

g500-H + m540-P helical geared motor



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About this document

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.



Further documents



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

www.lenze.com → Downloads



Notations and conventions

This document uses the following conventions to distinguish different types of information:

Numbers			
	Decimal separator	Point	In general, the decimal point is used. Example: 1 234.56
Warning			
	UL warning	UL	Are used in English and French.
	UR warning	UR	
Text			
	Programs	» «	Software Example: »Engineer«, »EASY Starter«
Icons			
	Page reference		Reference to another page with additional information Example:  16 = see page 16
	Documentation reference		Reference to another 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.



Product information

Product description

When used in combination with three-phase AC motors, our helical gearboxes form a compact, powerful drive unit. Numerous options at the input and output end provide for the drive to be exactly adapted to your application.

The robust helical gearboxes are characterized by high permissible radial forces, closely stepped ratios and a low backlash. They are available in a 2- and 3-stage design with an output torque of up to 14,000 Nm and a ratio of up to $i = 370$.

Versions

- Fine-scaling of size/torque provides for an optimum machine adaptation
- Market standard shaft dimensions and standardized flanges for easy machine integration
- High efficiency

Three-phase AC motors for mains and inverter operation

In a power range from 1.5 to 55 kW, Lenze offers inverter-compatible three-phase AC motors in accordance with the Ecodesign Directive for more extensive tasks.

These motors have efficiency class IE3 and can be used for the versions required for open-loop or closed-loop inverter operation.

Customer benefit

- Efficiency class IE3 for the greatest economic benefit
- Space-saving thanks to compact direct attachment to Lenze gearboxes
- Can be used universally for a wide range of machine tasks due to the market-oriented modular system
- Conventional connectors ensure quick connection, also during servicing



Gearbox g500-H8000 with three-phase AC motor m550-P180/M4



Flexible in motor mounting

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

Power is transmitted between the motor and gearbox via a flexible jaw coupling or a plug-in hollow shaft. The shaft holders are available for motor shafts with or without featherkey, depending on the design.

Customer benefit

- Can be used universally for a wide range of machine tasks due to the market-oriented modular system
- Simple plug-in motor mounting
- Mounting motors according to IEC 72/DIN 42948
- Mounting motors according to NEMA C/TC
- Mounting servo motors with square flange according to IEC 72/DIN 42948
- Torsional vibration damping power transmission of the coupling
- Motor shaft connection, low backlash or backlash-free, depending on version

More information can be found under:

► [Gearbox data](#)  40

► [Gearboxes with adapter](#)  44



g500-H helical gearbox with adapter for IEC standard motors



Identification of the products

Gearbox product name

Gearbox type	Product range		Version	Rated torque Nm	Gearbox
Helical gearbox	g500	-	H	5000	g500-H5000
				8000	g500-H8000
				14000	g500-H14000

Three-phase AC motor product name

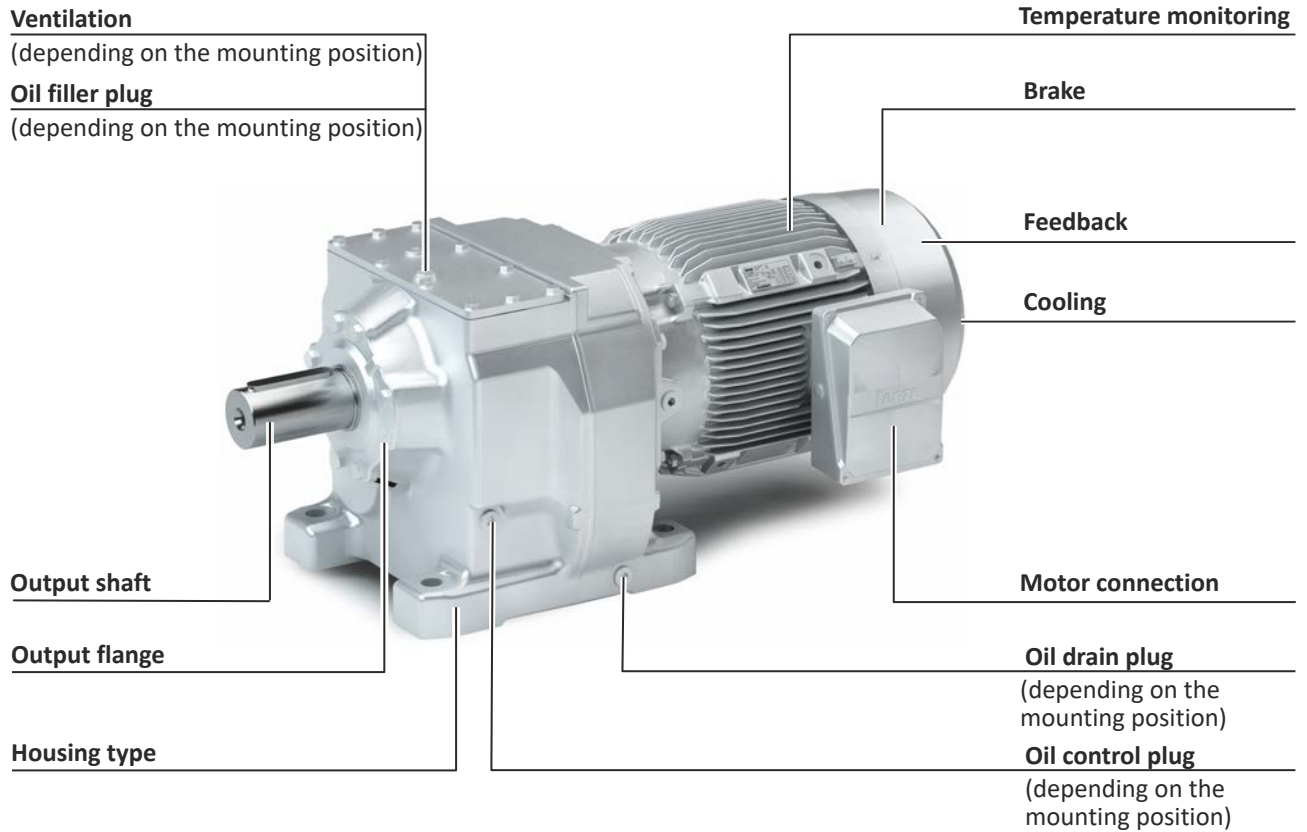
Example	m540	-	P	90	supply	L	4
---------	------	---	---	----	--------	---	---

Meaning	Variant	Product name					
Product family		m550					
Efficiency class	IE3			P			
Size					90 100 112 132 160 180 200 225 250		
Motor length	Medium					M	
	Long					L	
Number of pole pairs	4-pole						4



Features

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





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 5000 Nm to 14000 Nm

Gearbox		g500-H5000	g500-H8000	g500-H14000
Min. motor assignment		m540-P90	m540-P100	m540-P112
Max. motor assignment		m540-P250	m540-P250	m540-P250
Technical data				
Max. output torque	Nm	5000	8000	14000
Min. drive power at 50 Hz	kW	1.5	2.2	4.0
Max. drive power at 50 Hz	kW	55	55	55
Mounting position				
Standard		M1, M2, M3, M4, M5, M6 (ABCDEF)		
Combined		-		
Color		Primed Painted in RAL colors		
Surface and corrosion protection		OKS-S Different types of OKS		
Output shaft				
Solid shaft with featherkey	mm	70 x 140	90 x 170	110 x 210
Solid shaft without keyway	mm	-	-	-
Shaft material		Steel		
Output shaft bearing		Standard		
Gearbox design		With foot (VBR) With centering (VCR) - With output flange (VCK)		
Output flange	mm	350/450	450/550	450/550
Ventilation		Vent valve Oil compensation reservoir		
Cooling		Integral fan Blowers		
Product extensions				
Connection method		Y/Δ		
Connection type		Terminal box HAN connector		
Spring-applied brake		Without Application brake		
Feedback		Without Incremental encoder		
Temperature monitoring		PTC thermistor		



Designs

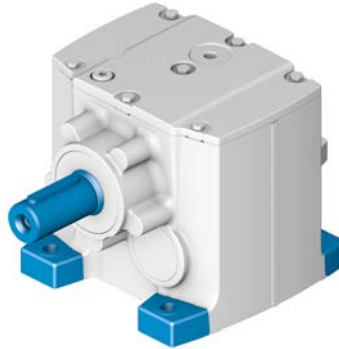
Gearbox versions



Observe the available gearbox designs!

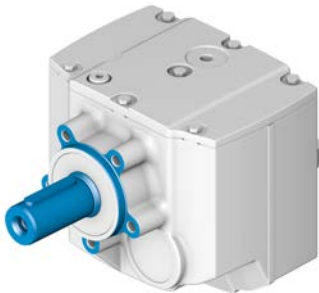
► [The modular system](#) 12

Solid shaft with foot



Without centering (VBR)

Solid shaft without foot



With centering (VCR)



Flange with through holes (VCK)

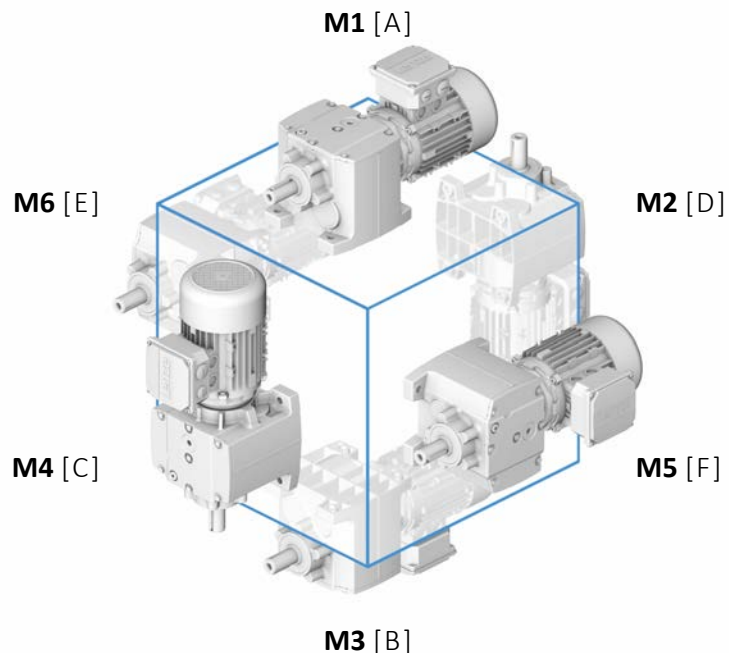
Product information

The modular system
Mounting positions



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.

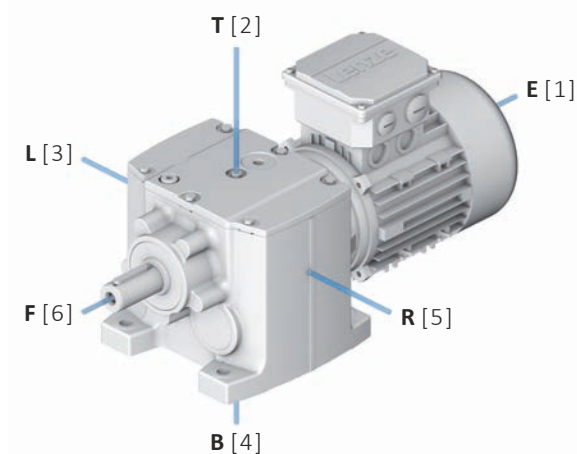


Defined positions on the geared motor

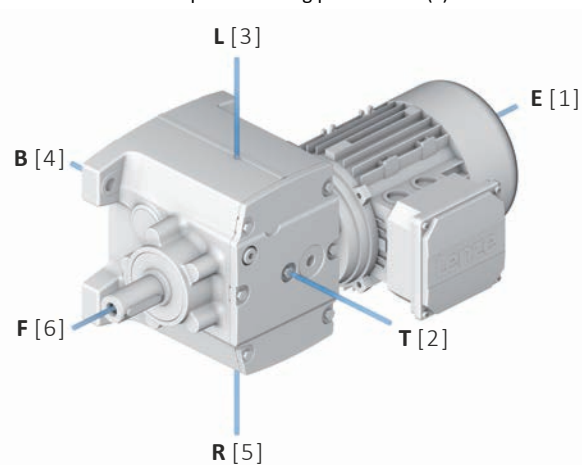
All of the defined positions refer to the areas on the geared motor in mounting position **M1 (A)**.

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.

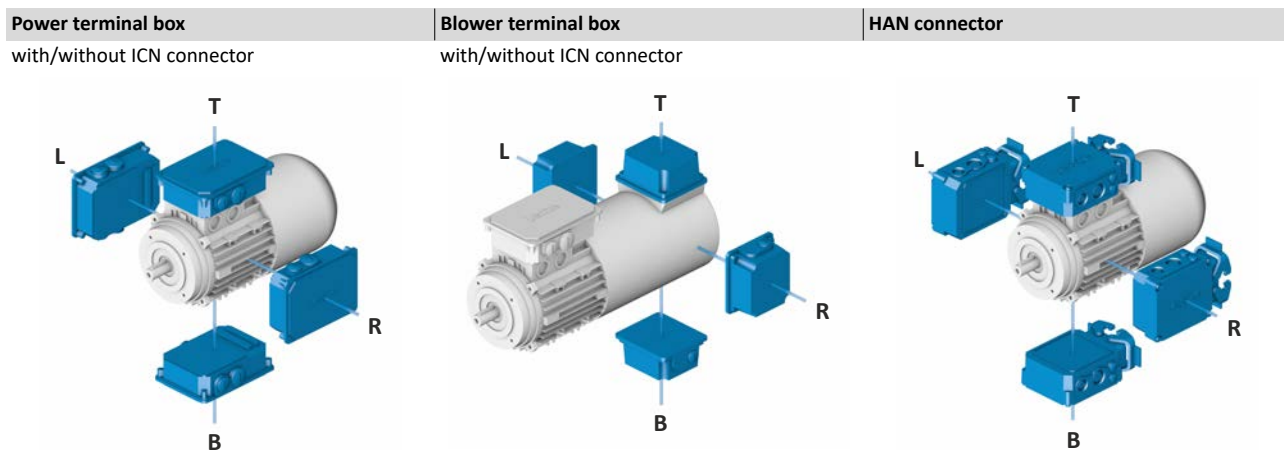


Example: Mounting position M5 (F)

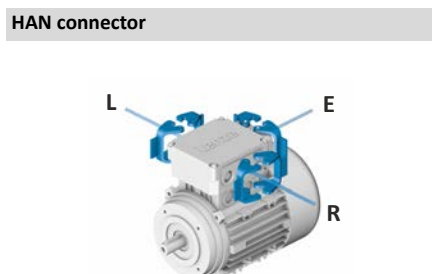




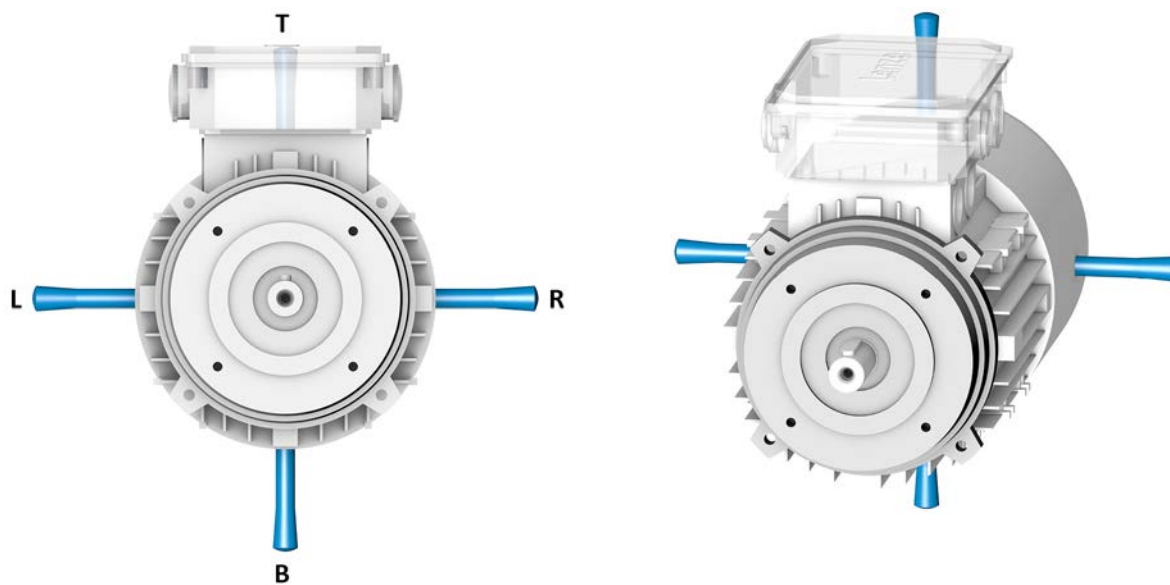
Positions of the terminal boxes/connectors



Positions of the connections



Position of the manual release lever





Information on project planning

Safety instructions

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.

Application as directed

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



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!

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.

Motor protection

- Installed temperature sensors are no 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 $I > I_{rated}$, 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 sensors.



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.

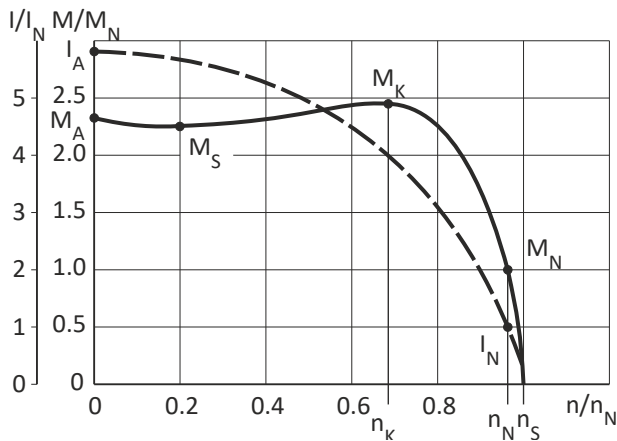


General information

Operation with mains power

If operated with mains power, the three-phase AC motor starts up in accordance with the speed-torque characteristic when switched on. It follows this characteristic until it reaches its stable operating point. The operating point is reached when the load or rated torque (M_N) is smaller than the starting torque (M_A) and pull-up torque (M_S). The rated speed (n_N) of the drive is always less than the arithmetic synchronous speed (n_S).

The difference between rated and synchronous speed relative to the synchronous speed is called the slip.



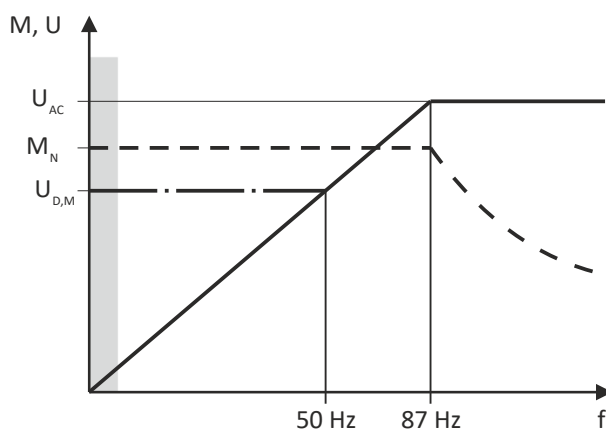
Operation on the frequency inverter

Standard setting

The frequency inverter is set for easy operation on a three-phase AC motor with vector control by default. The rated torque of the motor is available in a setting range up to 50 Hz in this mode of operation.

Extended setting range up to 87 Hz

If the frequency inverter's U/f reference point is set to 87 Hz, the rated torque can be taken into account in an extended setting range. A 230/400 V motor is used here, for example, and operated in delta on a 400 V frequency inverter. The setting range is increased by 40 %. The inverter must be dimensioned for a rated motor current of 230 V.



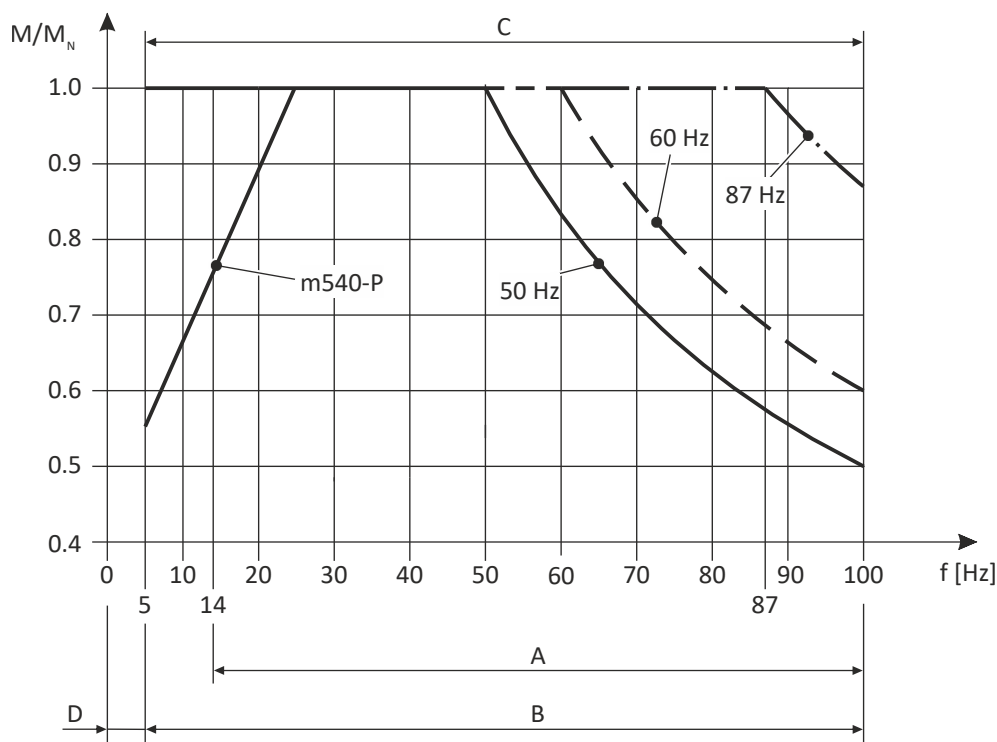


Torque reduction at low motor frequencies

At low motor frequencies (usually < 20 Hz) and with an integral fan, the motor is not cooled sufficiently at the rated torque. The motor can be operated from 5 Hz by reducing the torque accordingly.

Constant cooling takes place over the entire speed range in motors with a blower. This means that they can be used with their rated torque from 5 Hz.

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



- A Operation with integral fan and brake
- B Operation with integral fan and brakes with a wide range voltage of DC 180 ... 205 V or AC 400 ... 460 V
Operation with integral fan and "holding current reduction" brake control
- C Operation with blower
- D Operation below 5 Hz is possible depending on the application and the control method.
Verification of the application by Lenze required.

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 with the Drive Solution Designer (DSD) or contacting your Lenze representative is required if

- ▶ the input speed $n_1 > 1500$ rpm is fallen below in case of the gearbox ratios given in the following.
- ▶ the drive speeds mentioned in the following will be exceeded as a function of the mounting position. For a short period of time up to 5 min, 30 % higher speeds are permissible.
- ▶ the ambient temperature is predominantly above +30 °C.

Gearbox		Ratio i	
g500-H5000 ... H14000		≤ 25	

Motor	Mounting position M1	Mounting position M3, M5, M6	Mounting position M2, M4
m540-P90 ... P250	1500 rpm	1500 rpm	1500 rpm



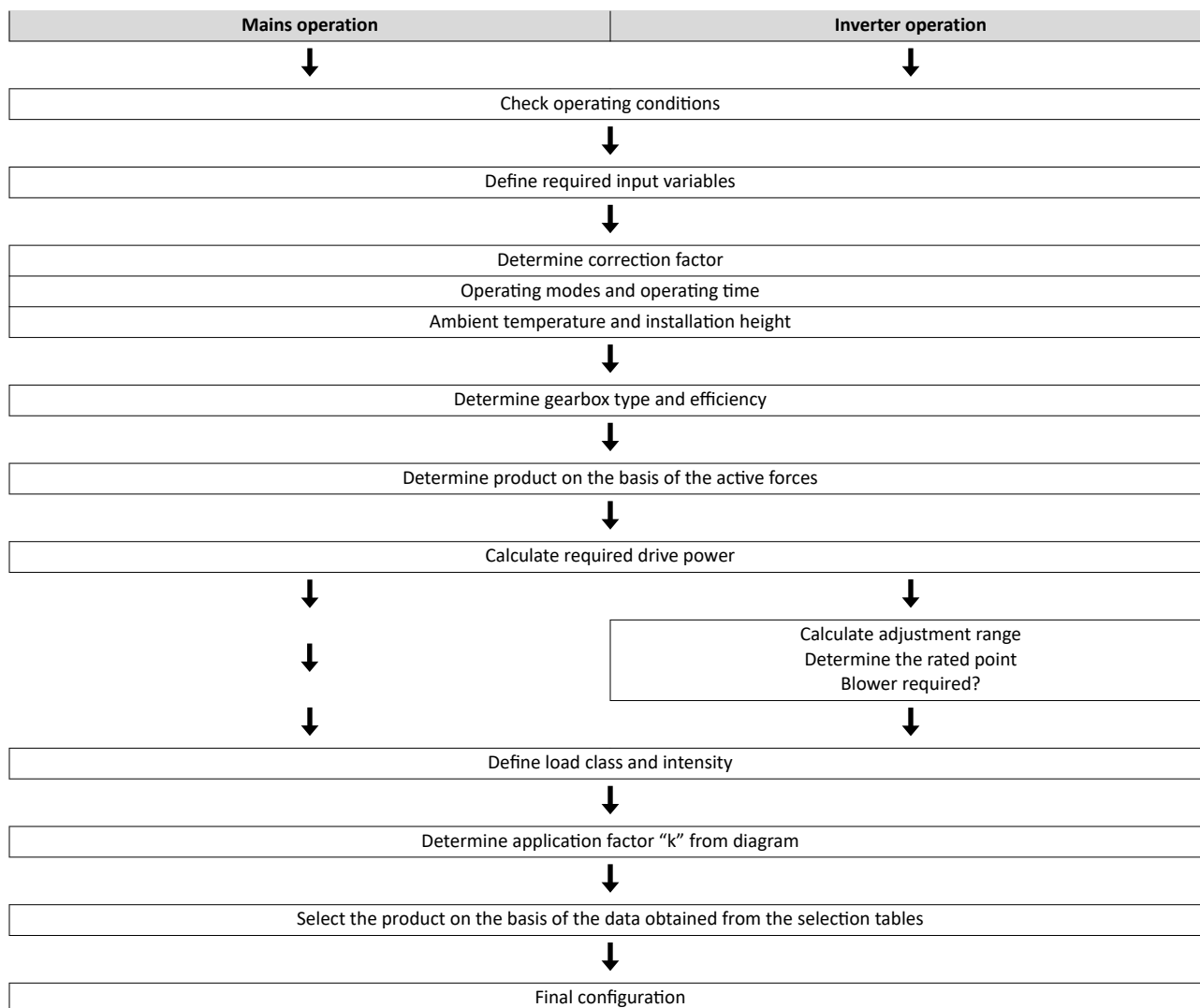
Drive dimensioning

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

With the »Drive Solution 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.

Operation chart



Check operating conditions

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

► Standards and operating conditions [38](#)

► Surface and corrosion protection [27](#)



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 [117](#)

Installation height amsl			
≤ 1000 m	≤ 2000 m	≤ 3000 m	≤ 4000 m
Correction factor			
k_H	k_H	k_H	k_H
1	0.95	.90	.85

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

Mounting position						
Gearboxes	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
g500-S	1.00	0.70	0.80	0.85	0.80	0.90
g500-B	1.00	0.70	0.80	0.80	0.80	0.80

► Selection tables [51](#)



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	≥ 20 teeth: 1.0	With belt tightener: 2.0 – 2.5	1.5 – 2.0
			< 17 teeth: 1.15	< 20 teeth: 1.25 < 13 teeth: 1.4	Without belt tightener: 2.5 – 3.0	
			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](#) 48

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 mains operation

		Calculation	
Intensity	F_I	$F_I = \frac{\frac{J_L}{i^2} + J_M + J_B + J_Z}{J_M + J_B + J_Z}$	

i Ratio of gearbox

J_B Moment of inertia of brake

J_L Load moment of inertia

J_Z Additional moment of inertia (handwheel, 2nd shaft end ...)

J_M Motor moment of inertia

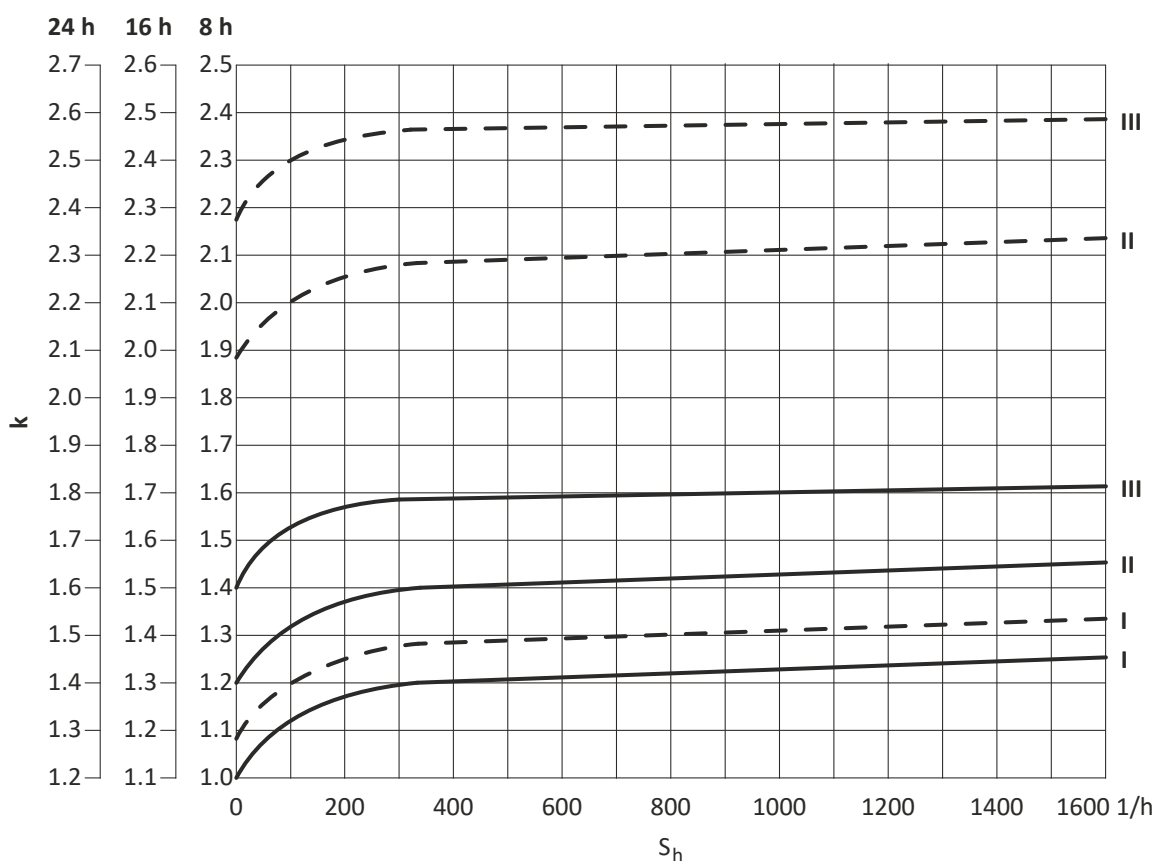
Intensity	Load type	Load class
$F_I \leq 1.25$	Smooth operation, small or light jolts	I
$1.25 < F_I \leq 4$	Uneven operation, average jolts	II
$F_I > 4$	Uneven operation, severe jolts and/or alternating load	III



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 motor stalling torque/rated torque < 2.5
 - - - Ratio of motor stalling torque/rated torque ≥ 2.5

Stalling/rated motor torque ▶ [Rated data](#) 106

Check and select product

Data ▶ [Selection tables](#) 51

Mains operation

Selection table	Screening	Unit	Note
Rated frequency	50	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 enough torque for $M_{L,max}$.
Output speed	$n_2 \approx n_{L,max}$	rpm	
Load factor	$c \geq k$		



Inverter operation

Selection table	Check	Unit	Note
Rated frequency	50/87	Hz	
Rated power	$P_{\text{rated}} \geq P_1$	kW	
Output torque	$M_2 \geq M_L$	Nm	The geared motor must be able to provide enough torque for $M_{L,\text{max}}$.
Max. Output speed	$n_2 \approx n_{L,\text{max}}$	rpm	
Min. Output speed			
Self-ventilated	$n_{21} \approx n_{L,\text{min}}$	rpm	Adjustment ranges ≤ 2.5 (50 Hz) Adjustment ranges ≤ 4.35 (87 Hz)
Forced-ventilated			
Self-ventilated (Output torque reduced)	$n_{22} \approx n_{L,\text{min}}$	rpm	Adjustment ranges ≤ 10 (50 Hz) Adjustment ranges ≤ 17.4 (87 Hz)
Load factor	$c \geq k$		

Order information	Example
Geared motor	
Gearbox	g500-H5000
Motor	m540-P90/L4
Gearbox ratio i	130.842
Number of stages	3



Final configuration

	Screening
Connection dimensions	Output shaft Output flange/foot
Mounting position	Geared motor Connector/terminal box Driven shaft/output flange
Product extensions	Torque plate Shaft cover Connector/terminal box Brake Feedback Blower Temperature monitoring Second shaft end Handwheel Protection cover ...

More information about the final configuration:

► [The modular system](#) 12

► [Product extensions](#) 80

Surface and corrosion protection

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

Various surface coatings ensure that the motors operate reliably at high air humidity, in outdoor installation or in the presence of atmospheric impurities. Any color from the "RAL Classic" collection can be chosen for the top coat.

Surface and corrosion protection	Applications	Product
		g500-H5000 ... H14000 g500-S8000 ... S19000 g500-B8000 ... B20000
OKS-G (primed)	• Dependent on subsequent top coat applied	Optionally
OKS-S (small)	• Standard applications • Internal installation in heated buildings • Air humidity up to 90 %	Standard
OKS-M (medium)	• Internal installation in non-heated buildings • Covered, protected external installation • Air humidity up to 95 %	Optionally

Surface and corrosion protection	Corrosivity category	Surface coating	Color	Coating thickness
	DIN EN ISO 12944-2	Design		
OKS-G (primed)	-	• Dip priming of the gray cast iron parts • 2K PUR priming coat	-	60 ... 90 µm
OKS-S (small)	Comparable to C1	• Dip priming of the gray cast iron parts • 2K-PUR top coat	• Standard: RAL 7012 • Optional: RAL Classic	80 ... 120 µm
OKS-M (medium)	Comparable to C2	• Dip priming of the gray cast iron parts • 2K PUR priming coat • 2K-PUR top coat		110 ... 160 µm



Lubricants

Lubricant	CLP 220					CLP 460				
Ambient temperature	0 ... +40 °C									
Specification	Mineral oil with EP additives									
Changing interval										
Operating hours	16000									
Not later than after	3 years									
At oil temperature	80 °C									
Manufacturer	Fuchs		Klüber	Shell		Fuchs		Klüber	Shell	
Manufacturer series	Renolin		Klüberoil	Omala		Renolin		Klüberoil	Omala	
Manufacturer type	CLP 220	CLP Plus 220	GEM 1-220 N	S2 G 220	S2 GX 220	CLP 460	CLP Plus 460	GEM 1-460 N	S2 G 460	S2 GX 460

Lubricant	CLP HC 220				CLP HC 220USDA H1		CLP HC 320			
Ambient temperature	-30 ... +40 °C				-20 ... +40 °C		-20 ... +50 °C			
Specification	Synthetic oil (polyalfaolefins basis)									
Changing interval										
Operating hours	25000				16000		25000			
Not later than after	4 years				3 years		4 years			
At oil temperature	80 °C									
Manufacturer	Fuchs		Klüber	Shell	Fuchs	Klüber	Fuchs		Klüber	Shell
Manufacturer series	Renolin Unisyn		Klübersyn th	Omala	Cassida Fluid	Klüberoil	Renolin Unisyn		Klübersyn th	Omala
Manufacturer type	CLP 220	XT 220	GEM 4-220 N	S4 GX HD 220	GL 220	4 UH1-220 N	CLP 320	XT 320	GEM 4-320 N	S4 GX HD 320

Lubricant amounts for stocking

All lubricant amounts are reference values for a change of lubricant. They serve stocking purposes, for example.

The exact values can be found on the nameplate.

Gearbox	M1 (A)	M2 (D)	M3 (B)	M4 (C)	M5 (F)	M6 (E)
	I	I	I	I	I	I
g500-H5000-2	6	19	19.9	19.9	18.4	12.1
g500-H5000-3	6	19	19.9	19.9	18.4	12.1
g500-H8000-2	9.4	32	31.5	32.5	29	20.5
g500-H8000-3	9.4	32	31.5	32.5	29	20.5
g500-H14000-2	13.6	47.5	49	49.5	45	33
g500-H14000-3	13.6	47.5	49	49.5	45	33

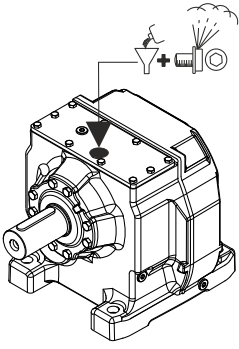
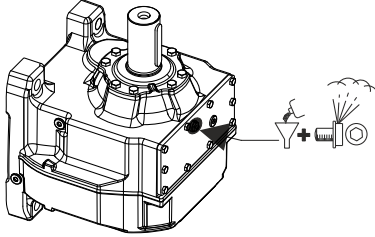
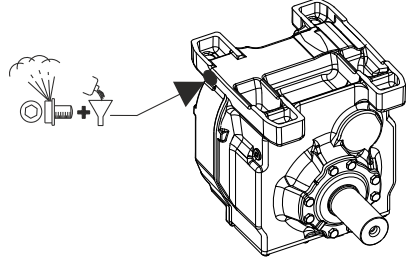
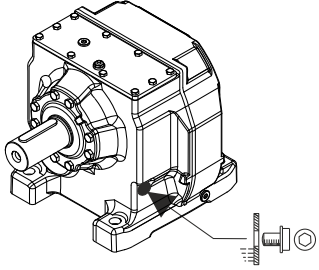
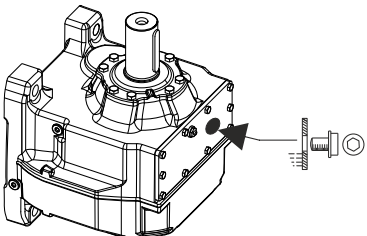
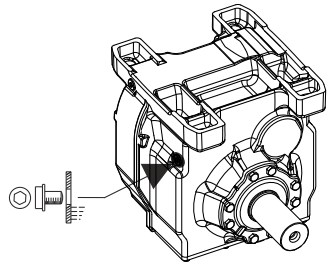
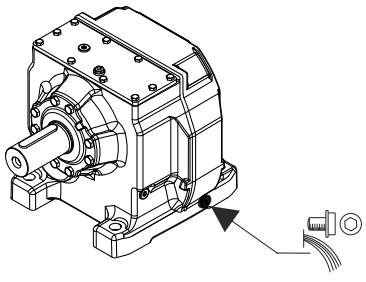
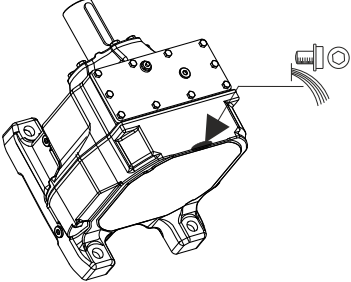
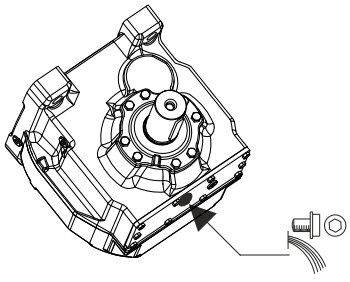


Ventilation

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-H5000 ... H14000

Mounting position M1 (A)	Mounting position M2 (D)	Mounting position M3 (B)
Filling and ventilation		
		
Check		
		
Drain		
		

Information on project planning

Final configuration
Ventilation



Mounting position M4 (C)	Mounting position M5 (F)	Mounting position M6 (E)
Filling and ventilation		
Check		
Drain		

- ② 2-stage gearboxes
- ③ 3-stage gearboxes



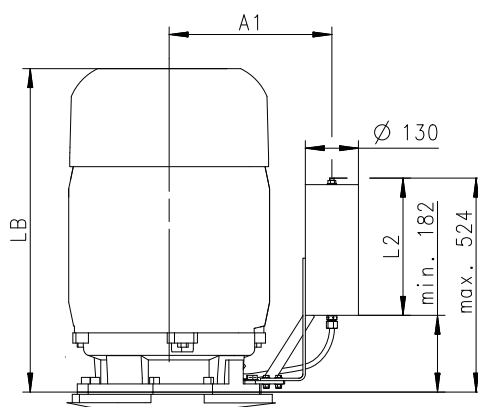
Gearbox with oil compensation reservoir for mounting position M4 (C)

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 oil compensation reservoir



Gearbox	A1	L2
	mm	mm
g500-H5000	376	166
g500-H8000	399	336
g500-H14000	427	336



Mechanical installation

Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#)  38
- 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.



Transport

- 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.



Installation

- 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.



Electrical installation

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](#)  80

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



Preparation

EMC-compliant wiring



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



Technical data

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 = -30 ... +40 °C
- Site altitude ≤ 1000 m above mean sea level
- The selection tables indicate the mechanically permissible power levels and torques.
- The ratings apply to the 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.

Technical data

Standards and operating conditions
Conformities and approvals



Standards and operating conditions

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	(EU) 2019/1781	Regulation laying down ecodesign requirements for electric motors and speed control			CE mark
		2009/125/EC	Ecodesign Directive			
		2011/65/EU	RoHS			
		2014/30/EU	EMC Directive			
		2014/35/EU	Low-Voltage Directive			
Great Britain	UKCA	S.I. 2012/3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012			UKCA mark
		S.I. 2016/1091	The Electromagnetic Compatibility Regulations 2016			
		S.I. 2016/1101	The Electrical Equipment (Safety) Regulations 2016			
		S.I. 2021/745	The Ecodesign for Energy-Related Products and Energy Information Regulations 2021			

America					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
Canada	CSA	CSA 22.1 No. 100	CSA Standard for Motors and Generators	-	cURus mark
	NrCAN	SOR/2016-311 (Division 12 - Subdivision A)	Energy Efficiency Regulations		UL Energy mark
USA	DOE	10 CFR Part 431 - Subpart B	Energy Efficiency Program for Certain Commercial and Industrial Equipment		UL Energy mark + CC number
	UL	UL 1004-1	UL Standard for Rotating Electrical Machines		cURus mark

Asia					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
China	-	GB 18613	Minimum allowable values of energy efficiency and energy efficiency grades for small and medium three-phase asynchronous motors	-	CEL mark
		GB/T 26572	Requirements on concentration limits for certain restricted substances in electrical and electronic products		EFUP mark
	CCC	GB 12350	Safety requirements of small power motors		CCC mark

Protection of persons and device protection

Temperature class			
-	EN IEC 60034-1	F (155 °C)	Insulation system
Utilization		B (130 °C)	Utilization



EMC data

Environmental conditions

Energy efficiency			
10 CFR	10 CFR Part 431	-	-
GB	GB 18613-2012		
Premium Efficiency	EN IEC 60034-30-1	IE3 class	
Climate			
Operation	EN 60721-3-3:1995 + A2:1997	3K3 (-20 ...+40 °C)	Operation without brake, self-ventilated
		3K3 (-20 ...+60 °C)	
Site altitude			
0 ... 1000 m amsl	-	Without current derating	
1000 ... 4000 m amsl		With derating	Current derating by 5 %/1000 m
Air humidity			
-	-	Average relative humidity 85 %	Without condensation



Gearbox data

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

The data given for speed, torque and power are valid if the

- input speed $n_1 = 1400$ 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-H5000, 2-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
n_2	$M_{2, \max}$	i	z_g	z_t	Standard
rpm	Nm				'
289	3270	4.846	63	13	10
237	3610	5.911	2583	437	10
206	3630	6.789	129	19	9
187	3630	7.497	3276	437	9
164	3640	8.526	162	19	9
150	4660	9.331	1577	169	7
123	4760	11.381	3403	299	7
107	4850	13.073	3569	273	7
97.0	4940	14.435	332	23	7
85.3	5000	16.418	1494	91	7
75.3	5000	18.599	5561	299	7
66.7	5000	20.978	1909	91	7
59.8	5000	23.410	913	39	7
53.2	5000	26.305	8549	325	6
47.1	5000	29.702	8881	299	6
41.8	5000	33.519	1743	52	6
37.7	5000	37.147	5312	143	6
33.5	5000	41.819	10873	260	6
29.7	5000	47.175	11039	234	6
27.8	5000	50.326	11122	221	6
26.2	5000	53.471	5561	104	6
22.4	5000	62.478	11371	182	6



g500-H5000, 3-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
					Standard
n_2	$M_{2, \max}$	i	z_g	z_t	
rpm	Nm				'
22.3	5000	62.664	21995	351	6
20.4	5000	68.658	61586	897	6
17.8	5000	78.777	193556	2457	6
15.6	5000	89.909	241945	2691	6
13.7	5000	102.053	83581	819	6
12.2	5000	114.361	321127	2808	6
10.7	5000	130.842	127571	975	6
9.6	5000	145.489	391511	2691	6
8.4	5000	167.626	470693	2808	6
7.5	5000	186.282	479491	2574	6
6.7	5000	208.671	162763	780	6
5.9	5000	236.034	497087	2106	6
5.5	5000	254.341	505885	1989	6
5.2	5000	270.238	505885	1872	6
4.4	5000	316.900	259541	819	6
4.1	5000	344.169	523481	1521	6
3.8	5000	372.850	523481	1404	6

g500-H8000, 2-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
					Standard
n_2	$M_{2, \max}$	i	z_g	z_t	
rpm	Nm				'
342	4870	4.088	2964	725	9
268	4870	5.229	3268	625	8
235	4870	5.963	1938	325	8
193	4880	7.270	836	115	8
180	8000	7.800	39	5	7
140	8000	9.976	1247	125	7
123	8000	11.377	1479	130	7
101	8000	13.870	319	23	7
88.9	8000	15.743	551	35	7
81.6	8000	17.148	1972	115	7
72.4	8000	19.333	58	3	7
64.6	8000	21.687	2494	115	7
57.6	8000	24.305	2552	105	7
51.7	8000	27.067	406	15	7
46.1	8000	30.392	3799	125	7
41.7	8000	33.539	3857	115	7
36.7	7550	38.183	2291	60	7
33.2	7660	42.182	464	11	7
29.8	7570	46.980	2349	50	7
26.5	7710	52.844	2378	45	7
24.7	8000	56.635	4814	85	7



g500-H8000, 3-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
					Standard
n_2	$M_{2, \max}$	i	z_g	z_t	
rpm	Nm				'
49.8	8000	28.128	40223	1430	7
40.8	8000	34.307	86797	2530	7
35.5	8000	39.407	91031	2310	7
32.2	8000	43.511	55042	1265	7
28.5	8000	49.045	44631	910	7
23.4	8000	59.819	96309	1610	7
20.4	8000	68.712	33669	490	7
18.5	8000	75.868	61074	805	7
16.2	8000	86.290	21141	245	7
14.3	8000	97.753	157383	1610	7
12.7	8000	110.259	54027	490	7
11.4	8000	123.043	8613	70	7
10.1	8000	138.255	241947	1750	7
9.0	8000	156.114	251343	1610	7
7.9	8000	176.175	7047	40	7
7.2	8000	195.242	75168	385	7
6.4	8000	219.799	307719	1400	7
5.6	8000	247.950	4959	20	7
5.3	8000	264.509	157383	595	7
5.0	8000	281.041	157383	560	7
4.3	8000	328.381	321813	980	7

g500-H14000, 2-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
					Standard
n_2	$M_{2, \max}$	i	z_g	z_t	
rpm	Nm				'
299	7820	4.678	3120	667	8
238	7900	5.877	3920	667	8
190	7960	7.374	848	115	7
176	13800	7.979	1157	145	6
140	13900	10.025	4361	435	6
111	13900	12.579	4717	375	6
98.9	14000	14.149	2759	195	6
82.2	14000	17.026	1958	115	6
74.0	14000	18.930	5963	315	6
67.0	14000	20.896	2403	115	6
59.7	14000	23.451	7387	315	6
52.7	14000	26.571	9167	345	6
47.6	14000	29.384	9256	315	6
42.6	14000	32.881	11837	360	6
38.3	12100	36.549	13706	375	6



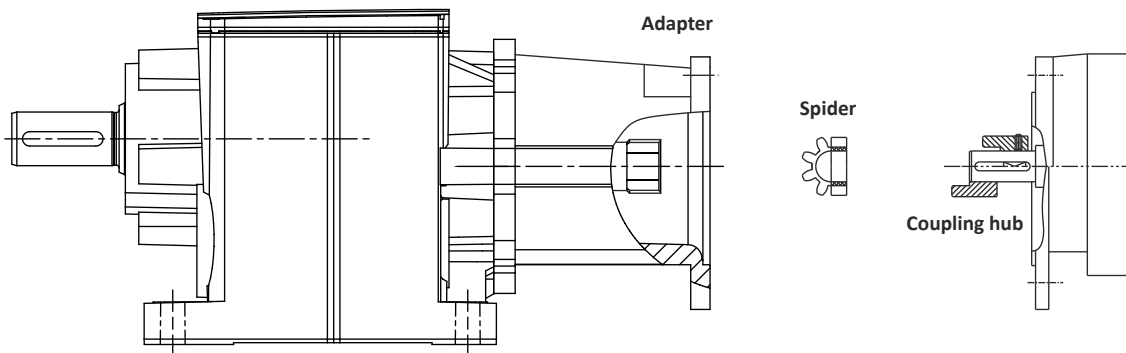
g500-H14000, 3-stage gearboxes

output speed	Max. output torque	Ratio	Number of teeth		Max. backlash
n_2	$M_{2, \max}$	i	z_g	z_t	Standard
rpm	Nm				'
49.3	14000	28.406	102973	3625	6
38.5	14000	36.331	340603	9375	6
33.8	14000	41.433	134657	3250	6
31.1	14000	45.060	111072	2465	6
24.3	14000	57.630	122464	2125	6
21.3	14000	65.723	4272	65	6
17.5	14000	80.123	31328	391	6
15.4	14000	90.945	54112	595	6
14.1	14000	99.061	11392	115	6
12.5	14000	111.686	5696	51	6
11.2	14000	125.283	244928	1955	6
10.0	14000	140.406	250624	1785	6
9.0	14000	156.361	39872	255	6
8.0	14000	175.571	373088	2125	6
7.2	14000	193.751	378784	1955	6
6.3	14000	220.580	56248	255	6
5.7	14000	243.679	45568	187	6
5.2	14000	271.398	115344	425	6
4.6	14000	305.276	233536	765	6
4.3	14000	327.175	472768	1445	6



Gearboxes with adapter

Versions with flexible coupling

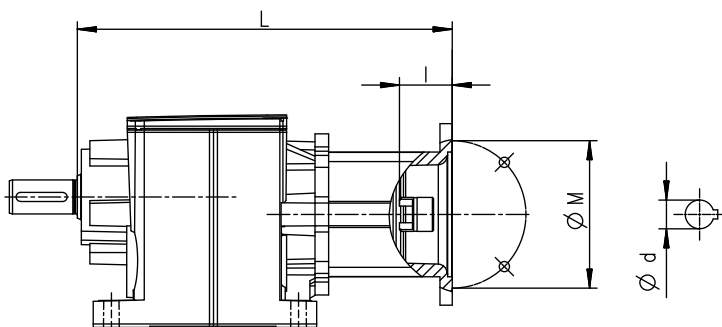


Power is transmitted between the motor and gearbox via a flexible coupling. The gearbox shaft is designed as a claw on the motor side. The counterpart, the coupling hub, is placed on the motor shaft and secured axially. A spider is arranged between the two claws, which can absorb shocks and ensures torsional vibration-damping power transmission.

- Coupling hub with keyway
 - Positive power transmission
 - Suitable for normal operation
- Clamping hub with tangential terminal screw and keyway
 - Positive and non-positive power transmission
 - Suitable for reversing duty
- Tension ring hub without keyway
 - Non-positive power transmission
 - Suitable for reversing duty



Dimensions of gearbox with adapter for IEC standard motors



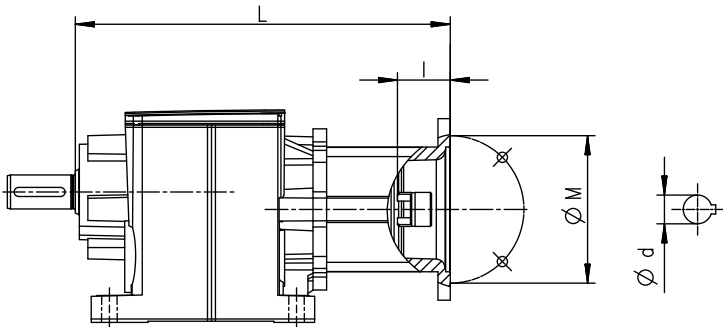
Gearbox dimensions [► Basic dimensions](#) 71

Versions with flexible coupling

Motor				Adapter		Gearbox g500		
	Size	Shaft			Size	-H5000	-H8000	-H14000
		d	l	M		L	L	L
kW		mm	mm	mm		mm	mm	mm
1.1 1.5	90	24	50	FT165	T51	530	-	-
2.2 3.0 4.0	100 112	28	60	FT215	T55	569	607	675
5.5 7.5	132	38	80	FF265	T61	645	678	745
11.0 15.0	160	42	110	FT300	T65	690	723	790
18.5 22.0	180	48	110	FT300	T66	690	723	630
30.0	200	55	110	FT350	T70	735	768	835
37.0 45.0	225	60	140	FT400	T76	788	816	881
55.0	250	65	140	FT500	T81	820	853	915
75.0 90.0	280	75	140	FT500	T82	-	729	792



Dimensions of gearbox with adapter for NEMA motors



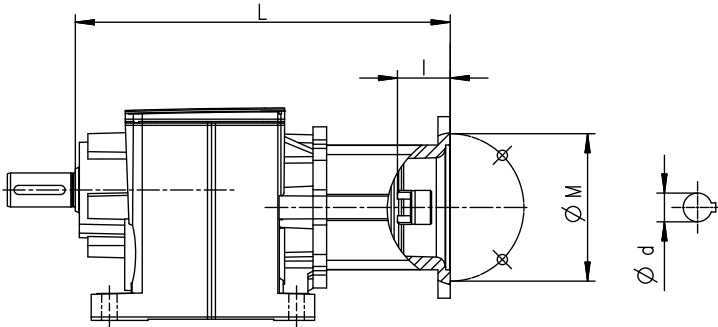
Gearbox dimensions ▶ [Basic dimensions](#)  71

Versions with flexible coupling

Motor			Adapter		Gearbox g500		
Size	Shaft			Size	-H5000	-H8000	-H14000
	d	l	M		L	L	L
	inch	inch	inch		mm	mm	mm
143/145 TC	0.875	2.250	5.875	A14	533	-	-
182/184 TC	1.125	2.750	7.252	A18	581	619	-
213/215 TC	1.375	3.375	7.252	A21	649	683	750
254/256 TC	1.625	4.000	7.252	A25	649	683	750
284/286 TC	1.875	4.625	9.000	A28	697	731	798
324/326 TC	2.125	5.250	11.000	A32	781	808	873
364/365 TC	2.375	5.875	11.000	A36	828	862	923



Dimensions of gearboxes with adapter for servo motors



Gearbox dimensions ▶ [Basic dimensions](#) 71

Versions with flexible coupling

Motor			Adapter		Gearbox g500		
	Shaft			Size	-H5000	-H8000	-H14000
M	d	l	M		L	L	L
mm	mm	mm	mm		mm	mm	mm
130	24	58	FT130	E07	459	498	-
165	32	80	FT165	E09	472	510	578
215	38	80	FT215	E11	506	539	606
300	48	110	FT300	G13	672	705	772
350	55	110	FT350	G16	734	762	827



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 .

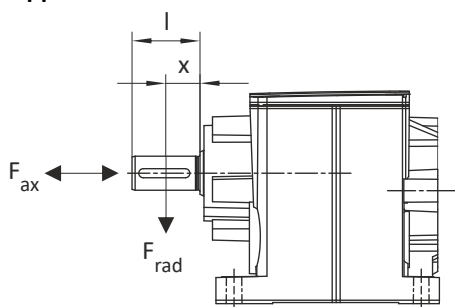
$$F_{\text{rad, perm}} = f_w \times F_{\text{rad, max}}$$

Permissible axial force

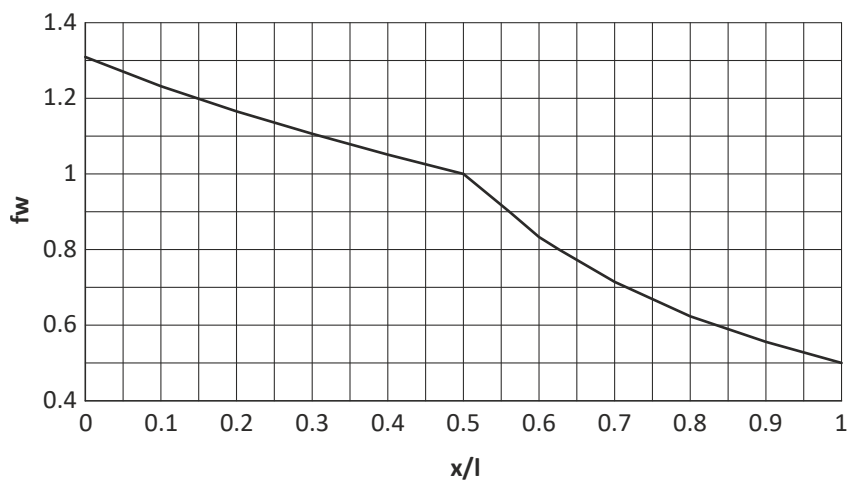
If there is no radial force, the maximum axial force is 50% of the value in the table $F_{\text{rad, max}}$

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

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]					
	250	160	100	63	40	25
	Max. radial force $F_{rad,max}$ [rated]					
g500-H5000	11000	13000	16400	21600	26000	27000
g500-H8000	23000	25000	29500	35000	42000	50000
g500-H14000	41000	43000	50000	60200	70100	

Reinforced bearings

Getriebe	Output speed n_2 [rpm]					
	250	160	100	63	40	25
	Max. radial force $F_{rad,max}$ [rated]					
g500-H5000	16000	18000	21000	27000	27000	27000
g500-H8000	29000	30000	35000	42000	51000	51000



Max. radial force, gearbox with/without foot with threaded pitch circle (V□R/V□K)

Getriebe	Output speed n_2 [rpm]					
	250	160	100	63	40	25
	Max. radial force $F_{rad,max}$ [rated]					
g500-H5000	11000	13000	13500	13500	13500	13500
g500-H8000	23000	25000	25000	25000	25000	25000
g500-H14000	35100	35100	35100	35100	35100	

Reinforced bearings

Getriebe	Output speed n_2 [rpm]					
	250	160	100	63	40	25
	Max. radial force $F_{rad,max}$ [rated]					
g500-H5000	13500	13500	13500	13500	13500	13500
g500-H8000	25500	25500	25500	25500	25500	25500



Torque characteristic with inverter operation

5 Hz to 50 or 87 Hz: Operation at constant torque.
Below 5 Hz (n_{22}): Verification of the application by Lenze required.

The following legend shows the layout of the selection tables:

Example	Explanation
50 Hz: $P_{\text{rated}} = 1.5 \text{ kW}$	Rated motor power at a rated frequency of 50 Hz
87 Hz: $P_{\text{rated}} = 2.6 \text{ kW}$	Rated motor power at a frequency of 87 Hz

Inverter operation												Geared motor			
				Mains operation											
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
1.1	682	5.5	1240	11.0	1240	4.0	19.5	1240	4.0	65.000	130.842	g500-H5000	m540-P90/L4	3	174
1.0	758	5.0	1378	9.9	1378	3.6	17.6	1378	3.6	63.000	145.489	g500-H5000	m540-P90/L4	3	174
0.9	874	4.3	1588	8.6	1588	3.2	15.2	1588	3.2	61.000	167.626	g500-H5000	m540-P90/L4	3	174

Data at 5 Hz n_{22} = Output speed - M_{22} = Output torque (Externally cooled motors can deliver the torque M_2 over the entire adjustment range)	Data at 20 Hz n_{21} = Output speed - M_2 = Output torque	Data at 50 Hz n_2 = Output speed - M_2 = Output torque c = the load capacity of the gearbox is the ratio of the permissible rated torque of the gearbox to the rated torque of the motor (converted to the output shaft). c must always be greater than the application factor determined for the application. k $c = \frac{M_{2,zul}}{M_{1,N} \times i \times \eta_{Getr}} > k$	Data at 87 Hz	Moment of inertia without brake	Ratio	Gearbox product name	Motor product name	Number of gear stages	Basic weight



50 Hz: 1.5 kW

87 Hz: 2.6 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
1.1	682	5.5	1240	11.0	1240	4.0	19.5	1240	4.0	65.000	130.842	g500-H5000	m540-P90/L4	3	174
1.0	758	5.0	1378	9.9	1378	3.6	17.6	1378	3.6	63.000	145.489	g500-H5000	m540-P90/L4	3	174
0.9	874	4.3	1588	8.6	1588	3.2	15.2	1588	3.2	61.000	167.626	g500-H5000	m540-P90/L4	3	174
0.8	971	3.9	1765	7.8	1765	2.8	13.7	1765	2.8	58.900	186.282	g500-H5000	m540-P90/L4	3	174
0.7	1088	3.5	1977	6.9	1977	2.5	12.2	1977	2.5	57.400	208.671	g500-H5000	m540-P90/L4	3	174
0.6	1230	3.1	2236	6.1	2236	2.2	10.8	2236	2.2	55.900	236.034	g500-H5000	m540-P90/L4	3	174
0.6	1326	2.9	2410	5.7	2410	2.1	10.0	2410	2.1	55.400	254.341	g500-H5000	m540-P90/L4	3	174
0.5	1409	2.7	2560	5.3	2560	2.0	9.5	2560	2.0	54.600	270.238	g500-H5000	m540-P90/L4	3	174
0.5	1652	2.3	3002	4.6	3002	1.7	8.1	3002	1.7	53.500	316.900	g500-H5000	m540-P90/L4	3	174
0.4	1794	2.1	3261	4.2	3261	1.5	7.4	3261	1.5	52.900	344.169	g500-H5000	m540-P90/L4	3	174
0.4	1944	1.9	3532	3.9	3532	1.4	6.9	3532	1.4	52.300	372.850	g500-H5000	m540-P90/L4	3	174

50 Hz: 2.2 kW

87 Hz: 3.9 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
1.8	594	9.3	1077	18.6	1077	4.6	32.7	1077	4.4	171.000	78.777	g500-H5000	m540-P100/M4	3	188
1.6	678	8.2	1229	16.3	1229	4.1	28.6	1229	4.1	167.000	89.909	g500-H5000	m540-P100/M4	3	188
1.4	770	7.2	1395	14.4	1395	3.6	25.2	1395	3.6	163.000	102.053	g500-H5000	m540-P100/M4	3	188
1.3	862	6.4	1563	12.8	1563	3.2	22.5	1563	3.2	159.000	114.361	g500-H5000	m540-P100/M4	3	188
1.2	928	6.0	1682	11.9	1682	4.8	20.9	1682	4.8	171.000	123.043	g500-H8000	m540-P100/M4	3	270
1.1	987	5.6	1789	11.2	1789	2.8	19.7	1789	2.8	156.000	130.842	g500-H5000	m540-P100/M4	3	188
1.0	1043	5.3	1890	10.6	1890	4.2	18.6	1890	4.2	166.000	138.255	g500-H8000	m540-P100/M4	3	270
1.0	1097	5.1	1989	10.1	1989	2.5	17.7	1989	2.5	154.000	145.489	g500-H5000	m540-P100/M4	3	188
0.9	1177	4.7	2134	9.4	2134	3.8	16.5	2134	3.8	163.000	156.114	g500-H8000	m540-P100/M4	3	270
0.9	1264	4.4	2292	8.7	2292	2.2	15.4	2292	2.2	152.000	167.626	g500-H5000	m540-P100/M4	3	188
0.8	1329	4.2	2408	8.3	2408	3.3	14.6	2408	3.3	159.000	176.175	g500-H8000	m540-P100/M4	3	270
0.8	1405	3.9	2547	7.9	2547	2.0	13.8	2547	2.0	149.900	186.282	g500-H5000	m540-P100/M4	3	188
0.7	1472	3.8	2669	7.5	2669	3.0	13.2	2669	3.0	156.000	195.242	g500-H8000	m540-P100/M4	3	270
0.7	1574	3.5	2853	7.0	2853	1.8	12.3	2853	1.8	148.400	208.671	g500-H5000	m540-P100/M4	3	188
0.7	1657	3.3	3005	6.7	3005	2.7	11.7	3005	2.7	154.000	219.799	g500-H8000	m540-P100/M4	3	270
0.6	1780	3.1	3227	6.2	3227	1.6	10.9	3227	1.6	146.900	236.034	g500-H5000	m540-P100/M4	3	188
0.6	1870	3.0	3390	5.9	3390	2.4	10.4	3390	2.4	151.000	247.950	g500-H8000	m540-P100/M4	3	270
0.6	1918	2.9	3477	5.8	3477	1.4	10.1	3477	1.4	146.400	254.341	g500-H5000	m540-P100/M4	3	188
0.5	1995	2.8	3616	5.5	3616	2.2	9.7	3616	2.2	150.000	264.509	g500-H8000	m540-P100/M4	3	270
0.5	2038	2.7	3694	5.4	3694	1.4	9.5	3694	1.4	145.600	270.238	g500-H5000	m540-P100/M4	3	188
0.5	2119	2.6	3842	5.2	3842	2.1	9.2	3842	2.1	149.000	281.041	g500-H8000	m540-P100/M4	3	270
0.5	2390	2.3	4332	4.6	4332	1.2	8.1	4332	1.2	144.500	316.900	g500-H5000	m540-P100/M4	3	188
0.4	2476	2.2	4489	4.5	4489	1.8	7.8	4489	1.8	147.100	328.381	g500-H8000	m540-P100/M4	3	270
0.4	2595	2.1	4705	4.3	4705	1.1	7.5	4705	1.1	143.900	344.169	g500-H5000	m540-P100/M4	3	188
0.4	2812	2.0	5097	3.9	5097	1.0	6.9	5097	1.0	143.300	372.850	g500-H5000	m540-P100/M4	3	188



50 Hz: 3 kW

87 Hz: 5.2 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
2.7	560	13.7	1017	27.3	1017	4.9	48.1	1017	4.9	149.500	53.471	g500-H5000	m540-P100/L4	2	184
2.3	647	11.6	1174	23.3	1174	4.3	41.0	1174	4.0	184.000	62.664	g500-H5000	m540-P100/L4	3	188
2.3	654	11.7	1188	23.4	1188	4.2	41.1	1188	4.2	147.500	62.478	g500-H5000	m540-P100/L4	2	184
2.1	708	10.6	1286	21.3	1286	3.9	37.4	1286	3.7	177.000	68.658	g500-H5000	m540-P100/L4	3	188
1.8	813	9.3	1476	18.5	1476	3.4	32.6	1476	3.2	171.000	78.777	g500-H5000	m540-P100/L4	3	188
1.7	890	8.5	1617	16.9	1617	5.0	29.8	1617	5.0	192.000	86.290	g500-H8000	m540-P100/L4	3	270
1.6	928	8.1	1685	16.2	1685	3.0	28.6	1685	3.0	167.000	89.909	g500-H5000	m540-P100/L4	3	188
1.5	1009	7.5	1832	14.9	1832	4.4	26.3	1832	4.4	183.000	97.753	g500-H8000	m540-P100/L4	3	270
1.4	1053	7.2	1912	14.3	1912	2.6	25.2	1912	2.6	163.000	102.053	g500-H5000	m540-P100/L4	3	188
1.3	1138	6.6	2066	13.2	2066	3.9	23.3	2066	3.9	177.000	110.259	g500-H8000	m540-P100/L4	3	270
1.3	1180	6.4	2143	12.8	2143	2.3	22.5	2143	2.3	159.000	114.361	g500-H5000	m540-P100/L4	3	188
1.2	1270	5.9	2306	11.9	2306	3.5	20.9	2306	3.5	171.000	123.043	g500-H8000	m540-P100/L4	3	270
1.1	1350	5.6	2452	11.2	2452	2.0	19.6	2452	2.0	156.000	130.842	g500-H5000	m540-P100/L4	3	188
1.0	1427	5.3	2591	10.6	2591	3.1	18.6	2591	3.1	166.000	138.255	g500-H8000	m540-P100/L4	3	270
1.0	1501	5.0	2726	10.0	2726	1.8	17.7	2726	1.8	154.000	145.489	g500-H5000	m540-P100/L4	3	188
0.9	1611	4.7	2925	9.4	2925	2.7	16.5	2925	2.7	163.000	156.114	g500-H8000	m540-P100/L4	3	270
0.9	1730	4.4	3141	8.7	3141	1.6	15.3	3141	1.6	152.000	167.626	g500-H5000	m540-P100/L4	3	188
0.8	1818	4.1	3301	8.3	3301	2.4	14.6	3301	2.4	159.000	176.175	g500-H8000	m540-P100/L4	3	270
0.8	1922	3.9	3490	7.8	3490	1.4	13.8	3490	1.4	149.900	186.282	g500-H5000	m540-P100/L4	3	188
0.7	2015	3.7	3658	7.5	3658	2.2	13.2	3658	2.2	156.000	195.242	g500-H8000	m540-P100/L4	3	270
0.7	2153	3.5	3910	7.0	3910	1.3	12.3	3910	1.3	148.400	208.671	g500-H5000	m540-P100/L4	3	188
0.7	2268	3.3	4119	6.6	4119	1.9	11.7	4119	1.9	154.000	219.799	g500-H8000	m540-P100/L4	3	270
0.6	2435	3.1	4423	6.2	4423	1.1	10.9	4423	1.1	146.900	236.034	g500-H5000	m540-P100/L4	3	188
0.6	2558	2.9	4646	5.9	4646	1.7	10.4	4646	1.7	151.000	247.950	g500-H8000	m540-P100/L4	3	270
0.6	2624	2.9	4766	5.7	4766	1.1	10.1	4766	1.1	146.400	254.341	g500-H5000	m540-P100/L4	3	188
0.5	2729	2.8	4956	5.5	4956	1.6	9.7	4956	1.6	150.000	264.509	g500-H8000	m540-P100/L4	3	270
0.5	2788	2.7	5064	5.4	5064	1.0	9.5	5064	1.0	145.600	270.238	g500-H5000	m540-P100/L4	3	188
0.5	2900	2.6	5266	5.2	5266	1.5	9.1	5266	1.5	149.000	281.041	g500-H8000	m540-P100/L4	3	270
0.5	3270	2.3	5938	4.6	5938	0.8	8.1	5938	0.8	144.500	316.900	g500-H5000	m540-P100/L4	3	188
0.4	3388	2.2	6153	4.4	6153	1.3	7.8	6153	1.3	147.100	328.381	g500-H8000	m540-P100/L4	3	270



50 Hz: 4 kW

87 Hz: 7.35 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)			J	i			z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
3.5	584	17.5	1063	34.9	1063	4.7	61.5	1063	4.7	184.000	41.819	g500-H5000	m540-P112/M4	2	184
3.1	659	15.5	1199	30.9	1199	4.2	54.5	1199	4.2	182.000	47.175	g500-H5000	m540-P112/M4	2	184
2.9	703	14.5	1279	29.0	1279	3.9	51.1	1279	3.9	181.000	50.326	g500-H5000	m540-P112/M4	2	184
2.7	746	13.7	1359	27.3	1359	3.7	48.1	1359	3.7	179.500	53.471	g500-H5000	m540-P112/M4	2	184
2.3	862	11.6	1570	23.3	1570	3.2	41.0	1570	3.0	214.000	62.664	g500-H5000	m540-P112/M4	3	188
2.3	872	11.7	1588	23.4	1588	3.2	41.1	1588	3.2	177.500	62.478	g500-H5000	m540-P112/M4	2	184
2.1	945	10.6	1720	21.3	1720	2.9	37.4	1720	2.8	207.000	68.658	g500-H5000	m540-P112/M4	3	188
2.1	945	10.6	1721	21.2	1721	4.7	37.4	1721	4.4	240.000	68.712	g500-H8000	m540-P112/M4	3	270
1.9	1044	9.6	1900	19.2	1900	4.2	33.9	1900	4.0	233.000	75.868	g500-H8000	m540-P112/M4	3	270
1.8	1084	9.3	1973	18.5	1973	2.5	32.6	1973	2.4	201.000	78.777	g500-H5000	m540-P112/M4	3	188
1.7	1187	8.5	2161	16.9	2161	3.7	29.8	2161	3.7	222.000	86.290	g500-H8000	m540-P112/M4	3	270
1.6	1237	8.1	2252	16.2	2252	2.2	28.6	2252	2.2	197.000	89.909	g500-H5000	m540-P112/M4	3	188
1.5	1345	7.5	2448	14.9	2448	3.3	26.3	2448	3.3	213.000	97.753	g500-H8000	m540-P112/M4	3	270
1.4	1404	7.2	2556	14.3	2556	2.0	25.2	2556	2.0	193.000	102.053	g500-H5000	m540-P112/M4	3	188
1.3	1517	6.6	2762	13.2	2762	2.9	23.3	2762	2.9	207.000	110.259	g500-H8000	m540-P112/M4	3	270
1.3	1537	6.5	2797	13.1	2797	5.0	23.0	2797	5.0	255.000	111.686	g500-H14000	m540-P112/M4	3	415
1.3	1573	6.4	2864	12.8	2864	1.8	22.5	2864	1.8	189.000	114.361	g500-H5000	m540-P112/M4	3	188
1.2	1693	5.9	3082	11.9	3082	2.6	20.9	3082	2.6	201.000	123.043	g500-H8000	m540-P112/M4	3	270
1.2	1724	5.8	3138	11.7	3138	4.5	20.5	3138	4.5	244.000	125.283	g500-H14000	m540-P112/M4	3	415
1.1	1800	5.6	3277	11.2	3277	1.5	19.6	3277	1.5	186.000	130.842	g500-H5000	m540-P112/M4	3	188
1.0	1902	5.3	3463	10.6	3463	2.3	18.6	3463	2.3	196.000	138.255	g500-H8000	m540-P112/M4	3	270
1.0	1932	5.2	3517	10.4	3517	4.0	18.3	3517	4.0	234.000	140.406	g500-H14000	m540-P112/M4	3	415
1.0	2002	5.0	3644	10.0	3644	1.4	17.7	3644	1.4	184.000	145.489	g500-H5000	m540-P112/M4	3	188
0.9	2148	4.7	3910	9.4	3910	2.1	16.5	3910	2.1	193.000	156.114	g500-H8000	m540-P112/M4	3	270
0.9	2151	4.7	3916	9.3	3916	3.6	16.4	3916	3.6	224.000	156.361	g500-H14000	m540-P112/M4	3	415
0.9	2306	4.4	4199	8.7	4199	1.2	15.3	4199	1.2	182.000	167.626	g500-H5000	m540-P112/M4	3	188
0.8	2415	4.2	4398	8.3	4398	3.2	14.6	4398	3.2	216.000	175.571	g500-H14000	m540-P112/M4	3	415
0.8	2424	4.1	4413	8.3	4413	1.8	14.6	4413	1.8	189.000	176.175	g500-H8000	m540-P112/M4	3	270
0.8	2563	3.9	4666	7.8	4666	1.1	13.8	4666	1.1	179.900	186.282	g500-H5000	m540-P112/M4	3	188
0.7	2666	3.8	4853	7.5	4853	2.9	13.3	4853	2.9	210.000	193.751	g500-H14000	m540-P112/M4	3	415
0.7	2686	3.7	4890	7.5	4890	1.6	13.2	4890	1.6	186.000	195.242	g500-H8000	m540-P112/M4	3	270
0.7	2871	3.5	5227	7.0	5227	1.0	12.3	5227	1.0	178.400	208.671	g500-H5000	m540-P112/M4	3	188
0.7	3024	3.3	5505	6.6	5505	1.5	11.7	5505	1.5	184.000	219.799	g500-H8000	m540-P112/M4	3	270
0.7	3035	3.3	5525	6.6	5525	2.5	11.7	5525	2.5	203.000	220.580	g500-H14000	m540-P112/M4	3	415
0.6	3247	3.1	5912	6.2	5912	0.9	10.9	5912	0.9	176.900	236.034	g500-H5000	m540-P112/M4	3	188
0.6	3352	3.0	6103	6.0	6103	2.3	10.5	6103	2.3	198.000	243.679	g500-H14000	m540-P112/M4	3	415
0.6	3411	2.9	6210	5.9	6210	1.3	10.4	6210	1.3	181.000	247.950	g500-H8000	m540-P112/M4	3	270
0.5	3639	2.8	6625	5.5	6625	1.2	9.7	6625	1.2	180.000	264.509	g500-H8000	m540-P112/M4	3	270
0.5	3734	2.7	6798	5.4	6798	2.1	9.5	6798	2.1	193.000	271.398	g500-H14000	m540-P112/M4	3	415
0.5	3866	2.6	7039	5.2	7039	1.1	9.1	7039	1.1	179.000	281.041	g500-H8000	m540-P112/M4	3	270
0.5	4200	2.4	7646	4.8	7646	1.8	8.4	7646	1.8	189.000	305.276	g500-H14000	m540-P112/M4	3	415
0.4	4501	2.2	8195	4.5	8195	1.7	7.9	8195	1.7	188.000	327.175	g500-H14000	m540-P112/M4	3	415
0.4	4518	2.2	8225	4.4	8225	1.0	7.8	8225	1.0	177.100	328.381	g500-H8000	m540-P112/M4	3	270



50 Hz: 5.5 kW

87 Hz: 9.6 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
4.9	566	24.7	1029	49.5	1029	4.9	86.9	1029	4.6	365.000	29.702	g500-H5000	m540-P132/M4	2	212
4.3	639	21.9	1161	43.9	1161	4.3	77.0	1161	4.1	360.000	33.519	g500-H5000	m540-P132/M4	2	212
3.9	708	19.8	1286	39.6	1286	3.9	69.5	1286	3.7	357.000	37.147	g500-H5000	m540-P132/M4	2	212
3.5	797	17.6	1448	35.2	1448	3.5	61.7	1448	3.5	354.000	41.819	g500-H5000	m540-P132/M4	2	212
3.1	896	15.6	1627	31.3	1627	4.7	54.9	1627	4.7	365.000	46.980	g500-H8000	m540-P132/M4	2	291
3.1	899	15.6	1634	31.2	1634	3.1	54.7	1634	3.1	352.000	47.175	g500-H5000	m540-P132/M4	2	212
3.0	921	15.0	1674	30.0	1674	4.8	52.6	1674	4.5	450.000	49.045	g500-H8000	m540-P132/M4	3	298
2.9	959	14.6	1743	29.2	1743	2.9	51.3	1743	2.9	351.000	50.326	g500-H5000	m540-P132/M4	2	212
2.7	1007	13.9	1830	27.8	1830	4.2	48.8	1830	4.2	361.000	52.844	g500-H8000	m540-P132/M4	2	291
2.7	1019	13.7	1852	27.5	1852	2.7	48.3	1852	2.7	349.500	53.471	g500-H5000	m540-P132/M4	2	212
2.6	1080	13.0	1961	26.0	1961	4.1	45.6	1961	4.1	359.000	56.635	g500-H8000	m540-P132/M4	2	291
2.4	1124	12.3	2042	24.6	2042	3.9	43.1	2042	3.7	425.000	59.819	g500-H8000	m540-P132/M4	3	298
2.3	1177	11.7	2139	23.5	2139	2.3	41.2	2139	2.2	384.000	62.664	g500-H5000	m540-P132/M4	3	216
2.3	1191	11.8	2164	23.5	2164	2.3	41.3	2164	2.3	347.500	62.478	g500-H5000	m540-P132/M4	2	212
2.1	1290	10.7	2343	21.4	2343	2.1	37.6	2343	2.0	377.000	68.658	g500-H5000	m540-P132/M4	3	216
2.1	1291	10.7	2345	21.4	2345	3.4	37.5	2345	3.2	410.000	68.712	g500-H8000	m540-P132/M4	3	298
1.9	1425	9.7	2589	19.4	2589	3.1	34.0	2589	2.9	403.000	75.868	g500-H8000	m540-P132/M4	3	298
1.8	1480	9.3	2689	18.7	2689	1.9	32.8	2689	1.8	371.000	78.777	g500-H5000	m540-P132/M4	3	216
1.7	1621	8.5	2945	17.0	2945	2.7	29.9	2945	2.7	392.000	86.290	g500-H8000	m540-P132/M4	3	298
1.6	1689	8.2	3069	16.3	3069	1.6	28.7	3069	1.6	367.000	89.909	g500-H5000	m540-P132/M4	3	216
1.6	1709	8.1	3104	16.2	3104	4.5	28.4	3104	4.5	452.000	90.945	g500-H14000	m540-P132/M4	3	443
1.5	1837	7.5	3336	15.0	3336	2.4	26.4	3336	2.4	383.000	97.753	g500-H8000	m540-P132/M4	3	298
1.5	1861	7.4	3381	14.8	3381	4.1	26.0	3381	4.1	441.000	99.061	g500-H14000	m540-P132/M4	3	443
1.4	1917	7.2	3483	14.4	3483	1.4	25.3	3483	1.4	363.000	102.053	g500-H5000	m540-P132/M4	3	216
1.3	2072	6.7	3763	13.3	3763	2.1	23.4	3763	2.1	377.000	110.259	g500-H8000	m540-P132/M4	3	298
1.3	2098	6.6	3812	13.2	3812	3.7	23.1	3812	3.7	425.000	111.686	g500-H14000	m540-P132/M4	3	443
1.3	2149	6.4	3903	12.9	3903	1.3	22.6	3903	1.3	359.000	114.361	g500-H5000	m540-P132/M4	3	216
1.2	2312	6.0	4199	11.9	4199	1.9	21.0	4199	1.9	371.000	123.043	g500-H8000	m540-P132/M4	3	298
1.2	2354	5.9	4276	11.7	4276	3.3	20.6	4276	3.3	414.000	125.283	g500-H14000	m540-P132/M4	3	443
1.1	2458	5.6	4466	11.2	4466	1.1	19.7	4466	1.1	356.000	130.842	g500-H5000	m540-P132/M4	3	216
1.0	2598	5.3	4719	10.6	4719	1.7	18.7	4719	1.7	366.000	138.255	g500-H8000	m540-P132/M4	3	298
1.0	2638	5.2	4792	10.5	4792	2.9	18.4	4792	2.9	404.000	140.406	g500-H14000	m540-P132/M4	3	443
1.0	2733	5.1	4965	10.1	4965	1.0	17.7	4965	1.0	354.000	145.489	g500-H5000	m540-P132/M4	3	216
0.9	2933	4.7	5328	9.4	5328	1.5	16.5	5328	1.5	363.000	156.114	g500-H8000	m540-P132/M4	3	298
0.9	2938	4.7	5336	9.4	5336	2.6	16.5	5336	2.6	394.000	156.361	g500-H14000	m540-P132/M4	3	443
0.9	3149	4.4	5721	8.8	5721	0.9	15.4	5721	0.9	352.000	167.626	g500-H5000	m540-P132/M4	3	216
0.8	3299	4.2	5992	8.4	5992	2.3	14.7	5992	2.3	386.000	175.571	g500-H14000	m540-P132/M4	3	443
0.8	3310	4.2	6013	8.3	6013	1.3	14.6	6013	1.3	359.000	176.175	g500-H8000	m540-P132/M4	3	298
0.7	3640	3.8	6613	7.6	6613	2.1	13.3	6613	2.1	380.000	193.751	g500-H14000	m540-P132/M4	3	443
0.7	3668	3.8	6663	7.5	6663	1.2	13.2	6663	1.2	356.000	195.242	g500-H8000	m540-P132/M4	3	298
0.7	4130	3.3	7502	6.7	7502	1.1	11.7	7502	1.1	354.000	219.799	g500-H8000	m540-P132/M4	3	298
0.7	4144	3.3	7528	6.7	7528	1.9	11.7	7528	1.9	373.000	220.580	g500-H14000	m540-P132/M4	3	443
0.6	4578	3.0	8317	6.0	8317	1.7	10.6	8317	1.7	368.000	243.679	g500-H14000	m540-P132/M4	3	443
0.6	4658	3.0	8462	5.9	8462	1.0	10.4	8462	1.0	351.000	247.950	g500-H8000	m540-P132/M4	3	298
0.5	4970	2.8	9027	5.6	9027	0.9	9.8	9027	0.9	350.000	264.509	g500-H8000	m540-P132/M4	3	298
0.5	5099	2.7	9263	5.4	9263	1.5	9.5	9263	1.5	363.000	271.398	g500-H14000	m540-P132/M4	3	443
0.5	5280	2.6	9592	5.2	9592	0.8	9.2	9592	0.8	349.000	281.041	g500-H8000	m540-P132/M4	3	298
0.5	5735	2.4	10419	4.8	10419	1.3	8.5	10419	1.3	359.000	305.276	g500-H14000	m540-P132/M4	3	443
0.4	6147	2.2	11166	4.5	11166	1.3	7.9	11166	1.3	358.000	327.175	g500-H14000	m540-P132/M4	3	443



50 Hz: 7.5 kW

87 Hz: 13.1 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)			J	i			z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
6.2	611	31.4	1110	62.6	1110	4.5	110	1110	3.8	493.000	23.410	g500-H5000	m540-P132/L4	2	212
5.5	686	27.9	1248	55.7	1248	4.0	97.9	1248	3.8	488.000	26.305	g500-H5000	m540-P132/L4	2	212
4.9	775	24.7	1409	49.3	1409	3.6	86.7	1409	3.4	485.000	29.702	g500-H5000	m540-P132/L4	2	212
4.3	874	21.9	1590	43.7	1590	3.1	76.8	1590	3.0	480.000	33.519	g500-H5000	m540-P132/L4	2	212
4.2	882	21.4	1604	42.7	1604	5.0	75.1	1604	4.2	561.000	34.307	g500-H8000	m540-P132/L4	3	298
3.9	969	19.8	1762	39.4	1762	2.8	69.3	1762	2.7	477.000	37.147	g500-H5000	m540-P132/L4	2	212
3.8	996	19.2	1811	38.4	1811	4.2	67.4	1811	4.0	495.000	38.183	g500-H8000	m540-P132/L4	2	291
3.7	1013	18.7	1842	37.2	1842	4.3	65.3	1842	3.6	542.000	39.407	g500-H8000	m540-P132/L4	3	298
3.5	1091	17.6	1984	35.0	1984	2.5	61.6	1984	2.5	474.000	41.819	g500-H5000	m540-P132/L4	2	212
3.4	1100	17.4	2001	34.7	2001	3.8	61.0	2001	3.8	490.000	42.182	g500-H8000	m540-P132/L4	2	291
3.3	1119	16.9	2034	33.7	2034	3.9	59.2	2034	3.3	532.000	43.511	g500-H8000	m540-P132/L4	3	298
3.1	1225	15.6	2228	31.2	2228	3.4	54.8	2228	3.4	485.000	46.980	g500-H8000	m540-P132/L4	2	291
3.1	1231	15.6	2238	31.1	2238	2.2	54.6	2238	2.2	472.000	47.175	g500-H5000	m540-P132/L4	2	212
3.0	1261	15.0	2293	29.9	2293	3.5	52.5	2293	3.3	570.000	49.045	g500-H8000	m540-P132/L4	3	298
2.9	1313	14.6	2387	29.1	2387	2.1	51.2	2387	2.1	471.000	50.326	g500-H5000	m540-P132/L4	2	212
2.7	1378	13.9	2507	27.7	2507	3.1	48.7	2507	3.1	481.000	52.844	g500-H8000	m540-P132/L4	2	291
2.7	1395	13.7	2536	27.4	2536	2.0	48.2	2536	2.0	469.500	53.471	g500-H5000	m540-P132/L4	2	212
2.6	1477	13.0	2686	25.9	2686	3.0	45.5	2686	3.0	479.000	56.635	g500-H8000	m540-P132/L4	2	291
2.4	1538	12.3	2796	24.5	2796	2.9	43.0	2796	2.7	545.000	59.819	g500-H8000	m540-P132/L4	3	298
2.3	1611	11.7	2929	23.4	2929	1.7	41.1	2929	1.6	504.000	62.664	g500-H5000	m540-P132/L4	3	216
2.3	1630	11.8	2964	23.4	2964	1.7	41.2	2964	1.7	467.500	62.478	g500-H5000	m540-P132/L4	2	212
2.2	1690	11.2	3072	22.3	3072	4.6	39.2	3072	4.3	636.000	65.723	g500-H14000	m540-P132/L4	3	443
2.1	1765	10.7	3210	21.3	3210	1.6	37.5	3210	1.5	497.000	68.658	g500-H5000	m540-P132/L4	3	216
2.1	1766	10.7	3212	21.3	3212	2.5	37.5	3212	2.4	530.000	68.712	g500-H8000	m540-P132/L4	3	298
1.9	1950	9.7	3547	19.3	3547	2.3	33.9	3547	2.1	523.000	75.868	g500-H8000	m540-P132/L4	3	298
1.8	2025	9.3	3683	18.6	3683	1.4	32.7	3683	1.3	491.000	78.777	g500-H5000	m540-P132/L4	3	216
1.8	2060	9.2	3746	18.3	3746	3.7	32.1	3746	3.7	592.000	80.123	g500-H14000	m540-P132/L4	3	443
1.7	2218	8.5	4034	17.0	4034	2.0	29.8	4034	2.0	512.000	86.290	g500-H8000	m540-P132/L4	3	298
1.6	2311	8.2	4203	16.3	4203	1.2	28.6	4203	1.2	487.000	89.909	g500-H5000	m540-P132/L4	3	216
1.6	2338	8.1	4252	16.1	4252	3.3	28.3	4252	3.3	572.000	90.945	g500-H14000	m540-P132/L4	3	443
1.5	2513	7.5	4570	15.0	4570	1.8	26.3	4570	1.8	503.000	97.753	g500-H8000	m540-P132/L4	3	298
1.5	2547	7.4	4631	14.8	4631	3.0	26.0	4631	3.0	561.000	99.061	g500-H14000	m540-P132/L4	3	443
1.4	2623	7.2	4771	14.4	4771	1.1	25.2	4771	1.1	483.000	102.053	g500-H5000	m540-P132/L4	3	216
1.3	2834	6.7	5154	13.3	5154	1.6	23.4	5154	1.6	497.000	110.259	g500-H8000	m540-P132/L4	3	298
1.3	2871	6.6	5221	13.1	5221	2.7	23.1	5221	2.7	545.000	111.686	g500-H14000	m540-P132/L4	3	443
1.3	2940	6.4	5346	12.8	5346	0.9	22.5	5346	0.9	479.000	114.361	g500-H5000	m540-P132/L4	3	216
1.2	3163	6.0	5752	11.9	5752	1.4	20.9	5752	1.4	491.000	123.043	g500-H8000	m540-P132/L4	3	298
1.2	3221	5.9	5857	11.7	5857	2.4	20.6	5857	2.4	534.000	125.283	g500-H14000	m540-P132/L4	3	443
1.1	3364	5.6	6117	11.2	6117	0.8	19.7	6117	0.8	476.000	130.842	g500-H5000	m540-P132/L4	3	216
1.0	3554	5.3	6463	10.6	6463	1.2	18.6	6463	1.2	486.000	138.255	g500-H8000	m540-P132/L4	3	298
1.0	3609	5.2	6564	10.4	6564	2.1	18.3	6564	2.1	524.000	140.406	g500-H14000	m540-P132/L4	3	443
0.9	4013	4.7	7298	9.4	7298	1.1	16.5	7298	1.1	483.000	156.114	g500-H8000	m540-P132/L4	3	298
0.9	4020	4.7	7310	9.4	7310	1.9	16.5	7310	1.9	514.000	156.361	g500-H14000	m540-P132/L4	3	443
0.8	4513	4.2	8208	8.3	8208	1.7	14.7	8208	1.7	506.000	175.571	g500-H14000	m540-P132/L4	3	443
0.8	4529	4.2	8236	8.3	8236	1.0	14.6	8236	1.0	479.000	176.175	g500-H8000	m540-P132/L4	3	298
0.7	4981	3.8	9058	7.6	9058	1.6	13.3	9058	1.6	500.000	193.751	g500-H14000	m540-P132/L4	3	443
0.7	5019	3.8	9127	7.5	9127	0.9	13.2	9127	0.9	476.000	195.242	g500-H8000	m540-P132/L4	3	298
0.7	5670	3.3	10312	6.6	10312	1.4	11.7	10312	1.4	493.000	220.580	g500-H14000	m540-P132/L4	3	443
0.6	6264	3.0	11392	6.0	11392	1.2	10.6	11392	1.2	488.000	243.679	g500-H14000	m540-P132/L4	3	443
0.5	6977	2.7	12687	5.4	12687	1.1	9.5	12687	1.1	483.000	271.398	g500-H14000	m540-P132/L4	3	443



Technical data

Selection tables

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
0.5	7848	2.4	14271	4.8	14271	1.0	8.4	14271	1.0	479.000	305.276	g500-H14000	m540-P132/L4	3	443
0.4	8411	2.2	15295	4.5	15295	0.9	7.9	15295	0.9	478.000	327.175	g500-H14000	m540-P132/L4	3	443

Technical data

Selection tables



50 Hz: 11 kW

87 Hz: 19.2 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)			J	i			z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c						
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
10.0	549	51.3	997	102	997	5.0	179	997	4.1	899.000	14.435	g500-H5000	m540-P160/M4	2	228
8.8	624	45.1	1134	89.8	1134	4.4	158	1134	3.7	887.000	16.418	g500-H5000	m540-P160/M4	2	228
7.8	707	39.8	1284	79.3	1284	3.9	139	1284	3.3	877.000	18.599	g500-H5000	m540-P160/M4	2	228
6.9	797	35.3	1449	70.3	1449	3.5	123	1449	2.9	870.000	20.978	g500-H5000	m540-P160/M4	2	228
6.2	890	31.6	1617	63.0	1617	3.1	110	1617	2.6	863.000	23.410	g500-H5000	m540-P160/M4	2	228
6.0	924	30.4	1679	60.7	1679	4.8	106	1679	4.0	900.000	24.305	g500-H8000	m540-P160/M4	2	307
5.5	1000	28.1	1817	56.1	1817	2.8	98.3	1817	2.6	858.000	26.305	g500-H5000	m540-P160/M4	2	228
5.4	1028	27.3	1869	54.5	1869	4.3	95.5	1869	4.1	889.000	27.067	g500-H8000	m540-P160/M4	2	307
5.2	1053	26.3	1915	52.4	1915	4.2	91.9	1915	3.5	963.000	28.128	g500-H8000	m540-P160/M4	3	314
4.9	1129	24.9	2051	49.7	2051	2.4	87.0	2051	2.3	855.000	29.702	g500-H5000	m540-P160/M4	2	228
4.8	1155	24.3	2099	48.5	2099	3.8	85.1	2099	3.6	880.000	30.392	g500-H8000	m540-P160/M4	2	307
4.3	1274	22.1	2315	44.0	2315	2.2	77.1	2315	2.1	850.000	33.519	g500-H5000	m540-P160/M4	2	228
4.3	1274	22.1	2316	44.0	2316	3.5	77.1	2316	3.3	873.000	33.539	g500-H8000	m540-P160/M4	2	307
4.2	1285	21.6	2335	43.0	2335	3.4	75.3	2335	2.9	931.000	34.307	g500-H8000	m540-P160/M4	3	314
4.0	1389	20.2	2524	40.4	2524	4.8	70.7	2524	4.5	909.000	36.549	g500-H14000	m540-P160/M4	2	446
3.9	1411	19.9	2566	39.7	2566	2.0	69.6	2566	1.9	847.000	37.147	g500-H5000	m540-P160/M4	2	228
3.8	1451	19.4	2637	38.6	2637	2.9	67.7	2637	2.7	865.000	38.183	g500-H8000	m540-P160/M4	2	307
3.7	1476	18.8	2682	37.4	2682	3.0	65.6	2682	2.5	912.000	39.407	g500-H8000	m540-P160/M4	3	314
3.5	1552	17.9	2820	35.6	2820	5.0	62.4	2820	4.1	1030.000	41.433	g500-H14000	m540-P160/M4	3	459
3.5	1589	17.7	2888	35.3	2888	1.7	61.8	2888	1.7	844.000	41.819	g500-H5000	m540-P160/M4	2	228
3.4	1603	17.5	2913	35.0	2913	2.6	61.3	2913	2.6	860.000	42.182	g500-H8000	m540-P160/M4	2	307
3.3	1629	17.0	2962	33.9	2962	2.7	59.4	2962	2.3	902.000	43.511	g500-H8000	m540-P160/M4	3	314
3.2	1687	16.4	3067	32.7	3067	4.6	57.4	3067	4.3	1131.000	45.060	g500-H14000	m540-P160/M4	3	459
3.1	1785	15.8	3245	31.4	3245	2.3	55.0	3245	2.3	855.000	46.980	g500-H8000	m540-P160/M4	2	307
3.1	1793	15.7	3258	31.3	3258	1.5	54.8	3258	1.5	842.000	47.175	g500-H5000	m540-P160/M4	2	228
3.0	1837	15.1	3338	30.1	3338	2.4	52.7	3338	2.3	940.000	49.045	g500-H8000	m540-P160/M4	3	314
2.9	1912	14.7	3476	29.3	3476	1.4	51.4	3476	1.4	841.000	50.326	g500-H5000	m540-P160/M4	2	228
2.7	2008	14.0	3650	27.9	3650	2.1	48.9	3650	2.1	851.000	52.844	g500-H8000	m540-P160/M4	2	307
2.7	2032	13.8	3693	27.6	3693	1.4	48.3	3693	1.4	839.500	53.471	g500-H5000	m540-P160/M4	2	228
2.6	2152	13.1	3911	26.0	3911	2.1	45.6	3911	2.1	849.000	56.635	g500-H8000	m540-P160/M4	2	307
2.5	2158	12.8	3923	25.6	3923	3.6	44.9	3923	3.4	1023.000	57.630	g500-H14000	m540-P160/M4	3	459
2.4	2240	12.4	4072	24.7	4072	2.0	43.2	4072	1.9	915.000	59.819	g500-H8000	m540-P160/M4	3	314
2.3	2347	11.8	4265	23.5	4265	1.2	41.3	4265	1.1	874.000	62.664	g500-H5000	m540-P160/M4	3	232
2.3	2374	11.8	4315	23.6	4315	1.2	41.4	4315	1.2	837.500	62.478	g500-H5000	m540-P160/M4	2	228
2.2	2461	11.3	4474	22.4	4474	3.1	39.3	4474	3.0	1006.000	65.723	g500-H14000	m540-P160/M4	3	459
2.1	2571	10.8	4673	21.5	4673	1.1	37.7	4673	1.0	867.000	68.658	g500-H5000	m540-P160/M4	3	232
2.1	2573	10.8	4677	21.5	4677	1.7	37.6	4677	1.6	900.000	68.712	g500-H8000	m540-P160/M4	3	314
1.9	2841	9.8	5164	19.4	5164	1.6	34.1	5164	1.5	893.000	75.868	g500-H8000	m540-P160/M4	3	314
1.8	2950	9.4	5362	18.7	5362	0.9	32.8	5362	0.9	861.000	78.777	g500-H5000	m540-P160/M4	3	232
1.8	3000	9.2	5454	18.4	5454	2.6	32.3	5454	2.6	962.000	80.123	g500-H14000	m540-P160/M4	3	459
1.7	3231	8.6	5874	17.1	5874	1.4	30.0	5874	1.4	882.000	86.290	g500-H8000	m540-P160/M4	3	314
1.6	3367	8.2	6120	16.4	6120	0.8	28.8	6120	0.8	857.000	89.909	g500-H5000	m540-P160/M4	3	232
1.6	3406	8.1	6190	16.2	6190	2.3	28.4	6190	2.3	942.000	90.945	g500-H14000	m540-P160/M4	3	459
1.5	3661	7.6	6654	15.1	6654	1.2	26.4	6654	1.2	873.000	97.753	g500-H8000	m540-P160/M4	3	314
1.5	3710	7.5	6743	14.9	6743	2.1	26.1	6743	2.1	931.000	99.061	g500-H14000	m540-P160/M4	3	459
1.3	4129	6.7	7505	13.4	7505	1.1	23.4	7505	1.1	867.000	110.259	g500-H8000	m540-P160/M4	3	314
1.3	4182	6.6	7602	13.2	7602	1.8	23.1	7602	1.8	915.000	111.686	g500-H14000	m540-P160/M4	3	459
1.2	4608	6.0	8375	12.0	8375	1.0	21.0	8375	1.0	861.000	123.043	g500-H8000	m540-P160/M4	3	314
1.2	4692	5.9	8528	11.8	8528	1.6	20.6	8528	1.6	904.000	125.283	g500-H14000	m540-P160/M4	3	459
1.0	5177	5.4	9411	10.7	9411	0.9	18.7	9411	0.9	856.000	138.255	g500-H8000	m540-P160/M4	3	314



Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
1.0	5258	5.3	9557	10.5	9557	1.5	18.4	9557	1.5	894.000	140.406	g500-H14000	m540-P160/M4	3	459
0.9	5855	4.7	10643	9.4	10643	1.3	16.5	10643	1.3	884.000	156.361	g500-H14000	m540-P160/M4	3	459
0.8	6575	4.2	11951	8.4	11951	1.2	14.7	11951	1.2	876.000	175.571	g500-H14000	m540-P160/M4	3	459
0.7	7256	3.8	13188	7.6	13188	1.1	13.3	13188	1.1	870.000	193.751	g500-H14000	m540-P160/M4	3	459
0.7	8260	3.4	15014	6.7	15014	0.9	11.7	15014	0.9	863.000	220.580	g500-H14000	m540-P160/M4	3	459
0.6	9125	3.0	16587	6.1	16587	0.8	10.6	16587	0.8	858.000	243.679	g500-H14000	m540-P160/M4	3	459

Technical data

Selection tables



50 Hz: 15 kW

87 Hz: 26.3 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
17.0	442	86.8	803	173	803	4.5	303	803	3.8	1056.000	8.526	g500-H5000	m540-P160/L4	2	245
12.7	590	65.0	1072	130	1072	4.4	227	1072	3.7	1085.000	11.381	g500-H5000	m540-P160/L4	2	245
11.1	677	56.6	1231	113	1231	3.9	198	1231	3.3	1068.000	13.073	g500-H5000	m540-P160/L4	2	245
10.0	748	51.3	1360	102	1360	3.6	179	1360	3.0	1059.000	14.435	g500-H5000	m540-P160/L4	2	245
8.8	851	45.1	1546	89.8	1546	3.2	158	1546	2.7	1047.000	16.418	g500-H5000	m540-P160/L4	2	245
8.5	888	43.2	1615	86.0	1615	5.0	151	1615	4.1	1103.000	17.148	g500-H8000	m540-P160/L4	2	324
7.8	964	39.8	1752	79.3	1752	2.9	139	1752	2.4	1037.000	18.599	g500-H5000	m540-P160/L4	2	245
7.5	1002	38.3	1821	76.3	1821	4.4	134	1821	3.7	1086.000	19.333	g500-H8000	m540-P160/L4	2	324
6.9	1087	35.3	1976	70.3	1976	2.5	123	1976	2.1	1030.000	20.978	g500-H5000	m540-P160/L4	2	245
6.7	1123	34.1	2043	68.0	2043	3.9	119	2043	3.3	1071.000	21.687	g500-H8000	m540-P160/L4	2	324
6.2	1213	31.6	2205	63.0	2205	2.3	110	2205	1.9	1023.000	23.410	g500-H5000	m540-P160/L4	2	245
6.0	1259	30.4	2289	60.7	2289	3.5	106	2289	2.9	1060.000	24.305	g500-H8000	m540-P160/L4	2	324
5.5	1363	28.1	2478	56.1	2478	2.0	98.3	2478	1.9	1018.000	26.305	g500-H5000	m540-P160/L4	2	245
5.4	1402	27.3	2549	54.5	2549	3.1	95.5	2549	3.0	1049.000	27.067	g500-H8000	m540-P160/L4	2	324
5.2	1436	26.3	2611	52.4	2611	3.1	91.9	2611	2.6	1123.000	28.128	g500-H8000	m540-P160/L4	3	331
4.9	1539	24.9	2798	49.7	2798	1.8	87.0	2798	1.7	1015.000	29.702	g500-H5000	m540-P160/L4	2	245
4.8	1574	24.3	2863	48.5	2863	2.8	85.1	2863	2.7	1040.000	30.392	g500-H8000	m540-P160/L4	2	324
4.4	1703	22.5	3097	44.9	3097	4.5	78.6	3097	4.3	1084.000	32.881	g500-H14000	m540-P160/L4	2	463
4.3	1736	22.1	3157	44.0	3157	1.6	77.1	3157	1.5	1010.000	33.519	g500-H5000	m540-P160/L4	2	245
4.3	1737	22.1	3159	44.0	3159	2.5	77.1	3159	2.4	1033.000	33.539	g500-H8000	m540-P160/L4	2	324
4.2	1752	21.6	3185	43.0	3185	2.5	75.3	3185	2.1	1091.000	34.307	g500-H8000	m540-P160/L4	3	331
4.0	1855	20.4	3373	40.6	3373	4.2	71.2	3373	3.5	1215.000	36.331	g500-H14000	m540-P160/L4	3	476
4.0	1893	20.2	3442	40.4	3442	3.5	70.7	3442	3.3	1069.000	36.549	g500-H14000	m540-P160/L4	2	463
3.9	1924	19.9	3499	39.7	3499	1.4	69.6	3499	1.4	1007.000	37.147	g500-H5000	m540-P160/L4	2	245
3.8	1978	19.4	3596	38.6	3596	2.1	67.7	3596	2.0	1025.000	38.183	g500-H8000	m540-P160/L4	2	324
3.7	2012	18.8	3658	37.4	3658	2.2	65.6	3658	1.8	1072.000	39.407	g500-H8000	m540-P160/L4	3	331
3.5	2115	17.9	3846	35.6	3846	3.6	62.4	3846	3.0	1190.000	41.433	g500-H14000	m540-P160/L4	3	476
3.5	2166	17.7	3939	35.3	3939	1.3	61.8	3939	1.3	1004.000	41.819	g500-H5000	m540-P160/L4	2	245
3.4	2185	17.5	3973	35.0	3973	1.9	61.3	3973	1.9	1020.000	42.182	g500-H8000	m540-P160/L4	2	324
3.3	2222	17.0	4039	33.9	4039	2.0	59.4	4039	1.7	1062.000	43.511	g500-H8000	m540-P160/L4	3	331
3.2	2301	16.4	4183	32.7	4183	3.4	57.4	4183	3.2	1291.000	45.060	g500-H14000	m540-P160/L4	3	476
3.1	2434	15.8	4425	31.4	4425	1.7	55.0	4425	1.7	1015.000	46.980	g500-H8000	m540-P160/L4	2	324
3.1	2444	15.7	4443	31.3	4443	1.1	54.8	4443	1.1	1002.000	47.175	g500-H5000	m540-P160/L4	2	245
3.0	2504	15.1	4553	30.1	4553	1.8	52.7	4553	1.7	1100.000	49.045	g500-H8000	m540-P160/L4	3	331
2.9	2607	14.7	4740	29.3	4740	1.1	51.4	4740	1.1	1001.000	50.326	g500-H5000	m540-P160/L4	2	245
2.7	2738	14.0	4977	27.9	4977	1.6	48.9	4977	1.6	1011.000	52.844	g500-H8000	m540-P160/L4	2	324
2.7	2770	13.8	5036	27.6	5036	1.0	48.3	5036	1.0	999.500	53.471	g500-H5000	m540-P160/L4	2	245
2.6	2934	13.1	5334	26.0	5334	1.5	45.6	5334	1.5	1009.000	56.635	g500-H8000	m540-P160/L4	2	324
2.5	2942	12.8	5350	25.6	5350	2.6	44.9	5350	2.5	1183.000	57.630	g500-H14000	m540-P160/L4	3	476
2.4	3054	12.4	5553	24.7	5553	1.4	43.2	5553	1.4	1075.000	59.819	g500-H8000	m540-P160/L4	3	331
2.3	3199	11.8	5817	23.5	5817	0.9	41.3	5817	0.8	1034.000	62.664	g500-H5000	m540-P160/L4	3	249
2.3	3237	11.8	5885	23.6	5885	0.9	41.4	5885	0.9	997.500	62.478	g500-H5000	m540-P160/L4	2	245
2.2	3356	11.3	6101	22.4	6101	2.3	39.3	6101	2.2	1166.000	65.723	g500-H14000	m540-P160/L4	3	476
2.1	3508	10.8	6378	21.5	6378	1.3	37.6	6378	1.2	1060.000	68.712	g500-H8000	m540-P160/L4	3	331
1.9	3874	9.8	7043	19.4	7043	1.1	34.1	7043	1.1	1053.000	75.868	g500-H8000	m540-P160/L4	3	331
1.8	4091	9.2	7438	18.4	7438	1.9	32.3	7438	1.9	1122.000	80.123	g500-H14000	m540-P160/L4	3	476
1.7	4406	8.6	8010	17.1	8010	1.0	30.0	8010	1.0	1042.000	86.290	g500-H8000	m540-P160/L4	3	331
1.6	4643	8.1	8442	16.2	8442	1.7	28.4	8442	1.7	1102.000	90.945	g500-H14000	m540-P160/L4	3	476
1.5	4991	7.6	9074	15.1	9074	0.9	26.4	9074	0.9	1033.000	97.753	g500-H8000	m540-P160/L4	3	331
1.5	5058	7.5	9196	14.9	9196	1.5	26.1	9196	1.5	1091.000	99.061	g500-H14000	m540-P160/L4	3	476



Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
1.3	5702	6.6	10368	13.2	10368	1.4	23.1	10368	1.4	1075.000	111.686	g500-H14000	m540-P160/L4	3	476
1.2	6396	5.9	11630	11.8	11630	1.2	20.6	11630	1.2	1064.000	125.283	g500-H14000	m540-P160/L4	3	476
1.0	7168	5.3	13034	10.5	13034	1.1	18.4	13034	1.1	1054.000	140.406	g500-H14000	m540-P160/L4	3	476
0.9	7983	4.7	14515	9.4	14515	1.0	16.5	14515	1.0	1044.000	156.361	g500-H14000	m540-P160/L4	3	476
0.8	8964	4.2	16298	8.4	16298	0.9	14.7	16298	0.9	1036.000	175.571	g500-H14000	m540-P160/L4	3	476



50 Hz: 18.5 kW

87 Hz: 32.2 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
21.4	435	108	792	217	792	4.6	380	792	3.8	1391.000	6.789	g500-H5000	m540-P180/M4	2	320
19.3	481	98.0	874	196	874	4.2	344	874	3.5	1380.000	7.497	g500-H5000	m540-P180/M4	2	320
17.0	547	86.2	994	172	994	3.7	303	994	3.1	1366.000	8.526	g500-H5000	m540-P180/M4	2	320
15.5	598	78.8	1088	158	1088	4.3	277	1088	3.6	1426.000	9.331	g500-H5000	m540-P180/M4	2	320
12.7	730	64.6	1327	129	1327	3.6	227	1327	3.0	1395.000	11.381	g500-H5000	m540-P180/M4	2	320
11.1	838	56.2	1524	112	1524	3.2	197	1524	2.7	1378.000	13.073	g500-H5000	m540-P180/M4	2	320
10.5	889	53.0	1617	106	1617	5.0	186	1617	4.1	1450.000	13.870	g500-H8000	m540-P180/M4	2	399
10.0	926	50.9	1683	102	1683	2.9	179	1683	2.5	1369.000	14.435	g500-H5000	m540-P180/M4	2	320
9.2	1010	46.7	1836	93.4	1836	4.4	164	1836	3.6	1427.000	15.743	g500-H8000	m540-P180/M4	2	399
8.8	1053	44.8	1914	89.5	1914	2.6	157	1914	2.2	1357.000	16.418	g500-H5000	m540-P180/M4	2	320
8.5	1100	42.9	1999	85.7	1999	4.0	151	1999	3.3	1413.000	17.148	g500-H8000	m540-P180/M4	2	399
7.8	1193	39.5	2168	79.0	2168	2.3	139	2168	1.9	1347.000	18.599	g500-H5000	m540-P180/M4	2	320
7.5	1240	38.0	2254	76.0	2254	3.6	133	2254	3.0	1396.000	19.333	g500-H8000	m540-P180/M4	2	399
6.9	1345	35.0	2446	70.1	2446	2.0	123	2446	1.7	1340.000	20.978	g500-H5000	m540-P180/M4	2	320
6.7	1391	33.9	2529	67.8	2529	3.2	119	2529	2.6	1381.000	21.687	g500-H8000	m540-P180/M4	2	399
6.2	1501	31.4	2729	62.8	2729	1.8	110	2729	1.5	1333.000	23.410	g500-H5000	m540-P180/M4	2	320
6.0	1559	30.2	2834	60.5	2834	2.8	106	2834	2.4	1370.000	24.305	g500-H8000	m540-P180/M4	2	399
5.5	1687	27.9	3067	55.9	3067	1.6	98.1	3067	1.6	1328.000	26.305	g500-H5000	m540-P180/M4	2	320
5.5	1704	27.7	3098	55.3	3098	4.5	97.1	3098	4.3	1431.000	26.571	g500-H14000	m540-P180/M4	2	538
5.4	1736	27.2	3156	54.3	3156	2.5	95.3	3156	2.4	1359.000	27.067	g500-H8000	m540-P180/M4	2	399
5.2	1778	26.1	3232	52.3	3232	2.5	91.7	3232	2.1	1433.000	28.128	g500-H8000	m540-P180/M4	3	406
5.1	1795	25.9	3264	51.7	3264	4.3	90.8	3264	3.6	1653.000	28.406	g500-H14000	m540-P180/M4	3	551
4.9	1884	25.0	3426	50.0	3426	4.1	87.8	3426	3.9	1409.000	29.384	g500-H14000	m540-P180/M4	2	538
4.8	1949	24.2	3544	48.4	3544	2.3	84.9	3544	2.1	1350.000	30.392	g500-H8000	m540-P180/M4	2	399
4.4	2109	22.4	3834	44.7	3834	3.7	78.5	3834	3.5	1394.000	32.881	g500-H14000	m540-P180/M4	2	538
4.2	2168	21.4	3942	42.8	3942	2.0	75.2	3942	1.7	1401.000	34.307	g500-H8000	m540-P180/M4	3	406
4.0	2296	20.2	4175	40.5	4175	3.4	71.0	4175	2.8	1525.000	36.331	g500-H14000	m540-P180/M4	3	551
4.0	2344	20.1	4261	40.2	4261	2.8	70.6	4261	2.7	1379.000	36.549	g500-H14000	m540-P180/M4	2	538
3.7	2491	18.7	4528	37.3	4528	1.8	65.5	4528	1.5	1382.000	39.407	g500-H8000	m540-P180/M4	3	406
3.5	2619	17.7	4761	35.5	4761	2.9	62.3	4761	2.5	1500.000	41.433	g500-H14000	m540-P180/M4	3	551
3.3	2750	16.9	5000	33.8	5000	1.6	59.3	5000	1.3	1372.000	43.511	g500-H8000	m540-P180/M4	3	406
3.2	2848	16.3	5178	32.6	5178	2.7	57.3	5178	2.6	1601.000	45.060	g500-H14000	m540-P180/M4	3	551
3.0	3100	15.0	5636	30.0	5636	1.4	52.6	5636	1.4	1410.000	49.045	g500-H8000	m540-P180/M4	3	406
2.5	3642	12.8	6622	25.5	6622	2.1	44.8	6622	2.0	1493.000	57.630	g500-H14000	m540-P180/M4	3	551
2.4	3781	12.3	6874	24.6	6874	1.2	43.1	6874	1.1	1385.000	59.819	g500-H8000	m540-P180/M4	3	406
2.2	4154	11.2	7552	22.4	7552	1.9	39.3	7552	1.8	1476.000	65.723	g500-H14000	m540-P180/M4	3	551
2.1	4343	10.7	7896	21.4	7896	1.0	37.5	7896	1.0	1370.000	68.712	g500-H8000	m540-P180/M4	3	406
1.9	4795	9.7	8718	19.4	8718	0.9	34.0	8718	0.9	1363.000	75.868	g500-H8000	m540-P180/M4	3	406
1.8	5064	9.2	9207	18.3	9207	1.5	32.2	9207	1.5	1432.000	80.123	g500-H14000	m540-P180/M4	3	551
1.7	5454	8.5	9916	17.0	9916	0.8	29.9	9916	0.8	1352.000	86.290	g500-H8000	m540-P180/M4	3	406
1.6	5748	8.1	10451	16.2	10451	1.3	28.4	10451	1.3	1412.000	90.945	g500-H14000	m540-P180/M4	3	551
1.5	6261	7.4	11383	14.8	11383	1.2	26.0	11383	1.2	1401.000	99.061	g500-H14000	m540-P180/M4	3	551
1.3	7059	6.6	12834	13.2	12834	1.1	23.1	12834	1.1	1385.000	111.686	g500-H14000	m540-P180/M4	3	551
1.2	7918	5.9	14396	11.7	14396	1.0	20.6	14396	1.0	1374.000	125.283	g500-H14000	m540-P180/M4	3	551
1.0	8874	5.2	16134	10.5	16134	0.9	18.4	16134	0.9	1364.000	140.406	g500-H14000	m540-P180/M4	3	551



50 Hz: 22 kW

87 Hz: 38.5 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
29.9	370	152	672	303	672	4.9	532	672	4.1	1551.000	4.846	g500-H5000	m540-P180/L4	2	325
24.5	451	124	819	249	819	4.4	437	819	3.7	1512.000	5.911	g500-H5000	m540-P180/L4	2	325
21.4	518	108	941	217	941	3.9	380	941	3.2	1491.000	6.789	g500-H5000	m540-P180/L4	2	325
19.9	554	101	1008	202	1008	4.8	355	1008	4.0	1573.000	7.270	g500-H8000	m540-P180/L4	2	404
19.3	572	98.0	1039	196	1039	3.5	344	1039	2.9	1480.000	7.497	g500-H5000	m540-P180/L4	2	325
17.0	650	86.2	1182	172	1182	3.1	303	1182	2.6	1466.000	8.526	g500-H5000	m540-P180/L4	2	325
15.5	711	78.8	1293	158	1293	3.6	277	1293	3.0	1526.000	9.331	g500-H5000	m540-P180/L4	2	325
12.7	868	64.6	1578	129	1578	3.0	227	1578	2.5	1495.000	11.381	g500-H5000	m540-P180/L4	2	325
11.1	997	56.2	1812	112	1812	2.7	197	1812	2.2	1478.000	13.073	g500-H5000	m540-P180/L4	2	325
10.5	1057	53.0	1923	106	1923	4.2	186	1923	3.5	1550.000	13.870	g500-H8000	m540-P180/L4	2	404
10.0	1101	50.9	2001	102	2001	2.5	179	2001	2.1	1469.000	14.435	g500-H5000	m540-P180/L4	2	325
9.2	1200	46.7	2182	93.4	2182	3.7	164	2182	3.1	1527.000	15.743	g500-H8000	m540-P180/L4	2	404
8.8	1252	44.8	2276	89.5	2276	2.2	157	2276	1.8	1457.000	16.418	g500-H5000	m540-P180/L4	2	325
8.5	1307	42.9	2377	85.7	2377	3.4	151	2377	2.8	1513.000	17.148	g500-H8000	m540-P180/L4	2	404
7.8	1418	39.5	2578	79.0	2578	1.9	139	2578	1.6	1447.000	18.599	g500-H5000	m540-P180/L4	2	325
7.5	1474	38.0	2680	76.0	2680	3.0	133	2680	2.5	1496.000	19.333	g500-H8000	m540-P180/L4	2	404
6.9	1593	35.2	2896	70.3	2896	4.8	124	2896	4.0	1583.000	20.896	g500-H14000	m540-P180/L4	2	543
6.9	1599	35.0	2908	70.1	2908	1.7	123	2908	1.4	1440.000	20.978	g500-H5000	m540-P180/L4	2	325
6.7	1653	33.9	3006	67.8	3006	2.7	119	3006	2.2	1481.000	21.687	g500-H8000	m540-P180/L4	2	404
6.2	1785	31.4	3245	62.8	3245	1.5	110	3245	1.3	1433.000	23.410	g500-H5000	m540-P180/L4	2	325
6.2	1788	31.3	3251	62.7	3251	4.3	110	3251	3.6	1554.000	23.451	g500-H14000	m540-P180/L4	2	543
6.0	1853	30.2	3369	60.5	3369	2.4	106	3369	2.0	1470.000	24.305	g500-H8000	m540-P180/L4	2	404
5.5	2005	27.9	3646	55.9	3646	1.4	98.1	3646	1.3	1428.000	26.305	g500-H5000	m540-P180/L4	2	325
5.5	2026	27.7	3683	55.3	3683	3.8	97.1	3683	3.6	1531.000	26.571	g500-H14000	m540-P180/L4	2	543
5.4	2064	27.2	3752	54.3	3752	2.1	95.3	3752	2.0	1459.000	27.067	g500-H8000	m540-P180/L4	2	404
5.2	2113	26.1	3843	52.3	3843	2.1	91.7	3843	1.7	1533.000	28.128	g500-H8000	m540-P180/L4	3	411
5.1	2134	25.9	3881	51.7	3881	3.6	90.8	3881	3.0	1753.000	28.406	g500-H14000	m540-P180/L4	3	556
4.9	2240	25.0	4073	50.0	4073	3.4	87.8	4073	3.3	1509.000	29.384	g500-H14000	m540-P180/L4	2	543
4.8	2317	24.2	4213	48.4	4213	1.9	84.9	4213	1.8	1450.000	30.392	g500-H8000	m540-P180/L4	2	404
4.4	2507	22.4	4558	44.7	4558	3.1	78.5	4558	2.9	1494.000	32.881	g500-H14000	m540-P180/L4	2	543
4.2	2578	21.4	4687	42.8	4687	1.7	75.2	4687	1.4	1501.000	34.307	g500-H8000	m540-P180/L4	3	411
4.0	2730	20.2	4963	40.5	4963	2.8	71.0	4963	2.4	1625.000	36.331	g500-H14000	m540-P180/L4	3	556
4.0	2786	20.1	5066	40.2	5066	2.4	70.6	5066	2.3	1479.000	36.549	g500-H14000	m540-P180/L4	2	543
3.7	2961	18.7	5384	37.3	5384	1.5	65.5	5384	1.2	1482.000	39.407	g500-H8000	m540-P180/L4	3	411
3.5	3113	17.7	5660	35.5	5660	2.5	62.3	5660	2.1	1600.000	41.433	g500-H14000	m540-P180/L4	3	556
3.3	3269	16.9	5944	33.8	5944	1.4	59.3	5944	1.1	1472.000	43.511	g500-H8000	m540-P180/L4	3	411
3.2	3386	16.3	6156	32.6	6156	2.3	57.3	6156	2.2	1701.000	45.060	g500-H14000	m540-P180/L4	3	556
3.0	3685	15.0	6700	30.0	6700	1.2	52.6	6700	1.1	1510.000	49.045	g500-H8000	m540-P180/L4	3	411
2.5	4330	12.8	7873	25.5	7873	1.8	44.8	7873	1.7	1593.000	57.630	g500-H14000	m540-P180/L4	3	556
2.4	4495	12.3	8172	24.6	8172	1.0	43.1	8172	0.9	1485.000	59.819	g500-H8000	m540-P180/L4	3	411
2.2	4938	11.2	8979	22.4	8979	1.6	39.3	8979	1.5	1576.000	65.723	g500-H14000	m540-P180/L4	3	556
2.1	5163	10.7	9387	21.4	9387	0.9	37.5	9387	0.8	1470.000	68.712	g500-H8000	m540-P180/L4	3	411
1.8	6020	9.2	10946	18.3	10946	1.3	32.2	10946	1.3	1532.000	80.123	g500-H14000	m540-P180/L4	3	556
1.6	6833	8.1	12424	16.2	12424	1.1	28.4	12424	1.1	1512.000	90.945	g500-H14000	m540-P180/L4	3	556
1.5	7443	7.4	13533	14.8	13533	1.0	26.0	13533	1.0	1501.000	99.061	g500-H14000	m540-P180/L4	3	556
1.3	8392	6.6	15258	13.2	15258	0.9	23.1	15258	0.9	1485.000	111.686	g500-H14000	m540-P180/L4	3	556
1.2	9413	5.9	17115	11.7	17115	0.8	20.6	17115	0.8	1474.000	125.283	g500-H14000	m540-P180/L4	3	556

Technical data

Selection tables



50 Hz: 30 kW

87 Hz: 52.5 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
29.9	504	152	916	303	916	3.6	532	916	3.0	2351.000	4.846	g500-H5000	m540-P200/M4	2	395
27.7	544	141	989	281	989	4.9	493	989	4.1	2473.000	5.229	g500-H8000	m540-P200/M4	2	474
24.5	615	124	1117	249	1117	3.2	437	1117	2.7	2312.000	5.911	g500-H5000	m540-P200/M4	2	395
24.3	620	123	1127	247	1127	4.3	433	1127	3.6	2437.000	5.963	g500-H8000	m540-P200/M4	2	474
21.4	706	108	1284	217	1284	2.8	380	1284	2.4	2291.000	6.789	g500-H5000	m540-P200/M4	2	395
19.9	756	101	1374	202	1374	3.6	355	1374	3.0	2373.000	7.270	g500-H8000	m540-P200/M4	2	474
19.3	780	98.0	1417	196	1417	2.6	344	1417	2.1	2280.000	7.497	g500-H5000	m540-P200/M4	2	395
17.0	887	86.2	1612	172	1612	2.3	303	1612	1.9	2266.000	8.526	g500-H5000	m540-P200/M4	2	395
15.5	970	78.8	1764	158	1764	2.6	277	1764	2.2	2326.000	9.331	g500-H5000	m540-P200/M4	2	395
14.5	1037	73.7	1886	147	1886	4.2	259	1886	3.5	2429.000	9.976	g500-H8000	m540-P200/M4	2	474
12.7	1183	64.6	2151	129	2151	3.7	227	2151	3.1	2403.000	11.377	g500-H8000	m540-P200/M4	2	474
12.7	1183	64.6	2152	129	2152	2.2	227	2152	1.9	2295.000	11.381	g500-H5000	m540-P200/M4	2	395
11.1	1359	56.2	2472	112	2472	2.0	197	2472	1.6	2278.000	13.073	g500-H5000	m540-P200/M4	2	395
10.5	1442	53.0	2622	106	2622	3.1	186	2622	2.6	2350.000	13.870	g500-H8000	m540-P200/M4	2	474
10.0	1501	50.9	2729	102	2729	1.8	179	2729	1.5	2269.000	14.435	g500-H5000	m540-P200/M4	2	395
9.2	1637	46.7	2976	93.4	2976	2.7	164	2976	2.2	2327.000	15.743	g500-H8000	m540-P200/M4	2	474
8.8	1707	44.8	3104	89.5	3104	1.6	157	3104	1.3	2257.000	16.418	g500-H5000	m540-P200/M4	2	395
8.5	1770	43.2	3219	86.3	3219	4.4	152	3219	3.6	2445.000	17.026	g500-H14000	m540-P200/M4	2	613
8.5	1783	42.9	3242	85.7	3242	2.5	151	3242	2.1	2313.000	17.148	g500-H8000	m540-P200/M4	2	474
7.8	1934	39.5	3516	79.0	3516	1.4	139	3516	1.2	2247.000	18.599	g500-H5000	m540-P200/M4	2	395
7.7	1968	38.8	3579	77.7	3579	3.9	136	3579	3.3	2403.000	18.930	g500-H14000	m540-P200/M4	2	613
7.5	2010	38.0	3655	76.0	3655	2.2	133	3655	1.8	2296.000	19.333	g500-H8000	m540-P200/M4	2	474
6.9	2173	35.2	3950	70.3	3950	3.5	124	3950	3.0	2383.000	20.896	g500-H14000	m540-P200/M4	2	613
6.9	2181	35.0	3966	70.1	3966	1.3	123	3966	1.1	2240.000	20.978	g500-H5000	m540-P200/M4	2	395
6.7	2255	33.9	4100	67.8	4100	2.0	119	4100	1.6	2281.000	21.687	g500-H8000	m540-P200/M4	2	474
6.2	2434	31.4	4426	62.8	4426	1.1	110	4426	0.9	2233.000	23.410	g500-H5000	m540-P200/M4	2	395
6.2	2438	31.3	4433	62.7	4433	3.2	110	4433	2.6	2354.000	23.451	g500-H14000	m540-P200/M4	2	613
6.0	2527	30.2	4595	60.5	4595	1.7	106	4595	1.5	2270.000	24.305	g500-H8000	m540-P200/M4	2	474
5.5	2763	27.7	5023	55.3	5023	2.8	97.1	5023	2.6	2331.000	26.571	g500-H14000	m540-P200/M4	2	613
5.4	2814	27.2	5117	54.3	5117	1.6	95.3	5117	1.5	2259.000	27.067	g500-H8000	m540-P200/M4	2	474
5.2	2883	26.1	5241	52.3	5241	1.5	91.7	5241	1.3	2333.000	28.128	g500-H8000	m540-P200/M4	3	481
5.1	2911	25.9	5293	51.7	5293	2.7	90.8	5293	2.2	2553.000	28.406	g500-H14000	m540-P200/M4	3	626
4.9	3055	25.0	5555	50.0	5555	2.5	87.8	5555	2.4	2309.000	29.384	g500-H14000	m540-P200/M4	2	613
4.4	3419	22.4	6216	44.7	6216	2.3	78.5	6216	2.1	2294.000	32.881	g500-H14000	m540-P200/M4	2	613
4.2	3516	21.4	6392	42.8	6392	1.3	75.2	6392	1.0	2301.000	34.307	g500-H8000	m540-P200/M4	3	481
4.0	3723	20.2	6769	40.5	6769	2.1	71.0	6769	1.7	2425.000	36.331	g500-H14000	m540-P200/M4	3	626
3.7	4038	18.7	7343	37.3	7343	1.1	65.5	7343	0.9	2282.000	39.407	g500-H8000	m540-P200/M4	3	481
3.5	4246	17.7	7720	35.5	7720	1.8	62.3	7720	1.5	2400.000	41.433	g500-H14000	m540-P200/M4	3	626
3.3	4459	16.9	8107	33.8	8107	1.0	59.3	8107	0.8	2272.000	43.511	g500-H8000	m540-P200/M4	3	481
3.2	4618	16.3	8396	32.6	8396	1.7	57.3	8396	1.6	2501.000	45.060	g500-H14000	m540-P200/M4	3	626
3.0	5026	15.0	9138	30.0	9138	0.9	52.6	9138	0.8	2310.000	49.045	g500-H8000	m540-P200/M4	3	481
2.5	5906	12.8	10738	25.5	10738	1.3	44.8	10738	1.2	2393.000	57.630	g500-H14000	m540-P200/M4	3	626
2.2	6735	11.2	12246	22.4	12246	1.1	39.3	12246	1.1	2376.000	65.723	g500-H14000	m540-P200/M4	3	626
1.8	8211	9.2	14929	18.3	14929	0.9	32.2	14929	0.9	2332.000	80.123	g500-H14000	m540-P200/M4	3	626
1.6	9320	8.1	16945	16.2	16945	0.8	28.4	16945	0.8	2312.000	90.945	g500-H14000	m540-P200/M4	3	626



50 Hz: 37 kW

87 Hz: 64.8 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
29.9	616	153	1124	305	1124	2.9	534	1124	2.4	4351.000	4.846	g500-H5000	m540-P225/M4	2	440
27.7	664	142	1213	283	1213	4.0	495	1213	3.4	4473.000	5.229	g500-H8000	m540-P225/M4	2	519
24.5	751	125	1371	250	1371	2.6	438	1371	2.2	4312.000	5.911	g500-H5000	m540-P225/M4	2	440
24.3	758	124	1383	248	1383	3.5	434	1383	2.9	4437.000	5.963	g500-H8000	m540-P225/M4	2	519
21.4	863	109	1575	218	1575	2.3	381	1575	1.9	4291.000	6.789	g500-H5000	m540-P225/M4	2	440
19.9	924	102	1686	203	1686	2.9	356	1686	2.4	4373.000	7.270	g500-H8000	m540-P225/M4	2	519
19.7	937	100	1710	200	1710	4.7	351	1710	3.9	4609.000	7.374	g500-H14000	m540-P225/M4	2	658
19.3	953	98.7	1739	197	1739	2.1	345	1739	1.7	4280.000	7.497	g500-H5000	m540-P225/M4	2	440
18.6	991	94.9	1809	190	1809	4.4	332	1809	3.7	4560.000	7.800	g500-H8000	m540-P225/M4	2	519
17.0	1083	86.8	1977	173	1977	1.8	304	1977	1.5	4266.000	8.526	g500-H5000	m540-P225/M4	2	440
15.5	1186	79.3	2164	158	2164	2.2	277	2164	1.8	4326.000	9.331	g500-H5000	m540-P225/M4	2	440
14.5	1268	74.2	2314	148	2314	3.5	259	2314	2.9	4429.000	9.976	g500-H8000	m540-P225/M4	2	519
12.7	1446	65.0	2639	130	2639	3.0	228	2639	2.5	4403.000	11.377	g500-H8000	m540-P225/M4	2	519
12.7	1446	65.0	2640	130	2640	1.8	227	2640	1.5	4295.000	11.381	g500-H5000	m540-P225/M4	2	440
11.5	1598	58.8	2917	118	2917	4.8	206	2917	4.0	4577.000	12.579	g500-H14000	m540-P225/M4	2	658
11.1	1661	56.6	3032	113	3032	1.6	198	3032	1.3	4278.000	13.073	g500-H5000	m540-P225/M4	2	440
10.5	1762	53.4	3217	107	3217	2.5	187	3217	2.1	4350.000	13.870	g500-H8000	m540-P225/M4	2	519
10.2	1798	52.3	3281	105	3281	4.3	183	3281	3.6	4508.000	14.149	g500-H14000	m540-P225/M4	2	658
10.0	1834	51.3	3348	102	3348	1.5	179	3348	1.2	4269.000	14.435	g500-H5000	m540-P225/M4	2	440
9.2	2000	47.0	3651	93.9	3651	2.2	164	3651	1.8	4327.000	15.743	g500-H8000	m540-P225/M4	2	519
8.8	2086	45.1	3808	90.0	3808	1.3	158	3808	1.1	4257.000	16.418	g500-H5000	m540-P225/M4	2	440
8.5	2164	43.5	3949	86.8	3949	3.6	152	3949	3.0	4445.000	17.026	g500-H14000	m540-P225/M4	2	658
8.5	2179	43.2	3977	86.2	3977	2.0	151	3977	1.7	4313.000	17.148	g500-H8000	m540-P225/M4	2	519
7.8	2363	39.8	4314	79.5	4314	1.2	139	4314	1.0	4247.000	18.599	g500-H5000	m540-P225/M4	2	440
7.7	2406	39.1	4390	78.1	4390	3.2	137	4390	2.7	4403.000	18.930	g500-H14000	m540-P225/M4	2	658
7.5	2457	38.3	4484	76.4	4484	1.8	134	4484	1.5	4296.000	19.333	g500-H8000	m540-P225/M4	2	519
6.9	2655	35.4	4846	70.7	4846	2.9	124	4846	2.4	4383.000	20.896	g500-H14000	m540-P225/M4	2	658
6.9	2666	35.3	4865	70.5	4865	1.0	123	4865	0.9	4240.000	20.978	g500-H5000	m540-P225/M4	2	440
6.7	2756	34.1	5030	68.2	5030	1.6	119	5030	1.3	4281.000	21.687	g500-H8000	m540-P225/M4	2	519
6.2	2980	31.6	5439	63.0	5439	2.6	110	5439	2.2	4354.000	23.451	g500-H14000	m540-P225/M4	2	658
6.0	3088	30.4	5637	60.8	5637	1.4	107	5637	1.2	4270.000	24.305	g500-H8000	m540-P225/M4	2	519
5.5	3376	27.8	6163	55.6	6163	2.3	97.4	6163	2.2	4331.000	26.571	g500-H14000	m540-P225/M4	2	658
5.2	3523	26.3	6429	52.5	6429	1.2	92.0	6429	1.0	4333.000	28.128	g500-H8000	m540-P225/M4	3	526
5.1	3558	26.1	6493	52.0	6493	2.2	91.1	6493	1.8	4553.000	28.406	g500-H14000	m540-P225/M4	3	671
4.9	3734	25.2	6815	50.3	6815	2.1	88.1	6815	2.0	4309.000	29.384	g500-H14000	m540-P225/M4	2	658
4.2	4297	21.6	7842	43.1	7842	1.0	75.4	7842	0.9	4301.000	34.307	g500-H8000	m540-P225/M4	3	526
4.0	4550	20.4	8305	40.7	8305	1.7	71.2	8305	1.4	4425.000	36.331	g500-H14000	m540-P225/M4	3	671
3.7	4935	18.8	9008	37.5	9008	0.9	-	-	-	4282.000	39.407	g500-H8000	m540-P225/M4	3	526
3.5	5189	17.9	9471	35.7	9471	1.5	62.5	9471	1.2	4400.000	41.433	g500-H14000	m540-P225/M4	3	671
3.3	5449	17.0	9946	34.0	9946	0.8	-	-	-	4272.000	43.511	g500-H8000	m540-P225/M4	3	526
3.2	5643	16.4	10300	32.8	10300	1.4	57.4	10300	1.3	4501.000	45.060	g500-H14000	m540-P225/M4	3	671
2.5	7217	12.8	13173	25.6	13173	1.1	44.9	13173	1.0	4393.000	57.630	g500-H14000	m540-P225/M4	3	671
2.2	8231	11.3	15023	22.5	15023	0.9	39.4	15023	0.9	4376.000	65.723	g500-H14000	m540-P225/M4	3	671



50 Hz: 45 kW

87 Hz: 78.7 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
35.5	635	181	1154	362	1154	4.2	633	1154	3.5	5132.000	4.088	g500-H8000	m540-P225/L4	2	554
29.9	752	153	1368	305	1368	2.4	534	1368	2.0	4851.000	4.846	g500-H5000	m540-P225/L4	2	475
27.7	812	142	1476	283	1476	3.3	495	1476	2.8	4973.000	5.229	g500-H8000	m540-P225/L4	2	554
24.7	912	126	1659	252	1659	4.8	440	1659	4.0	5271.000	5.877	g500-H14000	m540-P225/L4	2	693
24.5	917	125	1668	250	1668	2.2	438	1668	1.8	4812.000	5.911	g500-H5000	m540-P225/L4	2	475
24.3	926	124	1683	248	1683	2.9	434	1683	2.4	4937.000	5.963	g500-H8000	m540-P225/L4	2	554
21.4	1054	109	1916	218	1916	1.9	381	1916	1.6	4791.000	6.789	g500-H5000	m540-P225/L4	2	475
19.9	1128	102	2052	203	2052	2.4	356	2052	2.0	4873.000	7.270	g500-H8000	m540-P225/L4	2	554
19.7	1144	100	2081	200	2081	3.8	351	2081	3.2	5109.000	7.374	g500-H14000	m540-P225/L4	2	693
19.3	1164	98.7	2116	197	2116	1.7	345	2116	1.4	4780.000	7.497	g500-H5000	m540-P225/L4	2	475
18.6	1211	94.9	2202	190	2202	3.6	332	2202	3.0	5060.000	7.800	g500-H8000	m540-P225/L4	2	554
17.0	1323	86.8	2407	173	2407	1.5	304	2407	1.3	4766.000	8.526	g500-H5000	m540-P225/L4	2	475
15.5	1448	79.3	2634	158	2634	1.8	277	2634	1.5	4826.000	9.331	g500-H5000	m540-P225/L4	2	475
14.5	1548	74.2	2816	148	2816	2.8	259	2816	2.4	4929.000	9.976	g500-H8000	m540-P225/L4	2	554
14.5	1556	73.8	2830	147	2830	4.9	258	2830	4.1	5221.000	10.025	g500-H14000	m540-P225/L4	2	693
12.7	1766	65.0	3211	130	3211	2.5	228	3211	2.1	4903.000	11.377	g500-H8000	m540-P225/L4	2	554
12.7	1766	65.0	3213	130	3213	1.5	227	3213	1.2	4795.000	11.381	g500-H5000	m540-P225/L4	2	475
11.5	1952	58.8	3551	118	3551	3.9	206	3551	3.3	5077.000	12.579	g500-H14000	m540-P225/L4	2	693
11.1	2029	56.6	3690	113	3690	1.3	198	3690	1.1	4778.000	13.073	g500-H5000	m540-P225/L4	2	475
10.5	2153	53.4	3915	107	3915	2.0	187	3915	1.7	4850.000	13.870	g500-H8000	m540-P225/L4	2	554
10.2	2196	52.3	3994	105	3994	3.5	183	3994	2.9	5008.000	14.149	g500-H14000	m540-P225/L4	2	693
10.0	2240	51.3	4075	102	4075	1.2	179	4075	1.0	4769.000	14.435	g500-H5000	m540-P225/L4	2	475
9.2	2443	47.0	4444	93.9	4444	1.8	164	4444	1.5	4827.000	15.743	g500-H8000	m540-P225/L4	2	554
8.8	2548	45.1	4634	90.0	4634	1.1	158	4634	0.9	4757.000	16.418	g500-H5000	m540-P225/L4	2	475
8.5	2642	43.5	4806	86.8	4806	2.9	152	4806	2.4	4945.000	17.026	g500-H14000	m540-P225/L4	2	693
8.5	2661	43.2	4840	86.2	4840	1.7	151	4840	1.4	4813.000	17.148	g500-H8000	m540-P225/L4	2	554
7.8	2887	39.8	5250	79.5	5250	1.0	-	-	-	4747.000	18.599	g500-H5000	m540-P225/L4	2	475
7.7	2938	39.1	5343	78.1	5343	2.6	137	5343	2.2	4903.000	18.930	g500-H14000	m540-P225/L4	2	693
7.5	3001	38.3	5457	76.4	5457	1.5	134	5457	1.2	4796.000	19.333	g500-H8000	m540-P225/L4	2	554
6.9	3243	35.4	5898	70.7	5898	2.4	124	5898	2.0	4883.000	20.896	g500-H14000	m540-P225/L4	2	693
6.9	3256	35.3	5921	70.5	5921	0.8	-	-	-	4740.000	20.978	g500-H5000	m540-P225/L4	2	475
6.7	3366	34.1	6122	68.2	6122	1.3	119	6122	1.1	4781.000	21.687	g500-H8000	m540-P225/L4	2	554
6.2	3640	31.6	6619	63.0	6619	2.1	110	6619	1.8	4854.000	23.451	g500-H14000	m540-P225/L4	2	693
6.0	3772	30.4	6861	60.8	6861	1.2	107	6861	1.0	4770.000	24.305	g500-H8000	m540-P225/L4	2	554
5.5	4124	27.8	7500	55.6	7500	1.9	97.4	7500	1.8	4831.000	26.571	g500-H14000	m540-P225/L4	2	693
5.2	4303	26.3	7825	52.5	7825	1.0	92.0	7825	0.9	4833.000	28.128	g500-H8000	m540-P225/L4	3	561
5.1	4345	26.1	7903	52.0	7903	1.8	91.1	7903	1.5	5053.000	28.406	g500-H14000	m540-P225/L4	3	706
4.9	4560	25.2	8294	50.3	8294	1.7	88.1	8294	1.6	4809.000	29.384	g500-H14000	m540-P225/L4	2	693
4.2	5248	21.6	9544	43.1	9544	0.8	-	-	-	4801.000	34.307	g500-H8000	m540-P225/L4	3	561
4.0	5557	20.4	10107	40.7	10107	1.4	71.2	10107	1.2	4925.000	36.331	g500-H14000	m540-P225/L4	3	706
3.5	6338	17.9	11526	35.7	11526	1.2	62.5	11526	1.0	4900.000	41.433	g500-H14000	m540-P225/L4	3	706
3.2	6892	16.4	12535	32.8	12535	1.1	57.4	12535	1.1	5001.000	45.060	g500-H14000	m540-P225/L4	3	706
2.5	8815	12.8	16032	25.6	16032	0.9	44.9	16032	0.8	4893.000	57.630	g500-H14000	m540-P225/L4	3	706



50 Hz: 55 kW

87 Hz: 87 kW

Inverter operation												Geared motor			
5 Hz -		- 20 Hz		50 Hz (1:10)			87 Hz (1:17.4)								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		rpm	Nm		kgcm ²					kg
35.5	773	181	1404	363	1404	3.5	636	1269	3.2	8932.000	4.088	g500-H8000	m540-P250/M4	2	654
31.0	885	158	1606	317	1606	4.9	555	1452	4.5	9268.000	4.678	g500-H14000	m540-P250/M4	2	793
29.9	917	153	1664	306	1664	2.0	536	1504	1.8	8651.000	4.846	g500-H5000	m540-P250/M4	2	575
27.7	989	142	1795	283	1795	2.7	497	1623	2.5	8773.000	5.229	g500-H8000	m540-P250/M4	2	654
24.7	1112	126	2018	252	2018	3.9	442	1824	3.6	9071.000	5.877	g500-H14000	m540-P250/M4	2	793
24.5	1118	125	2030	251	2030	1.8	440	1835	1.6	8612.000	5.911	g500-H5000	m540-P250/M4	2	575
24.3	1128	124	2048	249	2048	2.4	436	1851	2.2	8737.000	5.963	g500-H8000	m540-P250/M4	2	654
21.4	1284	109	2331	218	2331	1.6	383	2107	1.4	8591.000	6.789	g500-H5000	m540-P250/M4	2	575
19.9	1375	102	2496	204	2496	2.0	357	2256	1.8	8673.000	7.270	g500-H8000	m540-P250/M4	2	654
19.7	1395	100	2532	201	2532	3.1	352	2289	2.9	8909.000	7.374	g500-H14000	m540-P250/M4	2	793
19.3	1418	98.7	2574	198	2574	1.4	347	2327	1.3	8580.000	7.497	g500-H5000	m540-P250/M4	2	575
18.6	1475	94.9	2678	190	2678	3.0	333	2421	2.8	8860.000	7.800	g500-H8000	m540-P250/M4	2	654
17.0	1613	86.8	2928	174	2928	1.2	305	2647	1.2	8566.000	8.526	g500-H5000	m540-P250/M4	2	575
15.5	1765	79.3	3204	159	3204	1.5	278	2896	1.3	8626.000	9.331	g500-H5000	m540-P250/M4	2	575
14.5	1887	74.2	3426	149	3426	2.3	260	3097	2.2	8729.000	9.976	g500-H8000	m540-P250/M4	2	654
14.5	1896	73.8	3442	148	3442	4.0	259	3112	3.7	9021.000	10.025	g500-H14000	m540-P250/M4	2	793
12.7	2152	65.0	3907	130	3907	2.1	228	3531	1.9	8703.000	11.377	g500-H8000	m540-P250/M4	2	654
12.7	2153	65.0	3908	130	3908	1.2	228	3533	1.1	8595.000	11.381	g500-H5000	m540-P250/M4	2	575
11.5	2379	58.8	4319	118	4319	3.2	207	3904	3.0	8877.000	12.579	g500-H14000	m540-P250/M4	2	793
11.1	2473	56.6	4489	113	4489	1.1	199	4058	1.0	8578.000	13.073	g500-H5000	m540-P250/M4	2	575
10.5	2623	53.4	4763	107	4763	1.7	187	4305	1.6	8650.000	13.870	g500-H8000	m540-P250/M4	2	654
10.2	2676	52.3	4858	105	4858	2.9	184	4392	2.7	8808.000	14.149	g500-H14000	m540-P250/M4	2	793
10.0	2730	51.3	4957	103	4957	1.0	180	4481	0.9	8569.000	14.435	g500-H5000	m540-P250/M4	2	575
9.2	2978	47.0	5406	94.1	5406	1.5	165	4887	1.4	8627.000	15.743	g500-H8000	m540-P250/M4	2	654
8.8	3105	45.1	5637	90.3	5637	0.9	158	5096	0.8	8557.000	16.418	g500-H5000	m540-P250/M4	2	575
8.5	3221	43.5	5846	87.0	5846	2.4	153	5285	2.2	8745.000	17.026	g500-H14000	m540-P250/M4	2	793
8.5	3244	43.2	5888	86.4	5888	1.4	152	5323	1.3	8613.000	17.148	g500-H8000	m540-P250/M4	2	654
7.7	3581	39.1	6500	78.3	6500	2.2	137	5876	2.0	8703.000	18.930	g500-H14000	m540-P250/M4	2	793
7.5	3657	38.3	6639	76.7	6639	1.2	134	6001	1.1	8596.000	19.333	g500-H8000	m540-P250/M4	2	654
6.9	3952	35.4	7175	70.9	7175	2.0	124	6486	1.8	8683.000	20.896	g500-H14000	m540-P250/M4	2	793
6.2	4436	31.6	8053	63.2	8053	1.7	111	7279	1.6	8654.000	23.451	g500-H14000	m540-P250/M4	2	793
5.2	5244	26.3	9519	52.7	9519	0.8	-	-	-	8633.000	28.128	g500-H8000	m540-P250/M4	3	661
5.1	5296	26.1	9613	52.2	9613	1.5	91.5	8690	1.3	8853.000	28.406	g500-H14000	m540-P250/M4	3	806
4.0	6773	20.4	12295	40.8	12295	1.1	71.5	11114	1.1	8725.000	36.331	g500-H14000	m540-P250/M4	3	806
3.5	7724	17.9	14022	35.8	14022	1.0	62.7	12675	0.9	8700.000	41.433	g500-H14000	m540-P250/M4	3	806
3.2	8400	16.4	15249	32.9	15249	0.9	57.7	13785	1.0	8801.000	45.060	g500-H14000	m540-P250/M4	3	806



Motor – inverter assignment

Supply voltage 1x 230/240 V

Rated frequency 50/60 Hz

Rated power	Motor	Frequency inverter	
		i510 cabinet	i550 cabinet
P _N			
kW			
1.5	m540-P90/L4	i510-C1.5/230-1	i550-C1.5/230-1
1.5	m540-P90/L4	i510-C1.5/230-2	i550-C1.5/230-2
2.2	m540-P90/L4	i510-C2.2/230-1	i550-C2.2/230-1
2.2	m540-P90/L4	i510-C2.2/230-2	i550-C2.2/230-2

Supply voltage 3x 230/240 V

Rated frequency 50/60 Hz

Rated power	Motor	Frequency inverter	
		i510 cabinet	i550 cabinet
P _N			
kW			
1.5	m540-P90/L4	i510-C1.5/230-2	i550-C1.5/230-2
2.2	m540-P100/M4	i510-C2.2/230-2	i550-C2.2/230-2
3	m540-P100/L4	i510-C4.0/230-3	i550-C4.0/230-3
4	m540-P112/M4	i510-C4.0/230-3	i550-C4.0/230-3
5.5	m540-P132/M4	i510-C5.5/230-3	i550-C5.5/230-3



Supply voltage 3x 400/480 V

Rated frequency 50/60 Hz

Rated power	Motor	Frequency inverter	
		i510 cabinet	i550 cabinet
P_N			
kW			
1.5	m540-P90/L4	i510-C1.5/400-3	i550-C1.5/400-3
2.2	m540-P100/M4	i510-C2.2/400-3	i550-C2.2/400-3
3	m540-P100/L4	i510-C3.0/400-3	i550-C3.0/400-3
4	m540-P112/M4	i510-C4.0/400-3	i550-C4.0/400-3
5.5	m540-P132/M4	i510-C5.5/400-3	i550-C5.5/400-3
7.5	m540-P132/L4	i510-C7.5/400-3	i550-C7.5/400-3
11	m540-P160/M4	i510-C11/400-3	i550-C11/400-3
15	m540-P160/L4	-	i550-C15/400-3
18.5	m540-P180/M4	-	i550-C18/400-3
22	m540-P180/L4	-	i550-C22/400-3
30	m540-P200/M4	-	i550-C30/400-3
37	m540-P225/M4	-	i550-C37/400-3
45	m540-P225/L4	-	i550-C45/400-3
55	m540-P250/M4	-	i550-C55/400-3

Rated frequency 87 Hz

Rated power	Motor	Frequency inverter	
		i510 cabinet	i550 cabinet
P_N			
kW			
2.6	m540-P90/L4	i510-C3.0/400-3	i550-C3.0/400-3
3.9	m540-P100/M4	i510-C4.0/400-3	i550-C4.0/400-3
5.2	m540-P100/L4	i510-C5.5/400-3	i550-C5.5/400-3
7.35	m540-P112/M4	i510-C7.5/400-3	i550-C7.5/400-3
9.6	m540-P132/M4	i510-C11/400-3	i550-C11/400-3
13.1	m540-P132/L4	-	i550-C15/400-3
19.2	m540-P160/M4	-	i550-C22/400-3
26.3	m540-P160/L4	-	i550-C30/400-3
32.2	m540-P180/M4	-	i550-C37/400-3
38.5	m540-P180/L4	-	i550-C45/400-3
52.5	m540-P200/M4	-	i550-C55/400-3
64.8	m540-P225/M4	-	i550-C75/400-3
78.7	m540-P225/L4	-	i550-C90/400-3
87	m540-P250/M4	-	i550-C90/400-3



Dimensions

Notes on the basic dimensions

The following legend shows the layout of the dimension tables:

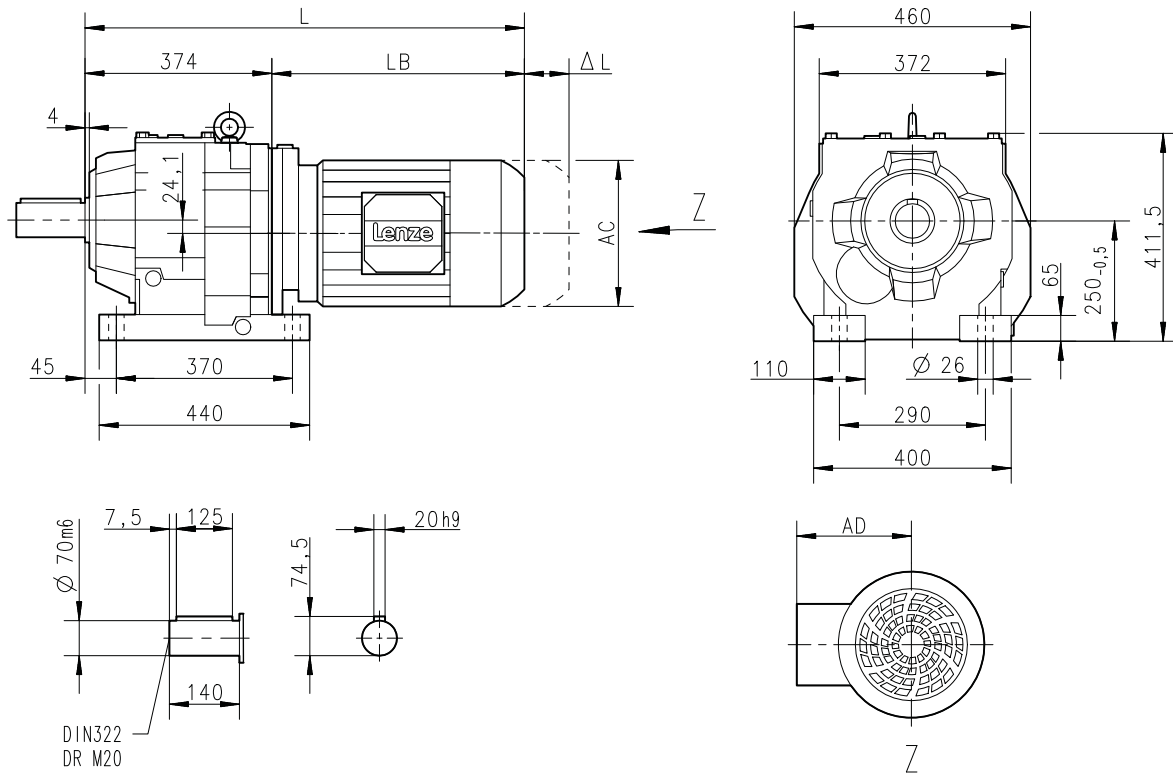
Motor		m540-P		
		90/L4	100/M4	100/L4
Table content		Explanation		
Total length	L	Total length of the drive without brake/feedback		
Motor length	LB	Length of the motor without brake/feedback		
Motor diameter	AC	Motor diameter		
Motor/connection distance	AD	Distance from center of motor to end of terminal box		



Basic dimensions

g500-H5000, 2-/3-stage

Gearbox design: Solid shaft with foot (VBR)



8800432-01

Motor series			m540-P											
Motor			090M4 090L4	100M4 100L4	112M4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	723	767	767	843	875	935	948	978	1041	1067	1127	1127
Motor length	LB	mm	349	393	393	469	501	561	574	604	667	693	753	753
Motor diameter	AC	mm	174	198	222	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	154	171	182	207	241	241	292	292	315	337	337	408

Δ L ▶ Additional lengths 78

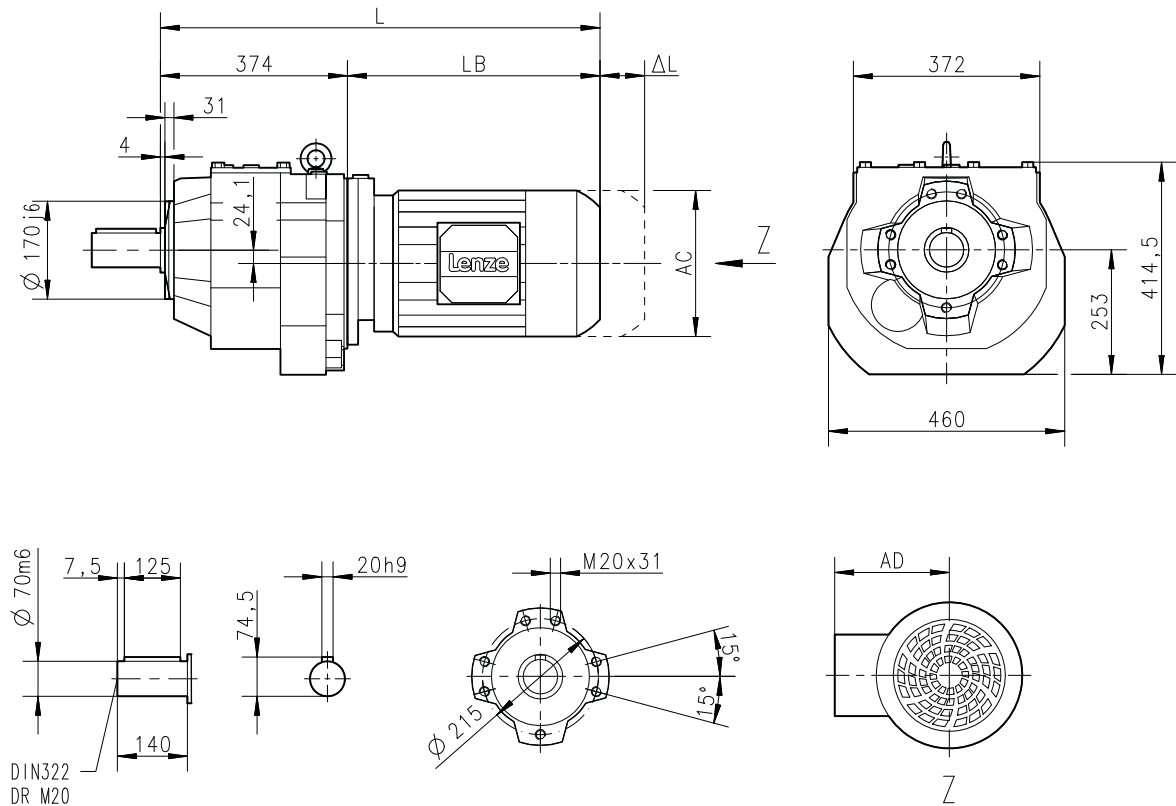
Technical data

Dimensions
Basic dimensions



g500-H5000, 2-/3-stage

Gearbox design: Solid shaft with centering (VCR)



8800433-01

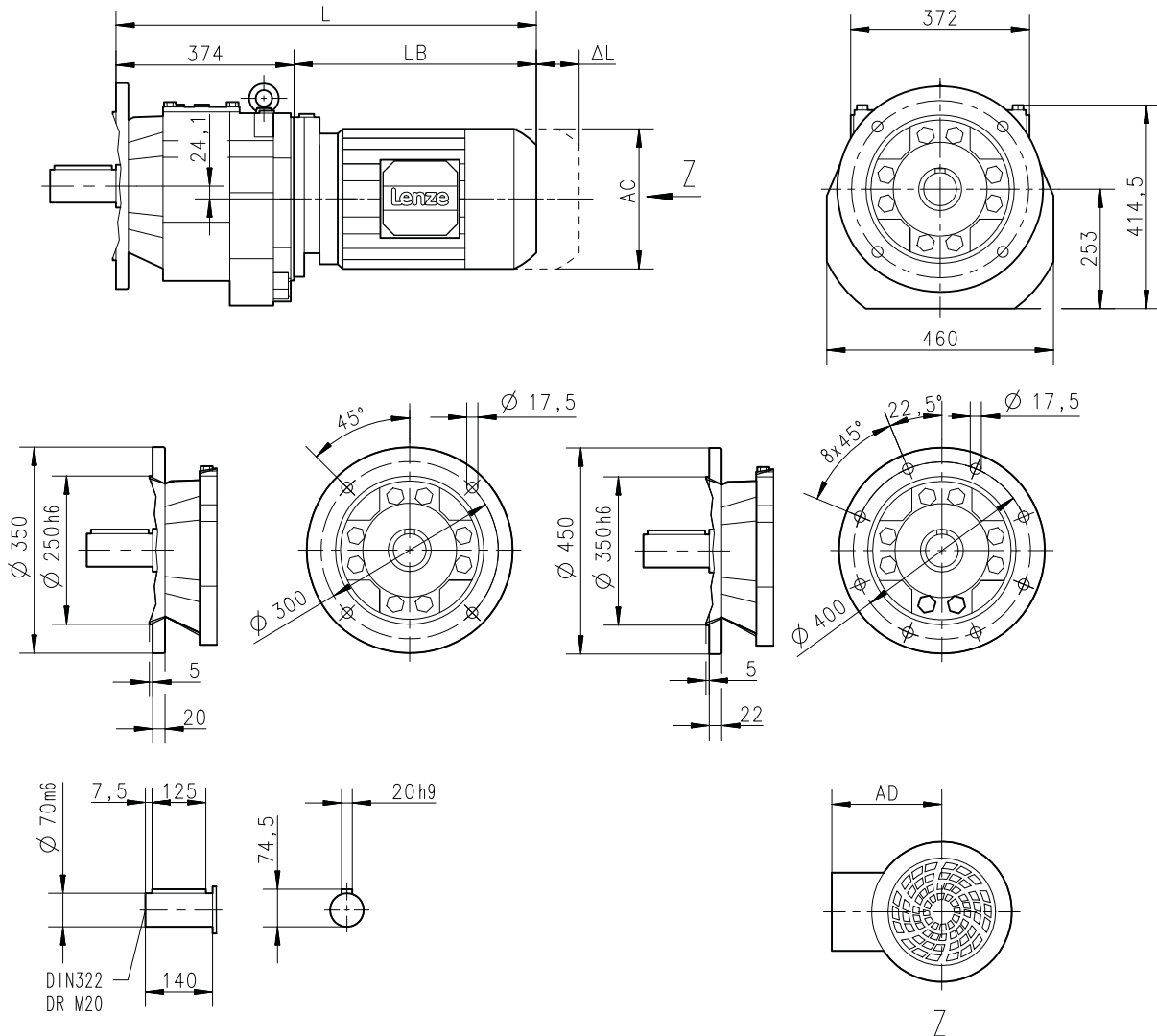
Motor series			m540-P											
Motor			090M4 090L4	100M4 100L4	112M4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	723	767	767	843	875	935	948	978	1041	1067	1127	1127
Motor length	LB	mm	349	393	393	469	501	561	574	604	667	693	753	753
Motor diameter	AC	mm	174	198	222	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	154	171	182	207	241	241	292	292	315	337	337	408

ΔL ▶ Additional lengths 78



g500-H5000, 2-/3-stage

Gearbox design: Solid shaft with flange (VCK)



8800434-01

Motor series			m540-P											
Motor			090M4 090L4	100M4 100L4	112M4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	723	767	767	843	875	935	948	978	1041	1067	1127	1127
Motor length	LB	mm	349	393	393	469	501	561	574	604	667	693	753	753
Motor diameter	AC	mm	174	198	222	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	154	171	182	207	241	241	292	292	315	337	337	408

ΔL ▶ Additional lengths 78

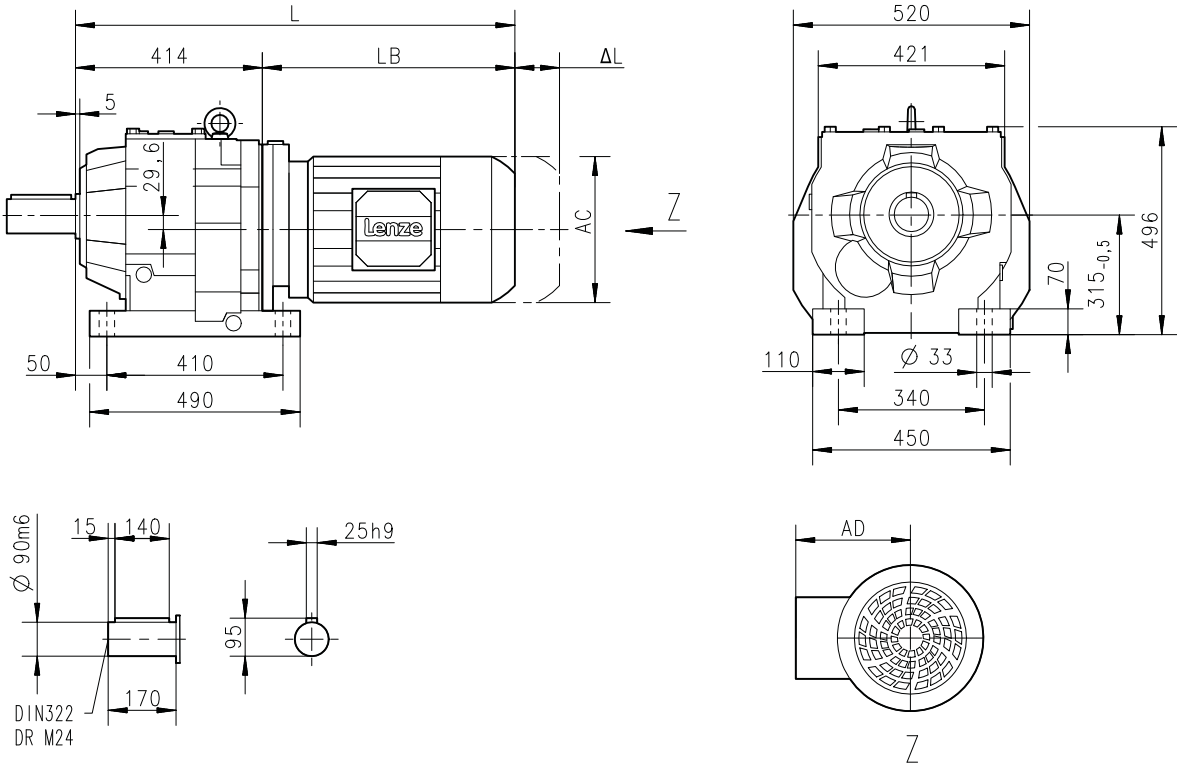
Technical data

Dimensions
Basic dimensions



g500-H8000, 2-/3-stage

Gearbox design: Solid shaft with foot (VBR)



8800435-01

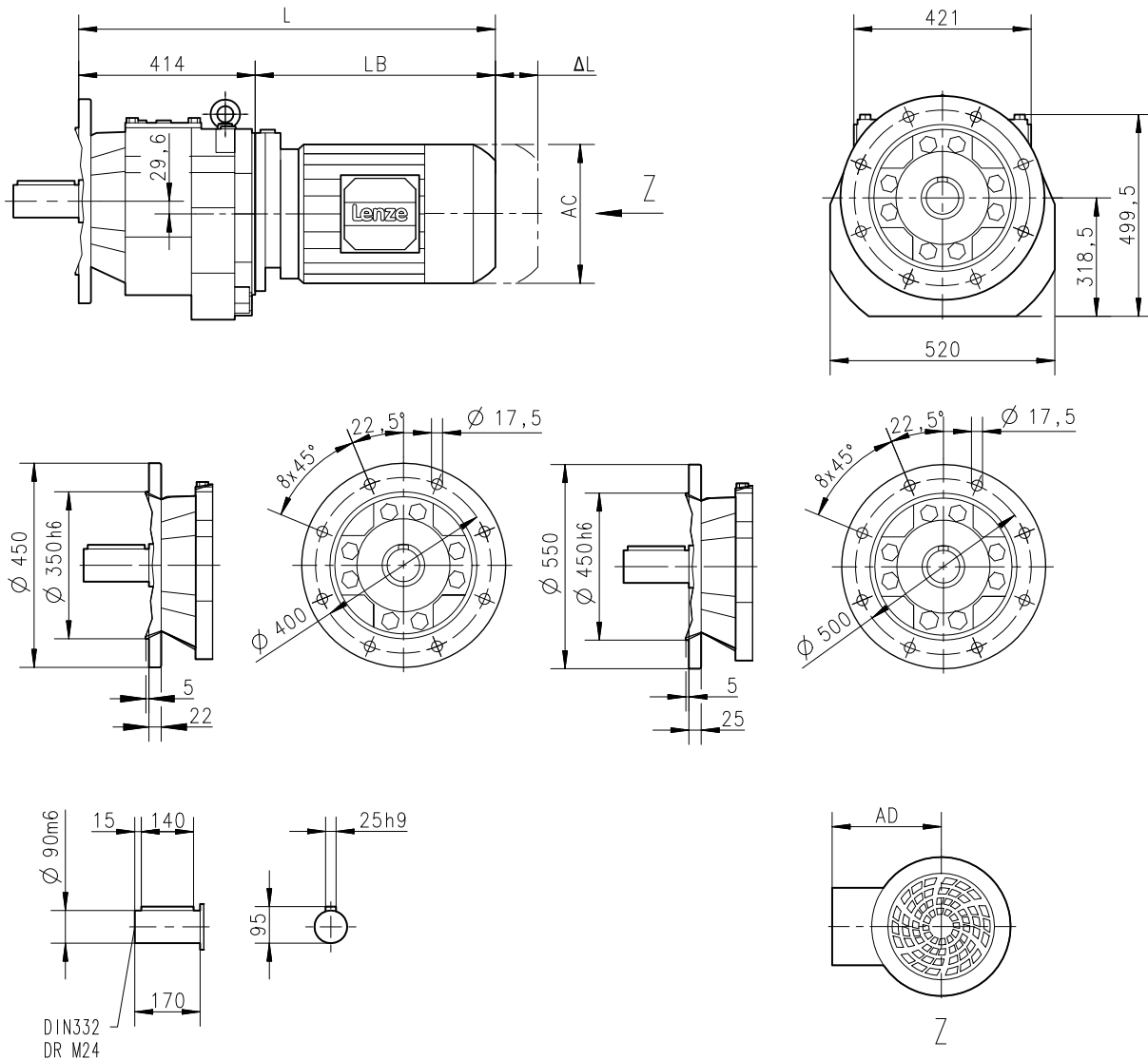
Motor series			m540-P										
Motor			112M4	100M4 100L4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	805	805	876	908	968	981	1011	1074	1095	1155	1206
Motor length	LB	mm	391	391	462	494	554	567	597	660	681	741	792
Motor diameter	AC	mm	222	198	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	182	171	207	241	241	292	292	315	337	337	408

Δ L ▶ Additional lengths 78



g500-H8000, 2-/3-stage

Gearbox design: Solid shaft with flange (VCK)



8800437-01

Motor series			m540-P										
Motor			112M4	100M4 100L4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	805	805	876	908	968	981	1011	1074	1095	1155	1206
Motor length	LB	mm	391	391	462	494	554	567	597	660	681	741	792
Motor diameter	AC	mm	222	198	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	182	171	207	241	241	292	292	315	337	337	408

ΔL ▶ Additional lengths 78

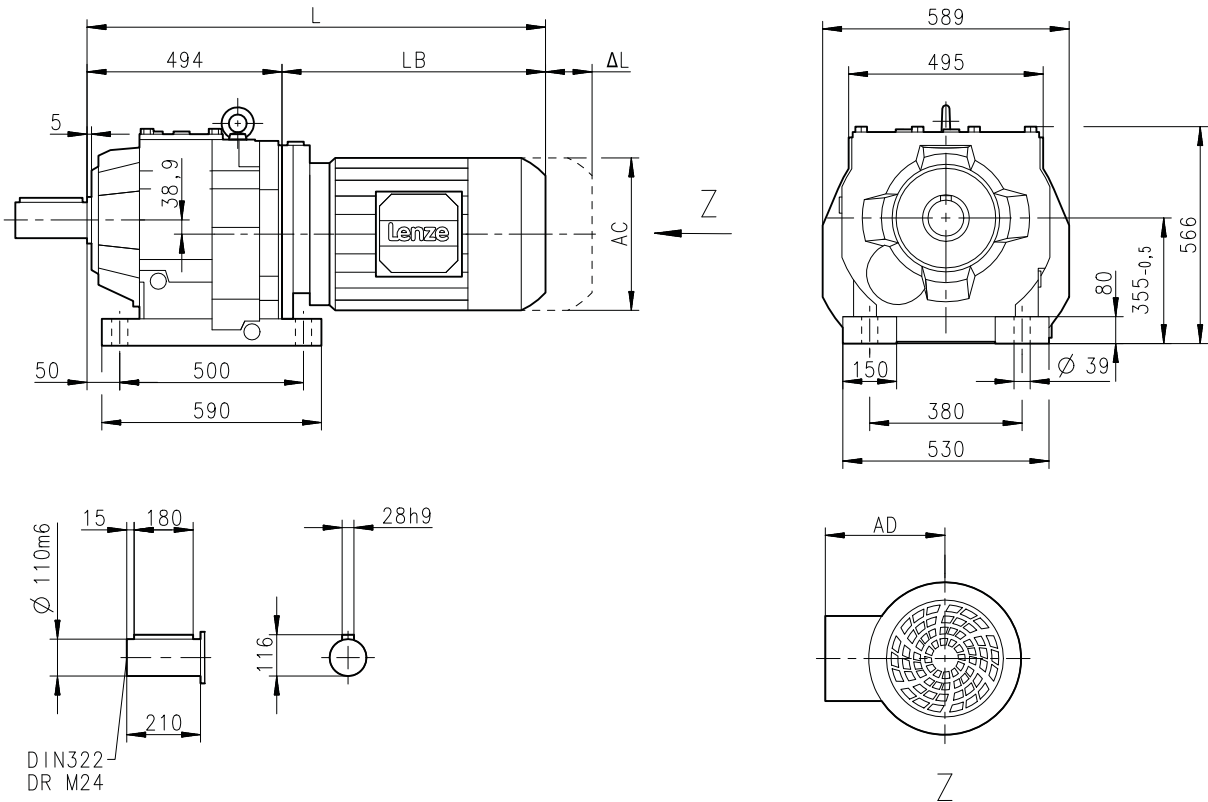
Technical data

Dimensions
Basic dimensions



g500-H14000, 2-/3-stage

Gearbox design: Solid shaft with foot (VBR)



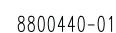
8800438-01

Motor series			m540-P									
Motor			112M4	132M4 132L4	160M4	160L4	180M4	180L4	200M4	225M4	225L4	250M4
Total length	L	mm	873	943	975	1035	1048	1078	1141	1160	1220	1268
Motor length	LB	mm	379	449	481	541	554	584	647	666	726	774
Motor diameter	AC	mm	222	264	318	318	353	353	393	439	439	487
Motor/connection distance	AD	mm	182	207	241	241	292	292	315	337	337	408

Δ L ▶ Additional lengths 78



Gearbox design: Solid shaft with flange (VCK)



Δ L ▶ Additional lengths  78



Additional lengths

Self-ventilated motors

Motor			m540-P					
			90/L4	100/M4	112/M4	132/M4	160/M4	180/M4
				100/L4		132/L4	160/L4	180/L4
With feedback	Δ L	[mm]	92.5	93.5	95.0	95.0	95.0	95.0
With spring-applied brake	Δ L	[mm]	70.0	78.5	73.0	105	116	129
With spring-applied brake and feedback	Δ L	[mm]	163	172	168	200	211	224

Motor			m540-P		
			200/M4	225/M4	250/M4
				225/L4	
With feedback	Δ L	[mm]	95.0	125	125
With spring-applied brake	Δ L	[mm]	147	239	225
With spring-applied brake and feedback	Δ L	[mm]	242	364	350

Forced ventilated motors

Motor			m540-P					
			90/L4	100/M4	112/M4	132/M4	160/M4	180/M4
				100/L4		132/L4	160/L4	180/L4
Without feedback/brake	Δ L	[mm]	85.0	81.5	81.0	115	131	132
With feedback	Δ L	[mm]	213	219	206	259	285	274
With spring-applied brake	Δ L	[mm]	120	122	113	165	191	199
With spring-applied brake and feedback	Δ L	[mm]	213	219	206	259	285	274

Motor			m540-P		
			200/M4	225/M4	250/M4
				225/L4	
Without feedback/brake	Δ L	[mm]	141	228	233
With feedback	Δ L	[mm]	293	787	827
With spring-applied brake	Δ L	[mm]	233	-	-
With spring-applied brake and feedback	Δ L	[mm]	293	-	-



Weights

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](#) 51

Observe ► [Additional weights](#) 79!

Additional weights



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

Gearbox

Gearbox			g500-H5000	g500-H8000	g500-H14000
Foot	m	kg	16.0	26.0	44.0
Flange	m	kg	22.3	36.4	36.4

Motors

Motor			m540-P								
			90/L4	100/M4 100/L4	112/M4	132/M4 132/L4	160/M4 160/L4	180/M4 180/L4	200/M4	225/M4 225/L4	250/M4
Blowers											
Without product extension	m	kg	1.9	2.1	2.2	3.0	4.2	8.2	9.8	22.0	22.0
Spring-applied brake											
08	m	kg	1.5								
10	m	kg	2.6	2.6							
12	m	kg	4.2	4.2	4.2						
14	m	kg		5.8	5.8						
16	m	kg				8.7					
18	m	kg				12.6	12.6				
20	m	kg					12.6	12.6	12.6		
25	m	kg							31.0	31.0	
30	m	kg								45.0	45.0
40	m	kg									80.0
Manual release lever	m	kg	??	??	??	??	??	??	??	??	??
Feedback	m	kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Product extensions

Motor connection
Connection options



Product extensions

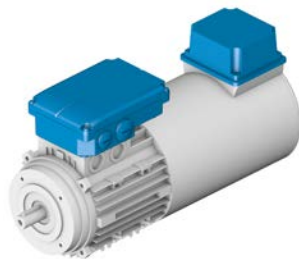
Motor connection

Connection options



The motors are equipped with a terminal box by default.

Alternatively, the HAN plug connector can be selected for quick commissioning or maintenance.



Terminal box with cable gland



HAN connector

The three-phase AC motors are intended for operation on constant mains and an inverter.

Mains operation

For mains operation, the motors are available in the following mains voltages:

Mains frequency	Mains voltage	Mains voltage range	Circuit
Hz	V	V	
50	400	380 ... 420	Y
	230	220 ... 240	Δ
60	460	440 ... 480	Y

The motors are rated for the specified mains voltage range.

According to EN 60034-1, the motors operate reliably in continuous operation at $\pm 5\%$ of the line voltage range. This ensures reliable operation in the recommended range $\pm 10\%$ of the IEC standard voltages 230 V, 400 V and 460 V.

Frequency inverter operation

The base frequencies for frequency inverter operation have been set to the following rated voltages:

Rated frequency	Rated voltage	Circuit
Hz	V	
50	400	Y
	230	Δ
87	400	Δ



Assignment of the terminal boxes

Depending on the product extension of the motor, different terminal box sizes (KK5, KK6 or KK7) are used.



Only one temperature monitor can be connected in the terminal boxes.

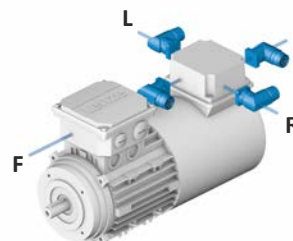
Motor	m540-P								
	90/L4	100/M4 100/L4	112/M4	132/M4 132/L4	160/M4 160/L4	180/M4 180/L4	200/M4	225/M4 225/L4	250/M4
Without product extensions									
Terminal box	KK5	KK5	KK5	KK5	KK5	KK6	KK6	KK6	KK6
Product extension - brake									
Terminal box	KK6	KK6	KK6	KK6	KK6	KK6	KK6	KK6	KK6
Product extension - feedback									
Terminal box	KK7	KK7	KK7	KK7	KK7	KK7	KK7	KK6	KK6
Product extension - brake + feedback									
Terminal box	KK7	KK7	KK7	KK7	KK7	KK7	KK7	KK7	KK7

Positions of the connections

Positions on the motor terminal box



Positions on the blower terminal box



Terminal box	Positions	Note
Motor terminal box KK5		
Cable glands	L, E or R	
Motor terminal box KK6		
Cable glands	L, E or R	
Motor terminal box KK7		
Cable glands	L and R	
Blower terminal box		
Cable glands	L, E or R	

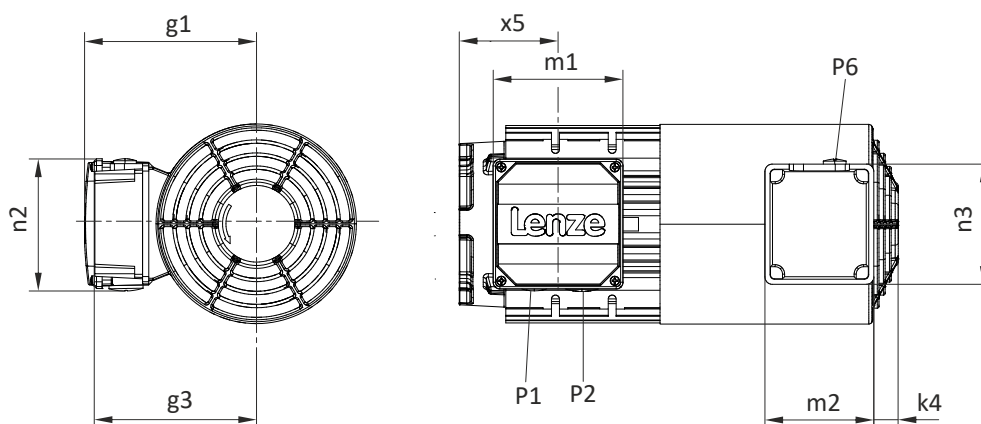
Product extensions

Motor connection

Assignment of the terminal boxes



Dimensions of KK5 power terminal box



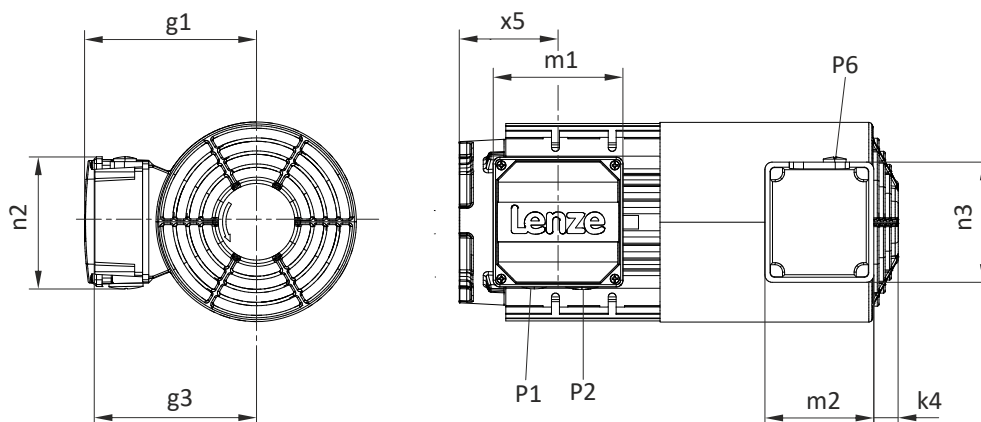
Motor			m540-P					
			90/L4	100/M4	112/M4	132/M4	160/M4	160/L4
				100/L4		132/L4		
Gearbox								
g500-H5000	x ₅	mm	205	227	219	273	257	317
g500-H8000	x ₅	mm	-	226	217	267	250	310
g500-H14000	x ₅	mm	-	-	205	254	237	297
Terminal box								
	g ₁	mm	126	166	177	202	237	237
	m ₁	mm	79.0	112	112	130	145	145
	n ₂	mm	93.0	135	135	135	175	175
	P1	mm	M20x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	P2	mm	M25x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	k ₄	mm	32	32	32	0	0	0
	m ₂	mm	95	95	95	107	107	107
	n ₃	mm	105	105	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5



Product extensions

Motor connection
Assignment of the terminal boxes

Dimensions of KK6 power terminal box



Motor			m540-P					
			90/L4	100/M4	112/M4	132/M4	160/M4	160/L4
				100/L4		132/L4		
Gearbox								
g500-H5000	x ₅	mm	205	227	219	273	257	317
g500-H8000	x ₅	mm	-	226	217	267	250	310
g500-H14000	x ₅	mm	-	-	205	254	237	297
Terminal box								
	g ₁	mm	154	171	182	207	241	241
	m ₁	mm	123	135	135	162	180	180
	n ₂	mm	120	135	135	162	180	180
	P1	mm	M20x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	P2	mm	M25x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	k ₄	mm	32	32	32	0	0	0
	m ₂	mm	95	95	95	107	107	107
	n ₃	mm	105	105	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5--

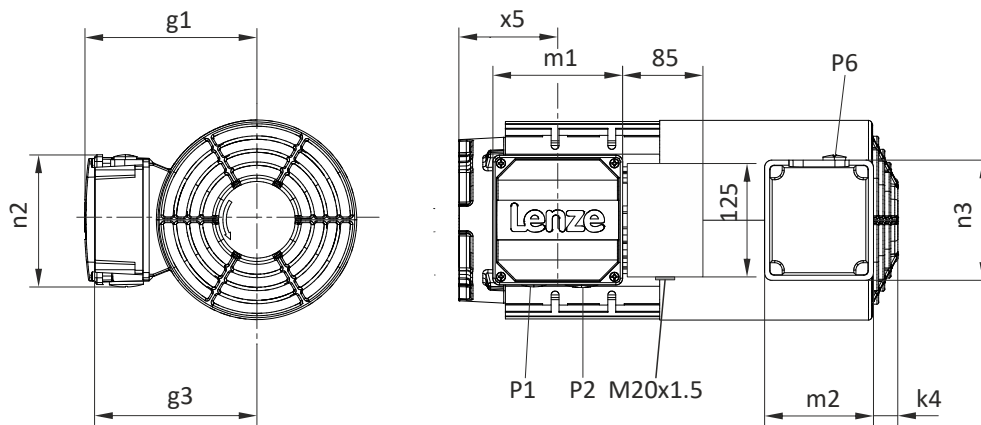
Motor			m540-P					
			-P180/M4	-P180/L4	-P200/M4	-P225/M4	-P225/L4	-P250/M4
Gearbox								
g500-H5000	x ₅	mm	316	346	406	415	475	
g500-H8000	x ₅	mm	310	340	399	405	463	481
g500-H14000	x ₅	mm	296	326	386	388	448	463
Terminal box								
	g ₁	mm	292	292	315	408	408	457
	m ₁	mm	197	197	197	233	233	299
	n ₂	mm	265	265	266	319	319	374
	P1	mm	M40x1.5	M40x1.5	M50x1.5	M63x1.5	M50x1.5	M63x1.5
	P2	mm	M40x1.5	M40x1.5	M50x1.5	M63x1.5	M50x1.5	M63x1.5
	k ₄	mm	0	0	0	0	0	0
	m ₂	mm	107	107	107	107	107	107
	n ₃	mm	105	105	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of KK7 power terminal box



Motor			m540-P					
			90/L4	100/M4	112/M4	132/M4	160/M4	160/L4
				100/L4		132/L4		
Gearbox								
g500-H5000	x ₅	mm	205	227	219	273	257	317
g500-H8000	x ₅	mm	-	226	217	267	250	310
g500-H14000	x ₅	mm	-	-	205	254	237	297
Terminal box								
	g ₁	mm	154	171	182	207	241	241
	m ₁	mm	123	135	135	162	180	180
	n ₂	mm	120	135	135	162	180	180
	P1	mm	M20x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	P2	mm	M25x1.5	M32x1.5	M32x1.5	M32x1.5	M40x1.5	M40x1.5
	k ₄	mm	32	32	32	0	0	0
	m ₂	mm	95	95	95	107	107	107
	n ₃	mm	105	105	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5--

Motor			m540-P					
			-P180/M4	-P180/L4	-P200/M4	-P225/M4	-P225/L4	-P250/M4
Gearbox								
g500-H5000	x ₅	mm	316	346	406	415	475	
g500-H8000	x ₅	mm	310	340	399	405	463	481
g500-H14000	x ₅	mm	296	326	386	388	448	463
Terminal box								
	g ₁	mm	292	292	315	408	408	457
	m ₁	mm	197	197	197	233	233	299
	n ₂	mm	265	265	266	319	319	374
	P1	mm	M40x1.5	M40x1.5	M50x1.5	M63x1.5	M50x1.5	M63x1.5
	P2	mm	M40x1.5	M40x1.5	M50x1.5	M63x1.5	M50x1.5	M63x1.5
	k ₄	mm	0	0	0	0	0	0
	m ₂	mm	107	107	107	107	107	107
	n ₃	mm	105	105	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5



Assignment of the connectors HAN

The power, brake and temperature monitoring can be connected in the HAN 10E connector.

It is available with the power module 16 A.



The HAN 10E plug connector is only available for motors with the Y/Δ connection method.

Motor	m540-P								
	90/L4	100/M4 100/L4	112/M4	132/M4 132/L4	160/M4 160/L4	180/M4 180/L4	200/M4	225/M4 225/L4	250/M4
HAN 10E connector									
Connection: • Power • Brake • PTC thermistor temperature monitoring	•	•	•	-	-	-	-	-	-

Positions of the connections

HAN connector positions

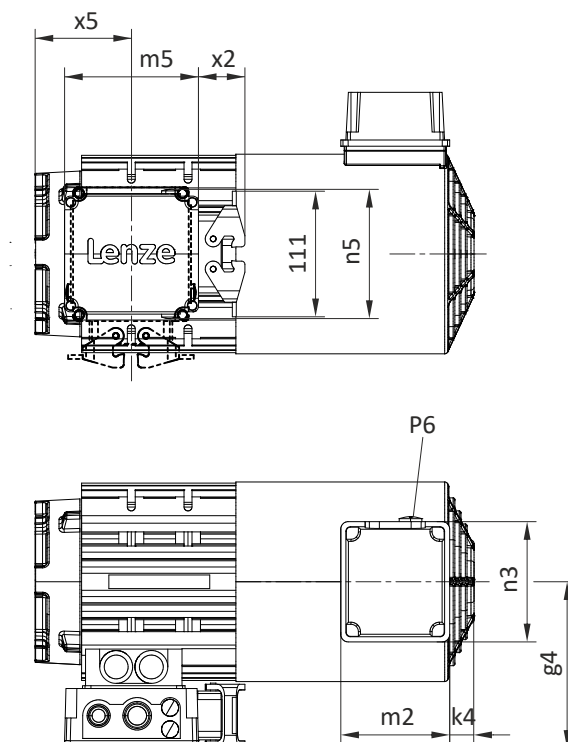


Product extensions

Motor connection
Assignment of the connectors HAN



Dimensions of HAN connector



Motor			m540-P			
			90/L4	100/M4	100/L4	112/M4
Gearbox						
g500-H5000	x ₅	mm	205	227	227	219
g500-H8000	x ₅	mm	-	226	226	217
g500-H14000	x ₅	mm	-	-	-	205
Terminal box						
	g ₄	mm	154	171	171	182
	x ₂	mm	46	46	46	46
	m ₅	mm	123	135	135	135
	n ₅	mm	120	135	135	135
	k ₄	mm	32	32	32	32
	m ₂	mm	95	95	95	95
	n ₃	mm	105	105	105	105
	P ₆	mm	1x M16x1.5	1x M16x1.5	1x M16x1.5	1x M16x1.5

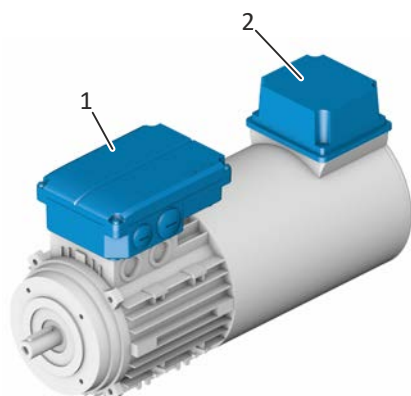


Product extensions

Motor connection
Connection via terminal box

Connection via terminal box

Position of the connections

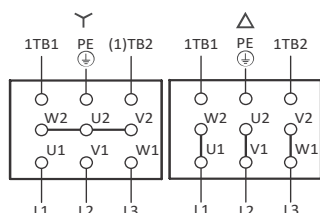


Position	Meaning	Note
1	Power connection Brake connection PE connection Feedback connection Connection of temperature monitoring	For the terminal boxes "KK5 and KK6", the position of the power connections "L", "R" or "E" must be specified.
2	Blower connection	When ordering, specify the mounting position of the terminal box: • Shown here: "T" • "L", "R" or "B" If required, the terminal box can be rotated step by step by 90 ° after loosening the screws in the terminal box.

Power connection

Bridge arrangement

Y/Δ connection



Terminal box, power		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Motor winding phase
V1	L2	
W1	L3	
1TB1		PTC thermistor temperature monitoring
1TB2		

DC brake connection

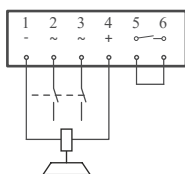
Terminal box, DC brake		
Contact	Name	Meaning
BD1	+	Brake +
BD2	-	Brake -

Product extensions

Motor connection
Connection via terminal box



AC brake connection



 Switching contact - DC switching

Terminal box, AC brake		
Contact	Name	Meaning
~	BA1	Mains L1
	BA2	Mains N
+	BD1	Holding brake (factory-wired)
-	BD2	
Switch symbol		Switching contact - DC switching

Feedback connection

Terminal box, incremental encoder HTL/TTL		
Contact	Name	Meaning
+	+ UB	Supply +
-	GND	Mass
A	A/+COS	Track A / + COS
A ⁻	A ⁻ /Ref COS	Track A inverse /-COS
B	B/+SIN	Track B / +SIN
B ⁻	B ⁻ /Ref SIN	Track B inverse/-SIN
0	0	Zero track / + RS485
0 ⁻	0 ⁻	Zero track inverse /-RS485

Connection of temperature monitoring

Terminal box, temperature monitoring		
Contact	Name	Meaning
TB1		Temperature monitoring: TCO
TB2		
1TP1		
2TP1		
R1	+	Temperature sensor PT1000 +
R2	-	Temperature sensor PT1000 -
1TP2		PTC150 thermistor
2TP2		PTC130 thermistor

Blower connection

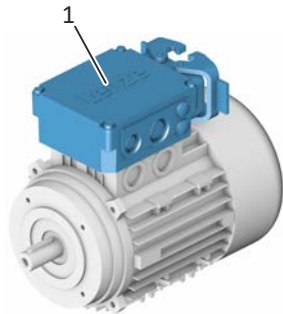
Terminal box, 1-phase separate fan		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Mains
U2	N	

Terminal box, 3-phase separate fan		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Mains connection
V1	L2	
W1	L3	



Connection via HAN connector

Position of the connections



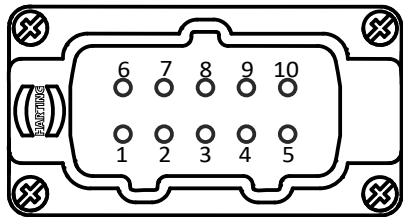
Position	Meaning
1	Power connection Brake connection PE connection Connection of temperature monitoring

HAN 10E connector



- The motor connection is specified in the counter plug.
- The connector is only suitable for motors with the connection method Y/Δ.

HAN 10E connector assignment



Bridge arrangement in the HAN 10E mating connector		
Contact	Name	Meaning
6-7-8	Y	Connection
1-6	Δ	
2-7		
3-8		

HAN 10 E		
Contact	Name	Meaning
1	U1	Motor winding phase
2	V1	
3	W1	
4	+/-AC	Brake
5	-/-AC	
6	W2	Motor winding phase
7	U2	
8	V2	
9	TKO/+PT1000	Temperature monitoring
10	TKO/-PT1000	



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, preventing possible movement of the motor shaft or the load after switching off or in the event of a power failure.

Brake connection

If the installation is already supplied with DC voltage, a direct connection without rectifier is possible. High induction peaks may occur and a freewheeling diode or a spark suppressor should be provided.

A rectifier is required if the brake is connected to the mains. This is included in the scope of supply and is located in the motor's terminal box.

Rectifier

The rectifier converts the connection's AC voltage into a DC voltage.

Alternatively, a half-wave bridge rectifier can be used for the application brake. This provides twice the voltage for a very short time (300 ms). As a result, the features of the brake – depending on the assignment of the brake's coil voltage and supply voltage – can be optimized in the form of a short-term overexcitation of the brake coil or a reduction of the holding current.

AC or DC voltage switching

Brakes can be switched both before the rectifier (AC voltage switching) as well as after the rectifier (DC voltage switching). The choice of control system influences the engagement time of the armature plate, inter alia.

AC switching increases the engagement time by a factor of 5 to 10 compared to DC switching. This is to be observed taken into account when choosing the control system. DC switching is possible by simply removing a bridge and using the switching contact connection. However, this calls for two additional cores in the control cabinet.

DC switching is particularly expedient for lifting applications because a short engagement time is necessary here to guarantee a secure hold without any prior slipping of the load.

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

Manual release lever

To make positioning and maintenance work easier, the holding and application brake can be ordered with a manual release lever. By using the manual release lever, the brake can be released manually in deenergized operating state.

A lockable manual release lever can be ordered as an option. This is equipped with a clamping device to hold the brake in the released position.



Spring-applied application brake

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.
-

Friction linings

The application brakes are designed with low-wear friction linings:

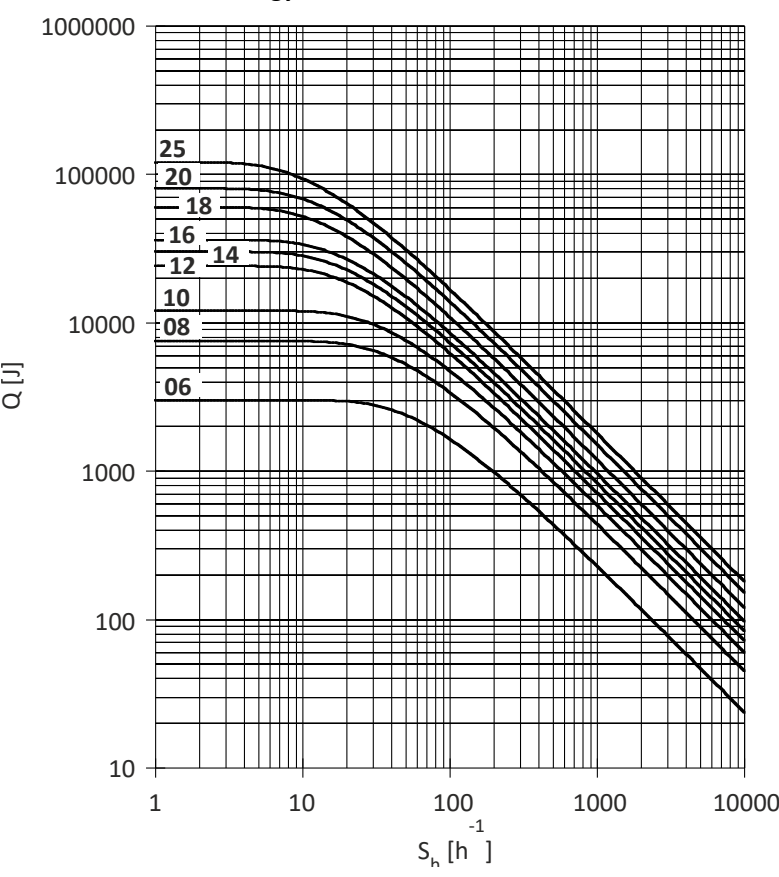
- Long service life
- Short run-in process required
- Higher friction work until the brake is replaced
- Higher maximum switching work

Product extensions

Brakes
Spring-applied application brake

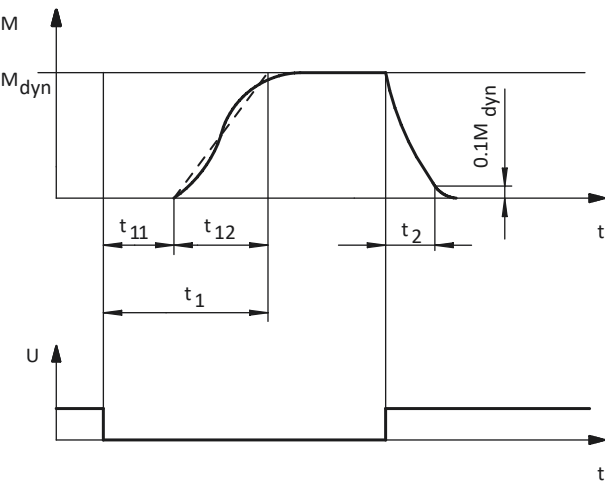


Permissible friction energy



Q Switching energy per switching cycle
S_h Switching rate
06 ... 25 Brake size

Switching times of the spring-applied brakes



t ₁	Engagement time	t ₁₁	Delay time during linking
t ₂	Disengagement time (up to M = 0.1 M _{dyn})	t ₁₂	Rise time of the braking torque
M _{dyn}	Braking torque at constant speed	U	Voltage



Product extensions

Brakes
Spring-applied application brake

Versions	Protection class IP55
	Standard
Control	DC supply AC supply via rectifier in the terminal box
Supply voltages	
DC voltage	DC 24 V $\pm 10\%$ DC 205 V $\pm 10\%$
Mains voltage	AC 230 V $\pm 10\%$ AC 400 V $\pm 10\%$ AC 460 V $\pm 10\%$
Switching cycles	
Repetitive	1×10^6
Reversing	1×10^6
Friction lining	Low-wear
Options	Manual release UL/CSA-approved

Product extensions

Brakes
Spring-applied application brake



Braking torques

An application brake with several braking torques is available for every motor frame size for an optimum adjustment of the brake motor to the application. Starting from a standard braking torque, the braking torques can be adjusted up or down.

When the braking torque is reduced, great wear reserves can be attained. A higher braking torque is to be provided for lifting applications. In this case, the earth's gravity acts as an additional acceleration in a negative direction.

In addition, some applications require a 2-fold safety factor for the braking torque.

Assignment of braking torques

Motor	Adjustable										
	ABR 08	ABR 10	ABR 12	ABR 14	ABR 16	ABR 18	ABR 20	ABR 25	ABR 30	ABR 40	
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm	
m540-P90/M4	4	8 16 20	14								
m540-P90/L4	8		32								
m540-P100/M4			14 32 40	38							
m540-P100/L4											
m540-P112/M4	20		38 60								
m540-P132/M4				63 80 100	80 150						
m540-P132/L4											
m540-P160/M4						145 260					
m540-P160/L4											
m540-P180/M4											
m540-P180/L4				145 260 315							
m540-P200/M4						265 400					
m540-P225/M4				300 400 650							
m540-P225/L4											
m540-P250/M4										650 750 850	



Rated data, Standard design, IP55

Application brake ABR 08, ABR 10

Application brake		ABR 08		ABR 10		
Braking torque	Nm	4	8	8	16	20
Power input	W	25	25	30	30	30
Moment of inertia	kgcm ²	0.61	0.61	2	2	2
Braking torque is static	Nm	4	8	8	16	20
Min. static braking torque tolerance	%	-25	-25	-25	-25	-25
Max. static braking torque tolerance	%	35	35	35	35	35
Dynamic braking torque						
100 rpm	Nm	4.0	8.0	8.0	16	20
1000 rpm	Nm	3.6	7.2	7.0	14	17
1200 rpm	Nm	3.5	7.0	6.8	14	17
1500 rpm	Nm	3.4	6.8	6.6	13	17
1800 rpm	Nm	3.3	6.7	6.5	13	16
3000 rpm	Nm	3.0	6.3	6.1	12	15
3600 rpm	Nm	3.0	6.1	5.9	12	15
Min. dynamic braking torque tolerance	%	-25	-25	-25	-25	-25
Max. dynamic braking torque tolerance	%	35	35	35	35	35
Friction energy						
100 rpm	kJ	7.5	7.5	12	12	12
1000 rpm	kJ	7.5	7.5	12	12	12
1200 rpm	kJ	7.5	7.5	12	12	12
1500 rpm	kJ	7.5	7.5	12	12	12
1800 rpm	kJ	7.5	7.5	12	12	12
3000 rpm	kJ	7.5	7.5	12	12	12
3600 rpm	kJ	7.5	7.5	12	12	12
Maximum speed - operation	rpm	3600	3600	3600	3600	3600
Maximum speed - idle state	rpm	10000	10000	10000	10000	10000

Application brake		ABR 08		ABR 10		
Braking torque	Nm	4	8	8	16	20
Delay time t11						
DC voltage	ms	30	15	22	28	23
AC mains voltage	ms	30	15	22	28	23
Rise time t12						
DC voltage	ms	20	16	14	19	15
AC mains voltage	ms	20	16	14	19	15
Engagement time t1						
DC voltage	ms	50	31	36	47	38
AC mains voltage	ms	50	31	36	47	38
Disengagement time t2						
DC voltage	ms	30	57	55	76	93
AC mains voltage	ms	30	57	55	76	93
Friction energy QBW						
DC voltage	MJ	324	158	405	264	396
AC mains voltage	MJ	324	158	405	264	396
Reversing cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶

Product extensions

Brakes
Spring-applied application brake



Rated data, Standard design, IP55

Application brake ABR 12, ABR 14

Application brake		ABR 12			ABR 14	
Braking torque	Nm	14	32	40	38	60
Power input	W	40	40	40	50	50
Moment of inertia	kgcm ²	4.5	4.5	4.5	6.3	6.3
Braking torque is static	Nm	14	32	40	38	60
Min. static braking torque tolerance	%	-25	-25	-25	-25	-25
Max. static braking torque tolerance	%	35	35	35	35	35
Dynamic braking torque						
100 rpm	Nm	14	32	40	38	60
1000 rpm	Nm	12	27	34	32	51
1200 rpm	Nm	12	27	33	31	50
1500 rpm	Nm	11	26	32	30	48
1800 rpm	Nm	11	26	32	30	47
3000 rpm	Nm	10	24	30	28	44
3600 rpm	Nm	10	23	29	-	-
Min. dynamic braking torque tolerance	%	-25	-25	-25	-25	-25
Max. dynamic braking torque tolerance	%	35	35	35	35	35
Friction energy						
100 rpm	kJ	24	24	24	30	30
1000 rpm	kJ	24	24	24	30	30
1200 rpm	kJ	24	24	24	30	30
1500 rpm	kJ	24	24	24	30	30
1800 rpm	kJ	24	24	24	30	30
3000 rpm	kJ	24	24	24	18	18
3600 rpm	kJ	7	7	7	-	-
Maximum speed - operation	rpm	3600	3600	3600	3000	3000
Maximum speed - idle state	rpm	10000	10000	10000	10000	10000

Application brake		ABR 12			ABR 14	
Braking torque	Nm	14	32	40	38	60
Delay time t11						
DC voltage	ms	27	28	24	24	17
AC mains voltage	ms	27	28	24	24	17
Rise time t12						
DC voltage	ms	19	25	21	36	25
AC mains voltage	ms	19	25	21	36	25
Engagement time t1						
DC voltage	ms	46	53	45	60	42
AC mains voltage	ms	46	53	45	60	42
Disengagement time t2						
DC voltage	ms	65	115	140	140	210
AC mains voltage	ms	65	115	140	140	210
Friction energy QBW						
DC voltage	MJ	948	530	948	1276	571
AC mains voltage	MJ	948	530	948	1276	571
Reversing cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶



Rated data, Standard design, IP55

Application brake ABR 16, ABR 18

Application brake		ABR 16			ABR 18	
Braking torque	Nm	63	80	100	80	150
Power input	W	56	56	56	87	87
Moment of inertia	kgcm ²	15	15	15	29	29
Braking torque is static	Nm	63	80	100	80	150
Min. static braking torque tolerance	%	-25	-25	-25	-25	-25
Max. static braking torque tolerance	%	35	35	35	35	35
Dynamic braking torque						
100 rpm	Nm	63	80	100	80	150
1000 rpm	Nm	52	66	82	64	121
1200 rpm	Nm	50	65	80	62	118
1500 rpm	Nm	50	63	79	62	115
1800 rpm	Nm	48	61	76	59	112
3000 rpm	Nm	45	57	72	-	-
3600 rpm	Nm	-	-	-	-	-
Min. dynamic braking torque tolerance	%	-25	-25	-25	-25	-25
Max. dynamic braking torque tolerance	%	35	35	35	35	35
Friction energy						
100 rpm	kJ	36	36	36	60	60
1000 rpm	kJ	36	36	36	60	60
1200 rpm	kJ	36	36	36	60	60
1500 rpm	kJ	36	36	36	60	60
1800 rpm	kJ	36	36	36	36	36
3000 rpm	kJ	11	11	11	-	-
3600 rpm	kJ	-	-	-	-	-
Maximum speed - operation	rpm	3000	3000	3000	1800	1800
Maximum speed - idle state	rpm	10000	10000	10000	10000	10000

Application brake		ABR 16			ABR 18	
Braking torque	Nm	63	80	100	80	150
Delay time t11						
DC voltage	ms	34	27	24	20	33
AC mains voltage	ms	34	27	24	20	33
Rise time t12						
DC voltage	ms	38	30	25	20	45
AC mains voltage	ms	38	30	25	20	45
Engagement time t1						
DC voltage	ms	72	57	49	40	78
AC mains voltage	ms	72	57	49	40	78
Disengagement time t2						
DC voltage	ms	170	220	280	180	270
AC mains voltage	ms	170	220	280	180	270
Friction energy QBW						
DC voltage	MJ	2310	966	2310	2295	1542
AC mains voltage	MJ	2310	966	2310	2295	1542
Reversing cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶

Product extensions

Brakes
Spring-applied application brake



Rated data, Standard design, IP55

Application brake ABR 20, ABR 25

Application brake		ABR 20			ABR 25	
Braking torque	Nm	145	260	315	265	400
Power input	W	100	100	100	110	110
Moment of inertia	kgcm ²	73	73	73	200	200
Braking torque is static	Nm	145	260	315	265	400
Min. static braking torque tolerance	%	-25	-25	-25	-25	-25
Max. static braking torque tolerance	%	35	35	35	35	35
Dynamic braking torque						
100 rpm	Nm	145	260	315	265	400
1000 rpm	Nm	115	206	249	201	307
1200 rpm	Nm	112	201	243	196	300
1500 rpm	Nm	109	195	236	194	291
1800 rpm	Nm	-	-	-	-	-
3000 rpm	Nm	-	-	-	-	-
3600 rpm	Nm	-	-	-	-	-
Min. dynamic braking torque tolerance	%	-25	-25	-25	-25	-25
Max. dynamic braking torque tolerance	%	35	35	35	35	35
Friction energy						
100 rpm	kJ	80	80	80	120	120
1000 rpm	kJ	80	80	80	120	120
1200 rpm	kJ	80	80	80	120	120
1500 rpm	kJ	24	24	24	36	36
1800 rpm	kJ	-	-	-	-	-
3000 rpm	kJ	-	-	-	-	-
3600 rpm	kJ	-	-	-	-	-
Maximum speed - operation	rpm	1500	1500	1500	1500	1500
Maximum speed - idle state	rpm	10000	10000	10000	10000	10000

Application brake		ABR 20			ABR 25	
Braking torque	Nm	145	260	315	265	400
Delay time t11						
DC voltage	ms	72	65	60	155	110
AC mains voltage	ms	72	65	60	155	110
Rise time t12						
DC voltage	ms	108	100	80	120	120
AC mains voltage	ms	108	100	80	120	120
Engagement time t1						
DC voltage	ms	180	165	150	275	230
AC mains voltage	ms	180	165	150	275	230
Disengagement time t2						
DC voltage	ms	230	340	410	230	390
AC mains voltage	ms	230	340	410	230	390
Friction energy QBW						
DC voltage	MJ	4680	2322	3489	6480	3522
AC mains voltage	MJ	4680	2322	3489	6480	3522
Reversing cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶



Rated data, Standard design, IP55

Application brake ABR 30, ABR 40

Application brake		ABR 30			ABR 40		
Braking torque	Nm	300	400	650	650	750	850
Power input	W	140	140	220	140	140	140
Moment of inertia	kgcm ²	195	195	195	445	445	445
Braking torque is static	Nm	300	400	650	650	750	850
Dynamic braking torque							
100 rpm	Nm	300	400	650	650	750	850
1000 rpm	Nm	231	308	501	481	555	629
1200 rpm	Nm	225	300	488	468	540	612
1500 rpm	Nm	219	292	475	455	525	595
1800 rpm	Nm	213	284	462	442	510	578
3000 rpm	Nm	198	264	429	410	473	536
3600 rpm	Nm	-	-	-	-	-	-
Friction energy							
100 rpm	kJ	150	150	150	200	200	200
1000 rpm	kJ	150	150	150	200	200	200
1200 rpm	kJ	150	150	150	200	200	200
1500 rpm	kJ	150	150	150	200	200	200
1800 rpm	kJ	150	150	150	200	200	200
3000 rpm	kJ	150	150	150	200	200	200
3600 rpm	kJ	-	-	-	-	-	-

Application brake		ABR 30			ABR 40		
Braking torque	Nm	300	400	650	650	750	850
Delay time t11							
DC voltage		-	-	-	-	-	-
AC mains voltage	ms	120	105	70	160	190	190
Rise time t12							
DC voltage		-	-	-	-	-	-
AC mains voltage	ms	130	130	130	160	160	160
Engagement time t1							
DC voltage		-	-	-	-	-	-
AC mains voltage	ms	250	235	200	320	350	350
Disengagement time t2							
DC voltage		-	-	-	-	-	-
AC mains voltage	ms	180	200	250	400	350	350
Friction energy QBW							
DC voltage		-	-	-	-	-	-
AC mains voltage	MJ	3700	3700	3700	4000	4000	4000
Reversing cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶	1x 10 ⁶

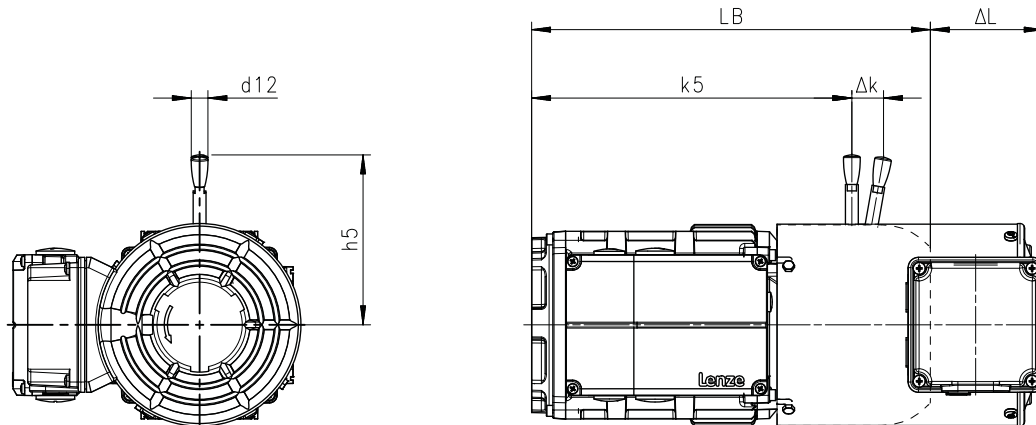
Product extensions

Brakes
Spring-applied application brake



Dimensions of the manual release lever

Standard design, degree of protection IP54/55



8801081_00

Motor			m540-P													
			90/L4			100/M4		112/M4		132/M4		160/M4		160/L4		
						100/L4				132/L4						
Brake			ABR08	ABR10	ABR12	ABR10	ABR12	ABR12	ABR14	ABR16	ABR18	ABR18	ABR20	ABR18	ABR20	
Gearbox																
g500-H5000	k5	mm	308	319	321	354	356	348	352	431	444	461	468	521	528	
g500-H8000	k5	mm	-	-	-	353	355	346	350	425	438	454	461	514	521	
g500-H14000	k5	mm	-	-	-	-	-	334	338	412	425	441	448	501	508	
Brake																
	Δ k	mm	27	28	37	28	37	37	41	55	59	59	74	59	74	
	h5	mm	136	132	161	132	161	161	195	240	279	279	319	279	319	
	d12	mm	13.0	13.0	13.0	13.0	13.0	13.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	

Motor			m540-P									
			180/M4	180/L4	200/M4		225/M4		225/L4		250/M4	
			ABR 20	ABR 20	ABR 20	ABR 25	ABR 25	ABR 30	ABR 25	ABR 30	ABR 30	ABR 40
Gearbox												
g500-H5000	k5	mm	515	545	614	624	684	685	744	745	-	-
g500-H8000	k5	mm	509	539	607	617	674	675	732	733	754	754
g500-H14000	k5	mm	495	525	594	604	657	658	717	718	736	736
Brake												
	Δ k	mm	74	74	74	103	103	69	103	69	69	65
	h5	mm	319	319	319	445	445	330	445	330	330	377
	d12	mm	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0



Feedback

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

Incremental encoder

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

Incremental HTL encoder

Feedback type			Encoder		
Feedback			IG512-24V-H	IG1024-24V-H	IG2048-24V-H
Design			Mounting	Mounting	Mounting
Pulses			512	1024	2048
Output signals			HTL	HTL	HTL
Interfaces			A, B; N; Ai, Bi; Ni	A, B; N; Ai, Bi; Ni	A, B; N; Ai, Bi; Ni
Absolute revolution			0	0	0
Min. accuracy		'	-2	-2	-2
Max. accuracy		'	2	2	2
Min. DC input voltage	$V_{\text{in,min}}$	V	8	8	8
Max. DC input voltage	$V_{\text{in,max}}$	V	30	30	30
Max. current consumption	I_{max}	A	0.15	0.15	0.15
Limit frequency	f_{max}	kHz	160	160	160

Product extensions

Blower
Standard version



Blower

The motor is optionally available with a blower for operation with the rated torque and low motor speeds or a higher switching frequency.

The blower cools the motor independent of the motor speed.

If a blower is used, the torque does not have to be reduced if operated below 20 Hz.



A higher powered motor with simultaneous derating can be used in many cases instead of a blower.

Torque reduction at low motor frequencies ► [General information](#) 19

Standard version

Motor series			m540-P								
Size			090			100			112		
Number of phases			1	3	3	1	3	3	1	3	3
			-	Dreieck	Stern	-	Dreieck	Stern	-	Dreieck	Stern
Rated voltage	V _{rated}	V	230	230	400	230	230	400	230	230	400
Rated power	P _{rated}	kW	0.065	0.091	0.091	0.075	0.091	0.091	0.094	0.1	0.1
Rated current	I _{rated}	A	0.29	0.38	0.22	0.3	0.37	0.22	0.37	0.35	0.2

Motor series			m540-P								
Size			132			160			180		
Number of phases			1	3	3	1	3	3	1	3	3
			-	Dreieck	Stern	-	Dreieck	Stern	-	Dreieck	Stern
Rated voltage	V _{rated}	V	230	230	400	230	230	400	230	230	400
Rated power	P _{rated}	kW	0.15	0.15	0.15	0.25	0.36	0.36	0.23	0.22	0.22
Rated current	I _{rated}	A	0.57	0.58	0.33	0.97	0.93	0.56	0.93	0.71	0.4

Motor series			m540-P							
Size			200			225		250		
Number of phases			1	3	3	3	3	3	3	3
			-	Dreieck	Stern	Dreieck	Stern	Dreieck	Stern	
Rated voltage	V _{rated}	V	230	230	400	230	400	230	400	
Rated power	P _{rated}	kW	0.23	0.22	0.22	0.45	0.45	0.45	0.45	
Rated current	I _{rated}	A	0.93	0.85	0.51	2	1.15	2	1.15	



Temperature monitoring

PTC thermistor

The PTC thermistor is operated in conjunction with a tripping unit. If the motor becomes too hot, the motor can be switched off with the aid of a contactor. In contrast to the thermal contact, a quick restart is possible.

Motor m540-P90

Functional principle			Sprunghafte Widerstandsänderung
Operating temperature		°C	155
Min. switching temperature		°C	-5
Max. switching temperature		°C	5
Temperature		°C	-20
Rated resistance			
155 °C			1330
140 °C			550
-20 °C			100

Motor m540-P100 ... P250

Functional principle			Sprunghafte Widerstandsänderung
Operating temperature		°C	155
Min. switching temperature		°C	-5
Max. switching temperature		°C	5
Temperature		°C	140
Rated resistance			
155 °C			3990
140 °C			1650
-20 °C			300



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 T	
	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	54	A	P	090	M	04	5	E	0	0	C	C
Product type	Motor	M												
Product family			54											
Version				A										
Efficiency class	IE3				P									
Size						090 100 112 132 160 180 200 225 250								
Overall length	Medium						M							
	Long						L							
Number of poles	4-pole							04						
Protection class	IP55								5					
	IP65								6					
Cooling	Self-ventilation									E				
	Forced ventilation									F				
Brake	Without										0			
	Spring-applied brake										F			
Feedback	Without											0		
	Incremental encoder											E		
Approvals	None												N	
	CE												C	
	CE, cURus												U	
Design types	Internal key													C

Motor data

Rated data

Rated data 50 Hz



Motor data

Rated data

Rated data 50 Hz

Motor			m540-P				
			90/L4	100/M4	100/L4	112/M4	132/M4
Rated power	P_{rated}	kW	1.5	2.2	3	4	5.5
Rated speed	n_{rated}	rpm	1445	1465	1460	1460	1470
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Rated voltage							
Delta		V	230	230	230	230	230
Star	$V_{N, Y}$	V	400	400	400	400	400
Rated current							
230 V	$I_{N, \Delta}$	A	5.50	7.60	10.2	13.7	18.7
400 V	$I_{N, Y}$	A	3.15	4.40	5.90	7.90	10.8
Starting current	I_a	A	22.7	37.0	49.0	56.1	92.9
Rated torque	M_{rated}	Nm	9.91	14.3	19.6	26.2	35.7
Starting torque	M_a	Nm	26.8	45.8	49.0	62.9	104
Stalling torque	M_b	Nm	35.7	62.9	76.4	96.9	132
Power factor	$\cos \phi$		0.8	0.83	0.83	0.82	0.82
Efficiency							
at 50 % P_{rated}	η		0.849	0.859	0.879	0.886	0.894
at 75 % P_{rated}	η		0.859	0.870	0.885	0.892	0.900
at 100 % P_{rated}	η		0.853	0.867	0.877	0.886	0.896
Moment of inertia	J	kgcm ²	49.0	140	140	170	340
Weight	m	kg	15.0	29.0	29.0	29.0	57.0



Motor data

Rated data
Rated data 50 Hz

Motor			m540-P				
			132/L4	160/M4	160/L4	180/M4	180/L4
Rated power	P_{rated}	kW	7.5	11	15	18.5	22
Rated speed	n_{rated}	rpm	1465	1475	1475	1470	1470
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Rated voltage							
Delta		V	230	230	230	230	230
Star	$V_{N, Y}$	V	400	400	400	400	400
Rated current							
230 V	$I_{N, \Delta}$	A	24.8	35.5	49.4	60.5	71.0
400 V	$I_{N, Y}$	A	14.3	20.5	28.5	35.0	41.0
Starting current	I_a	A	117	156	242	252	279
Rated torque	M_{rated}	Nm	48.9	71.2	97.1	120	143
Starting torque	M_a	Nm	127	185	243	301	329
Stalling torque	M_b	Nm	181	242	369	397	472
Power factor	$\cos \phi$		0.84	0.84	0.82	0.82	0.83
Efficiency							
at 50 % P_{rated}	η		0.908	0.912	0.915	0.930	0.936
at 75 % P_{rated}	η		0.911	0.918	0.923	0.931	0.936
at 100 % P_{rated}	η		0.904	0.914	0.921	0.926	0.930
Moment of inertia	J	kgcm ²	460	830	990	1300	1400
Weight	m	kg	57.0	73.0	90.0	165	170

Motor			m540-P			
			200/M4	225/M4	225/L4	250/M4
Rated power	P_{rated}	kW	30	37	45	55
Rated speed	n_{rated}	rpm	1470	1478	1478	1482
Max. speed	n_{max}	rpm	3600	3600	3600	3600
Rated voltage						
Delta		V	230	230	230	230
Star	$V_{N, Y}$	V	400	400	400	400
Rated current						
230 V	$I_{N, \Delta}$	A	95.5	115	139	167
400 V	$I_{N, Y}$	A	55.0	66.0	80.0	96.0
Starting current	I_a	A	402	422	512	653
Rated torque	M_{rated}	Nm	195	239	291	354
Starting torque	M_a	Nm	507	598	757	885
Stalling torque	M_b	Nm	604	646	786	1.03e+3
Power factor	$\cos \phi$		0.84	0.86	0.86	0.87
Efficiency						
at 50 % P_{rated}	η		0.942	0.944	0.951	0.950
at 75 % P_{rated}	η		0.942	0.945	0.949	0.951
at 100 % P_{rated}	η		0.936	0.939	0.942	0.946
Moment of inertia	J	kgcm ²	2200	4200	4700	8500
Weight	m	kg	240	285	320	420

Motor data

Rated data
Rated data 60 Hz



Rated data 60 Hz

Motor			m540-P				
			90/L4	100/M4	100/L4	112/M4	132/M4
Rated power	P_{rated}	kW	1.5	2.2	3	3.7	5.5
Rated speed	n_{rated}	rpm	1755	1770	1760	1770	1775
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Rated voltage							
Star	$V_{N, Y}$	V	460	460	460	460	460
Rated current							
460 V	$I_{N, Y}$	A	2.85	3.80	5.10	6.50	9.30
Starting current	I_a	A	23.9	36.5	48.5	53.3	90.2
Rated torque	M_{rated}	Nm	8.16	11.9	16.3	20.0	29.6
Starting torque	M_a	Nm	24.5	41.7	50.5	58.0	115
Stalling torque	M_b	Nm	35.1	60.7	75.0	86.0	133
Power factor	$\cos \phi$		0.77	0.81	0.82	0.8	0.81
Efficiency							
at 50 % P_{rated}	η		0.846	0.872	0.883	0.877	0.905
at 75 % P_{rated}	η		0.864	0.892	0.895	0.894	0.916
at 100 % P_{rated}	η		0.865	0.895	0.895	0.895	0.917
Moment of inertia	J	kgcm ²	49.0	140	140	170	340
Weight	m	kg	15.0	29.0	29.0	29.0	57.0

Motor			m540-P				
			132/L4	160/M4	160/L4	180/M4	180/L4
Rated power	P_{rated}	kW	7.5	11	15	18.5	22
Rated speed	n_{rated}	rpm	1770	1775	1780	1775	1775
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Rated voltage							
Star	$V_{N, Y}$	V	460	460	460	460	460
Rated current							
460 V	$I_{N, Y}$	A	12.4	18.0	25.0	30.5	36.5
Starting current	I_a	A	119	160	238	238	281
Rated torque	M_{rated}	Nm	40.5	59.2	80.5	99.5	118
Starting torque	M_a	Nm	109	178	234	269	332
Stalling torque	M_b	Nm	170	225	346	358	438
Power factor	$\cos \phi$		0.83	0.83	0.81	0.81	0.81
Efficiency							
at 50 % P_{rated}	η		0.910	0.911	0.914	0.931	0.933
at 75 % P_{rated}	η		0.918	0.923	0.928	0.937	0.938
at 100 % P_{rated}	η		0.917	0.924	0.930	0.936	0.936
Moment of inertia	J	kgcm ²	460	830	990	1300	1400
Weight	m	kg	57.0	73.0	90.0	165	170



Motor data

Rated data
Rated data 60 Hz

Motor			m540-P			
			200/M4	225/M4	225/L4	250/M4
Rated power	P_{rated}	kW	30	37	45	55
Rated speed	n_{rated}	rpm	1778	1782	1782	1786
Max. speed	n_{max}	rpm	3600	3600	3600	3600
Rated voltage						
Star	$V_{N, Y}$	V	460	460	460	460
Rated current						
460 V	$I_{N, Y}$	A	48.0	58.0	71.0	84.0
Starting current	I_a	A	389	435	511	638
Rated torque	M_{rated}	Nm	161	198	241	294
Starting torque	M_a	Nm	483	555	699	823
Stalling torque	M_b	Nm	564	595	723	941
Power factor	$\cos \phi$		0.83	0.85	0.84	0.86
Efficiency						
at 50 % P_{rated}	η		0.938	0.942	0.949	0.951
at 75 % P_{rated}	η		0.943	0.947	0.953	0.956
at 100 % P_{rated}	η		0.941	0.945	0.950	0.954
Moment of inertia	J	kgcm ²	2200	4200	4700	8500
Weight	m	kg	240	285	320	420

Motor data

Rated data

Rated data 87 Hz



Rated data 87 Hz

Motor			m540-P				
			90/L4	100/M4	100/L4	112/M4	132/M4
Rated power	P_{rated}	kW	2.6	3.9	5.2	7.35	9.6
Rated speed	n_{rated}	rpm	2555	2575	2570	2570	2580
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Max. torque	M_{max}	Nm	35.5	62.5	75.9	96.4	130
Rated voltage							
Delta	$V_{N, \Delta}$	V	400	400	400	400	400
Rated current							
400 V	$I_{N, \Delta}$	A	5.80	8.00	10.7	14.4	19.6
Rated torque	M_{rated}	Nm	9.91	14.3	19.6	26.2	35.7
Power factor	$\cos \phi$		0.76	0.82	0.82	0.81	0.81
Efficiency							
at 50 % P_{rated}	η		0.870	0.888	0.887	0.892	0.910
at 75 % P_{rated}	η		0.880	0.898	0.897	0.902	0.920
at 100 % P_{rated}	η		0.880	0.898	0.897	0.902	0.920
Moment of inertia	J	kgcm ²	49.0	140	140	170	340
Weight	m	kg	15.0	29.0	29.0	29.0	57.0

Motor			m540-P				
			132/L4	160/M4	160/L4	180/M4	180/L4
Rated power	P_{rated}	kW	13.1	19.2	26.3	32.2	38.5
Rated speed	n_{rated}	rpm	2575	2585	2585	2580	2580
Max. speed	n_{max}	rpm	3600	3600	3600	3600	3600
Max. torque	M_{max}	Nm	181	226	364	392	468
Rated voltage							
Delta	$V_{N, \Delta}$	V	400	400	400	400	400
Rated current							
400 V	$I_{N, \Delta}$	A	26.0	36.6	50.9	62.3	73.1
Rated torque	M_{rated}	Nm	48.9	71.2	97.1	120	143
Power factor	$\cos \phi$		0.84	0.82	0.8	0.79	0.82
Efficiency							
at 50 % P_{rated}	η		0.909	0.913	0.915	0.921	0.923
at 75 % P_{rated}	η		0.919	0.923	0.925	0.936	0.938
at 100 % P_{rated}	η		0.919	0.923	0.925	0.936	0.938
Moment of inertia	J	kgcm ²	460	830	990	1300	1400
Weight	m	kg	57.0	73.0	90.0	165	170



Motor data

Rated data
Rated data 87 Hz

Motor			m540-P			
			200/M4	225/M4	225/L4	250/M4
Rated power	P_{rated}	kW	52.5	64.8	78.7	87
Rated speed	n_{rated}	rpm	2580	2588	2588	2598
Max. speed	n_{max}	rpm	3600	3600	3600	3600
Max. torque	M_{max}	Nm	604	645	786	1020
Rated voltage						
Delta	$V_{N, \Delta}$	V	400	400	400	400
Rated current						
400 V	$I_{N, \Delta}$	A	98.4	119	143	154
Rated torque	M_{rated}	Nm	195	239	291	320
Power factor	$\cos \phi$		0.83	0.85	0.86	0.86
Efficiency						
at 50 % P_{rated}	η		0.928	0.916	0.919	0.923
at 75 % P_{rated}	η		0.943	0.926	0.934	0.938
at 100 % P_{rated}	η		0.943	0.926	0.934	0.938
Moment of inertia	J	kgcm ²	2200	4200	4700	8500
Weight	m	kg	240	285	320	420



Ecodesign Directive

Product information acc. to REGULATION (EU) 2019/1781 (ANNEX I, Section 2)

Legend

Efficiency (η_{rated} , η) The efficiency refers to the rated voltage and an ambient reference temperature of 25 °C.

Operating points (n; M) n = Speed as a percentage of the rated speed n_{rated} ; M= Torque as a percentage of the rated torque M_{rated}

Power losses P_V (n; M) Power losses as a percentage of the rated output power P_{rated} for the operating points (n; M).

Rated efficiency at full load	η_{rated}	%	84.1	86.5	85.3	86.5	86.7	89.5	87.7	89.5
Efficiency at 75 % rated load	η	%	84.7	86.4	85.9	86.4	87	89.2	88.5	89.5
Efficiency at 50 % rated load	η	%	83.4	84.2	84.9	84.6	85.9	87.2	87.9	88.3
Efficiency level			IE3							
Name of the manufacturer			Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY							
Commercial register number			Hannover HRB 204803							
Model identifier of the product			M54AP090M04		M54AP090L04		M54AP100M04		M54AP100L04	
Number of poles of the motor			4							
Rated output power	P_{rated}	kW	1.1		1.5		2.2		3	
Rated input frequency	f_{rated}	Hz	50	60	50	60	50	60	50	60
Rated voltage	V_{rated}	V	400	460	400	460	400	460	400	460
Rated speed	n_{rated}	min ⁻¹	1440	1750	1445	1755	1465	1770	1460	1760
Number of motor phases			Three-phase motor							
Altitudes above sea level		m	0 ... 1000							
Ambient air temperature		°C	-20 ... +40							
Maximum operating temperature		°C	155							
Potentially explosive atmospheres			Operation in explosive atmospheres not permitted							
Power losses										
25; 25	P_V (n; M)	%	5	5	3	3	2	3	2	3
25; 100	P_V (n; M)	%	15	15	14	14	10	9	11	11
50; 25	P_V (n; M)	%	6	6	4	4	3	4	3	4
50; 50	P_V (n; M)	%	8	8	6	6	5	5	5	5
50; 100	P_V (n; M)	%	17	17	15	15	11	11	12	12
90; 50	P_V (n; M)	%	10	10	8	8	6	7	6	7
90; 100	P_V (n; M)	%	19	19	18	18	13	13	14	14



Rated efficiency at full load	η_{rated}	%	89.5	88.6	89.6	91.7	90.4	91.7	91.4	92.4
Efficiency at 75 % rated load	η	%	89.4	89.2	90	91.6	91.1	91.8	91.8	92.3
Efficiency at 50 % rated load	η	%	87.7	88.6	89.4	90.5	90.8	91	91.2	91.1
Efficiency level			IE3							
Name of the manufacturer			Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY							
Commercial register number			Hannover HRB 204803							
Model identifier of the product			M54AP112M04		M54AP132M04		M54AP132L04		M54AP160M04	
Number of poles of the motor			4							
Rated output power	P_{rated}	kW	3.7	4	5.5		7.5		11	
Rated input frequency	f_{rated}	Hz	60	50	50	60	50	60	50	60
Rated voltage	V_{rated}	V	460	400	400	460	400	460	400	460
Rated speed	n_{rated}	min ⁻¹	1770	1460	1470	1775	1465	1770	1475	1775
Number of motor phases			Three-phase motor							
Altitudes above sea level		m	0 ... 1000							
Ambient air temperature		°C	-20 ... +40							
Maximum operating temperature		°C	155							
Potentially explosive atmospheres			Operation in explosive atmospheres not permitted							
Power losses										
25; 25	$P_V (n; M)$	%	2	2	2	2	2	2	2	2
25; 100	$P_V (n; M)$	%	10	10	7	7	8	7	7	6
50; 25	$P_V (n; M)$	%	3	3	2	2	2	2	3	2
50; 50	$P_V (n; M)$	%	5	5	4	4	3	4	4	3
50; 100	$P_V (n; M)$	%	11	11	8	8	9	8	8	7
90; 50	$P_V (n; M)$	%	6	6	5	5	5	5	5	5
90; 100	$P_V (n; M)$	%	13	13	10	10	10	10	9	9



Rated efficiency at full load	η_{rated}	%	92.1	93	92.6	93.6	93	93.6	93.6	94.1
Efficiency at 75 % rated load	η	%	92.3	92.8	93.1	93.7	93.6	93.8	94.2	94.3
Efficiency at 50 % rated load	η	%	91.5	91.4	93	93.1	93.6	93.3	94.2	93.8
Efficiency level			IE3							
Name of the manufacturer			Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY							
Commercial register number			Hannover HRB 204803							
Model identifier of the product			M54AP160L04		M54AP180M04		M54AP180L04		M54AP200M04	
Number of poles of the motor			4							
Rated output power	P_{rated}	kW	15		18.5		22		30	
Rated input frequency	f_{rated}	Hz	50	60	50	60	50	60	50	60
Rated voltage	V_{rated}	V	400	460	400	460	400	460	400	460
Rated speed	n_{rated}	min ⁻¹	1475	1780	1470	1775	1470	1775	1470	1778
Number of motor phases			Three-phase motor							
Altitudes above sea level		m	0 ... 1000							
Ambient air temperature		°C	-20 ... +40							
Maximum operating temperature		°C	155							
Potentially explosive atmospheres			Operation in explosive atmospheres not permitted							
Power losses										
25; 25	$P_V (n; M)$	%	1	2	2	1	1	1	1	1
25; 100	$P_V (n; M)$	%	6	6	6	6	6	6	5	5
50; 25	$P_V (n; M)$	%	2	3	2	2	2	2	2	2
50; 50	$P_V (n; M)$	%	3	4	3	3	3	3	2	2
50; 100	$P_V (n; M)$	%	7	8	7	6	7	7	6	6
90; 50	$P_V (n; M)$	%	4	6	4	4	4	4	4	3
90; 100	$P_V (n; M)$	%	9	10	8	8	8	8	7	7



Rated efficiency at full load	η_{rated}	%	93.9	94.5	94.2	95	94.6	95.4
Efficiency at 75 % rated load	η	%	94.5	94.7	94.9	95.3	95.1	95.6
Efficiency at 50 % rated load	η	%	94.4	94.2	95.1	94.9	95	95.1
Efficiency level			IE3					
Name of the manufacturer			Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY					
Commercial register number			Hannover HRB 204803					
Model identifier of the product			M54AP225M04		M54AP225L04		M54AP250M04	
Number of poles of the motor			4					
Rated output power	P_{rated}	kW	37		45		55	
Rated input frequency	f_{rated}	Hz	50	60	50	60	50	60
Rated voltage	V_{rated}	V	400	460	400	460	400	460
Rated speed	n_{rated}	min ⁻¹	1478	1782	1478	1782	1482	1786
Number of motor phases			Three-phase motor					
Altitudes above sea level		m	0 ... 1000					
Ambient air temperature		°C	-20 ... +40					
Maximum operating temperature		°C	155					
Potentially explosive atmospheres			Operation in explosive atmospheres not permitted					
Power losses								
25; 25	$P_V(n; M)$	%	1	1	1	1	1	1
25; 100	$P_V(n; M)$	%	5	5	5	5	4	4
50; 25	$P_V(n; M)$	%	1	1	1	1	1	1
50; 50	$P_V(n; M)$	%	2	2	2	2	2	2
50; 100	$P_V(n; M)$	%	6	5	5	5	4	5
90; 50	$P_V(n; M)$	%	3	3	3	3	3	3
90; 100	$P_V(n; M)$	%	7	7	6	6	6	6



Environmental notes and recycling

Lenze has been certified to the worldwide environmental management standard for many years (DIN EN ISO 14001). As part of our environmental policy and the associated climate responsibility, please note the following information on hazardous ingredients and the recycling of Lenze products and their packaging:



Lenze products are partly subject to the EU Directive on the restriction of certain hazardous substances in electrical and electronic equipment 2011/65/EU: RoHS Directive [UKCA: S.I. 2012/3032 - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012] . This is documented accordingly in the EU declaration of conformity and with the CE mark.



The crossed-out wheeled bin symbol is located on the equipment. This information indicates that used electrical and electronic products must not be disposed of with normal household waste.

The EU Directive 2012/19/EU: Directive on waste electrical and electronic equipment (WEEE) [UKCA: S.I. 2013/3113 - The Waste Electrical and Electronic Equipment Regulations 2013] , which has been transposed into national law by the respective EU member states, applies to the disposal of equipment. As a customer, you have the option of disposing of the electrical and electronic equipment that you have purchased from us and that is subject to WEEE via the Lenze branch in your country.

Lenze addresses in Europe: <https://www.lenze.com/en-de/company/global-presence>

Some Lenze products contain batteries/rechargeable batteries in accordance with EU Directive 2006/66/EC: Battery Directive [UKCA: S.I. 2009/890 - The Waste Batteries and Accumulators Regulations 2009] . Any batteries/rechargeable batteries included are designed to last the life of the product and do not need to be replaced or otherwise removed by the end user.



Lenze products are usually sold with cardboard or plastic packaging. This packaging complies with EU Directive 94/62/EC: Directive on packaging and packaging waste [UKCA: S.I. 1997/648 - The Producer Responsibility Obligations (Packaging Waste) Regulations 1997] . The required disposal route is indicated by material-specific labels with the "recycling triangle". Example: "21 - other cardboard"

REACH

Lenze products are subject to REGULATION (EC) No 1907/2006: REACH Regulation [UKCA: S.I. 2008/2852 - The REACH Enforcement Regulations 2008] . When used as intended, exposure of substances to humans, animals and the environment is excluded.

Lenze products are industrial electrical and electronic products and are disposed of professionally. Both the mechanical and electrical components such as electric motors, gearboxes or inverters contain valuable raw materials that can be recycled and reused. Proper recycling and thus maintaining the highest possible level of recyclability is therefore important and sensible from an economic and ecological point of view.

- Coordinate professional disposal with your waste disposal company.
- Separate mechanical and electrical components, packaging, hazardous waste (e.g. gear oils) and batteries/rechargeable batteries wherever possible.
- Dispose of the separated waste in an environmentally sound and proper manner (no household waste or municipal bulky waste).

What?	Material	Disposal instructions
Pallets	Wood	Return to manufacturers, freight forwarders or reusable materials collection system
Packaging material	Paper, cardboard, pasteboard, plastics	Collect and dispose of separately
Products		
Electronic devices	Metal, plastics, circuit boards, heatsinks	As electronic waste give to professional disposer for recycling
Gearbox	Oil	Drain oil and dispose of separately
	Casting, steel, aluminium	Dispose as metal scrap
Motors	Casting, copper, rotors, magnets, potting compound	As engine scrap give to professional disposer for recycling
Dry-cell batteries/rechargeable batteries		As used batteries give to professional disposer for recycling



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

www.Lenze.com → search word: "Sustainability"



Appendix

Good to know

Operating modes of the motor

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

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



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 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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