

Installation & Instruction Sheet

SureGear® Planetary Gearboxes – PGA, PGB and PGD Series

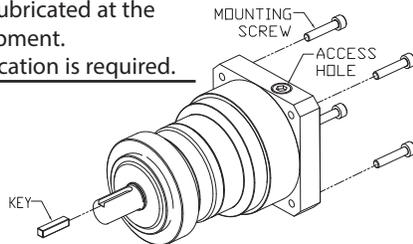
Thank you for purchasing a SureGear Servo Planetary Gear Reducer. We recommend that you read this installation and instruction sheet before operation, to ensure proper performance.

Inspection

- Unpack the SureGear and check to see that it is identical to what is specified in the purchase order. Inspect for shipping damage. Notify the shipping agent immediately if damage is discovered.
- Remove the protective tape from the output shaft and clean the rust-proof material with light oil.
- An output shaft key is provided.

 The SureGear Servo Planetary Gear Reducer is grease lubricated at the factory prior to shipment. No additional lubrication is required.

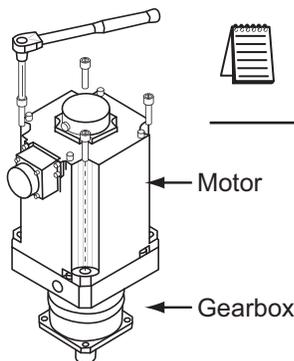
- For some configurations, a shaft bushing (or sleeve) is included to adapt the motor shaft to the reducer hub. If included, the bushing is installed and covered with a protective cap. Do not lose the bushing, as it is required for proper operation.



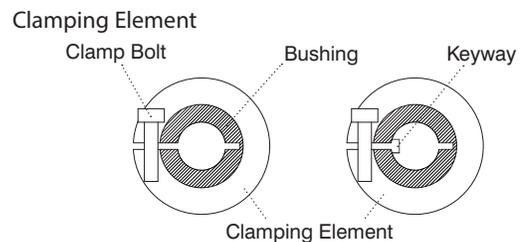
Mounting the Motor to the Gearbox

The motor attachment flange and quill shaft (w/ bushing) of the SureGear is machined for a specific servo motor. DO NOT attempt to mount the SureGear to a different servo motor than the one for which it is manufactured.

- 1) Clean the machined surfaces of the motor attachment flange with light oil.
- 2) Remove the plug from the access hole.
- 3) For PGA and PGD series (in-line), position the unit vertically, with input facing up. For PGB series (right-angle), position the unit in the horizontal position with input facing up.



- 4) Rotate the clamping element until the clamp bolt is aligned with the access hole.
- 5) Loosen the clamp bolt.
- 6) Verify that the bushing (if supplied) is aligned with the slit in the clamping element.
- 7) Insert the servo motor, making sure the motor keyway (if supplied) is aligned with the slits in the clamping element and bushing (if supplied).
- 8) Tighten the bolts for servo motor installation to the torque specified in Table 1.
- 9) Tighten the clamp bolt in the clamping element to the torque specified in Table 2.
- 10) Install the plug into the access hole, ensuring that the plug does not hit the clamp bolt in the clamping element.



Torque Tables

| Table 1 Tightening Torque for Servo Motor Mounting | | |
|---|------------------------|-------|
| Motor Installation Bolt Size | Torque (N·m [lb·in]) | |
| M4 | 2.5 | [22] |
| M5 | 5.1 | [45] |
| M6 | 8.7 | [77] |
| M8 | 21 | [186] |
| M12 | 72 | [637] |

| Table 2 Tightening Torque for Clamp Bolt | | |
|---|------------------------|--------|
| Clamp Bolt Size | Torque (N·m [lb·in]) | |
| M3 | 1.9 | [17] |
| M4 | 4.3 | [38] |
| M5 | 8.7 | [77] |
| M6 | 15 | [133] |
| M8 | 36 | [318] |
| M10 | 71 | [628] |
| M12 | 125 | [1106] |

Installation

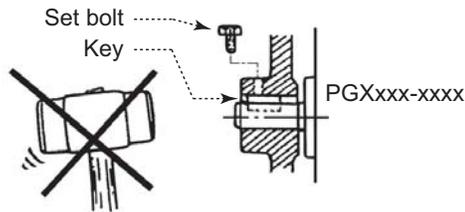
- Install the SureGear in a location with plenty of ventilation.
- Proper ambient temperature is 32–104 °F [0–40 °C].
- The SureGear should be bolted to a rigid, vibration-free frame.
- The installation location should be convenient for maintenance and inspection.

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Connection to Load

- When installing couplings, pulleys, gears, etc. on the shafts, do not apply impact or excessive thrust loads to the output shaft. Mount all components as close to the reducer housing as possible.
- Shafts must be free from vibration, excessive impact, radial, or thrust loads transmitted from the machine.



Operation

- 1) When starting, check for correct rotational direction of the output shaft, and apply the load gradually.
- 2) Pay careful attention not to overload the unit.
- 3) Periodically inspect the unit. Stop the unit for inspection if the following should occur:
 - a) Case temperature suddenly rises, or exceeds the ambient temperature by 122°F (50°C).
 - b) Noise from the unit becomes louder.
 - c) Vibration becomes abnormal.
 - d) Rotational speed becomes unstable.
 - e) Lubricant leakage.
 - f) Other faults or defects are found.
- 4) The following are possible causes of improper operating conditions:
 - a) Faulty operation of the servo motor.
 - b) Unit has become overloaded.
 - c) Lubrication has deteriorated.
 - d) Bearings or gears have been damaged.
 - e) Connection between the SureGear and the servo motor is improper (the clamp bolt on the SureGear quill shaft has become loose).
 - f) Connection between the SureGear and the machine is improper (set bolts on pulleys, couplings, etc. have become loose).

Lubrication

Permanently lubricated; not field serviceable.



Note: SureGear PGA, PGB and PGD gearboxes (gear reducers) are not designed for backdriving.