

## OPERATING MANUAL

### Right Angle Gearhead Hollow Shaft Type

#### Introduction

##### Before using the gearhead

Only qualified personnel of electrical and mechanical engineering should work with the product.

The product described in this manual has been designed and manufactured to be incorporated in general industrial equipment.

Do not use for any other purpose. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

##### RoHS Directive

The products do not contain the substances exceeding the restriction values of RoHS Directive (2011/65/EU).

#### Verifying the product name and accessories

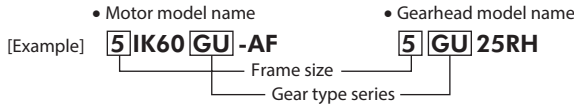
This operating manual is designated for the following products:

Model designation: **4GN□RH, 5GN□RH, 5GU□RH, 5GE□RH**

\* The square box in the gearhead model will contain a value representing the gear ratio.

Check the model names of the motor and gearhead.

Gearheads and motors will fit together only if they are both of the same frame size and of the same gear type. See explanation below.



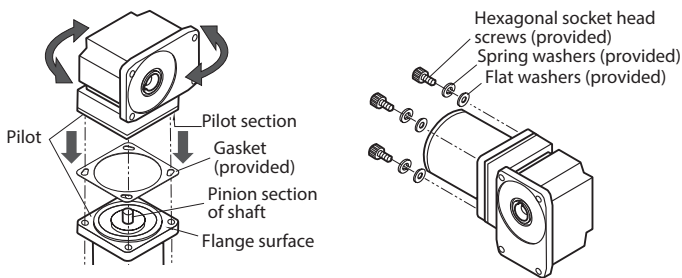
#### Accessories

- Screw set (used for assembling the motor and gearhead)  
[Hexagonal socket head screws, Spring washers, Flat washers 4 pcs. each]
- Parallel key 1 pc.
- Safety cover 1 pc.
- Recessed cross pan head screws [M3, length 6 mm (0.24 in.)] 2 pcs.  
[The recessed cross pan head screws provided are for attaching the safety cover.]
- Gasket 1 sheet

#### Assembly

Align the gearhead and motor as shown in the figure at right, then engage the pinion section of the shaft to the gear gently by turning the gearhead slightly in both directions until the gearhead and motor fit flush together. Install the supplied gasket by making sure there is no gap between the motor flange surface and the end face of the gearhead pilot section.

Use the screws provided to secure the motor to the gearhead.



Model	Screw size	Tightening torque [N·m (lb-in)]
4GN□RH	M5	3.8 (33)
5GN□RH, 5GU□RH, 5GE□RH	M6	6.4 (56)

\* The square box in the gearhead model will contain a value representing the gear ratio.

##### Note

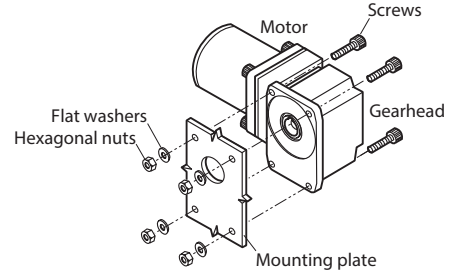
- Forcing the motor and gearhead together during assemble or permitting contamination by foreign matter inside the gearhead will cause excess noise and/or shorter life of the gearhead. Remove any particles of dust or other waste that may be clinging to the O-ring or the pilot section of the motor or gearhead.
- Do not bend or damage the gasket supplied. It may cause grease to leak.

Thank you for purchasing ORIENTAL MOTOR products.

To ensure correct operation, please read this manual carefully before using your gearhead.

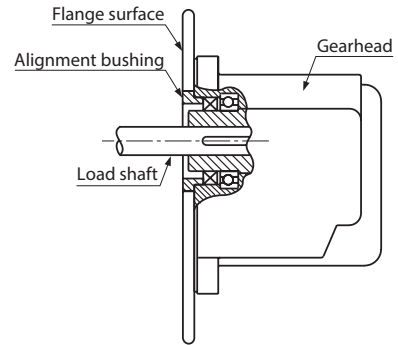
#### Installation to equipment

Connect the gearhead and motor using the screws provided before mounting them on equipment as shown in figure. When mounting, use a mounting plate about 8 mm (0.31 in) thick and screws long enough to ensure adequate bite.



##### Note

When using the gearhead flange to mount the gearhead to equipment, proper alignment between the hollow shaft inside dimension and the load shaft is necessary. Use the gearhead pilot as a guide for fitting the alignment bushing. Keep the alignment tolerance within 0.02 mm (0.0008 in.). Insufficient alignment may result in damage to the gearhead internal bearings.



## Attaching the load

Refer to following table for hollow shaft inside dimensions and the recommended load shaft dimensions as shown in the following figures. The hollow shaft inside dimension is processed to a tolerance of H8, and incorporates a key slot for load shaft attachment.

A load shaft tolerance of h7 is recommended. Apply a lubricant such as molybdenum disulphide grease etc. to the load shaft and to the inner circumference of the hollow shaft. Attach the safety cover provided for protection from the gearhead shaft rotation. Use a tightening torque of 0.35 to 0.45 N·m (3.0 to 3.9 lb-in).

### Note

- Do not apply excessive force when inserting the load shaft into the gearhead. Excessive or abrupt force may damage the gearhead internal bearings.
- The output shaft cannot be rotated manually for models **5GU120RH** to **5GU180RH**, **5GE120RH** to **5GE180RH**. Use the motor for position adjustment and alignment to equipment.
- Be sure to secure the parallel key to the load shaft when inserted into the hollow shaft.

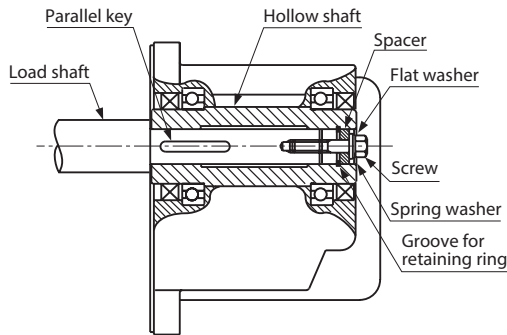
Hollow shaft Inside dimensions and recommended load shaft dimensions

[Unit: mm (in.)]

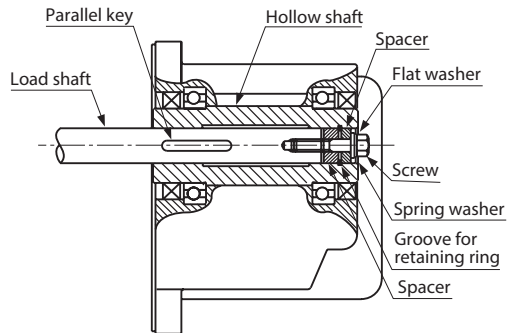
Model	4GN□RH, 5GN□RH	5GU□RH, 5GE□RH
Hollow shaft inside dimensions (H8)	$\varnothing 15^{+0.027}_0$ ( $\varnothing 0.5906^{+0.0011}_0$ )	$\varnothing 17^{+0.027}_0$ ( $\varnothing 0.6693^{+0.0011}_0$ )
Recommended load shaft dimensions (h7)	$\varnothing 15_{-0.018}^0$ ( $\varnothing 0.5906_{-0.0007}^0$ )	$\varnothing 17_{-0.018}^0$ ( $\varnothing 0.6693_{-0.0007}^0$ )

\* The square box in the gearhead model will contain a value representing the gear ratio.

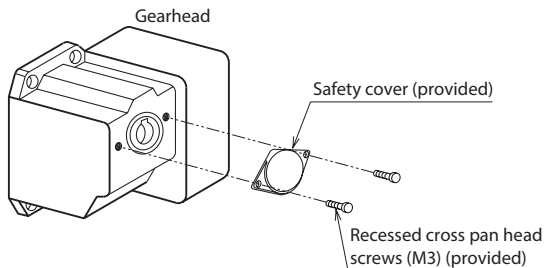
### When the load shaft is stepped



### When the load shaft is not stepped



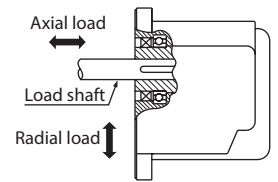
### Safety cover attachment



## Precautions for use

- Use in a location having an ambient operating temperature range between 0 to +50 °C (+32 to +122 °F) and humidity below 85%.
- Avoid locations exposed to direct sunlight, water, or oil.
- Avoid locations with vibration or heavy shocks, locations with excessive dust, and locations with explosive or corrosive gas.
- On rare occasions, grease may ooze out from the gearhead. If there is concern over possible environmental damage resulting from the leakage of grease, check for grease stains during regular inspections. Alternatively, install an oil pan or other device to prevent leakage from causing further damage. Grease leakage may lead to problems in the customer's equipment or products.
- If the ambient temperature is low, the motor may take a longer time to start or its speed may drop. This is caused, among others, by an increased friction torque of the oil seal used on the gearhead output shaft. As the motor continues to operate and the sliding part of the oil seal breaks in, the friction torque will drop and the motor will operate at the specified speed.
- Direction of rotation of the gearhead output shaft**  
The motor and gearhead output shaft rotate in opposite directions.
- Maximum permissible torque**  
The maximum permissible torque is defined by the size and the gear ratio of the gearhead. Use within the range of the permissible torque in accordance with each gear ratio. Also, be sure shaft rotation is not stopped by an external force or load obstruction. The resulting shock may damage the gearhead.
- Permissible radial load and permissible axial load**

The radial load and axial load have a great influence on the life of the bearings and strength of the shaft. Do not exceed the permissible radial load and permissible axial load. Refer to catalogue for details.



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