

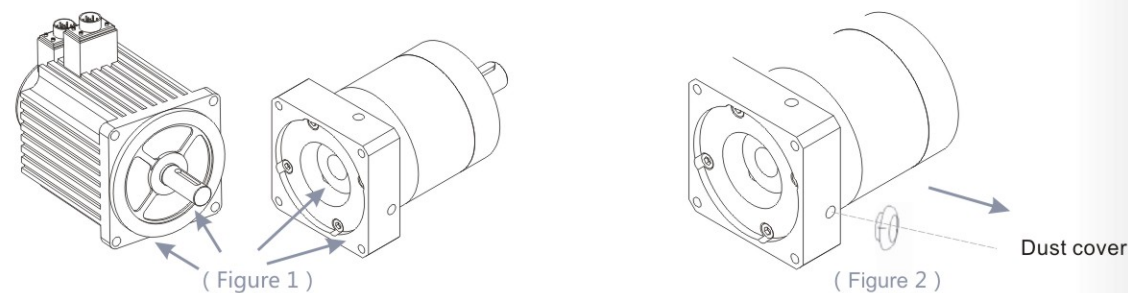
## INSTALLATION INSTRUCTION

The correct installation, use and maintenance of the gearboxes, are important parts to ensure the normal operation of mechanical equipment, therefore, when you install KOFON gearboxes, be sure to strictly follow the installation related matters to assemble and use seriously.

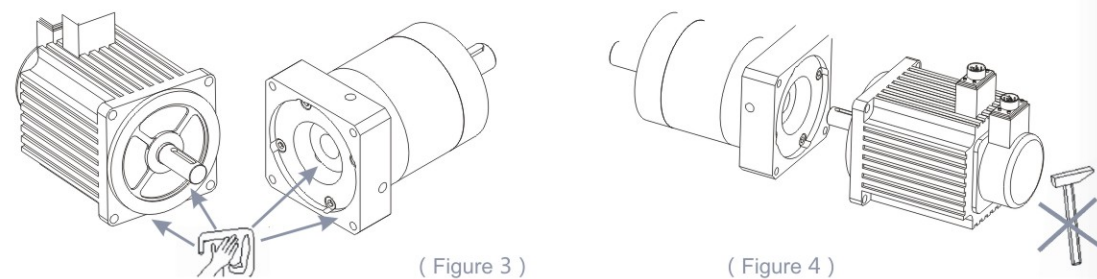
### The Connection to the Prime Engine

**Step 1.** Before installation confirm the motor and gearboxes are intact, and strictly check whether the size of the various parts of the motors and gearboxes be connected matched, mainly refers to the size of the spigot of the motor and gearboxes notch size and fit tolerance.

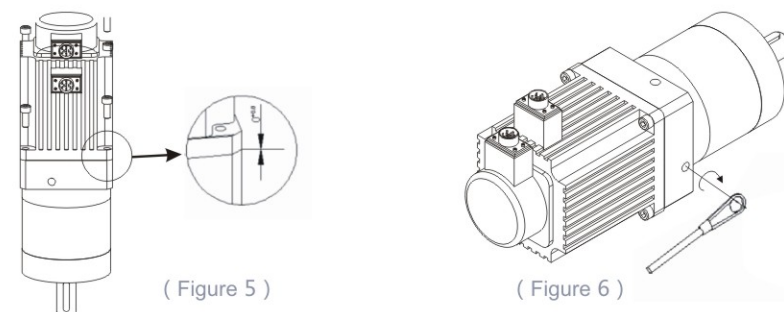
**Step 2.** Remove the dust cover on the technological bores of the gearboxes flange outside. Adjust input shaft elastic clamping device so that the fastening bolt is aligned with the technological bore. Insert hex wrench to loosen the fastening bolts. This step is suitable for tube clip locking mechanism coupling.



**Step 3.** Then wipe the anti-rust oil on the motor output shaft, the positioning spigot and gearboxes coupling parts with gasoline or zinc sodium water. Its purpose is to ensure that the coupling tightness and operation flexibility, and to prevent unnecessary wear. Naturally connect the motor and gearboxes, ensure that the concentricity of the gear output shaft and the motor of the input shaft are the same, and both the outside of the flange be parallel. If the concentricity is inconsistency, will cause broken motor shaft and gearboxes gear wear, further, when installed, do not hit with a hammer or other objects, to prevent axial force is so large that damage the bearing of gear.



**Step 4.** Before connecting the motor and gearboxes, please machine of decelerate of motor bearing and azimuth alignment as far as possible, in order to ensure uniform force, please spin on mounting bolts in the any angular positing, but do, spin on the other two on the angular positing of the mounting bolts and then tighten the four mounting bolts one by one. Finally, tighten the bolts, all fastening bolts are required to use torque wrench fixed torsional moment data indicated to fix and check.



( Table 1 )

	Product Model	KPL50/KPX45	KPL70/KPX65	KPL90/KPX85	KPL120/KPX115	KPL160/KPX142	KPX180/KPX220
Tightening Torque	TA (Nm)	4.5	9	9	15	36	81
Bolt Size	Sw (mm)	M4	M5	M5	M6	M8	M10

### The connection of the Work Machine

When the installation of the working matching, we should attach importance to the transmission center axis aligned, and the error should not be greater than the amount of coupling the use of compensation. Aligning well can extend the service life and to obtain the desired transmission efficiency, when install transmission parts on the output shaft, not allowed to tap with a hammer, usually use the internal parts of the reducer, best not to use steel fixed coupling, because class coupling improper installation will cause unnecessary applied load, and resulting in early bearing damage, serve or ever cause the output shaft fracture.

### The Gearboxes Fixing

Gearboxes should be securely mounted on a stable foundation or bearing, and the cooling air circulation flowing, unstable foundation will cause vibration and noise during operation, and promote the bearing and gear damage. When the drive couplings with protrusion or gear and sprocket, you should consider the installation of protective devices, after installation, you should have a in-order comprehensive check of the accuracy of the installation location and the reliability of fasteners clamping. The machine should be flexible rotation after installation. The operation should be smooth without shock, vibration, noise and oil leakage phenomenon. Abnormal should be immediately removed. If the ambient temperature is too high or to low, the grades of grease need to be changed.

## MAINTENANCE INSTRUCTIONS

Gearboxes oil quality should be checked regularly during use, timely replacement of for impurities or deterioration grease required.

Under normal circumstances, gearboxes for long-term continuous work, should be replaced with new grease in accordance with the running 20000 hours or every other year. Intermittent gearboxes should be checked the grease before re-operation. Re-lubrication can be completely by professional manufactures. The re-lubrication intervals and quantities should be decided according to the functioning. If the old grease can not be completely removed, accordingly limit the number of grease to avoid lubrication, if re-lubrication cycle interval is longer, recommended to completely replace the grease, grease dosage is preferably 1/3 of the internal space, if the input speed is low may be appropriate to increase. But can not exceed a maximum of 1/2 of the internal space.

The output of the rotary part use skeleton oil seal, the seals replacement generally based on whether the grease leaks. Gearboxes for intermittent use, also should be check the seal before re-operation, determine whether there is necessary for the replacement of seals, the seals can be replace only need to remove the seal seat.

At work when the temperature rise of the oil temperature exceeds 90°C or produce abnormal phenomena such as noise, stop using it and check the cause. The fault must be removed before they are allowed to continue operation.

Operation and inspection should be carefully recorded. The above provisions should be strictly enforced.