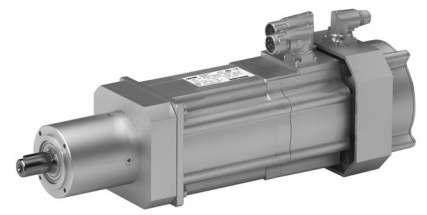


g700

Planetary gearboxes with servo



g700-P20 ... g700-P800 | 5 Nm ...
800 Nm

Mounting Instructions

EN



13461615



First read this documentation and the documentation of the motor before you start working.
Observe the safety instructions contained therein.

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1 About this documentation

Document history

Contents

- This documentation serves for safety-relevant operations on and with the gearboxes. It contains safety instructions which must be observed.
- All personnel working on and with the gearboxes must have the documentation available during the work and observe the information and notes relevant for them.
- The documentation must always be complete and in a perfectly readable state.

Target group

This documentation is directed at qualified skilled personnel according to IEC 60364.

Qualified skilled personnel are persons who have the required qualifications to carry out all activities involved in installing, mounting, commissioning, and operating the product.



Tip!

Information and auxiliary devices related to the Lenze products can be found in the download area at

<http://www.Lenze.com>

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1.1 Document history

Material number	Version			Description
13461615	1.0	03/2014	TD09	First edition for the pilot series

1.2 Conventions used

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

Type of information	Identification	Examples/notes
Spelling of numbers		
Decimal separator	Point	In general, the decimal point is used. For instance: 1234.56
Icons		
Page reference		Reference to another page with additional information For instance: 16 = see page 16
Documentation reference		Reference to another documentation with additional information For example: EDKxxx = see documentation EDKxxx
Wildcard		Wildcard for options, selection data

1.3 Terminology used


Term	In the following text used for
Gearboxes	Gearbox of the product family g700
Drive system	Drive systems with g700 gearboxes and other Lenze drive components

1.4 Notes used

The following pictographs and signal words are used in this documentation to indicate dangers and important information:




Safety instructions

Structure of safety instructions:






Danger!
(characterises the type and severity of danger)

Note
(describes the danger and gives information about how to prevent dangerous situations)

Pictograph and signal word	Meaning
 Danger!	Danger of personal injury through dangerous electrical voltage. Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 Danger!	Danger of personal injury through a general source of danger. Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 Stop!	Danger of property damage. Reference to a possible danger that may result in property damage if the corresponding measures are not taken.

Application notes

Pictograph and signal word	Meaning
 Note!	Important note to ensure troublefree operation
 Tip!	Useful tip for simple handling
	Reference to another documentation

2 Safety instructions

General safety instructions for drive components

2.1 General safety instructions for drive components



Danger!

Disregarding the following basic safety measures may lead to severe personal injury and damage to material assets!

- Store in dry, low-vibration environment without aggressive atmosphere; if possible in the manufacturer's packaging.
 - Protect against dust and impacts.
 - Observe the climatic conditions according to the technical data, ☺ catalogue.
- Lenze drive and automation components ...
 - ... must only be used as intended.
 - ... must never be commissioned despite noticeable damage.
 - ... must never be technically changed.
 - ... must never be commissioned in an incompletely mounted state.
 - ... must never be operated without the required covers.
 - ... may have live, moving or rotary parts during and after operation - corresponding to their type of protection. Surfaces may be hot.
 - ... must not be operated with great vibrations
 - ... must not be operated in the resonance range of a system
- All specifications of the corresponding enclosed documentation must be observed.

This is vital for a safe and trouble-free operation and for achieving the specified product features.
- Only qualified skilled personnel are permitted to work with or on Lenze drive and automation components.

According to IEC 60364 or CENELEC HD 384, these are persons ...

 - ... who are familiar with the installation, assembly, commissioning and operation of the product,
 - ... possess the appropriate qualifications for their work,
 - ... and are acquainted with and can apply all the accident prevent regulations, directives and laws applicable at the place of use.

3.1 Important notes

- The most important technical data is given on the nameplate.
- The product catalogues contain further technical data.

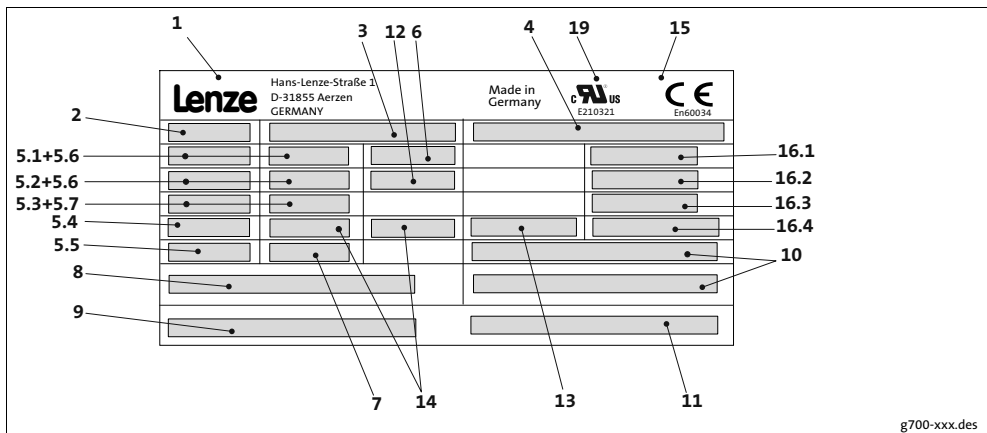
3.2 Identification

3.2.1 Nameplate

Geared motor

Note!
In the geared motor version the nameplate is attached to the motor.

Standard version






Pos.	Contents		
1	Manufacturer / production location		
2	Motor type / standard		
3	Gearbox type		
4	Motor type		
5	Technical data gearboxes	5.1 Rated voltage	5.5 Ratio
		5.2 Rated frequency	5.6 Drive power
		5.3 Rated current	5.7 Induced voltage
		5.4 Maximum current	
6	Rated output torque - geared motor		
7	Lubricant		
8	Brake data (if fitted)	Type	
		AC/DC brake voltage	
		Braking torque, electrical power input	
9	Feedback / pulse encoder or resolver data (if fitted), Ⓞ motor documentation product key		
10	Manufacture data	Material number	
		Serial number	
11	Bar code		
12	Rated output torque - gearbox		
13	Permissible ambient temperature		
14	Additional motor specifications	Temperature class	
		Enclosure	
15	Valid conformities, approvals and certificates	CE identification	
16	Technical data motor	16.1 Motor speed [rpm]	
		16.2 Perm. output speed for S1 operation [Hz]	
		16.3 Motor code for controller parameterisation (code 0086)	
		16.4 Temperature monitoring	
17	Weight		
18	Year / week of manufacture		
19	UL file number		

3 Product description

Transport weights

Example

Example: g700 with motor				
Lenze		Hans-Lenze-Straße 1 D-31855 Aerzen GERMANY		Made in Germany
				
3~MOT	G70AP020MVCL1N	MCS06C41-RS0B0-A11N-ST5S00N-R0SU		
225 V~	0.25 kW	M₂	3 Nm	n_{1eto} 810 r/min
270 Hz	0.34 HP	M_{2,GN}	15 Nm	n_{2,th} 4050 r/min
1.3 A	U_{in} 170 V			C86: 1310
max. 5.4 A	IP 54	I.C.L.F	Ta 30°C	KTY
i = 5.0	BEM34-132		Id.-Nr. 15696914	
Bremse Brake	V	A	Nm	SN 156969141000017071234
Geber Feedback	RS			

3.3 Transport weights

g700 with MCA/MCS

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Gearbox size	Motor frame size							
	06	09	10	12	13	14	17	19
g700-P20	< 3.0							
g700-P44	< 4.5	< 7.0						
g700-P130	< 6.0	< 11.0	< 10.0	< 13.0				
g700-P260	< 13.0	< 18.0	< 17.0	< 25.0	< 22.0	< 31.0		< 36.0
g700-P800				< 37.0	< 13.0	< 51.0	< 48.0	< 70.0

Tab. 1 Weights in kg

4.1 Important notes

- Use load carrying equipment for transport!
- Before the transport
 - check that all components are safely mounted,
 - fasten all transport aids (eye bolts or support plates).
- Transport the drive only with means of transport or hoists with a sufficient load capacity.
- Ensure secure fastening.
- Prevent shocks!



Danger!

Danger due to toppling or falling loads!

- The payload of the hoists and load handling devices must at least correspond to the weight of the load.
- The load must be secured in such a way that it cannot topple or fall down.
- Do not stay under a pending load!

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4.2 Means of transport for gearboxes



Danger!

The motors attached to the gearbox are partially equipped with eyebolts. These are **exclusively** determined for mounting/dismounting the motor to the gearbox and must **not** be used for the complete geared motor!



Stop!

Observe load carrying capacity!
Staying under floating load is prohibited!

4 Mechanical installation

Preparation
Important notes

4.3 Preparation



Note!

Thoroughly remove anticorrosion agents from output shafts and flange faces.

4.4 Mounting

4.4.1 Important notes



Stop!

Shocks and impacts on the shaft damage the roller bearings.

4.5 Electrical connection



Danger!

Electrical connections must only be carried out by skilled personnel!



Note!

The notes for the electrical connection can be found in...

- in the terminal box (in case of motors with terminal box).
- in the connection plan (in case of motors with plugs).

5.1 Important notes



Stop!

The drive may only be commissioned by skilled personnel!

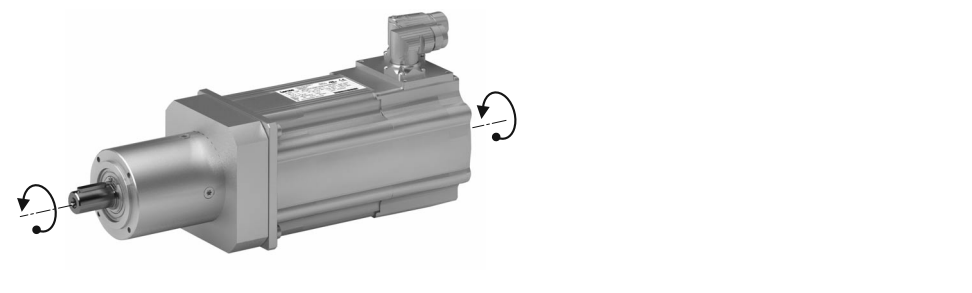
- Take safety measures prior to any operation:
 - Disconnect the machine from the mains, ensure standstill of the drive system and avoid any machine movement.

5.2 Before switching on

Please check:

- Drive function - machine function assignment
- The direction of rotation of the drive shaft

g700 with servo motor



- Does the drive appear undamaged?
- Is the mechanical fixing o.k.?
- Is the electrical connection correct?
- Are all rotating parts and surfaces that may become hot protected against contact?

5.3 During operation

During operation, check the drive periodically and take special care of:

- changes compared to normal operation, like
 - unusual noise, stronger vibrations or increased temperatures,
 - leakages,
 - loose fixing elements,
 - the condition of the electrical cables.
- In case of faults:
 - shut down the drive,
 - check the troubleshooting table.

If the fault cannot be remedied, please contact the Lenze customer service.

6 Maintenance

Important notes

6.1 Important notes



Note!

- The gearboxes are lubricated for life.
- The mechanical power transmission system is maintenance-free.

6.2 Repair

- We recommend that all repairs are carried out by the Lenze customer service.

6.3 Disposal

Protect the environment! Packing material can be recycled. Dispose of your separated resources according to the waste disposal regulations or via a waste management company.

The following table provides recommendations for an environmentally friendly disposal of the machine and its components.

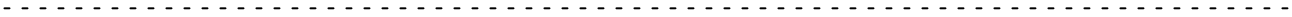
What?		Where?
Transport material	Pallets	Return to the manufacturer or forwarder
	Packaging material	Cardboard box to waste paper Plastics to plastics recycling or residual waste Reuse or dispose of wood wool
Lubricants	Oil, grease Detergents and solvents Paint residues	Dispose according to current regulations
Components	Housing: Cast iron, aluminium, copper Bearings, gear wheel shafts: Steel Seals, electronic scrap: Hazardous waste	Separate valuable substances and dispose

If any malfunctions should occur during operation of the drive system, please check the possible causes using the following table. If the fault cannot be eliminated by one of the listed measures, please contact the Lenze Service.

Fault	Possible cause	Remedy
Drive does not turn	Voltage supply interrupted	Check connection
	Incorrect electrical connection	Check if nameplate matches voltage supply
	Excessive load	Reduce load Check drive-machine assignment
Motor runs, gearbox does not	Gearbox is defective	Inform Lenze Service
Unusual running noises	Overload	Reduce load Check drive-machine assignment
	Damage in the gearbox or motor	Contact Lenze Service
Excessive temperature	Overload	Reduce load Check drive-machine assignment
	Inadequate heat dissipation	Improve cooling air flow Clean gearbox / motor
Loose fixing elements	Vibrations	Avoid vibrations
Motor too hot Can only be evaluated by measuring the surface temperature: <ul style="list-style-type: none"> Non-ventilated motors > 140 °C Externally ventilated or self-ventilated motors > 110 °C 	Insufficient cooling air	Ensure unimpeded circulation of cooling air
	Preheated cooling air	Ensure a sufficient supply of fresh cooling air
	Overload, with normal mains voltage the current is too high and the speed too low	Use larger drive (determined by power measurement)
	Rated operating mode exceeded (S1 to S8 IEC/EN 60034-1)	Adjust rated operating mode to the specified operating conditions. Determination of correct drive by expert or Lenze customer service
	Loose contact in supply cable (temporary single-phase operation!)	Tighten loose contact
	Fuse has blown (single-phasing!)	Replace fuse
	Overload of the drive	<ul style="list-style-type: none"> Check load and, if necessary, reduce by means of longer ramp-up times Check winding temperature
Heat dissipation impeded by deposits	Clean surface and cooling fins of the drives	
Motor suddenly stops and does not restart	Overload monitoring of the inverter is activated	<ul style="list-style-type: none"> Check controller settings Reduce load caused by longer acceleration times
Incorrect direction of rotation of the motor, correct display on the controller	Motor cable polarity is reversed	Check the polarity and correct
	Polarity of encoder cable reversed	
Motor rotates normally but does not reach the expected torque	Motor cable interchanged cyclically	Connect the phases at the motor cable connection correctly
Motor turns in one direction at maximum speed in an uncontrolled manner	Motor cable interchanged cyclically	Check motor connector and, if necessary, correct
	Polarity of encoder cable reversed	Check encoder connection and, if necessary, correct
Motor rotates slowly in one direction and cannot be influenced by the controller	Polarity of motor cable and encoder cable reversed	Check the polarity and correct

7 Troubleshooting and fault elimination

Fault	Possible cause	Remedy
Irregular running	Insufficient shielding of motor or resolver cable	Checking shielding and earth connection
	Drive controller gain too large	Adjust the gains of the controllers (see Drive controller operating instructions)
Vibrations	Insufficiently balanced coupling elements or machine	Rebalance
	Inadequate alignment of drive train	Realign machine unit, check foundation if necessary
	Loose fixing screws	Check and tighten screw connections
Running noises	Foreign particles inside the motor	Repair by manufacturer if necessary
	Bearing damage	





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