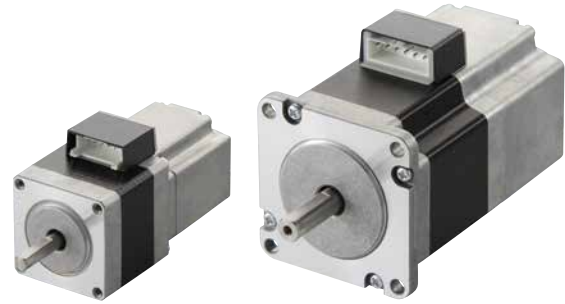


High-Torque 2-Phase Stepper Motors

PKP Series

Standard Type and High-Resolution Type with Electromagnetic Brake

These products have built-in power off activated electro-magnetic brakes. When power is accidentally cut off due to a blackout or other unexpected events, the electromagnetic brake holds the load in position to prevent it from dropping or moving. Also, when the motor is at standstill, it is held by the electromagnetic brake, and it is possible to suppress the heat generated from the motor by turning off the motor current.



Power Off Activated Type with Electromagnetic Brake

Position Holding when Power Supply is Off or during a Blackout

Product Number Code

PKP 2 4 3 M D 15 M - L

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Series	PKP: PKP Series
②	2: 2-Phase	
③	Motor Frame Size	3: 35 mm 4: 42 mm 6: 56.4 mm
④	Motor Case Length	
⑤	Motor Type	Blank: Standard Type M: High-Resolution Type
⑥	Number of Lead Wires	D: 4 U: 6
⑦	Motor Winding Specification	
⑧	Motor Shaft Configuration	M: Electromagnetic Brake Type
⑨	Connection Cable	

Product Line

Standard Type with Electromagnetic Brake

◇ Bipolar (4 lead wires)

◇ Unipolar (6 lead wires)

Frame Size	Product Name	Frame Size	Product Name
35 mm	PKP233D15M-L	35 mm	PKP233U12M-L
	PKP235D15M-L		PKP235U12M-L
42 mm	PKP243D15M-L	42 mm	PKP243U09M-L
	PKP244D15M-L		PKP244U12M-L
	PKP245D15M-L		PKP245U12M-L
	PKP246D15M-L		PKP246U12M-L
56.4 mm	PKP264D28M-L	56.4 mm	PKP264U20M-L
	PKP266D28M-L		PKP266U20M-L
	PKP268D28M-L		PKP268U20M-L

High-Resolution Type with Electromagnetic Brake

◇ Bipolar (4 lead wires)

◇ Unipolar (6 lead wires)

Frame Size	Product Name	Frame Size	Product Name
42 mm	PKP243MD15M-L	42 mm	PKP243MU09M-L
	PKP244MD15M-L		PKP244MU12M-L
56.4 mm	PKP264MD28M-L	56.4 mm	PKP264MU20M-L
	PKP266MD28M-L		PKP266MU20M-L
	PKP268MD28M-L		PKP268MU20M-L

Products include the following:

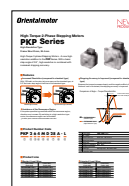
Motor, Connection Cable, Surge Suppressor, Operating Manual

PKP Series Lineup

Motor Product Line (Basic Step Angle)		Frame Size				
		20 mm	28 mm	35 mm	42 mm	56.4 mm /60 mm
Standard Type (1.8°)	Equipped with Encoder	○	○	○	○	○
	Electromagnetic Brake Type	—	—	NEW	NEW	NEW
		—	—	—	○	○
High-Resolution Type (0.9°)	Equipped with Encoder	—	—	—	○	○
	Electromagnetic Brake Type	—	—	—	NEW	NEW
		—	○	—	○	○
SH Geared Type (0.5°~0.05°)		—	○	—	○	○

● Catalogues are available featuring other products in the **PKP** Series that were not introduced here. For details, check the website or contact the customer support centre.

<http://www.orientalmotor.eu>



High-Resolution Type



Standard/
High-Resolution Type
Equipped with Encoder

Standard Type with Electromagnetic Brake

Frame Size 35 mm (Bipolar 4 lead wires)

Specifications

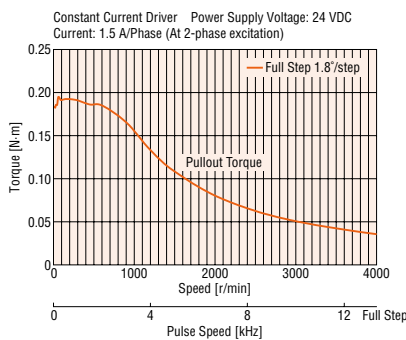
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP233D15M-L	0.2	36×10^{-7}	1.5	2.43	1.62	1.8°	0.3
PKP235D15M-L	0.37	62×10^{-7}		3.6	2.4		

Electromagnetic brake part specifications → Page 12

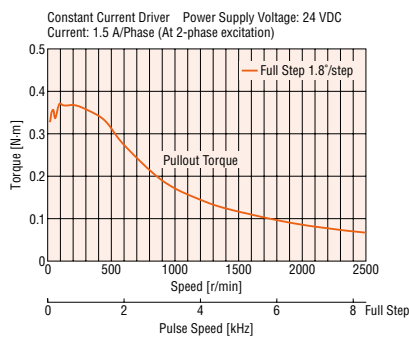
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

PKP233D15M-L



PKP235D15M-L



Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

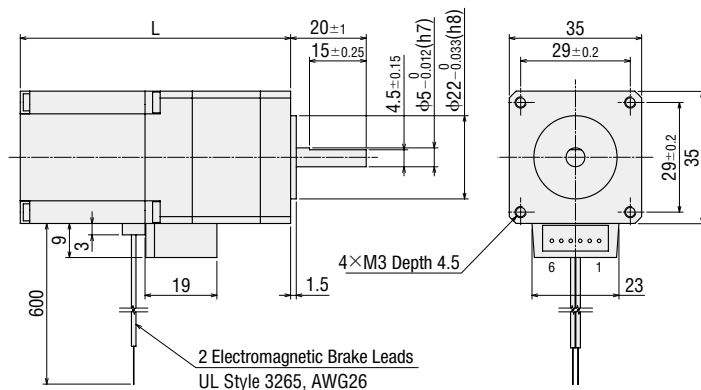
Product Name	Motor Product Name	L	Mass kg
PKP233D15M-L	PKP233D15M	71	0.285
PKP235D15M-L	PKP235D15M	86	0.39

● Applicable Connector (Molex)

Connector Housing: 51103-0600

Contact: 50351-8100

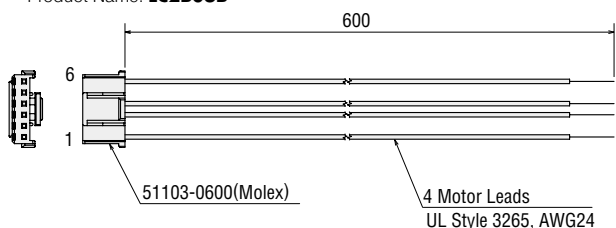
Crimp Tool: 57295-5000



● Included

Connection Cable

Product Name: **LC2B06B**



Standard Type with Electromagnetic Brake

Frame Size 35 mm (Unipolar 6 lead wires)

Specifications

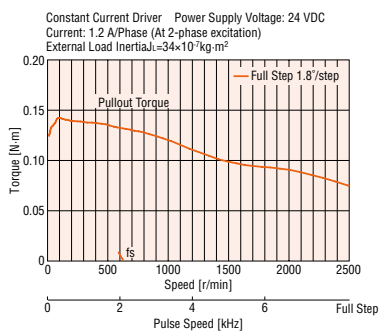
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP233U12M-L	0.16	36×10^{-7}	1.2	3.24	2.7	1.8°	0.3
PKP235U12M-L	0.3	62×10^{-7}		4.08	3.4		

Electromagnetic brake part specifications → Page 12

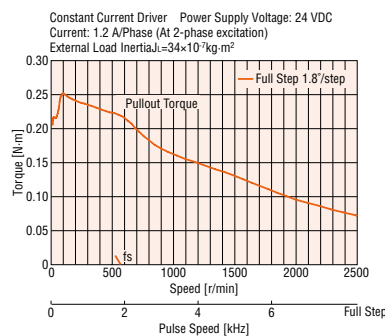
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

PKP233U12M-L



PKP235U12M-L



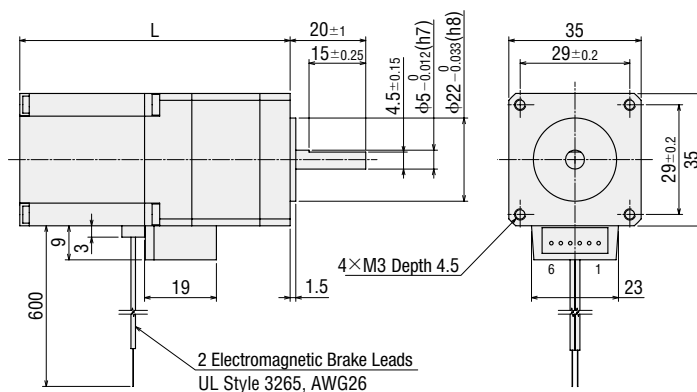
Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

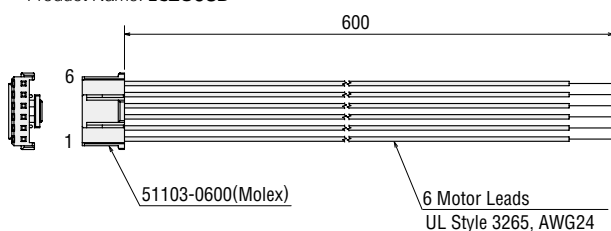
Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP233U12M-L	PKP233U12M	71	0.285
PKP235U12M-L	PKP235U12M	86	0.39

● Applicable Connector (Molex)
Connector Housing: 51103-0600
Contact: 50351-8100
Crimp Tool: 57295-5000



● Included
Connection Cable
Product Name: **LC2U06B**



Standard Type with Electromagnetic Brake

Frame Size 42 mm (Bipolar 4 lead wires)

Specifications

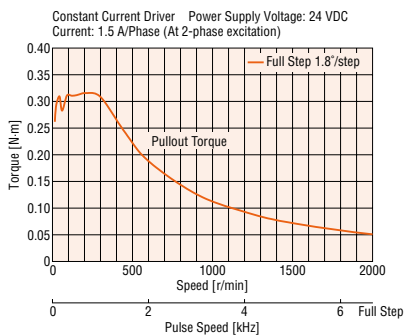
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP243D15M-L	0.35	48×10^{-7}	1.5	2.85	1.9	1.8°	0.3
PKP244D15M-L	0.48	69×10^{-7}		3.9	2.6		
PKP245D15M-L	0.58	95×10^{-7}		3.6	2.4		
PKP246D15M-L	0.93	126×10^{-7}		5.8	3.87		

Electromagnetic brake part specifications → Page 12

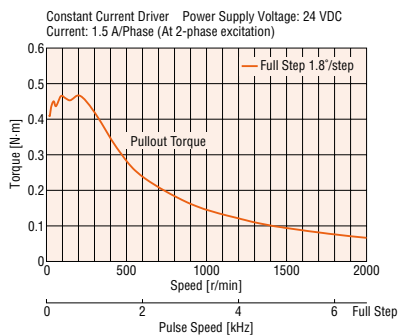
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

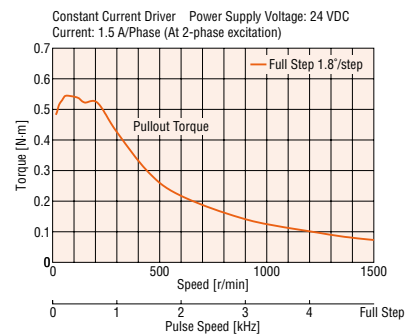
PKP243D15M-L



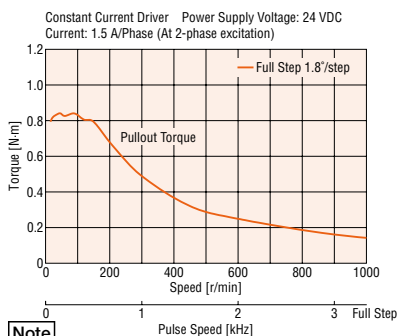
PKP244D15M-L



PKP245D15M-L



PKP246D15M-L



Note

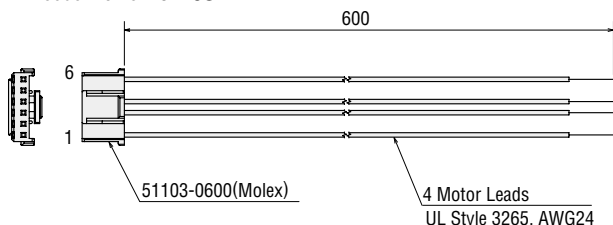
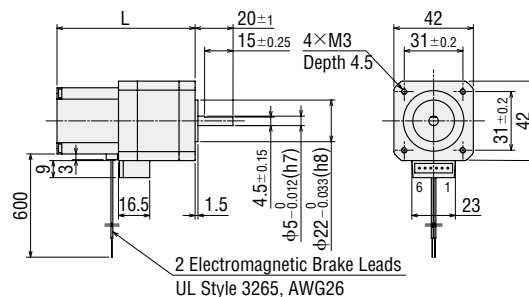
● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP243D15M-L	PKP243D15M	67	0.36
PKP244D15M-L	PKP244D15M	73	0.41
PKP245D15M-L	PKP245D15M	81	0.5
PKP246D15M-L	PKP246D15M	93	0.61

● Applicable Connector (Molex)
Connector Housing: 51103-0600
Contact: 50351-8100
Crimp Tool: 57295-5000

● Included
Connection Cable
Product Name: **LC2B06B**



Standard Type with Electromagnetic Brake

Frame Size 42 mm (Unipolar 6 lead wires)

Specifications

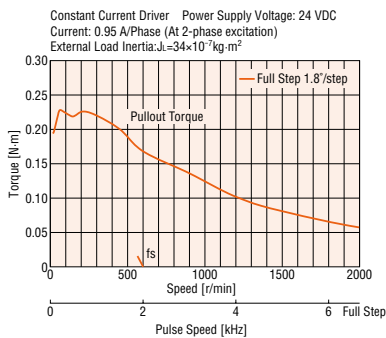
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP243U09M-L	0.25	48×10^{-7}	0.95	4.47	4.7	1.8°	0.3
PKP244U12M-L	0.39	69×10^{-7}	1.2	4.8	4		
PKP245U12M-L	0.45	95×10^{-7}		4.56	3.8		
PKP246U12M-L	0.75	126×10^{-7}		7.2	6		

Electromagnetic brake part specifications → Page 12

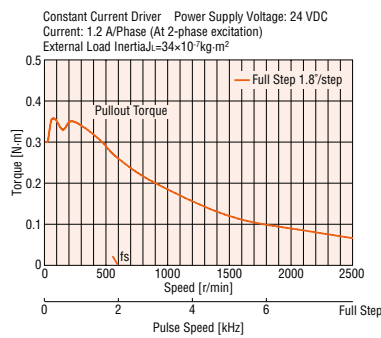
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics *f_s*: Max. starting frequency

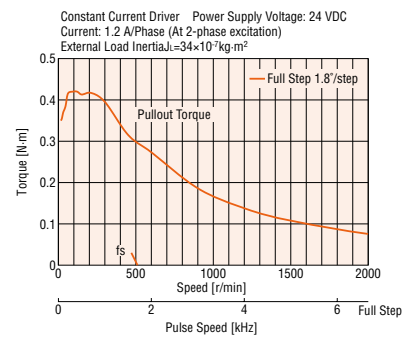
PKP243U09M-L



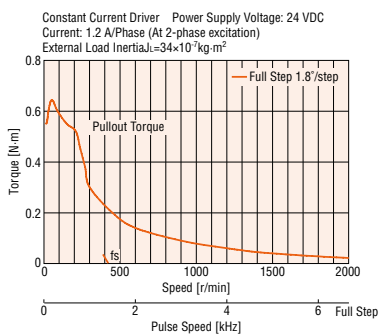
PKP244U12M-L



PKP245U12M-L



PKP246U12M-L



Note

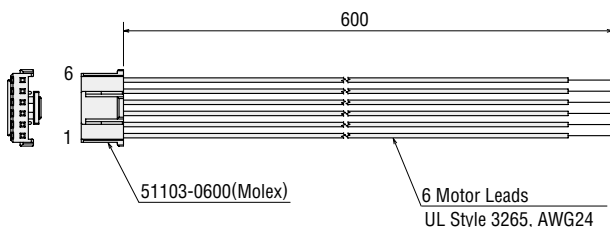
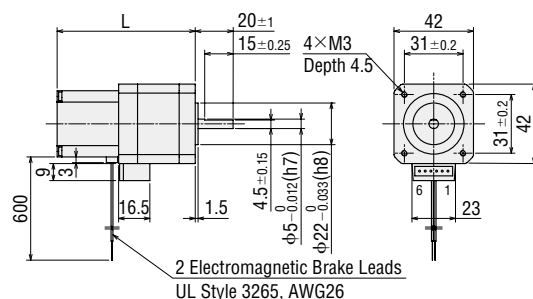
● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP243U09M-L	PKP243U09M	67	0.36
PKP244U12M-L	PKP244U12M	73	0.41
PKP245U12M-L	PKP245U12M	81	0.5
PKP246U12M-L	PKP246U12M	93	0.61

● Applicable Connector (Molex)
Connector Housing: 51103-0600
Contact: 50351-8100
Crimp Tool: 57295-5000

● Included
Connection Cable
Product Name: **LC2U06B**



Standard Type with Electromagnetic Brake

Frame Size 56.4 mm (Bipolar 4 lead wires)

Specifications

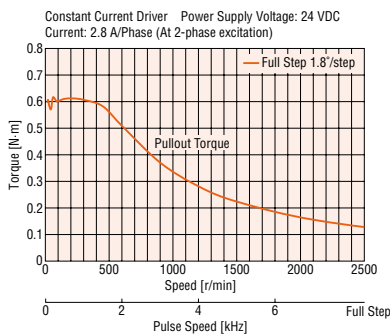
Product Name	Max. Holding Torque N-m	Rotor Inertia J: kg-m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N-m
PKP264D28M-L	0.6	270×10^{-7}	2.8	2	0.73	1.8°	1.5
PKP266D28M-L	1.4	440×10^{-7}		2.8	1		
PKP268D28M-L	2.3	640×10^{-7}		3.4	1.23		

Electromagnetic brake part specifications → Page 12

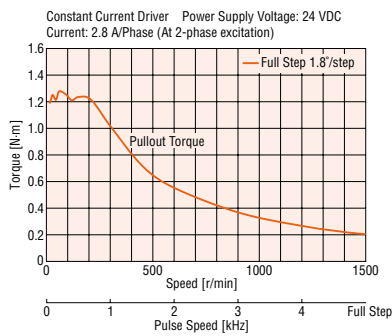
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

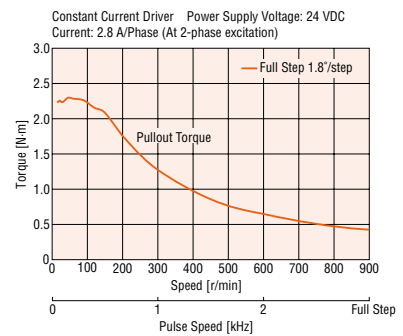
PKP264D28M-L



PKP266D28M-L



PKP268D28M-L



Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP264D28M-L	PKP264D28M	75.5	0.76
PKP266D28M-L	PKP266D28M	90.5	1.03
PKP268D28M-L	PKP268D28M	112.5	1.4

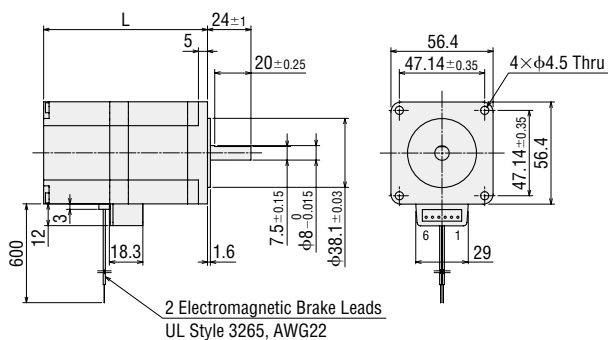
● Applicable Connector (Molex)

Connector Housing: 51067-0600

Contact: 50217-9101

Crimp Tool: 57189-5000

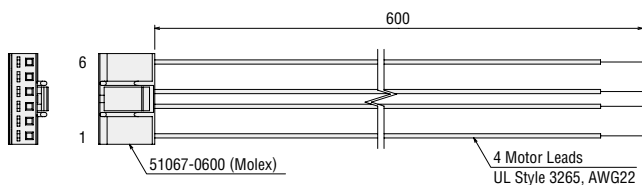
57190-5000



● Included

Connection Cable

Product Name: **LC2B06C**



Standard Type with Electromagnetic Brake

Frame Size 56.4 mm (Unipolar 6 lead wires)

Specifications

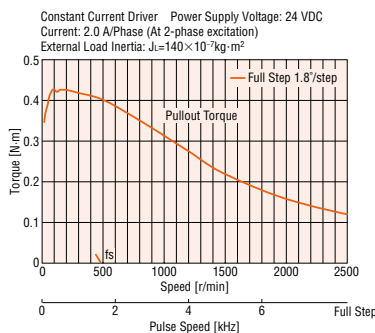
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP264U20M-L	0.51	270×10^{-7}	2	2.9	1.45	1.8°	1.5
PKP266U20M-L	1.1	440×10^{-7}		4	2		
PKP268U20M-L	1.75	640×10^{-7}		4.9	2.45		

Electromagnetic brake part specifications → Page 12

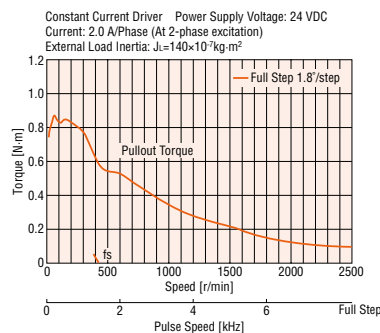
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

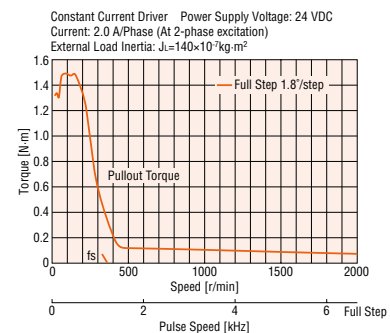
PKP264U20M-L



PKP266U20M-L



PKP268U20M-L



Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP264U20M-L	PKP264U20M	75.5	0.76
PKP266U20M-L	PKP266U20M	90.5	1.03
PKP268U20M-L	PKP268U20M	112.5	1.4

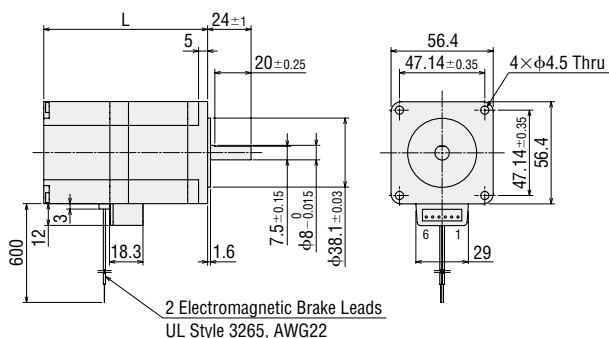
● Applicable Connector (Molex)

Connector Housing: 51067-0600

Contact: 50217-9101

Crimp Tool: 57189-5000

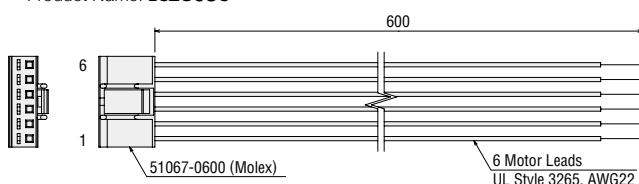
57190-5000



● Included

Connection Cable

Product Name: **LC2U06C**



High-Resolution Type with Electromagnetic Brake

Frame Size 42 mm (Bipolar 4 lead wires)

Specifications

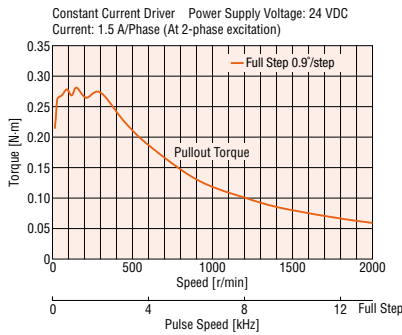
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP243MD15M-L	0.30	48×10^{-7}	1.5	2.85	1.9	0.9°	0.3
PKP244MD15M-L	0.42	69×10^{-7}		3.9	2.6		

Electromagnetic brake part specifications → Page 12

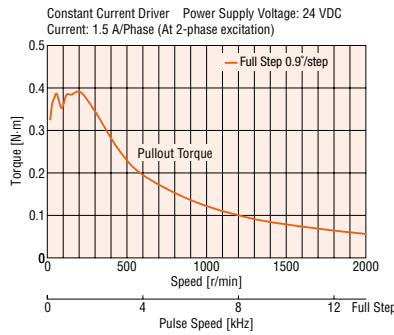
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

PKP243MD15M-L



PKP244MD15M-L



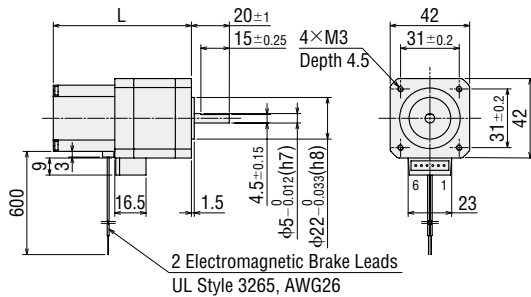
Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

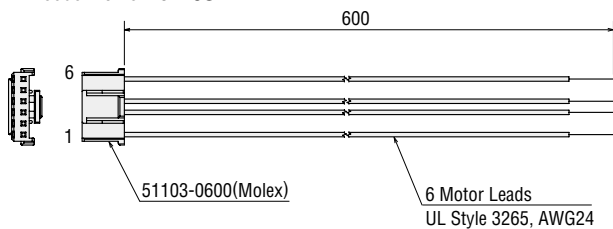
Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP243MD15M-L	PKP243MD15M	67	0.36
PKP244MD15M-L	PKP244MD15M	73	0.41

● Applicable Connector (Molex)
Connector Housing: 51103-0600
Contact: 50351-8100
Crimp Tool: 57295-5000



● Included
Connection Cable
Product Name: **LC2B06B**



High-Resolution Type with Electromagnetic Brake

Frame Size 42 mm (Unipolar 6 lead wires)

Specifications

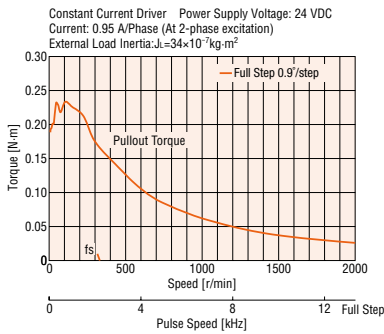
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP243MU09M-L	0.25	48×10^{-7}	0.95	4.47	4.7	0.9°	0.3
PKP244MU12M-L	0.35	69×10^{-7}	1.2	4.8	4		

Electromagnetic brake part specifications → Page 12

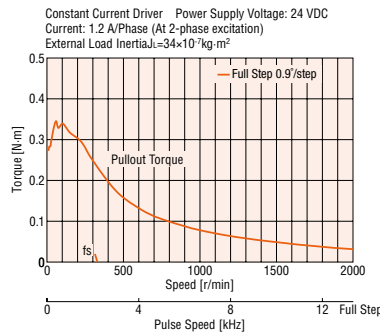
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

PKP243MU09M-L



PKP244MU12M-L



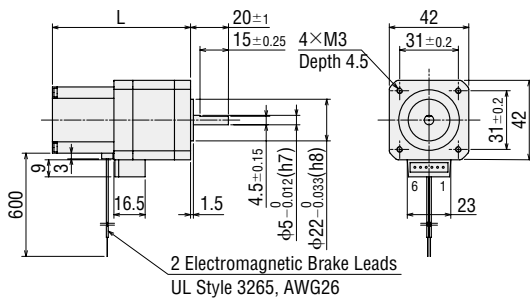
Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

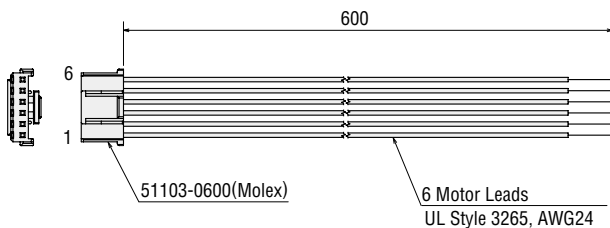
Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP243MU09M-L	PKP243MU09M	67	0.36
PKP244MU12M-L	PKP244MU12M	73	0.41

● Applicable Connector (Molex)
Connector Housing: 51103-0600
Contact: 50351-8100
Crimp Tool: 57295-5000



● Included
Connection Cable
Product Name: **LC2U06B**



High-Resolution Type with Electromagnetic Brake

Frame Size 56.4 mm (Bipolar 4 lead wires)

Specifications

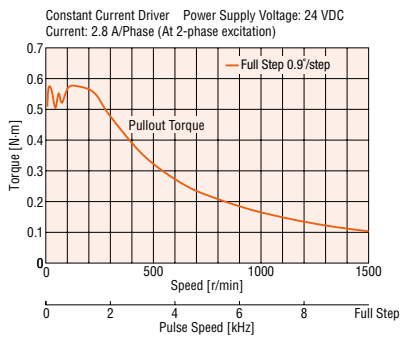
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP264MD28M-L	0.6	270×10^{-7}	2.8	2	0.73	0.9°	1.5
PKP266MD28M-L	1.32	440×10^{-7}		2.8	1		
PKP268MD28M-L	2.23	640×10^{-7}		3.4	1.23		

Electromagnetic brake part specifications → Page 12

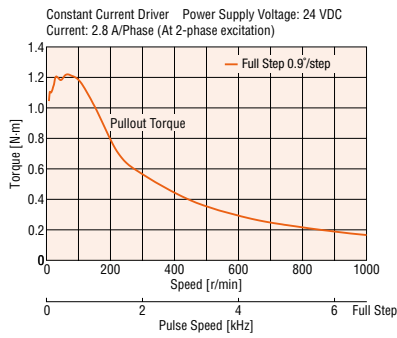
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

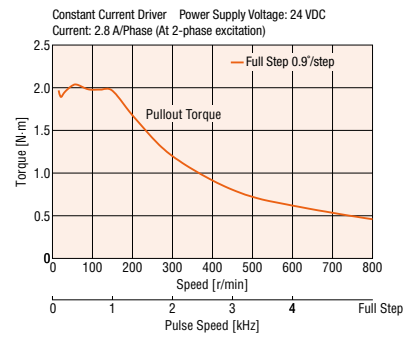
PKP264MD28M-L



PKP266MD28M-L



PKP268MD28M-L



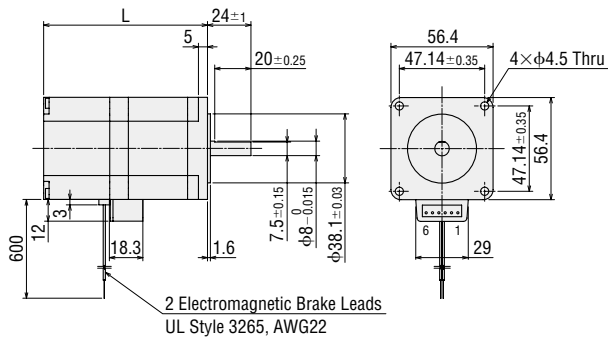
Note

● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

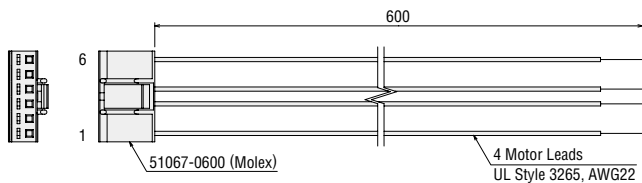
Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP264MD28M-L	PKP264MD28M	75.5	0.76
PKP266MD28M-L	PKP266MD28M	90.5	1.03
PKP268MD28M-L	PKP268MD28M	112.5	1.4

● Applicable Connector (Molex)
 Connector Housing: 51067-0600
 Contact: 50217-9101
 Crimp Tool: 57189-5000
 57190-5000



● Included
 Connection Cable
 Product Name: **LC2B06C**



High-Resolution Type with Electromagnetic Brake

Frame Size 56.4 mm (Unipolar 6 lead wires)

Specifications

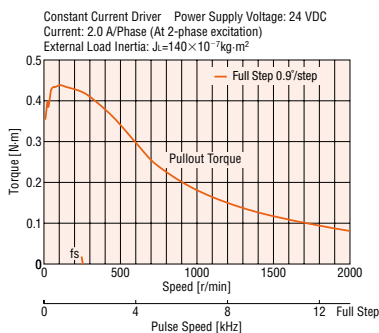
Product Name	Max. Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A-Phase	Voltage V	Winding Resistance Ω/Phase	Basic Step Angle	Electromagnetic Brake Static Friction Torque N·m
PKP264MU20M-L	0.51	270×10^{-7}	2	2.9	1.45	0.9°	1.5
PKP266MU20M-L	1.1	440×10^{-7}		4	2		
PKP268MU20M-L	1.75	640×10^{-7}		4.9	2.45		

Electromagnetic brake part specifications → Page 12

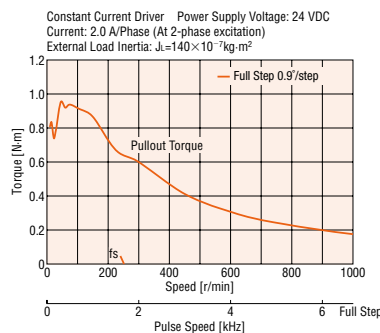
● A connection cable (0.6 m) is included in the product.

Speed – Torque Characteristics fs: Max. starting frequency

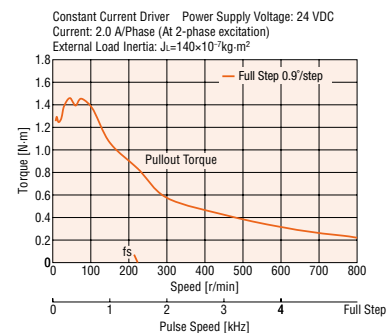
PKP264MU20M-L



PKP266MU20M-L



PKP268MU20M-L



Note

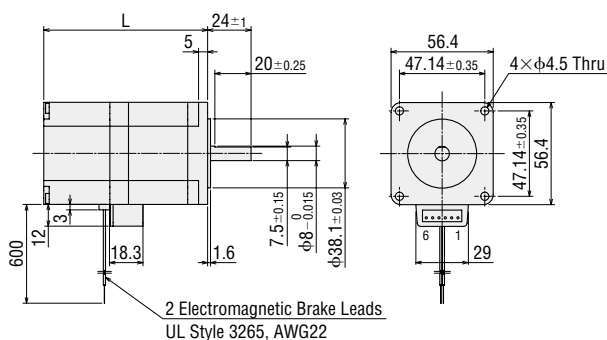
● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C max.

Dimensions (Unit = mm)

Product Name	Motor Product Name	L	Mass kg
PKP264MU20M-L	PKP264MU20M	75.5	0.76
PKP266MU20M-L	PKP266MU20M	90.5	1.03
PKP268MU20M-L	PKP268MU20M	112.5	1.4

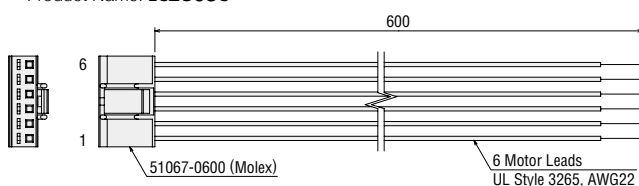
● Applicable Connector (Molex)

Connector Housing: 51067-0600
Contact: 50217-9101
Crimp Tool: 57189-5000
57190-5000



● Included

Connection Cable
Product Name: **LC2U06C**



General Specifications

Specifications		Motor
Heat-Resistant Class		130 (B)
Insulation Resistance		The measured value is 100 MΩ or more when a 500 VDC megger is applied in the following places under normal ambient temperature and humidity: -Between the case and the motor winding -Between the case and the electromagnetic brake winding
Dielectric Strength		No abnormality is found when 50 Hz or 60 Hz and 1.0 kV is applied for 1 minute in the following places under normal ambient temperature and humidity: (0.5 kV for models with a frame size of 42 mm or less) -Between the case and the motor winding -Between the case and the electromagnetic brake winding
Operating Environment (In operation)	Ambient Temperature	-10~+50°C (non-freezing)
	Ambient Humidity	85% max. (non-condensing)
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.
Temperature Rise		Winding temperature rise is 80°C max. (measured by the resistance change method) at the rated current and 2-phases excitation, and at standstill. The following motors are with aluminum heat radiation plate. PKP23 □: 115×115×5 mm PKP24 □: 175×175×5 mm PKP26 □: 250×250×10 mm
Stop Position Accuracy*1		±3 arc minutes (±0.05°)
Shaft Runout		0.05 T.I.R. (mm)*4
Radial Play*2		0.025 mm max. (Load 5 N)
Axial Play*3		0.075 mm max. (Load 10N)
Concentricity of Installation Pilot to the Shaft		0.075 T.I.R. (mm)*4
Perpendicularity of Installation Surface to the Shaft		0.075 T.I.R. (mm)*4

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

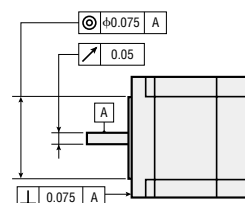
*2 Radial Play: Displacement in shaft position in the radial direction when a 5 N load is applied in the vertical direction to the tip of the motor shaft.

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

*4 T. I. R. (Total Indicator Reading): The total dial gauge reading when the measurement section is rotated once around the reference axis centre.

Note

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

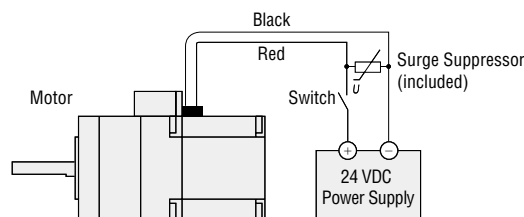


Electromagnetic Brake Part Specifications

Product Name	PKP23 · PKP24	PKP26
Type	Power Off Activated Type	
Power Supply Voltage	24 VDC ± 5%	
Power Supply Current	A 0.07	0.23
Static Friction Torque	N·m 0.3	1.5
Brake Operating Time	ms 20	
Brake Release Time	ms 50	
Time Rating	Continuous	

● For product names, product name-identifying characters are used.

Connecting the Electromagnetic Brake



Permissible Radial Load and Permissible Axial Load

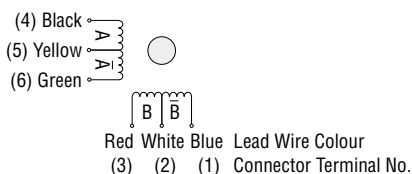
Unit = N

Type	Motor Frame Size	Product Name	Permissible Radial Load					Permissible Axial Load
			Distance from Shaft End mm					
			0	5	10	15	20	
Standard Type	35 mm	PKP233, PKP235	20	25	34	52	—	Motor's self-weight or less
High-Resolution Type	42 mm	PKP243, PKP244, PKP245, PKP246	20	25	34	52	—	
	56.4 mm	PKP264, PKP266, PKP268	61	73	90	110	160	

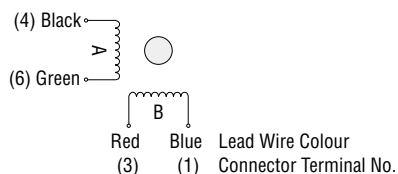
● For product names, product name-identifying characters are used.

Inner Wiring Diagram of Motors

Unipolar 6 Lead Wires



Bipolar 4 Lead Wires



Accessories

Accessories such as installation brackets and couplings are available. For details, please see the website.

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