L-force catalogue

Automation systems
Drive solutions

Controls
Inverters
Motors
Gearboxes
Engineering Tools

Motors: MF three-phase AC motors

Gearboxes: GFL shaft-mounted 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.

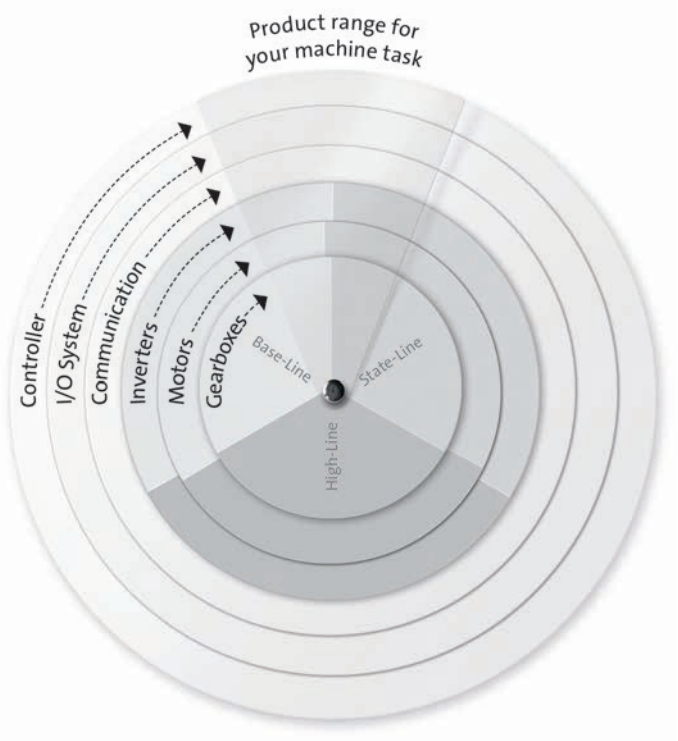
A matter of principle: the right products for every application.

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.

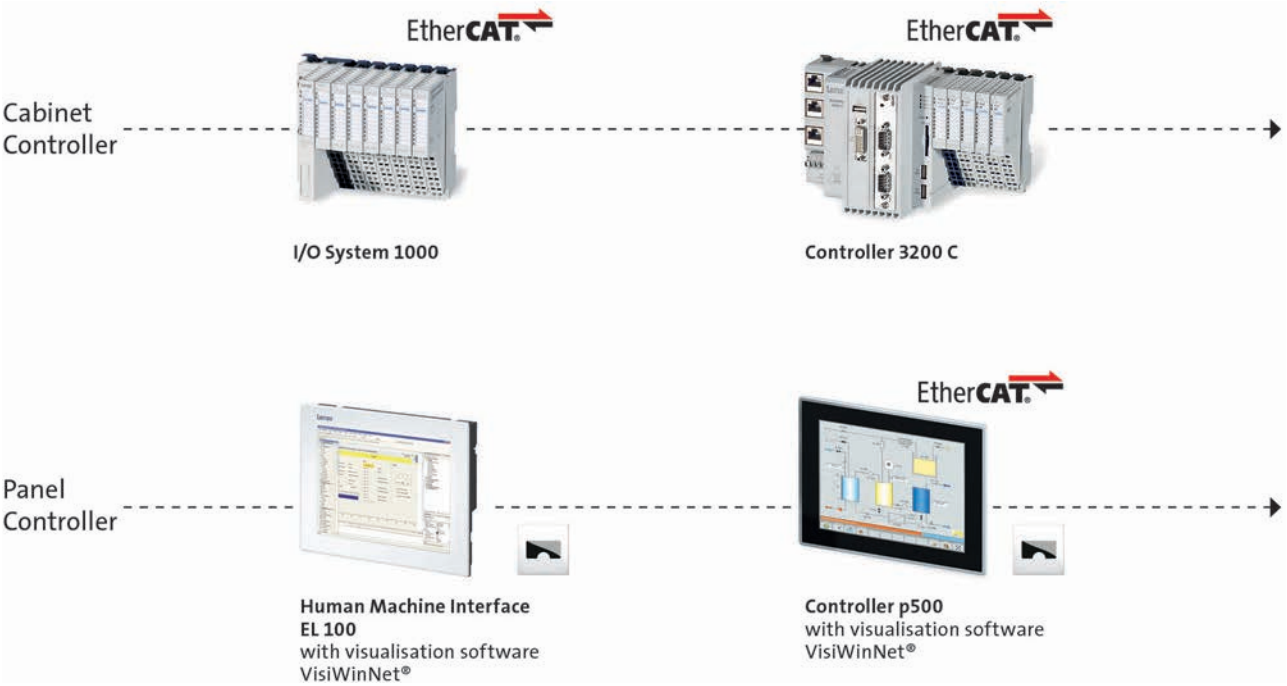
Powerful products with a major impact:
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

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!

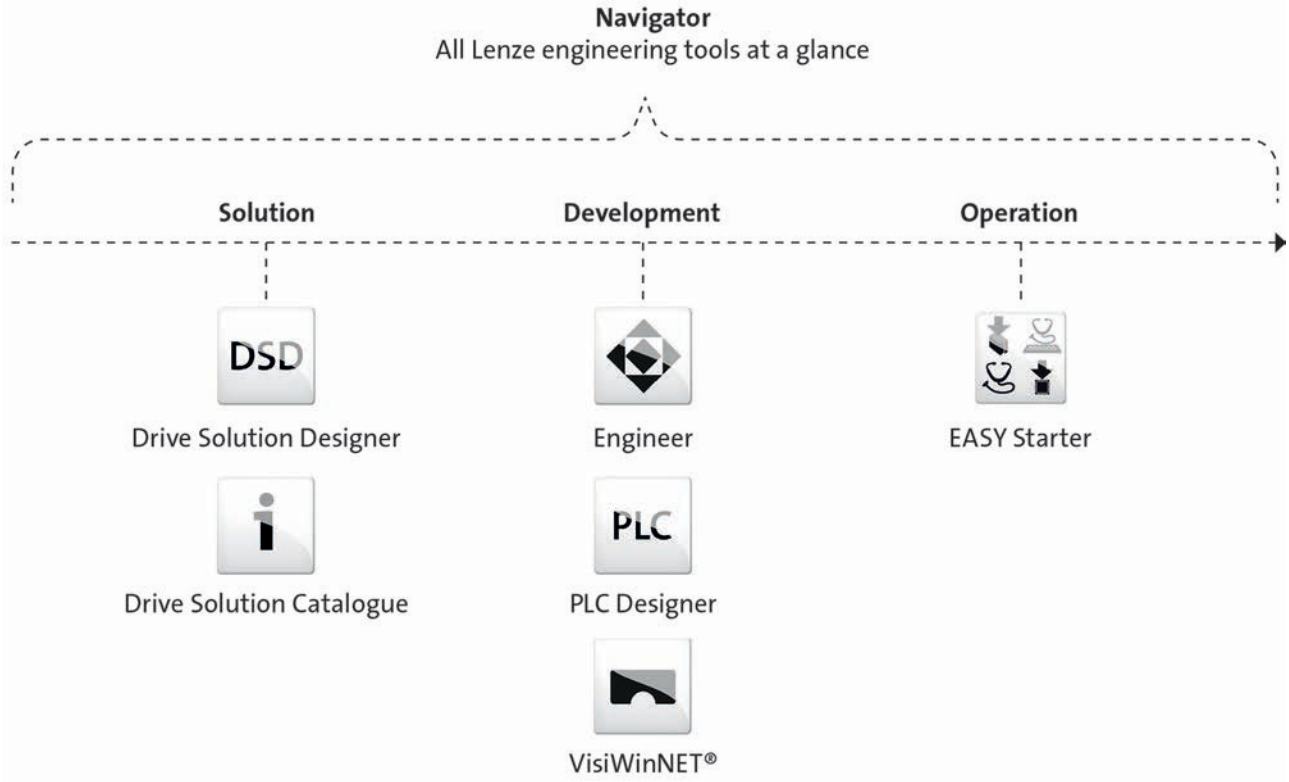


L-force product portfolio

Controls

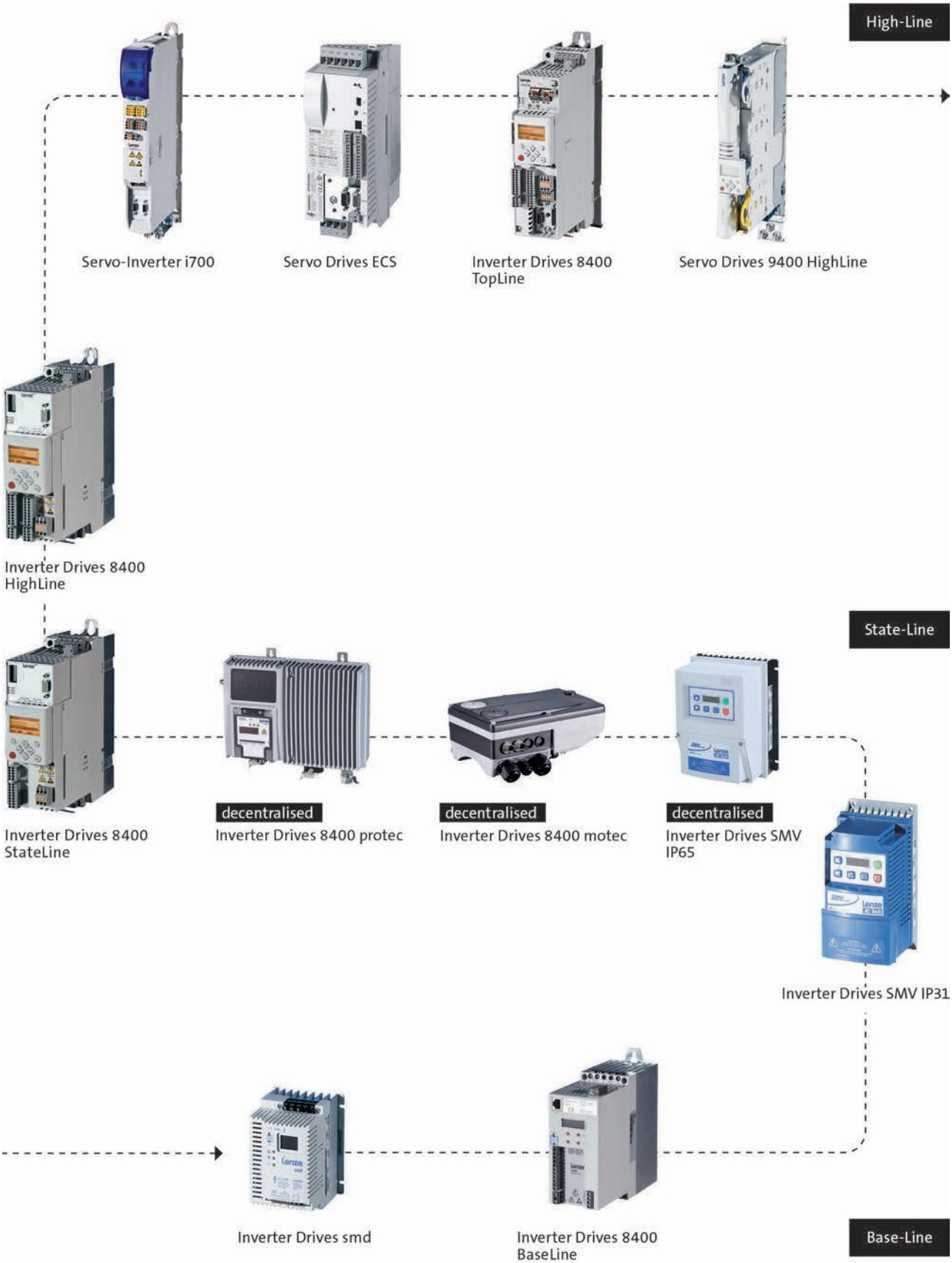


Engineering Tools



L-force product portfolio

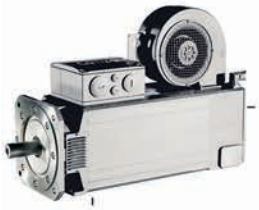
Inverters



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

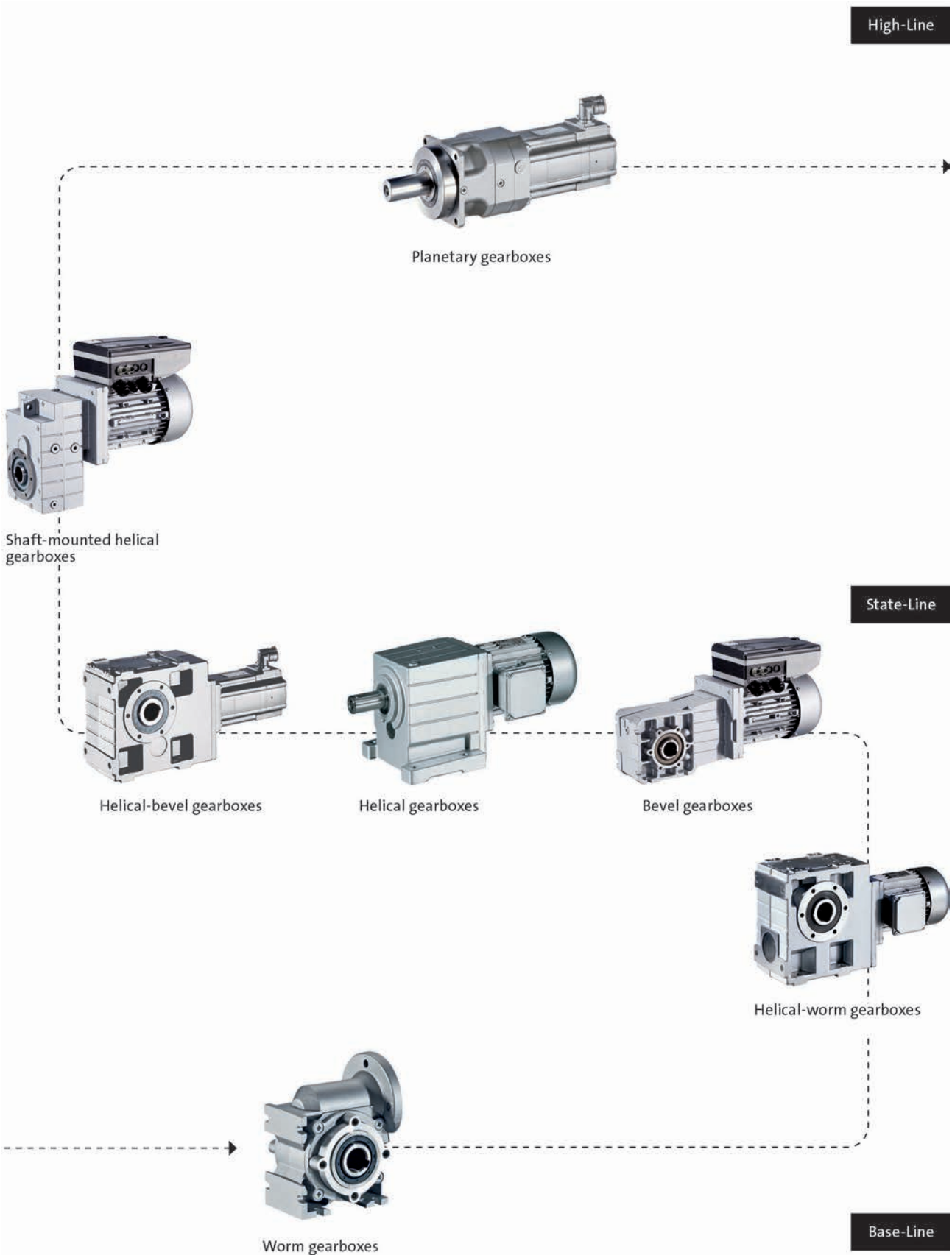
MD three-phase AC motors

Basic MD/MH three-phase AC motors

Base-Line

L-force product portfolio

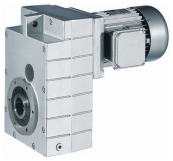
Gearboxes



GFL shaft-mounted helical gearboxes

0.55 to 22 kW

GFL shaft-mounted helical gearboxes



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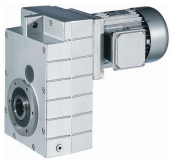
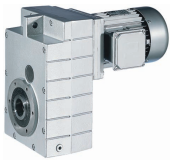


List of abbreviations

$\eta_{c=1}$		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



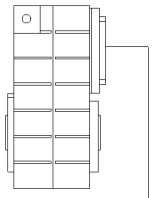
Product key

Gearbox type | Gearbox size | Number of stages | Input design | Shaft | Output design: Housing fastening | Drive unit

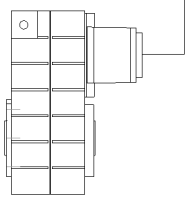
G F L [ ] [ ] - [ ] [ ] [ ] [ ] [ ] [ ] [ ] C [ ] [ ]

See page 24

2 2-stage



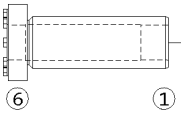
3 3-stage



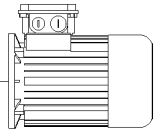
V Solid shaft with keyway

H Hollow shaft with keyway

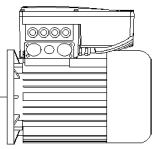
S Hollow shaft with shrink disc (in position 6 or 1)



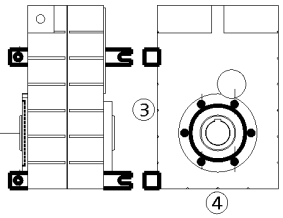
M Three-phase motor



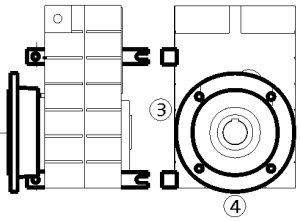
E Three-phase motor with 8400 motec



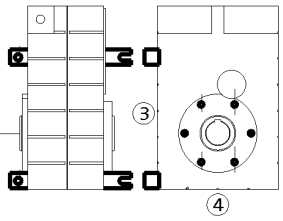
A R Foot (position 3 or 4) **and centring** with threaded pitch circle



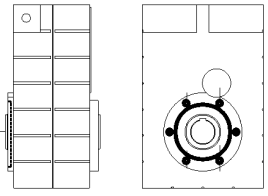
A K Foot (position 3 or 4) **and flange** with through holes



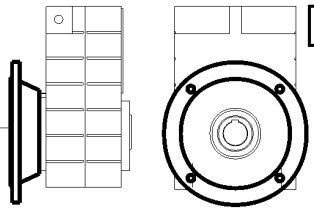
B R Foot (position 3 or 4) and threaded pitch circle



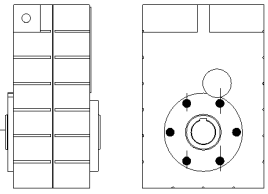
C R Centring with threaded pitch circle



C K Flange with through holes

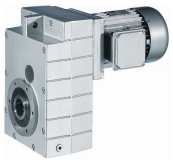


D R Threaded pitch circle



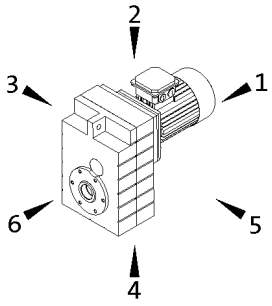
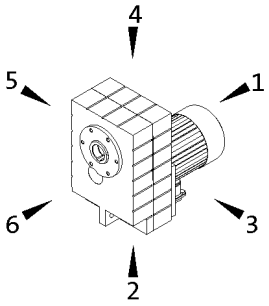
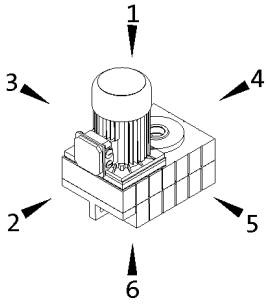
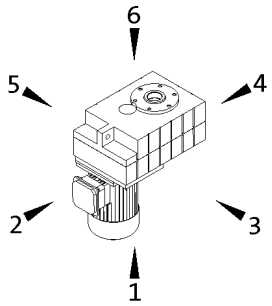
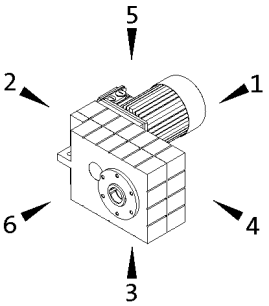
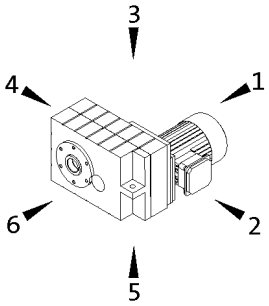
	Output design			
	V	H	S	K
	d x l [mm]	d [mm]	d [mm]	Øa2 [mm]
GFL04-2[2)]	25x50	25/30	25/30	160
GFL05-2/3	30x60	30/35	35	200
GFL06-2/3	40x80	40/45	40	200[1)]/250
GFL07-2/3	50x100	50/55	50	250/300
GFL09-2/3	60x120	60/70	65	350
GFL11-2/3	80x160	70/80	80	400/450
GFL14-2/3	100x200	100	100	450

[1)] Only in the case of H and S type of output
[2)] Output H version not possible with motor size 090



Product key

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

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

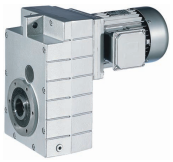
Hollow shaft: 0
Solid shaft: 6
Hollow shaft with shrink disc: 1, 6

Without foot: 0
Foot: 3, 4
Terminal box / motec: 2, 3, 4, 5

Gearbox designs

Basic versions	
Motor efficiency	Standard efficiency Increased efficiency (IE2)
Surface and corrosion protection	OKS-G (primer: grey) OKS-S (paint: RAL 7012)
Lubricant	CLP 460 (mineral)
Ventilation	Oil control plugs for GFL05 to 14 Breather elements for GFL06 ... 14

Options	
Surface and corrosion protection	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
Ventilation	Breather elements for GFL05 Compensation reservoir for GFL09 to 14-2 in mounting position C
Accessories	Rubber buffer for torque plate Shrink disc cover Mounting set for hollow shaft circlip
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.

Designs

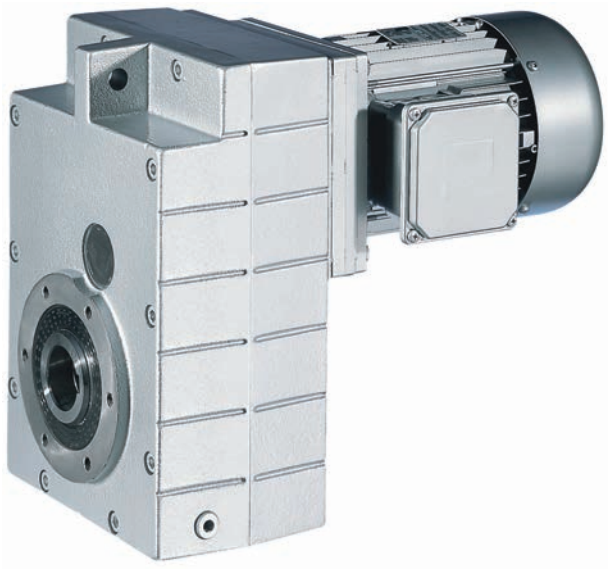
- 2-stage and 3-stage gearboxes
- Hollow shaft with keyway or shrink disc
- Solid shaft with keyway
- Foot or flange mounting
- Torque plate, including rubber buffer
- With MF three-phase AC motors (inverter-optimised) power range 0.55 ... 22 kW

Compact and powerful

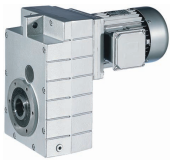
In combination with three-phase AC motors, our shaft-mounted helical gearboxes form a compact and effective drive unit. The low level of backlash of the gear teeth ensures highest precision. In addition, they can also distribute the power output and torque via an output shaft on both sides. The gearboxes are available in 2- and 3-stage versions with a torque of up to 11,615 Nm and a ratio of up to i=856.

Inverters for motor-proximity installation

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

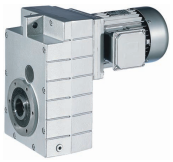


Shaft-mounted helical geared motor GFL07-2M HCR 100-32



Functions and features

Gearbox type	GFL
Housing	
Design	Cuboid
Material	Aluminium / cast iron
Solid shaft	
Design	with keyway to DIN 6885
Tolerance	k6 (d ≤ 50 mm) m6 (d > 50 mm)
Material	Tempered steel C45 or 42CrMo4
Hollow shaft	
Design	H: with keyway S: smooth
Tolerance	Bore H7
Material	Tempered steel C45
Toothed part	
Design	Ground tooth flanks Optimised tooth flank geometry
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
Schmierstoffe	
Standard	DIN 51502
Quantities	corresponding to mounting position (see operating instructions)
Mechanical efficiency	
1-stage gearboxes [$\eta_{c=1}$]	
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

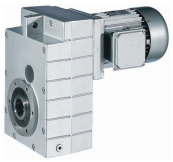
Lenze gearboxes and geared motors are ready for operation on delivery and are filled with lubricants specific to both the drive and the design. The mounting position and design specified in the order are key factors in choosing the volume of lubricant.

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 to 80 °C)	25000 operating hours not later than after three years (oil temperature 70 to 80 °C)	16000 operating hours not later than after three years (oil temperature 70 to 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 S2 G 460	Shell Omala S4 GX HD 320	

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



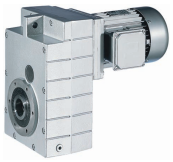
Functions and features

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).

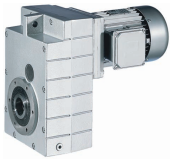
Surface and corrosion protection system	Applications	Measures
	Catalogue text	Catalogue text
OKS-G (primed)	• Dependent on subsequent top coat applied	• 2K PUR priming coat (grey) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel nameplate
OKS-S (small)	• Standard 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 2K PUR 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 2K PUR priming coat 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic
OKS-L (high)	C3	Dipping primed gearbox 2K PUR priming coat 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic



Functions and features

Ventilation

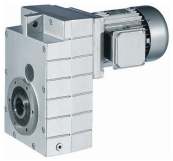
Non-ventilated gearboxes
No ventilation is required for the GFL04 gearbox.

Gearboxes that may optionally be equipped with ventilation
Special measures are not usually required when using the GFL05 gearbox. In borderline cases, e.g. at input speeds > 2000 rpm, we recommend the use of breather elements, which we can supply if required.

Ventilated gearboxes
The gearboxes GFL06 to 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 to 14 in this mounting position. This reservoir can be purchased as an option. For illustrations and measures, please refer to the Accessories chapter.

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



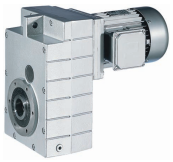
Dimensioning

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 sales office
- 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:

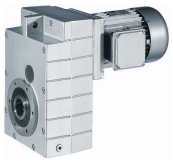
Motor frame size	Mounting position A, B, E, F	Mounting position C, D
063 ... 100	4000 r/min	3000 r/min
112 ... 132	4000 r/min	2000 r/min
160 ... 225	3000 r/min	1500 r/min

- 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
GFL shaft-mounted helical gearbox	07, 09, 11, 14	≤ 16

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

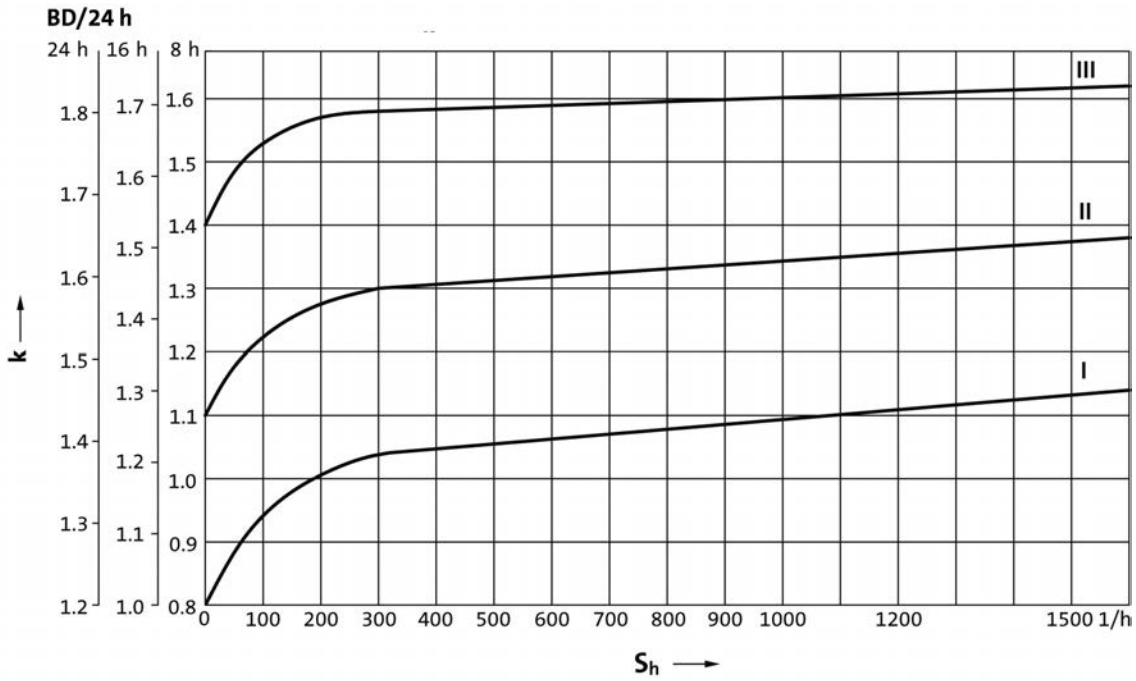
Load capacity and application factor

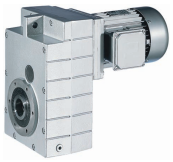
Load capacity c of gearbox
Rated value for the load capacity of Lenze geared motors.
- c is the ratio of the permissible rated torque of the gearbox to the rated torque supplied by the drive component (e.g. the built-in Lenze motor).
- The value of c must always be greater than the value of the application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



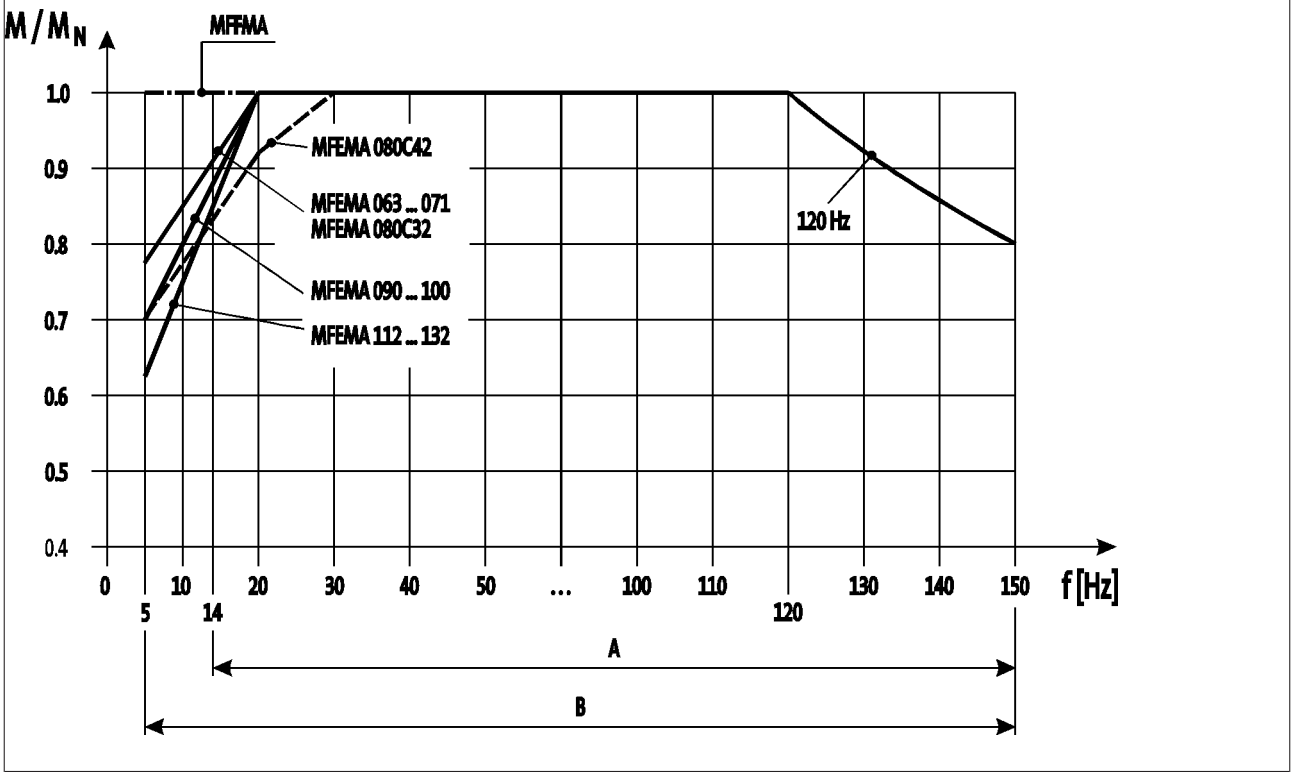


Dimensioning

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"

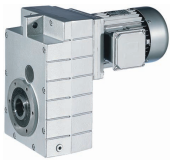
► The motor specifications stated in this catalogue for inverter operation apply to operation with a Lenze inverter. If you are uncertain, get in touch with the manufacturer of the inverter to ask whether the device is capable of driving the motor with the stated specifications (e.g. setting range, base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

6.6

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.



Dimensioning

Notes on the selection tables

The selection tables show the available combinations of gearbox type, number of stages, ratio and motor. They are used only to provide basic orientation.
The following legend indicates the structure of the selection tables.

Gearbox type

GST helical gearbox

Technical data

Selection tables

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

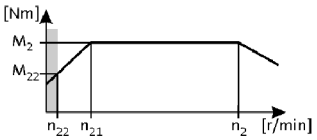
► 120 Hz: P_N = 0.55 kW

Speed setting range

n_{22}/n_2 = 1 ... 24.0

Speed range of the drive motor

n_1 = 143.3 ... 3440 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
70	293	-	1680	2.3	3.0	4.5	2.048	GST04-1M□□□063C32	E84AV□□□5514□□0	79
64	268	-	1536	2.6	3.0	3.9	2.240	GST05-1M□□□063C32	E84AV□□□5514□□0	79

Product key of geared motor

Product key of inverter

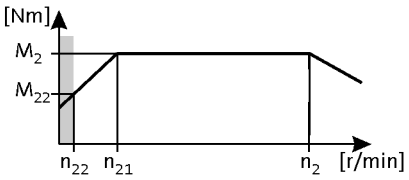
Speed and torque information

Ratio i

Page number for dimensions

Speed and torque information

The speed and torque information applies to self-ventilated and forced-ventilated drives. Externally cooled drives can always output the torque M_2 in all the setting ranges. In the case of self-ventilated drives, a reduction to M_{22} is necessary in the lower speed range.

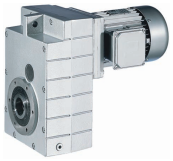


The following applies to self-ventilated geared motors: n_{22} is the minimum speed at which the torque M_{22} is permissible. From n_{21} to n_2, the maximum torque is M_2. The following applies to forced-ventilated geared motors: From the minimum speed n_{22} to n_2, the maximum torque is M_2

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.

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

6.6



Notes on ordering

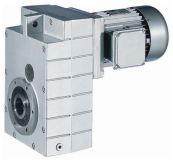
We want to be sure that you receive the correct products in good time.

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

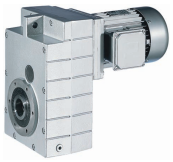
P.O. Box, City

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 ☐

GFL ☐☐ – ☐ 2 / 3 ☐ M / E ☐ V / H / S

☐ A / B / C / D ☐ R / K

Motor frame size ☐☐☐C☐☐

Hollow shaft d = ☐ mm

Flange a_2 = ☐ mm

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

Position of system blocks

Shaft/shrink disc: 0 ☐ 6 ☐ 1 ☐

Foot: 0 ☐ 3 ☐ 4 ☐

Terminal box: 2 ☐ 3 ☐ 4 ☐ 5 ☐

Surface and corrosion protection ☐ 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) ☐

☐ OKS-L (high) ☐ OKS-G (primed)

Accessories ☐ Rubber buffer for torque support

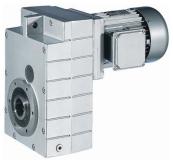
☐ Mounting set for hollow-shaft circlip

☐ Hollow shaft cover, hoseproof

Shaft sealing rings ☐ Viton

Breathing ☐ Breather elements for GFL05 ☐ Compensation reservoir in mounting position for GFL09 ... 14-2

6.6



Ordering details checklist

Three-phase AC motors options

Customer No. ☐☐☐☐☐☐☐☐

Job No. ☐☐☐☐☐☐☐☐☐☐

Page __

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

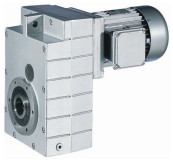
Rectifier
Only in the case of AC supply voltage

- ☐ 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)

6.6



Ordering details checklist

Three-phase AC motors options

Customer No. ☐☐☐☐☐☐☐☐

Job No. ☐☐☐☐☐☐☐☐☐☐

Page __

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

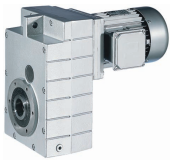
☐ 2nd shaft end

☐ Handwheel

☐ Increased centrifugal mass

☐ 2nd nameplate (adhesive nameplate/metal nameplate)

6.6



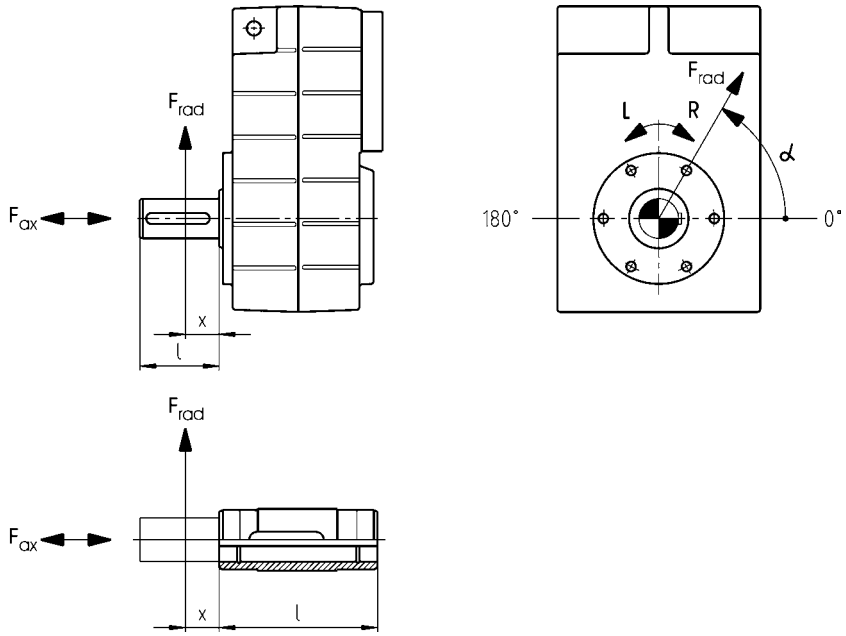
Permissible radial and axial forces at output

Permissible radial force
$F_{rad,per} = \min(f_w \times f_\alpha \times F_{rad,max}\ ;\ f_w \times F_{rad,max}$ at $n_2 \leq 16$ r/min)

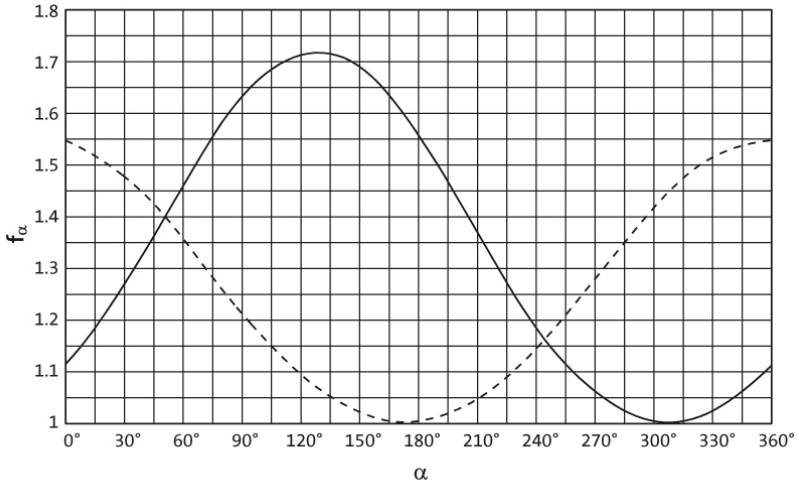
Permissible axial force
$F_{ax,per} = F_{ax,max}$ if $F_{rad} = 0$

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

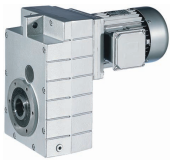
Application of forces



Effective direction factor f_α at output shaft

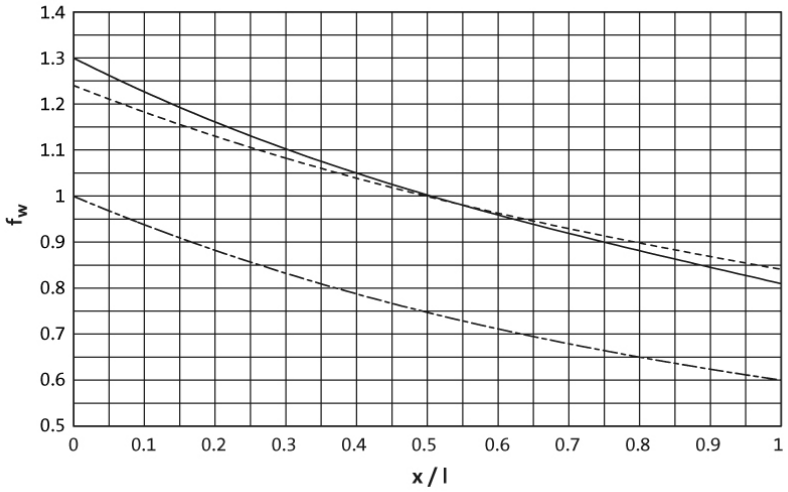


——— Direction of rotation R
— — — Direction of rotation L



Permissible radial and axial forces at output

Additional load factor f_w at output shaft



——— Solid shaft (V□□)
— · — Hollow shaft (H□□)
— — — Solid shaft with flange (V□K)

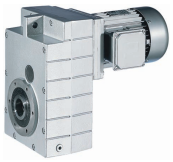
GFL□□-2/3□ H□□

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

	Max. radial force, Hollow 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]
GFL04	2100	2700	2800	3200	3800	4600	5500	6300	7000	7000
GFL05	1800	2400	3000	3400	4100	5000	6000	7100	8000	8000
GFL06	2400	3300	4300	4700	5000	6600	8500	10800	12000	12000
GFL07	2200	3400	4500	5100	6400	7900	9300	11500	15000	16000
GFL09			5000	6000	7200	10500	13000	15000	22000	24000
GFL11			7300	8700	10000	14200	19000	23000	27000	30000
GFL14			8000	9000	9500	11500	14000	18000	30000	45000

	Max. axial force, Hollow 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]
GFL04	1300	1700	2200	2600	3200	4200	5300	5500	5500	5500
GFL05	1600	2200	2800	3600	4200	5900	6600	6600	6600	6600
GFL06	2400	3200	4000	5200	6000	8500	10000	10000	10000	10000
GFL07	2000	2700	3400	4700	6000	8500	12000	14000	14000	14000
GFL09			3100	4200	5800	10000	13500	17000	21000	21000
GFL11			4700	6000	7500	14000	19000	25000	27000	27000
GFL14			4000	5000	6200	7500	11000	17500	31000	35000

- Application of force F_{rad}: at hollow shaft end face (x = 0)
- $F_{ax,max}$ only valid with F_{rad} = 0
- Neither radial nor axial forces are permissible for the hollow shaft with shrink disc (S□□).



Permissible radial and axial forces at output

GFL□□-2/3□ V□R

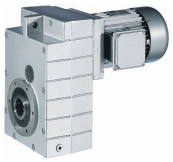
Size	n_2 [r/min]									
Gearbox	1000	630	400	250	160	100	63	40	25	≤16

	Max. radial force, Solid shaft without flange									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GFL04	1650	2100	2300	2700	3200	3600	3600	3600	3600	3600
GFL05	1400	1900	2400	2700	3200	4000	4800	5800	6200	6200
GFL06	1850	2500	3200	3600	3900	5100	6500	8400	9000	9000
GFL07	1650	2600	3200	3600	3900	5100	6500	8400	9000	9000
GFL09 [1]			3800	4400	5500	8000	10000	12000	18000	18000
GFL11 [1]			5500	6300	7300	11200	14500	17400	20500	23000
GFL14			47000	54000	62000	65000	65000	65000	65000	65000

	Max. axial force, Solid shaft without flange									
	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GFL04	1300	1700	2200	2600	3200	4200	5300	5500	5500	5500
GFL05	1600	2200	2800	3600	4200	5900	6600	6600	6600	6600
GFL06	2400	3200	4000	5200	6000	8500	10000	10000	10000	10000
GFL07	2000	2700	3400	4700	6000	8500	12000	14000	14000	14000
GFL09 [1]			3100	4200	5800	10000	13500	17000	21000	21000
GFL11 [1]			4700	6000	7500	14000	19000	25000	27000	27000
GFL14			25000	27000	29000	32000	35000	35000	35000	35000

[1] Reinforced output shaft bearings are available on request for V□R versions.

- 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

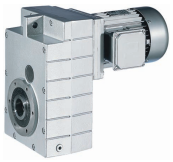
GFL□□-2/3□ V□K

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

	Max. radial force, Solid shaft with flange									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GFL04	2300	2800	3200	3700	4400	4600	4600	4600	4600	4600
GFL05	2900	3700	4300	5100	5900	6800	7000	7000	7000	7000
GFL06	4000	5000	6100	7000	7800	9600	10000	10000	10000	10000
GFL07	4000	5200	6400	7400	8900	10500	12000	13000	14000	14000
GFL09			7800	9000	10500	14000	15000	15000	15000	15000
GFL11			12500	14500	17000	21500	26000	30000	30000	30000
GFL14			18000	20000	23000	27500	32000	38000	43000	43000

	Max. axial force, Solid shaft with flange									
	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$	$F_{ax,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
GFL04	1300	1700	2200	2600	3200	4200	4400	4400	4400	4400
GFL05	1800	2400	3100	3900	4800	6400	6600	6600	6600	6600
GFL06	2500	3400	4300	5500	6500	8500	10000	10000	10000	10000
GFL07	3600	4800	6100	6500	7000	9500	11500	11500	11500	11500
GFL09			6100	6500	7000	9500	11500	11500	11500	11500
GFL11			6800	8500	10500	17000	22000	27000	27000	27000
GFL14			6000	8000	10000	13000	19000	26000	35000	35000

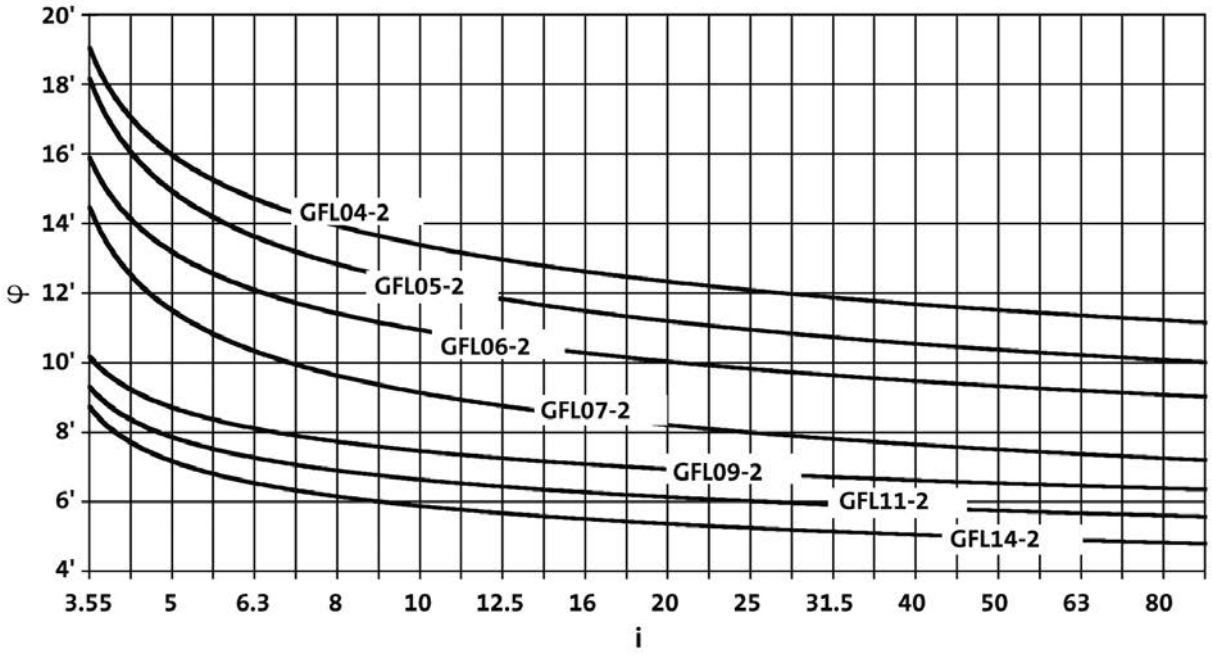
- Application of force F_{rad}: centre of shaft journal (x = l/2)
- $F_{ax,max}$ only valid with F_{rad} = 0



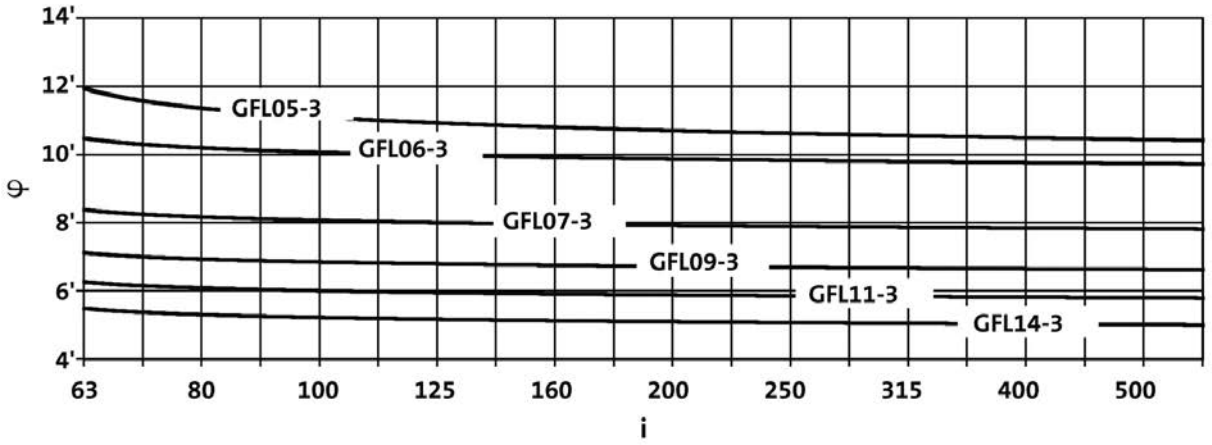
Output backlash in angular minutes

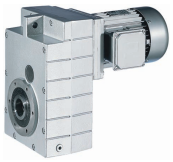
► Backlash ϕ depending on ratio i

GFL04 to 14-2



GFL05 to 14-3





Moments of inertia

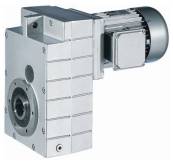
GFL□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GFL04
3.659	J	[kgcm²]	1.510
5.018	J	[kgcm²]	0.858
5.833	J	[kgcm²]	0.925
6.422	J	[kgcm²]	0.555
7.025	J	[kgcm²]	0.473
8.379	J	[kgcm²]	0.666
9.333	J	[kgcm²]	0.613
10.238	J	[kgcm²]	0.366
11.491	J	[kgcm²]	0.410
12.800	J	[kgcm²]	0.382
14.706	J	[kgcm²]	0.282
16.087	J	[kgcm²]	0.245
17.920	J	[kgcm²]	0.230
20.519	J	[kgcm²]	0.171
22.857	J	[kgcm²]	0.163
25.136	J	[kgcm²]	0.129
28.000	J	[kgcm²]	0.123
31.600	J	[kgcm²]	0.086
35.200	J	[kgcm²]	0.082
40.697	J	[kgcm²]	0.058
45.333	J	[kgcm²]	0.056
51.579	J	[kgcm²]	0.038
57.455	J	[kgcm²]	0.037
64.636	J	[kgcm²]	0.026
72.000	J	[kgcm²]	0.025
85.156	J	[kgcm²]	0.016
94.857	J	[kgcm²]	0.015

Gearbox			GFL05
3.333	J	[kgcm²]	1.677
4.571	J	[kgcm²]	2.133
5.133	J	[kgcm²]	2.372
5.667	J	[kgcm²]	2.329
6.400	J	[kgcm²]	0.822
7.040	J	[kgcm²]	1.470
7.771	J	[kgcm²]	1.450
9.010	J	[kgcm²]	0.951
9.946	J	[kgcm²]	0.885
11.360	J	[kgcm²]	1.082
12.800	J	[kgcm²]	1.012
14.538	J	[kgcm²]	0.746
15.904	J	[kgcm²]	0.603
17.920	J	[kgcm²]	0.609
20.286	J	[kgcm²]	0.428
22.857	J	[kgcm²]	0.434
24.850	J	[kgcm²]	0.345
28.000	J	[kgcm²]	0.331
32.344	J	[kgcm²]	0.204
36.444	J	[kgcm²]	0.195
40.233	J	[kgcm²]	0.148
45.333	J	[kgcm²]	0.142
52.067	J	[kgcm²]	0.093
58.667	J	[kgcm²]	0.090
63.190	J	[kgcm²]	0.068
71.200	J	[kgcm²]	0.064
80.763	J	[kgcm²]	0.043
91.000	J	[kgcm²]	0.042

► 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

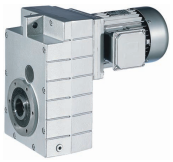
GFL□□-2

► Moment of inertia (J) depending on ratio i

Gearbox			GFL06
3.675	J	[kgcm²]	7.755
5.211	J	[kgcm²]	6.636
5.750	J	[kgcm²]	6.044
6.450	J	[kgcm²]	3.651
7.147	J	[kgcm²]	4.044
8.400	J	[kgcm²]	4.264
9.463	J	[kgcm²]	3.879
10.092	J	[kgcm²]	2.520
11.520	J	[kgcm²]	1.730
12.978	J	[kgcm²]	2.610
14.743	J	[kgcm²]	1.950
16.128	J	[kgcm²]	1.680
18.169	J	[kgcm²]	1.570
20.571	J	[kgcm²]	1.190
23.175	J	[kgcm²]	1.130
25.200	J	[kgcm²]	0.904
28.389	J	[kgcm²]	0.861
32.800	J	[kgcm²]	0.581
36.951	J	[kgcm²]	0.556
40.800	J	[kgcm²]	0.425
45.963	J	[kgcm²]	0.407
52.800	J	[kgcm²]	0.264
59.481	J	[kgcm²]	0.251
64.080	J	[kgcm²]	0.193
72.189	J	[kgcm²]	0.187
81.000	J	[kgcm²]	0.125
91.250	J	[kgcm²]	0.121

Gearbox			GFL07
3.350	J	[kgcm²]	19.570
4.643	J	[kgcm²]	11.988
5.159	J	[kgcm²]	11.120
5.695	J	[kgcm²]	18.094
6.400	J	[kgcm²]	9.831
7.150	J	[kgcm²]	11.878
8.324	J	[kgcm²]	13.113
9.379	J	[kgcm²]	12.037
9.714	J	[kgcm²]	8.030
11.538	J	[kgcm²]	8.520
13.000	J	[kgcm²]	7.970
14.200	J	[kgcm²]	6.350
15.904	J	[kgcm²]	5.270
17.920	J	[kgcm²]	4.980
20.286	J	[kgcm²]	3.470
22.857	J	[kgcm²]	3.268
24.850	J	[kgcm²]	2.645
28.000	J	[kgcm²]	2.525
32.344	J	[kgcm²]	1.690
36.444	J	[kgcm²]	1.610
39.642	J	[kgcm²]	1.250
44.667	J	[kgcm²]	1.200
52.067	J	[kgcm²]	0.783
58.667	J	[kgcm²]	0.753
63.190	J	[kgcm²]	0.573
71.200	J	[kgcm²]	0.555
79.875	J	[kgcm²]	0.366
90.000	J	[kgcm²]	0.358

► 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

GFL□□-2

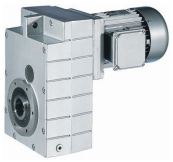
► Moment of inertia (J) depending on ratio i

Gearbox			GFL09
6.864	J	[kgcm²]	41.300
7.466	J	[kgcm²]	38.700
9.010	J	[kgcm²]	26.800
9.799	J	[kgcm²]	25.300
11.167	J	[kgcm²]	19.500
12.307	J	[kgcm²]	27.600
14.333	J	[kgcm²]	20.000
16.333	J	[kgcm²]	15.500
18.407	J	[kgcm²]	14.600
19.667	J	[kgcm²]	12.100
22.164	J	[kgcm²]	11.300
24.111	J	[kgcm²]	9.040
27.173	J	[kgcm²]	8.630
32.667	J	[kgcm²]	5.430
36.815	J	[kgcm²]	5.210
39.667	J	[kgcm²]	4.070
44.704	J	[kgcm²]	3.920
51.333	J	[kgcm²]	2.590
57.852	J	[kgcm²]	2.500
62.300	J	[kgcm²]	1.890
70.211	J	[kgcm²]	1.830
78.750	J	[kgcm²]	1.250
88.750	J	[kgcm²]	1.210

Gearbox			GFL11
6.864	J	[kgcm²]	124.000
7.466	J	[kgcm²]	116.000
9.010	J	[kgcm²]	79.600
9.799	J	[kgcm²]	74.800
10.720	J	[kgcm²]	65.000
12.480	J	[kgcm²]	81.500
14.538	J	[kgcm²]	58.400
15.904	J	[kgcm²]	51.300
17.920	J	[kgcm²]	48.300
20.286	J	[kgcm²]	36.100
22.857	J	[kgcm²]	34.300
24.850	J	[kgcm²]	26.900
28.000	J	[kgcm²]	25.700
32.739	J	[kgcm²]	17.100
36.889	J	[kgcm²]	16.500
40.233	J	[kgcm²]	12.600
45.333	J	[kgcm²]	12.200
52.067	J	[kgcm²]	8.080
58.667	J	[kgcm²]	7.810
63.190	J	[kgcm²]	5.900
71.200	J	[kgcm²]	5.720
79.875	J	[kgcm²]	3.870
90.000	J	[kgcm²]	3.760

Gearbox			GFL14
7.150	J	[kgcm²]	344.000
7.777	J	[kgcm²]	321.000
8.800	J	[kgcm²]	247.000
9.571	J	[kgcm²]	232.000
11.538	J	[kgcm²]	242.000
13.000	J	[kgcm²]	225.000
14.200	J	[kgcm²]	625.000
15.620	J	[kgcm²]	156.000
17.600	J	[kgcm²]	146.000
19.948	J	[kgcm²]	111.000
22.476	J	[kgcm²]	105.000
24.456	J	[kgcm²]	83.200
27.556	J	[kgcm²]	79.400
32.344	J	[kgcm²]	52.900
36.444	J	[kgcm²]	50.700
39.642	J	[kgcm²]	38.000
44.667	J	[kgcm²]	36.600
52.067	J	[kgcm²]	24.600
58.667	J	[kgcm²]	23.800
63.190	J	[kgcm²]	18.000
71.200	J	[kgcm²]	17.400
79.875	J	[kgcm²]	11.800
90.000	J	[kgcm²]	11.500

► 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

GFL□□-3

► Moment of inertia (J) depending on ratio i

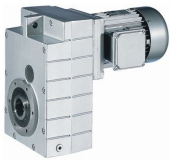
Gearbox			GFL05
61.653	J	[kgcm²]	0.202
78.639	J	[kgcm²]	0.145
90.123	J	[kgcm²]	0.197
101.547	J	[kgcm²]	0.196
114.952	J	[kgcm²]	0.142
129.524	J	[kgcm²]	0.141
140.817	J	[kgcm²]	0.109
158.667	J	[kgcm²]	0.109
177.027	J	[kgcm²]	0.073
199.467	J	[kgcm²]	0.073
227.989	J	[kgcm²]	0.051
256.889	J	[kgcm²]	0.050
288.948	J	[kgcm²]	0.033
325.576	J	[kgcm²]	0.033
362.100	J	[kgcm²]	0.023
408.000	J	[kgcm²]	0.023
477.052	J	[kgcm²]	0.014
537.524	J	[kgcm²]	0.014

Gearbox			GFL06
66.213	J	[kgcm²]	0.292
72.000	J	[kgcm²]	0.264
81.111	J	[kgcm²]	0.259
88.200	J	[kgcm²]	0.190
99.361	J	[kgcm²]	0.187
116.571	J	[kgcm²]	0.091
131.323	J	[kgcm²]	0.208
144.320	J	[kgcm²]	0.110
162.583	J	[kgcm²]	0.109
179.520	J	[kgcm²]	0.102
202.237	J	[kgcm²]	0.101
231.200	J	[kgcm²]	0.068
260.457	J	[kgcm²]	0.067
293.018	J	[kgcm²]	0.044
299.200	J	[kgcm²]	0.064
367.200	J	[kgcm²]	0.030
413.667	J	[kgcm²]	0.030
475.200	J	[kgcm²]	0.029
535.333	J	[kgcm²]	0.028
576.720	J	[kgcm²]	0.028
649.700	J	[kgcm²]	0.028
759.806	J	[kgcm²]	0.017
855.954	J	[kgcm²]	0.017

Gearbox			GFL07
65.306	J	[kgcm²]	0.790
72.452	J	[kgcm²]	0.894
81.636	J	[kgcm²]	0.880
92.413	J	[kgcm²]	0.609
104.127	J	[kgcm²]	0.601
113.206	J	[kgcm²]	0.448
127.556	J	[kgcm²]	0.442
147.347	J	[kgcm²]	0.275
166.025	J	[kgcm²]	0.271
183.285	J	[kgcm²]	0.194
206.519	J	[kgcm²]	0.192
224.636	J	[kgcm²]	0.180
253.111	J	[kgcm²]	0.179
290.706	J	[kgcm²]	0.112
327.556	J	[kgcm²]	0.111
352.811	J	[kgcm²]	0.081
397.533	J	[kgcm²]	0.080
430.222	J	[kgcm²]	0.104
522.133	J	[kgcm²]	0.075
562.391	J	[kgcm²]	0.073
633.680	J	[kgcm²]	0.073
718.786	J	[kgcm²]	0.047
809.900	J	[kgcm²]	0.046

Gearbox			GFL09
63.326	J	[kgcm²]	2.344
73.173	J	[kgcm²]	2.472
82.465	J	[kgcm²]	2.428
93.333	J	[kgcm²]	1.679
105.185	J	[kgcm²]	1.651
114.333	J	[kgcm²]	1.230
128.852	J	[kgcm²]	1.212
148.815	J	[kgcm²]	0.773
167.712	J	[kgcm²]	0.762
185.111	J	[kgcm²]	0.548
208.617	J	[kgcm²]	0.541
224.778	J	[kgcm²]	0.505
253.321	J	[kgcm²]	0.500
290.889	J	[kgcm²]	0.313
327.827	J	[kgcm²]	0.310
353.033	J	[kgcm²]	0.226
397.863	J	[kgcm²]	0.224
424.247	J	[kgcm²]	0.286
514.881	J	[kgcm²]	0.208
554.470	J	[kgcm²]	0.201
624.879	J	[kgcm²]	0.200
700.875	J	[kgcm²]	0.130
789.875	J	[kgcm²]	0.129

► 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

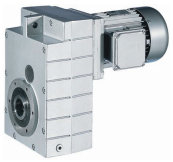
GFL□□-3

► Moment of inertia (J) depending on ratio i

Gearbox			GFL11
65.306	J	[kgcm²]	6.967
73.335	J	[kgcm²]	7.844
82.631	J	[kgcm²]	7.707
93.540	J	[kgcm²]	5.050
105.397	J	[kgcm²]	4.965
114.586	J	[kgcm²]	3.712
129.111	J	[kgcm²]	3.656
149.144	J	[kgcm²]	2.299
168.049	J	[kgcm²]	2.265
182.792	J	[kgcm²]	1.661
205.963	J	[kgcm²]	1.639
224.636	J	[kgcm²]	1.515
253.111	J	[kgcm²]	1.501
267.259	J	[kgcm²]	1.865
327.556	J	[kgcm²]	1.373
358.077	J	[kgcm²]	0.679
403.467	J	[kgcm²]	0.673
430.222	J	[kgcm²]	0.853
522.133	J	[kgcm²]	0.623
562.391	J	[kgcm²]	0.599
633.680	J	[kgcm²]	0.596
710.888	J	[kgcm²]	0.385
801.000	J	[kgcm²]	0.384

Gearbox			GFL14
64.296	J	[kgcm²]	26.316
68.708	J	[kgcm²]	19.862
77.418	J	[kgcm²]	19.381
85.037	J	[kgcm²]	21.590
104.889	J	[kgcm²]	9.324
114.126	J	[kgcm²]	8.318
128.593	J	[kgcm²]	8.144
136.889	J	[kgcm²]	16.779
156.148	J	[kgcm²]	5.917
170.074	J	[kgcm²]	6.962
202.074	J	[kgcm²]	3.692
224.636	J	[kgcm²]	4.742
253.111	J	[kgcm²]	4.697
273.778	J	[kgcm²]	5.759
332.444	J	[kgcm²]	4.300
352.811	J	[kgcm²]	2.163
397.533	J	[kgcm²]	2.145
430.222	J	[kgcm²]	2.727
522.133	J	[kgcm²]	1.984
562.391	J	[kgcm²]	1.910
633.680	J	[kgcm²]	1.903
710.888	J	[kgcm²]	1.259
801.000	J	[kgcm²]	1.254

► 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

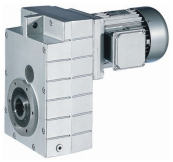
GFL□□-2M HAR / HBR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	12	14	19				
GFL05	m	[kg]	25	28	32	40	49		
GFL06	m	[kg]	41	43	47	56	64	77	
GFL07	m	[kg]			75	83	91	104	134
GFL09	m	[kg]				132	141	153	184
GFL11	m	[kg]					233	245	274
GFL14	m	[kg]						396	424

GFL□□-2M HCR / HDR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	11	13	18				
GFL05	m	[kg]	24	26	31	39	47		
GFL06	m	[kg]	38	40	45	53	62	74	
GFL07	m	[kg]			71	79	87	100	130
GFL09	m	[kg]				125	134	146	177
GFL11	m	[kg]					219	231	260
GFL14	m	[kg]						373	401

► 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

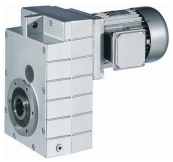
GFL□□-2M HAK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	14	16	22				
GFL05	m	[kg]	29	32	36	44	53		
GFL06	m	[kg]	48	50	54	63	71	84	
GFL07	m	[kg]			86	94	102	115	145
GFL09	m	[kg]				148	157	169	200
GFL11	m	[kg]					257	269	298
GFL14	m	[kg]						429	457

GFL□□-2M HCK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	13	15	21				
GFL05	m	[kg]	28	30	35	43	51		
GFL06	m	[kg]	45	47	52	60	69	81	
GFL07	m	[kg]			82	90	98	111	141
GFL09	m	[kg]				141	150	162	193
GFL11	m	[kg]					243	255	284
GFL14	m	[kg]						406	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.



Weights

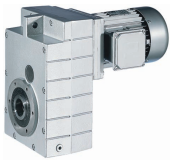
GFL□□-2M VAR / VBR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	12	15	20	27			
GFL05	m	[kg]	26	29	33	41	50		
GFL06	m	[kg]	43	45	50	58	67	79	
GFL07	m	[kg]			80	88	96	109	139
GFL09	m	[kg]				140	149	161	192
GFL11	m	[kg]					249	261	290
GFL14	m	[kg]						429	457

GFL□□-2M VCR / VDR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	11	14	19	26			
GFL05	m	[kg]	25	27	32	40	48		
GFL06	m	[kg]	41	43	47	56	64	77	
GFL07	m	[kg]			76	84	92	105	135
GFL09	m	[kg]				133	142	154	185
GFL11	m	[kg]					235	247	276
GFL14	m	[kg]						406	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.



Weights

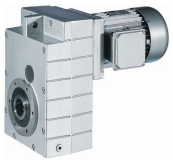
GFL□□-2M VAK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	15	17	22	30			
GFL05	m	[kg]	30	33	37	45	54		
GFL06	m	[kg]	50	52	57	65	74	86	
GFL07	m	[kg]			91	99	107	120	150
GFL09	m	[kg]				156	165	177	208
GFL11	m	[kg]					273	285	314
GFL14	m	[kg]						462	490

GFL□□-2M VCK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	14	16	21	29			
GFL05	m	[kg]	29	31	36	44	52		
GFL06	m	[kg]	48	50	54	63	71	84	
GFL07	m	[kg]			87	95	103	116	146
GFL09	m	[kg]				149	158	170	201
GFL11	m	[kg]					259	271	300
GFL14	m	[kg]						439	467

► 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

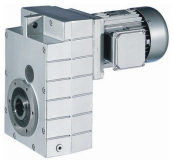
GFL□□-2M SAR / SBR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	12	15	20	27			
GFL05	m	[kg]	26	29	33	41	50		
GFL06	m	[kg]	42	44	48	57	65	78	
GFL07	m	[kg]			76	84	93	106	135
GFL09	m	[kg]				135	144	156	187
GFL11	m	[kg]					238	250	279
GFL14	m	[kg]						407	435

GFL□□-2M SCR / SDR

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL04	m	[kg]	11	14	19	26			
GFL05	m	[kg]	25	27	32	40	48		
GFL06	m	[kg]	39	41	46	54	63	75	
GFL07	m	[kg]			72	80	89	102	131
GFL09	m	[kg]				128	137	149	180
GFL11	m	[kg]					224	236	265
GFL14	m	[kg]						384	412

► 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

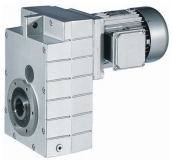
GFL□□-2M SAK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL05	m	[kg]	30	33	37	45	54		
GFL06	m	[kg]	49	51	55	64	72	85	
GFL07	m	[kg]			87	95	104	117	146
GFL09	m	[kg]				151	160	172	203
GFL11	m	[kg]					262	274	303
GFL14	m	[kg]						440	468

GFL□□-2M SCK

			063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
GFL05	m	[kg]	29	31	36	44	52		
GFL06	m	[kg]	46	48	53	61	70	82	
GFL07	m	[kg]			83	91	100	113	142
GFL09	m	[kg]				144	153	165	196
GFL11	m	[kg]					248	260	289
GFL14	m	[kg]						417	445

► 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

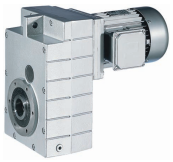
GFL□□-3M HAR / HBR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	26	28							
GFL06	m	[kg]	44	46		51					
GFL07	m	[kg]	76	78		83	91				
GFL09	m	[kg]	130	132		137	145	154			
GFL11	m	[kg]				237	245	254	267	297	
GFL14	m	[kg]					411	419	432	462	

GFL□□-3M HCR / HDR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	25	27							
GFL06	m	[kg]	42	44		49					
GFL07	m	[kg]	72	74		79	87				
GFL09	m	[kg]	123	125		130	138	147			
GFL11	m	[kg]				223	231	240	253	283	
GFL14	m	[kg]					388	396	409	439	

► 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

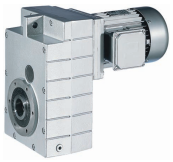
GFL□□-3M HAK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	30	32							
GFL06	m	[kg]	51	53		58					
GFL07	m	[kg]	87	89		94	102				
GFL09	m	[kg]	146	148		153	161	170			
GFL11	m	[kg]				261	269	278	291	321	
GFL14	m	[kg]					444	452	465	495	

GFL□□-3M HCK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	29	31							
GFL06	m	[kg]	49	51		56					
GFL07	m	[kg]	83	85		90	98				
GFL09	m	[kg]	139	141		146	154	163			
GFL11	m	[kg]				247	255	264	277	307	
GFL14	m	[kg]					421	429	442	472	

► 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

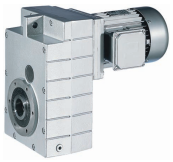
GFL□□-3M VAR / VBR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	27	29							
GFL06	m	[kg]	47	49		54					
GFL07	m	[kg]	81	83		88	96				
GFL09	m	[kg]	138	140		145	153	162			
GFL11	m	[kg]				253	261	270	283	313	
GFL14	m	[kg]					444	452	465	495	

GFL□□-3M VCR / VDR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	26	28							
GFL06	m	[kg]	44	46		51					
GFL07	m	[kg]	77	79		84	92				
GFL09	m	[kg]	131	133		138	146	155			
GFL11	m	[kg]				239	247	256	269	299	
GFL14	m	[kg]					421	429	442	472	

► 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

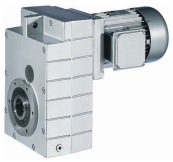
GFL□□-3M VAK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	31	33							
GFL06	m	[kg]	54	56		61					
GFL07	m	[kg]	92	94		99	107				
GFL09	m	[kg]	154	156		161	169	178			
GFL11	m	[kg]				277	285	294	307	337	
GFL14	m	[kg]					477	485	498	528	

GFL□□-3M HCK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	30	32							
GFL06	m	[kg]	51	53		58					
GFL07	m	[kg]	88	90		95	103				
GFL09	m	[kg]	147	149		154	162	171			
GFL11	m	[kg]				263	271	280	293	323	
GFL14	m	[kg]					454	462	475	505	

► 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

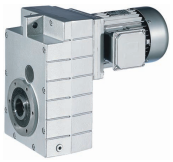
GFL□□-3M SAR / SBR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	27	29							
GFL06	m	[kg]	45	47		52					
GFL07	m	[kg]	77	80		84	92				
GFL09	m	[kg]	133	135		140	148	157			
GFL11	m	[kg]				242	250	259	272	302	
GFL14	m	[kg]					422	430	443	473	

GFL□□-3M SCR / SDR

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	26	28							
GFL06	m	[kg]	43	45		50					
GFL07	m	[kg]	73	76		80	88				
GFL09	m	[kg]	126	128		133	141	150			
GFL11	m	[kg]				228	236	245	258	288	
GFL14	m	[kg]					399	407	420	450	

► 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

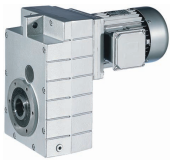
GFL□□-3M SAK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	31	33							
GFL06	m	[kg]	52	54		59					
GFL07	m	[kg]	88	91		95	103				
GFL09	m	[kg]	149	151		156	164	173			
GFL11	m	[kg]				266	274	283	296	326	
GFL14	m	[kg]					455	463	476	506	

GFL□□-3M SCK

			063C32 063C42	071C32	071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12	132C22 132C32
GFL05	m	[kg]	30	32							
GFL06	m	[kg]	50	52		57					
GFL07	m	[kg]	84	87		91	99				
GFL09	m	[kg]	142	144		149	157	166			
GFL11	m	[kg]				252	260	269	282	312	
GFL14	m	[kg]					432	440	453	483	

► 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.

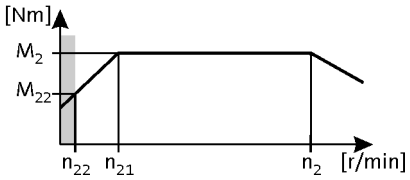


Selection tables

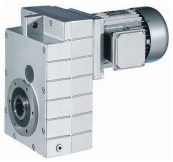
► 120 Hz: P_N = 0.55 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 143.3 ... 3440 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
22	94	-	538	7.2	10	3.9	6.400	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
20	85	-	490	7.9	10	4.5	7.025	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
14	59	-	336	12	15	4.5	10.238	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
9.8	41	-	234	17	22	4.5	14.706	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
9.0	38	-	216	18	24	3.9	15.904	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
8.0	34	-	192	20	27	3.9	17.920	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
7.0	29	-	168	23	30	4.1	20.519	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
6.3	26	-	151	26	34	3.7	22.857	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
5.7	24	-	137	28	37	4.2	25.136	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
5.1	21	-	123	31	42	3.5	28.000	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
4.5	19	-	109	35	47	3.4	31.600	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
4.1	17	-	98	40	52	2.8	35.200	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
3.5	15	-	85	46	60	2.7	40.697	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
3.2	13	-	76	51	67	2.2	45.333	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
2.8	12	-	67	58	76	2.1	51.579	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
2.8	12	-	66	58	77	3.2	52.067	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
2.5	10	-	60	64	85	1.8	57.455	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
2.4	10	-	59	66	87	3.2	58.667	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
2.3	9.7	-	56	68	90	2.0	61.653	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
2.3	9.5	-	54	71	94	2.6	63.190	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
2.2	9.4	-	54	72	95	3.1	64.080	GFL06-2M□□□063C32	E84AV□□□5514□□0	74
2.2	9.3	-	53	73	96	1.2	64.636	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
2.0	8.3	-	48	81	107	1.3	72.000	GFL04-2M□□□063C32	E84AV□□□5514□□0	74
2.0	8.4	-	48	80	106	2.8	71.200	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
1.8	7.6	-	44	87	115	1.9	78.639	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.8	7.4	-	43	91	120	1.5	80.763	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
1.8	7.4	-	43	91	120	2.8	81.000	GFL06-2M□□□063C32	E84AV□□□5514□□0	74
1.6	6.6	-	38	102	135	1.5	91.000	GFL05-2M□□□063C32	E84AV□□□5514□□0	74
1.6	6.7	-	38	100	132	2.2	90.123	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.6	6.6	-	38	102	135	2.8	91.250	GFL06-2M□□□063C32	E84AV□□□5514□□0	74
1.4	5.9	-	34	112	148	2.1	101.547	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.3	5.2	-	30	127	168	1.9	114.952	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.2	5.2	-	30	129	170	3.0	116.571	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
1.1	4.6	-	27	143	189	1.7	129.524	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.1	4.6	-	26	145	192	3.0	131.323	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
1.0	4.3	-	24	156	206	1.6	140.817	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
1.0	4.2	-	24	159	211	2.5	144.320	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.9	3.8	-	22	175	232	1.4	158.667	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
0.9	3.7	-	21	180	237	2.5	162.583	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.8	3.4	-	19	196	258	1.3	177.027	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
0.8	3.3	-	19	198	262	2.2	179.520	GFL06-3M□□□063C32	E84AV□□□5514□□0	82

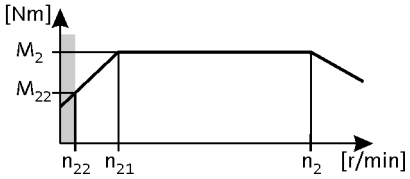


Selection tables

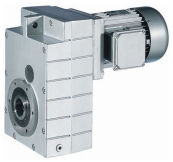
► 120 Hz: P_N = 0.55 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 143.3 ... 3440 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
0.7	3.0	-	17	220	291	1.1	199.467	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
0.7	3.0	-	17	223	295	2.0	202.237	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.6	2.6	-	15	252	333	1.0	227.989	GFL05-3M□□□063C32	E84AV□□□5514□□0	82
0.6	2.6	-	15	255	337	1.8	231.200	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.6	2.3	-	13	288	380	1.5	260.457	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.5	2.0	-	12	330	437	1.3	299.200	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.5	2.1	-	12	324	428	1.5	293.018	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.5	2.1	-	12	321	424	3.1	290.706	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.4	1.8	-	11	362	478	2.5	327.556	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.4	1.7	-	9.8	390	515	2.6	352.811	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.4	1.6	-	9.4	406	536	1.2	367.200	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.4	1.5	-	8.7	439	580	2.1	397.533	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.4	1.5	-	8.3	457	604	1.0	413.667	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.3	1.4	-	8.0	475	628	1.9	430.222	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.3	1.3	-	7.2	525	693	0.9	475.200	GFL06-3M□□□063C32	E84AV□□□5514□□0	82
0.3	1.2	-	6.6	577	762	1.6	522.133	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.3	1.1	-	6.2	612	809	2.5	554.470	GFL09-3M□□□063C32	E84AV□□□5514□□0	82
0.3	1.1	-	6.1	621	821	1.3	562.391	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.2	1.0	-	5.5	690	912	2.4	624.879	GFL09-3M□□□063C32	E84AV□□□5514□□0	82
0.2	1.0	-	5.4	700	925	1.3	633.680	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.2	0.9	-	4.9	774	1023	2.0	700.875	GFL09-3M□□□063C32	E84AV□□□5514□□0	82
0.2	0.8	-	4.8	794	1049	1.0	718.786	GFL07-3M□□□063C32	E84AV□□□5514□□0	82
0.2	0.8	-	4.4	872	1153	1.9	789.875	GFL09-3M□□□063C32	E84AV□□□5514□□0	82
0.2	0.7	-	4.3	894	1182	1.0	809.900	GFL07-3M□□□063C32	E84AV□□□5514□□0	82

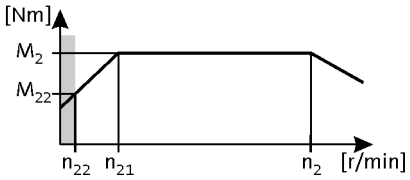


Selection tables

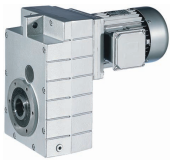
► 120 Hz: P_N = 0.75 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 141.7 ... 3400 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
22	94	-	531	9.8	13	2.9	6.400	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
20	85	-	484	11	14	3.3	7.025	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
14	59	-	332	16	21	3.3	10.238	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
9.6	41	-	231	23	30	3.3	14.706	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
8.9	38	-	214	24	33	2.9	15.904	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
7.9	34	-	190	27	37	2.9	17.920	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
6.9	29	-	166	31	42	3.0	20.519	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
6.2	26	-	149	35	47	2.7	22.857	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
5.6	24	-	135	38	51	3.1	25.136	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
5.1	21	-	121	43	57	2.5	28.000	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
4.5	19	-	108	48	65	2.5	31.600	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
4.4	19	-	105	49	66	3.1	32.344	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
4.0	17	-	97	54	72	2.0	35.200	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
3.9	17	-	93	56	75	3.1	36.444	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
3.5	15	-	85	62	82	2.6	40.233	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
3.5	15	-	84	62	83	1.9	40.697	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
3.1	13	-	75	69	93	1.6	45.333	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
3.1	13	-	75	69	93	2.6	45.333	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
2.8	12	-	66	79	105	1.6	51.579	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
2.7	12	-	65	80	106	2.3	52.067	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
2.7	11	-	64	81	108	2.6	52.800	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
2.5	10	-	59	88	117	1.3	57.455	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
2.4	10	-	58	90	120	2.3	58.667	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
2.4	10	-	57	91	122	2.6	59.481	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
2.3	9.7	-	55	93	124	1.4	61.653	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
2.2	9.5	-	54	97	129	1.9	63.190	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
2.2	9.4	-	53	98	131	2.3	64.080	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
2.0	8.4	-	48	109	146	2.0	71.200	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
2.0	8.3	-	47	110	147	1.0	72.000	GFL04-2M□□□063C42	E84AV□□□7514□□0	74
2.0	8.3	-	47	110	148	2.5	72.189	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
1.8	7.6	-	43	118	158	1.4	78.639	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
1.8	7.4	-	42	124	165	1.1	80.763	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
1.8	7.4	-	42	124	166	2.0	81.000	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
1.8	7.4	-	42	122	163	2.9	81.111	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
1.6	6.8	-	39	133	178	2.6	88.200	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
1.6	6.7	-	38	136	181	1.6	90.123	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
1.6	6.6	-	37	139	186	1.1	91.000	GFL05-2M□□□063C42	E84AV□□□7514□□0	74
1.6	6.6	-	37	140	187	2.0	91.250	GFL06-2M□□□063C42	E84AV□□□7514□□0	74
1.4	5.9	-	34	153	204	1.5	101.547	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
1.4	6.0	-	34	150	200	2.6	99.361	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
1.2	5.2	-	30	173	231	1.4	114.952	GFL05-3M□□□063C42	E84AV□□□7514□□0	82

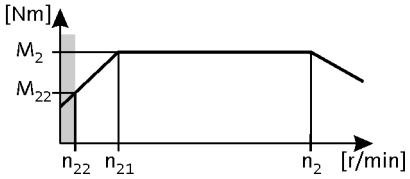


Selection tables

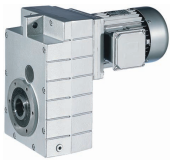
► 120 Hz: P_N = 0.75 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 141.7 ... 3400 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
1.2	5.2	-	29	176	235	2.2	116.571	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
1.1	4.6	-	26	195	261	1.2	129.524	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
1.1	4.6	-	26	198	264	2.2	131.323	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
1.0	4.3	-	24	212	284	1.2	140.817	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
1.0	4.2	-	24	217	291	1.8	144.320	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.9	3.8	-	21	239	319	1.0	158.667	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
0.9	3.7	-	21	245	327	1.8	162.583	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.8	3.4	-	19	267	356	0.9	177.027	GFL05-3M□□□063C42	E84AV□□□7514□□0	82
0.8	3.3	-	19	270	361	1.6	179.520	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.8	3.3	-	19	276	369	2.9	183.285	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.7	3.0	-	17	305	407	1.4	202.237	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.7	2.9	-	17	311	416	2.9	206.519	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.6	2.6	-	15	348	465	1.3	231.200	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.6	2.7	-	15	338	452	2.8	224.636	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.5	2.3	-	13	392	524	1.1	260.457	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.6	2.4	-	13	381	510	2.4	253.111	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.5	2.1	-	12	441	590	1.1	293.018	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.5	2.1	-	12	438	585	2.3	290.706	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.5	2.1	-	12	438	586	2.9	290.889	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.5	2.0	-	11	451	602	1.0	299.200	GFL06-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.8	-	10	493	659	1.8	327.556	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.8	-	10	494	660	2.9	327.827	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.7	-	9.6	531	710	1.9	352.811	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.7	-	9.6	532	711	2.5	353.033	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.5	-	8.6	599	800	1.5	397.533	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.4	1.5	-	8.6	599	801	2.5	397.863	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.4	-	8.0	639	854	2.9	424.247	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.4	-	7.9	648	866	1.4	430.222	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.2	-	6.6	775	1037	2.5	514.881	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.2	-	6.5	786	1051	1.2	522.133	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.1	-	6.1	847	1132	1.0	562.391	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.3	1.1	-	6.1	835	1116	1.8	554.470	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.2	1.0	-	5.4	954	1276	0.9	633.680	GFL07-3M□□□063C42	E84AV□□□7514□□0	82
0.2	1.0	-	5.4	941	1258	1.7	624.879	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.2	0.9	-	4.9	1055	1411	1.4	700.875	GFL09-3M□□□063C42	E84AV□□□7514□□0	82
0.2	0.8	-	4.3	1190	1590	1.4	789.875	GFL09-3M□□□063C42	E84AV□□□7514□□0	82

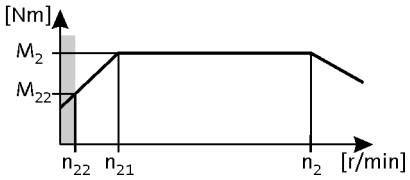


Selection tables

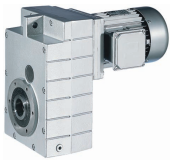
► 120 Hz: P_N = 1.10 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.4 ... 3490 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	93	-	543	14	19	3.9	6.422	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
21	85	-	497	16	21	3.9	7.025	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
16	67	-	387	20	26	4.2	9.010	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
14	59	-	341	23	30	3.9	10.238	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
9.9	41	-	237	33	43	3.2	14.706	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
9.0	37	-	217	36	47	2.9	16.087	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
8.1	34	-	195	40	52	2.4	17.920	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
7.1	29	-	170	46	60	2.3	20.519	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
6.4	26	-	153	51	67	1.9	22.857	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
5.8	24	-	139	56	73	2.1	25.136	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
5.2	21	-	125	63	82	1.8	28.000	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
4.6	19	-	110	71	92	1.7	31.600	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
4.5	19	-	108	73	95	3.1	32.344	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
4.1	17	-	99	79	103	1.4	35.200	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
4.0	17	-	96	82	106	2.5	36.444	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
3.6	15	-	87	90	118	2.5	40.233	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
3.6	15	-	86	91	119	1.3	40.697	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
3.2	13	-	77	102	132	1.1	45.333	GFL04-2M□□□071C32	E84AV□□□1124□□0	74
3.2	13	-	77	102	132	2.1	45.333	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
2.8	12	-	67	117	152	1.7	52.067	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
2.8	11	-	66	118	154	3.1	52.800	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
2.5	10	-	60	132	171	1.6	58.667	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
2.4	10	-	59	133	174	3.0	59.481	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
2.4	9.7	-	57	136	177	1.0	61.653	GFL05-3M□□□071C32	E84AV□□□1124□□0	82
2.3	9.5	-	55	142	185	1.3	63.190	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
2.3	9.4	-	55	144	187	2.5	64.080	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
2.2	9.1	-	53	146	191	2.5	66.213	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
2.0	8.4	-	49	160	208	1.4	71.200	GFL05-2M□□□071C32	E84AV□□□1124□□0	74
2.0	8.3	-	49	159	207	2.3	72.000	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
2.0	8.3	-	48	162	211	2.8	72.189	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
1.9	7.6	-	44	174	226	0.9	78.639	GFL05-3M□□□071C32	E84AV□□□1124□□0	82
1.8	7.4	-	43	182	237	1.6	81.000	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
1.8	7.4	-	43	179	233	2.0	81.111	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
1.7	6.8	-	40	195	254	1.8	88.200	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
1.6	6.7	-	39	199	259	1.1	90.123	GFL05-3M□□□071C32	E84AV□□□1124□□0	82
1.6	6.6	-	38	205	267	1.6	91.250	GFL06-2M□□□071C32	E84AV□□□1124□□0	74
1.5	6.0	-	35	220	286	1.8	99.361	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
1.4	5.9	-	34	224	292	1.1	101.547	GFL05-3M□□□071C32	E84AV□□□1124□□0	82
1.3	5.3	-	31	250	326	3.0	113.206	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
1.3	5.2	-	30	254	331	0.9	114.952	GFL05-3M□□□071C32	E84AV□□□1124□□0	82
1.3	5.2	-	30	258	335	1.5	116.571	GFL06-3M□□□071C32	E84AV□□□1124□□0	82

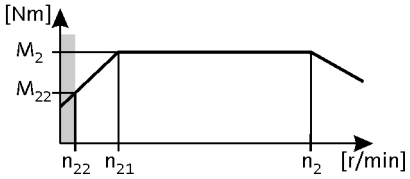


Selection tables

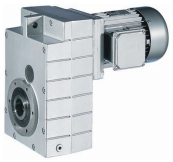
► 120 Hz: P_N = 1.10 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.4 ... 3490 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
1.1	4.6	-	27	290	378	1.5	131.323	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
1.1	4.7	-	27	282	367	3.0	127.556	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
1.0	4.2	-	24	319	415	1.3	144.320	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
1.0	4.1	-	24	325	424	2.6	147.347	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.9	3.7	-	22	359	468	1.2	162.583	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
0.9	3.6	-	21	367	478	2.5	166.025	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.8	3.3	-	19	397	516	1.1	179.520	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
0.8	3.3	-	19	405	527	2.2	183.285	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.7	3.0	-	17	447	582	1.0	202.237	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
0.7	2.9	-	17	456	594	2.0	206.519	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.7	2.7	-	16	496	646	2.0	224.636	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.6	2.6	-	15	511	665	0.9	231.200	GFL06-3M□□□071C32	E84AV□□□1124□□0	82
0.6	2.4	-	14	559	728	1.6	253.111	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.5	2.1	-	12	642	836	1.6	290.706	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.5	2.1	-	12	643	837	3.0	290.889	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.8	-	11	724	942	1.3	327.556	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.8	-	11	724	943	3.0	327.827	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.7	-	9.9	779	1015	1.3	352.811	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.7	-	9.9	780	1016	2.6	353.033	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.5	-	8.8	878	1144	1.0	397.533	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.4	1.5	-	8.8	879	1144	2.6	397.863	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.3	1.4	-	8.2	937	1220	2.1	424.247	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.3	1.4	-	8.1	950	1238	1.0	430.222	GFL07-3M□□□071C32	E84AV□□□1124□□0	82
0.3	1.2	-	6.8	1137	1481	1.7	514.881	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.3	1.1	-	6.3	1225	1595	1.3	554.470	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.2	1.0	-	5.6	1380	1797	1.2	624.879	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.2	0.9	-	5.0	1548	2016	1.0	700.875	GFL09-3M□□□071C32	E84AV□□□1124□□0	82
0.2	0.8	-	4.4	1745	2272	1.0	789.875	GFL09-3M□□□071C32	E84AV□□□1124□□0	82

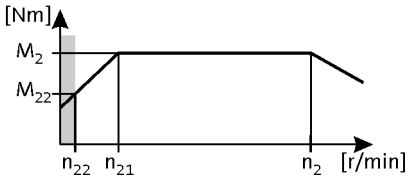


Selection tables

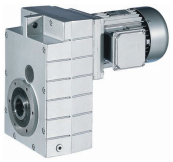
► 120 Hz: P_N = 1.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 143.8 ... 3450 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	539	20	26	3.1	6.400	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
22	93	-	537	20	26	2.9	6.422	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
21	85	-	491	22	28	2.8	7.025	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
16	67	-	383	28	36	3.1	9.010	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
15	60	-	347	30	40	3.1	9.946	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
14	59	-	337	31	41	2.9	10.238	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
9.9	41	-	237	45	59	3.1	14.538	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
9.8	41	-	235	45	59	2.3	14.706	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
9.0	38	-	217	49	64	3.1	15.904	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
8.9	37	-	215	49	65	2.1	16.087	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
8.0	34	-	193	55	72	1.8	17.920	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
8.0	34	-	193	55	72	3.1	17.920	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
7.1	30	-	170	62	82	2.9	20.286	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
7.0	29	-	168	63	83	1.7	20.519	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
7.0	29	-	168	63	83	3.1	20.571	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
6.3	26	-	151	70	92	1.4	22.857	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
6.3	26	-	151	70	92	2.6	22.857	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
6.2	26	-	149	71	93	3.1	23.175	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
5.8	24	-	139	76	100	2.9	24.850	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
5.7	24	-	137	77	101	1.6	25.136	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
5.1	21	-	123	86	113	1.3	28.000	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
5.1	21	-	123	86	113	2.4	28.000	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
4.6	19	-	109	97	127	1.3	31.600	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
4.4	19	-	107	99	130	2.3	32.344	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
4.4	18	-	105	100	132	2.9	32.800	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
4.1	17	-	98	108	142	1.0	35.200	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
3.9	17	-	95	111	147	1.9	36.444	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
3.9	16	-	93	113	149	2.9	36.951	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
3.6	15	-	86	123	162	1.8	40.233	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
3.5	15	-	85	124	164	1.0	40.697	GFL04-2M□□□071C42	E84AV□□□1524□□0	74
3.5	15	-	85	125	164	2.4	40.800	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
3.2	13	-	76	139	183	1.5	45.333	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
3.1	13	-	75	141	185	2.4	45.963	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
2.8	12	-	66	159	210	1.3	52.067	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
2.7	11	-	65	161	213	2.2	52.800	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
2.5	10	-	59	179	236	1.2	58.667	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
2.4	10	-	58	182	240	2.2	59.481	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
2.3	9.5	-	55	193	255	1.0	63.190	GFL05-2M□□□071C42	E84AV□□□1524□□0	74
2.2	9.4	-	54	196	258	1.8	64.080	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
2.2	9.1	-	52	199	263	1.8	66.213	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
2.0	8.4	-	49	218	287	1.0	71.200	GFL05-2M□□□071C42	E84AV□□□1524□□0	74

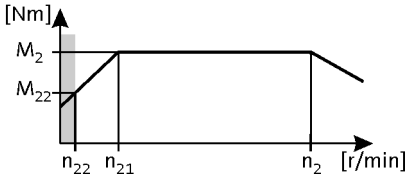


Selection tables

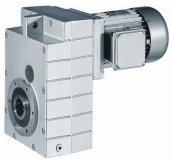
► 120 Hz: P_N = 1.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 143.8 ... 3450 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.0	8.3	-	48	217	286	1.7	72.000	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
2.0	8.3	-	48	221	291	2.0	72.189	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
2.0	8.3	-	48	218	288	2.9	72.452	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.8	7.4	-	43	248	326	1.2	81.000	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
1.8	7.4	-	43	244	322	1.5	81.111	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.8	7.4	-	42	246	324	2.9	81.636	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.6	6.8	-	39	266	350	1.3	88.200	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.6	6.6	-	38	279	368	1.2	91.250	GFL06-2M□□□071C42	E84AV□□□1524□□0	74
1.6	6.5	-	37	278	367	2.5	92.413	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.5	6.0	-	35	299	394	1.3	99.361	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.4	5.8	-	33	314	413	2.5	104.127	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.3	5.3	-	31	341	449	2.2	113.206	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.2	5.2	-	30	351	463	1.1	116.571	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.1	4.7	-	27	384	506	2.2	127.556	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.1	4.6	-	26	396	521	1.1	131.323	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.0	4.2	-	24	435	573	0.9	144.320	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
1.0	4.1	-	23	444	585	1.9	147.347	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
1.0	4.0	-	23	448	591	3.2	148.815	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.9	3.7	-	21	490	645	0.9	162.583	GFL06-3M□□□071C42	E84AV□□□1524□□0	82
0.9	3.6	-	21	500	659	1.8	166.025	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.9	3.6	-	21	505	666	3.2	167.712	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.8	3.3	-	19	552	727	1.6	183.285	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.8	3.2	-	19	558	735	2.7	185.111	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.7	2.9	-	17	622	819	1.5	206.519	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.7	2.9	-	17	628	828	2.7	208.617	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.6	2.7	-	15	677	891	1.4	224.636	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.6	2.7	-	15	677	892	2.6	224.778	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.6	2.4	-	14	762	1004	1.2	253.111	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.6	2.4	-	14	763	1005	2.6	253.321	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.5	2.1	-	12	876	1154	1.1	290.706	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.5	2.1	-	12	876	1154	2.2	290.889	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.4	1.8	-	11	987	1300	0.9	327.556	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.4	1.8	-	11	987	1301	2.2	327.827	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.4	1.7	-	9.8	1063	1400	0.9	352.811	GFL07-3M□□□071C42	E84AV□□□1524□□0	82
0.4	1.7	-	9.8	1063	1401	1.9	353.033	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.4	1.5	-	8.7	1198	1579	1.9	397.863	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.3	1.4	-	8.1	1278	1683	1.5	424.247	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.3	1.2	-	6.7	1551	2043	1.3	514.881	GFL09-3M□□□071C42	E84AV□□□1524□□0	82
0.3	1.1	-	6.2	1670	2200	0.9	554.470	GFL09-3M□□□071C42	E84AV□□□1524□□0	82

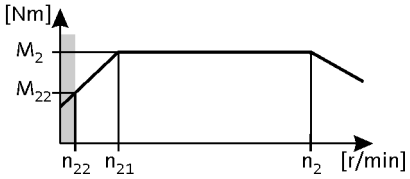


Selection tables

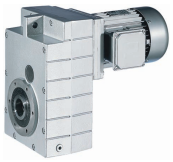
► 120 Hz: P_N = 2.20 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.8 ... 3500 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
23	93	-	545	28	37	2.3	6.422	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
21	85	-	498	31	41	2.1	7.025	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
16	67	-	389	39	53	3.8	9.010	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
14	59	-	342	45	60	2.0	10.238	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
10	41	-	241	64	85	2.7	14.538	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
9.9	41	-	238	64	86	1.6	14.706	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
9.2	38	-	220	69	93	2.5	15.904	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
9.1	37	-	218	70	94	1.5	16.087	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
8.1	34	-	195	78	104	1.2	17.920	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
8.1	34	-	195	78	104	2.3	17.920	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
7.2	30	-	173	89	118	2.1	20.286	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
7.1	29	-	171	90	120	1.2	20.519	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
6.4	26	-	153	100	133	0.9	22.857	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
6.4	26	-	153	100	133	1.8	22.857	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
5.9	24	-	141	109	145	2.0	24.850	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
5.8	24	-	139	110	146	1.1	25.136	GFL04-2M□□□080C32	E84AV□□□2224□□0	74
5.2	21	-	125	122	163	1.6	28.000	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
5.1	21	-	123	124	165	3.1	28.389	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
4.5	19	-	108	141	188	1.6	32.344	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
4.5	18	-	107	143	191	2.9	32.800	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
4.0	17	-	96	159	212	1.3	36.444	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
4.0	16	-	95	161	215	2.4	36.951	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
3.6	15	-	87	176	234	1.3	40.233	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
3.6	15	-	86	178	238	2.4	40.800	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
3.2	13	-	77	198	264	1.0	45.333	GFL05-2M□□□080C32	E84AV□□□2224□□0	74
3.2	13	-	76	201	268	2.0	45.963	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
2.8	12	-	67	227	303	3.1	52.067	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
2.8	11	-	66	231	308	1.8	52.800	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
2.5	10	-	60	256	342	3.1	58.667	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
2.5	10	-	59	260	346	1.5	59.481	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
2.3	9.4	-	55	280	373	1.3	64.080	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
2.3	9.5	-	55	276	368	2.4	63.190	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
2.2	9.2	-	54	281	375	2.2	65.306	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
2.2	9.1	-	53	285	380	1.2	66.213	GFL06-3M□□□080C32	E84AV□□□2224□□0	82
2.0	8.3	-	49	310	413	1.1	72.000	GFL06-3M□□□080C32	E84AV□□□2224□□0	82
2.0	8.3	-	49	315	420	1.4	72.189	GFL06-2M□□□080C32	E84AV□□□2224□□0	74
2.1	8.4	-	49	311	415	2.7	71.200	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
2.0	8.3	-	48	312	416	2.0	72.452	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.8	7.5	-	44	349	465	1.6	79.875	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
1.8	7.4	-	43	349	465	1.0	81.111	GFL06-3M□□□080C32	E84AV□□□2224□□0	82
1.8	7.4	-	43	351	468	2.0	81.636	GFL07-3M□□□080C32	E84AV□□□2224□□0	82

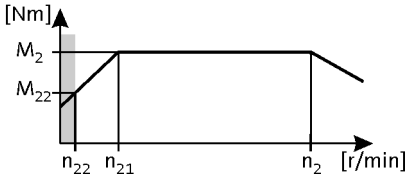


Selection tables

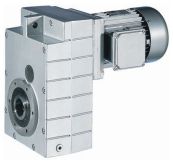
► 120 Hz: P_N = 2.20 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.8 ... 3500 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
1.7	6.8	-	40	379	506	0.9	88.200	GFL06-3M□□□080C32	E84AV□□□2224□□0	82
1.6	6.7	-	39	393	524	1.6	90.000	GFL07-2M□□□080C32	E84AV□□□2224□□0	74
1.6	6.5	-	38	397	530	1.7	92.413	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.6	6.4	-	38	401	535	3.0	93.333	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
1.5	6.0	-	35	427	570	0.9	99.361	GFL06-3M□□□080C32	E84AV□□□2224□□0	82
1.4	5.8	-	34	448	597	1.7	104.127	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.4	5.7	-	33	452	603	3.0	105.185	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
1.3	5.3	-	31	487	649	1.5	113.206	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.3	5.3	-	31	492	656	2.7	114.333	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
1.1	4.7	-	27	549	732	1.5	127.556	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.1	4.7	-	27	554	739	2.7	128.852	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
1.0	4.1	-	24	634	845	1.3	147.347	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
1.0	4.0	-	24	640	854	2.3	148.815	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.9	3.6	-	21	714	952	1.2	166.025	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
0.9	3.6	-	21	721	962	2.3	167.712	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.8	3.3	-	19	788	1052	1.1	183.285	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
0.8	3.2	-	19	796	1062	2.0	185.111	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.7	2.9	-	17	888	1185	1.0	206.519	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
0.7	2.9	-	17	897	1197	2.0	208.617	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.7	2.7	-	16	966	1289	1.0	224.636	GFL07-3M□□□080C32	E84AV□□□2224□□0	82
0.7	2.7	-	16	967	1290	1.8	224.778	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.6	2.4	-	14	1089	1453	1.8	253.321	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.6	2.3	-	13	1149	1533	3.2	267.259	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.5	2.1	-	12	1251	1669	1.5	290.889	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.4	1.8	-	11	1410	1881	1.5	327.827	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.5	1.8	-	11	1409	1879	2.8	327.556	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.4	1.7	-	9.9	1518	2025	1.3	353.033	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.4	1.7	-	9.8	1540	2054	2.4	358.077	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.4	1.5	-	8.8	1711	2282	1.3	397.863	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.4	1.5	-	8.7	1735	2315	2.4	403.467	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.3	1.4	-	8.3	1825	2434	1.1	424.247	GFL09-3M□□□080C32	E84AV□□□2224□□0	82
0.3	1.4	-	8.1	1850	2468	2.3	430.222	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.3	1.2	-	6.7	2245	2995	1.9	522.133	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.3	1.1	-	6.2	2419	3226	1.6	562.391	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.2	1.0	-	5.5	2725	3635	1.5	633.680	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.2	0.8	-	4.9	3057	4078	1.2	710.888	GFL11-3M□□□080C32	E84AV□□□2224□□0	82
0.2	0.8	-	4.4	3445	4595	1.2	801.000	GFL11-3M□□□080C32	E84AV□□□2224□□0	82

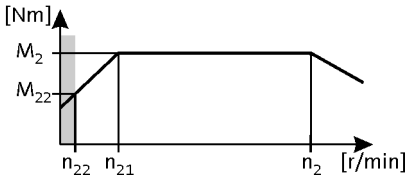


Selection tables

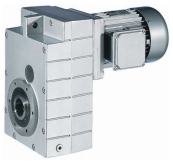
► 120 Hz: P_N = 3.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
23	141	-	544	38	51	2.6	6.400	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
23	140	-	542	39	51	1.7	6.422	GFL04-2M□□□080C42	E84AV□□□3024□□0	74
23	140	-	540	39	52	3.1	6.450	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
21	128	-	495	42	56	1.5	7.025	GFL04-2M□□□080C42	E84AV□□□3024□□0	74
16	100	-	386	54	72	2.8	9.010	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
15	91	-	350	60	79	2.6	9.946	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
14	89	-	345	61	81	3.1	10.092	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
14	88	-	340	61	82	1.5	10.238	GFL04-2M□□□080C42	E84AV□□□3024□□0	74
10	62	-	239	87	116	2.0	14.538	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
9.9	61	-	237	88	118	1.2	14.706	GFL04-2M□□□080C42	E84AV□□□3024□□0	74
9.8	61	-	236	88	118	3.1	14.743	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
9.1	57	-	219	95	127	1.8	15.904	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
9.0	56	-	216	96	129	1.1	16.087	GFL04-2M□□□080C42	E84AV□□□3024□□0	74
9.0	56	-	216	97	129	3.1	16.128	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
8.1	50	-	194	107	143	1.6	17.920	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
8.0	50	-	192	109	145	3.1	18.169	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
7.2	44	-	172	122	162	1.6	20.286	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
7.2	44	-	172	122	162	3.1	20.286	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
7.1	44	-	169	123	164	2.9	20.571	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
6.3	39	-	152	137	183	1.3	22.857	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
6.3	39	-	152	137	183	3.1	22.857	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
6.3	39	-	150	139	185	2.5	23.175	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
5.8	36	-	140	149	199	1.5	24.850	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
5.8	36	-	138	151	201	2.8	25.200	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
5.2	32	-	124	168	224	1.2	28.000	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
5.1	32	-	123	170	227	2.3	28.389	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
4.5	28	-	108	194	258	1.1	32.344	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
4.5	28	-	108	194	258	2.9	32.344	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
4.4	27	-	106	197	262	2.1	32.800	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
4.0	25	-	96	218	291	0.9	36.444	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
4.0	25	-	96	218	291	2.9	36.444	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
3.9	24	-	94	221	295	1.8	36.951	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
3.7	23	-	88	238	317	2.4	39.642	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
3.6	22	-	87	241	321	0.9	40.233	GFL05-2M□□□080C42	E84AV□□□3024□□0	74
3.6	22	-	85	244	326	1.7	40.800	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
3.3	20	-	78	268	357	2.4	44.667	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
3.2	20	-	76	275	367	1.4	45.963	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
2.8	17	-	67	312	416	2.3	52.067	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
2.8	17	-	66	316	422	1.3	52.800	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
2.4	15	-	59	356	475	1.1	59.481	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
2.5	15	-	59	352	469	2.3	58.667	GFL07-2M□□□080C42	E84AV□□□3024□□0	74

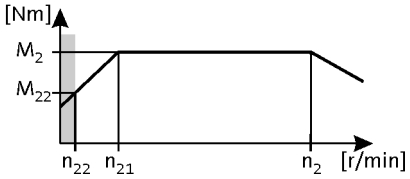


Selection tables

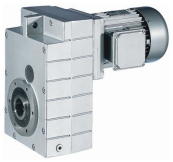
► 120 Hz: P_N = 3.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.3	14	-	55	379	505	1.8	63.190	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
2.3	14	-	55	374	498	2.6	63.326	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
2.3	14	-	54	384	512	1.0	64.080	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
2.2	14	-	53	391	521	0.9	66.213	GFL06-3M□□□080C42	E84AV□□□3024□□0	82
2.2	14	-	53	385	514	1.6	65.306	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
2.0	13	-	49	427	569	2.0	71.200	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
2.0	13	-	48	433	577	1.0	72.189	GFL06-2M□□□080C42	E84AV□□□3024□□0	74
2.0	12	-	48	428	570	1.5	72.452	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
2.0	12	-	48	432	576	2.5	73.173	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.8	11	-	44	479	638	1.2	79.875	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
1.8	11	-	43	482	642	1.5	81.636	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.8	11	-	42	487	649	2.5	82.465	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.6	10	-	39	539	719	1.2	90.000	GFL07-2M□□□080C42	E84AV□□□3024□□0	74
1.6	9.7	-	38	545	727	1.3	92.413	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.6	9.6	-	37	551	734	2.2	93.333	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.4	8.6	-	33	614	819	1.3	104.127	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.4	8.6	-	33	621	828	2.2	105.185	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.3	8.0	-	31	668	891	1.1	113.206	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.3	7.9	-	30	675	900	2.0	114.333	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.1	7.1	-	27	753	1004	1.1	127.556	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.1	7.0	-	27	760	1014	2.0	128.852	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.0	6.1	-	24	870	1159	0.9	147.347	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
1.0	6.1	-	23	878	1171	1.7	148.815	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
1.0	6.0	-	23	880	1173	3.2	149.144	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.9	5.4	-	21	980	1306	0.9	166.025	GFL07-3M□□□080C42	E84AV□□□3024□□0	82
0.9	5.4	-	21	990	1320	1.7	167.712	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.9	5.4	-	21	992	1322	3.2	168.049	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.8	4.9	-	19	1092	1456	1.5	185.111	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.8	4.9	-	19	1079	1438	2.7	182.792	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.7	4.3	-	17	1231	1641	1.5	208.617	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.7	4.4	-	17	1215	1621	2.7	205.963	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.7	4.0	-	16	1326	1769	1.3	224.778	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.7	4.0	-	16	1326	1767	2.4	224.636	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.6	3.6	-	14	1495	1993	1.3	253.321	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.6	3.6	-	14	1494	1991	2.4	253.111	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.5	3.4	-	13	1577	2103	2.3	267.259	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.5	3.1	-	12	1717	2289	1.1	290.889	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.4	2.8	-	11	1935	2579	1.1	327.827	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.4	2.8	-	11	1933	2577	2.0	327.556	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.4	2.6	-	9.9	2083	2778	1.0	353.033	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.4	2.5	-	9.7	2113	2817	1.8	358.077	GFL11-3M□□□080C42	E84AV□□□3024□□0	82

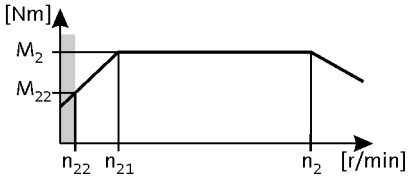


Selection tables

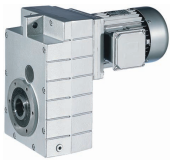
► 120 Hz: P_N = 3.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
0.4	2.3	-	8.8	2348	3130	1.0	397.863	GFL09-3M□□□080C42	E84AV□□□3024□□0	82
0.4	2.2	-	8.6	2381	3174	1.8	403.467	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.3	2.1	-	8.1	2539	3385	1.7	430.222	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.3	1.7	-	6.7	3081	4108	1.4	522.133	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.3	1.6	-	6.2	3319	4425	1.1	562.391	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.2	1.4	-	5.5	3739	4986	1.1	633.680	GFL11-3M□□□080C42	E84AV□□□3024□□0	82
0.2	1.3	-	4.9	4195	5593	0.9	710.888	GFL11-3M□□□080C42	E84AV□□□3024□□0	82

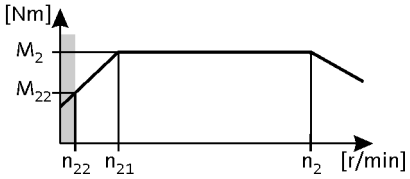


Selection tables

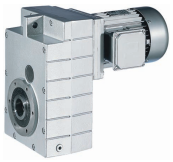
► 120 Hz: P_N = 4.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	544	48	68	1.9	6.400	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
23	93	-	542	48	68	1.2	6.422	GFL04-2M□□□090C32	E84AV□□□4024□□0	78
23	93	-	540	48	69	2.9	6.450	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
21	85	-	495	52	75	1.1	7.025	GFL04-2M□□□090C32	E84AV□□□4024□□0	78
16	67	-	386	67	96	2.1	9.010	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
15	60	-	350	74	106	2.0	9.946	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
14	60	-	345	75	108	2.9	10.092	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
14	59	-	340	76	109	1.1	10.238	GFL04-2M□□□090C32	E84AV□□□4024□□0	78
10	41	-	239	108	155	1.5	14.538	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
9.8	41	-	236	110	157	2.9	14.743	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
9.1	38	-	219	119	169	1.4	15.904	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
9.0	37	-	216	120	172	2.8	16.128	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
8.1	34	-	194	134	191	1.2	17.920	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
8.0	33	-	192	136	194	2.3	18.169	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
7.2	30	-	172	151	216	1.2	20.286	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
7.2	30	-	172	151	216	2.9	20.286	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
7.1	29	-	169	153	219	2.2	20.571	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
6.3	26	-	152	170	243	1.0	22.857	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
6.3	26	-	152	170	243	2.9	22.857	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
6.3	26	-	150	173	247	1.8	23.175	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
5.8	24	-	140	185	265	1.1	24.850	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
5.8	24	-	138	188	268	2.1	25.200	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
5.2	21	-	124	209	298	0.9	28.000	GFL05-2M□□□090C32	E84AV□□□4024□□0	74
5.1	21	-	123	212	302	1.7	28.389	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
4.5	19	-	108	241	345	2.8	32.344	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
4.4	18	-	106	245	349	1.6	32.800	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
4.0	17	-	96	272	388	2.8	36.444	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
3.9	16	-	94	276	394	1.3	36.951	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
3.7	15	-	88	296	422	2.3	39.642	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
3.6	15	-	85	304	435	1.3	40.800	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
3.3	13	-	78	333	476	2.3	44.667	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
3.2	13	-	76	343	490	1.1	45.963	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
2.8	12	-	68	383	547	2.3	51.333	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
2.8	12	-	67	388	555	1.9	52.067	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
2.8	11	-	66	394	562	1.0	52.800	GFL06-2M□□□090C32	E84AV□□□4024□□0	74
2.5	10	-	60	431	616	2.3	57.852	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
2.5	10	-	59	437	625	1.7	58.667	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
2.3	9.6	-	56	465	664	2.0	62.300	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
2.3	9.5	-	55	471	673	1.6	63.190	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
2.3	9.5	-	55	465	664	2.0	63.326	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
2.2	9.2	-	53	480	685	1.2	65.306	GFL07-3M□□□090C32	E84AV□□□4024□□0	82

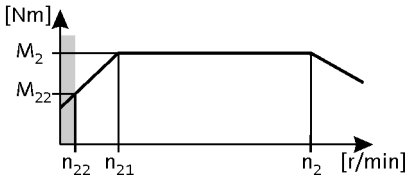


Selection tables

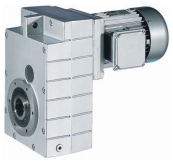
► 120 Hz: P_N = 4.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.1	8.6	-	50	523	748	2.2	70.211	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
2.0	8.4	-	49	531	758	1.6	71.200	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
2.0	8.3	-	48	532	760	1.1	72.452	GFL07-3M□□□090C32	E84AV□□□4024□□0	82
2.0	8.2	-	48	537	768	1.9	73.173	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.8	7.5	-	44	596	851	1.0	79.875	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
1.8	7.6	-	44	587	839	1.7	78.750	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
1.8	7.4	-	43	600	856	1.1	81.636	GFL07-3M□□□090C32	E84AV□□□4024□□0	82
1.8	7.3	-	42	606	865	1.9	82.465	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.6	6.7	-	39	671	959	0.9	90.000	GFL07-2M□□□090C32	E84AV□□□4024□□0	74
1.6	6.8	-	39	662	945	1.7	88.750	GFL09-2M□□□090C32	E84AV□□□4024□□0	74
1.6	6.5	-	38	679	969	0.9	92.413	GFL07-3M□□□090C32	E84AV□□□4024□□0	82
1.6	6.4	-	37	685	979	1.6	93.333	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.6	6.4	-	37	687	981	3.1	93.540	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
1.4	5.8	-	33	765	1092	0.9	104.127	GFL07-3M□□□090C32	E84AV□□□4024□□0	82
1.4	5.7	-	33	772	1103	1.6	105.185	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.4	5.7	-	33	774	1106	3.1	105.397	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
1.3	5.3	-	30	840	1199	1.5	114.333	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.1	4.7	-	27	946	1352	1.5	128.852	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.0	4.0	-	23	1093	1561	1.3	148.815	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
1.0	4.0	-	23	1095	1565	2.4	149.144	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.9	3.6	-	21	1232	1759	1.3	167.712	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
0.9	3.6	-	21	1234	1763	2.4	168.049	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.8	3.2	-	19	1359	1942	1.1	185.111	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
0.8	3.3	-	19	1342	1918	2.1	182.792	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.7	2.9	-	17	1532	2189	1.1	208.617	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
0.7	2.9	-	17	1512	2161	2.1	205.963	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.7	3.0	-	17	1484	2120	2.5	202.074	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.7	2.7	-	16	1651	2358	1.0	224.778	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
0.7	2.7	-	16	1650	2357	1.8	224.636	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.6	2.4	-	14	1860	2657	1.0	253.321	GFL09-3M□□□090C32	E84AV□□□4024□□0	82
0.6	2.4	-	14	1859	2655	1.8	253.111	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.5	2.3	-	13	1963	2804	1.7	267.259	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.4	1.8	-	11	2405	3436	1.5	327.556	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.4	1.7	-	9.9	2591	3701	2.2	352.811	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.4	1.7	-	9.7	2630	3756	1.3	358.077	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.4	1.5	-	8.8	2919	4170	2.2	397.533	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.4	1.5	-	8.6	2963	4233	1.3	403.467	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.3	1.4	-	8.1	3159	4513	1.3	430.222	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.3	1.4	-	8.1	3159	4513	2.2	430.222	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.3	1.2	-	6.7	3834	5477	1.0	522.133	GFL11-3M□□□090C32	E84AV□□□4024□□0	82
0.3	1.2	-	6.7	3834	5477	1.8	522.133	GFL14-3M□□□090C32	E84AV□□□4024□□0	82

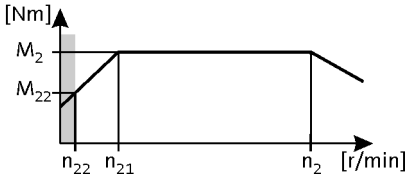


Selection tables

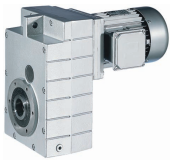
► 120 Hz: P_N = 4.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 145.0 ... 3480 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
0.3	1.1	-	6.2	4130	5900	1.5	562.391	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.2	1.0	-	5.5	4653	6648	1.4	633.680	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.2	0.8	-	4.9	5220	7458	1.2	710.888	GFL14-3M□□□090C32	E84AV□□□4024□□0	82
0.2	0.8	-	4.3	5882	8403	1.1	801.000	GFL14-3M□□□090C32	E84AV□□□4024□□0	82

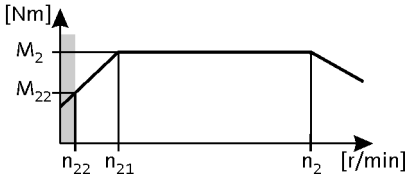


Selection tables

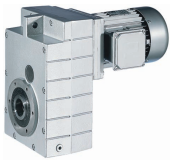
► 120 Hz: P_N = 5.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 146.9 ... 3525 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	551	65	93	1.4	6.400	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
23	93	-	547	65	93	2.8	6.450	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
16	67	-	391	91	130	1.5	9.010	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
15	60	-	354	101	144	1.4	9.946	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
15	60	-	349	102	146	2.4	10.092	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
10	41	-	243	147	210	1.1	14.538	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
10	41	-	239	149	213	2.3	14.743	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
9.2	38	-	222	161	230	1.0	15.904	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
9.1	37	-	219	163	233	2.1	16.128	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
8.2	34	-	197	181	259	0.9	17.920	GFL05-2M□□□100C12	E84AV□□□5524□□0	74
8.1	33	-	194	184	263	1.7	18.169	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
7.2	30	-	174	205	293	3.2	20.286	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
7.1	29	-	171	208	297	1.6	20.571	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
6.4	26	-	154	231	330	2.8	22.857	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
6.3	26	-	152	235	335	1.4	23.175	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
5.9	24	-	142	252	359	3.2	24.850	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
5.8	24	-	140	255	364	1.5	25.200	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
5.3	21	-	126	283	405	2.6	28.000	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
5.2	21	-	124	287	410	1.3	28.389	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
4.5	19	-	109	327	468	2.5	32.344	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
4.5	18	-	108	332	474	1.2	32.800	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
4.0	17	-	97	369	527	2.0	36.444	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
4.0	16	-	95	374	534	1.0	36.951	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
3.7	15	-	89	401	573	2.1	39.642	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
3.7	15	-	89	401	574	2.9	39.667	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
3.6	15	-	86	413	590	1.0	40.800	GFL06-2M□□□100C12	E84AV□□□5524□□0	74
3.3	13	-	79	452	646	1.7	44.667	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
3.3	13	-	79	452	646	2.9	44.704	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
2.9	12	-	69	520	742	2.3	51.333	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
2.8	12	-	68	527	753	1.5	52.067	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
2.8	12	-	68	527	753	2.9	52.067	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
2.5	10	-	61	586	836	2.3	57.852	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
2.5	10	-	60	594	848	1.3	58.667	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
2.5	10	-	60	594	848	2.9	58.667	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
2.4	9.6	-	57	631	901	1.9	62.300	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
2.3	9.5	-	56	640	914	1.2	63.190	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
2.3	9.5	-	56	631	902	1.4	63.326	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
2.3	9.5	-	56	640	914	2.4	63.190	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
2.3	9.2	-	54	651	930	2.9	65.306	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
2.1	8.4	-	50	721	1029	1.2	71.200	GFL07-2M□□□100C12	E84AV□□□5524□□0	74
2.1	8.6	-	50	711	1015	2.1	70.211	GFL09-2M□□□100C12	E84AV□□□5524□□0	74

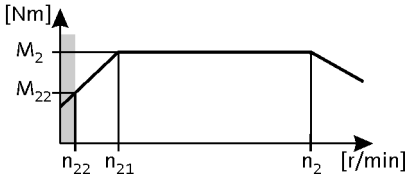


Selection tables

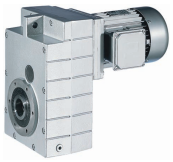
► 120 Hz: P_N = 5.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 146.9 ... 3525 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.1	8.4	-	50	721	1029	2.7	71.200	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
2.0	8.2	-	48	729	1042	1.4	73.173	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
2.0	8.2	-	48	731	1044	2.6	73.335	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.9	7.6	-	45	797	1139	1.4	78.750	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
1.8	7.5	-	44	808	1155	2.2	79.875	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
1.8	7.3	-	43	822	1174	1.4	82.465	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.8	7.3	-	43	824	1177	2.6	82.631	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.7	6.8	-	40	898	1283	1.3	88.750	GFL09-2M□□□100C12	E84AV□□□5524□□0	74
1.6	6.7	-	39	911	1301	2.2	90.000	GFL11-2M□□□100C12	E84AV□□□5524□□0	74
1.6	6.4	-	38	930	1329	1.2	93.333	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.6	6.4	-	38	932	1332	2.3	93.540	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.4	5.7	-	34	1049	1498	1.2	105.185	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.4	5.7	-	33	1051	1501	2.3	105.397	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.3	5.3	-	31	1140	1628	1.1	114.333	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.3	5.2	-	31	1142	1632	2.0	114.586	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.1	4.7	-	27	1284	1835	1.1	128.852	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.1	4.7	-	27	1287	1839	2.0	129.111	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
1.0	4.0	-	24	1483	2119	0.9	148.815	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
1.0	4.0	-	24	1487	2124	1.7	149.144	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.9	3.8	-	23	1557	2224	3.2	156.148	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.9	3.6	-	21	1672	2388	0.9	167.712	GFL09-3M□□□100C12	E84AV□□□5524□□0	82
0.9	3.6	-	21	1675	2393	1.7	168.049	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.8	3.3	-	19	1822	2603	1.5	182.792	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.7	2.9	-	17	2053	2933	1.5	205.963	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.7	3.0	-	17	2014	2878	2.6	202.074	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.7	2.7	-	16	2239	3199	1.3	224.636	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.7	2.7	-	16	2239	3199	2.6	224.636	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.6	2.4	-	14	2523	3604	1.3	253.111	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.6	2.4	-	14	2523	3604	2.6	253.111	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.6	2.3	-	13	2664	3806	1.3	267.259	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.5	2.2	-	13	2729	3899	2.4	273.778	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.5	1.8	-	11	3265	4665	1.1	327.556	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.4	1.8	-	11	3314	4734	2.1	332.444	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.4	1.7	-	10	3517	5024	2.0	352.811	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.4	1.7	-	9.8	3569	5099	1.0	358.077	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.4	1.5	-	8.9	3963	5661	1.9	397.533	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.4	1.5	-	8.7	4022	5745	1.0	403.467	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.3	1.4	-	8.2	4289	6126	0.9	430.222	GFL11-3M□□□100C12	E84AV□□□5524□□0	82
0.3	1.4	-	8.2	4289	6126	1.6	430.222	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.3	1.2	-	6.8	5205	7435	1.3	522.133	GFL14-3M□□□100C12	E84AV□□□5524□□0	82
0.3	1.1	-	6.3	5606	8009	1.1	562.391	GFL14-3M□□□100C12	E84AV□□□5524□□0	82

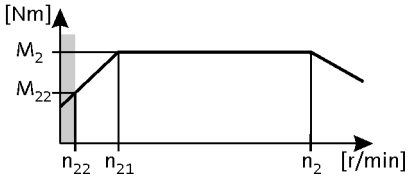


Selection tables

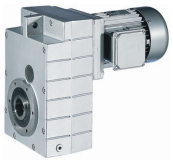
► 120 Hz: P_N = 5.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 146.9 ... 3525 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
0.2	1.0	-	5.6	6317	9024	1.0	633.680	GFL14-3M□□□100C12	E84AV□□□5524□□0	82

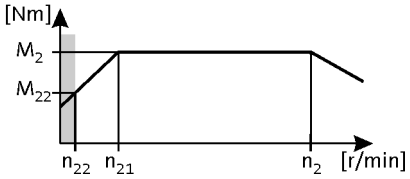


Selection tables

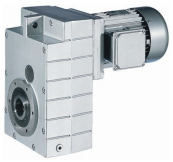
► 120 Hz: P_N = 7.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 146.5 ... 3515 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	549	89	127	1.0	6.400	GFL05-2M□□□100C32	E84AV□□□7524□□0	74
23	94	-	549	89	127	3.0	6.400	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
23	93	-	545	89	128	2.1	6.450	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
16	67	-	390	125	178	1.1	9.010	GFL05-2M□□□100C32	E84AV□□□7524□□0	74
15	62	-	362	134	192	3.1	9.714	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
15	60	-	353	138	197	1.1	9.946	GFL05-2M□□□100C32	E84AV□□□7524□□0	74
15	60	-	348	140	200	1.7	10.092	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
10	42	-	248	197	281	3.1	14.200	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
9.9	41	-	238	204	292	1.7	14.743	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
9.2	38	-	221	220	314	2.8	15.904	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
9.1	37	-	218	223	319	1.5	16.128	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
8.2	34	-	196	248	354	2.5	17.920	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
8.1	33	-	194	251	359	1.3	18.169	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
7.5	31	-	179	272	389	3.1	19.667	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
7.2	30	-	173	281	401	2.4	20.286	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
7.1	29	-	171	285	407	1.2	20.571	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
6.6	27	-	159	307	438	3.1	22.164	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
6.4	26	-	154	316	452	2.1	22.857	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
6.3	26	-	152	321	458	1.0	23.175	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
5.9	24	-	141	344	491	2.3	24.850	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
5.8	24	-	140	349	498	1.1	25.200	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
5.2	21	-	126	388	554	1.9	28.000	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
5.2	21	-	124	393	561	0.9	28.389	GFL06-2M□□□100C32	E84AV□□□7524□□0	74
4.5	19	-	109	448	640	1.8	32.344	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
4.5	18	-	108	452	646	2.5	32.667	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
4.0	17	-	96	504	721	1.5	36.444	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
4.0	16	-	96	510	728	2.5	36.815	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
3.7	15	-	89	549	784	1.5	39.642	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
3.7	15	-	89	549	784	2.1	39.667	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
3.3	13	-	79	618	883	1.2	44.667	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
3.3	13	-	79	619	884	2.1	44.704	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
2.9	12	-	69	710	1015	1.7	51.333	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
2.8	12	-	68	721	1029	1.1	52.067	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
2.8	12	-	68	721	1029	2.1	52.067	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
2.5	10	-	61	801	1144	1.7	57.852	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
2.5	10	-	60	812	1160	0.9	58.667	GFL07-2M□□□100C32	E84AV□□□7524□□0	74
2.5	10	-	60	812	1160	2.1	58.667	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
2.3	9.5	-	56	863	1233	1.0	63.326	GFL09-3M□□□100C32	E84AV□□□7524□□0	82
2.4	9.6	-	56	862	1232	1.4	62.300	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
2.3	9.5	-	56	875	1249	1.8	63.190	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
2.2	9.2	-	54	890	1272	2.2	65.306	GFL11-3M□□□100C32	E84AV□□□7524□□0	82

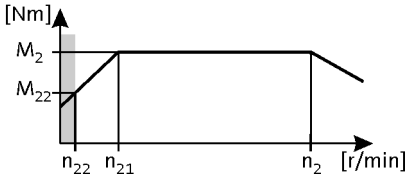


Selection tables

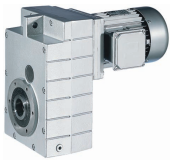
► 120 Hz: P_N = 7.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 146.5 ... 3515 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.1	8.6	-	50	972	1388	1.6	70.211	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
2.1	8.4	-	49	985	1408	2.0	71.200	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
2.0	8.2	-	48	998	1425	1.0	73.173	GFL09-3M□□□100C32	E84AV□□□7524□□0	82
2.0	8.2	-	48	1000	1428	1.9	73.335	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.9	7.6	-	45	1090	1557	1.0	78.750	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
1.8	7.5	-	44	1105	1579	1.6	79.875	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
1.8	7.3	-	43	1124	1606	1.0	82.465	GFL09-3M□□□100C32	E84AV□□□7524□□0	82
1.8	7.3	-	43	1126	1609	1.9	82.631	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.7	6.8	-	40	1228	1755	1.0	88.750	GFL09-2M□□□100C32	E84AV□□□7524□□0	74
1.6	6.7	-	39	1246	1779	1.6	90.000	GFL11-2M□□□100C32	E84AV□□□7524□□0	74
1.6	6.4	-	38	1275	1822	1.7	93.540	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.4	5.7	-	34	1430	2043	2.7	104.889	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
1.4	5.7	-	33	1437	2053	1.7	105.397	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.3	5.2	-	31	1562	2231	1.5	114.586	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.3	5.3	-	31	1556	2223	2.7	114.126	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
1.1	4.7	-	27	1760	2514	1.5	129.111	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
1.1	4.7	-	27	1753	2504	2.7	128.593	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
1.0	4.0	-	24	2033	2904	1.3	149.144	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.9	3.8	-	23	2129	3041	2.3	156.148	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.9	3.6	-	21	2291	3273	1.3	168.049	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.9	3.5	-	21	2318	3312	2.4	170.074	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.8	3.3	-	19	2492	3560	1.1	182.792	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.7	2.9	-	17	2808	4011	1.1	205.963	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.7	3.0	-	17	2755	3935	1.9	202.074	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.7	2.7	-	16	3062	4375	1.0	224.636	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.7	2.7	-	16	3062	4375	1.9	224.636	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.6	2.4	-	14	3450	4929	1.0	253.111	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.6	2.4	-	14	3450	4929	1.9	253.111	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.6	2.3	-	13	3643	5205	0.9	267.259	GFL11-3M□□□100C32	E84AV□□□7524□□0	82
0.5	2.2	-	13	3732	5332	1.7	273.778	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.4	1.8	-	11	4532	6474	1.5	332.444	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.4	1.7	-	10	4809	6871	1.4	352.811	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.4	1.5	-	8.8	5419	7741	1.4	397.533	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.3	1.4	-	8.2	5865	8378	1.2	430.222	GFL14-3M□□□100C32	E84AV□□□7524□□0	82
0.3	1.2	-	6.7	7118	10168	1.0	522.133	GFL14-3M□□□100C32	E84AV□□□7524□□0	82

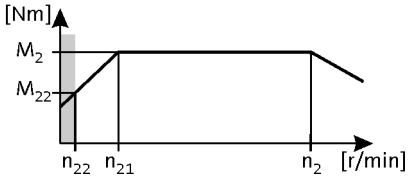


Selection tables

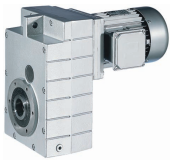
► 120 Hz: P_N = 11.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 147.1 ... 3530 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
23	94	-	552	118	185	2.3	6.400	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
23	93	-	547	119	186	1.4	6.450	GFL06-2M□□□112C22	E84AV□□□1134□□0	74
16	67	-	392	167	260	3.2	9.010	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
15	62	-	363	180	281	2.4	9.714	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
15	61	-	360	181	283	3.2	9.799	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
15	60	-	350	187	291	1.2	10.092	GFL06-2M□□□112C22	E84AV□□□1134□□0	74
13	54	-	316	206	322	2.9	11.167	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
10	42	-	249	262	410	2.1	14.200	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
10	42	-	246	265	414	3.2	14.333	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
10	41	-	239	272	426	1.1	14.743	GFL06-2M□□□112C22	E84AV□□□1134□□0	74
9.3	38	-	222	294	459	1.9	15.904	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
9.1	37	-	219	298	466	1.0	16.128	GFL06-2M□□□112C22	E84AV□□□1134□□0	74
9.0	37	-	216	302	472	2.9	16.333	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
8.2	34	-	197	331	517	1.7	17.920	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
8.0	33	-	192	340	532	2.9	18.407	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
7.5	31	-	180	363	568	2.5	19.667	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
7.3	30	-	174	375	586	1.6	20.286	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
7.3	30	-	174	375	586	3.1	20.286	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
6.6	27	-	159	410	640	2.5	22.164	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
6.4	26	-	154	422	660	1.4	22.857	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
6.4	26	-	154	422	660	3.1	22.857	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
6.1	25	-	146	446	696	2.5	24.111	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
5.9	24	-	142	459	718	1.6	24.850	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
5.4	22	-	130	502	785	2.5	27.173	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
5.3	21	-	126	517	808	1.3	28.000	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
4.6	19	-	109	598	934	1.3	32.344	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
4.5	18	-	108	604	943	1.9	32.667	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
4.5	18	-	108	605	945	2.5	32.739	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
4.0	17	-	97	673	1052	1.0	36.444	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
4.0	16	-	96	680	1063	1.9	36.815	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
4.0	16	-	96	682	1065	2.5	36.889	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
3.7	15	-	89	733	1145	1.0	39.642	GFL07-2M□□□112C22	E84AV□□□1134□□0	74
3.7	15	-	89	733	1145	1.7	39.667	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
3.7	15	-	88	744	1162	2.1	40.233	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
3.3	13	-	79	826	1291	1.7	44.704	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
3.2	13	-	78	838	1309	2.1	45.333	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
2.9	12	-	69	949	1482	1.3	51.333	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
2.8	12	-	68	962	1503	1.6	52.067	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
2.8	12	-	68	962	1503	2.0	52.067	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
2.5	10	-	61	1069	1670	1.3	57.852	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
2.5	10	-	60	1084	1694	1.6	58.667	GFL11-2M□□□112C22	E84AV□□□1134□□0	74

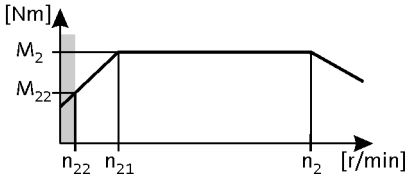


Selection tables

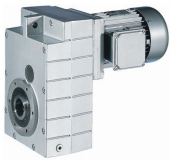
► 120 Hz: P_N = 11.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 147.1 ... 3530 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
2.5	10	-	60	1084	1694	2.0	58.667	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
2.4	9.6	-	57	1151	1799	1.1	62.300	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
2.3	9.5	-	56	1168	1825	1.4	63.190	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
2.3	9.5	-	56	1168	1825	1.7	63.190	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
2.3	9.3	-	55	1170	1829	2.6	64.296	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
2.3	9.2	-	54	1189	1857	1.5	65.306	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
2.1	8.7	-	51	1251	1954	2.6	68.708	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
2.1	8.6	-	50	1297	2027	1.2	70.211	GFL09-2M□□□112C22	E84AV□□□1134□□0	74
2.1	8.4	-	50	1316	2056	1.5	71.200	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
2.1	8.4	-	50	1316	2056	1.9	71.200	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
2.0	8.2	-	48	1335	2086	1.3	73.335	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.9	7.8	-	46	1409	2202	2.6	77.418	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
1.8	7.5	-	44	1476	2306	1.2	79.875	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
1.8	7.5	-	44	1476	2306	1.5	79.875	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
1.8	7.3	-	43	1504	2350	1.3	82.631	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.7	7.1	-	42	1548	2419	2.5	85.037	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
1.6	6.7	-	39	1663	2599	1.2	90.000	GFL11-2M□□□112C22	E84AV□□□1134□□0	74
1.6	6.7	-	39	1663	2599	1.5	90.000	GFL14-2M□□□112C22	E84AV□□□1134□□0	74
1.6	6.4	-	38	1703	2660	1.1	93.540	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.4	5.7	-	34	1918	2998	1.1	105.397	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.4	5.7	-	34	1909	2983	2.1	104.889	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
1.3	5.2	-	31	2086	3259	1.0	114.586	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.3	5.3	-	31	2077	3246	2.0	114.126	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
1.1	4.7	-	28	2341	3657	2.0	128.593	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
1.1	4.7	-	27	2350	3672	1.0	129.111	GFL11-3M□□□112C22	E84AV□□□1134□□0	82
1.1	4.4	-	26	2492	3893	1.8	136.889	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.9	3.8	-	23	2842	4441	1.8	156.148	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.9	3.5	-	21	3096	4837	1.6	170.074	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.7	3.0	-	18	3678	5747	1.5	202.074	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.7	2.7	-	16	4089	6389	1.3	224.636	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.6	2.4	-	14	4607	7199	1.3	253.111	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.5	2.2	-	13	4983	7786	1.2	273.778	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.4	1.8	-	11	6051	9455	1.1	332.444	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.4	1.7	-	10	6422	10034	1.0	352.811	GFL14-3M□□□112C22	E84AV□□□1134□□0	82
0.4	1.5	-	8.9	7236	11306	1.0	397.533	GFL14-3M□□□112C22	E84AV□□□1134□□0	82

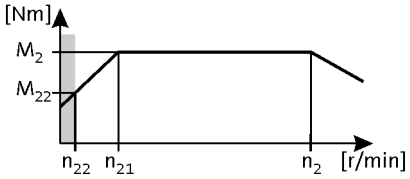


Selection tables

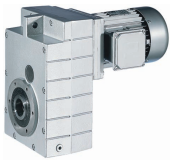
► 120 Hz: P_N = 15.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 148.3 ... 3560 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	556	160	250	2.0	6.400	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
17	67	-	395	225	352	4.3	9.010	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
15	62	-	367	243	379	1.9	9.714	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
13	54	-	319	279	436	4.0	11.167	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
10	42	-	251	355	554	1.5	14.200	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
10	42	-	248	358	560	3.2	14.333	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
9.3	38	-	224	397	621	1.4	15.904	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
9.1	37	-	218	408	638	2.9	16.333	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
8.3	34	-	199	448	700	1.3	17.920	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
8.1	33	-	193	460	719	2.6	18.407	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
7.5	31	-	181	491	768	2.5	19.667	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
7.3	30	-	176	507	792	1.2	20.286	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
6.7	27	-	161	554	865	2.3	22.164	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
6.5	26	-	156	571	892	1.0	22.857	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
6.2	25	-	148	602	941	2.5	24.111	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
6.0	24	-	143	621	970	1.2	24.850	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
5.5	22	-	131	679	1061	2.2	27.173	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
5.3	21	-	127	700	1093	1.0	28.000	GFL07-2M□□□132C12	E84AV□□□1534□□0	74
4.5	18	-	109	816	1275	2.0	32.667	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
4.5	18	-	109	818	1278	3.1	32.739	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
4.0	16	-	97	920	1437	1.8	36.815	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
4.0	16	-	97	922	1440	2.7	36.889	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
3.7	15	-	90	991	1549	1.7	39.667	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
3.7	15	-	89	1005	1571	2.6	40.233	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
3.3	13	-	80	1117	1745	1.5	44.704	GFL09-2M□□□132C12	E84AV□□□1534□□0	74
3.3	13	-	79	1133	1770	2.3	45.333	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
2.9	12	-	68	1301	2033	2.2	52.067	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
2.9	12	-	68	1301	2033	3.2	52.067	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
2.5	10	-	61	1466	2290	2.0	58.667	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
2.5	10	-	61	1466	2290	3.2	58.667	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
2.4	9.5	-	56	1579	2467	1.9	63.190	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
2.4	9.5	-	56	1579	2467	2.7	63.190	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
2.3	9.2	-	55	1607	2511	1.1	65.306	GFL11-3M□□□132C12	E84AV□□□1534□□0	82
2.3	9.3	-	55	1582	2473	1.9	64.296	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
2.2	8.7	-	52	1691	2642	1.9	68.708	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
2.1	8.4	-	50	1779	2780	1.9	71.200	GFL11-2M□□□132C12	E84AV□□□1534□□0	74
2.1	8.4	-	50	1779	2780	3.0	71.200	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
2.0	8.2	-	49	1805	2820	1.0	73.335	GFL11-3M□□□132C12	E84AV□□□1534□□0	82
1.9	7.8	-	46	1905	2977	1.9	77.418	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.9	7.5	-	45	1996	3118	2.1	79.875	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
1.8	7.3	-	43	2034	3178	1.0	82.631	GFL11-3M□□□132C12	E84AV□□□1534□□0	82

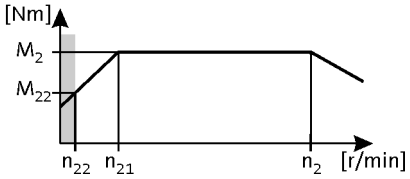


Selection tables

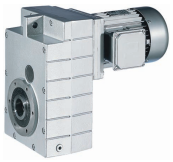
► 120 Hz: P_N = 15.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 148.3 ... 3560 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
1.7	7.1	-	42	2093	3270	1.8	85.037	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.7	6.7	-	40	2249	3514	2.1	90.000	GFL14-2M□□□132C12	E84AV□□□1534□□0	74
1.4	5.7	-	34	2581	4034	1.6	104.889	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.3	5.3	-	31	2809	4389	1.4	114.126	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.2	4.7	-	28	3165	4945	1.4	128.593	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.1	4.4	-	26	3369	5264	1.3	136.889	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
1.0	3.8	-	23	3843	6005	1.3	156.148	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
0.9	3.5	-	21	4186	6540	1.2	170.074	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
0.7	2.7	-	16	5529	8638	1.0	224.636	GFL14-3M□□□132C12	E84AV□□□1534□□0	82
0.6	2.4	-	14	6229	9733	1.0	253.111	GFL14-3M□□□132C12	E84AV□□□1534□□0	82

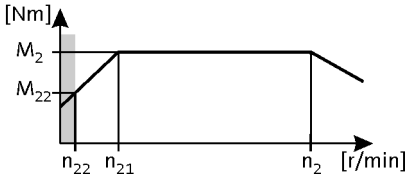


Selection tables

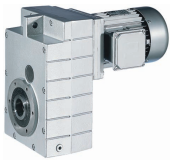
► 120 Hz: P_N = 18.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 148.3 ... 3560 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
23	94	-	556	197	308	1.6	6.400	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
17	67	-	395	278	434	3.5	9.010	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
15	62	-	367	299	468	1.6	9.714	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
13	54	-	319	344	538	3.2	11.167	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
10	42	-	251	438	684	1.3	14.200	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
10	42	-	248	442	690	2.6	14.333	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
9.3	38	-	224	490	766	1.2	15.904	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
9.1	37	-	218	503	787	2.3	16.333	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
8.3	34	-	199	552	863	1.0	17.920	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
8.1	33	-	193	567	886	2.1	18.407	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
7.5	31	-	181	606	947	2.0	19.667	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
7.3	30	-	176	625	977	1.0	20.286	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
7.3	30	-	176	625	977	3.1	20.286	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
6.7	27	-	161	683	1067	1.8	22.164	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
6.5	26	-	156	704	1101	2.8	22.857	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
6.2	25	-	148	743	1161	2.0	24.111	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
6.0	24	-	143	766	1197	1.0	24.850	GFL07-2M□□□132C22	E84AV□□□1834□□0	74
6.0	24	-	143	766	1197	3.0	24.850	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
5.5	22	-	131	837	1308	1.8	27.173	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
5.3	21	-	127	863	1348	2.7	28.000	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
4.5	18	-	109	1007	1573	1.6	32.667	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
4.5	18	-	109	1009	1576	2.5	32.739	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
4.0	16	-	97	1135	1773	1.5	36.815	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
4.0	16	-	97	1137	1776	2.2	36.889	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
3.7	15	-	90	1222	1910	1.4	39.667	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
3.7	15	-	90	1222	1909	3.2	39.642	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
3.7	15	-	89	1240	1937	2.1	40.233	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
3.3	13	-	80	1378	2153	1.2	44.704	GFL09-2M□□□132C22	E84AV□□□1834□□0	74
3.3	13	-	80	1377	2151	3.2	44.667	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
3.3	13	-	79	1397	2183	1.9	45.333	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
2.9	12	-	68	1605	2507	1.8	52.067	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
2.9	12	-	68	1605	2507	2.6	52.067	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
2.5	10	-	61	1808	2825	1.6	58.667	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
2.5	10	-	61	1808	2825	2.6	58.667	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
2.4	9.5	-	56	1947	3043	1.6	63.190	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
2.4	9.5	-	56	1947	3043	2.2	63.190	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
2.3	9.3	-	55	1952	3049	1.6	64.296	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
2.2	8.7	-	52	2086	3259	1.6	68.708	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
2.1	8.4	-	50	2194	3428	1.5	71.200	GFL11-2M□□□132C22	E84AV□□□1834□□0	74
2.1	8.4	-	50	2194	3428	2.4	71.200	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
1.9	7.8	-	46	2350	3672	1.6	77.418	GFL14-3M□□□132C22	E84AV□□□1834□□0	82

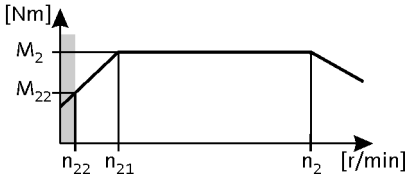


Selection tables

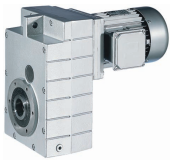
► 120 Hz: P_N = 18.50 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 148.3 ... 3560 r/min



n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
1.9	7.5	-	45	2461	3846	1.7	79.875	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
1.7	7.1	-	42	2581	4033	1.5	85.037	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
1.7	6.7	-	40	2773	4334	1.7	90.000	GFL14-2M□□□132C22	E84AV□□□1834□□0	74
1.4	5.7	-	34	3184	4975	1.3	104.889	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
1.3	5.3	-	31	3464	5413	1.2	114.126	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
1.2	4.7	-	28	3903	6099	1.2	128.593	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
1.1	4.4	-	26	4155	6492	1.1	136.889	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
1.0	3.8	-	23	4740	7406	1.0	156.148	GFL14-3M□□□132C22	E84AV□□□1834□□0	82
0.9	3.5	-	21	5162	8066	1.0	170.074	GFL14-3M□□□132C22	E84AV□□□1834□□0	82

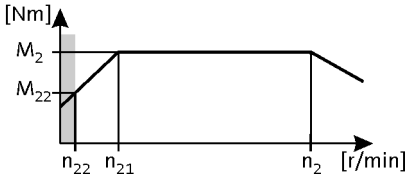


Selection tables

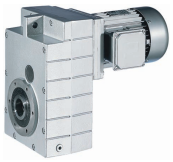
► 120 Hz: P_N = 22.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 147.9 ... 3550 r/min



n_{22}	n_{21}		n_2	M_{22}	M_2	c	i			
[r/min]	[r/min]		[r/min]	[Nm]	[Nm]					
23	94	-	555	235	368	1.4	6.400	GFL07-2M□□□132C32	E84AV□□□2234□□0	74
16	67	-	394	331	517	3.0	9.010	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
15	62	-	365	357	558	1.3	9.714	GFL07-2M□□□132C32	E84AV□□□2234□□0	74
15	61	-	362	360	563	3.0	9.799	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
14	56	-	331	394	616	3.2	10.720	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
13	54	-	318	410	641	2.7	11.167	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
10	42	-	250	522	815	1.1	14.200	GFL07-2M□□□132C32	E84AV□□□2234□□0	74
10	42	-	248	527	823	2.2	14.333	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
9.3	38	-	223	585	913	1.0	15.904	GFL07-2M□□□132C32	E84AV□□□2234□□0	74
9.3	38	-	223	585	913	3.1	15.904	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
9.1	37	-	217	600	938	2.0	16.333	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
8.3	34	-	198	659	1029	2.8	17.920	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
8.0	33	-	193	677	1057	1.8	18.407	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
7.5	31	-	181	723	1129	1.7	19.667	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
7.3	30	-	175	746	1165	2.6	20.286	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
6.7	27	-	160	815	1273	1.5	22.164	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
6.5	26	-	155	840	1313	2.3	22.857	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
6.1	25	-	147	886	1385	1.7	24.111	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
6.0	24	-	143	913	1427	2.6	24.850	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
5.4	22	-	131	999	1560	1.5	27.173	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
5.3	21	-	127	1029	1608	2.3	28.000	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
4.6	19	-	110	1189	1857	2.9	32.344	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
4.5	18	-	109	1201	1876	1.4	32.667	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
4.5	18	-	108	1203	1880	2.1	32.739	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
4.1	17	-	97	1339	2093	2.9	36.444	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
4.0	16	-	96	1353	2114	1.2	36.815	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
4.0	16	-	96	1356	2118	1.9	36.889	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
3.7	15	-	90	1458	2278	1.2	39.667	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
3.7	15	-	90	1457	2276	2.7	39.642	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
3.7	15	-	88	1479	2310	1.8	40.233	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
3.3	13	-	80	1642	2565	2.7	44.667	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
3.3	13	-	79	1643	2567	1.0	44.704	GFL09-2M□□□132C32	E84AV□□□2234□□0	74
3.3	13	-	78	1666	2603	1.6	45.333	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
2.8	12	-	68	1913	2990	1.5	52.067	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
2.8	12	-	68	1913	2990	2.2	52.067	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
2.5	10	-	61	2156	3369	1.3	58.667	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
2.5	10	-	61	2156	3369	2.2	58.667	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
2.3	9.5	-	56	2322	3628	1.3	63.190	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
2.3	9.5	-	56	2322	3628	1.8	63.190	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
2.3	9.3	-	55	2327	3637	1.3	64.296	GFL14-3M□□□132C32	E84AV□□□2234□□0	82
2.2	8.7	-	52	2487	3886	1.3	68.708	GFL14-3M□□□132C32	E84AV□□□2234□□0	82

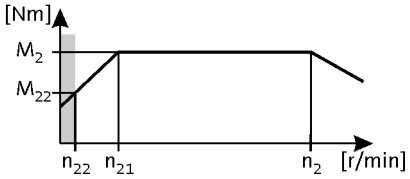


Selection tables

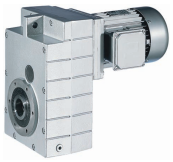
► 120 Hz: P_N = 22.00 kW

n_{22}/n_2 = 1 ... 24.0

n_1 = 147.9 ... 3550 r/min

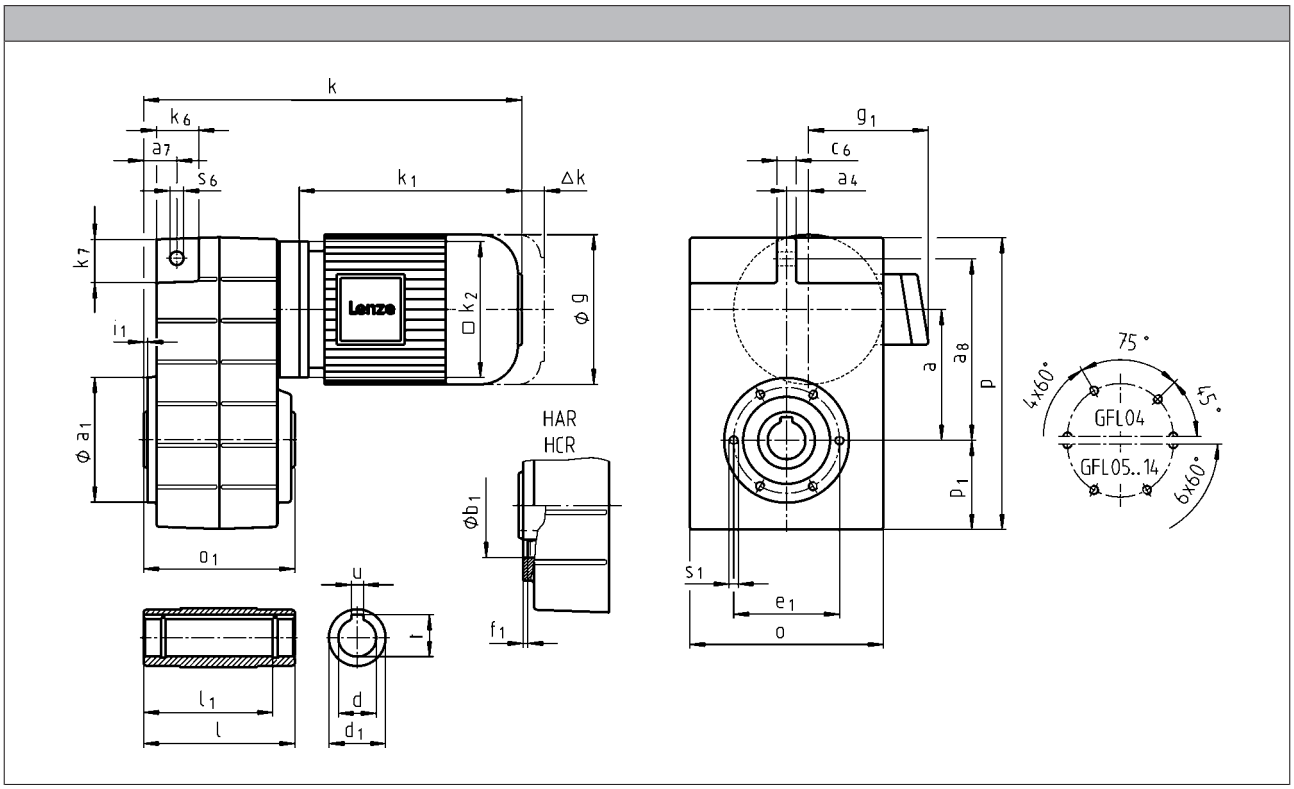


n_{22} [r/min]	n_{21} [r/min]		n_2 [r/min]	M_{22} [Nm]	M_2 [Nm]	c	i			
2.1	8.4	-	50	2617	4088	1.3	71.200	GFL11-2M□□□132C32	E84AV□□□2234□□0	74
2.1	8.4	-	50	2617	4088	2.0	71.200	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
1.9	7.8	-	46	2802	4379	1.3	77.418	GFL14-3M□□□132C32	E84AV□□□2234□□0	82
1.9	7.5	-	44	2935	4587	1.4	79.875	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
1.7	7.1	-	42	3078	4810	1.2	85.037	GFL14-3M□□□132C32	E84AV□□□2234□□0	82
1.6	6.7	-	39	3307	5168	1.4	90.000	GFL14-2M□□□132C32	E84AV□□□2234□□0	74
1.4	5.7	-	34	3797	5933	1.1	104.889	GFL14-3M□□□132C32	E84AV□□□2234□□0	82
1.3	5.3	-	31	4131	6455	1.0	114.126	GFL14-3M□□□132C32	E84AV□□□2234□□0	82
1.2	4.7	-	28	4655	7273	1.0	128.593	GFL14-3M□□□132C32	E84AV□□□2234□□0	82



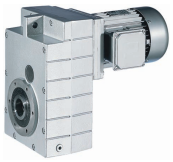
Dimensions

GFL□□-2M H□R



GFL shaft-mounted helical gearboxes

Technical data



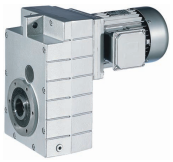
		063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
g		123	139	156	176	194	218	258
g_1	MFEMAXX	100	109	150	157	166	176	195
	MFEMABR	107	118	132	137	147	158	187
k_1	MFEMAXX	187	207	224.5	274	324	319	403
k_2		120		145	180		222	265
Δ k	MFEMABR	40	52	73	68	76	90	109.5
	MFFMAXX	128				109	102	115
	MFFMABR	170	165	183	181	170	183	201.5
		k						
GFL04		312	332	354				
GFL05		333	353	376	435	485		
GFL06		346	366	389	448	498	499	
GFL07				422	481	531	532	624
GFL09					515	565	566	658
GFL11						606	607	699
GFL14							652	744

	a	a_4	a_7	a_8	c_6	k_6	k_7	o[1]	p[1]	p_1	s_6
GFL04	90.5	12.5	22.5	128	14	32	35	148	214	69	12.5
GFL05	112.5	18.5	29	155	16	35	38	165	252	78	14
GFL06	140	22	35	195	20	46	46	206	315	98	14
GFL07	173	29	44	240	25	56	56	256	386	118	18
GFL09	220	37.5	50	300	32	70	70	318	486	149	22
GFL11	276.5	50	65	375	40	84	90	395	600	181	26
GFL14	339	65	80	455	50	100	114	490	740	228	32

	d[2]	d_1	l	l_1	u	t	i_1	o_1	a_1	b_1	e_1	f_1	s_1
	H7				JS9	+0,2				H7			
GFL04	25 30	45 45	115 115	100 100	8 8	28.3 33.3	2.5 2.5	115 115	110	75	90	3	M6x12
GFL05	30 35	50 50	140 140	124 124	8 10	33.3 38.3	4 4	140 140	118	80	100	4	M8x14
GFL06	40 45	65 65	160 160	140 140	12 14	43.3 48.8	5 5	160 160	140	100	120	4	M10x16
GFL07	50 55	75 75	200 200	175 175	14 16	53.8 59.3	5 5	200 200	165	115	140	5	M12x18
GFL09	60 70	95 95	240 240	210 210	18 20	64.4 74.9	5 5	240 240	205	145	175	6	M16x24
GFL11	70 80	108 108	290 290	250 250	20 22	74.9 85.4	6 6	290 290	240	170	205	4	M20x32
GFL14	100	135	350	305	28	106.4	7	350	290	170	250	6	M24x35

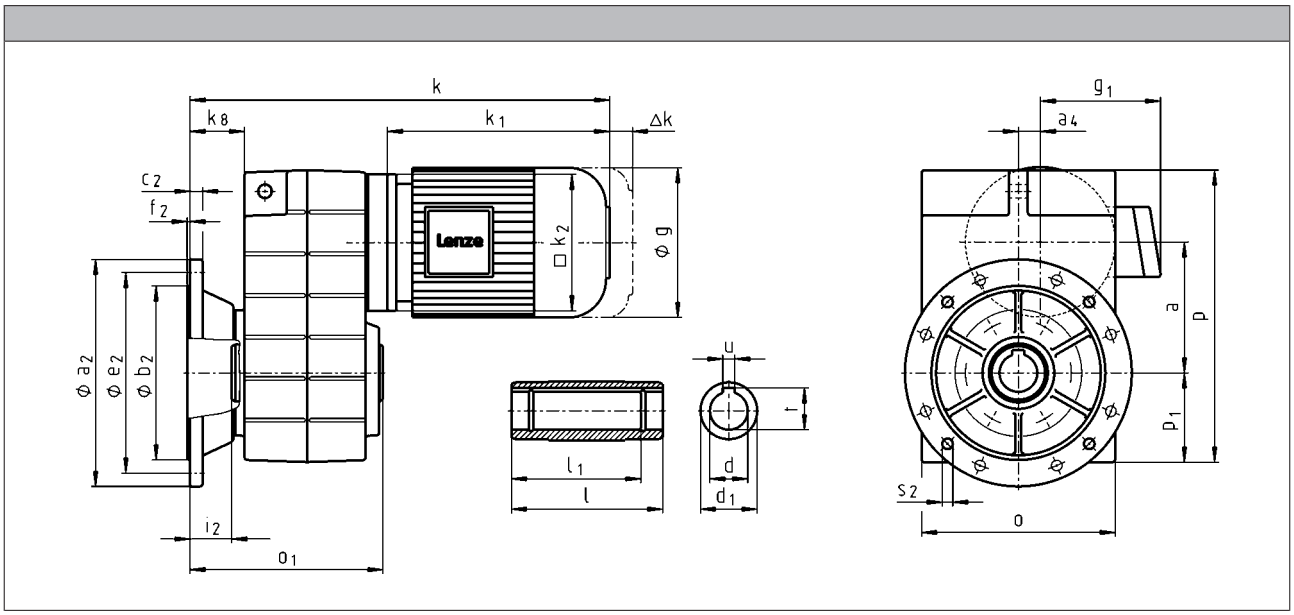
[1] k_2 !

[2] Not suitable for through machine shaft at motor end:
GFL04-2M H□□ 080C□□; d=30
GFL05-2M H□□ 100C□□; d=35
GFL06-2M H□□ 132C□□; d=40/45
GFL07-2M H□□ 160C□□; d=50/55
GFL11-2M H□□ 225C□□; d=80



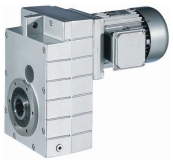
Dimensions

GFL□□-2M HCK



GFL shaft-mounted helical gearboxes

Technical data



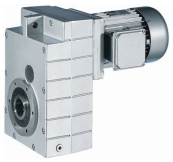
		063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
g		123	139	156	176	194	218	258
g_1	MFEMAXX	100	109	150	157	166	176	195
	MFEMABR	107	118	132	137	147	158	187
k_1	MFEMAXX	187	207	224.5	274	324	319	403
k_2		120		145	180		222	265
Δ k	MFEMABR	40	52	73	68	76	90	109.5
	MFFMAXX	128				109	102	115
	MFFMABR	170	165	183	181	170	183	201.5
		k						
	GFL04	345	365	387				
	GFL05	366	386	409	468	518		
	GFL06	387	407	430	489	539	540	
	GFL07			477	536	586	587	679
	GFL09				575	625	626	718
	GFL11					666	667	759
	GFL14						712	804

	a	a_4	k_8	o[1)]	p[1)]	p_1
GFL04	90.5	12.5	41.8	148	214	69
GFL05	112.5	18.5	46	165	252	78
GFL06	140	22	55.5	206	315	98
GFL07	173	29	72.5	256	386	118
GFL09	220	37.5	77.5	318	486	149
GFL11	276.5	50	85.5	395	600	181
GFL14	339	65	89.5	490	740	228

	d[2)]	d_1	l	l_1	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	H7				JS9	+0,2				j7				
GFL04	25 30	45 45	115 115	100 100	8 8	28.3 33.3	33.5 33.5	148 148	160	110	10	130	3.5	4 x 9
GFL05	30 35	50 50	140 140	124 124	8 10	33.3 38.3	33 33	173 173	200	130	12	165	4	4 x 11
GFL06	40 45	65 65	160 160	140 140	12 14	43.3 48.8	42 41	201 201	250	180	15	215	4	4 x 14
GFL07	50 55	75 75	200 200	175 175	14 16	53.8 59.3	55 55	255 255	250 300	180 230	15 17	215 265	4 4	4 x 14 4 x 14
GFL09	60 70	95 95	240 240	210 210	18 20	64.4 74.9	60 60	300 300	350	250	18	300	4	4 x 17.5
GFL11	70 80	108 108	290 290	250 250	20 22	74.9 85.4	60 60	350 350	400 450	300 350	20 22	350 400	5 5	4 x 17.5 8 x 17.5
GFL14	100	135	350	305	28	106.4	60	410	450	350	22	400	5	8 x 17.5

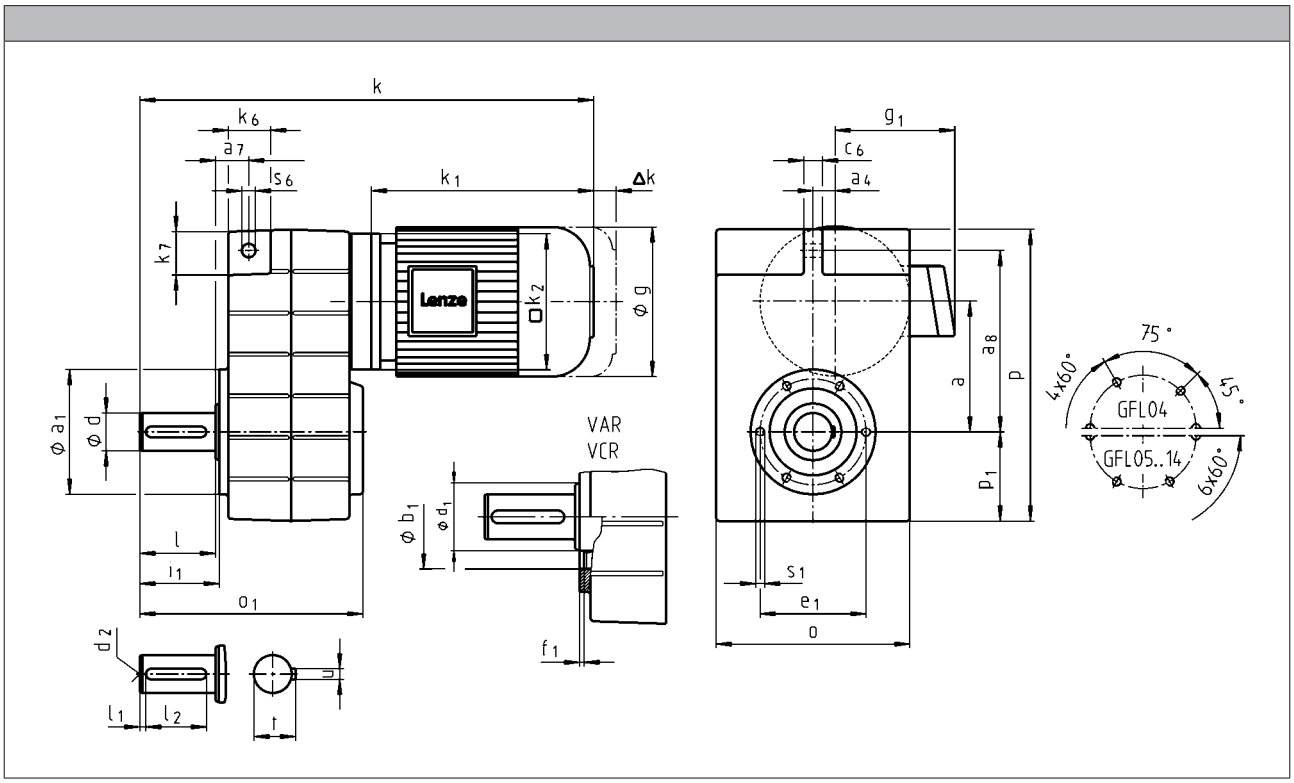
[1)] k_2 !

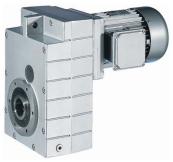
[2)] Not suitable for through machine shaft at motor end:
GFL04-2M H□□ 080C□□; d=30
GFL05-2M H□□ 100C□□; d=35
GFL06-2M H□□ 132C□□; d=40/45
GFL07-2M H□□ 160C□□; d=50/55
GFL11-2M H□□ 225C□□; d=80



Dimensions

GFL□□-2M V□R



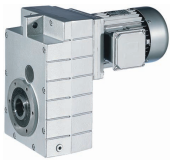


		063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
g		123	139	156	176	194	218	258
g_1	MFEMAXX	100	109	150	157	166	176	195
	MFEMABR	107	118	132	137	147	158	187
k_1	MFEMAXX	187	207	224.5	274	324	319	403
k_2		120		145	180		222	265
Δ k	MFEMABR	40	52	73	68	76	90	109.5
	MFFMAXX	128				109	102	115
	MFFMABR	170	165	183	181	170	183	201.5
		k						
GFL04		362	382	404	464			
GFL05		393	413	436	495	545		
GFL06		426	446	469	528	578	579	
GFL07				522	581	631	632	724
GFL09					635	685	686	778
GFL11						766	767	859
GFL14							852	944

	a	a_4	a_7	a_8	c_6	k_6	k_7	$o^{1)}$	$p^{1)}$	p_1	s_6
GFL04	90.5	12.5	22.5	128	14	32	35	148	214	69	12.5
GFL05	112.5	18.5	29	155	16	35	38	165	252	78	14
GFL06	140	22	35	195	20	46	46	206	315	98	14
GFL07	173	29	44	240	25	56	56	256	386	118	18
GFL09	220	37.5	50	300	32	70	70	318	486	149	22
GFL11	276.5	50	65	375	40	84	90	395	600	181	26
GFL14	339	65	80	455	50	100	114	490	740	228	32

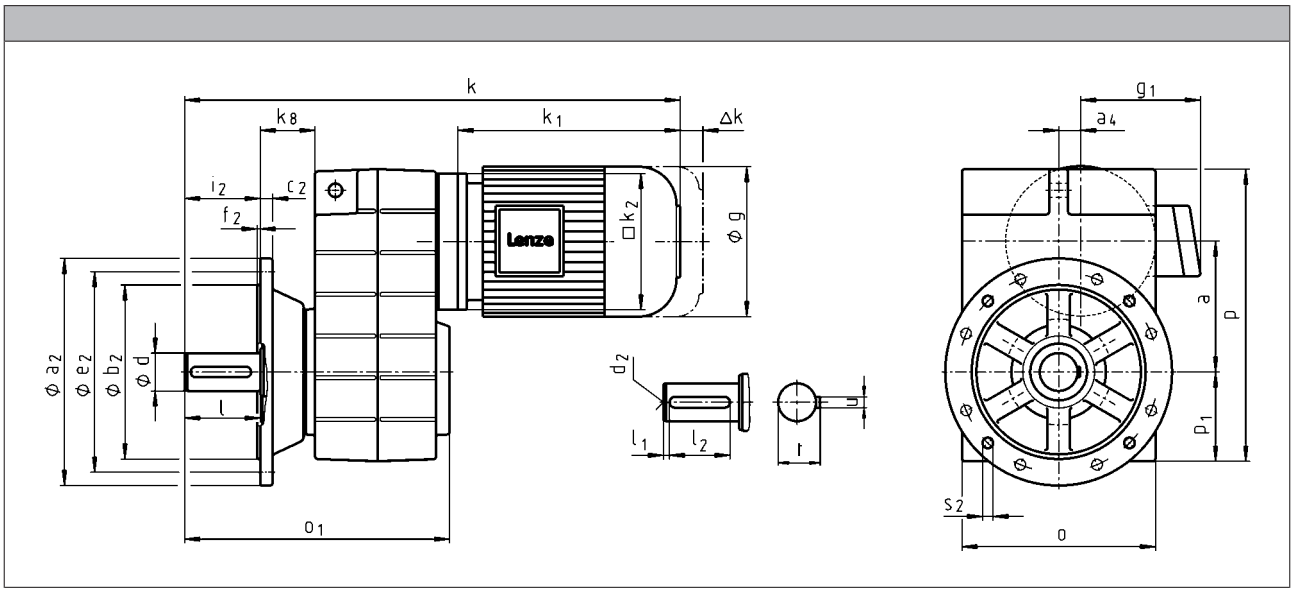
	d	d	d_1	d_2	l	l_1	l_2	u	t	o_1	a_1	b_1	e_1	f_1	s_1
	k6	m6										H7			
GFL04	25		45	M10	50	6	40	8	28	162.5	110	75	90	3	M6x12
GFL05	30		45	M10	60	6	45	8	33	196.5	118	80	100	4	M8x14
GFL06	40		65	M16	80	7	63	12	43	235.5	140	100	120	4	M10x16
GFL07	50		75	M16	100	8	80	14	53.5	295.5	165	115	140	5	M12x18
GFL09		60	95	M20	120	8	100	18	64	355.5	205	145	175	6	M16x24
GFL11		80	108	M20	160	15	125	22	85	444.5	240	170	205	4	M20x32
GFL14		100	135	M24	200	18	160	28	106	543.5	290	170	250	6	M24x35

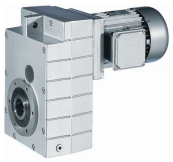
[1)] k_2 !



Dimensions

GFL□□-2M VCK



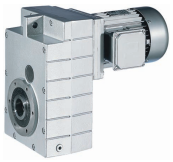


		063C32 063C42	071C32 071C42	080C32 080C42	090C32	100C12 100C32	112C22	132C12 132C22 132C32
g		123	139	156	176	194	218	258
g_1	MFEMAXX	100	109	150	157	166	176	195
	MFEMABR	107	118	132	137	147	158	187
k_1	MFEMAXX	187	207	224.5	274	324	319	403
k_2		120		145	180		222	265
Δ k	MFEMABR	40	52	73	68	76	90	109.5
	MFFMAXX	128				109	102	115
	MFFMABR	170	165	183	181	170	183	201.5
		k						
GFL04		395	415	437	497			
GFL05		426	446	469	528	578		
GFL06		467	487	510	569	619	620	
GFL07				577	636	686	687	779
GFL09					695	745	746	838
GFL11						826	827	919
GFL14							912	1004

	a	a_4	k_8	o[1)]	p[1)]	p_1
GFL04	90.5	12.5	41.8	148	214	69
GFL05	112.5	18.5	46	165	252	78
GFL06	140	22	55.5	206	315	98
GFL07	173	29	72.5	256	386	118
GFL09	220	37.5	77.5	318	486	149
GFL11	276.5	50	85.5	395	600	181
GFL14	339	65	89.5	490	740	228

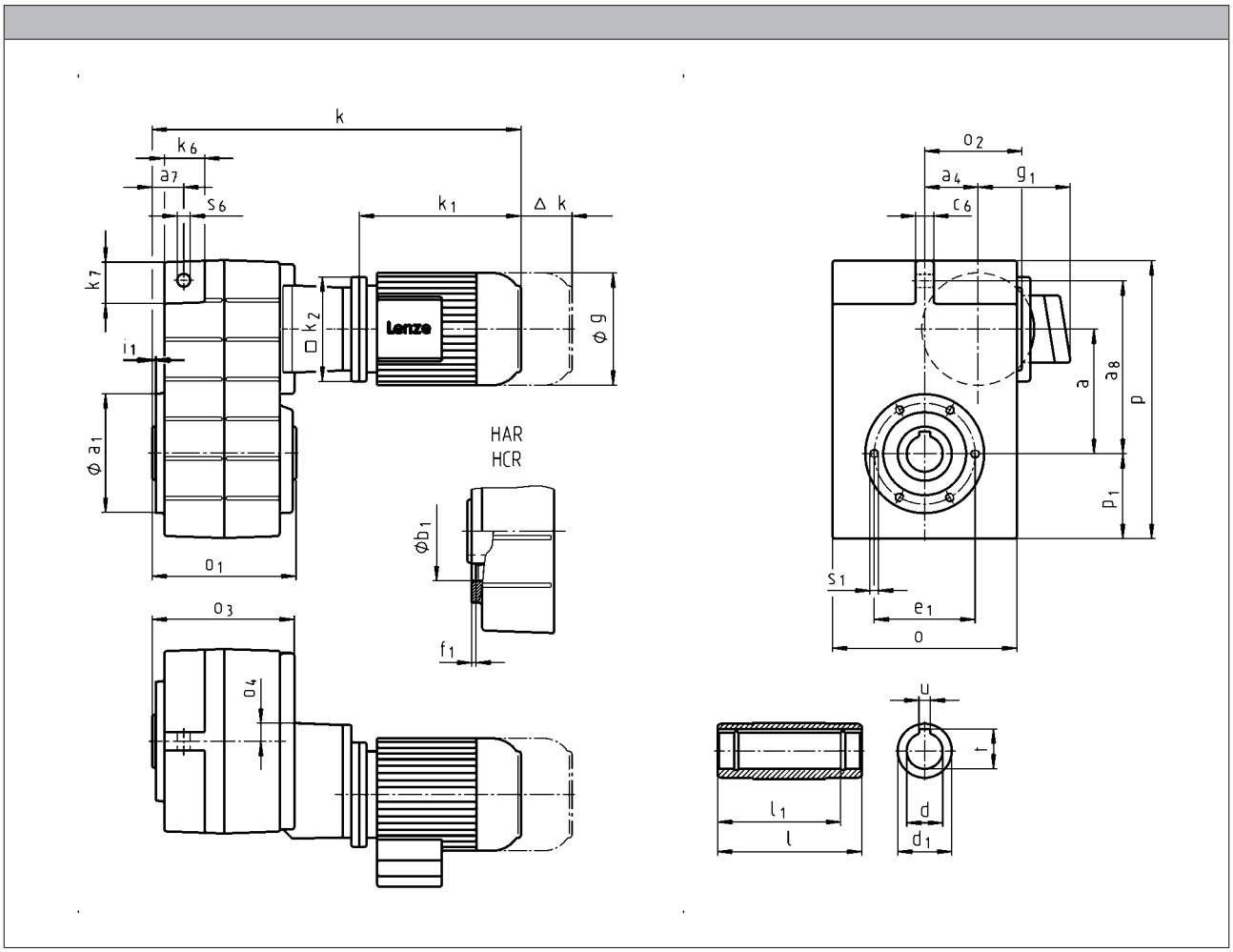
	d	d	d_1	d_2	l	l_1	l_2	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	k6	m6											j7				
GFL04	25		45	M10	50	6	40	8	28	50	195.5	160	110	10	130	3.5	4 x 9
GFL05	30		45	M10	60	6	45	8	33	60	229.5	200	130	12	165	4	4 x 11
GFL06	40		65	M16	80	7	63	12	43	80	276.5	250	180	15	215	4	4 x 14
GFL07	50		75	M16	100	8	80	14	53.5	100	350.5	250 300	180 230	15 17	215 265	4 4	4 x 14 4 x 14
GFL09		60	95	M20	120	8	100	18	64	120	415.5	350	250	18	300	4	4 x 17.5
GFL11		80	108	M20	160	15	125	22	85	160	504.5	400 450	300 350	20 22	350 400	5 5	4 x 17.5 8 x 17.5
GFL14		100	135	M24	200	18	160	28	106	200	603.5	450	350	22	400	5	8 x 17.5

[1)] k_2 !

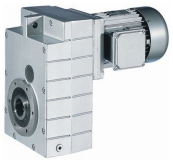


Dimensions

GFL□□-3M H□R



		063C32 063C42	071C32	071C42	080C32 080C42
g		123	139		156
g_1	MFEMAXX	100	109		150
	MFEMABR	107	118		132
k_1	MFEMAXX	187	207		224.5
k_2		120			145
Δ k	MFEMABR	40	52		73
	MFFMAXX	128			
	MFFMABR	170	165		183
		k			
GFL05		410	430		
GFL06		440	460		482
GFL07		484	504		526
GFL09		536	556		578
GFL11					638

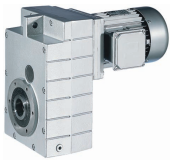


		090C32	100C12 100C32	112C22	132C12	132C22 132C32
g		176	194	218	258	
g_1	MFEMAXX	157	166	176	195	
	MFEMABR	137	147	158	187	
k_1	MFEMAXX	274	324	319	403	
k_2		180		222	265	
Δ k	MFEMABR	68	76	90	109.5	
	MFFMAXX	128	109	102	115	
	MFFMABR	181	170	183	201.5	
		k				
	GFL07	586				
	GFL09	638	688			
	GFL11	698	748	749	841	
	GFL14	777	827	828	920	

	a	a_4	a_7	a_8	c_6	k_6	k_7	$o^{1)}$	o_2	o_3	o_4	$p^{1)}$	p_1	s_6
GFL05	112.5	54.5	29	155	16	35	38	165	106.5	140.5	22.6	252	78	14
GFL06	140	58	35	195	20	46	46	206	111	159.5	20.2	315	98	14
GFL07	173	74	44	240	25	56	56	256	135	199	24	386	118	18
GFL09	220	93.5	50	300	32	70	70	318	170	237.5	27	486	149	22
GFL11	276.5	120	65	375	40	84	90	395	216	284.5	33.5	600	181	26
GFL14	339	154	80	455	50	100	114	490	271	339.5	38	740	228	32

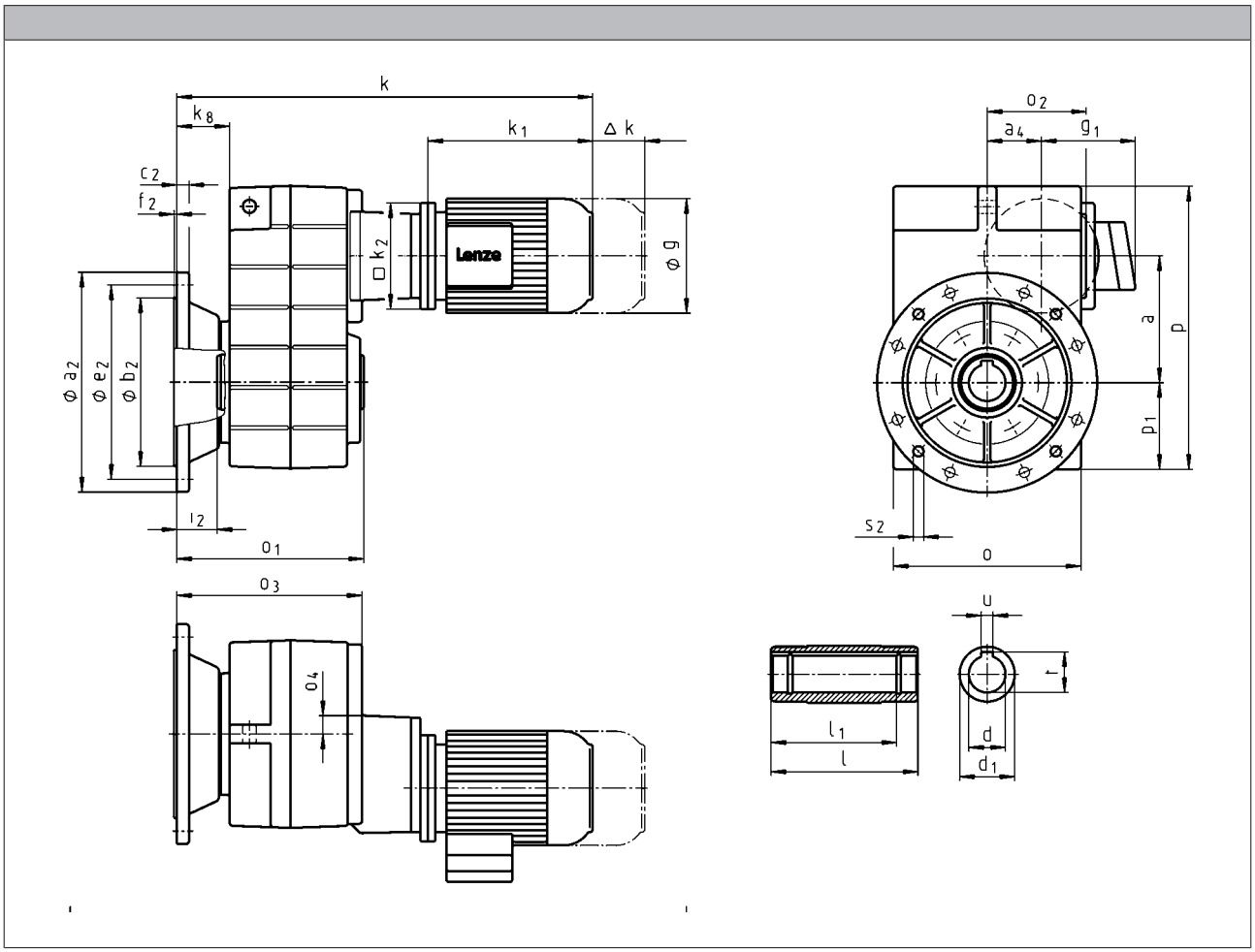
	d H7	d_1	l	l_1	u JS9	t +0,2	i_1	o_1	a_1	b_1 H7	e_1	f_1	s_1
GFL05	30 35	50 50	140 140	124 124	8 10	33.3 38.3	4 4	140 140	118	80	100	4	M8x14
GFL06	40 45	65 65	160 160	140 140	12 14	43.3 48.8	5 5	160 160	140	100	120	4	M10x16
GFL07	50 55	75 75	200 200	175 175	14 16	53.8 59.3	5 5	200 200	165	115	140	5	M12x18
GFL09	60 70	95 95	240 240	210 210	18 20	64.4 74.9	5 5	240 240	205	145	175	6	M16x24
GFL11	70 80	108 108	290 290	250 250	20 22	74.9 85.4	6 6	290 290	240	170	205	4	M20x32
GFL14	100	135	350	305	28	106.4	7	350	290	170	250	6	M24x35

[1)] k_2 !

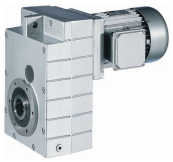


Dimensions

GFL□□-3M HCK



		063C32 063C42	071C32	071C42	080C32 080C42
g		123	139		156
g_1	MFEMAXX	100	109		150
	MFEMABR	107	118		132
k_1	MFEMAXX	187	207		224.5
k_2		120			145
Δ k	MFEMABR	40	52		73
	MFFMAXX	128			
	MFFMABR	170	165		183
		k			
GFL05		443	463		
GFL06		481	501		523
GFL07		539	559		581
GFL09		596	616		638
GFL11					698

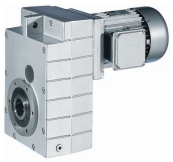


		090C32	100C12 100C32	112C22	132C12	132C22 132C32
g		176	194	218	258	
g_1	MFEMAXX	157	166	176	195	
	MFEMABR	137	147	158	187	
k_1	MFEMAXX	274	324	319	403	
k_2		180		222	265	
Δ k	MFEMABR	68	76	90	109.5	
	MFFMAXX	128	109	102	115	
	MFFMABR	181	170	183	201.5	
		k				
	GFL07	641				
	GFL09	698	748			
	GFL11	758	808	809	901	
	GFL14	837	887	888	980	

	a	a_4	k_8	o[1)]	o_2	o_3	o_4	p[1)]	p_1
GFL05	112.5	54.5	46	165	106.5	173.5	22.6	252	78
GFL06	140	58	55.5	206	111	200.5	20.2	315	98
GFL07	173	74	72.5	256	135	254	24	386	118
GFL09	220	93.5	77.5	318	170	297.5	27	486	149
GFL11	276.5	120	85.5	395	216	344.5	33.5	600	181
GFL14	339	154	89.5	490	271	399.5	38	740	228

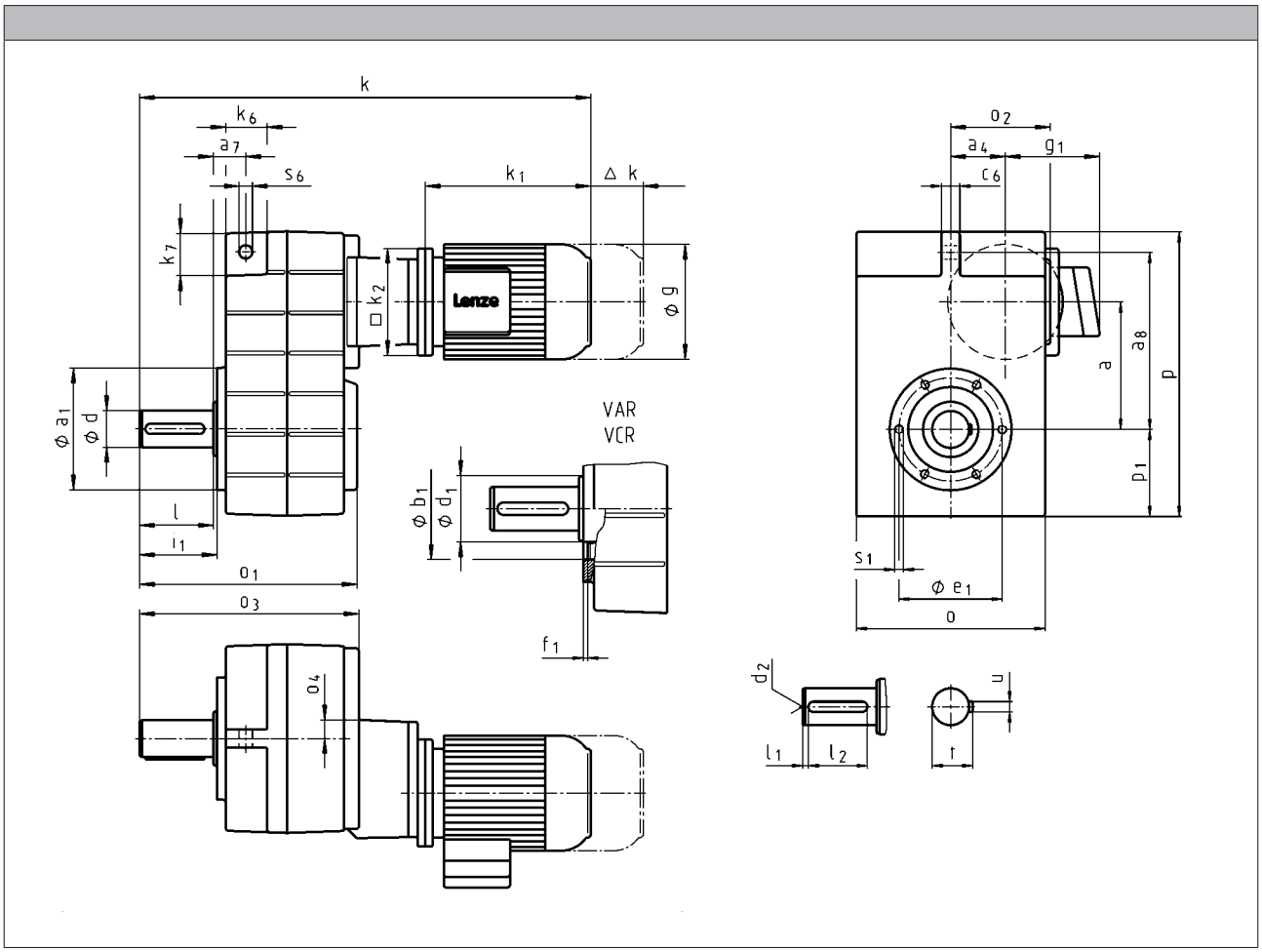
	d	d_1	l	l_1	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	H7				JS9	+0,2				j7				
GFL05	30 35	50 50	140 140	124 124	8 10	33.3 38.3	33 33	173 173	200	130	12	165	4	4 x 11
GFL06	40 45	65 65	160 160	140 140	12 14	43.3 48.8	42 41	201 201	250	180	15	215	4	4 x 14
GFL07	50 55	75 75	200 200	175 175	14 16	53.8 59.3	55 55	255 255	250 300	180 230	15 17	215 265	4 4	4 x 14 4 x 14
GFL09	60 70	95 95	240 240	210 210	18 20	64.4 74.9	60 60	300 300	350	250	18	300	4	4 x 17.5
GFL11	70 80	108 108	290 290	250 250	20 22	74.9 85.4	60 60	350 350	400 450	300 350	20 22	350 400	5 5	4 x 17.5 8 x 17.5
GFL14	100	135	350	305	28	106.4	60	410	450	350	22	400	5	8 x 17.5

[1)] k_2 !

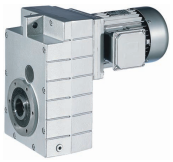


Dimensions

GFL□□-3M V□R



		063C32 063C42	071C32	071C42	080C32 080C42
g		123	139		156
g_1	MFEMAXX	100	109		150
	MFEMABR	107	118		132
k_1	MFEMAXX	187	207		224.5
k_2		120			145
Δ k	MFEMABR	40	52		73
	MFFMAXX	128			
	MFFMABR	170	165		183
		k			
	GFL05	470	490		
	GFL06	520	540		562
	GFL07	584	604		626
	GFL09	656	676		698
	GFL11				798

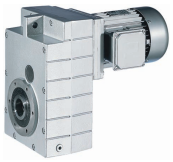


		090C32	100C12 100C32	112C22	132C12	132C22 132C32
g		176	194	218	258	
g_1	MFEMAXX	157	166	176	195	
	MFEMABR	137	147	158	187	
k_1	MFEMAXX	274	324	319	403	
k_2		180		222	265	
Δ k	MFEMABR	68	76	90	109.5	
	MFFMAXX	128	109	102	115	
	MFFMABR	181	170	183	201.5	
		k				
	GFL07	686				
	GFL09	758	808			
	GFL11	858	908	909	1001	
	GFL14	977	1027	1028	1120	

	a	a_4	a_7	a_8	c_6	k_6	k_7	o[1)]	o_2	o_3	o_4	p[1)]	p_1	s_6
GFL05	112.5	54.5	29	155	16	35	38	165	106.5	200.5	22.6	252	78	14
GFL06	140	58	35	195	20	46	46	206	111	239.5	20.2	315	98	14
GFL07	173	74	44	240	25	56	56	256	135	299	24	386	118	18
GFL09	220	93.5	50	300	32	70	70	318	170	357.5	27	486	149	22
GFL11	276.5	120	65	375	40	84	90	395	216	444.5	33.5	600	181	26
GFL14	339	154	80	455	50	100	114	490	271	539.5	38	740	228	32

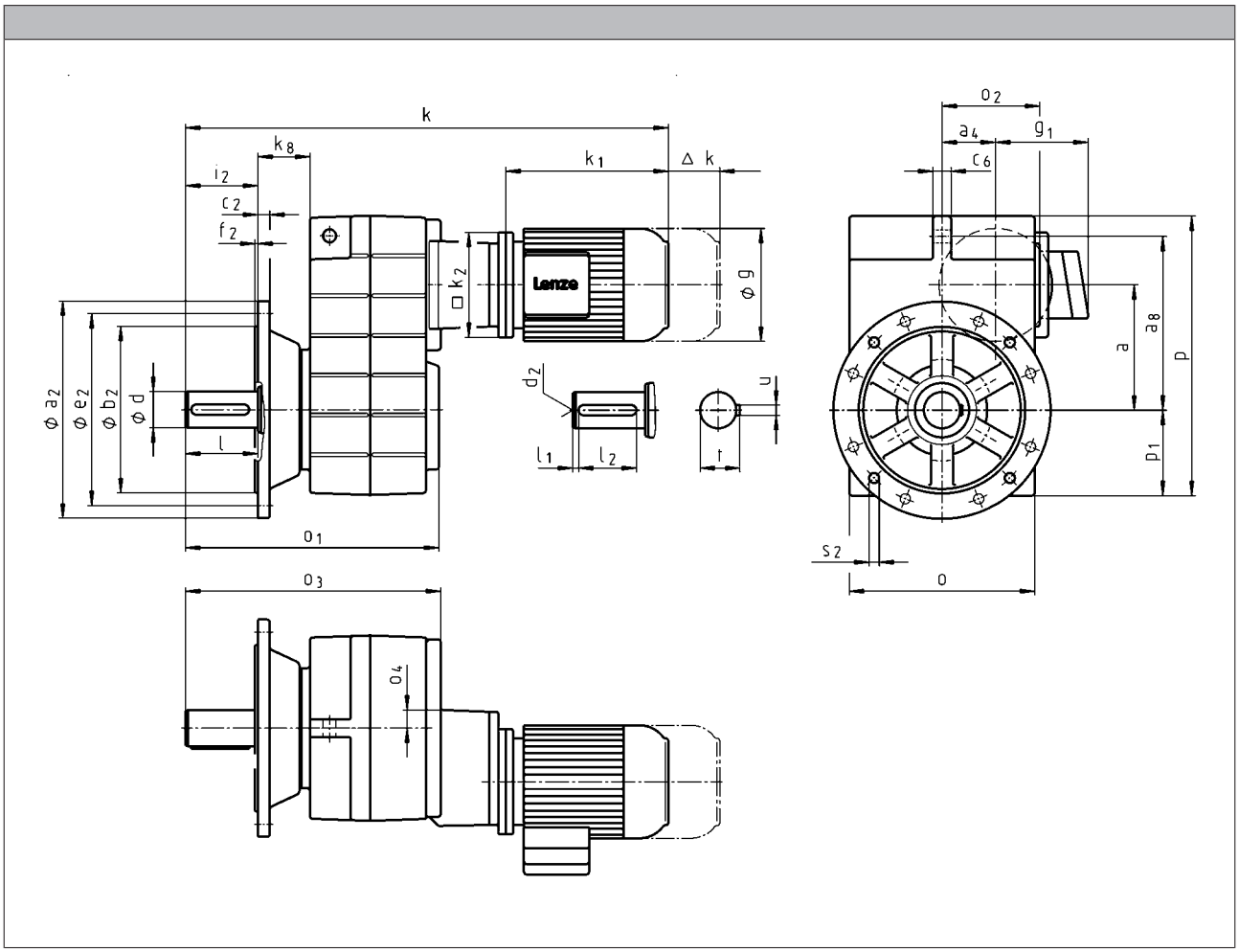
	d	d	d_1	d_2	l	l_1	l_2	u	t	o_1	a_1	b_1	e_1	f_1	s_1
	k6	m6										H7			
GFL05	30		45	M10	60	6	45	8	33	196.5	118	80	100	4	M8x14
GFL06	40		65	M16	80	7	63	12	43	235.5	140	100	120	4	M10x16
GFL07	50		75	M16	100	8	80	14	53.5	295.5	165	115	140	5	M12x18
GFL09		60	95	M20	120	8	100	18	64	355.5	205	145	175	6	M16x24
GFL11		80	108	M20	160	15	125	22	85	444.5	240	170	205	4	M20x32
GFL14		100	135	M24	200	18	160	28	106	543.5	290	170	250	6	M24x35

[1)] k_2 !



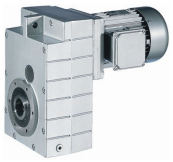
Dimensions

GFL□□-3M VCK



		063C32 063C42	071C32	071C42	080C32 080C42
g		123	139		156
g_1	MFEMAXX	100	109		150
	MFEMABR	107	118		132
k_1	MFEMAXX	187	207		224.5
k_2		120			145
Δ k	MFEMABR	40	52		73
	MFFMAXX	128			
	MFFMABR	170	165		183
		k			
GFL05		503	523		
GFL06		561	581		603
GFL07		639	659		681
GFL09		716	736		758
GFL11					858

6.6

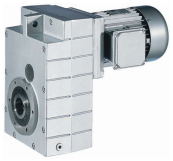


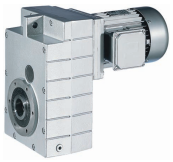
		090C32	100C12 100C32	112C22	132C12	132C22 132C32
g		176	194	218	258	
g_1	MFEMAXX	157	166	176	195	
	MFEMABR	137	147	158	187	
k_1	MFEMAXX	274	324	319	403	
k_2		180		222	265	
Δ k	MFEMABR	68	76	90	109.5	
	MFFMAXX	128	109	102	115	
	MFFMABR	181	170	183	201.5	
		k				
	GFL07	741				
	GFL09	818	868			
	GFL11	918	968	969	1061	
	GFL14	1037	1087	1088	1180	

	a	a_4	k_8	o[1)]	o_2	o_3	o_4	p[1)]	p_1
GFL05	112.5	54.5	46	165	106.5	233.5	22.6	252	78
GFL06	140	58	55.5	206	111	280.5	20.2	315	98
GFL07	173	74	72.5	256	135	354	24	386	118
GFL09	220	93.5	77.5	318	170	417.5	27	486	149
GFL11	276.5	120	85.5	395	216	504.5	33.5	600	181
GFL14	339	154	89.5	490	271	599.5	38	740	228

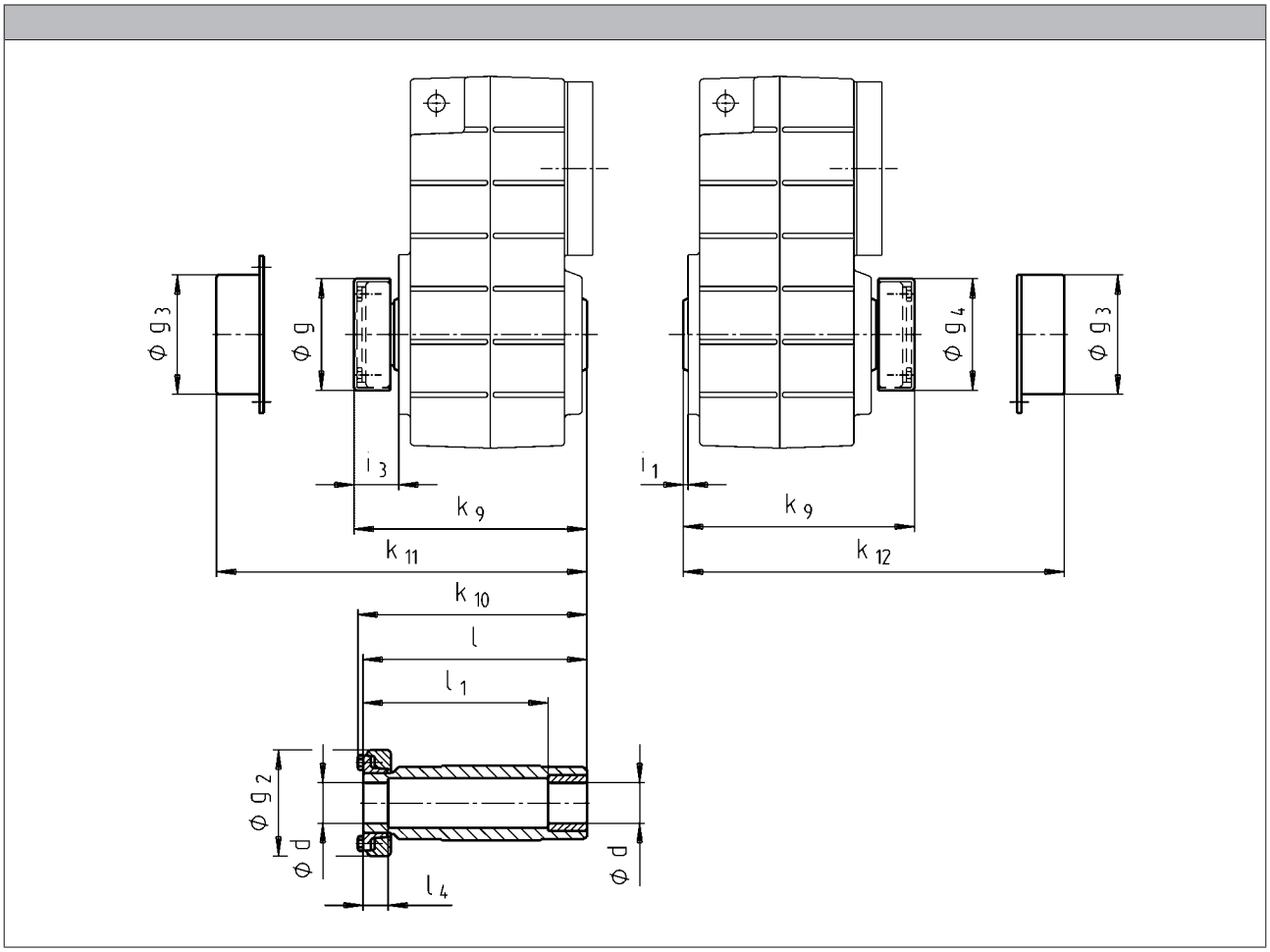
	d	d	d_1	d_2	l	l_1	l_2	u	t	i_2	o_1	a_2	b_2	c_2	e_2	f_2	s_2
	k6	m6											j7				
GFL05	30		45	M10	60	6	45	8	33	60	229.5	200	130	12	165	4	4 x 11
GFL06	40		65	M16	80	7	63	12	43	80	276.5	250	180	15	215	4	4 x 14
GFL07	50		75	M16	100	8	80	14	53.5	100	350.5	250 300	180 230	15 17	215 265	4 4	4 x 14 4 x 14
GFL09		60	95	M20	120	8	100	18	64	120	415.5	350	250	18	300	4	4 x 17.5
GFL11		80	108	M20	160	15	125	22	85	160	504.5	400 450	300 350	20 22	350 400	5 5	4 x 17.5 8 x 17.5
GFL14		100	135	M24	200	18	160	28	106	200	603.5	450	350	22	400	5	8 x 17.5

[1)] k_2 !





Hollow shaft with shrink disc

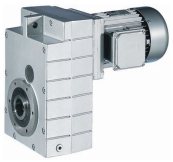


	d [1]	g_2	g_3	g_4	i_1	k_9	k_{10}	k_{11}	k_{12}	l	l_1	l_4
	h6											
GFL04	25 30	72	79	76	2.5	150	148	154	154	142	122	26
GFL04	25 30	72	79	76	2.5	150	148	154	154	142	122	26
GFL05	35	80	90	84	4.0	176	174	179	180	168	148	28
GFL06	40	90	100	94	5.0	202	200	204	205	194	164	30
GFL07	50	110	124	116	5.0	241	238	244	245	232	192	26
GFL09	65	141	159	147	5.0	288	285	287	288	278	228	30
GFL11	80	170	191	176	6.0	347	344	349	350	338	238	42
GFL14	100	215	253	221	7.0	418	415	421	422	407	307	55

[1] Machine shaft design.

► Output flange and hollow shaft with shrink disc (design S□K) is only possible with shrink disc in position 1.

► Not suitable for through machine shaft at motor end:
GFL04-2M S□□ 080C□□; d=30
GFL05-2M S□□ 100C□□; d=35
GFL06-2M S□□ 132C□□; d=40
GFL07-2M S□□ 160C□□; d=50
GFL11-2M S□□ 225C□□; d=80



Hollow shaft with shrink disc

► Ensure that the strength of the machine shaft material is adequate in shrink disc designs.
When using typical steels, e.g. C45, 42CrMo4, the torques listed in the selection tables can be used without restriction.
Please consult us if you wish to use material that is considerably weaker. Medium surface roughness Rz must not exceed 15 µm (turning is sufficient).

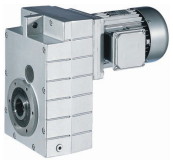
Combination options with shrink disc in position 1 (drive end)

GFL□□-2M

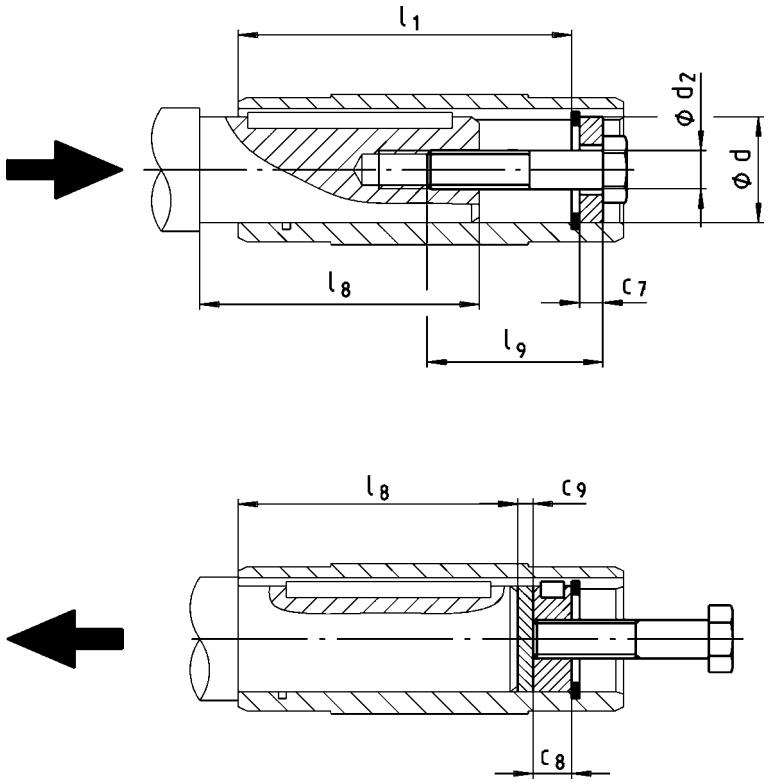
Gearbox	Motor frame size
GFL04	
GFL05	063 [1)] 071 [1)]
GFL06	063 071 080 090 [1)] 100 [1)]
GFL07	080 090 100 112 [1)]
GFL09	090 100 112 132
GFL11	100 112 132 160 180 225
GFL14	112 132 160 180 225

[1)] Only possible without cover

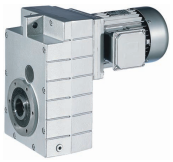
► For geared motors GFL□□-2M/E S... with shrink disc position 1: terminal box position / motec position 4 not possible!



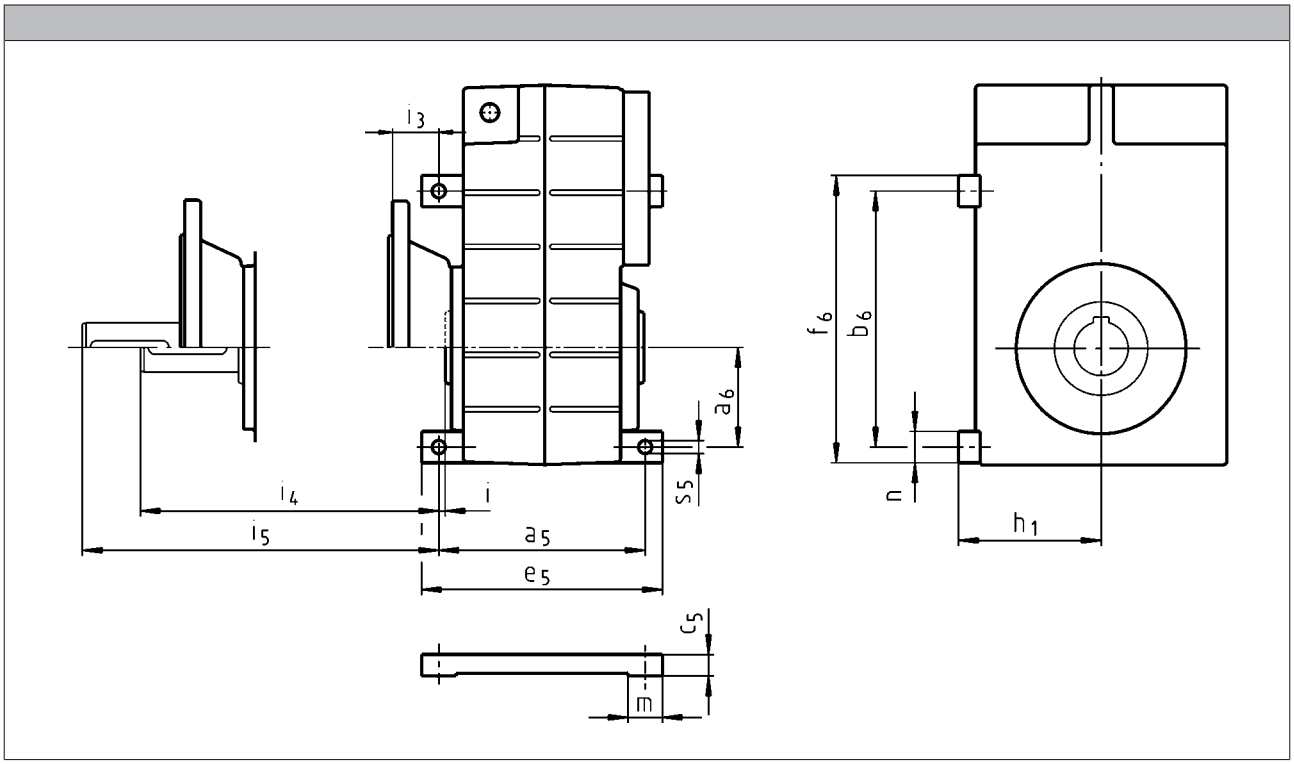
Mounting set for hollow shaft circlip:
Proposed design for auxiliary tools



	d	l_1	d_2	l_9	c_7	c_8	c_9	$l_{8,\,max}$
	H7							
GFL04	25 30	100	M10	40	5	10	3	85
					6			
GFL05	30 35	124						107
			M12	50	7	12		
GFL06	40 45	140	M16	60	8	16	4	118
					9			
GFL07	50 55	175			10		5	148
			M20	80	11	20		
GFL09	60 70	210			13			182
					14			
GFL11	70 80	250					6	221
					16			
GFL14	100	305	M24	100	20	24	8	270

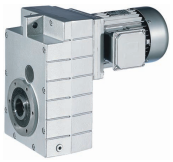


Foot mounting in position 3

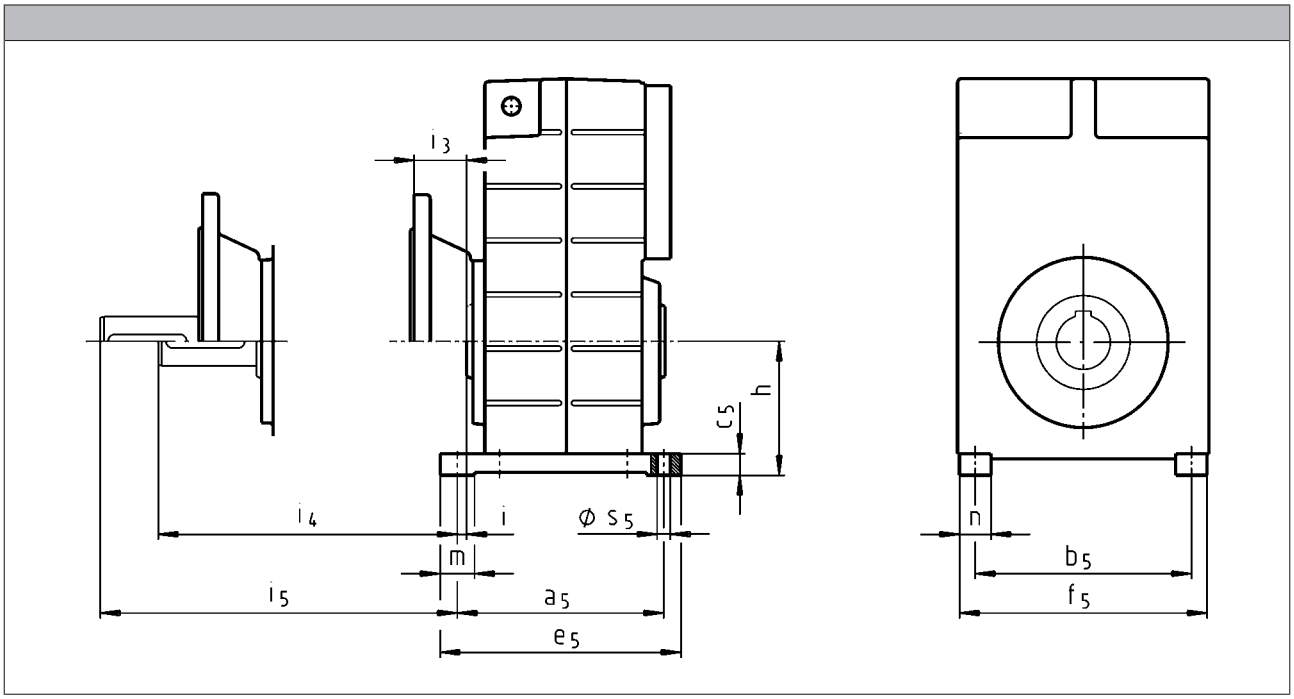


	a_5	a_6	b_6	c_5	e_5	f_6	h_1	i	i_3	i_4	i_5	m	n	s_5
GFL04	130	47	115	18	152	140	90	4.5	28.5	45.5	78.5	22	25	6.6
GFL05	160	65	167	21	185	192	100	2.0	31.0	58.0	91.0	25		9.0
GFL06	175	80	205	27	205	233	125		39.0	78.0	119	30	28	11.0
GFL07	220	100	260	31	255	292	155	3.0	52.0	97.0	152	35	32	13.5
GFL09	260	125	335	36	300	375	190		57.0	117	177	40	40	17.5
GFL11	315	155	435	48	365	485	240			157	217	50	50	22.0
GFL14	375	200	540	57	430	600	295			197	257	55	60	26.0

Foot design is not available for the following combinations:
- GFL04: Motor frame size 090
- GFL05: Motor frame size 090
- GFL05: Motor frame size 100
- GFL06: Motor frame size 112
- GFL06: Motor frame size 132
- GFL07: Motor frame size 160

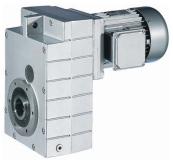


Foot mounting in position 4

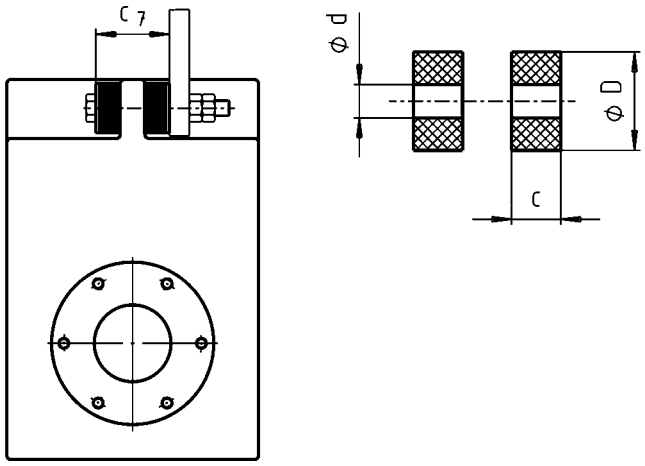


	a_5	b_5	c_5	e_5	f_5	h	i	i_3	i_4	i_5	m	n	s_5
GFL04	130	108	18	152	133.0	85	4.5	28.5	45.5	78.5	22	25	6.6
GFL05	160	140	21	185	165.0	95	2.0	31.0	58.0	91.0	25		9.0
GFL06	175	175	27	205	203.0	120		39.0	78.0	119	30	28	11.0
GFL07	220	220	31	255	252.0	145	3.0	52.0	97.0	152	35	32	13.5
GFL09	260	275	36	300	315.0	180		57.0	117	177	40	40	17.5
GFL11	315	340	48	365	390.0	224			157	217	50	50	22.0
GFL14	375	425	57	430	485.0	278			197	257	55	60	26.0

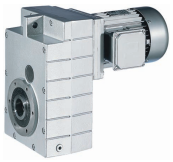
► In mounting positions E and F, the oil check bore hole/oil-sight glass are located between the feet in position 4!



Rubber buffer for torque plate



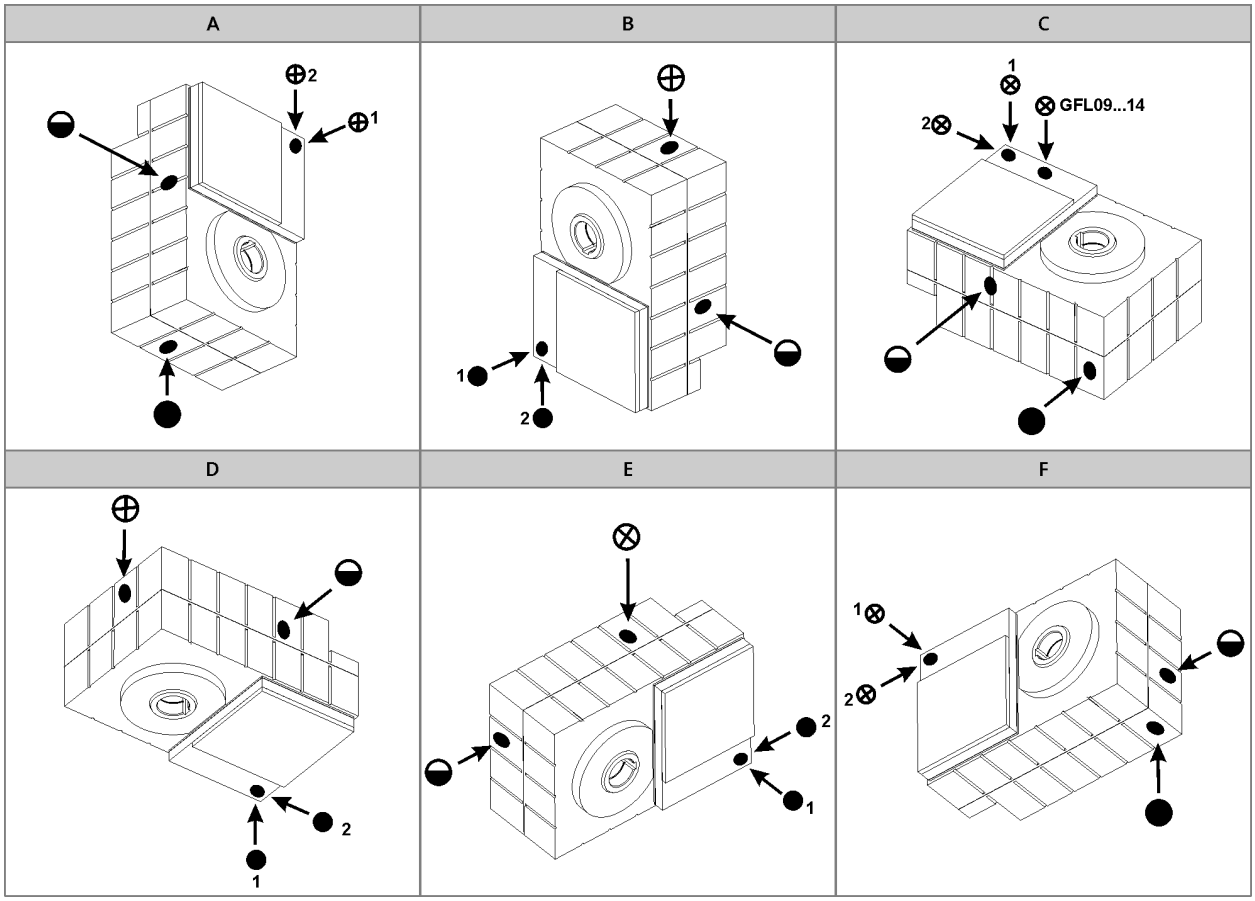
	d	D	c	c_7
GFL04	11	30	14.5	43
GFL05	11	30	14.5	45
GFL06	13	40	15.0	50
GFL07	17	50	27.0	79
GFL09	21	60	28.0	88
GFL11	26	72	29.0	98
GFL14	33	92	30.0	110



Ventilations

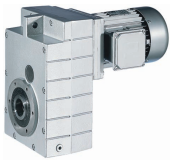
Position of ventilation, sealing elements and oil level check

GFL05...14-2



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

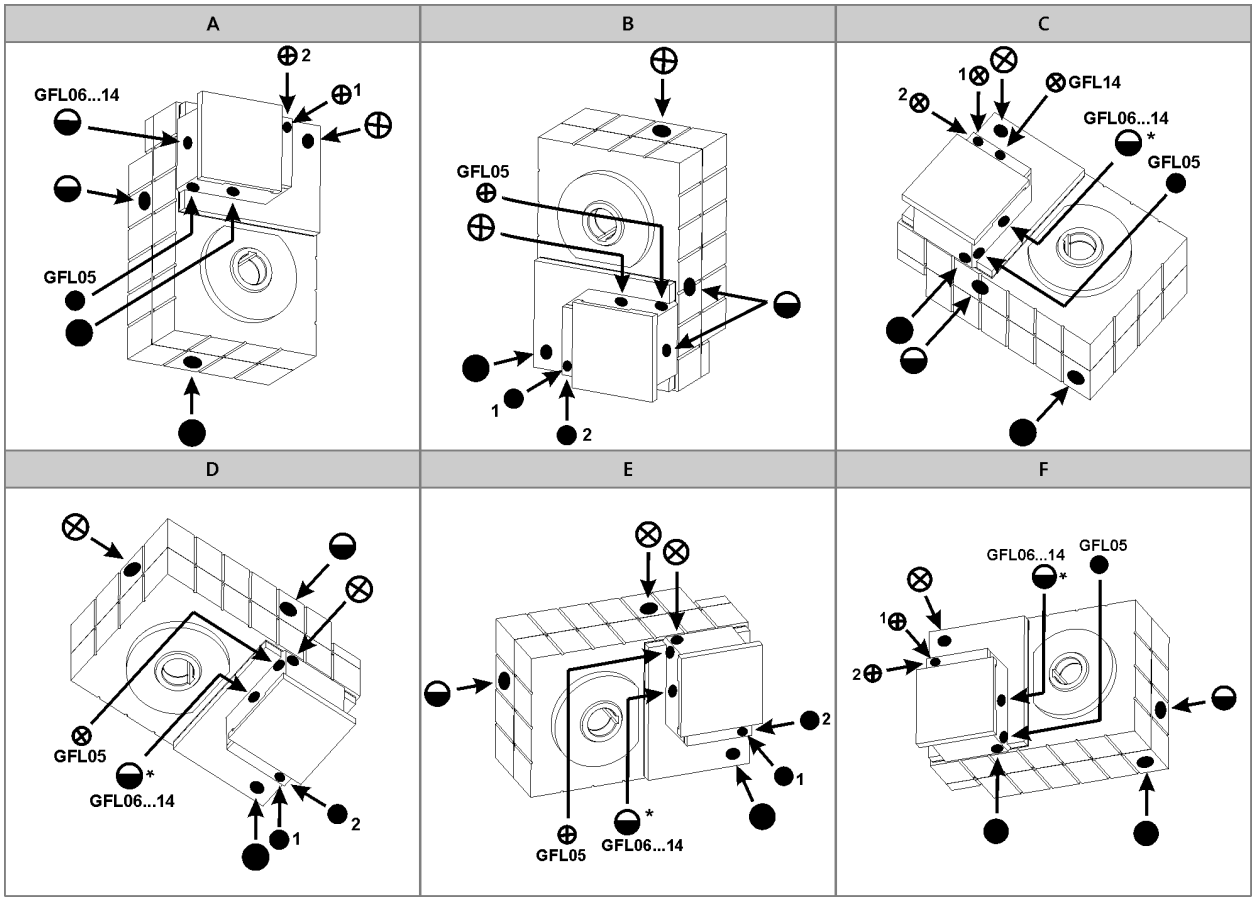
Item 1 standard
Item 2 only with:
- GFL05-2M □□□ 090C□□
- GFL05-2M □□□ 100C□□
- GFL06-2M □□□ 112C□□
- GFL07-2M □□□ 160C□□



Ventilations

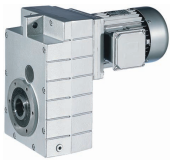
Position of ventilation, sealing elements and oil level check

GFL05...14-3



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

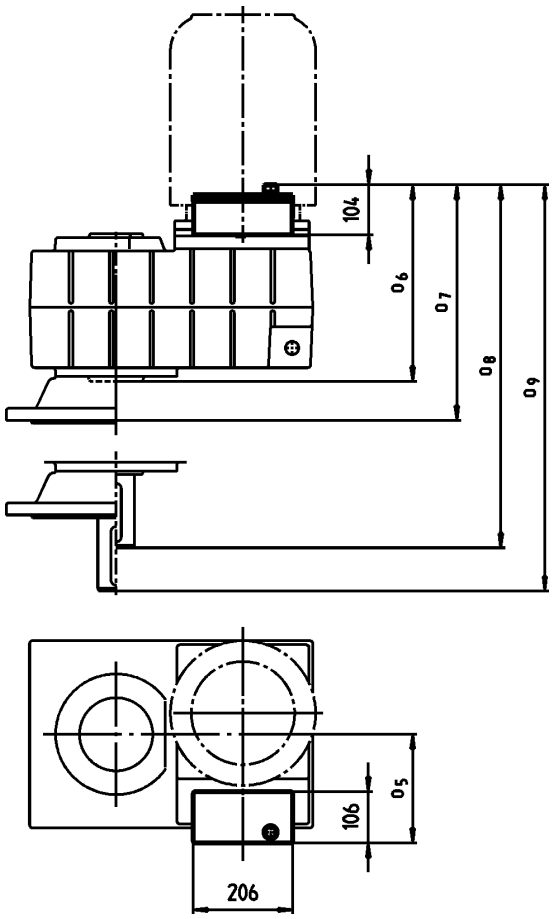
Item 1 standard
Item 2 only with:
- GFL07-3M □□□ 090C□□
- GFL07-3M □□□ 100C□□
- GFL09-3M □□□ 112C□□



Ventilations

Compensation reservoir for mounting position C

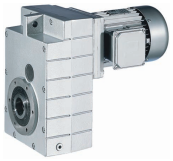
GFL□□-2



Motor	090 100					112				
	o_5	o_6	o_7	o_8	o_9	o_5	o_6	o_7	o_8	o_9
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
GFL09	165	344	405	464	525	187	344	405	464	525
GFL11	154	387	448	547	608	176	391	452	551	612
GFL14						181	446	507	646	707

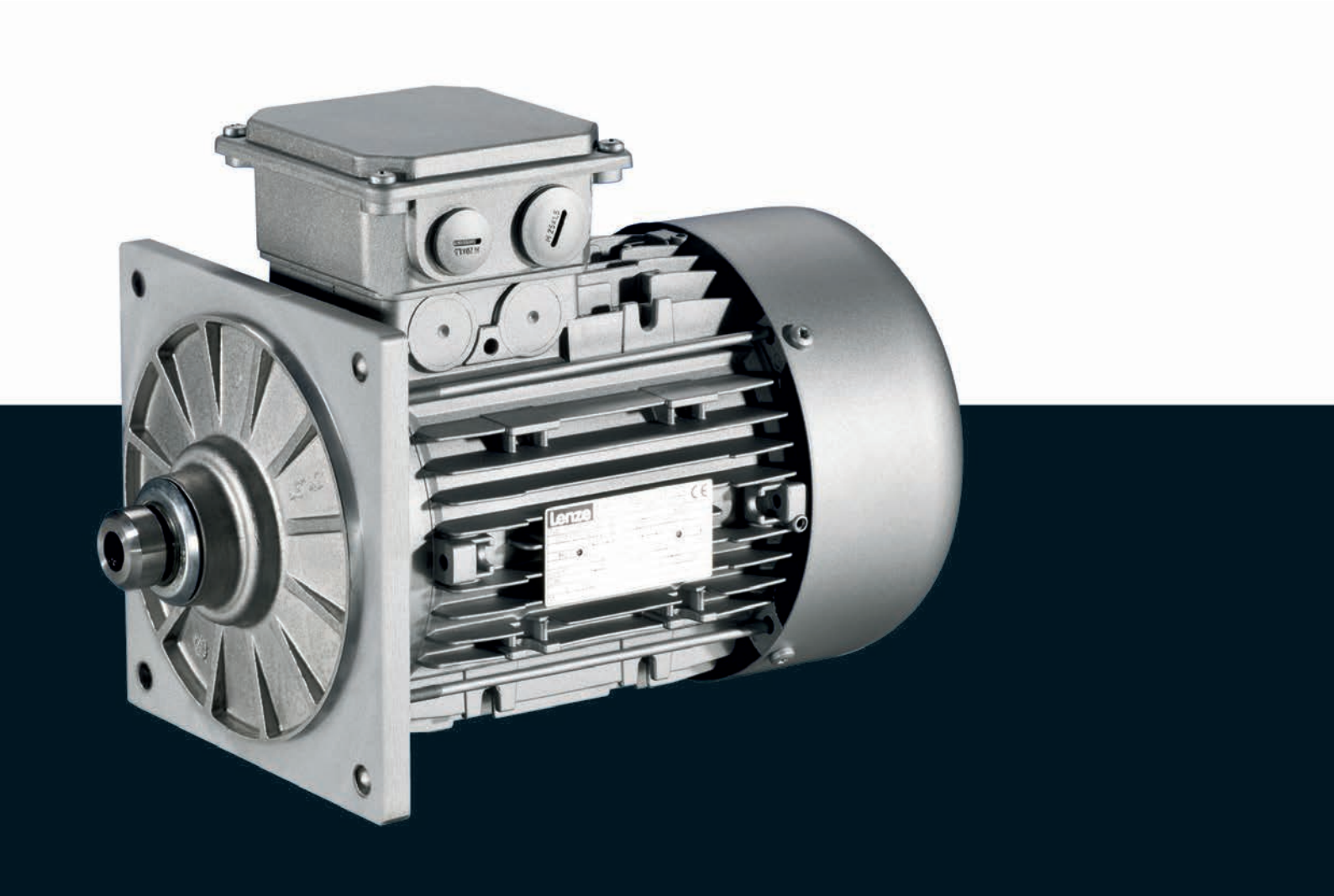
Motor	132					160 180 225				
	o_5	o_6	o_7	o_8	o_9	o_5	o_6	o_7	o_8	o_9
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
GFL09	204	344	405	464	525	219	344	405	464	525
GFL11	200	391	452	551	612	214	391	452	551	612
GFL14	211	446	507	646	707	211	446	507	646	707

- Terminal box position 3 not permitted.
- Foot in position 3 not permitted.



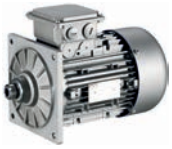
MF three-phase AC motors

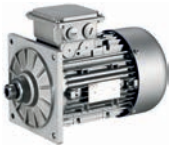
0.55 to 22 kW



MF three-phase AC motors

Contents





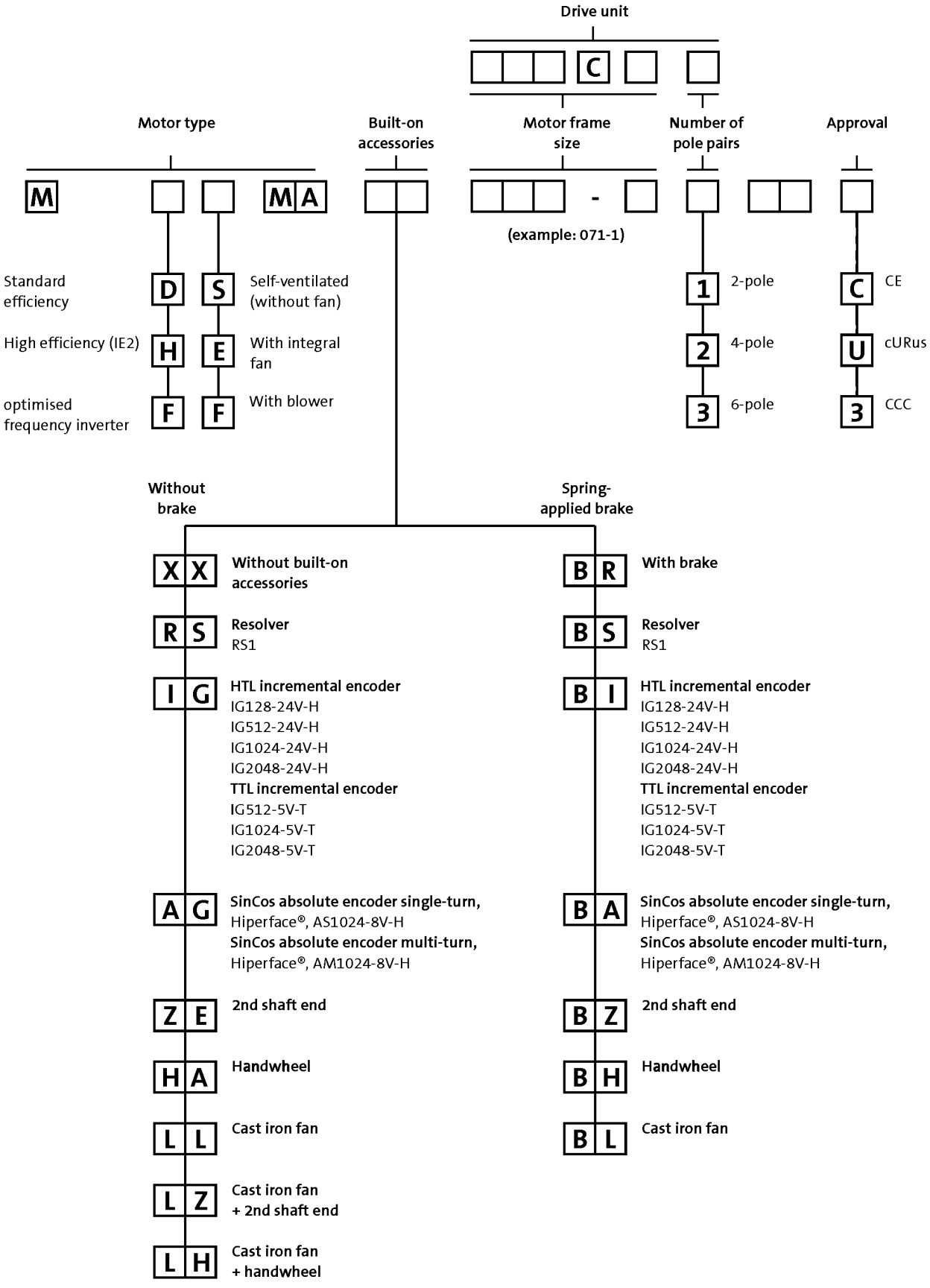
List of abbreviations

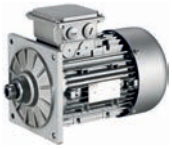
$\eta_{100\,\%}$	[%]	Efficiency
$\eta_{75\,\%}$	[%]	Efficiency
$\eta_{50\,\%}$	[%]	Efficiency
cos ϕ		Power factor
I_N	[A]	Rated current
I_{max}	[A]	Max. current consumption
J	[kgcm²]	Moment of inertia
m	[kg]	Mass
M_a	[Nm]	Starting torque
M_b	[Nm]	Stalling torque
M_{max}	[Nm]	Max. torque
M_N	[Nm]	Rated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

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

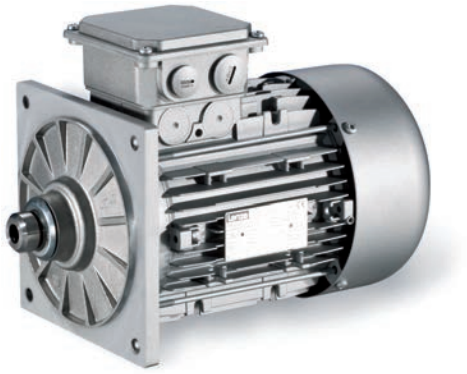

Drive unit
C
Motor type
Built-on accessories
Motor frame size
Number of pole pairs
Approval
M
M A
-
(example: 071-1)
Standard efficiency
D
S
Self-ventilated (without fan)
High efficiency (IE2)
H
E
With integral fan
optimised frequency inverter
F
F
With blower
1
2-pole
2
4-pole
3
6-pole
C
CE
U
cURus
3
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 MF three-phase AC motors are available in a power range from 0.55 to 22 kW and have been fully optimised for inverter operation.

The benefits for you:
- Up to sizes smaller than standard three-phase AC motors
- The motors exceed the minimum efficiency levels of efficiency class IE2
- Large speed setting range: 1:24 (without field weakening)
- Dynamic thanks to a low moment of inertia

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	063	071	080	090
Spring-applied brake				
Design	Standard or LongLife design Reduced or standard braking torque With rectifier With manual release lever Low noise		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	Protection cover 2nd shaft end		

Functions and features

Size			
Motor	100	112	132
Spring-applied brake			
Design	Standard or LongLife design Reduced, standard or increased braking torque With rectifier With manual release lever Low noise	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	Terminal box HAN modular connector
Brake connection	Terminal box ICN connector HAN modular connector HAN10E connector	Terminal box	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	Terminal box 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 2nd shaft end		

Functions and features

Surface and corrosion protection

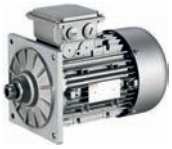
For optimum protection of three-phase AC motors against ambient conditions, the surface and corrosion protection system (OKS) offers tailor-made solutions.

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		

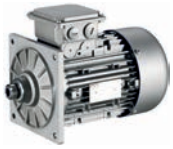


Motor – inverter assignment

Rated frequency 120 Hz

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

Rated power	Product key		
	Motor	Inverter	
P_N			
[kW]			
0.55	MF□□□□□063-32	E84DVB□5514S□□□2□	
0.75	MF□□□□□063-42	E84DVB□7514S□□□2□	
1.10	MF□□□□□071-32	E84DVB□1124S□□□2□	
1.50	MF□□□□□071-42	E84DVB□1524S□□□2□	
2.20	MF□□□□□080-32	E84DVB□2224S□□□2□	
3.00	MF□□□□□080-42	E84DVB□3024S□□□2□	
4.00	MF□□□□□090-32	E84DVB□4024S□□□2□	
5.50	MF□□□□□100-12	E84DVB□5524S□□□2□	
7.50	MF□□□□□100-32	E84DVB□7524S□□□2□	
11.0	MF□□□□□112-22		
15.0	MF□□□□□132-12		
18.5	MF□□□□□132-22		
22.0	MF□□□□□132-32		

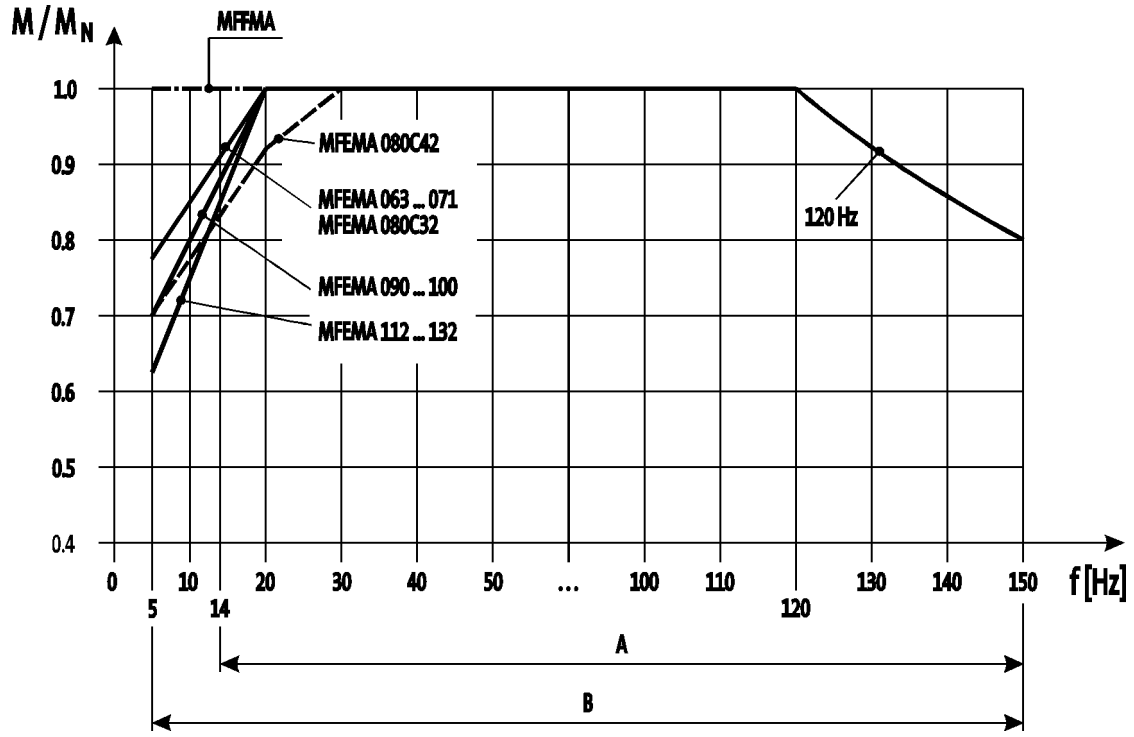


Dimensioning

Torque derating at low motor frequencies

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

Torque characteristics



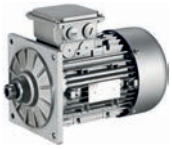
A = Operation with integral fan and brake
B = Operation with integral fan and brake control "Holding current reduction"

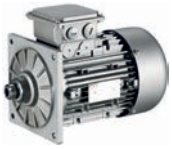
► The motor specifications stated in this catalogue for inverter operation apply to operation with a Lenze inverter. If you are uncertain, get in touch with the manufacturer of the inverter to ask whether the device is capable of driving the motor with the stated specifications (e.g. setting range, base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

Rated data for 120 Hz

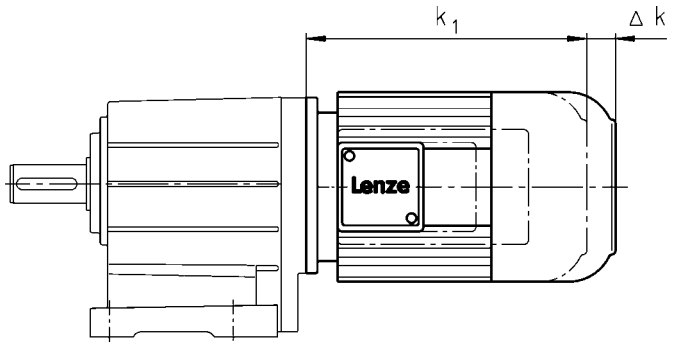
4-pole motors

	P_N	n_N	$U_{N,\Delta}$	$I_{N,\Delta}$	$U_{N,Y}$	$I_{N,Y}$
			± 10 %		± 10 %	
	[kW]	[r/min]	[V]	[A]	[V]	[A]
MF□□□□□063-32	0.55	3440	200	3.20	345	1.80
MF□□□□□063-42	0.75	3400	210	4.00	370	2.30
MF□□□□□071-32	1.10	3490	200	5.50	345	3.20
MF□□□□□071-42	1.50	3450	205	6.80	360	3.90
MF□□□□□080-32	2.20	3500	200	9.10	345	5.30
MF□□□□□080-42	3.00	3480	210	11.4	370	6.60
MF□□□□□090-32	4.00	3480			370	8.50
MF□□□□□100-12	5.50	3525			340	12.9
MF□□□□□100-32	7.50	3515			375	15.9
MF□□□□□112-22	11.0	3530			370	23.5
MF□□□□□132-12	15.0	3560			370	31.2
MF□□□□□132-22	18.5	3560			360	39.0
MF□□□□□132-32	22.0	3550			380	44.5

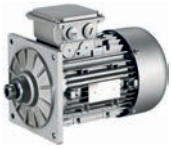
	M_N	M_{max}	cos ϕ	$\eta_{75\,\%}$	$\eta_{100\,\%}$	J [1)]	m [1)]
	[Nm]	[Nm]		[%]	[%]	[kgcm²]	[kg]
MF□□□□□063-32	1.53	6.00	0.68	75.0	75.0	3.70	4.40
MF□□□□□063-42	2.11	8.00	0.69	79.6	79.6	3.70	4.40
MF□□□□□071-32	3.01	12.0	0.77	81.4	81.4	12.8	6.40
MF□□□□□071-42	4.15	16.0	0.80	82.8	82.8	12.8	6.40
MF□□□□□080-32	6.00	24.0	0.86	84.3	84.3	28.0	11.0
MF□□□□□080-42	8.20	32.0	0.86	85.5	85.5	28.0	11.0
MF□□□□□090-32	10.9	44.0	0.85	87.0	86.6	32.0	18.0
MF□□□□□100-12	14.9	60.0	0.81	87.9	87.7	61.0	26.5
MF□□□□□100-32	20.3	80.0	0.81	88.9	88.7	61.0	26.5
MF□□□□□112-22	29.7	120	0.78	89.8	89.8	107	38.0
MF□□□□□132-12	40.3	160	0.84	88.9	90.6	336	66.0
MF□□□□□132-22	49.6	200	0.84	89.9	91.2	336	66.0
MF□□□□□132-32	59.2	240	0.83	90.5	91.6	336	66.0

[1)] Without accessories

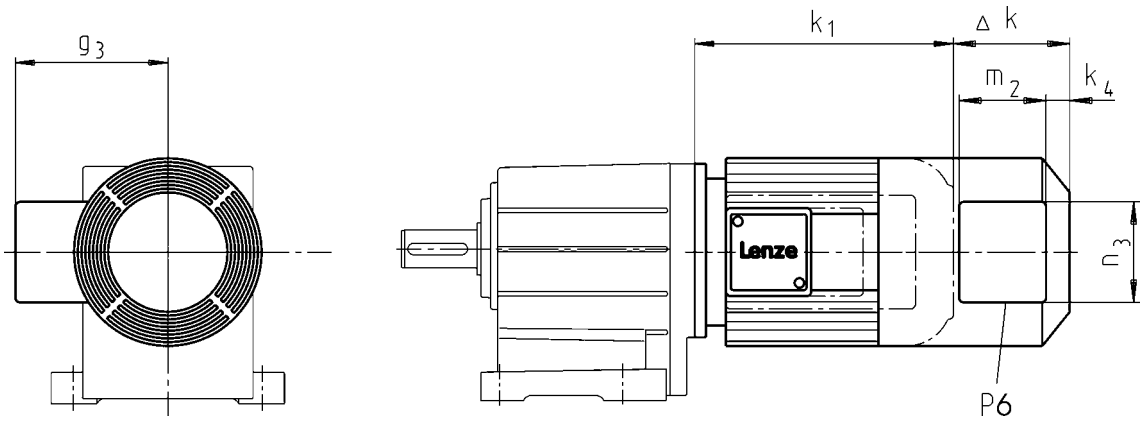
Dimensions, self-ventilated (4-pole)



	Motor type			
	MFEMAXX	MFEMABR	MFEMABS MFEMABI MFEMABA	MFEMARS MFEMAIG MFEMAAG
Motor frame size				
	Δ k	Δ k	Δ k	Δ k
	[mm]	[mm]	[mm]	[mm]
063-32 063-42	0	40	103	56
071-32 071-42		52	96	52
080-32 080-42		73	111	111
090-32		68	105	87
100-12 100-32		76	101	81
112-22		90	120	80
132-12 132-22 132-32		110	125	103



Dimensions, forced ventilated (4-pole)

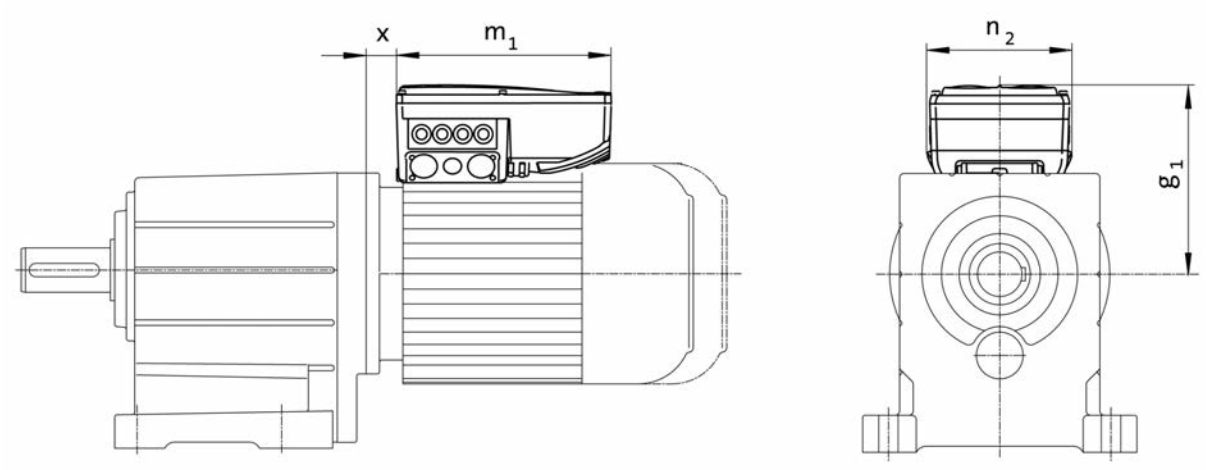


Motor type									
	MFFMAXX	MFFMABR	MFFMABS MFFMABI MFFMABA	MFFMARS MFFMAIG MFFMAAG					

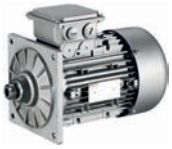
Motor frame size									
	Δ k	Δ k	Δ k	Δ k	k_4	g_3	m_2	n_3	P_6
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063-32 063-42	128	170	170	128	12	115	95	105	1x M16x1.5
071-32 071-42		165	165			122			
080-32 080-42		183	183		13	132	96	106	
090-32		181	181		22	141	95	105	
100-12 100-32	109	170	170	109		150			
112-22	102	183	183	183		162			
132-12 132-22 132-32	115	202	202	202	32	182			

Dimensions, 8400 motec inverter

Rated frequency 120 Hz



Product key					
Motor	Inverter				
		$g_{1,\ 120Hz}$	$m_{1,\ 120Hz}$	$n_{2,\ 120Hz}$	x_{120Hz}
		[mm]	[mm]	[mm]	[mm]
MF□□□□□063-32	E84DVB□5514S□□□2□	154	241	161	18.8
MF□□□□□063-42	E84DVB□7514S□□□2□				
MF□□□□□071-32	E84DVB□1124S□□□2□	163			21.0
MF□□□□□071-42	E84DVB□1524S□□□2□				
MF□□□□□080-32	E84DVB□2224S□□□2□	201	260	176	24.5
MF□□□□□080-42	E84DVB□3024S□□□2□				
MF□□□□□090-32	E84DVB□4024S□□□2□	261	325	195	16.0
MF□□□□□100-12	E84DVB□5524S□□□2□	272			17.1
MF□□□□□100-32	E84DVB□7524S□□□2□				



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

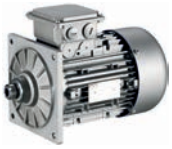
Enclosure
- Without manual release IP55
- With manual release IP54

Friction lining
- Non-asbestos, low wearing

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

Motor – brake assignment

Design	Standard		LongLife	
Motor frame size	**Size**	**Rated torque**	**Size**	**Rated torque**
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
063-32	06	2.50	06	4.00
063-42	06	4.00		
071-32	06	2.50	06	4.00
	06	4.00	08	3.50
	08	3.50		
071-42	06	2.50	06	4.00
	06	4.00	08	3.50
	08	3.50	08	8.00
	08	8.00		
080-32	08	3.50	08	8.00
	08	8.00	10	7.00
	10	7.00		
080-42	08	3.50	08	8.00
	08	8.00	10	7.00
	10	7.00	10	16.0
	10	16.0		

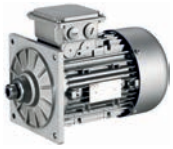


Spring-applied brake

Motor – brake assignment

Design	Standard	LongLife

Motor frame size	Size	Rated torque	Size	Rated torque
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
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		
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		
132-22 132-32	14 14 16 16 16	35.0 60.0 60.0 80.0 100		



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

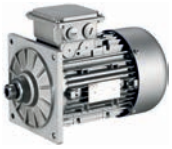
- Ratio of supply voltage to brake coil voltage = 1.11
- Supply voltage
  AC 230 V

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

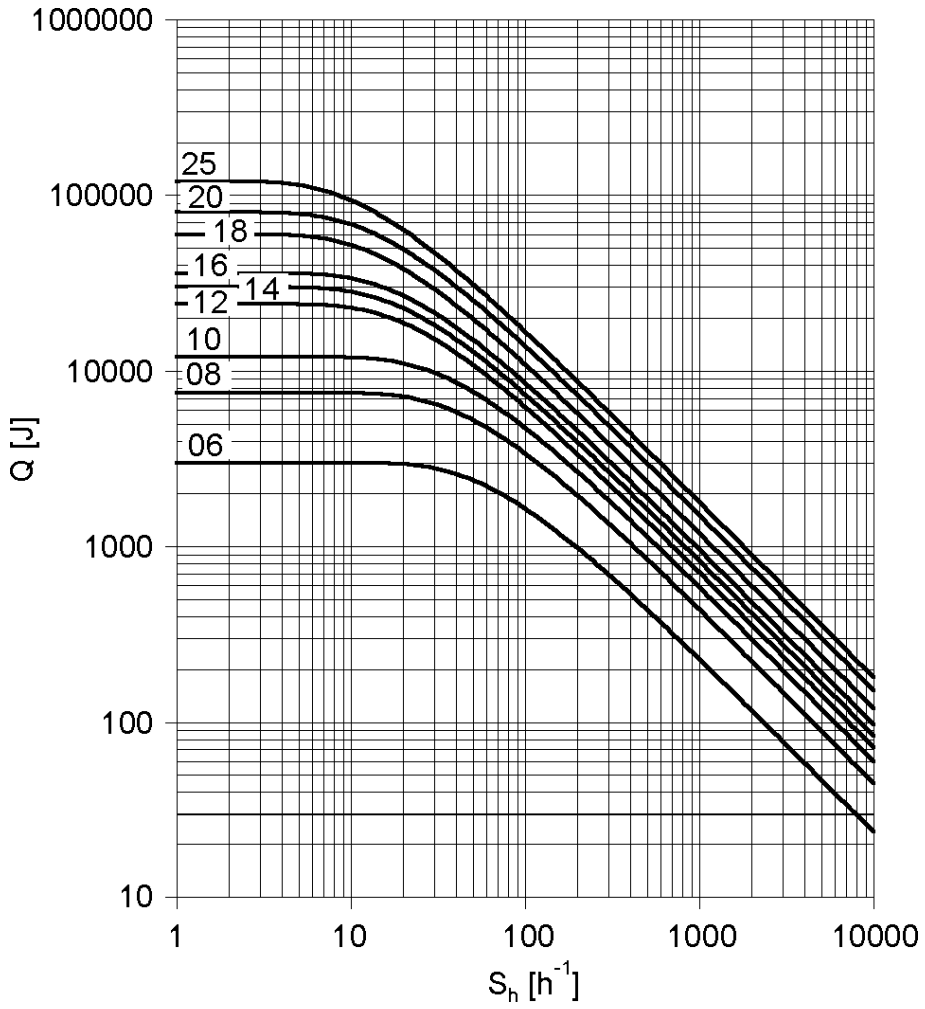
Supply voltages:
- AC 230 V
- AC 400 V

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:

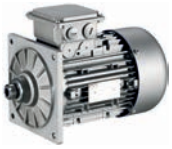
- **Short-time overexcitation of the brake coil**
  Activating the brake coil for the overexcitation time $t_{ü}$ with twice the rated voltage allows the disengagement time to be reduced. The brake opens more quickly and wear on the friction lining is reduced.
  These features make this activation version 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



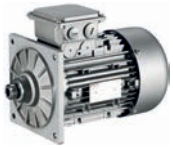
Spring-applied brake

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

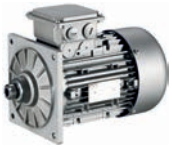
► Activation via half-wave or bridge rectifier

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.



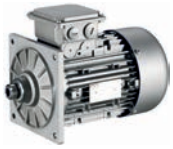
Spring-applied brake

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

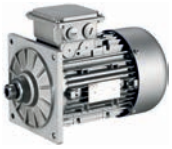
► Activation via half-wave or bridge rectifier

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

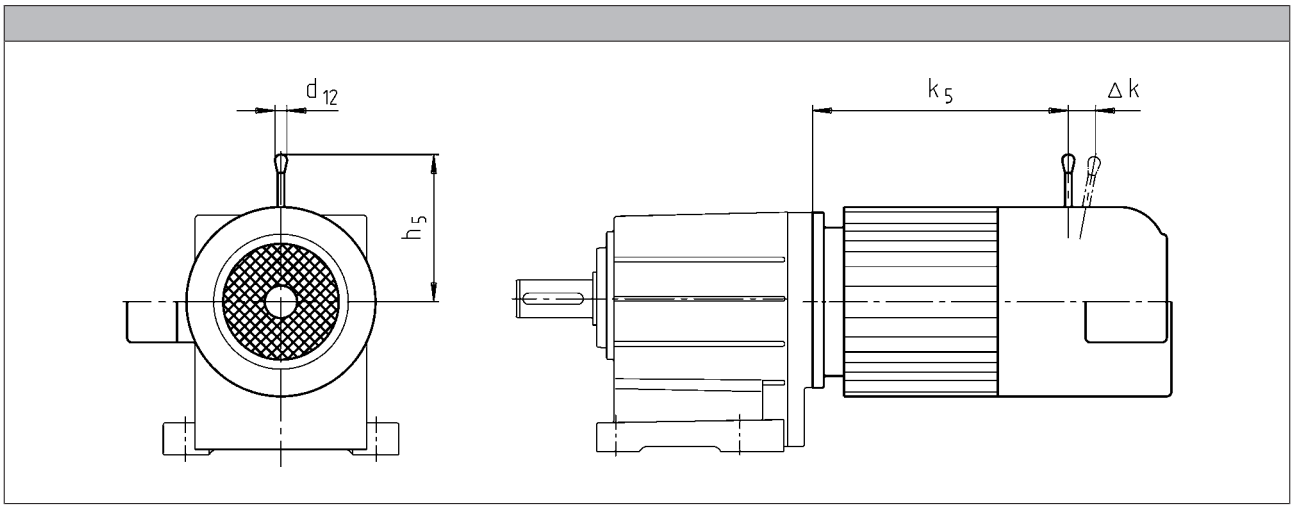
Design			Holding current reduction (cold brake)									
Size			10	12	14	16		18	20		25	
Friction energy												
	Q_{BW}	[MJ]	198	353	253	563	241	578	1596	580	2465	1409
Overexcitation time												
	$t_ü$	[ms]	300			1300						
Min. rest time												
	t	[ms]	900			3900						
Delay time												
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

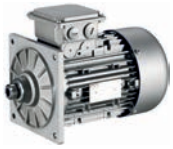
Manual release lever



Motor frame size	Size				
	Brake				
		k_5	Δ k	h_5	d_{12}
		[mm]	[mm]	[mm]	[mm]
063-32 063-42	06	173	29	107	13.0
071-32 071-42	06 08	186 187	29 27	107 116	13.0 13.0
080-32 080-42	06 08	207 218	29 27	107 116	13.0 13.0
090-32	08 10	245 256	27 28	116 132	13.0 13.0
100-12 100-32	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
132-12 132-22 132-32	14 16	373 373	41 55	195 240	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 071, 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)

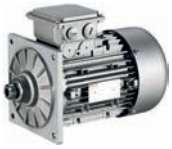
Servo-Inverters
- Servo Drives 9400 (E94A)
- 9300 servo inverters (EVS93)
- Servo Drives ECS

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	



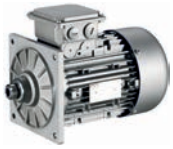
Blowers

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

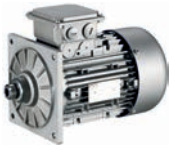
► The thermal sensors are integrated in the windings. The use of an additional motor protection switch is recommended.

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

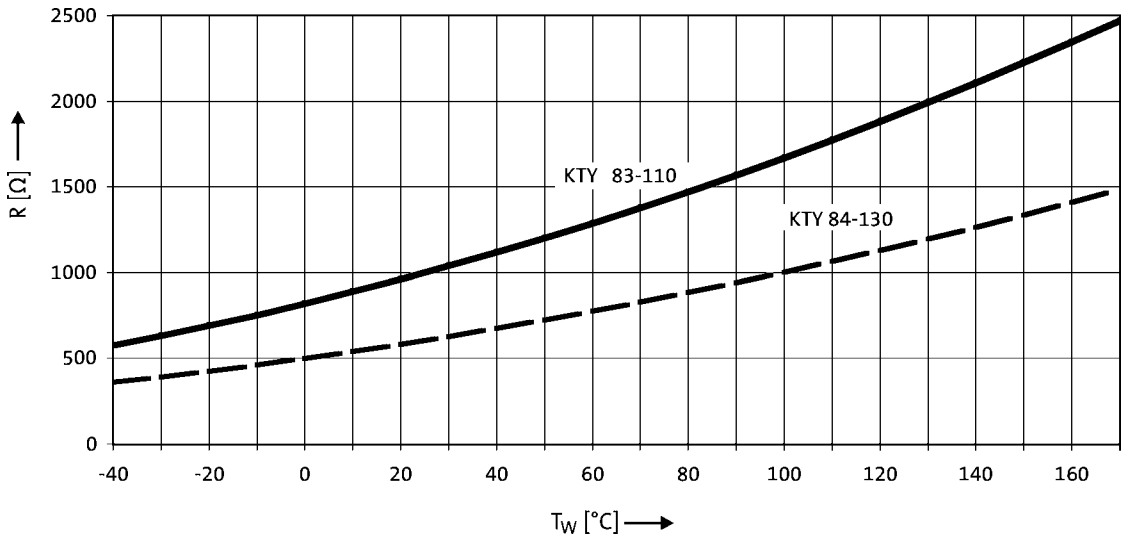


Temperature monitoring

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

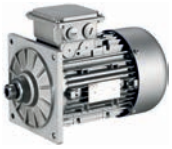
The MF three-phase AC motors are designed specifically for inverter operation. With a base frequency of 120Hz, the rated voltage has been specified at approximately 200 V in delta connection (up to 2.2 kW) and approximately 350V in star configurations.

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
Motor frame size			
	Terminal box		
063-32 063-42	KK1	KK2	
071-32 071-42	KK1	KK2	KK2
080-32 080-42	KK1	KK2	KK2
090-32	KK1	KK2	KK2
100-12 100-32	KK1	KK2	KK2
112-22	KK1	KK2	KK2
132-12 132-22 132-32	KK1	KK3	KK3

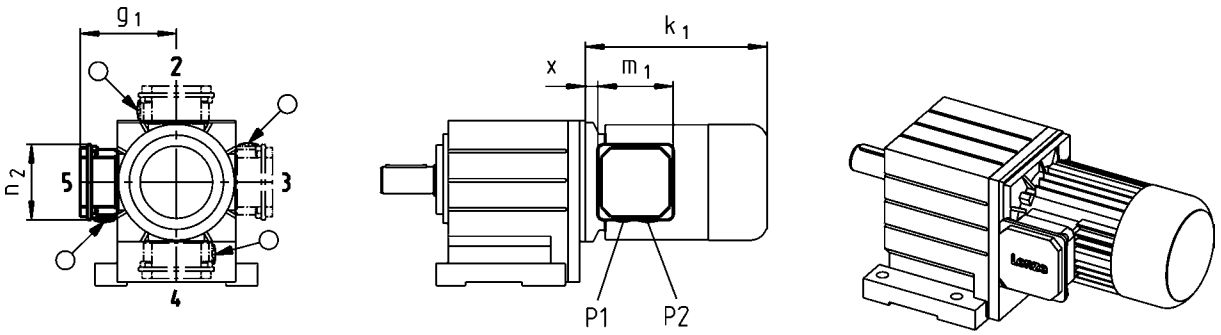
Motor type	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MABZ
Motor frame size			
	Terminal box		
063-32 063-42	KK2	KK3	
071-32 071-42	KK2	KK3	KK2
080-32 080-42	KK2	KK3	KK2
090-32	KK2	KK3	KK2
100-12 100-32	KK2	KK3	KK2
112-22	KK2	KK3	KK2
132-12 132-22 132-32	KK3	KK3	KK3



Terminal box

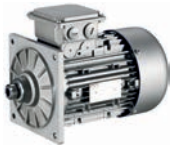
Dimensions of KK1

- ► 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

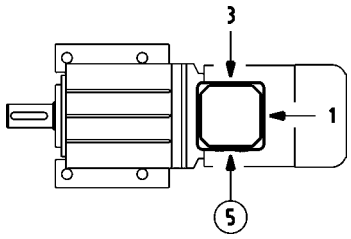
[1)] UL/CSA approval: cURus



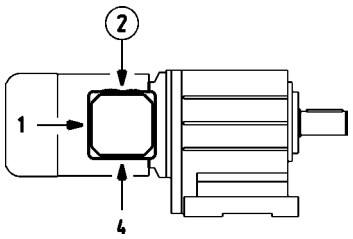
Terminal box

Cable entry position when using KK1

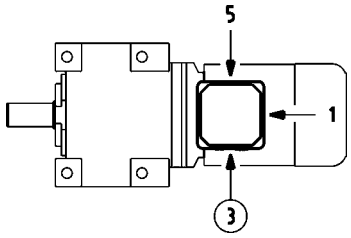
Terminal box in position 2



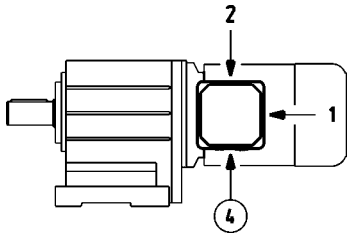
Terminal box in position 3

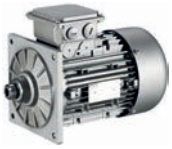


Terminal box in position 4



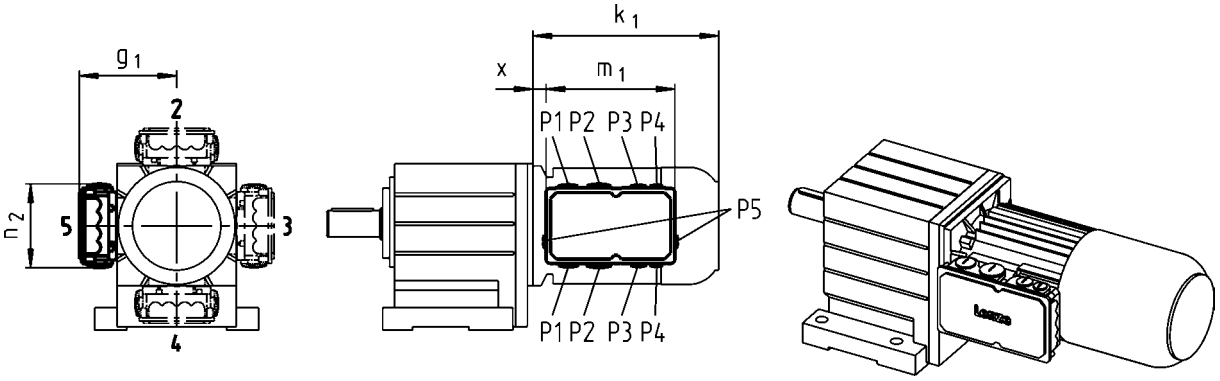
Terminal box in position 5





Terminal box

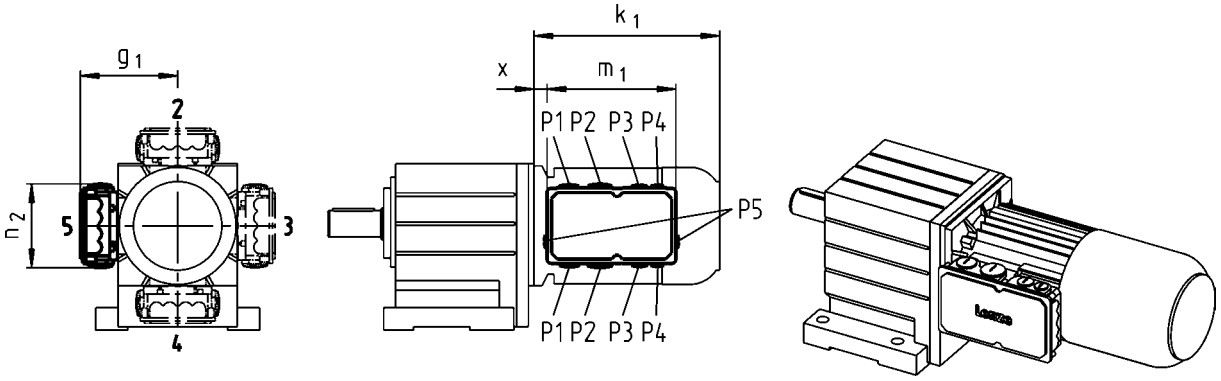
Dimensions of KK2



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				

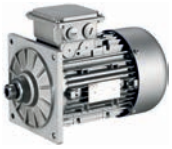
Terminal box

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.

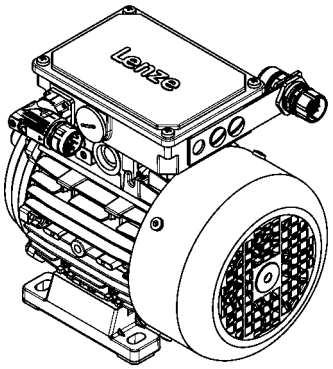


Plug connectors

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

ICN connector

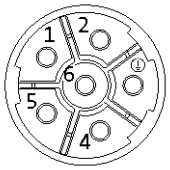
A connector is used for power, brake and temperature monitoring. The connections to the feedback system and the blower each employ a separate connector.



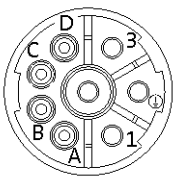
Connection for power, brake and temperature monitoring

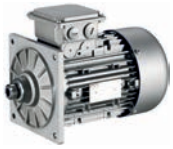
The connectors can be rotated through 270° and are fitted with a bayonet catch for SpeedTec connectors. As this connector is also compatible with conventional union nuts, existing mating connectors can continue to be used without difficulty. The motor connection is determined in the terminal box and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

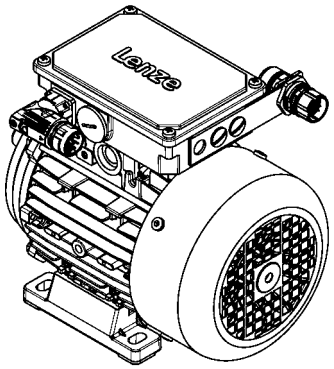
Pin assignment			
Contact	Designation	Meaning	
1	U	Phase U power	
PE	PE	PE conductor	
3	V	Phase V power	
4	W	Phase W power	
A	TB1 / TP1 / R1	Thermal sensor: TKO/PTC/ +KTY	
B	TB2 / TP2 / R2	Thermal sensor: TKO/PTC/-KTY	
C	BD1 / BA1	Brake +/AC	
D	BD2 / BA2	Brake /AC	



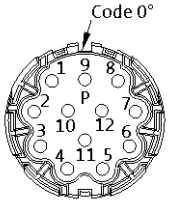
ICN connector

Feedback connection

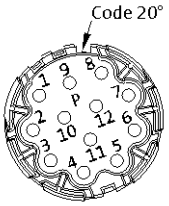
All encoder systems (apart from IG128-24V-H) are also available with an ICN connector fixed to the motor terminal box for exceptionally fast commissioning. The connectors are fitted with a bayonet fixing, which is also compatible with conventional union nuts. Existing mating connectors can therefore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

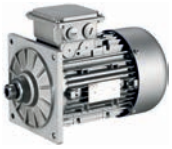


► Resolver

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

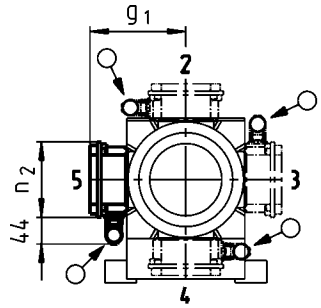
Motor type	M□□MAXX	M□□MARS M□□MAIG M□□MAAG	M□□MAZE
Motor frame size			
	Terminal box		
063-32 063-42	KK1	KK2	
071-32 071-42	KK1	KK2	KK2
080-32 080-42	KK1	KK2	KK2
090-32	KK1	KK2	KK2
100-12 100-32	KK1	KK2	KK2

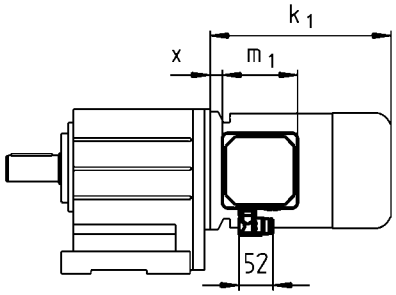
Motor type	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MABZ
Motor frame size			
	Terminal box		
063-32 063-42	KK2	KK3	
071-32 071-42	KK2	KK3	KK2
080-32 080-42	KK2	KK3	KK2
090-32	KK2	KK3	KK2
100-12 100-32	KK2	KK3	KK2

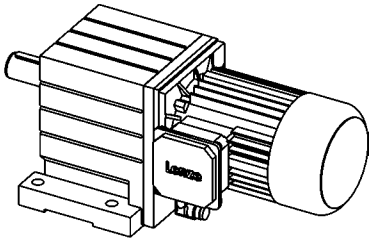
ICN connector

Dimensions of KK1

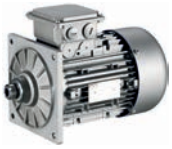
- ► For motors with connectors, the connector position can be selected in accordance with the terminal box position.
- ► If preferred positions are not specified in the order, the connector will be positioned as circled on the diagram below.







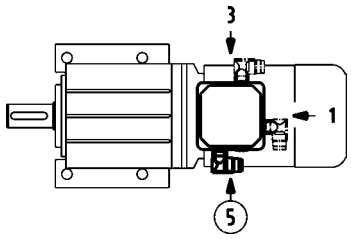
Size				
Motor				
	x	g_1	m_1	n_2
	[mm]	[mm]	[mm]	[mm]
063	12	117	93.0	93.0
071	15	126		
080	14	150	115	115
090	19	157		
100	20	166		
112	22	176		
132	33	195	122	122



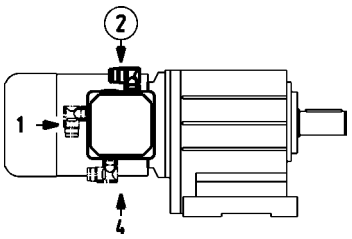
ICN connector

Connector position when using KK1

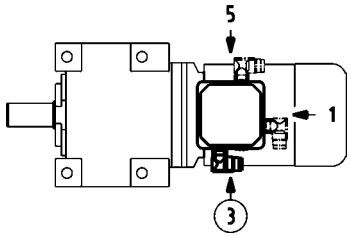
Terminal box in position 2



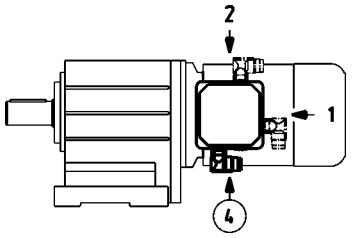
Terminal box in position 3



Terminal box in position 4



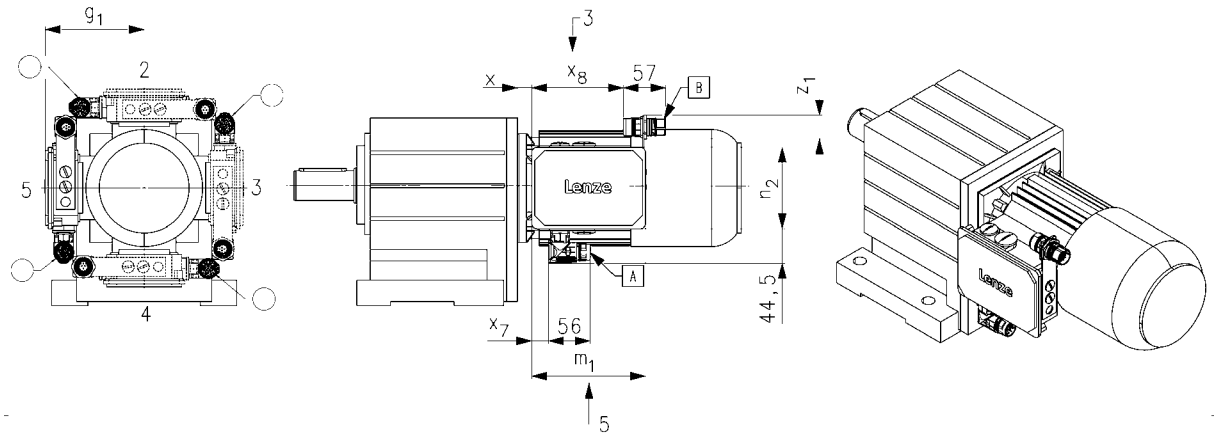
Terminal box in position 5



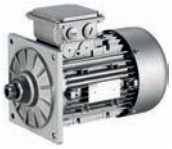
ICN connector

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.



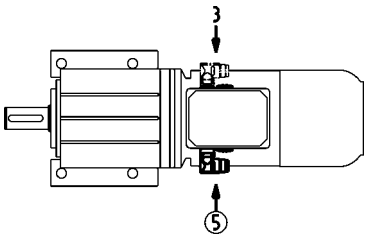
Size							
Motor							
	x	g_1	m_1	n_2	x_7	x_8	$z_{1, max}$
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
063	13	107	136	103	16	109	43
071	15	118					
080	17	132	152	121	23	125	41
090	22	137					
100	23	147					
112	25	158					
132	38	187	195	125	27	166	71



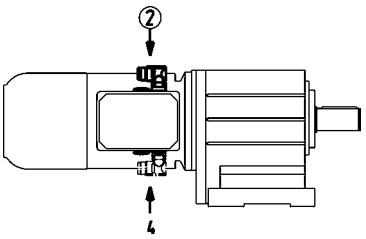
ICN connector

Connector position when using KK2/KK3

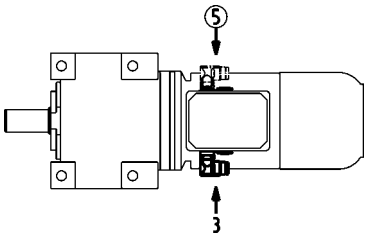
Terminal box in position 2



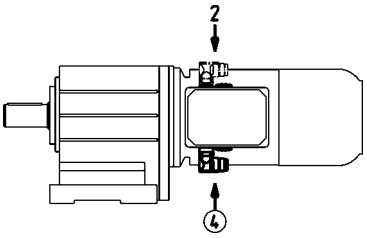
Terminal box in position 3

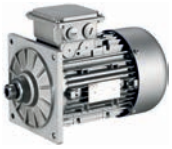


Terminal box in position 4



Terminal box in position 5

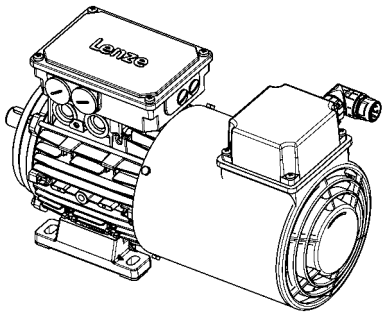




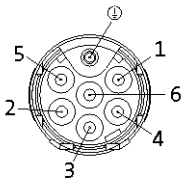
ICN connector

Blower connection

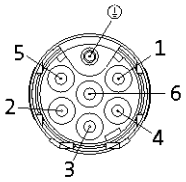
The blower is also optionally available with an ICN connector fixed to the terminal box of the blower for exceptionally fast commissioning. The connectors are fitted with a bayonet fixing, which is also compatible with conventional union nuts. Existing counter plugs can therefore continue to be used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

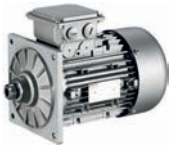


► Blower 1-ph

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

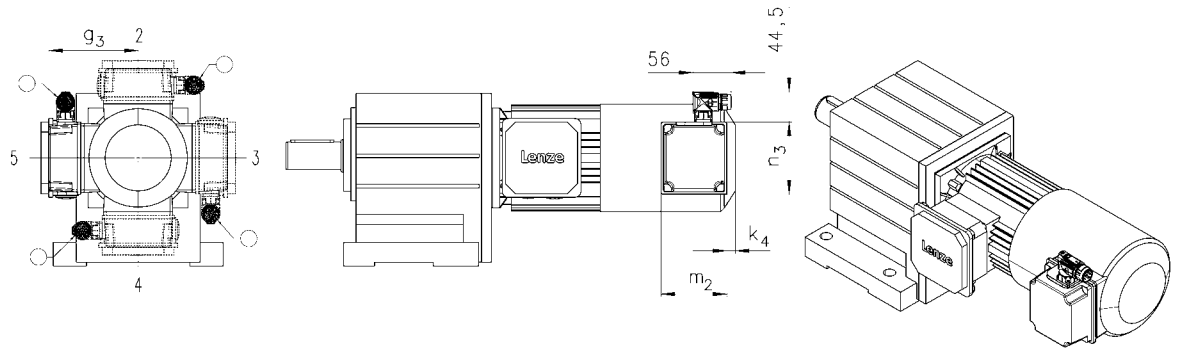
► Blower 3-ph

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	



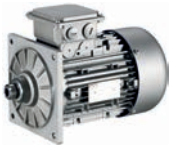
ICN connector

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				

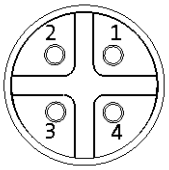
► In addition, the cover of the blower terminal box (including connectors) can be rotated progressively through 90° if necessary.

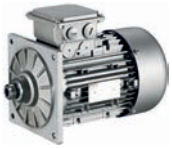


M12 connector

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.

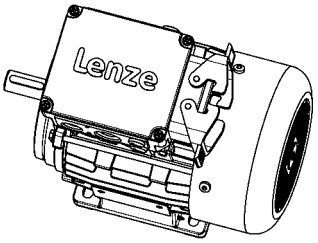
Pin assignment			
Contact	Designation	Meaning	
1	$+U_B$	Supply +	
2	B	Track B	
3	GND	Mass	
4	A	Track A	

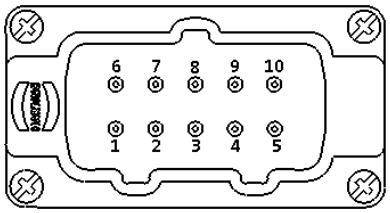


HAN connector

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.

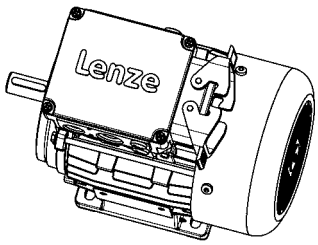


Pin assignment		
Contact	Meaning	
1	Terminal board: U1	
2	Terminal board: V1	
3	Terminal board: W1	
4	Brake +/AC	
5	Brake -/AC	
6	Terminal board: W2	
7	Terminal board: U2	
8	Terminal board: V2	
9	Thermal sensor: +KTY/PTC/TKO	
10	Thermal sensor: KTY/PTC/TKO	

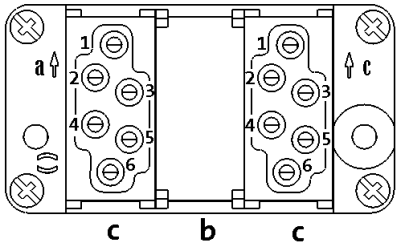
HAN connector

Modular

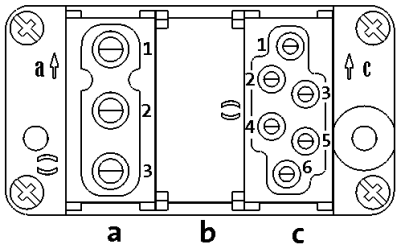
The connector is available with two different power modules (16 A or 40 A), depending on the rated motor current. The motor connection is determined in the terminal box and must be checked before commissioning.

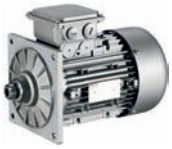


► HAN modular 16 A

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

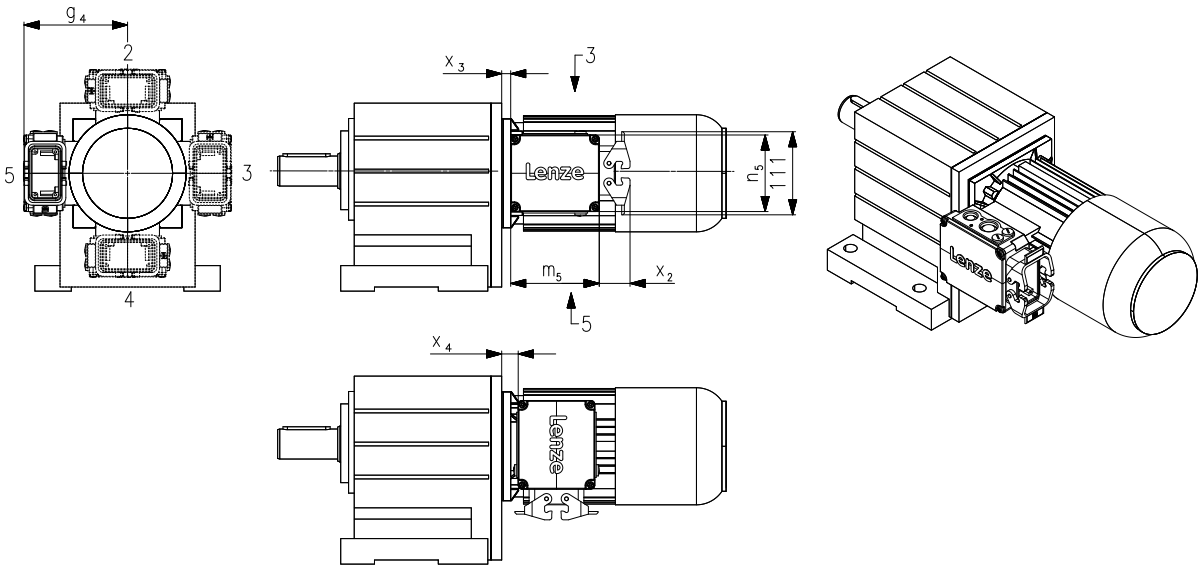
Motor type	M□□MAXX M□□MABR	M□□MAZE M□□MABZ
Motor frame size		
	Terminal box with HAN connector	
063-32 063-42	HAN-10E HAN modular	
071-32 071-42	HAN-10E HAN modular	HAN-10E HAN modular
080-32 080-42	HAN-10E HAN modular	HAN-10E HAN modular
090-32	HAN-10E HAN modular	HAN-10E HAN modular
100-12 100-32	HAN-10E HAN modular	HAN-10E HAN modular
112-22		
132-12 132-22 132-32	HAN modular	HAN modular

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

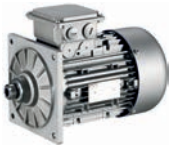
HAN connector

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.



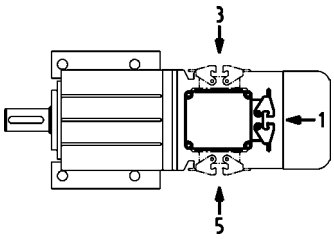
Size			
Motor			
	g_4	x_3	x_4
	[mm]	[mm]	[mm]
063	120	5.00	6.00
071	129	7.00	8.00
080	138	11.0	19.0
090	143	15.0	23.0
100	154	16.0	24.0
112	164	13.5	21.5
132	233	34.5	4.50
160	248	39.0	9.00



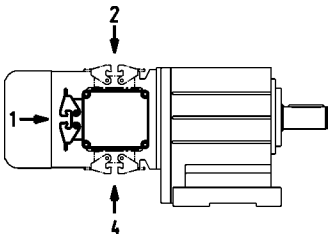
HAN connector

Position of connector

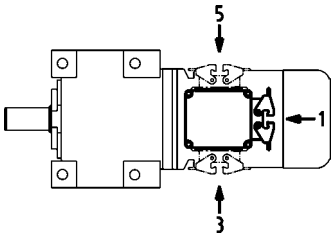
Connector in position 2



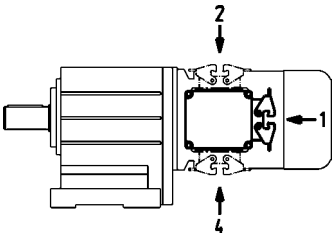
Connector in position 3



Connector in position 4

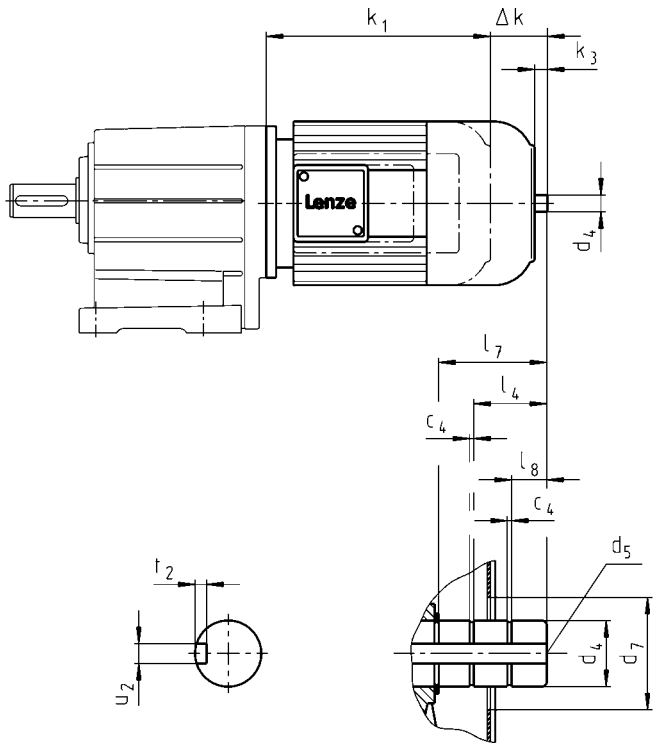


Connector in position 5



2nd shaft end

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



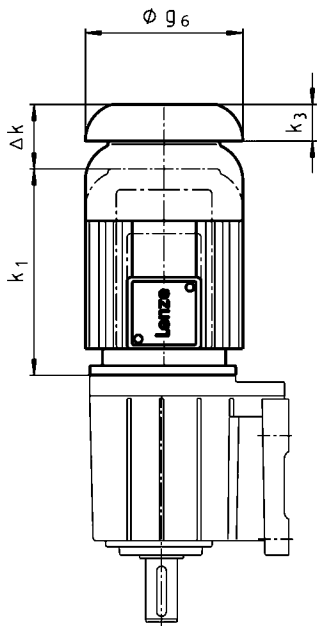
Motor type	
Built-on accessories	M□□MAZE M□□MABZ

Motor frame size												
	Δ k	k_3	c_4	d_4	d_4	d_5	d_7	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	47	11.0	1.10	14.0		M5	34.0		19.0	3.00	5.00	3.00
080-32 080-42	68	9.00	1.10	14.0		M5	34.0		19.0	4.50	5.00	3.00
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	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)

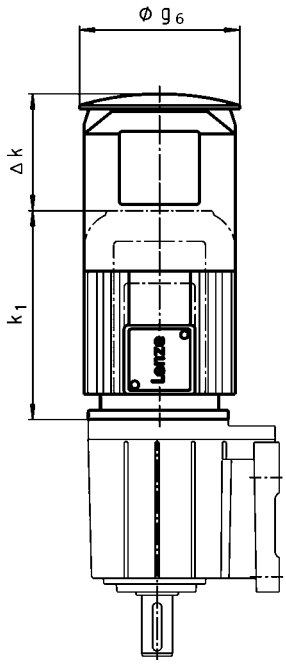


	Motor type					
	M□□MAXX	M□□MABR	M□□MABS M□□MABI M□□MABA	M□□MARS M□□MAIG M□□MAAG		

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

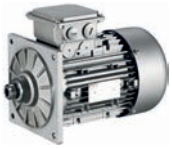
Protection cover

Dimensions, forced ventilated (4/6-pole)



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

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



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