	350	427	M30x90-8.8	350
	315M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2700	375	256	350	427	M30x90-8.8	350
	315L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2800	375	256	350	427	M30x90-8.8	350
X170	200L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2450	364	256	350	427	M30x90-8.8	350
	225S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2450	364	256	350	427	M30x90-8.8	350
	225M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2450	364	256	350	427	M30x90-8.8	350
	250M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2550	364	256	350	427	M30x90-8.8	350
	280S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2650	364	256	350	427	M30x90-8.8	350
	280M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2650	364	256	350	427	M30x90-8.8	350
	315S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2750	364	256	350	427	M30x90-8.8	350
	315M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2750	364	256	350	427	M30x90-8.8	350
	315L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2850	364	256	350	427	M30x90-8.8	350
X180	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2600	400	292	400	463	M30x90-8.8	550
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2700	400	292	400	463	M30x90-8.8	550
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2700	400	292	400	463	M30x90-8.8	550
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2800	400	292	400	463	M30x90-8.8	550
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2800	400	292	400	463	M30x90-8.8	550
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2900	400	292	400	463	M30x90-8.8	550
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3000	400	292	400	463	M30x90-8.8	550
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	400	463	M30x90-8.8	550
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3450	400	292	400	463	M30x90-8.8	550
X190	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2600	400	292	400	463	M30x90-8.8	550
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2700	400	292	400	463	M30x90-8.8	550
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2700	400	292	400	463	M30x90-8.8	550
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2800	400	292	400	463	M30x90-8.8	550
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2800	400	292	400	463	M30x90-8.8	550
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2900	400	292	400	463	M30x90-8.8	550
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3000	400	292	400	463	M30x90-8.8	550
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	400	463	M30x90-8.8	550
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3450	400	292	400	463	M30x90-8.8	550
X200	250M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2800	450.5	319.5	400	517	M30x90-8.8	1050
	280S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2900	450.5	319.5	400	517	M30x90-8.8	1050
	280M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2900	450.5	319.5	400	517	M30x90-8.8	1050
	315S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3000	450.5	319.5	400	517	M30x90-8.8	1050
	315M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3000	450.5	319.5	400	517	M30x90-8.8	1050
	315L	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3100	450.5	319.5	400	517	M30x90-8.8	1050
	315ML	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3200	450.5	319.5	400	517	M30x90-8.8	1050
	315	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3400	450.5	319.5	400	517	M30x90-8.8	1050
	355S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3650	450.5	319.5	400	517	M30x90-8.8	1050
X210	280S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	2900	453.5	319.5	400	517	M30x90-8.8	1050
	280M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	2900	453.5	319.5	400	517	M30x90-8.8	1050
	315S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3000	453.5	319.5	400	517	M30x90-8.8	1050
	315M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3000	453.5	319.5	400	517	M30x90-8.8	1050
	315L	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3100	453.5	319.5	400	517	M30x90-8.8	1050
	315ML	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3200	453.5	319.5	400	517	M30x90-8.8	1050
	315	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3400	453.5	319.5	400	517	M30x90-8.8	1050
	355S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3650	453.5	319.5	400	517	M30x90-8.8	1050

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X220	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3050	497.5	352.5	400	562	M30x90-8.8	1100
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3050	497.5	352.5	400	562	M30x90-8.8	1100
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3150	497.5	352.5	400	562	M30x90-8.8	1100
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3150	497.5	352.5	400	562	M30x90-8.8	1100
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3250	497.5	352.5	400	562	M30x90-8.8	1100
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3350	497.5	352.5	400	562	M30x90-8.8	1100
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3550	497.5	352.5	400	562	M30x90-8.8	1100
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3800	497.5	352.5	400	562	M30x90-8.8	1100
X230	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3100	497.5	352.5	400	562	M30x90-8.8	1100
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3100	497.5	352.5	400	562	M30x90-8.8	1100
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3200	497.5	352.5	400	562	M30x90-8.8	1100
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3200	497.5	352.5	400	562	M30x90-8.8	1100
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3300	497.5	352.5	400	562	M30x90-8.8	1100
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3400	497.5	352.5	400	562	M30x90-8.8	1100
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	400	562	M30x90-8.8	1100
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3850	497.5	352.5	400	562	M30x90-8.8	1100
X240	315S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3350	571.5	400.5	400	654	M36x110-8.8	1300
	315M	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3350	571.5	400.5	400	654	M36x110-8.8	1300
	315L	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3450	571.5	400.5	400	654	M36x110-8.8	1300
	315ML	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3550	571.5	400.5	400	654	M36x110-8.8	1300
	315	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3750	571.5	400.5	400	654	M36x110-8.8	1300
	355S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4000	571.5	400.5	400	654	M36x110-8.8	1300
X250	315S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3400	571.5	400.5	400	654	M36x110-8.8	1300
	315M	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3400	571.5	400.5	400	654	M36x110-8.8	1300
	315L	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3500	571.5	400.5	400	654	M36x110-8.8	1300
	315ML	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3600	571.5	400.5	400	654	M36x110-8.8	1300
	315	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	400	654	M36x110-8.8	1300
	355S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4050	571.5	400.5	400	654	M36x110-8.8	1300

13.2 X3K.. Swing base with elastic coupling and drum brake [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.

X3KH..

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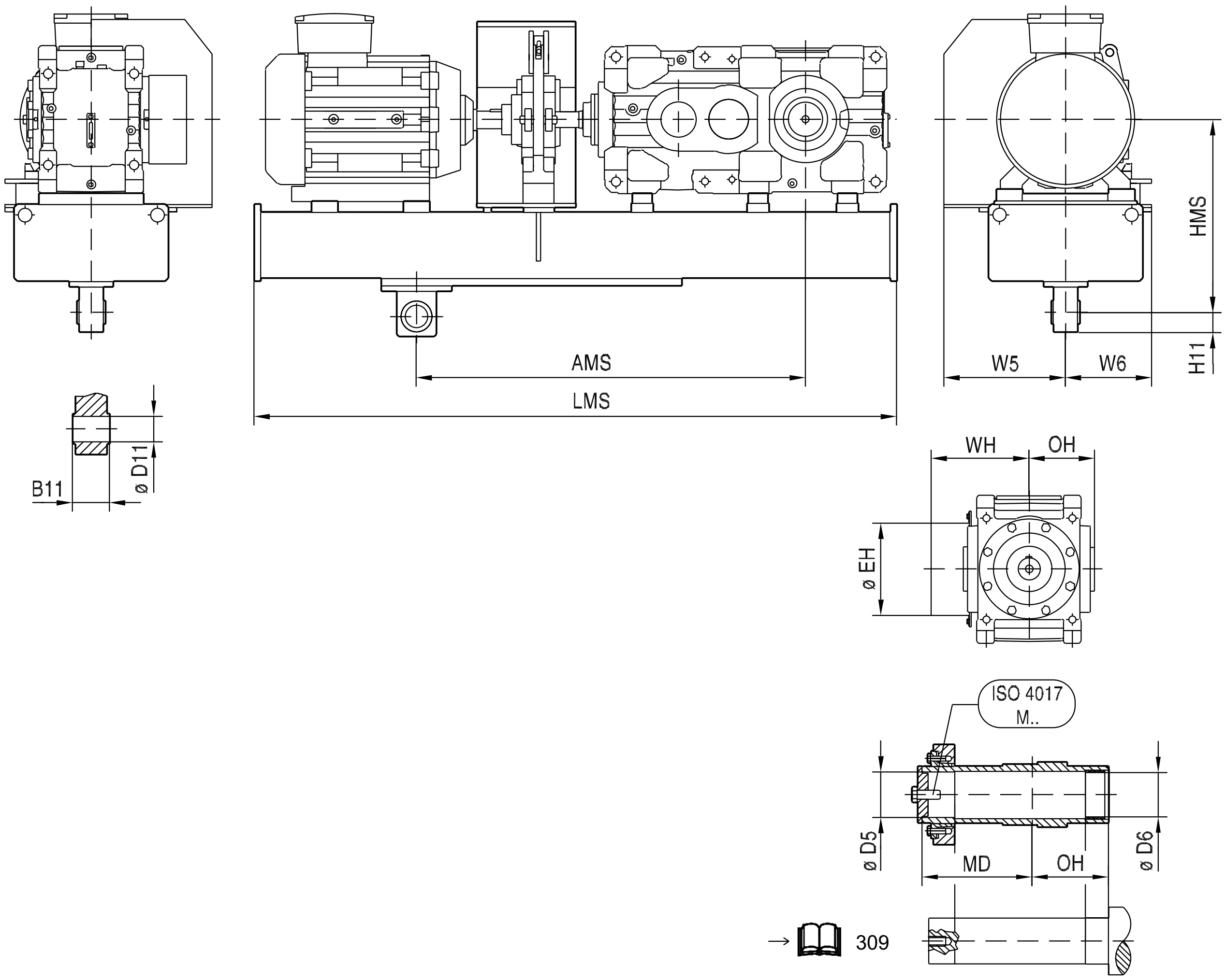

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X100	132S	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1550	261	173	520	250	294	M24x70-8.8	170
	132M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1550	261	173	520	250	294	M24x70-8.8	170
	160M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1650	261	173	520	250	294	M24x70-8.8	170
	160L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1650	261	173	520	250	294	M24x70-8.8	170
	180M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1750	261	173	520	250	294	M24x70-8.8	170
	180L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1750	261	173	520	250	294	M24x70-8.8	170
	200L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1850	261	173	620	250	294	M24x70-8.8	170
X110	132S	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1600	265	176	520	250	298	M24x70-8.8	170
	132M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1600	265	176	520	250	298	M24x70-8.8	170
	160M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1700	265	176	520	250	298	M24x70-8.8	170
	160L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1700	265	176	520	250	298	M24x70-8.8	170
	180M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1800	265	176	520	250	298	M24x70-8.8	170
	180L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1800	265	176	520	250	298	M24x70-8.8	170
	200L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1850	265	176	620	250	298	M24x70-8.8	170
X120	160M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1800	286.5	190.5	520	250	319	M24x70-8.8	220
	160L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1800	286.5	190.5	520	250	319	M24x70-8.8	220
	180M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1900	286.5	190.5	520	250	319	M24x70-8.8	220
	180L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1900	286.5	190.5	520	250	319	M24x70-8.8	220
	200L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1950	286.5	190.5	620	250	319	M24x70-8.8	220
	225S	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2000	286.5	190.5	770	250	319	M24x70-8.8	220
	225M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2000	286.5	190.5	770	250	319	M24x70-8.8	220
	250M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2100	286.5	190.5	770	250	319	M24x70-8.8	220
X130	160M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1850	297	194	520	300	328	M24x70-8.8	220
	160L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	1850	297	194	520	300	328	M24x70-8.8	220
	180M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2000	297	194	520	300	328	M24x70-8.8	220
	180L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2000	297	194	520	300	328	M24x70-8.8	220
	200L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2050	297	194	620	300	328	M24x70-8.8	220
	225S	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2100	297	194	720	300	328	M24x70-8.8	220
	225M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2100	297	194	720	300	328	M24x70-8.8	220
	250M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2200	297	194	720	300	328	M24x70-8.8	220
X140	180M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2100	329	222	520	300	356	M24x70-8.8	330
	180L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2100	329	222	520	300	356	M24x70-8.8	330
	200L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2150	329	222	620	300	356	M24x70-8.8	330
	225S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2200	329	222	770	300	356	M24x70-8.8	330
	225M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2200	329	222	770	300	356	M24x70-8.8	330
	250M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2300	329	222	770	300	356	M24x70-8.8	330
	280S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2400	329	222	870	300	356	M24x70-8.8	330
	280M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2400	329	222	870	300	356	M24x70-8.8	330
X150	180M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2200	337.5	224.5	520	300	368	M24x70-8.8	330
	180L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2200	337.5	224.5	520	300	368	M24x70-8.8	330
	200L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2250	337.5	224.5	620	300	368	M24x70-8.8	330
	225S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2300	337.5	224.5	770	300	368	M24x70-8.8	330
	225M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2300	337.5	224.5	770	300	368	M24x70-8.8	330
	250M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2400	337.5	224.5	770	300	368	M24x70-8.8	330
	280S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2500	337.5	224.5	870	300	368	M24x70-8.8	330
	280M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2500	337.5	224.5	870	300	368	M24x70-8.8	330

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X160	200L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2450	375	256	620	350	427	M30x90-8.8	350
	225S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2450	375	256	770	350	427	M30x90-8.8	350
	225M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2450	375	256	770	350	427	M30x90-8.8	350
	250M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2550	375	256	770	350	427	M30x90-8.8	350
	280S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2650	375	256	870	350	427	M30x90-8.8	350
	280M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2650	375	256	870	350	427	M30x90-8.8	350
	315S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2750	375	256	870	350	427	M30x90-8.8	350
	315M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2750	375	256	870	350	427	M30x90-8.8	350
	315L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2850	375	256	870	350	427	M30x90-8.8	350
X170	200L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2500	364	256	620	350	427	M30x90-8.8	350
	225S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2500	364	256	770	350	427	M30x90-8.8	350
	225M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2500	364	256	770	350	427	M30x90-8.8	350
	250M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2600	364	256	770	350	427	M30x90-8.8	350
	280S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2700	364	256	870	350	427	M30x90-8.8	350
	280M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2700	364	256	870	350	427	M30x90-8.8	350
	315S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2800	364	256	870	350	427	M30x90-8.8	350
	315M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2800	364	256	870	350	427	M30x90-8.8	350
	315L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2900	364	256	870	350	427	M30x90-8.8	350
X180	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2650	400	292	770	400	463	M30x90-8.8	600
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2750	400	292	770	400	463	M30x90-8.8	600
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2750	400	292	770	400	463	M30x90-8.8	600
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2850	400	292	770	400	463	M30x90-8.8	600
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2850	400	292	770	400	463	M30x90-8.8	600
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3950	400	292	870	400	463	M30x90-8.8	600
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3050	400	292	870	400	463	M30x90-8.8	600
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3250	400	292	870	400	463	M30x90-8.8	600
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3500	400	292	870	400	463	M30x90-8.8	600
X190	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2650	400	292	770	400	463	M30x90-8.8	600
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2750	400	292	770	400	463	M30x90-8.8	600
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2750	400	292	770	400	463	M30x90-8.8	600
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2850	400	292	770	400	463	M30x90-8.8	600
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2850	400	292	770	400	463	M30x90-8.8	600
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2950	400	292	870	400	463	M30x90-8.8	600
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3050	400	292	870	400	463	M30x90-8.8	600
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3250	400	292	870	400	463	M30x90-8.8	600
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3500	400	292	870	400	463	M30x90-8.8	600
X200	250M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2850	450.5	319.5	770	400	517	M30x90-8.8	1100
	280S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2950	450.5	319.5	770	400	517	M30x90-8.8	1100
	280M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	2950	450.5	319.5	770	400	517	M30x90-8.8	1100
	315S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3050	450.5	319.5	770	400	517	M30x90-8.8	1100
	315M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3050	450.5	319.5	770	400	517	M30x90-8.8	1100
	315L	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3150	450.5	319.5	870	400	517	M30x90-8.8	1100
	315ML	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3250	450.5	319.5	870	400	517	M30x90-8.8	1100
	315	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3450	450.5	319.5	870	400	517	M30x90-8.8	1100
	355S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3700	450.5	319.5	870	400	517	M30x90-8.8	1100
X210	280S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	2950	453.5	319.5	770	400	517	M30x90-8.8	1100
	280M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	2950	453.5	319.5	770	400	517	M30x90-8.8	1100
	315S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3050	453.5	319.5	770	400	517	M30x90-8.8	1100
	315M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3050	453.5	319.5	770	400	517	M30x90-8.8	1100
	315L	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3150	453.5	319.5	870	400	517	M30x90-8.8	1100
	315ML	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3250	453.5	319.5	870	400	517	M30x90-8.8	1100
	315	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3450	453.5	319.5	870	400	517	M30x90-8.8	1100
	355S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3700	453.5	319.5	870	400	517	M30x90-8.8	1100

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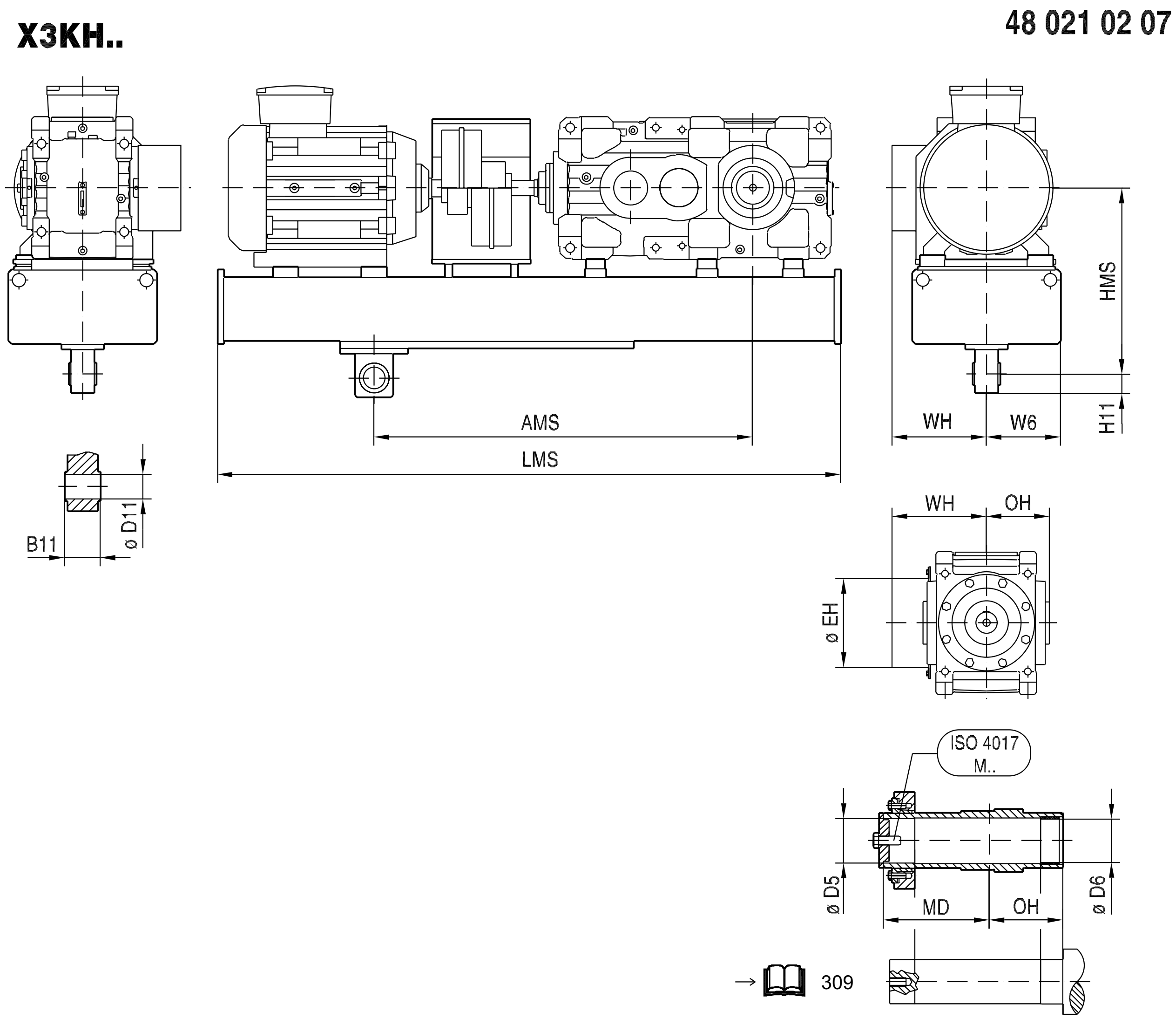
X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X220	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3100	497.5	352.5	770	400	562	M30x90-8.8	1150
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3100	497.5	352.5	770	400	562	M30x90-8.8	1150
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3200	497.5	352.5	770	400	562	M30x90-8.8	1150
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3200	497.5	352.5	770	400	562	M30x90-8.8	1150
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3300	497.5	352.5	870	400	562	M30x90-8.8	1150
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3400	497.5	352.5	870	400	562	M30x90-8.8	1150
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	870	400	562	M30x90-8.8	1150
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3850	497.5	352.5	870	400	562	M30x90-8.8	1150
X230	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3150	497.5	352.5	770	400	562	M30x90-8.8	1150
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3150	497.5	352.5	770	400	562	M30x90-8.8	1150
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3250	497.5	352.5	770	400	562	M30x90-8.8	1150
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3250	497.5	352.5	770	400	562	M30x90-8.8	1150
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3350	497.5	352.5	870	400	562	M30x90-8.8	1150
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3450	497.5	352.5	870	400	562	M30x90-8.8	1150
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3650	497.5	352.5	870	400	562	M30x90-8.8	1150
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3900	497.5	352.5	870	400	562	M30x90-8.8	1150
X240	315S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3400	571.5	400.5	770	400	654	M36x110-8.8	1350
	315M	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3400	571.5	400.5	770	400	654	M36x110-8.8	1350
	315L	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3500	571.5	400.5	870	400	654	M36x110-8.8	1350
	315ML	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3600	571.5	400.5	870	400	654	M36x110-8.8	1350
	315	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	870	400	654	M36x110-8.8	1350
	355S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4050	571.5	400.5	870	400	654	M36x110-8.8	1350
X250	315S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3450	571.5	400.5	770	400	654	M36x110-8.8	1350
	315M	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3450	571.5	400.5	770	400	654	M36x110-8.8	1350
	315L	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3550	571.5	400.5	870	400	654	M36x110-8.8	1350
	315ML	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3650	571.5	400.5	870	400	654	M36x110-8.8	1350
	315	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3850	571.5	400.5	870	400	654	M36x110-8.8	1350
	355S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4100	571.5	400.5	870	400	654	M36x110-8.8	1350

13.3 X3K.. Swing base with hydraulic start-up coupling [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X100	132S	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1700	261	173	250	294	M24x70-8.8	150
	132M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1700	261	173	250	294	M24x70-8.8	150
	160M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1850	261	173	250	294	M24x70-8.8	150
	160L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1800	261	173	250	294	M24x70-8.8	150
	180M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2000	261	173	250	294	M24x70-8.8	150
	180L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2000	261	173	250	294	M24x70-8.8	150
	200L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2050	261	173	250	294	M24x70-8.8	150
X110	132S	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	250	298	M24x70-8.8	150
	132M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	250	298	M24x70-8.8	150
	160M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1850	265	176	250	298	M24x70-8.8	150
	160L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1850	265	176	250	298	M24x70-8.8	150
	180M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2050	265	176	250	298	M24x70-8.8	150
	180L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2050	265	176	250	298	M24x70-8.8	150
	200L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2100	265	176	250	298	M24x70-8.8	150
X120	160M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1950	286.5	190.5	250	319	M24x70-8.8	200
	160L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	1950	286.5	190.5	250	319	M24x70-8.8	200
	180M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2150	286.5	190.5	250	319	M24x70-8.8	200
	180L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2150	286.5	190.5	250	319	M24x70-8.8	200
	200L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2200	286.5	190.5	250	319	M24x70-8.8	200
	225S	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2200	286.5	190.5	250	319	M24x70-8.8	200
	225M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2250	286.5	190.5	250	319	M24x70-8.8	200
	250M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2350	286.5	190.5	250	319	M24x70-8.8	200
X130	160M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2050	297	194	300	328	M24x70-8.8	200
	160L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2050	297	194	300	328	M24x70-8.8	200
	180M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2200	297	194	300	328	M24x70-8.8	200
	180L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2200	297	194	300	328	M24x70-8.8	200
	200L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2250	297	194	300	328	M24x70-8.8	200
	225S	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2350	297	194	300	328	M24x70-8.8	200
	225M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2350	297	194	300	328	M24x70-8.8	200
	250M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2450	297	194	300	328	M24x70-8.8	200
X140	180M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2300	329	222	300	356	M24x70-8.8	300
	180L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2300	329	222	300	356	M24x70-8.8	300
	200L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2350	329	222	300	356	M24x70-8.8	300
	225S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2450	329	222	300	356	M24x70-8.8	300
	225M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2450	329	222	300	356	M24x70-8.8	300
	250M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2450	329	222	300	356	M24x70-8.8	300
	280S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2700	329	222	300	356	M24x70-8.8	300
	280M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2700	329	222	300	356	M24x70-8.8	300
X150	180M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2400	337.5	224.5	300	368	M24x70-8.8	300
	180L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2400	337.5	224.5	300	368	M24x70-8.8	300
	200L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2450	337.5	224.5	300	368	M24x70-8.8	300
	225S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2500	337.5	224.5	300	368	M24x70-8.8	300
	225M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2500	337.5	224.5	300	368	M24x70-8.8	300
	250M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2600	337.5	224.5	300	368	M24x70-8.8	300
	280S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2800	337.5	224.5	300	368	M24x70-8.8	300
	280M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2800	337.5	224.5	300	368	M24x70-8.8	300

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X160	200L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2600	375	256	350	427	M30x90-8.8	350
	225S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2700	375	256	350	427	M30x90-8.8	350
	225M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2700	375	256	350	427	M30x90-8.8	350
	250M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2800	375	256	350	427	M30x90-8.8	350
	280S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2950	375	256	350	427	M30x90-8.8	350
	280M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2950	375	256	350	427	M30x90-8.8	350
	315S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3050	375	256	350	427	M30x90-8.8	350
	315M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3050	375	256	350	427	M30x90-8.8	350
	315L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3200	375	256	350	427	M30x90-8.8	350
X170	200L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2650	364	256	350	427	M30x90-8.8	350
	225S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2750	364	256	350	427	M30x90-8.8	350
	225M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2750	364	256	350	427	M30x90-8.8	350
	250M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2850	364	256	350	427	M30x90-8.8	350
	280S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3000	364	256	350	427	M30x90-8.8	350
	280M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3000	364	256	350	427	M30x90-8.8	350
	315S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3100	364	256	350	427	M30x90-8.8	350
	315M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3100	364	256	350	427	M30x90-8.8	350
	315L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3250	364	256	350	427	M30x90-8.8	350
X180	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2900	400	292	400	463	M30x90-8.8	400
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3050	400	292	400	463	M30x90-8.8	400
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3050	400	292	400	463	M30x90-8.8	400
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3150	400	292	400	463	M30x90-8.8	400
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3150	400	292	400	463	M30x90-8.8	400
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3300	400	292	400	463	M30x90-8.8	400
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3400	400	292	400	463	M30x90-8.8	400
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3600	400	292	400	463	M30x90-8.8	400
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3850	400	292	400	463	M30x90-8.8	400
X190	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2950	400	292	400	463	M30x90-8.8	400
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3100	400	292	400	463	M30x90-8.8	400
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3100	400	292	400	463	M30x90-8.8	400
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	400	463	M30x90-8.8	400
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	400	463	M30x90-8.8	400
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3350	400	292	400	463	M30x90-8.8	400
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3450	400	292	400	463	M30x90-8.8	400
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3650	400	292	400	463	M30x90-8.8	400
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3900	400	292	400	463	M30x90-8.8	400
X200	250M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3100	450.5	319.5	400	517	M30x90-8.8	980
	280S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3250	450.5	319.5	400	517	M30x90-8.8	980
	280M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3250	450.5	319.5	400	517	M30x90-8.8	980
	315S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3350	450.5	319.5	400	517	M30x90-8.8	980
	315M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3350	450.5	319.5	400	517	M30x90-8.8	980
	315L	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3500	450.5	319.5	400	517	M30x90-8.8	980
	315ML	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3600	450.5	319.5	400	517	M30x90-8.8	980
	315	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3800	450.5	319.5	400	517	M30x90-8.8	980
	355S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	4050	450.5	319.5	400	517	M30x90-8.8	980
X210	280S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3300	453.5	319.5	400	517	M30x90-8.8	980
	280M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3300	453.5	319.5	400	517	M30x90-8.8	980
	315S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3400	453.5	319.5	400	517	M30x90-8.8	980
	315M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3400	453.5	319.5	400	517	M30x90-8.8	980
	315L	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3550	453.5	319.5	400	517	M30x90-8.8	980
	315ML	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3650	453.5	319.5	400	517	M30x90-8.8	980
	315	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3850	453.5	319.5	400	517	M30x90-8.8	980
	355S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	4100	453.5	319.5	400	517	M30x90-8.8	980

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W6	WH	ISO 4017 M..	kg
X220	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3450	497.5	352.5	400	562	M30x90-8.8	1100
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3450	497.5	352.5	400	562	M30x90-8.8	1100
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3550	497.5	352.5	400	562	M30x90-8.8	1100
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3550	497.5	352.5	400	562	M30x90-8.8	1100
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3700	497.5	352.5	400	562	M30x90-8.8	1100
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3800	497.5	352.5	400	562	M30x90-8.8	1100
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4000	497.5	352.5	400	562	M30x90-8.8	1100
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4250	497.5	352.5	400	562	M30x90-8.8	1100
X230	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3500	497.5	352.5	400	562	M30x90-8.8	1100
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3500	497.5	352.5	400	562	M30x90-8.8	1100
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	400	562	M30x90-8.8	1100
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	400	562	M30x90-8.8	1100
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3750	497.5	352.5	400	562	M30x90-8.8	1100
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3850	497.5	352.5	400	562	M30x90-8.8	1100
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4050	497.5	352.5	400	562	M30x90-8.8	1100
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4300	497.5	352.5	400	562	M30x90-8.8	1100
X240	315S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	90	1140	3750	571.5	400.5	400	654	M36x110-8.8	1300
	315M	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3750	571.5	400.5	400	654	M36x110-8.8	1300
	315L	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3900	571.5	400.5	400	654	M36x110-8.8	1300
	315ML	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4000	571.5	400.5	400	654	M36x110-8.8	1300
	315	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4200	571.5	400.5	400	654	M36x110-8.8	1300
	355S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4450	571.5	400.5	400	654	M36x110-8.8	1300
X250	315S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	400	654	M36x110-8.8	1300
	315M	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	400	654	M36x110-8.8	1300
	315L	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3950	571.5	400.5	400	654	M36x110-8.8	1300
	315ML	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4050	571.5	400.5	400	654	M36x110-8.8	1300
	315	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4250	571.5	400.5	400	654	M36x110-8.8	1300
	355S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4500	571.5	400.5	400	654	M36x110-8.8	1300

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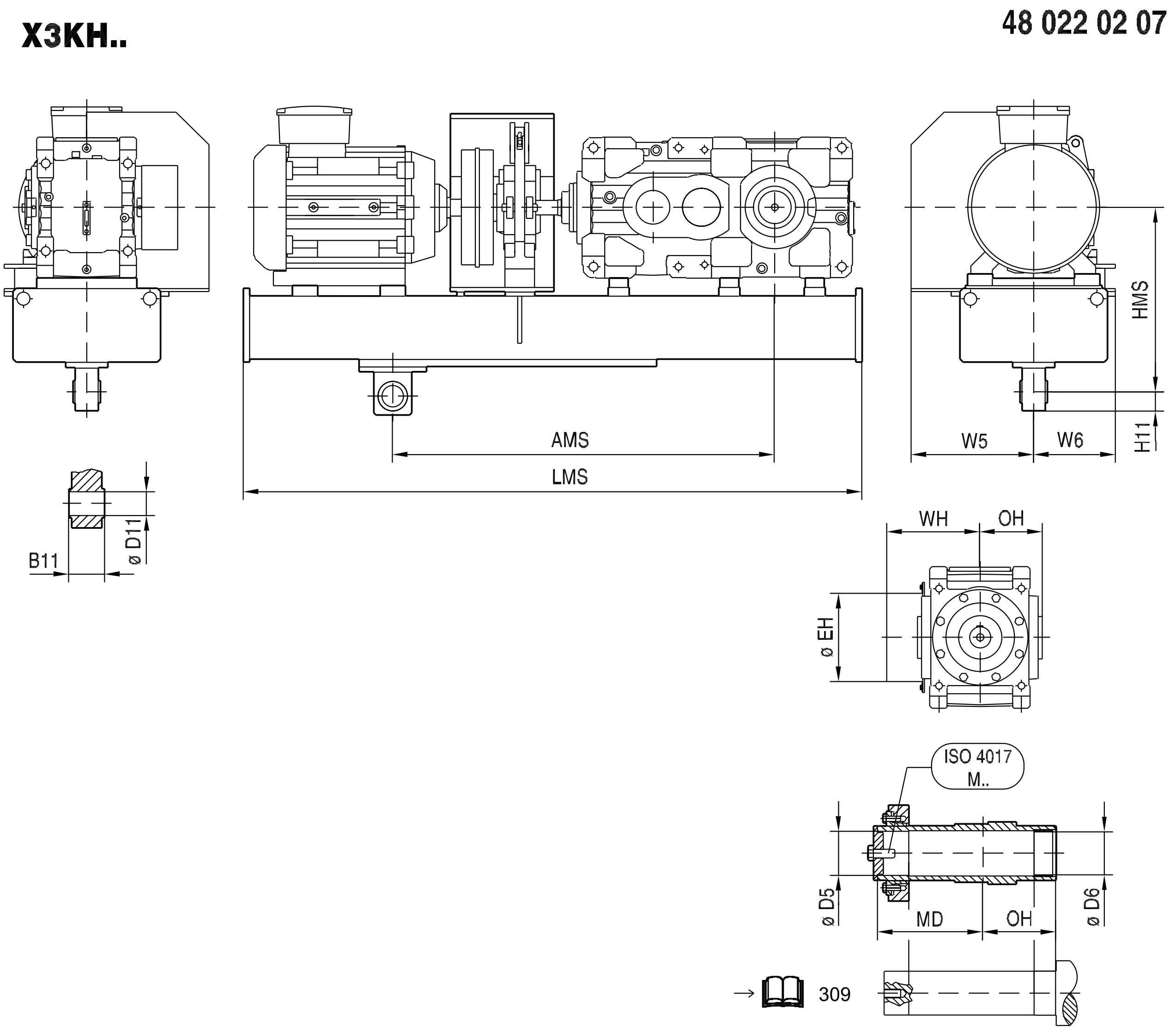
13.4 X3K.. Swing base with hydraulic start-up coupling and drum brake [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X100	132S	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1750	261	173	520	250	294	M24x70-8.8	170
	132M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1750	261	173	520	250	294	M24x70-8.8	170
	160M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1900	261	173	520	250	294	M24x70-8.8	170
	160L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	1850	261	173	520	250	294	M24x70-8.8	170
	180M	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2050	261	173	520	250	294	M24x70-8.8	170
	180L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2050	261	173	520	250	294	M24x70-8.8	170
	200L	1000	56	80^{H7}	81^{H9}	25^{H9}	220	30	420	2100	261	173	620	250	294	M24x70-8.8	170
X110	132S	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	520	250	298	M24x70-8.8	170
	132M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1750	265	176	520	250	298	M24x70-8.8	170
	160M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1850	265	176	520	250	298	M24x70-8.8	170
	160L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	1850	265	176	520	250	298	M24x70-8.8	170
	180M	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2050	265	176	520	250	298	M24x70-8.8	170
	180L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2050	265	176	520	250	298	M24x70-8.8	170
	200L	1000	56	90^{H7}	91^{H9}	25^{H9}	225	30	420	2100	265	176	620	250	298	M24x70-8.8	170
X120	160M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2000	286.5	190.5	520	250	319	M24x70-8.8	220
	160L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2000	286.5	190.5	520	250	319	M24x70-8.8	220
	180M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2200	286.5	190.5	520	250	319	M24x70-8.8	220
	180L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2200	286.5	190.5	520	250	319	M24x70-8.8	220
	200L	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2250	286.5	190.5	620	250	319	M24x70-8.8	220
	225S	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2250	286.5	190.5	770	250	319	M24x70-8.8	220
	225M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2300	286.5	190.5	770	250	319	M24x70-8.8	220
	250M	1000	72	100^{H7}	101^{H9}	32^{H9}	272	40	515	2400	286.5	190.5	770	250	319	M24x70-8.8	220
X130	160M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2100	297	194	520	300	328	M24x70-8.8	220
	160L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2100	297	194	520	300	328	M24x70-8.8	220
	180M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2250	297	194	520	300	328	M24x70-8.8	220
	180L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2250	297	194	520	300	328	M24x70-8.8	220
	200L	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2300	297	194	620	300	328	M24x70-8.8	220
	225S	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2400	297	194	770	300	328	M24x70-8.8	220
	225M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2400	297	194	770	300	328	M24x70-8.8	220
	250M	1000	72	110^{H7}	111^{H9}	32^{H9}	292	40	515	2500	297	194	770	300	328	M24x70-8.8	220
X140	180M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2350	329	222	520	300	356	M24x70-8.8	330
	180L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2350	329	222	520	300	356	M24x70-8.8	330
	200L	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2400	329	222	620	300	356	M24x70-8.8	330
	225S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2500	329	222	770	300	356	M24x70-8.8	330
	225M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2500	329	222	770	300	356	M24x70-8.8	330
	250M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2500	329	222	770	300	356	M24x70-8.8	330
	280S	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2750	329	222	870	300	356	M24x70-8.8	330
	280M	1200	110	120^{H7}	121^{H9}	50^{H9}	304	90	630	2750	329	222	870	300	356	M24x70-8.8	330
X150	180M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2450	337.5	224.5	520	300	368	M24x70-8.8	330
	180L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2450	337.5	224.5	520	300	368	M24x70-8.8	330
	200L	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2500	337.5	224.5	620	300	368	M24x70-8.8	330
	225S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2550	337.5	224.5	770	300	368	M24x70-8.8	330
	225M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2550	337.5	224.5	770	300	368	M24x70-8.8	330
	250M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2650	337.5	224.5	770	300	368	M24x70-8.8	330
	280S	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2850	337.5	224.5	870	300	368	M24x70-8.8	330
	280M	1200	110	130^{H7}	131^{H9}	50^{H9}	322	90	630	2850	337.5	224.5	870	300	368	M24x70-8.8	330

X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X160	200L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2650	375	256	620	350	427	M30x90-8.8	350
	225S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2750	375	256	770	350	427	M30x90-8.8	350
	225M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2750	375	256	770	350	427	M30x90-8.8	350
	250M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	2850	375	256	770	350	427	M30x90-8.8	350
	280S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3000	375	256	870	350	427	M30x90-8.8	350
	280M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3000	375	256	870	350	427	M30x90-8.8	350
	315S	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3100	375	256	870	350	427	M30x90-8.8	350
	315M	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3100	375	256	870	350	427	M30x90-8.8	350
	315L	1400	110	140^{H7}	141^{H9}	50^{H9}	368	90	720	3250	375	256	870	350	427	M30x90-8.8	350
X170	200L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2700	364	256	620	350	427	M30x90-8.8	350
	225S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2800	364	256	770	350	427	M30x90-8.8	350
	225M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2800	364	256	770	350	427	M30x90-8.8	350
	250M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	2900	364	256	770	350	427	M30x90-8.8	350
	280S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3050	364	256	870	350	427	M30x90-8.8	350
	280M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3050	364	256	870	350	427	M30x90-8.8	350
	315S	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3150	364	256	870	350	427	M30x90-8.8	350
	315M	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3150	364	256	870	350	427	M30x90-8.8	350
	315L	1400	110	150^{H7}	151^{H9}	50^{H9}	368	90	720	3300	364	256	870	350	427	M30x90-8.8	350
X180	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	2950	400	292	770	400	463	M30x90-8.8	450
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3100	400	292	770	400	463	M30x90-8.8	450
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3100	400	292	770	400	463	M30x90-8.8	450
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	770	400	463	M30x90-8.8	450
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3200	400	292	770	400	463	M30x90-8.8	450
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3350	400	292	870	400	463	M30x90-8.8	450
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3450	400	292	870	400	463	M30x90-8.8	450
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3650	400	292	870	400	463	M30x90-8.8	450
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3900	400	292	870	400	463	M30x90-8.8	450
X190	250M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3000	400	292	770	400	463	M30x90-8.8	450
	280S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3150	400	292	770	400	463	M30x90-8.8	450
	280M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3150	400	292	770	400	463	M30x90-8.8	450
	315S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3250	400	292	770	400	463	M30x90-8.8	450
	315M	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3250	400	292	770	400	463	M30x90-8.8	450
	315L	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3400	400	292	870	400	463	M30x90-8.8	450
	315ML	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3500	400	292	870	400	463	M30x90-8.8	450
	315	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3700	400	292	870	400	463	M30x90-8.8	450
	355S	1600	120	165^{H7}	166^{H9}	100^{H9}	382	90	875	3950	400	292	870	400	463	M30x90-8.8	450
X200	250M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3150	450.5	319.5	770	400	517	M30x90-8.8	1000
	280S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3300	450.5	319.5	770	400	517	M30x90-8.8	1000
	280M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3300	450.5	319.5	770	400	517	M30x90-8.8	1000
	315S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3400	450.5	319.5	770	400	517	M30x90-8.8	1000
	315M	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3400	450.5	319.5	770	400	517	M30x90-8.8	1000
	315L	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3550	450.5	319.5	870	400	517	M30x90-8.8	1000
	315ML	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3650	450.5	319.5	870	400	517	M30x90-8.8	1000
	315	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	3850	450.5	319.5	870	400	517	M30x90-8.8	1000
	355S	1800	120	180^{H7}	181^{H9}	100^{H9}	446	90	1000	4150	450.5	319.5	870	400	517	M30x90-8.8	1000
X210	280S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3350	453.5	319.5	770	400	517	M30x90-8.8	1000
	280M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3350	453.5	319.5	770	400	517	M30x90-8.8	1000
	315S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3450	453.5	319.5	770	400	517	M30x90-8.8	1000
	315M	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3450	453.5	319.5	770	400	517	M30x90-8.8	1000
	315L	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3600	453.5	319.5	870	400	517	M30x90-8.8	1000
	315ML	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3700	453.5	319.5	870	400	517	M30x90-8.8	1000
	315	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	3900	453.5	319.5	870	400	517	M30x90-8.8	1000
	355S	1800	120	190^{H7}	191^{H9}	100^{H9}	446	90	1000	4150	453.5	319.5	870	400	517	M30x90-8.8	1000

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X3KH..	Motor	AMS	B11	Ø D5	Ø D6	Ø D11	Ø EH	H11	HMS	LMS	MD	OH	W5	W6	WH	ISO 4017 M..	kg
X220	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3500	497.5	352.5	770	400	562	M30x90-8.8	1150
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3500	497.5	352.5	770	400	562	M30x90-8.8	1150
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	770	400	562	M30x90-8.8	1150
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3600	497.5	352.5	770	400	562	M30x90-8.8	1150
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3750	497.5	352.5	870	400	562	M30x90-8.8	1150
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3850	497.5	352.5	870	400	562	M30x90-8.8	1150
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4050	497.5	352.5	870	400	562	M30x90-8.8	1150
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4300	497.5	352.5	870	400	562	M30x90-8.8	1150
X230	280S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3550	497.5	352.5	770	400	562	M30x90-8.8	1150
	280M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3550	497.5	352.5	770	400	562	M30x90-8.8	1150
	315S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3650	497.5	352.5	770	400	562	M30x90-8.8	1150
	315M	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3650	497.5	352.5	770	400	562	M30x90-8.8	1150
	315L	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3800	497.5	352.5	870	400	562	M30x90-8.8	1150
	315ML	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	3900	497.5	352.5	870	400	562	M30x90-8.8	1150
	315	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4100	497.5	352.5	870	400	562	M30x90-8.8	1150
	355S	1900	120	210^{H7}	211^{H9}	100^{H9}	484	90	1050	4350	497.5	352.5	870	400	562	M30x90-8.8	1150
X240	315S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	770	400	654	M36x110-8.8	1350
	315M	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3800	571.5	400.5	770	400	654	M36x110-8.8	1350
	315L	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	3950	571.5	400.5	870	400	654	M36x110-8.8	1350
	315ML	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4050	571.5	400.5	870	400	654	M36x110-8.8	1350
	315	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4250	571.5	400.5	870	400	654	M36x110-8.8	1350
	355S	2000	230	230^{H7}	231^{H9}	124^{H9}	558	110	1140	4500	571.5	400.5	870	400	654	M36x110-8.8	1350
X250	315S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3850	571.5	400.5	770	400	654	M36x110-8.8	1350
	315M	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	3850	571.5	400.5	770	400	654	M36x110-8.8	1350
	315L	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4000	571.5	400.5	870	400	654	M36x110-8.8	1350
	315ML	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4100	571.5	400.5	870	400	654	M36x110-8.8	1350
	315	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4300	571.5	400.5	870	400	654	M36x110-8.8	1350
	355S	2000	230	240^{H7}	241^{H9}	124^{H9}	558	110	1140	4550	571.5	400.5	870	400	654	M36x110-8.8	1350

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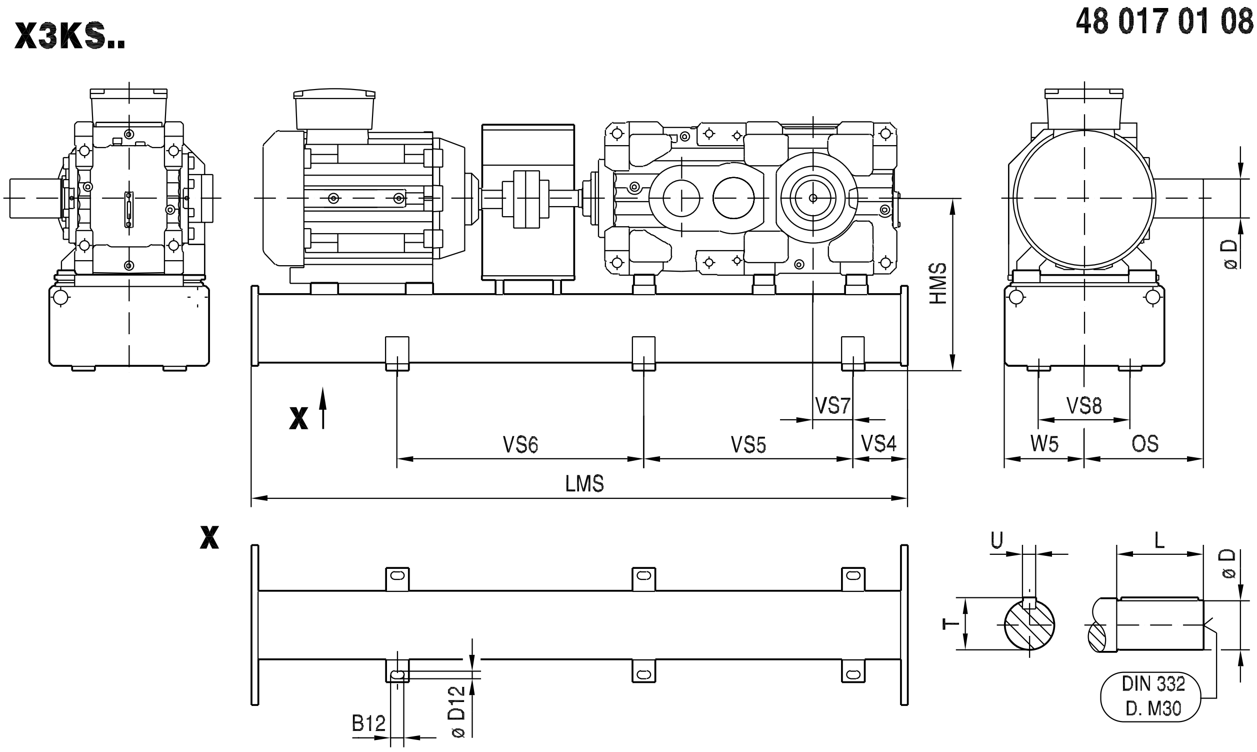
13.5 X3K.. Base frame with elastic coupling [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



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X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X100	132S	40	80_{m6}	22	380	170	1650	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	132M	40	80_{m6}	22	380	170	1650	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	160M	40	80_{m6}	22	380	170	1750	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	160L	40	80_{m6}	22	380	170	1750	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	180M	40	80_{m6}	22	380	170	1850	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	180L	40	80_{m6}	22	380	170	1850	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	200L	40	80_{m6}	22	380	170	1900	343	85	22_{h9}	250	250	810	580	405	230	M20	150
X110	132S	40	90_{m6}	22	380	170	1650	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	132M	40	90_{m6}	22	380	170	1650	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	160M	40	90_{m6}	22	380	170	1750	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	160L	40	90_{m6}	22	380	170	1750	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	180M	40	90_{m6}	22	380	170	1900	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	180L	40	90_{m6}	22	380	170	1900	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	200L	40	90_{m6}	22	380	170	1950	346	95	25_{h9}	250	250	810	580	405	230	M24	150
X120	160M	40	100_{m6}	22	450	210	1850	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	160L	40	100_{m6}	22	450	210	1850	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	180M	40	100_{m6}	22	450	210	1950	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	180L	40	100_{m6}	22	450	210	1950	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	200L	40	100_{m6}	22	450	210	2050	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	225S	40	100_{m6}	22	450	210	2050	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	225M	40	100_{m6}	22	450	210	2050	401	106	28_{h9}	250	250	810	580	405	250	M24	200
	250M	40	100_{m6}	22	450	210	2150	401	106	28_{h9}	250	250	810	580	405	250	M24	200
X130	160M	40	110_{m6}	22	450	210	1900	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	160L	40	110_{m6}	22	450	210	1900	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	180M	40	110_{m6}	22	450	210	2000	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	180L	40	110_{m6}	22	450	210	2000	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	200L	40	110_{m6}	22	450	210	2050	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	225S	40	110_{m6}	22	450	210	2100	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	225M	40	110_{m6}	22	450	210	2100	404	116	28_{h9}	300	250	810	580	405	250	M24	200
	250M	40	110_{m6}	22	450	210	2200	404	116	28_{h9}	300	250	810	580	405	250	M24	200
X140	180M	40	120_{m6}	22	540	210	2300	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	180L	40	120_{m6}	22	540	210	2300	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	200L	40	120_{m6}	22	540	210	2350	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	225S	40	120_{m6}	22	540	210	2400	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	225M	40	120_{m6}	22	540	210	2400	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	250M	40	120_{m6}	22	540	210	2500	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	280S	40	120_{m6}	22	540	210	2600	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	280M	40	120_{m6}	22	540	210	2600	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
X150	180M	40	130_{m6}	22	540	250	2350	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	180L	40	130_{m6}	22	540	250	2350	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	200L	40	130_{m6}	22	540	250	2450	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	225S	40	130_{m6}	22	540	250	2450	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	225M	40	130_{m6}	22	540	250	2550	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	250M	40	130_{m6}	22	540	250	2550	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	280S	40	130_{m6}	22	540	250	2650	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	280M	40	130_{m6}	22	540	250	2650	475	137	32_{h9}	300	300	1140	810	570	300	M24	300

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X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X160	200L	40	140_{m6}	22	630	250	2500	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	225S	40	140_{m6}	22	630	250	2550	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	225M	40	140_{m6}	22	630	250	2550	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	250M	40	140_{m6}	22	630	250	2650	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	280S	40	140_{m6}	22	630	250	2750	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	280M	40	140_{m6}	22	630	250	2750	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	315S	40	140_{m6}	22	630	250	2850	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	315M	40	140_{m6}	22	630	250	2850	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
	315L	40	140_{m6}	22	630	250	2950	506	148	36_{h9}	300	350	1140	860	570	350	M30	350
X170	200L	40	160_{m6}	22	630	300	2550	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	225S	40	160_{m6}	22	630	300	2600	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	225M	40	160_{m6}	22	630	300	2600	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	250M	40	160_{m6}	22	630	300	2700	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	280S	40	160_{m6}	22	630	300	2800	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	280M	40	160_{m6}	22	630	300	2800	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	315S	40	160_{m6}	22	630	300	2900	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	315M	40	160_{m6}	22	630	300	2900	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
	315L	40	160_{m6}	22	630	300	3000	556	169	40_{h9}	300	350	1140	860	570	350	M30	350
X180	250M	40	170_{m6}	22	740	300	2700	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	280S	40	170_{m6}	22	740	300	2800	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	280M	40	170_{m6}	22	740	300	2800	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315S	40	170_{m6}	22	740	300	2900	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315M	40	170_{m6}	22	740	300	2900	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315L	40	170_{m6}	22	740	300	3000	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315ML	40	170_{m6}	22	740	300	3100	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315	40	170_{m6}	22	740	300	3300	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	355S	40	170_{m6}	22	740	300	3550	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
X190	250M	40	170_{m6}	22	740	300	2750	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	280S	40	170_{m6}	22	740	300	2850	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	280M	40	170_{m6}	22	740	300	2850	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315S	40	170_{m6}	22	740	300	2950	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315M	40	170_{m6}	22	740	300	2950	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315L	40	170_{m6}	22	740	300	3050	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315ML	40	170_{m6}	22	740	300	3150	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	315	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
	355S	40	170_{m6}	22	740	300	3600	592	179	40_{h9}	350	450	1180	1015	590	450	M30	700
X200	250M	40	180_{m6}	22	870	300	2900	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	280S	40	180_{m6}	22	870	300	3000	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	280M	40	180_{m6}	22	870	300	3000	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315S	40	180_{m6}	22	870	300	3000	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315M	40	180_{m6}	22	870	300	3100	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315L	40	180_{m6}	22	870	300	3200	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315ML	40	180_{m6}	22	870	300	3300	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315	40	180_{m6}	22	870	300	3500	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
	355S	40	180_{m6}	22	870	300	3750	612	190	45_{h9}	400	500	1230	1200	615	450	M30	1000
X210	280S	40	190_{m6}	22	870	350	3050	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	280M	40	190_{m6}	22	870	350	3050	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315S	40	190_{m6}	22	870	350	3150	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315M	40	190_{m6}	22	870	350	3150	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315L	40	190_{m6}	22	870	350	3250	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315ML	40	190_{m6}	22	870	350	3350	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	315	40	190_{m6}	22	870	350	3550	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000
	355S	40	190_{m6}	22	870	350	3800	662	200	45_{h9}	400	500	1230	1200	615	450	M30	1000

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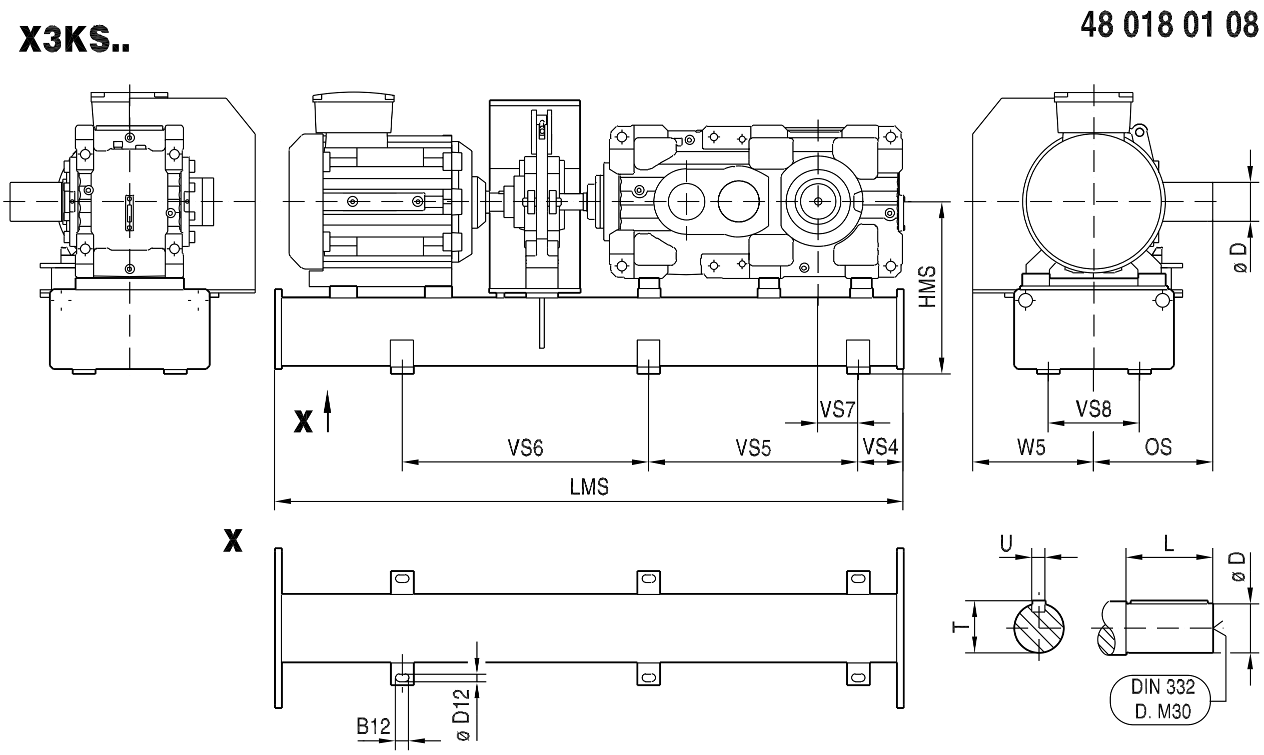
X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X220	280S	40	210_{m6}	22	910	350	3150	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	280M	40	210_{m6}	22	910	350	3150	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	315S	40	210_{m6}	22	910	350	3250	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	315M	40	210_{m6}	22	910	350	3250	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	315L	40	210_{m6}	22	910	350	3350	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	315ML	40	210_{m6}	22	910	350	3450	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	315	40	210_{m6}	22	910	350	3650	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
	355S	40	210_{m6}	22	910	350	3900	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1100
X230	280S	40	230_{m6}	22	910	410	3200	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	280M	40	230_{m6}	22	910	410	3200	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	315S	40	230_{m6}	22	910	410	3300	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	315M	40	230_{m6}	22	910	410	3400	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	315L	40	230_{m6}	22	910	410	3400	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	315ML	40	230_{m6}	22	910	410	3500	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	315	40	230_{m6}	22	910	410	3700	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
	355S	40	230_{m6}	22	910	410	4000	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1100
X240	315S	45	230_{m6}	26	965	410	3450	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
	315M	45	230_{m6}	26	965	410	3450	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
	315L	45	230_{m6}	26	965	410	3550	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
	315ML	45	230_{m6}	26	965	410	3650	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
	315	45	230_{m6}	26	965	410	3850	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
	355S	45	230_{m6}	26	965	410	4100	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1300
X250	315S	45	240_{m6}	26	965	410	3500	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300
	315M	45	240_{m6}	26	965	410	3500	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300
	315L	45	240_{m6}	26	965	410	3600	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300
	315ML	45	240_{m6}	26	965	410	3700	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300
	315	45	240_{m6}	26	965	410	3900	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300
	355S	45	240_{m6}	26	965	410	4150	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1300

13.6 X3K.. Base frame with elastic coupling and drum brake [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



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X3KS..	Motor	B12	ØD	ØD12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X100	132S	40	80_{m6}	22	380	170	1700	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	132M	40	80_{m6}	22	380	170	1700	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	160M	40	80_{m6}	22	380	170	1800	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	160L	40	80_{m6}	22	380	170	1800	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	180M	40	80_{m6}	22	380	170	1900	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	180L	40	80_{m6}	22	380	170	1900	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	200L	40	80_{m6}	22	380	170	1950	343	85	22_{h9}	620	250	810	580	405	230	M20	170
X110	132S	40	90_{m6}	22	380	170	1700	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	132M	40	90_{m6}	22	380	170	1700	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	160M	40	90_{m6}	22	380	170	1800	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	160L	40	90_{m6}	22	380	170	1800	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	180M	40	90_{m6}	22	380	170	1950	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	180L	40	90_{m6}	22	380	170	1950	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	200L	40	90_{m6}	22	380	170	2000	346	95	25_{h9}	620	250	810	580	405	230	M24	170
X120	160M	40	100_{m6}	22	450	210	1900	401	106	28_{h9}	520	250	810	580	405	250	M24	220
	160L	40	100_{m6}	22	450	210	1900	401	106	28_{h9}	520	250	810	580	405	250	M24	220
	180M	40	100_{m6}	22	450	210	2000	401	106	28_{h9}	520	250	810	580	405	250	M24	220
	180L	40	100_{m6}	22	450	210	2000	401	106	28_{h9}	520	250	810	580	405	250	M24	220
	200L	40	100_{m6}	22	450	210	2100	401	106	28_{h9}	620	250	810	580	405	250	M24	220
	225S	40	100_{m6}	22	450	210	2100	401	106	28_{h9}	770	250	810	580	405	250	M24	220
	225M	40	100_{m6}	22	450	210	2100	401	106	28_{h9}	770	250	810	580	405	250	M24	220
	250M	40	100_{m6}	22	450	210	2200	401	106	28_{h9}	770	250	810	580	405	250	M24	220
X130	160M	40	110_{m6}	22	450	210	1950	404	116	28_{h9}	520	250	810	580	405	250	M24	220
	160L	40	110_{m6}	22	450	210	1950	404	116	28_{h9}	520	250	810	580	405	250	M24	220
	180M	40	110_{m6}	22	450	210	2050	404	116	28_{h9}	520	250	810	580	405	250	M24	220
	180L	40	110_{m6}	22	450	210	2050	404	116	28_{h9}	520	250	810	580	405	250	M24	220
	200L	40	110_{m6}	22	450	210	2100	404	116	28_{h9}	620	250	810	580	405	250	M24	220
	225S	40	110_{m6}	22	450	210	2150	404	116	28_{h9}	770	250	810	580	405	250	M24	220
	225M	40	110_{m6}	22	450	210	2150	404	116	28_{h9}	770	250	810	580	405	250	M24	220
	250M	40	110_{m6}	22	450	210	2250	404	116	28_{h9}	770	250	810	580	405	250	M24	220
X140	180M	40	120_{m6}	22	540	210	2350	432	127	32_{h9}	520	300	1140	810	570	300	M24	330
	180L	40	120_{m6}	22	540	210	2350	432	127	32_{h9}	520	300	1140	810	570	300	M24	330
	200L	40	120_{m6}	22	540	210	2400	432	127	32_{h9}	620	300	1140	810	570	300	M24	330
	225S	40	120_{m6}	22	540	210	2450	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	225M	40	120_{m6}	22	540	210	2450	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	250M	40	120_{m6}	22	540	210	2550	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	280S	40	120_{m6}	22	540	210	2650	432	127	32_{h9}	870	300	1140	810	570	300	M24	330
	280M	40	120_{m6}	22	540	210	2650	432	127	32_{h9}	870	300	1140	810	570	300	M24	330
X150	180M	40	130_{m6}	22	540	250	2400	475	137	32_{h9}	520	300	1140	810	570	300	M24	330
	180L	40	130_{m6}	22	540	250	2400	475	137	32_{h9}	520	300	1140	810	570	300	M24	330
	200L	40	130_{m6}	22	540	250	2500	475	137	32_{h9}	620	300	1140	810	570	300	M24	330
	225S	40	130_{m6}	22	540	250	2500	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	225M	40	130_{m6}	22	540	250	2600	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	250M	40	130_{m6}	22	540	250	2600	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	280S	40	130_{m6}	22	540	250	2700	475	137	32_{h9}	870	300	1140	810	570	300	M24	330
	280M	40	130_{m6}	22	540	250	2700	475	137	32_{h9}	870	300	1140	810	570	300	M24	330

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X3KS..	Motor	B12	ØD	ØD12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X160	200L	40	140_{m6}	22	630	250	2550	506	148	36_{h9}	620	350	1140	860	570	350	M30	350
	225S	40	140_{m6}	22	630	250	2600	506	148	36_{h9}	770	350	1140	860	570	350	M30	350
	225M	40	140_{m6}	22	630	250	2600	506	148	36_{h9}	770	350	1140	860	570	350	M30	350
	250M	40	140_{m6}	22	630	250	2700	506	148	36_{h9}	770	350	1140	860	570	350	M30	350
	280S	40	140_{m6}	22	630	250	2800	506	148	36_{h9}	870	350	1140	860	570	350	M30	350
	280M	40	140_{m6}	22	630	250	2800	506	148	36_{h9}	870	350	1140	860	570	350	M30	350
	315S	40	140_{m6}	22	630	250	2900	506	148	36_{h9}	870	350	1140	860	570	350	M30	350
	315M	40	140_{m6}	22	630	250	2900	506	148	36_{h9}	870	350	1140	860	570	350	M30	350
	315L	40	140_{m6}	22	630	250	3000	506	148	36_{h9}	870	350	1140	860	570	350	M30	350
X170	200L	40	160_{m6}	22	630	300	2600	556	169	40_{h9}	620	350	1140	860	570	350	M30	350
	225S	40	160_{m6}	22	630	300	2650	556	169	40_{h9}	770	350	1140	860	570	350	M30	350
	225M	40	160_{m6}	22	630	300	2650	556	169	40_{h9}	770	350	1140	860	570	350	M30	350
	250M	40	160_{m6}	22	630	300	2750	556	169	40_{h9}	770	350	1140	860	570	350	M30	350
	280S	40	160_{m6}	22	630	300	2850	556	169	40_{h9}	870	350	1140	860	570	350	M30	350
	280M	40	160_{m6}	22	630	300	2850	556	169	40_{h9}	870	350	1140	860	570	350	M30	350
	315S	40	160_{m6}	22	630	300	2950	556	169	40_{h9}	870	350	1140	860	570	350	M30	350
	315M	40	160_{m6}	22	630	300	2950	556	169	40_{h9}	870	350	1140	860	570	350	M30	350
	315L	40	160_{m6}	22	630	300	3050	556	169	40_{h9}	870	350	1140	860	570	350	M30	350
X180	250M	40	170_{m6}	22	740	300	2750	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280S	40	170_{m6}	22	740	300	2850	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280M	40	170_{m6}	22	740	300	2850	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315S	40	170_{m6}	22	740	300	2950	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315M	40	170_{m6}	22	740	300	2950	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315L	40	170_{m6}	22	740	300	3050	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315ML	40	170_{m6}	22	740	300	3150	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	355S	40	170_{m6}	22	740	300	3600	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
X190	250M	40	170_{m6}	22	740	300	2800	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280S	40	170_{m6}	22	740	300	2900	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280M	40	170_{m6}	22	740	300	2900	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315S	40	170_{m6}	22	740	300	3000	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315M	40	170_{m6}	22	740	300	3000	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315L	40	170_{m6}	22	740	300	3100	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315ML	40	170_{m6}	22	740	300	3200	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315	40	170_{m6}	22	740	300	3400	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	355S	40	170_{m6}	22	740	300	3650	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
X200	250M	40	180_{m6}	22	870	300	2950	612	190	45_{h9}	770	500	1230	1200	615	450	M30	980
	280S	40	180_{m6}	22	870	300	3050	612	190	45_{h9}	770	500	1230	1200	615	450	M30	980
	280M	40	180_{m6}	22	870	300	3050	612	190	45_{h9}	770	500	1230	1200	615	450	M30	980
	315S	40	180_{m6}	22	870	300	3050	612	190	45_{h9}	770	500	1230	1200	615	450	M30	980
	315M	40	180_{m6}	22	870	300	3150	612	190	45_{h9}	770	500	1230	1200	615	450	M30	980
	315L	40	180_{m6}	22	870	300	3250	612	190	45_{h9}	870	500	1230	1200	615	450	M30	980
	315ML	40	180_{m6}	22	870	300	3350	612	190	45_{h9}	870	500	1230	1200	615	450	M30	980
	315	40	180_{m6}	22	870	300	3550	612	190	45_{h9}	870	500	1230	1200	615	450	M30	980
	355S	40	180_{m6}	22	870	300	3800	612	190	45_{h9}	870	500	1230	1200	615	450	M30	980
X210	280S	40	190_{m6}	22	870	350	3100	662	200	45_{h9}	770	500	1230	1200	615	450	M30	980
	280M	40	190_{m6}	22	870	350	3100	662	200	45_{h9}	770	500	1230	1200	615	450	M30	980
	315S	40	190_{m6}	22	870	350	3200	662	200	45_{h9}	770	500	1230	1200	615	450	M30	980
	315M	40	190_{m6}	22	870	350	3200	662	200	45_{h9}	770	500	1230	1200	615	450	M30	980
	315L	40	190_{m6}	22	870	350	3300	662	200	45_{h9}	870	500	1230	1200	615	450	M30	980
	315ML	40	190_{m6}	22	870	350	3400	662	200	45_{h9}	870	500	1230	1200	615	450	M30	980
	315	40	190_{m6}	22	870	350	3600	662	200	45_{h9}	870	500	1230	1200	615	450	M30	980
	355S	40	190_{m6}	22	870	350	3850	662	200	45_{h9}	870	500	1230	1200	615	450	M30	980

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X3KS..	Motor	B12	ØD	ØD12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X220	280S	40	210_{m6}	22	910	350	3200	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	280M	40	210_{m6}	22	910	350	3200	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315S	40	210_{m6}	22	910	350	3300	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315M	40	210_{m6}	22	910	350	3300	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315L	40	210_{m6}	22	910	350	3400	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	315ML	40	210_{m6}	22	910	350	3500	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	315	40	210_{m6}	22	910	350	3700	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	355S	40	210_{m6}	22	910	350	3950	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
X230	280S	40	230_{m6}	22	910	410	3250	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	280M	40	230_{m6}	22	910	410	3250	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315S	40	230_{m6}	22	910	410	3350	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315M	40	230_{m6}	22	910	410	3450	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315L	40	230_{m6}	22	910	410	3450	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	315ML	40	230_{m6}	22	910	410	3550	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	315	40	230_{m6}	22	910	410	3750	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	355S	40	230_{m6}	22	910	410	4050	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
X240	315S	45	230_{m6}	26	965	410	3500	811	241	50_{h9}	770	575	1350	1250	675	500	M36	1200
	315M	45	230_{m6}	26	965	410	3500	811	241	50_{h9}	770	575	1350	1250	675	500	M36	1200
	315L	45	230_{m6}	26	965	410	3600	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	315ML	45	230_{m6}	26	965	410	3700	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	315	45	230_{m6}	26	965	410	3900	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	355S	45	230_{m6}	26	965	410	4150	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
X250	315S	45	240_{m6}	26	965	410	3550	811	252	56_{h9}	770	575	1350	1250	675	500	M36	1200
	315M	45	240_{m6}	26	965	410	3550	811	252	56_{h9}	770	575	1350	1250	675	500	M36	1200
	315L	45	240_{m6}	26	965	410	3650	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	315ML	45	240_{m6}	26	965	410	3750	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	315	45	240_{m6}	26	965	410	3950	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	355S	45	240_{m6}	26	965	410	4200	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200

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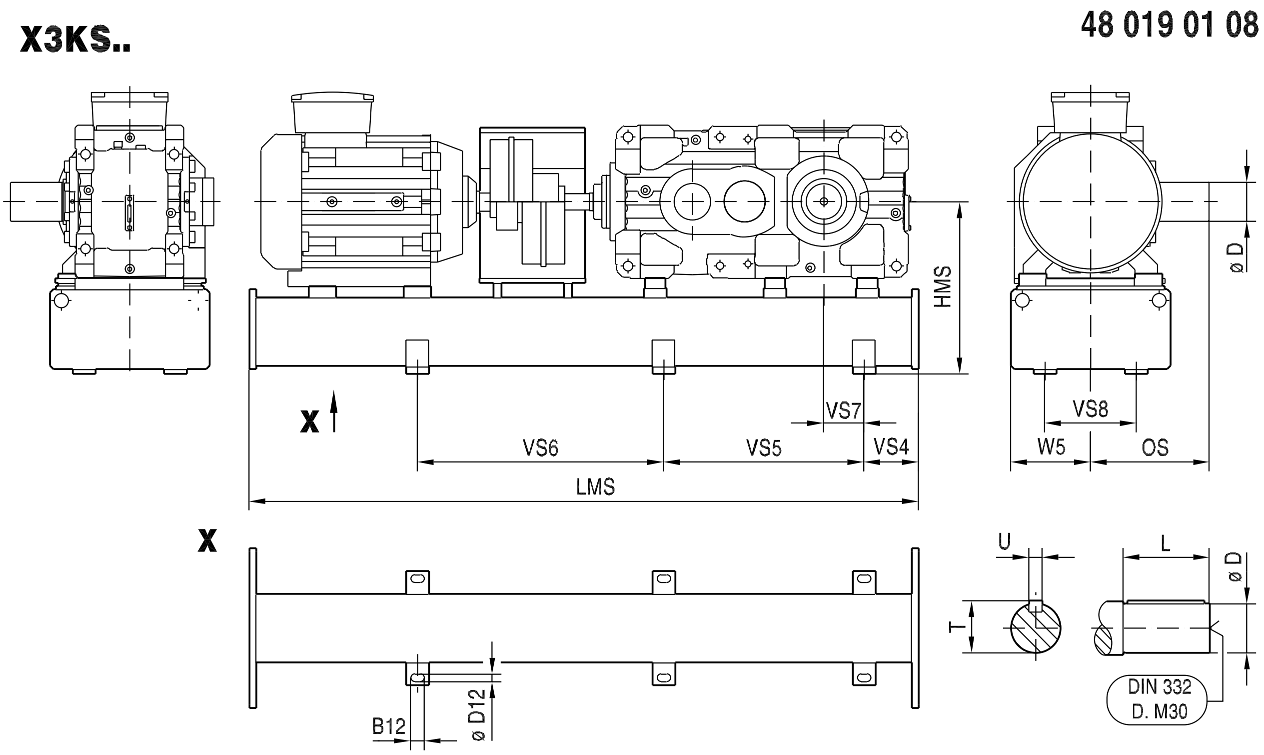
13.7 X3K.. Base frame with hydraulic start-up coupling [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X100	132S	40	80_{m6}	22	380	170	1850	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	132M	40	80_{m6}	22	380	170	1850	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	160M	40	80_{m6}	22	380	170	1950	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	160L	40	80_{m6}	22	380	170	1950	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	180M	40	80_{m6}	22	380	170	2150	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	180L	40	80_{m6}	22	380	170	2150	343	85	22_{h9}	250	250	810	580	405	230	M20	150
	200L	40	80_{m6}	22	380	170	2200	343	85	22_{h9}	250	250	810	580	405	230	M20	150
X110	132S	40	90_{m6}	22	380	170	1850	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	132M	40	90_{m6}	22	380	170	1850	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	160M	40	90_{m6}	22	380	170	2000	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	160L	40	90_{m6}	22	380	170	2000	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	180M	40	90_{m6}	22	380	170	2200	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	180L	40	90_{m6}	22	380	170	2200	346	95	25_{h9}	250	250	810	580	405	230	M24	150
	200L	40	90_{m6}	22	380	170	2200	346	95	25_{h9}	250	250	810	580	405	230	M24	150
X120	160M	40	100_{m6}	22	450	210	2100	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	160L	40	100_{m6}	22	450	210	2100	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	180M	40	100_{m6}	22	450	210	2250	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	180L	40	100_{m6}	22	450	210	2250	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	200L	40	100_{m6}	22	450	210	2300	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	225S	40	100_{m6}	22	450	210	2400	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	225M	40	100_{m6}	22	450	210	2400	401	106	28_{h9}	250	250	810	580	405	250	M24	250
	250M	40	100_{m6}	22	450	210	2500	401	106	28_{h9}	250	250	810	580	405	250	M24	250
X130	160M	40	11_{0m6}	22	450	210	2100	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	160L	40	110_{m6}	22	450	210	2100	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	180M	40	110_{m6}	22	450	210	2300	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	180L	40	110_{m6}	22	450	210	2300	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	200L	40	110_{m6}	22	450	210	2350	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	225S	40	110_{m6}	22	450	210	2400	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	225M	40	110_{m6}	22	450	210	2400	404	116	28_{h9}	300	250	810	580	405	250	M24	250
	250M	40	110_{m6}	22	450	210	2500	404	116	28_{h9}	300	250	810	580	405	250	M24	250
X140	180M	40	120_{m6}	22	540	210	2550	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	180L	40	120_{m6}	22	540	210	2550	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	200L	40	120_{m6}	22	540	210	2600	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	225S	40	120_{m6}	22	540	210	2700	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	225M	40	120_{m6}	22	540	210	2700	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	250M	40	120_{m6}	22	540	210	2800	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	280S	40	120_{m6}	22	540	210	3000	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
	280M	40	120_{m6}	22	540	210	3000	432	127	32_{h9}	300	300	1140	810	570	300	M24	300
X150	180M	40	130_{m6}	22	540	250	2600	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	180L	40	130_{m6}	22	540	250	2600	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	200L	40	130_{m6}	22	540	250	2650	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	225S	40	130_{m6}	22	540	250	2750	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	225M	40	130_{m6}	22	540	250	2750	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	250M	40	130_{m6}	22	540	250	2850	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	280S	40	130_{m6}	22	540	250	3000	475	137	32_{h9}	300	300	1140	810	570	300	M24	300
	280M	40	130_{m6}	22	540	250	3000	475	137	32_{h9}	300	300	1140	810	570	300	M24	300

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X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X160	200L	40	140_{m6}	22	630	250	2750	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	225S	40	140_{m6}	22	630	250	2850	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	225M	40	140_{m6}	22	630	250	2850	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	250M	40	140_{m6}	22	630	250	2950	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	280S	40	140_{m6}	22	630	250	3100	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	280M	40	140_{m6}	22	630	250	3100	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	315S	40	140_{m6}	22	630	250	3200	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	315M	40	140_{m6}	22	630	250	3200	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
	315L	40	140_{m6}	22	630	250	3350	506	148	36_{h9}	300	350	1140	860	570	350	M30	400
X170	200L	40	160_{m6}	22	630	300	2800	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	225S	40	160_{m6}	22	630	300	2900	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	225M	40	160_{m6}	22	630	300	2900	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	250M	40	160_{m6}	22	630	300	3000	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	280S	40	160_{m6}	22	630	300	3150	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	280M	40	160_{m6}	22	630	300	3150	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	315S	40	160_{m6}	22	630	300	3250	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	315M	40	160_{m6}	22	630	300	3250	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
	315L	40	160_{m6}	22	630	300	3400	556	169	40_{h9}	300	350	1140	860	570	350	M30	400
X180	250M	40	170_{m6}	22	740	300	3050	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	280S	40	170_{m6}	22	740	300	3200	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	280M	40	170_{m6}	22	740	300	3200	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315S	40	170_{m6}	22	740	300	3300	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315M	40	170_{m6}	22	740	300	3300	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315L	40	170_{m6}	22	740	300	3450	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315ML	40	170_{m6}	22	740	300	3550	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315	40	170_{m6}	22	740	300	3750	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	355S	40	170_{m6}	22	740	300	4000	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
X190	250M	40	170_{m6}	22	740	300	3100	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	280S	40	170_{m6}	22	740	300	3250	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	280M	40	170_{m6}	22	740	300	3250	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315S	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315M	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315L	40	170_{m6}	22	740	300	3500	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315ML	40	170_{m6}	22	740	300	3600	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	315	40	170_{m6}	22	740	300	3800	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
	355S	40	170_{m6}	22	740	300	4050	592	179	40_{h9}	350	450	1180	1015	590	450	M30	400
X200	250M	40	180_{m6}	22	870	300	3250	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	280S	40	180_{m6}	22	870	300	3400	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	280M	40	180_{m6}	22	870	300	3400	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	315S	40	180_{m6}	22	870	300	3500	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	315M	40	180_{m6}	22	870	300	3500	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	315L	40	180_{m6}	22	870	300	3650	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	315ML	40	180_{m6}	22	870	300	3750	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	315	40	180_{m6}	22	870	300	3650	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
	355S	40	180_{m6}	22	870	300	4200	612	190	45_{h9}	400	500	1230	1200	615	450	M30	980
X210	280S	40	190_{m6}	22	870	350	3400	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	280M	40	190_{m6}	22	870	350	3400	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	315S	40	190_{m6}	22	870	350	3500	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	315M	40	190_{m6}	22	870	350	3500	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	315L	40	190_{m6}	22	870	350	3650	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	315ML	40	190_{m6}	22	870	350	3750	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	315	40	190_{m6}	22	870	350	4000	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980
	355S	40	190_{m6}	22	870	350	4200	662	200	45_{h9}	400	500	1230	1200	615	450	M30	980

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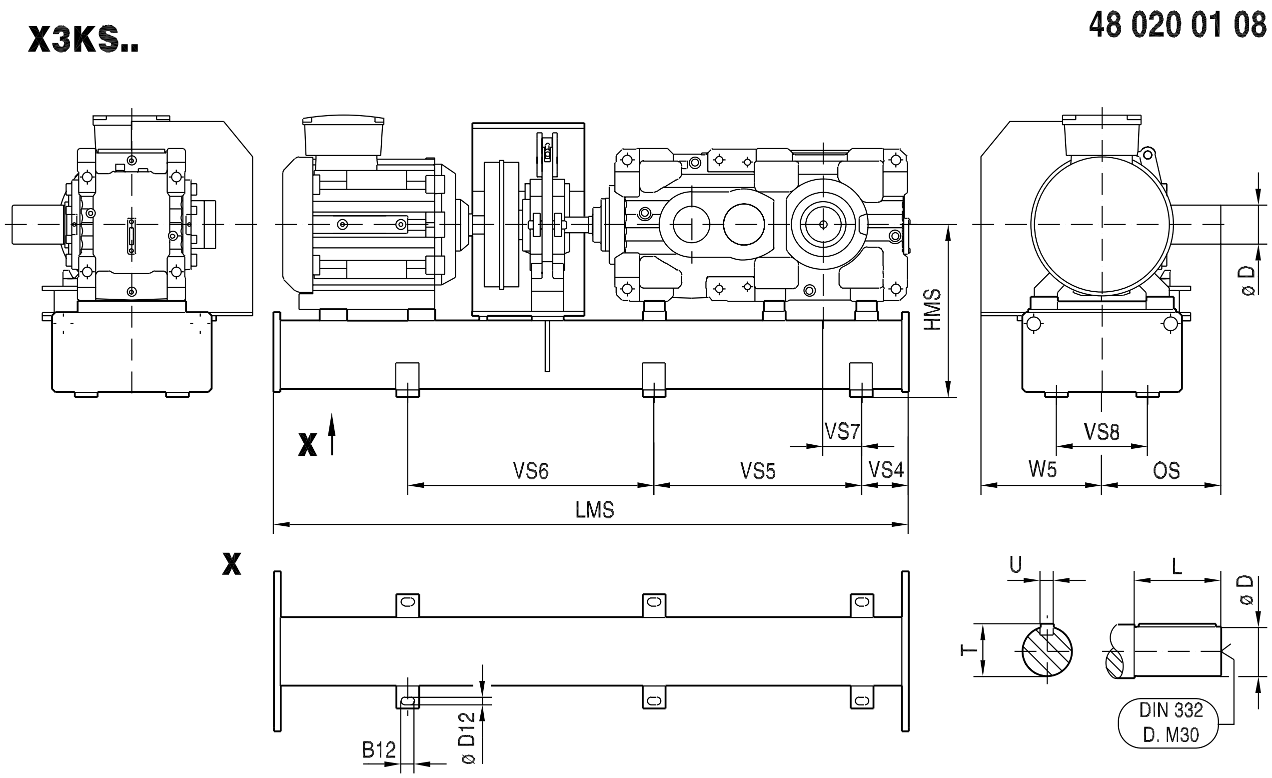
X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X220	280S	40	210_{m6}	22	910	350	3550	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	280M	40	210_{m6}	22	910	350	3550	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	315S	40	210_{m6}	22	910	350	3650	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	315M	40	210_{m6}	22	910	350	3650	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	315L	40	210_{m6}	22	910	350	3800	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	315ML	40	210_{m6}	22	910	350	3900	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	315	40	210_{m6}	22	910	350	4100	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
	355S	40	210_{m6}	22	910	350	4350	703	221	50_{h9}	400	545	1280	1250	640	450	M30	1000
X230	280S	40	230_{m6}	22	910	410	3600	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	280M	40	230_{m6}	22	910	410	3600	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	315S	40	230_{m6}	22	910	410	3700	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	315M	40	230_{m6}	22	910	410	3700	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	315L	40	230_{m6}	22	910	410	3850	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	315ML	40	230_{m6}	22	910	410	3950	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	315	40	230_{m6}	22	910	410	4150	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
	355S	40	230_{m6}	22	910	410	4400	763	241	50_{h9}	400	545	1280	1250	640	450	M36	1000
X240	315S	45	230_{m6}	26	965	410	3850	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
	315M	45	230_{m6}	26	965	410	3850	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
	315L	45	230_{m6}	26	965	410	4000	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
	315ML	45	230_{m6}	26	965	410	4100	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
	315	45	230_{m6}	26	965	410	4300	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
	355S	45	230_{m6}	26	965	410	4550	811	241	50_{h9}	400	575	1350	1250	675	500	M36	1100
X250	315S	45	240_{m6}	26	965	410	3900	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100
	315M	45	240_{m6}	26	965	410	3900	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100
	315L	45	240_{m6}	26	965	410	4050	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100
	315ML	45	240_{m6}	26	965	410	4150	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100
	315	45	240_{m6}	26	965	410	4350	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100
	355S	45	240_{m6}	26	965	410	4600	811	252	56_{h9}	400	575	1350	1250	675	500	M36	1100

13.8 X3K.. Base frame with hydr. start-up coupling and drum brake [mm]

INFORMATION

Final dimensions are specified order-specifically by SEW-EURODRIVE.

The weights listed in the following tables refer to the steel construction.



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X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X100	132S	40	80_{m6}	22	380	170	1900	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	132M	40	80_{m6}	22	380	170	1900	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	160M	40	80_{m6}	22	380	170	2000	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	160L	40	80_{m6}	22	380	170	2000	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	180M	40	80_{m6}	22	380	170	2200	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	180L	40	80_{m6}	22	380	170	2200	343	85	22_{h9}	520	250	810	580	405	230	M20	170
	200L	40	80_{m6}	22	380	170	2250	343	85	22_{h9}	620	250	810	580	405	230	M20	170
X110	132S	40	90_{m6}	22	380	170	1900	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	132M	40	90_{m6}	22	380	170	1900	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	160M	40	90_{m6}	22	380	170	2050	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	160L	40	90_{m6}	22	380	170	2050	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	180M	40	90_{m6}	22	380	170	2250	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	180L	40	90_{m6}	22	380	170	2250	346	95	25_{h9}	520	250	810	580	405	230	M24	170
	200L	40	90_{m6}	22	380	170	2250	346	95	25_{h9}	620	250	810	580	405	230	M24	170
X120	160M	40	100_{m6}	22	450	210	2150	401	106	28_{h9}	520	250	810	580	405	250	M24	270
	160L	40	100_{m6}	22	450	210	2150	401	106	28_{h9}	520	250	810	580	405	250	M24	270
	180M	40	100_{m6}	22	450	210	2300	401	106	28_{h9}	520	250	810	580	405	250	M24	270
	180L	40	100_{m6}	22	450	210	2300	401	106	28_{h9}	520	250	810	580	405	250	M24	270
	200L	40	100_{m6}	22	450	210	2350	401	106	28_{h9}	620	250	810	580	405	250	M24	270
	225S	40	100_{m6}	22	450	210	2450	401	106	28_{h9}	770	250	810	580	405	250	M24	270
	225M	40	100_{m6}	22	450	210	2450	401	106	28_{h9}	770	250	810	580	405	250	M24	270
	250M	40	100_{m6}	22	450	210	2550	401	106	28_{h9}	770	250	810	580	405	250	M24	270
X130	160M	40	11_{0m6}	22	450	210	2150	404	116	28_{h9}	520	250	810	580	405	250	M24	270
	160L	40	110_{m6}	22	450	210	2150	404	116	28_{h9}	520	250	810	580	405	250	M24	270
	180M	40	110_{m6}	22	450	210	2350	404	116	28_{h9}	520	250	810	580	405	250	M24	270
	180L	40	110_{m6}	22	450	210	2350	404	116	28_{h9}	520	250	810	580	405	250	M24	270
	200L	40	110_{m6}	22	450	210	2400	404	116	28_{h9}	620	250	810	580	405	250	M24	270
	225S	40	110_{m6}	22	450	210	2450	404	116	28_{h9}	770	250	810	580	405	250	M24	270
	225M	40	110_{m6}	22	450	210	2450	404	116	28_{h9}	770	250	810	580	405	250	M24	270
	250M	40	110_{m6}	22	450	210	2550	404	116	28_{h9}	770	250	810	580	405	250	M24	270
X140	180M	40	120_{m6}	22	540	210	2600	432	127	32_{h9}	520	300	1140	810	570	300	M24	330
	180L	40	120_{m6}	22	540	210	2600	432	127	32_{h9}	520	300	1140	810	570	300	M24	330
	200L	40	120_{m6}	22	540	210	2650	432	127	32_{h9}	620	300	1140	810	570	300	M24	330
	225S	40	120_{m6}	22	540	210	2750	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	225M	40	120_{m6}	22	540	210	2750	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	250M	40	120_{m6}	22	540	210	2850	432	127	32_{h9}	770	300	1140	810	570	300	M24	330
	280S	40	120_{m6}	22	540	210	3050	432	127	32_{h9}	870	300	1140	810	570	300	M24	330
	280M	40	120_{m6}	22	540	210	3050	432	127	32_{h9}	870	300	1140	810	570	300	M24	330
X150	180M	40	130_{m6}	22	540	250	2650	475	137	32_{h9}	520	300	1140	810	570	300	M24	330
	180L	40	130_{m6}	22	540	250	2650	475	137	32_{h9}	520	300	1140	810	570	300	M24	330
	200L	40	130_{m6}	22	540	250	2700	475	137	32_{h9}	620	300	1140	810	570	300	M24	330
	225S	40	130_{m6}	22	540	250	2800	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	225M	40	130_{m6}	22	540	250	2800	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	250M	40	130_{m6}	22	540	250	2900	475	137	32_{h9}	770	300	1140	810	570	300	M24	330
	280S	40	130_{m6}	22	540	250	3050	475	137	32_{h9}	870	300	1140	810	570	300	M24	330
	280M	40	130_{m6}	22	540	250	3050	475	137	32_{h9}	870	300	1140	810	570	300	M24	330

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X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X160	200L	40	140_{m6}	22	630	250	2800	506	148	36_{h9}	620	350	1140	860	570	350	M30	450
	225S	40	140_{m6}	22	630	250	2900	506	148	36_{h9}	770	350	1140	860	570	350	M30	450
	225M	40	140_{m6}	22	630	250	2900	506	148	36_{h9}	770	350	1140	860	570	350	M30	450
	250M	40	140_{m6}	22	630	250	3000	506	148	36_{h9}	770	350	1140	860	570	350	M30	450
	280S	40	140_{m6}	22	630	250	3150	506	148	36_{h9}	870	350	1140	860	570	350	M30	450
	280M	40	140_{m6}	22	630	250	3150	506	148	36_{h9}	870	350	1140	860	570	350	M30	450
	315S	40	140_{m6}	22	630	250	3250	506	148	36_{h9}	870	350	1140	860	570	350	M30	450
	315M	40	140_{m6}	22	630	250	3250	506	148	36_{h9}	870	350	1140	860	570	350	M30	450
	315L	40	140_{m6}	22	630	250	3400	506	148	36_{h9}	870	350	1140	860	570	350	M30	450
X170	200L	40	160_{m6}	22	630	300	2850	556	169	40_{h9}	620	350	1140	860	570	350	M30	450
	225S	40	160_{m6}	22	630	300	2950	556	169	40_{h9}	770	350	1140	860	570	350	M30	450
	225M	40	160_{m6}	22	630	300	2950	556	169	40_{h9}	770	350	1140	860	570	350	M30	450
	250M	40	160_{m6}	22	630	300	3050	556	169	40_{h9}	770	350	1140	860	570	350	M30	450
	280S	40	160_{m6}	22	630	300	3200	556	169	40_{h9}	870	350	1140	860	570	350	M30	450
	280M	40	160_{m6}	22	630	300	3200	556	169	40_{h9}	870	350	1140	860	570	350	M30	450
	315S	40	160_{m6}	22	630	300	3300	556	169	40_{h9}	870	350	1140	860	570	350	M30	450
	315M	40	160_{m6}	22	630	300	3300	556	169	40_{h9}	870	350	1140	860	570	350	M30	450
	315L	40	160_{m6}	22	630	300	3450	556	169	40_{h9}	870	350	1140	860	570	350	M30	450
X180	250M	40	170_{m6}	22	740	300	3100	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280S	40	170_{m6}	22	740	300	3250	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280M	40	170_{m6}	22	740	300	3250	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315S	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315M	40	170_{m6}	22	740	300	3350	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315L	40	170_{m6}	22	740	300	3500	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315ML	40	170_{m6}	22	740	300	3600	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315	40	170_{m6}	22	740	300	3800	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	355S	40	170_{m6}	22	740	300	4050	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
X190	250M	40	170_{m6}	22	740	300	3150	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280S	40	170_{m6}	22	740	300	3300	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	280M	40	170_{m6}	22	740	300	3300	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315S	40	170_{m6}	22	740	300	3400	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315M	40	170_{m6}	22	740	300	3400	592	179	40_{h9}	770	450	1180	1015	590	450	M30	450
	315L	40	170_{m6}	22	740	300	3550	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315ML	40	170_{m6}	22	740	300	3650	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	315	40	170_{m6}	22	740	300	3850	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
	355S	40	170_{m6}	22	740	300	4100	592	179	40_{h9}	870	450	1180	1015	590	450	M30	450
X200	250M	40	180_{m6}	22	870	300	3300	612	190	45_{h9}	770	500	1230	1200	615	450	M30	1000
	280S	40	180_{m6}	22	870	300	3450	612	190	45_{h9}	770	500	1230	1200	615	450	M30	1000
	280M	40	180_{m6}	22	870	300	3450	612	190	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315S	40	180_{m6}	22	870	300	3550	612	190	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315M	40	180_{m6}	22	870	300	3550	612	190	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315L	40	180_{m6}	22	870	300	3700	612	190	45_{h9}	870	500	1230	1200	615	450	M30	1000
	315ML	40	180_{m6}	22	870	300	3800	612	190	45_{h9}	870	500	1230	1200	615	450	M30	1000
	315	40	180_{m6}	22	870	300	4000	612	190	45_{h9}	870	500	1230	1200	615	450	M30	1000
	355S	40	180_{m6}	22	870	300	4250	612	190	45_{h9}	870	500	1230	1200	615	450	M30	1000
X210	280S	40	190_{m6}	22	870	350	3450	662	200	45_{h9}	770	500	1230	1200	615	450	M30	1000
	280M	40	190_{m6}	22	870	350	3450	662	200	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315S	40	190_{m6}	22	870	350	3550	662	200	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315M	40	190_{m6}	22	870	350	3550	662	200	45_{h9}	770	500	1230	1200	615	450	M30	1000
	315L	40	190_{m6}	22	870	350	3700	662	200	45_{h9}	870	500	1230	1200	615	450	M30	1000
	315ML	40	190_{m6}	22	870	350	3800	662	200	45_{h9}	870	500	1230	1200	615	450	M30	1000
	315	40	190_{m6}	22	870	350	4050	662	200	45_{h9}	870	500	1230	1200	615	450	M30	1000
	355S	40	190_{m6}	22	870	350	4250	662	200	45_{h9}	870	500	1230	1200	615	450	M30	1000

X3KS..	Motor	B12	Ø D	Ø D12	HMS	L	LMS	OS	T	V	W5	VS4	VS5	VS6	VS7	VS8	DIN 332 D.M..	kg
X220	280S	40	210_{m6}	22	910	350	3600	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	280M	40	210_{m6}	22	910	350	3600	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315S	40	210_{m6}	22	910	350	3700	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315M	40	210_{m6}	22	910	350	3700	703	221	50_{h9}	770	545	1280	1250	640	450	M30	1050
	315L	40	210_{m6}	22	910	350	3850	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	315ML	40	210_{m6}	22	910	350	3950	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	315	40	210_{m6}	22	910	350	4150	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
	355S	40	210_{m6}	22	910	350	4400	703	221	50_{h9}	870	545	1280	1250	640	450	M30	1050
X230	280S	40	230_{m6}	22	910	410	3650	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	280M	40	230_{m6}	22	910	410	3650	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315S	40	230_{m6}	22	910	410	3750	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315M	40	230_{m6}	22	910	410	3750	763	241	50_{h9}	770	545	1280	1250	640	450	M36	1050
	315L	40	230_{m6}	22	910	410	3900	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	315ML	40	230_{m6}	22	910	410	4000	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	315	40	230_{m6}	22	910	410	4200	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
	355S	40	230_{m6}	22	910	410	4450	763	241	50_{h9}	870	545	1280	1250	640	450	M36	1050
X240	315S	45	230_{m6}	26	965	410	3900	811	241	50_{h9}	770	575	1350	1250	675	500	M36	1200
	315M	45	230_{m6}	26	965	410	3900	811	241	50_{h9}	770	575	1350	1250	675	500	M36	1200
	315L	45	230_{m6}	26	965	410	4050	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	315ML	45	230_{m6}	26	965	410	4150	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	315	45	230_{m6}	26	965	410	4350	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
	355S	45	230_{m6}	26	965	410	4600	811	241	50_{h9}	870	575	1350	1250	675	500	M36	1200
X250	315S	45	240_{m6}	26	965	410	3950	811	252	56_{h9}	770	575	1350	1250	675	500	M36	1200
	315M	45	240_{m6}	26	965	410	3950	811	252	56_{h9}	770	575	1350	1250	675	500	M36	1200
	315L	45	240_{m6}	26	965	410	4100	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	315ML	45	240_{m6}	26	965	410	4200	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	315	45	240_{m6}	26	965	410	4400	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200
	355S	45	240_{m6}	26	965	410	4650	811	252	56_{h9}	870	575	1350	1250	675	500	M36	1200

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14 Address directory SEW-EURODRIVE

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Technical Offices	Tucumán	SEW EURODRIVE ARGENTINA S.A. Balcarce 609 (T4000IAM) S.M. de Tucumán Prov. de Tucumán	Tel. +54 381-400-4569 http://www.sew-eurodrive.com.ar sewtuc@sew-eurodrive.com.ar
	Bahía Blanca	SEW EURODRIVE ARGENTINA S.A. O'Higgins 95, 1er Piso A (B8000IVA) Bahía Blanca Prov. de Buenos Aires	Tel. +54 291-451-7345 http://www.sew-eurodrive.com.ar sewbb@sew-eurodrive.com.ar
	Neuquén	SEW EURODRIVE ARGENTINA S.A.	Tel. +549 299 588 7950 http://www.sew-eurodrive.com.ar sewnqn@sew-eurodrive.com.ar
Australia			
Assembly Sales Service	Melbourne	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
Sales Service	Adelaide	SEW-EURODRIVE PTY. LTD. 9C Park Way Mawson Lakes, SA 5095	Tel. +61 8 8161 4000 Fax +61 8 8161 4002 enquires@sew-eurodrive.com.au
	Brisbane	SEW-EURODRIVE PTY. LTD. 1 /34 Collinsvale St Rocklea, Queensland, 4106	Tel. +61 7 3276 5100 Fax +61 7 3276 5102 enquires@sew-eurodrive.com.au
	Perth	SEW-EURODRIVE PTY. LTD. 10 Colin Jamieson Drive Welshpool, WA 6106	Tel. +61 8 9251-4900 Fax +61 8 9251-4903 enquires@sew-eurodrive.com.au
Sales	Townsville	SEW-EURODRIVE PTY. LTD. 12 Leyland Street Garbutt, QLD 4814	Tel. +61 7 4779 4333 Fax +61 7 4779 5333 enquires@sew-eurodrive.com.au
Austria			
Assembly Sales Service	Vienna	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Straße 24 1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://www.sew-eurodrive.at sew@sew-eurodrive.at
Technical Offices	Linz	SEW-EURODRIVE Ges.m.b.H. Jaxstraße 2-4 4020 Linz	Tel. +43 732 655 109-0 Fax +43 732 655 109-20 tb-linz@sew-eurodrive.at

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	Dornbirn	SEW-EURODRIVE Ges.m.b.H. Lustenauerstraße 27/1 6850 Dornbirn	Tel. +43 5572 3725 99-0 Fax +43 5572 3725 99-20 tb-dornbirn@sew-eurodrive.at
Bangladesh			
Sales	Bangladesh	SEW-EURODRIVE INDIA PRIVATE LIMITED 345 DIT Road East Rampura Dhaka-1219, Bangladesh	Tel. +88 01729 097309 salesdhaka@seweurodrivebangladesh.com
Belarus			
Sales	Minsk	Foreign unitary production enterprise SEW-EURODRIVE RybalkoStr. 26 220033 Minsk	Tel. +375 17 298 47 56 / 298 47 58 Fax +375 17 298 47 54 http://www.sew.by sales@sew.by
Belgium			
Assembly Sales Service	Brussels	SEW-EURODRIVE n.v./s.a. Researchpark Haasrode 1060 Evenementenlaan 7 3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 http://www.sew-eurodrive.be info@sew-eurodrive.be
Service Competence Center	Industrial Gears	SEW-EURODRIVE n.v./s.a. Rue de Parc Industriel, 31 6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-IG@sew-eurodrive.be
Brazil			
Production Sales Service	São Paulo	SEW-EURODRIVE Brasil Ltda. Estrada Municipal José Rubim, 205 – Rodovia Santos Dumont Km 49 Indaiatuba – 13347-510 – SP	Tel. +55 19 3835-8000 sew@sew.com.br
Assembly Sales Service	Rio Claro	SEW-EURODRIVE Brasil Ltda. Rodovia Washington Luiz, Km 172 Condomínio Industrial Conpark Caixa Postal: 327 13501-600 – Rio Claro / SP	Tel. +55 19 3522-3100 Fax +55 19 3524-6653 montadora.rc@sew.com.br
	Joinville	SEW-EURODRIVE Brasil Ltda. Rua Dona Francisca, 12.346 – Pirabeiraba 89239-270 – Joinville / SC	Tel. +55 47 3027-6886 Fax +55 47 3027-6888 filial.sc@sew.com.br
Bulgaria			
Sales	Sofia	BEVER-DRIVE GmbH Bogdanovetz Str.1 1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@bever.bg
Cameroon			
Sales	Douala	SEW-EURODRIVE S.A.R.L. Ancienne Route Bonabéri P.O. Box B.P 8674 Douala-Cameroun	Tel. +237 233 39 02 10 Fax +237 233 39 02 10 info@sew-eurodrive-cm
Canada			
Assembly Sales Service	Toronto	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, ON L6T 3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.watson@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. Tilbury Industrial Park 7188 Honeyman Street Delta, BC V4G 1G1	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew-eurodrive.ca
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Chile			
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China			
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	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267922 guangzhou@sew-eurodrive.cn
	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
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	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
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Colombia			
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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			
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	Hradec Králové	SEW-EURODRIVE CZ s.r.o. Čechova 498 50202 Hradec Králové	Tel. +420 495 510 141 Fax +420 495 521 313 miroslav.moravec@sew-eurodrive.cz
	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
Denmark			
Assembly Sales Service	Copenhagen	SEW-EURODRIVEA/S Geminivej 28-30 2670 Greve	Tel. +45 43 95 8500 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
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 Sales Service	Hagenau	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
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
	Lyon	SEW-USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 Fax +33 4 74 99 60 15
	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
	Paris	SEW-USOCOME Zone industrielle 2 rue Denis Papin 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Technical Offices	Alsace	SEW-USOCOME	Tel. +33 3 89 74 51 62 Fax +33 3 89 76 58 71
	Aquitaine / Charentes	SEW-USOCOME	Tel. +33 5 57 26 39 08 Fax +33 5 57 26 39 09
	Auvergne / Limousin	SEW-USOCOME	Tel. +33 5 55 20 12 10 Fax +33 5 55 20 12 11
	Lower Normandie	SEW-USOCOME	Tel. +33 2 31 37 92 86 Fax +33 2 31 74 68 15
	Brittany	SEW-USOCOME	Tel. +33 2 40 78 42 04 Fax +33 2 40 78 42 20
	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
	Champagne-Ardenne	SEW-USOCOME	Tel. +33 3 25 79 63 24 Fax +33 3 25 79 63 25
	Franche-Comté	SEW-USOCOME	Tel. +33 3 84 68 57 71 Fax +33 3 84 68 57 95
	Île-de-France East / Aisne	SEW-USOCOME	Tel. +33 3 23 62 81 24 Fax +33 3 23 62 81 44
	Île-de-France North / Picardie	SEW-USOCOME	Tel. +33 1 41 05 92 74 Fax +33 1 41 05 92 75
	Île-de-France South	SEW-USOCOME	Tel. +33 1 60 81 10 56 Fax +33 1 60 81 10 57
	Lorraine / Alsace North	SEW-USOCOME	Tel. +33 3 83 96 28 04 Fax +33 3 83 96 28 07
	Midi-Pyrénées / Roussillon	SEW-USOCOME	Tel. +33 5 61 08 15 85 Fax +33 5 61 08 16 44
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	Paris / Île-de-France West	SEW-USOCOME	Tel. +33 1 30 90 89 86 Fax +33 1 30 90 93 15
	Pays de la Loire	SEW-USOCOME	Tel. +33 2 40 78 42 03 Fax +33 2 40 78 42 20
	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
	Rhône-Alpes West	SEW-USOCOME	Tel. +33 4 74 99 60 04 Fax +33 4 74 99 60 15
Gabon			
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Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal P.O. Box Postfach 3023 – D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf P.O. Box Postfach 1220 – D-76671 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
	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
Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
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
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 dtc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 85551 Kirchheim (München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 dtc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 40764 Langenfeld (Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 dtc-west@sew-eurodrive.de
Drive Center	Berlin	SEW-EURODRIVE GmbH & Co KG Alexander-Meißner-Straße 44 12526 Berlin	Tel. +49 306331131-30 Fax +49 306331131-36 dc-berlin@sew-eurodrive.de
	Ludwigshafen	SEW-EURODRIVE GmbH & Co KG c/o BASF SE Gebäude W130 Raum 101 67056 Ludwigshafen	Tel. +49 7251 75 3759 Fax +49 7251 75 503759 dc-ludwigshafen@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de

Germany			
	Ulm	SEW-EURODRIVE GmbH & Co KG Dieselstraße 18 89160 Dornstadt	Tel. +49 7348 9885-0 Fax +49 7348 9885-90 dc-ulm@sew-eurodrive.de
	Würzburg	SEW-EURODRIVE GmbH & Co KG Nürnbergerstraße 118 97076 Würzburg-Lengfeld	Tel. +49 931 27886-60 Fax +49 931 27886-66 dc-wuerzburg@sew-eurodrive.de
Drive Service Hotline / 24 Hour Service			0 800 SEWHELP 0 800 7394357
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	Lake Con-stance	SEW-EURODRIVE GmbH & Co KG Dornierstraße 4 88677 Markdorf	Tel. +49 7544 96590-90 Fax +49 7544 96590-99 tb-bodensee@sew-eurodrive.de
	Bremen	SEW-EURODRIVE GmbH & Co KG Bornstr.19 ... 22 28195 Bremen	Tel. +49 421 33918-10 Fax +49 421 33918-22 tb-bremen@sew-eurodrive.de
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	Münster	SEW-EURODRIVE GmbH & Co KG Hafenplatz 4 48155 Münster	Tel. +49 251 41475-11 Fax +49 251 41475-50 tb-muenster@sew-eurodrive.de
	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
	Stuttgart	SEW-EURODRIVE GmbH & Co KG Friedrich-List-Straße 46 70771 Leinfelden-Echterdingen	Tel. +49 711 16072-0 Fax +49 711 16072-72 tb-stuttgart@sew-eurodrive.de
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Great Britain			
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	Drive Service Hotline / 24 Hour Service		Tel. 01924 896911
Service Competence Center	Southern England	SEW-EURODRIVE Ltd. Unit 41 Easter Park Benyon Road Silchester Reading Berkshire RG7 2PQ	Tel. +44 1189 701-699 Fax +44 1189 701-021
Technical Offices	Midlands	SEW-EURODRIVE Ltd. 5 Sugar Brook court Aston Road Bromsgrove Worcs. B60 3EX	Tel. +44 1527 877-319 Fax +44 1527 575-245
	Scotland	SEW-EURODRIVE Ltd. No 37 Enterprise House Springkerse Business Park Stirling FK7 7UF	Tel. +44 17 8647-8730 Fax +44 17 8645-0223
	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			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
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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Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
India			
Registered Office Assembly Sales Service	Vadodara	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200 Fax +91 265 3045300 http://www.seweurodriveindia.com salesvadodara@seweurodriveindia.com
Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35 628700 Fax +91 21 35 628715 salespune@seweurodriveindia.com
Technical Offices	Ahmedabad	SEW-EURODRIVE India Private Limited 306, Shaan office complex, Behind Sakar-IV, Ellisebridge, Ashram Road Ahmedabad – 380006, Gujarat	Tel. +91 79 40072067 / 68 Fax +91 79 40072069 salesahmedabad@seweurodriveindia.com
	Aurangabad	SEW-EURODRIVE India Private Limited Flat.No.403 , Prism Appt. The Venus Housing Society. Beed Bypass Road, Behind Nishant Park Hotel, Aurangabad – 431003, Maharashtra.	Tel. +91 86000 12333 salesaurangabad@seweurodriveindia.com
	Bangalore	SEW-EURODRIVE India Private Limited Sy.no:41-P3, Peenya1, Phase 1A, Peenya Village, Yeswanthapura Hobli, Bangalore North Taluk, Bangalore - 560058, Karnataka	Tel. +91 80 28370664 Fax +91 80 28370665 salesbangalore@seweurodriveindia.com
	Bangalore	SEW-EURODRIVE India Private Limited # C-104, 3rd Block, KSSIDC Complex, Electronic City. Bangalore – 560100, Karnataka	Tel. +91 80 28522662 / 28522663 salesbangalore@seweurodriveindia.com
	Bangladesch	SEW-EURODRIVE India Private Limited Genetic Udayanchal, House-96 (6th Floor), Road-23/A, Block-B, Banani, Dhaka-1213, Bangladesh	Tel. +88 01729 097309 salesdhaka@seweurodrivebangladesh.com
	Bellary	SEW-EURODRIVE India Private Limited Door no-56/279 Ward No-15, Sindhigi compound, Near Raghavendra talkies, Bellary-583101, Karnataka	Tel. +91 77609 88668 salesbellary@seweurodriveindia.com
	Chandigarh	SEW-EURODRIVE India Private Limited #699, Type -3, Power Colony, Chandigarh - Rupnagar Highway Rupnagar - 140001, Punjab	Tel. +91 81462 67606 saleschandigarh@seweurodriveindia.com
	Chennai	SEW-EURODRIVE India Private Limited 2nd Floor, Josmans Complex, No. 5, McNichols Road, Chetpet Chennai - 600031, Tamil Nadu	Tel. +91 44 42849812 / 13 / 14 / 15 Fax +91 44 42849816 saleschennai@seweurodriveindia.com
	Kochi	SEW-EURODRIVE India Private Limited House No: 30/1168 A Kaniyampuzha Road Vyttila Post Office Cochin – 682019, Kerala	Tel. +91 98951 30375 salescochin@seweurodriveindia.com

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Cuttack	SEW-EURODRIVE India Private Limited Plot No.: F/56, Chandaka Industrial Estate, P.O.- K I I T, Bhubaneswar – 751024. Orissa	Tel. +91 9937446333 salescuttack@seweurodriveindia.com
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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
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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
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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
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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

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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

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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
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			
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Japan			
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	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

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	Ulaanbaatar	IM Trading LLC Narny zam street 62 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

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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 Narny zam street 62 Union building, Suite A-403-1 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
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
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	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
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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

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representation: South Africa			
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	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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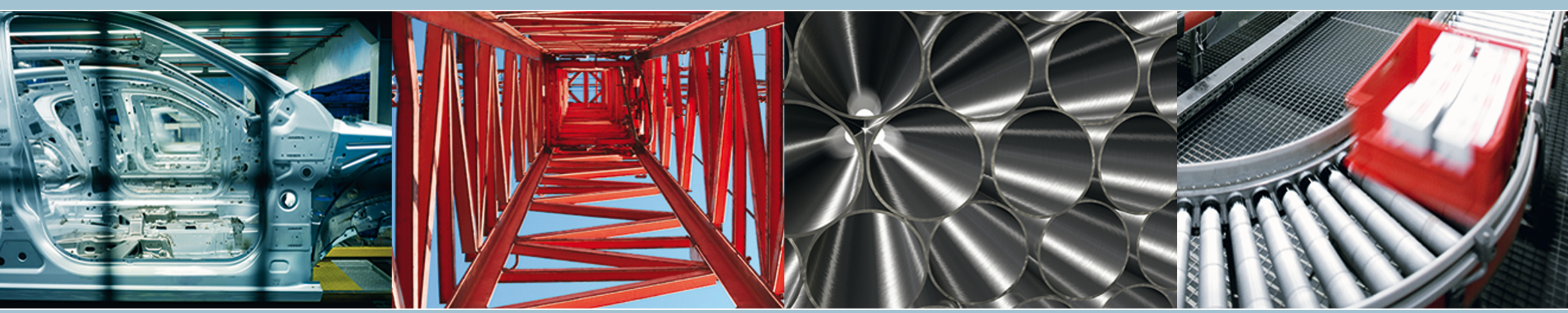
15 Abbreviation key

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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