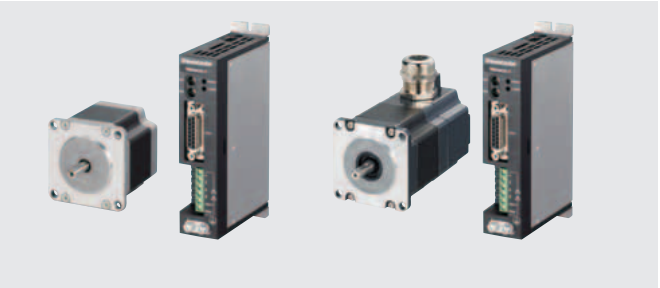
RBK Series

●Additional Information●
Technical reference ➜ Page G-1
Safety standards ➜ Page H-2

The **RBK** Series is a motor and driver package consisting of a 1.8° step angle stepping motor and DC input microstep driver.
It includes Oriental Motor's proprietary Smooth Drive Function to easily achieve low vibration operation.

c UL us CE (Terminal box type motor only) RoHS

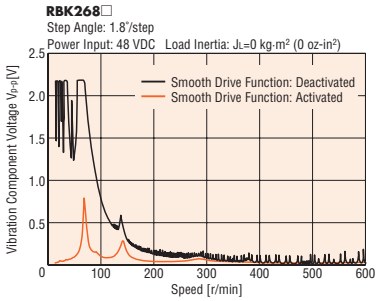
●For detailed product safety standard information including standards, file number and certification body, plesae visit www.orientalmotor.com.



Features

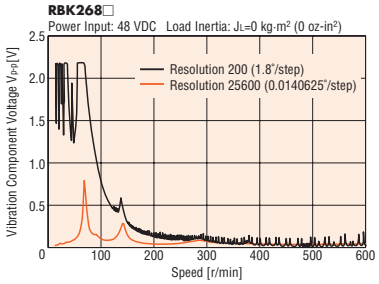
●Smooth Drive Function

The Smooth Drive Function is a function that automatically controls the motor's microstep drive operation at the same travel and speed as in the full-step mode, without the operator having to change the speed settings of the driver's pulse input. It enables low vibration operation available with the microstep drive to be achieved with the flick of a switch.



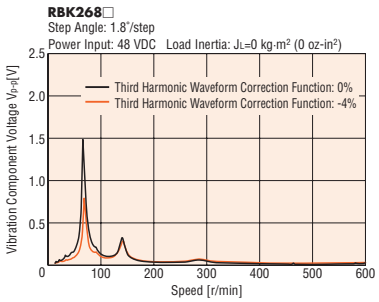
●Microstep Function

The microstep driver electronically divides the basic step angle of the motor (1.8°/step) by up to 128 without the use of a reduction mechanism or other mechanical elements.16 different resolutions levels are available. The available range of resolution settings is 200 (1.8°/step) to 25600 (0.0140625°/step). The step angle can be easily set using the built-in switches on the driver. This function enables low vibration and low noise operation.



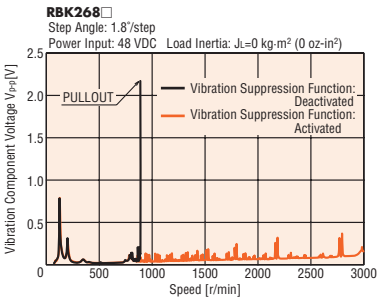
●Third Harmonic Waveform Correction Function

This function corrects motor drive current waveforms. It provides improved angle accuracy and reduced vibration.



●Vibration Suppression Function

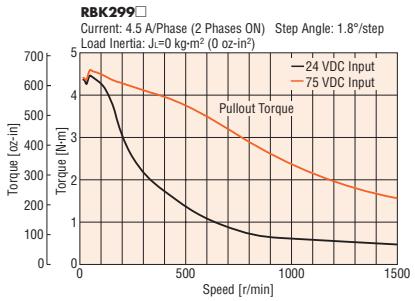
This function improves vibrations in the medium speed range of stepping motors. It enables reduced risk of missteps due to vibrations.



●Wide Voltage Range Driver

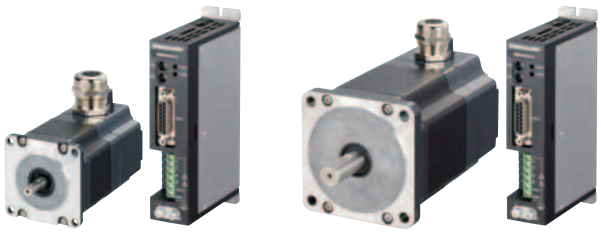
The **RBK** Series utilizes a constant current driver with a wide voltage range of 20 to 75 VDC and up to 4.5 A/phase effective value (6.3 A/phase peak value). This enables it to support a wide range of power sources.

Comparison of Speed – Torque Characteristics



● Raising the power supply voltage enables increased torque during high speed operation.

●The Terminal Box Type Motor Conforms to the IP65 Standard of Ingress Protection against Dust and Water.



●Conforming to Major Safety Standards (Terminal box type motor only)

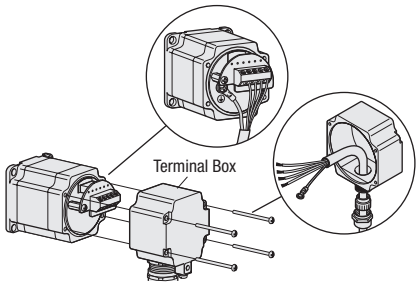
The **RBK** Series is UL recognized and CSA certified.
It also bears the CE Mark as a proof of conformance to the Low Voltage Directives.

●Encoder Option Available

200 or 400 pulse/rev, 2 or 3 channel, TTL.
Motor rotations can be detected by taking in encoder output signals into a programmable controller (not supplied).

◇Terminal-Block Connection Design

The motor can be wired directly from its terminal block.



■Lineup of Motors

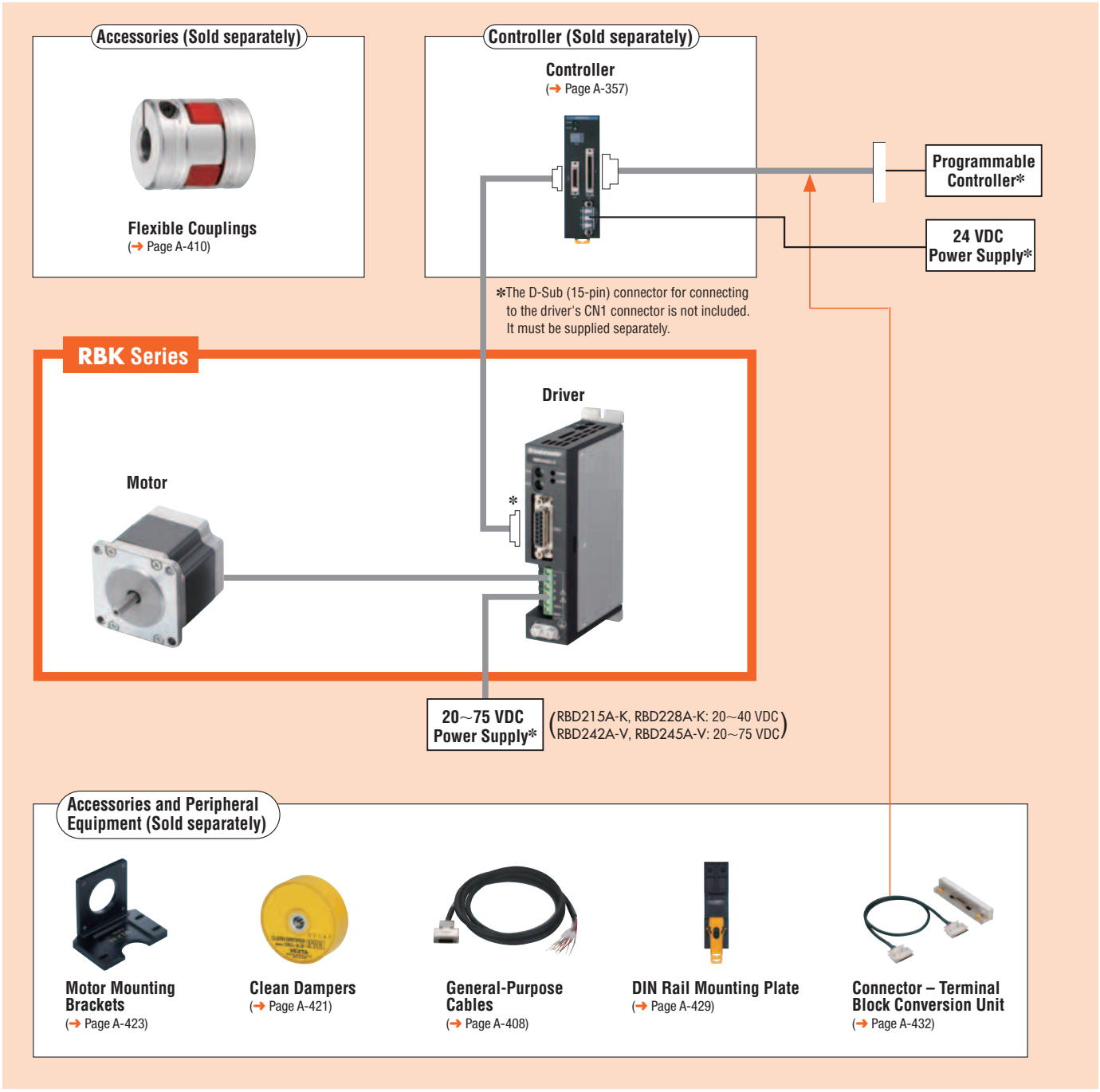
□42 mm (□1.65 in.): indicates a motor frame size of 42 mm (1.65 in.).

Type	Feature	□28 mm (□1.10 in.)	□35 mm (□1.38 in.)	□42 mm (□1.65 in.)	□56.4 mm (□2.22 in.)*1	□85 mm (□3.35 in.)
Step Angle 1.8° High-Torque Type*2	A high-torque motor has approx. 1.3~1.5 times more torque when compared to a step angle 1.8° standard stepping motor.					
Step Angle 1.8° Standard Type*2	The basic model offers a good balance of torque and low vibration /noise characteristics.					
Step Angle 1.8° Terminal Box Type	A terminal box motor conforms to the IP65 standard of ingress protection against dust and water.					
PS Geared Type **PL** Geared Type*2	A geared stepping motor with planetary gear mechanism offering low backlash, high strength.					

*1 Gearhead frame size is □60 mm (□2.36 in.)
*2 Motor with an encoder is also available
● An encoder is available → www.orientalmotor.com

System Configuration

An example of a single-axis system configuration with the **EMP400** Series controller.



●Example of System Configuration

RBK Series		Sold Separately						
		Controller	Motor Mounting Bracket	Flexible Coupling	Clean Damper	DIN Rail Mounting Plate	Connector – Terminal Block Conversion Unit [1m (3.3 ft.)]	General-Purpose Cable [1m (3.3 ft.)]
RBK266B	+	EMP401-1	PAL2P-2	MCS2005F04	D6CL-6.3F	PADP01	CC50T1	CC15D1

●The system configuration shown above is an example. Other combinations are available.
*Not supplied

Product Number Code

Step Angle 1.8°
High-Torque Type, Standard Type

RBK 2 9 6 _ A A

① ② ③ ④ ⑤ ⑥ ⑦

①	Series	**RBK**: **RBK** Series
②	**2**: 2-Phase	
③	Motor Frame Size	**2**: 28 mm (1.10 in.) **3**: 35 mm (1.38 in.) **4**: 42 mm (1.65 in.) **9**: 85 mm (3.35 in.)
④	Motor Case Length	
⑤	Motor Type	**P**: High-Torque Type Blank: Standard Type
⑥	Motor Shaft Type	**A**: Single Shaft **B**: Double Shaft
⑦	U.S.A. Version	

Step Angle 1.8°
Standard Type Terminal Box

RBK 2 6 4 T

① ② ③ ④ ⑤

①	Series	**RBK**: **RBK** Series
②	**2**: 2-Phase	
③	Motor Frame Size	**6**: 56.4 mm (2.22 in.) **9**: 85 mm (3.35 in.)
④	Motor Case Length	
⑤	**T**: Terminal Box	

Step Angle 1.8°
High-Torque Type with Encoder, Standard Type with Encoder

RBK 2 9 6 _ A A - R 1 5

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Series	**RBK**: **RBK** Series
②	**2**: 2-Phase	
③	Motor Frame Size	**2**: 28 mm (1.10 in.) **3**: 35 mm (1.38 in.) **4**: 42 mm (1.65 in.) **6**: 56.4 mm (2.22 in.) **9**: 85 mm (3.35 in.)
④	Motor Case Length	
⑤	Motor Type	**P**: High-Torque Type Blank: Standard Type
⑥	Motor Shaft Type	**A**: Single Shaft
⑦	U.S.A. Version	
⑧	Encoder Version	
⑨	Encoder Output	**1**: 2-Channel A, B **2**: 3-Channel A, B, I
⑩	Encoder Resolution	**5**: 200 P/R **6**: 400 P/R

PS/PL Geared Type

RBK 2 4 4 P A - P 10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series	**RBK**: **RBK** Series
②	**2**: 2-Phase	
③	Motor Frame Size	**2**: 28 mm (1.10 in.) **4**: 42 mm (1.65 in.) **6**: 60 mm (2.36 in.)
④	Motor Case Length	
⑤	Motor Type	
⑥	Motor Shaft Type	**A**: Single Shaft **B**: Double Shaft
⑦	Gearhead Type	**PS**: **PS** Geared Type **P**: **PL** Geared Type
⑧	Gear Ratio	

PL Geared Type with Encoder

RBK 2 4 4 P A R 1 5 - P 10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

①	Series	**RBK**: **RBK** Series
②	**2**: 2-Phase	
③	Motor Frame Size	**4**: 42 mm (1.65 in.) **6**: 60 mm (2.36 in.)
④	Motor Case Length	
⑤	Motor Type	
⑥	Motor Shaft Type	**A**: Single Shaft
⑦	Encoder Version	
⑧	Encoder Output	**1**: 2-Channel A, B **2**: 3-Channel A, B, I
⑨	Encoder Resolution	**5**: 200 P/R **6**: 400 P/R
⑩	Gearhead Type	**P**: **PL** Geared Type
⑪	Gear Ratio	

Product Line

Step Angle 1.8° High-Torque Type

Model (Single shaft)	Model (Double shaft)
RBK223PA	RBK223PB
RBK224PA	RBK224PB
RBK225PA	RBK225PB
RBK233PA	RBK233PB
RBK235PA	RBK235PB
RBK244PA	RBK244PB
RBK246PA	RBK246PB

Step Angle 1.8° High-Torque Type with Encoder

Model	
RBK223PA-R15	–
RBK224PA-R15	–
RBK225PA-R15	–
RBK233PA-R15	RBK233PA-R16
RBK233PA-R25	RBK233PA-R26
RBK235PA-R15	RBK235PA-R16
RBK235PA-R25	RBK235PA-R26
RBK244PA-R15	RBK244PA-R16
RBK244PA-R25	RBK244PA-R26
RBK246PA-R15	RBK246PA-R16
RBK246PA-R25	RBK246PA-R26

Step Angle 1.8° Standard Type Motor

Model (Single shaft)	Model (Double shaft)
RBK264A	RBK264B
RBK266A	RBK266B
RBK268A	RBK268B
RBK296AA	RBK296BA
RBK299AA	RBK299BA
RBK2913AA	RBK2913BA

Step Angle 1.8° Standard Type Motor with Encoder

Model	
RBK264A-R15	RBK264A-R16
RBK264A-R25	RBK264A-R26
RBK266A-R15	RBK266A-R16
RBK266A-R25	RBK266A-R26
RBK268A-R15	RBK268A-R16
RBK268A-R25	RBK268A-R26
RBK296AA-R15	RBK296AA-R16
RBK296AA-R25	RBK296AA-R26
RBK299AA-R15	RBK299AA-R16
RBK299AA-R25	RBK299AA-R26
RBK2913AA-R15	RBK2913AA-R16
RBK2913AA-R25	RBK2913AA-R26

Step Angle 1.8° Terminal Box Type Motor

Model (Single shaft)
RBK264T
RBK266T
RBK268T
RBK296T
RBK299T
RBK2913T

PS/PL Geared Type

Model (Single shaft)	Model (Double shaft)
RBK223PA-PS5	RBK223PB-PS5
RBK223PA-PS10	RBK223PB-PS10
RBK244PA-P5	RBK244PB-P5
RBK244PA-P10	RBK244PB-P10
RBK244PA-P36	RBK244PB-P36
RBK266PA-P5	RBK266PB-P5
RBK266PA-P10	RBK266PB-P10
RBK264PA-P36	RBK264PB-P36

PL Geared Type with Encoder

Model	
RBK244PAR15-P5	RBK244PAR16-P5
RBK244PAR25-P5	RBK244PAR26-P5
RBK244PAR15-P10	RBK244PAR16-P10
RBK244PAR25-P10	RBK244PAR26-P10
RBK244PAR15-P36	RBK244PAR16-P36
RBK244PAR25-P36	RBK244PAR26-P36
RBK266PAR15-P5	RBK266PAR16-P5
RBK266PAR25-P5	RBK266PAR26-P5
RBK266PAR15-P10	RBK266PAR16-P10
RBK266PAR25-P10	RBK266PAR26-P10
RBK264PAR15-P36	RBK264PAR16-P36
RBK264PAR25-P36	RBK264PAR26-P36

The following items are included in each product.
Motor, Driver, Connection Cable*, Operating Manual
*Only for connector-coupled motor
●Not included
- The D-sub (15-pin) connector for connecting to the driver's CN1
- For Terminal box type motor and driver product, the cable for connecting the motor and driver

Step Angle 1.8° Motor Frame Size 28 mm (1.10 in.)

High-Torque Type

Specifications RoHS

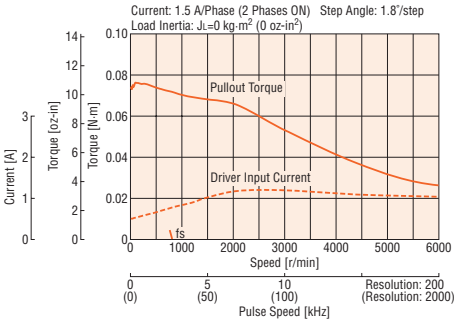
Model		Single Shaft	RBK223PA	RBK224PA	RBK225PA
		Double Shaft	RBK223PB	RBK224PB	RBK225PB
		With Encoder	RBK223PA-R15	RBK224PA-R15	RBK225PA-R15
Maximum Holding Torque		N·m (oz-in)	0.065 (9.2)	0.097 (13.7)	0.11 (15.6)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	0.032 (4.5)	0.048 (6.8)	0.055 (7.8)
Rotor Inertia		J: kg·m^2 (oz-in^2)	9×10^{-7} (0.049)	12×10^{-7} (0.066)	18×10^{-7} (0.098)
Rated Current		A/Phase	1.5		
Basic Step Angle			1.8°		
Power Source			20-40 VDC 1.7 A		
Excitation Mode			Microstep		

● A connection cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.

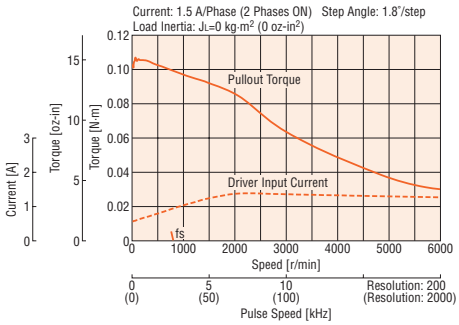
Speed – Torque Characteristics

●24 VDC Input

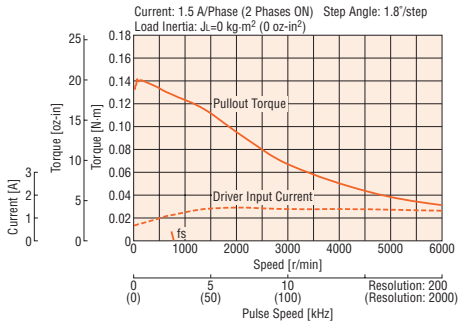
RBK223



RBK224

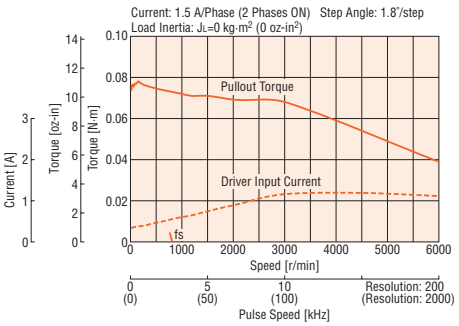


RBK225

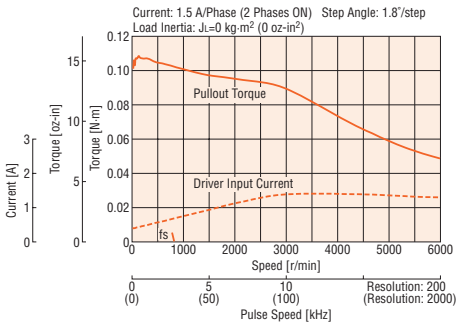


●36 VDC Input

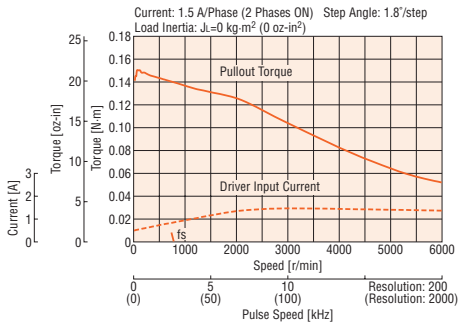
RBK223



RBK224



RBK225



● The pulse input circuit responds to approximately 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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).

Step Angle 1.8° Motor Frame Size 35 mm (1.38 in.)

High-Torque Type

Specifications RoHS

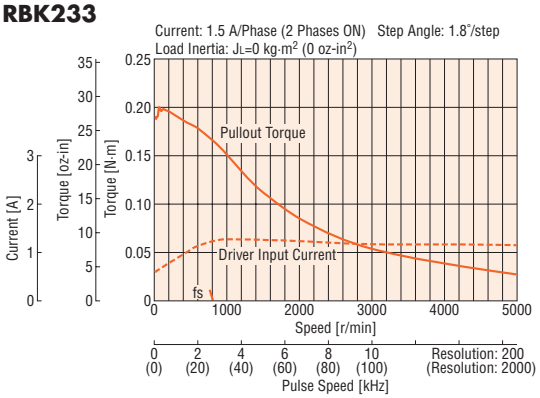
Model		Single Shaft	RBK233PA	RBK235PA
		Double Shaft	RBK233PB	RBK235PB
		With Encoder	RBK233PA-R□	RBK235PA-R□
Maximum Holding Torque		N·m (oz-in)	0.2 (28)	0.37 (52)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	0.1 (14.2)	0.185 (26)
Rotor Inertia		J: kg·m^2 (oz-in^2)	24×10^{-7} (0.131)	50×10^{-7} (0.27)
Rated Current		A/Phase	1.5	
Basic Step Angle			1.8°	
Power Source			20-40 VDC 1.7 A	
Excitation Mode			Microstep	

- A connection cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.

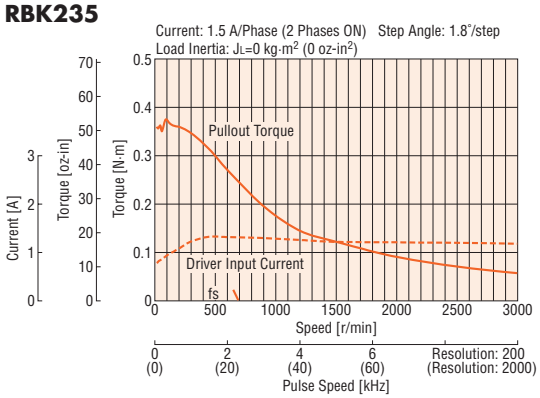
Speed –Torque Characteristics

24 VDC Input

RBK233

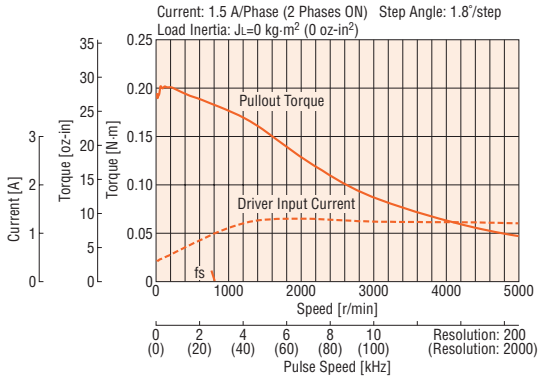


RBK235

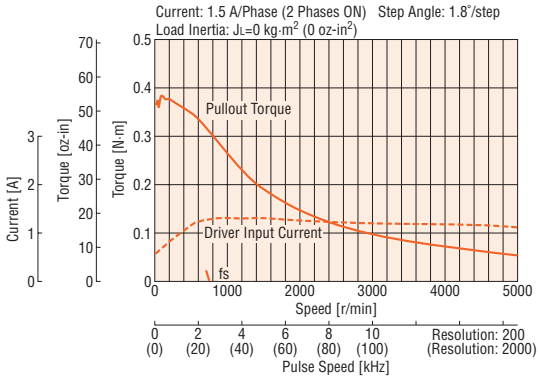


36 VDC Input

RBK233



RBK235



- The pulse input circuit responds to approximately 250 kHz with apulse duty of 50%.

Note

- Pay attention to heat dissipation from the 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).

Step Angle 1.8° Motor Frame Size 42 mm (1.65 in.)

High-Torque Type

Specifications RoHS

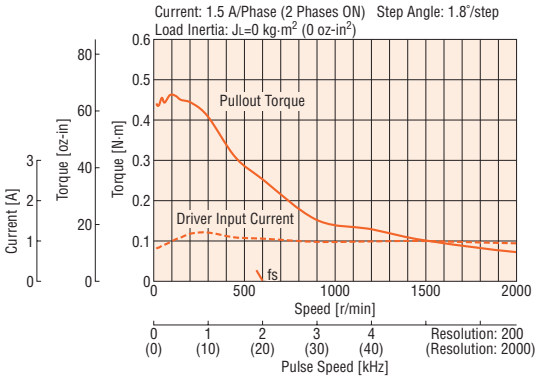
Model		Single Shaft	RBK244PA	RBK246PA
		Double Shaft	RBK244PB	RBK246PB
		With Encoder	RBK244PA-R□	RBK246PA-R□
Maximum Holding Torque		N·m (oz-in)	0.48 (68)	0.93 (132)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	0.24 (34)	0.46 (65)
Rotor Inertia		J: kg·m² (oz-in²)	57×10⁻⁷ (0.31)	114×10⁻⁷ (0.62)
Rated Current		A/Phase	1.5	
Basic Step Angle			1.8°	
Power Source			20-40 VDC 1.7 A	
Excitation Mode			Microstep	

- A connection cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.

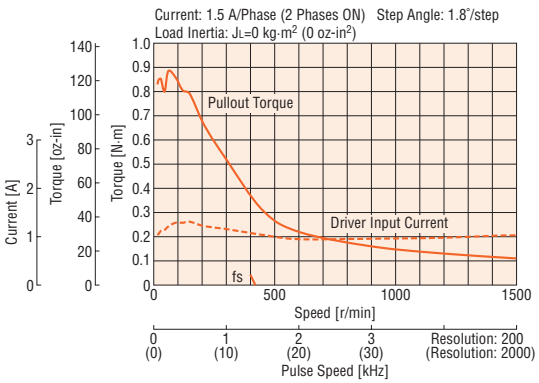
Speed – Torque Characteristics

24 VDC Input

RBK244

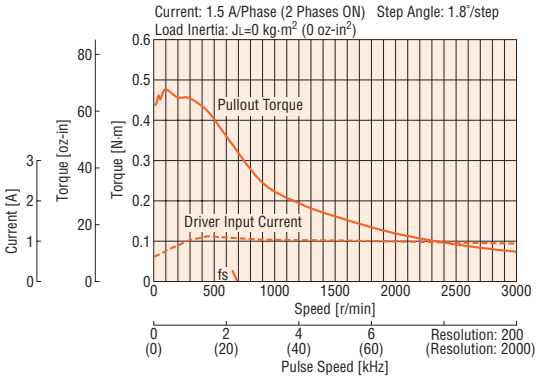


RBK246

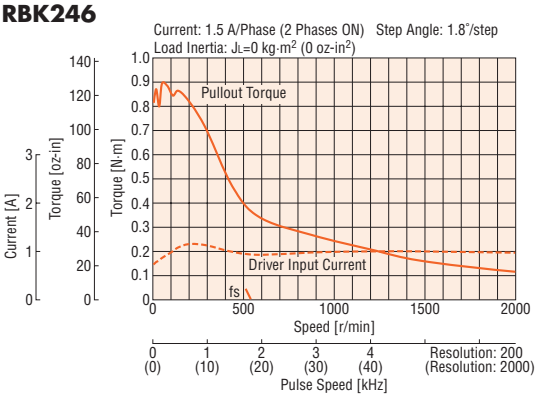


36 VDC Input

RBK244



RBK246



- The pulse input circuit responds to approximately 250 kHz with a pulse duty of 50%.

Note

- Pay attention to heat dissipation from the 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).

Step Angle 1.8° Motor Frame Size 56.4 mm (2.22 in.)

Standard Type

Specifications RoHS

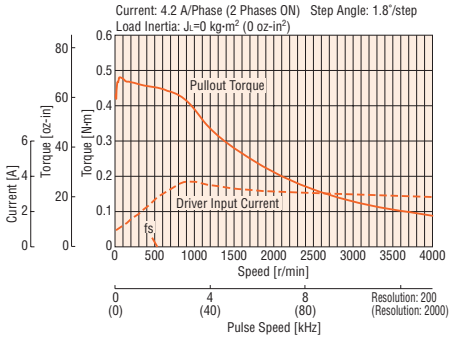
Model		Single Shaft	RBK264A	RBK266A	RBK268A
		Double Shaft	RBK264B	RBK266B	RBK268B
		With Encoder	RBK264A-R□	RBK266A-R□	RBK268A-R□
Maximum Holding Torque		N·m (oz-in)	0.48 (68)	1.17 (166)	1.75 (240)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	0.24 (34)	0.58 (82)	0.87 (123)
Rotor Inertia		J: kg·m^2 (oz-in^2)	120×10^{-7} (0.66)	300×10^{-7} (1.64)	480×10^{-7} (2.6)
Rated Current		A/Phase	4.2		
Basic Step Angle			1.8°		
Power Source			20-75 VDC 4.9 A		
Excitation Mode			Microstep		

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

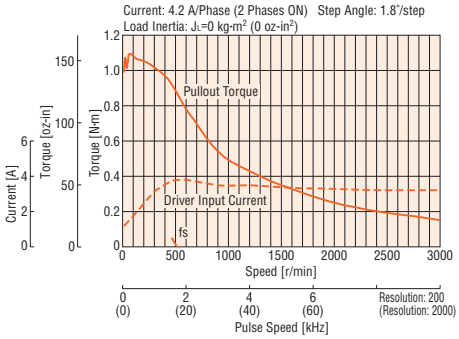
Speed – Torque Characteristics

●24 VDC Input

RBK264



RBK266



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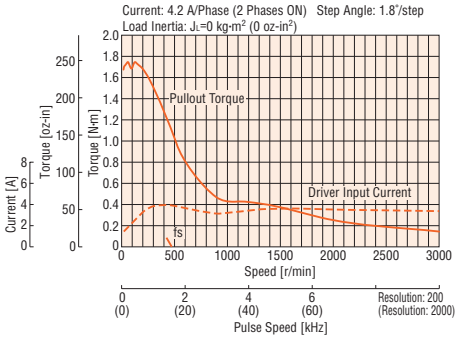
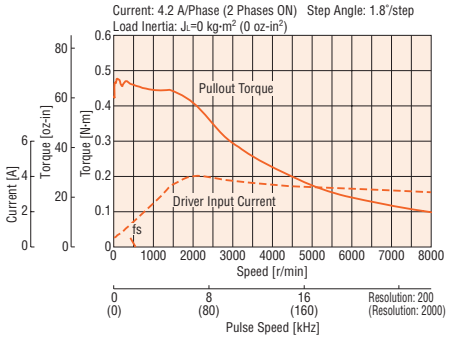


●48 VDC Input

RBK264



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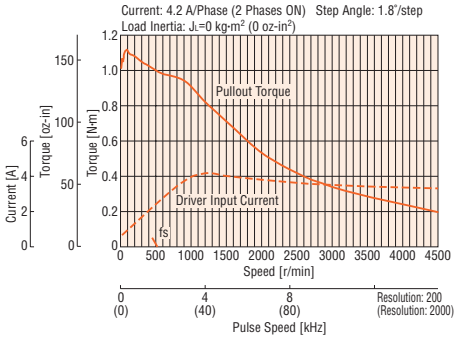

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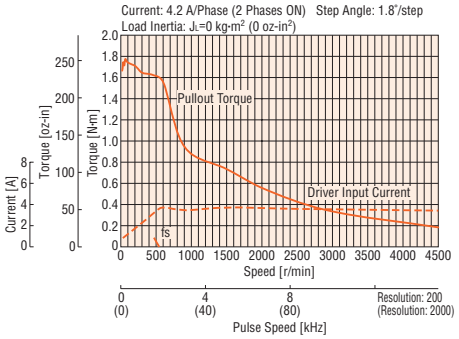
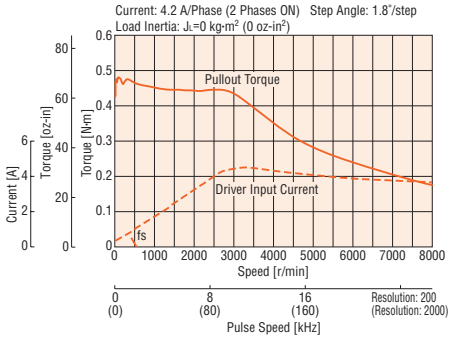


●75 VDC Input

RBK264



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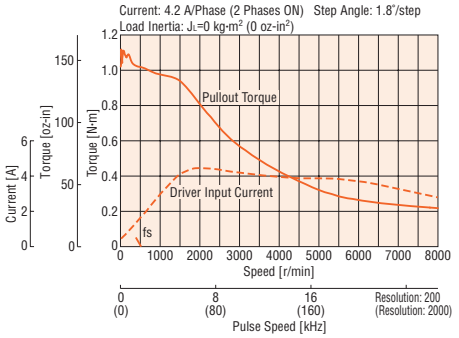

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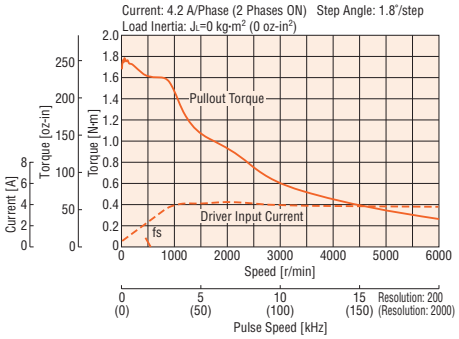


● The pulse input circuit responds to 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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).

Step Angle 1.8° Motor Frame Size 85 mm (3.35 in.)

Standard Type

Specifications RoHS

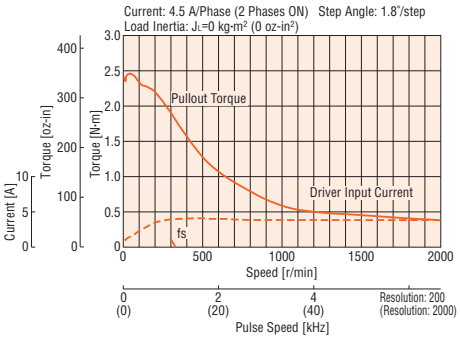
Model		Single Shaft	RBK296AA	RBK299AA	RBK2913AA
		Double Shaft	RBK296BA	RBK299BA	RBK2913BA
		With Encoder	RBK296AA-R□	RBK299AA-R□	RBK2913AA-R□
Maximum Holding Torque		N·m (oz-in)	2.2 (310)	4.4 (620)	6.6 (930)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	1.1 (156)	2.2 (310)	3.3 (460)
Rotor Inertia		J: kg·m^2 (oz-in^2)	1400×10^{-7} (7.7)	2700×10^{-7} (14.8)	4000×10^{-7} (22)
Rated Current		A/Phase	4.5		
Basic Step Angle			1.8°		
Power Source			20-75 VDC 5.2 A		
Excitation Mode			Microstep		

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

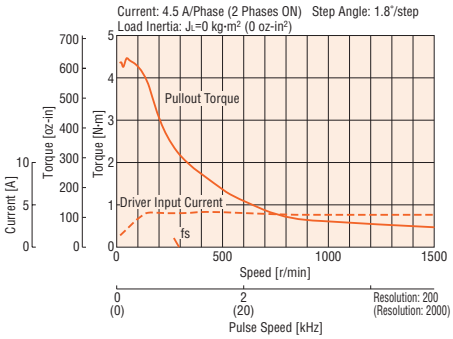
Speed – Torque Characteristics

●24 VDC Input

RBK296



RBK299



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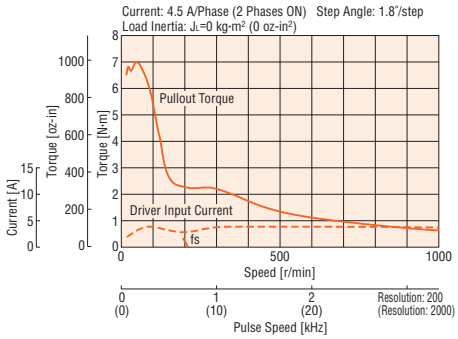
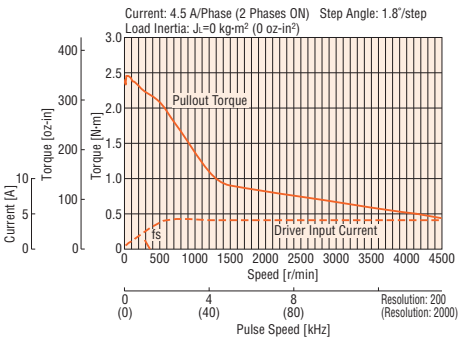


●48 VDC Input

RBK296



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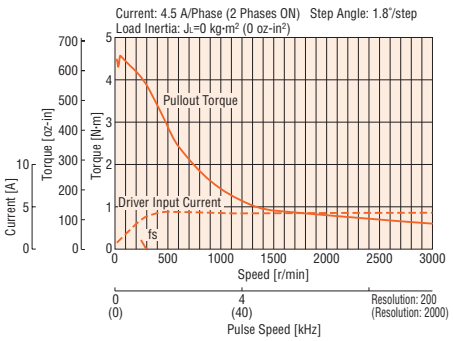

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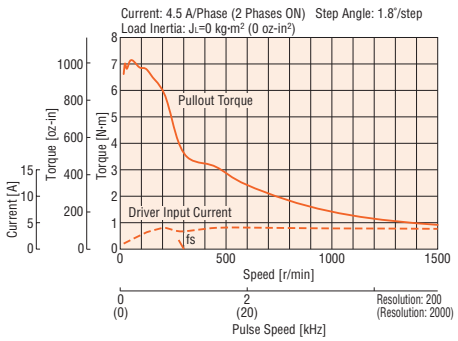
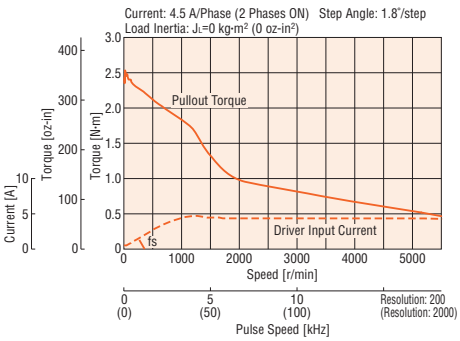


●75 VDC Input

RBK296



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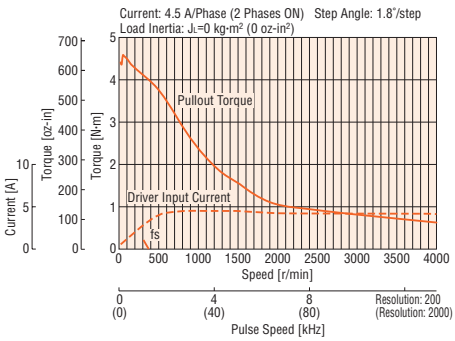

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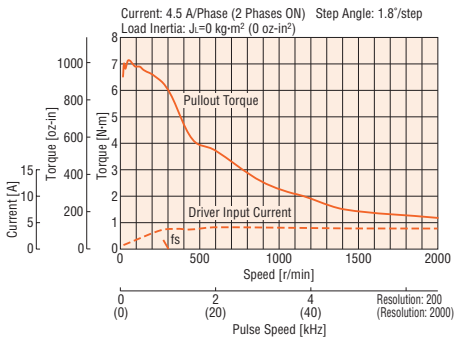


● The pulse input circuit responds to 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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).

Step Angle 1.8° Motor Frame Size 56.4 mm (2.22 in.)

Terminal Box Type

Specifications RoHS

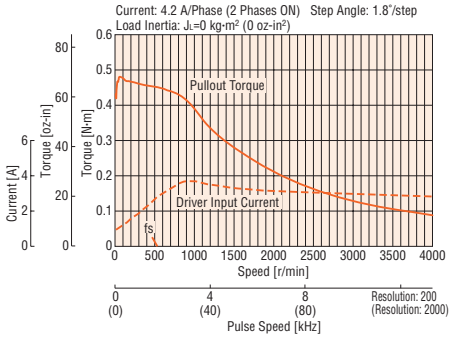
Model	Single Shaft	RBK264T	RBK266T	RBK268T
Maximum Holding Torque	N·m (oz-in)	0.48 (68)	1.17 (166)	1.75 (240)
Holding Torque at Motor Standstill (Power ON)	N·m (oz-in)	0.24 (34)	0.58 (82)	0.87 (123)
Rotor Inertia	J: kg·m² (oz-in²)	120×10⁻⁷ (0.66)	300×10⁻⁷ (1.64)	480×10⁻⁷ (2.6)
Rated Current	A/Phase	4.2		
Basic Step Angle		1.8°		
Power Source		20-75 VDC 4.9 A		
Excitation Mode		Microstep		
Degree of Protection		Motor: IP65* Driver: IP20		

*Excluding the gap between the shaft and the flange.

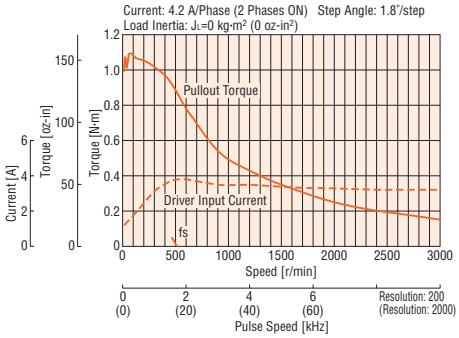
Speed – Torque Characteristics

24 VDC Input

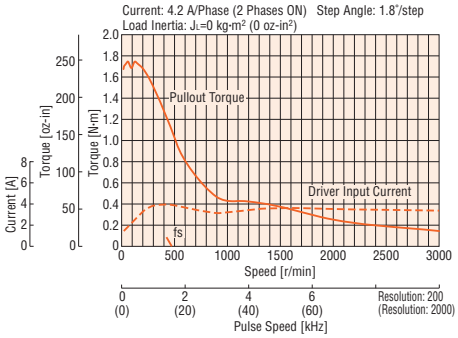
RBK264T



RBK266T

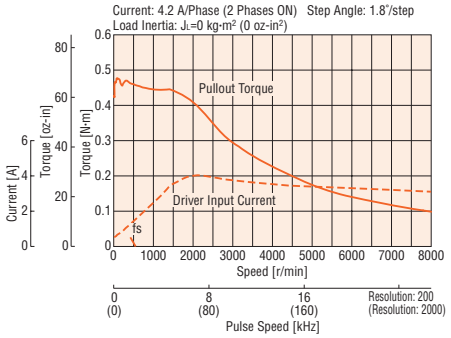


RBK268T

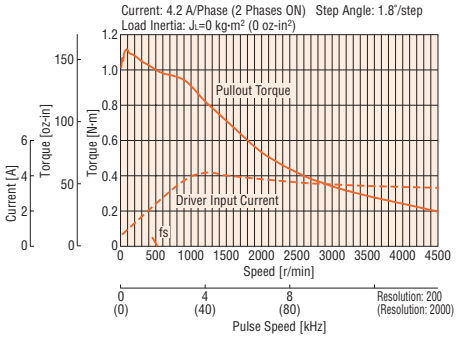


48 VDC Input

RBK264T



RBK266T



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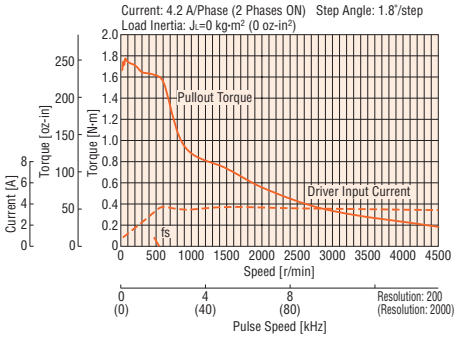
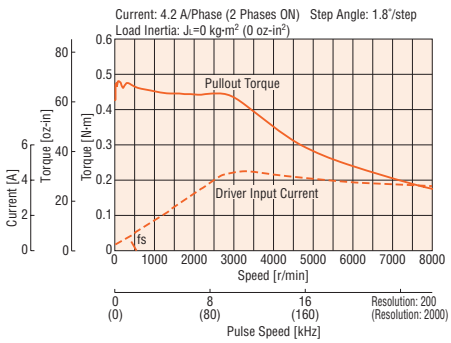
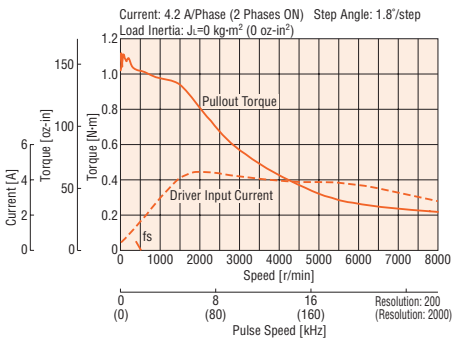


75 VDC Input

RBK264T



RBK266T



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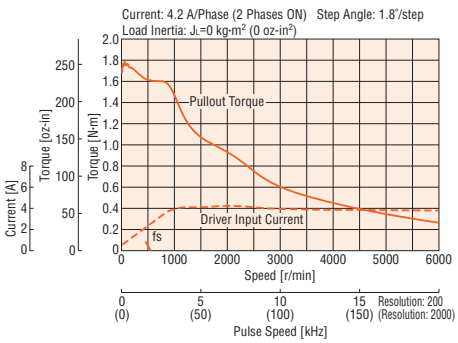


● The pulse input circuit responds to 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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). [Under 75°C (167°F) is required to comply with UL or CSA Standards as the motor is recognized as thermal class 105 (A).]

Step Angle 1.8° Motor Frame Size 85 mm (3.35 in.)

Terminal Box Type

Specifications RoHS

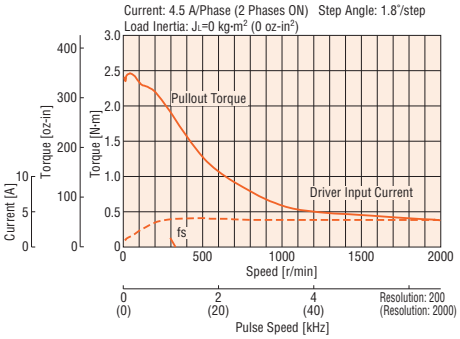
Model	Single Shaft	RBK296T	RBK299T	RBK2913T
Maximum Holding Torque	N·m (oz-in)	2.2 (310)	4.4 (620)	6.6 (930)
Holding Torque at Motor Standstill (Power ON)	N·m (oz-in)	1.1 (156)	2.2 (310)	3.3 (460)
Rotor Inertia	J: kg·m² (oz-in²)	1400×10⁻⁷ (7.7)	2700×10⁻⁷ (14.8)	4000×10⁻⁷ (22)
Rated Current	A/Phase	4.5		
Basic Step Angle		1.8°		
Power Source		20-75 VDC 5.2 A		
Excitation Mode		Microstep		
Degree of Protection		Motor: IP65* Driver: IP20		

*Excluding the gap between the shaft and the flange.

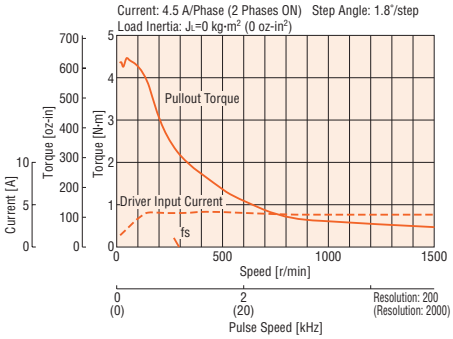
Speed – Torque Characteristics

24 VDC Input

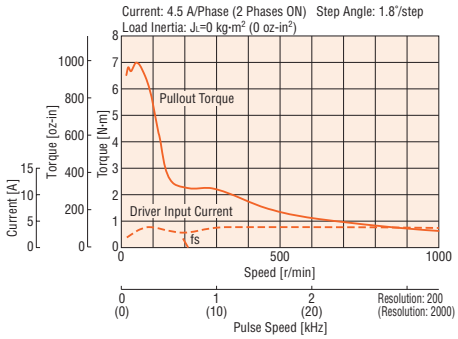
RBK296T



RBK299T

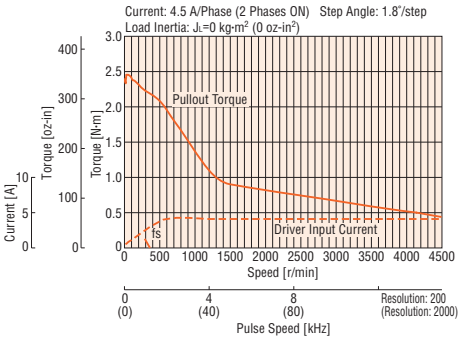


RBK2913T



48 VDC Input

RBK296T



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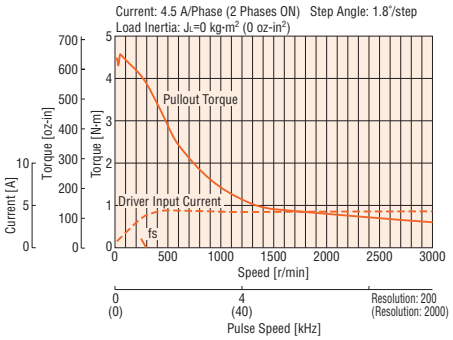

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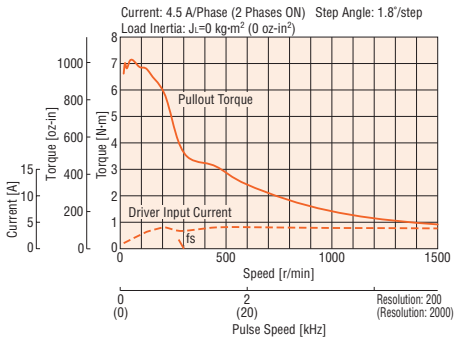
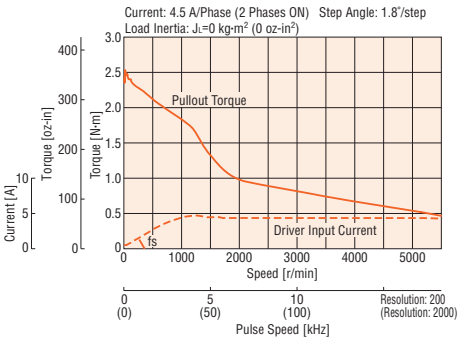


75 VDC Input

RBK296T



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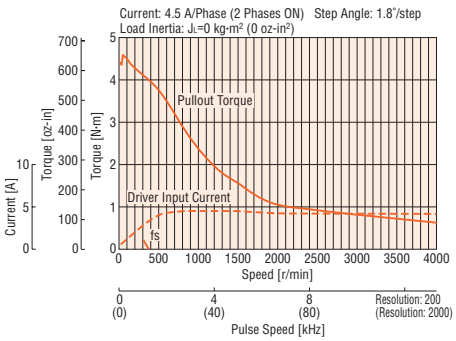
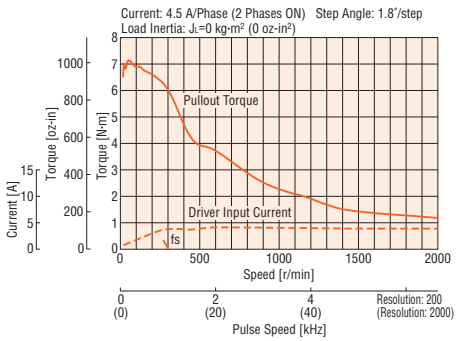


RBK2913T



● The pulse input circuit responds to 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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). [Under 75°C (167°F) is required to comply with UL or CSA Standards as the motor is recognized as thermal class 105 (A).]

PS Geared Type Motor Frame Size 28 mm (1.10 in.)

Specifications RoHS

Model		Single Shaft	RBK223PA-PS5	RBK223PA-PS10
		Double Shaft	RBK223PB-PS5	RBK223PB-PS10
Maximum Holding Torque		N·m (oz-in)	0.3 (42)	0.5 (71)
Rotor Inertia		J: kg·m^2 (oz-in^2)	9×10^{-7} (0.049)	
Rated Current		A/Phase	1.5	
Basic Step Angle			0.36°	0.18°
Gear Ratio			5	10
Permissible Torque		N·m (oz-in)	0.3 (42)	0.5 (71)
Maximum Torque		N·m (oz-in)	0.5 (71)	0.5 (71)
Holding Torque at Motor Standstill	Power ON	N·m (oz-in)	0.3 (42)	0.5 (71)
Backlash		arc min (degrees)	35 (0.58)	
Permissible Speed Range		r/min	0～600	0～300
Power Source			20-40 VDC 1.7 A	
Excitation Mode			Microstep	

● Connection Cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.

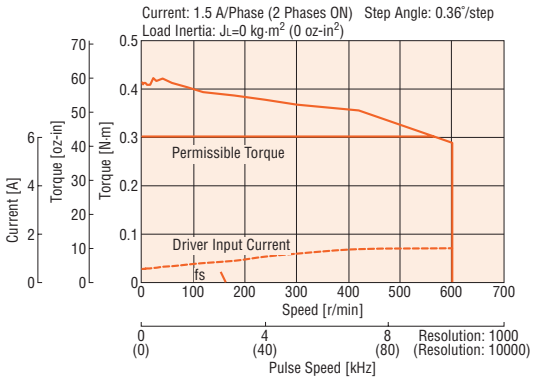
Note

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

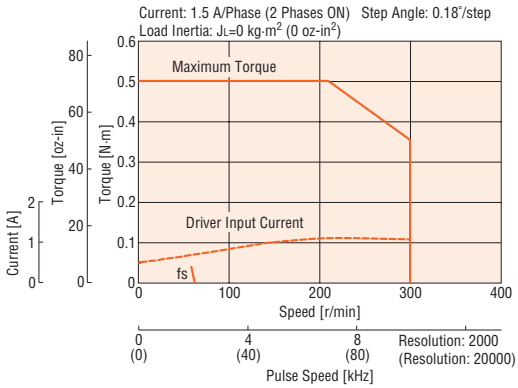
Speed – Torque Characteristics

●24 VDC Input

RBK223 Gear Ratio **5**

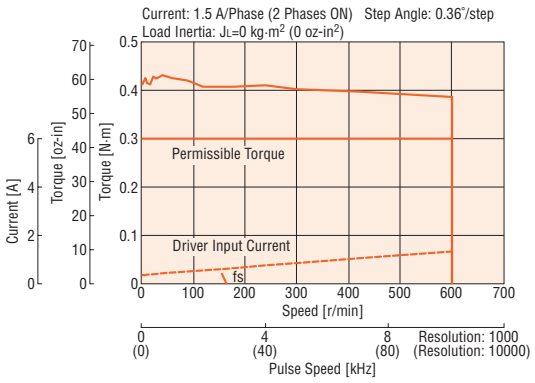


RBK223 Gear Ratio **10**

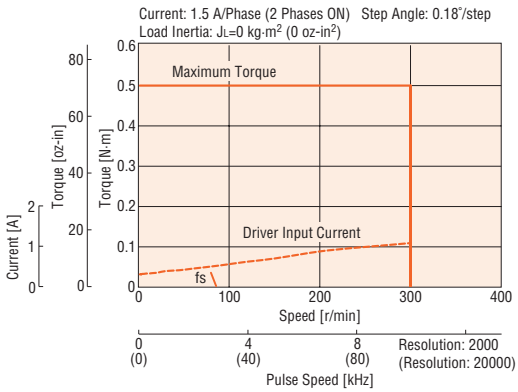


●36 VDC Input

RBK223 Gear Ratio **5**



RBK223 Gear Ratio **10**



● The pulse input circuit responds to approximately 250 kHz with a pulse duty of 50%.

Note

● Pay attention to heat dissipation from the 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).

PL Geared Type Motor Frame Size 42 mm (1.65 in.)

Specifications RoHS

Model		Single Shaft	RBK244PA-P5	RBK244PA-P10	RBK244PA-P36
		Double Shaft	RBK244PB-P5	RBK244PB-P10	RBK244PB-P36
		With Encoder	RBK244PAR□-P5	RBK244PAR□-P10	RBK244PAR□-P36
Maximum Holding Torque		N·m (lb-in)	1 (8.8)	1.5 (13.2)	3 (26)
Rotor Inertia		J: kg·m^2 (oz-in^2)	57×10^{-7} (0.31)		
Rated Current		A/Phase	1.5		
Basic Step Angle			0.36°	0.18°	0.05°
Gear Ratio			5	10	36
Permissible Torque		N·m (lb-in)	1 (8.8)	1.5 (13.2)	3 (26)
Holding Torque at Motor Standstill	Power ON	N·m (lb-in)	0.7 (6.1)	1.5 (13.2)	3 (26)
Backlash		arc min (degrees)	35 (0.58)		
Permissible Speed Range		r/min	0～360	0～180	0～50
Power Source			20-40 VDC 1.7 A		
Excitation Mode			Microstep		

- A connection cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.

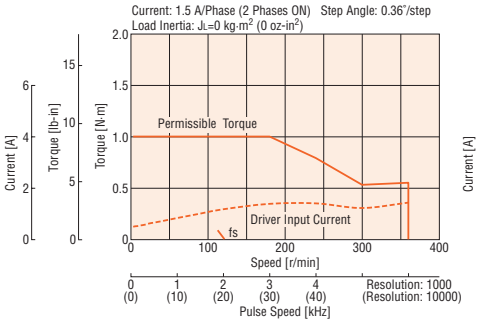
Note

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

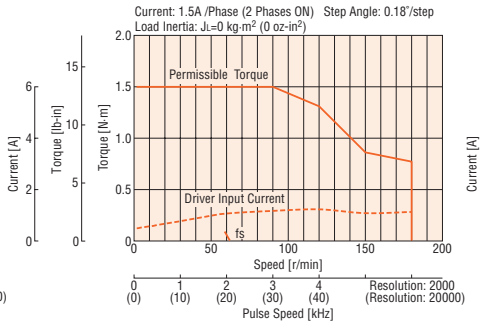
Speed – Torque Characteristics

24 VDC Input

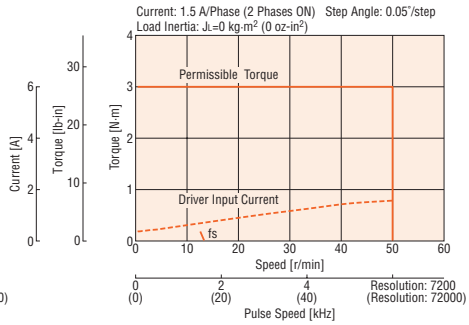
RBK244 Gear Ratio **5**



RBK244 Gear Ratio **10**

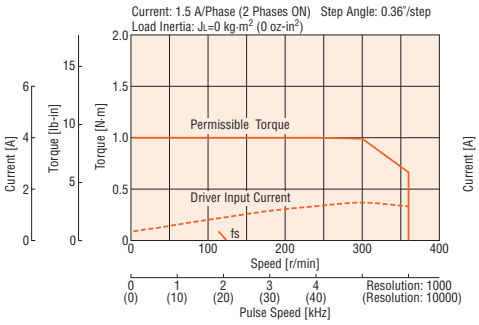


RBK244 Gear Ratio **36**

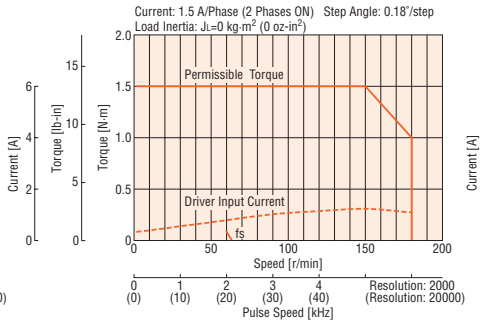


36 VDC Input

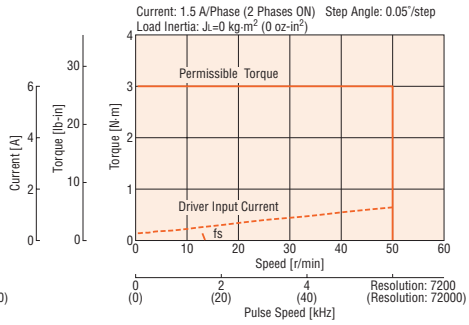
RBK244 Gear Ratio **5**



RBK244 Gear Ratio **10**



RBK244 Gear Ratio **36**



- The pulse input circuit responds to approximately 250 kHz with a pulse duty of 50%.

Note

- Pay attention to heat dissipation from the 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).

PL Geared Type Motor Frame Size 60 mm (2.36 in.)

Specifications RoHS

Model		Single Shaft	RBK266PA-P5	RBK266PA-P10	RBK264PA-P36
		Double Shaft	RBK266PB-P5	RBK266PB-P10	RBK264PB-P36
		With Encoder	RBK266PAR□-P5	RBK266PAR□-P10	BK264PAR□-P36
Maximum Holding Torque		N·m (lb-in)	3.5 (30)	5 (44)	8 (70)
Rotor Inertia		J: kg·m^2 (oz-in^2)	290×10^{-7} (1.59)		120×10^{-7} (0.66)
Rated Current		A/Phase	2.8		
Basic Step Angle			0.36°	0.18°	0.05°
Gear Ratio			5	10	36
Permissible Torque		N·m (lb-in)	3.5 (30)	5 (44)	8 (70)
Holding Torque at Motor Standstill	Power ON	N·m (lb-in)	2 (17.7)	4 (35)	7 (61)
Backlash		arc min (degrees)	20 (0.33)		
Permissible Speed Range		r/min	0～360	0～180	0～50
Power Source			20-40 VDC 3.7 A		
Excitation Mode			Microstep		

- A connection cable [0.6 m (2 ft.)] is included with the connector-coupled motor and driver package.
- Enter the encoder code (**15**, **16**, **25** or **26**) in the box (□) within the model name.

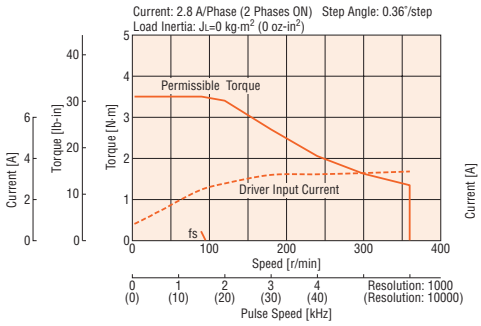
Note

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

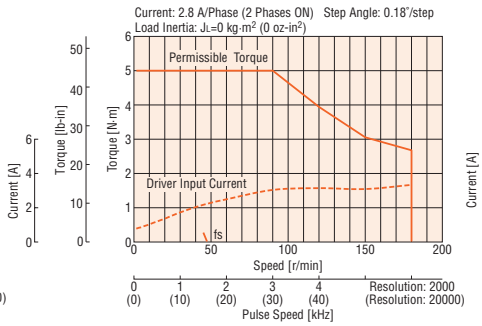
Speed – Torque Characteristics

24 VDC Input

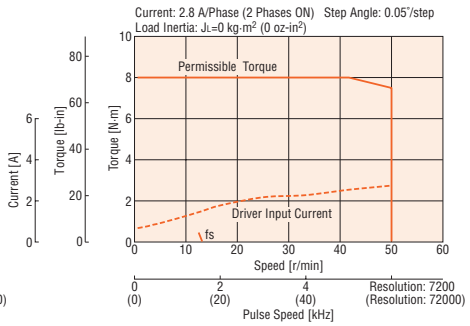
RBK266 Gear Ratio **5**



RBK266 Gear Ratio **10**

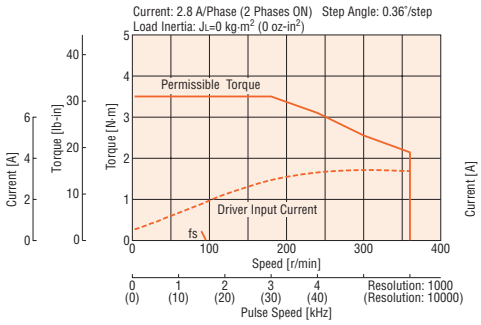


RBK264 Gear Ratio **36**

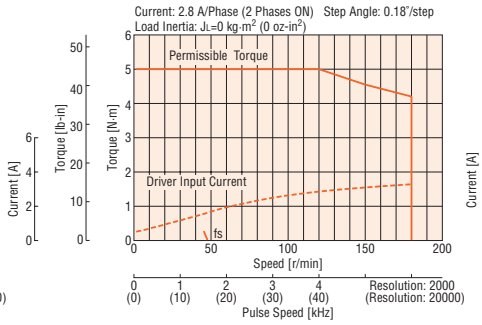


36 VDC Input

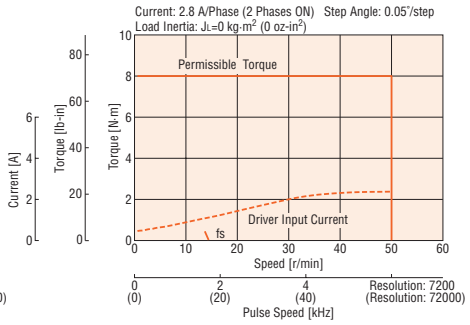
RBK266 Gear Ratio **5**



RBK266 Gear Ratio **10**



RBK264 Gear Ratio **36**



- The pulse input circuit responds to approximately 250 kHz with a pulse duty of 50%.

Note

- Pay attention to heat dissipation from the 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).

Driver Specifications

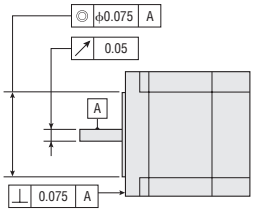
Input Signals	Input Mode	Photocoupler Input PLS signal, DIR signal: Input resistance 200 Ω, Input current 5～20 mA Photocoupler ON: +3～5.25 V, Photocoupler OFF: 0～+1 V (Line driver input: −5.25～+1 V) (Voltage between terminals) PLS24 signal, DIR24 signal: Input resistance 2.7 kΩ, Input current 5～20 mA Photocoupler ON: +21.6～26.4 V, Photocoupler OFF: 0～+1 V (Voltage between terminals) All windings off signal, Step angle select signal: Input resistance 3 kΩ, Input current 20 mA or less Photocoupler ON: +4.5～26.4 V Photocoupler OFF: 0～+1 V (Voltage between terminals)
	Pulse Signal	Operation command pulse signal, Negative logic pulse input Pulse width: 2 μs minimum (Line driver input: 1 μs minimum), Pulse rise/fall: 1 μs maximum, Pulse duty 50% and below Motor moves one step when the pulse input is switched from photocoupler ON to OFF. Maximum input pulse frequency: 250 kHz (Line driver input: 500 kHz) (When the pulse duty is 50%)
	Rotation Direction Signal	Rotation direction signal, Photocoupler ON: CW, Photocoupler OFF: CCW
	All Windings Off Signal	When in the "photocoupler ON" state, the output current to the motor is cut off and the motor shaft can be rotated manually. When in the "photocoupler OFF" state, the current is supplied to the motor.
	Step Angle Select Signal	When in the "photocoupler ON" state, the motor operates with the basic step angle, regardless of the setting of the step angle setting switch. When in the "photocoupler OFF" state, the motor operates with the step angle set with the step angle setting switch.
Output Signals	Output Mode	Photocoupler, Open-collector output External use condition: 30 VDC maximum, 10 mA maximum
	Current Cutback Signal	When the automatic current cutback function is activated, the output turns on. (Photocoupler: ON)
	Alarm Signal	When one of the driver's protective functions is activated, the output turns off. (Photocoupler: OFF)
	Excitation Timing Signal	The signal is output every time the excitation sequence returns to the initial stage "0." (Photocoupler: ON) 1.8°/step [Microsteps/step: 1 (Resolution: 200)]: Signal is output every 4 pulses. 0.45°/step [Microsteps/step: 4 (Resolution: 800)]: Signal is output every 16 pulses.
Functions		Third harmonic waveform correction, Smooth drive, Vibration suppression, Automatic current cutback, Step angle select, All windings off, Excitation timing
Cooling Method		Natural ventilation

General Specifications

Item		Motor	Driver
Thermal Class		130 (B) [Recognized as 105 (A) by UL/CSA Standards]	–
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 50 Hz or 60 Hz applied between the windings and the case for 1 minute under normal ambient temperature and humidity. (1.5 kVAC for terminal box type motor)	–
Operating Environment	Ambient Temperature	−10～+50°C (+14～+122°F) (non-freezing)	0～+40°C (+32～+104°F) (non-freezing)
	Ambient Humidity	85% or less (non-condensing)	
	Atmosphere	Standard type motor: No corrosive gases, dust, water or oil Terminal box type motor: No corrosive gases	
Temperature Rise		Temperature rise of the windings is 80°C (144°F) or less measured by the resistance change method. (at rated current, at standstill, two phases energized) When equipped with an alminum heat sink shown below. **RBK22**□: 115×115 mm, 5 mm thick (4.53×4.53 in., 0.2 in. thick) **RBK24**□: 175×175 mm, 5 mm thick (6.89×6.89 in., 0.2 in. thick) **RBK26**□: 250×250 mm, 10 mm thick (9.84×9.84 in., 0.39 in. thick) When using the **RBK26**□**T** or the **RBK29**□**T** as a UL or CSA recognized component, make sure the temperature rise of the windings is 50°C (90°F) or less, by mounting the motor to a heat sink (material: aluminum) of the following size. **RBK26**□**T**: 400×400 mm, 10 mm thick (15.75×15.75 in., 0.39 in. thick) **RBK29**□**T**: 200×200 mm, 10 mm thick (7.87×7.87 in., 0.39 in. thick)	–
Stop Position Accuracy*1		±3 arc minutes (±0.05°)	–
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.

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

➜ Page A-14

Encoder Specifications

➜ Page A-17

Dimensions Unit = mm (in.)

The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

●Motor

◇Step Angle 1.8° High-Torque Type

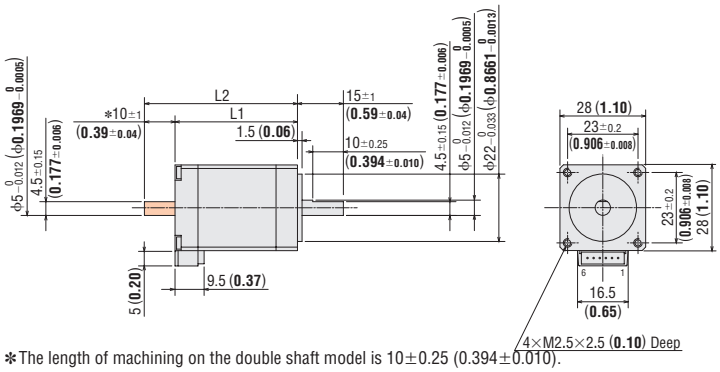
Motor Frame Size 28 mm (1.10 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK223PA	PK223PDA	32 (1.26)	–	0.11 (0.24)	B326
RBK223PB	PK223PDB		42 (1.65)		
RBK224PA	PK224PDA	40 (1.57)	–	0.14 (0.31)	B327
RBK224PB	PK224PDB		50 (1.97)		
RBK225PA	PK225PDA	51.5 (2.03)	–	0.2 (0.44)	B328
RBK225PB	PK225PDB		61.5 (2.42)		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately.

➜ Page A-407

- Applicable Connector for Motor:
  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).

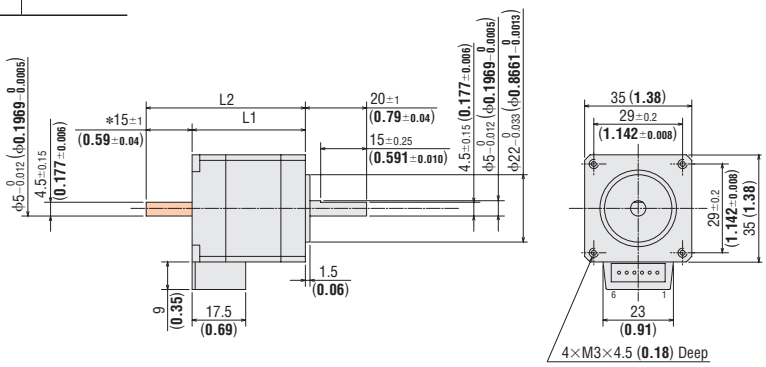
Motor Frame Size 35 mm (1.38 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK233PA	PK233PDA	37 (1.46)	–	0.18 (0.4)	B329
RBK233PB	PK233PDB		52 (2.05)		
RBK235PA	PK235PDA	52 (2.05)	–	0.285 (0.63)	B330
RBK235PB	PK235PDB		67 (2.64)		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately.

➜ Page A-407

- Applicable Connector for Motor:
  Connector housing: 51103-0600 (MOLEX)
  Contact: 50351-8100 (MOLEX)
  Crimp tool: 57295-5000 (MOLEX)



∗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 shaded ( ) areas.
- The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

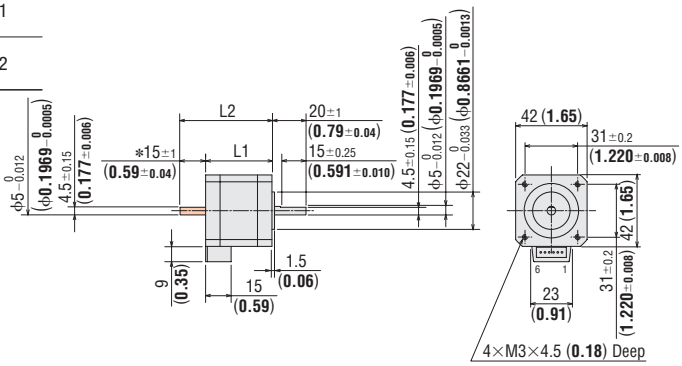
Motor Frame Size 42 mm (1.65 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK244PA	PK244PDA	39 (1.54)	–	0.3 (0.66)	B331
RBK244PB	PK244PDB		54 (2.13)		
RBK246PA	PK246PDA	59 (2.32)	–	0.5 (1.1)	B332
RBK246PB	PK246PDB		74 (2.91)		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately.

➜ Page A-407

- Applicable Connector for Motor:
  Connector housing: 51103-0600 (MOLEX)
  Contact: 50351-8100 (MOLEX)
  Crimp tool: 57295-5000 (MOLEX)

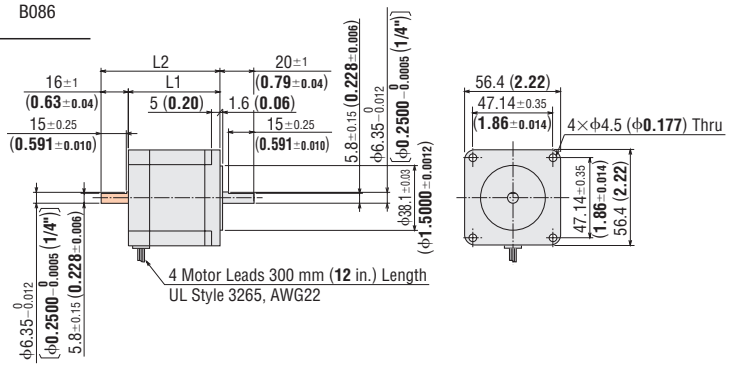


∗The length of machining on the double shaft model is 15±0.25 (0.591±0.010).

◇Step Angle 1.8° Standard Type

Motor Frame Size 56.4 mm (2.22 in.)

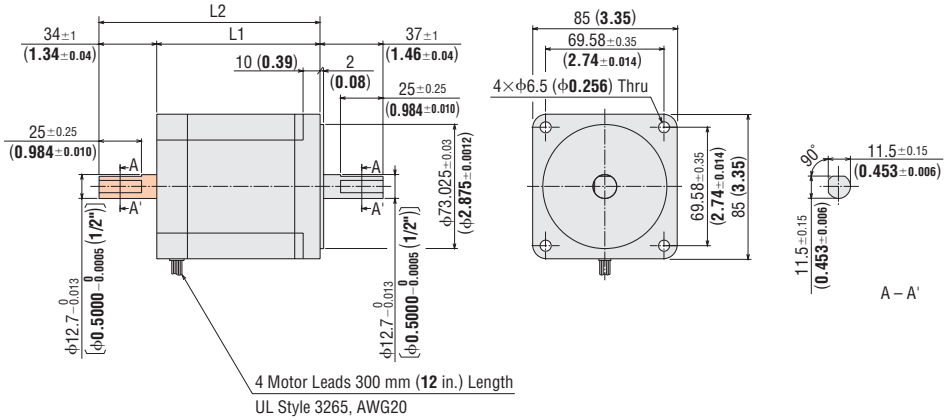
Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK264A	PK264DA	39 (1.54)	–	0.45 (0.99)	B084
RBK264B	PK264DB		55 (2.17)		
RBK266A	PK266DA	54 (2.13)	–	0.7 (1.54)	B085
RBK266B	PK266DB		70 (2.76)		
RBK268A	PK268DA	76 (2.99)	–	1.0 (2.2)	B086
RBK268B	PK268DB		92 (3.62)		



- These dimensions are for the double shaft models.
  For the single shaft models, ignore the orange ( ) areas.
- The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

Motor Frame Size 85 mm (3.35 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK296AA	PK296DAA	66 (2.6)	–	1.7 (3.7)	B122U
RBK296BA	PK296DBA		100 (3.94)		
RBK299AA	PK299DAA	96 (3.78)	–	2.8 (6.2)	B123U
RBK299BA	PK299DBA		130 (5.12)		
RBK2913AA	PK2913DAA	126 (4.96)	–	3.8 (8.4)	B124U
RBK2913BA	PK2913DBA		160 (6.3)		

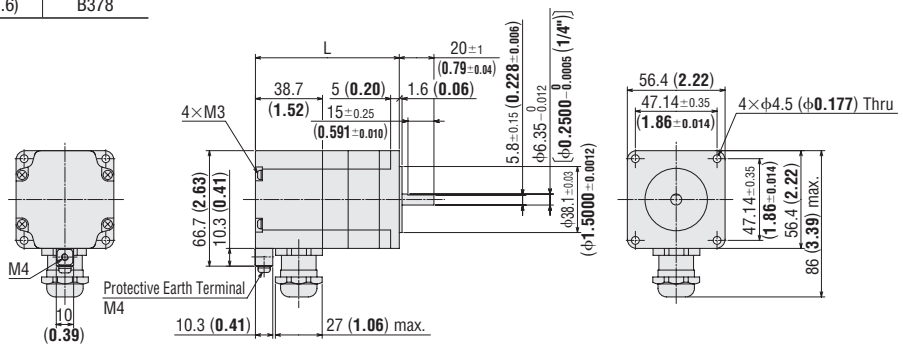


- These dimensions are for the double shaft models. For the single shaft models, ignore the orange ( ) areas.
- The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

◇Step Angle 1.8° Terminal Box Type

Motor Frame Size 56.4 mm (2.22 in.)

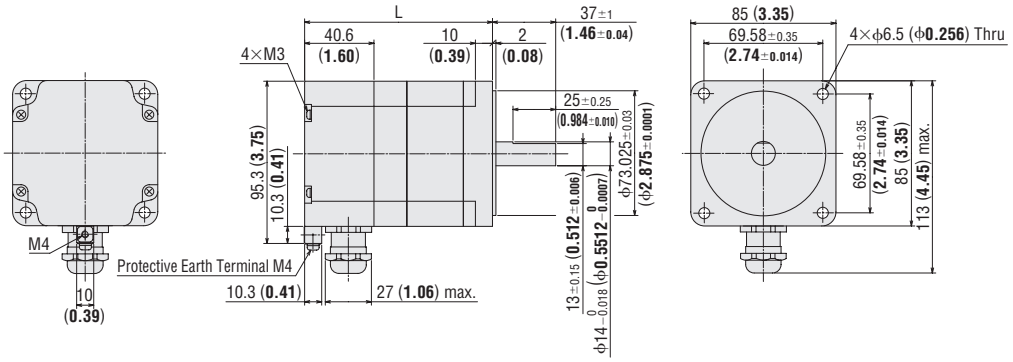
Model	Motor Model	L	Mass kg (lb.)	DXF
RBK264T	PK264D1T	83 (3.27)	0.6 (1.32)	B376
RBK266T	PK266D1T	98 (3.86)	0.9 (1.98)	B377
RBK268T	PK268D1T	120 (4.72)	1.2 (2.6)	B378



- Use cable (VCT) with a diameter of ϕ7~ϕ13 mm (ϕ0.28~ϕ0.51 in.). A connection cable is available as an accessory (sold separately). ➜ Page A-407

Motor Frame Size 85 mm (3.35 in.)

Model	Motor Model	L	Mass kg (lb.)	DXF
RBK296T	PK296DT	110 (4.33)	2.1 (4.6)	B379
RBK299T	PK299DT	140 (5.51)	3.2 (7)	B380
RBK2913T	PK2913DT	170 (6.69)	4.3 (9.5)	B381



- Use cable (VCT) with a diameter of ϕ7~ϕ13 mm (ϕ0.28~ϕ0.51 in.). A connection cable is available as an accessory (sold separately). ➜ Page A-407

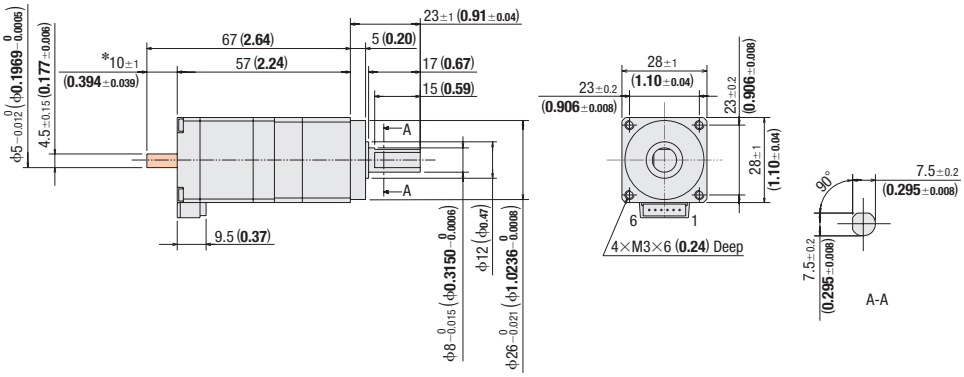
◇**PS** Geared Type

Motor Frame Size 28 mm (1.10 in.)

Model	Motor Model	Mass kg (lb.)	DXF
RBK223PA-PS5	PK223PDA-PS5	0.21 (0.46)	B975
RBK223PB-PS5	PK223PDB-PS5		
RBK223PA-PS10	PK223PDA-PS10		
RBK223PB-PS10	PK223PDB-PS10		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately. ➜ Page A-407

- Applicable Connector for Motor:
  Connector housing: 51065-0600 (MOLEX)
  Contact: 50212-8100 (MOLEX)
  Crimp tool: 57176-5000 (MOLEX)



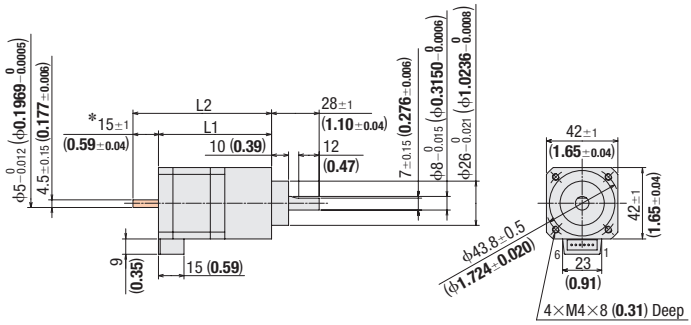
◇**PL** Geared Type

Motor Frame Size 42 mm (1.65 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK244PA-P5	PK244PDA-P5	66.5 (2.62)	–	0.48 (1.06)	B713
RBK244PB-P5	PK244PDB-P5		81.5 (3.21)		
RBK244PA-P10	PK244PDA-P10		–		
RBK244PB-P10	PK244PDB-P10		81.5 (3.21)		
RBK244PA-P36	PK244PDA-P36	90 (3.54)	–	0.6 (1.32)	B714
RBK244PB-P36	PK244PDB-P36		105 (4.13)		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately.
➜ Page A-407

- Applicable Connector for Motor:
  Connector housing: 51103-0600 (MOLEX)
  Contact: 50351-8100 (MOLEX)
  Crimp tool: 57295-5000 (MOLEX)



- The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

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

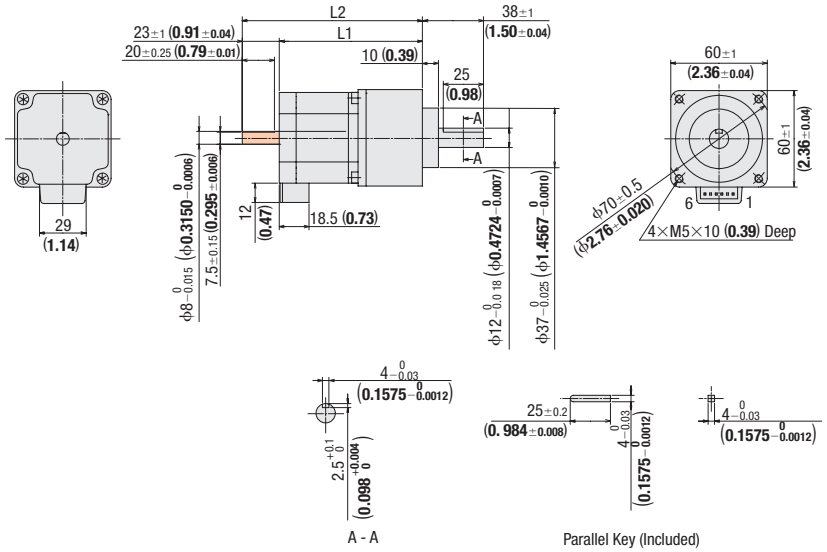
Motor Frame Size 60 mm (2.36 in.)

Model	Motor Model	L1	L2	Mass kg (lb.)	DXF
RBK266PA-P5	PK266PDA-P5	89 (3.5)	–	1.23 (2.71)	B715
RBK266PB-P5	PK266PDB-P5		112 (4.41)		
RBK266PA-P10	PK266PDA-P10		–		
RBK266PB-P10	PK266PDB-P10		112 (4.41)		
RBK264PA-P36	PK264PDA-P36	99 (3.9)	–	1.26 (2.77)	B716
RBK264PB-P36	PK264PDB-P36		122 (4.8)		

A connection cable of 0.6 m (2 ft.) is included with the package. UL Style 3265, AWG24
If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately.

➜ Page A-407

- Applicable Connector for Motor:
  Connector housing: 51067-0600 (MOLEX)
  Contact: 50217-9101 (MOLEX)
  Crimp tool: 57189-5000 (MOLEX)
  57190-5000 (MOLEX)



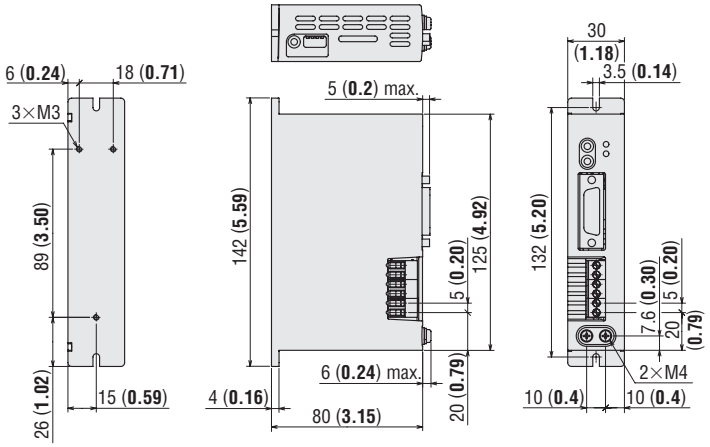
- These dimensions are for the double shaft models.
  For the single shaft models, ignore the shaded ( ) areas.
- The dimensions of a motor with an encoder can be found on page A-19 or at www.orientalmotor.com.

Driver

RBD215A-K, RBD228A-K, RBD242A-V, RBD245A-V

Mass: 0.35 kg (0.77 lb.)

DXF B446

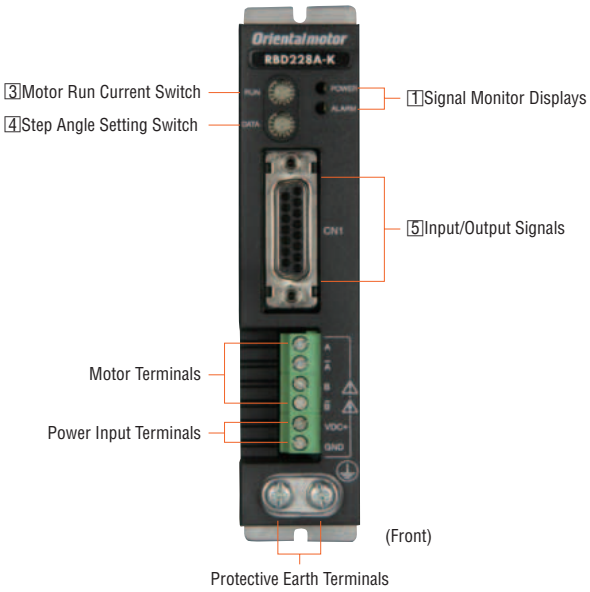


Connection and Operation

Names and Functions of Driver Parts

(Top)

2 Function Switches



1 Signal Monitor Displays

◇LED Indicators

Indication	Color	Function	When Activated
POWER	Green	Power supply indication	Lights when power is on.
ALARM	Red	Alarm indication	Blinks when protective functions are activated.

◇Alarm

Blink Count	Function	When Activated
2	Overheat	The temperature of the driver's internal heat sink exceeds the specified value.
3	Overvoltage	The primary voltage of the driver's inverter exceeds the permissible value.
5	Overcurrent	An excessive current flows to the driver's inverter.

2 Function Switches

Indication	Switch Name	Function
SW1	Third Harmonic Waveform Correction Function Select Switch	A function that provides improved angle accuracy and reduced vibrations by optimizing the motor drive current waveforms. You can set the correction value using the select switch.
SW2-1	Smooth Drive Function Switch	Low vibration and low noise operation are available even in the low speed range without changing the step angle setting. The function can be set and deactivated with this switch.
SW2-2	Vibration Suppression Function Select Switch	A function that provides reduced vibrations at medium speed operation. The function can be set or deactivated with this switch.
SW2-3	Not used.	–
SW2-4	Motor Stop Current Switch	For adjusting the motor current at standstill

3 Motor Run Current Switch

Indication	Switch Name	Function
RUN	Motor Run Current Switch	For adjusting the motor running current

4 Step Angle Setting Switch

Indication	Switch Name	Function
DATA	Step Angle Setting Switch	The switch can be set to the desired resolution from the 16 resolution levels.

Step Angle Setting Switch	Microsteps/Step	Resolution	Step Angle
0	1	200	1.8°
1	2	400	0.9°
2	4	800	0.45°
3	5	1000	0.36°
4	8	1600	0.225°
5	9	1800	0.2°
6	10	2000	0.18°
7	16	3200	0.1125°
8	18	3600	0.1°
9	20	4000	0.09°
A	32	6400	0.05625°
B	36	7200	0.05°
C	40	8000	0.045°
D	64	12800	0.028125°
E	80	16000	0.0225°
F	128	25600	0.0140625°

- The step angle set with the step angle setting switch will become effective when the "Step Angle Select" (CS) signal input is OFF.
- Do not change the "Step Angle Select" (CS) signal input or step angle setting switch while the motor is operating. It may cause the motor to misstep and stop. Change the step angle setting switch, when the "Step Angle Select" (CS) signal input is OFF and the "Excitation Timing" (TIM) signal output is ON.

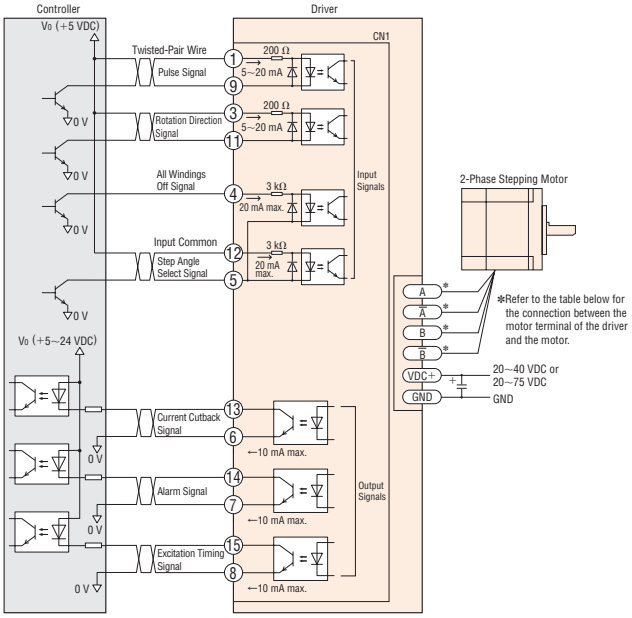
5 Input/Output Signals

Indication	Input/ Output	Pin No.	Signal	Signal Name	Function
CN1	Input	1	PLS+	Pulse Signal	Operation command pulse signal
		2	PLS24+		
		9	PLS–		
		3	DIR+	Rotation Direction Signal	Rotation direction signal Photocoupler ON: CW, Photocoupler OFF: CCW
		10	DIR24+		
		11	DIR–		
		4	AWO	All Windings Off Signal	Cuts the output current to the motor and allows the motor shafts to be rotated manually.
		12	CS	Step Angle Select Signal	The motor will operate at the basic step angle regardless of the settings of the step angle setting switches.
		5	IN-COM	Input Common	Input common for the "All Windings Off" signal and "Step Angle Select" signal.
	Output	13	CD+	Current Cutback Signal	Outputs a signal when the automatic current cutback function activates.
		6	CD–		
		14	ALM+	Alarm Signal	Turns the output off when one of the driver's protective functions is activated.
		7	ALM–		
		15	TIM+	Excitation Timing Signal	Outputs signals when the excitation sequence is at STEP "0."
		8	TIM–		

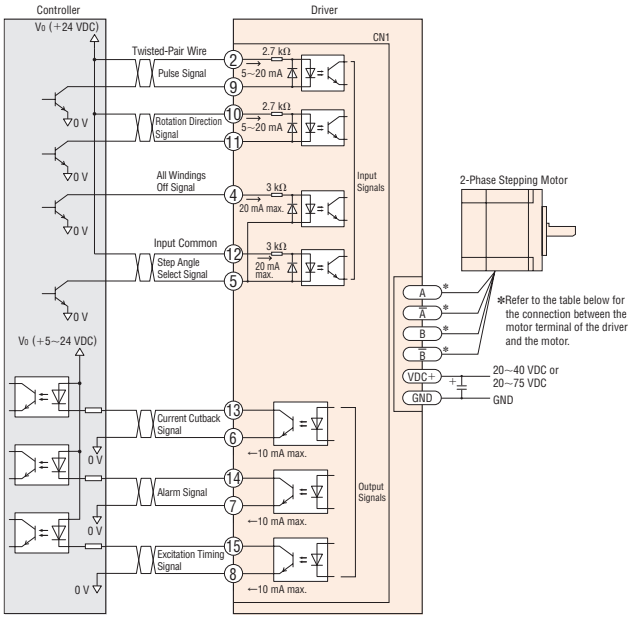
●Connection Diagrams

◇Current Sink Output Circuit

• 5 VDC Connection or Line Driver Input

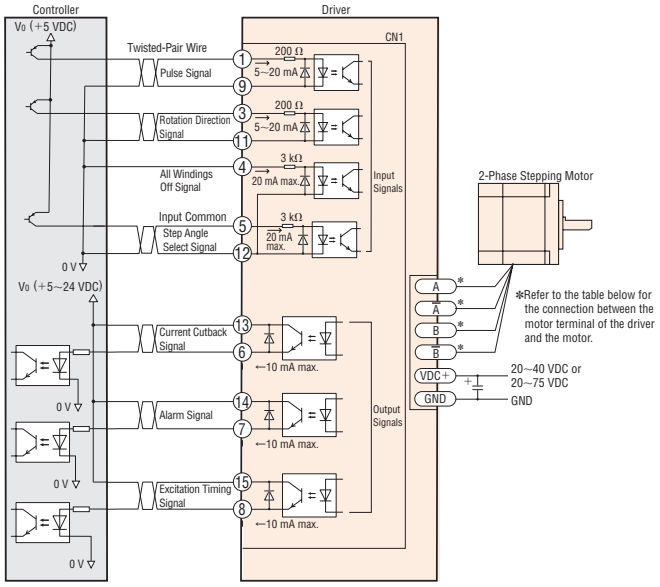


• 24 VDC Connection

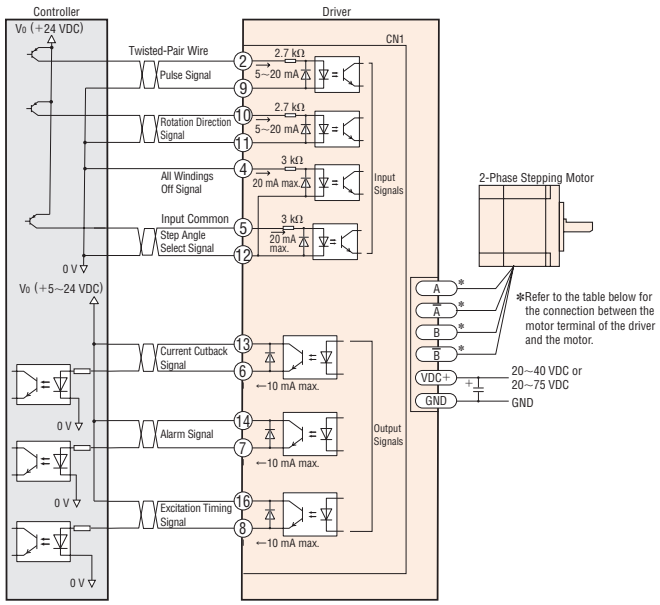


◇Current Source Output Circuit

• 5 VDC Connection or Line Driver Input



• 24 VDC Connection



◇Input/Output Signals Connection

Input Signal

- Pulse (PLS) Signal, Rotation Direction (DIR) Signal

You can select either 5 VDC or 24 VDC as the signal voltage. Line driver input is also available. The pin No. to connect differs according to the signal voltage.

- All Windings Off Signal, Step Angle Select Signal

You can select either 5 VDC or 24 VDC as the signal voltage. The pin No. to connect is the same for 5 VDC and 24 VDC.

Output Signal

- Keep the output signal voltage and current below 30 VDC and 10 mA respectively.
- Use twisted-pair wires of AWG26 and keep wiring as short as possible [within 2 m (6.6 ft.)].
- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases. Technical reference ➜ Page G-44
- Provide a minimum distance of 20 mm (0.79 in.) between the signal lines and power lines (AC lines, motor lines and other large-current circuits). Do not run the signal lines in the same duct as power lines or bundle them with power lines.

◇Power Supply Connection

- Incorrect connection of DC power input will lead to driver damage. Make sure that the polarity is correct before turning power on.
- Use wires of AWG18 or thicker for power supply lines.

◇Extension of Motor Cable

- Use a wire of AWG22 or thicker.

◇Protective Earth (PE)

- To ground the driver, lead the ground conductor from the protective earth terminal (M4) and connect the ground conductor to provide a common ground point.

◇General

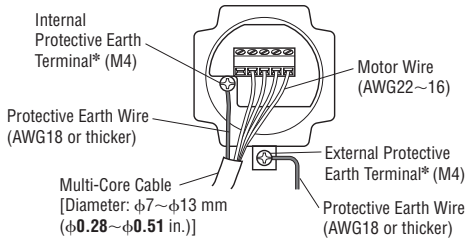
- If noise generated by the motor cable or power supply cable causes a problem with the specific wiring or layout, shield the cable or use ferrite cores.
- The cable for connecting the terminal box type motor and driver and the D-Sub (15-pin) connector for connecting to the driver's CN1 connector are not included. They must be purchased separately.

• Driver Motor Terminals and Motor Leads/Motor Terminal Blocks

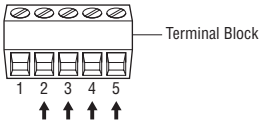
Signal Name	Signal	Standard Type Motor High-Torque Type Motor Geared Type Motor	Terminal Box Type Motor	
			Terminal Block No. for **RBK26□**	Terminal Block No. for **RBK29□**
A	A-phase output	Black	2	1
$\overline{A}$	$\overline{A}$-phase output	Green	3	4
B	B-phase output	Red	4	5
$\overline{B}$	$\overline{B}$-phase output	Blue	5	8

◇Terminal Box Type Motor Connections

RBK264T, RBK266T, RBK268T

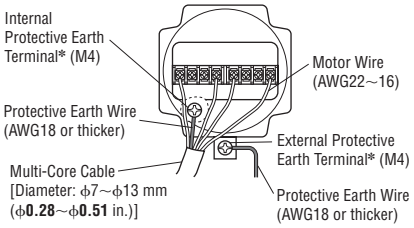


Connect motor lead wires to the terminals 2 to 5.

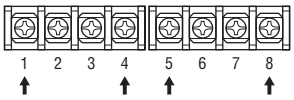


✻Connect either the internal protective earth terminal or external protective earth terminal to the ground.

RBK296T, RBK299T, RBK2913T



Terminals 1, 4, 5, and 8 are used. Terminals 2, 3, 6, and 7 are not used. Do not connect anything to them.



✻Connect either the internal protective earth terminal or external protective earth terminal to the ground.

List of Motor and Driver Combinations

Model names for motor and driver combinations are shown below.

Type	Model	Motor Model	Driver Model
Step Angle 1.8° High-Torque Type	**RBK223P**□	PK223PD□*	RBD215A-K
	RBK224P□	PK224PD□*	
	RBK225P□	PK225PD□*	
	RBK233P□	PK233PD□*	
	RBK235P□	PK235PD□*	
	RBK244P□	PK244PD□*	
	RBK246P□	PK246PD□*	
Step Angle 1.8° High-Torque Type with Encoder	**RBK223PA-R15**	PK223PDAR15	RBD215A-K
	RBK224PA-R15	PK224PDAR15	
	RBK225PA-R15	PK225PDAR15	
	RBK233PA-R■	PK233PDAR■	
	RBK235PA-R■	PK235PDAR■	
	RBK244PA-R■	PK244PDAR■	
	RBK246PA-R■	PK246PDAR■	
Step Angle 1.8° Standard Type	**RBK264**□	PK264D□	RBD242A-V
	RBK266□	PK266D□	
	RBK268□	PK268D□	
	RBK296□**A**	PK296D□A	RBD245A-V
	RBK299□**A**	PK299D□A	
	RBK2913□**A**	PK2913D□A	
Step Angle 1.8° Standard Type with Encoder	**RBK264A-R**■	PK264DAR■	RBD242A-V
	RBK266A-R■	PK266DAR■	
	RBK268A-R■	PK268DAR■	
	RBK296AA-R■	PK296DAAR■	RBD245A-V
	RBK299AA-R■	PK299DAAR■	
	RBK2913AA-R■	PK2913DAAR■	

Type	Model	Motor Model	Driver Model
Step Angle 1.8° Terminal Box Type	**RBK264T**	PK264D1T	RBD242A-V
	RBK266T	PK266D1T	
	RBK268T	PK268D1T	
	RBK296T	PK296DT	RBD245A-V
	RBK299T	PK299DT	
	RBK2913T	PK2913DT	
PS/**PL** Geared Type	**RBK223P**□**-PS5**	PK223PD□-PS5*	RBD215A-K
	RBK223P□**-PS10**	PK223PD□-PS10*	
	RBK244P□**-P5**	PK244PD□-P5*	
	RBK244P□**-P10**	PK244PD□-P10*	
	RBK244P□**-P36**	PK244PD□-P36*	
	RBK266P□**-P5**	PK266PD□-P5*	RBD228A-K
	RBK266P□**-P10**	PK266PD□-P10*	
	RBK264P□**-P36**	PK264PD□-P36*	
PL Geared Type with Encoder	**RBK244PAR**■**-P5**	PK244PDAR■-P5	RBD228A-K
	RBK244PAR■**-P10**	PK244PDAR■-P10	
	RBK244PAR■**-P36**	PK244PDAR■-P36	
	RBK266PAR■**-P5**	PK266PDAR■-P5	
	RBK266PAR■**-P10**	PK266PDAR■-P10	
	RBK264PAR■**-P36**	PK264PDAR■-P36	

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

✻ If you are purchasing only a motor for maintenance purposes, etc., the connection cable and connector will not be supplied. They must be purchased separately. They are available as accessories.
Connection cable ➜ Page A-407