

1. GENERAL INFORMATION FOR GEAR BOX, GEARED MOTOR & MOTOR

1.1 SAFETY INSTRUCTIONS

Please refer the following safety instructions during installation and operation of Gear Box / Geared Motors / Motor for safety.

During and after operation, Gear motors, Gear units and Motors have:

- Live parts
- Moving parts
- Hot surfaces (may be the case)

Trained and qualified personnel only to work on following:

- Transportation & Storage
- Installation, Assembly & Connection
- Start-up
- Maintenance & Servicing.

Serious injuries and property damage may result from:

- Improper installation, Operation, Maintenance.
- Service by unauthorised personnel.
- Removal of necessary Safety Signs & protection covers or the housing.

1.2 PACKAGING & STORAGE INSTRUCTIONS

Product is dispatched with adequate packing to avoid transport damages. customer has to ensure that the product is handled by professional people to avoid sudden drop. Incase of storage for longer period, ensure the product is placed at protected from environment (Rain, Sun light, etc.,).

- Every gear box and motor on receipt should be inspected to see that all the parts are intact. If damaged, please report to the company or dealer immediately.
- Do ensure that the motor and gear box should be stored in a clean and dry place free from moisture and dust. Apply rust preventive oil on the output shaft and input shaft to avoid rusting and should be kept in sealed polythene bag packed in wooden boxes if stored for long periods.

1.3 PRE-INSTALLATION CHECKS

- Check the data on name plate of the Gear Box / Geared Motor / Motor to ensure it matches the supply order.
- Check the ratio, version frame size.
- When installed outdoors, make sure proper protection is provided.
- Check the shaft and coupling alignment and check for foundation bolts.
- Motor should be installed in a place with proper ventilation and clean air circulation.
- Provide protection against overloads and short circuits.
- Check the incoming cables are connected properly.
- Drive must not be assembled in condition such as oil, gas, acid, etc.,

1.4 INSTALLATION

➤ **Tools & Aids**

- Spanner Set.
- Torque wrench.
- Mounting device.
- Shims and distance rings if necessary.
- Fixing devices for input and output elements.

➤ **Assembling basic needs.**

Following conditions to be checked:-

- Transit damage for the geared motor or gear box.
- Geared motor specifications mentioned on the name plate matches input voltage.
- Ambient temperature as per the lubrication specification given in the product document.
- Clean the shafts & flange surfaces to ensure they are free of corrosion.
- Ensure the oil seals do not come in contact with any ambient abrasive conditions.

➤ **Installing the gear unit**

- Remove the plastic protection covers on shafts.
- Gear Box or Geared Motor to be installed as per the specified mounting positions.
- The installation structure must have, (i). Level, (ii). Vibration damping, (iii). Torsionally rigid.
- Oil checking, Drain plug & Breather plug should be freely accessible.
- Gearboxes are filled with oil to specified level at factory however before commissioning, cross check the oil fill is as specified for the mounting position (refer the document shared) There may be deviation in the oil levels due to mounting positions, these are as per permitted manufacturing tolerance levels.
- Adjust the lubricant fill volumes and the position of the breather plug accordingly in the event of a change of mounting position.
- Use plastic insulation, if there is a risk of electromechanical corrosion between the geared motor & the driven application machine. Use insulation washers for bolts, also ground the housing.
- Fixing pulley / chain should press fitted and do not hammer on the output shaft, which will result in damage to the internals.
- Check direction of rotation of electric motor to make sure that the gear box output shaft rotates in correct direction.
- Clean keyway and ensure proper fixing of key in shaft and coupling / pulley.
- Gear box and motor should be fixed firmly to the machined surface and bolted with correct torque to avoid vibrations.
- The tolerance on the hollow output shaft bore is H8, the tolerance on the shaft should be h6 which will ensure correct fitment of customer shaft in the hollow output shaft.
- Please contact TGPL customer service engineer for any clarifications.

1.5 MAINTENANCE

- Check the input supply voltage periodically.
- Check the condition of Geared Motor / Gear Box regularly to avoid accumulation of dust on oil seal area.
- Observe the noise intermittently, if abnormal noise is observed, bearing shall be replaced immediately to avoid internal damage.
- Check the oil level in gearbox regularly.
- Provide overload protection to the electric motor.
- Avoid using sharp tools for fixing and removing oil seals.
- Use original spare parts for smooth function & long life
- Anti-seize compound may be applied once in a year on the motor coupling shaft.

1.6 GEAR BOX / GEARED MOTOR / MOTOR - TROUBLESHOOTING & REMEDY

PROBLEM	POSSIBLE CAUSES	REMEDY
Noise	Regular running noise	Check the oil level and change the bearings
	Irregular running noise	Contact customer service
Motor does not start	Insufficient input power available	Check the power as per name plate
	Over load	Check the load and correct
	Mechanical fault	Check the coupling rotates freely. Check the bearings
Motor bearings overheated	Motor fitted incorrectly	Check the motor fittings
	Bearings over loaded	Check the alignment, side and end thrust.
Oil Leakage	Oil seal defective	Change the new oil seal
	Too much oil	Correct the oil level
	Wrong mounting position	Mount the breather Plug correctly
	Gasket seal on the gear box cover plate leaking	Tighten the bolts on the gear cover plate
High temperature raising	The housing is too hot	Open vent plug, ventilate.
		Check if there is enough oil in housing otherwise, fill more oil
	Bearing housing has high temperature raise	Adjusting bearing's assembled position, relieving extra heat be caused by over tightened bearings

1.7 COUPLING DETAILS OF MOTOR WITH GEAR BOX

- Apply grease on the motor shaft and gear box input shaft.
- Insert motor shaft in the gear box input shaft.
- Check for the damages on the shafts, if motor shaft is not entering gear box input freely.
- Fit the bolt and nuts and tighten them on the motor flange.
- The terminal wires has to be connected as per the voltage details provided in the name plate.
- Check the geared motor for smooth running and consumption of amps in no load condition and ensure the observed results are in line with specification.

1.8 LUBRICANT CHANGE INTERVALS

The gear boxes lubricated with synthetic oil is for long life and will have no level, drain & filling plugs.

The gear boxes lubricated with mineral oil are supplied with level, drain & filling plugs. They have to be periodically monitored, filled as per the details provided in the description of each gear box model according to the mounting position.

1.9 LIFTING

Lift the motor / Gear box / Geared Motor using the lifting lugs of the eyebolts.

The Center of gravity of motors with the some frame may vary due to different outputs, mounting arrangements and auxiliary equipment.

Check the eyebolts or the lifting lugs integrated with the Gear box / Geared Motor / Motor are not damaged before lifting . Damaged lifting lugs or eyebolts must not be used.

Lifting eyebolts must be tightened before lifting. If needed the position of the eyebolt must be adjusted with suitable washers.

Ensure that proper lifting equipment is used and that the sizes of the hooks are suitable for the lifting lugs.

Care must be taken to avoid damage to the auxiliary equipment and cables attached to the Motor.