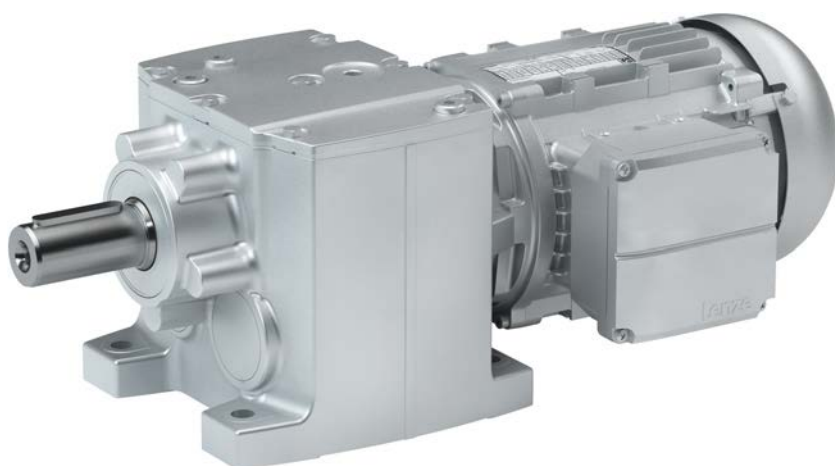


g500-H + m650-U helical geared motors



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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 helical gearboxes represent a compact, powerful drive unit. Numerous drive and output options allow the drive to be precisely adapted to your application.

The robust helical 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 an output torque of up to 3000 Nm and a ratio of up to $i = 3529$.

Versions

- Finely scaled in size/torque - ensures optimal machine adaptation
- Shaft dimensions in line with market standard and standardized flanges for easy machine integration
- High efficiency
- Highly efficient synchronous motors in the compact and robust design of a three-phase motor
- Optimized for sensorless control and designed for 250% (IE5) and 300% (IE6) overload capacity from 0 rpm

Three-phase motors for inverter operation

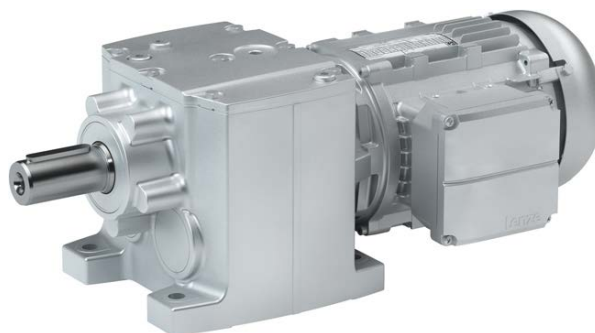
In a power range from 0.25 to 22 kW, Lenze offers inverter-compatible three-phase motors for more extensive tasks.

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-H450 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](#)  49

► [Gearboxes with adapter](#)  61



g500-H helical gearbox with adapter for IEC standard motors



2.2 Identification of the products

Gearbox product name

Gearbox type	Product series		Type	Rated torque Nm	Gearbox
Helical gearbox	g500	-	H	45	g500-H45
				100	g500-H100
				140	g500-H140
				210	g500-H210
				320	g500-H320
				450	g500-H450
				600	g500-H600
				850	g500-H850
				1500	g500-H1500
				3000	g500-H3000

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.

Ventilation

(depending on the mounting position)

Oil filler plug

(depending on the mounting position)

Oil control plug

(depending on the mounting position)

Output shaft

Output flange

Housing type

Temperature monitoring

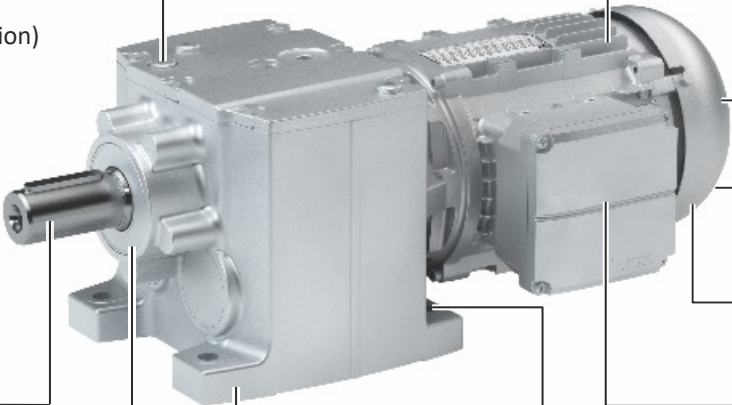
Cooling

Feedback

Brake

Motor connection

Oil drain plug (depending on the mounting position)





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

Gearboxes		g500-H45	g500-H100	g500-H140	g500-H210	g500-H320	g500-H450
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U71	m650-U90	m650-U90	m650-U100	m650-U112	m650-U132
Technical data							
Max. output torque	Nm	45	100	140	210	320	450
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	1.5	4	4	7.5	11	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	mm	14 x 28 20 x 40	20 x 40	25 x 50	25 x 50	30 x 60	30 x 60 35 x 70
Solid shaft without keyway	mm	20 x 40	20 x 40	25 x 50	25 x 50	30 x 60	35 x 70
Shaft material		Steel Stainless steel					
Output shaft bearing		Standard Reinforced					
Gearbox design		With foot (VBR)					
			With foot and centering (VAR)	With foot and centering (VAR)	With foot and centering (VAR)	With foot and centering (VAR)	With foot and centering (VAR)
			With foot and output flange (VAK)	With foot and output flange (VAK)	With foot and output flange (VAK)	With foot and output flange (VAK)	With foot and output flange (VAK)
		With centering (VCR)					
		With output flange (VCK)					
			With output flange (VCP)	With output flange (VCP)	With output flange (VCP)	With output flange (VCP)	With output flange (VCP)
Output flange	mm	120/140/160	120/140/160	120/140/160	120/140 160/200	160/200	160/200/250
Ventilation		Without				Vent valve	
Cooling		Integral fan					
Product extensions							
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 600 Nm to 3000 Nm

Gearboxes		g500-H600	g500-H850	g500-H1500	g500-H3000
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U132	m650-U132	m650-U132	m650-U132
Technical data					
Max. output torque	Nm	600	850	1500	3000
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	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	mm	35 x 70 40 x 80	40 x 80	50 x 100	60 x 120
Solid shaft without keyway	mm	35 x 70	40 x 80	50 x 100	60 x 120
Shaft material		Steel Stainless steel			
Output shaft bearing		Standard Reinforced			
Gearbox design		With foot (VBR) With foot and centering (VAR) With foot and output flange (VAK) With centering (VCR) With output flange (VCK)			
Output flange	mm	200/250	250/300	250/300/350	300/350/450
Ventilation		Vent valve Oil compensation reservoir			
Cooling		Integral fan			
Product extensions					
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

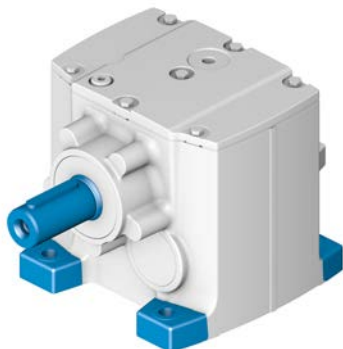


Observe the available gearbox designs!

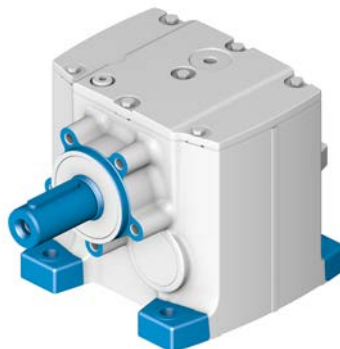
► [The modular system](#) 13

The VCP design (reinforced flange) is suitable for absorbing high radial and axial forces 64 .

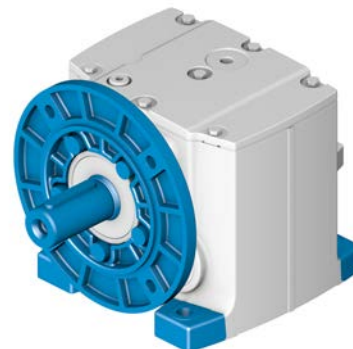
Solid shaft, with foot



Without centring (VBR)



With centring (VAR)



Flange with through holes (VAK)

Solid shaft, without foot



With centering (VCR)



Flange with through holes (VCK)



Reinforced flange with through holes (VCP)

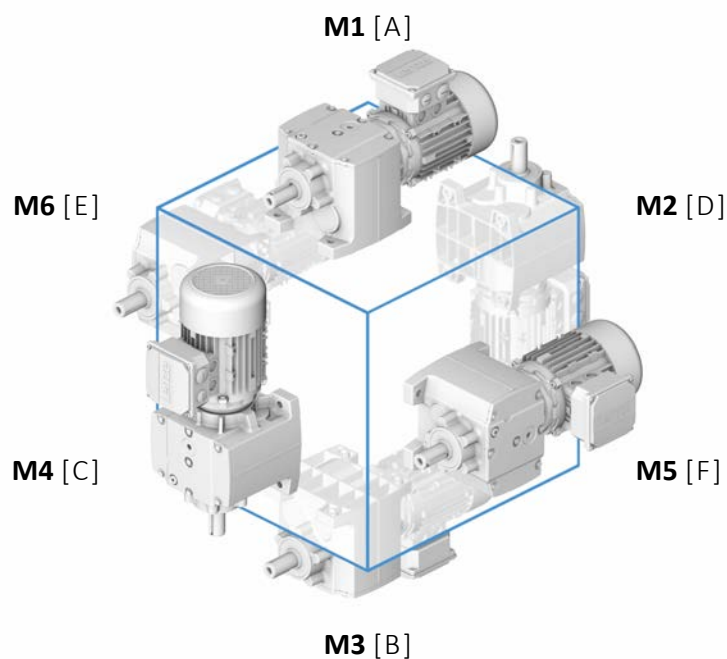


2.4.2 Mounting positions

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.



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

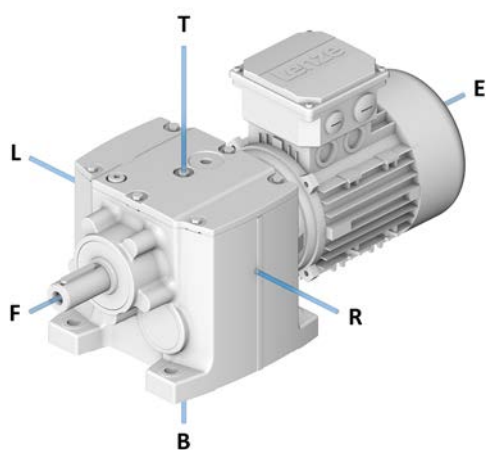


Defined positions on the geared motor

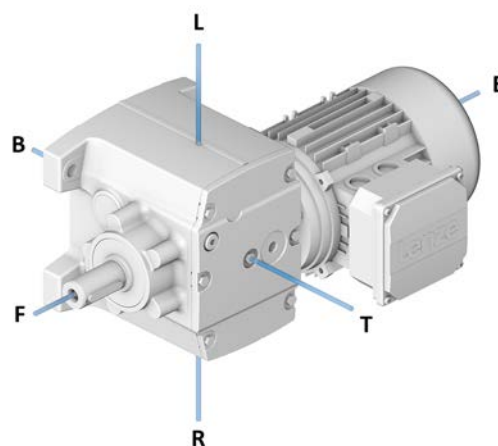
All of the defined positions refer to the areas on the geared motor in mounting position **M1 (A)**.

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 (F)



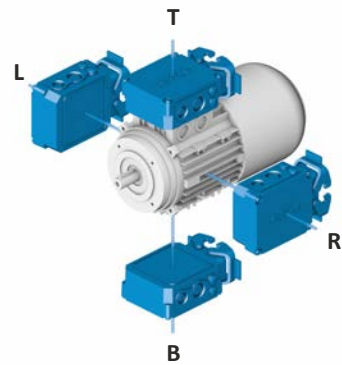
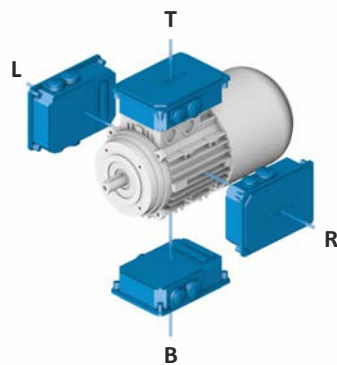


Positions of the terminal boxes/connectors

Power terminal box

with/without M23 connector

Han connector

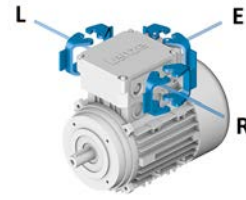
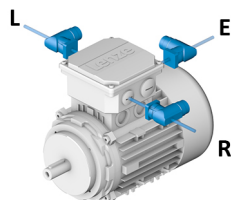


Positions of the connectors

Power terminal box

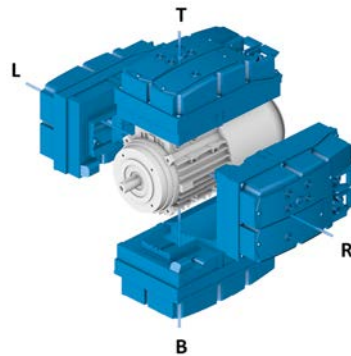
Cable glands/M23 connector

Han connector



Positions of the i550/i650 motec frequency inverters

Positions of the i550/i650 motec

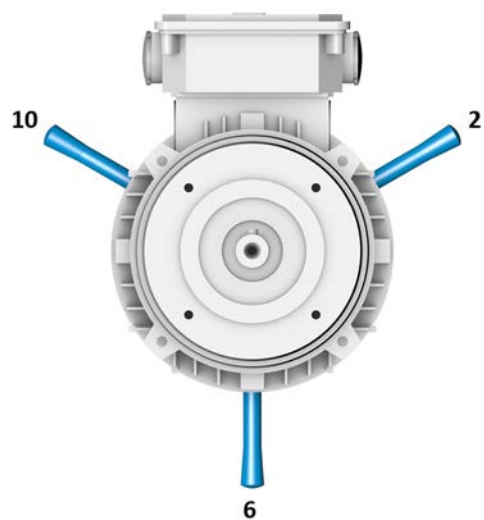


Product information

The modular system
Mounting positions



Manual release lever position





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 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

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 SLSM operating mode.

Further information can be found in the frequency inverter documentation.

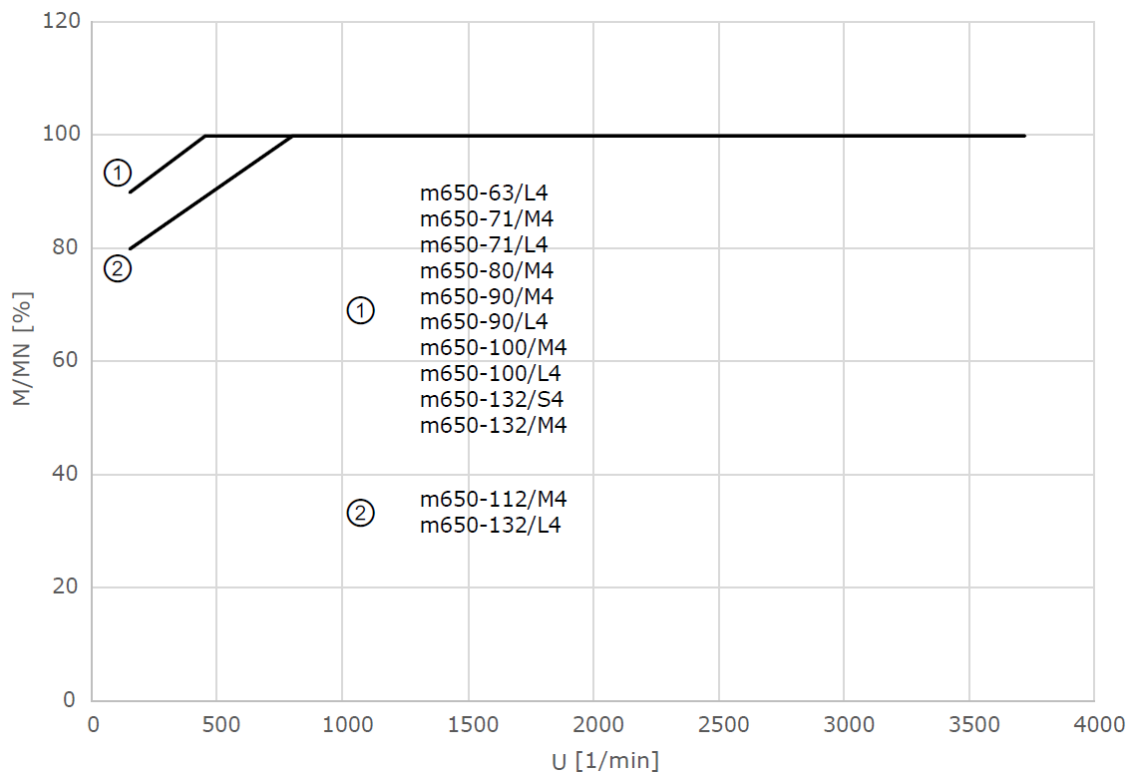
Torque reduction at low motor frequencies

At low motor frequencies (usually < 20 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.

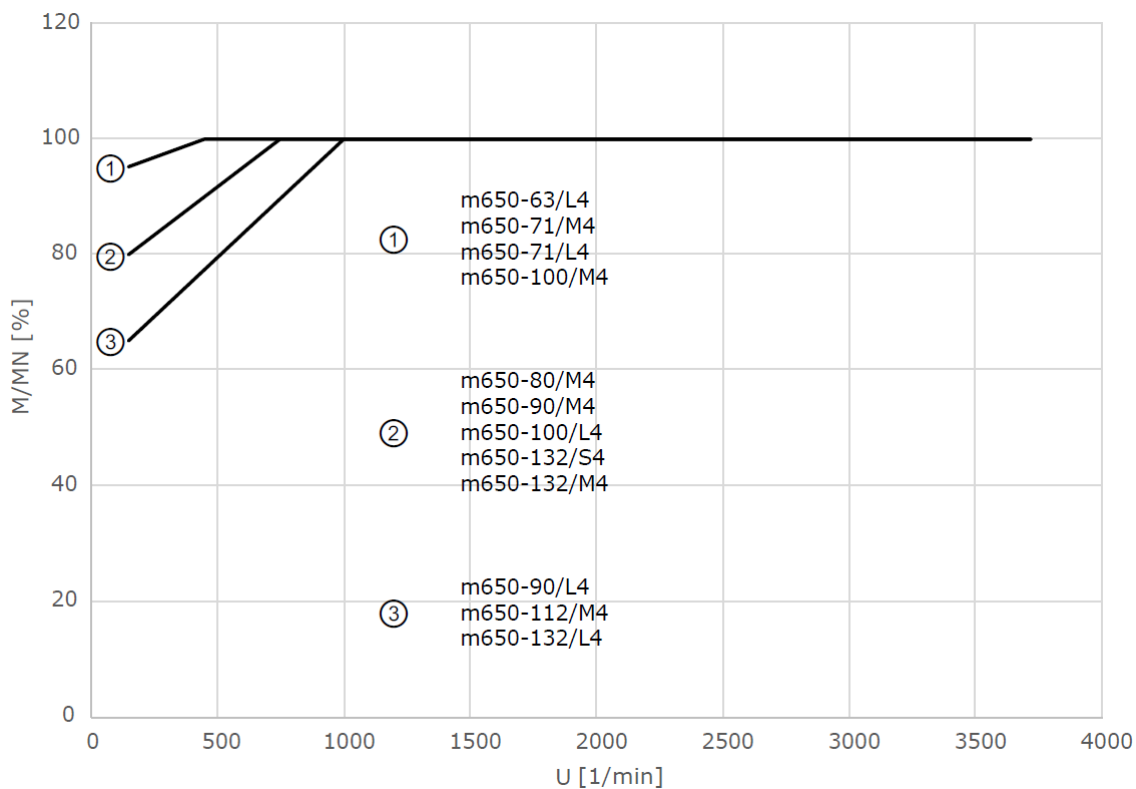


The diagram shows the motor size-dependent torque reduction for self-ventilated motors, taking into account the thermal behavior during operation on the inverter.

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-H850 ... H3000	≤ 10

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.



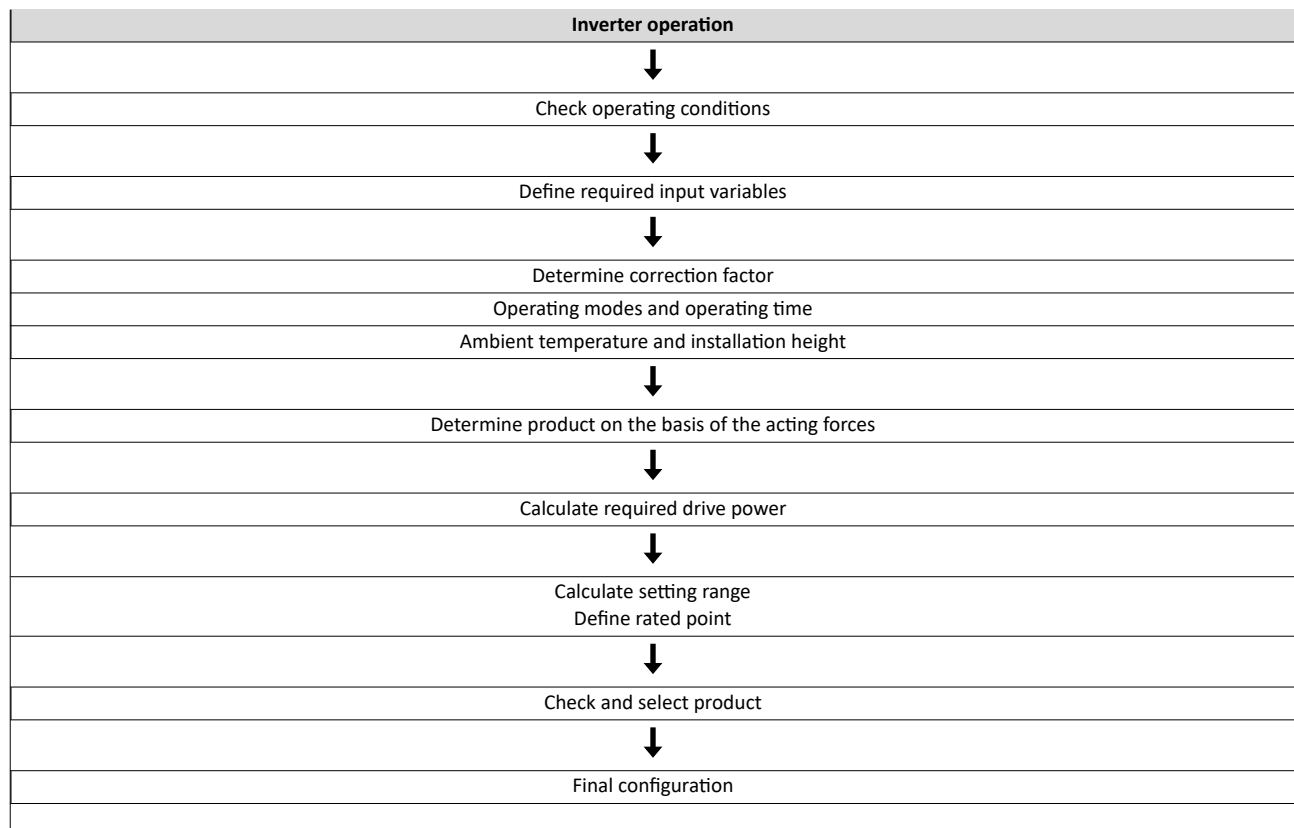
4.2 Drive dimensioning

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](#) 47

► [Surface and corrosion protection](#) 32



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 [178](#)

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-H	1.00	0.70	0.80	0.80	1.00	1.00

► Selection tables [69](#)



Gearbox efficiency

Gearboxes	Gearbox efficiency	
	η_{c1}	
g500-H		
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](#) 64

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

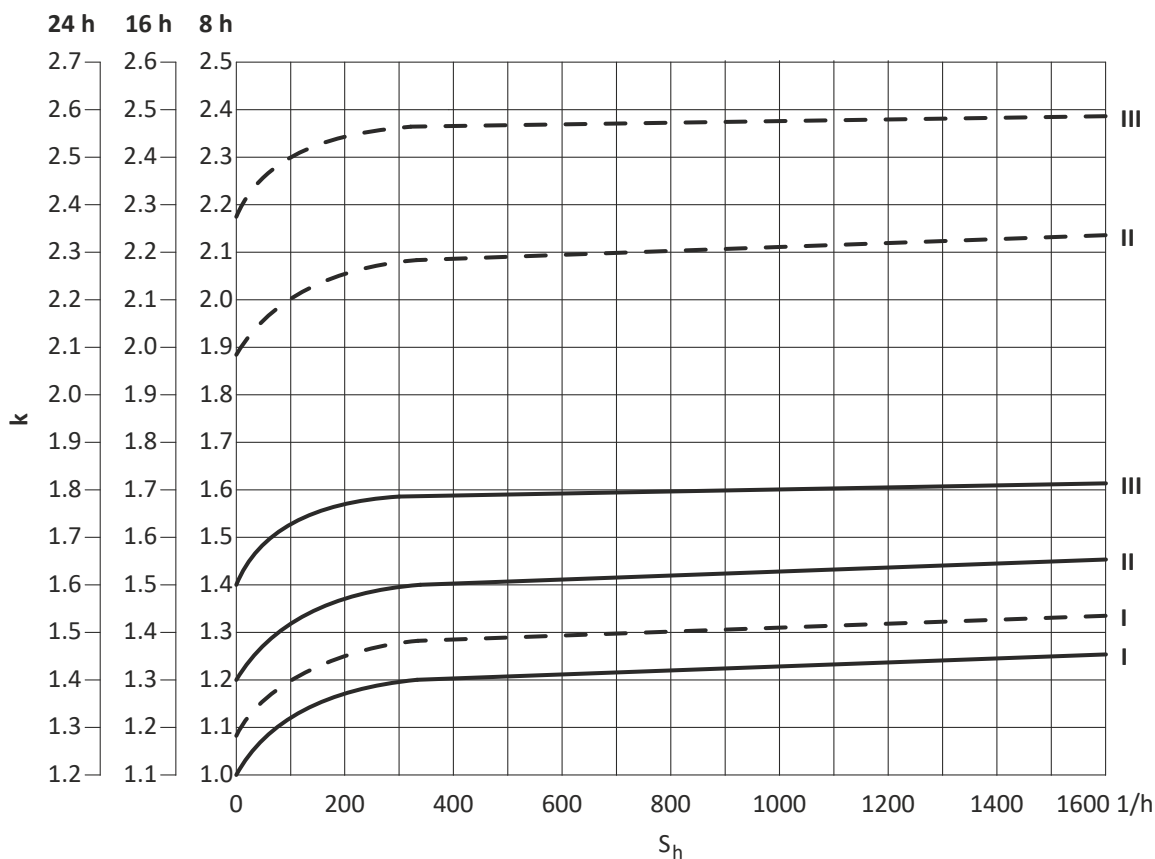
η_g Gearbox efficiency

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](#) 174

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-H45
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](#) 13
- ▶ [Product extensions](#) 144



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 $< 0\text{ °C}$ or $> +40\text{ °C}$ please contact your responsible Lenze sales company.

Temperature packages	
Standard	
Ambient temperature	$0\text{ °C} \dots +40\text{ °C}$
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 $+30\text{ °C}$: • Verification of the application by Lenze required.



4.3.3 Lubricants

The following gearboxes are lubricated for life:

- g500-H45
- g500-H100
- g500-H140

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 (polyalfaolefins basis)	Synthetic oil (polyalfaolefins 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 (F)	M6 (E)	M1-M6 (A-F)	M1, M5, M6 (AEF)
Gearbox									
g500-H45	I	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-
g500-H100	I	0.5	0.7	0.8	0.7	0.5	0.7	-	0.7
g500-H140	I	0.5	0.8	0.9	0.7	0.5	0.8	-	0.8
g500-H210	I	0.8	1.1	1.2	1.3	0.9	1.2	-	1.2
g500-H320	I	0.8	1.2	1.3	1.3	1.0	1.2	-	1.2
g500-H450	I	1.1	1.6	1.7	1.8	1.4	1.6	-	1.6
g500-H600	I	1.7	2.6	2.4	3.0	1.9	2.3	-	-
g500-H850	I	2.3	3.5	3.0	4.0	2.5	3.2	-	-
g500-H1500	I	4.6	7.0	6.0	7.7	5.0	6.0	-	-
g500-H3000	I	8.0	12.6	10.0	13.2	9.5	9.8	-	-
Pre-stage	I	0.4							

► Gearbox with pre-stage [138](#)



4.3.4 Ventilation



No ventilation is required for the gearboxes g500-H45 ...H210.

The gearbox g500-H210 can optionally be fitted with ventilation units.

From g500-H320 onwards, the gearboxes are supplied with ventilation units as standard.

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

- g500-H45 in mounting position M1-M6 (A-F)
- g500-H100 ... H450 in mounting position M1/5/6 (AEF)



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-H210

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

Ventilation

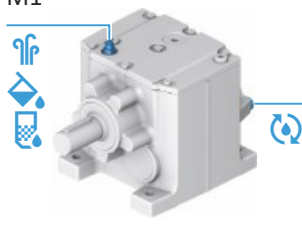
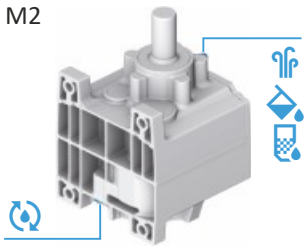
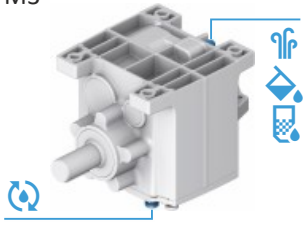
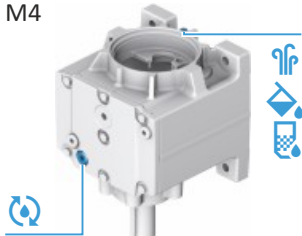
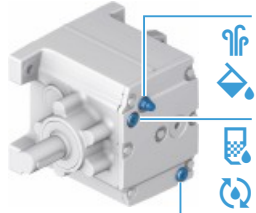
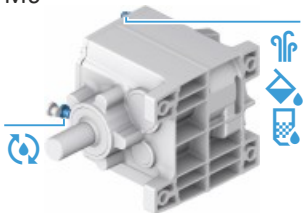
Change oil

Fill oil

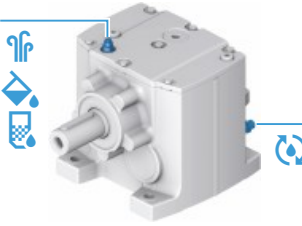
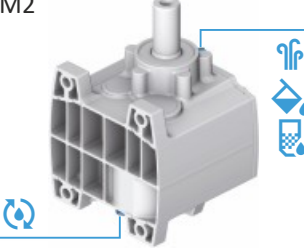
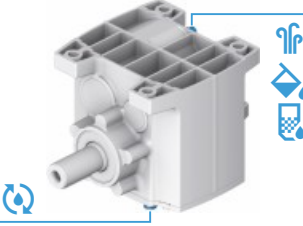
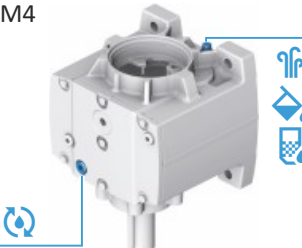
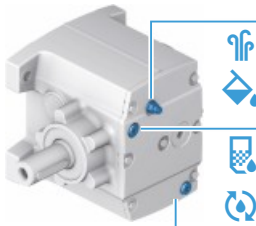
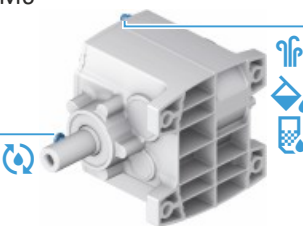
Oil level



g500-H320

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

g500-H450

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



g500-H600

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

🌀 Ventilation

🔄 Change oil

⬇️ Fill oil

📏 Oil level

g500-H850

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

🌀 Ventilation

🔄 Change oil

⬇️ Fill oil

📏 Oil level



g500-H1500

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

Ventilation

Change oil

Fill oil

Oil level

g500-H3000

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

Ventilation

Change oil

Fill oil

Oil level



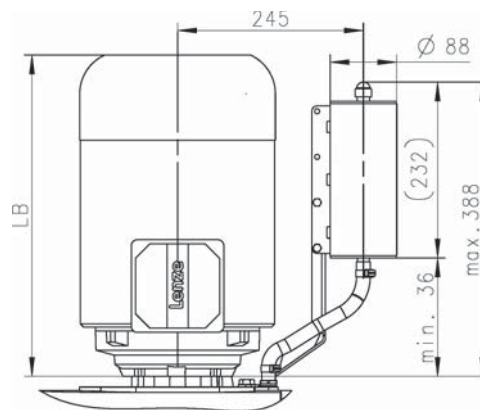
Gearbox with oil compensation reservoir for mounting position M4 (C)

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:

g500-H1500		g500-H3000	
Gearbox ratio	Min. input speed	Gearbox ratio	Min. input speed
	rpm		rpm
3.743	2000	4.496	2000
4.758	2000	5.902	2000
5.400	2000	6.344	2000
6.245	2000	6.968	2000
6.864	2000	8.327	2000
7.592	2000	9.146	2000
9.010	2000	10.005	2000
10.267	2000	11.619	2000
11.356	2000	12.762	2000
12.362	3000	14.233	2000
13.673	3000	15.633	2000
15.156	3000	18.752	3000
16.763	3000	20.596	3000
20.533	3000	23.044	3000
22.711	3000	25.311	3000
24.933	3000	29.822	3000
27.578	3000	32.756	3000
32.267	4000	36.193	4000
35.689	4000	39.753	4000
39.160	4000	45.750	4000
43.313	4000	50.250	4000
49.500	4000		
54.750	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](#)  47
- 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

Geared motor		
	Eye bolt on the shaft	Eye bolt on the housing
G50AH045Mxxxxxx	M5 ... M6	-
G50BH110Mxxxxxx	M6	-
G50BH114Mxxxxxx	M10	-
G50BH121Mxxxxxx	-	M8
G50BH132Mxxxxxx	-	M10
G50BH145Mxxxxxx	-	M12
G50BH160Mxxxxxx	-	M12
G50BH185Mxxxxxx	-	M16
G50BH215Mxxxxxx	-	M16
G50BH230Mxxxxxx	-	M20
G50BH250Mxxxxxx	-	M20
G50BH280Mxxxxxx	-	M24
G50BH314Mxxxxxx	-	M24



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 helical geared motors \(Lenze.com\)](https://www.lenze.com)

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



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-H45, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
18.0	2.597	896	345	41
19.0	3.413	256	75	39
21.0	4.368	1376	315	38
27.0	5.312	1344	253	28
29.0	5.965	686	115	28
30.0	6.982	384	55	27
32.0	7.840	196	25	27
33.0	8.935	688	77	27
35.0	10.033	301	30	26
35.0	11.429	80	7	26
38.0	12.833	77	6	26
39.0	14.836	816	55	26
41.0	16.660	833	50	25
42.0	19.013	1464	77	26
44.0	21.350	427	20	25



g500-H100, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
49.0	2.108	120	253	30
62.0	3.354	161	48	29
72.0	4.600	23	5	27
75.0	5.167	31	6	24
81.0	5.887	989	168	27
83.0	6.440	161	25	27
86.0	7.086	248	35	23
92.0	8.214	115	14	27
96.0	9.068	1333	147	23
99.0	10.063	161	16	27
100	11.360	284	25	22
100	12.653	620	49	23
100	14.490	710	49	22
100	15.500	31	2	23
100	17.750	71	4	22
100	19.486	682	35	23
100	22.314	781	35	22
100	25.095	527	21	23
100	28.738	1207	42	21
100	31.805	2449	77	22
100	36.422	5609	154	21
100	39.857	279	7	22
100	45.643	639	14	21



g500-H140, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
63.0	2.053	75	154	27
83.0	2.912	125	364	26
82.0	3.267	49	15	25
94.0	4.480	112	25	24
103	5.733	86	15	23
105	6.272	784	125	23
106	7.269	189	26	18
117	8.000	8	1	23
117	9.029	316	35	18
125	9.800	49	5	23
128	11.554	3397	294	18
132	12.640	316	25	18
136	13.957	4536	325	17
140	16.122	790	49	18
140	17.802	1620	91	17
140	19.750	79	4	18
140	21.808	567	26	17
140	24.829	869	35	18
140	27.415	1782	65	17
140	31.976	1343	42	18
140	35.308	459	13	17
140	40.526	6241	154	17
140	44.748	6399	143	16
133	50.786	711	14	17
140	56.077	729	13	16

g500-H140, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
140	57.582	12956	225	18
140	63.582	20664	325	17



g500-H210, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
126	3.389	61	18	22
143	4.648	488	105	22
159	5.583	67	12	18
158	6.250	25	4	17
172	7.657	268	35	18
171	8.571	60	7	17
182	9.799	2881	294	18
189	10.720	268	25	18
186	12.000	12	1	17
201	13.673	670	49	17
200	15.306	750	49	17
210	16.750	67	4	17
210	18.750	75	4	16
210	21.802	2747	126	17
210	24.405	1025	42	16
210	27.119	1139	42	17
210	30.357	425	14	16
210	35.095	737	21	17
210	39.286	275	7	16
183	42.593	5963	140	16
206	47.679	1335	28	16
137	54.438	871	16	16
155	60.938	975	16	16

g500-H210, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
210	43.390	4556	105	17
210	48.571	340	7	16
210	55.529	48977	882	17
210	62.160	18275	294	16
210	71.026	62645	882	16
210	79.507	23375	294	16
210	92.205	19363	210	16
210	103.214	1445	14	16
210	118.162	69479	588	16



g500-H320, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
165	3.389	61	18	20
189	4.648	488	105	20
227	6.083	73	12	16
218	6.910	539	78	15
249	8.343	292	35	16
238	9.477	616	65	15
265	10.677	3139	294	15
271	11.680	292	25	15
254	12.128	473	39	15
262	13.268	4312	325	15
294	14.898	730	49	15
281	16.923	220	13	14
313	18.250	73	4	15
299	20.731	539	26	14
320	23.754	2993	126	15
320	26.983	3157	117	14
320	29.548	1241	42	15
320	33.564	1309	39	14
251	38.238	803	21	15
285	43.436	1694	39	14
218	46.407	6497	140	14
248	52.715	6853	130	14

g500-H320, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
320	47.276	4964	105	15
320	53.703	10472	195	14
320	60.502	53363	882	15
320	68.726	8041	117	14
320	77.387	68255	882	15
320	87.906	10285	117	14
320	100.462	21097	210	15
320	114.118	22253	195	14
320	128.743	75701	588	15
320	146.244	11407	78	14
320	166.541	38471	231	15



g500-H450, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
256	3.444	31	9	19
293	4.724	496	105	17
315	5.678	511	90	15
323	6.045	2666	441	17
334	6.613	496	75	17
354	7.787	584	75	14
370	8.800	44	5	13
384	9.965	3139	315	14
400	11.262	473	42	13
411	12.320	308	25	13
426	13.905	292	21	13
441	15.714	110	7	13
450	17.033	511	30	13
448	19.250	77	4	13
450	22.170	2993	135	13
450	25.056	451	18	13
450	27.578	1241	45	13
450	31.167	187	6	13
450	35.689	1606	45	13
450	40.333	121	3	12
322	43.313	6497	150	13
366	48.950	979	20	12
273	54.750	219	4	13
307	61.875	495	8	12

g500-H450, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
450	44.124	9928	225	14
450	49.867	748	15	13
450	56.469	53363	945	14
450	61.774	69496	1125	14
450	69.813	5236	75	13
450	78.794	4964	63	14
450	89.048	1870	21	13
450	96.522	8687	90	14
450	109.083	1309	12	13
450	121.342	27302	225	14
450	137.133	2057	15	13
450	156.274	21097	135	14
450	176.611	3179	18	13
450	198.059	98039	495	13
450	223.833	1343	6	13
450	248.200	1241	5	13



g500-H600, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
220	2.917	12	35	18
240	3.267	49	15	17
297	4.480	112	25	15
339	5.733	86	15	15
404	6.456	581	90	13
435	7.250	29	4	13
487	8.853	664	75	12
510	9.943	348	35	12
537	11.330	3569	315	12
553	12.395	4648	375	12
578	13.920	348	25	12
600	15.810	332	21	12
600	17.755	870	49	12
600	19.367	581	30	12
600	21.750	87	4	11
600	25.207	3403	135	12
600	28.310	1189	42	11
600	31.356	1411	45	12
600	35.214	493	14	11
558	40.578	1826	45	11
600	45.571	319	7	11
456	49.247	7387	150	11
513	55.307	7743	140	11
371	62.250	249	4	11
418	69.911	3915	56	11

g500-H600, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
600	31.197	49136	1575	13
600	35.037	8584	245	12
600	39.925	264106	6615	13
600	43.676	49136	1125	12
600	49.051	8584	175	12
600	55.710	24568	441	12
600	62.566	21460	343	12
600	68.244	3071	45	12
600	76.643	1073	14	12
600	88.826	251822	2835	12
600	99.757	43993	441	12
600	110.491	104414	945	12
600	124.088	18241	147	12
600	142.988	135124	945	12
600	160.585	23606	147	12
600	173.536	273319	1575	12
600	194.892	95497	490	12
600	221.794	39923	180	12
600	249.089	13949	56	12



g500-H600, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
600	198.970	2014576	10125	13
600	223.457	351944	1575	12
600	253.789	1007288	3969	13
600	285.021	879860	3087	12
600	320.294	1080992	3375	12

g500-H850, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
306	3.147	1734	551	15
378	4.362	663	152	15
429	5.368	102	19	14
551	5.946	1207	203	13
578	6.644	578	87	12
615	8.241	923	112	12
649	9.208	221	24	12
667	10.143	71	7	12
696	11.360	284	25	12
725	12.693	952	75	11
758	14.490	710	49	11
792	16.190	340	21	11
814	17.750	71	4	11
833	19.833	119	6	11
850	23.103	2911	126	11
850	25.815	697	27	11
850	28.315	4757	168	11
850	31.639	1139	36	11
850	37.190	781	21	11
850	41.556	374	9	11
850	45.136	6319	140	11
850	50.433	1513	30	11



g500-H850, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
850	29.536	3692	125	12
850	33.003	12376	375	12
850	37.799	39689	1050	12
850	41.350	25844	625	12
850	46.204	86632	1875	12
850	52.743	1846	35	12
850	58.933	884	15	12
850	64.610	6461	100	12
850	72.193	10829	150	12
850	84.096	37843	450	12
850	93.966	63427	675	12
850	104.607	15691	150	12
850	116.884	26299	225	12
850	135.373	10153	75	12
850	151.262	34034	225	12
850	164.294	82147	500	12
850	183.577	137683	750	12
850	207.675	8307	40	12
850	232.050	4641	20	12

g500-H850, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
850	210.484	3551912	16875	12
850	234.319	439348	1875	12
850	261.821	1472744	5625	12
850	294.334	264901	900	12
850	328.881	443989	1350	12
850	368.019	1150058	3125	12
850	411.213	3855124	9375	12
850	473.807	71071	150	12



g500-H1500, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	'
Nm				
775	3.743	1647	440	14
924	4.758	2379	500	13
1021	5.400	27	5	10
1098	6.245	2623	420	13
1157	6.864	858	125	10
1217	7.592	949	125	10
1320	9.010	946	105	10
1380	10.267	154	15	10
1400	11.356	511	45	9
1420	12.362	1298	105	10
1430	13.673	4307	315	9
1440	15.156	682	45	10
1450	16.763	2263	135	9
1500	20.533	308	15	10
1500	22.711	1022	45	9
1500	24.933	374	15	9
1500	27.578	1241	45	9
1484	32.267	484	15	9
1500	35.689	1606	45	9
1500	39.160	979	25	9
1500	43.313	6497	150	9
1250	49.500	99	2	9
1382	54.750	219	4	9

g500-H1500, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	'
Nm				
1500	40.517	2431	60	10
1500	44.814	16133	360	10
1500	49.867	748	15	10
1500	55.851	20944	375	10
1500	61.774	69496	1125	10
1500	71.238	1496	21	10
1500	78.794	4964	63	10
1500	87.267	1309	15	10
1500	96.522	8687	90	10
1500	113.585	15334	135	10
1500	125.632	50881	405	10
1500	139.211	12529	90	10
1500	153.976	83147	540	10
1500	182.844	8228	45	10
1500	202.237	27302	135	10
1500	221.907	16643	75	10
1500	245.442	110449	450	10
1500	280.500	561	2	10
1500	310.250	1241	4	10



g500-H1500, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
1500	203.537	29920	147	10
1500	225.125	99280	441	10
1500	254.431	858704	3375	10
1500	281.416	2849336	10125	10
1500	316.487	356048	1125	10
1500	350.054	1181432	3375	10
1500	397.548	53669	135	10
1500	446.497	84388	189	10
1500	494.511	22253	45	10
1500	572.324	2086121	3645	10
1500	634.184	513689	810	10
1500	701.446	3409027	4860	10
1500	788.863	212993	270	10

g500-H3000, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2300	10.005	3752	375	9
2400	11.619	244	21	9
2475	12.762	268	21	9
2530	14.233	427	30	8
2610	15.633	469	30	8
2750	18.752	5063	270	8
2815	20.596	5561	270	8
2900	23.044	1037	45	8
2965	25.311	1139	45	8
3000	29.822	1342	45	8
3000	32.756	1474	45	8
3000	36.193	5429	150	8
3000	39.753	5963	150	8
1765	45.750	183	4	8
1938	50.250	201	4	8



g500-H3000, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2830	47.186	44591	945	9
2910	51.828	48977	945	9
2950	53.770	7259	135	9
3000	59.059	7973	135	9
3000	64.744	61183	945	9
3000	71.112	67201	945	9
3000	79.375	32147	405	9
3000	87.183	35309	405	9
3000	107.541	14518	135	9
3000	118.119	15946	135	9
3000	130.585	17629	135	9
3000	143.430	19363	135	9
3000	168.993	22814	135	9
3000	185.615	25058	135	9
3000	205.096	92293	450	9
3000	225.269	101371	450	9
3000	259.250	1037	4	9
3000	284.750	1139	4	9

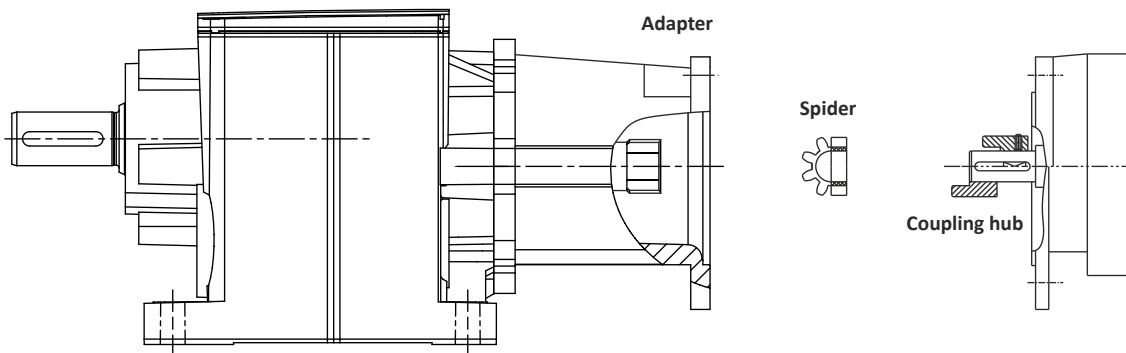
g500-H3000, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2850	203.178	268804	1323	9
2650	226.604	61183	270	9
2950	248.893	67201	270	9
3000	292.511	987224	3375	9
3000	321.282	1084328	3375	9
3000	376.393	50813	135	9
3000	413.415	55811	135	9
3000	457.048	123403	270	9
3000	489.908	595238	1215	9
3000	538.095	653786	1215	9
3000	594.888	722789	1215	9
3000	653.402	793883	1215	9
3000	739.983	299693	405	9
3000	788.632	319396	405	9
3000	866.202	350812	405	9
3000	957.625	387838	405	9
3000	1051.817	425986	405	9
3000	1239.279	501908	405	9
3000	1361.175	551276	405	9
3000	1504.034	1015223	675	9
3000	1651.972	1115081	675	9



7.4 Gearboxes with adapter

Versions with flexible coupling

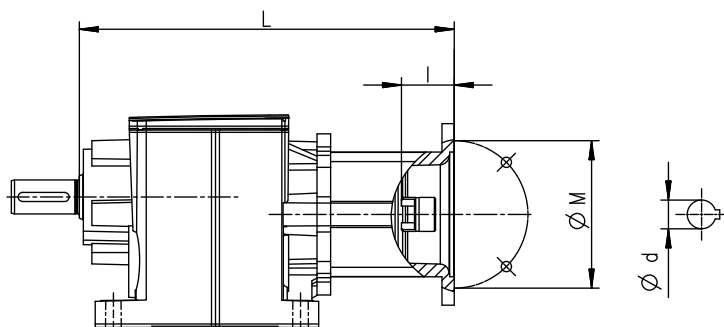


Power is transmitted between the motor and the gearbox via a flexible coupling. The gearbox shaft is designed as a coupling claw on the motor side. The counterpart, the coupling hub, is placed on the motor shaft and secured axially. A spider (elastic ring gear) is located between the two coupling claws, 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](#) 103

Versions with flexible coupling

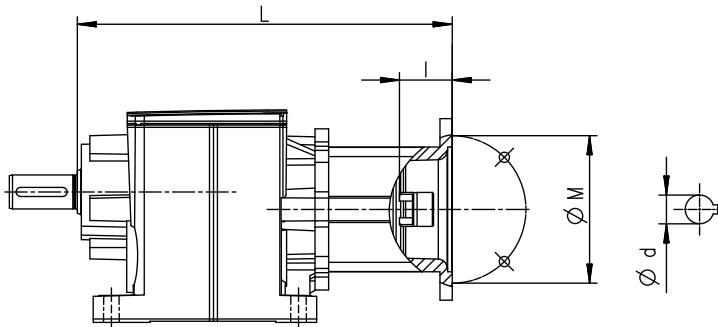
Motor				Adapter		Gearbox g500									
P ₁	Size	Shaft		M	Size	-H45	-H100	-H140	-H210	-H320	-H450	-H600	-H850	-H1500	-H3000
kW		d	l	mm		L	L	L	L	L	L	L	L	L	L
		mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
0.12 0.18	63	11	23	FF75	N1A	164	218	231	255	270	285	-	-	-	-
					N2B	-	218	231	255	270	285	-	-	-	-
				FF130	N6C	-	234	248	272	287	285	306	317	-	-
0.25 0.37	71	14	30	FF85	N1B	-	235	248	272	287	302	323	334	386	-
					N3C	-	235	248	272	287	302	323	334	386	-
				FF100	N4C	-	235	248	272	287	302	323	334	386	-
				FF130	N2C	-	235	248	272	287	302	323	334	386	-
0.55 0.75	80	19	40	FF100	N7C	-	235	248	272	287	302	323	334	386	-
				FF130	N1C	-	235	248	272	287	302	323	334	386	-
					N2D	-	264	277	301	316	331	352	363	415	455
					N3E	-	-	-	301	316	331	352	363	415	-
1.1 1.5	90	24	50	FF130	N1D	-	264	277	301	316	331	352	363	415	455
					N2E	-	-	-	301	316	331	352	363	415	455
					N2F	-	-	-	-	-	-	352	363	415	455
				FT165	N4E	-	-	-	321	336	351	372	383	435	475
					N3F	-	-	-	-	-	-	372	383	435	475
2.2 3.0 4.0	100	28	60	FF130	N1E	-	-	-	301	316	331	352	363	415	455
					N1F	-	-	-	-	-	-	352	363	415	455
	112			FF215	N2G	-	-	-	-	-	-	416	427	479	519
5.5 7.5	132	38	80	FF215	N3G	-	-	-	-	-	-	436	447	499	539
				FF265	N1G	-	-	-	-	-	-	436	447	499	539
					N3H	-	-	-	-	-	-	-	-	539	579
11.0 15.0	160	42	110	FF300	N1H	-	-	-	-	-	-	-	-	569	609
18.5 22.0	180	48	110	FF300	N2H	-	-	-	-	-	-	-	-	569	609

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](#) 103

Versions with servo adapter

Motor			Adapter		Gearbox g500								
M	Shaft		M	Size	-H100	-H140	-H210	-H320	-H450	-H600	-H850	-H1500	-H3000
mm	d	l	mm		L	L	L	L	L	L	L	L	L
mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	mm	mm
75	11	23	FT75	S2B	174	187	211	226	241	262	273	-	-
	14	30		S3B	174	187	211	226	241	262	273	-	-
100	14	30	FF100	S4C	189	202	226	241	256	277	288	340	-
	19	40		S7C	189	202	226	241	256	277	288	340	-
	16	40		S8C	189	202	226	241	256	277	288	340	-
115	19	50	FF115	S3D	206	219	243	258	273	294	305	357	397
	24	50		S4D	206	219	243	258	273	294	305	357	397
130	19	50	FF130	S2D	206	219	243	258	273	294	305	357	397
	24	50		S1D	206	219	243	258	273	294	305	357	397
	24	60		S2E	-	-	243	258	273	294	305	357	397
	28	60		S1E	-	-	243	258	273	294	305	357	397
165	24	50	FF165	S4E	-	-	243	258	273	294	305	357	397
	32	58		S6E	-	-	243	258	273	294	305	357	397
	28	60		S7E	-	-	243	258	273	294	305	357	397



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 .

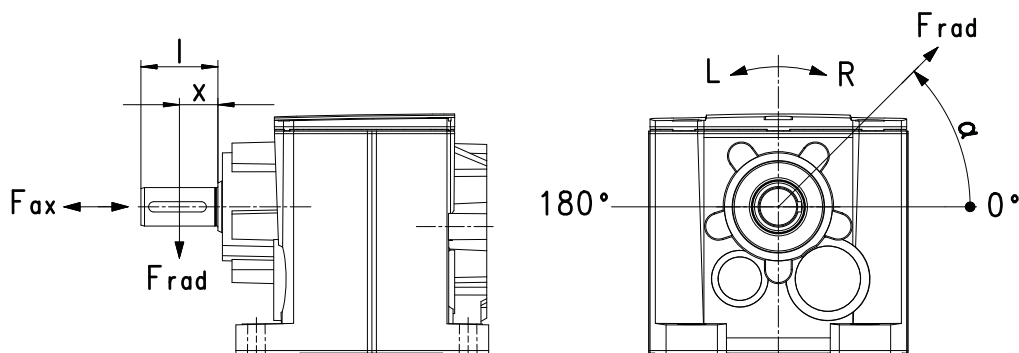
$$F_{\text{rad, perm}} = f_w \times F_{\text{rad, max}}$$

Permissible axial force

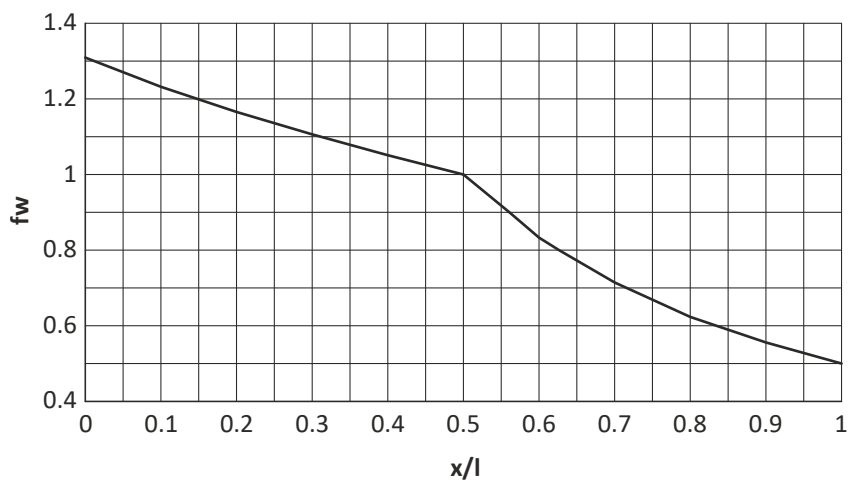
If there is no radial force, the maximum axial force is 50% of the value in the table $F_{\text{rad, max}}$

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

Application of forces



Additional load factor f_w on the drive shaft





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

Max. radial force, gearbox with foot (VBR)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-H45	300	400	600	700	800	900	1100	1400	1500	1500
g500-H100	800	1000	1200	1500	1800	2100	2600	2700	2700	2700
g500-H140	1000	1440	1800	2200	2500	3000	3300	3700	4100	4200
g500-H210	1100	1600	2000	2400	2800	3400	3900	4100	4400	4800
g500-H320	1760	2090	2480	3000	3520	4190	5000	5700	5700	5700
g500-H450	2440	2820	3340	4020	4660	5540	6500	7100	7100	7100
g500-H600	3820	4480	5250	6100	7260	8450	9500	9500	9500	9500
g500-H850	4700	5510	6430	7500	8860	10400	11500	11500	11500	11500
g500-H1500	6300	7440	8790	10300	12200	14500	17000	17000	17000	17000
g500-H3000	7510	8880	10100	12400	14600	17200	20000	20000	20000	20000

Reinforced bearings

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-H100	1000	1200	1500	1800	2200	2700	3200	3300	3300	3300
g500-H140	1300	1800	2300	2700	3100	3700	4100	4600	5100	5300
g500-H210	1400	2000	2500	3000	3500	4200	4900	5100	5500	6000
g500-H320	2380	3250	4380	5600	6800	7100	7100	7100	7100	7100
g500-H450	4030	5100	6870	8650	8900	8900	8900	8900	8900	8900
g500-H600	7180	8710	9860	11300	12000	12000	12000	12000	12000	12000
g500-H850	9520	10500	11900	13300	15400	15600	15600	15600	15600	15600
g500-H1500	12600	14600	16500	19100	21000	21000	21000	21000	21000	21000
g500-H3000	16100	18000	20200	23600	25000	25000	25000	25000	25000	25000



Max. radial force, gearbox with/without foot with threaded pitch circle (V□R/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-H45	300	400	600	700	800	900	1100	1400	1500	1500
g500-H100	800	1000	1200	1500	1700	1700	1700	1700	1700	1700
g500-H140	1000	1400	1800	2200	2500	2600	2600	2600	2600	2600
g500-H210	1100	1600	2000	2400	2800	3000	3000	3000	3000	3000
g500-H320	1760	2090	2480	3000	3520	3600	3600	3600	3600	3600
g500-H450	2440	2820	3340	4020	4400	4400	4400	4400	4400	4400
g500-H600	3820	4480	5250	6100	7260	8450	8500	8500	8500	8500
g500-H850	4700	5510	6430	7500	8860	10000	10000	10000	10000	10000
g500-H1500	6300	7440	8790	10300	12200	14000	14000	14000	14000	14000
g500-H3000	7510	8880	10100	12400	14600	17000	17000	17000	17000	17000

Reinforced bearings

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-H100	1000	1200	1500	1700	1700	1700	1700	1700	1700	1700
g500-H140	1300	1800	2300	2600	2600	2600	2600	2600	2600	2600
g500-H210	1400	2000	2500	3000	3000	3000	3000	3000	3000	3000
g500-H320	2380	3250	3600	3600	3600	3600	3600	3600	3600	3600
g500-H450	4030	4400	4400	4400	4400	4400	4400	4400	4400	4400
g500-H600	7180	8500	8500	8500	8500	8500	8500	8500	8500	8500
g500-H850	9250	10000	10000	10000	10000	10000	10000	10000	10000	10000
g500-H1500	12600	14000	14000	14000	14000	14000	14000	14000	14000	14000
g500-H3000	16100	17000	17000	17000	17000	17000	17000	17000	17000	17000

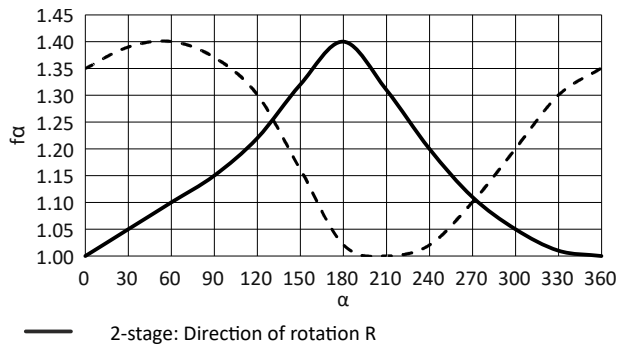
Max. radial force, gearbox with reinforced flange (VCP)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-H100	1900	2400	2900	3330	3650	3890	4060	4160	4240	4280
g500-H140	3000	3500	4000	5510	5950	6270	6480	6620	6710	6770
g500-H210	3400	4000	5000	6170	6670	7060	7330	7500	7620	7700
g500-H320	3900	4500	6000	7040	7690	8210	8570	8810	8970	9080
g500-H450	4300	5200	6400	7810	8550	9160	9590	9880	10100	10200

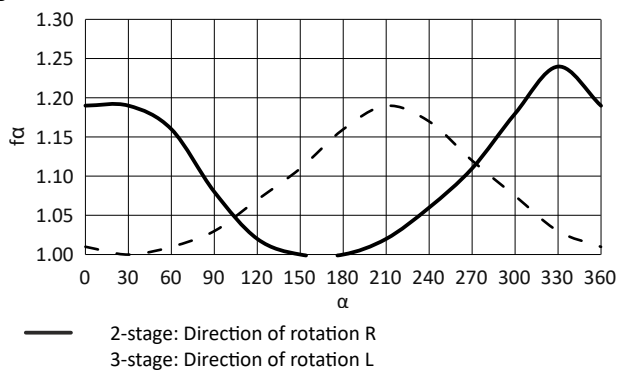


Effective direction factor f_α on the output shaft

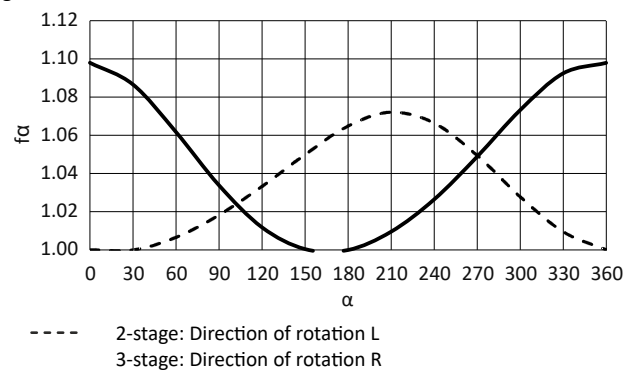
g500-H45



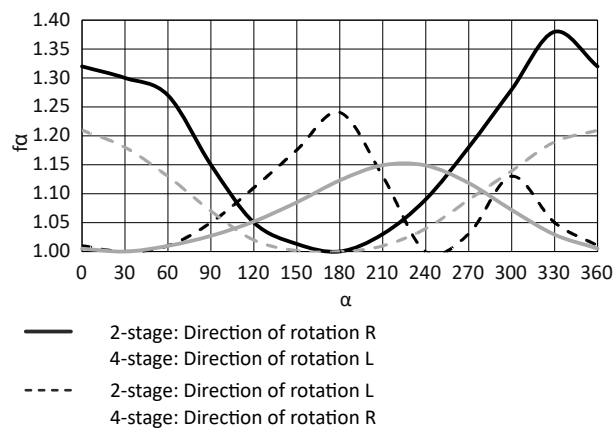
g500-H100



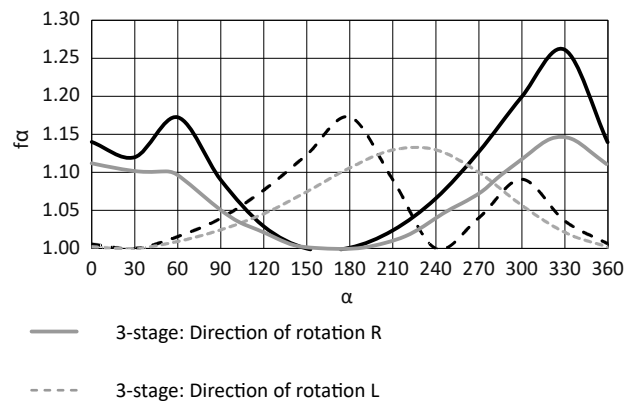
g500-H140



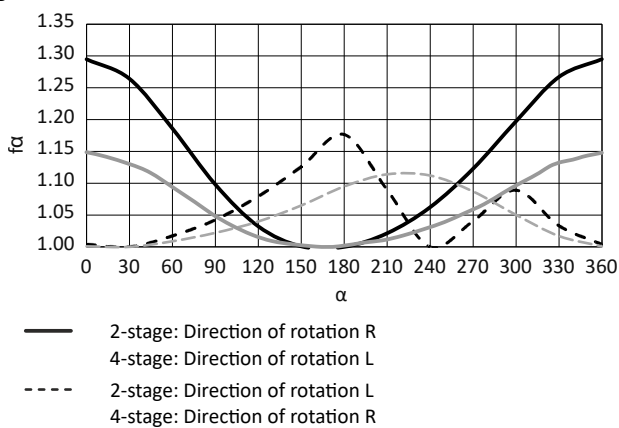
g500-H210



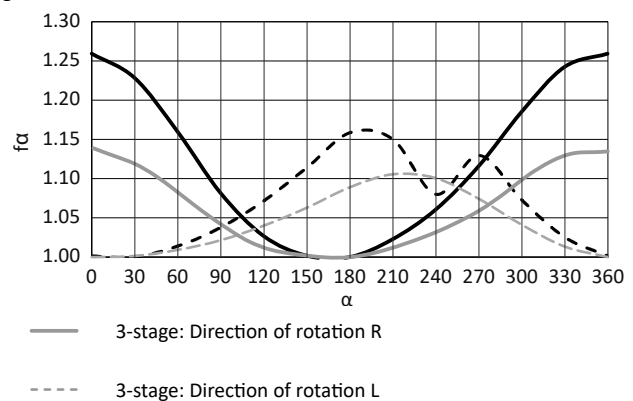
g500-H320



g500-H450

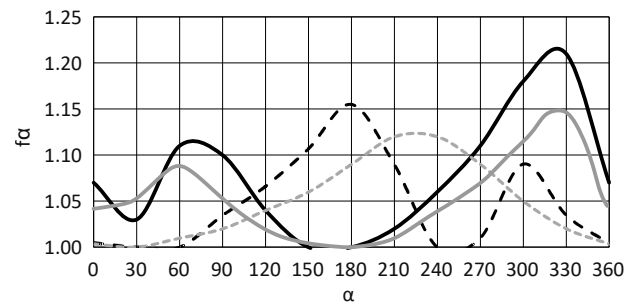


g500-H600



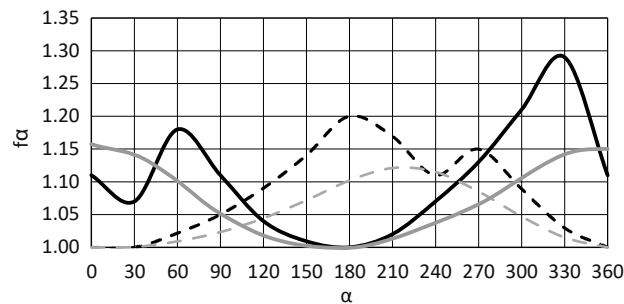


g500-H850



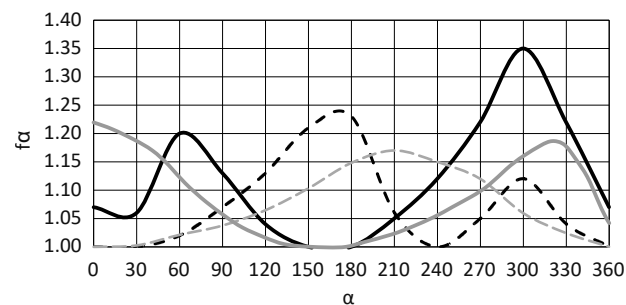
— 2-stage: Direction of rotation R
— 4-stage: Direction of rotation L
- - - 2-stage: Direction of rotation L
- - - 4-stage: Direction of rotation R

g500-H1500



— 3-stage: Direction of rotation R
— 3-stage: Direction of rotation L
- - - 3-stage: Direction of rotation L
- - - 3-stage: Direction of rotation R

g500-H3000



— 2-stage: Direction of rotation R
— 4-stage: Direction of rotation L
- - - 2-stage: Direction of rotation L
- - - 4-stage: Direction of rotation R

— 3-stage: Direction of rotation R
— 3-stage: Direction of rotation L
- - - 3-stage: Direction of rotation L
- - - 3-stage: Direction of rotation R



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-H45	m650-U U63/L4	2	11
26.8	6.0	111	9.8	344	9.8	3.7	3547	5411	g500-H45	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 $c = \frac{M_{2,zul}}{M_{1,N} \times i \times \eta_{\text{Getr}}} > k$												
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							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
57.8	4.3	173	4.8	1432	4.8	2.8	3.500	2.597	g500-H45	m650-U63/L4	2	6.6
45.9	5.4	138	6.0	1139	6.0	3.8	4.142	3.267	g500-H140	m650-U63/L4	2	9.7
44.7	5.6	134	6.2	1109	6.2	3.8	3.765	3.354	g500-H100	m650-U63/L4	2	8.6
43.9	5.7	132	6.3	1090	6.3	2.2	3.409	3.413	g500-H45	m650-U63/L4	2	6.6
34.3	7.2	103	8.1	852	8.1	1.9	3.357	4.368	g500-H45	m650-U63/L4	2	6.6
33.5	7.4	100	8.3	830	8.3	3.8	3.776	4.480	g500-H140	m650-U63/L4	2	9.7
32.6	7.6	97.8	8.5	809	8.5	3.8	3.575	4.600	g500-H100	m650-U63/L4	2	8.6
29.0	8.6	87.1	9.5	720	9.5	3.8	3.669	5.167	g500-H100	m650-U63/L4	2	8.6
28.2	8.8	84.7	9.8	700	9.8	2.0	3.419	5.312	g500-H45	m650-U63/L4	2	6.6
26.2	9.5	78.5	11.0	649	11.0	3.5	3.599	5.733	g500-H140	m650-U63/L4	2	9.7
25.5	9.8	76.4	11.0	632	11.0	3.5	3.476	5.887	g500-H100	m650-U63/L4	2	8.6
25.1	9.9	75.4	11.0	624	11.0	2.0	3.413	5.965	g500-H45	m650-U63/L4	2	6.6
23.9	10.4	71.7	12.0	593	12.0	3.5	3.549	6.272	g500-H140	m650-U63/L4	2	9.7
23.3	10.7	69.9	12.0	578	12.0	3.5	3.447	6.440	g500-H100	m650-U63/L4	2	8.6
21.5	11.6	64.5	13.0	533	13.0	1.7	3.362	6.982	g500-H45	m650-U63/L4	2	6.6
21.2	11.8	63.5	13.0	525	13.0	3.8	3.525	7.086	g500-H100	m650-U63/L4	2	8.6
20.6	12.1	61.9	13.0	512	13.0	3.8	3.745	7.269	g500-H140	m650-U63/L4	2	9.7
19.1	13.0	57.4	14.0	475	14.0	1.6	3.359	7.840	g500-H45	m650-U63/L4	2	6.6
18.8	13.3	56.3	15.0	465	15.0	3.3	3.451	8.000	g500-H140	m650-U63/L4	2	9.7
18.3	13.6	54.8	15.0	453	15.0	3.3	3.388	8.214	g500-H100	m650-U63/L4	2	8.6
16.8	14.8	50.4	16.0	416	16.0	1.5	3.329	8.935	g500-H45	m650-U63/L4	2	6.6
16.6	15.0	49.8	17.0	412	17.0	3.8	3.582	9.029	g500-H140	m650-U63/L4	2	9.7
16.5	15.0	49.6	17.0	410	17.0	3.5	3.445	9.068	g500-H100	m650-U63/L4	2	8.6
15.3	16.3	45.9	18.0	380	18.0	2.9	3.395	9.800	g500-H140	m650-U63/L4	2	9.7
15.0	16.6	44.9	18.0	371	18.0	1.4	3.326	10.033	g500-H45	m650-U63/L4	2	6.6
14.9	16.7	44.7	19.0	370	19.0	2.9	3.353	10.063	g500-H100	m650-U63/L4	2	8.6
14.0	17.8	42.0	20.0	347	20.0	3.8	3.753	10.720	g500-H210	m650-U63/L4	2	11
13.2	18.8	39.6	21.0	328	21.0	3.5	3.415	11.360	g500-H100	m650-U63/L4	2	8.6
13.1	19.0	39.4	21.0	326	21.0	1.2	3.299	11.429	g500-H45	m650-U63/L4	2	6.6
13.0	19.2	38.9	21.0	322	21.0	3.5	3.480	11.554	g500-H140	m650-U63/L4	2	9.7
12.8	19.4	38.5	22.0	319	22.0	3.8	3.865	11.680	g500-H320	m650-U63/L4	2	13
12.5	19.9	37.5	22.0	310	22.0	3.8	3.737	12.000	g500-H210	m650-U63/L4	2	11
11.9	21.0	35.6	23.0	294	23.0	3.5	3.450	12.640	g500-H140	m650-U63/L4	2	9.7
11.9	21.0	35.6	23.0	294	23.0	3.2	3.372	12.653	g500-H100	m650-U63/L4	2	8.6
11.7	21.3	35.1	24.0	290	24.0	1.2	3.297	12.833	g500-H45	m650-U63/L4	2	6.6
11.3	22.0	33.9	24.0	280	24.0	3.8	3.826	13.268	g500-H320	m650-U63/L4	2	13
11.0	22.7	32.9	25.0	272	25.0	3.5	3.615	13.673	g500-H210	m650-U63/L4	2	11
10.7	23.2	32.2	26.0	267	26.0	3.5	3.441	13.957	g500-H140	m650-U63/L4	2	9.7
10.4	24.0	31.1	27.0	257	27.0	2.8	3.369	14.490	g500-H100	m650-U63/L4	2	8.6
10.1	24.6	30.3	27.0	251	27.0	1.1	3.281	14.836	g500-H45	m650-U63/L4	2	6.6
10.1	24.7	30.2	27.0	250	27.0	3.5	3.684	14.898	g500-H320	m650-U63/L4	2	13
9.8	25.4	29.4	28.0	243	28.0	3.5	3.605	15.306	g500-H210	m650-U63/L4	2	11
9.7	25.7	29.0	29.0	240	29.0	2.6	3.342	15.500	g500-H100	m650-U63/L4	2	8.6
9.3	26.7	27.9	30.0	231	30.0	3.3	3.390	16.122	g500-H140	m650-U63/L4	2	9.7
9.0	27.6	27.0	31.0	223	31.0	1.1	3.280	16.660	g500-H45	m650-U63/L4	2	6.6
8.9	28.1	26.6	31.0	220	31.0	3.5	3.660	16.923	g500-H320	m650-U63/L4	2	13
8.5	29.4	25.4	33.0	210	33.0	2.3	3.340	17.750	g500-H100	m650-U63/L4	2	8.6
8.4	29.5	25.3	33.0	209	33.0	3.2	3.385	17.802	g500-H140	m650-U63/L4	2	9.7
7.9	31.5	23.7	35.0	196	35.0	1.0	3.268	19.013	g500-H45	m650-U63/L4	2	6.6
7.7	32.3	23.1	36.0	191	36.0	2.1	3.309	19.486	g500-H100	m650-U63/L4	2	8.6
7.6	32.8	22.8	36.0	188	36.0	2.8	3.354	19.750	g500-H140	m650-U63/L4	2	9.7



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
7.0	35.4	21.1	39.0	174	39.0	0.9	3.267	21.350	g500-H45	m650-U63/L4	2	6.6
6.9	36.2	20.6	40.0	171	40.0	2.6	3.351	21.808	g500-H140	m650-U63/L4	2	9.7
6.9	36.2	20.6	40.0	171	40.0	2.9	3.422	21.802	g500-H210	m650-U63/L4	2	11
6.7	37.0	20.2	41.0	167	41.0	1.8	3.307	22.314	g500-H100	m650-U63/L4	2	8.6
6.3	39.4	18.9	44.0	157	44.0	2.9	3.449	23.754	g500-H320	m650-U63/L4	2	13
6.1	40.5	18.4	45.0	152	45.0	2.9	3.419	24.405	g500-H210	m650-U63/L4	2	11
6.0	41.2	18.1	46.0	150	46.0	2.3	3.317	24.829	g500-H140	m650-U63/L4	2	9.7
6.0	41.6	17.9	46.0	148	46.0	1.6	3.288	25.095	g500-H100	m650-U63/L4	2	8.6
5.6	44.8	16.7	50.0	138	50.0	3.3	3.440	26.983	g500-H320	m650-U63/L4	2	13
5.5	45.0	16.6	50.0	137	50.0	2.8	3.374	27.119	g500-H210	m650-U63/L4	2	11
5.5	45.5	16.4	51.0	136	51.0	2.3	3.314	27.415	g500-H140	m650-U63/L4	2	9.7
5.2	47.7	15.7	53.0	129	53.0	1.6	3.287	28.738	g500-H100	m650-U63/L4	2	8.6
5.1	49.0	15.2	54.0	126	54.0	2.8	3.392	29.548	g500-H320	m650-U63/L4	2	13
4.9	50.4	14.8	56.0	123	56.0	2.8	3.372	30.357	g500-H210	m650-U63/L4	2	11
4.7	52.8	14.1	59.0	117	59.0	1.4	3.272	31.805	g500-H100	m650-U63/L4	2	8.6
4.7	53.1	14.1	59.0	116	59.0	2.0	3.293	31.976	g500-H140	m650-U63/L4	2	9.7
4.5	55.7	13.4	62.0	111	62.0	2.8	3.386	33.564	g500-H320	m650-U63/L4	2	13
4.3	58.2	12.8	65.0	106	65.0	2.5	3.325	35.095	g500-H210	m650-U63/L4	2	11
4.2	58.6	12.7	65.0	105	65.0	1.8	3.291	35.308	g500-H140	m650-U63/L4	2	9.7
4.2	59.2	12.6	66.0	104	66.0	2.8	3.484	35.689	g500-H450	m650-U63/L4	2	16
4.1	60.4	12.4	67.0	102	67.0	1.3	3.271	36.422	g500-H100	m650-U63/L4	2	8.6
3.9	63.4	11.8	70.0	97.3	70.0	2.5	3.335	38.238	g500-H320	m650-U63/L4	2	13
3.8	65.2	11.5	72.0	94.7	72.0	2.4	3.323	39.286	g500-H210	m650-U63/L4	2	11
3.8	66.1	11.3	73.0	93.3	73.0	0.9	3.262	39.857	g500-H100	m650-U63/L4	2	8.6
3.7	66.9	11.2	74.0	92.2	74.0	3.1	3.478	40.333	g500-H450	m650-U63/L4	2	16
3.7	67.2	11.1	75.0	91.8	75.0	1.7	3.275	40.526	g500-H140	m650-U63/L4	2	9.7
3.7	67.3	11.1	75.0	91.7	75.0	3.1	3.504	40.578	g500-H600	m650-U63/L4	2	28
3.5	70.7	10.6	79.0	87.3	79.0	2.2	3.302	42.593	g500-H210	m650-U63/L4	2	11
3.5	70.9	10.4	79.0	85.7	79.0	2.0	3.367	43.390	g500-H210	m650-U63/L4	3	11
3.4	71.4	10.3	79.0	85.2	79.0	3.8	3.898	43.676	g500-H600	m650-U63/L4	3	29
3.5	71.9	10.4	80.0	85.9	80.0	2.7	3.419	43.313	g500-H450	m650-U63/L4	2	16
3.5	72.1	10.4	80.0	85.6	80.0	2.8	3.332	43.436	g500-H320	m650-U63/L4	2	13
3.4	72.1	10.2	80.0	84.3	80.0	3.8	3.600	44.124	g500-H450	m650-U63/L4	3	17
3.4	74.2	10.1	82.0	83.1	82.0	1.6	3.274	44.748	g500-H140	m650-U63/L4	2	9.7
3.3	75.6	9.9	84.0	81.6	84.0	3.1	3.495	45.571	g500-H600	m650-U63/L4	2	28
3.3	75.7	9.9	84.0	81.5	84.0	1.0	3.262	45.643	g500-H100	m650-U63/L4	2	8.6
3.2	77.0	9.7	86.0	80.2	86.0	2.4	3.310	46.407	g500-H320	m650-U63/L4	2	13
3.2	77.3	9.5	86.0	78.7	86.0	3.1	3.374	47.276	g500-H320	m650-U63/L4	3	13
3.1	79.1	9.4	88.0	78.0	88.0	2.2	3.301	47.679	g500-H210	m650-U63/L4	2	11
3.1	79.4	9.3	88.0	76.6	88.0	2.0	3.366	48.571	g500-H210	m650-U63/L4	3	11
3.1	80.2	9.2	89.0	75.8	89.0	4.3	3.890	49.051	g500-H600	m650-U63/L4	3	29
3.1	81.2	9.2	90.0	76.0	90.0	2.7	3.415	48.950	g500-H450	m650-U63/L4	2	16
3.0	81.7	9.1	91.0	75.5	91.0	2.7	3.433	49.247	g500-H600	m650-U63/L4	2	28
3.0	81.5	9.0	91.0	74.6	91.0	4.2	3.596	49.867	g500-H450	m650-U63/L4	3	17
3.0	84.3	8.9	94.0	73.2	94.0	1.0	3.264	50.786	g500-H140	m650-U63/L4	2	9.7
2.8	87.5	8.5	97.0	70.6	97.0	2.4	3.307	52.715	g500-H320	m650-U63/L4	2	13
2.8	87.8	8.4	98.0	69.3	98.0	2.8	3.371	53.703	g500-H320	m650-U63/L4	3	13
2.8	90.3	8.3	100	68.3	100	1.2	3.280	54.438	g500-H210	m650-U63/L4	2	11
2.7	90.8	8.2	101	67.9	101	2.2	3.356	54.750	g500-H450	m650-U63/L4	2	16
2.7	90.7	8.1	101	67.0	101	1.8	3.328	55.529	g500-H210	m650-U63/L4	3	11
2.7	91.0	8.1	101	66.8	101	4.0	3.704	55.710	g500-H600	m650-U63/L4	3	29
2.7	91.8	8.1	102	67.3	102	2.7	3.427	55.307	g500-H600	m650-U63/L4	2	28



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
2.7	93.0	8.0	103	66.3	103	1.0	3.264	56.077	g500-H140	m650-U63/L4	2	9.7
2.7	92.3	8.0	103	65.9	103	3.7	3.491	56.469	g500-H450	m650-U63/L4	3	17
2.6	94.1	7.8	105	64.6	105	1.1	3.442	57.582	g500-H140	m650-U63/L4	3	13
2.5	98.9	7.4	110	61.5	110	2.4	3.333	60.502	g500-H320	m650-U63/L4	3	13
2.5	101	7.4	112	61.0	112	1.2	3.279	60.938	g500-H210	m650-U63/L4	2	11
2.4	101	7.3	112	60.2	112	3.4	3.459	61.774	g500-H450	m650-U63/L4	3	17
2.4	102	7.2	113	59.8	113	1.6	3.328	62.160	g500-H210	m650-U63/L4	3	11
2.4	103	7.3	114	60.1	114	2.2	3.354	61.875	g500-H450	m650-U63/L4	2	16
2.4	102	7.2	114	59.5	114	4.0	3.699	62.566	g500-H600	m650-U63/L4	3	29
2.4	103	7.2	115	59.8	115	2.2	3.365	62.250	g500-H600	m650-U63/L4	2	28
2.4	104	7.1	115	58.5	115	1.0	3.441	63.582	g500-H140	m650-U63/L4	3	13
2.2	112	6.5	125	54.1	125	2.2	3.331	68.726	g500-H320	m650-U63/L4	3	13
2.1	114	6.4	127	53.3	127	3.0	3.457	69.813	g500-H450	m650-U63/L4	3	17
2.1	116	6.4	129	53.2	129	2.2	3.361	69.911	g500-H600	m650-U63/L4	2	28
2.1	116	6.3	129	52.4	129	1.4	3.300	71.026	g500-H210	m650-U63/L4	3	11
1.9	127	5.8	141	48.1	141	1.9	3.302	77.387	g500-H320	m650-U63/L4	3	13
1.9	129	5.7	143	47.2	143	2.6	3.396	78.794	g500-H450	m650-U63/L4	3	17
1.9	130	5.7	144	46.8	144	1.2	3.299	79.507	g500-H210	m650-U63/L4	3	11
1.7	144	5.1	160	42.3	160	1.9	3.301	87.906	g500-H320	m650-U63/L4	3	13
1.7	145	5.1	161	41.9	161	3.5	3.457	88.826	g500-H600	m650-U63/L4	3	29
1.7	146	5.1	162	41.8	162	2.6	3.395	89.048	g500-H450	m650-U63/L4	3	17
1.6	151	4.9	167	40.3	167	1.2	3.282	92.205	g500-H210	m650-U63/L4	3	11
1.6	158	4.7	175	38.5	175	2.4	3.358	96.522	g500-H450	m650-U63/L4	3	17
1.5	163	4.5	181	37.3	181	3.1	3.456	99.757	g500-H600	m650-U63/L4	3	29
1.5	164	4.5	182	37.0	182	1.6	3.284	100.462	g500-H320	m650-U63/L4	3	13
1.5	169	4.4	187	36.0	187	1.0	3.282	103.214	g500-H210	m650-U63/L4	3	11
1.4	178	4.1	198	34.1	198	2.1	3.357	109.083	g500-H450	m650-U63/L4	3	17
1.4	181	4.1	201	33.7	201	2.8	3.397	110.491	g500-H600	m650-U63/L4	3	29
1.3	187	3.9	207	32.6	207	1.4	3.283	114.118	g500-H320	m650-U63/L4	3	13
1.3	193	3.8	215	31.5	215	0.9	3.269	118.162	g500-H210	m650-U63/L4	3	11
1.2	198	3.7	220	30.7	220	1.9	3.319	121.342	g500-H450	m650-U63/L4	3	17
1.2	203	3.6	225	30.0	225	2.5	3.396	124.088	g500-H600	m650-U63/L4	3	29
1.2	210	3.5	234	28.9	234	1.3	3.270	128.743	g500-H320	m650-U63/L4	3	13
1.1	221	3.3	246	27.5	246	3.1	3.493	135.373	g500-H850	m650-U63/L4	3	38
1.1	224	3.3	249	27.1	249	1.7	3.318	137.133	g500-H450	m650-U63/L4	3	17
1.0	234	3.1	260	26.0	260	2.2	3.338	142.988	g500-H600	m650-U63/L4	3	29
1.0	239	3.1	266	25.4	266	1.1	3.270	146.244	g500-H320	m650-U63/L4	3	13
1.0	247	3.0	275	24.6	275	2.9	3.492	151.262	g500-H850	m650-U63/L4	3	38
1.0	255	2.9	284	23.8	284	1.5	3.294	156.274	g500-H450	m650-U63/L4	3	17
0.9	262	2.8	292	23.2	292	1.9	3.338	160.585	g500-H600	m650-U63/L4	3	29
0.9	269	2.7	298	22.6	298	2.7	3.426	164.294	g500-H850	m650-U63/L4	3	38
0.9	272	2.7	302	22.3	302	1.0	3.261	166.541	g500-H320	m650-U63/L4	3	13
0.9	284	2.6	315	21.4	315	1.8	3.312	173.536	g500-H600	m650-U63/L4	3	29
0.8	289	2.5	321	21.1	321	1.3	3.294	176.611	g500-H450	m650-U63/L4	3	17
0.8	300	2.5	333	20.3	333	2.4	3.425	183.577	g500-H850	m650-U63/L4	3	38
0.8	319	2.3	354	19.1	354	1.6	3.311	194.892	g500-H600	m650-U63/L4	3	29
0.8	320	2.3	356	18.7	356	1.6	3.464	198.970	g500-H600	m650-U63/L4	4	32
0.8	324	2.3	360	18.8	360	1.2	3.276	198.059	g500-H450	m650-U63/L4	3	17
0.7	327	2.2	363	18.3	363	4.5	4.753	203.178	g500-H3000	m650-U63/L4	4	116
0.7	328	2.2	364	18.3	364	3.8	3.963	203.537	g500-H1500	m650-U63/L4	4	71
0.7	339	2.1	376	17.7	376	2.1	3.504	210.484	g500-H850	m650-U63/L4	4	41
0.7	339	2.2	377	17.9	377	2.1	3.360	207.675	g500-H850	m650-U63/L4	3	38



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	360	2.0	400	16.6	400	1.4	3.463	223.457	g500-H600	m650-U63/L4	4	32
0.7	363	2.0	403	16.8	403	1.2	3.286	221.794	g500-H600	m650-U63/L4	3	29
0.7	362	2.0	403	16.5	403	3.5	3.962	225.125	g500-H1500	m650-U63/L4	4	71
0.7	366	2.0	406	16.6	406	1.0	3.275	223.833	g500-H450	m650-U63/L4	3	17
0.6	377	1.9	419	15.9	419	1.9	3.428	234.319	g500-H850	m650-U63/L4	4	41
0.6	379	1.9	421	16.0	421	1.9	3.360	232.050	g500-H850	m650-U63/L4	3	38
0.6	406	1.8	451	15.0	451	0.9	3.265	248.200	g500-H450	m650-U63/L4	3	17
0.6	407	1.8	452	14.9	452	1.2	3.285	249.089	g500-H600	m650-U63/L4	3	29
0.6	409	1.8	454	14.7	454	1.2	3.454	253.789	g500-H600	m650-U63/L4	4	32
0.6	410	1.8	455	14.6	455	3.1	3.606	254.431	g500-H1500	m650-U63/L4	4	71
0.6	421	1.7	468	14.2	468	1.7	3.427	261.821	g500-H850	m650-U63/L4	4	41
0.5	453	1.6	503	13.2	503	2.8	3.606	281.416	g500-H1500	m650-U63/L4	4	71
0.5	459	1.6	510	13.1	510	1.1	3.454	285.021	g500-H600	m650-U63/L4	4	32
0.5	471	1.5	523	12.7	523	4.8	4.459	292.511	g500-H3000	m650-U63/L4	4	116
0.5	474	1.5	526	12.6	526	1.5	3.472	294.334	g500-H850	m650-U63/L4	4	41
0.5	509	1.4	566	11.8	566	2.5	3.493	316.487	g500-H1500	m650-U63/L4	4	71
0.5	516	1.4	573	11.6	573	1.0	3.341	320.294	g500-H600	m650-U63/L4	4	32
0.5	517	1.4	575	11.6	575	4.8	4.458	321.282	g500-H3000	m650-U63/L4	4	116
0.5	529	1.4	588	11.3	588	1.4	3.471	328.881	g500-H850	m650-U63/L4	4	41
0.4	564	1.3	626	10.6	626	2.2	3.493	350.054	g500-H1500	m650-U63/L4	4	71
0.4	592	1.2	658	10.1	658	1.2	3.324	368.019	g500-H850	m650-U63/L4	4	41
0.4	640	1.1	711	9.4	711	2.0	3.530	397.548	g500-H1500	m650-U63/L4	4	71
0.4	662	1.1	735	9.0	735	1.1	3.324	411.213	g500-H850	m650-U63/L4	4	41
0.3	719	1.0	799	8.3	799	1.8	3.462	446.497	g500-H1500	m650-U63/L4	4	71
0.3	763	0.9	847	7.9	847	0.9	3.344	473.807	g500-H850	m650-U63/L4	4	41
0.3	789	0.9	876	7.6	876	3.2	3.646	489.908	g500-H3000	m650-U63/L4	4	116
0.3	796	0.9	884	7.5	884	1.6	3.444	494.511	g500-H1500	m650-U63/L4	4	71
0.3	866	0.8	962	6.9	962	2.9	3.645	538.095	g500-H3000	m650-U63/L4	4	116
0.3	921	0.8	1024	6.5	1024	1.4	3.498	572.324	g500-H1500	m650-U63/L4	4	71
0.3	958	0.8	1064	6.3	1064	2.6	3.593	594.888	g500-H3000	m650-U63/L4	4	116
0.2	1021	0.7	1134	5.9	1134	1.2	3.482	634.184	g500-H1500	m650-U63/L4	4	71
0.2	1052	0.7	1169	5.7	1169	2.4	3.593	653.402	g500-H3000	m650-U63/L4	4	116
0.2	1129	0.6	1255	5.3	1255	1.1	3.481	701.446	g500-H1500	m650-U63/L4	4	71
0.2	1191	0.6	1323	5.0	1323	2.1	3.484	739.983	g500-H3000	m650-U63/L4	4	116
0.2	1269	0.6	1410	4.7	1410	2.0	3.411	788.632	g500-H3000	m650-U63/L4	4	116
0.2	1270	0.6	1411	4.7	1411	1.0	3.412	788.863	g500-H1500	m650-U63/L4	4	71
0.2	1394	0.5	1549	4.3	1549	1.8	3.411	866.202	g500-H3000	m650-U63/L4	4	116
0.2	1542	0.5	1713	3.9	1713	1.6	3.391	957.625	g500-H3000	m650-U63/L4	4	116
0.1	1693	0.4	1881	3.5	1881	1.5	3.391	1051.817	g500-H3000	m650-U63/L4	4	116
0.1	1995	0.4	2216	3.0	2216	1.3	3.370	1239.279	g500-H3000	m650-U63/L4	4	116
0.1	2191	0.3	2435	2.7	2435	1.2	3.370	1361.175	g500-H3000	m650-U63/L4	4	116
0.1	2421	0.3	2690	2.5	2690	1.0	3.333	1504.034	g500-H3000	m650-U63/L4	4	116
0.1	2659	0.3	2955	2.3	2955	1.0	3.333	1651.972	g500-H3000	m650-U63/L4	4	116



124 Hz: 1.1 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
57.8	6.3	173	7.1	1432	7.1	1.9	9.010	2.597	g500-H45	m650-U71/M4	2	8.8
45.9	8.0	138	8.9	1139	8.9	4.5	9.652	3.267	g500-H140	m650-U71/M4	2	12
44.7	8.2	134	9.1	1109	9.1	4.5	9.275	3.354	g500-H100	m650-U71/M4	2	11
43.9	8.3	132	9.3	1090	9.3	1.5	8.919	3.413	g500-H45	m650-U71/M4	2	8.8
34.3	10.7	103	12.0	852	12.0	1.3	8.867	4.368	g500-H45	m650-U71/M4	2	8.8
33.5	11.0	100	12.0	830	12.0	4.5	9.286	4.480	g500-H140	m650-U71/M4	2	12
32.6	11.2	97.8	12.0	809	12.0	4.3	9.085	4.600	g500-H100	m650-U71/M4	2	11
29.0	12.6	87.1	14.0	720	14.0	4.0	9.179	5.167	g500-H100	m650-U71/M4	2	11
28.2	13.0	84.7	14.0	700	14.0	1.4	8.929	5.312	g500-H45	m650-U71/M4	2	8.8
26.2	14.0	78.5	16.0	649	16.0	4.1	9.109	5.733	g500-H140	m650-U71/M4	2	12
25.5	14.4	76.4	16.0	632	16.0	3.7	8.986	5.887	g500-H100	m650-U71/M4	2	11
25.1	14.6	75.4	16.0	624	16.0	1.3	8.923	5.965	g500-H45	m650-U71/M4	2	8.8
23.9	15.3	71.7	17.0	593	17.0	4.1	9.059	6.272	g500-H140	m650-U71/M4	2	12
23.3	15.7	69.9	17.0	578	17.0	3.5	8.957	6.440	g500-H100	m650-U71/M4	2	11
21.5	17.1	64.5	19.0	533	19.0	1.2	8.872	6.982	g500-H45	m650-U71/M4	2	8.8
21.2	17.3	63.5	19.0	525	19.0	3.3	9.035	7.086	g500-H100	m650-U71/M4	2	11
20.6	17.8	61.9	20.0	512	20.0	4.0	9.255	7.269	g500-H140	m650-U71/M4	2	12
19.1	19.2	57.4	21.0	475	21.0	1.1	8.869	7.840	g500-H45	m650-U71/M4	2	8.8
18.8	19.6	56.3	22.0	465	22.0	3.8	8.961	8.000	g500-H140	m650-U71/M4	2	12
18.3	20.1	54.8	22.0	453	22.0	3.1	8.898	8.214	g500-H100	m650-U71/M4	2	11
16.8	21.8	50.4	24.0	416	24.0	1.0	8.839	8.935	g500-H45	m650-U71/M4	2	8.8
16.6	22.1	49.8	25.0	412	25.0	3.5	9.092	9.029	g500-H140	m650-U71/M4	2	12
16.5	22.2	49.6	25.0	410	25.0	2.9	8.955	9.068	g500-H100	m650-U71/M4	2	11
15.3	24.0	45.9	27.0	380	27.0	3.4	8.905	9.800	g500-H140	m650-U71/M4	2	12
15.3	24.0	45.9	27.0	380	27.0	4.4	9.339	9.799	g500-H210	m650-U71/M4	2	13
15.0	24.5	44.9	27.0	371	27.0	1.0	8.836	10.033	g500-H45	m650-U71/M4	2	8.8
14.9	24.6	44.7	27.0	370	27.0	2.7	8.863	10.063	g500-H100	m650-U71/M4	2	11
14.0	26.1	42.1	29.0	348	29.0	4.4	9.473	10.677	g500-H320	m650-U71/M4	2	15
14.0	26.2	42.0	29.0	347	29.0	4.5	9.263	10.720	g500-H210	m650-U71/M4	2	13
13.2	27.8	39.6	31.0	328	31.0	2.4	8.925	11.360	g500-H100	m650-U71/M4	2	11
13.0	28.3	38.9	31.0	322	31.0	3.0	8.990	11.554	g500-H140	m650-U71/M4	2	12
12.8	28.6	38.5	32.0	319	32.0	4.5	9.375	11.680	g500-H320	m650-U71/M4	2	15
12.5	29.3	37.5	33.0	310	33.0	4.2	9.247	12.000	g500-H210	m650-U71/M4	2	13
12.4	29.7	37.1	33.0	307	33.0	4.4	9.426	12.128	g500-H320	m650-U71/M4	2	15
11.9	30.9	35.6	34.0	294	34.0	2.8	8.960	12.640	g500-H140	m650-U71/M4	2	12
11.9	30.9	35.6	34.0	294	34.0	2.2	8.882	12.653	g500-H100	m650-U71/M4	2	11
11.3	32.4	33.9	36.0	280	36.0	4.5	9.336	13.268	g500-H320	m650-U71/M4	2	15
11.0	33.4	32.9	37.0	272	37.0	4.0	9.125	13.673	g500-H210	m650-U71/M4	2	13
10.8	34.0	32.4	38.0	268	38.0	4.4	9.956	13.905	g500-H450	m650-U71/M4	2	19
10.7	34.1	32.2	38.0	267	38.0	2.7	8.951	13.957	g500-H140	m650-U71/M4	2	12
10.4	35.4	31.1	39.0	257	39.0	1.9	8.879	14.490	g500-H100	m650-U71/M4	2	11
10.1	36.4	30.2	40.0	250	40.0	4.1	9.194	14.898	g500-H320	m650-U71/M4	2	15
9.8	37.4	29.4	42.0	243	42.0	3.6	9.115	15.306	g500-H210	m650-U71/M4	2	13
9.7	37.9	29.0	42.0	240	42.0	1.8	8.852	15.500	g500-H100	m650-U71/M4	2	11
9.5	38.4	28.6	43.0	237	43.0	4.4	9.919	15.714	g500-H450	m650-U71/M4	2	19
9.5	38.7	28.5	43.0	235	43.0	4.4	10.090	15.810	g500-H600	m650-U71/M4	2	30
9.3	39.4	27.9	44.0	231	44.0	2.4	8.900	16.122	g500-H140	m650-U71/M4	2	12
9.0	41.0	26.9	46.0	222	46.0	3.4	9.042	16.750	g500-H210	m650-U71/M4	2	13
8.9	41.4	26.6	46.0	220	46.0	4.1	9.170	16.923	g500-H320	m650-U71/M4	2	15
8.5	43.4	25.4	48.0	210	48.0	1.5	8.850	17.750	g500-H100	m650-U71/M4	2	11
8.4	43.4	25.3	48.0	210	48.0	4.4	10.033	17.755	g500-H600	m650-U71/M4	2	30



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
8.4	43.5	25.3	48.0	209	48.0	2.1	8.895	17.802	g500-H140	m650-U71/M4	2	12
8.2	44.6	24.7	50.0	204	50.0	3.7	9.088	18.250	g500-H320	m650-U71/M4	2	15
8.0	45.8	24.0	51.0	198	51.0	3.1	9.035	18.750	g500-H210	m650-U71/M4	2	13
7.7	47.6	23.1	53.0	191	53.0	1.4	8.819	19.486	g500-H100	m650-U71/M4	2	11
7.6	48.3	22.8	54.0	188	54.0	1.9	8.864	19.750	g500-H140	m650-U71/M4	2	12
7.2	50.7	21.7	56.0	179	56.0	3.7	9.071	20.731	g500-H320	m650-U71/M4	2	15
6.9	53.3	20.6	59.0	171	59.0	1.8	8.861	21.808	g500-H140	m650-U71/M4	2	12
6.9	53.3	20.6	59.0	171	59.0	2.6	8.932	21.802	g500-H210	m650-U71/M4	2	13
6.8	54.2	20.3	60.0	168	60.0	3.7	9.277	22.170	g500-H450	m650-U71/M4	2	19
6.7	54.6	20.2	61.0	167	61.0	1.2	8.817	22.314	g500-H100	m650-U71/M4	2	11
6.3	58.1	18.9	65.0	157	65.0	3.4	8.959	23.754	g500-H320	m650-U71/M4	2	15
6.1	59.7	18.4	66.0	152	66.0	2.3	8.929	24.405	g500-H210	m650-U71/M4	2	13
6.0	60.7	18.1	67.0	150	67.0	1.5	8.827	24.829	g500-H140	m650-U71/M4	2	12
6.0	61.3	18.0	68.0	149	68.0	3.7	9.262	25.056	g500-H450	m650-U71/M4	2	19
6.0	61.4	17.9	68.0	148	68.0	1.1	8.798	25.095	g500-H100	m650-U71/M4	2	11
6.0	61.6	17.9	68.0	148	68.0	3.7	9.329	25.207	g500-H600	m650-U71/M4	2	30
5.6	66.0	16.7	73.0	138	73.0	3.7	8.950	26.983	g500-H320	m650-U71/M4	2	15
5.5	66.3	16.6	74.0	137	74.0	2.4	8.884	27.119	g500-H210	m650-U71/M4	2	13
5.5	67.0	16.4	74.0	136	74.0	1.6	8.824	27.415	g500-H140	m650-U71/M4	2	12
5.4	67.4	16.3	75.0	135	75.0	3.5	9.139	27.578	g500-H450	m650-U71/M4	2	19
5.3	69.2	15.9	77.0	131	77.0	4.2	9.307	28.310	g500-H600	m650-U71/M4	2	30
5.2	70.3	15.7	78.0	129	78.0	1.1	8.797	28.738	g500-H100	m650-U71/M4	2	11
5.1	72.2	15.2	80.0	126	80.0	3.2	8.902	29.548	g500-H320	m650-U71/M4	2	15
4.9	74.2	14.8	82.0	123	82.0	2.1	8.882	30.357	g500-H210	m650-U71/M4	2	13
4.8	76.2	14.4	85.0	119	85.0	3.5	9.129	31.167	g500-H450	m650-U71/M4	2	19
4.8	76.7	14.4	85.0	119	85.0	3.5	9.173	31.356	g500-H600	m650-U71/M4	2	30
4.7	78.2	14.1	87.0	116	87.0	1.4	8.803	31.976	g500-H140	m650-U71/M4	2	12
4.5	82.1	13.4	91.0	111	91.0	3.0	8.896	33.564	g500-H320	m650-U71/M4	2	15
4.3	85.8	12.8	95.0	106	95.0	1.9	8.835	35.095	g500-H210	m650-U71/M4	2	13
4.3	86.1	12.8	96.0	106	96.0	3.5	9.158	35.214	g500-H600	m650-U71/M4	2	30
4.2	86.3	12.7	96.0	105	96.0	1.2	8.801	35.308	g500-H140	m650-U71/M4	2	12
4.2	87.3	12.6	97.0	104	97.0	3.2	8.994	35.689	g500-H450	m650-U71/M4	2	19
4.0	90.9	12.1	101	100	101	3.5	9.469	37.190	g500-H850	m650-U71/M4	2	39
3.9	93.5	11.8	104	97.3	104	2.0	8.845	38.238	g500-H320	m650-U71/M4	2	15
3.8	96.1	11.5	107	94.7	107	1.7	8.833	39.286	g500-H210	m650-U71/M4	2	13
3.8	96.2	11.3	107	93.2	107	4.2	9.512	39.925	g500-H600	m650-U71/M4	3	31
3.7	98.6	11.2	110	92.2	110	3.6	8.988	40.333	g500-H450	m650-U71/M4	2	19
3.7	99.2	11.1	110	91.7	110	3.6	9.014	40.578	g500-H600	m650-U71/M4	2	30
3.6	102	10.8	113	89.5	113	3.9	9.454	41.556	g500-H850	m650-U71/M4	2	39
3.5	104	10.6	116	87.3	116	1.5	8.812	42.593	g500-H210	m650-U71/M4	2	13
3.5	105	10.4	116	85.7	116	1.3	8.877	43.390	g500-H210	m650-U71/M4	3	14
3.4	105	10.3	117	85.2	117	3.8	9.408	43.676	g500-H600	m650-U71/M4	3	31
3.5	106	10.4	118	85.9	118	2.6	8.929	43.313	g500-H450	m650-U71/M4	2	19
3.5	106	10.4	118	85.6	118	2.3	8.842	43.436	g500-H320	m650-U71/M4	2	15
3.4	106	10.2	118	84.3	118	2.8	9.110	44.124	g500-H450	m650-U71/M4	3	19
3.3	110	10.0	123	82.4	123	3.4	9.281	45.136	g500-H850	m650-U71/M4	2	39
3.3	111	9.9	124	81.6	124	3.6	9.005	45.571	g500-H600	m650-U71/M4	2	30
3.2	114	9.7	126	80.2	126	1.6	8.820	46.407	g500-H320	m650-U71/M4	2	15
3.2	114	9.5	127	78.7	127	2.1	8.884	47.276	g500-H320	m650-U71/M4	3	15
3.1	117	9.4	130	78.0	130	1.5	8.811	47.679	g500-H210	m650-U71/M4	2	13
3.1	117	9.3	130	76.6	130	1.4	8.876	48.571	g500-H210	m650-U71/M4	3	14
3.1	118	9.2	131	75.8	131	3.8	9.400	49.051	g500-H600	m650-U71/M4	3	31



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
3.1	120	9.2	133	76.0	133	2.6	8.925	48.950	g500-H450	m650-U71/M4	2	19
3.0	120	9.0	133	74.6	133	2.8	9.106	49.867	g500-H450	m650-U71/M4	3	19
3.0	120	9.1	134	75.5	134	3.0	8.943	49.247	g500-H600	m650-U71/M4	2	30
3.0	123	8.9	137	73.8	137	3.4	9.272	50.433	g500-H850	m650-U71/M4	2	39
2.8	129	8.5	143	70.6	143	1.6	8.817	52.715	g500-H320	m650-U71/M4	2	15
2.8	129	8.4	144	69.3	144	1.9	8.881	53.703	g500-H320	m650-U71/M4	3	15
2.7	134	8.2	149	67.9	149	1.7	8.866	54.750	g500-H450	m650-U71/M4	2	19
2.7	134	8.1	149	67.0	149	1.2	8.838	55.529	g500-H210	m650-U71/M4	3	14
2.7	134	8.1	149	66.8	149	3.4	9.214	55.710	g500-H600	m650-U71/M4	3	31
2.7	135	8.1	150	67.3	150	3.0	8.937	55.307	g500-H600	m650-U71/M4	2	30
2.7	136	8.0	151	65.9	151	2.5	9.001	56.469	g500-H450	m650-U71/M4	3	19
2.5	142	7.6	158	63.1	158	4.5	10.013	58.933	g500-H850	m650-U71/M4	3	40
2.5	146	7.4	162	61.5	162	1.7	8.843	60.502	g500-H320	m650-U71/M4	3	15
2.4	149	7.3	165	60.2	165	2.3	8.969	61.774	g500-H450	m650-U71/M4	3	19
2.4	150	7.2	166	59.8	166	1.1	8.838	62.160	g500-H210	m650-U71/M4	3	14
2.4	151	7.2	167	59.5	167	3.0	9.209	62.566	g500-H600	m650-U71/M4	3	31
2.4	151	7.3	168	60.1	168	1.7	8.864	61.875	g500-H450	m650-U71/M4	2	19
2.4	152	7.2	169	59.8	169	1.7	8.875	62.250	g500-H600	m650-U71/M4	2	30
2.2	164	6.6	183	54.5	183	2.8	9.101	68.244	g500-H600	m650-U71/M4	3	31
2.2	166	6.5	184	54.1	184	1.5	8.841	68.726	g500-H320	m650-U71/M4	3	15
2.1	168	6.4	187	53.3	187	2.0	8.967	69.813	g500-H450	m650-U71/M4	3	19
2.1	171	6.4	190	53.2	190	1.7	8.871	69.911	g500-H600	m650-U71/M4	2	30
2.1	171	6.3	190	52.4	190	0.9	8.810	71.026	g500-H210	m650-U71/M4	3	14
2.0	185	5.9	205	48.5	205	2.5	9.098	76.643	g500-H600	m650-U71/M4	3	31
1.9	186	5.8	207	48.1	207	1.3	8.812	77.387	g500-H320	m650-U71/M4	3	15
1.9	190	5.7	211	47.2	211	1.8	8.906	78.794	g500-H450	m650-U71/M4	3	19
1.8	203	5.4	225	44.2	225	3.5	9.301	84.096	g500-H850	m650-U71/M4	3	40
1.7	212	5.1	235	42.3	235	1.3	8.811	87.906	g500-H320	m650-U71/M4	3	15
1.7	214	5.1	238	41.9	238	2.4	8.967	88.826	g500-H600	m650-U71/M4	3	31
1.7	215	5.1	238	41.8	238	1.8	8.905	89.048	g500-H450	m650-U71/M4	3	19
1.6	226	4.8	251	39.6	251	3.2	9.299	93.966	g500-H850	m650-U71/M4	3	40
1.6	233	4.7	258	38.5	258	1.6	8.868	96.522	g500-H450	m650-U71/M4	3	19
1.5	240	4.5	267	37.3	267	2.1	8.966	99.757	g500-H600	m650-U71/M4	3	31
1.5	242	4.5	269	37.0	269	1.1	8.794	100.462	g500-H320	m650-U71/M4	3	15
1.4	252	4.3	280	35.6	280	2.8	9.155	104.607	g500-H850	m650-U71/M4	3	40
1.4	263	4.1	292	34.1	292	1.4	8.867	109.083	g500-H450	m650-U71/M4	3	19
1.4	266	4.1	296	33.7	296	1.9	8.907	110.491	g500-H600	m650-U71/M4	3	31
1.3	275	3.9	305	32.6	305	1.0	8.793	114.118	g500-H320	m650-U71/M4	3	15
1.3	282	3.8	313	31.8	313	2.5	9.153	116.884	g500-H850	m650-U71/M4	3	40
1.2	292	3.7	325	30.7	325	1.3	8.829	121.342	g500-H450	m650-U71/M4	3	19
1.2	299	3.6	332	30.0	332	1.7	8.906	124.088	g500-H600	m650-U71/M4	3	31
1.1	326	3.3	362	27.5	362	2.2	9.003	135.373	g500-H850	m650-U71/M4	3	40
1.1	330	3.3	367	27.1	367	1.1	8.828	137.133	g500-H450	m650-U71/M4	3	19
1.0	344	3.1	383	26.0	383	1.5	8.848	142.988	g500-H600	m650-U71/M4	3	31
1.0	364	3.0	405	24.6	405	2.0	9.002	151.262	g500-H850	m650-U71/M4	3	40
1.0	376	2.9	418	23.8	418	1.0	8.804	156.274	g500-H450	m650-U71/M4	3	19
0.9	387	2.8	430	23.2	430	1.3	8.848	160.585	g500-H600	m650-U71/M4	3	31
0.9	396	2.7	440	22.6	440	1.8	8.936	164.294	g500-H850	m650-U71/M4	3	40
0.9	418	2.6	464	21.4	464	1.2	8.822	173.536	g500-H600	m650-U71/M4	3	31
0.8	440	2.5	489	20.3	489	2.9	9.428	182.844	g500-H1500	m650-U71/M4	3	70
0.8	442	2.5	491	20.3	491	1.6	8.935	183.577	g500-H850	m650-U71/M4	3	40
0.8	469	2.3	522	19.1	522	1.1	8.821	194.892	g500-H600	m650-U71/M4	3	31



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
0.8	472	2.3	524	18.7	524	1.1	8.974	198.970	g500-H600	m650-U71/M4	4	34
0.7	483	2.2	536	18.3	536	2.6	9.473	203.537	g500-H1500	m650-U71/M4	4	73
0.7	482	2.2	536	18.3	536	5.0	10.263	203.178	g500-H3000	m650-U71/M4	4	118
0.7	487	2.2	541	18.4	541	2.6	9.426	202.237	g500-H1500	m650-U71/M4	3	70
0.7	499	2.1	555	17.7	555	1.4	9.014	210.484	g500-H850	m650-U71/M4	4	43
0.7	500	2.2	556	17.9	556	1.4	8.870	207.675	g500-H850	m650-U71/M4	3	40
0.7	530	2.0	589	16.6	589	1.0	8.973	223.457	g500-H600	m650-U71/M4	4	34
0.7	534	2.0	593	16.5	593	2.4	9.472	225.125	g500-H1500	m650-U71/M4	4	73
0.7	534	2.0	594	16.8	594	2.4	9.253	221.907	g500-H1500	m650-U71/M4	3	70
0.7	538	2.0	597	16.4	597	4.1	9.802	226.604	g500-H3000	m650-U71/M4	4	118
0.6	556	1.9	618	15.9	618	1.3	8.938	234.319	g500-H850	m650-U71/M4	4	43
0.6	559	1.9	621	16.0	621	1.3	8.870	232.050	g500-H850	m650-U71/M4	3	40
0.6	590	1.8	656	14.9	656	4.2	9.800	248.893	g500-H3000	m650-U71/M4	4	118
0.6	591	1.8	657	15.2	657	2.1	9.253	245.442	g500-H1500	m650-U71/M4	3	70
0.6	604	1.8	671	14.6	671	2.1	9.116	254.431	g500-H1500	m650-U71/M4	4	73
0.6	621	1.7	690	14.2	690	1.2	8.937	261.821	g500-H850	m650-U71/M4	4	43
0.5	668	1.6	742	13.2	742	1.9	9.116	281.416	g500-H1500	m650-U71/M4	4	73
0.5	676	1.6	751	13.3	751	1.9	9.075	280.500	g500-H1500	m650-U71/M4	3	70
0.5	694	1.5	771	12.7	771	3.6	9.969	292.511	g500-H3000	m650-U71/M4	4	118
0.5	698	1.5	776	12.6	776	1.0	8.982	294.334	g500-H850	m650-U71/M4	4	43
0.5	747	1.5	830	12.0	830	1.7	9.075	310.250	g500-H1500	m650-U71/M4	3	70
0.5	751	1.4	834	11.8	834	1.7	9.003	316.487	g500-H1500	m650-U71/M4	4	73
0.5	762	1.4	847	11.6	847	3.3	9.968	321.282	g500-H3000	m650-U71/M4	4	118
0.5	780	1.4	867	11.3	867	0.9	8.981	328.881	g500-H850	m650-U71/M4	4	43
0.4	830	1.3	923	10.6	923	1.5	9.003	350.054	g500-H1500	m650-U71/M4	4	73
0.4	893	1.2	992	9.9	992	2.8	9.420	376.393	g500-H3000	m650-U71/M4	4	118
0.4	943	1.1	1048	9.4	1048	1.3	9.040	397.548	g500-H1500	m650-U71/M4	4	73
0.4	981	1.1	1090	9.0	1090	2.6	9.419	413.415	g500-H3000	m650-U71/M4	4	118
0.3	1059	1.0	1177	8.3	1177	1.2	8.972	446.497	g500-H1500	m650-U71/M4	4	73
0.3	1084	1.0	1205	8.1	1205	2.3	9.331	457.048	g500-H3000	m650-U71/M4	4	118
0.3	1162	0.9	1291	7.6	1291	2.2	9.156	489.908	g500-H3000	m650-U71/M4	4	118
0.3	1173	0.9	1303	7.5	1303	1.1	8.954	494.511	g500-H1500	m650-U71/M4	4	73
0.3	1277	0.8	1418	6.9	1418	2.0	9.155	538.095	g500-H3000	m650-U71/M4	4	118
0.3	1358	0.8	1508	6.5	1508	0.9	9.008	572.324	g500-H1500	m650-U71/M4	4	73
0.3	1411	0.8	1568	6.3	1568	1.8	9.103	594.888	g500-H3000	m650-U71/M4	4	118
0.2	1550	0.7	1722	5.7	1722	1.6	9.103	653.402	g500-H3000	m650-U71/M4	4	118
0.2	1755	0.6	1950	5.0	1950	1.4	8.994	739.983	g500-H3000	m650-U71/M4	4	118
0.2	1871	0.6	2079	4.7	2079	1.3	8.921	788.632	g500-H3000	m650-U71/M4	4	118
0.2	2055	0.5	2283	4.3	2283	1.2	8.921	866.202	g500-H3000	m650-U71/M4	4	118
0.2	2272	0.5	2524	3.9	2524	1.1	8.901	957.625	g500-H3000	m650-U71/M4	4	118
0.1	2495	0.4	2772	3.5	2772	1.0	8.901	1051.817	g500-H3000	m650-U71/M4	4	118



124 Hz: 1.5 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
71.1	7.2	213	8.0	1764	8.0	3.6	11.700	2.108	g500-H100	m650-U71/L4	2	12
57.8	8.8	173	9.8	1432	9.8	1.4	11.360	2.597	g500-H45	m650-U71/L4	2	10
45.9	11.1	138	12.0	1139	12.0	3.2	12.002	3.267	g500-H140	m650-U71/L4	2	13
44.7	11.4	134	13.0	1109	13.0	3.2	11.625	3.354	g500-H100	m650-U71/L4	2	12
44.3	11.5	133	13.0	1098	13.0	3.6	12.630	3.389	g500-H210	m650-U71/L4	2	15
44.3	11.5	133	13.0	1098	13.0	3.6	12.325	3.389	g500-H320	m650-U71/L4	2	16
43.9	11.6	132	13.0	1090	13.0	1.1	11.269	3.413	g500-H45	m650-U71/L4	2	10
34.3	14.9	103	17.0	852	17.0	0.9	11.217	4.368	g500-H45	m650-U71/L4	2	10
33.5	15.3	100	17.0	830	17.0	3.2	11.636	4.480	g500-H140	m650-U71/L4	2	13
32.6	15.7	97.8	17.0	809	17.0	3.1	11.435	4.600	g500-H100	m650-U71/L4	2	12
29.0	17.6	87.1	20.0	720	20.0	2.8	11.529	5.167	g500-H100	m650-U71/L4	2	12
28.2	18.1	84.7	20.0	700	20.0	1.0	11.279	5.312	g500-H45	m650-U71/L4	2	10
26.9	19.0	80.6	21.0	666	21.0	3.6	12.343	5.583	g500-H210	m650-U71/L4	2	15
26.2	19.5	78.5	22.0	649	22.0	3.0	11.459	5.733	g500-H140	m650-U71/L4	2	13
25.5	20.0	76.4	22.0	632	22.0	2.7	11.336	5.887	g500-H100	m650-U71/L4	2	12
25.1	20.3	75.4	23.0	624	23.0	1.0	11.273	5.965	g500-H45	m650-U71/L4	2	10
24.7	20.7	74.0	23.0	612	23.0	3.6	12.755	6.083	g500-H320	m650-U71/L4	2	16
24.0	21.3	72.0	24.0	595	24.0	3.6	12.284	6.250	g500-H210	m650-U71/L4	2	15
23.9	21.4	71.7	24.0	593	24.0	3.0	11.409	6.272	g500-H140	m650-U71/L4	2	13
23.3	21.9	69.9	24.0	578	24.0	2.5	11.307	6.440	g500-H100	m650-U71/L4	2	12
21.7	23.5	65.1	26.0	538	26.0	3.6	12.609	6.910	g500-H320	m650-U71/L4	2	16
21.2	24.1	63.5	27.0	525	27.0	2.4	11.385	7.086	g500-H100	m650-U71/L4	2	12
20.6	24.8	61.9	28.0	512	28.0	2.9	11.605	7.269	g500-H140	m650-U71/L4	2	13
18.8	27.2	56.3	30.0	465	30.0	2.7	11.311	8.000	g500-H140	m650-U71/L4	2	13
18.3	28.0	54.8	31.0	453	31.0	2.2	11.248	8.214	g500-H100	m650-U71/L4	2	12
16.6	30.7	49.8	34.0	412	34.0	2.5	11.442	9.029	g500-H140	m650-U71/L4	2	13
16.5	30.9	49.6	34.0	410	34.0	2.1	11.305	9.068	g500-H100	m650-U71/L4	2	12
15.3	33.4	45.9	37.0	380	37.0	2.4	11.255	9.800	g500-H140	m650-U71/L4	2	13
15.3	33.4	45.9	37.0	380	37.0	3.2	11.689	9.799	g500-H210	m650-U71/L4	2	15
14.9	34.3	44.7	38.0	370	38.0	1.9	11.213	10.063	g500-H100	m650-U71/L4	2	12
14.0	36.4	42.1	40.0	348	40.0	3.2	11.823	10.677	g500-H320	m650-U71/L4	2	16
14.0	36.5	42.0	41.0	347	41.0	3.2	11.613	10.720	g500-H210	m650-U71/L4	2	15
13.2	38.7	39.6	43.0	328	43.0	1.7	11.275	11.360	g500-H100	m650-U71/L4	2	12
13.0	39.3	38.9	44.0	322	44.0	2.2	11.340	11.554	g500-H140	m650-U71/L4	2	13
12.8	39.8	38.5	44.0	319	44.0	3.2	11.725	11.680	g500-H320	m650-U71/L4	2	16
12.5	40.9	37.5	45.0	310	45.0	3.0	11.597	12.000	g500-H210	m650-U71/L4	2	15
12.4	41.3	37.1	46.0	307	46.0	3.2	11.776	12.128	g500-H320	m650-U71/L4	2	16
11.9	43.0	35.6	48.0	294	48.0	2.0	11.310	12.640	g500-H140	m650-U71/L4	2	13
11.9	43.1	35.6	48.0	294	48.0	1.5	11.232	12.653	g500-H100	m650-U71/L4	2	12
11.3	45.2	33.9	50.0	280	50.0	3.2	11.686	13.268	g500-H320	m650-U71/L4	2	16
11.0	46.6	32.9	52.0	272	52.0	2.9	11.475	13.673	g500-H210	m650-U71/L4	2	15
10.8	47.4	32.4	53.0	268	53.0	3.2	12.306	13.905	g500-H450	m650-U71/L4	2	20
10.7	47.5	32.2	53.0	267	53.0	1.9	11.301	13.957	g500-H140	m650-U71/L4	2	13
10.4	49.3	31.1	55.0	257	55.0	1.4	11.229	14.490	g500-H100	m650-U71/L4	2	12
10.1	50.7	30.2	56.0	250	56.0	3.0	11.544	14.898	g500-H320	m650-U71/L4	2	16
9.8	52.1	29.4	58.0	243	58.0	2.6	11.465	15.306	g500-H210	m650-U71/L4	2	15
9.7	52.8	29.0	59.0	240	59.0	1.3	11.202	15.500	g500-H100	m650-U71/L4	2	12
9.5	53.5	28.6	59.0	237	59.0	3.2	12.269	15.714	g500-H450	m650-U71/L4	2	20
9.5	53.8	28.5	60.0	235	60.0	3.2	12.440	15.810	g500-H600	m650-U71/L4	2	31
9.3	54.9	27.9	61.0	231	61.0	1.7	11.250	16.122	g500-H140	m650-U71/L4	2	13
9.0	57.0	26.9	63.0	222	63.0	2.5	11.392	16.750	g500-H210	m650-U71/L4	2	15



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
8.9	57.6	26.6	64.0	220	64.0	3.0	11.520	16.923	g500-H320	m650-U71/L4	2	16
8.5	60.4	25.4	67.0	210	67.0	1.1	11.200	17.750	g500-H100	m650-U71/L4	2	12
8.4	60.5	25.3	67.0	210	67.0	3.2	12.383	17.755	g500-H600	m650-U71/L4	2	31
8.4	60.6	25.3	67.0	209	67.0	1.5	11.245	17.802	g500-H140	m650-U71/L4	2	13
8.2	62.2	24.7	69.0	204	69.0	2.7	11.438	18.250	g500-H320	m650-U71/L4	2	16
8.0	63.9	24.0	71.0	198	71.0	2.2	11.385	18.750	g500-H210	m650-U71/L4	2	15
7.7	66.4	23.1	74.0	191	74.0	1.0	11.169	19.486	g500-H100	m650-U71/L4	2	12
7.6	67.3	22.8	75.0	188	75.0	1.4	11.214	19.750	g500-H140	m650-U71/L4	2	13
7.2	70.6	21.7	78.0	179	78.0	2.7	11.421	20.731	g500-H320	m650-U71/L4	2	16
6.9	74.2	20.6	82.0	171	82.0	1.9	11.282	21.802	g500-H210	m650-U71/L4	2	15
6.9	74.3	20.6	83.0	171	83.0	1.3	11.211	21.808	g500-H140	m650-U71/L4	2	13
6.8	75.5	20.3	84.0	168	84.0	2.7	11.627	22.170	g500-H450	m650-U71/L4	2	20
6.3	80.9	18.9	90.0	157	90.0	2.4	11.309	23.754	g500-H320	m650-U71/L4	2	16
6.1	83.1	18.4	92.0	152	92.0	1.7	11.279	24.405	g500-H210	m650-U71/L4	2	15
6.0	84.6	18.1	94.0	150	94.0	1.1	11.177	24.829	g500-H140	m650-U71/L4	2	13
6.0	85.3	18.0	95.0	149	95.0	2.7	11.612	25.056	g500-H450	m650-U71/L4	2	20
6.0	85.8	17.9	95.0	148	95.0	2.7	11.679	25.207	g500-H600	m650-U71/L4	2	31
5.6	91.9	16.7	102	138	102	2.6	11.300	26.983	g500-H320	m650-U71/L4	2	16
5.5	92.4	16.6	103	137	103	1.7	11.234	27.119	g500-H210	m650-U71/L4	2	15
5.5	93.4	16.4	104	136	104	1.1	11.174	27.415	g500-H140	m650-U71/L4	2	13
5.4	93.9	16.3	104	135	104	2.5	11.489	27.578	g500-H450	m650-U71/L4	2	20
5.3	96.4	15.9	107	131	107	3.0	11.657	28.310	g500-H600	m650-U71/L4	2	31
5.1	101	15.2	112	126	112	2.3	11.252	29.548	g500-H320	m650-U71/L4	2	16
4.9	103	14.8	115	123	115	1.5	11.232	30.357	g500-H210	m650-U71/L4	2	15
4.8	106	14.4	118	119	118	2.5	11.479	31.167	g500-H450	m650-U71/L4	2	20
4.8	107	14.4	119	119	119	2.5	11.523	31.356	g500-H600	m650-U71/L4	2	31
4.7	109	14.1	121	116	121	1.0	11.153	31.976	g500-H140	m650-U71/L4	2	13
4.5	114	13.4	127	111	127	2.1	11.246	33.564	g500-H320	m650-U71/L4	2	16
4.3	120	12.8	133	106	133	1.3	11.185	35.095	g500-H210	m650-U71/L4	2	15
4.3	120	12.8	133	106	133	2.5	11.508	35.214	g500-H600	m650-U71/L4	2	31
4.2	122	12.6	135	104	135	2.3	11.344	35.689	g500-H450	m650-U71/L4	2	20
4.0	127	12.1	141	100	141	2.5	11.819	37.190	g500-H850	m650-U71/L4	2	40
3.9	130	11.8	145	97.3	145	1.5	11.195	38.238	g500-H320	m650-U71/L4	2	16
3.8	134	11.5	149	94.7	149	1.2	11.183	39.286	g500-H210	m650-U71/L4	2	15
3.8	134	11.3	149	93.2	149	3.0	11.862	39.925	g500-H600	m650-U71/L4	3	32
3.7	137	11.2	153	92.2	153	2.6	11.338	40.333	g500-H450	m650-U71/L4	2	20
3.7	138	11.1	154	91.7	154	2.6	11.364	40.578	g500-H600	m650-U71/L4	2	31
3.6	142	10.8	157	89.5	157	2.8	11.804	41.556	g500-H850	m650-U71/L4	2	40
3.5	145	10.6	161	87.3	161	1.1	11.162	42.593	g500-H210	m650-U71/L4	2	15
3.5	146	10.4	162	85.7	162	1.0	11.227	43.390	g500-H210	m650-U71/L4	3	15
3.4	147	10.3	163	85.2	163	2.7	11.758	43.676	g500-H600	m650-U71/L4	3	32
3.5	148	10.4	164	85.9	164	1.8	11.279	43.313	g500-H450	m650-U71/L4	2	20
3.5	148	10.4	164	85.6	164	1.6	11.192	43.436	g500-H320	m650-U71/L4	2	16
3.4	148	10.2	164	84.3	164	2.0	11.460	44.124	g500-H450	m650-U71/L4	3	20
3.3	154	10.0	171	82.4	171	2.5	11.631	45.136	g500-H850	m650-U71/L4	2	40
3.3	155	9.9	172	81.6	172	2.6	11.355	45.571	g500-H600	m650-U71/L4	2	31
3.2	158	9.7	176	80.2	176	1.2	11.170	46.407	g500-H320	m650-U71/L4	2	16
3.2	159	9.5	176	78.7	176	1.5	11.234	47.276	g500-H320	m650-U71/L4	3	17
3.1	162	9.4	180	78.0	180	1.1	11.161	47.679	g500-H210	m650-U71/L4	2	15
3.1	163	9.3	181	76.6	181	1.0	11.226	48.571	g500-H210	m650-U71/L4	3	15
3.1	165	9.2	183	75.8	183	2.8	11.750	49.051	g500-H600	m650-U71/L4	3	32
3.1	167	9.2	185	76.0	185	1.8	11.275	48.950	g500-H450	m650-U71/L4	2	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
3.0	168	9.1	186	75.5	186	2.1	11.293	49.247	g500-H600	m650-U71/L4	2	31
3.0	167	9.0	186	74.6	186	2.0	11.456	49.867	g500-H450	m650-U71/L4	3	20
3.0	172	8.9	191	73.8	191	2.5	11.622	50.433	g500-H850	m650-U71/L4	2	40
2.8	177	8.5	197	70.5	197	3.6	12.369	52.743	g500-H850	m650-U71/L4	3	41
2.8	180	8.5	199	70.6	199	1.2	11.167	52.715	g500-H320	m650-U71/L4	2	16
2.8	180	8.4	200	69.3	200	1.3	11.231	53.703	g500-H320	m650-U71/L4	3	17
2.7	187	8.2	207	67.9	207	1.2	11.216	54.750	g500-H450	m650-U71/L4	2	20
2.7	187	8.1	208	66.8	208	2.4	11.564	55.710	g500-H600	m650-U71/L4	3	32
2.7	188	8.1	209	67.3	209	2.1	11.287	55.307	g500-H600	m650-U71/L4	2	31
2.7	189	8.0	210	65.9	210	1.8	11.351	56.469	g500-H450	m650-U71/L4	3	20
2.5	198	7.6	220	63.1	220	3.3	12.363	58.933	g500-H850	m650-U71/L4	3	41
2.5	203	7.4	225	61.5	225	1.2	11.193	60.502	g500-H320	m650-U71/L4	3	17
2.4	207	7.3	230	60.2	230	1.6	11.319	61.774	g500-H450	m650-U71/L4	3	20
2.4	210	7.2	233	59.5	233	2.2	11.559	62.566	g500-H600	m650-U71/L4	3	32
2.4	211	7.3	234	60.1	234	1.2	11.214	61.875	g500-H450	m650-U71/L4	2	20
2.4	212	7.2	236	59.8	236	1.2	11.225	62.250	g500-H600	m650-U71/L4	2	31
2.2	229	6.6	254	54.5	254	2.0	11.451	68.244	g500-H600	m650-U71/L4	3	32
2.2	231	6.5	256	54.1	256	1.1	11.191	68.726	g500-H320	m650-U71/L4	3	17
2.1	234	6.4	260	53.3	260	1.5	11.317	69.813	g500-H450	m650-U71/L4	3	20
2.1	238	6.4	265	53.2	265	1.2	11.221	69.911	g500-H600	m650-U71/L4	2	31
2.0	257	5.9	286	48.5	286	1.8	11.448	76.643	g500-H600	m650-U71/L4	3	32
1.9	260	5.8	288	48.1	288	0.9	11.162	77.387	g500-H320	m650-U71/L4	3	17
1.9	264	5.7	294	47.2	294	1.3	11.256	78.794	g500-H450	m650-U71/L4	3	20
1.8	282	5.4	313	44.2	313	2.5	11.651	84.096	g500-H850	m650-U71/L4	3	41
1.7	295	5.1	328	42.3	328	0.9	11.161	87.906	g500-H320	m650-U71/L4	3	17
1.7	298	5.1	331	41.9	331	1.7	11.317	88.826	g500-H600	m650-U71/L4	3	32
1.7	299	5.1	332	41.8	332	1.3	11.255	89.048	g500-H450	m650-U71/L4	3	20
1.6	315	4.8	350	39.6	350	2.3	11.649	93.966	g500-H850	m650-U71/L4	3	41
1.6	324	4.7	360	38.5	360	1.2	11.218	96.522	g500-H450	m650-U71/L4	3	20
1.5	335	4.5	372	37.3	372	1.5	11.316	99.757	g500-H600	m650-U71/L4	3	32
1.4	351	4.3	390	35.6	390	2.0	11.505	104.607	g500-H850	m650-U71/L4	3	41
1.4	366	4.1	407	34.1	407	1.0	11.217	109.083	g500-H450	m650-U71/L4	3	20
1.4	371	4.1	412	33.7	412	1.4	11.257	110.491	g500-H600	m650-U71/L4	3	32
1.3	392	3.8	436	31.8	436	1.8	11.503	116.884	g500-H850	m650-U71/L4	3	41
1.2	407	3.7	452	30.7	452	0.9	11.179	121.342	g500-H450	m650-U71/L4	3	20
1.2	416	3.6	462	30.0	462	1.2	11.256	124.088	g500-H600	m650-U71/L4	3	32
1.1	454	3.3	505	27.5	505	1.6	11.353	135.373	g500-H850	m650-U71/L4	3	41
1.0	480	3.1	533	26.0	533	1.1	11.198	142.988	g500-H600	m650-U71/L4	3	32
1.0	507	3.0	564	24.6	564	1.4	11.352	151.262	g500-H850	m650-U71/L4	3	41
0.9	539	2.8	599	23.2	599	0.9	11.198	160.585	g500-H600	m650-U71/L4	3	32
0.9	551	2.7	612	22.6	612	1.3	11.286	164.294	g500-H850	m650-U71/L4	3	41
0.8	613	2.5	681	20.3	681	2.1	11.778	182.844	g500-H1500	m650-U71/L4	3	72
0.8	616	2.5	684	20.3	684	1.2	11.285	183.577	g500-H850	m650-U71/L4	3	41
0.7	671	2.2	746	18.3	746	3.6	12.613	203.178	g500-H3000	m650-U71/L4	4	120
0.7	673	2.2	747	18.3	747	1.9	11.823	203.537	g500-H1500	m650-U71/L4	4	75
0.7	678	2.2	754	18.4	754	1.9	11.776	202.237	g500-H1500	m650-U71/L4	3	72
0.7	696	2.1	773	17.7	773	1.0	11.364	210.484	g500-H850	m650-U71/L4	4	44
0.7	697	2.2	774	17.9	774	1.0	11.220	207.675	g500-H850	m650-U71/L4	3	41
0.7	744	2.0	826	16.5	826	1.7	11.822	225.125	g500-H1500	m650-U71/L4	4	75
0.7	744	2.0	827	16.8	827	1.7	11.603	221.907	g500-H1500	m650-U71/L4	3	72
0.7	749	2.0	832	16.4	832	3.0	12.152	226.604	g500-H3000	m650-U71/L4	4	120
0.6	774	1.9	860	15.9	860	0.9	11.288	234.319	g500-H850	m650-U71/L4	4	44



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
0.6	778	1.9	865	16.0	865	0.9	11.220	232.050	g500-H850	m650-U71/L4	3	41
0.6	822	1.8	914	14.9	914	3.0	12.150	248.893	g500-H3000	m650-U71/L4	4	120
0.6	823	1.8	915	15.2	915	1.5	11.603	245.442	g500-H1500	m650-U71/L4	3	72
0.6	841	1.8	934	14.6	934	1.5	11.466	254.431	g500-H1500	m650-U71/L4	4	75
0.5	930	1.6	1033	13.2	1033	1.4	11.466	281.416	g500-H1500	m650-U71/L4	4	75
0.5	941	1.6	1045	13.3	1045	1.3	11.425	280.500	g500-H1500	m650-U71/L4	3	72
0.5	967	1.5	1074	12.7	1074	2.6	12.319	292.511	g500-H3000	m650-U71/L4	4	120
0.5	1041	1.5	1156	12.0	1156	1.2	11.425	310.250	g500-H1500	m650-U71/L4	3	72
0.5	1046	1.4	1162	11.8	1162	1.2	11.353	316.487	g500-H1500	m650-U71/L4	4	75
0.5	1062	1.4	1179	11.6	1179	2.4	12.318	321.282	g500-H3000	m650-U71/L4	4	120
0.4	1157	1.3	1285	10.6	1285	1.1	11.353	350.054	g500-H1500	m650-U71/L4	4	75
0.4	1244	1.2	1382	9.9	1382	2.0	11.770	376.393	g500-H3000	m650-U71/L4	4	120
0.4	1314	1.1	1459	9.4	1459	1.0	11.390	397.548	g500-H1500	m650-U71/L4	4	75
0.4	1366	1.1	1518	9.0	1518	1.8	11.769	413.415	g500-H3000	m650-U71/L4	4	120
0.3	1510	1.0	1678	8.1	1678	1.7	11.681	457.048	g500-H3000	m650-U71/L4	4	120
0.3	1619	0.9	1799	7.6	1799	1.6	11.506	489.908	g500-H3000	m650-U71/L4	4	120
0.3	1778	0.8	1975	6.9	1975	1.4	11.505	538.095	g500-H3000	m650-U71/L4	4	120
0.3	1966	0.8	2184	6.3	2184	1.3	11.453	594.888	g500-H3000	m650-U71/L4	4	120
0.2	2159	0.7	2399	5.7	2399	1.2	11.453	653.402	g500-H3000	m650-U71/L4	4	120
0.2	2445	0.6	2717	5.0	2717	1.0	11.344	739.983	g500-H3000	m650-U71/L4	4	120
0.2	2606	0.6	2895	4.7	2895	1.0	11.271	788.632	g500-H3000	m650-U71/L4	4	120



124 Hz: 2.2 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
71.1	10.3	213	11.0	1764	11.0	3.2	21.700	2.108	g500-H100	m650-U80/M4	2	14
45.9	16.0	138	18.0	1139	18.0	2.8	22.002	3.267	g500-H140	m650-U80/M4	2	15
44.7	16.4	134	18.0	1109	18.0	2.5	21.625	3.354	g500-H100	m650-U80/M4	2	14
44.3	16.6	133	18.0	1098	18.0	3.2	22.630	3.389	g500-H210	m650-U80/M4	2	17
44.3	16.6	133	18.0	1098	18.0	3.2	22.325	3.389	g500-H320	m650-U80/M4	2	19
33.5	21.9	100	24.0	830	24.0	2.8	21.636	4.480	g500-H140	m650-U80/M4	2	15
32.6	22.5	97.8	25.0	809	25.0	2.1	21.435	4.600	g500-H100	m650-U80/M4	2	14
29.0	25.3	87.1	28.0	720	28.0	2.0	21.529	5.167	g500-H100	m650-U80/M4	2	14
26.9	27.3	80.6	30.0	666	30.0	3.2	22.343	5.583	g500-H210	m650-U80/M4	2	17
26.2	28.0	78.5	31.0	649	31.0	2.4	21.459	5.733	g500-H140	m650-U80/M4	2	15
25.5	28.8	76.4	32.0	632	32.0	1.9	21.336	5.887	g500-H100	m650-U80/M4	2	14
24.7	29.7	74.0	33.0	612	33.0	3.2	22.755	6.083	g500-H320	m650-U80/M4	2	19
24.0	30.6	72.0	34.0	595	34.0	3.2	22.284	6.250	g500-H210	m650-U80/M4	2	17
23.9	30.7	71.7	34.0	593	34.0	2.3	21.409	6.272	g500-H140	m650-U80/M4	2	15
23.3	31.5	69.9	35.0	578	35.0	1.8	21.307	6.440	g500-H100	m650-U80/M4	2	14
21.7	33.8	65.1	38.0	538	38.0	3.2	22.609	6.910	g500-H320	m650-U80/M4	2	19
21.2	34.6	63.5	38.0	525	38.0	1.7	21.385	7.086	g500-H100	m650-U80/M4	2	14
20.6	35.5	61.9	39.0	512	39.0	2.0	21.605	7.269	g500-H140	m650-U80/M4	2	15
18.8	39.1	56.3	43.0	465	43.0	2.0	21.311	8.000	g500-H140	m650-U80/M4	2	15
18.3	40.2	54.8	45.0	453	45.0	1.5	21.248	8.214	g500-H100	m650-U80/M4	2	14
16.6	44.1	49.8	49.0	412	49.0	1.8	21.442	9.029	g500-H140	m650-U80/M4	2	15
16.5	44.3	49.6	49.0	410	49.0	1.4	21.305	9.068	g500-H100	m650-U80/M4	2	14
15.3	47.9	45.9	53.0	380	53.0	1.7	21.255	9.800	g500-H140	m650-U80/M4	2	15
15.3	47.9	45.9	53.0	380	53.0	2.5	21.689	9.799	g500-H210	m650-U80/M4	2	17
14.9	49.2	44.7	55.0	370	55.0	1.3	21.213	10.063	g500-H100	m650-U80/M4	2	14
14.0	52.2	42.1	58.0	348	58.0	2.8	21.823	10.677	g500-H320	m650-U80/M4	2	19
14.0	52.4	42.0	58.0	347	58.0	2.4	21.613	10.720	g500-H210	m650-U80/M4	2	17
13.2	55.5	39.6	62.0	328	62.0	1.2	21.275	11.360	g500-H100	m650-U80/M4	2	14
13.0	56.5	38.9	63.0	322	63.0	1.5	21.340	11.554	g500-H140	m650-U80/M4	2	15
12.8	57.1	38.5	63.0	319	63.0	2.8	21.725	11.680	g500-H320	m650-U80/M4	2	19
12.5	58.7	37.5	65.0	310	65.0	2.1	21.597	12.000	g500-H210	m650-U80/M4	2	17
12.4	59.3	37.1	66.0	307	66.0	2.8	21.776	12.128	g500-H320	m650-U80/M4	2	19
11.9	61.8	35.6	69.0	294	69.0	1.4	21.310	12.640	g500-H140	m650-U80/M4	2	15
11.9	61.9	35.6	69.0	294	69.0	1.1	21.232	12.653	g500-H100	m650-U80/M4	2	14
11.3	64.9	33.9	72.0	280	72.0	2.7	21.686	13.268	g500-H320	m650-U80/M4	2	19
11.0	66.9	32.9	74.0	272	74.0	2.0	21.475	13.673	g500-H210	m650-U80/M4	2	17
10.8	68.0	32.4	76.0	268	76.0	2.8	22.306	13.905	g500-H450	m650-U80/M4	2	22
10.7	68.2	32.2	76.0	267	76.0	1.3	21.301	13.957	g500-H140	m650-U80/M4	2	15
10.4	70.9	31.1	79.0	257	79.0	0.9	21.229	14.490	g500-H100	m650-U80/M4	2	14
10.1	72.9	30.2	81.0	250	81.0	2.6	21.544	14.898	g500-H320	m650-U80/M4	2	19
9.8	74.8	29.4	83.0	243	83.0	1.8	21.465	15.306	g500-H210	m650-U80/M4	2	17
9.5	76.8	28.6	85.0	237	85.0	2.8	22.269	15.714	g500-H450	m650-U80/M4	2	22
9.5	77.3	28.5	86.0	235	86.0	2.8	22.440	15.810	g500-H600	m650-U80/M4	2	33
9.3	78.8	27.9	88.0	231	88.0	1.2	21.250	16.122	g500-H140	m650-U80/M4	2	15
9.0	81.9	26.9	91.0	222	91.0	1.7	21.392	16.750	g500-H210	m650-U80/M4	2	17
8.9	82.8	26.6	92.0	220	92.0	2.3	21.520	16.923	g500-H320	m650-U80/M4	2	19
8.4	86.8	25.3	96.0	210	96.0	2.8	22.383	17.755	g500-H600	m650-U80/M4	2	33
8.4	87.1	25.3	97.0	209	97.0	1.1	21.245	17.802	g500-H140	m650-U80/M4	2	15
8.2	89.2	24.7	99.0	204	99.0	2.3	21.438	18.250	g500-H320	m650-U80/M4	2	19
8.0	91.7	24.0	102	198	102	1.5	21.385	18.750	g500-H210	m650-U80/M4	2	17
7.6	96.6	22.8	107	188	107	1.0	21.214	19.750	g500-H140	m650-U80/M4	2	15



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
7.2	101	21.7	113	179	113	2.0	21.421	20.731	g500-H320	m650-U80/M4	2	19
6.9	107	20.6	118	171	118	1.3	21.282	21.802	g500-H210	m650-U80/M4	2	17
6.8	108	20.3	120	168	120	2.3	21.627	22.170	g500-H450	m650-U80/M4	2	22
6.3	116	18.9	129	157	129	1.8	21.309	23.754	g500-H320	m650-U80/M4	2	19
6.1	119	18.4	133	152	133	1.2	21.279	24.405	g500-H210	m650-U80/M4	2	17
6.0	123	18.0	136	149	136	2.3	21.612	25.056	g500-H450	m650-U80/M4	2	22
6.0	123	17.9	137	148	137	2.3	21.679	25.207	g500-H600	m650-U80/M4	2	33
5.6	132	16.7	147	138	147	1.8	21.300	26.983	g500-H320	m650-U80/M4	2	19
5.5	133	16.6	147	137	147	1.2	21.234	27.119	g500-H210	m650-U80/M4	2	17
5.4	135	16.3	150	135	150	2.2	21.489	27.578	g500-H450	m650-U80/M4	2	22
5.3	138	15.9	154	131	154	2.6	21.657	28.310	g500-H600	m650-U80/M4	2	33
5.1	145	15.2	161	126	161	1.7	21.252	29.548	g500-H320	m650-U80/M4	2	19
4.9	148	14.8	165	123	165	1.1	21.232	30.357	g500-H210	m650-U80/M4	2	17
4.8	152	14.4	169	119	169	2.2	21.479	31.167	g500-H450	m650-U80/M4	2	22
4.8	153	14.4	170	119	170	2.2	21.523	31.356	g500-H600	m650-U80/M4	2	33
4.5	164	13.4	182	111	182	1.5	21.246	33.564	g500-H320	m650-U80/M4	2	19
4.3	172	12.8	191	106	191	0.9	21.185	35.095	g500-H210	m650-U80/M4	2	17
4.3	172	12.8	191	106	191	2.2	21.508	35.214	g500-H600	m650-U80/M4	2	33
4.2	175	12.6	194	104	194	2.0	21.344	35.689	g500-H450	m650-U80/M4	2	22
4.0	182	12.1	202	100	202	2.2	21.819	37.190	g500-H850	m650-U80/M4	2	42
3.9	187	11.8	208	97.3	208	1.0	21.195	38.238	g500-H320	m650-U80/M4	2	19
3.8	192	11.3	214	93.2	214	2.1	21.862	39.925	g500-H600	m650-U80/M4	3	34
3.7	197	11.2	219	92.2	219	1.9	21.338	40.333	g500-H450	m650-U80/M4	2	22
3.7	198	11.1	220	91.7	220	2.2	21.364	40.578	g500-H600	m650-U80/M4	2	33
3.6	203	10.8	226	89.5	226	2.5	21.804	41.556	g500-H850	m650-U80/M4	2	42
3.4	210	10.3	234	85.2	234	1.9	21.758	43.676	g500-H600	m650-U80/M4	3	34
3.5	212	10.4	235	85.9	235	1.3	21.279	43.313	g500-H450	m650-U80/M4	2	22
3.5	212	10.4	236	85.6	236	1.1	21.192	43.436	g500-H320	m650-U80/M4	2	19
3.4	213	10.2	236	84.3	236	1.4	21.460	44.124	g500-H450	m650-U80/M4	3	22
3.3	221	10.0	245	82.4	245	2.2	21.631	45.136	g500-H850	m650-U80/M4	2	42
3.3	223	9.9	248	81.6	248	2.2	21.355	45.571	g500-H600	m650-U80/M4	2	33
3.2	228	9.5	253	78.7	253	1.1	21.234	47.276	g500-H320	m650-U80/M4	3	19
3.1	236	9.2	263	75.8	263	1.9	21.750	49.051	g500-H600	m650-U80/M4	3	34
3.1	239	9.2	266	76.0	266	1.3	21.275	48.950	g500-H450	m650-U80/M4	2	22
3.0	240	9.0	267	74.6	267	1.4	21.456	49.867	g500-H450	m650-U80/M4	3	22
3.0	241	9.1	268	75.5	268	1.6	21.293	49.247	g500-H600	m650-U80/M4	2	33
3.0	247	8.9	274	73.8	274	2.2	21.622	50.433	g500-H850	m650-U80/M4	2	42
2.8	254	8.5	282	70.5	282	2.5	22.369	52.743	g500-H850	m650-U80/M4	3	43
2.8	259	8.4	287	69.3	287	0.9	21.231	53.703	g500-H320	m650-U80/M4	3	19
2.7	268	8.1	298	66.8	298	1.7	21.564	55.710	g500-H600	m650-U80/M4	3	34
2.7	270	8.1	300	67.3	300	1.6	21.287	55.307	g500-H600	m650-U80/M4	2	33
2.7	272	8.0	302	65.9	302	1.3	21.351	56.469	g500-H450	m650-U80/M4	3	22
2.5	284	7.6	315	63.1	315	2.3	22.363	58.933	g500-H850	m650-U80/M4	3	43
2.4	298	7.3	331	60.2	331	1.1	21.319	61.774	g500-H450	m650-U80/M4	3	22
2.4	301	7.2	335	59.5	335	1.5	21.559	62.566	g500-H600	m650-U80/M4	3	34
2.4	304	7.2	338	59.8	338	1.0	21.225	62.250	g500-H600	m650-U80/M4	2	33
2.2	329	6.6	365	54.5	365	1.4	21.451	68.244	g500-H600	m650-U80/M4	3	34
2.1	336	6.4	374	53.3	374	1.0	21.317	69.813	g500-H450	m650-U80/M4	3	22
2.1	342	6.4	380	53.2	380	1.0	21.221	69.911	g500-H600	m650-U80/M4	2	33
2.0	369	5.9	410	48.5	410	1.2	21.448	76.643	g500-H600	m650-U80/M4	3	34
1.8	405	5.4	450	44.2	450	1.8	21.651	84.096	g500-H850	m650-U80/M4	3	43
1.7	428	5.1	475	41.9	475	1.2	21.317	88.826	g500-H600	m650-U80/M4	3	34



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
1.6	453	4.8	503	39.6	503	1.6	21.649	93.966	g500-H850	m650-U80/M4	3	43
1.5	481	4.5	534	37.3	534	1.1	21.316	99.757	g500-H600	m650-U80/M4	3	34
1.4	504	4.3	560	35.6	560	1.4	21.505	104.607	g500-H850	m650-U80/M4	3	43
1.4	532	4.1	591	33.7	591	0.9	21.257	110.491	g500-H600	m650-U80/M4	3	34
1.3	563	3.8	626	31.8	626	1.3	21.503	116.884	g500-H850	m650-U80/M4	3	43
1.1	652	3.3	724	27.5	724	1.1	21.353	135.373	g500-H850	m650-U80/M4	3	43
1.0	729	3.0	810	24.6	810	1.0	21.352	151.262	g500-H850	m650-U80/M4	3	43
0.8	881	2.5	979	20.3	979	1.4	21.778	182.844	g500-H1500	m650-U80/M4	3	74
0.7	964	2.2	1071	18.3	1071	2.5	22.613	203.178	g500-H3000	m650-U80/M4	4	122
0.7	966	2.2	1073	18.3	1073	1.3	21.823	203.537	g500-H1500	m650-U80/M4	4	77
0.7	974	2.2	1082	18.4	1082	1.3	21.776	202.237	g500-H1500	m650-U80/M4	3	74
0.7	1068	2.0	1187	16.5	1187	1.2	21.822	225.125	g500-H1500	m650-U80/M4	4	77
0.7	1069	2.0	1188	16.8	1188	1.2	21.603	221.907	g500-H1500	m650-U80/M4	3	74
0.7	1075	2.0	1195	16.4	1195	2.1	22.152	226.604	g500-H3000	m650-U80/M4	4	122
0.6	1181	1.8	1312	14.9	1312	2.1	22.150	248.893	g500-H3000	m650-U80/M4	4	122
0.6	1182	1.8	1314	15.2	1314	1.1	21.603	245.442	g500-H1500	m650-U80/M4	3	74
0.6	1207	1.8	1341	14.6	1341	1.0	21.466	254.431	g500-H1500	m650-U80/M4	4	77
0.5	1335	1.6	1483	13.2	1483	0.9	21.466	281.416	g500-H1500	m650-U80/M4	4	77
0.5	1351	1.6	1501	13.3	1501	0.9	21.425	280.500	g500-H1500	m650-U80/M4	3	74
0.5	1388	1.5	1542	12.7	1542	1.8	22.319	292.511	g500-H3000	m650-U80/M4	4	122
0.5	1524	1.4	1694	11.6	1694	1.7	22.318	321.282	g500-H3000	m650-U80/M4	4	122
0.4	1786	1.2	1984	9.9	1984	1.4	21.770	376.393	g500-H3000	m650-U80/M4	4	122
0.4	1961	1.1	2179	9.0	2179	1.3	21.769	413.415	g500-H3000	m650-U80/M4	4	122
0.3	2168	1.0	2409	8.1	2409	1.2	21.681	457.048	g500-H3000	m650-U80/M4	4	122
0.3	2324	0.9	2583	7.6	2583	1.1	21.506	489.908	g500-H3000	m650-U80/M4	4	122
0.3	2553	0.8	2837	6.9	2837	1.0	21.505	538.095	g500-H3000	m650-U80/M4	4	122



124 Hz: 3 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
71.1	14.2	213	16.0	1764	16.0	2.3	36.400	2.108	g500-H100	m650-U90/M4	2	17
45.9	22.0	138	24.0	1139	24.0	2.5	36.702	3.267	g500-H140	m650-U90/M4	2	19
44.7	22.6	134	25.0	1109	25.0	1.8	36.325	3.354	g500-H100	m650-U90/M4	2	17
44.3	22.8	133	25.0	1098	25.0	3.7	37.330	3.389	g500-H210	m650-U90/M4	2	20
44.3	22.8	133	25.0	1098	25.0	4.1	37.025	3.389	g500-H320	m650-U90/M4	2	22
33.5	30.1	100	33.0	830	33.0	2.1	36.336	4.480	g500-H140	m650-U90/M4	2	19
32.6	30.9	97.8	34.0	809	34.0	1.6	36.135	4.600	g500-H100	m650-U90/M4	2	17
32.3	31.2	96.8	35.0	800	35.0	3.0	36.777	4.648	g500-H210	m650-U90/M4	2	20
32.3	31.2	96.8	35.0	800	35.0	4.0	36.615	4.648	g500-H320	m650-U90/M4	2	22
29.0	34.7	87.1	39.0	720	39.0	1.4	36.229	5.167	g500-H100	m650-U90/M4	2	17
26.9	37.5	80.6	42.0	666	42.0	2.8	37.043	5.583	g500-H210	m650-U90/M4	2	20
26.2	38.5	78.5	43.0	649	43.0	1.8	36.159	5.733	g500-H140	m650-U90/M4	2	19
26.2	38.5	78.5	43.0	649	43.0	4.0	38.666	5.733	g500-H600	m650-U90/M4	2	36
25.5	39.6	76.4	44.0	632	44.0	1.4	36.036	5.887	g500-H100	m650-U90/M4	2	17
24.8	40.6	74.4	45.0	615	45.0	4.0	38.031	6.045	g500-H450	m650-U90/M4	2	25
24.7	40.9	74.0	45.0	612	45.0	3.7	37.455	6.083	g500-H320	m650-U90/M4	2	22
24.0	42.0	72.0	47.0	595	47.0	2.5	36.984	6.250	g500-H210	m650-U90/M4	2	20
23.9	42.2	71.7	47.0	593	47.0	1.7	36.109	6.272	g500-H140	m650-U90/M4	2	19
23.3	43.3	69.9	48.0	578	48.0	1.3	36.007	6.440	g500-H100	m650-U90/M4	2	17
22.7	44.5	68.0	49.0	563	49.0	4.1	37.776	6.613	g500-H450	m650-U90/M4	2	25
21.7	46.5	65.1	52.0	538	52.0	3.1	37.309	6.910	g500-H320	m650-U90/M4	2	22
21.2	47.6	63.5	53.0	525	53.0	1.2	36.085	7.086	g500-H100	m650-U90/M4	2	17
20.6	48.9	61.9	54.0	512	54.0	1.4	36.305	7.269	g500-H140	m650-U90/M4	2	19
19.6	51.5	58.8	57.0	486	57.0	2.2	36.625	7.657	g500-H210	m650-U90/M4	2	20
18.8	53.8	56.3	60.0	465	60.0	1.5	36.011	8.000	g500-H140	m650-U90/M4	2	19
18.3	55.2	54.8	61.0	453	61.0	1.1	35.948	8.214	g500-H100	m650-U90/M4	2	17
18.0	56.1	53.9	62.0	446	62.0	3.0	36.844	8.343	g500-H320	m650-U90/M4	2	22
17.5	57.6	52.5	64.0	434	64.0	2.0	36.593	8.571	g500-H210	m650-U90/M4	2	20
16.6	60.7	49.8	67.0	412	67.0	1.3	36.142	9.029	g500-H140	m650-U90/M4	2	19
16.5	61.0	49.6	68.0	410	68.0	1.1	36.005	9.068	g500-H100	m650-U90/M4	2	17
15.8	63.7	47.5	71.0	393	71.0	2.5	36.766	9.477	g500-H320	m650-U90/M4	2	22
15.3	65.9	45.9	73.0	380	73.0	1.3	35.955	9.800	g500-H140	m650-U90/M4	2	19
15.3	65.9	45.9	73.0	380	73.0	1.8	36.389	9.799	g500-H210	m650-U90/M4	2	20
15.1	67.0	45.2	74.0	373	74.0	3.8	37.609	9.965	g500-H450	m650-U90/M4	2	25
14.9	67.7	44.7	75.0	370	75.0	1.0	35.913	10.063	g500-H100	m650-U90/M4	2	17
14.0	71.8	42.1	80.0	348	80.0	2.5	36.523	10.677	g500-H320	m650-U90/M4	2	22
14.0	72.1	42.0	80.0	347	80.0	1.7	36.313	10.720	g500-H210	m650-U90/M4	2	20
13.3	75.7	40.0	84.0	330	84.0	3.5	37.537	11.262	g500-H450	m650-U90/M4	2	25
13.2	76.2	39.7	85.0	328	85.0	4.0	37.869	11.330	g500-H600	m650-U90/M4	2	36
13.0	77.7	38.9	86.0	322	86.0	1.1	36.040	11.554	g500-H140	m650-U90/M4	2	19
12.8	78.5	38.5	87.0	319	87.0	2.3	36.425	11.680	g500-H320	m650-U90/M4	2	22
12.5	80.7	37.5	90.0	310	90.0	1.5	36.297	12.000	g500-H210	m650-U90/M4	2	20
12.4	81.5	37.1	91.0	307	91.0	2.1	36.476	12.128	g500-H320	m650-U90/M4	2	22
12.2	82.8	36.5	92.0	302	92.0	3.3	37.363	12.320	g500-H450	m650-U90/M4	2	25
12.1	83.3	36.3	93.0	300	93.0	4.1	37.641	12.395	g500-H600	m650-U90/M4	2	36
11.9	85.0	35.6	94.0	294	94.0	1.0	36.010	12.640	g500-H140	m650-U90/M4	2	19
11.3	89.2	33.9	99.0	280	99.0	2.0	36.386	13.268	g500-H320	m650-U90/M4	2	22
11.0	91.9	32.9	102	272	102	1.5	36.175	13.673	g500-H210	m650-U90/M4	2	20
10.8	93.5	32.4	104	268	104	3.0	37.006	13.905	g500-H450	m650-U90/M4	2	25
10.8	93.6	32.3	104	267	104	4.1	37.547	13.920	g500-H600	m650-U90/M4	2	36
10.7	93.8	32.2	104	267	104	1.0	36.001	13.957	g500-H140	m650-U90/M4	2	19



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
10.4	97.4	31.1	108	257	108	4.0	38.861	14.490	g500-H850	m650-U90/M4	2	45
10.1	100	30.2	111	250	111	2.0	36.244	14.898	g500-H320	m650-U90/M4	2	22
9.8	103	29.4	114	243	114	1.3	36.165	15.306	g500-H210	m650-U90/M4	2	20
9.5	106	28.6	117	237	117	2.8	36.969	15.714	g500-H450	m650-U90/M4	2	25
9.5	106	28.5	118	235	118	3.8	37.140	15.810	g500-H600	m650-U90/M4	2	36
9.3	109	27.8	121	230	121	4.0	38.767	16.190	g500-H850	m650-U90/M4	2	45
9.0	113	26.9	125	222	125	1.2	36.092	16.750	g500-H210	m650-U90/M4	2	20
8.9	114	26.6	126	220	126	1.6	36.220	16.923	g500-H320	m650-U90/M4	2	22
8.8	115	26.4	127	218	127	2.6	36.749	17.033	g500-H450	m650-U90/M4	2	25
8.4	119	25.3	133	210	133	3.3	37.083	17.755	g500-H600	m650-U90/M4	2	36
8.2	123	24.7	136	204	136	1.7	36.138	18.250	g500-H320	m650-U90/M4	2	22
8.0	126	24.0	140	198	140	1.1	36.085	18.750	g500-H210	m650-U90/M4	2	20
7.8	129	23.4	144	193	144	2.3	36.725	19.250	g500-H450	m650-U90/M4	2	25
7.7	130	23.2	145	192	145	3.1	36.838	19.367	g500-H600	m650-U90/M4	2	36
7.2	139	21.7	155	179	155	1.4	36.121	20.731	g500-H320	m650-U90/M4	2	22
6.9	146	20.7	162	171	162	2.7	36.800	21.750	g500-H600	m650-U90/M4	2	36
6.9	147	20.6	163	171	163	1.0	35.982	21.802	g500-H210	m650-U90/M4	2	20
6.8	149	20.3	166	168	166	2.0	36.327	22.170	g500-H450	m650-U90/M4	2	25
6.5	155	19.5	173	161	173	3.4	37.453	23.103	g500-H850	m650-U90/M4	2	45
6.3	160	18.9	177	157	177	1.3	36.009	23.754	g500-H320	m650-U90/M4	2	22
6.0	169	18.0	187	149	187	1.8	36.312	25.056	g500-H450	m650-U90/M4	2	25
6.0	170	17.9	188	148	188	2.4	36.379	25.207	g500-H600	m650-U90/M4	2	36
5.8	174	17.4	193	144	193	3.3	37.415	25.815	g500-H850	m650-U90/M4	2	45
5.6	181	16.7	202	138	202	1.3	36.000	26.983	g500-H320	m650-U90/M4	2	22
5.4	185	16.3	206	135	206	1.8	36.189	27.578	g500-H450	m650-U90/M4	2	25
5.3	190	15.9	211	131	211	2.4	36.357	28.310	g500-H600	m650-U90/M4	2	36
5.3	190	15.9	212	131	212	3.2	36.941	28.315	g500-H850	m650-U90/M4	2	45
5.1	199	15.2	221	126	221	1.2	35.952	29.548	g500-H320	m650-U90/M4	2	22
4.8	207	14.4	230	119	230	1.9	36.908	31.197	g500-H600	m650-U90/M4	3	37
4.8	210	14.4	233	119	233	1.6	36.179	31.167	g500-H450	m650-U90/M4	2	25
4.8	211	14.4	234	119	234	2.2	36.223	31.356	g500-H600	m650-U90/M4	2	36
4.7	213	14.2	236	118	236	3.0	36.916	31.639	g500-H850	m650-U90/M4	2	45
4.6	217	13.9	241	115	241	3.2	38.163	32.267	g500-H1500	m650-U90/M4	2	75
4.5	226	13.4	251	111	251	1.1	35.946	33.564	g500-H320	m650-U90/M4	2	22
4.3	232	12.8	258	106	258	1.7	36.893	35.037	g500-H600	m650-U90/M4	3	37
4.3	237	12.8	263	106	263	1.9	36.208	35.214	g500-H600	m650-U90/M4	2	36
4.2	240	12.6	267	104	267	1.4	36.044	35.689	g500-H450	m650-U90/M4	2	25
4.2	240	12.6	267	104	267	3.2	38.125	35.689	g500-H1500	m650-U90/M4	2	75
4.0	250	12.1	278	100	278	2.6	36.519	37.190	g500-H850	m650-U90/M4	2	45
4.0	250	11.9	278	98.4	278	2.3	37.732	37.799	g500-H850	m650-U90/M4	3	46
3.8	263	11.5	293	95.0	293	2.8	37.537	39.160	g500-H1500	m650-U90/M4	2	75
3.8	264	11.3	294	93.2	294	1.5	36.562	39.925	g500-H600	m650-U90/M4	3	37
3.7	271	11.2	301	92.2	301	1.4	36.038	40.333	g500-H450	m650-U90/M4	2	25
3.7	273	11.1	303	91.7	303	1.7	36.064	40.578	g500-H600	m650-U90/M4	2	36
3.6	274	10.9	304	90.0	304	2.1	37.526	41.350	g500-H850	m650-U90/M4	3	46
3.6	279	10.8	310	89.5	310	2.6	36.504	41.556	g500-H850	m650-U90/M4	2	45
3.4	289	10.3	321	85.2	321	1.4	36.458	43.676	g500-H600	m650-U90/M4	3	37
3.5	291	10.4	324	85.9	324	0.9	35.979	43.313	g500-H450	m650-U90/M4	2	25
3.5	291	10.4	324	85.9	324	3.1	37.511	43.313	g500-H1500	m650-U90/M4	2	75
3.4	292	10.2	325	84.3	325	1.0	36.160	44.124	g500-H450	m650-U90/M4	3	26
3.3	304	10.0	337	82.4	337	2.4	36.331	45.136	g500-H850	m650-U90/M4	2	45
3.3	306	9.9	340	81.6	340	1.6	36.055	45.571	g500-H600	m650-U90/M4	2	36



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	306	9.7	340	80.5	340	2.1	37.515	46.204	g500-H850	m650-U90/M4	3	46
3.1	325	9.2	361	75.8	361	1.4	36.450	49.051	g500-H600	m650-U90/M4	3	37
3.1	329	9.2	366	76.0	366	0.9	35.975	48.950	g500-H450	m650-U90/M4	2	25
3.0	330	9.0	367	74.6	367	1.0	36.156	49.867	g500-H450	m650-U90/M4	3	26
3.0	331	9.1	368	75.5	368	1.2	35.993	49.247	g500-H600	m650-U90/M4	2	36
3.0	333	9.1	370	75.2	370	2.4	36.950	49.500	g500-H1500	m650-U90/M4	2	75
3.0	339	8.9	377	73.8	377	2.1	36.322	50.433	g500-H850	m650-U90/M4	2	45
2.8	349	8.5	388	70.5	388	1.8	37.069	52.743	g500-H850	m650-U90/M4	3	46
2.7	368	8.2	409	67.9	409	2.4	36.934	54.750	g500-H1500	m650-U90/M4	2	75
2.7	369	8.1	410	66.8	410	1.2	36.264	55.710	g500-H600	m650-U90/M4	3	37
2.7	372	8.1	413	67.3	413	1.2	35.987	55.307	g500-H600	m650-U90/M4	2	36
2.7	374	8.0	416	65.9	416	0.9	36.051	56.469	g500-H450	m650-U90/M4	3	26
2.5	390	7.6	434	63.1	434	1.7	37.063	58.933	g500-H850	m650-U90/M4	3	46
2.4	414	7.2	460	59.5	460	1.1	36.259	62.566	g500-H600	m650-U90/M4	3	37
2.3	428	7.0	475	57.6	475	1.5	36.792	64.610	g500-H850	m650-U90/M4	3	46
2.2	452	6.6	502	54.5	502	1.0	36.151	68.244	g500-H600	m650-U90/M4	3	37
2.1	472	6.3	524	52.2	524	2.4	38.591	71.238	g500-H1500	m650-U90/M4	3	77
2.1	478	6.2	531	51.5	531	1.3	36.787	72.193	g500-H850	m650-U90/M4	3	46
1.9	522	5.7	580	47.2	580	2.2	38.583	78.794	g500-H1500	m650-U90/M4	3	77
1.8	557	5.4	619	44.2	619	1.3	36.351	84.096	g500-H850	m650-U90/M4	3	46
1.6	622	4.8	691	39.6	691	1.1	36.349	93.966	g500-H850	m650-U90/M4	3	46
1.4	693	4.3	770	35.6	770	1.0	36.205	104.607	g500-H850	m650-U90/M4	3	46
1.3	752	4.0	836	32.8	836	1.7	37.475	113.585	g500-H1500	m650-U90/M4	3	77
1.3	774	3.8	860	31.8	860	0.9	36.203	116.884	g500-H850	m650-U90/M4	3	46
1.2	832	3.6	924	29.6	924	1.5	37.472	125.632	g500-H1500	m650-U90/M4	3	77
1.1	922	3.2	1024	26.7	1024	1.4	36.870	139.211	g500-H1500	m650-U90/M4	3	77
1.0	1020	2.9	1133	24.2	1133	1.2	36.868	153.976	g500-H1500	m650-U90/M4	3	77
0.9	1119	2.7	1244	22.0	1244	2.3	38.061	168.993	g500-H3000	m650-U90/M4	3	122
0.8	1211	2.5	1345	20.3	1345	1.0	36.478	182.844	g500-H1500	m650-U90/M4	3	77
0.8	1229	2.4	1366	20.0	1366	2.0	38.057	185.615	g500-H3000	m650-U90/M4	3	122
0.7	1325	2.2	1473	18.3	1473	1.8	37.313	203.178	g500-H3000	m650-U90/M4	4	125
0.7	1328	2.2	1475	18.3	1475	1.0	36.523	203.537	g500-H1500	m650-U90/M4	4	80
0.7	1339	2.2	1488	18.4	1488	0.9	36.476	202.237	g500-H1500	m650-U90/M4	3	77
0.7	1358	2.2	1509	18.1	1509	1.9	37.467	205.096	g500-H3000	m650-U90/M4	3	122
0.7	1478	2.0	1642	16.4	1642	1.5	36.852	226.604	g500-H3000	m650-U90/M4	4	125
0.7	1492	2.0	1658	16.5	1658	1.7	37.465	225.269	g500-H3000	m650-U90/M4	3	122
0.6	1624	1.8	1804	14.9	1804	1.5	36.850	248.893	g500-H3000	m650-U90/M4	4	125
0.6	1717	1.7	1908	14.3	1908	1.5	36.907	259.250	g500-H3000	m650-U90/M4	3	122
0.5	1886	1.6	2095	13.1	2095	1.3	36.905	284.750	g500-H3000	m650-U90/M4	3	122
0.5	1908	1.5	2120	12.7	2120	1.3	37.019	292.511	g500-H3000	m650-U90/M4	4	125
0.5	2096	1.4	2329	11.6	2329	1.2	37.018	321.282	g500-H3000	m650-U90/M4	4	125
0.4	2455	1.2	2728	9.9	2728	1.0	36.470	376.393	g500-H3000	m650-U90/M4	4	125
0.4	2697	1.1	2997	9.0	2997	0.9	36.469	413.415	g500-H3000	m650-U90/M4	4	125



124 Hz: 4 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
71.1	18.9	213	21.0	1764	21.0	1.7	46.500	2.108	g500-H100	m650-U90/L4	2	20
45.9	29.3	138	33.0	1139	33.0	1.9	46.802	3.267	g500-H140	m650-U90/L4	2	21
44.7	30.0	134	34.0	1109	34.0	1.4	46.425	3.354	g500-H100	m650-U90/L4	2	20
44.3	30.3	133	34.0	1098	34.0	2.8	47.430	3.389	g500-H210	m650-U90/L4	2	22
44.3	30.3	133	34.0	1098	34.0	3.1	47.125	3.389	g500-H320	m650-U90/L4	2	24
33.5	40.1	100	45.0	830	45.0	1.6	46.436	4.480	g500-H140	m650-U90/L4	2	21
32.6	41.2	97.8	46.0	809	46.0	1.2	46.235	4.600	g500-H100	m650-U90/L4	2	20
32.3	41.6	96.8	46.0	800	46.0	2.3	46.877	4.648	g500-H210	m650-U90/L4	2	22
32.3	41.6	96.8	46.0	800	46.0	3.0	46.715	4.648	g500-H320	m650-U90/L4	2	24
29.0	46.3	87.1	52.0	720	52.0	1.1	46.329	5.167	g500-H100	m650-U90/L4	2	20
26.9	50.0	80.6	56.0	666	56.0	2.1	47.143	5.583	g500-H210	m650-U90/L4	2	22
26.2	51.3	78.5	57.0	649	57.0	1.3	46.259	5.733	g500-H140	m650-U90/L4	2	21
26.2	51.3	78.5	57.0	649	57.0	3.0	48.766	5.733	g500-H600	m650-U90/L4	2	39
25.5	52.7	76.4	59.0	632	59.0	1.0	46.136	5.887	g500-H100	m650-U90/L4	2	20
24.8	54.1	74.4	60.0	615	60.0	3.0	48.131	6.045	g500-H450	m650-U90/L4	2	27
24.7	54.5	74.0	61.0	612	61.0	2.8	47.555	6.083	g500-H320	m650-U90/L4	2	24
24.0	56.0	72.0	62.0	595	62.0	1.9	47.084	6.250	g500-H210	m650-U90/L4	2	22
23.9	56.2	71.7	63.0	593	63.0	1.2	46.209	6.272	g500-H140	m650-U90/L4	2	21
23.3	57.7	69.9	64.0	578	64.0	1.0	46.107	6.440	g500-H100	m650-U90/L4	2	20
22.7	59.2	68.0	66.0	563	66.0	3.1	47.876	6.613	g500-H450	m650-U90/L4	2	27
21.7	61.9	65.1	69.0	538	69.0	2.3	47.409	6.910	g500-H320	m650-U90/L4	2	24
20.6	65.1	61.9	73.0	512	73.0	1.1	46.405	7.269	g500-H140	m650-U90/L4	2	21
19.6	68.6	58.8	77.0	486	77.0	1.7	46.725	7.657	g500-H210	m650-U90/L4	2	22
18.8	71.6	56.3	80.0	465	80.0	1.1	46.111	8.000	g500-H140	m650-U90/L4	2	21
18.0	74.7	53.9	83.0	446	83.0	2.2	46.944	8.343	g500-H320	m650-U90/L4	2	24
17.5	76.8	52.5	86.0	434	86.0	1.5	46.693	8.571	g500-H210	m650-U90/L4	2	22
16.6	80.9	49.8	90.0	412	90.0	1.0	46.242	9.029	g500-H140	m650-U90/L4	2	21
15.8	84.9	47.5	95.0	393	95.0	1.9	46.866	9.477	g500-H320	m650-U90/L4	2	24
15.3	87.8	45.9	98.0	380	98.0	0.9	46.055	9.800	g500-H140	m650-U90/L4	2	21
15.3	87.8	45.9	98.0	380	98.0	1.4	46.489	9.799	g500-H210	m650-U90/L4	2	22
15.1	89.2	45.2	100	373	100	2.9	47.709	9.965	g500-H450	m650-U90/L4	2	27
14.0	95.6	42.1	107	348	107	1.8	46.623	10.677	g500-H320	m650-U90/L4	2	24
14.0	96.0	42.0	107	347	107	1.3	46.413	10.720	g500-H210	m650-U90/L4	2	22
13.3	101	40.0	113	330	113	2.6	47.637	11.262	g500-H450	m650-U90/L4	2	27
13.2	102	39.7	113	328	113	3.0	47.969	11.330	g500-H600	m650-U90/L4	2	39
12.8	105	38.5	117	319	117	1.7	46.525	11.680	g500-H320	m650-U90/L4	2	24
12.5	108	37.5	120	310	120	1.2	46.397	12.000	g500-H210	m650-U90/L4	2	22
12.4	109	37.1	121	307	121	1.6	46.576	12.128	g500-H320	m650-U90/L4	2	24
12.2	110	36.5	123	302	123	2.5	47.463	12.320	g500-H450	m650-U90/L4	2	27
12.1	111	36.3	124	300	124	3.1	47.741	12.395	g500-H600	m650-U90/L4	2	39
11.3	119	33.9	133	280	133	1.5	46.486	13.268	g500-H320	m650-U90/L4	2	24
11.0	122	32.9	137	272	137	1.1	46.275	13.673	g500-H210	m650-U90/L4	2	22
10.8	125	32.4	139	268	139	2.3	47.106	13.905	g500-H450	m650-U90/L4	2	27
10.8	125	32.3	139	267	139	3.1	47.647	13.920	g500-H600	m650-U90/L4	2	39
10.4	130	31.1	145	257	145	3.0	48.961	14.490	g500-H850	m650-U90/L4	2	47
10.1	133	30.2	149	250	149	1.5	46.344	14.898	g500-H320	m650-U90/L4	2	24
9.8	137	29.4	153	243	153	1.0	46.265	15.306	g500-H210	m650-U90/L4	2	22
9.5	141	28.6	157	237	157	2.1	47.069	15.714	g500-H450	m650-U90/L4	2	27
9.5	142	28.5	158	235	158	2.8	47.240	15.810	g500-H600	m650-U90/L4	2	39
9.3	145	27.8	162	230	162	3.0	48.867	16.190	g500-H850	m650-U90/L4	2	47
9.0	150	26.9	167	222	167	0.9	46.192	16.750	g500-H210	m650-U90/L4	2	22



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
8.9	152	26.6	169	220	169	1.2	46.320	16.923	g500-H320	m650-U90/L4	2	24
8.8	153	26.4	170	218	170	2.0	46.849	17.033	g500-H450	m650-U90/L4	2	27
8.4	159	25.3	177	210	177	2.5	47.183	17.755	g500-H600	m650-U90/L4	2	39
8.2	163	24.7	182	204	182	1.3	46.238	18.250	g500-H320	m650-U90/L4	2	24
7.8	172	23.4	192	193	192	1.7	46.825	19.250	g500-H450	m650-U90/L4	2	27
7.7	173	23.2	194	192	194	2.3	46.938	19.367	g500-H600	m650-U90/L4	2	39
7.2	186	21.7	207	179	207	1.1	46.221	20.731	g500-H320	m650-U90/L4	2	24
6.9	195	20.7	217	171	217	2.0	46.900	21.750	g500-H600	m650-U90/L4	2	39
6.8	199	20.3	222	168	222	1.5	46.427	22.170	g500-H450	m650-U90/L4	2	27
6.5	207	19.5	231	161	231	2.5	47.553	23.103	g500-H850	m650-U90/L4	2	47
6.3	213	18.9	237	157	237	1.0	46.109	23.754	g500-H320	m650-U90/L4	2	24
6.0	224	18.0	250	149	250	1.3	46.412	25.056	g500-H450	m650-U90/L4	2	27
6.0	226	17.9	252	148	252	1.8	46.479	25.207	g500-H600	m650-U90/L4	2	39
5.8	231	17.4	258	144	258	2.4	47.515	25.815	g500-H850	m650-U90/L4	2	47
5.6	242	16.7	270	138	270	1.0	46.100	26.983	g500-H320	m650-U90/L4	2	24
5.4	247	16.3	276	135	276	1.4	46.289	27.578	g500-H450	m650-U90/L4	2	27
5.3	254	15.9	283	131	283	1.8	46.457	28.310	g500-H600	m650-U90/L4	2	39
5.3	254	15.9	283	131	283	2.4	47.041	28.315	g500-H850	m650-U90/L4	2	47
5.1	265	15.2	295	126	295	0.9	46.052	29.548	g500-H320	m650-U90/L4	2	24
4.8	275	14.4	307	119	307	1.4	47.008	31.197	g500-H600	m650-U90/L4	3	39
4.8	279	14.4	311	119	311	1.2	46.279	31.167	g500-H450	m650-U90/L4	2	27
4.8	281	14.4	313	119	313	1.6	46.323	31.356	g500-H600	m650-U90/L4	2	39
4.7	283	14.2	316	118	316	2.3	47.016	31.639	g500-H850	m650-U90/L4	2	47
4.6	289	13.9	322	115	322	2.4	48.263	32.267	g500-H1500	m650-U90/L4	2	78
4.3	309	12.8	345	106	345	1.3	46.993	35.037	g500-H600	m650-U90/L4	3	39
4.3	315	12.8	352	106	352	1.4	46.308	35.214	g500-H600	m650-U90/L4	2	39
4.2	320	12.6	357	104	357	1.1	46.144	35.689	g500-H450	m650-U90/L4	2	27
4.2	320	12.6	357	104	357	2.4	48.225	35.689	g500-H1500	m650-U90/L4	2	78
4.0	333	12.1	372	100	372	1.9	46.619	37.190	g500-H850	m650-U90/L4	2	47
4.0	333	11.9	372	98.4	372	1.7	47.832	37.799	g500-H850	m650-U90/L4	3	49
3.8	351	11.5	391	95.0	391	2.1	47.637	39.160	g500-H1500	m650-U90/L4	2	78
3.8	352	11.3	393	93.2	393	1.1	46.662	39.925	g500-H600	m650-U90/L4	3	39
3.7	361	11.2	403	92.2	403	1.0	46.138	40.333	g500-H450	m650-U90/L4	2	27
3.7	363	11.1	406	91.7	406	1.3	46.164	40.578	g500-H600	m650-U90/L4	2	39
3.6	365	10.9	407	90.0	407	1.5	47.626	41.350	g500-H850	m650-U90/L4	3	49
3.6	372	10.8	415	89.5	415	1.9	46.604	41.556	g500-H850	m650-U90/L4	2	47
3.4	385	10.3	430	85.2	430	1.0	46.558	43.676	g500-H600	m650-U90/L4	3	39
3.5	388	10.4	433	85.9	433	2.3	47.611	43.313	g500-H1500	m650-U90/L4	2	78
3.3	404	10.0	451	82.4	451	1.8	46.431	45.136	g500-H850	m650-U90/L4	2	47
3.3	408	9.9	455	81.6	455	1.2	46.155	45.571	g500-H600	m650-U90/L4	2	39
3.2	408	9.7	455	80.5	455	1.6	47.615	46.204	g500-H850	m650-U90/L4	3	49
3.1	433	9.2	483	75.8	483	1.0	46.550	49.051	g500-H600	m650-U90/L4	3	39
3.0	443	9.1	495	75.2	495	1.8	47.050	49.500	g500-H1500	m650-U90/L4	2	78
3.0	452	8.9	504	73.8	504	1.6	46.422	50.433	g500-H850	m650-U90/L4	2	47
2.8	465	8.5	519	70.5	519	1.4	47.169	52.743	g500-H850	m650-U90/L4	3	49
2.7	490	8.2	547	67.9	547	1.8	47.034	54.750	g500-H1500	m650-U90/L4	2	78
2.7	491	8.1	548	66.8	548	0.9	46.364	55.710	g500-H600	m650-U90/L4	3	39
2.5	520	7.6	580	63.1	580	1.2	47.163	58.933	g500-H850	m650-U90/L4	3	49
2.3	570	7.0	636	57.6	636	1.1	46.892	64.610	g500-H850	m650-U90/L4	3	49
2.1	628	6.3	701	52.2	701	1.8	48.691	71.238	g500-H1500	m650-U90/L4	3	79
2.1	637	6.2	711	51.5	711	1.0	46.887	72.193	g500-H850	m650-U90/L4	3	49
1.9	695	5.7	776	47.2	776	1.6	48.683	78.794	g500-H1500	m650-U90/L4	3	79



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
1.8	742	5.4	828	44.2	828	1.0	46.451	84.096	g500-H850	m650-U90/L4	3	49
1.3	1002	4.0	1118	32.8	1118	1.3	47.575	113.585	g500-H1500	m650-U90/L4	3	79
1.2	1108	3.6	1237	29.6	1237	1.1	47.572	125.632	g500-H1500	m650-U90/L4	3	79
1.1	1228	3.2	1370	26.7	1370	1.0	46.970	139.211	g500-H1500	m650-U90/L4	3	79
1.0	1358	2.9	1516	24.2	1516	0.9	46.968	153.976	g500-H1500	m650-U90/L4	3	79
0.9	1491	2.7	1663	22.0	1663	1.7	48.161	168.993	g500-H3000	m650-U90/L4	3	124
0.8	1637	2.4	1827	20.0	1827	1.5	48.157	185.615	g500-H3000	m650-U90/L4	3	124
0.7	1765	2.2	1970	18.3	1970	1.4	47.413	203.178	g500-H3000	m650-U90/L4	4	127
0.7	1809	2.2	2019	18.1	2019	1.4	47.567	205.096	g500-H3000	m650-U90/L4	3	124
0.7	1969	2.0	2197	16.4	2197	1.1	46.952	226.604	g500-H3000	m650-U90/L4	4	127
0.7	1987	2.0	2217	16.5	2217	1.3	47.565	225.269	g500-H3000	m650-U90/L4	3	124
0.6	2163	1.8	2413	14.9	2413	1.1	46.950	248.893	g500-H3000	m650-U90/L4	4	127
0.6	2287	1.7	2552	14.3	2552	1.1	47.007	259.250	g500-H3000	m650-U90/L4	3	124
0.5	2512	1.6	2803	13.1	2803	1.0	47.005	284.750	g500-H3000	m650-U90/L4	3	124
0.5	2542	1.5	2836	12.7	2836	1.0	47.119	292.511	g500-H3000	m650-U90/L4	4	127



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
73.1	25.1	219	28.0	1812	28.0	1.7	77.000	2.053	g500-H140	m650-U100/M4	2	26
51.5	35.6	155	40.0	1278	40.0	1.5	76.900	2.912	g500-H140	m650-U100/M4	2	26
45.9	39.9	138	45.0	1139	45.0	4.0	82.800	3.267	g500-H600	m650-U100/M4	2	44
44.3	41.4	133	46.0	1098	46.0	2.0	77.430	3.389	g500-H210	m650-U100/M4	2	28
44.3	41.4	133	46.0	1098	46.0	2.6	77.125	3.389	g500-H320	m650-U100/M4	2	30
43.5	42.1	131	47.0	1080	47.0	4.0	80.843	3.444	g500-H450	m650-U100/M4	2	33
33.5	54.8	100	61.0	830	61.0	3.6	80.153	4.480	g500-H600	m650-U100/M4	2	44
32.3	56.8	96.8	64.0	800	64.0	1.7	76.877	4.648	g500-H210	m650-U100/M4	2	28
32.3	56.8	96.8	64.0	800	64.0	2.2	76.715	4.648	g500-H320	m650-U100/M4	2	30
31.8	57.7	95.3	65.0	788	65.0	3.4	79.113	4.724	g500-H450	m650-U100/M4	2	33
27.9	65.6	83.8	73.0	693	73.0	4.3	82.288	5.368	g500-H850	m650-U100/M4	2	53
26.9	68.3	80.6	76.0	666	76.0	1.5	77.143	5.583	g500-H210	m650-U100/M4	2	28
26.4	69.4	79.3	78.0	655	78.0	3.0	79.543	5.678	g500-H450	m650-U100/M4	2	33
26.2	70.1	78.5	78.0	649	78.0	3.2	78.766	5.733	g500-H600	m650-U100/M4	2	44
24.8	73.9	74.4	83.0	615	83.0	2.9	78.131	6.045	g500-H450	m650-U100/M4	2	33
24.7	74.4	74.0	83.0	612	83.0	2.0	77.555	6.083	g500-H320	m650-U100/M4	2	30
24.0	76.4	72.0	86.0	595	86.0	1.4	77.084	6.250	g500-H210	m650-U100/M4	2	28
23.2	78.9	69.7	88.0	576	88.0	3.4	80.344	6.456	g500-H600	m650-U100/M4	2	44
22.7	80.8	68.0	90.0	563	90.0	2.7	77.876	6.613	g500-H450	m650-U100/M4	2	33
21.7	84.5	65.1	95.0	538	95.0	1.7	77.409	6.910	g500-H320	m650-U100/M4	2	30
20.7	88.6	62.1	99.0	513	99.0	3.2	80.001	7.250	g500-H600	m650-U100/M4	2	44
19.6	93.6	58.8	105	486	105	1.2	76.725	7.657	g500-H210	m650-U100/M4	2	28
19.3	95.2	57.8	107	478	107	2.5	78.421	7.787	g500-H450	m650-U100/M4	2	33
18.0	102	53.9	114	446	114	1.6	76.944	8.343	g500-H320	m650-U100/M4	2	30
17.5	105	52.5	117	434	117	1.1	76.693	8.571	g500-H210	m650-U100/M4	2	28
17.0	108	51.1	120	423	120	2.3	78.304	8.800	g500-H450	m650-U100/M4	2	33
16.9	108	50.8	121	420	121	3.0	78.847	8.853	g500-H600	m650-U100/M4	2	44
15.8	116	47.5	130	393	130	1.4	76.866	9.477	g500-H320	m650-U100/M4	2	30
15.3	120	45.9	134	380	134	1.0	76.489	9.799	g500-H210	m650-U100/M4	2	28
15.1	122	45.3	136	374	136	2.8	78.665	9.943	g500-H600	m650-U100/M4	2	44
15.1	122	45.2	136	373	136	2.1	77.709	9.965	g500-H450	m650-U100/M4	2	33
14.8	124	44.4	139	367	139	3.6	81.029	10.143	g500-H850	m650-U100/M4	2	53
14.0	131	42.1	146	348	146	1.3	76.623	10.677	g500-H320	m650-U100/M4	2	30
14.0	131	42.0	147	347	147	1.0	76.413	10.720	g500-H210	m650-U100/M4	2	28
13.3	138	40.0	154	330	154	1.9	77.637	11.262	g500-H450	m650-U100/M4	2	33
13.2	139	39.7	155	328	155	2.6	77.969	11.330	g500-H600	m650-U100/M4	2	44
13.2	139	39.6	155	328	155	3.3	80.123	11.360	g500-H850	m650-U100/M4	2	53
12.8	143	38.5	160	319	160	1.3	76.525	11.680	g500-H320	m650-U100/M4	2	30
12.4	148	37.1	166	307	166	1.1	76.576	12.128	g500-H320	m650-U100/M4	2	30
12.2	151	36.5	169	302	169	1.8	77.463	12.320	g500-H450	m650-U100/M4	2	33
12.1	151	36.4	169	301	169	4.3	86.222	12.362	g500-H1500	m650-U100/M4	2	83
12.1	152	36.3	170	300	170	2.4	77.741	12.395	g500-H600	m650-U100/M4	2	44
11.8	155	35.5	174	293	174	3.1	79.969	12.693	g500-H850	m650-U100/M4	2	53
11.3	162	33.9	182	280	182	1.1	76.486	13.268	g500-H320	m650-U100/M4	2	30
11.0	167	32.9	187	272	187	4.3	85.963	13.673	g500-H1500	m650-U100/M4	2	83
10.8	170	32.4	190	268	190	1.7	77.106	13.905	g500-H450	m650-U100/M4	2	33
10.8	170	32.3	190	267	190	2.2	77.647	13.920	g500-H600	m650-U100/M4	2	44
10.4	177	31.1	198	257	198	2.8	78.961	14.490	g500-H850	m650-U100/M4	2	53
10.1	182	30.2	204	250	204	1.1	76.344	14.898	g500-H320	m650-U100/M4	2	30
9.5	192	28.6	215	237	215	1.5	77.069	15.714	g500-H450	m650-U100/M4	2	33
9.5	193	28.5	216	235	216	2.1	77.240	15.810	g500-H600	m650-U100/M4	2	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
9.3	198	27.8	221	230	221	2.6	78.867	16.190	g500-H850	m650-U100/M4	2	53
8.8	208	26.4	233	218	233	1.4	76.849	17.033	g500-H450	m650-U100/M4	2	33
8.5	217	25.4	243	210	243	2.5	78.287	17.750	g500-H850	m650-U100/M4	2	53
8.4	217	25.3	243	210	243	1.8	77.183	17.755	g500-H600	m650-U100/M4	2	44
8.2	223	24.7	250	204	250	0.9	76.238	18.250	g500-H320	m650-U100/M4	2	30
7.8	235	23.4	263	193	263	1.3	76.825	19.250	g500-H450	m650-U100/M4	2	33
7.7	237	23.2	265	192	265	1.7	76.938	19.367	g500-H600	m650-U100/M4	2	44
7.6	243	22.7	271	188	271	2.3	78.224	19.833	g500-H850	m650-U100/M4	2	53
7.3	251	21.9	281	181	281	3.1	80.760	20.533	g500-H1500	m650-U100/M4	2	83
6.9	266	20.7	298	171	298	1.5	76.900	21.750	g500-H600	m650-U100/M4	2	44
6.8	271	20.3	303	168	303	1.1	76.427	22.170	g500-H450	m650-U100/M4	2	33
6.6	278	19.8	311	164	311	3.1	80.666	22.711	g500-H1500	m650-U100/M4	2	83
6.5	282	19.5	316	161	316	2.0	77.553	23.103	g500-H850	m650-U100/M4	2	53
6.0	305	18.0	341	149	341	2.6	79.590	24.933	g500-H1500	m650-U100/M4	2	83
6.0	306	18.0	343	149	343	1.0	76.412	25.056	g500-H450	m650-U100/M4	2	33
6.0	308	17.9	345	148	345	1.3	76.479	25.207	g500-H600	m650-U100/M4	2	44
5.8	316	17.4	353	144	353	1.8	77.515	25.815	g500-H850	m650-U100/M4	2	53
5.4	337	16.3	377	135	377	1.0	76.289	27.578	g500-H450	m650-U100/M4	2	33
5.4	337	16.3	377	135	377	3.0	79.527	27.578	g500-H1500	m650-U100/M4	2	83
5.3	346	15.9	387	131	387	1.3	76.457	28.310	g500-H600	m650-U100/M4	2	44
5.3	346	15.9	387	131	387	1.8	77.041	28.315	g500-H850	m650-U100/M4	2	53
5.1	356	15.2	398	126	398	1.6	78.623	29.536	g500-H850	m650-U100/M4	3	54
5.0	365	15.1	408	125	408	3.0	83.204	29.822	g500-H3000	m650-U100/M4	2	125
4.8	376	14.4	420	119	420	1.1	77.008	31.197	g500-H600	m650-U100/M4	3	45
4.8	383	14.4	429	119	429	1.2	76.323	31.356	g500-H600	m650-U100/M4	2	44
4.7	387	14.2	433	118	433	1.7	77.016	31.639	g500-H850	m650-U100/M4	2	53
4.6	395	13.9	441	115	441	2.4	78.263	32.267	g500-H1500	m650-U100/M4	2	83
4.5	397	13.6	445	113	445	1.4	78.601	33.003	g500-H850	m650-U100/M4	3	54
4.6	400	13.7	448	114	448	3.0	83.103	32.756	g500-H3000	m650-U100/M4	2	125
4.3	422	12.8	472	106	472	0.9	76.993	35.037	g500-H600	m650-U100/M4	3	45
4.3	431	12.8	482	106	482	1.1	76.308	35.214	g500-H600	m650-U100/M4	2	44
4.2	436	12.6	488	104	488	2.4	78.225	35.689	g500-H1500	m650-U100/M4	2	83
4.1	443	12.4	495	103	495	2.5	81.277	36.193	g500-H3000	m650-U100/M4	2	125
4.0	455	12.1	509	100	509	1.4	76.619	37.190	g500-H850	m650-U100/M4	2	53
4.0	455	11.9	509	98.4	509	1.2	77.832	37.799	g500-H850	m650-U100/M4	3	54
3.8	479	11.5	536	95.0	536	2.0	77.637	39.160	g500-H1500	m650-U100/M4	2	83
3.8	486	11.3	544	93.6	544	2.5	81.208	39.753	g500-H3000	m650-U100/M4	2	125
3.6	498	10.9	557	90.0	557	1.1	77.626	41.350	g500-H850	m650-U100/M4	3	54
3.6	508	10.8	568	89.5	568	1.4	76.604	41.556	g500-H850	m650-U100/M4	2	53
3.5	530	10.4	593	85.9	593	2.2	77.611	43.313	g500-H1500	m650-U100/M4	2	83
3.3	552	10.0	617	82.4	617	1.3	76.431	45.136	g500-H850	m650-U100/M4	2	53
3.2	556	9.7	623	80.5	623	1.2	77.615	46.204	g500-H850	m650-U100/M4	3	54
3.3	559	9.8	626	81.3	626	2.2	79.443	45.750	g500-H3000	m650-U100/M4	2	125
3.0	601	9.0	672	74.6	672	1.9	80.863	49.867	g500-H1500	m650-U100/M4	3	85
3.0	605	9.1	677	75.2	677	1.7	77.050	49.500	g500-H1500	m650-U100/M4	2	83
3.0	614	9.0	687	74.0	687	2.2	79.400	50.250	g500-H3000	m650-U100/M4	2	125
3.0	617	8.9	690	73.8	690	1.2	76.422	50.433	g500-H850	m650-U100/M4	2	53
2.8	635	8.5	711	70.5	711	1.0	77.169	52.743	g500-H850	m650-U100/M4	3	54
2.7	669	8.2	749	67.9	749	1.7	77.034	54.750	g500-H1500	m650-U100/M4	2	83
2.7	673	8.1	753	66.6	753	1.7	80.069	55.851	g500-H1500	m650-U100/M4	3	85
2.4	744	7.3	832	60.2	832	1.5	80.057	61.774	g500-H1500	m650-U100/M4	3	85
2.3	780	7.0	872	57.5	872	2.9	85.527	64.744	g500-H3000	m650-U100/M4	3	130



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
2.1	856	6.3	958	52.3	958	2.6	85.506	71.112	g500-H3000	m650-U100/M4	3	130
2.1	858	6.3	960	52.2	960	1.3	78.691	71.238	g500-H1500	m650-U100/M4	3	85
1.9	949	5.7	1062	47.2	1062	1.2	78.683	78.794	g500-H1500	m650-U100/M4	3	85
1.7	1051	5.2	1176	42.6	1176	1.2	78.107	87.267	g500-H1500	m650-U100/M4	3	85
1.6	1162	4.7	1301	38.5	1301	1.1	78.102	96.522	g500-H1500	m650-U100/M4	3	85
1.4	1295	4.2	1449	34.6	1449	1.9	80.508	107.541	g500-H3000	m650-U100/M4	3	130
1.3	1368	4.0	1531	32.8	1531	0.9	77.575	113.585	g500-H1500	m650-U100/M4	3	85
1.3	1422	3.8	1592	31.5	1592	1.8	80.500	118.119	g500-H3000	m650-U100/M4	3	130
1.1	1572	3.4	1760	28.5	1760	1.6	79.419	130.585	g500-H3000	m650-U100/M4	3	130
1.0	1727	3.1	1933	25.9	1933	1.4	79.414	143.430	g500-H3000	m650-U100/M4	3	130
0.9	2035	2.7	2277	22.0	2277	1.2	78.161	168.993	g500-H3000	m650-U100/M4	3	130
0.8	2235	2.4	2501	20.0	2501	1.1	78.157	185.615	g500-H3000	m650-U100/M4	3	130
0.7	2410	2.2	2697	18.3	2697	1.0	77.413	203.178	g500-H3000	m650-U100/M4	4	133
0.7	2470	2.2	2764	18.1	2764	1.0	77.567	205.096	g500-H3000	m650-U100/M4	3	130
0.7	2713	2.0	3035	16.5	3035	0.9	77.565	225.269	g500-H3000	m650-U100/M4	3	130



124 Hz: 7.5 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
73.1	32.1	219	38.0	1812	38.0	1.2	98.600	2.053	g500-H140	m650-U100/L4	2	30
51.5	45.5	155	55.0	1278	55.0	1.1	98.500	2.912	g500-H140	m650-U100/L4	2	30
45.9	51.0	138	61.0	1139	61.0	2.9	104.400	3.267	g500-H600	m650-U100/L4	2	48
44.3	52.9	133	63.0	1098	63.0	1.5	99.030	3.389	g500-H210	m650-U100/L4	2	32
44.3	52.9	133	63.0	1098	63.0	1.9	98.725	3.389	g500-H320	m650-U100/L4	2	34
43.5	53.8	131	64.0	1080	64.0	2.9	102.443	3.444	g500-H450	m650-U100/L4	2	37
33.5	70.0	100	84.0	830	84.0	2.6	101.753	4.480	g500-H600	m650-U100/L4	2	48
32.3	72.6	96.8	87.0	800	87.0	1.2	98.477	4.648	g500-H210	m650-U100/L4	2	32
32.3	72.6	96.8	87.0	800	87.0	1.6	98.315	4.648	g500-H320	m650-U100/L4	2	34
31.8	73.8	95.3	88.0	788	88.0	2.5	100.713	4.724	g500-H450	m650-U100/L4	2	37
27.9	83.9	83.8	101	693	101	3.2	103.888	5.368	g500-H850	m650-U100/L4	2	57
26.9	87.2	80.6	105	666	105	1.1	98.743	5.583	g500-H210	m650-U100/L4	2	32
26.4	88.7	79.3	106	655	106	2.2	101.143	5.678	g500-H450	m650-U100/L4	2	37
26.2	89.6	78.5	107	649	107	2.3	100.366	5.733	g500-H600	m650-U100/L4	2	48
24.8	94.4	74.4	113	615	113	2.1	99.731	6.045	g500-H450	m650-U100/L4	2	37
24.7	95.0	74.0	114	612	114	1.5	99.155	6.083	g500-H320	m650-U100/L4	2	34
24.0	97.6	72.0	117	595	117	1.0	98.684	6.250	g500-H210	m650-U100/L4	2	32
23.2	101	69.7	121	576	121	2.5	101.944	6.456	g500-H600	m650-U100/L4	2	48
22.7	103	68.0	124	563	124	2.0	99.476	6.613	g500-H450	m650-U100/L4	2	37
21.7	108	65.1	129	538	129	1.2	99.009	6.910	g500-H320	m650-U100/L4	2	34
20.7	113	62.1	136	513	136	2.4	101.601	7.250	g500-H600	m650-U100/L4	2	48
19.3	122	57.8	146	478	146	1.8	100.021	7.787	g500-H450	m650-U100/L4	2	37
18.0	130	53.9	156	446	156	1.2	98.544	8.343	g500-H320	m650-U100/L4	2	34
17.0	138	51.1	165	423	165	1.7	99.904	8.800	g500-H450	m650-U100/L4	2	37
16.9	138	50.8	166	420	166	2.2	100.447	8.853	g500-H600	m650-U100/L4	2	48
15.8	148	47.5	177	393	177	1.0	98.466	9.477	g500-H320	m650-U100/L4	2	34
15.1	155	45.3	186	374	186	2.0	100.265	9.943	g500-H600	m650-U100/L4	2	48
15.1	156	45.2	187	373	187	1.5	99.309	9.965	g500-H450	m650-U100/L4	2	37
14.8	158	44.4	190	367	190	2.6	102.629	10.143	g500-H850	m650-U100/L4	2	57
14.0	167	42.1	200	348	200	1.0	98.223	10.677	g500-H320	m650-U100/L4	2	34
13.3	176	40.0	211	330	211	1.4	99.237	11.262	g500-H450	m650-U100/L4	2	37
13.2	177	39.7	212	328	212	1.9	99.569	11.330	g500-H600	m650-U100/L4	2	48
13.2	178	39.6	213	328	213	2.4	101.723	11.360	g500-H850	m650-U100/L4	2	57
12.8	182	38.5	219	319	219	0.9	98.125	11.680	g500-H320	m650-U100/L4	2	34
12.2	192	36.5	231	302	231	1.3	99.063	12.320	g500-H450	m650-U100/L4	2	37
12.1	193	36.4	231	301	231	3.2	107.822	12.362	g500-H1500	m650-U100/L4	2	87
12.1	194	36.3	232	300	232	1.8	99.341	12.395	g500-H600	m650-U100/L4	2	48
11.8	198	35.5	238	293	238	2.3	101.569	12.693	g500-H850	m650-U100/L4	2	57
11.0	214	32.9	256	272	256	3.2	107.563	13.673	g500-H1500	m650-U100/L4	2	87
10.8	217	32.4	260	268	260	1.2	98.706	13.905	g500-H450	m650-U100/L4	2	37
10.8	217	32.3	261	267	261	1.6	99.247	13.920	g500-H600	m650-U100/L4	2	48
10.4	226	31.1	271	257	271	2.1	100.561	14.490	g500-H850	m650-U100/L4	2	57
9.5	246	28.6	294	237	294	1.1	98.669	15.714	g500-H450	m650-U100/L4	2	37
9.5	247	28.5	296	235	296	1.5	98.840	15.810	g500-H600	m650-U100/L4	2	48
9.3	253	27.8	303	230	303	1.9	100.467	16.190	g500-H850	m650-U100/L4	2	57
8.8	266	26.4	319	218	319	1.0	98.449	17.033	g500-H450	m650-U100/L4	2	37
8.5	277	25.4	332	210	332	1.8	99.887	17.750	g500-H850	m650-U100/L4	2	57
8.4	277	25.3	332	210	332	1.3	98.783	17.755	g500-H600	m650-U100/L4	2	48
7.8	301	23.4	360	193	360	0.9	98.425	19.250	g500-H450	m650-U100/L4	2	37
7.7	303	23.2	363	192	363	1.2	98.538	19.367	g500-H600	m650-U100/L4	2	48
7.6	310	22.7	371	188	371	1.7	99.824	19.833	g500-H850	m650-U100/L4	2	57



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
7.3	321	21.9	384	181	384	2.3	102.360	20.533	g500-H1500	m650-U100/L4	2	87
6.9	340	20.7	407	171	407	1.1	98.500	21.750	g500-H600	m650-U100/L4	2	48
6.6	355	19.8	425	164	425	2.3	102.266	22.711	g500-H1500	m650-U100/L4	2	87
6.5	361	19.5	433	161	433	1.5	99.153	23.103	g500-H850	m650-U100/L4	2	57
6.0	390	18.0	467	149	467	1.9	101.190	24.933	g500-H1500	m650-U100/L4	2	87
6.0	394	17.9	472	148	472	0.9	98.079	25.207	g500-H600	m650-U100/L4	2	48
5.8	403	17.4	483	144	483	1.3	99.115	25.815	g500-H850	m650-U100/L4	2	57
5.4	431	16.3	516	135	516	2.2	101.127	27.578	g500-H1500	m650-U100/L4	2	87
5.3	442	15.9	530	131	530	1.0	98.057	28.310	g500-H600	m650-U100/L4	2	48
5.3	442	15.9	530	131	530	1.4	98.641	28.315	g500-H850	m650-U100/L4	2	57
5.1	455	15.2	545	126	545	1.2	100.223	29.536	g500-H850	m650-U100/L4	3	58
5.0	466	15.1	558	125	558	2.2	104.804	29.822	g500-H3000	m650-U100/L4	2	129
4.7	494	14.2	592	118	592	1.2	98.616	31.639	g500-H850	m650-U100/L4	2	57
4.6	504	13.9	604	115	604	1.8	99.863	32.267	g500-H1500	m650-U100/L4	2	87
4.5	508	13.6	609	113	609	1.0	100.201	33.003	g500-H850	m650-U100/L4	3	58
4.6	512	13.7	613	114	613	2.2	104.703	32.756	g500-H3000	m650-U100/L4	2	129
4.2	558	12.6	668	104	668	1.8	99.825	35.689	g500-H1500	m650-U100/L4	2	87
4.1	565	12.4	678	103	678	1.8	102.877	36.193	g500-H3000	m650-U100/L4	2	129
4.0	581	12.1	696	100	696	1.0	98.219	37.190	g500-H850	m650-U100/L4	2	57
4.0	582	11.9	697	98.4	697	0.9	99.432	37.799	g500-H850	m650-U100/L4	3	58
3.8	612	11.5	733	95.0	733	1.5	99.237	39.160	g500-H1500	m650-U100/L4	2	87
3.8	621	11.3	744	93.6	744	1.8	102.808	39.753	g500-H3000	m650-U100/L4	2	129
3.6	649	10.8	778	89.5	778	1.0	98.204	41.556	g500-H850	m650-U100/L4	2	57
3.5	677	10.4	811	85.9	811	1.6	99.211	43.313	g500-H1500	m650-U100/L4	2	87
3.3	705	10.0	845	82.4	845	0.9	98.031	45.136	g500-H850	m650-U100/L4	2	57
3.3	715	9.8	857	81.3	857	1.6	101.043	45.750	g500-H3000	m650-U100/L4	2	129
3.0	767	9.0	920	74.6	920	1.4	102.463	49.867	g500-H1500	m650-U100/L4	3	89
3.0	773	9.1	927	75.2	927	1.3	98.650	49.500	g500-H1500	m650-U100/L4	2	87
3.0	785	9.0	941	74.0	941	1.6	101.000	50.250	g500-H3000	m650-U100/L4	2	129
2.7	855	8.2	1025	67.9	1025	1.3	98.634	54.750	g500-H1500	m650-U100/L4	2	87
2.7	859	8.1	1030	66.6	1030	1.2	101.669	55.851	g500-H1500	m650-U100/L4	3	89
2.4	951	7.3	1139	60.2	1139	1.1	101.657	61.774	g500-H1500	m650-U100/L4	3	89
2.3	996	7.0	1194	57.5	1194	2.1	107.127	64.744	g500-H3000	m650-U100/L4	3	134
2.1	1094	6.3	1312	52.3	1312	1.9	107.106	71.112	g500-H3000	m650-U100/L4	3	134
2.1	1096	6.3	1314	52.2	1314	1.0	100.291	71.238	g500-H1500	m650-U100/L4	3	89
1.4	1655	4.2	1984	34.6	1984	1.4	102.108	107.541	g500-H3000	m650-U100/L4	3	134
1.3	1817	3.8	2179	31.5	2179	1.3	102.100	118.119	g500-H3000	m650-U100/L4	3	134
1.1	2009	3.4	2409	28.5	2409	1.2	101.019	130.585	g500-H3000	m650-U100/L4	3	134
1.0	2207	3.1	2645	25.9	2645	1.1	101.014	143.430	g500-H3000	m650-U100/L4	3	134



124 Hz: 11 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
51.4	69.9	274	80.0	1275	80.0	2.0	159.800	2.917	g500-H600	m650-U112/M4	2	54
47.7	75.4	254	86.0	1182	86.0	2.6	165.897	3.147	g500-H850	m650-U112/M4	2	63
45.9	78.3	245	89.0	1139	89.0	2.0	158.700	3.267	g500-H600	m650-U112/M4	2	54
44.3	81.2	236	93.0	1098	93.0	1.3	153.025	3.389	g500-H320	m650-U112/M4	2	40
43.5	82.5	232	94.0	1080	94.0	2.0	156.743	3.444	g500-H450	m650-U112/M4	2	43
34.4	105	183	119	853	119	2.3	160.586	4.362	g500-H850	m650-U112/M4	2	63
33.5	107	179	123	830	123	1.8	156.053	4.480	g500-H600	m650-U112/M4	2	54
32.3	111	172	127	800	127	1.1	152.615	4.648	g500-H320	m650-U112/M4	2	40
31.8	113	169	129	788	129	1.7	155.013	4.724	g500-H450	m650-U112/M4	2	43
27.9	129	149	147	693	147	2.2	158.188	5.368	g500-H850	m650-U112/M4	2	63
26.4	136	141	155	655	155	1.5	155.443	5.678	g500-H450	m650-U112/M4	2	43
26.2	137	140	157	649	157	1.6	154.666	5.733	g500-H600	m650-U112/M4	2	54
25.2	143	135	163	626	163	2.5	162.232	5.946	g500-H850	m650-U112/M4	2	63
24.8	145	132	165	615	165	1.4	154.031	6.045	g500-H450	m650-U112/M4	2	43
24.7	146	132	166	612	166	1.0	153.455	6.083	g500-H320	m650-U112/M4	2	40
24.0	150	128	171	596	171	3.3	170.663	6.245	g500-H1500	m650-U112/M4	2	93
23.2	155	124	177	576	177	1.7	156.244	6.456	g500-H600	m650-U112/M4	2	54
22.7	159	121	181	563	181	1.4	153.776	6.613	g500-H450	m650-U112/M4	2	43
22.6	159	120	182	560	182	2.4	161.669	6.644	g500-H850	m650-U112/M4	2	63
20.7	174	110	198	513	198	1.6	155.901	7.250	g500-H600	m650-U112/M4	2	54
19.3	187	103	213	478	213	1.2	154.321	7.787	g500-H450	m650-U112/M4	2	43
18.2	198	97.1	225	451	225	2.0	158.678	8.241	g500-H850	m650-U112/M4	2	63
17.0	211	90.9	241	423	241	1.1	154.204	8.800	g500-H450	m650-U112/M4	2	43
16.9	212	90.4	242	420	242	1.5	154.747	8.853	g500-H600	m650-U112/M4	2	54
16.6	216	88.8	247	413	247	3.3	168.850	9.010	g500-H1500	m650-U112/M4	2	93
16.3	221	86.9	252	404	252	1.9	158.385	9.208	g500-H850	m650-U112/M4	2	63
15.1	238	80.5	272	374	272	1.4	154.565	9.943	g500-H600	m650-U112/M4	2	54
15.1	239	80.3	273	373	273	1.0	153.609	9.965	g500-H450	m650-U112/M4	2	43
14.8	243	78.9	278	367	278	1.8	156.929	10.143	g500-H850	m650-U112/M4	2	63
14.6	246	77.9	281	362	281	3.0	164.982	10.267	g500-H1500	m650-U112/M4	2	93
13.3	270	71.0	308	330	308	1.0	153.537	11.262	g500-H450	m650-U112/M4	2	43
13.2	272	70.6	310	328	310	1.3	153.869	11.330	g500-H600	m650-U112/M4	2	54
13.2	272	70.5	311	328	311	3.0	164.606	11.356	g500-H1500	m650-U112/M4	2	93
13.2	272	70.4	311	328	311	1.7	156.023	11.360	g500-H850	m650-U112/M4	2	63
12.9	278	68.9	318	320	318	3.3	182.115	11.619	g500-H3000	m650-U112/M4	2	135
12.2	295	64.9	337	302	337	0.9	153.363	12.320	g500-H450	m650-U112/M4	2	43
12.1	296	64.7	338	301	338	2.6	162.122	12.362	g500-H1500	m650-U112/M4	2	93
12.1	297	64.5	339	300	339	1.2	153.641	12.395	g500-H600	m650-U112/M4	2	54
11.8	304	63.0	347	293	347	1.5	155.869	12.693	g500-H850	m650-U112/M4	2	63
11.8	306	62.7	349	292	349	3.3	181.449	12.762	g500-H3000	m650-U112/M4	2	135
11.0	328	58.5	374	272	374	2.6	161.863	13.673	g500-H1500	m650-U112/M4	2	93
10.8	334	57.5	381	267	381	1.1	153.547	13.920	g500-H600	m650-U112/M4	2	54
10.4	347	55.2	396	257	396	1.4	154.861	14.490	g500-H850	m650-U112/M4	2	63
9.9	363	52.8	415	246	415	2.3	159.806	15.156	g500-H1500	m650-U112/M4	2	93
9.5	379	50.6	433	235	433	1.0	153.140	15.810	g500-H600	m650-U112/M4	2	54
9.3	388	49.4	443	230	443	1.3	154.767	16.190	g500-H850	m650-U112/M4	2	63
8.9	402	47.7	459	222	459	2.3	159.634	16.763	g500-H1500	m650-U112/M4	2	93
8.5	425	45.1	486	210	486	1.2	154.187	17.750	g500-H850	m650-U112/M4	2	63
8.4	426	45.1	486	210	486	0.9	153.083	17.755	g500-H600	m650-U112/M4	2	54
8.0	449	42.7	513	198	513	2.2	167.000	18.752	g500-H3000	m650-U112/M4	2	135
7.6	475	40.3	543	188	543	1.1	154.124	19.833	g500-H850	m650-U112/M4	2	63



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
7.3	492	39.0	562	181	562	1.8	156.660	20.533	g500-H1500	m650-U112/M4	2	93
7.3	494	38.8	564	181	564	2.2	166.745	20.596	g500-H3000	m650-U112/M4	2	135
6.6	544	35.2	621	164	621	1.8	156.566	22.711	g500-H1500	m650-U112/M4	2	93
6.5	552	34.7	631	161	631	1.9	163.150	23.044	g500-H3000	m650-U112/M4	2	135
6.5	554	34.6	632	161	632	1.0	153.453	23.103	g500-H850	m650-U112/M4	2	63
6.0	598	32.1	682	149	682	1.5	155.490	24.933	g500-H1500	m650-U112/M4	2	93
5.9	607	31.6	693	147	693	1.9	162.981	25.311	g500-H3000	m650-U112/M4	2	135
5.4	661	29.0	755	135	755	1.7	155.427	27.578	g500-H1500	m650-U112/M4	2	93
5.3	679	28.3	775	131	775	0.9	152.941	28.315	g500-H850	m650-U112/M4	2	63
5.0	715	26.8	816	125	816	1.7	159.104	29.822	g500-H3000	m650-U112/M4	2	135
4.6	773	24.8	883	115	883	1.4	154.163	32.267	g500-H1500	m650-U112/M4	2	93
4.6	785	24.4	896	114	896	1.7	159.003	32.756	g500-H3000	m650-U112/M4	2	135
4.2	855	22.4	976	104	976	1.3	154.125	35.689	g500-H1500	m650-U112/M4	2	93
4.1	867	22.1	990	103	990	1.4	157.177	36.193	g500-H3000	m650-U112/M4	2	135
3.8	939	20.4	1071	95.0	1071	1.2	153.537	39.160	g500-H1500	m650-U112/M4	2	93
3.8	953	20.1	1088	93.6	1088	1.4	157.108	39.753	g500-H3000	m650-U112/M4	2	135
3.7	956	19.7	1092	91.8	1092	1.0	158.228	40.517	g500-H1500	m650-U112/M4	3	95
3.5	1038	18.5	1185	85.9	1185	1.2	153.511	43.313	g500-H1500	m650-U112/M4	2	93
3.3	1058	17.9	1208	83.0	1208	0.9	158.204	44.814	g500-H1500	m650-U112/M4	3	95
3.3	1096	17.5	1252	81.3	1252	1.3	155.343	45.750	g500-H3000	m650-U112/M4	2	135
3.2	1114	17.0	1272	78.8	1272	1.9	167.542	47.186	g500-H3000	m650-U112/M4	3	140
3.0	1177	16.0	1344	74.6	1344	0.9	156.763	49.867	g500-H1500	m650-U112/M4	3	95
3.0	1204	15.9	1375	74.0	1375	1.3	155.300	50.250	g500-H3000	m650-U112/M4	2	135
2.9	1223	15.4	1397	71.8	1397	1.8	167.502	51.828	g500-H3000	m650-U112/M4	3	140
2.8	1269	14.9	1449	69.2	1449	1.7	163.974	53.770	g500-H3000	m650-U112/M4	3	140
2.5	1394	13.5	1592	63.0	1592	1.6	163.943	59.059	g500-H3000	m650-U112/M4	3	140
2.3	1528	12.4	1745	57.5	1745	1.4	161.427	64.744	g500-H3000	m650-U112/M4	3	140
2.1	1679	11.2	1916	52.3	1916	1.3	161.406	71.112	g500-H3000	m650-U112/M4	3	140
1.9	1874	10.1	2139	46.9	2139	1.2	159.344	79.375	g500-H3000	m650-U112/M4	3	140
1.7	2058	9.2	2350	42.7	2350	1.2	159.330	87.183	g500-H3000	m650-U112/M4	3	140
1.4	2539	7.4	2898	34.6	2898	1.0	156.408	107.541	g500-H3000	m650-U112/M4	3	140



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
51.4	97.9	154	109	1275	109	1.5	328.400	2.917	g500-H600	m650-U132/S4	2	73
47.7	106	143	118	1182	118	1.9	334.497	3.147	g500-H850	m650-U132/S4	2	82
45.9	110	138	122	1139	122	1.5	327.300	3.267	g500-H600	m650-U132/S4	2	73
43.5	116	131	129	1080	129	1.5	325.343	3.444	g500-H450	m650-U132/S4	2	62
40.1	126	120	140	994	140	4.1	358.196	3.743	g500-H1500	m650-U132/S4	2	112
34.4	146	103	163	853	163	1.7	329.186	4.362	g500-H850	m650-U132/S4	2	82
33.5	150	100	167	830	167	1.3	324.653	4.480	g500-H600	m650-U132/S4	2	73
31.8	159	95.3	176	788	176	1.2	323.613	4.724	g500-H450	m650-U132/S4	2	62
31.5	160	94.6	178	782	178	3.8	348.088	4.758	g500-H1500	m650-U132/S4	2	112
27.9	180	83.8	201	693	201	1.6	326.788	5.368	g500-H850	m650-U132/S4	2	82
27.8	181	83.3	202	689	202	3.7	353.150	5.400	g500-H1500	m650-U132/S4	2	112
26.4	191	79.3	212	655	212	1.1	324.043	5.678	g500-H450	m650-U132/S4	2	62
26.2	193	78.5	214	649	214	1.2	323.266	5.733	g500-H600	m650-U132/S4	2	73
25.2	200	75.7	222	626	222	1.8	330.832	5.946	g500-H850	m650-U132/S4	2	82
24.8	203	74.4	226	615	226	1.1	322.631	6.045	g500-H450	m650-U132/S4	2	62
24.0	210	72.1	233	596	233	3.5	339.263	6.245	g500-H1500	m650-U132/S4	2	112
23.2	217	69.7	241	576	241	1.2	324.844	6.456	g500-H600	m650-U132/S4	2	73
22.7	222	68.0	247	563	247	1.0	322.376	6.613	g500-H450	m650-U132/S4	2	62
22.6	223	67.7	248	560	248	1.7	330.269	6.644	g500-H850	m650-U132/S4	2	82
21.9	230	65.6	256	542	256	3.3	344.965	6.864	g500-H1500	m650-U132/S4	2	112
20.7	243	62.1	271	513	271	1.2	324.501	7.250	g500-H600	m650-U132/S4	2	73
19.8	255	59.3	284	490	284	3.2	344.124	7.592	g500-H1500	m650-U132/S4	2	112
18.2	277	54.6	308	451	308	1.5	327.278	8.241	g500-H850	m650-U132/S4	2	82
16.9	297	50.8	331	420	331	1.1	323.347	8.853	g500-H600	m650-U132/S4	2	73
16.6	302	49.9	337	413	337	2.9	337.450	9.010	g500-H1500	m650-U132/S4	2	112
16.3	309	48.9	344	404	344	1.4	326.985	9.208	g500-H850	m650-U132/S4	2	82
15.1	334	45.3	371	374	371	1.0	323.165	9.943	g500-H600	m650-U132/S4	2	73
15.0	336	45.0	374	372	374	4.6	361.019	10.005	g500-H3000	m650-U132/S4	2	154
14.8	341	44.4	379	367	379	1.3	325.529	10.143	g500-H850	m650-U132/S4	2	82
14.6	345	43.8	383	362	383	2.7	333.582	10.267	g500-H1500	m650-U132/S4	2	112
13.2	380	39.7	423	328	423	0.9	322.469	11.330	g500-H600	m650-U132/S4	2	73
13.2	381	39.6	424	328	424	2.4	333.206	11.356	g500-H1500	m650-U132/S4	2	112
13.2	381	39.6	424	328	424	1.2	324.623	11.360	g500-H850	m650-U132/S4	2	82
12.9	390	38.7	434	320	434	4.1	350.715	11.619	g500-H3000	m650-U132/S4	2	154
12.1	415	36.4	462	301	462	2.3	330.722	12.362	g500-H1500	m650-U132/S4	2	112
11.8	426	35.5	474	293	474	1.1	324.469	12.693	g500-H850	m650-U132/S4	2	82
11.8	428	35.3	477	292	477	3.8	350.049	12.762	g500-H3000	m650-U132/S4	2	154
11.0	459	32.9	511	272	511	2.1	330.463	13.673	g500-H1500	m650-U132/S4	2	112
10.5	478	31.6	532	261	532	3.5	343.935	14.233	g500-H3000	m650-U132/S4	2	154
10.4	486	31.1	541	257	541	1.0	323.461	14.490	g500-H850	m650-U132/S4	2	82
9.9	509	29.7	566	246	566	1.9	328.406	15.156	g500-H1500	m650-U132/S4	2	112
9.6	525	28.8	584	238	584	3.3	343.492	15.633	g500-H3000	m650-U132/S4	2	154
9.3	544	27.8	605	230	605	1.0	323.367	16.190	g500-H850	m650-U132/S4	2	82
8.9	563	26.8	626	222	626	1.7	328.234	16.763	g500-H1500	m650-U132/S4	2	112
8.5	596	25.4	663	210	663	0.9	322.787	17.750	g500-H850	m650-U132/S4	2	82
8.0	630	24.0	700	198	700	2.9	335.600	18.752	g500-H3000	m650-U132/S4	2	154
7.3	689	21.9	767	181	767	1.4	325.260	20.533	g500-H1500	m650-U132/S4	2	112
7.3	691	21.8	769	181	769	2.7	335.345	20.596	g500-H3000	m650-U132/S4	2	154
6.6	762	19.8	848	164	848	1.3	325.166	22.711	g500-H1500	m650-U132/S4	2	112
6.5	774	19.5	861	161	861	2.5	331.750	23.044	g500-H3000	m650-U132/S4	2	154
6.0	837	18.0	931	149	931	1.2	324.090	24.933	g500-H1500	m650-U132/S4	2	112



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
5.9	850	17.8	945	147	945	2.3	331.581	25.311	g500-H3000	m650-U132/S4	2	154
5.4	926	16.3	1030	135	1030	1.2	324.027	27.578	g500-H1500	m650-U132/S4	2	112
5.0	1001	15.1	1114	125	1114	2.3	327.704	29.822	g500-H3000	m650-U132/S4	2	154
4.6	1100	13.7	1224	114	1224	2.1	327.603	32.756	g500-H3000	m650-U132/S4	2	154
4.1	1215	12.4	1352	103	1352	1.9	325.777	36.193	g500-H3000	m650-U132/S4	2	154
3.8	1335	11.3	1485	93.6	1485	1.7	325.708	39.753	g500-H3000	m650-U132/S4	2	154
3.2	1560	9.5	1736	78.8	1736	1.4	336.142	47.186	g500-H3000	m650-U132/S4	3	159
2.9	1714	8.7	1907	71.8	1907	1.3	336.102	51.828	g500-H3000	m650-U132/S4	3	159
2.8	1778	8.4	1978	69.2	1978	1.3	332.574	53.770	g500-H3000	m650-U132/S4	3	159
2.5	1953	7.6	2173	63.0	2173	1.2	332.543	59.059	g500-H3000	m650-U132/S4	3	159
2.3	2141	7.0	2382	57.5	2382	1.1	330.027	64.744	g500-H3000	m650-U132/S4	3	159
2.1	2351	6.3	2616	52.3	2616	1.0	330.006	71.112	g500-H3000	m650-U132/S4	3	159



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
51.4	121	154	134	1275	134	1.2	424.200	2.917	g500-H600	m650-U132/M4	2	83
47.7	130	143	145	1182	145	1.6	430.297	3.147	g500-H850	m650-U132/M4	2	92
45.9	135	138	151	1139	151	1.2	423.100	3.267	g500-H600	m650-U132/M4	2	83
43.5	143	131	159	1080	159	1.2	421.143	3.444	g500-H450	m650-U132/M4	2	72
40.1	155	120	173	994	173	3.3	453.996	3.743	g500-H1500	m650-U132/M4	2	122
34.4	181	103	201	853	201	1.4	424.986	4.362	g500-H850	m650-U132/M4	2	92
33.5	186	100	206	830	206	1.1	420.453	4.480	g500-H600	m650-U132/M4	2	83
31.8	196	95.3	218	788	218	1.0	419.413	4.724	g500-H450	m650-U132/M4	2	72
31.5	197	94.6	219	782	219	3.1	443.888	4.758	g500-H1500	m650-U132/M4	2	122
27.9	222	83.8	247	693	247	1.3	422.588	5.368	g500-H850	m650-U132/M4	2	92
27.8	224	83.3	249	689	249	3.0	448.950	5.400	g500-H1500	m650-U132/M4	2	122
26.2	238	78.5	264	649	264	1.0	419.066	5.733	g500-H600	m650-U132/M4	2	83
25.2	246	75.7	274	626	274	1.5	426.632	5.946	g500-H850	m650-U132/M4	2	92
24.0	259	72.1	288	596	288	2.8	435.063	6.245	g500-H1500	m650-U132/M4	2	122
23.2	267	69.7	298	576	298	1.0	420.644	6.456	g500-H600	m650-U132/M4	2	83
22.6	275	67.7	306	560	306	1.4	426.069	6.644	g500-H850	m650-U132/M4	2	92
21.9	284	65.6	316	542	316	2.7	440.765	6.864	g500-H1500	m650-U132/M4	2	122
20.7	300	62.1	334	513	334	1.0	420.301	7.250	g500-H600	m650-U132/M4	2	83
19.8	315	59.3	350	490	350	2.6	439.924	7.592	g500-H1500	m650-U132/M4	2	122
18.2	341	54.6	380	451	380	1.2	423.078	8.241	g500-H850	m650-U132/M4	2	92
16.6	373	49.9	415	413	415	2.4	433.250	9.010	g500-H1500	m650-U132/M4	2	122
16.3	382	48.9	424	404	424	1.1	422.785	9.208	g500-H850	m650-U132/M4	2	92
15.0	415	45.0	461	372	461	3.7	456.819	10.005	g500-H3000	m650-U132/M4	2	164
14.8	420	44.4	467	367	467	1.1	421.329	10.143	g500-H850	m650-U132/M4	2	92
14.6	425	43.8	473	362	473	2.2	429.382	10.267	g500-H1500	m650-U132/M4	2	122
13.2	470	39.6	523	328	523	2.0	429.006	11.356	g500-H1500	m650-U132/M4	2	122
13.2	471	39.6	524	328	524	1.0	420.423	11.360	g500-H850	m650-U132/M4	2	92
12.9	481	38.7	535	320	535	3.3	446.515	11.619	g500-H3000	m650-U132/M4	2	164
12.1	512	36.4	570	301	570	1.8	426.522	12.362	g500-H1500	m650-U132/M4	2	122
11.8	526	35.5	585	293	585	0.9	420.269	12.693	g500-H850	m650-U132/M4	2	92
11.8	529	35.3	588	292	588	3.1	445.849	12.762	g500-H3000	m650-U132/M4	2	164
11.0	567	32.9	630	272	630	1.7	426.263	13.673	g500-H1500	m650-U132/M4	2	122
10.5	590	31.6	656	261	656	2.9	439.735	14.233	g500-H3000	m650-U132/M4	2	164
9.9	628	29.7	698	246	698	1.5	424.206	15.156	g500-H1500	m650-U132/M4	2	122
9.6	648	28.8	720	238	720	2.7	439.292	15.633	g500-H3000	m650-U132/M4	2	164
8.9	695	26.8	773	222	773	1.4	424.034	16.763	g500-H1500	m650-U132/M4	2	122
8.0	777	24.0	864	198	864	2.4	431.400	18.752	g500-H3000	m650-U132/M4	2	164
7.3	851	21.9	946	181	946	1.2	421.060	20.533	g500-H1500	m650-U132/M4	2	122
7.3	853	21.8	949	181	949	2.2	431.145	20.596	g500-H3000	m650-U132/M4	2	164
6.6	941	19.8	1047	164	1047	1.1	420.966	22.711	g500-H1500	m650-U132/M4	2	122
6.5	955	19.5	1062	161	1062	2.0	427.550	23.044	g500-H3000	m650-U132/M4	2	164
6.0	1033	18.0	1149	149	1149	1.0	419.890	24.933	g500-H1500	m650-U132/M4	2	122
5.9	1049	17.8	1166	147	1166	1.9	427.381	25.311	g500-H3000	m650-U132/M4	2	164
5.4	1143	16.3	1271	135	1271	1.0	419.827	27.578	g500-H1500	m650-U132/M4	2	122
5.0	1236	15.1	1374	125	1374	1.8	423.504	29.822	g500-H3000	m650-U132/M4	2	164
4.6	1357	13.7	1510	114	1510	1.7	423.403	32.756	g500-H3000	m650-U132/M4	2	164
4.1	1499	12.4	1668	103	1668	1.5	421.577	36.193	g500-H3000	m650-U132/M4	2	164
3.8	1647	11.3	1832	93.6	1832	1.4	421.508	39.753	g500-H3000	m650-U132/M4	2	164
3.2	1926	9.5	2142	78.8	2142	1.1	431.942	47.186	g500-H3000	m650-U132/M4	3	169
2.9	2115	8.7	2353	71.8	2353	1.0	431.902	51.828	g500-H3000	m650-U132/M4	3	169
2.8	2194	8.4	2441	69.2	2441	1.0	428.374	53.770	g500-H3000	m650-U132/M4	3	169



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
2.5	2410	7.6	2681	63.0	2681	0.9	428.343	59.059	g500-H3000	m650-U132/M4	3	169

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
51.4	127	274	160	1275	160	1.0	424.200	2.917	g500-H600	m650-U132/L4	2	83
47.7	137	254	173	1182	173	1.3	430.297	3.147	g500-H850	m650-U132/L4	2	92
45.9	143	245	179	1139	179	1.0	423.100	3.267	g500-H600	m650-U132/L4	2	83
43.5	150	232	189	1080	189	1.0	421.143	3.444	g500-H450	m650-U132/L4	2	72
40.1	163	214	205	994	205	2.8	453.996	3.743	g500-H1500	m650-U132/L4	2	122
34.4	190	183	239	853	239	1.2	424.986	4.362	g500-H850	m650-U132/L4	2	92
31.5	208	168	261	782	261	2.6	443.888	4.758	g500-H1500	m650-U132/L4	2	122
27.9	234	149	294	693	294	1.1	422.588	5.368	g500-H850	m650-U132/L4	2	92
27.8	236	148	296	689	296	2.6	448.950	5.400	g500-H1500	m650-U132/L4	2	122
25.2	260	135	326	626	326	1.3	426.632	5.946	g500-H850	m650-U132/L4	2	92
24.0	273	128	342	596	342	2.4	435.063	6.245	g500-H1500	m650-U132/L4	2	122
22.6	290	120	364	560	364	1.2	426.069	6.644	g500-H850	m650-U132/L4	2	92
21.9	300	117	376	542	376	2.3	440.765	6.864	g500-H1500	m650-U132/L4	2	122
19.8	332	105	416	490	416	2.2	439.924	7.592	g500-H1500	m650-U132/L4	2	122
18.2	360	97.1	452	451	452	1.0	423.078	8.241	g500-H850	m650-U132/L4	2	92
16.6	393	88.8	494	413	494	2.0	433.250	9.010	g500-H1500	m650-U132/L4	2	122
16.3	402	86.9	505	404	505	1.0	422.785	9.208	g500-H850	m650-U132/L4	2	92
15.0	437	80.0	548	372	548	3.1	456.819	10.005	g500-H3000	m650-U132/L4	2	164
14.6	448	77.9	563	362	563	1.8	429.382	10.267	g500-H1500	m650-U132/L4	2	122
13.2	496	70.5	622	328	622	1.7	429.006	11.356	g500-H1500	m650-U132/L4	2	122
12.9	507	68.9	637	320	637	2.8	446.515	11.619	g500-H3000	m650-U132/L4	2	164
12.1	540	64.7	678	301	678	1.6	426.522	12.362	g500-H1500	m650-U132/L4	2	122
11.8	557	62.7	700	292	700	2.6	445.849	12.762	g500-H3000	m650-U132/L4	2	164
11.0	597	58.5	750	272	750	1.4	426.263	13.673	g500-H1500	m650-U132/L4	2	122
10.5	621	56.2	780	261	780	2.4	439.735	14.233	g500-H3000	m650-U132/L4	2	164
9.9	662	52.8	831	246	831	1.3	424.206	15.156	g500-H1500	m650-U132/L4	2	122
9.6	683	51.2	857	238	857	2.3	439.292	15.633	g500-H3000	m650-U132/L4	2	164
8.9	732	47.7	919	222	919	1.2	424.034	16.763	g500-H1500	m650-U132/L4	2	122
8.0	819	42.7	1028	198	1028	2.0	431.400	18.752	g500-H3000	m650-U132/L4	2	164
7.3	897	39.0	1126	181	1126	1.0	421.060	20.533	g500-H1500	m650-U132/L4	2	122
7.3	899	38.8	1129	181	1129	1.8	431.145	20.596	g500-H3000	m650-U132/L4	2	164
6.5	1006	34.7	1263	161	1263	1.7	427.550	23.044	g500-H3000	m650-U132/L4	2	164
5.9	1105	31.6	1387	147	1387	1.6	427.381	25.311	g500-H3000	m650-U132/L4	2	164
5.0	1302	26.8	1635	125	1635	1.5	423.504	29.822	g500-H3000	m650-U132/L4	2	164
4.6	1430	24.4	1796	114	1796	1.4	423.403	32.756	g500-H3000	m650-U132/L4	2	164
4.1	1580	22.1	1984	103	1984	1.3	421.577	36.193	g500-H3000	m650-U132/L4	2	164
3.8	1736	20.1	2179	93.6	2179	1.2	421.508	39.753	g500-H3000	m650-U132/L4	2	164
3.2	2029	17.0	2548	78.8	2548	0.9	431.942	47.186	g500-H3000	m650-U132/L4	3	169



7.7 Dimensions

Notes on the basic dimensions

Gearbox	Without pre-stage	With pre-stage
g500-H45	2-stage	-
g500-H100 ... g500-H140	2-stage	3-stage
g500-H210 ... g500-H3000	2-/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](#) 138

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



The dimensions shown in the dimensional drawings for the solid shafts with featherkey (V□□) also apply for solid shafts without a keyway (G□□).

Please observe the available output shaft designs!

▶ [The modular system](#) 13

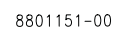


If the mounting area (foot support) towards the motor is longer than the gearbox foot, some motors collide with the mounting area!

For an accurate check of the geometrical data, Lenze recommends the use of the »Product Finder« at www.Lenze.com.



The dimensions also apply for solid shafts without a keyway Ø20 x 40 (G□□)!



Δ L ▶ Additional lengths 142

Technical data

Dimensions
Basic dimensions

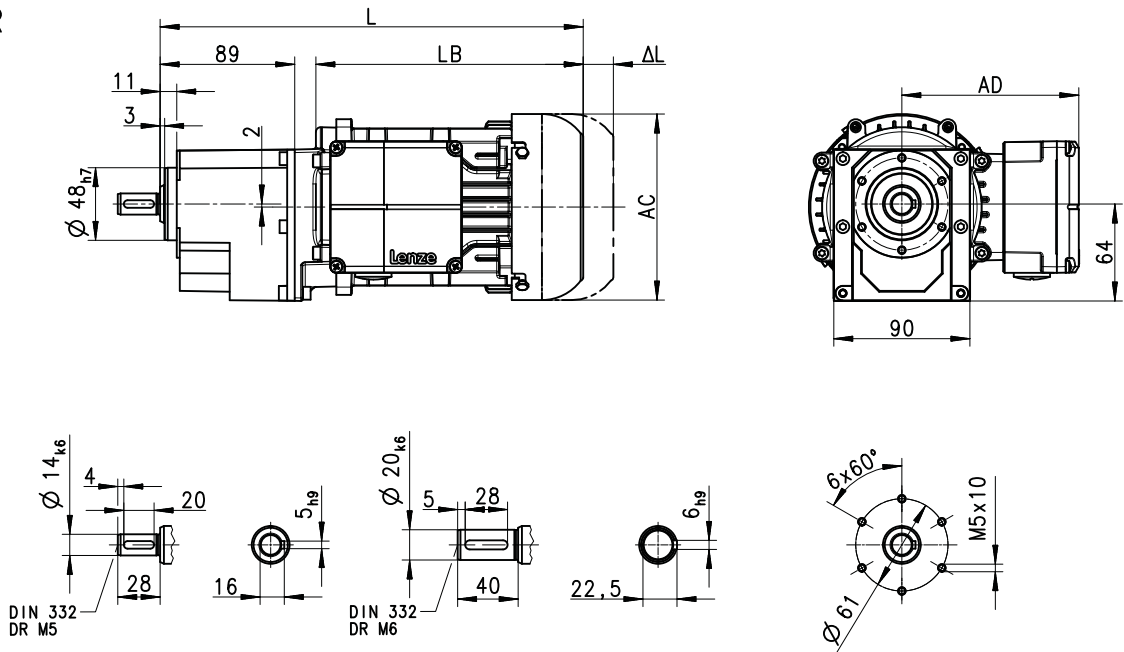


g500-H45, 2-stage

Gearbox design: Solid shaft, with centering (VCR)

The dimensions also apply for solid shafts without a keyway $\varnothing 20 \times 40$ (G□□)!

VCR



8801153-00

Motor series			m650-U	
Motor			063L04	071M04 071L04
Total length	L	mm	280	315
Motor length	LB	mm	188	217
Motor diameter	AC	mm	123	139
Motor/connection distance	AD	mm	117	129

Δ L ▶ [Additional lengths](#) 142

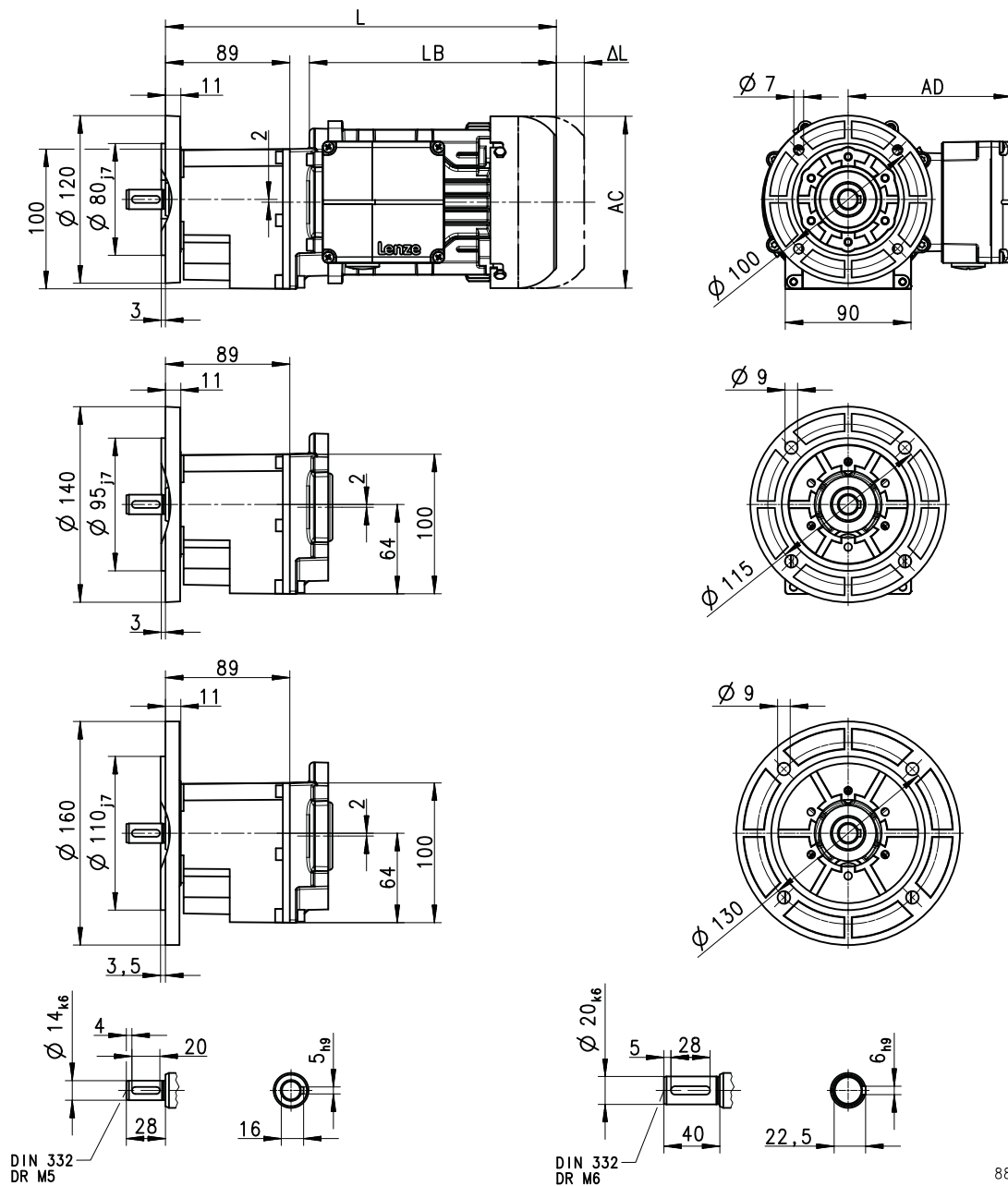


g500-H45, 2-stage

Gearbox design: Solid shaft, with flange (VCK)

The dimensions also apply for solid shafts without a keyway $\varnothing 20 \times 40$ (G□□)!

VCK



8801152-00

Motor series			m650-U	
Motor			063L04	071M04 071L04
Total length	L	mm	280	315
Motor length	LB	mm	188	217
Motor diameter	AC	mm	123	139
Motor/connection distance	AD	mm	117	129

Δ L ▶ Additional lengths 142

Technical data

Dimensions
Basic dimensions

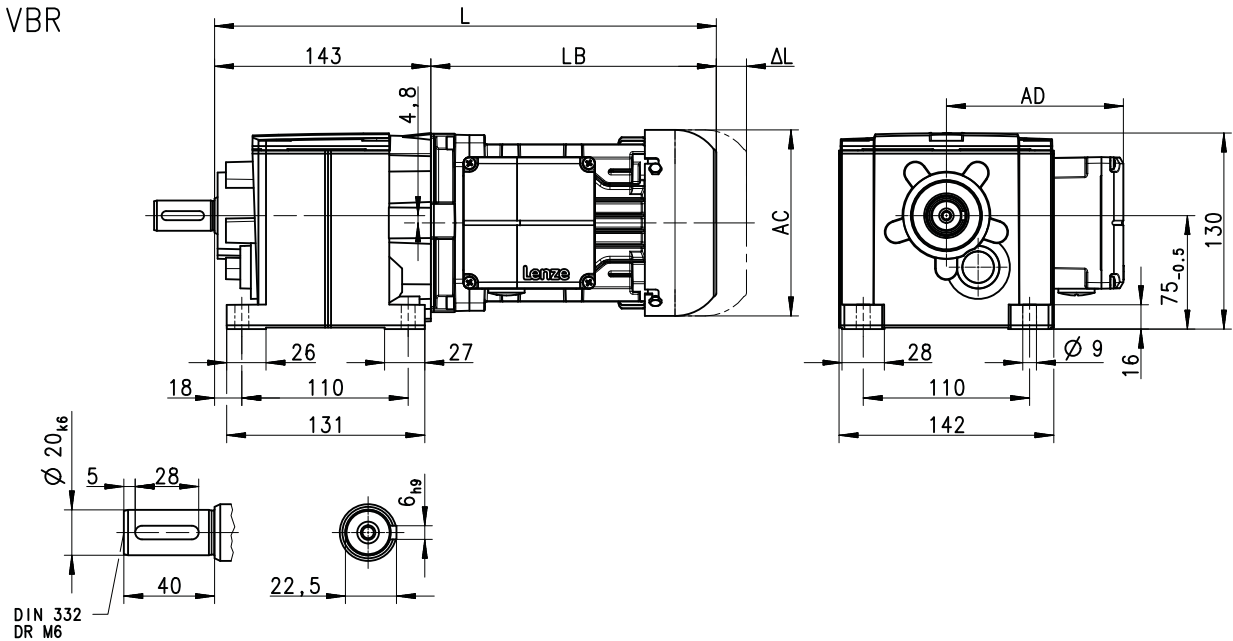


g500-H100, 2-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801154-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	332	361	385	428
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

ΔL ▶ Additional lengths 142



Technical data

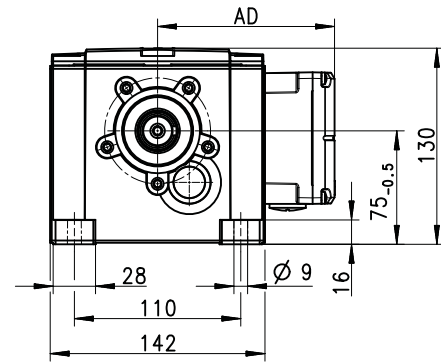
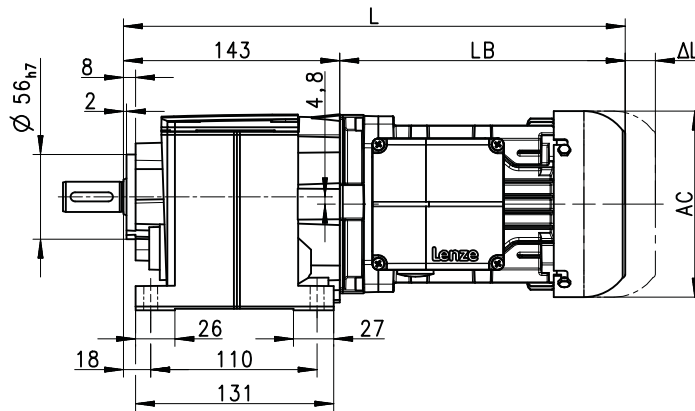
Dimensions
Basic dimensions

g500-H100, 2-stage

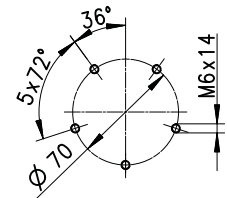
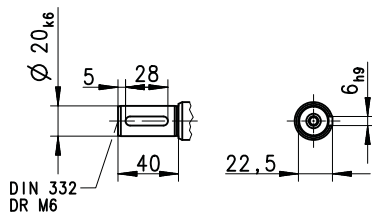
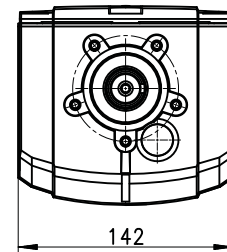
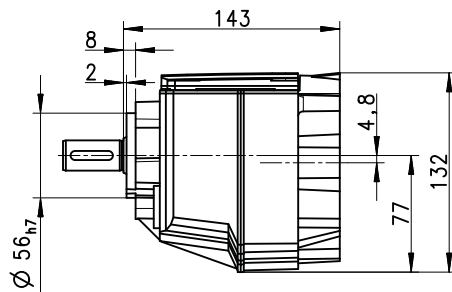
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801156-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	332	361	385	428
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 142

Technical data

Dimensions
Basic dimensions

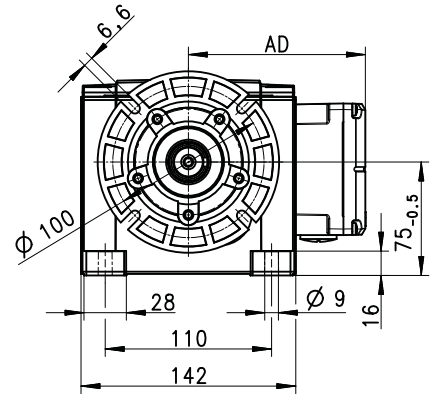
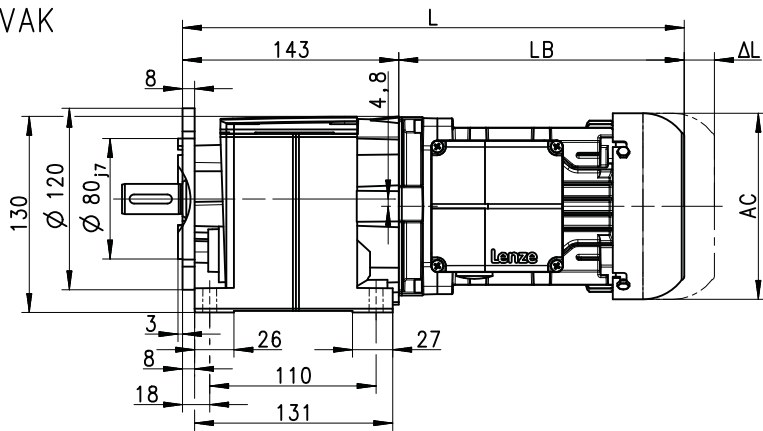


g500-H100, 2-stage

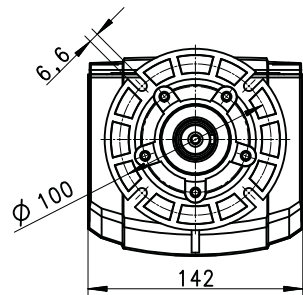
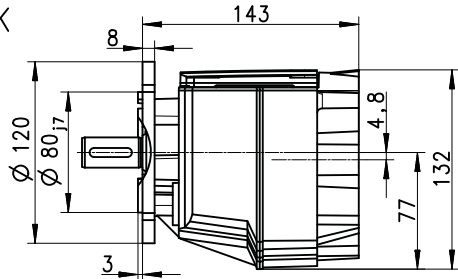
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway (G□□)!

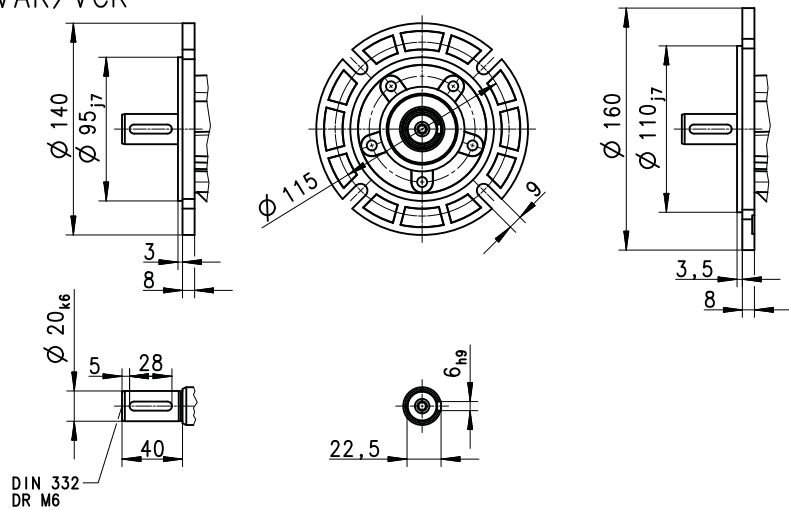
VAK



VCK



VAK/VCK



8801155-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	332	361	385	428
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 142

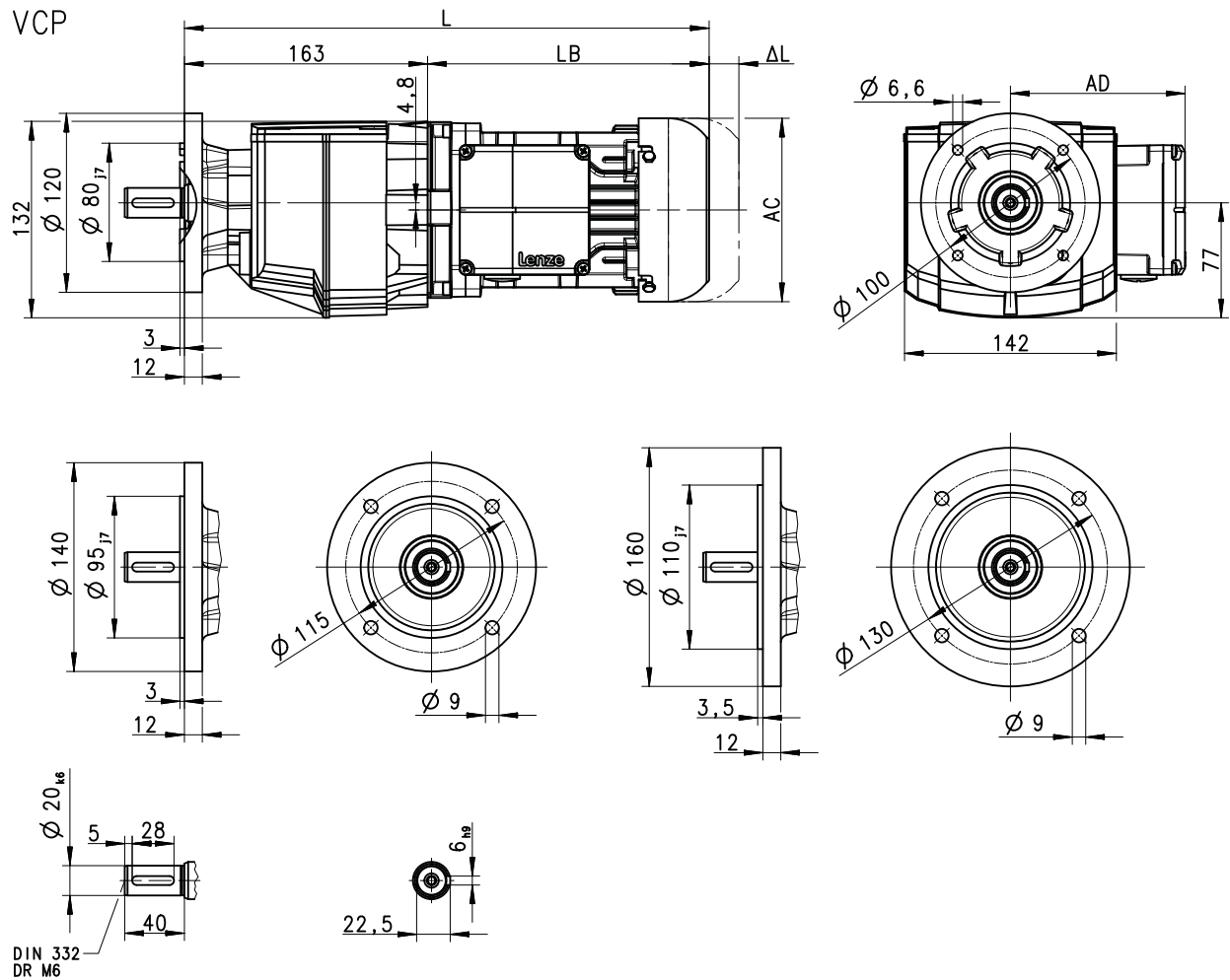


g500-H100, 2-stage

Gearbox design: Solid shaft, with flange in reinforced design (VCP)

The dimensions also apply for solid shafts without a keyway (G□□)!

VCP



8801157-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	352	381	405	448
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 □ 142

Technical data

Dimensions
Basic dimensions

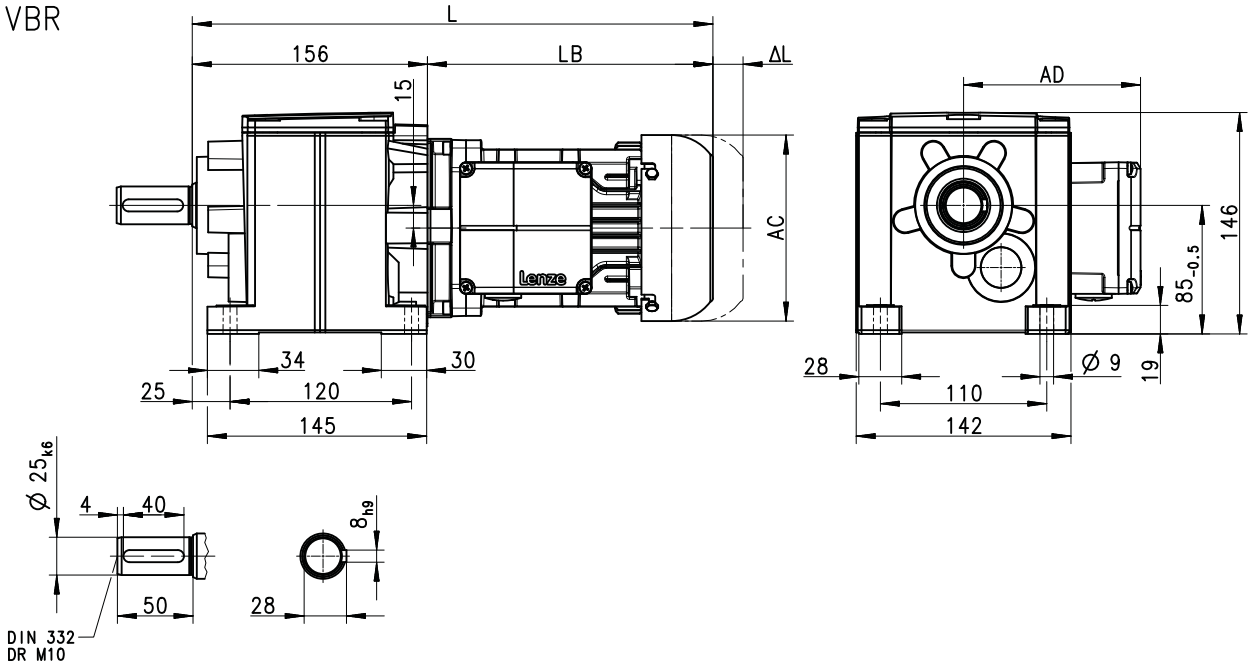


g500-H140, 2-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801159-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	345	374	398	441	504
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 142



The dimensions also apply for solid shafts without a keyway (G□□)!

Technical drawing of the Lenze 8200 motor showing front and side views with dimensions.

Front View Dimensions:

- Overall length: L
- Distance from mounting flange to center of shaft: LB
- Shaft diameter: ΔL
- Mounting flange diameter: AC
- Distance from mounting flange to center of shaft: AD
- Distance from mounting flange to center of shaft: $85_{-0,5}$
- Distance from mounting flange to center of shaft: 146
- Distance from mounting flange to center of shaft: 19
- Distance from mounting flange to center of shaft: $\varnothing 9$
- Distance from mounting flange to center of shaft: 28
- Distance from mounting flange to center of shaft: 110
- Distance from mounting flange to center of shaft: 142
- Distance from mounting flange to center of shaft: 156
- Distance from mounting flange to center of shaft: $11,5$
- Distance from mounting flange to center of shaft: 3
- Distance from mounting flange to center of shaft: 15
- Distance from mounting flange to center of shaft: 34
- Distance from mounting flange to center of shaft: 30
- Distance from mounting flange to center of shaft: 25
- Distance from mounting flange to center of shaft: 120
- Distance from mounting flange to center of shaft: 145

Side View Dimensions:

- Overall width: 146
- Distance from mounting flange to center of shaft: $85_{-0,5}$
- Distance from mounting flange to center of shaft: 19
- Distance from mounting flange to center of shaft: $\varnothing 9$
- Distance from mounting flange to center of shaft: 28
- Distance from mounting flange to center of shaft: 110
- Distance from mounting flange to center of shaft: 142
- Distance from mounting flange to center of shaft: 156
- Distance from mounting flange to center of shaft: $11,5$
- Distance from mounting flange to center of shaft: 3
- Distance from mounting flange to center of shaft: 15
- Distance from mounting flange to center of shaft: 34
- Distance from mounting flange to center of shaft: 30
- Distance from mounting flange to center of shaft: 25
- Distance from mounting flange to center of shaft: 120
- Distance from mounting flange to center of shaft: 145

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	345	374	398	441	504
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

111

Technical data

Dimensions
Basic dimensions

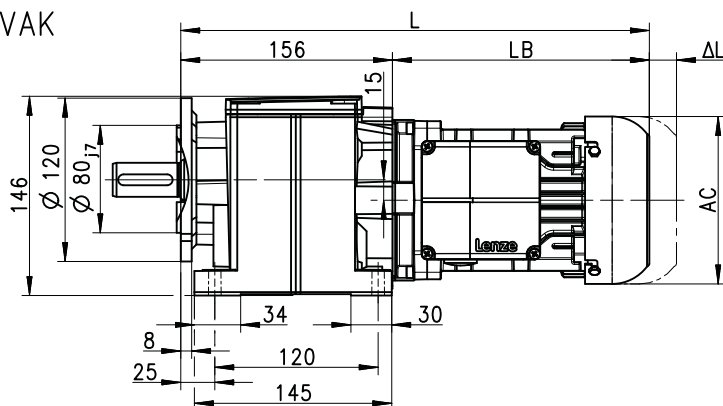


g500-H140, 2-stage

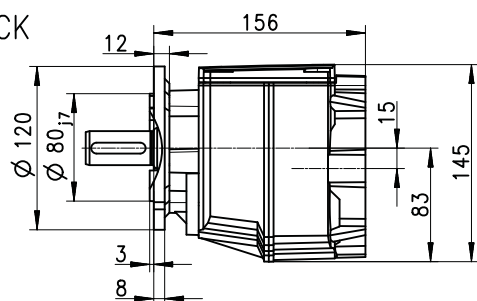
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway (G□□)!

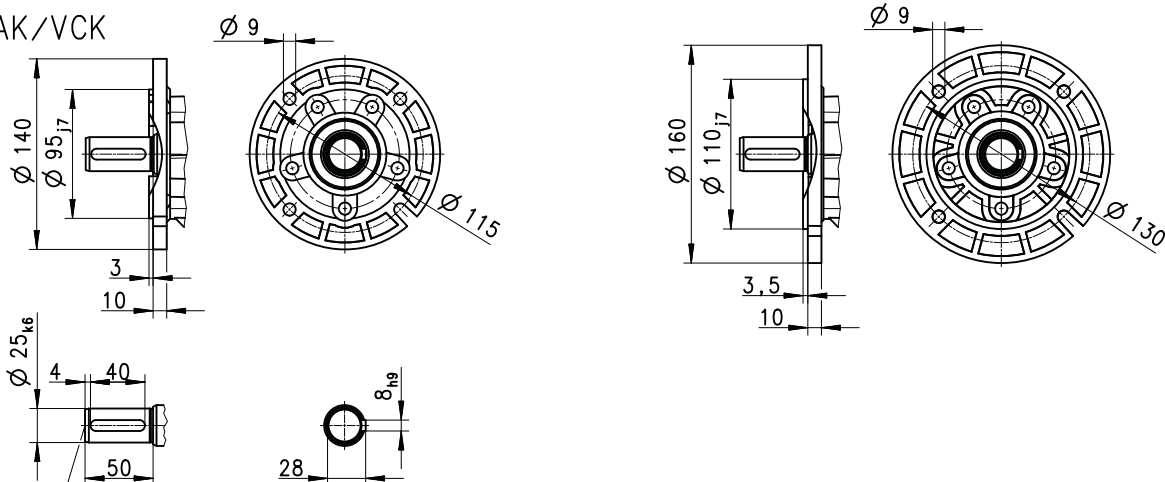
VAK



VCK



VAK/VCK



DIN 332
DR M10

8801160-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	345	374	398	441	504
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 142

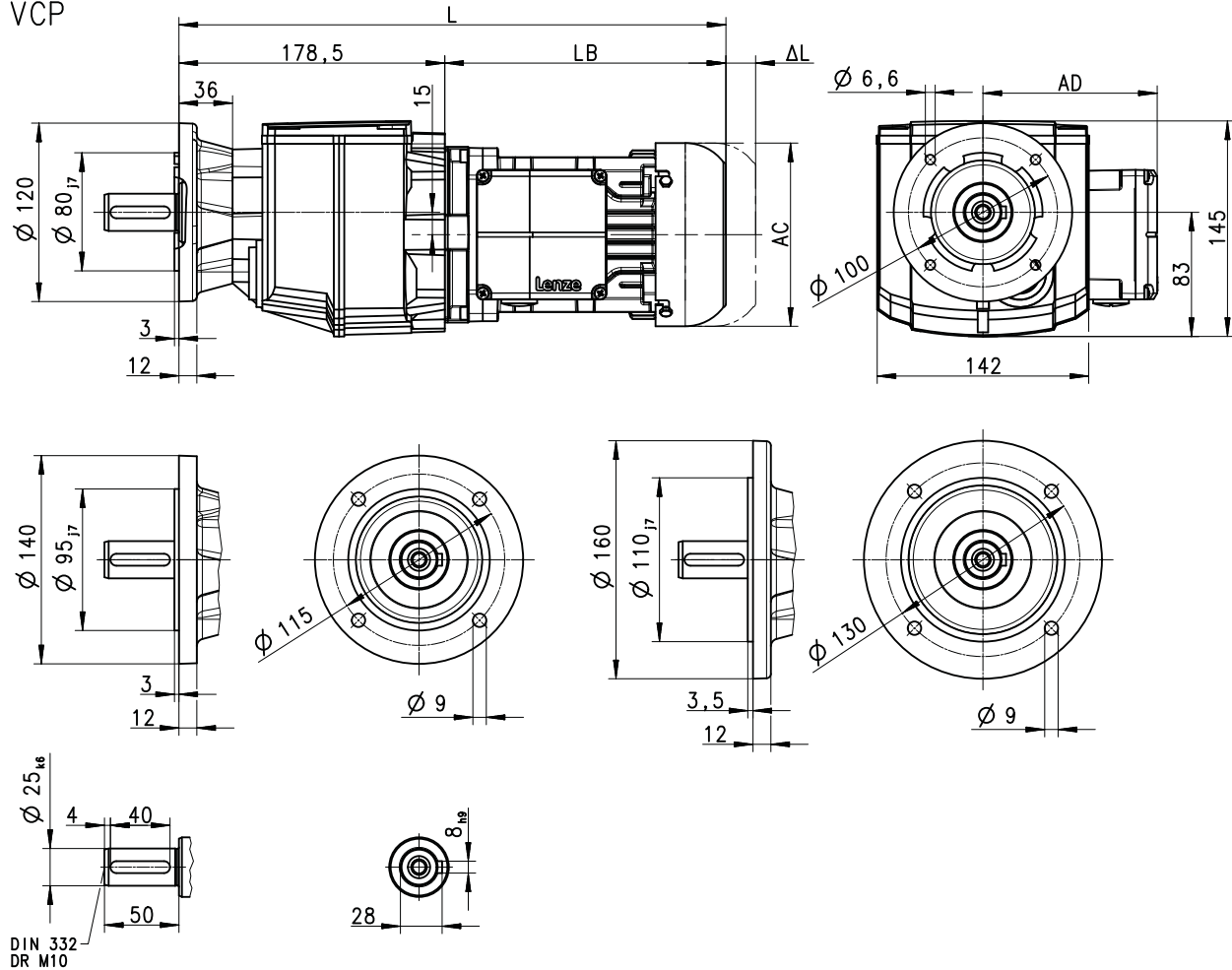


g500-H140, 2-stage

Gearbox design: Solid shaft, with flange in reinforced design (VCP)

The dimensions also apply for solid shafts without a keyway (G□□)!

VCP



8801162-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	367	397	421	463	527
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 142

Technical data

Dimensions
Basic dimensions

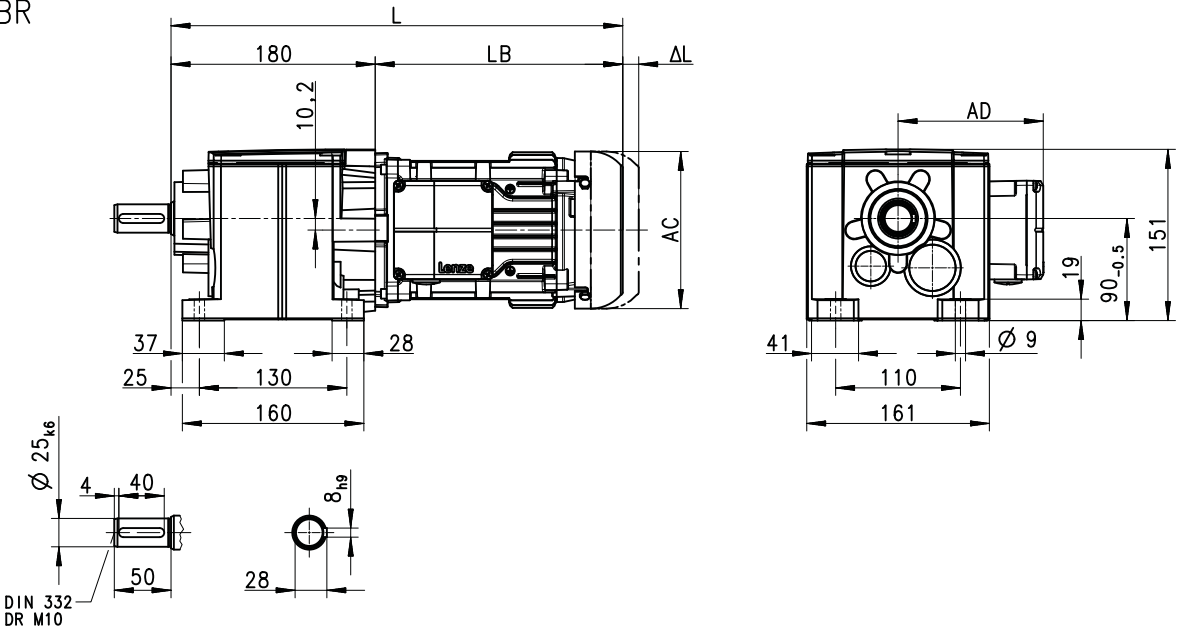


g500-H210, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801163-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	369	398	422	465	528
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 142

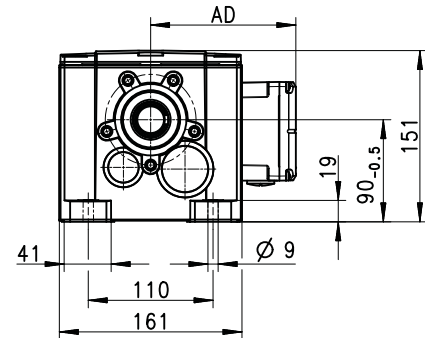
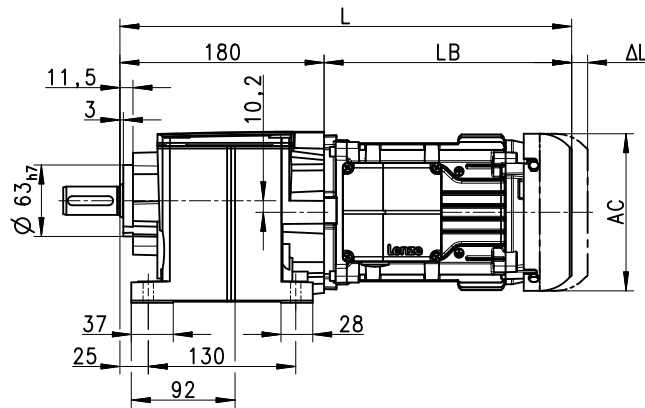


g500-H210, 2-/3-stage

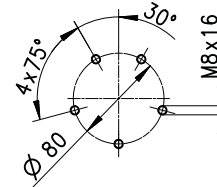
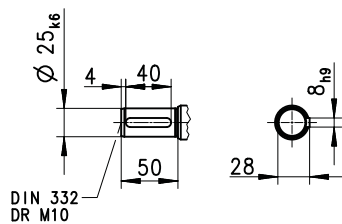
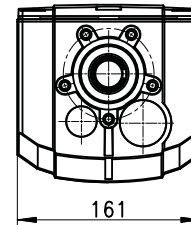
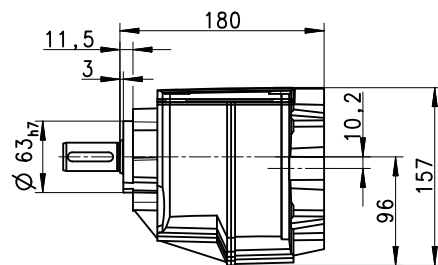
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801165-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	369	398	422	465	528
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 142

Technical data

Dimensions
Basic dimensions

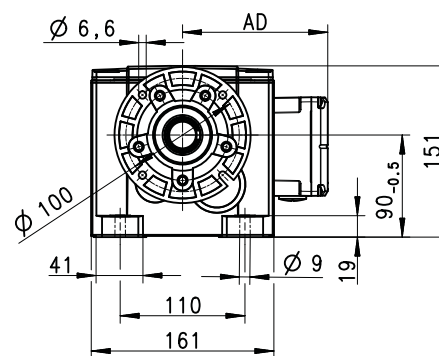
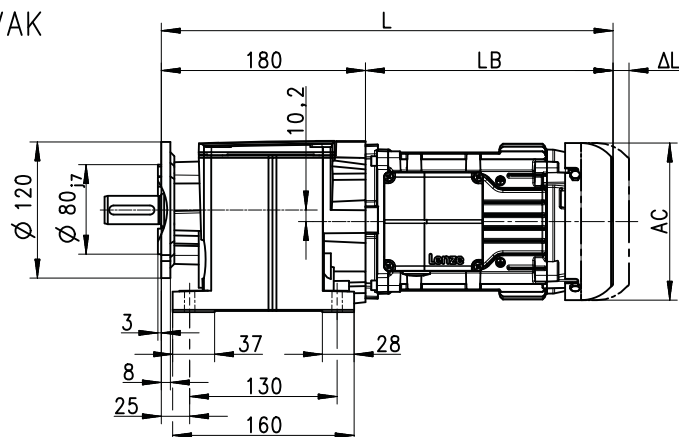


g500-H210, 2-/3-stage

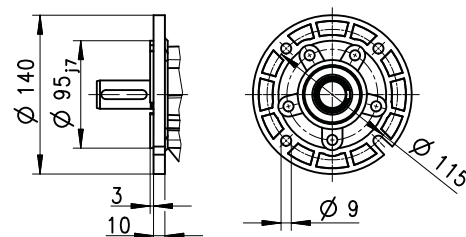
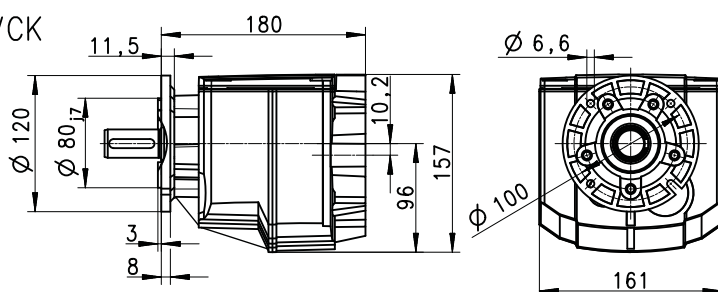
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions are also valid for solid shafts without a keyway (G□□)!

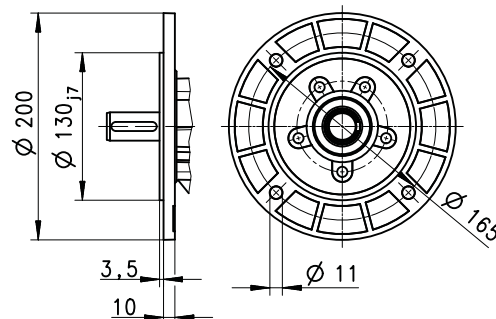
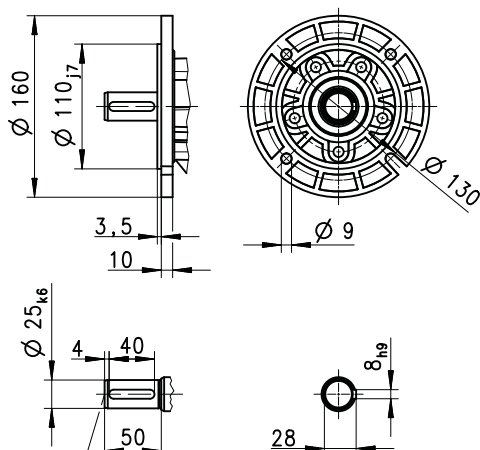
VAK



VCK



VAK/VCK



DIN 332
DR M10

8801164-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	369	398	422	465	528
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 □ 142

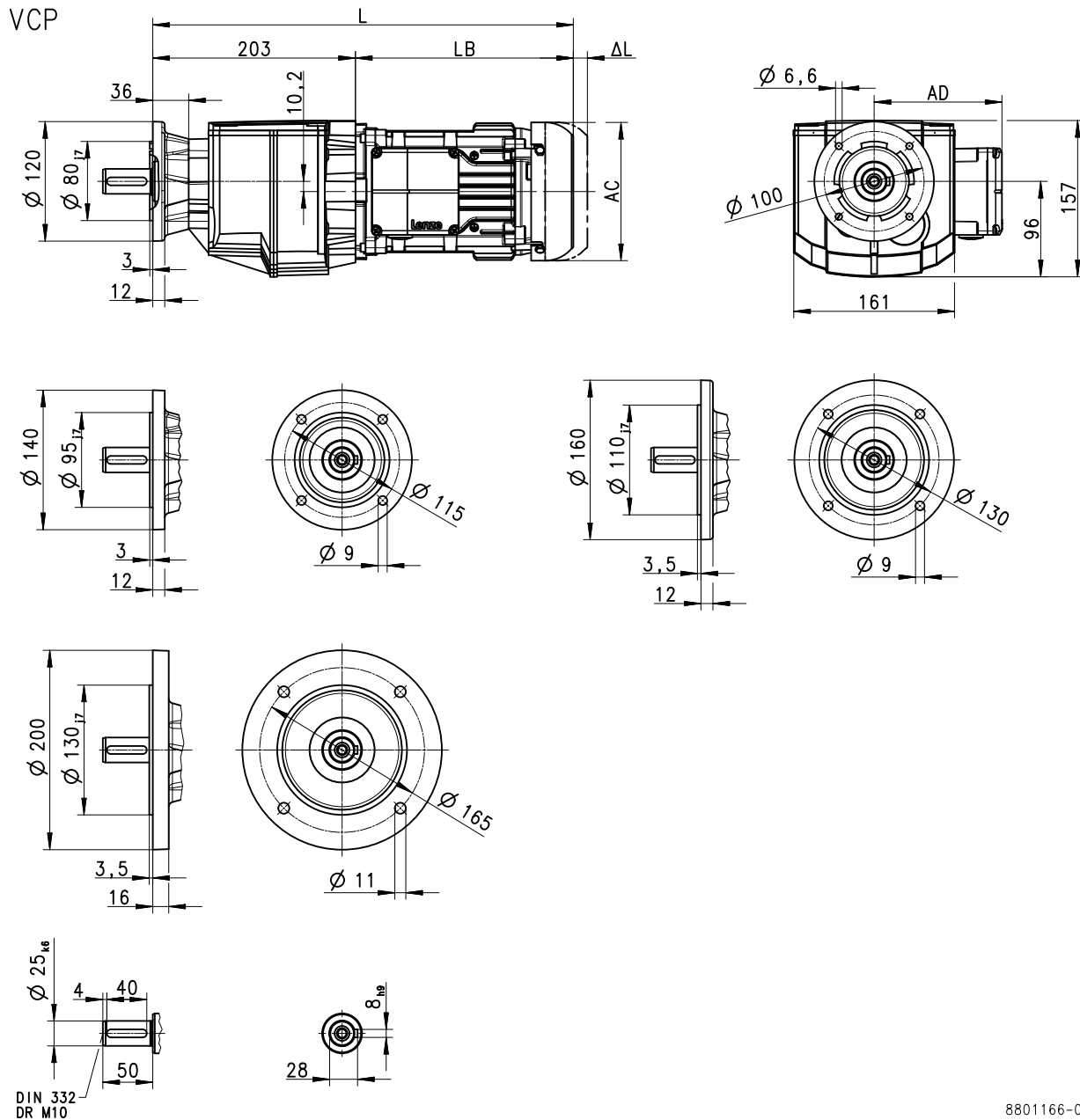


g500-H210, 2-/3-stage

Gearbox design: Solid shaft, with flange in reinforced design (VCP)

The dimensions also apply for solid shafts without a keyway (G□□)!

VCP



8801166-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	392	421	445	488	551
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 □ 142

Technical data

Dimensions
Basic dimensions

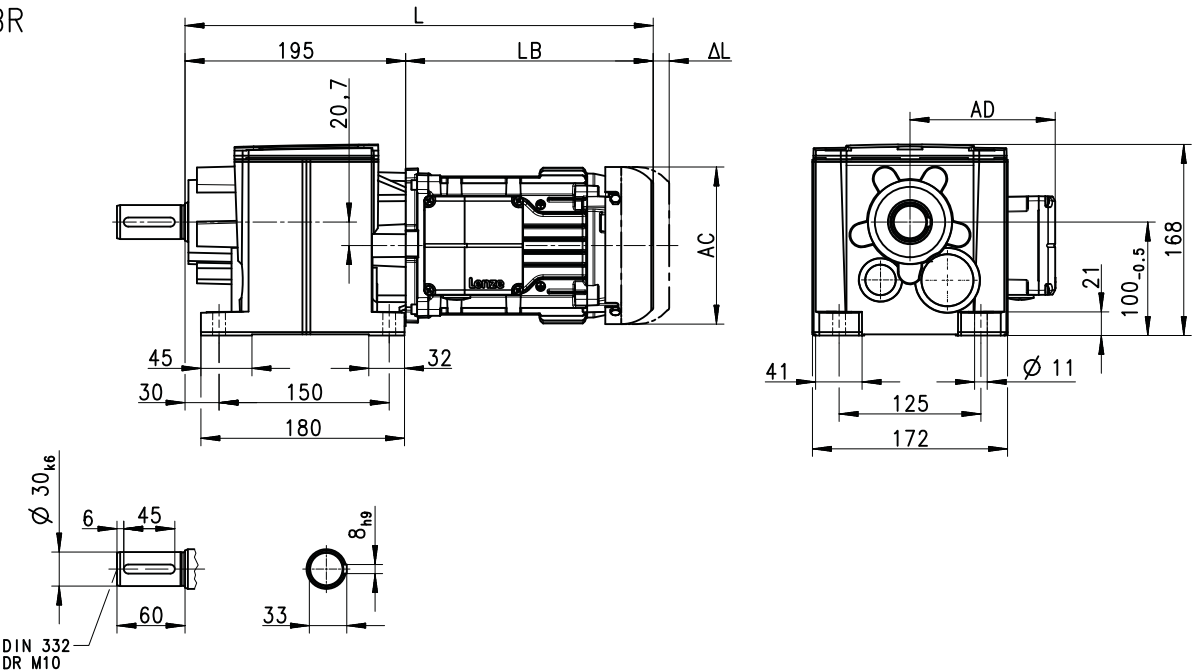


g500-H320, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801167-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	384	413	437	480	543	556
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 142

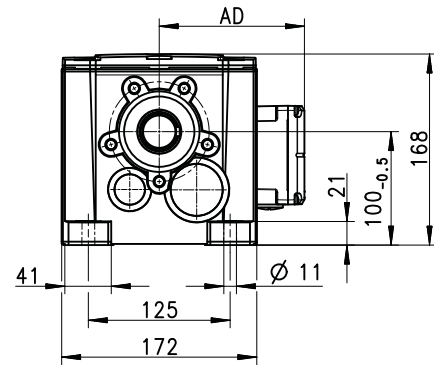
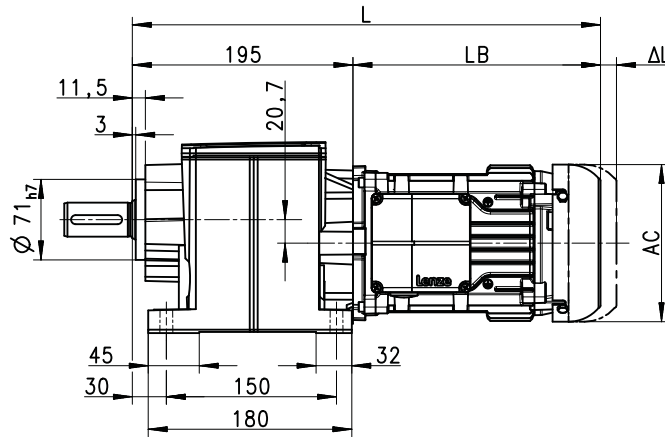


g500-H320, 2-/3-stage

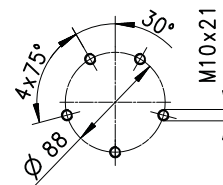
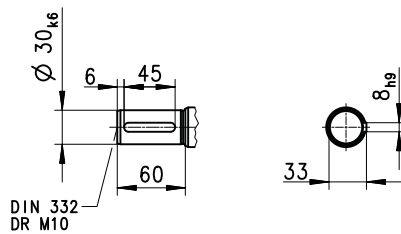
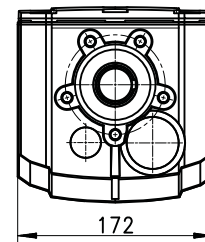
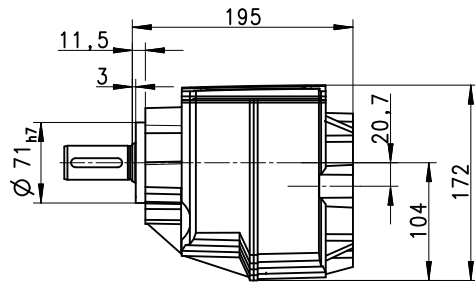
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801169-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	384	413	437	480	543	556
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 142

Technical data

Dimensions
Basic dimensions

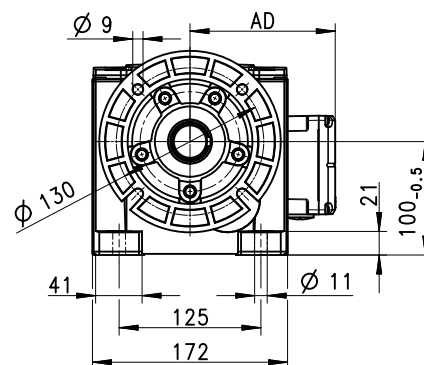
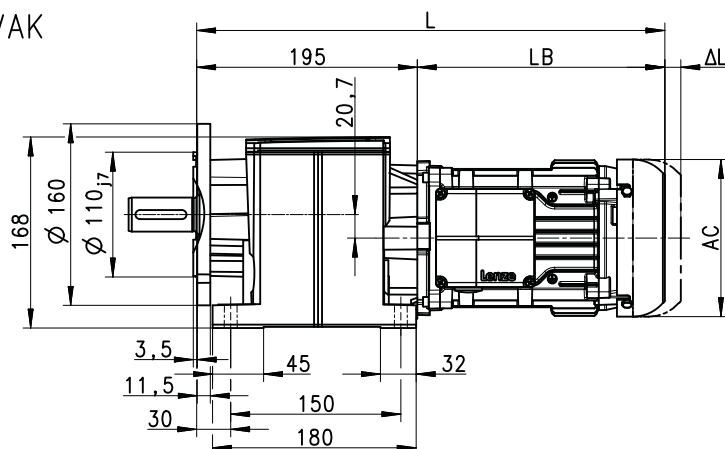


g500-H320, 2-/3-stage

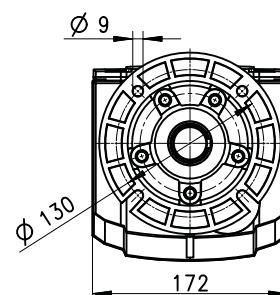
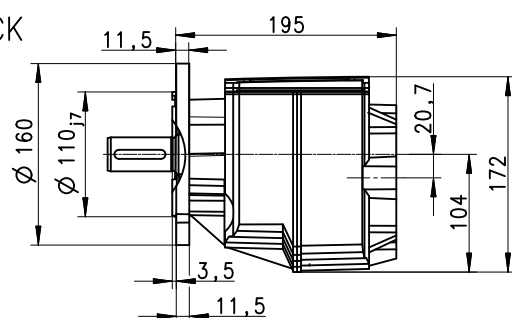
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway (G□□)!

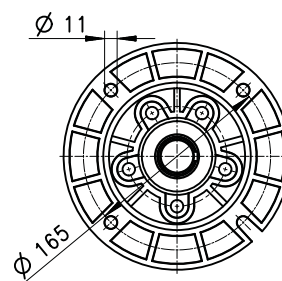
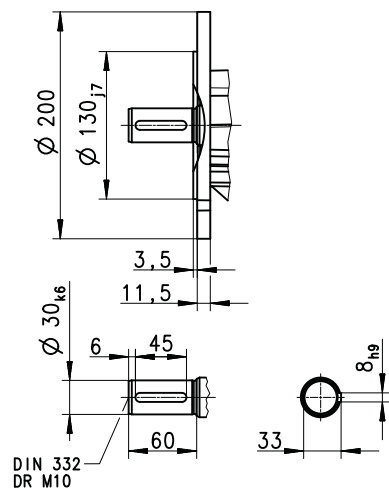
VAK



VCK



VAK/VCK



DIN 332
DR M10

8801168-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	384	413	437	480	543	556
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 142

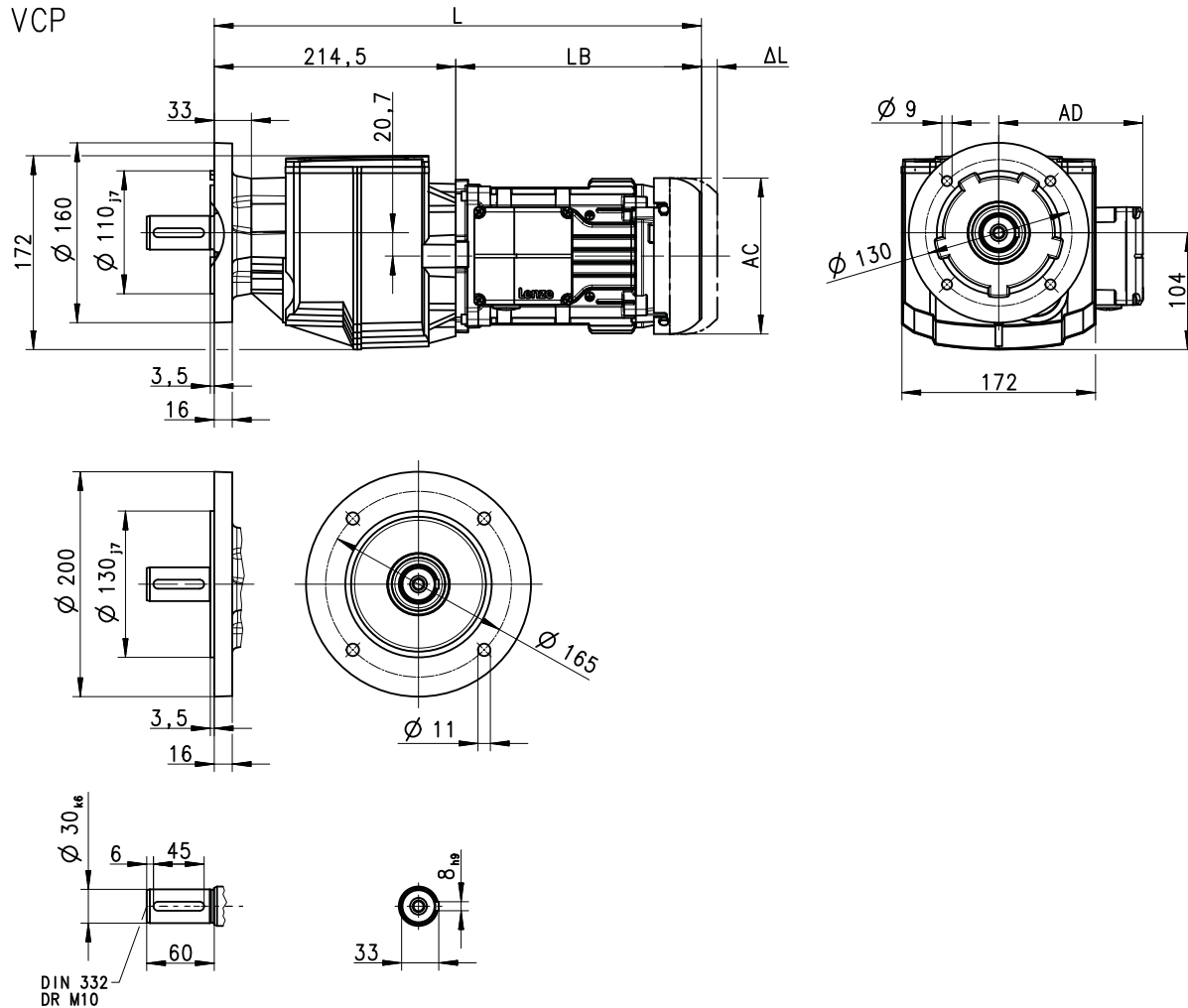


g500-H320, 2-/3-stage

Gearbox design: Solid shaft, with flange in reinforced design (VCP)

The dimensions also apply for solid shafts without a keyway (G□□)!

VCP



8801170-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	403	433	457	499	563	575
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 142

Technical data

Dimensions
Basic dimensions

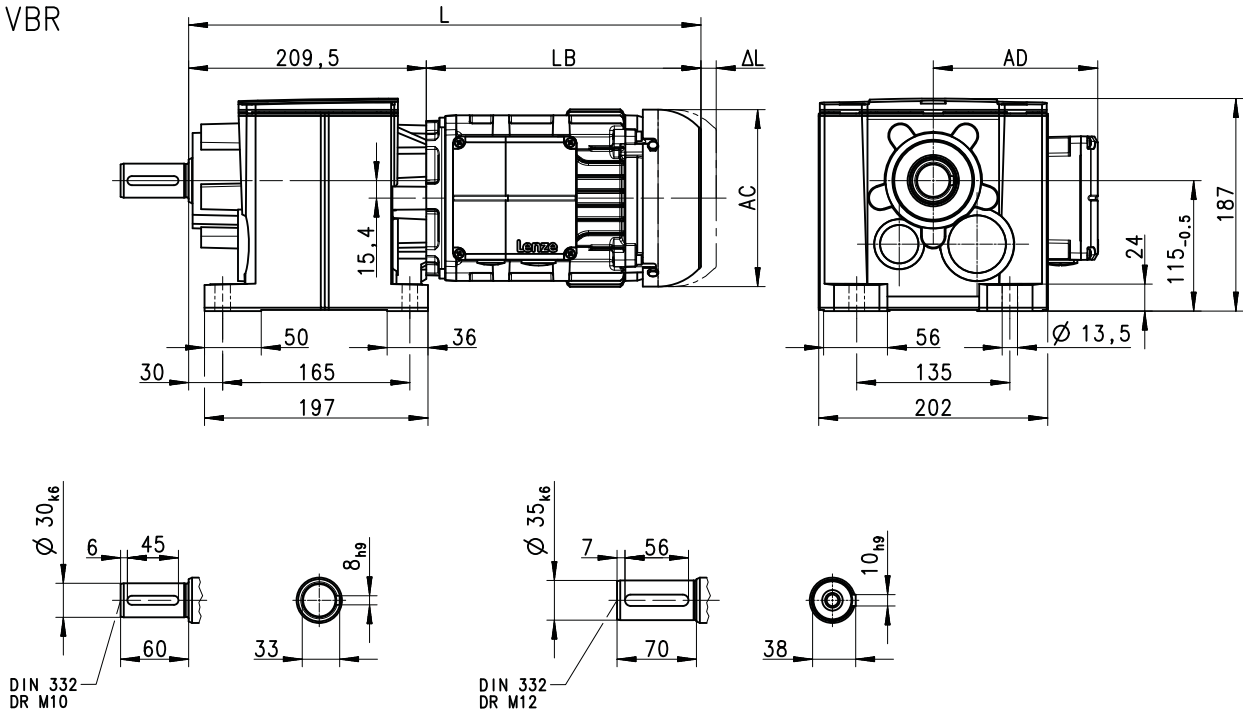


g500-H450, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

VBR



8801171-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	398	428	452	494	558	570	634
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 142



Technical data

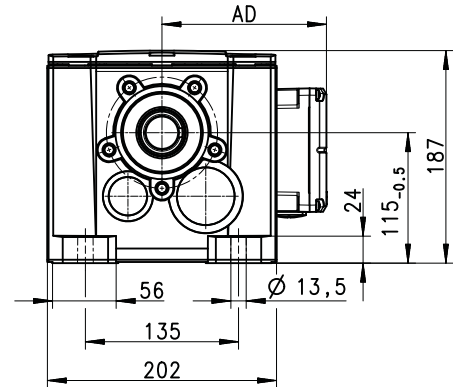
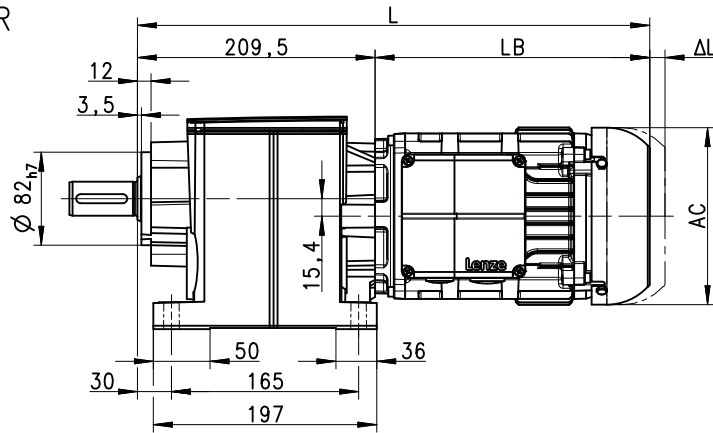
Dimensions
Basic dimensions

g500-H450, 2-/3-stage

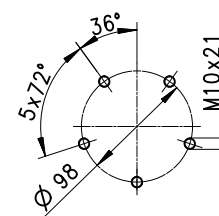
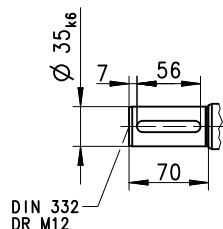
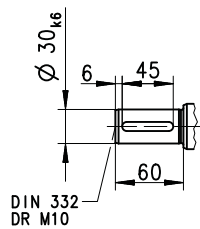
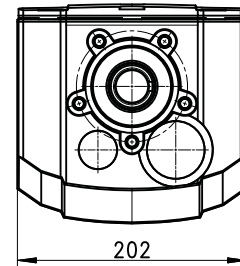
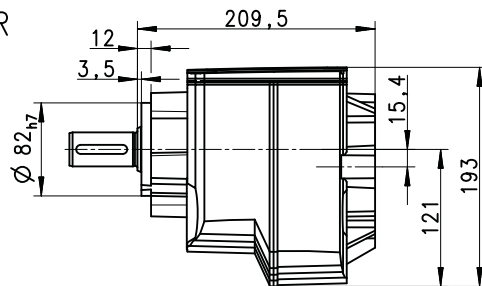
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

VAR



VCR



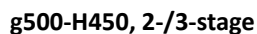
8801173-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	398	428	452	494	558	570	634
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 □ 142

Dimensions

Basic dimensions



The dimensions also apply for solid shafts without a keyway Ø35 x 70 (G□□)!

[illegible]

Technical drawings of two types of circular components, AK/VCK and AK/VCK 2, showing side, top, and detail views with dimensions.

AK/VCK (Left):

- Side View:** Outer diameter $\varnothing 200$, inner diameter $\varnothing 130_{+7}^{-17}$, flange thickness 3.5, mounting hole diameter 12.
- Top View:** Outer diameter $\varnothing 165$, central hole diameter $\varnothing 11$.
- Detail View (Left):** Diameter $\varnothing 30_{k6}$, length 60.
- Detail View (Right):** Diameter $\varnothing 8_{h9}$, length 33.
- Standards:** DIN 332 DR M10.

AK/VCK 2 (Right):

- Side View:** Outer diameter $\varnothing 250$, inner diameter $\varnothing 180_{+7}^{-17}$, flange thickness 4, mounting hole diameter 12.
- Top View:** Outer diameter $\varnothing 215$, central hole diameter $\varnothing 14$.
- Detail View (Left):** Diameter $\varnothing 35_{k6}$, length 70.
- Detail View (Right):** Diameter $\varnothing 10_{h9}$, length 38.
- Standards:** DIN 332 DR M12.

8801172-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	398	428	452	494	558	570	634
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  142



Technical data

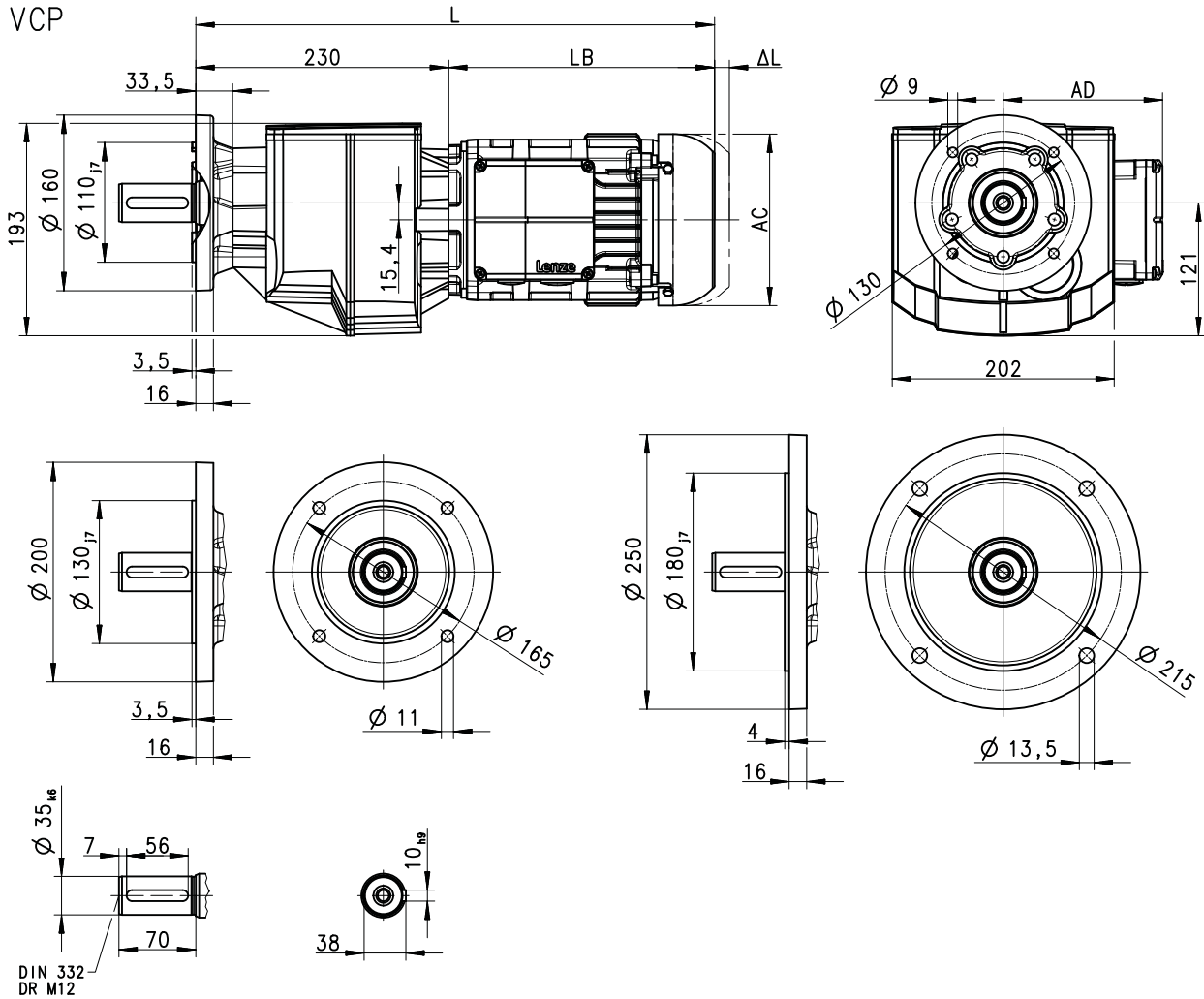
Dimensions
Basic dimensions

g500-H450, 2-/3-stage

Gearbox design: Solid shaft, with flange in reinforced design (VCP)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

VCP



8801174-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	419	448	472	515	578	591	655
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 □ 142

Technical data

Dimensions
Basic dimensions

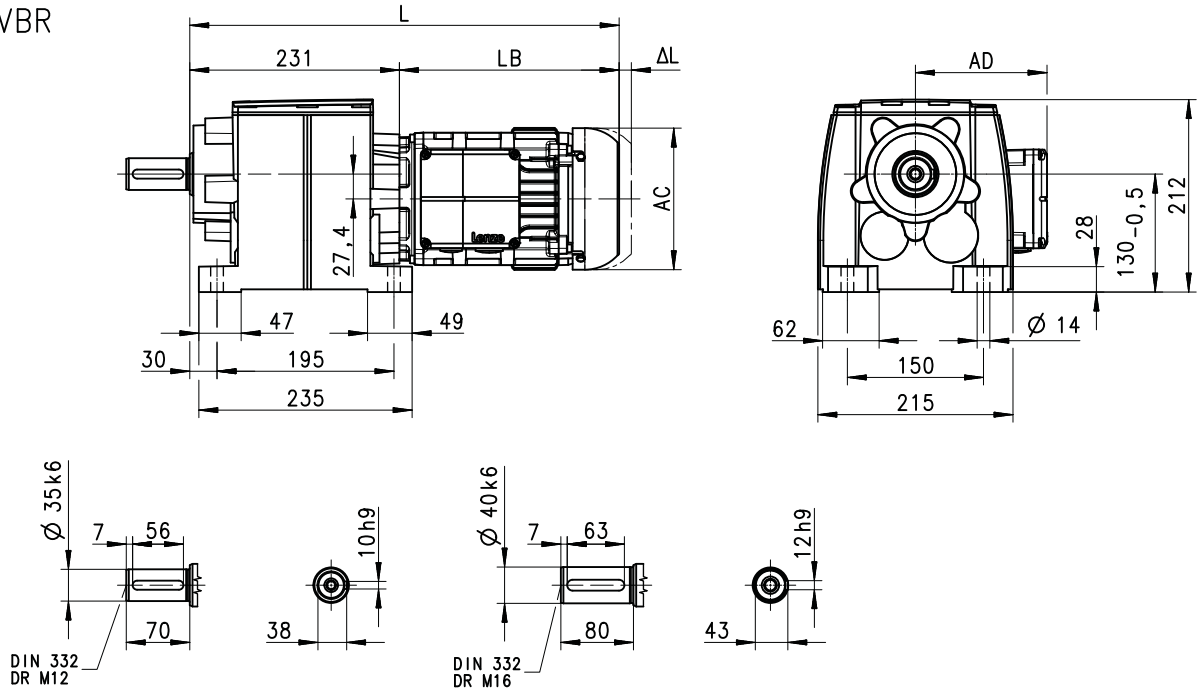


g500-H600, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

VBR



8801175-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	420	449	473	516	579	592	656
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 142

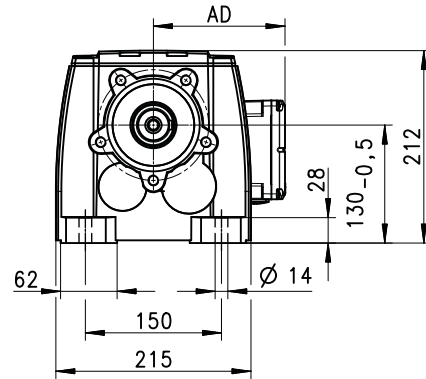
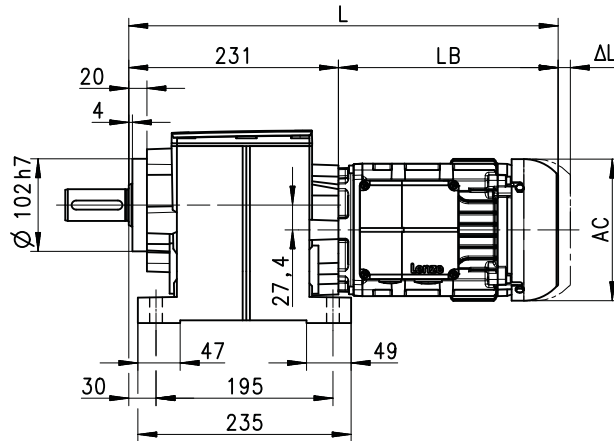


g500-H600, 2-/3-stage

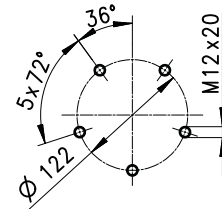
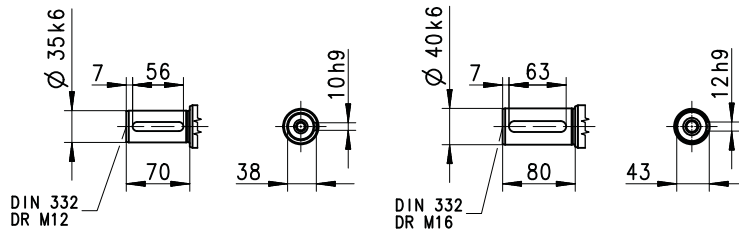
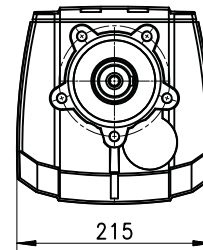
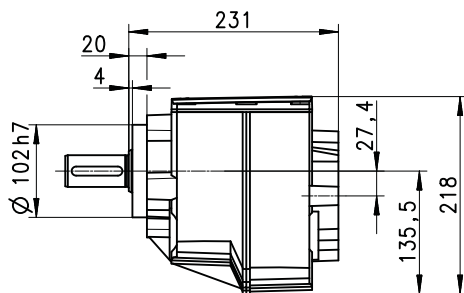
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

VAR



VCR



8801176-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	420	449	473	516	579	592	656
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 142

Technical data

Dimensions
Basic dimensions

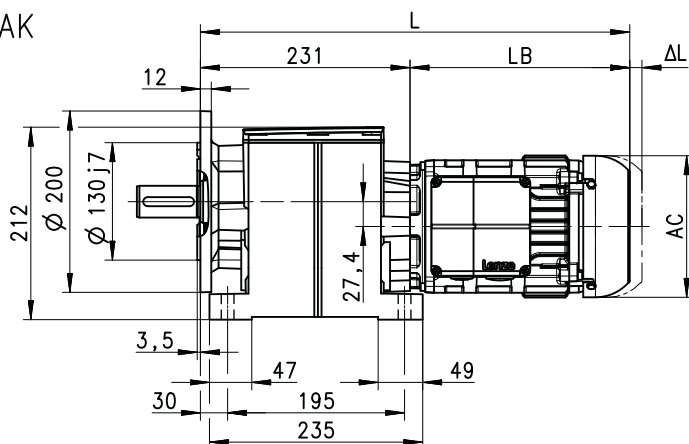


g500-H600, 2-/3-stage

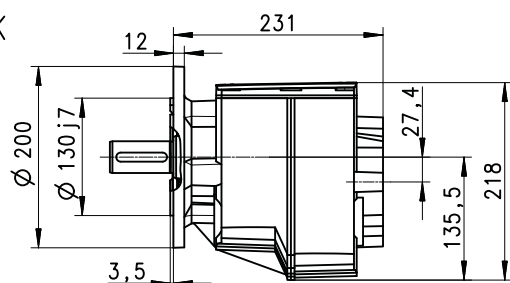
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway $\varnothing 35 \times 70$ (G□□)!

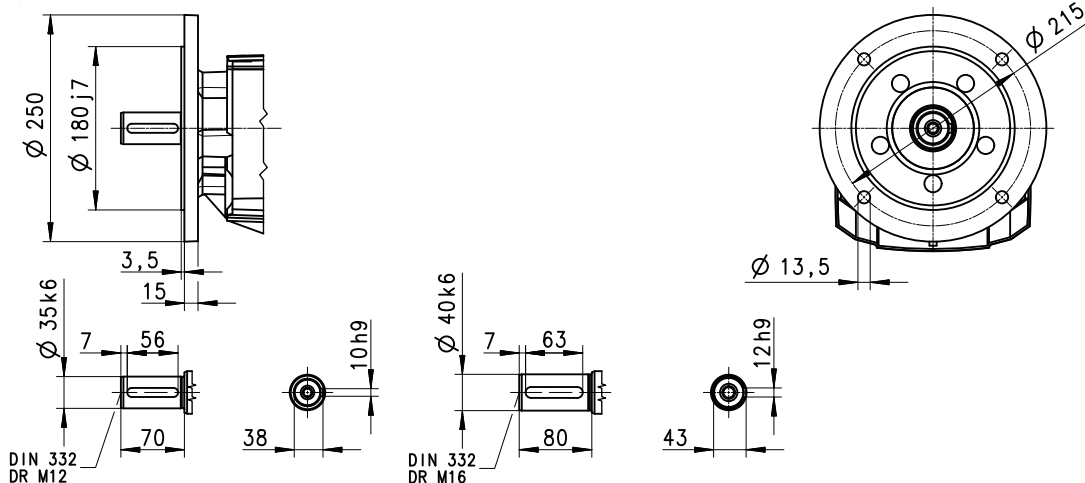
VAK



VCK



VAK/VCK



8801177-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	420	449	473	516	579	592	656
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 □ 142

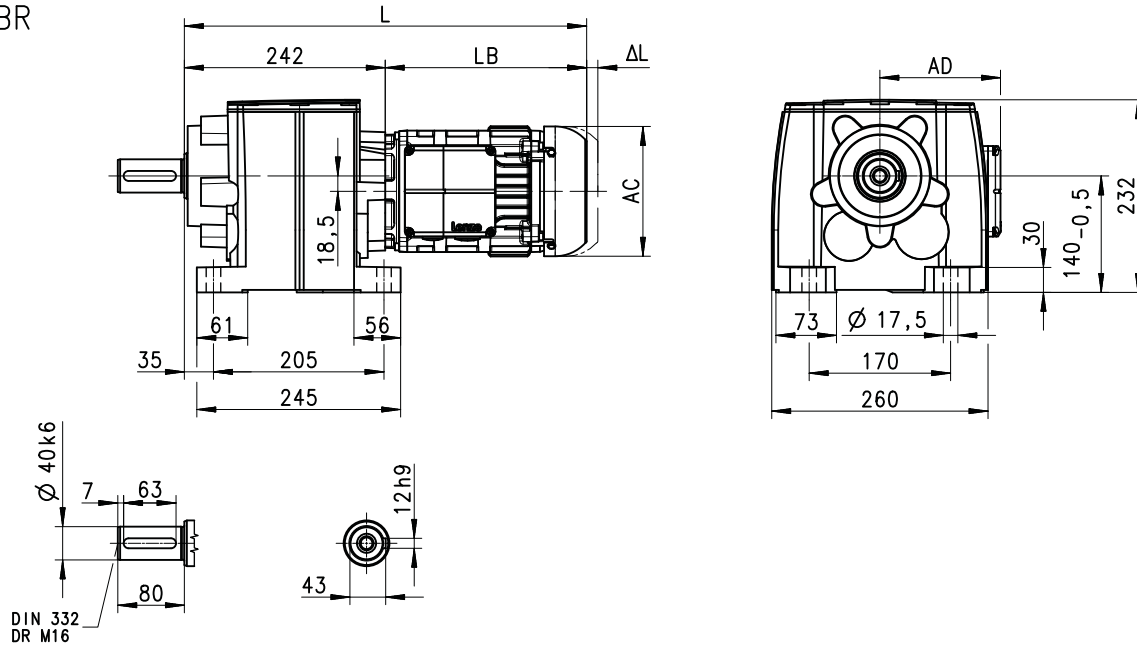


g500-H850, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801178-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	431	460	484	527	590	603	667
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 142

Technical data

Dimensions
Basic dimensions

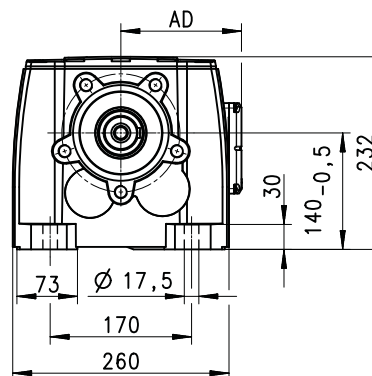
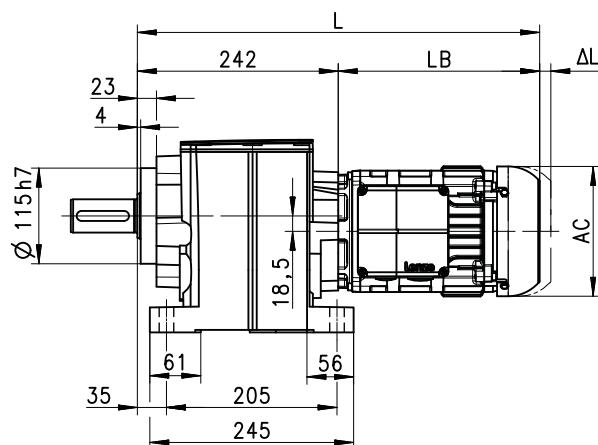


g500-H850, 2-/3-stage

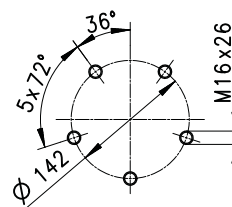
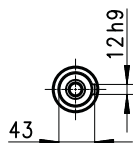
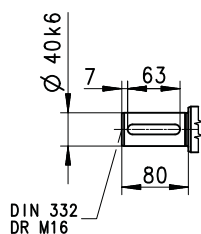
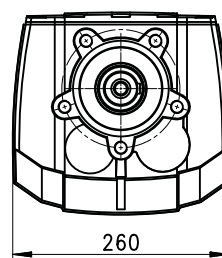
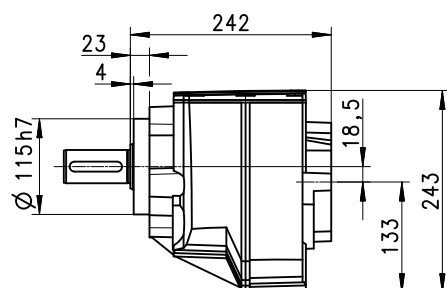
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801179-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	431	460	484	527	590	603	667
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 □ 142

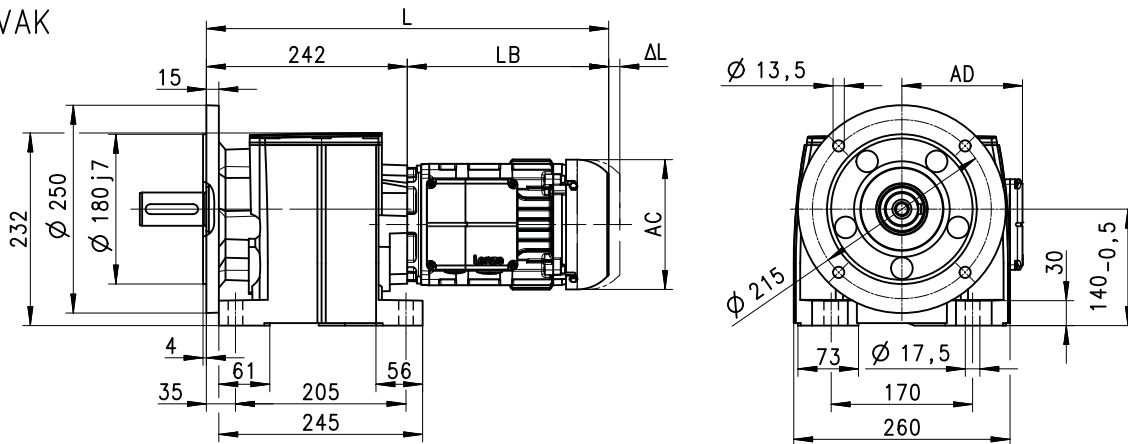


g500-H850, 2-/3-stage

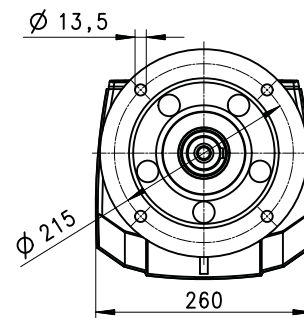
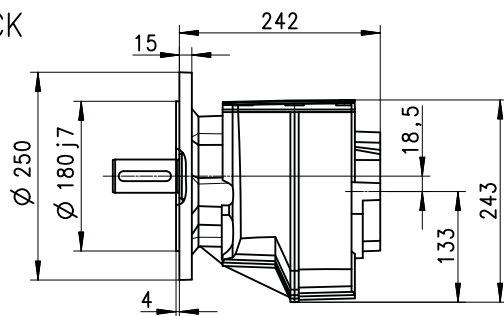
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway (G□□)!

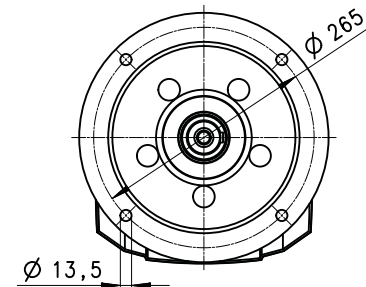
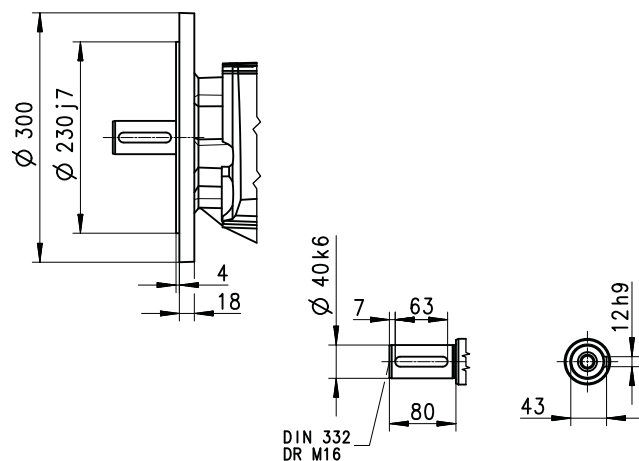
VAK



VCK



VAK/VCK



8801180-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	431	460	484	527	590	603	667
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 □ 142

Technical data

Dimensions
Basic dimensions

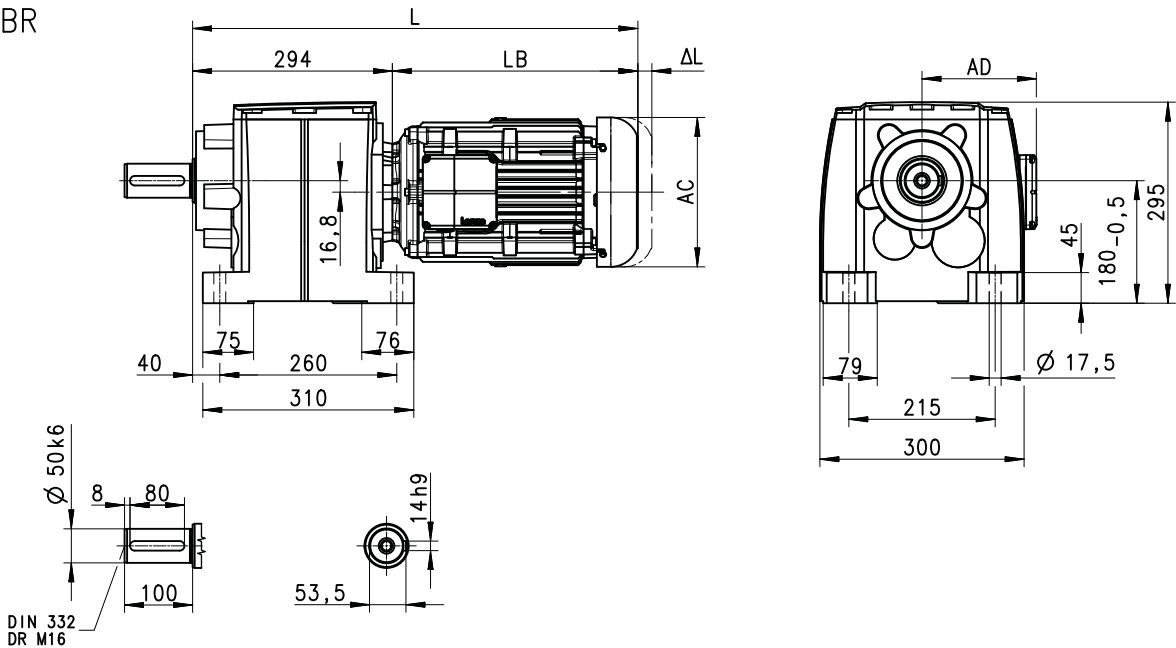


g500-H1500, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801181-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	483	512	536	579	642	655	719
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 142

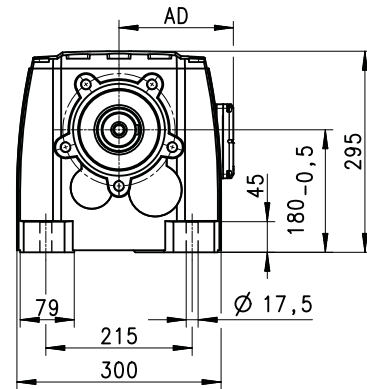
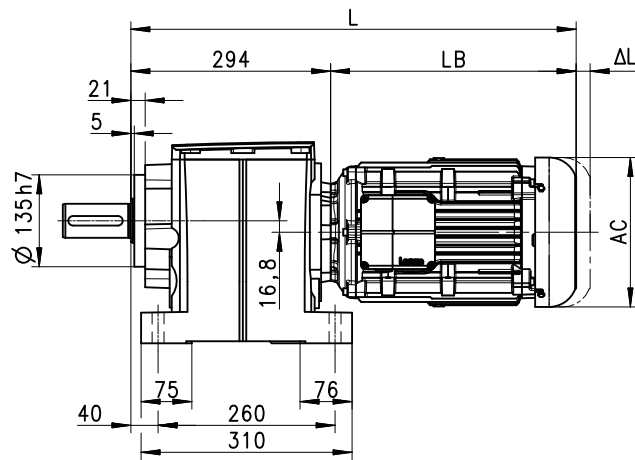


g500-H1500, 2-/3-stage

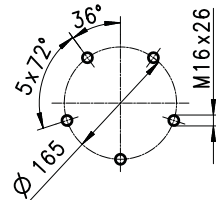
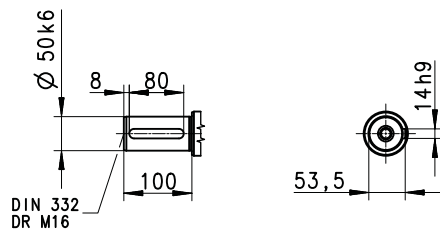
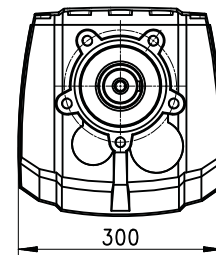
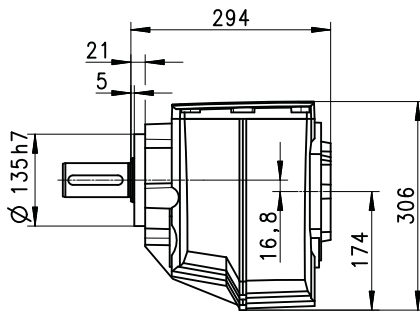
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801182-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	483	512	536	579	642	655	719
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 142

Technical data

Dimensions
Basic dimensions

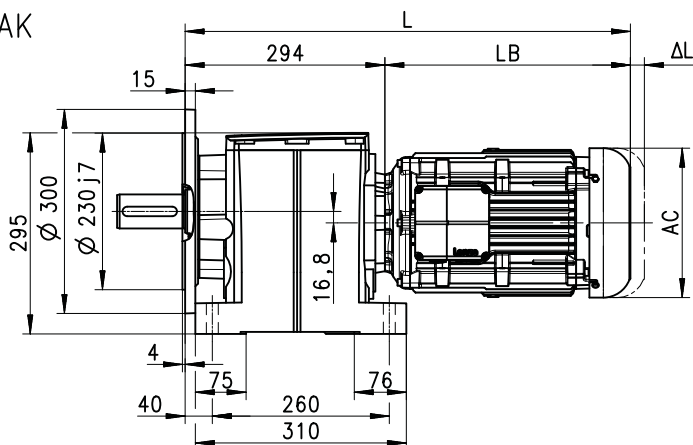


g500-H1500, 2-/3-stage

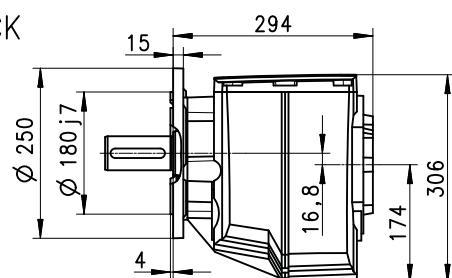
Gearbox design: Solid shaft, with flange (VAK/VCK)

The dimensions also apply for solid shafts without a keyway (G□□)!

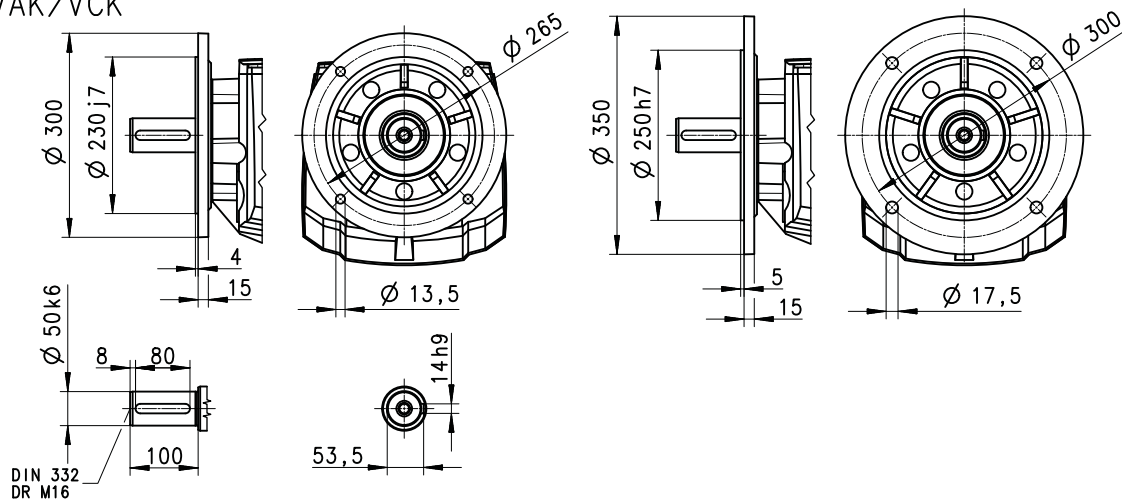
VAK



VCK



VAK/VCK



8801183-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	483	512	536	579	642	655	719
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 □ 142

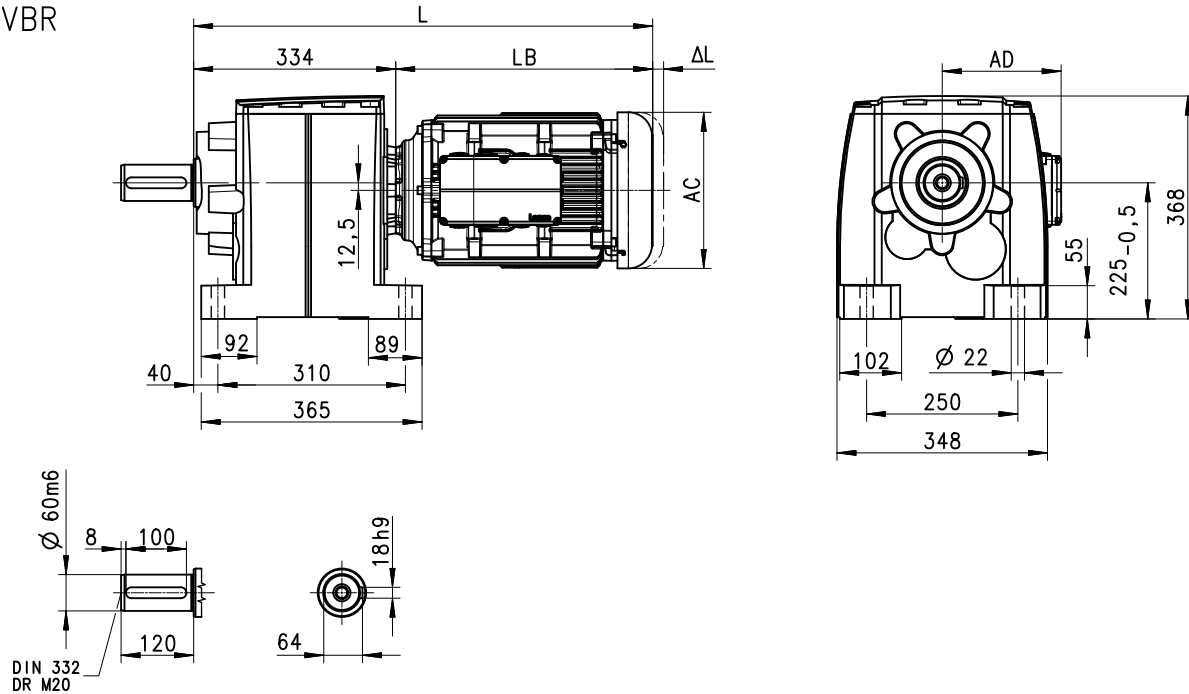


g500-H3000, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VBR



8801184-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	523	552	576	619	682	695	759
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 □ 142

Technical data

Dimensions
Basic dimensions

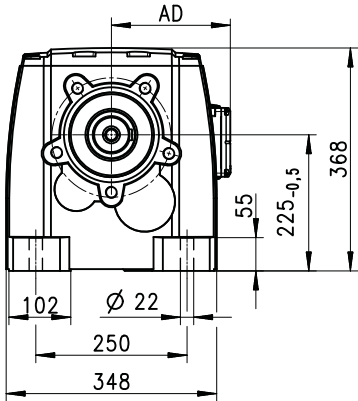
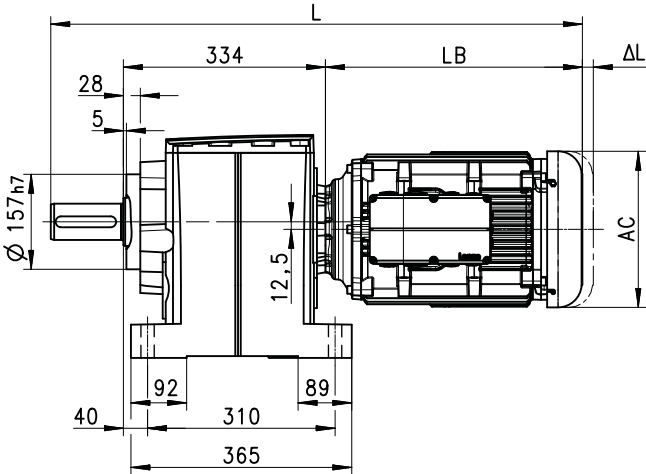


g500-H3000, 2-/3-stage

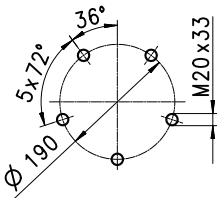
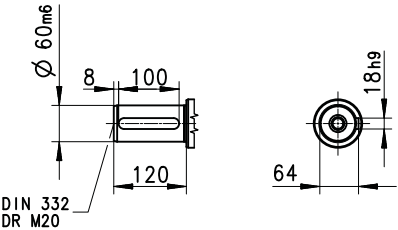
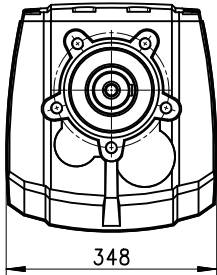
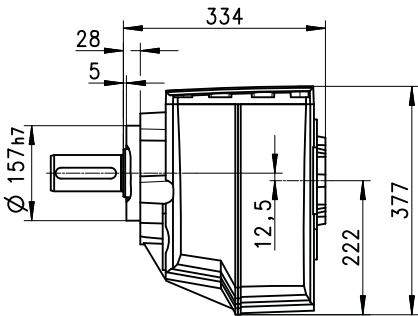
Gearbox design: Solid shaft, with centering (VAR/VCR)

The dimensions also apply for solid shafts without a keyway (G□□)!

VAR



VCR



8801185-00

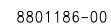
Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	523	552	576	619	682	695	759
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 142



The dimensions are also valid for solid shaft without keyway (G□□)!

► Additionally secure the Ø300 output flange with two spiral pins.



Δ L ▶ Additional lengths  142



7.7.2 Gearbox with pre-stage

g500-H100 ... H140, 3-stage

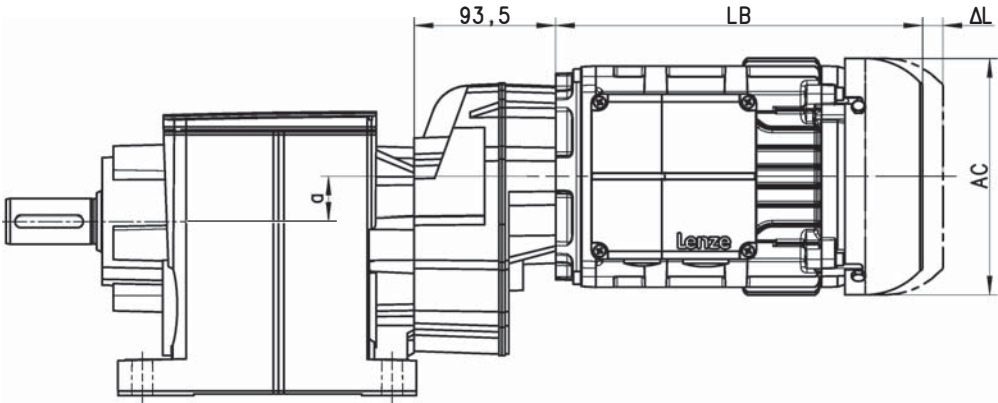
g500-H210 ... H3000, 4-stage

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

► [Basic dimensions](#) 103

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

Observe the altered center distance "a" between the gearbox and motor shaft.



8801279-00

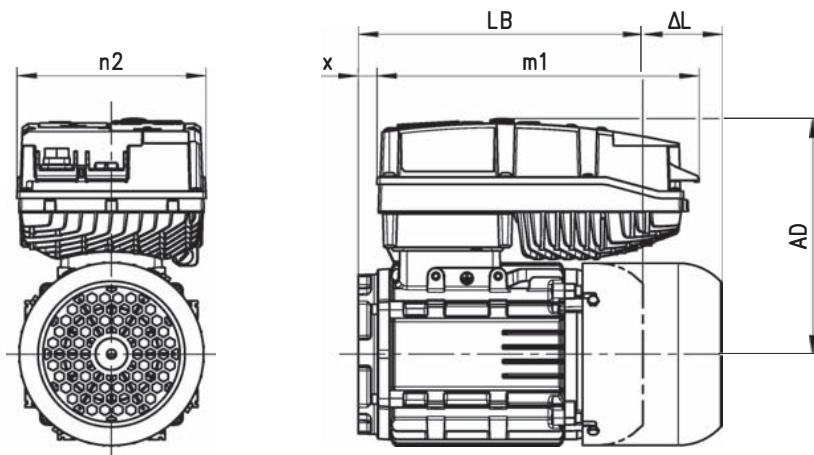
Gearboxes			g500-H100	g500-H140	g500-H210	g500-H320	g500-H450	g500-H600	g500-H850	g500-H1500	g500-H3000
			3-stage		4-stage						
Center distance	a	mm	40.2	30	34.8	24.3	29.6	17.6	26.5	28.2	32.5



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](#) 103



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](#) 143!

7.8.2 Additional weights



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

Gearbox

Gearbox			g500-H45	g500-H100	g500-H140	g500-H210	g500-H320	g500-H450
Foot	m	kg	0.1	0.1	0.2	0.1	0.1	0.2
Flange	m	kg	0.3	0.4	0.6	0.6	0.8	0.9
Flange (VCP)	m	kg		2.0	3.9	3.9	4.1	6.1

Gearbox			g500-H600	g500-H850	g500-H1500	g500-H3000
Foot	m	kg	2.0	2.8	4.3	5.8
Flange	m	kg	4.3	7.6	8.3	20
Flange (VCP)	m	kg				

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 Motor connection

8.1.1 Connection options

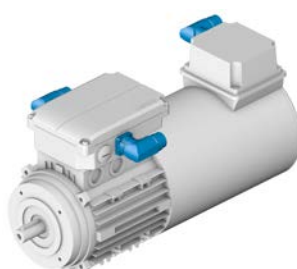


The motors are equipped with a terminal box as standard.

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 cut-off frequencies have been set to the following rated voltages:

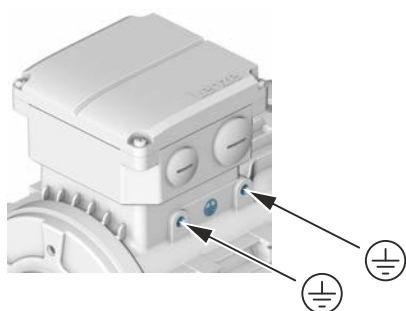
Rated frequency	Rated voltage	Circuit
Hz	V	
124	400	Y

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](#) 44

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.

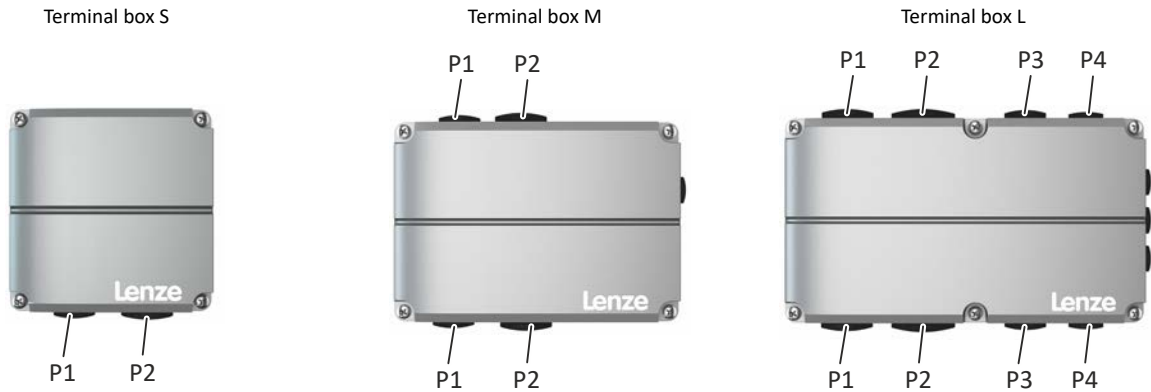
The dimensioning of the grounding is done by the customer.



8.1.2 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

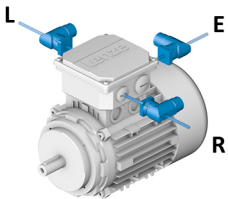
Product extensions

Motor connection
Assignment of the terminal boxes



Positions of the connectors

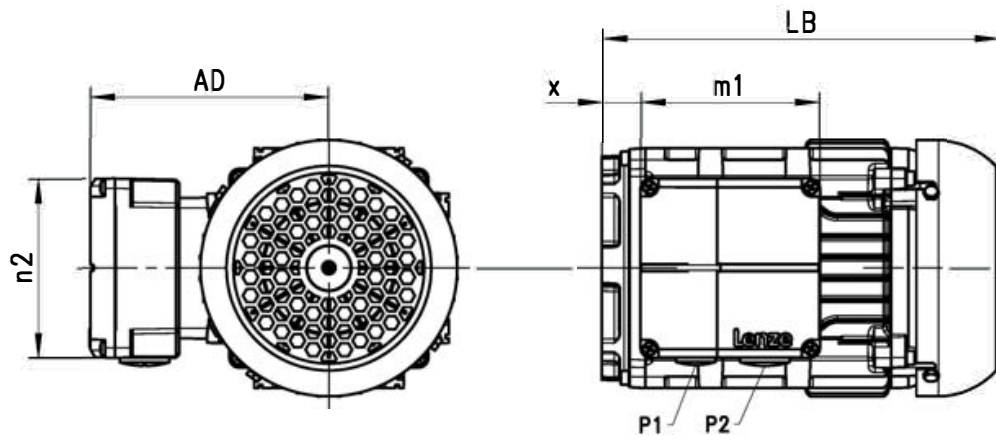
Positions on the motor terminal box



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](#) 103

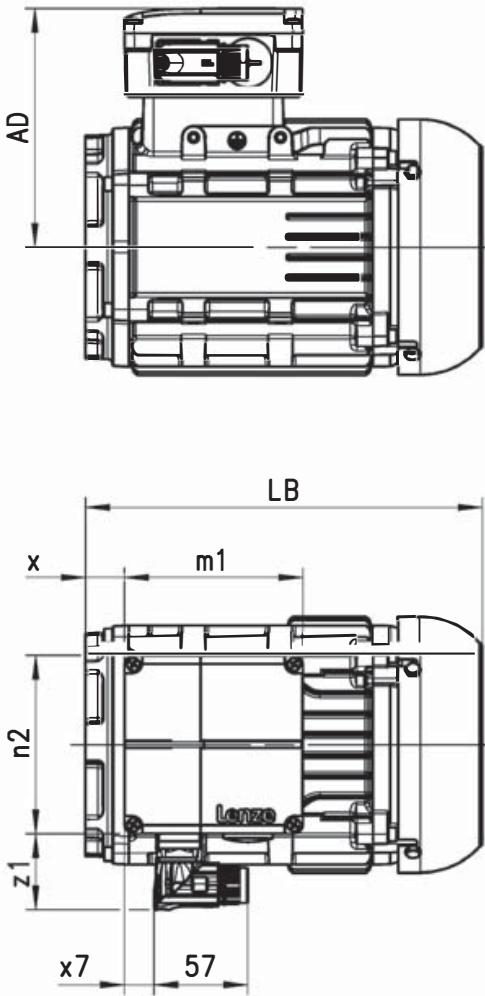
Dimensions Δ L ▶ [Additional lengths](#) 142

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "S" power terminal box with M23 connector



8801787-00

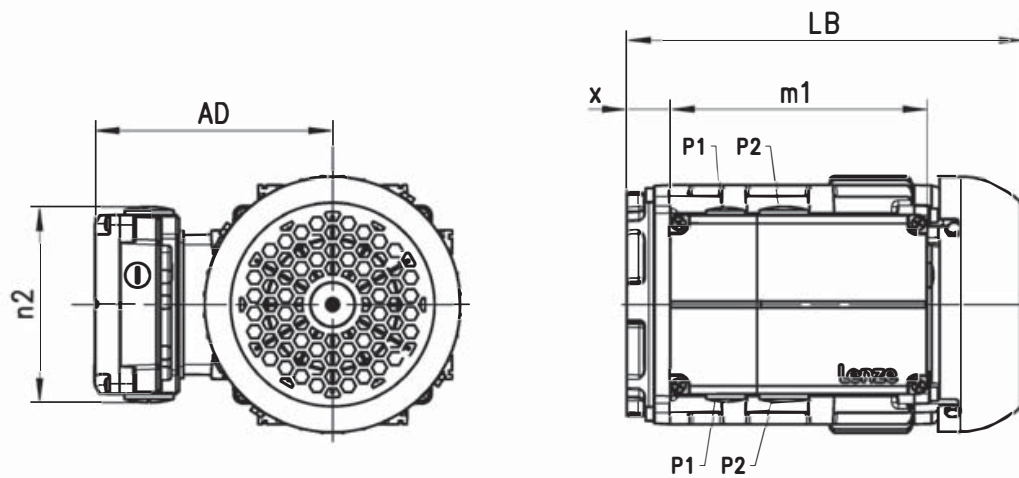
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	117	128	145	153	163	168
x	mm	22	17	24	30	39	45
m ₁	mm	87	87	109	109	109	109
n ₂	mm	87	87	109	109	109	109
ICN connector Power							
x ₇	mm	13	13	18	18	18	18
z ₁	mm	42	42	42	42	42	42

Dimensions LB ▶ [Basic dimensions](#) 103

Dimensions Δ L ▶ [Additional lengths](#) 142



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](#) 103

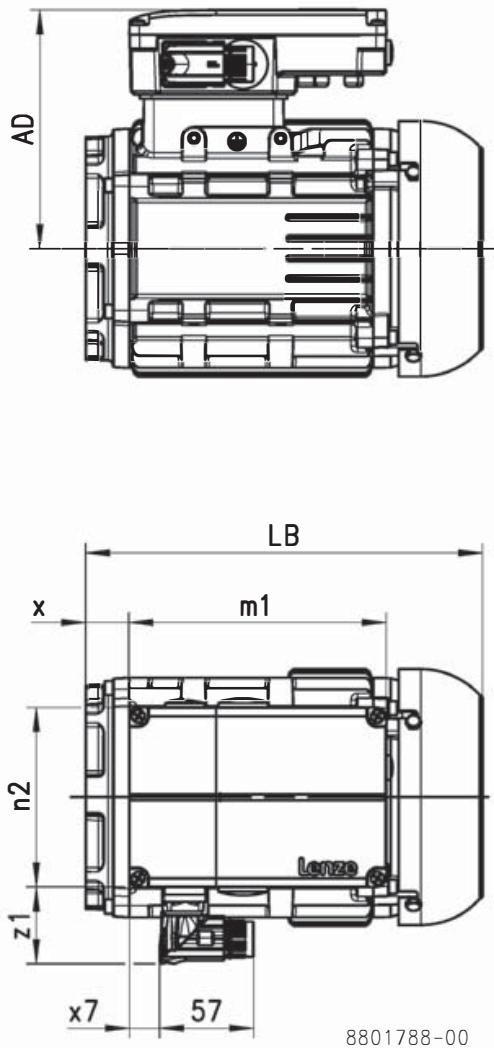
Dimensions Δ L ▶ [Additional lengths](#) 142

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "M" power terminal box with M23 connector



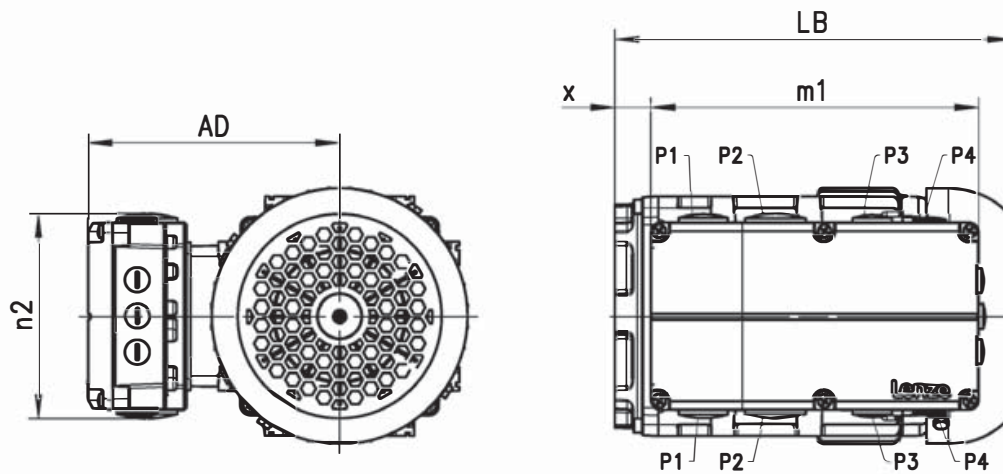
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	113	124	145	153	163	168
x	mm	21	16	27	34	43	49
m ₁	mm	141	141	157	157	157	157
n ₂	mm	110	110	110	110	110	110
ICN connector Power/brake							
x ₇	mm	45.3	45.3	18	18	18	18
z ₁	mm	42	42	42	42	42	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](#) 103

Dimensions Δ L ▶ [Additional lengths](#) 142



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](#) 103

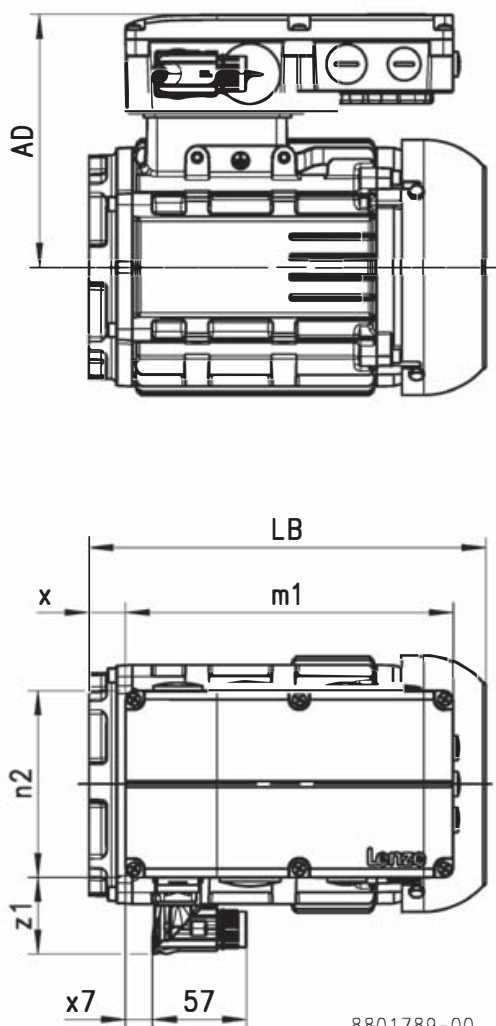
Dimensions Δ L ▶ [Additional lengths](#) 142

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](#) 103

Dimensions Δ L ▶ [Additional lengths](#) 142



8.1.3 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

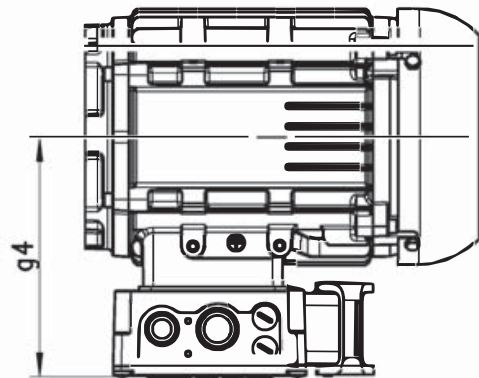
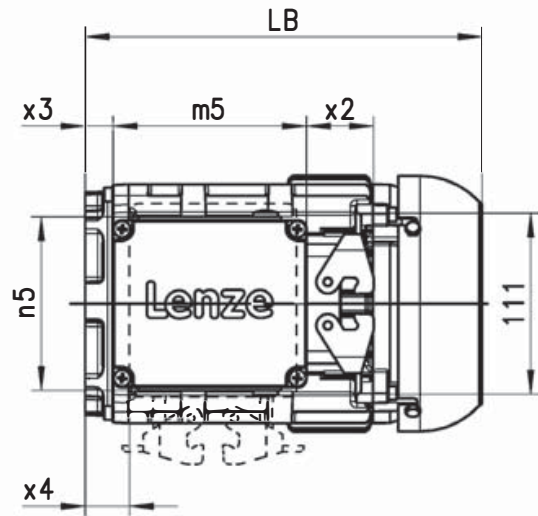


Product extensions

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](#) 103

Dimensions ΔL ▶ [Additional lengths](#) 142



8.1.4 Connection via terminal box

Cable glands

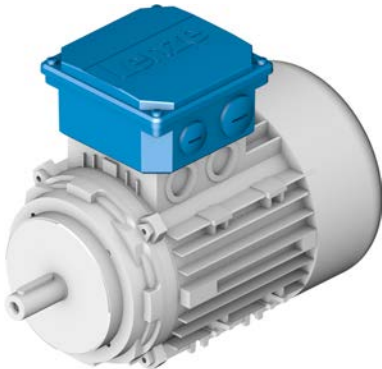


The opening cutouts for the cable glands are closed with plugs.

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

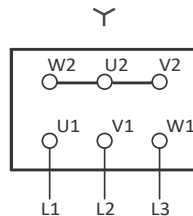
Motor connection
Connection via terminal box



Power connections

Bridge arrangement

Y circuit

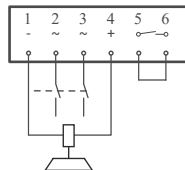


Terminal box, power		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Motor winding phase
V1	L2	
W1	L3	

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		



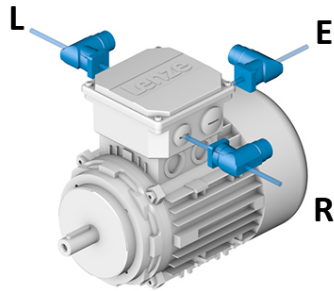
8.1.5 Connection via connector



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

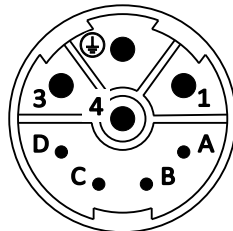
Motor connection
Connection via connector



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



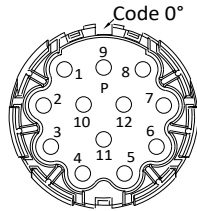
Product extensions

Motor connection
Connection via connector

Feedback and temperature monitoring connection

ICN-M23 connector assignment

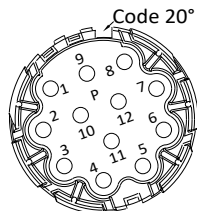
Resolver



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

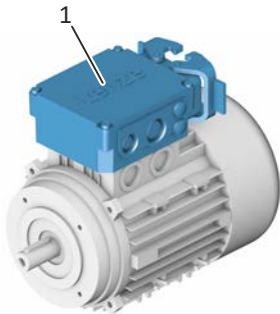
Product extensions

Motor connection
Connection via Han connector



8.1.6 Connection via Han connector

Position of the connections



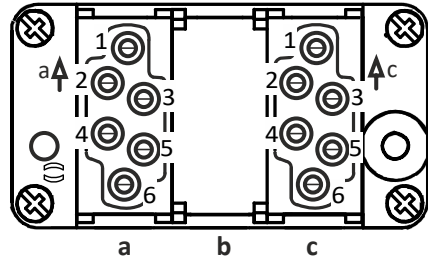
Position	Meaning
1	Power connection Brake connection PE connection Temperature monitoring connection
	Additionally for the Han-Modular: Rectifier connection

Han-Modular connector



The motor circuit is defined in the terminal box.

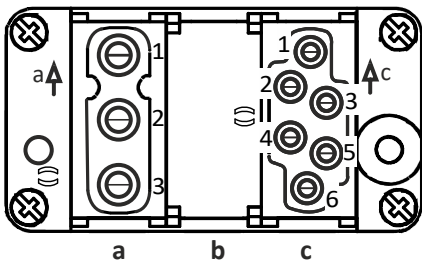
Han-Modular 16 A connector assignment



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



8.2 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



8.2.1 Information on project planning

Important notes

DANGER!

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.



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.



8.2.2 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.

8.2.2.1 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					

8.2.2.2 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

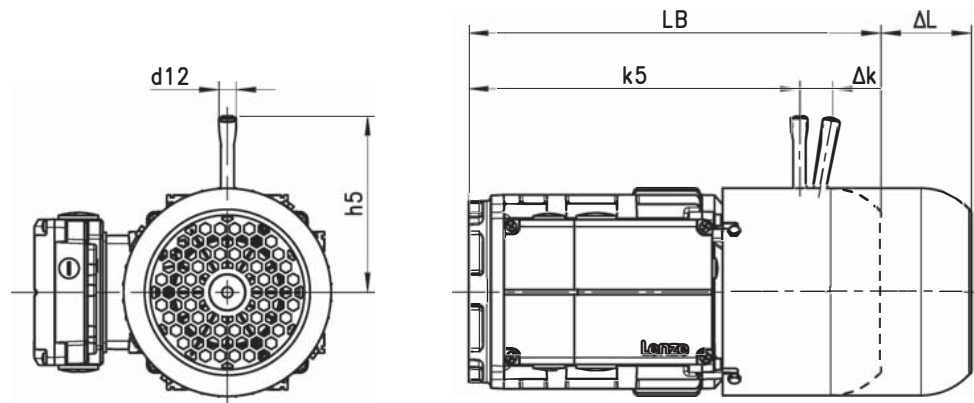
Spring-applied brakes
Spring-applied holding brake



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](#) 103

Dimensions ΔL ▶ [Additional lengths](#) 142



8.3 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)



8.3.1 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



8.3.2 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



8.3.3 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



8.4 Temperature monitoring



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

8.4.1 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 Product codes

Gearbox product code

Example		G	50	A	H	045	M	V	C	R	2	C	1A
Product type	Gearboxes	G											
Product family			50										
Generation				A B									
Gearbox type	Helical gearbox				H								
Output torque	45 Nm					045							
	100 Nm					110							
	140 Nm					114							
	210 Nm					121							
	320 Nm					132							
	450 Nm					145							
	600 Nm					160							
	850 Nm					185							
	1500 Nm					215							
	3000 Nm					230							
	5000 Nm					250							
	8000 Nm					280							
	14000 Nm					314							
Type of construction	Geared motor						M						
	Gearboxes						N						
Shaft type	Solid shaft with featherkey							V					
	Solid shaft without featherkey							G					
Housing type	Foot mounting + centering								A				
	Foot mounting								B				
	With centering								C				
Flange mounting	Without flange									R			
	Flange with through holes									K			
	Reinforced flange with through holes									P			
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



10 Motor data

10.1 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 data

Rated data

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			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



11 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>



12 Appendix

12.1 Good to know

12.1.1 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

12.1.2 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).

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