

## High-Torque Stepper Motor

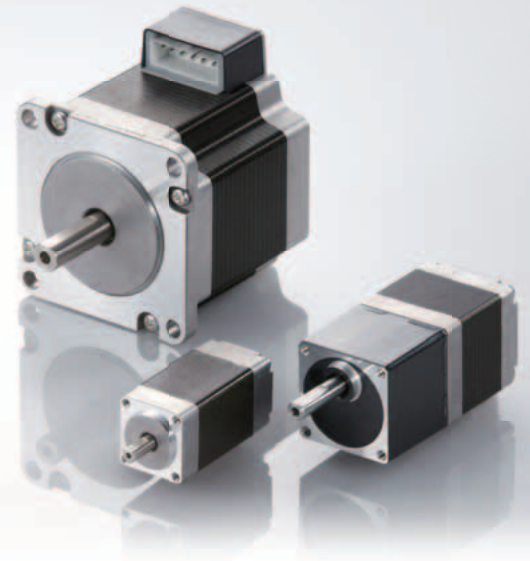
# PKP Series

The **PKP** Series is a high-torque type 1.8° or 0.9° stepper motor available in 5 frame sizes from 20 mm (0.79 in.) to 56.4 mm (2.22 in.). The **PKP** Series also includes the improved **SH** geared type stepper motors.



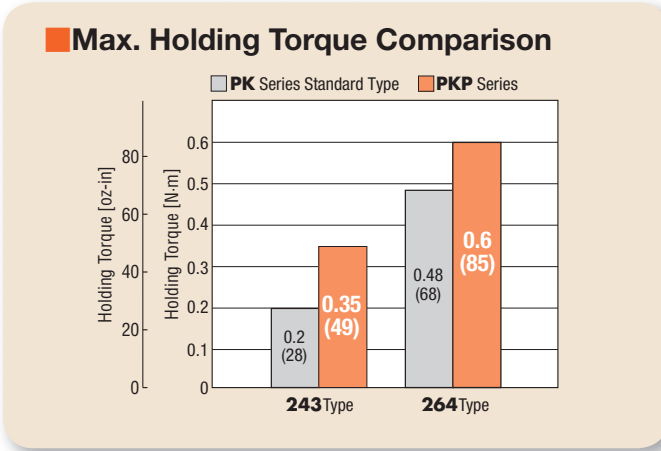
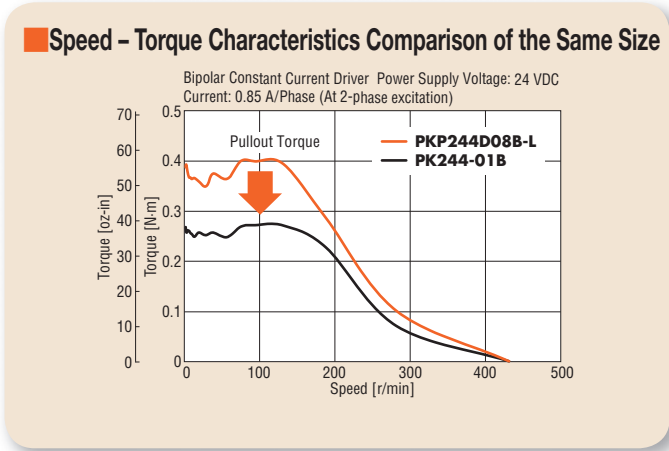
# High-Torque Stepper Motor PKP Series

In addition to offering high torque, the **PKP** Series stepper motors offer more variety of electrical specifications, more frame sizes, encoder models and geared type motors for the optimum stepper motor solutions.



## High Torque Achieved

By using a high-torque motor, a torque increase of 1.2 to 1.7 times the **PK** Series standard type of the same size (max. holding torque) has been achieved.

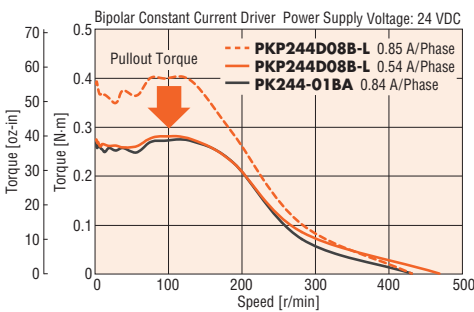


## The Advantages of Using a High-Torque Motor

### Reduced Power Consumption and Heat Output

If the running current of a **PKP** Series motor is decreased and the motor is operated at the same torque as the **PK** Series standard type, current consumption and heat output can be reduced.

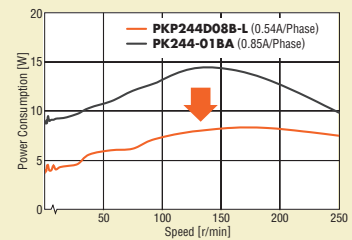
#### Characteristics Diagrams of Decreased Running Current in PKP Series Motors



#### Power consumption can be reduced

Comparison of driver power consumption when low-speed torque is tailored to the **PK** Series standard type

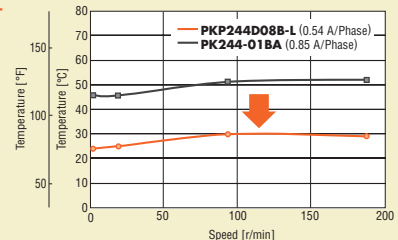
Power consumption reduced by **20%** (at low speed)



#### Heat Output can be reduced

Comparison of motor surface heat output when low-speed torque is tailored to the **PK** Series standard type

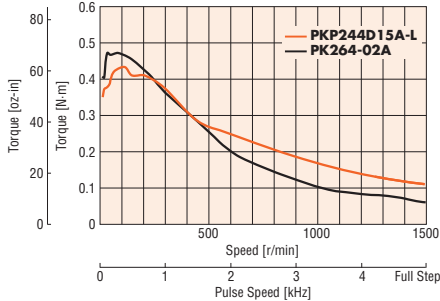
Temperature increases of **10°C (18°F)** and more are suppressed



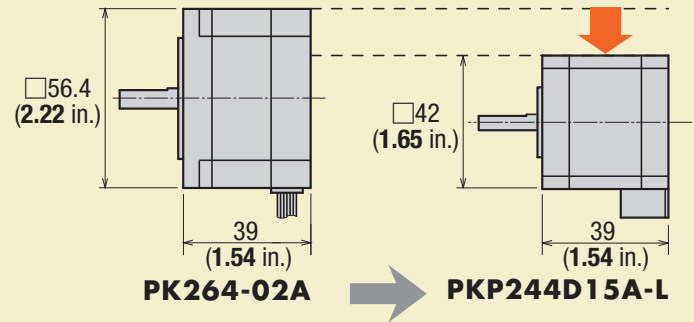
## Downsizing

The **PKP** Series provides torque equivalent to a motor of the next larger frame size, contributing to downsizing of equipment.

### Torque Characteristics Comparison of PKP244D15A-L and PK264-02A



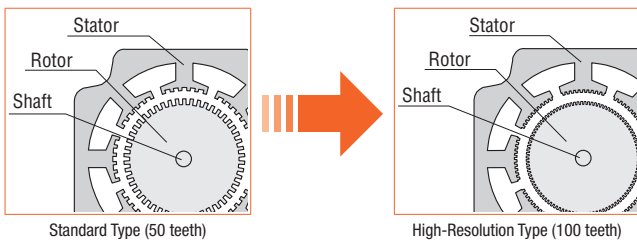
Provides torque equivalent to the next larger frame size!



## 0.9° Stepper Motor: High Resolution Type

### Increased Resolution (Compared to Standard Type)

The number of rotor teeth has doubled to 100 compared to 50 with the standard type. As a result, the basic step angle becomes 0.9°/step, which is half that of the standard type.



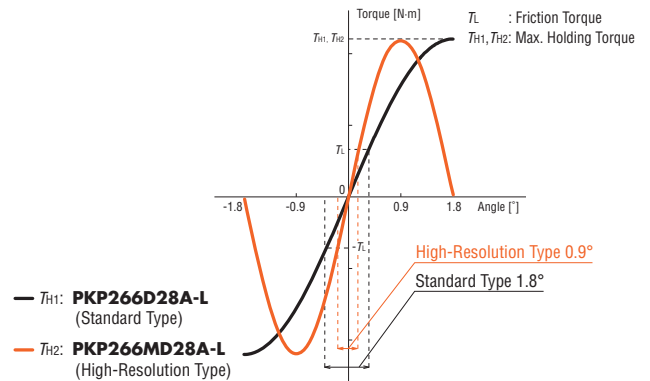
### Avoidance of Resonance Regions

If the pulse speed is within a resonance region, vibration may increase. Resonance regions can be avoided by switching to a 0.9° high-resolution type stepper motor.

### Improved Stopping Accuracy (Compared to Standard Type)

The stopping accuracy improves as the torque increases while minimizing the negative effect of the frictional load.

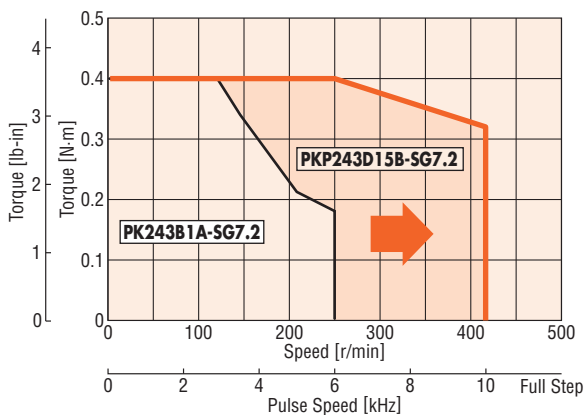
Comparison of Angle – Torque Characteristics



## Features of SH Geared Type

The **SH** geared type is effective for reducing speed, increasing torque, achieving higher resolution and reducing vibration.

### Broader Permissible Speed Range than Conventional Models



### Backlash Accuracy Guaranteed

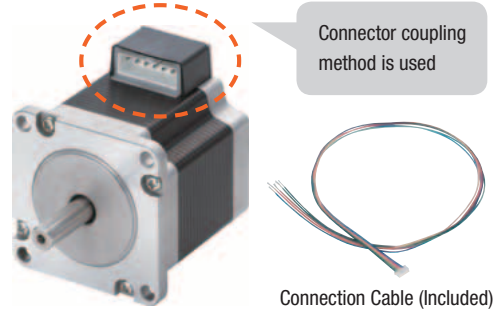
Backlash, which was a reference value in conventional models, is now a specification value.

		Unit = arc min (degrees)					
Gear Ratio		3.6	7.2	9	10	18	36
Frame Size	28 mm (1.10 in.)	—	—	—	90 (1.5°)	—	—
42 mm (1.65 in.)	—	90 (1.5°)	—	—	60 (1°)	—	—
60 mm (2.36 in.)	—	70 (1.17°)	—	—	—	45 (0.75°)	—

## Motor Connection\*1 / Configuration

### Motor Connector

Motor lead wire connector can be inserted\*1 and the locking mechanism prevents accidental removal\*2.



### Wiring Configuration Options

Bipolar – 4 lead wires

Unipolar – 6 lead wires\*1

\*1 Except for motor frame size of 20 mm (0.79 in.)

\*2 Only motor frame sizes of 35 mm (1.38 in.), 42 mm (1.65 in.), 56.4 mm (2.22 in.) and 60 mm (2.36 in.)

## Encoder Option

An Incremental Encoder is offered as a standard product with TTL output.

200 or 400 lines of resolution are available, with 2-channel or 3-channel models.



## Product Line

A wide range of frame sizes are available from 20 mm (0.79 in.) up to 56.4 mm (2.22 in.). A new **SH** geared type is also available. An Encoder option is offered as a standard product.

Type	Frame Size				
	20 mm (0.79 in.)	28 mm (1.10 in.)	35 mm (1.38 in.)	42 mm (1.65 in.)	56.4/60 mm (2.22/2.36 in.)
1.8° High-Torque					
0.9° High-Torque					
<b>SH</b> Geared Type					

## Product Number

### Motor Type

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

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Series	<b>PKP: PKP Series</b>
②	2: 2-phase	
③	Motor Frame Size	<b>1:</b> 20 mm (0.79 in.) <b>2:</b> 28 mm (1.10 in.) <b>3:</b> 35 mm (1.38 in.) <b>4:</b> 42 mm (1.65 in.) <b>6:</b> 56.4 mm (2.22 in.)
④	Motor Case Length	
⑤	Motor Type	<b>M:</b> 0.9°/Step Blank: 1.8°/Step
⑥	Number of Lead Wires	<b>D:</b> 4 <b>U:</b> 6
⑦	Winding Specification	
⑧	Shaft Type	<b>A:</b> Single Shaft <b>B:</b> Double Shaft
⑨	U.S.A. Version	<b>A:</b> Imperial Blank: Metric
⑩	Connection Cable	

### Motor Type with Encoder

**PKP 2 6 4 U10 A A-R 1 5-L**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

①	Series	<b>PKP: PKP Series</b>
②	2: 2-phase	
③	Motor Frame Size	<b>1:</b> 20 mm (0.79 in.) <b>2:</b> 28 mm (1.10 in.) <b>3:</b> 35 mm (1.38 in.) <b>4:</b> 42 mm (1.65 in.) <b>6:</b> 56.4 mm (2.22 in.)
④	Motor Case Length	
⑤	Number of Lead Wires	<b>D:</b> 4 <b>U:</b> 6
⑥	Winding Specification	
⑦	Shaft Type	<b>A:</b> Single Shaft <b>B:</b> Double Shaft
⑧	U.S.A. Version	<b>A:</b> Imperial Blank: Metric
⑨	Encoder Version	
⑩	Encoder Output	<b>1:</b> 2-Channel A, B <b>2:</b> 3-Channel A, B, Index
⑪	Encoder Resolution	<b>5:</b> 200 R/P <b>6:</b> 400 R/P
⑫	Connection Cable	

### SH Geared Type

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

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Series	<b>PKP: PKP Series</b>
②	2: 2-phase	
③	Motor Frame Size	<b>2:</b> 28 mm (1.10 in.) <b>4:</b> 42 mm (1.65 in.) <b>6:</b> 60 mm (2.36 in.)
④	Motor Case Length	
⑤	Number of Lead Wires	<b>D:</b> 4 <b>U:</b> 6
⑥	Winding Specification	
⑦	Shaft Type	<b>A:</b> Single Shaft <b>B:</b> Double Shaft
⑧	Gearhead Type	<b>SG: SH Geared Type</b>
⑨	Gear Ratio	
⑩	Connection Cable	

## Product Line

### Bipolar

#### 1.8 PKP Series

Product Name (Single Shaft)	Product Name (Double Shaft)	Product Name (TTL Type Encoder)
PKP213D05A	PKP213D05B	—
PKP214D06A	PKP214D06B	—
PKP223D06A-L	PKP223D06B-L	PKP223D06A-R15-L
PKP223D15A-L	PKP223D15B-L	PKP223D15A-R15-L
PKP224D06A-L	PKP224D06B-L	PKP224D06A-R15-L
PKP224D15A-L	PKP224D15B-L	PKP224D15A-R15-L
PKP225D06A-L	PKP225D06B-L	PKP225D06A-R15-L
PKP225D15A-L	PKP225D15B-L	PKP225D15A-R15-L
PKP233D08A-L	PKP233D08B-L	PKP233D08A-R□□-L
PKP233D15A-L	PKP233D15B-L	PKP233D15A-R□□-L
PKP235D08A-L	PKP235D08B-L	PKP235D08A-R□□-L
PKP235D15A-L	PKP235D15B-L	PKP235D15A-R□□-L
PKP243D02A-L	PKP243D02B-L	PKP243D02A-R□□-L
PKP243D04A-L	PKP243D04B-L	PKP243D04A-R□□-L
PKP243D06A-L	PKP243D06B-L	PKP243D06A-R□□-L
PKP243D15A-L	PKP243D15B-L	PKP243D15A-R□□-L
PKP244D02A-L	PKP244D02B-L	PKP244D02A-R□□-L
PKP244D05A-L	PKP244D05B-L	PKP244D05A-R□□-L
PKP244D08A-L	PKP244D08B-L	PKP244D08A-R□□-L
PKP244D15A-L	PKP244D15B-L	PKP244D15A-R□□-L
PKP245D03A-L	PKP245D03B-L	PKP245D03A-R□□-L
PKP245D05A-L	PKP245D05B-L	PKP245D05A-R□□-L
PKP245D08A-L	PKP245D08B-L	PKP245D08A-R□□-L
PKP245D15A-L	PKP245D15B-L	PKP245D15A-R□□-L
PKP246D08A-L	PKP246D08B-L	PKP246D08A-R□□-L
PKP246D15A-L	PKP246D15B-L	PKP246D15A-R□□-L
PKP264D07AA-L	PKP264D07BA-L	PKP264D07AA-R□□-L
PKP264D14AA-L	PKP264D14BA-L	PKP264D14AA-R□□-L
PKP264D21AA-L	PKP264D21BA-L	PKP264D21AA-R□□-L
PKP264D28AA-L	PKP264D28BA-L	PKP264D28AA-R□□-L
PKP264D42AA-L	PKP264D42BA-L	—
PKP266D07AA-L	PKP266D07BA-L	PKP266D07AA-R□□-L
PKP266D14AA-L	PKP266D14BA-L	PKP266D14AA-R□□-L
PKP266D21AA-L	PKP266D21BA-L	PKP266D21AA-R□□-L
PKP266D28AA-L	PKP266D28BA-L	PKP266D28AA-R□□-L
PKP266D42AA-L	PKP266D42BA-L	—
PKP268D07AA-L	PKP268D07BA-L	PKP268D07AA-R□□-L
PKP268D14AA-L	PKP268D14BA-L	PKP268D14AA-R□□-L
PKP268D21AA-L	PKP268D21BA-L	PKP268D21AA-R□□-L
PKP268D28AA-L	PKP268D28BA-L	PKP268D28AA-R□□-L
PKP268D42AA-L	PKP268D42BA-L	—

#### 0.9 PKP Series

Product Name (Single Shaft)	Product Name (Double Shaft)
PKP243MD06A-L	PKP243MD06B-L
PKP243MD15A-L	PKP243MD15B-L
PKP244MD08A-L	PKP244MD08B-L
PKP244MD15A-L	PKP244MD15B-L
PKP264MD14AA-L	PKP264MD14BA-L
PKP264MD28AA-L	PKP264MD28BA-L
PKP266MD14AA-L	PKP266MD14BA-L
PKP266MD28AA-L	PKP266MD28BA-L
PKP268MD14AA-L	PKP268MD14BA-L
PKP268MD28AA-L	PKP268MD28BA-L

● Enter the encoder code (15, 16, 25 or 26) in the box (□) within the product name.

● **SH** Geared Type

Product Name (Single Shaft)	Product Name (Double Shaft)
PKP223D06A-SG7.2-L	PKP223D06B-SG7.2-L
PKP223D15A-SG7.2-L	PKP223D15B-SG7.2-L
PKP223D06A-SG9-L	PKP223D06B-SG9-L
PKP223D15A-SG9-L	PKP223D15B-SG9-L
PKP223D06A-SG10-L	PKP223D06B-SG10-L
PKP223D15A-SG10-L	PKP223D15B-SG10-L
PKP223D06A-SG18-L	PKP223D06B-SG18-L
PKP223D15A-SG18-L	PKP223D15B-SG18-L
PKP223D06A-SG36-L	PKP223D06B-SG36-L
PKP223D15A-SG36-L	PKP223D15B-SG36-L
PKP243D06A-SG3.6-L	PKP243D06B-SG3.6-L
PKP243D15A-SG3.6-L	PKP243D15B-SG3.6-L
PKP243D06A-SG7.2-L	PKP243D06B-SG7.2-L
PKP243D15A-SG7.2-L	PKP243D15B-SG7.2-L
PKP243D06A-SG9-L	PKP243D06B-SG9-L
PKP243D15A-SG9-L	PKP243D15B-SG9-L
PKP243D06A-SG10-L	PKP243D06B-SG10-L
PKP243D15A-SG10-L	PKP243D15B-SG10-L
PKP243D06A-SG18-L	PKP243D06B-SG18-L
PKP243D15A-SG18-L	PKP243D15B-SG18-L
PKP243D06A-SG36-L	PKP243D06B-SG36-L
PKP243D15A-SG36-L	PKP243D15B-SG36-L
PKP264D07A-SG3.6-L	PKP264D07B-SG3.6-L
PKP264D14A-SG3.6-L	PKP264D14B-SG3.6-L
PKP264D28A-SG3.6-L	PKP264D28B-SG3.6-L
PKP264D07A-SG7.2-L	PKP264D07B-SG7.2-L
PKP264D14A-SG7.2-L	PKP264D14B-SG7.2-L
PKP264D28A-SG7.2-L	PKP264D28B-SG7.2-L
PKP264D07A-SG9-L	PKP264D07B-SG9-L
PKP264D14A-SG9-L	PKP264D14B-SG9-L
PKP264D28A-SG9-L	PKP264D28B-SG9-L
PKP264D07A-SG10-L	PKP264D07B-SG10-L
PKP264D14A-SG10-L	PKP264D14B-SG10-L
PKP264D28A-SG10-L	PKP264D28B-SG10-L
PKP264D07A-SG18-L	PKP264D07B-SG18-L
PKP264D14A-SG18-L	PKP264D14B-SG18-L
PKP264D28A-SG18-L	PKP264D28B-SG18-L
PKP264D07A-SG36-L	PKP264D07B-SG36-L
PKP264D14A-SG36-L	PKP264D14B-SG36-L
PKP264D28A-SG36-L	PKP264D28B-SG36-L

## Unipolar

### ● 1.8 PKP Series

Product Name (Single Shaft)	Product Name (Double Shaft)	Product Name (TTL Type Encoder)
PKP213U05A PKP214U06A	PKP213U05B PKP214U06B	— —
PKP223U09A-L PKP224U09A-L PKP225U09A-L	PKP223U09B-L PKP224U09B-L PKP225U09B-L	PKP223U09A-R15-L PKP224U09A-R15-L PKP225U09A-R15-L
PKP233U12A-L PKP235U12A-L	PKP233U12B-L PKP235U12B-L	PKP233U12A-R□□-L PKP235U12A-R□□-L
PKP243U04A-L PKP243U06A-L PKP243U09A-L PKP244U04A-L PKP244U08A-L PKP244U12A-L PKP245U05A-L PKP245U08A-L PKP245U12A-L PKP246U12A-L	PKP243U04B-L PKP243U06B-L PKP243U09B-L PKP244U04B-L PKP244U08B-L PKP244U12B-L PKP245U05B-L PKP245U08B-L PKP245U12B-L PKP246U12B-L	PKP243U04A-R□□-L PKP243U06A-R□□-L PKP243U09A-R□□-L PKP244U04A-R□□-L PKP244U08A-R□□-L PKP244U12A-R□□-L PKP245U05A-R□□-L PKP245U08A-R□□-L PKP245U12A-R□□-L PKP246U12A-R□□-L
PKP264U10AA-L PKP264U20AA-L PKP264U30AA-L PKP266U10AA-L PKP266U20AA-L PKP266U30AA-L PKP268U10AA-L PKP268U20AA-L PKP268U30AA-L	PKP264U10BA-L PKP264U20BA-L PKP264U30BA-L PKP266U10BA-L PKP266U20BA-L PKP266U30BA-L PKP268U10BA-L PKP268U20BA-L PKP268U30BA-L	PKP264U10AA-R□□-L PKP264U20AA-R□□-L PKP264U30AA-R□□-L PKP266U10AA-R□□-L PKP266U20AA-R□□-L PKP266U30AA-R□□-L PKP268U10AA-R□□-L PKP268U20AA-R□□-L PKP268U30AA-R□□-L

### ● 0.9 PKP Series

Product Name (Single Shaft)	Product Name (Double Shaft)
PKP243MU09A-L PKP244MU12A-L	PKP243MU09B-L PKP244MU12B-L
PKP264MU20AA-L PKP266MU20AA-L PKP268MU20AA-L	PKP264MU20BA-L PKP266MU20BA-L PKP268MU20BA-L

### ● SH Geared Type

Product Name (Single Shaft)	Product Name (Double Shaft)
PKP223U09A-SG7.2-L PKP223U09A-SG9-L PKP223U09A-SG10-L PKP223U09A-SG18-L PKP223U09A-SG36-L	PKP223U09B-SG7.2-L PKP223U09B-SG9-L PKP223U09B-SG10-L PKP223U09B-SG18-L PKP223U09B-SG36-L
PKP243U09A-SG3.6-L PKP243U09A-SG7.2-L PKP243U09A-SG9-L PKP243U09A-SG10-L PKP243U09A-SG18-L PKP243U09A-SG36-L	PKP243U09B-SG3.6-L PKP243U09B-SG7.2-L PKP243U09B-SG9-L PKP243U09B-SG10-L PKP243U09B-SG18-L PKP243U09B-SG36-L
PKP264U10A-SG3.6-L PKP264U20A-SG3.6-L PKP264U10A-SG7.2-L PKP264U20A-SG7.2-L PKP264U10A-SG9-L PKP264U20A-SG9-L PKP264U10A-SG10-L PKP264U20A-SG10-L PKP264U10A-SG18-L PKP264U20A-SG18-L PKP264U10A-SG36-L PKP264U20A-SG36-L	PKP264U10B-SG3.6-L PKP264U20B-SG3.6-L PKP264U10B-SG7.2-L PKP264U20B-SG7.2-L PKP264U10B-SG9-L PKP264U20B-SG9-L PKP264U10B-SG10-L PKP264U20B-SG10-L PKP264U10B-SG18-L PKP264U20B-SG18-L PKP264U10B-SG36-L PKP264U20B-SG36-L



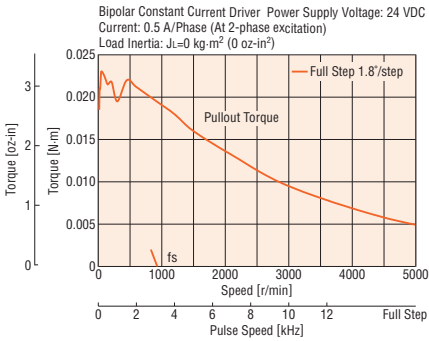
# Step Angle 1.8° Frame Size 20 mm (0.79 in.) Bipolar 4 Lead Wires

## Specifications RoHS

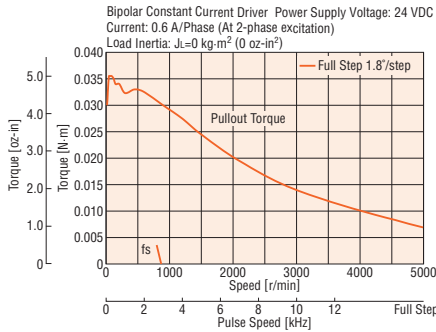
Product Name	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP213D05A PKP213D05B	30 (1.18)	0.02 (2.8)	0.5	4.25	8.5	4.1	1.6×10 <sup>-7</sup> (0.0088)	4
PKP214D06A PKP214D06B	40 (1.57)	0.036 (5.1)	0.6	3.9	6.5	2.9×10 <sup>-7</sup> (0.0159)		

## Speed – Torque Characteristics fs: Max. starting frequency

### PKP213D05A/PKP213D05B



### PKP214D06A/PKP214D06B

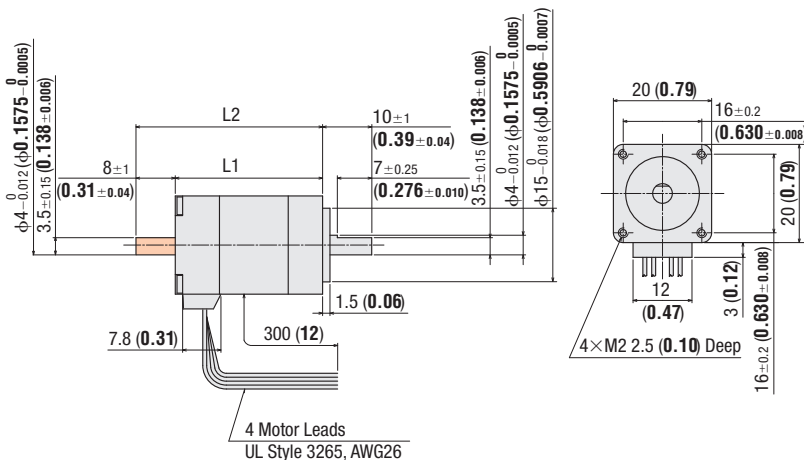


### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Product Name	L1	L2	Mass kg (lb.)	CAD
PKP213D05A	30	—	0.05	B976
PKP213D05B	(1.18)	38 (1.50)	(0.11)	
PKP214D06A	40	—	0.07	B978
PKP214D06B	(1.57)	48 (1.89)	(0.154)	



- These dimensions are for double shaft products.  
For single shaft products, ignore the   areas.
- Back shaft of double shaft products have a flat the whole length.

# Step Angle 1.8° Frame Size 28 mm (1.10 in.) Bipolar 4 Lead Wires

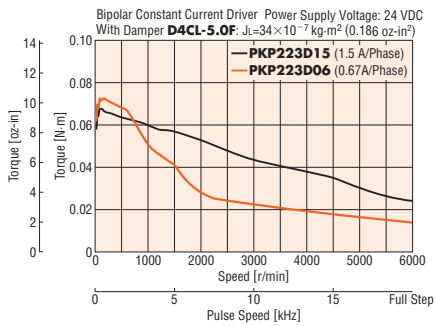
## Specifications RoHS

Product Name Single/Double Shaft with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
<b>PKP223D06</b> □-L <b>PKP223D06A-R15-L</b>	32 (1.26)	0.065 (9.2)	0.67	3.8	5.6	4	9×10 <sup>-7</sup> (0.049)	4
<b>PKP223D15</b> □-L <b>PKP223D15A-R15-L</b>			1.5	1.8	1.2	0.74		
<b>PKP224D06</b> □-L <b>PKP224D06A-R15-L</b>	40 (1.57)	0.097 (13.7)	0.67	4.6	6.8	4.8	12×10 <sup>-7</sup> (0.066)	
<b>PKP224D15</b> □-L <b>PKP224D15A-R15-L</b>			1.5	2.32	1.55	0.85		
<b>PKP225D06</b> □-L <b>PKP225D06A-R15-L</b>	51.5 (2.03)	0.11 (15.6)	0.67	6.2	9.2	5.6	18×10 <sup>-7</sup> (0.098)	
<b>PKP225D15</b> □-L <b>PKP225D15A-R15-L</b>			1.5	3	2.05	1		

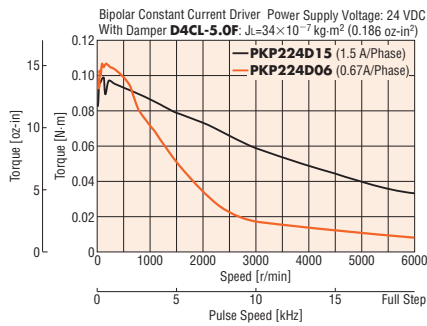
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

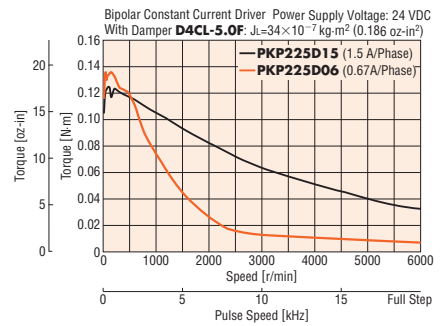
### PKP223D



### PKP224D



### PKP225D



### Note

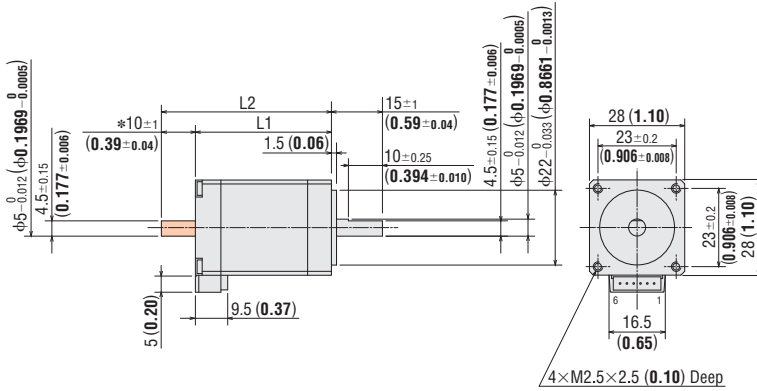
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).


## Dimensions Unit = mm (in.)

### Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP223D06A-L</b>	PKP223D06A	32 (1.26)	—	0.11 (0.24)	B980
<b>PKP223D06B-L</b>	PKP223D06B		42 (1.65)		
<b>PKP223D15A-L</b>	PKP223D15A		—		
<b>PKP223D15B-L</b>	PKP223D15B		42 (1.65)		
<b>PKP224D06A-L</b>	PKP224D06A	40 (1.57)	—	0.14 (0.31)	B981
<b>PKP224D06B-L</b>	PKP224D06B		50 (1.97)		
<b>PKP224D15A-L</b>	PKP224D15A		—		
<b>PKP224D15B-L</b>	PKP224D15B		50 (1.97)		
<b>PKP225D06A-L</b>	PKP225D06A	51.5 (2.03)	—	0.2 (0.44)	B982
<b>PKP225D06B-L</b>	PKP225D06B		61.5 (2.42)		
<b>PKP225D15A-L</b>	PKP225D15A		—		
<b>PKP225D15B-L</b>	PKP225D15B		61.5 (2.42)		

- Motor Applicable Connector  
Connector Housing: 51065-0600 (Molex)  
Contact: 50212-8100 (Molex)  
Crimp Tool: 63819-0500 (Molex)

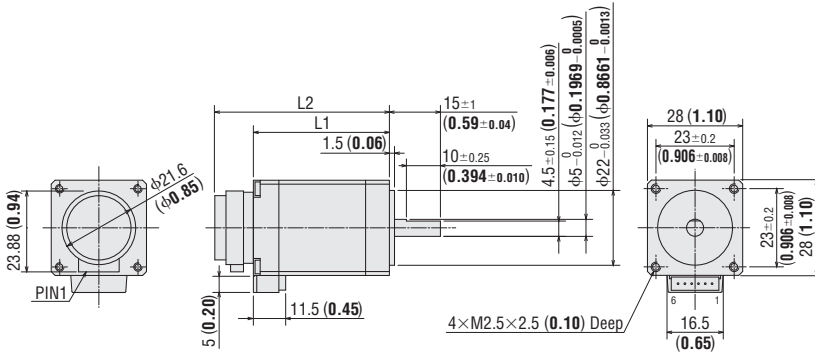


- \* The length of machining on the double shaft model is 10±0.25 (0.394±0.010).
- These dimensions are for double shaft products. For single shaft products, ignore the  areas.

### Motor with Encoder

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP223D06A-R15-L</b>	PKP223D06A-R15	34 (1.34)	45.3 (1.79)	0.12 (0.26)	B1016
<b>PKP223D15A-R15-L</b>	PKP223D15A-R15				
<b>PKP224D06A-R15-L</b>	PKP224D06A-R15	42 (1.65)	53.3 (2.10)	0.15 (0.33)	B1017
<b>PKP224D15A-R15-L</b>	PKP224D15A-R15				
<b>PKP225D06A-R15-L</b>	PKP225D06A-R15	53.5 (2.11)	64.8 (2.55)	0.21 (0.46)	B1018
<b>PKP225D15A-R15-L</b>	PKP225D15A-R15				

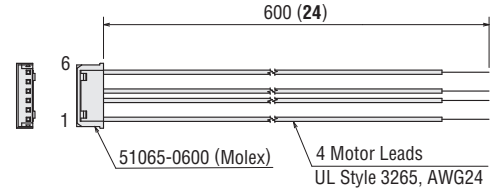
- Motor Applicable Connector  
Connector Housing: 51065-0600 (Molex)  
Contact: 50212-8100 (Molex)  
Crimp Tool: 63819-0500 (Molex)
- Encoder Applicable Connector  
Connector Housing: 51021-0400 (Molex)  
Contact: 50079-8100 (Molex)  
Crimp Tool: 63819-0300 (Molex)



### Connection Cables (Included)

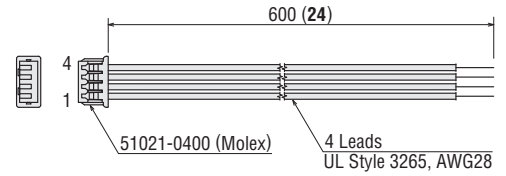
#### ◇ Cable for Motor

- Bipolar 4 Lead Wires  
LC2B06A



#### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060B



# Step Angle 1.8° Frame Size 35 mm (1.38 in.) Bipolar 4 Lead Wires

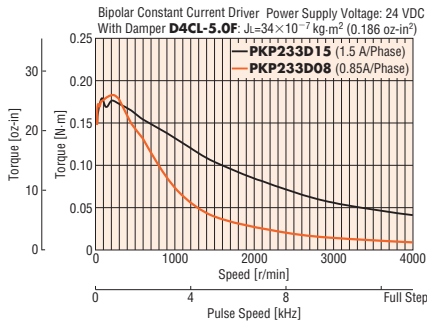
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
<b>PKP233D08</b> <input type="checkbox"/> -L <b>PKP233D08A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L <b>PKP233D15</b> <input type="checkbox"/> -L <b>PKP233D15A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	37 (1.46)	0.2 (28)	0.85	4.6	5.4	5.6	24×10 <sup>-7</sup> (0.131)	4
1.5			2.43	1.62	1.5			
<b>PKP235D08</b> <input type="checkbox"/> -L <b>PKP235D08A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L <b>PKP235D15</b> <input type="checkbox"/> -L <b>PKP235D15A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	52 (2.05)	0.37 (52)	0.85	5.8	6.8	8	50×10 <sup>-7</sup> (0.27)	
1.5			3.6	2.4	2.6			

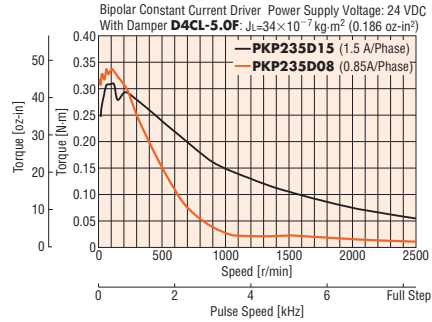
- Enter **A** (single shaft) or **B** (double shaft) in the box () within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

### PKP233D



### PKP235D



### Note

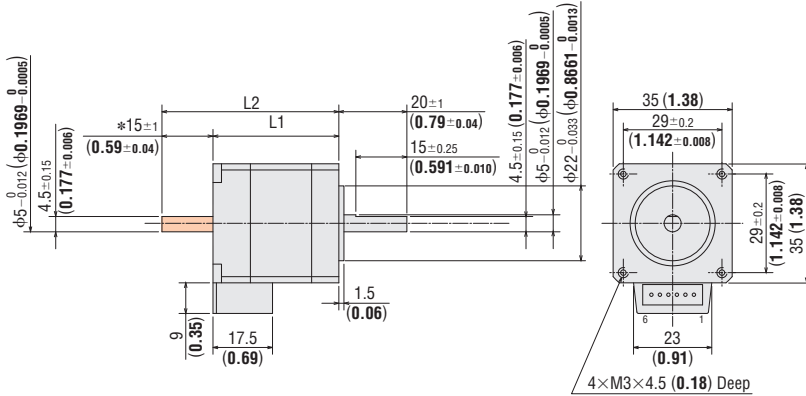
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).


## Dimensions Unit = mm (in.)

### Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP233D08A-L</b>	PKP233D08A	37 (1.46)	—	0.18 (0.4)	B983
<b>PKP233D08B-L</b>	PKP233D08B		52 (2.05)		
<b>PKP233D15A-L</b>	PKP233D15A		—		
<b>PKP233D15B-L</b>	PKP233D15B		52 (2.05)		
<b>PKP235D08A-L</b>	PKP235D08A	52 (2.05)	—	0.285 (0.63)	B984
<b>PKP235D08B-L</b>	PKP235D08B		67 (2.67)		
<b>PKP235D15A-L</b>	PKP235D15A		—		
<b>PKP235D15B-L</b>	PKP235D15B		67 (2.67)		

- Motor Applicable Connector  
Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

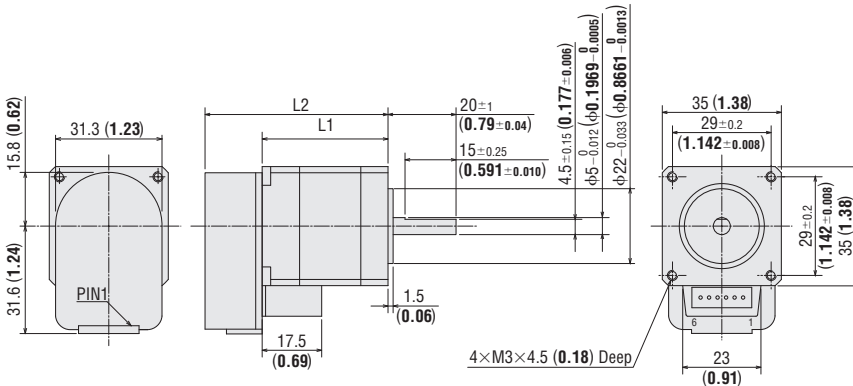


- \* The length of machining on the double shaft product is 15±0.25 (0.591±0.010).
- These dimensions are for double shaft products. For single shaft products, ignore the  areas.

### Motor with Encoder

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP233D08A-R</b> <input type="checkbox"/> - <input type="checkbox"/> -L	PKP233D08A-R <input type="checkbox"/>	37	53.8	0.2	B1019
<b>PKP233D15A-R</b> <input type="checkbox"/> - <input type="checkbox"/> -L	PKP233D15A-R <input type="checkbox"/>	(1.46)	(2.12)	(0.44)	
<b>PKP235D08A-R</b> <input type="checkbox"/> - <input type="checkbox"/> -L	PKP235D08A-R <input type="checkbox"/>	52	68.8	0.31	B1020
<b>PKP235D15A-R</b> <input type="checkbox"/> - <input type="checkbox"/> -L	PKP235D15A-R <input type="checkbox"/>	(2.05)	(1.96)	(0.67)	

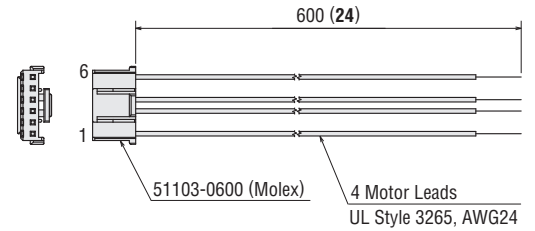
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the product name.
- Motor Applicable Connector  
Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)
- Encoder Applicable Connector  
Connector Housing: 50-57-9405 (Molex)  
Contact: 16-02-0104 (Molex)  
Crimp Tool: 63811-8700 (Molex)



### Connection Cables (Included)

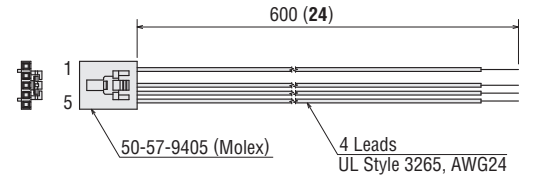
#### ◇ Cable for Motor

- Bipolar 4 Lead Wires  
LC2B06A

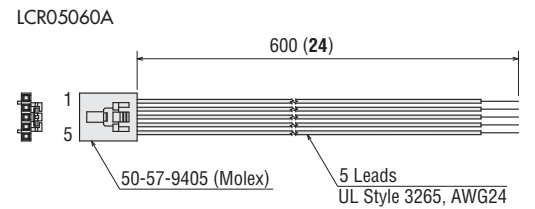


#### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060A



- 3-Channel Encoder Cable  
LCR05060A



# Step Angle 1.8° Frame Size 42 mm (1.65 in.) Bipolar 4 Lead Wires

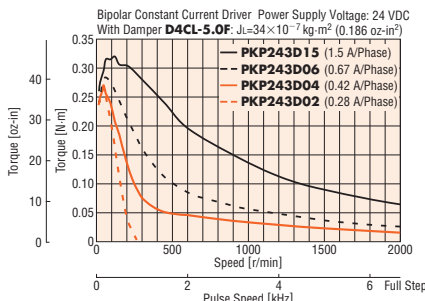
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP243D02□-L PKP243D02A-R□□-L	33 (1.3)	0.32 (45)	0.28	16.8	60	132	36×10 <sup>-7</sup> (0.197)	4
PKP243D04□-L PKP243D04A-R□□-L			0.42	9.24	22	49.6		
PKP243D06□-L PKP243D06A-R□□-L			0.67	6.3	9.4	20		
PKP243D15□-L PKP243D15A-R□□-L			1.5	2.85	1.9	5		
PKP244D02□-L PKP244D02A-R□□-L	39 (1.54)	0.46 (65)	0.28	16.8	60	114.4	57×10 <sup>-7</sup> (0.31)	
PKP244D05□-L PKP244D05A-R□□-L			0.57	8.21	14.4	30.4		
PKP244D08□-L PKP244D08A-R□□-L			0.85	6.8	8	15.6		
PKP244D15□-L PKP244D15A-R□□-L			1.5	3.9	2.6	4.9		
PKP245D03□-L PKP245D03A-R□□-L	47 (1.85)	0.58 (82)	0.35	16.8	48	132	83×10 <sup>-7</sup> (0.45)	
PKP245D05□-L PKP245D05A-R□□-L			0.57	9.12	16	45.2		
PKP245D08□-L PKP245D08A-R□□-L			0.85	6.46	7.6	20		
PKP245D15□-L PKP245D15A-R□□-L			1.5	3.6	2.4	6.6		
PKP246D08□-L PKP246D08A-R□□-L	59 (2.32)	0.93 (132)	0.85	10	12	26	114×10 <sup>-7</sup> (0.62)	
PKP246D15□-L PKP246D15A-R□□-L			1.5	5.8	3.87	8		

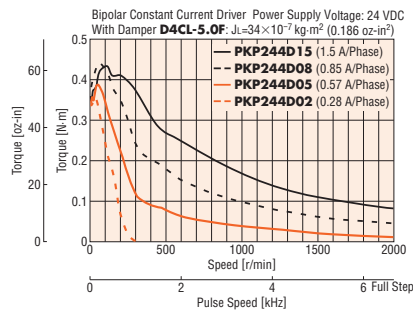
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

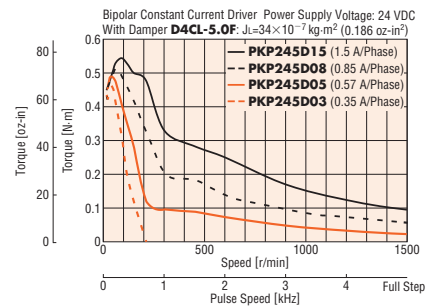
### PKP243D



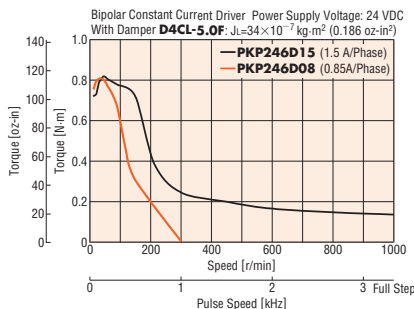
### PKP244D



### PKP245D



### PKP246D



### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).



# Step Angle 1.8° Frame Size 56.4 mm (2.22 in.) Bipolar 4 Lead Wires

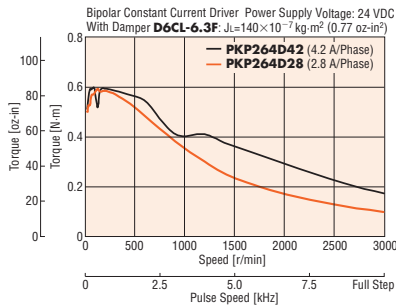
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP264D07□A-L PKP264D07AA-R□□-L	39 (1.54)	0.6 (85)	0.71	8.31	11.7	28.8	120×10 <sup>-7</sup> (0.66)	4
PKP264D14□A-L PKP264D14AA-R□□-L			1.4	4.06	2.9	7.2		
PKP264D21□A-L PKP264D21AA-R□□-L			2.1	2.73	1.3	3.2		
PKP264D28□A-L PKP264D28AA-R□□-L			2.8	2	0.73	1.8		
PKP264D42□A-L			4.2	1.38	0.33	0.8		
—			—	—	—	—		
PKP266D07□A-L PKP266D07AA-R□□-L	54 (2.13)	1.4 (198)	0.71	11.5	16.2	46.4	290×10 <sup>-7</sup> (1.59)	4
PKP266D14□A-L PKP266D14AA-R□□-L			1.4	5.6	4	11.6		
PKP266D21□A-L PKP266D21AA-R□□-L			2.1	3.86	1.84	5.32		
PKP266D28□A-L PKP266D28AA-R□□-L			2.8	2.8	1	2.9		
PKP266D42□A-L			4.2	1.84	0.44	1.3		
—			—	—	—	—		
PKP268D07□A-L PKP268D07AA-R□□-L	76 (2.99)	2.3 (320)	0.71	13.2	18.6	70.4	490×10 <sup>-7</sup> (2.7)	4
PKP268D14□A-L PKP268D14AA-R□□-L			1.4	6.86	4.9	17.6		
PKP268D21□A-L PKP268D21AA-R□□-L			2.1	4.41	2.1	7.84		
PKP268D28□A-L PKP268D28AA-R□□-L			2.8	3.4	1.23	4.4		
PKP268D42□A-L			4.2	2.2	0.53	2		
—			—	—	—	—		

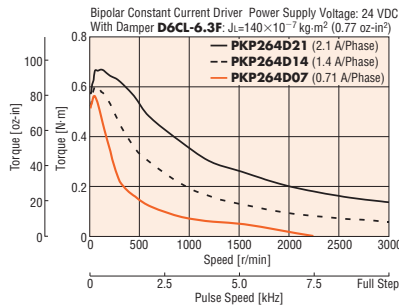
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

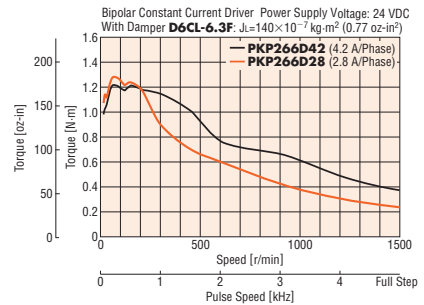
### PKP264D



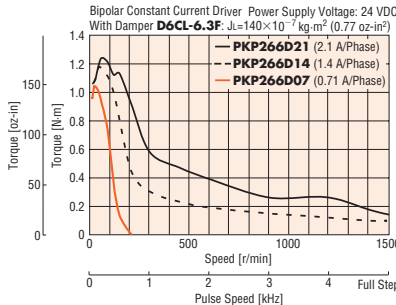
### PKP264D



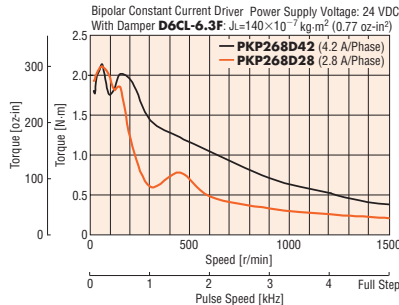
### PKP266D



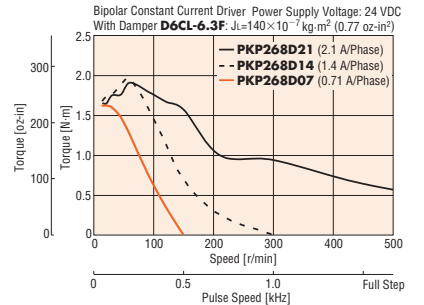
### PKP266D



### PKP268D



### PKP268D



### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).



# Dimensions Unit = mm (in.)

## Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP264D07AA-L</b>	PKP264D07AA	39 (1.54)	-	0.46 (1.01)	B1028
<b>PKP264D07BA-L</b>	PKP264D07BA		55 (2.17)		
<b>PKP264D14AA-L</b>	PKP264D14AA		-		
<b>PKP264D14BA-L</b>	PKP264D14BA		55 (2.17)		
<b>PKP264D21AA-L</b>	PKP264D21AA		-		
<b>PKP264D21BA-L</b>	PKP264D21BA		55 (2.17)		
<b>PKP264D28AA-L</b>	PKP264D28AA		-		
<b>PKP264D28BA-L</b>	PKP264D28BA		55 (2.17)		
<b>PKP264D42AA-L</b>	PKP264D42AA		-		
<b>PKP264D42BA-L</b>	PKP264D42BA		55 (2.17)		
<b>PKP266D07AA-L</b>	PKP266D07AA	54 (2.13)	-	0.73 (1.61)	B1029
<b>PKP266D07BA-L</b>	PKP266D07BA		70 (2.76)		
<b>PKP266D14AA-L</b>	PKP266D14AA		-		
<b>PKP266D14BA-L</b>	PKP266D14BA		70 (2.76)		
<b>PKP266D21AA-L</b>	PKP266D21AA		-		
<b>PKP266D21BA-L</b>	PKP266D21BA		70 (2.76)		
<b>PKP266D28AA-L</b>	PKP266D28AA		-		
<b>PKP266D28BA-L</b>	PKP266D28BA		70 (2.76)		
<b>PKP266D42AA-L</b>	PKP266D42AA		-		
<b>PKP266D42BA-L</b>	PKP266D42BA		70 (2.76)		
<b>PKP268D07AA-L</b>	PKP268D07AA	76 (2.99)	-	1.1 (2.40)	B1030
<b>PKP268D07BA-L</b>	PKP268D07BA		92 (3.62)		
<b>PKP268D14AA-L</b>	PKP268D14AA		-		
<b>PKP268D14BA-L</b>	PKP268D14BA		92 (3.62)		
<b>PKP268D21AA-L</b>	PKP268D21AA		-		
<b>PKP268D21BA-L</b>	PKP268D21BA		92 (3.62)		
<b>PKP268D28AA-L</b>	PKP268D28AA		-		
<b>PKP268D28BA-L</b>	PKP268D28BA		92 (3.62)		
<b>PKP268D42AA-L</b>	PKP268D42AA		-		
<b>PKP268D42BA-L</b>	PKP268D42BA		92 (3.62)		

● Applicable Connector  
 Connector Housing: 51067-0600 (Molex)  
 Contact: 50217-9101 (Molex)  
 Crimp Tool: 63811-8300 (Molex)

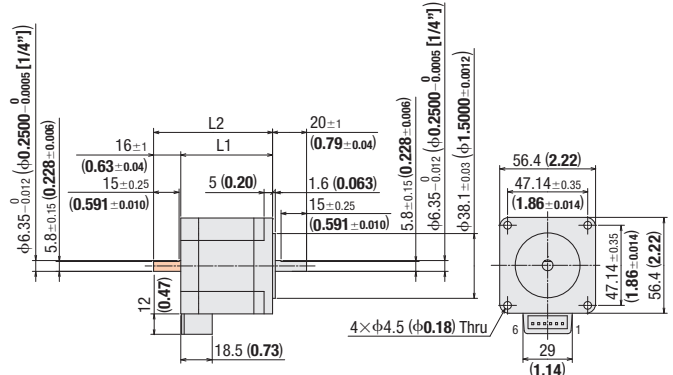
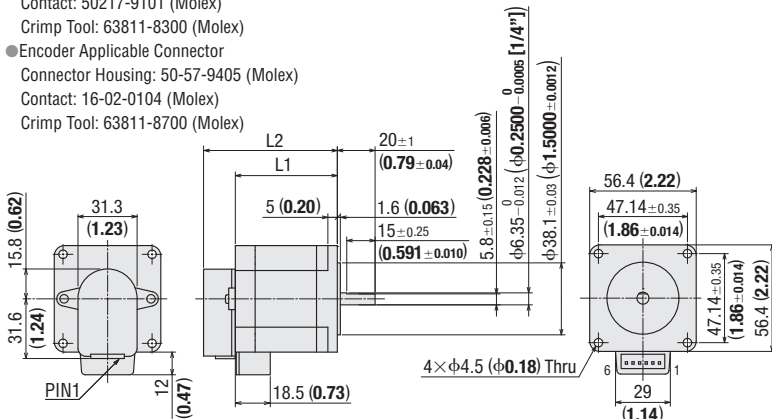
## Motor with Encoder

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP264D07AA-R</b> <input type="checkbox"/> -L	PKP264D07AA-R <input type="checkbox"/>	39 (1.54)	55.8 (2.20)	0.48 (1.06)	B1025
<b>PKP264D14AA-R</b> <input type="checkbox"/> -L	PKP264D14AA-R <input type="checkbox"/>				
<b>PKP264D21AA-R</b> <input type="checkbox"/> -L	PKP264D21AA-R <input type="checkbox"/>				
<b>PKP264D28AA-R</b> <input type="checkbox"/> -L	PKP264D28AA-R <input type="checkbox"/>				
<b>PKP266D07AA-R</b> <input type="checkbox"/> -L	PKP266D07AA-R <input type="checkbox"/>	54 (2.13)	70.8 (2.79)	0.75 (1.65)	B1026
<b>PKP266D14AA-R</b> <input type="checkbox"/> -L	PKP266D14AA-R <input type="checkbox"/>				
<b>PKP266D21AA-R</b> <input type="checkbox"/> -L	PKP266D21AA-R <input type="checkbox"/>				
<b>PKP266D28AA-R</b> <input type="checkbox"/> -L	PKP266D28AA-R <input type="checkbox"/>				
<b>PKP268D07AA-R</b> <input type="checkbox"/> -L	PKP268D07AA-R <input type="checkbox"/>	76 (2.99)	92.8 (3.65)	1.12 (2.46)	B1027
<b>PKP268D14AA-R</b> <input type="checkbox"/> -L	PKP268D14AA-R <input type="checkbox"/>				
<b>PKP268D21AA-R</b> <input type="checkbox"/> -L	PKP268D21AA-R <input type="checkbox"/>				
<b>PKP268D28AA-R</b> <input type="checkbox"/> -L	PKP268D28AA-R <input type="checkbox"/>				

● Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the product name.

● Motor Applicable Connector  
 Connector Housing: 51067-0600 (Molex)  
 Contact: 50217-9101 (Molex)  
 Crimp Tool: 63811-8300 (Molex)

● Encoder Applicable Connector  
 Connector Housing: 50-57-9405 (Molex)  
 Contact: 16-02-0104 (Molex)  
 Crimp Tool: 63811-8700 (Molex)

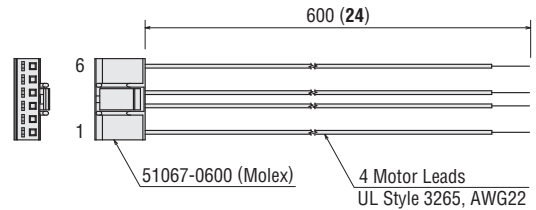


● These dimensions are for double shaft products. For single shaft products, ignore the shaded areas.

## Connection Cables (Included)

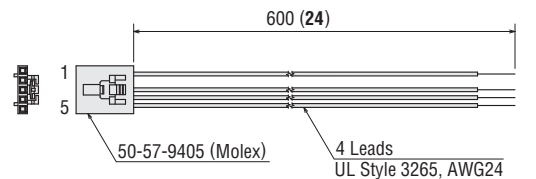
### ◇ Cable for Motor

- Bipolar 4 Lead Wires  
LC2B06C

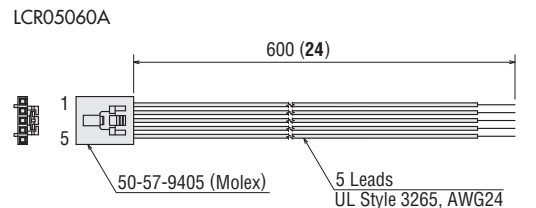


### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060A



- 3-Channel Encoder Cable



# Step Angle 0.9° Frame Size 42 mm (1.65 in.) Bipolar 4 Lead Wires

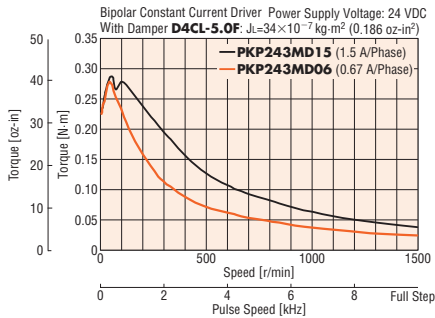
## Specifications RoHS

Product Name	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP243MD06□-L	33 (1.3)	0.3 (42)	0.67	6.3	9.4	26.4	$36 \times 10^{-7}$ (0.197)	4
PKP243MD15□-L			1.5	2.85	1.9	6.6		
PKP244MD08□-L	39 (1.54)	0.42 (59)	0.85	6.8	8	24	$57 \times 10^{-7}$ (0.31)	
PKP244MD15□-L			1.5	3.9	2.6	7.6		

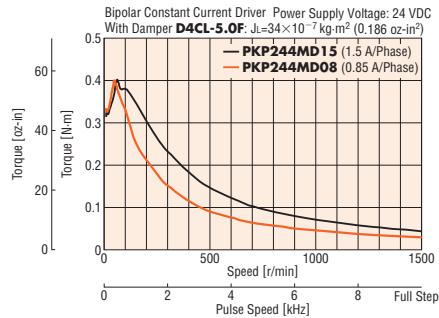
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

### PKP243MD



### PKP244MD



### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

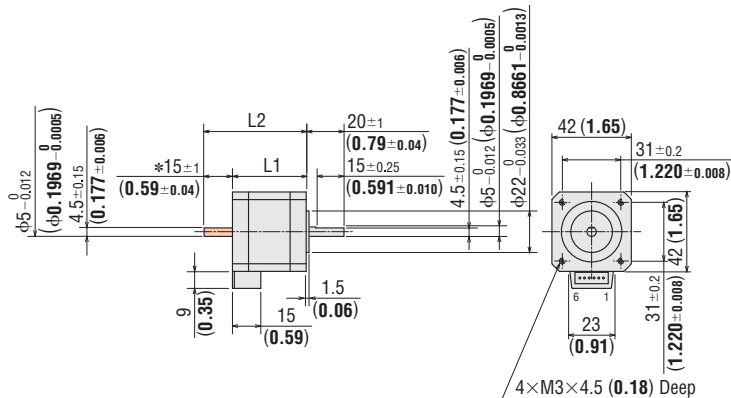
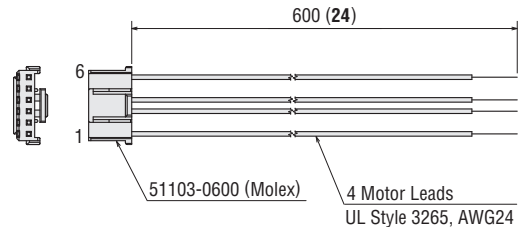
### ● Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP243MD06A-L	PKP243MD06A	—	—	0.25 (0.55)	B968
PKP243MD06B-L	PKP243MD06B	33 (1.30)	48 (1.89)		
PKP243MD15A-L	PKP243MD15A	—	48 (1.89)		
PKP243MD15B-L	PKP243MD15B	—	—	0.3 (0.66)	B969
PKP244MD08A-L	PKP244MD08A	—	—		
PKP244MD08B-L	PKP244MD08B	39 (1.54)	54 (2.13)		
PKP244MD15A-L	PKP244MD15A	—	—	54 (2.13)	
PKP244MD15B-L	PKP244MD15B	—	54 (2.13)		

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Bipolar 4 Lead Wires  
LC2B06B



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

- These dimensions are for double shaft products.

For single shaft products, ignore the   areas.

- Applicable Connector

Connector Housing: 51103-0600 (Molex)

Contact: 50351-8100 (Molex)

Crimp Tool: 63811-8100 (Molex)

# Step Angle 0.9° Frame Size 56.4 mm (2.22 in.) Bipolar 4 Lead Wires

## Specifications RoHS

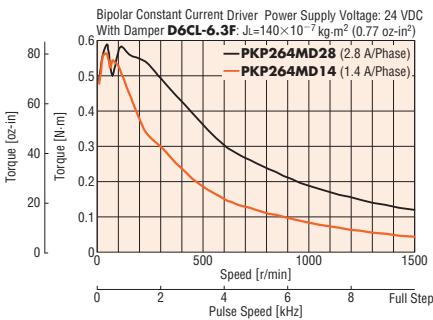
Product Name	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP264MD14□A-L	39 (1.54)	0.6 (85)	1.4	4.06	2.9	8.4	120 × 10 <sup>-7</sup> (0.66)	4
PKP264MD28□A-L			2.8	2	0.73	2.1		
PKP266MD14□A-L	54 (2.13)	1.32 (187)	1.4	5.6	4	15.6	290 × 10 <sup>-7</sup> (1.59)	
PKP266MD28□A-L			2.8	2.8	1	3.9		
PKP268MD14□A-L	76 (2.99)	2.23 (325)	1.4	6.86	4.9	22.4	490 × 10 <sup>-7</sup> (2.7)	
PKP268MD28□A-L			2.8	3.4	1.23	5.6		

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

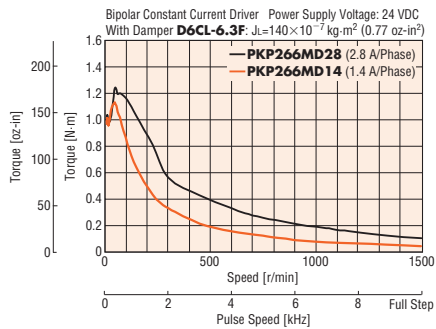
● A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics

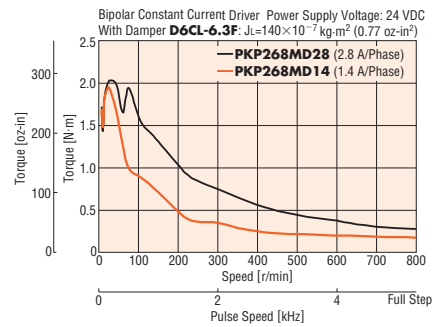
### PKP264MD



### PKP266MD



### PKP268MD



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

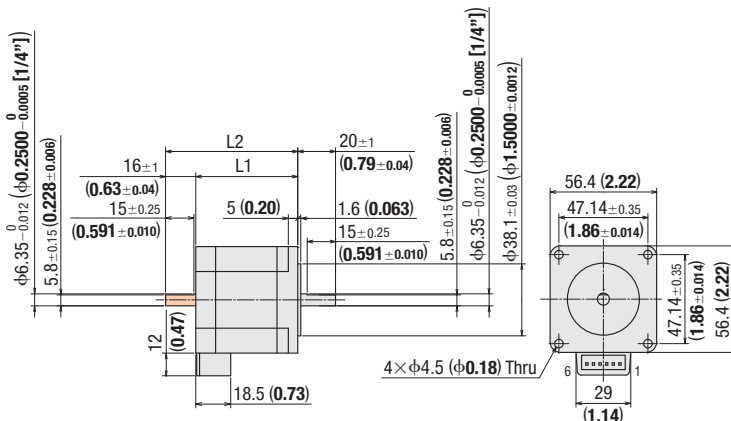
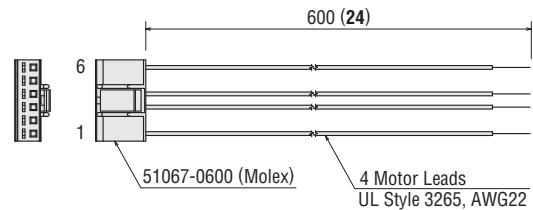
### Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP264MD14AA-L	PKP264MD14AA	39 (1.54)	—	0.46 (1.01)	B1028
PKP264MD14BA-L	PKP264MD14BA		55 (2.17)		
PKP264MD28AA-L	PKP264MD28AA	54 (2.13)	—	0.73 (1.61)	B1029
PKP264MD28BA-L	PKP264MD28BA		70 (2.76)		
PKP266MD14AA-L	PKP266MD14AA	76 (2.99)	—	1.1 (2.40)	B1030
PKP266MD14BA-L	PKP266MD14BA		92 (3.62)		
PKP266MD28AA-L	PKP266MD28AA	76 (2.99)	—	1.1 (2.40)	B1030
PKP266MD28BA-L	PKP266MD28BA		92 (3.62)		

### Connection Cables (Included)

#### ◇ Cable for Motor

- Bipolar 4 Lead Wires
- LC2B06C



● These dimensions are for double shaft products. For single shaft products, ignore the   areas.

# SH Geared Type Frame Size 28 mm (1.10 in.) Bipolar 4 Lead Wires

## Specifications RoHS

Product Name -Single Shaft -Double Shaft	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance $\Omega$ /phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc Minutes (degrees)	Permissible Speed Range r/min	Lead Wires
PKP223D06A-SG7.2-L PKP223D06B-SG7.2-L PKP223D15A-SG7.2-L PKP223D15B-SG7.2-L	0.3 (42)	0.67	3.8	5.6	4	$9 \times 10^{-7}$ (0.049)	7.2	0.25°	90 (1.5°)	0~416	4
PKP223D06A-SG9-L PKP223D06B-SG9-L PKP223D15A-SG9-L PKP223D15B-SG9-L		0.67	3.8	5.6	4						
PKP223D06A-SG10-L PKP223D06B-SG10-L PKP223D15A-SG10-L PKP223D15B-SG10-L		0.67	3.8	5.6	4		10	0.18°		0~300	
PKP223D06A-SG18-L PKP223D06B-SG18-L PKP223D15A-SG18-L PKP223D15B-SG18-L		0.67	3.8	5.6	4						
PKP223D06A-SG36-L PKP223D06B-SG36-L PKP223D15A-SG36-L PKP223D15B-SG36-L	0.67	3.8	5.6	4	36		0.05°	0~83			
PKP223D15A-SG36-L PKP223D15B-SG36-L	1.5	1.8	1.2	0.74							

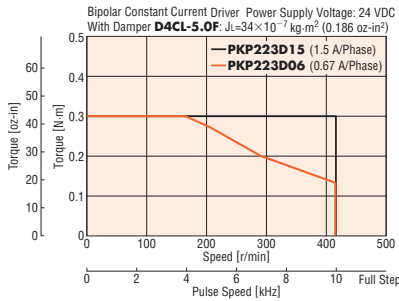
● A 0.6 m (2 ft.) motor connection cable is included with these products.

### Note

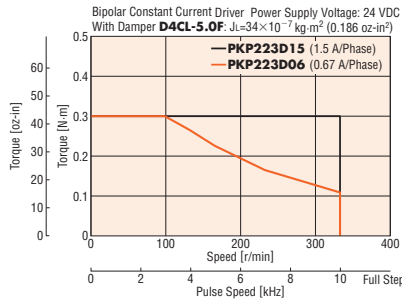
● The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 7.2 and 36. It is the opposite for the 9, 10 and 18 gear ratios.

## Speed – Torque Characteristics

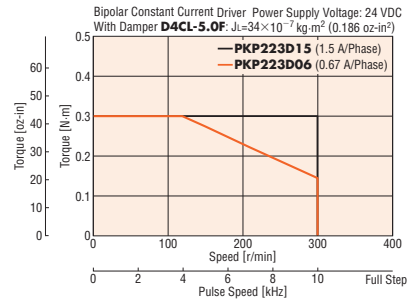
### PKP223D□□-SG7.2



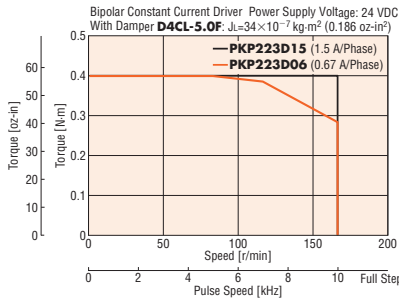
### PKP223D□□-SG9



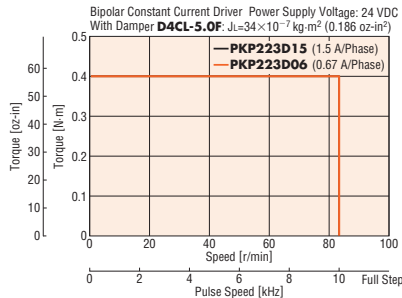
### PKP223D□□-SG10



### PKP223D□□-SG18



### PKP223D□□-SG36



● Enter the current in the box (□), enter **A** (single shaft) or **B** (double shaft) into the box (□).

### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).



# SH Geared Type Frame Size 42 mm (1.65 in.) Bipolar 4 Lead Wires

## Specifications RoHS

Product Name -Single Shaft -Double Shaft	Holding Torque N·m (lb-in)	Rated Current A/phase	Voltage VDC	Resistance $\Omega$ /phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz-in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc Minutes (degrees)	Permissible Speed Range r/min	Lead Wires
<b>PKP243D06A-SG3.6-L</b> <b>PKP243D06B-SG3.6-L</b> <b>PKP243D15A-SG3.6-L</b> <b>PKP243D15B-SG3.6-L</b>	0.2 (1.77)	0.67	2.95	4.4	9.2	$36 \times 10^{-7}$ (0.197)	3.6	0.5°	90 (1.5°)	0~833	4
1.5		0.87	0.58	1.1							
<b>PKP243D06A-SG7.2-L</b> <b>PKP243D06B-SG7.2-L</b> <b>PKP243D15A-SG7.2-L</b> <b>PKP243D15B-SG7.2-L</b>	0.4 (3.5)	0.67	2.95	4.4	9.2		7.2	0.25°	60 (1°)	0~416	
1.5		0.87	0.58	1.1							
<b>PKP243D06A-SG9-L</b> <b>PKP243D06B-SG9-L</b> <b>PKP243D15A-SG9-L</b> <b>PKP243D15B-SG9-L</b>	0.5 (4.4)	0.67	2.95	4.4	9.2		9	0.2°	60 (1°)	0~333	
1.5		0.87	0.58	1.1							
<b>PKP243D06A-SG10-L</b> <b>PKP243D06B-SG10-L</b> <b>PKP243D15A-SG10-L</b> <b>PKP243D15B-SG10-L</b>	0.56 (4.9)	0.67	2.95	4.4	9.2		10	0.18°	60 (1°)	0~300	
1.5		0.87	0.58	1.1							
<b>PKP243D06A-SG18-L</b> <b>PKP243D06B-SG18-L</b> <b>PKP243D15A-SG18-L</b> <b>PKP243D15B-SG18-L</b>	0.8 (7.0)	0.67	2.95	4.4	9.2		18	0.1°	60 (1°)	0~166	
1.5		0.87	0.58	1.1							
<b>PKP243D06A-SG36-L</b> <b>PKP243D06B-SG36-L</b> <b>PKP243D15A-SG36-L</b> <b>PKP243D15B-SG36-L</b>	0.8 (7.0)	0.67	2.95	4.4	9.2		36	0.05°	60 (1°)	0~83	
1.5		0.87	0.58	1.1							

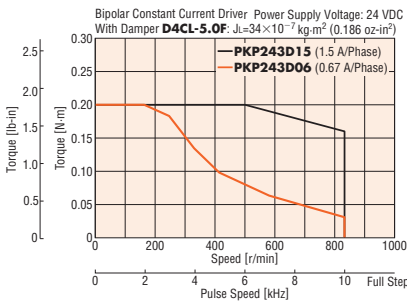
● A 0.6 m (2 ft.) motor connection cable is included with these products.

### Note

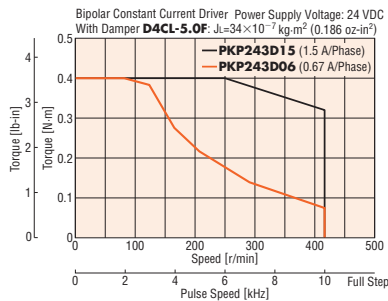
● The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 3.6, 7.2, 9 and 10. It is the opposite for the 18 and 36 gear ratios.

## Speed – Torque Characteristics

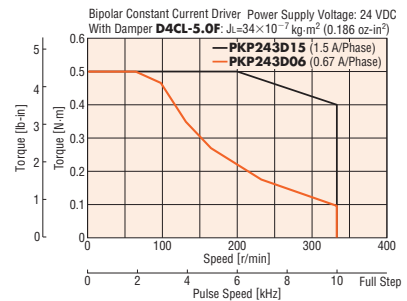
### PKP243D SG3.6



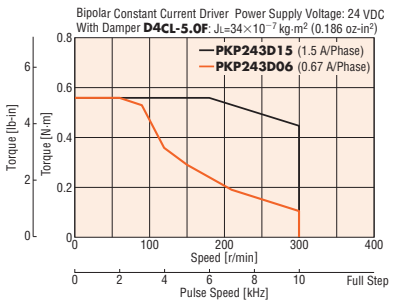
### PKP243D SG7.2



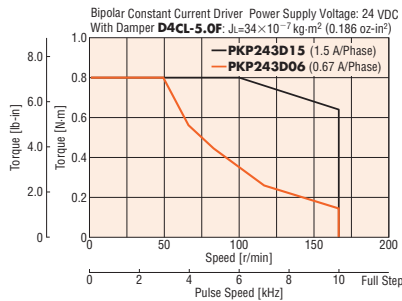
### PKP243D SG9



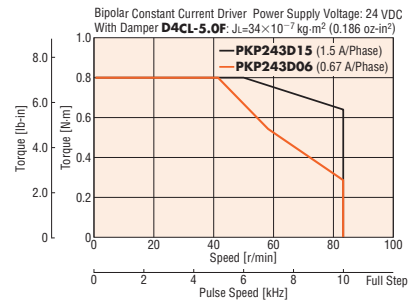
### PKP243D SG10



### PKP243D SG18



### PKP243D SG36



● Enter the current in the box (), enter **A** (single shaft) or **B** (double shaft) into the box ().

### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

### ● Gearmotor

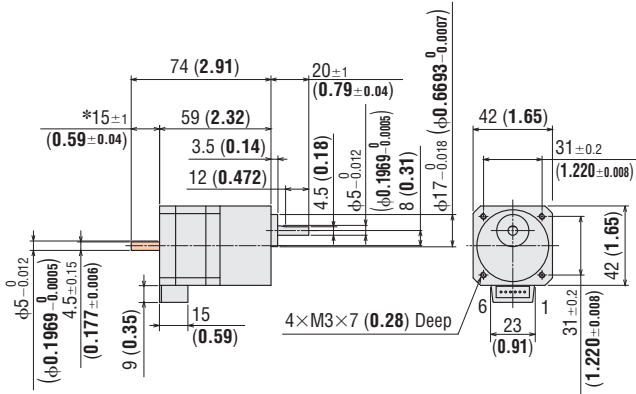
Product Name	Motor Product Name	Gear Ratio	Mass kg (lb.)	CAD
<b>PKP243D06A-SG</b> <input type="checkbox"/> -L	PKP243D06A-SG <input type="checkbox"/>	<b>3.6, 7.2, 9, 10, 18, 36</b>	0.35 (0.77)	B986
<b>PKP243D06B-SG</b> <input type="checkbox"/> -L	PKP243D06B-SG <input type="checkbox"/>			
<b>PKP243D15A-SG</b> <input type="checkbox"/> -L	PKP243D15A-SG <input type="checkbox"/>			
<b>PKP243D15B-SG</b> <input type="checkbox"/> -L	PKP243D15B-SG <input type="checkbox"/>			

● Enter the gear ratio in the box  within the product name.

### ● Applicable Connector


Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

### ● Motor



\*The length of machining on the double shaft product is  $15 \pm 0.25$  (0.591  $\pm$  0.010).

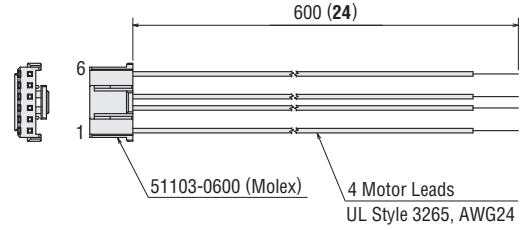
● These dimensions are for double shaft products.

For single shaft products, ignore the  areas.

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Bipolar 4 Lead Wires  
LC2B06B



# SH Geared Type Frame Size 60 mm (2.36 in.) Bipolar 4 Lead Wires

## Specifications RoHS

Product Name -Single Shaft -Double Shaft	Holding Torque N·m (lb·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc Minutes (degrees)	Permissible Speed Range r/min	Lead Wires
PKP264D07A-SG3.6-L PKP264D07B-SG3.6-L	1 (8.8)	0.71	8.31	11.7	28.8	120×10 <sup>-7</sup> (0.66)	3.6	0.5°	70 (1.17°)	0~833	4
PKP264D14A-SG3.6-L PKP264D14B-SG3.6-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG3.6-L PKP264D28B-SG3.6-L		2.8	0.92	0.33	0.8						
PKP264D07A-SG7.2-L PKP264D07B-SG7.2-L	2 (17.7)	0.71	8.31	11.7	28.8		7.2	0.25°		0~416	
PKP264D14A-SG7.2-L PKP264D14B-SG7.2-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG7.2-L PKP264D28B-SG7.2-L		2.8	0.92	0.33	0.8						
PKP264D07A-SG9-L PKP264D07B-SG9-L	2.5 (22)	0.71	8.31	11.7	28.8		9	0.2°		0~333	
PKP264D14A-SG9-L PKP264D14B-SG9-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG9-L PKP264D28B-SG9-L		2.8	0.92	0.33	0.8						
PKP264D07A-SG10-L PKP264D07B-SG10-L	2.7 (23)	0.71	8.31	11.7	28.8		10	0.18°	45 (0.75°)	0~300	
PKP264D14A-SG10-L PKP264D14B-SG10-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG10-L PKP264D28B-SG10-L		2.8	0.92	0.33	0.8						
PKP264D07A-SG18-L PKP264D07B-SG18-L	3 (26)	0.71	8.31	11.7	28.8	18	0.1°		0~166		
PKP264D14A-SG18-L PKP264D14B-SG18-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG18-L PKP264D28B-SG18-L		2.8	0.92	0.33	0.8						
PKP264D07A-SG36-L PKP264D07B-SG36-L	4 (35)	0.71	8.31	11.7	28.8	36	0.05°		0~83		
PKP264D14A-SG36-L PKP264D14B-SG36-L		1.4	3.08	2.2	4.5						
PKP264D28A-SG36-L PKP264D28B-SG36-L		2.8	0.92	0.33	0.8						

● A 0.6 m (2 ft.) motor connection cable is included with these products.

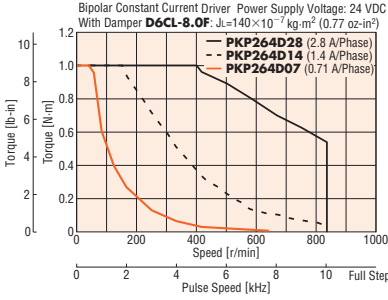
### Note

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

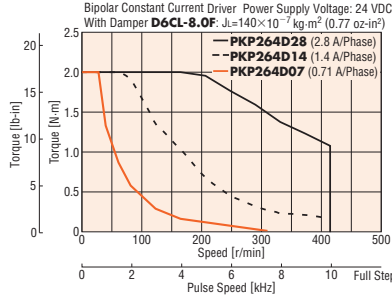


# Speed – Torque Characteristics

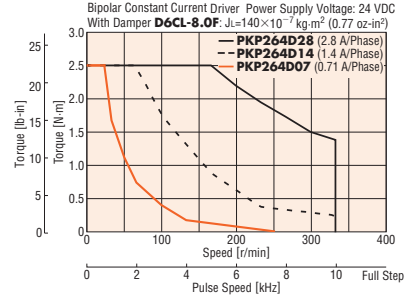
**PKP264D-SG3.6**



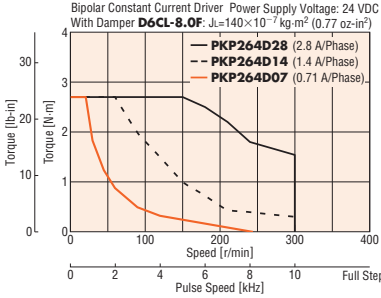
**PKP264D-SG7.2**



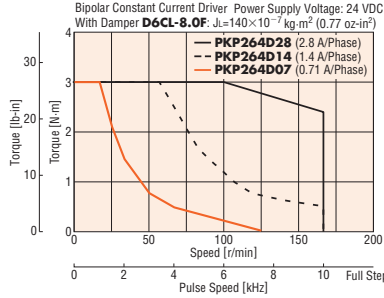
**PKP264D-SG9**



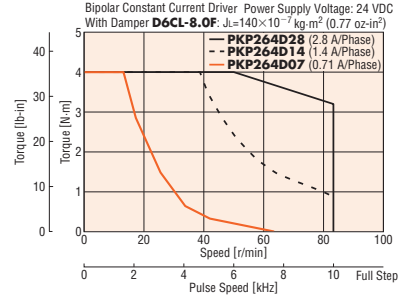
**PKP264D-SG10**



**PKP264D-SG18**



**PKP264D-SG36**



● Enter the current in the box (□), enter **A** (single shaft) or **B** (double shaft) into the box (■).

**Note**

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

### ● Gearmotor

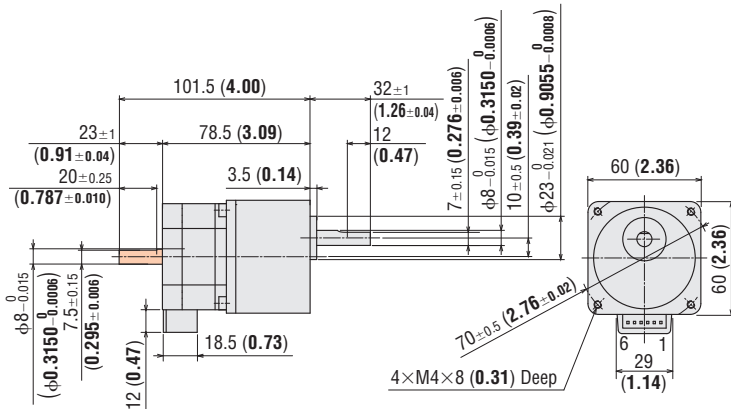
Product Name	Motor Product Name	Gear Ratio	Mass kg (lb.)	CAD
PKP264D07A-SG□-L	PKP264D07A-SG□	3.6, 7.2, 9, 10, 18, 36	0.76 (1.67)	B987
PKP264D07B-SG□-L	PKP264D07B-SG□			
PKP264D14A-SG□-L	PKP264D14A-SG□			
PKP264D14B-SG□-L	PKP264D14B-SG□			
PKP264D28A-SG□-L	PKP264D28A-SG□			
PKP264D28B-SG□-L	PKP264D28B-SG□			

● Enter the gear ratio in the box □ within the product name.

### ● Applicable Connector

Connector Housing: 51067-0600 (Molex)  
Contact: 50217-9101 (Molex)  
Crimp Tool: 63811-8300 (Molex)

### ● Motor

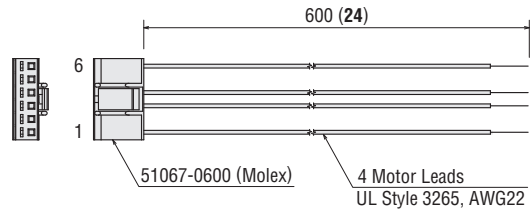


● These dimensions are for double shaft products. For single shaft products, ignore the shaded areas.

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Bipolar 4 Lead Wires
- LC2B06C



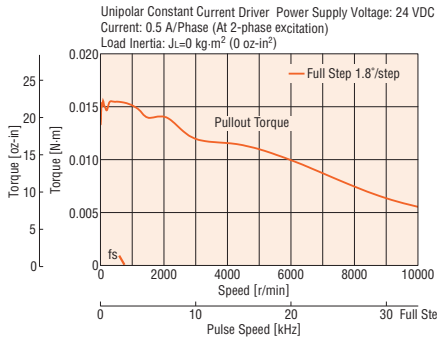
# Step Angle 1.8° Frame Size 20 mm (0.79 in.) Unipolar 5 Lead Wires

## Specifications RoHS

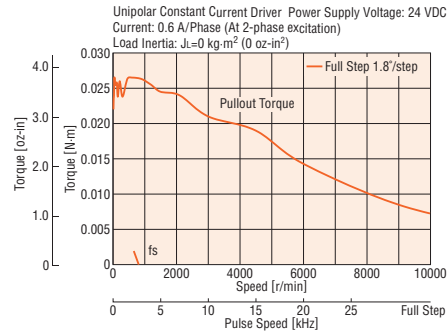
Product Name	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
Single Shaft								
Double Shaft								
<b>PKP213U05A</b> <b>PKP213U05B</b>	30 (1.18)	0.014 (1.98)	0.5	4.25	8.5	2.9	$1.6 \times 10^{-7}$ (0.0088)	5
<b>PKP214U06A</b> <b>PKP214U06B</b>	40 (1.57)	0.026 (3.6)	0.6	4.2	7	2.4	$2.9 \times 10^{-7}$ (0.0159)	

## Speed – Torque Characteristics fs: Max. starting frequency

### PKP213U05A/PKP213U05B



### PKP214U06A/PKP214U06B

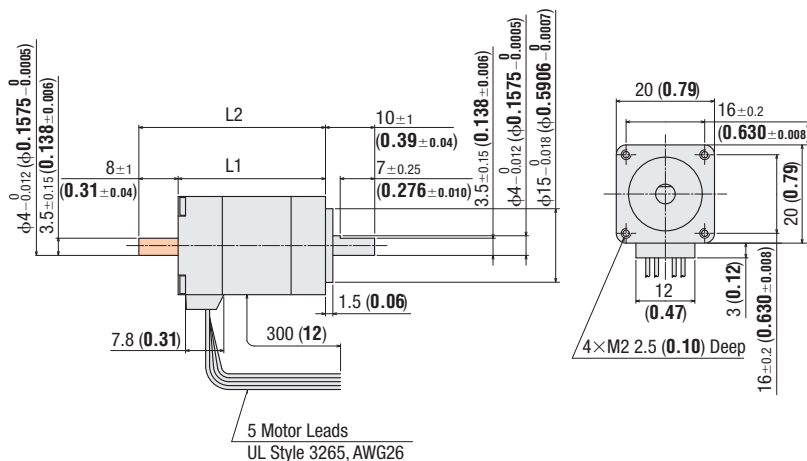


### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP213U05A</b>	30	—	0.05	B977
<b>PKP213U05B</b>	(1.18)	38 (1.50)	(0.11)	
<b>PKP214U06A</b>	40	—	0.07	B979
<b>PKP214U06B</b>	(1.57)	48 (1.89)	(0.154)	



- These dimensions are for double shaft products. For single shaft products, ignore the   areas.
- Back shaft of double shaft products have a flat the whole length.

# Step Angle 1.8° Frame Size 28 mm (1.10 in.) Unipolar 6 Lead Wires

## Specifications RoHS

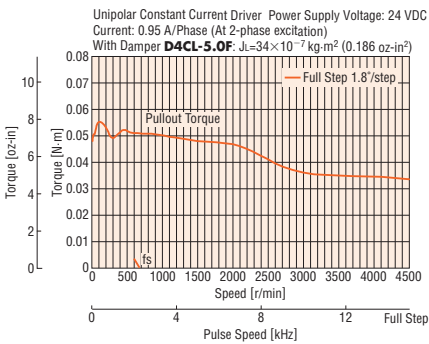
Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
<b>PKP223U09</b> □-L <b>PKP223U09A-R15-L</b>	32 (1.26)	0.05 (7.1)	0.95	2.66	2.8	1	$9 \times 10^{-7}$ (0.049)	6
<b>PKP224U09</b> □-L <b>PKP224U09A-R15-L</b>	40 (1.57)	0.075 (10.6)		3.2	3.4	1.2	$12 \times 10^{-7}$ (0.066)	
<b>PKP225U09</b> □-L <b>PKP225U09A-R15-L</b>	51.5 (2.03)	0.09 (12.7)		4.4	4.6	1.4	$18 \times 10^{-7}$ (0.098)	

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

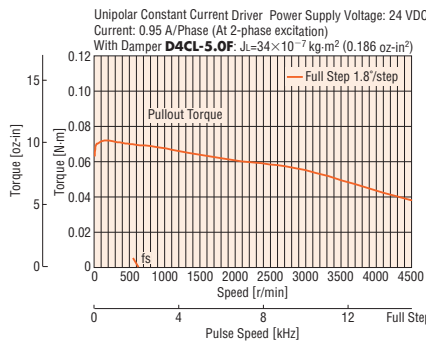
● A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency

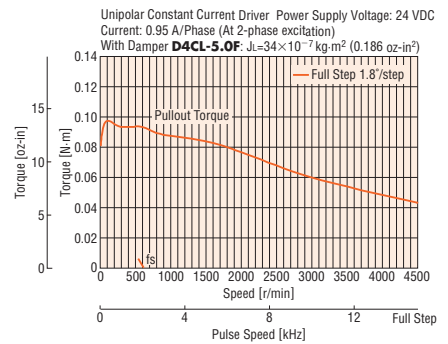
### PKP223U09□-L/ PKP223U09A-R15-L



### PKP224U09□-L/ PKP224U09A-R15-L



### PKP225U09□-L/ PKP225U09A-R15-L



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Refer to Page 11.

### ● Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP223U09A-L</b>	PKP223U09A	32	—	0.11 (0.24)	B980
<b>PKP223U09B-L</b>	PKP223U09B	(1.26)	42 (1.65)		
<b>PKP224U09A-L</b>	PKP224U09A	40	—	0.14 (0.31)	B981
<b>PKP224U09B-L</b>	PKP224U09B	(1.57)	50 (1.97)		
<b>PKP225U09A-L</b>	PKP225U09A	51.5	—	0.2 (0.44)	B982
<b>PKP225U09B-L</b>	PKP225U09B	(2.03)	61.5 (2.42)		

● Motor Applicable Connector  
 Connector Housing: 51065-0600 (Molex)  
 Contact: 50212-8100 (Molex)  
 Crimp Tool: 63819-0500 (Molex)

### ● Motor with Encoder

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP223U09A-R15-L</b>	PKP223U09A-R15	34 (1.34)	45.3 (1.79)	0.12 (0.26)	B1016
<b>PKP224U09A-R15-L</b>	PKP224U09A-R15	42 (1.65)	53.3 (2.10)	0.15 (0.33)	B1017
<b>PKP225U09A-R15-L</b>	PKP225U09A-R15	53.5 (2.11)	64.8 (2.55)	0.21 (0.46)	B1018

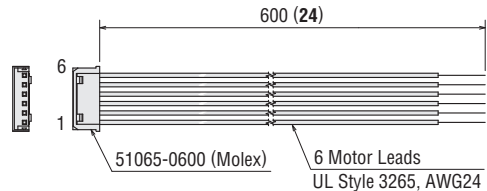
● Motor Applicable Connector  
 Connector Housing: 51065-0600 (Molex)  
 Contact: 50212-8100 (Molex)  
 Crimp Tool: 63819-0500 (Molex)

● Encoder Applicable Connector  
 Connector Housing: 51021-0400 (Molex)  
 Contact: 50079-8100 (Molex)  
 Crimp Tool: 63819-0300 (Molex)

### ● Connection Cables (Included)

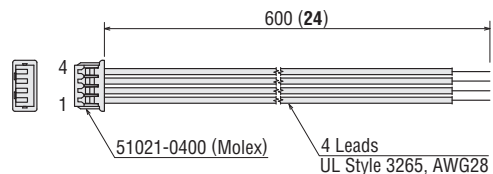
#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06A



#### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060B



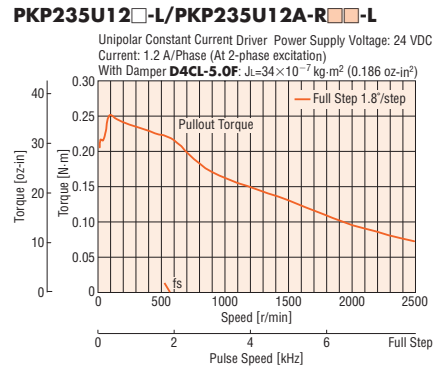
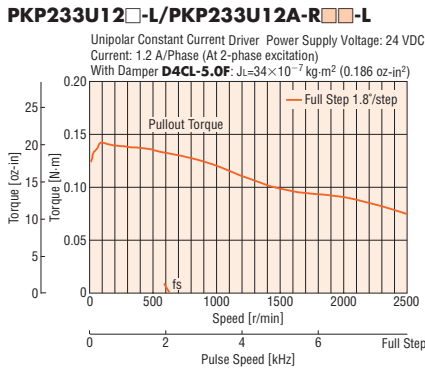
# Step Angle 1.8° Frame Size 35 mm (1.38 in.) Unipolar 6 Lead Wires

## Specifications RoHS

Product Name	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
PKP233U12□-L PKP233U12A-R□□-L	37 (1.46)	0.16 (22)	1.2	3.24	2.7	1.4	24×10 <sup>-7</sup> (0.131)	6
PKP235U12□-L PKP235U12A-R□□-L	52 (2.05)	0.3 (42)		4.08	3.4	2	50×10 <sup>-7</sup> (0.27)	

- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency



### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Refer to Page 13.

### ● Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP233U12A-L	PKP233U12A	37	—	0.18 (0.4)	B983
PKP233U12B-L	PKP233U12B	(1.46)	52 (2.05)		
PKP235U12A-L	PKP235U12A	52	—	0.285 (0.63)	B984
PKP235U12B-L	PKP235U12B	(2.05)	67 (2.64)		

- Motor Applicable Connector  
Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

### ● Motor with Encoder

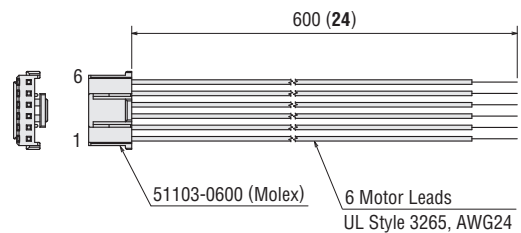
Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP233U12A-R□□-L	PKP233U12A-R□□	37 (1.46)	53.8 (2.12)	0.2 (0.44)	B1019
PKP235U12A-R□□-L	PKP235U12A-R□□	52 (2.05)	68.8 (1.96)	0.31 (0.67)	

- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□□) within the product name.
- Motor Applicable Connector  
Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)
- Encoder Applicable Connector  
Connector Housing: 50-57-9405 (Molex)  
Contact: 16-02-0104 (Molex)  
Crimp Tool: 63811-8700 (Molex)

### ● Connection Cables (Included)

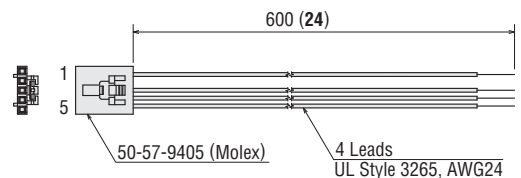
#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06A

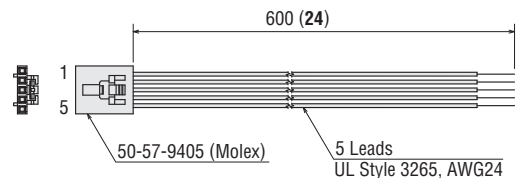


#### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060A



- 3-Channel Encoder Cable  
LCR05060A



# Step Angle 1.8° Frame Size 42 mm (1.65 in.) Unipolar 6 Lead Wires

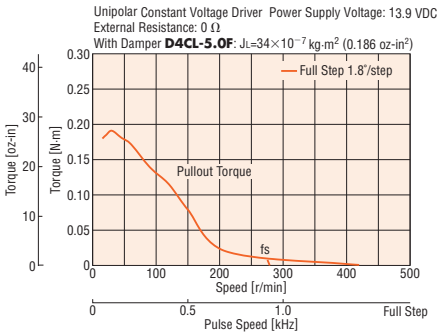
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz-in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz-in <sup>2</sup> )	Lead Wires	Speed-Torque No.
<b>PKP243U04</b> <input type="checkbox"/> -L <b>PKP243U04A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	33 (1.3)	0.25 (35)	0.4	12	30	33	$36 \times 10^{-7}$ (0.197)	6	<input type="checkbox"/> 1
<b>PKP243U06</b> <input type="checkbox"/> -L <b>PKP243U06A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			0.6	6.6	11	12.4			<input type="checkbox"/> 2
<b>PKP243U09</b> <input type="checkbox"/> -L <b>PKP243U09A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			0.95	4.47	4.7	5			<input type="checkbox"/> 3
<b>PKP244U04</b> <input type="checkbox"/> -L <b>PKP244U04A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	39 (1.54)	0.36 (51)	0.4	12	30	28.6	<input type="checkbox"/> 4		
<b>PKP244U08</b> <input type="checkbox"/> -L <b>PKP244U08A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			0.8	5.76	7.2	7.6	<input type="checkbox"/> 5		
<b>PKP244U12</b> <input type="checkbox"/> -L <b>PKP244U12A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			1.2	4.8	4	3.9	<input type="checkbox"/> 6		
<b>PKP245U05</b> <input type="checkbox"/> -L <b>PKP245U05A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	47 (1.85)	0.45 (63)	0.5	12	24	33	$83 \times 10^{-7}$ (0.45)		<input type="checkbox"/> 7
<b>PKP245U08</b> <input type="checkbox"/> -L <b>PKP245U08A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			0.8	6.4	8	11.3			<input type="checkbox"/> 8
<b>PKP245U12</b> <input type="checkbox"/> -L <b>PKP245U12A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L			1.2	4.56	3.8	5			<input type="checkbox"/> 9
<b>PKP246U12</b> <input type="checkbox"/> -L <b>PKP246U12A-R</b> <input type="checkbox"/> <input type="checkbox"/> -L	59 (2.32)	0.75 (106)	1.2	7.2	6	6.5	$114 \times 10^{-7}$ (0.62)		<input type="checkbox"/> 10

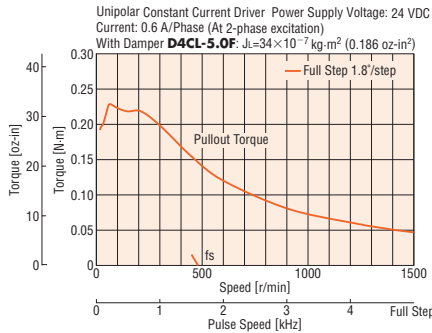
- Enter **A** (single shaft) or **B** (double shaft) in the box () within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency

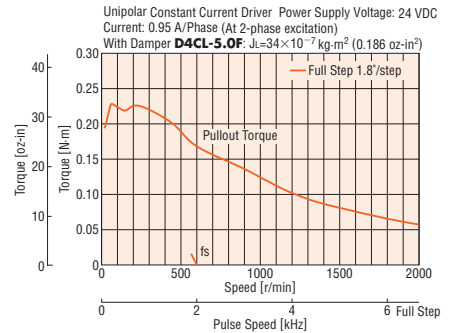
**1** PKP243U04-L/PKP243U04A-R-L



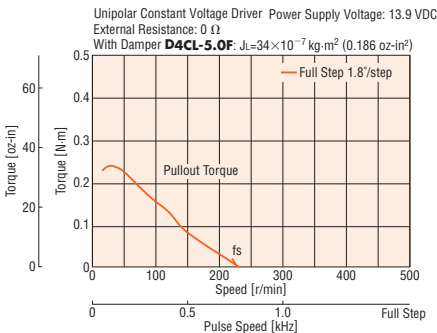
**2** PKP243U06-L/PKP243U06A-R-L



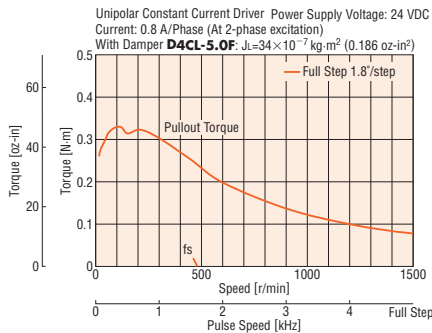
**3** PKP243U09-L/PKP243U09A-R-L



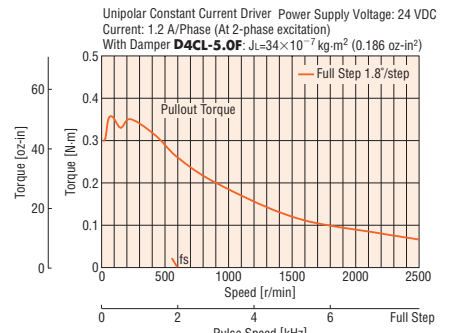
**4** PKP244U04-L/PKP244U04A-R-L



**5** PKP244U08-L/PKP244U08A-R-L



**6** PKP244U12-L/PKP244U12A-R-L

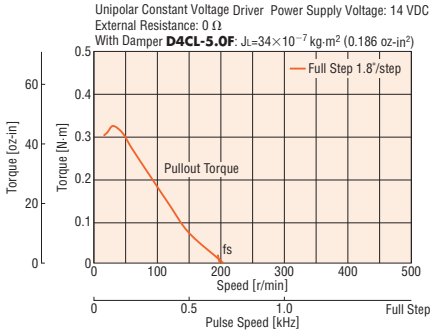


### Note

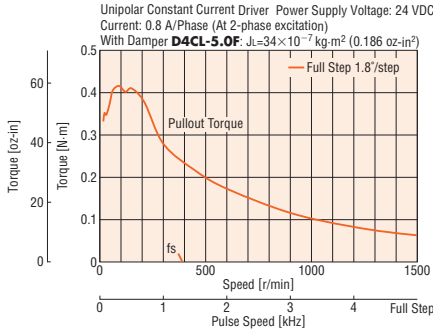
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Speed – Torque Characteristics fs: Max. starting frequency

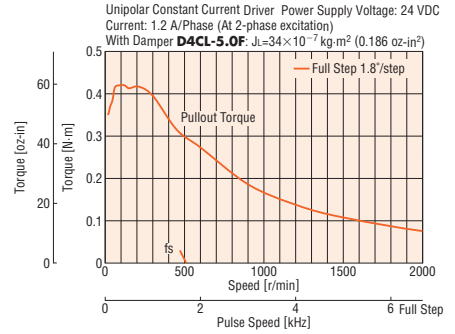
**7** PKP245U05-L/PKP245U05A-R-L



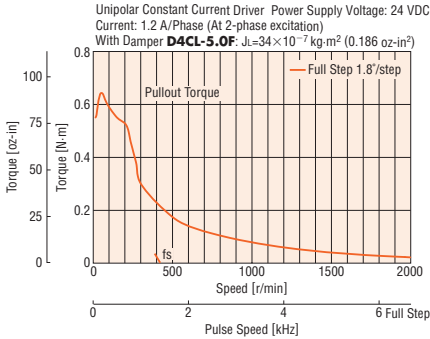
**8** PKP245U08-L/PKP245U08A-R-L



**9** PKP245U12-L/PKP245U12A-R-L



**10** PKP246U12-L/PKP246U12A-R-L



**Note**

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Refer to Page 15.

### ● Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP243U04A-L	PKP243U04A	33 (1.30)	—	0.25 (0.55)	B968
PKP243U04B-L	PKP243U04B		48 (1.89)		
PKP243U06A-L	PKP243U06A		—		
PKP243U06B-L	PKP243U06B		48 (1.89)		
PKP243U09A-L	PKP243U09A	39 (1.54)	—	0.3 (0.66)	B969
PKP243U09B-L	PKP243U09B		48 (1.89)		
PKP244U04A-L	PKP244U04A		—		
PKP244U04B-L	PKP244U04B	54 (2.13)	—	0.39 (0.86)	B970
PKP244U08A-L	PKP244U08A	—			
PKP244U08B-L	PKP244U08B	54 (2.13)	62 (2.44)	0.5 (1.1)	B971
PKP244U12A-L	PKP244U12A	—			
PKP244U12B-L	PKP244U12B	54 (2.13)	—	0.5 (1.1)	B971
PKP245U05A-L	PKP245U05A	—			
PKP245U05B-L	PKP245U05B	62 (2.44)	—	0.5 (1.1)	B971
PKP245U08A-L	PKP245U08A	47 (1.85)			
PKP245U08B-L	PKP245U08B	62 (2.44)	—	0.5 (1.1)	B971
PKP245U12A-L	PKP245U12A	—			
PKP245U12B-L	PKP245U12B	62 (2.44)	—	0.5 (1.1)	B971
PKP246U12A-L	PKP246U12A	59 (2.32)			
PKP246U12B-L	PKP246U12B	74 (2.91)	—	0.5 (1.1)	B971

● Applicable Connector

Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

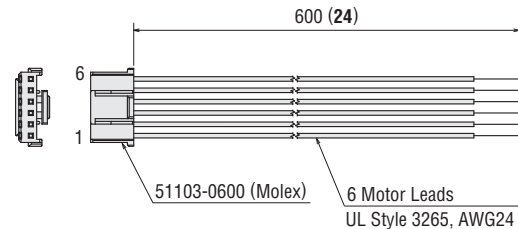
### ● Motor with Encoder

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
PKP243U04A-R-L	PKP243U04A-R	33 (1.30)	49.8 (1.89)	0.27 (0.59)	B1021
PKP243U06A-R-L	PKP243U06A-R		—		
PKP243U09A-R-L	PKP243U09A-R		—		
PKP244U04A-R-L	PKP244U04A-R	39 (1.54)	55.8 (2.55)	0.32 (0.70)	B1022
PKP244U08A-R-L	PKP244U08A-R		—		
PKP244U12A-R-L	PKP244U12A-R	—	63.8 (2.51)	0.41 (0.90)	B1023
PKP245U05A-R-L	PKP245U05A-R	47 (1.85)			
PKP245U08A-R-L	PKP245U08A-R	62 (2.44)	—	0.52 (1.14)	B1024
PKP245U12A-R-L	PKP245U12A-R	59 (2.32)			
PKP246U12A-R-L	PKP246U12A-R	75.8 (2.98)	—	0.52 (1.14)	B1024

### ● Connection Cables (Included)

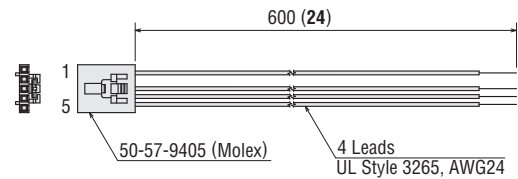
#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06B

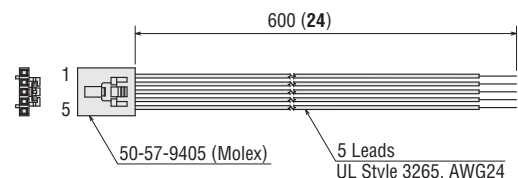


#### ◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060A



- 3-Channel Encoder Cable  
LCR05060A



● Enter the encoder code (**15**, **16**, **25** or **26**) in the box ( ) within the product name.

● Motor Applicable Connector  
Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

● Encoder Applicable Connector  
Connector Housing: 50-57-9405 (Molex)  
Contact: 16-02-0104 (Molex)  
Crimp Tool: 63811-8700 (Molex)

# Step Angle 1.8° Frame Size 56.4 mm (2.22 in.) Unipolar 6 Lead Wires

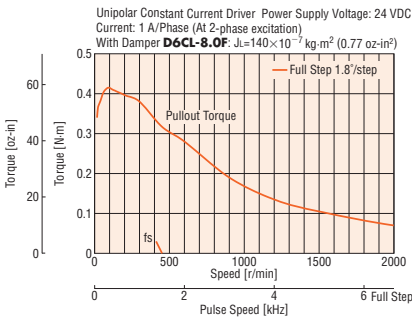
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires	Speed-Torque No.
PKP264U10□A-L PKP264U10AA-R□□-L	39 (1.54)	0.51 (72)	1	5.87	5.87	7.2	120×10 <sup>-7</sup> (0.66)	6	11
PKP264U20□A-L PKP264U20AA-R□□-L			2	2.9	1.45	1.8			12
PKP264U30□A-L PKP264U30AA-R□□-L			3	1.95	0.65	0.8			13
PKP266U10□A-L PKP266U10AA-R□□-L	54 (2.13)	1.1 (156)	1	8.1	8.1	11.6	290×10 <sup>-7</sup> (1.59)	6	14
PKP266U20□A-L PKP266U20AA-R□□-L			2	4	2	2.9			15
PKP266U30□A-L PKP266U30AA-R□□-L			3	2.76	0.92	1.33			16
PKP268U10□A-L PKP268U10AA-R□□-L	76 (2.99)	1.75 (240)	1	9.32	9.32	17.6	490×10 <sup>-7</sup> (2.7)	6	17
PKP268U20□A-L PKP268U20AA-R□□-L			2	4.9	2.45	4.4			18
PKP268U30□A-L PKP268U30AA-R□□-L			3	3.15	1.05	1.96			19

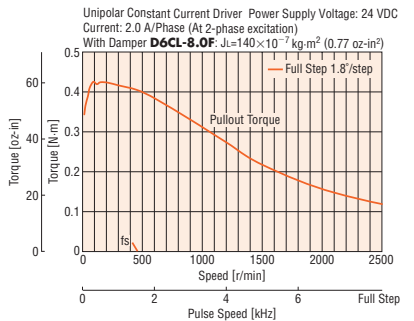
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the product name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□□) within the product name.
- A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency

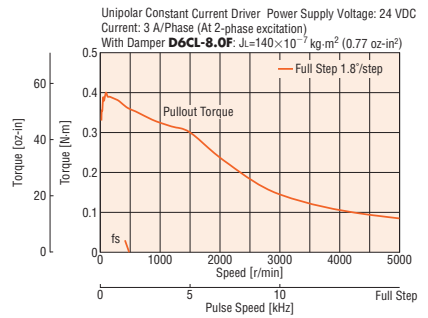
11 PKP264U10□-L/PKP264U10AA-R□□-L



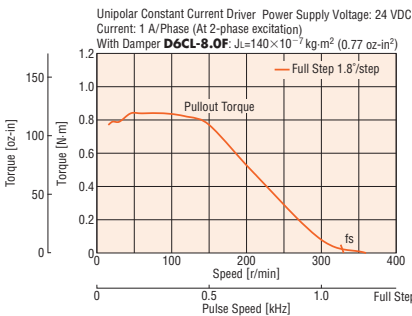
12 PKP264U20□-L/PKP264U20AA-R□□-L



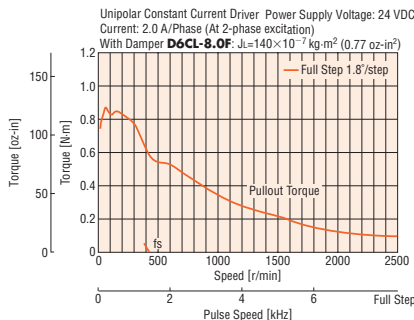
13 PKP264U30□-L/PKP264U30AA-R□□-L



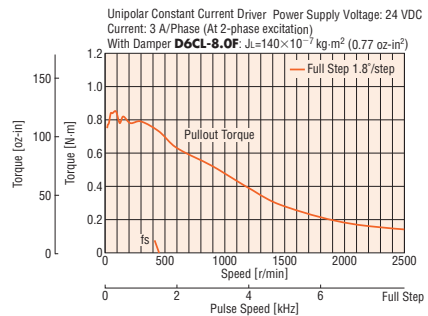
14 PKP266U10□-L/PKP266U10AA-R□□-L



15 PKP266U20□-L/PKP266U20AA-R□□-L

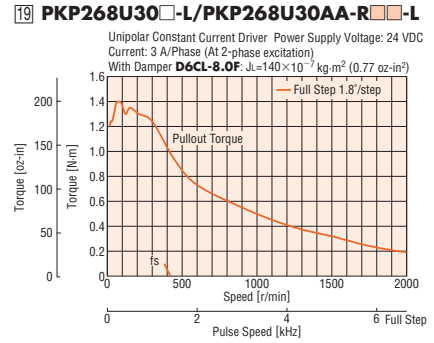
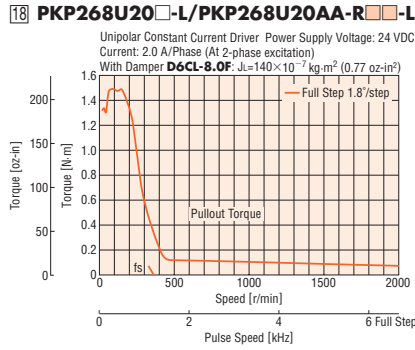
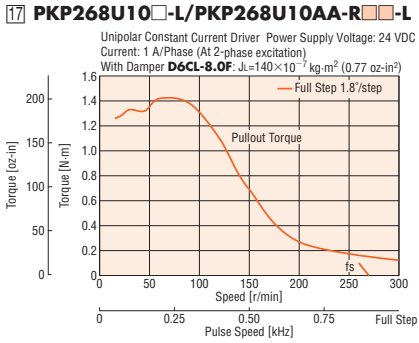


16 PKP266U30□-L/PKP266U30AA-R□□-L



### Note

- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).



**Note**

Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

**Dimensions Unit = mm (in.)**

Refer to Page 17.

**Motor**

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP264U10AA-L</b>	PKP264U10AA	39 (1.54)	-	0.46 (1.01)	B1028
<b>PKP264U10BA-L</b>	PKP264U10BA		55 (2.17)		
<b>PKP264U20AA-L</b>	PKP264U20AA		-		
<b>PKP264U20BA-L</b>	PKP264U20BA		55 (2.17)		
<b>PKP264U30AA-L</b>	PKP264U30AA		-		
<b>PKP264U30BA-L</b>	PKP264U30BA	55 (2.17)			
<b>PKP266U10AA-L</b>	PKP266U10AA	54 (2.13)	-	0.73 (1.61)	B1029
<b>PKP266U10BA-L</b>	PKP266U10BA		70 (2.76)		
<b>PKP266U20AA-L</b>	PKP266U20AA		-		
<b>PKP266U20BA-L</b>	PKP266U20BA		70 (2.76)		
<b>PKP266U30AA-L</b>	PKP266U30AA		-		
<b>PKP266U30BA-L</b>	PKP266U30BA	70 (2.76)			
<b>PKP268U10AA-L</b>	PKP268U10AA	76 (2.99)	-	1.1 (2.40)	B1030
<b>PKP268U10BA-L</b>	PKP268U10BA		92 (3.62)		
<b>PKP268U20AA-L</b>	PKP268U20AA		-		
<b>PKP268U20BA-L</b>	PKP268U20BA		92 (3.62)		
<b>PKP268U30AA-L</b>	PKP268U30AA		-		
<b>PKP268U30BA-L</b>	PKP268U30BA	92 (3.62)			

● Applicable Connector  
Connector Housing: 51067-0600 (Molex)  
Contact: 50217-9101 (Molex)  
Crimp Tool: 63811-8300 (Molex)

**Motor with Encoder**

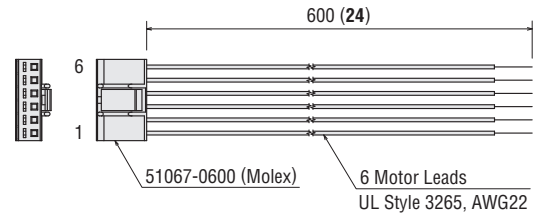
Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP264U10AA-R-L</b>	PKP264U10AA-R	39 (1.54)	55.8 (2.20)	0.48 (1.06)	B1025
<b>PKP264U20AA-R-L</b>	PKP264U20AA-R				
<b>PKP264U30AA-R-L</b>	PKP264U30AA-R	54 (2.13)	70.8 (2.79)	0.75 (1.65)	B1026
<b>PKP266U10AA-R-L</b>	PKP266U10AA-R				
<b>PKP266U20AA-R-L</b>	PKP266U20AA-R				
<b>PKP266U30AA-R-L</b>	PKP266U30AA-R	76 (2.99)	92.8 (3.65)	1.12 (2.46)	B1027
<b>PKP268U10AA-R-L</b>	PKP268U10AA-R				
<b>PKP268U20AA-R-L</b>	PKP268U20AA-R				
<b>PKP268U30AA-R-L</b>	PKP268U30AA-R				

● Enter the encoder code (**15**, **16**, **25** or **26**) in the box ( ) within the product name.  
● Motor Applicable Connector  
Connector Housing: 51067-0600 (Molex)  
Contact: 50217-9101 (Molex)  
Crimp Tool: 63811-8300 (Molex)  
● Encoder Applicable Connector  
Connector Housing: 50-57-9405 (Molex)  
Contact: 16-02-0104 (Molex)  
Crimp Tool: 63811-8700 (Molex)

**Connection Cables (Included)**

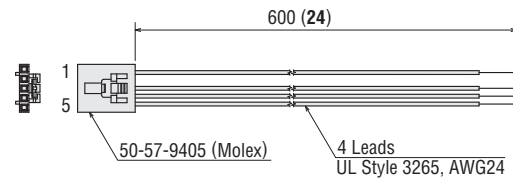
◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06C

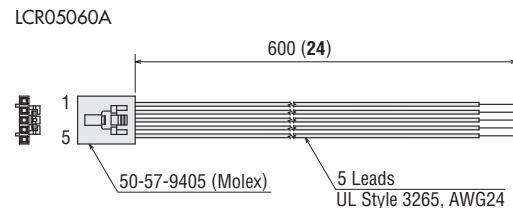


◇ Cable for Encoder

- 2-Channel Encoder Cable  
LCR04060A



- 3-Channel Encoder Cable





# Step Angle 0.9° Frame Size 42 mm (1.65 in.) Unipolar 6 Lead Wires

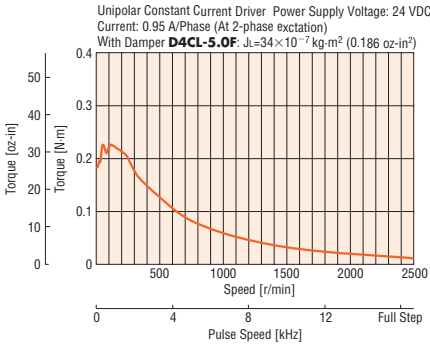
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
<b>PKP243MU09A-L</b> <b>PKP243MU09B-L</b>	33 (1.3)	0.25 (35)	0.95	4.47	4.7	6.6	$36 \times 10^{-7}$ (0.197)	6
<b>PKP244MU12A-L</b> <b>PKP244MU12B-L</b>	39 (1.54)	0.35 (49)	1.2	4.8	4	6	$57 \times 10^{-7}$ (0.31)	

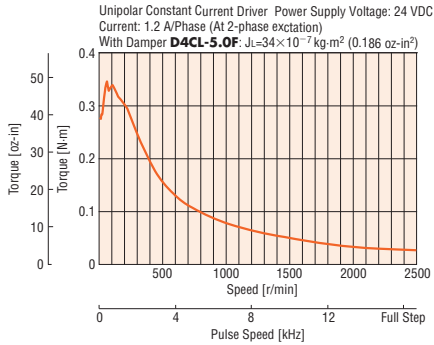
● A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency

### PKP243MU09A-L/PKP243MU09B-L



### PKP244MU12A-L/PKP244MU12B-L



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

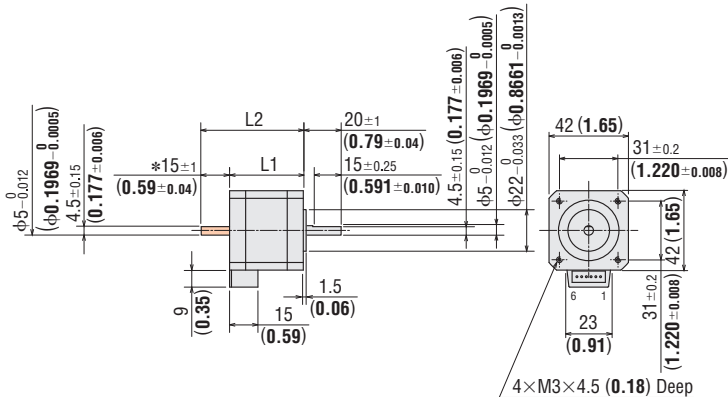
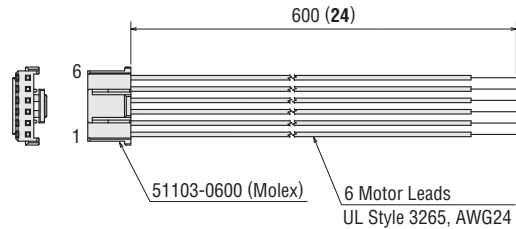
### Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP243MU09A-L</b>	PKP243MU09A	33	—	0.25	B968
<b>PKP243MU09B-L</b>	PKP243MU09B	(1.30)	48 (1.89)	(0.55)	
<b>PKP244MU12A-L</b>	PKP244MU12A	39	—	0.3	B969
<b>PKP244MU12B-L</b>	PKP244MU12B	(1.54)	54 (2.13)	(0.66)	

### Connection Cables (Included)

#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06B



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

● These dimensions are for double shaft products.  
For single shaft products, ignore the   areas.

### ● Applicable Connector

Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

# Step Angle 0.9° Frame Size 56.4 mm (2.22 in.) Unipolar 6 Lead Wires

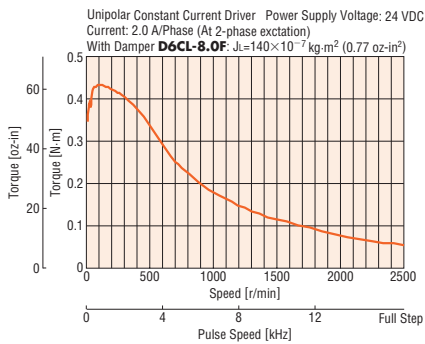
## Specifications RoHS

Product Name -Single/Double Shaft -with Encoder	Motor Length mm (in.)	Holding Torque N·m (oz·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Lead Wires
<b>PKP264MU20AA-L</b> <b>PKP264MU20BA-L</b>	39 (1.54)	0.51 (72)	2	2.9	1.45	2.1	120×10 <sup>-7</sup> (0.66)	6
<b>PKP266MU20AA-L</b> <b>PKP266MU20BA-L</b>	54 (2.13)	1.1 (155)		4	2	3.9	290×10 <sup>-7</sup> (1.59)	
<b>PKP268MU20AA-L</b> <b>PKP268MU20BA-L</b>	76 (2.99)	1.75 (247)		4.9	2.45	5.6	490×10 <sup>-7</sup> (2.7)	

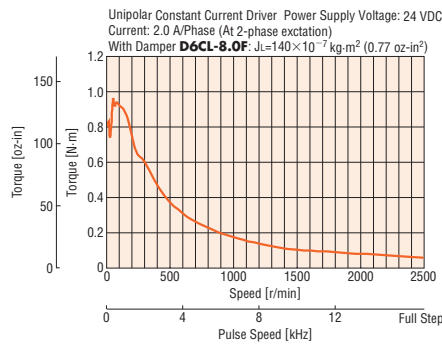
● A 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable) is included with these products.

## Speed – Torque Characteristics fs: Max. starting frequency

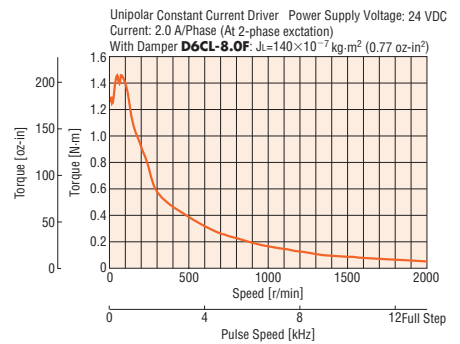
### PKP264MU20AA-L/ PKP264MU20BA-L



### PKP266MU20AA-L/ PKP266MU20BA-L



### PKP268MU20AA-L/ PKP268MU20BA-L



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

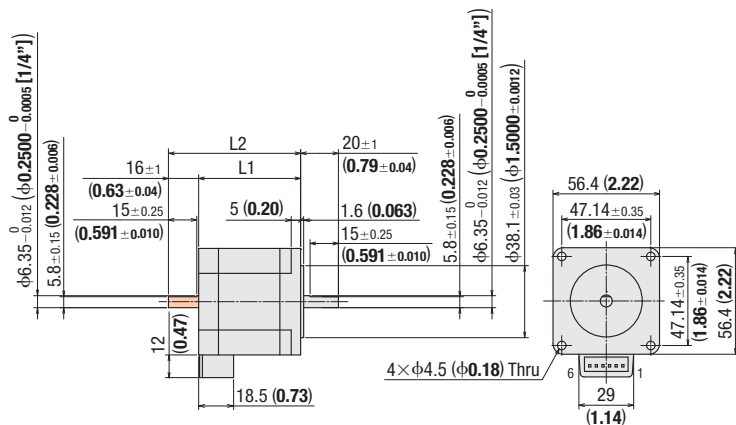
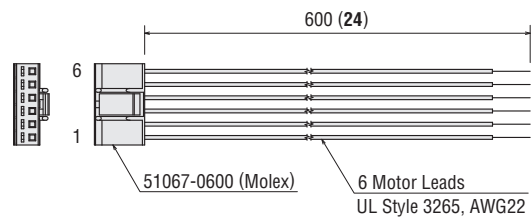
### ● Motor

Product Name	Motor Product Name	L1	L2	Mass kg (lb.)	CAD
<b>PKP264MU20AA-L</b>	PKP264MU20AA	39	—	0.46 (1.01)	B1028
<b>PKP264MU20BA-L</b>	PKP264MU20BA	(1.54)	55 (2.17)		
<b>PKP266MU20AA-L</b>	PKP266MU20AA	54	—	0.73 (1.61)	B1029
<b>PKP266MU20BA-L</b>	PKP266MU20BA	(2.13)	70 (2.76)		
<b>PKP268MU20AA-L</b>	PKP268MU20AA	76	—	1.1 (2.40)	B1030
<b>PKP268MU20BA-L</b>	PKP268MU20BA	(2.99)	92 (3.62)		

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06C



● These dimensions are for double shaft products. For single shaft products, ignore the   areas.

# SH Geared Type Frame Size 28 mm (1.10 in.) Unipolar 6 Lead Wires

## Specifications RoHS

Product Name	Holding Torque N·m (oz-in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz-in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min	Lead Wires
PKP223U09A-SG7.2-L PKP223U09B-SG7.2-L	0.3 (42)	0.95	2.66	2.8	1	9×10 <sup>-7</sup> (0.049)	7.2	0.25°	90 (1.5°)	0~416	6
PKP223U09A-SG9-L PKP223U09B-SG9-L							9	0.2°		0~333	
PKP223U09A-SG10-L PKP223U09B-SG10-L	0.4 (56)	0.95	2.66	2.8	1	9×10 <sup>-7</sup> (0.049)	10	0.18°	90 (1.5°)	0~300	
PKP223U09A-SG18-L PKP223U09B-SG18-L							18	0.1°		0~166	
PKP223U09A-SG36-L PKP223U09B-SG36-L	0.4 (56)	0.95	2.66	2.8	1	9×10 <sup>-7</sup> (0.049)	36	0.05°	90 (1.5°)	0~83	

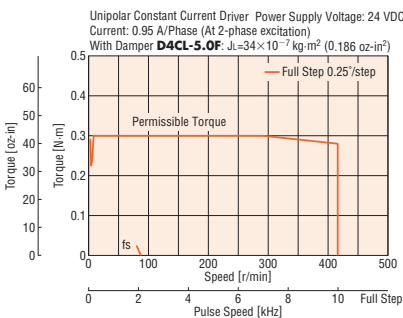
● A 0.6 m (2 ft.) motor connection cable is included with these products.

### Note

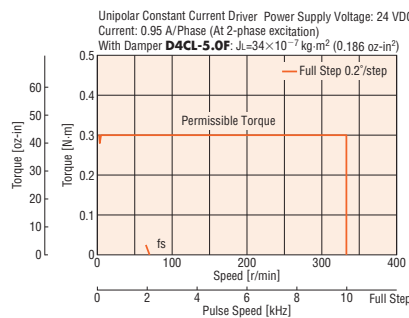
● The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 7.2 and 36. It is the opposite for the 9, 10 and 18 gear ratios.

## Speed – Torque Characteristics fs: Max. starting frequency

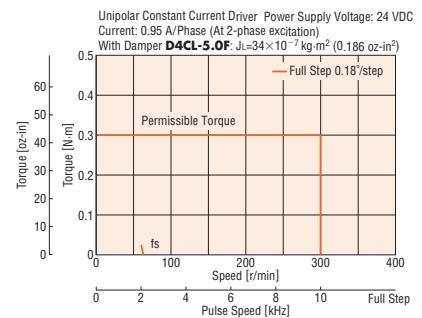
### PKP223U09A-SG7.2-L PKP223U09B-SG7.2-L



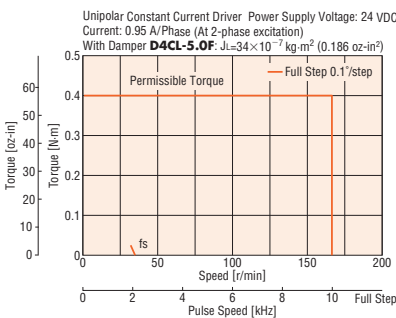
### PKP223U09A-SG9-L PKP223U09B-SG9-L



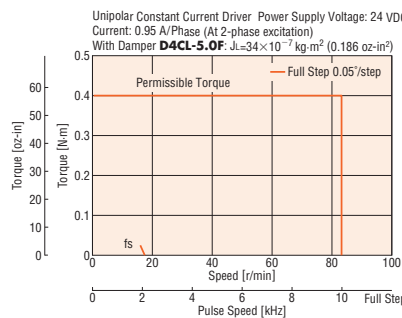
### PKP223U09A-SG10-L PKP223U09B-SG10-L



### PKP223U09A-SG18-L PKP223U09B-SG18-L



### PKP223U09A-SG36-L PKP223U09B-SG36-L



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Refer to Page 21.

Product Name	Motor Product Name	Gear Ratio	Mass kg (lb.)	CAD
PKP223U09A-SG□-L	PKP223U09A-SG□	<b>7.2, 9, 10,</b>	0.16	B985
PKP223U09B-SG□-L	PKP223U09B-SG□	<b>18, 36</b>	(0.35)	

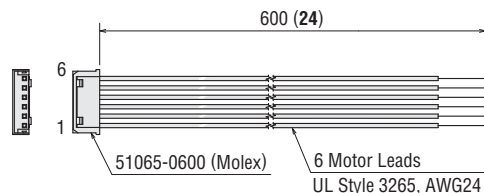
● Enter the gear ratio in the box □ within the product name.

● Applicable Connector  
Connector Housing: 51065-0600 (Molex)  
Contact: 50212-8100 (Molex)  
Crimp Tool: 63819-0500 (Molex)

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06A



# SH Geared Type Frame Size 42 mm (1.65 in.) Unipolar 6 Lead Wires

## Specifications RoHS

Product Name	Holding Torque N·m (lb·in)	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min	Lead Wires
PKP243U09A-SG3.6-L PKP243U09B-SG3.6-L	0.2 (1.77)	0.95	2.09	2.2	2.3	$36 \times 10^{-7}$ (0.197)	3.6	0.5°	90 (1.5°)	0~833	6
PKP243U09A-SG7.2-L PKP243U09B-SG7.2-L	0.4 (3.5)						7.2	0.25°	60 (1°)	0~416	
PKP243U09A-SG9-L PKP243U09B-SG9-L	0.5 (4.4)						9	0.2°		0~333	
PKP243U09A-SG10-L PKP243U09B-SG10-L	0.56 (4.9)						10	0.18°	0~300		
PKP243U09A-SG18-L PKP243U09B-SG18-L	0.8 (7.0)						18	0.1°	0~166		
PKP243U09A-SG36-L PKP243U09B-SG36-L							36	0.05°	0~83		

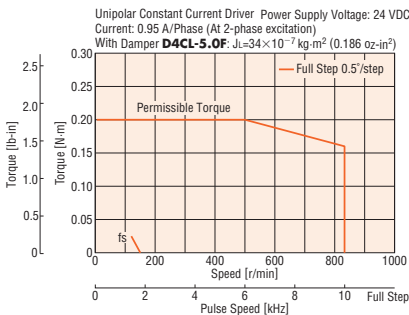
● A 0.6 m (2 ft.) motor connection cable is included with these products.

### Note

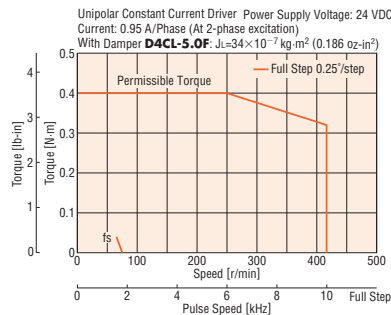
● The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 3.6, 7.2, 9 and 10. It is the opposite for the 18 and 36 gear ratios.

## Speed – Torque Characteristics fs: Max. starting frequency

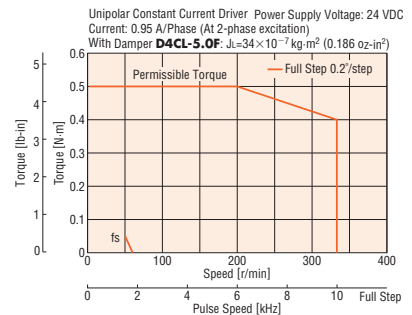
### PKP243U09A-SG3.6-L PKP243U09B-SG3.6-L



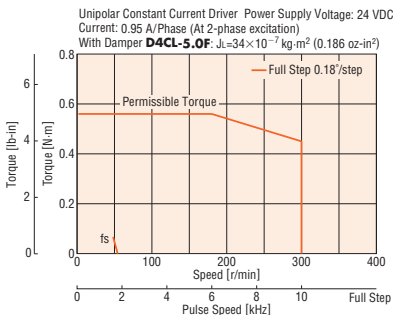
### PKP243U09A-SG7.2-L PKP243U09B-SG7.2-L



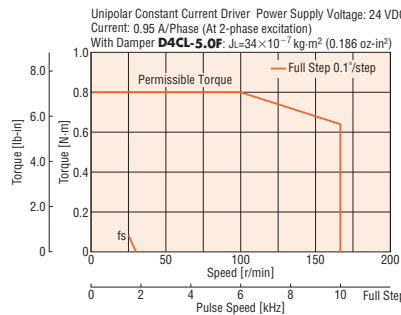
### PKP243U09A-SG9-L PKP243U09B-SG9-L



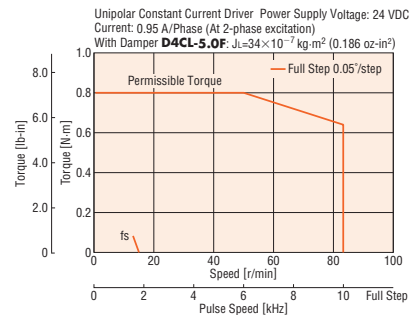
### PKP243U09A-SG10-L PKP243U09B-SG10-L



### PKP243U09A-SG18-L PKP243U09B-SG18-L



### PKP243U09A-SG36-L PKP243U09B-SG36-L



### Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions Unit = mm (in.)

Refer to Page 23.

Product Name	Motor Product Name	Gear Ratio	Mass kg (lb.)	CAD
PKP243U09A-SG□-L PKP243U09B-SG□-L	PKP243U09A-SG□ PKP243U09B-SG□	<b>3.6, 7.2, 9, 10, 18, 36</b>	0.35 (0.77)	B986

● Enter the gear ratio in the box □ within the product name.

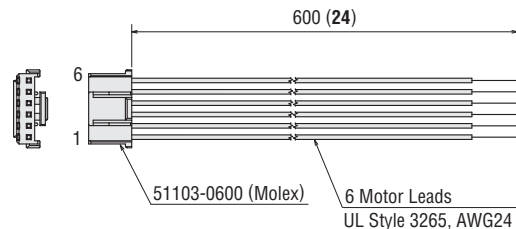
### ● Applicable Connector

Connector Housing: 51103-0600 (Molex)  
Contact: 50351-8100 (Molex)  
Crimp Tool: 63811-8100 (Molex)

### ● Connection Cables (Included)

#### ◇ Cable for Motor

- Unipolar 6 Lead Wires  
LC2U06B



# SH Geared Type Frame Size 60 mm (2.36 in.) Unipolar 6 Lead Wires

## Specifications RoHS

Product Name -Single Shaft -Double Shaft	Holding Torque N·m (lb·in)	Rated Current A/phase	Voltage VDC	Resistance $\Omega$ /phase	Inductance mH/phase	Rotor Inertia J kg·m <sup>2</sup> (oz·in <sup>2</sup> )	Gear Ratio	Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min	Lead Wires	Speed-Torque No.
<b>PKP264U10A-SG3.6-L</b>	1 (8.8)	1	5.87	5.87	7.2	$120 \times 10^{-7}$ (0.66)	3.6	0.5°	70 (1.17°)	0~833	6	①
<b>PKP264U10B-SG3.6-L</b>		2	2.9	1.45	1.8							②
<b>PKP264U20A-SG3.6-L</b>	2 (17.7)	1	5.87	5.87	7.2		7.2	0.25°	45 (0.75°)	0~416		③
<b>PKP264U20B-SG3.6-L</b>		2	2.9	1.45	1.8							④
<b>PKP264U10A-SG7.2-L</b>	2.5 (22)	1	5.87	5.87	7.2		9	0.2°	45 (0.75°)	0~333		⑤
<b>PKP264U10B-SG7.2-L</b>		2	2.9	1.45	1.8							⑥
<b>PKP264U20A-SG7.2-L</b>	2.7 (23)	1	5.87	5.87	7.2		10	0.18°	45 (0.75°)	0~300		⑦
<b>PKP264U20B-SG7.2-L</b>		2	2.9	1.45	1.8							⑧
<b>PKP264U10A-SG9-L</b>	3 (26)	1	5.87	5.87	7.2		18	0.1°	45 (0.75°)	0~166		⑨
<b>PKP264U10B-SG9-L</b>		2	2.9	1.45	1.8							⑩
<b>PKP264U20A-SG9-L</b>	4 (35)	1	5.87	5.87	7.2		36	0.05°	45 (0.75°)	0~83		⑪
<b>PKP264U20B-SG9-L</b>		2	2.9	1.45	1.8							⑫

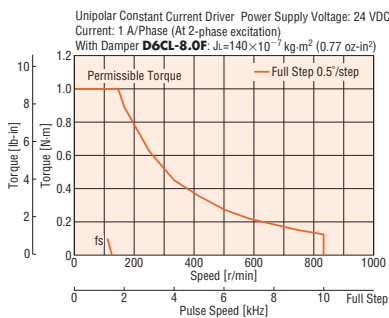
● A 0.6 m (2 ft.) motor connection cable is included with these products.

### Note

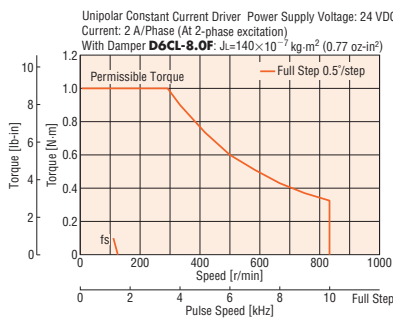
● The rotation direction of the motor and that of the gear output shaft are the same for the gear ratios 3.6, 7.2, 9 and 10. It is the opposite for the 18 and 36 gear ratios.

## Speed – Torque Characteristics fs: Max. starting frequency

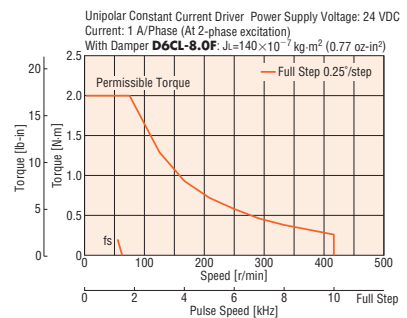
① **PKP264U10A-SG3.6-L**  
**PKP264U10B-SG3.6-L**



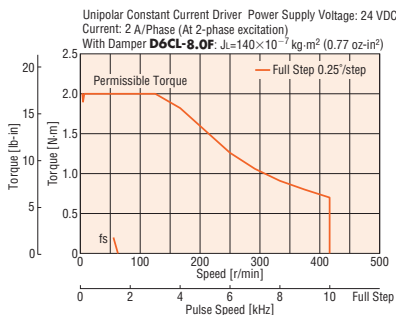
② **PKP264U20A-SG3.6-L**  
**PKP264U20B-SG3.6-L**



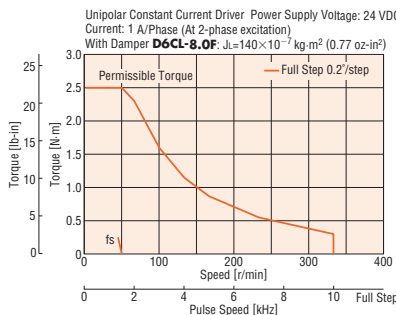
③ **PKP264U10A-SG7.2-L**  
**PKP264U10B-SG7.2-L**



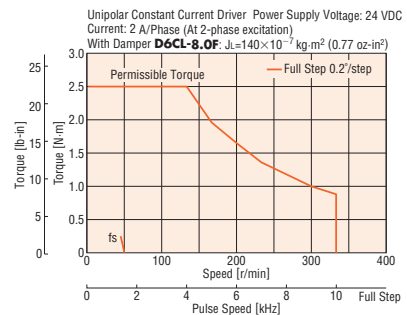
④ **PKP264U20A-SG7.2-L**  
**PKP264U20B-SG7.2-L**



⑤ **PKP264U10A-SG9-L**  
**PKP264U10B-SG9-L**



⑥ **PKP264U20A-SG9-L**  
**PKP264U20B-SG9-L**

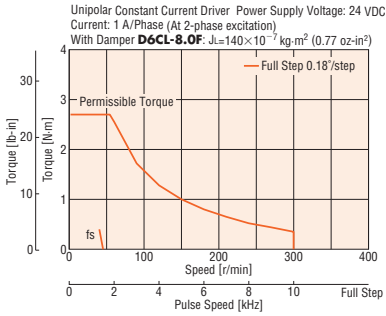


### Note

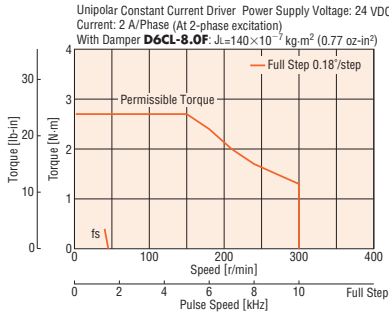
● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Speed – Torque Characteristics fs: Max. starting frequency

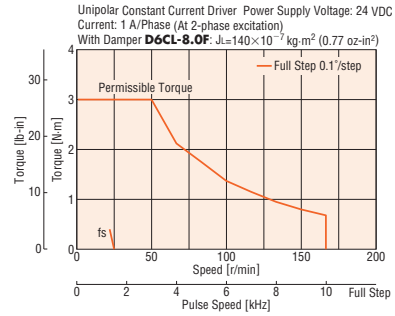
**7** PKP264U10A-SG10-L  
PKP264U10B-SG10-L



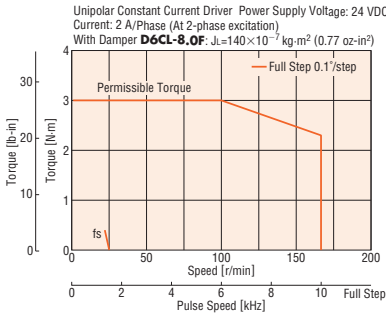
**8** PKP264U20A-SG10-L  
PKP264U20B-SG10-L



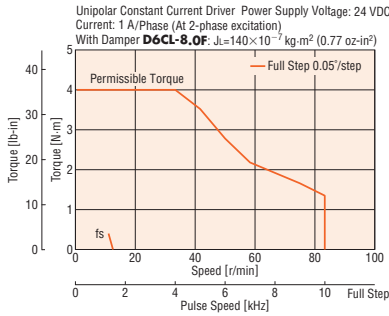
**9** PKP264U10A-SG18-L  
PKP264U10B-SG18-L



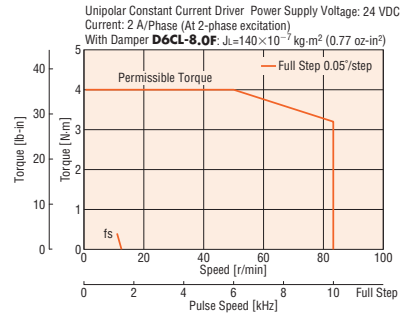
**10** PKP264U20A-SG18-L  
PKP264U20B-SG18-L



**11** PKP264U10A-SG36-L  
PKP264U10B-SG36-L



**12** PKP264U20A-SG36-L  
PKP264U20B-SG36-L



### Note

Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the temperature of the motor case under 100°C (212°F).

## Dimensions

Refer to Page 25.

Product Name	Motor Product Name	Gear Ratio	Mass kg (lb.)	CAD
PKP264U10A-SG□-L	PKP264U10A-SG□	<b>3.6, 7.2, 9, 10, 18, 36</b>	0.76 (1.67)	B987
PKP264U10B-SG□-L	PKP264U10B-SG□			
PKP264U20A-SG□-L	PKP264U20A-SG□			
PKP264U20B-SG□-L	PKP264U20B-SG□			

Enter the gear ratio in the box □ within the product name.

Applicable Connector

Connector Housing: 51067-0600 (Molex)

Contact: 50217-9101 (Molex)

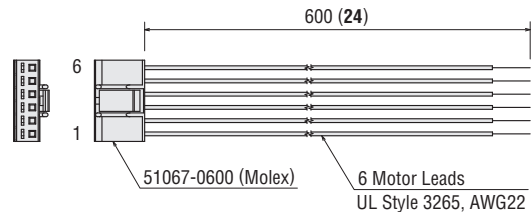
Crimp Tool: 63811-8300 (Molex)

### Connection Cables (Included)

#### ◇ Cable for Motor

- Unipolar 6 Lead Wires

LC2U06C



## Encoder Specifications

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

Item	Encoder Code	Specification
		<b>R15</b>
Type		Incremental
Resolution		200 P/R
Output		2-Channel A, B
Input Current		21 mA (Typ.)
Input Voltage		5 VDC ± 10%
Output Type		TTL
Output Voltage	Low	0.4 VDC, 6 mA
	High	2.4 VDC, -1 mA
Response Frequency		60 kHz (Max.)

### Motor Frame Size: 35 mm (1.38 in.), 42 mm (1.65 in.), 56.4 mm (2.22 in.)

Item	Encoder Code	Specification			
		<b>R15</b>	<b>R16</b>	<b>R25</b>	<b>R26</b>
Type		Incremental			
Resolution		200 P/R	400 P/R	200 P/R	400 P/R
Output		2-Channel A, B		3-Channel A, B, Index	
Input Current		27 mA (Typ.)			
Input Voltage		5 VDC ± 10%			
Output Type		TTL			
Output Voltage (TTL)	Low	0.5 VDC, 8 mA			
	High	2.0 VDC, -8 mA			
Response Frequency		300 kHz (Max.)			

## Encoder Pin-Outs

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

Motor Pin No.	Lead Wire Color of Connection Cable for Encoder	Encoder Code
		<b>R15</b>
1	Red	+5 VDC Power
2	Blue	A Channel
3	Black	GND
4	Yellow	B Channel

### Motor Frame Size: 35 mm (1.38 in.), 42 mm (1.65 in.), 56.4 mm (2.22 in.)

Motor Pin No.	Lead Wire Color of Connection Cable for Encoder	Encoder Code	
		<b>R15, R16</b>	<b>R25, R26</b>
1	Brown	GND	
2	Purple	-	Index Channel
3	Blue	A Channel	
4	Orange	+5 VDC Power	
5	Yellow	B Channel	

## General Specifications

Item		Specification
Heat-Resistant Class		130 (B)
Insulation Resistance		100 MΩ or more when 500 VDC megger is applied between the windings and the case under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 1.0 kVAC at 60Hz applied between the windings and the case for 1 minute, under normal ambient temperature and humidity. (0.5 kV for models with a frame size of 42 mm (1.65 in.))
Operating Environment (In operation)	Ambient Temperature	-10~+50°C (+14~+122°F) (non-freezing)
	Ambient Humidity	85% max. (non-condensing)
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.
Temperature Rise		• Bipolar and Unipolar, <b>PKP21</b> □, <b>PKP22</b> □, <b>PKP23</b> □, <b>PKP243</b> , <b>PKP244</b> , <b>PKP245</b> , <b>PKP246</b> , <b>PKP26</b> □ and <b>SH</b> geared type: Temperature rise of the windings is 80°C (176°F) or less (measured by the resistance change method) at the rated voltage, at standstill, and 2-phases excited. The following motors are measured with a radiation plate (material aluminum). <b>PKP22</b> □ and <b>PKP23</b> □: 115×115×5 mm (4.53×4.53×0.20 in.) <b>PKP244</b> and <b>PKP246</b> : 175×175×5 mm (6.89×6.89×0.20 in.) <b>PKP26</b> □: 250×250×10mm (9.84×9.84×0.39 in.)
Stop Position Accuracy*1		±3 arc minutes (±0.05°) [ <b>PKP21</b> □: ±5 arc minutes (±0.083°)]
Shaft Runout		0.05 mm (0.002 in.) T.I.R.*4
Radial Play*2		0.025 mm (0.001 in.) maximum (load 5 N (1.12 lb.))
Axial Play*3		0.075 mm (0.003 in.) maximum (load 10 N (2.2 lb.))
Concentricity of Installing Pilot to the Shaft		0.075 mm (0.003 in.) T.I.R.*4
Perpendicularity of Installation Surface to the Shaft		0.075 mm (0.003 in.) T.I.R.*4

\*1 This value is for full step under no load. (The value changes with the size of the load.)

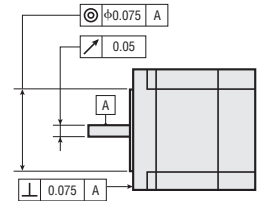
\*2 Radial Play: Displacement in shaft position in the radial direction when a 5 N (1.12 lb.) load is applied in the vertical direction to the tip of the motor shaft.

\*3 Axial Play: Displacement in shaft position in the axial direction when a 10 N (2.2 lb.) load is applied to the motor shaft in the axial direction.

\*4 T. I. R. (Total Indicator Reading): The total dial gauge reading when the measurement section is rotated one revolution centered on the reference axis center.

### Note

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



## Permissible Overhung Load and Permissible Thrust Load

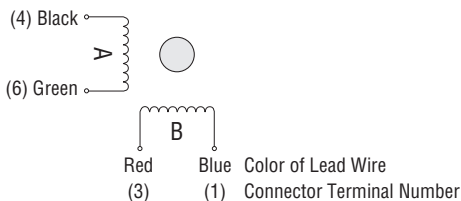
Unit = N (lb.)

Type	Motor Frame Size	Applicable Product	Gear Ratio	Permissible Overhung Load					Permissible Thrust Load
				Distance from Shaft End mm [in.]					
				0 [0]	5 [0.2]	10 [0.39]	15 [0.59]	20 [0.79]	
Standard Type	20 mm (0.79 in.)	<b>PKP213, PKP214</b>	-	12 (2.7)	15 (3.3)	-	-	-	Motor Mass or Less
	28 mm (1.10 in.)	<b>PKP223, PKP224, PKP225</b>		25 (5.6)	34 (7.6)	52 (11.7)	-	-	
	35 mm (1.38 in.)	<b>PKP233, PKP235</b>		20 (4.5)	25 (5.6)	34 (7.6)	52 (11.7)	-	
	42 mm (1.65 in.)	<b>PKP243, PKP244, PKP245, PKP246</b>		20 (4.5)	25 (5.6)	34 (7.6)	52 (11.7)	-	
	56.4 mm (2.22 in.)	<b>PKP264, PKP266, PKP268</b>		61 (13.7)	73 (16.4)	90 (20.2)	110 (24.7)	160 (36)	
SH Geared Type	28 mm (1.10 in.)	<b>PKP223</b>	<b>7.2, 9, 10, 18, 36</b>	15 (3.3)	17 (3.8)	20 (4.5)	23 (5.1)	-	10 (2.2)
	42 mm (1.65 in.)	<b>PKP243</b>	<b>3.6, 7.2, 9, 10, 18, 36</b>	10 (2.2)	15 (3.3)	20 (4.5)	30 (6.7)	-	15 (3.3)
	60 mm (2.36 in.)	<b>PKP264</b>	<b>3.6, 7.2, 9, 10</b>	30 (6.7)	40 (9)	50 (11.2)	60 (13.5)	70 (15.7)	30 (6.7)
			<b>18, 36</b>	80 (18)	100 (22)	120 (27)	140 (31)	160 (36)	

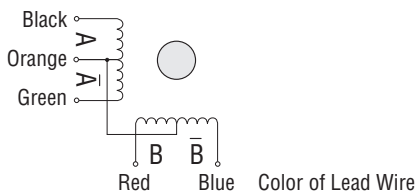
● The applicable motor products are listed such that the motor can be determined.

## Inner Wiring Diagram for Motor

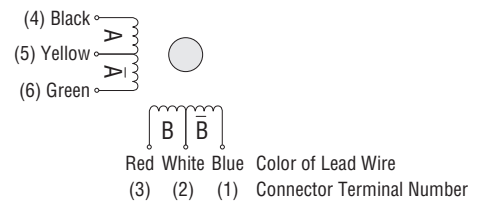
### ● Bipolar 4 Lead Wires



### ● Unipolar 5 Lead Wires



### ● Unipolar 6 Lead Wires





# Accessories

## Flexible Coupling RoHS



### Coupling Selection Table

#### Round Shaft Type

Applicable Product				Coupling Type	Motor Shaft Diameter mm (in.)	Driven Shaft Diameter mm (in.)											
Type	Motor Frame Size	Applicable Motor	Gear Ratio			<b>04</b>	<b>05</b>	<b>06</b>	<b>F04</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>18</b>	<b>20</b>
						φ4 (φ0.1575)	φ5 (φ0.1969)	φ6 (φ0.2362)	φ6.35 (φ0.2500)	φ8 (φ0.3150)	φ10 (φ0.3937)	φ12 (φ0.4724)	φ14 (φ0.5512)	φ15 (φ0.5906)	φ16 (φ0.6299)	φ18 (φ0.7087)	φ20 (φ0.7874)
High-Torque Type	20 mm (0.79 in.)	<b>PKP213</b> <b>PKP214</b>	–	<b>MCS14</b>	<b>04</b>	φ4 (φ0.1575)	●	●	●								
	28 mm (1.10 in.)	<b>PKP223</b> <b>PKP224</b> <b>PKP225</b>	–	<b>MCS14</b>	<b>05</b>	φ5 (φ0.1969)	●	●	●								
	35 mm (1.38 in.)	<b>PKP233</b> <b>PKP235</b>	–	<b>MCS14</b>	<b>05</b>	φ5 (φ0.1969)	●	●	●								
	42 mm (1.65 in.)	<b>PKP243</b> <b>PKP244</b>	–	<b>MCS14</b>	<b>05</b>	φ5 (φ0.1969)	●	●	●								
				<b>MCS20</b>	<b>05</b>	φ5 (φ0.1969)		●	●	●	●	●					
56.4 mm (2.22 in.)	<b>PKP264</b> <b>PKP266</b> <b>PKP268</b>	–	<b>MCS20</b>	<b>F04</b>	φ6.35 (φ0.2500)		●	●	●	●	●						
			<b>MCS30</b>	<b>F04</b>	φ6.35 (φ0.2500)		●	●	●	●	●						

- The applicable motor products are listed such that the coupling can be determined.
- These couplings can also be used with a motor with an encoder.

#### SH Geared Type

Applicable Product			Coupling Type	Motor Shaft Diameter mm (in.)	Driven Shaft Diameter mm (in.)											
Frame Size	Applicable Motor	Gear Ratio			<b>04</b>	<b>05</b>	<b>06</b>	<b>F04</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>18</b>	<b>20</b>
					φ4 (φ0.1575)	φ5 (φ0.1969)	φ6 (φ0.2362)	φ6.35 (φ0.2500)	φ8 (φ0.3150)	φ10 (φ0.3937)	φ12 (φ0.4724)	φ14 (φ0.5512)	φ15 (φ0.5906)	φ16 (φ0.6299)	φ18 (φ0.7087)	φ20 (φ0.7874)
28 mm (1.10 in.)	<b>PKP223-SG</b>	<b>7.2, 9, 10, 18, 36</b>	<b>MCS14</b>	<b>05</b>	φ5 (φ0.1969)	●	●	●								
42 mm (1.65 in.)	<b>PKP243-SG</b>	<b>3.6, 7.2, 9, 10, 18, 36</b>	<b>MCS14</b>	<b>05</b>	φ5 (φ0.1969)	●	●	●								
			<b>MCS20</b>	<b>05</b>	φ5 (φ0.1969)		●	●	●	●	●					
60 mm (2.36 in.)	<b>PKP264-SG</b>	<b>3.6, 7.2, 9, 10, 18, 36</b>	<b>MCS30</b>	<b>08</b>	φ8 (φ0.3150)		●	●	●	●	●	●	●			
			<b>MCS40</b>	<b>08</b>	φ8 (φ0.3150)				●	●	●	●	●	●	●	●

- The applicable motor products are listed such that the coupling can be determined.

# Motor Mounting Brackets RoHS

## Product Line

### Standard Type

Material: Aluminum alloy

Frame Size	Applicable Product		Product Name
	Applicable Motor		
42 mm (1.65 in.)	<b>PKP243, PKP244</b>		<b>PAFOP</b>
	<b>PKP245, PKP246</b>		
56.4 mm (2.22 in.)	<b>PKP264, PKP266, PKP268</b>		<b>PAL2P-2</b>

- The applicable motor products are listed such that the bracket can be determined.
- The mounting bracket base is built with holes large enough to allow for adjustments of belt tension after a motor is installed.
- These mounting brackets can fit to the pilot of the stepper motors. (Excluding **PALOP**)



### SH Geared Type

Material: Aluminum alloy

Frame Size	Applicable Product		Product Name
	Applicable Motor		
42 mm (1.65 in.)	<b>PKP243-SG</b>		<b>SOLOA-A</b>
	<b>PKP264-SG</b>		
60 mm (2.36 in.)	<b>PKP264-SG</b>		<b>SOL2A-A</b>

- The applicable motor products are listed such that the bracket can be determined.
- When installing **SOL2A-A**, use the included screws.  
Since mounting screws are not included with **SOLOA-A**, prepare appropriate screws separately.

# Clean Damper RoHS

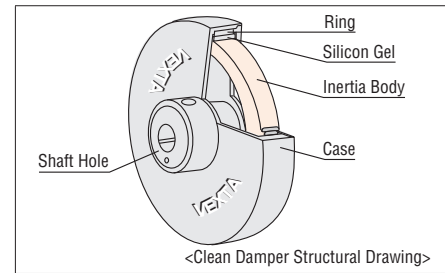
Mechanical dampers suppress stepper motor vibration and improve high-speed performance. An inertia body and silicon gel are hermetically sealed in a plastic case.

## Product Line

Frame Size	Applicable Product	Product Name	
28 mm (1.10 in.)	<b>PKP223, PKP224</b>	<b>D4CL-5.0F</b>	
	<b>PKP225, PKP223-SG</b>		
35 mm (1.38 in.)	<b>PKP233, PKP235</b>		
42 mm (1.65 in.)	<b>PKP243, PKP244</b>		
	<b>PKP245, PKP246</b>		
	<b>PKP243-SG</b>		
56.4/60 mm (2.22/2.36 in.)	<b>PKP264, PKP266, PKP268</b>		<b>D6CL-6.3F</b>
	<b>PKP264-SG</b>		<b>D6CL-8.0F</b>

Operating Temperature Range:  $-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$  ( $-4^{\circ}\text{F} \sim +176^{\circ}\text{F}$ )

- The applicable motor products are listed such that the damper can be determined.



# Connection Cable RoHS

## Product Line (Connection Cables)

Applicable Product	Product Name	Length m (ft.)	Conductor AWG
<b>PKP223D*</b> , <b>PKP224D</b> , <b>PKP225D</b>	<b>LC2B06A</b>	0.6 (2)	24
<b>PKP233D</b> , <b>PKP235D</b> , <b>PKP243D*</b> , <b>PKP244D</b> , <b>PKP245D</b> , <b>PKP246D</b>	<b>LC2B06B</b>	0.6 (2)	
<b>PKP264D*</b> , <b>PKP266D</b> , <b>PKP268D</b>	<b>LC2B06C</b>	0.6 (2)	22
<b>PKP223U*</b> , <b>PKP224U</b> , <b>PKP225U</b>	<b>LC2U06A</b>	0.6 (2)	24
	<b>LC2U10A</b>	1 (3.3)	
<b>PKP233U</b> , <b>PKP235U</b> , <b>PKP243U*</b> , <b>PKP244U</b> , <b>PKP245U</b> , <b>PKP246U</b>	<b>LC2U06B</b>	0.6 (2)	24
	<b>LC2U10B</b>	1 (3.3)	
<b>PKP264U*</b> , <b>PKP266U</b> , <b>PKP268U</b>	<b>LC2U06C</b>	0.6 (2)	22
	<b>LC2U10C</b>	1 (3.3)	

- The applicable motor products are listed such that the connection cable can be determined.
- (-L) type motors include a 0.6 m (2 ft.) motor connection cable and encoder cable (if applicable).
- \*SH geared type included.

## Product Line (Encoder Cables)

Applicable Product	Product Name	Length m (ft.)	AWG
<b>PKP23□/PKP24□/PKP26□</b> with TTL Type, 3-channel Encoder	<b>LCR05060A</b>	0.6 (2)	24
<b>PKP22□</b>	<b>LCR04060B</b>		
<b>PKP23□/PKP24□/PKP26□</b> with TTL Type, 2-channel Encoder	<b>LCR04060A</b>		



# Driver Options RoHS

## Bipolar (20~75 VDC)



RBD215A-K  
RBD242A-K

## Unipolar (24 VDC)



CMD2109P  
CMD2112P  
CMD2120P

- Pins and connector are included with the driver.

## Connection Cable Set RoHS



As an accessory for DC input drivers, lead wires with a connector are available. These lead wires allow for easy connection of the motor, power supply and input/output signals without crimping. The connection cable set includes three connection cables (for motor, power supply and input/output signals).

### Product Line

Product Name	Applicable Driver	Length m (ft.)	AWG
<b>LCS01CMK2</b>	CMD2109P CMD2112P CMD2120P	0.6 (2)	22

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