
 BAUMÜLLER NÜRNBERG	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 eng Page 1/12
---	---	------------------------------------

Cover Sheet (for internal use only)

Three-Phase Current Stroke Geared Motors GZ 0 - BD10

	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 2/12
---	---	--------------------------------

Three-Phase Current Stroke Geared Motors GZ 0 - BD10

TABLE OF CONTENTS

1	Safety Information	3
1.1	General Dangers in the Case of Failure to Observe the Safety Information	3
1.2	Safety-Conscious Working	3
1.3	Various Safety Information for Operating and Maintenance Personnel	4
1.4	Indication of Special Risks	5
1.5	No Unauthorized Additions or Modifications to the Drive	5
1.6	Appropriate Use	5
2	Technical Data	6
2.1	Motor Type, Product Number and Technical Data	6
3	Requirements of the Site	6
3.1	Transportation, Storage (see Appendix)	6
3.2	Mounting Space Required	6
3.3	Site	7
3.4	Ambient Conditions	7
3.5	Environmental Influences	7
4	Operation.....	8
4.1	Instructions for Initial Commissioning	8
4.2	Wiring Diagrams	9
4.3	Notes	9
5	Preventive Maintenance.....	9
5.1	Replacing the Transmission Lubricant	9
5.2	Regreasing the Rotor Hub and the Shaft	10
5.3	Replacing the Rolling Contact Bearings.....	10
5.3.1	Motor.....	10
5.3.2	Transmission	10
6	List of Spare Parts.....	11
7	Decommissioning and Disposal	12

	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 3/12
---	---	--------------------------------




1 Safety Information

1.1 General Dangers in the Case of Failure to Observe the Safety Information

The electric drive is designed to the state of the art and was checked for operating safety before delivery. Nevertheless, the machine can represent a danger when it is improperly operated by insufficiently trained personnel or employed for inappropriate use.

This means:

- Danger to life and limb
- Danger to the machine and other material property of the owner
- Danger to efficient operation of the machine

	This symbol shows information about protecting the system
	This symbol shows general safety information for the protection of operating personnel
	This symbol shows safety information about sources of electrical danger.

1.2 Safety-Conscious Working


Any person occupied in the owner's company with setup, operation, corrective maintenance and repair of the electric drive must have read and understood the Commissioning Instructions, especially the section on **safety**.

It is advisable that the owner has this confirmed in writing by all such persons.

The drive must be connected and maintenance carried out by qualified and authorized specialists only.

The responsibilities for operation and maintenance of the drive must be clearly defined and observed to avoid undefined responsibilities as far as safety is concerned.

For all work related to setup, operation, resetting, adjustment, maintenance and repair, the system must be shut down. Shutting down the system means that the drive is turned off with the main switch thus deenergizing all its components. The EMERGENCY STOP functions must also be checked.

 BAUMÜLLER NURNBERG	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 4/12
---	---	--------------------------------

1.3 Various Safety Information for Operating and Maintenance Personnel

Electric drives must be used only in systems corresponding to VDE specifications.

In operation, the power unit and the motor coils are live! Never touch these components during operation! Connect measuring instruments only when the motor is deenergized and disconnected from the mains!



Do not start working on the motor connections until you have made sure that they carry neither potential nor voltage!



Be particularly careful when touching the drive shaft directly or indirectly. You must only do this when the drive is stationary and disconnected from the mains!



Refrain from any operation that reduces machine safety.

The operator is obliged to immediately report modifications that have occurred on the machine that might affect its safety.


Safety equipment must never be dismantled or disabled.



If safety devices are removed during commissioning, repair and maintenance work, disable the machine. Remount the safety equipment immediately after completion of commissioning, repair or maintenance work.



After any and all operator activity involving the machine, the owner must carry out acceptance testing and document it chronologically in the machine log (maintenance book etc.) (name of the person/firm carrying out acceptance testing, date of testing, signature and report number). If this is not carried out, the owner may be faced with consequences relating to liability legislation.

	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 5/12
---	---	--------------------------------

1.4 Indication of Special Risks

Important! Before starting any maintenance work, lower the load!



Current: Check that the equipment is deenergized!
Main switch OFF!



Contact: Before starting work on the motor, check that the unit is switched off (ensure that the motor is deenergized!), idle and secured from being switched on again.
Risk of injury!



Do not disconnect the motor connections during operation. Danger to life! Do not touch the motor casing in rated operation. Risk of burns!

1.5 No Unauthorized Additions or Modifications to the Drive

In the section on safety, it is indicated that for safety reasons unauthorized additions or modifications to the drive are not allowed. In case of doubt, please contact the manufacturer.



1.6 Appropriate Use

These machines are intended for commercial systems. They meet the standards of series DIN 0530/EN 60034. Use of this equipment in hazardous locations is prohibited unless expressly provided for (refer to additional information). If stricter requirements are specified, e.g. in non-commercial applications special guards to protect children, you must ensure that these requirements are complied with on the system side at set-up.

The machines are rated for ambient temperatures of +5° C to +40° C and site altitudes of 1000 m or less above sea level. In this connection, with indoor setup, the permissible reference humidities are between 20% and 75% in the temperature range +5° C to +40° C; with outdoor setup, permissible reference humidities are between 36% and 98% in the temperature range +5° C to +35° C. In the case of outdoor setup, the absolute humidity at temperatures higher than 25° C must not rise above 23 g/m³ (this corresponds to a relative humidity of 95% at 27° C).

Observe any information that differs from the data shown on the rating plate. On-site conditions at the place of use must correspond exactly with the information on the rating plate.

Electric motors are components for installation in machines in the sense of low-voltage guideline 89/392/EEC. You may not carry out commissioning until it has been determined that the end product conforms to this guideline (observe EN 60204-1).

DC machines comply with the requirements of low-voltage guideline 73/23/EEC.

 BAUMÜLLER NÜRNBERG	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 6/12
---	---	--------------------------------

When operating electric motors in accordance with their intended uses, the protection requirements must conform to EMC guideline 89/336/EEC. The person setting up the system is responsible for appropriate installation (e.g. physically separating signal lines and power cables, using shielded lines and cables.) In the case of systems with current converters, observe the manufacturer's EMC information.

2 Technical Data

2.1 Motor Type, Product Number and Technical Data

Refer to the rating plate on the machine for the appropriate data.

3 Requirements of the Site

3.1 Transportation, Storage (see Appendix)

Check the motors on delivery. In the case of transport damage, inform Baumüller GmbH Nürnberg or the sales office responsible immediately (for addresses, see back page).


When storing motors for a relatively long period of time, damage can be avoided by taking the following precautions:

Store the motors only on dry premises at a constant temperature and without an aggressive atmosphere. Only store them out of doors in dust- and water-tight packaging material. Avoid permanent vibration acting on the motor. Protect the shaft and the connecting flange from corrosion.

3.2 Mounting Space Required

Mount the motors such that cooling air comes in and warm air is removed freely. This is ensured when the distance to neighbouring machine components is at least 10 cm.



	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 7/12
---	---	--------------------------------

3.3 Site

On-site, the effective vibration severity of 4.5 mm/s must not be exceeded over the entire speed range. Measurement according to DIN 45665.



3.4 Ambient Conditions

The power output stated in the list applies to continuous running duty (S1) at nominal speed and at a maximum ambient temperature of 40° C with the machines at a site altitude of less than 1000 m above sea level. Under different conditions, the required list power P_L is the product of the factors explained below and the required power $P_L = P * k_1 * k_2$. If three-phase generators are to be operated at an ambient temperature of more than 40° C or at site altitudes of more than 1000 m above sea level, the required list power P_L is the product of factors k_1 k_2 given in the table below and the required power P .

Ambient temperature	40° C	45° C	50° C	55° C	60° C
Correction factor k_1	1	1.05	1.1	1.16	1.24
Altitude above sea level	Up to 1000 m	Up to 2000 m	Up to 3000 m	Up to 4000 m	Up to 5000 m
Correction factor k_2	1	1.06	1.17	1.3	1.55

In the case of sites above 1000 m where the ambient temperature drops by approx. 10° C per 1000 m, power correction is not necessary.

At ambient temperatures above 40° C and with motors of enclosed design, contact the manufacturer for any design modifications that may be required.

3.5 Environmental Influences

You should generally prevent the motor and the cooling air from coming into contact with aggressive, acid, and abrasive media as well as any other media that attack plastic materials.



	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 8/12
---	---	--------------------------------

4 Operation

All work may only be carried out by qualified specialists, with the low-voltage machine idle, deenergized and secured from being switched on again. This also applies to auxiliary circuits e.g. the anti-condensation heater. Check that the equipment is deenergized!



Exceeding the tolerances in VDE 0530, Part 1/IEC 34-1 - +5% for the voltage, +2% for the frequency, as well as the ones for the curve shape and symmetry – increases heating and affects electromagnetic compatibility. Observe the information on the rating plate and the terminal diagram in the terminal box. The equipment must be coupled up such that a permanent, safe electrical connection is maintained (with no protruding wire ends); use the assigned cable tips. Make a safe PE connection. The smallest clearances between uninsulated live parts and ground may not be less than the following values:

8 mm where $U_N \leq 550 \text{ V}$, 10 mm where $U_N \leq 725 \text{ V}$, 14 mm where $U_N \leq 1000 \text{ V}$.


There may be no dirt or damp in the terminal box. Seal any unneeded cable entry holes and the terminal box itself dust- and water-tight. Secure the feather key for test operation without drive elements. In the case of low-voltage machines with brakes, check that the brake is working properly before carrying out commissioning.

Vibration levels of $v_{\text{eff}} \leq 3.5 \text{ mm/s}$ ($P_N \leq 15 \text{ kW}$) or $v_{\text{eff}} \leq 4.5 \text{ mm/s}$ ($P_N > 15 \text{ kW}$) in coupled operation are insignificant. If changes different from normal operation occur, e.g. increased temperatures, noises or vibrations, find out the cause and contact the manufacturer if necessary. Never disable guards, even in test operation. In case of doubt, switch off the low-voltage machine. If a lot of dirt accumulates, clean the airways regularly. Regrease bearing assemblies that have regreasing devices while the low-voltage machine is running. Observe the type of saponification. If grease exit holes are sealed with plugs (in the case of IP54 protection on the drive side; with IP23 protection on the driven and non-driven sides), remove the plugs before commissioning. Seal the drilled holes with grease. Change permanently lubricated bearings after approximately 20,000 operating hours or 3-4 years at the latest.

4.1 Instructions for Initial Commissioning

Compare the available mains voltages to the values specified on the rating plate. Mount all guards before starting commissioning.



	<p style="text-align: center;">Technical Instructions Commissioning and Maintenance Guide</p>	<p style="text-align: center;">TAM 00 547 Page 9/12</p>
---	---	--

4.2 Wiring Diagrams

Connect the motor according to the supplied wiring diagrams



4.3 Notes

The motor must only be mounted to the appropriate attachment points (pedestal, flange) in the installation position for which it is designed. When mounting, ensure that the motor is attached unwarped.



Checklist for Initial Commissioning

Make a note of the motor type, the motor number and the version of the drive.
Check the connections. The motor shaft can be turned evenly (release the brake first with brake motors).

Measured at room temperature on U-V-W, the winding resistance corresponds to double the value of R_1 from the technical description. The tolerance of the measured value between the windings is less than 5%.

5 Preventive Maintenance

Important!

Before starting all maintenance work, lower the load.
Before starting maintenance work, disconnect the machine from the mains.
Retighten all the connections, e.g. screws, that were loosened during maintenance work.



Maintenance of GZ 0 series three-phase current stroke geared motors may only be carried out in authorized specialist service centres.

5.1 Replacing the Transmission Lubricant

After approximately 10,000 operating hours, you must remove the used lubricant from the transmission and replace it with a lubricant of the same quality.

At the factory, the transmission is filled with 0.2 kg of Calyptol SF 7-022 or Fuchs Renolit GL1.

When you replace the grease at maintenance or repair of the unit, ensure that you completely remove all the old grease, since you must not mix together new and old grease.

To replace the lubricant and wash out the transmission, you must dismantle the snap ring, item 27, and the cover, item 23. After refilling the transmission, you must mount the cover oil-tight on the transmission housing using Epple's sealant type epple 37 (resource article number 129623).

 BAUMÜLLER NÜRNBERG	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 10/12
---	---	---------------------------------

5.2 Regreasing the Rotor Hub and the Shaft

After approximately 5,000 operating hours, you must dismantle the shaft, item 5 as described in 5.3.1. Pull off the ball bearing, item 8 and take off the rotor, item 3. Thoroughly clean the old grease from the rotor hub and the shaft (using solvent) and lightly regrease with new Chevron SRI Grease or Fuchs Renax FH 300 ; while doing this, fill the lubricant grooves too. Plug the rotor onto the shaft and press it all the way several times with your hands; carefully remove any excess grease. Take particular care that the brake lining and the cone do not come into contact with the grease; if necessary, clean them. After this, assemble the motor.

5.3 Replacing the Rolling Contact Bearings

5.3.1 Motor

After loosening the cap nuts item 16, you can dismantle the non-drive end shield, item 4. Carefully take off the bearing shield in the axial direction so that the spring, item 20, cannot jump out of the rotor. You can now pull the shaft, item 5, out backwards and replace the ball bearings, items 5 and 9. After removing the terminal box, item 12, and loosening the M5 x 45 DIN 912 cheesehead screws, you can take off the stator housing. You carry out remounting in the reverse order.

5.3.2 Transmission

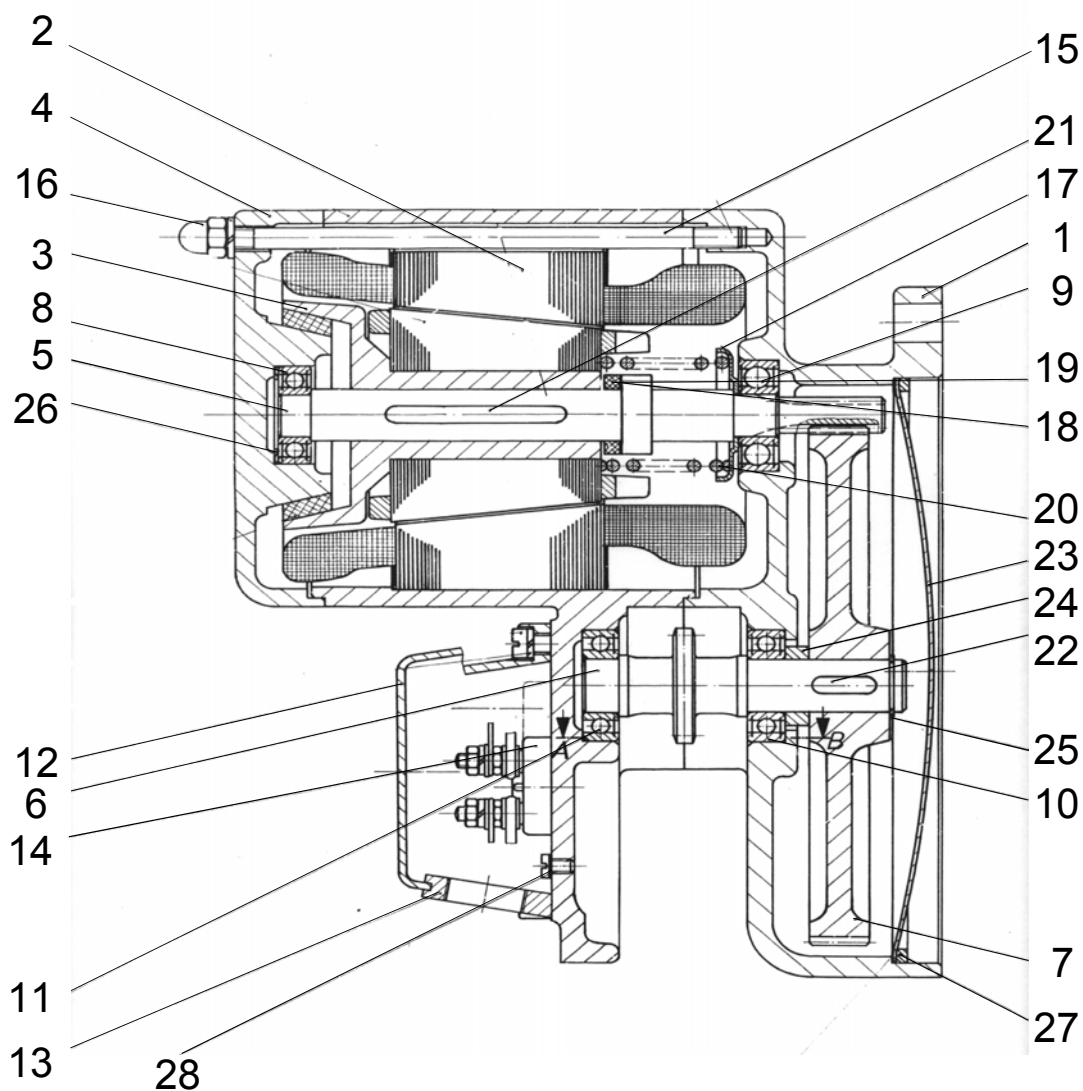
To change the ball bearings in the transmission, you must remove the cover, item 23. To dismount the drive end pinion, item 6, you remove the retaining ring, item 25, and pull off the cog, item 7, and the feather key, item 22. To be able to take out the drive end pinion, you must separate the stator housing from the transmission housing as described in Section 5.3.1. You can now replace the ball bearings, items 10 and 11. You carry out remounting in the reverse order. Mount the cover, item 5, oil-tight to the transmission housing using epple 37 sealant, for example.

	Technical Instructions Commissioning and Maintenance Guide	TAM 00 547 Page 11/12
---	---	---------------------------------

6 List of Spare Parts

Item	Qty	Name	Designation	DIN
1	1	Transmission housing		
2	1	Stator, complete		
3	1	Impeller, complete		
4	1	Non-drive end shield, complete		
5	1	Transmission shaft		
6	1	Output pinion shaft		
7	1	Cog		
8	1	Deep-groove ball bearing	6001 2Z	625
9	1	Deep-groove ball bearing	6201 2RSR C3	625
10	1	Deep-groove ball bearing	6002 2RSR C3	625
11	1	Deep-groove ball bearing	6002 Z	625
12	1	Terminal box lid		
13	1	Slider		
14	1	Terminal board, complete		
15	2	Threaded bolt, M6 x 136	9S20K	
16	2	Cap nut, M6		1587-6
17	1	Pressure disk		
18	1	Pressure ring		
19	Not fitted	Fitting disk	15x21x0.3	988
20	1	Pressure spring		
21	1	Feather key	A 5x5x45	6885
22	1	Feather key	A 5x5x16	6885
23	1	Cover		
24	1	Distance ring		
25	1	Retaining ring	15x1	471
26	1	Ball bearing equalizing washer	27x21x0.3	
27	1	Snap ring	SB 170	
28	1	Terminal box seal		

When ordering spare parts, always state the exact type designation and the motor number.



7 Decommissioning and Disposal

At decommissioning of the motors the following also applies:

Before starting any work, lower the load.
 Disconnect the motor from the mains.



The motor contains materials like steel, copper, insulation materials and lubricants. You must disassemble the motor appropriately and dispose of the material separately.