

APEX PLANETARY GEARBOXES

SAFETY MANUAL (P)

1) When you select APEX gear type

- Check APEX gearbox's output shaft conversion torque of the application motor. Please re-select the bigger type if necessary.
- Check the radial and the axial load of the applied device are below a permissible value of the APEX gearbox. Please re-select the bigger type if necessary.
- Choose the APEX gearbox's backlash according to the positioning accuracy.
- In case of PA2 and P2R series, check the shape of output shaft.
Output axis: S1 (Smooth Output Shaft), S2 (Output Shaft with key)
All other P2 and P2R series are S2, with key.

2) Installation of APEX gearbox and motor

- Please install APEX gearbox following "Motor mounting instructions".
- Please follow the manual "Motor mounting torque table" and "Set collar bolt torque table" when you tighten APEX gearbox.
- When you install APEX gearbox a wrong procedure, it may cause a breakdown such as vibrations, noises and slips.
- Please wipe and clean up output shaft of motor, input shaft of APEX gearbox and bushing before connecting the motor.

3) Installation of APEX gearbox on the device

APEX gearbox doesn't matter the direction of installation.

Please use the support for reducing a load of the motor if you have any concern about the weight and rigidity of device.

4) Confirmation of system requirements

(Temperature, humidity, and purification level)

APEX gearbox applies IP65 Degree of Protection, except shaft penetration part.

Measures are necessary at use in the place where the condition is bad.

Please follow the safety standard about your device and its installation places in your country.

5) Handling

Please wipe APEX gearbox off oil and dirt to prevent rust.

6) Safety warning

When APEX gearbox transported,

- Please handle with care; you may get injured when dropping by mistake at work and transportation.

When you install the APEX gearbox,

- Please do not touch the key ditch part of I/O shaft by bare-hand. You may get injured because of its sharp.
- Please install APEX gearbox tightly in a flat surface when you install with the motor. (Please read the “Motor mounting instructions” carefully, and tighten a bolt within the regulated range of the torque.) If the installation is not complete, it may be damaged by a fall of the machine and an excessive vibration.
- Please turn off the power when you connect it with the motor. It is very dangerous if the motor is connected with APEX gearbox when the power on.
- Please insert it by a soft hammer or the hand when you install a coupling and a sprocket, to avoid damage of the bearing and the shaft of APEX gearbox.

When you drive the APEX gearbox,

- Do not overload. The motor may cause a fire by generation of heat when driving more than a regulated value of the catalogue.
- Do not exceed the rotational speed more than regulations.
- Do not touch the rotation part and the main body while driving.
- Do not use it in place with the ignition and the explosion hazard.

➤ *Please stop and check when these situations occurred.*

- When it began to rise in temperature suddenly.
- When an abnormal noise began to appear suddenly.
- When a rotational speed began to become unstable suddenly.

➤ *Why that happened?*

- Overload.
- Lack and deterioration of lubricant grease, or using different type.
- Damaged on the conduction surface, shaft and bodies.
- Trouble in connected part.
- Not correctly installed.
- Use in improper place or situation.

➤ *Please take measures below.*

- Apply the safety device when you use APEX gearbox as a transportation device as Elevator, Escalator, etc.
- Use an explosion- proof type motor when you work in the place with explosiveness.

- Apply safeguard such as oil receiver to prevent leak grease by failures or deterioration when you use APEX gearbox in food manufacturing.
- Use within -10°C to 40°C of surrounding temperature.

When you maintain,

- Turn off the power completely when you check and repair APEX gearbox. It may cause an electric shock and rolling accident.
- Do not touch APEX gearbox while driving, or immediately after driving. Be assured to cool APEX gearbox down before maintenance.

When you keep APEX gearbox,

- Keep it in clean, dry place.
- Cover APEX gearbox with a sheet to avoid rain and mist when you keep it outside.

About lubricant grease inside APEX gearbox,

- APEX gearbox has Synthetic lubrication grease of regulated amount when our factory shipped. All models are complete sealing up style and ready to use.
Check the rotation direction of output shaft and put a load gradually when you start driving APEX gearbox.

7) Daily Maintenance

(Maintenance of motor side)

Please check the points below.

When irregular situations occurred, stop driving and contact us.

- No an abnormal noise from bearing and gear part?
- No an abnormal vibration from APEX gearbox?
- No lubricant grease leaks?

(Maintenance of device side)

- No overload, No over spin?
- No loose pulley, sprocket and bolts for APEX gearbox?
- No abnormal parts of electrical system?
- No abnormal main parts of APEX gearbox?
- No trouble for lubricant grease?

8) Trouble occurs?

- Stop the driving immediately, secure the safety.
- Do not take apart. Keep it as the status quo.
- **No guarantee when resolved by yourself.**

9) Warranty period

- 12 months after APEX gearbox shipped under the condition of following the manual and other rules on the catalogue. The warranty period does not extend after repair.

10) Diagnosis for failure

APEX JAPAN makes diagnosis for failure. In case that APEX JAPAN has a responsibility for the failure after consultation with you, APEX gearbox is repaired or new gearbox is replaced without any cost.

11) Warranty information

APEX JAPAN is not liable for the cost of repair and/or replacement for these failures even within warranty period.

- Failure caused by taking apart APEX gearbox.
- Failure caused by customizing/modifying APEX gearbox.
- Failure caused by connecting trouble with other devices.
- Failure caused by unsuitable way of keeping/handling or caused by your facilities.
- Failure caused by using APEX gear box over capacity.
- Failure caused by inevitable accidents as abnormal voltage, earthquakes, thunders, flood and other natural disasters.
- Failure caused by reasons unexpected in terms of current technology when APEX gearbox is shipped.
- Failure caused by connecting other devices without following Motor mounting instructions even under the appropriate condition.
- Other failures judged by APEX JAPAN as unguaranteed.

The expenses and losses below are unguaranteed even within warranty period.

- Expenses and loose of particular situations, removing/connecting APEX gearbox from/with other devices and incidental to its construction.
- All secondary expenses and losses such as transport costs, damages caused by suspension of operation, accident compensation, damage to your facilities etc.

It may change specifications on the catalogue, Motor mounting instructions etc. without notice.

Question & trouble?

Contact us

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