L-force catalogue

Automation systems
Drive solutions

Controls
Inverters
Motors
Gearboxes
Engineering Tools

Motors: MH three-phase AC motors

Gearboxes: GST helical gearboxes

Lenze
As easy as that.

Contents of the L-force catalogue

Selected portfolio

Additional portfolio

Lenze makes many things easy for you.

With our motivated and committed approach, we work together with you to create the best possible solution and set your ideas in motion - whether you are looking to optimise an existing machine or develop a new one. We always strive to make things easy and seek perfection therein. This is anchored in our thinking, in our services and in every detail of our products. It's as easy as that!

1

Developing ideas

Are you looking to build the best machine possible and already have some initial ideas? Then get these down on paper together with us, starting with small innovative details and stretching all the way to completely new machines. Working together, we will develop an intelligent and sustainable concept that is perfectly aligned with your specific requirements.

2

Drafting concepts

We see welcome challenges in your machine tasks, supporting you with our comprehensive expertise and providing valuable impetus for your innovations. We take a holistic view of the individual motion and control functions here and draw up consistent, end-to-end drive and automation solutions for you - keeping everything as easy as possible and as extensive as necessary.

3

Implementing solutions

Our easy formula for satisfied customers is to establish an active partnership with fast decision-making processes and an individually tailored offer. We have been using this simple principle to meet the ever more specialised customer requirements in the field of mechanical engineering for many years.

4

Manufacturing machines

Functional diversity in perfect harmony: as one of the few full-range providers in the market, we can provide you with precisely those products that you actually need for any machine task – no more and no less. Our L-force product portfolio, a consistent platform for implementing drive and automation tasks, is invaluable in this regard.

5

Ensuring productivity

Productivity, reliability and new performance peaks on a daily basis – these are our key success factors for your machine. After delivery, we offer you cleverly devised service concepts to ensure continued safe operation. The primary focus here is on technical support, based on the excellent application expertise of our highly-skilled and knowledgeable after-sales team.

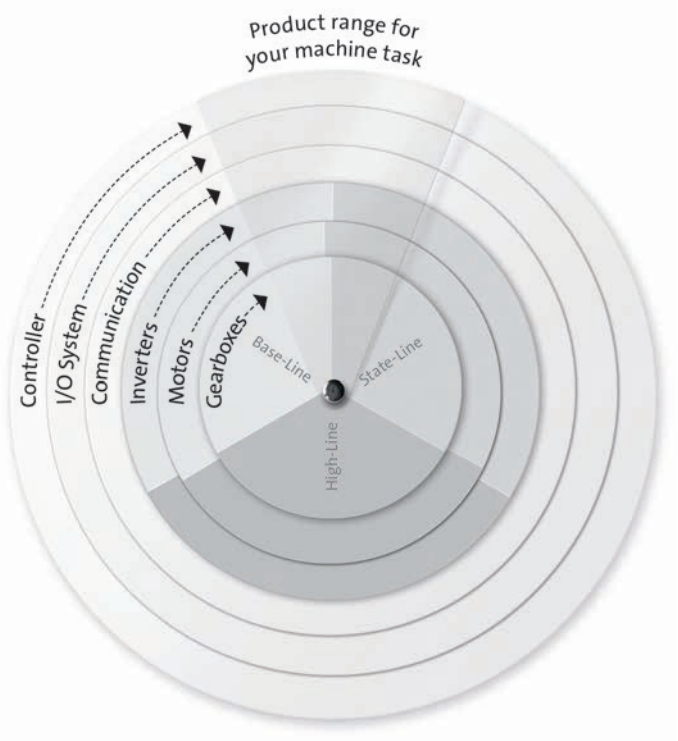
A matter of principle: the right products for every application.

Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three lines Base-Line, State-Line or High-Line.

But what does this mean for you? It allows you to quickly recognise which products represent the best solution for your own specific requirements.

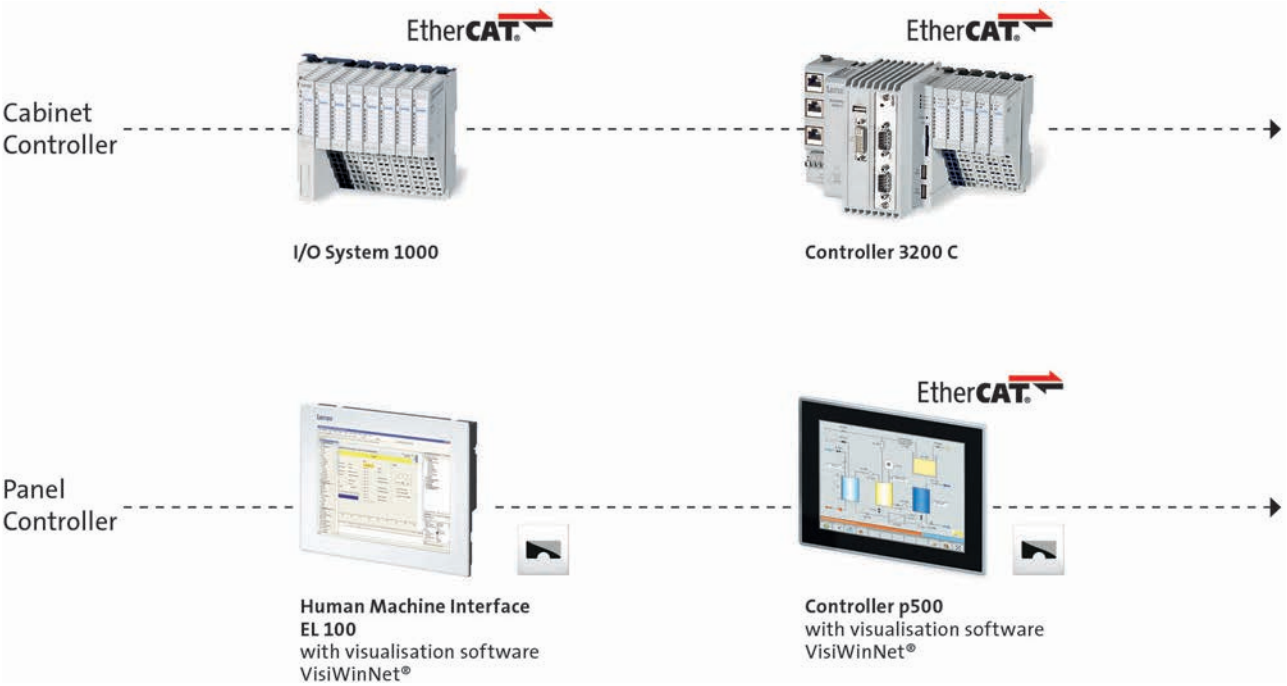
Powerful products with a major impact:
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

Lenze products undergo the most stringent testing in our own laboratory. This allows us to ensure that you will receive consistently high quality and a long service life. In addition to this, five logistics centres ensure that the Lenze products you select are available for quick delivery anywhere across the globe. It's as easy as that!

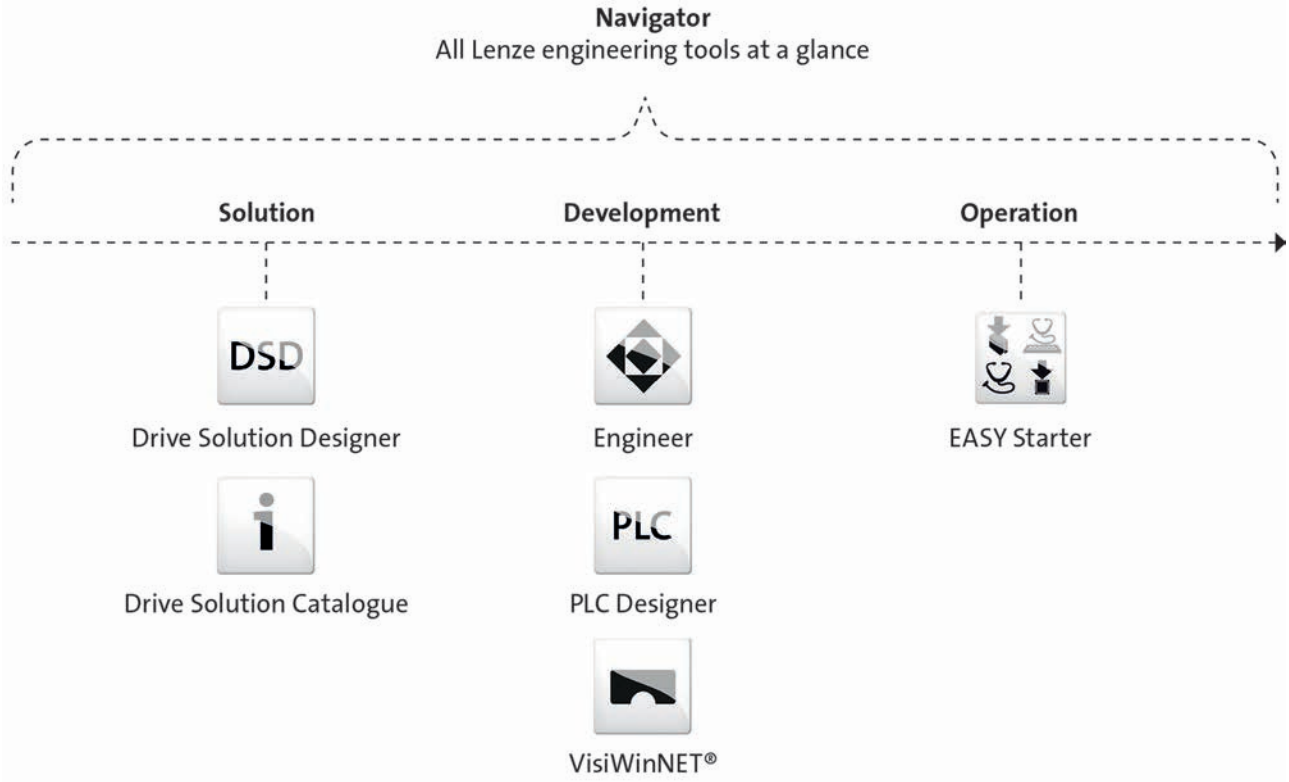


L-force product portfolio

Controls

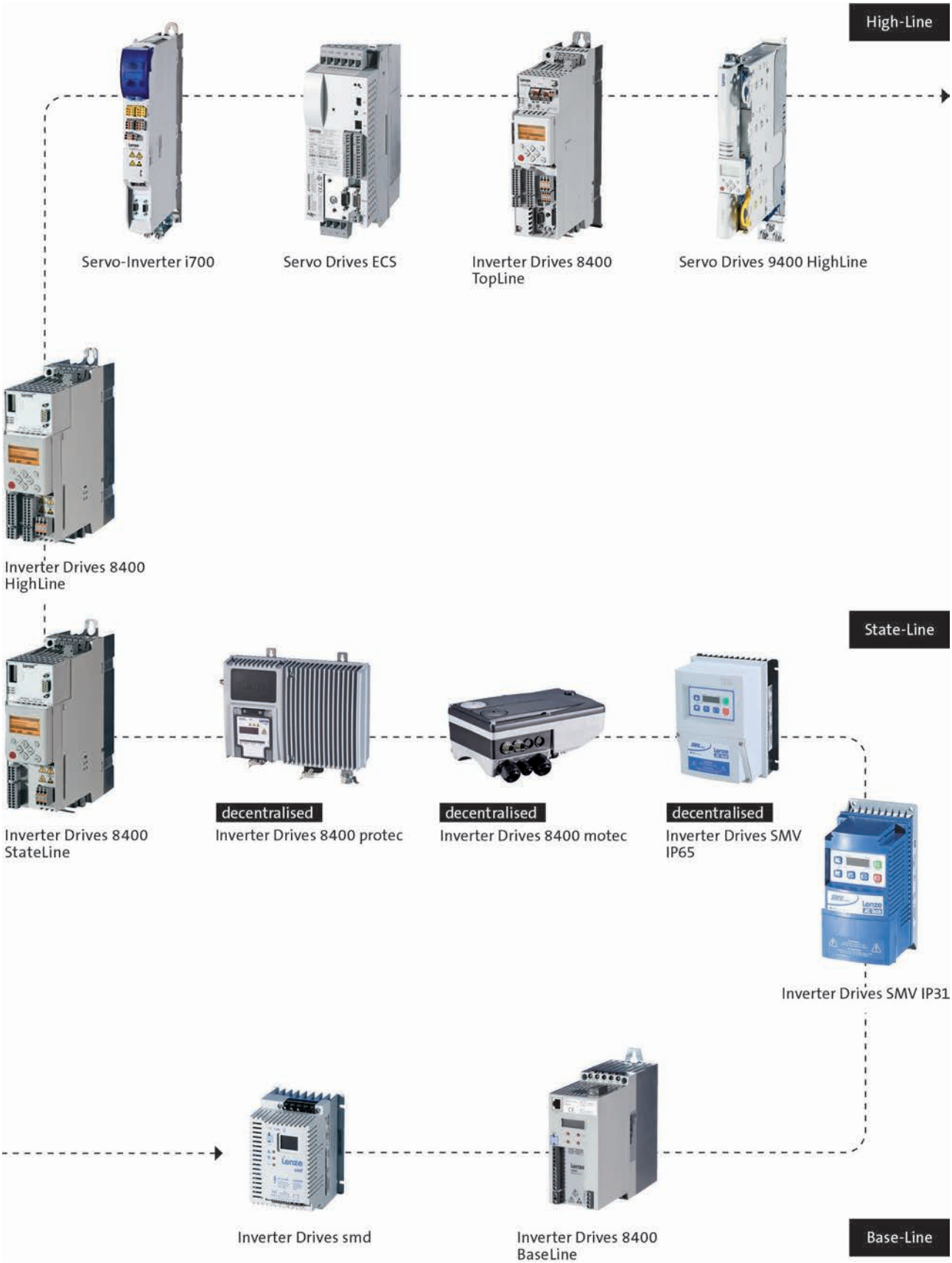


Engineering Tools



L-force product portfolio

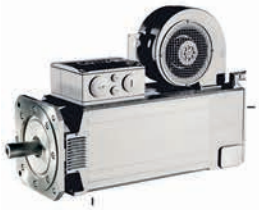
Inverters



L-force product portfolio

Motors

High-Line



MQA asynchronous servo motors

SDSGS synchronous servo motors

MDXKS synchronous servo motors

Synchronous servo motors MCS

Asynchronous servo motors MCA

Asynchronous servo motors SDSGA

State-Line

MF three-phase AC motors

MH three-phase AC motors

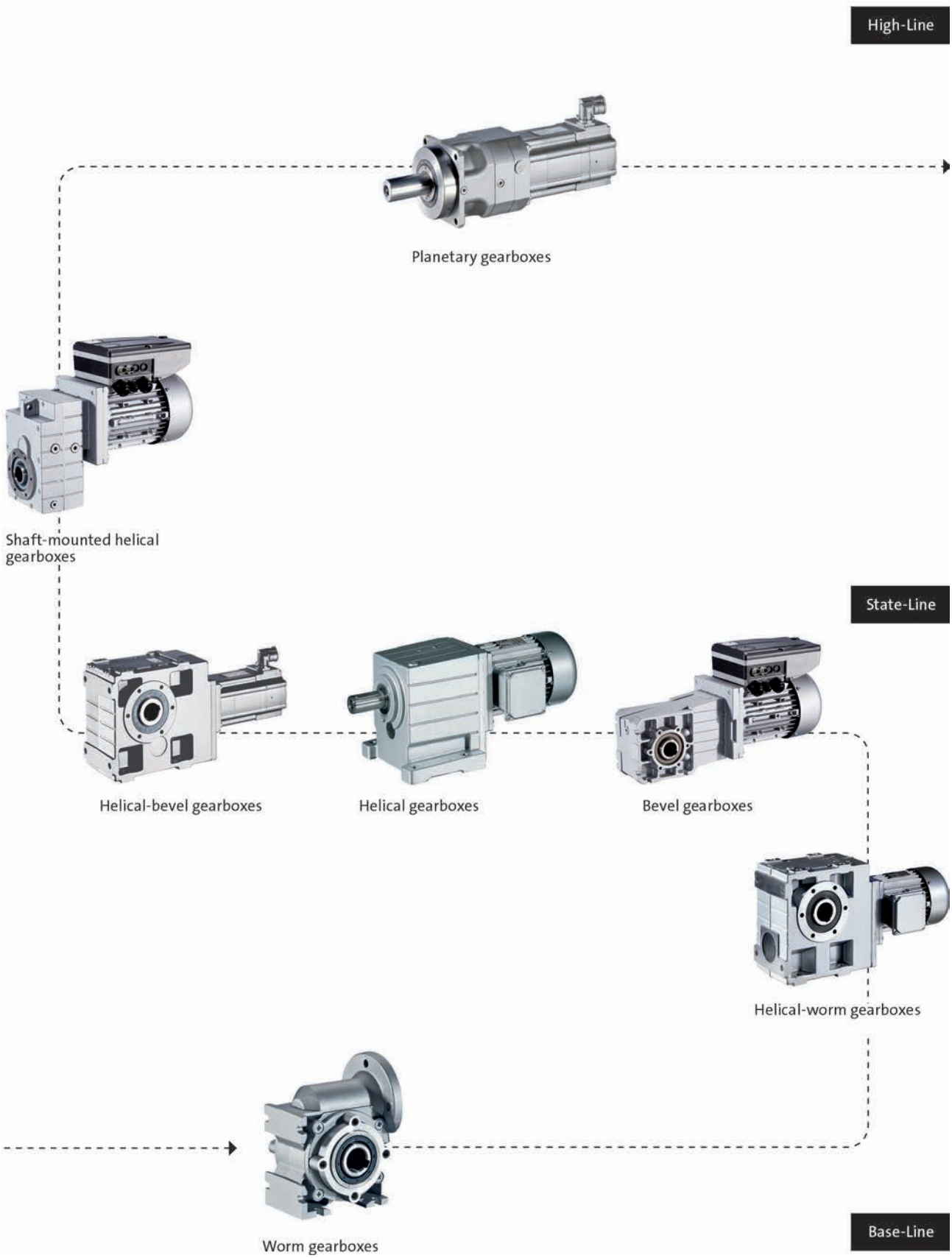
MD three-phase AC motors

Basic MD/MH three-phase AC motors

Base-Line

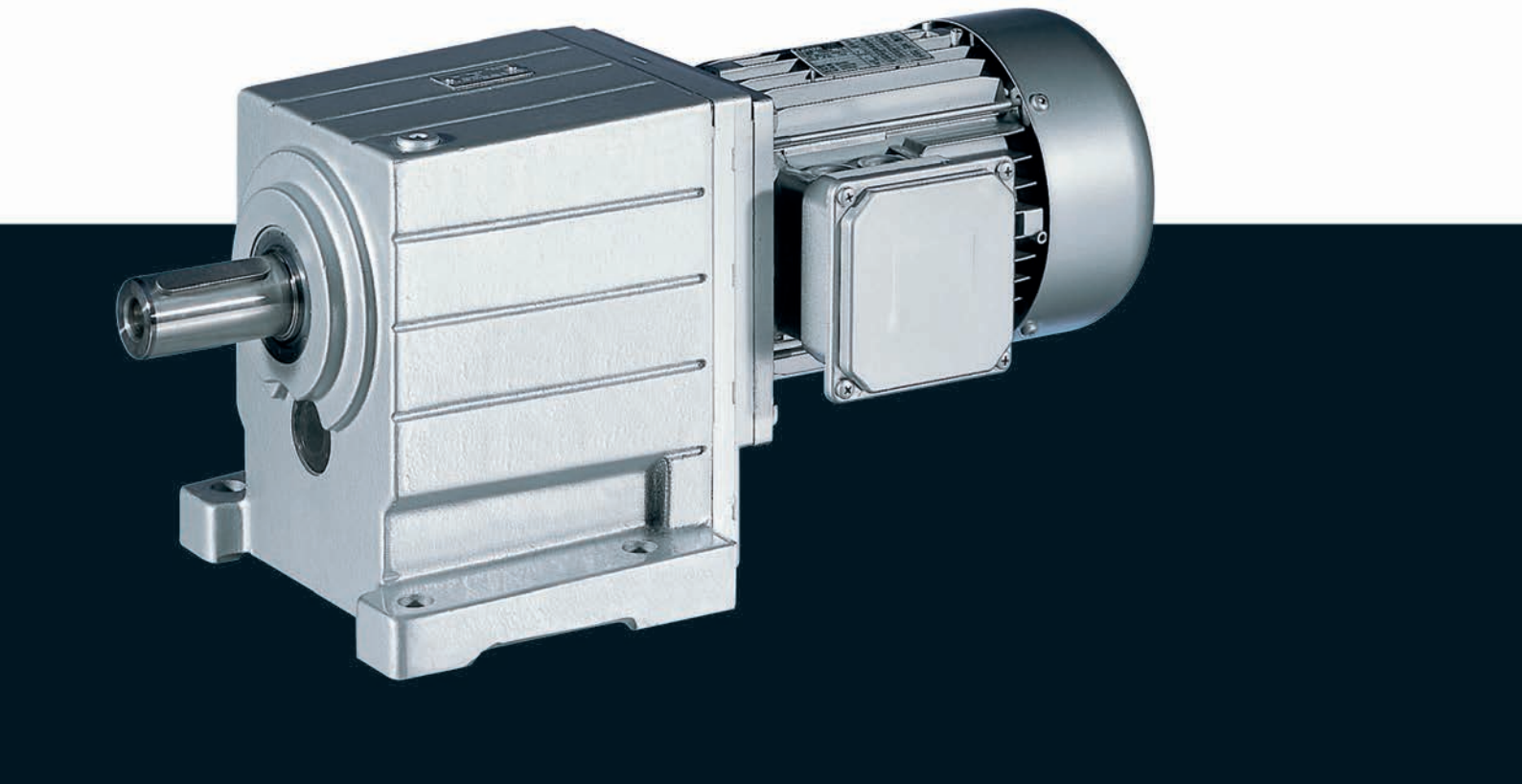
L-force product portfolio

Gearboxes



GST helical gearboxes

0.75 to 45 kW



GST helical gearboxes

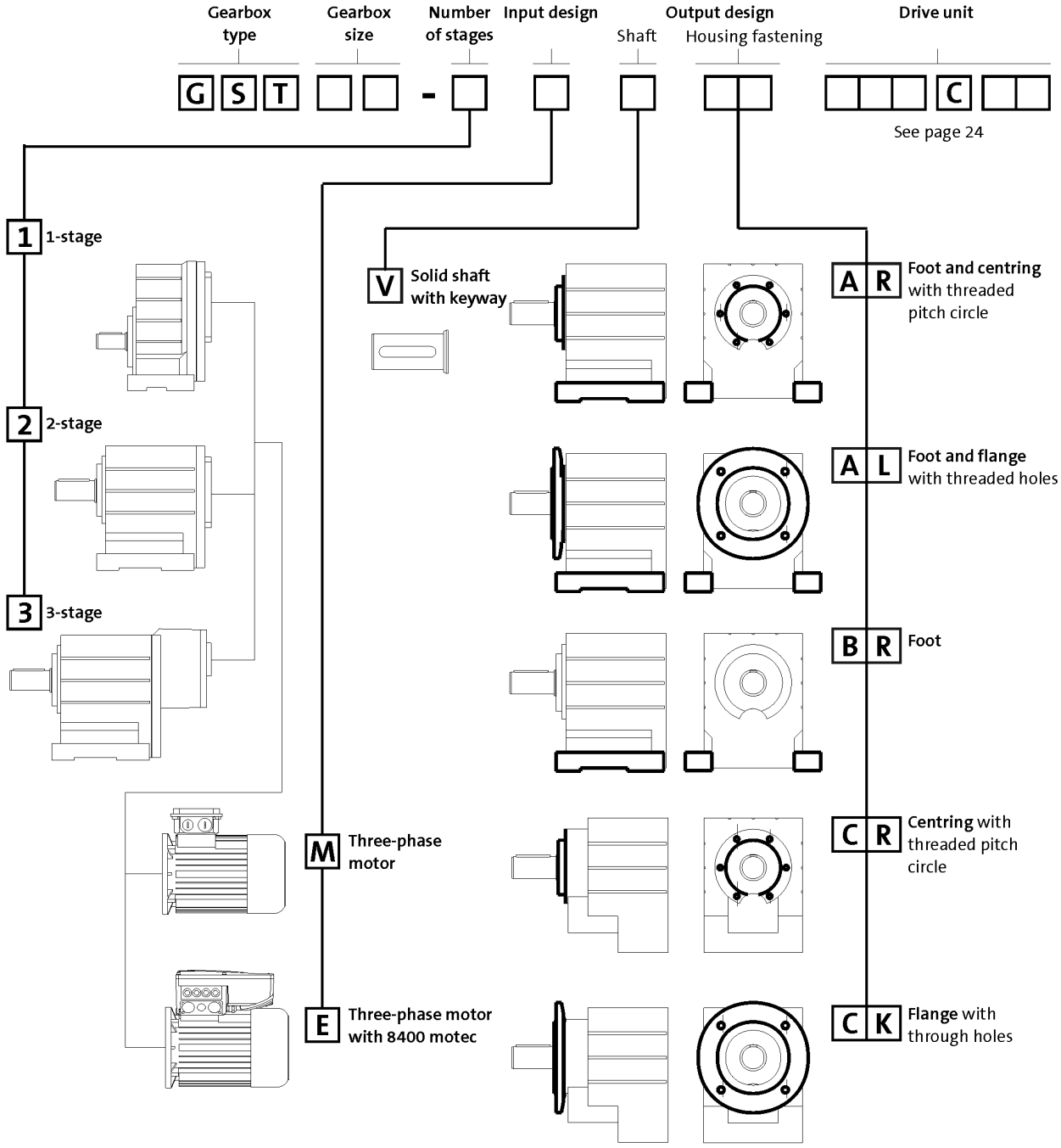
Contents

List of abbreviations

$\eta_{c=1}$		Efficiency
c		Load capacity
f_N	[Hz]	Rated frequency
$F_{ax,max}$	[N]	Max. axial force
$F_{rad,max}$	[N]	Max. radial force
H_{max}	[m]	Site altitude
i		Ratio
J	[kgcm²]	Moment of inertia
m	[kg]	Mass
M_2	[Nm]	Output torque
n_2	[r/min]	Output speed
n_N	[r/min]	Rated speed
P_N	[kW]	Rated power
$S_{hü}$	[1/h]	Transition operating frequency
$T_{opr,max}$	[°C]	Max. ambient operating temperature
$T_{opr,min}$	[°C]	Min. ambient operating temperature
$U_{N,\Delta}$	[V]	Rated voltage
$U_{N,Y}$	[V]	Rated voltage

CE	Communauté Européenne
CSA	Canadian Standards Association
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
IEC	International Electrotechnical Commission
IM	International Mounting Code
IP	International Protection Code
NEMA	National Electrical Manufacturers Association
UL	Underwriters Laboratory Listed Product
UR	Underwriters Laboratory Recognized Product
VDE	Verband deutscher Elektrotechniker (Association of German Electrical Engineers)
CCC	China Compulsory Certificate
GOST	Certificate for Russian Federation
cURus	Combined certification marks of UL for the USA and Canada
UkrSEPRO	Certificate for Ukraine

Product key

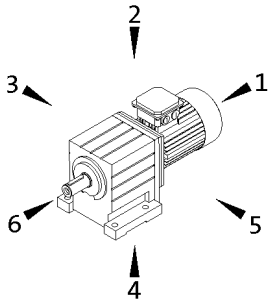
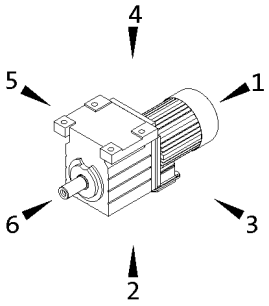
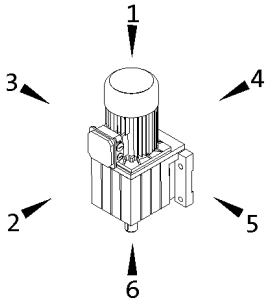
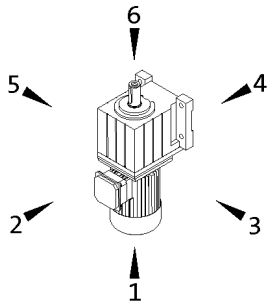
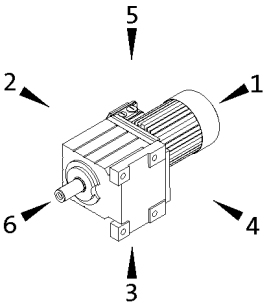
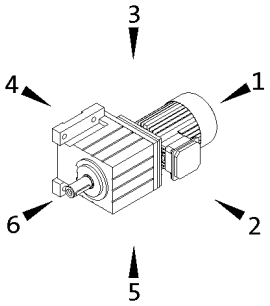


	Output design		
	V	K	L
	d x l [mm]	Øa2 [mm]	Øa2 [mm]
GST03-2	14x28	120/140/160	
	20x40	120/140/160	
GST04-1	16x32	120/140/160	
GST04-2	20x40	120/140/160	120/140
GST05-1	20x40	120/140/160/200	
GST05-2/3	25x50	120/140/160/200	120/140/160
GST06-1	25x50	160/200	

	Output design		
	V	K	L
	d x l [mm]	Øa2 [mm]	Øa2 [mm]
GST06-2/3	30x60	160/200	160/200
GST07-1	30x60	200/250	
GST07-2/3	40x80	200/250	200/250
GST09-1	40x80	250/300	
GST09-2/3	50x100	250/300	250/300
GST11-2/3	60x120	300/350	300/350
GST14-2/3	80x160	350/400	350/400

Product key

Mounting position (A...F) and position of system blocks (1...6)

A	B	C
		
D	**E**	**F**
		

Terminal box / motec: 2, 3, 4, 5

Gearbox designs

Basic versions	
Motor efficiency	Standard efficiency Increased efficiency (IE2)
Surface and corrosion protection	No OKS (unpainted, aluminium housing) for GST03 OKS-G (primer: grey) OKS-S (paint: RAL 7012)
Lubricant	CLP 460 (mineral)
Ventilation	Oil control plugs for GST05 ... 14 Breather elements for GST06 ... 14

Options	
Surface and corrosion protection	OKS-G (primer: grey) for GST03-2 OKS-S (special paint according to RAL) OKS-M (special paint according to RAL) OKS-L (special paint according to RAL)
Lubricant	CLP HC 320 (synthetic) CLP HC 220 USDA H1 (synthetic)
Shaft sealing rings	Driven shaft: Viton
Bearings	Driven shaft: reinforced for GST04 ... 09-2/3
Ventilation	Breather elements for GST05 Compensation reservoir for GST09 ... 14-2 in mounting position C
Nameplate	Metal nameplate (supplied loose) Adhesive nameplate (supplied loose)

Product information

Lenze provides a geared motor construction kit, which covers a wide range of requirements. Numerous drive-side and output-side options enable precise adaptation of the drive to the specific application. This is the basis for versatile applications and functional scalability of our gearboxes and geared motors.
The modular concept and high power density make extremely compact sizes possible. Optimised teeth profiles and ground gears ensure low-noise operation and low backlash. The gearboxes are of compact and hence space-saving construction.

Robust design with high efficiency

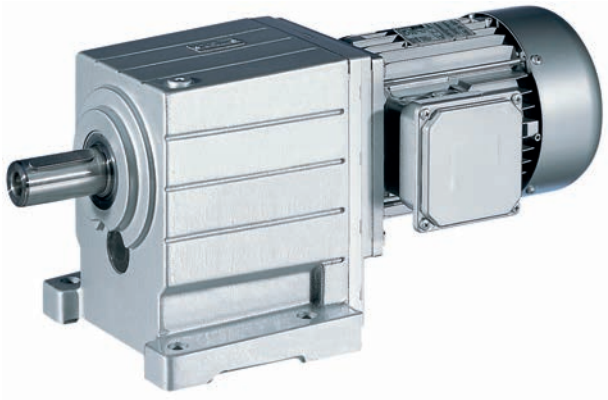
Together with three-phase AC motors, our helical gearboxes form a compact and powerful drive unit. They are rugged in design and feature high permissible radial forces, closely stepped speed reduction ratios and minimum backlash. The gearboxes are available as 1 and 2 and 3-stage versions with a torque of up to 5,920 Nm and a ratio of up to i= 435.

Inverters for motor-proximity installation

The Drive Package with decentralised Inverter Drives 8400 motec covers a power range up to 7.5 kW.

Designs

- 1-stage, 2-stage and 3-stage gearboxes
- Solid shaft with keyway
- Foot or flange mounting
- With MH three-phase AC motors (efficiency classes IE2) power range 0.75 ... 45 kW



Helical geared motor GST07-2M VBR 100-32

Functions and features

Gearbox type	GST
Housing	
Design	Cuboid
Material	Aluminium / cast iron
Solid shaft	
Design	with keyway to DIN 6885
Tolerance	m6 (d > 50 mm) k6 (d ≤ 50 mm)
Material	Tempered steel C45 or 42CrMo4
Hollow shaft	
Design	
Tolerance	
Material	
Toothed parts	
Design	Optimised tooth flanks and profile geometry Ground tooth flanks
Material	Case-hardened steel
Shaft-hub joint	
	1st stage/prestage/helical (bevel) gearbox: Friction-type connection Output stage (= 2nd, 3rd or 4th stage): Friction-type or positive-fit connection
Shaft sealing rings	
Design	With dust lip
Material	NB / FP
Bearing	
Design	Ball bearing / tapered-roller bearing depending on size and design
Lubricants	
Standard	DIN 51502
Quantities	corresponding to mounting position (see operating instructions)
Mechanical efficiency	
1-stage gearboxes [$\eta_{c=1}$]	0.98
2-stage gearboxes [$\eta_{c=1}$]	0.97
3-stage gearboxes [$\eta_{c=1}$]	0.95
4-stage gearboxes [$\eta_{c=1}$]	
Notes	

Functions and features

Lubricants

Lenze gearboxes and geared motors are ready for operation on delivery and are filled with lubricants specific to both the drive and the design. The mounting position and design specified in the order are key factors in choosing the volume of lubricant.

The lubricants listed in the lubricant table are approved for use in Lenze drives.

Lubricant table

Mode	CLP 460	CLP HC 320	CLP HC 220 USDA H1
Ambient temperature [°C]	0 ... +40	-25 ... +50	-20 ... +40
Specification	Mineral based oil with additives	Synthetic-based oil (synthetic hydrocarbon / poly-alpha-olefin oil)	
Note			For food processing industry
Changing interval	16000 operating hours not later than after three years (oil temperature 70...80 °C)	25000 operating hours not later than after three years (oil temperature 70...80 °C)	16000 operating hours not later than after three years (oil temperature 70...80 °C)
Fuchs	Fuchs Renolin CLP 460	Fuchs Renolin Unisyn CLP 320	bremer & leguil Cassida Fluid GL 220
Klüber	Klüberoil GEM1-460 N	Klübersynth GEM4-320 N	Klüberoil 4 UH1-220 N
Shell	Shell Omala 460	Shell Omala Oil HD 320	

► Please contact your Lenze office if you are operating at ambient temperatures in areas up to < -20 °C > or up to +40°C.

Functions and features

Surface and corrosion protection

For optimum protection of geared motors against ambient conditions, the surface and corrosion protection system (OKS) offers tailor-made solutions.

Various surface coatings combined with other protective measures ensure that the geared motors operate reliably even at high air humidity, in outdoor installations or in the presence of atmospheric impurities. Any colour from the RAL Classic collection can be chosen for the top coat. The geared motors are also available unpainted (no surface and corrosion protection).

Surface and corrosion protection system	Applications	Measures
	Catalogue text	Catalogue text
OKS-G (primed)	• Dependent on subsequent top coat applied	• 1K priming coat (grey) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel nameplate
OKS-S (small)	• Standard applications • Internal installation in heated buildings • Air humidity up to 90%	• Surface coating as per corrosivity category C1 (in line with EN 12944-2) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel nameplate
OKS-M (medium)	• Internal installation in non-heated buildings • Covered, protected external installation • Air humidity up to 95%	• Surface coating as per corrosivity category C2 (in line with EN 12944-2) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel shaft • Stainless steel nameplate • Rust-free shrink disc (on request)
OKS-L (high)	• External installation • Air humidity above 95% • Chemical industry plants • Food industry	• Surface coating as per corrosivity category C3 (in line with EN 12944-2) • Blower cover and B end shield additionally primed • Cable glands with gaskets • Corrosion-resistant brake with cover ring, stainless friction plate, and chrome-plated armature plate (on request) • All screws/screw plugs zinc-coated • Stainless breather elements • Threaded holes that are not used are closed by means of plastic plugs Optional measures • Sealed recesses on motor (on request) • Stainless steel shaft • Stainless steel nameplate • Rust-free shrink disc (on request) • Additional priming coat on cast iron fan • Oil expansion tank and torque plates painted separately and supplied loose

Functions and features

Structure of surface coating

Surface and corrosion protection system	Corrosivity category	Surface coating	Colour
	DIN EN ISO 12944-2	Structure	
Without OKS (uncoated)		Dipping primed gearbox	
OKS-G (primed)		Dipping primed gearbox 1K priming coat	
OKS-S (small)	C1	Dipping primed gearbox 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic
OKS-M (medium)	C2	Dipping primed gearbox 1K priming coat 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic
OKS-L (high)	C3	Dipping primed gearbox 2K-EP priming coat 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic

► The gearboxes GST 03 have an aluminium housing, therefore a dipping primer is dispensed with in the case of these gearboxes.

Functions and features

Ventilation

Gearboxes without ventilation
No ventilation is required for gearboxes GST03 ... 04.

Gearboxes that may optionally be equipped with ventilation
Special measures are not usually required when using gearbox GST05. In borderline cases, e.g. at input speeds > 2000 r/min, we recommend the use of breather elements which we can supply if required.

Gearboxes with ventilation
Gearboxes GST06...14 are supplied with breather elements as standard.

Special measures for mounting position C (motor on top)
We recommend that an oil compensation reservoir is always used with gearbox sizes G□□09...14 in this mounting position. This reservoir can be purchased as an option. For illustrations and measures see accessories chapter.

This is not required at higher ratios or low input speeds. Please contact Lenze in this event.

Dimensioning

General information about the data provided in this catalogue

Powers, torques and speeds
The powers, torques and speeds specified in this catalogue are rounded values and are valid under the following conditions:

- Operating time/day = 8 h (100% OT)
- Duty class I for up to 10 switching operations/h
- Mounting positions and designs in this catalogue
- Standard lubricant
- T_{amb} = 20 °C for gearboxes,
  T_{amb} = 40 °C for motors (in accordance with EN 60034)
- Site altitude < = 1000 m amsl
- The selection tables provide the permissible mechanical powers and torques. For notes on the thermal power limit, see chapter drive dimensioning.
- The rated power specified for motors and geared motors applies to operating mode S1 (in accordance with EN 60034).

Under different operating conditions, the values obtained may vary from those listed here.
In the case of extreme operating conditions, please consult your Lenze sales office.

Dimensioning

Thermal power limit

The thermal power limit, defined by the heat balance, limits the permissible gearbox continuous power. It may be less than the mechanical power ratings listed in the selection tables.

The thermal power limit is affected by:
- the churning losses in the lubricant. These are determined by the mounting position and the circumferential speed of the wheels
- the load and the speed
- the ambient conditions: temperature, air circulation, input or dissipation via shafts and the foundation

Please consult your Lenze subsidiary
- if the following input speeds n_1 are exceeded on a continuous basis (continuous is defined as more than 8 h/day):

Motor frame size	Mounting position A, B, E, F	Mounting position C, D
063 ... 100	3000 r/min	3000 r/min
112 ... 132	3000 r/min	1500 r/min
160 ... 225	2000 r/min	1500 r/min

- if the following input speeds n_1 are exceeded:

Motor frame size	Mounting position A, B, E, F	Mounting position C, D
063 ... 100	4000 r/min	3000 r/min
112 ... 132	4000 r/min	2000 r/min
160 ... 225	3000 r/min	1500 r/min

- or if you are using the following gearbox type, size and ratio combinations at an input speed of n_1 > 1500 r/min:

Gearbox type	Gearbox size	Ratio i
GST helical gearbox	07, 09, 11, 14	≤ 10

Possible ways of extending the application area

- synthetic lubricant (option)
- shaft sealing rings made from FP material/Viton (option)
- reduction in lubricant quantity
- cooling of the geared motor by means of air convection on the machine/system

Dimensioning

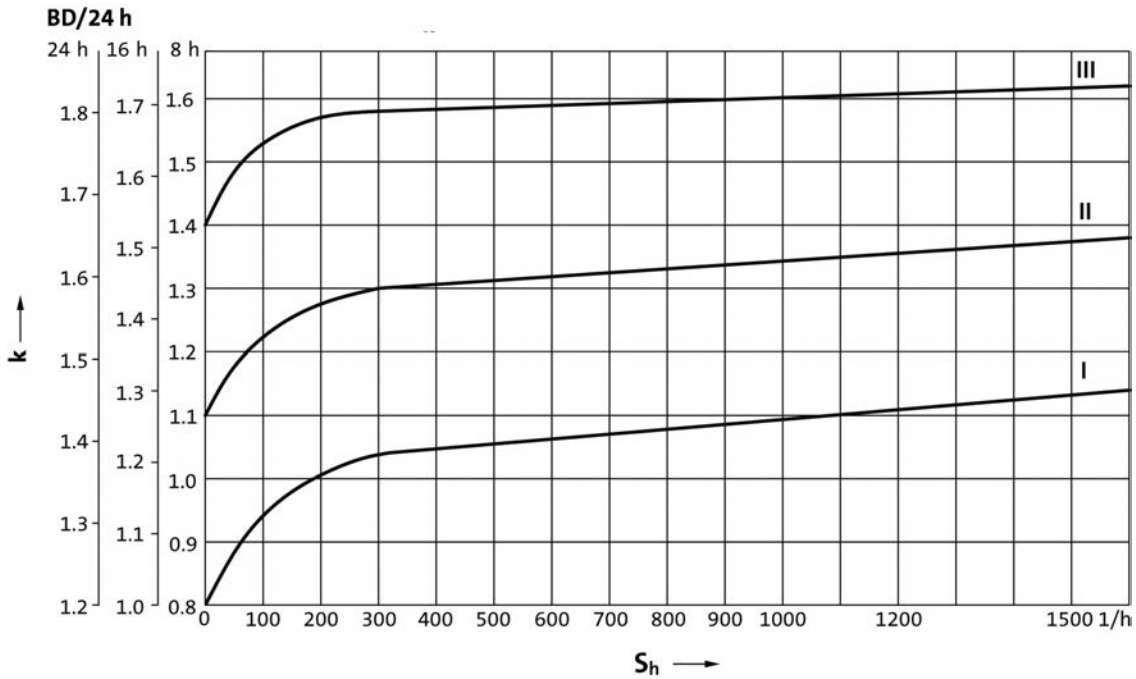
Load capacity and application factor

Load capacity c of gearbox
Rated value for the load capacity of Lenze geared motors.
- c is the ratio of the permissible rated torque of the gearbox to the rated torque supplied by the drive component (e.g. the built-in Lenze motor).
- The value of c must always be greater than the value of the application factor k calculated for the application.

Application factor k (according to DIN 3990)
Takes into account the influence of temporally variable loads which are actually present during the anticipated operating time of gearboxes and geared motors.
k is determined by:
- the type of load
- the load intensity
- temporal influences

Duty class	Load type
I	Smooth operation, small or light jolts
II	Uneven operation, average jolts
III	Uneven operation, severe jolts and/or alternating load

Application factor k



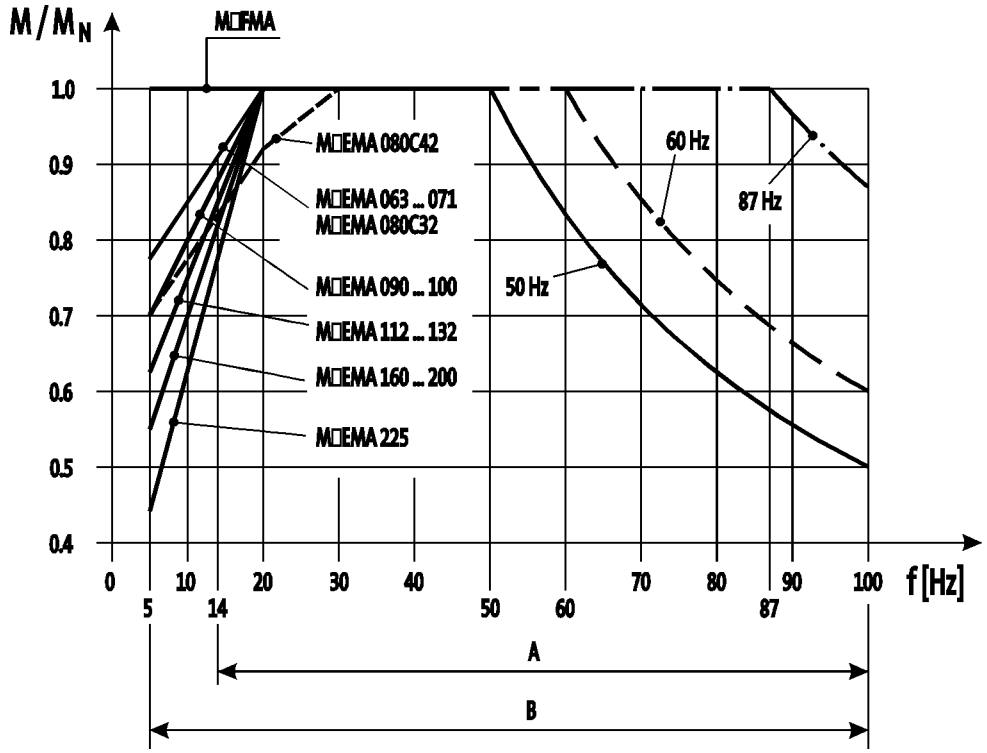
6.4

Dimensioning

Torque derating at low motor frequencies

Motor size-dependent torque reduction, taking into account the thermal response during operation on the inverter.

Torque characteristics



A = Operation with integral fan and brake
B = Operation with integral fan and brake control "Holding current reduction"

You can use the Drive Solution Designer for precise drive dimensioning.

6.4

The Drive Solution Designer helps you to carry out a fast and high-quality drive dimensioning.
The software includes well-founded and proven knowledge on drive applications and electro-mechanical drive components.

Please contact your Lenze sales office.

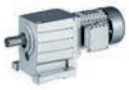
Dimensioning

Notes on the selection tables

The selection tables show the available combinations of gearbox type, number of stages, ratio and motor. The following legend indicates the structure of the selection tables.

Gearbox type

GST helical gearbox



Technical data

Selection tables

Rated speed n_N of the drive motor

Product key of geared motor

Rated power P_N of the drive motor in relation to the rated frequency

► 50 Hz, 60 Hz: P_N = 0.75 kW

n_N	1410 r/min			1720 r/min			i		
f_N	50 Hz			60 Hz					
	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c			
	881	8.0	2.4	1069	6.6	2.8	1.600	GST04-1M □□□080C32	76
	689	10	2.2	835	8.4	2.6	2.048	GST04-1M □□□080C32	76

Output speed n_2

Ratio i

Page number for dimensions

Output torque M_2 (constant for all listed frequencies)

The load capacity c of the gearbox c is the ratio of the gearbox's rated torque to the rated torque of the three-phase motor (calculated in respect of its application to the output shaft). c must always be greater than the application factor k determined for the application

$$c = \frac{M_{2,zul}}{M_{1N} \cdot i \cdot \eta_{Getr}} > k$$

6.4

Dimensioning

Notes on the selection tables

Motor voltages

The power values and torques indicated in the selection tables relate to the following motor voltages:
- 50 Hz : Δ 230 V / Y 400 V
- 60 Hz : Δ 265 V / Y 460 V
- 87 Hz : Δ 400 V

Operation at 87 Hz

In 87 Hz operation, the three-phase AC motor (which is designed for a voltage of Δ 230 V / Y 400 V at 50 Hz) is operated on an inverter with 400 V rated voltage in a delta connection. It is important to note here that the inverter must be configured for 87Hz output.
This offers the following advantages over 50 Hz operation:
- the setting range of the motor is increased by a factor of 1.73.
- the motor can then provide around 1.73 times greater output, which in turn allows a smaller and more affordable motor to be selected for the application.
- the efficiency of the motor is also improved.

Notes on ordering

We want to be sure that you receive the correct products in good time.

To allow us to achieve this we need:
- your address and your company data
- our product key for the individual products in this catalogue
- your delivery date and delivery address

Ordering procedure
Please use the ordering information checklist to ensure that you provide all the ordering information required for the various products.

The ordering information checklist, the product key, the basic versions, options, mounting position and position of the system blocks will be found in the General – Product key section.

A list of Lenze's worldwide sales offices can be found on the Internet: www.Lenze.com.

Ordering details checklist

☐ **Offer**

Page __ of __

☐ **Order**

Customer No.

Job No.

Fax No. _____

Sender

Company _____ Made out by (name) _____

Street/P.O. Box _____ Department _____

P.O. Box, City _____ Telephone No. _____

Date _____ Signature _____

Delivery address (if different)

Street/P.O. Box _____ Desired delivery date _____

P.O. Box, City _____ Dispatching notes _____

Invoice recipient (if different)

Street/P.O. Box _____

Postal code, City _____

Ordering details checklist

Customer No.

Job No.

Page __

Quantity

Efficiency class ☐ Standard efficiency ☐ High efficiency (IE2)

Rated frequency ☐ 50 Hz ☐ 60 Hz ☐ 87 Hz

Ratio i

GST ☐☐ – ☐ 1 ☐ 2 ☐ 3 ☐ M ☐ E [☐ V] Solid shaft d = (only with GST03) ☐ mm ☐ A ☐ B ☐ C ☐ R ☐ K ☐ L Flange a_2 = ☐ mm

Motor frame size ☐☐☐C☐☐

Mounting position A ☐ B ☐ C ☐ D ☐ E ☐ F ☐

Position of system blocks Terminal box 2 ☐ 3 ☐ 4 ☐ 5 ☐

Surface and corrosion protection

GST03 ☐ Without OKS (unpainted)

GST04 ... 14 ☐ OKS-S colour: RAL 7012 ☐ OKS-G (primed)

Options

Special lubricants ☐ CLP HC 320 (synthetic) ☐ CLP HC 220 USDA H1 (for the food industry)

Surface and corrosion protection ☐ OKS-S (small) ☐ OKS-M (medium) RAL ☐

☐ OKS-L (high) ☐ OKS-G (primed) only with GST03

Output shaft bearing ☐ Reinforced bearing for GST04 ... 09-2

Shaft sealing rings ☐ Viton

Breathing ☐ Breather elements for GST05 ☐ Compensation reservoir in mounting position for GST 09 ... 14-2

6.4

Ordering details checklist

Three-phase AC motors options

Customer No. ☐☐☐☐☐☐☐☐

Job No. ☐☐☐☐☐☐☐☐☐☐

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Motor connection

Terminal box
- ☐ with plug-in connector ICN 6-pin. Adhere to permissible rated motor current 20 A!
- ☐ with plug-in connector ICN 8-pin. Adhere to permissible rated motor current 20 A!
- ☐ with plug-in connector HAN10E. Adhere to permissible rated current 16 A!
- ☐ with plug-in connector HAN-Modular. Adhere to permissible rated current 16 / 40 A!

Cable entry: only with M□□MAXX/LL063 ... 132 or terminal box with plug-in connector in position 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

Blower

☐ 1~ ☐ 3~

☐ Terminal box with plug-in connector ICN

Terminal box position 2 ☐ 3 ☐ 4 ☐ 5 ☐

Spring-applied brake

Brake version: ☐ Standard ☐ Longlife

Brake size: ☐

Characteristic torque: ☐ Nm

Rated voltage: AC ☐ DC ☐ ☐ V

Rectifier: Only in the case of AC supply voltage

- ☐ Half-wave rectifier
- ☐ Bridge rectifier
- ☐ Bridge/half-wave rectifier (overexcitation)
- ☐ Bridge/half-wave rectifier (holding current reduction)

Brake options: Manual release lever in position 2 ☐ 3 ☐ 4 ☐ 5 ☐

☐ Low-noise version (Standard in the case of brake with speed/position encoder)

6.4

Ordering details checklist

Three-phase AC motors options

Customer No. ☐☐☐☐☐☐☐☐

Job No. ☐☐☐☐☐☐☐☐☐☐

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Speed/position encoder

Resolver	☐ RS1				
Incremental encoder HTL	☐ IG128-24V-H	☐ IG512-24V-H	☐ IG1024-24V-H	☐ IG2048-24V-H	
Incremental encoder TTL		☐ IG512-5V-T	☐ IG1024-5V-T	☐ IG2048-5V-T	
Feedback with ICN connector	☐ IG128-24V-H not possible with plug-in connector!				

Motor protection

☐ PTC ☐ KTY 83-110 ☐ KTY 84-130

Approval

☐ UL/CSA approval: cURus ☐ CCC ☐ China Energy Label

Further options

Indication of supply voltage only for motor frame sizes 112C32 to 225C22

☐ Δ; 400V-50Hz; 460V-60Hz

☐ Y/Δ; 400/230V-50Hz; 460/265V-60Hz (-/400V-87Hz possible in operation with frequency inverter)

☐ Protection cover

☐ 2nd shaft end

☐ Handwheel

☐ Increased centrifugal mass

☐ 2nd nameplate (adhesive nameplate/metal nameplate)

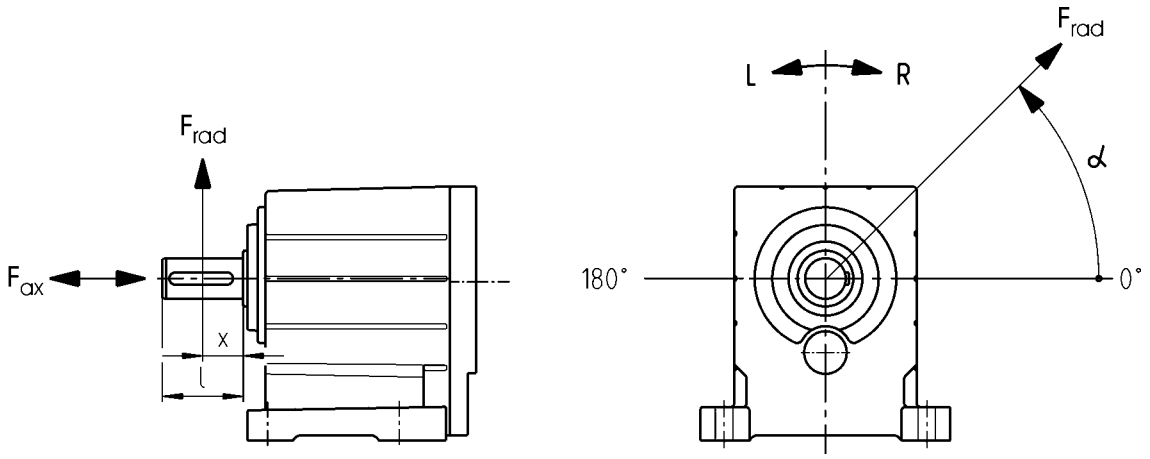
Permissible radial and axial forces at output

Permissible radial force
$F_{rad,per} = \min(f_w \times f_\alpha \times F_{rad,max}$; $f_w \times F_{rad,max}$ at $n_2 \leq 50$ r/min)

Permissible axial force
$F_{ax,per} = F_{ax,max}$ if $F_{rad} = 0$

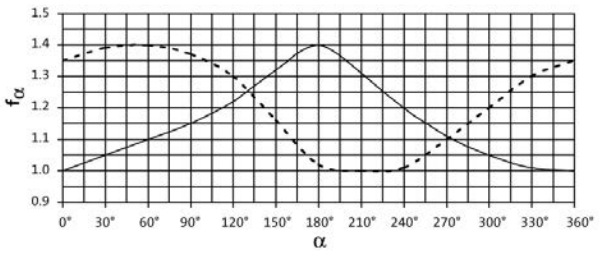
If F_{rad} **and** $F_{ax} \neq 0$, please contact Lenze.

Application of forces

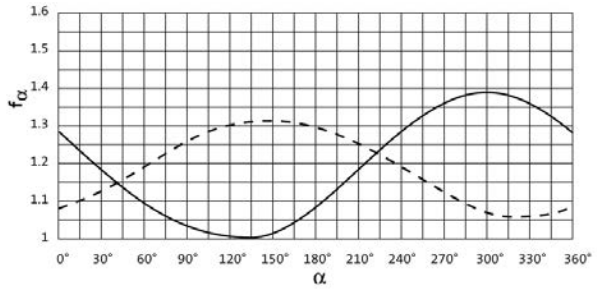


Effective direction factor f_α at output shaft

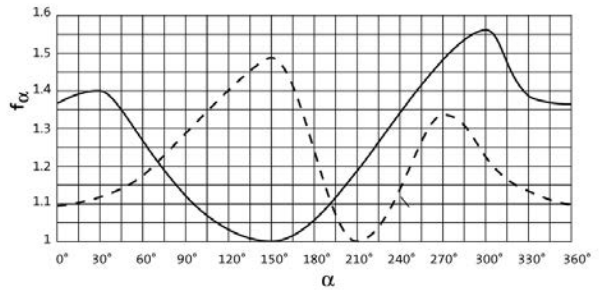
GST03-2



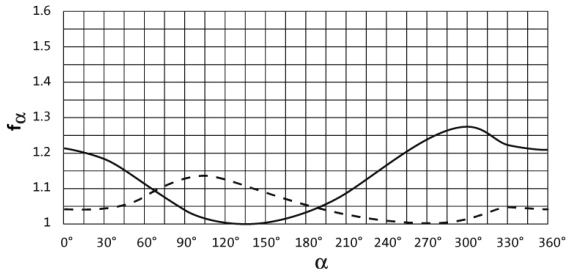
GST04...09-1



GST04...09-2, 3



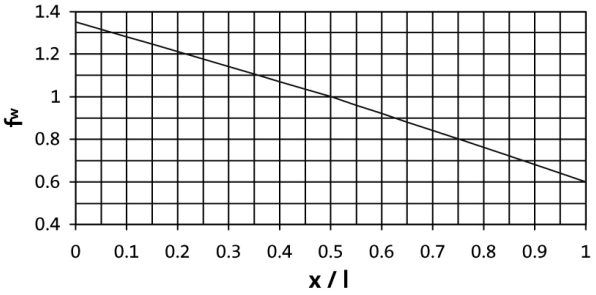
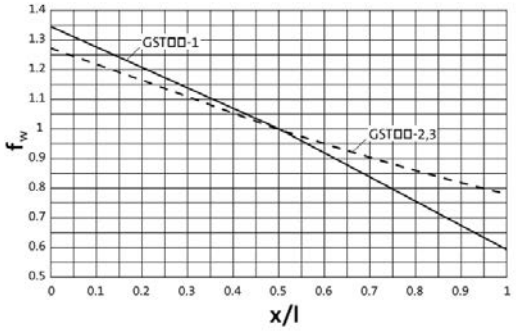
GST11...14-2, 3



——— Direction of rotation R
— — — Direction of rotation L

Permissible radial and axial forces at output

Additional load factor f_w at output shaft

GST03-2	GST04...09-1, 2, 3
	

GST□□-1

Size	n_2 [r/min]								
Gearbox	2500	1600	1000	600	400	200	125	80	≤50

	Max. radial force, Solid shaft								
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST04	100	180	440	600	850	1050	1050	1050	1050
GST05	100	250	550	750	1400	2000	2300	2300	2300
GST06	200	600	800	800	1100	2200	2900	3500	3500
GST07	700	1000	1200	1300	1900	3000	3900	4700	5300
GST09	1750	2200	2500	2500	3500	6200	7900	9000	9500

	Max. axial force, Solid shaft								
	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST04	600	800	1000	1300	1400	1400	1400	1400	1400
GST05	800	1100	1400	2000	2000	2000	2000	2000	2000
GST06	900	1200	1500	2000	2500	2500	2500	2500	2500
GST07	1200	1600	2000	2700	3300	3700	3700	3700	3700
GST09	2500	3400	4300	5700	6800	7000	7000	7000	7000

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► Application of force F_{rad}: centre of shaft journal (x = l/2)
► $F_{ax,max}$ only valid with F_{rad} = 0

Permissible radial and axial forces at output

GST□□-2 / 3 with standard bearings

Size	n_2 [r/min]									
Gearbox	1000	630	400	250	160	100	63	40	25	≤16

	Max. radial force, Solid shaft									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST03	100	300	630	710	800	920	1100	1400	1500	1500
GST04	730	950	1250	1450	1700	2100	2500	2650	2650	2650
GST05	1150	1500	1950	2200	2600	3000	3500	3800	3900	3900
GST06	140	750	2350	2600	3100	3600	4300	4350	4350	4350
GST07	140	2050	3400	3800	4500	5400	6400	7600	9100	9500
GST09	1500	1950	6800	7600	9400	11500	11500	11500	11500	11500
GST11	11500	14400	17000	19000	21000	21000	21000	21000	21000	21000
GST14	16600	20700	24000	27000	31000	36000	39000	40000	40000	40000

	Max. axial force, Solid shaft									
	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST03	300	400	600	700	800	900	1000	1000	1000	1000
GST04	600	800	1100	1300	1650	2000	2000	2000	2000	2000
GST05	1200	1600	2000	2300	2650	3100	3600	3600	3600	3600
GST06	500	600	850	900	1250	1800	2600	3600	4800	4800
GST07	1100	1500	1900	2200	2900	3900	5300	7000	7000	7000
GST09	1300	1800	2300	2800	4000	5600	8100	11000	12000	12000
GST11	5700	7600	9500	10000	11000	14000	16000	16000	16000	16000
GST14	9000	12000	15000	16000	18000	20000	20000	20000	20000	20000

- Application of force F_{rad}: centre of shaft journal (x = l/2)
- $F_{ax,max}$ only valid with F_{rad} = 0

Permissible radial and axial forces at output

GST□□-2 / 3 with reinforced bearing

Size	n_2 [r/min]									
Gearbox	1000	630	400	250	160	100	63	40	25	≤16

	Max. radial force, Solid shaft (reinforced bearings))									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST04	1900	2350	2850	3150	3550	3750	3750	3750	3750	3750
GST05	3350	3950	4900	5400	5400	5400	5400	5400	5400	5400
GST06	4250	5100	6300	7000	7700	7700	7700	7700	7700	7700
GST07	5650	6850	8500	9500	10500	12500	13000	13000	13000	13000
GST09	11300	14000	16500	17000	17000	17000	17000	17000	17000	17000

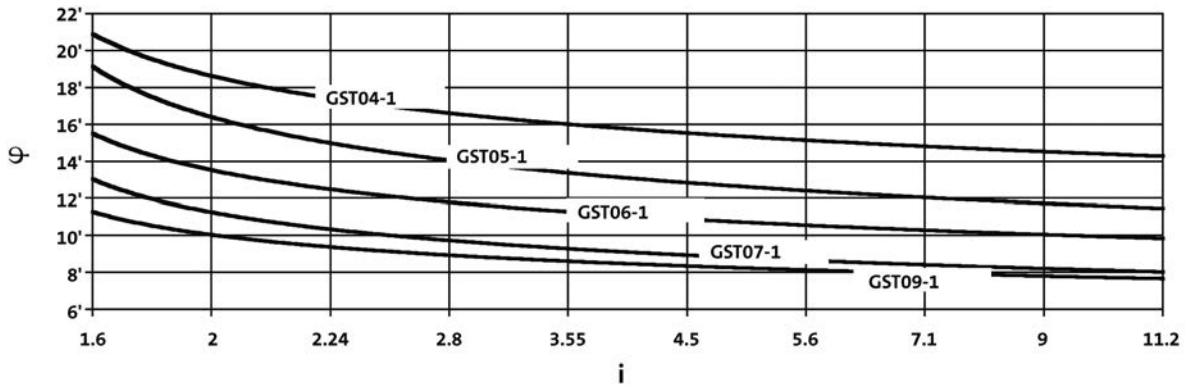
	Max. axial force, Solid shaft (reinforced bearings))									
	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GST04	1000	1300	1700	1900	2200	2500	2500	2500	2500	2500
GST05	2100	2800	3600	3900	4300	4500	4500	4500	4500	4500
GST06	2100	2800	3500	3600	4200	4900	5700	5700	5700	5700
GST07	3300	4400	5500	6100	7100	8300	9000	9000	9000	9000
GST09	4800	6400	8000	9000	10500	12500	14000	14000	14000	14000

- Application of force F_{rad}: centre of shaft journal (x = l/2)
- $F_{ax,max}$ only valid with F_{rad} = 0

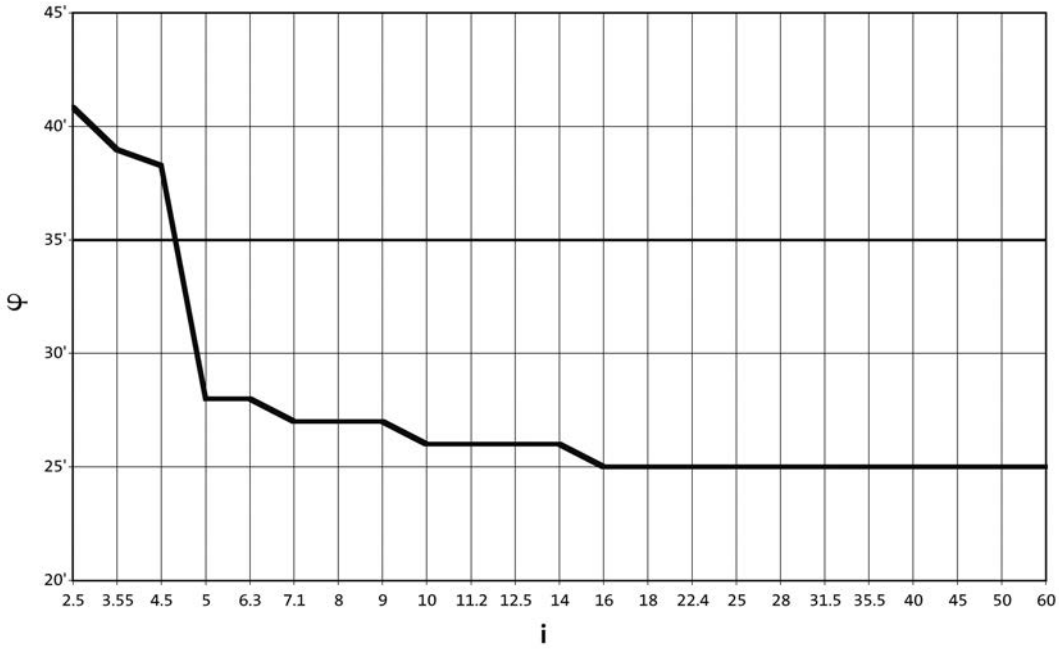
Output backlash in angular minutes

► Backlash ϕ depending on ratio i

GST04...09-1



GST03-2



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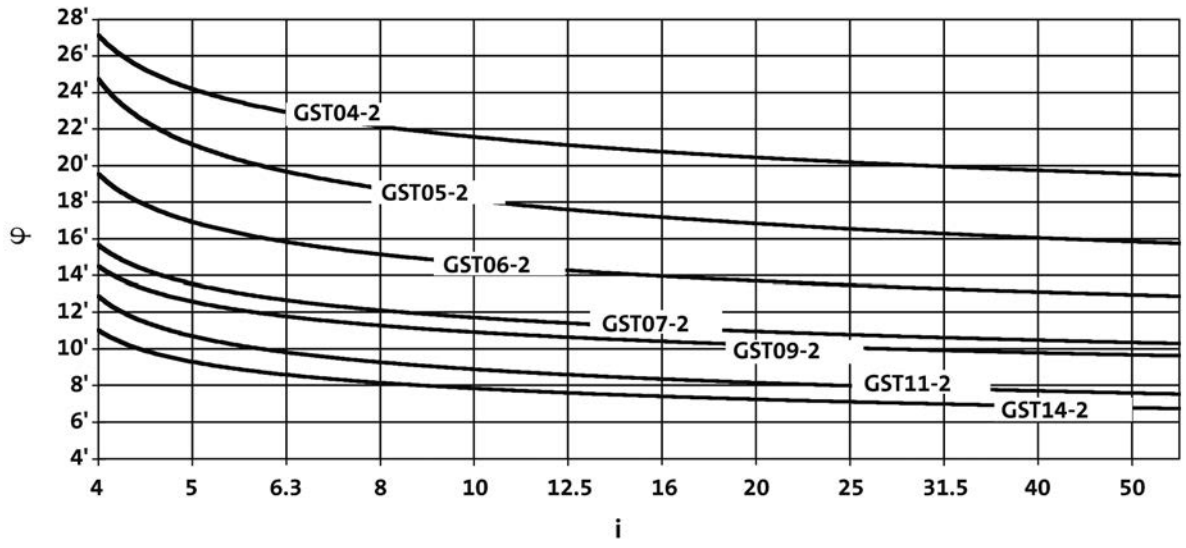
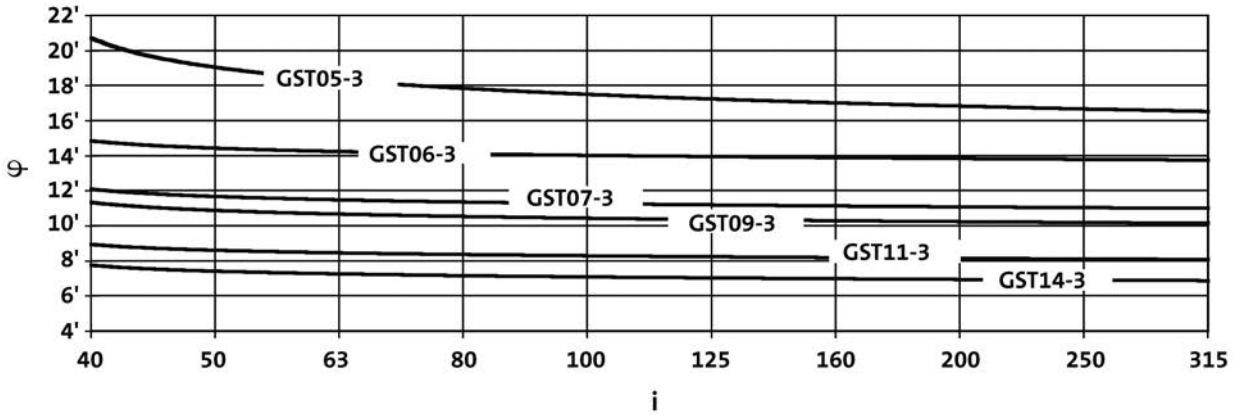
Output backlash in angular minutes

► Backlash ϕ depending on ratio i

GST04...14-2



GST05...14-3



6.4

Moments of inertia

GST□□-1

► Moment of inertia (J) depending on ratio i

Gearbox			GST04
1.600	J	[kgcm²]	0.267
2.048	J	[kgcm²]	0.194
2.240	J	[kgcm²]	0.172
2.857	J	[kgcm²]	0.126
3.500	J	[kgcm²]	0.099
4.400	J	[kgcm²]	0.067
5.667	J	[kgcm²]	0.047
7.182	J	[kgcm²]	0.031
9.000	J	[kgcm²]	0.022
11.857	J	[kgcm²]	0.013

Gearbox			GST05
1.600	J	[kgcm²]	0.760
2.048	J	[kgcm²]	0.549
2.240	J	[kgcm²]	0.480
2.857	J	[kgcm²]	0.354
3.500	J	[kgcm²]	0.272
4.556	J	[kgcm²]	0.175
5.667	J	[kgcm²]	0.129
7.333	J	[kgcm²]	0.062
8.900	J	[kgcm²]	0.060
11.375	J	[kgcm²]	0.039

Gearbox			GST06
1.600	J	[kgcm²]	2.010
2.048	J	[kgcm²]	1.460
2.240	J	[kgcm²]	1.270
2.857	J	[kgcm²]	0.969
3.500	J	[kgcm²]	0.736
4.556	J	[kgcm²]	0.481
5.667	J	[kgcm²]	0.359
7.333	J	[kgcm²]	0.226
8.900	J	[kgcm²]	0.167
11.250	J	[kgcm²]	0.109

Gearbox			GST07
1.625	J	[kgcm²]	6.120
2.000	J	[kgcm²]	4.780
2.240	J	[kgcm²]	4.020
2.857	J	[kgcm²]	2.690
3.500	J	[kgcm²]	2.150
4.556	J	[kgcm²]	1.370
5.583	J	[kgcm²]	1.050
7.333	J	[kgcm²]	0.664
8.900	J	[kgcm²]	0.494
11.250	J	[kgcm²]	0.320

Gearbox			GST09
1.560	J	[kgcm²]	22.200
2.048	J	[kgcm²]	15.600
2.333	J	[kgcm²]	12.200
2.810	J	[kgcm²]	9.580
3.444	J	[kgcm²]	7.300
4.667	J	[kgcm²]	4.600
5.667	J	[kgcm²]	3.510
7.333	J	[kgcm²]	2.260
8.900	J	[kgcm²]	1.660
11.250	J	[kgcm²]	1.110

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GST03
2.597	J	[kgcm²]	0.260
3.413	J	[kgcm²]	0.169
4.368	J	[kgcm²]	0.117
5.312	J	[kgcm²]	0.179
5.965	J	[kgcm²]	0.173
6.982	J	[kgcm²]	0.122
7.840	J	[kgcm²]	0.119
8.935	J	[kgcm²]	0.089
10.033	J	[kgcm²]	0.086
11.429	J	[kgcm²]	0.059
12.833	J	[kgcm²]	0.057
14.836	J	[kgcm²]	0.041
16.660	J	[kgcm²]	0.040
19.013	J	[kgcm²]	0.028
21.350	J	[kgcm²]	0.027
24.595	J	[kgcm²]	0.019
27.618	J	[kgcm²]	0.019
32.000	J	[kgcm²]	0.012
35.933	J	[kgcm²]	0.012
41.455	J	[kgcm²]	0.008
46.550	J	[kgcm²]	0.008
52.909	J	[kgcm²]	0.005
59.413	J	[kgcm²]	0.005

Gearbox			GST04
2.956	J	[kgcm²]	0.337
3.333	J	[kgcm²]	0.324
4.053	J	[kgcm²]	0.312
4.571	J	[kgcm²]	0.300
5.187	J	[kgcm²]	0.222
5.850	J	[kgcm²]	0.215
6.400	J	[kgcm²]	0.189
7.040	J	[kgcm²]	0.264
8.000	J	[kgcm²]	0.257
9.010	J	[kgcm²]	0.193
9.856	J	[kgcm²]	0.170
11.200	J	[kgcm²]	0.166
12.571	J	[kgcm²]	0.126
14.286	J	[kgcm²]	0.123
15.400	J	[kgcm²]	0.098
17.500	J	[kgcm²]	0.097
19.360	J	[kgcm²]	0.063
22.000	J	[kgcm²]	0.062
24.933	J	[kgcm²]	0.044
28.333	J	[kgcm²]	0.043
31.600	J	[kgcm²]	0.030
35.909	J	[kgcm²]	0.030
39.600	J	[kgcm²]	0.021
45.000	J	[kgcm²]	0.021
52.171	J	[kgcm²]	0.013
59.286	J	[kgcm²]	0.013

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GST05
2.956	J	[kgcm²]	0.986
3.333	J	[kgcm²]	0.944
4.053	J	[kgcm²]	0.903
4.571	J	[kgcm²]	0.864
5.187	J	[kgcm²]	0.637
5.850	J	[kgcm²]	0.613
6.400	J	[kgcm²]	0.533
7.238	J	[kgcm²]	0.400
8.163	J	[kgcm²]	0.388
9.010	J	[kgcm²]	0.543
10.000	J	[kgcm²]	0.300
11.200	J	[kgcm²]	0.462
13.016	J	[kgcm²]	0.178
14.356	J	[kgcm²]	0.131
16.190	J	[kgcm²]	0.128
17.500	J	[kgcm²]	0.271
20.044	J	[kgcm²]	0.164
22.778	J	[kgcm²]	0.161
24.933	J	[kgcm²]	0.119
28.333	J	[kgcm²]	0.117
32.267	J	[kgcm²]	0.079
36.667	J	[kgcm²]	0.078
39.160	J	[kgcm²]	0.058
44.500	J	[kgcm²]	0.057
50.050	J	[kgcm²]	0.039
56.875	J	[kgcm²]	0.038

Gearbox			GST06
3.033	J	[kgcm²]	2.720
3.333	J	[kgcm²]	2.610
4.160	J	[kgcm²]	2.510
4.571	J	[kgcm²]	2.410
5.324	J	[kgcm²]	1.760
5.850	J	[kgcm²]	1.710
6.400	J	[kgcm²]	1.470
7.040	J	[kgcm²]	2.070
8.163	J	[kgcm²]	1.060
9.010	J	[kgcm²]	1.500
10.000	J	[kgcm²]	0.820
11.200	J	[kgcm²]	1.260
12.571	J	[kgcm²]	0.955
14.286	J	[kgcm²]	0.932
15.400	J	[kgcm²]	0.748
17.500	J	[kgcm²]	0.733
20.044	J	[kgcm²]	0.457
22.778	J	[kgcm²]	0.450
24.933	J	[kgcm²]	0.332
28.333	J	[kgcm²]	0.326
32.267	J	[kgcm²]	0.221
36.667	J	[kgcm²]	0.218
39.160	J	[kgcm²]	0.162
44.500	J	[kgcm²]	0.160
49.500	J	[kgcm²]	0.110
56.250	J	[kgcm²]	0.108

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GST07
3.048	J	[kgcm²]	8.200
3.350	J	[kgcm²]	7.920
4.225	J	[kgcm²]	7.650
4.643	J	[kgcm²]	7.390
5.200	J	[kgcm²]	5.640
5.714	J	[kgcm²]	5.460
6.400	J	[kgcm²]	4.490
7.150	J	[kgcm²]	6.270
8.125	J	[kgcm²]	6.040
8.800	J	[kgcm²]	4.730
9.856	J	[kgcm²]	3.900
11.200	J	[kgcm²]	3.780
12.571	J	[kgcm²]	2.860
14.286	J	[kgcm²]	2.790
15.400	J	[kgcm²]	2.260
17.500	J	[kgcm²]	2.210
20.044	J	[kgcm²]	1.380
22.778	J	[kgcm²]	1.350
24.567	J	[kgcm²]	1.020
27.917	J	[kgcm²]	1.010
32.267	J	[kgcm²]	0.664
36.667	J	[kgcm²]	0.653
39.160	J	[kgcm²]	0.487
44.500	J	[kgcm²]	0.479
49.500	J	[kgcm²]	0.330
56.250	J	[kgcm²]	0.325

Gearbox			GST09
4.056	J	[kgcm²]	27.000
4.457	J	[kgcm²]	25.900
5.324	J	[kgcm²]	18.100
5.850	J	[kgcm²]	17.500
6.667	J	[kgcm²]	14.200
7.305	J	[kgcm²]	11.300
8.027	J	[kgcm²]	11.000
9.010	J	[kgcm²]	15.200
10.267	J	[kgcm²]	12.400
11.667	J	[kgcm²]	12.100
12.362	J	[kgcm²]	9.790
14.048	J	[kgcm²]	9.530
15.156	J	[kgcm²]	7.650
17.222	J	[kgcm²]	7.490
20.533	J	[kgcm²]	4.500
23.333	J	[kgcm²]	4.410
24.933	J	[kgcm²]	3.380
28.333	J	[kgcm²]	3.320
32.267	J	[kgcm²]	2.250
36.667	J	[kgcm²]	2.210
39.160	J	[kgcm²]	1.640
44.500	J	[kgcm²]	1.620
49.500	J	[kgcm²]	1.120
56.250	J	[kgcm²]	1.100

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GST11
4.056	J	[kgcm²]	82.200
4.457	J	[kgcm²]	79.000
5.324	J	[kgcm²]	55.400
5.850	J	[kgcm²]	53.500
6.400	J	[kgcm²]	45.700
6.864	J	[kgcm²]	67.500
7.800	J	[kgcm²]	65.100
9.010	J	[kgcm²]	46.800
9.856	J	[kgcm²]	40.200
11.200	J	[kgcm²]	39.000
12.571	J	[kgcm²]	29.400
14.286	J	[kgcm²]	28.700
15.400	J	[kgcm²]	23.000
17.500	J	[kgcm²]	22.500
20.289	J	[kgcm²]	14.300
23.056	J	[kgcm²]	14.100
24.933	J	[kgcm²]	10.600
28.333	J	[kgcm²]	10.400
32.267	J	[kgcm²]	7.040
36.667	J	[kgcm²]	6.930
39.160	J	[kgcm²]	5.150
44.500	J	[kgcm²]	5.080
49.500	J	[kgcm²]	3.520
56.250	J	[kgcm²]	3.440

Gearbox			GST14
4.225	J	[kgcm²]	226.000
4.643	J	[kgcm²]	216.000
5.200	J	[kgcm²]	168.000
5.714	J	[kgcm²]	161.000
6.286	J	[kgcm²]	141.000
7.150	J	[kgcm²]	183.000
8.027	J	[kgcm²]	100.000
8.800	J	[kgcm²]	139.000
9.841	J	[kgcm²]	75.100
11.000	J	[kgcm²]	119.000
12.362	J	[kgcm²]	89.000
14.048	J	[kgcm²]	86.600
15.156	J	[kgcm²]	67.600
17.222	J	[kgcm²]	66.000
20.044	J	[kgcm²]	45.800
22.778	J	[kgcm²]	44.900
24.567	J	[kgcm²]	33.200
27.917	J	[kgcm²]	32.600
32.267	J	[kgcm²]	21.500
36.667	J	[kgcm²]	21.200
39.160	J	[kgcm²]	15.700
44.500	J	[kgcm²]	15.500
49.500	J	[kgcm²]	10.600
56.250	J	[kgcm²]	10.500

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-3

► Moment of inertia (J) depending on ratio i

Gearbox			GST05
36.267	J	[kgcm²]	0.195
46.259	J	[kgcm²]	0.141
56.667	J	[kgcm²]	0.108
63.467	J	[kgcm²]	0.192
71.238	J	[kgcm²]	0.073
80.952	J	[kgcm²]	0.139
91.746	J	[kgcm²]	0.050
99.167	J	[kgcm²]	0.107
116.277	J	[kgcm²]	0.033
124.667	J	[kgcm²]	0.072
145.714	J	[kgcm²]	0.023
160.556	J	[kgcm²]	0.050
179.067	J	[kgcm²]	0.033
191.973	J	[kgcm²]	0.014
224.400	J	[kgcm²]	0.023
255.000	J	[kgcm²]	0.023
295.638	J	[kgcm²]	0.014
335.952	J	[kgcm²]	0.014

Gearbox			GST06
39.200	J	[kgcm²]	0.362
44.000	J	[kgcm²]	0.195
51.022	J	[kgcm²]	0.320
53.900	J	[kgcm²]	0.178
67.760	J	[kgcm²]	0.114
70.156	J	[kgcm²]	0.160
80.952	J	[kgcm²]	0.203
87.267	J	[kgcm²]	0.150
99.167	J	[kgcm²]	0.150
109.707	J	[kgcm²]	0.096
124.667	J	[kgcm²]	0.096
141.289	J	[kgcm²]	0.063
160.556	J	[kgcm²]	0.063
179.067	J	[kgcm²]	0.043
203.485	J	[kgcm²]	0.042
231.733	J	[kgcm²]	0.040
255.000	J	[kgcm²]	0.029
290.400	J	[kgcm²]	0.027
330.000	J	[kgcm²]	0.027
382.590	J	[kgcm²]	0.026
434.762	J	[kgcm²]	0.025

Gearbox			GST07
39.200	J	[kgcm²]	0.974
44.000	J	[kgcm²]	0.534
51.022	J	[kgcm²]	0.843
53.900	J	[kgcm²]	0.484
65.079	J	[kgcm²]	0.313
70.156	J	[kgcm²]	0.431
79.762	J	[kgcm²]	0.536
85.983	J	[kgcm²]	0.400
97.708	J	[kgcm²]	0.399
111.915	J	[kgcm²]	0.238
127.176	J	[kgcm²]	0.237
139.211	J	[kgcm²]	0.166
158.194	J	[kgcm²]	0.166
180.156	J	[kgcm²]	0.108
204.722	J	[kgcm²]	0.107
236.622	J	[kgcm²]	0.101
248.458	J	[kgcm²]	0.077
268.889	J	[kgcm²]	0.101
326.333	J	[kgcm²]	0.073
367.033	J	[kgcm²]	0.094
417.083	J	[kgcm²]	0.067

Gearbox			GST09
40.136	J	[kgcm²]	2.140
43.267	J	[kgcm²]	1.550
49.167	J	[kgcm²]	1.530
53.044	J	[kgcm²]	1.380
60.278	J	[kgcm²]	1.370
71.867	J	[kgcm²]	1.170
81.667	J	[kgcm²]	1.160
93.541	J	[kgcm²]	0.706
99.167	J	[kgcm²]	1.070
113.585	J	[kgcm²]	0.652
129.074	J	[kgcm²]	0.649
141.289	J	[kgcm²]	0.458
160.556	J	[kgcm²]	0.456
182.844	J	[kgcm²]	0.297
207.778	J	[kgcm²]	0.295
236.622	J	[kgcm²]	0.275
252.167	J	[kgcm²]	0.212
268.889	J	[kgcm²]	0.275
326.333	J	[kgcm²]	0.198
363.000	J	[kgcm²]	0.255
412.500	J	[kgcm²]	0.183

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Moments of inertia

GST□□-3

► Moment of inertia (J) depending on ratio i

Gearbox			GST11
40.816	J	[kgcm²]	6.360
44.000	J	[kgcm²]	5.660
50.000	J	[kgcm²]	5.600
57.968	J	[kgcm²]	4.770
61.250	J	[kgcm²]	4.080
71.011	J	[kgcm²]	3.520
80.694	J	[kgcm²]	3.500
87.267	J	[kgcm²]	3.220
99.167	J	[kgcm²]	3.200
112.933	J	[kgcm²]	2.930
129.074	J	[kgcm²]	1.940
146.993	J	[kgcm²]	1.770
158.194	J	[kgcm²]	1.400
180.156	J	[kgcm²]	1.290
207.778	J	[kgcm²]	0.880
236.622	J	[kgcm²]	0.818
252.167	J	[kgcm²]	0.633
268.889	J	[kgcm²]	0.816
326.333	J	[kgcm²]	0.589
363.000	J	[kgcm²]	0.756
412.500	J	[kgcm²]	0.545

Gearbox			GST14
40.185	J	[kgcm²]	24.400
42.580	J	[kgcm²]	18.300
48.386	J	[kgcm²]	18.100
53.148	J	[kgcm²]	20.500
59.321	J	[kgcm²]	13.200
69.042	J	[kgcm²]	11.500
78.457	J	[kgcm²]	11.400
93.541	J	[kgcm²]	6.570
96.157	J	[kgcm²]	10.400
106.296	J	[kgcm²]	6.520
130.278	J	[kgcm²]	6.000
139.211	J	[kgcm²]	4.420
158.194	J	[kgcm²]	4.400
171.111	J	[kgcm²]	5.490
204.722	J	[kgcm²]	2.860
236.622	J	[kgcm²]	2.650
248.458	J	[kgcm²]	2.060
268.889	J	[kgcm²]	2.650
326.333	J	[kgcm²]	1.920
363.000	J	[kgcm²]	2.450
412.500	J	[kgcm²]	1.780

► The moments of inertia relate to the drive shaft of the gearbox.
► The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

Weights

GST□□-1M VBR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12
GST04	m	[kg]	16	21	23				
GST05	m	[kg]	19	25	27	33	35		
GST06	m	[kg]	23	29	31	37	40	53	
GST07	m	[kg]	33	39	41	47	49	62	85
GST09	m	[kg]		53	55	61	64	76	100

			132C22	160C22	160C32	180C12	180C32	180C42
GST07	m	[kg]	92	135				
GST09	m	[kg]	107	150	165	216	221	241

GST□□-1M VCR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12
GST04	m	[kg]	15	20	22				
GST05	m	[kg]	18	24	26	32	34		
GST06	m	[kg]	21	28	30	36	38	51	
GST07	m	[kg]	29	36	38	44	46	59	82
GST09	m	[kg]		49	51	57	59	72	95

			132C22	160C22	160C32	180C12	180C32	180C42
GST07	m	[kg]	89	132				
GST09	m	[kg]	102	145	160	211	216	236

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Weights

GST□□-1M VCK

			080C32	090C12	090C32	100C12	100C32	112C22	132C12
GST04	m	[kg]	16	21	23				
GST05	m	[kg]	19	25	27	33	36		
GST06	m	[kg]	24	31	33	39	41	54	
GST07	m	[kg]	33	40	42	48	50	63	86
GST09	m	[kg]		56	58	64	66	79	102

			132C22	160C22	160C32	180C12	180C32	180C42
GST07	m	[kg]	93	136				
GST09	m	[kg]	109	152	167	218	223	243

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Weights

GST□□-2M VAR / VBR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22
GST04	m	[kg]	18	23	25					
GST05	m	[kg]	22	28	30	36	39			
GST06	m	[kg]	29	36	38	44	46	59	81	88
GST07	m	[kg]	45	51	53	59	61	74	97	104
GST09	m	[kg]		78	80	86	88	101	124	131
GST11	m	[kg]				132	134	146	169	176
GST14	m	[kg]						238	258	265

			160C22	160C32	180C12	180C32	180C42	225C12	225C22
GST07	m	[kg]	147	162					
GST09	m	[kg]	174	189	240	245	265		
GST11	m	[kg]	219	234	285	290	310	509	529
GST14	m	[kg]	308	323	374	379	399	597	617

GST□□-2M VCR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22
GST04	m	[kg]	17	22	24					
GST05	m	[kg]	21	27	29	35	37			
GST06	m	[kg]	27	33	35	41	44	57	79	86
GST07	m	[kg]	40	46	48	54	57	70	93	100
GST09	m	[kg]		69	71	77	80	92	116	123
GST11	m	[kg]				117	120	131	154	161
GST14	m	[kg]						210	230	237

			160C22	160C32	180C12	180C32	180C42	225C12	225C22
GST07	m	[kg]	143	158					
GST09	m	[kg]	166	181	232	237	257		
GST11	m	[kg]	204	219	270	275	295	494	514
GST14	m	[kg]	280	295	346	351	371	569	589

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Weights

GST□□-2M VCK

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22
GST04	m	[kg]	18	23	25					
GST05	m	[kg]	22	28	30	36	39			
GST06	m	[kg]	30	36	38	44	47	60	82	89
GST07	m	[kg]	44	50	52	58	61	74	97	104
GST09	m	[kg]		76	78	84	87	99	123	130
GST11	m	[kg]				128	130	142	164	171
GST14	m	[kg]						226	246	253

			160C22	160C32	180C12	180C32	180C42	225C12	225C22
GST07	m	[kg]	147	162					
GST09	m	[kg]	173	188	239	244	264		
GST11	m	[kg]	214	229	280	285	305	505	525
GST14	m	[kg]	296	311	362	367	387	584	604

GST□□-2M VAL

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22
GST04	m	[kg]	19	24	26					
GST05	m	[kg]	24	30	32	38	40			
GST06	m	[kg]	32	39	41	47	49	62	84	91
GST07	m	[kg]	49	55	57	63	65	78	101	108
GST09	m	[kg]		85	87	93	95	108	131	138
GST11	m	[kg]				142	145	157	179	186
GST14	m	[kg]						254	274	281

			160C22	160C32	180C12	180C32	180C42	225C12	225C22
GST07	m	[kg]	151	166					
GST09	m	[kg]	181	196	247	252	272		
GST11	m	[kg]	229	244	295	300	320	520	540
GST14	m	[kg]	324	339	390	395	415	612	632

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Weights

GST□□-3M VAR / VBR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22	160C22	160C32	180C12	180C32
GST06	m	[kg]	34	39	41									
GST07	m	[kg]	53	59	61	67	69							
GST09	m	[kg]	85	91	93	99	101	114						
GST11	m	[kg]	139	145	147	153	156	169	191	198				
GST14	m	[kg]		251	253	259	262	274	298	305	348	363	414	419

GST□□-3M VCR

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22	160C22	160C32	180C12	180C32
GST06	m	[kg]	31	36	38									
GST07	m	[kg]	48	54	56	62	65							
GST09	m	[kg]	76	82	84	90	93	106						
GST11	m	[kg]	124	130	132	138	141	154	176	183				
GST14	m	[kg]		223	225	231	234	246	270	277	320	335	386	391

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Weights

GST□□-3M VCK

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22	160C22	160C32	180C12	180C32
GST06	m	[kg]	34	39	41									
GST07	m	[kg]	52	58	60	66	69							
GST09	m	[kg]	83	89	91	97	100	113						
GST11	m	[kg]	135	141	143	149	151	164	187	194				
GST14	m	[kg]		239	241	247	249	262	285	292	335	350	401	406

GST□□-3M VAL

			080C32	090C12	090C32	100C12	100C32	112C22	132C12	132C22	160C22	160C32	180C12	180C32
GST06	m	[kg]	37	42	44									
GST07	m	[kg]	57	63	65	71	73							
GST09	m	[kg]	92	98	100	106	108	121						
GST11	m	[kg]	150	156	158	164	166	179	202	209				
GST14	m	[kg]		267	269	275	277	290	313	320	363	378	429	434

► Weights with oil filling for mounting position A; all values are approximate.
The weights relate to the basic version. Bear in mind that additional weights may be needed, e.g. for motor options.

Selection tables

50 Hz, 60 Hz: P_N = 0.75 kW

n_N	1410 r/min				1720 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	881	8.0	2.4		1069	6.6	2.8	1.600	GST04-1M □□□080C32	78
	689	10	2.2		835	8.4	2.6	2.048	GST04-1M □□□080C32	78
	630	11	2.2		763	9.2	2.6	2.240	GST04-1M □□□080C32	78
	494	14	1.7		599	12	2.0	2.857	GST04-1M □□□080C32	78
	477	15	2.7		579	12	3.1	2.956	GST04-2M □□□080C32	84
	423	16	2.5		513	13	3.0	3.333	GST04-2M □□□080C32	84
	403	18	1.4		489	14	1.7	3.500	GST04-1M □□□080C32	78
	403	18	3.1		489	14	3.6	3.500	GST05-1M □□□080C32	78
	348	20	2.3		422	16	2.6	4.053	GST04-2M □□□080C32	84
	321	22	1.1		389	18	1.3	4.400	GST04-1M □□□080C32	78
	310	23	2.4		375	19	2.8	4.556	GST05-1M □□□080C32	78
	308	23	2.1		374	18	2.5	4.571	GST04-2M □□□080C32	84
	272	26	2.0		330	21	2.3	5.187	GST04-2M □□□080C32	84
	249	28	0.9		302	23	1.0	5.667	GST04-1M □□□080C32	78
	249	28	1.9		302	23	2.2	5.667	GST05-1M □□□080C32	78
	249	28	2.9		302	23	3.4	5.667	GST06-1M □□□080C32	78
	241	29	1.8		292	24	2.2	5.850	GST04-2M □□□080C32	84
	220	32	1.7		267	26	2.0	6.400	GST04-2M □□□080C32	84
	200	35	1.6		243	28	1.9	7.040	GST04-2M □□□080C32	84
	195	36	3.0		236	29	3.5	7.238	GST05-2M □□□080C32	84
	192	37	1.3		233	30	1.5	7.333	GST05-1M □□□080C32	78
	192	37	2.6		233	30	3.1	7.333	GST06-1M □□□080C32	78
	192	37	2.9		233	30	3.4	7.333	GST07-1M □□□080C32	78
	176	39	1.5		214	32	1.7	8.000	GST04-2M □□□080C32	84
	173	40	2.9		210	33	3.3	8.163	GST05-2M □□□080C32	84
	158	45	0.9		192	37	1.1	8.900	GST05-1M □□□080C32	78
	158	45	1.9		192	37	2.2	8.900	GST06-1M □□□080C32	78
	158	45	2.5		192	37	3.0	8.900	GST07-1M □□□080C32	78
	157	44	1.4		190	36	1.6	9.010	GST04-2M □□□080C32	84
	157	44	2.7		190	36	3.1	9.010	GST05-2M □□□080C32	84
	143	49	1.3		174	40	1.6	9.856	GST04-2M □□□080C32	84
	141	49	2.5		171	40	2.9	10.000	GST05-2M □□□080C32	84
	126	55	1.1		153	45	1.3	11.200	GST04-2M □□□080C32	84
	126	55	2.3		153	45	2.7	11.200	GST05-2M □□□080C32	84
	125	56	1.1		152	46	1.3	11.250	GST06-1M □□□080C32	78
	125	56	2.0		152	46	2.4	11.250	GST07-1M □□□080C32	78
	112	62	1.1		136	51	1.3	12.571	GST04-2M □□□080C32	84
	108	64	2.1		131	53	2.5	13.016	GST05-2M □□□080C32	84
	99	70	0.9		120	58	1.0	14.286	GST04-2M □□□080C32	84
	98	71	2.0		119	58	2.3	14.356	GST05-2M □□□080C32	84

Selection tables

50 Hz, 60 Hz: P_N = 0.75 kW

n_N	1410 r/min				1720 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	92	76	0.9		111	62	1.1	15.400	GST04-2M □□□080C32	84
	87	80	1.9		106	65	2.3	16.190	GST05-2M □□□080C32	84
	81	86	1.6		98	71	2.0	17.500	GST05-2M □□□080C32	84
	70	99	1.6		85	81	2.0	20.044	GST05-2M □□□080C32	84
	62	112	1.3		75	92	1.6	22.778	GST05-2M □□□080C32	84
	62	112	2.8		75	92	3.4	22.778	GST06-2M □□□080C32	84
	57	123	1.3		69	101	1.6	24.933	GST05-2M □□□080C32	84
	57	123	2.9		69	101	3.5	24.933	GST06-2M □□□080C32	84
	50	140	1.1		60	114	1.3	28.333	GST05-2M □□□080C32	84
	50	140	2.3		60	114	2.8	28.333	GST06-2M □□□080C32	84
	44	159	1.0		53	130	1.3	32.267	GST05-2M □□□080C32	84
	44	159	2.3		53	130	2.8	32.267	GST06-2M □□□080C32	84
	44	159	2.9		53	130	3.5	32.267	GST07-2M □□□080C32	84
	39	181	0.8		47	148	1.0	36.667	GST05-2M □□□080C32	84
	39	181	1.8		47	148	2.2	36.667	GST06-2M □□□080C32	84
	39	181	2.9		47	148	3.5	36.667	GST07-2M □□□080C32	84
	36	193	0.9		44	158	1.0	39.160	GST05-2M □□□080C32	84
	36	193	1.9		44	158	2.3	39.160	GST06-2M □□□080C32	84
	36	193	2.5		44	158	3.1	39.160	GST07-2M □□□080C32	84
	36	190	1.7		44	156	2.1	39.200	GST06-3M □□□080C32	90
	32	214	1.6		39	175	1.9	44.000	GST06-3M □□□080C32	90
	32	219	1.5		38	180	1.8	44.500	GST06-2M □□□080C32	84
	32	219	2.5		38	180	3.1	44.500	GST07-2M □□□080C32	84
	29	244	1.1		35	200	1.4	49.500	GST06-2M □□□080C32	84
	29	244	2.0		35	200	2.5	49.500	GST07-2M □□□080C32	84
	28	248	1.3		34	203	1.6	51.022	GST06-3M □□□080C32	90
	28	248	2.8		34	203	3.4	51.022	GST07-3M □□□080C32	90
	26	262	1.3		32	214	1.6	53.900	GST06-3M □□□080C32	90
	26	262	2.7		32	214	3.3	53.900	GST07-3M □□□080C32	90
	25	277	1.1		30	227	1.4	56.250	GST06-2M □□□080C32	84
	25	277	2.0		30	227	2.5	56.250	GST07-2M □□□080C32	84
	22	316	2.2		26	259	2.7	65.079	GST07-3M □□□080C32	90
	21	329	1.1		25	270	1.4	67.760	GST06-3M □□□080C32	90
	20	341	1.1		24	279	1.3	70.156	GST06-3M □□□080C32	90
	20	341	2.1		24	279	2.5	70.156	GST07-3M □□□080C32	90
	18	387	1.8		21	317	2.2	79.762	GST07-3M □□□080C32	90
	17	393	0.8		21	322	1.0	80.952	GST06-3M □□□080C32	90
	16	417	1.7		20	342	2.1	85.983	GST07-3M □□□080C32	90
	16	424	0.9		20	347	1.1	87.267	GST06-3M □□□080C32	90
	14	474	1.5		18	389	1.8	97.708	GST07-3M □□□080C32	90

Selection tables

50 Hz, 60 Hz: P_N = 0.75 kW

n_N	1410 r/min				1720 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	13	543	1.3		15	445	1.6	111.915	GST07-3M □□□080C32	90
	12	551	2.9		15	452	3.6	113.585	GST09-3M □□□080C32	90
	11	617	1.2		13	506	1.4	127.176	GST07-3M □□□080C32	90
	11	627	2.6		13	514	3.1	129.074	GST09-3M □□□080C32	90
	10	676	1.0		12	554	1.3	139.211	GST07-3M □□□080C32	90
	10	686	2.4		12	562	2.9	141.289	GST09-3M □□□080C32	90
	8.9	768	0.9		11	630	1.1	158.194	GST07-3M □□□080C32	90
	8.8	779	2.1		11	639	2.5	160.556	GST09-3M □□□080C32	90
	7.8	875	0.8		9.5	717	1.0	180.156	GST07-3M □□□080C32	90
	7.7	888	1.8		9.4	728	2.2	182.844	GST09-3M □□□080C32	90
	6.8	1009	1.6		8.2	827	2.0	207.778	GST09-3M □□□080C32	90
	6.8	1009	2.8		8.2	827	3.4	207.778	GST11-3M □□□080C32	90
	6.0	1149	1.4		7.2	942	1.7	236.622	GST09-3M □□□080C32	90
	6.0	1149	2.3		7.2	942	2.9	236.622	GST11-3M □□□080C32	90
	5.6	1224	1.3		6.8	1003	1.6	252.167	GST09-3M □□□080C32	90
	5.6	1224	2.3		6.8	1003	2.8	252.167	GST11-3M □□□080C32	90
	5.2	1305	1.2		6.4	1070	1.5	268.889	GST09-3M □□□080C32	90
	5.2	1305	2.2		6.4	1070	2.7	268.889	GST11-3M □□□080C32	90
	4.3	1584	1.0		5.2	1299	1.2	326.333	GST09-3M □□□080C32	90
	4.3	1584	1.8		5.2	1299	2.2	326.333	GST11-3M □□□080C32	90
	3.9	1762	0.9		4.7	1445	1.1	363.000	GST09-3M □□□080C32	90
	3.9	1762	1.5		4.7	1445	1.9	363.000	GST11-3M □□□080C32	90
	3.4	2002	0.8		4.2	1641	1.0	412.500	GST09-3M □□□080C32	90
	3.4	2002	1.4		4.2	1641	1.7	412.500	GST11-3M □□□080C32	90

Selection tables

50 Hz, 60 Hz: P_N = 1.1 kW

n_N	1430 r/min				1740 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	894	12	1.7		1081	9.5	1.9	1.600	GST04-1M □□□090C12	78
	698	15	1.5		845	12	1.8	2.048	GST04-1M □□□090C12	78
	638	16	1.5		772	13	1.8	2.240	GST04-1M □□□090C12	78
	501	21	1.2		606	17	1.4	2.857	GST04-1M □□□090C12	78
	501	21	2.6		606	17	3.0	2.857	GST05-1M □□□090C12	78
	484	21	1.9		585	17	2.2	2.956	GST04-2M □□□090C12	84
	484	21	3.0		585	17	3.5	2.956	GST05-2M □□□090C12	84
	429	24	1.8		519	20	2.0	3.333	GST04-2M □□□090C12	84
	409	25	1.0		494	21	1.1	3.500	GST04-1M □□□090C12	78
	409	25	2.1		494	21	2.5	3.500	GST05-1M □□□090C12	78
	353	29	1.6		427	24	1.8	4.053	GST04-2M □□□090C12	84
	353	29	2.8		427	24	3.3	4.053	GST05-2M □□□090C12	84
	314	33	1.6		380	27	1.9	4.556	GST05-1M □□□090C12	78
	314	33	3.2		380	27	3.7	4.556	GST06-1M □□□090C12	78
	313	33	1.5		378	27	1.7	4.571	GST04-2M □□□090C12	84
	313	33	2.8		378	27	3.2	4.571	GST05-2M □□□090C12	84
	276	37	1.4		334	30	1.6	5.187	GST04-2M □□□090C12	84
	276	37	2.4		334	30	2.8	5.187	GST05-2M □□□090C12	84
	252	41	1.3		305	34	1.5	5.667	GST05-1M □□□090C12	78
	252	41	2.6		305	34	3.0	5.667	GST06-1M □□□090C12	78
	244	42	1.3		296	34	1.5	5.850	GST04-2M □□□090C12	84
	244	42	2.4		296	34	2.8	5.850	GST05-2M □□□090C12	84
	223	46	1.2		270	37	1.4	6.400	GST04-2M □□□090C12	84
	223	46	2.3		270	37	2.7	6.400	GST05-2M □□□090C12	84
	203	50	1.1		246	41	1.3	7.040	GST04-2M □□□090C12	84
	198	52	2.1		239	42	2.4	7.238	GST05-2M □□□090C12	84
	195	53	1.9		236	44	2.2	7.333	GST06-1M □□□090C12	78
	179	57	1.0		216	47	1.2	8.000	GST04-2M □□□090C12	84
	175	58	2.0		212	48	2.3	8.163	GST05-2M □□□090C12	84
	161	64	1.3		194	53	1.5	8.900	GST06-1M □□□090C12	78
	161	64	2.8		194	53	3.2	8.900	GST07-1M □□□090C12	78
	159	64	1.0		192	53	1.1	9.010	GST04-2M □□□090C12	84
	159	64	1.9		192	53	2.1	9.010	GST05-2M □□□090C12	84
	145	70	0.9		176	58	1.1	9.856	GST04-2M □□□090C12	84
	143	71	1.7		173	59	2.0	10.000	GST05-2M □□□090C12	84
	128	80	1.6		155	66	1.9	11.200	GST05-2M □□□090C12	84
	127	81	1.7		154	67	1.9	11.250	GST07-1M □□□090C12	78
	127	81	2.7		154	67	3.1	11.250	GST09-1M □□□090C12	78
	110	93	1.5		133	76	1.7	13.016	GST05-2M □□□090C12	84
	100	102	3.0		121	84	3.5	14.286	GST06-2M □□□090C12	84

Selection tables

50 Hz, 60 Hz: P_N = 1.1 kW

n_N	1430 r/min				1740 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	100	102	1.4		121	84	1.6	14.356	GST05-2M □□□090C12	84
	93	110	2.9		112	90	3.5	15.400	GST06-2M □□□090C12	84
	88	115	1.3		107	95	1.6	16.190	GST05-2M □□□090C12	84
	82	125	1.1		99	103	1.4	17.500	GST05-2M □□□090C12	84
	82	125	2.5		99	103	3.1	17.500	GST06-2M □□□090C12	84
	71	143	1.1		86	117	1.4	20.044	GST05-2M □□□090C12	84
	71	143	2.5		86	117	3.0	20.044	GST06-2M □□□090C12	84
	63	162	0.9		76	133	1.1	22.778	GST05-2M □□□090C12	84
	63	162	1.9		76	133	2.4	22.778	GST06-2M □□□090C12	84
	57	178	0.9		69	146	1.1	24.933	GST05-2M □□□090C12	84
	57	178	2.0		69	146	2.5	24.933	GST06-2M □□□090C12	84
	51	202	1.6		61	166	1.9	28.333	GST06-2M □□□090C12	84
	44	230	1.6		54	189	1.9	32.267	GST06-2M □□□090C12	84
	44	230	3.1		54	189	3.7	32.267	GST07-2M □□□090C12	84
	39	261	1.2		47	215	1.5	36.667	GST06-2M □□□090C12	84
	39	261	2.7		47	215	3.3	36.667	GST07-2M □□□090C12	84
	37	279	1.3		44	229	1.6	39.160	GST06-2M □□□090C12	84
	37	279	2.5		44	229	3.1	39.160	GST07-2M □□□090C12	84
	37	275	1.2		44	226	1.4	39.200	GST06-3M □□□090C12	90
	37	275	2.5		44	226	3.1	39.200	GST07-3M □□□090C12	90
	33	309	1.1		39	254	1.3	44.000	GST06-3M □□□090C12	90
	33	309	2.3		39	254	2.8	44.000	GST07-3M □□□090C12	90
	32	317	1.0		39	261	1.2	44.500	GST06-2M □□□090C12	84
	32	317	2.2		39	261	2.7	44.500	GST07-2M □□□090C12	84
	29	353	1.7		35	290	2.1	49.500	GST07-2M □□□090C12	84
	29	353	2.7		35	290	3.3	49.500	GST09-2M □□□090C12	84
	28	358	0.9		34	294	1.1	51.022	GST06-3M □□□090C12	90
	28	358	2.0		34	294	2.4	51.022	GST07-3M □□□090C12	90
	27	378	0.9		32	311	1.1	53.900	GST06-3M □□□090C12	90
	27	378	1.9		32	311	2.3	53.900	GST07-3M □□□090C12	90
	25	401	1.7		31	329	2.1	56.250	GST07-2M □□□090C12	84
	25	401	2.7		31	329	3.3	56.250	GST09-2M □□□090C12	84
	22	457	1.5		27	375	1.9	65.079	GST07-3M □□□090C12	90
	20	492	1.4		25	405	1.7	70.156	GST07-3M □□□090C12	90
	20	505	2.9		24	415	3.6	71.867	GST09-3M □□□090C12	90
	18	560	1.3		22	460	1.5	79.762	GST07-3M □□□090C12	90
	18	573	2.8		21	471	3.4	81.667	GST09-3M □□□090C12	90
	17	604	1.2		20	496	1.4	85.983	GST07-3M □□□090C12	90
	15	657	2.5		19	540	3.0	93.541	GST09-3M □□□090C12	90
	15	686	1.0		18	564	1.3	97.708	GST07-3M □□□090C12	90

Selection tables

50 Hz, 60 Hz: P_N = 1.1 kW

n_N	1430 r/min				1740 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	14	696	2.3		17	572	2.8	99.167	GST09-3M □□□090C12	90
	13	786	0.9		16	646	1.1	111.915	GST07-3M □□□090C12	90
	13	797	2.0		15	655	2.5	113.585	GST09-3M □□□090C12	90
	11	906	1.8		13	745	2.2	129.074	GST09-3M □□□090C12	90
	11	906	3.1		13	745	3.8	129.074	GST11-3M □□□090C12	90
	10	992	1.6		12	815	2.0	141.289	GST09-3M □□□090C12	90
	9.7	1032	2.6		12	848	3.2	146.993	GST11-3M □□□090C12	90
	9.0	1111	2.5		11	913	3.1	158.194	GST11-3M □□□090C12	90
	8.9	1127	1.4		11	926	1.8	160.556	GST09-3M □□□090C12	90
	7.9	1265	2.1		9.6	1039	2.6	180.156	GST11-3M □□□090C12	90
	7.8	1284	1.3		9.5	1055	1.5	182.844	GST09-3M □□□090C12	90
	6.9	1459	1.1		8.3	1199	1.4	207.778	GST09-3M □□□090C12	90
	6.9	1459	1.9		8.3	1199	2.3	207.778	GST11-3M □□□090C12	90
	6.0	1661	1.0		7.3	1365	1.2	236.622	GST09-3M □□□090C12	90
	6.0	1661	1.6		7.3	1365	2.0	236.622	GST11-3M □□□090C12	90
	5.7	1770	0.9		6.9	1455	1.1	252.167	GST09-3M □□□090C12	90
	5.7	1770	1.6		6.9	1455	1.9	252.167	GST11-3M □□□090C12	90
	5.3	1888	0.9		6.4	1551	1.0	268.889	GST09-3M □□□090C12	90
	5.3	1888	1.5		6.4	1551	1.8	268.889	GST11-3M □□□090C12	90
	5.3	1888	3.1		6.4	1551	3.8	268.889	GST14-3M □□□090C12	90
	4.4	2291	1.2		5.3	1883	1.5	326.333	GST11-3M □□□090C12	90
	4.4	2291	2.6		5.3	1883	3.1	326.333	GST14-3M □□□090C12	90
	3.9	2548	1.1		4.8	2094	1.3	363.000	GST11-3M □□□090C12	90
	3.9	2548	2.3		4.8	2094	2.8	363.000	GST14-3M □□□090C12	90
	3.5	2896	1.0		4.2	2380	1.2	412.500	GST11-3M □□□090C12	90
	3.5	2896	2.0		4.2	2380	2.5	412.500	GST14-3M □□□090C12	90

Selection tables

50 Hz, 60 Hz: P_N = 1.5 kW

n_N	1435 r/min				1745 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	897	16	1.2		1084	13	1.4	1.600	GST04-1M □□□090C32	78
	897	16	2.8		1084	13	3.3	1.600	GST05-1M □□□090C32	78
	701	20	1.1		847	17	1.3	2.048	GST04-1M □□□090C32	78
	701	20	2.6		847	17	3.0	2.048	GST05-1M □□□090C32	78
	641	22	1.1		775	18	1.3	2.240	GST04-1M □□□090C32	78
	641	22	2.4		775	18	2.8	2.240	GST05-1M □□□090C32	78
	502	28	0.9		607	23	1.0	2.857	GST04-1M □□□090C32	78
	502	28	1.9		607	23	2.2	2.857	GST05-1M □□□090C32	78
	486	29	1.4		587	24	1.6	2.956	GST04-2M □□□090C32	84
	486	29	2.2		587	24	2.5	2.956	GST05-2M □□□090C32	84
	431	32	1.3		521	27	1.5	3.333	GST04-2M □□□090C32	84
	431	32	2.4		521	27	2.8	3.333	GST05-2M □□□090C32	84
	410	34	1.6		496	28	1.8	3.500	GST05-1M □□□090C32	78
	410	34	3.0		496	28	3.5	3.500	GST06-1M □□□090C32	78
	354	39	1.1		428	32	1.3	4.053	GST04-2M □□□090C32	84
	354	39	2.1		428	32	2.4	4.053	GST05-2M □□□090C32	84
	315	45	1.2		381	37	1.4	4.556	GST05-1M □□□090C32	78
	315	45	2.3		381	37	2.7	4.556	GST06-1M □□□090C32	78
	314	44	1.1		380	36	1.3	4.571	GST04-2M □□□090C32	84
	314	44	2.1		380	36	2.4	4.571	GST05-2M □□□090C32	84
	277	50	1.0		335	41	1.2	5.187	GST04-2M □□□090C32	84
	277	50	1.8		335	41	2.1	5.187	GST05-2M □□□090C32	84
	257	55	2.9		311	45	3.4	5.583	GST07-1M □□□090C32	78
	253	56	1.0		306	46	1.1	5.667	GST05-1M □□□090C32	78
	253	56	1.9		306	46	2.2	5.667	GST06-1M □□□090C32	78
	245	57	0.9		297	47	1.1	5.850	GST04-2M □□□090C32	84
	245	57	1.8		297	47	2.1	5.850	GST05-2M □□□090C32	84
	224	62	0.9		271	51	1.0	6.400	GST04-2M □□□090C32	84
	224	62	1.7		271	51	2.0	6.400	GST05-2M □□□090C32	84
	204	68	0.8		248	56	1.0	7.040	GST04-2M □□□090C32	84
	198	70	1.5		240	58	1.8	7.238	GST05-2M □□□090C32	84
	196	72	1.4		237	59	1.6	7.333	GST06-1M □□□090C32	78
	196	72	2.4		237	59	2.8	7.333	GST07-1M □□□090C32	78
	196	72	2.9		237	59	3.4	7.333	GST09-1M □□□090C32	78
	176	79	1.5		213	65	1.7	8.163	GST05-2M □□□090C32	84
	176	79	3.2		213	65	3.7	8.163	GST06-2M □□□090C32	84
	161	88	1.0		195	72	1.1	8.900	GST06-1M □□□090C32	78
	161	88	2.0		195	72	2.4	8.900	GST07-1M □□□090C32	78
	161	88	2.6		195	72	3.0	8.900	GST09-1M □□□090C32	78
	159	87	1.4		193	72	1.6	9.010	GST05-2M □□□090C32	84

Selection tables

50 Hz, 60 Hz: P_N = 1.5 kW

n_N	1435 r/min				1745 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	159	87	3.0		193	72	3.5	9.010	GST06-2M □□□090C32	84
	144	97	1.3		174	80	1.5	10.000	GST05-2M □□□090C32	84
	144	97	2.8		174	80	3.2	10.000	GST06-2M □□□090C32	84
	128	108	1.2		155	89	1.4	11.200	GST05-2M □□□090C32	84
	128	108	2.6		155	89	3.0	11.200	GST06-2M □□□090C32	84
	128	111	1.2		154	91	1.4	11.250	GST07-1M □□□090C32	78
	128	111	2.0		154	91	2.3	11.250	GST09-1M □□□090C32	78
	114	122	2.4		138	100	2.8	12.571	GST06-2M □□□090C32	84
	110	126	1.1		133	104	1.3	13.016	GST05-2M □□□090C32	84
	100	138	2.2		121	114	2.6	14.286	GST06-2M □□□090C32	84
	100	139	1.0		121	114	1.2	14.356	GST05-2M □□□090C32	84
	93	149	2.1		113	123	2.6	15.400	GST06-2M □□□090C32	84
	89	157	0.9		107	129	1.2	16.190	GST05-2M □□□090C32	84
	82	169	0.8		99	139	1.0	17.500	GST05-2M □□□090C32	84
	82	169	1.8		99	139	2.2	17.500	GST06-2M □□□090C32	84
	72	194	0.8		87	160	1.0	20.044	GST05-2M □□□090C32	84
	72	194	1.8		87	160	2.2	20.044	GST06-2M □□□090C32	84
	63	221	1.4		76	181	1.7	22.778	GST06-2M □□□090C32	84
	63	221	3.1		76	181	3.8	22.778	GST07-2M □□□090C32	84
	58	238	2.9		71	196	3.6	24.567	GST07-2M □□□090C32	84
	58	241	1.5		70	199	1.8	24.933	GST06-2M □□□090C32	84
	51	270	2.6		62	222	3.1	27.917	GST07-2M □□□090C32	84
	51	274	1.2		61	226	1.4	28.333	GST06-2M □□□090C32	84
	45	312	1.2		54	257	1.4	32.267	GST06-2M □□□090C32	84
	45	312	2.3		54	257	2.7	32.267	GST07-2M □□□090C32	84
	45	312	2.9		54	257	3.6	32.267	GST09-2M □□□090C32	84
	39	355	0.9		47	292	1.1	36.667	GST06-2M □□□090C32	84
	39	355	2.0		47	292	2.4	36.667	GST07-2M □□□090C32	84
	39	355	2.9		47	292	3.6	36.667	GST09-2M □□□090C32	84
	37	379	1.0		44	312	1.2	39.160	GST06-2M □□□090C32	84
	37	379	1.9		44	312	2.3	39.160	GST07-2M □□□090C32	84
	37	379	2.6		44	312	3.1	39.160	GST09-2M □□□090C32	84
	37	374	0.9		44	308	1.0	39.200	GST06-3M □□□090C32	90
	37	374	1.8		44	308	2.2	39.200	GST07-3M □□□090C32	90
	33	413	3.1		40	339	3.8	43.267	GST09-3M □□□090C32	90
	33	420	1.7		39	345	2.0	44.000	GST07-3M □□□090C32	90
	32	431	1.6		39	354	2.0	44.500	GST07-2M □□□090C32	84
	32	431	2.6		39	354	3.1	44.500	GST09-2M □□□090C32	84
	29	469	3.1		35	386	3.8	49.167	GST09-3M □□□090C32	90
	29	479	1.3		35	394	1.5	49.500	GST07-2M □□□090C32	84

Selection tables

50 Hz, 60 Hz: P_N = 1.5 kW

n_N	1435 r/min				1745 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	29	479	2.0		35	394	2.4	49.500	GST09-2M □□□090C32	84
	28	487	1.4		34	400	1.7	51.022	GST07-3M □□□090C32	90
	27	506	2.7		33	416	3.3	53.044	GST09-3M □□□090C32	90
	27	514	1.4		32	423	1.7	53.900	GST07-3M □□□090C32	90
	26	545	1.3		31	448	1.5	56.250	GST07-2M □□□090C32	84
	26	545	2.0		31	448	2.4	56.250	GST09-2M □□□090C32	84
	24	575	2.7		29	473	3.3	60.278	GST09-3M □□□090C32	90
	22	621	1.1		27	511	1.4	65.079	GST07-3M □□□090C32	90
	21	669	1.1		25	550	1.3	70.156	GST07-3M □□□090C32	90
	20	686	2.2		24	564	2.6	71.867	GST09-3M □□□090C32	90
	18	761	0.9		22	626	1.1	79.762	GST07-3M □□□090C32	90
	18	779	2.0		21	641	2.5	81.667	GST09-3M □□□090C32	90
	17	820	0.9		20	675	1.0	85.983	GST07-3M □□□090C32	90
	15	892	1.8		19	734	2.2	93.541	GST09-3M □□□090C32	90
	15	946	1.7		18	778	2.1	99.167	GST09-3M □□□090C32	90
	13	1084	1.5		15	891	1.8	113.585	GST09-3M □□□090C32	90
	11	1231	1.3		13	1013	1.6	129.074	GST09-3M □□□090C32	90
	11	1231	2.3		13	1013	2.8	129.074	GST11-3M □□□090C32	90
	10	1348	1.2		12	1108	1.5	141.289	GST09-3M □□□090C32	90
	9.8	1402	1.9		12	1153	2.3	146.993	GST11-3M □□□090C32	90
	9.1	1509	1.9		11	1241	2.3	158.194	GST11-3M □□□090C32	90
	8.9	1532	1.1		11	1260	1.3	160.556	GST09-3M □□□090C32	90
	8.0	1719	1.6		9.6	1413	1.9	180.156	GST11-3M □□□090C32	90
	7.9	1744	0.9		9.5	1434	1.1	182.844	GST09-3M □□□090C32	90
	7.0	1953	2.9		8.5	1606	3.6	204.722	GST14-3M □□□090C32	90
	6.9	1982	0.8		8.4	1630	1.0	207.778	GST09-3M □□□090C32	90
	6.9	1982	1.4		8.4	1630	1.7	207.778	GST11-3M □□□090C32	90
	6.1	2257	1.2		7.3	1856	1.5	236.622	GST11-3M □□□090C32	90
	6.1	2257	2.6		7.3	1856	3.1	236.622	GST14-3M □□□090C32	90
	5.8	2370	2.5		7.0	1949	3.0	248.458	GST14-3M □□□090C32	90
	5.7	2406	1.2		6.9	1978	1.4	252.167	GST11-3M □□□090C32	90
	5.3	2565	1.1		6.5	2109	1.4	268.889	GST11-3M □□□090C32	90
	5.3	2565	2.3		6.5	2109	2.8	268.889	GST14-3M □□□090C32	90
	4.4	3113	0.9		5.3	2560	1.1	326.333	GST11-3M □□□090C32	90
	4.4	3113	1.9		5.3	2560	2.3	326.333	GST14-3M □□□090C32	90
	4.0	3463	1.7		4.8	2848	2.0	363.000	GST14-3M □□□090C32	90
	3.5	3935	1.5		4.2	3236	1.8	412.500	GST14-3M □□□090C32	90

Selection tables

50 Hz, 60 Hz: P_N = 2.2 kW

n_N	1445 r/min				1750 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	903	23	2.0		1091	19	2.2	1.600	GST05-1M □□□100C12	78
	903	23	2.7		1091	19	3.1	1.600	GST06-1M □□□100C12	78
	706	29	1.8		852	24	2.1	2.048	GST05-1M □□□100C12	78
	706	29	2.5		852	24	2.8	2.048	GST06-1M □□□100C12	78
	645	32	1.7		779	26	1.9	2.240	GST05-1M □□□100C12	78
	645	32	2.4		779	26	2.8	2.240	GST06-1M □□□100C12	78
	506	41	1.3		611	34	1.5	2.857	GST05-1M □□□100C12	78
	506	41	2.3		611	34	2.6	2.857	GST06-1M □□□100C12	78
	489	42	1.5		590	34	1.7	2.956	GST05-2M □□□100C12	84
	434	47	1.7		524	39	1.9	3.333	GST05-2M □□□100C12	84
	413	50	1.1		499	41	1.2	3.500	GST05-1M □□□100C12	78
	413	50	2.1		499	41	2.4	3.500	GST06-1M □□□100C12	78
	357	57	1.4		431	47	1.6	4.053	GST05-2M □□□100C12	84
	317	65	1.6		383	54	1.9	4.556	GST06-1M □□□100C12	78
	317	65	2.9		383	54	3.3	4.556	GST07-1M □□□100C12	78
	316	64	1.4		382	53	1.6	4.571	GST05-2M □□□100C12	84
	316	64	3.1		382	53	3.6	4.571	GST06-2M □□□100C12	84
	279	73	1.2		336	60	1.4	5.187	GST05-2M □□□100C12	84
	271	75	2.8		328	62	3.2	5.324	GST06-2M □□□100C12	84
	259	80	2.5		313	66	2.8	5.583	GST07-1M □□□100C12	78
	255	81	1.3		308	67	1.5	5.667	GST06-1M □□□100C12	78
	247	83	1.2		298	68	1.4	5.850	GST05-2M □□□100C12	84
	247	83	2.7		298	68	3.1	5.850	GST06-2M □□□100C12	84
	226	90	1.2		273	75	1.3	6.400	GST05-2M □□□100C12	84
	226	90	2.5		273	75	2.9	6.400	GST06-2M □□□100C12	84
	205	99	2.4		248	82	2.7	7.040	GST06-2M □□□100C12	84
	200	102	1.1		241	84	1.2	7.238	GST05-2M □□□100C12	84
	197	105	1.9		238	87	2.1	7.333	GST07-1M □□□100C12	78
	197	105	2.8		238	87	3.2	7.333	GST09-1M □□□100C12	78
	177	115	1.0		214	95	1.1	8.163	GST05-2M □□□100C12	84
	177	115	2.2		214	95	2.5	8.163	GST06-2M □□□100C12	84
	162	127	1.4		196	105	1.7	8.900	GST07-1M □□□100C12	78
	162	127	2.3		196	105	2.7	8.900	GST09-1M □□□100C12	78
	160	127	0.9		194	105	1.1	9.010	GST05-2M □□□100C12	84
	160	127	2.1		194	105	2.4	9.010	GST06-2M □□□100C12	84
	145	141	0.9		175	116	1.0	10.000	GST05-2M □□□100C12	84
	145	141	1.9		175	116	2.2	10.000	GST06-2M □□□100C12	84
	129	158	0.8		156	130	0.9	11.200	GST05-2M □□□100C12	84
	129	158	1.8		156	130	2.0	11.200	GST06-2M □□□100C12	84
	128	161	1.8		155	133	2.1	11.250	GST09-1M □□□100C12	78

Selection tables

50 Hz, 60 Hz: P_N = 2.2 kW

n_N	1445 r/min				1750 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	115	177	1.7		139	146	1.9	12.571	GST06-2M □□□100C12	84
	101	202	1.5		122	166	1.8	14.286	GST06-2M □□□100C12	84
	101	202	3.2		122	166	3.7	14.286	GST07-2M □□□100C12	84
	94	217	1.5		113	179	1.8	15.400	GST06-2M □□□100C12	84
	94	217	3.0		113	179	3.6	15.400	GST07-2M □□□100C12	84
	83	247	1.3		100	204	1.5	17.500	GST06-2M □□□100C12	84
	83	247	2.8		100	204	3.3	17.500	GST07-2M □□□100C12	84
	72	283	1.2		87	233	1.5	20.044	GST06-2M □□□100C12	84
	72	283	2.5		87	233	3.0	20.044	GST07-2M □□□100C12	84
	63	321	1.0		77	265	1.2	22.778	GST06-2M □□□100C12	84
	63	321	2.1		77	265	2.6	22.778	GST07-2M □□□100C12	84
	59	347	2.0		71	286	2.5	24.567	GST07-2M □□□100C12	84
	58	352	1.0		70	290	1.2	24.933	GST06-2M □□□100C12	84
	52	394	1.8		63	325	2.1	27.917	GST07-2M □□□100C12	84
	45	455	1.6		54	376	1.9	32.267	GST07-2M □□□100C12	84
	45	455	2.8		54	376	3.4	32.267	GST09-2M □□□100C12	84
	39	517	1.4		48	427	1.6	36.667	GST07-2M □□□100C12	84
	39	517	2.8		48	427	3.4	36.667	GST09-2M □□□100C12	84
	37	552	1.3		45	456	1.5	39.160	GST07-2M □□□100C12	84
	37	552	2.3		45	456	2.8	39.160	GST09-2M □□□100C12	84
	37	552	2.9		45	456	3.5	39.160	GST11-2M □□□100C12	84
	37	545	1.3		45	450	1.5	39.200	GST07-3M □□□100C12	90
	36	558	2.4		44	460	2.9	40.136	GST09-3M □□□100C12	90
	33	601	2.1		40	496	2.6	43.267	GST09-3M □□□100C12	90
	33	611	1.2		40	505	1.4	44.000	GST07-3M □□□100C12	90
	33	628	1.1		39	518	1.4	44.500	GST07-2M □□□100C12	84
	33	628	2.3		39	518	2.8	44.500	GST09-2M □□□100C12	84
	33	628	2.9		39	518	3.5	44.500	GST11-2M □□□100C12	84
	29	683	2.1		36	564	2.6	49.167	GST09-3M □□□100C12	90
	29	698	1.8		35	577	2.2	49.500	GST09-2M □□□100C12	84
	29	698	2.3		35	577	2.8	49.500	GST11-2M □□□100C12	84
	28	709	1.0		34	585	1.2	51.022	GST07-3M □□□100C12	90
	27	737	1.9		33	609	2.3	53.044	GST09-3M □□□100C12	90
	27	749	0.9		32	618	1.1	53.900	GST07-3M □□□100C12	90
	26	793	1.8		31	655	2.2	56.250	GST09-2M □□□100C12	84
	26	793	2.3		31	655	2.8	56.250	GST11-2M □□□100C12	84
	25	805	3.2		30	665	3.9	57.968	GST11-3M □□□100C12	90
	24	838	1.9		29	692	2.3	60.278	GST09-3M □□□100C12	90
	24	851	3.2		29	703	3.9	61.250	GST11-3M □□□100C12	90
	20	987	2.7		25	815	3.2	71.011	GST11-3M □□□100C12	90

Selection tables

50 Hz, 60 Hz: P_N = 2.2 kW

n_N	1445 r/min				1750 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	20	999	1.5		24	825	1.8	71.867	GST09-3M □□□100C12	90
	18	1121	2.5		22	926	3.0	80.694	GST11-3M □□□100C12	90
	18	1135	1.4		21	937	1.7	81.667	GST09-3M □□□100C12	90
	17	1213	2.2		20	1001	2.7	87.267	GST11-3M □□□100C12	90
	15	1300	1.2		19	1073	1.5	93.541	GST09-3M □□□100C12	90
	15	1378	1.2		18	1138	1.4	99.167	GST09-3M □□□100C12	90
	15	1378	2.0		18	1138	2.5	99.167	GST11-3M □□□100C12	90
	13	1569	1.7		16	1296	2.1	112.933	GST11-3M □□□100C12	90
	13	1578	1.0		15	1303	1.2	113.585	GST09-3M □□□100C12	90
	11	1793	0.9		14	1481	1.1	129.074	GST09-3M □□□100C12	90
	11	1793	1.6		14	1481	1.9	129.074	GST11-3M □□□100C12	90
	10	1934	3.0		13	1597	3.6	139.211	GST14-3M □□□100C12	90
	10	1963	0.8		12	1621	1.0	141.289	GST09-3M □□□100C12	90
	9.8	2042	1.3		12	1686	1.6	146.993	GST11-3M □□□100C12	90
	9.1	2198	1.3		11	1815	1.5	158.194	GST11-3M □□□100C12	90
	9.1	2198	2.7		11	1815	3.3	158.194	GST14-3M □□□100C12	90
	8.4	2377	2.5		10	1963	3.0	171.111	GST14-3M □□□100C12	90
	8.0	2503	1.1		9.7	2067	1.3	180.156	GST11-3M □□□100C12	90
	7.1	2844	2.1		8.5	2349	2.5	204.722	GST14-3M □□□100C12	90
	7.0	2887	1.0		8.4	2384	1.2	207.778	GST11-3M □□□100C12	90
	6.1	3288	0.8		7.4	2715	1.0	236.622	GST11-3M □□□100C12	90
	6.1	3288	1.8		7.4	2715	2.1	236.622	GST14-3M □□□100C12	90
	5.8	3452	1.7		7.0	2850	2.1	248.458	GST14-3M □□□100C12	90
	5.7	3504	0.8		6.9	2893	1.0	252.167	GST11-3M □□□100C12	90
	5.4	3736	1.6		6.5	3085	1.9	268.889	GST14-3M □□□100C12	90
	4.4	4534	1.3		5.4	3744	1.6	326.333	GST14-3M □□□100C12	90
	4.0	5044	1.1		4.8	4165	1.4	363.000	GST14-3M □□□100C12	90
	3.5	5731	1.0		4.2	4732	1.3	412.500	GST14-3M □□□100C12	90

Selection tables

50 Hz, 60 Hz: P_N = 3.0 kW

n_N	1445 r/min				1755 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	903	31	1.4		1091	26	1.6	1.600	GST05-1M □□□100C32	78
	903	31	2.0		1091	26	2.3	1.600	GST06-1M □□□100C32	78
	723	39	3.2		873	32	3.7	2.000	GST07-1M □□□100C32	78
	706	40	1.3		852	33	1.5	2.048	GST05-1M □□□100C32	78
	706	40	1.8		852	33	2.1	2.048	GST06-1M □□□100C32	78
	645	44	1.2		779	36	1.4	2.240	GST05-1M □□□100C32	78
	645	44	1.8		779	36	2.1	2.240	GST06-1M □□□100C32	78
	645	44	3.1		779	36	3.5	2.240	GST07-1M □□□100C32	78
	506	56	0.9		611	46	1.1	2.857	GST05-1M □□□100C32	78
	506	56	1.7		611	46	1.9	2.857	GST06-1M □□□100C32	78
	506	56	2.8		611	46	3.3	2.857	GST07-1M □□□100C32	78
	489	57	1.1		590	47	1.3	2.956	GST05-2M □□□100C32	84
	476	58	2.9		575	48	3.3	3.033	GST06-2M □□□100C32	84
	434	64	1.2		524	53	1.4	3.333	GST05-2M □□□100C32	84
	434	64	2.7		524	53	3.1	3.333	GST06-2M □□□100C32	84
	413	68	1.5		499	56	1.8	3.500	GST06-1M □□□100C32	78
	413	68	2.5		499	56	2.9	3.500	GST07-1M □□□100C32	78
	357	78	1.0		431	64	1.2	4.053	GST05-2M □□□100C32	84
	347	80	2.4		420	66	2.8	4.160	GST06-2M □□□100C32	84
	317	89	1.2		383	73	1.4	4.556	GST06-1M □□□100C32	78
	317	89	2.1		383	73	2.4	4.556	GST07-1M □□□100C32	78
	316	88	1.0		382	72	1.2	4.571	GST05-2M □□□100C32	84
	316	88	2.3		382	72	2.6	4.571	GST06-2M □□□100C32	84
	310	91	3.0		374	75	3.4	4.667	GST09-1M □□□100C32	78
	279	100	0.9		336	82	1.0	5.187	GST05-2M □□□100C32	84
	271	102	2.0		328	84	2.3	5.324	GST06-2M □□□100C32	84
	259	109	1.8		313	90	2.1	5.583	GST07-1M □□□100C32	78
	255	111	0.9		308	91	1.1	5.667	GST06-1M □□□100C32	78
	255	111	2.5		308	91	2.9	5.667	GST09-1M □□□100C32	78
	247	113	0.9		298	93	1.0	5.850	GST05-2M □□□100C32	84
	247	113	2.0		298	93	2.3	5.850	GST06-2M □□□100C32	84
	226	123	0.9		273	101	1.0	6.400	GST05-2M □□□100C32	84
	226	123	1.9		273	101	2.1	6.400	GST06-2M □□□100C32	84
	205	135	1.7		248	111	2.0	7.040	GST06-2M □□□100C32	84
	197	143	1.4		238	118	1.6	7.333	GST07-1M □□□100C32	78
	197	143	2.0		238	118	2.3	7.333	GST09-1M □□□100C32	78
	177	157	1.6		214	129	1.8	8.163	GST06-2M □□□100C32	84
	164	169	3.1		198	139	3.6	8.800	GST07-2M □□□100C32	84
	162	174	1.1		196	143	1.2	8.900	GST07-1M □□□100C32	78
	162	174	1.7		196	143	2.0	8.900	GST09-1M □□□100C32	78

Selection tables

50 Hz, 60 Hz: P_N = 3.0 kW

n_N	1445 r/min				1755 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	160	173	1.5		194	143	1.7	9.010	GST06-2M □□□100C32	84
	147	190	2.9		177	156	3.3	9.856	GST07-2M □□□100C32	84
	145	192	1.4		175	158	1.6	10.000	GST06-2M □□□100C32	84
	129	215	1.3		156	177	1.5	11.200	GST06-2M □□□100C32	84
	129	215	2.8		156	177	3.2	11.200	GST07-2M □□□100C32	84
	128	220	1.3		155	181	1.5	11.250	GST09-1M □□□100C32	78
	115	242	1.2		139	199	1.4	12.571	GST06-2M □□□100C32	84
	115	242	2.5		139	199	2.9	12.571	GST07-2M □□□100C32	84
	101	275	1.1		122	226	1.3	14.286	GST06-2M □□□100C32	84
	101	275	2.3		122	226	2.7	14.286	GST07-2M □□□100C32	84
	94	296	1.1		113	244	1.3	15.400	GST06-2M □□□100C32	84
	94	296	2.2		113	244	2.6	15.400	GST07-2M □□□100C32	84
	83	337	0.9		100	277	1.1	17.500	GST06-2M □□□100C32	84
	83	337	2.0		100	277	2.5	17.500	GST07-2M □□□100C32	84
	72	386	0.9		87	317	1.1	20.044	GST06-2M □□□100C32	84
	72	386	1.8		87	317	2.2	20.044	GST07-2M □□□100C32	84
	70	395	3.0		85	325	3.6	20.533	GST09-2M □□□100C32	84
	63	438	1.6		77	361	1.9	22.778	GST07-2M □□□100C32	84
	62	449	3.0		75	370	3.6	23.333	GST09-2M □□□100C32	84
	59	473	1.5		71	389	1.8	24.567	GST07-2M □□□100C32	84
	58	480	2.5		70	395	3.1	24.933	GST09-2M □□□100C32	84
	52	537	1.3		63	442	1.6	27.917	GST07-2M □□□100C32	84
	51	545	2.5		62	449	3.1	28.333	GST09-2M □□□100C32	84
	45	621	1.1		54	511	1.4	32.267	GST07-2M □□□100C32	84
	45	621	2.0		54	511	2.5	32.267	GST09-2M □□□100C32	84
	45	621	2.5		54	511	3.1	32.267	GST11-2M □□□100C32	84
	39	705	1.0		48	581	1.2	36.667	GST07-2M □□□100C32	84
	39	705	2.0		48	581	2.5	36.667	GST09-2M □□□100C32	84
	39	705	2.5		48	581	3.1	36.667	GST11-2M □□□100C32	84
	37	753	0.9		45	620	1.1	39.160	GST07-2M □□□100C32	84
	37	753	1.7		45	620	2.1	39.160	GST09-2M □□□100C32	84
	37	753	2.1		45	620	2.6	39.160	GST11-2M □□□100C32	84
	37	743	0.9		45	612	1.1	39.200	GST07-3M □□□100C32	90
	36	760	1.8		44	626	2.1	40.136	GST09-3M □□□100C32	90
	33	820	1.6		40	675	1.9	43.267	GST09-3M □□□100C32	90
	33	834	0.8		40	686	1.0	44.000	GST07-3M □□□100C32	90
	33	834	2.9		40	686	3.5	44.000	GST11-3M □□□100C32	90
	33	856	0.8		39	705	1.0	44.500	GST07-2M □□□100C32	84
	33	856	1.7		39	705	2.1	44.500	GST09-2M □□□100C32	84
	33	856	2.1		39	705	2.6	44.500	GST11-2M □□□100C32	84

Selection tables

50 Hz, 60 Hz: P_N = 3.0 kW

n_N	1445 r/min				1755 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	29	932	1.6		36	767	1.9	49.167	GST09-3M □□□100C32	90
	29	952	1.3		35	784	1.6	49.500	GST09-2M □□□100C32	84
	29	952	1.7		35	784	2.1	49.500	GST11-2M □□□100C32	84
	29	947	2.9		35	780	3.5	50.000	GST11-3M □□□100C32	90
	27	1005	1.4		33	827	1.7	53.044	GST09-3M □□□100C32	90
	26	1082	1.3		31	891	1.6	56.250	GST09-2M □□□100C32	84
	26	1082	1.7		31	891	2.1	56.250	GST11-2M □□□100C32	84
	25	1098	2.3		30	904	2.8	57.968	GST11-3M □□□100C32	90
	24	1142	1.4		29	940	1.7	60.278	GST09-3M □□□100C32	90
	24	1160	2.3		29	955	2.9	61.250	GST11-3M □□□100C32	90
	20	1345	2.0		25	1108	2.4	71.011	GST11-3M □□□100C32	90
	20	1362	1.1		24	1121	1.3	71.867	GST09-3M □□□100C32	90
	18	1529	1.8		22	1259	2.2	80.694	GST11-3M □□□100C32	90
	18	1547	1.0		21	1274	1.2	81.667	GST09-3M □□□100C32	90
	17	1653	1.6		20	1361	2.0	87.267	GST11-3M □□□100C32	90
	15	1772	0.9		19	1459	1.1	93.541	GST09-3M □□□100C32	90
	15	1772	3.0		19	1459	3.6	93.541	GST14-3M □□□100C32	90
	15	1879	0.8		18	1547	1.0	99.167	GST09-3M □□□100C32	90
	15	1879	1.5		18	1547	1.8	99.167	GST11-3M □□□100C32	90
	14	2014	2.9		16	1658	3.6	106.296	GST14-3M □□□100C32	90
	13	2140	1.3		16	1762	1.5	112.933	GST11-3M □□□100C32	90
	11	2446	1.1		14	2014	1.4	129.074	GST11-3M □□□100C32	90
	11	2468	2.4		13	2032	2.9	130.278	GST14-3M □□□100C32	90
	10	2638	2.2		13	2172	2.6	139.211	GST14-3M □□□100C32	90
	9.8	2785	1.0		12	2293	1.2	146.993	GST11-3M □□□100C32	90
	9.1	2997	0.9		11	2468	1.1	158.194	GST11-3M □□□100C32	90
	9.1	2997	2.0		11	2468	2.4	158.194	GST14-3M □□□100C32	90
	8.4	3242	1.8		10	2669	2.2	171.111	GST14-3M □□□100C32	90
	7.1	3879	1.5		8.5	3194	1.9	204.722	GST14-3M □□□100C32	90
	6.1	4483	1.3		7.4	3691	1.6	236.622	GST14-3M □□□100C32	90
	5.8	4707	1.3		7.0	3876	1.5	248.458	GST14-3M □□□100C32	90
	5.4	5095	1.2		6.5	4195	1.4	268.889	GST14-3M □□□100C32	90
	4.4	6183	1.0		5.4	5091	1.2	326.333	GST14-3M □□□100C32	90
	4.0	6878	0.8		4.8	5663	1.0	363.000	GST14-3M □□□100C32	90

Selection tables

50 Hz, 60 Hz: P_N = 4.0 kW

n_N	1455 r/min				1760 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	909	41	1.5		1097	34	1.7	1.600	GST06-1M □□□112C22	78
	895	42	2.5		1080	35	2.9	1.625	GST07-1M □□□112C22	78
	728	52	2.4		878	43	2.7	2.000	GST07-1M □□□112C22	78
	711	53	1.4		857	44	1.6	2.048	GST06-1M □□□112C22	78
	650	58	1.4		784	48	1.6	2.240	GST06-1M □□□112C22	78
	650	58	2.3		784	48	2.7	2.240	GST07-1M □□□112C22	78
	509	74	1.3		614	61	1.4	2.857	GST06-1M □□□112C22	78
	509	74	2.1		614	61	2.5	2.857	GST07-1M □□□112C22	78
	480	77	2.2		579	64	2.5	3.033	GST06-2M □□□112C22	84
	437	85	2.0		527	70	2.4	3.333	GST06-2M □□□112C22	84
	416	91	1.2		501	75	1.3	3.500	GST06-1M □□□112C22	78
	416	91	1.9		501	75	2.2	3.500	GST07-1M □□□112C22	78
	350	106	1.8		422	88	2.1	4.160	GST06-2M □□□112C22	84
	319	118	1.6		385	97	1.8	4.556	GST07-1M □□□112C22	78
	318	116	1.7		384	96	2.0	4.571	GST06-2M □□□112C22	84
	312	121	2.6		376	100	2.9	4.667	GST09-1M □□□112C22	78
	280	132	3.2		338	109	3.7	5.200	GST07-2M □□□112C22	84
	273	136	1.5		330	112	1.8	5.324	GST06-2M □□□112C22	84
	261	144	1.4		314	119	1.6	5.583	GST07-1M □□□112C22	78
	257	147	2.2		310	121	2.5	5.667	GST09-1M □□□112C22	78
	255	146	3.1		307	120	3.5	5.714	GST07-2M □□□112C22	84
	249	149	1.5		300	123	1.7	5.850	GST06-2M □□□112C22	84
	227	163	1.4		274	135	1.6	6.400	GST06-2M □□□112C22	84
	227	163	2.8		274	135	3.3	6.400	GST07-2M □□□112C22	84
	207	179	1.3		249	148	1.5	7.040	GST06-2M □□□112C22	84
	204	182	2.7		246	151	3.1	7.150	GST07-2M □□□112C22	84
	198	190	1.8		239	157	2.0	7.333	GST09-1M □□□112C22	78
	179	207	2.6		216	171	3.0	8.125	GST07-2M □□□112C22	84
	178	208	1.2		215	172	1.4	8.163	GST06-2M □□□112C22	84
	165	224	2.4		199	185	2.7	8.800	GST07-2M □□□112C22	84
	164	230	1.5		197	190	1.7	8.900	GST09-1M □□□112C22	78
	162	229	1.1		195	190	1.3	9.010	GST06-2M □□□112C22	84
	148	251	2.2		178	208	2.5	9.856	GST07-2M □□□112C22	84
	146	255	1.1		176	211	1.2	10.000	GST06-2M □□□112C22	84
	130	285	1.0		157	236	1.1	11.200	GST06-2M □□□112C22	84
	130	285	2.1		157	236	2.4	11.200	GST07-2M □□□112C22	84
	116	320	0.9		140	265	1.1	12.571	GST06-2M □□□112C22	84
	116	320	1.9		140	265	2.2	12.571	GST07-2M □□□112C22	84
	102	364	0.8		123	301	1.0	14.286	GST06-2M □□□112C22	84
	102	364	1.8		123	301	2.0	14.286	GST07-2M □□□112C22	84

Selection tables

50 Hz, 60 Hz: P_N = 4.0 kW

n_N	1455 r/min				1760 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	95	392	0.8		114	324	1.0	15.400	GST06-2M □□□112C22	84
	95	392	1.6		114	324	2.0	15.400	GST07-2M □□□112C22	84
	85	439	3.1		102	363	3.8	17.222	GST09-2M □□□112C22	84
	83	446	1.5		100	368	1.8	17.500	GST07-2M □□□112C22	84
	73	511	1.4		88	422	1.6	20.044	GST07-2M □□□112C22	84
	71	523	2.6		86	432	3.1	20.533	GST09-2M □□□112C22	84
	64	580	1.2		77	480	1.4	22.778	GST07-2M □□□112C22	84
	62	594	2.5		75	491	3.1	23.333	GST09-2M □□□112C22	84
	59	626	1.1		71	517	1.4	24.567	GST07-2M □□□112C22	84
	58	635	2.2		70	525	2.6	24.933	GST09-2M □□□112C22	84
	58	635	2.7		70	525	3.3	24.933	GST11-2M □□□112C22	84
	52	711	1.0		63	588	1.2	27.917	GST07-2M □□□112C22	84
	51	722	2.1		62	597	2.5	28.333	GST09-2M □□□112C22	84
	51	722	2.7		62	597	3.3	28.333	GST11-2M □□□112C22	84
	45	822	1.7		54	679	2.1	32.267	GST09-2M □□□112C22	84
	45	822	2.2		54	679	2.6	32.267	GST11-2M □□□112C22	84
	45	822	2.7		54	679	3.3	32.267	GST14-2M □□□112C22	84
	40	934	1.6		48	772	2.0	36.667	GST09-2M □□□112C22	84
	40	934	2.2		48	772	2.6	36.667	GST11-2M □□□112C22	84
	40	934	2.7		48	772	3.3	36.667	GST14-2M □□□112C22	84
	37	997	1.5		45	825	1.8	39.160	GST09-2M □□□112C22	84
	37	997	1.8		45	825	2.2	39.160	GST11-2M □□□112C22	84
	37	997	2.3		45	825	2.7	39.160	GST14-2M □□□112C22	84
	36	1007	1.3		44	832	1.6	40.136	GST09-3M □□□112C22	90
	36	1024	2.5		43	847	3.0	40.816	GST11-3M □□□112C22	90
	34	1086	1.2		41	897	1.4	43.267	GST09-3M □□□112C22	90
	33	1104	2.2		40	913	2.6	44.000	GST11-3M □□□112C22	90
	33	1133	1.4		39	937	1.7	44.500	GST09-2M □□□112C22	84
	33	1133	1.8		39	937	2.2	44.500	GST11-2M □□□112C22	84
	33	1133	2.3		39	937	2.7	44.500	GST14-2M □□□112C22	84
	30	1234	1.2		36	1020	1.4	49.167	GST09-3M □□□112C22	90
	29	1261	1.5		36	1042	1.8	49.500	GST11-2M □□□112C22	84
	29	1261	1.8		36	1042	2.2	49.500	GST14-2M □□□112C22	84
	29	1254	2.2		35	1037	2.6	50.000	GST11-3M □□□112C22	90
	27	1331	1.0		33	1100	1.3	53.044	GST09-3M □□□112C22	90
	26	1433	1.5		31	1184	1.8	56.250	GST11-2M □□□112C22	84
	26	1433	1.8		31	1184	2.2	56.250	GST14-2M □□□112C22	84
	25	1454	1.8		30	1202	2.1	57.968	GST11-3M □□□112C22	90
	24	1512	1.0		29	1250	1.3	60.278	GST09-3M □□□112C22	90
	24	1537	1.8		29	1270	2.1	61.250	GST11-3M □□□112C22	90

Selection tables

50 Hz, 60 Hz: P_N = 4.0 kW

n_N	1455 r/min				1760 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	21	1732	2.8		25	1432	3.4	69.042	GST14-3M □□□112C22	90
	21	1782	1.5		25	1473	1.8	71.011	GST11-3M □□□112C22	90
	20	1803	0.8		24	1491	1.0	71.867	GST09-3M □□□112C22	90
	19	1968	2.8		22	1627	3.4	78.457	GST14-3M □□□112C22	90
	18	2025	1.4		22	1674	1.7	80.694	GST11-3M □□□112C22	90
	17	2189	1.2		20	1810	1.5	87.267	GST11-3M □□□112C22	90
	16	2347	2.4		19	1940	2.8	93.541	GST14-3M □□□112C22	90
	15	2412	2.4		18	1994	2.9	96.157	GST14-3M □□□112C22	90
	15	2488	1.1		18	2057	1.4	99.167	GST11-3M □□□112C22	90
	14	2667	2.2		17	2205	2.7	106.296	GST14-3M □□□112C22	90
	13	2833	1.0		16	2342	1.2	112.933	GST11-3M □□□112C22	90
	11	3238	0.9		14	2677	1.0	129.074	GST11-3M □□□112C22	90
	11	3268	1.8		14	2702	2.2	130.278	GST14-3M □□□112C22	90
	11	3493	1.6		13	2887	2.0	139.211	GST14-3M □□□112C22	90
	9.2	3969	1.5		11	3281	1.8	158.194	GST14-3M □□□112C22	90
	8.5	4293	1.4		10	3549	1.7	171.111	GST14-3M □□□112C22	90
	7.1	5136	1.2		8.6	4246	1.4	204.722	GST14-3M □□□112C22	90
	6.2	5937	1.0		7.4	4908	1.2	236.622	GST14-3M □□□112C22	90
	5.9	6233	0.9		7.1	5153	1.1	248.458	GST14-3M □□□112C22	90
	5.4	6746	0.9		6.5	5577	1.1	268.889	GST14-3M □□□112C22	90

Selection tables

50 Hz, 60 Hz: P_N = 5.5 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	905	57	1.9		1089	47	2.1	1.625	GST07-1M □□□132C12	78
	735	70	1.8		885	58	2.0	2.000	GST07-1M □□□132C12	78
	656	79	1.7		790	65	1.9	2.240	GST07-1M □□□132C12	78
	515	101	1.6		620	83	1.8	2.857	GST07-1M □□□132C12	78
	485	105	1.6		584	87	1.8	3.033	GST06-2M□□□132C12	84
	441	116	1.5		531	96	1.7	3.333	GST06-2M□□□132C12	84
	439	116	3.2		528	96	3.6	3.350	GST07-2M □□□132C12	84
	420	123	1.4		506	102	1.6	3.500	GST07-1M □□□132C12	78
	353	144	1.3		426	119	1.5	4.160	GST06-2M□□□132C12	84
	348	146	2.7		419	121	3.1	4.225	GST07-2M □□□132C12	84
	323	160	1.2		390	133	1.3	4.556	GST07-1M □□□132C12	78
	322	158	1.3		387	131	1.4	4.571	GST06-2M□□□132C12	84
	317	161	2.6		381	133	2.9	4.643	GST07-2M □□□132C12	84
	315	164	2.3		379	136	2.6	4.667	GST09-1M □□□132C12	78
	283	180	2.4		340	149	2.7	5.200	GST07-2M □□□132C12	84
	276	185	1.1		333	153	1.3	5.324	GST06-2M□□□132C12	84
	259	199	2.3		312	165	2.7	5.667	GST09-1M □□□132C12	78
	257	198	2.3		310	164	2.6	5.714	GST07-2M □□□132C12	84
	251	203	1.1		303	168	1.2	5.850	GST06-2M□□□132C12	84
	230	222	1.0		277	184	1.2	6.400	GST06-2M□□□132C12	84
	230	222	2.1		277	184	2.4	6.400	GST07-2M □□□132C12	84
	209	244	1.0		251	202	1.1	7.040	GST06-2M□□□132C12	84
	206	248	2.0		248	205	2.2	7.150	GST07-2M □□□132C12	84
	181	282	1.9		218	233	2.2	8.125	GST07-2M □□□132C12	84
	180	283	0.9		217	234	1.0	8.163	GST06-2M□□□132C12	84
	167	305	1.7		201	253	2.0	8.800	GST07-2M □□□132C12	84
	163	312	0.8		197	259	1.0	9.010	GST06-2M□□□132C12	84
	149	342	1.6		180	283	1.8	9.856	GST07-2M □□□132C12	84
	131	388	1.5		158	322	1.8	11.200	GST07-2M □□□132C12	84
	126	404	3.0		152	335	3.4	11.667	GST09-2M □□□132C12	84
	119	429	2.9		143	355	3.3	12.362	GST09-2M □□□132C12	84
	117	436	1.4		141	361	1.6	12.571	GST07-2M □□□132C12	84
	105	487	2.6		126	403	3.0	14.048	GST09-2M □□□132C12	84
	103	495	1.3		124	410	1.5	14.286	GST07-2M □□□132C12	84
	97	525	2.6		117	435	3.1	15.156	GST09-2M □□□132C12	84
	96	534	1.2		115	442	1.5	15.400	GST07-2M □□□132C12	84
	85	597	2.3		103	494	2.8	17.222	GST09-2M □□□132C12	84
	84	607	1.1		101	502	1.4	17.500	GST07-2M □□□132C12	84
	73	695	1.0		89	575	1.2	20.044	GST07-2M □□□132C12	84
	72	712	2.1		86	589	2.5	20.533	GST09-2M □□□132C12	84

Selection tables

50 Hz, 60 Hz: P_N = 5.5 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	65	790	0.9		78	654	1.0	22.778	GST07-2M □□□132C12	84
	63	809	1.9		76	670	2.3	23.333	GST09-2M □□□132C12	84
	59	864	1.8		71	716	2.2	24.933	GST09-2M □□□132C12	84
	59	864	3.2		71	716	3.9	24.933	GST11-2M □□□132C12	84
	52	982	1.5		63	813	1.9	28.333	GST09-2M □□□132C12	84
	52	982	3.0		63	813	3.6	28.333	GST11-2M □□□132C12	84
	46	1119	2.5		55	926	3.0	32.267	GST11-2M □□□132C12	84
	40	1271	2.3		48	1053	2.8	36.667	GST11-2M □□□132C12	84
	38	1357	2.1		45	1124	2.5	39.160	GST11-2M □□□132C12	84
	36	1394	1.8		43	1154	2.2	40.816	GST11-3M □□□132C12	90
	35	1454	2.9		42	1204	3.5	42.580	GST14-3M □□□132C12	90
	33	1502	1.6		40	1244	1.9	44.000	GST11-3M □□□132C12	90
	33	1543	1.9		40	1278	2.3	44.500	GST11-2M □□□132C12	84
	30	1652	2.9		37	1368	3.5	48.386	GST14-3M □□□132C12	90
	30	1716	2.5		36	1421	3.1	49.500	GST14-2M □□□132C12	84
	29	1707	1.6		35	1414	1.9	50.000	GST11-3M □□□132C12	90
	28	1815	2.6		33	1503	3.2	53.148	GST14-3M □□□132C12	90
	26	1950	2.5		32	1615	3.1	56.250	GST14-2M □□□132C12	84
	25	1979	1.3		31	1639	1.6	57.968	GST11-3M □□□132C12	90
	25	2026	2.6		30	1677	3.1	59.321	GST14-3M □□□132C12	90
	24	2091	1.3		29	1732	1.6	61.250	GST11-3M □□□132C12	90
	21	2357	2.1		26	1952	2.5	69.042	GST14-3M □□□132C12	90
	21	2425	1.1		25	2008	1.3	71.011	GST11-3M □□□132C12	90
	19	2679	2.1		23	2219	2.5	78.457	GST14-3M □□□132C12	90
	18	2755	1.0		22	2282	1.2	80.694	GST11-3M □□□132C12	90
	17	2980	0.9		20	2468	1.1	87.267	GST11-3M □□□132C12	90
	16	3194	1.7		19	2645	2.1	93.541	GST14-3M □□□132C12	90
	15	3283	1.8		18	2719	2.2	96.157	GST14-3M □□□132C12	90
	15	3386	0.8		18	2804	1.0	99.167	GST11-3M □□□132C12	90
	14	3629	1.6		17	3006	2.0	106.296	GST14-3M □□□132C12	90
	11	4448	1.3		14	3684	1.6	130.278	GST14-3M □□□132C12	90
	11	4753	1.2		13	3937	1.5	139.211	GST14-3M □□□132C12	90
	9.3	5402	1.1		11	4473	1.3	158.194	GST14-3M □□□132C12	90
	8.6	5843	1.0		10	4839	1.2	171.111	GST14-3M □□□132C12	90

Selection tables

50 Hz, 60 Hz: P_N = 7.5 kW

n_N	1460 r/min				1765 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	899	79	1.4		1083	65	1.5	1.625	GST07-1M □□□132C22	78
	730	97	1.3		880	80	1.5	2.000	GST07-1M □□□132C22	78
	652	108	1.2		786	90	1.4	2.240	GST07-1M □□□132C22	78
	520	136	3.1		626	112	3.5	2.810	GST09-1M □□□132C22	78
	511	138	1.1		616	114	1.3	2.857	GST07-1M □□□132C22	78
	481	144	1.2		580	119	1.3	3.033	GST06-2M□□□132C22	84
	479	145	2.4		577	120	2.8	3.048	GST07-2M □□□132C22	84
	438	159	1.1		528	131	1.3	3.333	GST06-2M□□□132C22	84
	436	159	2.3		525	132	2.6	3.350	GST07-2M □□□132C22	84
	424	166	2.7		511	138	3.0	3.444	GST09-1M □□□132C22	78
	417	169	1.0		503	140	1.2	3.500	GST07-1M □□□132C22	78
	351	198	1.0		423	164	1.1	4.160	GST06-2M□□□132C22	84
	346	201	2.0		417	166	2.3	4.225	GST07-2M □□□132C22	84
	320	220	0.8		387	182	1.0	4.556	GST07-1M □□□132C22	78
	319	218	0.9		385	180	1.1	4.571	GST06-2M□□□132C22	84
	315	221	1.9		379	183	2.1	4.643	GST07-2M □□□132C22	84
	313	225	1.7		377	187	1.9	4.667	GST09-1M □□□132C22	78
	281	247	1.7		339	205	2.0	5.200	GST07-2M □□□132C22	84
	274	253	0.8		332	210	0.9	5.324	GST06-2M□□□132C22	84
	258	274	1.7		311	226	1.9	5.667	GST09-1M □□□132C22	78
	256	272	1.6		308	225	1.9	5.714	GST07-2M □□□132C22	84
	228	305	1.5		275	252	1.7	6.400	GST07-2M □□□132C22	84
	204	340	1.4		246	281	1.6	7.150	GST07-2M □□□132C22	84
	200	348	3.2		241	288	3.6	7.305	GST09-2M □□□132C22	84
	182	382	3.0		219	316	3.4	8.027	GST09-2M □□□132C22	84
	180	387	1.4		217	320	1.6	8.125	GST07-2M □□□132C22	84
	166	419	1.3		200	346	1.4	8.800	GST07-2M □□□132C22	84
	162	429	2.6		195	355	3.0	9.010	GST09-2M □□□132C22	84
	148	469	1.2		179	388	1.3	9.856	GST07-2M □□□132C22	84
	142	489	2.4		171	404	2.8	10.267	GST09-2M □□□132C22	84
	130	533	1.1		157	441	1.3	11.200	GST07-2M □□□132C22	84
	125	555	2.2		151	459	2.5	11.667	GST09-2M □□□132C22	84
	118	588	2.1		142	487	2.4	12.362	GST09-2M □□□132C22	84
	116	598	1.0		140	495	1.1	12.571	GST07-2M □□□132C22	84
	104	669	1.9		125	553	2.2	14.048	GST09-2M □□□132C22	84
	102	680	0.9		123	562	1.1	14.286	GST07-2M □□□132C22	84
	96	721	1.9		116	597	2.2	15.156	GST09-2M □□□132C22	84
	95	733	0.9		114	606	1.1	15.400	GST07-2M □□□132C22	84
	85	820	1.7		102	678	2.0	17.222	GST09-2M □□□132C22	84
	83	833	0.8		101	689	1.0	17.500	GST07-2M □□□132C22	84

Selection tables

50 Hz, 60 Hz: P_N = 7.5 kW

n_N	1460 r/min				1765 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	72	966	2.9		87	799	3.5	20.289	GST11-2M □□□132C22	84
	71	977	1.5		86	808	1.8	20.533	GST09-2M □□□132C22	84
	63	1097	2.7		76	908	3.2	23.056	GST11-2M □□□132C22	84
	63	1111	1.4		75	919	1.6	23.333	GST09-2M □□□132C22	84
	59	1187	1.3		71	982	1.6	24.933	GST09-2M □□□132C22	84
	59	1187	2.3		71	982	2.8	24.933	GST11-2M □□□132C22	84
	52	1348	1.1		62	1115	1.4	28.333	GST09-2M □□□132C22	84
	52	1348	2.2		62	1115	2.6	28.333	GST11-2M □□□132C22	84
	45	1536	1.8		55	1270	2.2	32.267	GST11-2M □□□132C22	84
	45	1536	3.1		55	1270	3.7	32.267	GST14-2M □□□132C22	84
	40	1745	1.7		48	1444	2.0	36.667	GST11-2M □□□132C22	84
	40	1745	3.1		48	1444	3.7	36.667	GST14-2M □□□132C22	84
	37	1864	1.5		45	1542	1.8	39.160	GST11-2M □□□132C22	84
	37	1864	2.6		45	1542	3.1	39.160	GST14-2M □□□132C22	84
	36	1884	2.4		44	1558	2.9	40.185	GST14-3M □□□132C22	90
	36	1913	1.3		43	1583	1.6	40.816	GST11-3M □□□132C22	90
	34	1996	2.1		41	1651	2.6	42.580	GST14-3M □□□132C22	90
	33	2063	1.2		40	1706	1.4	44.000	GST11-3M □□□132C22	90
	33	2118	1.4		40	1752	1.7	44.500	GST11-2M □□□132C22	84
	33	2118	2.6		40	1752	3.1	44.500	GST14-2M □□□132C22	84
	30	2268	2.1		36	1876	2.6	48.386	GST14-3M □□□132C22	90
	30	2356	1.8		36	1949	2.2	49.500	GST14-2M □□□132C22	84
	29	2344	1.2		35	1939	1.4	50.000	GST11-3M □□□132C22	90
	28	2492	1.9		33	2061	2.3	53.148	GST14-3M □□□132C22	90
	26	2677	1.8		31	2215	2.2	56.250	GST14-2M □□□132C22	84
	25	2718	0.9		30	2248	1.1	57.968	GST11-3M □□□132C22	90
	25	2781	1.9		30	2300	2.3	59.321	GST14-3M □□□132C22	90
	24	2871	0.9		29	2375	1.1	61.250	GST11-3M □□□132C22	90
	21	3237	1.5		26	2677	1.8	69.042	GST14-3M □□□132C22	90
	19	3678	1.5		22	3042	1.8	78.457	GST14-3M □□□132C22	90
	16	4385	1.3		19	3627	1.5	93.541	GST14-3M □□□132C22	90
	15	4508	1.3		18	3729	1.6	96.157	GST14-3M □□□132C22	90
	14	4983	1.2		17	4122	1.4	106.296	GST14-3M □□□132C22	90
	11	6107	1.0		14	5052	1.2	130.278	GST14-3M □□□132C22	90
	11	6526	0.9		13	5398	1.1	139.211	GST14-3M □□□132C22	90

Selection tables

50 Hz, 60 Hz: P_N = 11.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	942	110	2.5		1135	91	2.9	1.560	GST09-1M □□□160C22	78
	905	114	0.9		1089	95	1.1	1.625	GST07-1M □□□160C22	78
	735	141	0.9		885	117	1.0	2.000	GST07-1M □□□160C22	78
	718	144	2.3		864	119	2.7	2.048	GST09-1M □□□160C22	78
	656	158	0.9		790	131	1.0	2.240	GST07-1M □□□160C22	78
	630	164	2.3		759	136	2.6	2.333	GST09-1M □□□160C22	78
	523	198	2.1		630	164	2.4	2.810	GST09-1M □□□160C22	78
	482	211	1.7		581	175	1.9	3.048	GST07-2M □□□160C22	84
	439	232	1.6		528	192	1.8	3.350	GST07-2M □□□160C22	84
	427	242	1.8		514	201	2.1	3.444	GST09-1M □□□160C22	78
	362	281	3.1		436	233	3.6	4.056	GST09-2M □□□160C22	84
	348	293	1.4		419	243	1.5	4.225	GST07-2M □□□160C22	84
	330	309	3.0		397	256	3.4	4.457	GST09-2M □□□160C22	84
	317	322	1.3		381	267	1.5	4.643	GST07-2M □□□160C22	84
	283	361	1.2		340	299	1.4	5.200	GST07-2M □□□160C22	84
	276	369	2.7		333	306	3.1	5.324	GST09-2M □□□160C22	84
	257	396	1.1		310	328	1.3	5.714	GST07-2M □□□160C22	84
	251	406	2.5		303	336	2.9	5.850	GST09-2M □□□160C22	84
	230	444	1.0		277	367	1.2	6.400	GST07-2M □□□160C22	84
	221	462	2.3		266	383	2.6	6.667	GST09-2M □□□160C22	84
	206	496	1.0		248	411	1.1	7.150	GST07-2M □□□160C22	84
	201	506	2.2		242	419	2.5	7.305	GST09-2M □□□160C22	84
	183	557	2.0		221	461	2.3	8.027	GST09-2M □□□160C22	84
	181	563	1.0		218	467	1.1	8.125	GST07-2M □□□160C22	84
	167	610	0.9		201	505	1.0	8.800	GST07-2M □□□160C22	84
	163	625	1.8		197	517	2.1	9.010	GST09-2M □□□160C22	84
	149	683	0.8		180	566	0.9	9.856	GST07-2M □□□160C22	84
	143	712	1.7		172	589	1.9	10.267	GST09-2M □□□160C22	84
	131	776	3.1		158	643	3.5	11.200	GST11-2M □□□160C22	84
	126	809	1.5		152	670	1.7	11.667	GST09-2M □□□160C22	84
	119	857	1.5		143	710	1.7	12.362	GST09-2M □□□160C22	84
	117	872	2.9		141	722	3.3	12.571	GST11-2M □□□160C22	84
	105	974	1.3		126	807	1.5	14.048	GST09-2M □□□160C22	84
	103	990	2.6		124	820	3.0	14.286	GST11-2M □□□160C22	84
	97	1051	1.3		117	870	1.5	15.156	GST09-2M □□□160C22	84
	96	1068	2.5		115	884	3.0	15.400	GST11-2M □□□160C22	84
	85	1194	1.1		103	989	1.4	17.222	GST09-2M □□□160C22	84
	84	1213	2.3		101	1005	2.7	17.500	GST11-2M □□□160C22	84
	73	1407	2.0		87	1165	2.4	20.289	GST11-2M □□□160C22	84
	65	1579	3.2		78	1308	3.8	22.778	GST14-2M □□□160C22	84

Selection tables

50 Hz, 60 Hz: P_N = 11.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	64	1598	1.8		77	1324	2.2	23.056	GST11-2M □□□160C22	84
	60	1703	3.1		72	1411	3.7	24.567	GST14-2M □□□160C22	84
	59	1729	1.6		71	1432	1.9	24.933	GST11-2M □□□160C22	84
	53	1935	2.8		63	1603	3.3	27.917	GST14-2M □□□160C22	84
	52	1964	1.5		63	1627	1.8	28.333	GST11-2M □□□160C22	84
	46	2237	2.4		55	1853	2.9	32.267	GST14-2M □□□160C22	84
	40	2542	2.3		48	2105	2.7	36.667	GST14-2M □□□160C22	84
	38	2715	2.0		45	2248	2.4	39.160	GST14-2M □□□160C22	84
	37	2744	1.6		44	2273	2.0	40.185	GST14-3M □□□160C22	90
	35	2908	1.5		42	2408	1.8	42.580	GST14-3M □□□160C22	90
	33	3085	1.9		40	2555	2.3	44.500	GST14-2M □□□160C22	84
	30	3304	1.5		37	2737	1.8	48.386	GST14-3M □□□160C22	90
	28	3629	1.3		33	3006	1.6	53.148	GST14-3M □□□160C22	90
	25	4051	1.3		30	3355	1.6	59.321	GST14-3M □□□160C22	90
	21	4715	1.0		26	3905	1.3	69.042	GST14-3M □□□160C22	90
	19	5358	1.0		23	4437	1.3	78.457	GST14-3M □□□160C22	90
	15	6567	0.9		18	5438	1.1	96.157	GST14-3M □□□160C22	90

Selection tables

50 Hz, 60 Hz: P_N = 15.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	942	150	1.9		1135	124	2.1	1.560	GST09-1M □□□160C32	78
	718	197	1.7		864	163	2.0	2.048	GST09-1M □□□160C32	78
	630	224	1.7		759	185	1.9	2.333	GST09-1M □□□160C32	78
	523	270	1.6		630	223	1.8	2.810	GST09-1M □□□160C32	78
	482	288	1.2		581	239	1.4	3.048	GST07-2M □□□160C32	84
	439	317	1.2		528	262	1.3	3.350	GST07-2M □□□160C32	84
	427	331	1.3		514	274	1.5	3.444	GST09-1M □□□160C32	78
	362	383	2.3		436	318	2.6	4.056	GST09-2M □□□160C32	84
	348	399	1.0		419	331	1.1	4.225	GST07-2M □□□160C32	84
	330	421	2.2		397	349	2.5	4.457	GST09-2M □□□160C32	84
	317	439	0.9		381	364	1.1	4.643	GST07-2M □□□160C32	84
	283	492	0.9		340	407	1.0	5.200	GST07-2M □□□160C32	84
	276	503	2.0		333	417	2.3	5.324	GST09-2M □□□160C32	84
	276	503	3.2		333	417	3.6	5.324	GST11-2M □□□160C32	84
	257	540	0.8		311	447	0.9	5.714	GST07-2M □□□160C32	84
	251	553	1.8		303	458	2.1	5.850	GST09-2M □□□160C32	84
	251	553	3.2		303	458	3.7	5.850	GST11-2M □□□160C32	84
	230	605	3.0		277	501	3.4	6.400	GST11-2M □□□160C32	84
	221	630	1.7		266	522	1.9	6.667	GST09-2M □□□160C32	84
	214	649	3.2		258	537	3.6	6.864	GST11-2M □□□160C32	84
	201	691	1.6		242	572	1.8	7.305	GST09-2M □□□160C32	84
	189	737	2.9		227	611	3.3	7.800	GST11-2M □□□160C32	84
	183	759	1.5		221	628	1.7	8.027	GST09-2M □□□160C32	84
	163	852	1.3		197	705	1.5	9.010	GST09-2M □□□160C32	84
	163	852	2.7		197	705	3.0	9.010	GST11-2M □□□160C32	84
	149	932	2.5		180	772	2.8	9.856	GST11-2M □□□160C32	84
	143	971	1.2		172	804	1.4	10.267	GST09-2M □□□160C32	84
	131	1059	2.2		158	877	2.6	11.200	GST11-2M □□□160C32	84
	126	1103	1.1		152	913	1.2	11.667	GST09-2M □□□160C32	84
	119	1169	1.1		143	968	1.2	12.362	GST09-2M □□□160C32	84
	117	1189	2.1		141	984	2.4	12.571	GST11-2M □□□160C32	84
	105	1328	1.0		126	1100	1.1	14.048	GST09-2M □□□160C32	84
	105	1328	3.2		126	1100	3.7	14.048	GST14-2M □□□160C32	84
	103	1351	1.9		124	1119	2.2	14.286	GST11-2M □□□160C32	84
	97	1433	0.9		117	1187	1.1	15.156	GST09-2M □□□160C32	84
	97	1433	3.1		117	1187	3.8	15.156	GST14-2M □□□160C32	84
	96	1456	1.9		115	1206	2.2	15.400	GST11-2M □□□160C32	84
	85	1628	0.8		103	1348	1.0	17.222	GST09-2M □□□160C32	84
	85	1628	2.8		103	1348	3.4	17.222	GST14-2M □□□160C32	84
	84	1654	1.7		101	1370	2.0	17.500	GST11-2M □□□160C32	84

Selection tables

50 Hz, 60 Hz: P_N = 15.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	73	1895	2.6		88	1569	3.1	20.044	GST14-2M □□□160C32	84
	73	1918	1.4		87	1589	1.7	20.289	GST11-2M □□□160C32	84
	65	2153	2.3		78	1783	2.8	22.778	GST14-2M □□□160C32	84
	64	2180	1.3		77	1805	1.6	23.056	GST11-2M □□□160C32	84
	60	2323	2.3		72	1923	2.7	24.567	GST14-2M □□□160C32	84
	59	2357	1.2		71	1952	1.4	24.933	GST11-2M □□□160C32	84
	53	2639	2.0		63	2186	2.4	27.917	GST14-2M □□□160C32	84
	52	2679	1.1		63	2218	1.3	28.333	GST11-2M □□□160C32	84
	46	3051	1.8		55	2526	2.2	32.267	GST14-2M □□□160C32	84
	40	3466	1.7		48	2871	2.0	36.667	GST14-2M □□□160C32	84
	38	3702	1.5		45	3066	1.8	39.160	GST14-2M □□□160C32	84
	37	3742	1.2		44	3099	1.4	40.185	GST14-3M □□□160C32	90
	35	3965	1.1		42	3284	1.3	42.580	GST14-3M □□□160C32	90
	33	4207	1.4		40	3484	1.7	44.500	GST14-2M □□□160C32	84
	30	4506	1.1		37	3732	1.3	48.386	GST14-3M □□□160C32	90
	28	4949	1.0		33	4099	1.2	53.148	GST14-3M □□□160C32	90
	25	5524	1.0		30	4575	1.2	59.321	GST14-3M □□□160C32	90

Selection tables

50 Hz, 60 Hz: P_N = 18.5 kW

n_N	1475 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	946	184	1.5		1138	153	1.7	1.560	GST09-1M □□□180C12	78
	720	242	1.4		867	201	1.6	2.048	GST09-1M □□□180C12	78
	632	275	1.3		761	229	1.5	2.333	GST09-1M □□□180C12	78
	525	331	1.3		632	275	1.4	2.810	GST09-1M □□□180C12	78
	428	406	1.1		515	338	1.2	3.444	GST09-1M □□□180C12	78
	364	471	1.9		438	392	2.1	4.056	GST09-2M □□□180C12	84
	364	471	3.2		438	392	3.6	4.056	GST11-2M □□□180C12	84
	331	518	1.8		398	430	2.0	4.457	GST09-2M □□□180C12	84
	331	518	3.1		398	430	3.5	4.457	GST11-2M □□□180C12	84
	277	619	1.6		333	514	1.8	5.324	GST09-2M □□□180C12	84
	277	619	2.6		333	514	2.9	5.324	GST11-2M □□□180C12	84
	252	680	1.5		303	565	1.7	5.850	GST09-2M □□□180C12	84
	252	680	2.6		303	565	3.0	5.850	GST11-2M □□□180C12	84
	231	744	2.4		277	618	2.8	6.400	GST11-2M □□□180C12	84
	221	775	1.4		266	644	1.6	6.667	GST09-2M □□□180C12	84
	215	798	2.6		259	663	2.9	6.864	GST11-2M □□□180C12	84
	202	849	1.3		243	705	1.5	7.305	GST09-2M □□□180C12	84
	189	906	2.3		228	753	2.7	7.800	GST11-2M □□□180C12	84
	184	933	1.2		221	775	1.4	8.027	GST09-2M □□□180C12	84
	164	1047	1.1		197	870	1.2	9.010	GST09-2M □□□180C12	84
	164	1047	2.2		197	870	2.5	9.010	GST11-2M □□□180C12	84
	150	1144	3.1		180	950	3.6	9.841	GST14-2M □□□180C12	84
	150	1145	2.0		180	952	2.3	9.856	GST11-2M □□□180C12	84
	144	1193	1.0		173	991	1.1	10.267	GST09-2M □□□180C12	84
	134	1278	3.1		161	1062	3.5	11.000	GST14-2M □□□180C12	84
	132	1301	1.8		159	1082	2.1	11.200	GST11-2M □□□180C12	84
	126	1356	0.9		152	1127	1.0	11.667	GST09-2M □□□180C12	84
	119	1437	0.9		144	1194	1.0	12.362	GST09-2M □□□180C12	84
	119	1437	2.9		144	1194	3.3	12.362	GST14-2M □□□180C12	84
	117	1461	1.7		141	1214	2.0	12.571	GST11-2M □□□180C12	84
	105	1632	2.6		126	1357	3.0	14.048	GST14-2M □□□180C12	84
	103	1660	1.6		124	1379	1.8	14.286	GST11-2M □□□180C12	84
	97	1761	2.5		117	1463	3.1	15.156	GST14-2M □□□180C12	84
	96	1790	1.5		115	1487	1.8	15.400	GST11-2M □□□180C12	84
	86	2001	2.3		103	1663	2.7	17.222	GST14-2M □□□180C12	84
	84	2034	1.4		101	1690	1.6	17.500	GST11-2M □□□180C12	84
	74	2329	2.1		89	1936	2.5	20.044	GST14-2M □□□180C12	84
	73	2358	1.2		88	1959	1.4	20.289	GST11-2M □□□180C12	84
	65	2647	1.9		78	2200	2.3	22.778	GST14-2M □□□180C12	84
	64	2679	1.1		77	2226	1.3	23.056	GST11-2M □□□180C12	84

Selection tables

50 Hz, 60 Hz: P_N = 18.5 kW

n_N	1475 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	60	2855	1.8		72	2372	2.2	24.567	GST14-2M □□□180C12	84
	59	2897	1.0		71	2408	1.2	24.933	GST11-2M □□□180C12	84
	53	3244	1.7		64	2696	2.0	27.917	GST14-2M □□□180C12	84
	52	3292	0.9		63	2736	1.1	28.333	GST11-2M □□□180C12	84
	46	3750	1.4		55	3116	1.7	32.267	GST14-2M □□□180C12	84
	40	4261	1.4		48	3541	1.6	36.667	GST14-2M □□□180C12	84
	38	4551	1.2		45	3781	1.4	39.160	GST14-2M □□□180C12	84
	37	4600	1.0		44	3822	1.2	40.185	GST14-3M □□□180C12	90
	35	4874	0.9		42	4050	1.1	42.580	GST14-3M □□□180C12	90
	33	5171	1.1		40	4297	1.3	44.500	GST14-2M □□□180C12	84
	31	5538	0.9		37	4602	1.1	48.386	GST14-3M □□□180C12	90

Selection tables

50 Hz, 60 Hz: P_N = 22.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	942	220	1.3		1135	182	1.4	1.560	GST09-1M □□□180C32	78
	718	288	1.2		864	239	1.3	2.048	GST09-1M □□□180C32	78
	630	328	1.1		759	272	1.3	2.333	GST09-1M □□□180C32	78
	523	395	1.1		630	328	1.2	2.810	GST09-1M □□□180C32	78
	427	485	0.9		514	402	1.0	3.444	GST09-1M □□□180C32	78
	362	562	1.6		436	466	1.8	4.056	GST09-2M □□□180C32	84
	362	562	2.6		436	466	3.0	4.056	GST11-2M □□□180C32	84
	330	618	1.5		397	512	1.7	4.457	GST09-2M □□□180C32	84
	330	618	2.6		397	512	3.0	4.457	GST11-2M □□□180C32	84
	283	721	3.2		340	597	3.6	5.200	GST14-2M □□□180C32	84
	276	738	1.3		333	611	1.5	5.324	GST09-2M □□□180C32	84
	276	738	2.2		333	611	2.5	5.324	GST11-2M □□□180C32	84
	257	792	3.2		310	656	3.6	5.714	GST14-2M □□□180C32	84
	251	811	1.3		303	672	1.4	5.850	GST09-2M □□□180C32	84
	251	811	2.2		303	672	2.5	5.850	GST11-2M □□□180C32	84
	234	872	3.1		282	722	3.5	6.286	GST14-2M □□□180C32	84
	230	887	2.0		277	735	2.3	6.400	GST11-2M □□□180C32	84
	221	924	1.2		266	766	1.3	6.667	GST09-2M □□□180C32	84
	214	952	2.2		258	788	2.5	6.864	GST11-2M □□□180C32	84
	201	1013	1.1		242	839	1.2	7.305	GST09-2M □□□180C32	84
	189	1082	2.0		227	896	2.2	7.800	GST11-2M □□□180C32	84
	183	1113	1.0		221	922	1.2	8.027	GST09-2M □□□180C32	84
	183	1113	2.9		221	922	3.3	8.027	GST14-2M □□□180C32	84
	167	1220	3.1		201	1011	3.5	8.800	GST14-2M □□□180C32	84
	163	1249	0.9		197	1035	1.0	9.010	GST09-2M □□□180C32	84
	163	1249	1.8		197	1035	2.1	9.010	GST11-2M □□□180C32	84
	149	1365	2.6		180	1130	3.0	9.841	GST14-2M □□□180C32	84
	149	1367	1.7		180	1132	1.9	9.856	GST11-2M □□□180C32	84
	143	1424	0.8		173	1179	0.9	10.267	GST09-2M □□□180C32	84
	134	1525	2.6		161	1263	2.9	11.000	GST14-2M □□□180C32	84
	131	1553	1.5		158	1286	1.7	11.200	GST11-2M □□□180C32	84
	119	1714	2.4		143	1420	2.8	12.362	GST14-2M □□□180C32	84
	117	1743	1.4		141	1444	1.7	12.571	GST11-2M □□□180C32	84
	105	1948	2.2		126	1613	2.5	14.048	GST14-2M □□□180C32	84
	103	1981	1.3		124	1640	1.5	14.286	GST11-2M □□□180C32	84
	97	2101	2.1		117	1740	2.6	15.156	GST14-2M □□□180C32	84
	96	2135	1.3		115	1768	1.5	15.400	GST11-2M □□□180C32	84
	85	2388	1.9		103	1978	2.3	17.222	GST14-2M □□□180C32	84
	84	2427	1.1		101	2010	1.4	17.500	GST11-2M □□□180C32	84
	73	2779	1.8		88	2302	2.1	20.044	GST14-2M □□□180C32	84

Selection tables

50 Hz, 60 Hz: P_N = 22.0 kW

n_N	1470 r/min				1775 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	73	2813	1.0		87	2330	1.2	20.289	GST11-2M □□□180C32	84
	65	3158	1.6		78	2616	1.9	22.778	GST14-2M □□□180C32	84
	64	3197	0.9		77	2648	1.1	23.056	GST11-2M □□□180C32	84
	60	3406	1.5		72	2821	1.9	24.567	GST14-2M □□□180C32	84
	59	3457	0.8		71	2863	1.0	24.933	GST11-2M □□□180C32	84
	53	3871	1.4		63	3206	1.7	27.917	GST14-2M □□□180C32	84
	46	4474	1.2		55	3705	1.5	32.267	GST14-2M □□□180C32	84
	40	5084	1.1		48	4211	1.4	36.667	GST14-2M □□□180C32	84
	38	5430	1.0		45	4497	1.2	39.160	GST14-2M □□□180C32	84
	37	5488	0.8		44	4545	1.0	40.185	GST14-3M □□□180C32	90
	33	6170	0.9		40	5110	1.1	44.500	GST14-2M □□□180C32	84

Selection tables

50 Hz, 60 Hz: P_N = 30.0 kW

n_N	1465 r/min				1770 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	939	300	0.9		1131	249	1.1	1.560	GST09-1M □□□180C42	78
	716	394	0.9		862	326	1.0	2.048	GST09-1M □□□180C42	78
	628	449	0.8		759	372	0.9	2.333	GST09-1M □□□180C42	78
	361	770	1.1		435	637	1.3	4.056	GST09-2M □□□180C42	84
	361	770	1.9		435	637	2.2	4.056	GST11-2M □□□180C42	84
	329	846	1.1		396	700	1.3	4.457	GST09-2M □□□180C42	84
	329	846	1.9		396	700	2.2	4.457	GST11-2M □□□180C42	84
	282	987	2.3		339	817	2.6	5.200	GST14-2M □□□180C42	84
	275	1010	1.0		332	836	1.1	5.324	GST09-2M □□□180C42	84
	275	1010	1.6		332	836	1.8	5.324	GST11-2M □□□180C42	84
	256	1084	2.3		309	897	2.6	5.714	GST14-2M □□□180C42	84
	250	1110	0.9		302	919	1.1	5.850	GST09-2M □□□180C42	84
	250	1110	1.6		302	919	1.8	5.850	GST11-2M □□□180C42	84
	233	1193	2.3		281	987	2.6	6.286	GST14-2M □□□180C42	84
	229	1214	1.5		276	1005	1.7	6.400	GST11-2M □□□180C42	84
	220	1265	0.8		266	1047	1.0	6.667	GST09-2M □□□180C42	84
	213	1302	1.6		257	1078	1.8	6.864	GST11-2M □□□180C42	84
	188	1480	1.4		226	1225	1.6	7.800	GST11-2M □□□180C42	84
	183	1523	2.1		220	1261	2.4	8.027	GST14-2M □□□180C42	84
	167	1670	2.2		201	1382	2.6	8.800	GST14-2M □□□180C42	84
	163	1709	1.3		196	1415	1.5	9.010	GST11-2M □□□180C42	84
	149	1867	1.9		179	1545	2.2	9.841	GST14-2M □□□180C42	84
	149	1870	1.2		179	1548	1.4	9.856	GST11-2M □□□180C42	84
	133	2087	1.9		161	1727	2.2	11.000	GST14-2M □□□180C42	84
	131	2125	1.1		158	1759	1.3	11.200	GST11-2M □□□180C42	84
	119	2345	1.8		143	1941	2.0	12.362	GST14-2M □□□180C42	84
	117	2385	1.1		140	1974	1.2	12.571	GST11-2M □□□180C42	84
	104	2665	1.6		126	2206	1.8	14.048	GST14-2M □□□180C42	84
	103	2710	1.0		124	2243	1.1	14.286	GST11-2M □□□180C42	84
	97	2875	1.6		117	2380	1.9	15.156	GST14-2M □□□180C42	84
	95	2922	0.9		115	2418	1.1	15.400	GST11-2M □□□180C42	84
	85	3268	1.4		103	2704	1.7	17.222	GST14-2M □□□180C42	84
	84	3320	0.8		101	2748	1.0	17.500	GST11-2M □□□180C42	84
	73	3803	1.3		88	3148	1.6	20.044	GST14-2M □□□180C42	84
	64	4322	1.2		78	3577	1.4	22.778	GST14-2M □□□180C42	84
	60	4661	1.1		72	3858	1.4	24.567	GST14-2M □□□180C42	84
	53	5297	1.0		63	4384	1.2	27.917	GST14-2M □□□180C42	84
	45	6122	0.9		55	5067	1.1	32.267	GST14-2M □□□180C42	84
	40	6957	0.8		48	5758	1.0	36.667	GST14-2M □□□180C42	84

Selection tables

50 Hz, 60 Hz: P_N = 37.0 kW

n_N	1483 r/min				1787 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	366	938	1.6		440	778	1.8	4.056	GST11-2M □□□225C12	84
	351	977	2.8		422	810	3.2	4.225	GST14-2M □□□225C12	84
	333	1030	1.6		400	855	1.8	4.457	GST11-2M □□□225C12	84
	319	1073	2.7		384	891	3.1	4.643	GST14-2M □□□225C12	84
	285	1202	2.5		343	998	2.9	5.200	GST14-2M □□□225C12	84
	279	1231	1.3		335	1021	1.5	5.324	GST11-2M □□□225C12	84
	260	1321	2.5		312	1096	2.8	5.714	GST14-2M □□□225C12	84
	254	1352	1.3		305	1122	1.5	5.850	GST11-2M □□□225C12	84
	236	1453	2.3		284	1206	2.7	6.286	GST14-2M □□□225C12	84
	232	1479	1.2		279	1228	1.4	6.400	GST11-2M □□□225C12	84
	216	1587	1.3		260	1317	1.5	6.864	GST11-2M □□□225C12	84
	207	1653	2.1		249	1372	2.4	7.150	GST14-2M □□□225C12	84
	190	1803	1.2		229	1496	1.3	7.800	GST11-2M □□□225C12	84
	185	1856	2.0		222	1540	2.3	8.027	GST14-2M □□□225C12	84
	169	2034	1.8		203	1688	2.1	8.800	GST14-2M □□□225C12	84
	165	2083	1.1		198	1728	1.2	9.010	GST11-2M □□□225C12	84
	151	2275	1.7		181	1888	1.9	9.841	GST14-2M □□□225C12	84
	151	2278	1.0		181	1891	1.2	9.856	GST11-2M □□□225C12	84
	135	2543	1.5		162	2110	1.8	11.000	GST14-2M □□□225C12	84
	132	2589	0.9		159	2149	1.0	11.200	GST11-2M □□□225C12	84
	120	2858	1.5		144	2371	1.7	12.362	GST14-2M □□□225C12	84
	118	2906	0.9		142	2412	1.0	12.571	GST11-2M □□□225C12	84
	106	3247	1.3		127	2695	1.5	14.048	GST14-2M □□□225C12	84
	98	3503	1.3		118	2907	1.5	15.156	GST14-2M □□□225C12	84
	86	3981	1.1		104	3304	1.4	17.222	GST14-2M □□□225C12	84
	74	4633	1.1		89	3845	1.3	20.044	GST14-2M □□□225C12	84
	65	5265	1.0		78	4370	1.1	22.778	GST14-2M □□□225C12	84

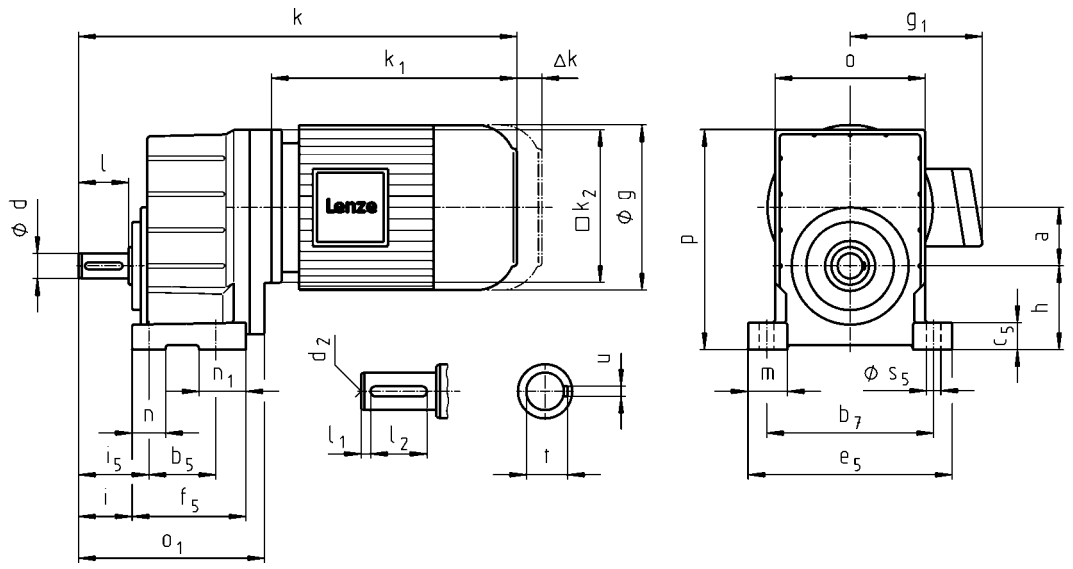
Selection tables

50 Hz, 60 Hz: P_N = 45.0 kW

n_N	1480 r/min				1784 r/min			i		
f_N	50 Hz				60 Hz					
	n_2 [r/min]	M_2 [Nm]	c		n_2 [r/min]	M_2 [Nm]	c			
	365	1143	1.3		439	948	1.5	4.056	GST11-2M □□□225C22	84
	350	1190	2.3		421	987	2.6	4.225	GST14-2M □□□225C22	84
	332	1256	1.3		399	1042	1.5	4.457	GST11-2M □□□225C22	84
	319	1308	2.2		383	1085	2.5	4.643	GST14-2M □□□225C22	84
	285	1465	2.1		342	1215	2.4	5.200	GST14-2M □□□225C22	84
	278	1500	1.1		334	1244	1.2	5.324	GST11-2M □□□225C22	84
	259	1610	2.0		312	1335	2.3	5.714	GST14-2M □□□225C22	84
	253	1648	1.1		304	1367	1.2	5.850	GST11-2M □□□225C22	84
	236	1771	1.9		283	1469	2.2	6.286	GST14-2M □□□225C22	84
	231	1803	1.0		278	1496	1.1	6.400	GST11-2M □□□225C22	84
	216	1934	1.1		259	1604	1.2	6.864	GST11-2M □□□225C22	84
	207	2014	1.7		249	1671	2.0	7.150	GST14-2M □□□225C22	84
	190	2197	1.0		228	1823	1.1	7.800	GST11-2M □□□225C22	84
	184	2261	1.7		222	1876	1.9	8.027	GST14-2M □□□225C22	84
	168	2479	1.5		202	2057	1.7	8.800	GST14-2M □□□225C22	84
	164	2538	0.9		198	2106	1.0	9.010	GST11-2M □□□225C22	84
	150	2772	1.4		181	2300	1.6	9.841	GST14-2M □□□225C22	84
	150	2776	0.8		181	2303	1.0	9.856	GST11-2M □□□225C22	84
	135	3099	1.3		162	2571	1.4	11.000	GST14-2M □□□225C22	84
	120	3482	1.2		144	2889	1.4	12.362	GST14-2M □□□225C22	84
	105	3957	1.1		127	3283	1.2	14.048	GST14-2M □□□225C22	84
	98	4269	1.0		117	3542	1.3	15.156	GST14-2M □□□225C22	84
	86	4852	0.9		103	4025	1.1	17.222	GST14-2M □□□225C22	84
	74	5647	0.9		89	4684	1.0	20.044	GST14-2M □□□225C22	84

Dimensions

GST□□-1M VBR



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX	128			109	
	MHFMABR	183	181		170	
		k				
GST04		373	433			
GST05		394	454		489	504
GST06		417	477		512	527
GST07		446	506		541	556
GST09			549		584	599

		112C22	132C12 132C22	160C22	160C32	180C12 180C32	180C42
g		218	258	310		348	
g_1	MHEMAXX	176	195	210		230	
	MHEMABR	158	187	210		230	
k_1	MHEMAXX	363	403	457.5	501.5	561	618
k_2		222	265	300			
Δ k	MHEMABR	90	109.5	105		113	
	MHFMAXX	102	115	149			155
	MHFMABR	183	201.5	179		215	
		k					
	GST06	572					
	GST07	601	649	708			
	GST09	644	692	751	795	855	912

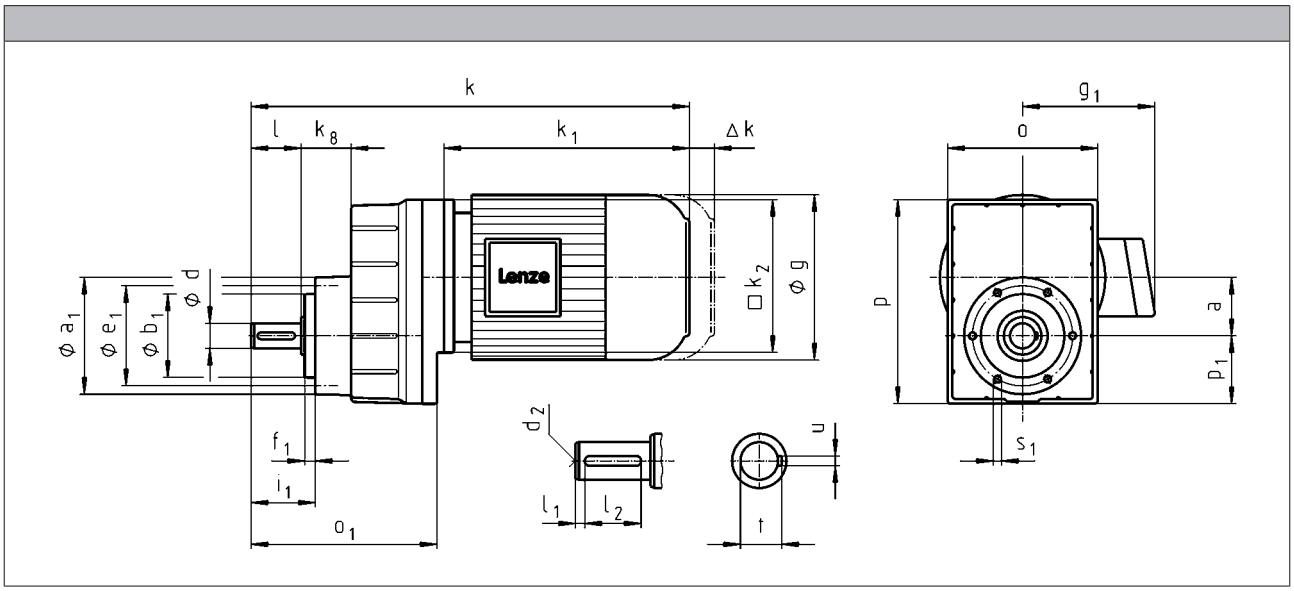
	a	h[1)]	o[1)]	p[1)]
GST04	36	50	100	138
GST05	45	63	115	168
GST06	56	80	145	211
GST07	70	100	180	264
GST09	89	125	222	329

	d	d_2	l	l_1	l_2	u	t	i	i_5	o_1	b_5	b_7	c_5	e_5	f_5	m	n	n_1	s_5
	k6																		
GST04	16	M5	32	6	20	5	18	35	45	134	55	105	17	128	80	24	20	25	9
GST05	20	M6	40	6	28	6	22.5	43	56	165	70	125	22	154	99	32	26	29	11
GST06	25	M10	50	4	40	8	28	53	68	191	72	160	27	194	115	37	30	43	13.5
GST07	30	M10	60	7.5	45	8	33	64	84	223	80	200	35	245	137	48	40	57	18
GST09	40	M16	80	8.5	63	12	43	84	107	271	105	245	43	296	161	51	45	56	18

[1)] k_2 !

Dimensions

GST□□-1M VCR



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX	128			109	
	MHFMABR	183	181		170	
		k				
GST04		373	433			
GST05		394	454		489	504
GST06		417	477		512	527
GST07		446	506		541	556
GST09			549		584	599

		112C22	132C12 132C22	160C22	160C32	180C12 180C32	180C42
g		218	258	310		348	
g_1	MHEMAXX	176	195	210		230	
	MHEMABR	158	187	210		230	
k_1	MHEMAXX	363	403	457.5	501.5	561	618
k_2		222	265	300			
Δ k	MHEMABR	90	109.5	105		113	
	MHFMAXX	102	115	149			155
	MHFMABR	183	201.5	179		215	
		k					
	GST06	572					
	GST07	601	649	708			
	GST09	644	692	751	795	855	912

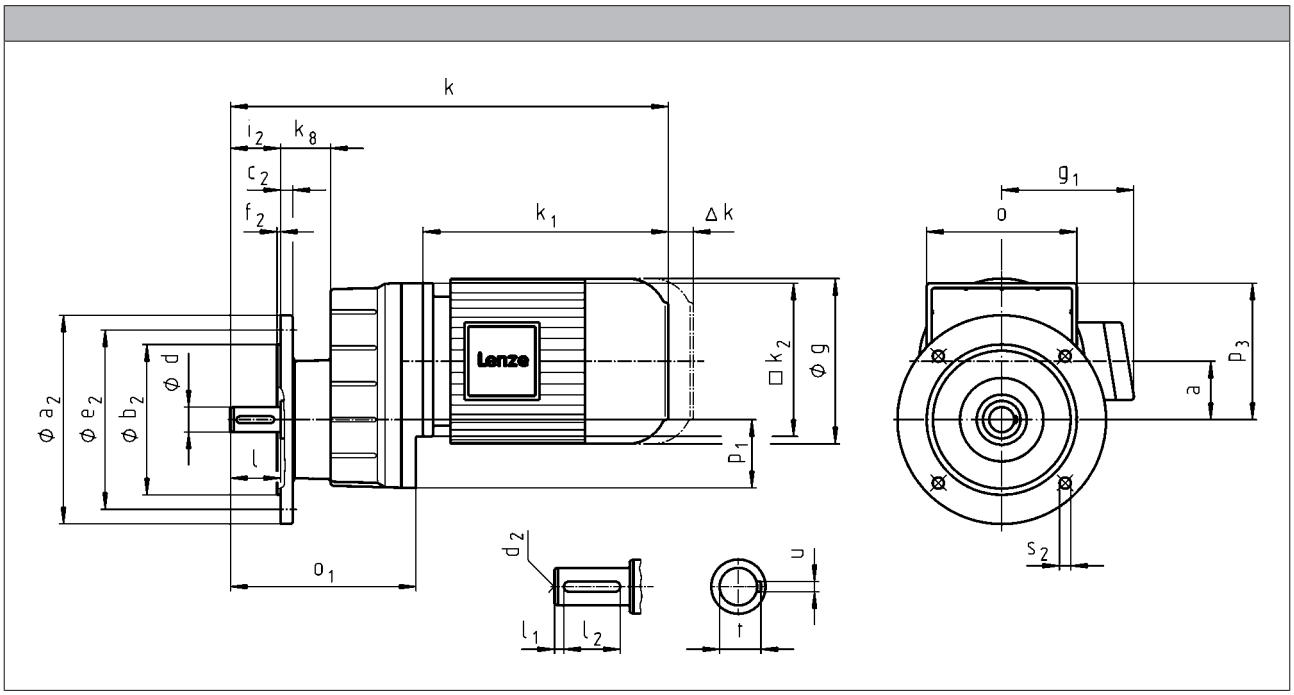
	a	k_8	o[1)]	p[1)]	p_1
GST04	36	35	100	129	41
GST05	45	43	115	156	51
GST06	56	48	145	194	63
GST07	70	60	180	245	82
GST09	89	74	222	304	101

	d	d_2	l	l_1	l_2	u	t	i_1	o_1	a_1	b_1	e_1	f_1	s_1
	k6										h7			
GST04	16	M5	32	6	20	5	18	43	134	72	48	61	8	M5x10
GST05	20	M6	40	6	28	6	22.5	52	165	88	58	74	9	M6x10
GST06	25	M10	50	4	40	8	28	64	191	109	70	90	11	M8x14
GST07	30	M10	60	7.5	45	8	33	77	223	140	100	120	13	M10x18
GST09	40	M16	80	8.5	63	12	43	100	271	174	120	145	15	M12x20

[1)] k_2 !

Dimensions

GST□□-1M VCK



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX		128		109	
	MHFMABR	183	181		170	
		k				
GST04		373	433			
GST05		394	454		489	504
GST06		417	477		512	527
GST07		446	506		541	556
GST09			549		584	599

6.4

		112C22	132C12 132C22	160C22	160C32	180C12 180C32	180C42
g		218	258	310		348	
g_1	MHEMAXX	176	195	210		230	
	MHEMABR	158	187	210		230	
k_1	MHEMAXX	363	403	457.5	501.5	561	618
k_2		222	265	300			
Δ k	MHEMABR	90	109.5	105		113	
	MHFMAXX	102	115	149			155
	MHFMABR	183	201.5	179		215	
		k					
	GST06	572					
	GST07	601	649	708			
	GST09	644	692	751	795	855	912

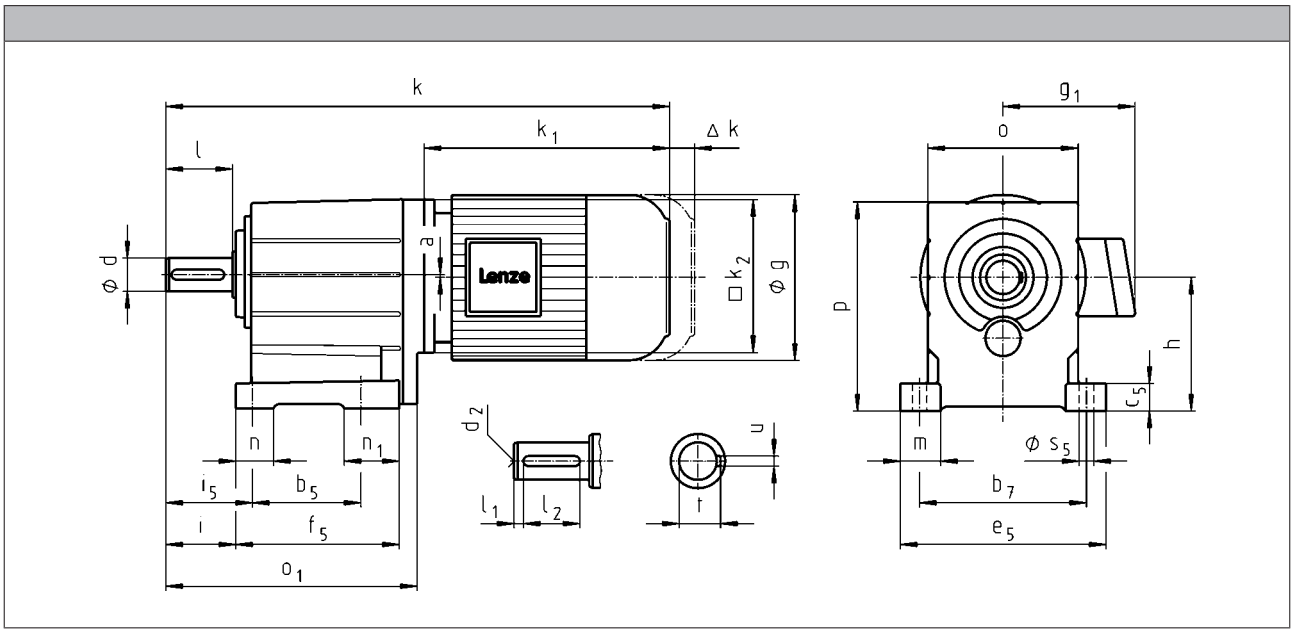
	a	k_8	$o^{1)}$	p_1	$p_3{}^{1)}$
GST04	36	35	100	41	88
GST05	45	43	115	51	105
GST06	56	48	145	63	131
GST07	70	60	180	82	164
GST09	89	74	222	101	204

	d	d_2	l	l_1	l_2	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	k6										j7				
GST04	16	M5	32	6	20	5	18	32	134	120 140 160	80 95 110	10 10 10	100 115 130	3 3 3.5	7 9 9
GST05	20	M6	40	6	28	6	22.5	40	165	120 140 160 200	80 95 110 130	10 10 10 12	100 115 130 165	3 3 3.5 3.5	7 9 9 11
GST06	25	M10	50	4	40	8	28	50	191	160 200	110 130	12 12	130 165	3.5 3.5	9 11
GST07	30	M10	60	7.5	45	8	33	60	223	200 250	130 180	14 15	165 215	3.5 4	11 13.5
GST09	40	M16	80	8.5	63	12	43	80	271	250 300	180 230	16 18	215 265	4 4	13.5 13.5

[1] k_2 !

Dimensions

GST□□-2M VBR



		080C32	090C12	090C32	100C12	100C32	112C22
g		156	176		194		218
g_1	MHEMAXX	150	152	157	166		176
	MHEMABR	132	137		147		158
k_1	MHEMAXX	224.5	274		309	324	363
k_2		145	180				222
Δ k	MHEMABR	73	68		76		90
	MHFMAXX		128		109		102
	MHFMABR	183	181		170		183
		k					
GST04		413	473				
GST05		443	503		538	553	
GST06		469	529		564	579	624
GST07		525	585		620	635	680
GST09			648		683	698	743
GST11					740	755	800
GST14							890

		132C12 132C22	160C22	160C32	180C12 180C32	180C42	225C12 225C22
g		258	310		348		447
g_1	MHEMAXX	195	210		230		346
	MHEMABR	187	210		230		346
k_1	MHEMAXX	403	457.5	501.5	561	618	848
k_2		265	300				
Δ k	MHEMABR	109.5	105		113		
	MHFMAXX	115	149			155	213
	MHFMABR	201.5	179		215		213
		k					
GST06		672					
GST07		728	787	831			
GST09		791	850	894	954	1011	
GST11		848	907	951	1011	1068	1298
GST14		938	997	1041	1101	1158	1388

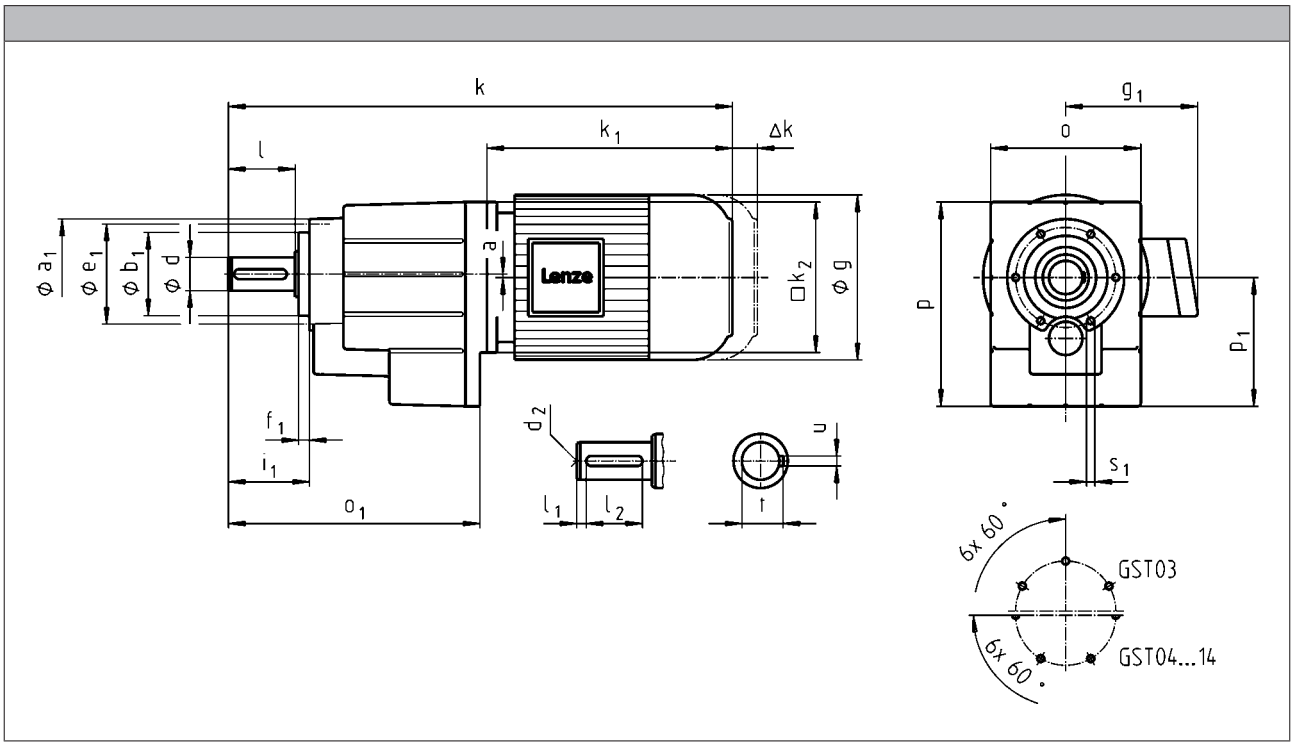
	a	h[1)]	o[1)]	p[1)]
GST04	0	80	100	132
GST05	1	100	115	158.5
GST06	2	125	145	198
GST07	3	160	180	251
GST09	4	200	222	311
GST11	4	250	270	385
GST14	6	315	328	479

	d	d	d_2	l	l_1	l_2	u	t	i	i_5	o_1	b_5	b_7	c_5	e_5	f_5	m	n	n_1	s_5
	k6	m6																		
GST04	20		M6	40	5	28	6	22.5	43	53	174	76	105	18	129	112	24.5	20	36	9
GST05	25		M10	50	4	40	8	28	53	66	214	90	125	23	155	139	32.5	26	49	11
GST06	30		M10	60	6	45	8	33	64	79	243	106	160	28	196	157	38	35	52	13.5
GST07	40		M16	80	7	63	12	43	84	104	302	130	200	34	247	196	48.5	45	66	18
GST09	50		M16	100	8	80	14	53.5	105	127.5	370	165	245	44	298	239	54	48	74	18
GST11		60	M20	120	8	100	18	64	125	155	433	200	300	54	368	280	69	65	80	22
GST14		80	M20	160	15	125	22	85	165	200	533	250	380	65	460	340	85	85	91	26

[1)] k_2 !

Dimensions

GST□□-2M VCR



		080C32	090C12	090C32	100C12	100C32	112C22
g		156	176		194		218
g_1	MHEMAXX	150	152	157	166		176
	MHEMABR	132	137		147		158
k_1	MHEMAXX	224.5	274		309	324	363
k_2		145	180				222
Δ k	MHEMABR	73	68		76		90
	MHFMAXX		128		109		102
	MHFMABR	183	181		170		183
		k					
	GST04	413	473				
	GST05	443	503		538	553	
	GST06	469	529		564	579	624
	GST07	525	585		620	635	680
	GST09		648		683	698	743
	GST11				740	755	800
	GST14						890

		132C12 132C22	160C22	160C32	180C12 180C32	180C42	225C12 225C22
g		258	310		348		447
g_1	MHEMAXX	195	210		230		346
	MHEMABR	187	210		230		346
k_1	MHEMAXX	403	457.5	501.5	561	618	848
k_2		265	300				
Δ k	MHEMABR	109.5	105		113		
	MHFMAXX	115	149			155	213
	MHFMABR	201.5	179		215		213
		k					
GST06		672					
GST07		728	787	831			
GST09		791	850	894	954	1011	
GST11		848	907	951	1011	1068	1298
GST14		938	997	1041	1101	1158	1388

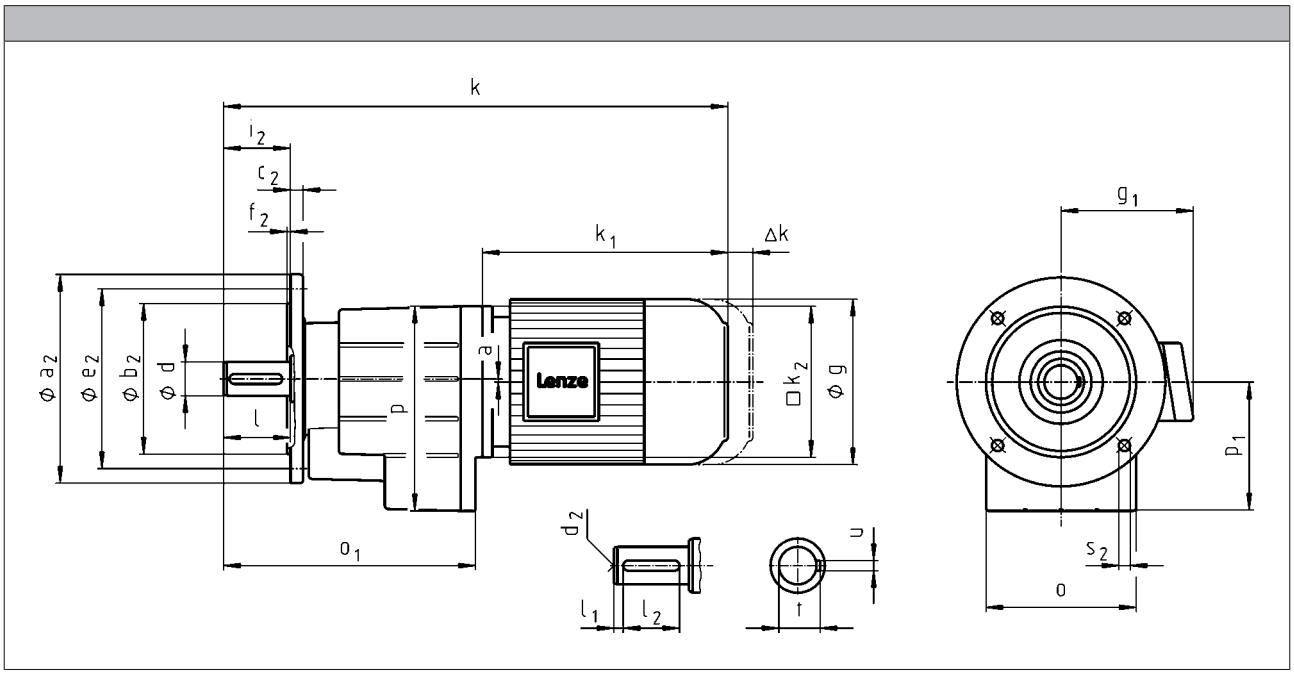
	a	o[1)]	p[1)]	p_1
GST04	0	100	129	77
GST05	1	115	156	98
GST06	2	145	194	121
GST07	3	180	245	155
GST09	4	222	304	194
GST11	4	270	378	243
GST14	6	328	470	306

	d	d	d_2	l	l_1	l_2	u	t	i_1	o_1	a_1	b_1	e_1	f_1	s_1
	k6	m6										h7			
GST04	20		M6	40	5	28	6	22.5	51	174	72	48	61	8	M5x10
GST05	25		M10	50	4	40	8	28	62	214	88	58	74	9	M6x12
GST06	30		M10	60	6	45	8	33	74	243	109	70	90	10	M8x14
GST07	40		M16	80	7	63	12	43	97	302	140	100	120	13	M10x18
GST09	50		M16	100	8	80	14	53.5	120	370	174	120	145	15	M12x20
GST11		60	M20	120	8	100	18	64	143	433	215	150	185	18	M16x26
GST14		80	M20	160	15	125	22	85	187	533	265	195	230	22	M20x34

[1)] k_2 !

Dimensions

GST□□-2M VCK



		080C32	090C12	090C32	100C12	100C32	112C22
g		156	176		194		218
g_1	MHEMAXX	150	152	157	166		176
	MHEMABR	132	137		147		158
k_1	MHEMAXX	224.5	274		309	324	363
k_2		145	180				222
Δ k	MHEMABR	73	68		76		90
	MHFMAXX		128		109		102
	MHFMABR	183	181		170		183
		k					
	GST04	413	473				
	GST05	443	503		538	553	
	GST06	469	529		564	579	624
	GST07	525	585		620	635	680
	GST09		648		683	698	743
	GST11				740	755	800
	GST14						890

6.4

		132C12 132C22	160C22	160C32	180C12 180C32	180C42	225C12 225C22
g		258	310		348		447
g_1	MHEMAXX	195	210		230		346
	MHEMABR	187	210		230		346
k_1	MHEMAXX	403	457.5	501.5	561	618	848
k_2		265	300				
Δ k	MHEMABR	109.5	105		113		
	MHFMAXX	115	149			155	213
	MHFMABR	201.5	179		215		213
		k					
GST06		672					
GST07		728	787	831			
GST09		791	850	894	954	1011	
GST11		848	907	951	1011	1068	1298
GST14		938	997	1041	1101	1158	1388

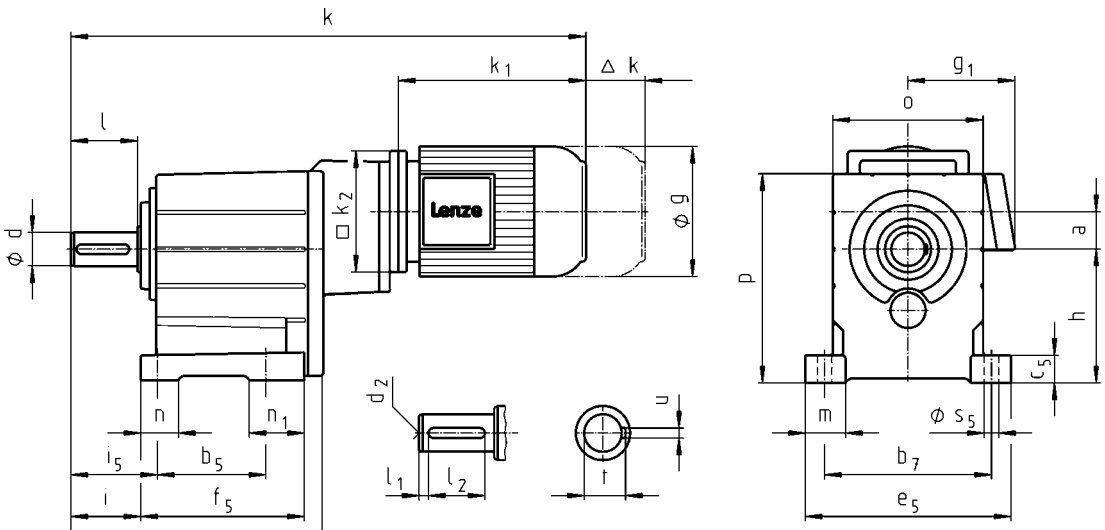
	a	o[1)]	p[1)]	p_1
GST04	0	100	129	77
GST05	1	115	156	98
GST06	2	145	194	121
GST07	3	180	245	155
GST09	4	222	304	194
GST11	4	270	378	243
GST14	6	328	470	306

	d	d	d_2	l	l_1	l_2	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	k6	m6										j7				
GST04	20		M6	40	5	28	6	22.5	40	174	120 140 160	80 95 110	10 10 10	100 115 130	3 3 3.5	7 9 9
GST05	25		M10	50	4	40	8	28	50	214	120 140 160 200	80 95 110 130	10 10 10 12	100 115 130 165	3 3 3.5 3.5	7 9 9 11
GST06	30		M10	60	6	45	8	33	60	243	160 200	110 130	12 12	130 165	3.5 3.5	9 11
GST07	40		M16	80	7	63	12	43	80	302	200 250	130 180	14 15	165 215	3.5 4	11 13.5
GST09	50		M16	100	8	80	14	53.5	100	370	250 300	180 230	16 18	215 265	4 4	13.5 13.5
GST11		60	M20	120	8	100	18	64	120	433	300 350	230 250	18 20	265 300	4 5	14 18
GST14		80	M20	160	15	125	22	85	160	533	350 400	250 300	22 24	300 350	5 5	18 18

[1)] k_2 !

Dimensions

GST□□-3M VBR



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX	128			109	
	MHFMABR	183	181		170	
		k				
GST06		563	622			
GST07		630	689		724	739
GST09		711	770		805	820
GST11		787	846		881	896
GST14			970		1005	1020

6.4

		112C22	132C12 132C22	160C22	160C32	180C12 180C32
g		218	258	310		348
g_1	MHEMAXX	176	195	210		230
	MHEMABR	158	187	210		230
k_1	MHEMAXX	363	403	457.5	501.5	561
k_2		222	265	300		
Δ k	MHEMABR	90	109.5	105		113
	MHFMAXX	102	115	149		
	MHFMABR	183	201.5	179		215
		k				
	GST09	865				
	GST11	941	989			
	GST14	1065	1113	1173	1217	1276

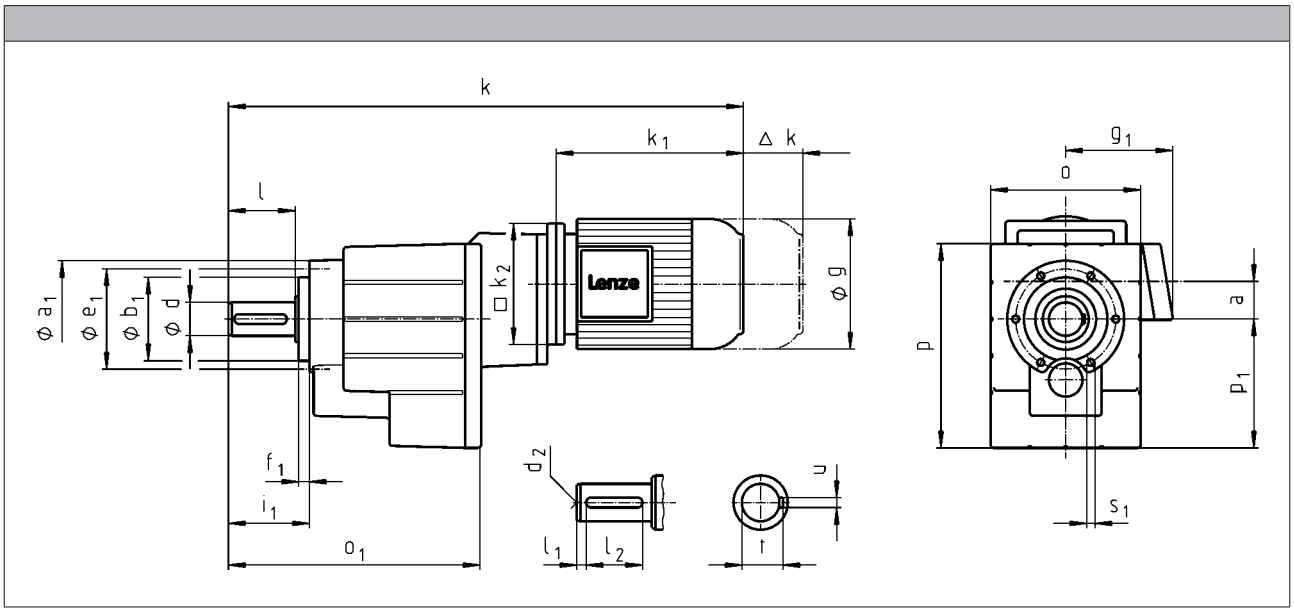
	a	h	o[1)]	p[1)]
GST06	34	125	145	198
GST07	42	160	180	251
GST09	52	200	222	311
GST11	66	250	270	385
GST14	83	315	328	479

	d	d	d_2	l	l_1	l_2	u	t	i	i_5	o_1	b_5	b_7	c_5	e_5	f_5	m	n	n_1	s_5
	k6	m6																		
GST06	30		M10	60	6	45	8	33	64	79	240	106	160	28	196	157	38	35	52	13.5
GST07	40		M16	80	7	63	12	43	84	104	302	130	200	34	247	196	48.5	45	66	18
GST09	50		M16	100	8	80	14	53.5	105	127.5	370	165	245	44	298	239	54	48	74	18
GST11		60	M20	120	8	100	18	64	125	155	433	200	300	54	368	280	69	65	80	22
GST14		80	M20	160	15	125	22	85	165	200	533	250	380	65	460	340	85	85	91	26

[1)] k_2 !

Dimensions

GST□□-3M VCR



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX		128		109	
	MHFMABR	183	181		170	
		k				
GST06		563	622			
GST07		630	689		724	739
GST09		711	770		805	820
GST11		787	846		881	896
GST14			970		1005	1020

		112C22	132C12 132C22	160C22	160C32	180C12 180C32
g		218	258	310		348
g_1	MHEMAXX	176	195	210		230
	MHEMABR	158	187	210		230
k_1	MHEMAXX	363	403	457.5	501.5	561
k_2		222	265	300		
Δ k	MHEMABR	90	109.5	105		113
	MHFMAXX	102	115	149		
	MHFMABR	183	201.5	179		215
		k				
	GST09	865				
	GST11	941	989			
	GST14	1065	1113	1173	1217	1276

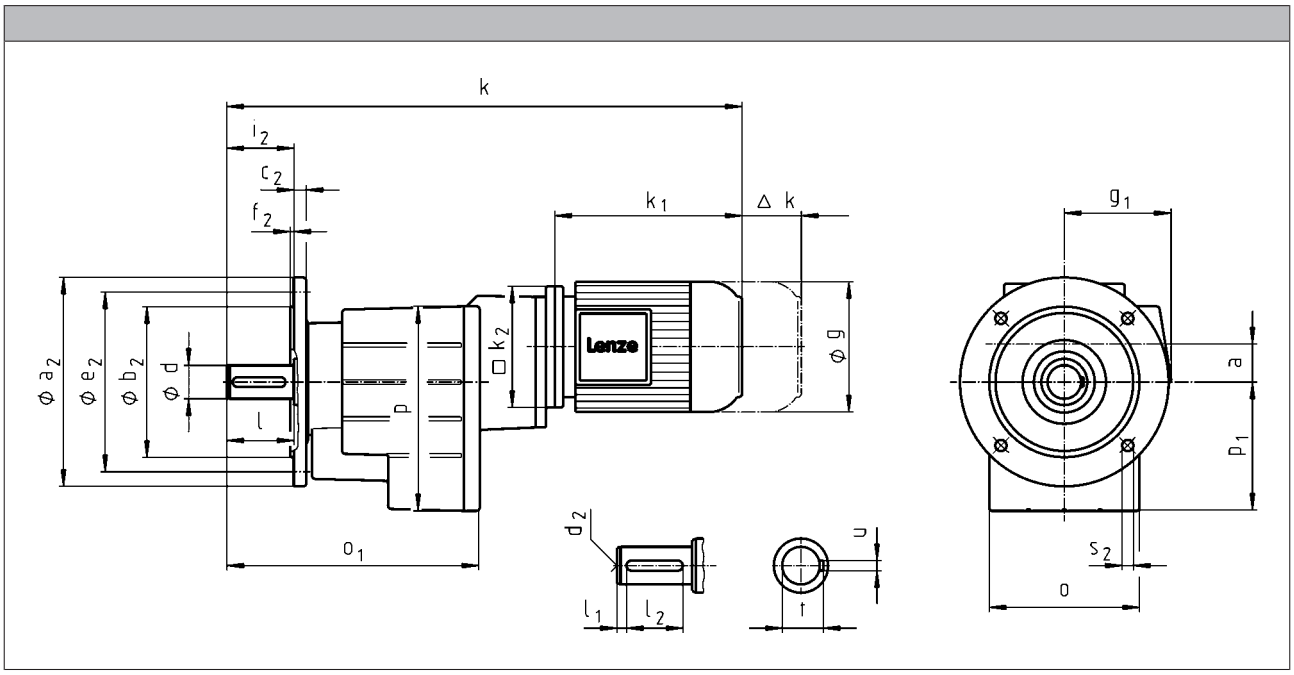
	a	**o**[1)]	**p**[1)]	**p_1**
GST06	34	145	194	121
GST07	42	180	245	155
GST09	52	222	304	194
GST11	66	270	378	243
GST14	83	328	470	306

	d	**d**	**d_2**	**l**	**l_1**	**l_2**	**u**	**t**	**i_1**	**o_1**	**a_1**	**b_1**	**e_1**	**f_1**	**s_1**
	k6	m6										h7			
GST06	30		M10	60	6	45	8	33	74	240	109	70	90	10	M8x14
GST07	40		M16	80	7	63	12	43	97	302	140	100	120	13	M10x18
GST09	50		M16	100	8	80	14	53.5	120	370	174	120	145	15	M12x20
GST11		60	M20	120	8	100	18	64	143	433	215	150	185	18	M16x26
GST14		80	M20	160	15	125	22	85	187	533	265	195	230	22	M20x34

[1)] k_2 !

Dimensions

GST□□-3M VCK



		080C32	090C12	090C32	100C12	100C32
g		156	176		194	
g_1	MHEMAXX	150	152	157	166	
	MHEMABR	132	137		147	
k_1	MHEMAXX	224.5	274		309	324
k_2		145	180			
Δ k	MHEMABR	73	68		76	
	MHFMAXX	128			109	
	MHFMABR	183	181		170	
		k				
GST06		563	622			
GST07		630	689		724	739
GST09		711	770		805	820
GST11		787	846		881	896
GST14			970		1005	1020

6.4

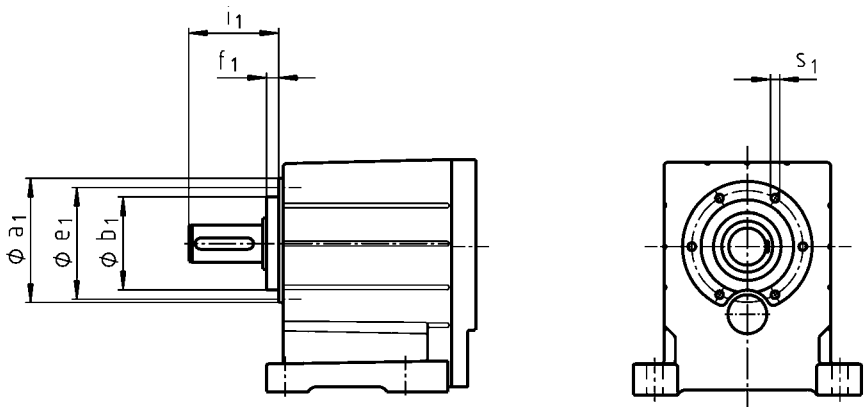
		112C22	132C12 132C22	160C22	160C32	180C12 180C32
g		218	258	310		348
g_1	MHEMAXX	176	195	210		230
	MHEMABR	158	187	210		230
k_1	MHEMAXX	363	403	457.5	501.5	561
k_2		222	265	300		
Δ k	MHEMABR	90	109.5	105		113
	MHFMAXX	102	115	149		
	MHFMABR	183	201.5	179		215
		k				
	GST09	865				
	GST11	941	989			
	GST14	1065	1113	1173	1217	1276

	a	o[1)]	p[1)]	p_1
GST06	34	145	194	121
GST07	42	180	245	155
GST09	52	222	304	194
GST11	66	270	378	243
GST14	83	328	470	306

	d	d	d_2	l	l_1	l_2	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	k6	m6										j7				
GST06	30		M10	60	6	45	8	33	60	240	160 200	110 130	12 12	130 165	3.5 3.5	9 11
GST07	40		M16	80	7	63	12	43	80	302	200 250	130 180	14 15	165 215	3.5 4	11 13.5
GST09	50		M16	100	8	80	14	53.5	100	370	250 300	180 230	16 18	215 265	4 4	13.5 13.5
GST11		60	M20	120	8	100	18	64	120	433	300 350	230 250	18 20	265 300	4 5	14 18
GST14		80	M20	160	15	125	22	85	160	533	350 400	250 300	22 24	300 350	5 5	18 18

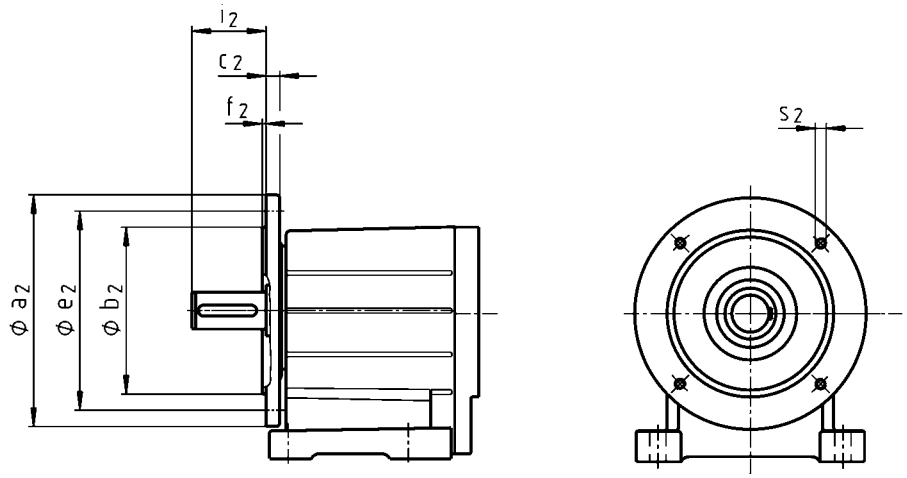
[1)] k_2 !

GST□□-2/3M VAR



	a_1	b_1	e_1	f_1	i_1	s_1
		h7				
GST04	72	48	61	8.0	51.0	M5x10
GST05	88	58	74	9.0	62.0	M6x12
GST06	109	70	90	10.0	74.0	M8x14
GST07	140	100	120	13.0	97.0	M10x18
GST09	174	120	145	15.0	120.0	M12x20
GST11	215	150	185	18.0	143.0	M16x26
GST14	265	195	230	22.0	187.0	M20x34

GST□□-2/3M VAL

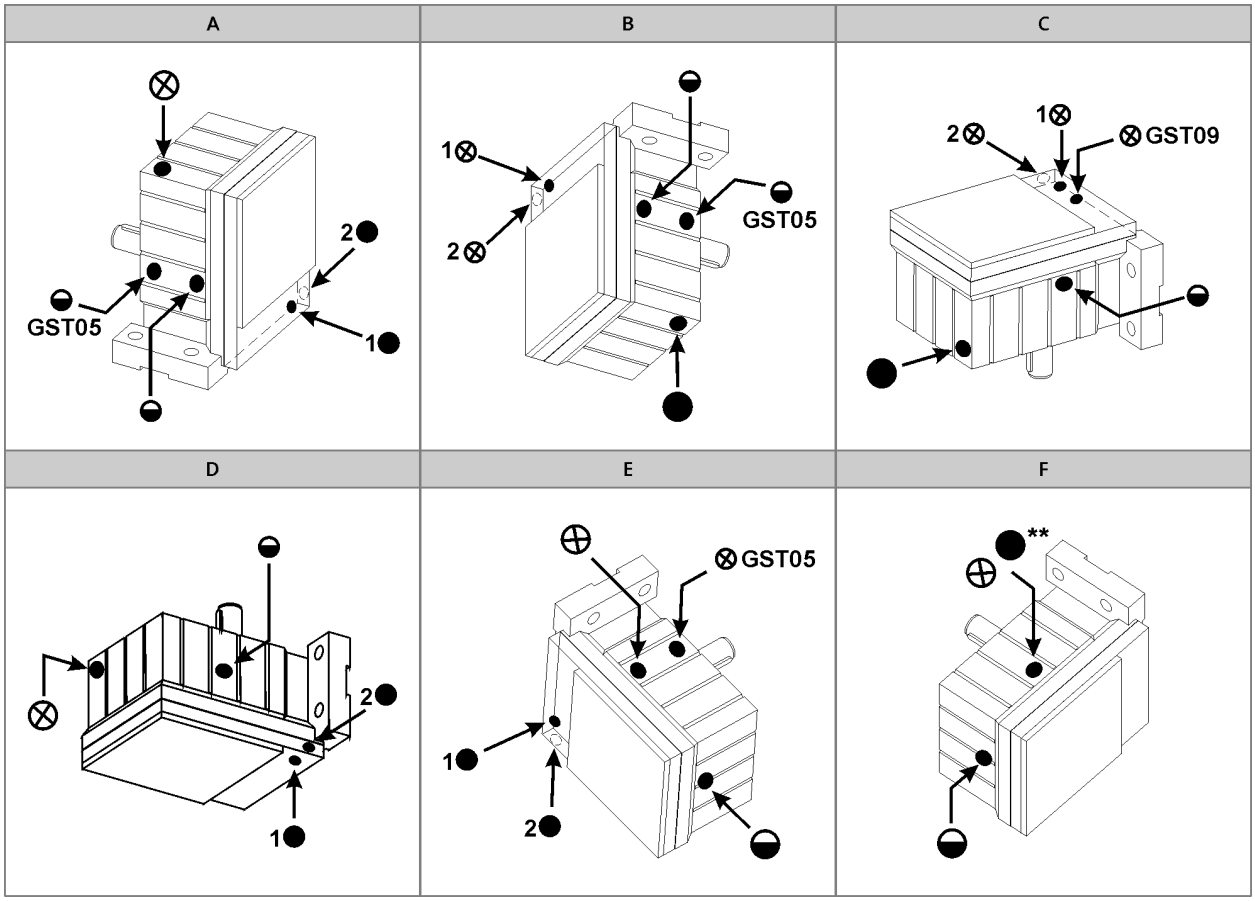


	a_2	b_2	c_2	e_2	f_2	i_2	s_2
		j7					
GST04	120 140	80 95	10 10	100 115	3.0 3.0	40	M6 M8
GST05	120 140 160	80 95 110	10 10 10	100 115 130	3.0 3.0 3.5	50	M6 M8 M8
GST06	160 200	110 130	12 12	130 165	3.5 3.5	60	M8 M10
GST07	200 250	130 180	14 15	165 215	3.5 4.0	80	M10 M12
GST09	250 300	180 230	16 18	215 265	4.0 4.0	100	M12 M12
GST11	300 350	230 250	18 20	265 300	4.0 5.0	120	M12 M16
GST14	350 400	250 300	22 24	300 350	5.0 5.0	160	M16 M16

Ventilations

Position of ventilation, sealing elements and oil level check

GST05...09-1



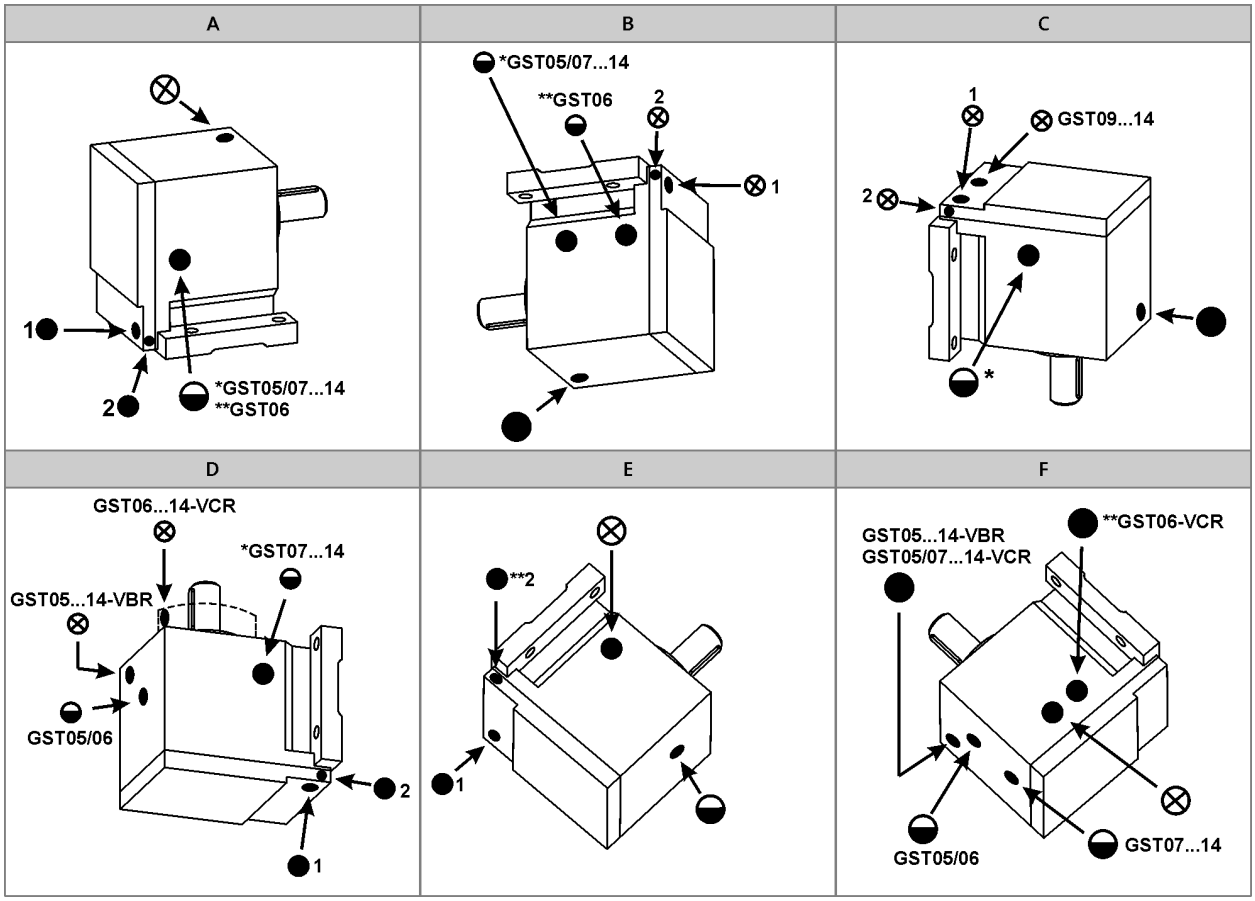
A ... F Mounting position
⊗ Ventilation / Oil filler plug
● Oil drain plug
◒ Oil control plug
* On both sides
** On opposite side

Item 1 standard
Item 2 only with:
- GST05-1M V□□ 090C□□
- GST05-1M V□□ 100C□□
- GST06-1M V□□ 112C□□
- GST07-1M V□□ 160C□□

Ventilations

Position of ventilation, sealing elements and oil level check

GST05...14-2



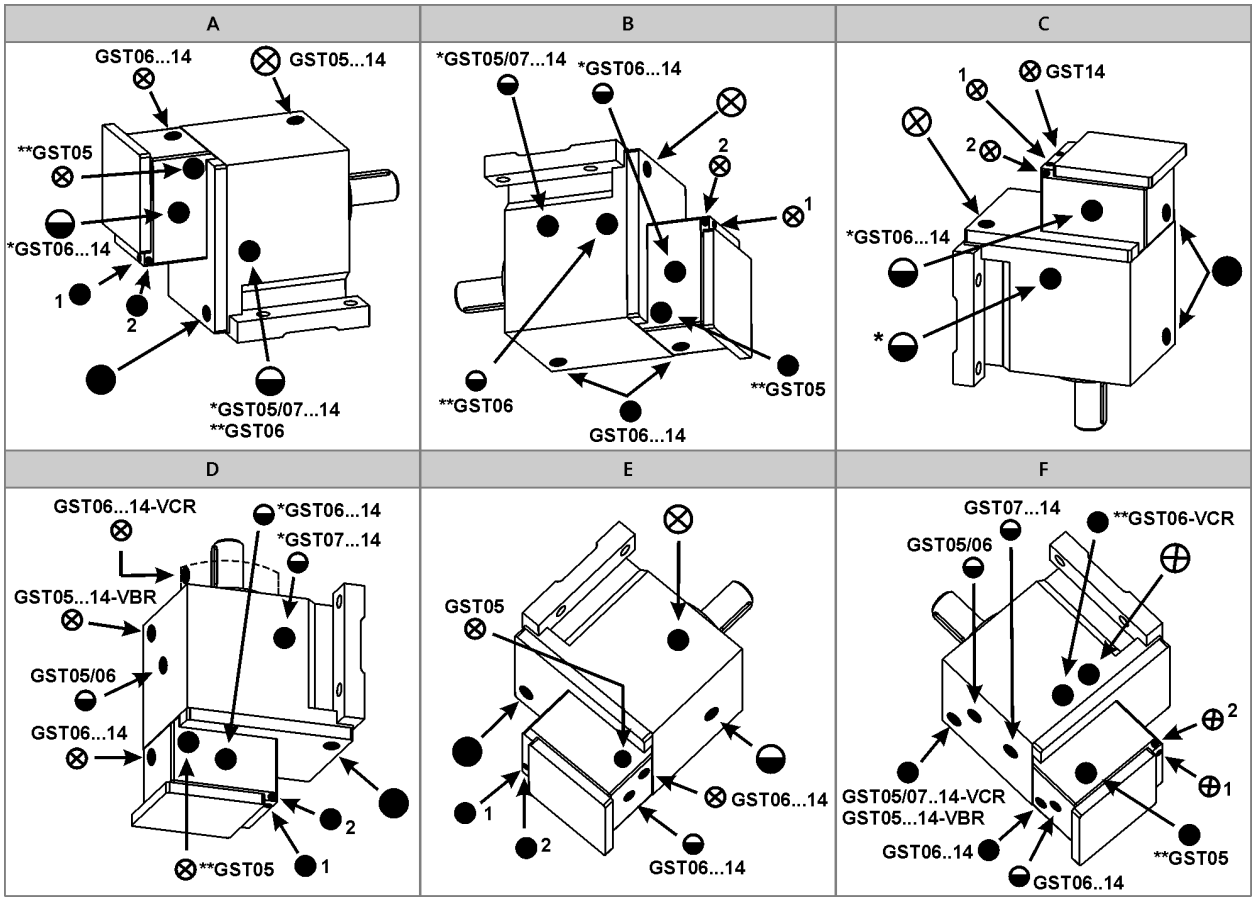
A ... F Mounting position
⊗ Ventilation / Oil filler plug
● Oil drain plug
◒ Oil control plug
* On both sides
** On opposite side

Item 1 standard
Item 2 only with:
- GST05-2M V□□ 090C□□
- GST05-2M V□□ 100C□□
- GST06-2M V□□ 112C□□
- GST07-2M V□□ 160C□□

Ventilations

Position of ventilation, sealing elements and oil level check

GST05...14-3



A ... F Mounting position
⊗ Ventilation / Oil filler plug
● Oil drain plug
◒ Oil control plug
* On both sides
** On opposite side

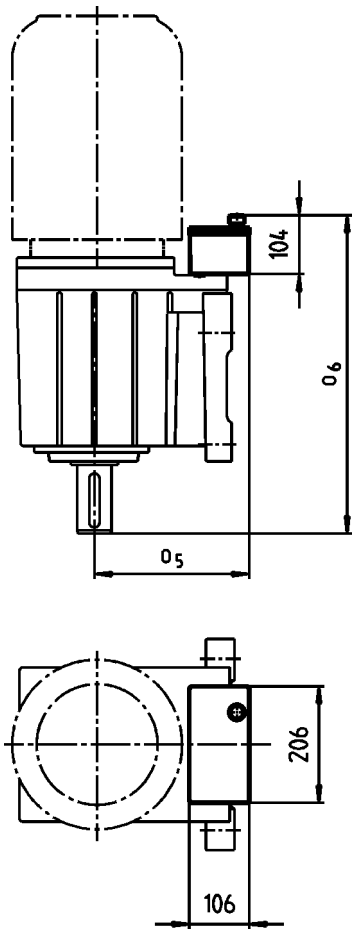
Item 1 standard
Item 2 only with:
- GST07-3M V□□ 090C□□
- GST07-3M V□□ 100C□□
- GST09-3M V□□ 112C□□

6.4

Ventilations

Compensation reservoir for mounting position C

GST□□-2



Motor	090 100	112	132	160 180 225

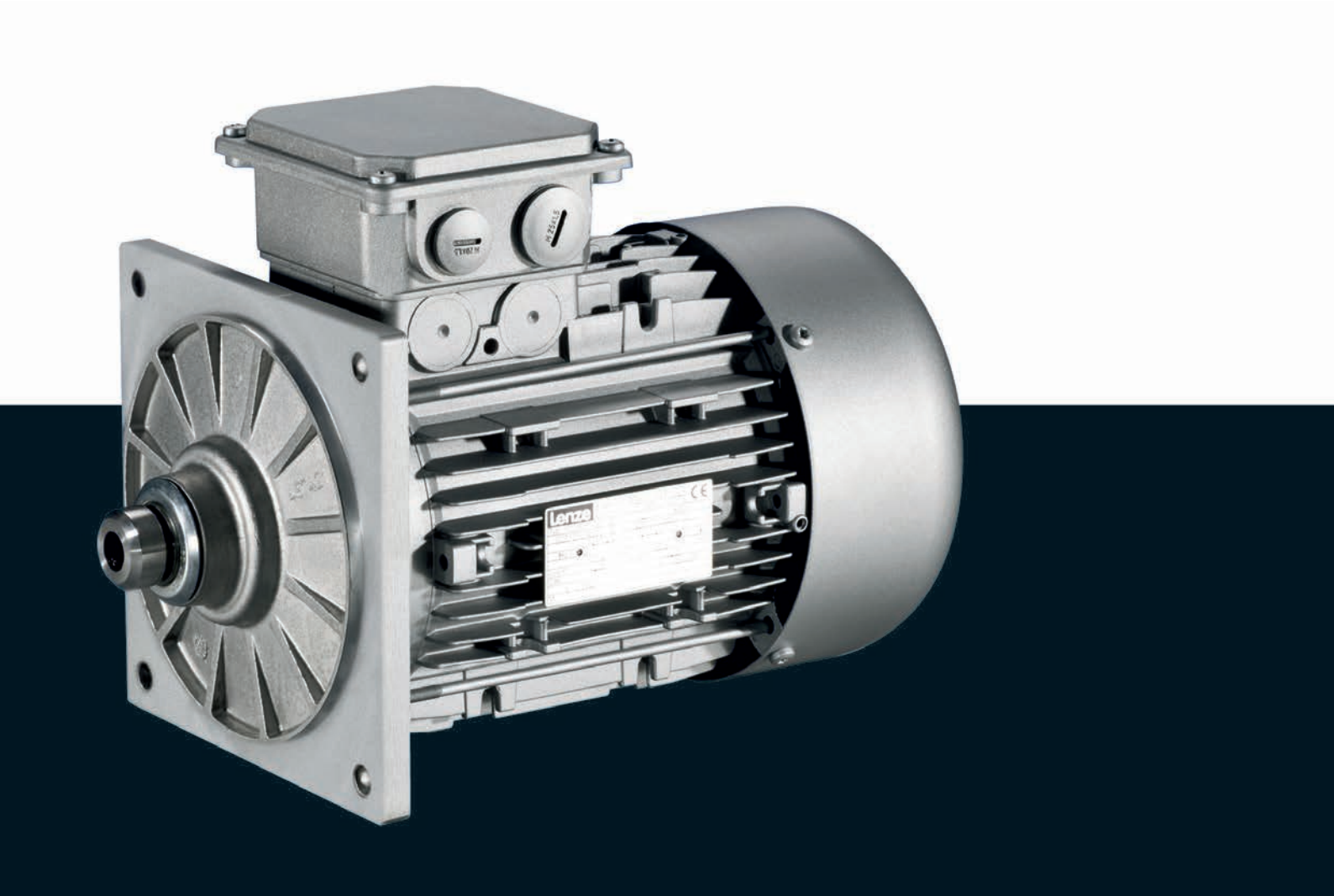
6.4

	o_5	o_6	o_5	o_6	o_5	o_6	o_5	o_6
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
GST09	206	477	226	477	245	477	260	477
GST11	208	536	230	540	254	540	268	540
GST14			252	640	282	640	282	640

► Terminal box position 4 not permitted.

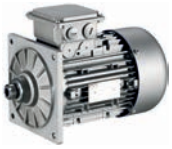
MH three-phase AC motors

0.75 to 45 kW



MH three-phase AC motors

Contents



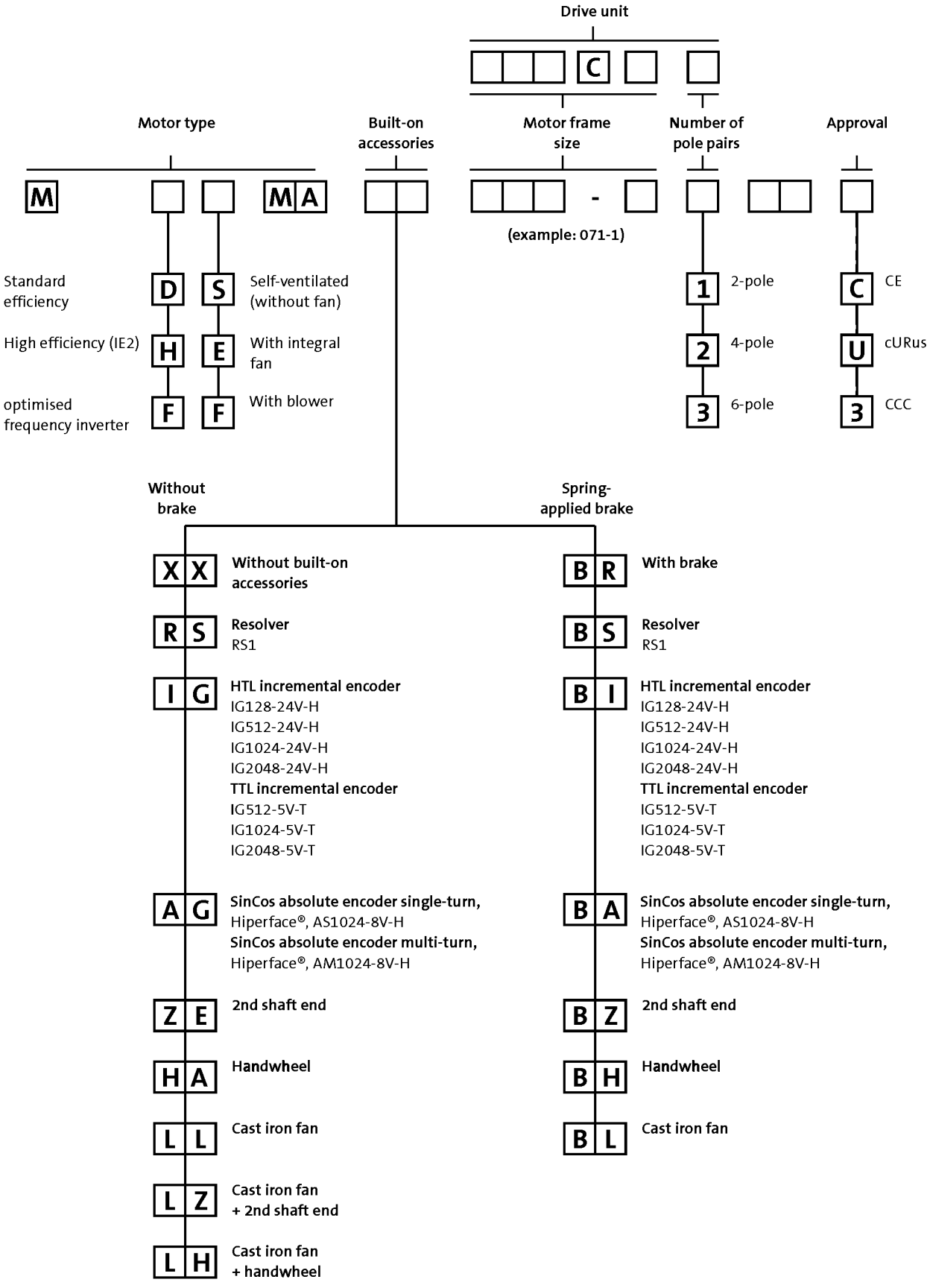
List of abbreviations

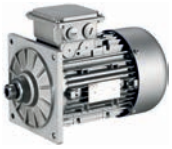
$\eta_{100\,\%}$	[%]	Efficiency
$\eta_{75\,\%}$	[%]	Efficiency
$\eta_{50\,\%}$	[%]	Efficiency
cos ϕ		Power factor
I_N	[A]	Rated current
I_{max}	[A]	Max. current consumption
J	[kgcm²]	Moment of inertia
m	[kg]	Mass
M_a	[Nm]	Starting torque
M_b	[Nm]	Stalling torque
M_{max}	[Nm]	Max. torque
M_N	[Nm]	Rated torque
n_N	[r/min]	Rated speed
P_N	[kW]	Rated power
P_{max}	[kW]	Max. power input

CE	Communauté Européenne
CSA	Canadian Standards Association
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
IEC	International Electrotechnical Commission
IM	International Mounting Code
IP	International Protection Code
NEMA	National Electrical Manufacturers Association
UL	Underwriters Laboratory Listed Product
UR	Underwriters Laboratory Recognized Product
VDE	Verband deutscher Elektrotechniker (Association of German Electrical Engineers)
CCC	China Compulsory Certificate
GOST	Certificate for Russian Federation
cURus	Combined certification marks of UL for the USA and Canada
UkrSEPRO	Certificate for Ukraine

U_{max}	[V]	Max. mains voltage
U_{min}	[V]	Min. mains voltage
$U_{N,\Delta}$	[V]	Rated voltage
$U_{N,Y}$	[V]	Rated voltage

Product key

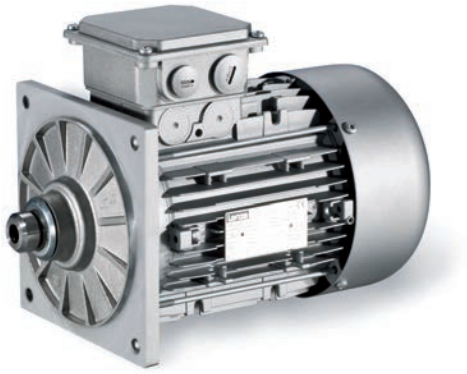

Drive unit
C
Motor type
Built-on accessories
Motor frame size
Number of pole pairs
Approval
M
M A
-
(example: 071-1)
Standard efficiency
D
S
Self-ventilated (without fan)
High efficiency (IE2)
H
E
With integral fan
optimised frequency inverter
F
F
With blower
1
2-pole
2
4-pole
3
6-pole
C
CE
U
cURus
3
CCC
Without brake
Spring-applied brake
X X
Without built-on accessories
R S
Resolver
RS1
I G
HTL incremental encoder
IG128-24V-H
IG512-24V-H
IG1024-24V-H
IG2048-24V-H
TTL incremental encoder
IG512-5V-T
IG1024-5V-T
IG2048-5V-T
A G
SinCos absolute encoder single-turn,
Hiperface®, AS1024-8V-H
SinCos absolute encoder multi-turn,
Hiperface®, AM1024-8V-H
Z E
2nd shaft end
H A
Handwheel
L L
Cast iron fan
L Z
Cast iron fan
+ 2nd shaft end
L H
Cast iron fan
+ handwheel
B R
With brake
B S
Resolver
RS1
B I
HTL incremental encoder
IG128-24V-H
IG512-24V-H
IG1024-24V-H
IG2048-24V-H
TTL incremental encoder
IG512-5V-T
IG1024-5V-T
IG2048-5V-T
B A
SinCos absolute encoder single-turn,
Hiperface®, AS1024-8V-H
SinCos absolute encoder multi-turn,
Hiperface®, AM1024-8V-H
B Z
2nd shaft end
B H
Handwheel
B L
Cast iron fan



Product information

Special motors have been designed for direct attachment to Lenze gearboxes.

These motors are attached to the gearbox without the use of a clutch. Torque transmission between the toothing and the motor shaft is friction-locked via a tapered connection here.
This motor design means that the geared motors only require a small installation space.



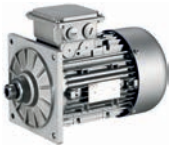
L-force MH three-phase AC motors are available in a power range from 0.75 to 45 kW and comply with efficiency class IE2 (high efficiency) as per IEC 60034-30.
Since almost all IE2 motors are designed with the same dimensions as the standard efficiency motors, it is easy to switch between the two.
The energy efficiency of the L-force MH three-phase AC motors has been approved by Underwriters Laboratories (UL) as an independent third-party.

Basic versions
- The thermal sensors integrated as standard allow for permanent temperature monitoring and are coordinated to the motor winding's temperature class F (155°C).
- The motors of the basic version are adapted to ambient conditions by enclosure IP55.
- In tough operating conditions, the surface and corrosion protection system is provided to reliably protect the motor from corrosive media.

Options
- Various brake sizes – each available with several braking torques – can be combined with the three-phase AC motors.
- The LongLife version of the brake can easily reach 10 x 10^6 switching cycles.
- A resolver and various incremental and absolute value encoders can be fitted for speed and position detection.
- For fast commissioning, the motors are also available with connectors for the power connection, brake, blower and feedback.
- Instead of an integral fan, the motor can optionally be equipped with a blower. No torque reduction is then necessary, even at speeds below 20 Hz.
- For drive tasks in decentralised applications, the motor can be ordered with the motec inverter connected to the terminal box.
- The motors are available with cURus, GOST-R, CCC and UkrSepro approval.
- Smooth start/braking is possible by increasing the motor's centrifugal mass with a cast iron fan.
- The motor can be equipped with a handwheel for manual setup or emergency operations.
- To protect the fan from falling objects, the fan cover can be equipped with a protection cover.
- A 2nd shaft end is available for further modifications.

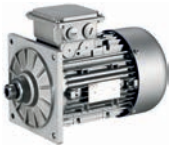
Functions and features

Size			
Motor	080	090	100
Spring-applied brake			
Design	Standard or LongLife design Reduced, standard or increased braking torque With rectifier With manual release lever Low noise		
Feedback			
Design	Resolver Incremental encoder Absolute value encoder (multi-turn)		
Thermal sensor			
Thermal contact	TKO		
Thermal detector	KTY83-110 KTY84-130		
PTC thermistor	PTC		
Motor connection			
Power connection	Terminal box ICN connector HAN10E connector HAN modular connector		
Brake connection	Terminal box ICN connector HAN modular connector HAN10E connector		
Blower connection	Terminal box ICN connector		
Feedback connection	Terminal box ICN connector		
Temperature sensor connection	Terminal box TKO or PTC at connector in the power connection KTY at connector in the feedback connection		
Shaft bearings			
Position of the locating bearing	Standard motors (B3, B5, B14): side B Motors for gearbox direct mounting: side A		
Bearing type	Deep-groove ball bearing with high-temperature resistant grease, 2 sealing discs or cover plates		
Colour			
	Not coated Primed Paint in various corrosion-protection designs in accordance with RAL colours		
Further options			
	Protection cover Increased centrifugal mass Handwheel 2nd shaft end		



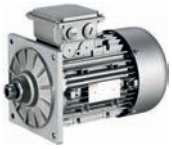
Functions and features

Size			
Motor	112	132	160
Spring-applied brake			
Design	Standard design Reduced, standard or increased braking torque With rectifier With manual release lever Low noise		
Feedback			
Design	Resolver Incremental encoder Absolute value encoder (multi-turn)		
Thermal sensor			
Thermal contact	TKO		
Thermal detector	KTY83-110 KTY84-130		
PTC thermistor	PTC		
Motor connection			
Power connection	Terminal box ICN connector HAN10E connector HAN modular connector	Terminal box ICN connector HAN modular connector	Terminal box HAN modular connector
Brake connection	Terminal box ICN connector HAN modular connector HAN10E connector	Terminal box ICN connector HAN modular connector	Terminal box HAN modular connector
Blower connection	Terminal box ICN connector		
Feedback connection	Terminal box ICN connector		
Temperature sensor connection	Terminal box TKO or PTC at connector in the power connection KTY at connector in the feedback connection		
Shaft bearings			
Position of the locating bearing	Standard motors (B3, B5, B14): side B Motors for gearbox direct mounting: side A		
Bearing type	Deep-groove ball bearing with high-temperature resistant grease, 2 sealing discs or cover plates		
Colour			
	Not coated Primed Paint in various corrosion-protection designs in accordance with RAL colours		
Further options			
	Protection cover Increased centrifugal mass Handwheel 2nd shaft end		Protection cover



Functions and features

Size			
Motor	180	200	225
Spring-applied brake			
Design	Standard design Reduced, standard or increased braking torque With rectifier With manual release lever Low noise		
Feedback			
Design	Resolver Incremental encoder Absolute value encoder (multi-turn)		
Thermal sensor			
Thermal contact	TKO		
Thermal detector	KTY83-110 KTY84-130		
PTC thermistor	PTC		
Motor connection			
Power connection	Terminal box		
Brake connection	Terminal box		
Blower connection	Terminal box ICN connector		
Feedback connection	Terminal box ICN connector		
Temperature sensor connection	Terminal box		
Shaft bearings			
Position of the locating bearing	Standard motors (B3, B5, B14): side B Motors for gearbox direct mounting: side A		Drive end
Bearing type	Deep-groove ball bearing with high-temperature resistant grease, 2 sealing discs or cover plates		
Colour			
	Not coated Primed Paint in various corrosion-protection designs in accordance with RAL colours		
Further options			



Functions and features

Surface and corrosion protection

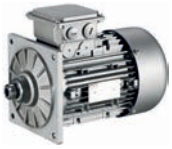
For optimum protection of three-phase AC motors against ambient conditions, the surface and corrosion protection system (OKS) offers tailor-made solutions.

Various surface coatings ensure that the motors operate reliably even at high air humidity, in outdoor installation or in the presence of atmospheric impurities. Any colour from the RAL Classic collection can be chosen for the top coat. The three-phase AC motors are also available unpainted (no surface and corrosion protection).

Surface and corrosion protection system	Applications	Measures
OKS-G (primed)	• Dependent on subsequent top coat applied	• 2K PUR priming coat (grey)
OKS-S (small)	• Standard applications • Internal installation in heated buildings • Air humidity up to 90%	• Surface coating as per corrosivity category C1 (in line with EN 12944-2)
OKS-M (medium)	• Internal installation in non-heated buildings • Covered, protected external installation • Air humidity up to 95%	• Surface coating as per corrosivity category C2 (in line with EN 12944-2)
OKS-L (high)	• External installation • Air humidity above 95% • Chemical industry plants • Food industry	• Surface coating as per corrosivity category C3 (in line with EN 12944-2) • Blower cover and B end shield additionally primed • Screws zinc-coated • Cable glands with gaskets • Corrosion-resistant brake with cover ring, stainless friction plate, and chrome-plated armature plate (on request) Optional measures: • Motor recesses sealed off (on request)

Structure of surface coating

Surface and corrosion protection system	Corrosivity category	Surface coating	Colour
	DIN EN ISO 12944-2	Structure	
Without OKS (uncoated)			
OKS-G (primed)		2K PUR priming coat	
OKS-S (small)	C1	2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic
OKS-M (medium)	C2	2K PUR priming coat 2K-PUR top coat	
OKS-L (high)	C3		

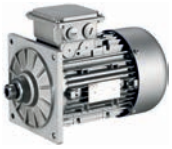


Motor – inverter assignment

Rated frequency 50/60 Hz

- Decentralised inverter 8400 motec (E84DVB)
- Inverter Drives 8400 (E84AV)

Rated power	Product key		
	Motor	Inverter	
P_N			
[kW]			
0.75	MH□□□□□080-32	E84DVB□7514S□□□2□	
1.10	MH□□□□□090-12	E84DVB□1124S□□□2□	
1.50	MH□□□□□090-32	E84DVB□1524S□□□2□	
2.20	MH□□□□□100-12	E84DVB□2224S□□□2□	
3.00	MH□□□□□100-32	E84DVB□3024S□□□2□	
4.00	MH□□□□□112-22	E84DVB□4024S□□□2□	
5.50	MH□□□□□132-12	E84DVB□5524S□□□2□	
7.50	MH□□□□□132-22	E84DVB□7524S□□□2□	
11.0	MH□□□□□160-22		
15.0	MH□□□□□160-32		
18.5	MH□□□□□180-12		
22.0	MH□□□□□180-32		
30.0	MH□□□□□180-42		
37.0	MH□□□□□225-12		
45.0	MH□□□□□225-22		

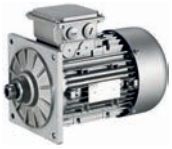


Motor – inverter assignment

Rated frequency 87 Hz

- Decentralised inverter 8400 motec (E84DVB)
- Inverter Drives 8400 (E84AV)

Rated power	Product key		
	Motor	Inverter	
P_N			
[kW]			
1.35	MH□□□□□080-32	E84DVB□1524S□□□2□	
2.00	MH□□□□□090-12	E84DVB□2224S□□□2□	
2.70	MH□□□□□090-32	E84DVB□3024S□□□2□	
3.90	MH□□□□□100-12	E84DVB□4024S□□□2□	
5.40	MH□□□□□100-32	E84DVB□5524S□□□2□	
7.10	MH□□□□□112-22	E84DVB□7524S□□□2□	
9.70	MH□□□□□132-12		
13.2	MH□□□□□132-22		
19.4	MH□□□□□160-22		
26.4	MH□□□□□160-32		
32.5	MH□□□□□180-12		

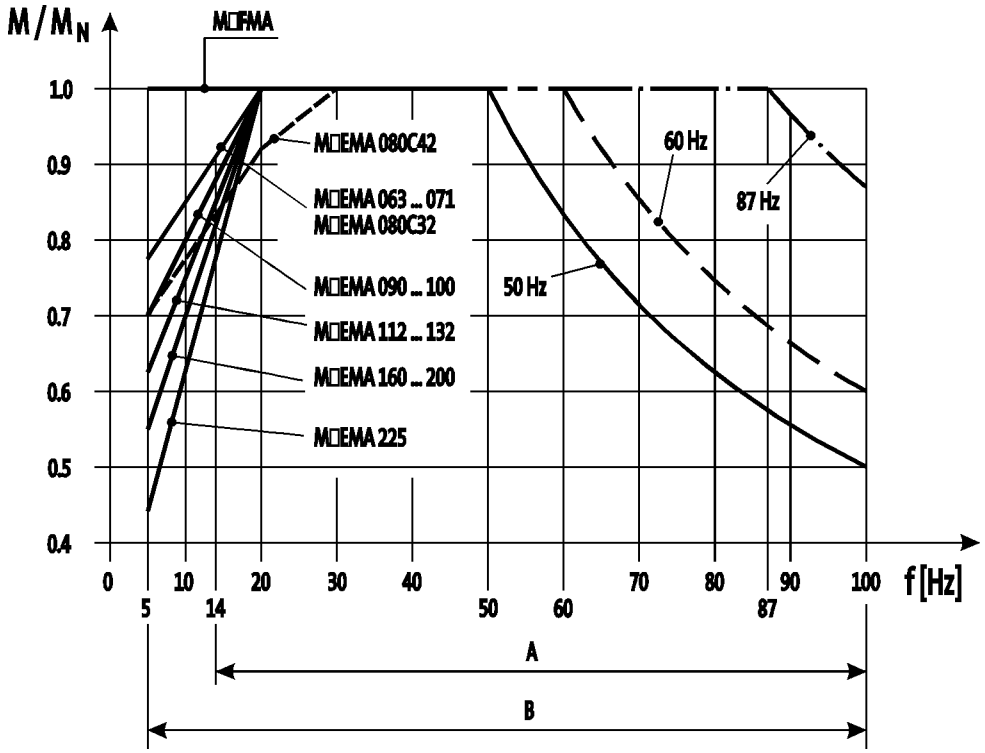


Dimensioning

Torque derating at low motor frequencies

Motor size-dependent torque reduction, taking into account the thermal response during operation on the inverter.

Torque characteristics



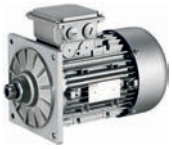
A = Operation with integral fan and brake
B = Operation with integral fan and brake control "Holding current reduction"

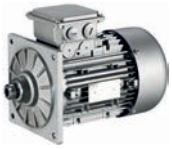
► The motor specifications stated in this catalogue for inverter operation apply to operation with a Lenze inverter. If you are uncertain, get in touch with the manufacturer of the inverter to ask whether the device is capable of driving the motor with the stated specifications (e.g. setting range, base frequency).

You can use the Drive Solution Designer for precise drive dimensioning.

The Drive Solution Designer helps you to carry out a fast and high-quality drive dimensioning.
The software includes well-founded and proven knowledge on drive applications and electro-mechanical drive components.

Please contact your Lenze sales office.





Standards and operating conditions

Enclosure			
EN 60529			IP55
Energy efficiency class			
IEC 60034-30			IE2
IEC 60034-2-1			Methodology for measuring efficiency
Approval			
Class			cURus/UL Energy-verified [1)] CCC GOST-R UkrSepro
Temperature class			
IEC/EN 60034-1; utilisation			B
IEC/EN 60034-1; insulation system (enamel-insulated wire)			F
Min. ambient operating temperature			
	$T_{opr,min}$	[°C]	-20
Max. ambient operating temperature			
	$T_{opr,max}$	[°C]	40
With power reduction	$T_{opr,max}$	[°C]	60
Site altitude			
Amsl	H_{max}	[m]	4000
Max. speed			
	n_{max}	[r/min]	4500

[1)] Motor frame size 225, in preparation.

► In the European Union, the ErP Directive stipulates minimum efficiency levels for three-phase AC motors. Geared three-phase AC motors that do not conform with this Directive do not meet CE requirements and must not be marketed in the European Economic Area. For further information about the ErP Directive and the Lenze products to which it relates, please refer to the brochure entitled "International efficiency directives for three-phase AC motors".

Rated data for 50 Hz

4-pole motors

	P_N	n_N	$U_{N,\Delta}$ [2]	$I_{N,\Delta}$	$U_{N,Y}$	$I_{N,Y}$	I_a/I_N
			± 10 %		± 10 %		
	[kW]	[r/min]	[V]	[A]	[V]	[A]	
MH□□□□□080-32	0.75	1410	230	3.10	400	1.80	5.00
MH□□□□□090-12	1.10	1430	230	4.60	400	2.70	5.40
MH□□□□□090-32	1.50	1435	230	5.80	400	3.30	6.30
MH□□□□□100-12	2.20	1445	230	8.60	400	5.00	6.00
MH□□□□□100-32	3.00	1445	230	12.1	400	7.00	6.50
MH□□□□□112-22	4.00	1455	230	14.5	400	8.40	6.00
MH□□□□□132-12	5.50	1470	230 400 [3]	20.6 11.9	400	11.9	6.10
MH□□□□□132-22	7.50	1460	230 400 [3]	27.0 15.6	400	15.6	8.50
MH□□□□□160-22	11.0	1470	230 400 [3]	37.7 21.8	400	21.8	8.00
MH□□□□□160-32	15.0	1470	230 400 [3]	50.3 29.1	400	29.1	8.20
MH□□□□□180-12	18.5	1475	230 400 [3]	58.8 34.0	400	34.0	8.40
MH□□□□□180-32	22.0	1470	230 400 [3]	68.9 39.8	400	39.8	7.80
MH□□□□□180-42	30.0	1465	230 400 [3]	93.8 53.9	400	53.9	7.00
MH□□□□□225-12	37.0	1483	230 400 [3]	113 65.0	400	65.0	7.50
MH□□□□□225-22	45.0	1480	230 400 [3]	137 79.0	400	79.0	7.60

	M_N	M_a	M_b	cos ϕ	$\eta_{50\,\%}$	$\eta_{75\,\%}$	$\eta_{100\,\%}$	J [1]	m [1]
	[Nm]	[Nm]	[Nm]		[%]	[%]	[%]	[kgcm²]	[kg]
MH□□□□□080-32	5.08	12.0	12.1	0.84	74.9	79.6	79.6	28.0	11.0
MH□□□□□090-12	7.35	20.3	24.2	0.76	77.4	81.6	82.0	32.0	16.0
MH□□□□□090-32	10.0	33.0	34.0	0.76	82.2	83.4	82.8	36.0	18.0
MH□□□□□100-12	14.5	48.0	55.0	0.80	85.4	86.7	86.3	61.0	24.0
MH□□□□□100-32	19.8	67.0	76.0	0.73	83.8	85.6	85.5	66.0	26.5
MH□□□□□112-22	26.3	81.0	100	0.80	86.3	88.2	88.3	135	38.0
MH□□□□□132-12	35.7	90.0	108	0.77	88.2	89.3	89.2	290	59.0
MH□□□□□132-22	49.1	110	175	0.79	87.6	88.9	88.7	336	66.0
MH□□□□□160-22	71.5	164	243	0.82	89.4	90.0	89.8	570	109
MH□□□□□160-32	97.4	224	292	0.82	90.2	90.8	90.6	760	124
MH□□□□□180-12	120	359	371	0.86	90.8	91.4	91.2	1390	175
MH□□□□□180-32	143	400	372	0.87	91.4	92.0	91.6	1440	180
MH□□□□□180-42	196	469	528	0.87	91.9	92.5	92.3	1850	200
MH□□□□□225-12	238	620	620	0.87	94.0	94.6	94.3	4610	395
MH□□□□□225-22	290	698	669	0.88	93.7	94.5	94.3	5300	415

[1] Without accessories
[2] Operation at 87 Hz is possible with 4-pole motors whose rated data at 50 Hz displays the voltage values Δ 230 V.
With motor frame sizes 132-12 to 225-22, the required voltage must also be specified in your order.
[3] Star/delta start-up possible at 400 V.

Rated data for 60 Hz

4-pole motors

- The motors are designed for an operation at 265/460 V but are also able to be operated at 230 V, 60 Hz. The same technical data apply, the starting torque is a bit lower.
- The motors have a service factor of 1.15 at 60 Hz. The service factor indicates the permissible overload during operation within the mains voltage fluctuations.

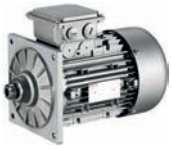
	P_N	n_N	$U_{N,\Delta}$ [2]	$I_{N,\Delta}$	$U_{N,Y}$	$I_{N,Y}$	I_a/I_N
			± 10 %		± 10 %		
	[kW]	[r/min]	[V]	[A]	[V]	[A]	
MH□□□□□080-32	0.75	1720	265	2.80	460	1.60	5.80
MH□□□□□090-12	1.10	1740	265	4.00	460	2.30	6.50
MH□□□□□090-32	1.50	1745	265	5.10	460	3.00	7.20
MH□□□□□100-12	2.20	1750	265	7.70	460	4.40	6.90
MH□□□□□100-32	3.00	1755	265	10.6	460	6.10	7.70
MH□□□□□112-22	4.00	1760	265	12.8	460	7.40	7.00
MH□□□□□132-12	5.50	1775	265 460 [3]	18.0 10.4	460	10.4	7.10
MH□□□□□132-22	7.50	1765	265 460 [3]	24.2 14.0	460	14.0	9.70
MH□□□□□160-22	11.0	1775	265 460 [3]	32.5 18.7	460	18.7	9.40
MH□□□□□160-32	15.0	1775	265 460 [3]	44.1 24.5	460	24.5	9.80
MH□□□□□180-12	18.5	1775	265 460 [3]	51.1 29.4	460	29.4	9.70
MH□□□□□180-32	22.0	1775	265 460 [3]	59.7 34.4	460	34.4	9.00
MH□□□□□180-42	30.0	1770	265 460 [3]	80.7 46.5	460	46.5	8.10
MH□□□□□225-12	37.0	1787	265 460 [3]	92.5 53.4	460	53.4	8.70
MH□□□□□225-22	45.0	1784	265 460 [3]	111 64.2	460	64.2	8.80

	M_N	M_a	M_b	cos ϕ	$\eta_{50\,\%}$	$\eta_{75\,\%}$	$\eta_{100\,\%}$	J [1]	m [1]
	[Nm]	[Nm]	[Nm]		[%]	[%]	[%]	[kgcm²]	[kg]
MH□□□□□080-32	4.16	9.37	9.89	0.82	77.9	81.5	82.5	28.0	11.0
MH□□□□□090-12	6.04	17.0	20.0	0.71	79.3	83.0	84.0	32.0	16.0
MH□□□□□090-32	8.21	27.0	28.0	0.75	79.3	83.0	84.0	36.0	18.0
MH□□□□□100-12	12.0	40.0	47.0	0.78	82.6	86.5	87.5	61.0	24.0
MH□□□□□100-32	16.3	55.0	64.0	0.71	84.2	86.6	87.5	66.0	26.5
MH□□□□□112-22	21.7	69.0	84.0	0.79	84.2	86.6	87.5	135	38.0
MH□□□□□132-12	29.6	74.0	92.0	0.77	86.1	88.6	89.5	290	59.0
MH□□□□□132-22	40.6	92.0	147	0.79	86.1	88.6	89.5	336	66.0
MH□□□□□160-22	59.2	148	231	0.81	89.3	90.9	91.0	570	109
MH□□□□□160-32	80.7	210	274	0.81	89.3	90.9	91.0	760	124
MH□□□□□180-12	99.5	338	348	0.86	90.6	92.3	92.4	1390	175
MH□□□□□180-32	118	379	355	0.87	90.6	92.3	92.4	1440	180
MH□□□□□180-42	162	440	505	0.87	92.0	92.9	93.0	1850	200
MH□□□□□225-12	198	590	590	0.87	92.0	92.9	93.0	4610	395
MH□□□□□225-22	241	660	635	0.88	92.6	93.5	93.6	5300	415

[1] Without accessories

[2] Operation at 87 Hz is possible with 4-pole motors whose rated data at 60 Hz displays the voltage values Δ 265 V.
With motor frame sizes 132-12 to 225-22, the required voltage must also be specified in your order.

[3] Star/delta start-up possible at 460 V.



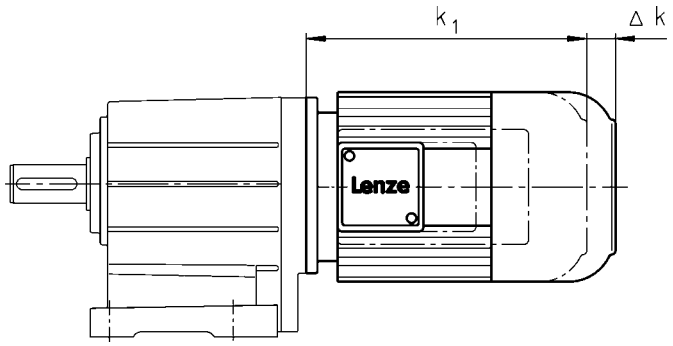
Rated data for 87 Hz

4-pole motors

	P_N	n_N	M_N	M_{max}	$U_{N,\Delta}$	$I_{N,\Delta}$	cos ϕ	$\eta_{50\,\%}$	$\eta_{75\,\%}$	$\eta_{100\,\%}$	J [1]	m [1]
					± 10 %							
	[kW]	[r/min]	[Nm]	[Nm]	[V]	[A]		[%]	[%]	[%]	[kgcm²]	[kg]
MH□□□□□080-32	1.35	2520	5.12	20.0	400	3.10	0.84	77.3	81.6	83.5	28.0	11.0
MH□□□□□090-12	2.00	2540	7.52	30.0	400	4.60	0.78	80.4	84.9	86.5	32.0	16.0
MH□□□□□090-32	2.70	2545	10.1	40.0	400	5.80	0.76	82.3	85.5	86.0	36.0	18.0
MH□□□□□100-12	3.90	2555	14.6	60.0	400	8.60	0.83	85.7	89.6	90.0	61.0	24.0
MH□□□□□100-32	5.40	2555	20.2	80.0	400	12.1	0.76	84.7	87.9	88.5	66.0	26.5
MH□□□□□112-22	7.10	2565	26.4	106	400	14.5	0.83	87.4	90.2	90.9	135	38.0
MH□□□□□132-12	9.70	2580	35.9	144	400	20.6	0.82	88.2	91.4	91.8	290	59.0
MH□□□□□132-22	13.2	2570	49.1	196	400	27.0	0.82	88.2	90.1	90.7	336	66.0
MH□□□□□160-22	19.4	2580	71.8	287	400	37.7	0.81	90.6	91.0	91.6	570	109
MH□□□□□160-32	26.4	2580	97.7	391	400	50.3	0.81	91.4	91.0	91.6	760	124
MH□□□□□180-12	32.5	2585	120	480	400	58.8	0.86	92.0	92.2	92.8	1390	175
MH□□□□□180-32	38.7	2580	143	573	400	68.9	0.87	92.1	92.9	93.4	1440	180
MH□□□□□180-42	52.7	2575	196	782	400	92.6	0.87	92.6	92.7	93.2	1850	200
MH□□□□□225-12	64.0	2593	236	920	400	113	0.87	93.0	94.4	94.8	4610	395
MH□□□□□225-22	78.0	2590	288	1150	400	137	0.85	93.5	94.3	94.7	5300	415

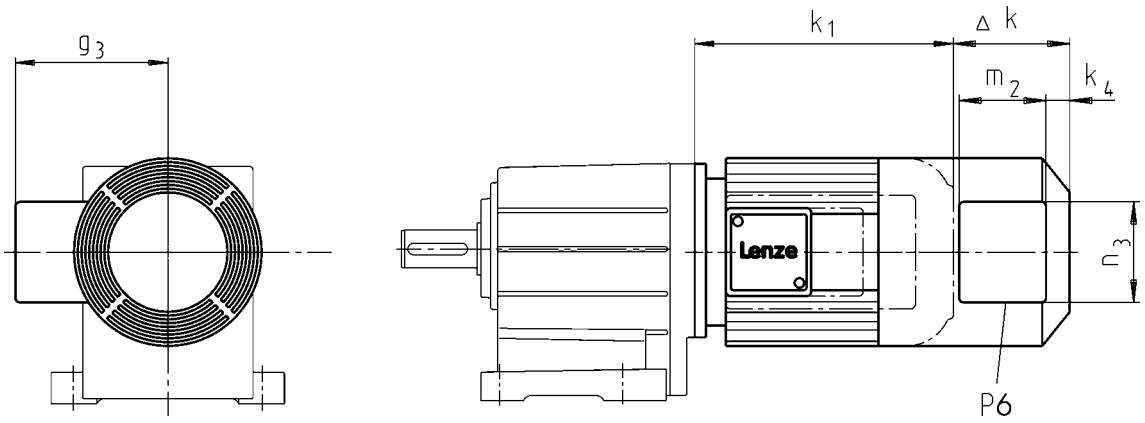
[1] Without accessories

Dimensions, self-ventilated (4-pole)



	Motor type			
	MHEMAXX	MHEMABR	MHEMABS MHEMABI MHEMABA	MHEMALL MHEMARS MHEMAIG MHEMAAG
Motor frame size				
	Δ k	Δ k	Δ k	Δ k
	[mm]	[mm]	[mm]	[mm]
080-32	0	73	111	111
090-12 090-32		68	105	87
100-12 100-32		76	101	81
112-22		90	120	80
132-12 132-22		110	125	103
160-22 160-32		105	191	83
180-12 180-32		113	192	79
180-42				
225-12 225-22			193	80

Dimensions, forced ventilated (4-pole)

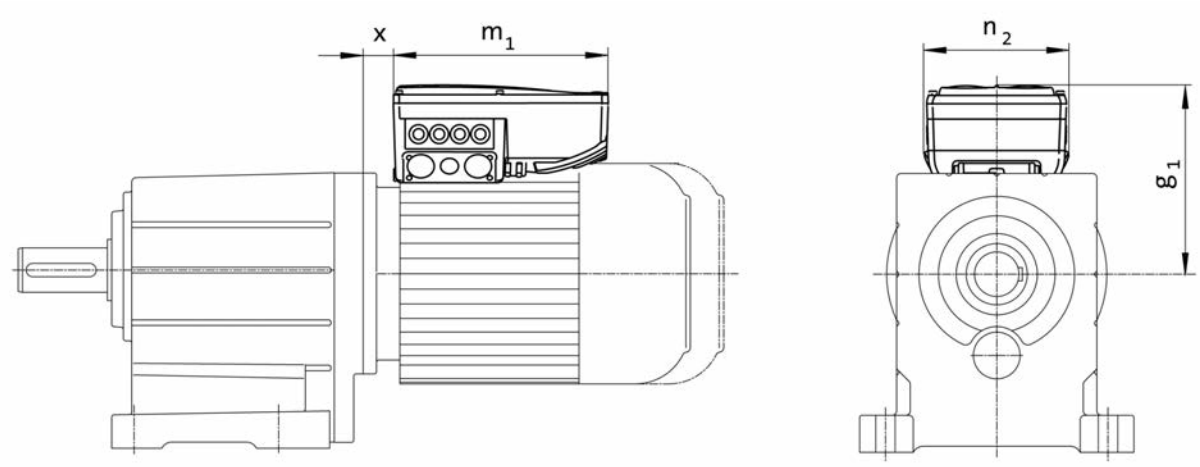


Motor type									
	MHFMAXX	MHFMABR	MHFMABS MHFMABI MHFMABA	MHFMARS MHFMAIG MHFMAAG					

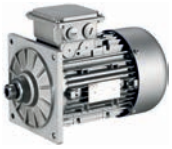
Motor frame size									
	Δ k	Δ k	Δ k	Δ k	k_4	g_3	m_2	n_3	P_6
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
080-32	128	183	183	128	13	132	96	106	1x M16x1.5
090-12 090-32		181	181		22	141	95	105	
100-12 100-32	109	170	170	109		150			
112-22	102	183	183	183		162			
132-12 132-22	115	202	202	202	32	182			
160-22 160-32	149	179	237	224	31	209	96	106	
180-12 180-32		215	275	215					
180-42	155		260						
225-12 225-22	213	213	213	213					

Dimensions, 8400 motec inverter

Rated frequency 50/60 Hz

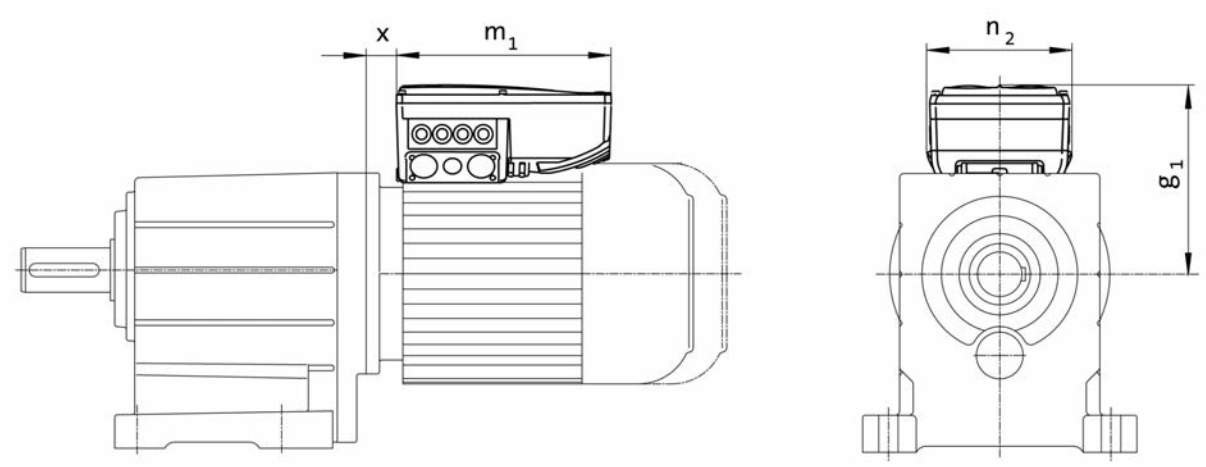


Product key					
Motor	Inverter				
		$g_{1,\ 50Hz}$	$m_{1,\ 50Hz}$	$n_{2,\ 50Hz}$	x_{50Hz}
		[mm]	[mm]	[mm]	[mm]
MH□□□□□080-32	E84DVB□7514S□□□2□	172	241	161	25.5
MH□□□□□090-12	E84DVB□1124S□□□2□	177			28.8
MH□□□□□090-32	E84DVB□1524S□□□2□				
MH□□□□□100-12	E84DVB□2224S□□□2□	217	260	176	29.6
MH□□□□□100-32	E84DVB□3024S□□□2□				
MH□□□□□112-22	E84DVB□4024S□□□2□	282	325	195	19.0
MH□□□□□132-12	E84DVB□5524S□□□2□	301			34.5
MH□□□□□132-22	E84DVB□7524S□□□2□				



Dimensions, 8400 motec inverter

Rated frequency 87 Hz



Product key					
Motor	Inverter				
		$g_{1,\ 87Hz}$	$m_{1,\ 87Hz}$	$n_{2,\ 87Hz}$	x_{87Hz}
		[mm]	[mm]	[mm]	[mm]
MH□□□□□080-32	E84DVB□1524S□□□2□	172	241	161	25.5
MH□□□□□090-12	E84DVB□2224S□□□2□	206	260	176	27.8
MH□□□□□090-32	E84DVB□3024S□□□2□				
MH□□□□□100-12	E84DVB□4024S□□□2□	272	325	195	17.1
MH□□□□□100-32	E84DVB□5524S□□□2□				
MH□□□□□112-22	E84DVB□7524S□□□2□	282			19.0

Spring-applied brake

Three-phase AC motors can be fitted with a spring-applied brake. This is activated after the supply voltage is switched off (closed-circuit principle). For optimum adjustment of the brake motor to the application, a range of braking torques and control modes is available for every motor frame size. For applications with very high operating frequencies the brake is also available in a LongLife version, with reinforced mechanical brake components.

Features

Versions
- **Standard**
  - 1 x 10^6 repeating switching cycles
  - 1 x 10^6 reversing switching cycles
- **LongLife**
  - 10 x 10^6 repeating switching cycles
  - 15 x 10^6 reversing switching cycles

Control
- DC supply
- AC supply via rectifier in the terminal box

Enclosure
- Without manual release IP55
- With manual release IP54

Friction lining
- Non-asbestos, low wearing

Options
- Manual release
- UL/CSA approval
- Noise-reduced

Assignment of 4-pole motors and brakes

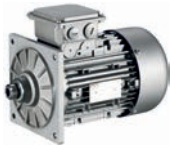
Design	Standard Standard	LongLife LongLife

Motor frame size	Size	Rated torque	Size	Rated torque
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
080-32	08 08 10	3.50 8.00 7.00	08 10	8.00 7.00
090-12 090-32	08 08 10 10 10	3.50 8.00 7.00 16.0 23.0	08 10 10	8.00 7.00 16.0
100-12	10 10 12 12	7.00 16.0 14.0 32.0	10 12 12	16.0 14.0 32.0
100-32	10 10 12 12 12	7.00 16.0 14.0 32.0 46.0		

Spring-applied brake

Assignment of 4-pole motors and brakes

Design	Standard		LongLife	
Motor frame size	**Size**	**Rated torque**	**Size**	**Rated torque**
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
112-22	12 12 14 14	14.0 32.0 35.0 60.0		
132-12	14 14 16 16	35.0 60.0 60.0 80.0		
132-22	14 14 16 16 16	35.0 60.0 60.0 80.0 100		
160-22	16 16 18 18	60.0 80.0 80.0 150		
160-32	18 18 18	80.0 150 200		
180-12	18 18 20 20	80.0 150 145 260		
180-32	18 18 20 20 20	80.0 150 145 260 315		
200-32	18 18 20 20 20 20	80.0 150 145 260 315 400		
225-12	25 25 25	265 400 490		
225-22	25 25 25 25	265 400 490 600		



Spring-applied brake

Direct connection without rectifier

If the brake is activated directly without a rectifier, a freewheeling diode or a spark suppressor is required to protect against induction peaks.

- Supply voltages
  DC 24 V
  DC 180 V
  DC 205 V

Connection via mains voltage with brake rectifier

If the brake is not directly supplied with DC voltage, a rectifier is required. This is included in the scope of supply and is located in the terminal box of the motor. The rectifier converts the AC voltage of the connection into DC voltage. The following rectifiers are available:

Half-wave rectifier, 6-pole

- Ratio of supply voltage to brake coil voltage = 2.22
- Approved by UL/CSA
- Supply voltages
  AC 230 V
  AC 400 V
  AC 460 V

Bridge rectifier, 6-pole

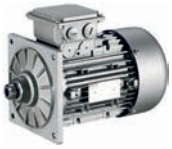
- Ratio of supply voltage to brake coil voltage = 1.11
- Supply voltage
  AC 230 V

Bridge/half-wave rectifier, 6-pole

- Ratio of supply voltage to brake coil voltage
  up to overexcitation time = 1.11
  beyond overexcitation time = 2.22

Supply voltages:

- AC 230 V
- AC 400 V



Spring-applied brake

Connection via mains voltage with brake rectifier

Bridge/half-wave rectifier, 6-pole
- Ratio of supply voltage to brake coil voltage
  up to overexcitation time = 1.11
  beyond overexcitation time = 2.22

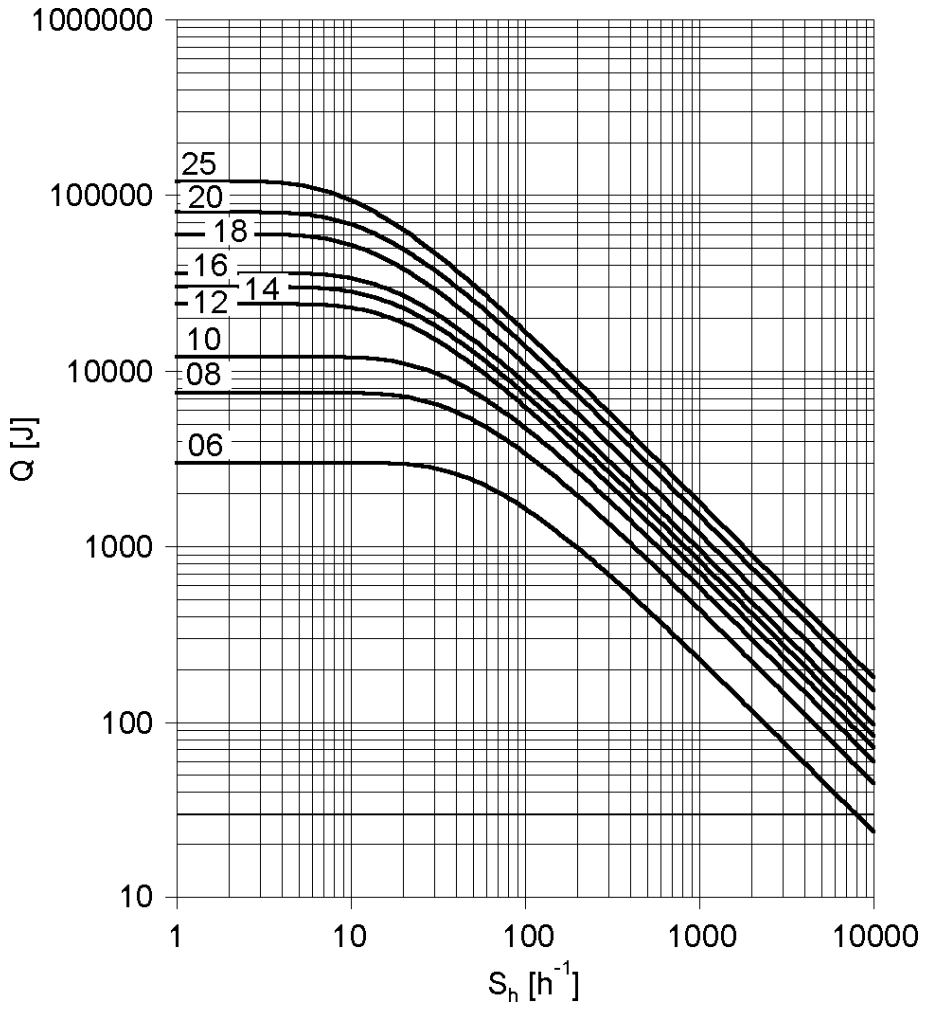
Supply voltages:
- AC 230 V
- AC 400 V

During the switching operation the bridge/half-wave rectifier functions as a bridge rectifier for the overexcitation time $t_{ü}$ and then as a half-wave rectifier. This combination optimises the performance of the brake – depending on the assignment of brake coil voltage and supply voltage:

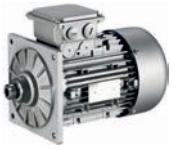
- **Short-time overexcitation of the brake coil**
  Activating the brake coil for the overexcitation time $t_{ü}$ with twice the rated voltage allows the disengagement time to be reduced. The brake opens more quickly and wear on the friction lining is reduced.
  These features make this activation version particularly suitable for lifting applications. It is therefore only available in combination with a brake with increased braking torque.
- **Holding current reduction (cold brake)**
  By reducing the holding current, the bridge/half-wave rectifier is able to reduce the power input to the open brake. As the brake heats up less, this type of activation is known as "cold brake".

Spring-applied brake

Permissible friction energy



Q =Switching energy per switching cycle
S_h =Operating frequency
Brake size = 06 to 25



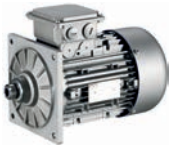
Spring-applied brake

Rated data with reduced braking torque

► Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08	10	12	14	16	18	20	25
Power input											
	P_{in}	[kW]	0.020	0.025	0.030	0.040	0.050	0.055	0.085	0.10	0.11
Braking torque											
100	M_B	[Nm]	2.50	3.50	7.00	14.0	35.0	60.0	80.0	145	265
1000	M_B	[Nm]	2.30	3.10	6.10	12.0	30.0	50.0	65.0	115	203
1200	M_B	[Nm]	2.30	3.10	6.00	12.0	29.0	48.0	63.0	112	199
1500	M_B	[Nm]	2.20	3.00	5.80	11.0	28.0	47.0	61.0	109 [1)]	193 [1)]
1800	M_B	[Nm]	2.10	2.90	5.70	11.0	28.0	46.0	60.0 [1)]		
3000	M_B	[Nm]	2.00	2.80	5.30	10.0	26.0 [1)]	43.0 [1)]			
3600	M_B	[Nm]	2.00	2.70	5.20	10.0 [1)]					
Maximum switching energy											
100	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1000	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1200	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1500	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	24.0 [1)]	36.0 [1)]
1800	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	36.0 [1)]		
3000	Q_E	[KJ]	3.00	7.50	12.0	24.0	18.0 [1)]	11.0 [1)]			
3600	Q_E	[KJ]	3.00	7.50	12.0	7.00 [1)]					
Transition operating frequency											
	$S_{hü}$	[1/h]	79.0	50.0	40.0	30.0	28.0	27.0	20.0	19.0	15.0
Moment of inertia											
	J	[kgcm²]	0.015	0.061	0.20	0.45	0.63	1.50	2.90	7.30	20.0
Mass											
	m	[kg]	0.90	1.50	2.60	4.20	5.80	8.70	12.6	19.5	31.0

[1)] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.



Spring-applied brake

Rated data with reduced braking torque

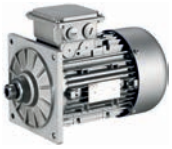
► Activation via half-wave or bridge rectifier

Size										
			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	113	210	264	706	761	966	1542	2322	3522
Delay time											
Engaging	t_{11}	[ms]	11.0	14.0	20.0	21.0	37.0	53.0	32.0	47.0	264
Rise time											
Braking torque	t_{12}	[ms]	13.0	10.0	17.0	19.0	22.0	30.0	20.0	100	120
Engagement time											
	t_1	[ms]	24.0		37.0	40.0	59.0	83.0	52.0	147	384
Disengagement time											
	t_2	[ms]	35.0	37.0	57.0	65.0	148	169	230	207	269

► Activation via bridge/half-wave rectifier

Design										
			Holding current reduction (cold brake)								
Size										
			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	113	210	264	706	761	966	1542	2322	3522
Overexcitation time											
	$t_ü$	[ms]	300				1300				
Min. rest time											
	t	[ms]	900				3900				
Delay time											
Engaging	t_{11}	[ms]	12.0	22.0	35.0	49.0	61.0	114	83.0	126	304
Rise time											
Braking torque	t_{12}	[ms]	14.0	16.0	30.0	45.0	37.0	65.0	52.0	269	138
Engagement time											
	t_1	[ms]	26.0	38.0	66.0	93.0	97.0	180	134	395	443
Disengagement time											
	t_2	[ms]	35.0	37.0	57.0	65.0	148	169	230	207	269

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.



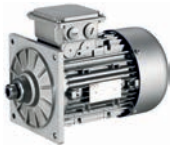
Spring-applied brake

Rated data with standard braking torque

► Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08	10	12	14	16	18	20	25
Power input											
	P_{in}	[kW]	0.020	0.025	0.030	0.040	0.050	0.055	0.085	0.10	0.11
Braking torque											
100	M_B	[Nm]	4.00	8.00	16.0	32.0	60.0	80.0	150	260	400
1000	M_B	[Nm]	3.70	7.20	14.0	27.0	51.0	66.0	121	206	307
1200	M_B	[Nm]	3.60	7.00	14.0	27.0	50.0	65.0	118	201	300
1500	M_B	[Nm]	3.50	6.80	13.0	26.0	48.0	63.0	115	195 [1)]	291 [1)]
1800	M_B	[Nm]	3.40	6.70	13.0	26.0	47.0	61.0	112 [1)]		
3000	M_B	[Nm]	3.20	6.30	12.0	24.0	44.0 [1)]	57.0 [1)]			
3600	M_B	[Nm]	3.20	6.10	12.0	23.0 [1)]					
Maximum switching energy											
100	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1000	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1200	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1500	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	24.0 [1)]	36.0 [1)]
1800	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	36.0 [1)]		
3000	Q_E	[KJ]	3.00	7.50	12.0	24.0	18.0 [1)]	11.0 [1)]			
3600	Q_E	[KJ]	3.00	7.50	12.0	7.00 [1)]					
Transition operating frequency											
	$S_{hü}$	[1/h]	79.0	50.0	40.0	30.0	28.0	27.0	20.0	19.0	15.0
Moment of inertia											
	J	[kgcm²]	0.015	0.061	0.20	0.45	0.63	1.50	2.90	7.30	20.0
Mass											
	m	[kg]	0.90	1.50	2.60	4.20	5.80	8.70	12.6	19.5	31.0

[1)] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.



Spring-applied brake

Rated data with standard braking torque

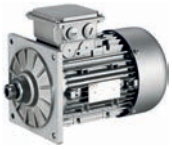
► Activation via half-wave or bridge rectifier

Size			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	85.0	158	264	530	571	966	1542	2322	3522
Delay time											
Engaging	t_{11}	[ms]	15.0		28.0		17.0	27.0	33.0	65.0	110
Rise time											
Braking torque	t_{12}	[ms]	13.0	16.0	19.0	25.0		30.0	45.0	100	120
Engagement time											
	t_1	[ms]	28.0	31.0	47.0	53.0	42.0	57.0	78.0	165	230
Disengagement time											
	t_2	[ms]	45.0	57.0	76.0	115	210	220	270	340	390

► Activation via bridge/half-wave rectifier

Design			Holding current reduction (cold brake)								
Size			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	85.0	158	264	530	571	966	1542	2322	3522
Overexcitation time											
	$t_{ü}$	[ms]	300				1300				
Min. rest time											
	t	[ms]	900				3900				
Delay time											
Engaging	t_{11}	[ms]	16.0	25.0	31.0	48.0	33.0	58.0	80.0	102	154
Rise time											
Braking torque	t_{12}	[ms]	14.0	27.0	21.0	43.0	49.0	64.0	109	157	168
Engagement time											
	t_1	[ms]	30.0	52.0		90.0	82.0	122	189	259	322
Disengagement time											
	t_2	[ms]	45.0	57.0	76.0	115	210	220	270	340	390

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.



Spring-applied brake

Rated data with increased braking torque

► Please enquire for braking torques and maximum switching work values not listed here.

Size			10	12	14	16	16	18	20	20	25	25
Power input												
	P_{in}	[kW]	0.030	0.040	0.050	0.055	0.055	0.085	0.10	0.10	0.11	0.11
Braking torque												
100	M_B	[Nm]	23.0	46.0	75.0	100	125	200	315	400	490	600
1000	M_B	[Nm]	20.0	39.0	64.0	83.0	103	162	249	317	376	461
1200	M_B	[Nm]	20.0	39.0	62.0	81.0	101	158	244	309	367	449
1500	M_B	[Nm]	19.0	38.0	60.0	78.0	98.0	153	237 [1)]	300 [1)]	356 [1)]	436 [1)]
1800	M_B	[Nm]	19.0	37.0	59.0	77.0	96.0	150 [1)]				
3000	M_B	[Nm]	17.0	34.0	55.0 [1)]	71.0 [1)]	89.0 [1)]					
3600	M_B	[Nm]	17.0	33.0 [1)]								
Maximum switching energy												
100	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1000	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1200	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1500	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	24.0 [1)]	24.0 [1)]	36.0 [1)]	36.0 [1)]
1800	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	36.0 [1)]				
3000	Q_E	[KJ]	12.0	24.0	18.0 [1)]	11.0 [1)]	11.0 [1)]					
3600	Q_E	[KJ]	12.0	7.00 [1)]								
Transition operating frequency												
	$S_{hü}$	[1/h]	40.0	30.0	28.0	27.0	27.0	20.0	19.0	19.0	15.0	15.0
Moment of inertia												
	J	[kgcm²]	0.20	0.45	0.63	1.50	1.50	2.90	7.30	7.30	20.0	20.0
Mass												
	m	[kg]	2.60	4.20	5.80	8.70	8.70	12.6	19.5	19.5	31.0	31.0

[1)] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.

► Activation via half-wave or bridge rectifier

Size			10	12	14	16		18	20		25	
Friction energy												
	Q_{BW}	[MJ]	198	353	253	563	241	578	1596	580	2465	1409
Delay time												
Engaging	t_{11}	[ms]	10.0	16.0	11.0	22.0	17.0	24.0	46.0	17.0	77.0	38.0
Rise time												
Braking torque	t_{12}	[ms]	19.0	25.0		30.0		45.0	100		120	
Engagement time												
	t_1	[ms]	29.0	41.0	36.0	52.0	47.0	69.0	146	117	197	158
Disengagement time												
	t_2	[ms]	109	193	308	297	435	356	378	470	451	532

Spring-applied brake

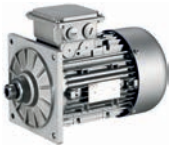
Rated data with increased braking torque

► Activation via bridge/half-wave rectifier

Design			Holding current reduction (cold brake)									
Size			10	12	14	16		18	20		25	
Friction energy												
	Q_{BW}	[MJ]	198	353	253	563	241	578	1596	580	2465	1409
Overexcitation time												
	$t_ü$	[ms]	300			1300						
Min. rest time												
	t	[ms]	900			3900						
Delay time												
Engaging	t_{11}	[ms]	24.0	27.0	17.0	41.0	21.0	60.0	69.0	17.0	123	85.0
Rise time												
Braking torque	t_{12}	[ms]	44.0	43.0	37.0	55.0	37.0	113	148	100	190	270
Engagement time												
	t_1	[ms]	68.0	70.0	54.0	97.0	57.0	173	217	334	313	355
Disengagement time												
	t_2	[ms]	109	193	308	297	435	356	378	470	451	532

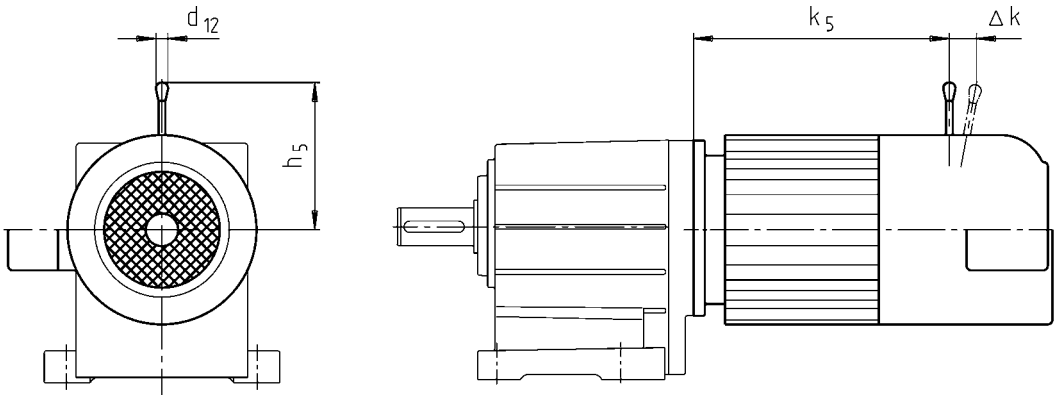
Design			Over-excitation									
Size			10	12	14	16		18	20		25	
Friction energy												
	Q_{BW}	[MJ]	264	706	761	966		1542	2322		3522	
Overexcitation time												
	$t_ü$	[ms]	300			1300						
Min. rest time												
	t	[ms]	900			3900						
Delay time												
Engaging	t_{11}	[ms]	29.0	54.0	31.0	70.0	46.0	86.0	103	55.0	171	135
Rise time												
Braking torque	t_{12}	[ms]	53.0	87.0	68.0	93.0	83.0	160	222	319	266	430
Engagement time												
	t_1	[ms]	82.0	141	99.0	163	129	246	325	374	437	565
Disengagement time												
	t_2	[ms]	53.0	81.0	117	141	168	151	160	167	184	204

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.



Spring-applied brake

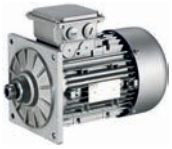
Manual release lever



Motor frame size	Size				
	Brake				
		k_5	Δ k	h_5	d_{12}
		[mm]	[mm]	[mm]	[mm]
080-32	06 08	207 218	29 27	107 116	13.0 13.0
090-12 090-32	08 10	245 256	27 28	116 132	13.0 13.0
100-12	10 12	279 281	28 37	132 161	13.0 13.0
100-32	10 12	294 296	28 37	132 161	13.0 13.0
112-22	12 14	292 296	37 41	161 195	13.0 24.0
132-12 132-22	14 16	373 373	41 55	195 240	24.0 24.0
160-22	16 18	420 423	55 59	240 279	24.0 24.0
160-32	16 18	464 467	55 59	240 279	24.0 24.0
180-12 180-32	18 20	539 546	59 74	279 319	24.0 24.0
180-42	18 20	596 603	59 74	279 319	24.0 24.0
225-12 225-22	25 25	785 785	103 103	445 445	24.0 24.0

The following combinations with manual release lever and motor connection in the same position are not possible:

- HAN connector with connection in position 1
- Inverter motec
- Terminal box of motor sizes 080, 090, for brake and retracting (M□□MA BR/BS/BA/BI)



Resolver

Stator-fed resolver with two stator windings offset by 90° and one rotor winding with transformer winding.

► The three-phase AC motors with resolver cannot be used for speed-dependent safety functions in connection with the SM 301 safety module.

Product key				
				RS1
Accuracy				
			[']	-10 ... 10
Absolute positioning				
				1 revolution
Max. input voltage				
DC	$U_{in,max}$		[V]	10.0
Max. input frequency				
	$f_{in,max}$		[kHz]	4.00
Ratio				
Stator / rotor		± 5 %		0.30
Rotor impedance				
	Z_{ro}		[Ω]	51 + j90
Stator impedance				
	Z_{so}		[Ω]	102 + j150
Impedance				
	Z_{rs}		[Ω]	44 + j76
Min. insulation resistance				
At DC 500 V	R		[MΩ]	10.0
Number of pole pairs				
				1

Incremental encoder and SinCos absolute value encoder

► The three-phase AC motors with incremental encoders or SinCos absolute value encoders cannot be used for speed-dependent safety functions in connection with the SM 301 safety module.

Encoder type			HTL incremental				TTL incremental			SinCos absolute value
Product key			IG128-24V-H	IG512-24V-H	IG1024-24V-H	IG2048-24V-H	IG512-5V-T	IG1024-5V-T	IG2048-5V-T	AM1024-8V-H
Encoder type										Multi-turn
Pulses			128	512	1024	2048	512	1024	2048	1024
Output signals			HTL				TTL			1 Vss
Interfaces			A, B track	A, B, N track and inverted						Hiperface
Absolute revolutions			0							4096
Accuracy		[']	-22.5 ... 22.5	-2 ... 2						-0.8 ... 0.8
Min. input voltage										
DC	$U_{in,min}$	[V]	8.00				4.75			7.00
Max. input voltage										
DC	$U_{in,max}$	[V]	26.0	30.0			5.25			12.0
Max. current consumption										
	I_{max}	[A]	0.040	0.15						0.080
Limit frequency										
	f_{max}	[kHz]	30.0	160			300			200
Inverter assignment			E84AVSC E84AVHC	E84AVHC			E84AVTC E94A ECS EVS93			

Inverters
- Inverter Drives 8400 StateLine (E84AVSC)
- Inverter Drives 8400 HighLine (E84AVHC)
- Inverter Drives 8400 TopLine (E84AVTC)

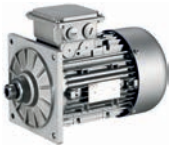
Servo-Inverters
- Servo Drives 9400 (E94A)
- 9300 servo inverters (EVS93)
- Servo Drives ECS

Blowers

► The use of a blower enables operation below 20 Hz without torque derating.

Rated data for 50 Hz

Size	Number of phases	Connection method					
Motor							
			U_{min}	U_{max}	P_{max}	I_{max}	m
			[V]	[V]	[kW]	[A]	[kg]
063	1		230	277	0.027	0.11	2.00
	3	Δ	200	303	0.028	0.12	
		Y	346	525		0.070	
071	1		230	277	0.027	0.10	2.10
	3	Δ	200	303	0.031	0.11	
		Y	346	525		0.060	
080	1		230	277	0.029	0.11	2.30
	3	Δ	200	303	0.031		
		Y	346	525		0.060	
090	1		220	277	0.065	0.29	2.70
	3	Δ	200	303	0.091	0.38	
		Y	346	525		0.22	
100	1		220	277	0.066	0.28	3.00
	3	Δ	200	303	0.091	0.37	
		Y	346	525		0.22	
112	1		220	277	0.071	0.28	3.10
	3	Δ	200	303	0.097	0.35	
		Y	346	525		0.20	
132	1		230	277	0.098	0.40	4.20
	3	Δ	200	303	0.12	0.58	
		Y	346	525		0.33	
160	1		230	277	0.25	0.97	6.20
	3	Δ	200	303		0.87	
		Y	346	525		0.50	
180	1		230	277		0.97	8.00
	3	Δ	200	303		0.87	
		Y	346	525		0.50	



Blowers

Rated data for 50 Hz

Size	Number of phases	Connection method					
Motor							
			U_{min}	U_{max}	P_{max}	I_{max}	m
			[V]	[V]	[kW]	[A]	[kg]
200	1		230	277	0.25	0.97	8.00
	3	Δ	200	303		0.87	
		Y	346	525		0.50	
225		Δ	200	400	0.28	1.10	15.0
		Y	346	525	0.17	0.35	

Rated data for 60 Hz

Size	Number of phases	Connection method					
Motor							
			U_{min}	U_{max}	P_{max}	I_{max}	m
			[V]	[V]	[kW]	[A]	[kg]
063	1		230	277	0.032	0.12	2.00
	3	Δ	220	332	0.028	0.10	
		Y	380	575		0.060	
071	1		230	277	0.033	0.12	2.10
	3	Δ	220	332	0.029	0.10	
		Y	380	575		0.060	
080	1		230	277	0.037	0.14	2.30
	3	Δ	220	332	0.034	0.10	
		Y	380	575		0.060	
090	1		220	277	0.065	0.25	2.70
	3	Δ		332	0.077	0.33	
		Y	380	575		0.19	
100	1		220	277	0.075	0.30	3.00
	3	Δ		332	0.087	0.31	
		Y	380	575		0.18	
112	1		220	277	0.094	0.37	3.10
	3	Δ		332	0.10	0.31	
		Y	380	575		0.18	
132	1		230	277	0.15	0.57	4.20
	3	Δ	220	332		0.44	
		Y	380	575		0.25	
160		Δ	220	332	0.36	0.93	6.20
		Y	380	575		0.56	
180		Δ	220	332		0.93	8.00
		Y	380	575		0.56	
200		Δ	220	332		0.93	
		Y	380	575		0.56	
225		Δ	220	400	0.28	0.76	15.0
		Y	380	575	0.26	0.43	

Temperature monitoring

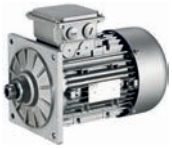
► The thermal sensors are integrated in the windings. The use of an additional motor protection switch is recommended.

TKO thermal contacts

Function	Operating temperature	Min. reset temperature	Max. reset temperature	Max. input current	Max. input voltage
					AC
	T	T_{min}	T_{max}	$I_{in,max}$	$U_{in,max}$
	-5 ... 5				
	[°C]	[°C]	[°C]	[A]	[V]
NC contact	150	90.0	135	2.50	250

PTC thermistor

Function	Operating temperature	Rated resistance			Standard
		155 °C	-20 °C	140 °C	
	T	R_N	R_N	R_N	
	-5 ... 5				
	[°C]	[Ω]	[Ω]	[Ω]	
Sudden change in resistance	150	550	30.0	250	DIN 44080 DIN VDE 0660 Part 303

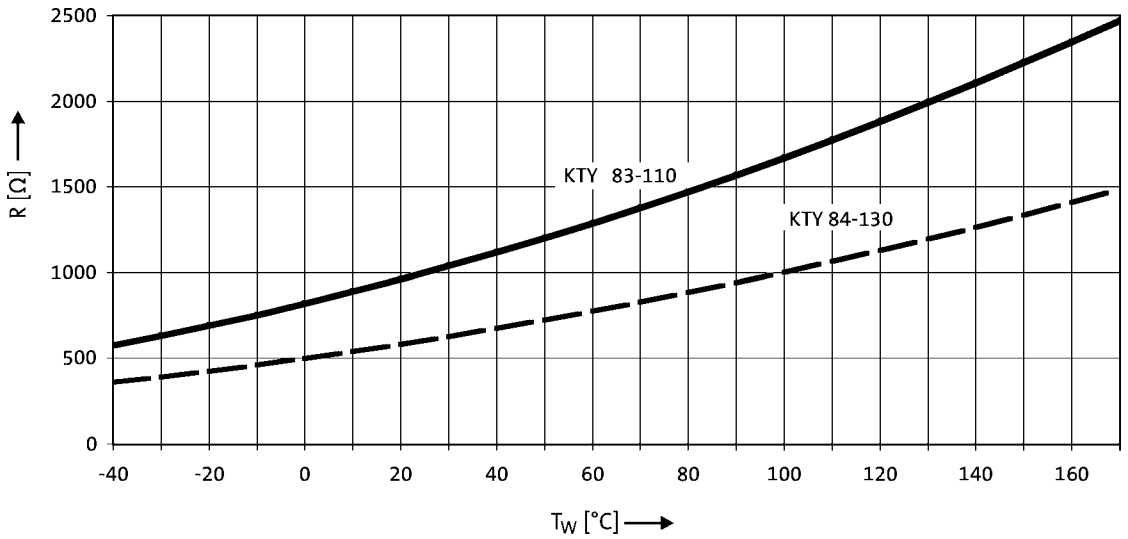


Temperature monitoring

KTY temperature sensor

	Function	Rated resistance			Max. input current	
		25 °C	150 °C	170 °C	25 °C	170 °C
		R_N	R_N	R_N	$I_{in,max}$	$I_{in,max}$
		[Ω]	[Ω]	[Ω]	[A]	[A]
KTY83-110	Continuous resistance change	1000	2225	2471	0.010	0.002
KTY84-130	Continuous resistance change	603	1334	1482	0.010	0.002

Variation of resistance



► If the detector is supplied with a measured current of 1 mA, the above relationship between the temperature and the resistance applies.

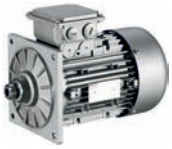
Terminal box

The three-phase AC motors are designed for operation at a constant mains frequency and with an inverter.
For 50 Hz operation, the motors are operated in Δconfiguration at 230 V or in star configuration at 400 V.
For inverter operation, the base frequency has been specified as 87 Hz at a rated voltage of 400 V in Δconfiguration.

In the standard version, the motors are connected in the terminal box. As an option, the motors are also available with the connectors described on the following pages as long as the permissible ratings are not exceeded.

Motor terminal box - built-on accessories assignment: 4-pole / 6-pole motors

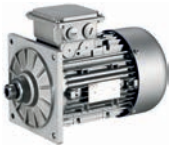
Motor type	M□□MAXX	M□□MARS M□□MAIG M□□MAAG	M□□MAZE M□□MAHA	M□□MALL	M□□MALZ M□□MALH
Motor frame size					
	Terminal box				
063-02 063-22	KK1	KK2			
063-12 063-32 063-42	KK1	KK2			
071-32 071-42 071-13 071-33	KK1	KK2	KK2	KK1	KK1
080-13 080-32 080-33 080-42	KK1	KK2	KK2	KK1	KK1
090-12 090-32	KK1	KK2	KK2	KK1	KK1
100-12 100-32	KK1	KK2	KK2	KK2	KK2
112-22 112-32	KK1	KK2	KK2	KK1	KK1
132-12 132-22 132-32	KK1	KK3	KK3	KK1	KK1
160-22 160-32	KK3	KK3			
180-12 180-32 180-42 180-42	KK3	KK3			
225-12 225-22	KK3	KK3			



Terminal box

Motor terminal box - built-on accessories assignment: 4-pole / 6-pole motors

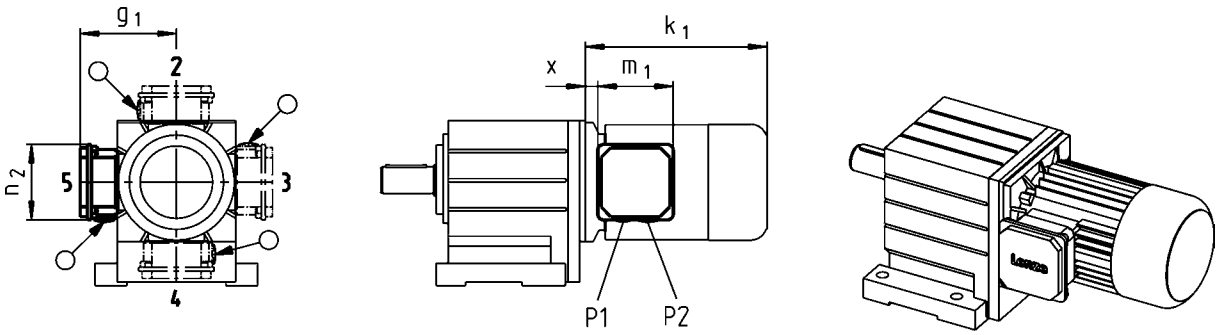
Motor type	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MABZ M□□MABH	M□□MABL
Motor frame size				
	Terminal box			
063-02 063-22	KK2	KK3		
063-12 063-32 063-42	KK2	KK3		
071-32 071-42 071-13 071-33	KK2	KK3	KK2	KK2
080-13 080-32 080-33 080-42	KK2	KK3	KK2	KK2
090-12 090-32	KK2	KK3	KK2	KK2
100-12 100-32	KK2	KK3	KK2	KK2
112-22 112-32	KK2	KK3	KK2	KK2
132-12 132-22 132-32	KK3	KK3	KK3	KK3
160-22 160-32	KK3	KK3		
180-12 180-32 180-42	KK3	KK3		
225-12 225-22	KK3	KK3		



Terminal box

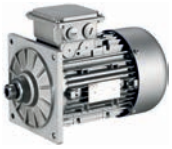
Dimensions of KK1

- ► For motors with motor terminal box KK1, the connector position can be selected in accordance with the terminal box position.
- ► If preferred positions are not specified in the order, the cable entry will be positioned as circled on the diagram below.



Size						
Motor						
	x	g_1	m_1	n_2	P_1	P_2
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063	21 12 [1)]	100 117 [1)]	75.0 93.0 [1)]	75.0 93.0 [1)]	M16x1.5 M20x1.5 [1)]	M20x1.5 M20x1.5
071	24 15 [1)]	109 126 [1)]				
080	14	150	115	115	M20x1.5	M25x1.5
090	19	157				
100	20	166				
112	22	176				
132	33	195	122	122	M32x1.5	M32x1.5

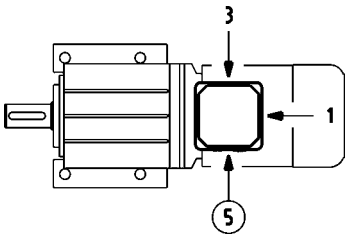
[1)] UL/CSA approval: cURus



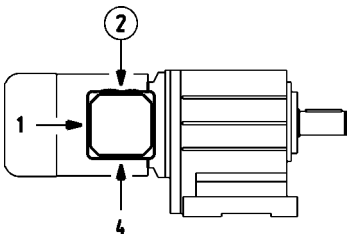
Terminal box

Cable entry position when using KK1

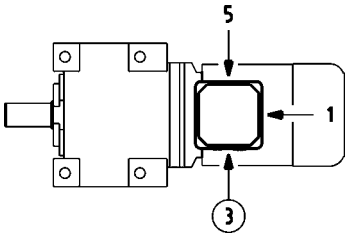
Terminal box in position 2



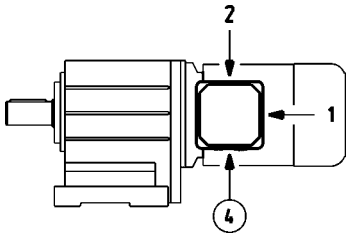
Terminal box in position 3

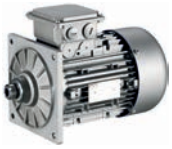


Terminal box in position 4



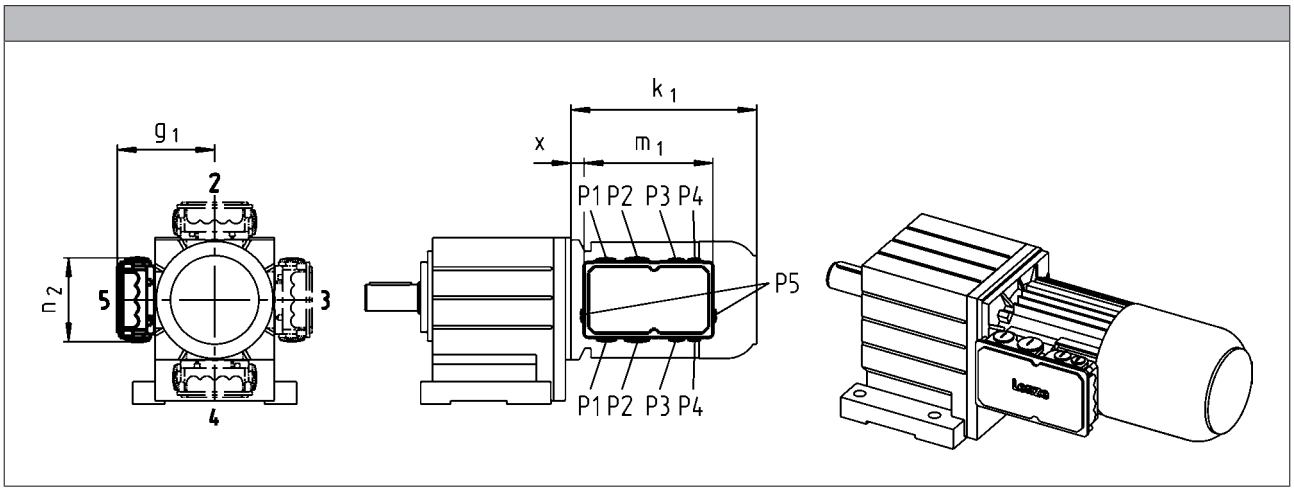
Terminal box in position 5



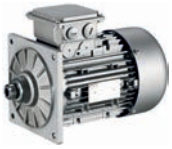


Terminal box

Dimensions of KK2

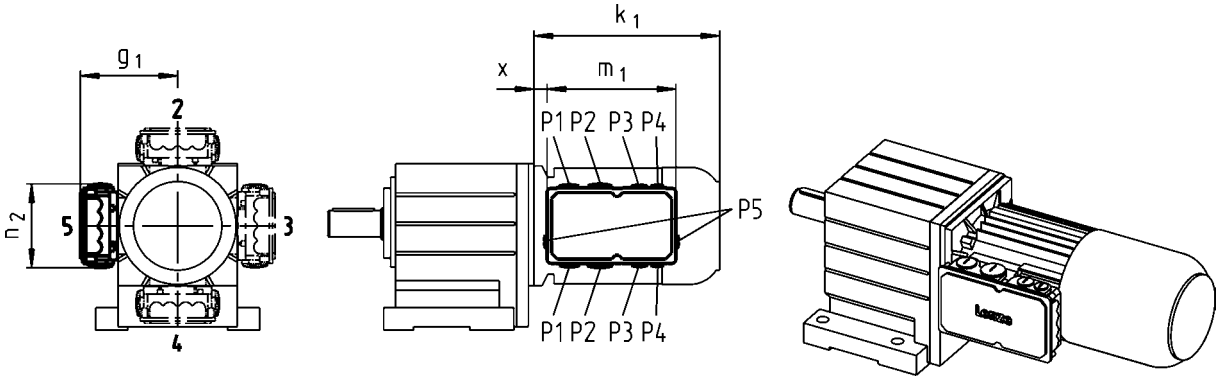


Size						
Motor						
	x	g_1	m_1	n_2	P_1	P_2
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063	13	107	136	103	M16x1.5	M20x1.5
071	15	118				
080	17	132	152	121	M20x1.5	M25x1.5
090	22	137				
100	23	147				
112	25	158				



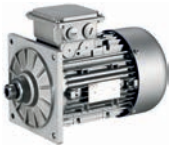
Terminal box

Dimensions of KK3



Size									
Motor									
	x	g_1	m_1	n_2	P_1	P_2	P_3	P_4	P_5
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063	2	124	195	125	M25x1.5	M32x1.5	M20x1.5	M20x1.5	
071	5	133							
080	15	142							
090	20	147							
100	21	158							
112	23	168							
132	38	187							
160	35	210	226	127	M50x1.5	M16x1.5		M16x1.5	
180	73	230							
225	95	346	354	205		M63x1.5 [1)]	M50x1.5 [1)]		M16x1.5

[1)] Cable entry only possible at one position.
Terminal box position 2: cable entry at position 5.
Terminal box position 3: cable entry at position 2.
Terminal box position 4: cable entry at position 3.
Terminal box position 5: cable entry at position 4.

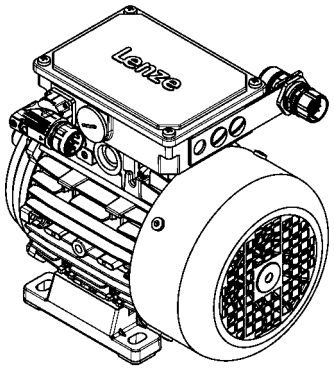


Plug connectors

ICN, HAN and M12 connectors (only for IG128-24V-H incremental encoder) are available for the three-phase AC motors.

ICN connector

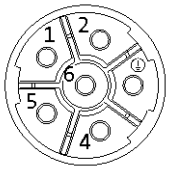
A connector is used for power, brake and temperature monitoring. The connections to the feedback system and the blower each employ a separate connector.



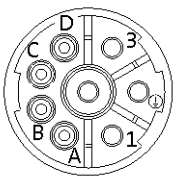
Connection for power, brake and temperature monitoring

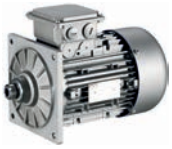
The connectors can be rotated through 270° and are fitted with a bayonet catch for SpeedTec connectors. As this connector is also compatible with conventional union nuts, existing mating connectors can continue to be used without difficulty. The motor connection is determined in the terminal box and must be checked before commissioning.

► ICN 6-pole

Pin assignment			
Contact	Designation	Meaning	
1	BD1 / BA1	Brake +/AC	
2	BD2 / BA2	Brake /AC	
PE	PE	PE conductor	
4	U	Phase U power	
5	V	Phase V power	
6	W	Phase W power	

► ICN 8-pole

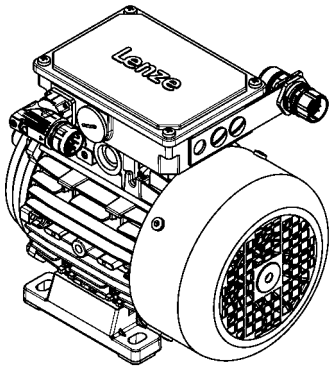
Pin assignment			
Contact	Designation	Meaning	
1	U	Phase U power	
PE	PE	PE conductor	
3	V	Phase V power	
4	W	Phase W power	
A	TB1 / TP1 / R1	Thermal sensor: TKO/PTC/ +KTY	
B	TB2 / TP2 / R2	Thermal sensor: TKO/PTC/-KTY	
C	BD1 / BA1	Brake +/AC	
D	BD2 / BA2	Brake /AC	



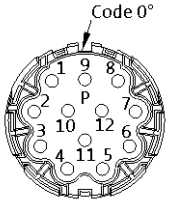
ICN connector

Feedback connection

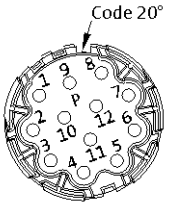
All encoder systems (apart from IG128-24V-H) are also available with an ICN connector fixed to the motor terminal box for exceptionally fast commissioning. The connectors are fitted with a bayonet fixing, which is also compatible with conventional union nuts. Existing mating connectors can therefore continue to be used without difficulty.

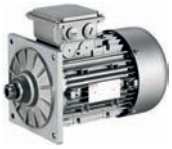


► Resolver

Pin assignment			
Contact	Designation	Meaning	
1	+Ref	Transformer windings	
2	-Ref		
3	+VCC ETS	Supply: Electronic nameplate	
4	+COS	Cosine stator windings	
5	-COS		
6	+SIN	Sine stator windings	
7	-SIN		
8		Not assigned	
9			
10			
11	+KTY	KTY temperature sensor	
12	-KTY		

► Hiperface incremental encoder and SinCos absolute value encoder

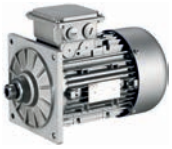
Pin assignment			
Contact	Designation	Meaning	
1	B	Track B/+SIN	
2	A^-	Track A inverse/-COS	
3	A	Track A/+COS	
4	$+U_B$	Supply +	
5	GND	Mass	
6	Z^-	Zero track inverse/-RS485	
7	Z	Zero track/+RS485	
8		Not assigned	
9	B^-	Track B inverse/-SIN	
10		Not assigned	
11	+KTY	KTY temperature sensor	
12	-KTY		



ICN connector

Motor terminal box with ICN connectors - built-on accessories assignment: 4-pole / 6-pole motors

Motor type	M□□MAXX	M□□MARS M□□MAIG M□□MAAG	M□□MAZE M□□MAHA	M□□MALL	M□□MALZ M□□MALH
Motor frame size	Terminal box with ICN connector				
063-02 063-22	KK1	KK2			
063-12 063-32 063-42	KK1	KK2			
071-32 071-42 071-13 071-33	KK1	KK2	KK2	KK1	KK1
080-13 080-32 080-33 080-42	KK1	KK2	KK2	KK1	KK1
090-12 090-32	KK1	KK2	KK2	KK1	KK1
100-12 100-32	KK1	KK2	KK2	KK2	KK2
112-22 112-32	KK1	KK2	KK2	KK1	KK1
132-12 132-22 132-32	KK1	KK3	KK3	KK1	KK1



ICN connector

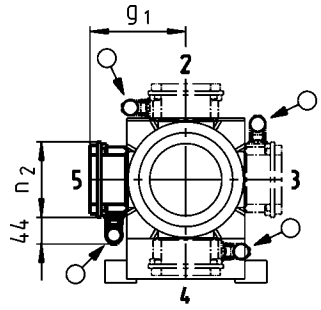
Motor terminal box with ICN connectors - built-on accessories assignment: 4-pole / 6-pole motors

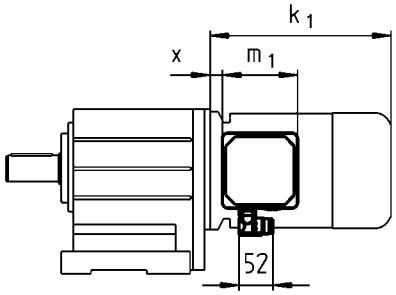
Motor type	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MABZ M□□MABH	M□□MABL
Motor frame size				
	Terminal box with ICN connector			
063-02 063-22	KK2	KK2		
063-12 063-32 063-42	KK2	KK2		
071-32 071-42 071-13 071-33	KK2	KK2	KK2	KK2
080-13 080-32 080-33 080-42	KK2	KK2	KK2	KK2
090-12 090-32	KK2	KK2	KK2	KK2
100-12 100-32	KK2	KK2	KK2	KK2
112-22 112-32	KK2	KK2	KK2	KK2
132-12 132-22 132-32	KK3	KK3	KK3	KK3

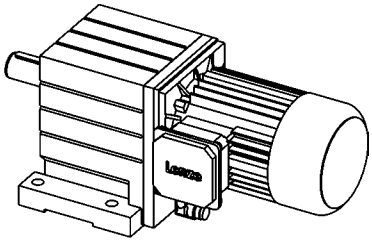
ICN connector

Dimensions of KK1

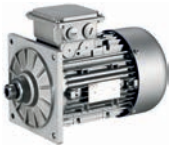
- ► For motors with connectors, the connector position can be selected in accordance with the terminal box position.
- ► If preferred positions are not specified in the order, the connector will be positioned as circled on the diagram below.







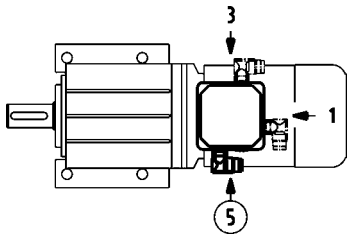
Size				
Motor				
	x	g_1	m_1	n_2
	[mm]	[mm]	[mm]	[mm]
063	12	117	93.0	93.0
071	15	126		
080	14	150	115	115
090	19	157		
100	20	166		
112	22	176		
132	33	195	122	122



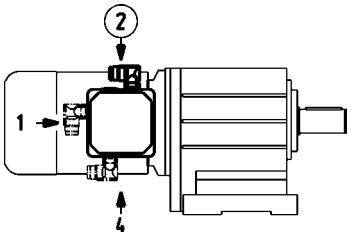
ICN connector

Connector position when using KK1

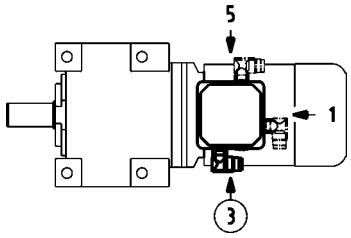
Terminal box in position 2



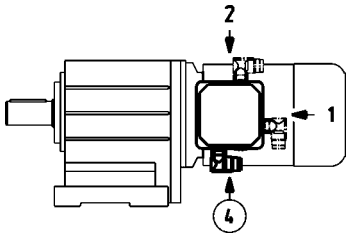
Terminal box in position 3



Terminal box in position 4



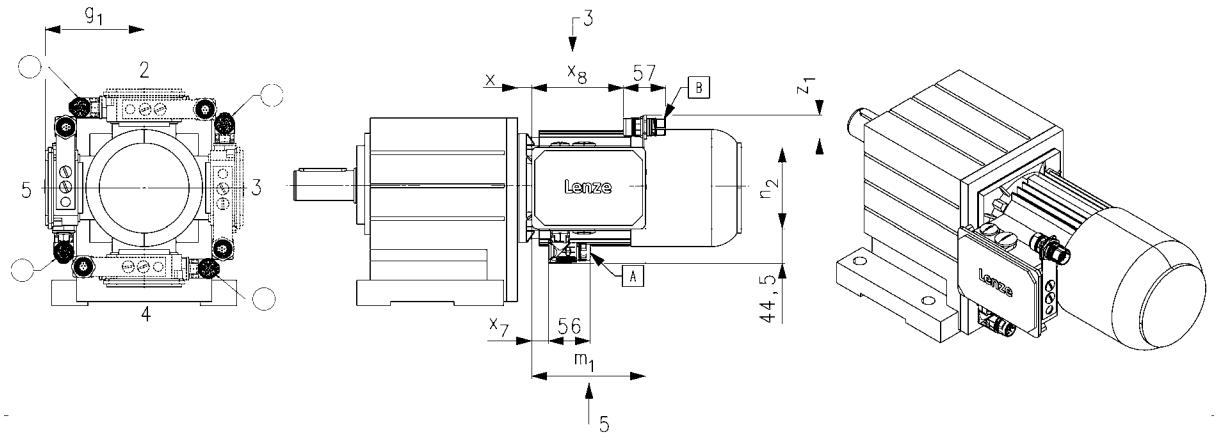
Terminal box in position 5



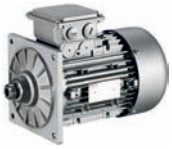
ICN connector

Dimensions of KK2/KK3

- For motors with connectors, the connector position can be selected in accordance with the terminal box position.
- If preferred positions are not specified in the order, the connector will be positioned as circled on the diagram below.



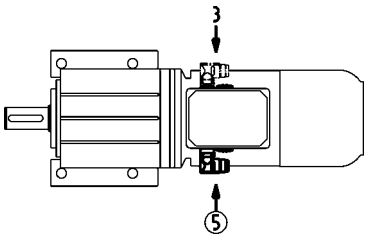
Size							
Motor							
	x	g_1	m_1	n_2	x_7	x_8	$z_{1, max}$
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063	13	107	136	103	16	109	43
071	15	118					
080	17	132	152	121	23	125	41
090	22	137					
100	23	147					
112	25	158					
132	38	187	195	125	27	166	71



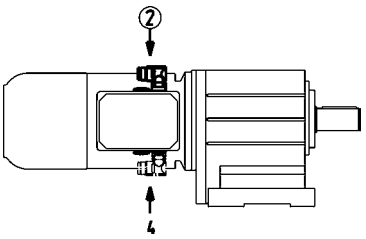
ICN connector

Connector position when using KK2/KK3

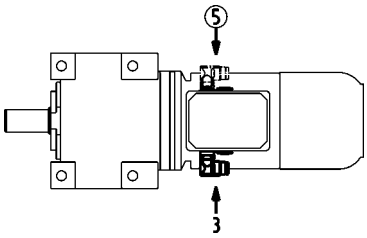
Terminal box in position 2



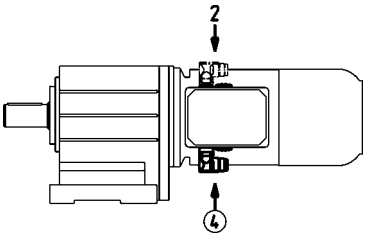
Terminal box in position 3

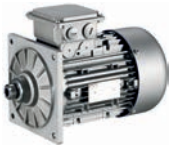


Terminal box in position 4



Terminal box in position 5

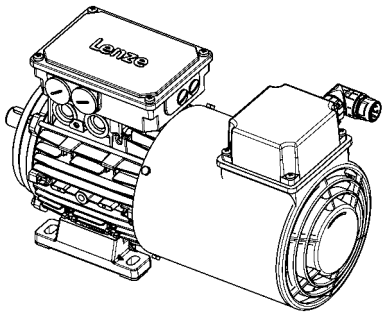




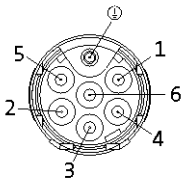
ICN connector

Blower connection

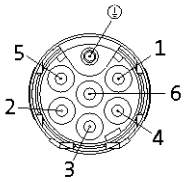
The blower is also optionally available with an ICN connector fixed to the terminal box of the blower for exceptionally fast commissioning. The connectors are fitted with a bayonet fixing, which is also compatible with conventional union nuts. Existing counter plugs can therefore continue to be used without difficulty.

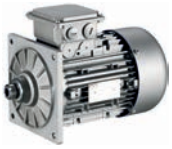


► Blower 1-ph

Pin assignment			
Contact	Designation	Meaning	
PE	PE	PE conductor	
1	U1	Fan	
2	U2		
3		Not assigned	
4			
5			
6			

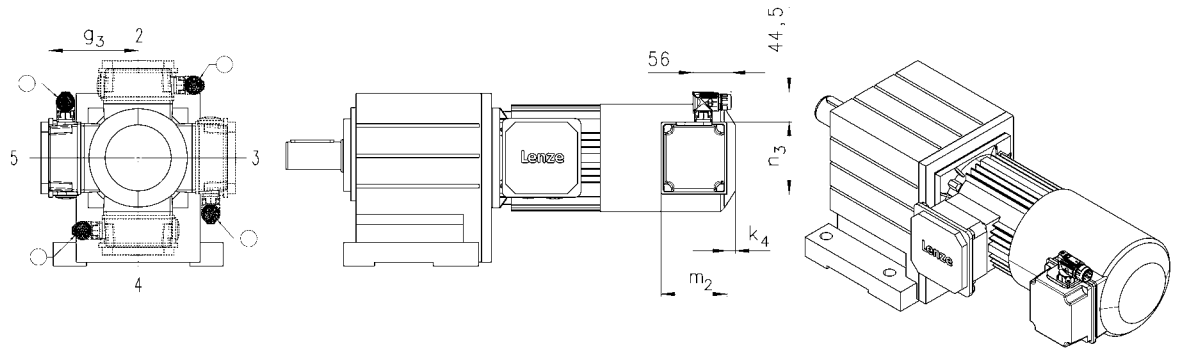
► Blower 3-ph

Pin assignment			
Contact	Designation	Meaning	
PE	PE	PE conductor	
1	U	Phase U power	
2		Not assigned	
3	V	Phase V power	
4		Not assigned	
5			
6	W	Phase W power	



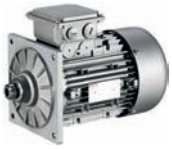
ICN connector

Dimensions of blower



Size				
Motor				
	k_4	g_3	m_2	n_3
	[mm]	[mm]	[mm]	[mm]
063	12	115	95	105
071		122		
080	13	132	96	106
090	22	141	95	105
100		150		
112		162		
132	32	182		
160	31	209	96	106
180				
225				

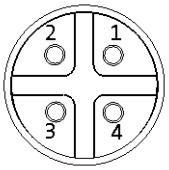
► In addition, the cover of the blower terminal box (including connectors) can be rotated progressively through 90° if necessary.

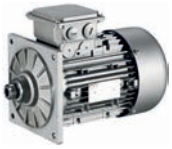


M12 connector

IG128-24V-H incremental encoder connection

As a standard this incremental encoder is equipped with a connection cable of about 0.5 m length and with a common industry standard M12 connector at its end.

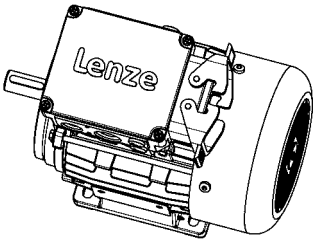
Pin assignment			
Contact	Designation	Meaning	
1	$+U_B$	Supply +	
2	B	Track B	
3	GND	Mass	
4	A	Track A	



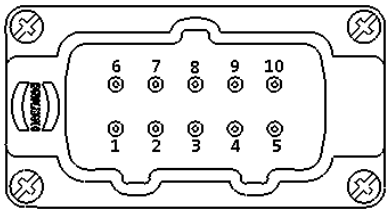
HAN connector

10E

In the case of the rectangular HAN-10E connectors, all six ends of the three winding phases are taken out to the power contacts. The motor circuit is therefore determined in the mating connector.



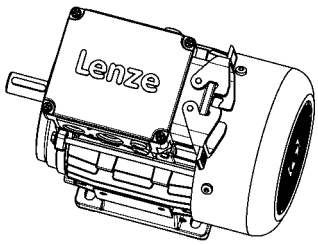
Pin assignment	
Contact	Meaning
1	Terminal board: U1
2	Terminal board: V1
3	Terminal board: W1
4	Brake +/AC
5	Brake -/AC
6	Terminal board: W2
7	Terminal board: U2
8	Terminal board: V2
9	Thermal sensor: +KTY/PTC/TKO
10	Thermal sensor: KTY/PTC/TKO



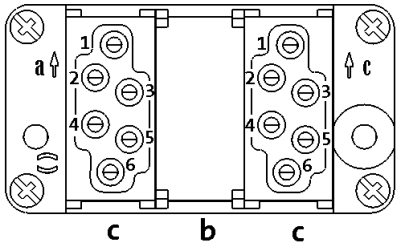
HAN connector

Modular

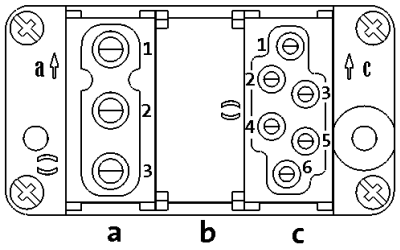
The connector is available with two different power modules (16 A or 40 A), depending on the rated motor current. The motor connection is determined in the terminal box and must be checked before commissioning.

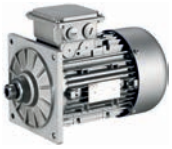


► HAN modular 16 A

Pin assignment			
Module	Contact	Meaning	
B		Dummy module	
C	1	Thermal sensor: +KTY/PTC/TKO	
	2	Brake +/AC	
	3	Brake -/AC	
	4	Rectifier: Switching contact	
	5		
	6	Thermal sensor: KTY/PTC/TKO	

► HAN modular 40 A

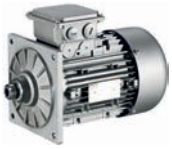
Pin assignment			
Module	Contact	Meaning	
A	1	Terminal board: U1	
	2	Terminal board: V1	
	3	Terminal board: W1	
B		Dummy module	
C	1	Thermal sensor: +KTY/PTC/TKO	
	2	Brake +/AC	
	3	Brake -/AC	
	4	Rectifier: Switching contact	
	5		
	6	Thermal sensor: KTY/PTC/TKO	



HAN connector

Motor terminal box with HAN connectors - built-on accessories assignment: 4-pole / 6-pole motors

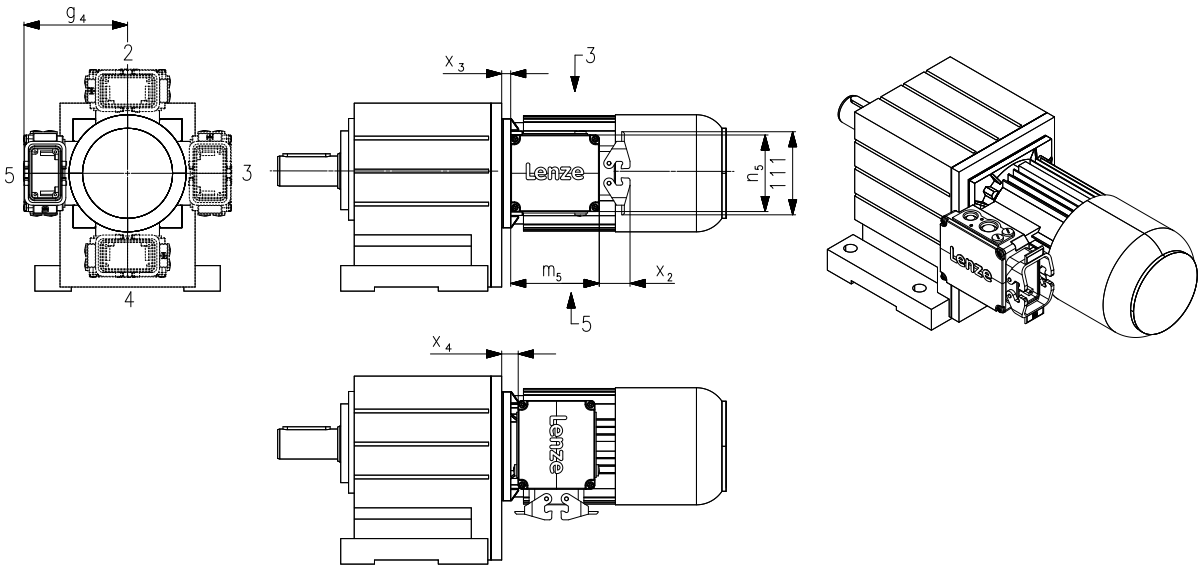
Motor type	M□□MAXX M□□MABR	M□□MAZE M□□MAHA M□□MABZ M□□MABH	M□□MALL M□□MABL	M□□MALZ M□□MALH
Motor frame size				
	Terminal box with HAN connector			
063-02 063-22	HAN-10E HAN modular			
063-12 063-32 063-42	HAN-10E HAN modular			
071-32 071-42 071-13 071-33	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular
080-13 080-32 080-33 080-42	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular
090-12 090-32	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular
100-12 100-32	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular
112-22 112-32	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular	HAN-10E HAN modular
132-12 132-22 132-32	HAN modular	HAN modular	HAN modular	HAN modular
160-22 160-32	HAN modular			



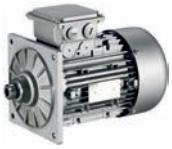
HAN connector

Dimensions

- For motors with connectors, the connector position can be selected in accordance with the terminal box position.
- Unless the connector position is specified, it will be supplied in position 1.

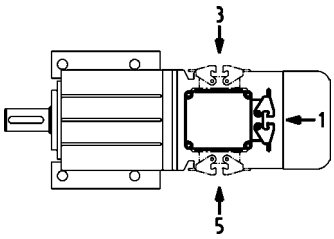
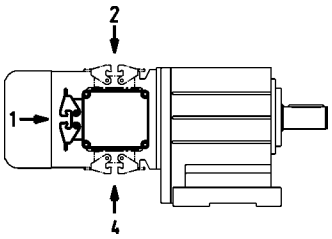


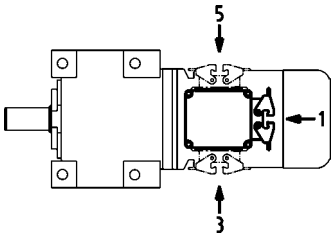
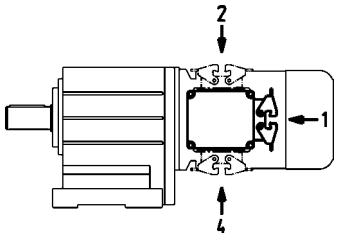
Size			
Motor			
	g_4	x_3	x_4
	[mm]	[mm]	[mm]
063	120	5.00	6.00
071	129	7.00	8.00
080	138	11.0	19.0
090	143	15.0	23.0
100	154	16.0	24.0
112	164	13.5	21.5
132	233	34.5	4.50
160	248	39.0	9.00

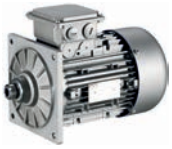


HAN connector

Position of connector

Connector in position 2	Connector in position 3
	

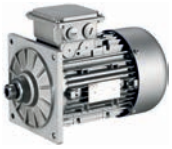
Connector in position 4	Connector in position 5
	



Handwheel

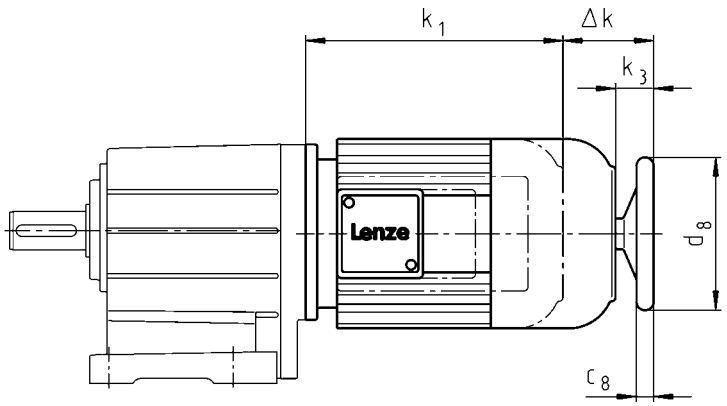
Design	Handwheel made from alloy, smooth wheel surface
Function	Manual operation: • Emergency operation • Setting-up operation for machines/systems
Note	The increased moment of inertia must be taken into account during project planning! For frequent switching operations, in particular if the direction of rotation changes: Please contact Lenze.

Size	Moment of inertia	Mass
Motor	Additional	Additional
	J	m
	[kgcm²]	[kg]
071	16.0	0.60
080	16.0	0.60
090	16.0	0.60
100	16.0	0.60
112	16.0	0.60
132	139	1.80



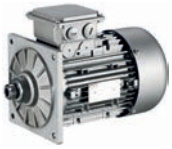
Handwheel

Dimensions, self-ventilated (4/6-pole)



Motor type	
Built-on accessories	M□□MAHA M□□MABH M□□MALH

Motor frame size				
	Δk	k_3	c_8	d_8
	[mm]	[mm]	[mm]	[mm]
071-32 071-42 071-13 071-33	70	34.0	18.0	160
080-32 080-42 080-13 080-33	91	34.0	18.0	160
090-12 090-32	80	32.0	18.0	160
100-12 100-32	94	42.0	18.0	160
112-22 112-32	107	39.0	18.0	160
132-12 132-22 132-32	126	50.0	26.0	250



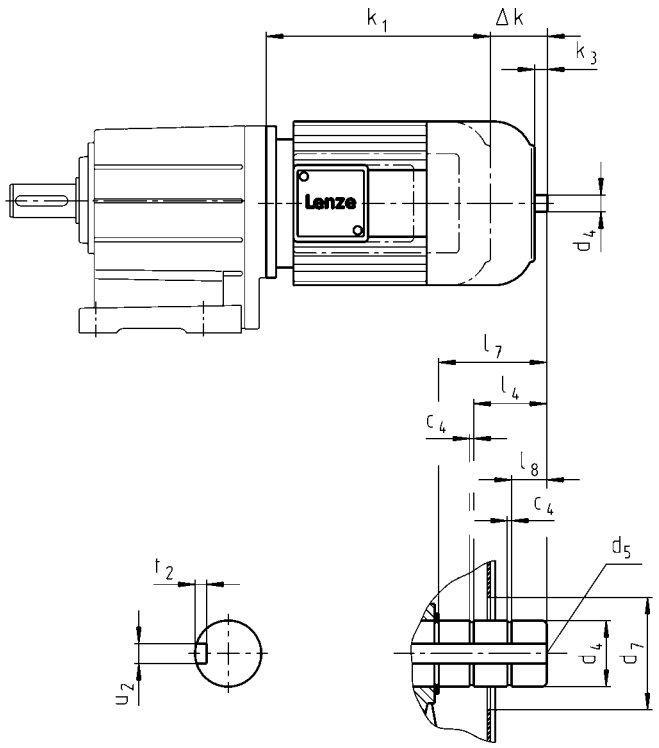
Centrifugal mass

Note	The increased moment of inertia must be taken into account during project planning! For frequent switching operations, in particular if the direction of rotation changes: Please contact Lenze.
Function	Increased motor centrifugal mass for smooth starting/braking
Design	Integral fan made from cast iron

	Moment of inertia	**Mass**
Motor frame size	Additional	Additional
	J	m
	[kgcm²]	[kg]
071	18.0	1.20
080	29.0	1.40
090-□1	83.0	2.80
090-□2	55.0	2.00
100	77.0	2.50
112	153	3.80
132	356	6.00

2nd shaft end

Dimensions, self-ventilated (4/6-pole)



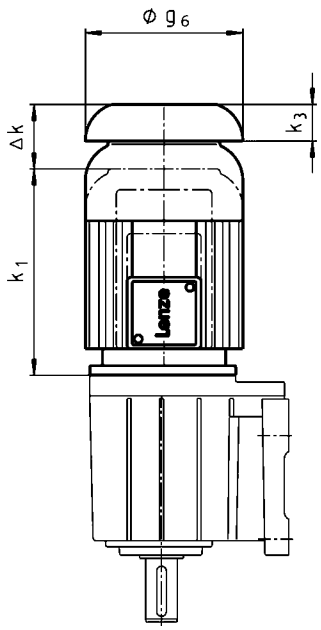
Motor type	
Built-on accessories	M□□MAZE M□□MABZ M□□MALZ

Motor frame size												
	Δk	k_3	c_4	d_4	d_4	d_5	d_7 [1]	l_4	l_7	l_8	u_2	t_2
				h6	j6							
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
071-32 071-42 071-13 071-33	47	11.0	1.10	14.0		M5	34.0		19.0	3.00	5.00	3.00
080-32 080-42 080-13 080-33	68	9.00	1.10	14.0		M5	34.0		19.0	4.50	5.00	3.00
090-12 090-32	57	9.00	1.10	14.0		M5	34.0		19.0	5.00	5.00	3.00
100-12 100-32	71	18.5	1.30		20.0	M6	34.0	17.0	32.5	10.5	6.00	3.50
112-22 112-32	84	16.0	1.30		20.0	M6	34.0	17.0	28.5	7.00	6.00	3.50
132-12 132-22 132-32	101	24.5	1.60		30.0	M10	46.0	24.5	42.0	8.50	8.00	4.00

[1] During operation, appropriate measures must be taken to make fan cover opening safe.

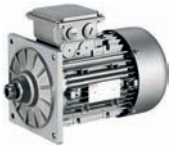
Protection cover

Dimensions, self-ventilated (4/6-pole)



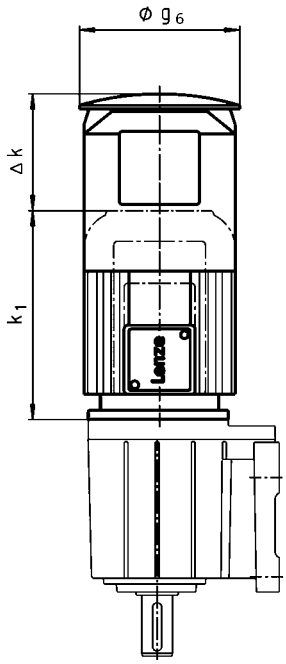
	Motor type							
	M□□MAXX	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MABL	M□□MARS M□□MAIG M□□MAAG	M□□MALL		

Motor frame size								
	Δ k	Δ k	Δ k	Δ k	Δ k	Δ k	k_3	g_6
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063-02 063-22		97	160		97		11.0	123
063-12 063-32 063-42	26	66	129		82		11.0	123
071-32 071-42 071-13 071-33	26	78	122	78	78	26	12.0	138
080-32 080-42 080-13 080-33	26	99	137	99	127	30	16.0	156
090-12 090-32	26	94	131	94	113	26	15.0	176
100-12 100-32	31	107	132	107	112	107	17.0	194
112-22 112-32	31	121	151	121	111	31	18.0	218
132-12 132-22 132-32	31	141	156	141	134	31	20.0	257
160-22 160-32	37	142	228		120		25.0	310



Protection cover

Dimensions, forced ventilated (4/6-pole)



	Motor type			
	M□□MAXX	M□□MABR M□□MABS M□□MABI M□□MABA	M□□MARS M□□MAIG M□□MAAG	

Motor frame size				
	Δ k	Δ k	Δ k	g_6
	[mm]	[mm]	[mm]	[mm]
063-12 063-32 063-42	169	209	209	133
071-32 071-42 071-13 071-33	165	202	202	150
080-32 080-42 080-13 080-33	168	224	224	170
090-12 090-32	157	210	210	188
100-12 100-32	137	198	198	210
112-22 112-32	135	216	216	249
132-12 132-22 132-32	140	226	226	300
160-22 160-32	155	267	267	338

Internet version

Lenze SE
Hans-Lenze-Straße 1
D-31855 Aerzen
Phone: +49 (0)5154 82-0
Telefax: +49 (0)5154 82 28 00

www.Lenze.com