High-torque PKP Series offers a standard type with a resolution of 200 steps per revolution (1.8˚/step) and a geared type (high torque, higher resolution). The dedicated driver is required separately to operate the motor.

Features

High-Torque Design
PKP Series generating high torque of approximately 1.2 to 1.7 times (maximum holding torque) the PK Series standard type of same size.

The Advantages of Using a High Torque Motor

Lower Power Consumption and Lower Heat Generation
If the running current of a PKP Series motor is decreased and the motor is operated at the same torque as the PK Series standard type, current consumption and temperature rise can be reduced.

Characteristics of Decreased Running Current in PKP Series Motors
● Downsizing of Your Motor
By using a PKP Series motor, which has the same torque as the PK Series standard type, the motor can be downsized.

Comparison of Speed-Torque Characteristics between PKP244U12A-L and PK264-02A

The motor can be downsized, even if the torque is the same!

◇ SH Geared Type
This geared type is effective for reducing speed, increasing torque, higher resolution and low vibration.
The PK Series has a broader permissible speed range than the SH geared type, and is also easier to use.

PK Series PKP243U09A-SG10

PKP Series PKP243U09A-SG10

Motor Lineup
Bipolar and unipolar models are available for all types.
1.8°/Geared 2-Phase Stepping Motors High-Torque PKP Series

**System Configuration**

These accessories enable 2-phase PKP Series products to be used for various operations.

### 2-Phase PKP Series

**Required Products (Sold separately)**

- Driver
- Controller
- Programmable Controller

**Controller (Sold separately)**

- Controllers suitable for stepping motors are available. Controllers → Page A-338

**Programmable Controller**

- Not supplied

**Accessories (Sold separately)**

1. **Motor Mounting Brackets**
   - Dedicated mounting bracket for the motor.
   - Page A-369

2. **Flexible Couplings**
   - Coupling that connects the motor shaft to the driven shaft.
   - Page A-359

3. **Clean Dampers**
   - Dedicated damper for suppressing stepping motor vibration.
   - Page A-375

4. **Connection Cables**
   - Lead wire with a connector crimped for connector-coupled motors (0.6 m, 1 m).
   - Page A-358

5. **Motor Connector Sets**
   - Set of connector housings and contacts for use with connector-coupled motors (30 units).
   - Page A-358

**Accessories (Sold separately)**

- Number Name Overview
  ① Motor Mounting Brackets
  ② Flexible Couplings
  ③ Clean Dampers
  ④ Connection Cables
  ⑤ Motor Connector Sets

**System Configuration Example**

2-Phase PKP Series

- Sold Separately
  - Motors
  - PAL2P-2
  - Flexible Coupling
  - MCS200808
  - Clean Damper
  - D6CL-8.0F

**Product Number Code**

#### Standard Type

**PKP 2 6 4 D 28 A - L**

- Series Name: PKP: PKP Series
- ①: 2: 2-Phase
- ②: 2: 2-Phase
- ③: Motor Frame Size
  - 1: 20 mm
  - 2: 28 mm
  - 3: 35 mm
  - 4: 42 mm
  - 6: 56.4 mm
- ④: Motor Case Length
  - D: 4
  - U: 5 or 6
- ⑤: Winding Specifications
- ⑥: Motor Shaft Type
  - A: Single Shaft
  - B: Double Shaft
- ⑦: Connection Cable
  - L: Included (0.6 m)

#### SH Geared Type

**PKP 2 4 3 U 09 B - SG 18 - L**

- Series Name: PKP: PKP Series
- ①: 2: 2-Phase
- ②: 2: 2-Phase
- ③: Motor Frame Size
  - 2: 28 mm
  - 4: 42 mm
  - 6: 60 mm
- ④: Motor Case Length
  - D: 4
  - U: 6
- ⑤: Winding Specifications
- ⑥: Motor Shaft Type
  - A: Single Shaft
  - B: Double Shaft
- ⑦: Gearhead Type
  - SG: SH Geared Type
- ⑧: Gear Ratio
- ⑨: Connection Cable
  - L: Included (0.6 m)
## Product Line

### Standard Type (4 lead wires)

<table>
<thead>
<tr>
<th>Product Name (Single shaft)</th>
<th>Product Name (Double shaft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213D05A</td>
<td>PKP213D05B</td>
</tr>
<tr>
<td>PKP223D15A-L</td>
<td>PKP223D15B-L</td>
</tr>
<tr>
<td>PKP224D15A-L</td>
<td>PKP224D15B-L</td>
</tr>
<tr>
<td>PKP225D15A-L</td>
<td>PKP225D15B-L</td>
</tr>
<tr>
<td>PKP233D15A-L</td>
<td>PKP233D15B-L</td>
</tr>
<tr>
<td>PKP234D15A-L</td>
<td>PKP234D15B-L</td>
</tr>
<tr>
<td>PKP244D15A-L</td>
<td>PKP244D15B-L</td>
</tr>
<tr>
<td>PKP245D15A-L</td>
<td>PKP245D15B-L</td>
</tr>
<tr>
<td>PKP264D28A-L</td>
<td>PKP264D28B-L</td>
</tr>
<tr>
<td>PKP266D28A-L</td>
<td>PKP266D28B-L</td>
</tr>
<tr>
<td>PKP268D28A-L</td>
<td>PKP268D28B-L</td>
</tr>
</tbody>
</table>

### Standard Type (5 or 6 lead wires)

<table>
<thead>
<tr>
<th>Product Name (Single shaft)</th>
<th>Product Name (Double shaft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213U05A</td>
<td>PKP213U05B</td>
</tr>
<tr>
<td>PKP223U09A-L</td>
<td>PKP223U09B-L</td>
</tr>
<tr>
<td>PKP224U09A-L</td>
<td>PKP224U09B-L</td>
</tr>
<tr>
<td>PKP225U09A-L</td>
<td>PKP225U09B-L</td>
</tr>
<tr>
<td>PKP233U12A-L</td>
<td>PKP233U12B-L</td>
</tr>
<tr>
<td>PKP234U12A-L</td>
<td>PKP234U12B-L</td>
</tr>
<tr>
<td>PKP243U04A-L</td>
<td>PKP243U04B-L</td>
</tr>
<tr>
<td>PKP244U04A-L</td>
<td>PKP244U04B-L</td>
</tr>
<tr>
<td>PKP244U12A-L</td>
<td>PKP244U12B-L</td>
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<td>PKP245U05A-L</td>
<td>PKP245U05B-L</td>
</tr>
<tr>
<td>PKP245U08A-L</td>
<td>PKP245U08B-L</td>
</tr>
<tr>
<td>PKP246U12A-L</td>
<td>PKP246U12B-L</td>
</tr>
<tr>
<td>PKP246U10A-L</td>
<td>PKP246U10B-L</td>
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<tr>
<td>PKP264U20A-L</td>
<td>PKP264U20B-L</td>
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<td>PKP267U30A-L</td>
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<td>PKP266U20A-L</td>
<td>PKP266U20B-L</td>
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<td>PKP268U10B-L</td>
</tr>
<tr>
<td>PKP268U20A-L</td>
<td>PKP268U20B-L</td>
</tr>
</tbody>
</table>

### SH Geared Type (4 lead wires)

<table>
<thead>
<tr>
<th>Product Name (Single shaft)</th>
<th>Product Name (Double shaft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG7.2-L</td>
<td>PKP223D15B-SG7.2-L</td>
</tr>
<tr>
<td>PKP223D15A-SG9-L</td>
<td>PKP223D15B-SG9-L</td>
</tr>
<tr>
<td>PKP223D15A-SG18-L</td>
<td>PKP223D15B-SG18-L</td>
</tr>
<tr>
<td>PKP223D15A-SG36-L</td>
<td>PKP223D15B-SG36-L</td>
</tr>
<tr>
<td>PKP243D15A-SG3.6-L</td>
<td>PKP243D15B-SG3.6-L</td>
</tr>
<tr>
<td>PKP243D15A-SG7.2-L</td>
<td>PKP243D15B-SG7.2-L</td>
</tr>
<tr>
<td>PKP243D15A-SG18-L</td>
<td>PKP243D15B-SG18-L</td>
</tr>
<tr>
<td>PKP243D15A-SG36-L</td>
<td>PKP243D15B-SG36-L</td>
</tr>
<tr>
<td>PKP264D14A-SG3.6-L</td>
<td>PKP264D14B-SG3.6-L</td>
</tr>
<tr>
<td>PKP264D14A-SG7.2-L</td>
<td>PKP264D14B-SG7.2-L</td>
</tr>
<tr>
<td>PKP264D28A-SG3.6-L</td>
<td>PKP264D28B-SG3.6-L</td>
</tr>
<tr>
<td>PKP264D28A-SG7.2-L</td>
<td>PKP264D28B-SG7.2-L</td>
</tr>
</tbody>
</table>

### SH Geared Type (6 lead wires)

<table>
<thead>
<tr>
<th>Product Name (Single shaft)</th>
<th>Product Name (Double shaft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223U09A-SG7.2-L</td>
<td>PKP223U09B-SG7.2-L</td>
</tr>
<tr>
<td>PKP223U09A-SG9-L</td>
<td>PKP223U09B-SG9-L</td>
</tr>
<tr>
<td>PKP223U09A-SG10-L</td>
<td>PKP223U09B-SG10-L</td>
</tr>
<tr>
<td>PKP223U09A-SG18-L</td>
<td>PKP223U09B-SG18-L</td>
</tr>
<tr>
<td>PKP223U09A-SG36-L</td>
<td>PKP223U09B-SG36-L</td>
</tr>
<tr>
<td>PKP234U09A-SG3.6-L</td>
<td>PKP234U09B-SG3.6-L</td>
</tr>
<tr>
<td>PKP234U09A-SG7.2-L</td>
<td>PKP234U09B-SG7.2-L</td>
</tr>
<tr>
<td>PKP234U09A-SG9-L</td>
<td>PKP234U09B-SG9-L</td>
</tr>
<tr>
<td>PKP234U09A-SG10-L</td>
<td>PKP234U09B-SG10-L</td>
</tr>
<tr>
<td>PKP234U09A-SG36-L</td>
<td>PKP234U09B-SG36-L</td>
</tr>
<tr>
<td>PKP264U10A-SG3.6-L</td>
<td>PKP264U10B-SG3.6-L</td>
</tr>
<tr>
<td>PKP264U10A-SG7.2-L</td>
<td>PKP264U10B-SG7.2-L</td>
</tr>
<tr>
<td>PKP264U10A-SG36-L</td>
<td>PKP264U10B-SG36-L</td>
</tr>
</tbody>
</table>

The following items are included in each product.

- Motor, Connection Cable, Operating Manual
- Only products that have product names that end in "L"
Standard Type  Frame Size 20 mm (4 lead wires)

### Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213D05A</td>
<td>Bipolar</td>
<td>0.02</td>
<td>1.6 x 10^-7</td>
<td>0.5</td>
<td>4.25</td>
<td>8.5</td>
<td>4.1</td>
<td>1.8°</td>
</tr>
<tr>
<td>PKP213D05B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP214D06A</td>
<td></td>
<td>0.036</td>
<td>2.9 x 10^-7</td>
<td>0.6</td>
<td>3.9</td>
<td>6.5</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>PKP214D06B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Speed – Torque Characteristics

**PKP213D05A/PKP213D05B**

![Speed-Torque Graph](image)

**PKP214D06A/PKP214D06B**

![Speed-Torque Graph](image)

**Note**

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

### Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213D05A</td>
<td>30</td>
<td>--</td>
<td>0.05</td>
</tr>
<tr>
<td>PKP213D05B</td>
<td>--</td>
<td>3B</td>
<td></td>
</tr>
<tr>
<td>PKP214D06A</td>
<td>40</td>
<td>--</td>
<td>0.07</td>
</tr>
<tr>
<td>PKP214D06B</td>
<td>--</td>
<td>4B</td>
<td></td>
</tr>
</tbody>
</table>

*These dimensions are for double shaft models.*

- For single shaft models, ignore the shaft in the shaded areas.
- The back shaft of the motor with double shaft type has the shaft flat in whole length.
Stepping Motors

Contact
TEL
Germany: 00800 22 55 66 22  UK/Ireland: 01256-347090  Italy: 02-93906346
France: 01 47 86 97 50  Other Countries: 00800 22 55 66 22

Standard Type  Frame Size 20 mm (5 lead wires)

■ Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213U05A</td>
<td>Unipolar</td>
<td>0.014</td>
<td>1.6 × 10^-7</td>
<td>0.5</td>
<td>4.25</td>
<td>8.5</td>
<td>2.9</td>
<td>1.8˚</td>
</tr>
<tr>
<td>PKP213U05B</td>
<td>Double Shaft</td>
<td>0.026</td>
<td>2.9 × 10^-7</td>
<td>0.6</td>
<td>4.2</td>
<td>7</td>
<td>2.4</td>
<td></td>
</tr>
</tbody>
</table>

■ Speed – Torque Characteristics

PKP213U05A/PKP213U05B

PKP214U06A/PKP214U06B

Note

Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100˚C or less.

■ Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP213U05A</td>
<td>30</td>
<td>38</td>
<td>0.05</td>
</tr>
<tr>
<td>PKP213U05B</td>
<td>38</td>
<td>38</td>
<td>0.07</td>
</tr>
<tr>
<td>PKP214U06A</td>
<td>40</td>
<td>48</td>
<td>0.07</td>
</tr>
</tbody>
</table>

These dimensions are for double shaft models.

For single shaft models, ignore the shaft in the shaded areas.

The back shaft of the motor with double shaft type has the shaft flat in whole length.
### 1.8°/Geared 2-Phase Stepping Motors
### High-Torque PKP Series

#### Standard Type  Frame Size 28 mm (4 lead wires)

#### Specifications

<table>
<thead>
<tr>
<th>Single Shaft</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
<th>Wirings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-L</td>
<td>Bipolar</td>
<td>0.065</td>
<td>9×10⁻⁷</td>
<td>1.5</td>
<td>1.8</td>
<td>1.2</td>
<td>0.74</td>
<td>1.8˚</td>
<td>(See Page A-276)</td>
</tr>
<tr>
<td>PKP223D15B-L</td>
<td>PKP224D15A-L</td>
<td>0.097</td>
<td>12×10⁻⁷</td>
<td>2.32</td>
<td>2.2</td>
<td>1.55</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP225D15A-L</td>
<td>PKP225D15B-L</td>
<td>0.11</td>
<td>18×10⁻⁷</td>
<td>3</td>
<td>3</td>
<td>2.05</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Features**
  - 4-lead wires
  - Rotor Yoke & Armature
  - High耐熱性リード線


- **Note**
  - Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100˚C or less.

### Speed – Torque Characteristics

#### PKP223D15A-L / PKP223D15B-L

#### PKP224D15A-L / PKP224D15B-L

#### PKP225D15A-L / PKP225D15B-L

- **Constant Current Driver**
  - Power Supply Voltage: 24 VDC
  - Current: 1.5 A/Phase (At 2-phase excitation)

- **With Clean Damper**
  - D4CL-5.0F: JL=34×10⁻⁷ kg·m²

### Dimensions

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-L</td>
<td>PKP223D15A</td>
<td>32</td>
<td>42</td>
<td>0.11</td>
</tr>
<tr>
<td>PKP223D15B-L</td>
<td>PKP223D15B</td>
<td>40</td>
<td>50</td>
<td>0.14</td>
</tr>
<tr>
<td>PKP224D15A-L</td>
<td>PKP224D15A</td>
<td>51.5</td>
<td>61.5</td>
<td>0.2</td>
</tr>
</tbody>
</table>

- **Applicable Connector**
  - Connector Housing: 51065-0600 (Molex)
  - Contact: 50212-8100 (Molex)
  - Crimp Tool: 57176-5000 (Molex)

- **Dimensions**
  - **Unit (mm)**
    - L1: 10 ± 0.25
    - L2: 15 ± 0.25
    - Mass: 0.2 ± 0.05

- **Accessories (Sold separately)**
  - Connection cable and motor connector set are available as accessories.
  - Connection cable: Page A-358
  - Motor connector: Page A-358
Standard Type  Frame Size 28 mm (6 lead wires)

■ Specifications (RoHS)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223U09A-L</td>
<td>Unipolar</td>
<td>0.05</td>
<td>9×10⁻⁷</td>
<td>0.95</td>
<td>2.66</td>
<td>2.8</td>
<td>1</td>
<td>1.8°</td>
</tr>
<tr>
<td>PKP223U09B-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP224U09A-L</td>
<td></td>
<td>0.075</td>
<td>12×10⁻⁷</td>
<td>3.2</td>
<td>3.4</td>
<td>1.2</td>
<td>1.8°</td>
<td></td>
</tr>
<tr>
<td>PKP224U09B-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP225U09A-L</td>
<td></td>
<td>0.09</td>
<td>18×10⁻⁷</td>
<td>4.4</td>
<td>4.6</td>
<td>1.4</td>
<td>1.8°</td>
<td></td>
</tr>
<tr>
<td>PKP225U09B-L</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- A connection cable (0.5 m) is included.

■ Speed – Torque Characteristics

<table>
<thead>
<tr>
<th>PKP223U09A-L/PKP223U09B-L</th>
</tr>
</thead>
</table>

Constant Current Driver  Power Supply Voltage: 24 VDC  Current: 0.95 A/Phase (At 2-phase excitation)
With Clean Damper  DMG-4.9F
(See Page A-276)

\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline
Product Name & Motor Product Name & L1 & L2 & Mass kg \\
\hline
PKP223U09A-L & PKP223U09A & 32 & – & 0.11 \\
PKP223U09B-L & PKP223U09B & 42 & – & 0.14 \\
PKP224U09A-L & PKP224U09A & 40 & – & 0.2 \\
PKP224U09B-L & PKP224U09B & 51.5 & – & 0.22 \\
PKP225U09A-L & PKP225U09A & 51.5 & 61.5 & 0.2 \\
PKP225U09B-L & PKP225U09B & 51.5 & 61.5 & 0.2 \\
\hline
\end{tabular}

- Applicable Connector
  Connector Housing: 51065-0600 (Molex)
  Contact: 50212-8100 (Molex)
  Crimp Tool: 57176-5000 (Molex)

- Included
  Connection Cable
  Product Name: LC2U06A

- Connection cable ➜ Page A-358
- Motor connector set ➜ Page A-358

■ Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.
- Connection cable ➜ Page A-358
- Motor connector set ➜ Page A-358
1.8°/Geared  2-Phase Stepping Motors
High-Torque PKP Series

Standard Type  Frame Size 35 mm (4 lead wires)

Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
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<tbody>
<tr>
<td>PKP233D15A-L</td>
<td>Bipolar</td>
<td>0.2</td>
<td>24×10⁻⁷</td>
<td>1.5</td>
<td>2.43</td>
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<td>PKP233D15B-L</td>
<td>Bipolar</td>
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<td>50×10⁻⁷</td>
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A connection cable (0.6 m) is included.

Speed – Torque Characteristics

PKP233D15A-L/PKP233D15B-L

Constant Current Driver  Power Supply Voltage: 24 VDC
Current: 1.5 A/Phase (At 2-phase excitation)
With Clean Damper D4CL-5.0F  Jₗ=34×10⁻⁷ kg·m²

PKP235D15A-L/PKP235D15B-L

Constant Current Driver  Power Supply Voltage: 24 VDC
Current: 1.5 A/Phase (At 2-phase excitation)
With Clean Damper D4CL-5.0F  Jₗ=34×10⁻⁷ kg·m²

Note

Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

Dimensions

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass kg</th>
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<td>PKP233D15B-L</td>
<td>PKP233D15B</td>
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<td>PKP235D15A-L</td>
<td>PKP235D15A</td>
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<td>0.285</td>
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<tr>
<td>PKP235D15B-L</td>
<td>PKP235D15B</td>
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<td>67</td>
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</table>

Applicable Connector
Connector Housing: 5103-0600 (Molex)
Contact: 50951-8100 (Molex)
Crimp Tool: 57295-5000 (Molex)

The length of the shaft flat on the double shaft model is 15±0.25.
These dimensions are for double shaft models.
For single shaft models, ignore the shaft in the shaded areas.

Included
Connection Cable
Product Name: LC2B06B

Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.
Connect cable ➔ Page A-358
Motor connector set ➔ Page A-358
### Specifications (RoHS)

<table>
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<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
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<tbody>
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<td>0.16 N·m</td>
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<td>PKP233U12B-L</td>
<td>Unipolar</td>
<td>0.3 N·m</td>
<td>50 × 10⁻⁷ J·kg·m²</td>
<td>1.2 A/Phase</td>
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<tr>
<td>PKP235U12A-L</td>
<td>Unipolar</td>
<td>0.5 N·m</td>
<td>55 × 10⁻⁷ J·kg·m²</td>
<td>1.2 A/Phase</td>
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</table>

- A connection cable (0.6 m) is included.

### Speed – Torque Characteristics

#### PKP233U12A-L/PKP233U12B-L

Constant Current Driver: Power Supply Voltage: 24 VDC
Current: 1.2 A/Phase (At 2-phase excitation)
With Clean Damper: D4CL-5.0F J = 34 × 10⁻⁷ kg·m²

#### PKP235U12A-L/PKP235U12B-L

Constant Current Driver: Power Supply Voltage: 24 VDC
Current: 1.2 A/Phase (At 2-phase excitation)
With Clean Damper: D4CL-5.0F J = 34 × 10⁻⁷ kg·m²

### Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass (kg)</th>
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<tbody>
<tr>
<td>PKP233U12A-L</td>
<td>PKP233U12A</td>
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<td>0.18</td>
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<tr>
<td>PKP233U12B-L</td>
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<td>52</td>
<td>0.285</td>
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<tr>
<td>PKP235U12A-L</td>
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<td>67</td>
<td>0.285</td>
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<td>PKP235U12B</td>
<td>67</td>
<td>-</td>
<td>0.285</td>
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</tbody>
</table>

- Applicable Connector:
  - Connector Housing: 5103-0600 (Molex)
  - Contact: 50351-8100 (Molex)
  - Crimp Tool: 57295-5000 (Molex)

- The length of the shaft flat on the double shaft model is 15 ± 0.25.
- These dimensions are for double shaft models.
- For single shaft models, ignore the shaft in the shaded areas.

### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.
- Connection cable ➜ Page A-358
- Motor connector set ➜ Page A-358
Standard Type  Frame Size 42 mm (4 lead wires)

### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
<th>Wirings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243D15A-L</td>
<td>Bipolar</td>
<td>0.35</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>2.85</td>
<td>1.9</td>
<td>5</td>
<td>1.8°</td>
<td>(See Page A-276)</td>
</tr>
<tr>
<td>PKP243D15B-L</td>
<td>Bipolar</td>
<td>0.48</td>
<td>57×10⁻⁷</td>
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<td>3.9</td>
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<td>0.58</td>
<td>83×10⁻⁷</td>
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<td>3.6</td>
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<tr>
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**Connection Cable and Motor Connector Set are available as accessories.**

- Connection cable ➔ Page A-358
- Motor connector set ➔ Page A-358

### Speed – Torque Characteristics

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
<th>Wirings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243D15A-L</td>
<td>Bipolar</td>
<td>0.35</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>2.85</td>
<td>1.9</td>
<td>5</td>
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<td>(See Page A-276)</td>
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<td>PKP243D15B-L</td>
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<td>5.8</td>
<td>3.87</td>
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</table>

**A connection cable (0.6 m) is included.**

### Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass (kg)</th>
</tr>
</thead>
<tbody>
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**Applicable Connector**

- Connector Housing: 51103-0600 (Molex)
- Contact: 50591-8100 (Molex)
- Crimp Tool: 57295-5000 (Molex)

**Accessories (Sold separately)**

Connection cable and motor connector set are available as accessories.

- Connection cable ➔ Page A-358
- Motor connector set ➔ Page A-358
## Specifications (RoHS)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
<th>Wirings and Connections</th>
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</tbody>
</table>

A connection cable (0.6 m) is included.

### Speed – Torque Characteristics

**PKP243U04A-L/PKP243U04B-L**

- Constant Voltage Driver: Power Supply Voltage: 13.9 VDC
- External Resistance: 0 Ω
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP243U06A-L/PKP243U06B-L**

- Constant Current Driver: Power Supply Voltage: 24 VDC
- Current: 0.6 A/Phase (At 4-phase excitation)
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP243U09A-L/PKP243U09B-L**

- Constant Current Driver: Power Supply Voltage: 24 VDC
- Current: 0.95 A/Phase (At 2-phase excitation)
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP244U04A-L/PKP244U04B-L**

- Constant Voltage Driver: Power Supply Voltage: 13.9 VDC
- External Resistance: 0 Ω
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP244U06A-L/PKP244U06B-L**

- Constant Current Driver: Power Supply Voltage: 24 VDC
- Current: 0.6 A/Phase (At 2-phase excitation)
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP244U08A-L/PKP244U08B-L**

- Constant Current Driver: Power Supply Voltage: 24 VDC
- Current: 0.8 A/Phase (At 2-phase excitation)
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

**PKP244U12A-L/PKP244U12B-L**

- Constant Current Driver: Power Supply Voltage: 24 VDC
- Current: 1.2 A/Phase (At 2-phase excitation)
- With Clean Damper D4CL-5.0F: JL=34×10⁻⁷ kg·m²

### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.
Connection cable and motor connector set are available as accessories.

Note:
 Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

### Dimensions (Unit: mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass [kg]</th>
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<td>PKP243U04B-L</td>
<td>PKP243U04B</td>
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<td>33</td>
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<tr>
<td>PKP244U08B-L</td>
<td>PKP244U08B</td>
<td>33</td>
<td>—</td>
<td>0.25</td>
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<tr>
<td>PKP244U12A-L</td>
<td>PKP244U12A</td>
<td>33</td>
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<td>0.25</td>
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<tr>
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<td>PKP244U12B</td>
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<td>0.25</td>
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<tr>
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<td>PKP245U05A</td>
<td>33</td>
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<td>0.25</td>
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<tr>
<td>PKP245U05B-L</td>
<td>PKP245U05B</td>
<td>33</td>
<td>—</td>
<td>0.25</td>
</tr>
<tr>
<td>PKP245U12A-L</td>
<td>PKP245U12A</td>
<td>33</td>
<td>—</td>
<td>0.25</td>
</tr>
<tr>
<td>PKP245U12B-L</td>
<td>PKP245U12B</td>
<td>33</td>
<td>—</td>
<td>0.25</td>
</tr>
</tbody>
</table>

*Applicable Connector
Connector Housing: 51103-0600 (Molex)
Contact: 50351-8100 (Molex)
Crimp Tool: 57295-5000 (Molex)

### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.
- Connection cable ➔ Page A-358
- Motor connector set ➔ Page A-358
Stepping Motors

A-263

Contact
TEL
Germany: 00800 22 55 66 22 UK/Ireland: 01256-347090 Italy: 02-93906346
France: 01 47 86 97 50 Other Countries: 00800 22 55 66 22

Standard Type  Frame Size 56.4 mm (4 lead wires)

■ Specifications (RoHS)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264D28A-L/PKP264D28B-L</td>
<td>Bipolar</td>
<td>0.6 N·m</td>
<td>120×10⁻⁷ J·kg²</td>
<td>2.8 A/Phase</td>
<td>2 VDC</td>
<td>0.73 mΩ/Phase</td>
<td>1.8 mH/Phase</td>
<td></td>
</tr>
<tr>
<td>PKP266D28A-L/PKP266D28B-L</td>
<td>Bipolar</td>
<td>1.4 N·m</td>
<td>290×10⁻⁷ J·kg²</td>
<td>2.8 A/Phase</td>
<td>2 VDC</td>
<td>1 mΩ/Phase</td>
<td>2.9 mH/Phase</td>
<td></td>
</tr>
<tr>
<td>PKP268D28A-L/PKP268D28B-L</td>
<td>Bipolar</td>
<td>2.3 N·m</td>
<td>490×10⁻⁷ J·kg²</td>
<td>3.4 A/Phase</td>
<td>3.4 VDC</td>
<td>1.23 mΩ/Phase</td>
<td>4.4 mH/Phase</td>
<td></td>
</tr>
</tbody>
</table>

■ Speed – Torque Characteristics

PKP264D28A-L/PKP264D28B-L

Constant Current Driver: Power Supply Voltage: 24 VDC
Current: 2.8 A/Phase (4-8-phase excitation)
With Clean Damper: 60 VAC

PKP266D28A-L/PKP266D28B-L

Constant Current Driver: Power Supply Voltage: 24 VDC
Current: 2.8 A/Phase (4-8-phase excitation)
With Clean Damper: 60 VAC

PKP268D28A-L/PKP268D28B-L

Constant Current Driver: Power Supply Voltage: 24 VDC
Current: 2.8 A/Phase (4-8-phase excitation)

Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

■ Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1 (mm)</th>
<th>L2 (mm)</th>
<th>Mass (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264D28A-L/PKP264D28B-L</td>
<td>PKP264D28A</td>
<td>39</td>
<td></td>
<td>0.46</td>
</tr>
<tr>
<td>PKP266D28A-L/PKP266D28B-L</td>
<td>PKP266D28B</td>
<td>62</td>
<td></td>
<td>0.73</td>
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<tr>
<td>PKP268D28A-L/PKP268D28B-L</td>
<td>PKP268D28A</td>
<td>76</td>
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<td>1.1</td>
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</tbody>
</table>

- Applicable Connector
  Connector Housing: 51067-0600 (Molex)
  Contact: 50217-9101 (Molex)
  Crimp Tool: 57189-5000 (Molex)
  ±0.4 (Molex)

- These dimensions are for double shaft models.
  For single shaft models, ignore the shaft in the shaded areas.

■ Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable  → Page A-358
- Motor connector set → Page A-358
1.8°/Geared  2-Phase Stepping Motors
High-Torque PKP Series

Standard Type  Frame Size 56.4 mm (6 lead wires)

**Specifications**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Holding Torque</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Basic Step Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264U10A-L</td>
<td>Single Shaft</td>
<td>0.51</td>
<td>120×10⁻⁷</td>
<td>1</td>
<td>5.87</td>
<td>5.87</td>
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<tr>
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<td>Double Shaft</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264U30A-L</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2.9</td>
<td>1.45</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>PKP264U30B-L</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
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<td>0.65</td>
<td>0.8</td>
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<tr>
<td>PKP266U10A-L</td>
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<td>8.1</td>
<td>11.6</td>
<td>1.8°</td>
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<td>2</td>
<td>4</td>
<td>2</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>PKP266U30A-L</td>
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<tr>
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<tr>
<td>PKP268U10A-L</td>
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<td>4.9</td>
<td>2.45</td>
<td>4.4</td>
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<tr>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP266U20B-L</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PKP268U30B-L</td>
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<td></td>
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</tr>
</tbody>
</table>

- A connection cable (0.6 m) is included.

**Speed – Torque Characteristics**

*PKP264U10A-L*/PKP264U10B-L

*PKP266U10A-L*/PKP266U10B-L

*PKP268U10A-L*/PKP268U10B-L

*PKP266U20A-L*/PKP266U20B-L

*PKP266U30A-L*/PKP266U30B-L

*PKP268U20A-L*/PKP268U20B-L

*PKP268U30A-L*/PKP268U30B-L

[Note]

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.
## Dimensions (Unit = mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>L1</th>
<th>L2</th>
<th>Mass kg</th>
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<tbody>
<tr>
<td>PKP264U10A-L</td>
<td>PKP264U10A</td>
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<td>0.46</td>
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<tr>
<td>PKP264U10B-L</td>
<td>PKP264U10B</td>
<td>62</td>
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<td></td>
</tr>
<tr>
<td>PKP264U20A-L</td>
<td>PKP264U20A</td>
<td>62</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>PKP264U20B-L</td>
<td>PKP264U20B</td>
<td>62</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>PKP264U30A-L</td>
<td>PKP264U30A</td>
<td>62</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>PKP264U30B-L</td>
<td>PKP264U30B</td>
<td>62</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>PKP266U10A-L</td>
<td>PKP266U10A</td>
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<td>0.73</td>
</tr>
<tr>
<td>PKP266U10B-L</td>
<td>PKP266U10B</td>
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<tr>
<td>PKP266U20A-L</td>
<td>PKP266U20A</td>
<td>77</td>
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<tr>
<td>PKP266U20B-L</td>
<td>PKP266U20B</td>
<td>77</td>
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<td></td>
</tr>
<tr>
<td>PKP266U30A-L</td>
<td>PKP266U30A</td>
<td>77</td>
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<tr>
<td>PKP266U30B-L</td>
<td>PKP266U30B</td>
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<td>–</td>
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</tr>
<tr>
<td>PKP268U10A-L</td>
<td>PKP268U10A</td>
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<td>1.1</td>
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<td>PKP268U10B-L</td>
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</tr>
<tr>
<td>PKP268U20A-L</td>
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<td>–</td>
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</tr>
<tr>
<td>PKP268U20B-L</td>
<td>PKP268U20B</td>
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<td>–</td>
<td></td>
</tr>
<tr>
<td>PKP268U30A-L</td>
<td>PKP268U30A</td>
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<td></td>
</tr>
<tr>
<td>PKP268U30B-L</td>
<td>PKP268U30B</td>
<td>99</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

These dimensions are for double shaft models. For single shaft models, ignore the shaft in the shaded areas.

### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable ➔ Page A-358
- Motor connector set ➔ Page A-358

- Applicable Connector
  - Connector Housing: 51067-0600 (Molex)
  - Contact: 50171-9101 (Molex)
  - Crimp Tool: 57188-5000 (Molex)
  - 57190-5000 (Molex)

- Included
  - Connection Cable
  - Product Name: LC2U06C

Connection cable and motor connector set are available as accessories.
1.8°/Geared  2-Phase Stepping Motors  High-Torque PKP Series

SH Geared Type  Frame Size 28 mm (4 lead wires)

■ Specifications

Motor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Rotor Inertia J: kg·m²</th>
<th>Rated Current A/Phase</th>
<th>Voltage VDC</th>
<th>Resistance per Phase 1Ω/Phase</th>
<th>Inductance mH/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG7.2-L</td>
<td>Bipolar</td>
<td>9 × 10⁻³</td>
<td>1.5</td>
<td>1.8</td>
<td>1.2</td>
<td>0.74</td>
</tr>
<tr>
<td>PKP223D15B-SG7.2-L</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Note

- A number indicating the gear ratio is entered where the box is located within the product name.
- A connection cable (0.6 m) is included.

Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0.25°</th>
<th>Gear Ratio 7.2</th>
<th>Permissible Torque 0.3 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–416 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG7.2-L</td>
<td>0.3</td>
<td>0.25°</td>
<td>7.2</td>
<td>0.3</td>
<td>90 (1.5°)</td>
<td>0–416</td>
</tr>
<tr>
<td>PKP223D15B-SG7.2-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0.2°</th>
<th>Gear Ratio 10</th>
<th>Permissible Torque 0.3 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–333 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG9-L</td>
<td>0.18°</td>
<td>0.2°</td>
<td>10</td>
<td>0.3</td>
<td>90 (1.5°)</td>
<td>0–333</td>
</tr>
<tr>
<td>PKP223D15B-SG9-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0.1°</th>
<th>Gear Ratio 18</th>
<th>Permissible Torque 0.4 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–166 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG10-L</td>
<td>0.1°</td>
<td>0.1°</td>
<td>18</td>
<td>0.4</td>
<td>90 (1.5°)</td>
<td>0–166</td>
</tr>
<tr>
<td>PKP223D15B-SG10-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0.05°</th>
<th>Gear Ratio 36</th>
<th>Permissible Torque 0.4 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–83 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG18-L</td>
<td>0.4°</td>
<td>0.05°</td>
<td>36</td>
<td>0.4</td>
<td>90 (1.5°)</td>
<td>0–83</td>
</tr>
<tr>
<td>PKP223D15B-SG18-L</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0°</th>
<th>Gear Ratio 72</th>
<th>Permissible Torque 0.2 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–416 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG36-L</td>
<td>0.1°</td>
<td>0°</td>
<td>72</td>
<td>0.2</td>
<td>90 (1.5°)</td>
<td>0–416</td>
</tr>
<tr>
<td>PKP223D15B-SG36-L</td>
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<td></td>
<td></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle 0°</th>
<th>Gear Ratio 36</th>
<th>Permissible Torque 0.2 N·m</th>
<th>Backlash 90 (1.5°) arc minute (degrees)</th>
<th>Permissible Speed Range 0–83 r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223D15A-SG36-L</td>
<td>0.1°</td>
<td>0°</td>
<td>36</td>
<td>0.2</td>
<td>90 (1.5°)</td>
<td>0–83</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Speed – Torque Characteristics

Constant Current Driver  Power Supply Voltage: 24 VDC  Current: 1.5 A/Phase (At 2-phase excitation)  With Clean Damper D4CL-5.0F: JL=34 × 10⁻⁷ kg·m²

Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

Dimensions

Refer to page A-274.

Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

Connection cable ➜ Page A-358
Motor connector set ➜ Page A-358
SH Geared Type  Frame Size 28 mm (6 lead wires)

Specifications (RoHS)

Motor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Rotor Inertia J·kg·m²</th>
<th>Rated Current A/Phase</th>
<th>Voltage VDC</th>
<th>Resistance per Phase Ω/Phase</th>
<th>Inductance mH/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP223U09A-SG7.2-L</td>
<td>Unipolar</td>
<td>9×10⁻⁷</td>
<td>0.95</td>
<td>2.66</td>
<td>2.8</td>
<td>1</td>
</tr>
</tbody>
</table>

Note

- A number indicating the gear ratio is entered where the box is located within the product name.
- A connection cable (0.6 m) is included.

Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N·m</th>
<th>Basic Step Angle</th>
<th>Gear Ratio</th>
<th>Permissible Torque N·m</th>
<th>Backlash arc minute (degrees)</th>
<th>Permissible Speed Range r/min</th>
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</thead>
<tbody>
<tr>
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<td>0.3</td>
<td>0.25°</td>
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<td>0.3</td>
<td>90 (1.5)</td>
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<td>PKP223U09A-SG9-L</td>
<td>0.4</td>
<td>0.1°</td>
<td>18</td>
<td>0.4</td>
<td>0—166</td>
<td></td>
</tr>
</tbody>
</table>


Speed – Torque Characteristics

PKP223U09A-SG7.2-L
PKP223U09B-SG7.2-L
PKP223U09A-SG18-L
PKP223U09B-SG18-L
PKP223U09A-SG36-L
PKP223U09B-SG36-L

Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

Dimensions

Refer to page A-274.

Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

Connection cable — Page A-358
Motor connector set — Page A-358
### SH Geared Type  Frame Size 42 mm (4 lead wires)

#### Motor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Rotor Inertia J: kg·m²</th>
<th>Rated Current A/Phase</th>
<th>Voltage VDC</th>
<th>Resistance per Phase 1Ω/Phase mΩ/Phase</th>
<th>Inductance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243D15A-SG3.6-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG3.6-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15A-SG7.2-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG7.2-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15A-SG9-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG9-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15A-SG10-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG10-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15A-SG18-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG18-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15A-SG36-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
<tr>
<td>PKP243D15B-SG36-L</td>
<td>Bipolar</td>
<td>36×10⁻⁷</td>
<td>1.5</td>
<td>0.87</td>
<td>0.58</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*Note*:
- A number indicating the gear ratio is entered where the box □ is located within the product name.
- A connection cable (0.6 m) is included.

#### Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Maximum Torque N·m</th>
<th>Basic Step Angle 1/arc minute</th>
<th>Gear Ratio</th>
<th>Permissible Torque N·m</th>
<th>Backlash 1°</th>
<th>Permissible Speed Range r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243D15A-SG3.6-L</td>
<td>Bipolar</td>
<td>0.2</td>
<td>0.5°</td>
<td>36</td>
<td>0.2</td>
<td>90 (1.5°)</td>
<td>0—83</td>
</tr>
<tr>
<td>PKP243D15B-SG3.6-L</td>
<td>Bipolar</td>
<td>0.4</td>
<td>0.25°</td>
<td>7.2</td>
<td>0.4</td>
<td>90 (1.5°)</td>
<td>0—416</td>
</tr>
<tr>
<td>PKP243D15A-SG7.2-L</td>
<td>Bipolar</td>
<td>0.5</td>
<td>0.2°</td>
<td>9</td>
<td>0.5</td>
<td>90 (1°)</td>
<td>0—333</td>
</tr>
<tr>
<td>PKP243D15B-SG7.2-L</td>
<td>Bipolar</td>
<td>0.56</td>
<td>0.18°</td>
<td>10</td>
<td>0.56</td>
<td>90 (1°)</td>
<td>0—166</td>
</tr>
<tr>
<td>PKP243D15A-SG9-L</td>
<td>Bipolar</td>
<td>0.8</td>
<td>0.1°</td>
<td>18</td>
<td>0.8</td>
<td>90 (1°)</td>
<td>0—83</td>
</tr>
<tr>
<td>PKP243D15B-SG9-L</td>
<td>Bipolar</td>
<td>0.8</td>
<td>0.1°</td>
<td>18</td>
<td>0.8</td>
<td>90 (1°)</td>
<td>0—83</td>
</tr>
</tbody>
</table>

#### Speed – Torque Characteristics

- **PKP243D15A-SG3.6-L**
- **PKP243D15B-SG3.6-L**
- **PKP243D15A-SG7.2-L**
- **PKP243D15B-SG7.2-L**
- **PKP243D15A-SG9-L**
- **PKP243D15B-SG9-L**
- **PKP243D15A-SG10-L**
- **PKP243D15B-SG10-L**
- **PKP243D15A-SG18-L**
- **PKP243D15B-SG18-L**
- **PKP243D15A-SG36-L**
- **PKP243D15B-SG36-L**

*Note*:
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

#### Dimensions

Refer to page A-274.

#### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable ➜ Page A-358
- Motor connector set ➜ Page A-358
### SH Geared Type

Frame Size 42 mm (6 lead wires)

#### Motor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Motor Inertia J (kg·m²)</th>
<th>Rated Current A/Phase (VDC)</th>
<th>Resistance per Phase (Ω/Phase)</th>
<th>Inductance mH/Phase</th>
<th>Warnings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243U09A-SG3.6-L</td>
<td>Unipolar</td>
<td>36 × 10⁻²</td>
<td>0.95</td>
<td>2.09</td>
<td>2.2</td>
<td>2.3 (See Page A-276)</td>
</tr>
</tbody>
</table>

A number indicating the gear ratio is entered where the box □ is located within the product name.

A connection cable (0.8 m) is included.

#### Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque (N·m)</th>
<th>Basic Step Angle</th>
<th>Gear Ratio</th>
<th>Permissible Torque (N·m)</th>
<th>Backlash (arc minute)</th>
<th>Permissible Speed Range (r/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP243U09A-SG3.6-L</td>
<td>0.2</td>
<td>0.5°</td>
<td>3.6</td>
<td>0.2</td>
<td>90 (1.5°)</td>
<td>0–833</td>
</tr>
<tr>
<td>PKP243U09B-SG3.6-L</td>
<td>0.5</td>
<td>0.5°</td>
<td>10</td>
<td>1.0</td>
<td>90 (1.5°)</td>
<td>0–833</td>
</tr>
</tbody>
</table>

PKP243U09A-SG18-L: 0.1° PKP243U09B-SG18-L: 0.2°

#### Specified Torque Characteristics

PKP243U09A-SG3.6-L: 0.2 N·m (0.5°/step)

PKP243U09B-SG3.6-L: 0.5 N·m (0.1°/step)

#### Dimensions

Refer to page A-274.

#### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable → Page A-358
- Motor connector set → Page A-358

---

**Note:**
Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

**Contact**

Germany: 0800 22 55 66 22 UK/Ireland: 01256-347090 Italy: 02-93906346 France: 01 47 86 97 50 Other Countries: 08080 22 55 66 22
### SH Geared Type
Frame Size 60 mm (4 lead wires)

#### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Rotor Inertia J kg m²</th>
<th>Rated Current A/Phase</th>
<th>Voltage VDC</th>
<th>Resistance per Phase Ω Phase</th>
<th>Inductance mH/Phase</th>
<th>Wings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Shaft</td>
<td>Bipolar</td>
<td></td>
<td>1.4</td>
<td>3.08</td>
<td>2.2</td>
<td>4.5</td>
<td>3</td>
</tr>
<tr>
<td>PKP264D14A-SG3.6-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D14B-SG3.6-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D28A-SG7.2-L</td>
<td></td>
<td></td>
<td>2.8</td>
<td>0.92</td>
<td>0.33</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>PKP264D28B-SG7.2-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- A number indicating the gear ratio is entered where the box is located within the product name.
- A connection cable (0.6 m) is included.

#### Note
- The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 3.6, 7.2, 9 and 10. It is the opposite for 18 and 36 gear ratio.

#### Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque N m</th>
<th>Basic Step Angle</th>
<th>Gear Ratio</th>
<th>Permissible Torque N m</th>
<th>Backlash arc minute (degrees)</th>
<th>Permissible Speed Range r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Shaft</td>
<td>1</td>
<td>0.5°</td>
<td>3.6</td>
<td>1</td>
<td>70 (1.17)</td>
<td>0—833</td>
</tr>
<tr>
<td>PKP264D14A-SG3.6-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D14B-SG3.6-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Shaft</td>
<td>2</td>
<td>0.25°</td>
<td>7.2</td>
<td>2</td>
<td>45 (0.75)</td>
<td>0—416</td>
</tr>
<tr>
<td>PKP264D14A-SG7.2-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D14B-SG7.2-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D28A-SG9-L</td>
<td></td>
<td></td>
<td>2.5</td>
<td>0.2°</td>
<td>9</td>
<td>0—333</td>
</tr>
<tr>
<td>PKP264D28B-SG9-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D14A-SG10-L</td>
<td></td>
<td></td>
<td>2.7</td>
<td>0.18°</td>
<td>10</td>
<td>45 (0.75)</td>
</tr>
<tr>
<td>PKP264D14B-SG10-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D28A-SG18-L</td>
<td></td>
<td></td>
<td>3</td>
<td>0.1°</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>PKP264D28B-SG18-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKP264D14A-SG36-L</td>
<td></td>
<td></td>
<td>4</td>
<td>0.05°</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>PKP264D14B-SG36-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Gearmotor Specifications
- A number indicating the gear ratio is entered where the box is located within the product name.
**Speed – Torque Characteristics**

### PKP264D14A-SG3.6-L
PKP264D14B-SG3.6-L

- Torque [N·m]: 0.2, 0.4, 0.6, 0.8, 1.0
- Permissible Torque [N·m]: 0.5, 1.0, 2.0, 3.0

### PKP264D14A-SG7.2-L
PKP264D14B-SG7.2-L

- Torque [N·m]: 0.6, 0.8, 1.0, 1.2
- Permissible Torque [N·m]: 1.0, 2.0, 3.0

### PKP264D14A-SG9-L
PKP264D14B-SG9-L

- Torque [N·m]: 1.0, 1.5, 2.0, 2.5
- Permissible Torque [N·m]: 2.0, 4.0, 6.0

---

**Note**

Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

### Dimensions

Refer to page A-275.

### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable  → Page A-358
- Motor connector set  → Page A-358

---

**Contact**

Germany: 08000 22 55 66 22  UK/Ireland: 01256-347090  Italy: 02-93906346
France: 01 47 86 97 50  Other Countries: 08000 22 55 66 22

A-271
## 1.8°/Geared 2-Phase Stepping Motors

### High-Torque PKP Series

#### SH Geared Type
Frame Size 60 mm (6 lead wires)

### Specifications

#### Motor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Connection Type</th>
<th>Rotor Inertia</th>
<th>Rated Current</th>
<th>Voltage</th>
<th>Resistance per Phase</th>
<th>Inductance</th>
<th>Wirings and Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264U10A-SG9-L</td>
<td>Single Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U10B-SG9-L</td>
<td>Single Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U20A-SG9-L</td>
<td>Single Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U20B-SG9-L</td>
<td>Single Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U10A-SG10-L</td>
<td>Single Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10B-SG10-L</td>
<td>Single Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20A-SG10-L</td>
<td>Single Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20B-SG10-L</td>
<td>Single Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10A-SG18-L</td>
<td>Single Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10B-SG18-L</td>
<td>Single Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20A-SG18-L</td>
<td>Single Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20B-SG18-L</td>
<td>Single Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10A-SG36-L</td>
<td>Single Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U10B-SG36-L</td>
<td>Single Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20A-SG36-L</td>
<td>Single Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20B-SG36-L</td>
<td>Single Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20A-SG9-L</td>
<td>Double Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U20B-SG9-L</td>
<td>Double Shaft</td>
<td>2.5</td>
<td>0.25</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U10A-SG10-L</td>
<td>Double Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10B-SG10-L</td>
<td>Double Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20A-SG10-L</td>
<td>Double Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20B-SG10-L</td>
<td>Double Shaft</td>
<td>2.7</td>
<td>0.18</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10A-SG18-L</td>
<td>Double Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10B-SG18-L</td>
<td>Double Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20A-SG18-L</td>
<td>Double Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20B-SG18-L</td>
<td>Double Shaft</td>
<td>3</td>
<td>0.18</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10A-SG36-L</td>
<td>Double Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U10B-SG36-L</td>
<td>Double Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20A-SG36-L</td>
<td>Double Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20B-SG36-L</td>
<td>Double Shaft</td>
<td>4</td>
<td>0.05</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0-83</td>
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</tbody>
</table>

#### Gearmotor Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Maximum Holding Torque</th>
<th>Basic Step Angle</th>
<th>Gear Ratio</th>
<th>Permissible Torque</th>
<th>Backlash</th>
<th>Permissible Speed Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264U10A-SG3.6-L</td>
<td>0.5˚</td>
<td>3.6</td>
<td>1</td>
<td>70 (1.17)</td>
<td>0</td>
<td>0-833</td>
</tr>
<tr>
<td>PKP264U10B-SG3.6-L</td>
<td>0.5˚</td>
<td>3.6</td>
<td>1</td>
<td>70 (1.17)</td>
<td>0</td>
<td>0-833</td>
</tr>
<tr>
<td>PKP264U20A-SG3.6-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U20B-SG3.6-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U10A-SG7.2-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U10B-SG7.2-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U20A-SG7.2-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U20B-SG7.2-L</td>
<td>0.25˚</td>
<td>7.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0-416</td>
</tr>
<tr>
<td>PKP264U10A-SG9-L</td>
<td>0.2˚</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U10B-SG9-L</td>
<td>0.2˚</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U20A-SG9-L</td>
<td>0.2˚</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U20B-SG9-L</td>
<td>0.2˚</td>
<td>9</td>
<td>2.5</td>
<td>0</td>
<td>0</td>
<td>0-333</td>
</tr>
<tr>
<td>PKP264U10A-SG10-L</td>
<td>0.18˚</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10B-SG10-L</td>
<td>0.18˚</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20A-SG10-L</td>
<td>0.18˚</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U20B-SG10-L</td>
<td>0.18˚</td>
<td>10</td>
<td>2.7</td>
<td>45 (0.75)</td>
<td>0</td>
<td>0-300</td>
</tr>
<tr>
<td>PKP264U10A-SG18-L</td>
<td>0.1˚</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10B-SG18-L</td>
<td>0.1˚</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20A-SG18-L</td>
<td>0.1˚</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U20B-SG18-L</td>
<td>0.1˚</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0-166</td>
</tr>
<tr>
<td>PKP264U10A-SG36-L</td>
<td>0.05˚</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U10B-SG36-L</td>
<td>0.05˚</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20A-SG36-L</td>
<td>0.05˚</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0-83</td>
</tr>
<tr>
<td>PKP264U20B-SG36-L</td>
<td>0.05˚</td>
<td>36</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0-83</td>
</tr>
</tbody>
</table>
### Speed – Torque Characteristics

<table>
<thead>
<tr>
<th>Step Motor Type</th>
<th>Speed (r/min)</th>
<th>Torque [N·m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKP264U10A-SG3.6-L</td>
<td>1000</td>
<td>0.5</td>
</tr>
<tr>
<td>PKP264U10B-SG3.6-L</td>
<td>1000</td>
<td>1.0</td>
</tr>
<tr>
<td>PKP264U10A-SG7.2-L</td>
<td>1000</td>
<td>2.0</td>
</tr>
<tr>
<td>PKP264U10B-SG7.2-L</td>
<td>1000</td>
<td>3.0</td>
</tr>
<tr>
<td>PKP264U10A-SG9-L</td>
<td>1000</td>
<td>4.0</td>
</tr>
<tr>
<td>PKP264U10B-SG9-L</td>
<td>1000</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Note:** Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

### Dimensions

Refer to page A-275.

### Accessories (Sold separately)

Connection cable and motor connector set are available as accessories.

- Connection cable → Page A-358
- Motor connector set → Page A-358
### Dimensions (Unit = mm)

#### Frame Size 28 mm

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>Connection Cable Product Name</th>
<th>Gear Ratio</th>
<th>Mass kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Lead Wires</td>
<td>PKP233D15A-SG-L</td>
<td>PKP223D15A-SG-L</td>
<td>LC2B06A</td>
<td>7.2, 9, 10</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>PKP233D15B-SG-L</td>
<td>PKP223D15B-SG-L</td>
<td>LC2U06A</td>
<td>18, 36</td>
<td></td>
</tr>
</tbody>
</table>

**Applicable Connector**

- Connector Housing: 51065-0600 (Molex)
- Contact: 50212-8100 (Molex)
- Crimp Tool: 57176-5000 (Molex)

#### Frame Size 42 mm

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>Connection Cable Product Name</th>
<th>Gear Ratio</th>
<th>Mass kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Lead Wires</td>
<td>PKP243D15A-SG-L</td>
<td>PKP243D15A-SG-L</td>
<td>LC2B06B</td>
<td>3.6, 7.2, 9</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>PKP243D15B-SG-L</td>
<td>PKP243D15B-SG-L</td>
<td>LC2U06B</td>
<td>10, 18, 36</td>
<td></td>
</tr>
</tbody>
</table>

**Applicable Connector**

- Connector Housing: 51103-0600 (Molex)
- Contact: 50351-8100 (Molex)
- Crimp Tool: 57295-5000 (Molex)

---

- A number indicating the gear ratio is entered where the box is located within the product name.
- These dimensions are for double shaft models. For single shaft models, ignore the shaft in the shaded areas.
### Dimensions (Unit = mm)

#### Frame Size 60 mm

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Product Name</th>
<th>Motor Product Name</th>
<th>Connection Cable Product Name</th>
<th>Gear Ratio</th>
<th>Mass kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Lead Wires</td>
<td>PKP264D14A-SG-L</td>
<td>PKP264D14A-SG-L</td>
<td>LC2B06C</td>
<td>3.6, 7.2, 9, 10, 18, 36</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>PKP264D28B-SG-L</td>
<td>PKP264D28B-SG-L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PKP264U10B-SG-L</td>
<td>PKP264U10B-SG-L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PKP264U20A-SG-L</td>
<td>PKP264U20A-SG-L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PKP264U20B-SG-L</td>
<td>PKP264U20B-SG-L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- A number indicating the gear ratio is entered where the box is located within the product name.
- These dimensions are for double shaft models. For single shaft models, ignore the shaft in the shaded areas.

**Contact**

TEL

Germany: 00800 22 55 66 22  UK/Ireland: 01256-347090  Italy: 02-93906346  France: 01 47 86 97 50  Other Countries: 00800 22 55 66 22

**Accessories**

- AC Input Motor & Driver
- AC Input Motor & Driver
- Motor Only

**Applicable Connector**

- Connector Housing: 51067-0600 (Molex)
- Contact: 50217-9101 (Molex)
- Crimp Tool: 57189-5000 (Molex)
- 57190-5000 (Molex)

---

**Connection Cable:** LC2B06C

- Connection Cable: LC2B06C
- Connection Cable: LC2U06C

- 4 Motor Leads
- UL Style 3265, AWG22

---

- 6 Motor Leads
- UL Style 3265, AWG22
1.8°/Geared  2-Phase Stepping Motors  
High-Torque PKP Series

### General Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Class</td>
<td>130 (B)</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>The measured value is 100 MΩ min. when a 500 VDC megger is applied between the windings and the case under normal ambient temperature and humidity.</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>No abnormality is judged even with application of 1.0 kVAC at 50 Hz or 60 Hz between the windings and the case for 1 minute under normal ambient temperature and humidity. (0.5 kV for models with a frame size of 42 mm or smaller.)</td>
</tr>
</tbody>
</table>

#### Operating Environment (In operation)

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>—10—+50˚C (non-freezing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Humidity</td>
<td>85% max. (non-condensing)</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Use in an area without corrosive gases or dust. The product should not be directly exposed to water, oil or other liquids.</td>
</tr>
</tbody>
</table>

#### Temperature Rise

- Unipolar and PKP21□D, PKP243D, PKP245D, SH Geared Type
  - Temperature rise of windings is 80˚C max. measured by the resistance change method (at rated voltage, at standstill, 2-phase excitation).
- PKP22□D, PKP23□D, PKP244D, PKP246D, PKP26□D
  - Temperature rise of windings is 80˚C max. measured by the resistance change method (at rated current, at standstill, 2-phase excitation).
  - The following motors are with aluminum heat radiation plates.
    - PKP22□D, PKP23□D: 115 × 115 × 5 mm
    - PKP22□D, PKP246D: 175 × 175 × 5 mm
    - PKP26□D: 250 × 250 × 10 mm

#### Stop Position Accuracy

- ±3 arc minutes (±0.05˚) [PKP21□D] ±5 arc minutes (±0.083˚) [PKP21□D]

#### Shaft Runout

- 0.05 T. I. R. (mm)

#### Radial Play

- 0.025 mm max. (Load 5 N)

#### Axial Play

- 0.075 mm max. (Load 10 N)

#### Concentricity

- 0.075 T. I. R. (mm)

#### Perpendicularity

- 0.075 T. I. R. (mm)

### Note

- Do not measure insulation resistance or perform the dielectric strength test while the motor and driver are connected.

### Windings and Connections

1. **6 Leads Unipolar Connection**
   - Black (4)
   - Yellow (5)
   - Green (6)
   - Red (3)  White (2)  Blue (1)

2. **5 Leads Unipolar Connection**
   - Black (4)
   - Orange (5)
   - Green (6)
   - Red  Black  Green  White  Blue

3. **4 Leads Bipolar Connection**
   - Black (4)
   - Green (6)
   - Red  Blue  B Phase

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Features A-250 / System Configuration A-252 / Product Line A-253
General Specification A-276 / Windings and Connections A-276