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Find the *Oriental Motor Vexta PX243-03AA* at our website: *Click HERE*

Oriental motor

OPERATING MANUAL

HM-601-17

Stepping Motor

PK series, PH series, PX series

Thank you for purchasing an Oriental Motor product.
This Operating Manual describes product handling procedures and safety precautions.

- Please read it thoroughly to ensure safe operation.
- Always keep the manual where it is readily available.

Introduction

Before using the motor

Only qualified personnel should work with the product.
Use the product correctly after thoroughly reading the section "Safety precautions".
The product described in this manual has been designed and manufactured for use in general industrial machinery, and must not be used for any other purpose. For the power supply use a DC power supply with reinforced insulation on its primary and secondary sides. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

Hazardous substances (PK series only)

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

Safety precautions

The precautions described below are intended to prevent danger or injury to the user and other personnel through safe, correct use of the product. Use the product only after carefully reading and fully understanding these instructions.

⚠ Warning

Handling the product without observing the instructions that accompany a "Warning" symbol may result in serious injury or death.

- Do not use the product in explosive or corrosive environments, in the presence of flammable gases, locations subjected to splashing water, or near combustibles. Doing so may result in fire or injury.
- Assign qualified personnel the task of installing, wiring, operating/controlling, inspecting and troubleshooting the product. Failure to do so may result in fire or injury.
- Provide a means to hold the moving parts in place for applications involving vertical travel. The motor loses holding torque when the power is shut off, allowing the moving parts to fall and possibly causing injury or damage to equipment.
- Install the motor in an enclosure in order to prevent injury.
- Keep the input-power voltage within the specified range to avoid fire.
- Connect the cables securely according to the wiring diagram in order to prevent fire.
- Do not forcibly bend, pull or pinch the cable. Doing so may fire.
- For the power supply use a DC power supply with reinforced insulation on its primary and secondary sides. Failure to do so may result in electric shock.
- Turn off the power in the event of a power failure, or the motor will suddenly start when the power is restored and may cause injury or damage to equipment.
- Do not disassemble or modify the motor. This may cause injury. Refer all such internal inspections and repairs to the branch or sales office from which you purchased the product.

⚠ Caution

Handling the product without observing the instructions that accompany a "Caution" symbol may result in injury or property damage.

- Do not use the motor beyond its specifications, or injury or damage to equipment may result.
- Do not touch the motor during operation or immediately after stopping. The surface is hot and may cause a burn.
- Do not hold the motor output shaft or motor cable. This may cause injury.
- Provide an emergency-stop device or emergency-stop circuit external to the equipment so that the entire equipment will operate safely in the event of a system failure or malfunction. Failure to do so may result in injury.
- To prevent bodily injury, do not touch the rotating parts (output shaft) of the motor during operation.
- Immediately when trouble has occurred, stop running and turn off the power. Failure to do so may result in fire, electric shock or injury.
- Conduct the insulation resistance measurement or withstand voltage test separately on the motor and the driver. Failure to do so may result in equipment damage.
- To dispose of the motor, disassemble it into parts and components as much as possible and dispose of individual parts/components as industrial waste.

Installation

Location for installation

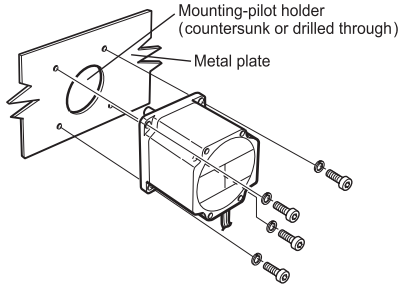
The motor is designed and manufactured for installation in equipment. Install it in a well-ventilated location that provides easy access for inspection. The location must also satisfy the following conditions:

- Inside an enclosure that is installed indoors (provide vent holes)
- Operating ambient temperature
  −10°C to +50°C (+14°F to +122°F) (non-freezing)
- Operating ambient humidity 85%, maximum (no condensation)
- Area that is free from an explosive nature or toxic gas (such as sulfuric gas) or liquid
- Area not exposed to direct sun
- Area free of excessive amount dust, iron particles or the like
- Area not subject to splashing water (storms, water droplets), oil (oil droplets) or other liquids
- Area free of excessive salt
- Area not subject to continuous vibration or excessive shocks
- Area free of excessive electromagnetic noise (from welders, power machinery, etc.)
- Area free of radioactive materials, magnetic fields or vacuum

How to install the motor

Install the motor onto an appropriate flat metal plate having excellent vibration resistance and heat conductivity. When installing the motor, secure it with four bolts (not supplied) through the four mounting holes (or tapped holes) provided. Leave no gap between the motor and plate.

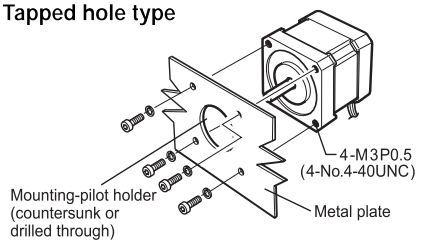
- **Through hole type**



Motor type	Bolt size	Tightening torque
PH533	M2.5 or M2.6	0.5N·m(4.4lb-in)
PH544	M3(No.4-40UNC)	1.0N·m(8.8lb-in)
PK56□ , PH56□ PK25□ PK26□ , PH26□ PH554	M4	2.0N·m(17.7lb-in)
PK59□ , PH59□ PK29□ , PH29□	M5	3.0N·m(26lb-in)

The square box in the motor type will contain a number representing the motor length.

- **Tapped hole type**



Motor type	Bolt size	Tightening torque
PK54□ PK24□ PX53□ PX24□	M3(No.4-40UNC)	1.0N·m(8.8lb-in)

The square box in the motor type will contain a number representing the motor length. (No.4-40UNC): USA model type

Permissible overhung load and permissible thrust load

The overhung load on the motor's output shaft or gear output shaft must be kept within the permissible values listed below. The thrust load must not exceed the motor's mass.

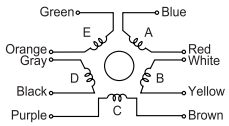
[Unit: N (lb.)]

Motor type	Distance from the top of motor's output shaft [mm (inch)]				
	0(0)	5(0.2)	10(0.39)	15(0.59)	20(0.79)
PH533 PH544 PX53□ PX24□	17(3.8)	21(4.7)	27(6.0)	37(8.3)	—
PK54□ PK24□	20(4.5)	25(5.6)	34(7.6)	52(11.7)	—
PK25□ PK26□ PH554 PH56□ PH26□	54(12.1)	67(15.0)	89(20)	130(29)	—
PK56□	63(14.1)	75(16.8)	95(21)	130(29)	190(42)
PH59□ PH29□	96(21)	110(24)	130(29)	160(36)	210(47)
PK59□ PK29□	260(58)	290(65)	340(76)	390(87)	480(108)

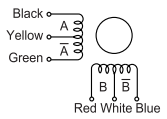
The square box in the motor type will contain a number representing the motor length.

Wiring diagram

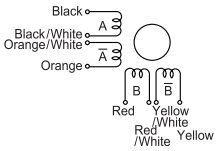
- **5-phase**



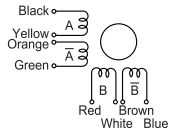
- **2-phase 6-lead wire type**



- **2-phase 8-lead wire type PH series**



- **2-phase 8-lead wire type PK series**



Inspection

It is recommended that periodic inspections be conducted for the items listed below after each operation of the motor. If an abnormal condition is noted, discontinue any use and contact your nearest office.

- Check for any unusual noises in the motor's bearings (ball bearings) or other moving parts.
- Are there any scratches, signs of stress or loose driver connections in the motor cable?
- Are the motor's output shaft and load shaft out of alignment?

- Unauthorized reproduction or copying of all or part of this Operating Manual is prohibited.
- Characteristics, specifications and dimensions are subject to change without notice.
- While we make every effort to offer accurate information in the manual, we welcome your input. Should you find unclear descriptions, errors or omissions, please contact the nearest office.
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• Please contact your nearest Oriental Motor office for further information.

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