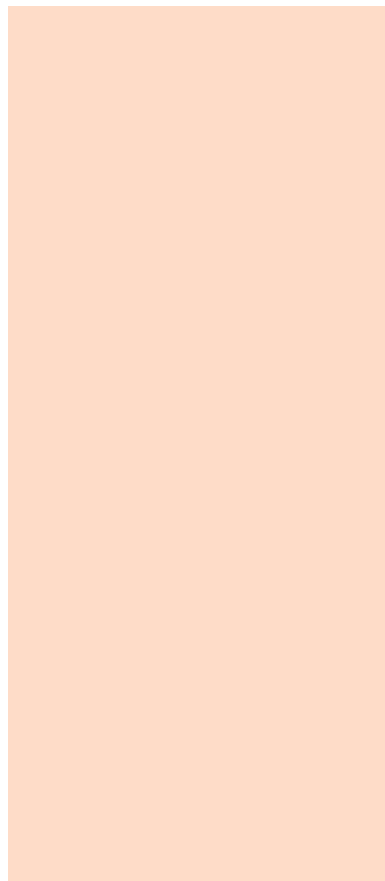


Stepping Motors

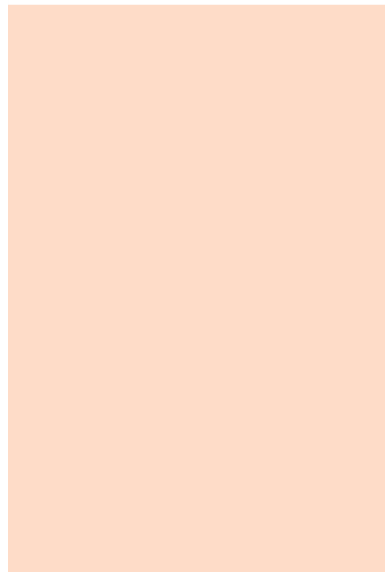
2-Phase Stepping Motors

| |
|--------------------------------|
| Introduction |
| <i>O</i> STEP AS AC Input |
| <i>O</i> STEP ASG DC Input |
| 5-Phase Microstep RK AC Input |
| 2-Phase Full/Half UMK AC Input |
| 5-Phase Microstep CRK DC Input |
| 2-Phase Microstep RBK DC Input |
| 2-Phase Microstep CMK DC Input |
| 2-Phase PK/PV Without Encoder |
| 2-Phase PK With Encoder |
| EMP400 Controllers |
| SG8030J Controllers |
| Accessories |
| Installation |



2-Phase PK/PV Series Without Encoder

2-Phase PK Series With Encoder



Page

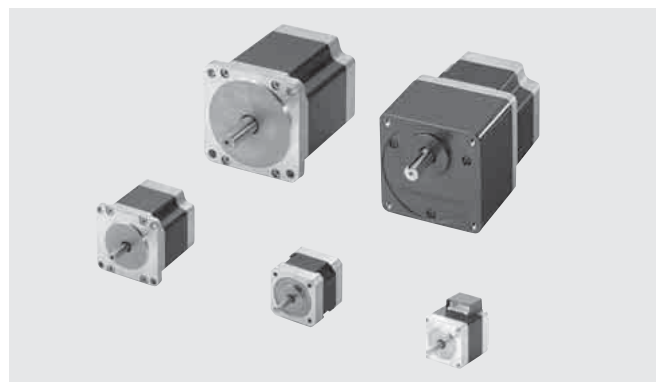
| | |
|---|-------|
| 2-Phase PK/PV Series Without Encoder | C-218 |
| 2-Phase PK Series With Encoder | C-261 |

RoHS RoHS-Compliant

2-Phase Stepping Motors

● Additional Information ●
 Technical reference → Page F-1
 Safety standards → Page G-2

Seven frame sizes are available in a range from 28 mm (1.10 in.) to 85 mm (3.35 in.). In addition to the standard type, we offer a high-torque type, **PV** Series (high inertia capability), a high-resolution type and the **SH** geared type. The motor windings also come in various specifications.



















RoHS RoHS-Compliant

The 2-phase **PK/PV** Series conform to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.

● Details of RoHS Directive → Page G-38

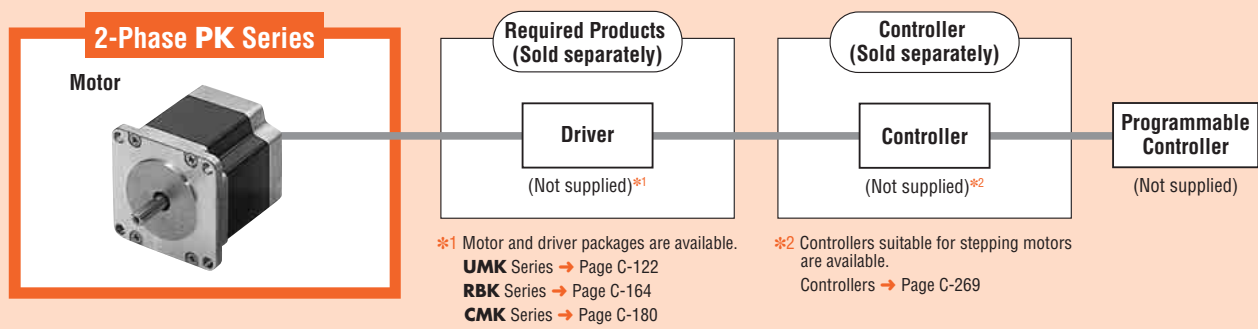
Wide Range of Motor Variations

| Series/Type | Size | Motor Frame Size | | | | | | |
|---|------|---|---|---|---|---|---|--|
| | | □28 mm (□1.10 in.) | □35 mm (□1.38 in.) | □42 mm (□1.65 in.) | □50 mm (□1.97 in.) | □56.4 mm (□2.22 in.) ^{*1} | □60 mm (□2.36 in.) | □85 mm (□3.35 in.) ^{*2} |
| High-Torque Type | |  Page C-218 |  Page C-222 |  Page C-224 | - | - | - | - |
| Standard Type | | - | - |  Page C-226 |  Page C-236 |  Page C-238 With Encoder → Page C-261 | - |  Page C-253 |
| PK Series Standard Type Terminal Box | | - | - | - | - |  Page C-242 | - |  Page C-257 |
| High-Resolution Type | | - | - |  Page C-230 | - |  Page C-244 With Encoder → Page C-264 | - | - |
| SH Geared Type | |  Page C-220 | - |  Page C-234 | - |  Page C-248 ^{*1} | - |  Page C-259 ^{*2} |
| PV Series (High inertia capability) | | - | - | - | - | - |  Page C-250 | - |


*1 Gearhead frame size is □60 mm (□2.36 in.).

*2 Gearhead frame size is □90 mm (□3.54 in.).


System Configuration




Accessories and Peripheral Equipment (Sold separately)




① **Motor Mounting Brackets**
→ Page C-312



② **Flexible Couplings**
→ Page C-302



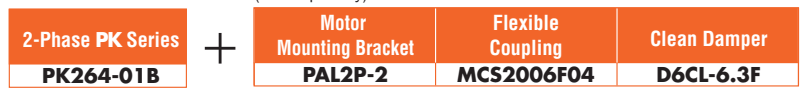
③ **Clean Dampers**
→ Page C-310



④ **Motor Lead Wire/Connector Assembly**
→ Page C-299

| No. | Product Name | Overview | Page |
|-----|------------------------------------|--|-------|
| ① | Motor Mounting Brackets | Dedicated mounting bracket for the motor. | C-312 |
| ② | Flexible Couplings | Coupling that connects the motor shaft to the driven shaft. | C-302 |
| ③ | Clean Dampers | Dedicated damper for suppressing stepping motor vibration. | C-310 |
| ④ | Motor Lead Wire/Connector Assembly | Lead wire with a connector crimped for connector-coupled motors [0.6 m, 1 m (2 ft., 3.3 ft.)]. | C-299 |

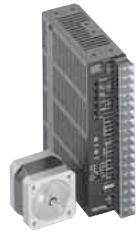
Example of System Configuration (Sold separately)



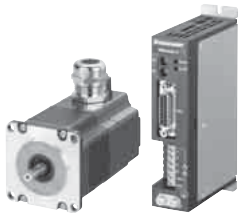
The system configuration shown above is an example. Other combinations are available.

2-Phase Stepping Motor and Driver Packages

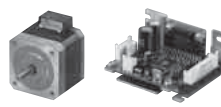
To achieve maximum performance, motors with dedicated drivers are also available.



AC Input
UMK Series
→ Page C-122



DC Input
Microstep Drive
RBK Series
→ Page C-164



DC Input
Microstep Drive
CMK Series
→ Page C-180

Introduction

AC Input **QSTEP AS**

DC Input **QSTEP ASG**

5-Phase Microstep AC Input **RK**

2-Phase Full/Half **UMK**

5-Phase Microstep **CMK**

2-Phase Microstep DC Input **RBK**

2-Phase Microstep **CMK**

2-Phase PK/PV Without Encoder

2-Phase PK With Encoder

EMP400 Controllers

SG8030J

Accessories

Installation

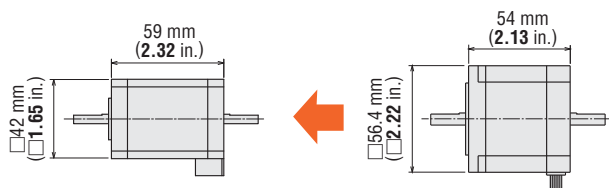
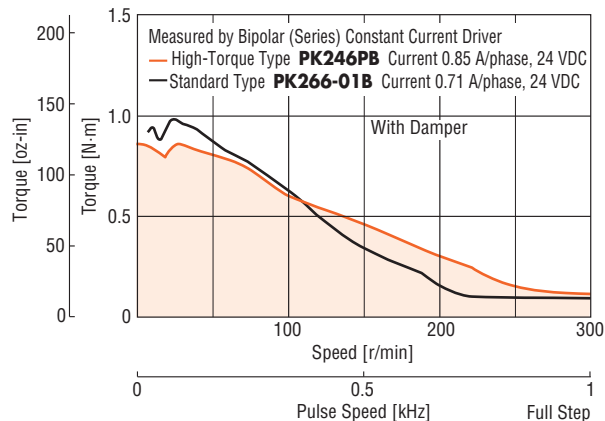
Features

PK Series

High-Torque Type

This motor type combines high torque and a compact size. Three frame sizes, 28 mm (1.10 in.), 35 mm (1.38 in.) and 42 mm (1.65 in.), are available. Each specification provides torque equivalent to a motor of the next larger frame size, supporting high torque operation even in the high speed range.

For example, high-torque type **PK246PB** [motor frame size 42 mm (1.65 in.)] has the same holding torque as the standard type **PK266-01B** [motor frame size 56.4 mm (2.22 in.)]. This means a smaller size motor will maintain the same torque. This allows for downsized and lightweight equipment.



| High-Torque Type | Type | Standard Type |
|---|----------------|---|
| PK246PB | Model | PK266-01B |
| 0.93 N·m (132 oz-in) | Holding Torque | 1.17 N·m (166 oz-in) |
| $114 \times 10^{-7} \text{ kg} \cdot \text{m}^2$ (0.77 oz-in ²) | Rotor Inertia | $300 \times 10^{-7} \text{ kg} \cdot \text{m}^2$ (1.64 oz-in ²) |

Standard Type

The standard **PK Series** 2-phase stepping motor offers balanced performance enhanced by high torque, low vibration and low noise. The optimal motor size and winding specification can be selected from a wide range of motor variations.

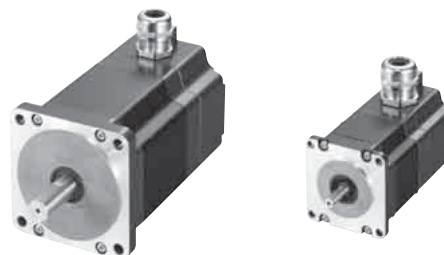
With Encoder

The **PK Series** 2-phase stepping motor with encoder offers high torque and precise feedback capability.

- Encoder feedback type: Incremental
- Two feedback resolutions: 200 and 400 pulses/revolution
- Provides closed loop system capability

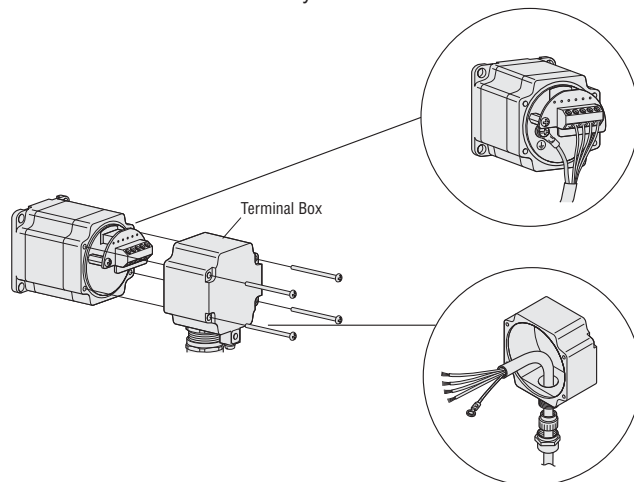
Terminal Box Type

The motor conforms to the IP65 standard of ingress protection against dust and water.



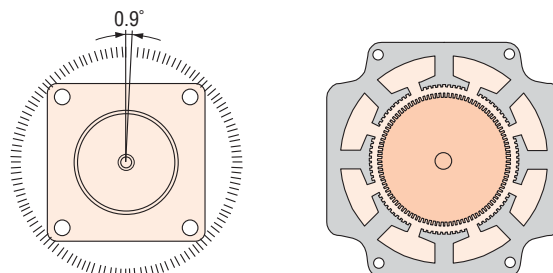
• Terminal-Block Connection Design

The motor can be wired directly from its terminal block.



High-Resolution Type

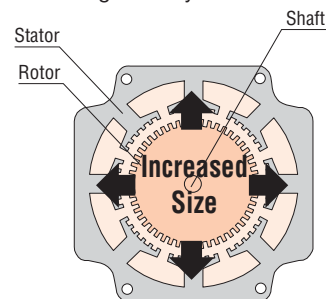
These 2-phase, high resolution stepping motors have half the step angle of standard stepping motors. The high-resolution type increases motor resolution from 200 steps/revolution to 400 steps/revolution. Smaller step angles can be achieved by half-step driving or microstep driving. Such options, however, do not improve accuracy. Other than having twice as many rotor teeth as standard stepping motors, all other structures are exactly the same as the standard motors.



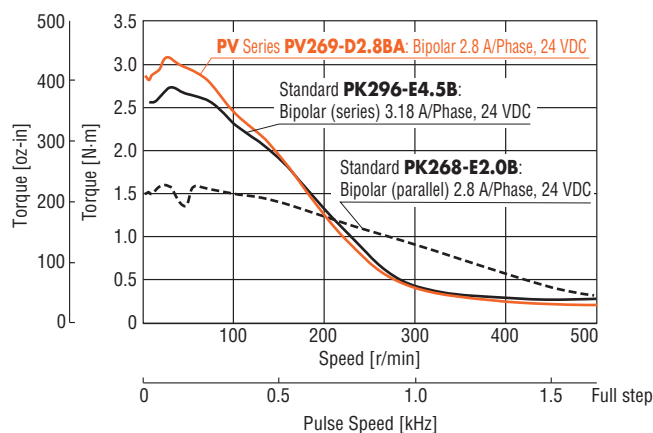
PV Series

High Inertia Capability

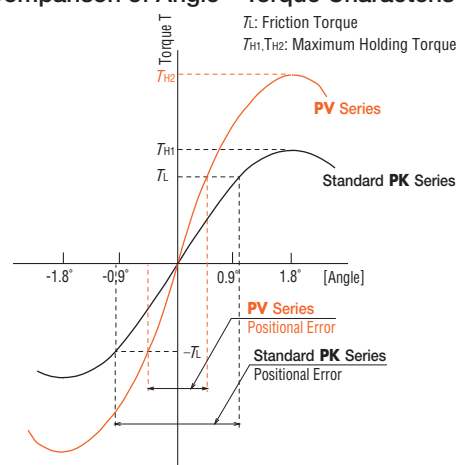
The **PV** Series provides, on average, 1.5 times higher torque than a standard stepping motor. By utilizing a larger rotor diameter, larger magnets can be used to significantly increase the output torque.



Motor structure
(Cross section perpendicular to shaft)

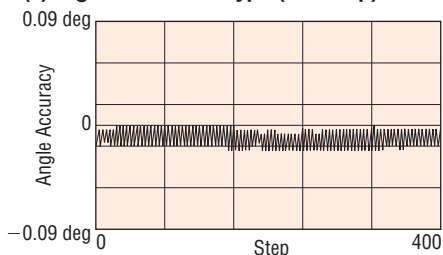


Comparison of Angle – Torque Characteristics

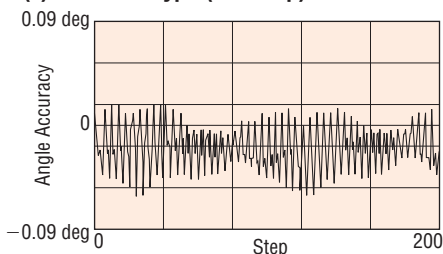


All equipment has a friction load, and the motor stops when the motor output torque and friction load torque are balanced. As shown in the characteristics above, the larger the output torque per step angle, the less the motor is influenced by the friction load, so positioning accuracy is improved. Stop positioning displacement by external force does not occur as often.

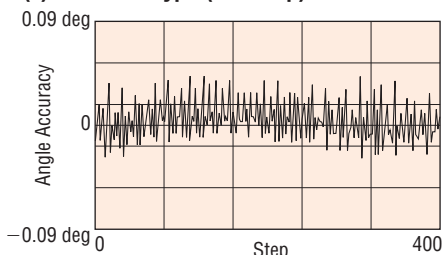
(1) High-Resolution Type (0.9°/step)



(2) Standard Type (1.8°/step)



(3) Standard Type (0.9°/step)



Angle Accuracy

SH Geared Type

Incorporating **SH** gears with high permissible torque, these models offer the full benefit of the speed reducing capability of geared motors, delivering high resolution, high torque and smooth low-speed rotation. With performance like this, the **SH** geared type can easily satisfy the requirements of various kinds of low-speed positioning applications.

● Smooth Rotation at Low Speeds

Stepping motors at low speed produce a relatively high amount of vibration. Use of a gearhead allows for an increase in the speed of the motor which results in a smoother motion while maintaining the low output speed required by the application.

● Six Gear Ratios

SH geared motors are available with six different gear ratios: 3.6:1, 7.2:1, 9:1, 10:1, 18:1, 36:1. The low ratios of these gearheads can greatly facilitate speed control of the 2-phase stepping motors.

● **PK223-SG** type is not available in a gear ratio of 3.6:1.

● Ideal for High Inertia Drive

The stepping motor itself can drive an inertia of 10 times the rotor inertia. The geared type can reduce the load inertia by the square of the gear ratio. Therefore, the geared type is suitable for driving larger inertial loads.

Product Number Code

PK Series

High-Torque Type

PK 2 3 3 P A

① ② ③ ④ ⑤ ⑥

| | | |
|---|-------------------|---|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 2: 28 mm (1.10 in.) 3: 35 mm (1.38 in.) 4: 42 mm (1.65 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Type | P: High-Torque Type |
| ⑥ | Shaft Type | A: Single Shaft B: Double Shaft |

Standard Type, High-Resolution Type

PK 2 4 3 M - 0 1 B A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

| | | |
|---|-----------------------|--|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 4: 42 mm (1.65 in.) 5: 50 mm (1.97 in.) 6: 56.4 mm (2.22 in.) 9: 85 mm (3.35 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Type | Blank: Standard Type (1.8°/step) M: High-Resolution Type (0.9°/step) |
| ⑥ | Motor Lead | 0: 6 Leads E, F: 8 Leads |
| ⑦ | Winding Specification | |
| ⑧ | Shaft Type | A: Single Shaft B: Double Shaft |
| ⑨ | U.S.A. Version | |

SH Geared Type

- Motor Frame Size 28 mm (1.10 in.)

PK 2 2 3 P A - SG 10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| | | |
|---|-------------------|---|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 2: 28 mm (1.10 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Type | |
| ⑥ | Shaft Type | A: Single Shaft B: Double Shaft |
| ⑦ | Gearhead Type | SG: SH Geared Type |
| ⑧ | Gear Ratio | |

PV Series (High inertia capability)

PV 2 6 6 - 0 2 B A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| | | |
|---|-----------------------|---|
| ① | Series | PV: PV Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 6: 60 mm (2.36 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Lead | 0: 6 Leads D: 4 Leads |
| ⑥ | Winding Specification | |
| ⑦ | Shaft Type | A: Single Shaft B: Double Shaft |
| ⑧ | U.S.A. Version | |

Standard Type Terminal Box

PK 2 6 4 D A T

① ② ③ ④ ⑤ ⑥ ⑦

| | | |
|---|-------------------|---|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 6: 56.4 mm (2.22 in.) 9: 85 mm (3.35 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Lead | D: 4 Leads E: 8 Leads |
| ⑥ | Shaft Type | A: Single Shaft |
| ⑦ | Terminal Box | |

Standard Type, High-Resolution Type with Encoder

PK 2 6 6 M - 0 1 A R11

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

| | | |
|---|-----------------------|--|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 6: 56.4 mm (2.22 in.) |
| ④ | Motor Case Length | |
| ⑤ | Motor Type | Blank: Standard Type (1.8°/step) M: High-Resolution Type (0.9°/step) |
| ⑥ | Motor Lead | 0: 6 Leads E: 8 Leads |
| ⑦ | Winding Specification | |
| ⑧ | Shaft Type | A: Single Shaft |
| ⑨ | Encoder Resolution | R11: 200 P/R R12: 400 P/R |

- Motor Frame Size 42 mm (1.65 in.), 60 mm (2.36 in.), 90 mm (3.54 in.)

PK 2 6 4 A 1 A - SG 10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

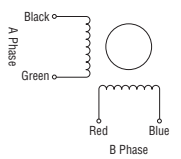
| | | |
|---|-----------------------|---|
| ① | Series | PK: PK Series |
| ② | 2: 2-Phase | |
| ③ | Motor Frame Size | 4: 42 mm (1.65 in.) 6: 60 mm (2.36 in.) 9: 90 mm (3.54 in.) |
| ④ | Motor Case Length | |
| ⑤ | Shaft Type | A: Single Shaft B: Double Shaft |
| ⑥ | Winding Specification | |
| ⑦ | U.S.A. Version | |
| ⑧ | Gearhead Type | SG: SH Geared Type |
| ⑨ | Gear Ratio | |

Wirings and Connections

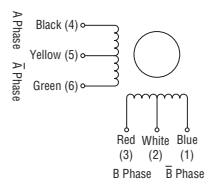
PK Series High-Torque Type, Standard Type, High-Resolution Type, SH Geared Type and PV Series

Motor Wirings

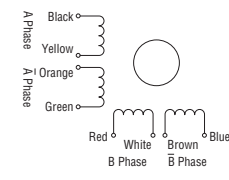
4 Lead Motor



6 Lead Motor

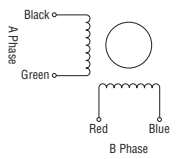


8 Lead Motor

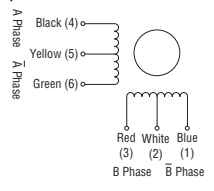


Wiring Connection Diagrams

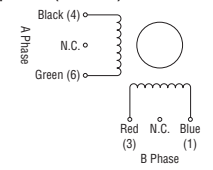
4 Leads Bipolar Connection



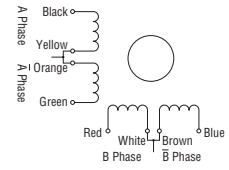
6 Leads Unipolar Connection



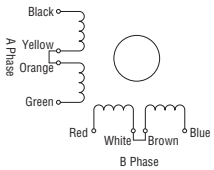
6 Leads Bipolar (Series) Connection



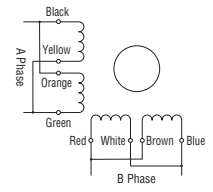
8 Leads Unipolar Connection



8 Leads Bipolar (Series) Connection



8 Leads Bipolar (Parallel) Connection

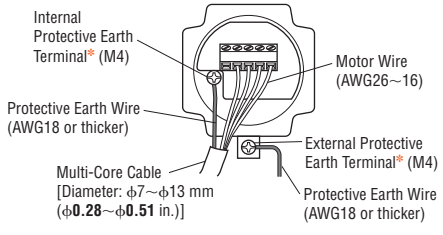


- The numbers inside the parentheses indicate the connector pin No. of the high-torque type motor.
- N.C.: No Connection

Standard Type Terminal Box

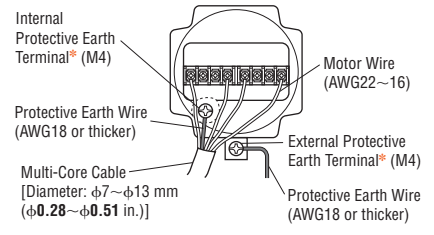
Motor Connections

PK26 DAT



*Use either the internal or external protective earth terminal for grounding.

PK29 EAT

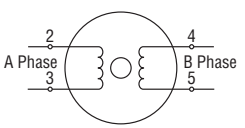


*Use either the internal or external protective earth terminal for grounding.

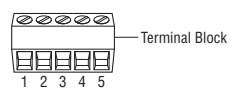
Wiring Connection Diagrams

PK26 DAT

Bipolar

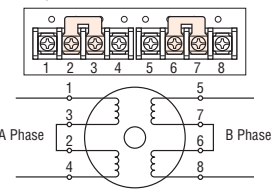


Connect motor lead wires to the terminals 2 to 5.

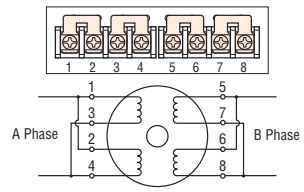


PK29 EAT

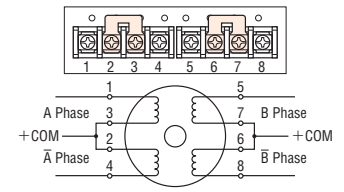
Bipolar (Series)



Bipolar (Parallel)



Unipolar



Notes on the Speed – Torque Characteristics Diagrams

The speed – torque characteristics featured in this catalog are measured with a constant-current driver or a constant-voltage driver. The actual characteristics will vary depending on the driver used. Please use these diagrams only for reference purposes when selecting a motor. You must also conduct a thorough evaluation with the actual driver to be used.

Product Specifications

Motor Frame Size: □28 mm (□1.10 in.) **PK22**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|----------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|---------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| High-Torque Type | PK223PA | 1.8° | Bipolar (Series) | 0.065 | 9.2 | 0.67 | 3.8 | 5.6 | 4 | 9×10 ⁻⁷ | 0.049 | C-218 |
| | PK223PB | | Unipolar | 0.05 | 7.1 | 0.95 | 2.66 | 2.8 | 1 | | | |
| | PK224PA | 1.8° | Bipolar (Series) | 0.097 | 13.7 | 0.67 | 4.6 | 6.8 | 4.8 | 12×10 ⁻⁷ | 0.066 | |
| | PK224PB | | Unipolar | 0.075 | 10.6 | 0.95 | 3.2 | 3.4 | 1.2 | | | |
| | PK225PA | 1.8° | Bipolar (Series) | 0.11 | 15.6 | 0.67 | 6.2 | 9.2 | 5.6 | 18×10 ⁻⁷ | 0.098 | |
| | PK225PB | | Unipolar | 0.09 | 12.7 | 0.95 | 4.4 | 4.6 | 1.4 | | | |
| SH Geared Type | PK223PA-SG7.2 | 0.25° | Bipolar (Series) | 0.3 | 42 | 0.67 | 3.8 | 5.6 | 4 | 9×10 ⁻⁷ | 0.049 | C-220 |
| | PK223PB-SG7.2 | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | PK223PA-SG9 | 0.2° | Bipolar (Series) | 0.3 | 42 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | PK223PB-SG9 | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | PK223PA-SG10 | 0.18° | Bipolar (Series) | 0.3 | 42 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | PK223PB-SG10 | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | PK223PA-SG18 | 0.1° | Bipolar (Series) | 0.4 | 56 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | PK223PB-SG18 | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | PK223PA-SG36 | 0.05° | Bipolar (Series) | 0.4 | 56 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | PK223PB-SG36 | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □35 mm (□1.38 in.) **PK23**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|---------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|---------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| High-Torque Type | PK233PA | 1.8° | Bipolar (Series) | 0.2 | 28 | 0.85 | 4.6 | 5.4 | 5.6 | 24×10 ⁻⁷ | 0.131 | C-222 |
| | PK233PB | | Unipolar | 0.16 | 22 | 1.2 | 3.24 | 2.7 | 1.4 | | | |
| | PK235PA | 1.8° | Bipolar (Series) | 0.37 | 52 | 0.85 | 5.8 | 6.8 | 8 | 50×10 ⁻⁷ | 0.27 | |
| | PK235PB | | Unipolar | 0.3 | 42 | 1.2 | 4.08 | 3.4 | 2 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □42 mm (□1.65 in.) **PK24**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|---------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Standard Type | PK243-01AA | 1.8° | Bipolar (Series) | 0.2 | 28 | 0.67 | 5.6 | 8.4 | 10 | 35×10 ⁻⁷ | 0.191 | C-226 |
| | PK243-01BA | | Unipolar | 0.16 | 22 | 0.95 | 4 | 4.2 | 2.5 | | | |
| | PK243-02AA | | Bipolar (Series) | 0.2 | 28 | 0.28 | 13 | 48 | 60 | | | |
| | PK243-02BA | | Unipolar | 0.16 | 22 | 0.4 | 9.6 | 24 | 15 | | | |
| | PK243-03AA | | Bipolar (Series) | 0.2 | 28 | 0.22 | 17 | 77 | 84 | | | |
| | PK243-03BA | | Unipolar | 0.16 | 22 | 0.31 | 12 | 38.5 | 21 | | | |
| | PK244-01AA | | Bipolar (Series) | 0.33 | 46 | 0.85 | 5.6 | 6.6 | 12.8 | | | |
| | PK244-01BA | | Unipolar | 0.26 | 36 | 1.2 | 4 | 3.3 | 3.2 | | | |
| | PK244-02AA | | Bipolar (Series) | 0.33 | 46 | 0.57 | 8.6 | 15 | 26.8 | | | |
| | PK244-02BA | | Unipolar | 0.26 | 36 | 0.8 | 6 | 7.5 | 6.7 | | | |
| | PK244-03AA | | Bipolar (Series) | 0.33 | 46 | 0.28 | 17 | 60 | 120 | | | |
| | PK244-03BA | | Unipolar | 0.26 | 36 | 0.4 | 12 | 30 | 30 | | | |
| | PK244-04AA | | Bipolar (Series) | 0.33 | 46 | 0.14 | 34 | 240 | 428 | | | |
| | PK244-04BA | | Unipolar | 0.26 | 36 | 0.2 | 24 | 120 | 107 | | | |
| | PK245-01AA | | Bipolar (Series) | 0.43 | 61 | 0.85 | 5.6 | 6.6 | 11.2 | | | |
| | PK245-01BA | | Unipolar | 0.32 | 45 | 1.2 | 4 | 3.3 | 2.6 | | | |
| | PK245-02AA | | Bipolar (Series) | 0.43 | 61 | 0.57 | 8.6 | 15 | 28.4 | | | |
| | PK245-02BA | | Unipolar | 0.32 | 45 | 0.8 | 6 | 7.5 | 7.1 | | | |
| | PK245-03AA | | Bipolar (Series) | 0.43 | 61 | 0.28 | 17 | 60 | 100 | | | |
| | PK245-03BA | | Unipolar | 0.32 | 45 | 0.4 | 12 | 30 | 25 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

—The following items are included in each product.

Motor, Motor Lead Wire/Connector Assembly*¹, Encoder Cable*²,

Mounting Screws for Motor*³, Operating Manual

*¹ Only for connector-coupled motor

*² Only for motor with encoder

*³ Only for **SH** geared type

Motor Frame Size: □42 mm (□1.65 in.) **PK24□**

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|-------------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| High-Torque Type | PK244PA | 1.8° | Bipolar (Series) | 0.48 | 68 | 0.85 | 6.8 | 8 | 15.6 | 57×10 ⁻⁷ | 0.31 | C-224 |
| | PK244PB | | Unipolar | 0.39 | 55 | 1.2 | 4.8 | 4 | 3.9 | | | |
| | PK246PA | | Bipolar (Series) | 0.93 | 132 | 0.85 | 10 | 12 | 26 | 114×10 ⁻⁷ | 0.62 | |
| | PK246PB | | Unipolar | 0.75 | 106 | 1.2 | 7.2 | 6 | 6.5 | | | |
| High-Resolution Type | PK243M-01AA | 0.9° | Bipolar (Series) | 0.2 | 28 | 0.67 | 5.6 | 8.4 | 15.2 | 35×10 ⁻⁷ | 0.191 | C-230 |
| | PK243M-01BA | | Unipolar | 0.16 | 22 | 0.95 | 4 | 4.2 | 3.8 | | | |
| | PK243M-02AA | | Bipolar (Series) | 0.2 | 28 | 0.42 | 8.4 | 20 | 38.8 | | | |
| | PK243M-02BA | | Unipolar | 0.16 | 22 | 0.6 | 6 | 10 | 9.7 | | | |
| | PK243M-03AA | | Bipolar (Series) | 0.2 | 28 | 0.22 | 17 | 77 | 136 | 54×10 ⁻⁷ | 0.3 | |
| | PK243M-03BA | | Unipolar | 0.16 | 22 | 0.31 | 12 | 38.5 | 34 | | | |
| | PK244M-01AA | | Bipolar (Series) | 0.31 | 44 | 0.85 | 5.6 | 6.6 | 17.2 | 68×10 ⁻⁷ | 0.37 | |
| | PK244M-01BA | | Unipolar | 0.26 | 36 | 1.2 | 4 | 3.3 | 4.3 | | | |
| | PK244M-02AA | | Bipolar (Series) | 0.31 | 44 | 0.57 | 8.6 | 15 | 38.8 | | | |
| | PK244M-02BA | | Unipolar | 0.26 | 36 | 0.8 | 6 | 7.5 | 9.7 | | | |
| | PK244M-03AA | | Bipolar (Series) | 0.31 | 44 | 0.28 | 17 | 60 | 152 | 68×10 ⁻⁷ | 0.37 | |
| | PK244M-03BA | | Unipolar | 0.26 | 36 | 0.4 | 12 | 30 | 38 | | | |
| | PK245M-01AA | | Bipolar (Series) | 0.38 | 53 | 0.85 | 5.6 | 6.6 | 15.6 | 68×10 ⁻⁷ | 0.37 | |
| | PK245M-01BA | | Unipolar | 0.32 | 45 | 1.2 | 4 | 3.3 | 3.9 | | | |
| | PK245M-02AA | | Bipolar (Series) | 0.38 | 53 | 0.57 | 8.6 | 15 | 39.6 | | | |
| | PK245M-02BA | | Unipolar | 0.32 | 45 | 0.8 | 6 | 7.5 | 9.9 | | | |
| PK245M-03AA | Bipolar (Series) | 0.38 | 53 | 0.28 | 17 | 60 | 128 | 68×10 ⁻⁷ | 0.37 | | | |
| PK245M-03BA | Unipolar | 0.32 | 45 | 0.4 | 12 | 30 | 32 | | | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □42 mm (□1.65 in.) **PK243**

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|----------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|---------------------|--------------------|-------|
| | | | | N-m | lb-in | | | | | kg-m ² | oz-in ² | |
| SH Geared Type | PK243A1A-SG3.6 | 0.5° | Bipolar (Series) | 0.2 | 1.77 | 0.67 | 5.6 | 8.4 | 10 | 35×10 ⁻⁷ | 0.191 | C-234 |
| | PK243B1A-SG3.6 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A1A-SG7.2 | 0.25° | Bipolar (Series) | 0.4 | 3.5 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | PK243B1A-SG7.2 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A1A-SG9 | 0.2° | Bipolar (Series) | 0.5 | 4.4 | 0.67 | 5.6 | 8.4 | 10 | 35×10 ⁻⁷ | 0.191 | |
| | PK243B1A-SG9 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A1A-SG10 | 0.18° | Bipolar (Series) | 0.56 | 4.9 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | PK243B1A-SG10 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A1A-SG18 | 0.1° | Bipolar (Series) | 0.8 | 7.0 | 0.67 | 5.6 | 8.4 | 10 | 35×10 ⁻⁷ | 0.191 | |
| | PK243B1A-SG18 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A1A-SG36 | 0.05° | Bipolar (Series) | 0.8 | 7.0 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | PK243B1A-SG36 | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | PK243A2A-SG3.6 | 0.5° | Bipolar (Series) | 0.2 | 1.77 | 0.28 | 13 | 48 | 60 | 35×10 ⁻⁷ | 0.191 | |
| | PK243B2A-SG3.6 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | PK243A2A-SG7.2 | 0.25° | Bipolar (Series) | 0.4 | 3.5 | 0.28 | 13 | 48 | 60 | | | |
| | PK243B2A-SG7.2 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | PK243A2A-SG9 | 0.2° | Bipolar (Series) | 0.5 | 4.4 | 0.28 | 13 | 48 | 60 | 35×10 ⁻⁷ | 0.191 | |
| | PK243B2A-SG9 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | PK243A2A-SG10 | 0.18° | Bipolar (Series) | 0.56 | 4.9 | 0.28 | 13 | 48 | 60 | | | |
| | PK243B2A-SG10 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| PK243A2A-SG18 | 0.1° | Bipolar (Series) | 0.8 | 7.0 | 0.28 | 13 | 48 | 60 | 35×10 ⁻⁷ | 0.191 | | |
| PK243B2A-SG18 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | | |
| PK243A2A-SG36 | 0.05° | Bipolar (Series) | 0.8 | 7.0 | 0.28 | 13 | 48 | 60 | | | | |
| PK243B2A-SG36 | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □50mm (□1.97 in.) **PK25**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Standard Type | PK256-02A | 1.8° | Bipolar (Series) | 0.84 | 119 | 1.4 | 4.2 | 3 | 5.6 | 230×10 ⁻⁷ | 1.26 | C-236 |
| | PK256-02B | | Unipolar | 0.6 | 85 | 2 | 3 | 1.5 | 1.4 | | | |
| | PK258-02A | | Bipolar (Series) | 1.56 | 220 | 1.4 | 6.7 | 4.8 | 11.5 | 420×10 ⁻⁷ | 2.3 | |
| | PK258-02B | | Unipolar | 1.2 | 170 | 2 | 4.8 | 2.4 | 2.87 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □56.4 mm (□2.22 in.) **PK26**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|-------------------------------------|---------------------------------------|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Standard Type | PK264-01A | 1.8° | Bipolar (Series) | 0.48 | 68 | 0.71 | 8.1 | 11.4 | 21.6 | 120×10 ⁻⁷ | 0.66 | C-238 |
| | PK264-01B | | Unipolar | 0.39 | 55 | 1 | 5.7 | 5.7 | 5.4 | | | |
| | PK264-02A | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | PK264-02B | | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | PK264-03A | | Bipolar (Series) | 0.48 | 68 | 2.1 | 2.6 | 1.26 | 2.4 | | | |
| | PK264-03B | | Unipolar | 0.39 | 55 | 3 | 1.9 | 0.63 | 0.6 | | | |
| | PK264-E2.0A | | Bipolar (Parallel) | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.4 | | | |
| | PK264-E2.0B | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | | | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | PK266-01A | | Bipolar (Series) | 1.17 | 166 | 0.71 | 11 | 14.8 | 40 | | | |
| | PK266-01B | | Unipolar | 0.9 | 127 | 1 | 7.4 | 7.4 | 10 | | | |
| | PK266-02A | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 10 | | | |
| | PK266-02B | | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | PK266-03A | | Bipolar (Series) | 1.17 | 166 | 2.1 | 3.2 | 1.5 | 4.4 | | | |
| | PK266-03B | | Unipolar | 0.9 | 127 | 3 | 2.3 | 0.75 | 1.1 | | | |
| | PK266-E2.0A | | Bipolar (Parallel) | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 2.5 | | | |
| | PK266-E2.0B | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 10 | | | |
| | | | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | PK268-01A | | Bipolar (Series) | 1.75 | 240 | 0.71 | 12 | 17.2 | 56 | | | |
| | PK268-01B | | Unipolar | 1.35 | 191 | 1 | 8.6 | 8.6 | 14 | | | |
| | PK268-02A | | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 14.4 | | | |
| | PK268-02B | | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 3.6 | | | |
| | PK268-03A | | Bipolar (Series) | 1.75 | 240 | 2.1 | 4.2 | 2 | 6.4 | | | |
| | PK268-03B | | Unipolar | 1.35 | 191 | 3 | 3 | 1 | 1.6 | | | |
| PK268-E2.0A | Bipolar (Parallel) | 1.75 | 240 | 2.8 | 3.16 | 1.13 | 3.6 | | | | | |
| PK268-E2.0B | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 14.4 | | | | | |
| | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 3.6 | | | | | |
| Standard Type | PK264DAT | 1.8° | Bipolar | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.4 | 120×10 ⁻⁷ | 0.66 | C-242 |
| Terminal Box | PK266DAT | | Bipolar | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 2.5 | 300×10 ⁻⁷ | 1.64 | |
| | PK268DAT | | Bipolar | 1.75 | 240 | 2.8 | 3.16 | 1.13 | 3.6 | 480×10 ⁻⁷ | 2.6 | |
| Standard Type with Encoder | PK264-01AR11 | 1.8° | Bipolar (Series) | 0.48 | 68 | 0.71 | 8.1 | 11.4 | 21.6 | 120×10 ⁻⁷ | 0.66 | C-261 |
| | PK264-01AR12 | | Unipolar | 0.39 | 55 | 1 | 5.7 | 5.7 | 5.4 | | | |
| | PK264-02AR11 | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | PK264-02AR12 | | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | PK264-03AR11 | | Bipolar (Series) | 0.48 | 68 | 2.1 | 2.6 | 1.26 | 2.4 | | | |
| | PK264-03AR12 | | Unipolar | 0.39 | 55 | 3 | 1.9 | 0.63 | 0.6 | | | |
| | PK264-E2.0AR11 | | Bipolar (Parallel) | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.4 | | | |
| | PK264-E2.0AR12 | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | | | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | PK266-01AR11 | | Bipolar (Series) | 1.17 | 166 | 0.71 | 11 | 14.8 | 40 | | | |
| | PK266-01AR12 | | Unipolar | 0.9 | 127 | 1 | 7.4 | 7.4 | 10 | | | |
| | PK266-02AR11 | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 10 | | | |
| | PK266-02AR12 | | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | PK266-03AR11 | | Bipolar (Series) | 1.17 | 166 | 2.1 | 3.2 | 1.5 | 4.4 | | | |
| | PK266-03AR12 | | Unipolar | 0.9 | 127 | 3 | 2.3 | 0.75 | 1.1 | | | |
| | PK266-E2.0AR11 | | Bipolar (Parallel) | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 2.5 | | | |
| | PK266-E2.0AR12 | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 10 | | | |
| | | | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 2.5 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □56.4 mm (□2.22 in.) **PK26**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia | | Page |
|--|--|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| High-Resolution Type | PK264M-01A PK264M-01B | 0.9° | Bipolar (Series) | 0.48 | 68 | 0.71 | 8.1 | 11.4 | 26 | 120×10 ⁻⁷ | 0.66 | C-244 |
| | | | Unipolar | 0.39 | 55 | 1 | 5.7 | 5.7 | 6.5 | | | |
| | PK264M-02A PK264M-02B | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | | | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.7 | | | |
| | PK264M-03A PK264M-03B | | Bipolar (Series) | 0.48 | 68 | 2.1 | 2.6 | 1.26 | 3 | | | |
| | | | Unipolar | 0.39 | 55 | 3 | 1.9 | 0.63 | 0.75 | | | |
| | PK264M-E2.0A PK264M-E2.0B | | Bipolar (Parallel) | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.7 | | | |
| | | | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | PK266M-01A PK266M-01B | | Bipolar (Series) | 1.17 | 166 | 0.71 | 11 | 14.8 | 50.8 | | | |
| | | | Unipolar | 0.9 | 127 | 1 | 7.4 | 7.4 | 12.7 | | | |
| | PK266M-02A PK266M-02B | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | | | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 3.2 | | | |
| | PK266M-03A PK266M-03B | | Bipolar (Series) | 1.17 | 166 | 2.1 | 3.2 | 1.5 | 5.8 | | | |
| | | | Unipolar | 0.9 | 127 | 3 | 2.3 | 0.75 | 1.45 | | | |
| | PK266M-E2.0A PK266M-E2.0B | | Bipolar (Parallel) | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 3.2 | | | |
| | | | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | PK268M-01A PK268M-01B | | Bipolar (Series) | 1.75 | 240 | 0.71 | 12 | 17.2 | 77.6 | | | |
| | | | Unipolar | 1.35 | 191 | 1 | 8.6 | 8.6 | 19.4 | | | |
| | PK268M-02A PK268M-02B | | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 19.2 | | | |
| | | | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 4.8 | | | |
| | PK268M-03A PK268M-03B | | Bipolar (Series) | 1.75 | 240 | 2.1 | 4.2 | 2 | 8.4 | | | |
| | | | Unipolar | 1.35 | 191 | 3 | 3 | 1 | 2.1 | | | |
| | PK268M-E2.0A PK268M-E2.0B | | Bipolar (Parallel) | 1.75 | 240 | 2.8 | 3.16 | 1.13 | 4.8 | | | |
| | | | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 19.2 | | | |
| | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 4.8 | | | | | |
| | PK264M-01AR11 PK264M-01AR12 | Bipolar (Series) | 0.48 | 68 | 0.71 | 8.1 | 11.4 | 26 | | | | |
| Unipolar | | 0.39 | 55 | 1 | 5.7 | 5.7 | 6.5 | | | | | |
| PK264M-02AR11 PK264M-02AR12 | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | | | | | |
| | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.7 | | | | | |
| PK264M-03AR11 PK264M-03AR12 | Bipolar (Series) | 0.48 | 68 | 2.1 | 2.6 | 1.26 | 3 | | | | | |
| | Unipolar | 0.39 | 55 | 3 | 1.9 | 0.63 | 0.75 | | | | | |
| PK264M-E2.0AR11 PK264M-E2.0AR12 | Bipolar (Parallel) | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.7 | | | | | |
| | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | | | | | |
| PK266M-01AR11 PK266M-01AR12 | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.7 | | | | | |
| | Bipolar (Series) | 1.17 | 166 | 0.71 | 11 | 14.8 | 50.8 | | | | | |
| PK266M-02AR11 PK266M-02AR12 | Unipolar | 0.9 | 127 | 1 | 7.4 | 7.4 | 12.7 | | | | | |
| | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | | | | | |
| PK266M-03AR11 PK266M-03AR12 | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 3.2 | | | | | |
| | Bipolar (Series) | 1.17 | 166 | 2.1 | 3.2 | 1.5 | 5.8 | | | | | |
| PK266M-E2.0AR11 PK266M-E2.0AR12 | Unipolar | 0.9 | 127 | 3 | 2.3 | 0.75 | 1.45 | | | | | |
| | Bipolar (Parallel) | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 3.2 | | | | | |
| | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | | | | | |
| | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 3.2 | | | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Introduction

AC Input

DC Input

5-Phase
Microstep
RK2-Phase
Full/Half
UMK5-Phase
Microstep
CMK2-Phase
Microstep
RBK2-Phase
Microstep
CMK2-Phase
PK/PV
Without Encoder2-Phase
PK
With EncoderEMP400
Controllers

SG8030J

Accessories

Installation

Motor Frame Size: □56.4 mm (□2.22 in.) **PK264** Frame size of **SH** geared type is □60 mm (□2.36 in.).

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|-----------------------------|--|------------------------|------------------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | lb-in | | | | | kg-m ² | oz-in ² | |
| SH Geared Type | PK264A1A-SG3.6 PK264B1A-SG3.6 | 0.5° | Bipolar (Series) Unipolar | 1 | 8.8 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | 120×10 ⁻⁷ | 0.66 | C-248 |
| | PK264A1A-SG7.2 PK264B1A-SG7.2 | 0.25° | Bipolar (Series) Unipolar | 2 | 17.7 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | | | |
| | PK264A1A-SG9 PK264B1A-SG9 | 0.2° | Bipolar (Series) Unipolar | 2.5 | 22 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | | | |
| | PK264A1A-SG10 PK264B1A-SG10 | 0.18° | Bipolar (Series) Unipolar | 2.7 | 23 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | | | |
| | PK264A1A-SG18 PK264B1A-SG18 | 0.1° | Bipolar (Series) Unipolar | 3 | 26 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | | | |
| | PK264A1A-SG36 PK264B1A-SG36 | 0.05° | Bipolar (Series) Unipolar | 4 | 35 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | | | |
| | PK264A2A-SG3.6 PK264B2A-SG3.6 | 0.5° | Bipolar (Series) Unipolar | 1 | 8.8 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | 120×10 ⁻⁷ | 0.66 | |
| | PK264A2A-SG7.2 PK264B2A-SG7.2 | 0.25° | Bipolar (Series) Unipolar | 2 | 17.7 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | |
| | PK264A2A-SG9 PK264B2A-SG9 | 0.2° | Bipolar (Series) Unipolar | 2.5 | 22 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | |
| | PK264A2A-SG10 PK264B2A-SG10 | 0.18° | Bipolar (Series) Unipolar | 2.7 | 23 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | |
| | PK264A2A-SG18 PK264B2A-SG18 | 0.1° | Bipolar (Series) Unipolar | 3 | 26 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | |
| | PK264A2A-SG36 PK264B2A-SG36 | 0.05° | Bipolar (Series) Unipolar | 4 | 35 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □60 mm (□2.36 in.) **PV26**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|--|--|------------------------|------------------------------|----------------|------------|-----------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| PV Series (High inertia capability) | PV264-02AA PV264-02BA | 1.8° | Bipolar (Series) Unipolar | 1.06 0.75 | 150 106 | 1.4 2 | 4.1 2.9 | 2.92 1.46 | 7.2 1.8 | 280×10 ⁻⁷ | 1.53 | C-250 |
| | PV264-D2.8AA PV264-D2.8BA | | Bipolar | 1.06 | 150 | 2.8 | 2.1 | 0.73 | 1.8 | | | |
| | PV266-02AA PV266-02BA | | Bipolar (Series) Unipolar | 1.75 1.35 | 240 191 | 1.4 2 | 5.6 4 | 4 2 | 12.2 3.05 | 450×10 ⁻⁷ | 2.5 | |
| | PV266-D2.8AA PV266-D2.8BA | | Bipolar | 1.75 | 240 | 2.8 | 2.8 | 1 | 3.05 | | | |
| | PV267-02AA PV267-02BA | | Bipolar (Series) Unipolar | 2.2 1.7 | 310 240 | 1.4 2 | 6.7 4.8 | 4.8 2.4 | 14.2 3.54 | 570×10 ⁻⁷ | 3.1 | |
| | PV267-D2.8AA PV267-D2.8BA | | Bipolar | 2.2 | 310 | 2.8 | 3.4 | 1.2 | 3.54 | | | |
| | PV269-02AA PV269-02BA | | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 1.4 2 | 8.3 6 | 5.96 2.98 | 22.8 5.7 | 900×10 ⁻⁷ | 4.9 | |
| | PV269-D2.8AA PV269-D2.8BA | | Bipolar | 3.1 | 440 | 2.8 | 4.2 | 1.49 | 5.7 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □85 mm (□3.35 in.) **PK29**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|------------------|--|------------------------|--|-------------------|-------------------|-----------------------------|-----------------|-----------------------|------------------------|-----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Standard Type | PK296-01AA PK296-01BA | 1.8° | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 1.4 2 | 6.2 4.4 | 4.4 2.2 | 30.8 7.7 | 1400×10 ⁻⁷ | 7.7 | C-253 |
| | PK296-02AA PK296-02BA | | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 2.1 3 | 4.2 3 | 2 1 | 14 3.5 | | | |
| | PK296-03AA PK296-03BA | | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 3.18 4.5 | 2.8 2 | 0.96 0.48 | 6 1.5 | | | |
| | PK296-F4.5A PK296-F4.5B | | Bipolar (Parallel) Bipolar (Series) Unipolar | 3.1 3.1 2.2 | 440 440 310 | 6.3 3.18 4.5 | 1.4 2.8 2 | 0.24 0.96 0.48 | 1.5 6 1.5 | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □85 mm (□3.35 in.) **PK29**□

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|----------------------------------|--|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|-----------------------|--------------------|-------|
| | | | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Standard Type | PK299-01AA PK299-01BA | 1.8° | Bipolar (Series) | 6.2 | 880 | 1.4 | 9 | 6.4 | 56 | 2700×10 ⁻⁷ | 14.8 | C-253 |
| | | | Unipolar | 4.4 | 620 | 2 | 6.4 | 3.2 | 14 | | | |
| | PK299-02AA PK299-02BA | Bipolar (Series) | 6.2 | 880 | 2.1 | 6 | 3 | 24 | | | | |
| | | Unipolar | 4.4 | 620 | 3 | 4.2 | 1.5 | 6 | | | | |
| | PK299-03AA PK299-03BA | Bipolar (Series) | 6.2 | 880 | 3.18 | 3.9 | 1.32 | 10 | | | | |
| | | Unipolar | 4.4 | 620 | 4.5 | 2.8 | 0.66 | 2.5 | | | | |
| | PK299-F4.5A PK299-F4.5B | Bipolar (Parallel) | 6.2 | 880 | 6.3 | 1.9 | 0.33 | 2.5 | | | | |
| | | Bipolar (Series) | 6.2 | 880 | 3.18 | 3.9 | 1.32 | 10 | | | | |
| | PK2913-01AA PK2913-01BA | Bipolar (Series) | 9.3 | 1320 | 1.4 | 10 | 7.6 | 76.8 | | | | |
| | | Unipolar | 6.6 | 930 | 2 | 7.6 | 3.8 | 19.2 | | | | |
| | PK2913-02AA PK2913-02BA | Bipolar (Series) | 9.3 | 1320 | 2.8 | 5.3 | 1.94 | 16.8 | | | | |
| | | Unipolar | 6.6 | 930 | 4 | 3.8 | 0.97 | 4.2 | | | | |
| | PK2913-F4.0A PK2913-F4.0B | Bipolar (Parallel) | 9.3 | 1320 | 5.6 | 2.6 | 0.49 | 4.2 | | | | |
| | | Bipolar (Series) | 9.3 | 1320 | 2.8 | 5.3 | 1.94 | 16.8 | | | | |
| | Unipolar | 6.6 | 930 | 4 | 3.8 | 0.97 | 4.2 | | | | | |
| | PK296EAT | 1.8° | Bipolar (Parallel) | 3.1 | 440 | 6.3 | 1.4 | 0.24 | 1.5 | 1400×10 ⁻⁷ | 7.7 | C-257 |
| Bipolar (Series) | | | 3.1 | 440 | 3.18 | 2.8 | 0.96 | 6.0 | | | | |
| Standard Type Terminal Box | PK299EAT | Unipolar | 2.2 | 310 | 4.5 | 2 | 0.48 | 1.5 | | | | |
| | | Bipolar (Parallel) | 6.2 | 880 | 6.3 | 1.9 | 0.33 | 2.5 | | | | |
| | PK2913EAT | Bipolar (Series) | 6.2 | 880 | 3.13 | 3.9 | 1.32 | 10.0 | | | | |
| | | Unipolar | 4.4 | 620 | 4.5 | 2.8 | 0.66 | 2.5 | | | | |
| | | Bipolar (Parallel) | 9.3 | 1320 | 5.6 | 2.6 | 0.49 | 4.2 | | | | |
| | | Bipolar (Series) | 9.3 | 1320 | 2.8 | 5.3 | 1.94 | 16.8 | | | | |
| Unipolar | 6.6 | 930 | 4 | 2.8 | 0.97 | 4.2 | | | | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

Motor Frame Size: □85 mm (□3.35 in.) **PK296** Frame size of **SH** geared type is □90 mm (□3.54 in.).

| Type | Model Single Shaft Double Shaft | Basic Step Angle | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Page |
|-----------------------------|--|------------------------|--------------------|----------------|-------|-----------------------------|----------------|-----------------------|------------------------|-----------------------|--------------------|-------|
| | | | | N-m | lb-in | | | | | kg-m ² | oz-in ² | |
| SH Geared Type | PK296A1A-SG3.6 PK296B1A-SG3.6 | 0.5° | Bipolar (Series) | 2.5 | 22 | 1 | 4.4 | 4.4 | 30.8 | 1400×10 ⁻⁷ | 7.7 | C-259 |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A1A-SG7.2 PK296B1A-SG7.2 | 0.25° | Bipolar (Series) | 5 | 44 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A1A-SG9 PK296B1A-SG9 | 0.2° | Bipolar (Series) | 6.3 | 55 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A1A-SG10 PK296B1A-SG10 | 0.18° | Bipolar (Series) | 7 | 61 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A1A-SG18 PK296B1A-SG18 | 0.1° | Bipolar (Series) | 9 | 79 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A1A-SG36 PK296B1A-SG36 | 0.05° | Bipolar (Series) | 12 | 106 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | | | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | | | |
| | PK296A2A-SG3.6 PK296B2A-SG3.6 | 0.5° | Bipolar (Series) | 2.5 | 22 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |
| | PK296A2A-SG7.2 PK296B2A-SG7.2 | 0.25° | Bipolar (Series) | 5 | 44 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |
| | PK296A2A-SG9 PK296B2A-SG9 | 0.2° | Bipolar (Series) | 6.3 | 55 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |
| | PK296A2A-SG10 PK296B2A-SG10 | 0.18° | Bipolar (Series) | 7 | 61 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |
| | PK296A2A-SG18 PK296B2A-SG18 | 0.1° | Bipolar (Series) | 9 | 79 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |
| | PK296A2A-SG36 PK296B2A-SG36 | 0.05° | Bipolar (Series) | 12 | 106 | 2.1 | 2 | 0.96 | 6 | | | |
| | | | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | | | |

● The value given for holding torque is the value when operated with rated voltage and 2-phase excitation.

□ 28 mm (□ 1.10 in.)

Step Angle 1.8°

PK Series High-Torque Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|------------------------------|------------------|----------------|-------|---------------|---------|------------|------------|---------------------|--------------------|-------------------|---|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| Single Shaft Double Shaft | Bipolar (Series) | 0.065 | 9.2 | 0.67 | 3.8 | 5.6 | 4 | 9×10 ⁻⁷ | 0.049 | 6 | CMK223P□P |
| | | | | | | | | | | | |
| Single Shaft Double Shaft | Bipolar (Series) | 0.097 | 13.7 | 0.67 | 4.6 | 6.8 | 4.8 | 12×10 ⁻⁷ | 0.066 | 6 | CMK224P□P |
| | | | | | | | | | | | |
| Single Shaft Double Shaft | Bipolar (Series) | 0.11 | 15.6 | 0.67 | 6.2 | 9.2 | 5.6 | 18×10 ⁻⁷ | 0.098 | 6 | CMK225P□P |
| | | | | | | | | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|----------------|-------------|-------------|---------------|------|
| PK223PA | 32 (1.26) | — | 0.11 (0.24) | B326 |
| PK223PB | | 42 (1.65) | | |
| PK224PA | 40 (1.57) | — | 0.14 (0.31) | B327 |
| PK224PB | | 50 (1.97) | | |
| PK225PA | 51.5 (2.03) | — | 0.2 (0.44) | B328 |
| PK225PB | | 61.5 (2.42) | | |

● Lead wire and connector will not be supplied with the connector-coupled motor. They must be purchased separately.

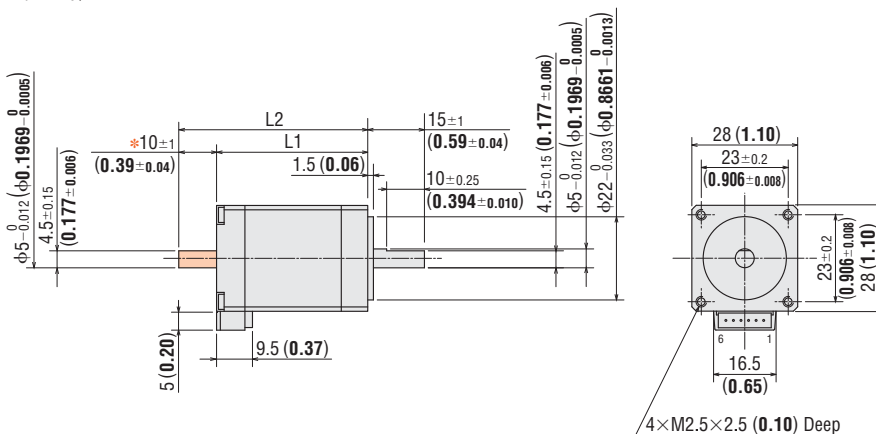
Motor lead wire/connector assembly is available as an accessory (sold separately).

● Applicable Connector

Connector housing: 51065-0600 (MOLEX)

Contact: 50202-8100 (MOLEX)

Crimp tool: 57176-5000 (MOLEX)



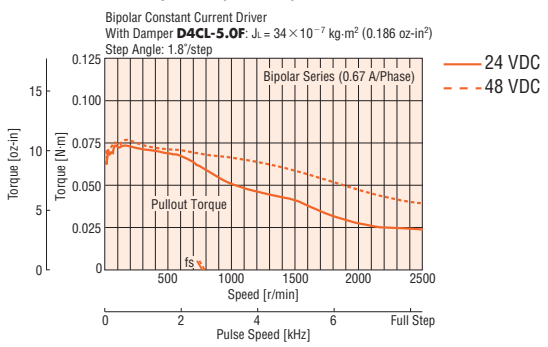
* The length of machining on the double shaft model is $10_{\pm 0.25}$ (0.394±0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

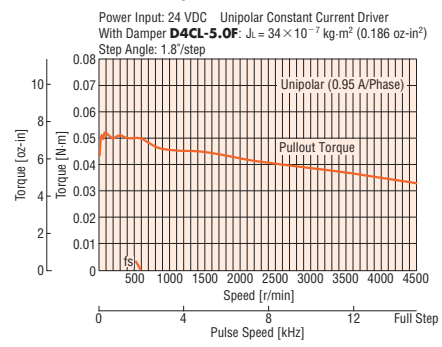
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

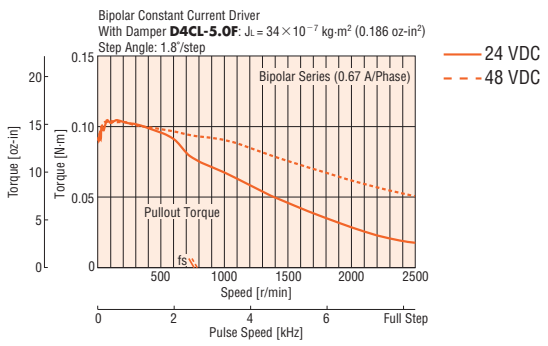
PK223PB Bipolar (Series)



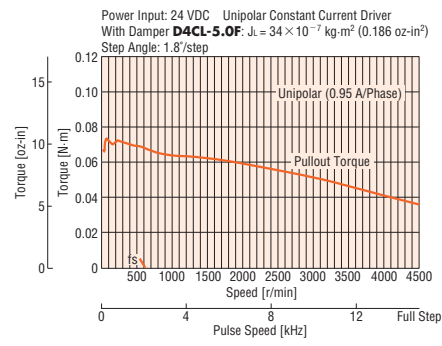
PK223PB Unipolar



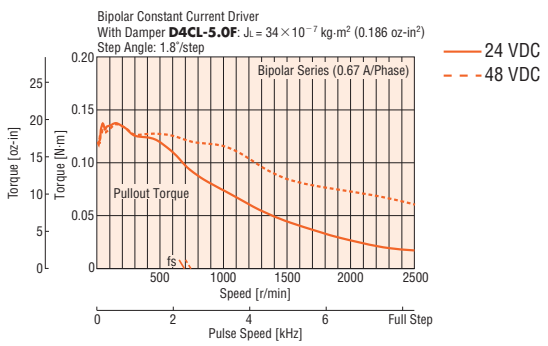
PK224PB Bipolar (Series)



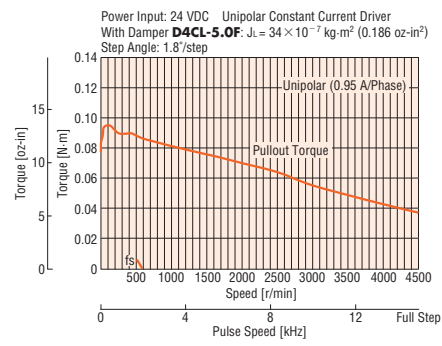
PK224PB Unipolar



PK225PB Bipolar (Series)



PK225PB Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Motor Lead Wire/Connector Assembly (Sold separately)

These cables make it easy to connect the high-torque type motor. The crimped connectors eliminate the need for assembly. There are two cable lengths to choose from.

| Model | Cable Length m (ft.) | Number of Leads | Lead Specifications | |
|----------------|-------------------------|-----------------|---------------------|---------|
| | | | UL Style No. | AWG No. |
| LC2U06A | 0.6 (2) | 6 Leads | 3265 | 24 |
| LC2U10A | 1 (3.3) | | | |



- Introduction
- AC Input *Q5STEP AS*
- DC Input *Q5STEP ASC*
- AC Input 5-Phase Microstep *RK*
- AC Input 2-Phase Full/Half *UMK*
- DC Input 5-Phase Microstep *CMK*
- DC Input 2-Phase Microstep *RBK*
- DC Input 2-Phase Microstep *CMK*
- Without Encoder 2-Phase *PK/PV*
- With Encoder 2-Phase *PK*
- Controllers *EMP400*
- Controllers *SG8030J*
- Accessories
- Installation

28 mm (1.10 in.)

PK Series SH Geared Type



Specifications (RoHS)

Motor Specifications

| Model Single Shaft Double Shaft | Connection Type | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|---------------------------------------|------------------|---------------|---------|------------|------------|--------------------|--------------------|-------------------|---|
| | | A/phase | VDC | Ω/phase | mH/phase | kg-m ² | oz-in ² | | |
| PK223PA-SG □ | Bipolar (Series) | 0.67 | 3.8 | 5.6 | 4 | 9×10 ⁻⁷ | 0.049 | 6 | CMK223 □ P-SG □ |
| PK223PB-SG □ | Unipolar | 0.95 | 2.66 | 2.8 | 1 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.
- Enter the gear ratio in the box (■) within the model name.

Gearmotor Specifications

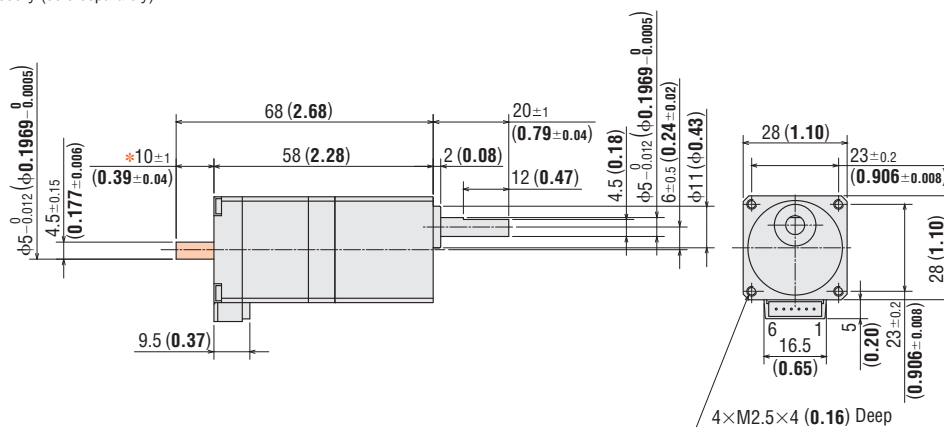
| Model Single Shaft Double Shaft | Gear Ratio | Holding Torque* | | Step Angle | Permissible Speed r/min |
|--|------------|-----------------|-------|------------|----------------------------|
| | | N-m | oz-in | | |
| PK223PA-SG7.2 □ PK223PB-SG7.2 □ | 7.2:1 | 0.3 | 42 | 0.25° | 250 |
| PK223PA-SG9 □ PK223PB-SG9 □ | 9:1 | 0.3 | 42 | 0.2° | 200 |
| PK223PA-SG10 □ PK223PB-SG10 □ | 10:1 | 0.3 | 42 | 0.18° | 180 |
| PK223PA-SG18 □ PK223PB-SG18 □ | 18:1 | 0.4 | 56 | 0.1° | 100 |
| PK223PA-SG36 □ PK223PB-SG36 □ | 36:1 | 0.4 | 56 | 0.05° | 50 |

* Holding torque is the same regardless of the connection type, due to the permissible torque limit of the gearhead.

Dimensions Unit = mm (in.)

| Model | Mass kg (lb.) | DXF |
|---------------------|------------------|------|
| PK223PA-SG □ | 0.16 (0.35) | B335 |
| PK223PB-SG □ | | |

- Enter the gear ratio in the box (□) within the model name.
- Lead wire and connector will not be supplied with the connector-coupled motor. They must be purchased separately. Motor lead wire/connector assembly is available as an accessory (sold separately).
- Screws (Included)
M2.5 Length 8 mm (0.31 in.)...4 pieces
- Applicable Connector
Connector housing: 51065-0600 (MOLEX)
Contact: 50202-8100 (MOLEX)
Crimp tool: 57176-5000 (MOLEX)



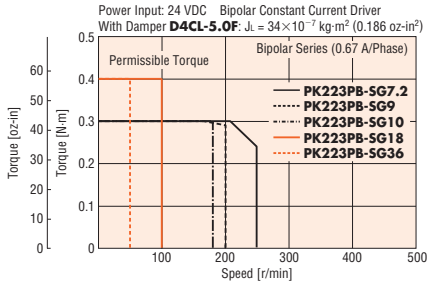
* The length of machining on the double shaft model is 10±0.25 (0.394±0.010).

- These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

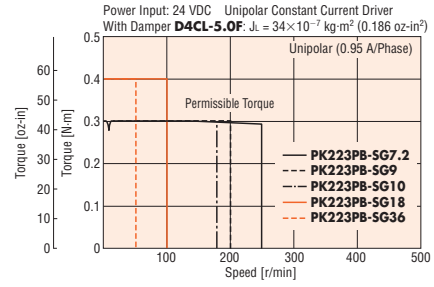
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

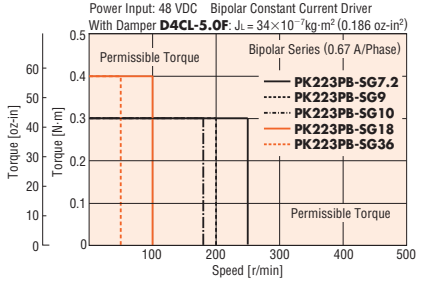
PK223PB-SG Bipolar (Series) 24 VDC



PK223PB-SG Unipolar



PK223PB-SG Bipolar (Series) 48 VDC



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Motor Lead Wire/Connector Assembly (Sold separately)

These cables make it easy to connect the high-torque type motor. The crimped connectors eliminate the need for assembly. There are two cable lengths to choose from.

| Model | Cable Length m (ft.) | Number of Leads | Lead Specifications | |
|----------------|-------------------------|-----------------|---------------------|---------|
| | | | UL Style No. | AWG No. |
| LC2U06A | 0.6 (2) | 6 Leads | 3265 | 24 |
| LC2U10A | 1 (3.3) | | | |



- Introduction
- AC Input *QSTEP AS*
- DC Input *QSTEP ASG*
- 5-Phase Microstep *RK* AC Input
- 2-Phase Full/Half *UMK* AC Input
- 5-Phase Microstep *CMK* DC Input
- 2-Phase Microstep *RBK* DC Input
- 2-Phase Microstep *CMK* DC Input
- 2-Phase PV/UV *PK/PV* Without Encoder
- 2-Phase *PK* With Encoder
- EMP400** Controllers
- SG8030J** Accessories
- Installation

□ 35 mm (□ 1.38 in.)

Step Angle 1.8°

PK Series High-Torque Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|----------------|------------------|----------------|-------|---------------|---------|------------|------------|-----------------------|--------------------|-------------------|---|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| Single Shaft | Bipolar (Series) | 0.2 | 28 | 0.85 | 4.6 | 5.4 | 5.6 | 24 × 10 ⁻⁷ | 0.131 | 6 | CMK233P□P |
| Double Shaft | | Unipolar | 0.16 | 22 | 1.2 | 3.24 | 2.7 | | | | |
| PK235PA | Bipolar (Series) | 0.37 | 52 | 0.85 | 5.8 | 6.8 | 8 | 50 × 10 ⁻⁷ | 0.27 | 6 | CMK235P□P |
| | PK235PB | Unipolar | 0.3 | 42 | 1.2 | 4.08 | 3.4 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|----------------|-----------|-----------|---------------|------|
| PK233PA | 37 (1.46) | — | 0.18 (0.4) | B329 |
| PK233PB | | 52 (2.05) | | |
| PK235PA | 52 (2.05) | — | 0.285 (0.63) | B330 |
| PK235PB | | 67 (2.64) | | |

● Lead wire and connector will not be supplied with the connector-coupled motor. They must be purchased separately.

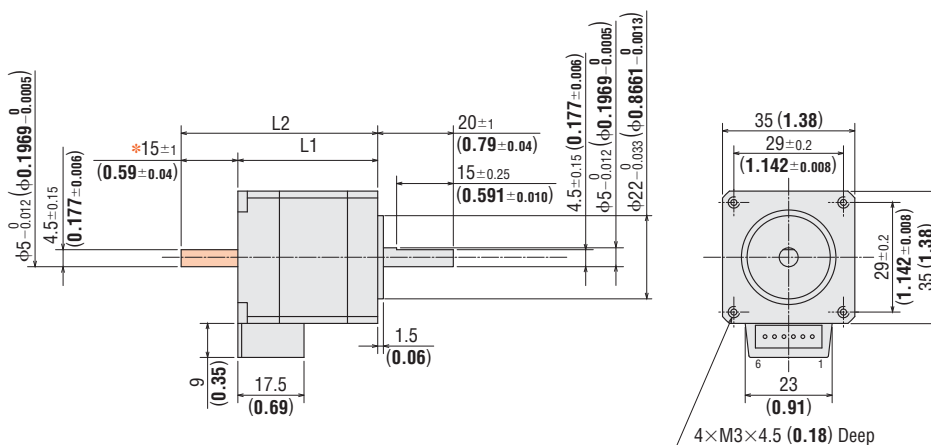
Motor lead wire/connector assembly is available as an accessory (sold separately).

● Applicable Connector

Connector housing: 51103-0600 (MOLEX, Positive lock type) or
51102-0600 (MOLEX, Friction lock type)

Contact: 50351-8100 (MOLEX)

Crimp tool: 57295-5000 (MOLEX)



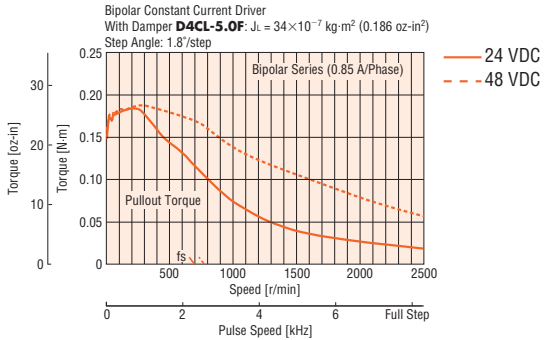
* The length of machining on the double shaft model is $15_{\pm 0.25}$ (0.591 ± 0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

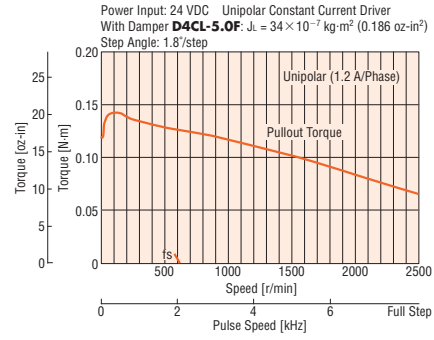
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

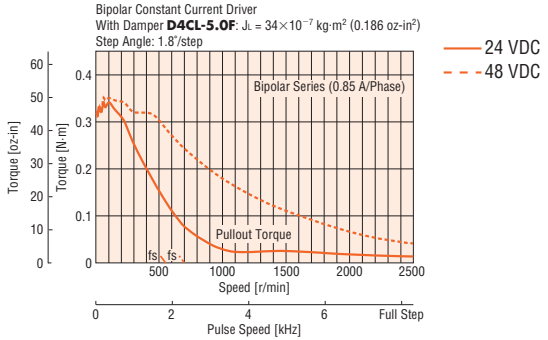
PK233PB Bipolar (Series)



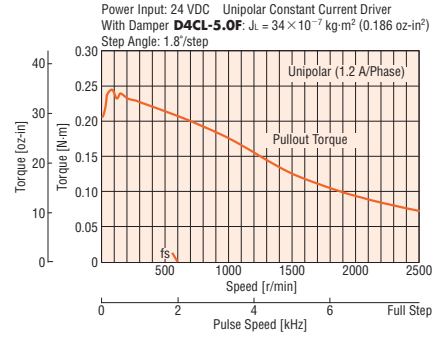
PK233PB Unipolar



PK235PB Bipolar (Series)



PK235PB Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Motor Lead Wire/Connector Assembly (Sold separately)

These cables make it easy to connect the high-torque type motor. The crimped connectors eliminate the need for assembly. There are two cable lengths to choose from.

| Model | Cable Length m (ft.) | Number of Leads | Lead Specifications | |
|----------------|-------------------------|-----------------|---------------------|---------|
| | | | UL Style No. | AWG No. |
| LC2U06B | 0.6 (2) | 6 Leads | 3265 | 24 |
| LC2U10B | 1 (3.3) | | | |

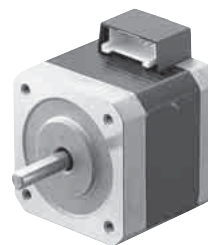


- Introduction
- AC Input *QSTEP AS*
- DC Input *QSTEP ASG*
- AC Input 5-Phase Microstep *RK*
- AC Input 2-Phase Full/Half *UMK*
- DC Input 5-Phase Microstep *CMK*
- DC Input 2-Phase Microstep *RBK*
- 2-Phase Microstep *CMK*
- 2-Phase PV/PV *Without Encoder*
- 2-Phase PK *With Encoder*
- EMP400 Controllers
- SG8030J
- Accessories
- Installation

42 mm (1.65 in.)

Step Angle 1.8°

PK Series High-Torque Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|----------------|------------------|----------------|-------|---------------|---------|------------|------------|------------------------|--------------------|-------------------|---|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| Single Shaft | Bipolar (Series) | 0.48 | 68 | 0.85 | 6.8 | 8 | 15.6 | 57 × 10 ⁻⁷ | 0.31 | 6 | CMK244P□P |
| Double Shaft | | 0.39 | 55 | 1.2 | 4.8 | 4 | 3.9 | | | | |
| PK246PA | Bipolar (Series) | 0.93 | 132 | 0.85 | 10 | 12 | 26 | 114 × 10 ⁻⁷ | 0.62 | 6 | CMK246P□P |
| | Unipolar | 0.75 | 106 | 1.2 | 7.2 | 6 | 6.5 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|----------------|-----------|-----------|---------------|------|
| PK244PA | 39 (1.54) | — | 0.3 (0.66) | B331 |
| PK244PB | | 54 (2.13) | | |
| PK246PA | 59 (2.32) | — | 0.5 (1.1) | B332 |
| PK246PB | | 74 (2.91) | | |

● Lead wire and connector will not be supplied with the connector-coupled motor. They must be purchased separately.

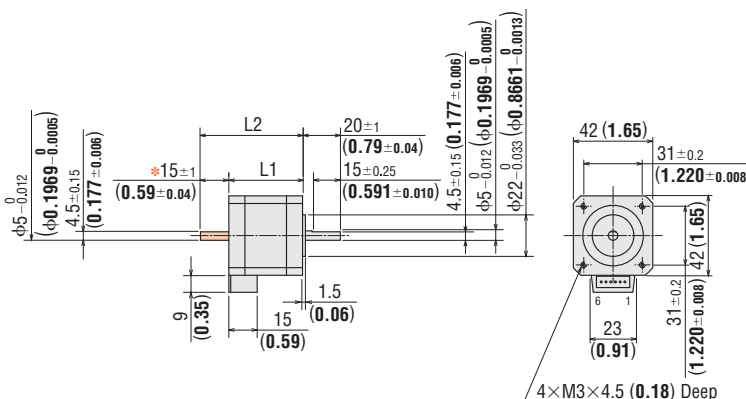
Motor lead wire/connector assembly is available as an accessory (sold separately).

● Applicable Connector

Connector housing: 51103-0600 (MOLEX, Positive lock type) or 51102-0600 (MOLEX, Friction lock type)

Contact: 50351-8100 (MOLEX)

Crimp tool: 57295-5000 (MOLEX)



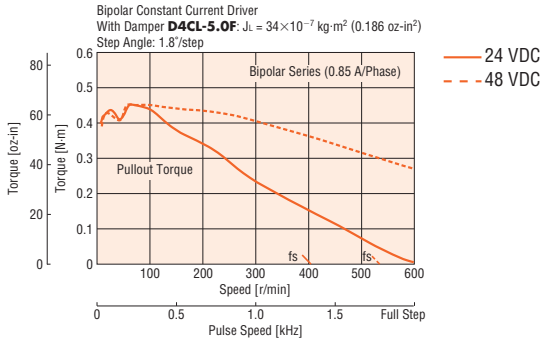
* The length of machining on the double shaft model is $15_{\pm 0.25}$ (0.591 ± 0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

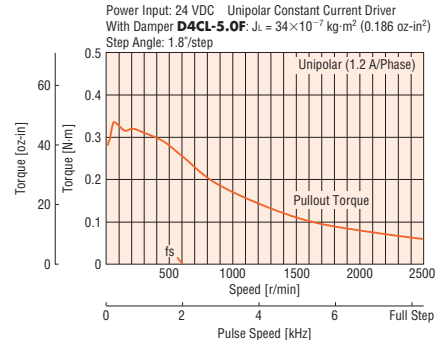
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

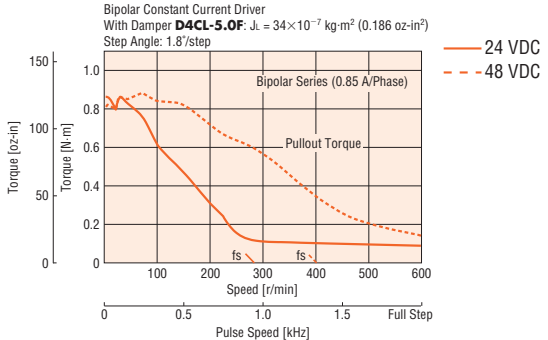
PK244PB Bipolar (Series)



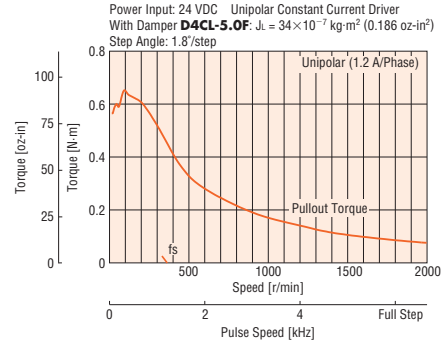
PK244PB Unipolar



PK246PB Bipolar (Series)



PK246PB Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Motor Lead Wire/Connector Assembly (Sold separately)

These cables make it easy to connect the high-torque type motor. The crimped connectors eliminate the need for assembly. There are two cable lengths to choose from.

| Model | Cable Length m (ft.) | Number of Leads | Lead Specifications | |
|----------------|-------------------------|-----------------|---------------------|---------|
| | | | UL Style No. | AWG No. |
| LC2U06B | 0.6 (2) | 6 Leads | 3265 | 24 |
| LC2U10B | 1 (3.3) | | | |

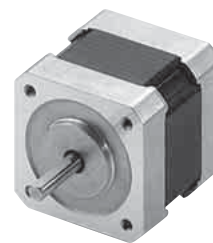


- Introduction
- AC Input *QSTEP AS*
- DC Input *QSTEP ASC*
- AC Input 5-Phase Microstep *RK*
- AC Input 2-Phase Full/Half *UMK*
- DC Input 5-Phase Microstep *CMK*
- DC Input 2-Phase Microstep *RBK*
- 2-Phase Microstep *CMK*
- 2-Phase PV/PV *Without Encoder*
- 2-Phase PK *With Encoder*
- Controllers *EMP400*
- SG8030J*
- Accessories
- Installation

42 mm (1.65 in.)

Step Angle 1.8°

PK Series Standard Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|-------------------|------------------|----------------|-------|---------------|---------|------------|------------|---------------------|--------------------|------------|--|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK243-01AA | Bipolar (Series) | 0.2 | 28 | 0.67 | 5.6 | 8.4 | 10 | 35×10 ⁻⁷ | 0.191 | 6 | UMK243□A/ CMK243□PA |
| PK243-01BA | Unipolar | 0.16 | 22 | 0.95 | 4 | 4.2 | 2.5 | | | | |
| PK243-02AA | Bipolar (Series) | 0.2 | 28 | 0.28 | 13 | 48 | 60 | 35×10 ⁻⁷ | 0.191 | 6 | - |
| PK243-02BA | Unipolar | 0.16 | 22 | 0.4 | 9.6 | 24 | 15 | | | | |
| PK243-03AA | Bipolar (Series) | 0.2 | 28 | 0.22 | 17 | 77 | 84 | 35×10 ⁻⁷ | 0.191 | 6 | - |
| PK243-03BA | Unipolar | 0.16 | 22 | 0.31 | 12 | 38.5 | 21 | | | | |
| PK244-01AA | Bipolar (Series) | 0.33 | 46 | 0.85 | 5.6 | 6.6 | 12.8 | 54×10 ⁻⁷ | 0.3 | 6 | UMK244□A/ CMK244□PA |
| PK244-01BA | Unipolar | 0.26 | 36 | 1.2 | 4 | 3.3 | 3.2 | | | | |
| PK244-02AA | Bipolar (Series) | 0.33 | 46 | 0.57 | 8.6 | 15 | 26.8 | 54×10 ⁻⁷ | 0.3 | 6 | - |
| PK244-02BA | Unipolar | 0.26 | 36 | 0.8 | 6 | 7.5 | 6.7 | | | | |
| PK244-03AA | Bipolar (Series) | 0.33 | 46 | 0.28 | 17 | 60 | 120 | 54×10 ⁻⁷ | 0.3 | 6 | - |
| PK244-03BA | Unipolar | 0.26 | 36 | 0.4 | 12 | 30 | 30 | | | | |
| PK244-04AA | Bipolar (Series) | 0.33 | 46 | 0.14 | 34 | 240 | 428 | 54×10 ⁻⁷ | 0.3 | 6 | - |
| PK244-04BA | Unipolar | 0.26 | 36 | 0.2 | 24 | 120 | 107 | | | | |
| PK245-01AA | Bipolar (Series) | 0.43 | 61 | 0.85 | 5.6 | 6.6 | 11.2 | 68×10 ⁻⁷ | 0.37 | 6 | UMK245□A/ CMK245□PA |
| PK245-01BA | Unipolar | 0.32 | 45 | 1.2 | 4 | 3.3 | 2.8 | | | | |
| PK245-02AA | Bipolar (Series) | 0.43 | 61 | 0.57 | 8.6 | 15 | 28.4 | 68×10 ⁻⁷ | 0.37 | 6 | - |
| PK245-02BA | Unipolar | 0.32 | 45 | 0.8 | 6 | 7.5 | 7.1 | | | | |
| PK245-03AA | Bipolar (Series) | 0.43 | 61 | 0.28 | 17 | 60 | 100 | 68×10 ⁻⁷ | 0.37 | 6 | - |
| PK245-03BA | Unipolar | 0.32 | 45 | 0.4 | 12 | 30 | 25 | | | | |

How to read specifications table → Page C-11

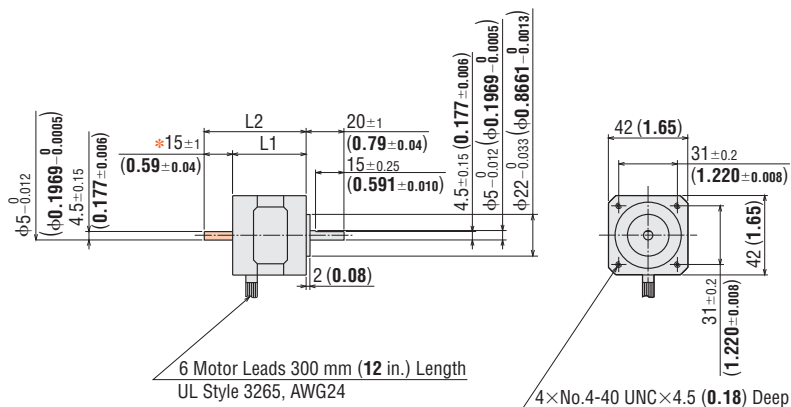
Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|-------------------|-----------|-----------|---------------|-------|
| PK243-0□AA | 33 (1.30) | - | 0.21 (0.46) | B081U |
| PK243-0□BA | | 48 (1.89) | | |
| PK244-0□AA | 39 (1.54) | - | 0.27 (0.59) | B082U |
| PK244-0□BA | | 54 (2.13) | | |
| PK245-0□AA | 47 (1.85) | - | 0.35 (0.77) | B083U |
| PK245-0□BA | | 62 (2.44) | | |

● Enter the winding specification in the box (□) within the model name.



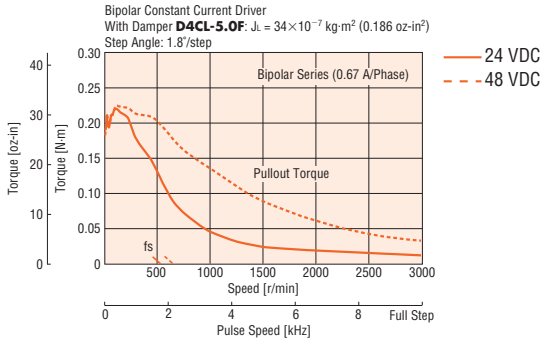
* The length of machining on the double shaft model is 15±0.25 (0.591±0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

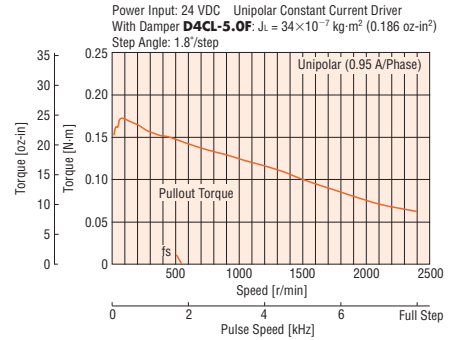
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

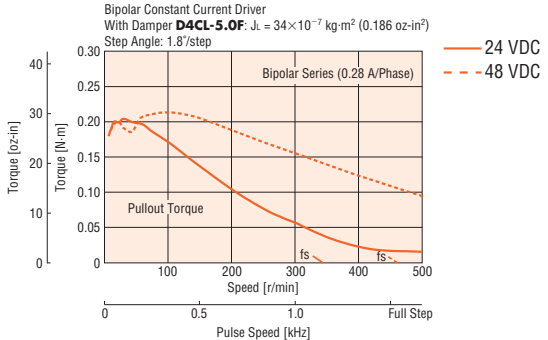
PK243-01BA Bipolar (Series)



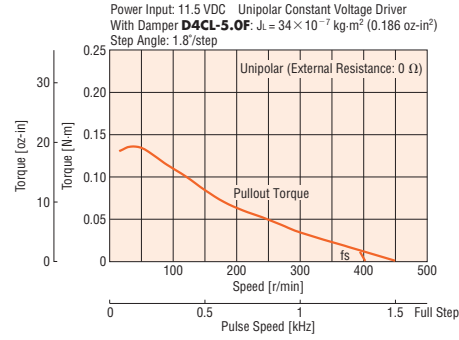
PK243-01BA Unipolar



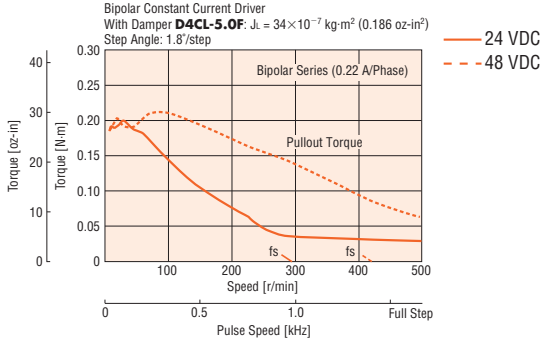
PK243-02BA Bipolar (Series)



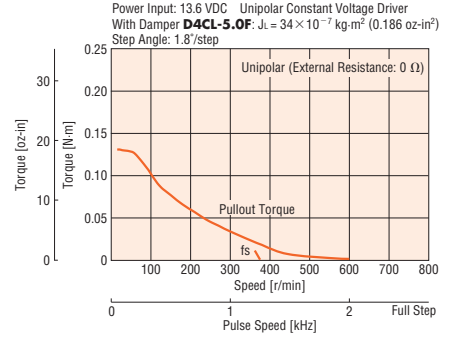
PK243-02BA Unipolar



PK243-03BA Bipolar (Series)



PK243-03BA Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

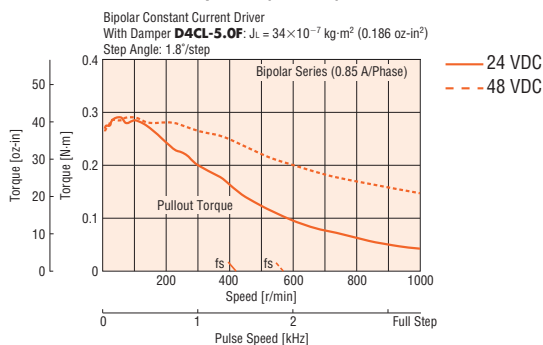
- Introduction
- AC Input *QSTEP AS*
- DC Input *QSTEP ASG*
- AC Input 5-Phase Microstep *RK*
- AC Input 2-Phase Full/Half *UMK*
- AC Input 5-Phase Microstep *CMK*
- DC Input 2-Phase Microstep *RBK*
- DC Input 2-Phase Microstep *CMK*
- Without Encoder 2-Phase PV/PV
- With Encoder 2-Phase PK
- Controllers *EMP400*
- Controllers *SG8030J*
- Accessories
- Installation

28 mm
(1.10 in.)35 mm
(1.38 in.)42 mm
(1.65 in.)50 mm
(1.97 in.)56.4 mm
(2.22 in.)60 mm
(2.36 in.)85 mm
(3.35 in.)90 mm
(3.54 in.)

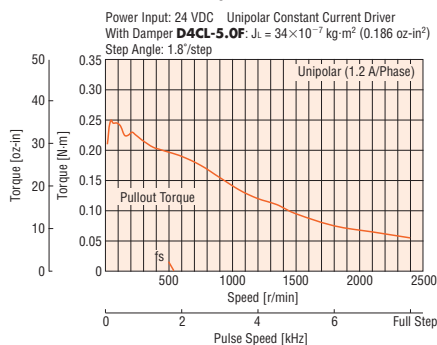
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

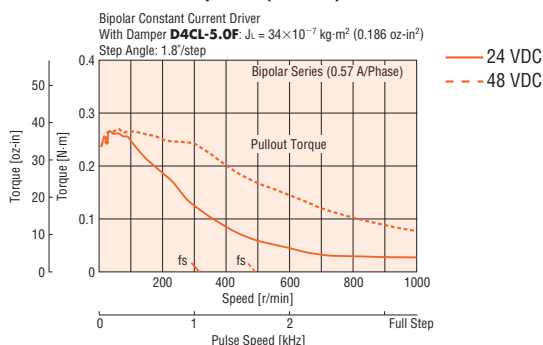
PK244-01BA Bipolar (Series)



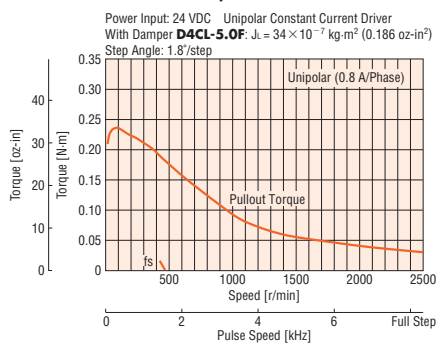
PK244-01BA Unipolar



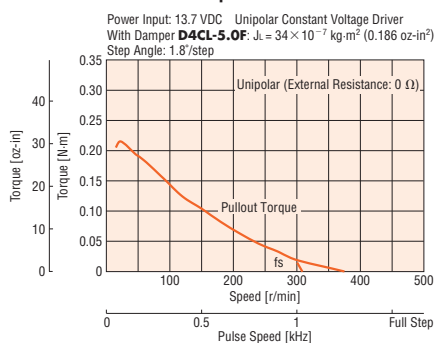
PK244-02BA Bipolar (Series)



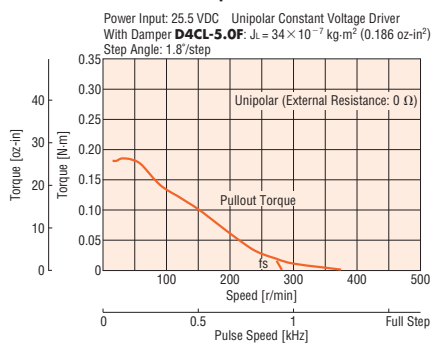
PK244-02BA Unipolar



PK244-03BA Unipolar



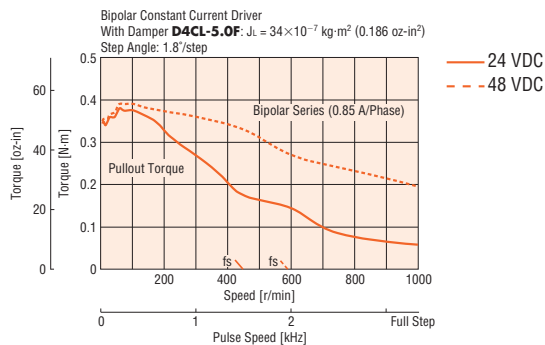
PK244-04BA Unipolar



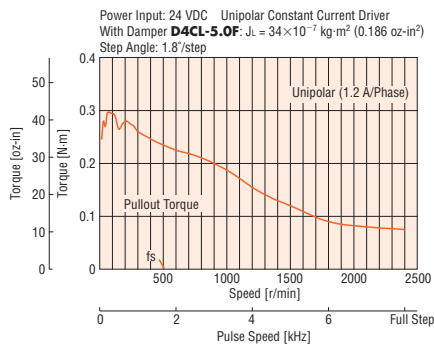
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

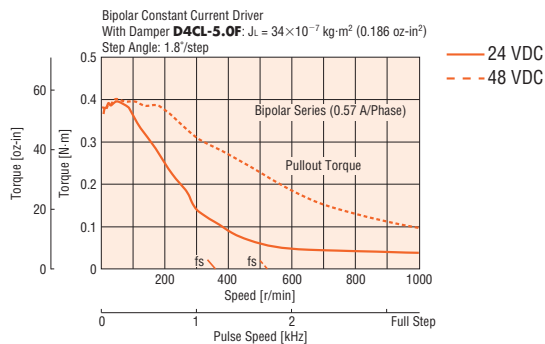
PK245-01BA Bipolar (Series)



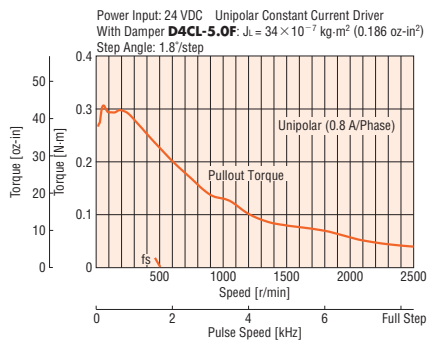
PK245-01BA Unipolar



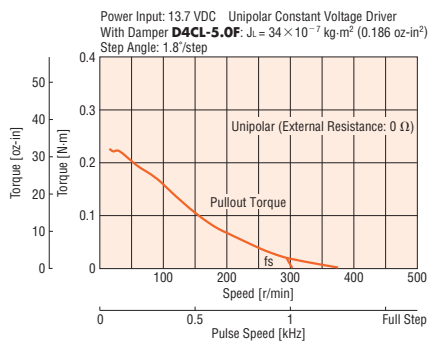
PK245-02BA Bipolar (Series)



PK245-02BA Unipolar



PK245-03BA Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

42 mm (1.65 in.)

Step Angle 0.9°

PK Series High-Resolution Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|--|------------------|----------------|-------|---------------|---------|------------|------------|---------------------|--------------------|------------|--|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK243M-01AA PK243M-01BA | Bipolar (Series) | 0.2 | 28 | 0.67 | 5.6 | 8.4 | 15.2 | 35×10 ⁻⁷ | 0.191 | 6 | UMK243M□A/ CMK243M□PA |
| | Unipolar | 0.16 | 22 | 0.95 | 4 | 4.2 | 3.8 | | | | |
| PK243M-02AA PK243M-02BA | Bipolar (Series) | 0.2 | 28 | 0.42 | 8.4 | 20 | 38.8 | 35×10 ⁻⁷ | 0.191 | 6 | - |
| | Unipolar | 0.16 | 22 | 0.6 | 6 | 10 | 9.7 | | | | |
| PK243M-03AA PK243M-03BA | Bipolar (Series) | 0.2 | 28 | 0.22 | 17 | 77 | 136 | 35×10 ⁻⁷ | 0.191 | 6 | - |
| | Unipolar | 0.16 | 22 | 0.31 | 12 | 38.5 | 34 | | | | |
| PK244M-01AA PK244M-01BA | Bipolar (Series) | 0.31 | 44 | 0.85 | 5.6 | 6.6 | 17.2 | 54×10 ⁻⁷ | 0.3 | 6 | UMK244M□A/ CMK244M□PA |
| | Unipolar | 0.26 | 36 | 1.2 | 4 | 3.3 | 4.3 | | | | |
| PK244M-02AA PK244M-02BA | Bipolar (Series) | 0.31 | 44 | 0.57 | 8.6 | 15 | 38.8 | 54×10 ⁻⁷ | 0.3 | 6 | - |
| | Unipolar | 0.26 | 36 | 0.8 | 6 | 7.5 | 9.7 | | | | |
| PK244M-03AA PK244M-03BA | Bipolar (Series) | 0.31 | 44 | 0.28 | 17 | 60 | 152 | 54×10 ⁻⁷ | 0.3 | 6 | - |
| | Unipolar | 0.26 | 36 | 0.4 | 12 | 30 | 38 | | | | |
| PK245M-01AA PK245M-01BA | Bipolar (Series) | 0.38 | 53 | 0.85 | 5.6 | 6.6 | 15.6 | 68×10 ⁻⁷ | 0.37 | 6 | - |
| | Unipolar | 0.32 | 45 | 1.2 | 4 | 3.3 | 3.9 | | | | |
| PK245M-02AA PK245M-02BA | Bipolar (Series) | 0.38 | 53 | 0.57 | 8.6 | 15 | 39.6 | 68×10 ⁻⁷ | 0.37 | 6 | UMK245M□A/ CMK245M□PA |
| | Unipolar | 0.32 | 45 | 0.8 | 6 | 7.5 | 9.9 | | | | |
| PK245M-03AA PK245M-03BA | Bipolar (Series) | 0.38 | 53 | 0.28 | 17 | 60 | 128 | 68×10 ⁻⁷ | 0.37 | 6 | - |
| | Unipolar | 0.32 | 45 | 0.4 | 12 | 30 | 32 | | | | |

How to read specifications table → Page C-11

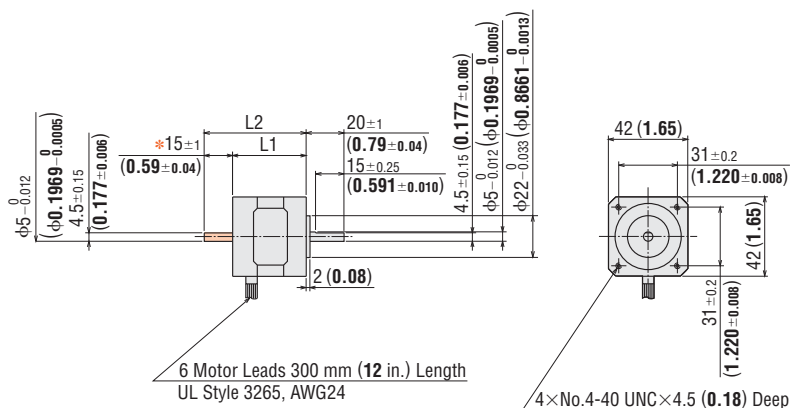
Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|--|-----------|----------------|------------------|-------|
| PK243M-0□AA PK243M-0□BA | 33 (1.30) | - 48 (1.89) | 0.24 (0.53) | B081U |
| PK244M-0□AA PK244M-0□BA | 39 (1.54) | - 54 (2.13) | 0.3 (0.66) | B082U |
| PK245M-0□AA PK245M-0□BA | 47 (1.85) | - 62 (2.44) | 0.37 (0.81) | B083U |

● Enter the winding specification in the box (□) within the model name.



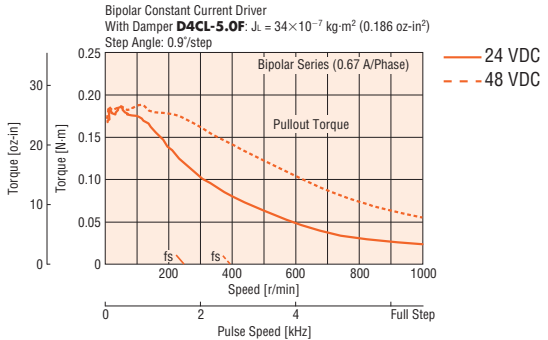
* The length of machining on the double shaft model is 15±0.25 (0.591±0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

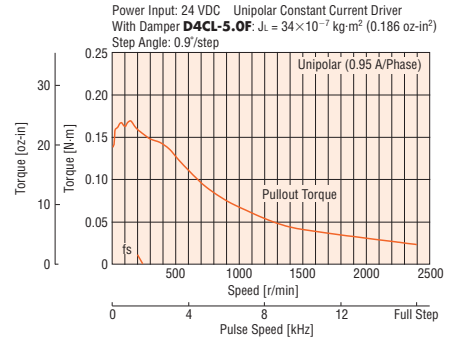
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

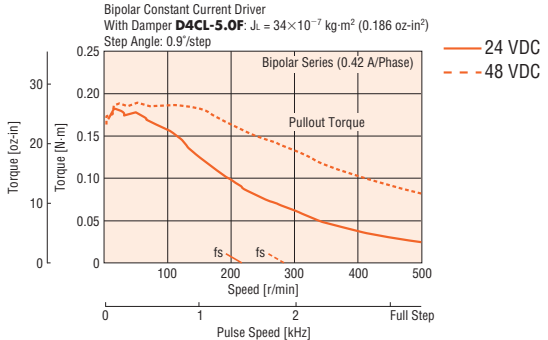
PK243M-01BA Bipolar (Series)



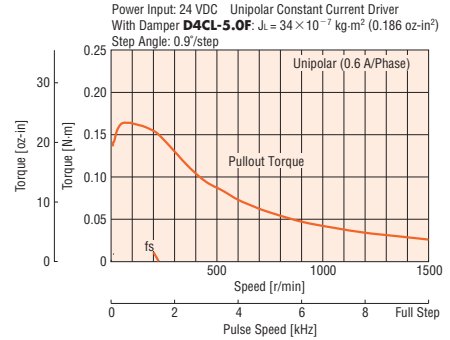
PK243M-01BA Unipolar



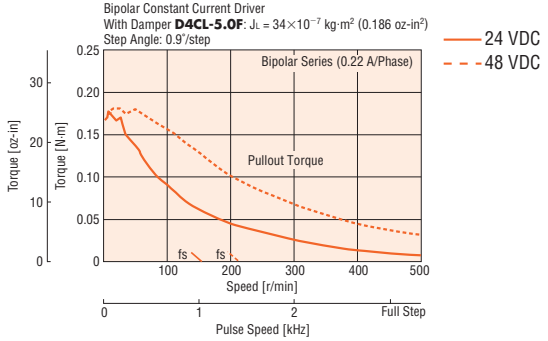
PK243M-02BA Bipolar (Series)



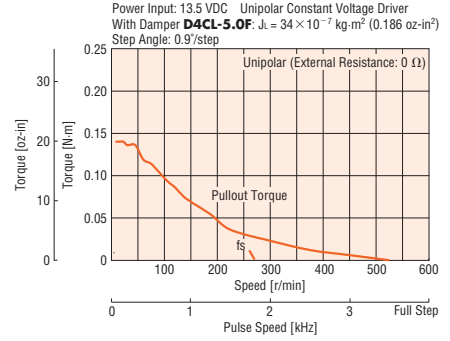
PK243M-02BA Unipolar



PK243M-03BA Bipolar (Series)



PK243M-03BA Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input

DC Input

5-Phase Microstep

2-Phase Full/Half

5-Phase Microstep

2-Phase Microstep

2-Phase Microstep

2-Phase PV/PV Without Encoder

2-Phase PV With Encoder

EMP400

5G8030J

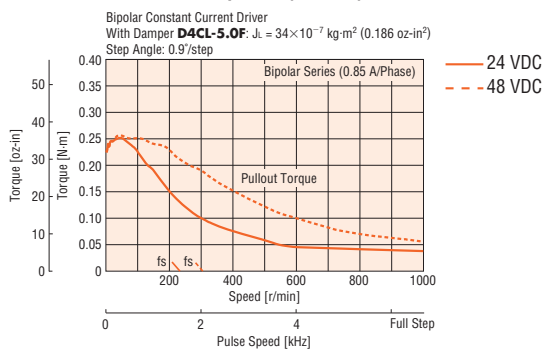
Accessories

Installation

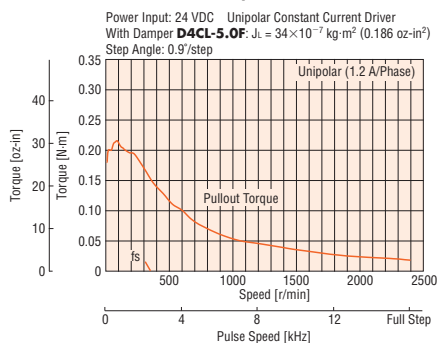
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

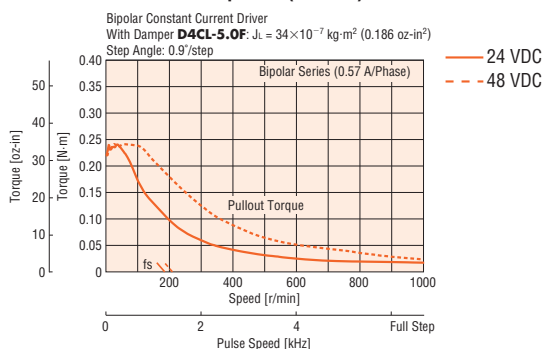
PK244M-01BA Bipolar (Series)



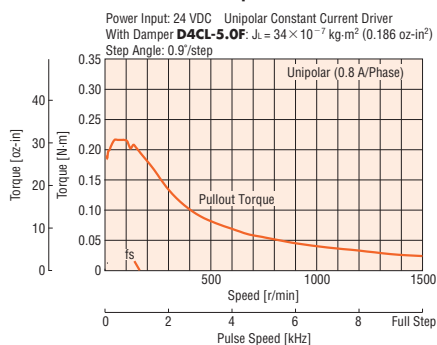
PK244M-01BA Unipolar



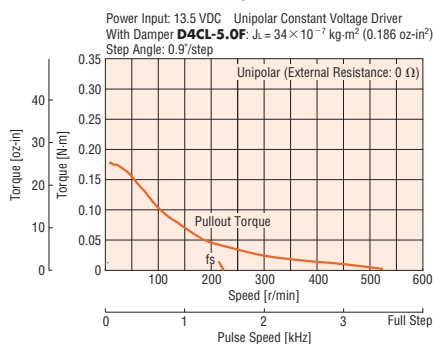
PK244M-02BA Bipolar (Series)



PK244M-02BA Unipolar



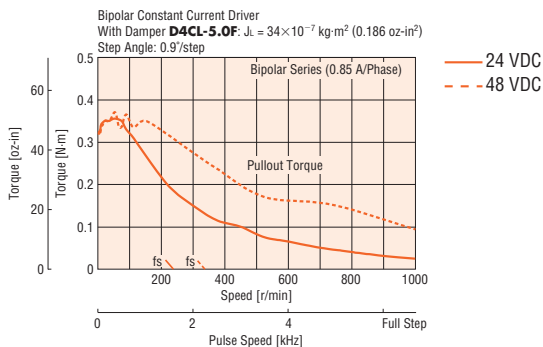
PK244M-03BA Unipolar



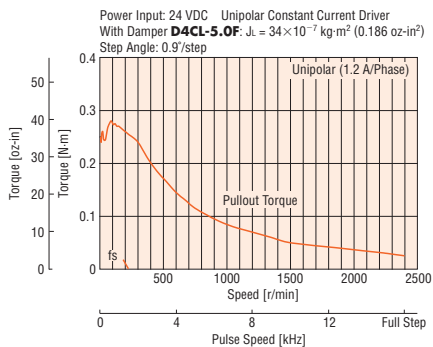
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

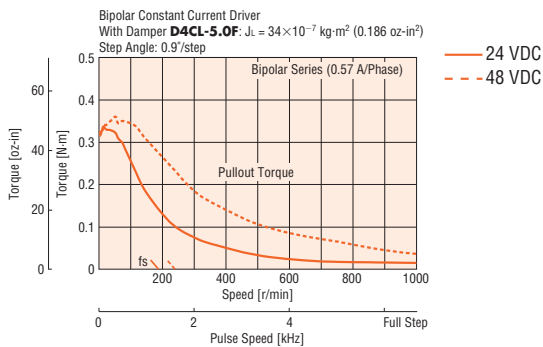
PK245M-01BA Bipolar (Series)



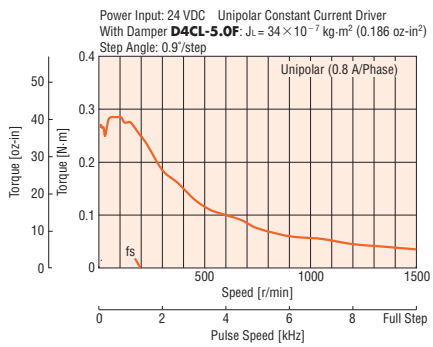
PK245M-01BA Unipolar



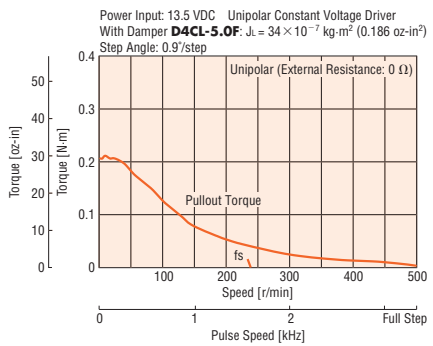
PK245M-02BA Bipolar (Series)



PK245M-02BA Unipolar



PK245M-03BA Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

42 mm (1.65 in.)

PK Series SH Geared Type



Specifications

Motor Specifications

| Model | Connection Type | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires | Corresponding DC-Input Motor & Driver Package |
|---|------------------|---------------|---------|-----------------|------------|---------------------|--------------------|------------|--|
| | | A/phase | VDC | Ω /phase | mH/phase | kg-m ² | oz-in ² | | |
| PK243A1A-SG <input type="checkbox"/> PK243B1A-SG <input type="checkbox"/> | Bipolar (Series) | 0.67 | 5.6 | 8.4 | 10 | 35×10^{-7} | 0.191 | 6 | CMK243 <input type="checkbox"/> PA-SG <input type="checkbox"/> |
| | Unipolar | 0.95 | 4.0 | 4.2 | 2.5 | | | | |
| PK243A2A-SG <input type="checkbox"/> PK243B2A-SG <input type="checkbox"/> | Bipolar (Series) | 0.28 | 13 | 48 | 60 | 35×10^{-7} | 0.191 | 6 | - |
| | Unipolar | 0.4 | 9.6 | 24 | 15 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

- Enter **A** (single shaft) or **B** (double shaft) in the box () within the model name.
- Enter the gear ratio in the box () within the model name.

Gearmotor Specifications

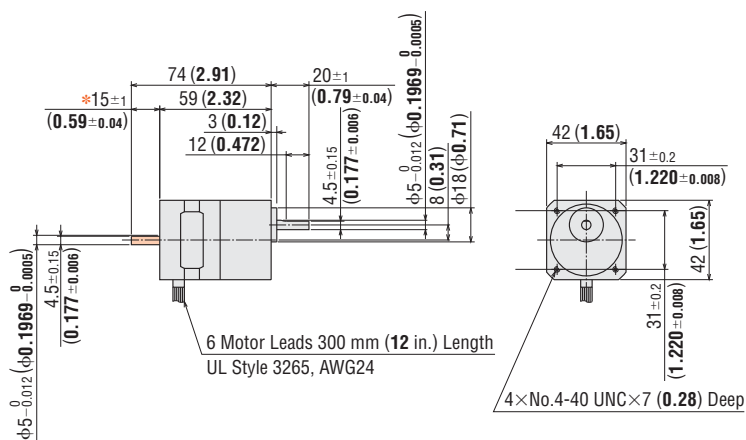
| Model | Gear Ratio | Holding Torque* | | Step Angle | Permissible Speed |
|--|------------|-----------------|-------|------------|-------------------|
| | | N-m | lb-in | | |
| PK243A1A-SG3.6 , PK243A2A-SG3.6 PK243B1A-SG3.6 , PK243B2A-SG3.6 | 3.6:1 | 0.2 | 1.77 | 0.5° | 500 |
| PK243A1A-SG7.2 , PK243A2A-SG7.2 PK243B1A-SG7.2 , PK243B2A-SG7.2 | 7.2:1 | 0.4 | 3.5 | 0.25° | 250 |
| PK243A1A-SG9 , PK243A2A-SG9 PK243B1A-SG9 , PK243B2A-SG9 | 9:1 | 0.5 | 4.4 | 0.2° | 200 |
| PK243A1A-SG10 , PK243A2A-SG10 PK243B1A-SG10 , PK243B2A-SG10 | 10:1 | 0.56 | 4.9 | 0.18° | 180 |
| PK243A1A-SG18 , PK243A2A-SG18 PK243B1A-SG18 , PK243B2A-SG18 | 18:1 | 0.8 | 7.0 | 0.1° | 100 |
| PK243A1A-SG36 , PK243A2A-SG36 PK243B1A-SG36 , PK243B2A-SG36 | 36:1 | 0.8 | 7.0 | 0.05° | 50 |

* Holding torque is the same regardless of the connection type, due to the permissible torque limit of the gearhead.

Dimensions Unit = mm (in.)

| Model | Mass kg (lb.) | DXF |
|---|------------------|-------|
| PK243A <input type="checkbox"/> A-SG <input type="checkbox"/> | 0.35 (0.77) | B091U |
| PK243B <input type="checkbox"/> A-SG <input type="checkbox"/> | | |

- Enter the winding specification in the box () within the model name.
- Enter the gear ratio in the box () within the model name.
- Screws (Included)
- No.4-40 UNC Length 10 mm (0.39 in.)...4 pieces



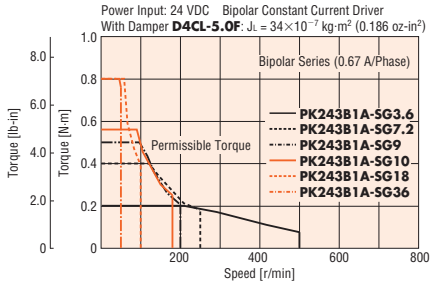
* The length of machining on the double shaft model is 15 ± 0.25 (0.591 ± 0.010).

● These dimensions are for the double shaft models. For the single shaft models, ignore the orange () area.

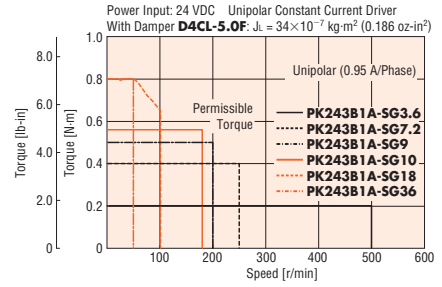
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

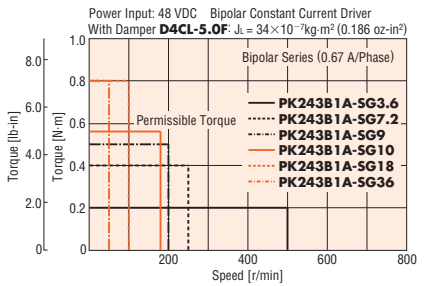
PK243B1A-SG Bipolar (Series) 24 VDC



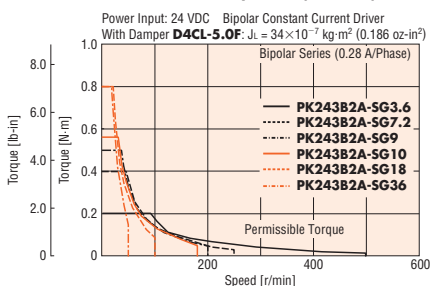
PK243B1A-SG Unipolar



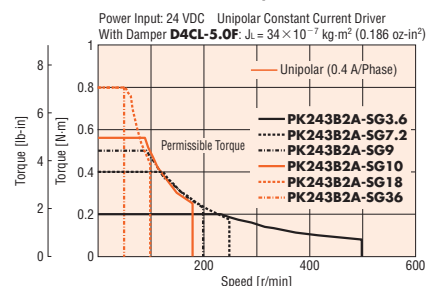
PK243B1A-SG Bipolar (Series) 48 VDC



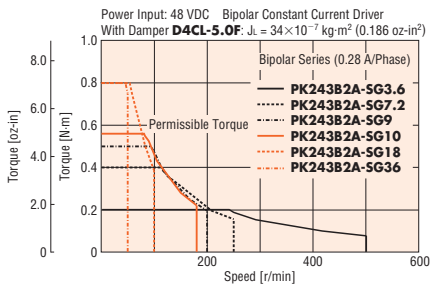
PK243B2A-SG Bipolar (Series) 24 VDC



PK243B2A-SG Unipolar



PK243B2A-SG Bipolar (Series) 48 VDC



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input

DC Input

5-Phase Microstep

2-Phase Full/Half

5-Phase Microstep

2-Phase Microstep

2-Phase Microstep

2-Phase PK/PV

2-Phase PK

EMP400

5G8030J

Accessories

Installation

50 mm (1.97 in.)

Step Angle 1.8°

PK Series Standard Type



Specifications RoHS

| Model Single Shaft Double Shaft | Connection Type | Holding Torque | | Rated Current A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|---------------------------------------|------------------|----------------|-------|--------------------------|----------------|-----------------------|------------------------|----------------------|--------------------|-------------------|---|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK256-02A PK256-02B | Bipolar (Series) | 0.84 | 119 | 1.4 | 4.2 | 3 | 5.6 | 230×10 ⁻⁷ | 1.26 | 6 | CMK256□P |
| | Unipolar | 0.6 | 85 | 2 | 3 | 1.5 | 1.4 | | | | |
| PK258-02A PK258-02B | Bipolar (Series) | 1.56 | 220 | 1.4 | 6.7 | 4.8 | 11.48 | 420×10 ⁻⁷ | 2.3 | 6 | CMK258□P |
| | Unipolar | 1.2 | 170 | 2 | 4.8 | 2.4 | 2.87 | | | | |

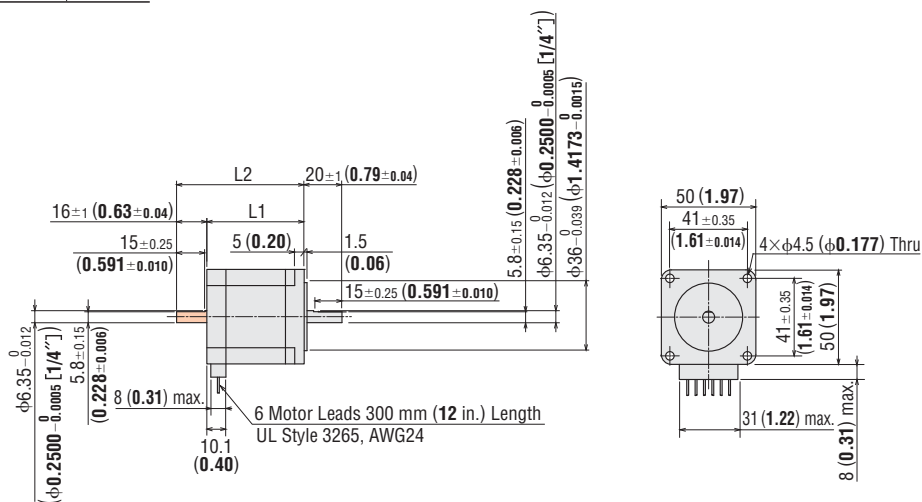
How to read specifications table → Page C-11

Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|------------------|-------------|-------------|------------------|------|
| PK256-02A | 51.5 (2.03) | — | 0.53 (1.17) | B333 |
| PK256-02B | | 67.5 (2.66) | | |
| PK258-02A | 81 (3.19) | — | 0.89 (1.96) | B334 |
| PK258-02B | | 97 (3.82) | | |

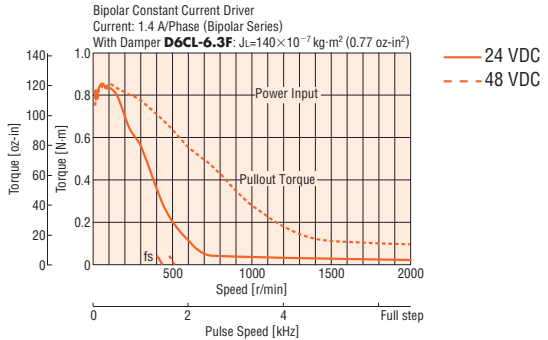


● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

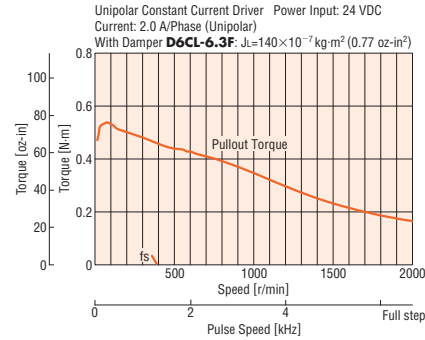
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

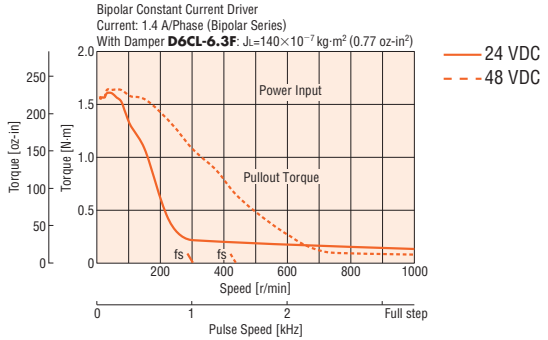
PK256-02B Bipolar (Series)



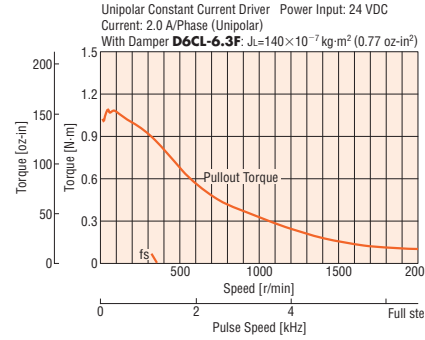
PK256-02B Unipolar



PK258-02B Bipolar (Series)



PK258-02B Unipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input *QSTEP AS*

DC Input *QSTEP ASG*

5-Phase Microstep *RK* AC Input

2-Phase Full/Half *UMK*

5-Phase Microstep *CMK*

2-Phase Microstep *RBK* DC Input

2-Phase Microstep *CMK*

2-Phase PK/PV Without Encoder

2-Phase PK With Encoder

EMP400 Controllers

SG8030J

Accessories

Installation

□ 56.4 mm (□ 2.22 in.)

Step Angle 1.8°

PK Series Standard Type



Specifications (RoHS)

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|--|--|----------------------|-------------------|-----------------|--------------------|---------------------|--------------------|----------------------|--------------------|------------|--|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK264-0□A PK264-0□B | Bipolar (Series) Unipolar | 0.48 0.39 | 68 55 | 0.71 1 | 8.1 5.7 | 11.4 5.7 | 21.6 5.4 | 120×10 ⁻⁷ | 0.66 | 6 | - |
| PK264-02A PK264-02B | Bipolar (Series) Unipolar | 0.48 0.39 | 68 55 | 1.4 2 | 3.9 2.8 | 2.8 1.4 | 5.6 1.4 | | | | |
| PK264-03A PK264-03B | Bipolar (Series) Unipolar | 0.48 0.39 | 68 55 | 2.1 3 | 2.6 1.9 | 1.26 0.63 | 2.4 0.6 | 120×10 ⁻⁷ | 0.66 | 6 | - |
| PK264-E2.0A PK264-E2.0B | Bipolar (Parallel) Bipolar (Series) Unipolar | 0.48 0.48 0.39 | 68 68 55 | 2.8 1.4 2 | 1.96 3.9 2.8 | 0.7 2.8 1.4 | 1.4 5.6 1.4 | | | | |
| PK266-01A PK266-01B | Bipolar (Series) Unipolar | 1.17 0.9 | 166 127 | 0.71 1 | 11 7.4 | 14.8 7.4 | 40 10 | 300×10 ⁻⁷ | 1.64 | 6 | - |
| PK266-02A PK266-02B | Bipolar (Series) Unipolar | 1.17 0.9 | 166 127 | 1.4 2 | 5 3.6 | 3.6 1.8 | 10 2.5 | | | | |
| PK266-03A PK266-03B | Bipolar (Series) Unipolar | 1.17 0.9 | 166 127 | 2.1 3 | 3.2 2.3 | 1.5 0.75 | 4.4 1.1 | 300×10 ⁻⁷ | 1.64 | 6 | - |
| PK266-E2.0A PK266-E2.0B | Bipolar (Parallel) Bipolar (Series) Unipolar | 1.17 1.17 0.9 | 166 166 127 | 2.8 1.4 2 | 2.52 5 3.6 | 0.9 3.6 1.8 | 2.5 10 2.5 | | | | |
| PK268-01A PK268-01B | Bipolar (Series) Unipolar | 1.75 1.35 | 240 191 | 0.71 1 | 12 8.6 | 17.2 8.6 | 56 14 | 480×10 ⁻⁷ | 2.6 | 6 | - |
| PK268-02A PK268-02B | Bipolar (Series) Unipolar | 1.75 1.35 | 240 191 | 1.4 2 | 6.3 4.5 | 4.5 2.25 | 14.4 3.6 | | | | |
| PK268-03A PK268-03B | Bipolar (Series) Unipolar | 1.75 1.35 | 240 191 | 2.1 3 | 4.2 3 | 2 1 | 6.4 1.6 | 480×10 ⁻⁷ | 2.6 | 6 | - |
| PK268-E2.0A PK268-E2.0B | Bipolar (Parallel) Bipolar (Series) Unipolar | 1.75 1.75 1.35 | 240 240 191 | 2.8 1.4 2 | 3.16 6.3 4.5 | 1.13 4.5 2.25 | 3.6 14.4 3.6 | | | | |

How to read specifications table → Page C-11

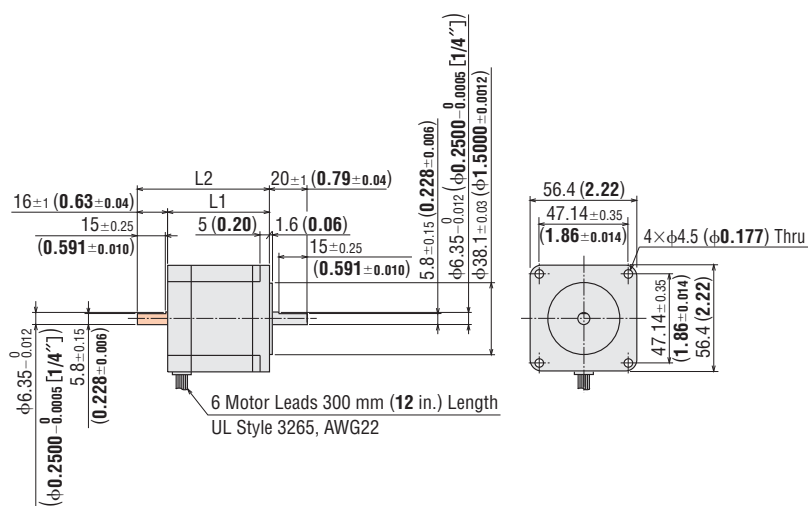
Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|--|-----------|-----------|------------------|------|
| PK264-0□A PK264-E2.0A | 39 (1.54) | - | 0.45 (0.99) | B084 |
| PK264-0□B PK264-E2.0B | | 55 (2.17) | | |
| PK266-0□A PK266-E2.0A | 54 (2.13) | - | 0.7 (1.54) | B085 |
| PK266-0□B PK266-E2.0B | | 70 (2.76) | | |
| PK268-0□A PK268-E2.0A | 76 (2.99) | - | 1 (2.2) | B086 |
| PK268-0□B PK268-E2.0B | | 92 (3.62) | | |

● Enter the winding specification in the box (□) within the model name.

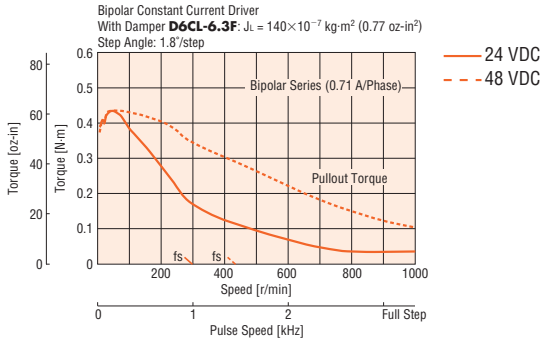


● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

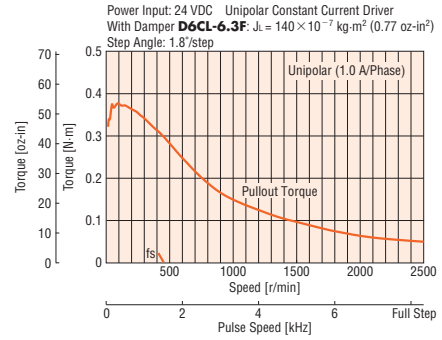
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

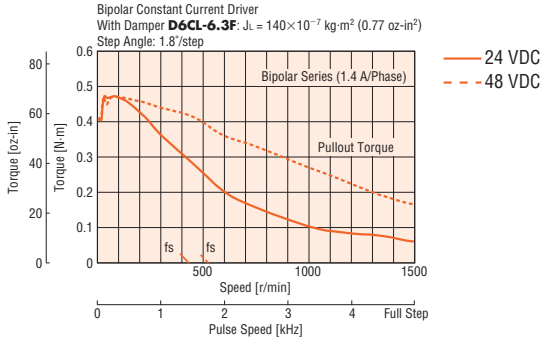
PK264-01B Bipolar (Series)



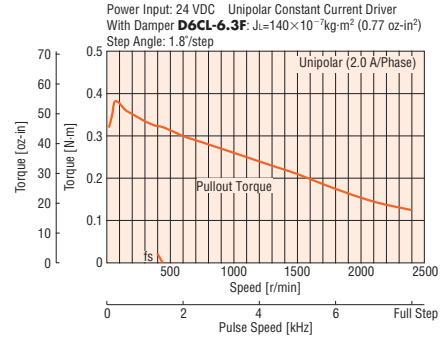
PK264-01B Unipolar



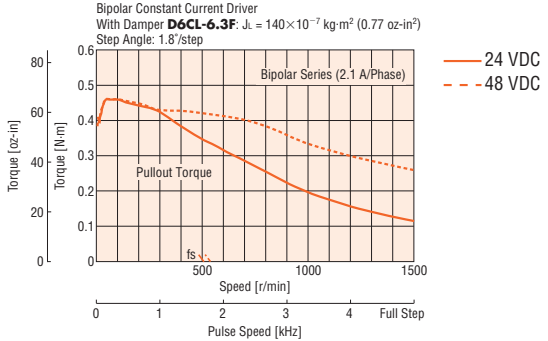
PK264-02B Bipolar (Series)



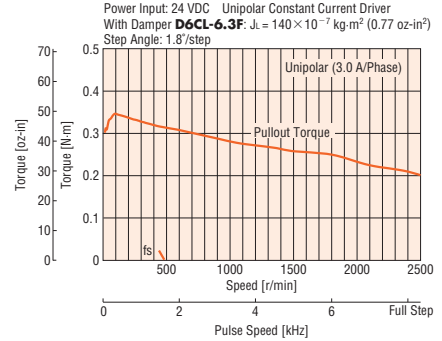
PK264-02B Unipolar



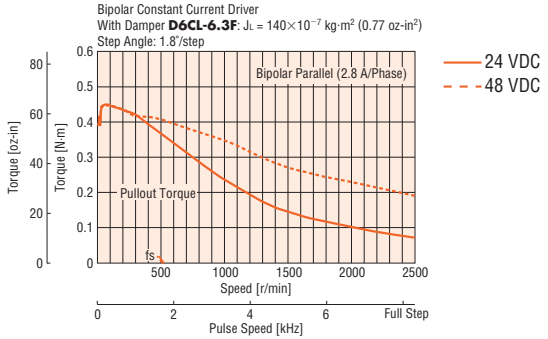
PK264-03B Bipolar (Series)



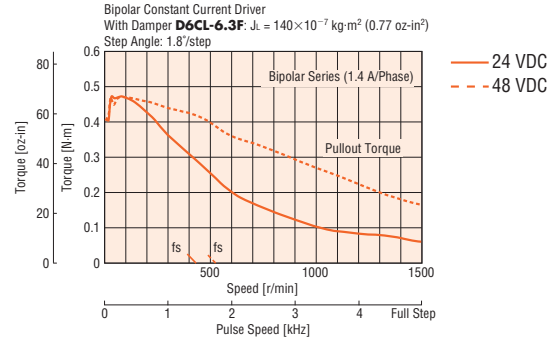
PK264-03B Unipolar



PK264-E2.0B Bipolar (Parallel)



PK264-E2.0B Bipolar (Series)



Note:

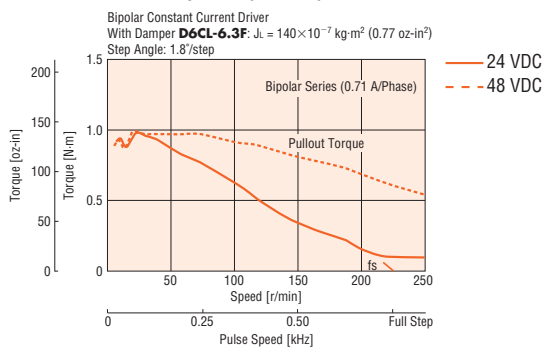
- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

| |
|-------------------|
| Introduction |
| AC Input |
| DC Input |
| 5-Phase Microstep |
| 2-Phase Full/Half |
| 5-Phase Microstep |
| 2-Phase Microstep |
| 2-Phase Microstep |
| 2-Phase PV/PV |
| 2-Phase PK |
| EMP400 |
| SG8030J |
| Accessories |
| Installation |

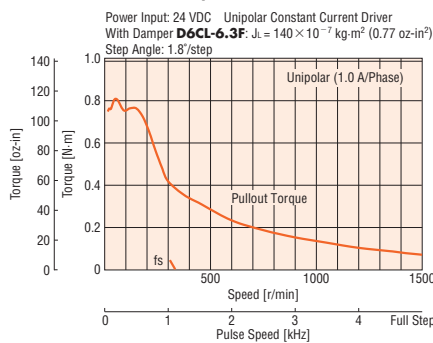
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

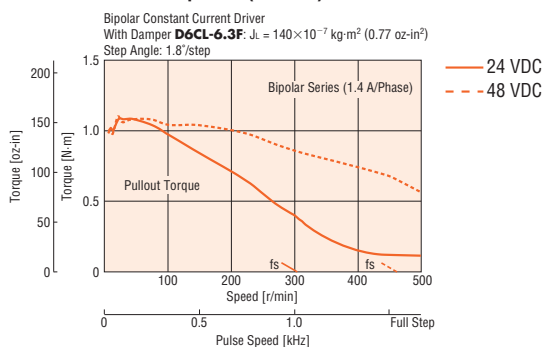
PK266-01B Bipolar (Series)



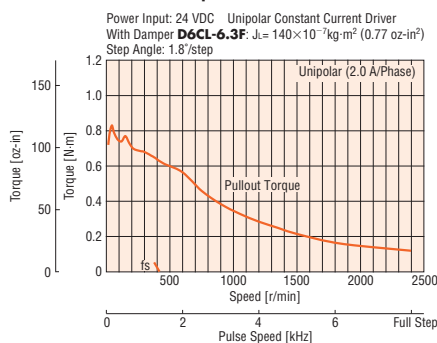
PK266-01B Unipolar



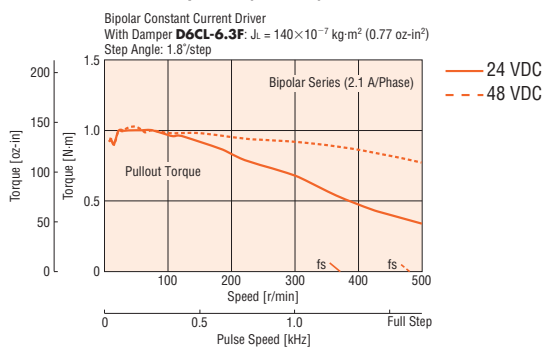
PK266-02B Bipolar (Series)



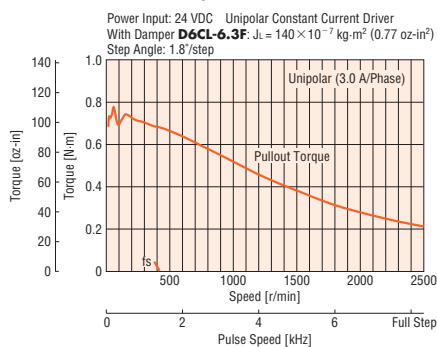
PK266-02B Unipolar



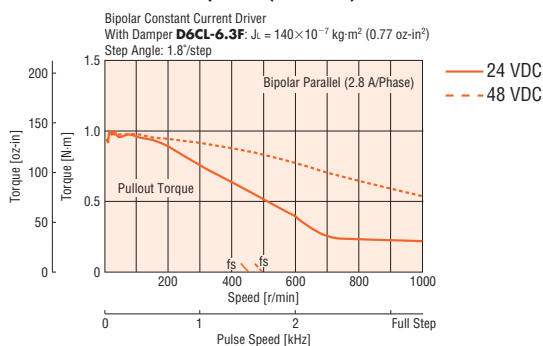
PK266-03B Bipolar (Series)



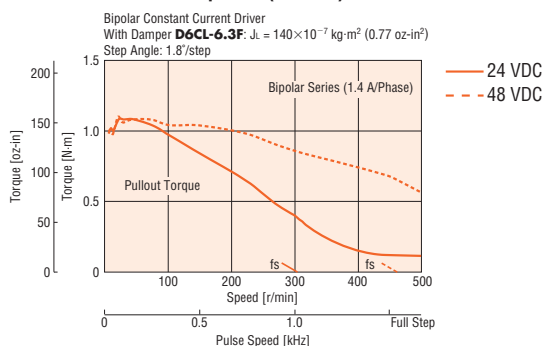
PK266-03B Unipolar



PK266-E2.0B Bipolar (Parallel)



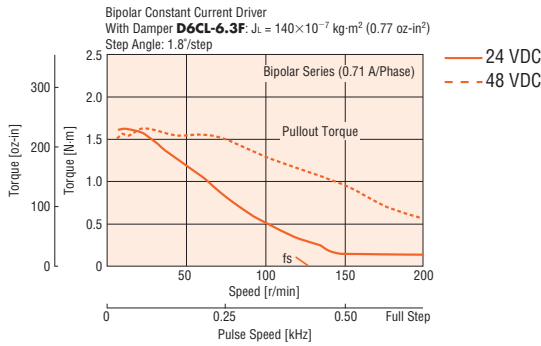
PK266-E2.0B Bipolar (Series)



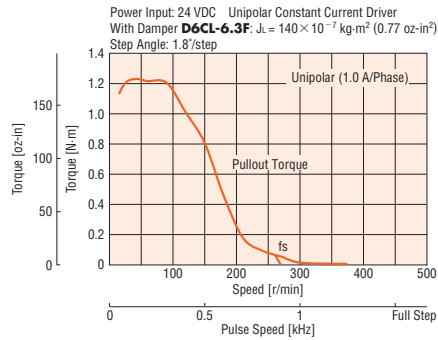
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

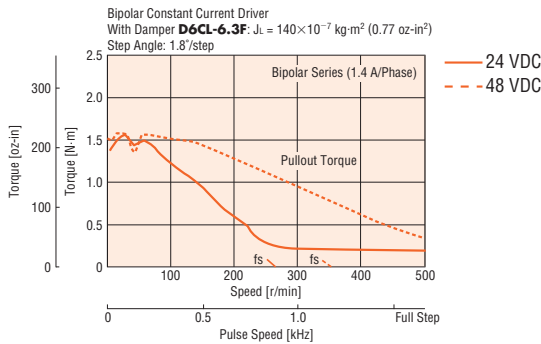
PK268-01B Bipolar (Series)



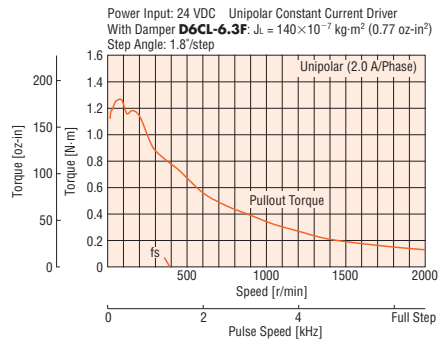
PK268-01B Unipolar



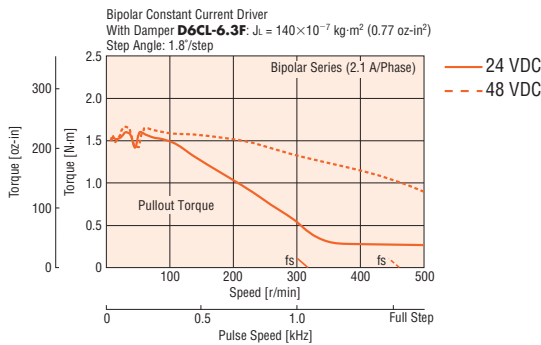
PK268-02B Bipolar (Series)



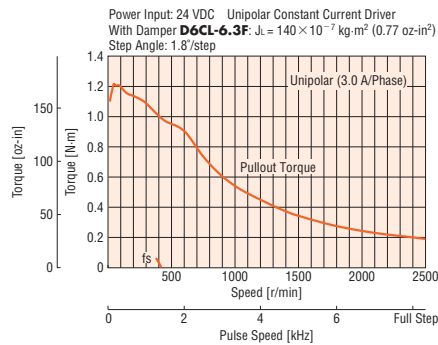
PK268-02B Unipolar



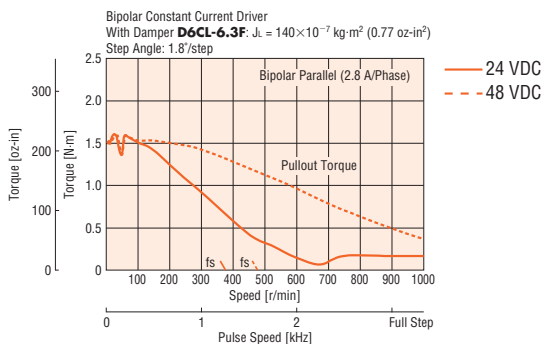
PK268-03B Bipolar (Series)



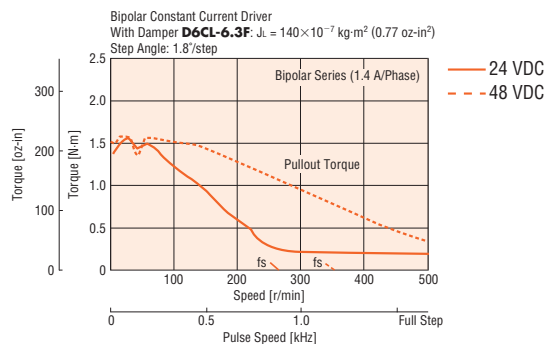
PK268-03B Unipolar



PK268-E2.0B Bipolar (Parallel)



PK268-E2.0B Bipolar (Series)



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

□ 56.4 mm (□ 2.22 in.)

Step Angle 1.8°

PK Series Standard Type Terminal Box



Specifications RoHS



| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Terminals) |
|-----------------|-----------------|----------------|-------|---------------|---------|------------|------------|----------------------|--------------------|------------------------|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| Single Shaft | | | | A/phase | VDC | Ω/phase | mH/phase | | | |
| PK264DAT | Bipolar | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.4 | 120×10 ⁻⁷ | 0.66 | 4 |
| PK266DAT | Bipolar | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 2.5 | 300×10 ⁻⁷ | 1.64 | 4 |
| PK268DAT | Bipolar | 1.75 | 240 | 2.8 | 3.16 | 1.13 | 3.6 | 480×10 ⁻⁷ | 2.6 | 4 |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

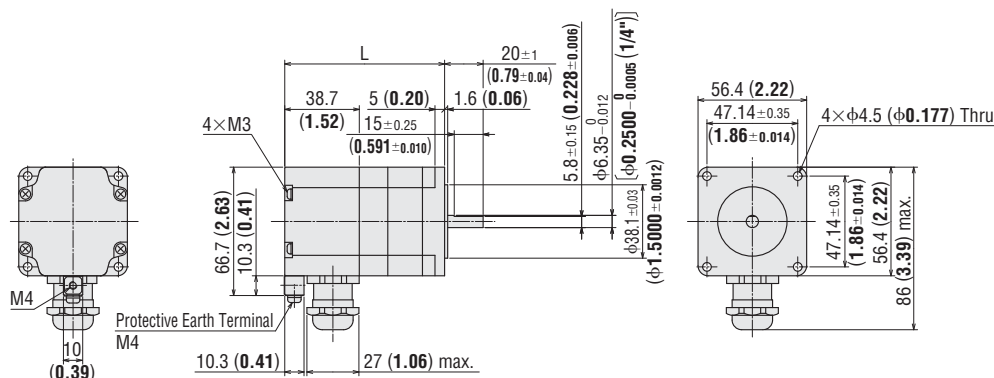
List of safety standard approved products (model, standards, file no., certification body) → Page G-11

● Degree of protection: IP65*

* Excluding the gap between the shaft and the flange.

Dimensions Unit = mm (in.)

| Model | L | Mass kg (lb.) | DXF |
|-----------------|------------|------------------|------|
| PK264DAT | 83 (3.27) | 0.6 (1.32) | B376 |
| PK266DAT | 98 (3.86) | 0.9 (1.98) | B377 |
| PK268DAT | 120 (4.72) | 1.2 (2.6) | B378 |

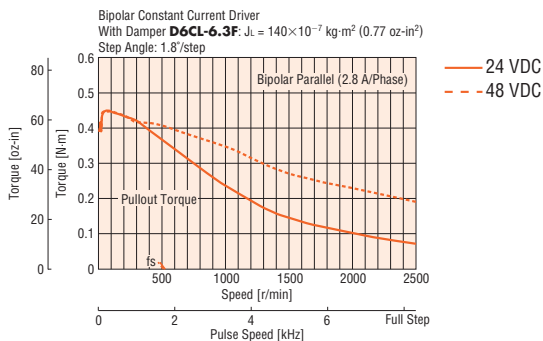


● Use cable (VCT) with a diameter of $\phi 7 \sim \phi 13$ mm ($\phi 0.28 \sim \phi 0.51$ in.). A motor cable is available as an accessory (sold separately). → Page C-298

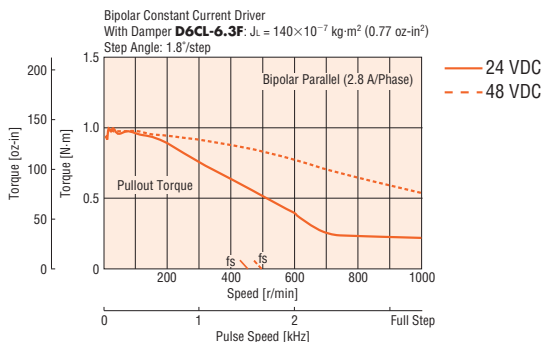
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

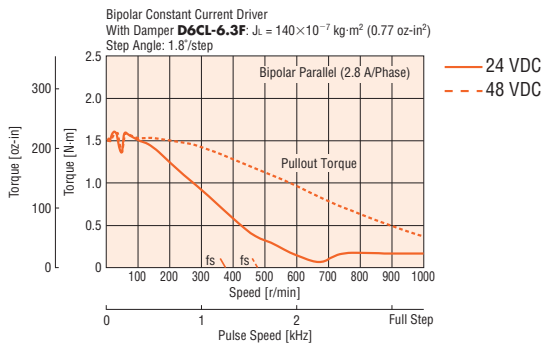
PK264DAT Bipolar



PK266DAT Bipolar



PK268DAT Bipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input

DC Input

5-Phase Microstep

AC Input

2-Phase Full/Half

5-Phase Microstep

DC Input

2-Phase Microstep

2-Phase Microstep

Without Encoder

2-Phase PK

With Encoder

EMP400

5G8030J

Accessories

Installation

56.4 mm (2.22 in.)

Step Angle 0.9°

PK Series High-Resolution Type



Specifications RoHS

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|---------------------|--------------------|----------------|-------|---------------|---------|------------|------------|----------------------|--------------------|------------|--|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK264M-01A | Bipolar (Series) | 0.48 | 68 | 0.71 | 8.1 | 11.4 | 26 | 120×10 ⁻⁷ | 0.66 | 6 | - |
| PK264M-01B | Unipolar | 0.39 | 55 | 1 | 5.7 | 5.7 | 6.5 | | | | |
| PK264M-02A | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | 120×10 ⁻⁷ | 0.66 | 6 | UMK264M□A/CMK264M□P |
| PK264M-02B | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.7 | | | | |
| PK264M-03A | Bipolar (Series) | 0.48 | 68 | 2.1 | 2.6 | 1.26 | 3 | 120×10 ⁻⁷ | 0.66 | 6 | - |
| PK264M-03B | Unipolar | 0.39 | 55 | 3 | 1.9 | 0.63 | 0.75 | | | | |
| PK264M-E2.0A | Bipolar (Parallel) | 0.48 | 68 | 2.8 | 1.96 | 0.7 | 1.7 | 120×10 ⁻⁷ | 0.66 | 8 | - |
| PK264M-E2.0B | Bipolar (Series) | 0.48 | 68 | 1.4 | 3.9 | 2.8 | 6.8 | | | | |
| | Unipolar | 0.39 | 55 | 2 | 2.8 | 1.4 | 1.7 | | | | |
| PK266M-01A | Bipolar (Series) | 1.17 | 166 | 0.71 | 11 | 14.8 | 50.8 | 300×10 ⁻⁷ | 1.64 | 6 | - |
| PK266M-01B | Unipolar | 0.9 | 127 | 1 | 7.4 | 7.4 | 12.7 | | | | |
| PK266M-02A | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | 300×10 ⁻⁷ | 1.64 | 6 | UMK266M□A/CMK266M□P |
| PK266M-02B | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 3.2 | | | | |
| PK266M-03A | Bipolar (Series) | 1.17 | 166 | 2.1 | 3.2 | 1.5 | 5.8 | 300×10 ⁻⁷ | 1.64 | 6 | - |
| PK266M-03B | Unipolar | 0.9 | 127 | 3 | 2.3 | 0.75 | 1.45 | | | | |
| PK266M-E2.0A | Bipolar (Parallel) | 1.17 | 166 | 2.8 | 2.52 | 0.9 | 3.2 | 300×10 ⁻⁷ | 1.64 | 8 | - |
| PK266M-E2.0B | Bipolar (Series) | 1.17 | 166 | 1.4 | 5 | 3.6 | 12.8 | | | | |
| | Unipolar | 0.9 | 127 | 2 | 3.6 | 1.8 | 3.2 | | | | |
| PK268M-01A | Bipolar (Series) | 1.75 | 240 | 0.71 | 12 | 17.2 | 77.6 | 480×10 ⁻⁷ | 2.6 | 6 | - |
| PK268M-01B | Unipolar | 1.35 | 191 | 1 | 8.6 | 8.6 | 19.4 | | | | |
| PK268M-02A | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 19.2 | 480×10 ⁻⁷ | 2.6 | 6 | UMK268M□A/CMK268M□P |
| PK268M-02B | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 4.8 | | | | |
| PK268M-03A | Bipolar (Series) | 1.75 | 240 | 2.1 | 4.2 | 2 | 8.4 | 480×10 ⁻⁷ | 2.6 | 6 | - |
| PK268M-03B | Unipolar | 1.35 | 191 | 3 | 3 | 1 | 2.1 | | | | |
| PK268M-E2.0A | Bipolar (Parallel) | 1.75 | 240 | 2.8 | 3.16 | 1.13 | 4.8 | 480×10 ⁻⁷ | 2.6 | 8 | - |
| PK268M-E2.0B | Bipolar (Series) | 1.75 | 240 | 1.4 | 6.3 | 4.5 | 19.2 | | | | |
| | Unipolar | 1.35 | 191 | 2 | 4.5 | 2.25 | 4.8 | | | | |

How to read specifications table → Page C-11

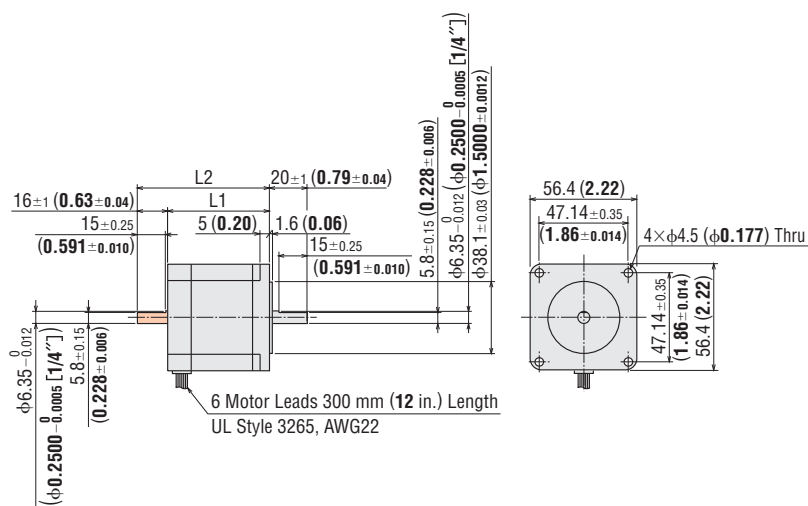
Wirings and connections → Page C-211

● Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|--|-----------|-----------|---------------|------|
| PK264M-0□A PK264M-E2.0A | 39 (1.54) | - | 0.45 (0.99) | B084 |
| PK264M-0□B PK264M-E2.0B | | 55 (2.17) | | |
| PK266M-0□A PK266M-E2.0A | 54 (2.13) | - | 0.7 (1.54) | B085 |
| PK266M-0□B PK266M-E2.0B | | 70 (2.76) | | |
| PK268M-0□A PK268M-E2.0A | 76 (2.99) | - | 1 (2.2) | B086 |
| PK268M-0□B PK268M-E2.0B | | 92 (3.62) | | |

● Enter the winding specification in the box (□) within the model name.

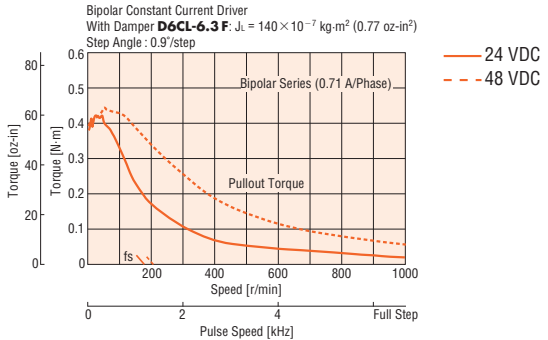


● These dimensions are for the double shaft models. For the single shaft models, ignore the orange (■) area.

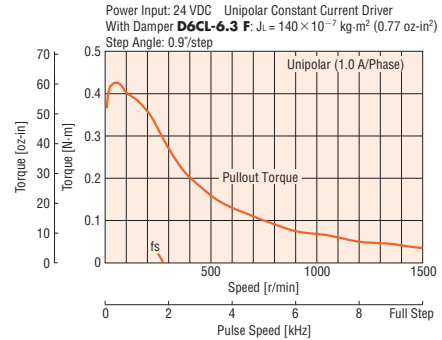
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

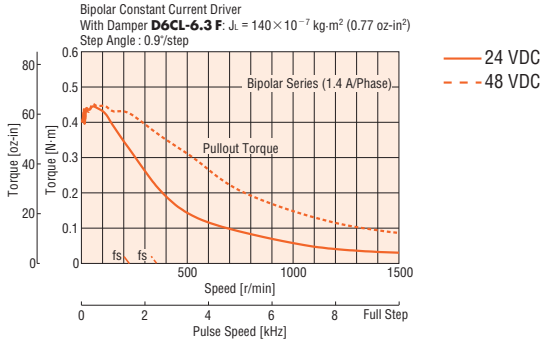
PK264M-01B Bipolar (Series)



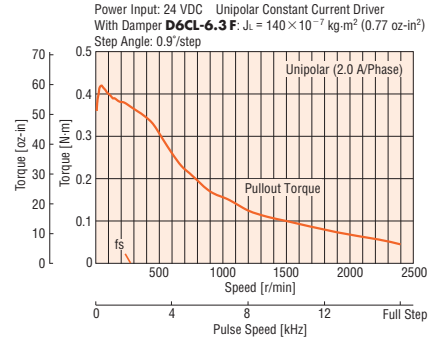
PK264M-01B Unipolar



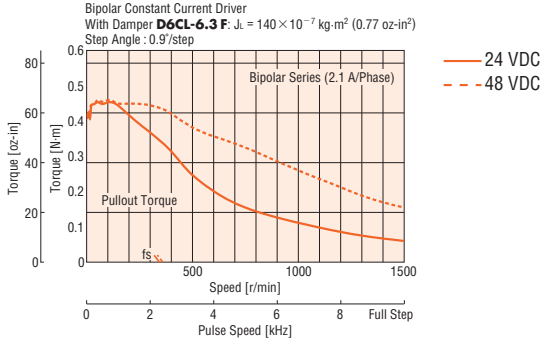
PK264M-02B Bipolar (Series)



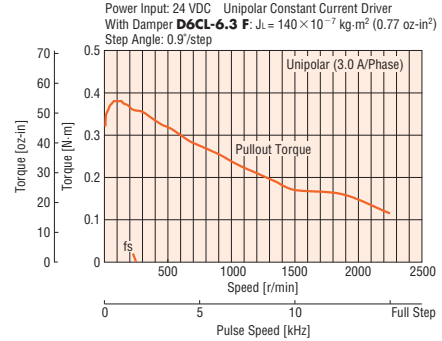
PK264M-02B Unipolar



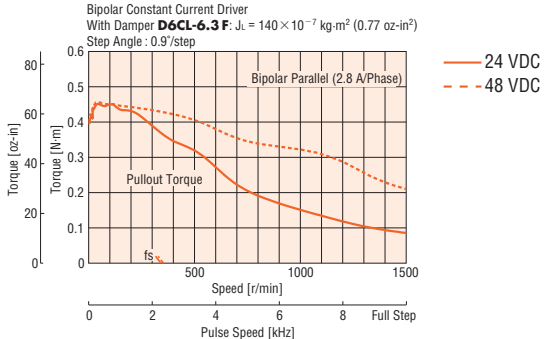
PK264M-03B Bipolar (Series)



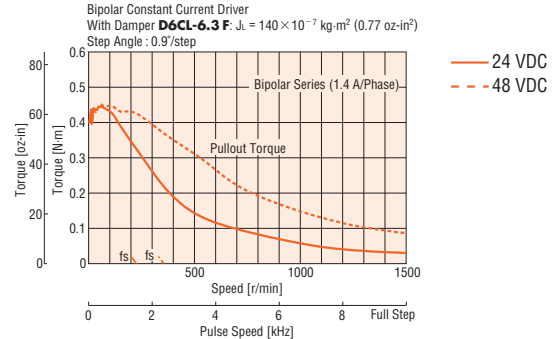
PK264M-03B Unipolar



PK264M-E2.0B Bipolar (Parallel)



PK264M-E2.0B Bipolar (Series)



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input

DC Input

5-Phase Microstep

2-Phase Full/Half

5-Phase Microstep

2-Phase Microstep

2-Phase Microstep

2-Phase PK/PV

2-Phase PK

EMP400

5G8030J

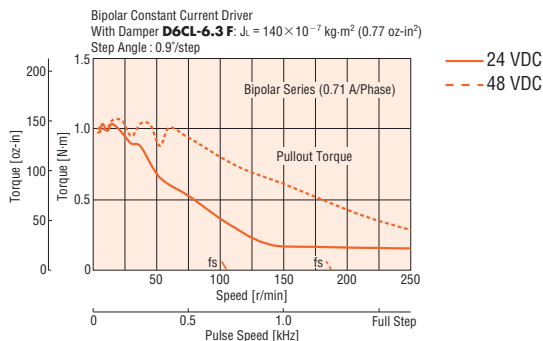
Accessories

Installation

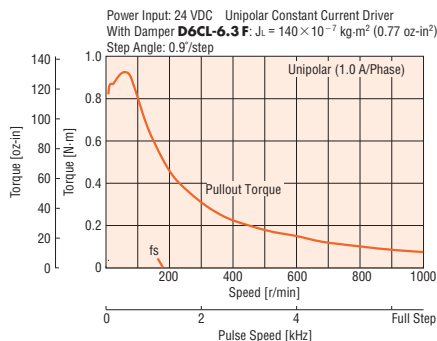
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

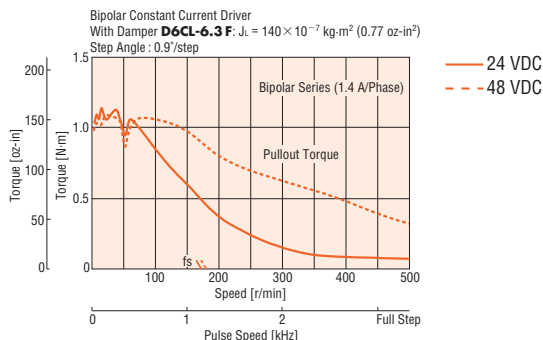
PK266M-01B Bipolar (Series)



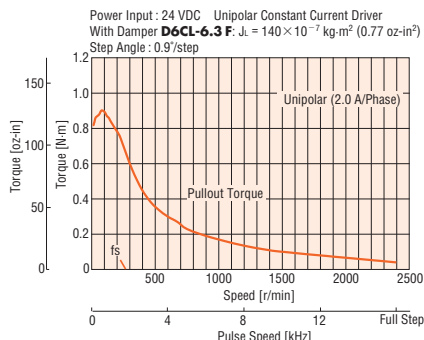
PK266M-01B Unipolar



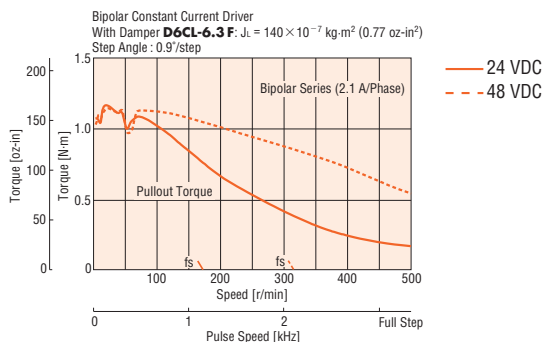
PK266M-02B Bipolar (Series)



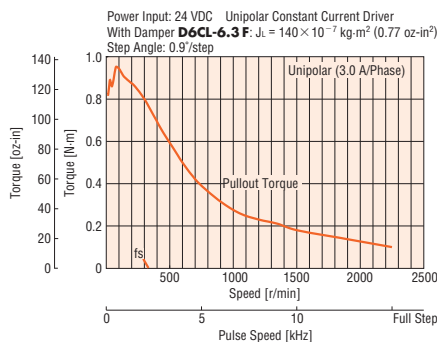
PK266M-02B Unipolar



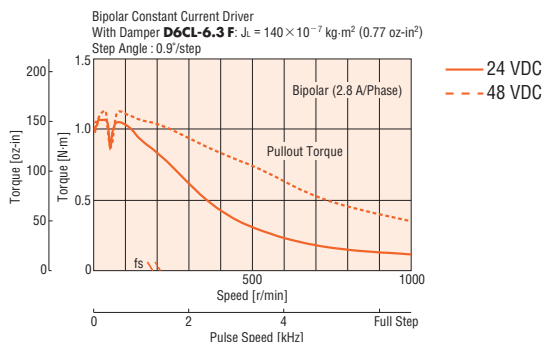
PK266M-03B Bipolar (Series)



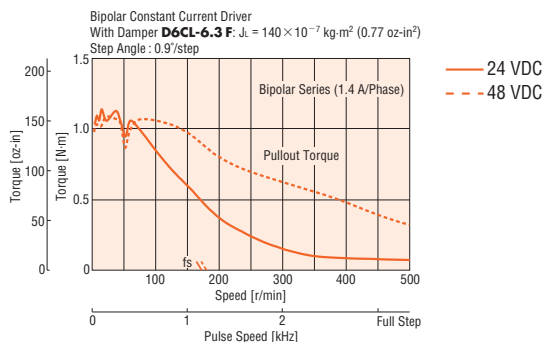
PK266M-03B Unipolar



PK266M-E2.0B Bipolar (Parallel)



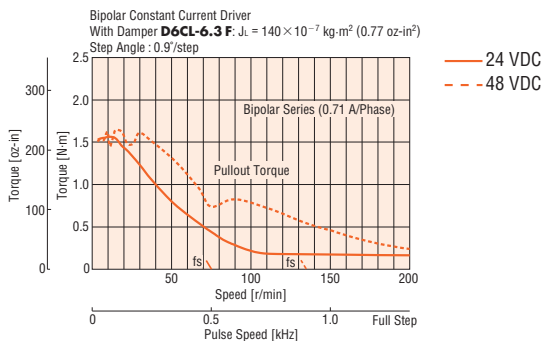
PK266M-E2.0B Bipolar (Series)



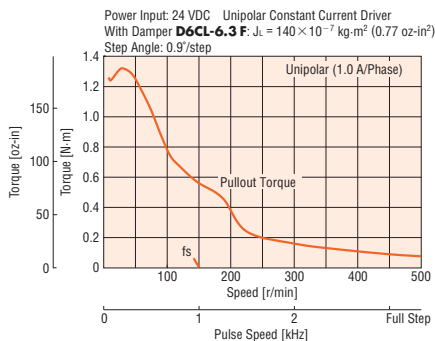
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

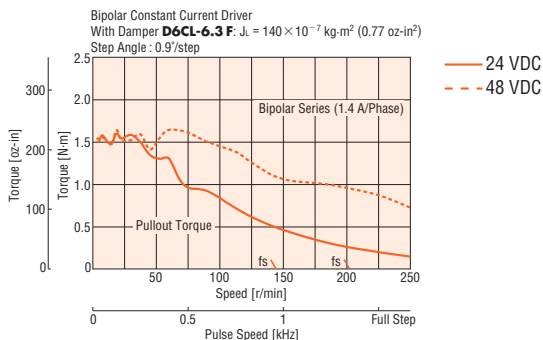
PK268M-01B Bipolar (Series)



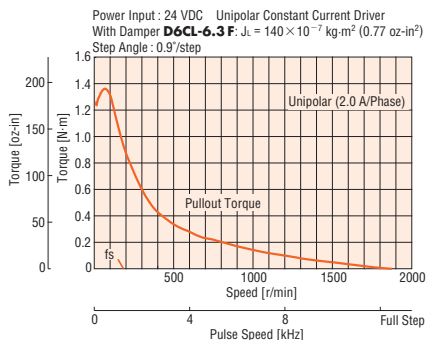
PK268M-01B Unipolar



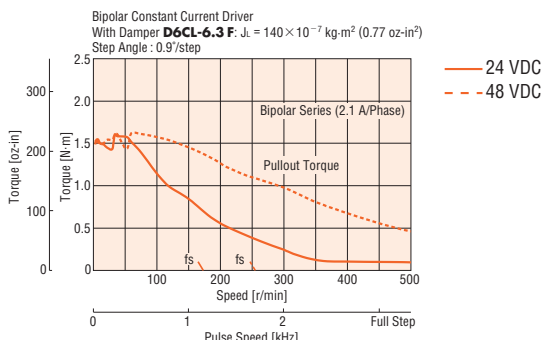
PK268M-02B Bipolar (Series)



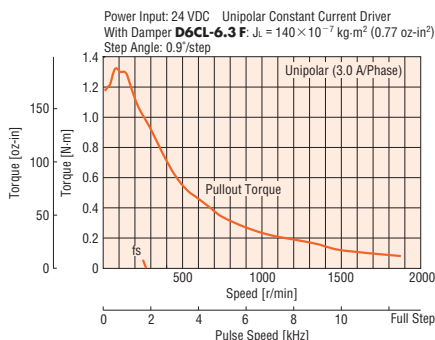
PK268M-02B Unipolar



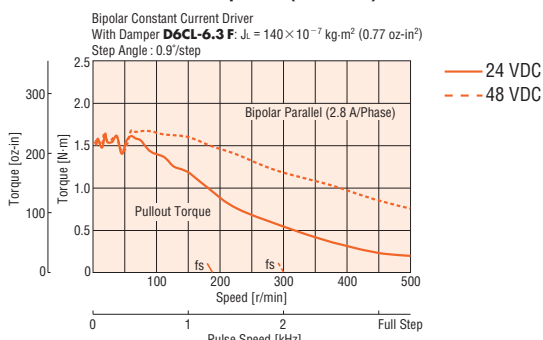
PK268M-03B Bipolar (Series)



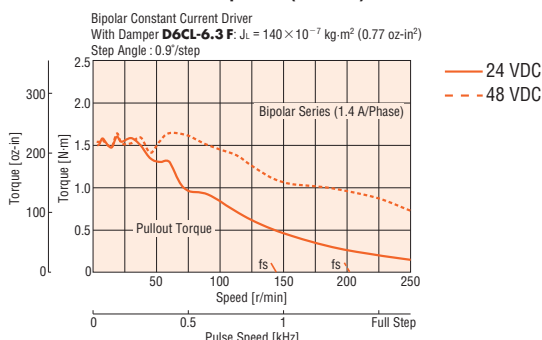
PK268M-03B Unipolar



PK268M-E2.0B Bipolar (Parallel)



PK268M-E2.0B Bipolar (Series)



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

60 mm (2.36 in.)

PK Series SH Geared Type



Specifications (RoHS)

Motor Specifications

| Model Single Shaft Double Shaft | Connection Type | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Pins) | Corresponding DC-Input Motor & Driver Package |
|---|--------------------|------------------|---------|-----------------|------------|----------------------|--------------------|-------------------------|--|
| | | A/phase | VDC | Ω /phase | mH/phase | kg-m ² | oz-in ² | | |
| PK264A1A-SG <input type="checkbox"/> PK264B1A-SG <input type="checkbox"/> | Bipolar (Series) | 0.71 | 8.1 | 11.4 | 21.6 | 120×10^{-7} | 0.66 | 6 | - |
| | Unipolar | 1 | 5.7 | 5.7 | 5.4 | | | | |
| PK264A2A-SG <input type="checkbox"/> PK264B2A-SG <input type="checkbox"/> | Bipolar (Series) | 1.4 | 3.9 | 2.8 | 5.6 | 120×10^{-7} | 0.66 | 6 | CMK264 <input type="checkbox"/> PA-SG <input type="checkbox"/> |
| | Unipolar | 2 | 2.8 | 1.4 | 1.4 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

- Enter **A** (single shaft) or **B** (double shaft) in the box () within the model name.
- Enter the gear ratio in the box () within the model name.

Gearmotor Specifications

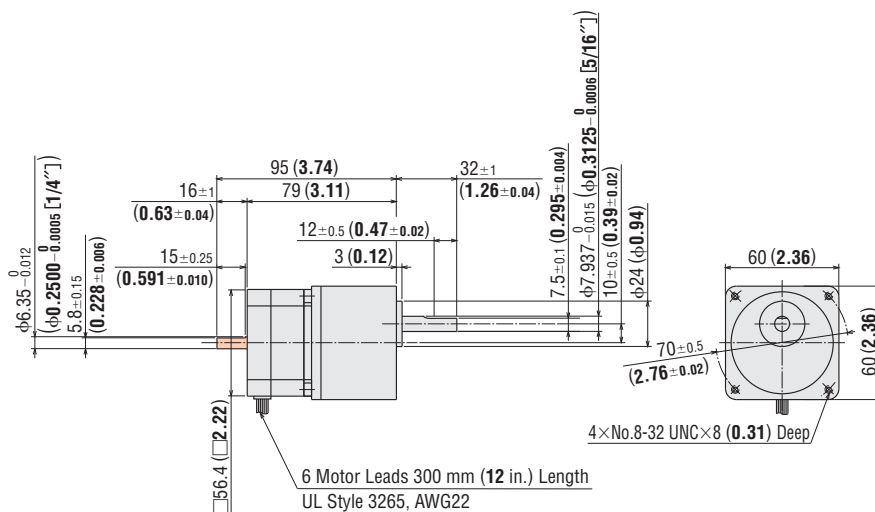
| Model Single Shaft Double Shaft | Gear Ratio | Holding Torque* | | Step Angle | Permissible Speed r/min |
|--|------------|-----------------|-------|------------|-------------------------------|
| | | N-m | lb-in | | |
| PK264A1A-SG3.6 , PK264A2A-SG3.6 PK264B1A-SG3.6 , PK264B2A-SG3.6 | 3.6:1 | 1 | 8.8 | 0.5° | 500 |
| PK264A1A-SG7.2 , PK264A2A-SG7.2 PK264B1A-SG7.2 , PK264B2A-SG7.2 | 7.2:1 | 2 | 17.7 | 0.25° | 250 |
| PK264A1A-SG9 , PK264A2A-SG9 PK264B1A-SG9 , PK264B2A-SG9 | 9:1 | 2.5 | 22 | 0.2° | 200 |
| PK264A1A-SG10 , PK264A2A-SG10 PK264B1A-SG10 , PK264B2A-SG10 | 10:1 | 2.7 | 23 | 0.18° | 180 |
| PK264A1A-SG18 , PK264A2A-SG18 PK264B1A-SG18 , PK264B2A-SG18 | 18:1 | 3 | 26 | 0.1° | 100 |
| PK264A1A-SG36 , PK264A2A-SG36 PK264B1A-SG36 , PK264B2A-SG36 | 36:1 | 4 | 35 | 0.05° | 50 |

* Holding torque is the same regardless of the connection type, due to the permissible torque limit of the gearhead.

Dimensions Unit = mm (in.)

| Model | Mass kg (lb.) | DXF |
|---|------------------|-------|
| PK264A <input type="checkbox"/> A-SG <input type="checkbox"/> | 0.75 (1.7) | B092U |
| PK264B <input type="checkbox"/> A-SG <input type="checkbox"/> | | |

- Enter the winding specification in the box () within the model name.
- Enter the gear ratio in the box () within the model name.
- Screws (Included)
No. 8-32 UNC Length 15.8 mm (0.62 in.) ··· 4 pieces

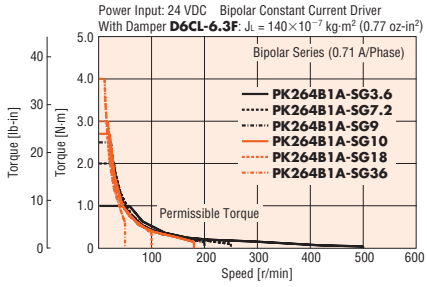


- These dimensions are for the double shaft models. For the single shaft models, ignore the orange () area.

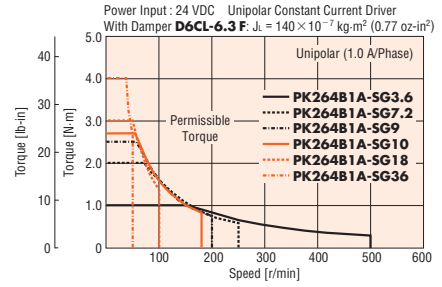
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

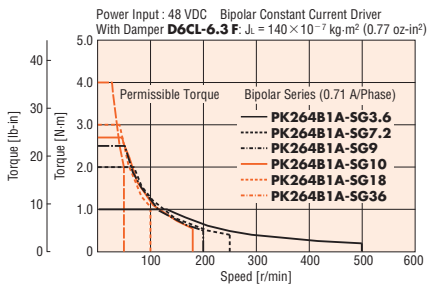
PK264B1A-SG Bipolar (Series) 24 VDC



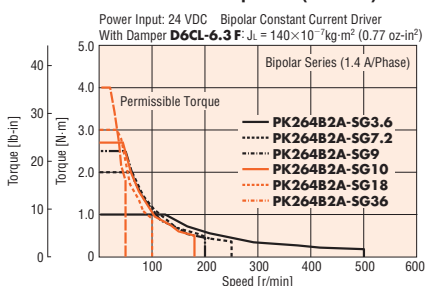
PK264B1A-SG Unipolar



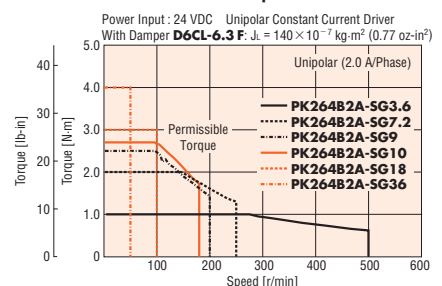
PK264B1A-SG Bipolar (Series) 48 VDC



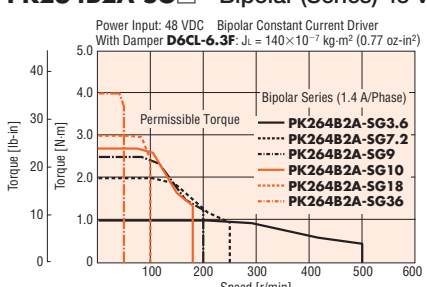
PK264B2A-SG Bipolar (Series) 24 VDC



PK264B2A-SG Unipolar



PK264B2A-SG Bipolar (Series) 48 VDC



Note:

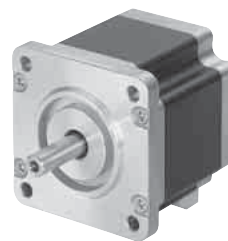
- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

| |
|-------------------|
| Introduction |
| AC Input |
| DC Input |
| 5-Phase Microstep |
| 2-Phase Full/Half |
| 5-Phase Microstep |
| 2-Phase Microstep |
| 2-Phase Microstep |
| 2-Phase PK/PV |
| 2-Phase PK |
| EMP400 |
| SG8030J |
| Accessories |
| Installation |

60 mm (2.36 in.)

Step Angle 1.8°

PV Series (High inertia capability)



Specifications (RoHS)

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires |
|--|------------------------------|----------------|------------|---------------|------------|--------------|--------------|----------------------|--------------------|------------|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| PV264-D2.8AA PV264-D2.8BA | Bipolar | 1.06 | 150 | 2.8 | 2.1 | 0.73 | 1.8 | 280×10 ⁻⁷ | 1.53 | 4 |
| | Bipolar (Series) Unipolar | 1.06 0.75 | 150 106 | 1.4 2 | 4.1 2.9 | 2.92 1.46 | 7.2 1.8 | 280×10 ⁻⁷ | 1.53 | 6 |
| PV266-D2.8AA PV266-D2.8BA | Bipolar | 1.75 | 240 | 2.8 | 2.8 | 1 | 3.05 | 450×10 ⁻⁷ | 2.5 | 4 |
| | Bipolar (Series) Unipolar | 1.75 1.35 | 240 191 | 1.4 2 | 5.6 4 | 4 2 | 12.2 3.05 | 450×10 ⁻⁷ | 2.5 | 6 |
| PV267-D2.8AA PV267-D2.8BA | Bipolar | 2.2 | 310 | 2.8 | 3.4 | 1.2 | 3.54 | 570×10 ⁻⁷ | 3.1 | 4 |
| | Bipolar (Series) Unipolar | 2.2 1.7 | 310 240 | 1.4 2 | 6.7 4.8 | 4.8 2.4 | 14.2 3.54 | 570×10 ⁻⁷ | 3.1 | 6 |
| PV269-D2.8AA PV269-D2.8BA | Bipolar | 3.1 | 440 | 2.8 | 4.2 | 1.49 | 5.7 | 900×10 ⁻⁷ | 4.9 | 4 |
| | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 1.4 2 | 8.3 6 | 5.96 2.98 | 22.8 5.7 | 900×10 ⁻⁷ | 4.9 | 6 |

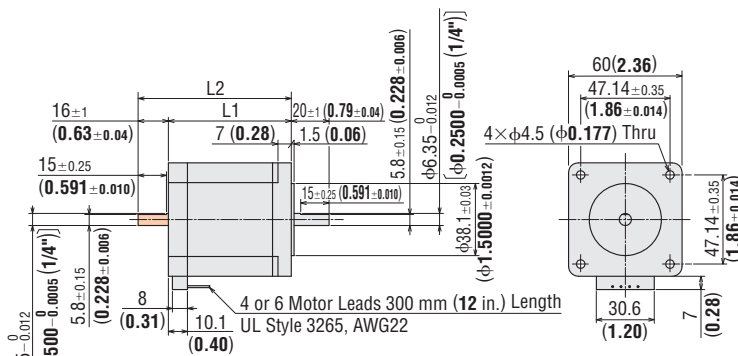
How to read specifications table → Page C-11

Wirings and connections → Page C-211

Dimensions Unit = mm (in.)

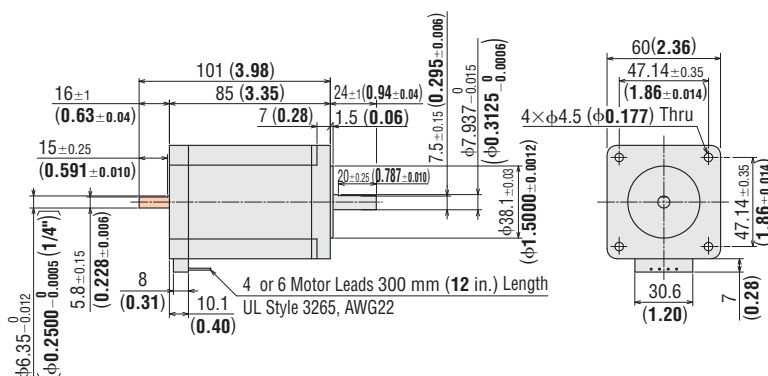
● PV264, PV266, PV267

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|--|-------------|-------------|---------------|-------|
| PV264-D2.8AA PV264-D2.8BA | 43.5 (1.71) | - | 0.6 (1.3) | B279U |
| PV266-D2.8AA PV266-D2.8BA | | 59.5 (2.34) | | |
| PV267-D2.8AA PV267-D2.8BA | 65 (2.56) | - | 1.02 (2.2) | B813U |
| PV266-D2.8AA PV266-D2.8BA | 70 (2.76) | | | |



● PV269

| Model | Mass kg (lb.) | DXF |
|--|---------------|-------|
| PV269-D2.8AA PV269-D2.8BA | 1.43 (3.1) | B814U |

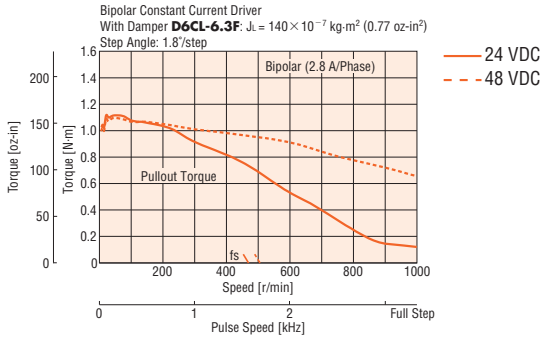


● These dimensions are for the double shaft models. For the single shaft models, ignore the orange () areas.

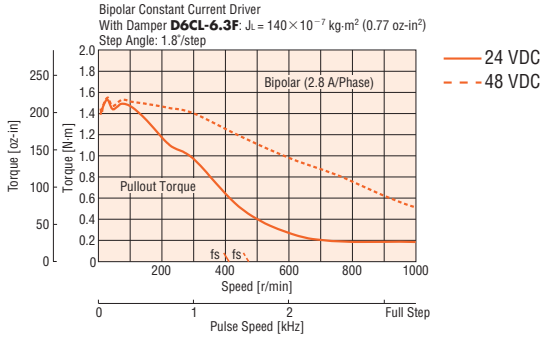
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

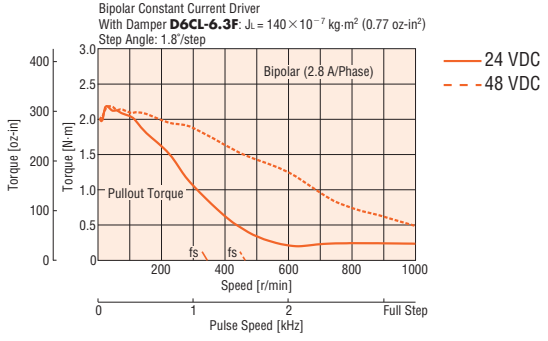
PV264-D2.8BA Bipolar



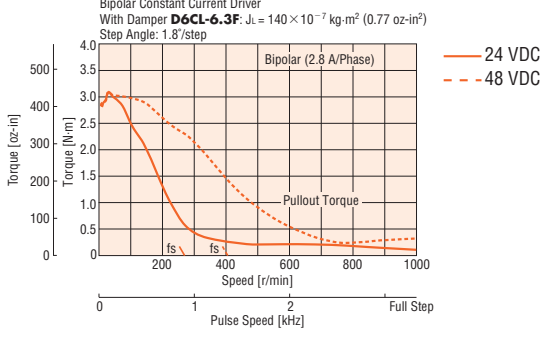
PV266-D2.8BA Bipolar



PV267-D2.8BA Bipolar



PV269-D2.8BA Bipolar



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

Introduction

AC Input

DC Input

5-Phase Microstep

2-Phase Full/Half

5-Phase Microstep

2-Phase Microstep

2-Phase Microstep

2-Phase PK/PV

2-Phase PK

EMP400

5G8030J

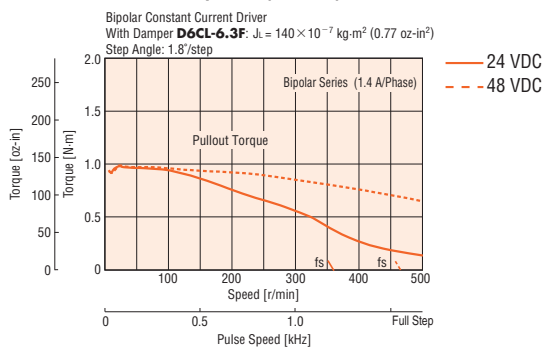
Accessories

Installation

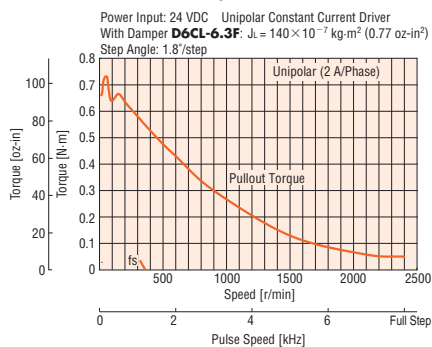
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

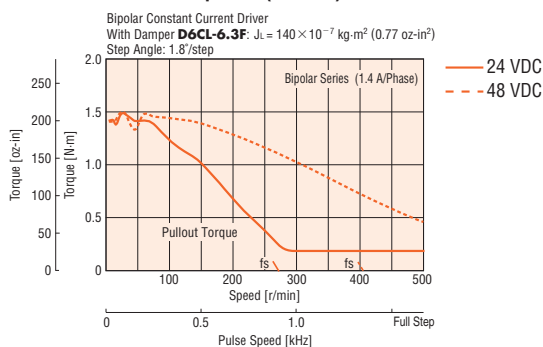
PV264-02BA Bipolar (Series)



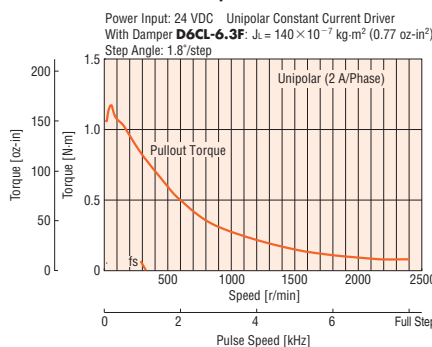
PV264-02BA Unipolar



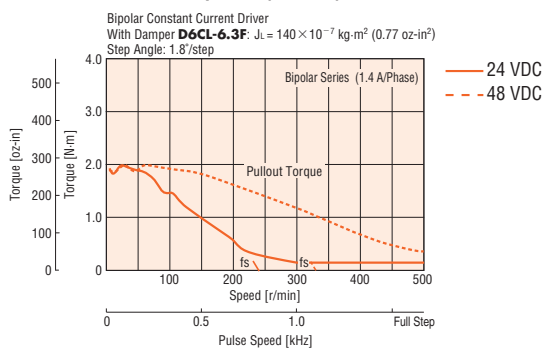
PV266-02BA Bipolar (Series)



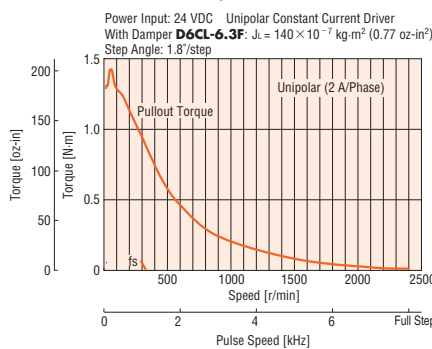
PV266-02BA Unipolar



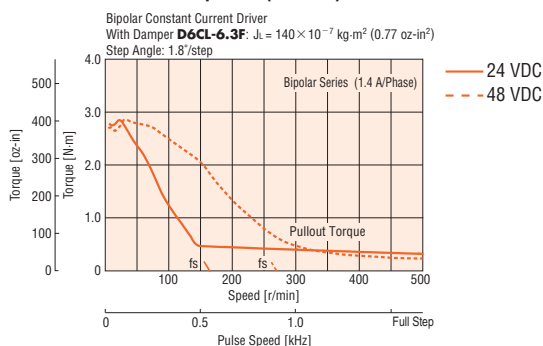
PV267-02BA Bipolar (Series)



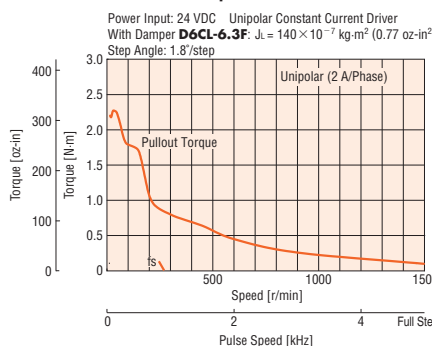
PV267-02BA Unipolar



PV269-02BA Bipolar (Series)



PV269-02BA Unipolar



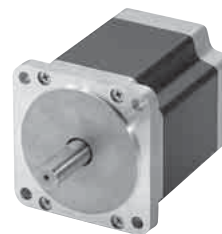
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

85 mm (3.35 in.)

Step Angle 1.8°

PK Series Standard Type



Specifications (RoHS)

| Model | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires |
|------------------------------|--|-------------------|---------------------|--------------------|-------------------|----------------------|--------------------|-----------------------|--------------------|------------|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | |
| PK296-01AA PK296-01BA | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 1.4 2 | 6.2 4.4 | 4.4 2.2 | 30.8 7.7 | 1400×10 ⁻⁷ | 7.7 | 6 |
| PK296-02AA PK296-02BA | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 2.1 3 | 4.2 3 | 2 1 | 14 3.5 | 1400×10 ⁻⁷ | 7.7 | 6 |
| PK296-03AA PK296-03BA | Bipolar (Series) Unipolar | 3.1 2.2 | 440 310 | 3.18 4.5 | 2.8 2 | 0.96 0.48 | 6 1.5 | 1400×10 ⁻⁷ | 7.7 | 6 |
| PK296-F4.5A PK296-F4.5B | Bipolar (Parallel) Bipolar (Series) Unipolar | 3.1 3.1 2.2 | 440 440 310 | 6.3 3.18 4.5 | 1.4 2.8 2 | 0.24 0.96 0.48 | 1.5 6 1.5 | 1400×10 ⁻⁷ | 7.7 | 8 |
| PK299-01AA PK299-01BA | Bipolar (Series) Unipolar | 6.2 4.4 | 880 620 | 1.4 2 | 9 6.4 | 6.4 3.2 | 56 14 | 2700×10 ⁻⁷ | 14.8 | 6 |
| PK299-02AA PK299-02BA | Bipolar (Series) Unipolar | 6.2 4.4 | 880 620 | 2.1 3 | 6 4.2 | 3 1.5 | 24 6 | 2700×10 ⁻⁷ | 14.8 | 6 |
| PK299-03AA PK299-03BA | Bipolar (Series) Unipolar | 6.2 4.4 | 880 620 | 3.18 4.5 | 3.9 2.8 | 1.32 0.66 | 10 2.5 | 2700×10 ⁻⁷ | 14.8 | 6 |
| PK299-F4.5A PK299-F4.5B | Bipolar (Parallel) Bipolar (Series) Unipolar | 6.2 6.2 4.4 | 880 880 620 | 6.3 3.18 4.5 | 1.9 3.9 2.8 | 0.33 1.32 0.66 | 2.5 10 2.5 | 2700×10 ⁻⁷ | 14.8 | 8 |
| PK2913-01AA PK2913-01BA | Bipolar (Series) Unipolar | 9.3 6.6 | 1320 930 | 1.4 2 | 10 7.6 | 7.6 3.8 | 76.8 19.2 | 4000×10 ⁻⁷ | 22 | 6 |
| PK2913-02AA PK2913-02BA | Bipolar (Series) Unipolar | 9.3 6.6 | 1320 930 | 2.8 4 | 5.3 3.8 | 1.94 0.97 | 16.8 4.2 | 4000×10 ⁻⁷ | 22 | 6 |
| PK2913-F4.0A PK2913-F4.0B | Bipolar (Parallel) Bipolar (Series) Unipolar | 9.3 9.3 6.6 | 1320 1320 930 | 5.6 2.8 4 | 2.6 5.3 3.8 | 0.49 1.94 0.97 | 4.2 16.8 4.2 | 4000×10 ⁻⁷ | 22 | 8 |

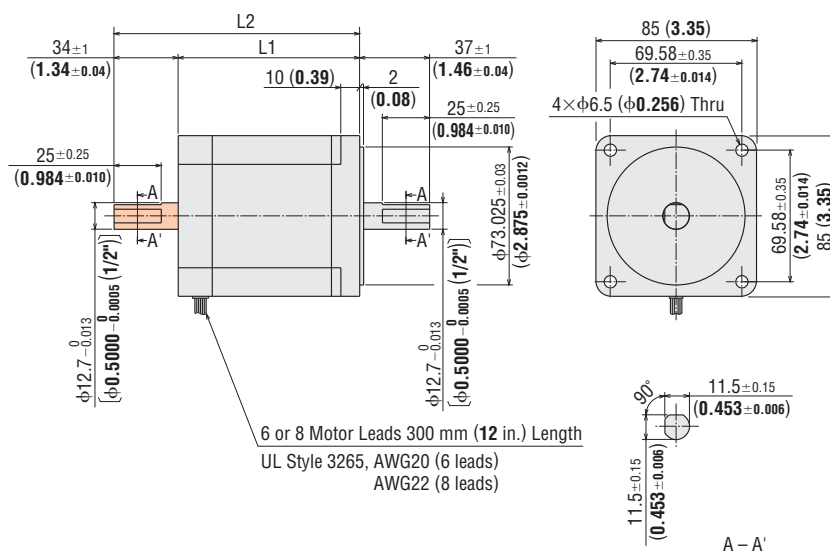
How to read specifications table → Page C-11

Wirings and connections → Page C-211

Dimensions Unit = mm (in.)

| Model | L1 | L2 | Mass kg (lb.) | DXF |
|-----------------------------|------------|------------|---------------|-------|
| PK296-0□AA PK296-F4.5A | 66 (2.60) | - | 1.7 (3.7) | B122U |
| PK296-0□BA PK296-F4.5B | | 100 (3.94) | | |
| PK299-0□AA PK299-F4.5A | 96 (3.78) | - | 2.8 (6.2) | B123U |
| PK299-0□BA PK299-F4.5B | | 130 (5.12) | | |
| PK2913-0□AA PK2913-F4.0A | 126 (4.96) | - | 3.8 (8.4) | B124U |
| PK2913-0□BA PK2913-F4.0B | | 160 (6.30) | | |

Enter the winding specification in the box (□) within the model name.



These dimensions are for the double shaft models. For the single shaft models, ignore the orange area.

Introduction

Q5STEP AS AC Input

Q5STEP ASG DC Input

5-Phase Microstep RK AC Input

2-Phase Full/Half UMK AC Input

5-Phase Microstep CMK DC Input

2-Phase Microstep RBK DC Input

2-Phase Microstep CMK DC Input

2-Phase PK/PV Without Encoder

2-Phase PK With Encoder

EMP400 Controllers

SG8030U

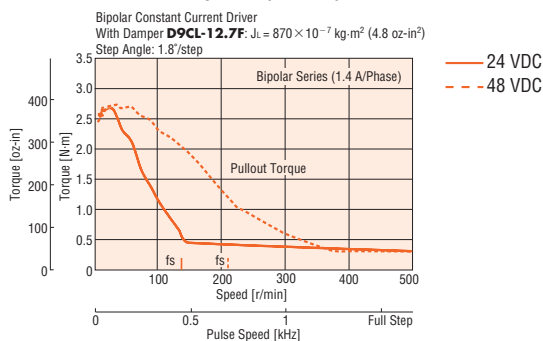
Accessories

Installation

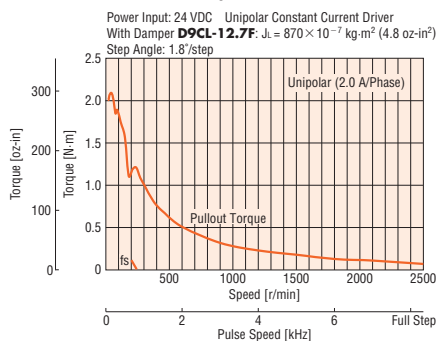
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

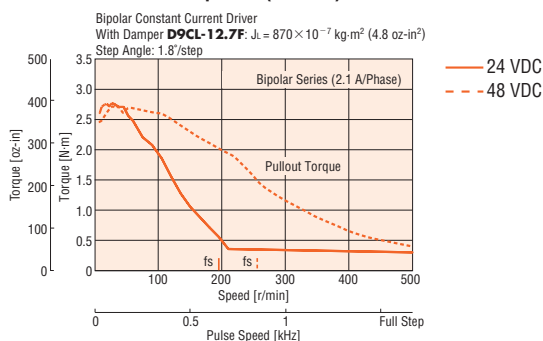
PK296-01BA Bipolar (Series)



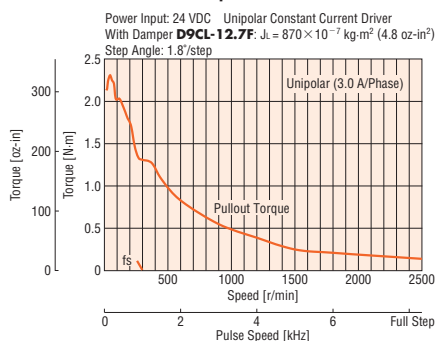
PK296-01BA Unipolar



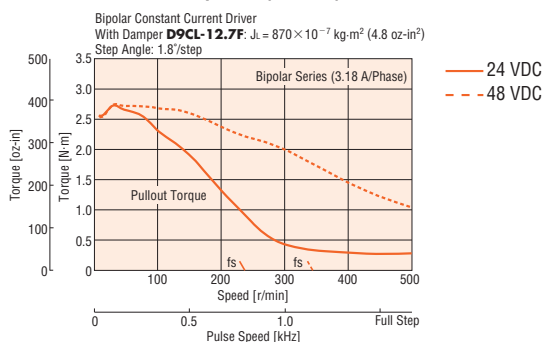
PK296-02BA Bipolar (Series)



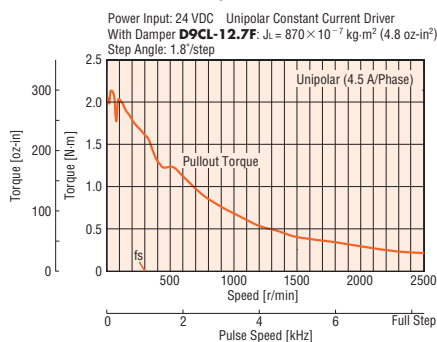
PK296-02BA Unipolar



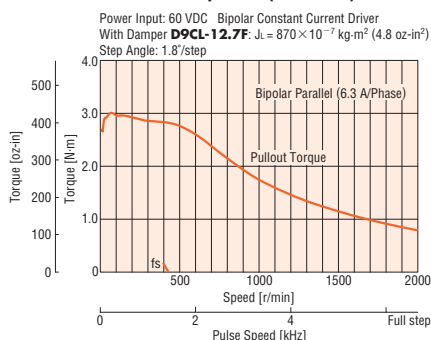
PK296-03BA Bipolar (Series)



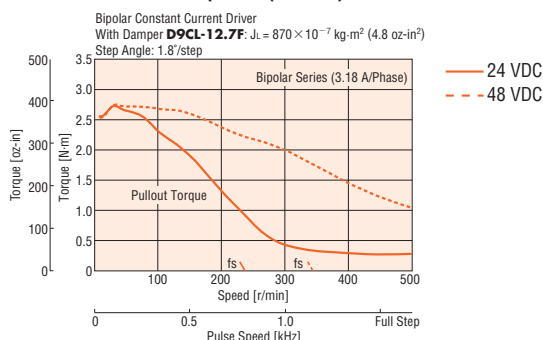
PK296-03BA Unipolar



PK296-F4.5B Bipolar (Parallel)



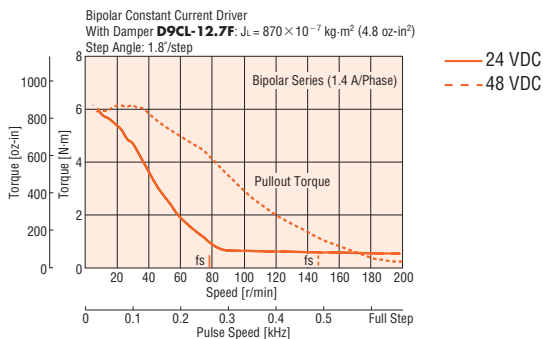
PK296-F4.5B Bipolar (Series)



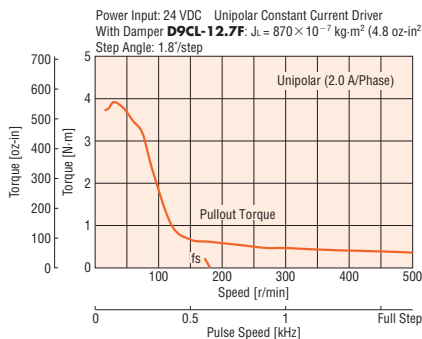
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

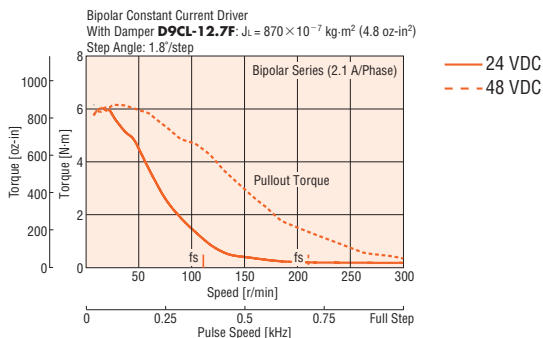
PK299-01BA Bipolar (Series)



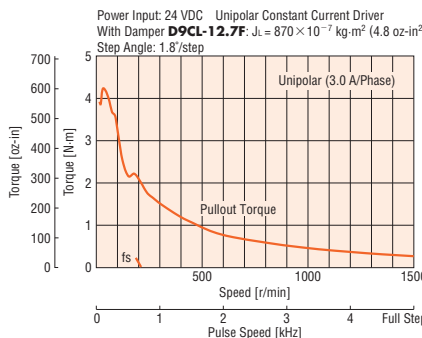
PK299-01BA Unipolar



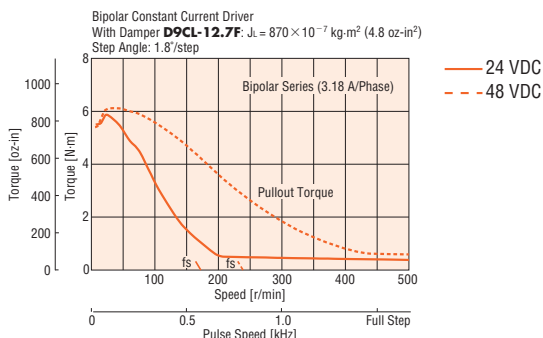
PK299-02BA Bipolar (Series)



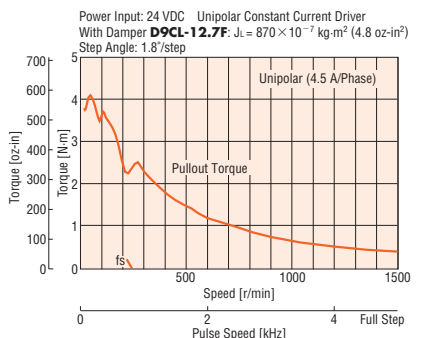
PK299-02BA Unipolar



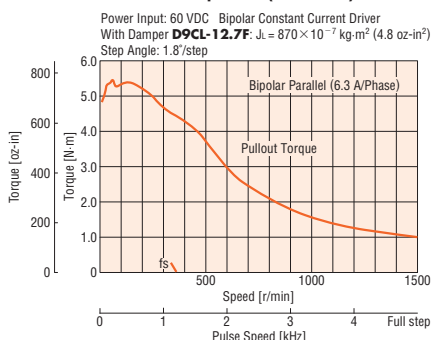
PK299-03BA Bipolar (Series)



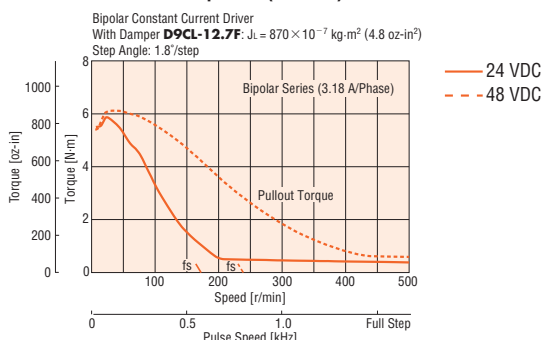
PK299-03BA Unipolar



PK299-F4.5B Bipolar (Parallel)



PK299-F4.5B Bipolar (Series)



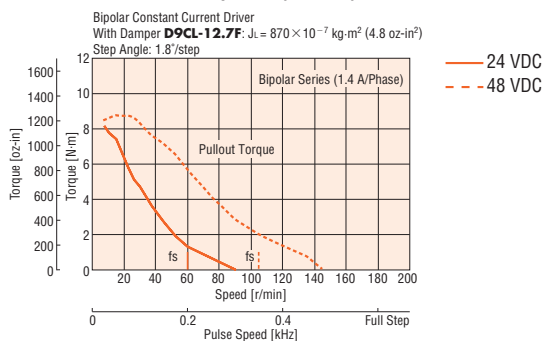
Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

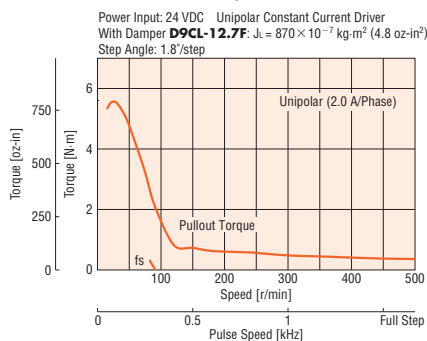
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

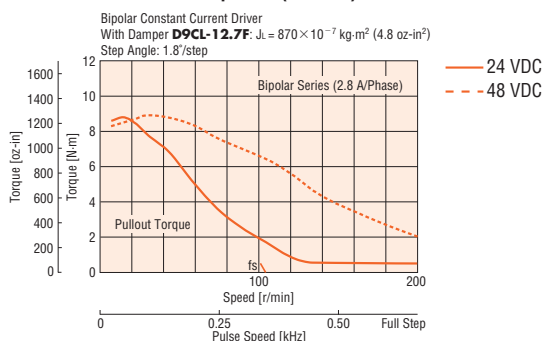
PK2913-01BA Bipolar (Series)



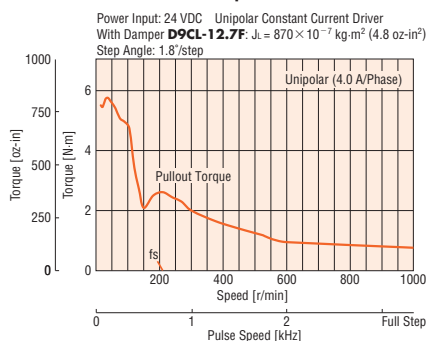
PK2913-01BA Unipolar



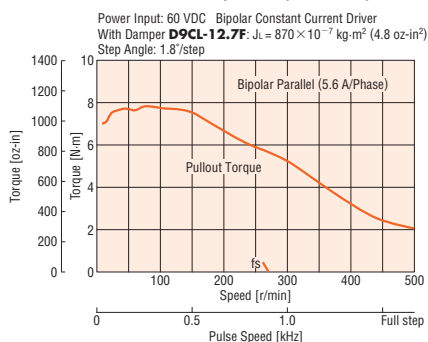
PK2913-02BA Bipolar (Series)



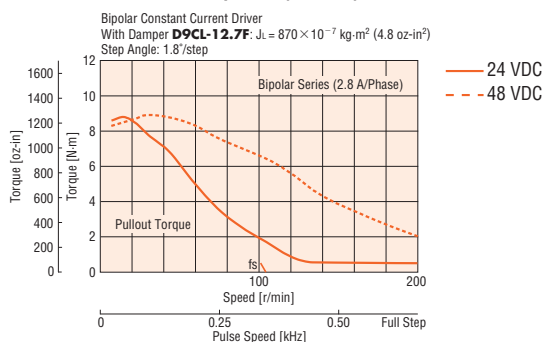
PK2913-02BA Unipolar



PK2913-F4.0B Bipolar (Parallel)



PK2913-F4.0B Bipolar (Series)



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

85 mm (3.35 in.)

Step Angle 1.8°

PK Series Standard Type Terminal Box



Specifications (RoHS)



| Model Single Shaft Double Shaft | Connection Type | Holding Torque | | Rated Current | Voltage | Resistance | Inductance | Rotor Inertia J | | Lead Wires (Terminals) | Corresponding DC-Input Motor & Driver Package |
|---------------------------------------|--------------------|----------------|-------|---------------|---------|------------|------------|-----------------------|--------------------|------------------------|---|
| | | N-m | oz-in | | | | | kg-m ² | oz-in ² | | |
| PK296EAT | Bipolar (Parallel) | 3.1 | 440 | 6.3 | 1.4 | 0.24 | 1.5 | 1400×10 ⁻⁷ | 7.7 | 8 | RBK296T |
| | Bipolar (Series) | 3.1 | 440 | 3.18 | 2.8 | 0.96 | 6.0 | | | | |
| | Unipolar | 2.2 | 310 | 4.5 | 2 | 0.48 | 1.5 | | | | |
| PK299EAT | Bipolar (Parallel) | 6.2 | 880 | 6.3 | 1.9 | 0.33 | 2.5 | 2700×10 ⁻⁷ | 14.8 | 8 | RBK299T |
| | Bipolar (Series) | 6.2 | 880 | 3.18 | 3.9 | 1.32 | 10.0 | | | | |
| | Unipolar | 4.4 | 620 | 4.5 | 2.8 | 0.66 | 2.5 | | | | |
| PK2913EAT | Bipolar (Parallel) | 9.3 | 1320 | 5.6 | 2.6 | 0.49 | 4.2 | 4000×10 ⁻⁷ | 22 | 8 | RBK2913T |
| | Bipolar (Series) | 9.3 | 1320 | 2.8 | 5.3 | 1.94 | 16.8 | | | | |
| | Unipolar | 6.6 | 930 | 4 | 3.8 | 0.97 | 4.2 | | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

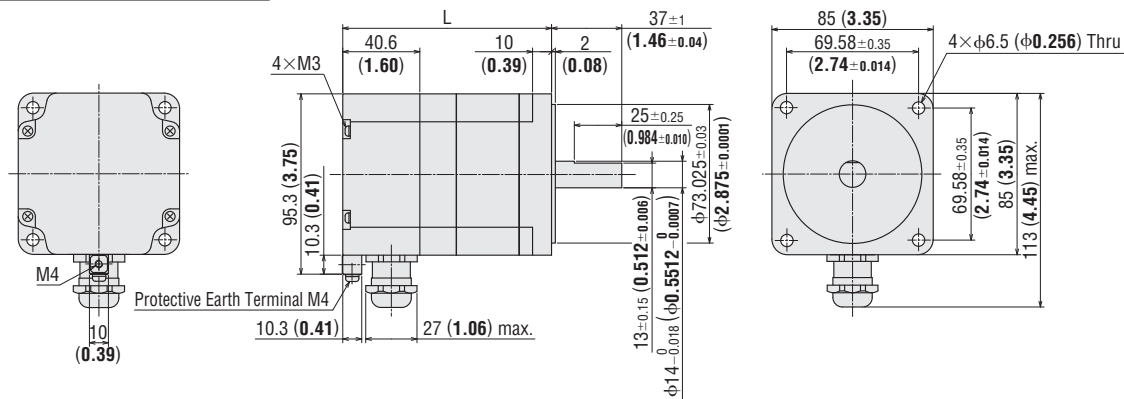
List of safety standard approved products (model, standards, file no., certification body) → Page G-11

● Degree of protection: IP65*

* Excluding the gap between the shaft and the flange.

Dimensions Unit = mm (in.)

| Model | L | Mass kg (lb.) | DXF |
|------------------|------------|---------------|------|
| PK296EAT | 110 (4.33) | 2.1 (4.6) | B379 |
| PK299EAT | 140 (5.51) | 3.2 (7) | B380 |
| PK2913EAT | 170 (6.69) | 4.3 (9.5) | B381 |

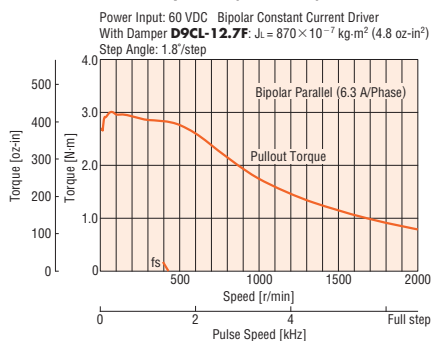


● Use cable (VCT) with a diameter of $\phi 7 \sim \phi 13$ mm ($\phi 0.28 \sim \phi 0.51$ in.). A motor cable is available as an accessory (sold separately). → Page C-298

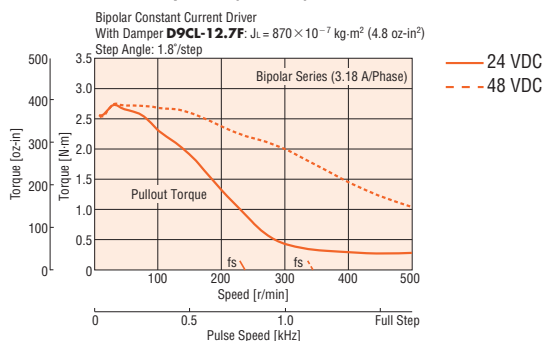
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

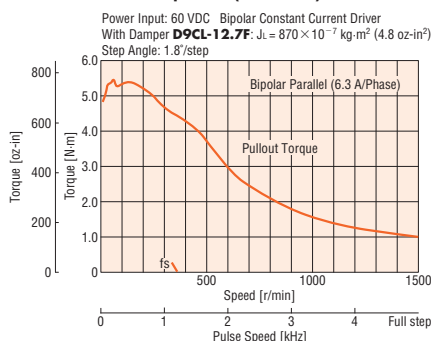
PK296EAT Bipolar (Parallel)



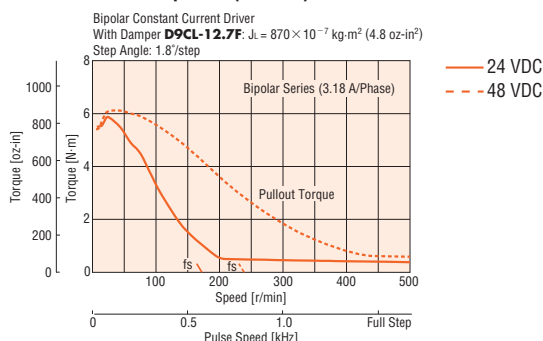
PK296EAT Bipolar (Series)



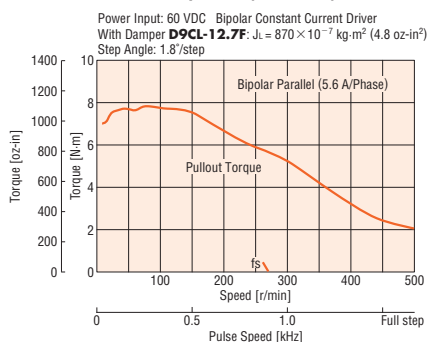
PK299EAT Bipolar (Parallel)



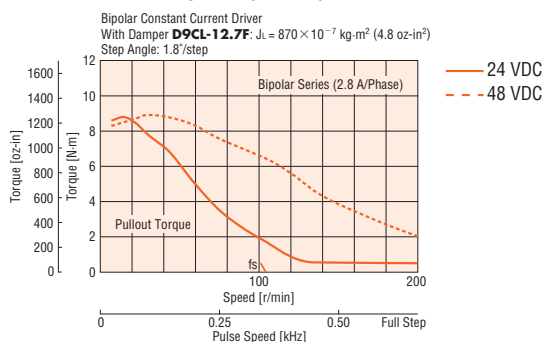
PK299EAT Bipolar (Series)



PK2913EAT Bipolar (Parallel)



PK2913EAT Bipolar (Series)



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).

90 mm (3.54 in.) PK Series SH Geared Type



Specifications RoHS

Motor Specifications

| Model Single Shaft Double Shaft | Connection Type | Rated Current A/phase | Voltage VDC | Resistance Ω /phase | Inductance mH/phase | Rotor Inertia J | | Lead Wires |
|---|------------------|--------------------------|----------------|-------------------------------|------------------------|-----------------------|--------------------|------------|
| | | | | | | kg-m ² | oz-in ² | |
| PK296A1A-SG <input type="checkbox"/> PK296B1A-SG <input type="checkbox"/> | Bipolar (Series) | 1 | 4.4 | 4.4 | 30.8 | 1400×10^{-7} | 7.7 | 6 |
| | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| PK296A2A-SG <input type="checkbox"/> PK296B2A-SG <input type="checkbox"/> | Bipolar (Series) | 2.1 | 2 | 0.96 | 6 | 1400×10^{-7} | 7.7 | 6 |
| | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | |

How to read specifications table → Page C-11

Wirings and connections → Page C-211

● Enter the gear ratio in the box () within the model name.

Gearmotor Specifications

| Model Single Shaft Double Shaft | Gear Ratio | Holding Torque* | | Step Angle | Permissible Speed r/min |
|--|------------|-----------------|-------|------------|----------------------------|
| | | N-m | lb-in | | |
| PK296A1A-SG3.6 , PK296A2A-SG3.6 PK296B1A-SG3.6 , PK296B2A-SG3.6 | 3.6:1 | 2.5 | 22 | 0.5° | 500 |
| PK296A1A-SG7.2 , PK296A2A-SG7.2 PK296B1A-SG7.2 , PK296B2A-SG7.2 | 7.2:1 | 5 | 44 | 0.25° | 250 |
| PK296A1A-SG9 , PK296A2A-SG9 PK296B1A-SG9 , PK296B2A-SG9 | 9:1 | 6.3 | 55 | 0.2° | 200 |
| PK296A1A-SG10 , PK296A2A-SG10 PK296B1A-SG10 , PK296B2A-SG10 | 10:1 | 7 | 61 | 0.18° | 180 |
| PK296A1A-SG18 , PK296A2A-SG18 PK296B1A-SG18 , PK296B2A-SG18 | 18:1 | 9 | 79 | 0.1° | 100 |
| PK296A1A-SG36 , PK296A2A-SG36 PK296B1A-SG36 , PK296B2A-SG36 | 36:1 | 12 | 106 | 0.05° | 50 |

* Holding torque is the same regardless of the connection type, due to the permissible torque limit of the gearhead.

Dimensions Unit = mm (in.)

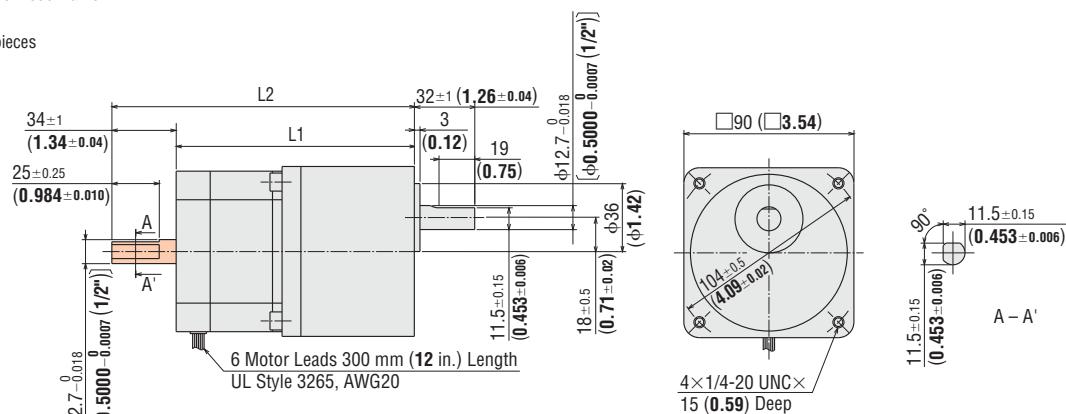
| Model | L1 | L2 | Mass kg (lb.) | DXF |
|---|------------|-----------|------------------|-------|
| PK296A <input type="checkbox"/> A-SG <input type="checkbox"/> | 126 (4.96) | — | 2.8 (6.2) | B242U |
| PK296B <input type="checkbox"/> A-SG <input type="checkbox"/> | | 160 (6.3) | | |

● Enter the winding specification in the box () within the model name.

Enter the gear ratio in the box () within the model name.

● Screws (Included)

1/4-20 UNC, Length 19 mm (0.75 in.)...4 pieces

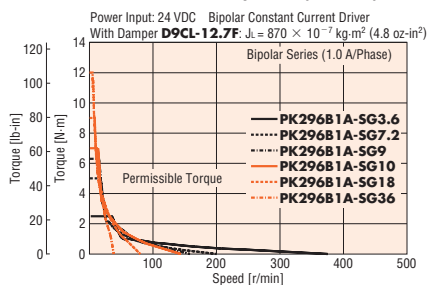


● These dimensions are for the double shaft models. For the single shaft models, ignore the orange () area.

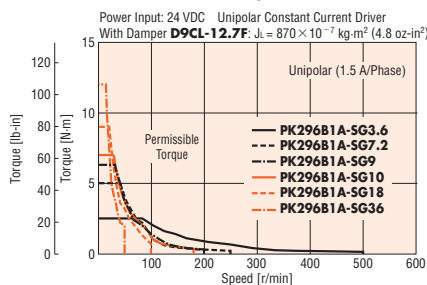
Speed – Torque Characteristics

How to read speed – torque characteristics → Page C-12

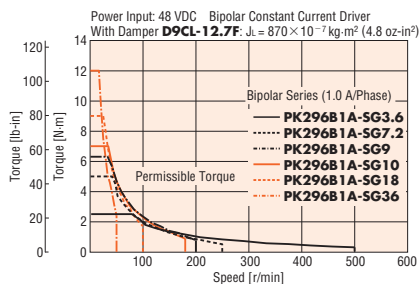
PK296B1A-SG Bipolar (Series) 24 VDC



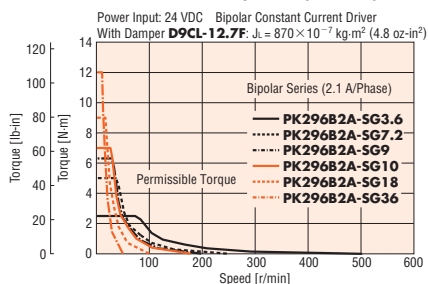
PK296B1A-SG Unipolar



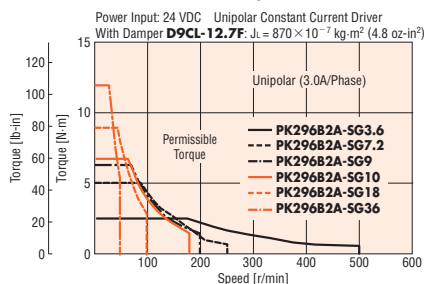
PK296A1B-SG Bipolar (Series) 48 VDC



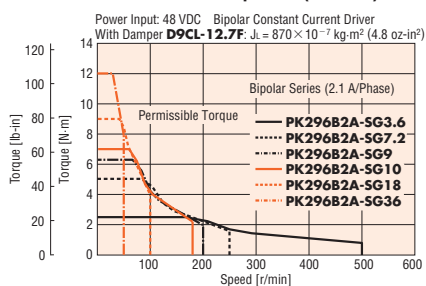
PK296B2A-SG Bipolar (Series) 24 VDC



PK296B2A-SG Unipolar



PK296B2A-SG Bipolar (Series) 48 VDC



Note:

- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C (212°F).