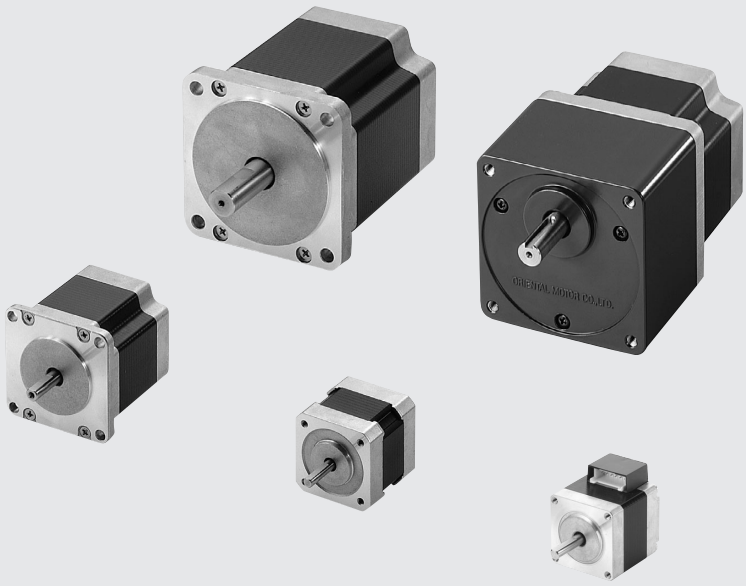


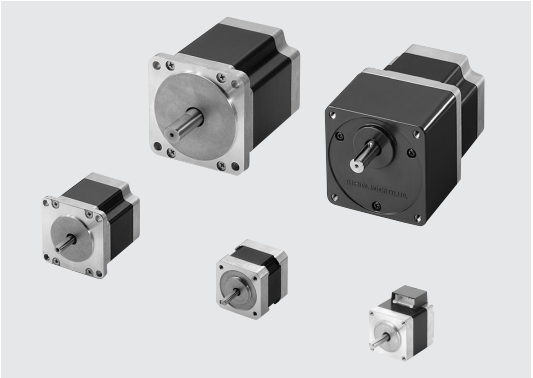
# 2-Phase Stepping Motors

**Additional Information**

Technical Reference ····· F-1
General Information ····· G-1

# 2-Phase Stepping Motors

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



## Wide Variety

| Series/Type \ Size | Motor Frame Size: in. (mm) | | | | | |
|---|---|---|---|---|---|---|
| | □1.10 in. (□28 mm) | □1.38 in. (□35 mm) | □1.65 in. (□42 mm) | □2.22 in. (□56.4 mm) *1 | □2.65 in. (□60 mm) | □3.35 in. (□85 mm) *2 |
| **PK** Series — Standard Type | — | — |  Page C-202 | with Encoder page→ C-233  Page C-214 | — |  Page C-227 |
| **PK** Series — Standard **P** Type (High Torque) |  Page C-196 |  Page C-200 |  Page C-204 | — | — | — |
| **PK** Series — High Resolution Type | — | — |  Page C-208 | with Encoder page→ C-239  Page C-218 | — | — |
| **PK** Series — **SH** Geared Type |  Page C-198 | — |  Page C-212 | *1  Page C-222 | — | *2  Page C-231 |
| **PV** Series (High Inertia Capability) | — | — | — | — |  Page C-224 | — |

*1 Gearhead frame size is 2.65 in. sq. (60 mm sq.)
*2 Gearhead frame size is 3.54 in. sq. (90 mm sq.)

# Accessories (Sold Separately)

**Motor Mounting Brackets**
Page → C-295


Mounting brackets cannot be used with **SH** geared types.

**Clean Dampers**
Page → C-293

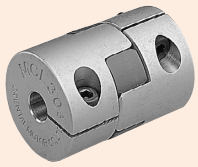
Effective at suppressing motor vibration and improving performance.


**Flexible Couplings**
Page → C-288

**MC** Motor Couplings

**Flexible Couplings**
Page → C-290

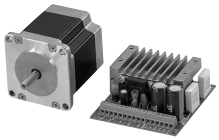
**MCL** Gearmotor Couplings



## 2-Phase Stepping Motor and Driver Packages

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

AC Input
**UMK** Series
→Page C-149



DC Input
**CSK** Series
→Page C-161

## 2-Phase Stepping Motor Driver with Built-in Indexer UI2120G

Combines a high performance stepping motor driver with microprocessor intelligence and an integrated pulse generator.

→Page C-241

# PK Series

## Standard Type

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

### With Encoder

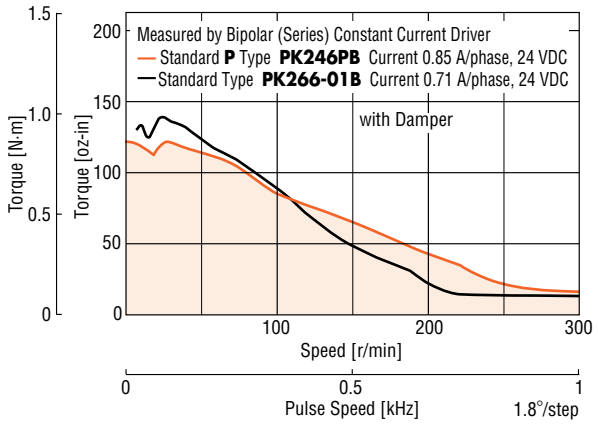
The **PK** Series 2-phase stepping motor with encoder offers high torque and precise feedback capability.

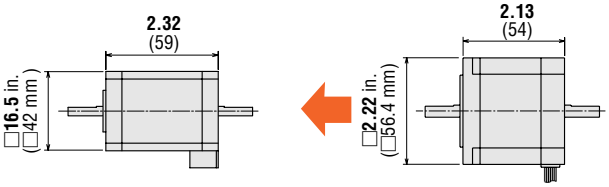
- Encoder Feedback Type: Incremental
- Two feedback resolutions: 200 and 400 pulses/rev.
- Provides closed loop system capability

## Standard P Type (High Torque)

This motor type combines high torque and a compact size. Three frame sizes, 1.10 in. (28 mm), 1.38 in. (35 mm) and 1.65 in. (42 mm), 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, Standard **P** type **PK246PB** [motor frame size 1.65 in. (42 mm)] has the same holding torque as the standard type **PK266-01B** [motor frame size 2.22 in. (56.4 mm)]. This means a smaller size motor will maintain the same torque. This allows for downsized and lightweight equipment.

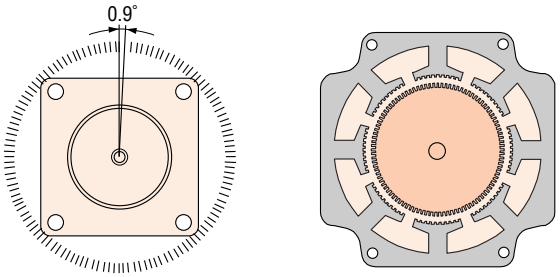


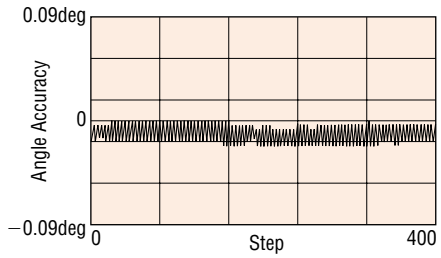




| Standard **P** Type | **Type** | Standard Type |
|---|---|---|
| **PK246PB** | **Model** | **PK266-01B** |
| 132 oz-in (0.93 N·m) | **Holding Torque** | 166 oz-in (1.17 N·m) |
| 0.77 oz-in$^2$ ($114\times10^{-7}$ kg·m$^2$) | **Rotor Inertia** | 1.64 oz-in$^2$ ($300\times10^{-7}$ kg·m$^2$) |

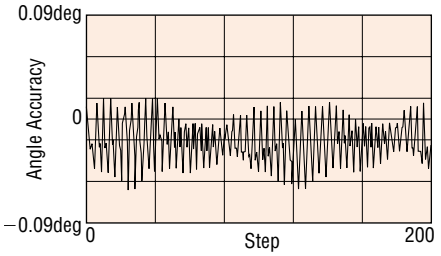
## High Resolution Type

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.

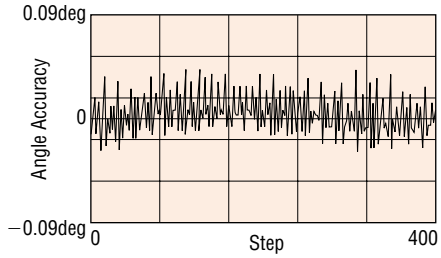



**(1) High Resolution Type (0.9°/Step)**




**(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.

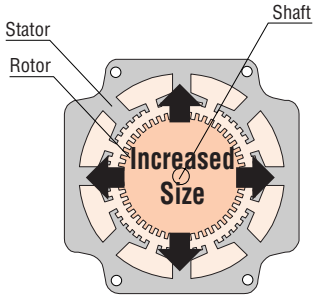
### ● Ideal for High Inertia Drive

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.

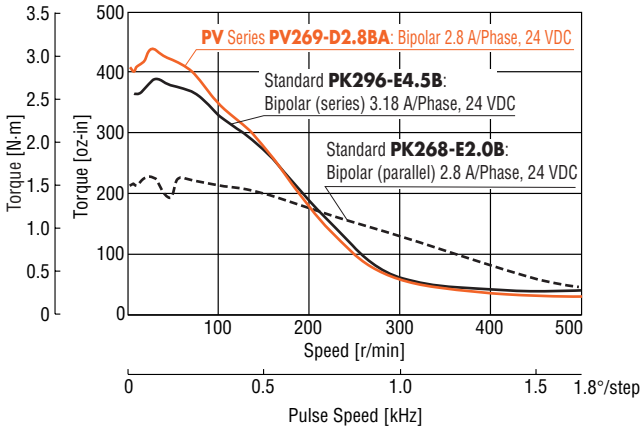
# PV Series

## High Inertia Capability

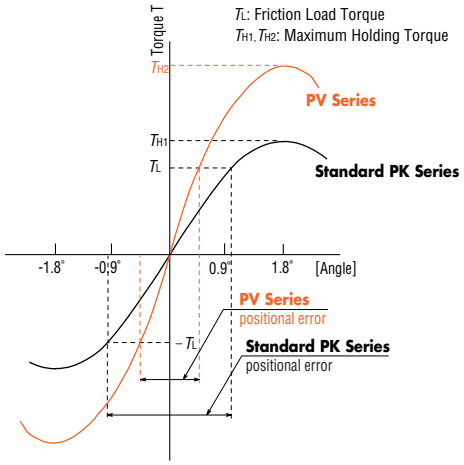
The **PV** Series provides, on average, 1.5 times higher torque than a standard stepping motor. By utilizing a larger rotor diameter, larger magnets can be used to significantly increase the output torque.




Motor structure
(Cross section perpendicular to shaft)




### 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.

# Product Number Code

## PK Series

### Standard Type, High Resolution Type

**PK 2 4 3 □ - 0 1 B A**

- **PK**: PK Series
- **2**: 2-Phase
- **4 3 □**: Motor Frame Size
  - **4**: 1.65 in. sq. (42 mm sq.)
  - **6**: 2.22 in. sq. (56.4 mm sq.)
  - **9**: 3.35 in. sq. (85 mm sq.)
- **□**: Motor Case Length
- **-**
- **0 1**: Step Angle
  - Blank: 1.8° (Standard)
  - **M**: 0.9° (High Resolution)
- **0 1**: Winding Specification
  - **0**: Legacy Number
  - **D**: 4 Leads
  - **E, F**: 8 Leads
- **B**: Shaft Type
  - **A**: Single Shaft
  - **B**: Double Shaft
- **A**: U.S.A. Version

### Standard Type, High Resolution Type with Encoder

**PK 2 6 6 □ - 0 1 A R11**

- **PK**: PK Series
- **2**: 2-Phase
- **6 6 □**: Motor Frame Size
  - **6**: 1.65 in. sq. (42 mm sq.)
- **□**: Motor Case Length
- **-**
- **0 1**: Step Angle
  - Blank: 1.8° (Standard)
  - **M**: 0.9° (High Resolution)
- **0 1**: Winding Specification
  - **0**: Legacy Number
  - **E**: 8 Leads
- **A**: Shaft Type
  - **A**: Single Shaft
- **R11**: Encoder Resolution
  - **R11**: 200 P/R
  - **R12**: 400 P/R

### Standard P Type (High Torque)

**PK 2 3 3 P A**

- **PK**: PK Series
- **2**: 2-Phase
- **3 3**: Motor Frame Size
  - **2**: 1.10 in. sq. (28 mm sq.)
  - **3**: 1.38 in. sq. (35 mm sq.)
  - **4**: 1.65 in. sq. (42 mm sq.)
- **P**: Motor Case Length
- **A**: Standard **P** Type
- **A**: Shaft Type
  - **A**: Single Shaft
  - **B**: Double Shaft

### SH Geared Type

**PK 2 2 3 P A - SG 10**

- **PK**: PK Series
- **2**: 2-Phase
- **2**: Motor Frame Size
  - **2**: 1.10 in. sq. (28 mm sq.)
- **3**: Motor Case Length
- **P**: Motor Type
- **A**: Shaft Type
  - **A**: Single Shaft
  - **B**: Double Shaft
- **SG**: **SH** Gear Type
- **10**: Gear Ratio

## PV Series (High Inertia Capability)

**PV 2 6 6 - 0 2 B A**

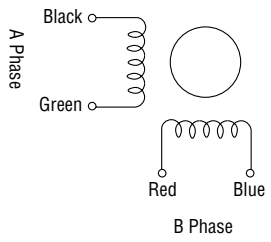
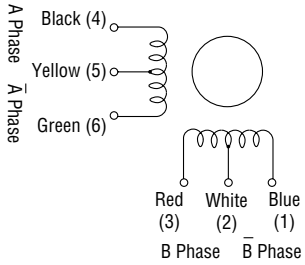
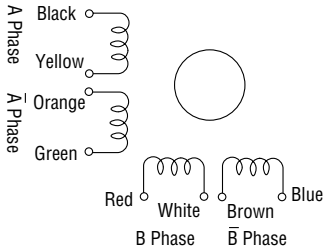
- **PV**: **PV** Series
- **2**: 2-Phase
- **6**: Motor Frame Size
  - 2.36 in. sq. (60 mm sq.)
- **6**: Motor Case Length
- **-**
- **0**: Leads
  - **0**: 6 Leads
  - **D**: 4 Leads
- **2**: Winding Specification
- **B**: Shaft Type
  - **A**: Single Shaft
  - **B**: Double Shaft
- **A**: U.S.A. Version

**PK 2 6 4 A 1 A - SG 10**

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

# Connection Diagrams

## Motor Wiring Diagrams

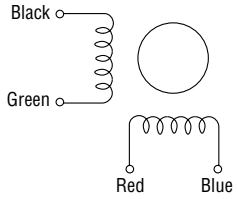
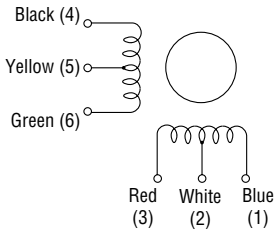
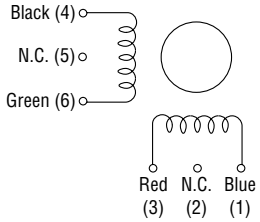
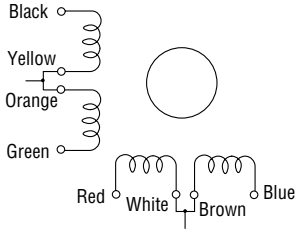
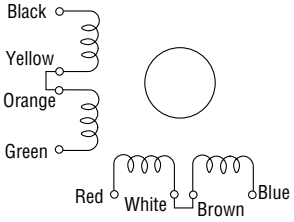
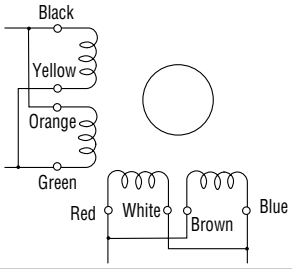
| 4 Lead Motor | 6 Lead Motor | 8 Lead Motor |
|---|---|---|
|  |  |  |







## Wire Connection Diagrams

| 4 Lead Bipolar Connection | 6 Lead Unipolar Connection | 6 Lead Bipolar (Series) Connection |
|---|---|---|
|  |  |  |
| **8 Lead Unipolar Connection** | **8 Lead Bipolar (Series) Connection** | **8 Lead Bipolar (Parallel) Connection** |
|  |  |  |













- The numbers inside the parentheses indicate the connector pin No. of the standard **P** type motor.
- N.C.: No Connection

# Notes on the Speed–Torque Characteristics Diagrams

The speed-torque characteristics featured in this catalog are as 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 should also conduct a thorough evaluation with the actual driver to be used.

# Product Specifications

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

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard **P** Type (High Torque) | **PK223PA** | 1.8° | Bipolar (Series) | 9.2 | 0.065 | 0.67 | 3.8 | 5.6 | 4 | 0.049 | $9\times10^{-7}$ | C-196 |
| | **PK223PB** | | Unipolar | 7.1 | 0.05 | 0.95 | 2.66 | 2.8 | 1 | | | |
| | **PK224PA** | 1.8° | Bipolar (Series) | 13.7 | 0.097 | 0.67 | 4.6 | 6.8 | 4.8 | 0.066 | $12\times10^{-7}$ | |
| | **PK224PB** | | Unipolar | 10.6 | 0.075 | 0.95 | 3.2 | 3.4 | 1.2 | | | |
| | **PK225PA** | 1.8° | Bipolar (Series) | 15.6 | 0.11 | 0.67 | 6.2 | 9.2 | 5.6 | 0.098 | $18\times10^{-7}$ | |
| | **PK225PB** | | Unipolar | 12.7 | 0.09 | 0.95 | 4.4 | 4.6 | 1.4 | | | |
| **SH** Geared Type | **PK223PA-SG7.2** | 0.25° | Bipolar (Series) | 42 | 0.3 | 0.67 | 3.8 | 5.6 | 4 | 0.049 | $9\times10^{-7}$ | C-198 |
| | **PK223PB-SG7.2** | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | **PK223PA-SG9** | 0.2° | Bipolar (Series) | 42 | 0.3 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | **PK223PB-SG9** | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | **PK223PA-SG10** | 0.18° | Bipolar (Series) | 42 | 0.3 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | **PK223PB-SG10** | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | **PK223PA-SG18** | 0.1° | Bipolar (Series) | 56 | 0.4 | 0.67 | 3.8 | 5.6 | 4 | | | |
| | **PK223PB-SG18** | | Unipolar | | | 0.95 | 2.66 | 2.8 | 1 | | | |
| | **PK223PA-SG36** | 0.05° | Bipolar (Series) | 56 | 0.4 | 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: □1.38 in. (□35 mm) PK23□

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard **P** Type (High Torque) | **PK233PA** | 1.8° | Bipolar (Series) | 28 | 0.2 | 0.85 | 4.6 | 5.4 | 5.6 | 0.131 | $24\times10^{-7}$ | C-200 |
| | **PK233PB** | | Unipolar | 22 | 0.16 | 1.2 | 3.24 | 2.7 | 1.4 | | | |
| | **PK235PA** | 1.8° | Bipolar (Series) | 52 | 0.37 | 0.85 | 5.8 | 6.8 | 8 | 0.27 | $50\times10^{-7}$ | |
| | **PK235PB** | | Unipolar | 42 | 0.3 | 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: □1.65 in. (□42 mm) PK24□

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Type | **PK243-01AA** | 1.8° | Bipolar (Series) | 28 | 0.2 | 0.67 | 5.6 | 8.4 | 10 | 0.191 | $35\times10^{-7}$ | C-204 |
| | **PK243-01BA** | | Unipolar | 22 | 0.16 | 0.95 | 4 | 4.2 | 2.5 | | | |
| | **PK243-02AA** | | Bipolar (Series) | 28 | 0.2 | 0.28 | 13 | 48 | 60 | | | |
| | **PK243-02BA** | | Unipolar | 22 | 0.16 | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243-03AA** | | Bipolar (Series) | 28 | 0.2 | 0.22 | 17 | 77 | 84 | | | |
| | **PK243-03BA** | | Unipolar | 22 | 0.16 | 0.31 | 12 | 38.5 | 21 | | | |
| | **PK244-01AA** | | Bipolar (Series) | 46 | 0.33 | 0.85 | 5.6 | 6.6 | 12.8 | 0.3 | $54\times10^{-7}$ | |
| | **PK244-01BA** | | Unipolar | 36 | 0.26 | 1.2 | 4 | 3.3 | 3.2 | | | |
| | **PK244-02AA** | | Bipolar (Series) | 46 | 0.33 | 0.57 | 8.6 | 15 | 26.8 | | | |
| | **PK244-02BA** | | Unipolar | 36 | 0.26 | 0.8 | 6 | 7.5 | 6.7 | | | |
| | **PK244-03AA** | | Bipolar (Series) | 46 | 0.33 | 0.28 | 17 | 60 | 120 | | | |
| | **PK244-03BA** | | Unipolar | 36 | 0.26 | 0.4 | 12 | 30 | 30 | | | |
| | **PK244-04AA** | | Bipolar (Series) | 46 | 0.33 | 0.14 | 34 | 240 | 428 | | | |
| | **PK244-04BA** | | Unipolar | 36 | 0.26 | 0.2 | 24 | 120 | 107 | | | |
| | **PK245-01AA** | | Bipolar (Series) | 61 | 0.43 | 0.85 | 5.6 | 6.6 | 11.2 | 0.37 | $68\times10^{-7}$ | |
| | **PK245-01BA** | | Unipolar | 45 | 0.32 | 1.2 | 4 | 3.3 | 2.6 | | | |
| | **PK245-02AA** | | Bipolar (Series) | 61 | 0.43 | 0.57 | 8.6 | 15 | 28.4 | | | |
| | **PK245-02BA** | | Unipolar | 45 | 0.32 | 0.8 | 6 | 7.5 | 7.1 | | | |
| | **PK245-03AA** | | Bipolar (Series) | 61 | 0.43 | 0.28 | 17 | 60 | 100 | | | |
| | **PK245-03BA** | | Unipolar | 45 | 0.32 | 0.4 | 12 | 30 | 25 | | | |

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

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

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard **P** Type (High Torque) | **PK244PA** | 1.8° | Bipolar (Series) | 68 | 0.48 | 0.85 | 6.8 | 8 | 15.6 | 0.31 | $57\times10^{-7}$ | C-202 |
| | **PK244PB** | | Unipolar | 55 | 0.39 | 1.2 | 4.8 | 4 | 3.9 | | | |
| | **PK246PA** | | Bipolar (Series) | 132 | 0.93 | 0.85 | 10 | 12 | 26 | 0.62 | $114\times10^{-7}$ | |
| | **PK246PB** | | Unipolar | 106 | 0.75 | 1.2 | 7.2 | 6 | 6.5 | | | |
| High Resolution Type | **PK243M-01AA** | 0.9° | Bipolar (Series) | 28 | 0.2 | 0.67 | 5.6 | 8.4 | 15.2 | 0.191 | $35\times10^{-7}$ | C-208 |
| | **PK243M-01BA** | | Unipolar | 22 | 0.16 | 0.95 | 4 | 4.2 | 3.8 | | | |
| | **PK243M-02AA** | | Bipolar (Series) | 28 | 0.2 | 0.42 | 8.4 | 20 | 38.8 | | | |
| | **PK243M-02BA** | | Unipolar | 22 | 0.16 | 0.6 | 6 | 10 | 9.7 | | | |
| | **PK243M-03AA** | | Bipolar (Series) | 28 | 0.2 | 0.22 | 17 | 77 | 136 | | | |
| | **PK243M-03BA** | | Unipolar | 22 | 0.16 | 0.31 | 12 | 38.5 | 34 | | | |
| | **PK244M-01AA** | | Bipolar (Series) | 44 | 0.31 | 0.85 | 5.6 | 6.6 | 17.2 | 0.3 | $54\times10^{-7}$ | |
| | **PK244M-01BA** | | Unipolar | 36 | 0.26 | 1.2 | 4 | 3.3 | 4.3 | | | |
| | **PK244M-02AA** | | Bipolar (Series) | 44 | 0.31 | 0.57 | 8.6 | 15 | 38.8 | | | |
| | **PK244M-02BA** | | Unipolar | 36 | 0.26 | 0.8 | 6 | 7.5 | 9.7 | | | |
| | **PK244M-03AA** | | Bipolar (Series) | 44 | 0.31 | 0.28 | 17 | 60 | 152 | | | |
| | **PK244M-03BA** | | Unipolar | 36 | 0.26 | 0.4 | 12 | 30 | 38 | | | |
| | **PK245M-01AA** | | Bipolar (Series) | 53 | 0.38 | 0.85 | 5.6 | 6.6 | 15.6 | 0.37 | $68\times10^{-7}$ | |
| | **PK245M-01BA** | | Unipolar | 45 | 0.32 | 1.2 | 4 | 3.3 | 3.9 | | | |
| | **PK245M-02AA** | | Bipolar (Series) | 53 | 0.38 | 0.57 | 8.6 | 15 | 39.6 | | | |
| | **PK245M-02BA** | | Unipolar | 45 | 0.32 | 0.8 | 6 | 7.5 | 9.9 | | | |
| | **PK245M-03AA** | | Bipolar (Series) | 53 | 0.38 | 0.28 | 17 | 60 | 128 | | | |
| | **PK245M-03BA** | | Unipolar | 45 | 0.32 | 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: □1.65 in. (□42 mm) PK243

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque lb-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SH** Geared Type | **PK243A1A-SG3.6** | 0.5° | Bipolar (Series) | 1.77 | 0.2 | 0.67 | 5.6 | 8.4 | 10 | 0.191 | $35\times10^{-7}$ | C-212 |
| | **PK243B1A-SG3.6** | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | **PK243A1A-SG7.2** | 0.25° | Bipolar (Series) | 3.5 | 0.4 | 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) | 4.4 | 0.5 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | **PK243B1A-SG9** | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | **PK243A1A-SG10** | 0.18° | Bipolar (Series) | 4.9 | 0.56 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | **PK243B1A-SG10** | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | **PK243A1A-SG18** | 0.1° | Bipolar (Series) | 7.0 | 0.8 | 0.67 | 5.6 | 8.4 | 10 | | | |
| | **PK243B1A-SG18** | | Unipolar | | | 0.95 | 4.0 | 4.2 | 2.5 | | | |
| | **PK243A1A-SG36** | 0.05° | Bipolar (Series) | 7.0 | 0.8 | 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) | 1.77 | 0.2 | 0.28 | 13 | 48 | 60 | 0.191 | $35\times10^{-7}$ | |
| | **PK243B2A-SG3.6** | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243A2A-SG7.2** | 0.25° | Bipolar (Series) | 3.5 | 0.4 | 0.28 | 13 | 48 | 60 | | | |
| | **PK243B2A-SG7.2** | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243A2A-SG9** | 0.2° | Bipolar (Series) | 4.4 | 0.5 | 0.28 | 13 | 48 | 60 | | | |
| | **PK243B2A-SG9** | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243A2A-SG10** | 0.18° | Bipolar (Series) | 4.9 | 0.56 | 0.28 | 13 | 48 | 60 | | | |
| | **PK243B2A-SG10** | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243A2A-SG18** | 0.1° | Bipolar (Series) | 7.0 | 0.8 | 0.28 | 13 | 48 | 60 | | | |
| | **PK243B2A-SG18** | | Unipolar | | | 0.4 | 9.6 | 24 | 15 | | | |
| | **PK243A2A-SG36** | 0.05° | Bipolar (Series) | 7.0 | 0.8 | 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: □2.22 in. (□56.4 mm) PK26□

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Type | **PK264-01A** | 1.8° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | $120\times10^{-7}$ | C-214 |
| | **PK264-01B** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264-02A** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264-02B** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264-03A** | | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 2.4 | | | |
| | **PK264-03B** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.6 | | | |
| | **PK264-E2.0A** | | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.4 | | | |
| | **PK264-E2.0B** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK266-01A** | | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 40 | 1.64 | $300\times10^{-7}$ | |
| | **PK266-01B** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 10 | | | |
| | **PK266-02A** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | |
| | **PK266-02B** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | **PK266-03A** | | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 4.4 | | | |
| | **PK266-03B** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.1 | | | |
| | **PK266-E2.0A** | | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 2.5 | | | |
| | **PK266-E2.0B** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | |
| | | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | **PK268-01A** | | Bipolar (Series) | 248 | 1.75 | 0.71 | 12 | 17.2 | 56 | 2.6 | $480\times10^{-7}$ | |
| | **PK268-01B** | | Unipolar | 191 | 1.35 | 1 | 8.6 | 8.6 | 14 | | | |
| | **PK268-02A** | | Bipolar (Series) | 248 | 1.75 | 1.4 | 6.3 | 4.5 | 14.4 | | | |
| | **PK268-02B** | | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 3.6 | | | |
| | **PK268-03A** | | Bipolar (Series) | 248 | 1.75 | 2.1 | 4.2 | 2 | 6.4 | | | |
| | **PK268-03B** | | Unipolar | 191 | 1.35 | 3 | 3 | 1 | 1.6 | | | |
| | **PK268-E2.0A** | | Bipolar (Parallel) | 240 | 1.75 | 2.8 | 3.16 | 1.13 | 3.6 | | | |
| | **PK268-E2.0B** | | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 14.4 | | | |
| | | | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 3.6 | | | |
| Standard Type with Encoder | **PK264-01AR11** | 1.8° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | $120\times10^{-7}$ | C-233 |
| | **PK264-01AR12** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264-02AR11** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264-02AR12** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264-03AR11** | | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 2.4 | | | |
| | **PK264-03AR12** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.6 | | | |
| | **PK264-E2.0AR11** | | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.4 | | | |
| | **PK264-E2.0AR12** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK266-01AR11** | | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 40 | 1.64 | $300\times10^{-7}$ | |
| | **PK266-01AR12** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 10 | | | |
| | **PK266-02AR11** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | |
| | **PK266-02AR12** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | |
| | **PK266-03AR11** | | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 4.4 | | | |
| | **PK266-03AR12** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.1 | | | |
| | **PK266-E2.0AR11** | | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 2.5 | | | |
| | **PK266-E2.0AR12** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | |
| | | | Unipolar | 127 | 0.9 | 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: □2.22 in. (□56.4 mm) PK26□

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Resolution Type | **PK264M-01A** | 0.9° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 26 | 0.66 | 120×10⁻⁷ | C-218 |
| | **PK264M-01B** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 6.5 | | | |
| | **PK264M-02A** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | **PK264M-02B** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| | **PK264M-03A** | | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 3 | | | |
| | **PK264M-03B** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.75 | | | |
| | **PK264M-E2.0A** | | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.7 | | | |
| | **PK264M-E2.0B** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| | **PK266M-01A** | | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 50.8 | 1.64 | 300×10⁻⁷ | |
| | **PK266M-01B** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 12.7 | | | |
| | **PK266M-02A** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | **PK266M-02B** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | |
| | **PK266M-03A** | | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 5.8 | | | |
| | **PK266M-03B** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.45 | | | |
| | **PK266M-E2.0A** | | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 3.2 | | | |
| | **PK266M-E2.0B** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | |
| | **PK268M-01A** | | Bipolar (Series) | 248 | 1.75 | 0.71 | 12 | 17.2 | 77.6 | 2.6 | 480×10⁻⁷ | |
| | **PK268M-01B** | | Unipolar | 191 | 1.35 | 1 | 8.6 | 8.6 | 19.4 | | | |
| | **PK268M-02A** | | Bipolar (Series) | 248 | 1.75 | 1.4 | 6.3 | 4.5 | 19.2 | | | |
| | **PK268M-02B** | | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 4.8 | | | |
| | **PK268M-03A** | | Bipolar (Series) | 248 | 1.75 | 2.1 | 4.2 | 2 | 8.4 | | | |
| | **PK268M-03B** | | Unipolar | 191 | 1.35 | 3 | 3 | 1 | 2.1 | | | |
| | **PK268M-E2.0A** | | Bipolar (Parallel) | 240 | 1.75 | 2.8 | 3.16 | 1.13 | 4.8 | | | |
| | **PK268M-E2.0B** | | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 19.2 | | | |
| | | | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 4.8 | | | |
| High Resolution Type with Encoder | **PK264M-01AR11** | 0.9° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 26 | 0.66 | 120×10⁻⁷ | C-236 |
| | **PK264M-01AR12** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 6.5 | | | |
| | **PK264M-02AR11** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | **PK264M-02AR12** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| | **PK264M-03AR11** | | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 3 | | | |
| | **PK264M-03AR12** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.75 | | | |
| | **PK264M-E2.0AR11** | | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.7 | | | |
| | **PK264M-E2.0AR12** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| | **PK266M-01AR11** | | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 50.8 | 1.64 | 300×10⁻⁷ | |
| | **PK266M-01AR12** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 12.7 | | | |
| | **PK266M-02AR11** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | **PK266M-02AR12** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | |
| | **PK266M-03AR11** | | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 5.8 | | | |
| | **PK266M-03AR12** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.45 | | | |
| | **PK266M-E2.0AR11** | | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 3.2 | | | |
| | **PK266M-E2.0AR12** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | | | Unipolar | 127 | 0.9 | 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.

## Motor Frame Size: □2.22 in. (□56.4 mm) PK264

Frame Size of **SH** Geared Type is □2.36 in. (□60 mm)

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque lb-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SH** Geared Type | **PK264A1A-SG3.6** | 0.5° | Bipolar (Series) | 8.8 | 1 | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | 120×10⁻⁷ | C-222 |
| | **PK264B1A-SG3.6** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A1A-SG7.2** | 0.25° | Bipolar (Series) | 17.7 | 2 | 0.71 | 8.1 | 11.4 | 21.6 | | | |
| | **PK264B1A-SG7.2** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A1A-SG9** | 0.2° | Bipolar (Series) | 22 | 2.5 | 0.71 | 8.1 | 11.4 | 21.6 | | | |
| | **PK264B1A-SG9** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A1A-SG10** | 0.18° | Bipolar (Series) | 23 | 2.7 | 0.71 | 8.1 | 11.4 | 21.6 | | | |
| | **PK264B1A-SG10** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A1A-SG18** | 0.1° | Bipolar (Series) | 26 | 3 | 0.71 | 8.1 | 11.4 | 21.6 | | | |
| | **PK264B1A-SG18** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A1A-SG36** | 0.05° | Bipolar (Series) | 35 | 4 | 0.71 | 8.1 | 11.4 | 21.6 | | | |
| | **PK264B1A-SG36** | | Unipolar | | | 1 | 5.7 | 5.7 | 5.4 | | | |
| | **PK264A2A-SG3.6** | 0.5° | Bipolar (Series) | 8.8 | 1 | 1.4 | 3.9 | 2.8 | 5.6 | 0.66 | 120×10⁻⁷ | |
| | **PK264B2A-SG3.6** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264A2A-SG7.2** | 0.25° | Bipolar (Series) | 17.7 | 2 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264B2A-SG7.2** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264A2A-SG9** | 0.2° | Bipolar (Series) | 22 | 2.5 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264B2A-SG9** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264A2A-SG10** | 0.18° | Bipolar (Series) | 23 | 2.7 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264B2A-SG10** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264A2A-SG18** | 0.1° | Bipolar (Series) | 26 | 3 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264B2A-SG18** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |
| | **PK264A2A-SG36** | 0.05° | Bipolar (Series) | 35 | 4 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | **PK264B2A-SG36** | | Unipolar | | | 2 | 2.8 | 1.4 | 1.4 | | | |

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

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

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PV** Series (High Inertia Capability) | **PV264-02AA** | 1.8° | Bipolar (Series) | 150 | 1.06 | 1.4 | 4.1 | 2.92 | 7.2 | 1.53 | 280×10⁻⁷ | C-224 |
| | **PV264-02BA** | | Unipolar | 106 | 0.75 | 2 | 2.9 | 1.46 | 1.8 | | | |
| | **PV264-D2.8AA** | | Bipolar | 150 | 1.06 | 2.8 | 2.1 | 0.73 | 1.8 | | | |
| | **PV264-D2.8BA** | | | | | | | | | | | |
| | **PV266-02AA** | | Bipolar (Series) | 240 | 1.75 | 1.4 | 5.6 | 4 | 12.2 | 2.5 | 450×10⁻⁷ | |
| | **PV266-02BA** | | Unipolar | 191 | 1.35 | 2 | 4 | 2 | 3.05 | | | |
| | **PV266-D2.8AA** | | Bipolar | 240 | 1.75 | 2.8 | 2.8 | 1 | 3.05 | | | |
| | **PV266-D2.8BA** | | | | | | | | | | | |
| | **PV267-02AA** | | Bipolar (Series) | 310 | 2.2 | 1.4 | 6.7 | 4.8 | 14.2 | 3.1 | 570×10⁻⁷ | |
| | **PV267-02BA** | | Unipolar | 240 | 1.7 | 2 | 4.8 | 2.4 | 3.54 | | | |
| | **PV267-D2.8AA** | | Bipolar | 310 | 2.2 | 2.8 | 3.4 | 1.2 | 3.54 | | | |
| | **PV267-D2.8BA** | | | | | | | | | | | |
| | **PV269-02AA** | | Bipolar (Series) | 440 | 3.1 | 1.4 | 8.3 | 5.96 | 22.8 | 4.9 | 900×10⁻⁷ | |
| | **PV269-02BA** | | Unipolar | 310 | 2.2 | 2 | 6 | 2.98 | 5.7 | | | |
| | **PV269-D2.8AA** | | Bipolar | 440 | 3.1 | 2.8 | 4.2 | 1.49 | 5.7 | | | |
| | **PV269-D2.8BA** | | | | | | | | | | | |

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

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

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque oz-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard Type | **PK296-01AA** | 1.8° | Bipolar (Series) | 440 | 3.1 | 1.4 | 6.2 | 4.4 | 30.8 | 7.7 | 1400×10⁻⁷ | C-277 |
| | **PK296-01BA** | | Unipolar | 310 | 2.2 | 2 | 4.4 | 2.2 | 7.7 | | | |
| | **PK296-02AA** | | Bipolar (Series) | 440 | 3.1 | 2.1 | 4.2 | 2 | 14 | | | |
| | **PK296-02BA** | | Unipolar | 310 | 2.2 | 3 | 3 | 1 | 3.5 | | | |
| | **PK296-03AA** | | Bipolar (Series) | 440 | 3.1 | 3.18 | 2.8 | 0.96 | 6 | | | |
| | **PK296-03BA** | | Unipolar | 310 | 2.2 | 4.5 | 2 | 0.48 | 1.5 | | | |
| | **PK296-F4.5A** | | Bipolar (Parallel) | 440 | 3.1 | 6.3 | 1.4 | 0.24 | 1.5 | | | |
| | **PK296-F4.5B** | | Bipolar (Series) | 440 | 3.1 | 3.18 | 2.8 | 0.96 | 6 | | | |
| | | | Unipolar | 310 | 2.2 | 4.5 | 2 | 0.48 | 1.5 | | | |
| | **PK299-01AA** | | Bipolar (Series) | 880 | 6.2 | 1.4 | 9 | 6.4 | 56 | 14.8 | 2700×10⁻⁷ | |
| | **PK299-01BA** | | Unipolar | 620 | 4.4 | 2 | 6.4 | 3.2 | 14 | | | |
| | **PK299-02AA** | | Bipolar (Series) | 880 | 6.2 | 2.1 | 6 | 3 | 24 | | | |
| | **PK299-02BA** | | Unipolar | 620 | 4.4 | 3 | 4.2 | 1.5 | 6 | | | |
| | **PK299-03AA** | | Bipolar (Series) | 880 | 6.2 | 3.18 | 3.9 | 1.32 | 10 | | | |
| | **PK299-03BA** | | Unipolar | 620 | 4.4 | 4.5 | 2.8 | 0.66 | 2.5 | | | |
| | **PK299-F4.5A** | | Bipolar (Parallel) | 880 | 6.2 | 6.3 | 1.9 | 0.33 | 2.5 | | | |
| | **PK299-F4.5B** | | Bipolar (Series) | 880 | 6.2 | 3.18 | 3.9 | 1.32 | 10 | | | |
| | | | Unipolar | 620 | 4.4 | 4.5 | 2.8 | 0.66 | 2.5 | | | |
| | **PK2913-01AA** | | Bipolar (Series) | 1320 | 9.3 | 1.4 | 10 | 7.6 | 76.8 | 22 | 4000×10⁻⁷ | |
| | **PK2913-01BA** | | Unipolar | 930 | 6.6 | 2 | 7.6 | 3.8 | 19.2 | | | |
| | **PK2913-02AA** | | Bipolar (Series) | 1320 | 9.3 | 2.8 | 5.3 | 1.94 | 16.8 | | | |
| | **PK2913-02BA** | | Unipolar | 930 | 6.6 | 4 | 3.8 | 0.97 | 4.2 | | | |
| | **PK2913-F4.0A** | | Bipolar (Parallel) | 1320 | 9.3 | 5.6 | 2.6 | 0.49 | 4.2 | | | |
| | **PK2913-F4.0B** | | Bipolar (Series) | 1320 | 9.3 | 2.8 | 5.3 | 1.94 | 16.8 | | | |
| | | | Unipolar | 930 | 6.6 | 4 | 3.8 | 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: □3.35 in. (□85 mm) PK296 Frame Size of **SH** Geared Type is □3.54 in. (□90 mm)

| Type | Model Single Shaft / Double Shaft | Basic Step Angle | Connection Type | Holding Torque lb-in | Holding Torque N·m | Current per Phase A/phase | Voltage VDC | Resistance Ω/phase | Inductance mH/phase | Rotor Inertia oz-in² | Rotor Inertia kg·m² | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SH** Geared Type | **PK296A1A-SG3.6** | 0.5° | Bipolar (Series) | 22 | 2.5 | 1 | 4.4 | 4.4 | 30.8 | 7.7 | 1400×10⁻⁷ | C-231 |
| | **PK296B1A-SG3.6** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A1A-SG7.2** | 0.25° | Bipolar (Series) | 44 | 5 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | **PK296B1A-SG7.2** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A1A-SG9** | 0.2° | Bipolar (Series) | 55 | 6.3 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | **PK296B1A-SG9** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A1A-SG10** | 0.18° | Bipolar (Series) | 61 | 7 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | **PK296B1A-SG10** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A1A-SG18** | 0.1° | Bipolar (Series) | 79 | 9 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | **PK296B1A-SG18** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A1A-SG36** | 0.05° | Bipolar (Series) | 106 | 12 | 1 | 4.4 | 4.4 | 30.8 | | | |
| | **PK296B1A-SG36** | | Unipolar | | | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| | **PK296A2A-SG3.6** | 0.5° | Bipolar (Series) | 22 | 2.5 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG3.6** | | Unipolar | | | 3 | 1.4 | 0.48 | 1.5 | | | |
| | **PK296A2A-SG7.2** | 0.25° | Bipolar (Series) | 44 | 5 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG7.2** | | Unipolar | | | 3 | 1.4 | 0.48 | 1.5 | | | |
| | **PK296A2A-SG9** | 0.2° | Bipolar (Series) | 55 | 6.3 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG9** | | Unipolar | | | 3 | 1.4 | 0.48 | 1.5 | | | |
| | **PK296A2A-SG10** | 0.18° | Bipolar (Series) | 61 | 7 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG10** | | Unipolar | | | 3 | 1.4 | 0.48 | 1.5 | | | |
| | **PK296A2A-SG18** | 0.1° | Bipolar (Series) | 79 | 9 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG18** | | Unipolar | | | 3 | 1.4 | 0.48 | 1.5 | | | |
| | **PK296A2A-SG36** | 0.05° | Bipolar (Series) | 106 | 12 | 2.1 | 2 | 0.96 | 6 | | | |
| | **PK296B2A-SG36** | | 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.

# □ 1.10 in. (□ 28 mm)

## Step Angle 1.8°

## PK Series Standard P Type (High Torque)

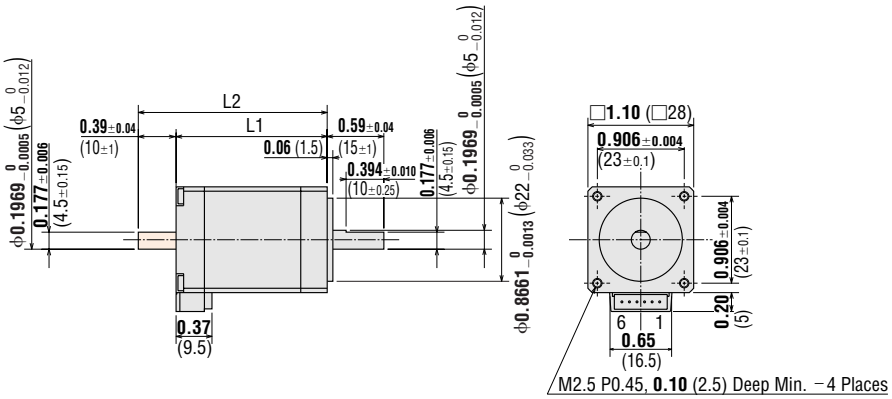
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in$^2$ | <br>kg·m$^2$ | Lead Wires (Pins) |
|---|---|---|---|---|---|---|---|---|---|---|
| **PK223PA** | Bipolar (Series) | 9.2 | 0.065 | 0.67 | 3.8 | 5.6 | 4 | 0.049 | $9\times10^{-7}$ | 6 |
| **PK223PB** | Unipolar | 7.1 | 0.05 | 0.95 | 2.66 | 2.8 | 1 | | | |
| **PK224PA** | Bipolar (Series) | 13.7 | 0.097 | 0.67 | 4.6 | 6.8 | 4.8 | 0.066 | $12\times10^{-7}$ | 6 |
| **PK224PB** | Unipolar | 10.6 | 0.075 | 0.95 | 3.2 | 3.4 | 1.2 | | | |
| **PK225PA** | Bipolar (Series) | 15.6 | 0.11 | 0.67 | 6.2 | 9.2 | 5.6 | 0.098 | $18\times10^{-7}$ | 6 |
| **PK225PB** | Unipolar | 12.7 | 0.09 | 0.95 | 4.4 | 4.6 | 1.4 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions

Scale 1/2, Unit = **inch** (mm)




✻ The length of machining on double shaft model is 0.394±0.010 (10±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

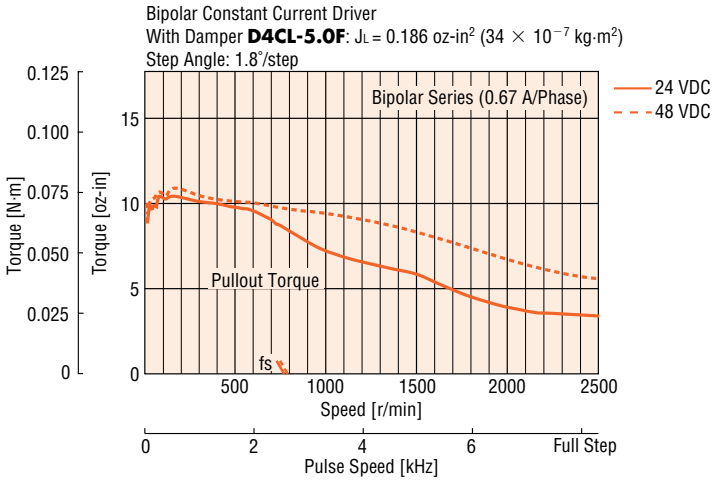
| Model | L1<br>inch (mm) | L2<br>inch (mm) | Weight<br>lb. (kg) | DXF |
|---|---|---|---|---|
| **PK223PA** | 1.26 (32) | — | 0.24 (0.11) | B326 |
| **PK223PB** | | 1.65 (42) | | |
| **PK224PA** | 1.57 (40) | — | 0.31 (0.14) | B327 |
| **PK224PB** | | 1.97 (50) | | |
| **PK225PA** | 2.03 (51.5) | —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

**Applicable Connector**
The following housing and contacts must be purchased separately.
Housing: 51065-0600 (MOLEX)
Contact: 50212-8100 (MOLEX)
Connector Assembly Tool: 57176-5000 (MOLEX)

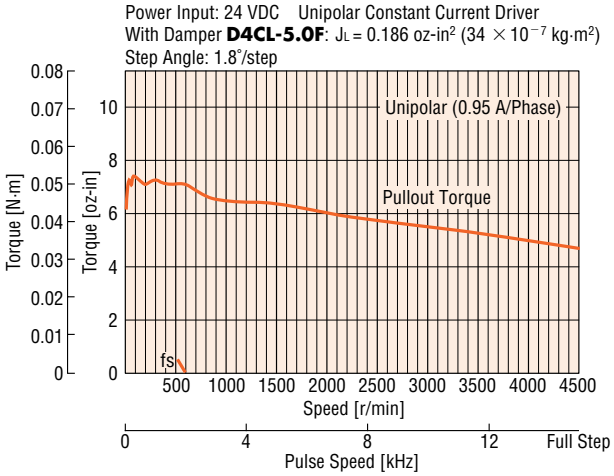
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

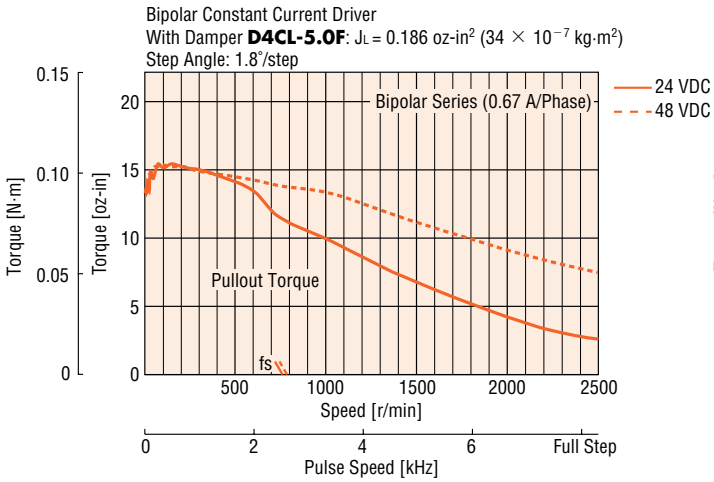
## PK223PB Bipolar (Series)



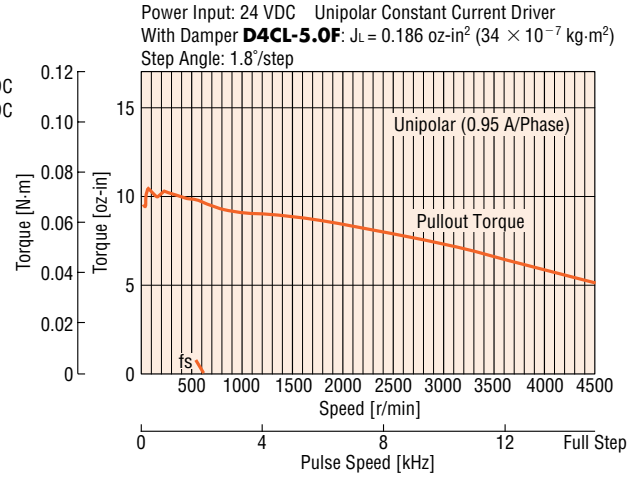

## PK223PB Unipolar



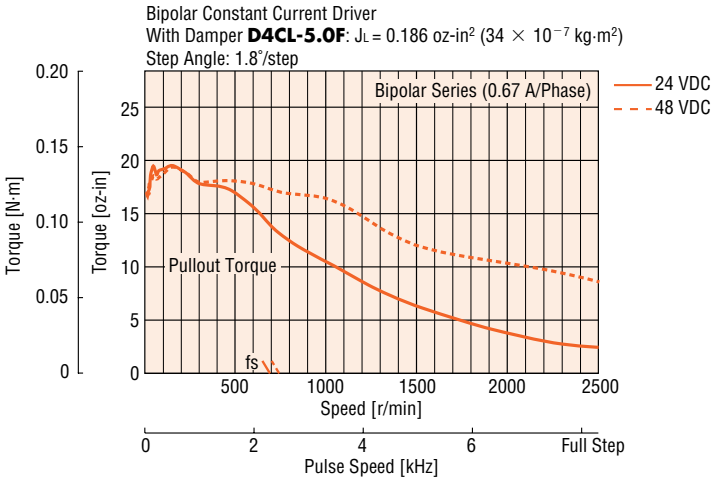

## PK224PB Bipolar (Series)



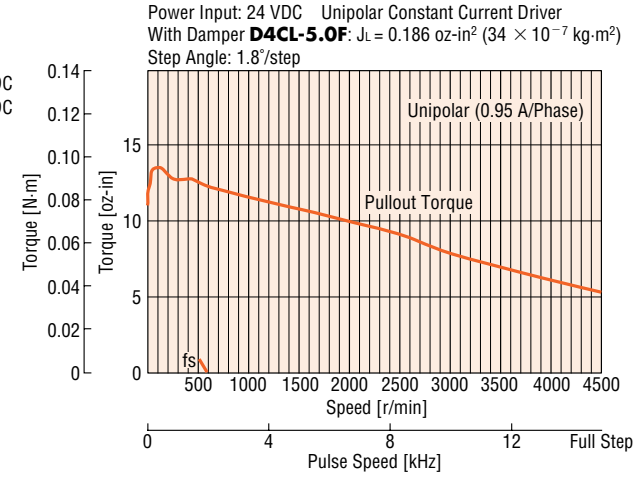

## PK224PB Unipolar




## PK225PB Bipolar (Series)



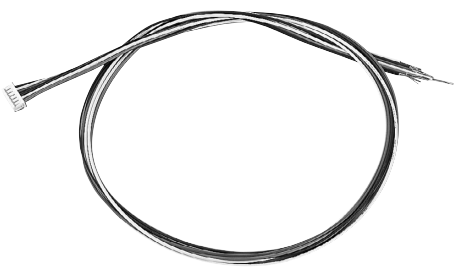

## PK225PB Unipolar




# Motor Cables (Sold separately)

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

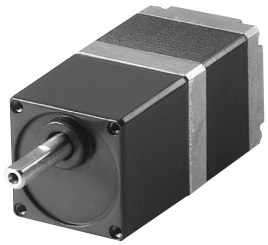
| Model | Cable Length feet | (m) | Number of Leads | Lead Specifications UL Style No. | AWG No. |
|---|---|---|---|---|---|
| **LC2U06A** | 2 | (0.6) | 6 Leads | 3265 | 24 |
| **LC2U10A** | 3.3 | (1) | | | |



Connection Diagrams C-189 General Specifications C-240

# □ 1.10 in. (□ 28 mm)

## PK Series SH Geared Type



## Specifications

### Motor Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires (Pins) |
|---|---|---|---|---|---|---|---|---|
| **PK223PA-SG□** | Bipolar (Series) | 0.67 | 3.8 | 5.6 | 4 | 0.049 | $9\times10^{-7}$ | 6 |
| **PK223PB-SG□** | Unipolar | 0.95 | 2.66 | 2.8 | 1 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

- Enter the gear ratio in the box (□) within the model number.

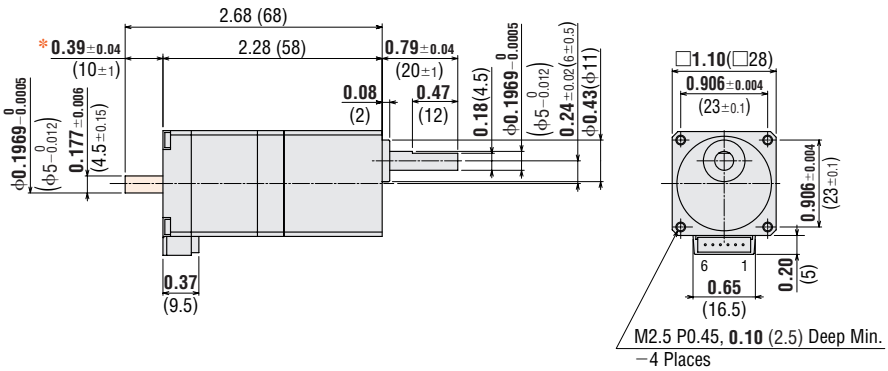
### Gearmotor Specifications

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

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

## Dimensions

Scale 1/2, Unit = **inch** (mm)




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

**Mounting Screws** (included)
M2.5 P0.45 0.31 in. (8 mm) length: 4 pieces

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

**Applicable Connector**
The following housing and contacts must be purchased separately.
Housing: 51065-0600 (MOLEX)
Contact: 50212-8100 (MOLEX)
Connector Assembly Tool: 57176-5000 (MOLEX)

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

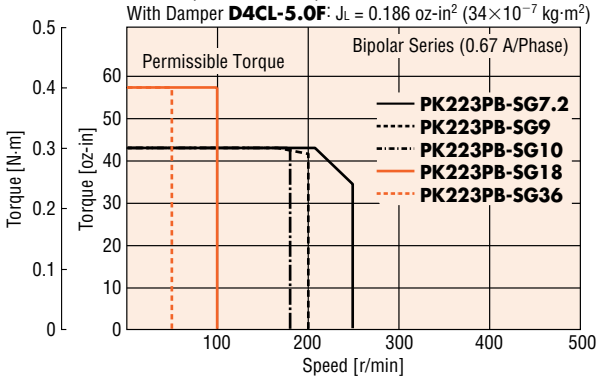
- Enter the gear ratio in the box (□) within the model number.

## Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

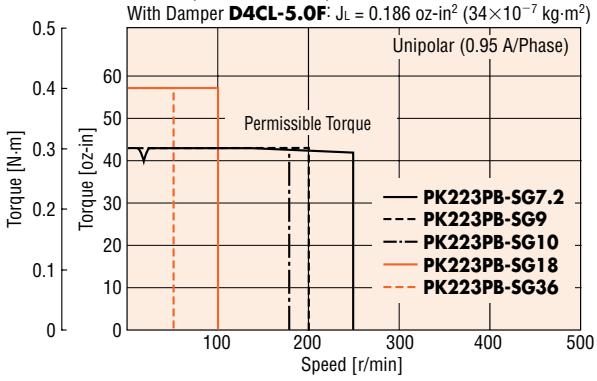
● **PK223PB-SG**□ Bipolar (Series) 24 VDC

Power Input: 24 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)



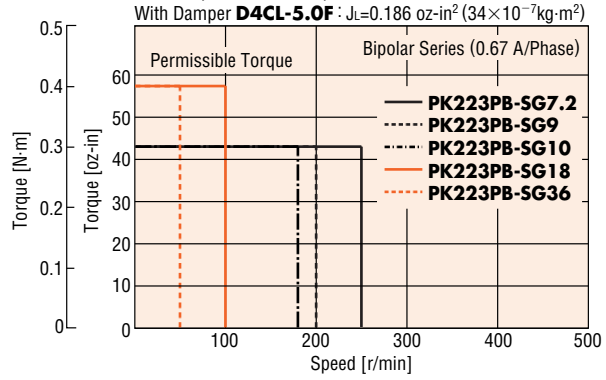

● **PK223PB-SG**□ Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)




● **PK223PB-SG**□ Bipolar (Series) 48 VDC

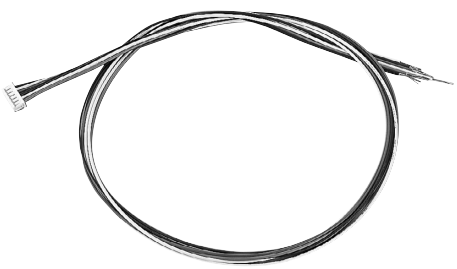
Power Input: 48 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$=0.186 oz-in$^2$ (34×10$^{-7}$kg·m$^2$)




## Motor Cables (Sold separately)

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

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



Connection Diagrams C-189 General Specifications C-240

# □1.38 in. (□35 mm)

## Step Angle 1.8°

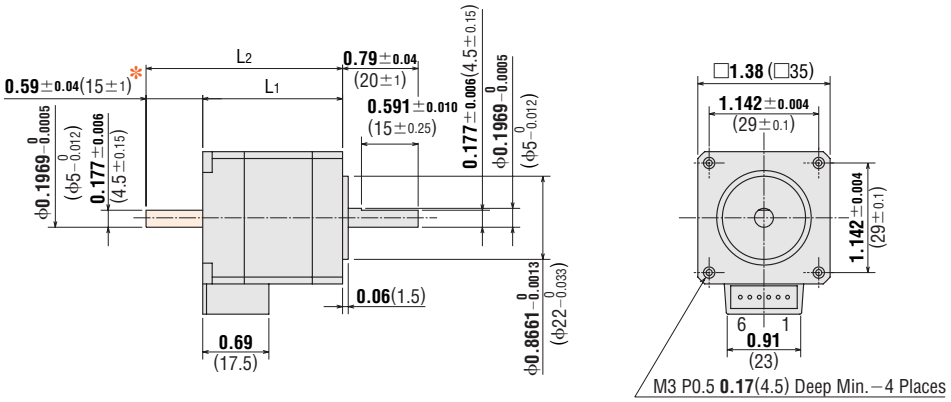
## PK Series Standard P Type (High Torque)

## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires (Pins) |
|---|---|---|---|---|---|---|---|---|---|---|
| **PK233PA** | Bipolar (Series) | 28 | 0.2 | 0.85 | 4.6 | 5.4 | 5.6 | 0.131 | $24\times10^{-7}$ | 6 |
| **PK233PB** | Unipolar | 22 | 0.16 | 1.2 | 3.24 | 2.7 | 1.4 | | | |
| **PK235PA** | Bipolar (Series) | 52 | 0.37 | 0.85 | 5.8 | 6.8 | 8 | 0.27 | $50\times10^{-7}$ | 6 |
| **PK235PB** | Unipolar | 42 | 0.3 | 1.2 | 4.08 | 3.4 | 2 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions Scale 1/2, Unit = **inch** (mm)




* The length of machining on double shaft model is 0.591±0.010 (15±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

**Applicable Connector**
The following housing and contacts must be purchased separately.
Housing: 51103-0600 (MOLEX, Positive Lock Type) or
51102-0600 (MOLEX, Friction Lock Type)
Contact: 50351-8100 (MOLEX)
Connector Assembly Tool: 57295-5000 (MOLEX)

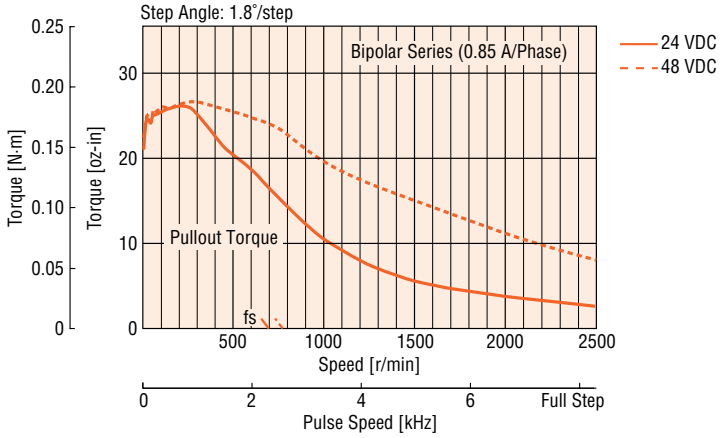
| Model | L1 inch (mm) | L2 inch (mm) | Weight lb. (kg) | DXF |
|---|---|---|---|---|
| **PK233PA** | 1.46 (37) | — | 0.4 (0.18) | B329 |
| **PK233PB** | | 2.05 (52) | | |
| **PK235PA** | 2.05 (52) | — | 0.63 (0.285) | B330 |
| **PK235PB** | | 2.64 (67) | | |

## Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

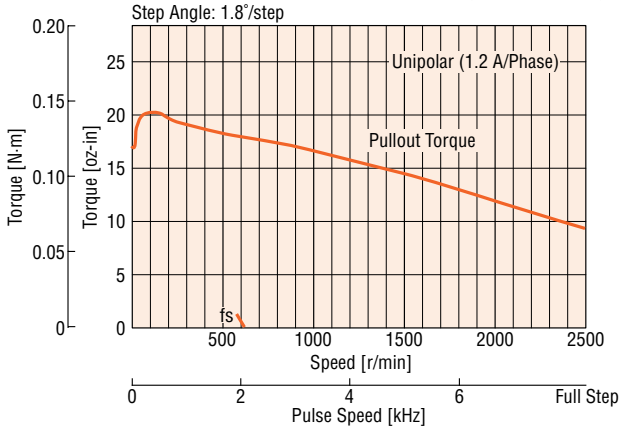
● **PK233PB** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



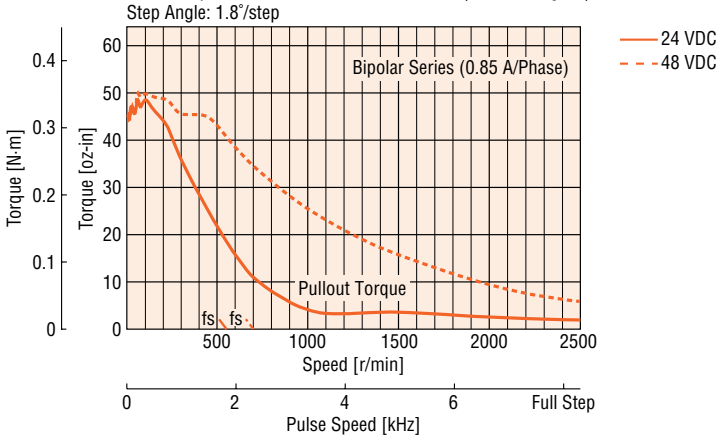

● **PK233PB** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 ×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



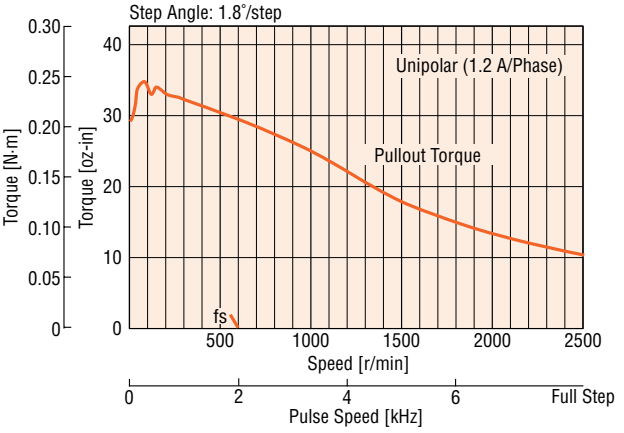

● **PK235PB** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




● **PK235PB** Unipolar

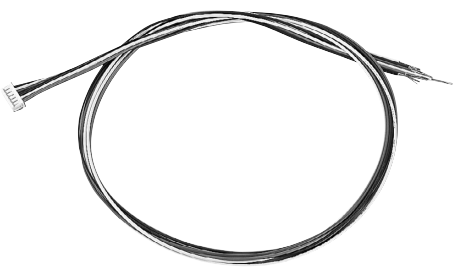
Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 ×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## Motor Cables (Sold separately)

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

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

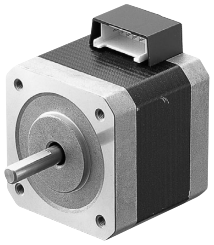


Connection Diagrams C-189 General Specifications C-240

# □ 1.65 in. (□ 42 mm)

## Step Angle 1.8°

## PK Series Standard P Type (High Torque)

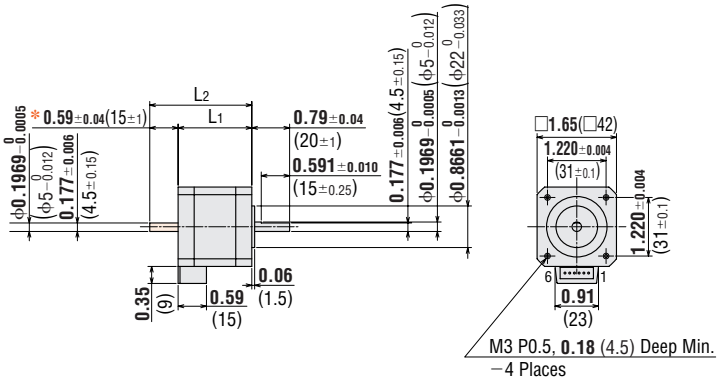


## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in$^2$ | <br>kg·m$^2$ | Lead Wires (Pins) |
|---|---|---|---|---|---|---|---|---|---|---|
| **PK244PA** | Bipolar (Series) | 68 | 0.48 | 0.85 | 6.8 | 8 | 15.6 | 0.31 | $57\times10^{-7}$ | 6 |
| **PK244PB** | Unipolar | 55 | 0.39 | 1.2 | 4.8 | 4 | 3.9 | | | |
| **PK246PA** | Bipolar (Series) | 132 | 0.93 | 0.85 | 10 | 12 | 26 | 0.62 | $114\times10^{-7}$ | 6 |
| **PK246PB** | Unipolar | 106 | 0.75 | 1.2 | 7.2 | 6 | 6.5 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions Scale 1/4, Unit = **inch** (mm)




✻ The length of machining on double shaft model is 0.591±0.010 (15±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

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

### Applicable Connector

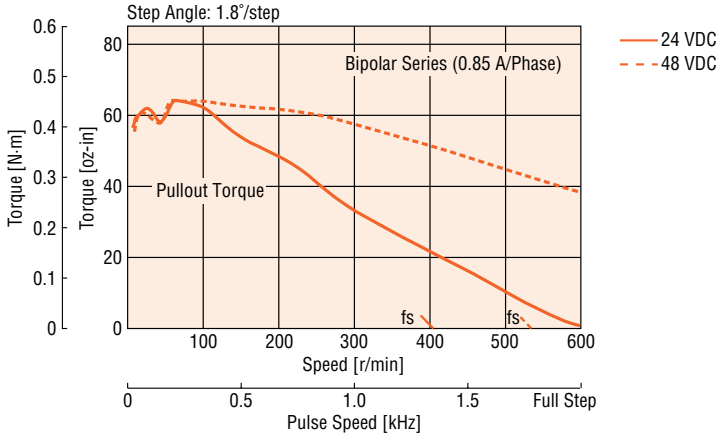
The following housing and contacts must be purchased separately.
Housing: 51103-0600 (MOLEX, Positive Lock Type) or
51102-0600 (MOLEX, Friction Lock Type)
Contact: 50351-8100 (MOLEX)
Connector Assembly Tool: 57295-5000 (MOLEX)

## Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

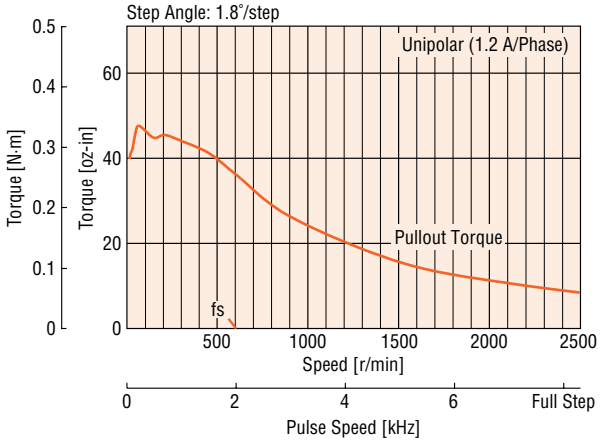
● **PK244PB** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



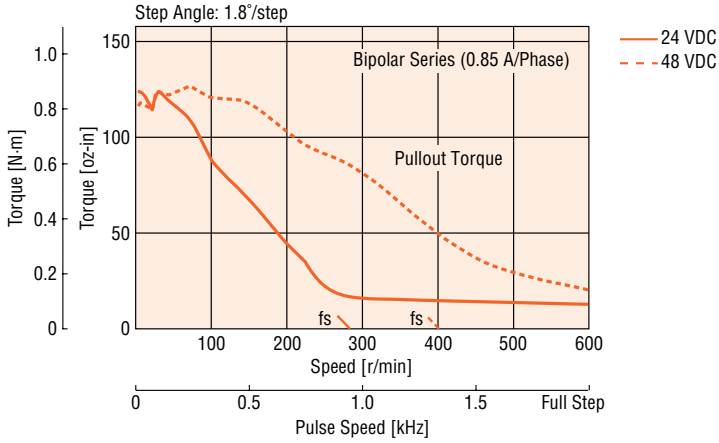

● **PK244PB** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



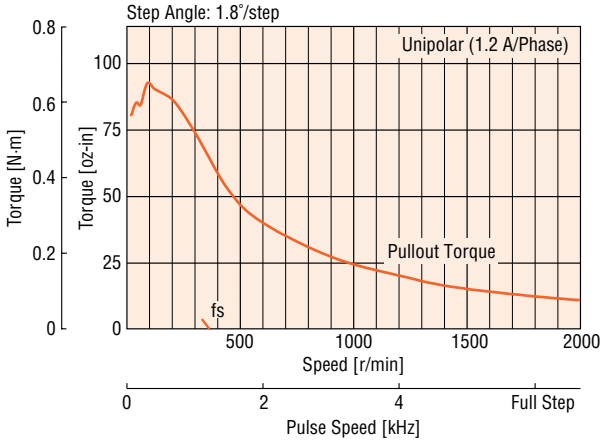

● **PK246PB** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




● **PK246PB** Unipolar

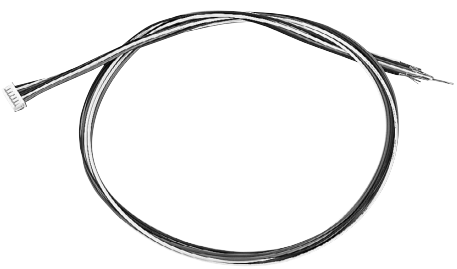
Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## Motor Cables (Sold separately)

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

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

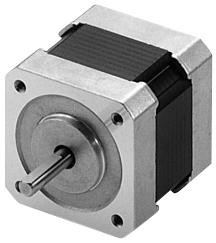


Connection Diagrams C-189 General Specifications C-240

# □ 1.65 in. (□ 42 mm)

## Step Angle 1.8°

## PK Series Standard Type



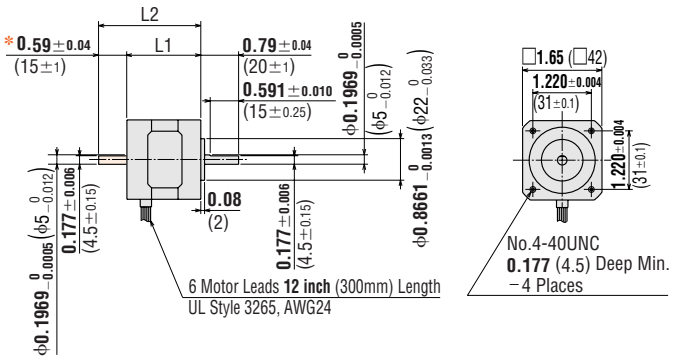
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in$^2$ | <br>kg·m$^2$ | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK243-01AA** | Bipolar (Series) | 28 | 0.2 | 0.67 | 5.6 | 8.4 | 10 | 0.191 | $35\times10^{-7}$ | 6 | **UMK243□A/ CSK243-□TA** |
| **PK243-01BA** | Unipolar | 22 | 0.16 | 0.95 | 4 | 4.2 | 2.5 | | | | |
| **PK243-02AA** | Bipolar (Series) | 28 | 0.2 | 0.28 | 13 | 48 | 60 | 0.191 | $35\times10^{-7}$ | 6 | — |
| **PK243-02BA** | Unipolar | 22 | 0.16 | 0.4 | 9.6 | 24 | 15 | | | | |
| **PK243-03AA** | Bipolar (Series) | 28 | 0.2 | 0.22 | 17 | 77 | 84 | 0.191 | $35\times10^{-7}$ | 6 | — |
| **PK243-03BA** | Unipolar | 22 | 0.16 | 0.31 | 12 | 38.5 | 21 | | | | |
| **PK244-01AA** | Bipolar (Series) | 46 | 0.33 | 0.85 | 5.6 | 6.6 | 12.8 | 0.3 | $54\times10^{-7}$ | 6 | **UMK244□A/ CSK244-□TA** |
| **PK244-01BA** | Unipolar | 36 | 0.26 | 1.2 | 4 | 3.3 | 3.2 | | | | |
| **PK244-02AA** | Bipolar (Series) | 46 | 0.33 | 0.57 | 8.6 | 15 | 26.8 | 0.3 | $54\times10^{-7}$ | 6 | — |
| **PK244-02BA** | Unipolar | 36 | 0.26 | 0.8 | 6 | 7.5 | 6.7 | | | | |
| **PK244-03AA** | Bipolar (Series) | 46 | 0.33 | 0.28 | 17 | 60 | 120 | 0.3 | $54\times10^{-7}$ | 6 | — |
| **PK244-03BA** | Unipolar | 36 | 0.26 | 0.4 | 12 | 30 | 30 | | | | |
| **PK244-04AA** | Bipolar (Series) | 46 | 0.33 | 0.14 | 34 | 240 | 428 | 0.3 | $54\times10^{-7}$ | 6 | — |
| **PK244-04BA** | Unipolar | 36 | 0.26 | 0.2 | 24 | 120 | 107 | | | | |
| **PK245-01AA** | Bipolar (Series) | 61 | 0.43 | 0.85 | 5.6 | 6.6 | 11.2 | 0.37 | $68\times10^{-7}$ | 6 | **UMK245□A/ CSK245-□TA** |
| **PK245-01BA** | Unipolar | 45 | 0.32 | 1.2 | 4 | 3.3 | 2.8 | | | | |
| **PK245-02AA** | Bipolar (Series) | 61 | 0.43 | 0.57 | 8.6 | 15 | 28.4 | 0.37 | $68\times10^{-7}$ | 6 | — |
| **PK245-02BA** | Unipolar | 45 | 0.32 | 0.8 | 6 | 7.5 | 7.1 | | | | |
| **PK245-03AA** | Bipolar (Series) | 61 | 0.43 | 0.28 | 17 | 60 | 100 | 0.37 | $68\times10^{-7}$ | 6 | — |
| **PK245-03BA** | Unipolar | 45 | 0.32 | 0.4 | 12 | 30 | 25 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions

Scale 1/4, Unit = **inch** (mm)




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

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

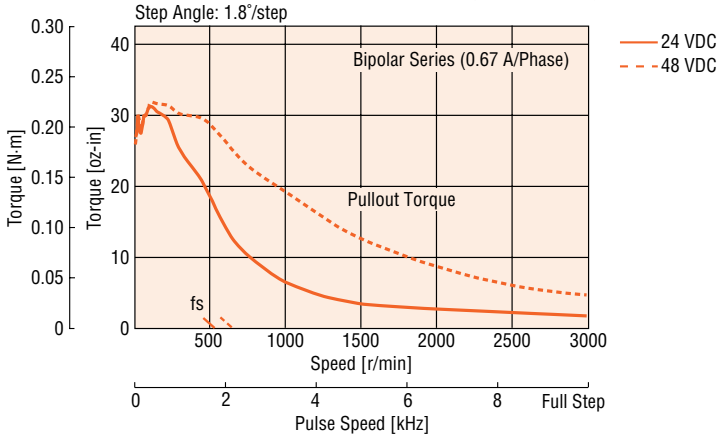
✻ The length of machining on double shaft model is 0.591±0.010 (15±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

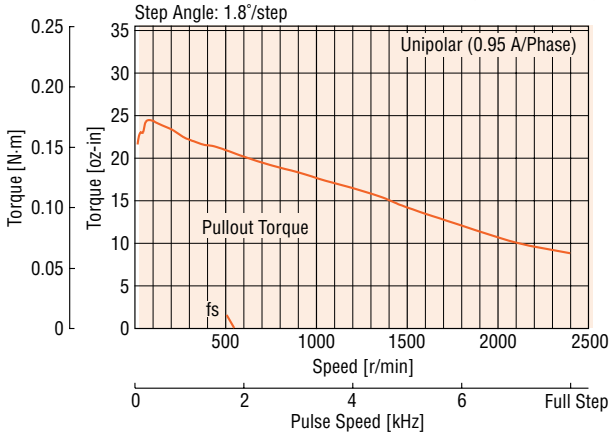
## PK243-01BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



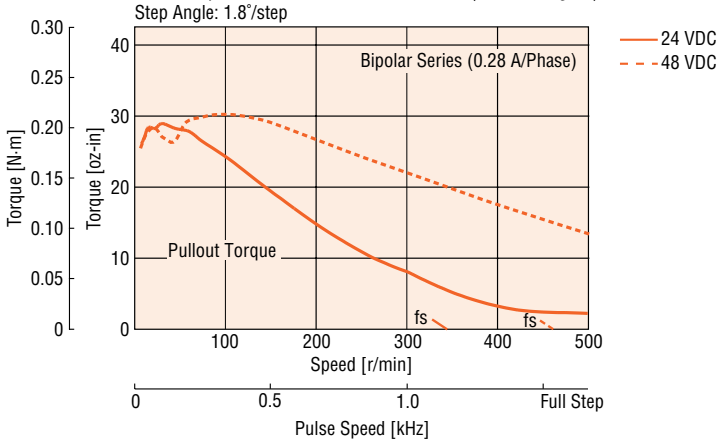

## PK243-01BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



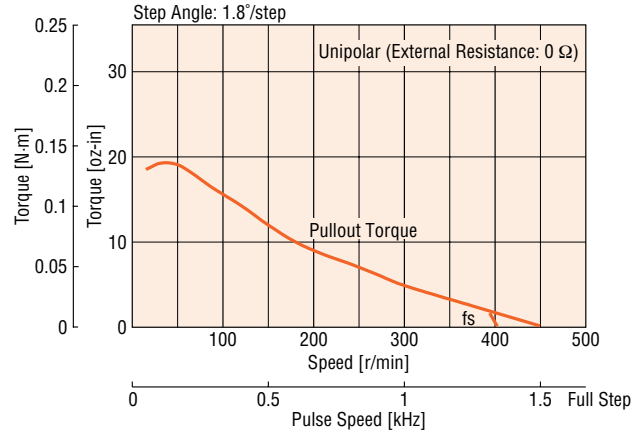

## PK243-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



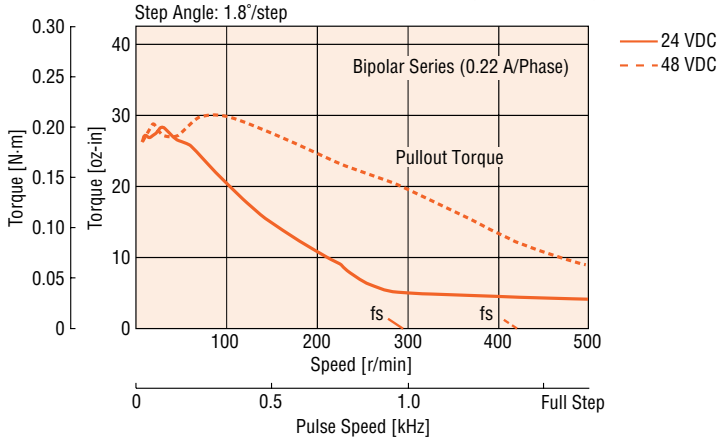

## PK243-02BA Unipolar

Power Input: 11.5 VDC Unipolar Constant Voltage Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



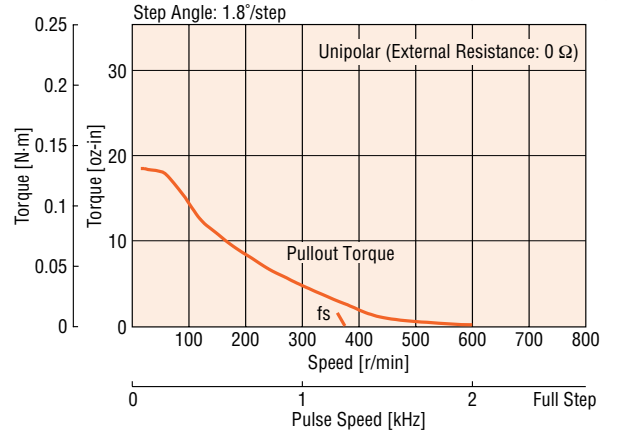

## PK243-03BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## PK243-03BA Unipolar

Power Input: 13.6 VDC Unipolar Constant Voltage Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



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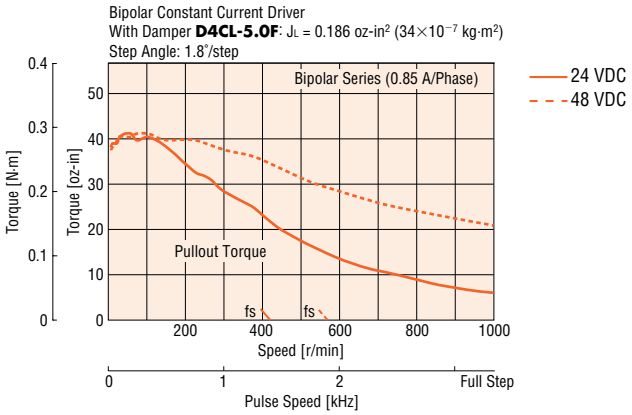
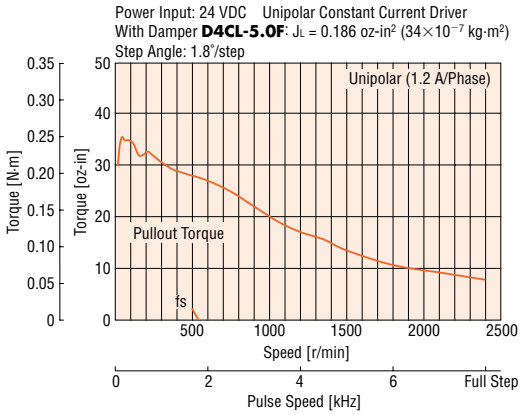
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

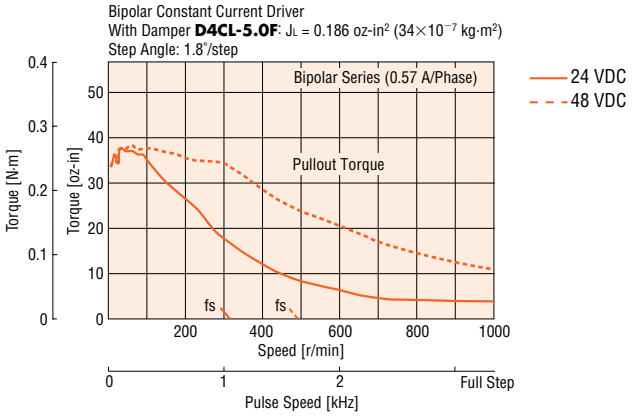
## PK244-01BA Bipolar (Series)



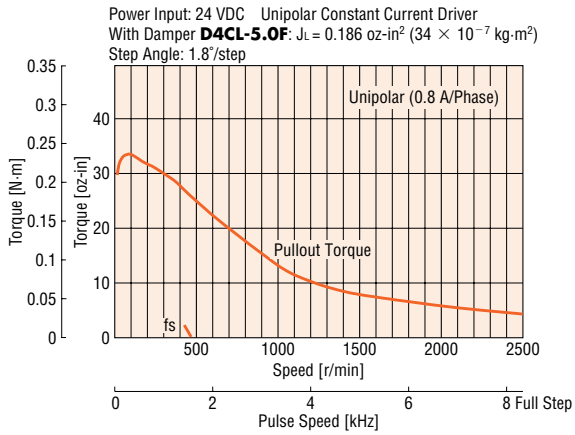

## PK244-01BA Unipolar



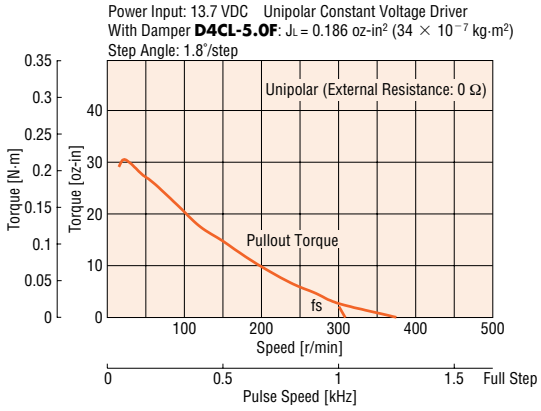

## PK244-02BA Bipolar (Series)



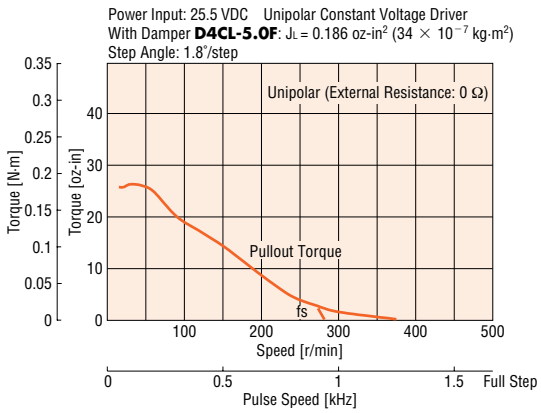

## PK244-02BA Unipolar




## PK244-03BA Unipolar

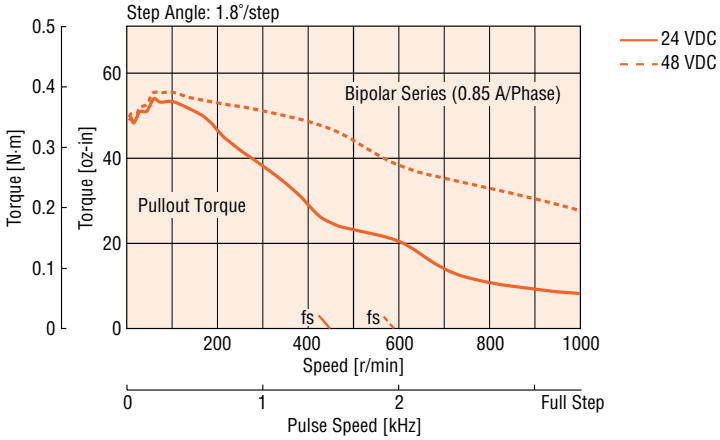



## PK244-04BA Unipolar



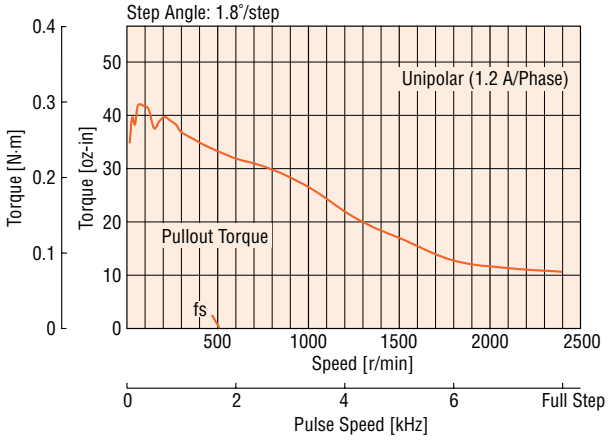
## ● **PK245-01BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



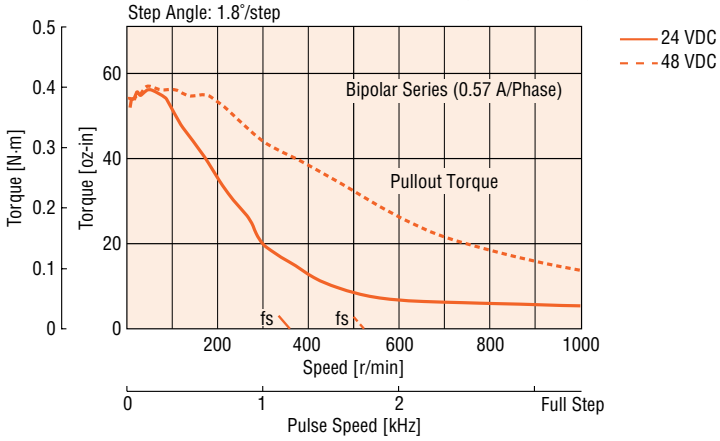

## ● **PK245-01BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



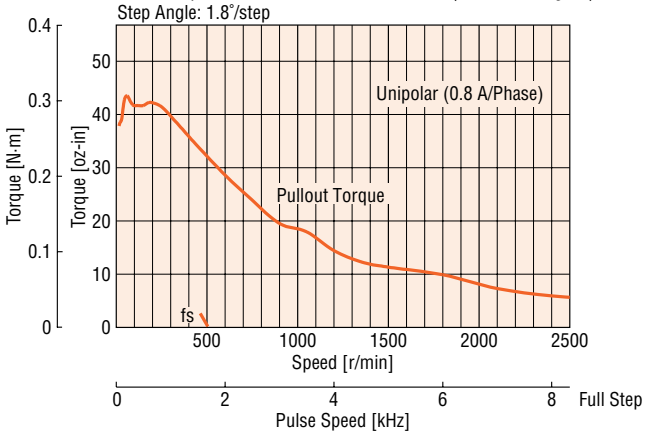

## ● **PK245-02BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



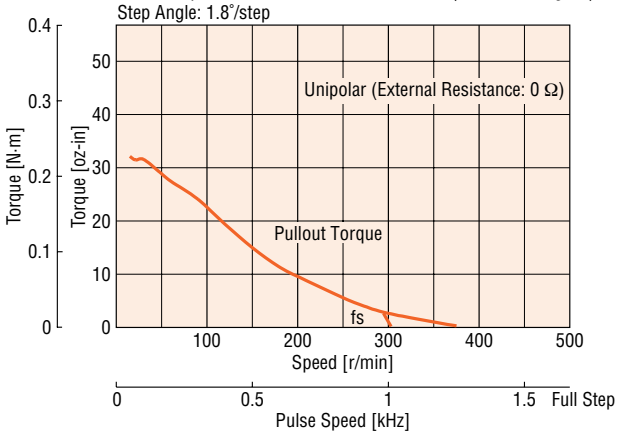

## ● **PK245-02BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## ● **PK245-03BA** Unipolar

Power Input: 13.7 VDC Unipolar Constant Voltage Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step







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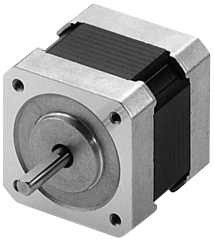
General Specifications C-240

# □1.65 in. (□42 mm)

## Step Angle 0.9°

## PK Series High Resolution Type

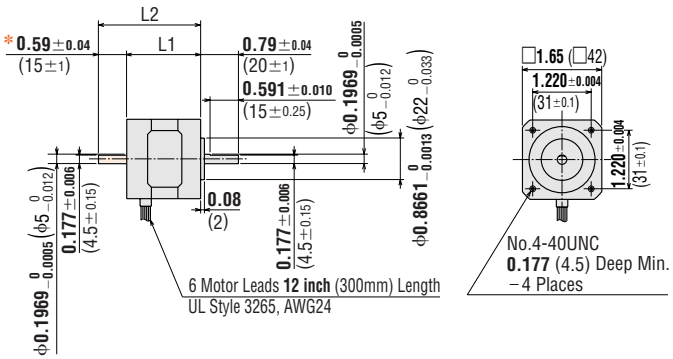


## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in$^2$ | <br>kg·m$^2$ | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK243M-01AA** | Bipolar (Series) | 28 | 0.2 | 0.67 | 5.6 | 8.4 | 15.2 | 0.191 | $35\times10^{-7}$ | 6 | **UMK243M□A/ CSK243M-□TA** |
| **PK243M-01BA** | Unipolar | 22 | 0.16 | 0.95 | 4 | 4.2 | 3.8 | | | | |
| **PK243M-02AA** | Bipolar (Series) | 28 | 0.2 | 0.42 | 8.4 | 20 | 38.8 | 0.191 | $35\times10^{-7}$ | 6 | — |
| **PK243M-02BA** | Unipolar | 22 | 0.16 | 0.6 | 6 | 10 | 9.7 | | | | |
| **PK243M-03AA** | Bipolar (Series) | 28 | 0.2 | 0.22 | 17 | 77 | 136 | 0.191 | $35\times10^{-7}$ | 6 | — |
| **PK243M-03BA** | Unipolar | 22 | 0.16 | 0.31 | 12 | 38.5 | 34 | | | | |
| **PK244M-01AA** | Bipolar (Series) | 44 | 0.31 | 0.85 | 5.6 | 6.6 | 17.2 | 0.3 | $54\times10^{-7}$ | 6 | **UMK244M□A/ CSK244M-□TA** |
| **PK244M-01BA** | Unipolar | 36 | 0.26 | 1.2 | 4 | 3.3 | 4.3 | | | | |
| **PK244M-02AA** | Bipolar (Series) | 44 | 0.31 | 0.57 | 8.6 | 15 | 38.8 | 0.3 | $54\times10^{-7}$ | 6 | — |
| **PK244M-02BA** | Unipolar | 36 | 0.26 | 0.8 | 6 | 7.5 | 9.7 | | | | |
| **PK244M-03AA** | Bipolar (Series) | 44 | 0.31 | 0.28 | 17 | 60 | 152 | 0.3 | $54\times10^{-7}$ | 6 | — |
| **PK244M-03BA** | Unipolar | 36 | 0.26 | 0.4 | 12 | 30 | 38 | | | | |
| **PK245M-01AA** | Bipolar (Series) | 53 | 0.38 | 0.85 | 5.6 | 6.6 | 15.6 | 0.37 | $68\times10^{-7}$ | 6 | **UMK245M□A/ CSK245M-□TA** |
| **PK245M-01BA** | Unipolar | 45 | 0.32 | 1.2 | 4 | 3.3 | 3.9 | | | | |
| **PK245M-02AA** | Bipolar (Series) | 53 | 0.38 | 0.57 | 8.6 | 15 | 39.6 | 0.37 | $68\times10^{-7}$ | 6 | — |
| **PK245M-02BA** | Unipolar | 45 | 0.32 | 0.8 | 6 | 7.5 | 9.9 | | | | |
| **PK245M-03AA** | Bipolar (Series) | 53 | 0.38 | 0.28 | 17 | 60 | 128 | 0.37 | $68\times10^{-7}$ | 6 | — |
| **PK245M-03BA** | Unipolar | 45 | 0.32 | 0.4 | 12 | 30 | 32 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions Scale 1/4, Unit = **inch** (mm)




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

✻ The length of machining on double shaft model is 0.591±0.010 (15±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

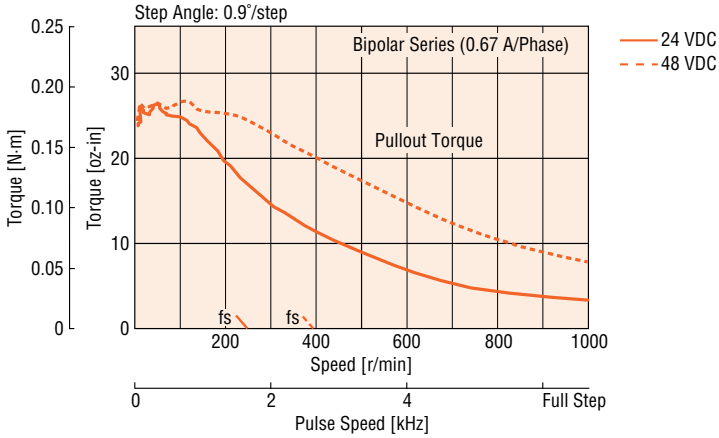
● Enter the winding specification in the box (□) within the model number.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

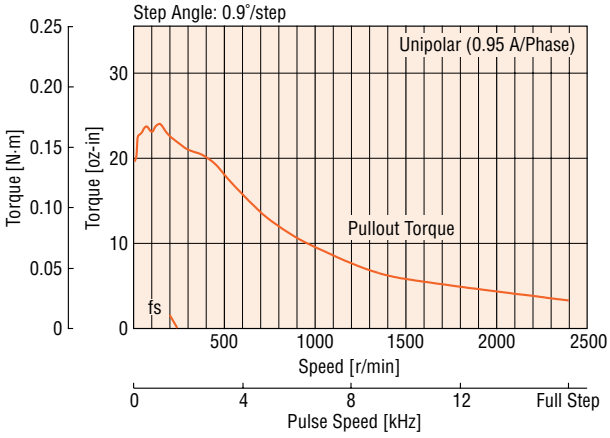
## PK243M-01BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



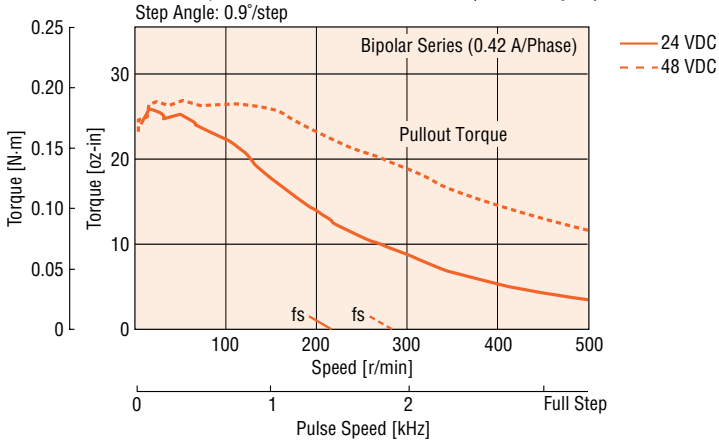

## PK243M-01BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



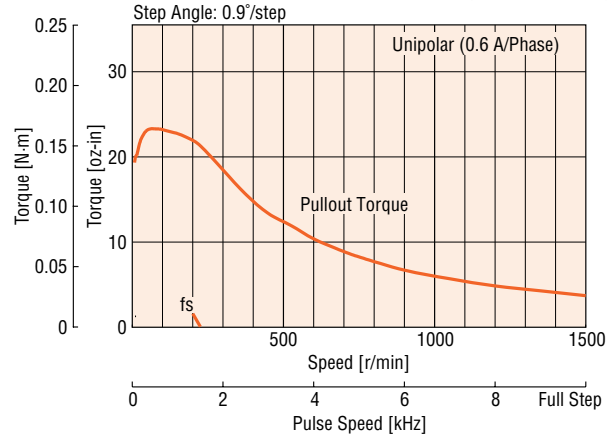

## PK243M-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



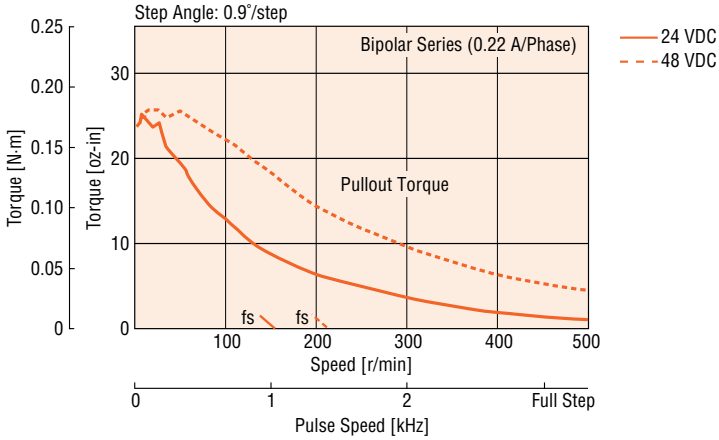

## PK243M-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



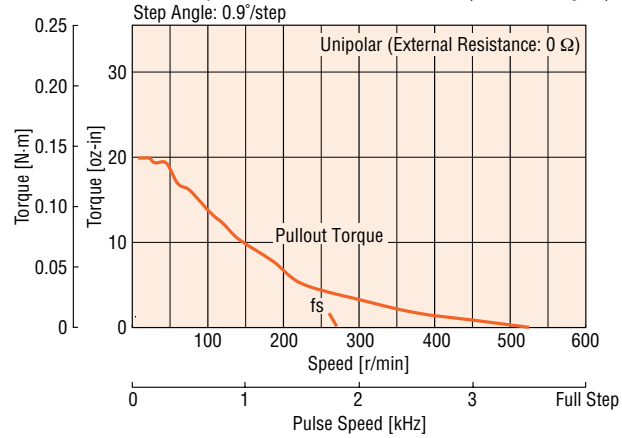

## PK243M-03BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step




## PK243M-03BA Unipolar

Power Input: 13.5 VDC Unipolar Constant Voltage Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step

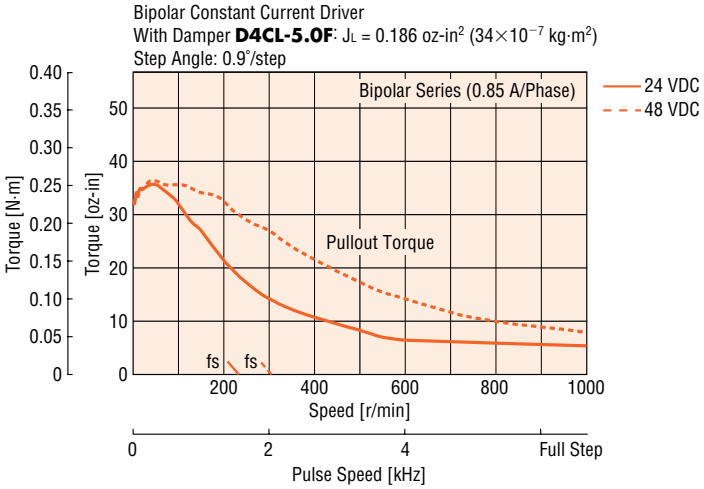



Connection Diagrams C-189
General Specifications C-240

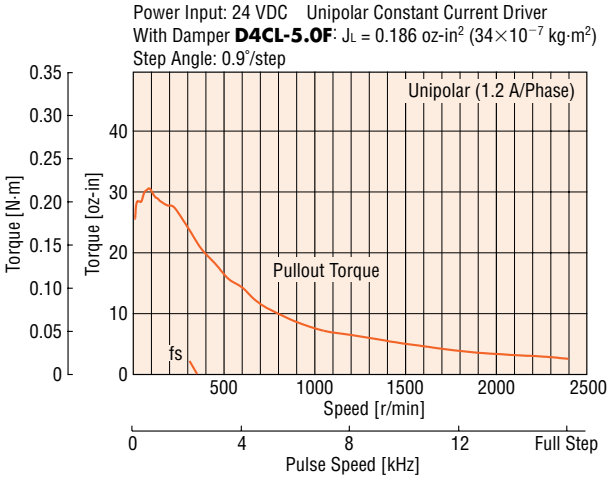
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

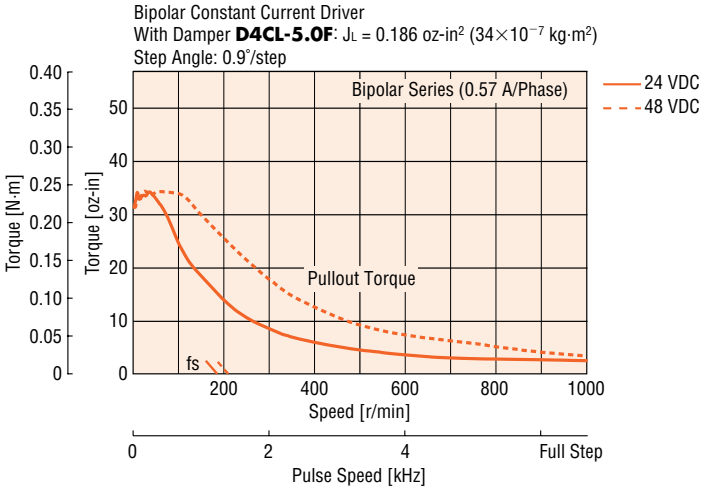
## PK244M-01BA Bipolar (Series)



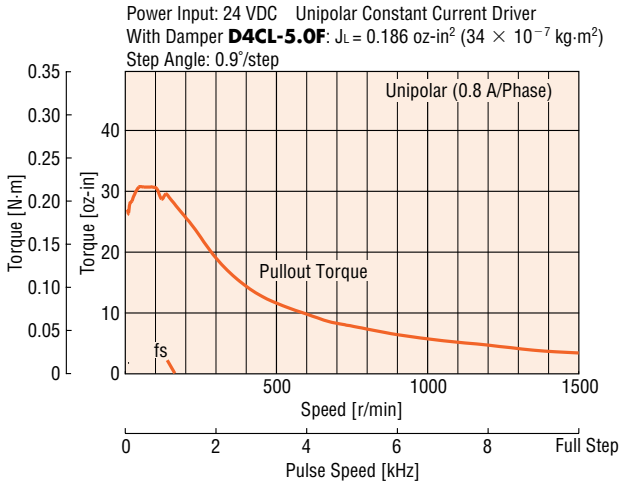

## PK244M-01BA Unipolar



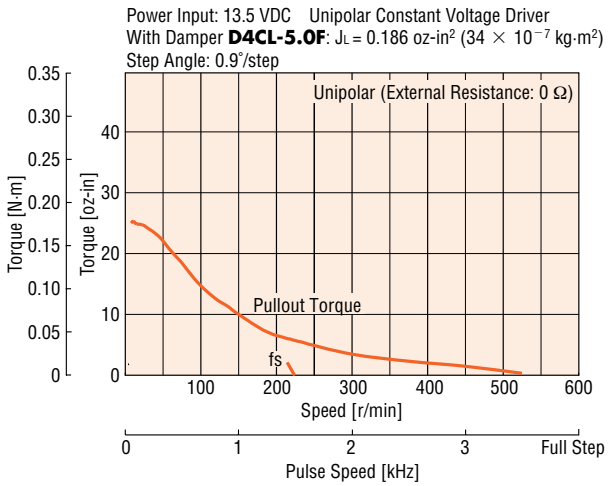

## PK244M-02BA Bipolar (Series)




## PK244M-02BA Unipolar

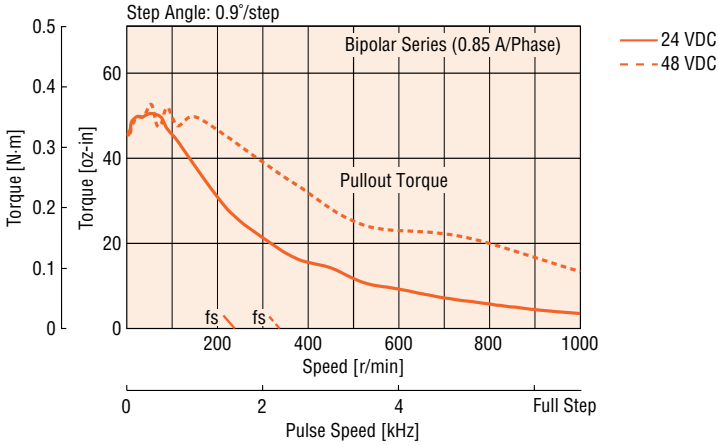



## PK244M-03BA Unipolar



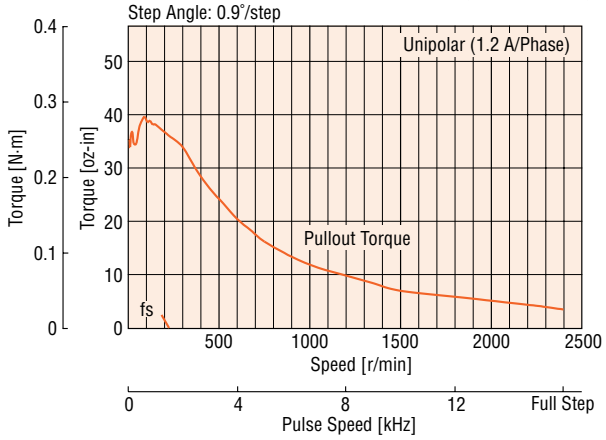
## ● **PK245M-01BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



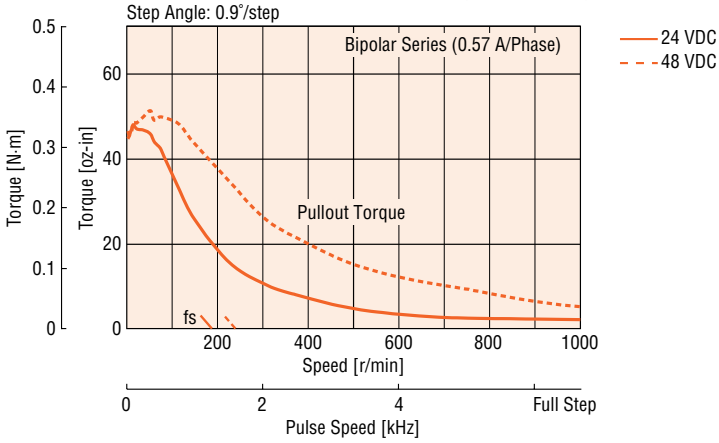

## ● **PK245M-01BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



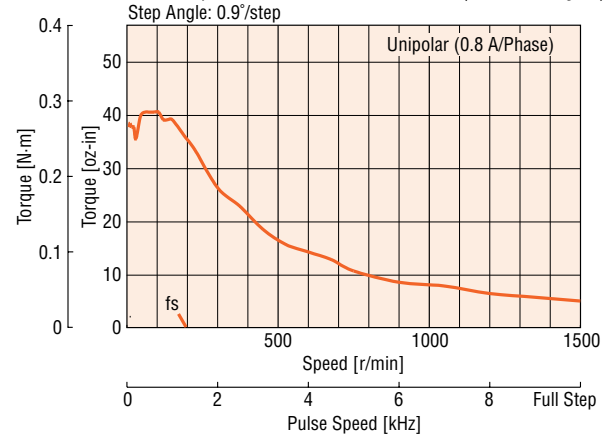

## ● **PK245M-02BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step



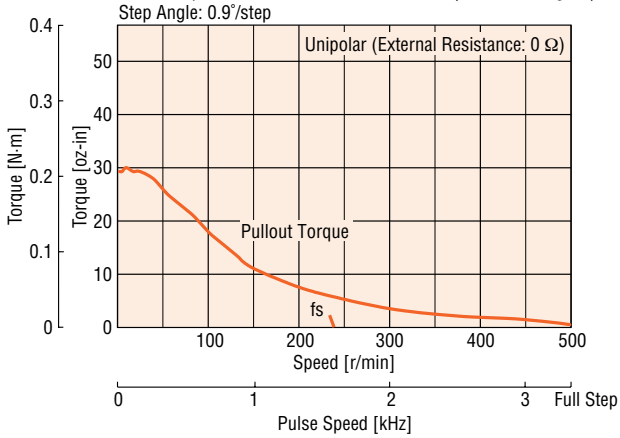

## ● **PK245M-02BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step




## ● **PK245M-03BA** Unipolar

Power Input: 13.5 VDC Unipolar Constant Voltage Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)
Step Angle: 0.9°/step




Connection Diagrams C-189
General Specifications C-240

# □1.65 in. (□42 mm)

## PK Series SH Geared Type

## Specifications

### Motor Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires | Corresponding DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|
| **PK243A1A-SG□** | Bipolar (Series) | 0.67 | 5.6 | 8.4 | 10 | 0.191 | $35\times10^{-7}$ | 6 | **CSK243□TA-SG□** |
| **PK243B1A-SG□** | Unipolar | 0.95 | 4.0 | 4.2 | 2.5 | | | | |
| **PK243A2A-SG□** | Bipolar (Series) | 0.28 | 13 | 48 | 60 | 0.191 | $35\times10^{-7}$ | 6 | — |
| **PK243B2A-SG□** | Unipolar | 0.4 | 9.6 | 24 | 15 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189
● Enter the gear ratio in the box (□) within the model number.

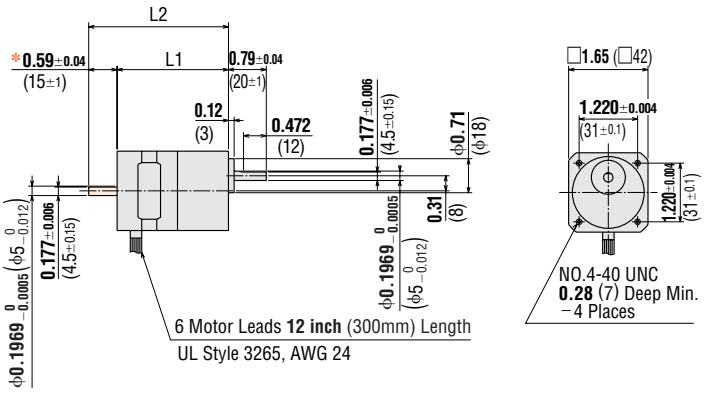
### Gearmotor Specifications

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

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

## Dimensions

Scale 1/4, Unit = **inch** (mm)




| Model | L1 inch (mm) | L2 inch (mm) | Weight lb. (kg) | DXF |
|---|---|---|---|---|
| **PK243A□A-SG□** | 2.32 (59) | — | 0.77 (0.35) | B091U |
| **PK243B□A-SG□** | | 2.91 (74) | | |

● Enter the winding specification in the box (□) within the model number.
● Enter the gear ratio in the box (□) within the model number.

**Mounting Screws** (included)
No.4-40 UNC 0.39 in. (10 mm)

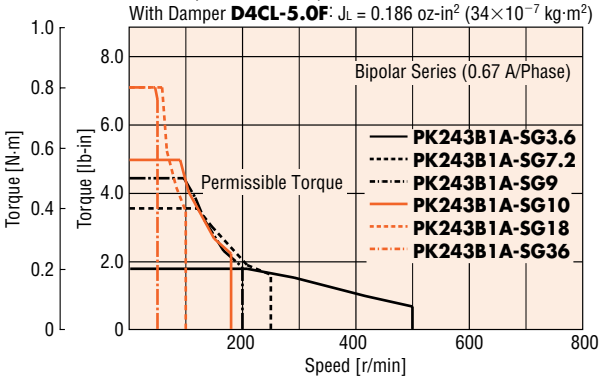
* The length of machining on double shaft model is 0.591±0.010 (15±0.25).
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics →Page C-10

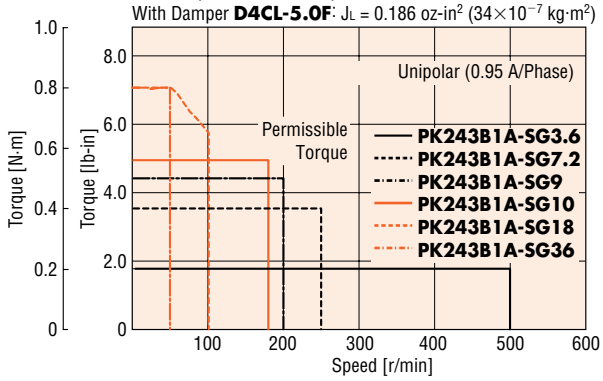
## ● PK243B1A-SG□ Bipolar (Series) 24 VDC

Power Input: 24 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)



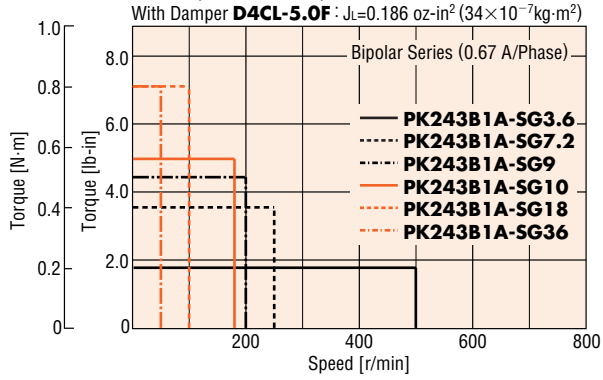

## ● PK243B1A-SG□ Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)



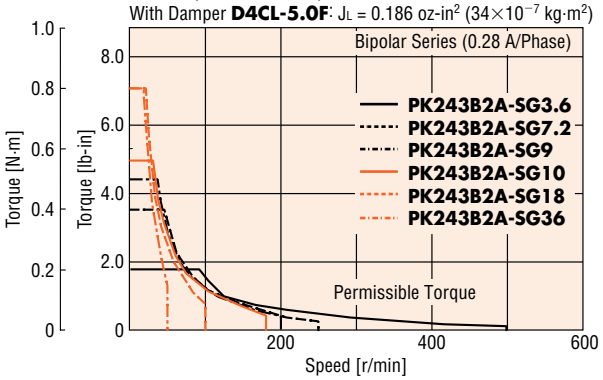

## ● PK243B1A-SG□ Bipolar (Series) 48 VDC

Power Input: 48 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$=0.186 oz-in$^2$ (34×10$^{-7}$kg·m$^2$)



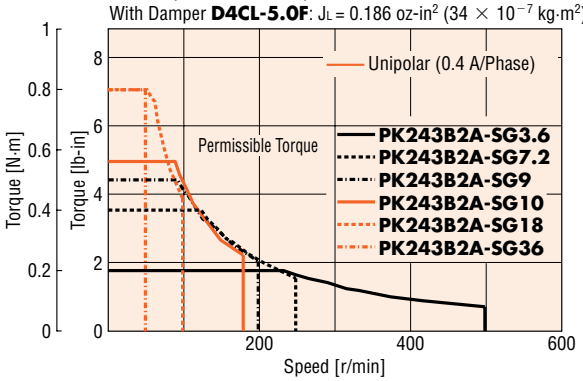

## ● PK243B2A-SG□ Bipolar (Series) 24 VDC

Power Input: 24 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)



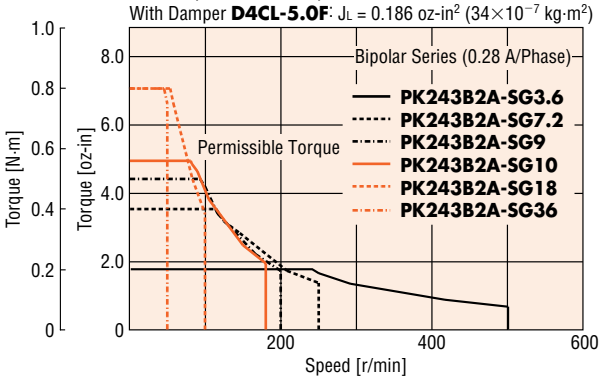

## ● PK243B2A-SG□ Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34 × 10$^{-7}$ kg·m$^2$)




## ● PK243B2A-SG□ Bipolar (Series) 48 VDC

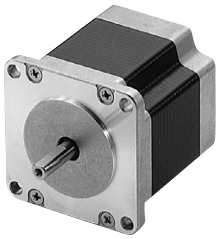
Power Input: 48 VDC Bipolar Constant Current Driver
With Damper **D4CL-5.0F**: $J_L$ = 0.186 oz-in$^2$ (34×10$^{-7}$ kg·m$^2$)



# □2.22 in. (□56.4 mm)

## Step Angle 1.8°

## PK Series Standard Type



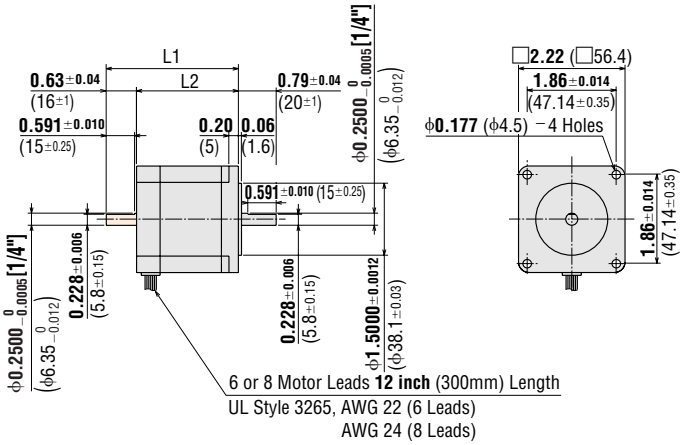
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK264-01A** | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | 120×10⁻⁷ | 6 | — |
| **PK264-01B** | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 5.4 | | | | |
| **PK264-02A** | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | 0.66 | 120×10⁻⁷ | 6 | **UMK264□A/ CSK264-□TA** |
| **PK264-02B** | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | | |
| **PK264-03A** | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 2.4 | 0.66 | 120×10⁻⁷ | 6 | — |
| **PK264-03B** | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.6 | | | | |
| **PK264-E2.0A** | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.4 | 0.66 | 120×10⁻⁷ | 8 | — |
| **PK264-E2.0B** | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | | |
| | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | | |
| **PK266-01A** | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 40 | 1.64 | 300×10⁻⁷ | 6 | — |
| **PK266-01B** | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 10 | | | | |
| **PK266-02A** | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | 1.64 | 300×10⁻⁷ | 6 | **UMK266□A/ CSK266-□TA** |
| **PK266-02B** | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | | |
| **PK266-03A** | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 4.4 | 1.64 | 300×10⁻⁷ | 6 | — |
| **PK266-03B** | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.1 | | | | |
| **PK266-E2.0A** | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 2.5 | 1.64 | 300×10⁻⁷ | 8 | — |
| **PK266-E2.0B** | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | | |
| | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | | |
| **PK268-01A** | Bipolar (Series) | 240 | 1.75 | 0.71 | 12 | 17.2 | 56 | 2.6 | 480×10⁻⁷ | 6 | — |
| **PK268-01B** | Unipolar | 191 | 1.35 | 1 | 8.6 | 8.6 | 14 | | | | |
| **PK268-02A** | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 14.4 | 2.6 | 480×10⁻⁷ | 6 | **UMK268□A/ CSK268-□TA** |
| **PK268-02B** | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 3.6 | | | | |
| **PK268-03A** | Bipolar (Series) | 240 | 1.75 | 2.1 | 4.2 | 2 | 6.4 | 2.6 | 480×10⁻⁷ | 6 | — |
| **PK268-03B** | Unipolar | 191 | 1.35 | 3 | 3 | 1 | 1.6 | | | | |
| **PK268-E2.0A** | Bipolar (Parallel) | 240 | 1.75 | 2.8 | 3.16 | 1.13 | 3.6 | 2.6 | 480×10⁻⁷ | 8 | — |
| **PK268-E2.0B** | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 14.4 | | | | |
| | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 3.6 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions

Scale 1/4, Unit = **inch** (mm)




| Model | L1<br>inch (mm) | L2<br>inch (mm) | Weight<br>lb. (kg) | DXF |
|---|---|---|---|---|
| **PK264-0□A**<br>**PK264-E2.0A** | 1.54 (39) | — | 0.99 (0.45) | B084 |
| **PK264-0□B**<br>**PK264-E2.0B** | | 2.17 (55) | | |
| **PK266-0□A**<br>**PK266-E2.0A** | 2.13 (54) | — | 1.5 (0.7) | B085 |
| **PK266-0□B**<br>**PK266-E2.0B** | | 2.76 (70) | | |
| **PK268-0□A**<br>**PK268-E2.0A** | 2.99 (76) | — | 2.2 (1) | B086 |
| **PK268-0□B**<br>**PK268-E2.0B** | | 3.62 (92) | | |

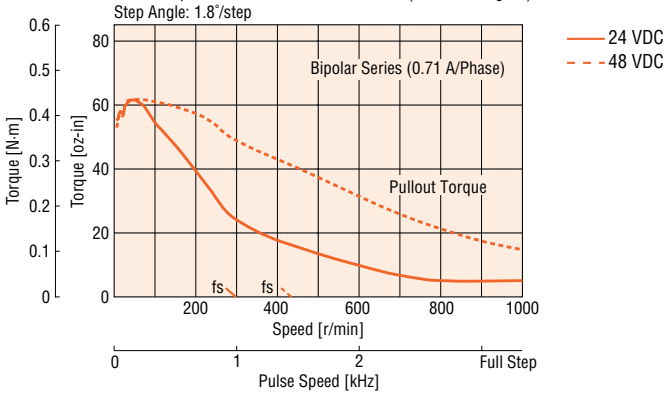
- These dimensions are for double shaft models. For single shaft models, ignore the shaded area.
- Enter the winding specification in the box (□) within the model number.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

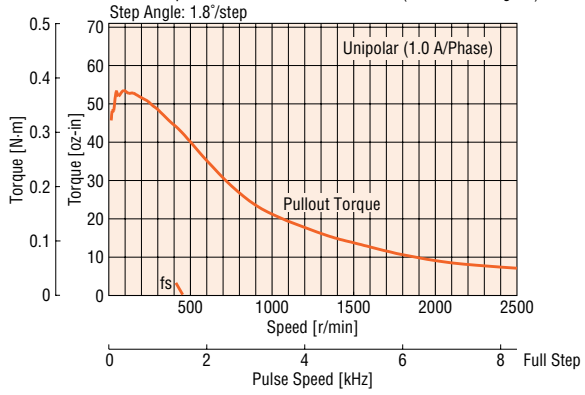
## PK264-01B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 1.8°/step



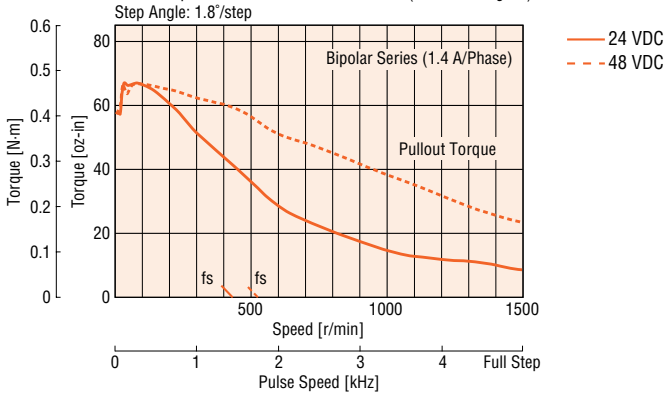

## PK264-01B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



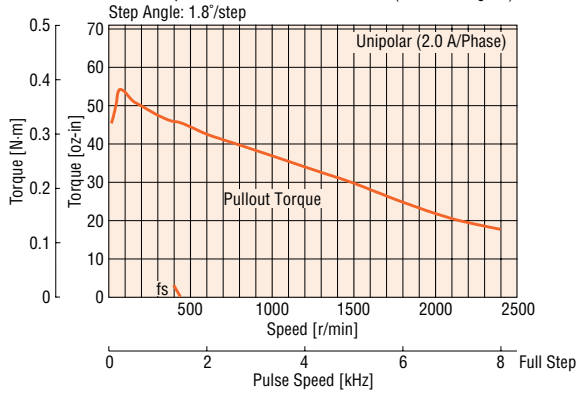

## PK264-02B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 1.8°/step



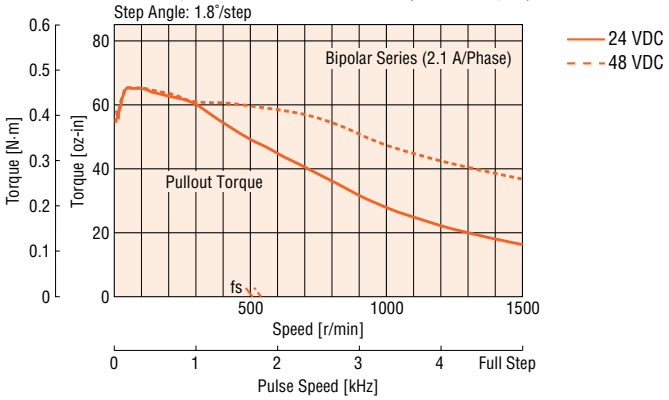

## PK264-02B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$=0.77 oz-in² (140×10⁻⁷kg·m²)
Step Angle: 1.8°/step



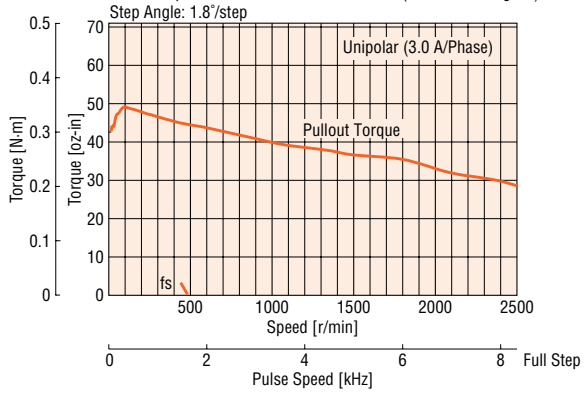

## PK264-03B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 1.8°/step



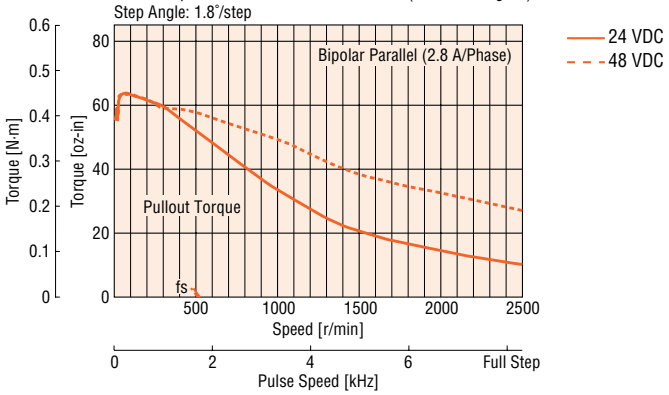

## PK264-03B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



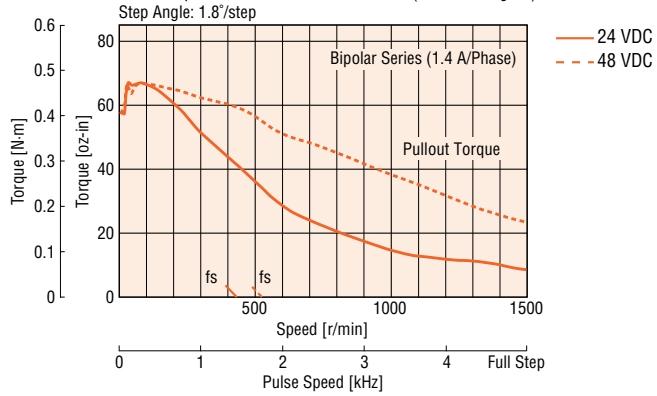

## PK264-E2.0B Bipolar (Parallel)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 1.8°/step




## PK264-E2.0B Bipolar (Series)

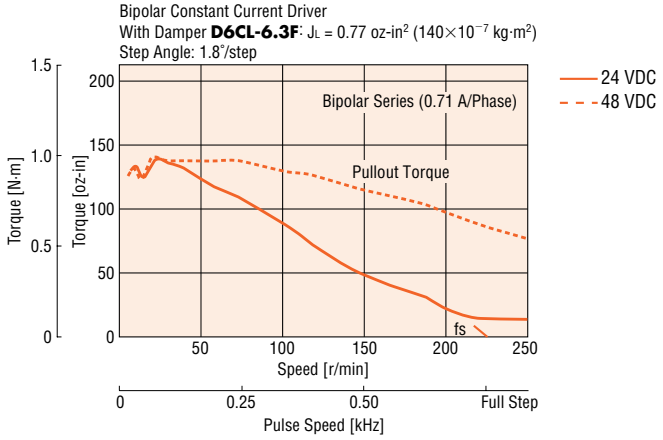
Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 1.8°/step



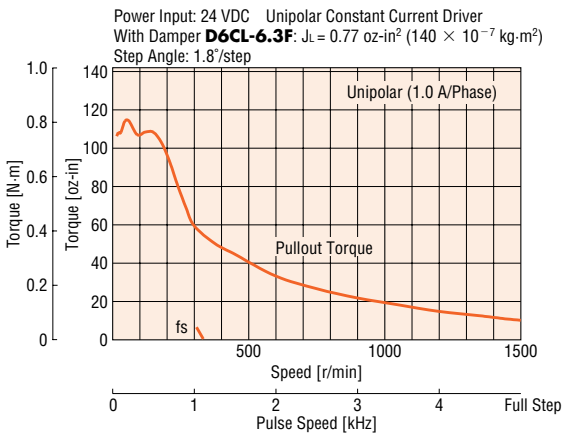
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

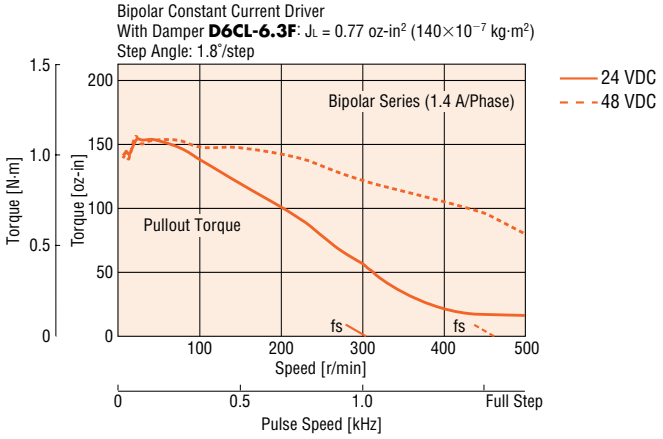
## PK266-01B Bipolar (Series)



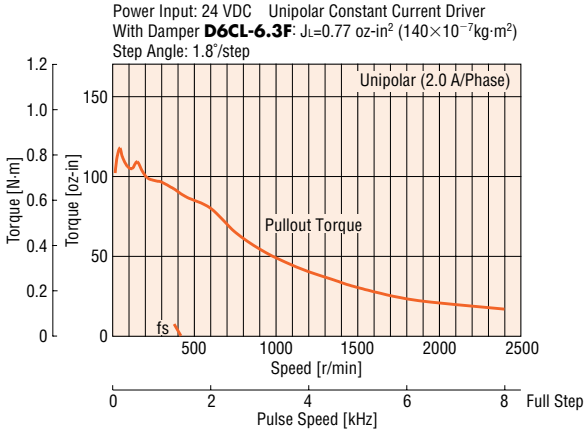

## PK266-01B Unipolar



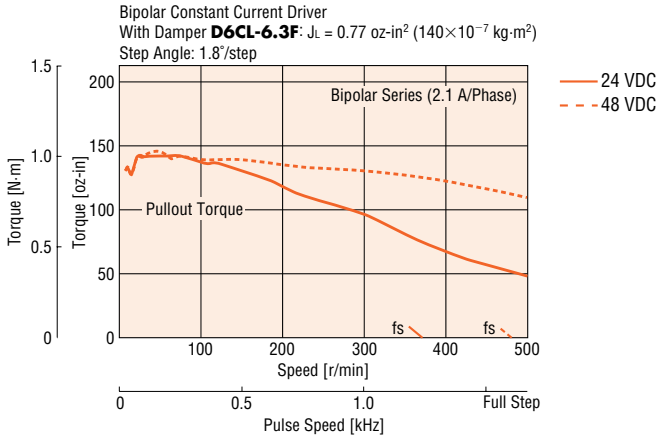

## PK266-02B Bipolar (Series)



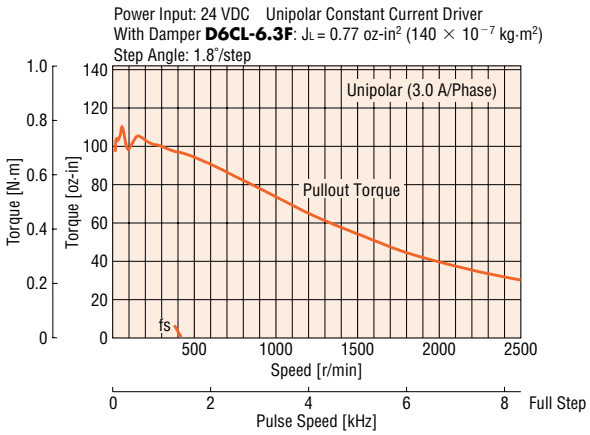

## PK266-02B Unipolar



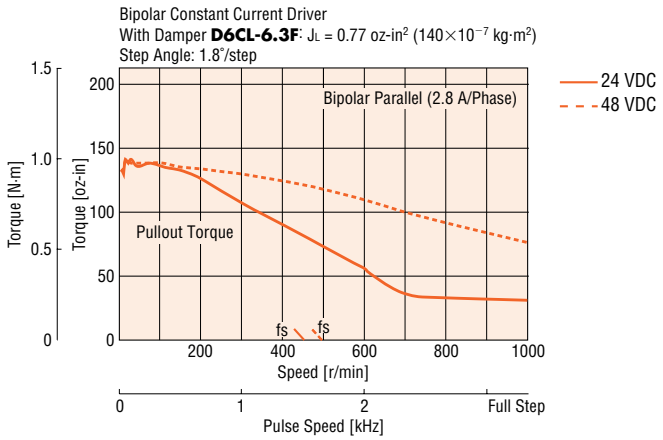

## PK266-03B Bipolar (Series)



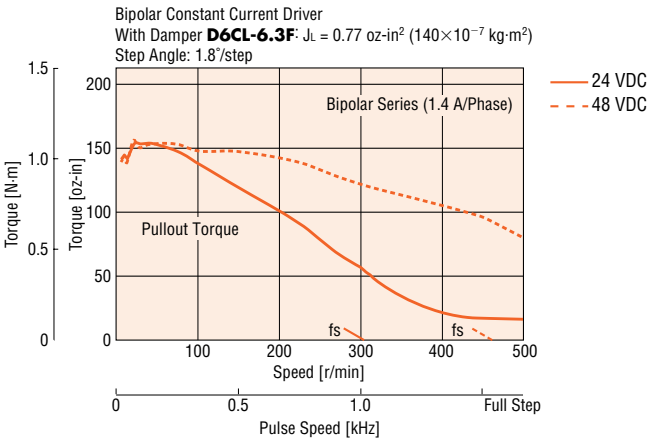

## PK266-03B Unipolar



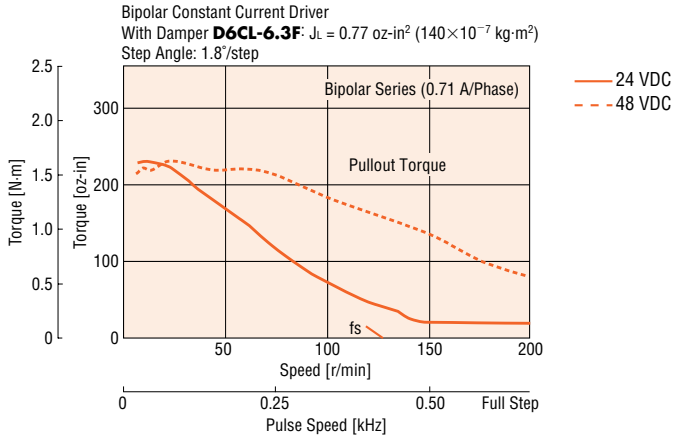

## PK266-E2.0B Bipolar (Parallel)



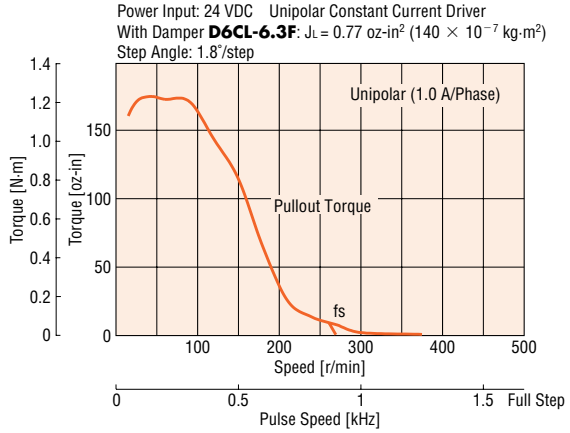

## PK266-E2.0B Bipolar (Series)



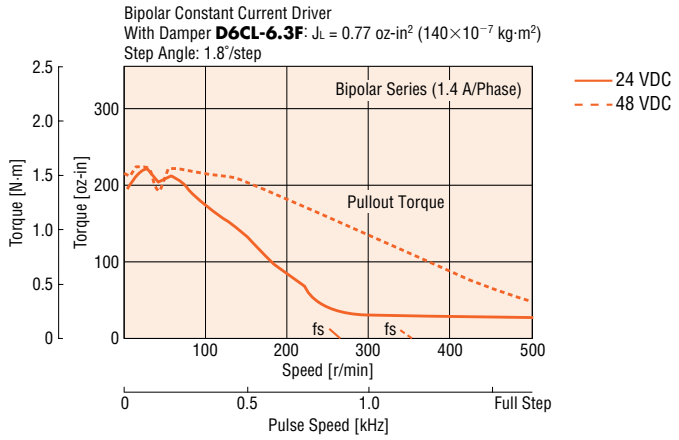
## ● **PK268-01B** Bipolar (Series)



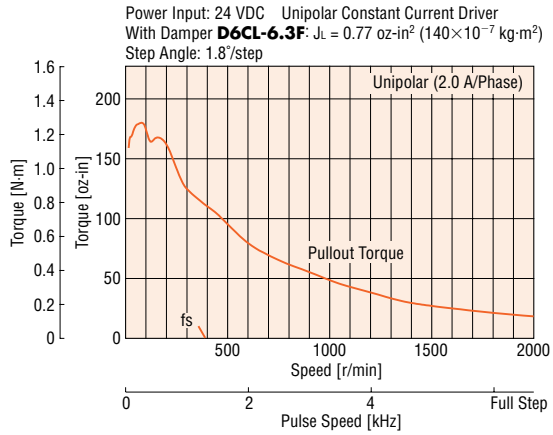

## ● **PK268-01B** Unipolar



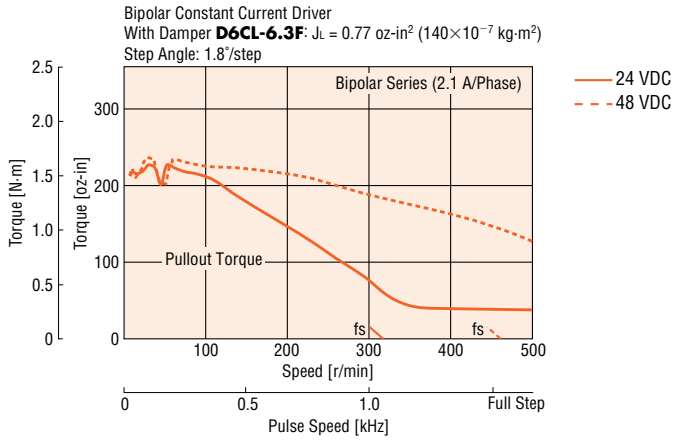

## ● **PK268-02B** Bipolar (Series)



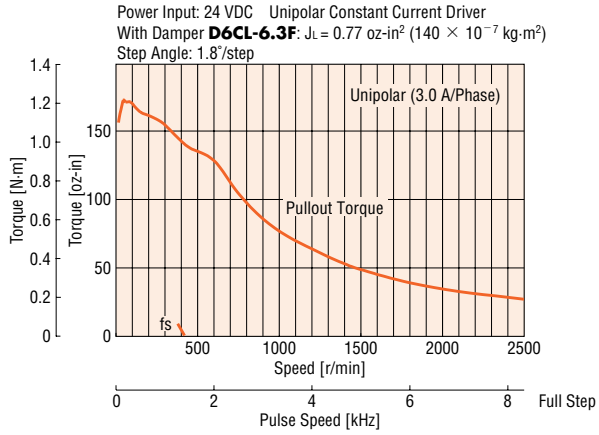

## ● **PK268-02B** Unipolar



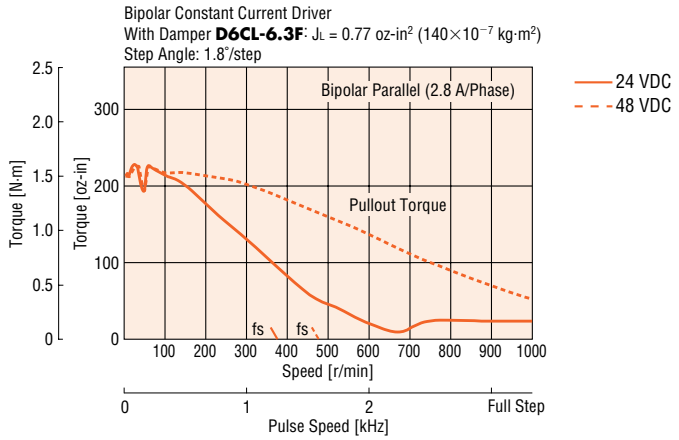

## ● **PK268-03B** Bipolar (Series)



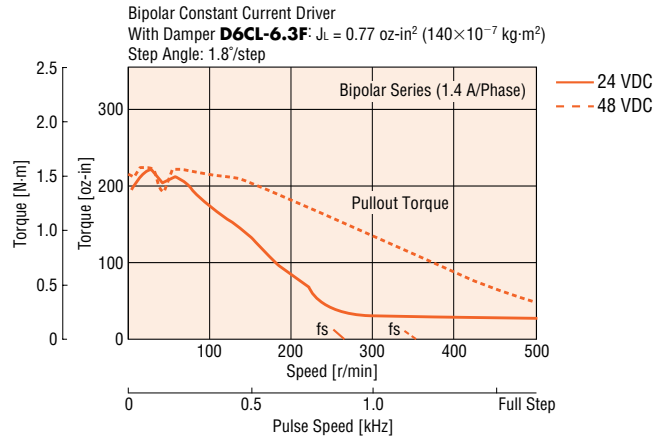

## ● **PK268-03B** Unipolar




## ● **PK268-E2.0B** Bipolar (Parallel)




## ● **PK268-E2.0B** Bipolar (Series)

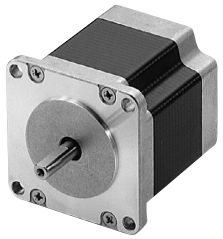



Connection Diagrams C-189
General Specifications C-240

# □2.22 in. (□56.4 mm)

## Step Angle 0.9°

## PK Series High Resolution Type



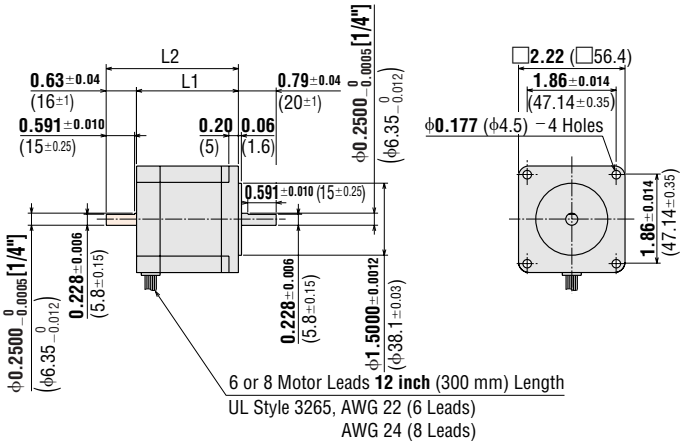
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires | Corresponding AC/DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK264M-01A** | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 26 | 0.66 | 120×10⁻⁷ | 6 | — |
| **PK264M-01B** | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 6.5 | | | | |
| **PK264M-02A** | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | 0.66 | 120×10⁻⁷ | 6 | **UMK264M□A/ CSK264M-□TA** |
| **PK264M-02B** | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | | |
| **PK264M-03A** | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 3 | 0.66 | 120×10⁻⁷ | 6 | — |
| **PK264M-03B** | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.75 | | | | |
| **PK264M-E2.0A PK264M-E2.0B** | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.7 | 0.66 | 120×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | | |
| | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | | |
| **PK266M-01A** | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 50.8 | 1.64 | 300×10⁻⁷ | 6 | — |
| **PK266M-01B** | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 12.7 | | | | |
| **PK266M-02A** | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | 1.64 | 300×10⁻⁷ | 6 | **UMK266M□A/ CSK266M-□TA** |
| **PK266M-02B** | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | | |
| **PK266M-03A** | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 5.8 | 1.64 | 300×10⁻⁷ | 6 | — |
| **PK266M-03B** | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.45 | | | | |
| **PK266M-E2.0A PK266M-E2.0B** | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 3.2 | 1.64 | 300×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | | |
| | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | | |
| **PK268M-01A** | Bipolar (Series) | 240 | 1.75 | 0.71 | 12 | 17.2 | 77.6 | 2.6 | 480×10⁻⁷ | 6 | — |
| **PK268M-01B** | Unipolar | 191 | 1.35 | 1 | 8.6 | 8.6 | 19.4 | | | | |
| **PK268M-02A** | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 19.2 | 2.6 | 480×10⁻⁷ | 6 | **UMK268M□A/ CSK268M-□TA** |
| **PK268M-02B** | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 4.8 | | | | |
| **PK268M-03A** | Bipolar (Series) | 240 | 1.75 | 2.1 | 4.2 | 2 | 8.4 | 2.6 | 480×10⁻⁷ | 6 | — |
| **PK268M-03B** | Unipolar | 191 | 1.35 | 3 | 3 | 1 | 2.1 | | | | |
| **PK268M-E2.0A PK268M-E2.0B** | Bipolar (Parallel) | 240 | 1.75 | 2.8 | 3.16 | 1.13 | 4.8 | 2.6 | 480×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 240 | 1.75 | 1.4 | 6.3 | 4.5 | 19.2 | | | | |
| | Unipolar | 191 | 1.35 | 2 | 4.5 | 2.25 | 4.8 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

## Dimensions

Scale 1/4, Unit = **inch** (mm)




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

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

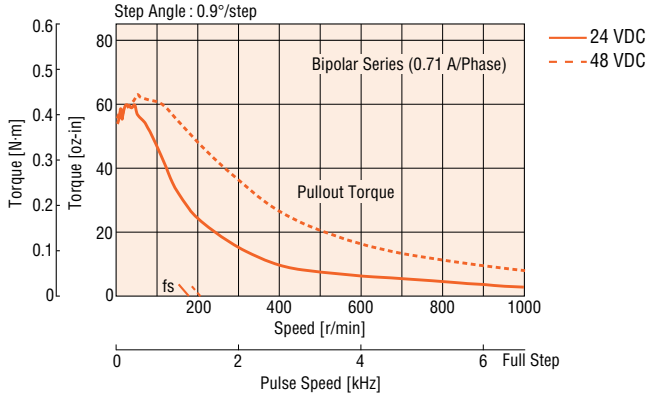
- Enter the winding specification in the box (□) within the model number.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

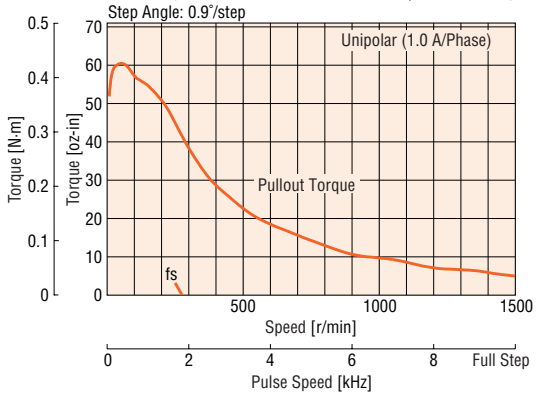
## PK264M-01B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle : 0.9°/step



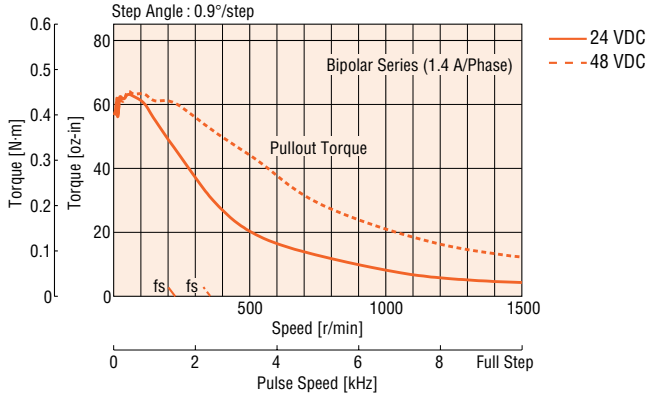

## PK264M-01B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3 F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 0.9°/step



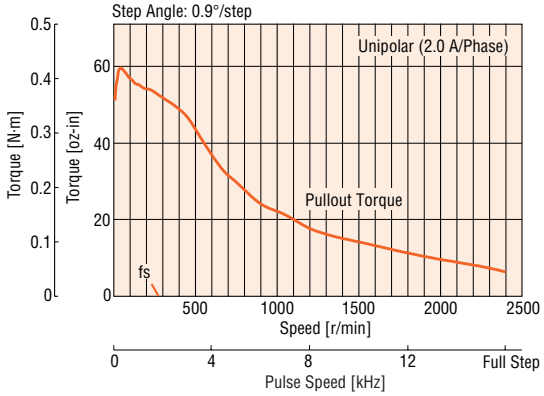

## PK264M-02B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle : 0.9°/step



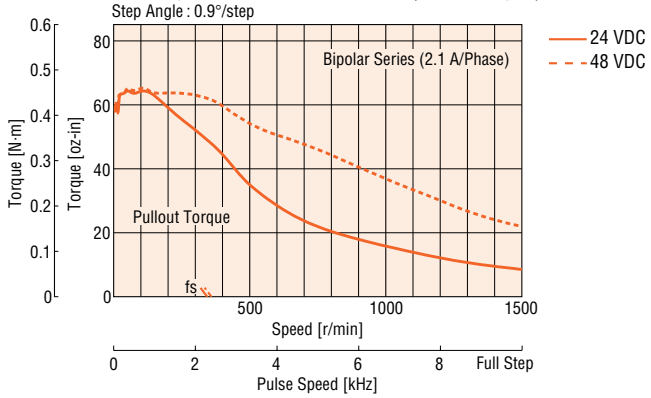

## PK264M-02B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle: 0.9°/step



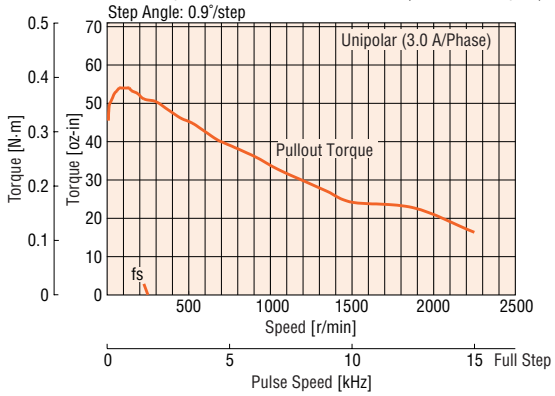

## PK264M-03B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle : 0.9°/step



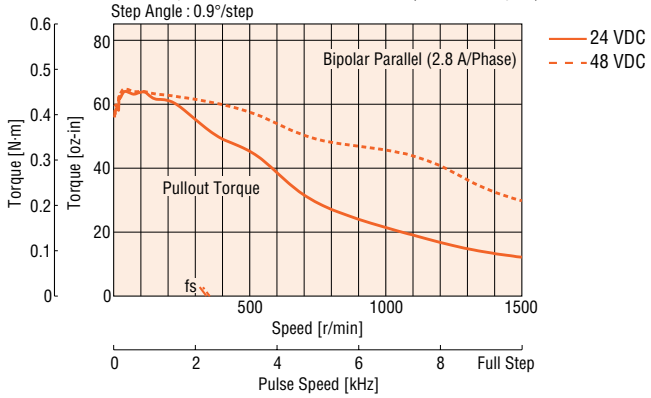

## PK264M-03B Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3 F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 0.9°/step



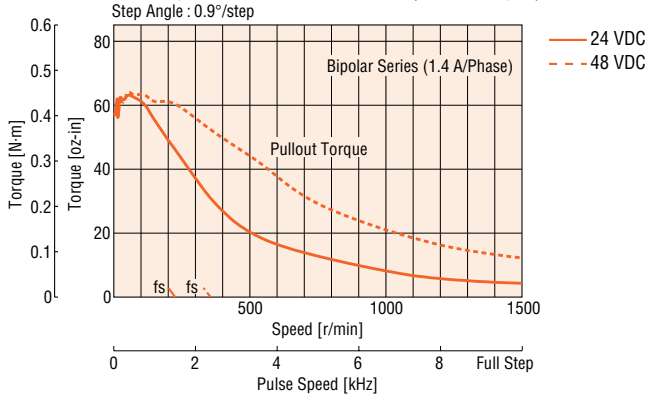

## PK264M-E2.0B Bipolar (Parallel)

Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle : 0.9°/step




## PK264M-E2.0B Bipolar (Series)

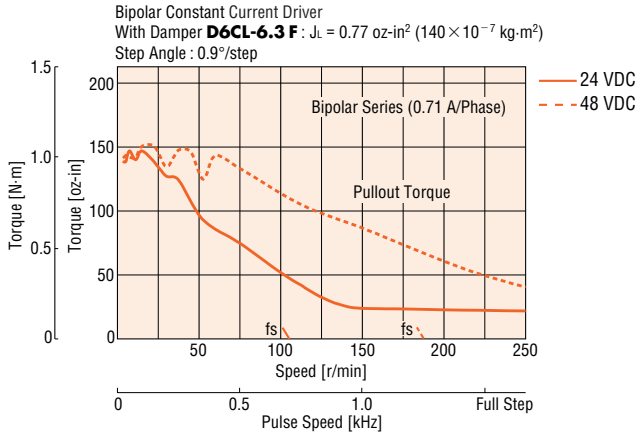
Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in² (140×10⁻⁷ kg·m²)
Step Angle : 0.9°/step



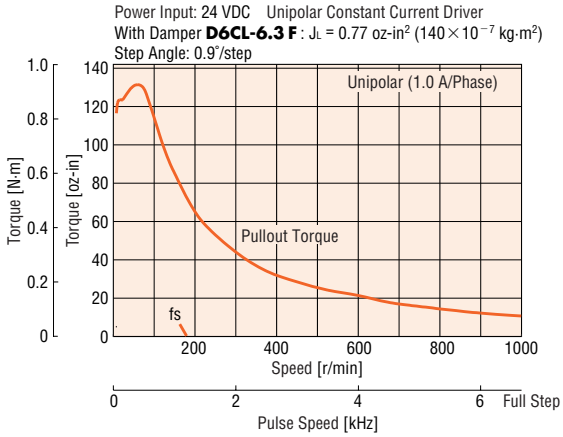
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

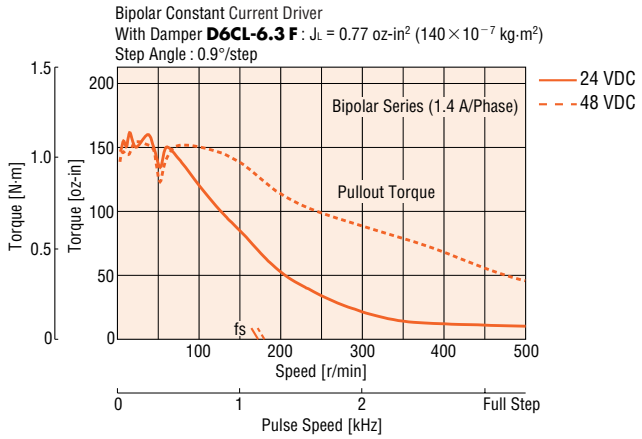
## PK266M-01B Bipolar (Series)



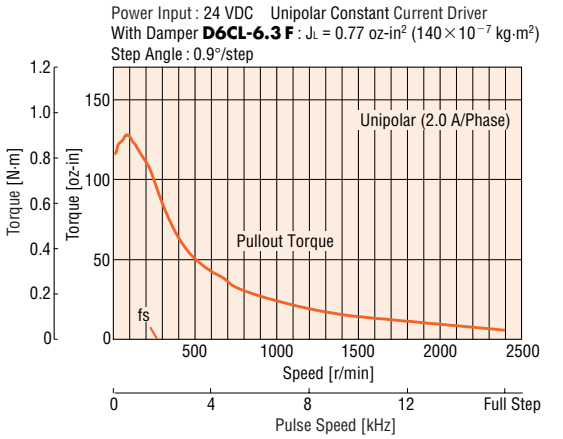

## PK266M-01B Unipolar



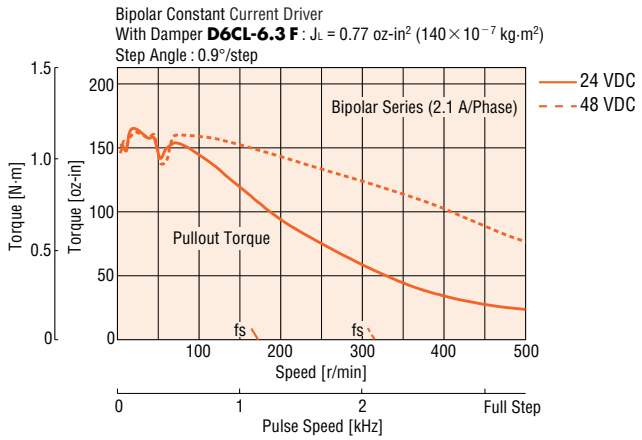

## PK266M-02B Bipolar (Series)



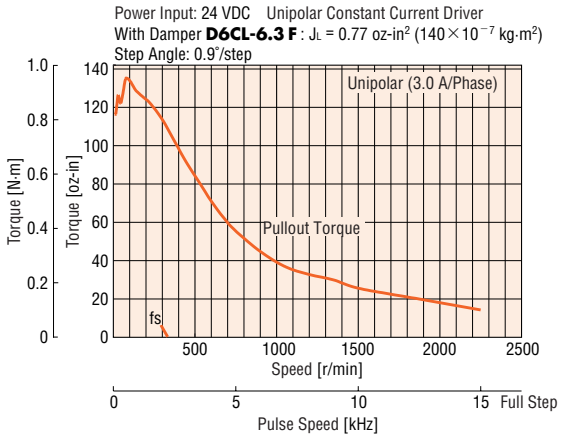

## PK266M-02B Unipolar



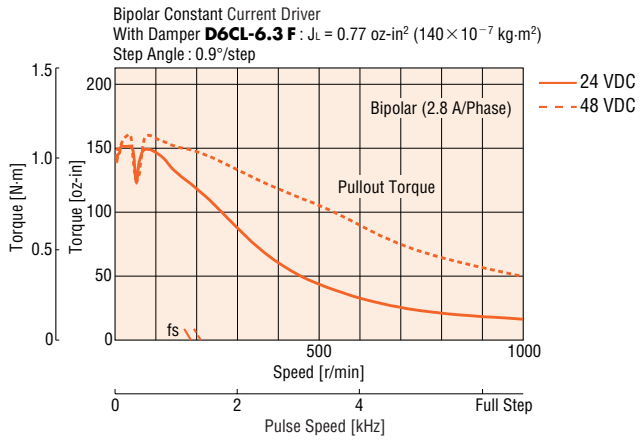

## PK266M-03B Bipolar (Series)



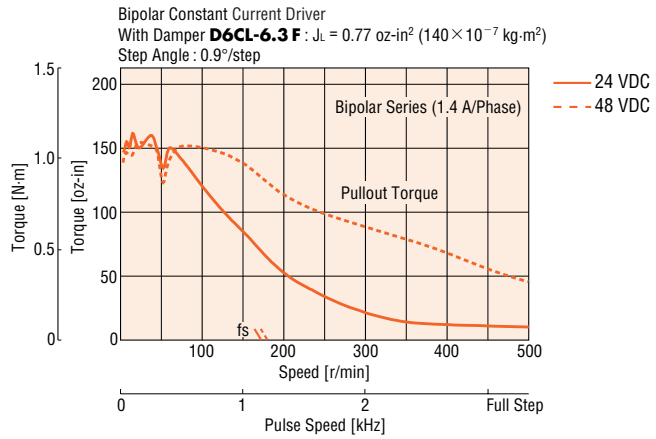

## PK266M-03B Unipolar



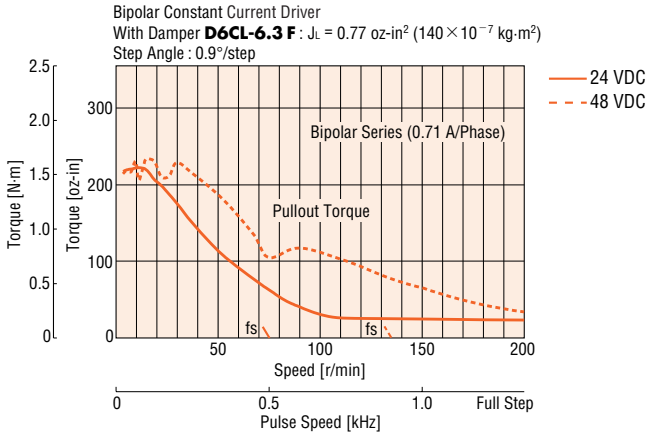

## PK266M-E2.0B Bipolar (Parallel)



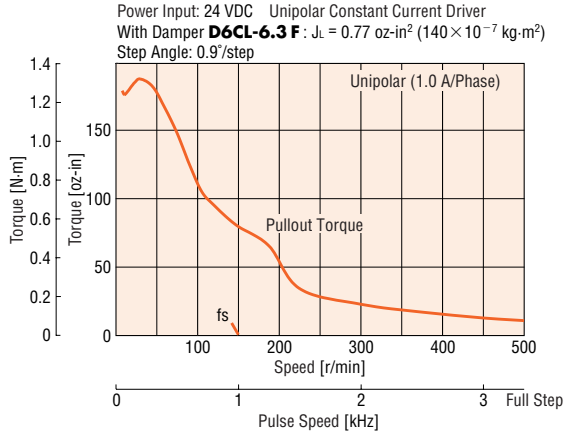

## PK266M-E2.0B Bipolar (Series)



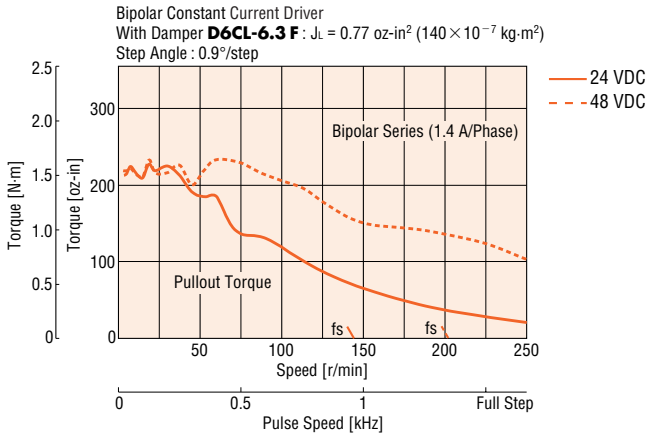
## PK268M-01B Bipolar (Series)



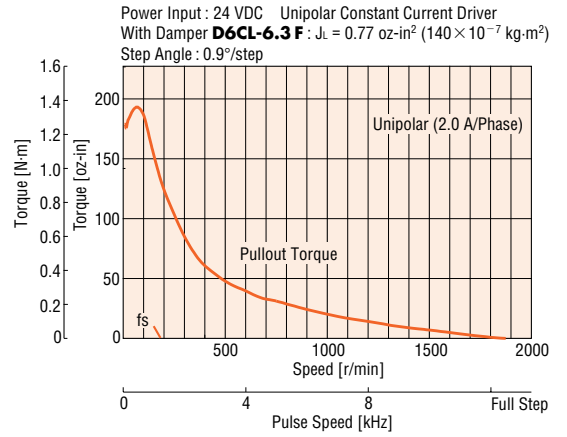

## PK268M-01B Unipolar



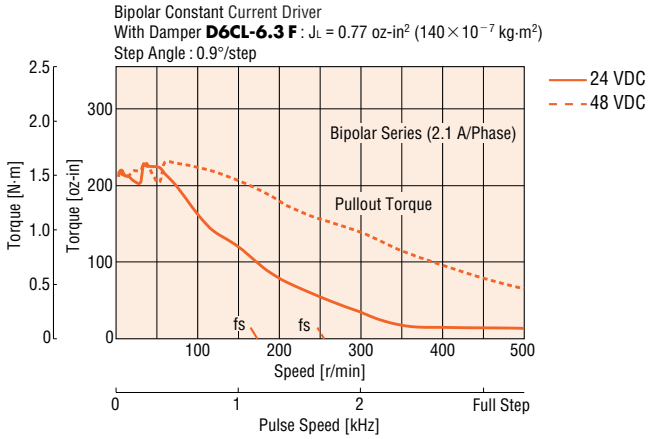

## PK268M-02B Bipolar (Series)



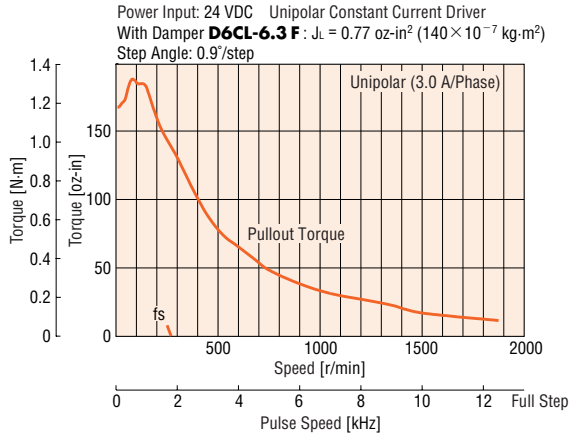

## PK268M-02B Unipolar



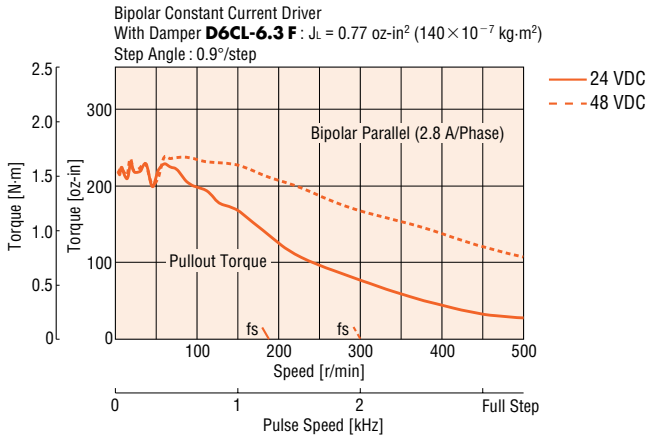

## PK268M-03B Bipolar (Series)



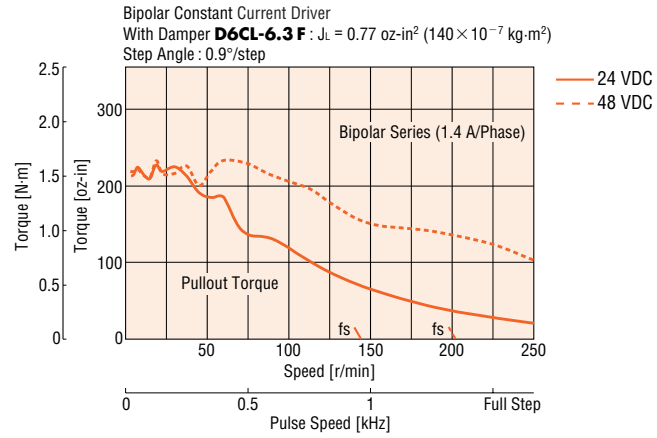

## PK268M-03B Unipolar




## PK268M-E2.0B Bipolar (Parallel)




## PK268M-E2.0B Bipolar (Series)




Connection Diagrams C-189
General Specifications C-240

# □ 2.36 in. (□ 60 mm)

## PK Series SH Geared Type

## Specifications

### Motor Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires | Corresponding DC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|
| **PK264A1A-SG□** | Bipolar (Series) | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | 120×10⁻⁷ | 6 | — |
| **PK264B1A-SG□** | Unipolar | 1 | 5.7 | 5.7 | 5.4 | | | | |
| **PK264A2A-SG□** | Bipolar (Series) | 1.4 | 3.9 | 2.8 | 5.6 | 0.66 | 120×10⁻⁷ | 6 | **CSK264□TA-SG□** |
| **PK264B2A-SG□** | Unipolar | 2 | 2.8 | 1.4 | 1.4 | | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189
● Enter the gear ratio in the box (□) within the model number.

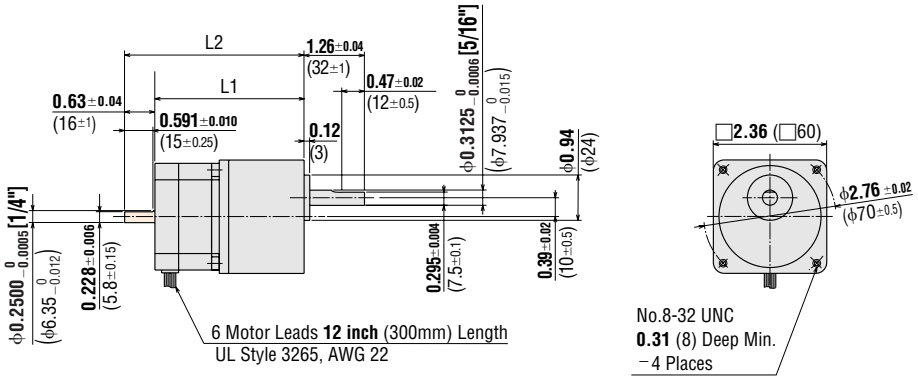
### Gearmotor Specifications

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

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

## Dimensions

Scale 1/4, Unit = **inch** (mm)




**Mounting Screws** (included)
No.8-32 UNC 0.59 in. (15 mm) length, 4 pieces

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

| Model | L1<br>inch (mm) | L2<br>inch (mm) | Weight<br>lb. (kg) | DXF |
|---|---|---|---|---|
| **PK264A□A-SG□** | 3.11 (79) | — | 1.7 (0.75) | B092U |
| **PK264B□A-SG□** | | 3.74 (95) | | |

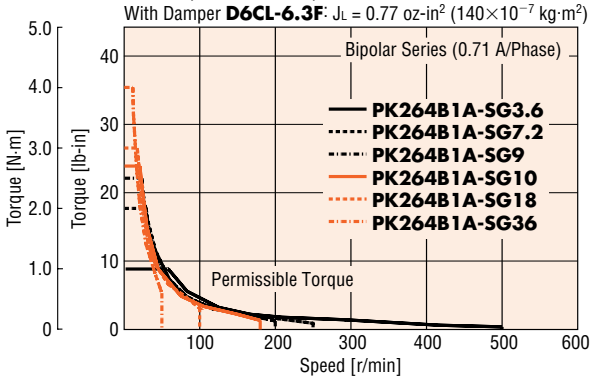
● Enter the winding specification in the box (□) within the model number.
● Enter the gear ratio in the box (□) within the model number.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

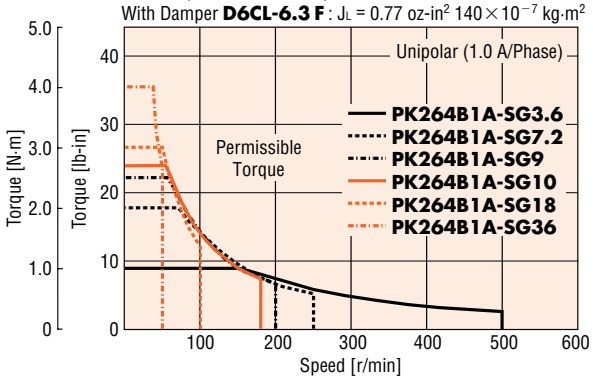
## PK264B1A-SG Bipolar (Series) 24 VDC

Power Input: 24 VDC Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140×10$^{-7}$ kg·m$^2$)



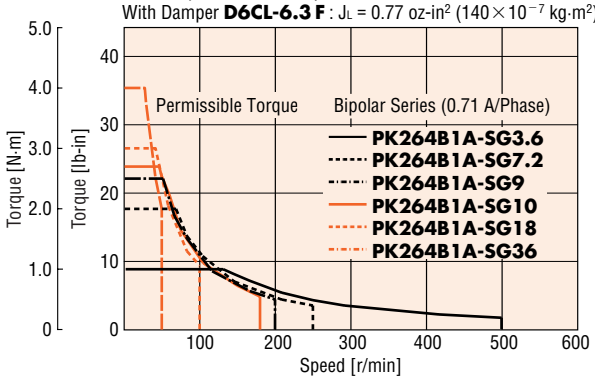

## PK264B1A-SG Unipolar

Power Input : 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in$^2$ 140×10$^{-7}$ kg·m$^2$



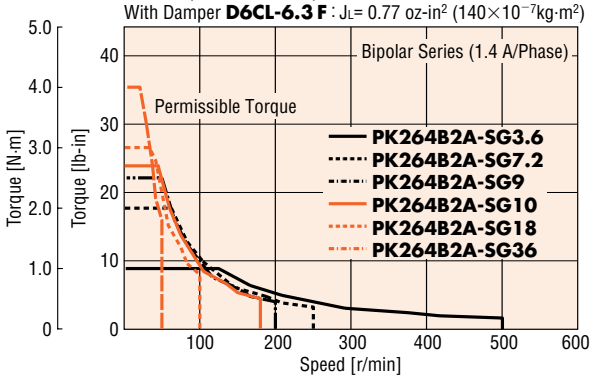

## PK264B1A-SG Bipolar (Series) 48 VDC

Power Input : 48 VDC Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in$^2$ (140×10$^{-7}$ kg·m$^2$)



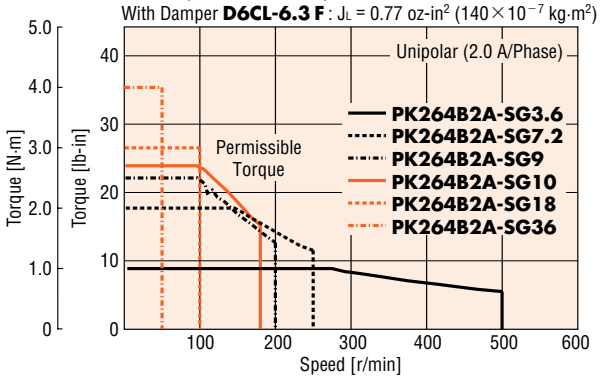

## PK264B2A-SG Bipolar (Series) 24 VDC

Power Input: 24 VDC Bipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$= 0.77 oz-in$^2$ (140×10$^{-7}$kg·m$^2$)



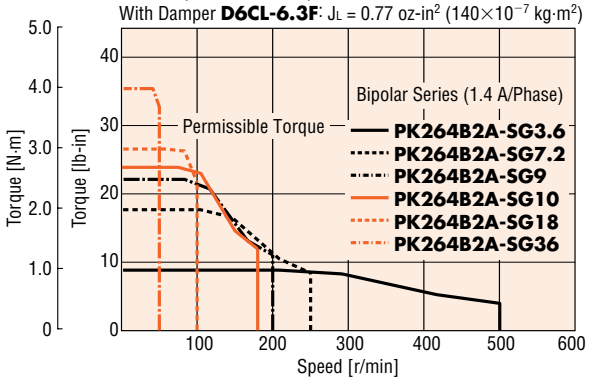

## PK264B2A-SG Unipolar

Power Input : 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3 F** : $J_L$ = 0.77 oz-in$^2$ (140×10$^{-7}$ kg·m$^2$)




## PK264B2A-SG Bipolar (Series) 48 VDC

Power Input: 48 VDC Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140×10$^{-7}$ kg·m$^2$)






Connection Diagrams C-189 General Specifications C-240

# □2.36 in. (□60 mm)

## Step Angle 1.8°

## PV Series (High Inertia Capability)

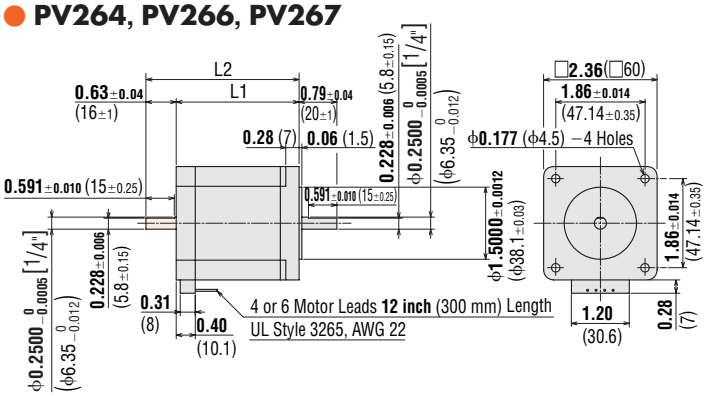
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires |
|---|---|---|---|---|---|---|---|---|---|---|
| **PV264-D2.8AA**<br>**PV264-D2.8BA** | Bipolar | 150 | 1.06 | 2.8 | 2.1 | 0.73 | 1.8 | 1.53 | 280×10⁻⁷ | 4 |
| **PV264-02AA** | Bipolar (Series) | 150 | 1.06 | 1.4 | 4.1 | 2.92 | 7.2 | 1.53 | 280×10⁻⁷ | 6 |
| **PV264-02BA** | Unipolar | 106 | 0.75 | 2 | 2.9 | 1.46 | 1.8 | | | |
| **PV266-D2.8AA**<br>**PV266-D2.8BA** | Bipolar | 240 | 1.75 | 2.8 | 2.8 | 1 | 3.05 | 2.5 | 450×10⁻⁷ | 4 |
| **PV266-02AA** | Bipolar (Series) | 240 | 1.75 | 1.4 | 5.6 | 4 | 12.2 | 2.5 | 450×10⁻⁷ | 6 |
| **PV266-02BA** | Unipolar | 191 | 1.35 | 2 | 4 | 2 | 3.05 | | | |
| **PV267-D2.8AA**<br>**PV267-D2.8BA** | Bipolar | 310 | 2.2 | 2.8 | 3.4 | 1.2 | 3.54 | 3.1 | 570×10⁻⁷ | 4 |
| **PV267-02AA** | Bipolar (Series) | 310 | 2.2 | 1.4 | 6.7 | 4.8 | 14.2 | 3.1 | 570×10⁻⁷ | 6 |
| **PV267-02BA** | Unipolar | 240 | 1.7 | 2 | 4.8 | 2.4 | 3.54 | | | |
| **PV269-D2.8AA**<br>**PV269-D2.8BA** | Bipolar | 440 | 3.1 | 2.8 | 4.2 | 1.49 | 5.7 | 4.9 | 900×10⁻⁷ | 4 |
| **PV269-02AA** | Bipolar (Series) | 440 | 3.1 | 1.4 | 8.3 | 5.96 | 22.8 | 4.9 | 900×10⁻⁷ | 6 |
| **PV269-02BA** | Unipolar | 310 | 2.2 | 2 | 6 | 2.98 | 5.7 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

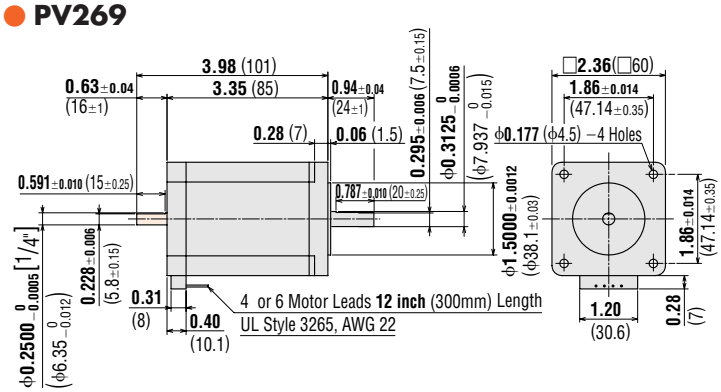
## Dimensions Scale 1/4, Unit = **inch** (mm)

### ● PV264, PV266, PV267




| Model | L1 inch (mm) | L2 inch (mm) | Weight lb. (kg) | DXF |
|---|---|---|---|---|
| **PV264-D2.8AA**<br>**PV264-02AA** | 1.71 (43.5) | — | 1.3 (0.6) | B279U |
| **PV264-D2.8BA**<br>**PV264-02BA** | | 2.34 (59.5) | | |
| **PV266-D2.8AA**<br>**PV266-02AA** | 2.13 (54) | — | 1.8 (0.83) | B232U |
| **PV266-D2.8BA**<br>**PV266-02BA** | | 2.76 (70) | | |
| **PV267-D2.8AA**<br>**PV267-02AA** | 2.56 (65) | — | 2.2 (1.02) | B813U |
| **PV267-D2.8BA**<br>**PV267-02BA** | | 3.19 (81) | | |

### ● PV269




| Model | Weight lb. (kg) | DXF |
|---|---|---|
| **PV269-D2.8AA**<br>**PV269-02AA** | 3.1 (1.43) | B814U |
| **PV269-D2.8BA**<br>**PV269-02BA** | | |

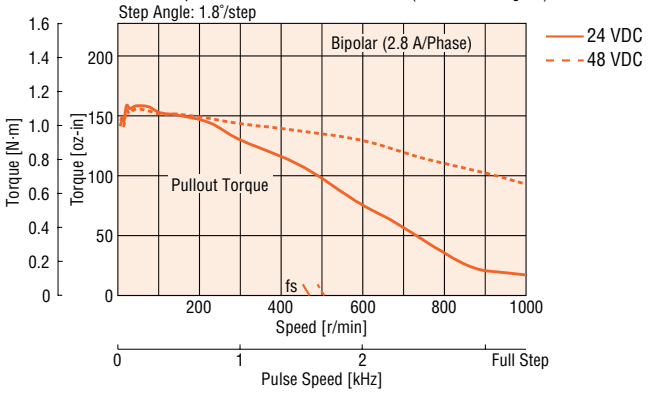
● These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

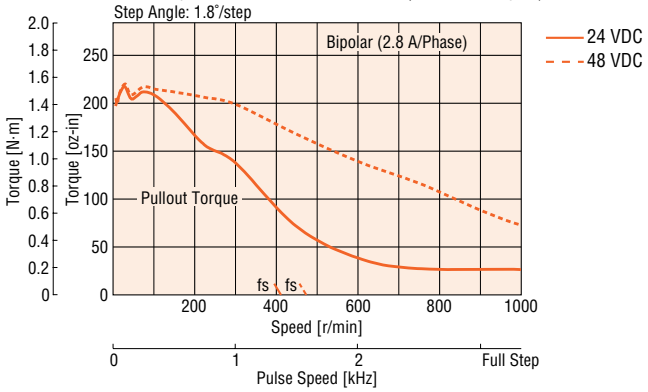
## PV264-D2.8BA Bipolar

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



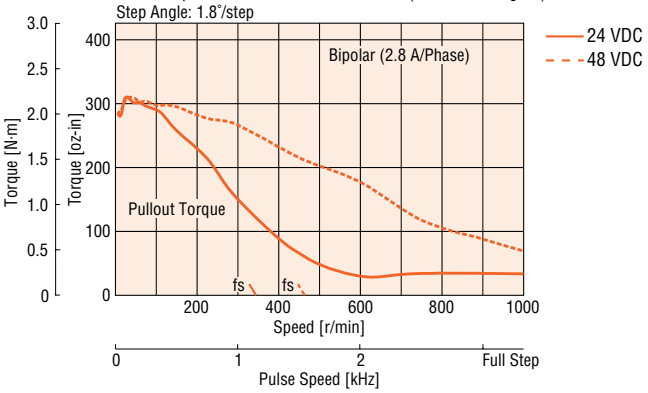

## PV266-D2.8BA Bipolar

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



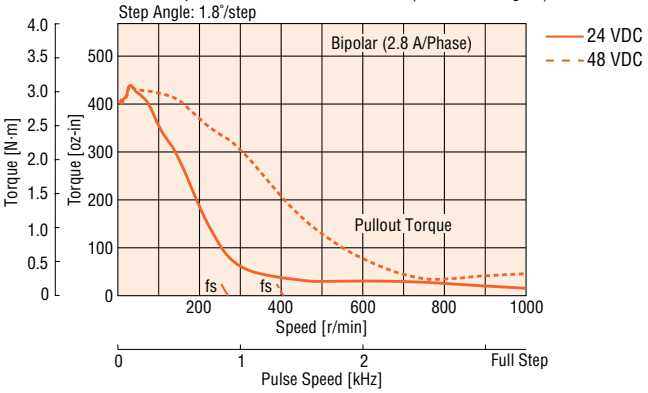

## PV267-D2.8BA Bipolar

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## PV269-D2.8BA Bipolar

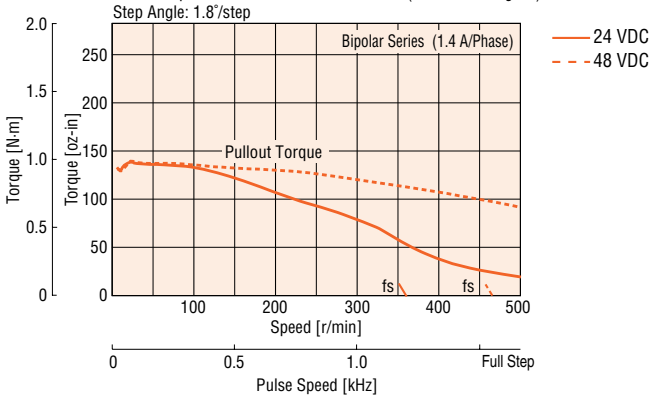
Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in$^2$ (140 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




Connection Diagrams C-189
General Specifications C-240

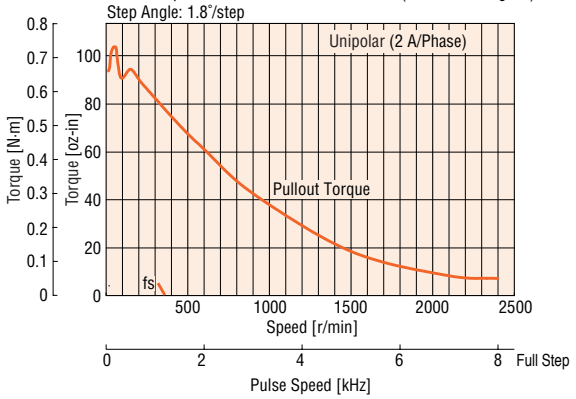
## ● PV264-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



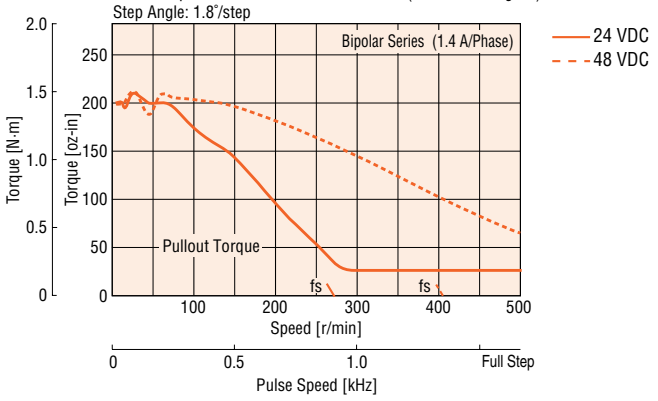

## ● PV264-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



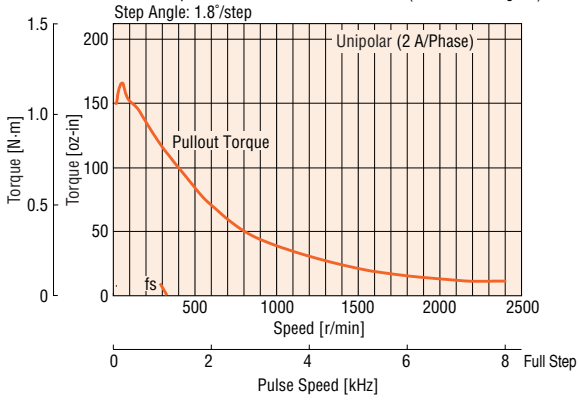

## ● PV266-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



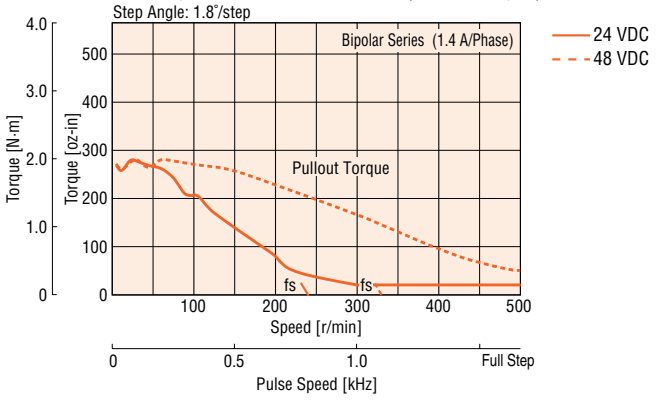

## ● PV266-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



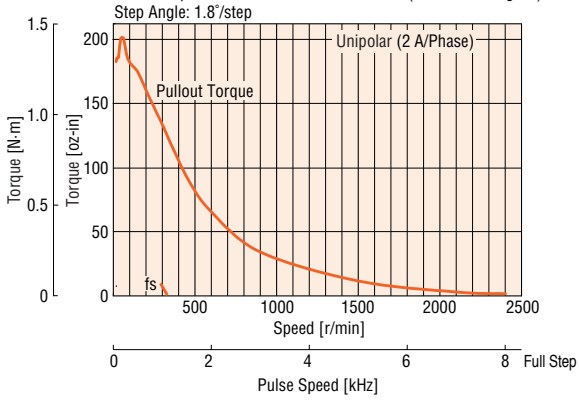

## ● PV267-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



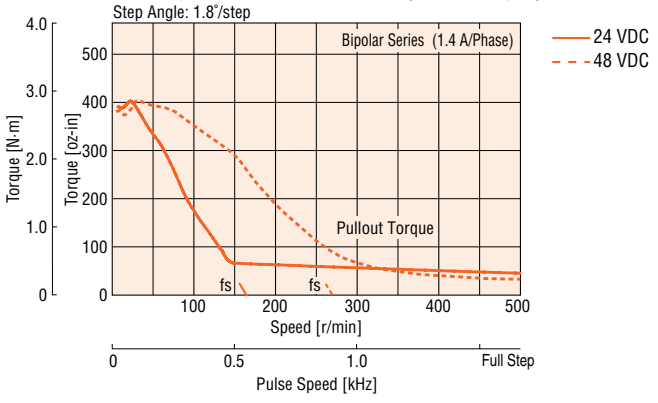

## ● PV267-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



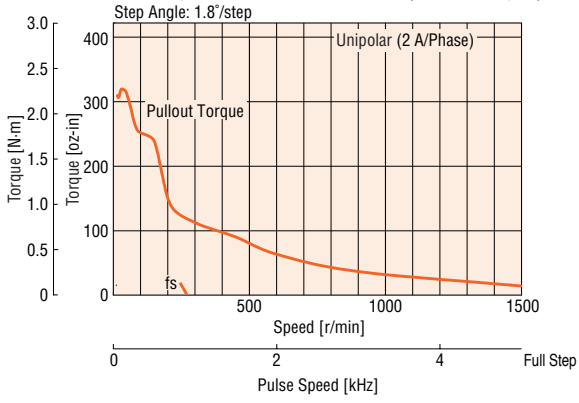

## ● PV269-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step




## ● PV269-02BA Unipolar

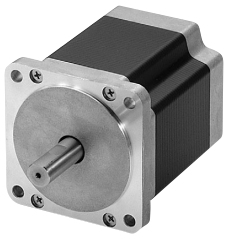
Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D6CL-6.3F**: $J_L$ = 0.77 oz-in² (140 × 10⁻⁷ kg·m²)
Step Angle: 1.8°/step



# □ 3.35 in. (□ 85 mm)

## Step Angle 1.8°

## PK Series Standard Type



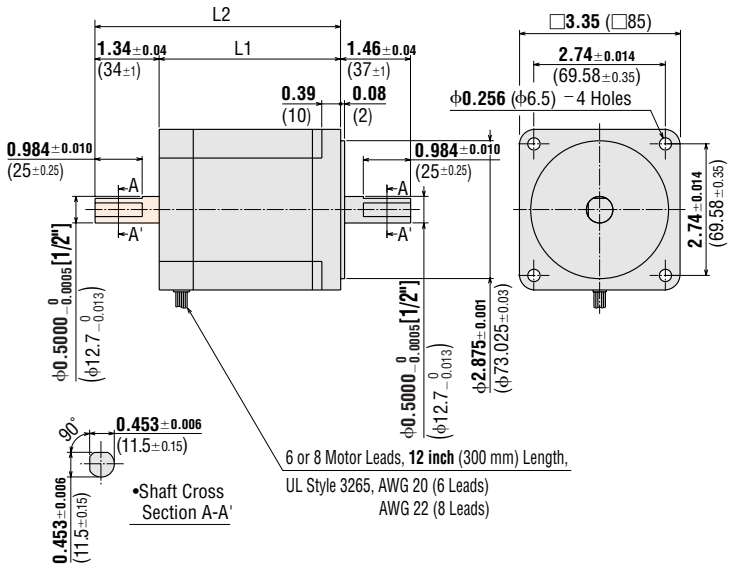
## Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires | Corresponding AC-Input Motor & Driver Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK296-01AA** | Bipolar (Series) | 440 | 3.1 | 1.4 | 6.2 | 4.4 | 30.8 | 7.7 | 1400×10⁻⁷ | 6 | — |
| **PK296-01BA** | Unipolar | 310 | 2.2 | 2 | 4.4 | 2.2 | 7.7 | | | | |
| **PK296-02AA** | Bipolar (Series) | 440 | 3.1 | 2.1 | 4.2 | 2 | 14 | 7.7 | 1400×10⁻⁷ | 6 | — |
| **PK296-02BA** | Unipolar | 310 | 2.2 | 3 | 3 | 1 | 3.5 | | | | |
| **PK296-03AA** | Bipolar (Series) | 440 | 3.1 | 3.18 | 2.8 | 0.96 | 6 | 7.7 | 1400×10⁻⁷ | 6 | **UMK296□A/ UMK296AAT** |
| **PK296-03BA** | Unipolar | 310 | 2.2 | 4.5 | 2 | 0.48 | 1.5 | | | | |
| **PK296-F4.5A PK296-F4.5B** | Bipolar (Parallel) | 440 | 3.1 | 6.3 | 1.4 | 0.24 | 1.5 | 7.7 | 1400×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 440 | 3.1 | 3.18 | 2.8 | 0.96 | 6 | | | | |
| | Unipolar | 310 | 2.2 | 4.5 | 2 | 0.48 | 1.5 | | | | |
| **PK299-01AA** | Bipolar (Series) | 880 | 6.2 | 1.4 | 9 | 6.4 | 56 | 14.8 | 2700×10⁻⁷ | 6 | — |
| **PK299-01BA** | Unipolar | 620 | 4.4 | 2 | 6.4 | 3.2 | 14 | | | | |
| **PK299-02AA** | Bipolar (Series) | 880 | 6.2 | 2.1 | 6 | 3 | 24 | 14.8 | 2700×10⁻⁷ | 6 | — |
| **PK299-02BA** | Unipolar | 620 | 4.4 | 3 | 4.2 | 1.5 | 6 | | | | |
| **PK299-03AA** | Bipolar (Series) | 880 | 6.2 | 3.18 | 3.9 | 1.32 | 10 | 14.8 | 2700×10⁻⁷ | 6 | **UMK299□A/ UMK299AAT** |
| **PK299-03BA** | Unipolar | 620 | 4.4 | 4.5 | 2.8 | 0.66 | 2.5 | | | | |
| **PK299-F4.5A PK296-F4.5B** | Bipolar (Parallel) | 880 | 6.2 | 6.3 | 1.9 | 0.33 | 2.5 | 14.8 | 2700×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 880 | 6.2 | 3.18 | 3.9 | 1.32 | 10 | | | | |
| | Unipolar | 620 | 4.4 | 4.5 | 2.8 | 0.66 | 2.5 | | | | |
| **PK2913-01AA** | Bipolar (Series) | 1320 | 9.3 | 1.4 | 10 | 7.6 | 76.8 | 22 | 4000×10⁻⁷ | 6 | — |
| **PK2913-01BA** | Unipolar | 930 | 6.6 | 2 | 7.6 | 3.8 | 19.2 | | | | |
| **PK2913-02AA** | Bipolar (Series) | 1320 | 9.3 | 2.8 | 5.3 | 1.94 | 16.8 | 22 | 4000×10⁻⁷ | 6 | **UMK2913□A/ UMK2913AAT** |
| **PK2913-02BA** | Unipolar | 930 | 6.6 | 4 | 3.8 | 0.97 | 4.2 | | | | |
| **PK2913-F4.0A PK2913-F4.0B** | Bipolar (Parallel) | 1320 | 9.3 | 5.6 | 2.6 | 0.49 | 4.2 | 22 | 4000×10⁻⁷ | 8 | — |
| | Bipolar (Series) | 1320 | 9.3 | 2.8 | 5.3 | 1.94 | 16.8 | | | | |
| | Unipolar | 930 | 6.6 | 4 | 3.8 | 0.97 | 4.2 | | | | |

**How to Read Specifications** →Page C-9
**Motor Wiring Diagrams** →Page C-189

## Dimensions

Scale 1/4, Unit = **inch** (mm)




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

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

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

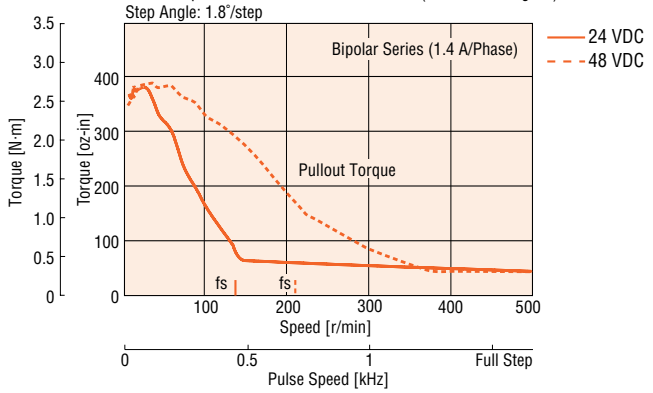
Connection Diagrams C-189 | General Specifications C-240

# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

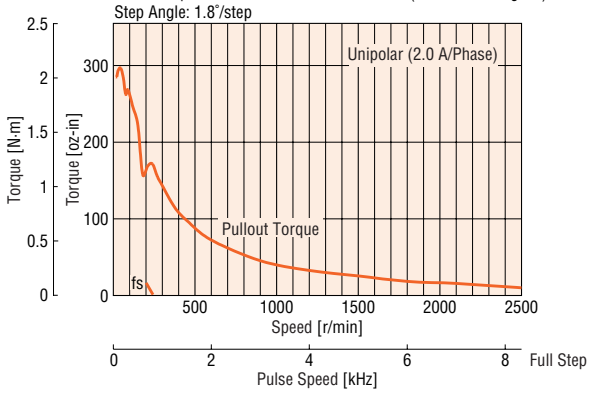
## PK296-01BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



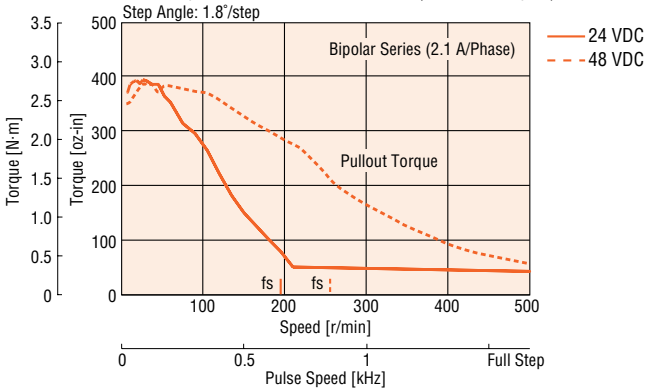

## PK296-01BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



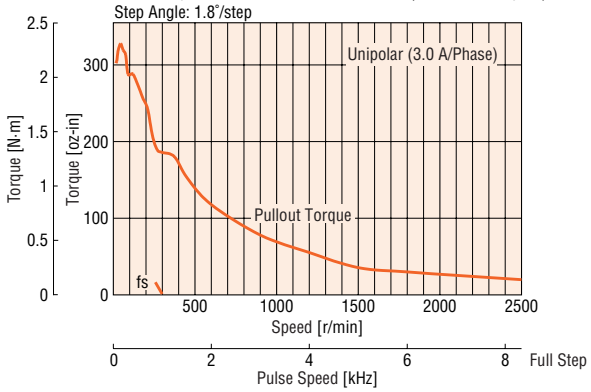

## PK296-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



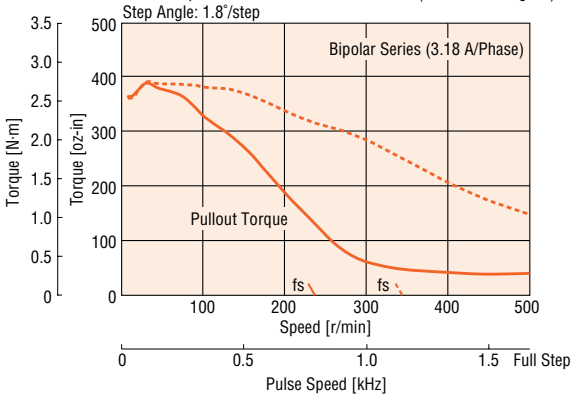

## PK296-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



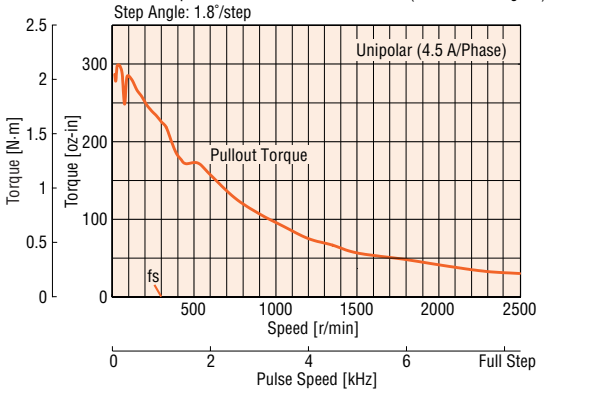

## PK296-03BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



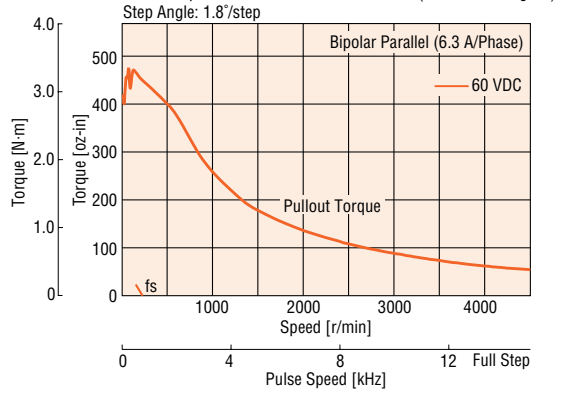

## PK296-03BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



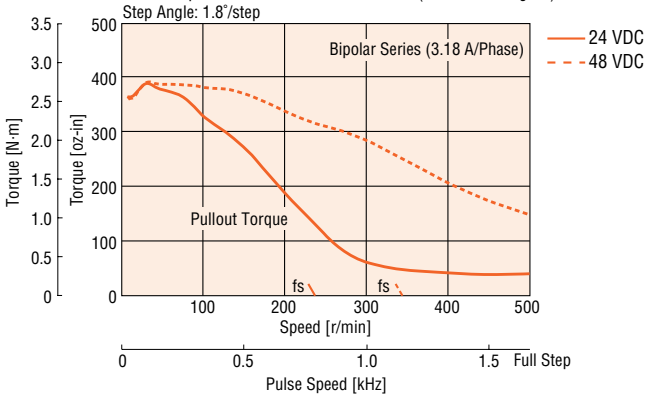

## PK296-F4.5B Bipolar (Parallel)

Power Input: 60 VDC Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



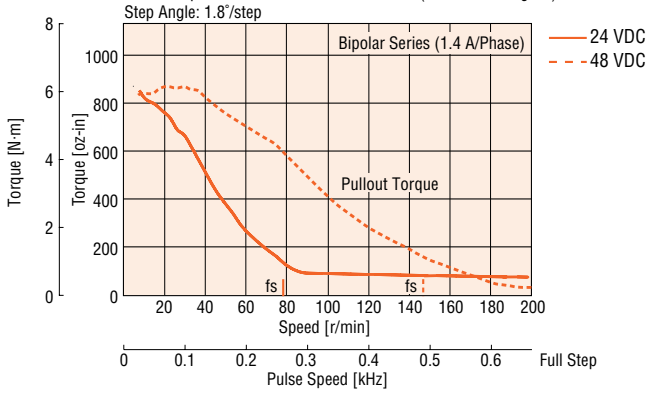

## PK296-F4.5B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



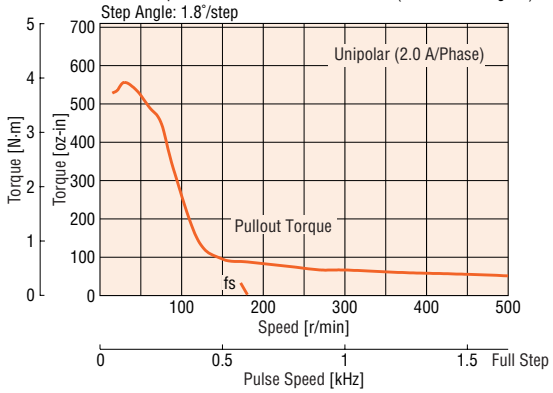
## ● PK299-01BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



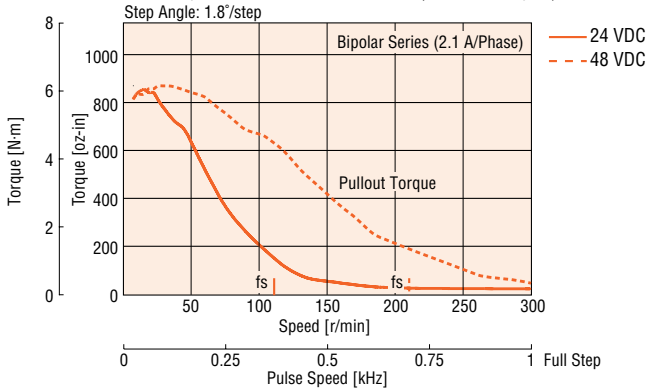

## ● PK299-01BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



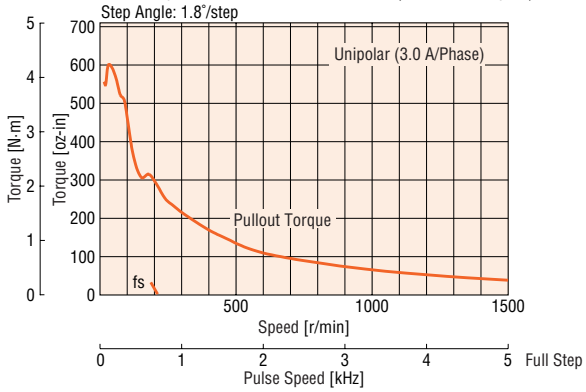

## ● PK299-02BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



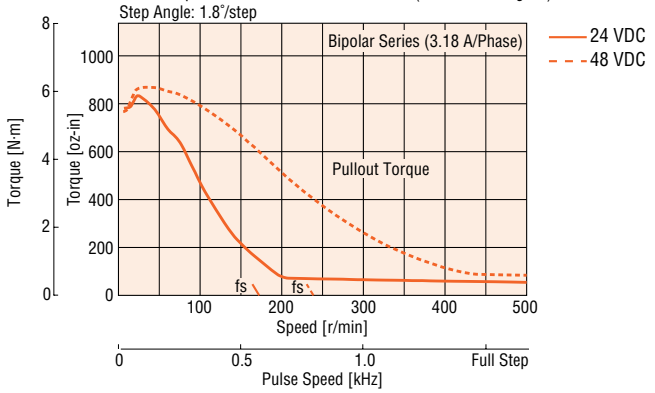

## ● PK299-02BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



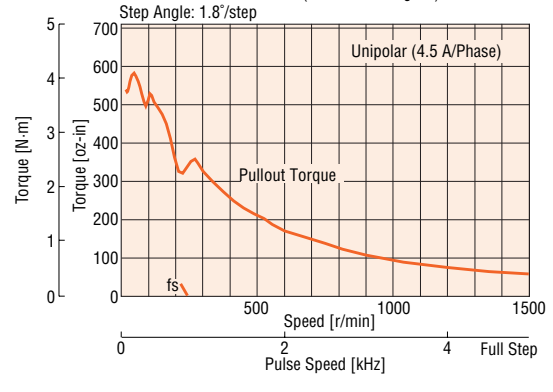

## ● PK299-03BA Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



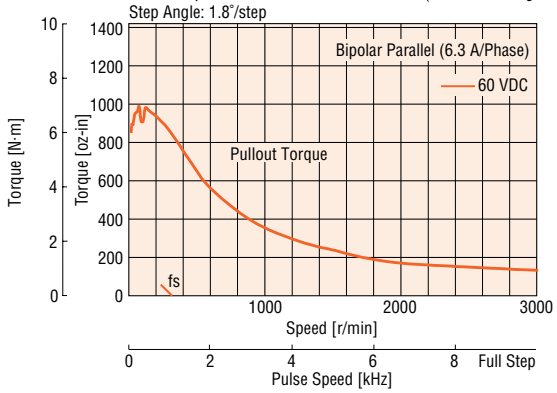

## ● PK299-03BA Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
Load Inertia: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step



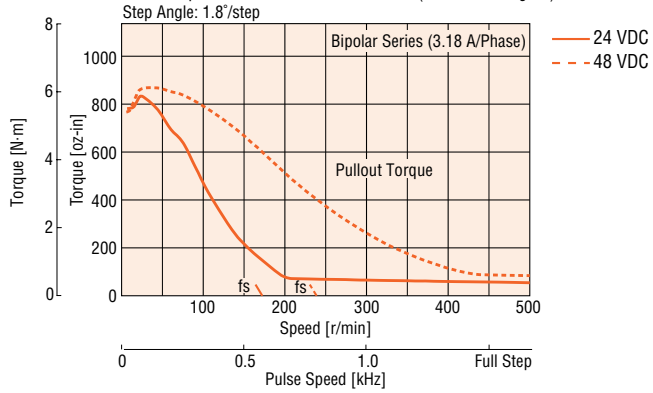

## ● PK299-F4.5B Bipolar (Parallel)

Power Input: 60 VDC Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step




## ● PK299-F4.5B Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in² (870 × $10^{-7}$ kg·m²)
Step Angle: 1.8°/step







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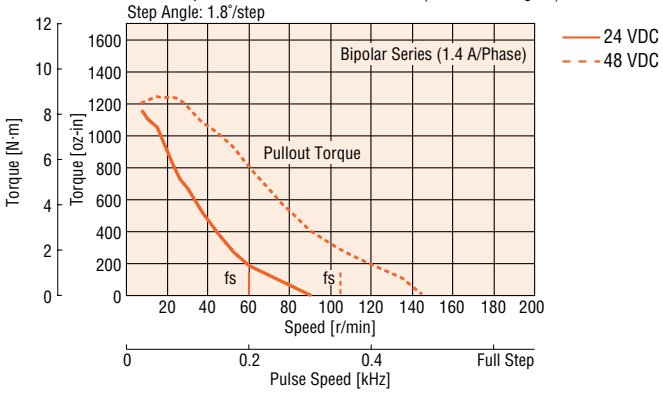
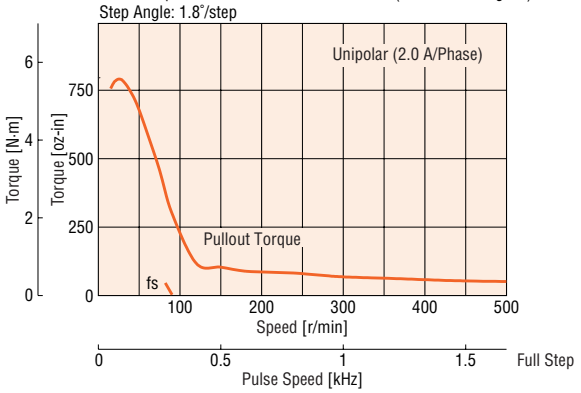
## ● **PK2913-01BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



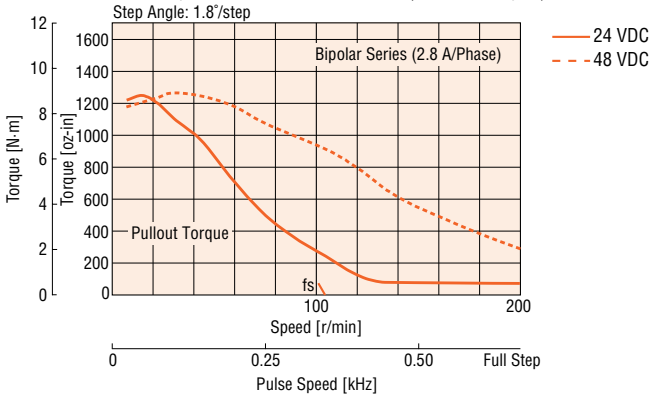

## ● **PK2913-01BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



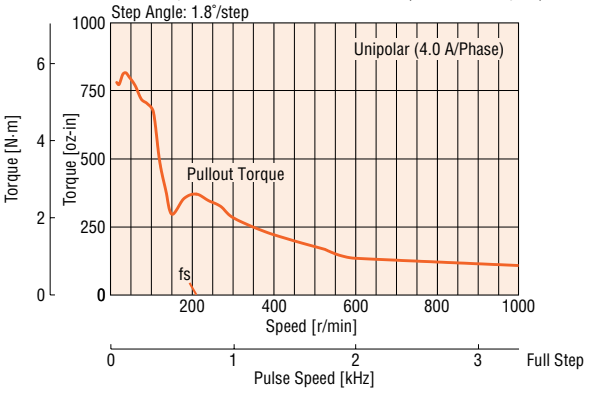

## ● **PK2913-02BA** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



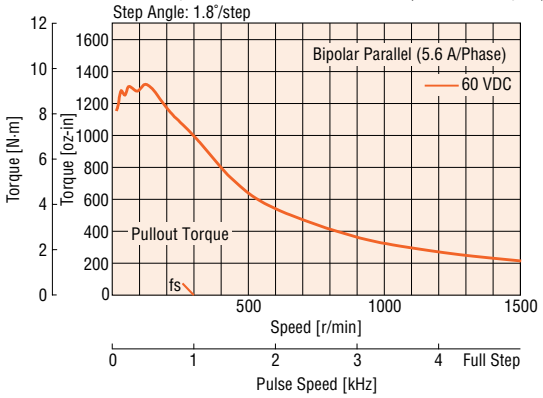

## ● **PK2913-02BA** Unipolar

Power Input: 24 VDC Unipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



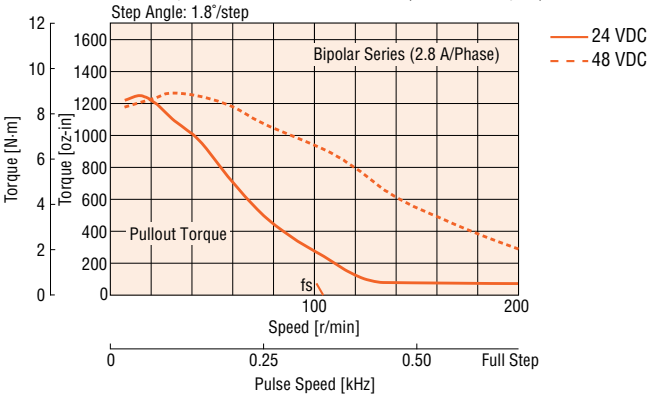

## ● **PK2913-F4.0B** Bipolar (Parallel)

Power Input: 60 VDC Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step




## ● **PK2913-F4.0B** Bipolar (Series)

Bipolar Constant Current Driver
With Damper **D9CL-12.7F**: $J_L$ = 4.8 oz-in$^2$ (870 × $10^{-7}$ kg·m$^2$)
Step Angle: 1.8°/step



# □ 3.54 in. (□ 90 mm)

## PK Series SH Geared Type

## Specifications

### Motor Specifications

| Model<br>Single Shaft<br>Double Shaft | Connection Type | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires |
|---|---|---|---|---|---|---|---|---|
| **PK296A1A-SG□** | Bipolar (Series) | 1 | 4.4 | 4.4 | 30.8 | 7.7 | 1400×10⁻⁷ | 6 |
| **PK296B1A-SG□** | Unipolar | 1.5 | 3.3 | 2.2 | 7.7 | | | |
| **PK296A2A-SG□** | Bipolar (Series) | 2.1 | 2 | 0.96 | 6 | 7.7 | 1400×10⁻⁷ | 6 |
| **PK296B2A-SG□** | Unipolar | 3 | 1.4 | 0.48 | 1.5 | | | |

**How to Read Specifications**→Page C-9
**Motor Wiring Diagrams**→Page C-189

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

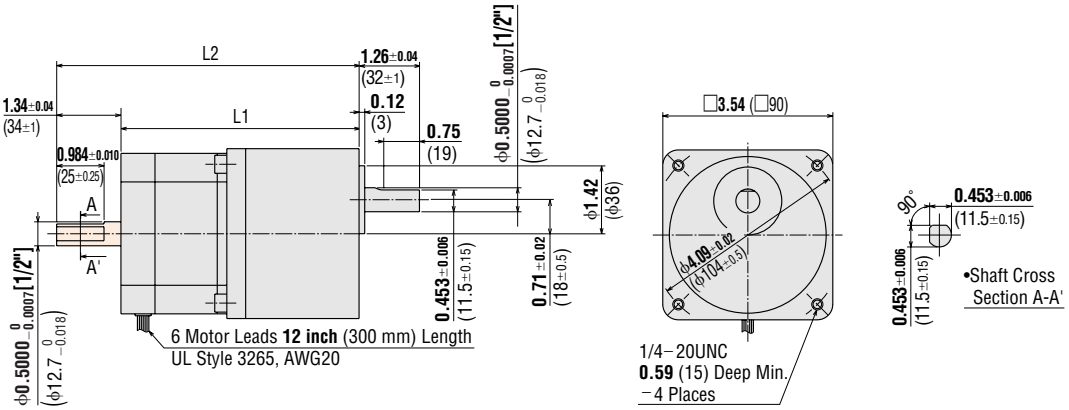
### Gearmotor Specifications

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

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

## Dimensions

Scale 1/4, Unit = **inch** (mm)




- Screws (included)
  1/4 -20 UNC, 0.75 inch (19 mm) length, 4 pieces
- These dimensions are for double shaft models. For single shaft models, ignore the shaded area.

| Model | L1<br>inch (mm) | L2<br>inch (mm) | Weight<br>lb. (kg) | DXF |
|---|---|---|---|---|
| **PK296A□A-SG□** | 4.96 (126) | — | 6.2 (2.8) | B242U |
| **PK296B□A-SG□** | | 6.3 (160) | | |

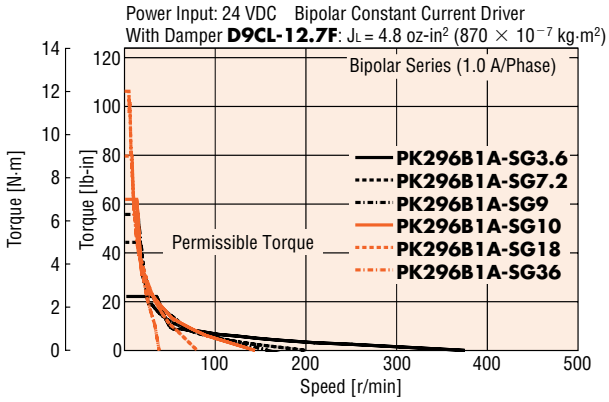
- Enter the winding specification in the box (□) within the model number.
- Enter the gear ratio in the box (□) within the model number.

Connection Diagrams C-189 | General Specifications C-240

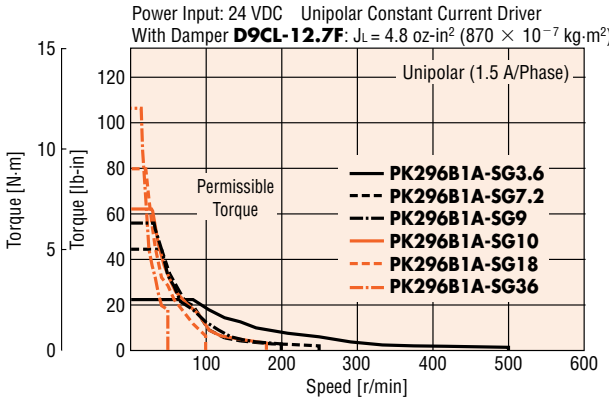
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

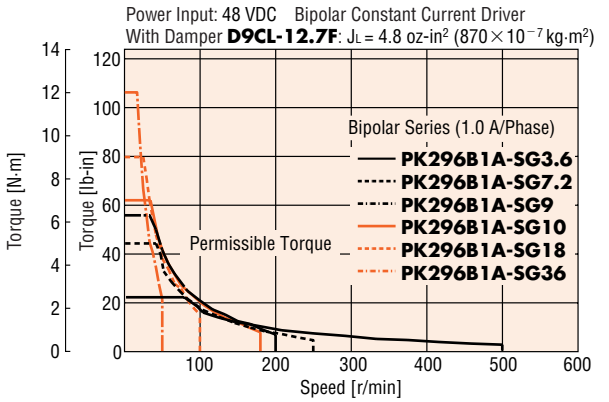
## ● PK296B1A-SG□ Bipolar (Series) 24 VDC



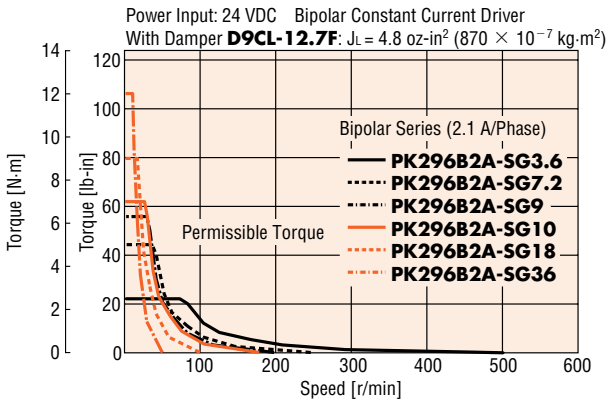

## ● PK296B1A-SG□ Unipolar



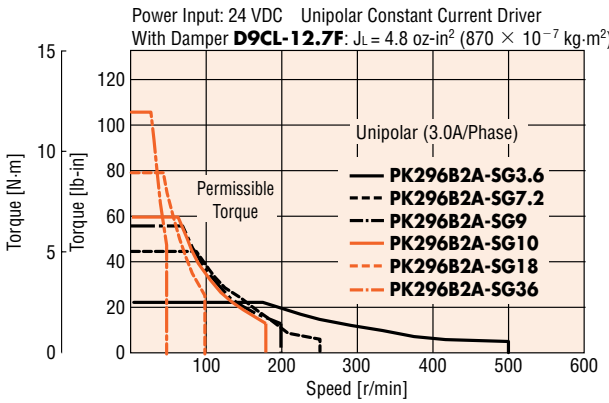

## ● PK296A1B-SG□ Bipolar (Series) 48 VDC



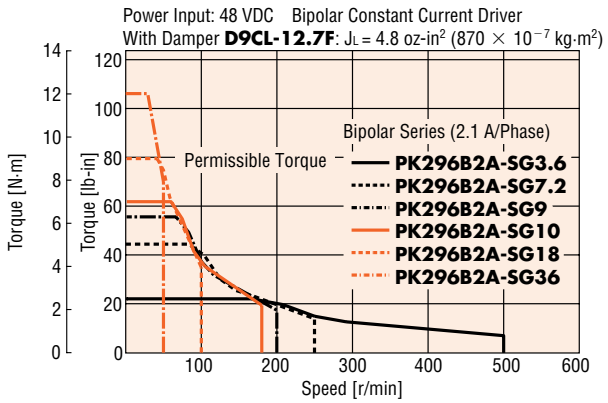

## ● PK296B2A-SG□ Bipolar (Series) 24 VDC




## ● PK296B2A-SG□ Unipolar

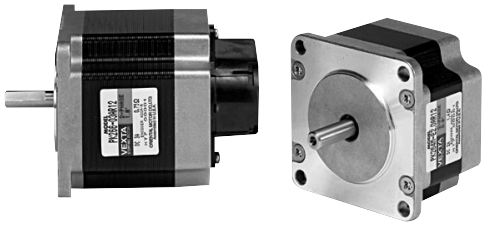



## ● PK296B2A-SG□ Bipolar (Series) 48 VDC



# □ 2.22 in. (□ 56.4 mm)

## PK Series Standard Type with Encoder



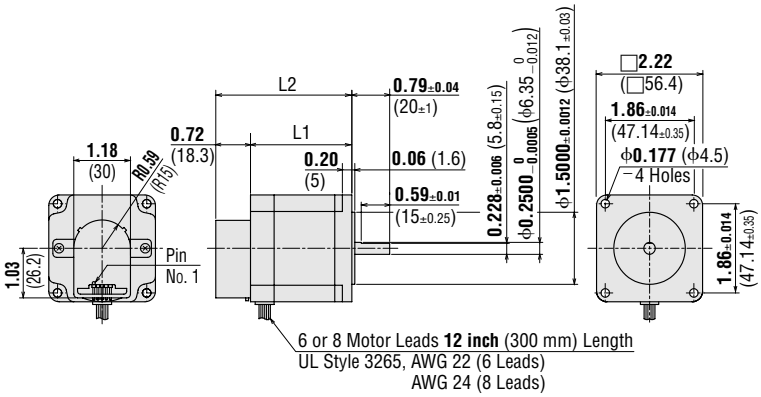
## Specifications

| Model<br>Single Shaft | Basic Step Angle | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in$^2$ | <br>kg·m$^2$ | Lead Wires |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK264-01AR11** | 1.8 ° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 21.6 | 0.66 | $120\times10^{-7}$ | 6 |
| **PK264-01AR12** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 5.4 | | | |
| **PK264-02AR11** | 1.8 ° | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | 0.66 | $120\times10^{-7}$ | 6 |
| **PK264-02AR12** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| **PK264-03AR11** | 1.8 ° | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 2.4 | 0.66 | $120\times10^{-7}$ | 6 |
| **PK264-03AR12** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.6 | | | |
| **PK264-E2.0AR11** | 1.8 ° | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.4 | 0.66 | $120\times10^{-7}$ | 8 |
| **PK264-E2.0AR12** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 5.6 | | | |
| | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.4 | | | |
| **PK266-01AR11** | 1.8 ° | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 40 | 1.64 | $300\times10^{-7}$ | 6 |
| **PK266-01AR12** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 10 | | | |
| **PK266-02AR11** | 1.8 ° | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | 1.64 | $300\times10^{-7}$ | 6 |
| **PK266-02AR12** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | |
| **PK266-03AR11** | 1.8 ° | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 4.4 | 1.64 | $300\times10^{-7}$ | 6 |
| **PK266-03AR12** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.1 | | | |
| **PK266-E2.0AR11** | 1.8 ° | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 2.5 | 1.64 | $300\times10^{-7}$ | 8 |
| **PK266-E2.0AR12** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 10 | | | |
| | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 2.5 | | | |

**How to Read Specifications** →Page C-9
**Motor Wiring Diagrams** →Page C-189

## Dimensions

Scale 1/4, Unit = **inch** (mm)




| Model | L1<br>inch (mm) | L2<br>inch (mm) | Weight<br>lb. (kg) | DXF |
|---|---|---|---|---|
| **PK264-0□AR11**<br>**PK264-0□AR12** | 1.54 (39) | 2.26 (57.3) | 1.03 (0.47) | B808U |
| **PK264-E2.0AR11**<br>**PK264-E2.0AR12** | | | | |
| **PK266-0□AR11**<br>**PK266-0□AR12** | 2.13 (54) | 2.85 (72.3) | 1.58 (0.72) | B809U |
| **PK266-E2.0AR11**<br>**PK266-E2.0AR12** | | | | |

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

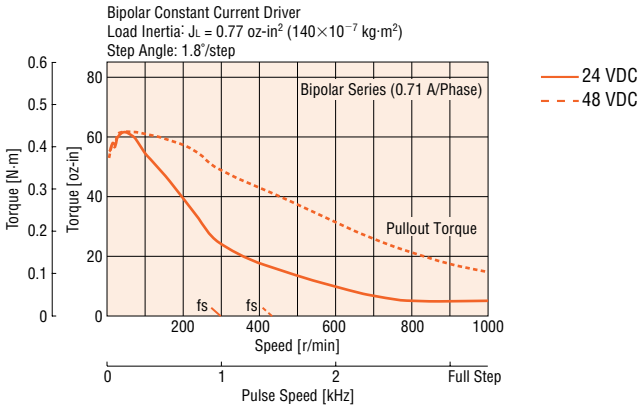
## Encoder Specifications

→ Page C-239

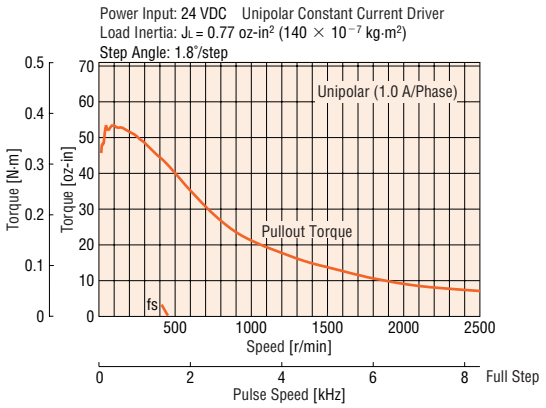
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics →Page C-10

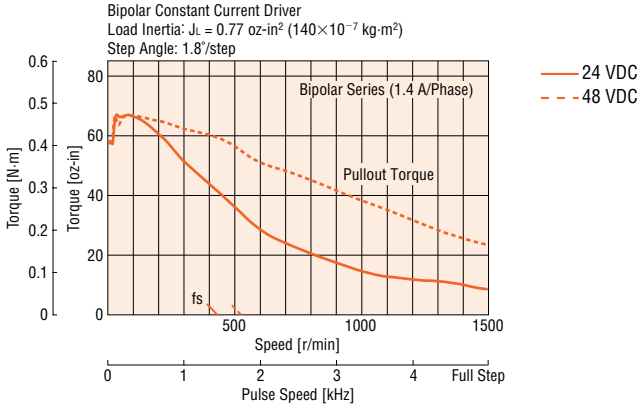
## ● PK264-01AR11
## PK264-01AR12 Bipolar (Series)



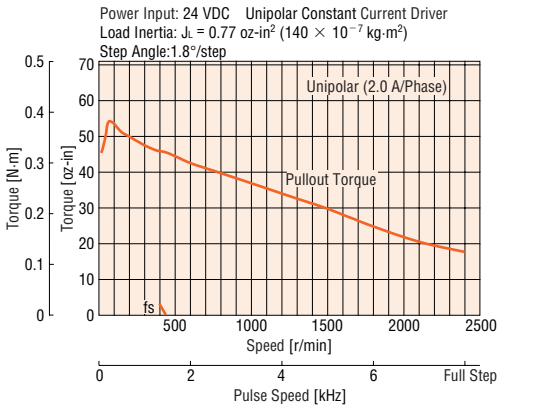

## ● PK264-01AR11
## PK264-01AR12 Unipolar



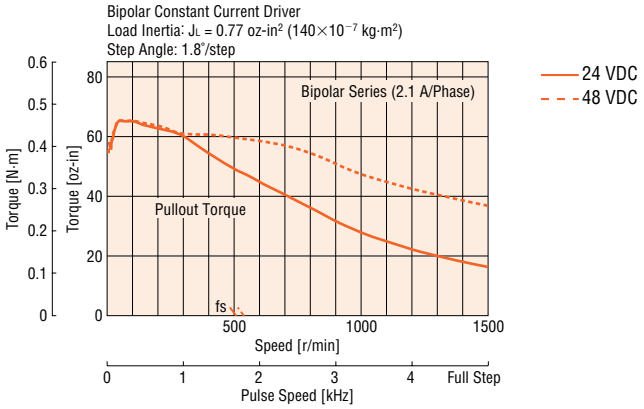

## ● PK264-02AR11
## PK264-02AR12 Bipolar (Series)



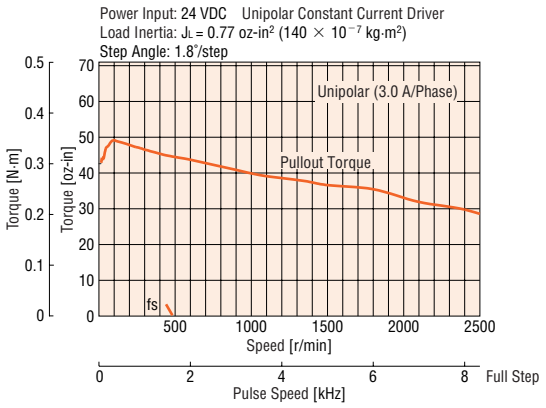

## ● PK264-02AR11
## PK264-02AR12 Unipolar



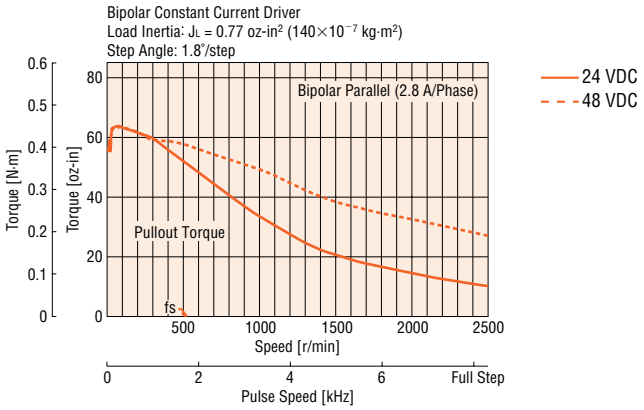

## ● PK264-03AR11
## PK264-03AR12 Bipolar (Series)



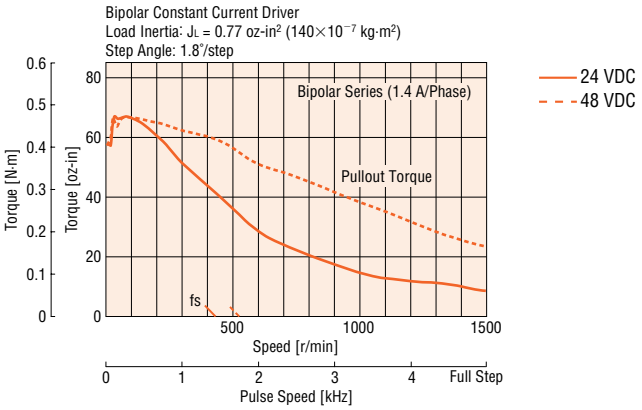

## ● PK264-03AR11
## PK264-03AR12 Unipolar



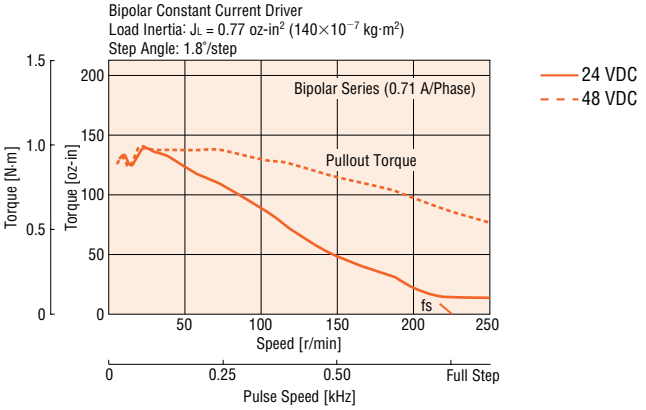

## ● PK264-E2.0AR11
## PK264-E2.0AR12 Bipolar (Parallel)



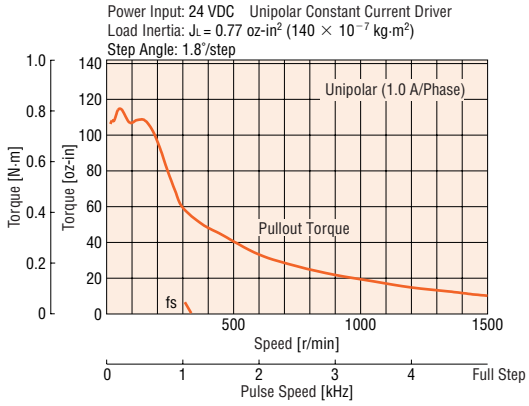

## ● PK264-E2.0AR11
## PK264-E2.0AR12 Bipolar (Series)



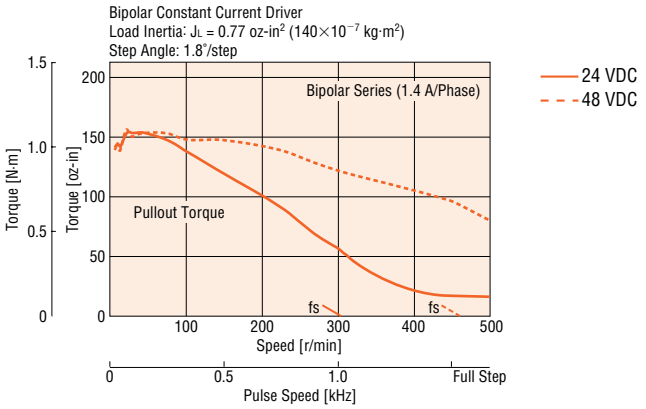
## ● PK266-01AR11
## PK266-01AR12 Bipolar (Series)



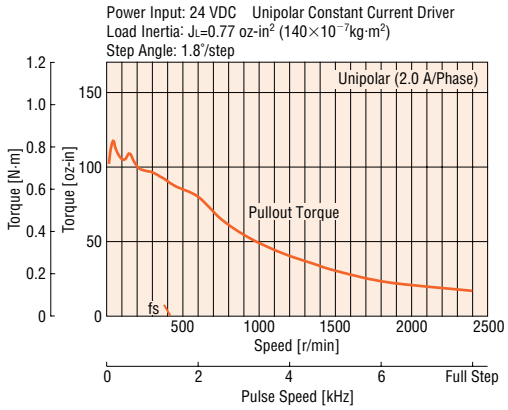

## ● PK266-01AR11
## PK266-01AR12 Unipolar



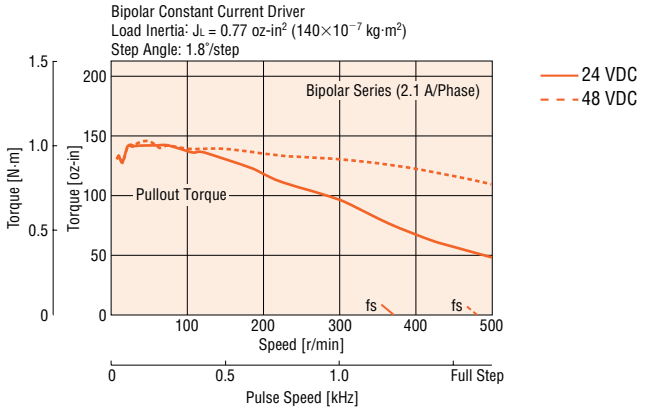

## ● PK266-02AR11
## PK266-02AR12 Bipolar (Series)



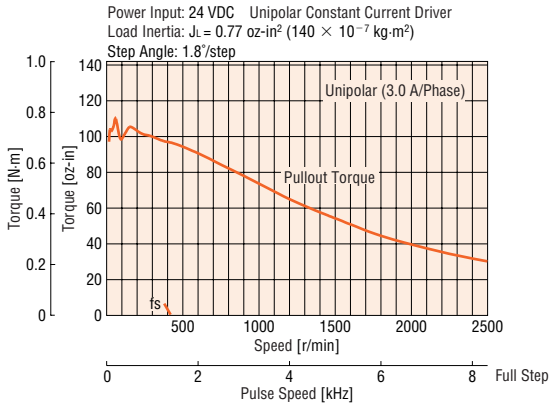

## ● PK266-02AR11
## PK266-02AR12 Unipolar



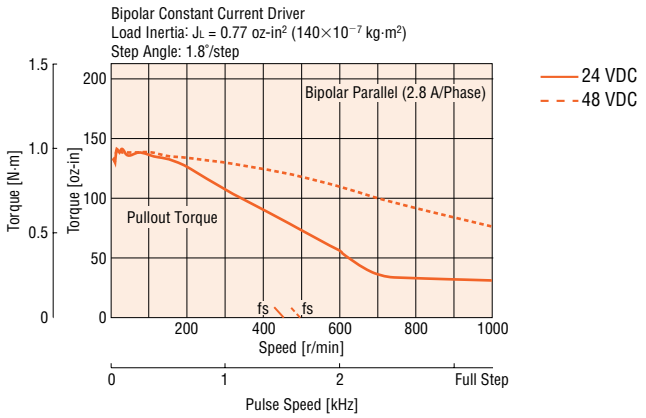

## ● PK266-03AR11
## PK266-03AR12 Bipolar (Series)



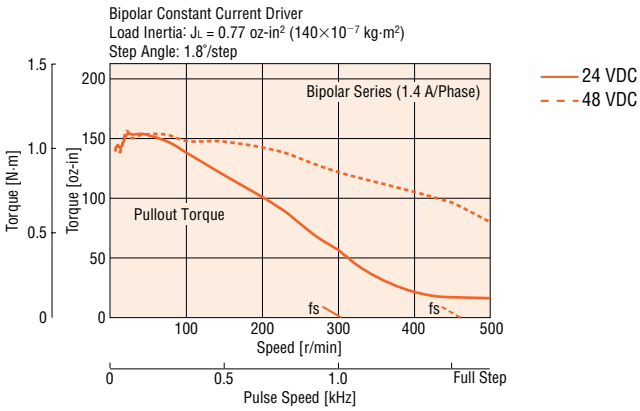

## ● PK266-03AR11
## PK266-03AR12 Unipolar




## ● PK266-E2.0AR11
## PK266-E2.0AR12 Bipolar (Parallel)



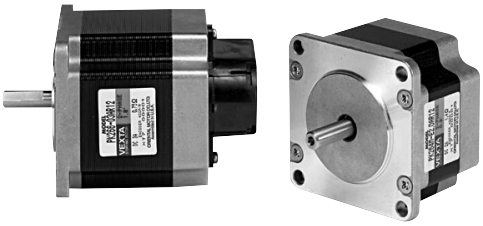

## ● PK266-E2.0AR11
## PK266-E2.0AR12 Bipolar (Series)




Connection Diagrams C-189 General Specifications C-240

# □ 2.22 in. (□ 56.4 mm)

## PK Series High Resolution Type with Encoder

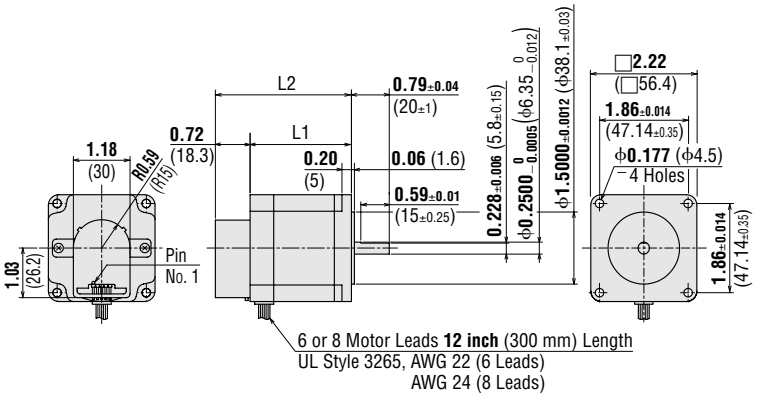


## Specifications

| Model<br>Single Shaft | Basic Step Angle | Connection Type | Holding Torque<br>oz-in | <br>N·m | Current per Phase<br>A/phase | Voltage<br>VDC | Resistance per Phase<br>Ω/phase | Inductance<br>mH/phase | Rotor Inertia J<br>oz-in² | <br>kg·m² | Lead Wires |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PK264M-01AR11** | 0.9 ° | Bipolar (Series) | 68 | 0.48 | 0.71 | 8.1 | 11.4 | 26 | 0.66 | 120×10⁻⁷ | 6 |
| **PK264M-01AR12** | | Unipolar | 55 | 0.39 | 1 | 5.7 | 5.7 | 6.5 | | | |
| **PK264M-02AR11** | 0.9 ° | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | 0.66 | 120×10⁻⁷ | 6 |
| **PK264M-02AR12** | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| **PK264M-03AR11** | 0.9 ° | Bipolar (Series) | 68 | 0.48 | 2.1 | 2.6 | 1.26 | 3 | 0.66 | 120×10⁻⁷ | 6 |
| **PK264M-03AR12** | | Unipolar | 55 | 0.39 | 3 | 1.9 | 0.63 | 0.75 | | | |
| **PK264M-E2.0AR11** | 0.9 ° | Bipolar (Parallel) | 68 | 0.48 | 2.8 | 1.96 | 0.7 | 1.7 | 0.66 | 120×10⁻⁷ | 8 |
| **PK264M-E2.0AR12** | | Bipolar (Series) | 68 | 0.48 | 1.4 | 3.9 | 2.8 | 6.8 | | | |
| | | Unipolar | 55 | 0.39 | 2 | 2.8 | 1.4 | 1.7 | | | |
| **PK266M-01AR11** | 0.9 ° | Bipolar (Series) | 166 | 1.17 | 0.71 | 11 | 14.8 | 50.8 | 1.64 | 300×10⁻⁷ | 6 |
| **PK266M-01AR12** | | Unipolar | 127 | 0.9 | 1 | 7.4 | 7.4 | 12.7 | | | |
| **PK266M-02AR11** | 0.9 ° | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | 1.64 | 300×10⁻⁷ | 6 |
| **PK266M-02AR12** | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | |
| **PK266M-03AR11** | 0.9 ° | Bipolar (Series) | 166 | 1.17 | 2.1 | 3.2 | 1.5 | 5.8 | 1.64 | 300×10⁻⁷ | 6 |
| **PK266M-03AR12** | | Unipolar | 127 | 0.9 | 3 | 2.3 | 0.75 | 1.45 | | | |
| **PK266M-E2.0AR11** | 0.9 ° | Bipolar (Parallel) | 166 | 1.17 | 2.8 | 2.52 | 0.9 | 3.2 | 1.64 | 300×10⁻⁷ | 8 |
| **PK266M-E2.0AR12** | | Bipolar (Series) | 166 | 1.17 | 1.4 | 5 | 3.6 | 12.8 | | | |
| | | Unipolar | 127 | 0.9 | 2 | 3.6 | 1.8 | 3.2 | | | |

**How to Read Specifications** → Page C-9
**Motor Wiring Diagrams** → Page C-189

## Dimensions Scale 1/4, Unit = **inch** (mm)




| Model | L1 inch (mm) | L2 inch (mm) | Weight lb. (kg) | DXF |
|---|---|---|---|---|
| **PK264M-0□AR11**<br>**PK264M-0□AR12** | 1.54 (39) | 2.26 (57.3) | 1.03 (0.47) | B808U |
| **PK264M-E2.0AR11**<br>**PK264M-E2.0AR12** | | | | |
| **PK266M-0□AR11**<br>**PK266M-0□AR12** | 2.13 (54) | 2.85 (72.3) | 1.58 (0.72) | B809U |
| **PK266M-E2.0AR11**<br>**PK266M-E2.0AR12** | | | | |

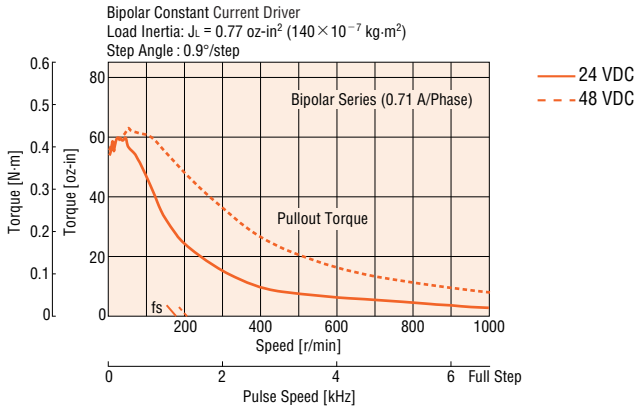
● Enter the winding specification in the box (□) within the model number.

## Encoder Specifications → Page C-239

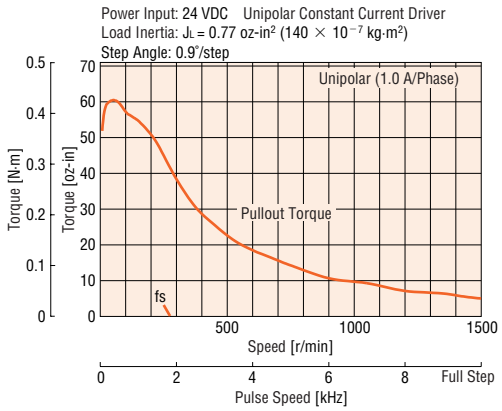
# Speed–Torque Characteristics

How to Read Speed-Torque Characteristics→Page C-10

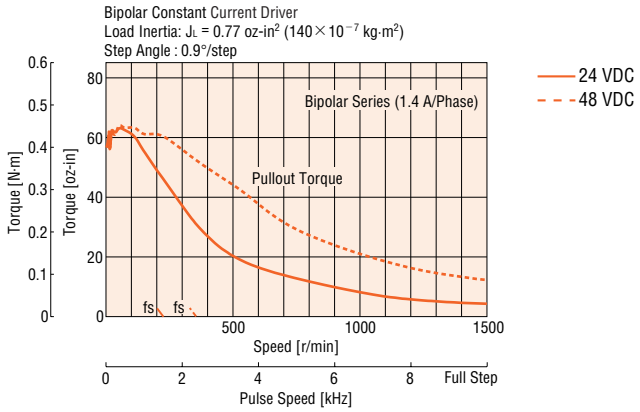
## ● PK264M-01AR11
### PK264M-01AR12 Bipolar (Series)



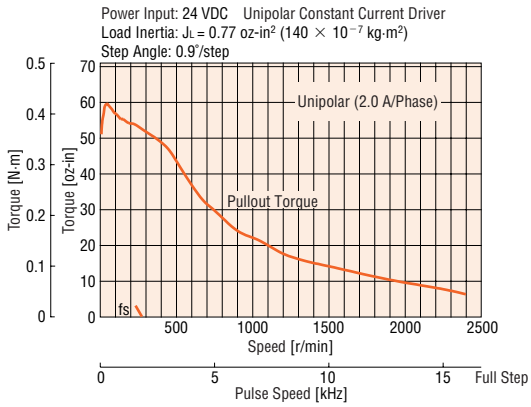

## ● PK264M-01AR11
### PK264M-01AR12 Unipolar



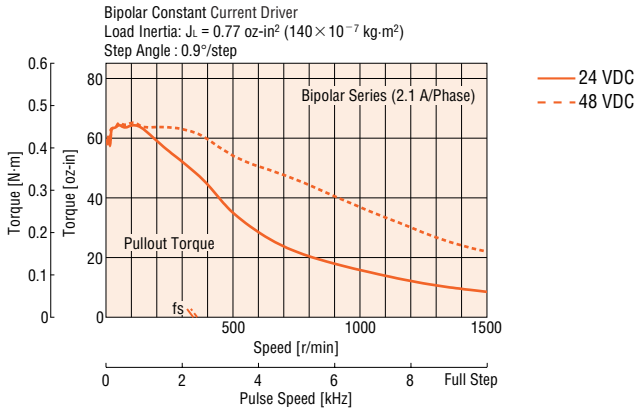

## ● PK264M-02AR11
### PK264M-02AR12 Bipolar (Series)



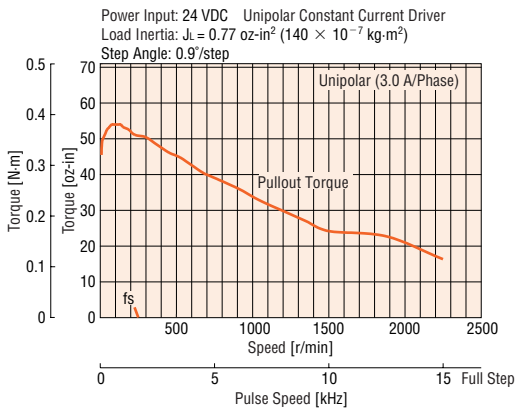

## ● PK264M-02AR11
### PK264M-02AR12 Unipolar



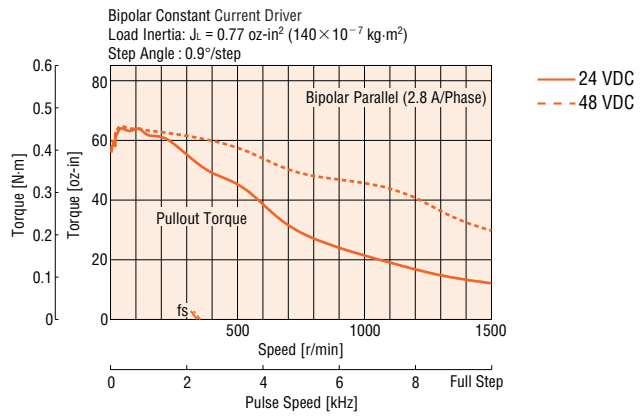

## ● PK264M-03AR11
### PK264M-03AR12 Bipolar (Series)



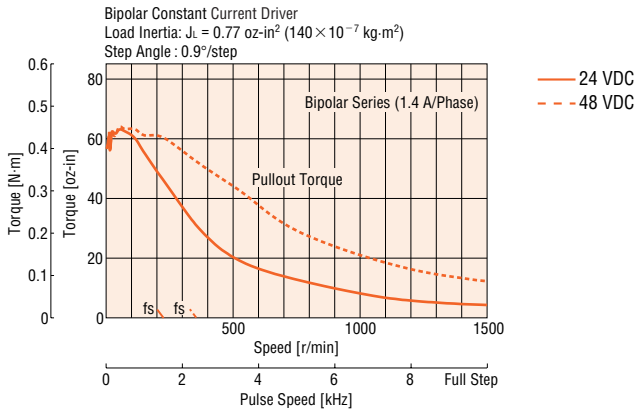

## ● PK264M-03AR11
### PK264M-03AR12 Unipolar




## ● PK264M-E2.0AR11
### PK264M-E2.0AR12 Bipolar (Parallel)

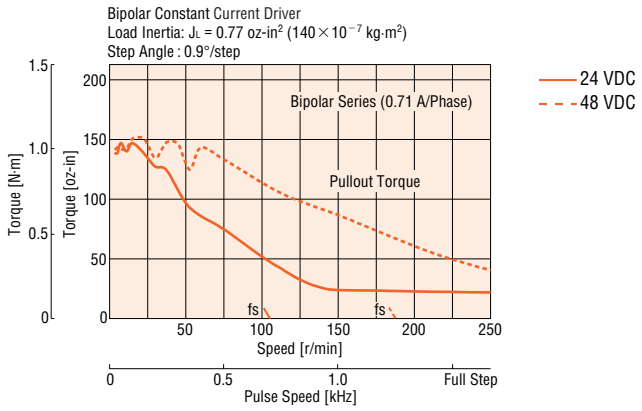



## ● PK264M-E2.0AR11
### PK264M-E2.0AR12 Bipolar (Series)

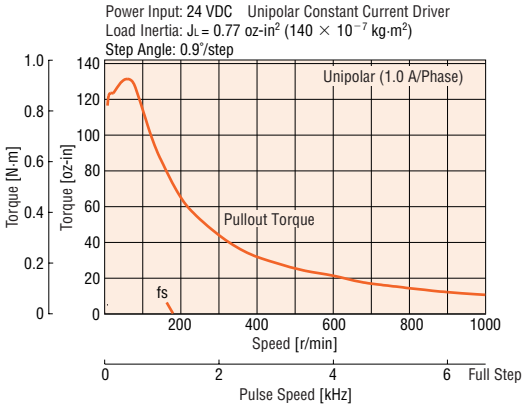



Connection Diagrams C-189 General Specifications C-240

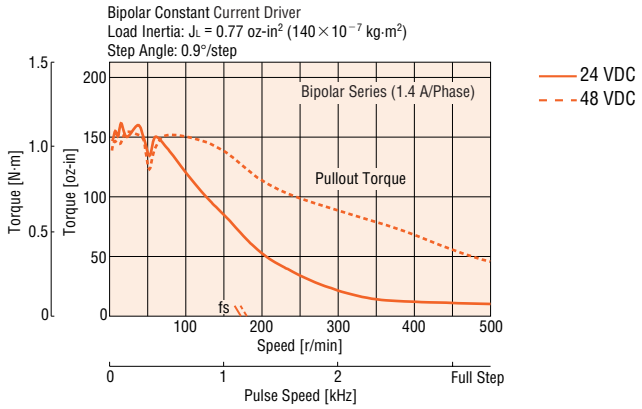
## ● PK266M-01AR11
## PK266M-01AR12 Bipolar (Series)



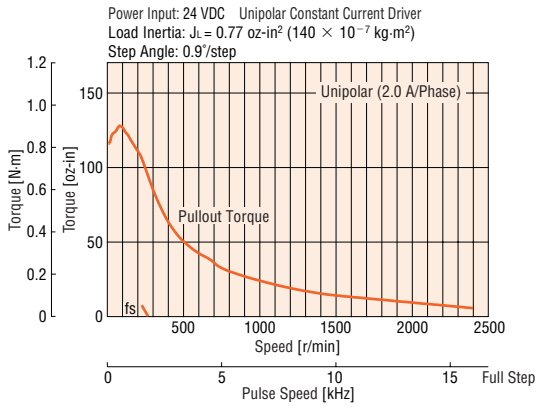

## ● PK266M-01AR11
## PK266M-01AR12 Unipolar



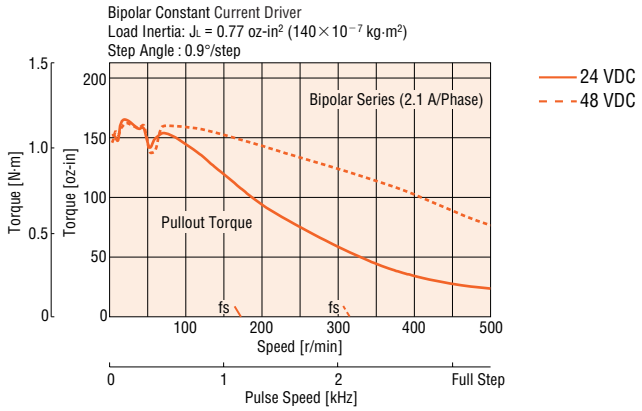

## ● PK266M-02AR11
## PK266M-02AR12 Bipolar (Series)



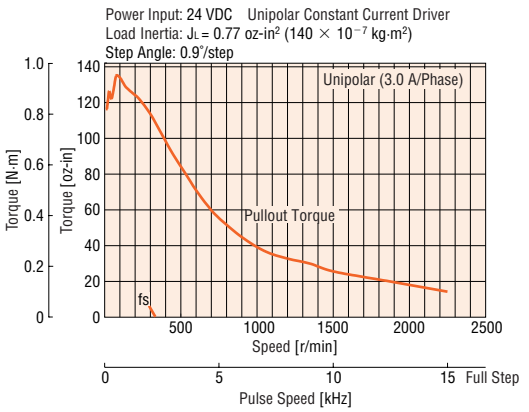

## ● PK266M-02AR11
## PK266M-02AR12 Unipolar



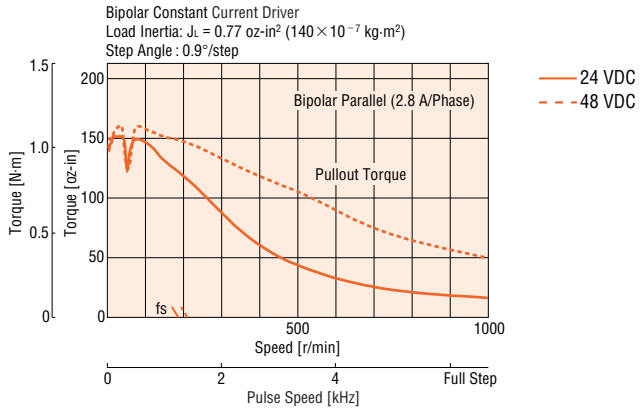

## ● PK266M-03AR11
## PK266M-03AR12 Bipolar (Series)



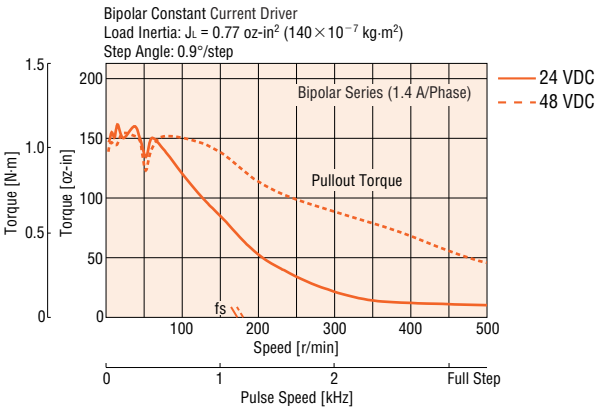

## ● PK266M-03AR11
## PK266M-03AR12 Unipolar




## ● PK266M-E2.0AR11
## PK266M-E2.0AR12 Bipolar (Parallel)




## ● PK266M-E2.0AR11
## PK266M-E2.0AR12 Bipolar (Series)



# Encoder Specifications

**Note**:
- Use the motor within the encoder specifications.
  HEDS-5600 series encoders by Agilent Technologies, Inc. are used.

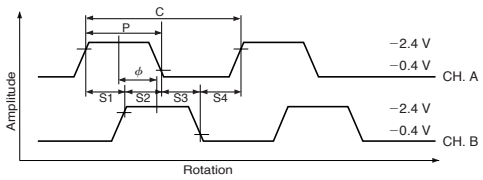
## Recommended Operating Ranges

| Item | Symbol | Min | TYP. | MAX. | Note |
|---|---|---|---|---|---|
| Supplied Voltage | Vcc | 4.5 V | 5.0 V | 5.5 V | Ripple<100 mVp-p |
| Load Capacity | Cl | — | — | 100 pF | 2.7 Ω, pull-up |
| Response Frequency | f | — | — | 100 kHz | Rotating speed (r/min)×(N/60) |

N=Encoder Resolution

**Note**:
- The encoder specifications are designed to guarantee operation based on a response frequency of 100 kHz. However, the encoder can be operated at a minimum response frequency of 100 kHz.

## Output Waveform




## Encoder Characteristics

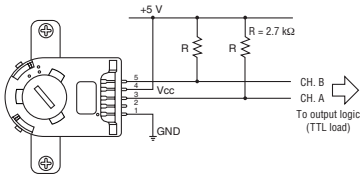
Unless otherwise specified, the following characteristics assume that the encoder is installed within the allowable ranges of error and operated under the recommended operating conditions. Each characteristic value indicates the worst value within one rotation of the code wheel.

| Item | Symbol | TYP.* | Max. |
|---|---|---|---|
| Pulse-width error | ΔP | 7°e | 45°e |
| Logic-width error | ΔS | 5°e | 45°e |
| Phase error | Δϕ | 2°e | 20°e |
| Position error | Δθ | 10 arc min. | 40 arc min. |
| Cycle error | ΔC | 3°e | 5.5°e |

* TYP values are based on Vcc = 5.0 V and TA = 77°F (25°C).

## Encoder Electrical Interface

We recommend that the CH.A and CH.B outputs be pulled up with a resistance of 2.7 kΩ (±10%) in order to shorten the rise time of the output pulse. Install the pull-up resistor near the encoder [within 6.6 feet (1m)].




Pull-up of Encoder Output

# Applicable Connectors

| Manufacturer | Model Numbers |
|---|---|
| AMP® | 103686-4 |
| | 640442-5 |
| DUPONT® | 65039-032 (housing) |
| | 4825X-000 (contact) |
| Agilent Technologies® | HEDS-8902 (for 2 channels: 4 lead wires) |
| MOLEX® | 2695 series (housing) |
| | 2759 series (contact) |

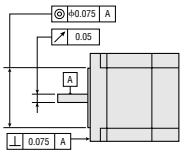



Connection Diagrams C-189
General Specifications C-240

## General Specifications

| Item | Specifications |
|---|---|
| Shaft Runout | 0.002 inch (0.05 mm) T.I.R at top of output shaft *1 |
| Perpendicularity | 0.003 inch (0.075 mm) T.I.R *1 |
| Concentrictly | 0.003 inch (0.075 mm) T.I.R *1 |
| Shaft Radial Play *2 | 0.001 inch (0.025 mm) max. of 1.12 lb. (5 N) |
| Shaft Axial Play *3 | 0.003 inch (0.075 mm) max. of 2.2 lb. (10 N) |
| Step Accuracy *4 | **PK** Series: ±3 arc min. (±0.05°) **PV** Series: ±2 arc min. (±0.034°) |
| Insulation Resistance | 100 MΩ minimum under normal temperature and humidity, when measured by a 500 VDC megger between the motor coils and the motor casing. |
| Dielectric Strength *5 | Sufficient to withstand 1.0 kV, 60 Hz applied between the motor coils and casing for one minute, under normal ambient temperature and humidity. |
| Insulation Class | Class B [266°F (130°C)] |
| Temperature Rise | Temperature rise of the coil measured by the Change Resistance Method is 144°F (80°F) or less. (at standstill, two phases energized) |
| Ambient Temperature Range | 14°F (−10°C)~122°F (+50°C) |

*1 T.I.R. (Total Indicator Reading): Refers to the total dial gauge reading when the measurement section is rotated one revolution centered on the reference axis center.
*2 Radial Play: Refers to the displacement in shaft position in the radial direction, when a 1.12 lb. (5 N) load is applied in the radial direction to the motor shaft tip.
*3 Axial Play: Refers to the displacement in shaft position in the axial direction, when a 2.2 lb. (10 N) load is applied to the motor shaft in the axial direction.
*4 This value is for full step with no load. (The value changes with size of load.)
*5 For motors with a frame size of 1.65 inch sq. (42 mm sq.) or less, 60 Hz, 0.5 kV for 1 minute.




## Permissible Overhung Load and Permissible Thrust Load

Unit = Upper values: lb./Lower values: N

| Type | Model | Overhung Load Distance from Shaft End [inch (mm)] 0 | 0.2 (5) | 0.39 (10) | 0.59 (15) | 0.79 (20) | Thrust Load |
|---|---|---|---|---|---|---|---|
| **PK** Series Standard **P** Type (High Torque) | **PK223P** **PK224P** **PK225P** | 5.6<br>25 | 7.6<br>34 | 11.7<br>52 | — | — | The permissible thrust load [lb. (N)] shall be no greater than the motor mass. |
| | **PK233P, PK235P** | 4.5<br>20 | 5.6<br>25 | 7.6<br>34 | 11.7<br>52 | — | |
| | **PK244P, PK246P** | 4.5<br>20 | 5.6<br>25 | 7.6<br>34 | 11.7<br>52 | — | |
| **PK** Series Standard Type | **PK243** **PK244** **PK245** | 4.5<br>20 | 5.6<br>25 | 7.6<br>34 | 11.7<br>52 | — | |
| | **PK264** **PK264-AR11** **PK264-AR12** **PK266** **PK266-AR11** **PK266-AR12** **PK268** | 12.1<br>54 | 15<br>67 | 20<br>89 | 29<br>130 | — | |
| | **PK296** **PK299** **PK2913** | 58<br>260 | 65<br>290 | 76<br>340 | 87<br>390 | 108<br>480 | |
| **PV** Series | **PV264, PV266** **PV267, PV269** | 11.2<br>50 | 13.5<br>60 | 16.8<br>75 | 22<br>100 | 33<br>150 | |
| **PK** Series High Resolution Type | **PK243M** **PK244M** **PK245M** | 4.5<br>20 | 5.6<br>25 | 7.6<br>34 | 11.7<br>52 | — | |
| | **PK264M** **PK264M-AR11** **PK264M-AR12** **PK266M** **PK266M-AR11** **PK266M-AR12** **PK268M** | 12.1<br>54 | 15<br>67 | 20<br>89 | 29<br>130 | — | |
| **PK** Series **SH** Geared Type | **PK223-SG□** | 3.3<br>15 | 3.8<br>17 | 4.5<br>20 | 5.1<br>23 | — | 2.2<br>10 |
| | **PK243-SG□** | 2.2<br>10 | 3.3<br>15 | 4.5<br>20 | 6.7<br>30 | — | 3.3<br>15 |
| | **PK264-SG3.6** **PK264-SG7.2** **PK264-SG9** **PK264-SG10** | 6.7<br>30 | 9<br>40 | 11.2<br>50 | 13.5<br>60 | 15.7<br>70 | 6.7<br>30 |
| | **PK264-SG18** **PK264-SG36** **PK264-SG50** **PK264-SG100** | 18<br>80 | 22<br>100 | 27<br>120 | 31<br>140 | 36<br>160 | |
| | **PK296-SG□** | 49<br>220 | 56<br>250 | 67<br>300 | 78<br>350 | 90<br>400 | 22<br>100 |