

Mains-operated geared motors

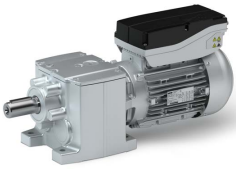
Helical geared motor g500-H / Smart Motor m300-E

Contents

About this document	5
Document description	5
Further documents.....	5
Notations and conventions	6
Product information	7
Product description	8
Identification of the products.....	10
Features.....	11
The modular system	12
Information on project planning	19
Safety instructions	20
Basic safety instructions	20
Application as directed.....	20
Foreseeable misuse.....	20
Residual hazards.....	21
Drive dimensioning.....	22
Final configuration.....	24
Environmental conditions.....	25
Free spaces	27
Information on mechanical installation	32
Important notes.....	32
Transport.....	32
Installation.....	32
Information on electrical installation	33
Important notes.....	33
Preparation.....	33
Connection according to EN.....	34
Connection according to UL.....	37
Technical data	41
Notes regarding the given data	41
Standards and operating conditions.....	42
Conformities/approvals	42
Protection of persons and device protection	42
EMC data.....	43
Environmental conditions.....	43
Electrical supply conditions	43
Radial forces and axial forces	44
Selection tables.....	47
Dimensions.....	55
Basic dimensions.....	55
Weights	88
Basic weights.....	88
Additional weights.....	88

Contents

Product extensions	89
Motor connection.....	89
Brakes.....	91
Spring-applied brakes.....	91
Brake resistors.....	93
Accessories	94
Overview.....	94
NFC adapter.....	94
QUICKON connector.....	95
UMCLN_SGG_100181.....	95
Product codes	96
Motor data	98
Rated data.....	98
Appendix	99
Good to know.....	99
Approvals/directives.....	99
Operating modes of the motor.....	100
Enclosures.....	101



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.

NOTICE

Please observe the notes in the following chapters!

- ▶ [Safety instructions](#) 20
 - ▶ [Information on mechanical installation](#) 32
 - ▶ [Information on electrical installation](#) 33
-

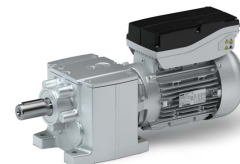
Further documents



Information and tools with regard to the Lenze products can be found on the Internet: <http://www.lenze.com> → Downloads

About this document

Notations and conventions



Notations and conventions

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

Numeric notation			
	Decimal separator	Point	The decimal point is always used. Example: 1 234.56
Warning			
	UL warning	UL	Are used in English and French.
	UR warning	UR	
Text			
	Engineering tools	» «	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!

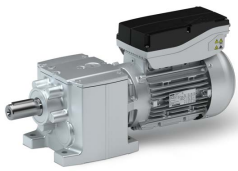
Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

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

The new freedom in motion for engineers. Lenze Smart Products reduce the number of different drives by up to 70 %. Without contactor and starter, with freely adjustable fixed speeds and many integrated functions for technical material-handling applications. The Lenze Smart motor also fulfils the highest requirements regarding energy efficiency and can be conveniently operated by means of a smart phone.

Our efficient helical gearboxes boast high permissible radial forces, closely stepped ratios and low backlash.

They are available in 2-stage and 3-stage designs with a maximum torque of up to 1,500 Nm and ratios of up to $i=370$ depending on your individual requirements.

Reduction in the number of variants made easy

Before now, different output speeds (e. g. for different conveying speeds) were enabled by different gearbox ratios or, in the case of very large differences, by means of the number of pole pairs of the motors. This led to a large number of different drive variants..

Things are different with the Lenze Smart Products: Due to the possibility of freely adjusting the motor speed within a fivefold adjustment range at a constant torque, very different speeds can be enabled with one single drive variants. The cost and effort involved in design, selection, procurement and storage are thus reduced considerably.

Highlights

- Freely adjustable speed reduces the number of different drives
- Universally usable thanks to geared motor with g500
- Integrated soft start function
- Less wiring thanks to electronic contactor and motor protection function
- Excellent energy efficiency
- Can be operated with an NFC-capable smartphone and Lenze app
- Brake control unit optional for low-wear brake control
- Fine-scaling of size/torque provides for an optimum machine adaptation
- Standardized shaft and flange dimensions for an easy machine integration
- Exceptional efficiency of 94 % and more

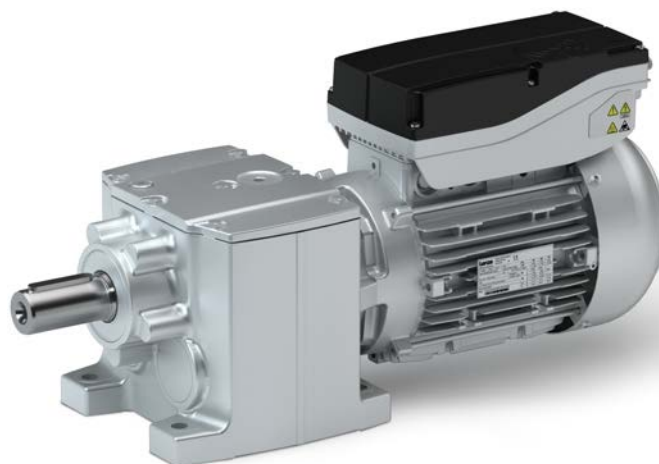
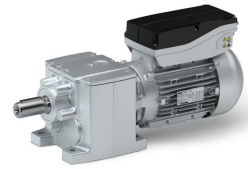


Fig. 1: Smart Motor MSEMXX080-32 - helical gearbox g500-H450

Product information

Product description



Product description

Easy adjustment

NFC technology (NFC = Near Field Communication) is used to adapt the Lenze Smart Products to the application as well as for diagnostics). The drive can be adjusted very easily without opening the terminal box, without voltage supply and without time-consuming addressing.

Only an NFC-capable Android smartphone or the Lenze NFC adapter for PCs is needed as a tool. The data can therefore be read and written when the drive is in a de-energised state – via password protection, of course.

Data that can be set

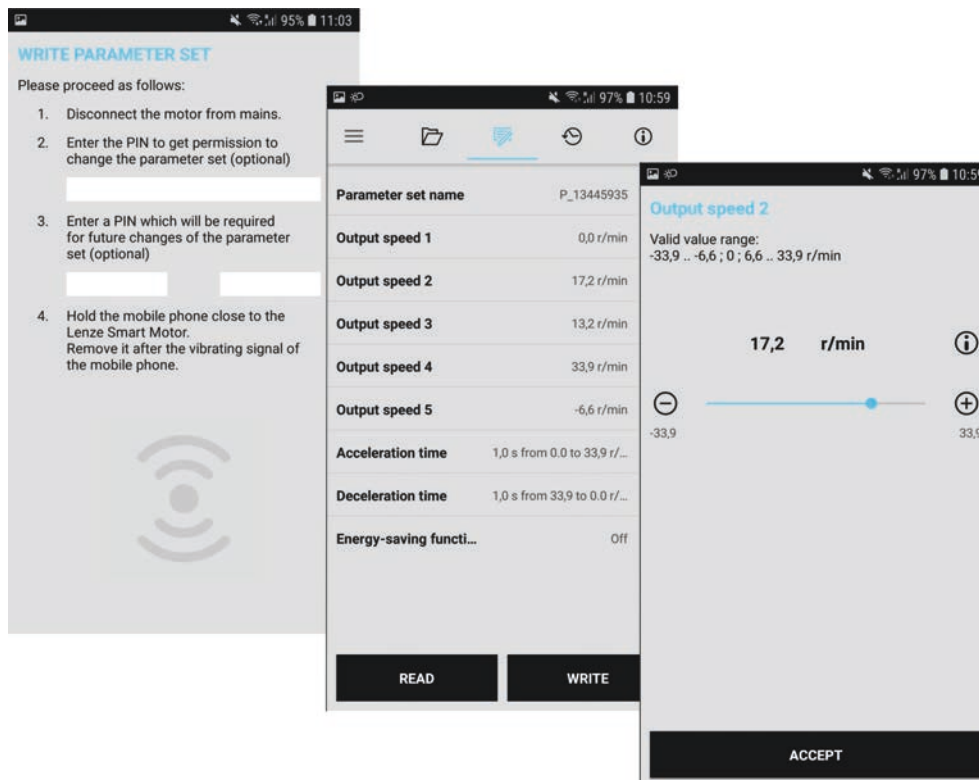
- Name of data record (e. g. the designation of the drive in your documentation)
- Speed and rotating direction 1 (also controllable without digital inputs)
- Speed and rotating direction 2-5 (controllable by means of digital inputs)
- Acceleration time
- Deceleration time
- Energy-saving function

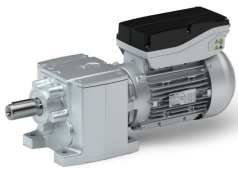
Readable data

- Identification data (Lenze material number and serial number, type designation, software version)
- Error messages
- Operating and power-on hours

Adjustment by means of a smartphone

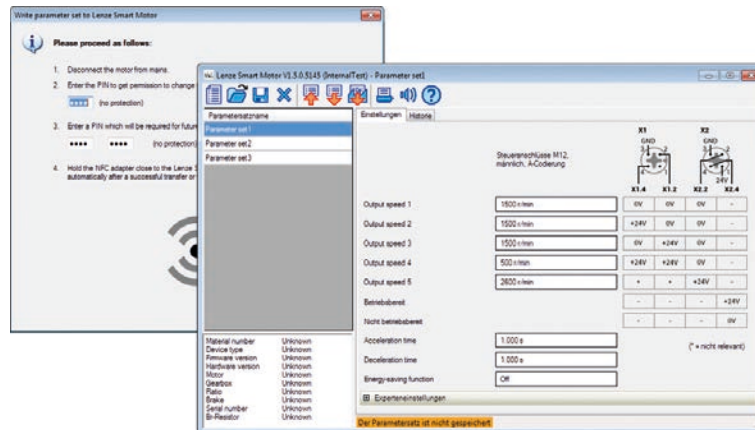
The Lenze Smart Products can be adjusted with an Android smartphone. The corresponding app in German and English can be obtained from www.Lenze.com or the Google Store. For convenience, the data records created can be archived on the smartphone and repeatedly transferred to the Lenze Smart Products for different applications.





Adjusting with a PC

With the »EASY Starter« engineering tool (expanded version, »EASY Advanced« or »Engineer HighLevel« software licence needed) can be used to adjust the Lenze Smart Products. The relevant version can be easily downloaded from <http://www.lenze.com>. As the settings are very simple and clear, there is an easy-to-use dialog box, which can be opened directly via the navigator. The corresponding button is directly accessible in the navigation bar. Analogously to other product settings, the parameter values can be archived.



Starting and stopping smoothly and gently

An acceleration ramp and – in contrast to a conventional starter – a deceleration ramp can be set for Lenze Smart Products. This ensures that the conveyed material is handled in a defined and jerk-free manner..

Contactors and motor protection functions integrated

The Lenze Smart Products can be started and stopped by means of digital inputs. It is also possible to switch between different speeds and rotating directions. Up to 5 different speed modes (e. g. creep speed and normal speed in both directions as well as stopping) can be used for a motor. Reversing-contactor changes and pole changes are thus a thing of the past.

In addition, motor-protection devices are not needed as monitoring of temperature, short circuits, earth faults and phase failures has already been integrated.

Easy installation

Connection takes place completely from the outside by means of connectors.

The Lenze Smart Products come with an especially clever connecting technology – Phoenix Contact QUICKON. Electrical installation is therefore very easy without special tools and requires less than one minute.

In addition to the QUICKON connector, the M15 connection customary on the market is available.

As a standard feature, the digital inputs and outputs are connected at M12 sockets of the type currently available on the market.

Already existing signal cables can often be reused.

Worldwide and efficient

The drive can be used worldwide:

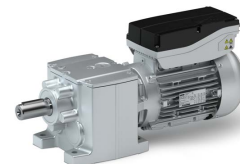
- In all 3-phase networks with a supply voltage of 400 ... 480 V and a mains frequency of 50 ... 60 Hz
- At ambient temperatures of -30 ... +40 °C
- Is suitable for many approvals

The Lenze Smart Motor fulfils the requirements as described in the highest efficiency requirement for IES2.

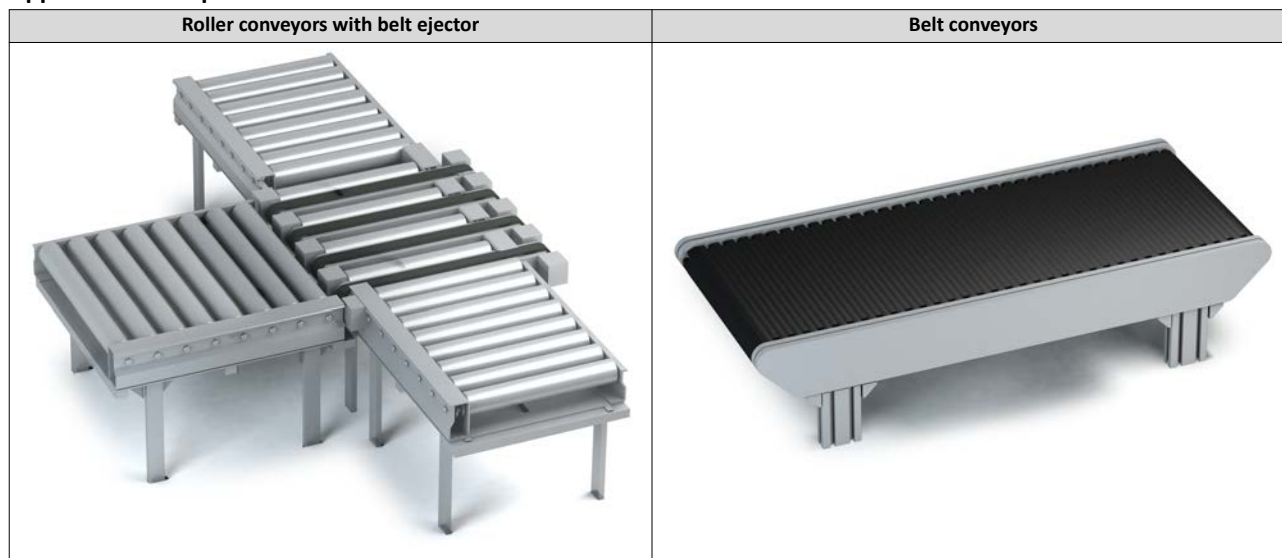
If very little torque is needed in the partial-load operational range, the integrated energy saving function can be used to optimize the energy absorption of the drive.

Product information

Identification of the products



Application examples



Identification of the products

Gearbox product name

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

Product name of the motor

Product series	Type	Size		Overall length	Number of pole pairs	Motor
MSEMA	XX (without built-on accessories)	063	-	4	2 (4-pole)	MSEMXX063-42
		080		3		MSEMXX080-32
	BR (with brake)	063		4		MSEMABR063-42
		080		3		MSEMABR080-32



Features

Ventilation

(depending on the mounting position)

Oil filler plug

(depending on the mounting position)

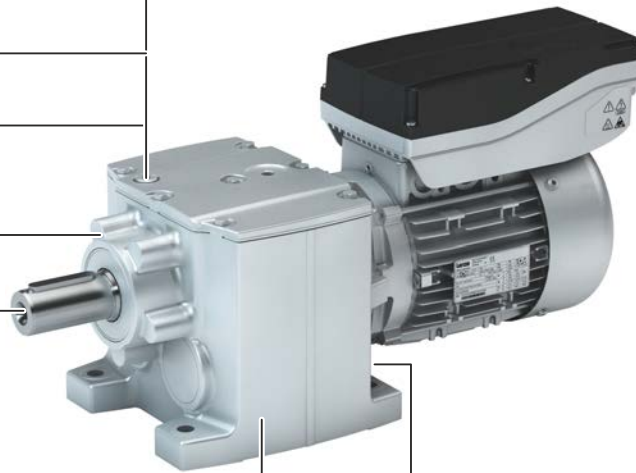
Remove oil control plug

(depending on the mounting position)

Output flange

Output shaft

Housing type



Oil drain plug

(depending on the mounting position)

X4 Brake resistor connection

External

Internal brake resistor

X1, X2 Control terminal

M12 connector

X3 Mains connection

In the terminal box
QUICKON connector
M15 connector

PE

X5 Connection of spring-applied brake

(prewired upon delivery)

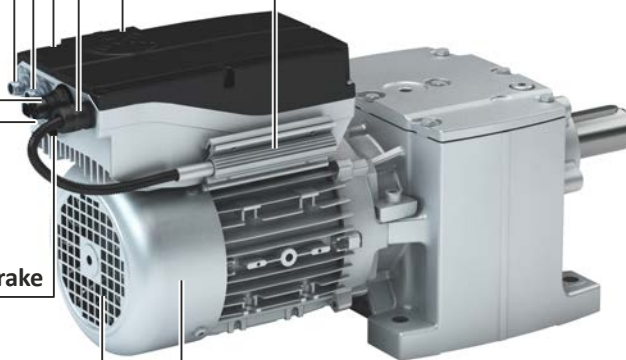
Cooling

Integral fan

Adjustment of speeds

by means of Android smartphone
by means of PC via NFC adapter

External brake resistor

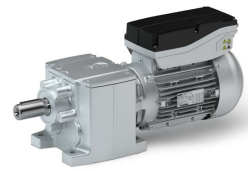


Spring-applied brake

Standard
LongLife
Manual release lever

Product information

The modular system



The modular system



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

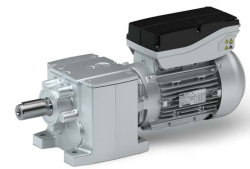


Geared motors up to 450 Nm

Gearboxes		g500-H45	g500-H100	g500-H140	g500-H210	g500-H320	g500-H450
Min. motor assignment		MSEMA□□					
		063-42	063-42	063-42	063-42	063-42	063-42
Max. motor assignment		MSEMA□□					
		063-42	080-32	080-32	080-32	080-32	080-32
Technical data							
Max. output torque	Nm	45	100	140	210	320	450
Min. drive torque	Nm	1.75	1.75	1.75	1.75	1.75	1.75
Max. drive torque	Nm	1.75	5.0	5.0	5.0	5.0	5.0
Mounting position							
Standard		A/B/C/D/E/F					
Combined		ABCDEF		AEF			
Colour		Unpainted Primed Painted in RAL colours					
Surface and corrosion protection		OKS-G Different types of OKS					
Output shaft							
Solid shaft with featherkey	mm	14 x 28 20 x 40	20 x 40	25 x 50	25 x 50	30 x 60	30 x 60 35 x 70
Solid shaft without keyway	mm	20 x 40	20 x 40	25 x 50	25 x 50	30 x 60	35 x 70
Shaft material		Steel Stainless steel					
Shaft sealing ring material		NBR FKM (Viton)					
Output shaft bearing		Normal Reinforced					
Gearbox design		With foot (VBR) With foot and centering (VAR) With foot and output flange (VAK) With centering (VCR) With output flange (VCK) With output flange (VCP)					
Output flange	mm	120/140/160	120/140/160	120/140/160	120/140 160/200	160/200	160/200/250
Lubricant		Mineral oil Synthetic oil Food-grade oil					
Cooling		Self-ventilated					
Motor connection							
Power connection		Terminal box QUICKON connector M15 connector					
Control terminal		M12 connector					
Spring-applied brake							
Type		Without Standard LongLife Without/with manual release lever					
brake resistance		Without Integrated External					
Feedback		Without					
Temperature monitoring		Internal					

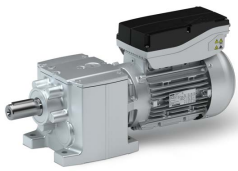
Product information

The modular system



Geared motors from 600 Nm to 1,500 Nm

Gearboxes		g500-H600	g500-H850	g500-H1500
Min. motor assignment			MSEMA□□	
		063-42	063-42	080-32
Max. motor assignment			MSEMA□□	
		080-32	080-32	080-32
Technical data				
Max. output torque	Nm	600	850	1500
Min. drive torque	Nm	1.75	1.75	5.0
Max. drive torque	Nm	5.0	5.0	5.0
Mounting position				
Standard		A/B/C/D/E/F		
Combined				
Colour				
		Primed Painted in RAL colours		
Surface and corrosion protection				
		OKS-G Different types of OKS		
Output shaft				
Solid shaft with featherkey	mm	35 x 70 40 x 80	40 x 80	50 x 100
Solid shaft without keyway	mm	35 x 70	40 x 80	50 x 100
Shaft material				
		Steel Stainless steel		
Shaft sealing ring material				
		NBR FKM (Viton)		
Output shaft bearing				
		Normal Reinforced		
Gearbox design				
		With foot (VBR) With foot and centering (VAR) With foot and output flange (VAK) With centering (VCR) With output flange (VCK)		
Output flange	mm	200/250	250/300	250/300/350
Lubricant				
		Mineral oil Synthetic oil Food-grade oil		
Cooling				
		Self-ventilated		
Motor connection				
Power connection				
		Terminal box QUICKON connector M15 connector		
Control terminal				
		M12 connector		
Spring-applied brake				
Type				
		Without Standard LongLife Without/with manual release lever		
brake resistance				
		Without Integrated External		
Feedback				
		Without		
Temperature monitoring				
		Internal		

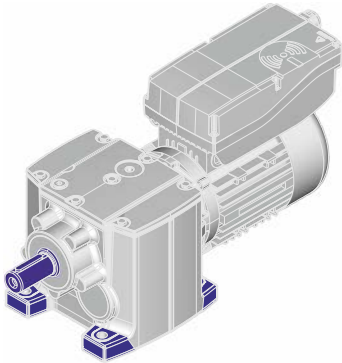


Models at the output

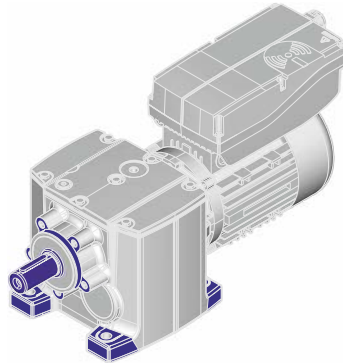


Please observe the available gearbox designs on [13](#) and [14](#)!

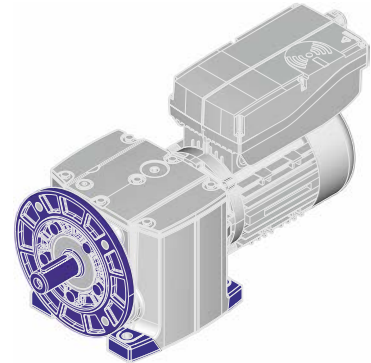
Solid shaft, with foot



Without centring (VBR)

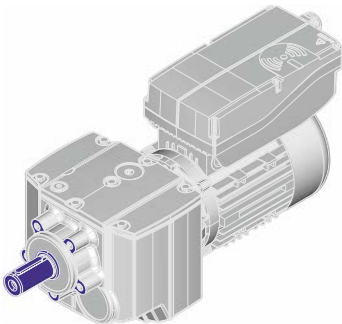


With centring (VAR)

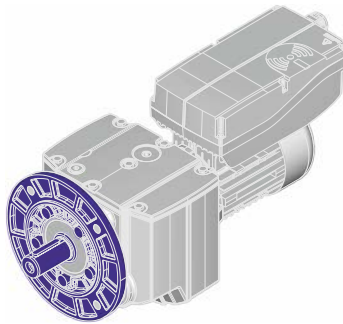


Flange with through holes (VAK)

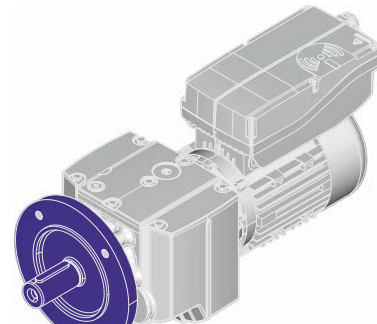
Solid shaft, without foot



With centering (VCR)



Flange with through holes (VCK)



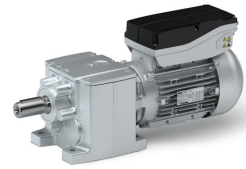
Reinforced flange with through holes (VCP)



VCP (reinforced flange) is suitable for absorbing high radial and axial forces
[44](#).

Product information

The modular system

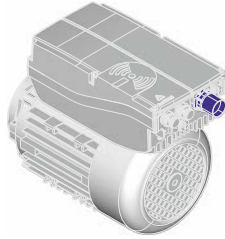


Models at the output

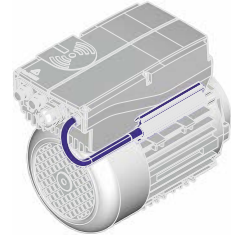
Motor connection



Cable gland

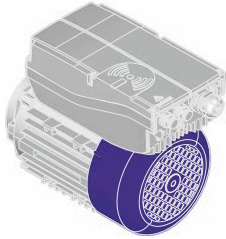


Connectors

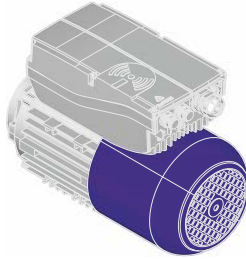


External brake resistor

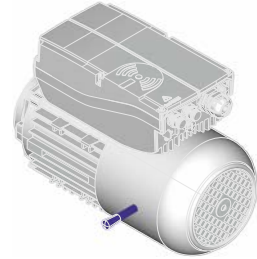
Cooling: self-ventilated



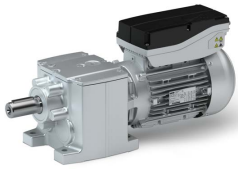
Without brake



With brake



With brake and manual release lever



Mounting positions

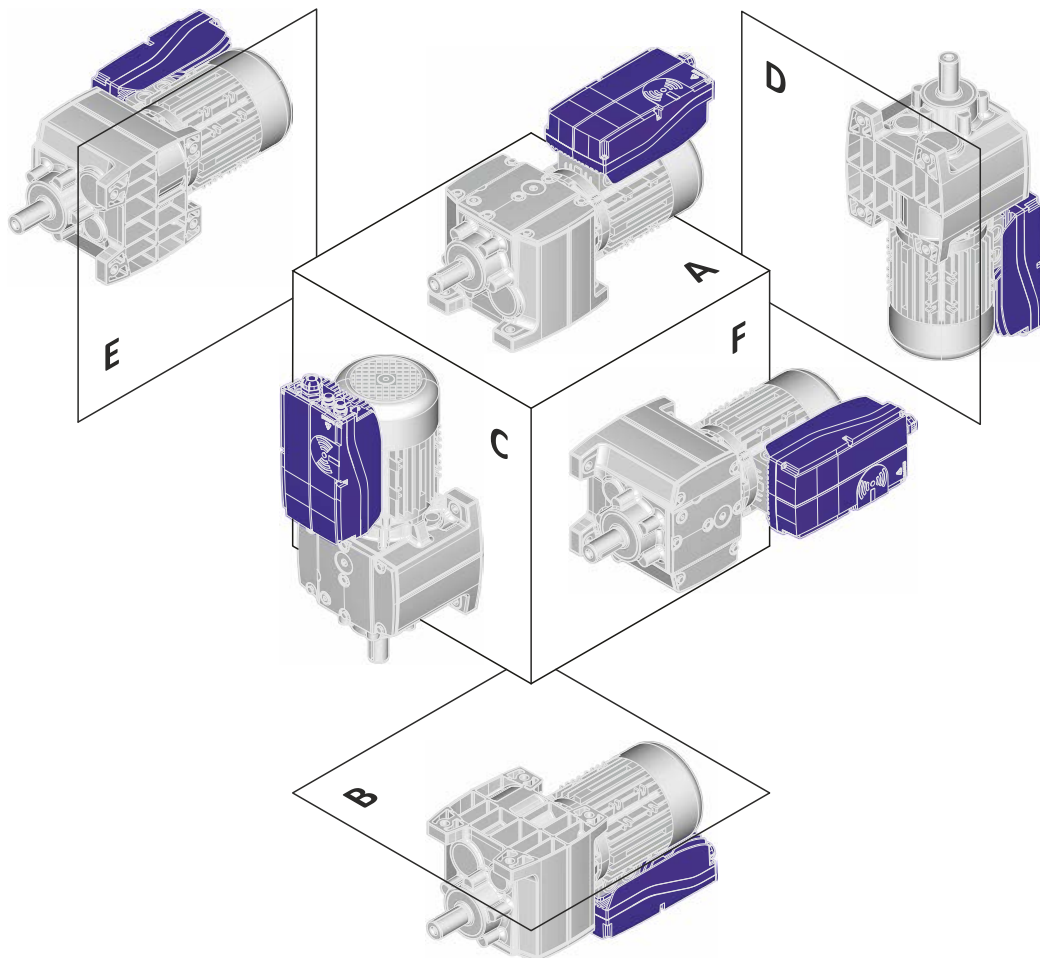
Geared motors



In the following graphics, the terminal box in position 2 is colour-coded. If the mounting position (A ... F) changes, the terminal box positions (2 ... 5) are rotated accordingly.

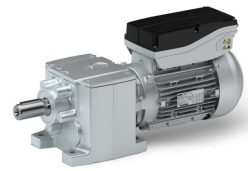
To reduce the number of different versions, the gearboxes can also be ordered with combined mounting positions:

- g500-H45 in ABCDEF mounting position
- g500-H100 ... H450 in AEF mounting position



Product information

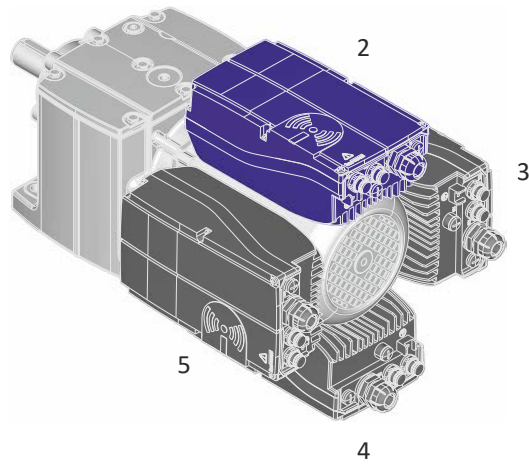
The modular system



Terminal box



The terminal box position (2 ... 5) must be given as a function of the mounting position.





Information on project planning

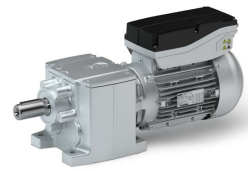
In order to carry out an accurate drive dimensioning process, you can use our configuring software, the »Drive Solution Designer«.

With the »Drive Solution Designer« you can carry out the drive dimensioning process quickly and with top quality. The software contains profound and proven expertise with regard to drive applications and mechatronic drive components.

Please refer to your competent Lenze sales company.

Information on project planning

Safety instructions
Foreseeable misuse



Safety instructions

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

Observe all specifications of the corresponding documentation supplied. This is the precondition for safe and trouble-free operation and for obtaining the product features specified.

Please observe the specific safety information in the other sections!

Basic safety instructions

Personnel

The product must only be used by qualified personnel. IEC 60364 or CENELEC HD 384 define the skills 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 must only be actuated under the operating conditions and power limits specified in this documentation.
- The product meets the protection requirements of 2014/35/EU: Low-Voltage Directive.
- The product is not a machine in terms of 2006/42/EU: Machinery Directive.
- Commissioning or starting the operation as directed of a machine with the product is not permitted until it has been ensured that the machine meets the regulations of the EC Directive 2006/42/EU: Machinery Directive; observe EN 60204-1.
- Commissioning or starting operation as directed is only permissible if the EMC Directive 2014/30/EU is complied with.
- The product is not a household appliance, but is only designed as a component for commercial or professional use in terms of EN 61000-3-2.
- The product can be used according to the technical data if drive systems have to comply with categories according to EN 61800-3.
- In residential areas, the product may cause EMC interferences. The operator is responsible for taking interference suppression measures.
- Do not use the built-in brakes as fail-safe brakes. Disruptive factors that cannot be influenced may cause the braking torque to be reduced.
- The product is a component designed for installation into a machine for horizontal materials handling technology.

Foreseeable misuse

- Connect directly to the inverter
- Use in explosion-protected areas
- Use in aggressive environments
- Operate under water
- Use under radiation
- Operate permanently in generator mode



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.

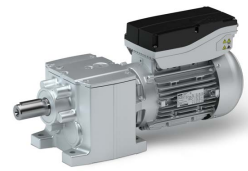
If the above is disregarded, this can lead to severe injuries to persons and damage to property!

Protection of persons

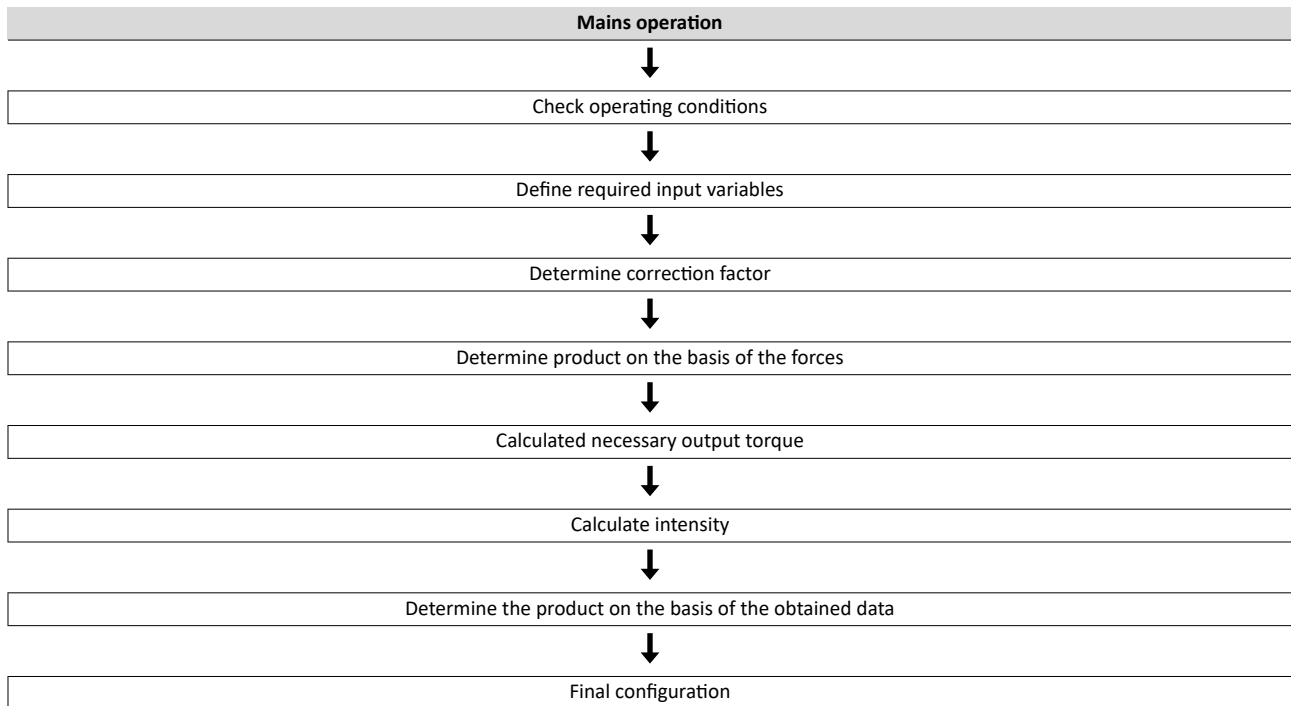
- The product does not provide safety-related functions.
 - A higher-level safety system must be implemented.
 - Additional monitoring and protective equipment complying with the safety regulations applicable in each case must be used.
- The power terminals may carry voltage in the switched-off state or when the motor is stopped.
 - Before working, check whether all power terminals are deenergised.
- Careful earthing in the marked positions of the components must be carried out.
- Risk of burns may be caused by hot surfaces!
 - Provide for a protection against accidental contact.
 - Use the personal protective equipment or wait until the components have cooled down completely!
 - 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 danger of unintentional starting or electrical shocks!
- Installed brakes are no fail-safe brakes.
 - torque may be reduced by disruptive factors that cannot be influenced such as ingressing oil.

Motor protection

- Design with plug:
 - Never disconnect the plug when energized! Otherwise, the plug can be destroyed.
 - Switch off power supply prior to disconnecting the plug.
- Parameterize the product so that it will be switched off after some seconds of operation with $I > I_N$, especially if there is a danger of blocking.
 - The installed overload protection does not prevent an overload under any conditions.
- The fuses are no motor protection.
- Too high torques cause a fraction of the motor shaft.
 - The maximum torques according to catalog must not be exceeded.
- Align the shafts of motor and driven machine exactly to each other.



Drive dimensioning



Check operating conditions

Check
Approvals
Conformity declarations
Supply voltage
Enclosure
Ambient temperature
Surface protection

▶ [Conformities/approvals](#) 42

▶ [Environmental conditions](#) 25

Necessary input variables

Mains operation			
Max. load torque	$M_{L,max}$	Nm	
Max. load speed	$n_{L,max}$	rpm	
External moments of inertia	J_{ext}	kgcm ²	
Operating time / day	BD	h	
Switching operations per hour	S_h	1/h	

Determine correction factor

Site altitude Amsl	H	m	≤ 1000	≤ 2000	≤ 3000	≤ 4000
Correction factor	k_H		1	0.95	0.9	0.85



Determine product on the basis of the forces

Transmission element			Gear wheels	Sprockets	Toothed belt pulleys (depending on the preloading)	Narrow V-belt (depending on the preloading)
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	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

► Radial forces and axial forces [44](#)

Calculate output torque

		Calculation	
Necessary output torque	M_2	Nm	$M_2 \geq \frac{M_{L,max}}{k_H}$

Calculate intensity

		Calculation	
Intensity	F_i		$F_i = \frac{\frac{J_L}{i^2} + J_M + J_B + J_Z}{J_M + J_B + J_Z} \leq 1.25$

i Ratio of gearbox

J_B Moment of inertia of brake

J_L Moment of inertia of the load

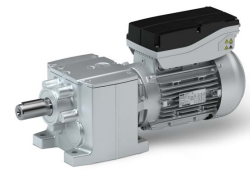
J_Z Additional moment of inertia (handwheel, 2nd shaft end ...)

J_M Moment of inertia of motor

Determine the product on the basis of the data obtained from the selection tables

Selection table		Check
Output speed n_2	rpm	$n_{L,max} \approx n_2$
Output torque M_2	Nm	$M_{L,max} \leq M_2$

Selection tables [47](#)



Final configuration

	Check
Connection dimensions	Output shaft Output flange/foot
Mounting position	Geared motor Terminal box Driven shaft/output flange
Product extensions	Torque support Shaft cover Connectors Brake

More information about the final configuration:

▶ [The modular system](#) 12

▶ [Product extensions](#) 89

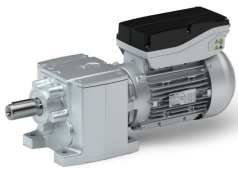
Parameters that can be preset by Lenze



The parameters marked with "order-dependent" in the standard setting can be preset order-related by Lenze.

Standard settings

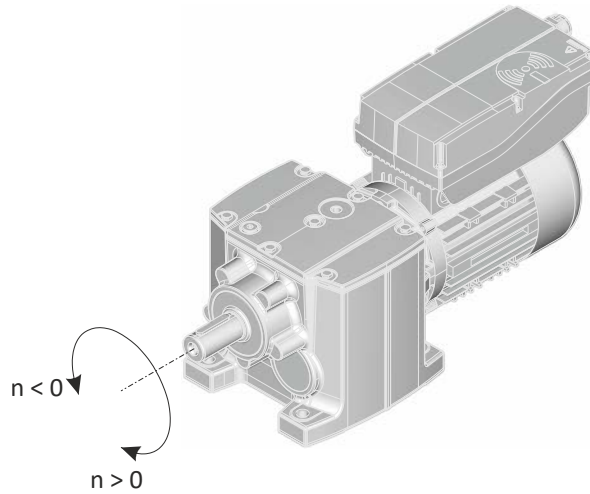
Parameter	Value		Comment	
	Designation	Delivery		Setting range
Parameter set name	---		[Text]	File name of the parameter set without file extension *.ism
Output speed 1	depending on the order		[-2600/i ... -500/i] rpm [0] rpm [500/i ... 2600/i] rpm	CCW rotation: < 0 rpm STOP: 0 rpm CW rotation: > 0 rpm Lenze Smart motor with gearbox: The ratio i is taken into account in the calculation of the output speed.
Output speed 2				
Output speed 3				
Output speed 4				
Output speed 5				
Acceleration time			[0.0 ... 20.0] s	
Deceleration time				
Energy-saving function			[Off]	Optimized for: <ul style="list-style-type: none"> • High dynamic performance • Maximum starting torque and torque • High speed accuracy
			[On]	Reduced energy absorption in partial load operational range. Approx. 50 % of the maximum starting torque are available.



Rotating direction of the output shaft

The rotating direction of the output shaft is defined via the setpoint of the output speed.

The rotating direction changes in case of a positive ($n > 0$) or negative ($n < 0$) speed.



Environmental conditions

Surface and corrosion protection (called OKS)

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

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

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



Without OKS (unpainted):

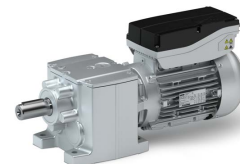
The aluminium parts are not coated and grey cast iron parts are primed with grey paint. Slight colour differences of the components are possible.

Surface and corrosion protection	Applications	Product	
		g500-H45 ... H450 g500-S130 ... S660 g500-B45 ... B450	g500-H600 ... H1500 g500-S950 ... S4500 g500-B600 ... B1500
without OKS (unpainted)	<ul style="list-style-type: none"> Indoor installation, no special corrosion protection necessary Painting by customer 	Standard	
OKS-G (primed)	<ul style="list-style-type: none"> Dependent on subsequent top coat applied 	Optional	Optional
OKS-S (small)	<ul style="list-style-type: none"> Standard applications Internal installation in heated buildings Air humidity up to 90% 		Standard
OKS-M (medium)	<ul style="list-style-type: none"> Internal installation in non-heated buildings Covered, protected external installation Air humidity up to 95 % 		Optional

Surface and corrosion protection (called OKS)	Corrosivity category	Surface coating	Colour	Coating thickness
	DIN EN ISO 12944-2	Design		
without OKS (unpainted)				
OKS-G (primed)		<ul style="list-style-type: none"> 2K PUR priming coat 		60 ... 90 µm
OKS-S (small)	Comparable to C1	<ul style="list-style-type: none"> 2K-PUR top coat 	<ul style="list-style-type: none"> Standard: RAL 7012 Optional: RAL Classic 	80 ... 120 µm
OKS-M (medium)	Comparable to C2	<ul style="list-style-type: none"> 2K PUR priming coat 2K-PUR top coat 		110 ... 160 µm

Information on project planning

Final configuration
Environmental conditions



Lubricants



In case of ambient temperatures < -20 °C or > +40 °C, please contact your responsible Lenze sales company

The following gearboxes are lubricated for life:

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

Recommended 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 an oil temperature of	70 ... 80 °C	
Fuchs	Renolin CLP 220 CLP Plus 220	Renolin CLP 460 CLP Plus 460
Klüber	Klüberoil GEM1-220 N	Klüberoil GEM1-460 N
Shell	Shell Omala S2 G 220 S2 GX 220	Shell Omala S2 G 460 S2 GX 460

Lubricant	CLP HC 220	CLP HC 320	CLP HC 220 USDA H1
Ambient temperature	-20 ... +40 °C	-25 ... +50 °C	-25 ... +50 °C
Specification	Synthetic oil (polyalphaolefins basis)		
Changing interval			
Operating hours	25000	25000	16000
Not later than after	4 years	4 years	3 years
At an oil temperature of	70 ... 80 °C		
Fuchs	Renolin Unisyn CLP 220 XT 220	Renolin Unisyn CLP 320 XT 320	Cassida Fluid GL 220
Klüber	Klübersynth GEM4-220 N	Klübersynth GEM4-320 N	Klüberoil 4 UH1-220 N
Shell	Shell Omala S4 GX HD 220	Shell Omala S4 GX HD 320	



Free spaces

Ventilation



For the gearboxes g500-H45 ...H210, no ventilation measures are required.
The gearbox g500-H210 can optionally be ordered with breather elements.
From g500-H320 onwards, the gearboxes are generally outfitted with breather elements.

Gearbox in combined mounting position

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

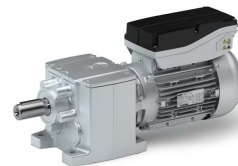
- g500-H45 in ABCDEF mounting position
- g500-H100 ... H450 in AEF mounting position



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

Information on project planning

Final configuration
Free spaces



g500-H210 ... H450

Mounting position A	Mounting position B	Mounting position C
Filling and ventilation		
Check		
Drain		



Information on project planning

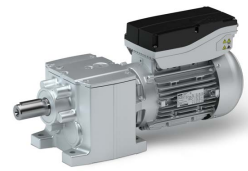
Final configuration
Free spaces

Mounting position D	Mounting position E	Mounting position F
Filling and ventilation		
Check		
Drain		

- ① g500-H210
- ② g500-H320
g500-H450

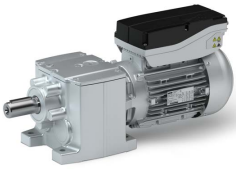
Information on project planning

Final configuration
Free spaces



g500-H600 ... H3000

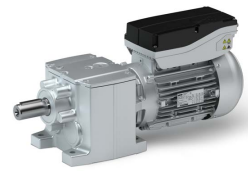
Mounting position A	Mounting position B	Mounting position C
Filling and ventilation		
Check		
Drain		



Information on project planning

Final configuration
Free spaces

Mounting position D	Mounting position E	Mounting position F
Filling and ventilation		
Check		
Drain		



Information on mechanical installation

Important notes

- You must install the product according to specifications in the chapter "standard and operating" conditions.
 - ▶ [Standards and operating conditions](#) 42
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Observe the information relating to the surface and corrosion protection.
 - ▶ [Environmental conditions](#) 25
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics. If required, contact your responsible Lenze subsidiary.

Transport

- Ensure appropriate handling.
- Make sure that all component parts are safely 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 the transport.
- Avoid electrostatic discharge on electronic components and contacts.
- Avoid impacts.
- Check the carrying capacity of the hoists and load handling devices. The weights can be obtained from the shipping documents.
- Secure the load against tipping and falling down.
- Standing under a suspended load is forbidden.

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.



Information on electrical installation

Important notes

DANGER!

Hazardous voltage!

On the power connections even when disconnected from the mains: residual voltage >60 V!

- ▶ Disconnect the product from the mains and wait until the motor is at a standstill.
- ▶ Make sure that the product is safely isolated from supply!

-
- When working on energised products, comply with the applicable national accident prevention regulations.
 - Carry out the electrical installation in compliance with the relevant 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.

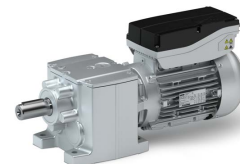
Preparation



The notes for the electrical connection can be found in the enclosed connection diagram of the drive.

Information on electrical installation

Connection according to EN



Connection according to EN

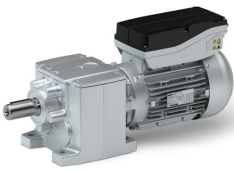


The following data is valid for a three-phase mains connection with 400 V.

Mains connection with QUICKON connector			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Laying system		B2	
Connection type		QUICKON connector	
Cable type		Flexible	
Cable cross-section			
Typ.	mm ²	1.5	2.5
Min.	mm ²	1.5	1.5
Max.	mm ²	2.5	2.5

Mains connection M15 connector			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Laying system		B2	
Connection type		M15 connector	
Cable type		Flexible	
Cable cross-section			
Typ.	mm ²	1.5	2.5
Min.	mm ²	1.5	1.5
Max.	mm ²	2.5	2.5

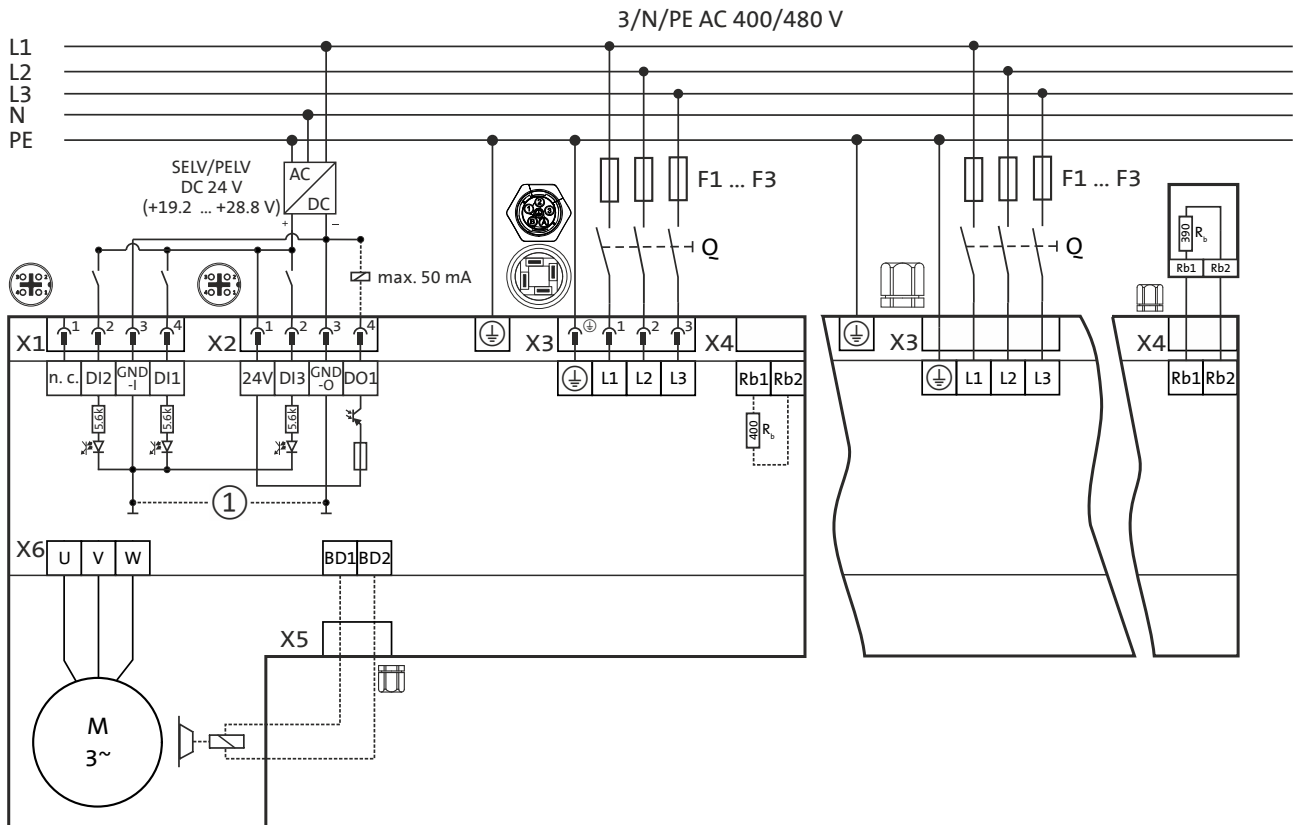
Mains connection cable L1, L2, L3, PE			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Installation method		B2	
Connection type		Cable	
Cable type		rigid/flexible	
Cable cross-section			
Typ.	mm ²	1.0	1.5
Min.	mm ²	0.75	0.75
Max.	mm ²	1.5	1.5
Stripping length	mm	10	10



Information on electrical installation

Connection according to EN

Single drive connection according to EN 60204-1



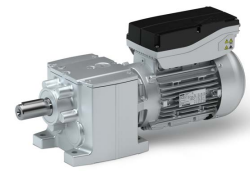
① GND is bridged if the "DI/DO-GND bridged" version is specified on the nameplate.

Fuse data (F1 ... F3)			
Motor		MSEMA□□063-42	MSEMA□□080-32
Cable installation in compliance with		EN 60204-1	
Installation method		B2	
Fuse			
Characteristics		gG/gL	
Typ. rated current	A	6	10
Max. rated current	A	16	16
Semiconductor fuse			
Characteristics		gRL	
Typ. rated current	A	6	10
Max. rated current	A	16	16
Circuit breaker			
Characteristics		C	
Typ. rated current		6	10
Max. rated current	A	16	16

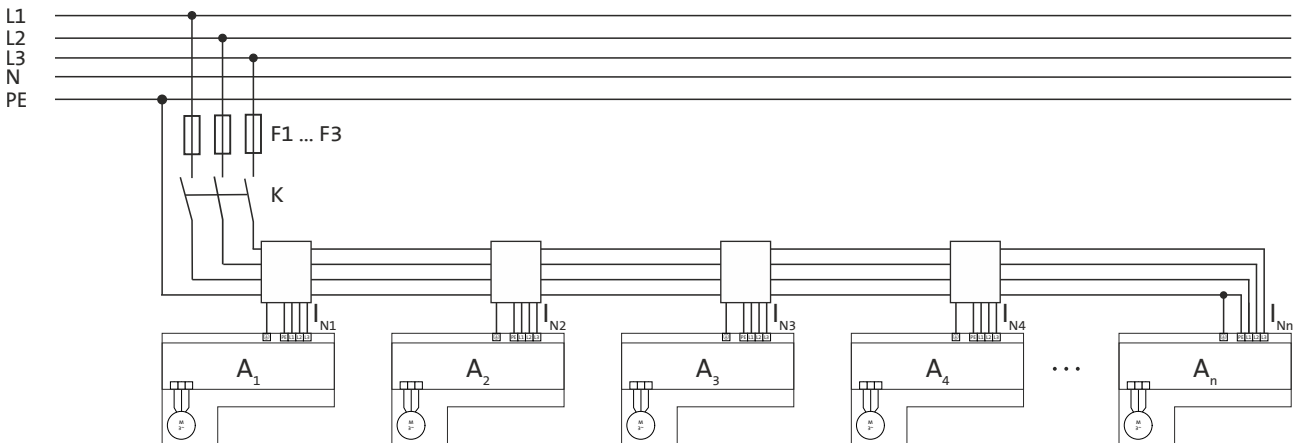
- Use of copper cables insulated with PVC
 - Conductor temperature < 70 °C, ambient temperature < 40 °C
- No bundling of cables or wires, three wires under load

Information on electrical installation

Connection according to EN



Connection for group drive according to EN 60204-1



Max. total rated mains currents at 40 °C				
Cable installation in accordance with		EN 60204-1		
Main cable				
Laying system		B2		
Cable cross-section	mm ²	1.5	2.5	4.0
Stub				
Laying system		C		
Cable cross-section	mm ²	1.5	2.5	2.5
Max. current load of cable	A	13.1	17.4	21.0
Fuse				
Characteristic		gG/gL		
Typ. rated current	A	-	-	-
Max. rated current	A	10	16	20
Circuit breaker				
Characteristic		gRL		
Typ. rated current	A	-	-	-
Max. rated current	A	10	16	20
$I_{max} \geq I_{N1} + I_{N2} + I_{N3} + I_{N...}$	A	7.6	12.2	17.6

▶ Rated data [98](#)

- Use of copper cables insulated with PVC
 - Conductor temperature ≤ 70 °C, ambient temperature ≤ 40 °C
- No bundling of cables or wires, three wires under load
- Typical utilisation: 80 % of the respective cable cross-section

Sizing of group drive

Example:

Check of the maximum permissible rated mains current considering the specified data and a simultaneity factor of 100 %.

MSEMAXX063-42	7 drives	12 drives	17 drives
Mains voltage	400 V		
Rated current per motor	1 A		
Max. rated mains current	$I_{N1} + I_{N2} + I_{N3} + I_{N...} \leq I_{max}$		
	$7 \times 1 \text{ A} = 7 \text{ A} \leq 7.6 \text{ A}$	$12 \times 1 \text{ A} = 12 \text{ A} \leq 12.2 \text{ A}$	$17 \times 1 \text{ A} = 17 \text{ A} \leq 17.6 \text{ A}$



Connection according to UL



The following data is valid for a three-phase mains connection with 480 V.

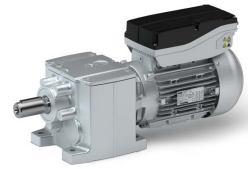
Mains connection with QUICKON connector			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Connection type		QUICKON connector	
Cable cross-section			
Typ.	AWG	16	14
Min.	AWG	16	16
Max.	AWG	14	14

Mains connection M15 connector			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Connection type		M15 connector	
Cable cross-section			
Typ.	AWG	16	14
Min.	AWG	16	16
Max.	AWG	14	14

Mains connection cable L1, L2, L3, PE			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Connection type		Cable	
Cable type		rigid/flexible	
Cable cross-section			
Typ.	AWG	18	16
Min.	AWG	18	18
Max.	AWG	16	16
Stripping length	mm	10	10

Information on electrical installation

Connection according to UL

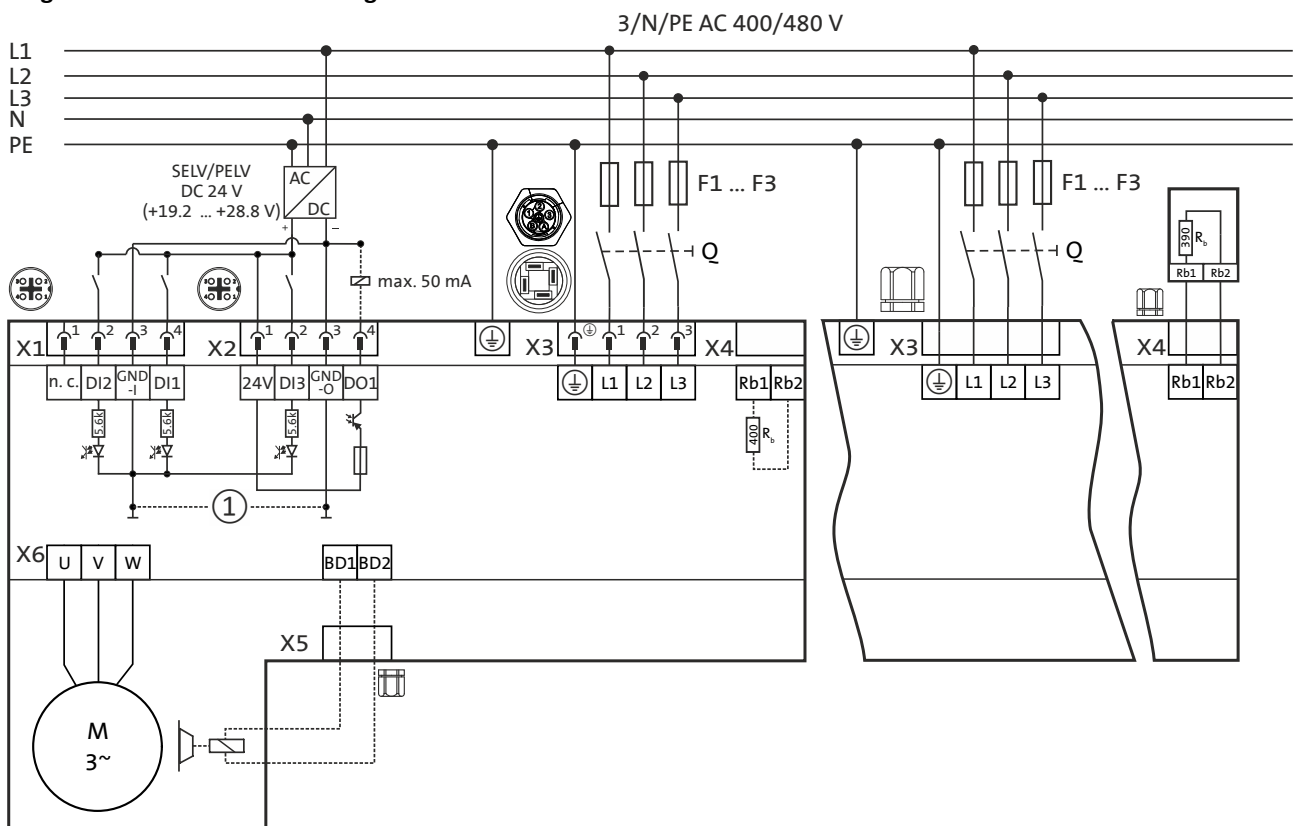


General UL notes

⚠ WARNING!

- ▶ **UL marking**
- ▶ Use 75 °C copper wire only, except for control circuits.
- ▶ Maximum conductor size is AWG14.
- ▶ Cord connected drives are for use only in NFPA 79 applications.
- ▶ Overload protection: 125 % of rated FLA
- ▶ Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- ▶ CAUTION - Risk of electric shock. Do not disconnect under load.
- ▶ **Marquage UL**
- ▶ Utiliser exclusivement des conducteurs en cuivre 75 °C, sauf pour la partie commande.
- ▶ Taille de conducteur maximale : AWG14.
- ▶ Les entraînements avec câble d'alimentation sont destinés exclusivement à des applications conformes à la norme NFPA 79.
- ▶ Protection contre les surcharges : homologuée pour 125 % du courant assigné à pleine charge.
- ▶ La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux réglementations locales applicables.
- ▶ ATTENTION ! Risque de choc électrique. Ne pas débrancher l'équipement sous charge.

Single drive connection according to UL 61800-5-1



① GND is bridged if the "DI/DO-GND bridged" version is specified on the nameplate.



Information on electrical installation

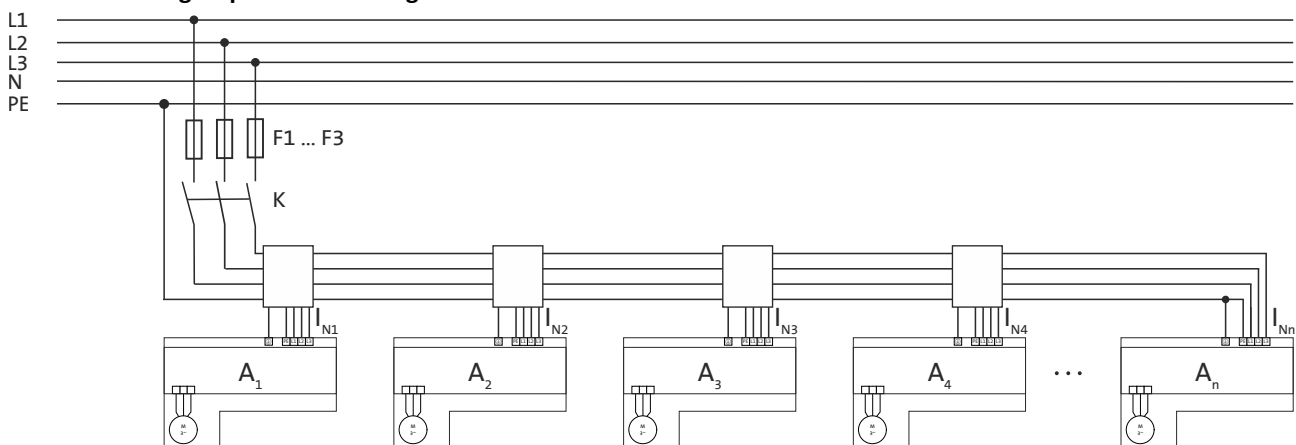
Connection according to UL

Fuse data (F1 ... F3)				
Motor		MSEMA□□063-42		MSEMA□□080-32
Cable installation in compliance with		UL 61800-5-1		
Fuse		UL 248		
Standard		UL 248		
Typ. rated current	A	3		6
Max. rated current	A	3		10
Semiconductor fuse		UL 248		
Standard		UL 248		
Typ. rated current	A	3		6
Max. rated current	A	3		10
Circuit breaker		UL 489		
Standard		UL 489		
Typ. rated current	A	15		15
Max. rated current	A	15		15

⚠ WARNING!

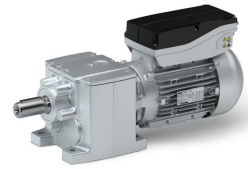
- ▶ **UL marking**
- ▶ Suitable for use on a circuit capable of delivering not more than 5k rms symmetrical amperes, 480 V maximum.
- ▶ When protected by fuses rated, see table above.
- ▶ When protected by a circuit breaker having an interrupting rating not less than 5k rms symmetrical amperes, 480 Maximum, see table above.
- ▶ **Marquage UL**
- ▶ Convient à une utilisation sur un circuit non susceptible de délivrer plus de 5k ampères symétriques eff, maximum 480 V.
- ▶ Avec une protection par des fusibles du calibre indiqué dans le tableau ci-dessous,
- ▶ Avec une protection par un disjoncteur à courant de coupure assigné d'au moins 5k ampères symétriques eff, maximum 480 V, voir tableau ci-dessous.

Connection for group drive according to UL 61800-5-1



Information on electrical installation

Connection according to UL



Max. total rated mains currents at 40 °C			
Cable installation in accordance with		UL 61800-5-1	
Main cable			
Cable cross-section	AWG	16	14
Stub			
Cable cross-section	AWG	16	14
Fuse			
Typ. rated current	A	---	---
Max. rated current	A	10	15
Circuit breaker			
Typ. rated current	A	---	---
Max. rated current	A	10	15
$I_{\max} \geq I_{N1} + I_{N2} + I_{N3} + I_{N...}$	A	8.0	12.0

▶ Rated data [98](#)

- Use of copper cables insulated with PVC
 - Conductor temperature ≤ 70 °C, ambient temperature ≤ 40 °C
- No bundling of cables or wires, three wires under load
- Typical utilisation: 80 % of the respective cable cross-section

⚠ WARNING!

▶ UL marking

- ▶ Suitable for motor group installation on a circuit capable of delivering not more than 5k rms symmetrical amperes, 480 V maximum.
- ▶ When protected by fuses rated, see table above.
- ▶ When protected by a circuit breaker having an interrupting rating not less than 5k rms symmetrical amperes, 480/277 V Maximum, see table above.

▶ Marquage UL

- ▶ Convient aux circuits de groupes moteur non susceptibles de délivrer plus de 5k ampères symétriques eff, maximum 480 V.
- ▶ Avec une protection par des fusibles du calibre indiqué dans le tableau ci-dessous,
- ▶ Avec une protection par un disjoncteur à courant de coupure assigné d'au moins 5k ampères symétriques eff, maximum 480/277 V, voir tableau ci-dessous.



Technical data

Notes regarding the given data

Catalog data

The power, torque, and speed values specified in the configuration are rounded values and apply for

- Operating time per day = 8 hrs (100 % ED)
- Duty class up to 10 switching operations per hr
- $T_U = 40\text{ }^\circ\text{C}$
- Site altitude ≤ 1000 m above 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).

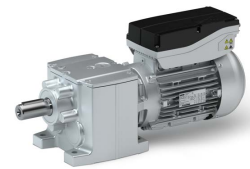
NOTICE

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

- ▶ In case of extreme operating conditions, please contact your responsible Lenze sales company.
-

Technical data

Standards and operating conditions
Protection of persons and device protection



Standards and operating conditions

Conformities/approvals

Conformity		
CE	2014/35/EU	Low-Voltage Directive
	2014/30/EU	EMC Directive (reference: CE-typical drive system)
EAC	TR TC 004/2011	Eurasian conformity: safety of low voltage equipment
	TP TC 020/2011	Eurasian conformity: electromagnetic compatibility of technical means
Approval		
CCC		GB Standard 12350-2009
cULus	UL 61800-5-1	for USA and Canada (requirements of the CSA 22.2 No. 14) Industrial Control Equipment, Lenze File No. E132659

Protection of persons and device protection

Degree of protection		
IP55	EN 60529	
Type 4 indoor only Type 12	NEMA 250	Dependent on the configuration
Insulation resistance		
Overvoltage category III	EN 61800-5-1	Site altitude 0 ... 2000 m above sea level
Overvoltage category II	EN 61800-5-1	Site altitude more than 2000 m above sea level: External measures for compliance with the overvoltage category II are required, e.g. connection of an isolating transformer upstream ,connection of an overvoltage protection system upstream
Protective insulation of control circuits		
Safe mains isolation via double/reinforced insulation for digital inputs and outputs	EN 61800-5-1	Site altitude 0 ... 2000 m above sea level
Upstream connection of overvoltage protection device	EN 61800-5-1	Site altitude more than 2000 m above sea level: Additional external separating measures are necessary for purposes of safe separation.
Protective measures against		
Short circuit	EN 61800-5-1	To a limited extent, fault acknowledgement necessary
Earth fault	EN 61800-5-1	To a limited extent, fault acknowledgement necessary
Overvoltage		Yes
Motor stalling		Yes
Overtemperature of motor		I ² xt-monitoring
Leakage current		
> 3.5 mA AC, > 10 mA DC	EN 61800-5-1	Please observe regulations and safety instructions!
Equipotential bonding		Additional M5 thread with terminal at the terminal box for connecting another PE cable (up to max. 6 mm ²)
Total fault current		
Residual current operated switch 30 mA, Type B		In TN power supply systems
Cyclic mains switching		
3 times a minute, max. 20 times per hour		Mains switching 3 times in one minute must be followed by a pause of 9 minutes.
Starting current		
5.6 A mains power-on current		



EMC data

Actuation on public supply systems		
Implement measures to limit the radio interference to be expected:		The machine or plant manufacturer is responsible for compliance with the requirements for the machine/plant!
< 1 kW: with mains choke	EN 61000-3-2	
> 1 kW at mains current ≤ 16 A: without additional measures		
Mains current > 16 A: with mains choke or mains filter, with dimensioning for rated power. R _{sce} ≥ 120 is to be met.	EN 61000-3-12	RSCE: short-circuit power ratio at the connection point of the machine/plant to the public network.
Noise emission		
Category C2	EN 61800-3	
Noise immunity		
Meets requirement in compliance with	EN 61800-3	

Environmental conditions

Climate		
1K3 (-30 °C ... +60 °C)	EN 60721-3-1	Storage, < 3 months
1K3 (-30 °C ... +40 °C)	EN 60721-3-1	Storage, > 3 months
2K3 (-30 °C ... +70 °C)	EN 60721-3-2	Transport
3K3 (-30 °C ... +40 °C) In the case of very low-temperature applications without condensation	EN 60721-3-3	operation
Site altitude		
0 ... 1000 m a.m.s.l.		Without power reduction
1000 ... 4000 m a.m.s.l.		Reduce rated output current by 5%/1000 m
Degree of pollution		
Degree of pollution 2	EN 61800-5-1	
Vibration resistance		
2M2	EN 60721-3-2	Transport
3M4	EN 60721-3-3	operation
Vibration severity		
A	EN 60034-14	

Electrical supply conditions

Possibility of connection to different types of mains power supply enables worldwide use.

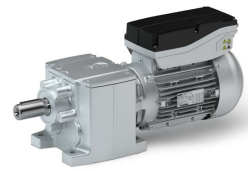
The following is supported:

- 3-phase mains connection 400 V
- 3-phase mains connection 480 V

Type of mains power supply		
TT		Mains power supplies with earthed start point Voltage against earth: max. 300 V
TN		

Technical data

Radial forces and axial forces



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 .

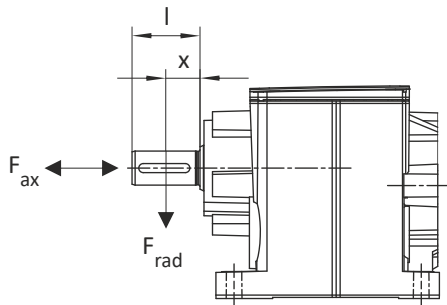
$$F_{rad, perm} = f_w \times F_{rad, max}$$

Permissible axial force

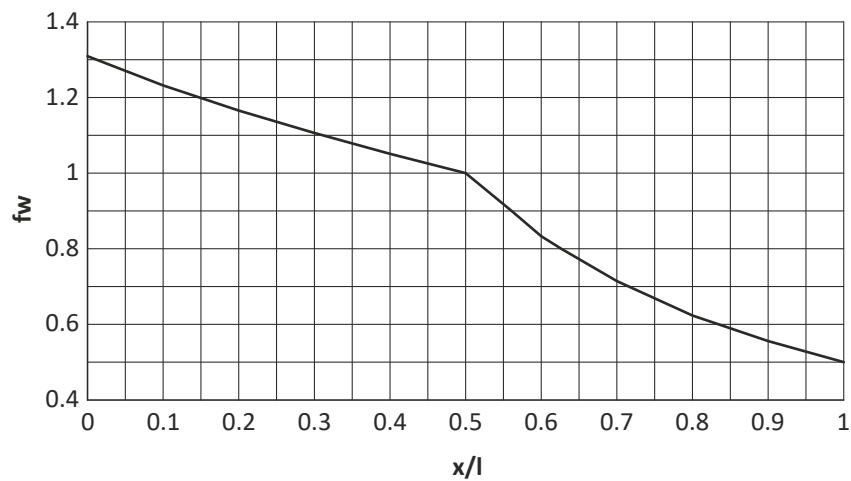
If there is no radial force, the maximum axial force is 50% of the value in the table $F_{rad, max}$

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

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 contact Lenze.

Max. radial force, gearbox with foot (VBR)

Gearbox	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	≤ 16
	Max. radial force $F_{rad,max}$ [N]									
g500-H45	300	400	600	700	800	900	1100	1400	1500	1500
g500-H100	800	1000	1200	1500	1800	2100	2600	2700	2700	2700
g500-H140	1000	1440	1800	2200	2500	3000	3300	3700	4100	4200
g500-H210	1100	1600	2000	2400	2800	3,400	3900	3900	4400	4800
g500-H320	1500	1,900	2200	2600	3000	3500	4100	4800	5600	5700
g500-H450	1,900	2200	2500	3000	3500	4100	4700	5500	6600	7100
g500-H600	3000	3800	4700	5400	6090	6920	7850	8500	8500	8500
g500-H850	3600	4600	5600	6500	7500	8500	9500	10700	11000	11000
g500-H1500	5000	6600	8000	9200	10400	12000	13700	15600	17000	17000
g500-H3000	5500	7100	8700	10000	11500	13500	15600	18000	20000	20000

Reinforced bearings

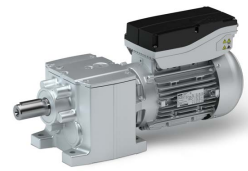
Gearbox	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	≤ 16
	Max. radial force $F_{rad,max}$ [N]									
g500-H100	1000	1200	1500	1800	2200	2700	3200	3300	3300	3300
g500-H140	1300	1800	2300	2700	3100	3700	4100	4600	5100	5300
g500-H210	1400	2000	2500	3000	3500	4200	4900	4900	5500	6000
g500-H320	1,900	2400	2800	3300	3800	4400	5100	6000	7000	7100
g500-H450	2400	2700	3200	3800	4300	5100	5900	6900	8300	8900
g500-H600	4900	6300	7700	8900	9700	10400	10900	11300	11700	12000
g500-H850	6300	8200	10000	11500	12600	13500	14200	14800	15200	15600
g500-H1500	7100	9300	11300	13000	17000	18200	19100	19800	20500	21000
g500-H3000	8200	10700	13000	15000	21000	22100	23200	24000	25000	25000

Max. radial force, gearbox with/without foot with threaded pitch circle/flange (VAR/VCR/VAK/VCK)

Gearbox	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	≤ 16
	Max. radial force $F_{rad,max}$ [N]									
g500-H45	300	400	600	700	800	900	1100	1400	1500	1500
g500-H100	800	1000	1200	1500	1700	1700	1700	1700	1700	1700
g500-H140	1000	1400	1800	2200	2500	2600	2600	2600	2600	2600
g500-H210	1200	1600	2000	2400	2800	3000	3000	3000	3000	3000
g500-H320	1500	1,900	2200	2600	3000	3500	3600	3600	3600	3600
g500-H450	1,900	2200	2600	3000	3500	4100	4400	4400	4400	4400
g500-H600	3000	3800	4700	5400	6000	6000	6000	6000	6000	6000
g500-H850	3300	4300	5300	6050	6950	7800	7800	7800	7800	7800
g500-H1500	5000	6500	8000	9200	10400	10500	10500	10500	10500	10500
g500-H3000	5500	7100	8700	10000	11500	12500	12500	12500	12500	12500

Technical data

Radial forces and axial forces



Reinforced bearings

Gearbox	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	≤ 16
	Max. radial force $F_{rad,max}$ [N]									
g500-H100	1000	1200	1500	1700	1700	1700	1700	1700	1700	1700
g500-H140	1300	1800	2300	2600	2600	2600	2600	2600	2600	2600
g500-H210	1400	2000	2500	3000	3000	3000	3000	3000	3000	3000
g500-H320	1,900	2400	2800	3300	3600	3600	3600	3600	3600	3600
g500-H450	2400	2700	3200	3800	4300	4400	4400	4400	4400	4400
g500-H600	3300	4300	5200	6000	6000	6000	6000	6000	6000	6000
g500-H850	4300	5600	6800	7800	7800	7800	7800	7800	7800	7800
g500-H1500	5700	7500	9100	10500	10500	10500	10500	10500	10500	10500
g500-H3000	6800	8900	10900	12500	12500	12500	12500	12500	12500	12500

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

Gearbox	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	≤ 16
	Max. radial force $F_{rad,max}$ [N]									
g500-H100	1,900	2400	2900	3330	3650	3890	4060	4160	4240	4280
g500-H140	3000	3500	4000	5510	5950	6270	6480	6620	6710	6770
g500-H210	3,400	4000	5000	6170	6670	7060	7330	7500	7620	7700
g500-H320	3900	4500	6000	7040	7690	8210	8570	8810	8970	9080
g500-H450	4300	5200	6400	7810	8550	9160	9590	9880	10100	10200



Selection tables

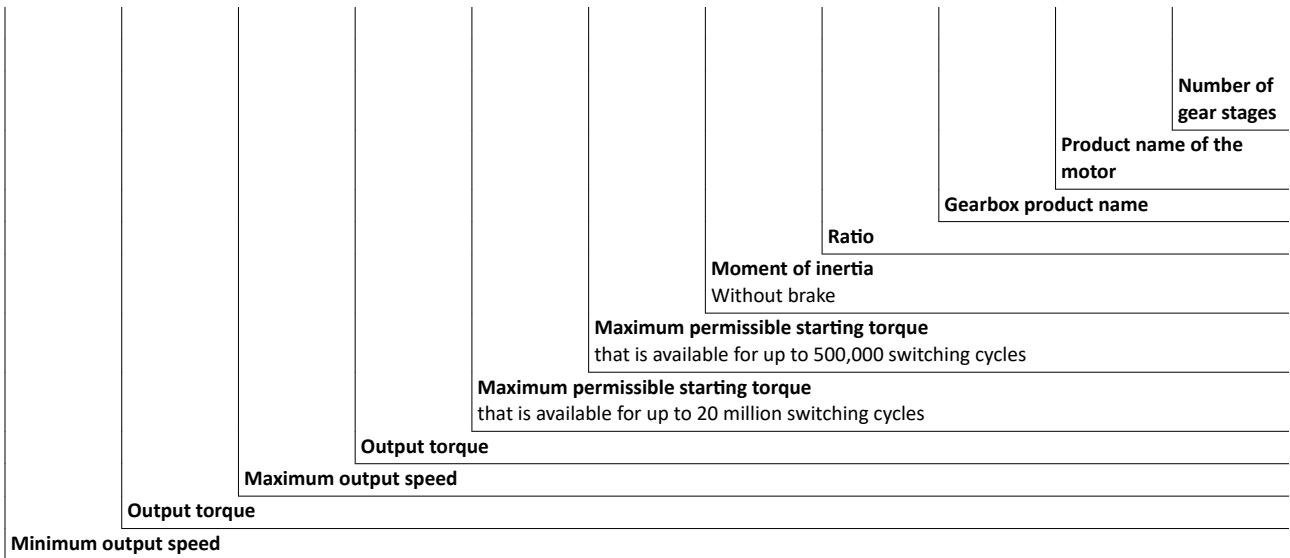
Notes on the selection tables

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

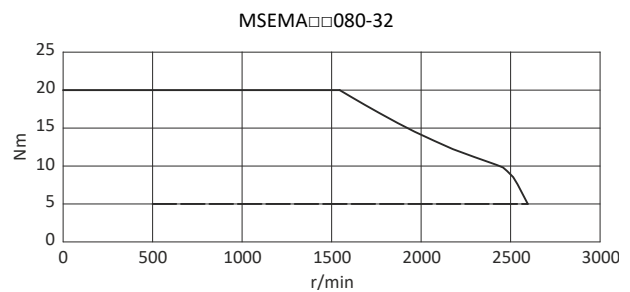
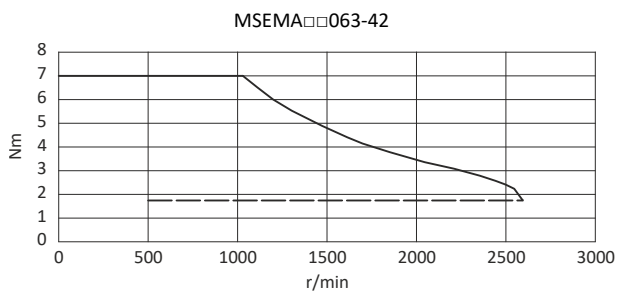
The following legend shows the layout of the selection tables:

Example	Explanation
$M_{max} = 7.0 \text{ Nm}$	Max. torque of the drive motor

Mains operation						Geared motor				Number of stages
Min. output speed		Max. output speed		Starting torque		J	i	g500-	MSEMA□□	
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,1}$					kgcm ²
Nm	rpm		Nm	rpm						
193	4.0	1001	4.0	18	18	4.0	2.597	H45	063-42	2
153	6.0	796	6.0	22	22	4.6	3.267	H140	063-42	2
149	6.0	775	6.0	23	23	4.2	3.354	H100	063-42	2
147	6.0	762	6.0	19	23	3.9	3.413	H45	063-42	2



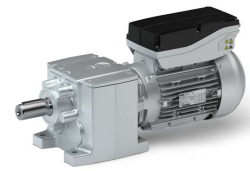
Torque characteristic at the motor



- Output torque
- Starting torque

Technical data

Selection tables



$M_{Max.} = 7 \text{ Nm}$

Mains operation						Geared motor				Number of stages
Min. output speed		Max. output speed		Starting torque		J	i	g500-	MSEMA□□	
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$	kgcm ²				
rpm	Nm	rpm	Nm	Nm	Nm					
193	4.0	1001	4.0	18	18	4.0	2.597	H45	063-42	2
153	6.0	796	6.0	22	22	4.6	3.267	H140	063-42	2
149	6.0	775	6.0	23	23	4.2	3.354	H100	063-42	2
147	6.0	762	6.0	19	23	3.9	3.413	H45	063-42	2
115	7.0	595	7.0	21	26	3.8	4.368	H45	063-42	2
112	8.0	580	8.0	30	30	4.2	4.480	H140	063-42	2
109	8.0	565	8.0	31	31	4.0	4.600	H100	063-42	2
97	9.0	503	9.0	35	35	4.1	5.167	H100	063-42	2
94	9.0	489	9.0	27	34	3.9	5.312	H45	063-42	2
87	10	453	10	39	39	4.1	5.733	H140	063-42	2
85	10	442	10	40	40	3.9	5.887	H100	063-42	2
84	10	436	10	29	36	3.9	5.965	H45	063-42	2
80	11	415	11	43	43	4.0	6.272	H140	063-42	2
78	11	404	11	44	44	3.9	6.440	H100	063-42	2
72	12	372	12	30	38	3.8	6.982	H45	063-42	2
71	12	367	12	48	48	4.0	7.086	H100	063-42	2
69	12	358	12	49	49	4.2	7.269	H140	063-42	2
64	13	332	13	32	40	3.8	7.840	H45	063-42	2
63	14	325	14	54	54	3.9	8.000	H140	063-42	2
61	14	317	14	56	56	3.8	8.214	H100	063-42	2
56	15	291	15	33	41	3.8	8.935	H45	063-42	2
55	15	288	15	61	61	4.0	9.029	H140	063-42	2
55	15	287	15	62	62	3.9	9.068	H100	063-42	2
51	17	265	17	67	67	3.9	9.800	H140	063-42	2
50	17	259	17	35	44	3.8	10.033	H45	063-42	2
50	17	258	17	68	68	3.8	10.063	H100	063-42	2
47	18	243	18	73	73	4.2	10.720	H210	063-42	2
44	19	229	19	77	77	3.9	11.360	H100	063-42	2
44	19	228	19	35	44	3.8	11.429	H45	063-42	2
43	20	225	20	78	79	3.9	11.554	H140	063-42	2
43	20	223	20	79	79	4.3	11.680	H320	063-42	2
42	20	217	20	81	82	4.2	12.000	H210	063-42	2
40	21	206	21	86	86	3.9	12.640	H140	063-42	2
40	21	205	21	86	86	3.8	12.653	H100	063-42	2
39	22	203	22	38	48	3.8	12.833	H45	063-42	2
38	23	196	23	90	90	4.3	13.268	H320	063-42	2
37	23	190	23	93	93	4.1	13.673	H210	063-42	2
36	24	186	24	95	95	3.9	13.957	H140	063-42	2
35	25	179	25	98	98	3.8	14.490	H100	063-42	2
34	25	175	25	39	49	3.7	14.836	H45	063-42	2
34	25	175	25	101	101	4.1	14.898	H320	063-42	2
33	26	170	26	104	104	4.1	15.306	H210	063-42	2
32	26	168	26	100	105	3.8	15.500	H100	063-42	2
31	27	161	27	109	110	3.9	16.122	H140	063-42	2
30	28	156	28	41	51	3.7	16.660	H45	063-42	2
30	29	154	29	115	115	4.1	16.923	H320	063-42	2
28	30	146	30	100	121	3.8	17.750	H100	063-42	2
28	30	146	30	121	121	3.8	17.802	H140	063-42	2
26	32	137	32	42	53	3.7	19.013	H45	063-42	2
26	33	133	33	100	125	3.8	19.486	H100	063-42	2



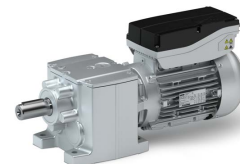
Technical data

Selection tables

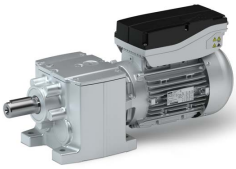
Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque						
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$	J	i	g500-	MSEMA <input type="checkbox"/> <input type="checkbox"/>	
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
25	34	132	34	134	134	3.8	19.750	H140	063-42	2
24	36	122	36	44	55	3.7	21.350	H45	063-42	2
23	37	119	37	140	148	3.8	21.808	H140	063-42	2
23	37	119	37	148	148	3.9	21.802	H210	063-42	2
23	38	117	38	100	125	3.8	22.314	H100	063-42	2
21	40	109	40	161	161	3.9	23.754	H320	063-42	2
21	41	107	41	166	166	3.9	24.405	H210	063-42	2
20	42	106	42	45	50	3.7	24.595	H45	063-42	2
20	42	105	42	140	169	3.8	24.829	H140	063-42	2
20	43	104	43	100	110	3.7	25.095	H100	063-42	2
19	46	96	46	183	183	3.9	26.983	H320	063-42	2
19	46	96	46	167	184	3.8	27.119	H210	063-42	2
18	47	95	47	140	175	3.8	27.415	H140	063-42	2
18	47	94	47	45	50	3.7	27.618	H45	063-42	2
17	49	90	49	100	110	3.7	28.738	H100	063-42	2
17	50	88	50	182	201	3.9	29.548	H320	063-42	2
17	52	86	52	187	206	3.8	30.357	H210	063-42	2
16	54	82	54	100	110	3.7	31.805	H100	063-42	2
16	54	81	54	140	154	3.8	31.976	H140	063-42	2
15	57	77	57	207	228	3.8	33.564	H320	063-42	2
14	60	74	60	194	213	3.8	35.095	H210	063-42	2
14	60	74	60	140	154	3.8	35.308	H140	063-42	2
14	61	73	61	220	242	3.9	35.689	H450	063-42	2
14	62	71	62	100	110	3.7	36.422	H100	063-42	2
13	65	68	65	211	233	3.8	38.238	H320	063-42	2
13	67	66	67	210	231	3.8	39.286	H210	063-42	2
13	68	65	68	81	89	3.7	39.857	H100	063-42	2
12	68	64	68	249	274	3.9	40.333	H450	063-42	2
12	69	64	69	140	154	3.7	40.526	H140	063-42	2
12	69	64	69	250	275	4.0	40.578	H600	063-42	2
12	72	61	72	183	201	3.8	42.593	H210	063-42	2
12	74	60	74	234	257	3.9	43.313	H450	063-42	2
12	73	60	73	210	263	3.8	43.390	H210	063-42	3
12	74	60	74	240	264	3.8	43.436	H320	063-42	2
12	73	60	73	292	292	4.4	43.676	H600	063-42	3
11	74	59	74	295	295	4.1	44.124	H450	063-42	3
11	76	58	76	140	154	3.7	44.748	H140	063-42	2
11	77	57	77	281	309	4.0	45.571	H600	063-42	2
11	77	57	77	93	102	3.7	45.643	H100	063-42	2
11	79	56	79	217	239	3.8	46.407	H320	063-42	2
11	79	55	79	316	316	3.8	47.276	H320	063-42	3
11	81	55	81	206	227	3.8	47.679	H210	063-42	2
10	81	54	81	210	263	3.8	48.571	H210	063-42	3
10	83	53	83	264	291	3.9	48.950	H450	063-42	2
10	82	53	82	328	328	4.4	49.051	H600	063-42	3
10	84	53	84	266	292	3.9	49.247	H600	063-42	2
10	83	52	83	334	334	4.1	49.867	H450	063-42	3
9.9	86	51	86	103	114	3.7	50.786	H140	063-42	2
9.5	90	49	90	246	271	3.8	52.715	H320	063-42	2
9.4	90	48	90	320	359	3.8	53.703	H320	063-42	3
9.2	92	48	92	125	138	3.7	54.438	H210	063-42	2

Technical data

Selection tables



Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque						
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$	J	i	g500-	MSEMA□□	
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
9.2	93	47	93	239	263	3.8	54.750	H450	063-42	2
9.1	94	47	94	298	328	3.9	55.307	H600	063-42	2
9.1	93	47	93	210	263	3.8	55.529	H210	063-42	3
9.0	93	47	93	373	373	4.2	55.710	H600	063-42	3
9.0	95	46	95	114	125	3.7	56.077	H140	063-42	2
8.9	94	46	94	378	378	4.0	56.469	H450	063-42	3
8.3	101	43	101	320	400	3.8	60.502	H320	063-42	3
8.3	103	43	103	140	155	3.7	60.938	H210	063-42	2
8.1	103	42	103	413	413	3.9	61.774	H450	063-42	3
8.1	105	42	105	270	297	3.8	61.875	H450	063-42	2
8.1	104	42	104	210	263	3.8	62.160	H210	063-42	3
8.1	106	42	106	272	299	3.8	62.250	H600	063-42	2
8.0	105	42	105	419	419	4.2	62.566	H600	063-42	3
7.3	115	38	115	320	400	3.8	68.726	H320	063-42	3
7.2	117	37	117	450	467	3.9	69.813	H450	063-42	3
7.2	119	37	119	305	336	3.8	69.911	H600	063-42	2
7.1	119	37	119	210	263	3.8	71.026	H210	063-42	3
6.5	129	34	129	320	400	3.8	77.387	H320	063-42	3
6.4	132	33	132	450	527	3.9	78.794	H450	063-42	3
6.3	133	33	133	210	263	3.8	79.507	H210	063-42	3
5.7	147	30	147	320	400	3.8	87.906	H320	063-42	3
5.7	149	29	149	594	594	3.9	88.826	H600	063-42	3
5.7	149	29	149	450	563	3.9	89.048	H450	063-42	3
5.5	154	28	154	210	263	3.7	92.205	H210	063-42	3
5.2	161	27	161	450	563	3.8	96.522	H450	063-42	3
5.1	167	26	167	600	667	3.9	99.757	H600	063-42	3
5.0	168	26	168	320	400	3.7	100.462	H320	063-42	3
4.9	173	25	173	210	263	3.7	103.214	H210	063-42	3
4.6	182	24	182	450	563	3.8	109.083	H450	063-42	3
4.6	185	24	185	600	660	3.9	110.491	H600	063-42	3
4.4	191	23	191	320	400	3.7	114.118	H320	063-42	3
4.3	198	22	198	210	263	3.7	118.162	H210	063-42	3
4.2	203	21	203	450	563	3.8	121.342	H450	063-42	3
4.1	208	21	208	600	660	3.9	124.088	H600	063-42	3
3.9	215	20	215	320	400	3.7	128.743	H320	063-42	3
3.8	221	20	221	210	263	3.7	132.270	H210	063-42	3
3.7	226	19	226	823	905	4.0	135.373	H850	063-42	3
3.7	229	19	229	450	563	3.8	137.133	H450	063-42	3
3.5	239	18	239	600	660	3.8	142.988	H600	063-42	3
3.5	245	18	245	320	400	3.7	146.244	H320	063-42	3
3.4	253	17	253	850	935	4.0	151.262	H850	063-42	3
3.3	256	17	256	210	231	3.7	152.853	H210	063-42	3
3.2	261	17	261	450	495	3.8	156.274	H450	063-42	3
3.2	269	16	269	600	660	3.8	160.585	H600	063-42	3
3.1	275	16	275	850	935	3.9	164.294	H850	063-42	3
3.1	279	16	279	320	352	3.7	166.541	H320	063-42	3
2.9	290	15	290	600	660	3.8	173.536	H600	063-42	3
2.9	295	15	295	450	495	3.8	176.611	H450	063-42	3
2.8	307	14	307	850	935	3.9	183.577	H850	063-42	3
2.7	316	14	316	320	352	3.7	189.179	H320	063-42	3
2.6	326	13	326	600	660	3.8	194.892	H600	063-42	3



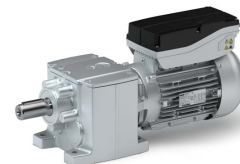
Technical data

Selection tables

Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque						
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$	J	i	g500-	MSEMA□□	
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
2.6	331	13	331	450	495	3.7	198.059	H450	063-42	3
2.5	347	13	347	850	935	3.8	207.675	H850	063-42	3
2.4	362	12	362	315	347	3.7	216.683	H320	063-42	3
2.3	371	12	371	504	554	3.7	221.794	H600	063-42	3
2.3	374	12	374	450	495	3.7	223.833	H450	063-42	3
2.2	388	11	388	850	935	3.8	232.050	H850	063-42	3
2.1	415	10	415	450	495	3.7	248.200	H450	063-42	3
2.1	417	10	417	566	622	3.7	249.089	H600	063-42	3
1.8	469	9.2	469	450	495	3.7	280.500	H450	063-42	3

Technical data

Selection tables



$M_{Max.} = 20 \text{ Nm}$

Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque		J	i	g500-	MSEMA□□	
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$					
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
153	16	796	16	63	63	27	3.267	H140	080-32	2
149	16	775	16	62	65	27	3.354	H100	080-32	2
148	16	767	16	66	66	28	3.389	H210	080-32	2
148	16	767	16	66	66	27	3.389	H320	080-32	2
112	22	580	22	87	87	27	4.480	H140	080-32	2
109	22	565	22	72	89	26	4.600	H100	080-32	2
97	25	503	25	75	94	26	5.167	H100	080-32	2
90	27	466	27	108	108	27	5.583	H210	080-32	2
87	28	453	28	103	111	26	5.733	H140	080-32	2
85	29	442	29	81	101	26	5.887	H100	080-32	2
82	30	427	30	118	118	28	6.083	H320	080-32	2
80	30	416	30	121	121	27	6.250	H210	080-32	2
80	30	415	30	105	122	26	6.272	H140	080-32	2
78	31	404	31	83	104	26	6.440	H100	080-32	2
72	34	376	34	134	134	28	6.910	H320	080-32	2
71	34	367	34	86	108	26	7.086	H100	080-32	2
69	35	358	35	106	133	27	7.269	H140	080-32	2
63	39	325	39	117	146	26	8.000	H140	080-32	2
61	40	317	40	92	115	26	8.214	H100	080-32	2
55	44	288	44	117	146	26	9.029	H140	080-32	2
55	44	287	44	96	120	26	9.068	H100	080-32	2
51	48	265	48	125	156	26	9.800	H140	080-32	2
51	48	265	48	182	190	27	9.799	H210	080-32	2
50	49	258	49	99	124	26	10.063	H100	080-32	2
47	52	244	52	207	207	27	10.677	H320	080-32	2
47	52	243	52	189	208	27	10.720	H210	080-32	2
44	55	229	55	100	125	26	11.360	H100	080-32	2
43	56	225	56	128	160	26	11.554	H140	080-32	2
43	57	223	57	227	227	27	11.680	H320	080-32	2
42	58	217	58	186	233	26	12.000	H210	080-32	2
41	59	214	59	235	235	27	12.128	H320	080-32	2
40	61	206	61	132	165	26	12.640	H140	080-32	2
40	61	205	61	100	125	26	12.653	H100	080-32	2
38	64	196	64	257	258	27	13.268	H320	080-32	2
37	66	190	66	201	251	26	13.673	H210	080-32	2
36	67	187	67	270	270	27	13.905	H450	080-32	2
36	68	186	68	136	170	26	13.957	H140	080-32	2
35	70	179	70	100	125	26	14.490	H100	080-32	2
34	72	175	72	283	289	26	14.898	H320	080-32	2
33	74	170	74	200	250	26	15.306	H210	080-32	2
32	75	168	75	100	125	26	15.500	H100	080-32	2
32	76	165	76	305	305	27	15.714	H450	080-32	2
32	77	164	77	307	307	27	15.810	H600	080-32	2
31	78	161	78	140	175	26	16.122	H140	080-32	2
30	81	155	81	210	263	26	16.750	H210	080-32	2
30	82	154	82	281	328	26	16.923	H320	080-32	2
28	86	146	86	100	125	26	17.750	H100	080-32	2
28	86	146	86	345	345	27	17.755	H600	080-32	2
28	86	146	86	140	175	26	17.802	H140	080-32	2
27	89	142	89	310	354	26	18.250	H320	080-32	2



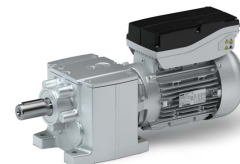
Technical data

Selection tables

Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque						
n_{21}	M_2	n_2	M_2	$M_{a,1}$	$M_{a,2}$	J	i	g500-	MSEMA□□	
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
27	91	139	91	210	263	26	18.750	H210	080-32	2
26	95	133	95	100	125	26	19.486	H100	080-32	2
25	96	132	96	140	175	26	19.750	H140	080-32	2
24	101	125	101	299	374	26	20.731	H320	080-32	2
23	106	119	106	140	175	26	21.808	H140	080-32	2
23	106	119	106	210	263	26	21.802	H210	080-32	2
23	108	117	108	376	430	27	22.170	H450	080-32	2
21	115	109	115	320	400	26	23.754	H320	080-32	2
21	118	107	118	210	263	26	24.405	H210	080-32	2
20	120	105	120	140	175	26	24.829	H140	080-32	2
20	122	104	122	425	486	27	25.056	H450	080-32	2
20	122	103	122	428	489	27	25.207	H600	080-32	2
19	131	96	131	320	400	26	26.983	H320	080-32	2
19	132	96	132	210	231	26	27.119	H210	080-32	2
18	133	95	133	140	175	26	27.415	H140	080-32	2
18	134	94	134	394	434	26	27.578	H450	080-32	2
18	137	92	137	480	549	27	28.310	H600	080-32	2
17	143	88	143	320	352	26	29.548	H320	080-32	2
17	147	86	147	210	231	26	30.357	H210	080-32	2
16	151	83	151	446	490	26	31.167	H450	080-32	2
16	152	83	152	448	493	26	31.356	H600	080-32	2
16	155	81	155	140	154	26	31.976	H140	080-32	2
15	163	77	163	320	352	26	33.564	H320	080-32	2
14	170	74	170	210	231	26	35.095	H210	080-32	2
14	171	74	171	504	554	26	35.214	H600	080-32	2
14	173	73	173	450	495	26	35.689	H450	080-32	2
14	180	70	180	532	585	27	37.190	H850	080-32	2
13	185	68	185	251	276	26	38.238	H320	080-32	2
13	191	66	191	210	231	26	39.286	H210	080-32	2
13	191	65	191	600	750	27	39.925	H600	080-32	3
12	196	64	196	450	495	26	40.333	H450	080-32	2
12	197	64	197	528	581	26	40.578	H600	080-32	2
12	202	63	202	594	654	27	41.556	H850	080-32	2
12	207	61	207	183	201	26	42.593	H210	080-32	2
12	210	60	210	322	354	26	43.313	H450	080-32	2
12	207	60	207	210	263	26	43.390	H210	080-32	3
12	211	60	211	285	313	26	43.436	H320	080-32	2
12	209	60	209	600	750	27	43.676	H600	080-32	3
11	211	59	211	450	563	26	44.124	H450	080-32	3
11	219	58	219	566	623	27	45.136	H850	080-32	2
11	221	57	221	593	653	26	45.571	H600	080-32	2
11	225	56	225	218	240	26	46.407	H320	080-32	2
11	226	55	226	320	400	26	47.276	H320	080-32	3
11	231	55	231	206	227	26	47.679	H210	080-32	2
10	232	54	232	210	263	26	48.571	H210	080-32	3
10	237	53	237	366	402	26	48.950	H450	080-32	2
10	234	53	234	600	750	27	49.051	H600	080-32	3
10	239	53	239	456	502	26	49.247	H600	080-32	2
10	238	52	238	450	563	26	49.867	H450	080-32	3
10	245	52	245	633	696	27	50.433	H850	080-32	2
9.5	256	49	256	248	272	26	52.715	H320	080-32	2

Technical data

Selection tables



Mains operation								Geared motor		Number of stages
Min. output speed		Max. output speed		Starting torque		J	i	g500-	MSEMA□□	
n ₂₁	M ₂	n ₂	M ₂	M _{a,1}	M _{a,2}					
rpm	Nm	rpm	Nm	Nm	Nm	kgcm ²				
9.5	252	49	252	850	1008	27	52.743	H850	080-32	3
9.4	257	48	257	320	400	26	53.703	H320	080-32	3
9.2	266	47	266	273	300	26	54.750	H450	080-32	2
9.1	268	47	268	513	564	26	55.307	H600	080-32	2
9.0	266	47	266	600	750	26	55.710	H600	080-32	3
8.9	270	46	270	450	563	26	56.469	H450	080-32	3
8.5	282	44	282	850	1063	27	58.933	H850	080-32	3
8.3	289	43	289	320	400	26	60.502	H320	080-32	3
8.1	295	42	295	450	563	26	61.774	H450	080-32	3
8.1	300	42	300	307	338	26	61.875	H450	080-32	2
8.1	302	42	302	371	408	26	62.250	H600	080-32	2
8.0	299	42	299	600	750	26	62.566	H600	080-32	3
7.4	326	38	326	600	750	26	68.244	H600	080-32	3
7.3	328	38	328	320	400	26	68.726	H320	080-32	3
7.2	334	37	334	450	563	26	69.813	H450	080-32	3
7.2	339	37	339	418	459	26	69.911	H600	080-32	2
6.6	366	34	366	600	750	26	76.643	H600	080-32	3
6.5	370	34	370	320	400	26	77.387	H320	080-32	3
6.4	377	33	377	450	563	26	78.794	H450	080-32	3
6.0	402	31	402	850	1063	27	84.096	H850	080-32	3
5.7	424	29	424	600	750	26	88.826	H600	080-32	3
5.7	426	29	426	450	563	26	89.048	H450	080-32	3
5.4	449	28	449	850	1063	27	93.966	H850	080-32	3
5.2	461	27	461	450	563	26	96.522	H450	080-32	3
5.1	477	26	477	600	750	26	99.757	H600	080-32	3
4.8	500	25	500	850	935	26	104.607	H850	080-32	3
4.6	521	24	521	450	563	26	109.083	H450	080-32	3
4.6	528	24	528	600	660	26	110.491	H600	080-32	3
4.3	559	22	559	850	935	26	116.884	H850	080-32	3
4.1	593	21	593	600	660	26	124.088	H600	080-32	3
3.7	647	19	647	850	935	26	135.373	H850	080-32	3
3.5	683	18	683	600	660	26	142.988	H600	080-32	3
3.4	723	17	723	850	935	26	151.262	H850	080-32	3
3.1	785	16	785	850	935	26	164.294	H850	080-32	3
2.8	874	14	874	1500	1650	27	182.844	H1500	080-32	3
2.8	877	14	877	850	935	26	183.577	H850	080-32	3
2.5	966	13	966	1500	1650	27	202.237	H1500	080-32	3
2.5	992	13	992	850	935	26	207.675	H850	080-32	3
2.3	1060	12	1060	1500	1650	27	221.907	H1500	080-32	3
2.1	1173	11	1173	1500	1650	27	245.442	H1500	080-32	3
1.8	1340	9.2	1340	1500	1650	26	280.500	H1500	080-32	3
1.7	1482	8.3	1482	1500	1650	26	310.250	H1500	080-32	3



Technical data

Dimensions
Basic dimensions

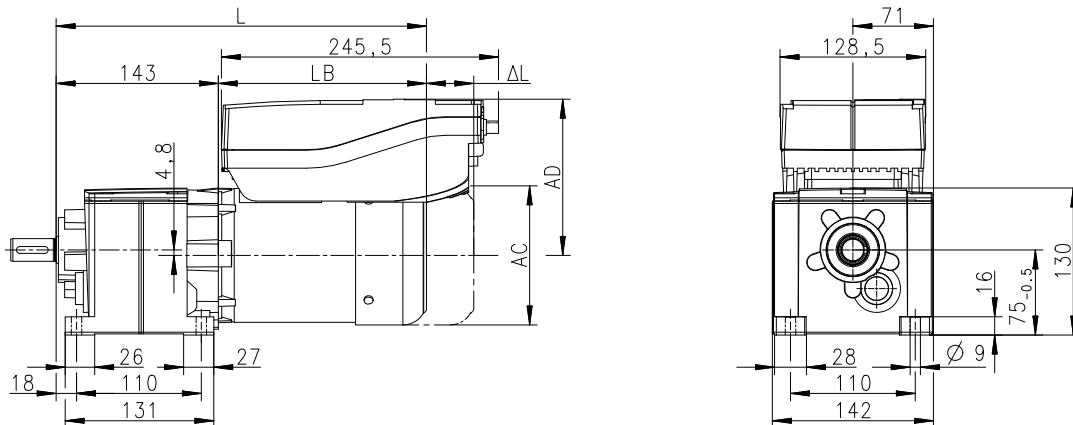
Dimensions

Basic dimensions

Notes on the basic dimensions

The following legend shows the layout of the dimension sheets:

Example	Explanation
g500-H100	Gearboxes
Gearbox design: solid shaft, with foot (VBR)	Gearbox version 15



Motor	MSEMA 	
	063-42	080-32

Table content		Explanation
Total length	L	Total length of the drive without brake
Motor length	LB	Length of the motor without brake
Length of motor options	Δ L	Additional length (with brake)
Motor diameter	AC	Motor diameter
Motor/connection distance	AD	Distance from motor center to connector end

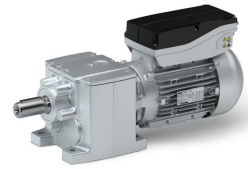


If the mounting area (foot support) towards the motor is longer than the gearbox foot, some motors collide with the mounting area!

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

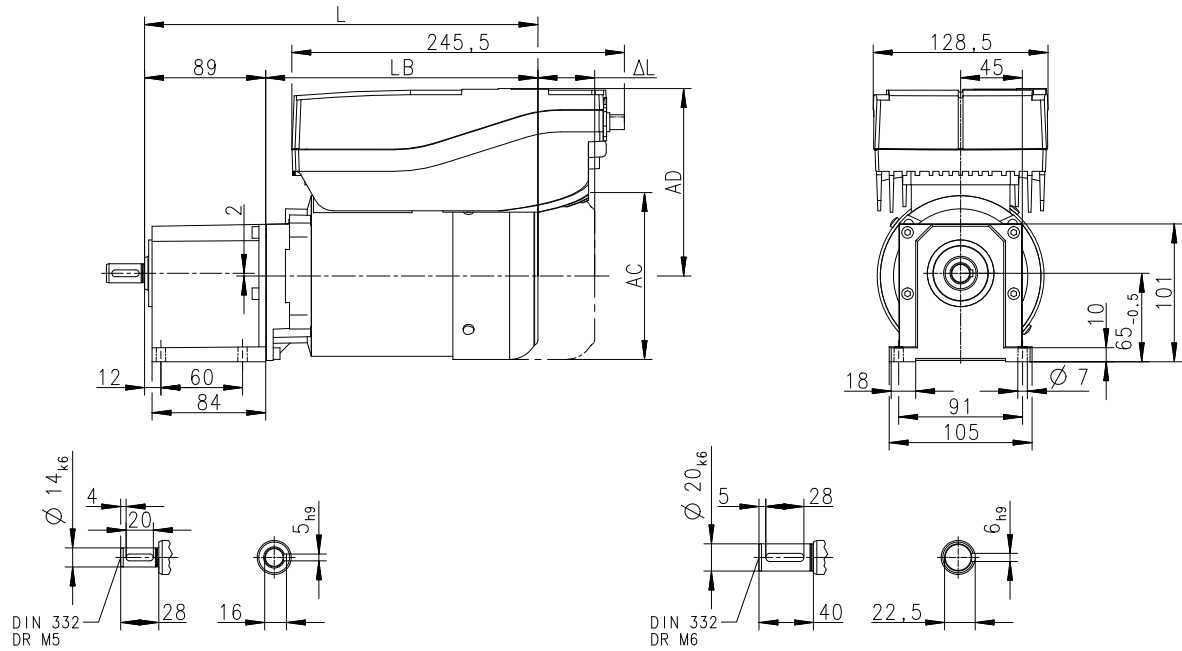
Technical data

Dimensions
Basic dimensions



g500-H45

Gearbox design: solid shaft and foot (VBR)



8800188-00

Motor			MSEMA□□
			063-42
Total length	L	mm	289
Motor length	LB	mm	200
Length of motor options	Δ L	mm	40
Motor diameter	AC	mm	123
Motor/connection distance	AD	mm	141

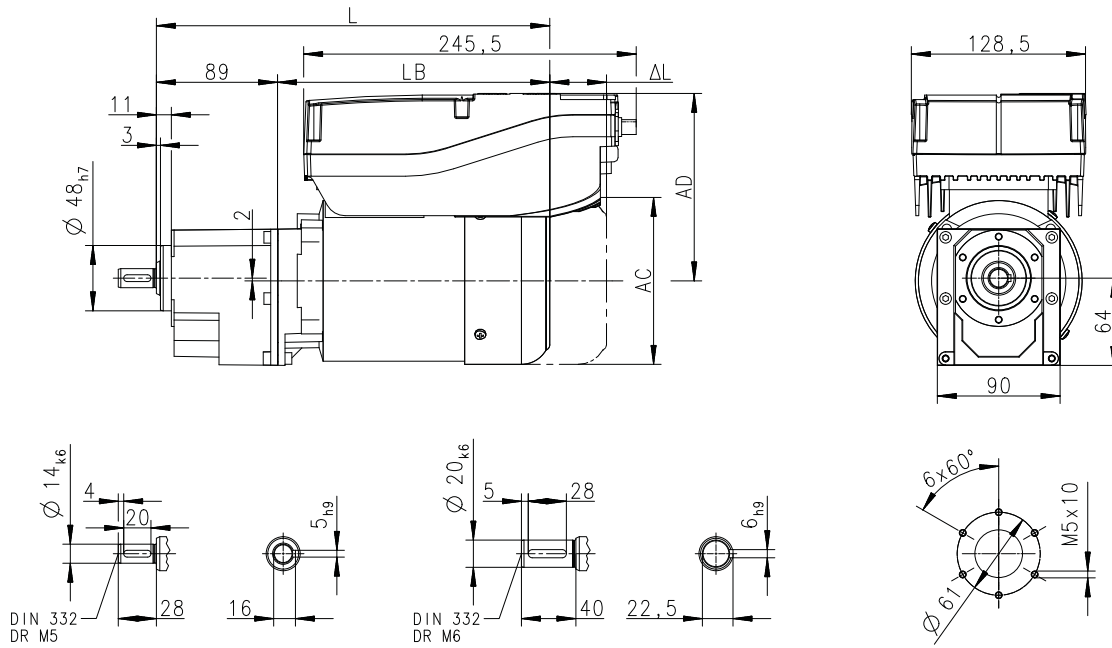


Technical data

Dimensions
Basic dimensions

g500-H45

Gearbox design: solid shaft and foot/centring (VCR)



8800190-01

Motor			MSEMA□□
			063-42
Total length	L	mm	289
Motor length	LB	mm	200
Length of motor options	Δ L	mm	40
Motor diameter	AC	mm	123
Motor/connection distance	AD	mm	141

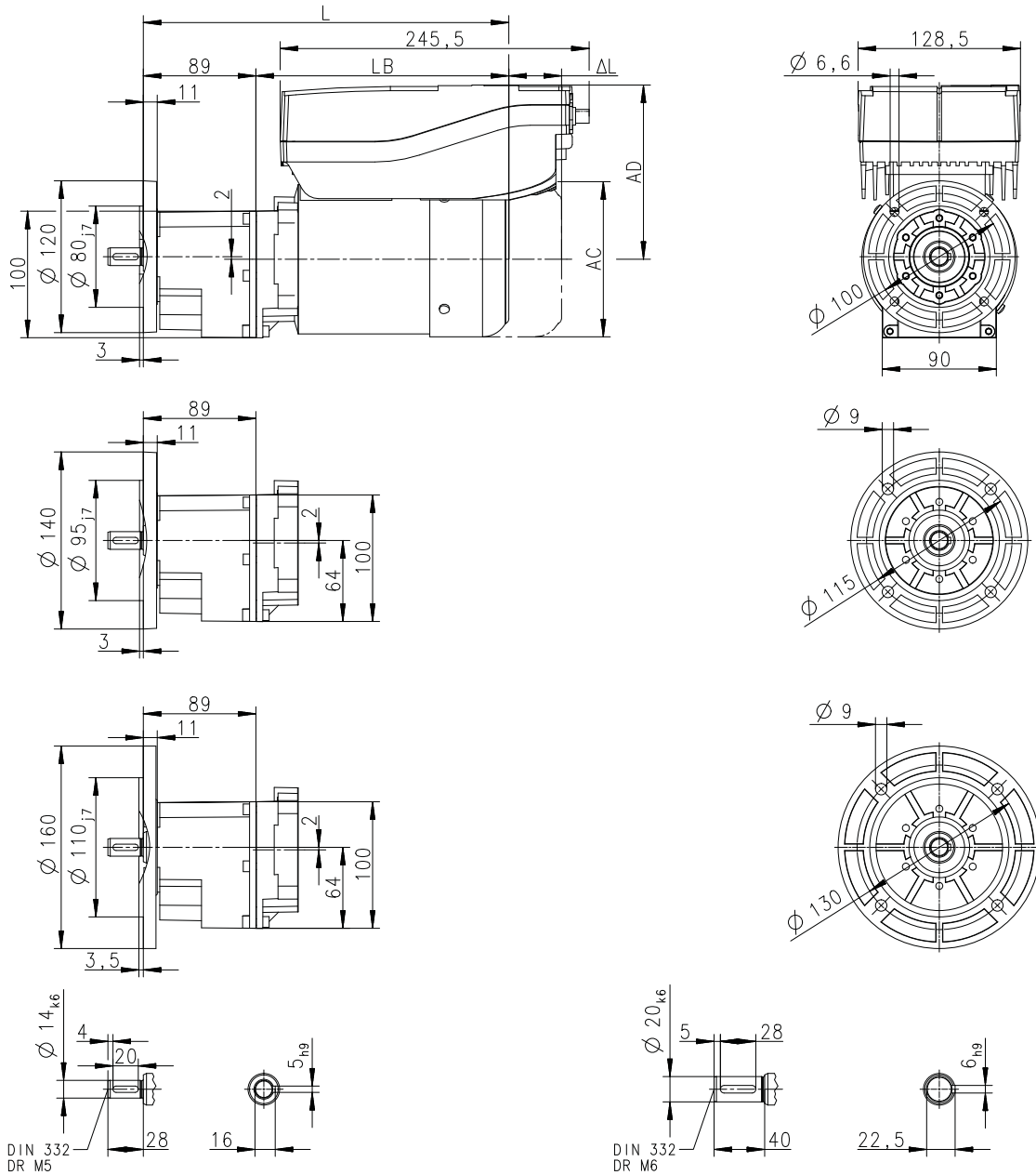
Technical data

Dimensions
Basic dimensions

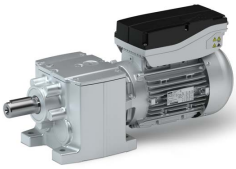


g500-H45

Gearbox design: solid shaft and foot/flange (VCK)



Motor			MSEMA□□
			063-42
Total length	L	mm	289
Motor length	LB	mm	200
Length of motor options	Δ L	mm	40
Motor diameter	AC	mm	123
Motor/connection distance	AD	mm	141

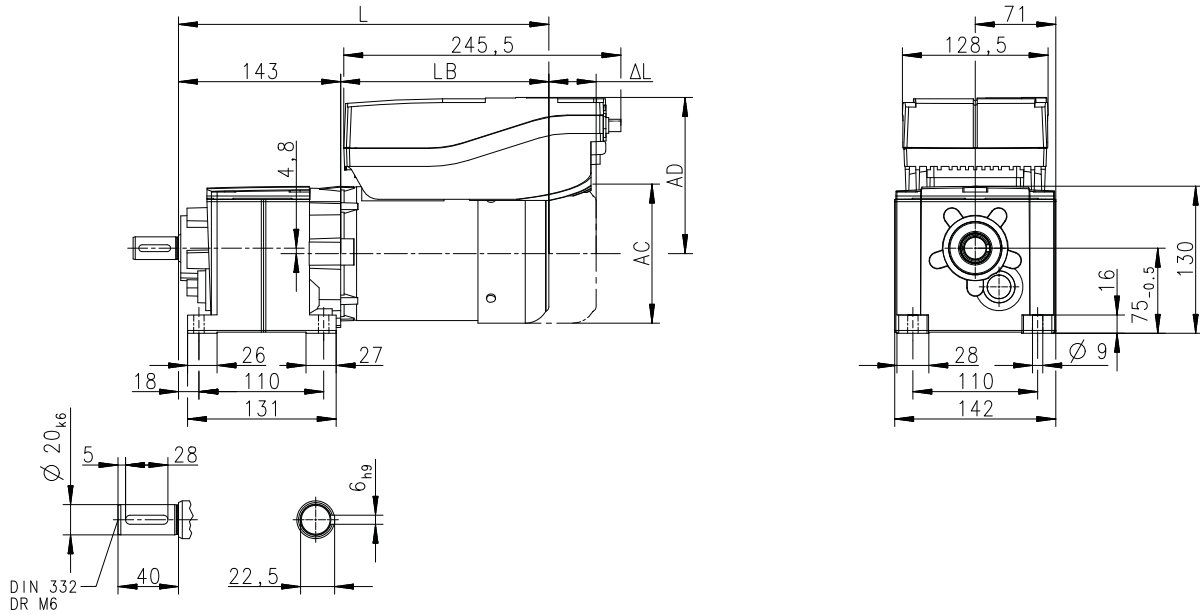


Technical data

Dimensions
Basic dimensions

g500-H100

Gearbox design: solid shaft and foot (VBR)



8800191-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	326	369
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

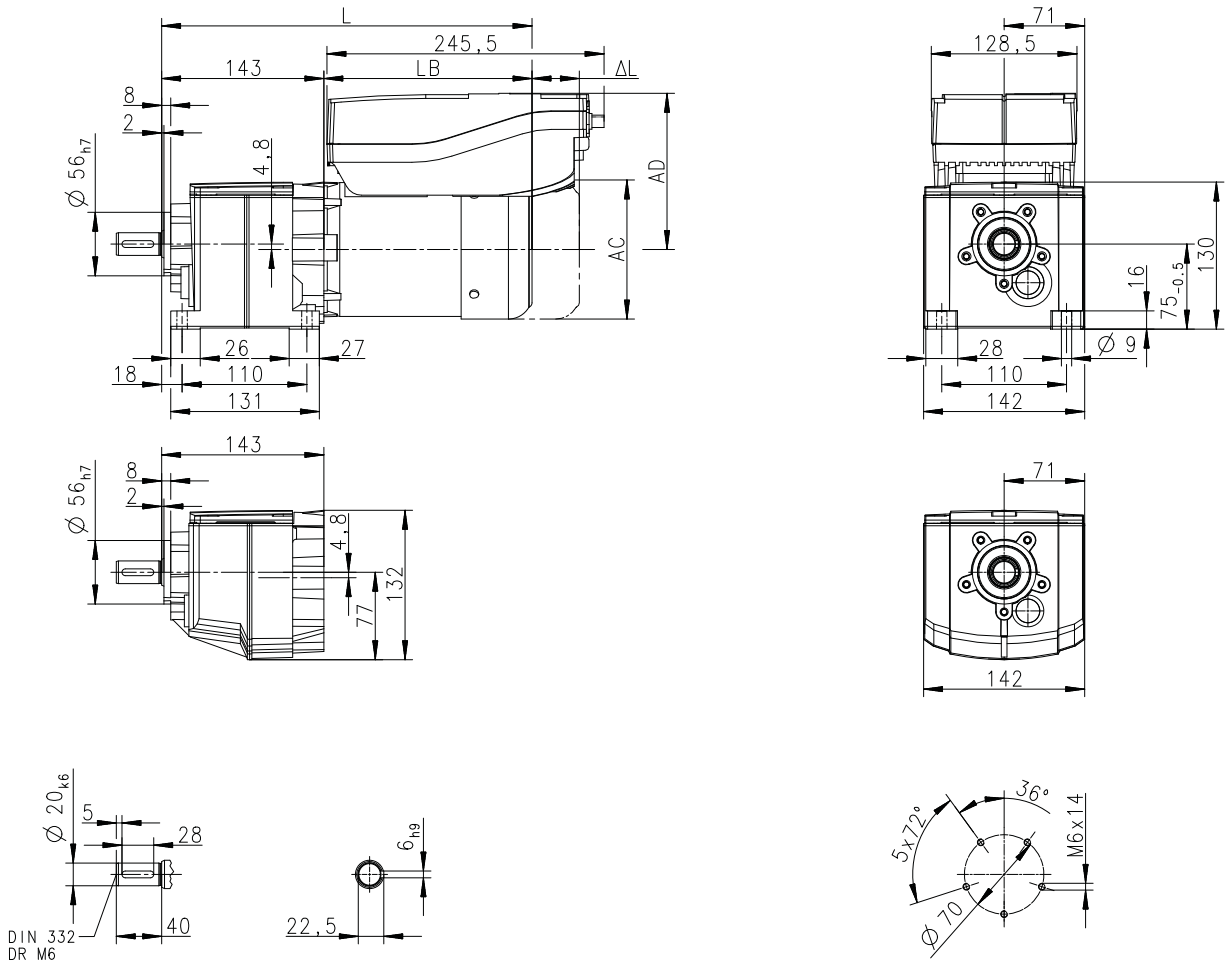
Technical data

Dimensions
Basic dimensions



g500-H100

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800193-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	326	369
Motor length	LB	mm	183	226
Length of motor options	ΔL	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

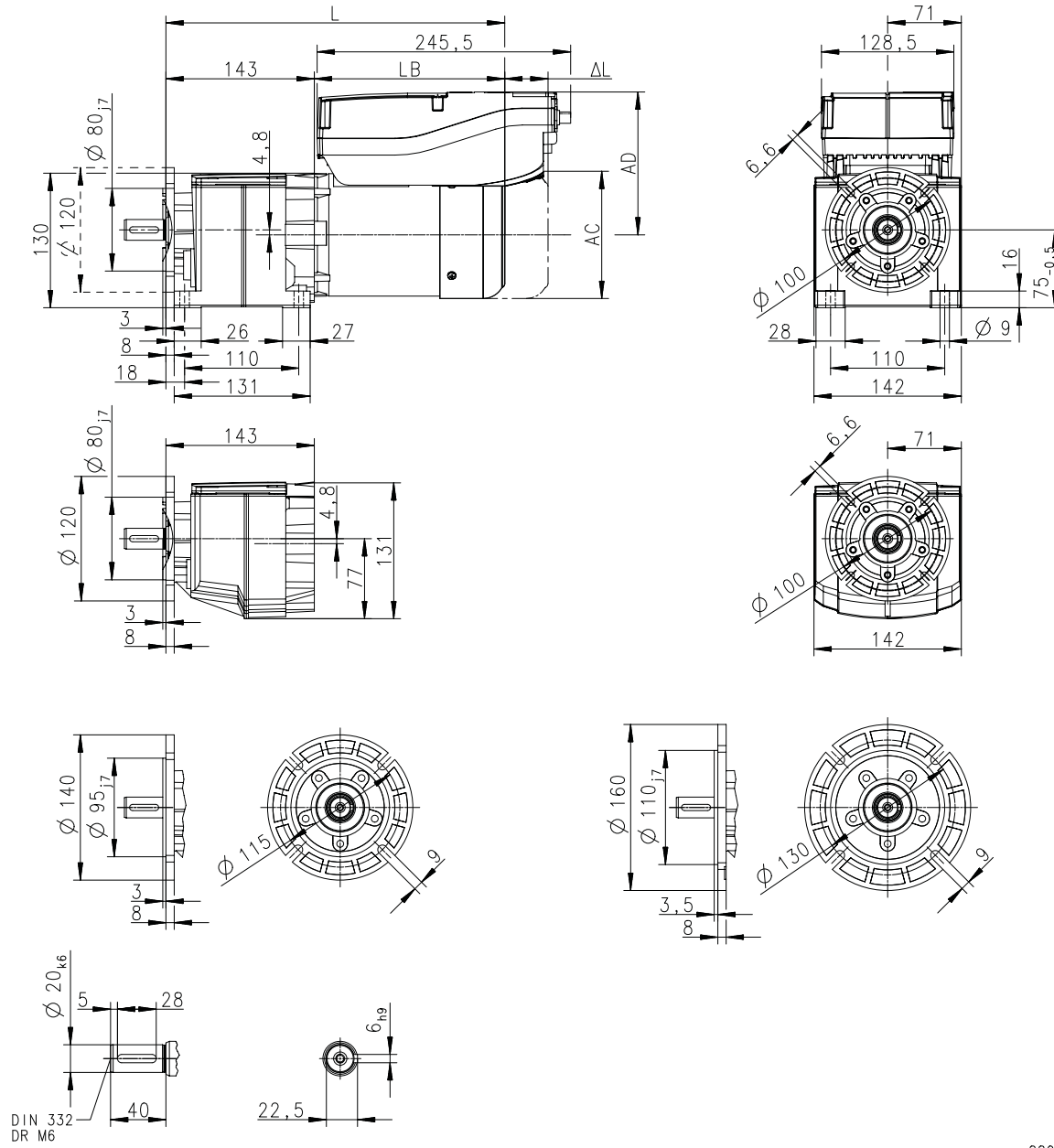


Technical data

Dimensions
Basic dimensions

g500-H100

Gearbox design: solid shaft and foot/flange (VAK/VCK)

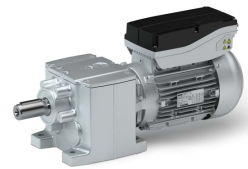


8800192-02

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	326	369
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

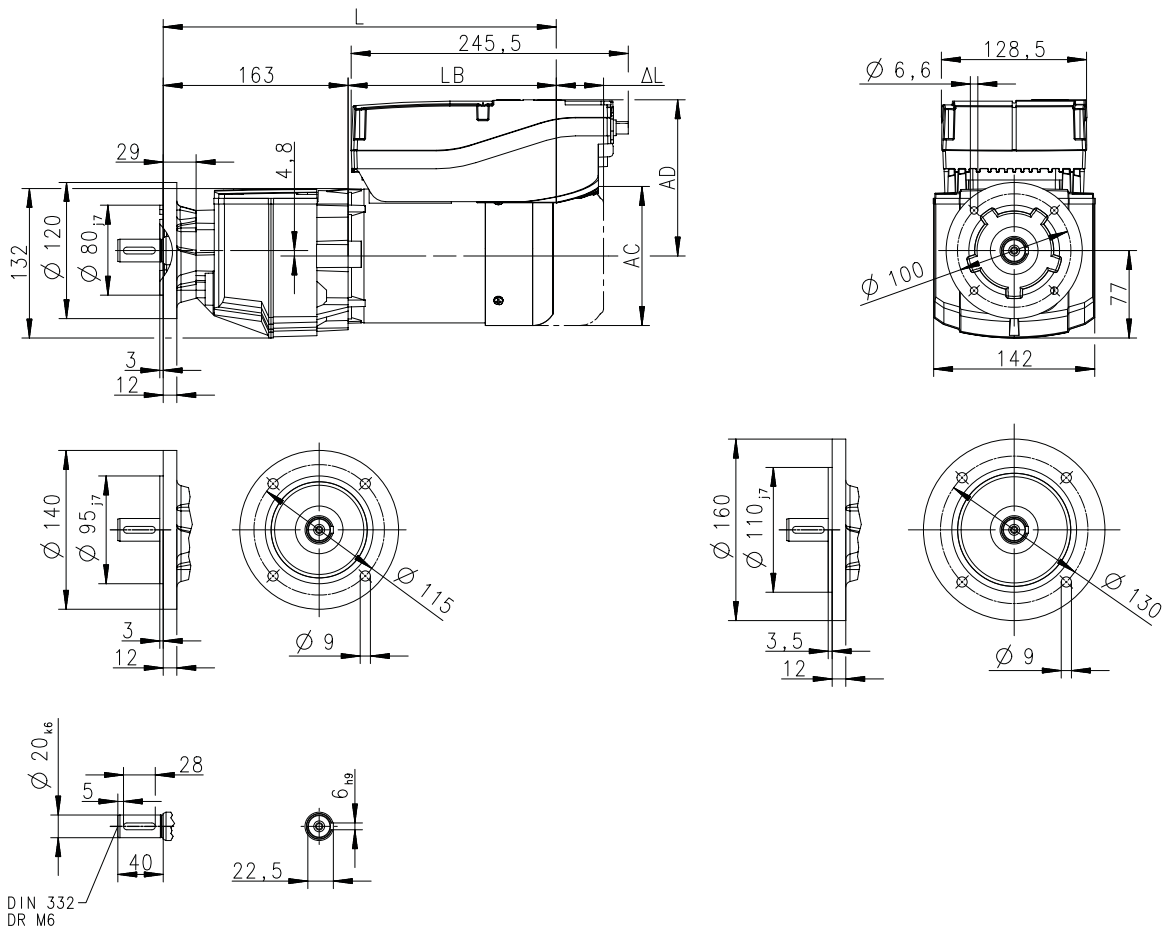
Technical data

Dimensions
Basic dimensions



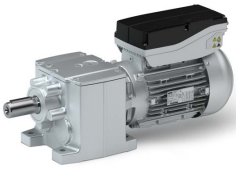
g500-H100

Gearbox design: solid shaft and flange (VCP)



8800327-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	346	389
Motor length	LB	mm	183	226
Length of motor options	ΔL	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

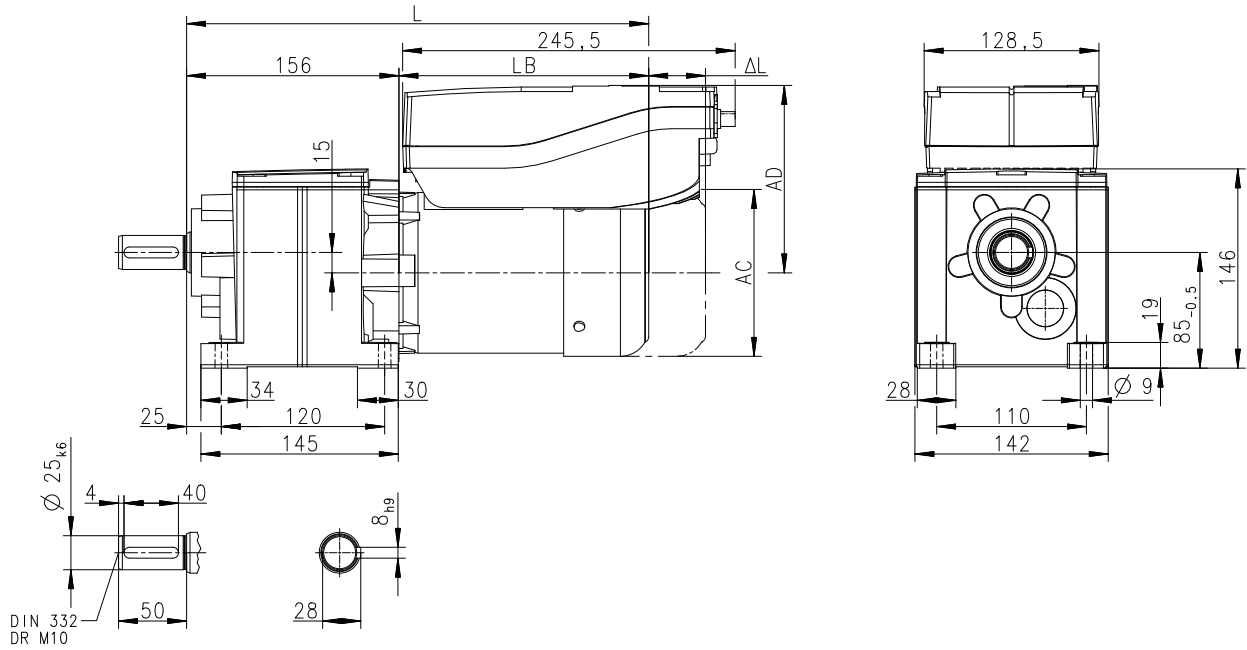


Technical data

Dimensions
Basic dimensions

g500-H140

Gearbox design: solid shaft and foot (VBR)

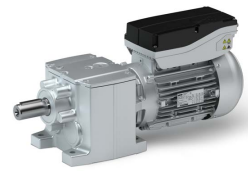


8800194-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	339	382
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

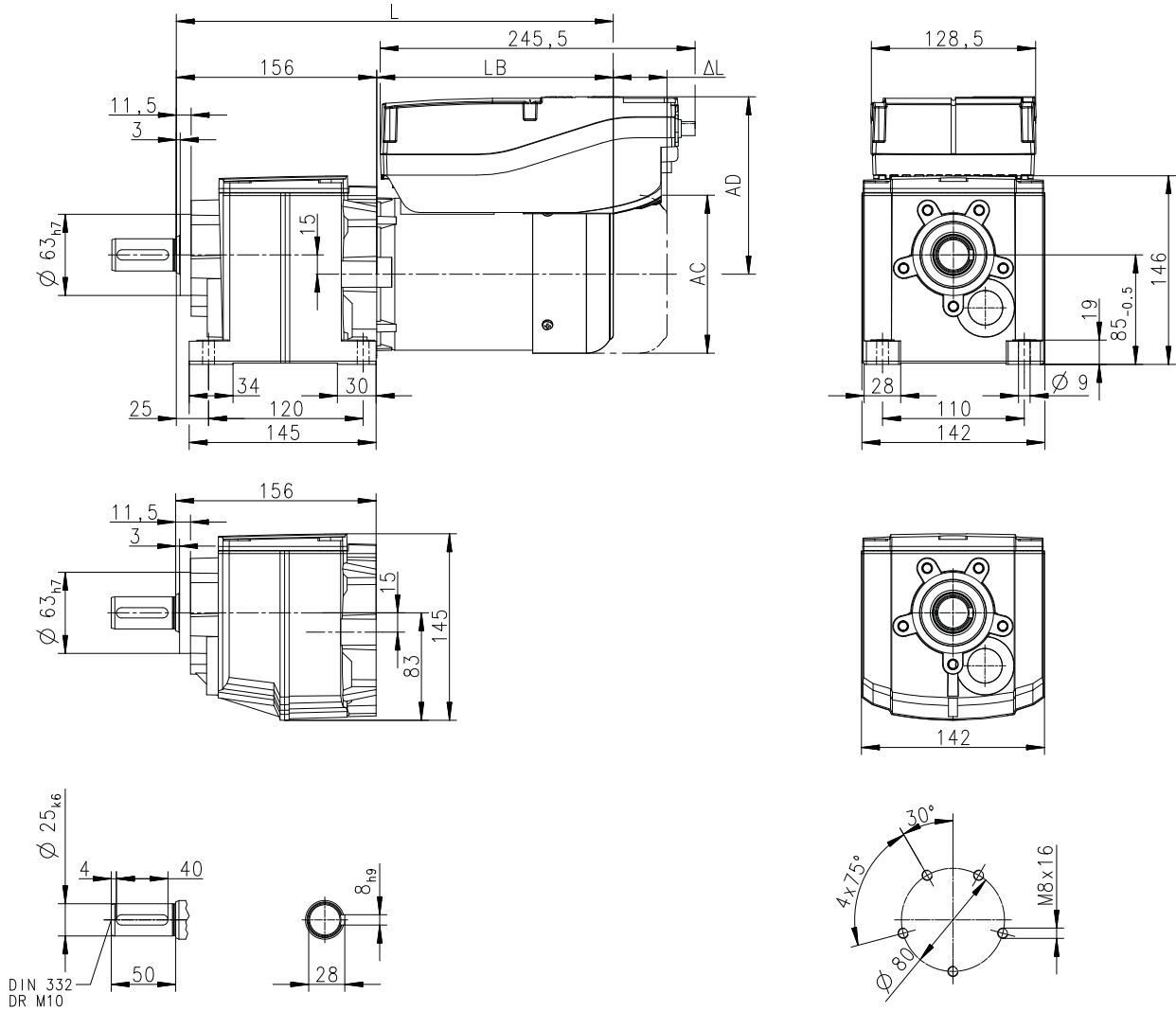
Technical data

Dimensions
Basic dimensions



g500-H140

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800196-01

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	339	382
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

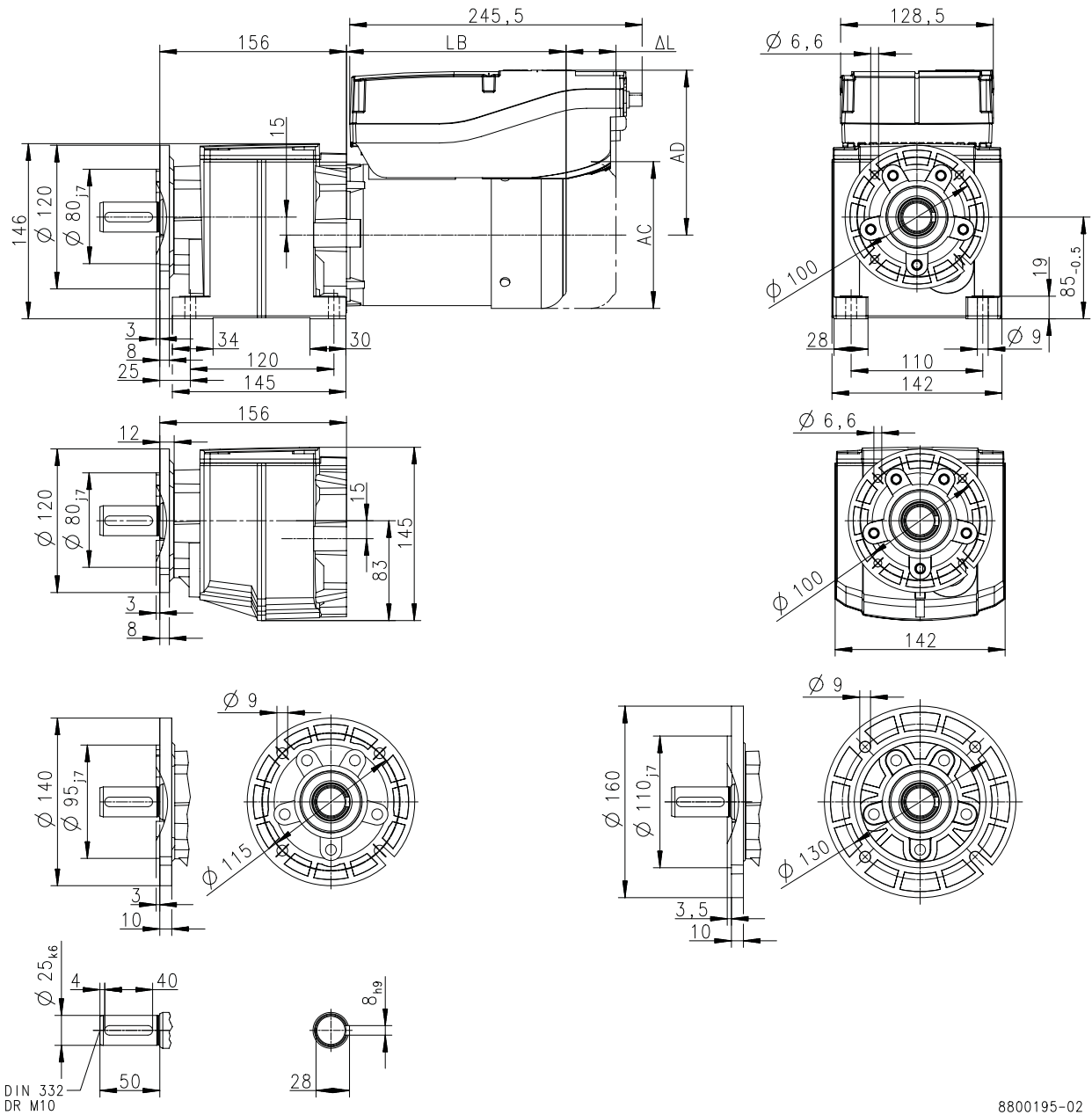


Technical data

Dimensions
Basic dimensions

g500-H140

Gearbox design: solid shaft and foot/flange (VAK/VCK)

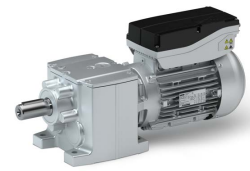


8800195-02

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	339	382
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

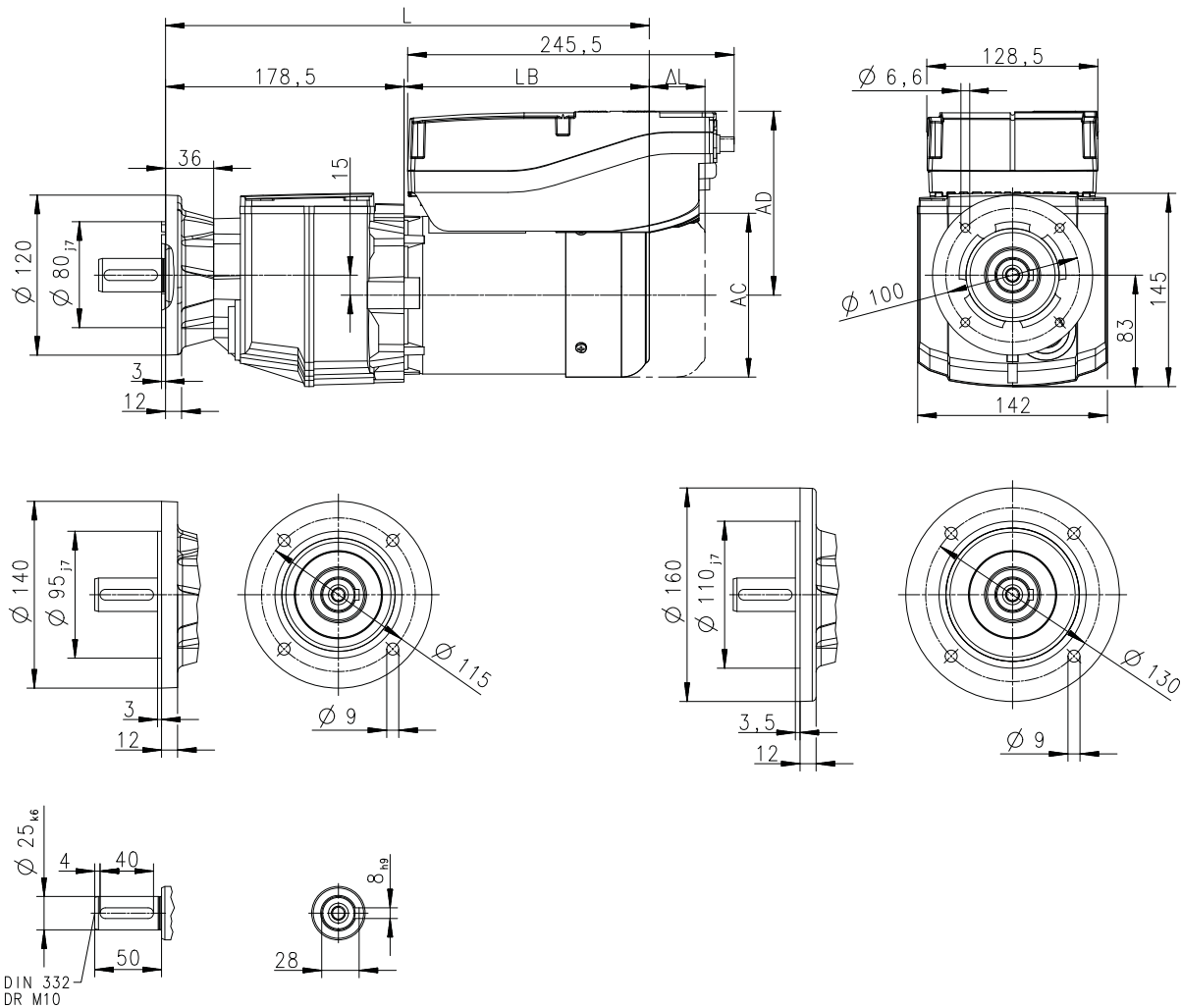
Technical data

Dimensions
Basic dimensions



g500-H140

Gearbox design: solid shaft and flange (VCP)



8800328-01

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	362	404
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

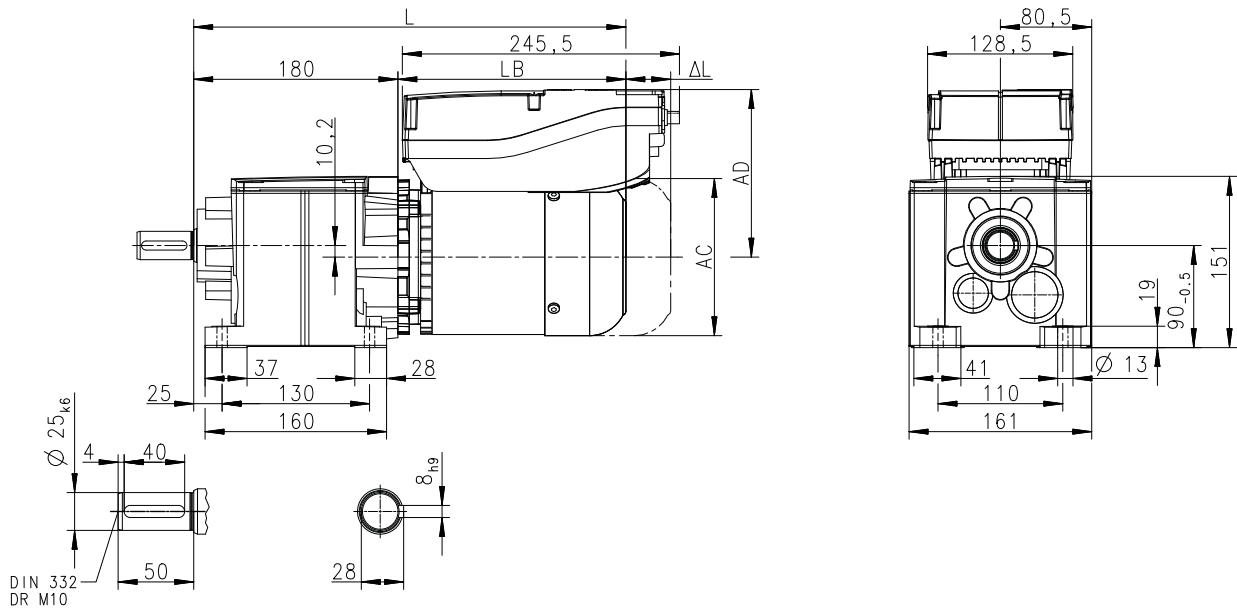


Technical data

Dimensions
Basic dimensions

g500-H210

Gearbox design: solid shaft and foot (VBR)

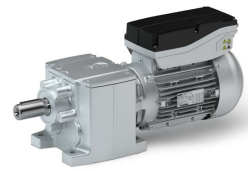


8800197-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	363	406
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

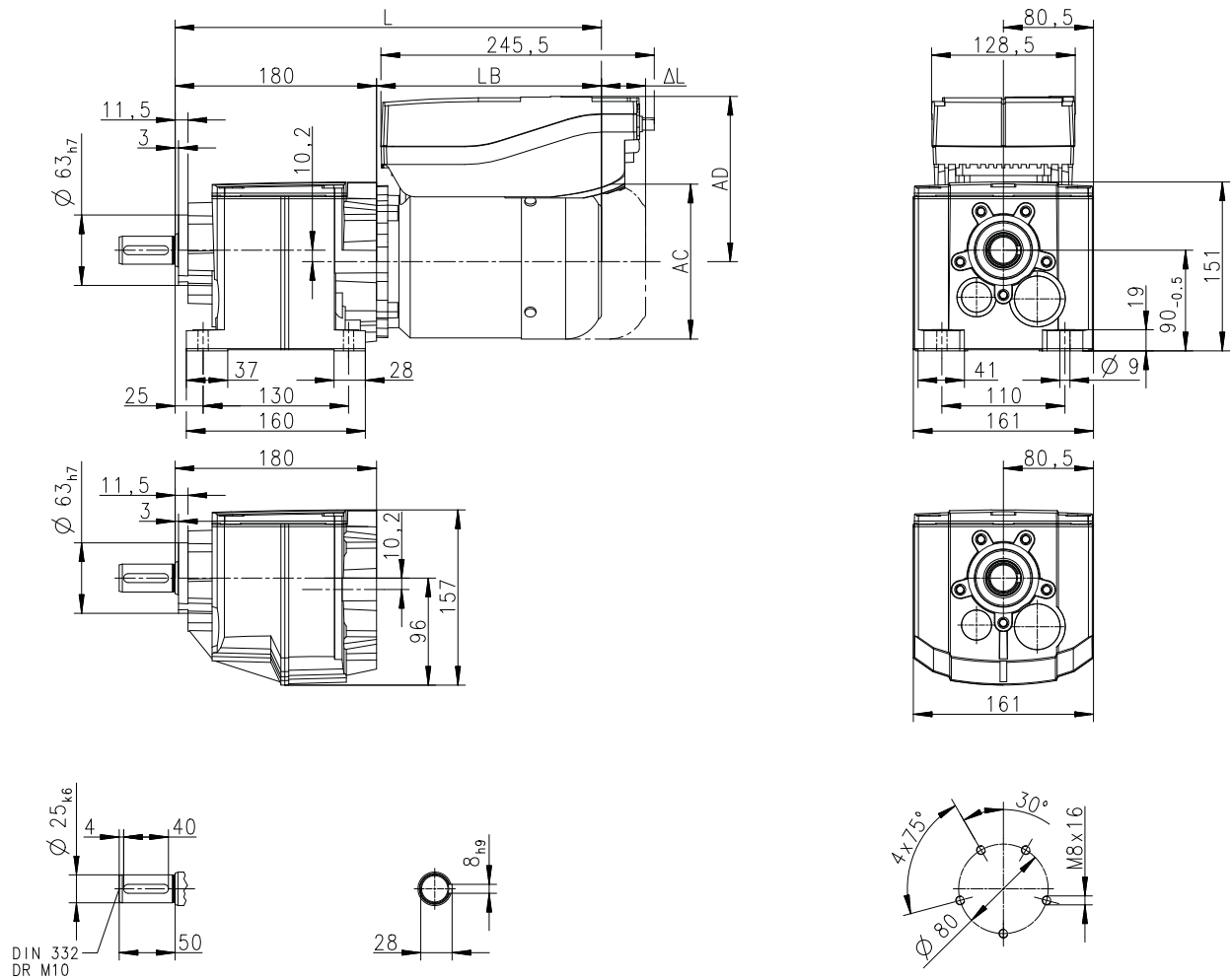
Technical data

Dimensions
Basic dimensions



g500-H210

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800199-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	363	406
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

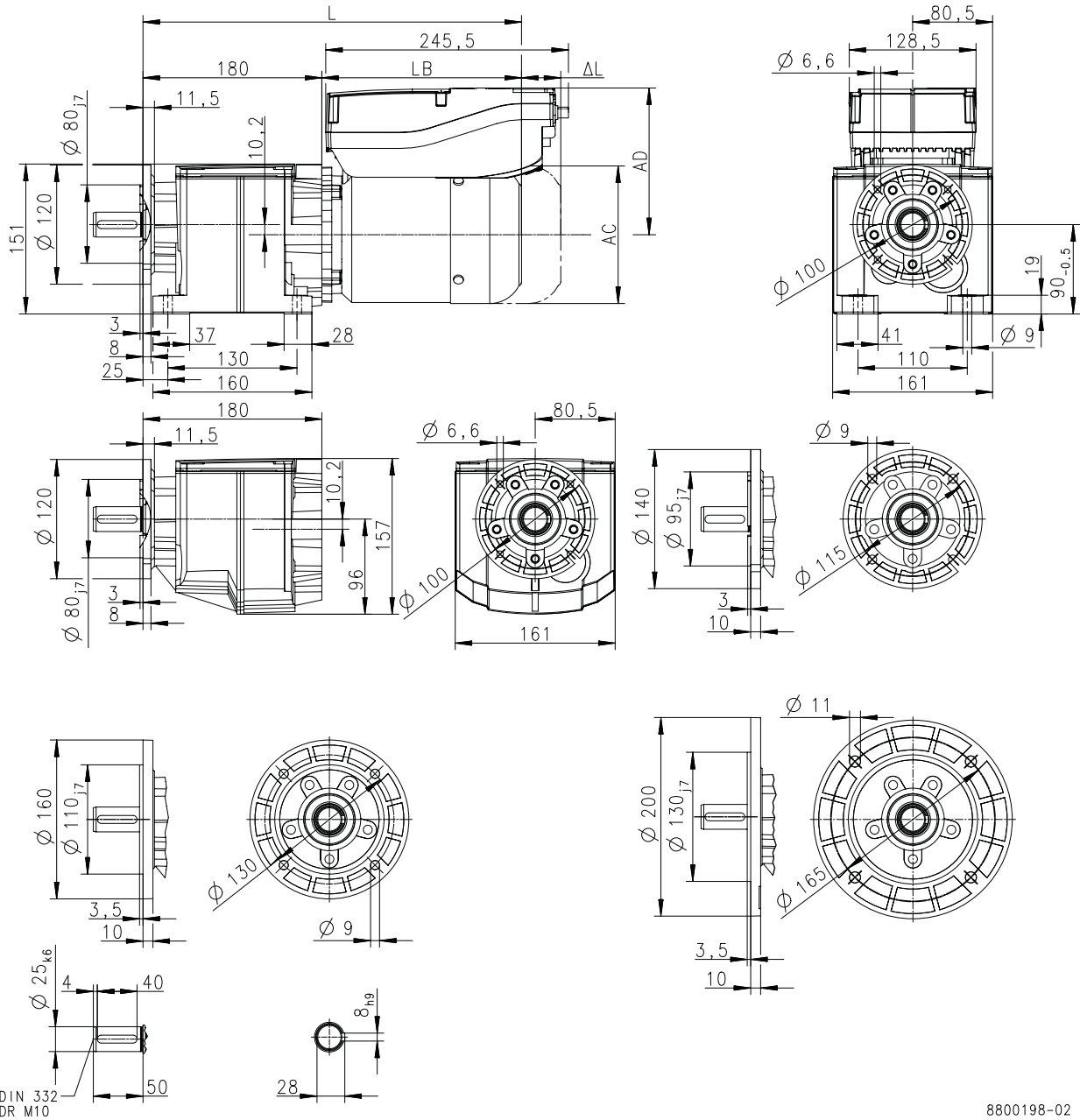


Technical data

Dimensions
Basic dimensions

g500-H210

Gearbox design: solid shaft and foot/flange (VAK/VCK)



DIN 332
DR M10

8800198-02

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	363	406
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

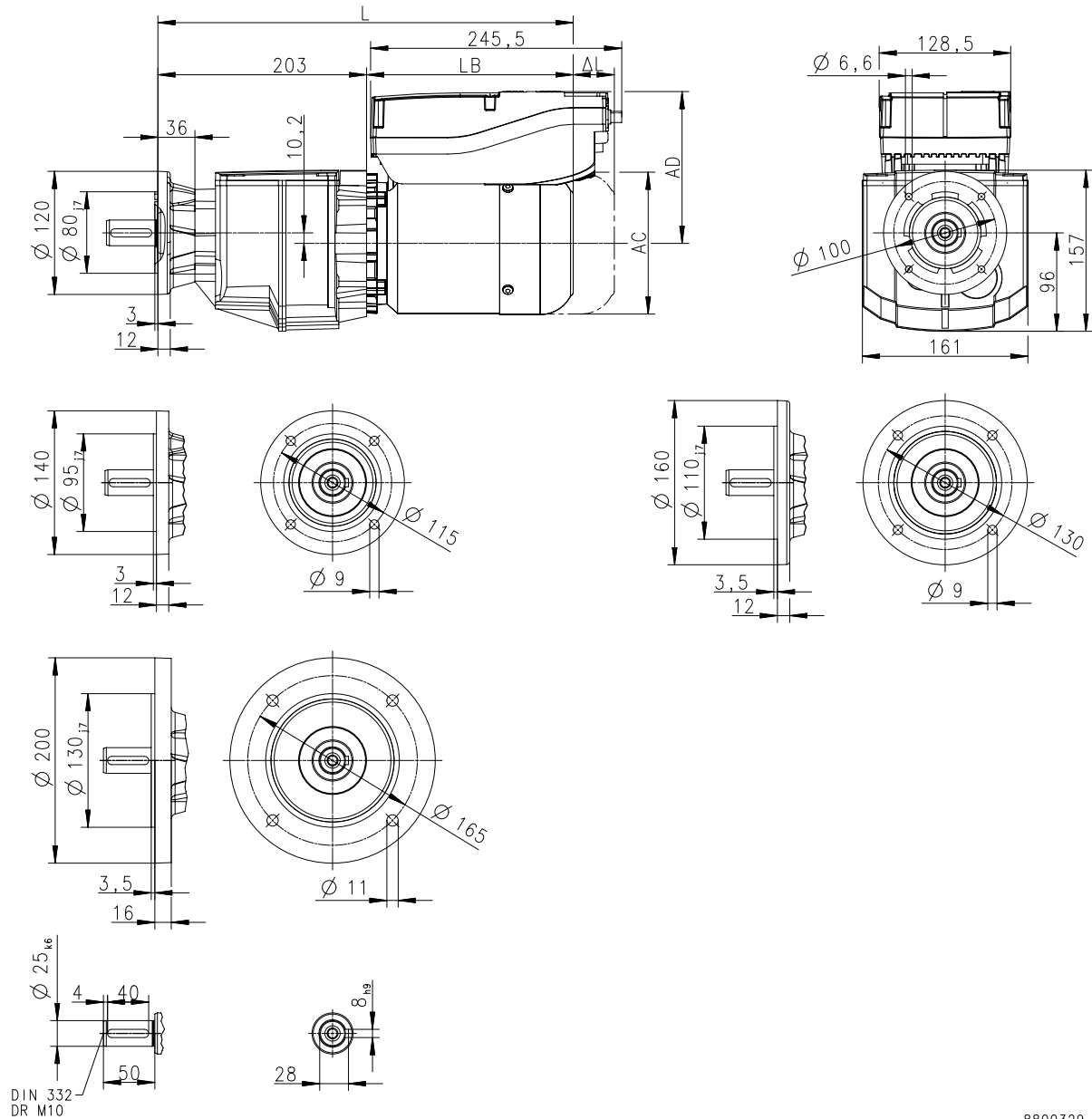
Technical data

Dimensions
Basic dimensions



g500-H210

Gearbox design: solid shaft and flange (VCP)



8800329-01

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	386	429
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

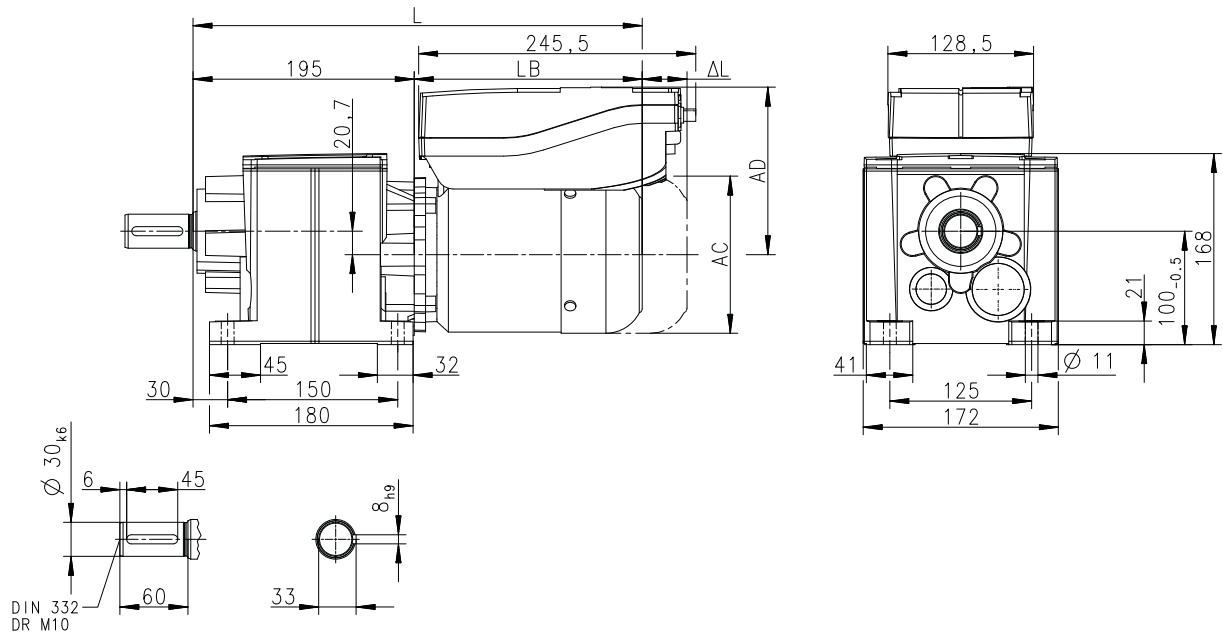


Technical data

Dimensions
Basic dimensions

g500-H320

Gearbox design: solid shaft and foot (VBR)

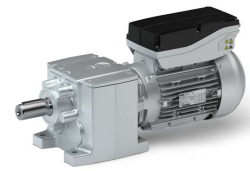


8800200-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	378	421
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

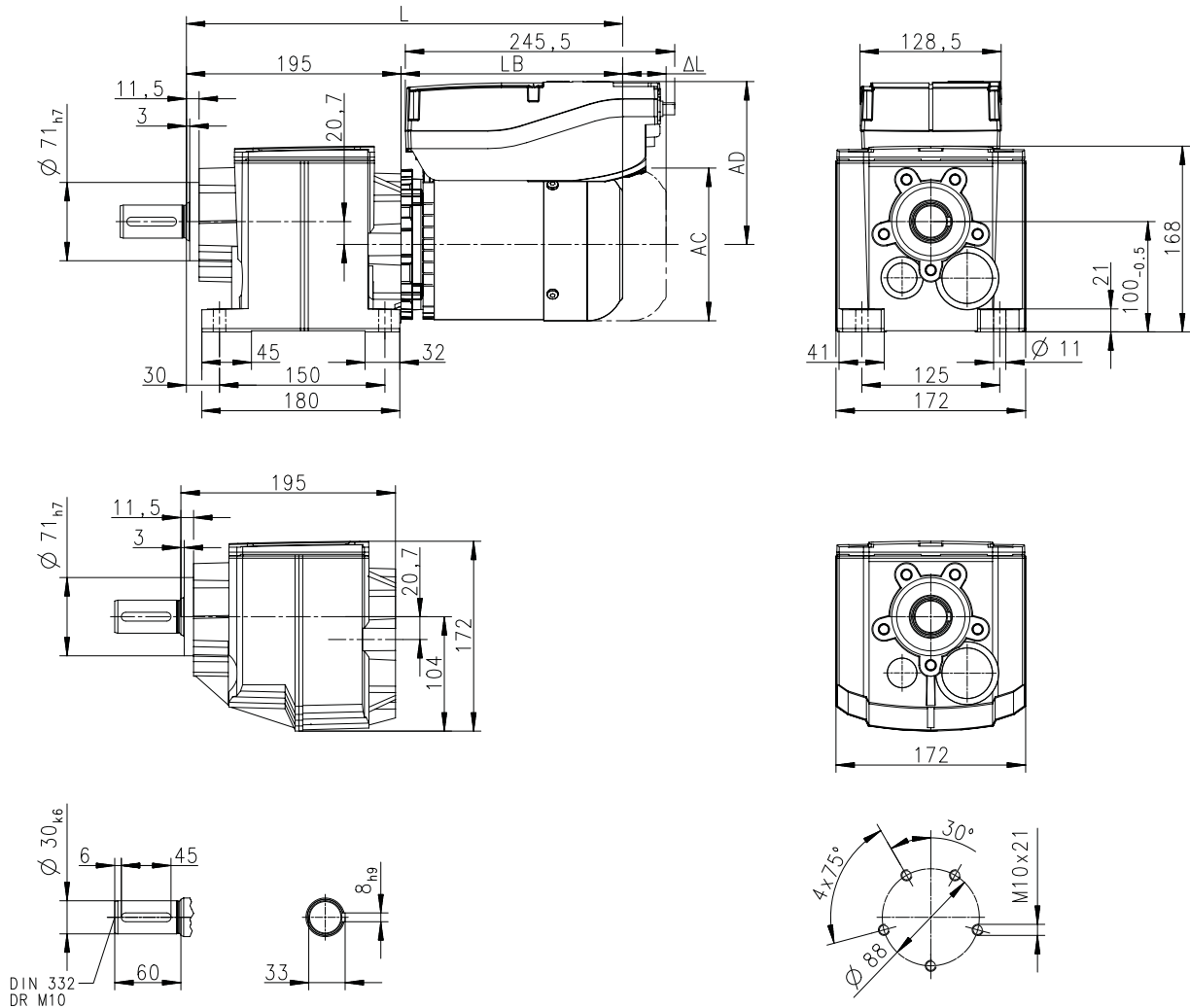
Technical data

Dimensions
Basic dimensions



g500-H320

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800202-01

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	378	421
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

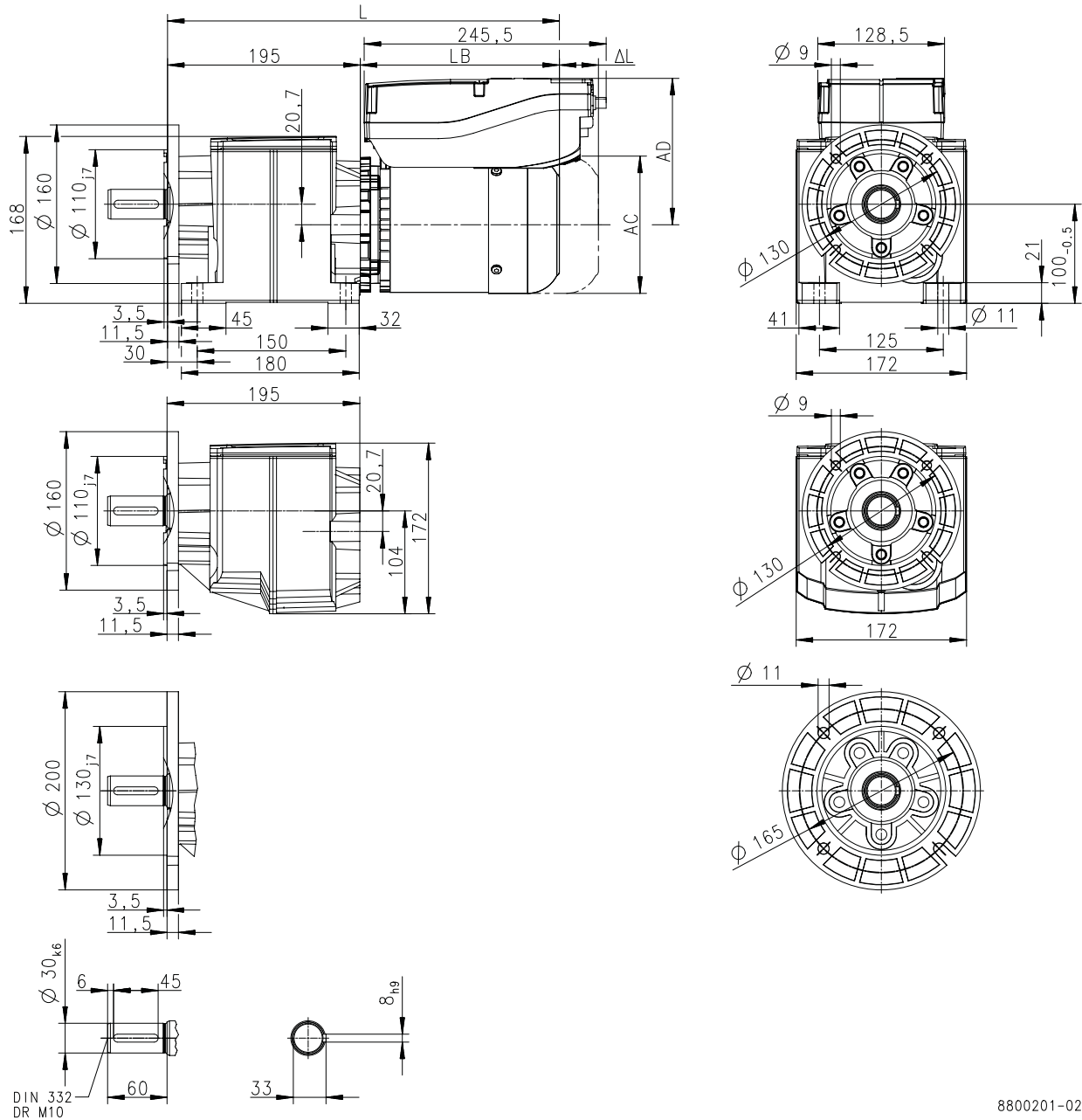


Technical data

Dimensions
Basic dimensions

g500-H320

Gearbox design: solid shaft and foot/flange (VAK/VCK)

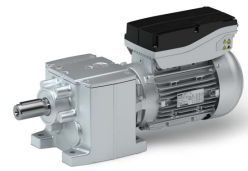


8800201-02

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	378	421
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

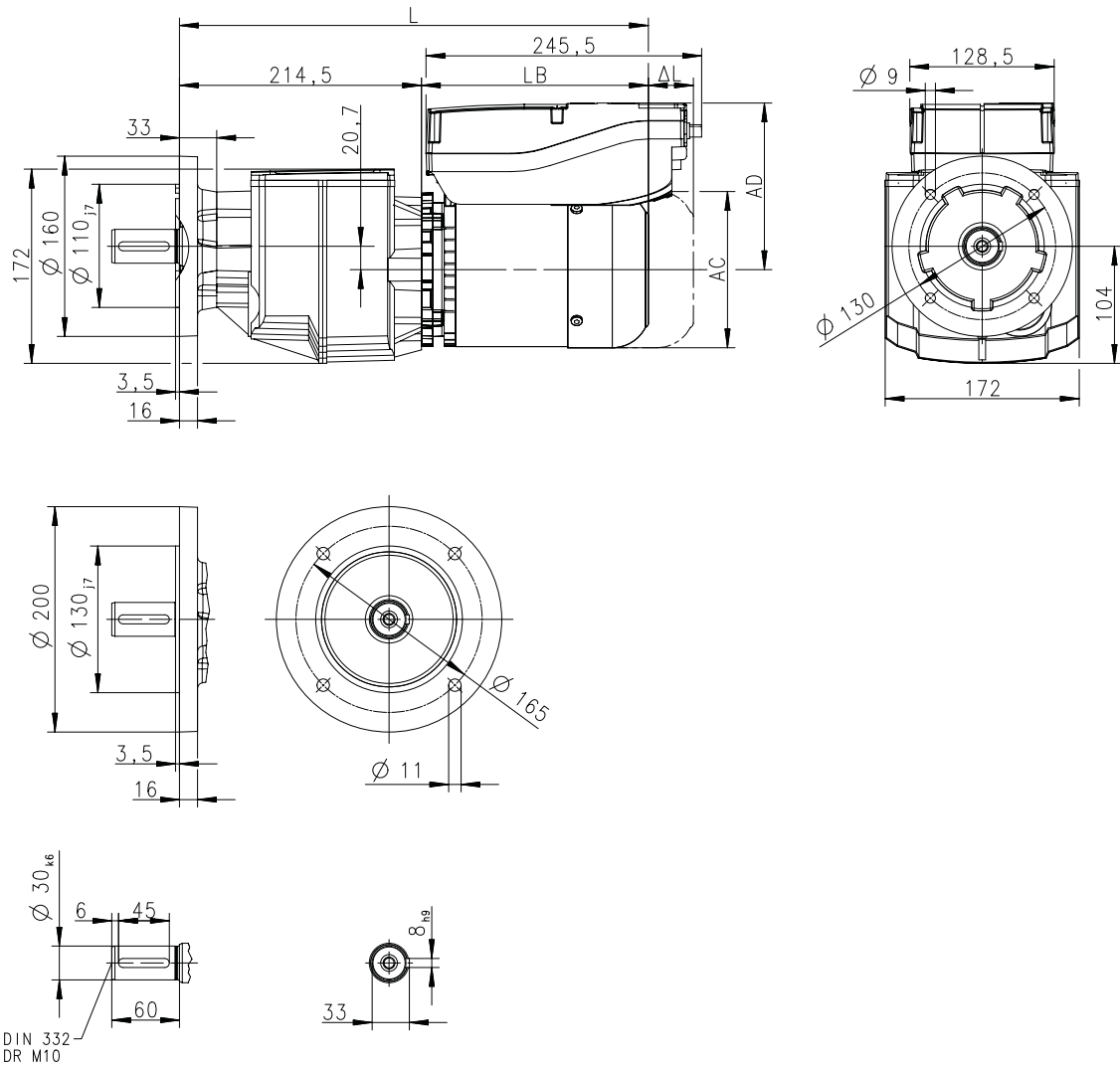
Technical data

Dimensions
Basic dimensions



g500-H320

Gearbox design: solid shaft and flange (VCP)



8800330-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	398	440
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

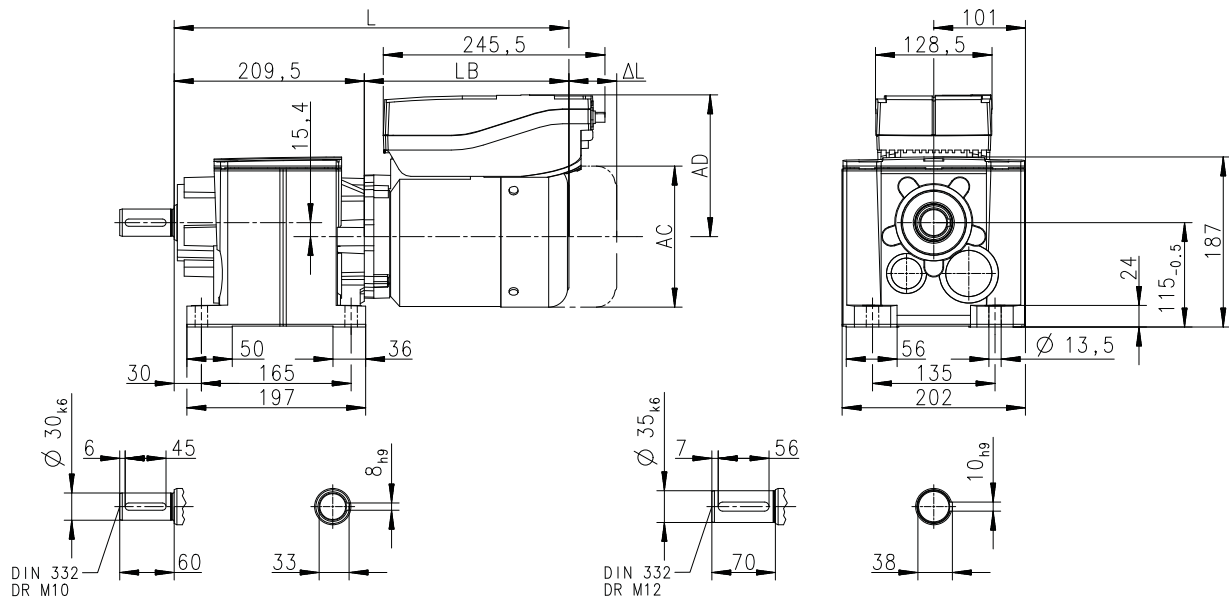


Technical data

Dimensions
Basic dimensions

g500-H450

Gearbox design: solid shaft and foot (VBR)

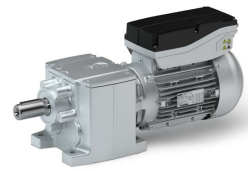


8800203-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	393	435
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

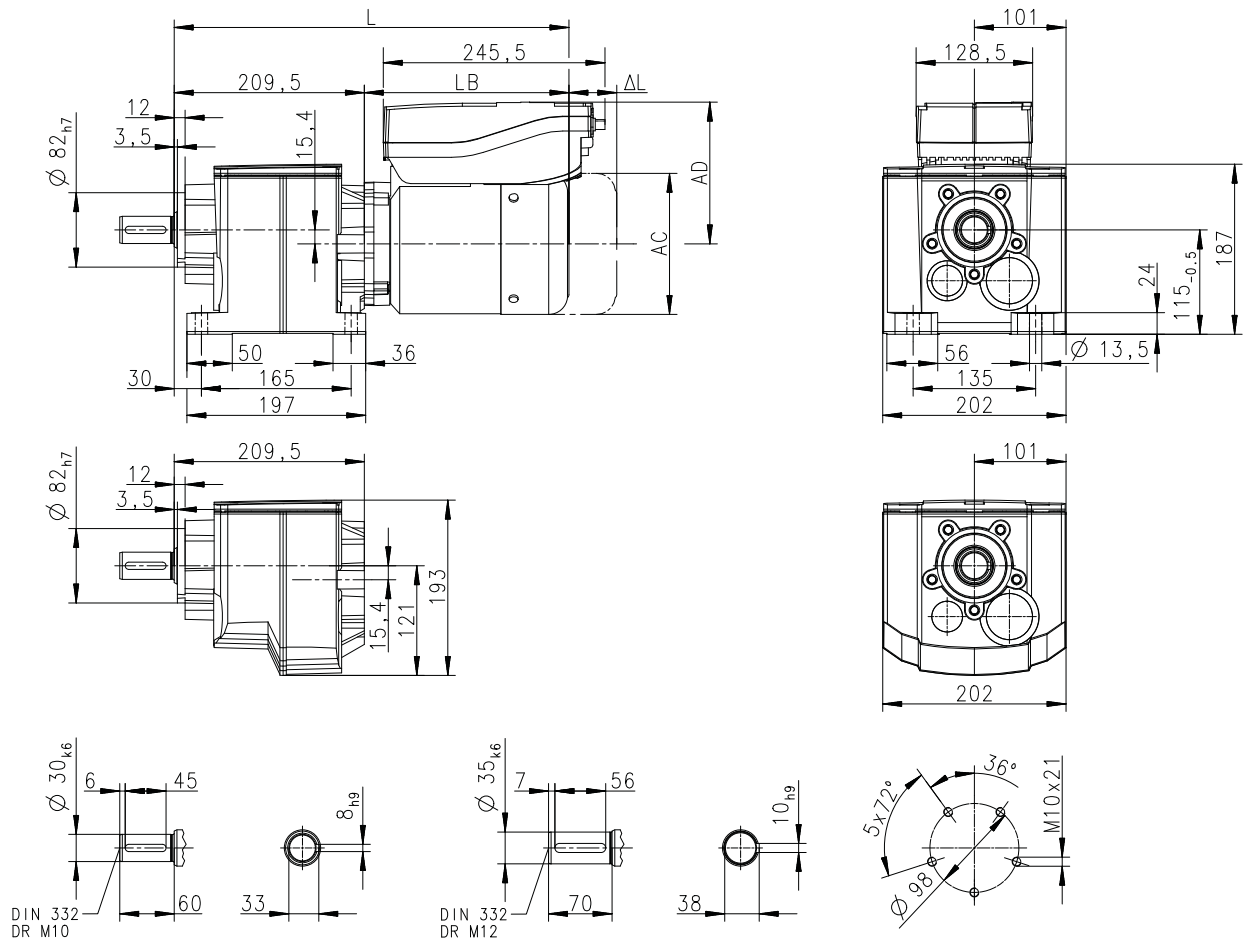
Technical data

Dimensions
Basic dimensions



g500-H450

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800205-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	393	435
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

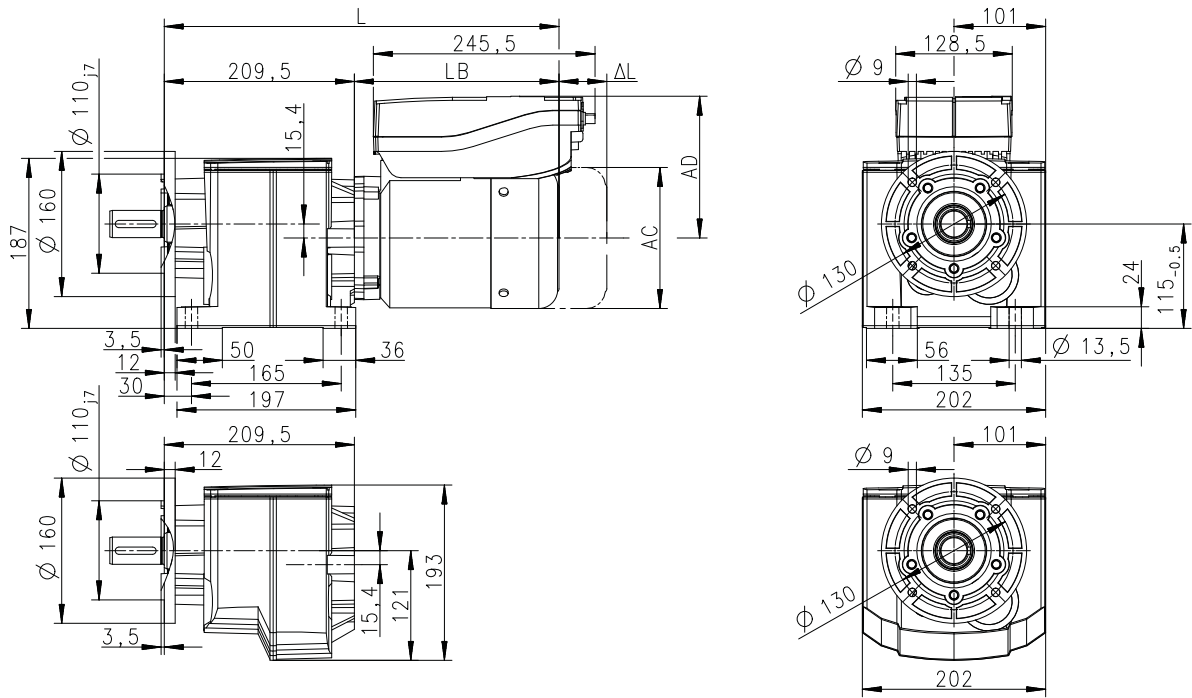


Technical data

Dimensions
Basic dimensions

g500-H450

Gearbox design: solid shaft and foot/flange (VAK/VCK)



DIN 332
DR M10

DIN 332
DR M12

8800204-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	393	435
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

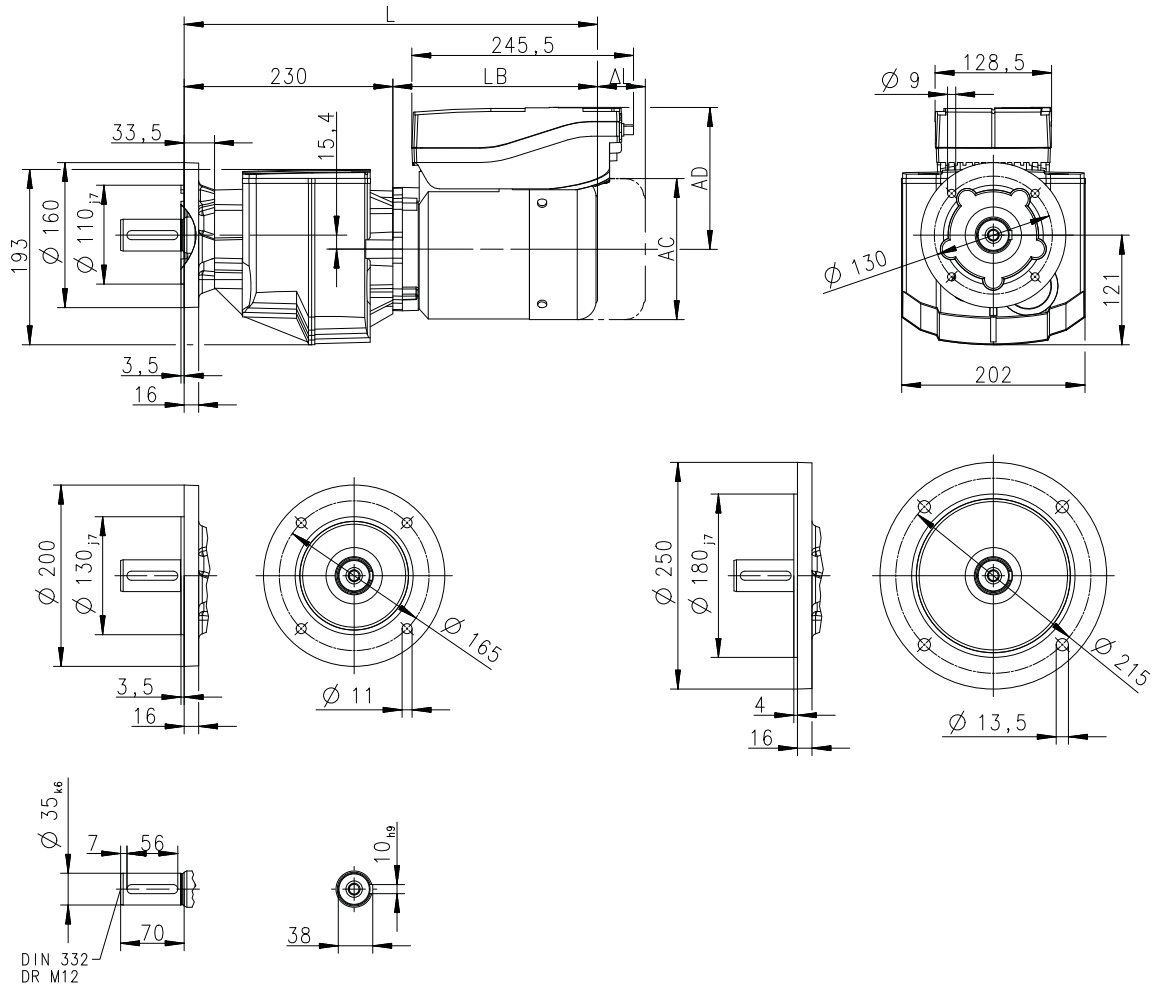
Technical data

Dimensions
Basic dimensions



g500-H450

Gearbox design: solid shaft and flange (VCP)



8800331-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	413	456
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

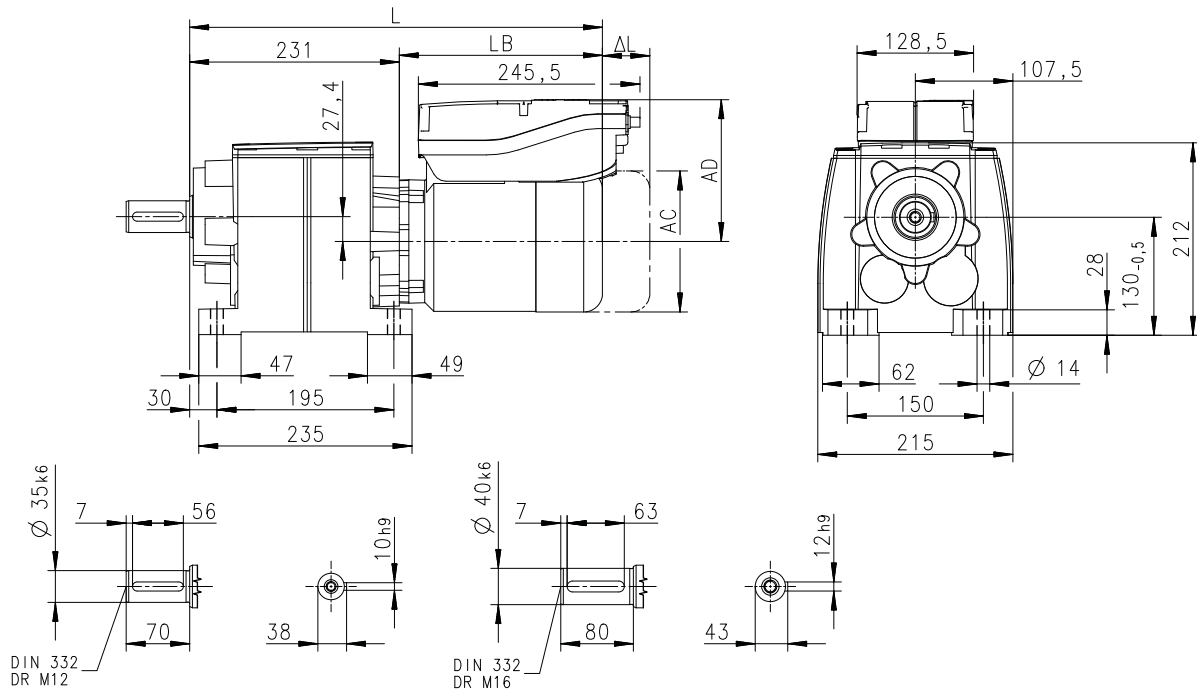


Technical data

Dimensions
Basic dimensions

g500-H600

Gearbox design: solid shaft and foot (VBR)

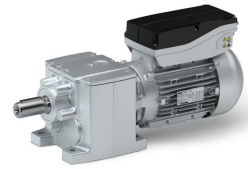


8800770-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	414	457
Motor length	LB	mm	183	226
Length of motor options	ΔL	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

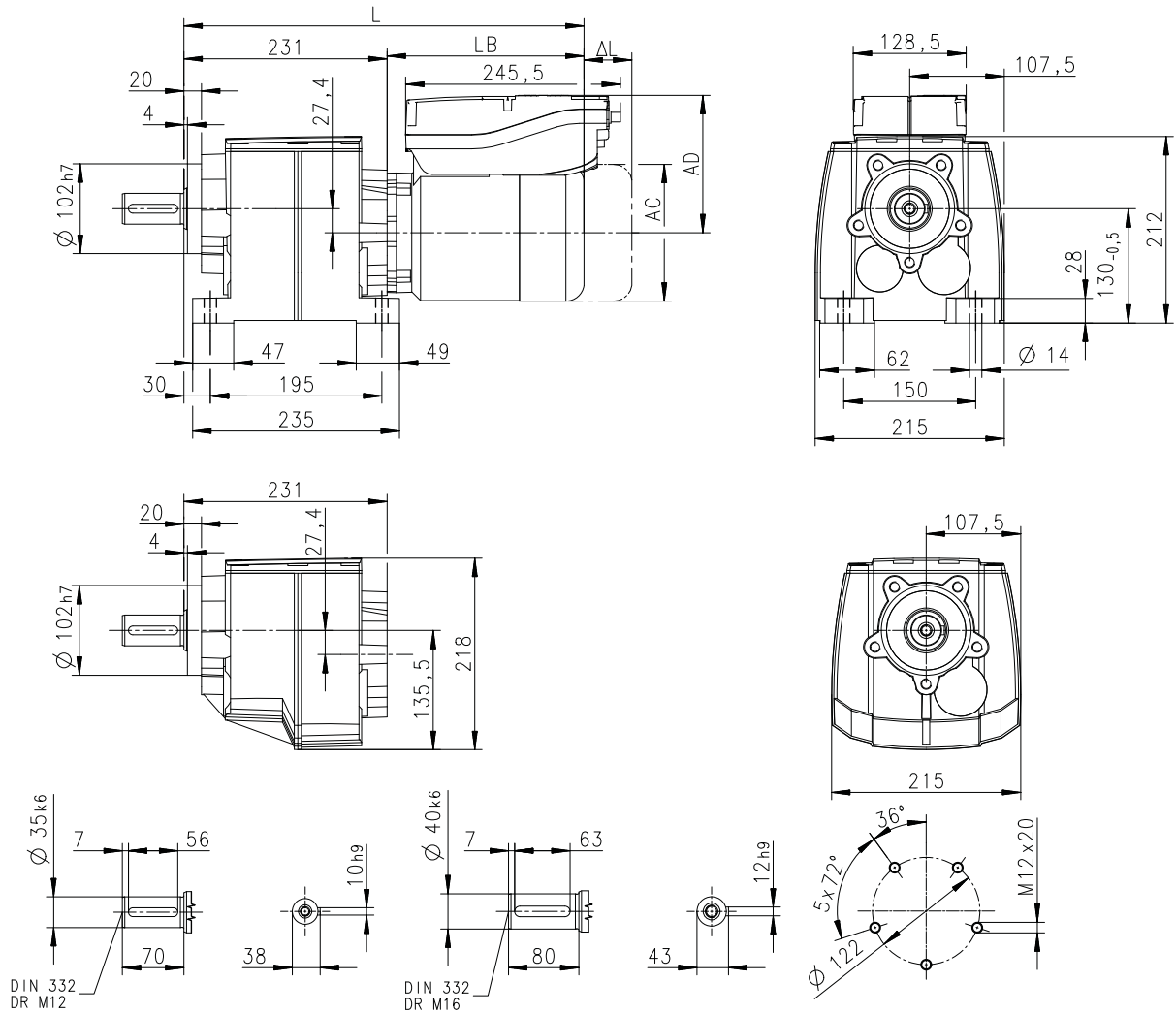
Technical data

Dimensions
Basic dimensions



g500-H600

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800771-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	414	457
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

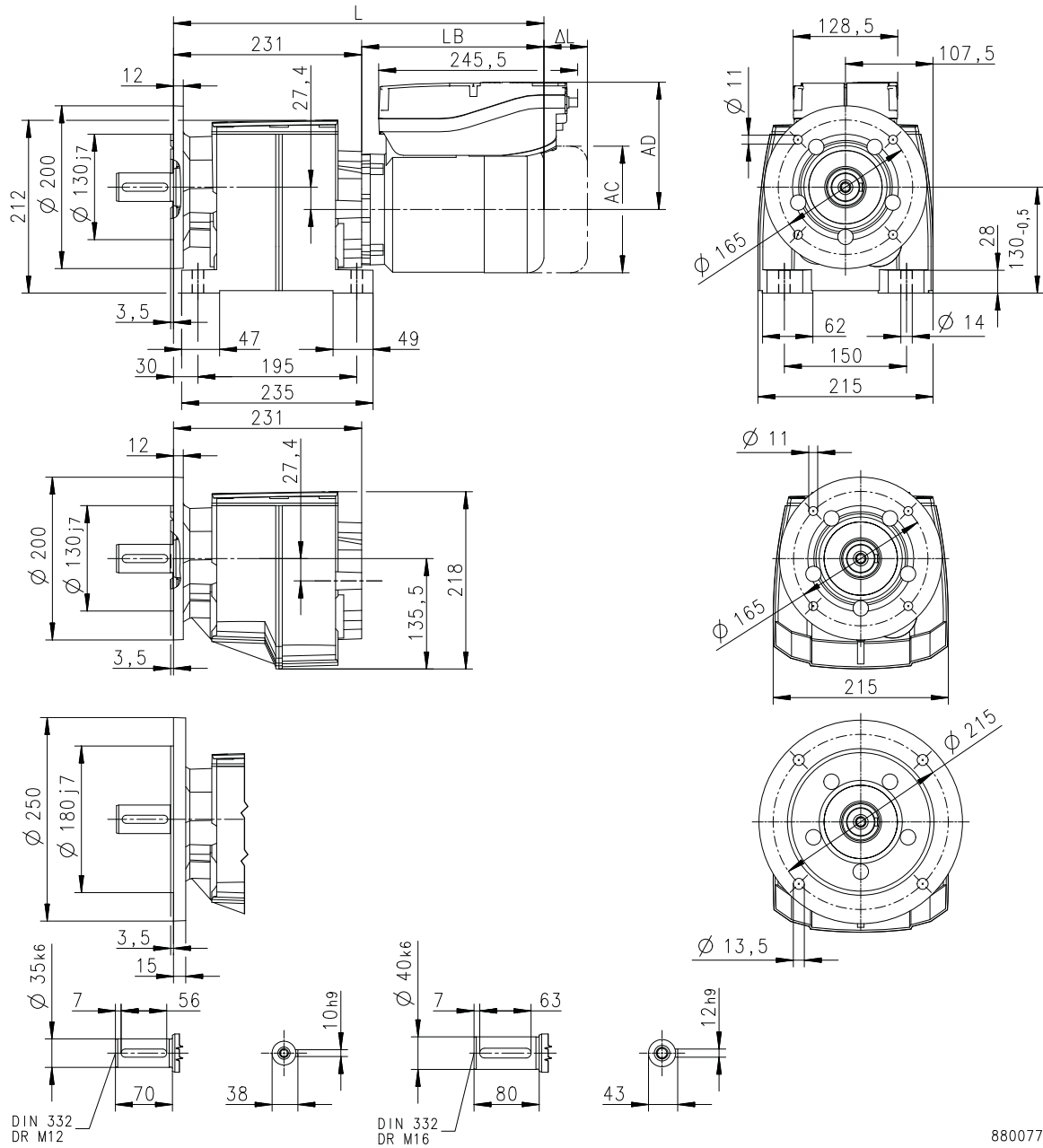


Technical data

Dimensions
Basic dimensions

g500-H600

Gearbox design: solid shaft and foot/flange (VAK/VCK)



8800772-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	414	457
Motor length	LB	mm	183	226
Length of motor options	ΔL	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

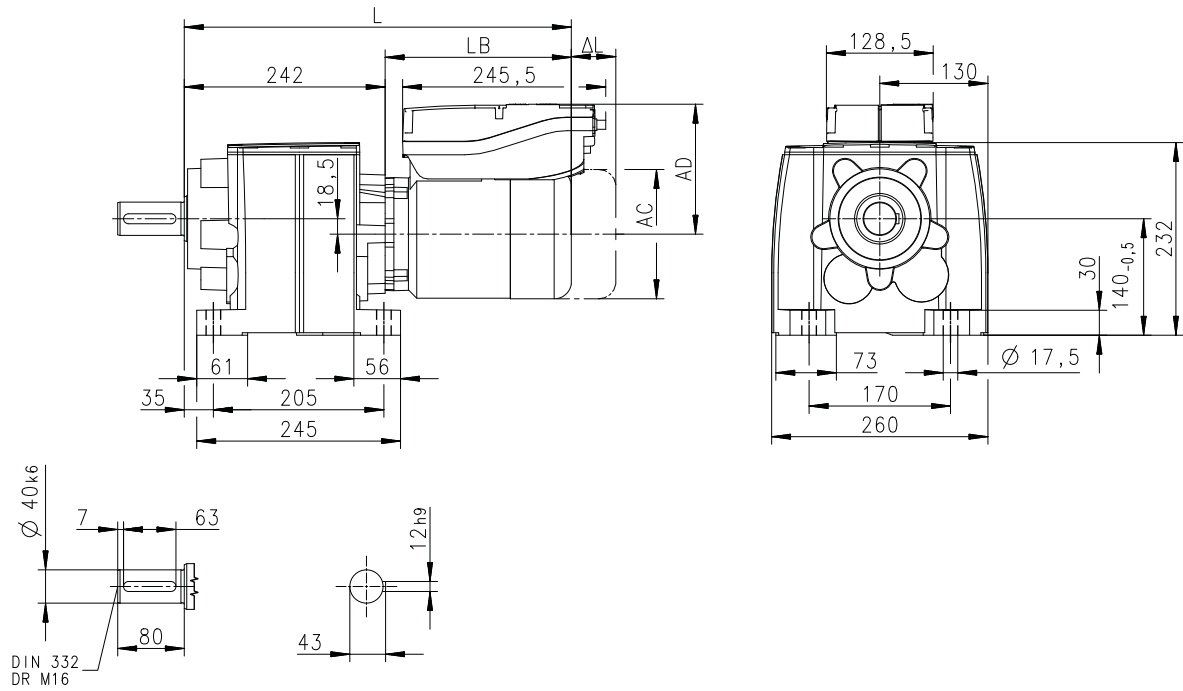
Technical data

Dimensions
Basic dimensions



g500-H850

Gearbox design: solid shaft and foot (VBR)



8800773-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	425	468
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

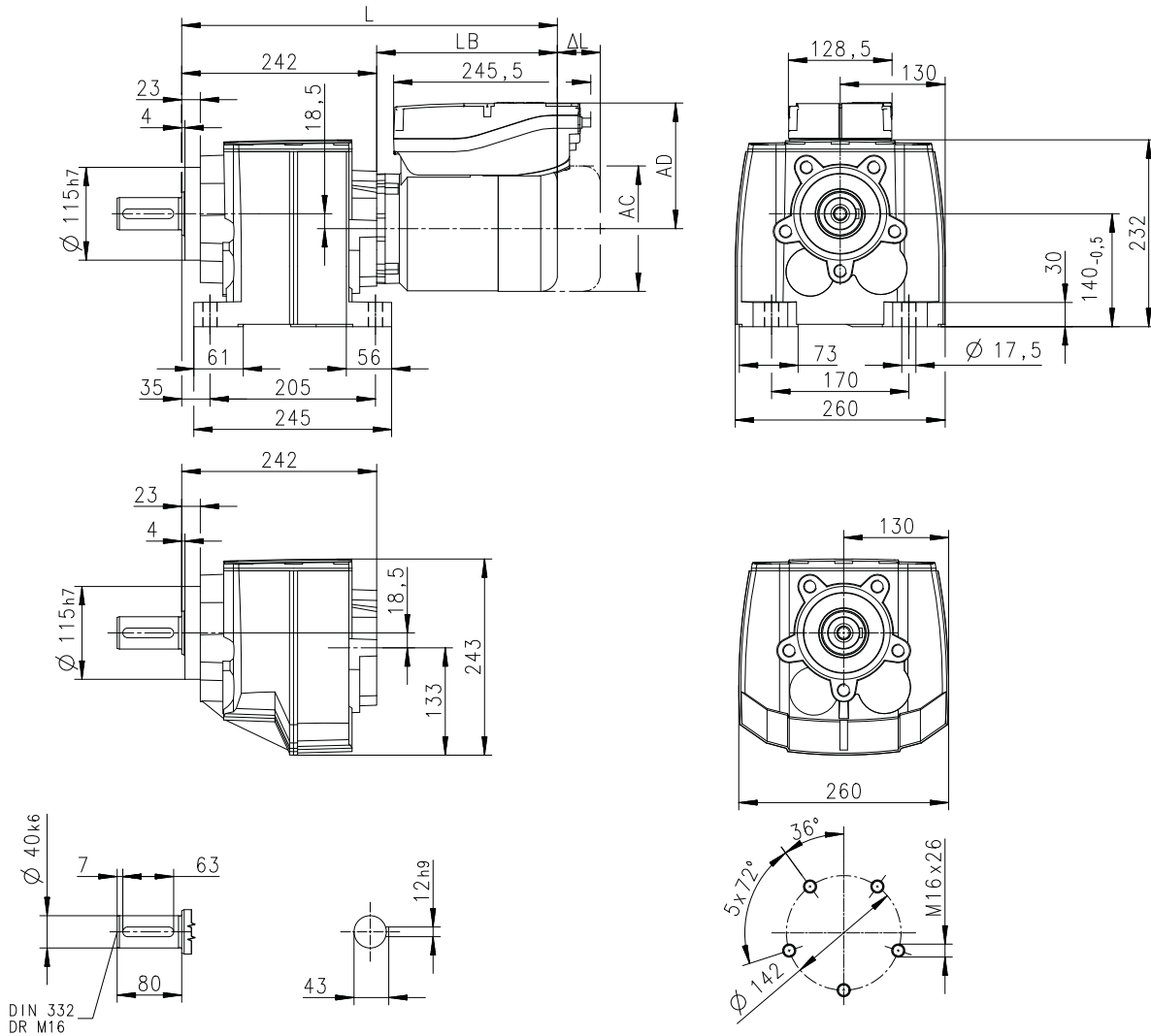


Technical data

Dimensions
Basic dimensions

g500-H850

Gearbox design: solid shaft and foot/centering (VAR/VCR)

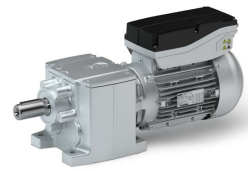


8800774-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	425	468
Motor length	LB	mm	183	226
Length of motor options	Δ L	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

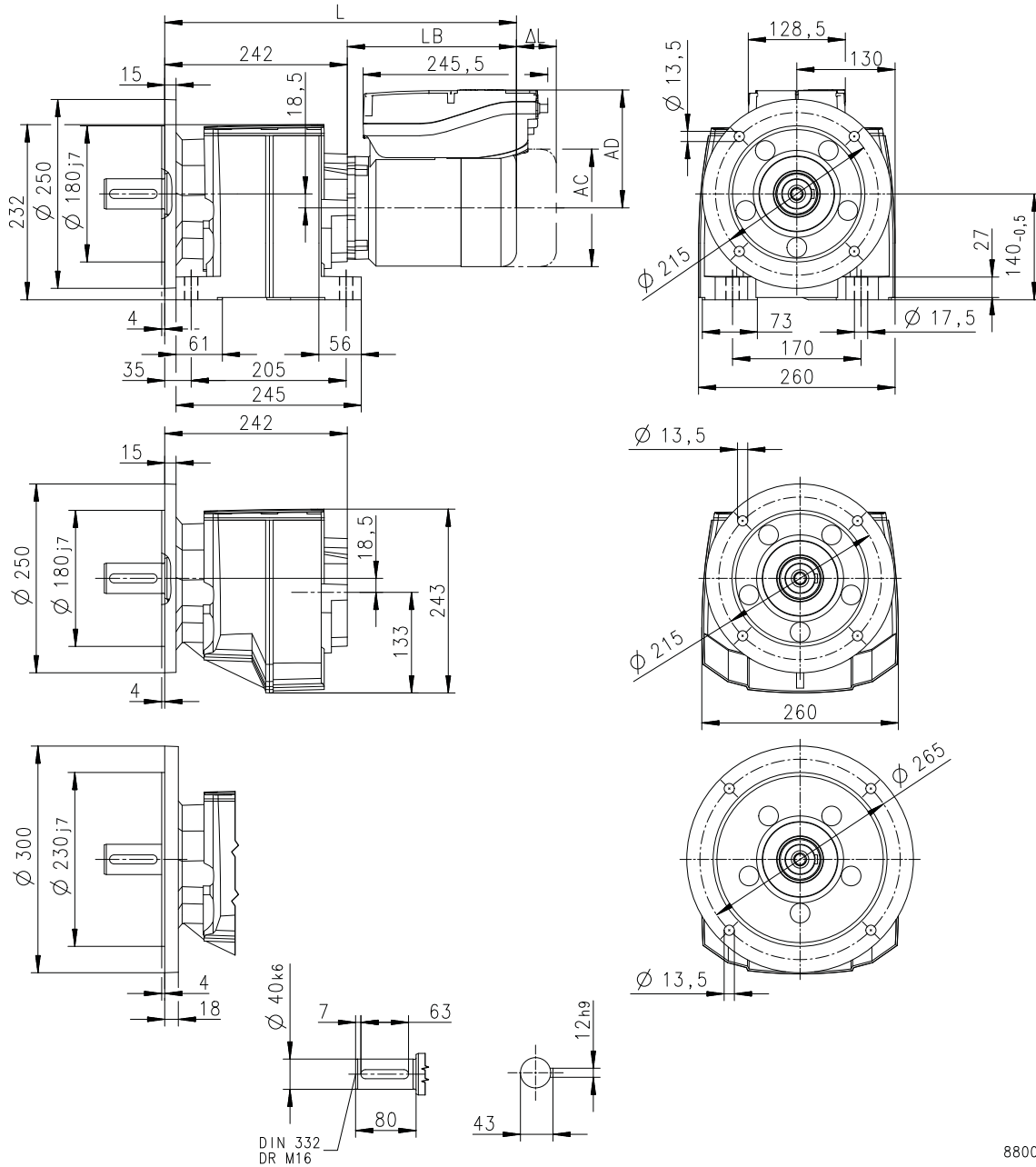
Technical data

Dimensions
Basic dimensions



g500-H850

Gearbox design: solid shaft and foot/flange (VAK/VCK)



8800775-00

Motor			MSEMA□□	
			063-42	080-32
Total length	L	mm	425	468
Motor length	LB	mm	183	226
Length of motor options	ΔL	mm	40	73
Motor diameter	AC	mm	123	156
Motor/connection distance	AD	mm	141	159

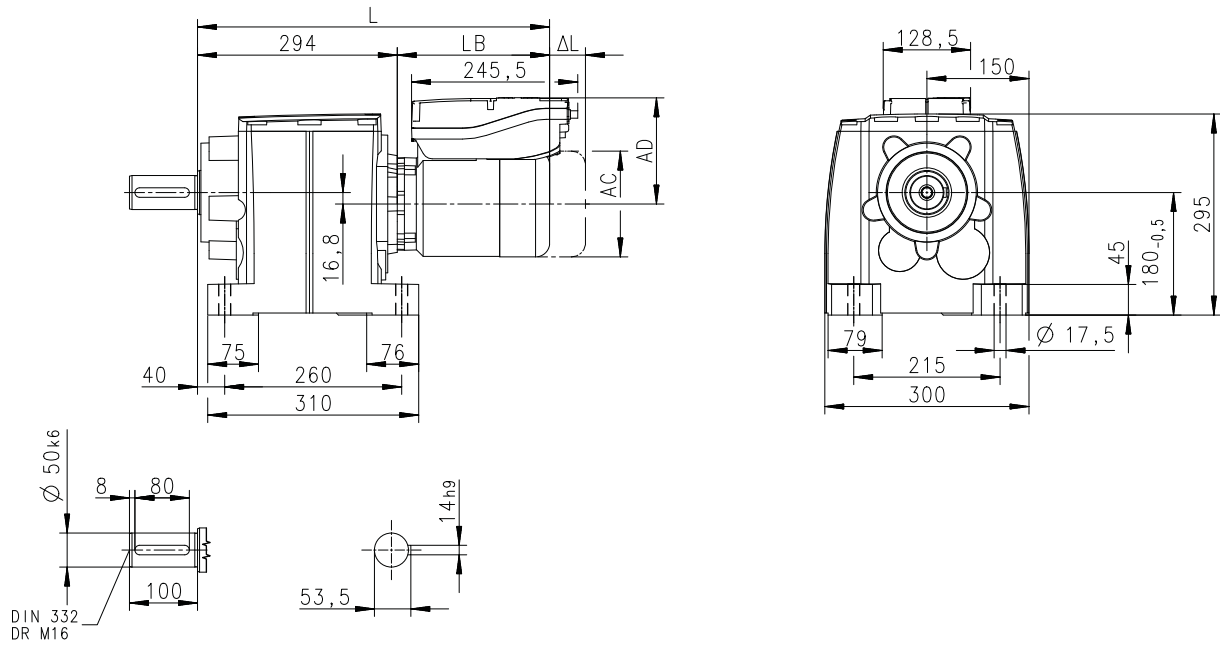


Technical data

Dimensions
Basic dimensions

g500-H1500

Gearbox design: solid shaft and foot (VBR)

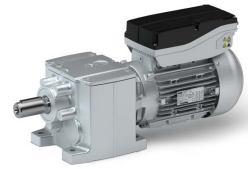


8800776-00

Motor			MSEMA□□
			080-32
Total length	L	mm	520
Motor length	LB	mm	226
Length of motor options	Δ L	mm	73
Motor diameter	AC	mm	156
Motor/connection distance	AD	mm	159

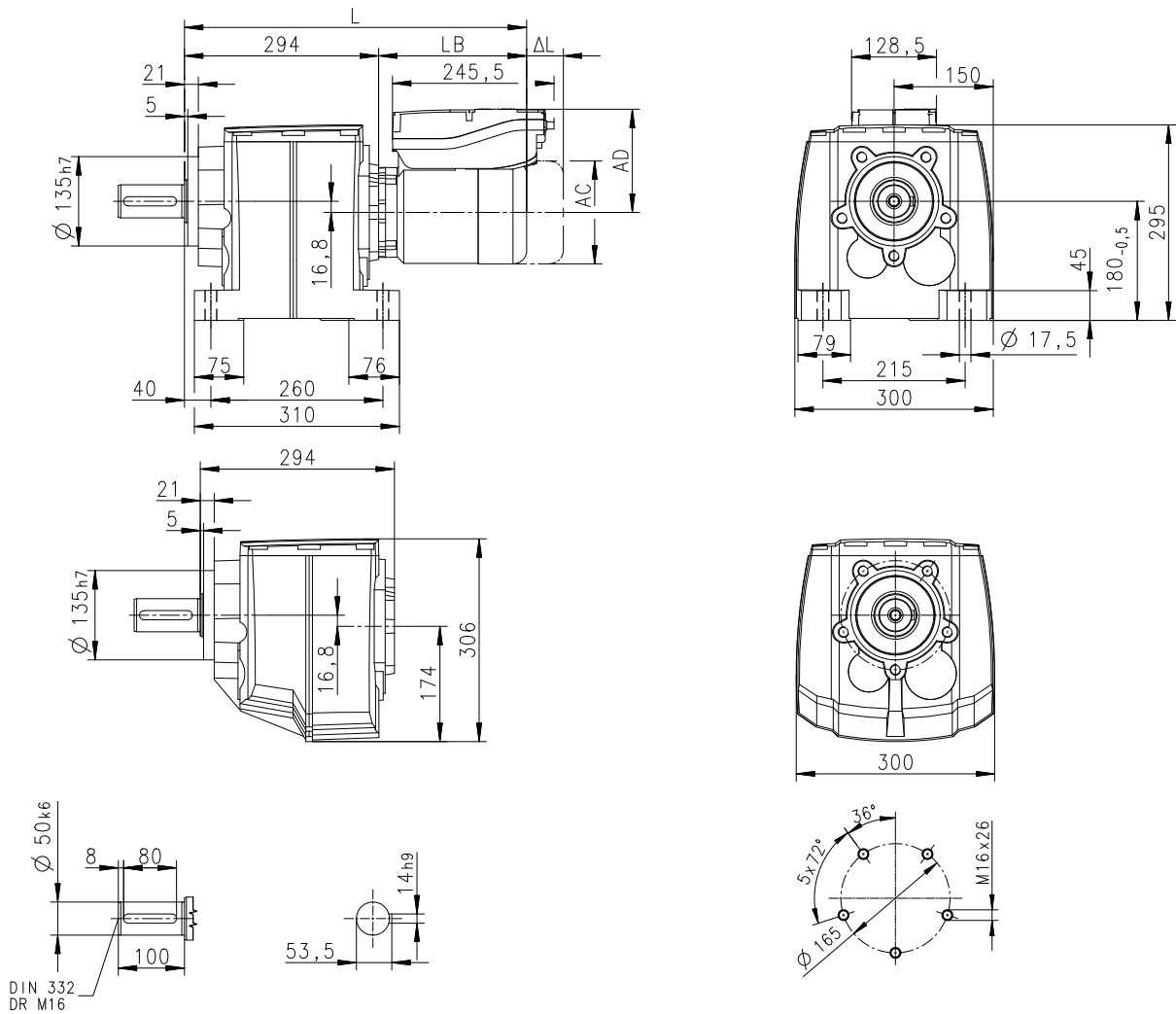
Technical data

Dimensions
Basic dimensions



g500-H1500

Gearbox design: solid shaft and foot/centering (VAR/VCR)



8800777-00

Motor			MSEMA□□
			080-32
Total length	L	mm	520
Motor length	LB	mm	226
Length of motor options	Δ L	mm	73
Motor diameter	AC	mm	156
Motor/connection distance	AD	mm	159

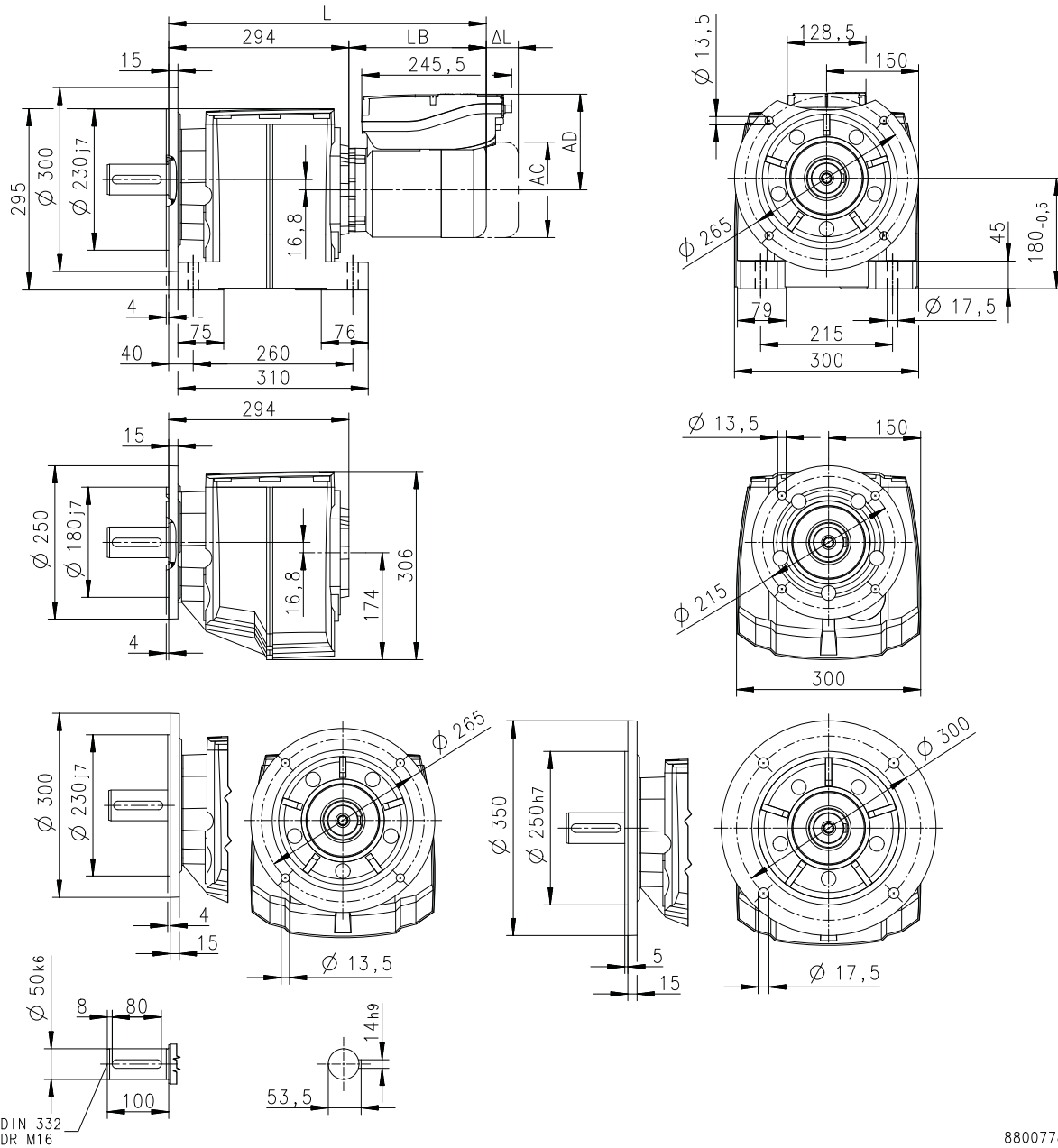


Technical data

Dimensions
Basic dimensions

g500-H1500

Gearbox design: solid shaft and foot/flange (VAK/VCK)

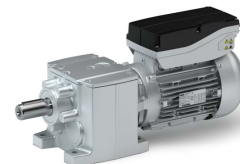


8800778-00

Motor			MSEMA□□
			080-32
Total length	L	mm	520
Motor length	LB	mm	226
Length of motor options	ΔL	mm	73
Motor diameter	AC	mm	156
Motor/connection distance	AD	mm	159

Technical data

Weights
Additional weights



Weights

Basic weights



Weights with oil filling for mounting position A, all values are approximate

▶ [Additional weights](#)  88 must be observed!

2-stage gearbox

Gearbox			MSEMAXX063-42	MSEMAXX080-32
g500-H45	m	kg	7,4	-
g500-H100	m	kg	9,4	16,0
g500-H140	m	kg	10,5	17,1
g500-H210	m	kg	11,9	18,5
g500-H320	m	kg	13,8	20,4
g500-H450	m	kg	17,2	23,8
g500-H600	m	kg	28,4	35,0
g500-H850	m	kg	-	43,9
g500-H1500	m	kg	-	74,0

3-stage gearbox

Gearbox			MSEMAXX063-42	MSEMAXX080-32
g500-H210	m	kg	12,1	18,7
g500-H320	m	kg	14,0	20,6
g500-H450	m	kg	17,6	24,2
g500-H600	m	kg	29,3	35,9
g500-H850	m	kg	38,4	45,0
g500-H1500	m	kg	-	75,5

Additional weights

Gearbox

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

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

Motors

Motor			MSEMAXX063-42	MSEMAXX080-32
Brake				
Spring pressure - holding brake	m	kg	0,9	1.5
Manual release lever	m	kg	0.03	0.04
Brake resistors				
Internal	m	kg	0.05	0.05
External	m	kg	0.17	0.17



Product extensions

Motor connection

The QUICKON connection enables fast and easy connection of motors. The equipment is easy to cable by means of a connecting cable with the QUICKON nut.



QUICKON nuts and QUICKON connectors with QUICKON nuts are available as accessories.

Mains connection X3

Pin assignment for QUICKON connector			
Contact	Name	Meaning	
1	L1	Mains connection Phase L1	
2	L2	Mains connection Phase L2	
3	L3	Mains connection Phase L3	
4	PE	PE conductor	

Pin assignment for M15 connector			
Contact	Name	Meaning	
1	L1	Mains connection Phase L1	
2	L2	Mains connection Phase L2	
3	L3	Mains connection Phase L3	
PE	PE	PE conductor	
A		Not assigned	
B			

Note for the orientation of a right-angle plug:
The position of the contact "2" at the terminal box is in the direction of the terminal box cover.

Terminal assignment in the terminal box			
Contact	Name	Meaning	
1	L1	Mains connection Phase L1	
2	L2	Mains connection Phase L2	
3	L3	Mains connection Phase L3	
PE	PE	PE conductor	

Control connections with M12 connectors

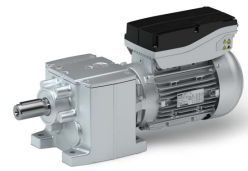
Via the digital inputs of the two M12 control connections, it is possible to switch between different speeds and directions of rotation. Up to 5 different speed settings (e. g. creep speed and normal speed in both directions, as well as stop) can thus be selected. In addition, the operating state is indicated via a digital output.

NOTICE

In the "DI/DO-GND bridged" version, the masses of the control terminal X1 and X2 (GND-I and GND-O) are connected to each other. If only one speed is used, the connection to X2 is sufficient.

Product extensions

Motor connection



Control terminal X1

Pin assignment for M12 connector A coded, pins			
Contact	Name	Meaning	
1	n.c.		
2	DI2	Digital input 2	
3	GND-I	Mass of digital input	
4	DI1	Digital input 1	

Control terminal X2

Pin assignment for M12 connector A coded, pins			
Contact	Name	Meaning	
1	24V	24 V-supply (DO1 supply)	
2	DI3	Digital input 3 (reference X1;3 = GND-I)	
3	GND-O	Mass of digital output	
4	DO1	Digital output 1	



Brakes

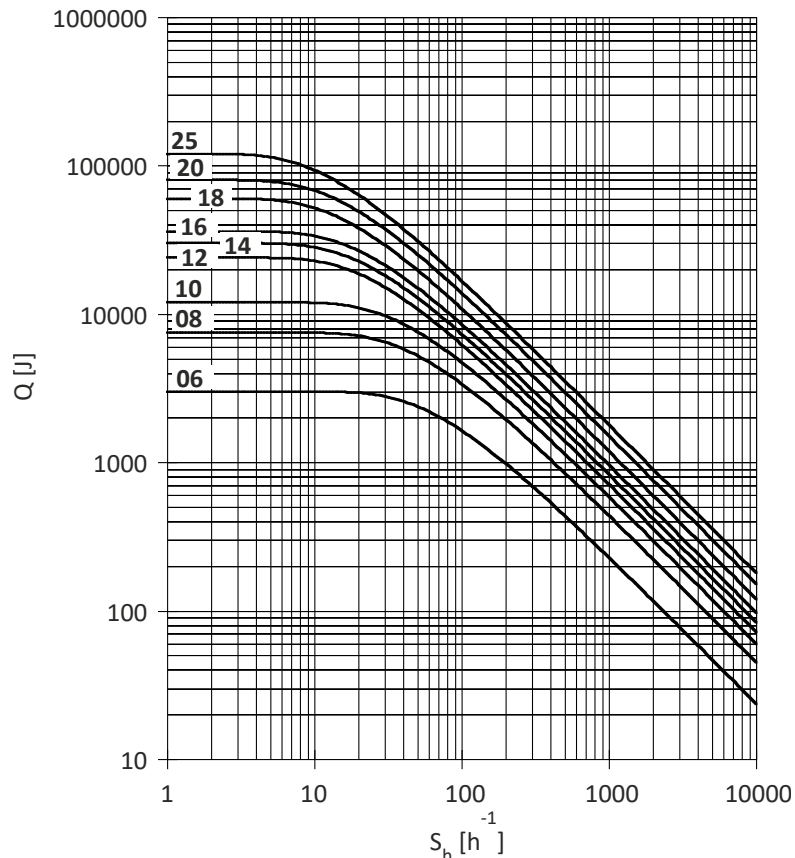
Spring-applied brakes

Motors with brake are equipped with a spring-applied brake. It becomes active when the supply voltage is switched off (closed-circuit principle).

Features

Designs	
Standard	1 x 10 ⁶ switching cycles, repeating 1 x 10 ⁶ switching cycles, repeating
LongLife	10 x 10 ⁶ Switching cycles, repeating 15 x 10 ⁶ Switching cycles, repeating
Triggering	Via internal electronics Holding brake, active when equipment deenergised
Enclosure	
Without manual release lever	IP55
With manual release lever	IP54
Friction lining	Asbestos-free, low-wear design

Permissible friction energy



Q Switching energy per switching cycle

S_h Switching rate

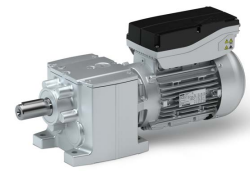
06 ... 25 Brake size

Assignment of the brake

Motor		MSEMABR063-42	MSEMABR080-32
Brake size		06	08
Characteristic torque			
Standard	Nm	4.0	8.0
LongLife	Nm	4.0	8.0

Product extensions

Brakes
Spring-applied brakes



Rated data with standard braking torque

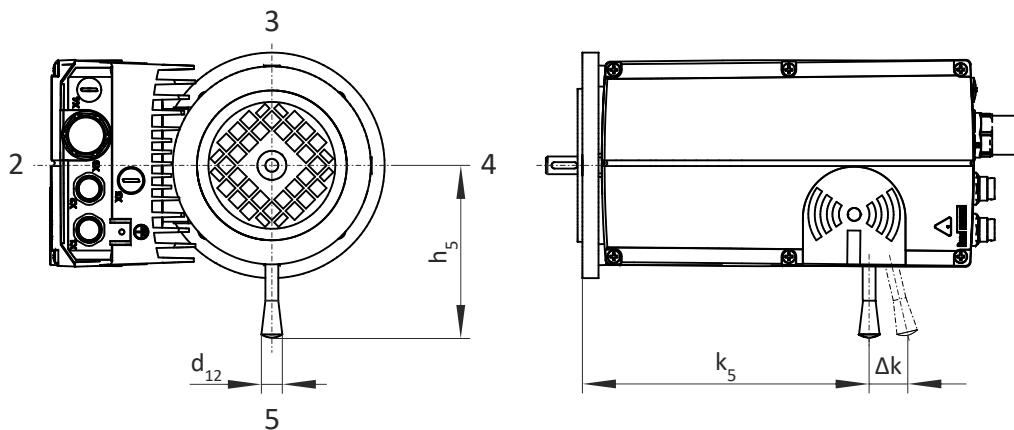
Motor			MSEMABR063-42	MSEMABR080-32
Brake size			06	08
Power input	P_{in}	kW	0.020	0.025
Braking torque at output speed				
100 rpm	M_B	Nm	4.00	8.00
1000 rpm	M_B	Nm	3.70	7.20
1200 rpm	M_B	Nm	3.60	7.00
1500 rpm	M_B	Nm	3.50	6.80
1800 rpm	M_B	Nm	3.40	6.70
2600 rpm	M_B	Nm	3.20	6.30
Maximum switching energy at output speed				
100 rpm	Q_E	KJ	3.00	7.50
1000 rpm	Q_E	KJ	3.00	7.50
1200 rpm	Q_E	KJ	3.00	7.50
1500 rpm	Q_E	KJ	3.00	7.50
1800 rpm	Q_E	KJ	3.00	7.50
2600 rpm	Q_E	KJ	3.00	7.50
Transition operating frequency	$S_{hü}$	1/h	79.0	50.0

Manual release lever

By using the manual release lever, the brake can be released manually in deenergised operating state. The manual release makes positioning and maintenance work easier.



Please specify the position of the manual release lever (3,4 or 5) when ordering. Manual release lever and terminal box are not possible in the same position (2)!



Motor	Brake size	Dimensions			
		k_5	Δk	h_5	d_{12}
		mm			
MSEMABR063-42	06	178	29	107	13
MSEMABR080-32	08	224	27	116	13



Brake resistors

The Lenze Smart Motor can be braked in a guided manner along a ramp. If large amounts of regenerative energy are produced during braking, they must be absorbed by a brake resistor.

In addition to a brake resistor (10 W) mounted inside the terminal box, another brake resistor (20 W) can also be connected externally alongside the terminal box via the terminal X4.

These brake resistors are mounted and parameterized at the factory.

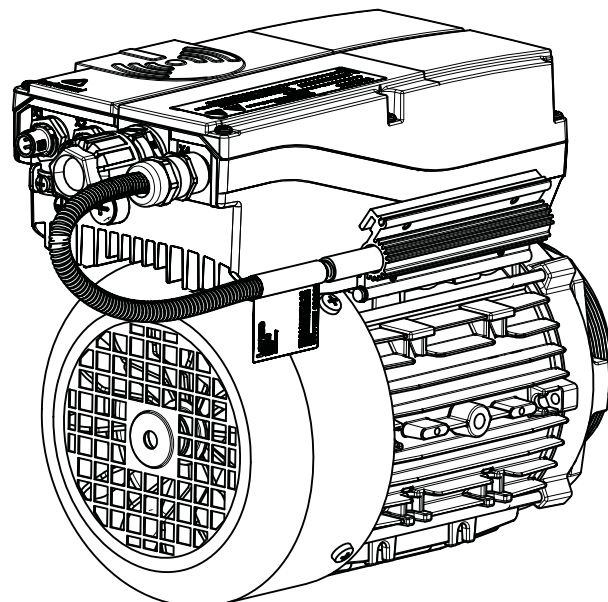
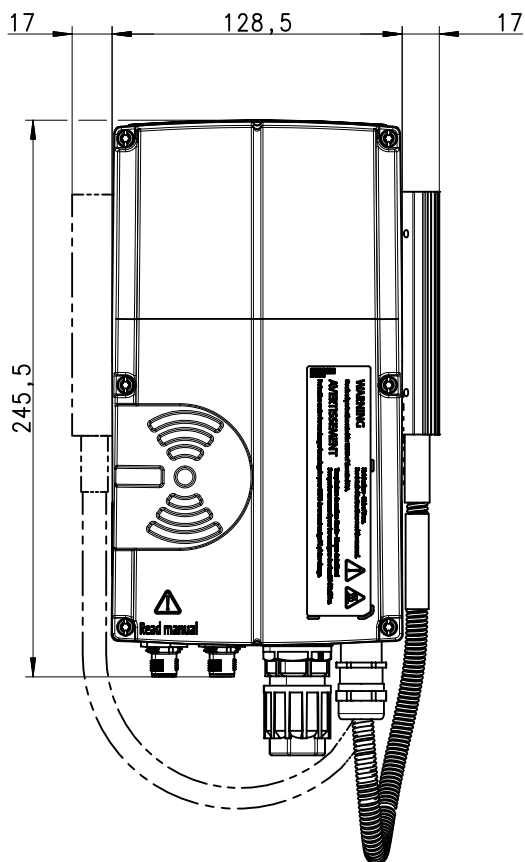
NOTICE

Do not fall below the minimally connectable brake resistance of 180 Ω at the terminal "X4".

If an external brake is used, the power can be increased from 20 W to max. 40 W if the medium speed is > 1000 rpm (arithmetic mean of the process speeds in relation to the motor speed, without standstill).

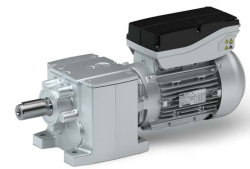
Motor		MSEMA□□063-42 MSEMA□□080-32	
Brake resistor		Internal	External
Order code			ERBU390R020W
Rated resistance	Ω	400	390
Rated power	W	10	20
Thermal capacity	kWs	0.100	0.250
Mass	kg	0.05	0.17

Terminal box dimensions with external brake resistor



Accessories

NFC adapter



Accessories

Overview

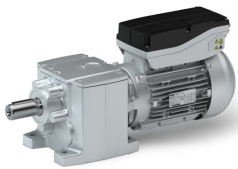
NFC adapter	
QUICKON connector	
QUICKON nut	QUICKON connector with nut
M15 connector	
M15 connector	

NFC adapter

The settings of the Lenze Smart Products can be made with an NFC-capable Android smartphone or a PC. If a PC is used to make the settings, the »EASY Starter« engineering tool must be used to do this (»EASY Advanced« software licence). Communication takes place via the NFC adapter. The adapter is connected to the PC at the USB interface.



NFC adapter		
Version	VPE	Order code
	Piece	
Voltage supply on the input side via USB connection of the PC Diagnostic LEDs hot plug-capable	1	EZAETF001



QUICKON connector

Nuts for QUICKON connection

For fast and easy QUICKON connection, the following nuts (counterparts) can be fitted to the connecting cable. No special tools are needed for installation, only standard tools for stripping the cable.

NOTICE

In the case of the capability for frequent connections (>10 times) a QUICKON connector with nut must be used.



QUICKON nut



QUICKON connector with QUICKON nut

QUICKON connector, 4-pole		
Type	VPE	Order code
	Piece	
QUICKON nut		
Cable diameter: 6 ... 10 mm	1	EWS0088
Cable diameter: 9 ... 14 mm	1	EWS0089
QUICKON connector with QUICKON nut		
Can be plugged in and disconnected safe from touch		
Cable diameter: 6 ... 10 mm	1	EWS0090
Cable diameter: 9 ... 14 mm	1	EWS0091

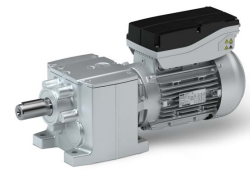
UMCLN_SGG_100181

The following connector can be mounted to the connecting cable for the M15 connection.



M15 connector		
Type	VPE	Order code
	Piece	
Connection cross-section: 2.5 mm ² Can be assembled in the field Plastics without shielding Crimp sockets included in the scope of supply	5	EWS0109/M

Product codes



Product codes

Gearbox product code

Example		G	50	A	H	045	M	V	C	R	1	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		
Motor mounting	Motor integrated											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	
	Servo motor adapter with plug-in hollow shaft											S	
	Servo motor adapter with jaw coupling											E D G	
Drive size													1A ... □H 08 ... 82

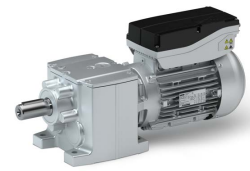


Motor product code

Example	M	S	E	MA	XX	063	-	4	2	C1	C
Meaning	Variant	Product code									
Product family	Motor	M									
Product type	Smart Motor		S								
Cooling	Integral fan			E							
Internal key					MA						
Built-on accessories	Without built-on accessories					XX					
	Brake					BR					
Size						063 080					
Overall length							-	3 4			
Number of pole pairs	4-pole motors								2		
Design types	Internal key									C1	
Approval	CE										C
	CE; cULus										L
	CE; CCC										3
	CE; cULus; CCC										5

Motor data

Rated data



Motor data

Rated data

Motor			MSEMA□□063-42	MSEMA□□080-32
Mains voltage	U_N	V	3 400 ... 480 AC	3 400 ... 480 AC
Rated torque	M_N	Nm	1.75	5.0
Starting torque	M_a	Nm	7.0	20.0
Adjustment range	n_1	rpm	-2600 ... -500 / 0 / 500 ... 2600	
Rated current				
400 V	I_N	A	1.0	2.8
480 V	I_N	A	0.8	2.3
Rated power	P_N	kW	0.47	1.36
Power factor	$\cos \varphi$		0.99	0.99
Efficiency				
Partial load	$\eta_{75\%}$	%	65.0	73.0
Full load	$\eta_{100\%}$	%	66.0	74.0
Moment of inertia				
Without brake	J	kgcm ²	3.700	28.000
With brake	J_{Br}	kgcm ²	3.715	28.061
Mass				
Without brake	m	kg	5.9	12.5
With brake	m_{Br}	kg	6.8	14.0



Appendix

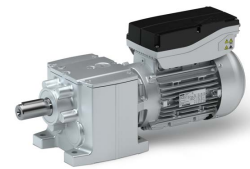
Good to know

Approvals/directives

CCC	China Compulsory Certification documents the compliance with the legal product safety requirements of the PR of China - in accordance with Guobiao standards.
c _{CSA} _{US}	CSA certificate, tested according to US and Canada standards
UE	Union Européenne documents the declaration of the manufacturer that EU Directives are complied with.
CEL	China Energy Label documents the compliance with the legal energy efficiency requirements for motors, tested according to the PR of China and Guobiao standards
CSA	CSA Group (Canadian Standards Association) CSA certificate, tested according to Canada standards
UL ^{Energy} _{US CA}	Energy Verified Certificate Determining the energy efficiency according to CSA C390 for products within the scope of energy efficiency requirements in the USA and Canada
c _{UL} _{US}	UL certificate for products, tested according to US and Canada standards
c _{UR} _{US}	UL certificate for components, tested according to US and Canada standards
EAC	Customs union Russia / Belarus / Kazakhstan certificate documents the declaration of the manufacturer that the specifications for the Eurasian conformity (EAC) required for placing electronic and electromechanical products on the market of the entire territory of the Customs Union (Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan) are complied with.
UL	Underwriters Laboratory Listed Product
UL _{LISTED}	UL Listing approval mark as proof that the product has been tested and the applicable safety requirements have been confirmed by UL (Underwriters Laboratory).
UR	UL Recognized Component approval mark as proof that the UL approved component can be used in a product or system bearing the UL Listing approval mark.

Appendix

Good to know
Operating modes of the motor



Operating modes of the motor

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

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

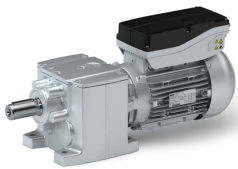
Depending on the duration of the load and the resulting temperature rise, the required motor can be selected reduced by the overload capacity.

The most important operating modes

Continuous operation S1	Short-time operation S2
<p>Operation with a constant load until the motor reaches the thermal steady state. The motor may be actuated continuously with its rated power.</p>	<p>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.</p>
Intermittent operation S3	Non-intermittent periodic operation S6
<p>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.</p>	<p>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>

P Power
t Time
 t_L Idle time
 ϑ Temperature

P_V Power loss
 t_B Load period
 t_S Cycle duration



Enclosures

The degree of protection indicates the suitability of a motor for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The degrees of protection are classified by EN 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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