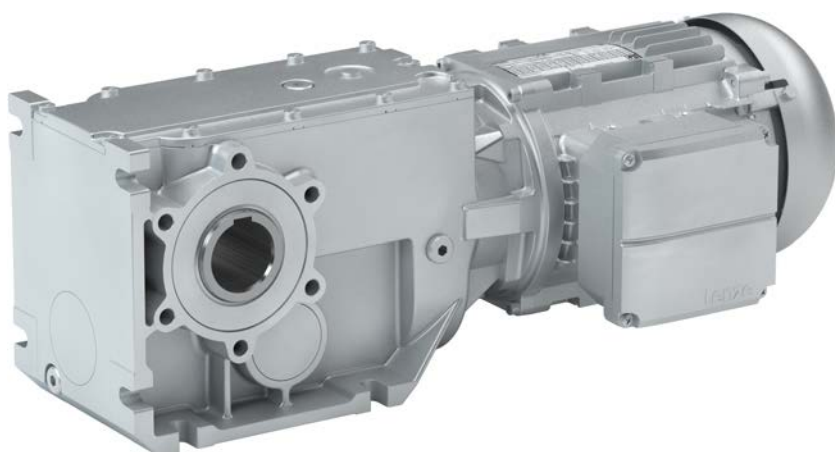


g500-B + m650-U bevel geared motors



Contents

1	About this document	6
1.1	Document description	7
1.2	Further documents	8
1.3	Notations and conventions	9
2	Product information	10
2.1	Product description	10
2.2	Identification of the products	12
2.3	Features	13
2.4	The modular system	14
2.4.1	Designs	16
2.4.2	Mounting positions	17
3	Safety instructions	22
3.1	Basic safety instructions	22
3.2	Application as directed	23
3.3	Foreseeable misuse	24
3.4	Residual hazards	25
4	Information on project planning	27
4.1	General information	27
4.2	Drive dimensioning	30
4.3	Final configuration	34
4.3.1	Surface and corrosion protection	35
4.3.2	Temperature ranges	36
4.3.3	Lubricants	37
4.3.4	Ventilation	38
5	Mechanical installation	44
5.1	Important notes	44
5.2	Transport	45
5.3	Installation	47
6	Electrical installation	48
6.1	Important notes	48
6.2	Preparation	49

Contents

7	Technical data	50
7.1	Notes regarding the given data	50
7.2	Standards and operating conditions	51
7.2.1	Conformities and approvals	51
7.2.2	Protection of persons and device protection	51
7.2.3	EMC data	51
7.2.4	Environmental conditions	52
7.3	Gearbox data	53
7.4	Gearboxes with adapter	64
7.5	Radial forces and axial forces	67
7.6	Selection tables	69
7.7	Dimensions	98
7.7.1	Basic dimensions	99
7.7.2	Gearbox with pre-stage	126
7.7.3	Integrated inverters	127
7.7.4	Additional lengths	130
7.8	Weights	131
7.8.1	Basic weights	131
7.8.2	Additional weights	132
8	Product extensions	133
8.1	Torque plates	133
8.2	Shaft covers	142
8.3	Motor connection	144
8.3.1	Connection options	144
8.3.2	Assignment of the terminal boxes	145
8.3.3	Assignment of the connectors Han	153
8.3.4	Connection via terminal box	155
8.3.5	Connection via connector	157
8.3.6	Connection via Han connector	160
8.4	Spring-applied brakes	162
8.4.1	Information on project planning	163
8.4.2	Spring-applied holding brake	165
8.4.2.1	Assignment of braking torques	165
8.4.2.2	Rated data	165
8.4.3	Spring-applied application brake, IP54/IP55 single brake LongLife	166
8.4.3.1	Rated data	166
8.5	Feedback	167
8.5.1	Resolver	168
8.5.2	Incremental encoder	169
8.5.3	Absolute value encoder	170
8.6	Temperature monitoring	171
8.6.1	Thermal contacts TCO	171
9	Accessories	172
9.1	Hollow shaft mounting kit	172
10	Product codes	173
11	Motor data	175
11.1	Rated data	175
12	Environmental notes and recycling	178

13 Appendix.....179

13.1 Good to know179

13.1.1 Operating modes of the motor179

13.1.2 Enclosures180



1 About this document

WARNING!

Read this documentation carefully before starting any work.

► Please observe the safety instructions!



1.1 Document description

This document addresses to all persons who want to carry out any configurations with the products described.

The data and information compiled in this document serve to support you in the dimensioning and selection processes and in carrying out the electrical and mechanical installation. You will receive information regarding product extensions and accessories.

- The document includes safety instructions which must be observed.
- All persons working on and with the drives must have the documentation at hand during work and observe the information and notes relevant for it.
- The documentation must always be complete and in a perfectly readable state.



1.2 Further documents



Information and tools with regard to the Lenze products can be found on the Internet:

www.Lenze.com → Downloads



1.3 Notations and conventions

Conventions are used in this document to distinguish between different types of information.

Numeric notation		
Decimal separator	Point	Generally shown as a decimal point. Example: 1 234.56
Warnings		
UL Warnings	UL	Are used in English and French.
UR warnings	UR	
Text		
Engineering Tools	" "	Software Example: "EASY Starter", "PLC Designer"
Icons		
Page reference		Reference to another page with additional information. Example:  16 = see page 16
Documentation reference		Reference to other documentation with additional information. Example:  EDKxxx = see documentation EDKxxx

Layout of the safety instructions

DANGER!

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

WARNING!

Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

CAUTION!

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this instruction may result in material damage.



2 Product information

2.1 Product description

In combination with three-phase motors, our bevel gearboxes represent a compact, powerful drive unit. Numerous drive and output options allow the drive to be precisely adapted to your application.

The efficient bevel gearboxes are characterized by high permissible radial forces, closely stepped ratios and low backlash. They are available in a 2-stage, 3-stage and 4-stage design with a torque of up to 4300 Nm and a ratio of up to $i = 3167$.

Versions

- Highly efficient right-angle gearbox in a compact design for space-saving installation
- Highly efficient synchronous motors in the compact and robust design of a three-phase motor
- Shaft dimensions in line with market standard and standardized flanges for easy machine integration
- Low backlash and high torsional stiffness ensure precise results in positioning tasks.
- Optimized for sensorless control and designed for 250% (IE5) and 300% (IE6) overload capacity from 0 rpm

Three-phase motors for inverter operation

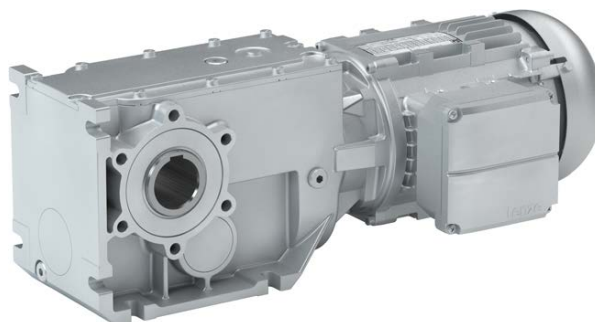
In a power range from 0.25 to 22 kW, Lenze offers inverter-compatible three-phase motors for more extensive tasks.

These motors differ in terms of efficiency class and can be used for the versions required for controlled or regulated inverter operation.

- Efficiency class IE5 in the power range 0.37 ... 22 kW
- Efficiency class IE6 in the power range 0.25 ... 7.5 kW

Customer benefit

- Different efficiency classes for the greatest economic benefit
- Space saving thanks to compact direct mounting on Lenze gearboxes
- Market-oriented modular system enables universal use for extensive machine tasks
- Standard market connectors ensure fast connection, even when servicing is required
- Simple design and commissioning, as easy as with an asynchronous machine
- More compact than an IE3 three-phase motor



g500-B450 gearbox with m650-U80/M4 three-phase AC motor



Flexible in motor mounting

For motor mounting, Lenze offers a scalable modular system of gearboxes with adapters.

Power is transmitted between the motor and the gearbox via a flexible jaw coupling or plug-in hollow shaft. The shaft mountings for motor shafts are available with a featherkey.

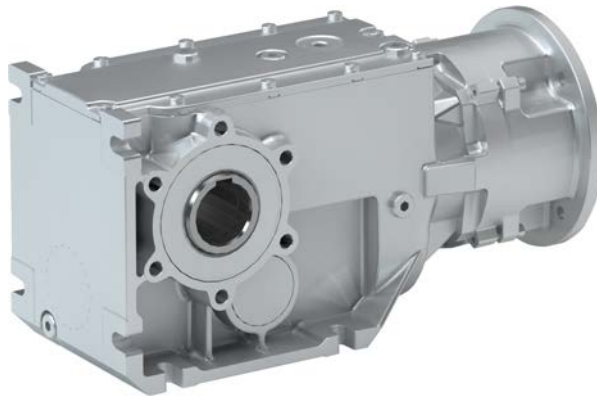
Customer benefit

- Market-oriented modular system enables universal use for extensive machine tasks
- Simple plug-in motor mounting
- Motor mounting according to IEC 72/DIN 42948
- Torsional vibration-damping power transmission of the coupling
- Motor shaft connection with low or no backlash, depending on the version

More information can be found under:

► [Gearbox data](#) 53

► [Gearboxes with adapter](#) 64



g500-B bevel gearbox with adapter for IEC standard motors



2.2 Identification of the products

Gearbox product name

Gearbox type	Product series		Type	Rated torque Nm	Product
Bevel gearbox	g500	-	B	45	g500-B45
				110	g500-B110
				240	g500-B240
				450	g500-B450
				600	g500-B600
				820	g500-B820
				1500	g500-B1500
				2700	g500-B2700
				4300	g500-B4300

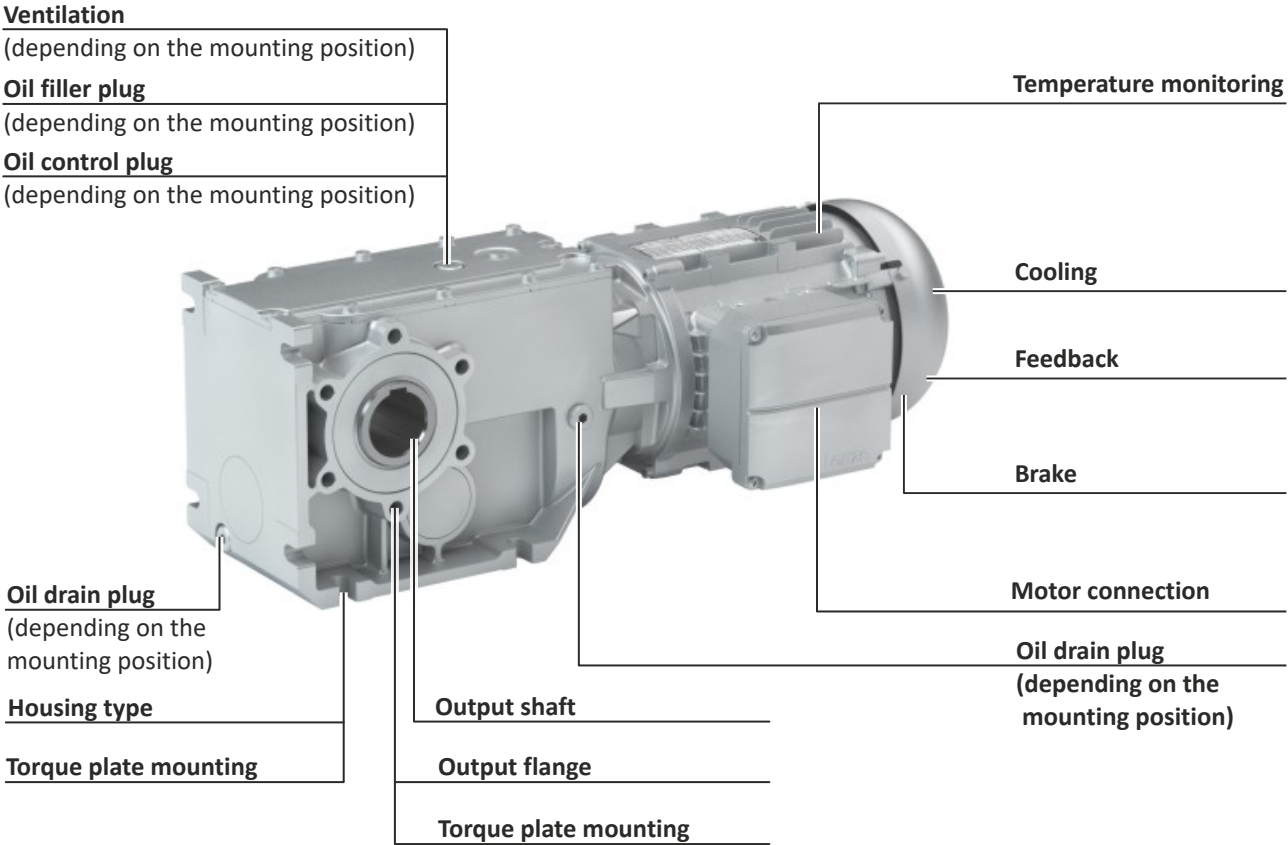
Three-phase AC motor product name

Example		m550	-	V	80	/	S	4
Meaning	Variant	Product name						
Product family		m550						
		m650						
Efficiency class	IE5			U				
	IE6			V				
Size					63 71 80 90 100 112 132			
Motor length	Short						S	
	Medium						M	
	Long						L	
Number of pole pairs	4-pole							4



2.3 Features

The following figure provides an overview of the elements and connections on the product. Their position, size and appearance may vary.





2.4 The modular system



Values printed in bold are standard designs. Values that are not printed in bold are potential extensions, some of them including a surcharge.

Geared motors up to 450 Nm

Gearbox		g500-B45	g500-B110	g500-B240	g500-B450
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U71	m650-U90	m650-U100	m650-U132
Technical data					
Max. output torque	Nm	45	110	240	450
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	1.5	4	7.5	22
Mounting position					
Standard		M1, M2, M3, M4, M5, M6 (ABCDEF)			
Combined		M1-M6 (A-F)	M1/5/6 (AEF)		
Temperature package					
Standard		Ambient temperature: 0 °C ... +40 °C			
Color		Unpainted Primed/RAL colors			
Surface and corrosion protection		Without OKS Different types of OKS			
Output shaft					
Solid shaft with featherkey (V)	mm	20 x 40	20 x 40 25 x 50	25 x 50 30 x 60	30 x 60
Hollow shaft with keyway (H)	mm	18/20	20/25	30/35	35/40
Hollow shaft with shrink disk (S)	mm	20	20	30/35	35
Shaft material		Steel Stainless steel			
Output shaft bearing		Normal			
Gearbox design		With foot (HBR)/(VBR/SBR) With foot and centering (HAR/VAR/SAR) With foot and output flange (HAK/VAK/SAK)			
Output flange (K)	mm	110/120	120/160	160/200	200
Ventilation		Without			Vent valve
Cooling		Integral fan			
Product extensions					
Torque plate		At threaded pitch circle			
				On the housing foot	On the housing foot
		Rubber buffers			
Shaft cover		Hollow shaft cover, hoseproof Shrink disc cover			
Connection method		Y			
Connection type		Terminal box M23 connector Han-Modular connector			
Spring-applied brake		Without Holding brake			
Feedback		Without Resolver Incremental encoder Incremental encoder with safety functions Absolute value encoder			
Temperature monitoring		TCO thermal contact			



Geared motors from 600 Nm to 4300 Nm

Gearbox		g500-B600	g500-B820	g500-B1500	g500-B2700	g500-B4300
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U132	m650-U132	m650-U132	m650-U132	m650-U132
Technical data						
Max. output torque	Nm	600	820	1500	2700	4300
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	22	22	22	22	22
Mounting position						
Standard		M1, M2, M3, M4, M5, M6 (ABCDEF)				
Combined						
Temperature package						
Standard		Ambient temperature: 0 °C ... +40 °C				
Color		Primed Painted in RAL colors				
Surface and corrosion protection		OKS-S Different types of OKS				
Output shaft						
Solid shaft with featherkey (V)	mm	35 x 70 40 x 80	40 x 80	50 x 100	60 x 120	70 x 140 80 x160
Hollow shaft with keyway (H)	mm	40/45	40/45	50/55	60/70	70/80
Hollow shaft with shrink disk (S)	mm	40	40	50	-	75/80
Shaft material		Steel Stainless steel				
Output shaft bearing		Normal				
Gearbox design		With foot (HBR)/(VBR/SBR) With foot and centering (HAR/VAR/SAR) With foot and output flange (HAK/VAK/SAK)				
Output flange	mm	200/250	200/250	250/300	350	400/450
Ventilation		Vent valve Oil compensation reservoir				
Cooling		Integral fan				
Product extensions						
Torque plate		At threaded pitch circle	At threaded pitch circle	At threaded pitch circle		
		On the housing foot				
Shaft cover		Hollow shaft cover, hoseproof Shrink disc cover				
Connection method		Y				
Connection type		Terminal box M23 connector Han-Modular connector				
Spring-applied brake		Without Holding brake				
Feedback		Without Resolver Incremental encoder Incremental encoder with safety functions Absolute value encoder				
Temperature monitoring		TCO thermal contact				



2.4.1 Designs

Gearbox designs

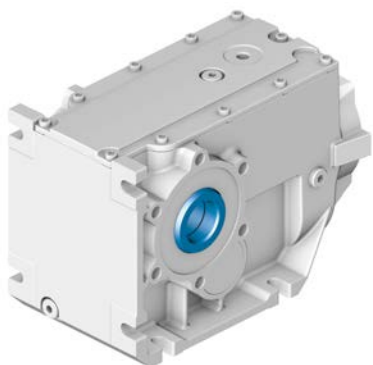


Please observe the available gearbox designs!

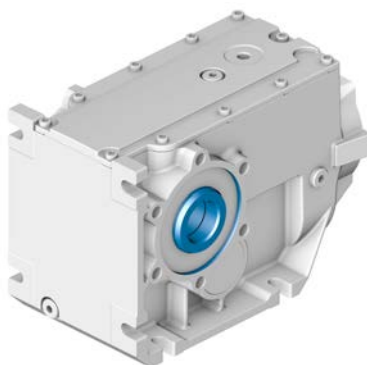
► [The modular system](#) 14

g500-B45 ... B4300

Hollow shaft, with foot



Without centring (HBR)

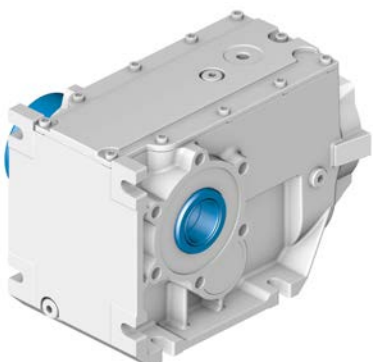


With centring (HAR)

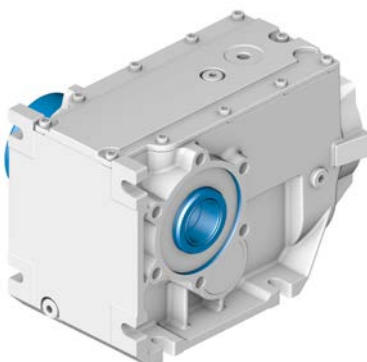


Flange with through holes (HAK)

Hollow shaft with shrink disc, with foot



Without centring (SBR)

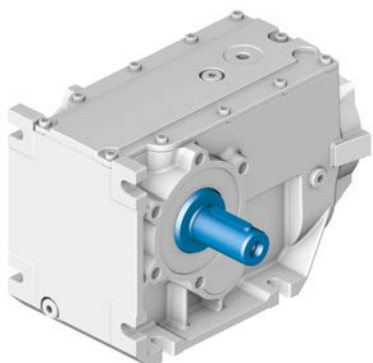


With centring (SAR)

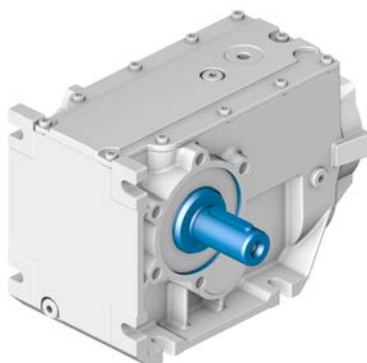


Flange with through holes (SAK)

Solid shaft, with foot



Without centring (VBR)



With centring (VAR)



Flange with through holes (VAK)



2.4.2 Mounting positions

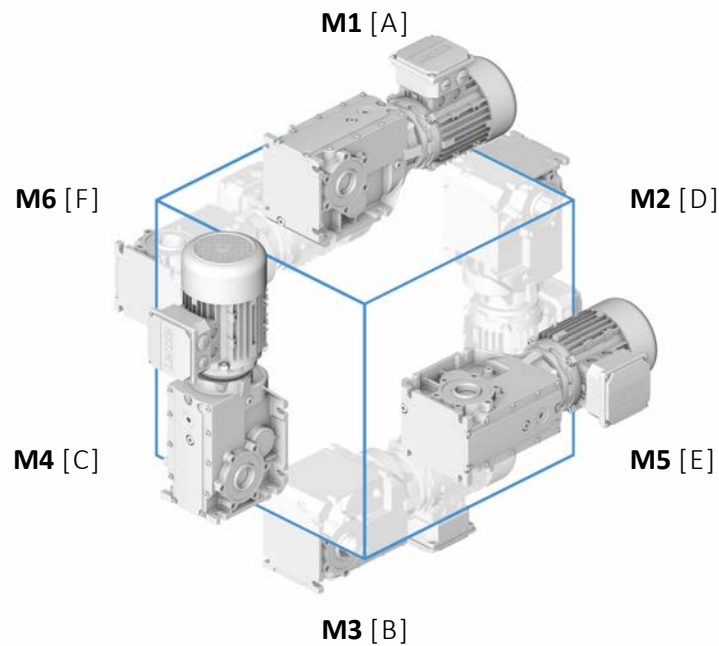
Details of the mounting position are needed to ensure the corresponding lubricant amount, position of the ventilation, oil checks and oil drain plug on the gearbox.

To reduce the number of different versions, the following gearboxes can also be ordered with combined mounting positions:

- g500-B45 in M1-M6 (A-F) mounting position
- g500-B110 ... B450 in M1/5/6 (AEF) mounting position



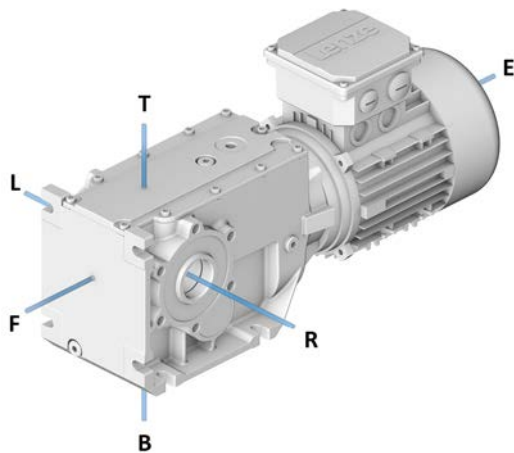
The gearmotors can be swiveled by 5° to 45° in all mounting positions.



Defined positions on the geared motor

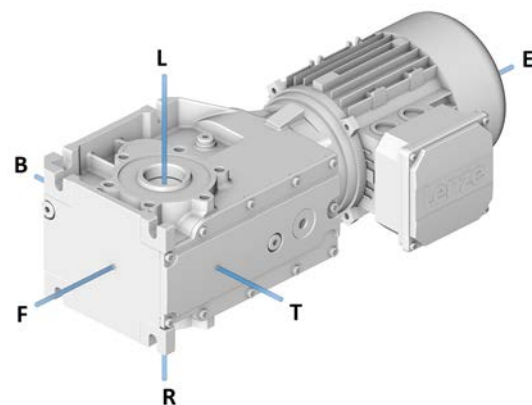
All of the defined positions refer to the areas on the geared motor in mounting position **M1 (A)**.

Position of the built-on accessories with T, L, R, B, F, E (Top, Left, Right, Bottom, Front, and End)



If the geared motor is rotated into a different mounting position M2 ... M6 (B...F), the defined positions on the geared motor are retained.

Example: Mounting position M5 (E)



Product information

The modular system
Mounting positions

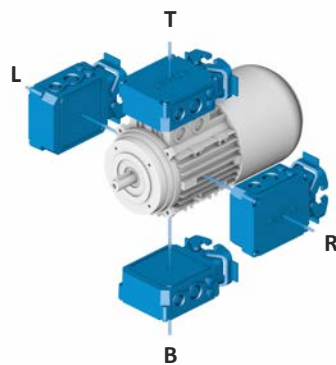
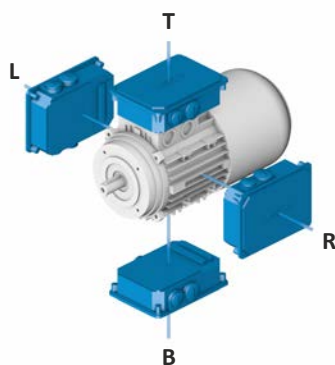


Positions of the terminal boxes/connectors

Power terminal box

with/without M23 connector

Han connector

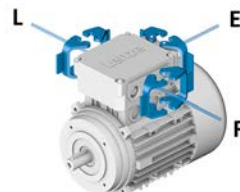
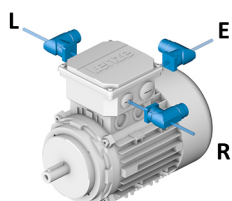


Positions of the connectors

Power terminal box

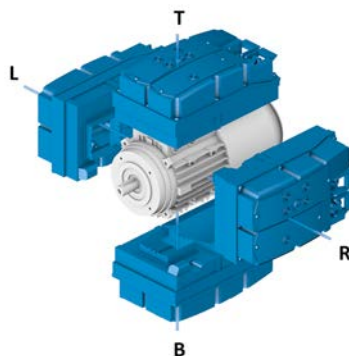
Cable glands/M23 connector

Han connector



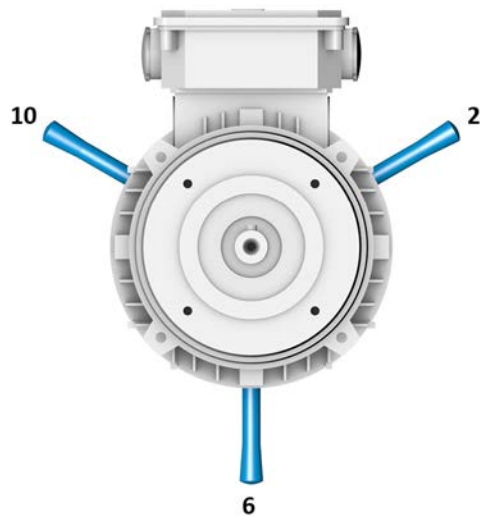
Positions of the i550/i650 motec frequency inverters

Positions of the i550/i650 motec





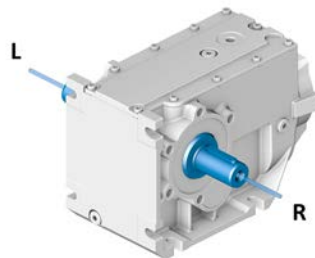
Manual release lever position



Position of the solid shaft



Double-ended output shaft journal "L+R".



Position of the hollow shaft with shrink disc



Output flange and shrink disc are not possible in the same position.



Product information

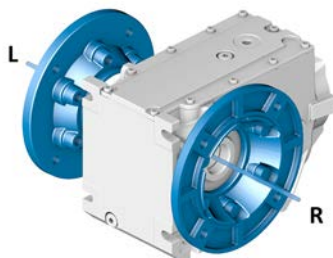
The modular system
Mounting positions



Position of the output flange

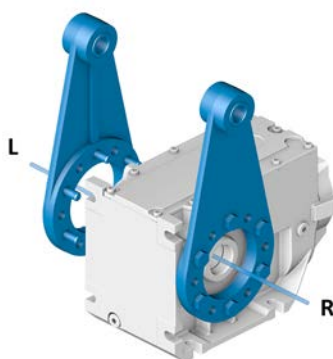


Output flange on both sides "L+R".



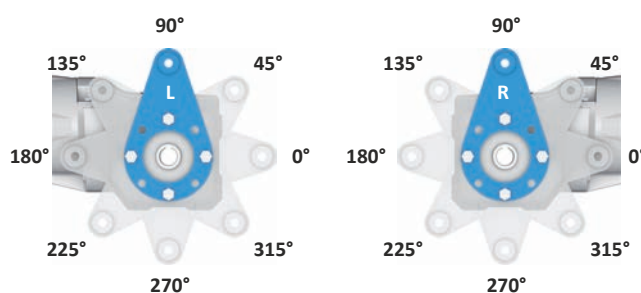
Position of the torque plate on the threaded pitch circle

Position of the torque plate

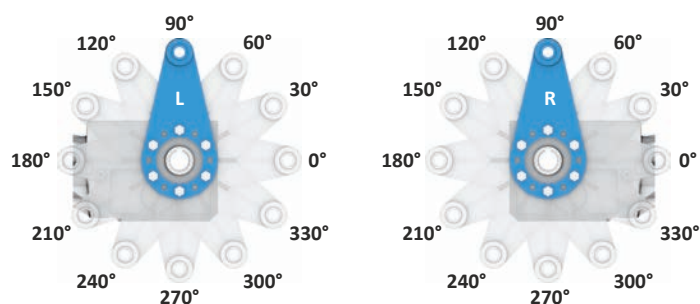


Angle of the torque plate

g500-B45 ... B110



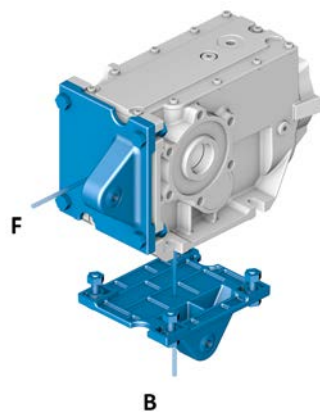
g500-B240 ... B1500



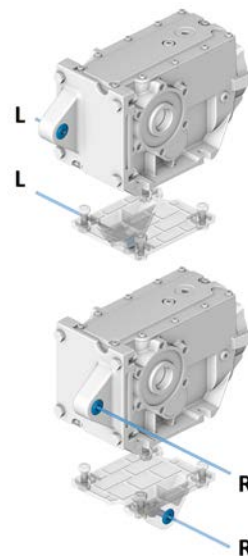


Position of the torque plate on the housing foot

Position of the torque plate



Position of the rubber buffer on the torque plate





3 Safety instructions

3.1 Basic safety instructions

Disregarding the following basic safety instructions and safety information may lead to severe personal injury and damage to property!

- Only use the product as directed.
- Never commission the product in the event of visible damage.
- Never modify the product technically.
- Never commission the product before assembly has been completed.
- Never operate the product without the required covers.
- Connect/disconnect all pluggable connections only in deenergized condition!
- Only remove the product from the installation in the deenergized state.
- The product can – depending on their degree of protection – have live, movable or rotating parts during or after operation. Surfaces can be hot.
- Observe the specifications of the corresponding documentation. This is the condition for safe and trouble-free operation and the achievement of the specified product features.
- The procedural notes and circuit details given in the associated documentation are suggestions and their transferability to the respective application has to be checked. The manufacturer of the product does not take responsibility for the suitability of the process and circuit proposals.
- All work with and on the product may only be carried out by qualified personnel. IEC 60364 and CENELEC HD 384 define the qualifications of these persons:
 - They are familiar with installing, mounting, commissioning, and operating the product.
 - They have the corresponding qualifications for their work.
 - They know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

Please observe the specific safety information in the other sections!



3.2 Application as directed

- The product is a professional equipment intended for use by trades, specific professions or industry and not for sale to the general public. IEC 60050 [IEV 161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- Mounted eye bolts on the motor are not suitable for transporting geared motors.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product may be operated on the mains or on the inverter.
- Only certified application brakes may be used as safety brakes for functional safety.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids and radiation.
- The product is a piece of professional equipment intended for use by trades, specific professions or industry, and not for sale to the general public. IEC 60050 [IEV 161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- Mounted eye bolts on the motor are not suitable for transporting gearmotors.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product must be operated with an inverter.
- Only certified application brakes may be used as safety brakes for functional safety.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids and radiation.



3.3 Foreseeable misuse

- Use in potentially explosive atmospheres
- Use in aggressive environments (acids, gases, vapors, dusts, oils)
- Use under water
- Use under radiation
- Operation on a frequency-rigid mains (public AC system)



3.4 Residual hazards

Even if notes given are taken into consideration and protective measures are implemented, the occurrence of residual risks cannot be fully prevented.

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this can lead to severe injuries to persons and damage to property!

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this may result in injuries to persons and material damage!

Product

Observe the warning labels on the product!



Dangerous electrical voltage:

Before working on the product, make sure there is no voltage applied to the power terminals!
After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!



Electrostatic sensitive devices:

Before working on the product, the staff must ensure to be free of electrostatic charge!



High leakage current:

Carry out fixed installation and PE connection in compliance with:
EN 61800-5-1 / EN 60204-1



Hot surface:

Use personal protective equipment or wait until the device has cooled down!

Protection of persons

- The power terminals may carry voltage in the switched-off state or when the motor is stopped.
 - Before working, check whether all power terminals are deenergized.
- Voltages may occur on the drive components (e.g. capacitive, caused by inverter supply).
 - Careful earthing in the marked positions of the components must be carried out.
- There is a risk of burns from hot surfaces.
 - Provide protection against accidental contact.
 - Use personal protective equipment or wait until the device has cooled down.
 - Prevent contact with flammable substances.
- There is a risk of injury due to rotating parts.
 - Before working on the drive system, ensure that the motor is at a standstill.
- There is a risk of accidental start-up or electric shock.



Gearbox protection

- Excessive vibration accelerations and resonances will damage the gearbox.
 - Do not operate the gearbox at vibration accelerations $> 2 \text{ g}$ (20 m/s^2) of the machine.
 - Do not operate the gearbox in the resonance range of the machine.
- Excessive torques will damage the gearboxes.
 - Do not exceed the output torques specified on the nameplate.
- Excessive input speeds lead to increased temperatures.
 - Do not exceed the input speeds specified on the nameplate.
- Avoid excessive lateral forces on the gearbox shaft.
 - Align the shafts of the gearbox and driven machine exactly with each other.
- Machine elements can be damaged by a lack of lubricant.
 - Mount the gearbox only in the mounting position indicated on the nameplate.
 - When changing the lubricant, use the lubricant type and quantity specified on the nameplate.

Motor protection

- Installed temperature contacts are not full protection for the machine.
 - If necessary, limit the maximum current. Parameterize the inverter so that it will be switched off after some seconds of operation with $I > I_{\text{rated}}$, especially if there is a risk of blocking.
 - Integrated overload protection does not prevent overloading under all conditions.
- The fuses are no motor protection.
 - Use a current-dependent motor protection switch.
 - Use the built-in temperature contacts.



4 Information on project planning

4.1 General information

NOTICE

For gearboxes with hollow shaft and shrink disk
observe the following requirements for the machine shaft:

- ▶ Fit tolerance h6
- ▶ Material yield strength $R_e \geq 360 \text{ MPa}$
- ▶ Modulus of elasticity approx. 210000 MPa
- ▶ Surface roughness $R_z \leq 15 \text{ }\mu\text{m}$
- ▶ No radial, axial forces and forces due to stress/rotation permissible

Operation on a frequency inverter

The m550-U, m550-V, and m650-U synchronous motors are optimized for sensorless operation with the i5xx and i6xx frequency inverters. With a frequency inverter operated at 400 V - 480 V, the motor can be operated continuously and efficiently at rated torque in the speed range up to 1860 rpm (m550) or up to 3720 rpm (m650).

On delivery, the frequency inverters are preset for the operation of asynchronous motors. Exceptions are the mounted i550/i650 motec units by Lenze.

Permanent position control during standstill under load can lead to increased gearbox wear.

Ensure that the frequency inverter is operated with the correct motor parameters and in SLISM operating mode.

Further information can be found in the frequency inverter documentation.

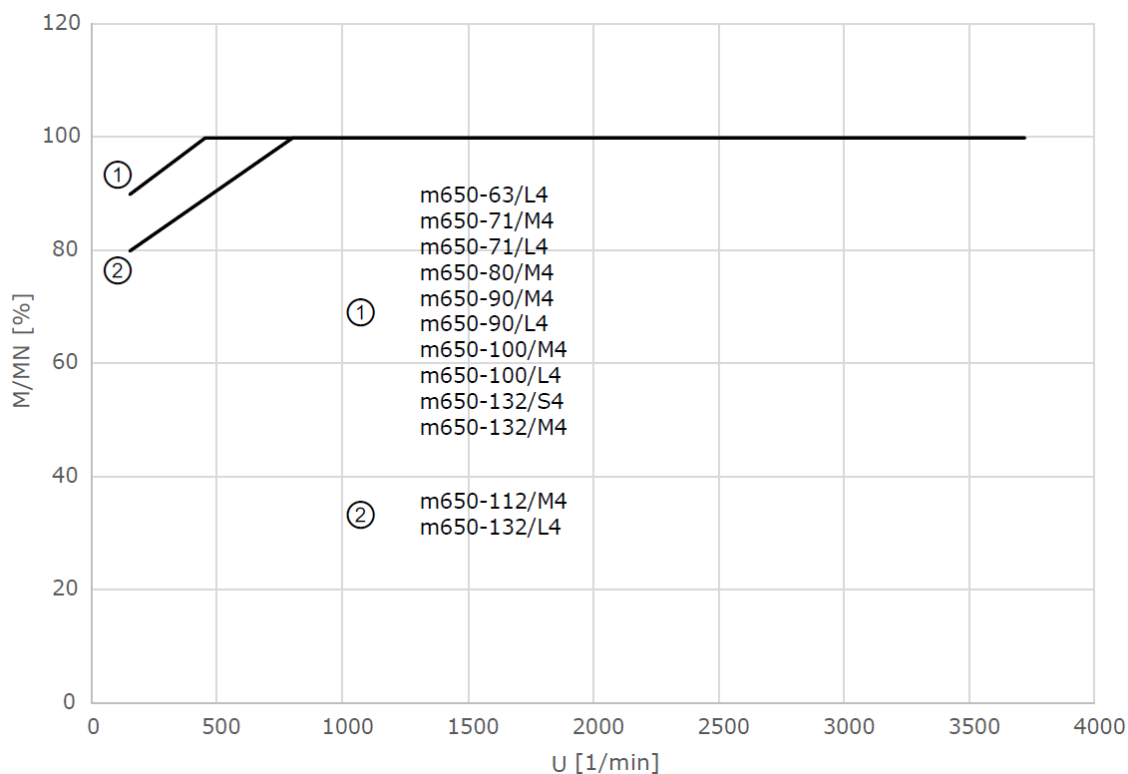
Torque reduction at low motor frequencies

At low motor frequencies (usually $< 20 \text{ Hz}$) and integral-fan operation, the motor is insufficiently cooled at the rated torque. By reducing the torque accordingly, the motor can be operated from 5 Hz.

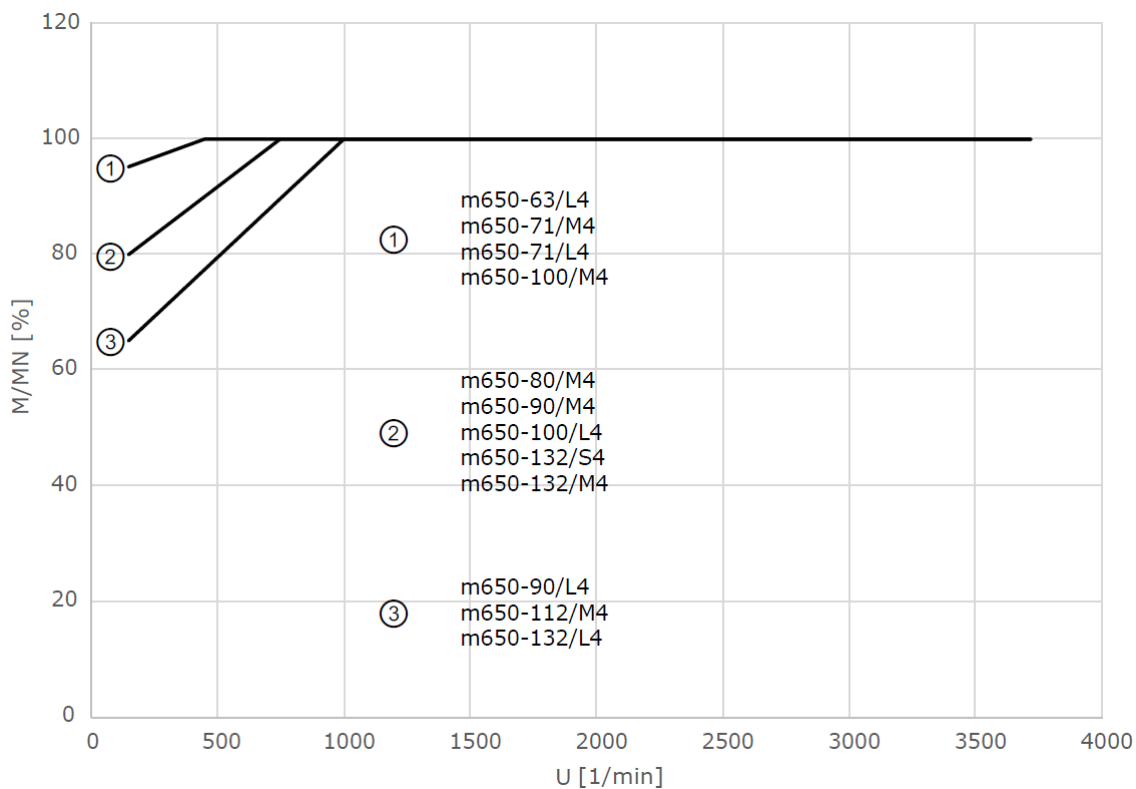


The diagram shows the motor size-dependent torque reduction for self-ventilated motors, taking into account the thermal behavior during operation on the inverter.

Derating wall/control cabinet-mounted inverters in S1 operating mode



Derating i5x0motec/i6x0motec as a drive package in S1 operating mode





Thermal power limit

The thermal power limit, defined by the heat balance, limits the permissible continuous gearbox power. It is affected by

- the churning losses in the lubricant. These are determined by the mounting position and the circumferential speed of the gears
- the load and the speed spectrum.
- the ambient conditions: temperature, air circulation, input or dissipation of heat via shafts and the foundations.

NOTICE

A thermal check using the EASY System Designer (ESD) or consultation with your Lenze representative is required if

- ▶ the input speed $n_1 > 3720$ rpm is exceeded with the gearbox ratios listed below.
- ▶ the input speeds specified below are exceeded depending on the mounting position. For short periods of up to 5 minutes, speeds 30% higher than this are permissible.
- ▶ the ambient temperature is predominantly above +3 0°C.

Gearbox	Ratio i
g500-B1500 ... B4300	≤ 25

Motor	Mounting position M1	Mounting position M3, M5, M6	Mounting position M2, M4
m650-x63 ... x71	4000 rpm	3500 rpm	3000 rpm
m650-x80 ... x100	4000 rpm	3500 rpm	3000 rpm
m650-x112 ... x132	3000 rpm	2600 rpm	1500 rpm

Possible measures for expanding the scope of application

- Shaft sealing rings made of FKM material/Viton (optional)
- Reduction of lubricant quantity (in consultation with Lenze)
- Cooling of the gearmotor by air convection on the machine/system
- A version with a inch shaft is available on request.



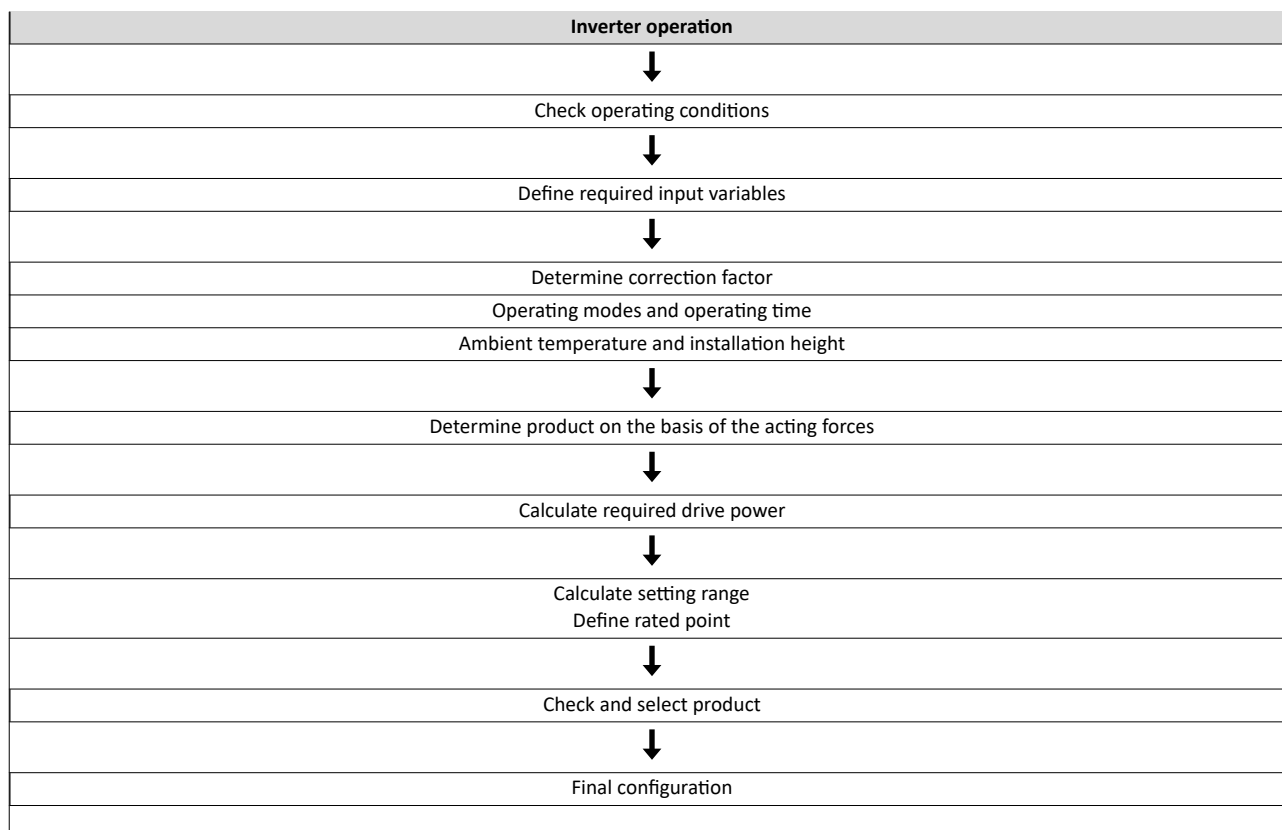
4.2 Drive dimensioning

In order to carry out an accurate drive dimensioning process, you can use our configuring software, the »EASY System Designer«.

With the »EASY System Designer«, you can design the drive both quickly and to a high quality. The software contains profound and proven expertise with regard to drive applications and mechatronic drive components.

Please get in touch with your Lenze representative.

Workflow



Check operating conditions

Check
Approvals Conformities Supply voltage Degree of protection Ambient temperature Surface protection

► [Standards and operating conditions](#) 51

► [Surface and corrosion protection](#) 35



Define required input variables

Necessary input variables	Note	Symbol	Unit
Operating time / day		OD	
Ambient temperature		T_V	°C
Site altitude amsl		H	m
Radial force		F_{rad}	N
Axial force		F_{ax}	N
Transmission element at the output Effective diameter of the transmission element	Gear wheels, sprockets ...	d_w	mm
Load torque	For short-term load peaks	$M_{L,max}$	Nm
	In rated operation	M_L	Nm
	In mains operation, $M_{L,max}/M_L$ should be < 2.0 to guarantee a safe start of the motor		
Load speed		$n_{L,max}$	rpm
	In inverter operation	$n_{L,min}$	rpm
Runtime for $M_{L,max}$	In inverter operation		%
External moments of inertia		J_{ext}	kgcm ²
Switching operations per hour		S_H	1/h

Determine correction factor

Operating modes S1, S2, S3, S6, and operating time							
Operating mode S1		Operating mode S2		Operating mode S3		Operating mode S6	
ED	k_L	ED	k_L	ED	k_L	ED	k_L
%		min		%		%	
100	1.0	10	1.4 - 1.5	15	1.4 - 1.5	15	1.5 - 1.6
		30	1.15 - 1.2	25	1.3 - 1.4	25	1.4 - 1.5
		60	1.07 - 1.1	40	1.15 - 1.2	40	1.3 - 1.4
		90	1.0 - 1.05	60	1.05 - 1.1	60	1.15 - 1.2

► Operating modes of the motor [179](#)

Installation altitude amsl	
≤ 1000 m	≤ 2000 m
Correction factor	
k_H	k_H
1	0.95

Ambient temperature		
≤ 40 °C	≤ 45 °C	≤ 50 °C
Correction factor		
k_{TU}	k_{TU}	k_{TU}
1	0.95	0.90

Mounting position						
Gearbox	Mounting position					
	M1	M2	M3	M4	M5	M6
	Correction factor					
	k_E	k_E	k_E	k_E	k_E	k_E
g500-B	1.00	0.70	0.80	0.80	0.80	0.80

► Selection tables [69](#)



Gearbox efficiency

Gearboxes	Gearbox efficiency	
	η_{c1}	
g500-B		
2-stage	0.96	
3-stage	0.95	
4-stage	0.94	

Determine product on the basis of the forces

Transmission element			Gear wheels	Sprockets	Toothed belt pulleys (depending on the pretension)	Narrow V-belt (depending on the pretension)
Additional radial force factor	f_z		≥ 17 teeth: 1.0 < 17 teeth: 1.15	≥ 20 teeth: 1.0 < 20 teeth: 1.25 < 13 teeth: 1.4	With belt tightener: 2.0 – 2.5 Without belt tightener: 2.5 – 3.0	1.5 – 2.0
			Calculation		Check	
Radial force	F_{rad}	N	$F_{rad} = 2000 \times \frac{M_{L,max} \times f_z}{dw}$		$F_{rad} \leq f_W \times F_{rad,max}$	
Axial force	F_{ax}	N			$F_{ax} \leq F_{rad,max} \times 0.5$	

dw Effective diameter of transmission element in mm

f_w Additional load factor

► [Radial forces and axial forces](#) 67

Calculate drive power

Required Drive power	kW	$P_1 = \frac{M_L \times \eta_{L,max}}{9549 \times k_L \times k_H \times k_{TU} \times \eta_g}$	
----------------------	----	--	--

k_L Correction factor - operating mode

k_{TU} Correction factor - ambient temperature

k_H Correction factor - site altitude

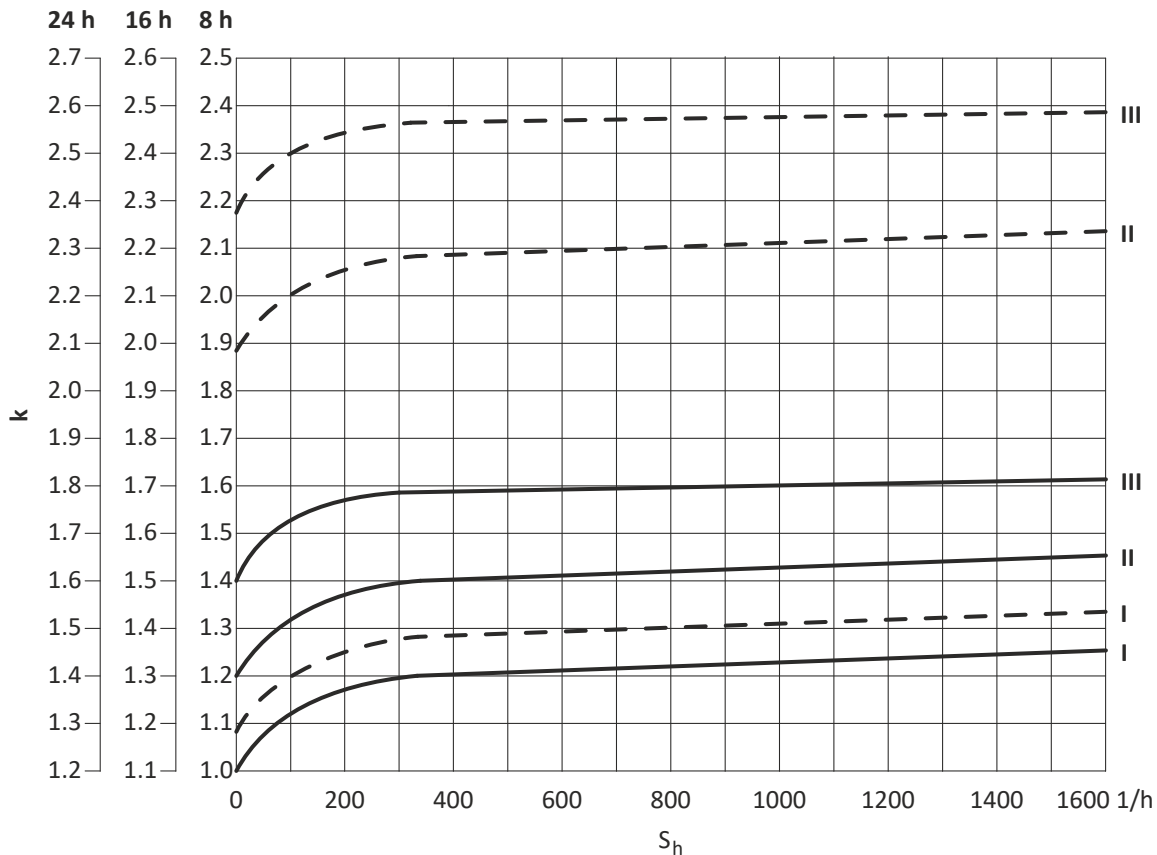
η_g Gearbox efficiency

Intensity and load class for inverter operation

	Calculation	
Intensity	$M_I = \frac{M_{L,max}}{M_L}$	For alternating load, select load class III!
Intensity	Load type	Load class
$M_I \leq 1.5$	Smooth operation, small or light jolts	I
$1.5 < M_I \leq 2$	Uneven operation, average jolts	II
$2 < M_I \leq 2.5$	Uneven operation, severe jolts and/or alternating load	III



Application factor k



k Application factor
 S_h Switching rate
 - - - - Ratio of max. torque/rated torque = 2.5

Stalling torque/rated torque of the motor ▶ [Rated data](#) 175

Inverter operation

Selection table	Check	Unit	Note
Rated frequency	124	Hz	
Rated power	$P_{rated} \geq P_1$	kW	
Output torque	$M_2 \geq M_L$	Nm	The geared motor must be able to provide sufficient torque for $M_{L,max.}$
Max. output speed	$n_2 \approx n_{L,max}$	rpm	
Min. output speed			
Self-ventilated	$n_{21} \approx n_{L,min}$	rpm	Setting ranges ≤ 4.35 (124 Hz)
Self-ventilated (reduced output torque)	$n_{22} \approx n_{L,min}$	rpm	Setting ranges ≤ 17.4 (124 Hz)
Load factor	$c \geq k$		

Order information	Example
Gearmotor	
Gearbox	g500-B45
Motor	m550-U63/L4
Gearbox ratio i	10466
Number of stages	2



4.3 Final configuration

	Check
Connection dimensions	Output shaft Output flange/foot
Mounting position	Geared motor Connector/terminal box Output shaft/output flange
Product extensions	Torque plate Shaft cover Connector/terminal box Brake Temperature monitoring ...

Further information on final project planning:

- ▶ [The modular system](#)  14
- ▶ [Product extensions](#)  133



4.3.1 Surface and corrosion protection

Depending on the ambient conditions, the surface and corrosion protection system (called OKS) offers tailor-made solutions for optimum protection.

Various surface coatings ensure reliable functioning even at high air humidity, in outdoor installations, or in the presence of atmospheric contamination. Any color from the "RAL Classic" collection can be chosen for the top coat.

For indoor installation in buildings and if no special corrosion protection is required, the products are also available unpainted (without surface and corrosion protection system).



Without OKS (unpainted):

The aluminum parts are uncoated and cast iron parts primed with gray paint. Slight color differences between the components are possible.

Surface and corrosion protection	Applications	Product	
		g500-H45 ... H450 g500-S130 ... S660 g500-B45 ... B450	g500-H600 ... H1500 g500-S950 ... S4500 g500-B600 ... B1500
Without OKS (unpainted)	- Indoor installation, no special corrosion protection necessary - Painting by customer	Default	-
OKS-G (primed)	Dependent on subsequent top coat applied	Optionally	Optionally
OKS-S (small)	- Standard applications - Indoor installation in heated buildings - Air humidity up to 90 %		Default
OKS-M (medium)	- Indoor installation in unheated buildings - Covered, protected outdoor installation - Air humidity up to 95 %		Optionally
OKS-L (large)	- Outdoor installation - Chemical industrial plants - Food industry - Air humidity above 95 %		

Surface and corrosion protection	Corrosivity category	Surface coating	Color	Coating thickness
	DIN EN ISO 12944-2	Design		
Without OKS (unpainted)	-	Dip priming of the gray cast iron parts	-	30 ... 50 µm
OKS-G (primed)	-	- Dip priming of the gray cast iron parts 2K PUR priming coat	-	80 ... 120 µm
OKS-S (small)	Comparable to C1	- Dip priming of the gray cast iron parts 2K-PUR top coat	- Standard: RAL 7012 - Optional: According to RAL Classic possible	80 ... 120 µm
OKS-M (medium)	Comparable to C2	Dip priming of the gray cast iron parts		110 ... 160 µm
OKS-L (large)	Comparable to C3	2K PUR priming coat 2K-PUR top coat		140 ... 200 µm



4.3.2 Temperature ranges

Temperature packages

The following temperature packages are available to suit your ambient conditions:

- Standard

On request:

- Deep-freeze
- Wide range



Observe the instructions given for the temperature packages!

For ambient temperatures < 0 °C or > +40 °C please contact your responsible Lenze sales company.

Temperature packages	
Standard	
Ambient temperature	0 °C ... +40 °C
Lubricant	Mineral oil • CLP 460 Synthetic oil • CLP HC 220 Food-grade oil • CLP HC 220 USDA H1
Note	At an ambient temperature predominantly above +30 °C: • Verification of the application by Lenze required.



4.3.3 Lubricants

The following gearboxes are lubricated for life:

- g500-B45
- g500-B110
- g500-B240

Recommended lubricants:

Lubricant	CLP 460	CLP HC 220 NSF H1	CLP HC 220	CLP HC 320
Ambient temperature	0 ... +40 °C	-20 ... +40 °C	-30 ... +40 °C	-20 ... +50 °C
Specification	Mineral oil with EP additives	Synthetic oil (polyalphaolefins basis)	Synthetic oil (polyalphaolefins basis)	
Change interval				
Operating hours	16000		25000	
Not later than after	3 years		4 years	
At oil temperature	70 °C		70 °C	
Fuchs	Renolin CLP 460	Cassida Fluid GL 220	Renolin Unisyn XT 220	Renolin Unisyn XT 320
Klüber	Klüberoil GEM 1-460 N	Klüberoil 4 UH1-220 N	Klübersynth GEM 4-220 N	Klübersynth GEM 4-320 N
Shell	Shell Omala S2 GX 460		Shell Omala S4 GXV 220	Shell Omala S4 GXV 320

Lubricant amounts for stocking

All lubricant amounts are reference values for a change of lubricant. They serve stocking purposes, for example. The specified values may vary if the unit is installed in a tilted position.

The exact values can be found on the nameplate.

Mounting position		M1 (A)	M2 (D)	M3 (B)	M4 (C)	M5 (E)	M6 (F)	M1-M6 (A-F)	M1, M5, M6 (AEF)
Gearboxes									
g500-B45	I	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-
g500-B110	I	.3	0.6	0.7	.9	0.5	0.4	-	0.5
g500-B240	I	.9	1.2	1.3	1.8	1.4	1.0	-	1.4
g500-B450	I	.9	1.6	1.9	2.3	1.8	1.7	-	1.8
g500-B600	I	1.4	2.3	2.7	3.2	2.6	2.6	-	-
g500-B820	I	1.9	2.8	3.4	4.2	3.2	2.7	-	-
g500-B1500	I	3.8	5.7	6.4	8.4	5.9	3.9	-	-
g500-B2700	I	6.0	9.0	10.0	12.7	8.5	9.5	-	-
g500-B4300	I	9.5	11.5	16.5	21.0	14.0	16.0	-	-
Pre-stage	I	0.4							

► Gearbox with pre-stage [126](#)



4.3.4 Ventilation



No venting measures are required for the g500-B45 ... B240 gearboxes.

The g500-B240 gearbox can optionally be equipped with breather elements.

From g500-B450 onwards, the gearboxes are supplied with breather elements as standard.

To reduce the number of different versions, the following gearboxes can also be ordered with combined mounting positions:

- g500-B45 in M1-M6 (A-F) mounting position
- g500-B110 ... B450 in M1/5/6 (AEF) mounting position



In these gearboxes, the lubricant amount has been optimised for the use in different mounting positions. If required, the breather elements are loosely enclosed and must be mounted before commissioning depending on the mounting position.

NOTICE

- For gearboxes with ventilation, a gap of at least 30 mm has to be observed to the machine wall on the corresponding gearbox side.

g500-B240

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (E)	M6 (F)
M4	M5	M6

Ventilation
 Change oil
 Fill oil
 Oil level



g500-B450

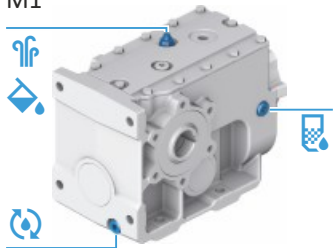
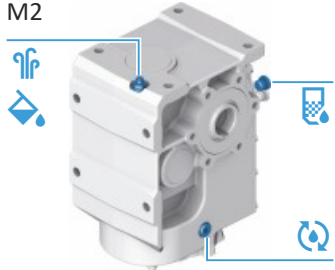
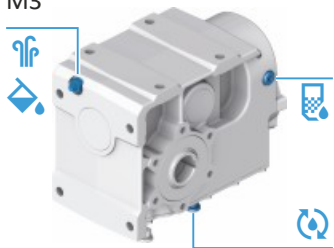
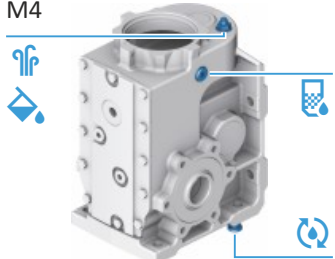
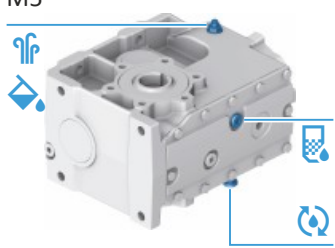
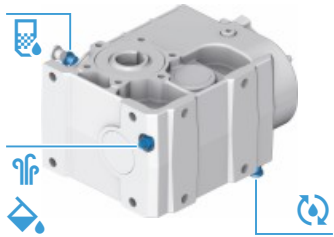
Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (E)	M6 (F)
M4	M5	M6
Ventilation Change oil Fill oil Oil level		

g500-B600

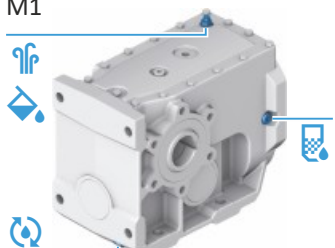
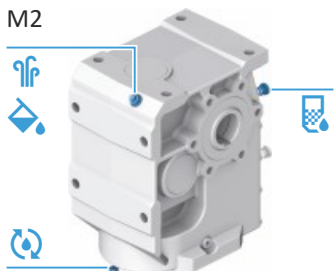
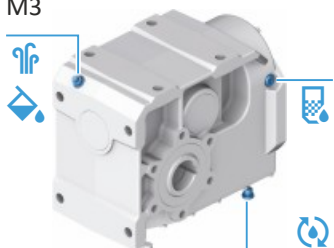
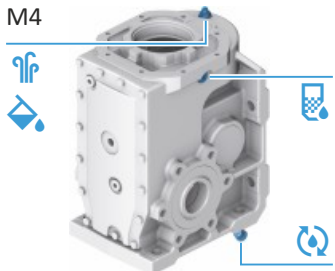
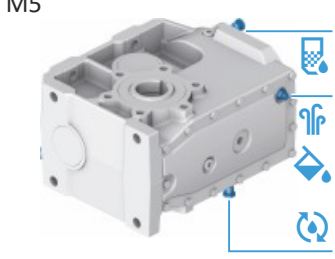
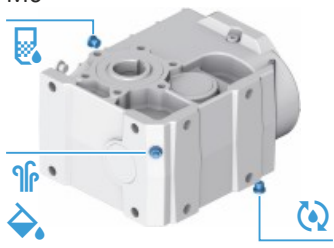
Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (E)	M6 (F)
M4	M5	M6
Ventilation Change oil Fill oil Oil level		



g500-B820

Mounting position			
M1 (A)	M2 (D)	M3 (B)	
M1 	M2 	M3 	
M4 (C)	M5 (E)	M6 (F)	
M4 	M5 	M6 	
 Ventilation	 Change oil	 Fill oil	 Oil level

g500-B1500

Mounting position			
M1 (A)	M2 (D)	M3 (B)	
M1 	M2 	M3 	
M4 (C)	M5 (E)	M6 (F)	
M4 	M5 	M6 	
 Ventilation	 Change oil	 Fill oil	 Oil level



g500-B2700

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (E)	M6 (F)
M4	M5	M6
Ventilation Change oil Fill oil Oil level		

g500-B4300

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (E)	M6 (F)
M4	M5	M6
Ventilation Change oil Fill oil Oil level		



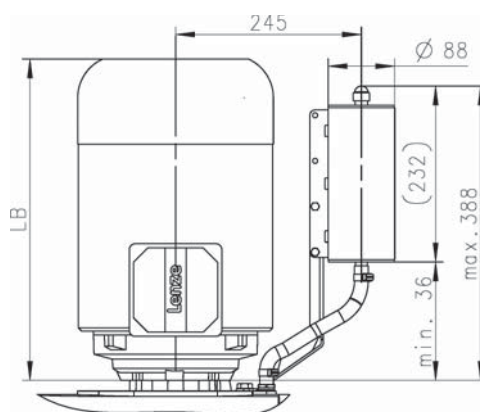
Gearbox with oil compensation reservoir for mounting position M4 (C)

In order to guarantee a reliable lubrication of the toothed parts in mounting position M4 (C) (motor is on the gearbox vertical from the top), a high filling level is required in the gearbox. As a result of the reduced volume of air in the gearbox, this may lead to oil escaping from the ventilation at higher input speeds. The oil compensation reservoir increases the expansion space for the lubricant.

The oil compensation reservoir can be ordered as a mounting set for fastening to the gearbox.

If insufficient space is available, the oil compensation reservoir can also be mounted over the gearbox hose connection on nearby system parts.

Dimensions of the oil compensation reservoir



8800783-00

For the following gearboxes in mounting position M4 (C), which exceed the specified min. input speed, an oil expansion reservoir is required depending on the specified gear ratio:



Information on project planning

Final configuration
Ventilation

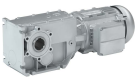
g500-B1500		g500-B2700		g500-B4300	
Gearbox ratio	Min. input speed	Gearbox ratio	Min. input speed	Gearbox ratio	Min. input speed
	rpm		rpm		rpm
6.866	2000	6.918	2000	5.488	2000
9.516	2000	8.793	2000	6.976	2000
10.902	2000	11.713	2000	9.156	2000
11.985	2000	12.863	2000	10.137	2000
13.118	2000	14.888	2000	11.080	2000
15.111	2000	16.351	2000	12.885	2000
16.611	2000	19.542	2000	14.084	2000
18.598	2000	22.269	2000	16.913	2000
20.444	2000	24.456	2000	18.486	2000
22.898	2000	26.814	3000	21.065	2000
23.973	3000	29.447	3000	23.206	3000
26.353	2000	32.873	3000	25.365	3000
29.206	3000	36.102	3000	28.013	2000
32.547	3000	42.772	2000	31.097	3000
35.778	3000	46.973	2000	35.607	2000
36.526	2000	48.912	3000	38.546	3000
40.895	2000	54.082	3000	42.760	2000
44.955	2000	59.393	3000	46.737	2000
46.568	3000	64.452	3000	53.258	2000
51.920	3000	71.951	3000	58.671	3000
57.074	3000	76.862	4000	64.127	3000
58.422	3000	84.940	4000	71.930	3000
64.221	3000	93.283	4000	78.619	3000
71.566	3000	97.481	3000	97.453	3000
74.963	4000	107.056	3000	106.517	3000
82.762	4000	118.370	3000	118.336	3000
90.978	4000	129.996	3000	129.342	3000
93.150	3000	153.185	4000	153.141	4000
102.396	3000	168.230	4000	167.383	4000
114.166	3000	185.911	4000	185.857	4000
125.498	3000	204.170	4000	203.143	4000
149.949	4000	235.000	4000	234.932	4000
164.833	4000	258.080	4000	256.781	4000
181.983	4000				
200.048	4000				
230.035	4000				
252.869	4000				



5 Mechanical installation

5.1 Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#)  51
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics.
- Lenze offers special surface and corrosion protection in this case.



5.2 Transport

CAUTION!

Danger from tipping and falling loads!

Standing beneath suspended loads is prohibited!

Possible consequences: Minor or moderate injuries.

- ▶ To achieve a load direction that is as vertical as possible (maximum load-bearing capacity), use additional, suitable load carriers if necessary. Secure the load carrier against slipping!
- ▶ Screw in the transport aids completely. They must lie flat and over the entire surface!
- ▶ Load the transport aids vertically in the direction of the screw axis! Inclined or lateral tension reduces the load-bearing capacity! Observe the specifications in the DIN 580!

NOTICE

Eye bolts or lifting eyes on the motor are not suitable for transporting geared motors.

Only use these for mounting/dismounting the motor on the gearbox.

Possible consequences: Damage to the geared motor.

- ▶ Only use the threads provided on the gearbox for eye bolts or lifting eyes for transporting the geared motor.

Preconditions

- Ensure appropriate handling.
- Make sure that all component parts are securely mounted. Secure or remove loose component parts.
- Only use safely fixed transport aids (e.g., eye bolts or support plates).
- Do not damage any components during transport.
- Avoid electrostatic discharges on electronic components and contacts.
- Avoid impacts.
- Check the carrying capacity of the hoists and load handling devices. The weights can be found in the shipping documents.
- Secure the load against tipping and falling down.
- Standing beneath suspended loads is prohibited.



The eye bolt is not included in the scope of supply!

Position of the eye bolt or lifting eye

Geared motor			
	Eye bolt on the shaft	Eye bolt on the housing	Lifting eye on the housing
G50AB045Mxxxxxx	M6	-	-
G50BB111Mxxxxxx	M6	-	-
G50BB124Mxxxxxx	M10	-	-
G50BB145Mxxxxxx	-	M10	-
G50BB160Mxxxxxx	-	M12	-
G50BB182Mxxxxxx	-	M16	-
G50BB215Mxxxxxx	-	M16	-
G50BB227Mxxxxxx	-	M16	-
G50BB243Mxxxxxx	-	M20	-
G50BB280Mxxxxxx	-	-	•
G50BB313Mxxxxxx	-	-	•
G50BB320Mxxxxxx	-	-	•



5.3 Installation

Ventilation elements

Gearboxes that are supplied with a pre-assembled ventilation element:

- The ventilation element is identified by a sign on the gearbox.
- Remove the transport lock from the ventilation element before initial commissioning.

Gearboxes that are supplied with a loosely attached ventilation element:

- Before commissioning for the first time, install the ventilation element according to the mounting position.

Mounting surfaces

- The mounting surfaces must be plane, torsionally rigid and free from vibrations.
- The mounting areas must be suited to absorb the forces and torques generated during operation.
- Ensure an unhindered ventilation.
- For versions with a fan, keep a minimum distance of 10 % from the outside diameter of the fan cover in intake direction.



6 Electrical installation

6.1 Important notes

DANGER!

Risk of injury and risk of burns from dangerous voltage

Power terminals may also carry voltage in the switched-off state or when the motor is stopped and may cause life-threatening cardiac arrhythmia and serious burns.

- ▶ Disconnect the product from the mains.
- ▶ Check that the power terminals are deenergized before starting work.

-
- When working on energized products, comply with the applicable national accident prevention regulations.
 - The electrical installation must be carried out according to the appropriate regulations (e.g. cable cross-sections, fuses, PE connection).
 - The manufacturer of the system or machine is responsible for adherence to the limits required in connection with EMC legislation.

Connection for high leakage current

If the leakage current is greater than 3.5 mA for alternating current or greater than 10 mA for direct current, the standard EN 61800-5-1 requires that at least one or more of the following measures be met:

- The minimum PE conductor cross-section is 10 mm² with Cu or 16 mm² with Al.
- Attachment of an additional protective grounding conductor with the same cross-section as the original protective grounding conductor.
 - Do not place the additional terminal on the same terminal.
- Provide automatic disconnection of the mains in case of interruption of the protective conductor.

▶ [Connection options](#)  144

Operation on an external inverter

A max. pulse voltage amplitude of $U_{pk} = 1560 \text{ V}$ at the motor terminals must not be exceeded.

Here, the minimum pulse rise time must be $t_r = 0.1 \text{ } \mu\text{s}$.

If it cannot be ruled out that the permissible voltage peaks will be exceeded or that the minimum pulse rise time will not be reached, the following measures must be initiated:

- Reduction of the DC-bus voltage (threshold for brake chopper voltage)
- Use of filters, chokes
- Use of special motor cables



6.2 Preparation

EMC-compliant wiring



The EMC-compliant wiring is described in detail in the documentation of the Lenze inverters.



7 Technical data

7.1 Notes regarding the given data

Catalog data

The power values, torques and speeds specified in the configuration are rounded values and apply to:

- Operating time per day = 8 hrs (100 % ED)
- Duty class up to 10 switching operations per hour
- Ambient temperature = 0 ... +40 °C
- Site altitude $\leq$ 1000 m above mean sea level
- The selection tables indicate the mechanically permissible power levels and torques.
- The specified rated data apply to operating mode S1 (acc. to EN 60034-1).

NOTICE

In case of other operating conditions, the achievable values can differ for those mentioned.

► In case of extreme operating conditions, please get in touch with your Lenze representative.



7.2 Standards and operating conditions

7.2.1 Conformities and approvals

More information and certificates of approval can be found under

[g500 + m500 bevel geared motors \(Lenze.com\)](https://www.lenze.com/g500+m500-bevel-g geared-motors)

Europe					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
European Union	CE	2006/42/EC	Machinery Directive	Only for safety- relevant components	CE mark
		2011/65/EU	RoHS	-	
		2014/30/EU	EMC Directive		
		2014/35/EU	Low-Voltage Directive		
Great Britain	UKCA	S.I. 2008/1597	The Supply of Machinery (Safety) Regulations 2008	Only for safety- relevant components	UKCA mark
		S.I. 2012/3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	-	
		S.I. 2016/1091	The Electromagnetic Compatibility Regulations 2016		
		S.I. 2016/1101	The Electrical Equipment (Safety) Regulations 2016		

America					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
Canada	CSA	CSA 22.1 No. 100	CSA Standard for Motors and Generators	-	cULus mark
USA	UL	UL 1004-1	UL Standard for Rotating Electrical Machines		

Asia					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
China	-	GB 30253	Minimum allowable values of energy efficiency and energy efficiency grades for permanent magnet synchronous motors	in preparation	CEL mark
		GB/T 26572	Requirements on concentration limits for certain restricted substances in electrical and electronic products		EFUP mark

7.2.2 Protection of persons and device protection

Degree of protection			
EN	EN IEC 60529,EN IEC 60034-5	IP54	Information applies to the mounted and ready-for-use state
		IP55	
Temperature class			
-	EN IEC 60034-1	F (155 °C)	Insulation system
Utilization		B (130 °C)	Utilization
Permissible voltage			
-	IEC 60034-18-41	IVIC C	At 500 V

7.2.3 EMC data

Noise emission		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable
Interference immunity		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable

Technical data

Standards and operating conditions
Environmental conditions



7.2.4 Environmental conditions

Energy efficiency			
Efficiency level	EN IEC 60034-30-2	Energy efficiency class IE5	
Installation altitude			
0 ... 1000 m amsl	-	Without current derating	
Air humidity			
-	-	Average relative humidity 85 %	Without condensation



7.3 Gearbox data

The following tables contain the most important data of the gearbox for attachable motors of a geared motor.

The specified data for speed, torque, and power are valid at

- input speed $n_1 = 3720$ rpm
- Application factor $c = 1.0$

In order to calculate the exact ratio, the number of teeth z_g (driven) can be divided by the number of teeth z_t (driving).

g500-B45, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
39.0	5.411	1120	207	26
40.5	6.222	56	9	25
43.0	7.111	64	9	25
44.0	8.178	368	45	24
45.0	9.101	1720	189	25
45.0	10.466	1978	189	24
45.0	11.640	2200	189	24
45.0	13.386	2530	189	23
45.0	15.111	136	9	24
45.0	17.378	782	45	23
45.0	19.365	1220	63	23

g500-B110, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
69.0	5.185	140	27	21
72.0	5.963	161	27	20
77.0	7.111	64	9	20
81.0	8.178	368	45	20
84.0	9.101	1720	189	20
89.0	10.466	1978	189	19
90.0	11.449	2576	225	19
90.0	12.698	800	63	20
90.0	14.603	920	63	19
92.0	15.556	140	9	19
96.0	17.889	161	9	19
100	19.556	176	9	19
104	22.489	1012	45	19
108	25.185	680	27	19
110	28.963	782	27	19
108	31.919	3160	99	18
110	36.707	3634	99	18
106	37.400	187	5	18
101	40.000	40	1	18
110	46.000	46	1	18
110	48.167	289	6	18
110	61.045	1343	22	18



g500-B240, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
138	3.565	385	108	17
147	4.889	44	9	17
156	6.257	2365	378	17
179	6.883	413	60	13
187	7.817	469	60	12
191	9.440	236	25	13
204	10.720	268	25	12
208	12.081	2537	210	13
217	13.719	2881	210	12
223	15.008	1876	125	12
240	16.857	118	7	12
240	19.143	134	7	12
240	20.650	413	20	12
240	23.450	469	20	12
240	26.878	2419	90	12
240	30.522	2747	90	12
240	33.433	1003	30	12
240	37.967	1139	30	12
240	43.267	649	15	12
240	49.133	737	15	12
233	52.510	5251	100	12
240	59.630	5963	100	11
178	67.113	5369	80	12
202	76.213	6097	80	11

g500-B240, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
240	68.459	43129	630	13
240	77.741	48977	630	12
240	87.563	11033	126	13
240	99.437	12529	126	12
240	113.673	17051	150	13
240	129.087	19363	150	12



g500-B450, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
280	5.002	2401	480	21
308	6.860	343	50	21
368	9.315	3577	384	15
384	10.328	2107	204	14
404	12.775	511	40	15
422	14.165	1204	85	14
434	16.349	3139	192	14
446	17.885	3577	200	14
450	19.831	8428	425	13
450	22.813	365	16	14
450	25.294	430	17	13
450	27.945	3577	128	14
450	30.985	2107	68	13
450	36.373	20951	576	14
450	40.330	12341	306	13
450	45.245	8687	192	14
450	50.167	301	6	13
450	56.154	730	13	12
450	62.262	13760	221	12
450	68.788	3577	52	12
450	76.271	16856	221	12
450	89.534	20951	234	12
450	99.274	197456	1989	12
450	111.372	8687	78	12
450	123.487	4816	39	12
450	144.128	5621	39	12
450	159.807	105952	663	12
450	174.919	45479	260	12
450	193.948	214312	1105	12
450	223.563	3577	16	12
450	247.882	4214	17	12

g500-B450, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
450	204.072	318353	1560	13
450	230.605	44968	195	13
450	255.691	847616	3315	12



g500-B600, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
376	5.067	6293	1242	20
398	6.949	7192	1035	19
462	7.617	15631	2052	17
541	10.741	290	27	14
553	13.369	13717	1026	16
600	14.730	928	63	14
600	18.851	24940	1323	14
600	20.622	928	45	14
600	22.852	15631	684	16
600	25.347	2408	95	14
600	26.061	860	33	12
600	29.744	91553	3078	16
600	32.439	1849	57	14
600	35.740	2752	77	12
600	36.999	37961	1026	16
600	41.940	23780	567	13
600	45.739	73960	1617	12
600	50.036	2752	55	12
600	55.447	2107	38	14
600	63.822	34400	539	12
600	67.513	12760	189	13
600	72.170	12341	171	14
600	81.937	5162	63	13
600	89.772	5117	57	14
600	101.760	70520	693	12
600	116.175	6622	57	14
600	126.580	29240	231	12
600	140.995	26789	190	14
600	163.810	3440	21	12
600	178.224	13545	76	14
600	198.805	15308	77	12
600	251.299	19350	77	12

g500-B600, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
600	201.089	286552	1425	14
600	227.943	112832	495	12
600	252.594	86387	342	14
600	283.539	46784	165	12
600	328.773	505981	1539	14



g500-B820, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{z, max}	i	z _g	z _t	'
Nm				
312	4.958	119	24	21
391	6.800	34	5	20
424	7.618	259	34	16
459	8.517	511	60	15
496	9.520	238	25	19
528	10.447	888	85	16
569	11.680	292	25	15
544	12.143	85	7	19
619	13.370	1591	119	15
653	14.626	6216	425	15
708	16.352	2044	125	15
747	18.655	2220	119	15
820	20.857	146	7	15
820	22.853	777	34	15
820	25.550	511	20	14
820	26.324	8687	330	12
820	29.745	1517	51	15
820	32.291	1776	55	12
820	36.102	9928	275	14
820	37.000	37	1	12
820	41.325	3182	77	12
820	45.207	12432	275	12
820	50.543	69496	1375	12
820	57.662	4440	77	12
820	64.468	4964	77	12
820	70.636	777	11	12
820	78.973	8687	110	12
820	91.939	3034	33	12
820	102.790	50881	495	12
820	114.364	1258	11	12
820	127.861	21097	165	12
820	148.000	148	1	12
820	165.467	2482	15	12
820	179.618	9879	55	12
820	200.816	110449	550	12
820	227.045	4995	22	12
820	253.841	11169	44	11

g500-B820, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
820	201.818	2220	11	12
820	225.636	2482	11	12
820	256.175	70448	275	12
820	286.408	1181432	4125	12
820	321.788	10619	33	12
820	359.765	356167	990	12
820	400.273	4403	11	12
820	468.265	2086121	4455	12



g500-B1500, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
837	6.866	1792	261	15
1006	9.516	1456	153	15
1330	10.902	36992	3393	12
1461	11.985	3128	261	11
1118	13.118	50176	3825	14
1500	15.111	136	9	12
1500	16.611	299	18	11
1500	18.598	2176	117	11
1500	20.444	184	9	11
1500	22.898	5152	225	11
1500	23.973	99416	4147	10
1500	26.353	16813	638	10
1500	29.206	1840	63	11
1500	32.547	3808	117	11
1500	35.778	322	9	11
1500	36.526	12857	352	10
1500	40.895	5848	143	10
1500	44.955	989	22	10
1500	46.568	3772	81	11
1500	51.920	18224	351	11
1500	57.074	1541	27	11
1500	58.422	58480	1001	10
1500	64.221	4945	77	10
1500	71.566	10234	143	10
1500	74.963	2024	27	11
1500	82.762	48416	585	11
1500	90.978	4094	45	10
1500	93.150	119884	1287	10
1500	102.396	40549	396	10
1500	114.166	48977	429	10
1500	125.498	66263	528	10
1500	149.949	5848	39	10
1500	164.833	989	6	10
1500	181.983	130118	715	10
1500	200.048	88021	440	10
1500	230.035	32895	143	10
1500	252.869	44505	176	10



g500-B1500, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
1500	204.476	29240	143	10
1500	224.773	4945	22	10
1500	250.483	35819	143	10
1500	275.347	48461	176	10
1500	326.025	419594	1287	10
1500	358.388	283843	792	10
1500	405.543	173978	429	10
1500	445.799	117691	264	10
1500	520.087	2008057	3861	10
1500	571.714	2716783	4752	10
1500	646.938	832609	1287	10
1500	711.156	1126471	1584	10
1500	829.035	5334838	6435	10



g500-B2700, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
1446	6.918	28917	4180	14
1528	8.793	41769	4750	14
2212	11.713	2448	209	10
2262	12.863	18819	1463	9
2380	14.888	7072	475	10
2429	16.351	54366	3325	9
2579	19.542	23392	1197	9
2684	22.269	3808	171	9
2700	24.456	1394	57	9
2700	26.814	32096	1197	9
2700	29.447	82246	2793	9
2700	32.873	16864	513	9
2700	36.102	43214	1197	9
2700	42.772	8084	189	9
2700	46.973	82861	1764	8
2700	48.912	2788	57	9
2700	54.082	9248	171	9
2700	59.393	23698	399	9
2700	64.452	113693	1764	8
2700	71.951	5828	81	8
2700	76.862	30668	399	9
2700	84.940	24208	285	9
2700	93.283	62033	665	9
2700	97.481	2632	27	8
2700	107.056	1927	18	8
2700	118.370	3196	27	8
2700	129.996	32759	252	8
2700	153.185	4136	27	8
2700	168.230	21197	126	8
2700	185.911	8366	45	8
2700	204.170	171503	840	8
2700	235.000	235	1	8
2700	258.080	28905	112	8



g500-B2700, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2700	205.407	5546	27	9
2700	225.581	113693	504	8
2700	265.150	178976	675	9
2700	291.191	65518	225	8
2700	332.564	188564	567	9
2700	365.227	1932781	5292	8
2700	414.296	11186	27	9
2700	454.986	32759	72	8
2700	487.698	79007	162	8
2700	552.395	44744	81	9
2700	606.648	32759	54	8
2700	697.844	169576	243	9
2700	785.074	21197	27	8
2700	868.049	70312	81	9
2700	953.304	360349	378	8
2700	1123.358	90992	81	9
2700	1233.688	233167	189	8
2700	1363.348	184052	135	9



g500-B4300, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2160	5.488	1147	209	14
2400	6.976	29822	4275	13
2700	9.156	98642	10773	13
3950	10.137	67797	6688	9
4250	11.080	23157	2090	9
4300	12.885	97929	7600	9
4300	14.084	33449	2375	8
4300	16.913	35991	2128	9
4300	18.486	110639	5985	8
4300	21.065	18011	855	8
4300	23.206	49383	2128	9
4300	25.365	151807	5985	8
4300	28.013	2241	80	8
4300	31.097	79763	2565	8
4300	35.607	35607	1000	8
4300	38.546	5859	152	9
4300	42.760	38313	896	8
4300	46.737	39259	840	8
4300	53.258	6391	120	8
4300	58.671	52569	896	8
4300	64.127	53867	840	8
4300	71.930	9207	128	8
4300	78.619	28303	360	8
4300	97.453	6237	64	8
4300	106.517	6391	60	7
4300	118.336	15147	128	8
4300	129.342	15521	120	7
4300	153.141	9801	64	8
4300	167.383	10043	60	7
4300	185.857	237897	1280	8
4300	203.143	81257	400	7
4300	234.932	120285	512	8
4300	256.781	8217	32	7



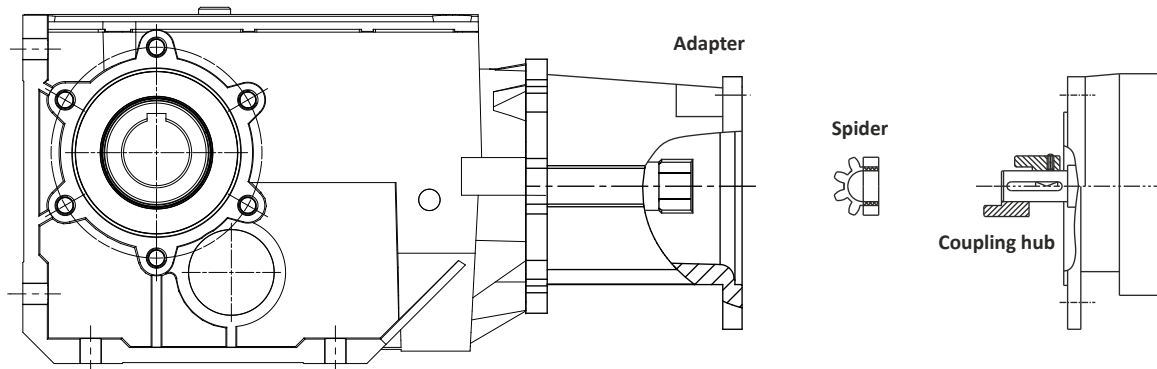
g500-B4300, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
4300	205.348	52569	256	8
4300	224.446	53867	240	8
4300	265.073	106029	400	8
4300	278.438	4455	16	8
4300	304.333	913	3	8
4300	369.548	15521	42	8
4300	414.176	106029	256	8
4300	452.696	108647	240	8
4300	485.243	262031	540	8
4300	552.234	35343	64	8
4300	603.594	108647	180	8
4300	697.641	44649	64	8
4300	762.524	411763	540	8
4300	867.797	55539	64	8
4300	948.506	170731	180	8
4300	1123.031	35937	32	8
4300	1227.478	110473	90	8
4300	1362.952	872289	640	8
4300	1654.128	21172833	12800	8
4300	1807.968	7231873	4000	8
4300	2114.124	21648627	10240	8
4300	2310.746	7394387	3200	8



7.4 Gearboxes with adapter

Versions with flexible coupling

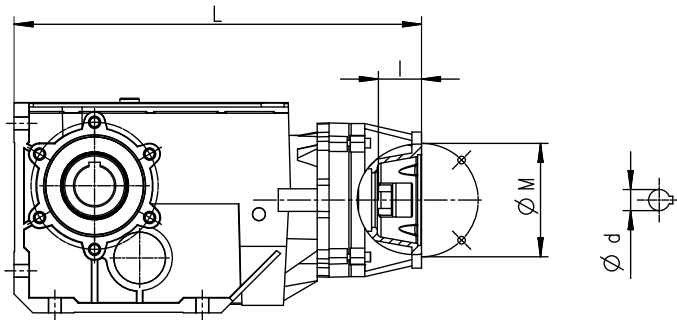


Power is transmitted between the motor and the gearbox via a flexible coupling. The gearbox shaft is designed as a coupling claw on the motor side. The counterpart, the coupling hub, is placed on the motor shaft and secured axially. A spider (elastic ring gear) is located between the two coupling claws, which can absorb shocks and ensures torque transmission with reduced torsional vibration.

- Coupling hub with keyway
 - Form-fit power transmission
 - Suitable for normal operation
- Clamping hub with tangential clamping screw and keyway
 - Form-fit and force-fit power transmission
 - Suitable for reversing duty



Dimensions of gearbox with adapter for IEC standard motors



Gearbox dimensions ► [Basic dimensions](#) 99

Versions with flexible coupling

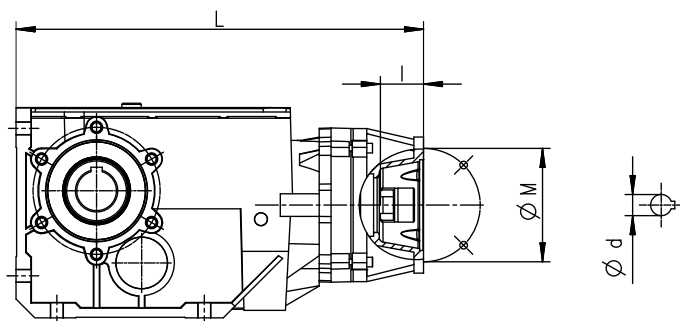
Motor				Adapter		g500 gearbox								
P ₁	Size	Shaft		M	Size	-B45	-B110	-B240	-B450	-B600	-B820	-B1500	-B2700	-B4300
kW		d	l	mm		L	L	L	L	L	L	L	L	L
		mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	mm	mm
0.12 0.18	63	11	23	FF75	N1A	208	275	335	-	-	-	-	-	-
					N2B	-	275	335	342	362	387	-	-	-
				FF130	N6C	-	292	352	359	379	404	470	-	-
0.25 0.37	71	14	30	FF85	N1B	-	292	352	359	379	404	-	-	-
					N3C	-	292	352	359	379	404	470	-	-
				FF100	N4C	-	292	352	359	379	404	470	-	-
				FF130	N2C	-	292	352	359	379	404	470	-	-
0.55 0.75	80	19	40	FF100	N7C	-	292	352	359	379	404	470	-	-
				FF130	N1C	-	292	352	359	379	404	470	-	-
					N2D	-	321	381	388	408	433	499	553	592
					N3E	-	-	381	388	408	433	499	553	592
1.1 1.5	90	24	50	FF130	N1D	-	321	381	388	408	433	499	553	592
					N2E	-	-	381	388	408	433	499	553	592
					N2F	-	-	-	-	-	433	499	553	592
				FT165	N4E	-	-	401	408	428	453	519	573	612
					N3F	-	-	-	-	-	453	519	573	612
2.2 3.0 4.0	100 112	28	60	FF130	N1E	-	-	381	388	408	433	499	553	592
					N1F	-	-	-	-	-	433	499	553	592
				FF215	N2G	-	-	-	-	-	497	563	617	656
5.5 7.5	132	38	80	FF215	N3G	-	-	-	-	-	517	583	637	676
				FF265	N1G	-	-	-	-	-	517	583	637	676
					N3H	-	-	-	-	-	-	623	677	718
11.0 15.0	160	42	110	FF300	N1H	-	-	-	-	-	-	653	707	746
18.5 22.0	180	48	110	FF300	N2H	-	-	-	-	-	-	653	707	746

The N6C adapter is only available with clamping hub.

The N1D adapter is only available with standard and clamping hub.



Dimensions of gearboxes with adapter for servo motors



Gearbox dimensions ► [Basic dimensions](#) 99

Versions with servo adapter

Motor			Adapter		Gearbox g500							
M	Shaft		M	Size	-B110	-B240	-B450	-B600	-B820	-B1500	-B2700	-B4300
mm	d	l	mm		L	L	L	L	L	L	L	L
	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	mm
75	11	23	FT75	S2B	231	291	298	318	343	-	-	-
	14	30		S3B	231	291	298	318	343	-	-	-
100	14	30	FF100	S4C	246	306	313	333	358	424	-	-
	19	40		S7C	246	306	313	333	358	424	-	-
	16	40		S8C	246	306	313	333	358	424	-	-
115	19	50	FF115	S3D	263	323	330	350	375	441	287	534
	24	50		S4D	263	323	330	350	375	441	287	534
130	19	50	FF130	S2D	263	323	330	350	375	441	287	534
	24	50		S1D	263	323	330	350	375	441	287	534
	24	60		S2E	-	323	330	350	375	441	287	534
	28	60		S1E	-	323	330	350	375	441	287	534
165	24	50	FF165	S4E	-	323	330	350	375	441	287	534
	32	58		S6E	-	323	330	350	375	441	287	534
	28	60		S7E	-	323	330	350	375	441	287	534



7.5 Radial forces and axial forces

Permissible radial force

The calculation of the permissible radial force must take account of the additional load factor f_w .

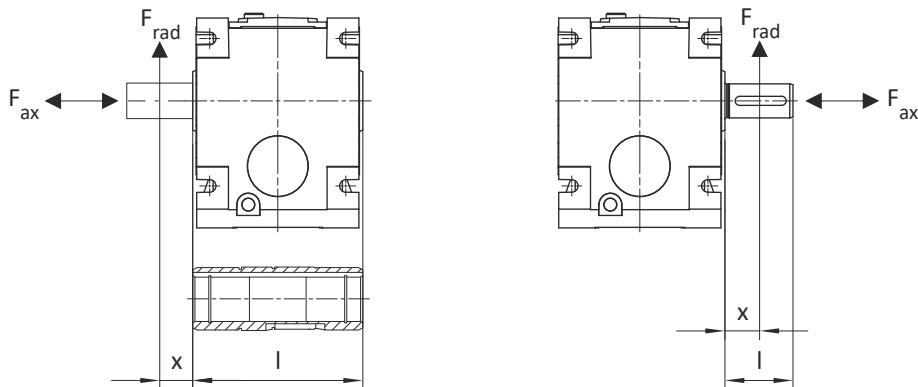
$$F_{\text{rad, perm}} = f_w \times F_{\text{rad, max}}$$

Permissible axial force

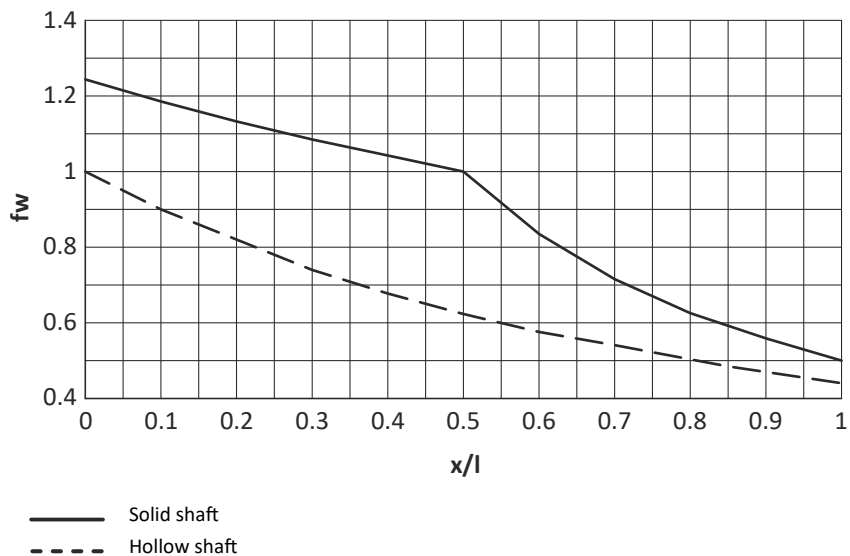
If there is no radial force, the maximum axial force is 50% of the value in the table $F_{\text{rad, max}}$

$$F_{\text{ax, zul}} = 0.5 \times F_{\text{rad, max}}$$

Application of forces



Additional load factor f_w on the drive shaft



Technical data

Radial forces and axial forces



The values given in the tables refer to the centre shaft end force application point and are minimum values calculated according to the most unfavourable conditions (force application angle, mounting position, direction of rotation). The values were calculated with a load capacity of $c = 1.3$ and an input speed of 1400 rpm.



In case of different operating conditions, considerably higher forces can be transmitted. Please get in touch with your Lenze representative



A hollow shaft with shrink disc (SAR/SBR/SCR/SDR/SAK/SCK) requires a check by Lenze.

Max. radial force, gearbox with hollow shaft (H□□)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-B45	900	1200	2200	2500	2800	3000	3000	3000	3000	3000
g500-B110	1000	2200	2600	3000	3300	3600	3600	3600	3600	3600
g500-B240	1500	2300	3800	4500	5100	6200	7400	7800	7800	7800
g500-B450	3000	3800	4500	5200	5200	5500	7000	9000	9000	9000
g500-B600	3500	4000	4700	5400	5600	6000	8000	9400	9500	9500
g500-B820	4000	4200	5400	5800	6000	7000	9000	9800	10200	10200
g500-B1500	3700	5000	6000	7000	8000	9000	10500	13000	16000	16000
g500-B2700	4400	5700	7000	8200	9400	10600	12200	15000	18000	21900
g500-B4300	5000	6600	8000	9000	10500	12000	15500	21000	27900	35100

Max. radial force, gearbox with solid shaft, without flange (V□R)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-B45	900	1200	1800	2100	2400	2800	3000	3000	3000	3000
g500-B110	1000	1800	2100	2500	2700	3000	3000	3000	3000	3000
g500-B240	1500	2400	3000	3600	4500	5000	6000	6500	6500	6500
g500-B450	2000	2800	3600	3900	4300	5000	6000	7600	7800	7800
g500-B600	2500	3200	4000	4700	5400	6700	8300	9000	9000	9000
g500-B820	5200	6000	8200	9800	11000	11000	11000	11000	11000	11000
g500-B1500	6300	8200	10000	11500	13000	16000	16000	16000	16000	16000
g500-B2700	6600	8500	10400	12000	14000	16500	20100	22700	25500	27500
g500-B4300	7300	9500	11600	13300	14900	17300	20800	25700	32200	40000

Max. radial force, gearbox with solid shaft and flange (V□K)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-B45	900	1200	1800	2100	2400	2800	3000	3000	3000	3000
g500-B110	1000	1800	2100	2500	2700	3000	3000	3000	3000	3000
g500-B240	2400	3600	5200	6000	6500	6500	6500	6500	6500	6500
g500-B450	3000	4000	4700	5100	5600	6400	7700	7800	7800	7800
g500-B600	3400	4100	5000	5300	6000	7300	9000	9000	9000	9000
g500-B820	6000	7000	8900	10200	11000	11000	11000	11000	11000	11000
g500-B1500	7000	9000	11000	12000	13000	15000	16000	16000	16000	16000
g500-B2700	8400	10900	13300	14400	15800	17700	20100	22700	25500	27500
g500-B4300	9200	11700	14300	15800	17800	20800	24800	29500	35100	40000



7.6 Selection tables

Notes on the selection tables

The selection tables represent the available combinations of gearbox, number of stages, ratio and motor for the mounting position M1. They only serve as a rough overview.

The following legend shows the layout of the selection tables:

Example	Explanation
120 Hz: $P_{\text{rated}} = 0.55 \text{ kW}$	Rated motor power at a rated frequency of 120 Hz

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz (1:24)								
n_{22}	M^{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
28.0	5.7	116	9.4	359	9.4	4.8	4033	5185	g500-B110	m650-U U63/L4	2	11
26.8	6.0	111	9.8	344	9.8	3.7	3547	5411	g500-B45	m650-U U63/L4	2	8.9

														Basic weight												
														Number of gear stages												
														Motor product name												
														Gearbox product name												
														Ratio												
Moment of inertia without brake																										
Data at 62/124 Hz																										
n ₂ = output speed - M ₂ = output torque																										
c = the load capacity of the gearbox is the ratio of the permissible rated torque of the gearbox to the rated torque of the motor (converted to the output shaft). c must always be greater than the application factor determined for the application k																										
$c = \frac{M_{2,zul}}{M_{1,N} \times i \times \eta_{Getr}} > k$																										
Data at 20 Hz																										
n ₂₁ = output speed - M ₂ = output torque																										



The following selection tables refer exclusively to inverters from the motec series. For all other inverters, please use the EASY System Designer to view the relevant data.



124 Hz: 0.75 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
28.9	8.4	86.8	9.4	717	9.4	3.8	4.033	5.185	g500-B110	m650-U63/L4	2	9.8
27.7	8.8	83.2	9.8	688	9.8	3.0	3.547	5.411	g500-B45	m650-U63/L4	2	8.2
25.2	9.7	75.5	11.0	624	11.0	3.8	3.945	5.963	g500-B110	m650-U63/L4	2	9.8
24.1	10.1	72.3	11.0	598	11.0	2.7	3.516	6.222	g500-B45	m650-U63/L4	2	8.2
21.1	11.6	63.3	13.0	523	13.0	2.5	3.436	7.111	g500-B45	m650-U63/L4	2	8.2
21.1	11.6	63.3	13.0	523	13.0	3.8	3.718	7.111	g500-B110	m650-U63/L4	2	9.8
18.3	13.3	55.0	15.0	455	15.0	2.2	3.418	8.178	g500-B45	m650-U63/L4	2	8.2
18.3	13.3	55.0	15.0	455	15.0	3.8	3.671	8.178	g500-B110	m650-U63/L4	2	9.8
16.5	14.8	49.4	16.0	409	16.0	2.0	3.374	9.101	g500-B45	m650-U63/L4	2	8.2
16.5	14.8	49.4	16.0	409	16.0	3.5	3.563	9.101	g500-B110	m650-U63/L4	2	9.8
14.3	17.0	43.0	19.0	355	19.0	1.8	3.363	10.466	g500-B45	m650-U63/L4	2	8.2
14.3	17.0	43.0	19.0	355	19.0	3.5	3.535	10.466	g500-B110	m650-U63/L4	2	9.8
13.1	18.6	39.3	21.0	325	21.0	3.2	3.495	11.449	g500-B110	m650-U63/L4	2	9.8
12.9	18.9	38.7	21.0	320	21.0	1.6	3.326	11.640	g500-B45	m650-U63/L4	2	8.2
11.8	20.6	35.4	23.0	293	23.0	2.9	3.433	12.698	g500-B110	m650-U63/L4	2	9.8
11.2	21.7	33.6	24.0	278	24.0	1.4	3.319	13.386	g500-B45	m650-U63/L4	2	8.2
10.3	23.7	30.8	26.0	255	26.0	2.5	3.418	14.603	g500-B110	m650-U63/L4	2	9.8
10.0	24.4	30.0	27.0	248	27.0	3.8	3.826	15.008	g500-B240	m650-U63/L4	2	14
9.9	24.5	29.8	27.0	246	27.0	1.2	3.299	15.111	g500-B45	m650-U63/L4	2	8.2
9.6	25.3	28.9	28.0	239	28.0	2.4	3.383	15.556	g500-B110	m650-U63/L4	2	9.8
8.9	27.4	26.7	30.0	221	30.0	3.5	3.687	16.857	g500-B240	m650-U63/L4	2	14
8.6	28.2	25.9	31.0	214	31.0	1.1	3.295	17.378	g500-B45	m650-U63/L4	2	8.2
8.4	29.1	25.2	32.0	208	32.0	2.2	3.373	17.889	g500-B110	m650-U63/L4	2	9.8
8.4	29.0	25.2	32.0	208	32.0	3.8	4.286	17.885	g500-B450	m650-U63/L4	3	17
7.8	31.1	23.5	35.0	194	35.0	3.5	3.660	19.143	g500-B240	m650-U63/L4	2	14
7.7	31.5	23.2	35.0	192	35.0	1.0	3.278	19.365	g500-B45	m650-U63/L4	2	8.2
7.7	31.8	23.0	35.0	190	35.0	2.1	3.335	19.556	g500-B110	m650-U63/L4	2	9.8
7.6	32.2	22.7	36.0	188	36.0	3.8	4.246	19.831	g500-B450	m650-U63/L4	3	17
6.7	36.5	20.0	41.0	165	41.0	1.9	3.328	22.489	g500-B110	m650-U63/L4	2	9.8
6.6	37.1	19.7	41.0	163	41.0	3.5	3.942	22.813	g500-B450	m650-U63/L4	3	17
6.0	40.9	17.9	45.0	148	45.0	1.8	3.303	25.185	g500-B110	m650-U63/L4	2	9.8
5.9	41.1	17.8	46.0	147	46.0	3.5	3.918	25.294	g500-B450	m650-U63/L4	3	17
5.6	43.7	16.7	49.0	138	49.0	2.9	3.451	26.878	g500-B240	m650-U63/L4	2	14
5.2	47.1	15.5	52.0	128	52.0	1.6	3.300	28.963	g500-B110	m650-U63/L4	2	9.8
4.9	49.6	14.7	55.0	122	55.0	2.9	3.440	30.522	g500-B240	m650-U63/L4	2	14
4.7	51.9	14.1	58.0	117	58.0	1.4	3.281	31.919	g500-B110	m650-U63/L4	2	9.8
4.5	54.3	13.5	60.0	111	60.0	2.5	3.392	33.433	g500-B240	m650-U63/L4	2	14
4.1	59.1	12.4	66.0	102	66.0	2.9	3.551	36.373	g500-B450	m650-U63/L4	3	17
4.1	59.6	12.3	66.0	101	66.0	1.2	3.279	36.707	g500-B110	m650-U63/L4	2	9.8
4.0	60.8	12.0	68.0	99.5	68.0	1.2	3.312	37.400	g500-B110	m650-U63/L4	2	9.8
4.0	61.7	11.9	69.0	98.0	69.0	2.5	3.386	37.967	g500-B240	m650-U63/L4	2	14
3.8	65.0	11.3	72.0	93.0	72.0	0.9	3.268	40.000	g500-B110	m650-U63/L4	2	9.8
3.7	65.5	11.2	73.0	92.2	73.0	3.3	3.542	40.330	g500-B450	m650-U63/L4	3	17
3.5	70.3	10.4	78.0	86.0	78.0	2.5	3.336	43.267	g500-B240	m650-U63/L4	2	14
3.3	73.5	9.9	82.0	82.2	82.0	2.8	3.457	45.245	g500-B450	m650-U63/L4	3	17
3.3	74.7	9.8	83.0	80.9	83.0	0.9	3.267	46.000	g500-B110	m650-U63/L4	2	9.8
3.1	78.3	9.3	87.0	77.2	87.0	1.1	3.290	48.167	g500-B110	m650-U63/L4	2	9.8
3.1	79.8	9.2	89.0	75.7	89.0	2.3	3.332	49.133	g500-B240	m650-U63/L4	2	14
3.0	81.5	9.0	91.0	74.2	91.0	2.8	3.451	50.167	g500-B450	m650-U63/L4	3	17
2.9	85.3	8.6	95.0	70.8	95.0	2.1	3.310	52.510	g500-B240	m650-U63/L4	2	14
2.7	91.2	8.0	101	66.2	101	3.7	3.715	56.154	g500-B450	m650-U63/L4	3	17



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
2.5	96.9	7.5	108	62.4	108	1.9	3.307	59.630	g500-B240	m650-U63/L4	2	14
2.5	99.2	7.4	110	60.9	110	0.9	3.273	61.045	g500-B110	m650-U63/L4	2	9.8
2.4	101	7.2	112	59.7	112	3.4	3.711	62.262	g500-B450	m650-U63/L4	3	17
2.2	108	6.6	120	54.3	120	1.7	3.333	68.459	g500-B240	m650-U63/L4	3	14
2.2	109	6.7	121	55.4	121	1.2	3.285	67.113	g500-B240	m650-U63/L4	2	14
2.2	110	6.7	122	55.1	122	2.8	3.521	67.513	g500-B600	m650-U63/L4	3	35
1.9	123	5.8	137	47.9	137	1.5	3.331	77.741	g500-B240	m650-U63/L4	3	14
2.0	124	5.9	138	48.8	138	1.2	3.283	76.213	g500-B240	m650-U63/L4	2	14
1.8	133	5.5	148	45.4	148	2.5	3.445	81.937	g500-B600	m650-U63/L4	3	35
1.7	139	5.1	154	42.5	154	1.3	3.302	87.563	g500-B240	m650-U63/L4	3	14
1.7	145	5.0	162	41.5	162	2.3	3.462	89.534	g500-B450	m650-U63/L4	3	17
1.5	158	4.5	175	37.4	175	1.2	3.301	99.437	g500-B240	m650-U63/L4	3	14
1.5	161	4.5	179	37.5	179	2.1	3.460	99.274	g500-B450	m650-U63/L4	3	17
1.3	180	4.0	200	32.7	200	1.1	3.284	113.673	g500-B240	m650-U63/L4	3	14
1.3	181	4.0	201	33.4	201	2.1	3.400	111.372	g500-B450	m650-U63/L4	3	17
1.3	189	3.9	210	32.0	210	2.7	3.467	116.175	g500-B600	m650-U63/L4	3	35
1.2	201	3.6	223	30.1	223	1.9	3.399	123.487	g500-B450	m650-U63/L4	3	17
1.2	204	3.5	227	28.8	227	1.0	3.283	129.087	g500-B240	m650-U63/L4	3	14
1.1	229	3.2	254	26.4	254	2.2	3.408	140.995	g500-B600	m650-U63/L4	3	35
1.0	234	3.1	260	25.8	260	1.6	3.340	144.128	g500-B450	m650-U63/L4	3	17
1.0	240	3.0	267	25.1	267	2.9	3.470	148.000	g500-B820	m650-U63/L4	3	41
0.9	260	2.8	288	23.3	288	1.5	3.339	159.807	g500-B450	m650-U63/L4	3	17
0.9	266	2.7	296	22.7	296	1.9	3.464	163.810	g500-B600	m650-U63/L4	3	35
0.9	269	2.7	299	22.5	299	2.6	3.469	165.467	g500-B820	m650-U63/L4	3	41
0.9	284	2.6	316	21.3	316	1.3	3.313	174.919	g500-B450	m650-U63/L4	3	17
0.8	290	2.5	322	20.9	322	1.7	3.349	178.224	g500-B600	m650-U63/L4	3	35
0.8	292	2.5	324	20.7	324	2.4	3.410	179.618	g500-B820	m650-U63/L4	3	41
0.8	315	2.3	350	19.2	350	1.2	3.312	193.948	g500-B450	m650-U63/L4	3	17
0.7	321	2.2	357	18.5	357	1.6	3.419	201.089	g500-B600	m650-U63/L4	4	38
0.8	323	2.3	359	18.7	359	1.6	3.406	198.805	g500-B600	m650-U63/L4	3	35
0.7	326	2.2	362	18.5	362	2.1	3.409	200.816	g500-B820	m650-U63/L4	3	41
0.7	326	2.2	362	18.2	362	1.2	3.328	204.072	g500-B450	m650-U63/L4	4	20
0.7	360	2.0	400	16.5	400	1.9	3.727	225.636	g500-B820	m650-U63/L4	4	44
0.7	363	2.0	403	16.6	403	1.0	3.286	223.563	g500-B450	m650-U63/L4	3	17
0.7	364	2.0	404	16.3	404	1.4	3.490	227.943	g500-B600	m650-U63/L4	4	38
0.7	368	2.0	409	16.1	409	1.0	3.350	230.605	g500-B450	m650-U63/L4	4	20
0.7	369	2.0	410	16.4	410	1.9	3.351	227.045	g500-B820	m650-U63/L4	3	41
0.6	403	1.8	447	15.0	447	0.9	3.286	247.882	g500-B450	m650-U63/L4	3	17
0.6	403	1.8	448	14.7	448	1.3	3.466	252.594	g500-B600	m650-U63/L4	4	38
0.6	408	1.8	454	14.8	454	1.2	3.348	251.299	g500-B600	m650-U63/L4	3	35
0.6	408	1.8	454	14.5	454	0.9	3.350	255.691	g500-B450	m650-U63/L4	4	20
0.6	409	1.8	454	14.5	454	1.7	3.420	256.175	g500-B820	m650-U63/L4	4	44
0.6	412	1.8	458	14.7	458	1.7	3.350	253.841	g500-B820	m650-U63/L4	3	41
0.6	423	1.7	470	14.0	470	4.8	4.511	265.073	g500-B4300	m650-U63/L4	4	177
0.6	423	1.7	470	14.0	470	4.8	4.438	265.150	g500-B2700	m650-U63/L4	4	115
0.5	445	1.6	494	13.4	494	4.5	4.230	278.438	g500-B4300	m650-U63/L4	4	177
0.5	453	1.6	503	13.1	503	1.1	3.418	283.539	g500-B600	m650-U63/L4	4	38
0.5	457	1.6	508	13.0	508	1.5	3.420	286.408	g500-B820	m650-U63/L4	4	44
0.5	465	1.5	517	12.8	517	4.8	4.436	291.191	g500-B2700	m650-U63/L4	4	115
0.5	486	1.5	540	12.2	540	4.5	4.226	304.333	g500-B4300	m650-U63/L4	4	177
0.5	514	1.4	571	11.6	571	1.3	3.467	321.788	g500-B820	m650-U63/L4	4	44
0.5	521	1.4	578	11.4	578	2.4	3.535	326.025	g500-B1500	m650-U63/L4	4	74



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.5	525	1.4	583	11.3	583	1.0	3.455	328.773	g500-B600	m650-U63/L4	4	38
0.5	531	1.4	590	11.2	590	3.1	3.651	332.564	g500-B2700	m650-U63/L4	4	115
0.4	572	1.3	636	10.4	636	2.2	3.535	358.388	g500-B1500	m650-U63/L4	4	74
0.4	574	1.3	638	10.3	638	1.2	3.466	359.765	g500-B820	m650-U63/L4	4	44
0.4	583	1.2	648	10.2	648	3.1	3.650	365.227	g500-B2700	m650-U63/L4	4	115
0.4	590	1.2	656	10.1	656	4.5	4.078	369.548	g500-B4300	m650-U63/L4	4	177
0.4	639	1.1	710	9.3	710	1.1	3.403	400.273	g500-B820	m650-U63/L4	4	44
0.4	648	1.1	719	9.2	719	1.9	3.447	405.543	g500-B1500	m650-U63/L4	4	74
0.3	712	1.0	791	8.3	791	1.8	3.447	445.799	g500-B1500	m650-U63/L4	4	74
0.3	748	1.0	831	7.9	831	0.9	3.455	468.265	g500-B820	m650-U63/L4	4	44
0.3	775	0.9	861	7.7	861	3.7	3.663	485.243	g500-B4300	m650-U63/L4	4	177
0.3	779	0.9	865	7.6	865	2.9	3.638	487.698	g500-B2700	m650-U63/L4	4	115
0.3	830	0.9	923	7.2	923	1.5	3.484	520.087	g500-B1500	m650-U63/L4	4	74
0.3	882	0.8	980	6.7	980	2.6	3.514	552.395	g500-B2700	m650-U63/L4	4	115
0.3	882	0.8	980	6.7	980	3.1	3.531	552.234	g500-B4300	m650-U63/L4	4	177
0.3	913	0.8	1014	6.5	1014	1.4	3.483	571.714	g500-B1500	m650-U63/L4	4	74
0.2	964	0.7	1071	6.2	1071	3.1	3.530	603.594	g500-B4300	m650-U63/L4	4	177
0.2	969	0.7	1076	6.1	1076	2.3	3.513	606.648	g500-B2700	m650-U63/L4	4	115
0.2	1033	0.7	1148	5.8	1148	1.2	3.414	646.938	g500-B1500	m650-U63/L4	4	74
0.2	1114	0.6	1238	5.3	1238	2.0	3.536	697.844	g500-B2700	m650-U63/L4	4	115
0.2	1114	0.6	1238	5.3	1238	3.2	3.546	697.641	g500-B4300	m650-U63/L4	4	177
0.2	1136	0.6	1262	5.2	1262	1.1	3.414	711.156	g500-B1500	m650-U63/L4	4	74
0.2	1218	0.6	1353	4.9	1353	3.0	3.546	762.524	g500-B4300	m650-U63/L4	4	177
0.2	1254	0.6	1393	4.7	1393	1.8	3.408	785.074	g500-B2700	m650-U63/L4	4	115
0.2	1324	0.5	1471	4.5	1471	1.0	3.323	829.035	g500-B1500	m650-U63/L4	4	74
0.2	1386	0.5	1540	4.3	1540	1.6	3.389	868.049	g500-B2700	m650-U63/L4	4	115
0.2	1386	0.5	1540	4.3	1540	2.6	3.454	867.797	g500-B4300	m650-U63/L4	4	177
0.2	1514	0.5	1683	3.9	1683	2.4	3.454	948.506	g500-B4300	m650-U63/L4	4	177
0.2	1522	0.5	1691	3.9	1691	1.5	3.389	953.304	g500-B2700	m650-U63/L4	4	115
0.1	1793	0.4	1992	3.3	1992	2.0	3.373	1123.031	g500-B4300	m650-U63/L4	4	177
0.1	1794	0.4	1993	3.3	1993	1.3	3.369	1123.358	g500-B2700	m650-U63/L4	4	115
0.1	1960	0.4	2178	3.0	2178	1.8	3.372	1227.478	g500-B4300	m650-U63/L4	4	177
0.1	1970	0.4	2189	3.0	2189	1.2	3.369	1233.688	g500-B2700	m650-U63/L4	4	115
0.1	2176	0.3	2418	2.7	2418	1.7	3.335	1362.952	g500-B4300	m650-U63/L4	4	177
0.1	2177	0.3	2419	2.7	2419	1.0	3.332	1363.348	g500-B2700	m650-U63/L4	4	115
0.1	2641	0.3	2935	2.2	2935	1.4	3.327	1654.128	g500-B4300	m650-U63/L4	4	177
0.1	2887	0.2	3207	2.1	3207	1.3	3.327	1807.968	g500-B4300	m650-U63/L4	4	177
0.1	3376	0.2	3751	1.8	3751	1.1	3.295	2114.124	g500-B4300	m650-U63/L4	4	177
0.1	3690	0.2	4099	1.6	4099	1.0	3.295	2310.746	g500-B4300	m650-U63/L4	4	177



124 Hz: 1.1 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
28.9	12.4	86.8	14.0	717	14.0	3.7	9.543	5.185	g500-B110	m650-U71/M4	2	12
27.7	13.0	83.2	14.0	688	14.0	2.0	9.057	5.411	g500-B45	m650-U71/M4	2	10
25.2	14.3	75.5	16.0	624	16.0	3.4	9.455	5.963	g500-B110	m650-U71/M4	2	12
24.1	14.9	72.3	17.0	598	17.0	1.8	9.026	6.222	g500-B45	m650-U71/M4	2	10
24.0	15.0	71.9	17.0	595	17.0	4.4	9.901	6.257	g500-B240	m650-U71/M4	2	16
21.1	17.0	63.3	19.0	523	19.0	1.7	8.946	7.111	g500-B45	m650-U71/M4	2	10
21.1	17.0	63.3	19.0	523	19.0	3.0	9.228	7.111	g500-B110	m650-U71/M4	2	12
18.3	19.6	55.0	22.0	455	22.0	1.5	8.928	8.178	g500-B45	m650-U71/M4	2	10
18.3	19.6	55.0	22.0	455	22.0	2.8	9.181	8.178	g500-B110	m650-U71/M4	2	12
16.5	21.8	49.4	24.0	409	24.0	1.4	8.884	9.101	g500-B45	m650-U71/M4	2	10
16.5	21.8	49.4	24.0	409	24.0	2.6	9.073	9.101	g500-B110	m650-U71/M4	2	12
14.3	25.1	43.0	28.0	355	28.0	1.2	8.873	10.466	g500-B45	m650-U71/M4	2	10
14.3	25.1	43.0	28.0	355	28.0	2.4	9.045	10.466	g500-B110	m650-U71/M4	2	12
13.1	27.4	39.3	30.0	325	30.0	2.2	9.005	11.449	g500-B110	m650-U71/M4	2	12
12.9	27.9	38.7	31.0	320	31.0	1.1	8.836	11.640	g500-B45	m650-U71/M4	2	10
12.4	28.9	37.2	32.0	308	32.0	4.4	9.479	12.081	g500-B240	m650-U71/M4	2	16
12.4	29.1	37.1	32.0	306	32.0	4.4	11.270	12.143	g500-B820	m650-U71/M4	3	43
11.8	30.4	35.4	34.0	293	34.0	2.0	8.943	12.698	g500-B110	m650-U71/M4	2	12
11.2	32.0	33.6	36.0	278	36.0	0.9	8.829	13.386	g500-B45	m650-U71/M4	2	10
10.9	32.8	32.8	36.0	271	36.0	4.4	9.427	13.719	g500-B240	m650-U71/M4	2	16
10.3	35.0	30.8	39.0	255	39.0	1.7	8.928	14.603	g500-B110	m650-U71/M4	2	12
10.0	35.9	30.0	40.0	248	40.0	4.1	9.336	15.008	g500-B240	m650-U71/M4	2	16
9.6	37.2	28.9	41.0	239	41.0	1.6	8.893	15.556	g500-B110	m650-U71/M4	2	12
9.2	39.1	27.5	43.0	228	43.0	4.4	9.977	16.349	g500-B450	m650-U71/M4	3	20
8.9	40.4	26.7	45.0	221	45.0	4.0	9.197	16.857	g500-B240	m650-U71/M4	2	16
8.4	42.8	25.2	48.0	208	48.0	1.5	8.883	17.889	g500-B110	m650-U71/M4	2	12
8.4	42.8	25.2	48.0	208	48.0	4.5	9.796	17.885	g500-B450	m650-U71/M4	3	20
8.0	44.7	24.1	50.0	199	50.0	4.4	10.928	18.655	g500-B820	m650-U71/M4	3	43
7.8	45.8	23.5	51.0	194	51.0	3.5	9.170	19.143	g500-B240	m650-U71/M4	2	16
7.7	46.8	23.0	52.0	190	52.0	1.4	8.845	19.556	g500-B110	m650-U71/M4	2	12
7.6	47.5	22.7	53.0	188	53.0	4.5	9.756	19.831	g500-B450	m650-U71/M4	3	20
7.3	49.4	21.8	55.0	180	55.0	3.2	9.090	20.650	g500-B240	m650-U71/M4	2	16
7.2	49.9	21.6	55.0	178	55.0	4.4	10.861	20.857	g500-B820	m650-U71/M4	3	43
6.7	53.8	20.0	60.0	165	60.0	1.3	8.838	22.489	g500-B110	m650-U71/M4	2	12
6.6	54.6	19.7	61.0	163	61.0	4.1	9.452	22.813	g500-B450	m650-U71/M4	3	20
6.4	56.1	19.2	62.0	159	62.0	2.8	9.072	23.450	g500-B240	m650-U71/M4	2	16
6.0	60.3	17.9	67.0	148	67.0	1.2	8.813	25.185	g500-B110	m650-U71/M4	2	12
5.9	60.5	17.8	67.0	147	67.0	4.1	9.428	25.294	g500-B450	m650-U71/M4	3	20
5.6	64.3	16.7	71.0	138	71.0	2.5	8.961	26.878	g500-B240	m650-U71/M4	2	16
5.4	66.9	16.1	74.0	133	74.0	3.7	9.260	27.945	g500-B450	m650-U71/M4	3	20
5.2	69.3	15.5	77.0	128	77.0	1.1	8.810	28.963	g500-B110	m650-U71/M4	2	12
5.0	71.2	15.1	79.0	125	79.0	3.7	9.659	29.745	g500-B820	m650-U71/M4	3	43
5.0	71.2	15.1	79.0	125	79.0	3.7	9.470	29.744	g500-B600	m650-U71/M4	3	38
4.9	73.1	14.7	81.0	122	81.0	2.2	8.950	30.522	g500-B240	m650-U71/M4	2	16
4.8	74.2	14.5	82.0	120	82.0	3.7	9.244	30.985	g500-B450	m650-U71/M4	3	20
4.5	80.0	13.5	89.0	111	89.0	2.0	8.902	33.433	g500-B240	m650-U71/M4	2	16
4.1	87.1	12.4	97.0	102	97.0	3.4	9.061	36.373	g500-B450	m650-U71/M4	3	20
4.1	88.6	12.2	98.0	101	98.0	3.1	9.386	37.000	g500-B820	m650-U71/M4	3	43
4.1	88.6	12.2	98.0	101	98.0	3.1	9.230	36.999	g500-B600	m650-U71/M4	3	38
4.0	90.9	11.9	101	98.0	101	1.8	8.896	37.967	g500-B240	m650-U71/M4	2	16
3.7	96.5	11.2	107	92.2	107	3.5	9.052	40.330	g500-B450	m650-U71/M4	3	20



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.6	100	10.7	112	88.7	112	4.2	9.426	41.940	g500-B600	m650-U71/M4	3	38
3.5	104	10.4	115	86.0	115	1.8	8.846	43.267	g500-B240	m650-U71/M4	2	16
3.3	108	9.9	120	82.2	120	3.1	8.967	45.245	g500-B450	m650-U71/M4	3	20
3.1	118	9.2	131	75.7	131	1.5	8.842	49.133	g500-B240	m650-U71/M4	2	16
3.0	120	9.0	133	74.2	133	2.8	8.961	50.167	g500-B450	m650-U71/M4	3	20
2.9	126	8.6	140	70.8	140	1.4	8.820	52.510	g500-B240	m650-U71/M4	2	16
2.7	134	8.0	149	66.2	149	2.5	9.225	56.154	g500-B450	m650-U71/M4	3	20
2.6	138	7.8	153	64.5	153	4.5	9.869	57.662	g500-B820	m650-U71/M4	3	43
2.5	143	7.5	159	62.4	159	1.3	8.817	59.630	g500-B240	m650-U71/M4	2	16
2.4	149	7.2	166	59.7	166	2.3	9.221	62.262	g500-B450	m650-U71/M4	3	20
2.4	153	7.1	170	58.3	170	3.0	9.829	63.822	g500-B600	m650-U71/M4	3	38
2.3	154	7.0	171	57.7	171	4.0	9.862	64.468	g500-B820	m650-U71/M4	3	43
2.2	160	6.6	178	54.3	178	1.1	8.843	68.459	g500-B240	m650-U71/M4	3	17
2.2	162	6.7	180	55.1	180	2.8	9.031	67.513	g500-B600	m650-U71/M4	3	38
2.2	165	6.5	183	54.1	183	2.1	9.109	68.788	g500-B450	m650-U71/M4	3	20
2.1	173	6.2	192	51.5	192	2.6	9.287	72.170	g500-B600	m650-U71/M4	3	38
2.0	179	6.0	199	49.6	199	3.5	9.656	74.963	g500-B1500	m650-U71/M4	3	73
1.9	181	5.8	202	47.9	202	1.0	8.841	77.741	g500-B240	m650-U71/M4	3	17
2.0	183	5.9	203	48.8	203	1.9	9.106	76.271	g500-B450	m650-U71/M4	3	20
1.8	196	5.5	218	45.4	218	2.3	8.955	81.937	g500-B600	m650-U71/M4	3	38
1.8	198	5.4	220	44.9	220	3.1	9.417	82.762	g500-B1500	m650-U71/M4	3	73
1.7	214	5.0	238	41.5	238	1.6	8.972	89.534	g500-B450	m650-U71/M4	3	20
1.7	215	5.0	239	41.4	239	2.1	9.111	89.772	g500-B600	m650-U71/M4	3	38
1.6	218	4.9	242	40.9	242	3.1	9.408	90.978	g500-B1500	m650-U71/M4	3	73
1.6	220	4.9	245	40.5	245	2.8	9.242	91.939	g500-B820	m650-U71/M4	3	43
1.5	238	4.5	264	37.5	264	1.4	8.970	99.274	g500-B450	m650-U71/M4	3	20
1.5	244	4.4	271	36.6	271	1.9	9.279	101.760	g500-B600	m650-U71/M4	3	38
1.5	246	4.4	273	36.2	273	2.5	9.239	102.790	g500-B820	m650-U71/M4	3	43
1.3	267	4.0	296	33.4	296	1.4	8.910	111.372	g500-B450	m650-U71/M4	3	20
1.3	274	3.9	304	32.5	304	2.5	9.116	114.364	g500-B820	m650-U71/M4	3	43
1.3	278	3.9	309	32.0	309	1.8	8.977	116.175	g500-B600	m650-U71/M4	3	38
1.2	296	3.6	328	30.1	328	1.3	8.909	123.487	g500-B450	m650-U71/M4	3	20
1.2	303	3.6	337	29.4	337	1.7	9.106	126.580	g500-B600	m650-U71/M4	3	38
1.2	306	3.5	340	29.1	340	2.2	9.115	127.861	g500-B820	m650-U71/M4	3	43
1.1	338	3.2	375	26.4	375	1.5	8.918	140.995	g500-B600	m650-U71/M4	3	38
1.0	345	3.1	383	25.8	383	1.1	8.850	144.128	g500-B450	m650-U71/M4	3	20
1.0	354	3.0	394	25.1	394	1.9	8.980	148.000	g500-B820	m650-U71/M4	3	43
1.0	359	3.0	399	24.8	399	3.5	9.453	149.949	g500-B1500	m650-U71/M4	3	73
0.9	383	2.8	425	23.3	425	1.0	8.849	159.807	g500-B450	m650-U71/M4	3	20
0.9	392	2.7	436	22.7	436	1.3	8.974	163.810	g500-B600	m650-U71/M4	3	38
0.9	395	2.7	438	22.6	438	3.2	9.450	164.833	g500-B1500	m650-U71/M4	3	73
0.9	396	2.7	440	22.5	440	1.7	8.979	165.467	g500-B820	m650-U71/M4	3	43
0.9	419	2.6	465	21.3	465	0.9	8.823	174.919	g500-B450	m650-U71/M4	3	20
0.8	427	2.5	474	20.9	474	1.2	8.859	178.224	g500-B600	m650-U71/M4	3	38
0.8	430	2.5	478	20.7	478	1.6	8.920	179.618	g500-B820	m650-U71/M4	3	43
0.8	436	2.5	484	20.4	484	2.9	9.271	181.983	g500-B1500	m650-U71/M4	3	73
0.7	473	2.2	526	18.5	526	1.1	8.929	201.089	g500-B600	m650-U71/M4	4	41
0.7	475	2.2	528	18.4	528	1.5	9.134	201.818	g500-B820	m650-U71/M4	4	46
0.8	476	2.3	529	18.7	529	1.1	8.916	198.805	g500-B600	m650-U71/M4	3	38
0.7	479	2.2	532	18.6	532	2.6	9.269	200.048	g500-B1500	m650-U71/M4	3	73
0.7	481	2.2	534	18.5	534	1.4	8.919	200.816	g500-B820	m650-U71/M4	3	43
0.7	481	2.2	535	18.2	535	2.6	9.287	204.476	g500-B1500	m650-U71/M4	4	76



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.7	483	2.2	537	18.1	537	4.7	9.889	205.348	g500-B4300	m650-U71/M4	4	179
0.7	483	2.2	537	18.1	537	4.7	9.768	205.407	g500-B2700	m650-U71/M4	4	117
0.7	528	2.0	587	16.6	587	4.7	9.881	224.446	g500-B4300	m650-U71/M4	4	179
0.7	529	2.0	588	16.6	588	2.4	9.285	224.773	g500-B1500	m650-U71/M4	4	76
0.7	531	2.0	590	16.5	590	1.3	9.237	225.636	g500-B820	m650-U71/M4	4	46
0.7	531	2.0	590	16.5	590	4.3	9.764	225.581	g500-B2700	m650-U71/M4	4	117
0.7	536	2.0	596	16.3	596	0.9	9.000	227.943	g500-B600	m650-U71/M4	4	41
0.7	544	2.0	604	16.4	604	1.3	8.861	227.045	g500-B820	m650-U71/M4	3	43
0.7	551	2.0	612	16.2	612	2.3	9.086	230.035	g500-B1500	m650-U71/M4	3	73
0.6	589	1.8	655	14.9	655	2.1	9.233	250.483	g500-B1500	m650-U71/M4	4	76
0.6	603	1.8	670	14.5	670	1.1	8.930	256.175	g500-B820	m650-U71/M4	4	46
0.6	605	1.8	673	14.7	673	2.1	9.085	252.869	g500-B1500	m650-U71/M4	3	73
0.6	608	1.8	675	14.7	675	1.1	8.860	253.841	g500-B820	m650-U71/M4	3	43
0.6	624	1.7	693	14.0	693	3.6	9.948	265.150	g500-B2700	m650-U71/M4	4	117
0.5	648	1.6	720	13.5	720	1.9	9.232	275.347	g500-B1500	m650-U71/M4	4	76
0.5	674	1.6	749	13.0	749	1.0	8.930	286.408	g500-B820	m650-U71/M4	4	46
0.5	685	1.5	761	12.8	761	3.3	9.946	291.191	g500-B2700	m650-U71/M4	4	117
0.5	757	1.4	841	11.6	841	0.9	8.977	321.788	g500-B820	m650-U71/M4	4	46
0.5	767	1.4	852	11.4	852	1.6	9.045	326.025	g500-B1500	m650-U71/M4	4	76
0.5	783	1.4	869	11.2	869	2.9	9.161	332.564	g500-B2700	m650-U71/M4	4	117
0.4	843	1.3	937	10.4	937	1.5	9.045	358.388	g500-B1500	m650-U71/M4	4	76
0.4	859	1.2	955	10.2	955	2.6	9.160	365.227	g500-B2700	m650-U71/M4	4	117
0.4	870	1.2	966	10.1	966	4.1	9.588	369.548	g500-B4300	m650-U71/M4	4	179
0.4	954	1.1	1060	9.2	1060	1.3	8.957	405.543	g500-B1500	m650-U71/M4	4	76
0.4	975	1.1	1083	9.0	1083	2.3	9.322	414.296	g500-B2700	m650-U71/M4	4	117
0.4	975	1.1	1083	9.0	1083	3.7	9.352	414.176	g500-B4300	m650-U71/M4	4	179
0.3	1049	1.0	1165	8.3	1165	1.2	8.957	445.799	g500-B1500	m650-U71/M4	4	76
0.3	1065	1.0	1184	8.2	1184	3.4	9.350	452.696	g500-B4300	m650-U71/M4	4	179
0.3	1071	1.0	1190	8.2	1190	2.1	9.321	454.986	g500-B2700	m650-U71/M4	4	117
0.3	1142	0.9	1269	7.7	1269	3.2	9.173	485.243	g500-B4300	m650-U71/M4	4	179
0.3	1148	0.9	1275	7.6	1275	2.0	9.148	487.698	g500-B2700	m650-U71/M4	4	117
0.3	1224	0.9	1360	7.2	1360	1.0	8.994	520.087	g500-B1500	m650-U71/M4	4	76
0.3	1300	0.8	1444	6.7	1444	1.7	9.024	552.395	g500-B2700	m650-U71/M4	4	117
0.3	1299	0.8	1444	6.7	1444	2.8	9.041	552.234	g500-B4300	m650-U71/M4	4	179
0.3	1345	0.8	1495	6.5	1495	0.9	8.993	571.714	g500-B1500	m650-U71/M4	4	76
0.2	1420	0.7	1578	6.2	1578	2.5	9.040	603.594	g500-B4300	m650-U71/M4	4	179
0.2	1427	0.7	1586	6.1	1586	1.6	9.023	606.648	g500-B2700	m650-U71/M4	4	117
0.2	1642	0.6	1824	5.3	1824	1.4	9.046	697.844	g500-B2700	m650-U71/M4	4	117
0.2	1642	0.6	1824	5.3	1824	2.2	9.056	697.641	g500-B4300	m650-U71/M4	4	179
0.2	1794	0.6	1994	4.9	1994	2.0	9.056	762.524	g500-B4300	m650-U71/M4	4	179
0.2	1847	0.6	2052	4.7	2052	1.2	8.918	785.074	g500-B2700	m650-U71/M4	4	117
0.2	2043	0.5	2269	4.3	2269	1.1	8.899	868.049	g500-B2700	m650-U71/M4	4	117
0.2	2042	0.5	2269	4.3	2269	1.8	8.964	867.797	g500-B4300	m650-U71/M4	4	179
0.2	2232	0.5	2480	3.9	2480	1.6	8.964	948.506	g500-B4300	m650-U71/M4	4	179
0.2	2243	0.5	2492	3.9	2492	1.0	8.899	953.304	g500-B2700	m650-U71/M4	4	117
0.1	2642	0.4	2936	3.3	2936	1.4	8.883	1123.031	g500-B4300	m650-U71/M4	4	179
0.1	2888	0.4	3209	3.0	3209	1.3	8.882	1227.478	g500-B4300	m650-U71/M4	4	179
0.1	3207	0.3	3563	2.7	3563	1.1	8.845	1362.952	g500-B4300	m650-U71/M4	4	179
0.1	3892	0.3	4325	2.2	4325	0.9	8.837	1654.128	g500-B4300	m650-U71/M4	4	179



124 Hz: 1.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	11.9	126	13.0	1044	13.0	3.6	14.072	3.565	g500-B240	m650-U71/L4	2	18
30.0	16.7	90.0	19.0	744	19.0	3.6	15.460	5.002	g500-B450	m650-U71/L4	3	21
28.9	17.3	86.8	19.0	717	19.0	2.7	11.893	5.185	g500-B110	m650-U71/L4	2	13
27.7	18.0	83.2	20.0	688	20.0	1.4	11.407	5.411	g500-B45	m650-U71/L4	2	12
25.2	19.9	75.5	22.0	624	22.0	2.4	11.805	5.963	g500-B110	m650-U71/L4	2	13
24.1	20.7	72.3	23.0	598	23.0	1.3	11.376	6.222	g500-B45	m650-U71/L4	2	12
24.0	20.9	71.9	23.0	595	23.0	3.2	12.251	6.257	g500-B240	m650-U71/L4	2	18
21.8	23.0	65.4	26.0	540	26.0	3.6	12.774	6.883	g500-B240	m650-U71/L4	2	18
21.1	23.7	63.3	26.0	523	26.0	1.2	11.296	7.111	g500-B45	m650-U71/L4	2	12
21.1	23.7	63.3	26.0	523	26.0	2.2	11.578	7.111	g500-B110	m650-U71/L4	2	13
19.2	26.1	57.6	29.0	476	29.0	3.6	12.613	7.817	g500-B240	m650-U71/L4	2	18
18.3	27.3	55.0	30.0	455	30.0	1.1	11.278	8.178	g500-B45	m650-U71/L4	2	12
18.3	27.3	55.0	30.0	455	30.0	2.0	11.531	8.178	g500-B110	m650-U71/L4	2	13
16.5	30.3	49.4	34.0	409	34.0	1.0	11.234	9.101	g500-B45	m650-U71/L4	2	12
16.5	30.3	49.4	34.0	409	34.0	1.8	11.423	9.101	g500-B110	m650-U71/L4	2	13
16.1	31.1	48.3	35.0	399	35.0	3.6	14.306	9.315	g500-B450	m650-U71/L4	3	21
14.5	34.4	43.6	38.0	360	38.0	3.6	14.160	10.328	g500-B450	m650-U71/L4	3	21
14.3	34.9	43.0	39.0	355	39.0	1.7	11.395	10.466	g500-B110	m650-U71/L4	2	13
13.1	38.2	39.3	42.0	325	42.0	1.6	11.355	11.449	g500-B110	m650-U71/L4	2	13
12.4	40.3	37.2	45.0	308	45.0	3.2	11.829	12.081	g500-B240	m650-U71/L4	2	18
12.4	40.5	37.1	45.0	306	45.0	3.2	13.620	12.143	g500-B820	m650-U71/L4	3	44
11.8	42.3	35.4	47.0	293	47.0	1.4	11.293	12.698	g500-B110	m650-U71/L4	2	13
10.9	45.7	32.8	51.0	271	51.0	3.2	11.777	13.719	g500-B240	m650-U71/L4	2	18
10.3	48.7	30.8	54.0	255	54.0	1.2	11.278	14.603	g500-B110	m650-U71/L4	2	13
10.0	50.0	30.0	56.0	248	56.0	3.0	11.686	15.008	g500-B240	m650-U71/L4	2	18
9.6	51.9	28.9	58.0	239	58.0	1.2	11.243	15.556	g500-B110	m650-U71/L4	2	13
9.2	54.5	27.5	61.0	228	61.0	3.2	12.327	16.349	g500-B450	m650-U71/L4	3	21
8.9	56.2	26.7	62.0	221	62.0	2.8	11.547	16.857	g500-B240	m650-U71/L4	2	18
8.4	59.7	25.2	66.0	208	66.0	1.1	11.233	17.889	g500-B110	m650-U71/L4	2	13
8.4	59.6	25.2	66.0	208	66.0	3.2	12.146	17.885	g500-B450	m650-U71/L4	3	21
8.0	62.2	24.1	69.0	199	69.0	3.2	13.278	18.655	g500-B820	m650-U71/L4	3	44
7.8	63.8	23.5	71.0	194	71.0	2.5	11.520	19.143	g500-B240	m650-U71/L4	2	18
7.7	65.2	23.0	72.0	190	72.0	1.0	11.195	19.556	g500-B110	m650-U71/L4	2	13
7.6	66.1	22.7	73.0	188	73.0	3.2	12.106	19.831	g500-B450	m650-U71/L4	3	21
7.3	68.9	21.8	77.0	180	77.0	2.3	11.440	20.650	g500-B240	m650-U71/L4	2	18
7.2	69.5	21.6	77.0	178	77.0	3.2	13.211	20.857	g500-B820	m650-U71/L4	3	44
6.7	75.0	20.0	83.0	165	83.0	0.9	11.188	22.489	g500-B110	m650-U71/L4	2	13
6.6	76.1	19.7	85.0	163	85.0	3.0	11.802	22.813	g500-B450	m650-U71/L4	3	21
6.4	78.2	19.2	87.0	159	87.0	2.0	11.422	23.450	g500-B240	m650-U71/L4	2	18
5.9	84.3	17.8	94.0	147	94.0	3.0	11.778	25.294	g500-B450	m650-U71/L4	3	21
5.6	89.6	16.7	100	138	100	1.8	11.311	26.878	g500-B240	m650-U71/L4	2	18
5.4	93.2	16.1	104	133	104	2.7	11.610	27.945	g500-B450	m650-U71/L4	3	21
5.0	99.2	15.1	110	125	110	2.7	12.009	29.745	g500-B820	m650-U71/L4	3	44
5.0	99.2	15.1	110	125	110	2.7	11.820	29.744	g500-B600	m650-U71/L4	3	39
4.9	102	14.7	113	122	113	1.6	11.300	30.522	g500-B240	m650-U71/L4	2	18
4.8	103	14.5	115	120	115	2.7	11.594	30.985	g500-B450	m650-U71/L4	3	21
4.5	112	13.5	124	111	124	1.4	11.252	33.433	g500-B240	m650-U71/L4	2	18
4.1	121	12.4	135	102	135	2.4	11.411	36.373	g500-B450	m650-U71/L4	3	21
4.1	123	12.2	137	101	137	2.2	11.736	37.000	g500-B820	m650-U71/L4	3	44
4.1	123	12.2	137	101	137	2.2	11.580	36.999	g500-B600	m650-U71/L4	3	39
4.0	127	11.9	141	98.0	141	1.3	11.246	37.967	g500-B240	m650-U71/L4	2	18



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.7	135	11.2	149	92.2	149	2.5	11.402	40.330	g500-B450	m650-U71/L4	3	21
3.6	140	10.7	155	88.7	155	3.0	11.776	41.940	g500-B600	m650-U71/L4	3	39
3.5	144	10.4	160	86.0	160	1.3	11.196	43.267	g500-B240	m650-U71/L4	2	18
3.3	151	9.9	168	82.2	168	2.3	11.317	45.245	g500-B450	m650-U71/L4	3	21
3.1	164	9.2	182	75.7	182	1.1	11.192	49.133	g500-B240	m650-U71/L4	2	18
3.0	167	9.0	186	74.2	186	2.0	11.311	50.167	g500-B450	m650-U71/L4	3	21
2.9	175	8.6	195	70.8	195	1.0	11.170	52.510	g500-B240	m650-U71/L4	2	18
2.7	187	8.0	208	66.2	208	1.8	11.575	56.154	g500-B450	m650-U71/L4	3	21
2.6	192	7.8	214	64.5	214	3.2	12.219	57.662	g500-B820	m650-U71/L4	3	44
2.5	199	7.5	221	62.4	221	0.9	11.167	59.630	g500-B240	m650-U71/L4	2	18
2.4	208	7.2	231	59.7	231	1.6	11.571	62.262	g500-B450	m650-U71/L4	3	21
2.4	213	7.1	236	58.3	236	2.1	12.179	63.822	g500-B600	m650-U71/L4	3	39
2.3	215	7.0	239	57.7	239	2.9	12.212	64.468	g500-B820	m650-U71/L4	3	44
2.2	225	6.7	250	55.1	250	2.0	11.381	67.513	g500-B600	m650-U71/L4	3	39
2.2	229	6.5	255	54.1	255	1.5	11.459	68.788	g500-B450	m650-U71/L4	3	21
2.1	241	6.2	267	51.5	267	1.9	11.637	72.170	g500-B600	m650-U71/L4	3	39
2.0	250	6.0	278	49.6	278	2.5	12.006	74.963	g500-B1500	m650-U71/L4	3	74
2.0	254	5.9	283	48.8	283	1.3	11.456	76.271	g500-B450	m650-U71/L4	3	21
1.8	273	5.5	304	45.4	304	1.7	11.305	81.937	g500-B600	m650-U71/L4	3	39
1.8	276	5.4	307	44.9	307	2.2	11.767	82.762	g500-B1500	m650-U71/L4	3	74
1.7	299	5.0	332	41.5	332	1.1	11.322	89.534	g500-B450	m650-U71/L4	3	21
1.7	299	5.0	333	41.4	333	1.5	11.461	89.772	g500-B600	m650-U71/L4	3	39
1.6	303	4.9	337	40.9	337	2.2	11.758	90.978	g500-B1500	m650-U71/L4	3	74
1.6	307	4.9	341	40.5	341	2.0	11.592	91.939	g500-B820	m650-U71/L4	3	44
1.5	331	4.5	368	37.5	368	1.0	11.320	99.274	g500-B450	m650-U71/L4	3	21
1.5	339	4.4	377	36.6	377	1.3	11.629	101.760	g500-B600	m650-U71/L4	3	39
1.5	343	4.4	381	36.2	381	1.8	11.589	102.790	g500-B820	m650-U71/L4	3	44
1.3	371	4.0	413	33.4	413	1.0	11.260	111.372	g500-B450	m650-U71/L4	3	21
1.3	381	3.9	424	32.5	424	1.8	11.466	114.364	g500-B820	m650-U71/L4	3	44
1.3	387	3.9	430	32.0	430	1.3	11.327	116.175	g500-B600	m650-U71/L4	3	39
1.2	412	3.6	457	30.1	457	0.9	11.259	123.487	g500-B450	m650-U71/L4	3	21
1.2	422	3.6	469	29.4	469	1.2	11.456	126.580	g500-B600	m650-U71/L4	3	39
1.2	426	3.5	474	29.1	474	1.6	11.465	127.861	g500-B820	m650-U71/L4	3	44
1.1	470	3.2	522	26.4	522	1.1	11.268	140.995	g500-B600	m650-U71/L4	3	39
1.0	493	3.0	548	25.1	548	1.4	11.330	148.000	g500-B820	m650-U71/L4	3	44
1.0	500	3.0	555	24.8	555	2.5	11.803	149.949	g500-B1500	m650-U71/L4	3	74
0.9	546	2.7	607	22.7	607	0.9	11.324	163.810	g500-B600	m650-U71/L4	3	39
0.9	550	2.7	611	22.6	611	2.3	11.800	164.833	g500-B1500	m650-U71/L4	3	74
0.9	552	2.7	613	22.5	613	1.3	11.329	165.467	g500-B820	m650-U71/L4	3	44
0.8	599	2.5	665	20.7	665	1.2	11.270	179.618	g500-B820	m650-U71/L4	3	44
0.8	607	2.5	674	20.4	674	2.1	11.621	181.983	g500-B1500	m650-U71/L4	3	74
0.7	661	2.2	735	18.4	735	1.0	11.484	201.818	g500-B820	m650-U71/L4	4	47
0.7	667	2.2	741	18.6	741	1.9	11.619	200.048	g500-B1500	m650-U71/L4	3	74
0.7	670	2.2	744	18.5	744	1.0	11.269	200.816	g500-B820	m650-U71/L4	3	44
0.7	670	2.2	745	18.2	745	1.9	11.637	204.476	g500-B1500	m650-U71/L4	4	77
0.7	673	2.2	748	18.1	748	3.3	12.239	205.348	g500-B4300	m650-U71/L4	4	181
0.7	673	2.2	748	18.1	748	3.3	12.118	205.407	g500-B2700	m650-U71/L4	4	119
0.7	736	2.0	817	16.6	817	3.3	12.231	224.446	g500-B4300	m650-U71/L4	4	181
0.7	737	2.0	819	16.6	819	1.7	11.635	224.773	g500-B1500	m650-U71/L4	4	77
0.7	739	2.0	821	16.5	821	3.1	12.114	225.581	g500-B2700	m650-U71/L4	4	119
0.7	740	2.0	822	16.5	822	0.9	11.587	225.636	g500-B820	m650-U71/L4	4	47
0.7	757	2.0	841	16.4	841	0.9	11.211	227.045	g500-B820	m650-U71/L4	3	44



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.7	767	2.0	852	16.2	852	1.6	11.436	230.035	g500-B1500	m650-U71/L4	3	74
0.6	821	1.8	912	14.9	912	1.5	11.583	250.483	g500-B1500	m650-U71/L4	4	77
0.6	843	1.8	937	14.7	937	1.5	11.435	252.869	g500-B1500	m650-U71/L4	3	74
0.6	869	1.7	965	14.0	965	4.0	12.371	265.073	g500-B4300	m650-U71/L4	4	181
0.6	869	1.7	966	14.0	966	2.6	12.298	265.150	g500-B2700	m650-U71/L4	4	119
0.5	902	1.6	1003	13.5	1003	1.4	11.582	275.347	g500-B1500	m650-U71/L4	4	77
0.5	913	1.6	1014	13.4	1014	3.7	12.090	278.438	g500-B4300	m650-U71/L4	4	181
0.5	954	1.5	1060	12.8	1060	2.4	12.296	291.191	g500-B2700	m650-U71/L4	4	119
0.5	997	1.5	1108	12.2	1108	3.6	12.086	304.333	g500-B4300	m650-U71/L4	4	181
0.5	1069	1.4	1187	11.4	1187	1.2	11.395	326.025	g500-B1500	m650-U71/L4	4	77
0.5	1090	1.4	1211	11.2	1211	2.1	11.511	332.564	g500-B2700	m650-U71/L4	4	119
0.4	1175	1.3	1305	10.4	1305	1.1	11.395	358.388	g500-B1500	m650-U71/L4	4	77
0.4	1197	1.2	1330	10.2	1330	1.9	11.510	365.227	g500-B2700	m650-U71/L4	4	119
0.4	1211	1.2	1346	10.1	1346	3.0	11.938	369.548	g500-B4300	m650-U71/L4	4	181
0.4	1329	1.1	1477	9.2	1477	1.0	11.307	405.543	g500-B1500	m650-U71/L4	4	77
0.4	1357	1.1	1508	9.0	1508	2.7	11.702	414.176	g500-B4300	m650-U71/L4	4	181
0.4	1358	1.1	1509	9.0	1509	1.7	11.672	414.296	g500-B2700	m650-U71/L4	4	119
0.3	1484	1.0	1648	8.2	1648	2.4	11.700	452.696	g500-B4300	m650-U71/L4	4	181
0.3	1491	1.0	1657	8.2	1657	1.5	11.671	454.986	g500-B2700	m650-U71/L4	4	119
0.3	1590	0.9	1767	7.7	1767	2.3	11.523	485.243	g500-B4300	m650-U71/L4	4	181
0.3	1598	0.9	1776	7.6	1776	1.4	11.498	487.698	g500-B2700	m650-U71/L4	4	119
0.3	1810	0.8	2011	6.7	2011	2.0	11.391	552.234	g500-B4300	m650-U71/L4	4	181
0.3	1810	0.8	2012	6.7	2012	1.3	11.374	552.395	g500-B2700	m650-U71/L4	4	119
0.2	1978	0.7	2198	6.2	2198	1.8	11.390	603.594	g500-B4300	m650-U71/L4	4	181
0.2	1988	0.7	2209	6.1	2209	1.1	11.373	606.648	g500-B2700	m650-U71/L4	4	119
0.2	2286	0.6	2540	5.3	2540	1.6	11.406	697.641	g500-B4300	m650-U71/L4	4	181
0.2	2287	0.6	2541	5.3	2541	1.0	11.396	697.844	g500-B2700	m650-U71/L4	4	119
0.2	2499	0.6	2777	4.9	2777	1.4	11.406	762.524	g500-B4300	m650-U71/L4	4	181
0.2	2844	0.5	3160	4.3	3160	1.3	11.314	867.797	g500-B4300	m650-U71/L4	4	181
0.2	3109	0.5	3454	3.9	3454	1.2	11.314	948.506	g500-B4300	m650-U71/L4	4	181
0.1	3681	0.4	4090	3.3	4090	1.0	11.233	1123.031	g500-B4300	m650-U71/L4	4	181



124 Hz: 2.2 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz			J	i			z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	17.1	126	19.0	1044	19.0	3.2	24.072	3.565	g500-B240	m650-U80/M4	2	20
30.0	23.9	90.0	27.0	744	27.0	3.2	25.460	5.002	g500-B450	m650-U80/M4	3	23
28.9	24.8	86.8	28.0	717	28.0	1.9	21.893	5.185	g500-B110	m650-U80/M4	2	15
25.2	28.6	75.5	32.0	624	32.0	1.7	21.805	5.963	g500-B110	m650-U80/M4	2	15
24.0	30.0	71.9	33.0	595	33.0	2.8	22.251	6.257	g500-B240	m650-U80/M4	2	20
21.8	33.0	65.4	37.0	540	37.0	3.2	22.774	6.883	g500-B240	m650-U80/M4	2	20
21.1	34.0	63.3	38.0	523	38.0	1.5	21.578	7.111	g500-B110	m650-U80/M4	2	15
19.2	37.4	57.6	42.0	476	42.0	3.2	22.613	7.817	g500-B240	m650-U80/M4	2	20
18.3	39.2	55.0	44.0	455	44.0	1.4	21.531	8.178	g500-B110	m650-U80/M4	2	15
16.5	43.6	49.4	48.0	409	48.0	1.3	21.423	9.101	g500-B110	m650-U80/M4	2	15
16.1	44.6	48.3	50.0	399	50.0	3.2	24.306	9.315	g500-B450	m650-U80/M4	3	23
14.5	49.4	43.6	55.0	360	55.0	3.2	24.160	10.328	g500-B450	m650-U80/M4	3	23
14.3	50.1	43.0	56.0	355	56.0	1.2	21.395	10.466	g500-B110	m650-U80/M4	2	15
13.1	54.8	39.3	61.0	325	61.0	1.1	21.355	11.449	g500-B110	m650-U80/M4	2	15
12.4	57.8	37.2	64.0	308	64.0	2.4	21.829	12.081	g500-B240	m650-U80/M4	2	20
12.4	58.1	37.1	65.0	306	65.0	2.8	23.620	12.143	g500-B820	m650-U80/M4	3	46
11.8	60.8	35.4	68.0	293	68.0	1.0	21.293	12.698	g500-B110	m650-U80/M4	2	15
10.9	65.7	32.8	73.0	271	73.0	2.2	21.777	13.719	g500-B240	m650-U80/M4	2	20
10.0	71.9	30.0	80.0	248	80.0	2.1	21.686	15.008	g500-B240	m650-U80/M4	2	20
9.2	78.3	27.5	87.0	228	87.0	2.8	22.327	16.349	g500-B450	m650-U80/M4	3	23
8.9	80.7	26.7	90.0	221	90.0	2.0	21.547	16.857	g500-B240	m650-U80/M4	2	20
8.4	85.6	25.2	95.0	208	95.0	2.8	22.146	17.885	g500-B450	m650-U80/M4	3	23
8.0	89.3	24.1	99.0	199	99.0	2.8	23.278	18.655	g500-B820	m650-U80/M4	3	46
7.8	91.7	23.5	102	194	102	1.7	21.520	19.143	g500-B240	m650-U80/M4	2	20
7.6	94.9	22.7	105	188	105	2.8	22.106	19.831	g500-B450	m650-U80/M4	3	23
7.3	98.9	21.8	110	180	110	1.6	21.440	20.650	g500-B240	m650-U80/M4	2	20
7.2	99.8	21.6	111	178	111	2.8	23.211	20.857	g500-B820	m650-U80/M4	3	46
6.6	109	19.7	121	163	121	2.6	21.802	22.813	g500-B450	m650-U80/M4	3	23
6.4	112	19.2	125	159	125	1.4	21.422	23.450	g500-B240	m650-U80/M4	2	20
5.9	121	17.8	135	147	135	2.5	21.778	25.294	g500-B450	m650-U80/M4	3	23
5.6	129	16.7	143	138	143	1.2	21.311	26.878	g500-B240	m650-U80/M4	2	20
5.4	134	16.1	149	133	149	2.2	21.610	27.945	g500-B450	m650-U80/M4	3	23
5.0	142	15.1	158	125	158	2.3	22.009	29.745	g500-B820	m650-U80/M4	3	46
5.0	142	15.1	158	125	158	2.3	21.820	29.744	g500-B600	m650-U80/M4	3	41
4.9	146	14.7	162	122	162	1.1	21.300	30.522	g500-B240	m650-U80/M4	2	20
4.8	148	14.5	165	120	165	2.0	21.594	30.985	g500-B450	m650-U80/M4	3	23
4.5	160	13.5	178	111	178	1.0	21.252	33.433	g500-B240	m650-U80/M4	2	20
4.1	174	12.4	193	102	193	1.7	21.411	36.373	g500-B450	m650-U80/M4	3	23
4.1	177	12.2	197	101	197	1.9	21.736	37.000	g500-B820	m650-U80/M4	3	46
4.1	177	12.2	197	101	197	1.9	21.580	36.999	g500-B600	m650-U80/M4	3	41
3.7	193	11.2	215	92.2	215	1.8	21.402	40.330	g500-B450	m650-U80/M4	3	23
3.6	201	10.7	223	88.7	223	2.3	21.776	41.940	g500-B600	m650-U80/M4	3	41
3.3	217	9.9	241	82.2	241	1.6	21.317	45.245	g500-B450	m650-U80/M4	3	23
3.0	240	9.0	267	74.2	267	1.4	21.311	50.167	g500-B450	m650-U80/M4	3	23
2.7	269	8.0	299	66.2	299	1.3	21.575	56.154	g500-B450	m650-U80/M4	3	23
2.6	276	7.8	307	64.5	307	2.2	22.219	57.662	g500-B820	m650-U80/M4	3	46
2.4	298	7.2	331	59.7	331	1.1	21.571	62.262	g500-B450	m650-U80/M4	3	23
2.4	306	7.1	339	58.3	339	1.5	22.179	63.822	g500-B600	m650-U80/M4	3	41
2.3	309	7.0	343	57.7	343	2.0	22.212	64.468	g500-B820	m650-U80/M4	3	46
2.2	323	6.7	359	55.1	359	1.4	21.381	67.513	g500-B600	m650-U80/M4	3	41
2.2	329	6.5	366	54.1	366	1.0	21.459	68.788	g500-B450	m650-U80/M4	3	23



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_{21}	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
2.1	346	6.2	384	51.5	384	1.3	21.637	72.170	g500-B600	m650-U80/M4	3	41
2.0	359	6.0	399	49.6	399	2.2	22.006	74.963	g500-B1500	m650-U80/M4	3	76
2.0	365	5.9	406	48.8	406	0.9	21.456	76.271	g500-B450	m650-U80/M4	3	23
1.8	392	5.5	436	45.4	436	1.2	21.305	81.937	g500-B600	m650-U80/M4	3	41
1.8	396	5.4	440	44.9	440	1.9	21.767	82.762	g500-B1500	m650-U80/M4	3	76
1.7	430	5.0	478	41.4	478	1.1	21.461	89.772	g500-B600	m650-U80/M4	3	41
1.6	436	4.9	484	40.9	484	1.9	21.758	90.978	g500-B1500	m650-U80/M4	3	76
1.6	440	4.9	489	40.5	489	1.4	21.592	91.939	g500-B820	m650-U80/M4	3	46
1.5	487	4.4	541	36.6	541	0.9	21.629	101.760	g500-B600	m650-U80/M4	3	41
1.5	492	4.4	547	36.2	547	1.3	21.589	102.790	g500-B820	m650-U80/M4	3	46
1.3	548	3.9	608	32.5	608	1.3	21.466	114.364	g500-B820	m650-U80/M4	3	46
1.3	556	3.9	618	32.0	618	0.9	21.327	116.175	g500-B600	m650-U80/M4	3	41
1.2	612	3.5	680	29.1	680	1.1	21.465	127.861	g500-B820	m650-U80/M4	3	46
1.0	709	3.0	787	25.1	787	1.0	21.330	148.000	g500-B820	m650-U80/M4	3	46
1.0	718	3.0	798	24.8	798	1.8	21.803	149.949	g500-B1500	m650-U80/M4	3	76
0.9	789	2.7	877	22.6	877	1.6	21.800	164.833	g500-B1500	m650-U80/M4	3	76
0.8	871	2.5	968	20.4	968	1.4	21.621	181.983	g500-B1500	m650-U80/M4	3	76
0.7	958	2.2	1064	18.6	1064	1.3	21.619	200.048	g500-B1500	m650-U80/M4	3	76
0.7	962	2.2	1069	18.2	1069	1.3	21.637	204.476	g500-B1500	m650-U80/M4	4	79
0.7	967	2.2	1074	18.1	1074	2.3	22.118	205.407	g500-B2700	m650-U80/M4	4	121
0.7	966	2.2	1074	18.1	1074	2.9	22.239	205.348	g500-B4300	m650-U80/M4	4	183
0.7	1056	2.0	1174	16.6	1174	2.9	22.231	224.446	g500-B4300	m650-U80/M4	4	183
0.7	1058	2.0	1175	16.6	1175	1.2	21.635	224.773	g500-B1500	m650-U80/M4	4	79
0.7	1062	2.0	1180	16.5	1180	2.1	22.114	225.581	g500-B2700	m650-U80/M4	4	121
0.7	1101	2.0	1224	16.2	1224	1.1	21.436	230.035	g500-B1500	m650-U80/M4	3	76
0.6	1179	1.8	1310	14.9	1310	1.1	21.583	250.483	g500-B1500	m650-U80/M4	4	79
0.6	1211	1.8	1345	14.7	1345	1.0	21.435	252.869	g500-B1500	m650-U80/M4	3	76
0.6	1248	1.7	1386	14.0	1386	1.8	22.298	265.150	g500-B2700	m650-U80/M4	4	121
0.6	1247	1.7	1386	14.0	1386	2.9	22.371	265.073	g500-B4300	m650-U80/M4	4	183
0.5	1296	1.6	1440	13.5	1440	1.0	21.582	275.347	g500-B1500	m650-U80/M4	4	79
0.5	1310	1.6	1456	13.4	1456	2.8	22.090	278.438	g500-B4300	m650-U80/M4	4	183
0.5	1370	1.5	1523	12.8	1523	1.7	22.296	291.191	g500-B2700	m650-U80/M4	4	121
0.5	1432	1.5	1591	12.2	1591	2.5	22.086	304.333	g500-B4300	m650-U80/M4	4	183
0.5	1565	1.4	1739	11.2	1739	1.5	21.511	332.564	g500-B2700	m650-U80/M4	4	121
0.4	1719	1.2	1910	10.2	1910	1.3	21.510	365.227	g500-B2700	m650-U80/M4	4	121
0.4	1739	1.2	1932	10.1	1932	2.1	21.938	369.548	g500-B4300	m650-U80/M4	4	183
0.4	1950	1.1	2166	9.0	2166	1.2	21.672	414.296	g500-B2700	m650-U80/M4	4	121
0.4	1949	1.1	2166	9.0	2166	1.9	21.702	414.176	g500-B4300	m650-U80/M4	4	183
0.3	2130	1.0	2367	8.2	2367	1.7	21.700	452.696	g500-B4300	m650-U80/M4	4	183
0.3	2141	1.0	2379	8.2	2379	1.1	21.671	454.986	g500-B2700	m650-U80/M4	4	121
0.3	2284	0.9	2537	7.7	2537	1.6	21.523	485.243	g500-B4300	m650-U80/M4	4	183
0.3	2295	0.9	2550	7.6	2550	1.0	21.498	487.698	g500-B2700	m650-U80/M4	4	121
0.3	2599	0.8	2888	6.7	2888	1.4	21.391	552.234	g500-B4300	m650-U80/M4	4	183
0.2	2841	0.7	3156	6.2	3156	1.3	21.390	603.594	g500-B4300	m650-U80/M4	4	183
0.2	3283	0.6	3648	5.3	3648	1.1	21.406	697.641	g500-B4300	m650-U80/M4	4	183
0.2	3588	0.6	3987	4.9	3987	1.0	21.406	762.524	g500-B4300	m650-U80/M4	4	183



124 Hz: 3 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	23.5	126	26.0	1044	26.0	3.9	38.772	3.565	g500-B240	m650-U90/M4	2	23
30.7	32.2	92.0	36.0	761	36.0	3.0	37.544	4.889	g500-B240	m650-U90/M4	2	23
30.0	32.9	90.0	37.0	744	37.0	4.1	40.160	5.002	g500-B450	m650-U90/M4	3	26
28.9	34.1	86.8	38.0	717	38.0	1.3	36.593	5.185	g500-B110	m650-U90/M4	2	19
25.2	39.3	75.5	44.0	624	44.0	1.2	36.505	5.963	g500-B110	m650-U90/M4	2	19
24.0	41.2	71.9	46.0	595	46.0	2.5	36.951	6.257	g500-B240	m650-U90/M4	2	23
21.9	45.2	65.6	50.0	542	50.0	4.1	38.282	6.860	g500-B450	m650-U90/M4	3	26
21.8	45.3	65.4	50.0	540	50.0	2.6	37.474	6.883	g500-B240	m650-U90/M4	2	23
21.1	46.8	63.3	52.0	523	52.0	1.1	36.278	7.111	g500-B110	m650-U90/M4	2	19
19.2	51.5	57.6	57.0	476	57.0	2.4	37.313	7.817	g500-B240	m650-U90/M4	2	23
18.3	53.8	55.0	60.0	455	60.0	1.0	36.231	8.178	g500-B110	m650-U90/M4	2	19
16.5	59.9	49.4	67.0	409	67.0	0.9	36.123	9.101	g500-B110	m650-U90/M4	2	19
16.1	61.3	48.3	68.0	399	68.0	4.0	39.006	9.315	g500-B450	m650-U90/M4	3	26
15.9	62.2	47.7	69.0	394	69.0	2.0	36.854	9.440	g500-B240	m650-U90/M4	2	23
15.8	62.7	47.3	70.0	391	70.0	4.1	39.561	9.520	g500-B820	m650-U90/M4	3	49
14.5	68.0	43.6	76.0	360	76.0	3.8	38.860	10.328	g500-B450	m650-U90/M4	3	26
14.0	70.6	42.0	78.0	347	78.0	1.9	36.768	10.720	g500-B240	m650-U90/M4	2	23
12.4	79.5	37.2	88.0	308	88.0	1.7	36.529	12.081	g500-B240	m650-U90/M4	2	23
12.4	79.9	37.1	89.0	306	89.0	3.8	38.320	12.143	g500-B820	m650-U90/M4	3	49
11.7	84.1	35.2	93.0	291	93.0	3.2	37.668	12.775	g500-B450	m650-U90/M4	3	26
11.2	88.0	33.7	98.0	278	98.0	4.0	39.501	13.370	g500-B820	m650-U90/M4	3	49
11.2	88.0	33.7	98.0	278	98.0	4.0	38.306	13.369	g500-B600	m650-U90/M4	3	44
10.9	90.3	32.8	100	271	100	1.6	36.477	13.719	g500-B240	m650-U90/M4	2	23
10.6	93.2	31.8	104	263	104	3.0	37.591	14.165	g500-B450	m650-U90/M4	3	26
10.3	96.3	30.8	107	254	107	4.1	39.004	14.626	g500-B820	m650-U90/M4	3	49
10.0	98.8	30.0	110	248	110	1.5	36.386	15.008	g500-B240	m650-U90/M4	2	23
9.2	108	27.5	120	228	120	2.7	37.027	16.349	g500-B450	m650-U90/M4	3	26
9.2	108	27.5	120	228	120	4.1	38.896	16.352	g500-B820	m650-U90/M4	3	49
8.9	111	26.7	123	221	123	1.4	36.247	16.857	g500-B240	m650-U90/M4	2	23
8.4	118	25.2	131	208	131	2.5	36.846	17.885	g500-B450	m650-U90/M4	3	26
8.0	123	24.1	136	199	136	3.8	37.978	18.655	g500-B820	m650-U90/M4	3	49
8.0	124	23.9	138	197	138	3.2	38.088	18.851	g500-B600	m650-U90/M4	3	44
7.8	126	23.5	140	194	140	1.3	36.220	19.143	g500-B240	m650-U90/M4	2	23
7.6	131	22.7	145	188	145	2.3	36.806	19.831	g500-B450	m650-U90/M4	3	26
7.3	136	21.8	151	180	151	2.9	37.823	20.622	g500-B600	m650-U90/M4	3	44
7.3	136	21.8	151	180	151	1.2	36.140	20.650	g500-B240	m650-U90/M4	2	23
7.2	137	21.6	153	178	153	3.8	37.911	20.857	g500-B820	m650-U90/M4	3	49
6.6	150	19.7	167	163	167	2.0	36.502	22.813	g500-B450	m650-U90/M4	3	26
6.6	150	19.7	167	163	167	2.7	36.988	22.852	g500-B600	m650-U90/M4	3	44
6.6	150	19.7	167	163	167	3.4	37.397	22.853	g500-B820	m650-U90/M4	3	49
6.4	154	19.2	172	159	172	1.0	36.122	23.450	g500-B240	m650-U90/M4	2	23
5.9	167	17.8	185	147	185	1.8	36.478	25.294	g500-B450	m650-U90/M4	3	26
5.9	168	17.6	187	146	187	3.2	37.353	25.550	g500-B820	m650-U90/M4	3	49
5.6	177	16.7	197	138	197	0.9	36.011	26.878	g500-B240	m650-U90/M4	2	23
5.4	184	16.1	204	133	204	1.6	36.310	27.945	g500-B450	m650-U90/M4	3	26
5.1	192	15.4	214	127	214	4.0	40.094	29.206	g500-B1500	m650-U90/M4	3	80
5.0	196	15.1	218	125	218	2.0	36.520	29.744	g500-B600	m650-U90/M4	3	44
5.0	196	15.1	218	125	218	2.8	36.709	29.745	g500-B820	m650-U90/M4	3	49
4.8	204	14.5	227	120	227	1.5	36.294	30.985	g500-B450	m650-U90/M4	3	26
4.6	214	13.9	237	115	237	1.9	37.399	32.439	g500-B600	m650-U90/M4	3	44
4.1	239	12.4	266	102	266	1.3	36.111	36.373	g500-B450	m650-U90/M4	3	26



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
4.1	244	12.2	271	101	271	1.6	36.280	36.999	g500-B600	m650-U90/M4	3	44
4.1	244	12.2	271	101	271	2.2	36.436	37.000	g500-B820	m650-U90/M4	3	49
3.7	266	11.2	295	92.2	295	1.3	36.102	40.330	g500-B450	m650-U90/M4	3	26
3.6	272	10.9	302	90.0	302	2.3	37.439	41.325	g500-B820	m650-U90/M4	3	49
3.6	276	10.7	307	88.7	307	1.6	36.476	41.940	g500-B600	m650-U90/M4	3	44
3.3	298	10.0	331	82.3	331	2.1	37.281	45.207	g500-B820	m650-U90/M4	3	49
3.3	298	9.9	331	82.2	331	1.1	36.017	45.245	g500-B450	m650-U90/M4	3	26
3.3	301	9.8	335	81.3	335	1.5	37.362	45.739	g500-B600	m650-U90/M4	3	44
3.2	307	9.7	341	79.9	341	3.7	37.938	46.568	g500-B1500	m650-U90/M4	3	80
3.0	329	9.0	366	74.3	366	1.4	37.217	50.036	g500-B600	m650-U90/M4	3	44
3.0	330	9.0	367	74.2	367	1.0	36.011	50.167	g500-B450	m650-U90/M4	3	26
3.0	333	8.9	370	73.6	370	1.9	37.270	50.543	g500-B820	m650-U90/M4	3	49
2.9	342	8.7	380	71.6	380	3.2	37.285	51.920	g500-B1500	m650-U90/M4	3	80
2.7	365	8.1	406	67.1	406	1.2	36.678	55.447	g500-B600	m650-U90/M4	3	44
2.7	370	8.0	411	66.2	411	0.9	36.275	56.154	g500-B450	m650-U90/M4	3	26
2.6	376	7.9	417	65.2	417	3.0	37.264	57.074	g500-B1500	m650-U90/M4	3	80
2.6	380	7.8	422	64.5	422	1.6	36.919	57.662	g500-B820	m650-U90/M4	3	49
2.6	385	7.7	427	63.7	427	3.0	38.757	58.422	g500-B1500	m650-U90/M4	3	80
2.4	420	7.1	467	58.3	467	1.1	36.879	63.822	g500-B600	m650-U90/M4	3	44
2.3	423	7.0	470	57.9	470	2.7	38.740	64.221	g500-B1500	m650-U90/M4	3	80
2.3	424	7.0	472	57.7	472	1.5	36.912	64.468	g500-B820	m650-U90/M4	3	49
2.2	444	6.7	494	55.1	494	1.0	36.081	67.513	g500-B600	m650-U90/M4	3	44
2.1	465	6.4	517	52.7	517	1.3	36.691	70.636	g500-B820	m650-U90/M4	3	49
2.1	475	6.2	528	51.5	528	1.0	36.337	72.170	g500-B600	m650-U90/M4	3	44
2.0	493	6.0	548	49.6	548	2.3	36.706	74.963	g500-B1500	m650-U90/M4	3	80
2.0	506	5.9	562	48.4	562	3.2	38.409	76.862	g500-B2700	m650-U90/M4	3	121
1.9	520	5.7	578	47.1	578	1.2	36.687	78.973	g500-B820	m650-U90/M4	3	49
1.8	545	5.4	605	44.9	605	2.1	36.467	82.762	g500-B1500	m650-U90/M4	3	80
1.8	559	5.3	621	43.8	621	2.8	37.723	84.940	g500-B2700	m650-U90/M4	3	121
1.6	599	4.9	665	40.9	665	1.9	36.458	90.978	g500-B1500	m650-U90/M4	3	80
1.6	605	4.9	672	40.5	672	1.0	36.292	91.939	g500-B820	m650-U90/M4	3	49
1.6	613	4.8	681	39.9	681	1.9	37.412	93.150	g500-B1500	m650-U90/M4	3	80
1.6	614	4.8	682	39.9	682	2.8	37.704	93.283	g500-B2700	m650-U90/M4	3	121
1.5	674	4.4	749	36.3	749	1.7	37.405	102.396	g500-B1500	m650-U90/M4	3	80
1.5	677	4.4	752	36.2	752	0.9	36.289	102.790	g500-B820	m650-U90/M4	3	49
1.3	752	3.9	835	32.6	835	1.7	36.913	114.166	g500-B1500	m650-U90/M4	3	80
1.3	753	3.9	836	32.5	836	0.9	36.166	114.364	g500-B820	m650-U90/M4	3	49
1.2	826	3.6	918	29.6	918	1.5	36.913	125.498	g500-B1500	m650-U90/M4	3	80
1.0	987	3.0	1097	24.8	1097	1.3	36.503	149.949	g500-B1500	m650-U90/M4	3	80
1.0	1008	2.9	1120	24.3	1120	2.2	37.999	153.185	g500-B2700	m650-U90/M4	3	121
1.0	1008	2.9	1120	24.3	1120	3.5	38.217	153.141	g500-B4300	m650-U90/M4	3	183
0.9	1085	2.7	1206	22.6	1206	1.2	36.500	164.833	g500-B1500	m650-U90/M4	3	80
0.9	1102	2.7	1224	22.2	1224	3.3	38.203	167.383	g500-B4300	m650-U90/M4	3	183
0.9	1107	2.7	1230	22.1	1230	2.0	37.993	168.230	g500-B2700	m650-U90/M4	3	121
0.8	1198	2.5	1331	20.4	1331	1.1	36.321	181.983	g500-B1500	m650-U90/M4	3	80
0.8	1223	2.4	1359	20.0	1359	2.9	37.573	185.857	g500-B4300	m650-U90/M4	3	183
0.8	1224	2.4	1360	20.0	1360	1.9	37.426	185.911	g500-B2700	m650-U90/M4	3	121
0.7	1317	2.2	1463	18.6	1463	1.0	36.319	200.048	g500-B1500	m650-U90/M4	3	80
0.7	1323	2.2	1470	18.2	1470	1.0	36.337	204.476	g500-B1500	m650-U90/M4	4	83
0.7	1329	2.2	1476	18.1	1476	2.7	36.939	205.348	g500-B4300	m650-U90/M4	4	186
0.7	1329	2.2	1477	18.1	1477	1.7	36.818	205.407	g500-B2700	m650-U90/M4	4	124
0.7	1337	2.2	1486	18.3	1486	2.7	37.564	203.143	g500-B4300	m650-U90/M4	3	183



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.7	1344	2.2	1493	18.2	1493	1.7	37.422	204.170	g500-B2700	m650-U90/M4	3	121
0.7	1452	2.0	1614	16.6	1614	2.5	36.931	224.446	g500-B4300	m650-U90/M4	4	186
0.7	1460	2.0	1622	16.5	1622	1.6	36.814	225.581	g500-B2700	m650-U90/M4	4	124
0.6	1546	1.9	1718	15.8	1718	2.3	36.973	234.932	g500-B4300	m650-U90/M4	3	183
0.6	1547	1.9	1719	15.8	1719	1.5	36.880	235.000	g500-B2700	m650-U90/M4	3	121
0.6	1690	1.8	1878	14.5	1878	2.1	36.967	256.781	g500-B4300	m650-U90/M4	3	183
0.6	1699	1.7	1888	14.4	1888	1.3	36.878	258.080	g500-B2700	m650-U90/M4	3	121
0.6	1716	1.7	1906	14.0	1906	1.3	36.998	265.150	g500-B2700	m650-U90/M4	4	124
0.6	1715	1.7	1906	14.0	1906	2.1	37.071	265.073	g500-B4300	m650-U90/M4	4	186
0.5	1802	1.6	2002	13.4	2002	2.0	36.790	278.438	g500-B4300	m650-U90/M4	4	186
0.5	1884	1.5	2094	12.8	2094	1.2	36.996	291.191	g500-B2700	m650-U90/M4	4	124
0.5	1969	1.5	2188	12.2	2188	1.8	36.786	304.333	g500-B4300	m650-U90/M4	4	186
0.5	2152	1.4	2391	11.2	2391	1.1	36.211	332.564	g500-B2700	m650-U90/M4	4	124
0.4	2363	1.2	2626	10.2	2626	1.0	36.210	365.227	g500-B2700	m650-U90/M4	4	124
0.4	2391	1.2	2657	10.1	2657	1.5	36.638	369.548	g500-B4300	m650-U90/M4	4	186
0.4	2680	1.1	2978	9.0	2978	1.3	36.402	414.176	g500-B4300	m650-U90/M4	4	186
0.3	2929	1.0	3255	8.2	3255	1.2	36.400	452.696	g500-B4300	m650-U90/M4	4	186
0.3	3140	0.9	3489	7.7	3489	1.2	36.223	485.243	g500-B4300	m650-U90/M4	4	186
0.3	3573	0.8	3970	6.7	3970	1.0	36.091	552.234	g500-B4300	m650-U90/M4	4	186
0.2	3906	0.7	4340	6.2	4340	0.9	36.090	603.594	g500-B4300	m650-U90/M4	4	186



124 Hz: 4 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	31.3	126	35.0	1044	35.0	2.9	48.872	3.565	g500-B240	m650-U90/L4	2	25
30.7	42.9	92.0	48.0	761	48.0	2.3	47.644	4.889	g500-B240	m650-U90/L4	2	25
30.0	43.9	90.0	49.0	744	49.0	3.1	50.260	5.002	g500-B450	m650-U90/L4	3	28
28.9	45.5	86.8	51.0	717	51.0	1.0	46.693	5.185	g500-B110	m650-U90/L4	2	21
25.2	52.3	75.5	58.0	624	58.0	0.9	46.605	5.963	g500-B110	m650-U90/L4	2	21
24.0	54.9	71.9	61.0	595	61.0	1.9	47.051	6.257	g500-B240	m650-U90/L4	2	25
21.9	60.1	65.6	67.0	542	67.0	3.1	48.382	6.860	g500-B450	m650-U90/L4	3	28
21.8	60.4	65.4	67.0	540	67.0	2.0	47.574	6.883	g500-B240	m650-U90/L4	2	25
19.2	68.5	57.6	76.0	476	76.0	1.8	47.413	7.817	g500-B240	m650-U90/L4	2	25
16.1	81.7	48.3	91.0	399	91.0	3.0	49.106	9.315	g500-B450	m650-U90/L4	3	28
15.9	82.8	47.7	92.0	394	92.0	1.5	46.954	9.440	g500-B240	m650-U90/L4	2	25
15.8	83.5	47.3	93.0	391	93.0	3.1	49.661	9.520	g500-B820	m650-U90/L4	3	51
14.5	90.6	43.6	101	360	101	2.8	48.960	10.328	g500-B450	m650-U90/L4	3	28
14.0	94.0	42.0	105	347	105	1.4	46.868	10.720	g500-B240	m650-U90/L4	2	25
12.4	106	37.2	118	308	118	1.3	46.629	12.081	g500-B240	m650-U90/L4	2	25
12.4	107	37.1	119	306	119	2.8	48.420	12.143	g500-B820	m650-U90/L4	3	51
11.7	112	35.2	125	291	125	2.4	47.768	12.775	g500-B450	m650-U90/L4	3	28
11.2	117	33.7	131	278	131	3.0	49.601	13.370	g500-B820	m650-U90/L4	3	51
11.2	117	33.7	131	278	131	3.0	48.406	13.369	g500-B600	m650-U90/L4	3	46
10.9	120	32.8	134	271	134	1.2	46.577	13.719	g500-B240	m650-U90/L4	2	25
10.6	124	31.8	139	263	139	2.3	47.691	14.165	g500-B450	m650-U90/L4	3	28
10.3	128	30.8	143	254	143	3.1	49.104	14.626	g500-B820	m650-U90/L4	3	51
10.0	132	30.0	147	248	147	1.1	46.486	15.008	g500-B240	m650-U90/L4	2	25
9.2	143	27.5	160	228	160	2.0	47.127	16.349	g500-B450	m650-U90/L4	3	28
9.2	143	27.5	160	228	160	3.1	48.996	16.352	g500-B820	m650-U90/L4	3	51
8.9	148	26.7	165	221	165	1.1	46.347	16.857	g500-B240	m650-U90/L4	2	25
8.4	157	25.2	175	208	175	1.9	46.946	17.885	g500-B450	m650-U90/L4	3	28
8.0	164	24.1	183	199	183	2.8	48.078	18.655	g500-B820	m650-U90/L4	3	51
8.0	165	23.9	184	197	184	2.4	48.188	18.851	g500-B600	m650-U90/L4	3	46
7.8	168	23.5	187	194	187	1.0	46.320	19.143	g500-B240	m650-U90/L4	2	25
7.6	174	22.7	194	188	194	1.7	46.906	19.831	g500-B450	m650-U90/L4	3	28
7.3	181	21.8	202	180	202	2.2	47.923	20.622	g500-B600	m650-U90/L4	3	46
7.2	183	21.6	204	178	204	2.8	48.011	20.857	g500-B820	m650-U90/L4	3	51
6.6	200	19.7	223	163	223	1.5	46.602	22.813	g500-B450	m650-U90/L4	3	28
6.6	200	19.7	224	163	224	2.0	47.088	22.852	g500-B600	m650-U90/L4	3	46
6.6	200	19.7	224	163	224	2.5	47.497	22.853	g500-B820	m650-U90/L4	3	51
5.9	222	17.8	247	147	247	1.3	46.578	25.294	g500-B450	m650-U90/L4	3	28
5.9	224	17.6	250	146	250	2.4	47.453	25.550	g500-B820	m650-U90/L4	3	51
5.4	245	16.1	273	133	273	1.2	46.410	27.945	g500-B450	m650-U90/L4	3	28
5.1	256	15.4	286	127	286	3.0	50.194	29.206	g500-B1500	m650-U90/L4	3	82
5.0	261	15.1	291	125	291	1.5	46.620	29.744	g500-B600	m650-U90/L4	3	46
5.0	261	15.1	291	125	291	2.1	46.809	29.745	g500-B820	m650-U90/L4	3	51
4.8	272	14.5	303	120	303	1.1	46.394	30.985	g500-B450	m650-U90/L4	3	28
4.6	284	13.9	317	115	317	1.4	47.499	32.439	g500-B600	m650-U90/L4	3	46
4.1	319	12.4	356	102	356	0.9	46.211	36.373	g500-B450	m650-U90/L4	3	28
4.1	324	12.2	362	101	362	1.2	46.380	36.999	g500-B600	m650-U90/L4	3	46
4.1	324	12.2	362	101	362	1.7	46.536	37.000	g500-B820	m650-U90/L4	3	51
3.7	354	11.2	395	92.2	395	1.0	46.202	40.330	g500-B450	m650-U90/L4	3	28
3.6	362	10.9	404	90.0	404	1.7	47.539	41.325	g500-B820	m650-U90/L4	3	51
3.6	368	10.7	410	88.7	410	1.2	46.576	41.940	g500-B600	m650-U90/L4	3	46
3.3	396	10.0	442	82.3	442	1.6	47.381	45.207	g500-B820	m650-U90/L4	3	51



Technical data

Selection tables

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.3	401	9.8	447	81.3	447	1.1	47.462	45.739	g500-B600	m650-U90/L4	3	46
3.2	408	9.7	456	79.9	456	2.8	48.038	46.568	g500-B1500	m650-U90/L4	3	82
3.0	439	9.0	490	74.3	490	1.0	47.317	50.036	g500-B600	m650-U90/L4	3	46
3.0	443	8.9	494	73.6	494	1.4	47.370	50.543	g500-B820	m650-U90/L4	3	51
2.9	455	8.7	508	71.6	508	2.4	47.385	51.920	g500-B1500	m650-U90/L4	3	82
2.7	486	8.1	542	67.1	542	0.9	46.778	55.447	g500-B600	m650-U90/L4	3	46
2.6	500	7.9	558	65.2	558	2.3	47.364	57.074	g500-B1500	m650-U90/L4	3	82
2.6	506	7.8	564	64.5	564	1.2	47.019	57.662	g500-B820	m650-U90/L4	3	51
2.6	512	7.7	572	63.7	572	2.2	48.857	58.422	g500-B1500	m650-U90/L4	3	82
2.3	563	7.0	628	57.9	628	2.0	48.840	64.221	g500-B1500	m650-U90/L4	3	82
2.3	565	7.0	631	57.7	631	1.1	47.012	64.468	g500-B820	m650-U90/L4	3	51
2.1	619	6.4	691	52.7	691	1.0	46.791	70.636	g500-B820	m650-U90/L4	3	51
2.0	657	6.0	733	49.6	733	1.7	46.806	74.963	g500-B1500	m650-U90/L4	3	82
2.0	674	5.9	752	48.4	752	2.4	48.509	76.862	g500-B2700	m650-U90/L4	3	123
1.8	726	5.4	810	44.9	810	1.6	46.567	82.762	g500-B1500	m650-U90/L4	3	82
1.8	745	5.3	831	43.8	831	2.1	47.823	84.940	g500-B2700	m650-U90/L4	3	123
1.6	798	4.9	890	40.9	890	1.4	46.558	90.978	g500-B1500	m650-U90/L4	3	82
1.6	817	4.8	911	39.9	911	1.4	47.512	93.150	g500-B1500	m650-U90/L4	3	82
1.6	818	4.8	913	39.9	913	2.1	47.804	93.283	g500-B2700	m650-U90/L4	3	123
1.5	898	4.4	1002	36.3	1002	1.3	47.505	102.396	g500-B1500	m650-U90/L4	3	82
1.3	1001	3.9	1117	32.6	1117	1.3	47.013	114.166	g500-B1500	m650-U90/L4	3	82
1.2	1100	3.6	1228	29.6	1228	1.1	47.013	125.498	g500-B1500	m650-U90/L4	3	82
1.0	1315	3.0	1467	24.8	1467	1.0	46.603	149.949	g500-B1500	m650-U90/L4	3	82
1.0	1343	2.9	1498	24.3	1498	2.6	48.317	153.141	g500-B4300	m650-U90/L4	3	185
1.0	1343	2.9	1499	24.3	1499	1.7	48.099	153.185	g500-B2700	m650-U90/L4	3	123
0.9	1468	2.7	1638	22.2	1638	2.4	48.303	167.383	g500-B4300	m650-U90/L4	3	185
0.9	1475	2.7	1646	22.1	1646	1.5	48.093	168.230	g500-B2700	m650-U90/L4	3	123
0.8	1630	2.4	1818	20.0	1818	2.2	47.673	185.857	g500-B4300	m650-U90/L4	3	185
0.8	1630	2.4	1819	20.0	1819	1.4	47.526	185.911	g500-B2700	m650-U90/L4	3	123
0.7	1770	2.2	1975	18.1	1975	1.3	46.918	205.407	g500-B2700	m650-U90/L4	4	126
0.7	1770	2.2	1975	18.1	1975	2.0	47.039	205.348	g500-B4300	m650-U90/L4	4	188
0.7	1781	2.2	1987	18.3	1987	2.0	47.664	203.143	g500-B4300	m650-U90/L4	3	185
0.7	1790	2.2	1998	18.2	1998	1.3	47.522	204.170	g500-B2700	m650-U90/L4	3	123
0.7	1934	2.0	2159	16.6	2159	1.9	47.031	224.446	g500-B4300	m650-U90/L4	4	188
0.7	1944	2.0	2169	16.5	2169	1.2	46.914	225.581	g500-B2700	m650-U90/L4	4	126
0.6	2060	1.9	2298	15.8	2298	1.7	47.073	234.932	g500-B4300	m650-U90/L4	3	185
0.6	2060	1.9	2299	15.8	2299	1.1	46.980	235.000	g500-B2700	m650-U90/L4	3	123
0.6	2251	1.8	2512	14.5	2512	1.6	47.067	256.781	g500-B4300	m650-U90/L4	3	185
0.6	2263	1.7	2525	14.4	2525	1.0	46.978	258.080	g500-B2700	m650-U90/L4	3	123
0.6	2284	1.7	2549	14.0	2549	1.6	47.171	265.073	g500-B4300	m650-U90/L4	4	188
0.6	2285	1.7	2550	14.0	2550	1.0	47.098	265.150	g500-B2700	m650-U90/L4	4	126
0.5	2400	1.6	2678	13.4	2678	1.5	46.890	278.438	g500-B4300	m650-U90/L4	4	188
0.5	2623	1.5	2927	12.2	2927	1.4	46.886	304.333	g500-B4300	m650-U90/L4	4	188
0.4	3185	1.2	3554	10.1	3554	1.1	46.738	369.548	g500-B4300	m650-U90/L4	4	188
0.4	3569	1.1	3983	9.0	3983	1.0	46.502	414.176	g500-B4300	m650-U90/L4	4	188
0.3	3901	1.0	4354	8.2	4354	0.9	46.500	452.696	g500-B4300	m650-U90/L4	4	188



124 Hz: 5.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	42.7	126	48.0	1044	48.0	2.1	78.872	3.565	g500-B240	m650-U100/M4	2	31
30.7	58.5	92.0	65.0	761	65.0	1.7	77.644	4.889	g500-B240	m650-U100/M4	2	31
30.3	59.3	90.8	66.0	750	66.0	3.5	87.422	4.958	g500-B820	m650-U100/M4	3	57
30.0	59.9	90.0	67.0	744	67.0	3.1	80.260	5.002	g500-B450	m650-U100/M4	3	34
29.6	60.6	88.8	68.0	734	68.0	4.1	82.631	5.067	g500-B600	m650-U100/M4	3	52
24.0	74.9	71.9	84.0	595	84.0	1.4	77.051	6.257	g500-B240	m650-U100/M4	2	31
22.1	81.4	66.2	91.0	547	91.0	3.2	82.611	6.800	g500-B820	m650-U100/M4	3	57
21.9	82.1	65.6	92.0	542	92.0	2.5	78.382	6.860	g500-B450	m650-U100/M4	3	34
21.8	82.4	65.4	92.0	540	92.0	1.4	77.574	6.883	g500-B240	m650-U100/M4	2	31
21.6	83.2	64.8	93.0	535	93.0	3.2	80.063	6.949	g500-B600	m650-U100/M4	3	52
19.7	91.2	59.1	102	488	102	3.4	81.690	7.617	g500-B600	m650-U100/M4	3	52
19.7	91.2	59.1	102	488	102	3.1	85.372	7.618	g500-B820	m650-U100/M4	3	57
19.2	93.6	57.6	105	476	105	1.3	77.413	7.817	g500-B240	m650-U100/M4	2	31
17.6	102	52.8	114	437	114	3.0	84.971	8.517	g500-B820	m650-U100/M4	3	57
16.1	112	48.3	125	399	125	2.2	79.106	9.315	g500-B450	m650-U100/M4	3	34
15.9	113	47.7	126	394	126	1.1	76.954	9.440	g500-B240	m650-U100/M4	2	31
15.8	114	47.3	128	391	128	2.9	79.661	9.520	g500-B820	m650-U100/M4	3	57
14.5	124	43.6	138	360	138	2.1	78.960	10.328	g500-B450	m650-U100/M4	3	34
14.4	125	43.1	140	356	140	2.8	81.520	10.447	g500-B820	m650-U100/M4	3	57
14.0	128	42.0	144	347	144	1.1	76.868	10.720	g500-B240	m650-U100/M4	2	31
14.0	129	41.9	144	346	144	2.8	81.018	10.741	g500-B600	m650-U100/M4	3	52
12.8	140	38.5	156	319	156	2.7	81.307	11.680	g500-B820	m650-U100/M4	3	57
12.4	145	37.2	162	308	162	1.0	76.629	12.081	g500-B240	m650-U100/M4	2	31
12.4	145	37.1	163	306	163	2.5	78.420	12.143	g500-B820	m650-U100/M4	3	57
11.7	153	35.2	171	291	171	1.7	77.768	12.775	g500-B450	m650-U100/M4	3	34
11.4	157	34.3	176	284	176	4.3	83.561	13.118	g500-B1500	m650-U100/M4	3	87
11.2	160	33.7	179	278	179	2.3	78.406	13.369	g500-B600	m650-U100/M4	3	52
11.2	160	33.7	179	278	179	2.6	79.601	13.370	g500-B820	m650-U100/M4	3	57
10.6	170	31.8	190	263	190	1.6	77.691	14.165	g500-B450	m650-U100/M4	3	34
10.3	175	30.8	196	254	196	2.5	79.104	14.626	g500-B820	m650-U100/M4	3	57
10.2	176	30.5	197	253	197	2.3	79.206	14.730	g500-B600	m650-U100/M4	3	52
9.2	196	27.5	219	228	219	1.5	77.127	16.349	g500-B450	m650-U100/M4	3	34
9.2	196	27.5	219	228	219	2.4	78.996	16.352	g500-B820	m650-U100/M4	3	57
8.4	214	25.2	240	208	240	1.4	76.946	17.885	g500-B450	m650-U100/M4	3	34
8.1	223	24.2	249	200	249	4.3	84.097	18.598	g500-B1500	m650-U100/M4	3	87
8.0	223	24.1	250	199	250	2.2	78.078	18.655	g500-B820	m650-U100/M4	3	57
8.0	226	23.9	252	197	252	1.8	78.188	18.851	g500-B600	m650-U100/M4	3	52
7.6	237	22.7	266	188	266	1.3	76.906	19.831	g500-B450	m650-U100/M4	3	34
7.3	245	22.0	274	182	274	4.1	83.931	20.444	g500-B1500	m650-U100/M4	3	87
7.3	247	21.8	276	180	276	1.6	77.923	20.622	g500-B600	m650-U100/M4	3	52
7.2	250	21.6	279	178	279	2.2	78.011	20.857	g500-B820	m650-U100/M4	3	57
6.6	273	19.7	306	163	306	1.1	76.602	22.813	g500-B450	m650-U100/M4	3	34
6.6	274	19.7	306	163	306	1.5	77.088	22.852	g500-B600	m650-U100/M4	3	52
6.6	274	19.7	306	163	306	2.0	77.497	22.853	g500-B820	m650-U100/M4	3	57
6.6	274	19.7	307	163	307	3.6	82.515	22.898	g500-B1500	m650-U100/M4	3	87
6.5	278	19.4	311	160	311	4.3	98.667	23.206	g500-B4300	m650-U100/M4	3	191
5.9	303	17.8	339	147	339	1.0	76.578	25.294	g500-B450	m650-U100/M4	3	34
5.9	303	17.8	339	147	339	1.3	78.077	25.347	g500-B600	m650-U100/M4	3	52
5.9	304	17.7	340	147	340	4.3	98.070	25.365	g500-B4300	m650-U100/M4	3	191
5.9	306	17.6	342	146	342	1.8	77.453	25.550	g500-B820	m650-U100/M4	3	57
5.8	312	17.3	349	143	349	1.3	78.782	26.061	g500-B600	m650-U100/M4	3	52



Technical data

Selection tables

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
5.7	315	17.1	353	141	353	1.7	78.977	26.324	g500-B820	m650-U100/M4	3	57
5.6	321	16.8	359	139	359	4.3	88.088	26.814	g500-B2700	m650-U100/M4	3	129
5.1	350	15.4	391	127	391	2.8	80.194	29.206	g500-B1500	m650-U100/M4	3	87
5.1	352	15.3	394	126	394	4.3	87.899	29.447	g500-B2700	m650-U100/M4	3	129
5.0	356	15.1	398	125	398	1.1	76.620	29.744	g500-B600	m650-U100/M4	3	52
5.0	356	15.1	398	125	398	1.5	76.809	29.745	g500-B820	m650-U100/M4	3	57
4.6	387	13.9	432	115	432	1.4	78.143	32.291	g500-B820	m650-U100/M4	3	57
4.6	388	13.9	434	115	434	1.0	77.499	32.439	g500-B600	m650-U100/M4	3	52
4.6	390	13.8	436	114	436	2.5	79.163	32.547	g500-B1500	m650-U100/M4	3	87
4.2	428	12.6	479	104	479	0.9	78.017	35.740	g500-B600	m650-U100/M4	3	52
4.2	428	12.6	479	104	479	2.3	79.110	35.778	g500-B1500	m650-U100/M4	3	87
4.2	432	12.5	484	103	484	1.3	78.120	36.102	g500-B820	m650-U100/M4	3	57
4.1	443	12.2	496	101	496	1.2	76.536	37.000	g500-B820	m650-U100/M4	3	57
3.9	461	11.7	516	96.5	516	3.1	85.271	38.546	g500-B4300	m650-U100/M4	3	191
3.7	489	11.0	548	91.0	548	2.3	81.203	40.895	g500-B1500	m650-U100/M4	3	87
3.6	495	10.9	553	90.0	553	1.2	77.539	41.325	g500-B820	m650-U100/M4	3	57
3.3	538	10.0	602	82.8	602	2.1	81.169	44.955	g500-B1500	m650-U100/M4	3	87
3.3	541	10.0	605	82.3	605	1.1	77.381	45.207	g500-B820	m650-U100/M4	3	57
3.2	557	9.7	624	79.9	624	2.0	78.038	46.568	g500-B1500	m650-U100/M4	3	87
3.1	585	9.2	655	76.1	655	3.5	81.368	48.912	g500-B2700	m650-U100/M4	3	129
3.0	605	8.9	677	73.6	677	1.0	77.370	50.543	g500-B820	m650-U100/M4	3	57
2.9	621	8.7	695	71.6	695	1.8	77.385	51.920	g500-B1500	m650-U100/M4	3	87
2.8	647	8.3	724	68.8	724	3.0	77.013	54.082	g500-B2700	m650-U100/M4	3	129
2.6	683	7.9	764	65.2	764	1.7	77.364	57.074	g500-B1500	m650-U100/M4	3	87
2.6	699	7.7	782	63.7	782	1.6	78.857	58.422	g500-B1500	m650-U100/M4	3	87
2.6	702	7.7	786	63.4	786	4.6	86.592	58.671	g500-B4300	m650-U100/M4	3	191
2.5	711	7.6	795	62.6	795	2.9	77.013	59.393	g500-B2700	m650-U100/M4	3	129
2.3	768	7.0	859	58.0	859	4.2	86.498	64.127	g500-B4300	m650-U100/M4	3	191
2.3	769	7.0	860	57.9	860	1.5	78.840	64.221	g500-B1500	m650-U100/M4	3	87
2.3	771	7.0	863	57.7	863	2.6	85.070	64.452	g500-B2700	m650-U100/M4	3	129
2.1	857	6.3	958	52.0	958	1.3	78.218	71.566	g500-B1500	m650-U100/M4	3	87
2.0	897	6.0	1004	49.6	1004	1.3	76.806	74.963	g500-B1500	m650-U100/M4	3	87
2.0	920	5.9	1029	48.4	1029	2.2	78.509	76.862	g500-B2700	m650-U100/M4	3	129
1.8	991	5.4	1108	44.9	1108	1.1	76.567	82.762	g500-B1500	m650-U100/M4	3	87
1.8	1017	5.3	1138	43.8	1138	2.0	77.823	84.940	g500-B2700	m650-U100/M4	3	129
1.6	1089	4.9	1218	40.9	1218	1.0	76.558	90.978	g500-B1500	m650-U100/M4	3	87
1.6	1115	4.8	1248	39.9	1248	1.0	77.512	93.150	g500-B1500	m650-U100/M4	3	87
1.6	1116	4.8	1249	39.9	1249	1.8	77.804	93.283	g500-B2700	m650-U100/M4	3	129
1.5	1166	4.6	1305	38.2	1305	2.8	80.894	97.453	g500-B4300	m650-U100/M4	3	191
1.5	1167	4.6	1306	38.2	1306	1.7	80.357	97.481	g500-B2700	m650-U100/M4	3	129
1.5	1226	4.4	1371	36.3	1371	0.9	77.505	102.396	g500-B1500	m650-U100/M4	3	87
1.4	1275	4.2	1427	34.9	1427	2.5	80.860	106.517	g500-B4300	m650-U100/M4	3	191
1.4	1281	4.2	1434	34.7	1434	1.6	80.342	107.056	g500-B2700	m650-U100/M4	3	129
1.3	1366	3.9	1529	32.6	1529	0.9	77.013	114.166	g500-B1500	m650-U100/M4	3	87
1.3	1417	3.8	1585	31.4	1585	1.6	77.013	118.370	g500-B2700	m650-U100/M4	3	129
1.3	1416	3.8	1585	31.4	1585	2.5	77.013	118.336	g500-B4300	m650-U100/M4	3	191
1.2	1548	3.5	1732	28.8	1732	2.3	77.013	129.342	g500-B4300	m650-U100/M4	3	191
1.2	1556	3.5	1741	28.6	1741	1.4	77.013	129.996	g500-B2700	m650-U100/M4	3	129
1.0	1833	2.9	2051	24.3	2051	2.0	78.317	153.141	g500-B4300	m650-U100/M4	3	191
1.0	1833	2.9	2052	24.3	2052	1.2	78.099	153.185	g500-B2700	m650-U100/M4	3	129
0.9	2003	2.7	2242	22.2	2242	1.8	78.303	167.383	g500-B4300	m650-U100/M4	3	191
0.9	2013	2.7	2253	22.1	2253	1.1	78.093	168.230	g500-B2700	m650-U100/M4	3	129



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.8	2224	2.4	2489	20.0	2489	1.6	77.673	185.857	g500-B4300	m650-U100/M4	3	191
0.8	2225	2.4	2490	20.0	2490	1.0	77.526	185.911	g500-B2700	m650-U100/M4	3	129
0.7	2416	2.2	2703	18.1	2703	1.5	77.039	205.348	g500-B4300	m650-U100/M4	4	194
0.7	2417	2.2	2704	18.1	2704	0.9	76.918	205.407	g500-B2700	m650-U100/M4	4	132
0.7	2431	2.2	2721	18.3	2721	1.5	77.664	203.143	g500-B4300	m650-U100/M4	3	191
0.7	2444	2.2	2734	18.2	2734	0.9	77.522	204.170	g500-B2700	m650-U100/M4	3	129
0.7	2641	2.0	2955	16.6	2955	1.4	77.031	224.446	g500-B4300	m650-U100/M4	4	194
0.6	2812	1.9	3146	15.8	3146	1.3	77.073	234.932	g500-B4300	m650-U100/M4	3	191
0.6	3073	1.8	3439	14.5	3439	1.2	77.067	256.781	g500-B4300	m650-U100/M4	3	191
0.6	3119	1.7	3490	14.0	3490	1.2	77.171	265.073	g500-B4300	m650-U100/M4	4	194
0.5	3276	1.6	3666	13.4	3666	1.1	76.890	278.438	g500-B4300	m650-U100/M4	4	194
0.5	3580	1.5	4007	12.2	4007	1.0	76.886	304.333	g500-B4300	m650-U100/M4	4	194



124 Hz: 7.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
42.1	54.5	126	65.0	1044	65.0	1.6	100.472	3.565	g500-B240	m650-U100/L4	2	35
30.7	74.8	92.0	90.0	761	90.0	1.2	99.244	4.889	g500-B240	m650-U100/L4	2	35
30.3	75.8	90.8	91.0	750	91.0	2.5	109.022	4.958	g500-B820	m650-U100/L4	3	61
30.0	76.5	90.0	92.0	744	92.0	2.3	101.860	5.002	g500-B450	m650-U100/L4	3	38
29.6	77.5	88.8	93.0	734	93.0	3.0	104.231	5.067	g500-B600	m650-U100/L4	3	56
24.0	95.7	71.9	115	595	115	1.0	98.651	6.257	g500-B240	m650-U100/L4	2	35
22.1	104	66.2	125	547	125	2.3	104.211	6.800	g500-B820	m650-U100/L4	3	61
21.9	105	65.6	126	542	126	1.8	99.982	6.860	g500-B450	m650-U100/L4	3	38
21.8	105	65.4	126	540	126	1.1	99.174	6.883	g500-B240	m650-U100/L4	2	35
21.6	106	64.8	127	535	127	2.3	101.663	6.949	g500-B600	m650-U100/L4	3	56
19.7	117	59.1	140	488	140	2.4	103.290	7.617	g500-B600	m650-U100/L4	3	56
19.7	117	59.1	140	488	140	2.2	106.972	7.618	g500-B820	m650-U100/L4	3	61
19.2	120	57.6	143	476	143	1.0	99.013	7.817	g500-B240	m650-U100/L4	2	35
17.6	130	52.8	156	437	156	2.2	106.571	8.517	g500-B820	m650-U100/L4	3	61
16.1	143	48.3	171	399	171	1.6	100.706	9.315	g500-B450	m650-U100/L4	3	38
15.8	146	47.3	175	391	175	2.1	101.261	9.520	g500-B820	m650-U100/L4	3	61
14.5	158	43.6	189	360	189	1.5	100.560	10.328	g500-B450	m650-U100/L4	3	38
14.4	160	43.1	192	356	192	2.0	103.120	10.447	g500-B820	m650-U100/L4	3	61
14.0	164	41.9	197	346	197	2.0	102.618	10.741	g500-B600	m650-U100/L4	3	56
12.8	179	38.5	214	319	214	2.0	102.907	11.680	g500-B820	m650-U100/L4	3	61
12.4	186	37.1	223	306	223	1.8	100.020	12.143	g500-B820	m650-U100/L4	3	61
11.7	195	35.2	234	291	234	1.3	99.368	12.775	g500-B450	m650-U100/L4	3	38
11.4	201	34.3	240	284	240	3.1	105.161	13.118	g500-B1500	m650-U100/L4	3	91
11.2	205	33.7	245	278	245	1.7	100.006	13.369	g500-B600	m650-U100/L4	3	56
11.2	205	33.7	245	278	245	1.9	101.201	13.370	g500-B820	m650-U100/L4	3	61
10.6	217	31.8	260	263	260	1.2	99.291	14.165	g500-B450	m650-U100/L4	3	38
10.3	224	30.8	268	254	268	1.8	100.704	14.626	g500-B820	m650-U100/L4	3	61
10.2	225	30.5	270	253	270	1.6	100.806	14.730	g500-B600	m650-U100/L4	3	56
9.2	250	27.5	300	228	300	1.1	98.727	16.349	g500-B450	m650-U100/L4	3	38
9.2	250	27.5	300	228	300	1.7	100.596	16.352	g500-B820	m650-U100/L4	3	61
8.4	274	25.2	328	208	328	1.0	98.546	17.885	g500-B450	m650-U100/L4	3	38
8.1	284	24.2	341	200	341	3.2	105.697	18.598	g500-B1500	m650-U100/L4	3	91
8.0	285	24.1	342	199	342	1.6	99.678	18.655	g500-B820	m650-U100/L4	3	61
8.0	288	23.9	346	197	346	1.3	99.788	18.851	g500-B600	m650-U100/L4	3	56
7.6	303	22.7	364	188	364	0.9	98.506	19.831	g500-B450	m650-U100/L4	3	38
7.3	313	22.0	375	182	375	3.0	105.531	20.444	g500-B1500	m650-U100/L4	3	91
7.3	315	21.8	378	180	378	1.2	99.523	20.622	g500-B600	m650-U100/L4	3	56
7.2	319	21.6	382	178	382	1.6	99.611	20.857	g500-B820	m650-U100/L4	3	61
6.6	350	19.7	419	163	419	1.1	98.688	22.852	g500-B600	m650-U100/L4	3	56
6.6	350	19.7	419	163	419	1.5	99.097	22.853	g500-B820	m650-U100/L4	3	61
6.6	350	19.7	420	163	420	2.6	104.115	22.898	g500-B1500	m650-U100/L4	3	91
6.5	355	19.4	425	160	425	3.2	120.267	23.206	g500-B4300	m650-U100/L4	3	195
5.9	388	17.8	465	147	465	1.0	99.677	25.347	g500-B600	m650-U100/L4	3	56
5.9	388	17.7	465	147	465	3.2	119.670	25.365	g500-B4300	m650-U100/L4	3	195
5.9	391	17.6	468	146	468	1.3	99.053	25.550	g500-B820	m650-U100/L4	3	61
5.8	399	17.3	478	143	478	0.9	100.382	26.061	g500-B600	m650-U100/L4	3	56
5.7	403	17.1	483	141	483	1.3	100.577	26.324	g500-B820	m650-U100/L4	3	61
5.6	410	16.8	492	139	492	3.2	109.688	26.814	g500-B2700	m650-U100/L4	3	133
5.1	447	15.4	535	127	535	2.1	101.794	29.206	g500-B1500	m650-U100/L4	3	91
5.1	450	15.3	540	126	540	3.2	109.499	29.447	g500-B2700	m650-U100/L4	3	133
5.0	455	15.1	545	125	545	1.1	98.409	29.745	g500-B820	m650-U100/L4	3	61



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
4.6	494	13.9	592	115	592	1.0	99.743	32.291	g500-B820	m650-U100/L4	3	61
4.6	498	13.8	597	114	597	1.9	100.763	32.547	g500-B1500	m650-U100/L4	3	91
4.2	547	12.6	656	104	656	1.7	100.710	35.778	g500-B1500	m650-U100/L4	3	91
4.2	552	12.5	662	103	662	0.9	99.720	36.102	g500-B820	m650-U100/L4	3	61
3.9	590	11.7	707	96.5	707	2.3	106.871	38.546	g500-B4300	m650-U100/L4	3	195
3.7	625	11.0	750	91.0	750	1.7	102.803	40.895	g500-B1500	m650-U100/L4	3	91
3.6	632	10.9	758	90.0	758	0.9	99.139	41.325	g500-B820	m650-U100/L4	3	61
3.3	688	10.0	824	82.8	824	1.5	102.769	44.955	g500-B1500	m650-U100/L4	3	91
3.2	712	9.7	854	79.9	854	1.5	99.638	46.568	g500-B1500	m650-U100/L4	3	91
3.1	748	9.2	897	76.1	897	2.5	102.968	48.912	g500-B2700	m650-U100/L4	3	133
2.9	794	8.7	952	71.6	952	1.3	98.985	51.920	g500-B1500	m650-U100/L4	3	91
2.8	827	8.3	991	68.8	991	2.2	98.613	54.082	g500-B2700	m650-U100/L4	3	133
2.6	873	7.9	1046	65.2	1046	1.2	98.964	57.074	g500-B1500	m650-U100/L4	3	91
2.6	893	7.7	1071	63.7	1071	1.2	100.457	58.422	g500-B1500	m650-U100/L4	3	91
2.6	897	7.7	1076	63.4	1076	3.4	108.192	58.671	g500-B4300	m650-U100/L4	3	195
2.5	908	7.6	1089	62.6	1089	2.1	98.613	59.393	g500-B2700	m650-U100/L4	3	133
2.3	981	7.0	1176	58.0	1176	3.1	108.098	64.127	g500-B4300	m650-U100/L4	3	195
2.3	982	7.0	1177	57.9	1177	1.1	100.440	64.221	g500-B1500	m650-U100/L4	3	91
2.3	986	7.0	1182	57.7	1182	1.9	106.670	64.452	g500-B2700	m650-U100/L4	3	133
2.1	1094	6.3	1312	52.0	1312	1.0	99.818	71.566	g500-B1500	m650-U100/L4	3	91
2.0	1146	6.0	1374	49.6	1374	0.9	98.406	74.963	g500-B1500	m650-U100/L4	3	91
2.0	1175	5.9	1409	48.4	1409	1.6	100.109	76.862	g500-B2700	m650-U100/L4	3	133
1.8	1299	5.3	1557	43.8	1557	1.5	99.423	84.940	g500-B2700	m650-U100/L4	3	133
1.6	1427	4.8	1710	39.9	1710	1.3	99.404	93.283	g500-B2700	m650-U100/L4	3	133
1.5	1491	4.6	1787	38.2	1787	1.3	101.957	97.481	g500-B2700	m650-U100/L4	3	133
1.5	1490	4.6	1787	38.2	1787	2.0	102.494	97.453	g500-B4300	m650-U100/L4	3	195
1.4	1629	4.2	1953	34.9	1953	1.9	102.460	106.517	g500-B4300	m650-U100/L4	3	195
1.4	1637	4.2	1963	34.7	1963	1.2	101.942	107.056	g500-B2700	m650-U100/L4	3	133
1.3	1810	3.8	2169	31.4	2169	1.8	98.613	118.336	g500-B4300	m650-U100/L4	3	195
1.3	1810	3.8	2170	31.4	2170	1.2	98.613	118.370	g500-B2700	m650-U100/L4	3	133
1.2	1978	3.5	2371	28.8	2371	1.7	98.613	129.342	g500-B4300	m650-U100/L4	3	195
1.2	1988	3.5	2383	28.6	2383	1.1	98.613	129.996	g500-B2700	m650-U100/L4	3	133
1.0	2342	2.9	2807	24.3	2807	1.4	99.917	153.141	g500-B4300	m650-U100/L4	3	195
0.9	2560	2.7	3069	22.2	3069	1.3	99.903	167.383	g500-B4300	m650-U100/L4	3	195
0.8	2842	2.4	3407	20.0	3407	1.2	99.273	185.857	g500-B4300	m650-U100/L4	3	195
0.7	3087	2.2	3701	18.1	3701	1.1	98.639	205.348	g500-B4300	m650-U100/L4	4	198
0.7	3107	2.2	3724	18.3	3724	1.1	99.264	203.143	g500-B4300	m650-U100/L4	3	195
0.7	3374	2.0	4045	16.6	4045	1.0	98.631	224.446	g500-B4300	m650-U100/L4	4	198
0.6	3593	1.9	4307	15.8	4307	0.9	98.673	234.932	g500-B4300	m650-U100/L4	3	195



124 Hz: 11 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
30.3	116	161	133	750	133	1.7	163.322	4.958	g500-B820	m650-U112/M4	3	67
30.0	117	160	134	744	134	1.5	156.160	5.002	g500-B450	m650-U112/M4	3	44
29.6	119	158	136	734	136	2.1	158.531	5.067	g500-B600	m650-U112/M4	3	62
22.1	160	118	182	547	182	1.6	158.511	6.800	g500-B820	m650-U112/M4	3	67
21.9	161	117	184	542	184	1.2	154.282	6.860	g500-B450	m650-U112/M4	3	44
21.8	161	117	184	542	184	2.9	173.752	6.866	g500-B1500	m650-U112/M4	3	98
21.6	163	115	186	535	186	1.6	155.963	6.949	g500-B600	m650-U112/M4	3	62
19.7	179	105	204	488	204	1.7	157.590	7.617	g500-B600	m650-U112/M4	3	62
19.7	179	105	204	488	204	1.5	161.272	7.618	g500-B820	m650-U112/M4	3	67
17.6	200	93.9	228	437	228	1.5	160.871	8.517	g500-B820	m650-U112/M4	3	67
16.4	215	87.4	245	406	245	3.3	201.453	9.156	g500-B4300	m650-U112/M4	3	201
16.1	219	85.9	250	399	250	1.1	155.006	9.315	g500-B450	m650-U112/M4	3	44
15.8	223	84.1	255	391	255	2.9	164.864	9.516	g500-B1500	m650-U112/M4	3	98
15.8	223	84.0	255	391	255	1.4	155.561	9.520	g500-B820	m650-U112/M4	3	67
14.5	242	77.5	277	360	277	1.0	154.860	10.328	g500-B450	m650-U112/M4	3	44
14.4	245	76.6	280	356	280	1.4	157.420	10.447	g500-B820	m650-U112/M4	3	67
14.0	252	74.5	288	346	288	1.4	156.918	10.741	g500-B600	m650-U112/M4	3	62
13.8	256	73.4	292	341	292	2.9	170.414	10.902	g500-B1500	m650-U112/M4	3	98
12.8	274	68.5	313	319	313	1.3	157.207	11.680	g500-B820	m650-U112/M4	3	67
12.5	281	66.8	321	310	321	2.9	169.932	11.985	g500-B1500	m650-U112/M4	3	98
12.4	285	65.9	325	306	325	1.2	154.320	12.143	g500-B820	m650-U112/M4	3	67
11.4	308	61.0	351	284	351	2.4	159.461	13.118	g500-B1500	m650-U112/M4	3	98
11.2	314	59.8	358	278	358	1.1	154.306	13.369	g500-B600	m650-U112/M4	3	62
11.2	314	59.8	358	278	358	1.3	155.501	13.370	g500-B820	m650-U112/M4	3	67
10.3	343	54.7	392	254	392	1.2	155.004	14.626	g500-B820	m650-U112/M4	3	67
10.2	346	54.3	395	253	395	1.1	155.106	14.730	g500-B600	m650-U112/M4	3	62
9.9	355	52.9	405	246	405	2.7	163.126	15.111	g500-B1500	m650-U112/M4	3	98
9.2	384	48.9	438	228	438	1.2	154.896	16.352	g500-B820	m650-U112/M4	3	67
9.0	390	48.2	445	224	445	2.5	162.875	16.611	g500-B1500	m650-U112/M4	3	98
8.9	397	47.3	453	220	453	3.3	191.464	16.913	g500-B4300	m650-U112/M4	3	201
8.1	434	43.3	495	201	495	3.3	190.339	18.486	g500-B4300	m650-U112/M4	3	201
8.1	436	43.0	498	200	498	2.2	159.997	18.598	g500-B1500	m650-U112/M4	3	98
8.0	438	42.9	500	199	500	1.1	153.978	18.655	g500-B820	m650-U112/M4	3	67
7.7	459	40.9	523	190	523	3.3	171.548	19.542	g500-B2700	m650-U112/M4	3	139
7.3	480	39.1	548	182	548	2.0	159.831	20.444	g500-B1500	m650-U112/M4	3	98
7.2	489	38.4	559	178	559	1.1	153.911	20.857	g500-B820	m650-U112/M4	3	67
7.1	494	38.0	564	177	564	3.0	182.159	21.065	g500-B4300	m650-U112/M4	3	201
6.7	523	35.9	597	167	597	3.0	167.687	22.269	g500-B2700	m650-U112/M4	3	139
6.6	536	35.0	612	163	612	1.0	153.397	22.853	g500-B820	m650-U112/M4	3	67
6.6	537	34.9	613	163	613	1.8	158.415	22.898	g500-B1500	m650-U112/M4	3	98
6.5	545	34.5	622	160	622	2.6	174.567	23.206	g500-B4300	m650-U112/M4	3	201
6.3	562	33.4	642	155	642	1.7	161.992	23.973	g500-B1500	m650-U112/M4	3	98
6.1	574	32.7	655	152	655	3.0	167.413	24.456	g500-B2700	m650-U112/M4	3	139
5.9	595	31.5	679	147	679	2.6	173.970	25.365	g500-B4300	m650-U112/M4	3	201
5.7	618	30.4	706	141	706	1.6	161.893	26.353	g500-B1500	m650-U112/M4	3	98
5.6	629	29.8	718	139	718	2.6	163.988	26.814	g500-B2700	m650-U112/M4	3	139
5.1	685	27.4	782	127	782	1.4	156.094	29.206	g500-B1500	m650-U112/M4	3	98
5.1	691	27.2	789	126	789	2.5	163.799	29.447	g500-B2700	m650-U112/M4	3	139
4.8	730	25.7	833	120	833	2.3	167.689	31.097	g500-B4300	m650-U112/M4	3	201
4.6	764	24.6	872	114	872	1.3	155.063	32.547	g500-B1500	m650-U112/M4	3	98
4.6	771	24.3	881	113	881	2.3	161.048	32.873	g500-B2700	m650-U112/M4	3	139



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
4.2	839	22.4	958	104	958	1.2	155.010	35.778	g500-B1500	m650-U112/M4	3	98
4.2	847	22.2	967	103	967	2.1	160.922	36.102	g500-B2700	m650-U112/M4	3	139
4.1	857	21.9	978	102	978	1.1	158.690	36.526	g500-B1500	m650-U112/M4	3	98
3.9	904	20.8	1032	96.5	1032	1.8	161.171	38.546	g500-B4300	m650-U112/M4	3	201
3.7	960	19.6	1095	91.0	1095	1.2	157.103	40.895	g500-B1500	m650-U112/M4	3	98
3.5	1003	18.7	1145	87.0	1145	3.2	168.731	42.760	g500-B4300	m650-U112/M4	3	201
3.5	1004	18.7	1146	87.0	1146	2.0	165.939	42.772	g500-B2700	m650-U112/M4	3	139
3.3	1055	17.8	1204	82.8	1204	1.1	157.069	44.955	g500-B1500	m650-U112/M4	3	98
3.2	1093	17.2	1247	79.9	1247	1.0	153.938	46.568	g500-B1500	m650-U112/M4	3	98
3.2	1097	17.1	1252	79.6	1252	2.9	168.555	46.737	g500-B4300	m650-U112/M4	3	201
3.2	1102	17.0	1258	79.2	1258	1.8	165.865	46.973	g500-B2700	m650-U112/M4	3	139
3.1	1148	16.4	1310	76.1	1310	1.7	157.268	48.912	g500-B2700	m650-U112/M4	3	139
2.9	1218	15.4	1391	71.6	1391	0.9	153.285	51.920	g500-B1500	m650-U112/M4	3	98
2.8	1250	15.0	1427	69.8	1427	2.5	165.383	53.258	g500-B4300	m650-U112/M4	3	201
2.8	1269	14.8	1449	68.8	1449	1.6	152.913	54.082	g500-B2700	m650-U112/M4	3	139
2.6	1377	13.6	1572	63.4	1572	2.3	162.492	58.671	g500-B4300	m650-U112/M4	3	201
2.5	1394	13.5	1591	62.6	1591	1.4	152.913	59.393	g500-B2700	m650-U112/M4	3	139
2.3	1505	12.5	1718	58.0	1718	2.1	162.398	64.127	g500-B4300	m650-U112/M4	3	201
2.3	1512	12.4	1726	57.7	1726	1.3	160.970	64.452	g500-B2700	m650-U112/M4	3	139
2.1	1688	11.1	1927	51.7	1927	1.2	159.066	71.951	g500-B2700	m650-U112/M4	3	139
2.1	1688	11.1	1927	51.7	1927	1.9	160.053	71.930	g500-B4300	m650-U112/M4	3	201
2.0	1803	10.4	2059	48.4	2059	1.1	154.409	76.862	g500-B2700	m650-U112/M4	3	139
1.9	1845	10.2	2106	47.3	2106	1.7	159.991	78.619	g500-B4300	m650-U112/M4	3	201
1.8	1993	9.4	2275	43.8	2275	1.0	153.723	84.940	g500-B2700	m650-U112/M4	3	139
1.6	2189	8.6	2499	39.9	2499	0.9	153.704	93.283	g500-B2700	m650-U112/M4	3	139
1.5	2286	8.2	2610	38.2	2610	1.4	156.794	97.453	g500-B4300	m650-U112/M4	3	201
1.4	2499	7.5	2853	34.9	2853	1.3	156.760	106.517	g500-B4300	m650-U112/M4	3	201
1.3	2776	6.8	3170	31.4	3170	1.3	152.913	118.336	g500-B4300	m650-U112/M4	3	201
1.2	3035	6.2	3465	28.8	3465	1.2	152.913	129.342	g500-B4300	m650-U112/M4	3	201
1.0	3593	5.2	4102	24.3	4102	1.0	154.217	153.141	g500-B4300	m650-U112/M4	3	201



124 Hz: 15 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
30.3	163	90.8	181	750	181	1.3	331.922	4.958	g500-B820	m650-U132/S4	3	86
30.0	164	90.0	183	744	183	1.1	324.760	5.002	g500-B450	m650-U132/S4	3	63
29.6	167	88.8	185	734	185	1.5	327.131	5.067	g500-B600	m650-U132/S4	3	81
22.1	224	66.2	249	547	249	1.2	327.111	6.800	g500-B820	m650-U132/S4	3	86
21.9	226	65.6	251	542	251	0.9	322.882	6.860	g500-B450	m650-U132/S4	3	63
21.8	226	65.5	251	542	251	2.5	342.352	6.866	g500-B1500	m650-U132/S4	3	116
21.7	227	65.0	253	538	253	4.2	369.615	6.918	g500-B2700	m650-U132/S4	3	158
21.6	228	64.8	254	535	254	1.2	324.563	6.949	g500-B600	m650-U132/S4	3	81
21.5	229	64.5	255	533	255	4.8	401.724	6.976	g500-B4300	m650-U132/S4	3	220
19.7	250	59.1	279	488	279	1.2	326.190	7.617	g500-B600	m650-U132/S4	3	81
19.7	250	59.1	279	488	279	1.1	329.872	7.618	g500-B820	m650-U132/S4	3	86
17.6	280	52.8	311	437	311	1.1	329.471	8.517	g500-B820	m650-U132/S4	3	86
17.1	289	51.2	322	423	322	3.5	354.339	8.793	g500-B2700	m650-U132/S4	3	158
16.4	301	49.1	335	406	335	4.5	370.053	9.156	g500-B4300	m650-U132/S4	3	220
15.8	313	47.3	348	391	348	2.1	333.464	9.516	g500-B1500	m650-U132/S4	3	116
15.8	313	47.3	348	391	348	1.1	324.161	9.520	g500-B820	m650-U132/S4	3	86
14.4	343	43.1	382	356	382	1.0	326.020	10.447	g500-B820	m650-U132/S4	3	86
14.0	353	41.9	393	346	393	1.0	325.518	10.741	g500-B600	m650-U132/S4	3	81
13.8	358	41.3	399	341	399	2.5	339.014	10.902	g500-B1500	m650-U132/S4	3	116
12.8	384	38.5	427	319	427	1.0	325.807	11.680	g500-B820	m650-U132/S4	3	86
12.8	385	38.4	428	318	428	3.8	362.931	11.713	g500-B2700	m650-U132/S4	3	158
12.5	394	37.5	438	310	438	2.5	338.532	11.985	g500-B1500	m650-U132/S4	3	116
12.4	399	37.1	444	306	444	0.9	322.920	12.143	g500-B820	m650-U132/S4	3	86
11.7	423	35.0	470	289	470	3.6	361.939	12.863	g500-B2700	m650-U132/S4	3	158
11.6	424	34.9	471	289	471	4.8	384.516	12.885	g500-B4300	m650-U132/S4	3	220
11.4	431	34.3	480	284	480	1.7	328.061	13.118	g500-B1500	m650-U132/S4	3	116
11.2	439	33.7	489	278	489	0.9	324.101	13.370	g500-B820	m650-U132/S4	3	86
10.7	463	32.0	515	264	515	4.8	382.577	14.084	g500-B4300	m650-U132/S4	3	220
10.3	481	30.8	535	254	535	0.9	323.604	14.626	g500-B820	m650-U132/S4	3	86
10.1	489	30.2	544	250	544	3.2	350.202	14.888	g500-B2700	m650-U132/S4	3	158
9.9	497	29.8	553	246	553	2.0	331.726	15.111	g500-B1500	m650-U132/S4	3	116
9.2	537	27.5	598	228	598	3.0	349.588	16.351	g500-B2700	m650-U132/S4	3	158
9.0	546	27.1	607	224	607	1.8	331.475	16.611	g500-B1500	m650-U132/S4	3	116
8.9	556	26.6	619	220	619	4.5	360.064	16.913	g500-B4300	m650-U132/S4	3	220
8.1	608	24.3	676	201	676	4.5	358.939	18.486	g500-B4300	m650-U132/S4	3	220
8.1	611	24.2	680	200	680	1.6	328.597	18.598	g500-B1500	m650-U132/S4	3	116
7.7	642	23.0	715	190	715	2.7	340.148	19.542	g500-B2700	m650-U132/S4	3	158
7.3	672	22.0	748	182	748	1.5	328.431	20.444	g500-B1500	m650-U132/S4	3	116
7.1	692	21.4	770	177	770	4.1	350.759	21.065	g500-B4300	m650-U132/S4	3	220
6.7	732	20.2	814	167	814	2.4	336.287	22.269	g500-B2700	m650-U132/S4	3	158
6.6	753	19.7	837	163	837	1.3	327.015	22.898	g500-B1500	m650-U132/S4	3	116
6.5	763	19.4	849	160	849	3.7	343.167	23.206	g500-B4300	m650-U132/S4	3	220
6.3	788	18.8	877	155	877	1.3	330.592	23.973	g500-B1500	m650-U132/S4	3	116
6.1	804	18.4	894	152	894	2.2	336.013	24.456	g500-B2700	m650-U132/S4	3	158
5.9	834	17.7	928	147	928	3.4	342.570	25.365	g500-B4300	m650-U132/S4	3	220
5.7	866	17.1	964	141	964	1.2	330.493	26.353	g500-B1500	m650-U132/S4	3	116
5.6	881	16.8	981	139	981	2.0	332.588	26.814	g500-B2700	m650-U132/S4	3	158
5.4	921	16.1	1024	133	1024	3.1	354.600	28.013	g500-B4300	m650-U132/S4	3	220
5.1	960	15.4	1068	127	1068	1.0	324.694	29.206	g500-B1500	m650-U132/S4	3	116
5.1	968	15.3	1077	126	1077	1.9	332.399	29.447	g500-B2700	m650-U132/S4	3	158
4.8	1022	14.5	1137	120	1137	2.8	336.289	31.097	g500-B4300	m650-U132/S4	3	220



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
4.6	1070	13.8	1190	114	1190	0.9	323.663	32.547	g500-B1500	m650-U132/S4	3	116
4.6	1080	13.7	1202	113	1202	1.7	329.648	32.873	g500-B2700	m650-U132/S4	3	158
4.2	1170	12.6	1302	105	1302	2.4	345.046	35.607	g500-B4300	m650-U132/S4	3	220
4.2	1187	12.5	1320	103	1320	1.5	329.522	36.102	g500-B2700	m650-U132/S4	3	158
3.9	1267	11.7	1410	96.5	1410	2.3	329.771	38.546	g500-B4300	m650-U132/S4	3	220
3.5	1406	10.5	1564	87.0	1564	1.5	334.539	42.772	g500-B2700	m650-U132/S4	3	158
3.5	1405	10.5	1564	87.0	1564	2.3	337.331	42.760	g500-B4300	m650-U132/S4	3	220
3.2	1536	9.6	1709	79.6	1709	2.1	337.155	46.737	g500-B4300	m650-U132/S4	3	220
3.2	1544	9.6	1718	79.2	1718	1.3	334.465	46.973	g500-B2700	m650-U132/S4	3	158
3.1	1608	9.2	1789	76.1	1789	1.3	325.868	48.912	g500-B2700	m650-U132/S4	3	158
2.8	1750	8.4	1948	69.8	1948	1.9	333.983	53.258	g500-B4300	m650-U132/S4	3	220
2.8	1777	8.3	1978	68.8	1978	1.2	321.513	54.082	g500-B2700	m650-U132/S4	3	158
2.6	1928	7.7	2146	63.4	2146	1.7	331.092	58.671	g500-B4300	m650-U132/S4	3	220
2.5	1952	7.6	2172	62.6	2172	1.0	321.513	59.393	g500-B2700	m650-U132/S4	3	158
2.3	2108	7.0	2345	58.0	2345	1.5	330.998	64.127	g500-B4300	m650-U132/S4	3	220
2.3	2118	7.0	2357	57.7	2357	1.0	329.570	64.452	g500-B2700	m650-U132/S4	3	158
2.1	2364	6.3	2630	51.7	2630	1.4	328.653	71.930	g500-B4300	m650-U132/S4	3	220
1.9	2584	5.7	2875	47.3	2875	1.3	328.591	78.619	g500-B4300	m650-U132/S4	3	220
1.5	3203	4.6	3564	38.2	3564	1.0	325.394	97.453	g500-B4300	m650-U132/S4	3	220
1.4	3501	4.2	3895	34.9	3895	0.9	325.360	106.517	g500-B4300	m650-U132/S4	3	220
1.3	3889	3.8	4328	31.4	4328	0.9	321.513	118.336	g500-B4300	m650-U132/S4	3	220



124 Hz: 18.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
30.3	201	90.8	224	750	224	1.0	427.722	4.958	g500-B820	m650-U132/M4	3	96
30.0	203	90.0	226	744	226	0.9	420.560	5.002	g500-B450	m650-U132/M4	3	73
29.6	206	88.8	229	734	229	1.2	422.931	5.067	g500-B600	m650-U132/M4	3	91
27.3	223	82.0	248	678	248	4.2	541.976	5.488	g500-B4300	m650-U132/M4	3	230
22.1	276	66.2	307	547	307	0.9	422.911	6.800	g500-B820	m650-U132/M4	3	96
21.8	279	65.5	310	542	310	2.0	438.152	6.866	g500-B1500	m650-U132/M4	3	127
21.7	281	65.0	312	538	312	3.4	465.415	6.918	g500-B2700	m650-U132/M4	3	168
21.6	282	64.8	314	535	314	0.9	420.363	6.949	g500-B600	m650-U132/M4	3	91
21.5	283	64.5	315	533	315	3.9	497.524	6.976	g500-B4300	m650-U132/M4	3	230
19.7	309	59.1	344	488	344	1.0	421.990	7.617	g500-B600	m650-U132/M4	3	91
19.7	309	59.1	344	488	344	0.9	425.672	7.618	g500-B820	m650-U132/M4	3	96
17.1	357	51.2	397	423	397	2.9	450.139	8.793	g500-B2700	m650-U132/M4	3	168
16.4	371	49.1	413	406	413	3.6	465.853	9.156	g500-B4300	m650-U132/M4	3	230
15.8	386	47.3	429	391	429	1.7	429.264	9.516	g500-B1500	m650-U132/M4	3	127
14.8	411	44.4	457	367	457	4.2	514.172	10.137	g500-B4300	m650-U132/M4	3	230
13.8	442	41.3	492	341	492	2.0	434.814	10.902	g500-B1500	m650-U132/M4	3	127
13.5	449	40.6	500	336	500	4.2	511.040	11.080	g500-B4300	m650-U132/M4	3	230
12.8	475	38.4	528	318	528	3.1	458.731	11.713	g500-B2700	m650-U132/M4	3	168
12.5	486	37.5	541	310	541	2.0	434.332	11.985	g500-B1500	m650-U132/M4	3	127
11.7	522	35.0	580	289	580	2.9	457.739	12.863	g500-B2700	m650-U132/M4	3	168
11.6	523	34.9	581	289	581	3.9	480.316	12.885	g500-B4300	m650-U132/M4	3	230
11.4	532	34.3	592	284	592	1.4	423.861	13.118	g500-B1500	m650-U132/M4	3	127
10.7	571	32.0	635	264	635	3.9	478.377	14.084	g500-B4300	m650-U132/M4	3	230
10.1	604	30.2	672	250	672	2.6	446.002	14.888	g500-B2700	m650-U132/M4	3	168
9.9	613	29.8	682	246	682	1.6	427.526	15.111	g500-B1500	m650-U132/M4	3	127
9.2	663	27.5	738	228	738	2.4	445.388	16.351	g500-B2700	m650-U132/M4	3	168
9.0	674	27.1	749	224	749	1.5	427.275	16.611	g500-B1500	m650-U132/M4	3	127
8.9	686	26.6	763	220	763	3.6	455.864	16.913	g500-B4300	m650-U132/M4	3	230
8.1	750	24.3	834	201	834	3.6	454.739	18.486	g500-B4300	m650-U132/M4	3	230
8.1	754	24.2	839	200	839	1.3	424.397	18.598	g500-B1500	m650-U132/M4	3	127
7.7	793	23.0	882	190	882	2.2	435.948	19.542	g500-B2700	m650-U132/M4	3	168
7.3	829	22.0	922	182	922	1.2	424.231	20.444	g500-B1500	m650-U132/M4	3	127
7.1	854	21.4	950	177	950	3.3	446.559	21.065	g500-B4300	m650-U132/M4	3	230
6.7	903	20.2	1005	167	1005	2.0	432.087	22.269	g500-B2700	m650-U132/M4	3	168
6.6	929	19.7	1033	163	1033	1.1	422.815	22.898	g500-B1500	m650-U132/M4	3	127
6.5	941	19.4	1047	160	1047	3.0	438.967	23.206	g500-B4300	m650-U132/M4	3	230
6.3	972	18.8	1082	155	1082	1.0	426.392	23.973	g500-B1500	m650-U132/M4	3	127
6.1	992	18.4	1103	152	1103	1.8	431.813	24.456	g500-B2700	m650-U132/M4	3	168
5.9	1029	17.7	1144	147	1144	2.8	438.370	25.365	g500-B4300	m650-U132/M4	3	230
5.7	1069	17.1	1189	141	1189	0.9	426.293	26.353	g500-B1500	m650-U132/M4	3	127
5.6	1088	16.8	1210	139	1210	1.7	428.388	26.814	g500-B2700	m650-U132/M4	3	168
5.4	1136	16.1	1264	133	1264	2.5	450.400	28.013	g500-B4300	m650-U132/M4	3	230
5.1	1194	15.3	1329	126	1329	1.5	428.199	29.447	g500-B2700	m650-U132/M4	3	168
4.8	1261	14.5	1403	120	1403	2.3	432.089	31.097	g500-B4300	m650-U132/M4	3	230
4.6	1333	13.7	1483	113	1483	1.3	425.448	32.873	g500-B2700	m650-U132/M4	3	168
4.2	1444	12.6	1607	105	1607	2.0	440.846	35.607	g500-B4300	m650-U132/M4	3	230
4.2	1464	12.5	1629	103	1629	1.2	425.322	36.102	g500-B2700	m650-U132/M4	3	168
3.9	1563	11.7	1739	96.5	1739	1.8	425.571	38.546	g500-B4300	m650-U132/M4	3	230
3.5	1734	10.5	1929	87.0	1929	1.9	433.131	42.760	g500-B4300	m650-U132/M4	3	230
3.5	1735	10.5	1930	87.0	1930	1.2	430.339	42.772	g500-B2700	m650-U132/M4	3	168
3.2	1896	9.6	2109	79.6	2109	1.7	432.955	46.737	g500-B4300	m650-U132/M4	3	230



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.2	1905	9.6	2119	79.2	2119	1.1	430.265	46.973	g500-B2700	m650-U132/M4	3	168
3.1	1984	9.2	2207	76.1	2207	1.0	421.668	48.912	g500-B2700	m650-U132/M4	3	168
2.8	2160	8.4	2403	69.8	2403	1.5	429.783	53.258	g500-B4300	m650-U132/M4	3	230
2.8	2194	8.3	2440	68.8	2440	0.9	417.313	54.082	g500-B2700	m650-U132/M4	3	168
2.6	2380	7.7	2647	63.4	2647	1.4	426.892	58.671	g500-B4300	m650-U132/M4	3	230
2.3	2601	7.0	2893	58.0	2893	1.3	426.798	64.127	g500-B4300	m650-U132/M4	3	230
2.1	2917	6.3	3245	51.7	3245	1.1	424.453	71.930	g500-B4300	m650-U132/M4	3	230
1.9	3189	5.7	3547	47.3	3547	1.0	424.391	78.619	g500-B4300	m650-U132/M4	3	230



124 Hz: 22 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
29.6	217	158	272	734	272	1.0	422.931	5.067	g500-B600	m650-U132/L4	3	91
27.3	235	146	295	678	295	3.5	541.976	5.488	g500-B4300	m650-U132/L4	3	230
21.8	294	117	368	542	368	1.7	438.152	6.866	g500-B1500	m650-U132/L4	3	127
21.7	296	116	371	538	371	2.9	465.415	6.918	g500-B2700	m650-U132/L4	3	168
21.5	298	115	374	533	374	3.3	497.524	6.976	g500-B4300	m650-U132/L4	3	230
17.1	376	91.0	472	423	472	2.4	450.139	8.793	g500-B2700	m650-U132/L4	3	168
16.4	391	87.4	491	406	491	3.1	465.853	9.156	g500-B4300	m650-U132/L4	3	230
15.8	407	84.1	511	391	511	1.5	429.264	9.516	g500-B1500	m650-U132/L4	3	127
14.8	433	78.9	544	367	544	3.5	514.172	10.137	g500-B4300	m650-U132/L4	3	230
13.8	466	73.4	585	341	585	1.7	434.814	10.902	g500-B1500	m650-U132/L4	3	127
13.5	474	72.2	595	336	595	3.5	511.040	11.080	g500-B4300	m650-U132/L4	3	230
12.8	501	68.3	629	318	629	2.6	458.731	11.713	g500-B2700	m650-U132/L4	3	168
12.5	512	66.8	643	310	643	1.7	434.332	11.985	g500-B1500	m650-U132/L4	3	127
11.7	550	62.2	690	289	690	2.4	457.739	12.863	g500-B2700	m650-U132/L4	3	168
11.6	551	62.1	692	289	692	3.3	480.316	12.885	g500-B4300	m650-U132/L4	3	230
11.4	561	61.0	704	284	704	1.2	423.861	13.118	g500-B1500	m650-U132/L4	3	127
10.7	602	56.8	756	264	756	3.3	478.377	14.084	g500-B4300	m650-U132/L4	3	230
10.1	636	53.7	799	250	799	2.2	446.002	14.888	g500-B2700	m650-U132/L4	3	168
9.9	646	52.9	811	246	811	1.4	427.526	15.111	g500-B1500	m650-U132/L4	3	127
9.2	699	48.9	877	228	877	2.1	445.388	16.351	g500-B2700	m650-U132/L4	3	168
9.0	710	48.2	891	224	891	1.2	427.275	16.611	g500-B1500	m650-U132/L4	3	127
8.9	723	47.3	908	220	908	3.1	455.864	16.913	g500-B4300	m650-U132/L4	3	230
8.1	790	43.3	992	201	992	3.1	454.739	18.486	g500-B4300	m650-U132/L4	3	230
8.1	795	43.0	998	200	998	1.1	424.397	18.598	g500-B1500	m650-U132/L4	3	127
7.7	835	40.9	1049	190	1049	1.8	435.948	19.542	g500-B2700	m650-U132/L4	3	168
7.3	874	39.1	1097	182	1097	1.0	424.231	20.444	g500-B1500	m650-U132/L4	3	127
7.1	900	38.0	1131	177	1131	2.8	446.559	21.065	g500-B4300	m650-U132/L4	3	230
6.7	952	35.9	1195	167	1195	1.7	432.087	22.269	g500-B2700	m650-U132/L4	3	168
6.6	979	34.9	1229	163	1229	0.9	422.815	22.898	g500-B1500	m650-U132/L4	3	127
6.5	992	34.5	1245	160	1245	2.6	438.967	23.206	g500-B4300	m650-U132/L4	3	230
6.1	1045	32.7	1312	152	1312	1.5	431.813	24.456	g500-B2700	m650-U132/L4	3	168
5.9	1084	31.5	1361	147	1361	2.3	438.370	25.365	g500-B4300	m650-U132/L4	3	230
5.6	1146	29.8	1439	139	1439	1.4	428.388	26.814	g500-B2700	m650-U132/L4	3	168
5.4	1197	28.6	1503	133	1503	2.1	450.400	28.013	g500-B4300	m650-U132/L4	3	230
5.1	1259	27.2	1580	126	1580	1.3	428.199	29.447	g500-B2700	m650-U132/L4	3	168
4.8	1329	25.7	1669	120	1669	1.9	432.089	31.097	g500-B4300	m650-U132/L4	3	230
4.6	1405	24.3	1764	113	1764	1.1	425.448	32.873	g500-B2700	m650-U132/L4	3	168
4.2	1522	22.5	1911	105	1911	1.7	440.846	35.607	g500-B4300	m650-U132/L4	3	230
4.2	1543	22.2	1937	103	1937	1.0	425.322	36.102	g500-B2700	m650-U132/L4	3	168
3.9	1648	20.8	2069	96.5	2069	1.5	425.571	38.546	g500-B4300	m650-U132/L4	3	230
3.5	1828	18.7	2295	87.0	2295	1.0	430.339	42.772	g500-B2700	m650-U132/L4	3	168
3.5	1828	18.7	2295	87.0	2295	1.6	433.131	42.760	g500-B4300	m650-U132/L4	3	230
3.2	1998	17.1	2508	79.6	2508	1.4	432.955	46.737	g500-B4300	m650-U132/L4	3	230
2.8	2277	15.0	2858	69.8	2858	1.3	429.783	53.258	g500-B4300	m650-U132/L4	3	230
2.6	2508	13.6	3149	63.4	3149	1.2	426.892	58.671	g500-B4300	m650-U132/L4	3	230
2.3	2741	12.5	3442	58.0	3442	1.1	426.798	64.127	g500-B4300	m650-U132/L4	3	230
2.1	3075	11.1	3860	51.7	3860	0.9	424.453	71.930	g500-B4300	m650-U132/L4	3	230



7.7 Dimensions

Notes on the basic dimensions

Gearboxes	Without pre-stage	With pre-stage
g500-B45	2-stufig	-
g500-B110	2-stage	3-stage
g500-B240	2-/3-stage	4-stage
g500-B450 ... B4300	3-stage	4-stage

The ratio range of gearboxes with pre-stage is extended via an additional housing with gear stage between the gearbox and motor.

The basic dimensions are shown without pre-stage and are valid up to the following deviating dimensions for gearbox with pre-stage valid:

- Total length "L"
- Center distance "a" (gearbox output shaft – motor shaft)

Deviating dimensions: ▶ [Gearbox with pre-stage](#) 126

The following legend shows the structure of the dimension tables:

Motor	m550-H		
	63/S4	63/M4	63/L4

Table content		Explanation
Total length	L	Total length of the drive without brake/feedback
Motor length	LB	Length of the motor without brake/feedback
Motor diameter	AC	Motor diameter
Motor/connection distance	AD	Distance from center of motor to terminal box end

NOTICE

For gearboxes with hollow shaft and keyway (H□□), the hole fitting H7 is interrupted in the middle area of the hollow shaft length by a free rotation.

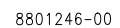
Ensure the double-ended control of the machine shaft in the hollow shaft.

▶ The specified min. length of the machine shaft must be reached.

Gearboxes	Min. length of the machine shaft
	mm
g500-B45	85
g500-B110	105
g500-B240	127
g500-B450	100
g500-B600	110
g500-B820	120
g500-B1500	135
g500-B2700	155
g500-B4300	190



Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)



ΔL ▶ Additional lengths 130

Technical data

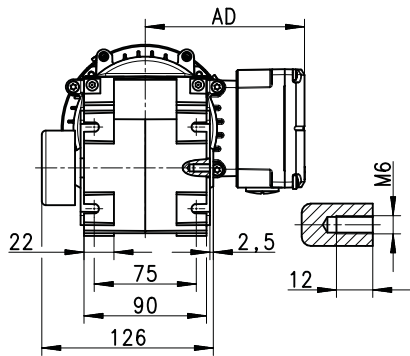
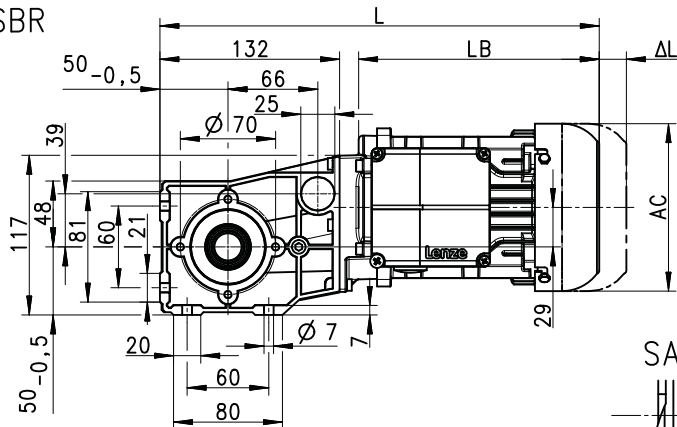
Dimensions
Basic dimensions



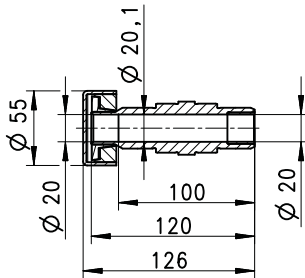
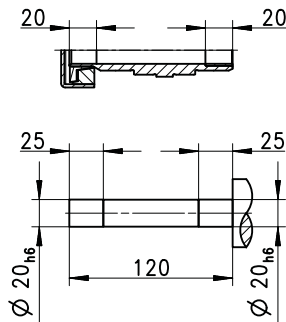
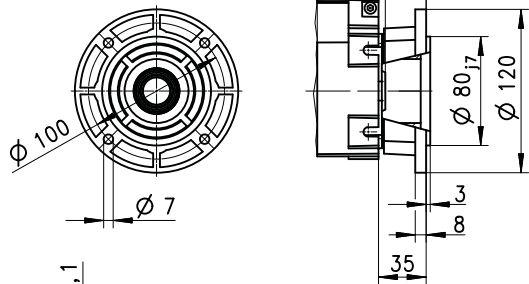
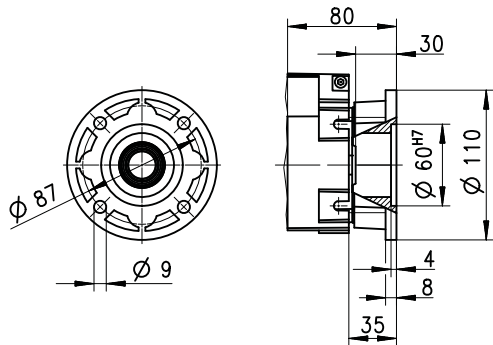
g500-B45, 2-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801248-01

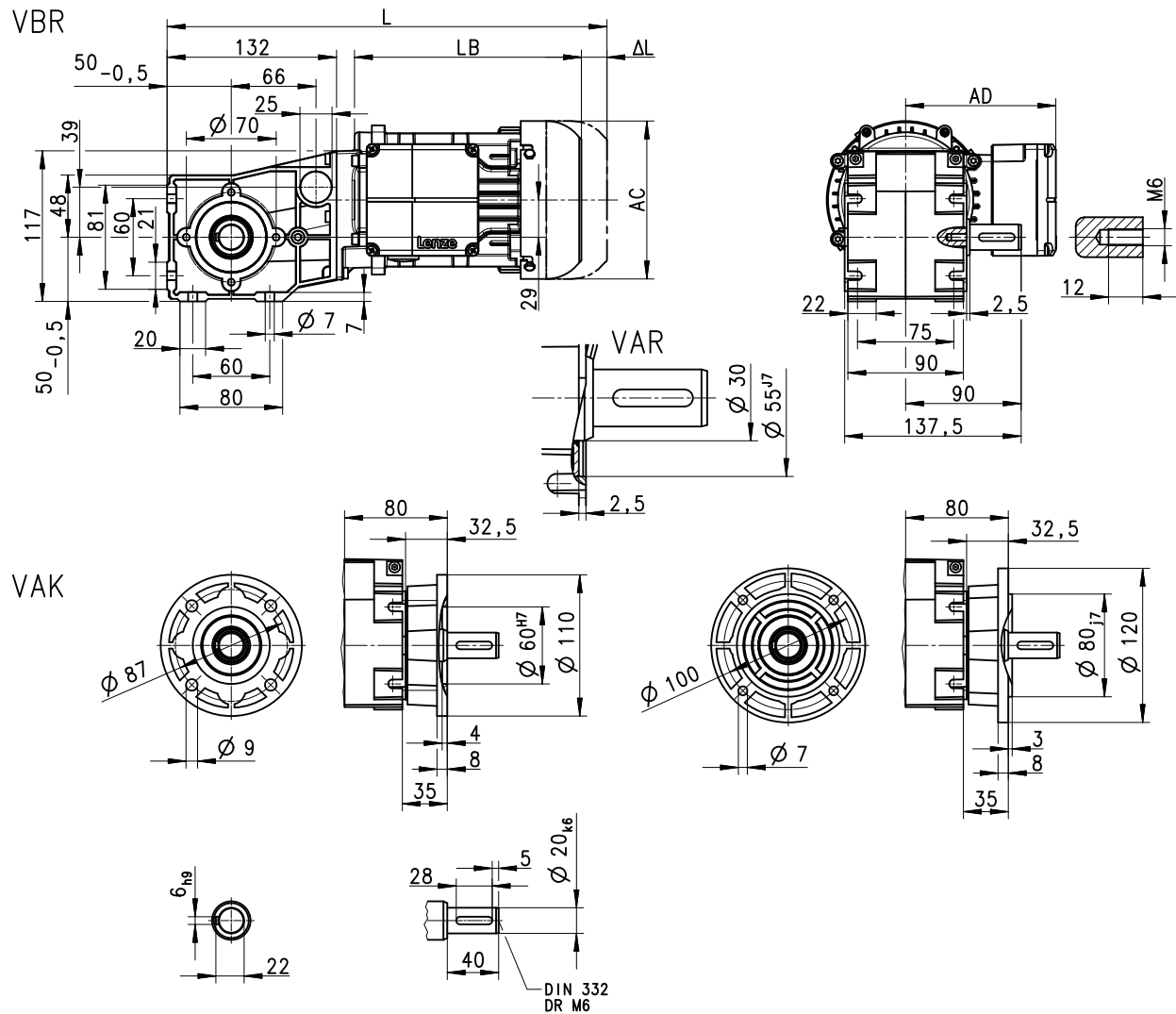
Motor series			m650-U	
Motor			063L04	071M04 071L04
Total length	L	mm	323	358
Motor length	LB	mm	188	217
Motor diameter	AC	mm	123	139
Motor/connection distance	AD	mm	117	129

Δ L ▶ Additional lengths 130



g500-B45, 2-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)



8801247-00

Motor series			m650-U	
Motor			063L04	071M04 071L04
Total length	L	mm	323	358
Motor length	LB	mm	188	217
Motor diameter	AC	mm	123	139
Motor/connection distance	AD	mm	117	129

Δ L ▶ Additional lengths □ 130

Technical data

Dimensions
Basic dimensions

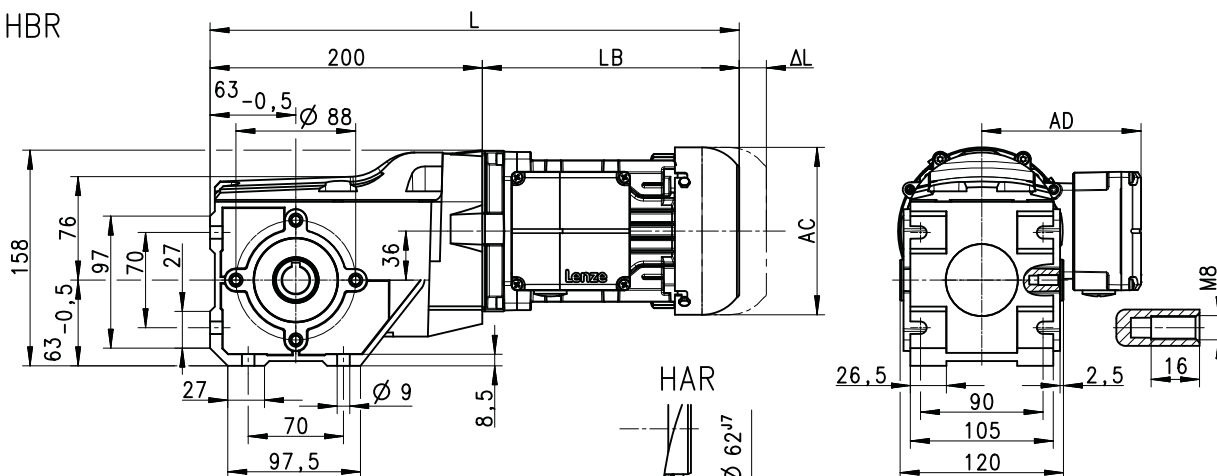


g500-B110, 2-stage

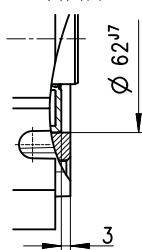
g500-B110, 2-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

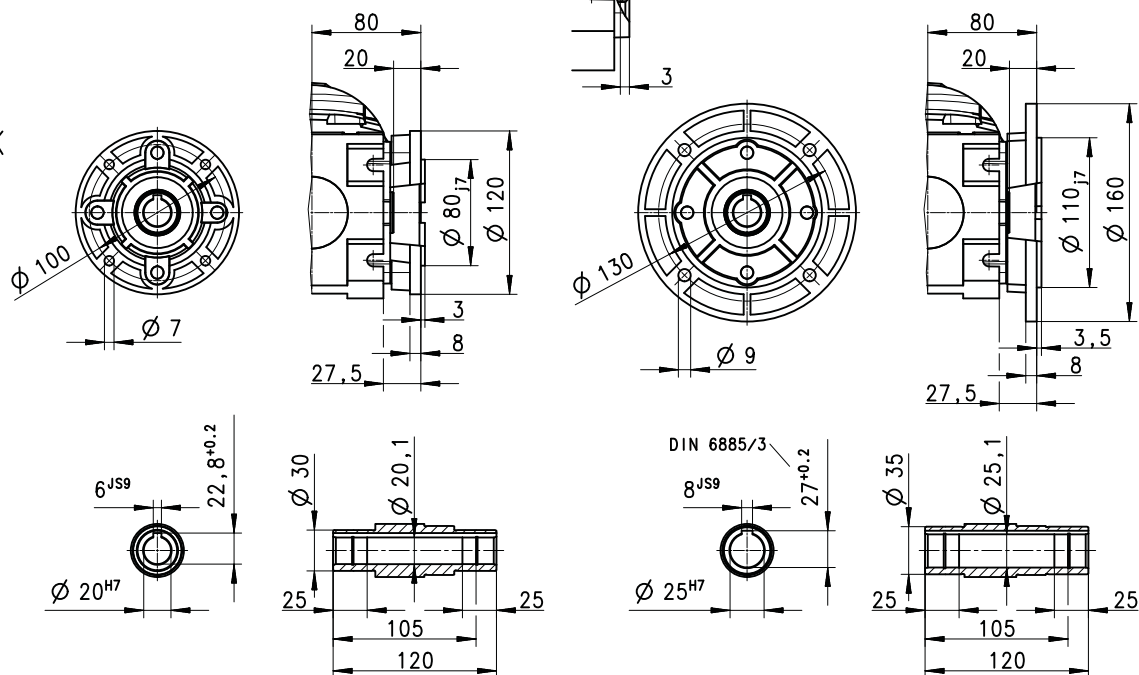
HBR



HAR



HAK



8801249-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	389	418	442	485
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

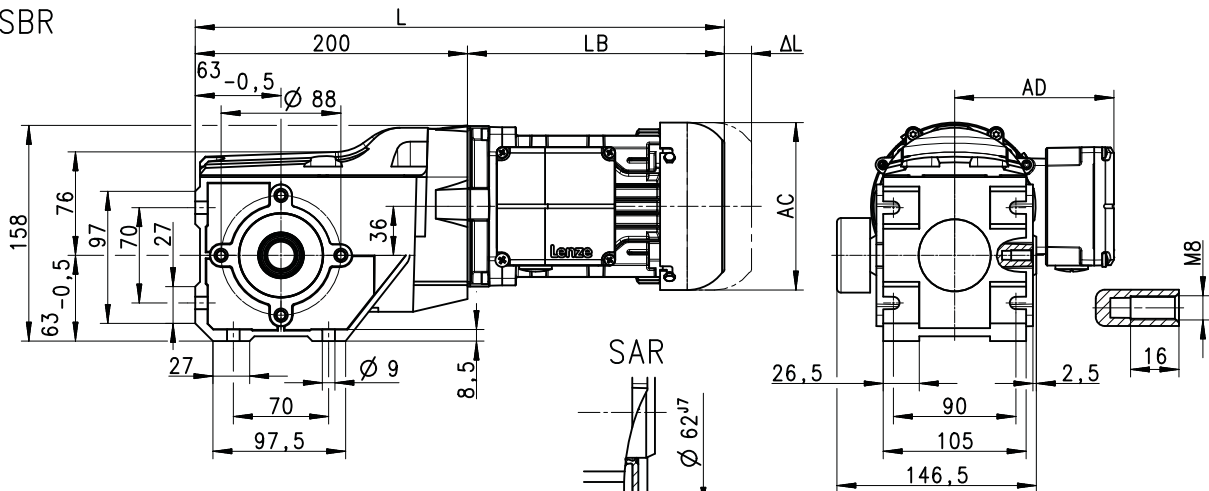
Δ L ▶ Additional lengths □ 130



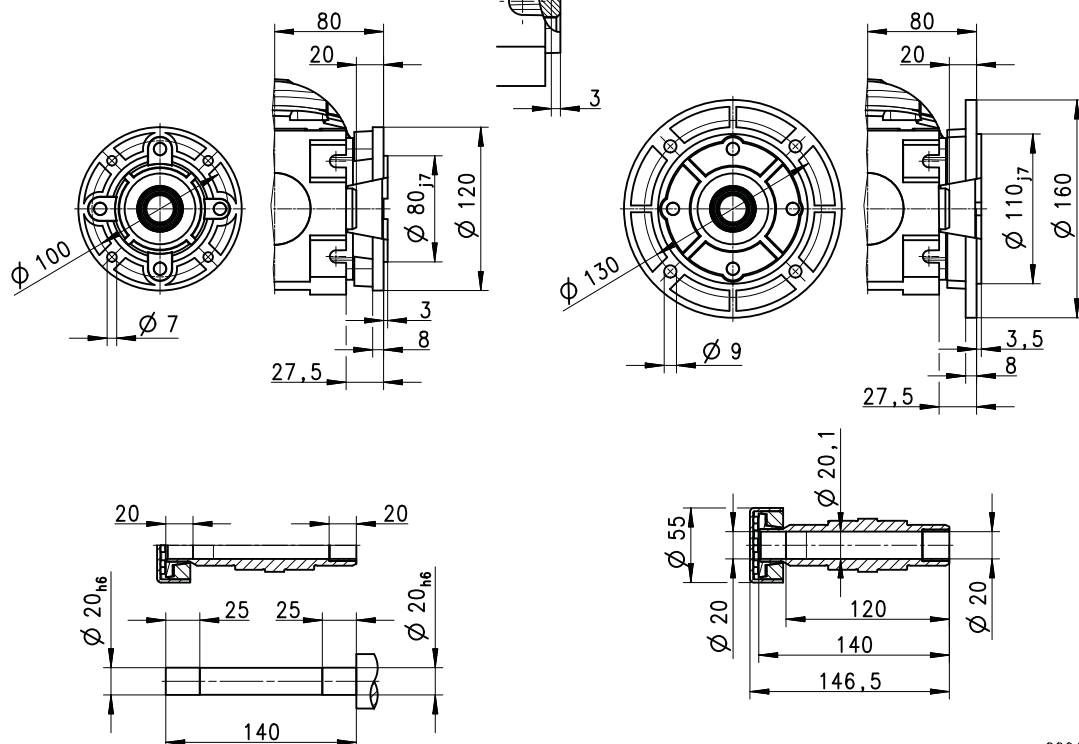
g500-B110, 2-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801251-01

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	389	418	442	485
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

Δ L ▶ Additional lengths □ 130

Technical data

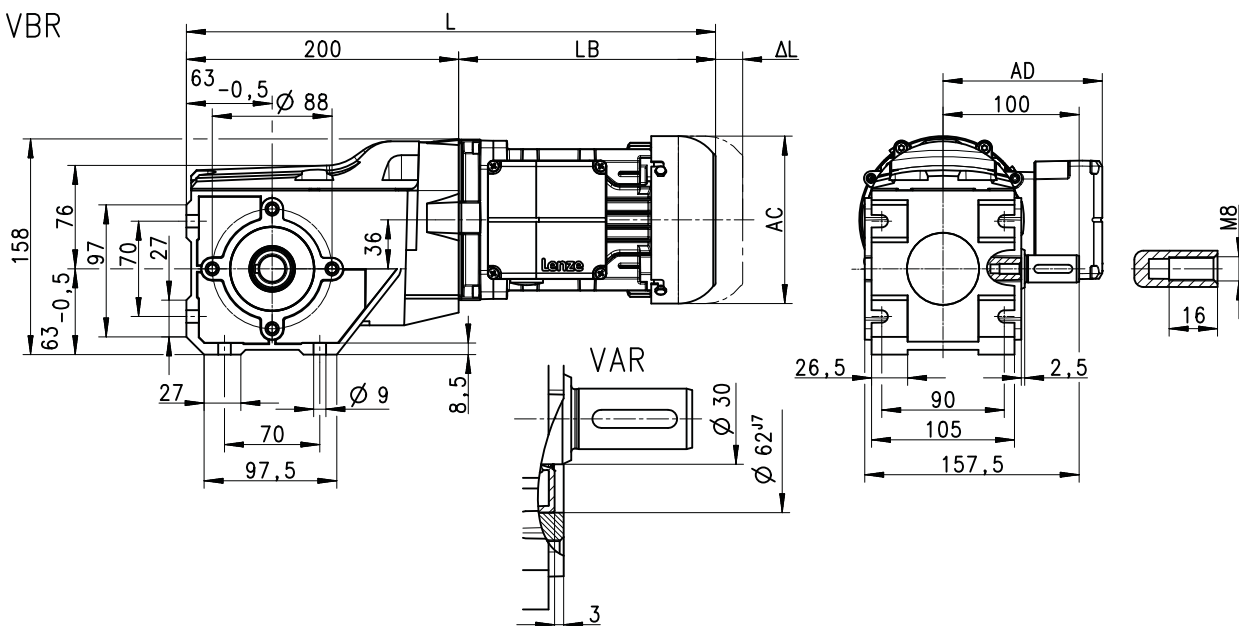
Dimensions
Basic dimensions



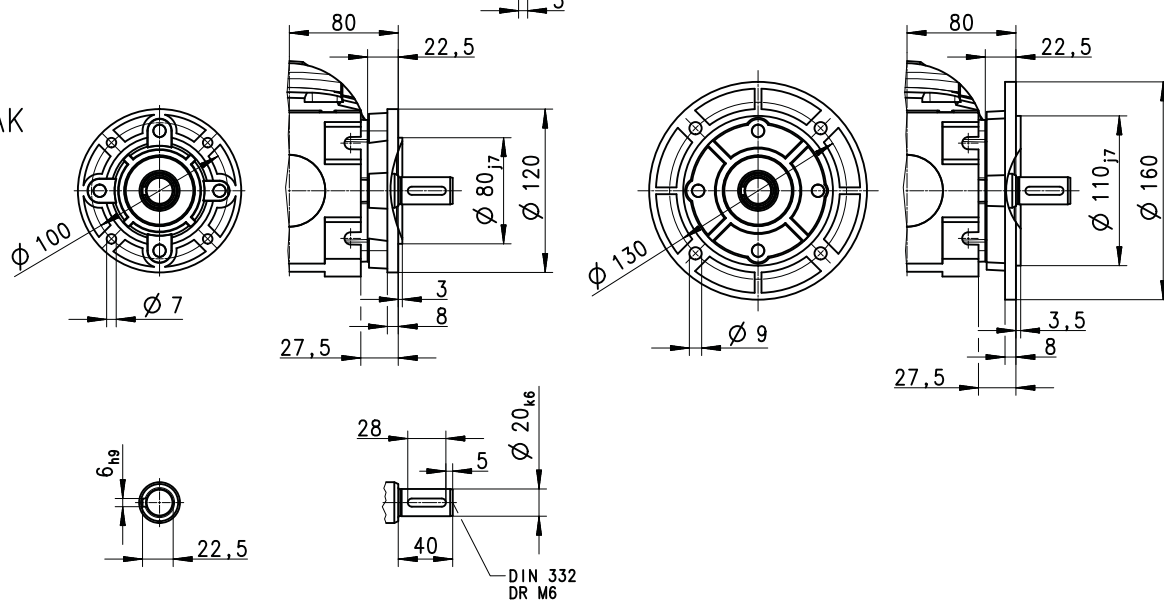
g500-B110, 2-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801250-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	389	418	442	485
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

Δ L ▶ Additional lengths 130



Technical data

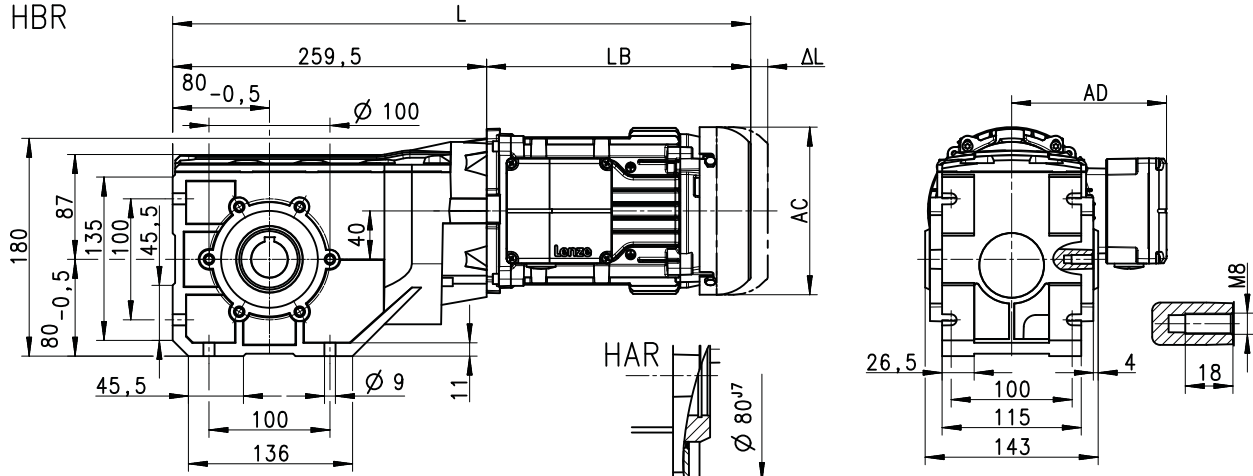
Dimensions
Basic dimensions

g500-B240, 2-/3-stage

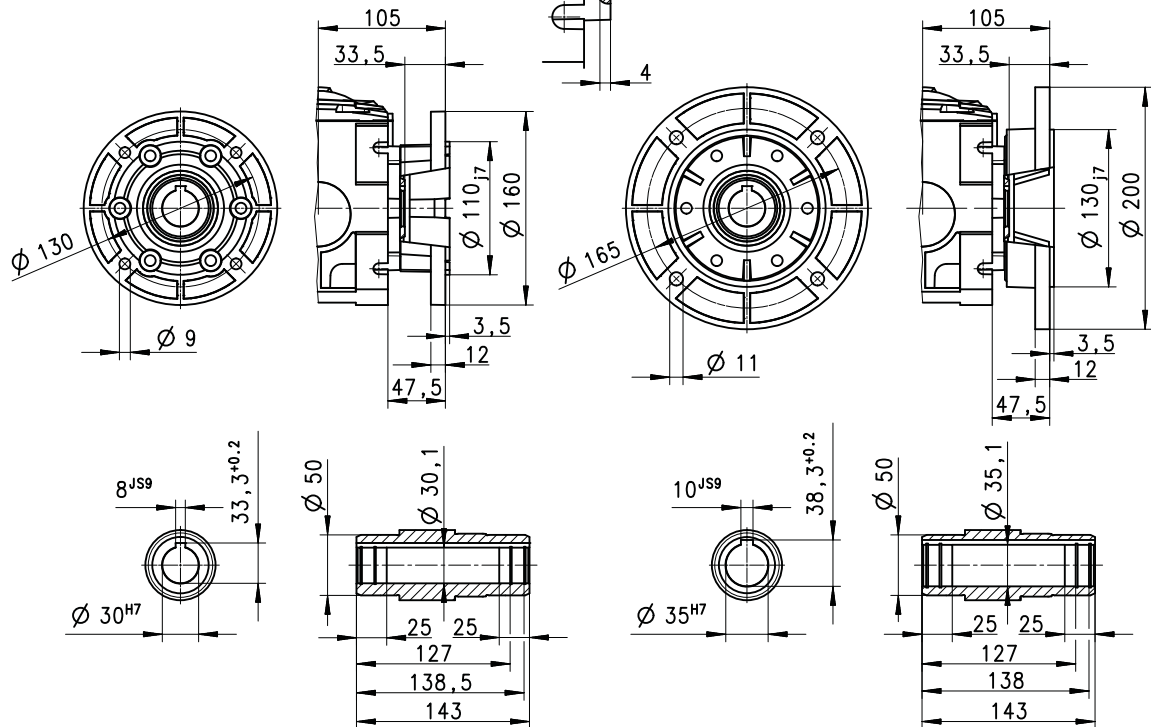
g500-B240, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801252-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	448	478	502	544	608
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

ΔL ▶ Additional lengths $\square 130$

Technical data

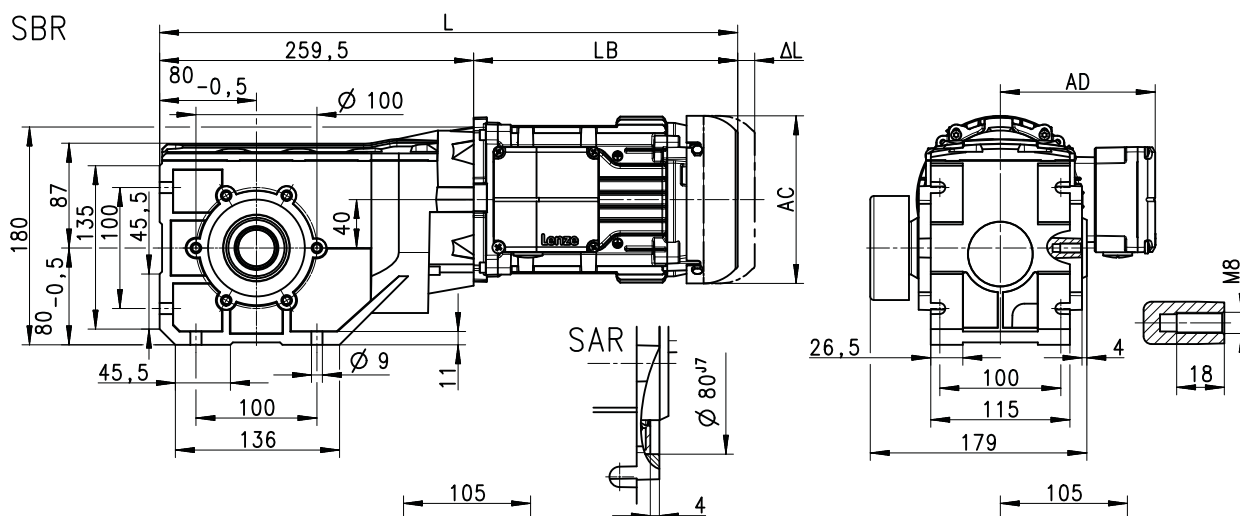
Dimensions
Basic dimensions



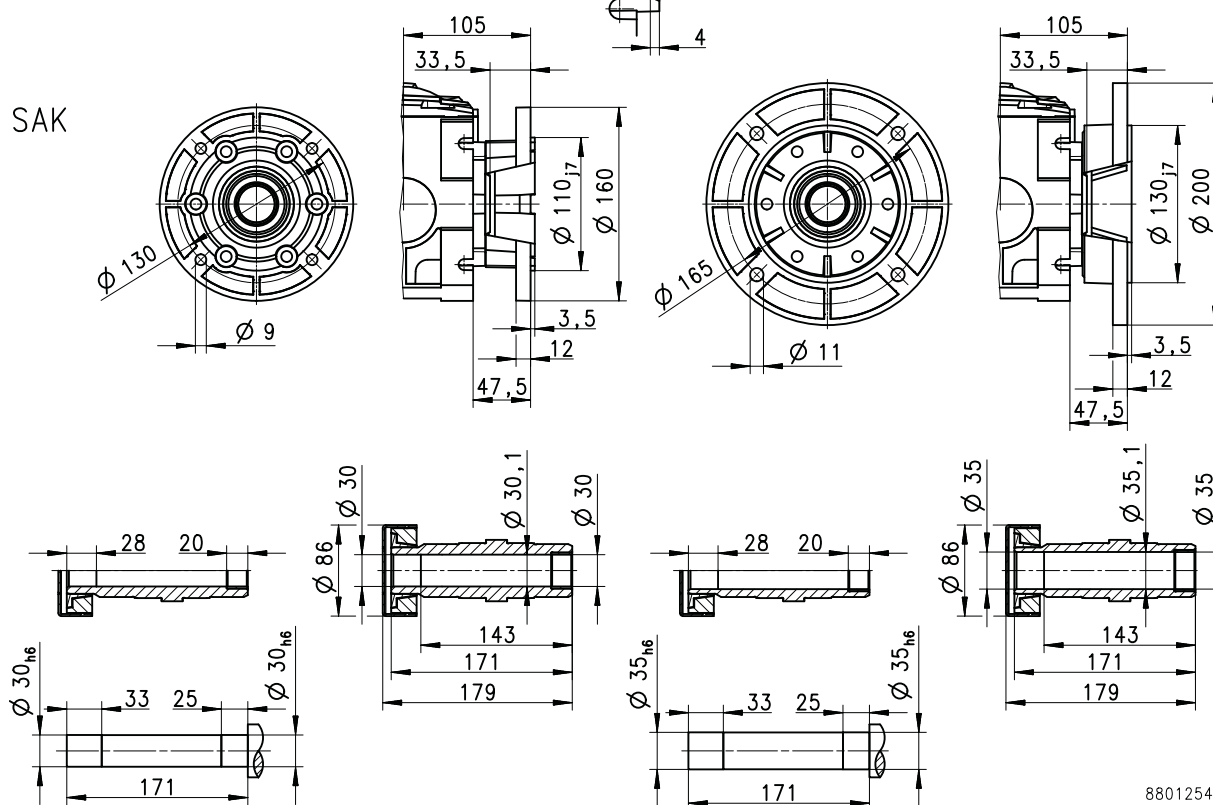
g500-B240, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801254-01

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	448	478	502	544	608
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

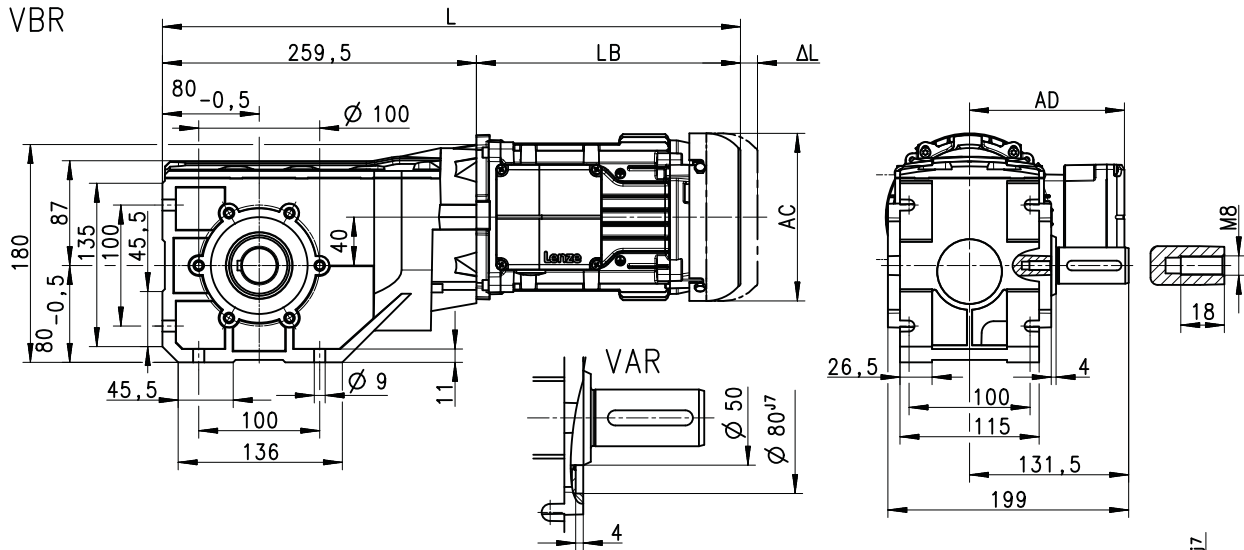
Δ L ▶ Additional lengths □ 130



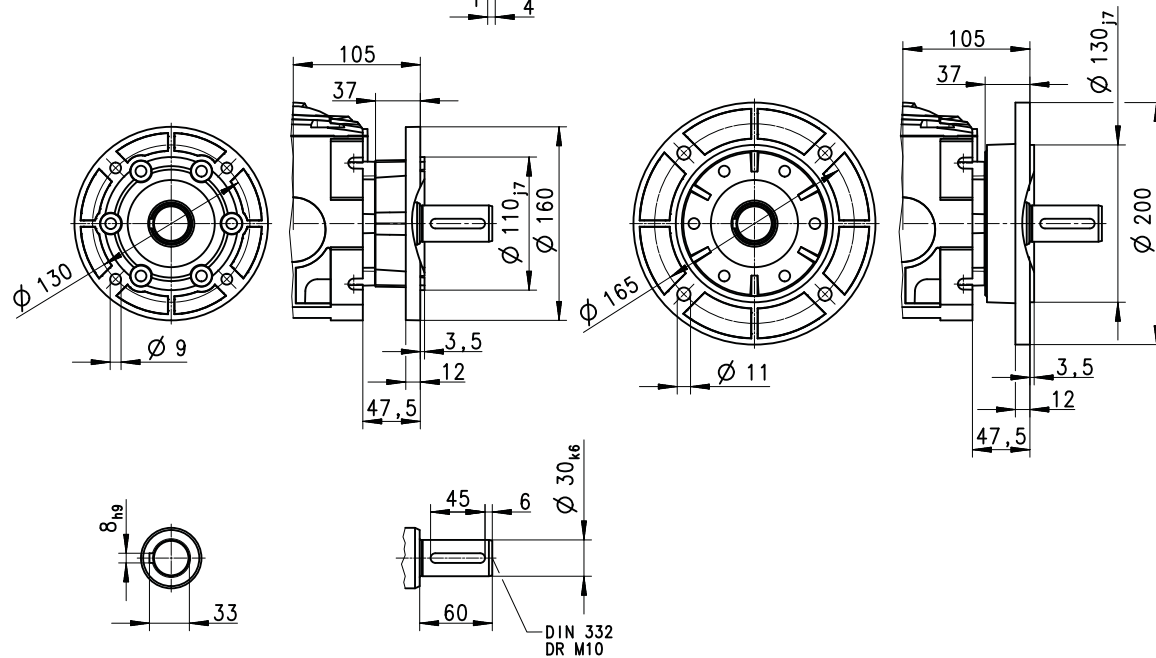
g500-B240, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801253-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	448	478	502	544	608
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

Δ L ▶ Additional lengths 130

Technical data

Dimensions
Basic dimensions

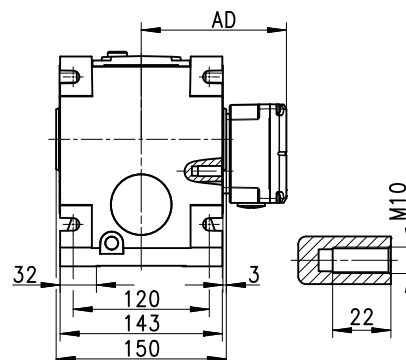
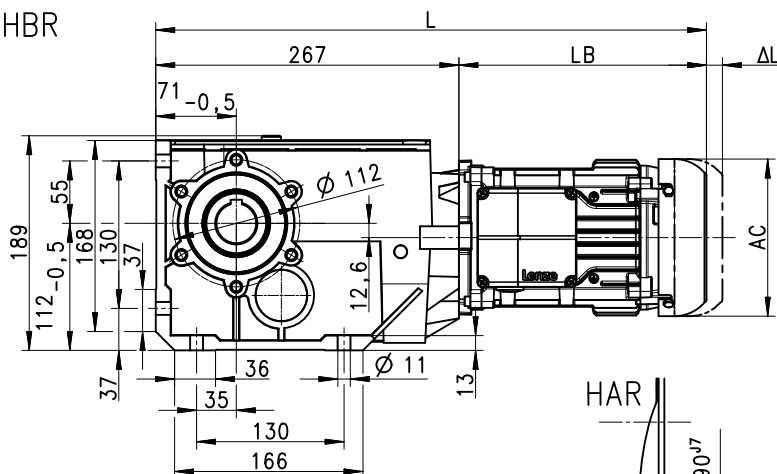


g500-B450, 3-stage

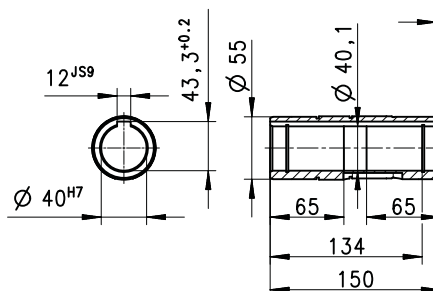
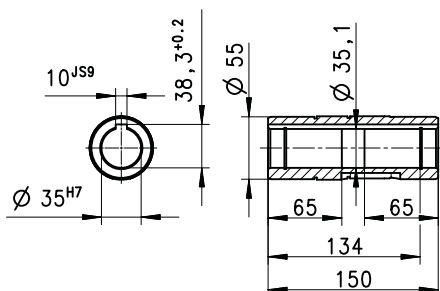
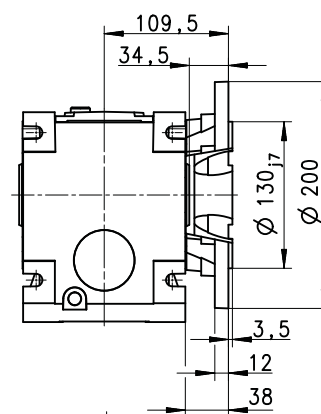
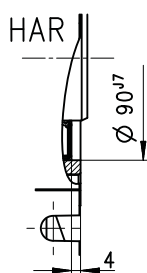
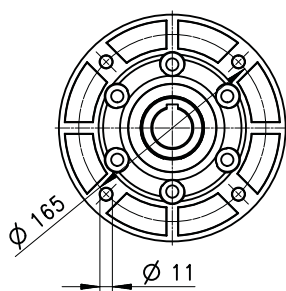
g500-B450, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801255-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	456	485	509	552	615	628	692
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

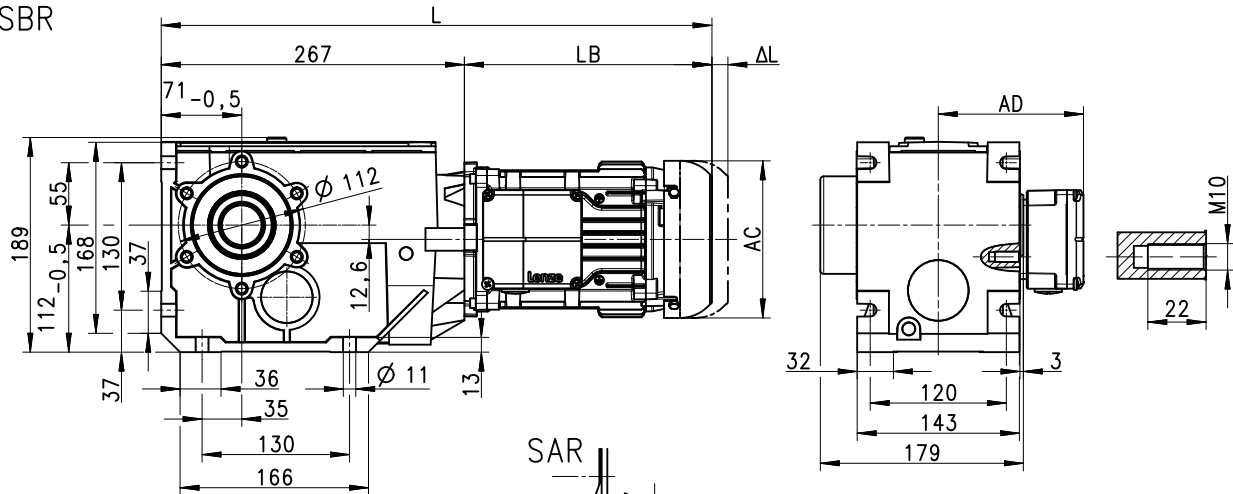
ΔL ▶ Additional lengths 130



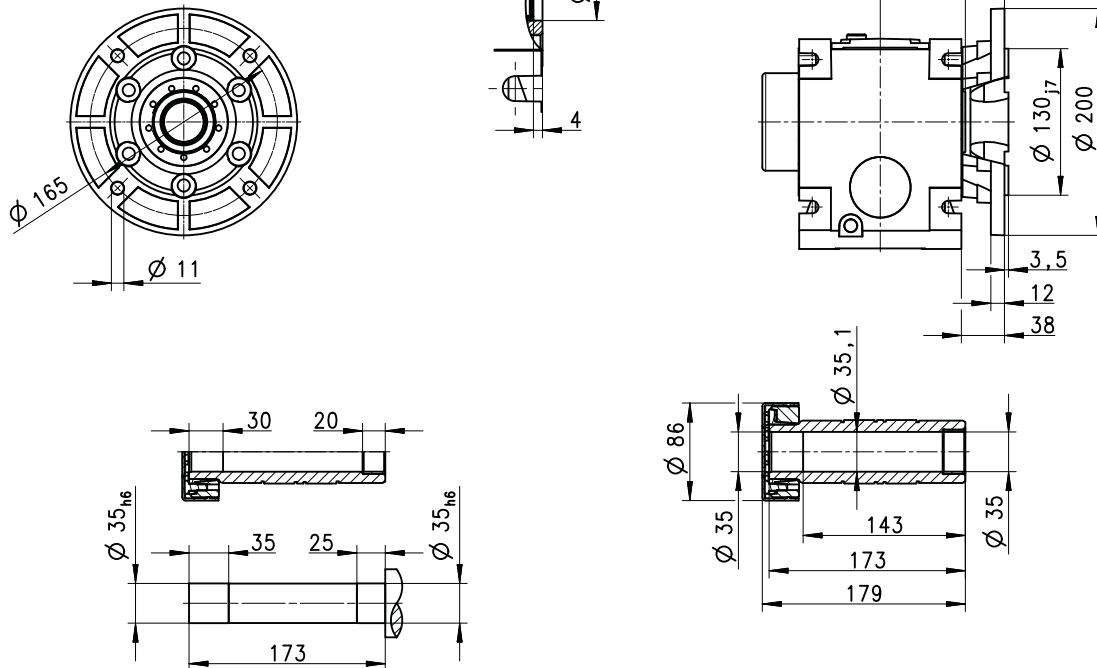
g500-B450, 3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801257-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	456	485	509	552	615	628	692
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths $\square$ 130

Technical data

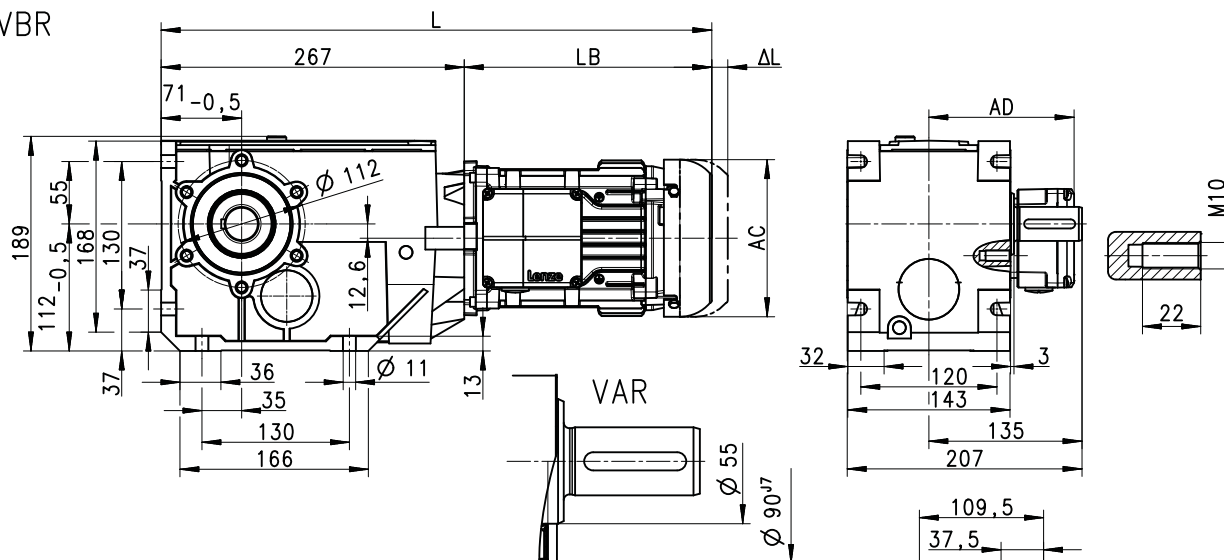
Dimensions
Basic dimensions



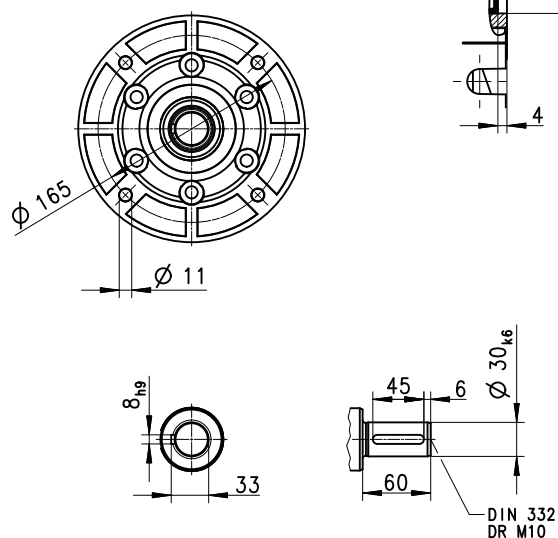
g500-B450, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801256-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	456	485	509	552	615	628	692
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths □ 130

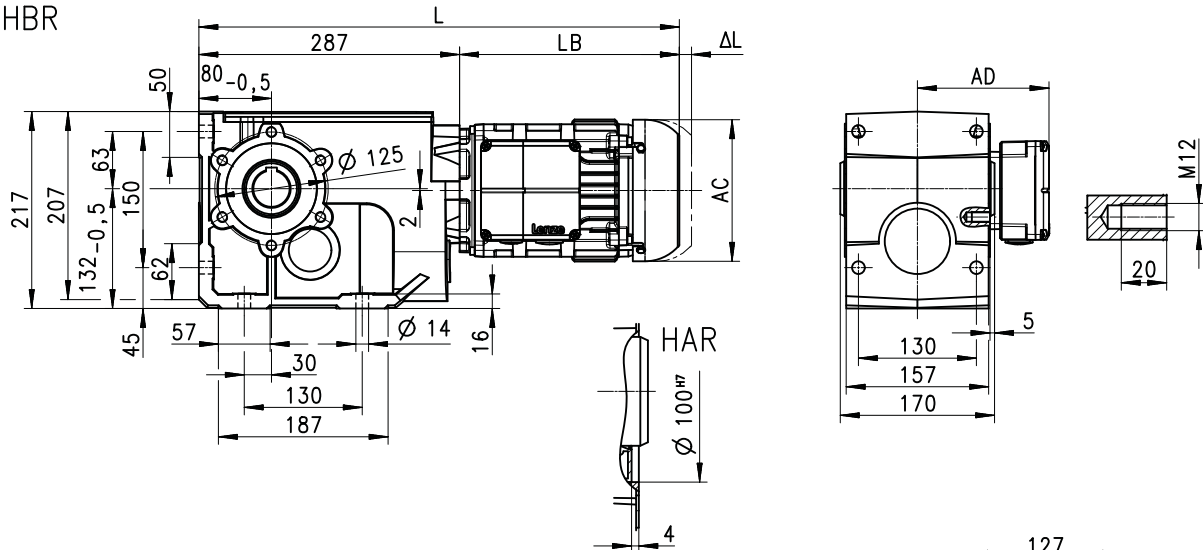


g500-B600, 3-stage

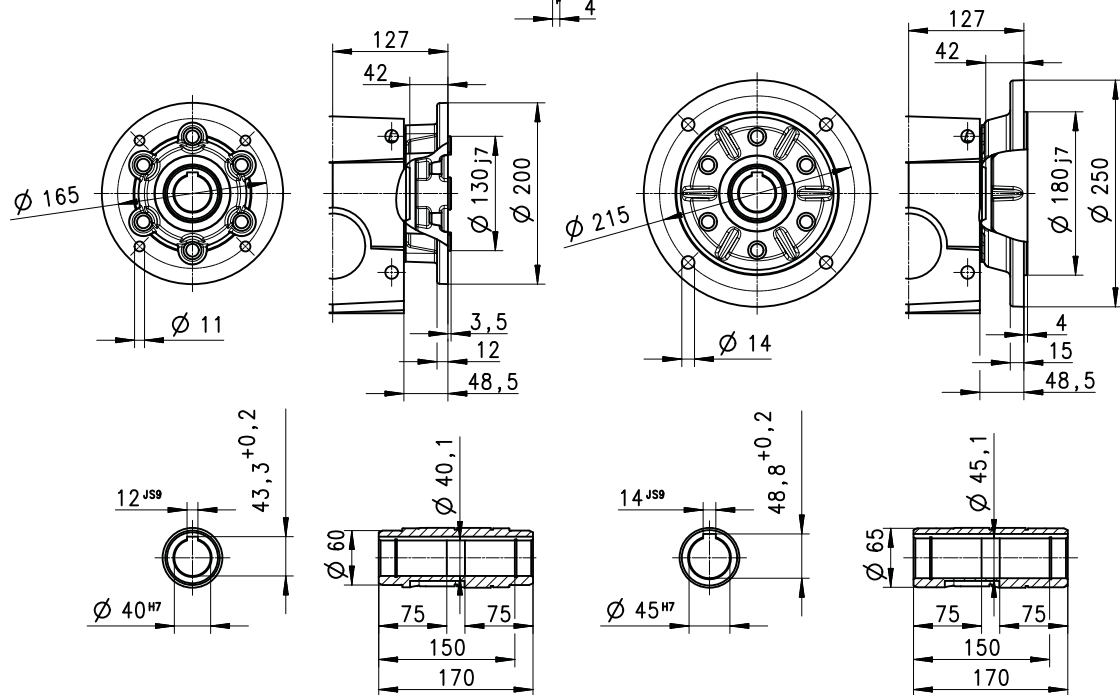
g500-B600, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801258-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	476	505	529	572	635	648	712
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 130

Technical data

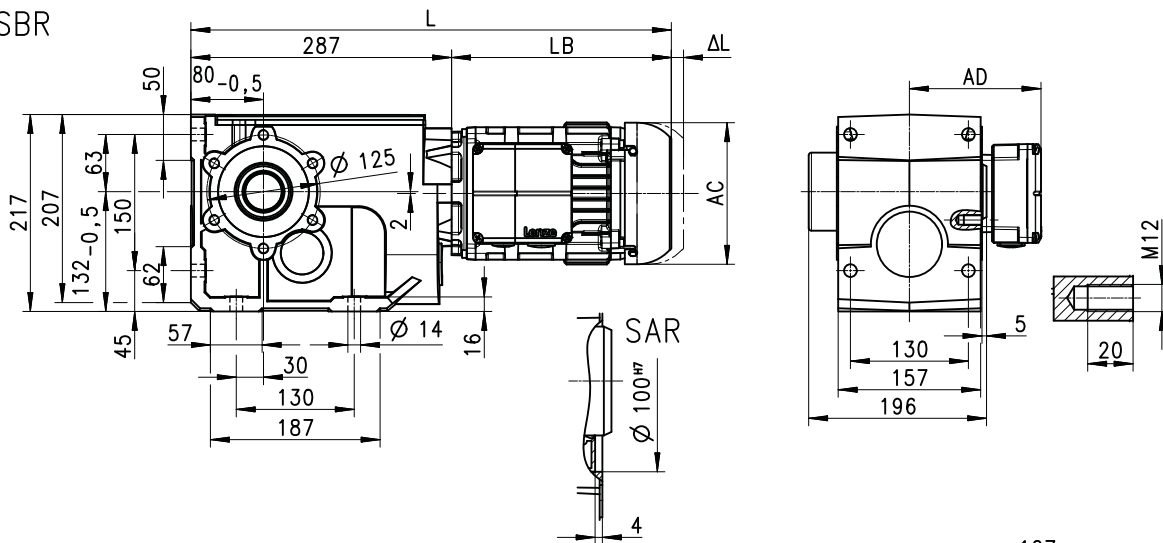
Dimensions
Basic dimensions



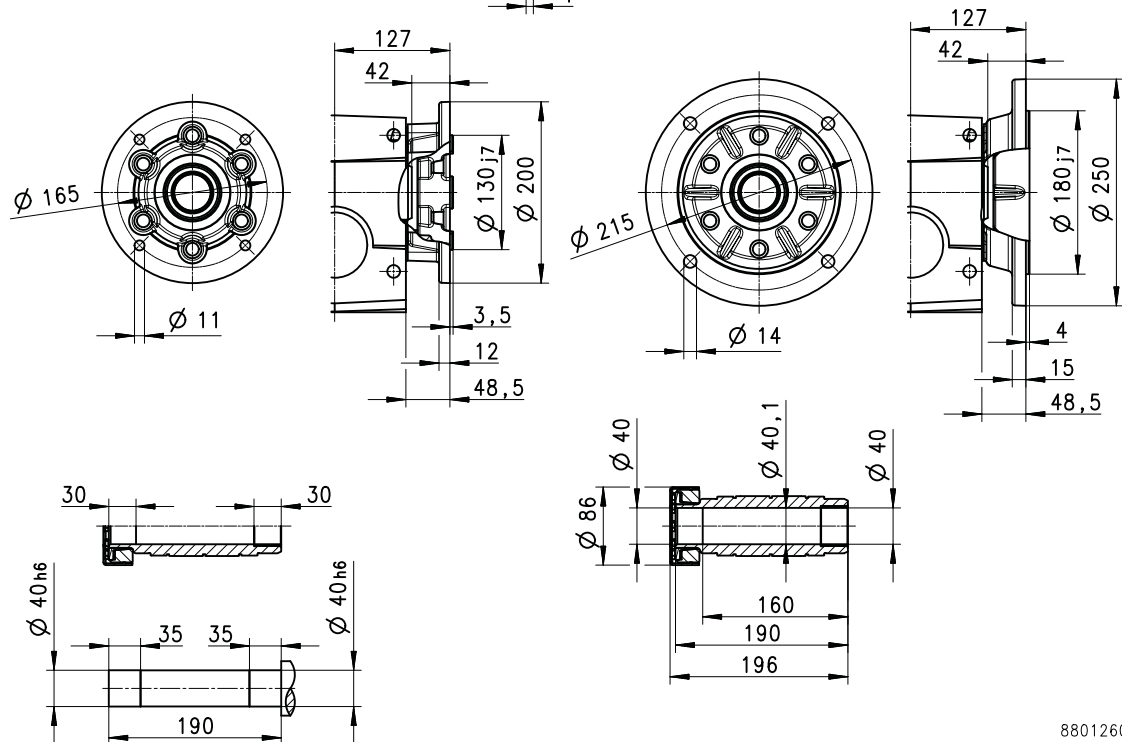
g500-B600, 3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801260-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	476	505	529	572	635	648	712
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

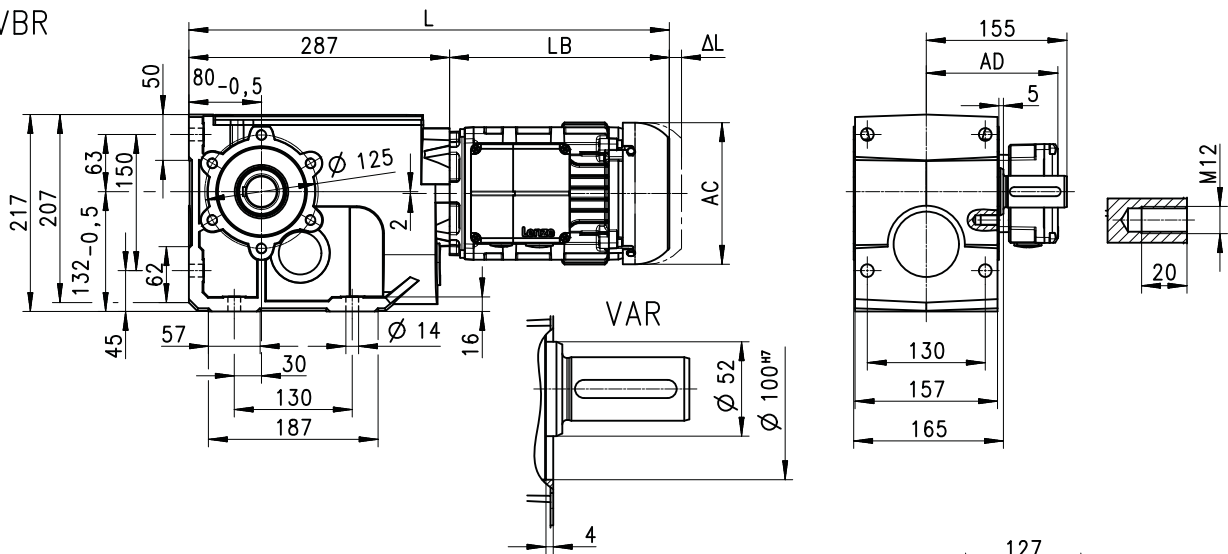
Δ L ► [Additional lengths](#) 130



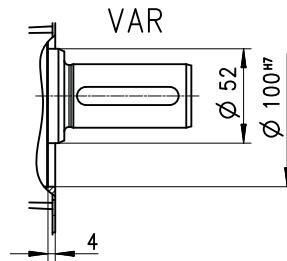
g500-B600, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

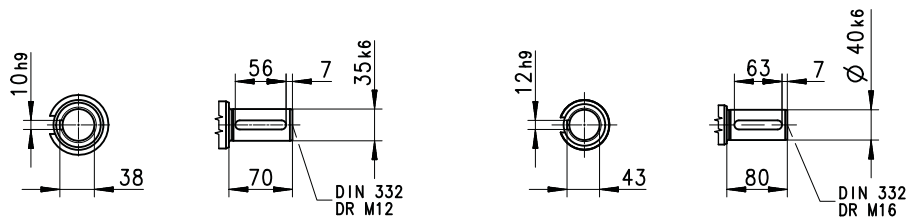
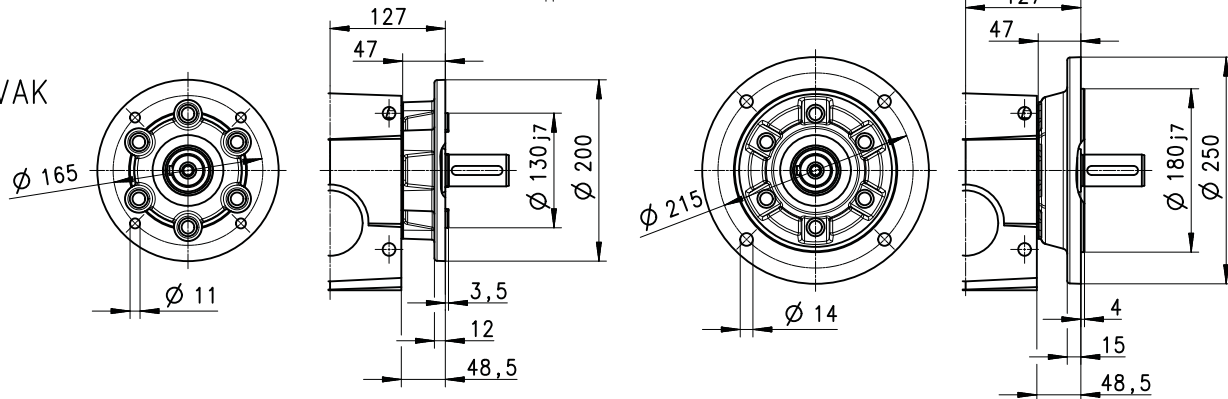
VBR



VAR



VAK



8801259-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	476	505	529	572	635	648	712
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 130

Technical data

Dimensions
Basic dimensions

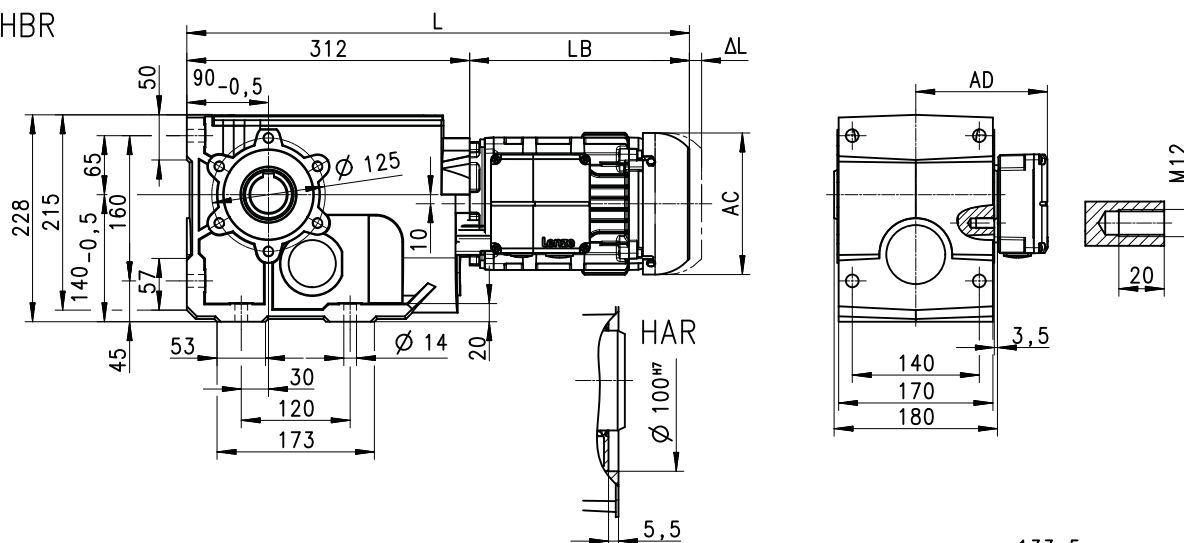


g500-B820, 3-stage

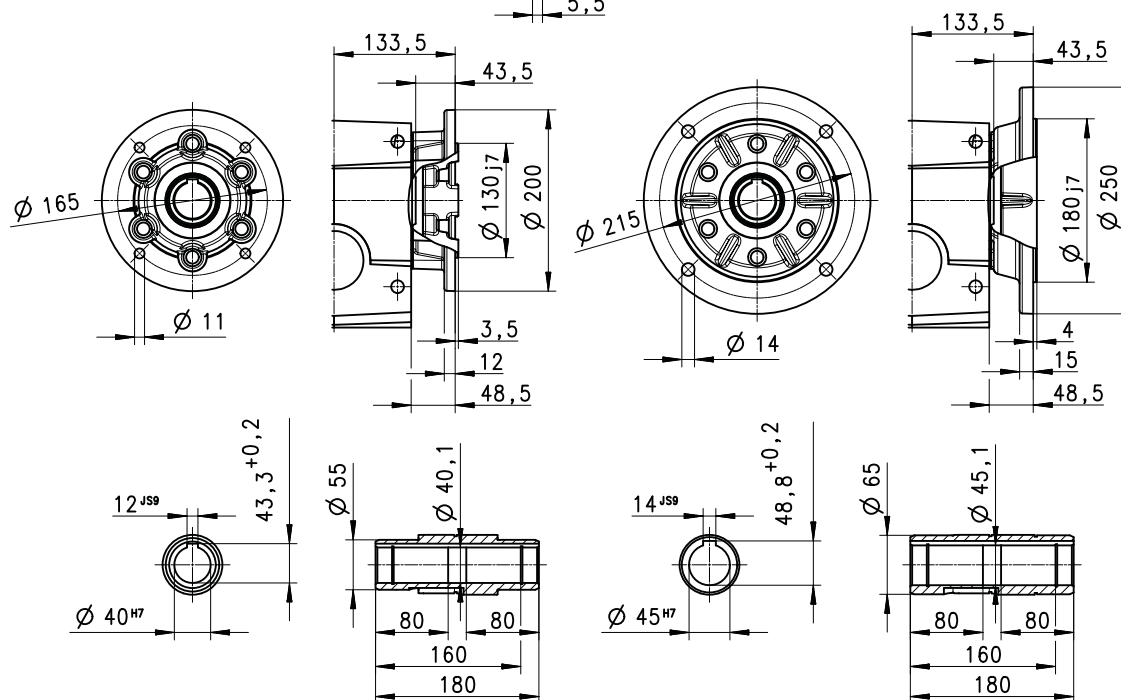
g500-B820, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801261-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	501	530	554	597	660	673	737
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

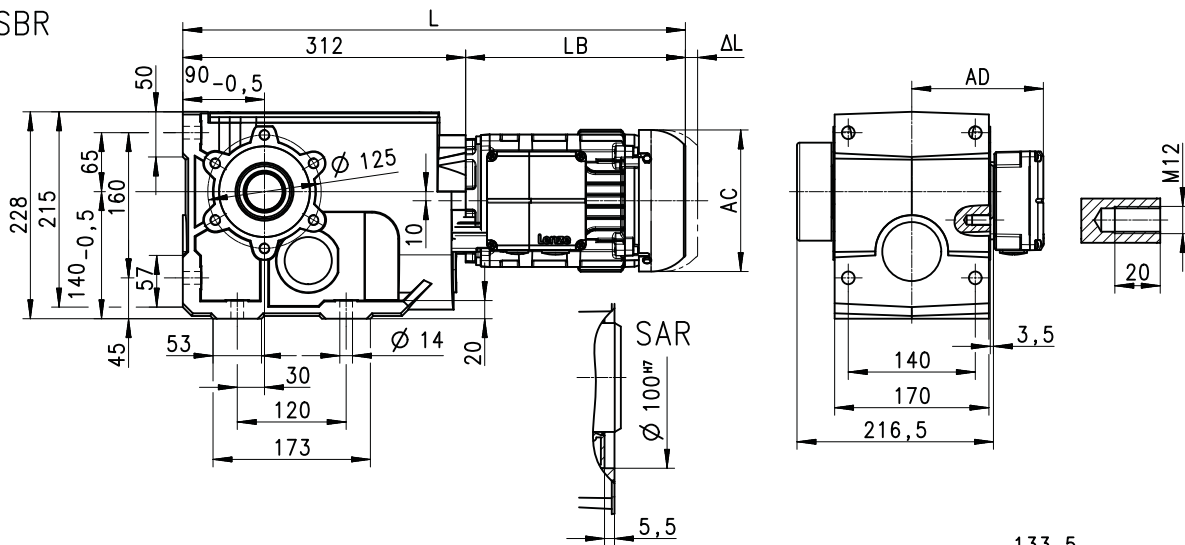
ΔL ▶ Additional lengths $\square 130$



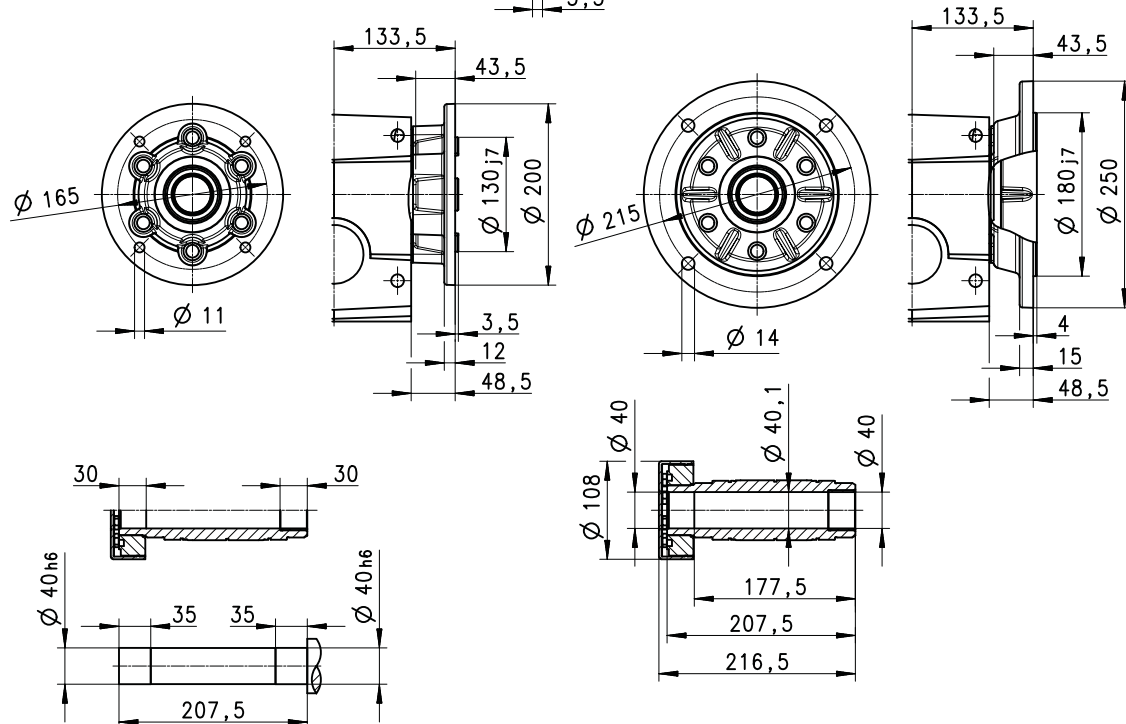
g500-B820, 3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801263-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	501	530	554	597	660	673	737
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths □ 130

Technical data

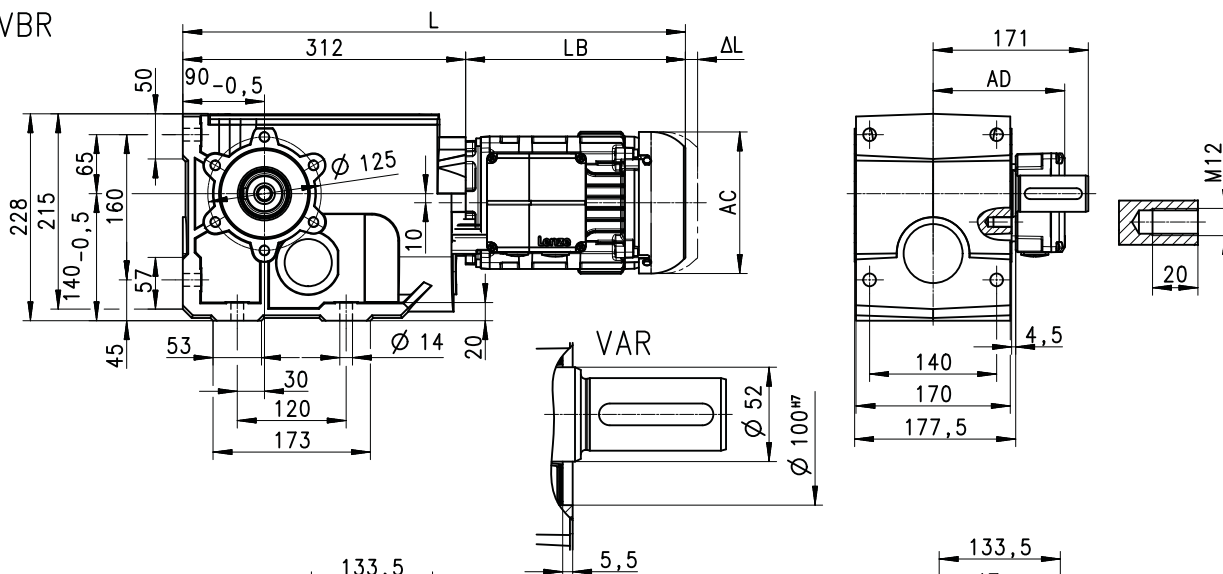
Dimensions
Basic dimensions



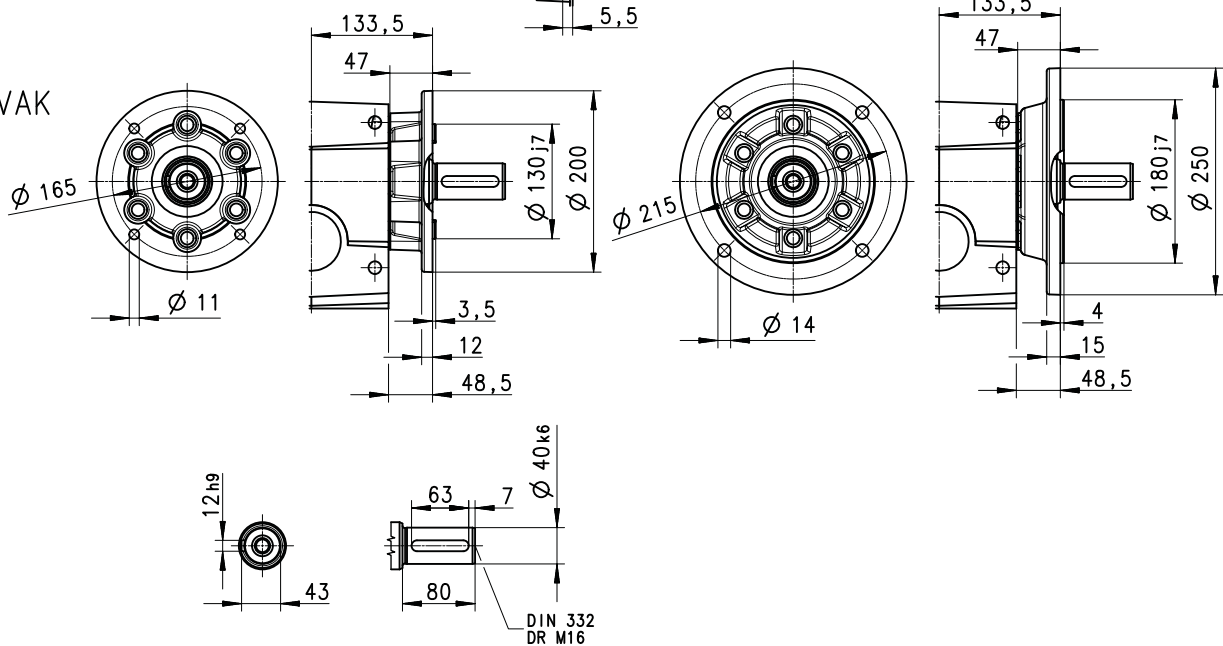
g500-B820, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801262-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04
Total length	L	mm	501	530	554	597	660	673	737
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths □ 130

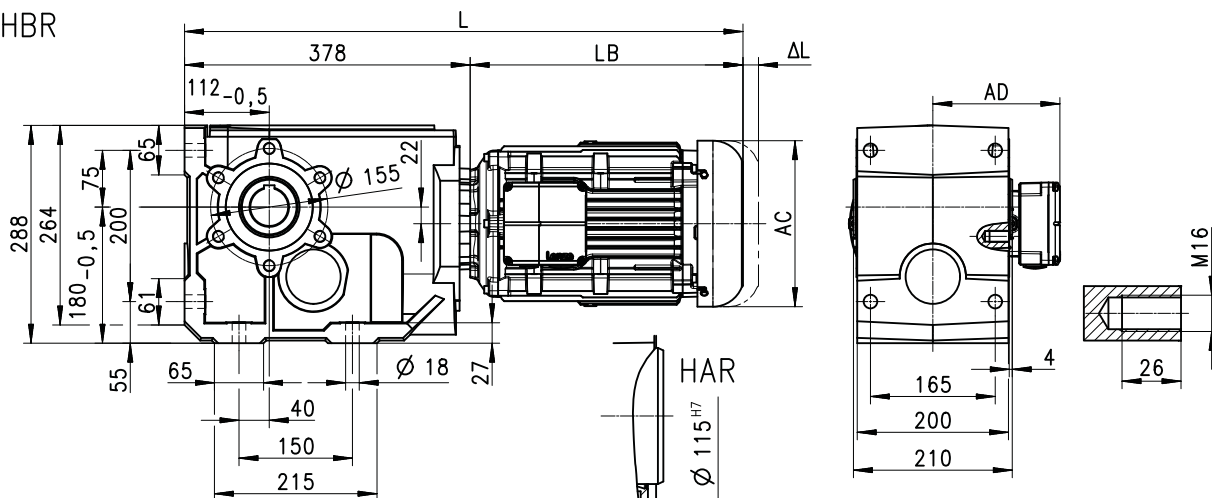


g500-B1500, 3-stage

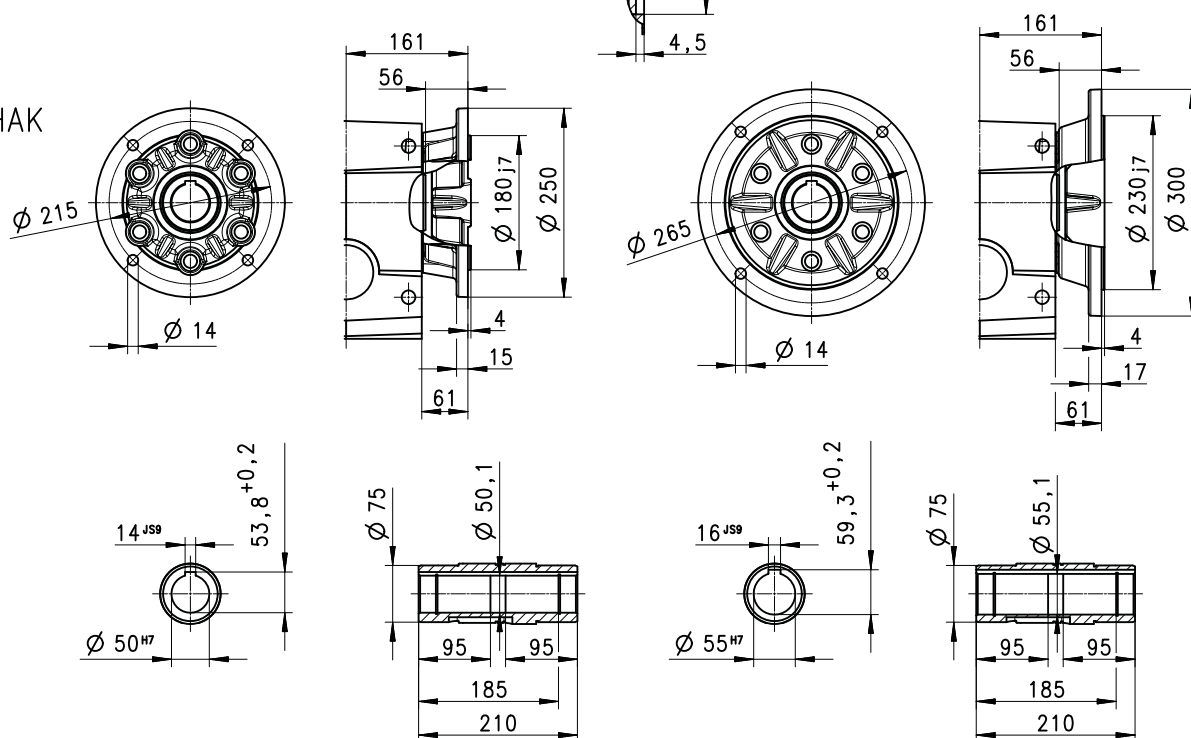
g500-B1500, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801264-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	567	596	620	663	726	739	803
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ► Additional lengths 130

Technical data

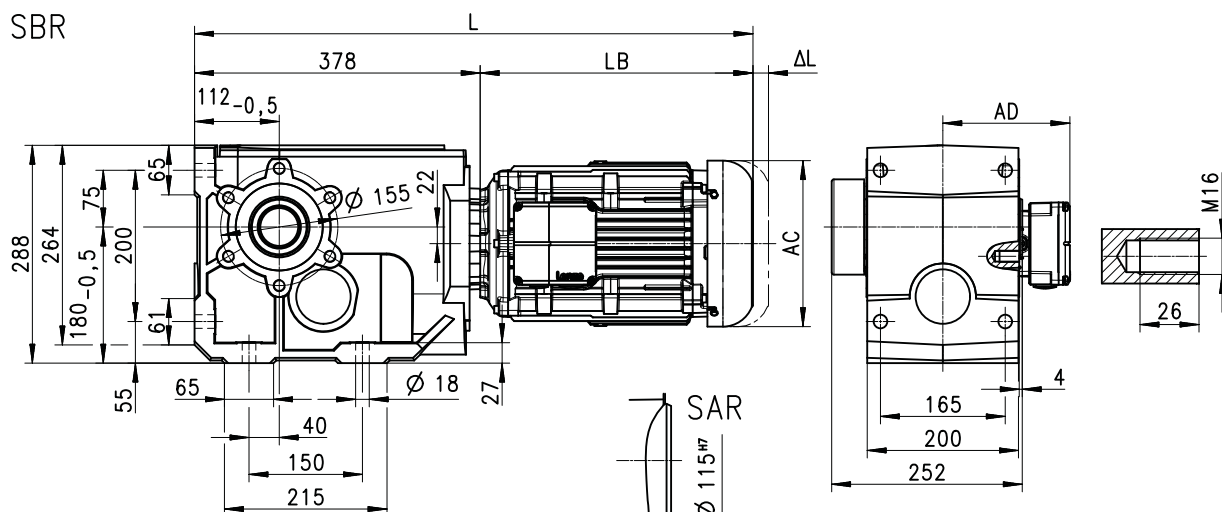
Dimensions
Basic dimensions



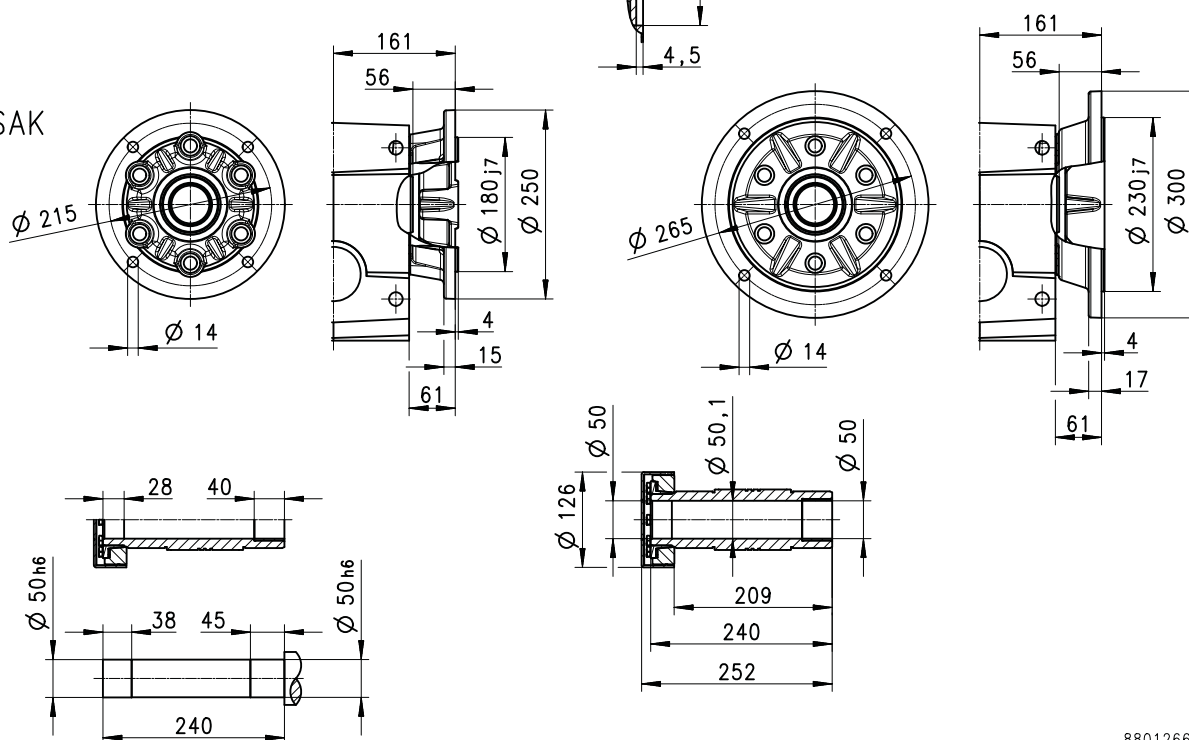
g500-B1500, 3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801266-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	567	596	620	663	726	739	803
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

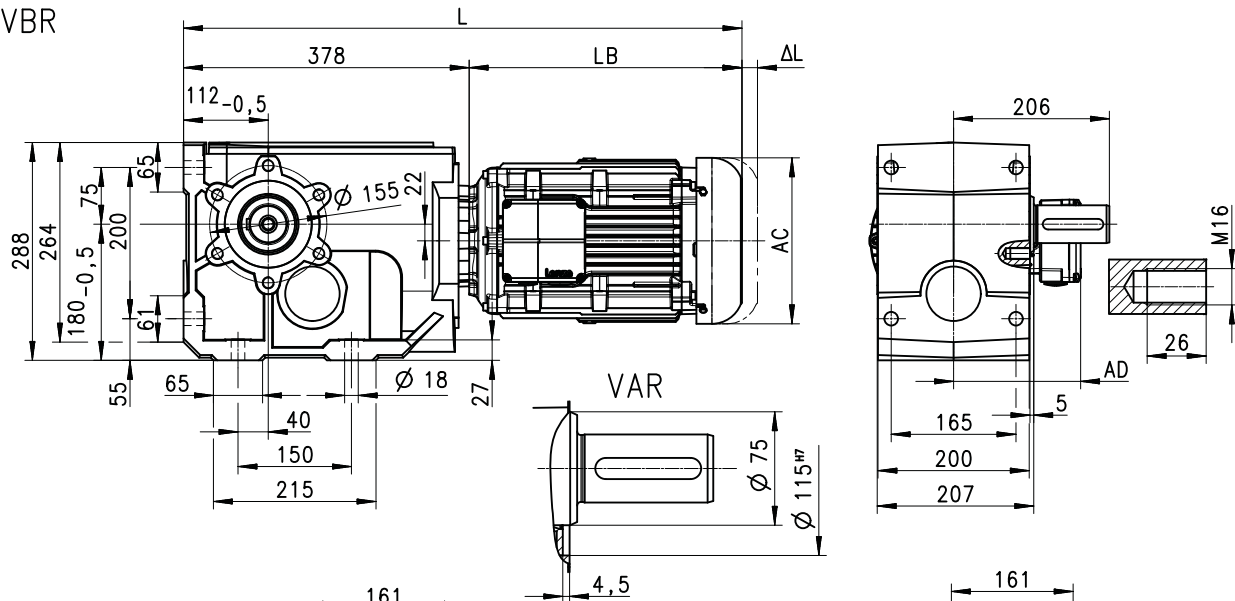
Δ L ▶ Additional lengths 130



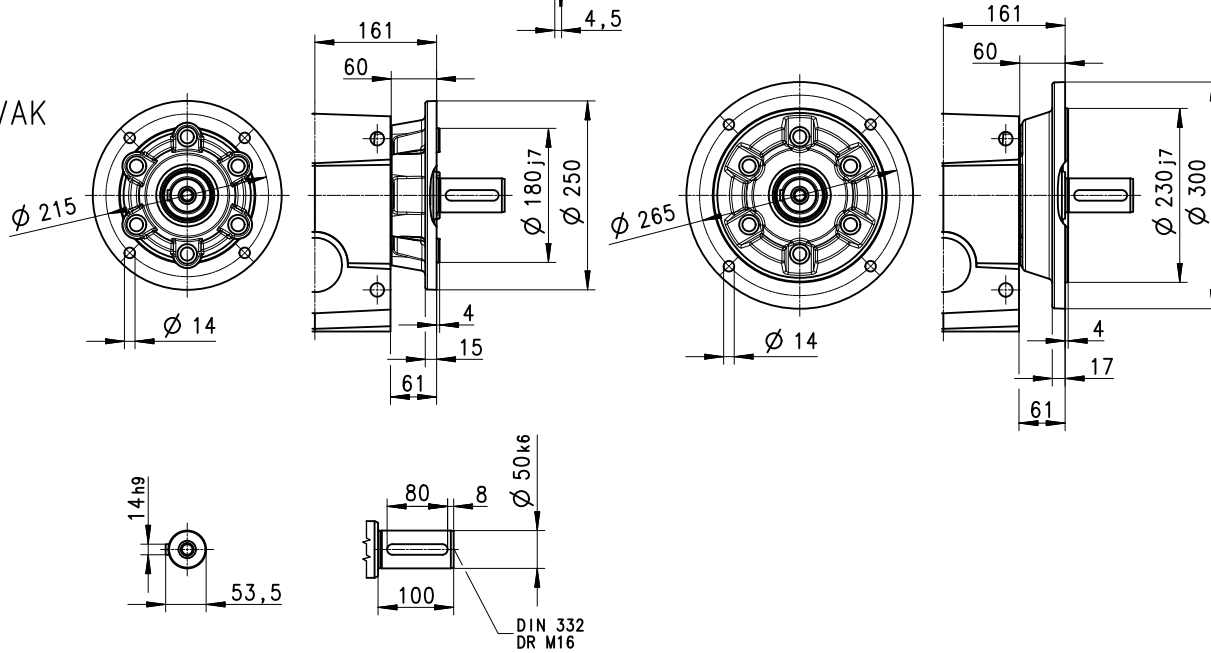
g500-B1500, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801265-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	567	596	620	663	726	739	803
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ► Additional lengths 130

Technical data

Dimensions
Basic dimensions

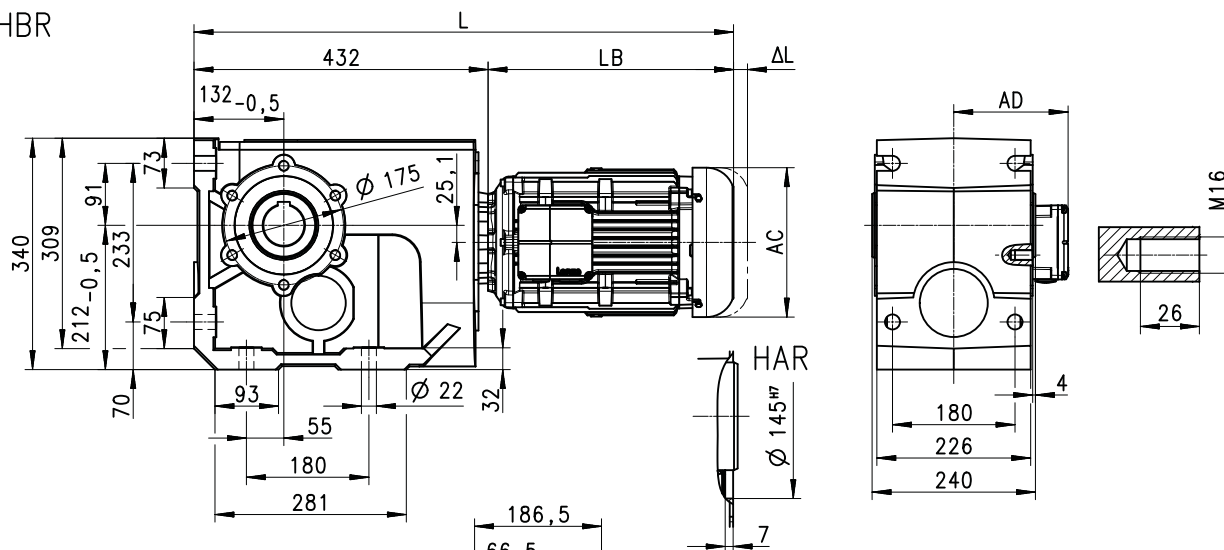


g500-B2700, 3-stage

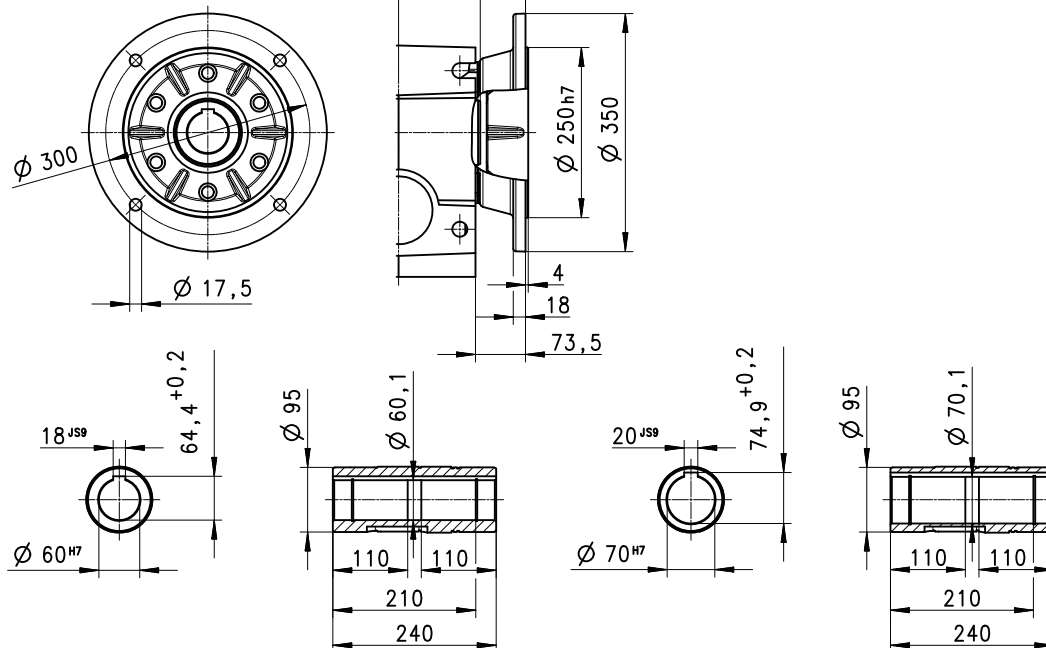
g500-B2700, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801267-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	621	650	674	717	780	793	857
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

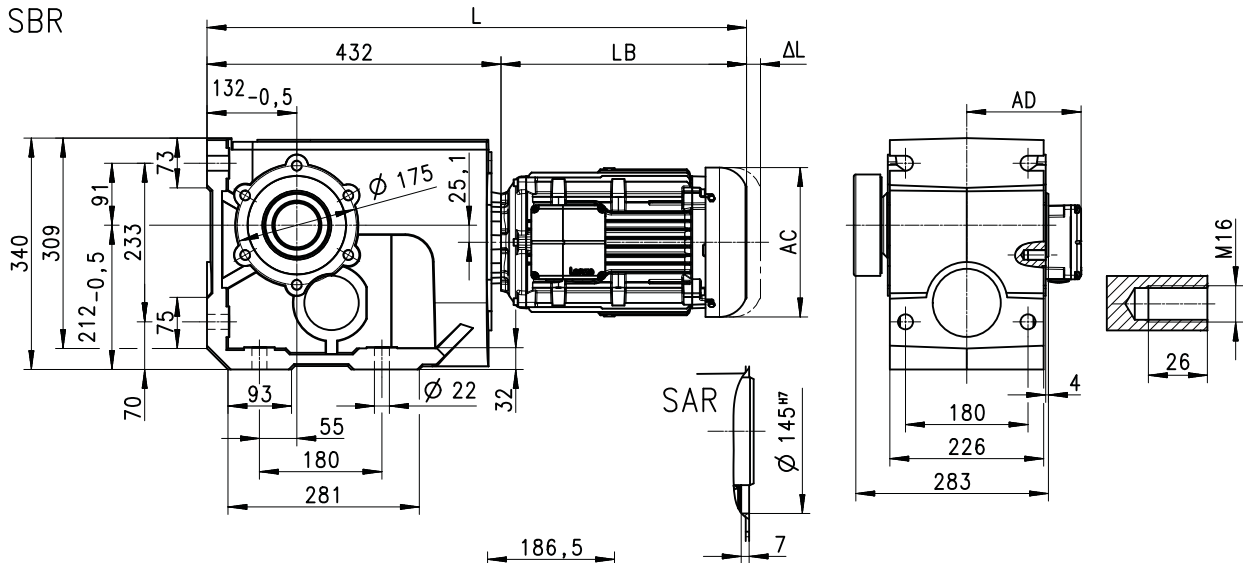
Δ L ▶ Additional lengths 130



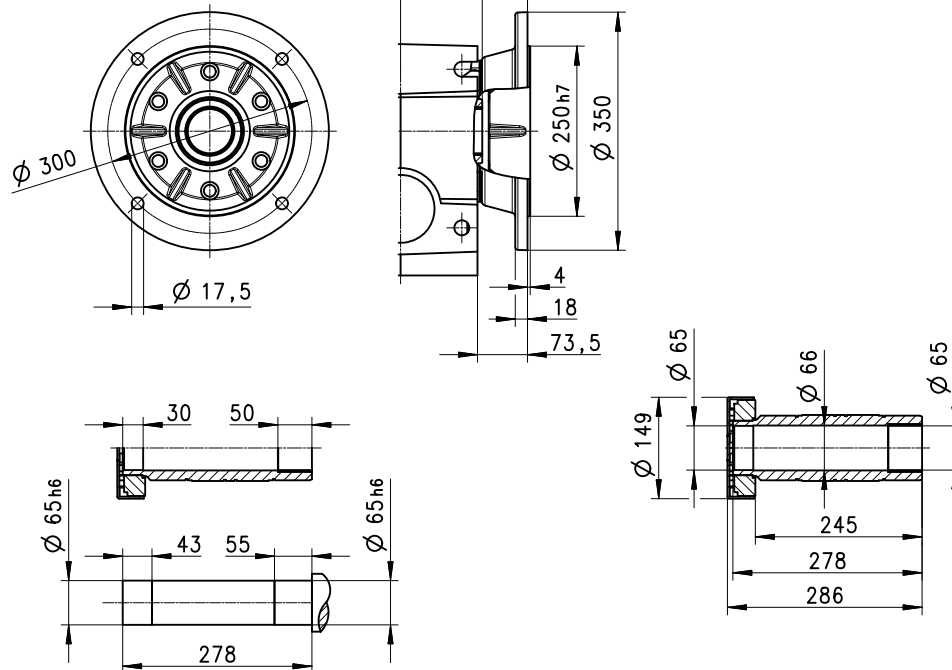
g500-B2700, 3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



SAK



8801269-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	621	650	674	717	780	793	857
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 130

Technical data

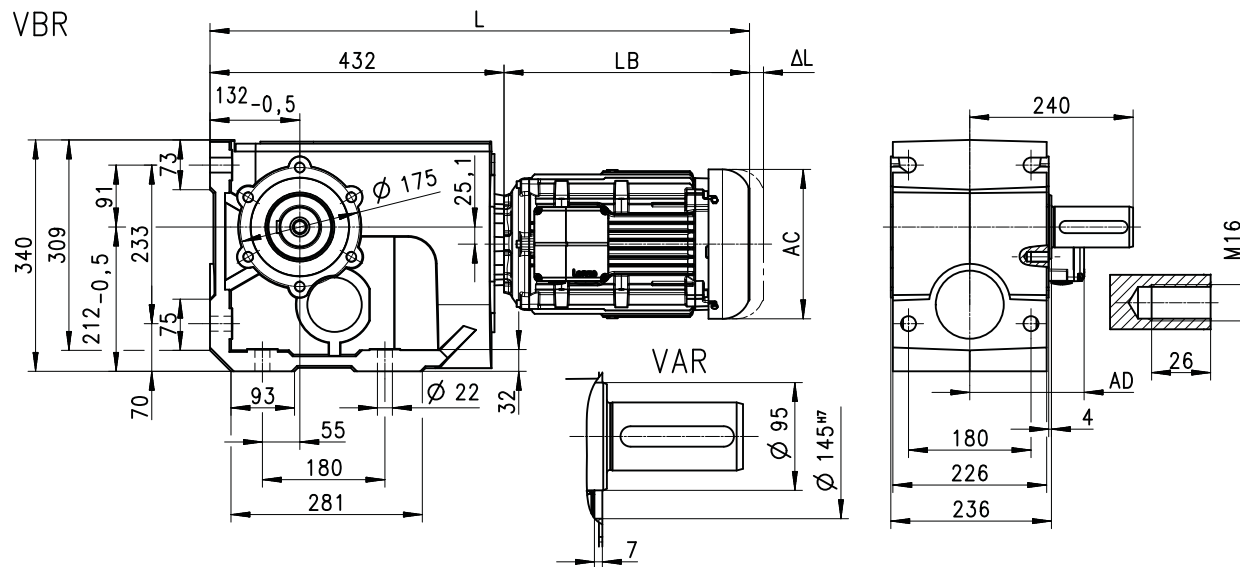
Dimensions
Basic dimensions



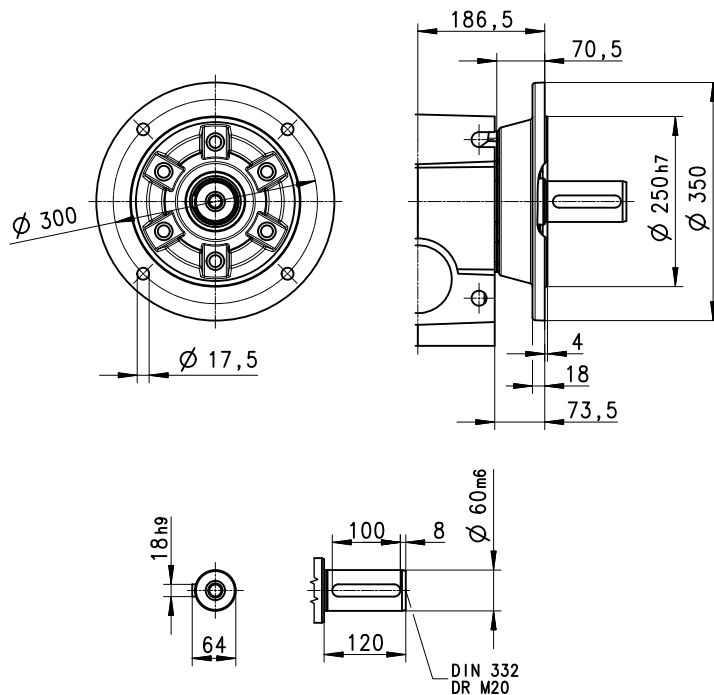
g500-B2700, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801268-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	621	650	674	717	780	793	857
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ► Additional lengths 130

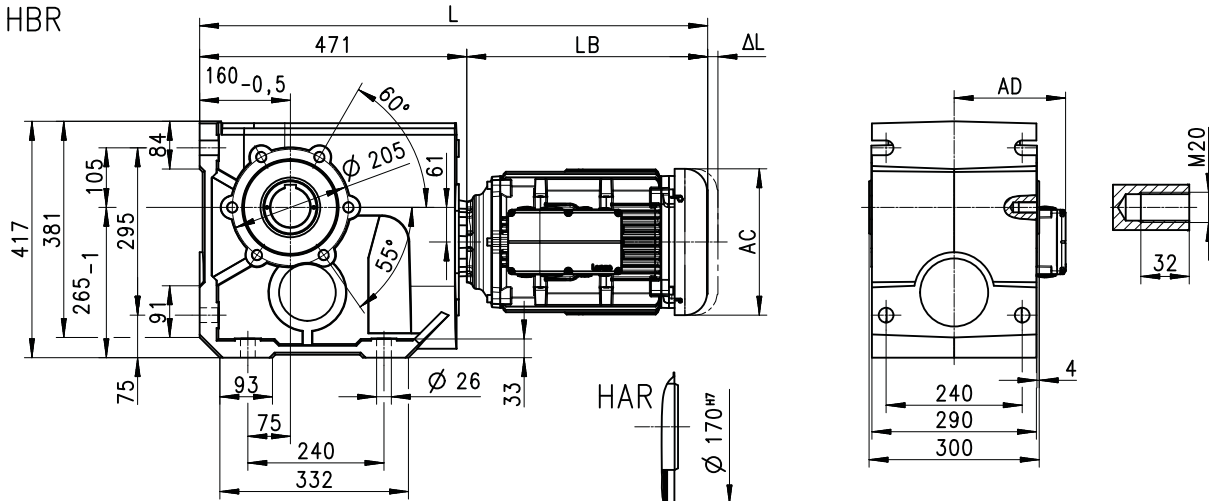


g500-B4300, 3-stage

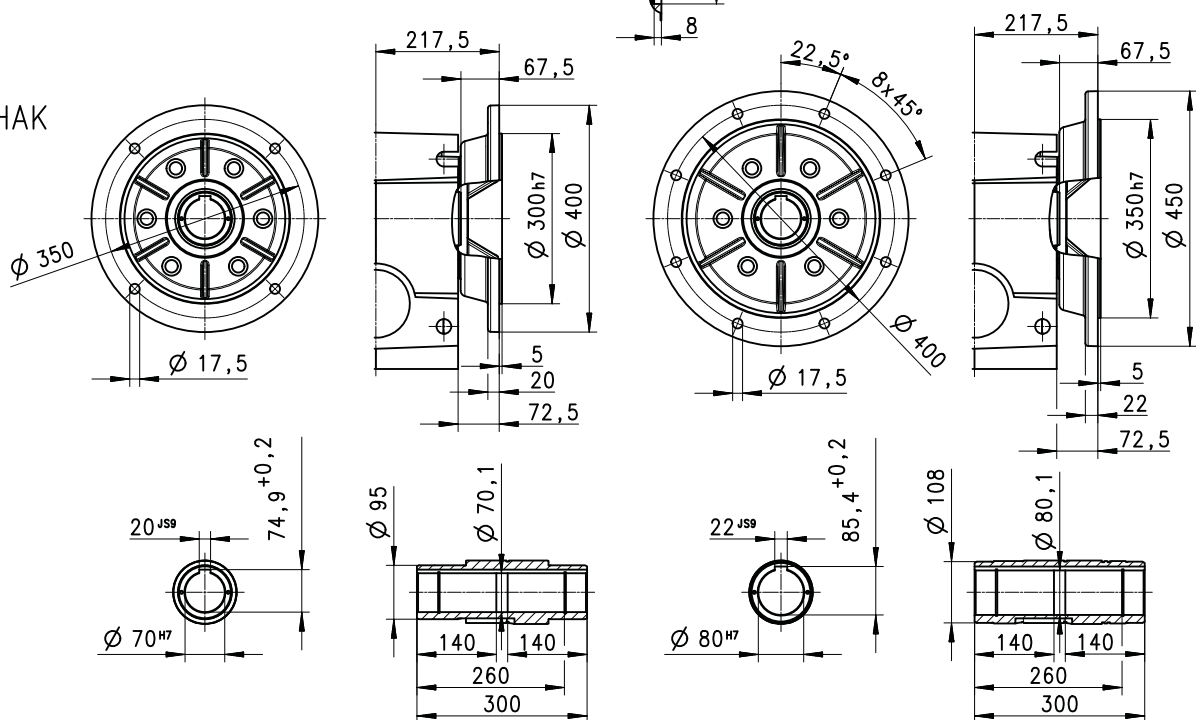
g500-B4300, 3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801270-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	660	689	713	756	819	832	896
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ► Additional lengths 130

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

[illegible]

8801272-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	660	689	713	756	819	832	896
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

124



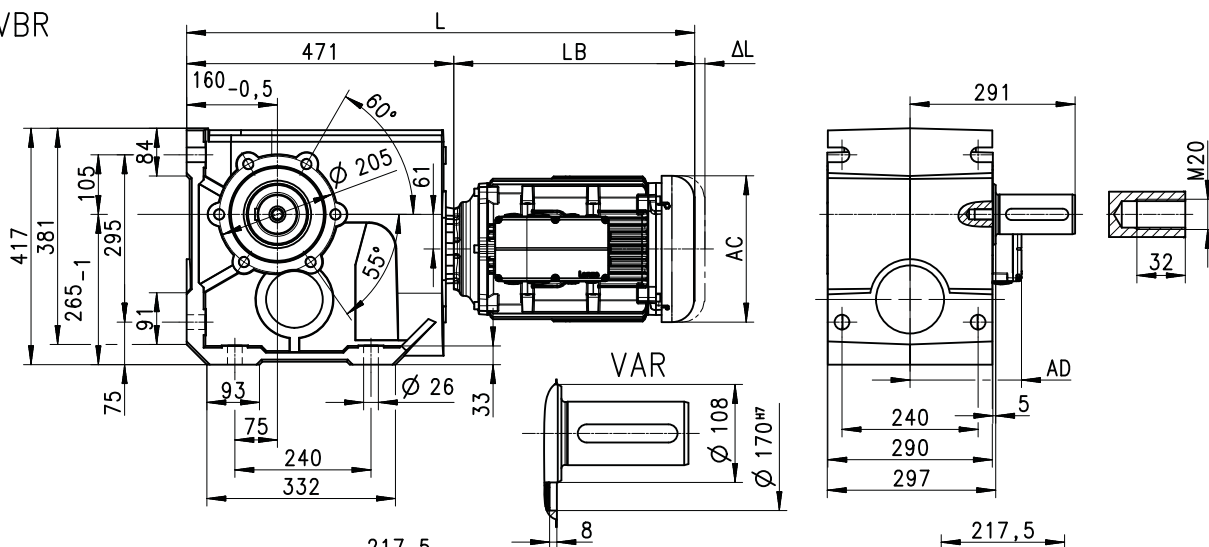
Technical data

Dimensions
Basic dimensions

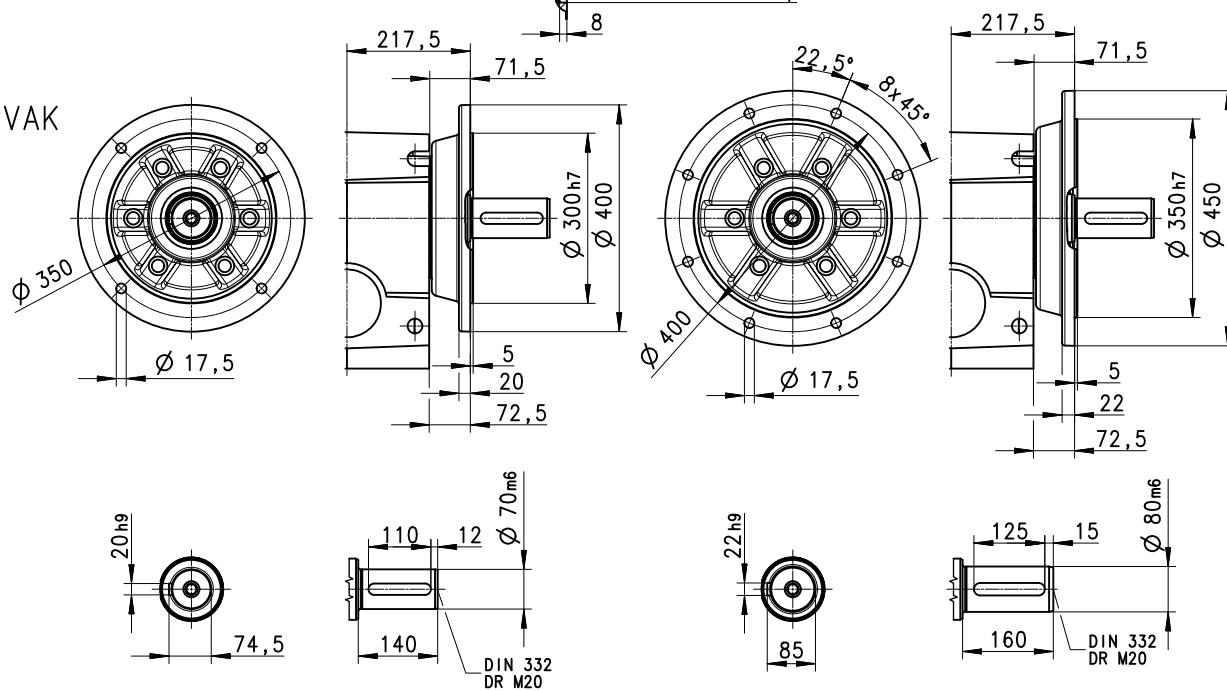
g500-B4300, 3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801271-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	660	689	713	756	819	832	896
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 130



7.7.2 Gearbox with pre-stage

g500-B110, 3-stage

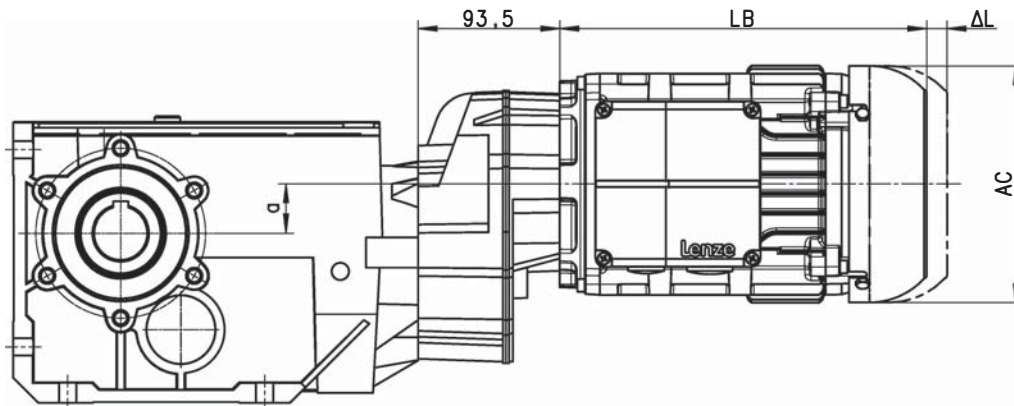
g500-B240 ... B4300, 4-stage

The geared motor dimensions can be found in the basic dimensions, except the total length "L" and the center distance "a".

► [Basic dimensions](#) 99

The total length "L" in the basic dimensions is extended by the 93.5 mm of the pre-stage.

Pay attention to the altered center distance "a" between the gearbox and motor shaft.



8801277-00

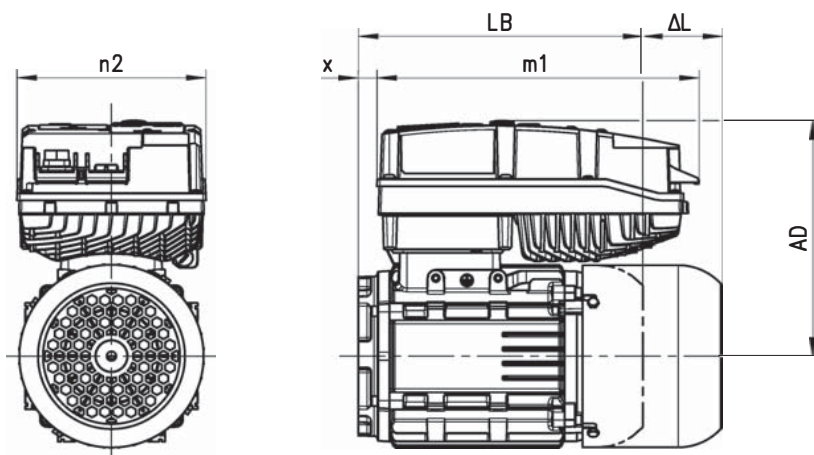
Gearboxes			g500-B110	g500-B240	g500-B450	g500-B600	g500-B820	g500-B1500	g500-B2700	g500-B4300
			3-stage	4-stage						
Center distance	a	mm	81	85	32.4	43	35	23	19.9	16



7.7.3 Integrated inverters

i550/i650 motec

Supply voltage 3x 400/480 V



8801826-01

Rated frequency 124 Hz

Technical data

Dimensions
Integrated inverters



Motor	i550 motec	AD	m1	n2	x
		g_1	m_1	n_2	x
		mm	mm	mm	mm
m650-U63/L4	i550-M0.75/400-3	179	265	160	11
m650-U63/L4	i550-M0.55/400-3	179	265	160	11
m650-U71/M4	i550-M1.1/400-3	190	265	160	21
m650-U71/M4	i550-M0.75/400-3	190	265	160	21
m650-U71/L4	i550-M1.5/400-3	190	265	160	21
m650-U71/L4	i550-M2.2/400-3	190	265	160	21
m650-U71/L4	i550-M1.1/400-3	190	265	160	21
m650-U80/M4	i550-M2.2/400-3	203	265	160	25
m650-U80/M4	i550-M1.5/400-3	203	265	160	25
m650-U80/M4	i550-M3.0/400-3	221	265	160	23
m650-U90/M4	i550-M2.2/400-3	211	265	160	44
m650-U90/M4	i550-M3.0/400-3	229	265	160	44
m650-U90/M4	i550-M4.0/400-3	229	265	160	44
m650-U90/L4	i550-M4.0/400-3	229	265	160	44
m650-U90/L4	i550-M5.5/400-3	229	265	160	44
m650-U90/L4	i550-M3.0/400-3	229	265	160	44
m650-U100/M4	i550-M5.5/400-3	239	265	160	34
m650-U100/M4	i550-M4.0/400-3	239	265	160	34
m650-U100/M4	i550-M7.5/400-3	264	362	211	21
m650-U100/L4	i550-M5.5/400-3	239	265	160	34
m650-U100/L4	i550-M7.5/400-3	264	362	211	21
m650-U100/L4	i550-M11/400-3	264	362	211	21
m650-U112/M4	i550-M11/400-3	269	362	211	39
m650-U112/M4	i550-M7.5/400-3	269	362	211	39
m650-U132/S4	i550-M11/400-3	289	362	211	48
m650-U132/S4	i550-M15/400-3	341	443	280	27
m650-U132/S4	i550-M18/400-3	341	443	280	27
m650-U132/M4	i550-M18/400-3	341	443	280	27
m650-U132/M4	i550-M22/400-3	341	443	280	27
m650-U132/M4	i550-M15/400-3	341	443	280	27
m650-U132/L4	i550-M22/400-3	341	443	280	27
m650-U132/L4	i550-M30/400-3	341	443	280	27
m650-U132/L4	i550-M18/400-3	341	443	280	27



Motor	i650 motec	AD	m1	n2	x
		g_1	m_1	n_2	x
		mm	mm	mm	mm
m650-U63/L4	i650-M0.75/400-3	179	265	160	11
m650-U63/L4	i650-M0.55/400-3	179	265	160	11
m650-U71/M4	i650-M1.1/400-3	190	265	160	21
m650-U71/M4	i650-M0.75/400-3	190	265	160	21
m650-U71/L4	i650-M1.5/400-3	190	265	160	21
m650-U71/L4	i650-M2.2/400-3	190	265	160	21
m650-U71/L4	i650-M1.1/400-3	190	265	160	21
m650-U80/M4	i650-M2.2/400-3	203	265	160	25
m650-U80/M4	i650-M3.0/400-3	221	265	160	23
m650-U80/M4	i650-M1.5/400-3	203	265	160	25
m650-U90/M4	i650-M3.0/400-3	229	265	160	44
m650-U90/M4	i650-M4.0/400-3	229	265	160	44
m650-U90/M4	i650-M2.2/400-3	211	265	160	44
m650-U90/L4	i650-M4.0/400-3	229	265	160	44
m650-U90/L4	i650-M5.5/400-3	229	265	160	44
m650-U90/L4	i650-M3.0/400-3	229	265	160	44
m650-U100/M4	i650-M5.5/400-3	239	265	160	34
m650-U100/M4	i650-M7.5/400-3	264	362	211	21
m650-U100/M4	i650-M4.0/400-3	239	265	160	34
m650-U100/L4	i650-M7.5/400-3	264	362	211	21
m650-U100/L4	i650-M11/400-3	264	362	211	21
m650-U100/L4	i650-M5.5/400-3	239	265	160	34
m650-U112/M4	i650-M11/400-3	269	362	211	39
m650-U112/M4	i650-M7.5/400-3	269	362	211	39
m650-U132/S4	i650-M15/400-3	341	443	280	27
m650-U132/S4	i650-M18/400-3	341	443	280	27
m650-U132/S4	i650-M11/400-3	289	362	211	48
m650-U132/M4	i650-M18/400-3	341	443	280	27
m650-U132/M4	i650-M22/400-3	341	443	280	27
m650-U132/M4	i650-M15/400-3	341	443	280	27
m650-U132/L4	i650-M22/400-3	341	443	280	27
m650-U132/L4	i650-M30/400-3	341	443	280	27
m650-U132/L4	i650-M18/400-3	341	443	280	27

Dimensions LB and ΔL ▶ [Basic dimensions](#) 99



7.7.4 Additional lengths

Self-ventilated motors

Motor			m650-U						
			63/L4	71/M4	80/M4	90/M4	100/M4	112/M4	132/S4
				71/L4		90/L4	100/L4		132/M4
									132/L4
Without feedback/brake									
Protection class IP54/IP55	Δ L	mm	0	0	0	0	0	0	0
With integrated feedback									
Protection class IP54/IP55	Δ L	mm	23	9	7	7	13	0	9
With mounted feedback									
Protection class IP54/IP55	Δ L	mm	85	75	68	63	74	77	91
With spring-applied brake									
Protection class IP54/IP55	Δ L	mm	61	60	68	63	74	77	91
With spring-applied brake and integrated feedback									
Protection class IP54/IP55	Δ L	mm	61	60	68	63	74	77	91
With spring-applied brake and mounted feedback									
Protection class IP54/IP55	Δ L	mm	135	128	136	131	145	148	162



7.8 Weights

7.8.1 Basic weights



The basic weights are listed in the selection tables.

Weights with lubricant for mounting position M1, all data approximate values. The exact values can be found in the delivery documents

► [Selection tables](#) 69

Observe ► [Additional weights](#) 132!



7.8.2 Additional weights



Add the individual additional weights to the basic weight depending on the design.

Gearboxes

Gearboxes			g500-B45	g500-B110	g500-B240	g500-B450
Solid shaft	m	kg	0.4	0.5	1.4	1.0
Shrink disc	m	kg	0.2	0.2	0.7	0.6
Flange	m	kg	0.3	0.4	0.7	0.9
Torque plate						
Threaded pitch circle	m	kg	0.3	0.5	1.3	2.5
Housing foot	m	kg	-	-	2.4	1.1
Housing foot, GKS compatible	m	kg	-	-	-	-
Shaft cover						
Shrink disc cover	m	kg	0.1	0.1	0.1	0.1
Hollow shaft cover, hoseproof	m	kg	0.1	0.1	0.1	0.2

Gearboxes			g500-B600	g500-B820	g500-B1500	g500-B2700	g500-B4300
Solid shaft	m	kg	1.5	1.9	3.7	6.0	15.5
Shrink disc	m	kg	0.6	1.2	1.7	2.3	4.3
Flange	m	kg	6.1	6.1	11.5	15.0	29.0
Torque plate							
Threaded pitch circle	m	kg	2.5	2.5	4.5	-	-
Housing foot	m	kg	2.8	3.0	4.3	10	13
Housing foot, GKS compatible	m	kg	5.0	5.0	8.2	16.5	30.5
Shaft cover							
Shrink disc cover	m	kg	0.1	0.1	0.2	0.3	0.4
Hollow shaft cover, hoseproof	m	kg	0.3	0.3	0.6	0.6	0.8

Motors

Motor			m650-U						
			63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Self-ventilated fan cover									
Spring-applied brake									
06	m	kg	1.5	1.5					
08	m	kg			2.2	2.2			
10	m	kg				3.9	3.9		
12	m	kg						5.6	
14	m	kg							8.5
16	m	kg							
18	m	kg							
20	m	kg							
Manual release lever	m	kg	0.1	0.1	0.2	0.2	0.2	0.4	0.5
Feedback	m	kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5



8 Product extensions

8.1 Torque plates

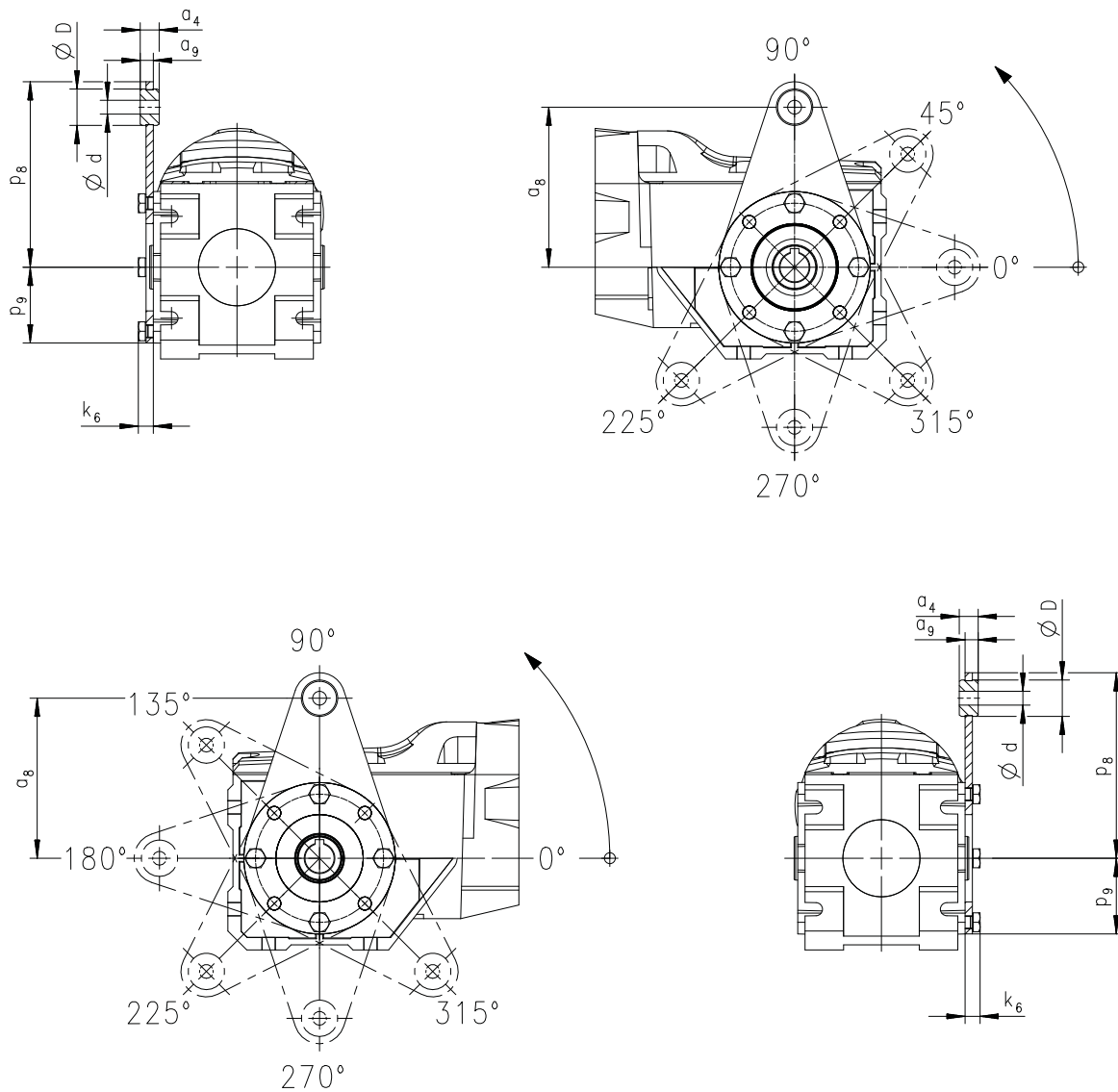
The torque support is usually effected by means of the foot or flange. The torque plates that can be fitted are another possibility. In this case, the torque support is provided only via one point and is suitable for shaft-mounted gearboxes, among other things. Supplied rubber buffers ensure a stress-free installation and absorb slight impacts.

The torque plates are available in two versions, for being installed at the existing threaded pitch circle or for the foot at the gearbox.

In addition, torque support for the g500-B45 gearbox can be effected via the holding fixture of the housing which is integrated on both sides.



Torque plate on threaded pitch circle
g500-B45 ... B110

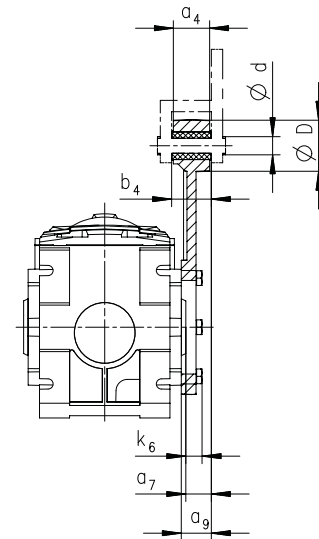
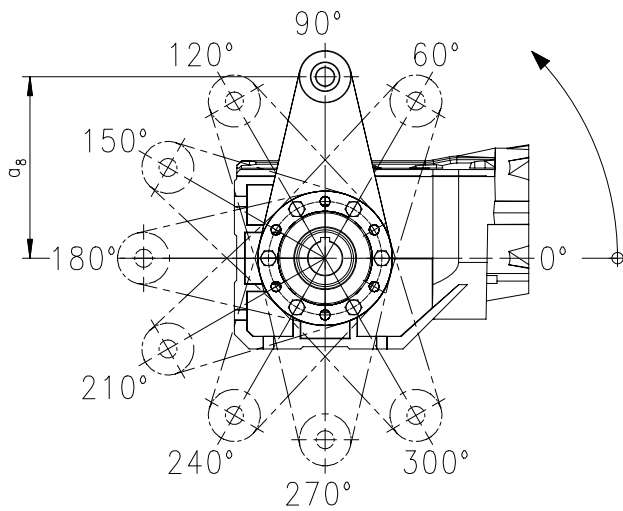
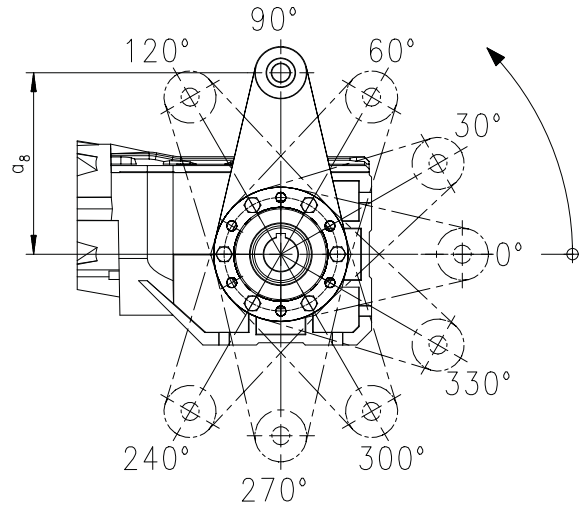
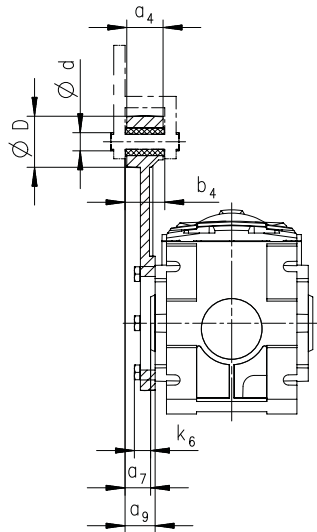


e4001537-00

Gearboxes	Dimensions							
	a_4	a_8	a_9	d	D	p_8	p_9	k_6
	mm	mm	mm	mm	mm	mm	mm	mm
g500-B45	12.0	100	8.0	8.0	20,0	115	42.0	9.0
g500-B110	13.0	110	9.0	10.0	25.0	128	54.0	11.0



g500-B240 ... B600

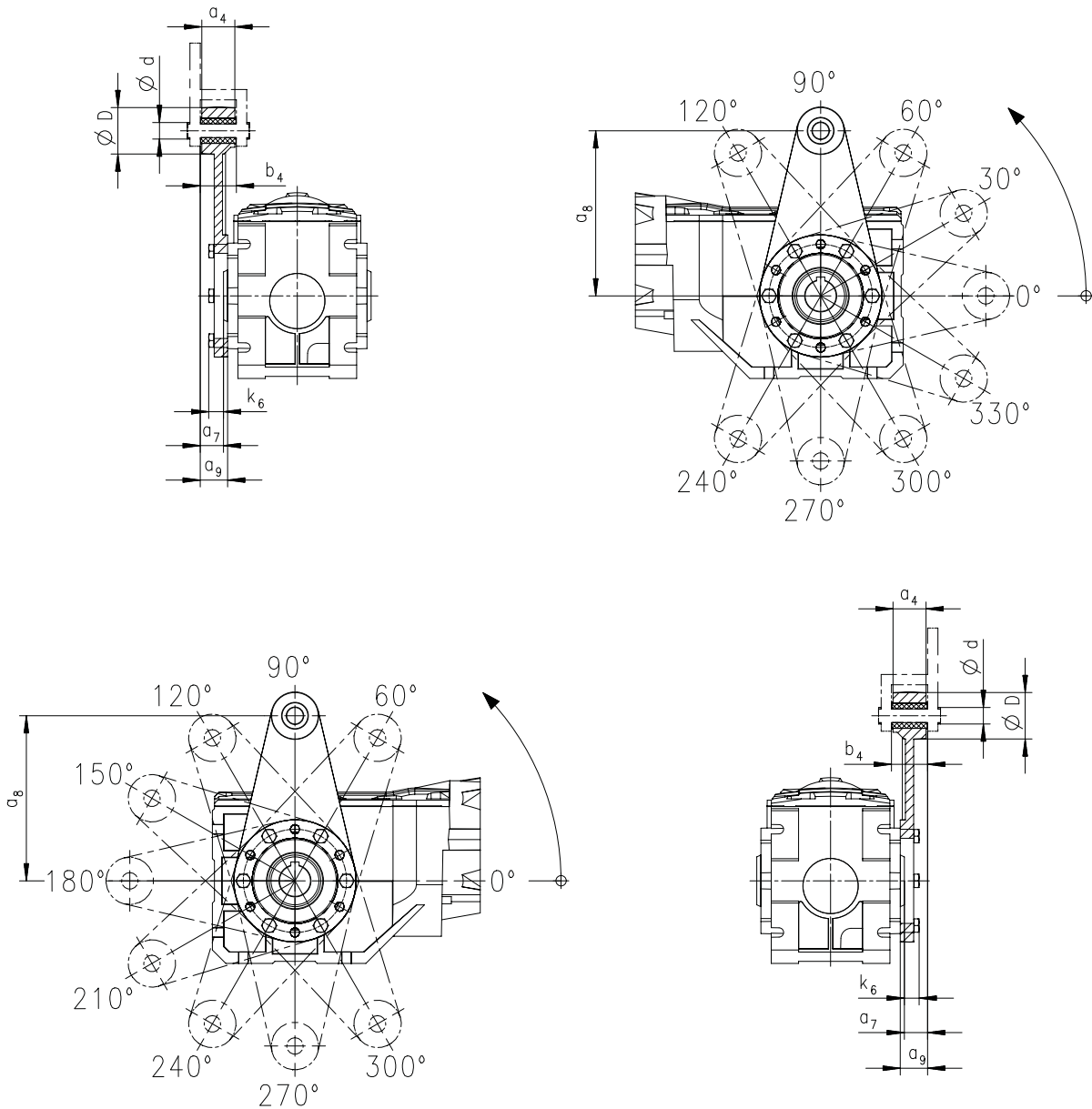


e4001538-00

Gearboxes	Dimensions							
	a ₄	a ₇	a ₈	a ₉	b ₄	d	D	k ₆
	mm	mm	mm	mm	mm	mm	mm	mm
g500-B240	34.0	23.5	160	27.5	38.5	16.0	45.0	15.0
g500-B450	40.0	29.0	200	32.0	44.5	20.0	50.0	18.0
g500-B600	38.0	26.5	200	31.5	40.0	20.0	50.0	19.0



g500-B820 ... B1500

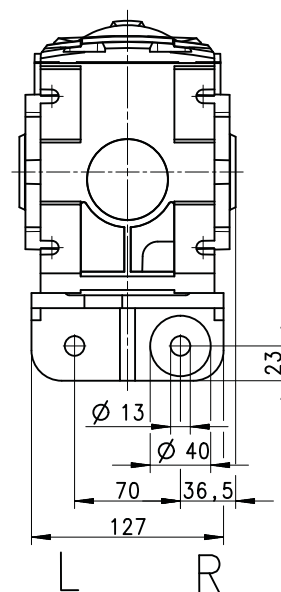
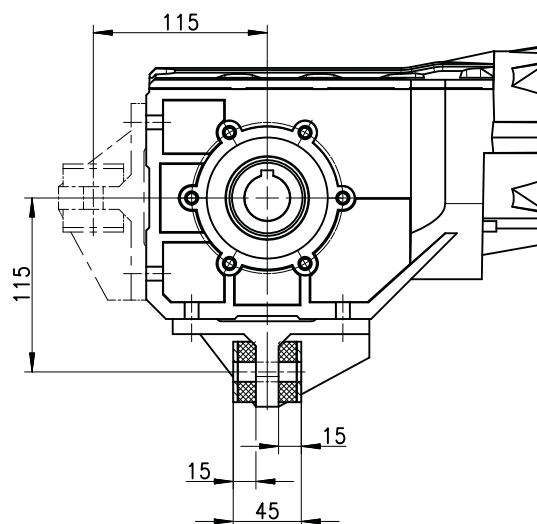


e4001538-00

Gearboxes	Dimensions							
	a ₄	a ₇	a ₈	a ₉	b ₄	d	D	k ₆
	mm	mm	mm	mm	mm	mm	mm	mm
g500-B820	38.0	28.0	200	31.5	40,0	20,0	50.0	20.5
g500-B1500	44.0	32.0	250	36.0	46.0	25.0	65.0	24.0



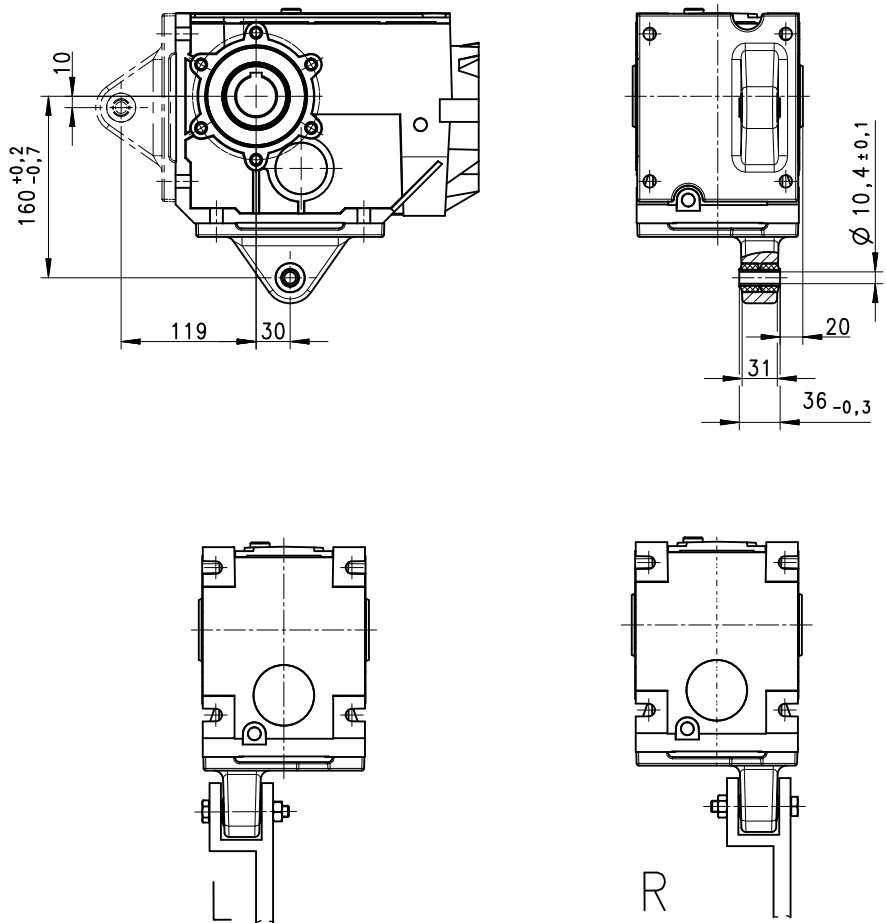
Torque plate on housing foot
g500-B240



e4001541-01



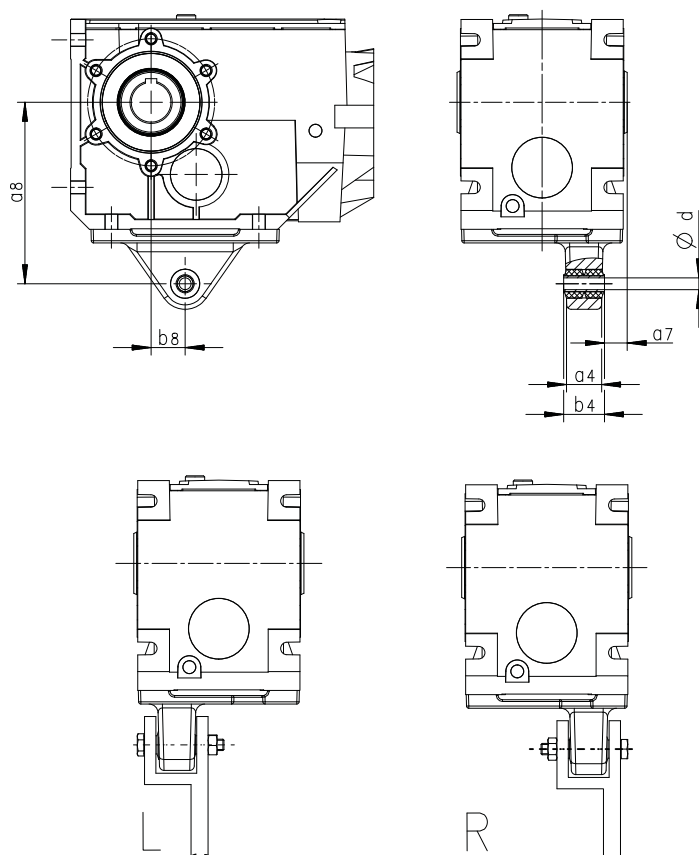
g500-B450



e4001554_01



g500-B600 ... B4300



e4002718-01

Gearboxes	Dimensions					
	d	a ₈	b ₈	a ₄	b ₄	a ₇
	mm	mm	mm	mm	mm	mm
g500-B600	16.4	192	40,0	55.0	60.0	18.0
g500-B820	16.4	200	45.0	55.0	60.0	25.0
g500-B1500	16.4	250	52.5	55.0	60.0	25.0
g500-B2700	25.0	300	60.0	72.0	80.0	30.0
g500-B4300	25.0	350	70.0	92.0	100	40,0



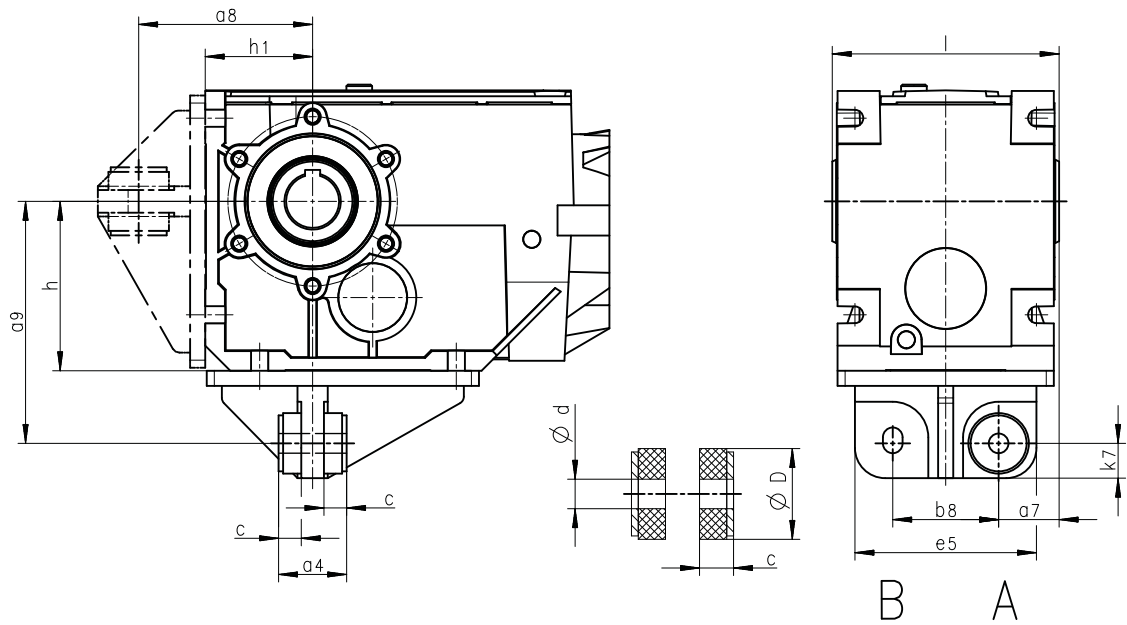
GKS compatible



The connection dimensions are identical to the previous product GKS for these torque plates.

The GKS gearbox can be replaced by the gearbox from the g500-B series.

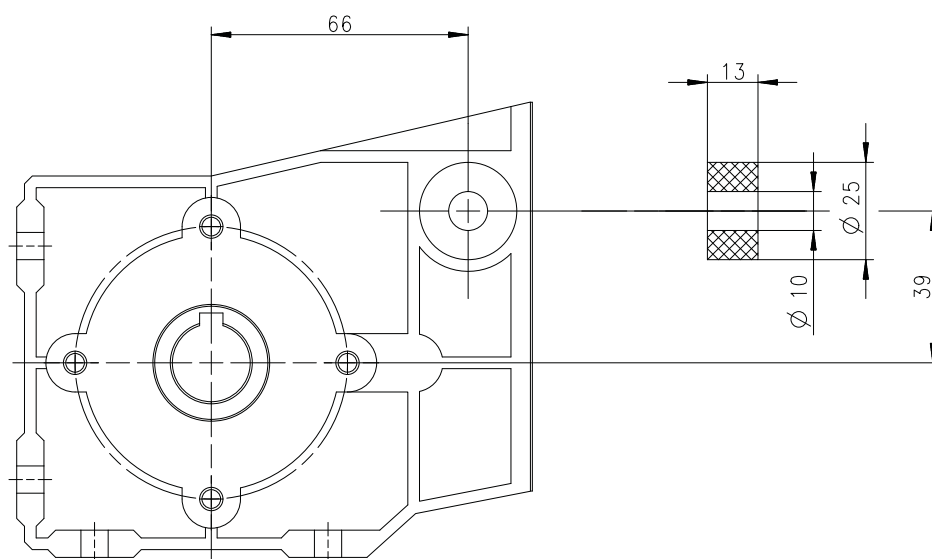
g500-B600 ... B4300



Gearboxes		Dimensions											
	Replacement for	a ₄	a ₇	a ₈	a ₉	b ₄	b ₈	c	Ø d	Ø D	e ₅	k ₇	k ₈
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
g500-B600	GKS06	72	45.0	145	195	72	80	27	17	50	135	28.0	26.0
g500-B820	GKS06	72	50.0	145	195	72	80	27	17	50	140	27.5	27.5
g500-B1500	GKS07	78	55.0	170	240	78	100	28	21	60	180	30.0	32.0
g500-B2700	GKS09	86	60.0	214	300	86	120	29	26	72	205	42.0	48.0
g500-B4300	GKS11	94	77.5	260	375	94	145	30	33	92	255	50.0	60.0



Rubber buffer for torque plate
g500-B45





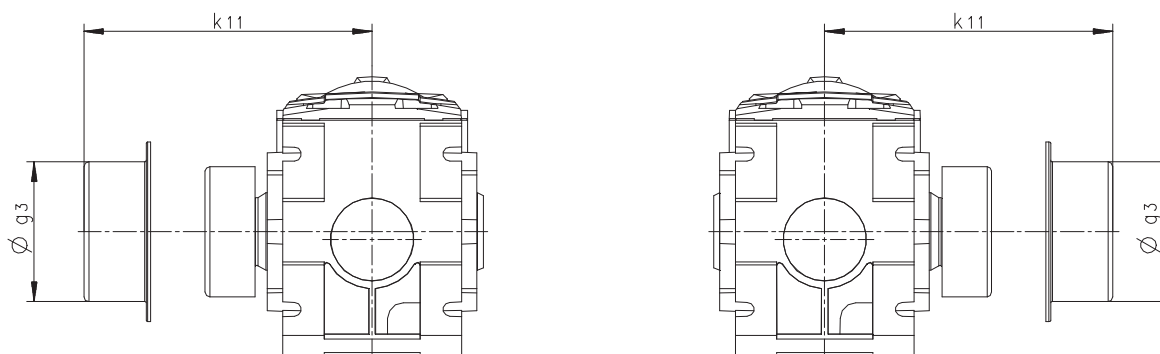
8.2 Shaft covers

The shrink disc cover is provided for the shrink disc to be protected from contact.

The hoseproof hollow shaft cover protects the hollow shaft from objects falling in. It is sealed by a flat gasket between cover and housing. Thus, the hollow shaft is protected from dust and water jets on this side.

Shrink disc cover

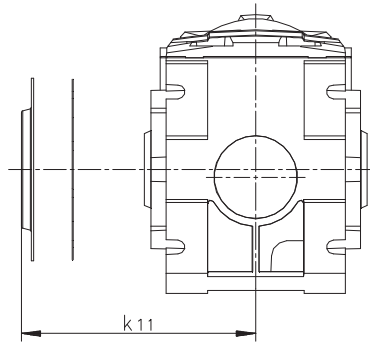
g500-B45 ... B4300



Product	Dimensions	
	g3	k11
	mm	mm
g500-B45	65.0	87.5
g500-B110	79.0	97.5
g500-B240	90.0	111
g500-B450	90.0	108
g500-B600	110	124
g500-B820	110	131
g500-B1500	128	148
g500-B2700	155	171
g500-B4300	188	205



Hollow shaft cover, hoseproof
g500-B45 B4300



Product	Dimensions	
	k_{11}	
	mm	
g500-B45	55.0	
g500-B110	65.0	
g500-B240	75.0	
g500-B450	79.5	
g500-B600	90.0	
g500-B820	97.0	
g500-B1500	113	
g500-B2700	131	
g500-B4300	161	



8.3 Motor connection

8.3.1 Connection options

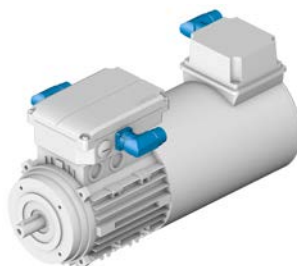


The motors are equipped with a terminal box as standard.

Alternatively, various connectors can be selected for quick commissioning or maintenance.



Terminal box with cable gland



Terminal box with M23 connector



Han connector

The three-phase motors are intended for operation on the inverter.

Frequency inverter operation

For frequency inverter operation, the cutt-off frequencies have been set to the following rated voltages:

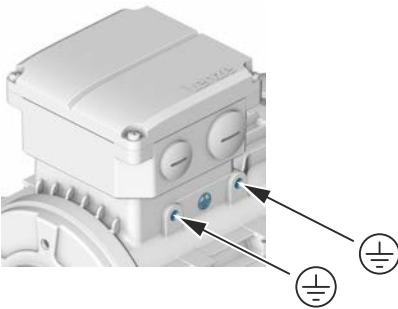
Rated frequency	Rated voltage	Circuit
Hz	V	
124	400	Y

Second ground connection on the motor

According to the EN 61800-5-1 standard, additional measures are required for the protective earth connection if the leakage current is greater than 3.5 mA for alternating current or greater than 10 mA for direct current.

► [Important notes](#) 48

A possible measure is the execution via a second ground connection.



Scope of delivery when a second ground connection is selected:

- Toothed lock washer
- Washer
- Fixing screw



An additional grounding cable is not included in the scope of delivery.

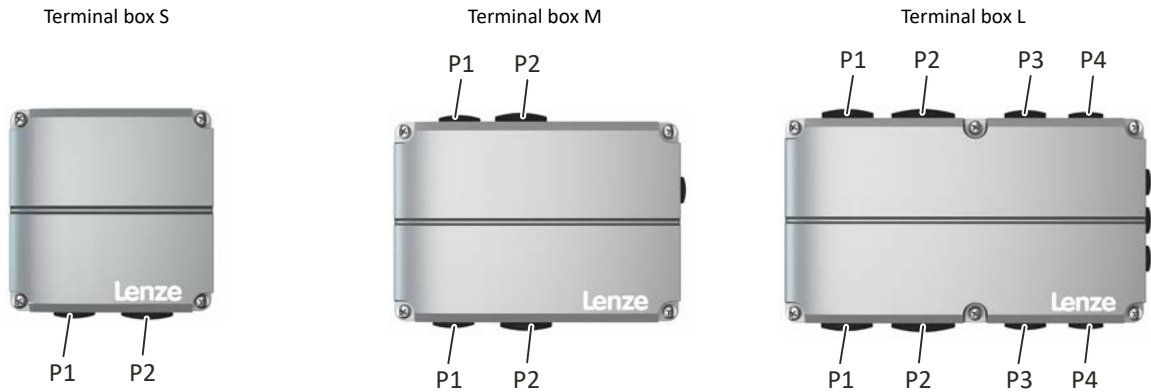
The dimensioning of the grounding is done by the customer.



8.3.2 Assignment of the terminal boxes

Depending on the product extension of the motor, different terminal box sizes (S, M or L) are used.

The M23 connectors are mounted on the terminal boxes (S, M and L) in the positions described.



Motor	m650-U						
	63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Without product extensions							
Terminal box	S	S	S	S	S	S	L
Power: M23 connector	P1	P1	P1	P1	P1	P1	P1
Product extension - brake							
Terminal box	M	M	M	M	M	M	L
Power + brake: M23 connector	P2	P2	P1	P1	P1	P1	P1
Product extension - brake + feedback							
Terminal box	L	L	L	L	L	L	L
Power + brake: M23 connector	P1	P1	P1	P1	P1	P1	P1
Feedback: M23 connector	P3	P3	P3	P3	P3	P3	P3
Feedback: M12 connector	P4	P4	P4	P4	P4	P4	P4

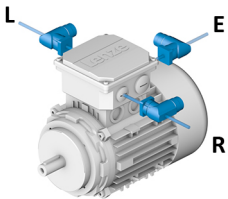
Product extensions

Motor connection
Assignment of the terminal boxes



Positions of the connectors

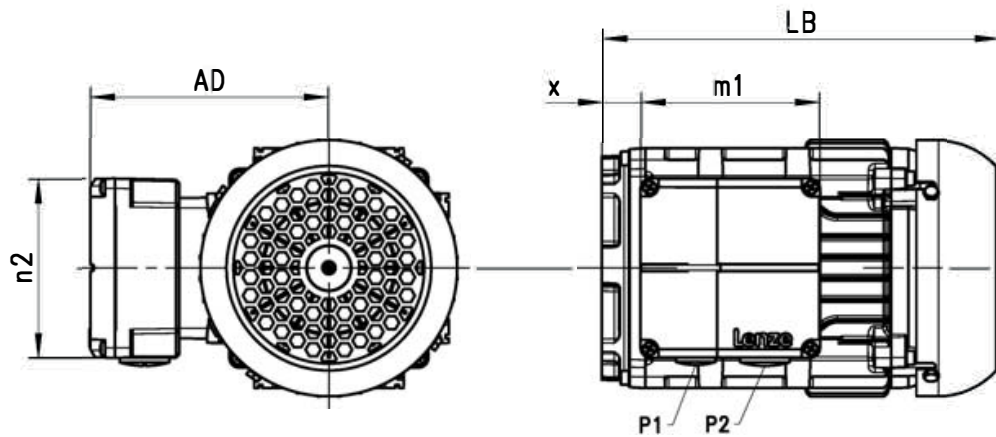
Positions on the motor terminal box



Terminal box	Positions	Note
Motor terminal box S		
Cable glands	L, E or R	
M23 connector: Power	L, E or R	
Motor terminal box M		
Cable glands	L and R	
M23 connector: Power/brake	L or R	
Motor terminal box L		
Cable glands	L and R	The plug connectors for power and brake can be arranged on the same side or on the opposite side
M23 connector: Power/brake	L or R	



Dimensions of "S" power terminal box



8801784 00

Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	117	128	145	153	163	168
x	mm	22	17	24	30	39	45
m ₁	mm	87	87	109	109	109	109
n ₂	mm	87	87	109	109	109	109
P ₁	mm	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₂	mm	-	-	M25x1.5	M25x1.5	M25x1.5	M25x1.5

Dimensions LB ▶ [Basic dimensions](#) 99

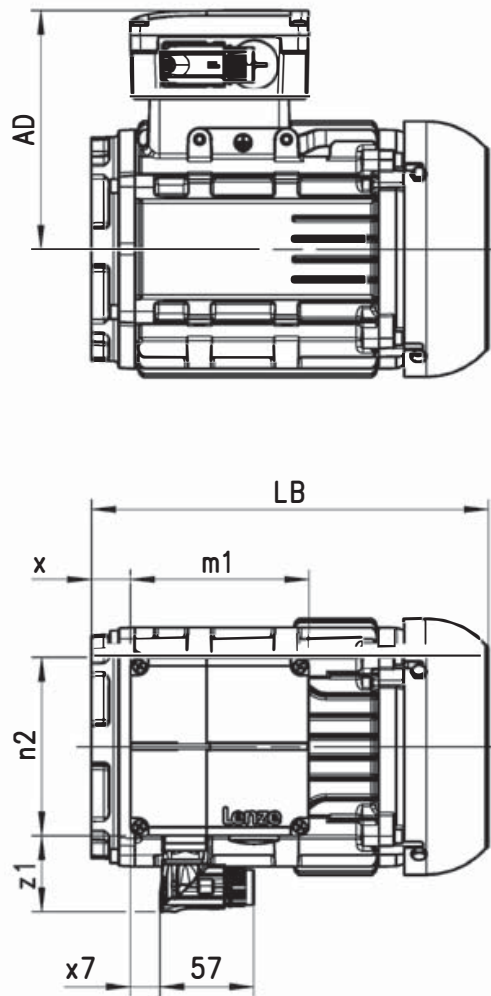
Dimensions Δ L ▶ [Additional lengths](#) 130

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "S" power terminal box with M23 connector



8801787-00

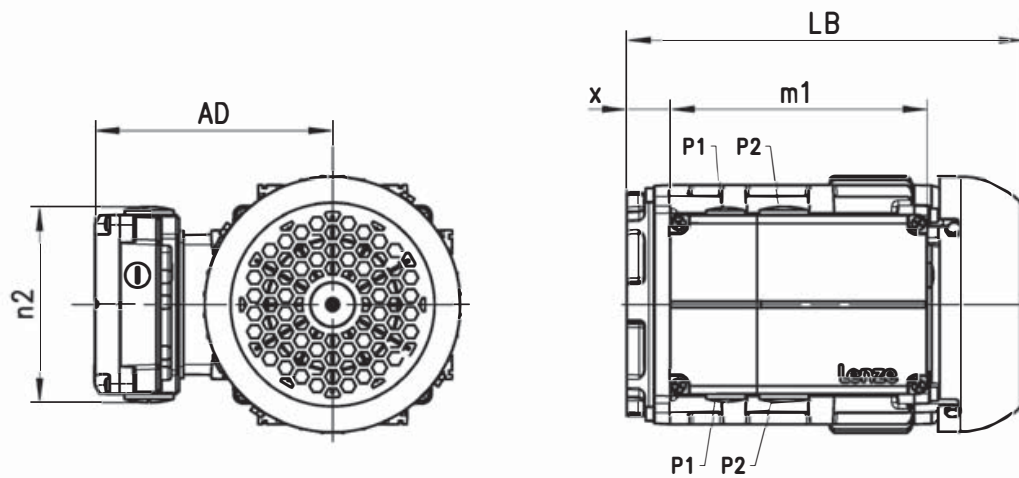
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	117	128	145	153	163	168
x	mm	22	17	24	30	39	45
m ₁	mm	87	87	109	109	109	109
n ₂	mm	87	87	109	109	109	109
ICN connector Power							
x ₇	mm	13	13	18	18	18	18
z ₁	mm	42	42	42	42	42	42

Dimensions LB ▶ [Basic dimensions](#) 99

Dimensions Δ L ▶ [Additional lengths](#) 130



Dimensions of "M" power terminal box



8801785-00

Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	113	124	145	153	163	168
x	mm	21	16	27	34	43	49
m ₁	mm	141	141	157	157	157	157
n ₂	mm	110	110	110	110	110	110
P ₁	mm	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₂	mm	M20x1.5	M20x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5

Dimensions LB ▶ [Basic dimensions](#) 99

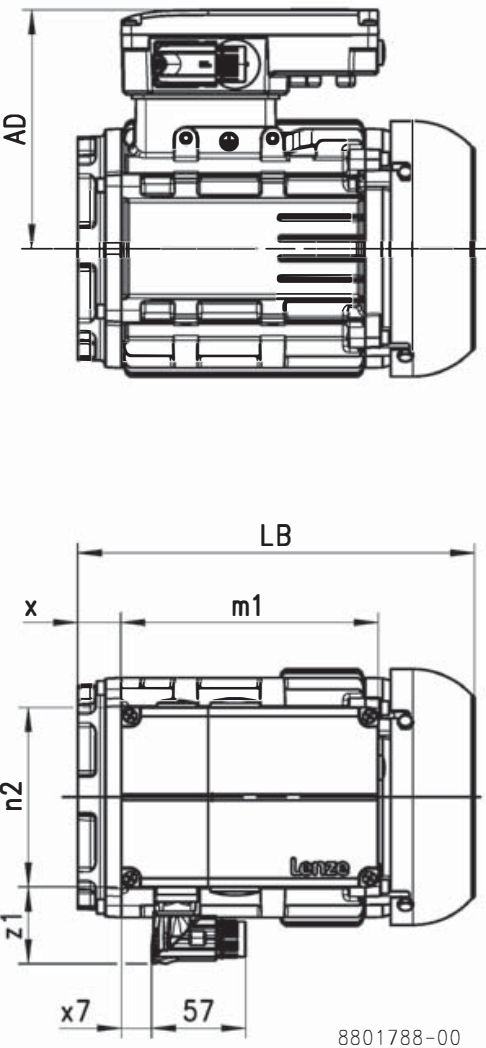
Dimensions Δ L ▶ [Additional lengths](#) 130

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "M" power terminal box with M23 connector



8801788-00

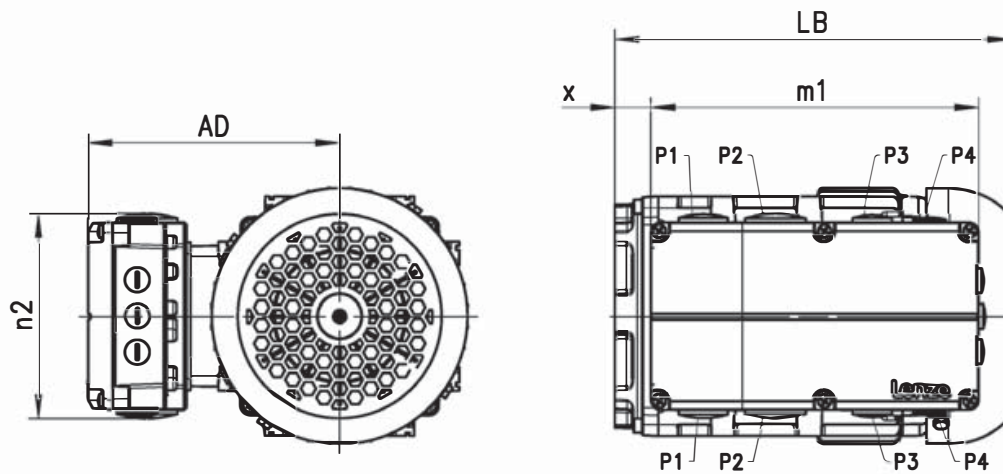
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	113	124	145	153	163	168
x	mm	21	16	27	34	43	49
m ₁	mm	141	141	157	157	157	157
n ₂	mm	110	110	110	110	110	110
ICN connector Power/brake							
x ₇	mm	45.3	45.3	18	18	18	18
z ₁	mm	42	42	42	42	42	42
ICN connector Feedback							
x ₇	mm	45.3	45.3	53.5	53.5	53.5	53.5
z ₁	mm	42	42	46	46	46	46

Dimensions LB ▶ [Basic dimensions](#) 99

Dimensions Δ L ▶ [Additional lengths](#) 130



Dimensions of "L" power terminal box



8801786-00

Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Motor terminal box								
AD	mm	113	141	154	162	172	177	197
x	mm	9	4	22	29	39	44	73
m ₁	mm	141	200	200	200	200	200	200
n ₂	mm	110	114	114	114	114	114	114
P ₁	mm	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5
P ₂	mm	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5
P ₃	mm	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₄	mm	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5

Dimensions LB ▶ [Basic dimensions](#) 99

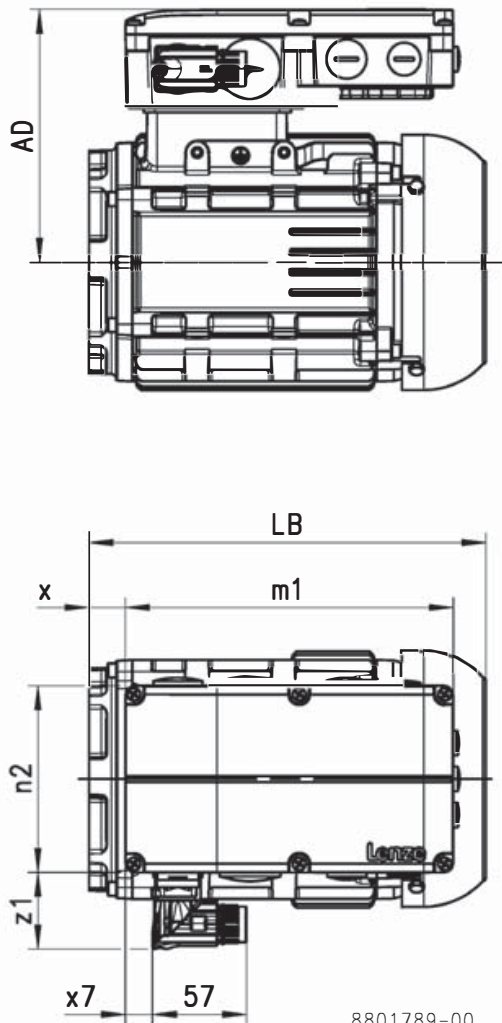
Dimensions Δ L ▶ [Additional lengths](#) 130

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "L" power terminal box with M23 connector



8801789-00

Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Motor terminal box								
AD	mm	113	141	154	162	172	177	197
x	mm	9	4	22	29	39	44	73
m ₁	mm	141	200	200	200	200	200	200
n ₂	mm	110	114	114	114	114	114	114
ICN connector Power/brake								
x ₇	mm	16	16	16	16	16	16	16
z ₁	mm	46	46	46	46	46	46	46
ICN connector Feedback								
x ₇	mm	120	120	120	120	120	120	120
z ₁	mm	42	42	42	42	42	42	42

Dimensions LB ▶ [Basic dimensions](#) 99

Dimensions Δ L ▶ [Additional lengths](#) 130



8.3.3 Assignment of the connectors Han

The power, brake and temperature monitoring can be connected in the Han connector.

The Han-Modular versions are available with two power modules (16 A or 40 A).



A rectifier can also be connected to the Han-Modular connector.



Feedback in conjunction with the Han plug connector or the integrated i550/i650 motec is only available with the IG128-24V-H add-on incremental encoder (with 0.5 m cable and M12 plug connector).

Motor	m650-U						
	63/L4	71/M4 71/L4	80/S4 80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Han-Modular connector							
Connection: • Power • Brake • Temperature monitoring TK0	•	•	•	•	•	•	•

Positions of the connectors

Positions of the Han connector

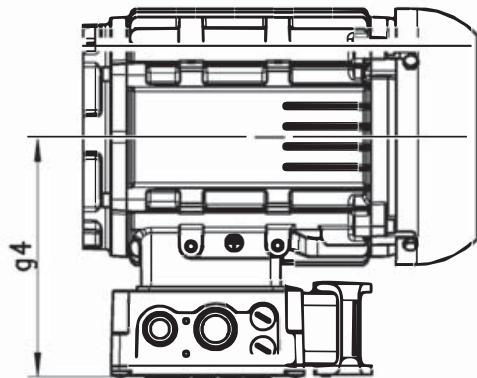
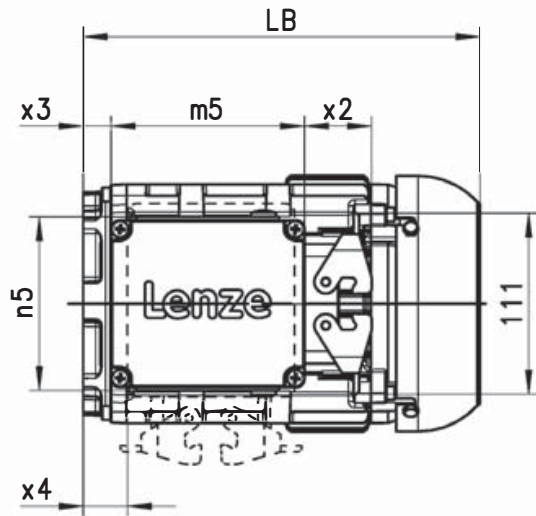


Product extensions

Motor connection
Assignment of the connectors Han



Dimensions of HAN connector



8801790-00

Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
HAN connector								
Power/brake								
g_4	mm	123	134	147	155	165	170	237
x_2	mm	41	41	41	41	41	41	47
x_3	mm	6	1	19	25	34.5	40	39
m_5	mm	118	118	118	118	118	118	120
x_4	mm	7	2	20	26	35.5	41	9
n_5	mm	106	106	106	106	106	106	180

Dimensions LB ▶ [Basic dimensions](#) 99

Dimensions ΔL ▶ [Additional lengths](#) 130



8.3.4 Connection via terminal box

Cable glands



The opening cutouts for the cable glands are closed with plugs.

As the cable glands are only arranged on one side of the motor terminal box "S", the position of the cable glands must be specified.

The motor terminal box "M" and "L" have openings on both sides.

Position of the connections



Position	Meaning	Note
1	Power connection Brake connection PE connection Feedback connection Temperature monitoring connection	For the terminal box "S", the position of the cable connections "L", "R" or "E" must be specified.

Product extensions

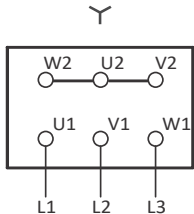
Motor connection
Connection via terminal box



Power connections

Bridge arrangement

Y circuit

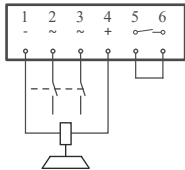


Terminal box, power		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Motor winding phase
V1	L2	
W1	L3	

DC brake connection

Contact	Name	Meaning
BD1	+	Brake +
BD2	-	Brake -

Connection of brake AC



Connection via rectifiers		
Contact	Name	Meaning
~	L1	Mains
~	N	
+	+	Holding brake (factory-wired)
-	-	
		Switching contact - DC switching

Temperature monitoring connection

Contact	Name	Meaning
TB1		TCO thermal contact
TB2		



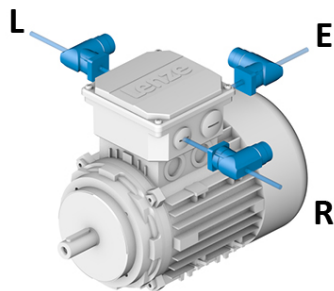
8.3.5 Connection via connector



Preassembled Lenze system cables are available for fast and error-free connection of Lenze motors to Lenze inverters.

Details and data can be found in the "Accessories" brochure on the Internet.

Position of the connections



Position	Meaning	Note
L, E and R	Additionally for the 8-pole M23 connector: • Temperature monitoring connection - TCO thermal contact • Brake supply connection	Caution: Max. brake supply voltage ≤ 230 V
L	M23 connector: • Feedback connection	The mounting position for the feedback connector is on the opposite side to the power connection (position L/R).

Product extensions

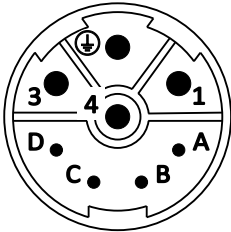
Motor connection
Connection via connector



Power and brake connection

M23 connector assignment

8-pole



M23 8-pole		
Contact	Name	Meaning
PE	PE	PE conductor
A	TB1	Temperature monitoring: TCO
B	TB2	Temperature monitoring: TCO
C	BD1 / BA1	Brake DC +/-AC ≤ 230 V
D	BD2 / BA2	Brake DC-/AC ≤ 230V
1	U	Power phase U
3	W	Power phase W
4	V	Power phase V



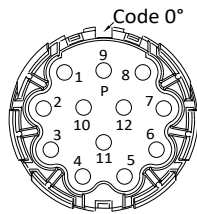
Product extensions

Motor connection
Connection via connector

Feedback and temperature monitoring connection

ICN-M23 connector assignment

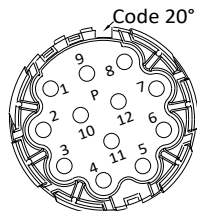
Resolver



M23 for resolvers		
Contact	Name	Meaning
1	+Ref	Transformer windings
2	-Ref	Transformer windings
3	+VCC ETS	Supply: Electronic nameplate (Only for motors and inverters that support this function)
4	+COS	Cosine stator windings
5	-COS	Cosine stator windings
6	+SIN	Sine stator windings
7	-SIN	Sine stator windings
8		Not assigned
9		Not assigned
10		Not assigned
11	+	Not assigned
12	-	Not assigned

ICN-M23 connector assignment

Incremental and SinCos absolute value encoder Hiperface®



ICN M23 for encoders		
Contact	Name	Meaning
1	B	Track B / +SIN
2	A ⁻	Track A inverse /-COS
3	A	Track A / + COS
4	+UB	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	+	Not assigned
12	-	Not assigned

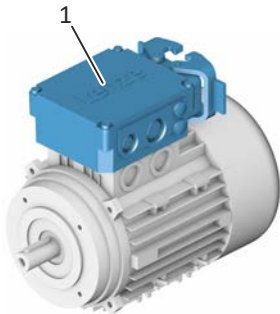
Product extensions

Motor connection
Connection via Han connector



8.3.6 Connection via Han connector

Position of the connections



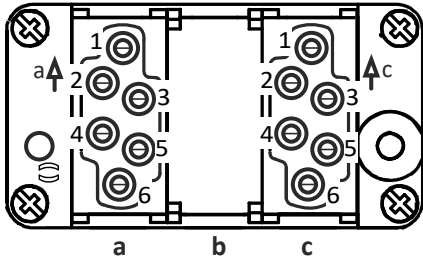
Position	Meaning
1	Power connection Brake connection PE connection Temperature monitoring connection
	Additionally for the Han-Modular: Rectifier connection

Han-Modular connector



The motor circuit is defined in the terminal box.

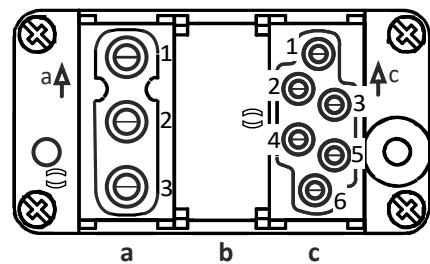
Han-Modular 16 A connector assignment



Han-modular 16 A			
Module	Contact	Name	Meaning
a	1	U1	Motor winding phase
	2	V1	
	3	W1	
b			Blank module
c	1	TKO	Temperature monitoring
	2	+/-AC	Brake
	3	-/-AC	
	4	Schaltkontakt	Rectifier
	5		
	6	TKO	Temperature monitoring



Han-Modular 40 A connector assignment



Han-modular 40 A			
Module	Contact	Name	Meaning
a	1	U1	Motor winding phase
	2	V1	
	3	W1	
b			Blank module
c	1	TKO	Temperature monitoring
	2	+/-AC	Brake
	3	-/-AC	
	4	Schaltkontakt	Rectifier
	5		
	6	TKO	Temperature monitoring



8.4 Spring-applied brakes

The motors can be ordered with a spring-applied brake to allow stopping or deceleration of the moving masses. The spring-applied brake operates according to the closed-circuit principle. In the deenergized state, the brake is closed. The spring-applied brakes can be used as holding brakes.

Overview

The following table shows the possible versions of the spring-applied brakes.

Versions		Holding brake
		Single brake IP54/55
Standard		•
Supply voltages		
	DC supply	
	DC 24 V $\pm 10\%$	•
	DC 180 V ... 205 V $>10\%$	•
	AC supply via rectifier in the terminal box	
	AC 230 V $\pm 10\%$	•
	AC 400 V ... 460 V $>10\%$	•
Friction lining		
	Standard	•
Options		
	Manual release	•
	UL/CSA-approved	•
	Low noise during operation (noise-reduced rotor)	•
	Cover ring	•

Control	Without rectifier	Bridge/half-wave rectifier
		6-pole
Supply voltages	24 V DC DC 180 ... 205 V	AC 230 V AC 400 ... 460 V



8.4.1 Information on project planning

Important notes



Malfunction of the brake

Even small amounts of oil or grease on the friction surfaces reduce the braking torque considerably.

Possible consequences: Death or severe injuries

► Always keep the friction surfaces free of oil and grease.

Emergency stops

A maximum of 100 emergency stops are possible from $n = 2700$ rpm.

Product extensions

Spring-applied brakes
Information on project planning



Connection

NOTICE

If used as a service brake, the braking torques are dependent on the motor speed to be braked.

- During braking from a high speed and in the event of emergency stops, the braking torque is significantly reduced.

Connection of the spring-applied brake

The spring-applied brakes can be ordered for connection to AC or DC voltage.

Connection to AC voltage

- A rectifier is required to convert the AC voltage into a DC voltage.
- The rectifier is included in the scope of supply. It is mounted in the terminal box of the motor.
- Available rectifiers:
 - Bridge rectifier, 6-pole

Connection to DC voltage

- No rectifier is required.
- A freewheeling diode or a spark suppressor must be used to prevent high induction peaks.

Motor supply cables

If long motor supply cables are used, pay attention to the ohmic voltage drop along the cable and compensate for it with a higher voltage at the input end of the cable.

The following applies to Lenze system cables:

$U[V] = U_B[V] + 0.08 \frac{[V]}{[A] \times [m]} \times I_{Lg}[m] \times I_B[A]$	U	V	Resulting supply voltage
	U_B	V	Rated voltage of the brake
	I_{Lg}	m	Cable length
	I_B	A	Rated current of the brake

Switching on the AC or DC side

Brakes can be switched both upstream of the rectifier (AC-side switching) and downstream of the rectifier (DC-side switching). The choice of control influences, among other things, the engagement time of the armature plate.

With switching on the AC side, the connection time increases by a factor of 5 to 10 compared to switching on the DC side. This must be taken into account when selecting the control. By simply removing a bridge and using the connections of the switching contact, DC-side switching is possible. However, this requires two additional wires in the control cabinet.



8.4.2 Spring-applied holding brake

The spring-applied brakes are pure holding brakes. Emergency stops are possible.

⚠ DANGER!

An emergency stop during operation can cause the holding brake to malfunction.

Possible consequences: Personal injury and/or damage to property.

- After an emergency stop, check the air gap and the friction lining for damage.
- If the air gap is too large or the friction lining is damaged, replace the brake rotor.

8.4.2.1 Assignment of braking torques

For optimum adaptation of the brake motor to the application, spring-applied brakes with several braking torques are available for each motor frame size.

Motor	Single brake				
	HBR 06	HBR 08	HBR 10	HBR 12	HBR 14
	Nm	Nm	Nm	Nm	Nm
m650-U63/L4	4				
m650-U71/M4					
m650-U71/L4					
m650-U80/M4		8			
m650-U90/M4					
m650-U90/L4					
m650-U100/M4			23		
m650-U100/L4					
m650-U112/M4			32		
m650-U132/S4					
m650-U132/M4					
m650-U132/L4					

8.4.2.2 Rated data

Holding brake		HBR 06	HBR 08	HBR 10	HBR 10	HBR 12	HBR 14
Braking torque is static	Nm	4	8	16	23	32	60
Moment of inertia	kgcm ²	0.128	0.401	2	2	4.5	6.3
Power input							
DC 24 V	W	20	25	30	30	40	50
DC 180 V ... 205 V	W	20	25	30	30	40	53
AC 230 V	W	20	25	30	30	40	53
AC 400 V ... 460 V	W	20	25	30	30	40	53
Min. static braking torque tolerance	%	0	0	0	0	0	0
Max. static braking torque tolerance	%	80	80	80	80	80	80
Reversing cycles		1000000	1000000	1000000	1000000	1000000	1000000
Repetitive cycles		1000000	1000000	1000000	1000000	1000000	1000000
Maximum switching energy	J	3000	7500	12000	12000	24000	30000

Product extensions

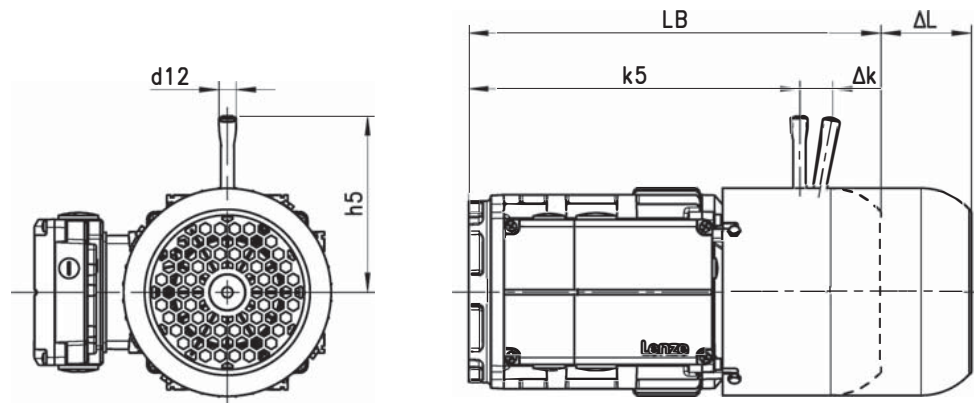
Spring-applied brakes
Spring-applied application brake, IP54/IP55 single brake LongLife
Rated data



Option: Manual release

The brake can be ordered with a manual release lever to facilitate positioning and maintenance work. The brake can be released manually in deenergized mode by actuating the manual release lever.

Dimensions of manual release lever



8801827-01

Motor	Brake	Dimensions			
		k_5	Δk	h_5	d_{12}
		mm	mm	mm	mm
m650-U63/L4	HBR 06	193	25	107	13
m650-U71/M4 m650-U71/L4	HBR 06	211	25	107	13
m650-U80/M4	HBR 08	231	27	116	13
m650-U90/M4	HBR 08	270	27	116	13
m650-U90/L4	HBR 10	286	23	131	13
m650-U100/M4 m650-U100/L4	HBR 10	344	23	131	13
m650-U112/M4	HBR 12	345	37	161	13
m650-U132/S4 m650-U132/M4 m650-U132/L4	HBR 14	408	53	229	20

Dimensions LB ► [Basic dimensions](#) 99

Dimensions ΔL ► [Additional lengths](#) 130

8.4.3 Spring-applied application brake, IP54/IP55 single brake LongLife

8.4.3.1 Rated data



8.5 Feedback

The motor can be equipped with the following feedback systems for speed control via an inverter:

A resolver, incremental encoder and SinCos absolute value encoder are optionally available to evaluate the speed and position of the motor shaft.

The resolver can be used to measure an absolute value within one revolution of the rotor. A SinCos absolute value encoder is used if not only the angle within one revolution is to be made available immediately but also the revolution within a set range. The SinCos absolute value encoder detects not only the speed and rotor position but also the position of the machine. It consists of a speed sensor system, for example TTL, and an absolute value information recorder, for example Hyperface.

The HTL incremental encoder is used in the frequency inverter range for less dynamic applications.

It is used for dynamic applications with very high requirements regarding accuracy. If the absolute angular position of the drive is required directly after the system is switched on without performing additional homing, this can be realized via a resolver or SinCos absolute value encoder.



Resolver, absolute encoder and the IG128-24V-H add-on incremental encoder are mounted behind the B-bearing shield under the fan cover.

All other incremental encoders are integrated in the B-bearing shield, which usually makes the drive shorter.

Feedbacks in the environment of functional safety

Motors can perform speed-dependent safety functions for safe speed and/or safe relative position monitoring in a drive system by Lenze inverters or Controllers. In case of inverters, these functions are implemented by integrable safety modules and in case of Controllers by the additionally required Safety Controller.

When planning systems/installations of this kind, always observe the following:

- When using just one single feedback system in the environment of these safety applications, the applicable safety engineering standard EN 61800-5-2 (adjustable speed electrical power drive systems - Part: 5-2: Safety requirements - Functional) stipulates special requirements for the connection between feedback system and motor shaft.
- This is due to the fact that two-channel safety systems at this point in the mechanical system are actually designed as single-channel systems. If this mechanical connection is designed with considerable overdimensioning, the standard permits exclusion of the fault "encoder-shaft breakage" or "encoder-shaft slip". As such, the permissible angular acceleration limit values must not be exceeded for the individual drive solutions.

You can find the limit values in the corresponding feedback data of the individual motor ranges.

Speed-dependent safety functions

Examples of speed-dependent safety functions:

- Safe stop 1 (SS1)
- Safe operational stop (SOS)
- Safely limited speed (SLS)
- Safe maximum speed (SMS)
- Safe direction (SDI)
- Operation mode selector (OMS) with confirmation (ES)
- Safe speed monitor (SSM)
- Safely limited increment (SLI)



8.5.1 Resolver

The stator-supplied, 2-pole resolver with two stator windings shifted by 90 degrees and a rotor winding with a transformer winding can record both the speed and the rotor position, just like a single-turn absolute value encoder. The rotor position can be determined within one mechanical motor revolution after a voltage failure.

Feedback type			Resolver
Feedback			RS1
Speed-dependent safety functions			Nein
Design			Mounting
Resolution - angle		'	0.8
Min. accuracy		'	-10
Max. accuracy		'	10
Absolute positioning			1 revolution
Max. speed	$n_{\max}$	rpm	8000
Max. DC input voltage	$V_{\text{in,max}}$	V	10
Max. input frequency	$f_{\text{in,max}}$	kHz	4
Ratio stator/rotor			0.3
Min ratio tolerance		%	-5
Max ratio tolerance		%	5
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_{min}	M Ω	10
Number of pole pairs			1
Max. angle error Min		'	-10
Max. angle error Max		'	10



8.5.2 Incremental encoder

Incremental encoders can be used for speed measurement. Homing is required in order to enable positioning later.

Incremental HTL encoder



Feedback in conjunction with the Han plug connector or the integrated i550/i650 motec is only available with the IG128-24V-H add-on incremental encoder (with 0.5 m cable and M12 plug connector).

Feedback type			Encoder			
Feedback			IG128-24V-H		IG1024-24V-H	IG2048-24V-H
Design			Mounting	integrated	integrated	integrated
Pulses			128	128	1024	2048
Output signals			HTL	HTL	HTL	HTL
Interfaces			A, B	A, B	A, B; N; Ai, Bi; Ni	A, B; N; Ai, Bi; Ni
Absolute revolution			0	0	0	0
Min. accuracy		'	-22.5	-2	-2	-2
Max. accuracy		'	22.5	2	2	2
Min. DC input voltage	$V_{in,min}$	V	8	10	10	10
Max. DC input voltage	$V_{in,max}$	V	26	30	30	30
Max. current consumption	I_{max}	A	0.04	0.15	0.15	0.15
Cut-off frequency	f_{max}	kHz	30	200	200	200

SinCos-incremental encoder with safety functions



The connection of the safety sensors to the terminal box is only available in conjunction with a M23 connector.

Feedback type			Encoder	
Feedback			IG2048-5V-V2	IG2048-5V-V3
Design			Mounting	
Pulses			2048	2048
Output signals			SinCos 1 Vss	SinCos 1 Vss
Interfaces			SinCos	SinCos
Absolute revolution			0	0
Min. accuracy			-	-
Max. accuracy			-	-
Min. DC input voltage	$V_{in,min}$	V	4.75	4.75
Max. DC input voltage	$V_{in,max}$	V	5.25	5.25
Max. current consumption	I_{max}	A	0.07	0.07
Cut-off frequency	f_{max}	kHz	400	400
Max. Safety Integrity Level			SIL 2	SIL 3
Max. Safety Performance Level			d	e



8.5.3 Absolute value encoder

Absolute value encoders can detect the speed, the rotor position, and the machine position with a very high resolution. They are used for the positioning of dynamic applications and do not require homing.

SinCos absolute value encoder

Feedback type			SinCos absolute value encoder
Feedback			AM1024-8V-H
Speed-dependent safety functions			Nein
Design			Mounting
Encoder type			Multi-turn
Resolution		bit	-
Pulses			1024
Output signals			SinCos 1 Vss
Interfaces			Hiperface
Absolute revolution			4096
Resolution - angle			0.4
Min. accuracy		'	-0.8
Max. accuracy		'	0.8
Fehlergrenze Positionswert			
System accuracy			-
Integral nonlinearity			-
Min. DC input voltage	$V_{in,min}$	V	7
Max. DC input voltage	$V_{in,max}$	V	12
Max. current consumption	I_{max}	A	0.08
Cut-off frequency	f_{max}	kHz	200



8.6 Temperature monitoring



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

8.6.1 Thermal contacts TCO

The TCO thermal contact (thermal break contact) is a bimetallic switch. The thermal contact monitors the motor winding temperature; e.g., at excessively high temperatures, it switches the upstream motor relay. The motor is disconnected from the line voltage and coasts down via the relay.

Functional principle			Normally-closed contact
Operating temperature		°C	150
Min. switching temperature		°C	145
Max. switching temperature		°C	155
Min. reset temperature		°C	90
Max. reset temperature		°C	135
Max. AC switching current		A	2.5
Max. AC switching voltage		V	250
Max. DC switching current		A	2.5
Max. DC switching voltage		V	12

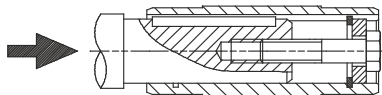


9 Accessories

9.1 Hollow shaft mounting kit

A mounting kit is available for easy installation of the hollow shaft.

Scope of supply



- Hexagon head screw
- Circlip
- Washer

Mounting set		Solid shaft	Hollow shaft diameter g500-																	
Name	Material number	Thread	B45		B110		B240		B450		B600		B820		B1500		B2700		B4300	
			18	20	20	25	30	35	35	40	40	45	40	45	50	55	60	70	70	80
Mounting kit B18	415783	M6	•																	
Mounting kit B20	407309	M6		•	•															
Mounting kit B25	395903	M10				•														
Mounting kit B30	395904	M10					•													
Mounting kit B35	395905	M12						•	•											
Mounting kit B40	395906	M16							•	•	•	•	•							
Mounting kit B45	395907	M16									•		•							
Mounting kit B50	395908	M16												•						
Mounting kit B55	395909	M20													•					
Mounting kit B60	395910	M20															•			
Mounting kit B70	395911	M20																•	•	
Mounting kit B80	395912	M20																		•



10 Product codes

Gearbox product code

Example		G	50	A	B	045	M	H	B	R	2	C	1A
Product type	Gearboxes	G											
Product family			50										
Generation				A B									
Gearbox type	Bevel gearbox				B								
Output torque	45 Nm					045							
	110 Nm					111							
	240 Nm					124							
	450 Nm					145							
	600 Nm					160							
	820 Nm					182							
	1500 Nm					215							
	2700 Nm					227							
	4300 Nm					243							
	8000 Nm					280							
	13000 Nm					313							
	20000 Nm					320							
Type of construction	Geared motor						M						
	Gearboxes						N						
Shaft type	Solid shaft with featherkey							V					
	Hollow shaft with keyway							H					
	Hollow shaft with shrink disc							S					
Housing type	Foot mounting + centering								A				
	Foot mounting								B				
	With centering								C				
	Threaded pitch circle								D				
Flange mounting	Without flange									R			
	Flange with through holes									K			
Number of stages	2-stage										2		
	3-stage										3		
	4-stage										4		
Motor mounting	Integrated motor											C	
	IEC adapter with jaw coupling											N U	
	IEC adapter with plug-in hollow shaft											H	
	NEMA adapter with jaw coupling											A	
	NEMA adapter with plug-in hollow shaft											B	
	Servomotor adapter with plug-in hollow shaft											S	
	Servomotor adapter with jaw coupling											E D G	
Drive size													1A ... □H 08 ... 82



Motor product code

Example		M	65	A	U	063	M	04	5	E	0	0	C	C
Product type	Motor	M												
Product family			65											
Generation				A										
Efficiency class	IE5				U									
Size						063 071 080 090 100 112 132								
Overall length	Short						S							
	Medium						M							
	Long						L							
Number of poles	4-pole							04						
Degree of protection	IP54/IP55								5					
Cooling	Integral fan									E				
Brake	Without										0			
	Spring-applied brake										F			
Feedback	Without											0		
	Absolute value encoder											A		
	Incremental encoder											E		
	Resolver											R		
Approvals	None												N	
	CE												C	
	CE, CCC												3	
	CE, cULus												L	
	CE, cULus, CCC												5	
	CE, cURus												U	
	CE, cURus, CCC												W	
Design type	Internal key													C



11 Motor data

11.1 Rated data

Motor			m650-U				
			63/L4	71/M4	71/L4	80/M4	90/M4
Rated power	P_{rated}	kW	0.75	1.1	1.5	2.2	3
Rated speed	n_{rated}	rpm	3720	3720	3720	3720	3720
Max. speed	n_{max}	rpm	4500	4500	4500	4500	4500
Rated voltage	V_{rated}	V	292	310	316	305	310
Rated current	I_{rated}	A	1.81	2.55	3.25	4.89	6.50
Standstill current	I_0	A	2.10	3.00	4.10	5.20	7.60
Max. current	I_{max}	A	5.00	6.70	8.85	12.5	17.7
Rated torque	M_{rated}	Nm	1.90	2.80	3.90	5.60	7.70
Standstill torque	M_0	Nm	2.10	3.40	4.80	6.00	9.15
Max. torque	M_{max}	Nm	4.75	7.1	9.6	13.2	19.4
Power factor	$\cos \phi$		0.93	0.95	0.95	0.96	0.96
Efficiency							
at 50% P_{rated}	η		0.908	0.897	0.897	0.884	0.885
at 75% P_{rated}	η		0.889	0.883	0.906	0.903	0.903
at 100% P_{rated}	η		0.846	0.862	0.874	0.889	0.899
Moment of inertia	J	kgcm ²	3.24	8.75	11.1	21.1	35.8
Weight	m	kg	5.1	7.3	8.5	10.6	13.9
Power losses							
25; 25	$P_V(n; M)$	%	1.2	1.4	0.9	1.1	1.8
25; 100	$P_V(n; M)$	%	10.3	7.6	6.0	6.6	5.5
50; 25	$P_V(n; M)$	%	1.6	2.0	1.6	2.6	2.5
50; 50	$P_V(n; M)$	%	3.5	3.4	2.8	3.7	3.4
50; 100	$P_V(n; M)$	%	10.9	8.6	7.0	7.9	6.9
90; 50	$P_V(n; M)$	%	5.1	5.7	5.7	6.6	6.5
90; 100	$P_V(n; M)$	%	12.7	11.3	9.5	11.0	10.2
100; 100	$P_V(n; M)$	%	13.5	14.6	11.3	11.8	11.5
Power losses							
25; 25	$P_V(n; M)$	W	9	15	14	25	54
25; 100	$P_V(n; M)$	W	77	84	90	57	164
50; 25	$P_V(n; M)$	W	12	22	24	57	75
50; 50	$P_V(n; M)$	W	26	37	42	81	103
50; 100	$P_V(n; M)$	W	82	95	105	174	207
90; 50	$P_V(n; M)$	W	38	63	86	145	194
90; 100	$P_V(n; M)$	W	95	124	142	241	307
100; 100	$P_V(n; M)$	W	101	161	169	259	345



Motor			m650-U				
			90/L4	100/M4	100/L4	112/M4	132/S4
Rated power	P_{rated}	kW	4	5.5	7.5	11	15
Rated speed	n_{rated}	rpm	3720	3720	3720	3720	3720
Max. speed	n_{max}	rpm	4500	4500	4500	4500	4500
Rated voltage	V_{rated}	V	325	314	325	310	316
Rated current	I_{rated}	A	8.15	11.5	14.8	23.1	29.6
Standstill current	I_0	A	8.80	13.3	16.7	22.4	31.7
Max. current	I_{max}	A	22.3	32.7	43.5	62.4	80.3
Rated torque	M_{rated}	Nm	10.3	14.1	19.3	28.2	38.5
Standstill torque	M_0	Nm	11.2	16.4	21.3	27.4	41.5
Max. torque	M_{max}	Nm	25.75	36.1	49.7	71	99.4
Power factor	$\cos \phi$		0.96	0.95	0.96	0.96	0.99
Efficiency							
at 50% P_{rated}	η		0.900	0.926	0.943	0.949	0.924
at 75% P_{rated}	η		0.910	0.930	0.947	0.920	0.952
at 100% P_{rated}	η		0.907	0.916	0.924	0.932	0.937
Moment of inertia	J	kgcm ²	45.9	75.9	97.5	151.8	320.4
Weight	m	kg	16	21.7	25.6	31.8	50.7
Power losses							
25; 25	$P_V (n; M)$	%	1.0	0.6	0.5	0.8	0.7
25; 100	$P_V (n; M)$	%	4.8	3.7	3.4	3.7	3.0
50; 25	$P_V (n; M)$	%	2.1	1.1	1.0	1.7	1.5
50; 50	$P_V (n; M)$	%	2.9	1.9	1.6	2.3	2.0
50; 100	$P_V (n; M)$	%	6.0	4.5	4.0	4.7	3.9
90; 50	$P_V (n; M)$	%	5.6	4.0	3.0	4.4	4.1
90; 100	$P_V (n; M)$	%	8.8	6.7	5.5	6.9	6.2
100; 100	$P_V (n; M)$	%	10.1	7.8	6.2	7.6	6.2
Power losses							
25; 25	$P_V (n; M)$	W	40	31	38	86	101
25; 100	$P_V (n; M)$	W	190	204	255	411	221
50; 25	$P_V (n; M)$	W	82	63	74	183	221
50; 50	$P_V (n; M)$	W	117	103	120	251	300
50; 100	$P_V (n; M)$	W	239	246	298	515	591
90; 50	$P_V (n; M)$	W	222	221	227	479	617
90; 100	$P_V (n; M)$	W	353	370	415	761	930
100; 100	$P_V (n; M)$	W	402	428	463	836	1010



Motor data

Rated data

Motor			m650-U	
			132/M4	132/L4
Rated power	P_{rated}	kW	18.5	22
Rated speed	n_{rated}	rpm	3720	3720
Max. speed	n_{max}	rpm	4500	4500
Rated voltage	V_{rated}	V	336	330
Rated current	I_{rated}	A	34.5	41.4
Standstill current	I_0	A	39.6	39.6
Max. current	I_{max}	A	109	109
Rated torque	M_{rated}	Nm	47.5	56.5
Standstill torque	M_0	Nm	54.9	54.9
Max. torque	M_{max}	Nm	141.9	141.9
Power factor	$\cos \phi$		0.99	0.99
Efficiency				
at 50% P_{rated}	η		0.945	0.957
at 75% P_{rated}	η		0.942	0.957
at 100% P_{rated}	η		0.942	0.944
Moment of inertia	J	kgcm ²	416.2	416.2
Weight	m	kg	60.8	60.8
Power losses				
25; 25	$P_V(n; M)$	%	0.4	0.4
25; 100	$P_V(n; M)$	%	2.4	3.0
50; 25	$P_V(n; M)$	%	0.8	0.7
50; 50	$P_V(n; M)$	%	1.3	1.3
50; 100	$P_V(n; M)$	%	2.9	3.4
90; 50	$P_V(n; M)$	%	2.7	2.5
90; 100	$P_V(n; M)$	%	4.5	4.7
100; 100	$P_V(n; M)$	%	6.1	4.2
Power losses				
25; 25	$P_V(n; M)$	W	81	72
25; 100	$P_V(n; M)$	W	651	453
50; 25	$P_V(n; M)$	W	163	156
50; 50	$P_V(n; M)$	W	283	243
50; 100	$P_V(n; M)$	W	751	545
90; 50	$P_V(n; M)$	W	540	500
90; 100	$P_V(n; M)$	W	1031	827
100; 100	$P_V(n; M)$	W	1124	923



12 Environmental notes and recycling

Lenze products are intended for use by companies in industrial environments. This means that they are also subject to requirements regarding recycling and disposal. Both mechanical and electrical components such as electric motors, gearboxes, and inverters contain valuable raw materials that can be recycled and reused. Proper recycling is important and sensible from both an economic and ecological perspective.

For information on the proper disposal and legal requirements of our products, please refer to the information on the respective product page on the Internet:

<https://www.lenze.com/en-de/products>

If you require support, please contact your local branch:

<https://www.lenze.com/en-de/company/global-presence>

Note: By disposing of devices and packaging properly, you are helping us to protect the environment and conserve resources.



Further information on Lenze's environmental and climate responsibility and on the topic of energy efficiency can be found on the Internet:

<https://www.lenze.com/en-de/company/sustainability>



13 Appendix

13.1 Good to know

13.1.1 Operating modes of the motor

Operating modes S1 ... S10 as specified by EN 60034-1 describe the basic stress of an electrical machine.

In continuous operation a motor reaches its permissible temperature limit if it outputs the rated power dimensioned for continuous operation. However, if the motor is only subjected to load for a short time, the power output by the motor may be greater without the motor reaching its permissible temperature limit. This behaviour is referred to as overload capacity.

Depending on the duration of the load and the resulting temperature rise, the required motor can be selected reduced by the overload capacity.

The most important operating modes

Continuous operation S1	Short-time operation S2
Operation with a constant load until the motor reaches the thermal steady state. The motor may be actuated continuously with its rated power.	Operation with constant load; however, the motor does not reach the thermal steady state. During the following standstill, the motor winding cools down to the ambient temperature again. The increase in power depends on the load duration.



Intermittent operation S3	Non-intermittent periodic operation S6
Sequence of identical duty cycles comprising operation with a constant load and subsequent standstill. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/downtime ratio.	Sequence of identical duty cycles comprising operation with a constant load and subsequent no-load operation. The motor cools down during the no-load phase. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/idle time ratio.
P Power t Time t_L Idle time θ Temperature	P_V Power loss t_B Load period t_S Cycle duration

13.1.2 Enclosures

The protection class indicates the suitability of a product for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The protection classes are classified in the EN IEC 60034-5/EN IEC 60529.

The first code number after the code letters IP indicates the protection against the ingress of foreign particles and dust. The second code number refers to the protection against the ingress of humidity.

Code number 1	Degree of protection	Code number 2	Degree of protection
0	No protection	0	No protection
1	Protection against the ingress of foreign particles $d > 50$ mm. No protection in case of deliberate access.	1	Protection against vertically dripping water (dripping water).
2	Protection against medium-sized foreign particles, $d > 12$ mm, keeping away fingers or the like.	2	Protection against diagonally falling water (dripping water), 15° compared to normal service position.
3	Protection against small foreign particles $d > 2.5$ mm. Keeping away tools, wires or the like.	3	Protection against spraying water, up to 60° from vertical.
4	Protection against granular foreign particles, $d > 1$ mm, keeping away tools, wire or the like.	4	Protection against spraying water from all directions.
5	Protection against dust deposits (dust-protected), complete protection against contact.	5	Protection against water jets from all directions.
6	Protection against the ingress of dust (dust-proof), complete protection against contact.	6	Protection against choppy seas or heavy water jets (flood protection).

Lenze SE

Postfach 101352 · 31763 Hameln
Hans-Lenze-Straße 1 · 31855 Aerzen
GERMANY

Hannover HRB 204803
Phone +49 5154 82-0
sales.de@lenze.com
www.lenze.com