

# SH Geared Type

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

### PK Series



20 mm  
(0.79 in.)

28 mm  
(1.10 in.)

35 mm  
(1.38 in.)

42 mm  
(1.65 in.)

50 mm  
(1.97 in.)

56.4 mm  
(2.22 in.)

60 mm  
(2.36 in.)

85 mm  
(3.35 in.)

90 mm  
(3.54 in.)

## Specifications (RoHS)

### Motor Specifications

Model	Connection Type	Rated Current	Voltage	Resistance	Inductance	Rotor Inertia J		Lead Wires (Pins)	Corresponding DC-Input Motor & Driver Package
		A/phase	VDC	Ω/phase	mH/phase	kg·m <sup>2</sup>	oz·in <sup>2</sup>		
PK223PA-SG□ PK223PB-SG□ PK223PAR15S□	Bipolar (Series)	0.67	3.8	5.6	4	9×10 <sup>-7</sup>	0.049	6	CMK223□P-SG□/ CMK223PR15S□
	Unipolar	0.95	2.66	2.8	1				

- Wirings and connections → Page A-288
- Encoder specifications → Page A-17
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.
- Enter the gear ratio in the box (■) within the model name.
- Product Number Code → Page A-278
- Backlash value is approximately 1 to 2°.

#### Note

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

### Gearmotor Specifications

Model	Gear Ratio	Holding Torque*		Step Angle	Permissible Speed r/min
		N·m	oz·in		
PK223P□-SG7.2 PK223PAR15S7.2	7.2	0.3	42	0.25°	250
PK223P□-SG9 PK223PAR15S9	9	0.3	42	0.2°	200
PK223P□-SG10 PK223PAR15S10	10	0.3	42	0.18°	180
PK223P□-SG18 PK223PAR15S18	18	0.4	56	0.1°	100
PK223P□-SG36 PK223PAR15S36	36	0.4	56	0.05°	50

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

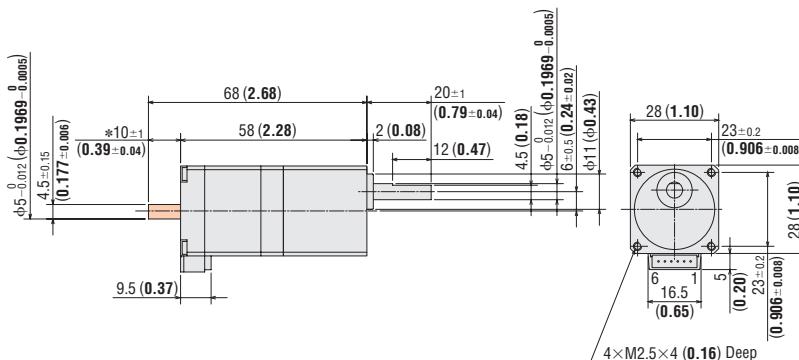
\* Holding torque is the same regardless of the connection type due to the permissible torque limit of the gearhead.

## Dimensions Unit = mm (in.)

The dimension of a motor with an encoder can be found on page A-19 or at [www.orientalmotor.com](http://www.orientalmotor.com).

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

- Enter the gear ratio in the box (□) within the model name.
- Lead wire and connector are not supplied with the connector-coupled motor and must be purchased separately.
- Connection cable is available as an accessory (sold separately).
- Screws (Included)  
M2.5 Length 8 mm (0.31 in.)...4 pieces
- Applicable Connector  
Connector housing: 51065-0600 (MOLEX)  
Contact: 50212-8100 (MOLEX)  
Crimp tool: 57176-5000 (MOLEX)



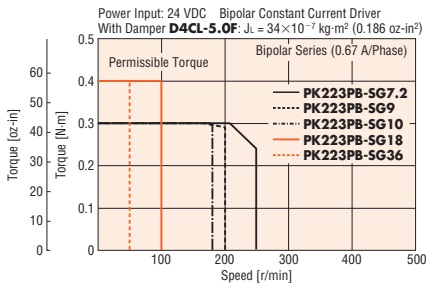
\* The length of machining on the double shaft model is 10±0.25 (0.394±0.010).

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

## Speed – Torque Characteristics

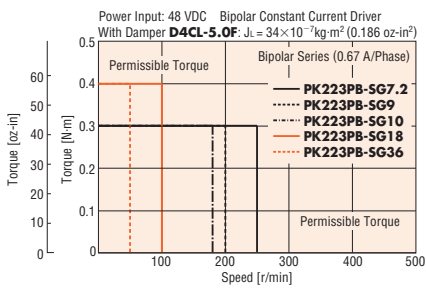
### PK223P□-SG■/PK223PAR15S■

Bipolar (Series) 24 VDC



### PK223P□-SG■/PK223PAR15S■

Bipolar (Series) 48 VDC



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

#### Note

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

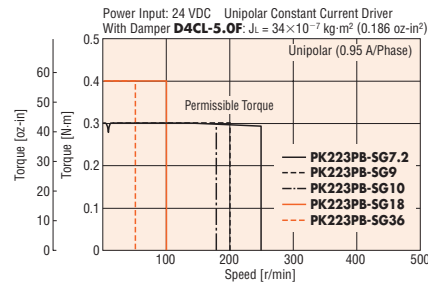
## Accessories (Sold separately)

The connection cable is available as an accessory.

- Connection cable → Page A-409

### PK223P□-SG■/PK223PAR15S■

Unipolar



Introduction	
AR	0.36° / Geared
AS	AC Input Motor & Driver
RK	0.72° / Geared
UMK	0.9°/1.8°
AR	0.36° / Geared
ASX	DC Input Motor & Driver
CRK	0.36°/0.72° / Geared
CMK	0.9°/1.8° / Geared
RBK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
SCX10 / EMP400 / SG8030J	Controllers
	Accessories

# SH Geared Type

## Motor Frame Size 42 mm (1.65 in.)

### PK Series



## Specifications (RoHS)

### Motor Specifications

Model • Single Shaft • Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J		Lead Wires	Corresponding DC-Input Motor & Driver Package  CMK Series
						kg-m <sup>2</sup>	oz-in <sup>2</sup>		
PK243A1A-SG PK243B1A-SG PK243A1AR-S	Bipolar (Series)	0.67	5.6	8.4	10	35×10 <sup>-7</sup>	0.191	6	CMK243□PA-SG/ CMK243PAR□S
	Unipolar	0.95	4.0	4.2	2.5				
PK243A2A-SG PK243B2A-SG	Bipolar (Series)	0.28	13	48	60	35×10 <sup>-7</sup>	0.191	6	-
	Unipolar	0.4	9.6	24	15				

- Wiring and connections → Page A-288
- Encoder specifications → Page A-17
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the gear ratio in the box (■) within the model name.  
Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.  
Product Number Code → Page A-278
- Backlash value is approximately 1 to 2°.

#### Note

- Direction of rotation 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 opposite for 18 and 36 gear ratios.

### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with Encoder	Gear Ratio	Holding Torque*		Step Angle	Permissible Speed r/min
		N-m	lb-in		
PK243□1A-SG3.6, PK243□2A-SG3.6 PK243A1AR□S3.6	3.6	0.2	1.77	0.5°	500
PK243□1A-SG7.2, PK243□2A-SG7.2 PK243A1AR□S7.2	7.2	0.4	3.5	0.25°	250
PK243□1A-SG9, PK243□2A-SG9 PK243A1AR□S9	9	0.5	4.4	0.2°	200
PK243□1A-SG10, PK243□2A-SG10 PK243A1AR□S10	10	0.56	4.9	0.18°	180
PK243□1A-SG18, PK243□2A-SG18 PK243A1AR□S18	18	0.8	7.0	0.1°	100
PK243□1A-SG36, PK243□2A-SG36 PK243A1AR□S36	36	0.8	7.0	0.05°	50

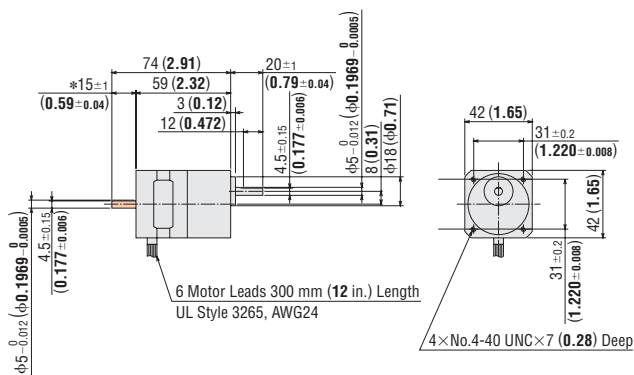
- Enter **A** (Single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.
- \*Holding torque is the same regardless of the connection type due to the permissible torque limit of the gearhead.

## Dimensions Unit = mm (in.)

The dimension of a motor with an encoder can be found on page A-19 or at [www.orientalmotor.com](http://www.orientalmotor.com).

Model	Mass kg (lb.)	DXF
PK243A□A-SG	0.35 (0.77)	B091U
PK243B□A-SG		

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



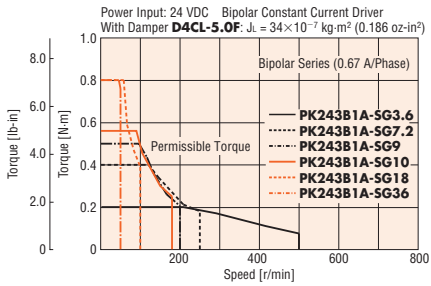
\* The length of machining on the double shaft model is 15±0.25 (0.591±0.010).

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

## Speed – Torque Characteristics

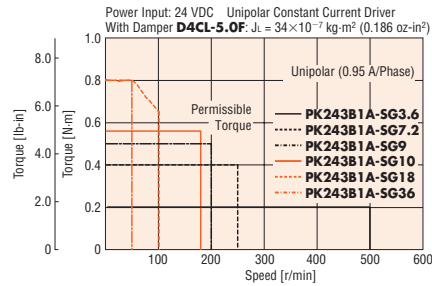
### PK243 1A-SG /PK243A1AR S

#### Bipolar (Series) 24 VDC



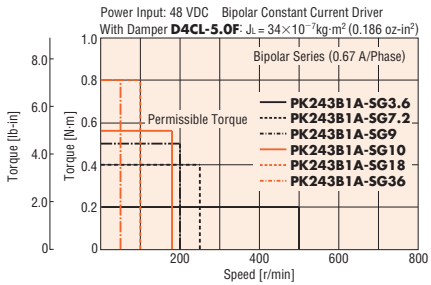
### PK243 1A-SG /PK243A1AR S

#### Unipolar



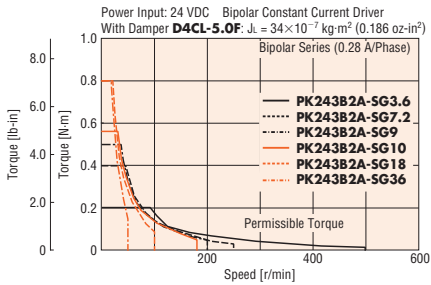
### PK243 1A-SG /PK243A1AR S

#### Bipolar (Series) 48 VDC



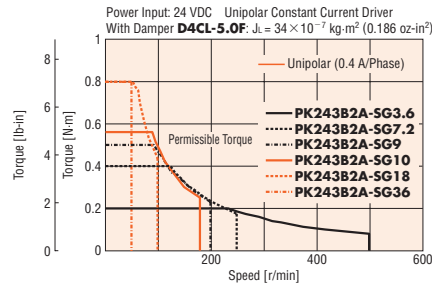
### PK243 2A-SG

#### Bipolar (Series) 24 VDC



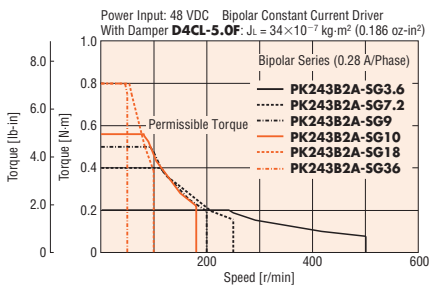
### PK243 2A-SG

#### Unipolar



### PK243 2A-SG

#### Bipolar (Series) 48 VDC



- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.
- Enter the gear ratio in the box (■) within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (▣) within the model name.

#### Note

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

Introduction	
AR	AC Input Motor & Driver
AR	0.36° / Geared
AS	0.72° / Geared
RK	0.9° / 1.8° / Geared
UMK	0.9° / 1.8° / Geared
AR	0.36° / Geared
ASX	0.36° / Geared
CRK	0.36° / 0.72° / Geared
CMK	0.9° / 1.8° / Geared
RBK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
SCX10 / EMP400 / SG80301	Controllers
	Accessories

# SH Geared Type

## Motor Frame Size 60 mm (2.36 in.)

### PK Series



20 mm (0.79 in.)

28 mm (1.10 in.)

35 mm (1.38 in.)

42 mm (1.65 in.)

50 mm (1.97 in.)

56.4 mm (2.22 in.)

60 mm (2.36 in.)

85 mm (3.35 in.)

90 mm (3.54 in.)

## Specifications (RoHS)

### Motor Specifications

Model	Connection Type	Rated Current	Voltage	Resistance	Inductance	Rotor Inertia J		Lead Wires (Pins)	Corresponding DC-Input Motor & Driver Package
		A/phase	VDC	Ω/phase	mH/phase	kg·m <sup>2</sup>	oz·in <sup>2</sup>		
PK264A1A-SG <input type="checkbox"/> PK264B1A-SG <input type="checkbox"/>	Bipolar (Series)	0.71	8.1	11.4	21.6	120×10 <sup>-7</sup>	0.66	6	-
	Unipolar	1	5.7	5.7	5.4				
PK264A2A-SG <input type="checkbox"/> PK264B2A-SG <input type="checkbox"/> PK264A2AR <input type="checkbox"/> S <input type="checkbox"/>	Bipolar (Series)	1.4	3.9	2.8	5.6	120×10 <sup>-7</sup>	0.66	6	CMK264 <input type="checkbox"/> PA-SG <input type="checkbox"/> / CMK264PAR <input type="checkbox"/> S <input type="checkbox"/>
	Unipolar	2	2.8	1.4	1.4				

- Wirings and connections → Page A-288  
Encoder specifications → Page A-17
- Enter **A** (single shaft) or **B** (double shaft) in the box (  ) within the model name.  
Enter the gear ratio in the box (  ) within the model name.  
Enter the encoder code (**15**, **16**, **25** or **26**) in the box (  ) within the model name.  
Product Number Code → Page A-278
- Backlash value is approximately 1 to 2°.

#### Note

- Direction of rotation 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 opposite for 18 and 36 gear ratios.

### Gearmotor Specifications

Model	Gear Ratio	Holding Torque*		Step Angle	Permissible Speed r/min
		N·m	lb·in		
PK264 <input type="checkbox"/> 1A-SG3.6, PK264 <input type="checkbox"/> 2A-SG3.6 PK264A2AR <input type="checkbox"/> S3.6	3.6	1	8.8	0.5°	500
PK264 <input type="checkbox"/> 1A-SG7.2, PK264 <input type="checkbox"/> 2A-SG7.2 PK264A2AR <input type="checkbox"/> S7.2	7.2	2	17.7	0.25°	250
PK264 <input type="checkbox"/> 1A-SG9, PK264 <input type="checkbox"/> 2A-SG9 PK264A2AR <input type="checkbox"/> S9	9	2.5	22	0.2°	200
PK264 <input type="checkbox"/> 1A-SG10, PK264 <input type="checkbox"/> 2A-SG10 PK264A2AR <input type="checkbox"/> S10	10	2.7	23	0.18°	180
PK264 <input type="checkbox"/> 1A-SG18, PK264 <input type="checkbox"/> 2A-SG18 PK264A2AR <input type="checkbox"/> S18	18	3	26	0.1°	100
PK264 <input type="checkbox"/> 1A-SG36, PK264 <input type="checkbox"/> 2A-SG36 PK264A2AR <input type="checkbox"/> S36	36	4	35	0.05°	50

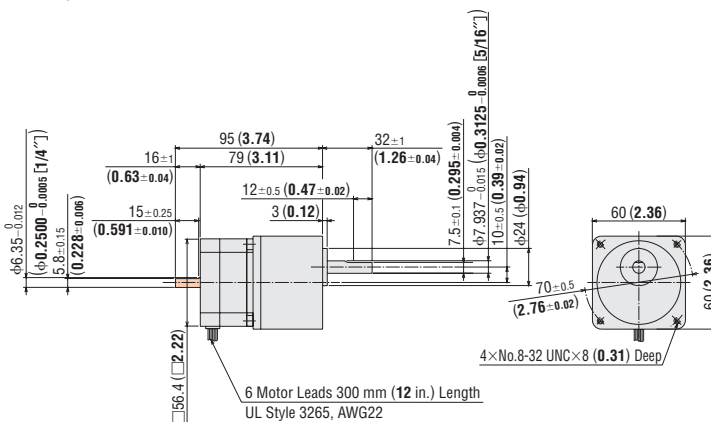
- Enter **A** (Single shaft) or **B** (double shaft) in the box (  ) within the model name.  
Enter the encoder code (**15**, **16**, **25** or **26**) in the box (  ) within the model name.
- \*Holding torque is the same regardless of the connection type due to the permissible torque limit of the gearhead.

## Dimensions Unit = mm (in.)

The dimension of a motor with an encoder can be found on page A-19 or at [www.orientalmotor.com](http://www.orientalmotor.com).

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

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

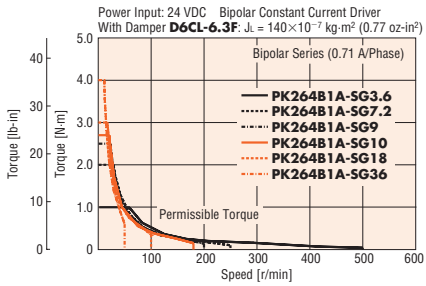


- These dimensions are for the double shaft models. For the single shaft models, ignore the orange (  ) area.

## Speed – Torque Characteristics

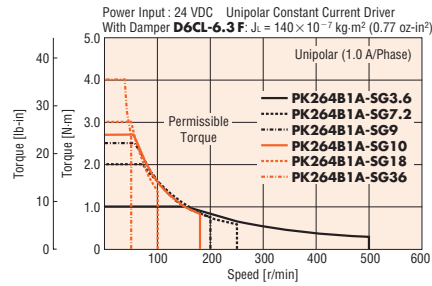
### PK264 1A-SG

Bipolar (Series) 24 VDC



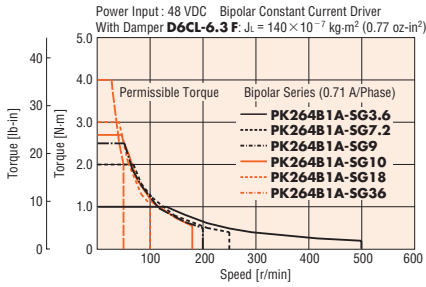
### PK264 1A-SG

Unipolar



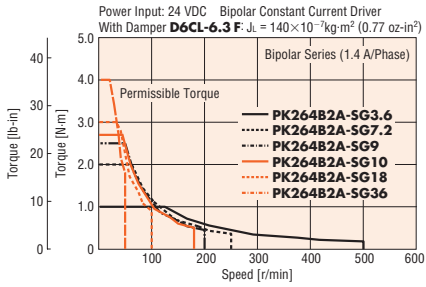
### PK264 1A-SG

Bipolar (Series) 48 VDC



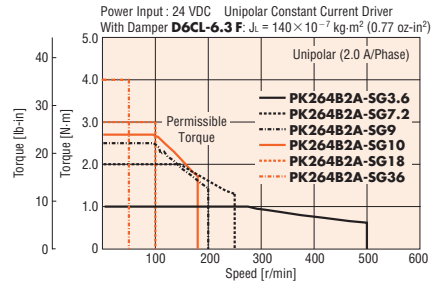
### PK264 2A-SG / PK264A2AR S

Bipolar (Series) 24 VDC



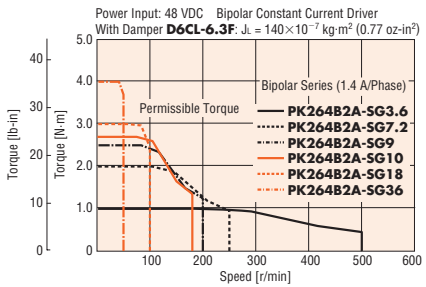
### PK264 2A-SG / PK264A2AR S

Unipolar



### PK264 2A-SG / PK264A2AR S

Bipolar (Series) 48 VDC



- Enter **A** (single shaft) or **B** (double shaft) in the box () within the model name.
- Enter the gear ratio in the box () within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the model name.

#### Note

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

Introduction	
AR	0.36° / Geared
AS	AC Input Motor & Driver
RK	0.72° / Geared
UMK	0.9°/1.8°
AR	0.36° / Geared
ASX	0.36° / Geared
CRK	DC Input Motor & Driver
CMK	0.36°/0.72° / Geared
RBK	0.9°/1.8° / Geared
PK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
SCX10 / EMP400 / SG80301	Controllers
	Accessories

# SH Geared Type

## Motor Frame Size 90 mm (3.54 in.)

### PK Series



## Specifications (RoHS)

### Motor Specifications

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

- Wiring and connections → Page A-288  
Enter the gear ratio in the box (  ) within the model name.
- Backlash value is approximately 1 to 2°.

### Note

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

### Gearmotor Specifications

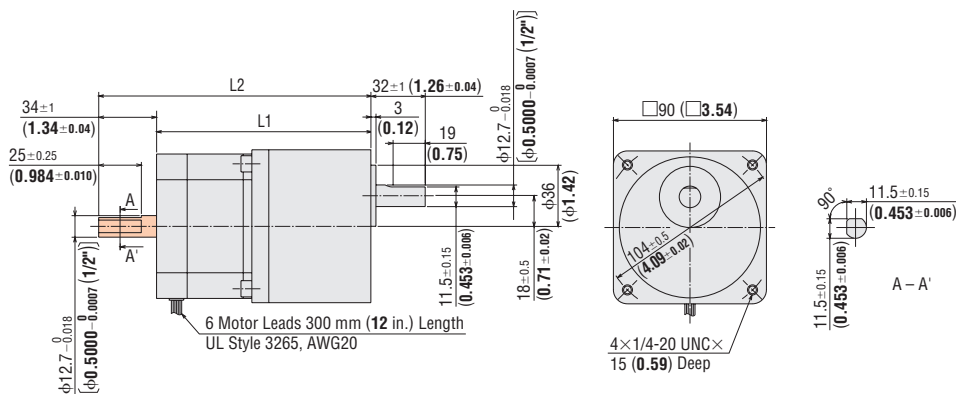
Model • Single Shaft • Double Shaft	Gear Ratio	Holding Torque*		Step Angle	Permissible Speed r/min
		N·m	lb·in		
<b>PK296A1A-SG3.6</b> , <b>PK296A2A-SG3.6</b> <b>PK296B1A-SG3.6</b> , <b>PK296B2A-SG3.6</b>	3.6	2.5	22	0.5°	500
<b>PK296A1A-SG7.2</b> , <b>PK296A2A-SG7.2</b> <b>PK296B1A-SG7.2</b> , <b>PK296B2A-SG7.2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

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

## Dimensions Unit = mm (in.)

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

- Enter the winding specification in the box (  ) within the model name.  
Enter the gear ratio in the box (  ) within the model name.
- Screws (Included)  
1/4-20 UNC, Length 19 mm (0.75 in.)—4 pieces

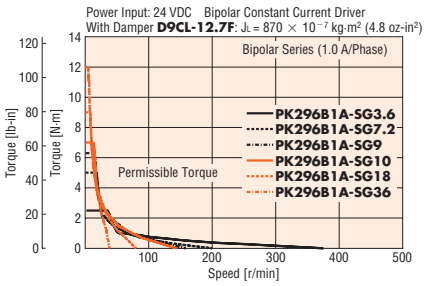


These dimensions are for the double shaft models. For the single shaft models, ignore the orange (  ) area.

## Speed – Torque Characteristics

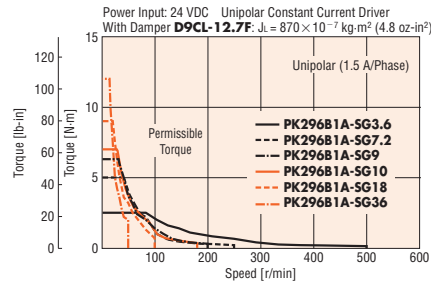
### PK296 1A-SG

Bipolar (Series) 24 VDC



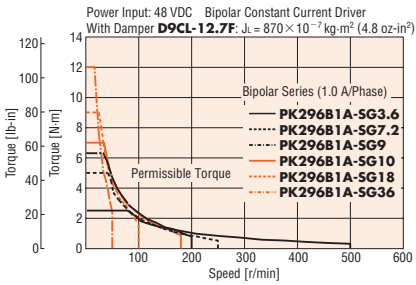
### PK296 1A-SG

Unipolar



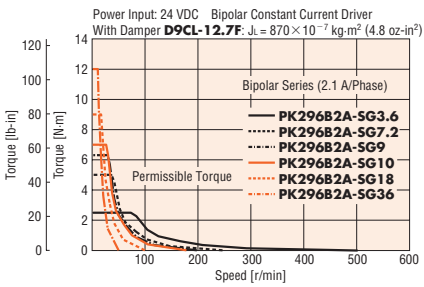
### PK296 1A-SG

Bipolar (Series) 48 VDC



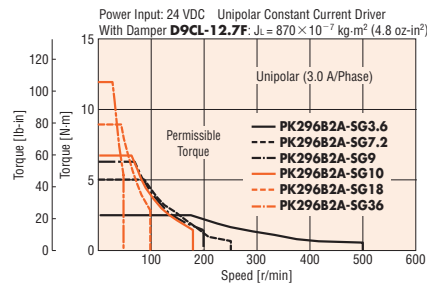
### PK296 2A-SG

Bipolar (Series) 24 VDC



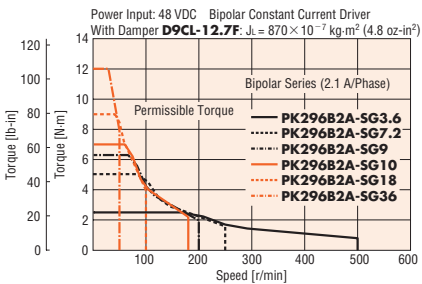
### PK296 2A-SG

Unipolar



### PK296 2A-SG

Bipolar (Series) 48 VDC



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

#### Note

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

Introduction	
AR	0.36° / Geared
AS	AC Input Motor & Driver
RK	0.72° / Geared
UMK	0.9°/1.8°
AR	0.36° / Geared
ASX	0.36° / Geared
CRK	0.36°/0.72° / Geared
CMK	0.9°/1.8° / Geared
RBK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
SCX10 / EMP400 / SG8030J	Controllers
	Accessories



# TH Geared Type

Motor Frame Size 28 mm (1.10 in.), 42 mm (1.65 in.)

## PK Series



20 mm (0.79 in.)  
28 mm (1.10 in.)  
35 mm (1.38 in.)  
42 mm (1.65 in.)  
50 mm (1.97 in.)  
56.4 mm (2.22 in.)  
60 mm (2.36 in.)  
85 mm (3.35 in.)  
90 mm (3.54 in.)

### Specifications

#### Motor Specifications (RoHS)



Motor Frame Size	Model	Connection Type	Rated Current	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package
mm (in.)	• Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder		A/phase	kg·m <sup>2</sup>	oz·in <sup>2</sup>		CRK Series (Pulse/Built-In Program)
28 (1.10)	<b>PK523P</b> <input type="checkbox"/> - <b>T</b> <input type="checkbox"/>	New Pentagon (Bipolar)	0.35	9×10 <sup>-7</sup>	0.049	5	<b>CRK523P</b> <input type="checkbox"/> - <b>P</b> - <b>T</b> <input type="checkbox"/> <b>CRK523P</b> <input type="checkbox"/> - <b>KP</b> - <b>T</b> <input type="checkbox"/>
42 (1.65)	<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T</b> <input type="checkbox"/> <b>PK543AWR27T</b> <input type="checkbox"/> <b>PK543AWR27LT</b> <input type="checkbox"/>		0.75	35×10 <sup>-7</sup>	0.191		<b>CRK543</b> <input type="checkbox"/> - <b>P</b> - <b>T</b> <input type="checkbox"/> <b>CRK543</b> <input type="checkbox"/> - <b>KP</b> - <b>T</b> <input type="checkbox"/> <b>CRK543APR27T</b> <input type="checkbox"/> <b>CRK543RKPT</b> <input type="checkbox"/>

- Wirings and connections → Page A-288, Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- The motor connection cable is available as an accessory.
- Enter the encoder code (**17**, **18**, **27** or **28**) in the box (  ) within the model name.  
Enter the **A** (single shaft) or **B** (double shaft) in the box (  ) within the model name.  
Product Number Code → Page A-278

- \*1 Adopted for motor frame size 28 mm (1.10 in.) products.
- \*2 Adopted for motor frame size 42 mm (1.65 in.) products.
- \*3 CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model		Gear Ratio	Maximum Holding Torque		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range
• Single Shaft/Double Shaft	• with TTL Type Encoder • with Differential Type Encoder		N·m	<b>PK523</b> : oz·in <b>PK543</b> : lb·in			
<b>PK523P</b> <input type="checkbox"/> - <b>T7.2</b>	—	7.2	0.2	28	0.1°	60 (1)	0~416
<b>PK523P</b> <input type="checkbox"/> - <b>T10</b>	—	10	0.3	42	0.072°		0~300
<b>PK523P</b> <input type="checkbox"/> - <b>T20</b>	—	20	0.4	56	0.036°		0~150
<b>PK523P</b> <input type="checkbox"/> - <b>T30</b>	—	30	0.5	71	0.024°		0~100
<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T3.6</b>	<b>PK543AWR27T3.6</b> <b>PK543AWR27LT3.6</b>	3.6	0.35	3	0.2°	45 (0.75)	0~500
<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T7.2</b>	<b>PK543AWR27T7.2</b> <b>PK543AWR27LT7.2</b>	7.2	0.7	6.1	0.1°	25 (0.42)	0~250
<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T10</b>	<b>PK543AWR27T10</b> <b>PK543AWR27LT10</b>	10	1	8.8	0.072°		0~180
<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T20</b>	<b>PK543AWR27T20</b> <b>PK543AWR27LT20</b>	20	1.5	13.2	0.036°	15 (0.25)	0~90
<b>PK543</b> <input type="checkbox"/> - <b>W</b> - <b>T30</b>	<b>PK543AWR27T30</b> <b>PK543AWR27LT30</b>	30			0.024°		0~60

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

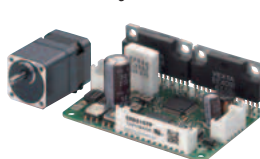
#### AC Input Motor and Driver Package

RK Series → Page A-78



#### DC Input Motor and Driver Package

CRK Series → Page A-168



Pulse Input



Built-In Controller

## TH Geared Type

### Motor Frame Size 60 mm (2.36 in.), 90 mm (3.54 in.)

### PK Series



### Specifications

#### Motor Specifications



Motor Frame Size mm (in.)	Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder	Connection Type	Rated Current A/phase	Rotor Inertia J kg·m <sup>2</sup> oz·in <sup>2</sup>		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>RK Series</b> CRK Series (Pulse/Built-In Program)
60 (2.36)	<b>PK564</b> □W-T□ <b>PK564AWR27T</b> □ <b>PK564AWR27LT</b> □	New Pentagon (Bipolar)	1.4	175×10 <sup>-7</sup>	0.96	5	<b>CRK564</b> □P-T□ <b>CRK564</b> □KP-T□ <b>CRK564APR27T</b> □ <b>CRK564RKPT</b> □
90 (3.54)	<b>PK596</b> □E-T□ <b>PK596</b> □E1-T□ <b>PK596AER27T</b> □ <b>PK596AE1R27T</b> □						1400×10 <sup>-7</sup>

- Wirings and connections → Page A-288, Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the gear ratio in the box (□) within the model name.
- Enter the **A** (single-phase 100-115 VAC) or **C** (single-phase 200-230 VAC) in the box (□) with in the model name.
- \*CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder		Gear Ratio	Maximum Holding Torque N·m <b>PK564:</b> oz·in <b>PK596:</b> lb·in		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
<b>PK564</b> □W-T3.6	<b>PK564AWR27T3.6</b> <b>PK564AWR27LT3.6</b>	3.6	1.25	11	0.2°	35 (0.59)	0~500
<b>PK564</b> □W-T7.2	<b>PK564AWR27T7.2</b> <b>PK564AWR27LT7.2</b>	7.2	2.5	22	0.1°	15 (0.25)	0~250
<b>PK564</b> □W-T10	<b>PK564AWR27T10</b> <b>PK564AWR27LT10</b>	10	3	26	0.072°	10 (0.17)	0~180
<b>PK564</b> □W-T20	<b>PK564AWR27T20</b> <b>PK564AWR27LT20</b>	20	3.5	30	0.036°		0~90
<b>PK564</b> □W-T30	<b>PK564AWR27T30</b> <b>PK564AWR27LT30</b>	30	4	35	0.024°	15 (0.25)	0~60
<b>PK596</b> □E-T3.6	<b>PK596AER27T3.6</b>	3.6	45	39	0.2°		25 (0.42)
<b>PK596</b> □E-T7.2	<b>PK596AER27T7.2</b>	7.2	9	79	0.1°	15 (0.25)	0~250
<b>PK596</b> □E1-T10	<b>PK596AE1R27T10</b>	10			0.072°		0~180
<b>PK596</b> □E1-T20	<b>PK596AE1R27T20</b>	20	12	106	0.036°	10 (0.17)	0~90
<b>PK596</b> □E1-T30	<b>PK596AE1R27T30</b>	30			0.024°		0~60

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

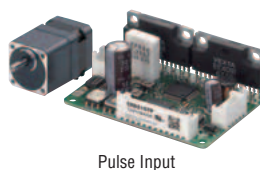
#### AC Input Motor and Driver Package

**RK Series** → Page A-78



#### DC Input Motor and Driver Package

**CRK Series** → Page A-168



Pulse Input



Built-In Controller

Introduction	
AC Input Motor & Driver	0.36° / Geared / AS
DC Input Motor & Driver	0.72° / Geared / RK
DC Input Motor & Driver	0.9°/1.8° / Geared / UMK
DC Input Motor & Driver	0.36° / Geared / AR
DC Input Motor & Driver	0.36° / Geared / ASX
DC Input Motor & Driver	0.36°/0.72° / Geared / CRK
DC Input Motor & Driver	0.9°/1.8° / Geared / CMK
DC Input Motor & Driver	1.8° / Geared / RBK
Motor Only	0.36° / PK
Motor Only	0.72° / PK
Motor Only	0.9° / PK
Motor Only	1.8° / PK/PV
Motor Only	Geared / PK
Controllers	SCX10 / EMP400 / SG80301
Accessories	

# PS Geared Type

Motor Frame Size 28 mm (1.10 in.), 42 mm (1.65 in.)

## PK Series



### Specifications

#### Motor Specifications (RoHS)



Motor Frame Size mm (in.)	Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder	Connection Type	Rated Current A/phase	Rotor Inertia J kg-m <sup>2</sup> oz-in <sup>2</sup>		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>CRK Series (Pulse/Built-In Program)</b>
28 (1.10)	<b>PK523P</b> □- <b>PS</b> □	New Pentagon (Bipolar)	0.35	9×10 <sup>-7</sup>	0.049	5	<b>CRK523P</b> □- <b>P-PS</b> □ <b>CRK523P</b> □- <b>KP-PS</b> □
42 (1.65)	<b>PK545</b> □- <b>W-PS</b> □ <b>PK545AWR27PS</b> □ <b>PK545AWR27LPS</b> □		0.75	68×10 <sup>-7</sup>	0.37		<b>CRK545</b> □- <b>P-PS</b> □ <b>CRK545</b> □- <b>KP-PS</b> □ <b>CRK545APR27PS</b> □ <b>CRK545RKPPS</b> □
	<b>PK543</b> □- <b>W-PS</b> □ <b>PK543AWR27PS</b> □ <b>PK543AWR27LPS</b> □			35×10 <sup>-7</sup>	0.191		<b>CRK543</b> □- <b>P-PS</b> □ <b>CRK543</b> □- <b>KP-PS</b> □ <b>CRK543APR27PS</b> □ <b>CRK543RKPPS</b> □

- Wirings and connections → Page A-288, Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
A number indicating the gear ratio is entered when the box (■) is located within the model name.
- \*1 Adopted for motor frame size 28 mm (1.10 in.) products.
- \*2 Adopted for motor frame size 42 mm (1.65 in.) products.
- \*3 CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder		Gear Ratio	Maximum Holding Torque N·m <b>PK52:</b> oz-in <b>PK54:</b> lb-in		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
<b>PK523P</b> □- <b>PS5</b>	—	5	0.2	28	0.144°	35 (0.59)	0~600
<b>PK523P</b> □- <b>PS7</b>	—	7.2	0.3	42	0.1°		0~416
<b>PK523P</b> □- <b>PS10</b>	—	10	0.4	56	0.072°		0~300
<b>PK545</b> □- <b>W-PS5</b>	<b>PK545AWR27PS5</b> <b>PK545AWR27LPS5</b>	5	1	8.8	0.144°	25 (0.42)	0~600
<b>PK545</b> □- <b>W-PS7</b>	<b>PK545AWR27PS7</b> <b>PK545AWR27LPS7</b>	7.2	1.5	13.2	0.1°		0~416
<b>PK545</b> □- <b>W-PS10</b>	<b>PK545AWR27PS10</b> <b>PK545AWR27LPS10</b>	10			0.072°		0~300
<b>PK543</b> □- <b>W-PS25</b>	<b>PK543AWR27PS25</b> <b>PK543AWR27LPS25</b>	25	2.5	22	0.0288°		0~120
<b>PK543</b> □- <b>W-PS36</b>	<b>PK543AWR27PS36</b> <b>PK543AWR27LPS36</b>	36	3	26	0.02°		0~83
<b>PK543</b> □- <b>W-PS50</b>	<b>PK543AWR27PS50</b> <b>PK543AWR27LPS50</b>	50			0.0144°		0~60

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

AC Input  
Motor and Driver Package

**RK Series** → Page A-78

DC Input  
Motor and Driver Package

**CRK Series** → Page A-168

## PS Geared Type

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

### PK Series



### Specifications

#### Motor Specifications

Motor Frame Size mm (in.)	Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder	Connection Type	Rated Current A/phase	Rotor Inertia J kg·m <sup>2</sup> oz·in <sup>2</sup>		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>RK Series</b> CRK Series (Pulse/Built-In Program)
60 (2.36)	PK566□W-PS□ PK566AWR27PS□ PK566AWR27LPS□	New Pentagon (Bipolar)	1.4	280×10 <sup>-7</sup>	1.53	5	CRK566□P-PS□ CRK566□KP-PS□ CRK566APR27PS□ CRK566RKPPS□
	PK564□W-PS□ PK564AWR27PS□ PK564AWR27LPS□			175×10 <sup>-7</sup>	0.96		CRK564□P-PS□ CRK564□KP-PS□ CRK564APR27PS□ CRK564RKPPS□
90 (3.54)	PK599□E-PS□ PK599AER27PS□		2700×10 <sup>-7</sup>	14.8	RK599□E-PS□ RK599A□ER27PS□		
	PK596□E-PS□ PK596AER27PS□		1400×10 <sup>-7</sup>	7.7	RK596□E-PS□ RK596A□ER27PS□		

- Wirings and connections → Page A-288, Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
A number indicating the gear ratio is entered when the box (□) is located within the model name.  
Enter the **A** (single-phase 100-115 VAC) or **C** (single-phase 200-230 VAC) in the box (□) with in the model name.
- \*CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with TTL Type Encoder • with Differential Type Encoder	Gear Ratio	Maximum Holding Torque		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N·m	lb·in			
PK566□W-PS5 PK566AWR27PS5 PK566AWR27LPS5	5	3.5	30	0.144°	15 (0.25)	0~600
PK566□W-PS7 PK566AWR27PS7 PK566AWR27LPS7	7.2	4	35	0.1°		0~416
PK566□W-PS10 PK566AWR27PS10 PK566AWR27LPS10	10	5	44	0.072°		0~300
PK564□W-PS25 PK564AWR27PS25 PK564AWR27LPS25	25	8	70	0.0288°		0~120
PK564□W-PS36 PK564AWR27PS36 PK564AWR27LPS36	36			0.02°		0~83
PK564□W-PS50 PK564AWR27PS50 PK564AWR27LPS50	50			0.0144°		0~60
PK599□E-PS5 PK599AER27PS5	5	14	123	0.144°		0~600
PK599□E-PS7 PK599AER27PS7	7.2	20	177	0.1°		0~416
PK599□E-PS10 PK599AER27PS10	10			0.072°		0~300
PK596□E-PS25 PK596AER27PS25	25	37	320	0.0288°		0~120
PK596□E-PS36 PK596AER27PS36	36			0.02°	0~83	
PK596□E-PS50 PK596AER27PS50	50			0.0144°	0~60	

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

AC Input  
Motor and Driver Package

RK Series → Page A-78

DC Input  
Motor and Driver Package

CRK Series → Page A-168

Introduction  
AC Input Motor & Driver  
DC Input Motor & Driver  
Motor Only  
Controllers  
Accessories

# PS Geared Type

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

### PK Series



## Specifications

### Motor Specifications RoHS

Model • Single Shaft/Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Voltage VDC	Resistance $\Omega$ /phase	Inductance mH/phase	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package
						kg·m <sup>2</sup>	oz·in <sup>2</sup>		<b>RBK Series</b>
<b>PK223PD</b> <input type="checkbox"/> - <b>PS5</b>	Bipolar	1.5	1.8	1.2	0.74	$9 \times 10^{-7}$	0.049	4	<b>RBK223P</b> <input type="checkbox"/> - <b>PS</b> <input type="checkbox"/>
<b>PK223PD</b> <input type="checkbox"/> - <b>PS10</b>									

- Wirings and connections → Page A-288
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- Enter the **A** (single shaft) or **B** (double shaft) in the box () within the model name.  
Enter the gear ratio in the box () within the model name.

#### Note

- Direction of rotation of the motor and that of the gear output shaft are the same.

### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with Encoder	Gear Ratio	Holding Torque*		Maximum Torque		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N·m	oz·in	N·m	oz·in			
<b>PK223PD</b> <input type="checkbox"/> - <b>PS5</b>	5	0.3	42	0.5	71	0.36°	35 (0.59)	600
<b>PK223PD</b> <input type="checkbox"/> - <b>PS10</b>	10	0.5	71					300

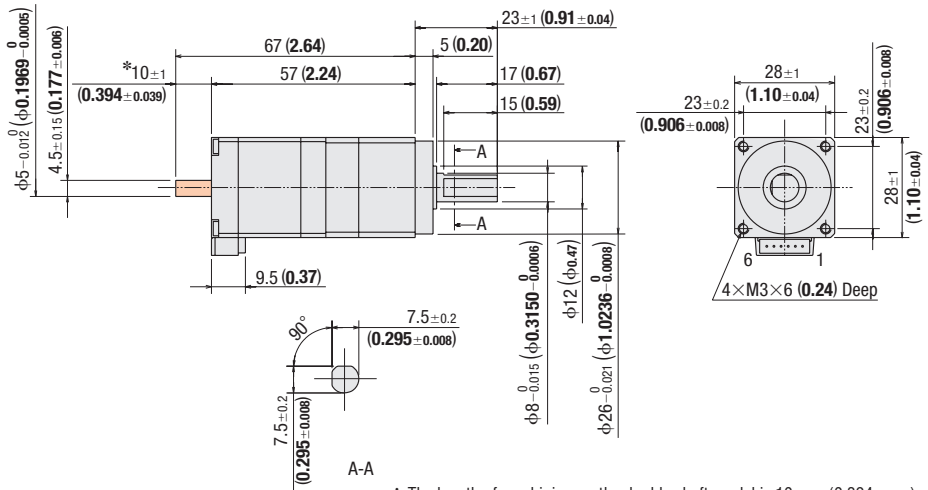
\* Holding torque is the same regardless of the connection type due to the permissible torque limit of the gearhead.

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

## Dimensions Unit = mm (in.)

Model	Mass kg (lb.)	DXF
<b>PK223PDA</b> - <b>PS</b> <input type="checkbox"/>	0.11	B326
<b>PK223PDB</b> - <b>PS</b> <input type="checkbox"/>	(0.24)	

- Enter the gear ratio in the box () within the model name.
- Lead wires are not supplied with the connector-coupled motor and must be purchased separately.  
The connection cable is available as an accessory (sold separately).
- Applicable Connector  
Connector housing: 51065-0600 (MOLEX)  
Contact: 50212-8100 (MOLEX)  
Crimp tool: 57176-5000 (MOLEX)



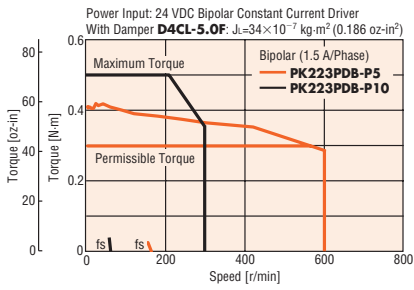
\* The length of machining on the double shaft model is  $10 \pm 0.25$  (0.394 ± 0.010).

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

## Speed – Torque Characteristics

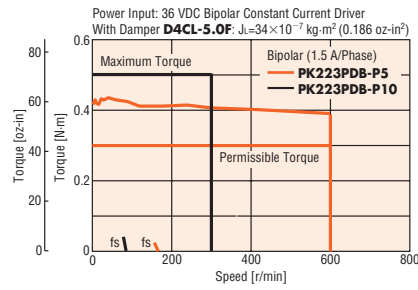
### PK223PD

Bipolar 24 VDC



### PK223PD

Bipolar 36 VDC



#### Note

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

## Accessories (Sold separately)

The connection cable is available as an accessory.

- Connection Cable → Page A-409

Introduction	
AR	DC Input Motor & Driver
AS	0.36° / Geared
RK	0.72° / Geared
UMK	0.9°/1.8° / Geared
AR	0.36° / Geared
ASX	0.36° / Geared
CRK	0.36°/0.72° / Geared
CMK	0.9°/1.8° / Geared
RBK	1.8° / Geared
PK	0.36°
PK	0.72°
PK	0.9°
PK/PV	1.8°
PK	Geared
SCX10 / EMP400 / SG8030J	Controllers
	Accessories

# PL Geared Type

## Motor Frame Size 42 mm (1.65 in.)

### PK Series



## Specifications

### Motor Specifications RoHS

Model • Single Shaft/Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>RBK Series</b>
						kg·m <sup>2</sup>	oz·in <sup>2</sup>		
<b>PK244PD</b> <input type="checkbox"/> - <b>P5</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P5</b>	Bipolar	1.5	2.14	1.43	1.5	57×10 <sup>-7</sup>	0.31	4	<b>RBK244P</b> <input type="checkbox"/> - <b>P</b> <input type="checkbox"/> <b>RBK244PAR</b> <input type="checkbox"/> - <b>P</b> <input type="checkbox"/>
<b>PK244PD</b> <input type="checkbox"/> - <b>P10</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P10</b>									
<b>PK244PD</b> <input type="checkbox"/> - <b>P36</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P36</b>		1.2	0.8	0.47					

● Wirings and Connections → Page A-288

Encoder Specifications → Page A-17

- Enter **A** (single shaft) or **B** (double shaft) in the box () within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the model name.
- Enter the gear ratio in the box () within the model name.
- Product Number Code → Page A-278

#### Note

- Direction of rotation of the motor and that of the gear output shaft are the same.

### Gearmotor Specifications

Model • Single Shaft/Double Shaft • with Encoder	Gear Ratio	Holding Torque*		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N·m	lb·in			
<b>PK244PD</b> <input type="checkbox"/> - <b>P5</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P5</b>	5	1	8.8	0.36°	35 (0.59)	360
<b>PK244PD</b> <input type="checkbox"/> - <b>P10</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P10</b>	10	1.5	13.2	0.18°		180
<b>PK244PD</b> <input type="checkbox"/> - <b>P36</b> <b>PK244PDAR</b> <input type="checkbox"/> - <b>P36</b>	36	3	26	0.05°		50

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

- Enter **A** (single shaft) or **B** (double shaft) in the box () within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box () within the model name.

20 mm  
(0.79 in.)

28 mm  
(1.10 in.)

35 mm  
(1.38 in.)

42 mm  
(1.65 in.)

50 mm  
(1.97 in.)

56.4 mm  
(2.22 in.)

60 mm  
(2.36 in.)

85 mm  
(3.35 in.)

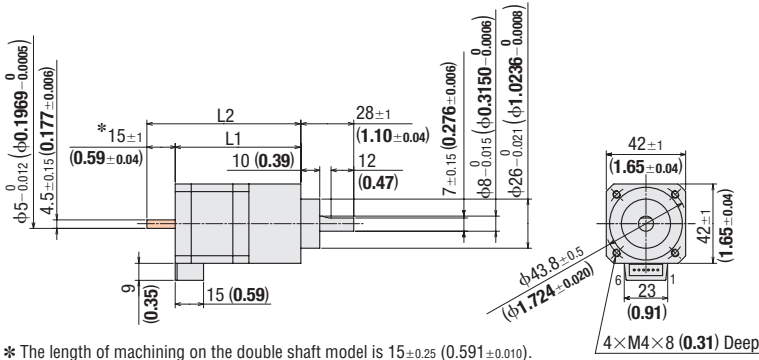
90 mm  
(3.54 in.)

## Dimensions Unit = mm (in.)

The dimension of a motor with an encoder can be found on page A-19 or at [www.orientalmotor.com](http://www.orientalmotor.com).

Model	L1	L2	Mass kg (lb.)	DXF
<b>PK244PDA-P5</b>	66.5 (2.62)	—	0.48 (1.06)	B331
<b>PK244PDB-P5</b>		81.5 (3.21)		
<b>PK244PDA-P10</b>		—		
<b>PK244PDB-P10</b>	81.5 (3.21)			
<b>PK244PDA-P36</b>	90 (3.54)	—	0.6 (1.32)	
<b>PK244PDB-P36</b>		105 (4.13)		

- Lead wire and connector are not supplied with the connector-coupled motor and must be purchased separately. The connection cable is available as an accessory (sold separately).
- Applicable Connector  
Connector housing: 51103-0600 (MOLEX)  
Contact: 50351-8100 (MOLEX)  
Crimp tool: 57295-5000 (MOLEX)

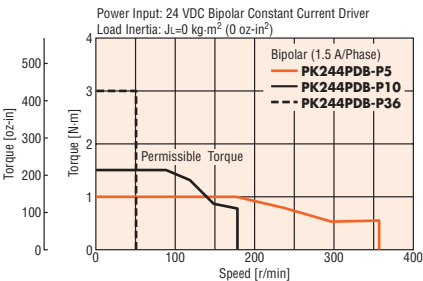


- These dimensions are for the double shaft models. For the single shaft models, ignore the orange ( ) area.

## Speed – Torque Characteristics

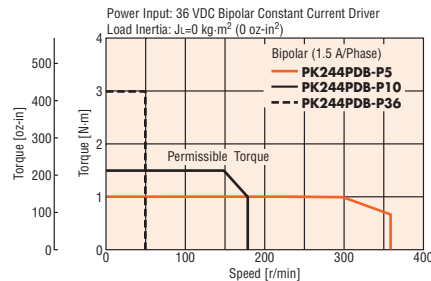
### PK244PD

#### Bipolar 24 VDC



### PK244PD

#### Bipolar 36 VDC



#### Note

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

## Accessories (Sold separately)

The connection cable is available as an accessory.

- Connection Cable → Page A-409

Introduction	AC Input Motor & Driver	DC Input Motor & Driver	Motor Only
AR	0.36° / Geared	0.36° / Geared	0.36°
AS	0.72° / Geared	0.36° / Geared	0.72°
UMK	0.9°/1.8° / Geared	0.36° / Geared	0.9°
AR	0.36° / Geared	0.36° / Geared	1.8° / Geared
ASX	0.36° / Geared	0.36° / Geared	PK
CRK	0.36°/0.72° / Geared	0.36°/0.72° / Geared	PK
CMK	0.9°/1.8° / Geared	0.9°/1.8° / Geared	PK
RBK	1.8° / Geared	1.8° / Geared	PK
PK	0.36°	0.36°	PK
PK	0.72°	0.72°	PK/PV
PK	0.9°	0.9°	Geared
PK	1.8°	1.8°	Geared
SCX10 / EMP400 / SG8030J	Controllers	Controllers	Controllers
Accessories	Accessories	Accessories	Accessories



- 20 mm (□ 0.79 in.)
- 28 mm (□ 1.10 in.)
- 35 mm (□ 1.38 in.)
- 42 mm (□ 1.65 in.)
- 50 mm (□ 1.97 in.)
- 56.4 mm (□ 2.22 in.)
- 60 mm (□ 2.36 in.)
- 85 mm (□ 3.35 in.)
- 90 mm (□ 3.54 in.)

# PL Geared Type

## Motor Frame Size 60 mm (2.36 in.)

### PK Series



## Specifications

### ● Motor Specifications (RoHS)

Model • Single Shaft/Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Voltage VDC	Resistance Ω/phase	Inductance mH/phase	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>RBK Series</b>
						kg·m <sup>2</sup>	oz·in <sup>2</sup>		
<b>PK266PD</b> □- <b>P5</b> <b>PK266PDAR</b> □- <b>P5</b>	Bipolar	2.8	1.62	0.58	0.97	290×10 <sup>-7</sup>	1.59	4	<b>RBK266P</b> □- <b>P</b> □ <b>RBK264P</b> □- <b>P</b> □ <b>RBK266PAR</b> □- <b>P</b> □ <b>RBK264PAR</b> □- <b>P</b> □
<b>PK266PD</b> □- <b>P10</b> <b>PK266PDAR</b> □- <b>P10</b>			1.29	0.46	0.73	120×10 <sup>-7</sup>	0.66		
<b>PK264PD</b> □- <b>P36</b> <b>PK264PDAR</b> □- <b>P36</b>									

● Wirings and Connections → Page A-288

Encoder Specifications → Page A-17

- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.
- Enter the gear ratio in the box (■) within the model name.
- Product Number Code → Page A-278

#### Note

- Direction of rotation of the motor and that of the gear output shaft are the same.

### ● Gearmotor Specifications

Model • Single Shaft/Double Shaft • with Encoder	Gear Ratio	Holding Torque*		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N·m	lb·in			
<b>PK266PD</b> □- <b>P5</b> <b>PK266PDAR</b> □- <b>P5</b>	5	3.5	30	0.36°	20 (0.33)	360
<b>PK266PD</b> □- <b>P10</b> <b>PK266PDAR</b> □- <b>P10</b>	10	5	44	0.18°		180
<b>PK264PD</b> □- <b>P36</b> <b>PK264PDAR</b> □- <b>P36</b>	36	8	70	0.05°		50

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

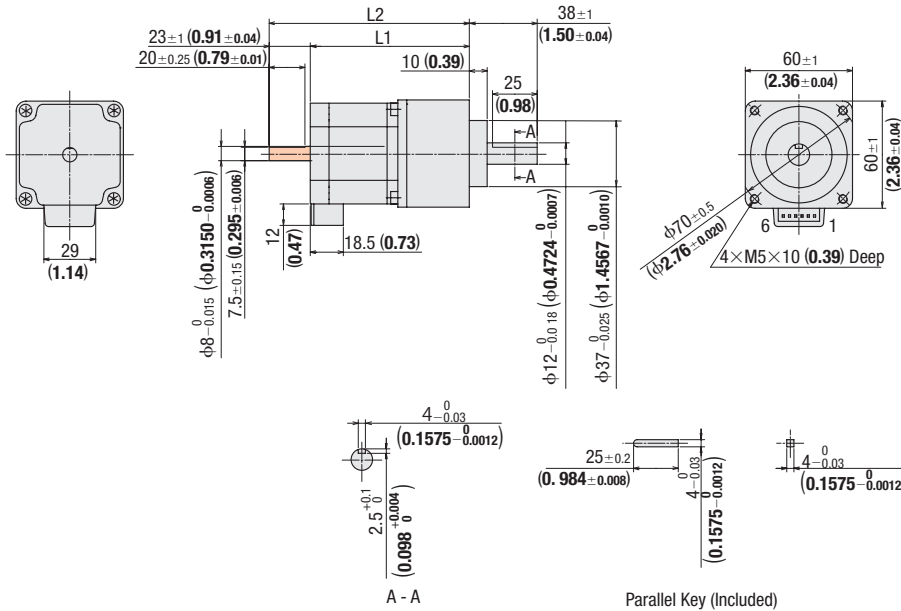
- Enter **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.

## Dimensions Unit = mm (in.)

The dimension of a motor with an encoder can be found on page A-19 or at [www.orientalmotor.com](http://www.orientalmotor.com).

Model	L1	L2	Mass kg (lb.)	DXF
<b>PK266PDA-P5</b>	89 (3.5)	—	1.23 (2.71)	B715
<b>PK266PDB-P5</b>		112 (4.41)		
<b>PK266PDA-P10</b>		—		
<b>PK266PDB-P10</b>		112 (4.41)		
<b>PK264PDA-P36</b>	99 (3.9)	—	1.26 (2.77)	B716
<b>PK264PDB-P36</b>		122 (4.8)		

- Lead wire and connector are not supplied with the connector-coupled motor and must be purchased separately. The connection cable is available as an accessory (sold separately).
- Applicable Connector  
Connector housing: 51067-0600 (MOLEX)  
Contact: 50217-9101 (MOLEX)  
Crimp tool: 57189-5000 (MOLEX)

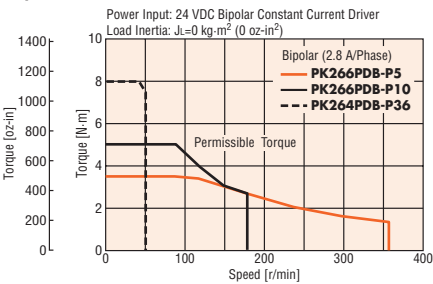


- These dimensions are for the double shaft models. For the single shaft models, ignore the orange area.

## Speed – Torque Characteristics

### PK266PD/PK264PD

Bipolar 24 VDC



#### Note

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

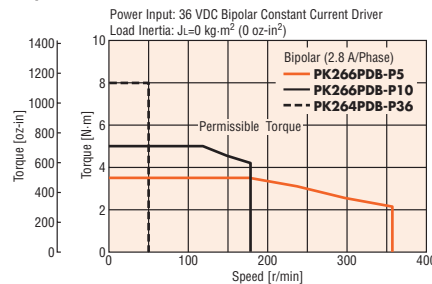
## Accessories (Sold separately)

The connection cable is available as an accessory.

- Connection Cable → A-409

### PK266PD/PK264PD

Bipolar 36 VDC



Introduction	AC Input Motor & Driver	DC Input Motor & Driver	Motor Only
AR	0.36° / Geared	0.36° / Geared	0.36° / Geared
AS	0.72° / Geared	0.36° / Geared	0.72° / Geared
RK	0.9° / 1.8° / Geared	0.36° / Geared	0.9° / 1.8° / Geared
UMK	0.36° / Geared	0.36° / Geared	0.36° / Geared
AR	0.36° / Geared	0.36° / Geared	0.36° / Geared
ASX	0.36° / Geared	0.36° / Geared	0.36° / Geared
CRK	0.36° / Geared	0.36° / Geared	0.36° / Geared
CMK	0.9° / 1.8° / Geared	0.36° / Geared	0.9° / 1.8° / Geared
RBK	1.8° / Geared	0.36° / Geared	1.8° / Geared
PK	0.36° / Geared	0.36° / Geared	0.36° / Geared
PK	0.72° / Geared	0.36° / Geared	0.72° / Geared
PK	0.9° / Geared	0.36° / Geared	0.9° / Geared
PK/PV	1.8° / Geared	0.36° / Geared	1.8° / Geared
PK	Geared	0.36° / Geared	Geared
SCX10 / EMP400 / SG80301	Controllers	0.36° / Geared	Controllers
Accessories	Accessories	0.36° / Geared	Accessories

20 mm  
(0.79 in.)

28 mm  
(1.10 in.)

35 mm  
(1.38 in.)

42 mm  
(1.65 in.)

50 mm  
(1.97 in.)

56.4 mm  
(2.22 in.)

60 mm  
(2.36 in.)

85 mm  
(3.35 in.)

90 mm  
(3.54 in.)

# PN Geared Type

Motor Frame Size 28 mm (1.10 in.), 42 mm (1.65 in.)

## PK Series



### Specifications

#### Motor Specifications RoHS



Motor Frame Size mm (in.)	Model •Single Shaft/Double Shaft	Connection Type	Rated Current A/phase	Rotor Inertia J kg-m <sup>2</sup> oz-in <sup>2</sup>		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package  CRK Series (Pulse/Built-in Program)
28 (1.10)	<b>PK523P</b> □-N□	New Pentagon (Bipolar)	0.35	9×10 <sup>-7</sup>	0.049	5	<b>CRK523P</b> □P-N□
42 (1.65)	<b>PK544</b> □W-N□		0.75	54×10 <sup>-7</sup>	0.3		<b>CRK544</b> □P-N□

● Wirings and connections → Page A-288

Encoder specifications → Page A-17

● See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.

● The dimensions of a motor with an encoder can be found on page A-20.

● The motor connection cable is available as an accessory.

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

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

Product Number Code → Page A-278

\*1 Adopted for motor frame size 28 mm (1.10 in.) products.

\*2 Adopted for motor frame size 42 mm (1.65 in.) products.

\*3 CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model •Single Shaft/Double Shaft	Gear Ratio	Maximum Holding Torque		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N-m	<b>PK523</b> : oz-in <b>PK544</b> : lb-in			
<b>PK523P</b> □-N5	5	0.2	28	0.144°	3 (0.05)	0~600
<b>PK523P</b> □-N7.2	7.2	0.3	42	0.1°		0~416
<b>PK523P</b> □-N10	10	0.4	56	0.072°		0~300
<b>PK544</b> □W-N5	5	0.8	7	0.144°	2 (0.034)	0~600
<b>PK544</b> □W-N7.2	7.2	1.2	10.6	0.1°		0~416
<b>PK544</b> □W-N10	10	1.5	13.2	0.072°		0~300

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

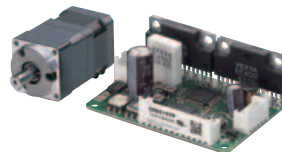
#### AC Input Motor and Driver Package

CRK Series → Page A-78



#### DC Input Motor and Driver Package

CRK Series → Page A-168



Pulse Input



Built-In Controller

# PN Geared Type

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

## PK Series



### Specifications

#### Motor Specifications



Motor Frame Size mm (in.)	Model •Single Shaft/Double Shaft	Connection Type	Rated Current A/phase	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package
				kg·m <sup>2</sup>	oz·in <sup>2</sup>		<b>RK Series</b> <b>CRK Series</b> (Pulse/Built-In Program)
60 (2.36)	<b>PK566</b> □ <b>W-N</b> □	New Pentagon (Bipolar)	1.4	280×10 <sup>-7</sup>	1.53	5	<b>CRK566</b> □ <b>P-N</b> □
	<b>PK564</b> □ <b>W-N</b> □			175×10 <sup>-7</sup>	0.96		<b>CRK564</b> □ <b>P-N</b> □
90 (3.54)	<b>PK599</b> □ <b>E-N</b> □			2700×10 <sup>-7</sup>	14.8		<b>RK599</b> □□ <b>E-N</b> □
	<b>PK596</b> □ <b>E-N</b> □			1400×10 <sup>-7</sup>	7.7		<b>RK596</b> □□ <b>AE-N</b> □

● Wirings and connections → Page A-288  
Encoder specifications → Page A-17

- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
  - The dimensions of a motor with an encoder can be found on page A-20.
  - Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the gear ratio in the box (□) within the model name.
  - Enter the **A** (single-phase 100-115 VAC) or **C** (single-phase 200-230 VAC) in the box (□) with in the model name.
- \*CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model •Single Shaft/Double Shaft	Gear Ratio	Maximum Holding Torque		Basic Step Angle	Backlash arc minute (degrees)	Permissible Speed Range r/min
		N·m	lb·in			
<b>PK566</b> □ <b>W-N5</b>	5	3.5	30	0.144°	2 (0.034)	0~600
<b>PK566</b> □ <b>W-N7.2</b>	7.2	4	35	0.1°		0~416
<b>PK566</b> □ <b>W-N10</b>	10	5	44	0.072°		0~300
<b>PK564</b> □ <b>W-N25</b>	25	8	70	0.0288°	3 (0.05)	0~120
<b>PK564</b> □ <b>W-N36</b>	36			0.02°		0~83
<b>PK564</b> □ <b>W-N50</b>	50			0.0144°		0~60
<b>PK599</b> □ <b>E-N5</b>	5			14		123
<b>PK599</b> □ <b>E-N7.2</b>	7.2	20	177	0.1°		2 (0.034)
<b>PK599</b> □ <b>E-N10</b>	10			0.072°	0~300	
<b>PK596</b> □ <b>E-N25</b>	25			0.0288°	0~120	
<b>PK596</b> □ <b>E-N36</b>	36	37	320	0.02°	3 (0.05)	0~83
<b>PK596</b> □ <b>E-N50</b>	50			0.0144°		0~60

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

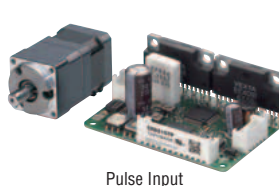
#### AC Input Motor and Driver Package

**RK Series** → Page A-78



#### DC Input Motor and Driver Packages

**CRK Series** → Page A-168



# Harmonic Geared Type

Motor Frame Size 20 mm (0.79 in.), 28 mm (1.10 in.), 42 mm (1.65 in.)

## PK Series



### Specifications

#### Motor Specifications



Motor Frame Size mm (in.)	Model • Single Shaft/Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Rotor Inertia J		Motor Lead Wires (Pins)	Corresponding Motor & Driver Package
				kg·m <sup>2</sup>	oz·in <sup>2</sup>		CRK Series (Pulse/Built-in Program)
20 (0.79)	<b>PK513P</b> □-H□S	New Pentagon (Bipolar)	0.35	2.1 × 10 <sup>-7</sup>	0.0115	5	<b>CRK513P</b> □P-H□ <b>CRK513P</b> □KP-H□
28 (1.10)	<b>PK523HP</b> □-H□S			12 × 10 <sup>-7</sup>	0.066		<b>CRK523</b> □P-H□ <b>CRK523</b> □KP-H□
42 (1.65)	<b>PK543</b> □W-H□S <b>PK543AWR27H</b> □ <b>PK543AWR27LH</b> □		0.75	52 × 10 <sup>-7</sup>	0.28		<b>CRK543</b> □P-H□ <b>CRK543</b> □KP-H□ <b>CRK543APR27H</b> □ <b>CRK543RKP</b> □

- Wirings and connections → Page A-288  
Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the gear ratio in the box (■) within the model name.
- \*1 Adopted for motor frame size 20 mm (0.79 in.) and 28 mm (1.10 in.) products.
- \*2 Adopted for motor frame size 42 mm (1.65 in.) products.
- \*3 CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model • Single Shaft/Double Shaft	• with TTL Type Encoder • with Differential Type Encoder	Gear Ratio	Maximum Holding Torque		Basic Step Angle	Lost Motion (Load torque) arc minute (degrees)	Permissible Speed Range r/min
			N·m	lb·in			
<b>PK513P</b> □-H50S	—	50	0.4	3.5	0.0144°	2 max. (±0.02 N·m)	0~90
<b>PK513P</b> □-H100S	—	100	0.6	5.3	0.0072°	2 max. (±0.03 N·m)	0~45
<b>PK523HP</b> □-H50S	—	50	1.8	15.9	0.0144°	1.5 max. (±0.09 N·m)	0~70
<b>PK523HP</b> □-H100S	—	100	2.4	21	0.0072°	1.5 max. (±0.12 N·m)	0~35
<b>PK543</b> □W-H50S	<b>PK543AWR27H50</b> <b>PK543AWR27LH50</b>	50	3.5	30	0.0144°	1.5 max. (±0.16 N·m)	0~70
<b>PK543</b> □W-H100S	<b>PK543AWR27H100</b> <b>PK543AWR27LH100</b>	100	5	44	0.0072°	1.5 max. (±0.2 N·m)	0~35

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

#### AC Input Motor and Driver Package

RK Series → Page A-78



#### DC Input Motor and Driver Package

CRK Series → Page A-168



Pulse Input



Built-In Controller

## Harmonic Geared Type

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

### PK Series



### Specifications

#### Motor Specifications



Motor Frame Size mm (in.)	Model • Single Shaft/Double Shaft • with Encoder	Connection Type	Rated Current A/phase	Rotor Inertia J kg-m <sup>2</sup> oz-in <sup>2</sup>	Motor Lead Wires (Pins)	Corresponding Motor & Driver Package <b>RK Series</b> <b>CRK Series</b> (Pulse/Built-In Program)
60 (2.36)	<b>PK564</b> □ <b>W-H</b> □ <b>S</b>  <b>PK564AWR27H</b> □ <b>PK564AWR27LH</b> □	New Pentagon (Bipolar)	1.4	210×10 <sup>-7</sup> 1.15	5	<b>CRK564</b> □ <b>P-H</b> □ <b>CRK564</b> □ <b>KP-H</b> □ <b>CRK564APR27H</b> □ <b>CRK564RKPH</b> □
90 (3.54)	<b>PK596</b> □ <b>E1-H</b> □ <b>PK596AE1R27H</b> □			1600×10 <sup>-7</sup> 8.8		<b>RK596</b> □ <b>E-PS</b> □ <b>RK596A</b> □ <b>ER27PS</b> □

- Wirings and connections → Page A-288  
Encoder specifications → Page A-17
- See the page for the corresponding motor and driver package for speed-torque characteristics and dimensions.
- The dimensions of a motor with an encoder can be found on page A-20.
- Enter the **A** (single shaft) or **B** (double shaft) in the box (□) within the model name.  
Enter the gear ratio in the box (□) within the model name.  
Enter the **A** (single-phase 100-115 VAC) or **C** (single-phase 200-230 VAC) in the box (□) with in the model name.
- \*CE Marking is applied to a corresponding motor and driver package product.

#### Gearmotor Specifications

Model • Single Shaft/Double Shaft		Gear Ratio	Maximum Holding Torque		Basic Step Angle	Lost Motion (Load torque) arc minute (degrees)	Permissible Speed Range r/min
	• with TTL Type Encoder • with Differential Type Encoder		N-m	lb-in			
<b>PK564</b> □ <b>W-H50S</b>	<b>PK564AWR27H50</b> <b>PK564AWR27LH50</b>	50	5.5	48	0.0144°	0.7 max. (±0.28 N-m)	0~70
<b>PK564</b> □ <b>W-H100S</b>	<b>PK564AWR27H100</b> <b>PK564AWR27LH100</b>	100	8	70	0.0072°	0.7 max. (±0.39 N-m)	0~35
<b>PK596</b> □ <b>E1-H50</b>	<b>PK596AE1R27H50</b>	50	25	220	0.0144°	1.5 max. (±1.2 N-m)	0~70
<b>PK596</b> □ <b>E1-H100</b>	<b>PK596AE1R27H100</b>	100	37	320	0.0072°		0~35

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

### Introduction of Stepping Motor and Driver Packages

Stepping motor and driver packages are available. Packages are outfitted with drivers specifically designed to obtain the motor's maximum performance.

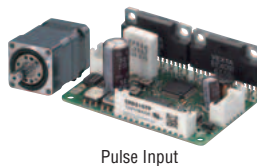
#### AC Input Motor and Driver Package

**RK Series** → Page A-78



#### DC Input Motor and Driver Package

**CRK Series** → Page A-168



Introduction	AC Input Motor & Driver	DC Input Motor & Driver	Motor Only
AR	0.36° / Geared	0.36° / Geared	PK
AS	0.72° / Geared	0.36° / Geared	PK
UMK	0.9°/1.8° / Geared	0.9°/1.8° / Geared	PK/PV
AR	0.36° / Geared	1.8° / Geared	Geared PK
ASX	0.36° / Geared	1.8° / Geared	Controllers SCX10 EMP400 /SG80301
CRK	0.36°/0.72° / Geared	Accessories	
CMK	0.9°/1.8° / Geared		
RBK	1.8° / Geared		
PK	0.36° / Geared		
PK	0.72° / Geared		
PK	0.9° / Geared		
PK/PV	1.8° / Geared		

## General Specifications

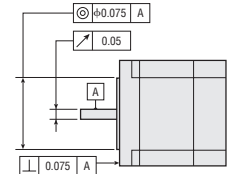
Item	Motor	
Thermal Class	130 (B) [Step angle 1.8° Standard type terminal box: Recognized as Class 105 (A) by UL/CSA Standards]	
Insulation Resistance	100MΩ or more when 500 VDC megger is applied between the windings and the case under normal ambient temperature and humidity.	
Dielectric Strength	<ul style="list-style-type: none"> <li>● Step Angle 0.36°/0.72° Stepping Motors Sufficient to withstand 1.5 kVAC at 60Hz applied between the windings and the case for 1 minute, under normal ambient temperature and humidity. 0.5 kVAC: <b>PK51, PK52, PK54PM, PK54P</b> 1.0 kVAC: <b>PK54, PK56PM</b></li> <li>● Step Angle 0.9°/1.8° Stepping Motors Sufficient to withstand 1.5 kVAC at 60Hz applied between the windings and the case for 1 minute, under normal ambient temperature and humidity. 0.5 kVAC: <b>PK223, PK24</b></li> </ul>	
Operating Environment	Ambient Temperature	-10~+50°C (+14~+122°F) (non-freezing) 0~+40°C (+32~+104°F) (non-freezing): Harmonic geared type
	Ambient Humidity	85% or less (non-condensing)
	Atmosphere	No corrosive gasses, dust, water or oil (Standard type terminal box: no corrosive gasses and oil)
Temperature Rise	Temperature rise of windings is 80°C (144°F) or less measured by the resistance change method. (at rated voltage, at standstill, two phases excited)	
Stop Position Accuracy*1	<ul style="list-style-type: none"> <li>±3 arc minutes (±0.05°): <b>PK Series</b></li> <li>±10 arc minutes (±0.17°): <b>PK513</b></li> <li>±2 arc minutes (±0.034°): Step angle 0.36° High-torque type, <b>PV Series</b></li> <li>±5 arc minutes (±0.083°): <b>PK213P</b></li> </ul>	
Shaft Runout	0.05 mm (0.002 in.) T.I.R.*4	
Radial Play*2	0.025 mm (0.001 in.) maximum of 5 N (1.12 lb.)	
Axial Play*3	0.075 mm (0.003 in.) maximum of 10 N (2.2 lb.)	
Concentricity	0.075 mm (0.003 in.) T.I.R.*4	
Perpendicularity	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's 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's 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.



## Encoder Overhung Load and Permissible Thrust Load

→ Page A-15

## Encoder Specifications

→ Page A-17