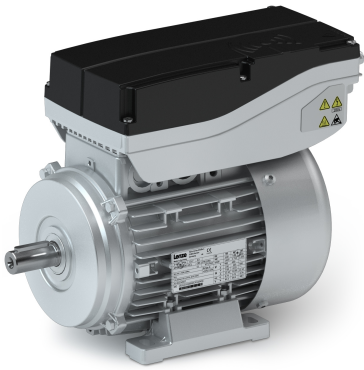




Three-phase AC motors

Lenze Smart motor m300

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About this document

Document description

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

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

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

Further documents

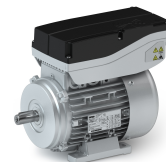


Information and tools with regard to the Lenze products can be found on the Internet:

www.Lenze.com → Downloads

About this document

Notations and conventions



Notations and conventions

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

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

Layout of the safety instructions

DANGER!

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

WARNING!

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

CAUTION!

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

NOTICE

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



Product information

Product description

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.

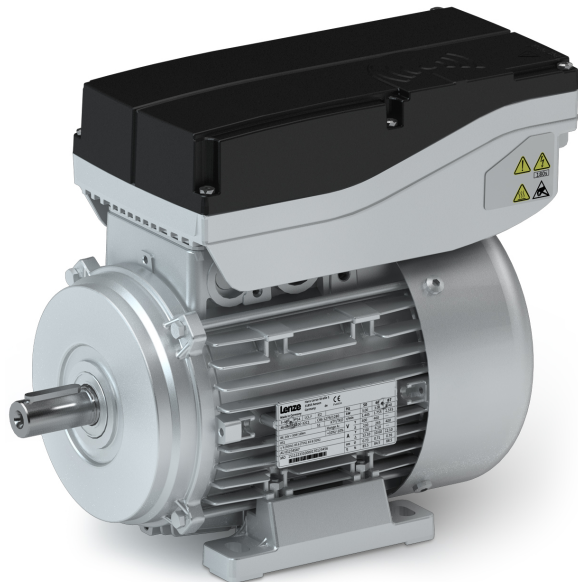
Reduction in the number of variants made easy

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 range from 500 – 2600 rpm, very different speeds can be enabled with one single drive variant. The cost and effort involved in design, selection, procurement and storage are thus reduced considerably.

Highlights

- Efficient and usable worldwide
- Usable in all mounting positions, reduces number of variants
- Freely adjustable speed reduces the number of different drives
- 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

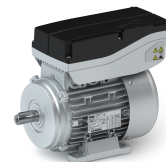


Application ranges

- Conveying and travelling drives

Product information

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

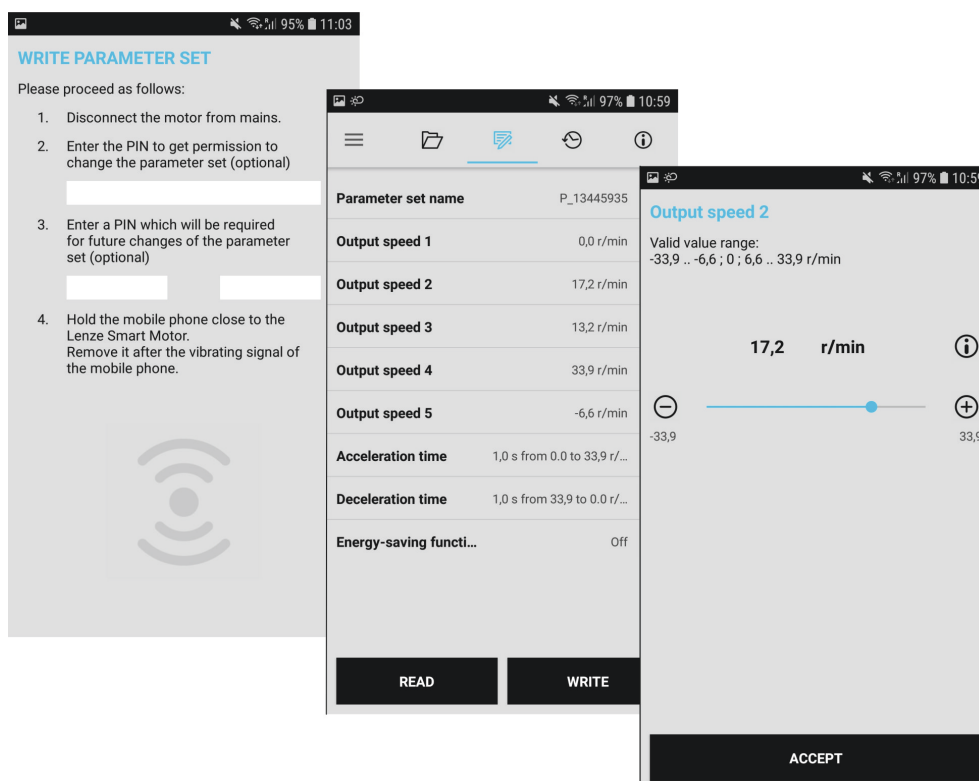
- Name of data record (e. g. the designation of the drive in your documentation)
- Speed and rotating direction 1 (also controllable without digital inputs)
- Speed and rotating direction 2-5 (controllable by means of digital inputs)
- Acceleration time
- Deceleration time
- Energy-saving function

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

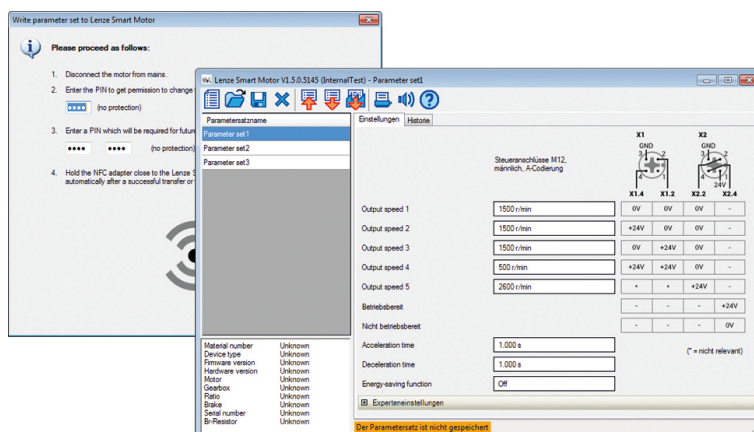
The Lenze Smart Products can be adjusted with an Android smartphone. The corresponding app in German and English can be obtained from www.Lenze.com or the Google Store. For convenience, the data records created can be archived on the smartphone and repeatedly transferred to the Lenze Smart Products for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

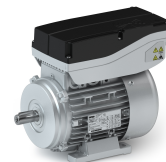
- In all 3-phase networks with a supply voltage of 400 ... 480 V and a mains frequency of 50 ... 60 Hz
- At ambient temperatures of -30 ... +40 °C
- Is suitable for many approvals

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

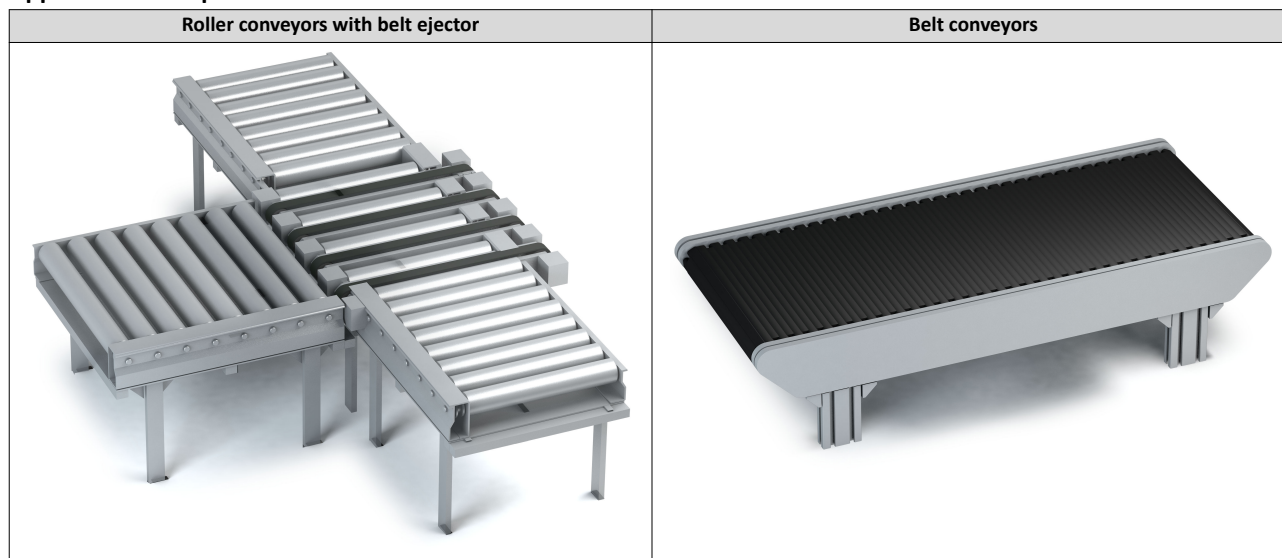
If very little torque is needed in the partial-load operational range, the integrated energy saving function can be used to optimize the energy absorption of the drive.

Product information

Identification of the products



Application examples



Identification of the products

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)	MSEMAXX063-42
		080		3		MSEMAXX080-32
	BR (with brake)	063		4		MSEMABR063-42
		080		3		MSEMABR080-32

Features

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

X4 Brake resistor connection

External

Internal brake resistor

X1, X2 Control terminal

M12 connector

X3 Mains connection

In the terminal box
QUICKON V2-connector
M15-connector

PE

X5 Connection of spring-applied brake

(prewired upon delivery)

Cooling

Integral fan

Spring-applied brake

Standard
LongLife
Manual release lever

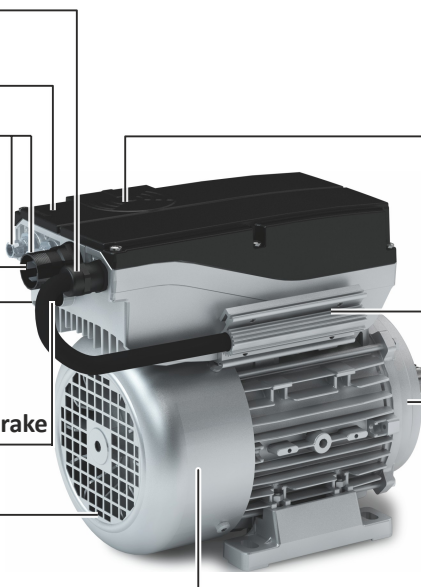
Adjustment of speeds

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

External brake resistor

Type

Foot (B3)
Flange (B5) with through holes
Flange (B14) with threaded holes





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.

Motor		MSEMA□□063-42	MSEMA□□080-32
Technical data			
Max. torque	Nm	7	20
Rated torque	Nm	1.75	5.0
Speed setting range	rpm	-2600 ... -500 / 0 / 500 ... 2600	
Dimensions			
Design		B3/B14/B5	
Solid shaft with featherkey	mm	11 x 23	19 x 40
Output flange	mm	FT75/FF115	FT100/FT130/FF165
Spring-applied brake			
Type		Without Standard Long-life Without/with manual release lever	
Brake resistor		Without Integrated External	
Cooling		Integral fan	
Monitoring and protective measures		Short circuit (to a limited extent), error acknowledgement Earth fault (to a limited extent), error acknowledgement necessary Overvoltage Overcurrent Motor overtemperature Mains phase failure Motor stalling	
Motor connection			
Power connection		Terminal box QUICKON V2 connector M15 connector	
Control terminal		M12 connector	
Surface and corrosion protection		Without Different types of OKS	
Color		Unpainted Primed/RAL colors	

Product information

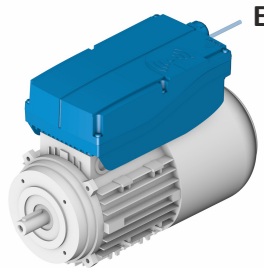
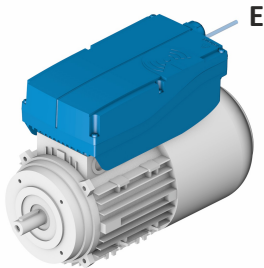
The modular system
Mounting positions



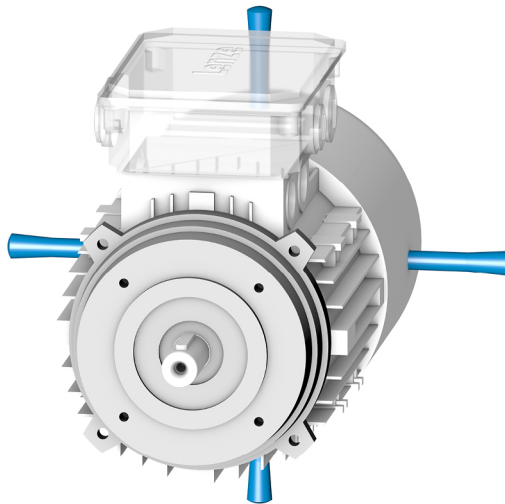
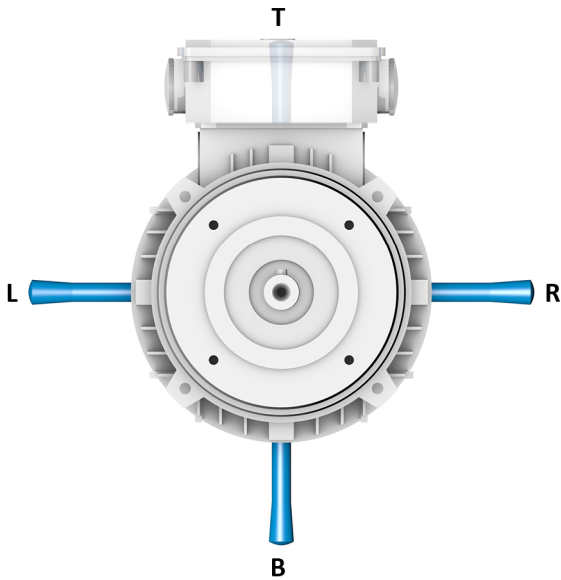
Mounting positions

Positions of the connections

Mains connection	Control terminal
Cable gland for terminal box QUICKON V2 connector M15 connector	M12 connector



Position of the manual release lever





Information on project planning

Safety instructions

Basic safety instructions

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

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

Application as directed

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

Information on project planning

Safety instructions
Residual hazards



Residual hazards

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

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

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

Product

Observe the warning labels on the product!



Dangerous electrical voltage:

Before working on the product, make sure there is no voltage applied to the power terminals!

After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!



Electrostatic sensitive devices:

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



High leakage current:

Carry out fixed installation and PE connection in compliance with:

EN IEC 61800-5-1 / EN IEC 60204-1



Hot surface:

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

Protection of persons

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

Motor protection

- Parameterize the product so that it will be switched off after some seconds of operation with $I > I_N$, especially if there is a risk of blocking.
 - The installed overload protection does not prevent an overload under any conditions.
- The fuses are no motor protection.
 - Use a current-dependent motor protection switch.
 - Use the built-in temperature sensors.
- Too high torques cause a fraction of the motor shaft.
 - The maximum torques according to catalog must not be exceeded.
- Lateral forces on the motor shaft are possible.
 - Align the shafts of motor and driven machine exactly to each other.



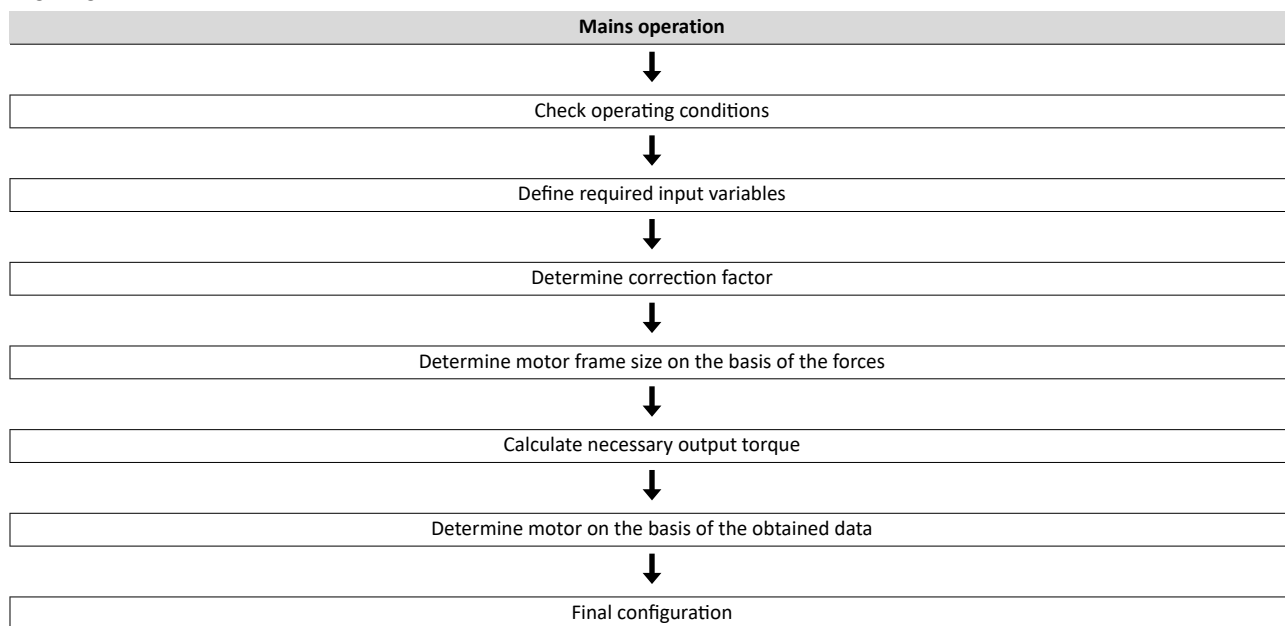
Drive dimensioning

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

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

Please get in touch with your Lenze representative.

Workflow



Check operating conditions

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

► [Standards and operating conditions](#) 29

► [Surface and corrosion protection](#) 18

Define required input variables

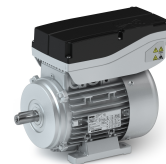
Necessary input variables	Note	Symbol	Unit
Ambient temperature		T_v	°C
Site altitude Amsl		H	m
Radial force		F_{rad}	rated
axial force		F_{ax}	rated
Transmission element at the output	Gear wheels, sprockets ...		
Effective diameter of the transmission element		d_w	mm
Load torque		$M_{L,max}$	Nm
Load speed		$n_{L,max}$	rpm

Determine correction factor

Ambient temperature	T_U	°C	≤ 40
Correction factor	k_{TU}		1

Information on project planning

Drive dimensioning



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

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	
				< 13 teeth = 1.4		
			Calculation			Check
Radial force	F_{rad}	N	$F_{rad} = 2000 \times \frac{M_{L,max} \times f_z}{dw}$			$F_{rad} \leq F_{rad,max}$
Axial force	F_{ax}	N				$F_{ax} \leq F_{ax,max}$

dw Effective diameter of transmission element

► [Radial forces and axial forces](#) 32

Calculate output torque

			Calculation
Necessary output torque	M_N	N m	$M_N \geq \frac{M_{L,max}}{k_H \times k_{TU}}$

Determine motor on the basis of the data obtained from the rated data

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

► [Rated data](#) 33



Final configuration

Check and define connection dimensions	Output shaft Output flange
Select product extensions and accessories	Brake NFC adapter QUICKON connector M15 connector

More information about the final configuration:

► [The modular system](#) 11

► [Product extensions](#) 42

► [Accessories](#) 49

Parameters that can be preset by Lenze



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

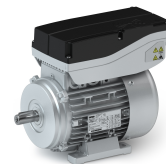
Standard settings

Parameter	Value		Comment
Name	Delivery	Setting range	
Parameter set name	---	[text]	File name of the parameter set without file extension *.lsm
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 when calculating the output speed.
Output speed 2			
Output speed 3			
Output speed 4			
Output speed 5			
Acceleration time	---	[0.0 ... 20.0] s	Acceleration time t_1 of the ramp generator from 0 rpm to n_{max} [2600/i] rpm
Deceleration time			Deceleration time t_2 of the ramp generator from n_{max} [2600/i] rpm to 0 rpm
Energy-saving function	---	[Off]	Optimized for: • 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 is available.

Information on project planning

Final configuration

Surface and corrosion protection



Surface and corrosion protection

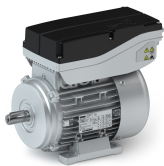
Depending on the ambient conditions, the surface and corrosion protection system (called OKS) offers tailor-made solutions for optimum protection.

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

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

Surface and corrosion protection (called OKS)	Applications	Type
without OKS (unpainted)	- Indoor installation, no special corrosion protection necessary - Painting by customer	Standard
OKS-G (primed)	Dependent on subsequent top coat applied	Optional
OKS-S (small)	- Standard applications - Internal installation in heated buildings - Air humidity up to 90%	
OKS-M (medium)	- Internal installation in non-heated buildings - Covered, protected external installation - Air humidity up to 95 %	

Surface and corrosion protection	Corrosivity category	Surface coating	Color	Coating thickness
	DIN EN ISO 12944-2	Design		
Without OKS (uncoated)				
OKS-G (primed)		2K PUR priming coat		60 ... 90 µm
OKS-S (small)	Comparable to C1	2K-PUR top coat	- Standard: RAL 7012 - Optional: RAL Classic	80 ... 120 µm
OKS-M (medium)	Comparable to C2	2K PUR priming coat 2K-PUR top coat		110 ... 160 µm



Information on mechanical installation

Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#)  29
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics.
- Lenze offers special surface and corrosion protection in this case.

NOTICE

Bearing damage caused by unbalance!

Shafts with keyway are balanced with a half featherkey!

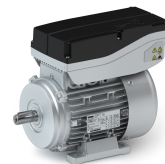
▶ Balance transmission elements with a half featherkey!

Transport

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

Installation

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



Information on electrical installation

Important notes

DANGER!

Risk of injury and risk of burns from dangerous voltage

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

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

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

Preparation



The notes for the electrical connection can be found in the enclosed mounting instructions.



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.

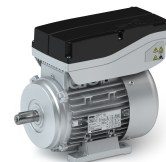
Mains connection with QUICKON connector			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Laying system		B2	
Connection type		QUICKON connector	
Cable type		Flexible	
Cable cross-section			
Typ.	mm ²	1.5	2.5
Min.	mm ²	1.5	1.5
Max.	mm ²	2.5	2.5

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

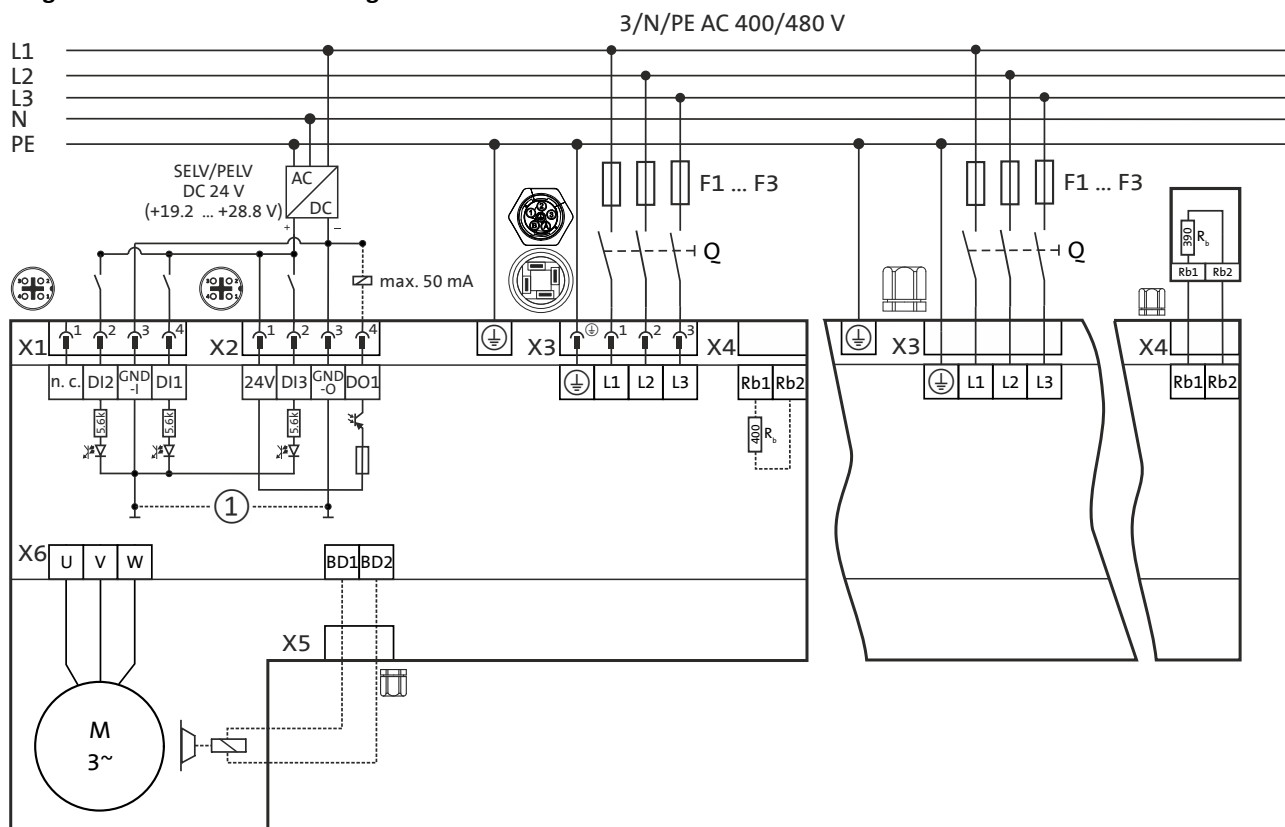
Mains connection cable L1, L2, L3, PE			
Motor		MSEMA□□063-42	MSEMA□□080-32
Connection		X3	
Installation method		B2	
Connection type		Cable	
Cable type		rigid/flexible	
Cable cross-section			
Typ.	mm ²	1.0	1.5
Min.	mm ²	0.75	0.75
Max.	mm ²	1.5	1.5
Stripping length	mm	10	10

Information on electrical installation

Connection according to EN



Single drive connection according to EN IEC 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 accordance with		EN IEC 60204-1	
Laying system		B2	
Fuse			
Characteristic		gG/gL	
Typ. Rated current	A	6	10
Max. rated current	A	16	16
Semiconductor fuse			
Characteristic		gRL	
Typ. Rated current	A	6	10
Max. rated current	A	16	16
Circuit breaker			
Characteristic		C	
Typ. Rated current		6	10
Max. rated current	A	16	16

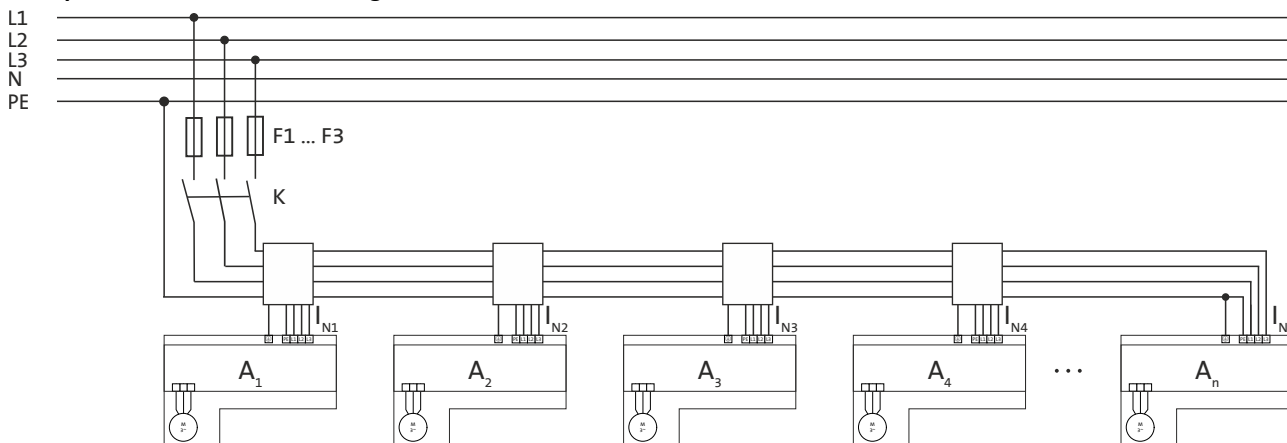
- Use of copper cables insulated with PVC
 - Conductor temperature < 70 °C, ambient temperature < 40 °C
- No bundling of cables or wires, three wires under load



Information on electrical installation

Connection according to EN

Group drive connection according to EN IEC 60204-1



Max. total rated mains currents at 40 °C for different cable cross-sections

Cable installation in accordance with		EN IEC 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 the 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 33

- 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 utilization 80 % of the respective cable cross-section taken into account

Group drive sizing

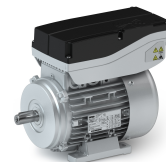
Example:

Verification of the maximum permissible rated mains current taking into account 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 x 1 A = 7 A ≤ 7.6 A	12 x 1 A = 12 A ≤ 12.2 A	17 x 1 A = 17 A ≤ 17.6 A

Information on electrical installation

Connection according to cULus



Connection according to cULus



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

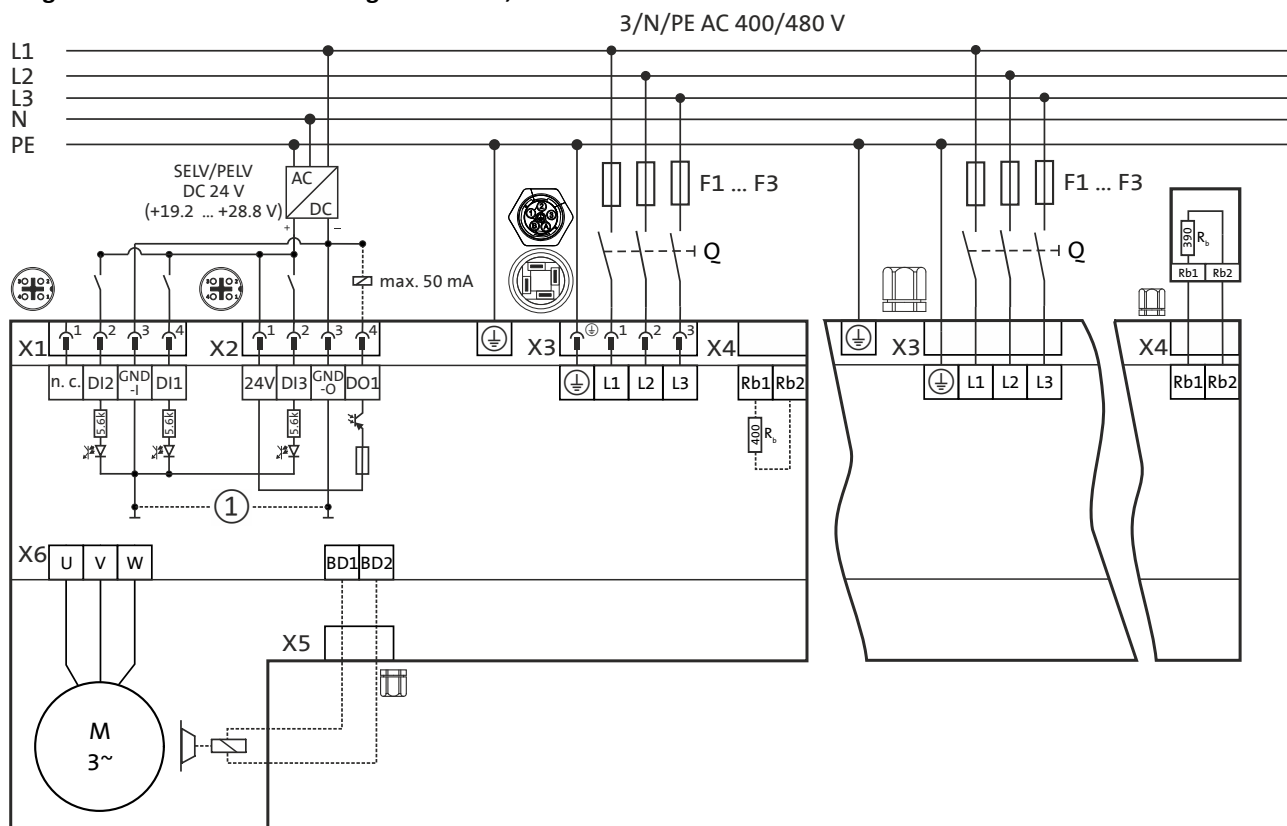


General UL notes

⚠ 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.

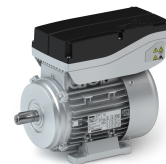
Single drive connection according to NFPA 70, NFPA 79



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

Information on electrical installation

Connection according to cULus

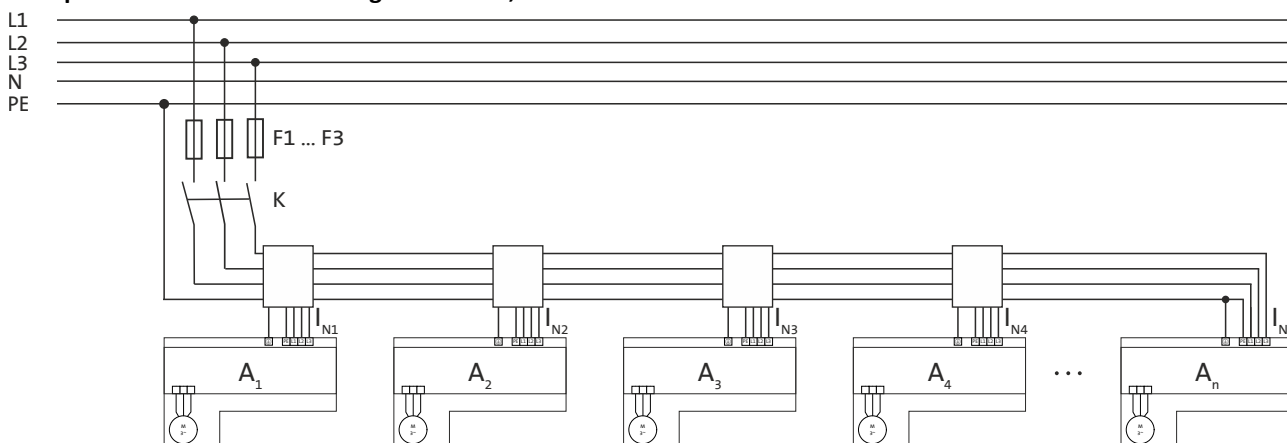


Fuse data (F1 ... F3)				
Motor		MSEMA□□063-42		MSEMA□□080-32
Cable installation in accordance with		NFPA 70, NFPA 79		
Fuse				
Standard		UL 248		
Typ. Rated current	A	3		6
Max. rated current	A	3		10
Semiconductor fuse				
Standard		UL 248		
Typ. Rated current	A	3		6
Max. rated current	A	3		10
Circuit breaker				
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.

Group drive connection according to NFPA 70, NFPA 79





Information on electrical installation

Connection according to cULus

Max. total rated mains currents at 40 °C for different cable cross-sections			
Cable installation in accordance with		NFPA 70, NFPA 79	
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 33

- 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 utilization 80 % of the respective cable cross-section taken into account

WARNING!

▶ UL marking

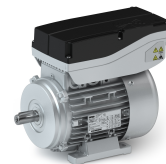
- ▶ Suitable for motor group installation on a circuit capable of delivering not more than 5k rms symmetrical amperes, 480 V maximum.
- ▶ When protected by fuses rated, see table above.
- ▶ When protected by a circuit breaker having an interrupting rating not less than 5k rms symmetrical amperes, 480/277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



Technical data

Notes regarding the given data

The power values, torques and speeds indicated in the catalog are rounded values and apply to:

- Operating time per day = 8 hrs (100 % ED)
- Duty class up to 10 switching operations per hour
- Ambient temperature = -30 ... +40 °C
- Site altitude $\leq$ 1000 m above mean sea level

The selection tables indicate the mechanically permissible power levels and torques.

The rated data apply to the operating mode S1 (acc. to EN 60034-1).

NOTICE

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

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



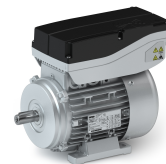
Standards and operating conditions

Conformities and approvals

Conformities		
CE	2009/125/EC	Ecodesign Directive
	2011/65/EU	RoHS Directive
	2014/30/EU	EMC Directive (reference: CE-typical drive system)
	2014/35/EU	Low-Voltage Directive
UKCA		
	S.I. 2012/3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
	S.I. 2016/1091	The Electromagnetic Compatibility Regulations 2016
	S.I. 2016/1101	The Electrical Equipment (Safety) Regulations 2016
	S.I. 2021/745	The Ecodesign for Energy-Related Products and Energy Information Regulations 2021
Approvals		
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

Technical data

Standards and operating conditions
Protection of persons and device protection



Protection of persons and device protection

Degree of protection			
EN	EN IEC 60529,EN IEC 60034-5	IP55	Information applies to the mounted and ready-for-use state
NEMA	NEMA 250	Type 12	
		Type 4 indoor only	Depending on the configuration
Insulation resistance			
Overvoltage category	EN IEC 61800-5-1	II	>2000 m amsl
		III	0 ... 2000 m amsl
Insulation of control circuits			
-	EN IEC 61800-5-1	Safe mains isolation	double/reinforced insulation
		Connect overvoltage device upstream	Site altitude above 200 m amsl: Additional external separation measures are required to maintain safe separation.
Protective measures			
Earth fault resistance	-	To a limited extent, fault acknowledgement necessary	
Motor stalling protection		yes	
Short-circuit strength		To a limited extent, fault acknowledgement necessary	
Overvoltage resistance		yes	
Motor overtemperature		I²xt monitoring	
Leakage current			
AC	EN IEC 61800-5-1	> 3.5 mA	Please observe regulations and safety instructions!
Equipotential bonding	-	Additional M5 thread with terminal on the terminal box for connection of a 6mm² PE cable	
Total fault current			
Earth-leakage circuit breaker	-	in TN systems	
Cyclic mains switching			
3 times per minute, max. 20 times per hour	-	After switching the mains 3 times in one minute, there must be a switching pause of 9 minutes.	
Starting current			
-	-	5.6 A mains power-on current	

EMC data

Operation on public supply systems			
-	-	The machine or system manufacturer is responsible for compliance with the requirements for the machine/system!	
< 1 kW	EN IEC 61000-3-2	with mains choke	
> 1 kW, mains current ≤ 16 A		no additional measures	
Mains current > 16 A ... ≤ 75 A	EN IEC 61000-3-12	With mains choke or mains filter	When designed for rated power.
Noise emission			
Fulfills requirements according to	EN IEC 60034-1	A final overall assessment of the drive system is indispensable	
Category C2	EN IEC 61800-3	see rated data	
Noise immunity			
-	EN IEC 61800-3	Requirements for industrial environment are met	



Technical data

Standards and operating conditions

Environmental conditions

Environmental conditions

Climate			
Storage	EN 60721-3-1:1997	1K3 (-30 ... +60°C)	<3 months
		1K3 (-30 ... +40 °C)	>3 months
Transport	EN 60721-3-2:1997	2K3 (-30 ...+70 °C)	
Operation	EN 60721-3-3:1995 + A2:1997	3K3 (-30 ...+40 °C)	Operation
Site altitude			
0 ... 1000 m amsl	-	without current derating	
1000 ... 4000 m amsl		Reduce rated output current by 5 %/1000 m	
Pollution			
-	EN IEC 61800-5-1	Degree of pollution 2	
Vibration resistance			
Operation	EN 60721-3-3:1995 + A2:1997	3M4	
Transport	EN 60721-3-2:1997	2M2	
Vibration severity			
A	EN IEC 60034-14	-	-

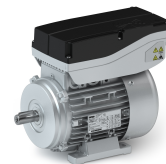
Electrical supply conditions

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		



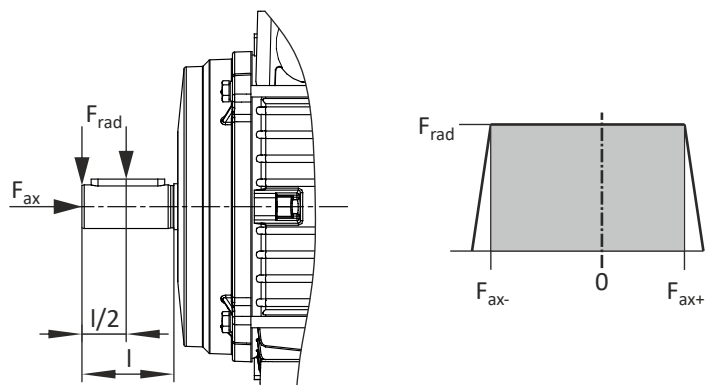
Radial forces and axial forces



The values for the bearing service life L_{10h} refer to an average speed of 2000 rpm for the motor. Depending on the ambient temperatures, they are additionally limited by the grease lifetime.

Data for axial forces refer to the maximum radial force with the corresponding bearing service life.

Application of forces



Application of force at $l/2$

Motor			MSEMA	
Size			063-42	080-32
Bearing service life 10000 h				
Radial force	F_{rad}	rated	600	960
Min. axial force	$F_{ax,-}$	rated	-600	-1090
Max. axial force	$F_{Fax,+}$	rated	300	580
Bearing service life 20000 h				
Radial force	F_{rad}	rated	470	770
Min. axial force	$F_{ax,-}$	rated	-480	-860
Max. axial force	$F_{Fax,+}$	rated	180	350
Bearing service life 30000 h				
Radial force	F_{rad}	rated	410	670
Min. axial force	$F_{ax,-}$	rated	-430	-760
Max. axial force	$F_{Fax,+}$	rated	120	250
Bearing service life 50000 h				
Radial force	F_{rad}	rated	350	570
Min. axial force	$F_{ax,-}$	rated	-370	-650
Max. axial force	$F_{Fax,+}$	rated	70	140



Technical data

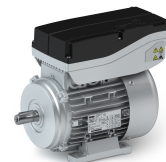
Rated data

Application of force at I

Motor			MSEMA	
Size			063-42	080-32
Bearing service life 10000 h				
Radial force	F_{rad}	rated	400	880
Min. axial force	$F_{ax,-}$	rated	-600	-1090
Max. axial force	$F_{Fax,+}$	rated	300	580
Bearing service life 20000 h				
Radial force	F_{rad}	rated	370	700
Min. axial force	$F_{ax,-}$	rated	-480	-860
Max. axial force	$F_{Fax,+}$	rated	180	350
Bearing service life 30000 h				
Radial force	F_{rad}	rated	320	610
Min. axial force	$F_{ax,-}$	rated	-430	-760
Max. axial force	$F_{Fax,+}$	rated	120	250
Bearing service life 50000 h				
Radial force	F_{rad}	rated	300	520
Min. axial force	$F_{ax,-}$	rated	-370	-650
Max. axial force	$F_{Fax,+}$	rated	70	140

Rated data

Motor			MSEMA			
			063-42		080-32	
Rated mains voltage		V	400	480	400	480
Rated power	P _{rated}	kW	0.476		1.361	
Verstellbereich		rpm	-2600 ... -600 /0/ 600 ... 2600			
Rated current	I _{rated}	A	1	0.8	2.8	2.3
Rated torque	M _{rated}	Nm	1.75		5.00	
Starting torque	M _a	Nm	7		20	
Power factor	cos ϕ		0.99			
Efficiency						
at 75 % P _{rated}		%	65		73	
at 100 % P _{rated}		%	66		74	
Moment of inertia	J	kgcm ²	3.70		26.0	
Weight	m	kg	5.9		12.5	



Ecodesign Directive

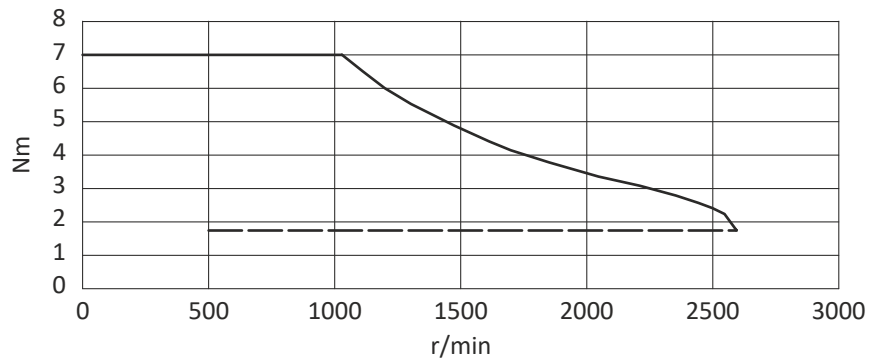
Product information acc. to REGULATION (EU) 2019/1781 (ANNEX I, Section 4)

Rated efficiency at full load	η_{rated}	%	-	-
Efficiency at 75 % rated load	η	%	-	-
Efficiency at 50 % rated load	η	%	-	-
Efficiency level			-	
Name of the manufacturer			Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY	
Commercial register number			Hannover HRB 204803	
Model identifier of the product			MSEMA□□063-42	MSEMA□□080-32
Number of poles of the motor			-	
Rated output power	P_{rated}	kW	-	
Rated input frequency	f_{rated}	Hz	-	-
Rated voltage	V_{rated}	V	-	-
Rated speed	n_{rated}	min ⁻¹	-	-
Number of motor phases			-	
Altitudes above sea level		m	...	
Ambient air temperature		°C	...	
Maximum operating temperature		°C	-	
Potentially explosive atmospheres			-	
Reason for exemption from efficiency requirements			The motors are equipped with an integrated variable speed drive (compact drives) and the energy performance of the motors cannot be tested independently from the variable speed drive.	



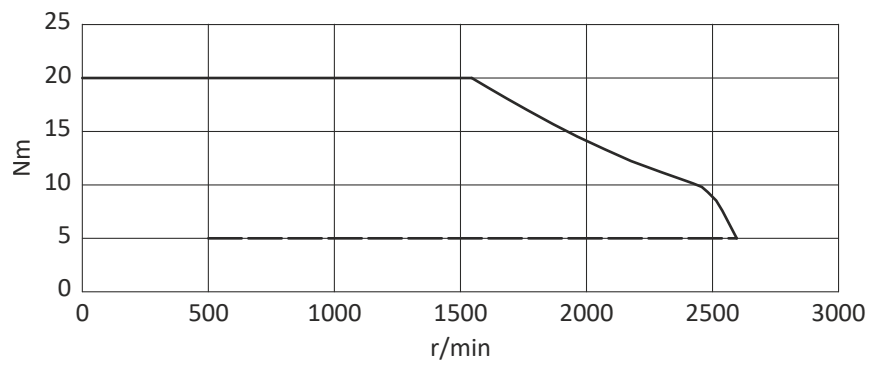
Torque characteristics

MSEMA □ □ 063-42



----- Output torque
———— Starting torque

MSEMA □ □ 080-32



----- Output torque
———— Starting torque

Technical data

Dimensions
Basic dimensions

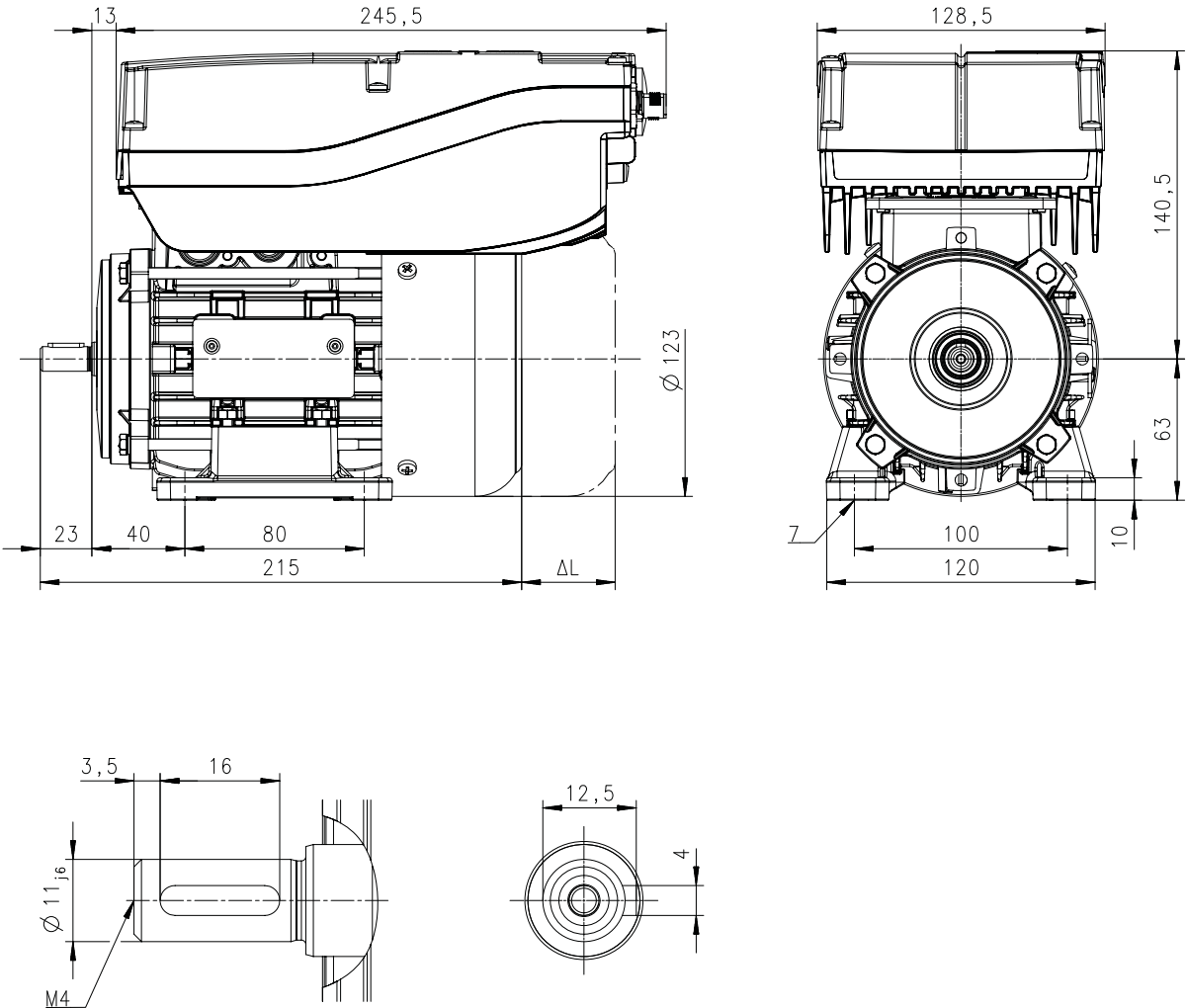


Dimensions

Basic dimensions

MSEMA□□063-42

Design B3



8800248-00

Dimensions			
Length of motor options			
With brake	ΔL	mm	40

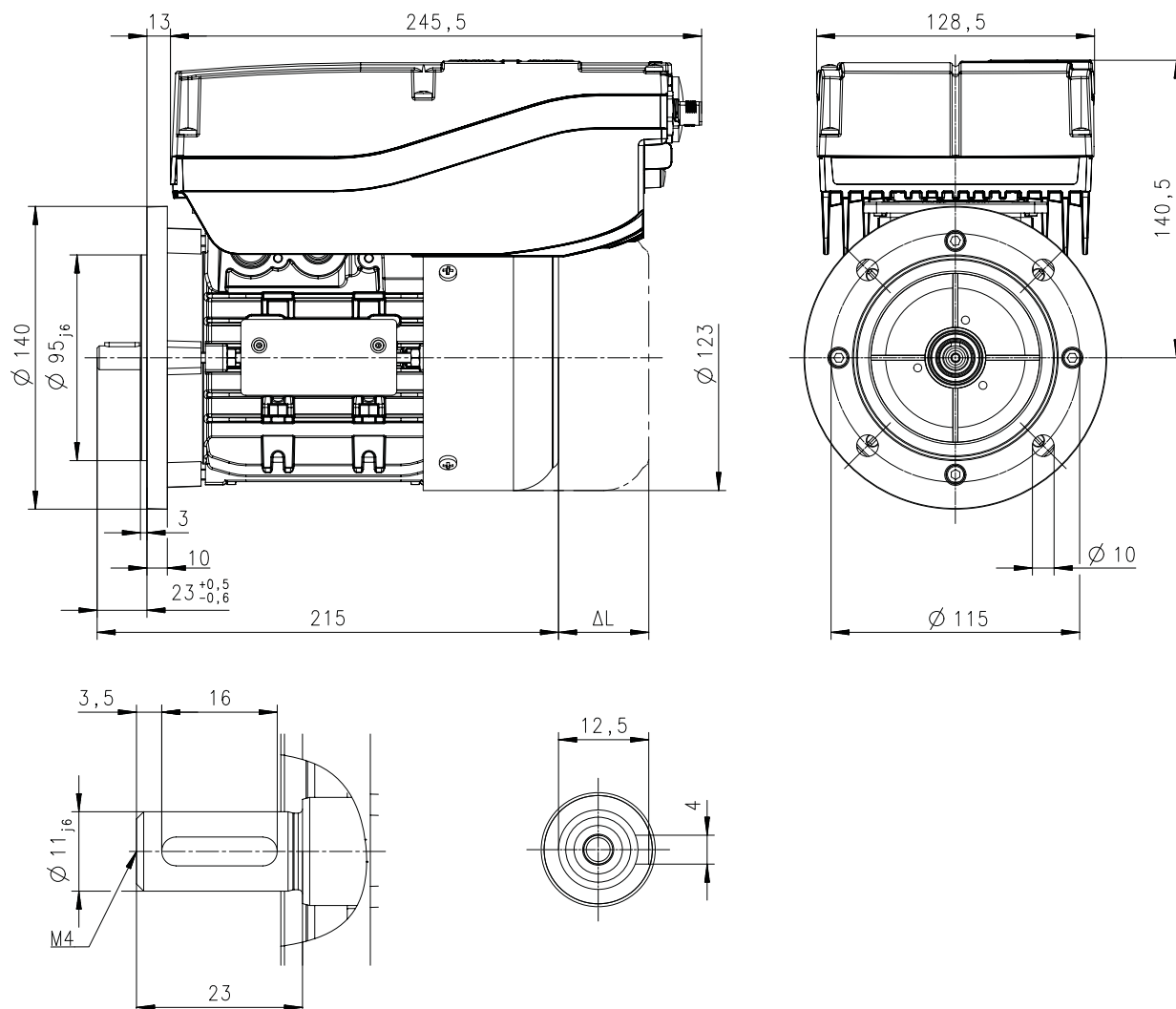


Technical data

Dimensions
Basic dimensions

MSEMA □ □ 063-42

Design B5 (FF115)



8800247-00

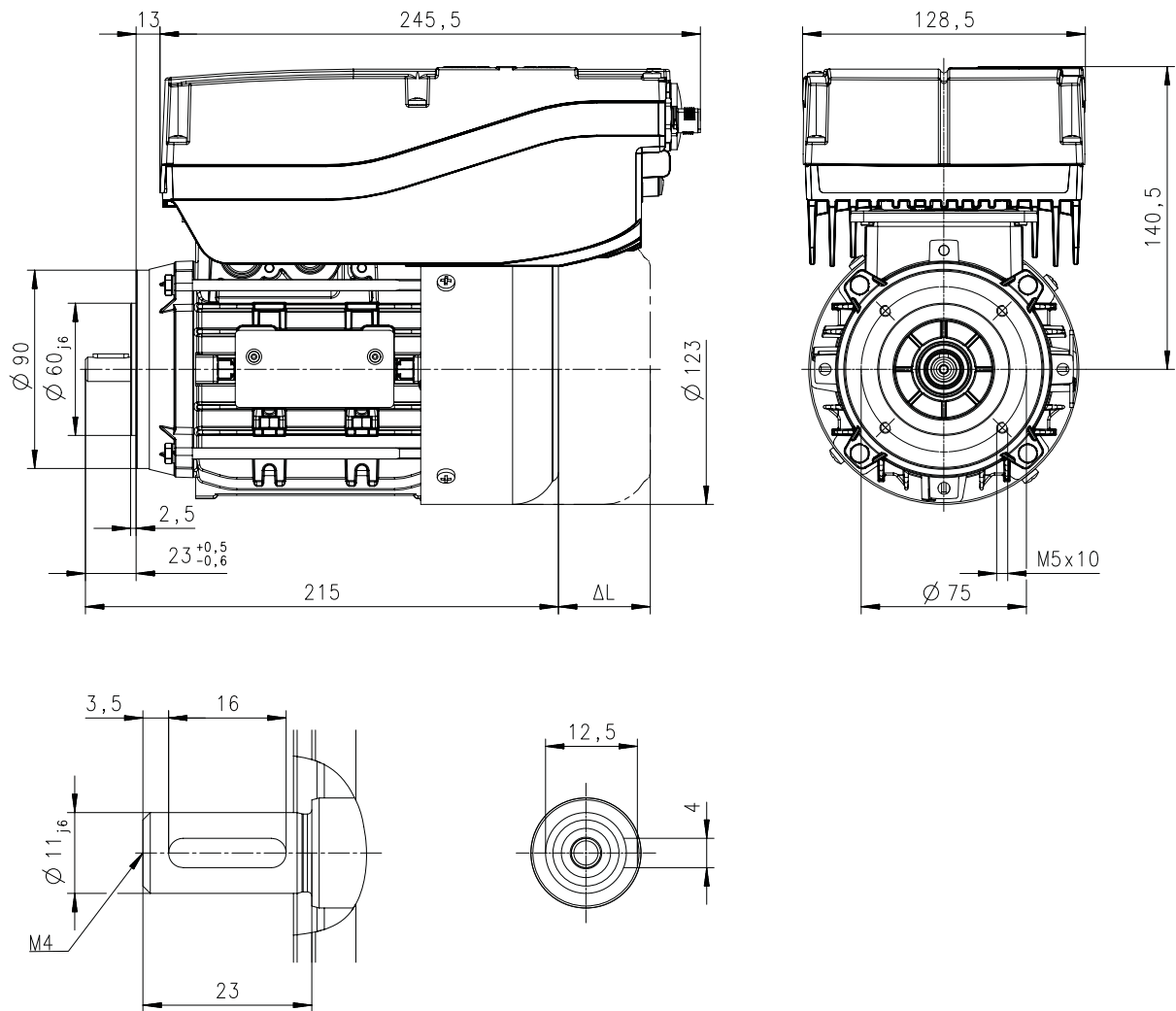
Dimensions			
Length of motor options			
With brake	Δ L	mm	40

Technical data

Dimensions
Basic dimensions



MSEMA□□063-42
Design B14 (FT75)



8800246-00

Dimensions			
Length of motor options			
With brake	Δ L	mm	40

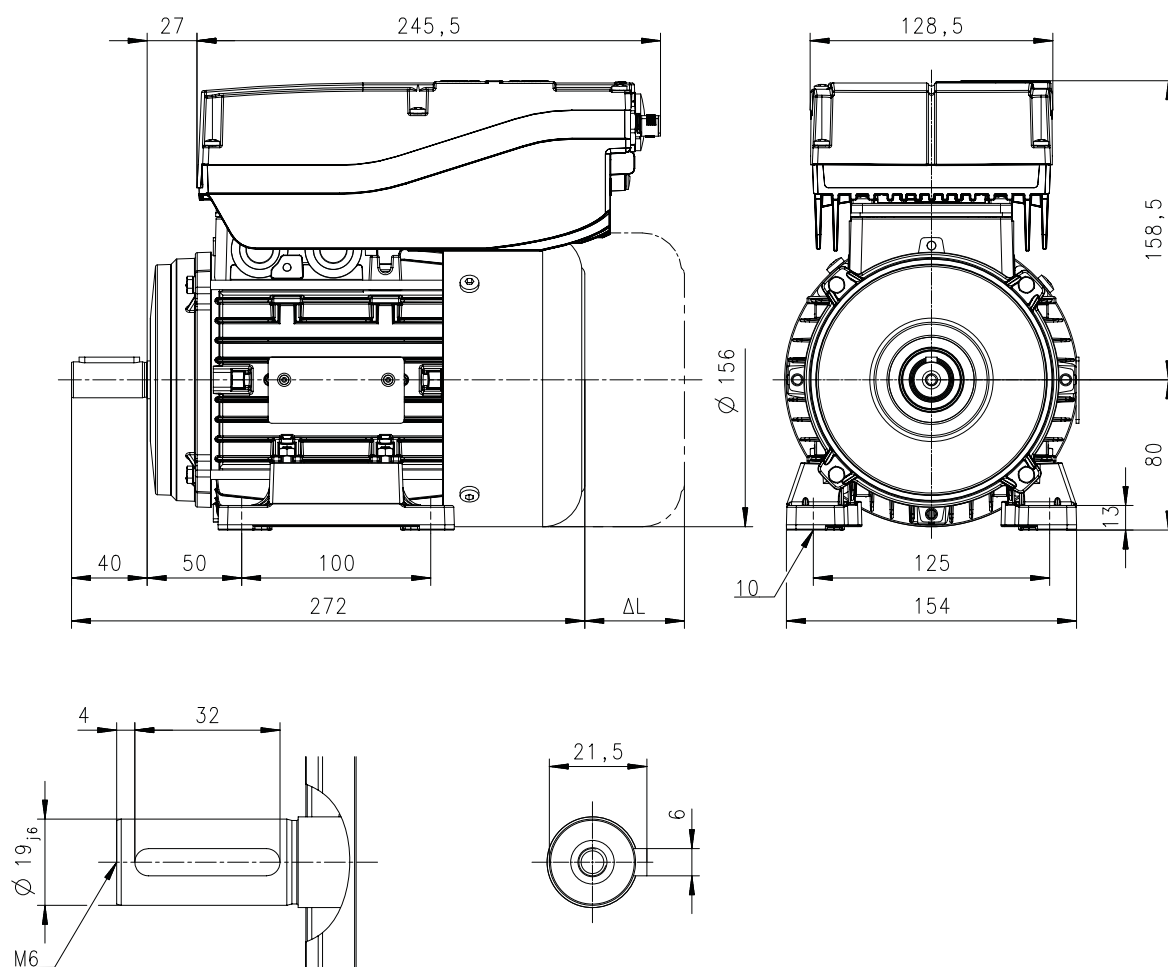


Technical data

Dimensions
Basic dimensions

MSEMA□□080-32

Design B3



8800250-00

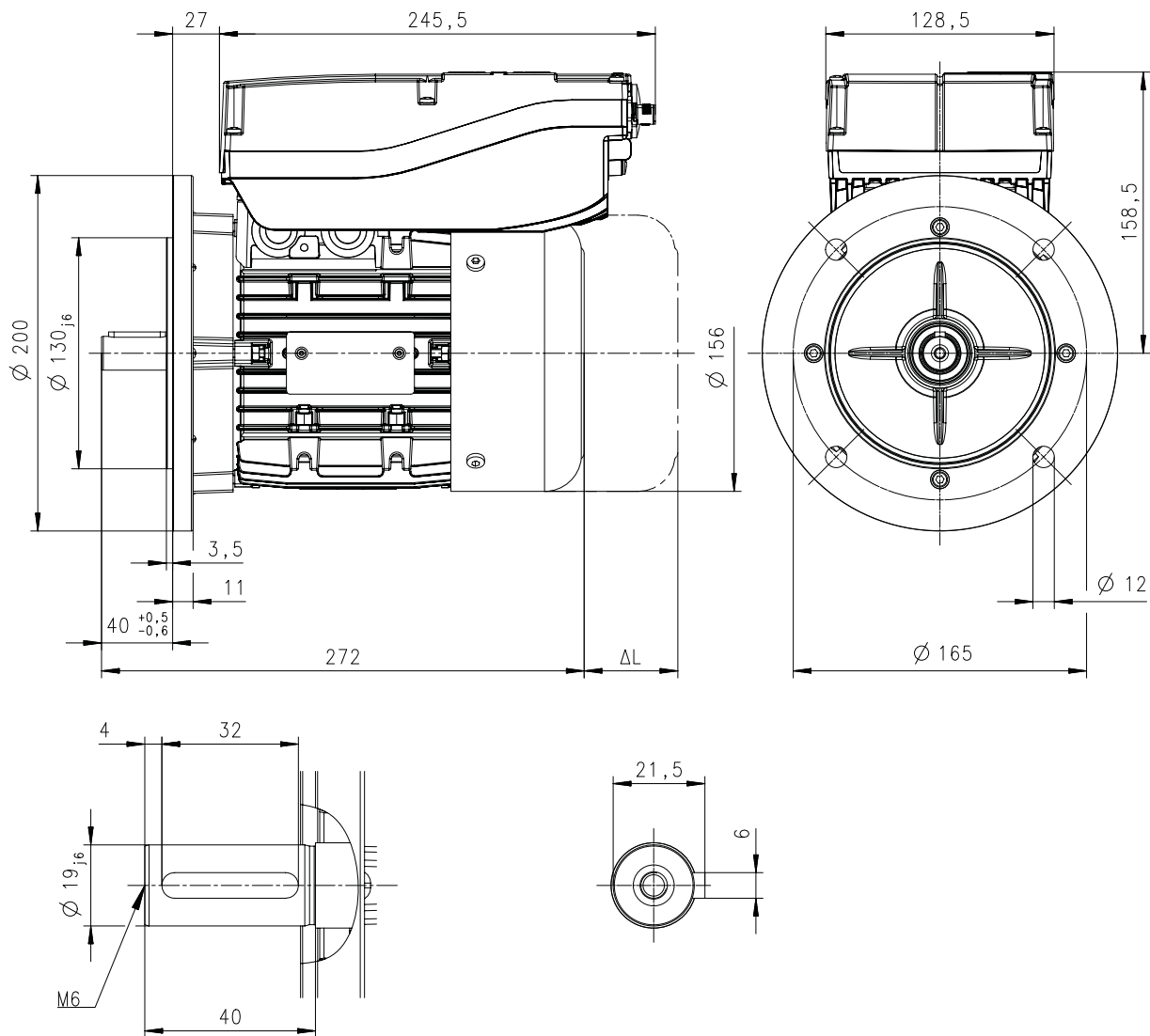
Dimensions			
Length of motor options			
With brake	ΔL	mm	73

Technical data

Dimensions
Basic dimensions



MSEMA□□080-32
Design B5 (FF165)



8800249-00

Dimensions			
Length of motor options			
With brake	ΔL	mm	73

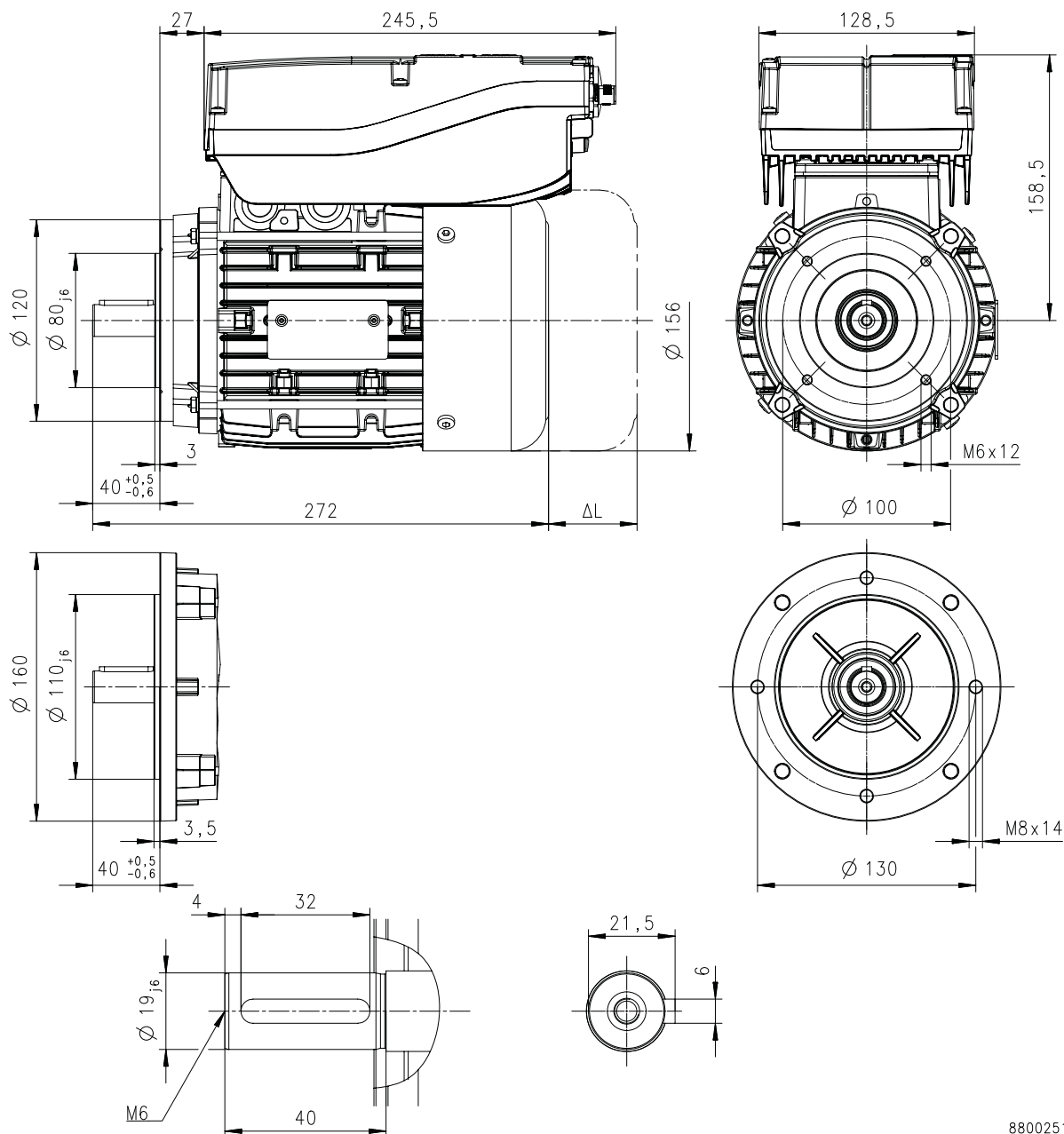


Technical data

Dimensions
Basic dimensions

MSEMA□□080-32

Design B14 (FT100/130)

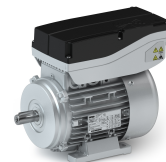


8800251-00

Dimensions			
Length of motor options			
With brake	ΔL	mm	73

Product extensions

Motor connection
Connection via terminal box



Product extensions

Motor connection

The Lenze Smart Motor can be simply connected via connectors (QUICKON or M15 for power connection, M12 for control terminals).

The power connection can alternatively be established in the terminal box via cable glands using spring terminals.

The connections are kept easily accessible from the fan side.

► [Information on electrical installation](#) 20

Connection via terminal box

MSEMA 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

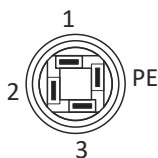
Connection via QUICKON V2 connector

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



QUICKON V2 nuts and QUICKON V2 connectors with QUICKON V2 nuts are available as accessories.

Mains connection X3



QUICKON V2		
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

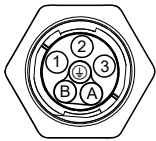


Product extensions

Motor connection
Connection via M15 connector

Connection via M15 connector

Mains connection X3



M15 power without temperature sensor		
Contact	Name	Meaning
A		Not assigned
B		
1	L1	Mains connection Phase L1
2	L2	Mains connection Phase L2
3	L3	Mains connection Phase L3
PE	PE	PE conductor

Product extensions

Motor connection
Connection via M12 connector



Connection via M12 connector

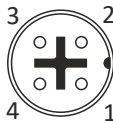
Control connections with M12 connectors

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

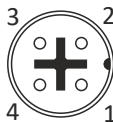
In the "DI/DO-GND bridged" version, the masses of the control terminal X1 and X2 (GND-I and GND-O) are connected to each other. If only one speed is used, the connection to X2 is sufficient.

Control connection X1



M12 A coded X1		
Contact	Name	Meaning
1	n.c.	
2	DI2	Digital input 2
3	GND-I	Ground of digital input
4	DI1	Digital input 1

Control connection X2



M12 A coded X2		
Contact	Name	Meaning
1	24V	24 V supply (DO1 supply)
2	DI3	Digital input 3 (reference X1;3 = GND-I)
4	DO1	Digital output 1
3	GND-O	Ground of digital output

Connection data - digital inputs for control connection X1/X2

Name	Supply voltage	Internal resistance
	V_{in}	R_i
	DC V	Ω
DI1	24 (19.2 ... 28.8)	5600
DI2		
DI3		



Brakes

The motors can be ordered with a spring-applied brake to allow stopping or deceleration of the moving masses. The spring-applied brake operates according to the closed-circuit principle. In the deenergized state, the brake is closed, preventing possible movement of the motor shaft or the load after switching off or in the event of a power failure.

CAUTION!

The brake may not be used as a safety element (particularly with hoist axes) without additional measures being implemented.

The brakes used are not fail-safe brakes in the sense that prospective disruptive factors, e.g. oil ingress, can lead to a reduction in torque! The friction surfaces must always be free from oil and grease because even small amounts of grease or oil will considerably reduce the braking torque.

LongLife version

The application brake is available in a LongLife version for applications with very high switching frequencies. The standard design has a guaranteed service life for the brake mechanism of 1 million switching cycles.

The LongLife version has a reinforced brake mechanism and up to 10 million repeating or 15 million reversing switching cycles possible.

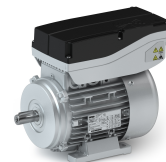
Manual release lever

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

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

Product extensions

Brakes
Spring-applied holding brake



Spring-applied holding brake

Versions	
Standard	1 x 10 ⁶ switching cycles, repeating 1 x 10 ⁶ switching cycles, repeating
Long-life	10 x 10 ⁶ Switching cycles, repeating 15 x 10 ⁶ Switching cycles, repeating
Control	Via internal electronics Holding brake, active when equipment deenergized
Degree of protection	
Without manual release lever	IP55
With manual release lever	IP54
Friction lining	Low-wear
Brake rotor	Low noise
Brake design	Not adjustable

Braking torque assignment

Motor	Standard design	
	06	08
	Nm	Nm
MSEMA 063-42	4	
MSEMA 080-32		8

Motor	LongLife design	
	06	08
	Nm	Nm
MSEMA 063-42	4	
MSEMA 080-32		8

Rated data, Standard design, IP54/55

Holding brake		06	08
Power input			
180 V DC	W	20	25
Moment of inertia	kgcm ²	0.15	0.61
Braking torque is static	Nm	4	8
Min. static braking torque tolerance	%	-25	-25
Max. static braking torque tolerance	%	35	35
Reversing cycles		1x 10 ⁶	1x 10 ⁶
Repetitive cycles		1x 10 ⁶	1x 10 ⁶
Maximum switching energy	J	3000	7500

Rated data, LongLife design, IP54/55

Holding brake		06	08
Power input			
180 V DC	W	20	25
Moment of inertia	kgcm ²	0.15	0.61
Braking torque is static	Nm	4	8
Min. static braking torque tolerance	%	-25	-25
Max. static braking torque tolerance	%	35	35
Reversing cycles		15x 10 ⁶	15x 10 ⁶
Repetitive cycles		10x 10 ⁶	10x 10 ⁶
Maximum switching energy	J	3000	7500



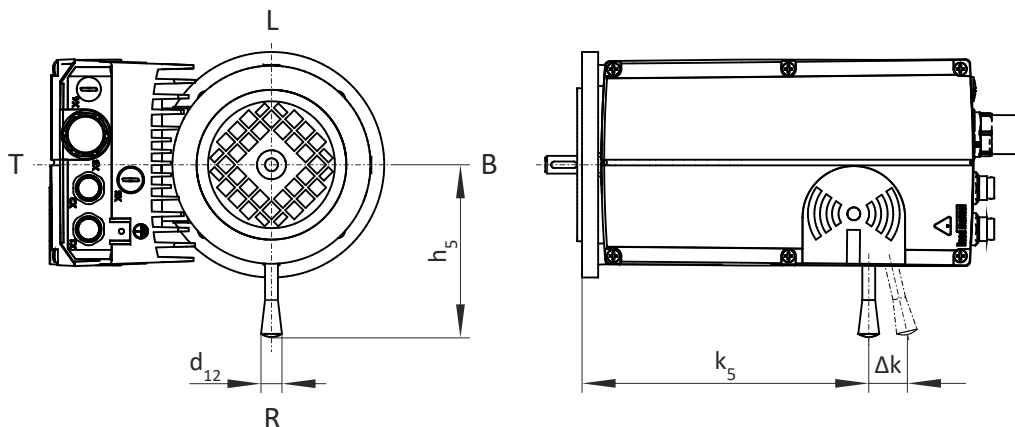
Product extensions

Brakes
Spring-applied holding brake

Manual release lever



When ordering, specify the position of the manual release lever (T, L, R or B).
Terminal box and manual release lever are not possible in the same position!



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

Product extensions

Brake resistors



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.

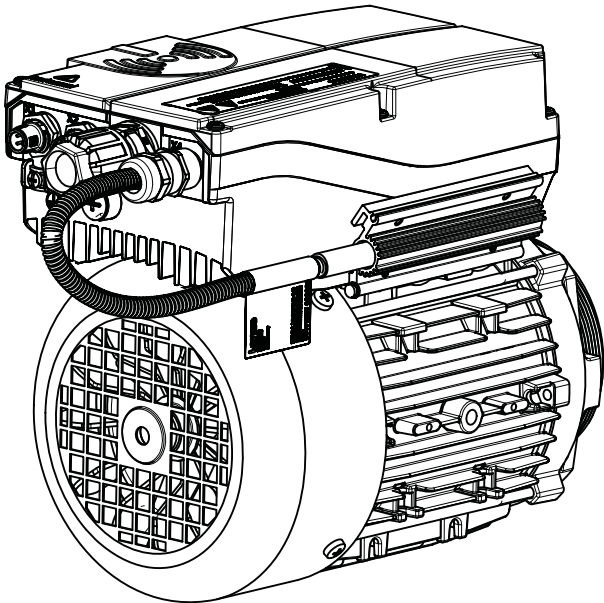
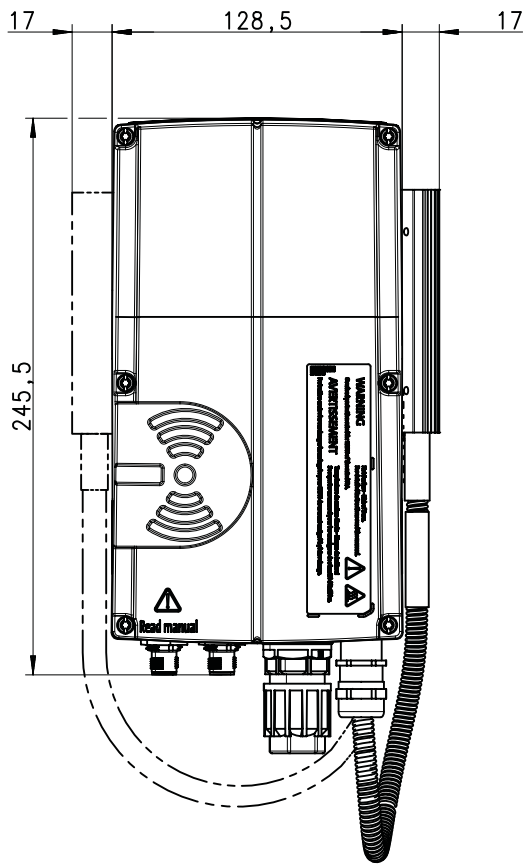
NOTICE

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





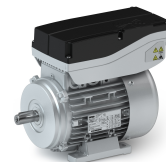
Accessories

NFC adapter

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

With the QUICKONconnectors, the mains connection is available in a pluggable version with a commonly used standard.

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 case of multiple connection frequency (>10 times), a QUICKON V2 plug with nut must be used instead of a QUICKON V2 nut.

QUICKON V2 components for cable cross-section 1 ... 2.5 mm²		
Order code	Type	
QUICKON V2 nut		
EWS0103/M		• Cable diameter: 6 ... 10 mm • Connection frequency: max. 10 • 5 pieces
EWS0104/M		• Cable diameter: 9 ... 14 mm • Connection frequency: max. 10 • 5 pieces
QUICKON V2 connector with nut		
EWS0105/M		• Cable diameter: 6 ... 10 mm • Connection frequency: ≥ 50 • 5 pieces
EWS0106/M		• Cable diameter: 9 ... 14 mm • Connection frequency: ≥ 50 • 5 pieces
QUICKON V2 H-distributor		
EWS0110		• Number of poles: 4 • Connection cross-section: 2.5 mm² • Cable diameter: 6 ... 14 mm • Connection frequency: ≥ 50 • The scope of supply does not include QUICKON V2 nuts. These must be ordered additionally (EWS0103/M, EWS0104/M).
QUICKON V2 T distributor		
EWS0111		• Number of poles: 4 • Connection cross-section: 2.5 mm² • Cable diameter: 9 ... 14 mm • Connection frequency: ≥ 50 • Two QUICKON V2 nuts are included in the scope of supply. Others must be ordered additionally (EWS0103/M, EWS0104/M).
QUICKON V2 socket wrench		
EWS0112		• Suitable for QUICKON V2 nuts EWS0103/M ... EWS0106/M • Wrench size: 22 mm
QUICKON V2 protection cover		
EWS0113		Suitable for QUICKON V2 distributor EWS0110, EWS0111 • Degree of protection: IP68 • Eyelet for fastening



QUICKON V2 components for cable cross-section 2.5 ... 6 mm ²		
Order code	Type	
QUICKON V2 H-distributor		
EWS0114		• Number of poles: 5 • Connection cross-section: 6 mm² • Cable diameter: 9 ... 20 mm • Connection frequency: ≥ 50 • No V2 nuts are included QUICKON in the scope of supply. These need to be ordered separately (EWS0116, EWS0117).
QUICKON V2 T-distributor		
EWS0115		• Number of poles: 5 • Connection cross-section: 6 mm² • Cable diameter: 12 ... 20 mm • Connection frequency: ≥ 50 • Two V2 nuts are included QUICKON in the scope of supply. Any additional nuts will need to be ordered separately (EWS0116, EWS0117).
QUICKON V2 nut		
EWS0116		• Cable diameter: 12 ... 20 mm • Connection cross-section: 6 mm² • Connection frequency: max. 10 • 5 pieces
EWS0117		• Cable diameter: 9 ... 14 mm • Connection cross-section: 6 mm² • Connection frequency: max. 10 • 5 pieces
QUICKON V2 protection cap		
EWS0118		Fits QUICKON V2 distributor EWS0114, EWS0115 • Degree of protection: IP68 • Fastening eyelet

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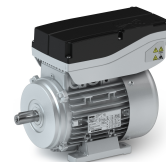
The following connector can be mounted to the connecting cable for the M15 connection.



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

Purchase order

Notes on ordering



Purchase order

Notes on ordering



Order accessories separately.

Motor without brake

Motor	Design	Output flange	Product extension	
			Motor connection	Brake resistor
MSEMAXX063-42	B3		Terminal box QUICKON connector M15 connector	Without Internal External
	B14	FT75		
	B5	FF115		
MSEMAXX080-32	B3			
	B14	FT100/FT130		
	B5	FT165		

Motor with brake

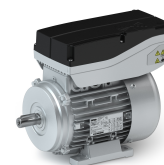
Motor	Design	Output flange	Product extension		
			Motor connection	Brake	Brake resistor
MSEMABR063-42	B3		Terminal box QUICKON connector M15 connector	Standard Long-life	Without Internal External
	B14	FT75			
	B5	FF115			
MSEMABR080-32	B3			Without manual release lever With manual release lever	
	B14	FT100/FT130			
	B5	FT165			



Product codes

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; UKCA											C
	CE; UKCA; cULus											L
	CE; UKCA; CCC											3
	CE; UKCA; cULus; CCC											5



Environmental notes and recycling

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



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



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

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

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

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



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

REACH

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

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

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

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



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

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



Appendix

Good to know

Operating modes of the motor

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

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

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

The most important operating modes

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

Appendix

Good to know
Enclosures



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

P Power
t Time
 t_L Idle time
 θ Temperature

P_v Power loss
 t_B Load period
 t_S Cycle duration

Enclosures

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

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

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

