

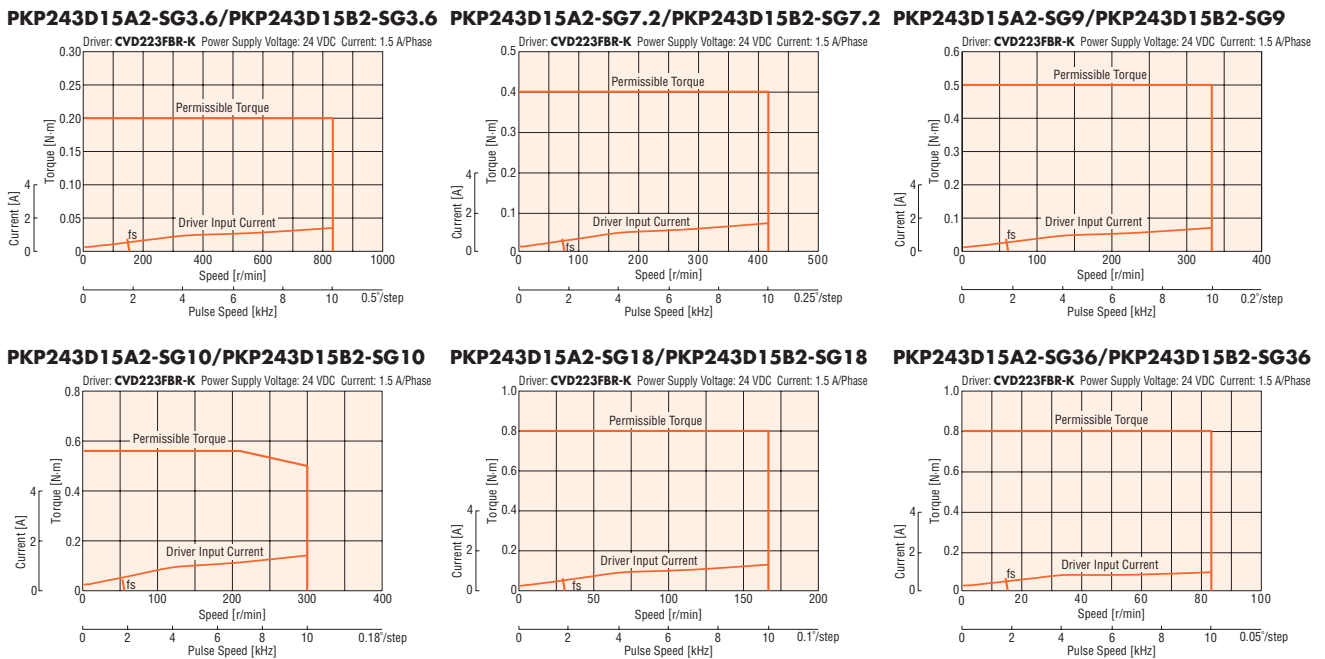
SH Geared Type Frame Size 42 mm (Bipolar 4 lead wires)

Specifications

Product Name	Maximum Holding Torque N-m	Rotor Inertia J: kg·m ²	Rated Current A/ phase	Voltage VDC	Winding Resistance Ω/Phase	Inductance mH/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N-m	Speed Range r/min	Backlash arcmin	Recommended Driver Product Name*
PKP243D15□2-SG3.6	0.2	36×10 ⁻⁷	1.5	0.83	0.55	0.77	0.5°	3.6	0.2	0~833	60 (1°)	CVD223FBR-K
PKP243D23□2-SG3.6			2.3	0.87	0.38	0.41						
PKP243D15□2-SG7.2	0.4		1.5	0.83	0.55	0.77	0.25°	7.2	0.4	0~416		
PKP243D23□2-SG7.2			2.3	0.87	0.38	0.41						
PKP243D15□2-SG9	0.5		1.5	0.83	0.55	0.77	0.2°	9	0.5	0~333		
PKP243D23□2-SG9			2.3	0.87	0.38	0.41						
PKP243D15□2-SG10	0.56		1.5	0.83	0.55	0.77	0.18°	10	0.56	0~300		
PKP243D23□2-SG10			2.3	0.87	0.38	0.41						
PKP243D15□2-SG18	0.8		1.5	0.83	0.55	0.77	0.1°	18	0.8	0~166		
PKP243D23□2-SG18			2.3	0.87	0.38	0.41						
PKP243D15□2-SG36	0.8	1.5	0.83	0.55	0.77	0.05°	36	0.8	0~83			
PKP243D23□2-SG36		2.3	0.87	0.38	0.41							

● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

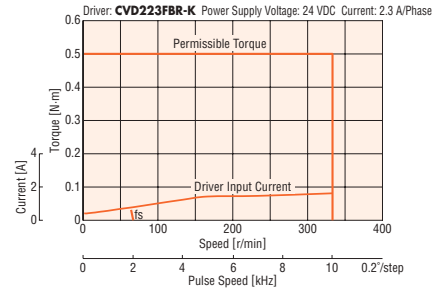
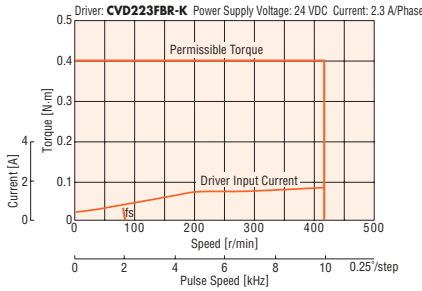
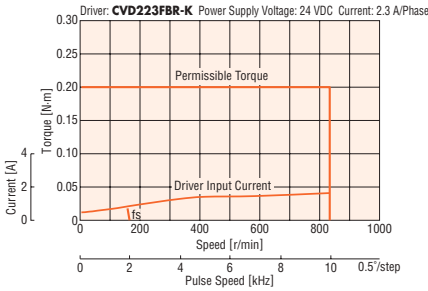


Note

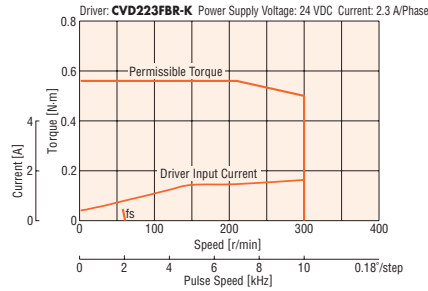
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

Speed – Torque Characteristics (Reference values)

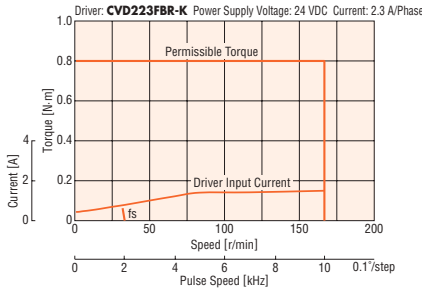
PKP243D23A2-SG3.6/PKP243D23B2-SG3.6 PKP243D23A2-SG7.2/PKP243D23B2-SG7.2 PKP243D23A2-SG9/PKP243D23B2-SG9



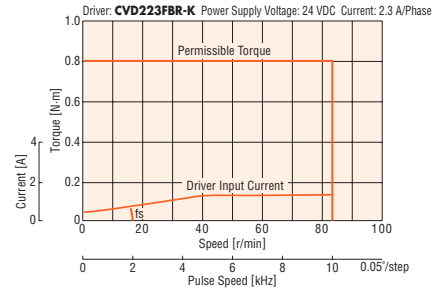
PKP243D23A2-SG10/PKP243D23B2-SG10



PKP243D23A2-SG18/PKP243D23B2-SG18



PKP243D23A2-SG36/PKP243D23B2-SG36



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.

Dimensions (Unit: mm)

Motor

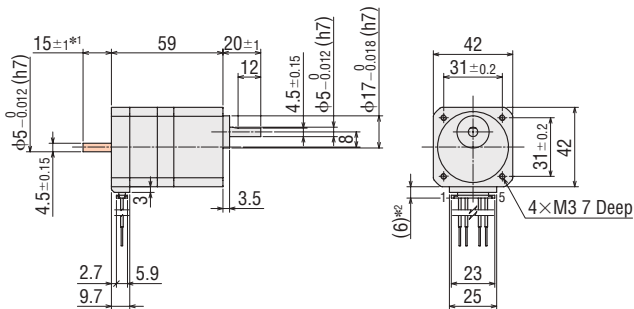
2D & 3D CAD

Product Name	Gear Ratio	Mass kg	2D CAD
PKP243D15A2-SG□	3.6, 7.2, 9, 10, 18, 36	0.33	B1340
PKP243D15B2-SG□			
PKP243D23A2-SG□			
PKP243D23B2-SG□			

- A number indicating the gear ratio is specified in the box □ in the product name.

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)
Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)
Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)

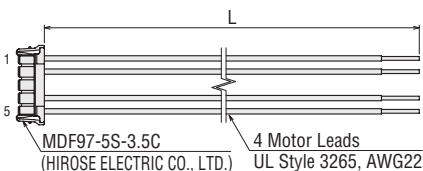


- *1 The length of the shaft flat on the double shaft model is 15±0.25.
- *2 With connection cable
- These dimensions are for double shaft motors.
For single shaft motors, ignore the shaded areas.

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC2B06E	0.6



Inner Wiring Diagram of Motor

Wiring Diagram No.: ①

- Refer to page 07-85 for inner wiring diagram of motor.

SH Geared Type Frame Size 60 mm (Unipolar 5 lead wires)

Specifications

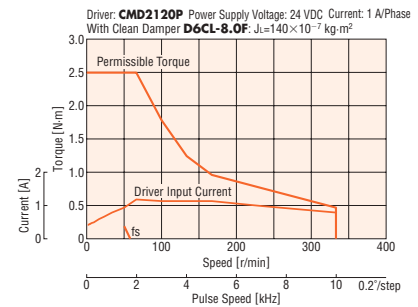
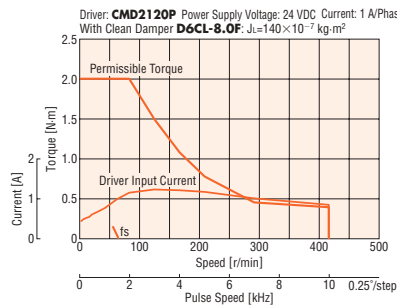
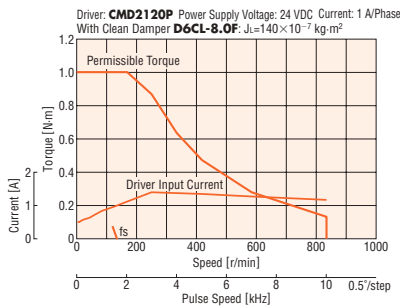
Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Voltage VDC	Winding Resistance Ω/Phase	Inductance mH/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N·m	Speed Range r/min	Backlash arcmin	Recommended Driver Product Name*
PKP264U10□2-SG3.6	1	140×10 ⁻⁷	1	2.9	2.9	4.2	0.5°	3.6	1	0~833	70 (1.17)	CMD2120P
PKP264U20□2-SG3.6			2	1.5	0.76	1						
PKP264U10□2-SG7.2	2		1	2.9	2.9	4.2	0.25°	7.2	2	0~416		
PKP264U20□2-SG7.2			2	1.5	0.76	1						
PKP264U10□2-SG9	2.5		1	2.9	2.9	4.2	0.2°	9	2.5	0~333		
PKP264U20□2-SG9			2	1.5	0.76	1						
PKP264U10□2-SG10	2.7		1	2.9	2.9	4.2	0.18°	10	2.7	0~300		
PKP264U20□2-SG10			2	1.5	0.76	1						
PKP264U10□2-SG18	3		1	2.9	2.9	4.2	0.1°	18	3	0~166		
PKP264U20□2-SG18			2	1.5	0.76	1						
PKP264U10□2-SG36	4	1	2.9	2.9	4.2	0.05°	36	4	0~83			
PKP264U20□2-SG36		2	1.5	0.76	1							

● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.

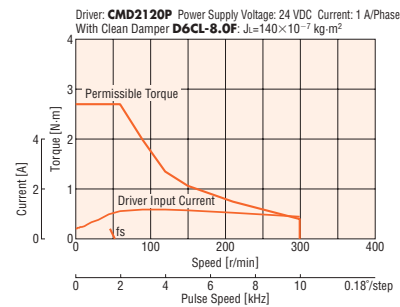
*Refer to page 07-112 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

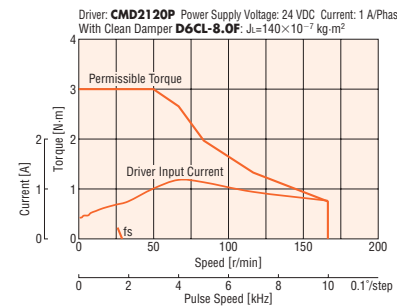
PKP264U10A2-SG3.6/PKP264U10B2-SG3.6 PKP264U10A2-SG7.2/PKP264U10B2-SG7.2 PKP264U10A2-SG9/PKP264U10B2-SG9



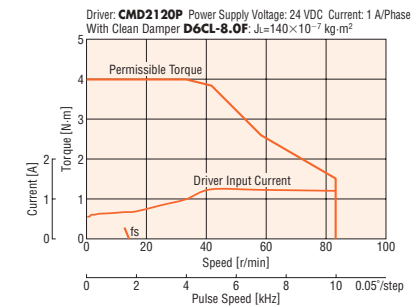
PKP264U10A2-SG10/PKP264U10B2-SG10



PKP264U10A2-SG18/PKP264U10B2-SG18



PKP264U10A2-SG36/PKP264U10B2-SG36

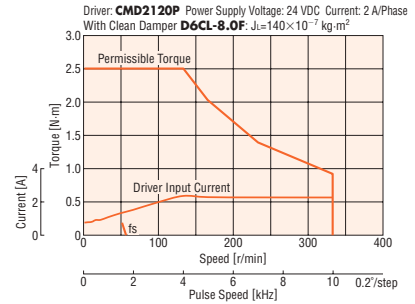
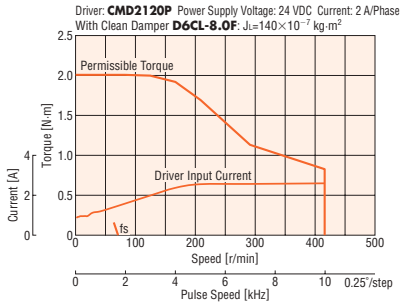
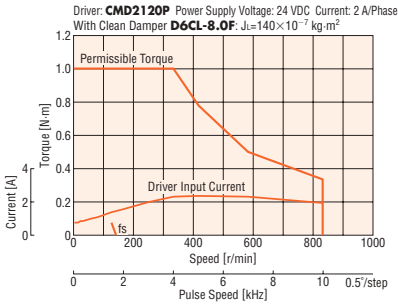


Note

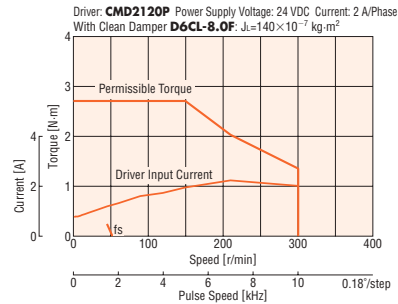
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- If there is a "clean damper" entry in the speed – torque characteristics, the data is for a double shaft motor when a clean damper is equipped.
- 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 or less.

Speed – Torque Characteristics (Reference values)

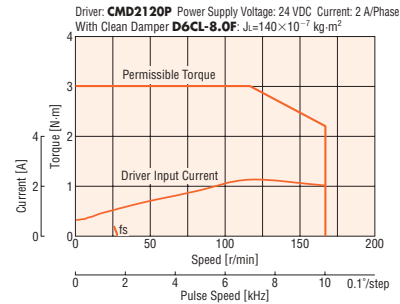
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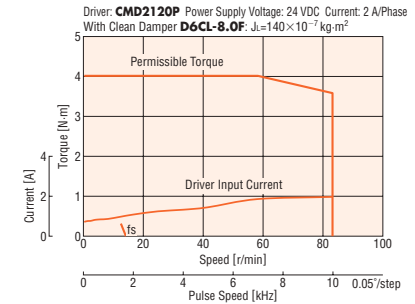
PKP264U20A2-SG10/PKP264U20B2-SG10



PKP264U20A2-SG18/PKP264U20B2-SG18



PKP264U20A2-SG36/PKP264U20B2-SG36



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- If there is a "clean damper" entry in the speed – torque characteristics, the data is for a double shaft motor when a clean damper is equipped.
- 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 or less.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	Gear Ratio	Mass kg	2D CAD
PKP264U10A2-SG <input type="checkbox"/>	3.6, 7.2, 9, 10, 18, 36	0.76	B1341
PKP264U10B2-SG <input type="checkbox"/>			
PKP264U20A2-SG <input type="checkbox"/>			
PKP264U20B2-SG <input type="checkbox"/>			

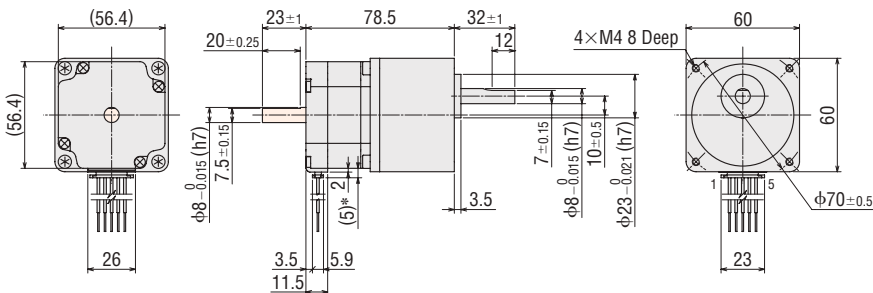
- A number indicating the gear ratio is specified in the box in the product name.

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)

Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)

Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)



*With connection cable

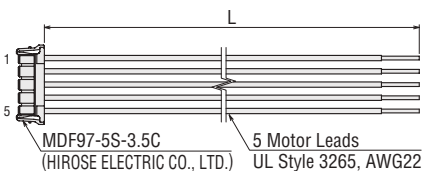
- These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC2U06E	0.6



Inner Wiring Diagram of Motor

Wiring Diagram No.: ②

- Refer to page 07-85 for inner wiring diagram of motor.

SH Geared Type Frame Size 60 mm (Bipolar 4 lead wires)

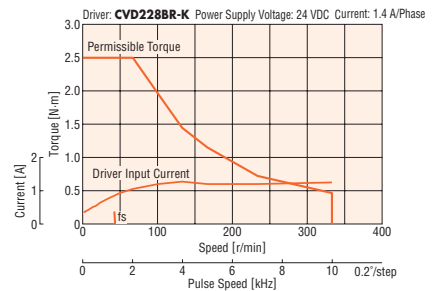
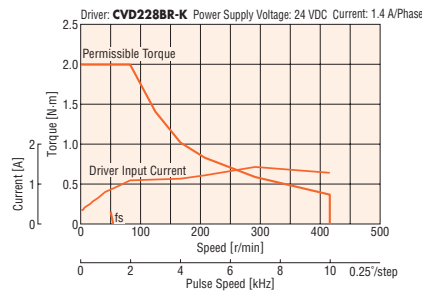
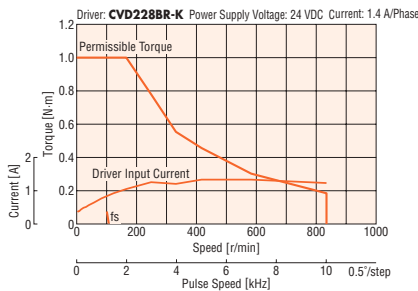
Specifications

Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Voltage VDC	Winding Resistance Ω/Phase	Inductance mH/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N·m	Speed Range r/min	Backlash arcmin	Recommended Driver Product Name*
PKP264D14□2-SG3.6	1	140×10 ⁻⁷	1.4	2	1.4	3.1	0.5°	3.6	1	0~833	70 (1.17°)	CVD228BR-K
PKP264D28□2-SG3.6			2.8	0.92	0.33	0.81						
PKP264D14□2-SG7.2	2		1.4	2	1.4	3.1	0.25°	7.2	2	0~416		
PKP264D28□2-SG7.2			2.8	0.92	0.33	0.81						
PKP264D14□2-SG9	2.5		1.4	2	1.4	3.1	0.2°	9	2.5	0~333		
PKP264D28□2-SG9			2.8	0.92	0.33	0.81						
PKP264D14□2-SG10	2.7		1.4	2	1.4	3.1	0.18°	10	2.7	0~300		
PKP264D28□2-SG10			2.8	0.92	0.33	0.81						
PKP264D14□2-SG18	3		1.4	2	1.4	3.1	0.1°	18	3	0~166		
PKP264D28□2-SG18			2.8	0.92	0.33	0.81						
PKP264D14□2-SG36	4	1.4	2	1.4	3.1	0.05°	36	4	0~83			
PKP264D28□2-SG36		2.8	0.92	0.33	0.81							

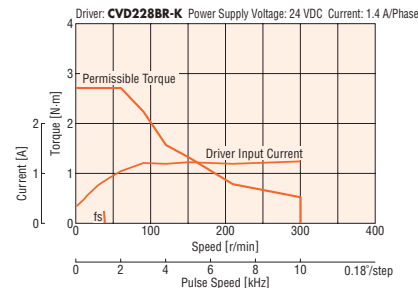
● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

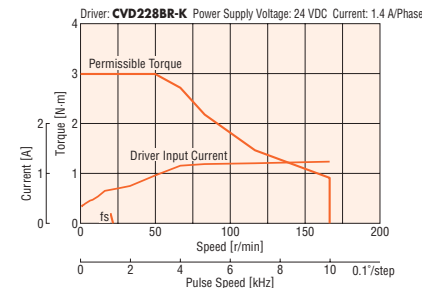
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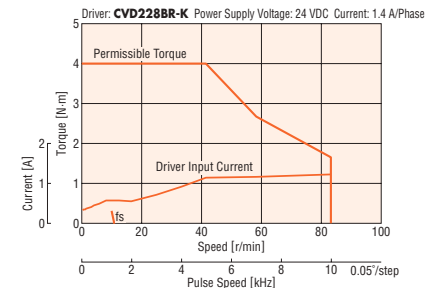
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PKP264D14A2-SG18/PKP264D14B2-SG18



PKP264D14A2-SG36/PKP264D14B2-SG36

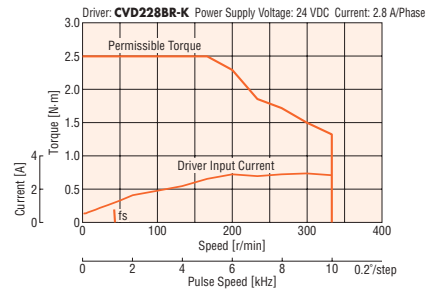
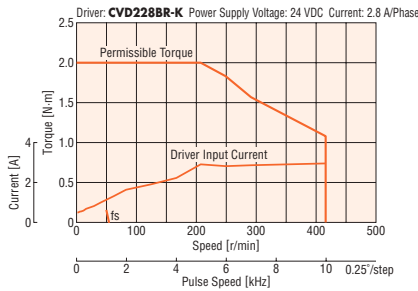
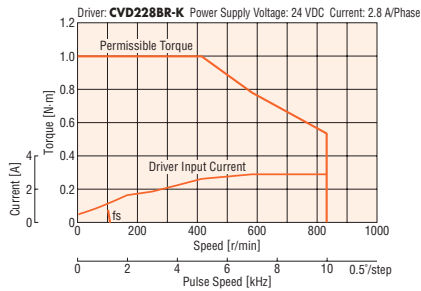


Note

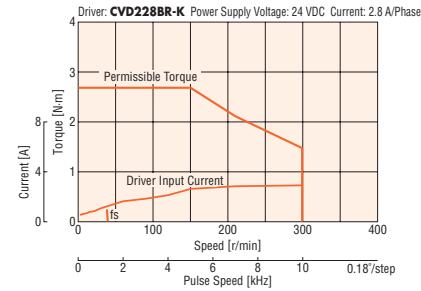
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.

Speed – Torque Characteristics (Reference values)

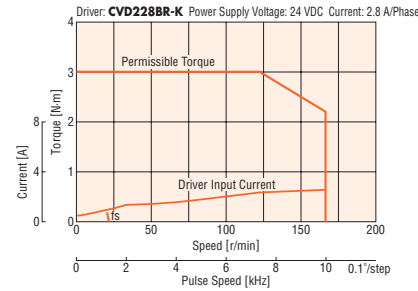
PKP264D28A2-SG3.6/PKP264D28B2-SG3.6 PKP264D28A2-SG7.2/PKP264D28B2-SG7.2 PKP264D28A2-SG9/PKP264D28B2-SG9



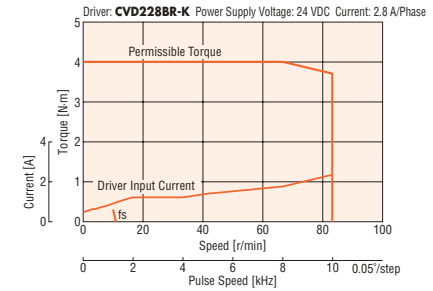
PKP264D28A2-SG10/PKP264D28B2-SG10



PKP264D28A2-SG18/PKP264D28B2-SG18



PKP264D28A2-SG36/PKP264D28B2-SG36



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	Gear Ratio	Mass kg	2D CAD
PKP264D14A2-SG□	3.6, 7.2, 9, 10, 18, 36	0.76	B1342
PKP264D14B2-SG□			
PKP264D28A2-SG□			
PKP264D28B2-SG□			

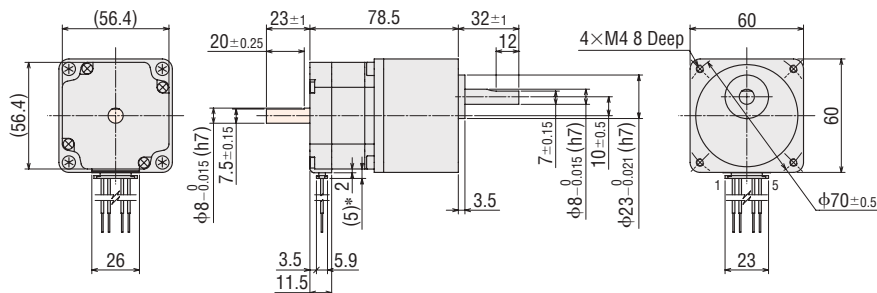
- A number indicating the gear ratio is specified in the box □ in the product name.

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)

Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)

Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)



*With connection cable

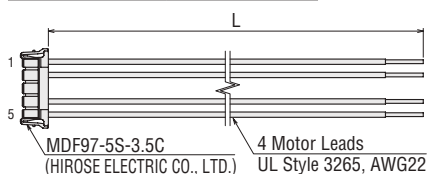
- These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Connection Cable (Sold separately)

◇ For Motor

Product Name	Length L (m)
LC2B06E	0.6



Inner Wiring Diagram of Motor

Wiring Diagram No.: ①

- Refer to page 07-85 for inner wiring diagram of motor.

SH Geared Type Frame Size 90 mm (Unipolar 6 lead wires)

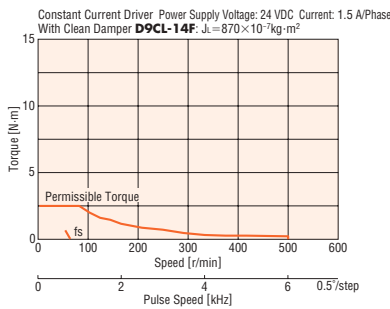
Specifications

Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Voltage VDC	Winding Resistance Ω/Phase	Inductance mH/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N·m	Speed Range r/min
PK296□1-SG3.6	2.5	1400×10 ⁻⁷	1.5	3.3	2.2	7.7	0.5°	3.6	2.5	0~500
PK296□2-SG3.6			3	1.4	0.48	1.5				
PK296□1-SG7.2	5		1.5	3.3	2.2	7.7	0.25°	7.2	5	0~250
PK296□2-SG7.2			3	1.4	0.48	1.5				
PK296□1-SG9	6.3		1.5	3.3	2.2	7.7	0.2°	9	6.3	0~200
PK296□2-SG9			3	1.4	0.48	1.5				
PK296□1-SG10	7		1.5	3.3	2.2	7.7	0.18°	10	7	0~180
PK296□2-SG10			3	1.4	0.48	1.5				
PK296□1-SG18	9		1.5	3.3	2.2	7.7	0.1°	18	9	0~100
PK296□2-SG18			3	1.4	0.48	1.5				
PK296□1-SG36	12	1.5	3.3	2.2	7.7	0.05°	36	12	0~50	
PK296□2-SG36		3	1.4	0.48	1.5					

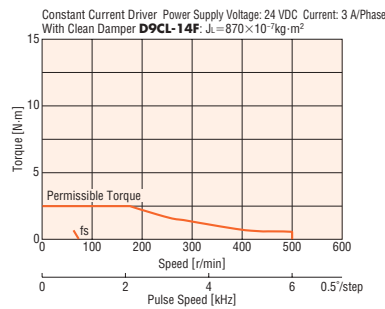
- Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.
- Backlash value is approximately 1 to 2°.

Speed – Torque Characteristics (Reference values)

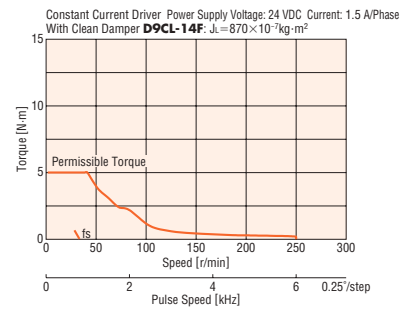
PK296A1-SG3.6/PK296B1-SG3.6



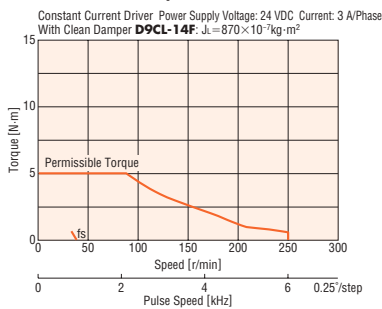
PK296A2-SG3.6/PK296B2-SG3.6



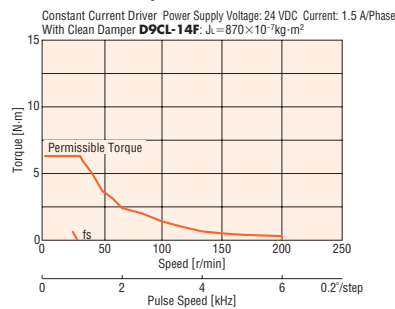
PK296A1-SG7.2/PK296B1-SG7.2



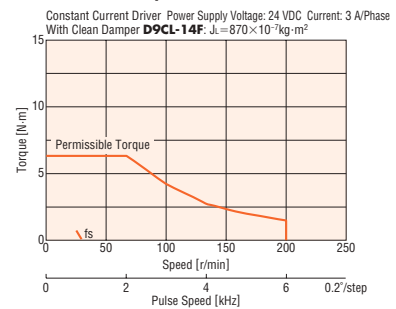
PK296A2-SG7.2/PK296B2-SG7.2



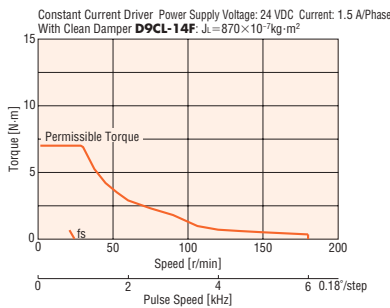
PK296A1-SG9/PK296B1-SG9



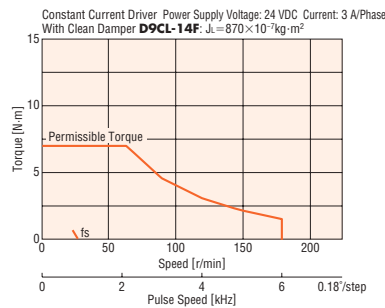
PK296A2-SG9/PK296B2-SG9



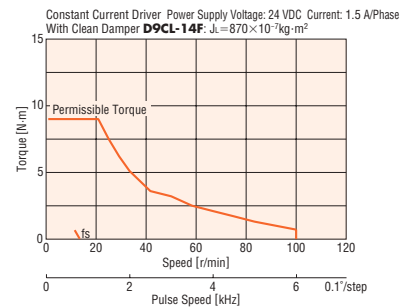
PK296A1-SG10/PK296B1-SG10



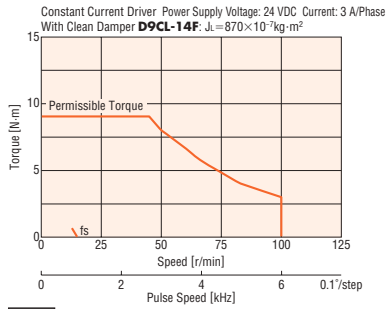
PK296A2-SG10/PK296B2-SG10



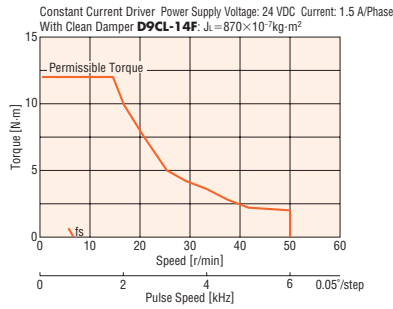
PK296A1-SG18/PK296B1-SG18



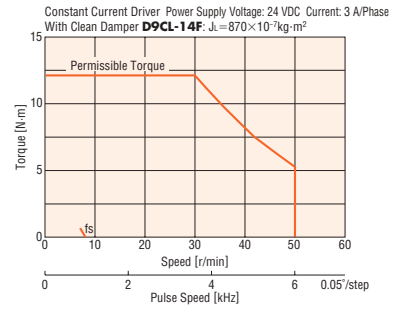
PK296A2-SG18/PK296B2-SG18



PK296A1-SG36/PK296B1-SG36



PK296A2-SG36/PK296B2-SG36



Note

- Data for the speed – torque characteristics is based on Oriental Motor’s internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- If there is a “clean damper” entry in the speed – torque characteristics, the data is for a double shaft motor when a clean damper is equipped.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

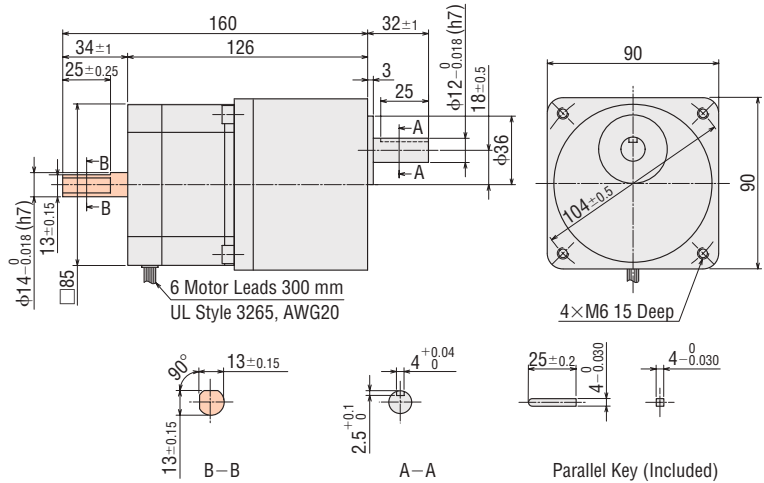
Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	Gear Ratio	Mass kg	2D CAD
PK296A1-SG <input type="checkbox"/>	3.6, 7.2, 9, 10, 18, 36	2.8	B242
PK296B1-SG <input type="checkbox"/>			
PK296A2-SG <input type="checkbox"/>			
PK296B2-SG <input type="checkbox"/>			

● A number indicating the gear ratio is specified in the box in the product name.



- These dimensions are for double shaft motors. For single shaft motors, ignore the shaded areas.
 - Included
- Installation Screws: M6 × 18 P1.0 (4 Screws)

Inner Wiring Diagram of Motor

Wiring Diagram No.: ⑦

- Refer to page 07-85 for inner wiring diagram of motor.

General Specifications

Specification	Motor	
Thermal Class	130(B)	
Insulation Resistance	The measured value is 100 MΩ or more when a 500 VDC megger is applied between the windings and the case under normal ambient temperature and humidity.	
Dielectric Voltage	No abnormalities are observed, even when applying voltage between the windings and the case for 1 minute under normal ambient temperature and humidity with the following conditions. <ul style="list-style-type: none"> • Frame size 42 mm max., PKP262: 0.5 kVAC 50/60 Hz • Frame size 50 mm min.: 1.0 kVAC 50/60 Hz • PKP29□, PK29□: 1.5 kVAC 50/60 Hz 	
Operating Environment (In Operation)	Ambient temperature	-10~+50°C (Non-freezing) [0~+40°C for Flat Type with Harmonic Gear]
	Ambient humidity	85% or less (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 80°C max. (Based on Oriental Motor's internal measurement conditions)	
Stop Position Accuracy*1	±3 arc minutes (±0.05°) [PKP21□ and PKP262 are ±5 arc minutes (±0.083°), PK26□J and PK26□JD are ±2 arc minutes (±0.034°)]	
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. (10 N load) [PKP21□ is 1 N load, PKP22□ and PKP262 are 2.5 N load]	
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.)

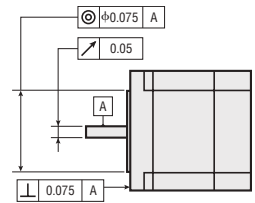
*2 Radial Play: Displacement in shaft position in the radial direction when a 5 N load is applied in the vertical direction to the tip of the motor shaft.

*3 Axial Play: Displacement in shaft position in the axial direction when a 10 N (**PKP21□** is 1 N, **PKP22□** and **PKP262** are 2.5 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 center.

Note

- Do not measure insulation resistance or perform a dielectric strength test while the motor and driver are connected. Also, do not conduct these tests on the motor encoder section.

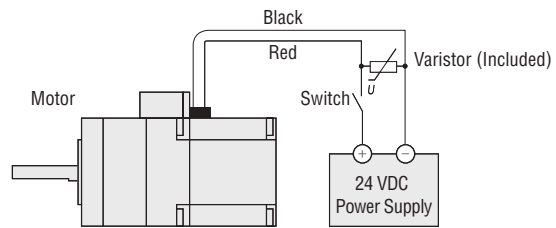


Electromagnetic Brake Specifications

Product Name	PKP22	PKP23 · PKP24	PKP26	
Type	Power off Activated Type			
Power Supply Voltage	24 VDC ±5%			
Power Supply Current	A	0.05	0.07	0.23
Static Friction Torque	N·m	0.08	0.3	1.5
Brake Activation Time	ms	20		
Brake Release Time	ms	50		
Time Rating	Continuous			

- The product names are listed such that the product names are distinguishable.

Connecting the Electromagnetic Brake



Encoder Specifications

Encoder Product Name	R2EL	R2FL
Resolution	200P/R	400P/R
Output Circuit Type	Line Driver*	
Output Mode	Incremental	
Output Signal	A Phase, B Phase, Z Phase (3 ch)	
Power Supply Voltage	5 VDC ±10%	
Current	30 mA max.	

- A voltage output type of encoder output circuit is also available. For details, please contact your nearest Oriental Motor sales office.
- *Equivalent to 26C31

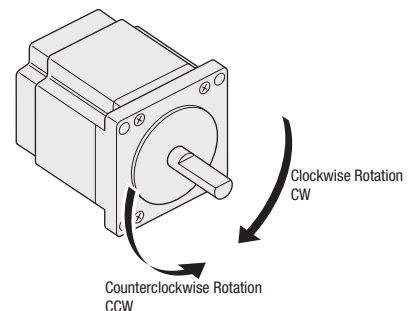
Rotation Direction

This indicates the rotation direction as viewed from the output shaft side of the motor (factory setting).

The rotation direction of the output gear shaft relative to the standard type motor output shaft varies depending on the gear type and gear ratio. Please check the following table.

Gear Type		Gear Ratio	Rotation Direction Relative to Motor Output Shaft
SH Geared	Frame Size 28 mm	7.2, 36	Same direction
		9, 10, 18	Opposite direction
	Frame Size 42 mm, 60 mm	3.6, 7.2, 9, 10	Same direction
		18, 36	Opposite direction
	Frame Size 90 mm	3.6, 7.2, 9, 10, 18	Same direction
		36	Opposite direction
Flat Type with Harmonic Gear		50, 100	Opposite direction

Standard Type Motor



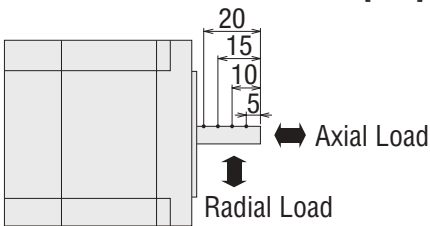
Permissible Radial Load and Permissible Axial Load

Unit: N

Type	Motor Frame Size	Product Name	Gear Ratio	Permissible Radial Load					Permissible Axial Load
				Distance from Shaft End [mm]					
				0	5	10	15	20	
Standard Type	20 mm	PKP213, PKP214	-	12	15	-	-	-	3
	28 mm	PKP223, PKP225		25	34	52	-	-	5
	35 mm	PKP233, PKP235		20	25	34	52	-	10
	42 mm	PKP243, PKP244, PKP245, PKP246		20	25	34	52	-	10
		PKP243□2, PKP244□2, PKP245□2, PKP246□2		35	44	58	85	-	15
	50 mm	PK256, PK258		54	67	89	130	-	20
	56.4 mm	PKP264, PKP266, PKP268		61	73	90	110	160	20
		PKP264□2, PKP266□2, PKP268□2		90	100	130	180	270	30
60 mm	PK264J, PK266J, PK267J, PK269J	50	60	75	100	150	20		
85 mm	PKP296, PKP299, PKP2913	260	290	340	390	480	60		
High-Resolution Type	42 mm	PKP243, PKP244	-	20	25	34	52	-	10
	56.4 mm	PKP264, PKP266, PKP268		61	73	90	110	160	20
Flat Type · Standard	42 mm	PKP242	-	20	25	34	-	-	5
	60 mm	PKP262							
Flat Type with Harmonic Gear	51 mm	PKP242	50, 100	-	-	-	-	-	200
	φ72 mm	PKP262		-	-	-	-	-	450
SH Geared Type	28 mm	PKP223	7.2, 9, 10, 18, 36	15	17	20	23	-	10
	42 mm	PKP243	3.6, 7.2, 9, 10, 18, 36	10	15	20	30	-	15
	60 mm	PKP264	3.6, 7.2, 9, 10	30	40	50	60	70	30
			18, 36	80	100	120	140	160	
	90 mm	PK296	3.6, 7.2, 9, 10, 18, 36	220	250	300	350	400	100

Radial Load and Axial Load

Distance from Shaft End [mm]



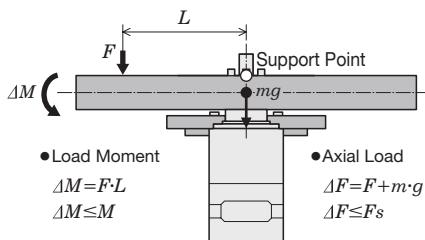
Permissible Moment Load of Flat Type with Harmonic Gear

When an eccentric (uneven) load is applied to the output flange-installation surface, the load moment acts on the bearing. Use the following formula to check whether the axial load and load moment are within specifications.

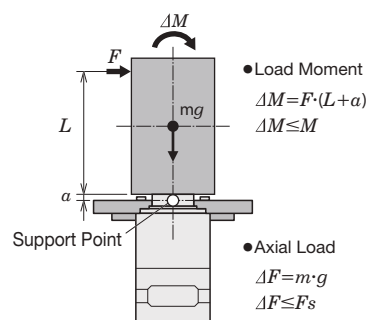
Product Name	Gear Ratio	Permissible Axial Load [N]	Permissible Moment Load [N·m]	α Constant [m]
PKP242-H□	50, 100	200	8.5	0.0129
PKP262-H□	50, 100	450	5.0	0.0095

m : Load Mass (kg)	ΔF : Load on output flange surface (N)
g : Gravitational acceleration (m/s ²)	F_s : Permissible axial load (N)
F : External force (N)	
L : Overhung distance (m)	ΔM : Load moment (N·m)
a : Constant (m)	M : Permissible moment load (N·m)

Example 1: An external force F (N) is applied at L (m) overhung position in a horizontal direction from the center of the output flange

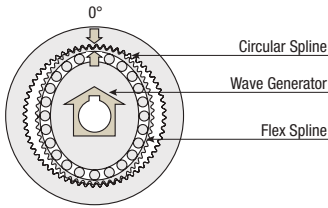


Example 2: An external force F (N) is applied at L (m) overhung position in a vertical direction from the output flange-installation surface



Accuracy of Flat Type with Harmonic Gear

Principle and Structure



Accuracy

Unlike the conventional spur gear gearhead, the harmonic gear has no backlash. The harmonic gear has many teeth in simultaneous meshing engagement, and is designed to average out the effects of tooth pitch error and cumulative pitch error on rotation accuracy to ensure high positioning accuracy. Also, harmonic gears have high gear ratio, so that the torsion when the load torque is applied to the output shaft is much smaller than a single motor and other geared motor, and the rigidity is high. High rigidity is less subject to load fluctuation and enables stable positioning. When the high positioning accuracy and rigidity are required, refer to the following characteristics.

Angular Transmission Accuracy

Angular transmission error is the difference between the theoretical rotation angle of the output shaft, as calculated from the input pulse count, and actual rotation angle. Represented as the difference between the min. value and max. value in the set of measurements taken for a single rotation of the output shaft, starting from an arbitrary position.

Product Name	Angular Transmission Accuracy [arcminute]
PKP242-H□	2 (0.034°)
PKP262-H□	1.5 (0.025°)

● Value at no-load condition (Gear reference value)

Torque – Torsion Angle Characteristics

The torque – torsion angle characteristics in the graph measure displacement (torsion) when the motor shaft is fixed and the load (torque) is gradually increased and decreased in the forward and reverse directions of the output shaft. When a load is applied to the output shaft in this way, displacement occurs due to the gear's spring constant.

This displacement occurs when an external force is applied as the gear is stopped, or when the gear is driven under a frictional load. The slope can be approximated with the spring constant in the following 3 classes, depending on the size of the torque, and can be estimated through calculation.

1. Load torque T_L is T_1 max.

$$\theta = \frac{T_L}{K_1} \text{ [min]}$$

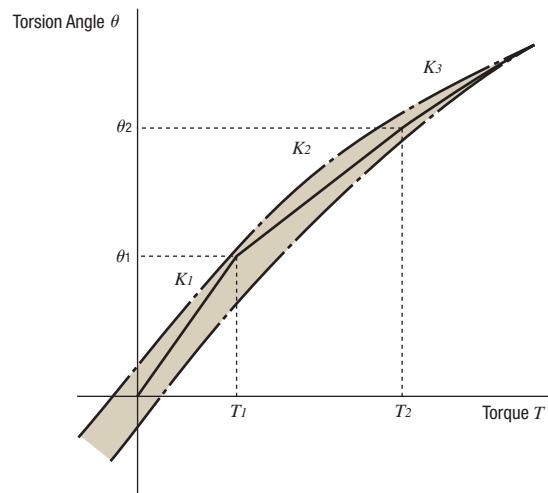
2. Load torque T_L exceeds T_1 but is less than T_2

$$\theta = \theta_1 + \frac{T_L - T_1}{K_2} \text{ [min]}$$

3. Load torque T_L exceeds T_2

$$\theta = \theta_2 + \frac{T_L - T_2}{K_3} \text{ [min]}$$

The torsion angle of the harmonic gear alone is calculated according to the size of the load torque.

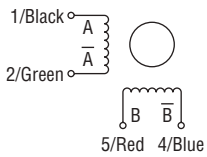
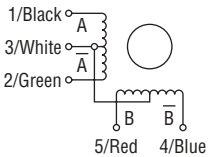
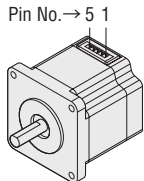
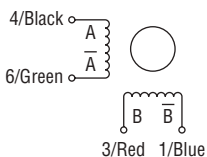
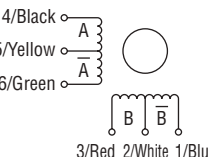
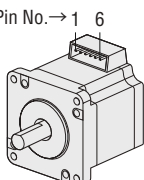
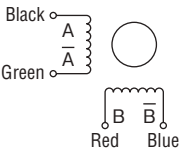
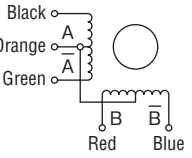
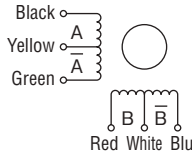
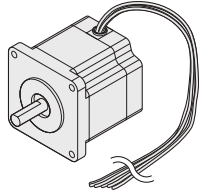


Torsion Angle – Torque Characteristics

Values for Determining Torsion Angle

Product Name	Item	Gear Ratio	T_1	K_1	θ_1	T_2	K_2	θ_2	K_3
			N-m	N-m/min	min	N-m	N-m/min	min	N-m/min
PKP242-H50	50	0.29	0.13	2.3	0.75	0.19	4.5	0.24	
	100	0.29	0.26	1.1	0.75	0.29	2.8	0.35	
PKP262-H50	50	2	0.84	2.4	6.9	1.1	6.5	1.4	
	100	2	1.2	1.7	6.9	1.3	5.5	1.8	

Inner Wiring Diagram of Motor

Wiring Diagrams			Pin Assignment
<p>① Bipolar 4 Lead Wires</p> 	<p>② Unipolar 5 Lead Wires</p> 	<p>Pin No. → 5 1</p> 	
<p>③ Bipolar 4 Lead Wires</p> 	<p>④ Unipolar 6 Lead Wires</p> 	<p>Pin No. → 1 6</p> 	
<p>⑤ Bipolar 4 Lead Wires</p> 	<p>⑥ Unipolar 5 Lead Wires</p> 	<p>⑦ Unipolar 6 Lead Wires</p> 	 <p>Colors of Motor Lead Wires: Blue, White, Red, Black, Yellow, Green</p>

[Click Here](#)

For more information, please visit ORIENTAL MOTOR Website: <https://www.orientalmotor.com.sg/om/tp/index.html>

0.72°/0.36° Stepping Motors PKP Series/PK Series



This is a high torque and low vibration stepping motor with a basic step angle of 0.72° (resolution of 500 steps per revolution).

High positioning accuracy is possible through low vibration and reduced noise.

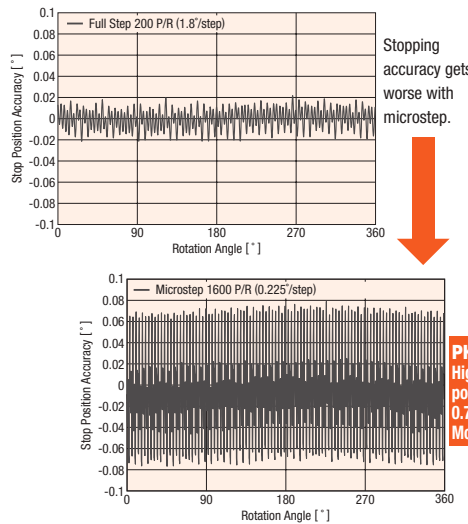
(A separate dedicated driver is required to operate each motor.)

Features

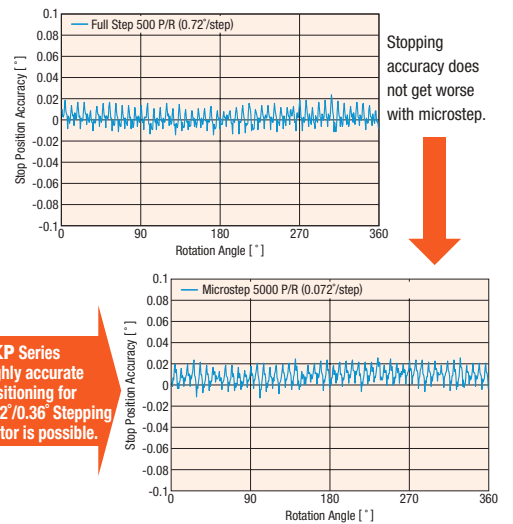
High Accuracy

Since the step angle of 0.72°/0.36° Stepping Motor in the **PKP** Series is at 0.72° (high-resolution type at 0.36°) and the stopping accuracy is at $\pm 0.05^\circ$, highly accurate positioning is possible. In addition, the stop position accuracy controlled by a microstep driver has almost the same high accuracy as that controlled by a full-step driver.

● General 1.8° Stepping Motor



● 0.72°/0.36° Stepping Motor **PKP** Series (Driver: **CVD** driver for 0.72°/0.36° Stepping Motor)



PKP Series
Highly accurate
positioning for
0.72°/0.36° Stepping
Motor is possible.

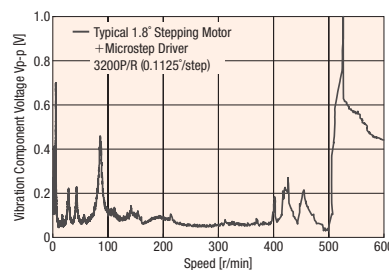
07

PKP Series

Low Vibration and Reduced Noise

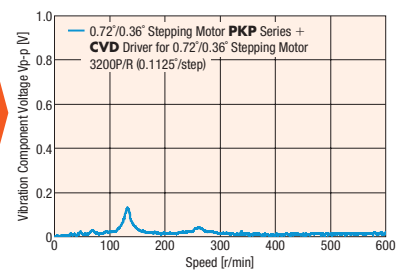
Because the basic step angle is small at 0.72° (0.36° for high-resolution type), the vibrations and noise are lower than the 1.8° stepping motor with a basic step angle of 1.8°. Also, vibrations and noise can be further reduced through control with the driver of the microstep drive.

● Example of 1.8° Stepping Motor Vibration Characteristics



PKP Series
Vibration characteristics
for 0.72°/0.36° Stepping
Motor have been further
improved.

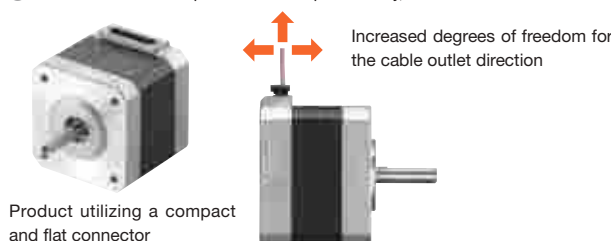
● Example of 0.72°/0.36° Stepping Motor Vibration Characteristics

















Compact and Flat Connector

The **PKP** Series uses a compact and flat connector, which shortens the length of the connector's overhang. In addition, the degree of freedom for the cable outlet direction has been increased, because the outlet direction points upward.

● Because the connector is provided for some products only, refer to dimensions of each model for details.



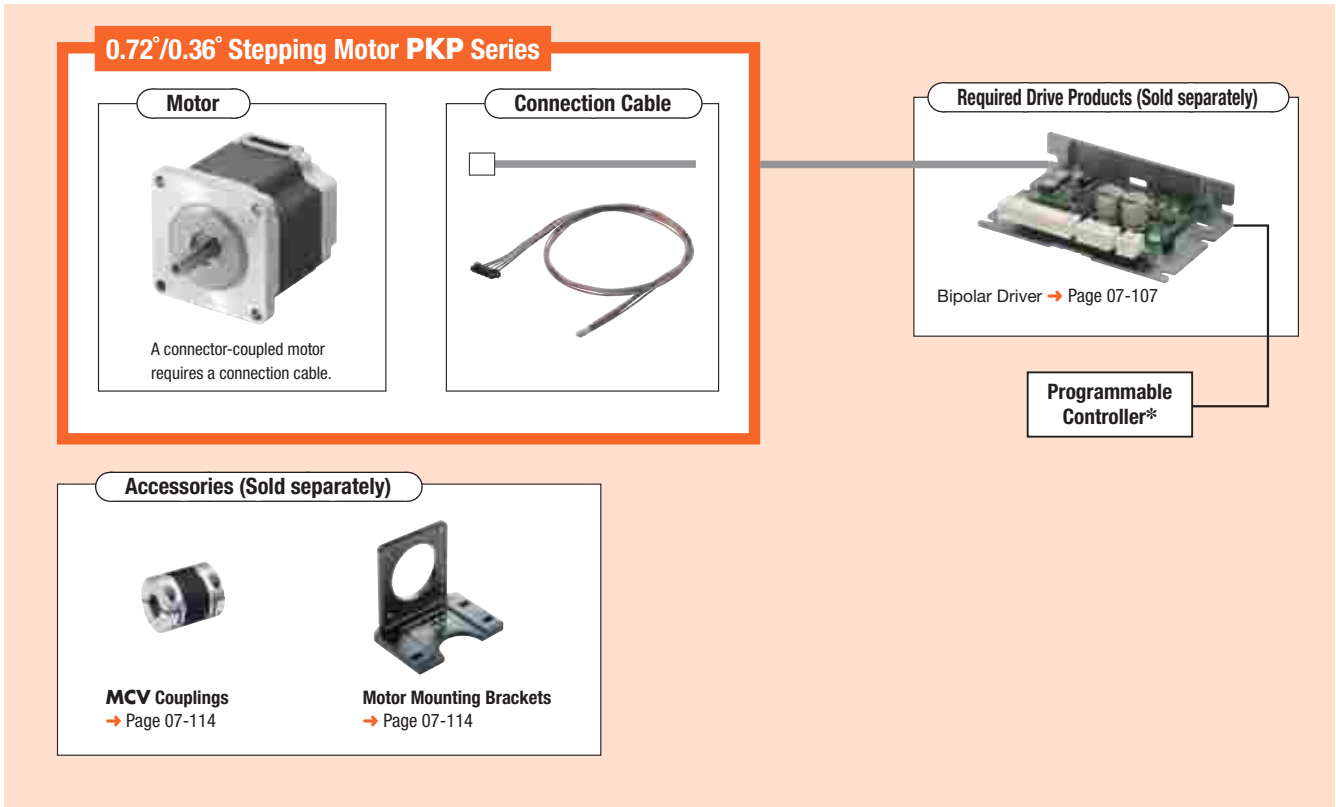
Product utilizing a compact and flat connector

Type (Basic step angle)	Features	Frame Size					
		20mm	28mm	42mm	56.4mm	60mm	85mm
Standard Type (0.72°)	<ul style="list-style-type: none"> Standard model High torque, low vibration 						 Lead Wire Type
High-Resolution Type (0.36°)	<ul style="list-style-type: none"> Double the resolution of the standard type motor High positioning accuracy and reduced vibration 	–	–		–		–
Standard Type with Encoder (0.72°)	<ul style="list-style-type: none"> Encoder resolution 500 P/R, A, B, and Z (3 ch) output signals Utilizes a compact encoder Encoder with superior noise resistance and a line driver (differential) output 		–				–
TS Geared Type (0.024°-0.2°)	<ul style="list-style-type: none"> Spur gear mechanism A wide variety of low gear ratios, high-speed operations Gear ratios: 3.6, 7.2, 10, 20, 30 	–	–		–		–

*Conventional PK Series.

System Configuration

These accessories allow 0.72°/0.36° stepping motor in the **PKP** Series to be used for various operations. Motors and connection cables must be ordered individually.



System Configuration Example

0.72°/0.36° Stepping Motor PKP Series		Sold Separately	
Motor	Connection Cable	Motor Mounting Bracket	Flexible Coupling
PKP566FN24A2	LC5N06E	PAL2P-5	MCV190808
SGD81	SGD6	SGD14	SGD90

The system configuration shown above is an example. Other combinations are also available.

Product Number Code

● Motor

◇ Frame Size 20 mm, 85 mm

Standard type

PK 5 1 3 P A

① ② ③ ④ ⑤ ⑧

PK 5 9 6 H N A W

① ② ③ ④ ⑥ ⑦ ⑧ ⑪

Standard Type with Encoder

PK 5 1 3 P A - R2G L

① ② ③ ④ ⑤ ⑧ ⑨ ⑩

◇ Frame Size 28 mm, 42 mm, 56.4 mm, 60 mm

Standard Type, High-Resolution Type

PKP 5 6 6 F N 24 A 2

① ② ③ ④ ⑤ ⑦ ⑧ ⑨ ⑩

PKP 5 4 4 M N 18 A

① ② ③ ④ ⑥ ⑦ ⑧ ⑨

Standard Type with Encoder

PKP 5 6 6 F N 24 A 2 - R2G L

① ② ③ ④ ⑤ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

TS Geared Type

PKP 5 4 3 N 18 A 2 - TS 30

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

● Connection Cable

◇ Connection Cable for Motor

LC 5 N 06 E

① ② ③ ④ ⑤

◇ Connection Cable for Encoder

LC E 08 A - 006

① ② ③ ④ ⑤

①	Series Name	PK: PK Series
②	5: 0.72°/0.36° Stepping Motor	
③	Motor Frame Size	1: 20 mm 9: 85 mm
④	Motor Case Length	
⑤	Motor Classification	
⑥	Motor Type	Blank: Standard Specifications H: High-Speed Specifications
⑦	Number of Lead Wires	N: 5 Leads
⑧	Configuration	A: Single Shaft B: Double Shaft
⑨	Encoder Resolution	R2G: 500 P/R
⑩	Encoder Output Circuit Type	L: Line Driver Output
⑪	Cable Identification	Blank: Connector Connection Method W: Lead Wire Type

①	Series Name	PKP: PKP Series
②	5: 0.72°/0.36° Stepping Motor	
③	Motor Frame Size	2: 28 mm 4: 42 mm 6: 56.4 mm *1 (60 mm when the motor classification is "F")
④	Motor Case Length	
⑤	Motor Classification	F: Motor Frame Size of 60 mm
⑥	Motor Type	Blank: Standard Type M: High-Resolution Type
⑦	Number of Lead Wires	N: 5 Leads
⑧	Motor Winding Specifications	
⑨	Configuration	A: Single Shaft B: Double Shaft
⑩	Reference Number	
⑪	Encoder Resolution	R2G: 500 P/R
⑫	Encoder Output Circuit Type	L: Line Driver Output*2

*1 Products with shaft diameter $\phi 6.35$ mm are also available.

For details, please contact your nearest Oriental Motor sales office.

*2 Encoder of voltage output for output circuit type is also available.

For details, please contact your nearest Oriental Motor sales office.

①	Series Name	PKP : PKP Series
②	5 : 0.72°/0.36° Stepping Motor	
③	Motor Frame Size	4: 42 mm 6: 56.4 mm
④	Motor Case Length	
⑤	Number of Lead Wires	N: 5 Leads
⑥	Motor Winding Specifications	
⑦	Configuration	A: Single Shaft B: Double Shaft
⑧	Reference Number	
⑨	Gearhead Type	TS: TS Geared Type
⑩	Gear Ratio	

①	Cables	LC: Connector-Type Leads
②	5: 0.72°/0.36° Stepping Motor	
③	Cable Type	N: For 0.72°/0.36° Stepping Motor
④	Cable Length	06: 0.6 m 10: 1 m
⑤	Reference Number	

①	Cables	LC: Connector-Type Leads
②	Cable Type	E: For Encoder
③	Applicable Models	08: For Line Driver Output*
④	Reference Number	
⑤	Cable Length	006: 0.6 m

*A voltage output cable is available.

For details, please contact your nearest Oriental Motor sales office.

Product Line

A connector cable is required for the connector type motor. The motor and connection cable are purchased separate. For details on the connection cable, refer to page 07-115.

Motors

◇ Standard Type

Product Name (Single Shaft)	List Price	Product Name (Double Shaft)	List Price
PK513PA	SGD125	PK513PB	SGD131
PKP523N12A	SGD56	PKP523N12B	SGD59
PKP525N12A	SGD66	PKP525N12B	SGD69
PKP543N18A2	SGD56	PKP543N18B2	SGD59
PKP544N18A2	SGD59	PKP544N18B2	SGD61
PKP545N18A2	SGD66	PKP545N18B2	SGD69
PKP546N18A2	SGD69	PKP546N18B2	SGD72
PKP564N28A2	SGD69	PKP564N28B2	SGD72
PKP566N28A2	SGD75	PKP566N28B2	SGD78
PKP568N28A2	SGD94	PKP568N28B2	SGD98
PKP564FN24A2	SGD75	PKP564FN24B2	SGD78
PKP564FN38A2	SGD75	PKP564FN38B2	SGD78
PKP566FN24A2	SGD81	PKP566FN24B2	SGD84
PKP566FN38A2	SGD81	PKP566FN38B2	SGD84
PKP569FN24A2	SGD100	PKP569FN24B2	SGD104
PKP569FN38A2	SGD100	PKP569FN38B2	SGD104
PK596HNAW	SGD183	PK596HNBW	SGD188
PK599HNAW	SGD275	PK599HNBW	SGD284
PK5913HNAW	SGD400	PK5913HNBW	SGD413

◇ Standard Type with Encoder

Product Name	List Price
PK513PA-R2GL	SGD200
PKP543N18A2-R2GL	SGD119
PKP544N18A2-R2GL	SGD121
PKP545N18A2-R2GL	SGD129
PKP546N18A2-R2GL	SGD131
PKP564N28A2-R2GL	SGD131
PKP566N28A2-R2GL	SGD138
PKP568N28A2-R2GL	SGD156
PKP564FN24A2-R2GL	SGD138
PKP564FN38A2-R2GL	SGD138
PKP566FN24A2-R2GL	SGD144
PKP566FN38A2-R2GL	SGD144
PKP569FN24A2-R2GL	SGD163
PKP569FN38A2-R2GL	SGD163

◇ High-Resolution Type

Product Name (Single Shaft)	List Price	Product Name (Double Shaft)	List Price
PKP544MN18A	SGD59	PKP544MN18B	SGD61
PKP546MN18A	SGD69	PKP546MN18B	SGD72
PKP564FMN24A	SGD75	PKP564FMN24B	SGD78
PKP566FMN24A	SGD81	PKP566FMN24B	SGD84
PKP569FMN24A	SGD100	PKP569FMN24B	SGD104

◇ TS Geared Type NEW

Product Name (Single Shaft)	List Price	Product Name (Double Shaft)	List Price
PKP544N18A2-TS3.6	SGD215	PKP544N18B2-TS3.6	SGD218
PKP544N18A2-TS7.2	SGD215	PKP544N18B2-TS7.2	SGD218
PKP544N18A2-TS10	SGD233	PKP544N18B2-TS10	SGD235
PKP543N18A2-TS20	SGD233	PKP543N18B2-TS20	SGD235
PKP543N18A2-TS30	SGD233	PKP543N18B2-TS30	SGD235
PKP566N28A2-TS3.6	SGD249	PKP566N28B2-TS3.6	SGD252
PKP566N28A2-TS7.2	SGD249	PKP566N28B2-TS7.2	SGD252
PKP566N28A2-TS10	SGD266	PKP566N28B2-TS10	SGD269
PKP564N28A2-TS20	SGD266	PKP564N28B2-TS20	SGD269
PKP564N28A2-TS30	SGD266	PKP564N28B2-TS30	SGD269

● Connection Cables for Motor

The applicable motors of the connection cable are shown in the dimensions of each product.

Product Name	Length L (m)	List Price
LC5N06A	0.6	SGD6
LC5N10A	1	SGD9
LC5N06B	0.6	SGD6
LC5N10B	1	SGD9
LC5N06C	0.6	SGD9
LC5N10C	1	SGD11
LC5N06E	0.6	SGD6

● Connection Cable for Encoder

◇ For Line Driver Output

Product Name	Length L (m)	List Price
LCE08A-006	0.6	SGD13

Included

Type	Included	Parallel Key	Motor Installation Screw	Operating Manual
Standard Type				1 Set
High-Resolution Type		—	—	
TS Geared Type	Frame Size 42 mm	—	—	
	Frame Size 60 mm	1 Piece	M4 × 60 P0.7 (4 Screws)	

Glossary of Specification Table

→ Page 07-11

Standard Type Frame Size 20 mm

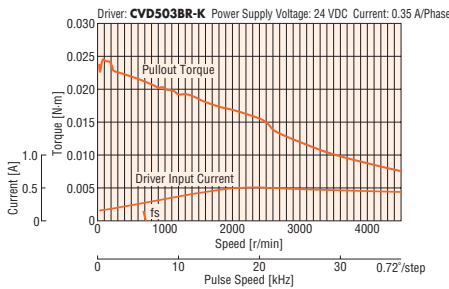
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PK513PA	PK513PB	0.0231	1.6×10^{-7}	0.35	3.5	0.72°	CVD503BR-K

*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

PK513PA/PK513PB



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

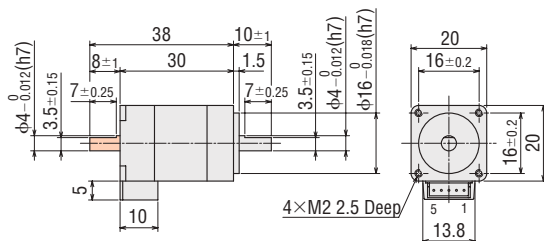
Motor

2D & 3D CAD

Product Name	Mass kg	2D CAD
PK513PA	0.05	B316
PK513PB		

Applicable Connector

Connector Housing: 51065-0500 (Molex)
Contact: 50212-8100 (Molex)
Crimp Tool: 57176-5000 (Molex)



- These dimensions are for double shaft motors.
For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

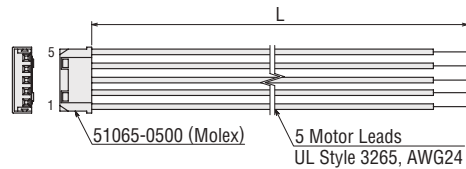
Motor Pin Assignment: Model B

- Refer to page 07-105 for motor pin layout.

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06A	0.6
LC5N10A	1



Standard Type with Encoder Frame Size 20 mm

Specifications

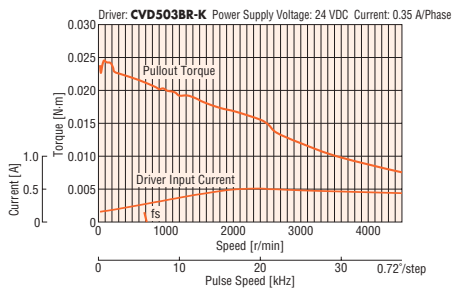
Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
PK513PA-R2GL	0.0231	1.66×10^{-7}	0.35	3.5	0.72°	CVD503BR-K

● Refer to page 07-105 for encoder specifications.

*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

PK513PA-R2GL



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. To protect the encoder, be sure to keep the motor case temperature at 85°C max.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

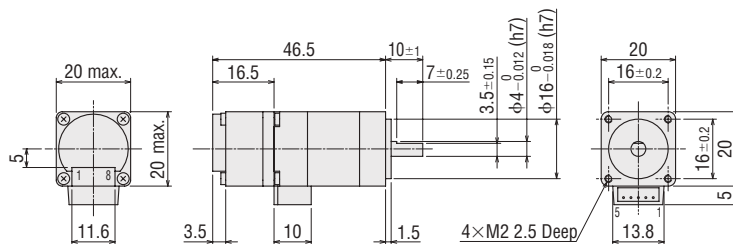
Motor

2D & 3D CAD

Product Name	Mass kg	2D CAD
PK513PA-R2GL	0.06	B1069

● Applicable Connector (Molex)

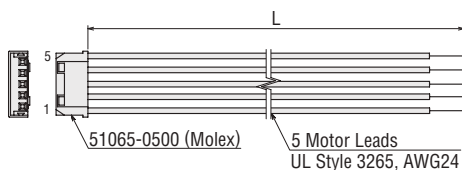
	Motor	Encoder
Connector Housing	51065-0500	51021-0800
Contact	50212-8100	50079-8100
Crimp Tool	57176-5000	57067-3000



Connection Cable (Sold separately)

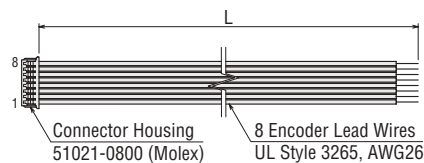
◇ For Motor

Product Name	Length L (m)
LC5N06A	0.6
LC5N10A	1



◇ For Encoder

Product Name	Length L (m)
LCE08A-006	0.6



Motor Pin Assignment

Motor Pin Assignment: Model B

● Refer to page 07-105 for motor pin layout.

Standard Type Frame Size 28 mm

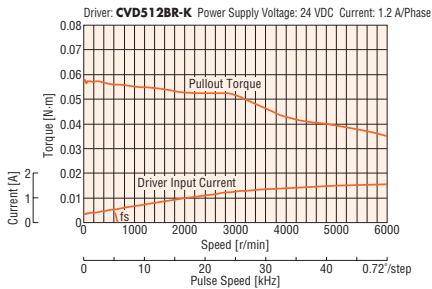
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP523N12A	PKP523N12B	0.052	9×10^{-7}	1.2	0.63	0.72°	CVD512BR-K
PKP525N12A	PKP525N12B	0.091	18×10^{-7}		1		

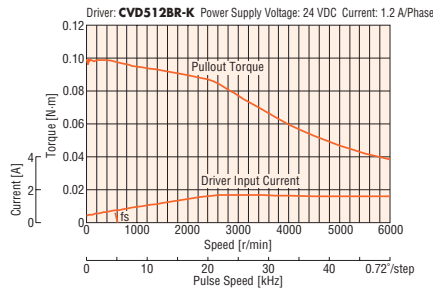
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

PKP523N12A/PKP523N12B



PKP525N12A/PKP525N12B



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

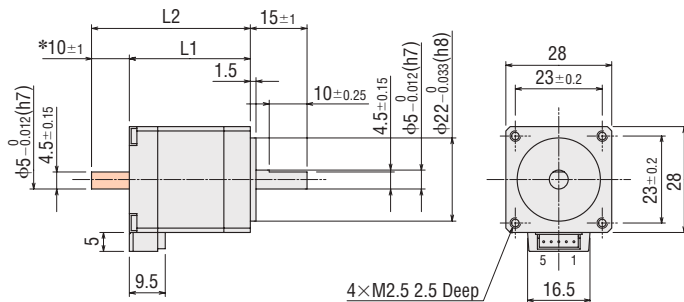
Motor

2D & 3D CAD

Product Name	L1	L2	Mass kg	2D CAD
PKP523N12A	32	—	0.11	B1146
PKP523N12B		42		
PKP525N12A	51.5	—	0.2	B1147
PKP525N12B		61.5		

Applicable Connector

Connector Housing: 51065-0500 (Molex)
Contact: 50212-8100 (Molex)
Crimp Tool: 57176-5000 (Molex)



*The length of the shaft flat on the double shaft model is 10±0.25.

- These dimensions are for double shaft motors.
For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

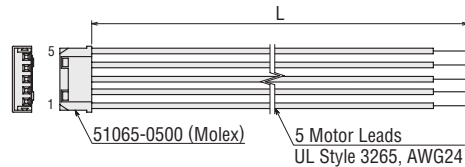
Motor Pin Assignment: Model B

- Refer to page 07-105 for motor pin layout.

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06A	0.6
LC5N10A	1



Standard Type Frame Size 42 mm

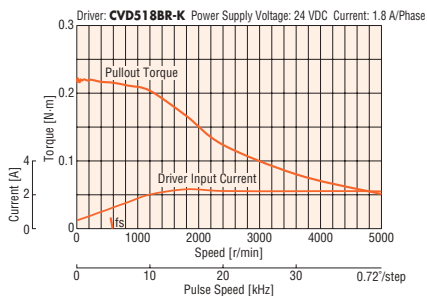
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP543N18A2	PKP543N18B2	0.22	35×10^{-7}	1.8	0.4	0.72°	CVD518BR-K
PKP544N18A2	PKP544N18B2	0.3	55×10^{-7}		0.48		
PKP545N18A2	PKP545N18B2	0.37	71×10^{-7}		0.55		
PKP546N18A2	PKP546N18B2	0.5	110×10^{-7}		0.64		

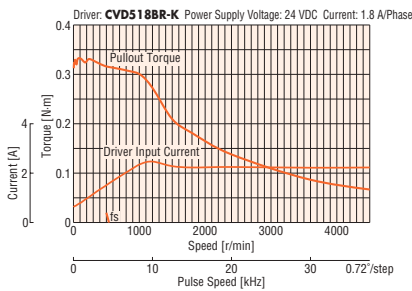
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

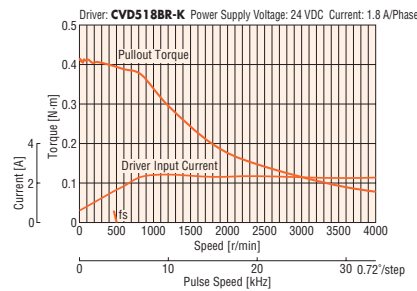
PKP543N18A2/ PKP543N18B2



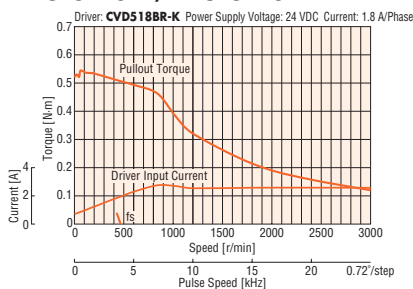
PKP544N18A2/ PKP544N18B2



PKP545N18A2/ PKP545N18B2



PKP546N18A2/ PKP546N18B2



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

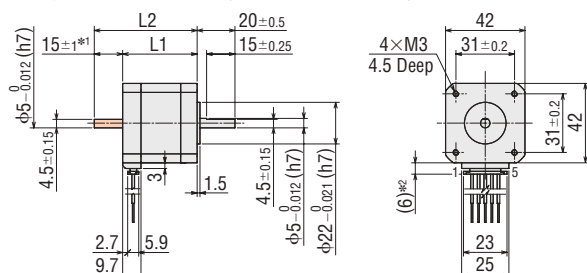
Product Name	L1	L2	Mass kg	2D CAD
PKP543N18A2	33	—	0.23	B1264
PKP543N18B2	—	48		
PKP544N18A2	39	—	0.29	B1265
PKP544N18B2		54		
PKP545N18A2	47	—	0.37	B1266
PKP545N18B2		62		
PKP546N18A2	59	—	0.49	B1267
PKP546N18B2		74		

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)

Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)

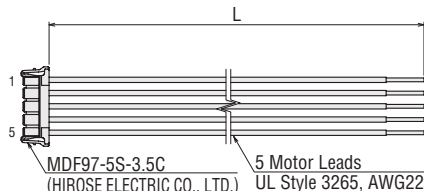
Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)



Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06E	0.6



Motor Pin Assignment

Motor Pin Assignment: Model A

- Refer to page 07-105 for motor pin layout.

*1 The length of the shaft flat on the double shaft model is 15±0.25.

*2 With connection cable

● These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Standard Type with Encoder Frame Size 42 mm

Specifications

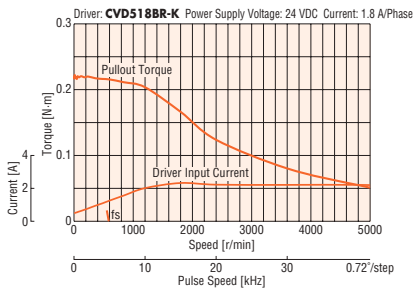
Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
PKP543N18A2-R2GL	0.22	35×10^{-7}	1.8	0.4	0.72°	CVDS18BR-K
PKP544N18A2-R2GL	0.3	55×10^{-7}		0.48		
PKP545N18A2-R2GL	0.37	71×10^{-7}		0.55		
PKP546N18A2-R2GL	0.5	110×10^{-7}		0.64		

● Refer to page 07-105 for encoder specifications.

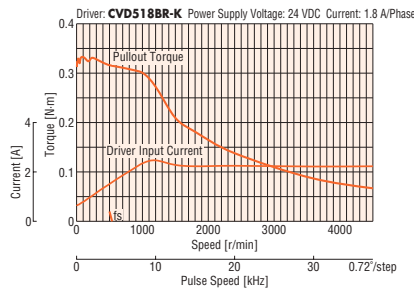
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

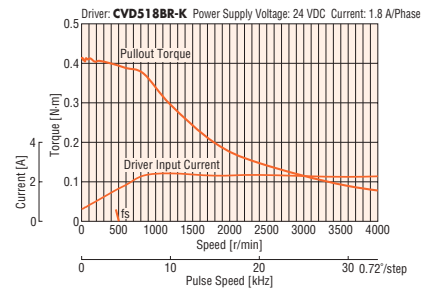
PKP543N18A2-R2GL



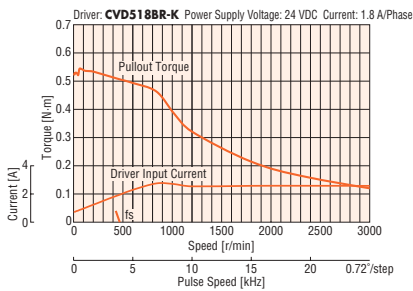
PKP544N18A2-R2GL



PKP545N18A2-R2GL



PKP546N18A2-R2GL



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. To protect the encoder, be sure to keep the motor case temperature at 85°C max.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

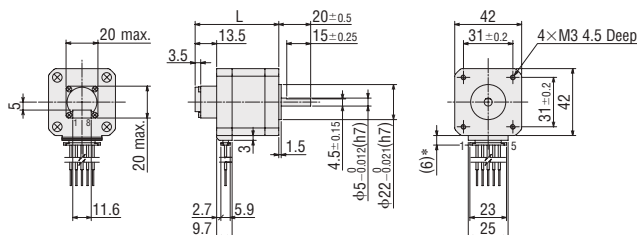
Motor

2D & 3D CAD

Product Name	L	Mass kg	2D CAD
PKP543N18A2-R2GL	46.5	0.24	B1343
PKP544N18A2-R2GL	52.5	0.3	B1344
PKP545N18A2-R2GL	60.5	0.38	B1345
PKP546N18A2-R2GL	72.5	0.5	B1346

● Applicable Connector

	Motor (HIROSE ELECTRIC CO., LTD.)	Encoder (Molex)
Connector Housing	MDF97-5S-3.5C	51021-0800
Contact	MDF97-22SC	50079-8100
Crimp Tool	HT801/MDF97-22S	57067-3000

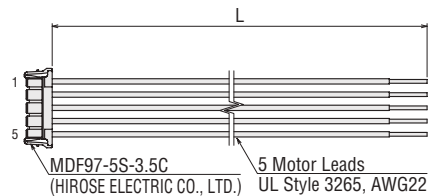


*With connection cable

Connection Cable (Sold separately)

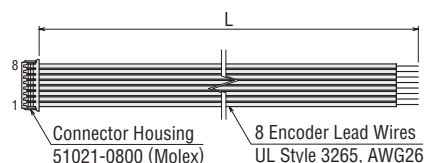
◇ For Motor

Product Name	Length L (m)
LC5N06E	0.6



◇ For Encoder

Product Name	Length L (m)
LCE08A-006	0.6



Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

Standard Type Frame Size 56.4 mm

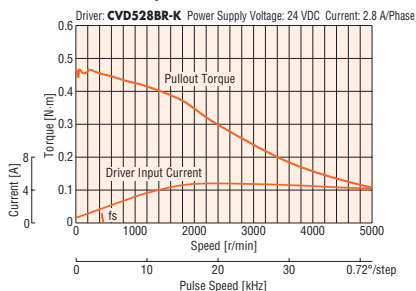
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP564N28A2	PKP564N28B2	0.44	140×10 ⁻⁷	2.8	0.16	0.72°	CVD528BR-K
PKP566N28A2	PKP566N28B2	0.81	270×10 ⁻⁷		0.24		
PKP568N28A2	PKP568N28B2	1.5	500×10 ⁻⁷		0.37		

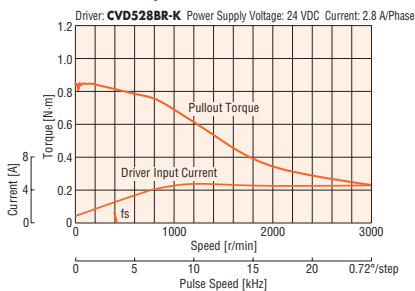
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

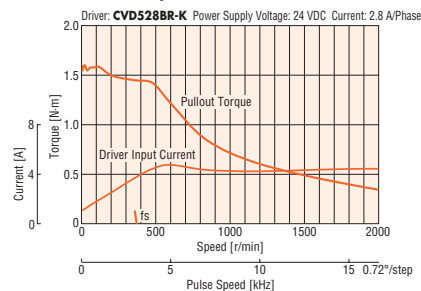
PKP564N28A2/PKP564N28B2



PKP566N28A2/PKP566N28B2



PKP568N28A2/PKP568N28B2



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	L1	L2	Mass kg	2D CAD
PKP564N28A2	39	—	0.43	B1257
PKP564N28B2	—	62	—	—
PKP566N28A2	54	—	0.67	B1258
PKP566N28B2	—	77	—	—
PKP568N28A2	76	—	1	B1259
PKP568N28B2	—	99	—	—

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)

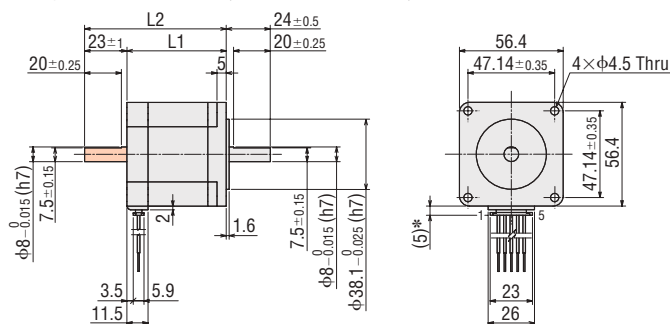
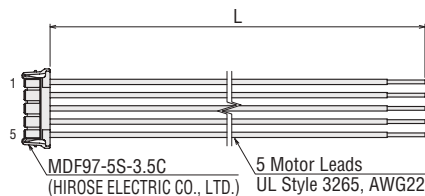
Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)

Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06E	0.6



*With connection cable

● These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

Standard Type with Encoder Frame Size 56.4 mm

Specifications

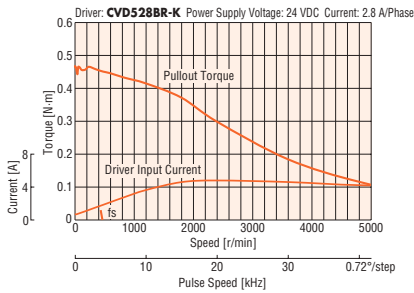
Product Name	Maximum Holding Torque N-m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
PKP564N28A2-R2GL	0.44	140×10 ⁻⁷	2.8	0.16	0.72°	CVD528BR-K
PKP566N28A2-R2GL	0.81	270×10 ⁻⁷		0.24		
PKP568N28A2-R2GL	1.5	500×10 ⁻⁷		0.37		

● Refer to page 07-105 for encoder specifications.

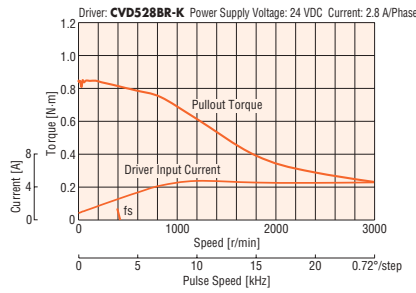
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

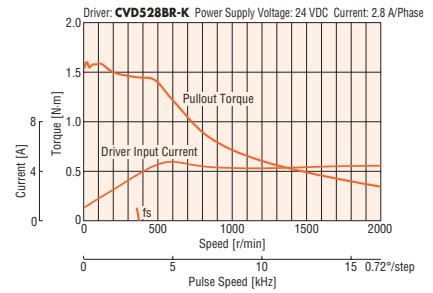
PKP564N28A2-R2GL



PKP566N28A2-R2GL



PKP568N28A2-R2GL



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. To protect the encoder, be sure to keep the motor case temperature at 85°C max.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

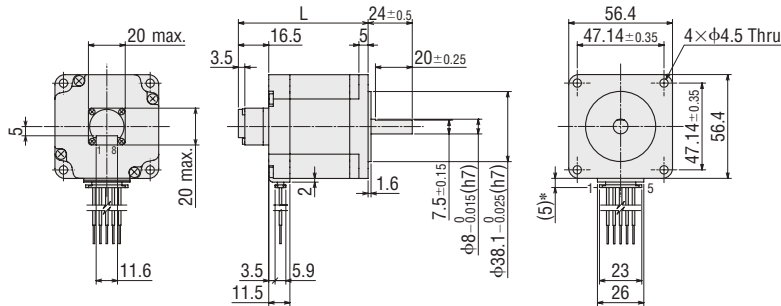
Motor

2D & 3D CAD

Product Name	L	Mass kg	2D CAD
PKP564N28A2-R2GL	55.5	0.43	B1347
PKP566N28A2-R2GL	70.5	0.67	B1348
PKP568N28A2-R2GL	92.5	1	B1349

Applicable Connector

	Motor (HIROSE ELECTRIC CO., LTD.)	Encoder (Molex)
Connector Housing	MDF97-5S-3.5C	51021-0800
Contact	MDF97-22SC	50079-8100
Crimp Tool	HT801/MDF97-22S	57067-3000

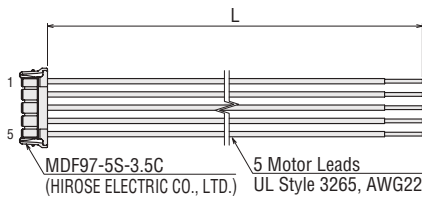


*With connection cable

Connection Cable (Sold separately)

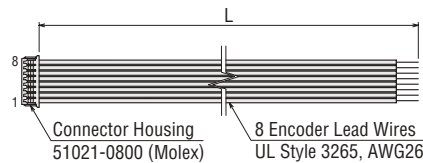
◇ For Motor

Product Name	Length L (m)
LC5N06E	0.6



◇ For Encoder

Product Name	Length L (m)
LCE08A-006	0.6



Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

Standard Type Frame Size 60 mm

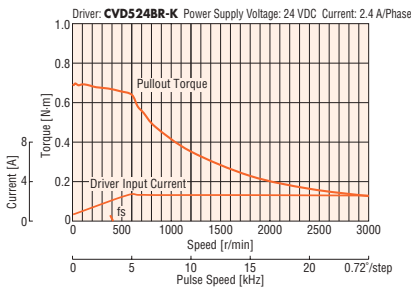
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP564FN24A2	PKP564FN24B2	0.66	160×10 ⁻⁷	2.4	0.28	0.72°	CVD524BR-K
PKP564FN38A2	PKP564FN38B2						CVD538BR-K
PKP566FN24A2	PKP566FN24B2	1.15	290×10 ⁻⁷	2.4	0.38		CVD524BR-K
PKP566FN38A2	PKP566FN38B2						CVD538BR-K
PKP569FN24A2	PKP569FN24B2	2.1	540×10 ⁻⁷	2.4	0.64		CVD524BR-K
PKP569FN38A2	PKP569FN38B2						CVD538BR-K

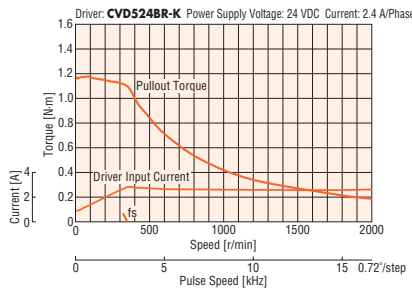
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

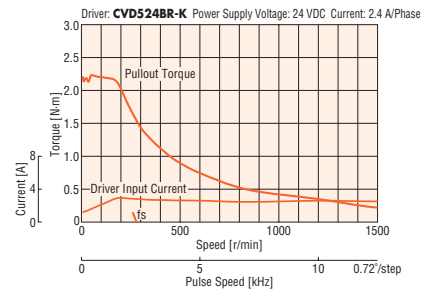
PKP564FN24A2/ PKP564FN24B2



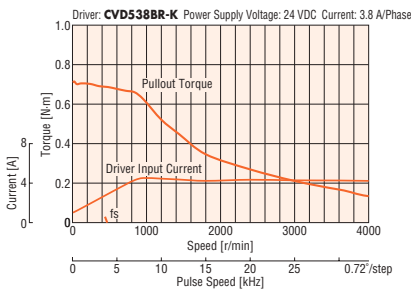
PKP566FN24A2/ PKP566FN24B2



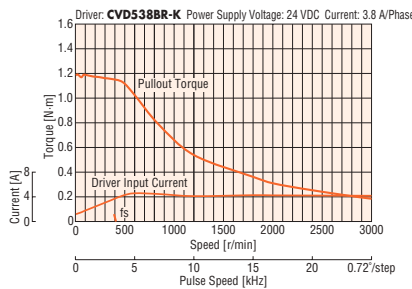
PKP569FN24A2/ PKP569FN24B2



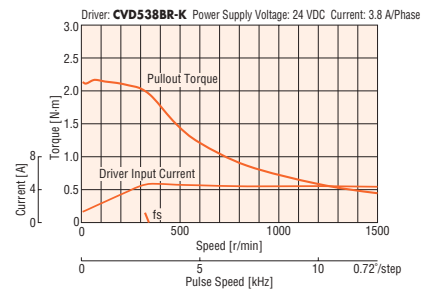
PKP564FN38A2/ PKP564FN38B2



PKP566FN38A2/ PKP566FN38B2



PKP569FN38A2/ PKP569FN38B2



Note

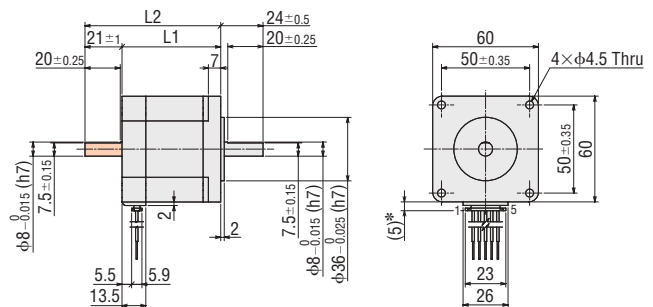
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	L1	L2	Mass kg	2D CAD
PKP564FN24A2	44	—	0.56	B1252
PKP564FN24B2		65		
PKP564FN38A2		—		
PKP564FN38B2	65	—	—	—
PKP566FN24A2	56	—	0.79	B1253
PKP566FN24B2		77		
PKP566FN38A2		—		
PKP566FN38B2	77	—	—	—
PKP569FN24A2	84.5	—	1.3	B1254
PKP569FN24B2		105.5		
PKP569FN38A2		—		
PKP569FN38B2	105.5	—	—	—



*With connection cable

● These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)

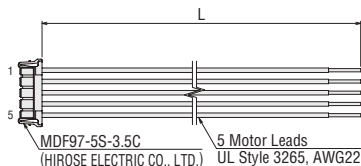
Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)

Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)

Connection Cable (Sold separately)

◇ For Motor

Product Name	Length L (m)
LC5N06E	0.6



Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

Standard Type with Encoder Frame Size 60 mm

Specifications

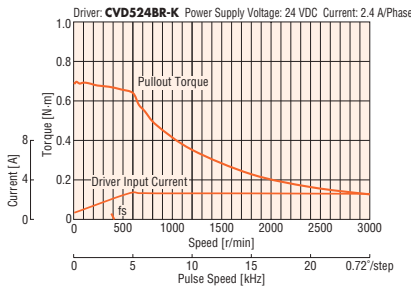
Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
PKP564FN24A2-R2GL	0.66	160×10 ⁻⁷	2.4	0.28	0.72°	CVD524BR-K
PKP564FN38A2-R2GL			3.8	0.12		CVD538BR-K
PKP566FN24A2-R2GL	1.15	290×10 ⁻⁷	2.4	0.38		CVD524BR-K
PKP566FN38A2-R2GL			3.8	0.16		CVD538BR-K
PKP569FN24A2-R2GL	2.1	540×10 ⁻⁷	2.4	0.64		CVD524BR-K
PKP569FN38A2-R2GL			3.8	0.22		CVD538BR-K

● Refer to page 07-105 for encoder specifications.

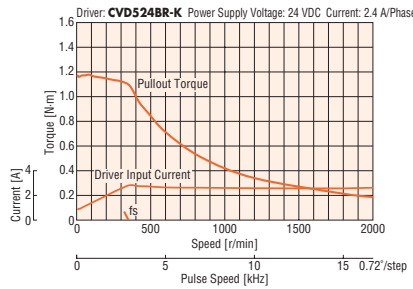
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

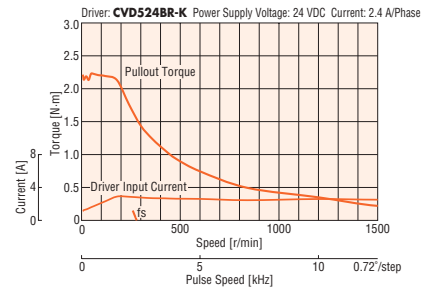
PKP564FN24A2-R2GL



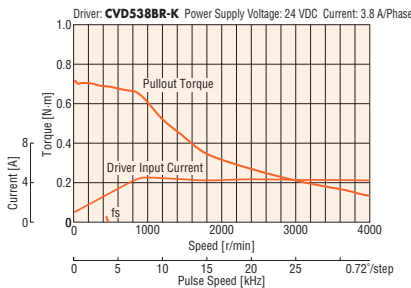
PKP566FN24A2-R2GL



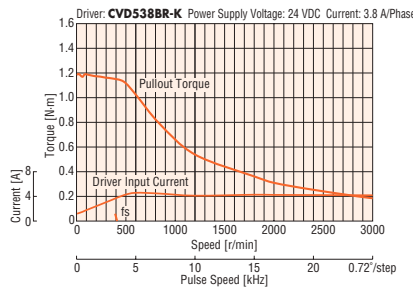
PKP569FN24A2-R2GL



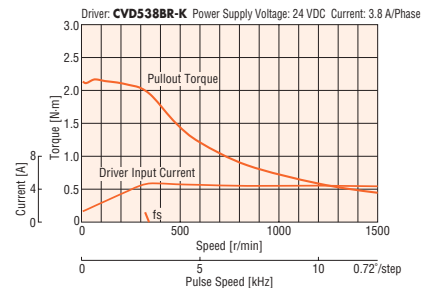
PKP564FN38A2-R2GL



PKP566FN38A2-R2GL



PKP569FN38A2-R2GL



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. To protect the encoder, be sure to keep the motor case temperature at 85°C max.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

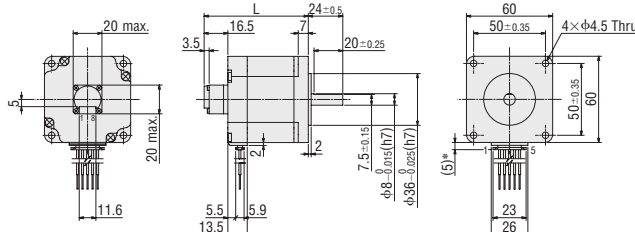
Motor

2D & 3D CAD

Product Name	L	Mass kg	2D CAD
PKP564FN24A2-R2GL	60.5	0.56	B1350
PKP564FN38A2-R2GL			
PKP566FN24A2-R2GL	72.5	0.79	B1351
PKP566FN38A2-R2GL			
PKP569FN24A2-R2GL	101	1.3	B1352
PKP569FN38A2-R2GL			

● Applicable Connector

	Motor (HIROSE ELECTRIC CO., LTD.)	Encoder (Molex)
Connector Housing	MDF97-5S-3.5C	51021-0800
Contact	MDF97-22SC	50079-8100
Crimp Tool	HT801/MDF97-22S	57067-3000

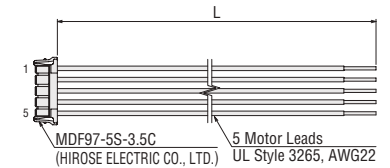


*With connection cable

Connection Cable (Sold separately)

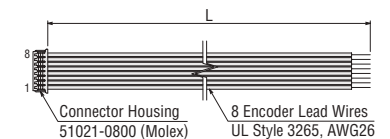
◇ For Motor

Product Name	Length L (m)
LC5N06E	0.6



◇ For Encoder

Product Name	Length L (m)
LCE08A-006	0.6



Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

Standard Type Frame Size 85 mm

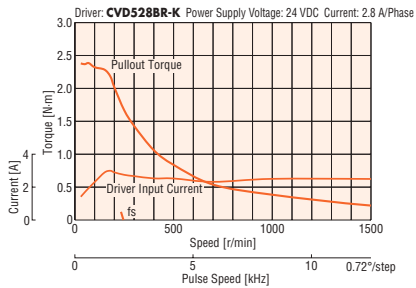
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PK596HNAW	PK596HNBW	2.1	1400×10^{-7}	2.8	0.41	0.72°	CVD528BR-K
PK599HNAW	PK599HNBW	4.1	2700×10^{-7}		0.46		
PK5913HNAW	PK5913HNBW	6.3	4000×10^{-7}		0.72		

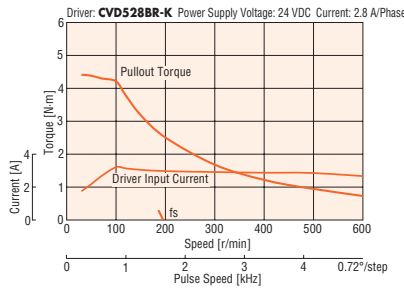
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

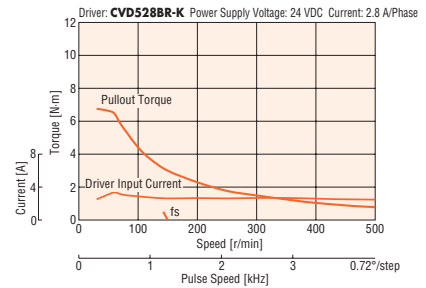
PK596HNAW/PK596HNBW



PK599HNAW/PK599HNBW



PK5913HNAW/PK5913HNBW



Note

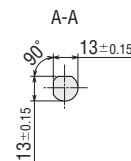
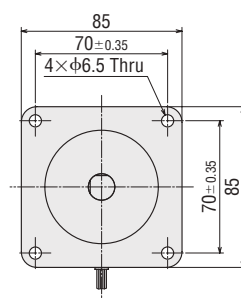
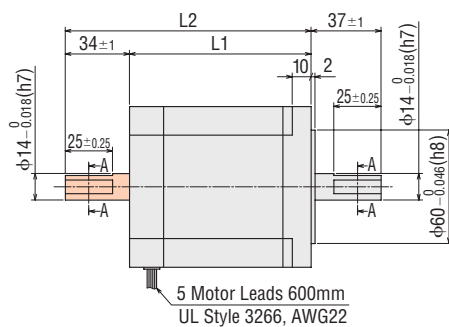
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Be sure to keep the motor case temperature at 100°C or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	L1	L2	Mass kg	2D CAD
PK596HNAW	66	—	1.7	B155
PK596HNBW		100		
PK599HNAW	96	—	2.8	B156
PK599HNBW		130		
PK5913HNAW	126	—	3.8	B157
PK5913HNBW		160		



- These dimensions are for double shaft motors. For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

Motor Pin Assignment: Model C

- Refer to page 07-105 for motor pin layout.

High-Resolution Type Frame Size 42 mm

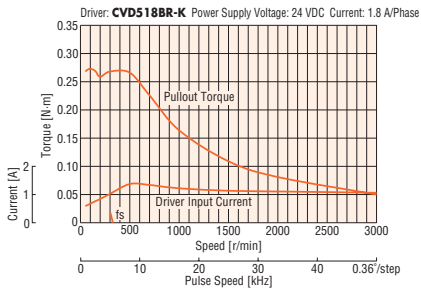
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP544MN18A	PKP544MN18B	0.26	60×10^{-7}	1.8	0.51	0.36°	CVD518BR-K
PKP546MN18A	PKP546MN18B	0.44	121×10^{-7}		0.66		

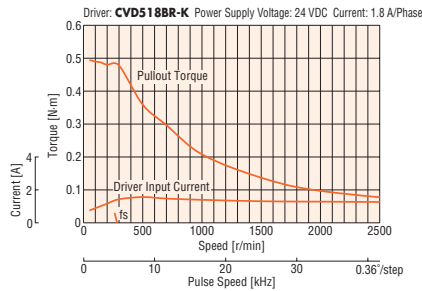
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

PKP544MN18A/PKP544MN18B



PKP546MN18A/PKP546MN18B



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

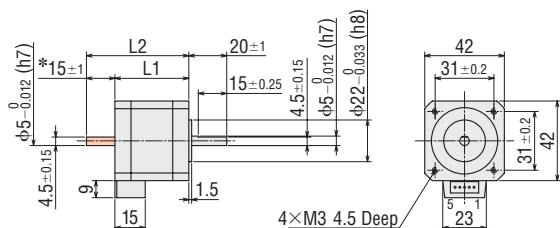
Motor

2D & 3D CAD

Product Name	L1	L2	Mass kg	2D CAD
PKP544MN18A	39	—	0.3	B1120
PKP544MN18B		54		
PKP546MN18A	59	—	0.5	B1121
PKP546MN18B		74		

● Applicable Connector

Connector Housing: 51103-0500 (Molex)
Contact: 50351-8100 (Molex)
Crimp Tool: 57295-5000 (Molex)



*The length of the shaft flat on the double shaft model is 15 ± 0.25 .

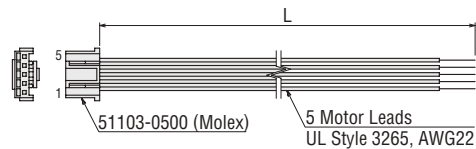
● These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

● Connection Cable (Sold separately)

◇ For Motor

Product Name	Length L (m)
LC5N06B	0.6
LC5N10B	1



Motor Pin Assignment

Motor Pin Assignment: Model B

● Refer to page 07-105 for motor pin layout.

High-Resolution Type Frame Size 60 mm

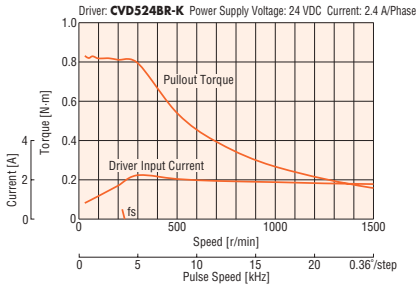
Specifications

Product Name		Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Recommended Driver Product Name*
Single Shaft	Double Shaft						
PKP564FMN24A	PKP564FMN24B	0.78	310×10^{-7}	2.4	0.32	0.36°	CVD524BR-K
PKP566FMN24A	PKP566FMN24B	1.25	490×10^{-7}		0.4		
PKP569FMN24A	PKP569FMN24B	2.3	970×10^{-7}		0.66		

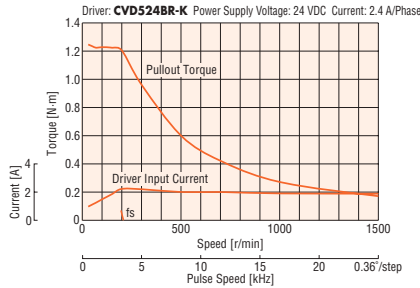
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

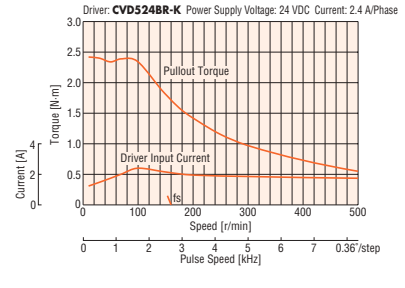
PKP564FMN24A/PKP564FMN24B



PKP566FMN24A/PKP566FMN24B



PKP569FMN24A/PKP569FMN24B



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

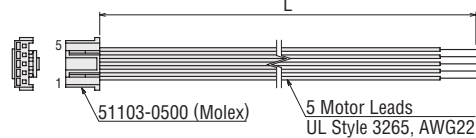
2D & 3D CAD

Product Name	L1	L2	L3	φD	Mass kg	2D CAD
PKP564FMN24A	46.5	—	7.5±0.15	8 ⁰ _{-0.015}	0.65	B1125
PKP564FMN24B		69.5				
PKP566FMN24A	56	—	7.5±0.15	8 ⁰ _{-0.015}	0.87	B1126
PKP566FMN24B		79				
PKP569FMN24A	87	—	9.5±0.15	10 ⁰ _{-0.015}	1.5	B1127
PKP569FMN24B		110				

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06C	0.6
LC5N10C	1

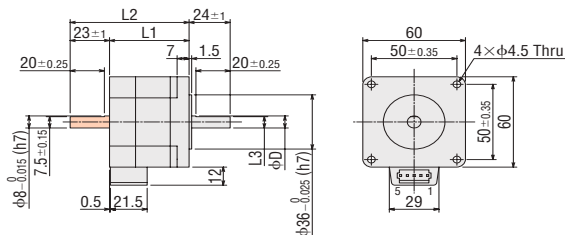


Applicable Connector

Connector Housing: 51144-0500 (Molex)

Contact: 50539-8100 (Molex)

Crimp Tool: 57189-5000 (Molex)



These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

Motor Pin Assignment: Model B

- Refer to page 07-105 for motor pin layout.

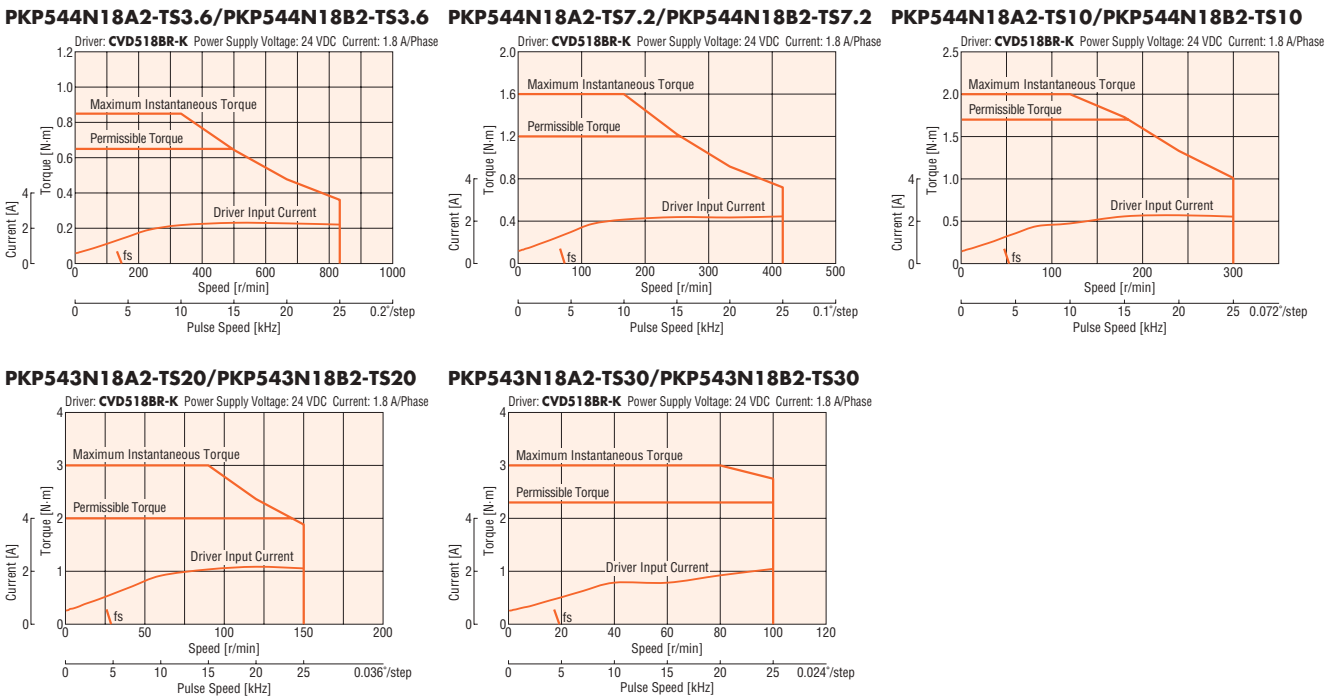
TS Geared Type Frame Size 42 mm NEW

Specifications

Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N·m	Maximum Instantaneous Torque N·m	Speed Range r/min	Backlash arcmin	Recommended Driver Product Name*
PKP544N18□2-TS3.6	0.65	55×10 ⁻⁷	1.8	0.48	0.2°	3.6	0.65	0.85	0~833	45 (0.75°)	CVD518BR-K
PKP544N18□2-TS7.2	1.2				0.1°	7.2	1.2	1.6	0~416	25 (0.42°)	
PKP544N18□2-TS10	1.7				0.072°	10	1.7	2	0~300		
PKP543N18□2-TS20	2	35×10 ⁻⁷	0.4	0.4	0.036°	20	2	3	0~150	15 (0.25°)	
PKP543N18□2-TS30	2.3				0.024°	30	2.3	3	0~100		

● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

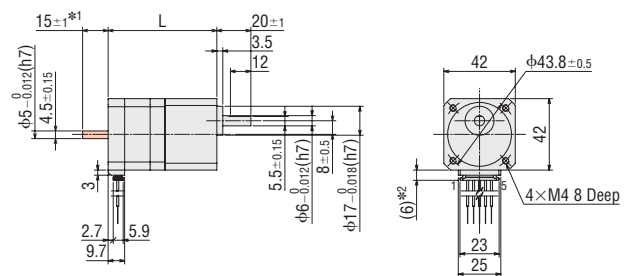
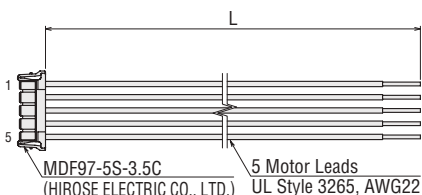
Product Name	Gear Ratio	L	Mass kg	2D CAD
PKP544N18A2-TS□	3.6, 7.2, 10	70.5	0.41	B1362
PKP544N18B2-TS□				
PKP543N18A2-TS□	20, 30	64.5	0.36	B1363
PKP543N18B2-TS□				

- A number indicating the gear ratio is specified in the box □ in the product name.
- Applicable Connector
Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)
Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)
Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)

Connection Cable (Sold separately)

◇ For Motor

Product Name	Length L (m)
LC5N06E	0.6



- *1 The length of the shaft flat on the double shaft model is 15±0.25.
- *2 With connection cable
- These dimensions are for double shaft motors. For single shaft motors, ignore the shaded areas.

Motor Pin Assignment

Motor Pin Assignment: Model A

- Refer to page 07-105 for motor pin layout.

TS Geared Type Frame Size 60 mm NEW

Specifications

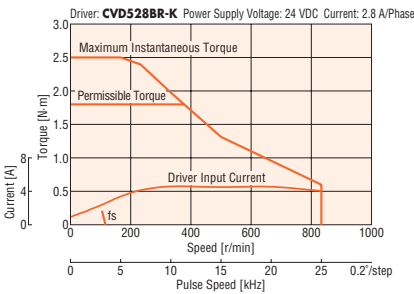
Product Name	Maximum Holding Torque N·m	Rotor Inertia J: kg·m ²	Rated Current A/Phase	Winding Resistance Ω/Phase	Basic Step Angle	Gear Ratio	Permissible Torque N·m	Maximum Instantaneous Torque N·m	Speed Range r/min	Backlash arcmin	Recommended Driver Product Name*
PKP566N28□2-TS3.6	1.8	270×10 ⁻⁷	2.8	0.24	0.2°	3.6	1.8	2.5	0~833	35 (0.59°)	CVD528BR-K
PKP566N28□2-TS7.2	3				0.1°	7.2	3	4.5	0~416	15 (0.25°)	
PKP566N28□2-TS10	4				0.072°	10	4	6	0~300		
PKP564N28□2-TS20	5	140×10 ⁻⁷	0.16	0.036°	20	5	8	0~150	10 (0.17°)		
PKP564N28□2-TS30	6				0.024°	30	6	10		0~100	

● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box □ is located in the product name.

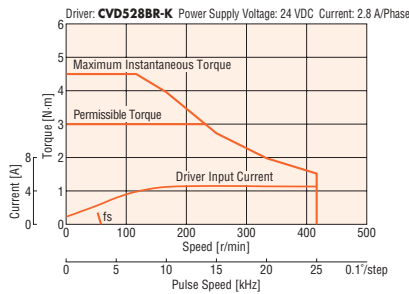
*Refer to page 07-108 for details on the recommended driver.

Speed – Torque Characteristics (Reference values)

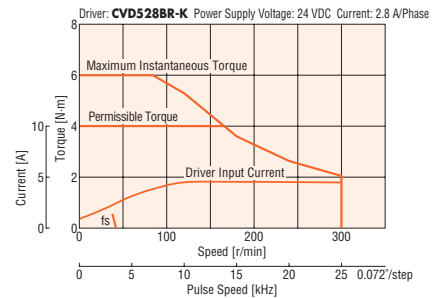
PKP566N28A2-TS3.6/ PKP566N28B2-TS3.6



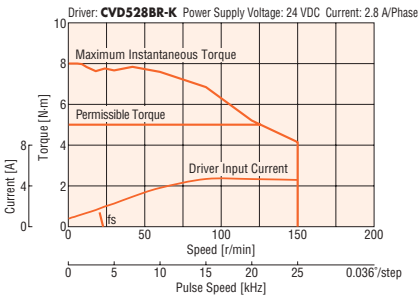
PKP566N28A2-TS7.2/ PKP566N28B2-TS7.2



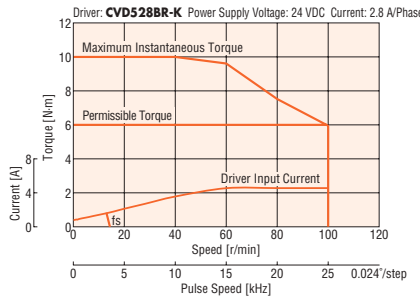
PKP566N28A2-TS10/ PKP566N28B2-TS10



PKP564N28A2-TS20/ PKP564N28B2-TS20



PKP564N28A2-TS30/ PKP564N28B2-TS30



Note

- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- 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 or less.
- Set the driver current to be less than or equal to the rated current of the motor.

Dimensions (Unit: mm)

Motor

2D & 3D CAD

Product Name	Gear Ratio	L	Mass kg	2D CAD
PKP566N28A2-TS□	3.6, 7.2, 10	98	0.99	B1364
PKP566N28B2-TS□				
PKP564N28A2-TS□	20, 30	83	0.78	B1365
PKP564N28B2-TS□				

● A number indicating the gear ratio is specified in the box □ in the product name.

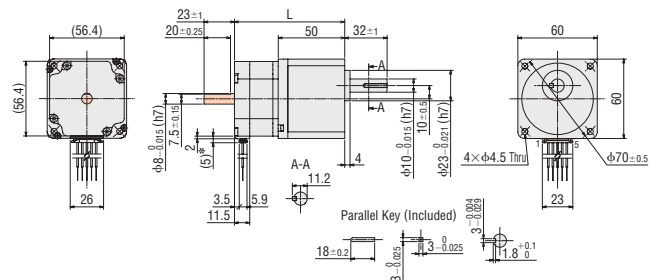
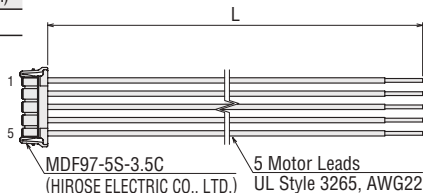
Applicable Connector

Connector Housing: MDF97-5S-3.5C (HIROSE ELECTRIC CO., LTD.)
Contact: MDF97-22SC (HIROSE ELECTRIC CO., LTD.)
Crimp Tool: HT801/MDF97-22S (HIROSE ELECTRIC CO., LTD.)

Connection Cable (Sold separately)

For Motor

Product Name	Length L (m)
LC5N06E	0.6



*With connection cable

● These dimensions are for double shaft motors.

For single shaft motors, ignore the shaded areas.

● Included

Installation Screws: M4 × 60 P0.7 (4 Screws)

Motor Pin Assignment

Motor Pin Assignment: Model A

● Refer to page 07-105 for motor pin layout.

General Specifications

Specification		Motor
Thermal Class		130 (B)
Insulation Resistance		The measured value is 100 MΩ or more when a 500 VDC megger is applied between the windings and the case under normal ambient temperature and humidity.
Dielectric Voltage		No abnormalities are observed, even when applying voltage between the windings and the case for 1 minute under normal ambient temperature and humidity with the following conditions. · PK513, PKP52□, PK54□ : 0.5 kVAC 50/60 Hz · PKP56□ : 1.0 kVAC 50/60 Hz · PKP56□FMN, PK59□ : 1.5 kVAC 50/60 Hz
Operating Environment (In Operation)	Ambient temperature	-10~+50°C (Non-freezing)
	Ambient humidity	85% or less (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 80°C max. (Based on Oriental Motor's internal measurement conditions)
Stop Position Accuracy*1		Standard type: ±3 arc minutes (±0.05°) [PK513 is ±10 arc minutes (±0.17°)] High-resolution type: ±2 arc minutes (±0.034°)
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. (10 N load) [PK513 is 1 N load, PKP52□ is 2.5 N load]
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.)

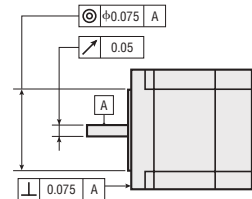
*2 Radial Play: Displacement in shaft position in the radial direction when a 5 N load is applied in the vertical direction to the tip of the motor shaft.

*3 Axial Play: Displacement in shaft position in the axial direction when a 10 N (**PK513** is 1 N, **PKP52□** is 2.5 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 center.

Note

- Do not measure insulation resistance or perform a dielectric strength test while the motor and driver are connected.
Also, do not conduct these tests on the motor encoder section.



Encoder Specifications

Encoder Product Name	R2GL
Resolution	500P/R
Output Circuit Type	Line Driver*
Output Mode	Incremental
Output Signal	A Phase, B Phase, Z Phase (3 ch)
Power Supply Voltage	5 VDC±10%
Current	30 mA max.

- A voltage output type of encoder output circuit is also available.
For details, please contact your nearest Oriental Motor sales office.
- *Equivalent to 26C31

Motor Pin Assignment

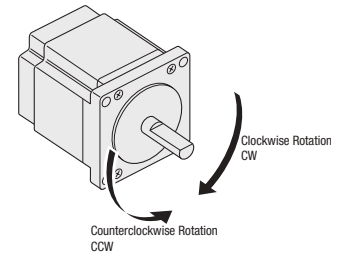
Motor Model	Pin Assignment/Colors of Lead Wires													
Model A	Pin No. → 5 1	Pin No. Colors of Lead Wires*												
		<table border="1"> <tr><td>5</td><td>Blue</td></tr> <tr><td>4</td><td>Red</td></tr> <tr><td>2</td><td>Orange</td></tr> <tr><td>2</td><td>Green</td></tr> <tr><td>1</td><td>Black</td></tr> </table>	5	Blue	4	Red	2	Orange	2	Green	1	Black		
5	Blue													
4	Red													
2	Orange													
2	Green													
1	Black													
*The colors of lead wires are the color scheme of the connection cable (sold separately).														
Model B	Pin No. → 1 5	Pin No. Colors of Lead Wires*												
		<table border="1"> <tr><td>1</td><td>Blue</td></tr> <tr><td>2</td><td>Red</td></tr> <tr><td>3</td><td>Orange</td></tr> <tr><td>4</td><td>Green</td></tr> <tr><td>5</td><td>Black</td></tr> </table>	1	Blue	2	Red	3	Orange	4	Green	5	Black		
1	Blue													
2	Red													
3	Orange													
4	Green													
5	Black													
*The colors of lead wires are the color scheme of the connection cable (sold separately).														
Model C		<table border="1"> <tr><th colspan="2">Colors of Lead Wires</th></tr> <tr><td> </td><td>Blue</td></tr> <tr><td> </td><td>Red</td></tr> <tr><td> </td><td>Orange</td></tr> <tr><td> </td><td>Green</td></tr> <tr><td> </td><td>Black</td></tr> </table>	Colors of Lead Wires			Blue		Red		Orange		Green		Black
Colors of Lead Wires														
	Blue													
	Red													
	Orange													
	Green													
	Black													

Rotation Direction

This indicates the rotation direction as viewed from the output shaft side of the motor (factory setting). The rotation direction of the output gear shaft relative to the standard type motor output shaft varies depending on the gear type and gear ratio. Please check the following table.

Gear Type		Gear Ratio	Rotation direction Relative to Motor Output Shaft
TS Geared	Frame Size 42 mm, 60 mm	3.6、7.2、10	Same direction
		20、30	Opposite direction

Standard Type Motor



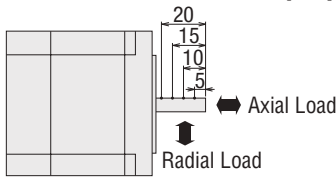
Permissible Radial Load and Permissible Axial Load

Unit: N

Type	Motor Frame Size	Product Name	Gear Ratio	Permissible Radial Load					Permissible Axial Load
				Distance from Shaft End [mm]					
				0	5	10	15	20	
Standard Type	20 mm	PKP513	—	12	15	—	—	—	3
	28 mm	PKP523、PKP525	—	25	34	52	—	—	5
	42 mm	PKP543、PKP544、PKP545、PKP546	—	35	44	58	85	—	15
	56.4 mm	PKP564、PKP566、PKP568	—	90	100	130	180	270	30
	60 mm	PKP564、PKP566、PKP569	—	90	100	130	180	270	30
High-Resolution Type	85 mm	PK596、PK599、PK5913	—	260	290	340	390	480	60
	42 mm	PKP544、PKP546	—	20	25	34	52	—	10
TS Geared Type	60 mm	PKP564、PKP566、PKP569	—	90	100	130	180	270	20
	42 mm	PKP544	3.6、7.2、10	20	30	40	50	—	15
		PKP543	20、30	40	50	60	70	—	
		PKP566	3.6、7.2、10	120	135	150	165	180	
60 mm	PKP564	20、30	170	185	200	215	230	40	

Radial Load and Axial Load

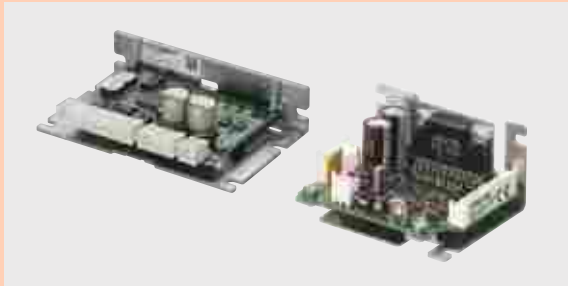
Distance from Shaft End [mm]



Bipolar Drivers for 1.8°/0.9° Stepping Motors

Unipolar Drivers for 1.8°/0.9° Stepping Motors

Drivers for 0.72°/0.36° Stepping Motors



These are DC power supply input drivers for stepping motors. The bipolar/unipolar driver for 1.8°/0.9° stepping motor and the driver for 0.72°/0.36° stepping motor are available. Using the microstep drive function for a low-vibration driver reduces vibration and noise.

Features and Types

● Bipolar/Unipolar Drivers for 1.8°/0.9° Stepping Motors Drivers for 0.72°/0.36° Stepping Motors

Driver Type	External View	Introduction	Driver Installation Direction
<ul style="list-style-type: none"> ● Bipolar Drivers for 1.8°/0.9° Stepping Motors ● Drivers for 0.72°/0.36° Stepping Motors <p>Page 07-108~07-111</p> <ul style="list-style-type: none"> • Mass 20 g~70 g (The value differs according to the driver type.) ● The driver cannot be shared by both a 1.8°/0.9° stepping motor and 0.72°/0.36° stepping motor. Each must use its respective dedicated driver. 	<p>Right Angle Type with Installation Plate</p> <p>The connector points outward.</p>	<ul style="list-style-type: none"> • Compact and lightweight driver with a full-time microstep • Using the smooth drive function reduces the vibration and noise more than conventional products. • The driver is equipped with a protective function that enables you to find driver errors early. • Running current can be easily set with the digital switch. 	<ul style="list-style-type: none"> • Horizontal direction installation • Vertical direction installation
<p>With Installation Plate</p> <p>The connector points upward.</p>			
<p>Without Installation Plate</p> <p>The connector points upward.</p>			
<ul style="list-style-type: none"> ● Unipolar Drivers for 1.8°/0.9° Stepping Motors <p>Page 07-112</p> <ul style="list-style-type: none"> • Mass 50g 	<p>The connector points upward.</p>	<ul style="list-style-type: none"> • Compact and lightweight driver with a microstep • Running current can be easily set with the digital switch. 	

● Other Product Line

● Bipolar Driver for 1.8°/0.9° and 0.72°/0.36° Stepping Motors S Type



This is a base-mounted type, compact size driver. For details, please contact your nearest Oriental Motor sales office.

● Driver for 0.72°/0.36° Stepping Motors SC Type



It is a driver that can control the speed which is similar to that of a speed control motor. For details, please contact your nearest Oriental Motor sales office.

Bipolar Drivers for 1.8°/0.9° Stepping Motors

Drivers for 0.72°/0.36° Stepping Motors

Product Number Code

CVD 2 23 F B R - K

① ② ③ ④ ⑤ ⑥ ⑦

①	Driver Type	
②	2: 1.8°/0.9° Stepping Motor	5: 0.72°/0.36° Stepping Motor
③	Rated Current	
④	Driver Identification	
⑤	Driver Configuration	B : With Installation Plate Blank: Without Installation Plate
⑥	Connector Configuration	R : Right Angle
⑦	Power Supply Input	K : DC Power Supply

Product Line

● Bipolar Drivers for 1.8°/0.9° Stepping Motors

◇ Right Angle Type with Installation Plate

Product Name	List Price
CVD205BR-K	SGD156
CVD206BR-K	
CVD215BR-K	
CVD223BR-K	
CVD223FBR-K	
CVD228BR-K	
CVD242BR-K	SGD175
CVD245BR-K	

◇ With Installation Plate

Product Name	List Price
CVD205B-K	SGD156
CVD206B-K	
CVD215B-K	
CVD223B-K	
CVD223FB-K	
CVD228B-K	
CVD242B-K	SGD175
CVD245B-K	

◇ Without Installation Plate

Product Name	List Price
CVD205-K	SGD150
CVD206-K	
CVD215-K	
CVD223-K	
CVD223F-K	
CVD228-K	

● Drivers for 0.72°/0.36° Stepping Motors

◇ Right Angle Type with Installation Plate

Product Name	List Price
CVD503BR-K	SGD169
CVD507BR-K	
CVD512BR-K	
CVD514BR-K	
CVD518BR-K	
CVD524BR-K	
CVD528BR-K	SGD188
CVD538BR-K	

◇ With Installation Plate

Product Name	List Price
CVD503B-K	SGD169
CVD507B-K	
CVD512B-K	
CVD514B-K	
CVD518B-K	
CVD524B-K	
CVD528B-K	SGD188
CVD538B-K	

◇ Without Installation Plate

Product Name	List Price
CVD503-K	SGD163
CVD507-K	
CVD512-K	
CVD514-K	
CVD518-K	
CVD524-K	

Included

Type	Connector for Driver Connection	Operating manual
Common to All Types	For CN1 (1 Piece) For CN2 (1 Piece) For CN3 (1 Piece)	1 set

07

PKP Series

Specifications

● Bipolar Drivers for 1.8°/0.9° Stepping Motors

Product Name	CVD205□□-K	CVD206□□-K	CVD215□□-K	CVD223□□-K CVD223F□□-K	CVD228□□-K	CVD242B□□-K	CVD245B□□-K
Drive Method	Microstep Drive, Bipolar Constant Current Drive Method						
Motor Drive Current (Factory setting)	0.5 A/Phase	0.6 A/Phase	1.5 A/Phase	2.3 A/Phase	2.8 A/Phase	4.2 A/Phase	4.5 A/Phase
Power Supply Voltage	24 VDC±10%						
Input Current	A	0.5	0.5	1.3	2.0	3.0	3.9
Maximum Input Pulse Frequency	Line driver output by programmable controller: 1 MHz (When the pulse duty is 50%) Open-collector output by programmable controller: 250 kHz (When the pulse duty is 50%) Negative logic pulse input						
Operating Environment (In operation)	Ambient Temperature	0~+50°C (Non-freezing)					
	Ambient Humidity	85% or Less (Non-condensing)					
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.					

- For the type with installation plate, **B** (with installation plate) indicating the diver configuration is specified where the box □ is located in the product name.
For the right angle type with installation plate, an **R** (right angle) indicating the connector configuration is specified where the box □ is located in the product name.

● Drivers for 0.72°/0.36° Stepping Motors

Product Name	CVD503□□-K	CVD507□□-K	CVD512□□-K	CVD514□□-K	CVD518□□-K	CVD524B□□-K	CVD528B□□-K	CVD538B□□-K
Drive Method	Microstep Drive, Bipolar Constant Current Drive Method							
Motor Drive Current (Factory setting)	0.35 A/Phase	0.75 A/Phase	1.2 A/Phase	1.4 A/Phase	1.8 A/Phase	2.4 A/Phase	2.8 A/Phase	3.8 A/Phase
Power Supply Voltage	24 VDC±10%							
Input Current	A	0.6	1.4	1.7	1.8	2.8	3.0	4.8
Maximum Input Pulse Frequency	Line driver output by programmable controller: 1 MHz (When the pulse duty is 50%) Open-collector output by programmable controller: 250 kHz (When the pulse duty is 50%) Negative logic pulse input							
Operating Environment (In operation)	Ambient Temperature	0~+50°C (Non-freezing)						
	Ambient Humidity	85% or Less (Non-condensing)						
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.						

- For the type with installation plate, **B** (with installation plate) indicating the diver configuration is specified where the box □ is located in the product name.
For the right angle type with installation plate, an **R** (right angle) indicating the connector configuration is specified where the box □ is located in the product name.

Dimensions (Unit: mm)

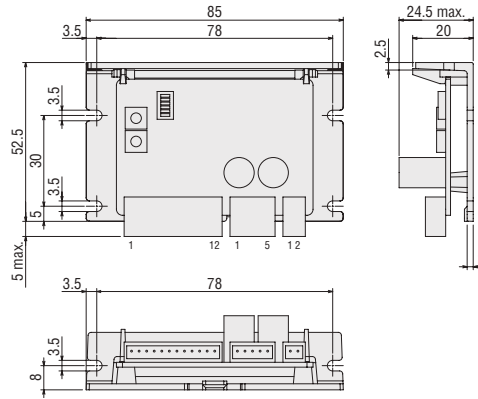
Right Angle types with Installation Plate

2D & 3D CAD

Product Name	Mass kg	2D CAD
CVD205BR-K	0.06	B1210
CVD206BR-K		
CVD215BR-K		
CVD223BR-K		
CVD223FBR-K		
CVD228BR-K		
CVD503BR-K		
CVD507BR-K		
CVD512BR-K		
CVD514BR-K		
CVD518BR-K		
CVD524BR-K		

● Included

Connector Housing: 51103-0200 (Molex)
51103-0500 (Molex)
51103-1200 (Molex)
Contact: 50351-8100 (Molex)

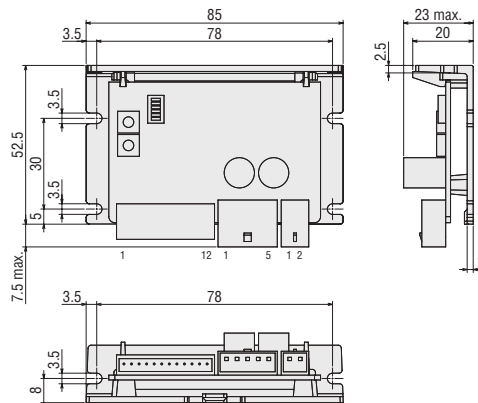


2D & 3D CAD

Product Name	Mass kg	2D CAD
CVD242BR-K	0.07	B1211
CVD245BR-K		
CVD528BR-K		
CVD538BR-K		

● Included

Connector Housing: 51067-0200 (Molex)
51067-0500 (Molex)
51103-1200 (Molex)
Contact: 50217-9101 (Molex)
50351-8100 (Molex)



● Connection cable set (sold separately) including a motor cable, a power cable and an I/O signal cable is also available. Due to the connector assembly, it is possible to easily wire without using a crimping tool. Refer to page 07-115 for details.

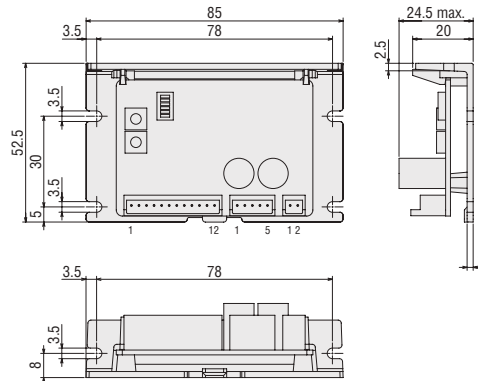
With Installation Plate

2D & 3D CAD

Product Name	Mass kg	2D CAD
CVD205B-K	0.06	B1255
CVD206B-K		
CVD215B-K		
CVD223B-K		
CVD223FBR-K		
CVD228B-K		
CVD503B-K		
CVD507B-K		
CVD512B-K		
CVD514B-K		
CVD518B-K		
CVD524B-K		

● Included

Connector Housing: 51103-0200 (Molex)
51103-0500 (Molex)
51103-1200 (Molex)
Contact: 50351-8100 (Molex)

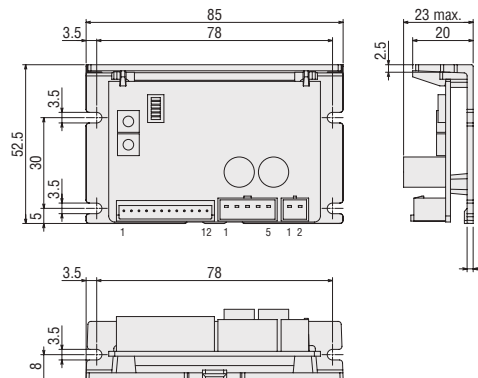


2D & 3D CAD

Product Name	Mass kg	2D CAD
CVD242B-K	0.07	B1256
CVD245B-K		
CVD528B-K		
CVD538B-K		

● Included

Connector Housing: 51067-0200 (Molex)
51067-0500 (Molex)
51103-1200 (Molex)
Contact: 50217-9101 (Molex)
50351-8100 (Molex)

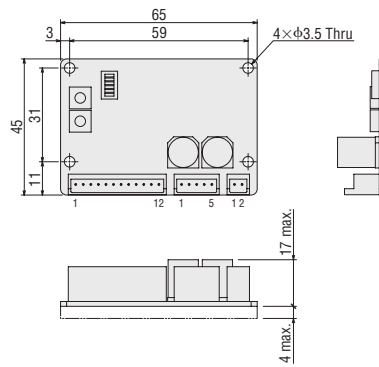


● Connection cable set (sold separately) including a motor cable, a power cable and an I/O signal cable is also available. Due to the connector assembly, it is possible to easily wire without using a crimping tool. Refer to page 07-115 for details.

Without Installation Plate

2D & 3D CAD

Product Name	Mass kg	2D CAD
CVD205-K	0.02	B1128
CVD206-K		
CVD215-K		
CVD223-K		
CVD223F-K		
CVD228-K		
CVD503-K		
CVD507-K		
CVD512-K		
CVD514-K		
CVD518-K		
CVD524-K		



Included

Connector Housing:	51103-0200 (Molex)
	51103-0500 (Molex)
	51103-1200 (Molex)
Contact:	50351-8100 (Molex)

Connection cable set (sold separately) including a motor cable, a power cable and an I/O signal cable is also available. Due to the connector assembly, it is possible to easily wire without using a crimping tool. Refer to page 07-115 for details.

List of Applicable Motors

Bipolar Drivers for 1.8°/0.9° Stepping Motors

Driver Product Name			Motor Drive Current (Factory Setting)	Applicable Motor
Right Angle Type with Installation Plate	With Installation Plate	Without Installation Plate		
CVD205BR-K	CVD205B-K	CVD205-K	0.5 A/Phase	PKP213D
CVD206BR-K	CVD206B-K	CVD206-K	0.6 A/Phase	PKP214D
CVD215BR-K	CVD215B-K	CVD215-K	1.5 A/Phase	PKP22□D15, PKP23□D15, PKP24□MD15, PKP262FD
CVD223BR-K	CVD223B-K	CVD223-K	2.3 A/Phase	PKP23□D23
CVD223FBR-K	CVD223FB-K	CVD223F-K	2.3 A/Phase	PKP24□D08□2, PKP24□D15□2, PKP24□D23□2
CVD228BR-K	CVD228B-K	CVD228-K	2.8 A/Phase	PKP26□D14□2, PKP26□D28□2, PKP26□MD28
CVD242BR-K	CVD242B-K	—	4.2 A/Phase	PKP26□D42
CVD245BR-K	CVD245B-K	—	4.5 A/Phase	PKP29□D

- A number indicating the length of the motor case is entered where the box □ is located within the names of the applicable motors.
- Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box ■ is located in the names of the applicable motors.
- The applicable motors are listed such that the available combinations with the driver are distinguishable. Combinations with the encoder type and geared type are also available. For details on the product name, please see the Oriental Motor website.

Drivers for 0.72°/0.36° Stepping Motors

Driver Product Name			Motor Drive Current (Factory Setting)	Applicable Motor
Right Angle Type with Installation Plate	With Installation Plate	Without Installation Plate		
CVD503BR-K	CVD503B-K	CVD503-K	0.35 A/Phase	PK513, PK52□
CVD507BR-K	CVD507B-K	CVD507-K	0.75 A/Phase	PK52□H, PK54□
CVD512BR-K	CVD512B-K	CVD512-K	1.2 A/Phase	PKP52□
CVD514BR-K	CVD514B-K	CVD514-K	1.4 A/Phase	PK56□
CVD518BR-K	CVD518B-K	CVD518-K	1.8 A/Phase	PKP54□
CVD524BR-K	CVD524B-K	CVD524-K	2.4 A/Phase	PKP56□FN24, PKP56□FMN
CVD528BR-K	CVD528B-K	—	2.8 A/Phase	PKP56□N28, PK56□H, PK59□H
CVD538BR-K	CVD538B-K	—	3.8 A/Phase	PKP56□FN38

- A number indicating the length of the motor case is entered where the box □ is located within the names of the applicable motors.
- The applicable motors are listed such that the available combinations with the driver are distinguishable. Combinations with the encoder type and geared type are also available. For details on the product name, please see the Oriental Motor website.

Unipolar Drivers for 1.8°/0.9° Stepping Motors

Product Number Code

CMD 2 1 09 P

① ② ③ ④ ⑤

①	Driver Type
②	2 : 1.8°/0.9° Stepping Motor
③	Power Supply Input Voltage 1 : 24 VDC
④	Rated Current
⑤	Signal I/O Mode P : Photocoupler

Product Line

Driver cable set (sold separately) including a motor cable, an I/O signal cable and a power supply cable is also available. Due to the connector assembly, it is possible to easily wire without using a crimping tool. Refer to page 07-115 for details.

Product Name	List Price
CMD2109P	SGD194
CMD2112P	SGD194
CMD2120P	SGD194

Included

Type	Connector for Driver Connection	Operating Manual
Common to All Types	For CN1 (1 Piece) For CN2 (1 Piece) For CN3 (1 Piece)	1 set

Specifications

Product Name		CMD2109P	CMD2112P	CMD2120P
Drive Method		Microstep Drive, Unipolar constant-current drive method		
Motor Drive Current (Factory setting)		0.95 A/Phase	1.2 A/Phase	2 A/Phase
Power Supply Voltage		24 VDC±10%		
Input Current A		1.5	1.7	2.9
Max. Input Pulse Frequency		100 kHz (When the pulse duty is 50%) Negative Logic Pulse Input		
Operating Environment (In operation)	Ambient Temperature	0~+40°C (Non-freezing)		
	Ambient Humidity	85% or Less (Non-condensing)		
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.		

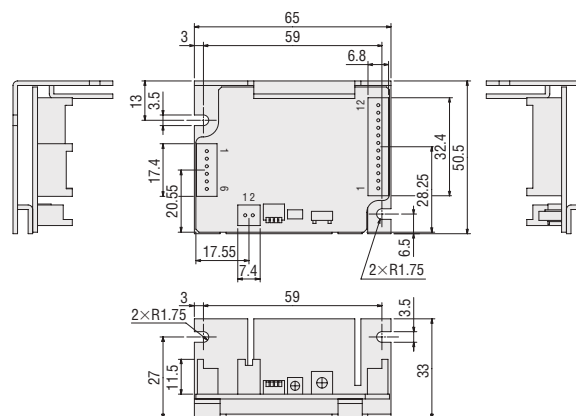
Dimensions (Unit: mm)

2D & 3D CAD

Product Name	Mass kg	2D CAD
CMD2109P	0.05	B441
CMD2112P		
CMD2120P		

Included

Connector Housing: 51103-0200 (Molex)
51103-1200 (Molex)
51103-0600 (Molex)
Contact: 50351-8100 (Molex)



List of Applicable Motors

Driver Product Name	Motor Drive Current (Factory Setting)	Applicable Motor
CMD2109P	0.95 A/Phase	PKP213U, PKP214U, PKP22□U, PKP24□U08■2, PKP243U09■2, PKP243MU
CMD2112P	1.2 A/Phase	PKP23□U, PKP24□U12■2, PKP244MU
CMD2120P	2 A/Phase	PK25□, PKP246U16■2, PKP26□U10■2, PKP26□U20■2, PKP26□MU

- A number indicating the length of the motor case is entered where the box □ is located within the names of the applicable motors.
- Either **A** (single shaft) or **B** (double shaft) indicating the configuration is specified where the box ■ is located in the names of the applicable motors.
- The applicable motors are listed such that the available combinations with the driver are distinguishable.
Combination with the encoder type and geared type are also available.
For details on the product name, please see the Oriental Motor website.

Accessories (Sold Separately)

Flexible Couplings

A flexible coupling ideal for **PKP** Series is available.

Once you have decided on a type and/or applications of motor/gear, you can select the recommended size of coupling easily. All motor shaft diameters of stepping motor packages are available (including geared motors).

MCV Couplings

This one-piece coupling is made with anti-vibration rubber molded between aluminum alloy hubs.

- For Standard Type, High-Resolution Type



Product Line

Product name	List Price
MCV15 □	SGD94
MCV19 □	SGD90
MCV25 □	SGD100
MCV30 □	SGD105
MCV34 □	SGD115
MCV39 □	SGD134

- A number indicating the coupling inner diameter is entered where the box □ is located within the product name.

MC Couplings

This is a slit-type one-piece coupling.

- For Standard Type, High-Resolution Type



Set Screw Type



Clamp Type

Product Line

◇ Set Screw Type

Product name	List Price
MC12 □ S	SGD53
MC16 □ S	SGD61
MC20 □ S	SGD70
MC25 □ S	SGD80
MC32 □ S	SGD93
MC40 □ S	SGD147
MC50 □ S	SGD231

◇ Clamp Type

Product name	List Price
MC12 □ C2	SGD69
MC16 □ C2	SGD78
MC20 □ C2	SGD86
MC25 □ C2	SGD95
MC32 □ C2	SGD104
MC40 □ C2	SGD172
MC50 □ C2	SGD252

- A number indicating the coupling inner diameter is entered where the box □ is located within the product name.

07

MCS Couplings

This three-piece coupling adopts an aluminum alloy hub and a resin spider.

- For **SH** Geared Type, **TS** Geared Type



Product Line

Product name	List Price
MCS14 □	SGD52
MCS20 □	SGD58
MCS30 □	SGD70
MCS40 □	SGD107
MCS55 □	SGD142

- A number indicating the coupling inner diameter is entered where the box □ is located within the product name.

PKP Series

Motor Mounting Brackets

The mounting bracket base is built with holes large enough to allow for adjustments of belt tension after a motor is installed.

Product Line

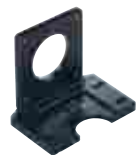
◇ For Standard Type, High-Resolution Type

Material: Aluminum alloy (SPCC)*

Product Name	List Price	Motor Frame Size	Applicable Product
PFB28A	SGD15	28 mm	PKP22 □, PKP52 □
PAFOP PALOP	SGD14	42 mm	PKP24 □ PKP54 □
PAL2P-2		56.4 mm	PKP26 □, PKP56 □ PK26 □
PAL2P-5		60 mm	PKP56 □ F
PAL4P-2 PAL4P-5	SGD16	85 mm	PKP29 □ PK59 □

*The specifications in the () apply to **PFB28A**.

- These installation brackets can be perfectly fitted to the pilot of the stepping motors. (Excluding **PALOP**)



◇ For **SH** Geared Type

Material: Aluminum alloy (SPCC)*

Product Name	List Price	Motor Frame Size	Applicable Product
PFB28A	SGD15	28 mm	PKP223
SOLOA	SGD25	42 mm	PKP243
SOL2A	SGD31	60 mm	PKP264
SOL5A	SGD38	90 mm	PK296

*The specifications in the () apply to **PFB28A**.

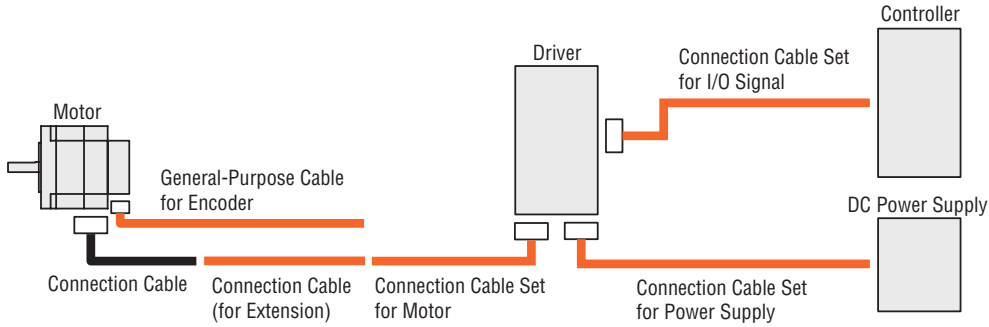
◇ For **TS** Geared Type

Material: Aluminum alloy

Product Name	List Price	Motor Frame Size	Applicable Product
SOLOB	SGD25	42 mm	PKP54 □
SOL2M4	SGD30	60 mm	PKP56 □

Cable

Cable System Configuration



*2m maximum when using with an unipolar driver (CMD) for 1.8°/0.9° stepping motors.

Connection Cable Sets

These are leads with connectors. Connecting with motors, input signal parts, and power supply parts is easy. The connection cable set includes three cables (for motor, I/O signal, and power supply).

- Since the connector is assembled to the lead wire, it can be used without a dedicated crimp tool.
- Lead wires of appropriate size for current specifications are used.

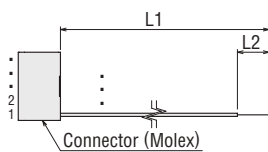
Product Line



Product Name	Applicable Drivers	Connector Name	Connector Product Name	Length L1	Length L2	Conductor AWG	List Price						
LCS04SD5	CVD503, CVD507 CVD512, CVD514 CVD518, CVD524	For motor	51103-0500	0.6m	10mm	22 (0.3 mm ²)	SGD24						
		For power supply	51103-0200										
		For I/O signal	51103-1200										
LCS05SD5	CVD528, CVD538	For motor	51067-0500			0.6m	10mm	20 (0.5 mm ²)	SGD26				
		For power supply	51067-0200										
		For I/O signal	51103-1200					22 (0.3 mm ²)					
LCS01CVK2	CVD205, CVD206 CVD215, CVD223 CVD228	For motor	51103-0500					0.6m	10mm	22 (0.3 mm ²)	SGD24		
		For power supply	51103-0200										
		For I/O signal	51103-1200										
LCS02CVK2	CVD242, CVD245	For motor	51067-0500							0.6m	10mm	20 (0.5 mm ²)	SGD26
		For power supply	51067-0200										
		For I/O signal	51103-1200									22 (0.3 mm ²)	
LCS01CMK2	CMD2109P CMD2112P CMD2120P	For motor	51103-0600	0.6m	10mm							22 (0.3 mm ²)	SGD24
		For power supply	51103-0200										
		For I/O signal	51103-1200										

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

Dimensions



Connector Pin Assignment

◇ For Motor

● LCS0□SD5

Pin No.	Color of Cable
1	Blue
2	Red
3	Orange
4	Green
5	Black

● LCS0□CVK2

Pin No.	Color of Cable
1	Blue
2	Red
3	—
4	Green
5	Black

● LCS01CMK2

Pin No.	Color of Cable
1	Blue
2	White
3	Red
4	Black
5	Yellow
6	Green

◇ For Power Supply

● Common to all cables

Pin No.	Color of Cable
1	Red
2	Black

◇ For I/O Signal

● Common to all cables

Pin No.	Color of Cable
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Gray
9	White
10	Black
11	Brown
12	Red

Connection Cables (For Extension)



These cables are used to extend the connection between bipolar connection motors and drivers.

When wiring the motor and the driver, keep a max. distance of 10 m.

Product Line

Product Name	Cable Type	Length (m)	Conductor AWG	Finished Outer Diameter mm	List Price
CC05PK5	Connection Cable for Standard Motor	5	22 (0.3 mm ²)	φ7.2	SGD44
CC10PK5		10			SGD88
CC05PK5R	Flexible Connection Cable for Standard Motor	5	22 (0.3 mm ²)	φ5.8	SGD69
CC10PK5R		10			SGD138

- Conductor configuration: 5 (Blue, Red, Orange, Green, Black)
- Cable rating: 105°C
- Outer casing: Oil-resistant, heat-resistant, non-migrating vinyl
- Applicable Product:
 - Can be used with 1.8°/0.9° stepping motors with a rated current of 2.8 A max., and 0.72°/0.36° stepping motors with a rated current of 2.4 A max.
- Flexible connection cables can be used only for 0.72°/0.36° stepping motors.

Connection Cables



These are cables with connector on the motor connection side.

Product Line (For 1.8° /0.9° Bipolar Motors)

Product Name	Length (m)	List Price
LC2B06A	0.6	SGD6
LC2B06B	0.6	SGD6
LC2B06C	0.6	SGD6
LC2B06E	0.6	SGD6

Product Line (For 1.8° /0.9° Unipolar Motors)

Product Name	Length (m)	List Price
LC2U06A	0.6	SGD6
LC2U10A	1	SGD9
LC2U06B	0.6	SGD6
LC2U10B	1	SGD9
LC2U06C	0.6	SGD6
LC2U10C	1	SGD9
LC2U06E	0.6	SGD6

Product Line (For 0.72° /0.36° Motors)

Product Name	Length (m)	List Price
LC5N06A	0.6	SGD6
LC5N10A	1	SGD9
LC5N06B	0.6	SGD6
LC5N10B	1	SGD9
LC5N06C	0.6	SGD9
LC5N10C	1	SGD11
LC5N06E	0.6	SGD6

07

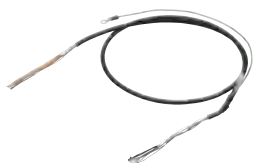
Encoder Cables

Lead Wire



This is an encoder wire with connector on the motor connection side.

Flexible Shielded Cable



These cables are available for use with the connection between the encoder and the controller.

A shielded earth wire is provided for easy grounding.

Product Line

Product Name	Applicable Motor	Length (m)	Conductor AWG	List Price
LCE08A-006	1.8°/0.9° and 0.72°/0.36° Stepping Motor with Encoder	0.6	26 (0.13 mm ²)	SGD13

- A voltage output type cable is also available. For details, please contact your nearest Oriental Motor sales office.

Product Line

Product Name	Applicable Motor	Length (m)	Conductor AWG	List Price
CC010E1R	1.8°/0.9° and 0.72°/0.36° Stepping Motor with Encoder	1	26 (0.13 mm ²)	SGD29
CC020E1R		2		SGD45
CC030E1R		3		SGD61

Motor Connector Sets

This is a set of connector housings and contacts compatible with a connector-coupled motor. Use this set if extra housings and contacts are necessary, although they are included with the products.

Product Line

Product Name	List Price	Applicable Product
CS2U30A	SGD50	PKP223, PKP225
CS2U30B	SGD50	PKP233, PKP235, PKP243M, PKP244M
CS5N30A	SGD50	PK513, PKP523, PKP525
CS5N30B	SGD50	PKP544M, PKP546M
CS5N30C	SGD56	PKP564FM, PKP566FM, PKP569FM

- Each package contains enough housings and contacts for 30 motors. Please order in units of 1 package. The list price shows the price of 1 package.

Note

- A crimp tool is not included. Please prepare separately.



This photograph shows **CS5N30B**.

Mounting Brackets for Circuit Products

This is a DIN rail mounting bracket for board type drivers.

<Application Example of **MADP07**>



Product Line

Material: SPCC

Product Name	List Price	Applicable Drivers	Surface Treatment
MADP01	SGD9	CMD21□□P	Trivalent chromate
MADP07	SGD11	CVD□□□BR-K CVD□□□B-K	Electroless nickel plating
MADP01S1	SGD15	CVD□□□-K	Trivalent chromate

Circuit Product Cover

This is a protection cover to prevent contact with the circuit board. Available for the right angle type driver with an installation plate.

<Application Example>



Product Line

Material: Resin

Product Name	List Price	Applicable Driver
PADC-CVD	SGD15	CVD□□□BR-K

Clean Dampers

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



Product Line

● Accessory for double shaft motors only

Product Name	Inertia [kg·m ²]	Mass [g]	Motor Frame Size	Applicable Product	List Price
D4CL-5.0F	34×10 ⁻⁷	24	28 mm 42 mm	PKP223, PKP225, PKP523, PKP525 PKP233, PKP235 PKP243, PKP244, PKP543, PKP544 PKP245, PKP246, PKP545, PKP546	SGD35
D6CL-6.3F	140×10 ⁻⁷	62	50 mm	PK256, PK258	SGD35
D6CL-8.0F	140×10 ⁻⁷	61	56.4 mm 60 mm	PKP264, PKP266, PKP268 PK264, PK266, PKP564, PKP566 PK267, PK269, PKP568, PKP569	SGD35
D9CL-14F	870×10 ⁻⁷	105	85 mm 90 mm	PKP296, PKP299, PKP2913 PK296, PK596, PK599, PK5913	SGD44

Ambient Temperature: -20~+80°C

LINEAR AND ROTARY ACTUATORS

Motorize Cylinders

EAC Series

AZ Series Battery-Free Absolute Sensor Equipped



Battery-Free Absolute Sensor Equipped
Advanced "Positioning" is in your hand.

Extensive Lineup for A Variety of Combinations! Designed to Achieve Great Usability

Battery-Free **AZ** Series Equipped with Built-in Absolute Sensor

Motorized Cylinders **EAC** Series

Standard Type
Side-Mounted Type
Same Price

FLEX What is FLEX?

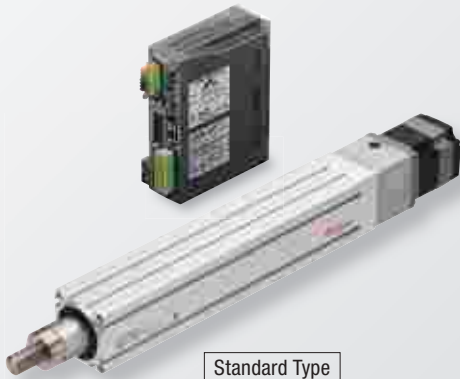
FLEX is a collective term for products compatible with I/O control, Modbus (RTU) control, and FA network control via network converters. These products enable simple connection and simple control, shortening the total lead time for system configuration.

Built-in Controller Type **FLEX**

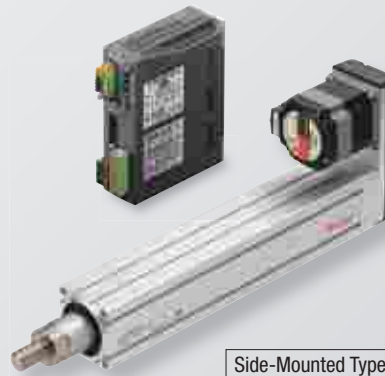
AC Power Supply Input
DC Power Supply Input

Pulse Input Type

AC Power Supply Input
DC Power Supply Input



Standard Type



Side-Mounted Type

- Stroke: 50~300 mm
- Maximum Speed: 600 mm/s
- Maximum Transportable Mass: 60 kg (Horizontal), 30 kg (Vertical)
- Repetitive Positioning Accuracy: ± 0.02 mm

Standard Type

- Standard
- With Shaft Guide
- With Shaft Guide Cover

Side-Mounted Type

- Standard
- With Shaft Guide
- With Shaft Guide Cover

Stepping Motor Unit **αSTEP**
Battery-Free Absolute Sensor Equipped

AZ Series Equipped

- Standard
- With Electromagnetic Brake



Product for positioning in the absolute system without any battery, leading to better productivity and cost reduction.

■ Standard

To be compatible with the device of the customer, an external guide is required.

■ Equipped with shaft guide

The customer is not required to design or arrange for the parts, therefore reduce the time required to start up the equipment.

■ Equipped with shaft guide cover

The movable parts of the cylinder body are protected, thereby improving the safety of the device. It also helps prevent the spattering of grease on the shaft guide and also prevent the intrusion of foreign matter into linear bushing.



Battery-Free Features of AZ Series Equipped with Absolute Sensor

Positioning in the absolute system does not require a battery.

Equipped with newly developed <ABZO sensor> using compact advanced technologies.

High Reliability with Our Unique Control System



Battery-free **AZ** Series Equipped with Absolute Sensor

The **AZ** Series is closed loop stepping motor unit **αSTEP**.

■ Operation continues even at sudden load change or sudden acceleration

At normal times, this compact unit operates by the open loop control synchronously with pulse commands and generates high torques, having excellent acceleration and responsiveness. When overloaded, the current control immediately changes to the closed loop control and corrects the position.

■ Alarm signal output in case of abnormality

If continuously overloaded, an alarm signal is output. A signal is also output when the positioning operation is finished. These features provide high reliability.

■ No tuning is required

At normal times, this unit operates by the open loop control. Therefore, even if the load fluctuates, the set movement is achieved without adjusting.

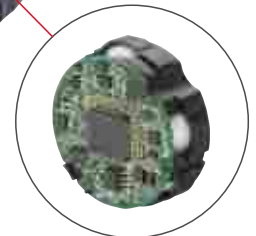
■ The stop position is retained without hunting

With the open loop control, the stepping motor normally does not cause hunting. This means it always enable the motor to maintain the stop position, thus no vibration will occur when stopping.

Oriental Motor has developed a compact, battery-free mechanical driven type absolute sensor <ABZO sensor> (Patented), improving productivity and reducing costs.

Battery-Free

Multi-rotation absolute sensor equipped



ABZO sensor

Newly Developed ABZO Sensor

■ Mechanical driven sensor

A mechanical driven sensor consisting of multiple gears recognizes the angle of each gear to detect positional information. This allows no battery to be required.

■ Multi-rotation absolute sensor

From the reference point of the origin, absolute position for ± 900 rotations (for 1800 rotations) of the motor shaft can be detected.

■ How to set a home position







A home position can be easily set by pressing the switch on the driver, and the ABZO sensor saves it.

You can also use the support software (**MEXE02**) or external input signals to set a home position.



Push switch

Motorized Cylinders Lineup

Series Name Type Name	Product Width×Height	Power Supply Input	Lead [mm]	Stroke [mm]				Maximum Speed [mm/s]								Thrust [N]	
				100	200	300	400	100	200	300	400	500	600	700	800		
EAC Series <i>αSTEP</i> AZ Series Equipped Standard Type  Side-Mounted Type 	EAC2 28 × 28 mm	DC Power Input	6	50~150				300								25	
			3	50~150				150								50	
	EAC4 42 × 42 mm	AC Power Input	12	50~300				600								~70	
			6	50~300				300								~140 (125)*	
		DC Power Input	12	50~300				600								~70	
			6	50~300				300								~140 (125)*	
	EAC6 60 × 60 mm	AC Power Input	12	50~300				600								~200	
			6	50~300				300								~400 (360)*	
		DC Power Input	12	50~300				600								~200	
			6	50~300				300								~400 (360)*	
	EAC Series <i>αSTEP</i> AZ Series Equipped Standard Type With Shaft Guide Cover  Side-Mounted Type With Shaft Guide Cover  Standard Type With Shaft Guide  Side-Mounted Type With Shaft Guide 	EAC2W 28 × 86 mm	DC Power Input	6	50~150				300								25
				3	50~150				150								50
EAC4W 42 × 114 mm		AC Power Input	12	50~300				600								~70	
			6	50~300				300								~140 (125)*	
		DC Power Input	12	50~300				600								~70	
			6	50~300				300								~140 (125)*	
EAC6W 60 × 156 mm		AC Power Input	12	50~300				600								~200	
			6	50~300				300								~400 (360)*	
		DC Power Input	12	50~300				600								~200	
			6	50~300				300								~400 (360)*	

*The figure in the parentheses () indicates the specifications for the side-mounted type.

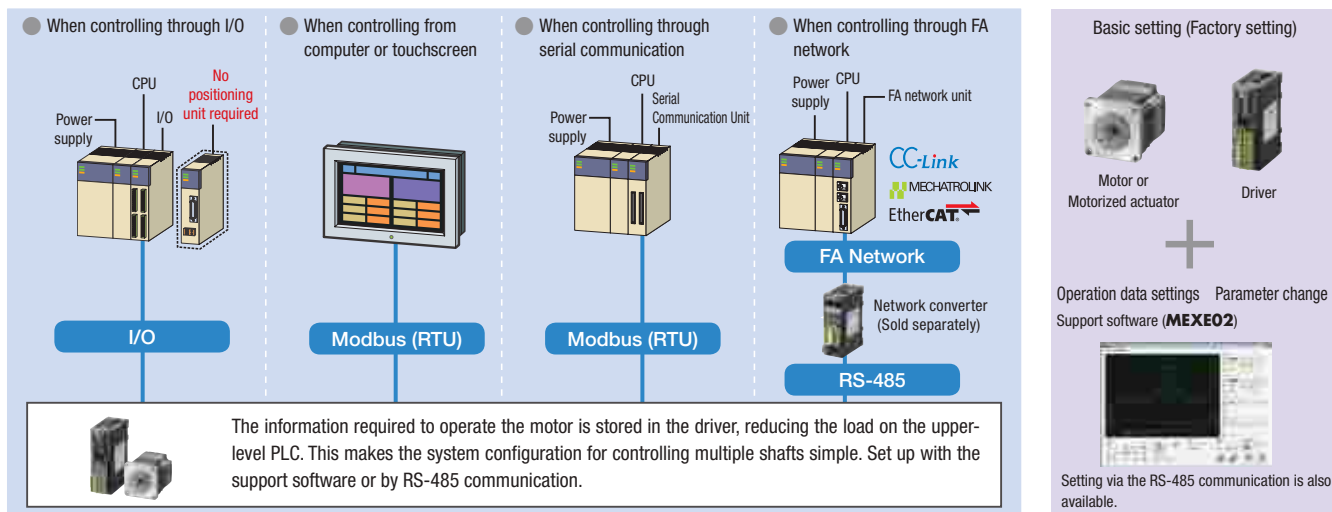
	Pushing Force [N]	Horizontal Transportable Mass [kg]													Vertical Transportable Mass [kg]			Repetitive Positioning Accuracy [mm]	List Price	Page	
		10	20	30	40	50	60	§	200	400	10	20	30								
	40	7.5																2.5	±0.02	SGD1,191~ SGD1,255	08-20
	80	15																5			
	100	15																7	±0.02	SGD1,425~ SGD1,812	08-22~ 08-23
	200	30																14(12.5)*			
	100	15																7			
	200	30																14(12.5)*			
	400	30																15	±0.02	SGD1,522~ SGD1,974	08-26~ 08-27
	500	60																30			
	400	30																15			
	500	60																30			
	40	7.5																2.0	±0.02	SGD1,465~ SGD1,530	08-21
	80	15																4.5			
	100	15																6	±0.02	SGD1,742~ SGD2,119	08-30~ 08-31
	200	30																13(11.5)*			
	100	15																6			
	200	30																13(11.5)*			
	400	30																13	±0.02	SGD1,845~ SGD2,329	08-34~ 08-35
	500	60																28			
	400	30																13			
	500	60																28			

Drivers Selectable According to the Host System

A compatible driver can be selected for the **EAC** Series according to your host system.

Built-in Controller Type **FLEXO**

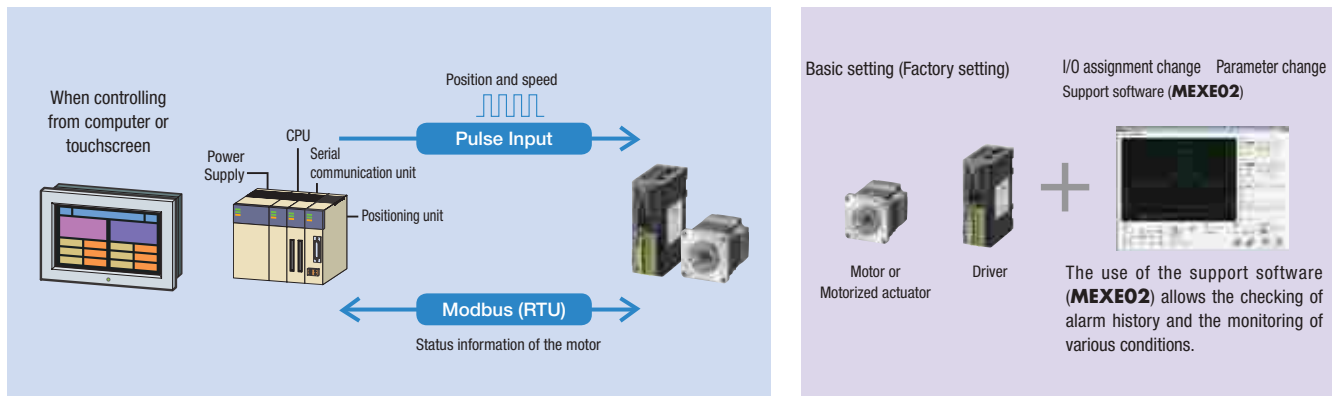
Set the operating data in the driver, and the operating data is selected and executed from the host system. Host system connection and control is performed through I/O, Modbus (RTU), RS-485 communication, or FA network. The use of a network converter (sold separately) allows control via CC-Link communication, MECHATROLINK communication, or EtherCAT communication.



FLEXO FLEX is a general term of the products that support I/O control, Modbus (RTU) control, and FA network control via a network converter.

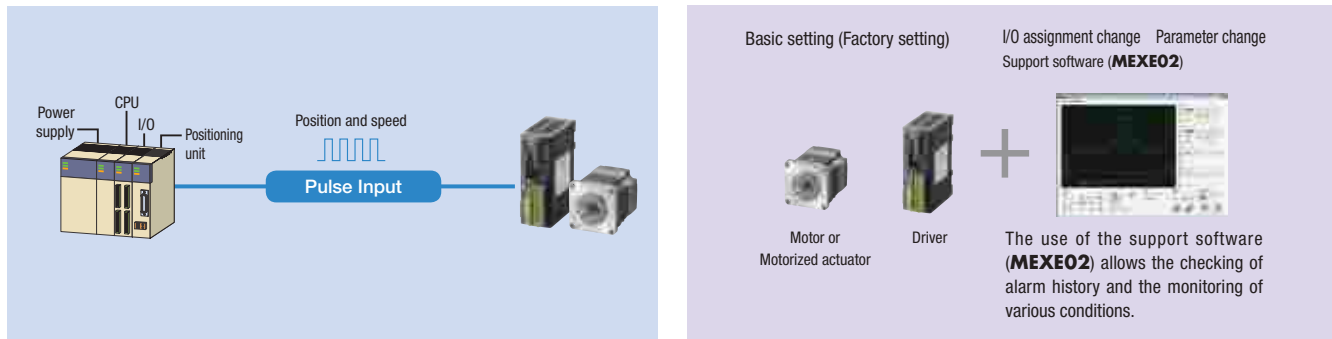
Pulse Input Type with RS-485 Communication

This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of RS-485 communication allows the monitoring of status information (position, speed, torque, alarms, temperature, etc.) of the motor.



Pulse Input Type

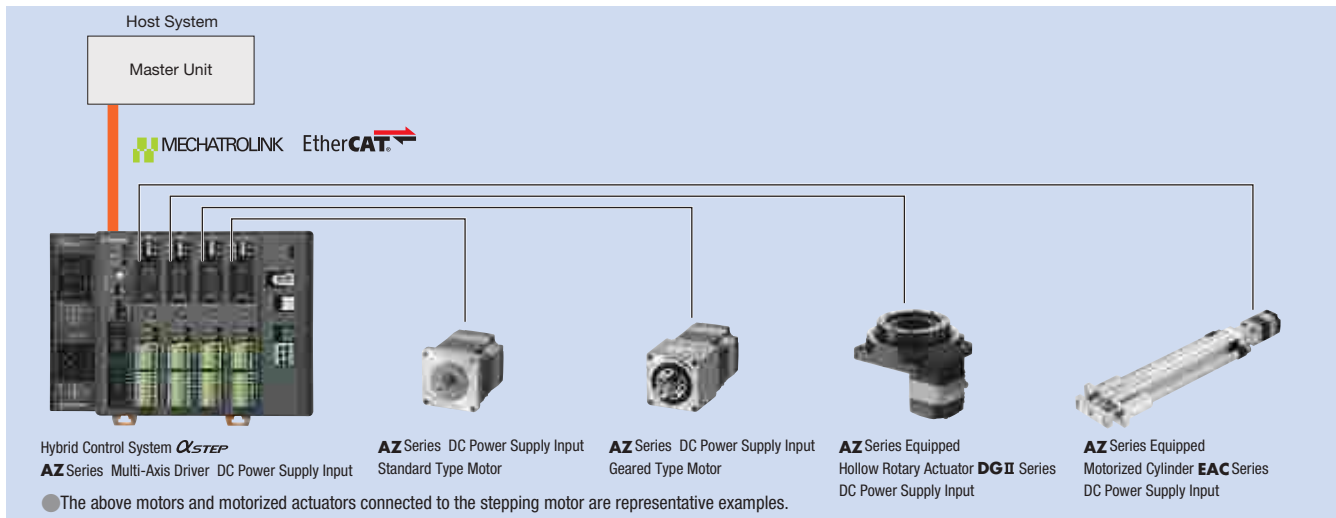
This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of the support software (**MEXE02**) allows the checking of alarm history and the monitoring of various conditions.



- **CC-Link** and **MECHATROLINK** are the registered trademarks of the CC-Link Partner Association and the MECHATROLINK Members Association, respectively.
- **EtherCAT** is the registered trademark licensed by Beckhoff Automation in Germany.
- The support software (**MEXE02**) can be downloaded from the Oriental Motor website. The media is also available (for free).

● **Network-compatible Multi-Axis Driver* (DC power supply input only)**

Multi-axis driver that supports MECHATROLINK-III and EtherCAT Drive Profile. The driver can be connected to a DC power supply motor of the **AZ** Series and to an actuator equipped with motor. 2-axes, 3-axes, and 4-axes connectable drivers are available.



*For details of the products, see the Oriental Motor website.

Simple Operation with Support Software

Easy-to-use data setting software enables data setting and verification of the actual drive by using a computer.

Support Software (**MEXE02**)

The support software can be downloaded from the website. Oriental Motor also provides it on a CD-ROM free of charge.



● **Operating Data and Parameter Settings**

Setting of operation data and parameters is easily performed via computer. Because the setting data can be saved, when the driver is replaced, the same settings can be used by transferring the saved data.



● **Teaching and Remote Operation**

By using the support software and manual positioning, the operation command information can be input into the driver. Use when setting up equipment.

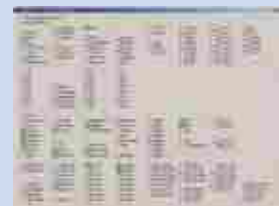


● Multi-monitoring enables remote operation and teaching while monitoring.

Various Monitoring Functions

● **I/O Monitoring**

The state of I/O wiring to the driver can be verified by computer. This can be used for post-wiring I/O checks or I/O checks during operation.



● **Waveform Monitoring**

The operational state of the motor (such as command speed and motor load factor), can be checked by an oscilloscope-like image. This can be used for equipment start-up and adjustment.



● **Alarm Monitoring**

When an abnormality occurs, the details of the abnormality and the solution can be checked.



Overview of Motorized Cylinders

The motor component incorporates a high-efficiency, energy-saving α STEP AZ Series motorized cylinder. In addition to standard type actuators, side-mounted types with shorter overall lengths are also available.

Compact and Powerful

Compact, High Thrust Force Cylinders

Using aluminum for the rod, these motorized cylinders produce high thrust force despite their compact and lightweight body. The unique structure suppresses vibration to achieve improved acceleration characteristics and high-speed positioning operation. This illustration shows a straight type without shaft guide.

Motor

A standard motor is equipped.

α STEP AZ Series

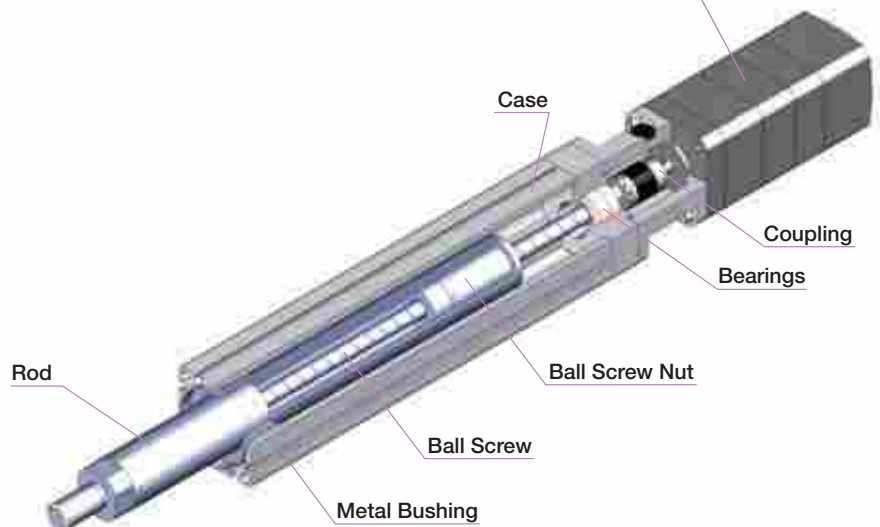
- Battery-Free, Absolute Sensor Equipped
- Positioning Information is Available without a sensor
- High Reliability with Closed Loop Control
- High Efficiency Technology Reduces Motor Heat Generation and Saves Energy



Built-in Controller Type



Pulse Input Type

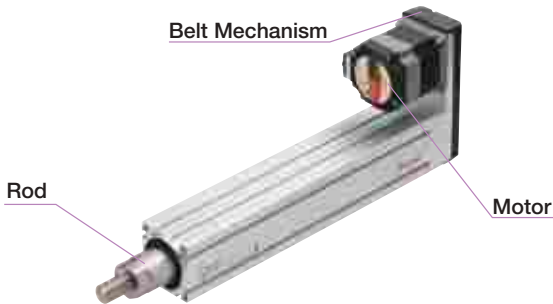


● Cylinder Type and Configuration

The **EAC** Series has standard types and side-mounted types. For both types, the following three types of cylinders are available: without shaft guide, with shaft guide, and with shaft guide cover.

◇ Side-Mounted Type

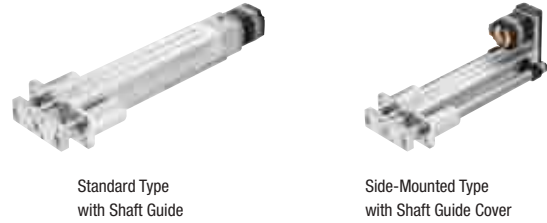
Thanks to the belt mechanism, this type features a reversed motor installation direction.



◇ With Shaft Guide/With Shaft Guide Cover

This type has a shaft guide and cover installed, which allows for the load to be transported while attached directly to the body of this product.

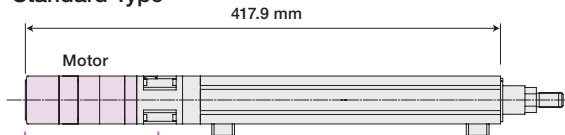
Standard types and side-mounted types are available.



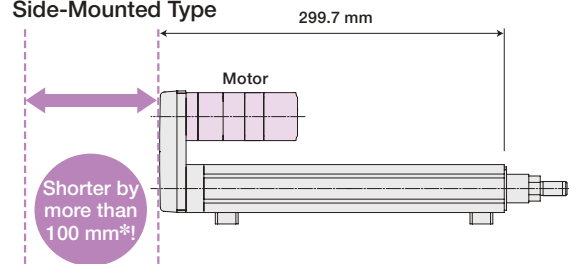
Side-mounted types are provided for all motorized cylinders. This contributes to a shorter overall length and space savings.

αSTEP AZ Series Equipped
EAC4 with Electromagnetic Brake Type Stroke 200 mm

Standard Type

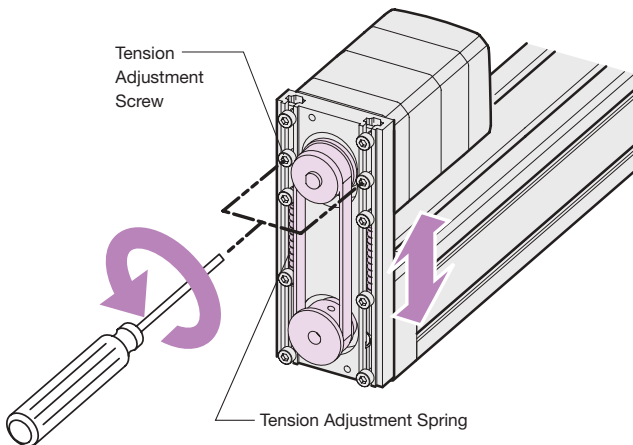


Side-Mounted Type

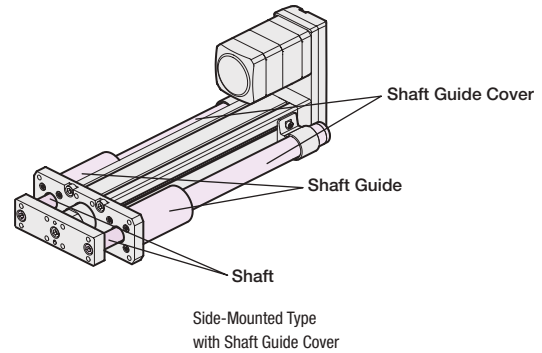


*When electromagnetic brake is installed

Thanks to Oriental Motor's unique belt tension adjustment mechanism, belt replacement is easy.



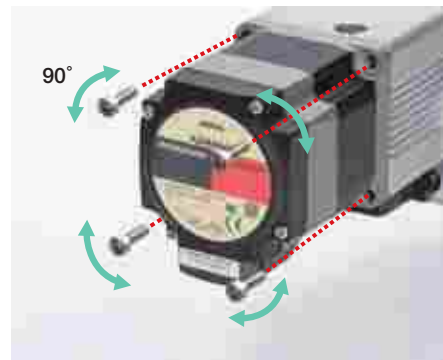
If the screw is loosened, the belt tension is adjusted to an appropriate value by the force of the spring.



● Cable Outlet Direction

Rotatable in 4 directions (3 directions for Reversed Motor types)

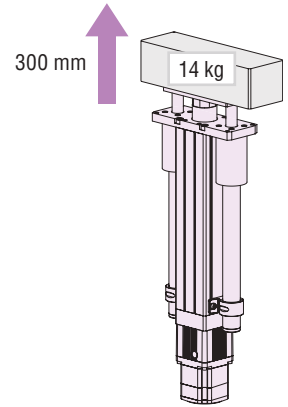
Motor cable can be changed to any direction by simply rotating the motor. There is no need to leave space behind the motor since the cable outlet is on one side of the motor, allowing for easy connection and saving space.



● **Wide Range of Applications, from Low Speed to High Speed and from Light Loads to Heavy Loads**

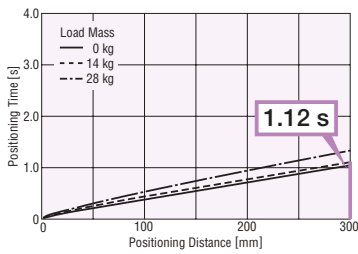
<Product Used>
 Product name: **EAC6WE**
 Lead: 6 mm
 Power Supply Input: 230 VAC

When transferring a load of 14 kg over a distance of 300 mm, the positioning time is 1.12 seconds.



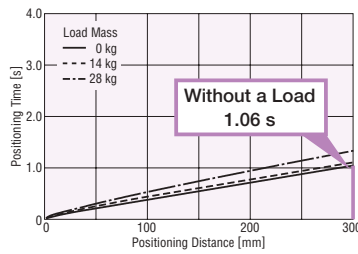
High-Speed With a Heavy Load

Transportable Mass: 14 kg
 Positioning Distance: 300 mm
 Positioning Time: 1.12 s
 Operating Speed: 300 mm/s
 Acceleration: 2.48 m/s² (0.25 G)



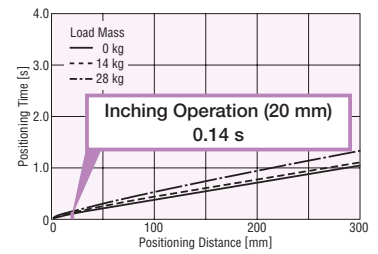
High-Speed With a Light Load

Transportable Mass: 0 kg
 Positioning Distance: 300 mm
 Positioning Time: 1.06 s
 Operating Speed: 300 mm/s
 Acceleration: 5.25 m/s² (0.5 G)









High-Speed During Inching Operation

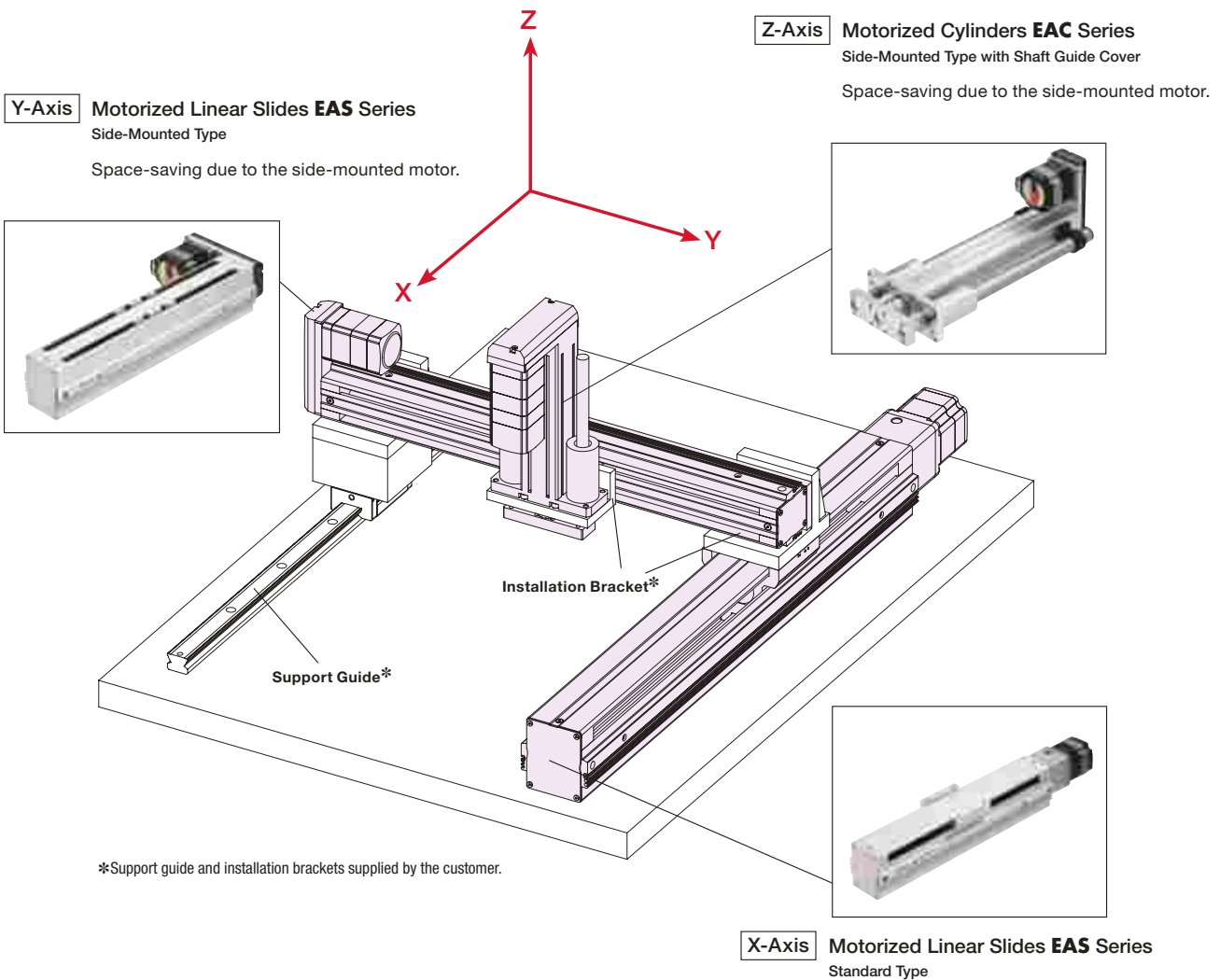
Transportable Mass: 14 kg
 Positioning Distance: 20 mm
 Positioning Time: 0.14 s
 Operating Speed: 200 mm/s
 Acceleration: 5.3 m/s² (0.5 G)



Product Line

Shaft Guide	Standard Type	Side-Mounted Type
<p>Without Shaft Guide</p> <p>Depending on the equipment, an external guide may be necessary.</p>		
<p>With Shaft Guide</p> <p>Designing an external guide and arranging the components is unnecessary, decreasing the startup time.</p>		
<p>With Shaft Guide Cover</p> <p>Moving parts on the cylinder main unit side are protected, improving equipment safety. This is useful for grease splash prevention in the shaft guide section and the prevention of the infiltration of foreign particles in the linear bush section.</p>		

The image below shows a three axes system using the motorized linear slide **EAS** Series on the X-Y axis and the motorized cylinder **EAC** Series on the Z axis.



How to Read Specifications Table

Motorized Cylinder Specifications

① Drive System	Ball Screw	② Repetitive Positioning Accuracy [mm]	±0.02		③ Minimum Traveling Amount [mm]	0.01		④ Dynamic Permissible Moment [N·m]	Me: 1.3	Mv: 1.3	Mr: 0.6
								⑤ Static Permissible Moment [N·m]	Me: 3.7	Mv: 3.7	Mr: 3.0
Product Name	④ Lead [mm]	⑦ Transportable Mass [kg]		⑧ Thrust [N]	⑨ Pushing Force [N]	⑩ Holding Force [N]	⑪ Maximum Speed [mm/s]				
		Horizontal	Vertical								
EAC4W-D-5-AZA ⑧⑨-⑩-⑪	12	~15	—	~70	100	70	600				
EAC4W-D-5-AZM ⑧⑨-⑩-⑪			~6								
EAC4W-E-5-AZA ⑧⑨-⑩-⑪	6	~30	—	~140	200	140	300				
EAC4W-E-5-AZM ⑧⑨-⑩-⑪			~13								

① Drive System

Mechanism used to convert motor rotation to linear motion.

② Repetitive Positioning Accuracy

A value indicating the amount of error that is generated when positioning is performed repeatedly to the same position in the same direction. The repetitive positioning accuracy is measured at a constant temperature under a constant load.

③ Minimum Traveling Amount

The minimum distance that the rod travels. (Factory setting)

④ Dynamic Permissible Moment*

The load moment acts on the linear guide if the load position is offset from the center of the rod.
The direction of action applies to three directions (pitching (MP), yawing (MY), and rolling (MR)) depending on the position of the offset.
The dynamic permissible moment is the moment allowed during operation.

⑤ Static Permissible Moment*

The load moment acts on the linear guide if the load position is offset from the center of the rod.
The direction of action applies to three directions (pitching (MP), yawing (MY), and rolling (MR)) depending on the position of the offset.
The static permissible moment is the moment allowed during static conditions.

*The motorized cylinders have specifications only for those with shaft guide cover.

⑥ Lead

Distance the rod moves linearly in one motor rotation.

⑦ Transportable Mass

•Horizontal Direction

Mass that can be moved under operating performance in the horizontal direction of the electric cylinder.

•Vertical Direction

Mass that can be moved under operating performance in the vertical direction of the electric cylinder.

⑧ Thrust

Force from the rod that pushes the load when speed is constant.

⑨ Pushing Force

The pressure applied to the load during the pushing operation.

⑩ Holding Force

Holding force when the motor is stopped or when the electromagnetic brake is operating, while power is supplied.

⑪ Maximum Speed

Maximum speed allowed when transporting the maximum transportable mass.

Product Line

AC Power Supply Input

Product Number Code

① Product Series	② Motor Installing Direction	③ Shaft Guide	④ Lead	⑤ Stroke	⑥ Installed Motor	⑦ Motor Shape	⑧ Power Supply Input	⑨ Driver Type	⑩ Connection Cable*	⑪ Shaft Guide Cover
EAC4	R	W	D	05	AZ	A	A	D	3	G
EAC4 EAC6	R: Right Side Mounted Blank: Standard	W: With Shaft Guide Blank: Standard	D: 12 mm E: 6 mm	05: 50 mm 10: 100 mm 15: 150 mm ~ 30: 300 mm (50 mm increments)	AZ Series	A: Single Shaft M: With Electromagnetic Brake	A: Single-Phase 100-120 VAC C: Single-Phase/Three-Phase 200-240 VAC	D: Built-in Controller Type Blank: Pulse Input Type	Number: Length of included cable 1: 1m 2: 2m 3: 3m None: Connection cable not included	G: With Shaft Guide Cover Blank: No Shaft Guide Cover

* Connection cables with a length of more than 3 m are available as accessories (sold separately).
Connection Cable Sets → Page 08-54

◇ EAC4 Standard Type/Side-Mounted Type (Frame size 42 mm × 42 mm)

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,554	SGD1,506	SGD1,780	SGD1,732	SGD1,473	SGD1,425	SGD1,699	SGD1,651
	100 mm (10)	SGD1,554	SGD1,506	SGD1,780	SGD1,732	SGD1,473	SGD1,425	SGD1,699	SGD1,651
	150 mm (15)	SGD1,570	SGD1,522	SGD1,796	SGD1,748	SGD1,489	SGD1,441	SGD1,716	SGD1,667
	200 mm (20)	SGD1,570	SGD1,522	SGD1,796	SGD1,748	SGD1,489	SGD1,441	SGD1,716	SGD1,667
	250 mm (25)	SGD1,586	SGD1,538	SGD1,812	SGD1,764	SGD1,506	SGD1,457	SGD1,732	SGD1,683
300 mm (30)	SGD1,586	SGD1,538	SGD1,812	SGD1,764	SGD1,506	SGD1,457	SGD1,732	SGD1,683	

◇ EAC4 Standard Type/Side-Mounted Type With Shaft Guide (Frame size 42 mm × 114 mm)

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,829	SGD1,780	SGD2,055	SGD2,006	SGD1,748	SGD1,699	SGD1,974	SGD1,926
	100 mm (10)	SGD1,829	SGD1,780	SGD2,055	SGD2,006	SGD1,748	SGD1,699	SGD1,974	SGD1,926
	150 mm (15)	SGD1,845	SGD1,796	SGD2,071	SGD2,022	SGD1,764	SGD1,716	SGD1,990	SGD1,942
	200 mm (20)	SGD1,845	SGD1,796	SGD2,071	SGD2,022	SGD1,764	SGD1,716	SGD1,990	SGD1,942
	250 mm (25)	SGD1,861	SGD1,812	SGD2,087	SGD2,039	SGD1,780	SGD1,732	SGD2,006	SGD1,958
300 mm (30)	SGD1,861	SGD1,812	SGD2,087	SGD2,039	SGD1,780	SGD1,732	SGD2,006	SGD1,958	

◇ EAC4 Standard Type/Side-Mounted Type With Shaft Guide Cover (Frame size 42 mm × 114 mm)

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,861	SGD1,812	SGD2,087	SGD2,039	SGD1,780	SGD1,732	SGD2,006	SGD1,958
	100 mm (10)	SGD1,861	SGD1,812	SGD2,087	SGD2,039	SGD1,780	SGD1,732	SGD2,006	SGD1,958
	150 mm (15)	SGD1,877	SGD1,829	SGD2,103	SGD2,055	SGD1,796	SGD1,748	SGD2,022	SGD1,974
	200 mm (20)	SGD1,877	SGD1,829	SGD2,103	SGD2,055	SGD1,796	SGD1,748	SGD2,022	SGD1,974
	250 mm (25)	SGD1,893	SGD1,845	SGD2,119	SGD2,071	SGD1,812	SGD1,764	SGD2,039	SGD1,990
300 mm (30)	SGD1,893	SGD1,845	SGD2,119	SGD2,071	SGD1,812	SGD1,764	SGD2,039	SGD1,990	

◇ **EAC6 Standard Type/Side-Mounted Type (Frame size 60 mm × 60 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,651	SGD1,602	SGD1,942	SGD1,893	SGD1,570	SGD1,522	SGD1,861	SGD1,812
	100 mm (10)	SGD1,651	SGD1,602	SGD1,942	SGD1,893	SGD1,570	SGD1,522	SGD1,861	SGD1,812
	150 mm (15)	SGD1,667	SGD1,619	SGD1,958	SGD1,909	SGD1,586	SGD1,538	SGD1,877	SGD1,829
	200 mm (20)	SGD1,667	SGD1,619	SGD1,958	SGD1,909	SGD1,586	SGD1,538	SGD1,877	SGD1,829
	250 mm (25)	SGD1,683	SGD1,635	SGD1,974	SGD1,926	SGD1,602	SGD1,554	SGD1,893	SGD1,845
300 mm (30)	SGD1,683	SGD1,635	SGD1,974	SGD1,926	SGD1,602	SGD1,554	SGD1,893	SGD1,845	

◇ **EAC6 Standard Type/Side-Mounted Type With Shaft Guide (Frame size 60 mm × 156 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,974	SGD1,926	SGD2,265	SGD2,216	SGD1,893	SGD1,845	SGD2,184	SGD2,136
	100 mm (10)	SGD1,974	SGD1,926	SGD2,265	SGD2,216	SGD1,893	SGD1,845	SGD2,184	SGD2,136
	150 mm (15)	SGD1,990	SGD1,942	SGD2,281	SGD2,232	SGD1,909	SGD1,861	SGD2,200	SGD2,152
	200 mm (20)	SGD1,990	SGD1,942	SGD2,281	SGD2,232	SGD1,909	SGD1,861	SGD2,200	SGD2,152
	250 mm (25)	SGD2,006	SGD1,958	SGD2,297	SGD2,249	SGD1,926	SGD1,877	SGD2,216	SGD2,168
	300 mm (30)	SGD2,006	SGD1,958	SGD2,297	SGD2,249	SGD1,926	SGD1,877	SGD2,216	SGD2,168

◇ **EAC6 Standard Type/Side-Mounted Type With Shaft Guide Cover (Frame size 60 mm × 156 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank), ④ Lead (D, E) or ⑧ Power Supply Input (A, C).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD2,006	SGD1,958	SGD2,297	SGD2,249	SGD1,926	SGD1,877	SGD2,216	SGD2,168
	100 mm (10)	SGD2,006	SGD1,958	SGD2,297	SGD2,249	SGD1,926	SGD1,877	SGD2,216	SGD2,168
	150 mm (15)	SGD2,022	SGD1,974	SGD2,313	SGD2,265	SGD1,942	SGD1,893	SGD2,232	SGD2,184
	200 mm (20)	SGD2,022	SGD1,974	SGD2,313	SGD2,265	SGD1,942	SGD1,893	SGD2,232	SGD2,184
	250 mm (25)	SGD2,039	SGD1,990	SGD2,329	SGD2,281	SGD1,958	SGD1,909	SGD2,249	SGD2,200
	300 mm (30)	SGD2,039	SGD1,990	SGD2,329	SGD2,281	SGD1,958	SGD1,909	SGD2,249	SGD2,200

DC Power Supply Input

◇ Product Number Code

① Product Series	② Motor Installing Direction	③ Shaft Guide	④ Lead	⑤ Stroke	⑥ Installed Motor	⑦ Motor Shape	⑧ Power Supply Input	⑨ Driver Type	⑩ Connection Cable*2	⑪ Shaft Guide Cover
EAC4	R	W	D	05	AZ	A	K	D	3	G
EAC2 EAC4 EAC6	R : Right Side Mounted Blank: Standard	W : With Shaft Guide Blank: Standard	D : 12 mm E : 6 mm F : 3 mm	05 : 50 mm 10 : 100 mm 15 : 150 mm ~ 30 : 300 mm (50 mm increments)	AZ Series	A : Single Shaft M : With Electromagnetic Brake	K : 24 VDC/48 VDC *1	D : Built-in Controller Type Blank: Pulse Input Type	Number: Length of included cable 1 : 1m 2 : 2m 3 : 3m None: Connection cable not included	G : With Shaft Guide Cover Blank: No Shaft Guide Cover

*1 **EAC2** types are available with 24 VDC only.

*2 Connection cables with a length of more than 3 m are available as accessories (sold separately).
Connection Cable Sets → Page 08-54

◇ **EAC2** Standard Type/Side-Mounted Type (Frame size 28 mm × 28 mm)

Same price regardless of ④ Lead (**E, F**).

⑨ Driver Type (D , Blank)	Built-in Controller Type (D)		Pulse Input Type (Blank)		
	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3 , Blank)	50 mm (05)	SGD1,320	SGD1,271	SGD1,239	SGD1,191
	100 mm (10)	SGD1,320	SGD1,271	SGD1,239	SGD1,191
	150 mm (15)	SGD1,336	SGD1,287	SGD1,255	SGD1,207

◇ **EAC2** Standard Type With Shaft Guide Cover (Frame size 28 mm × 86 mm)

Same price regardless of ④ Lead (**E, F**).

⑨ Driver Type (D , Blank)	Built-in Controller Type (D)		Pulse Input Type (Blank)		
	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3 , Blank)	50 mm (05)	SGD1,594	SGD1,546	SGD1,514	SGD1,465
	100 mm (10)	SGD1,594	SGD1,546	SGD1,514	SGD1,465
	150 mm (15)	SGD1,611	SGD1,562	SGD1,530	SGD1,481

◇ **EAC4** Standard Type/Side-Mounted Type (Frame size 42 mm × 42 mm)

Same price regardless of ② Motor Installing Direction (**R**, Blank) or ④ Lead (**D, E**).

⑨ Driver Type (D , Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
	⑩ Connection Cable (1, 2, 3 , Blank)	50 mm (05)	SGD1,344	SGD1,296	SGD1,570	SGD1,522	SGD1,263	SGD1,215	SGD1,489
100 mm (10)		SGD1,344	SGD1,296	SGD1,570	SGD1,522	SGD1,263	SGD1,215	SGD1,489	SGD1,441
150 mm (15)		SGD1,360	SGD1,312	SGD1,586	SGD1,538	SGD1,279	SGD1,231	SGD1,506	SGD1,457
200 mm (20)		SGD1,360	SGD1,312	SGD1,586	SGD1,538	SGD1,279	SGD1,231	SGD1,506	SGD1,457
250 mm (25)		SGD1,376	SGD1,328	SGD1,602	SGD1,554	SGD1,296	SGD1,247	SGD1,522	SGD1,473
300 mm (30)		SGD1,376	SGD1,328	SGD1,602	SGD1,554	SGD1,296	SGD1,247	SGD1,522	SGD1,473

◇ **EAC4** Standard Type/Side-Mounted Type With Shaft Guide (Frame size 42 mm × 114 mm)

Same price regardless of ② Motor Installing Direction (**R**, Blank) or ④ Lead (**D, E**).

⑨ Driver Type (D , Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
	⑩ Connection Cable (1, 2, 3 , Blank)	50 mm (05)	SGD1,619	SGD1,570	SGD1,845	SGD1,796	SGD1,538	SGD1,489	SGD1,764
100 mm (10)		SGD1,619	SGD1,570	SGD1,845	SGD1,796	SGD1,538	SGD1,489	SGD1,764	SGD1,716
150 mm (15)		SGD1,635	SGD1,586	SGD1,861	SGD1,812	SGD1,554	SGD1,506	SGD1,780	SGD1,732
200 mm (20)		SGD1,635	SGD1,586	SGD1,861	SGD1,812	SGD1,554	SGD1,506	SGD1,780	SGD1,732
250 mm (25)		SGD1,651	SGD1,602	SGD1,877	SGD1,829	SGD1,570	SGD1,522	SGD1,796	SGD1,748
300 mm (30)		SGD1,651	SGD1,602	SGD1,877	SGD1,829	SGD1,570	SGD1,522	SGD1,796	SGD1,748

◇ **EAC4** Standard Type/Side-Mounted Type With Shaft Guide Cover (Frame size 42 mm × 114 mm)

Same price regardless of ② Motor Installing Direction (**R**, Blank) or ④ Lead (**D, E**).

⑨ Driver Type (D , Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
	⑩ Connection Cable (1, 2, 3 , Blank)	50 mm (05)	SGD1,651	SGD1,602	SGD1,877	SGD1,829	SGD1,570	SGD1,522	SGD1,796
100 mm (10)		SGD1,651	SGD1,602	SGD1,877	SGD1,829	SGD1,570	SGD1,522	SGD1,796	SGD1,748
150 mm (15)		SGD1,667	SGD1,619	SGD1,893	SGD1,845	SGD1,586	SGD1,538	SGD1,812	SGD1,764
200 mm (20)		SGD1,667	SGD1,619	SGD1,893	SGD1,845	SGD1,586	SGD1,538	SGD1,812	SGD1,764
250 mm (25)		SGD1,683	SGD1,635	SGD1,909	SGD1,861	SGD1,602	SGD1,554	SGD1,829	SGD1,780
300 mm (30)		SGD1,683	SGD1,635	SGD1,909	SGD1,861	SGD1,602	SGD1,554	SGD1,829	SGD1,780

◇ **EAC6 Standard Type/Side-Mounted Type (Frame size 60 mm × 60 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank) or ④ Lead (D, E).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,441	SGD1,392	SGD1,732	SGD1,683	SGD1,360	SGD1,312	SGD1,651	SGD1,602
	100 mm (10)	SGD1,441	SGD1,392	SGD1,732	SGD1,683	SGD1,360	SGD1,312	SGD1,651	SGD1,602
	150 mm (15)	SGD1,457	SGD1,409	SGD1,748	SGD1,699	SGD1,376	SGD1,328	SGD1,667	SGD1,619
	200 mm (20)	SGD1,457	SGD1,409	SGD1,748	SGD1,699	SGD1,376	SGD1,328	SGD1,667	SGD1,619
	250 mm (25)	SGD1,473	SGD1,425	SGD1,764	SGD1,716	SGD1,392	SGD1,344	SGD1,683	SGD1,635
300 mm (30)	SGD1,473	SGD1,425	SGD1,764	SGD1,716	SGD1,392	SGD1,344	SGD1,683	SGD1,635	

◇ **EAC6 Standard Type/Side-Mounted Type With Shaft Guide (Frame size 60 mm × 156 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank) or ④ Lead (D, E).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,764	SGD1,716	SGD2,055	SGD2,006	SGD1,683	SGD1,635	SGD1,974	SGD1,926
	100 mm (10)	SGD1,764	SGD1,716	SGD2,055	SGD2,006	SGD1,683	SGD1,635	SGD1,974	SGD1,926
	150 mm (15)	SGD1,780	SGD1,732	SGD2,071	SGD2,022	SGD1,699	SGD1,651	SGD1,990	SGD1,942
	200 mm (20)	SGD1,780	SGD1,732	SGD2,071	SGD2,022	SGD1,699	SGD1,651	SGD1,990	SGD1,942
	250 mm (25)	SGD1,796	SGD1,748	SGD2,087	SGD2,039	SGD1,716	SGD1,667	SGD2,006	SGD1,958
	300 mm (30)	SGD1,796	SGD1,748	SGD2,087	SGD2,039	SGD1,716	SGD1,667	SGD2,006	SGD1,958

◇ **EAC6 Standard Type/Side-Mounted Type With Shaft Guide Cover (Frame size 60 mm × 156 mm)**

Same price regardless of ② Motor Installing Direction (R, Blank) or ④ Lead (D, E).

⑨ Driver Type (D, Blank)	Built-in Controller Type (D)				Pulse Input Type (Blank)				
	Single Shaft (A)		With Electromagnetic Brake (M)		Single Shaft (A)		With Electromagnetic Brake (M)		
⑦ Motor Shape (A, M)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	Included (1, 2, 3)	Not Included (Blank)	
⑩ Connection Cable (1, 2, 3, Blank)									
⑤ Stroke	50 mm (05)	SGD1,796	SGD1,748	SGD2,087	SGD2,039	SGD1,716	SGD1,667	SGD2,006	SGD1,958
	100 mm (10)	SGD1,796	SGD1,748	SGD2,087	SGD2,039	SGD1,716	SGD1,667	SGD2,006	SGD1,958
	150 mm (15)	SGD1,812	SGD1,764	SGD2,103	SGD2,055	SGD1,732	SGD1,683	SGD2,022	SGD1,974
	200 mm (20)	SGD1,812	SGD1,764	SGD2,103	SGD2,055	SGD1,732	SGD1,683	SGD2,022	SGD1,974
	250 mm (25)	SGD1,829	SGD1,780	SGD2,119	SGD2,071	SGD1,748	SGD1,699	SGD2,039	SGD1,990
	300 mm (30)	SGD1,829	SGD1,780	SGD2,119	SGD2,071	SGD1,748	SGD1,699	SGD2,039	SGD1,990

Included

Type	Included	Actuator	Driver	Connector	Operating Manual
Common to All Types		1 Unit	1 Unit	<ul style="list-style-type: none"> • Connector for CN4 (1 piece) • Connector for CN1 (1 piece) • Connector for CN5 (1 piece)* • Connector Wiring Lever (1 piece)* 	1 Copy

*AC input only

System Configuration

Built-in controller type with an electromagnetic brake equipped with the **AZ Series** (AC power supply input and DC power supply input are both indicated. The photo shows a type for AC power supply input.)


An example of a configuration using I/O control or RS-485 communication is shown below.

- *1 Not supplied.
- *2 A product for DC power supply is unnecessary.
- *3 Only with products supplied with a connection cable.

Accessories (Sold Separately)

Cables used for EMC directive evaluation

When extending the distance between the motor and the driver without using an included connection cable*3




For Motor For Encoder For Electromagnetic Brake

Connection Cable Sets
Flexible Connection Cable Sets
AC Power Supply Input → Page 08-54
DC Power Supply Input → Page 08-56

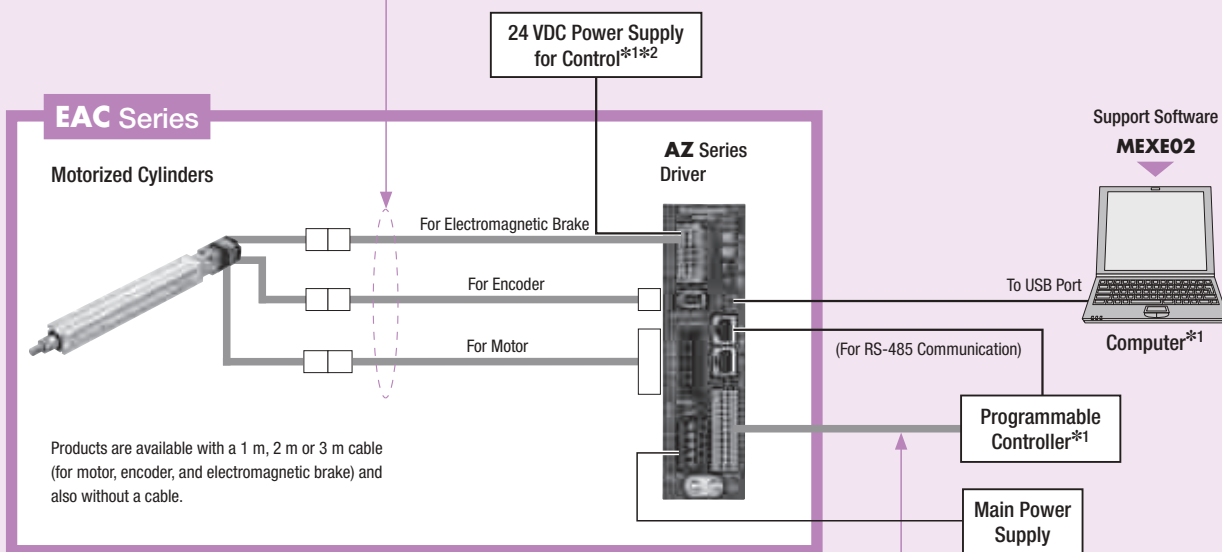
or

When extending the distance between the motor and the driver using an included connection cable*3




For Motor For Encoder For Electromagnetic Brake

Extension Cable Sets
Flexible Extension Cable Sets
AC Power Supply Input → Page 08-55
DC Power Supply Input → Page 08-57



Accessories (Sold Separately)




Installation Plates → Page 08-61

RS-485 Communication Cables → Page 08-60

General – Purpose Cables for I/O Signals → Page 08-60

Peripheral Products (Sold Separately)



Network Converters → Page 08-62

The functions and operation method of this product are common to the stepping motor and driver package **AZ Series**. For details on the functions and operation method, see the User's Manual (for Drivers, Functions) of the **AZ Series**. The User's Manual for Drivers is included with the product, but the guide for Functions is not included. Contact the nearest Oriental Motor sales office or download from the Oriental Motor website. <http://www.orientalmotor.com.sg>

System Configuration Example

EAC Series	+	Sold Separately
EAC4-D05-AZMCD-3		General-Purpose Cable for I/O Signals (1 m)
SGD1,780		CC16D010B-1 SGD25

The system configuration shown above is an example. Other combinations are available.

● Pulse input type with an electromagnetic brake equipped with the **AZ Series** (AC power supply input and DC power supply input are both indicated. The photo shows a type for AC power supply input.)
An example of a single-axis system configuration is shown below.

- *1 Not supplied.
- *2 A product for DC power supply is unnecessary.
- *3 Only with products supplied with a connection cable.

Accessories (Sold Separately)

Cables used for EMC directive evaluation

When extending the distance between the motor and the driver without using an included connection cable*3

For Motor For Encoder For Electromagnetic Brake

Connection Cable Sets
Flexible Connection Cable Sets
AC Power Supply Input → Page 08-54
DC Power Supply Input → Page 08-56

or

For Motor For Encoder For Electromagnetic Brake

Extension Cable Sets
Flexible Extension Cable Sets
AC Power Supply Input → Page 08-55
DC Power Supply Input → Page 08-57

EAC Series
Motorized Cylinders

AZ Series Driver

24 VDC Power Supply for Control*1*2

Main Power Supply

Programmable Controller*1

Computer*1

Support Software **MEXE02**

To USB Port

For Electromagnetic Brake

For Encoder

For Motor

Products are available with a 1 m, 2 m or 3 m cable (for motor, encoder, and electromagnetic brake) and also without a cable.

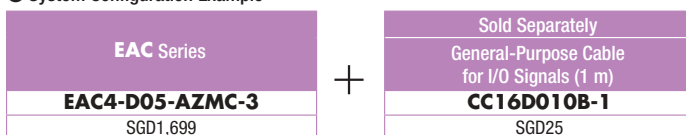
Accessories (Sold Separately)

Installation Plates
→ Page 08-61

General – Purpose Cables for I/O Signals
→ Page 08-60

● The functions and operation method of this product are common to the stepping motor and driver package **AZ Series**. For details on the functions and operation method, see the User's Manual (for Drivers, Functions) of the **AZ Series**.
The User's Manual for Drivers is included with the product, but the guide for Functions is not included. Contact the nearest Oriental Motor sales office or download from the Oriental Motor website. <http://www.orientalmotor.com.sg>

● **System Configuration Example**



● The system configuration shown above is an example. Other combinations are available.

EAC2: Frame Size 28 mm×28 mm 24 VDC Input Standard Type

Maximum Transportable Mass: Horizontal 15 kg/Vertical 5 kg
Stroke: 50~150 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC2-E (5)-(9)-(10)	6	Horizontal	Vertical	~25	40	25	300
EAC2-F (5)-(9)-(10)	3	~7.5	~2.5	~50	80	50	150

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for (5), (9) and (10) in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

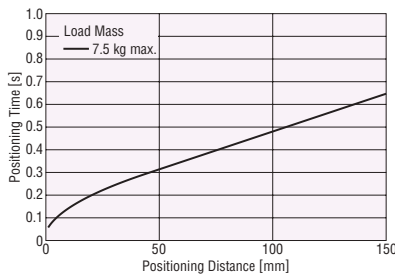
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

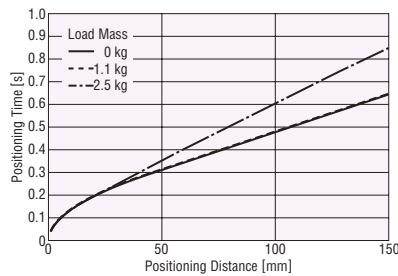
The positioning time (reference) can be checked from the positioning distance.

Lead: 6 mm

◇ Horizontal Direction Installation

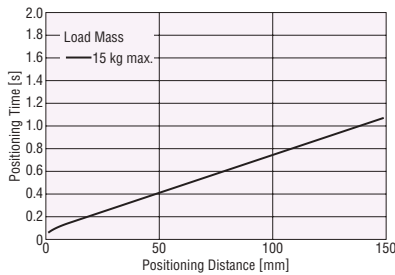


◇ Vertical Direction Installation

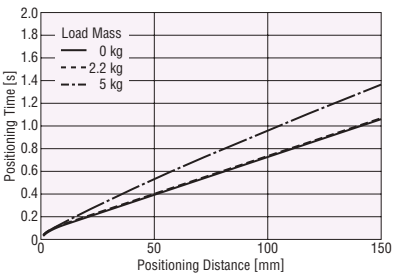


Lead: 3 mm

◇ Horizontal Direction Installation



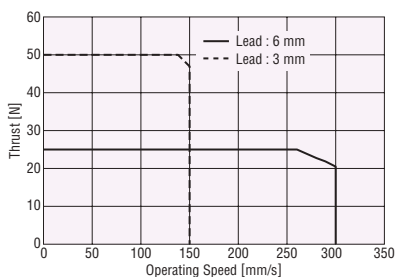
◇ Vertical Direction Installation



Note

- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-40

EAC2W: Frame Size 28 mm×86 mm 24 VDC Input Standard Type With Shaft Guide (With Cover)

Maximum Transportable Mass: Horizontal 15 kg/Vertical 4.5 kg
Stroke: 50~150 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC2W-E-⑤-AZAK-⑨-⑩-⑪	6	Horizontal	Vertical	~25	40	25	300
EAC2W-F-⑤-AZAK-⑨-⑩-⑪	3	~7.5	~2.0	~50	80	50	150

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑨, ⑩ and ⑪ in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

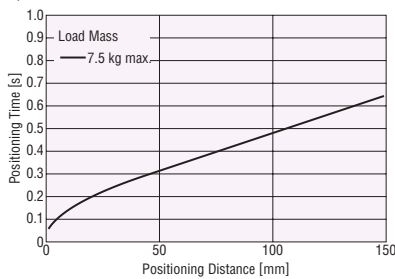
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

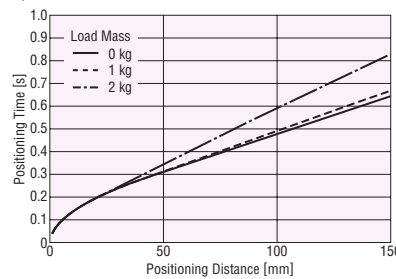
The positioning time (reference) can be checked from the positioning distance.

Lead: 6 mm

◇ Horizontal Direction Installation

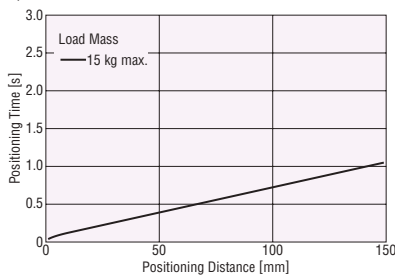


◇ Vertical Direction Installation

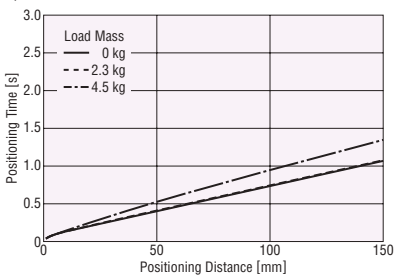


Lead: 3 mm

◇ Horizontal Direction Installation



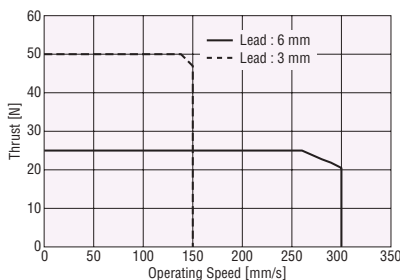
◇ Vertical Direction Installation



Note

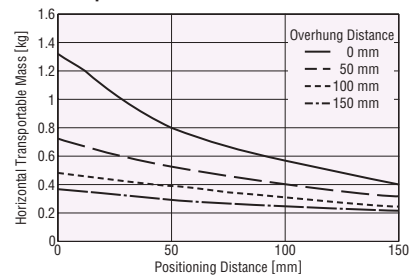
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

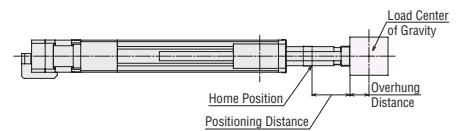


Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-45

EAC4: Frame Size 42 mm×42 mm AC Power Supply Input Standard Type

Maximum Transportable Mass: Horizontal 30 kg/Vertical 14 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4-D (5)-(AZA (8)(9)-(10)) EAC4-D (5)-(AZM (8)(9)-(10))	12	~15	~7	~70	100	70	600
EAC4-E (5)-(AZA (8)(9)-(10)) EAC4-E (5)-(AZM (8)(9)-(10))	6	~30	~14	~140	200	140	300

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for (5), (8), (9) and (10) in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

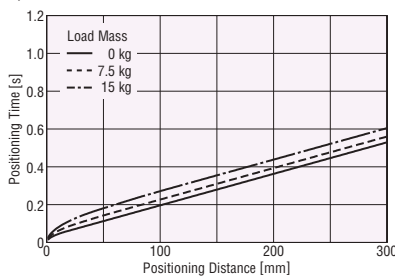
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

Positioning Distance – Positioning Time

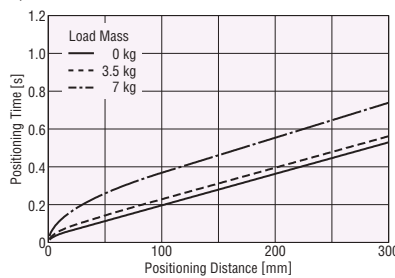
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

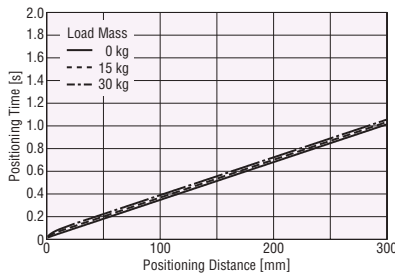


◇ Vertical Direction Installation

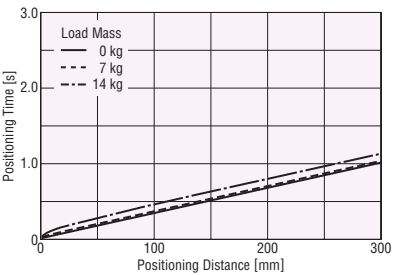


Lead: 6 mm

◇ Horizontal Direction Installation



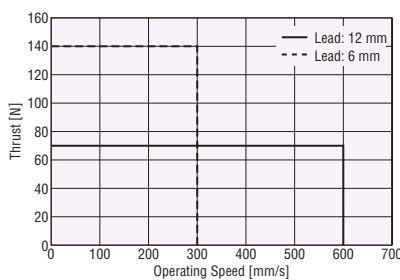
◇ Vertical Direction Installation



Note

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-41

EAC4R: Frame Size 42 mm×42 mm AC Power Supply Input Side-Mounted Type

Maximum Transportable Mass: Horizontal 30 kg/Vertical 12.5 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC4R-D⑤-AZA⑧⑨-⑩	12	Horizontal	~15	~70	100	70	600
EAC4R-D⑤-AZM⑧⑨-⑩		Vertical	~7				
EAC4R-E⑤-AZA⑧⑨-⑩	6	Horizontal	~30	~125	200	125	300
EAC4R-E⑤-AZM⑧⑨-⑩		Vertical	~12.5				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for ⑤, ⑧, ⑨ and ⑩ in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

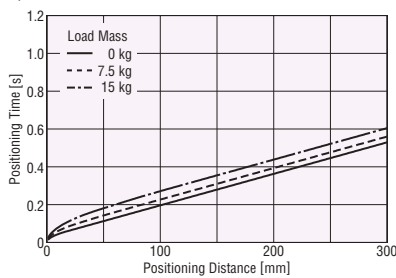
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

Positioning Distance – Positioning Time

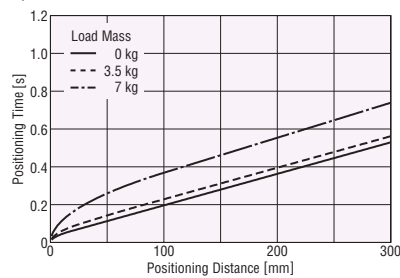
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

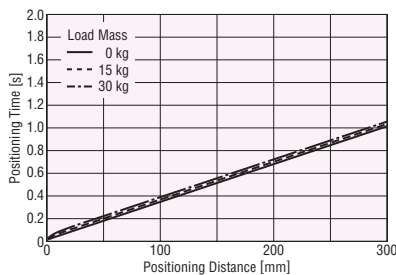


◇ Vertical Direction Installation

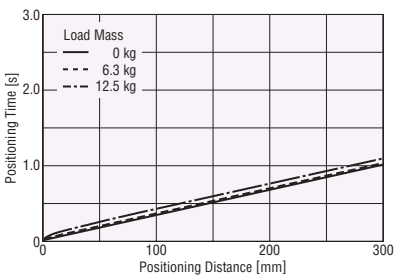


Lead: 6 mm

◇ Horizontal Direction Installation



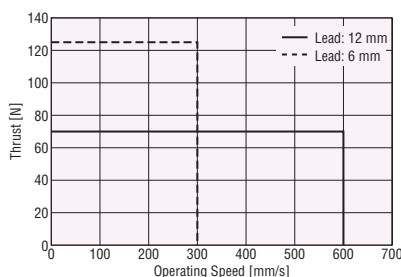
◇ Vertical Direction Installation



Note

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-42

EAC4: Frame Size 42 mm×42 mm 24 VDC Input Standard Type

Maximum Transportable Mass: Horizontal 30 kg/Vertical 14 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4-D (5)-(9)-(10)	12	~15	—	~70	100	70	600
EAC4-D (5)-(9)-(10)			~7				
EAC4-E (5)-(9)-(10)	6	~30	—	~140	200	140	300
EAC4-E (5)-(9)-(10)			~14				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for (5), (9) and (10) in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

● In the case of upward pushing return-to-home, the home position may vary.

● The push-motion operation speed should be 25 mm/s or less.

● Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

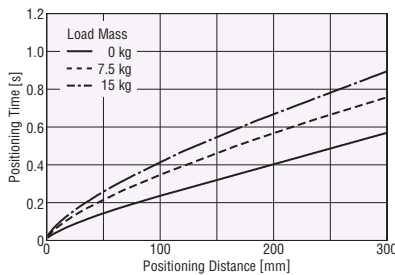
● The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

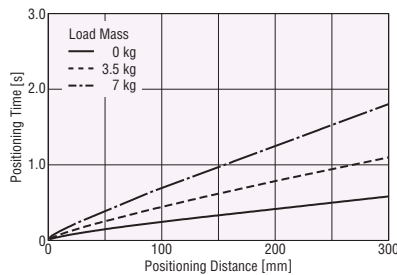
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

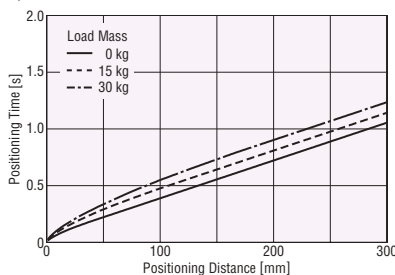


◇ Vertical Direction Installation

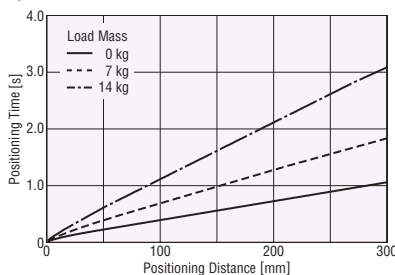


Lead: 6 mm

◇ Horizontal Direction Installation



◇ Vertical Direction Installation



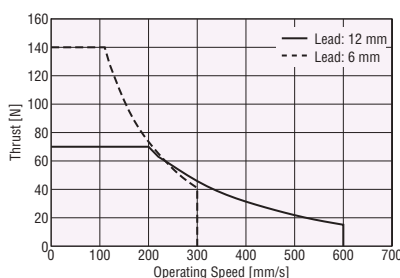
Note

● The positioning time in the graph does not include the settling time.

Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)

● The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-41

EAC4R: Frame Size 42 mm×42 mm 24 VDC Input Side-Mounted Type

Maximum Transportable Mass: Horizontal 30 kg/Vertical 12.5 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC4R-D-⑤-AZAK⑨-⑩	12	~15	—	~70	100	70	600
EAC4R-D-⑤-AZMK⑨-⑩			~7				
EAC4R-E-⑤-AZAK⑨-⑩	6	~30	—	~125	200	125	300
EAC4R-E-⑤-AZMK⑨-⑩			~12.5				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for ⑤, ⑨ and ⑩ in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

● In the case of upward pushing return-to-home, the home position may vary.

● The push-motion operation speed should be 25 mm/s or less.

● Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

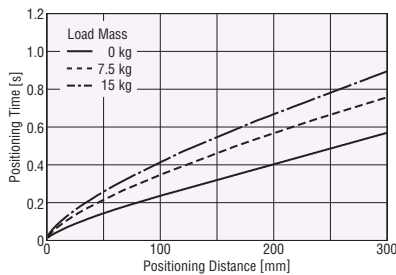
● The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

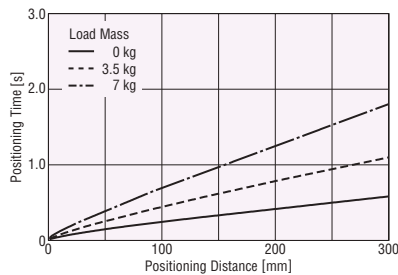
The positioning time (reference) can be checked from the positioning distance.

● Lead: 12 mm

◇ Horizontal Direction Installation

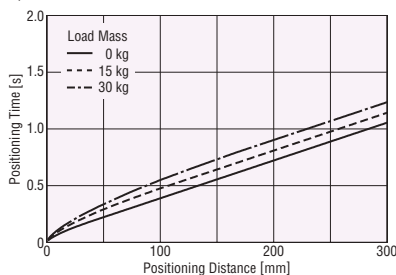


◇ Vertical Direction Installation

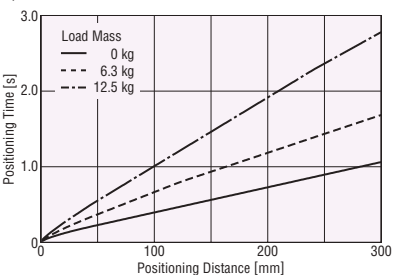


● Lead: 6 mm

◇ Horizontal Direction Installation



◇ Vertical Direction Installation



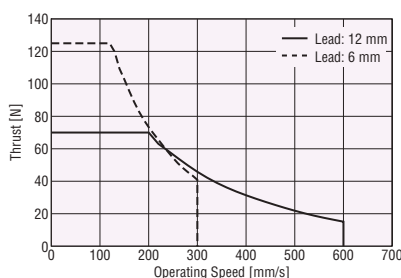
Note

● The positioning time in the graph does not include the settling time.

Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)

● The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-42

EAC6: Frame Size 60 mm×60 mm AC Power Supply Input Standard Type

Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6-D (5)-AZA (8,9)-(10)	12	~30	—	~200	400	200	600
EAC6-D (5)-AZM (8,9)-(10)			~15				
EAC6-E (5)-AZA (8,9)-(10)	6	~60	—	~400	500	400	300
EAC6-E (5)-AZM (8,9)-(10)			~30				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for (5), (6), (9) and (10) in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

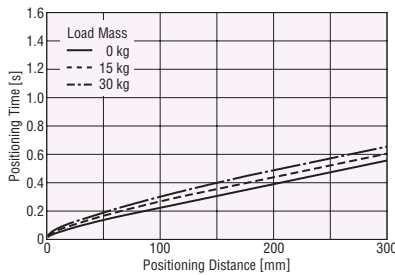
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

Positioning Distance – Positioning Time

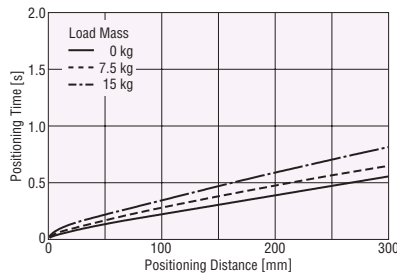
The positioning time (reference) can be checked from the positioning distance.

● Lead: 12 mm

◇ Horizontal Direction Installation

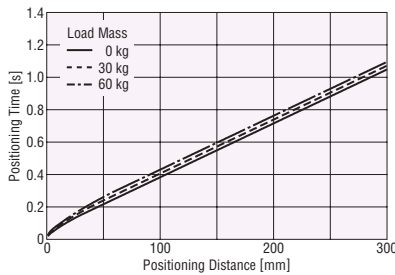


◇ Vertical Direction Installation

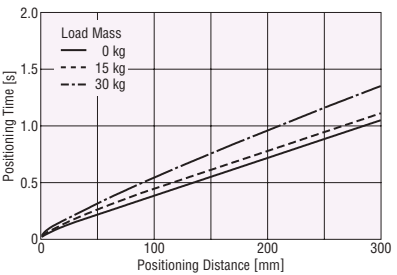


● Lead: 6 mm

◇ Horizontal Direction Installation



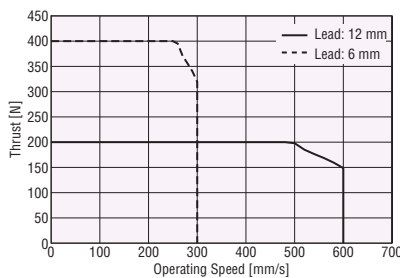
◇ Vertical Direction Installation



Note

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-43

EAC6R: Frame Size 60 mm×60 mm AC Power Supply Input Side-Mounted Type

Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC6R-D ^⑤ -AZA ^{⑧⑨-⑩}	12	Horizontal	Vertical	~200	400	200	600
EAC6R-D ^⑤ -AZM ^{⑧⑨-⑩}		~30	~15				
EAC6R-E ^⑤ -AZA ^{⑧⑨-⑩}	6	Horizontal	Vertical	~360	500	360	300
EAC6R-E ^⑤ -AZM ^{⑧⑨-⑩}		~60	~30				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for ⑤, ⑧, ⑨ and ⑩ in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

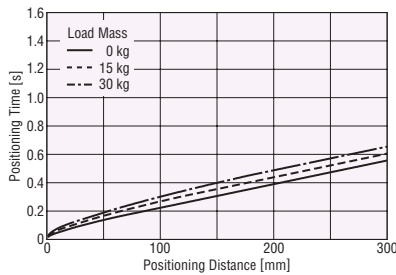
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less.
- Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

Positioning Distance – Positioning Time

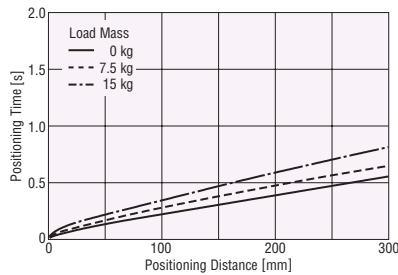
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

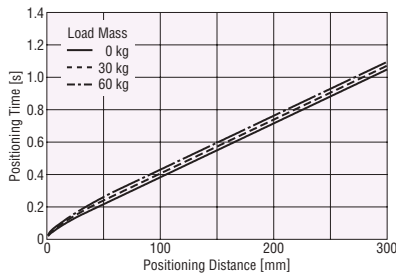


◇ Vertical Direction Installation

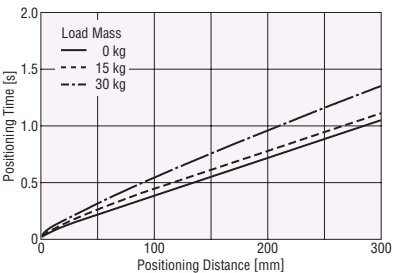


Lead: 6 mm

◇ Horizontal Direction Installation



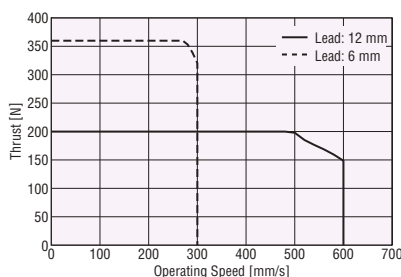
◇ Vertical Direction Installation



Note

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-44

EAC6: Frame Size 60 mm×60 mm 24 VDC Input Standard Type

Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6-D-⑤-AZAK-⑨-⑩	12	~30	—	~200	400	200	600
EAC6-D-⑤-AZMK-⑨-⑩			~15				
EAC6-E-⑤-AZAK-⑨-⑩	6	~60	—	~400	500	400	300
EAC6-E-⑤-AZMK-⑨-⑩			~30				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for ⑤, ⑨ and ⑩ in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

● In the case of upward pushing return-to-home, the home position may vary.

● The push-motion operation speed should be 25 mm/s or less.

● Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

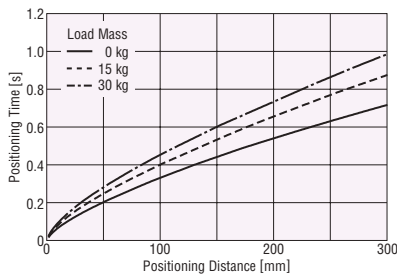
● The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

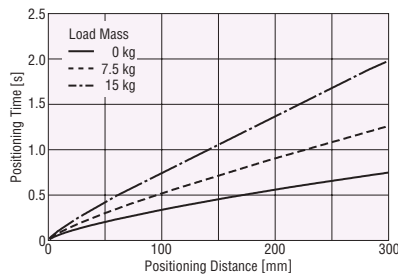
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

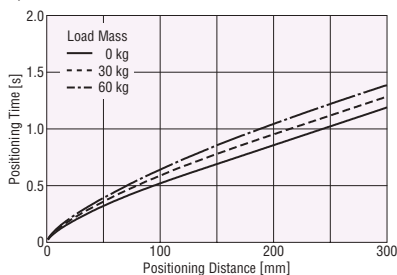


◇ Vertical Direction Installation

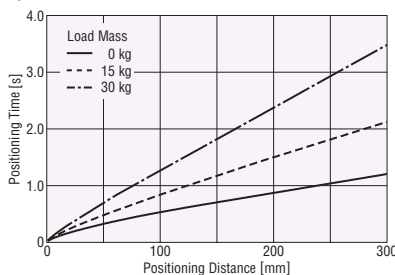


Lead: 6 mm

◇ Horizontal Direction Installation



◇ Vertical Direction Installation



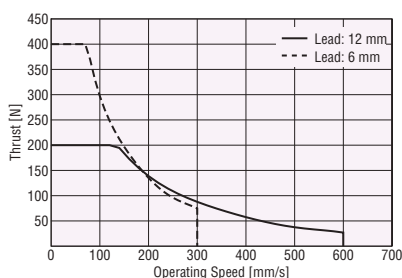
Note

● The positioning time in the graph does not include the settling time.

Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)

● The starting speed should be 6 mm/s or less.

Operating Speed – Thrust



Dimensions

● Motorized Cylinders → Page 08-43

EAC6R: Frame Size 60 mm×60 mm 24 VDC Input Side-Mounted Type

Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01		
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
EAC6R-D-⑤-AZAK⑨-⑩	12	~30	—	~200	400	200	600
EAC6R-D-⑤-AZMK⑨-⑩			~15				
EAC6R-E-⑤-AZAK⑨-⑩	6	~60	—	~360	500	360	300
EAC6R-E-⑤-AZMK⑨-⑩			~30				

*The transportable mass is the value when an external linear guide is used.

● Symbols and numbers are substituted for ⑤, ⑨ and ⑩ in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

● In the case of upward pushing return-to-home, the home position may vary.

● The push-motion operation speed should be 25 mm/s or less.

● Do not apply radial load or load moment to the rod of the motorized cylinders. Make sure to provide a guide although a simple anti-spin mechanism is already provided.

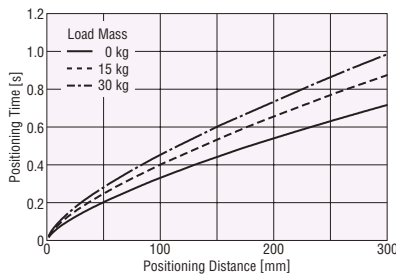
● The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

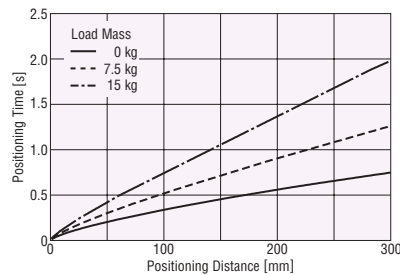
The positioning time (reference) can be checked from the positioning distance.

● Lead: 12 mm

◇ Horizontal Direction Installation

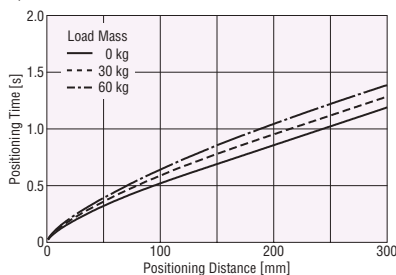


◇ Vertical Direction Installation

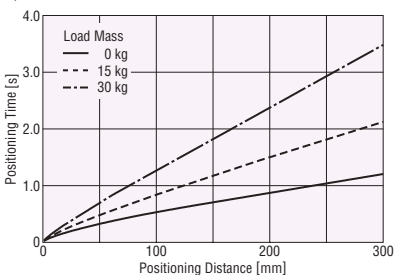


● Lead: 6 mm

◇ Horizontal Direction Installation



◇ Vertical Direction Installation



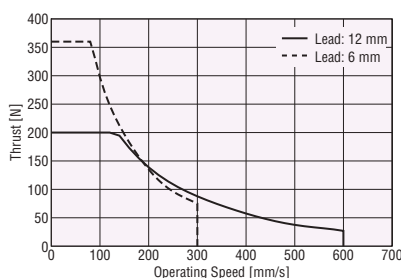
Note

● The positioning time in the graph does not include the settling time.

Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)

● The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

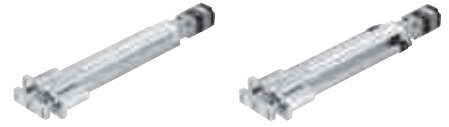


Dimensions

● Motorized Cylinders → Page 08-44

EAC4W: Frame Size 42 mm×114 mm AC Power Supply Input Standard Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 30 kg/Vertical 13 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment[N·m]	M _r :1.3 M _v :1.3 M _h :0.6
						Static Permissible Moment[N·m]	M _r :3.7 M _v :3.7 M _h :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4W-D-5-AZA-8-9-10-11	12	~15	—	~70	100	70	600
EAC4W-D-5-AZM-8-9-10-11			~6				
EAC4W-E-5-AZA-8-9-10-11	6	~30	—	~140	200	140	300
EAC4W-E-5-AZM-8-9-10-11			~13				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑥, ⑨, ⑩ and ⑪ in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

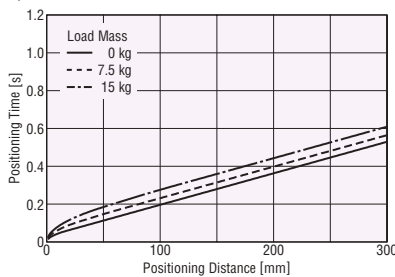
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.

Positioning Distance – Positioning Time

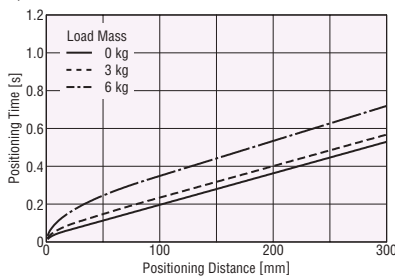
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

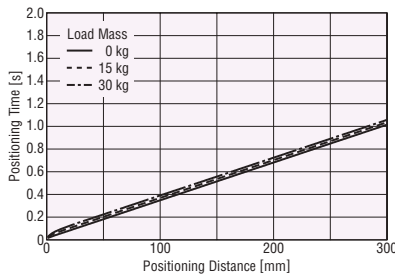


◇ Vertical Direction Installation

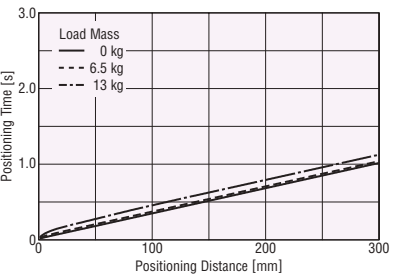


Lead: 6 mm

◇ Horizontal Direction Installation



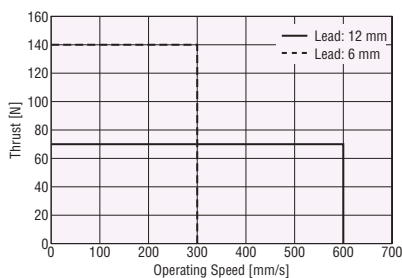
◇ Vertical Direction Installation



Note

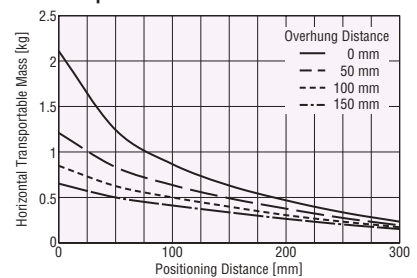
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

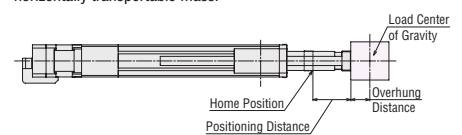


Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



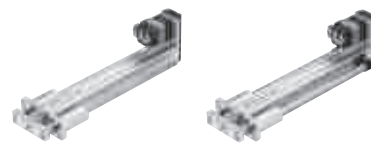
- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-46

EAC4RW: Frame Size 42 mm×114 mm AC Power Supply Input Side-Mounted Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 30 kg/Vertical 11.5 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment [N·m]	M _r :1.3	M _r :1.3	M _r :0.6
						Static Permissible Moment [N·m]	M _r :3.7	M _r :3.7	M _r :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4RW-D-5-AZA-8-9-10-11	12	~15	—	~70	100	70	600
EAC4RW-D-5-AZM-8-9-10-11			~6				
EAC4RW-E-5-AZA-8-9-10-11	6	~30	—	~125	200	125	300
EAC4RW-E-5-AZM-8-9-10-11			~11.5				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Motorized Cylinders Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑧, ⑨, ⑩ and ⑪ in the product names. For details, refer to "Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

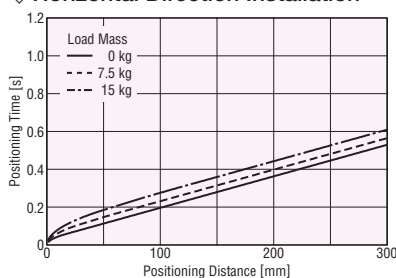
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.

Positioning Distance – Positioning Time

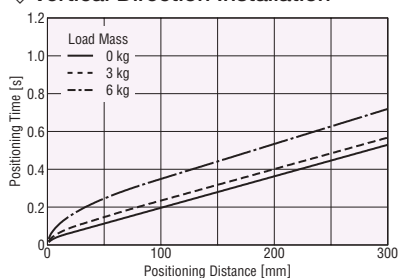
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

Horizontal Direction Installation

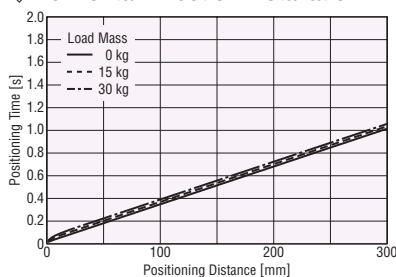


Vertical Direction Installation

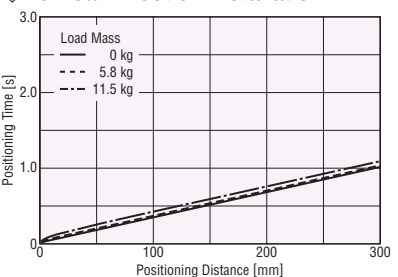


Lead: 6 mm

Horizontal Direction Installation



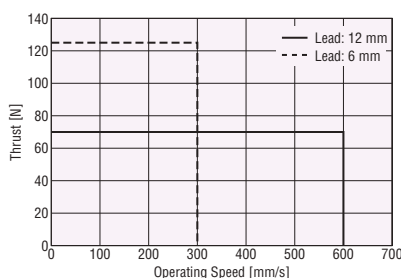
Vertical Direction Installation



Note

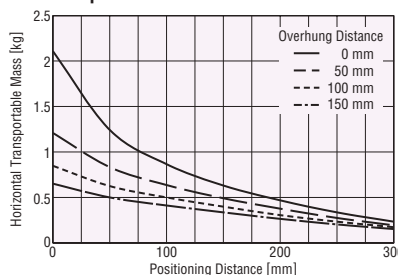
- The positioning time in the graph does not include the settling time.
- Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

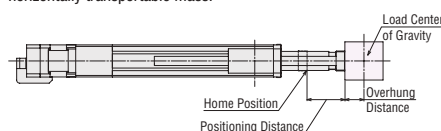


Horizontal Transportable Mass

Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



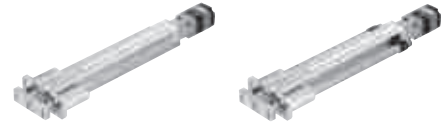
- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

Motorized Cylinders → Page 08-47

EAC4W: Frame Size 42 mm×114 mm 24 VDC Input Standard Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 30 kg/Vertical 13 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment[N·m]	M _r :1.3 M _v :1.3 M _h :0.6
						Static Permissible Moment[N·m]	M _r :3.7 M _v :3.7 M _h :3.0
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4W-D-5-AZAK(9-10-11)	12	~15	—	~70	100	70	600
EAC4W-D-5-AZMK(9-10-11)			~6				
EAC4W-E-5-AZAK(9-10-11)	6	~30	—	~140	200	140	300
EAC4W-E-5-AZMK(9-10-11)			~13				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for (5), (9), (10) and (11) in the product names. For details, refer to "Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

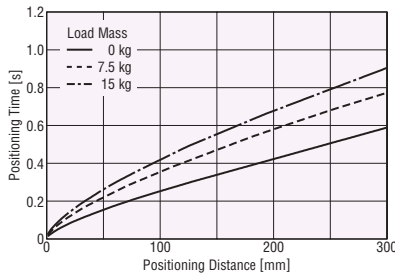
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

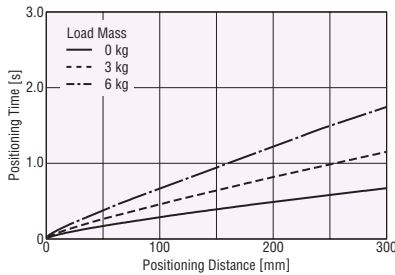
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

Horizontal Direction Installation

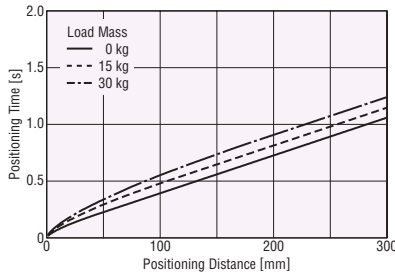


Vertical Direction Installation

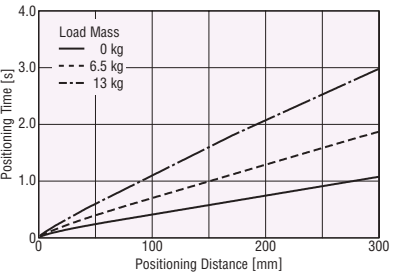


Lead: 6 mm

Horizontal Direction Installation



Vertical Direction Installation

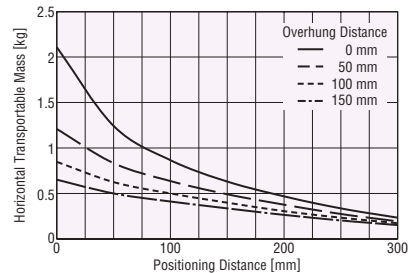


Note

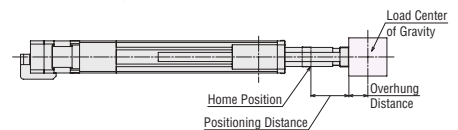
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Horizontal Transportable Mass

Positioning Distance – Horizontal Transportable Mass

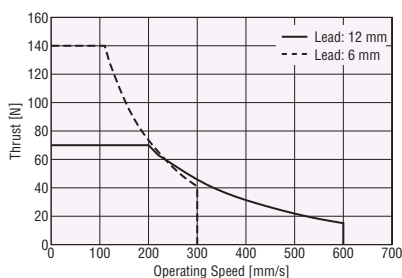


Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Operating Speed – Thrust

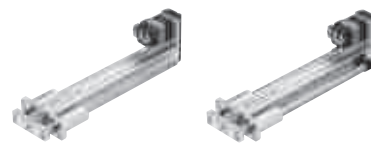


Dimensions

Motorized Cylinders → Page 08-46

EAC4RW: Frame Size 42 mm×114 mm 24 VDC Input Side-Mounted Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 30 kg/Vertical 11.5 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment[N·m]	M _r :1.3 M _v :1.3 M _s :0.6
						Static Permissible Moment[N·m]	M _r :3.7 M _v :3.7 M _s :3.0
Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC4RW-D ⑤-AZAK ⑨-⑩-⑪	12	~15	—	~70	100	70	600
EAC4RW-D ⑤-AZMK ⑨-⑩-⑪			~6				
EAC4RW-E ⑤-AZAK ⑨-⑩-⑪	6	~30	—	~125	200	125	300
EAC4RW-E ⑤-AZMK ⑨-⑩-⑪			~11.5				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑨, ⑩ and ⑪ in the product names. For details, refer to "Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

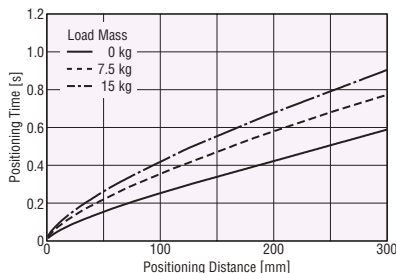
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

Horizontal Direction Installation

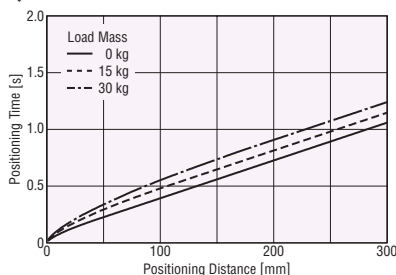


Vertical Direction Installation

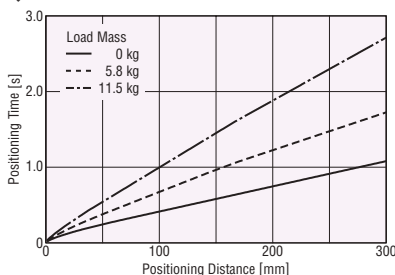


Lead: 6 mm

Horizontal Direction Installation



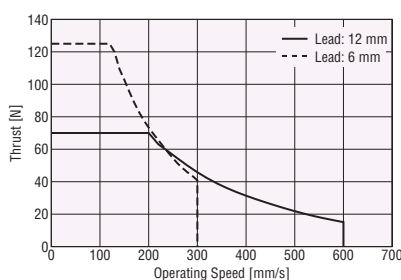
Vertical Direction Installation



Note

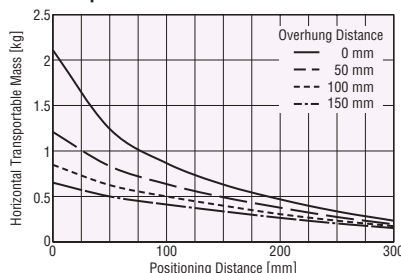
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

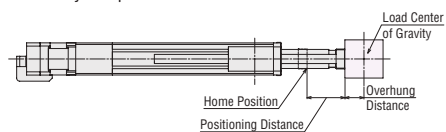


Horizontal Transportable Mass

Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



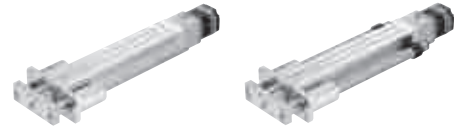
- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-47

EAC6W: Frame Size 60 mm×156 mm AC Power Supply Input Standard Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 60 kg/Vertical 28 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment [N·m]	M _r :2.2	M _v :2.2	M _s :1.3
						Static Permissible Moment [N·m]	M _r :7.8	M _v :7.8	M _s :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6W-D-5-AZA-8-9-10-11	12	~30	—	~200	400	200	600
EAC6W-D-5-AZM-8-9-10-11			~13				
EAC6W-E-5-AZA-8-9-10-11	6	~60	—	~400	500	400	300
EAC6W-E-5-AZM-8-9-10-11			~28				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑧, ⑨, ⑩ and ⑪ in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

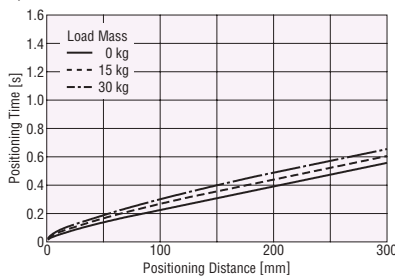
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.

Positioning Distance – Positioning Time

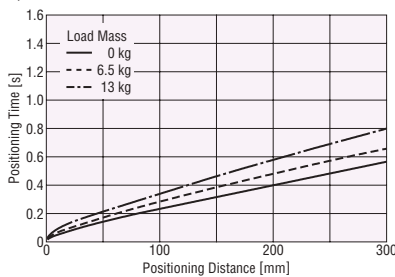
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

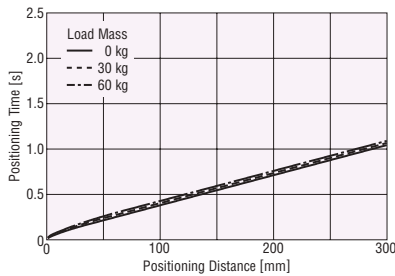


◇ Vertical Direction Installation

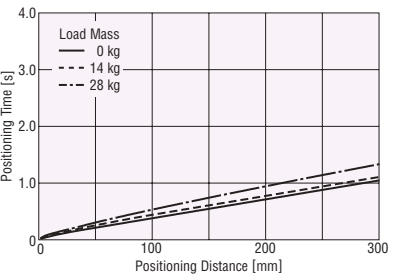


Lead: 6 mm

◇ Horizontal Direction Installation



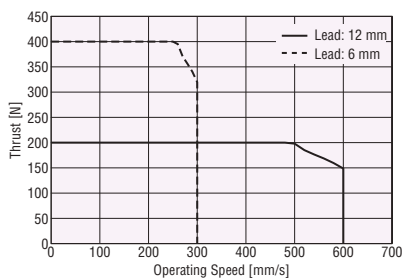
◇ Vertical Direction Installation



Note

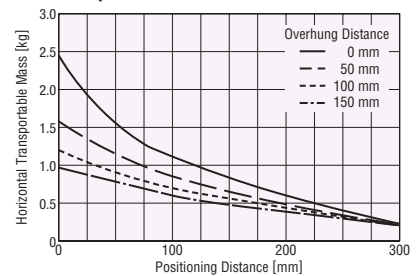
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

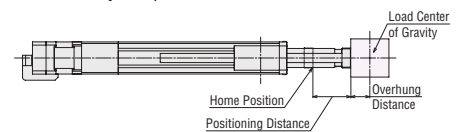


Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-48

EAC6RW: Frame Size 60 mm×156 mm AC Power Supply Input Side-Mounted Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 60 kg/Vertical 28 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment [N·m]	M _r :2.2	M _r :2.2	M _r :1.3
						Static Permissible Moment [N·m]	M _r :7.8	M _r :7.8	M _r :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6RW-D ⑤-AZA ⑧⑨⑩⑪	12	~30	—	~200	400	200	600
EAC6RW-D ⑤-AZM ⑧⑨⑩⑪			~13				
EAC6RW-E ⑤-AZA ⑧⑨⑩⑪	6	~60	—	~360	500	360	300
EAC6RW-E ⑤-AZM ⑧⑨⑩⑪			~28				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for ⑤, ⑧, ⑨, ⑩ and ⑪ in the product names. For details, refer to "◇ Product Number Code" in Page 08-14.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

Note

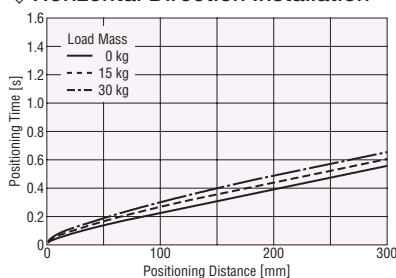
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.

Positioning Distance – Positioning Time

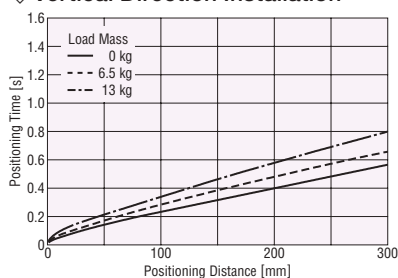
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

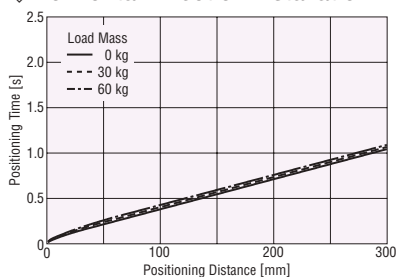


◇ Vertical Direction Installation

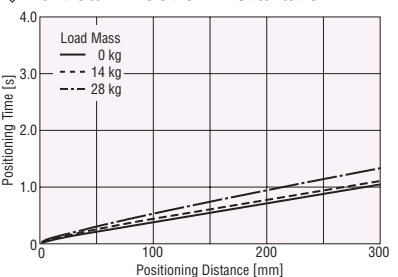


Lead: 6 mm

◇ Horizontal Direction Installation



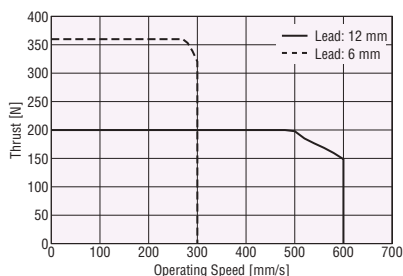
◇ Vertical Direction Installation



Note

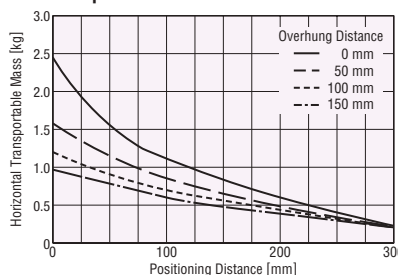
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

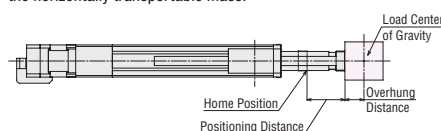


Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



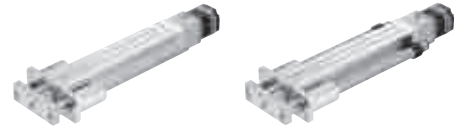
- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-49

EAC6W: Frame Size 60 mm×156 mm 24 VDC Input Standard Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 60 kg/Vertical 28 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment [N·m]	M _r :2.2	M _v :2.2	M _s :1.3
						Static Permissible Moment [N·m]	M _r :7.8	M _v :7.8	M _s :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6W-D-5-AZAK(9-10-11)	12	~30	—	~200	400	200	600
EAC6W-D-5-AZMK(9-10-11)			~13				
EAC6W-E-5-AZAK(9-10-11)	6	~60	—	~400	500	400	300
EAC6W-E-5-AZMK(9-10-11)			~28				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

● Symbols and numbers are substituted for (5), (9), (10) and (11) in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.

● For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

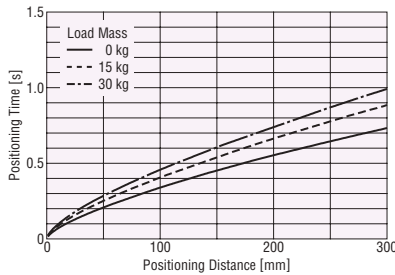
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

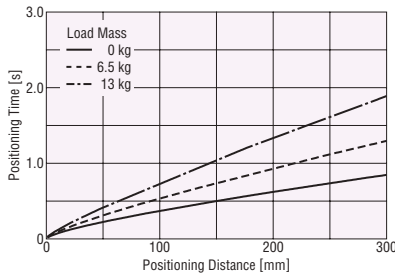
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

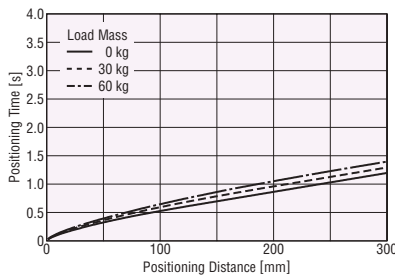


◇ Vertical Direction Installation

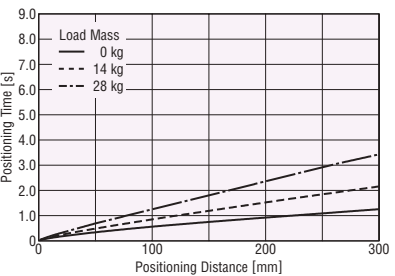


Lead: 6 mm

◇ Horizontal Direction Installation



◇ Vertical Direction Installation

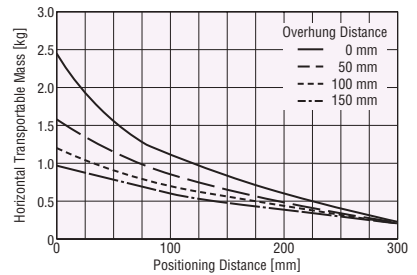


Note

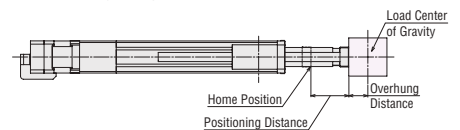
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass

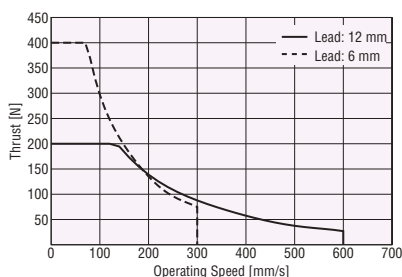


Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Operating Speed – Thrust

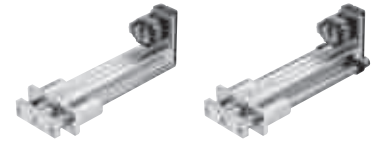


Dimensions

● Motorized Cylinders → Page 08-48

EAC6RW: Frame Size 60 mm×156 mm 24 VDC Input Side-Mounted Type With Shaft Guide (With cover)

Maximum Transportable Mass: Horizontal 60 kg/Vertical 28 kg
Stroke: 50~300 mm (50 mm increments)



Motorized Cylinders

Drive System	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Minimum Traveling Amount [mm]	0.01	Dynamic Permissible Moment [N·m]	M _r :2.2	M _r :2.2	M _r :1.3
						Static Permissible Moment [N·m]	M _r :7.8	M _r :7.8	M _r :3.0

Product Name	Lead [mm]	Transportable Mass [kg]*		Thrust [N]	Pushing Force [N]	Holding Force [N]	Maximum Speed [mm/s]
		Horizontal	Vertical				
EAC6RW-D-5-AZAK-9-10-11	12	~30	—	~200	400	200	600
EAC6RW-D-5-AZMK-9-10-11			~13				
EAC6RW-E-5-AZAK-9-10-11	6	~60	—	~360	500	360	300
EAC6RW-E-5-AZMK-9-10-11			~28				

*The transportable mass is the value when an external linear guide is used. When not using a linear guide, refer to "Horizontal Transportable Mass."

- Symbols and numbers are substituted for ⑤, ⑨, ⑩ and ⑪ in the product names. For details, refer to "◇ Product Number Code" in Page 08-16.
- For reading the specifications table, refer to "How to Read Specifications Table" on Page 08-12.
- For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

Note

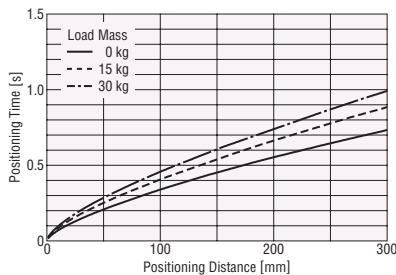
- In the case of upward pushing return-to-home, the home position may vary.
- The push-motion operation speed should be 25 mm/s or less and within the limit of the dynamic permissible moment.
- The maximum speed may decrease depending on the ambient temperature and motor cable length.

Positioning Distance – Positioning Time

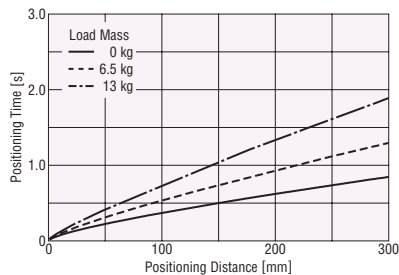
The positioning time (reference) can be checked from the positioning distance.

Lead: 12 mm

◇ Horizontal Direction Installation

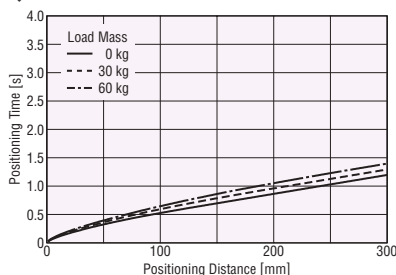


◇ Vertical Direction Installation

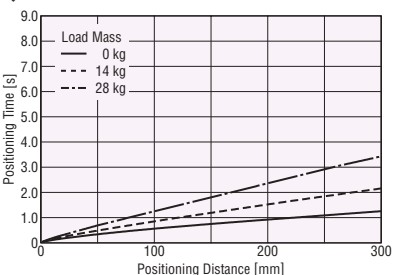


Lead: 6 mm

◇ Horizontal Direction Installation



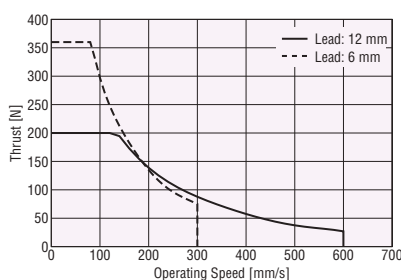
◇ Vertical Direction Installation



Note

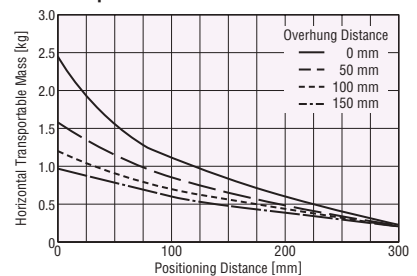
- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s or less as a reference. (Settling time is adjustable by the velocity filter function.)
- The starting speed should be 6 mm/s or less.

Operating Speed – Thrust

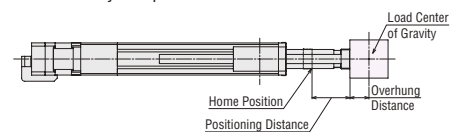


Horizontal Transportable Mass

◇ Positioning Distance – Horizontal Transportable Mass



Products with shaft guide and shaft guide cover can be applied with load, and can transport the load. Refer to the above graph for the horizontally transportable mass.



- The positioning distance is the distance from the home position.
- The overhung distance is the distance taken by the protrusion from the load installation surface.

Dimensions

● Motorized Cylinders → Page 08-49

Power Supply Input Specifications

AC Input Driver

Item			EAC4	EAC6
Power Supply Input	Voltage and Frequency		Single-Phase 100-120 VAC, Single-Phase/Three-Phase 200-240 VAC -15 to +6% 50/60 Hz	
	Input Current A	Single-Phase 100-120 VAC	2.7	3.8
		Single-Phase 200-240 VAC	1.7	2.3
		Three-Phase 200-240 VAC	1	1.4
Voltage		24 VDC ± 5%*		
Control Power Supply	Input Current A	Without Electromagnetic Brake	0.25	0.25
		With Electromagnetic Brake	0.33	0.5

*For the type with an electromagnetic brake, the 24 VDC ± 4% specification applies if the wiring distance between the motor and driver is extended to 20 m using an accessory cable (sold separately).

DC Input Driver

Item			EAC2	EAC4	EAC6
Power Supply Input	Voltage		24 VDC ± 5%*		
	Input Current A	Without Electromagnetic Brake	1.6	1.72	3.55
		24 VDC ± 5%* 48 VDC ± 5%			
		With Electromagnetic Brake	—	1.8	3.8

*For the type with an electromagnetic brake, the 24 VDC ± 4% specification applies if the wiring distance between the motor and driver is extended to 20 m using an accessory cable (sold separately).

Electromagnetic Brake Specifications

Item		EAC4	EAC6
Brake Type		Power Off Activated Type	
Power Supply Voltage		24 VDC ± 5%*	
Power Supply Current	A	0.08	0.25
Brake Operating Time	ms	20	
Brake Releasing Time	ms	30	
Time Rating		Continuous	

*For the type with an electromagnetic brake, 24 VDC ± 4% specification applies if the wiring distance between the motor and driver is extended to 20 m using an accessory cable (sold separately).

General Specifications

Motor Specifications (AZ Series)

AC Input :  DC Input : 

		AC Input	DC Input
Thermal Class		130 (B) [UL Recognized 105 (A)]	
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: <ul style="list-style-type: none"> Case – Motor Windings Case – Electromagnetic Brake Windings*1 	
Dielectric Strength		Sufficient to withstand the following for 1 minute: EAC4, EAC6 <ul style="list-style-type: none"> Case – Motor Windings 1.5 kVAC, 50 Hz or 60 Hz Case – Electromagnetic Brake Windings*1 1.5 kVAC, 50 Hz or 60 Hz 	Sufficient to withstand the following for 1 minute: EAC2 <ul style="list-style-type: none"> Case – Motor Windings 0.5 kVAC, 50 Hz or 60 Hz EAC4, EAC6 <ul style="list-style-type: none"> Case – Motor Windings 1.0 kVAC, 50 Hz or 60 Hz Case – Electromagnetic Brake Windings*1 1.0 kVAC, 50 Hz or 60 Hz
Operating Environment	Ambient Temperature	0 to + 40°C (Non-freezing)*3	
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection*2		EAC2 : IP40 (excluding installation surfaces and connector locations) EAC4, EAC6 : IP66 (excluding installation surfaces and connector locations)	
Multiple Rotation Detection Range in Power OFF State		EAC2 : ± 450 Rotations (900 Rotations) EAC4, EAC6 : ± 900 Rotations (1800 Rotations)	

*1 Only for products with an electromagnetic brake.

*2 Only for motor parts. The degree of protection of the electric cylinder is IP00.

*3 It is based on Oriental Motor's measurement conditions.

Note

● When conducting the insulation resistance measurement or the dielectric strength test, be sure to separate the connection between the motor and the driver. Also, do not perform these tests on the absolute sensor part of the motor.

Driver Specifications

		AC Input		DC Input	
		Built-in Controller Type	Pulse Input Type	Built-in Controller Type	Pulse Input Type
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the following places: • Protective Earth Terminal – Power Supply Terminal • Encoder Connector – Power Supply Terminal • I/O Signal Terminal – Power Supply Terminal		100 MΩ or more when a 500 VDC megger is applied between the following places: • Protective Earth Terminal – Power Supply Terminal	
Dielectric Strength		Sufficient to withstand the following for 1 minute: • Protective Earth Terminal – Power Supply Terminal 1.5 kVAC, 50 Hz or 60 Hz • Encoder Connector – Power Supply Terminal 1.8 kVAC, 50 Hz or 60 Hz • I/O Signal Terminal – Power Supply Terminal 1.8 kVAC, 50 Hz or 60 Hz		—	
Operating Environment		Ambient Temperature		0 to +55°C (Non-freezing)*	
		Ambient Humidity		85% or less (Non-condensing)	
		Atmosphere		No corrosive gases or dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection		IP10	IP20	IP10	
Multiple Rotation Detection Range in Power OFF State		EAC2 : ± 450 Rotations (900 Rotations) EAC4, EAC6 : ± 900 Rotations (1800 Rotations)			

*When a heat sink is installed that is equivalent to an aluminum plate with the dimensions 200 × 200 mm and 2 mm thickness

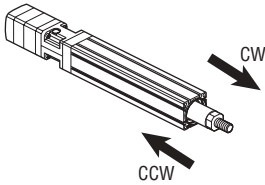
Note

● When conducting the insulation resistance measurement or the dielectric strength test, be sure to separate the connection between the motor and the driver.

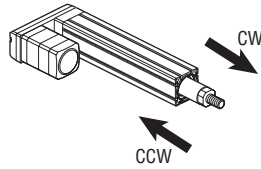
Moving Direction

At the time of shipment, the moving direction of the rod is set as shown below.

Installation of Motor: Standard Type



Installation of Motor: Side-Mounted Type

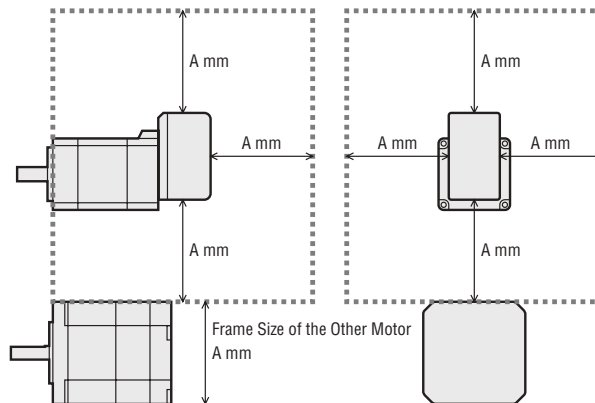


Actuator Installation

When installing the actuator, pay particular attention to the installation location, because the ABZO sensor can easily be affected by magnetic force.

Installation of EAC2

When installing the motor parts in parallel, leave a buffer space that is equal to or greater than the other motor's size (frame size) both horizontally and vertically.



● Leave a buffer space equal to or greater than the other motor's frame size (A mm).

Reference

The Other Motor	A
Frame Size 20 mm	20
Frame Size 28 mm	28
Frame Size 42 mm	42
Frame Size 60 mm	60

When installing an actuator in an environment where a magnetic field is generated

Make sure that the magnetic flux density on the ABZO sensor surface does not exceed the value in the table.

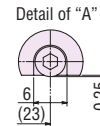
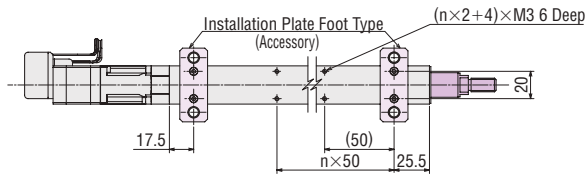
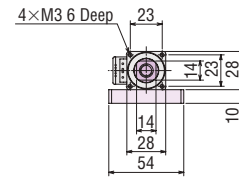
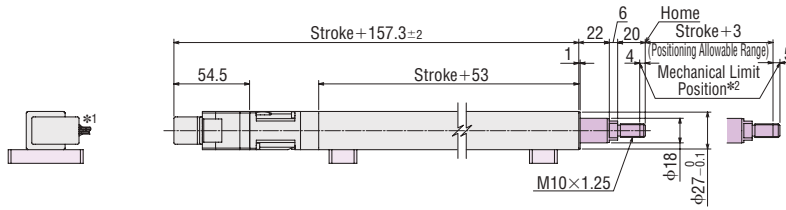
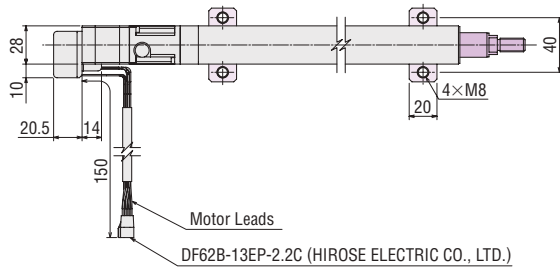
Product Name	Magnetic Flux Density
EAC2	2 mT*
EAC4, EAC6	10 mT

*When the magnetic flux density exceeding 1 mT and below 2 mT, please use the actuator at ambient temperature exceeding 20°C and below 40°C.

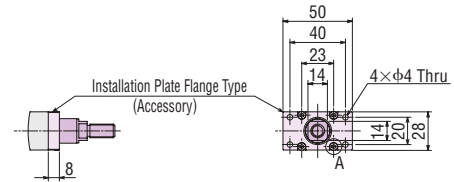
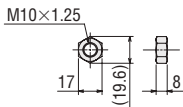
Dimensions (Unit: mm)

Motorized Cylinders

◇ EAC2 Standard Type



● Included Nut (1 piece)



*1 The motor cable outlet direction can be changed in 90° intervals in four directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

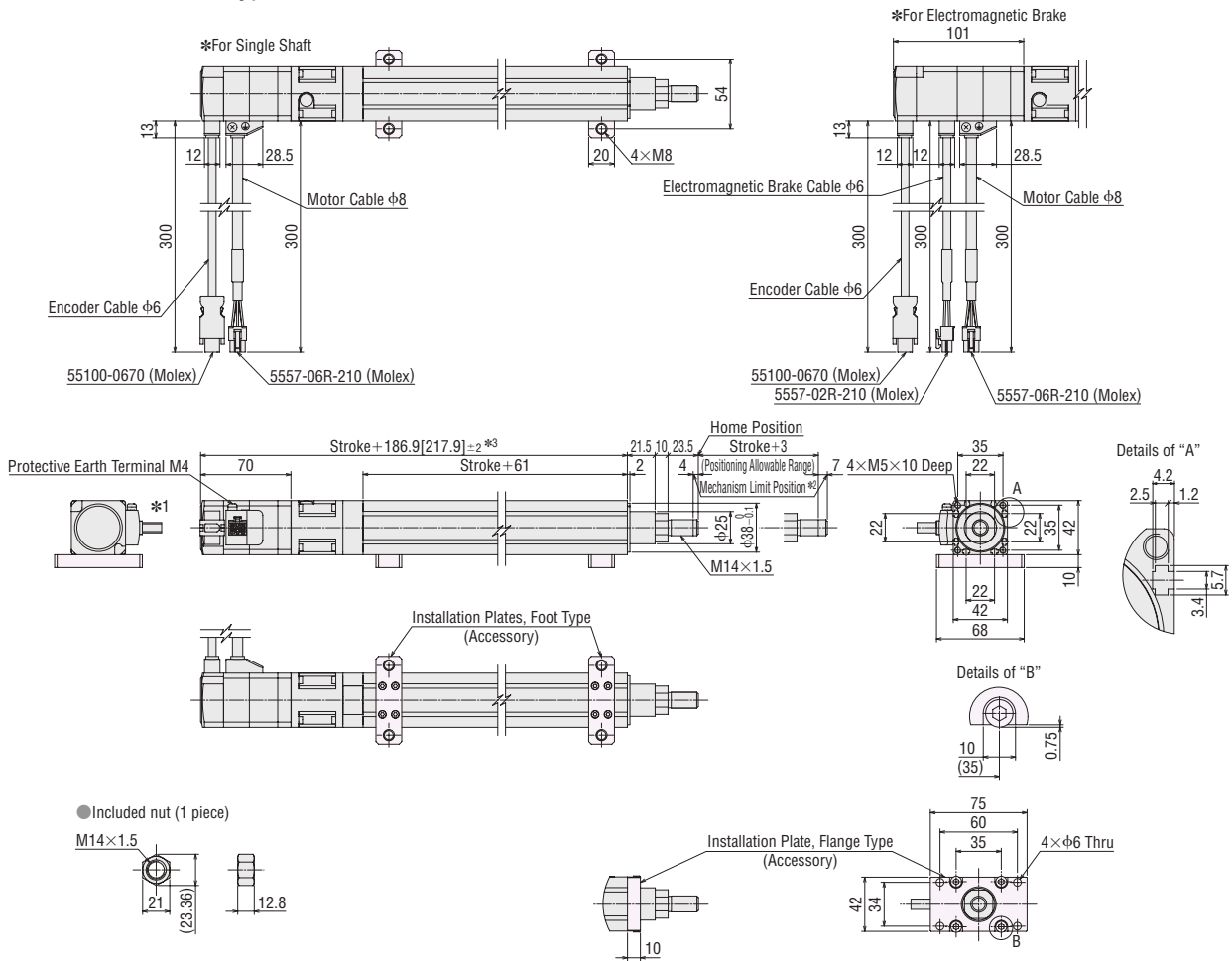
● Shaded areas are moving parts.

● Shaded areas are installation plates (accessories).

Stroke [mm]	50	100	150	
Hole Coefficient (n)	1	2	3	
Mass [kg]	Single Shaft	0.46	0.54	0.61

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

◇ EAC4 Standard Type



*1 The motor cable outlet direction can be changed in 90° intervals in four directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

*3 The brackets [] indicate the value for a product with an electromagnetic brake.

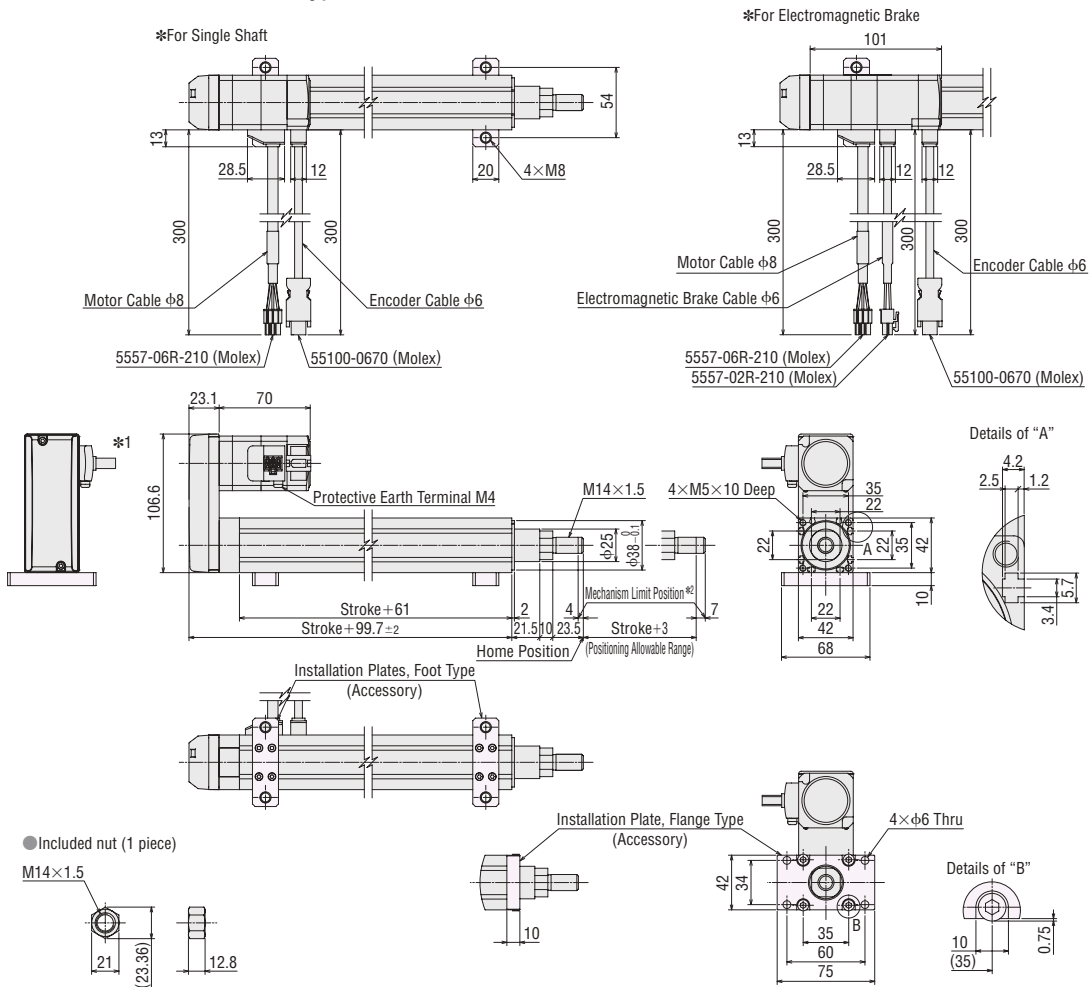
Stroke [mm]		50	100	150	200	250	300
	Single Shaft	1.0	1.2	1.4	1.6	1.7	1.9
Mass [kg]	Electromagnetic Brake Type	1.2	1.4	1.6	1.8	1.9	2.1

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

Click Here

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

◇ **EAC4R Side-Mounted Type**

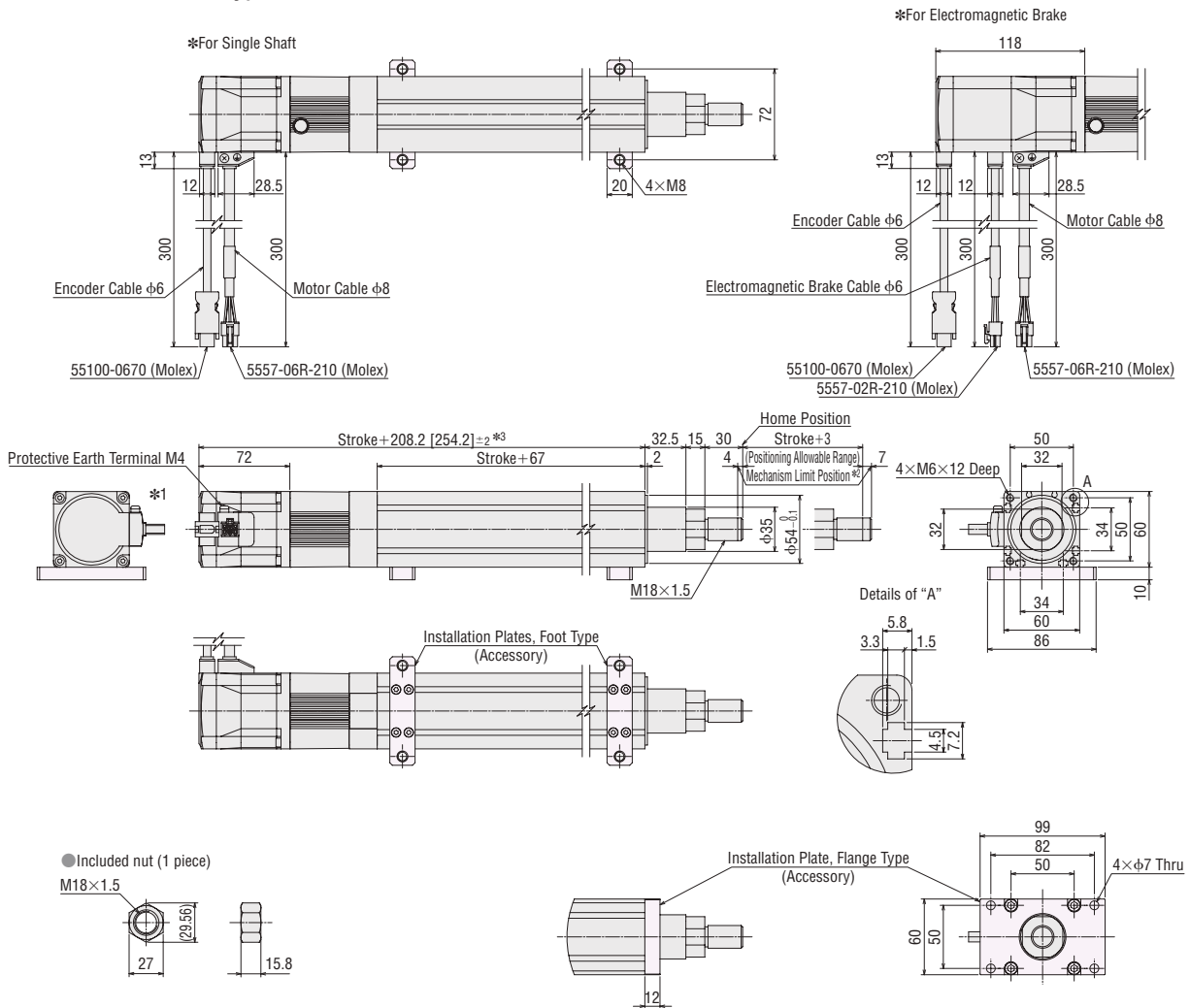


*1 The motor cable outlet direction can be changed in 90° intervals in three directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

Stroke [mm]		50	100	150	200	250	300
	Single Shaft	1.0	1.2	1.4	1.6	1.7	1.9
Mass [kg]	Electromagnetic Brake Type	1.2	1.4	1.6	1.8	1.9	2.1

◇ EAC6 Standard Type



- *1 The motor cable outlet direction can be changed in 90° intervals in four directions.
- *2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.
- *3 The brackets [] indicate the value for a product with an electromagnetic brake.

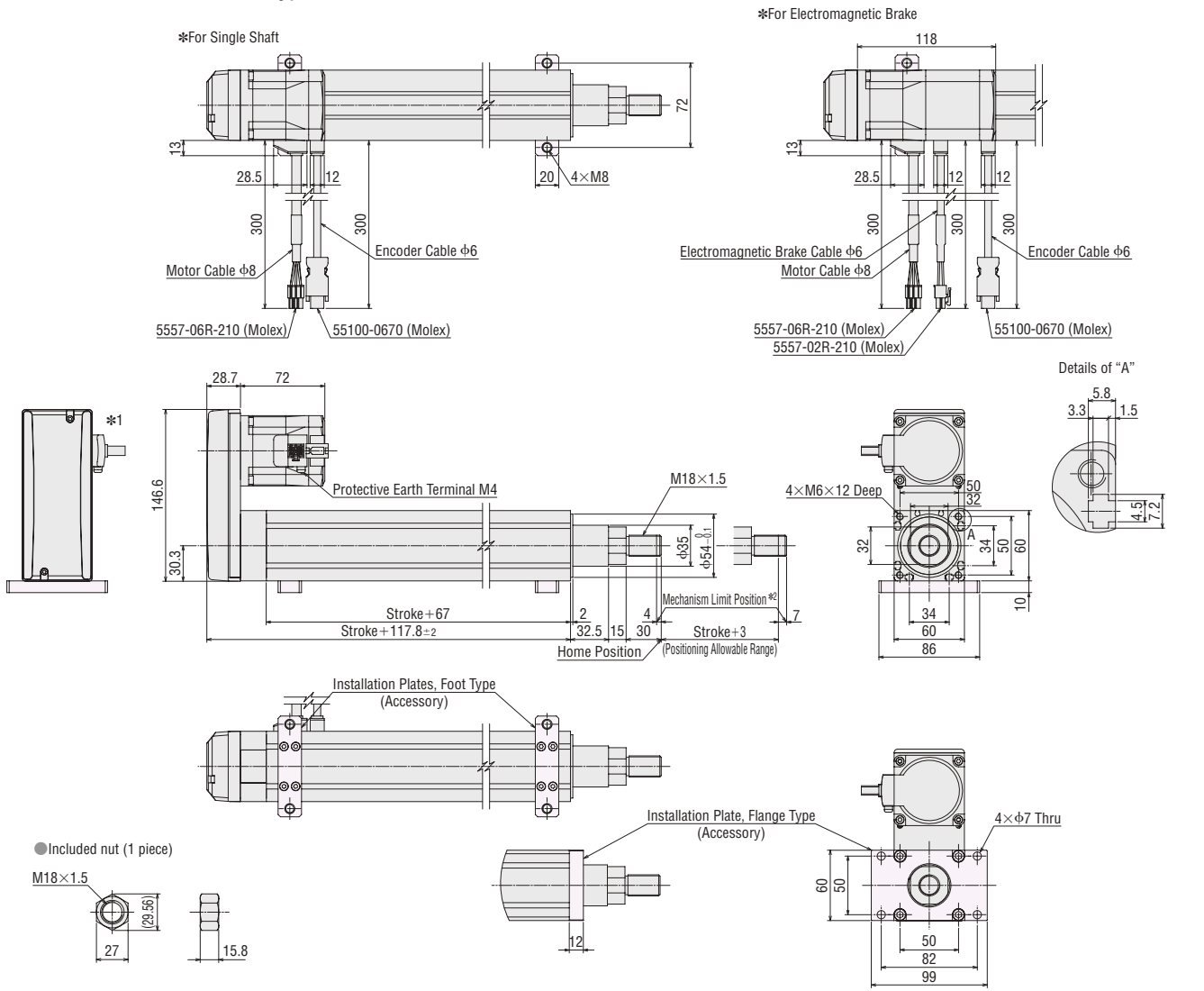
Stroke [mm]		50	100	150	200	250	300
	Single Shaft	2.6	3.0	3.4	3.7	4.1	4.5
Mass [kg]	Electromagnetic Brake Type	3.0	3.4	3.8	4.1	4.5	4.9

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

Click Here

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

◇ **EAC6R** Side-Mounted Type



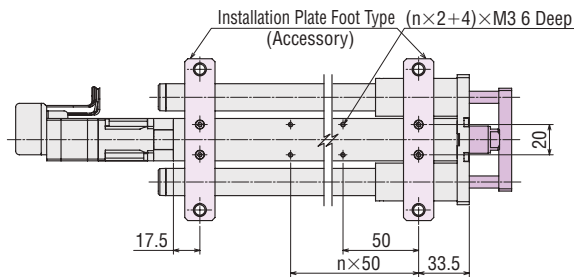
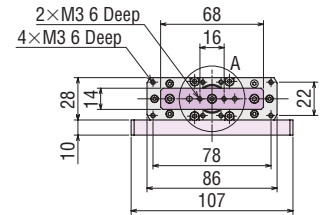
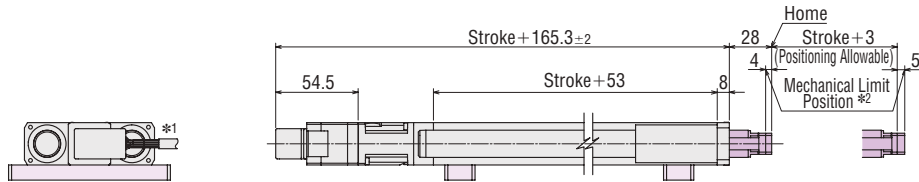
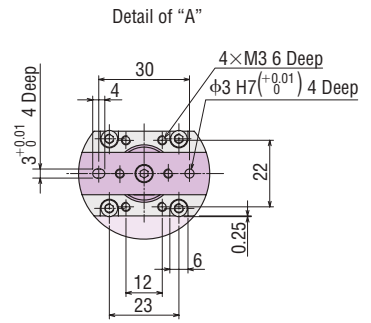
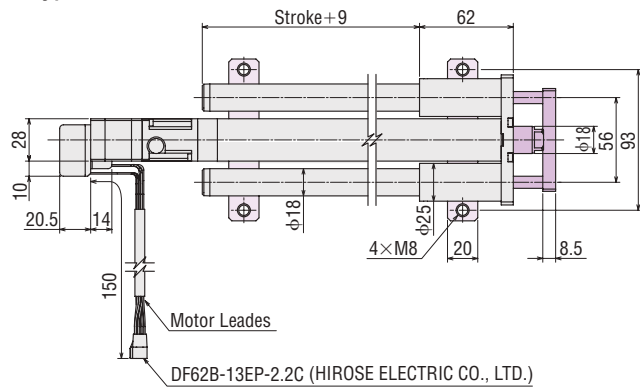
*1 The motor cable outlet direction can be changed in 90° intervals in three directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	Single Shaft	2.6	3.0	3.4	3.7	4.1	4.5
	Electromagnetic Brake Type	3.0	3.4	3.8	4.1	4.5	4.9

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

◇ **EAC2W** Standard Type With Shaft Guide/With Shaft Guide Cover



*1 The motor cable outlet direction can be changed in 90° intervals in four directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

● Shaded areas are moving parts.

● Shaded areas are installation plates (accessories).

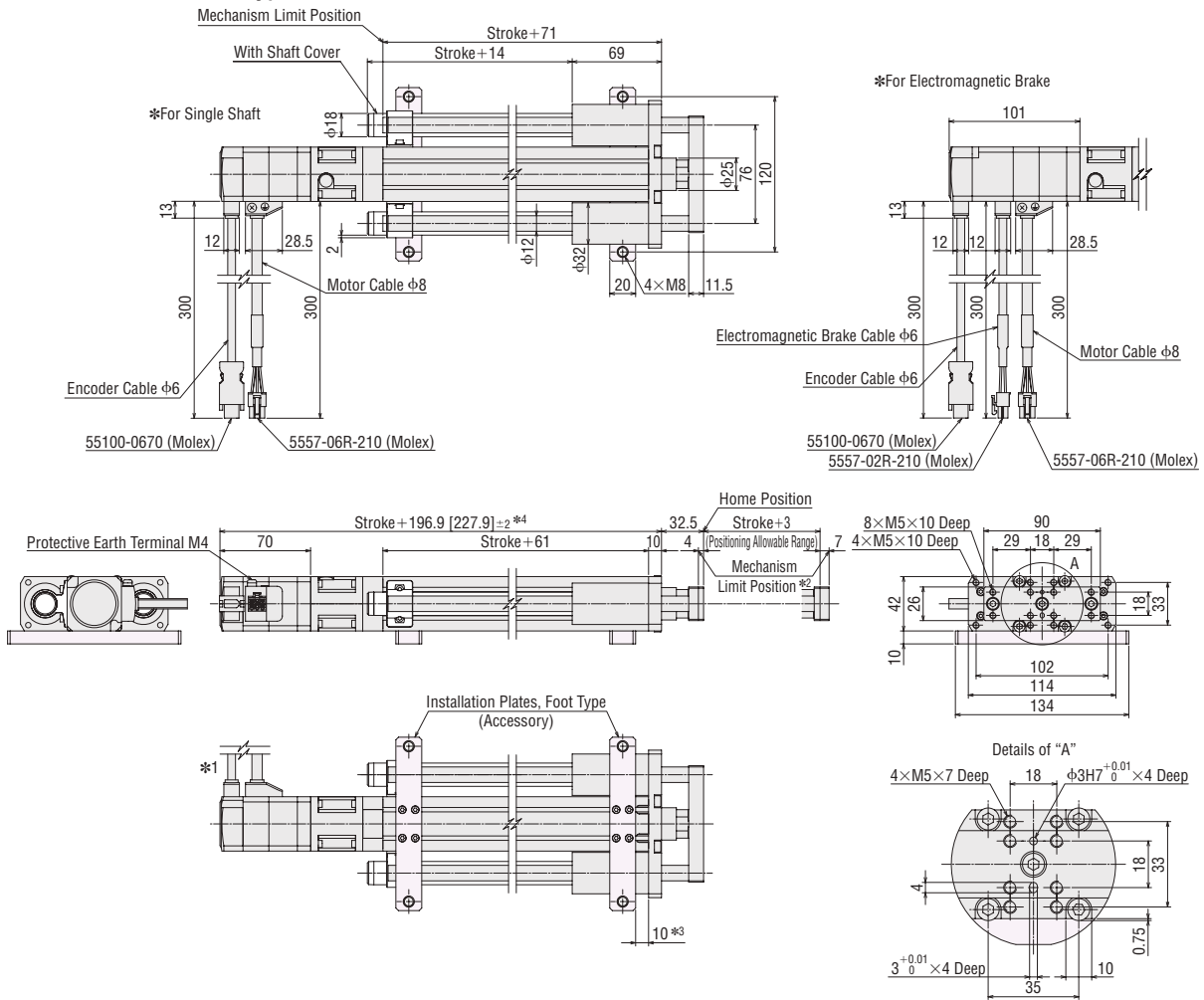
Stroke [mm]	50	100	150	
Hole Coefficient (n)	1	2	3	
Mass [kg]	Single Shaft	0.78	0.92	1.10

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

Click Here

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

◇ **EAC4W Standard Type With Shaft Guide/With Shaft Guide Cover**



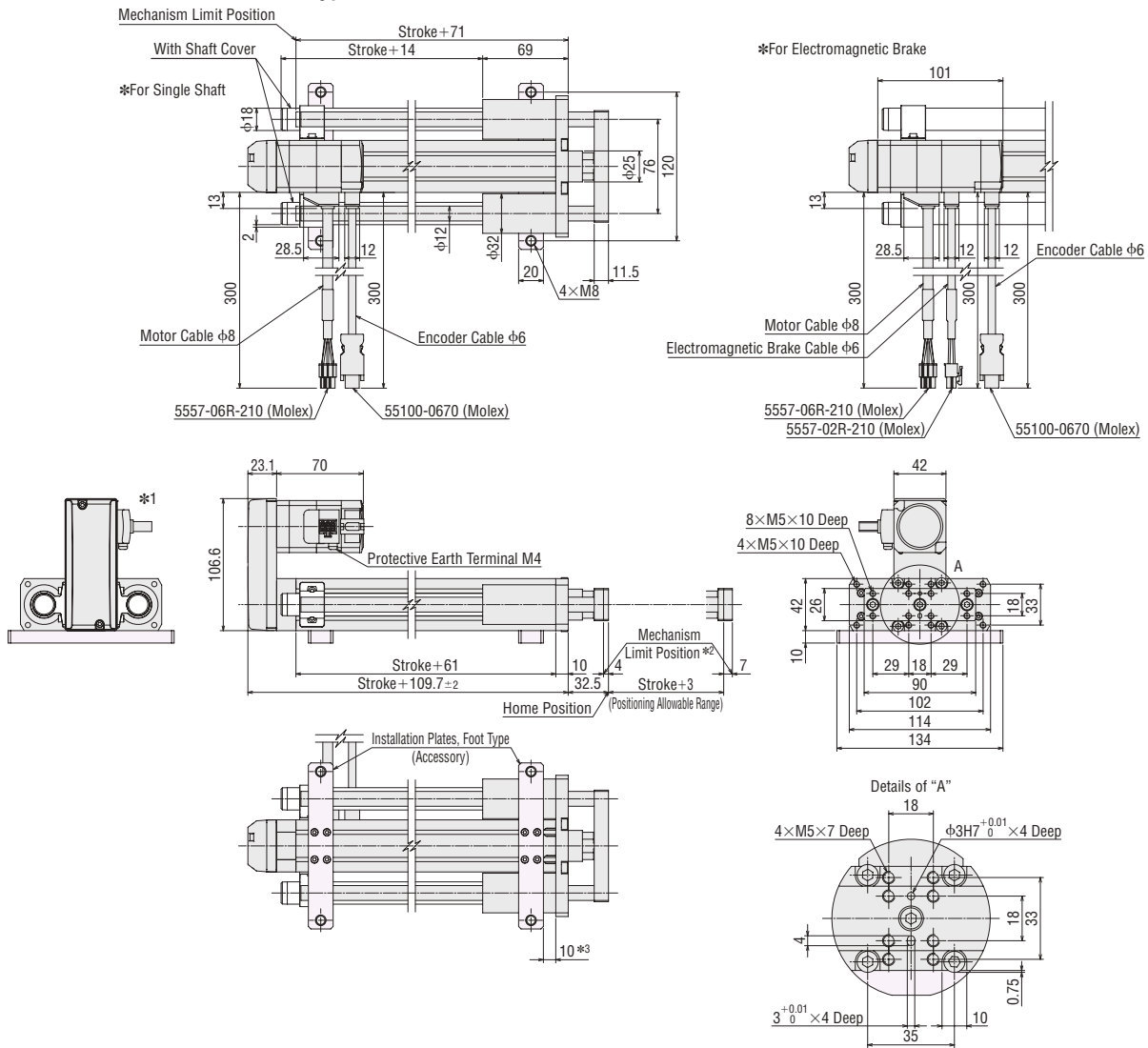
- *1 The motor cable outlet direction can be changed in 90° intervals in four directions.
- *2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.
- *3 The installation plate foot type cannot be installed on this part.
- *4 The brackets [] indicate the value for a product with an electromagnetic brake.

Stroke [mm]	50	100	150	200	250	300	
Mass [kg]	With Shaft Guide	1.7 (1.9)	2.0 (2.2)	2.3 (2.5)	2.5 (2.7)	2.8 (3.0)	3.1 (3.3)
	With Shaft Guide Cover	1.8 (1.9)	2.1 (2.3)	2.4 (2.6)	2.6 (2.8)	3.0 (3.1)	3.3 (3.5)

● The values in the parentheses () for the mass refer to the mass using models with electromagnetic brake.

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

◇ **EAC4RW Side-Mounted Type With Shaft Guide/With Shaft Guide Cover**



*1 The motor cable outlet direction can be changed in 90° intervals in three directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

*3 The installation plate foot type cannot be installed on this part.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	1.7 (1.9)	2.0 (2.2)	2.3 (2.5)	2.5 (2.7)	2.8 (3.0)	3.1 (3.3)
	With Shaft Guide Cover	1.8 (1.9)	2.1 (2.3)	2.4 (2.6)	2.6 (2.8)	3.0 (3.1)	3.3 (3.5)

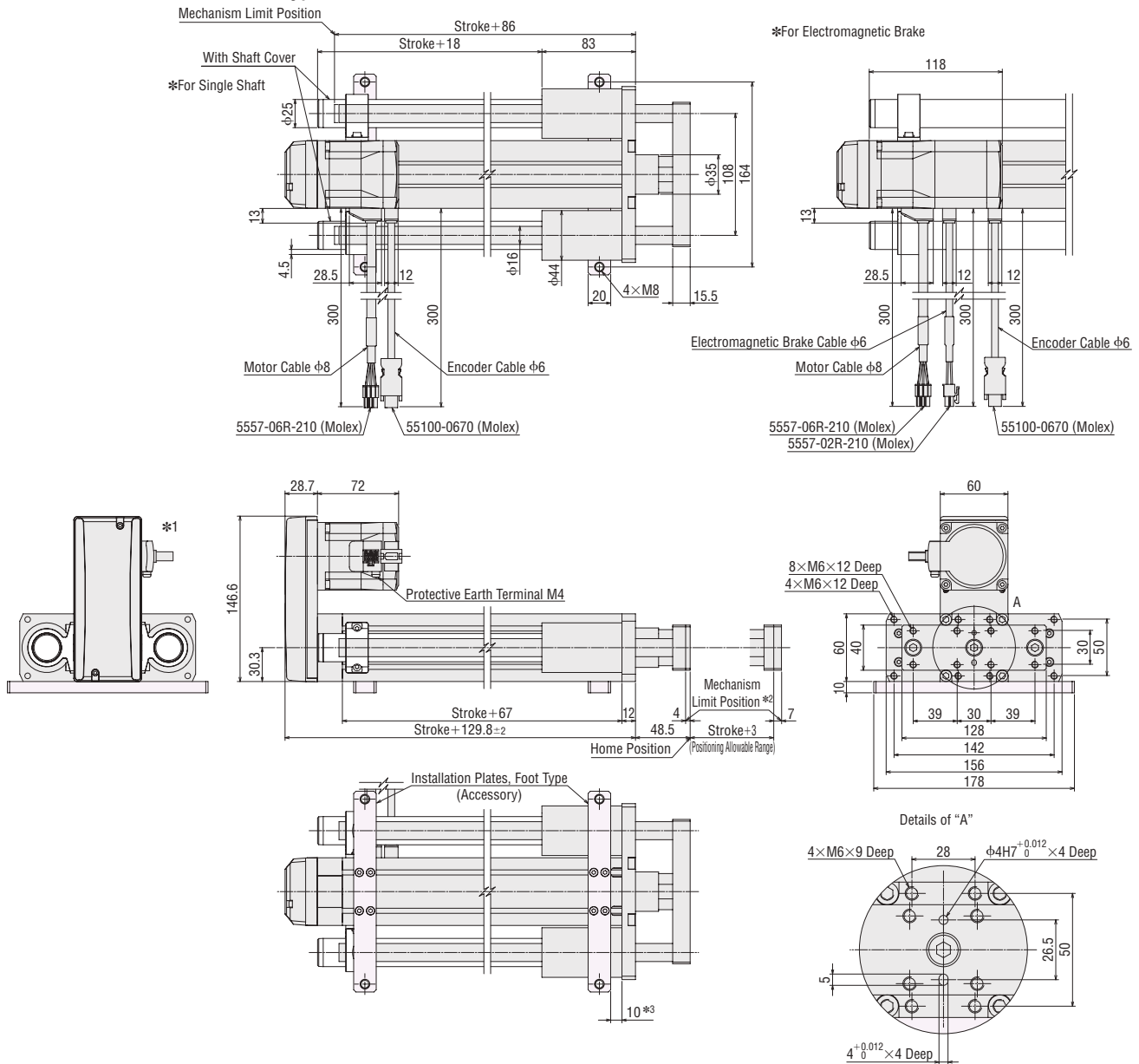
● The values in the parentheses () for the mass refer to the mass using models with electromagnetic brake.

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

Click Here

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

◆ **EAC6RW** Side-Mounted Type With Shaft Guide/With Shaft Guide Cover



*1 The motor cable outlet direction can be changed in 90° intervals in three directions.

*2 During the pushing return-to-home operation, the rod moves to the position limit of the mechanism. The pushing return-to-home operation cannot be performed on the opposite side of the motor.

*3 The installation plate foot type cannot be installed on this part.

Stroke [mm]		50	100	150	200	250	300
Mass [kg]	With Shaft Guide	4.1 (4.5)	4.7 (5.1)	5.2 (5.6)	5.7 (6.1)	6.3 (6.7)	6.8 (7.2)
	With Shaft Guide Cover	4.2 (4.6)	4.9 (5.3)	5.4 (5.8)	6.0 (6.4)	6.6 (7.0)	7.2 (7.6)

● The values in the parentheses () for the mass refer to the mass using models with electromagnetic brake.

● For CAD data, please download from the Oriental Motor website.
<http://www.orientalmotor.com.sg>

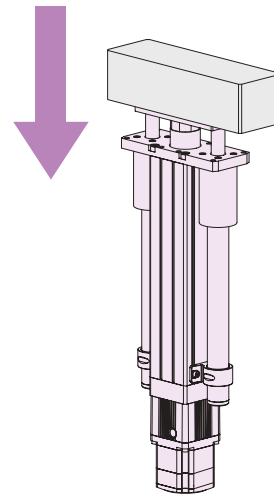
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For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

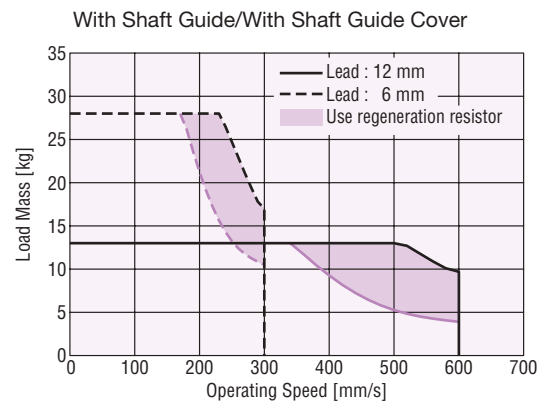
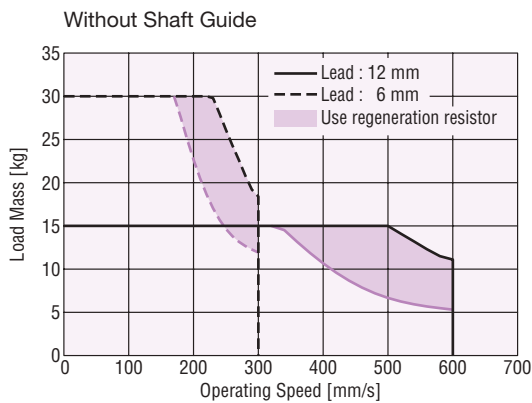
Using EAC6 (AC Input Type) for Vertical Driving

When operating the **EAC6*** type vertically, an alarm of the overvoltage protection may be detected depending on the operating conditions. In such case, refer to the operating speed - load mass characteristics below, and connect the accessory **RGB100** regeneration resistor (sold separately) to the driver.

*For AC Input type products equipped with the **AZ** series, specifications are common to all products of **D** (Lead 12mm)/**E** (Lead 6mm), standard type/side-mounted type.



Example of Use in Vertical Direction



Area in which the regeneration resistor **RGB100** is needed to use for the operation of **EAC6** (AC input type) products

Regeneration Resistor

When a regeneration resistor is attached to the special terminal on the driver, the regenerative power that is fed back from the motor is released as heat energy.



Product Line

Product Name	List Price	Applicable Product
RGB100	SGD56	AZ Series Equipped (AC Input)

Specifications

Item	Specifications
Continuous Regenerative Power	50 W
Resistance Value	150 Ω
Thermostat Operating Temperature	Open: 150±7°C Close: 145±12°C (Normally Closed)
Thermostat Electrical Rating	120 VAC 4 A 30 VDC 4 A (Minimum current 5 mA)

● Install the regeneration resistor in the place which has the same heat radiation capability as heat radiation plate [Material: Aluminum 350 mm × 350 mm, 3 mm thick].

Motorized Cylinder and Driver Combinations

The product names for motorized cylinder and driver combinations are shown below.

The product name enclosed with () in the motorized cylinder product name is the installed motor product name.

When you would like to purchase the installed motor for maintenance, contact the nearest Oriental Motor sales office.

AC Power Supply Input

◇ Built-in Controller Type Single Shaft

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4 (2-E)(5-AZA)(8-D)(10)	EACM4(2E)(5)AZAC (AZM46AC)	AZD-(8)D
EAC4 (2-D)(5-AZA)(8-D)(10)	EACM4(2D)(5)AZAC (AZM46AC)	
EAC4 (2W-E)(5-AZA)(8-D)(10)	EACM4(2WE)(5)AZAC (AZM46AC)	
EAC4 (2W-D)(5-AZA)(8-D)(10)	EACM4(2WD)(5)AZAC (AZM46AC)	
EAC4 (2W-E)(5-AZA)(8-D)(10-G)	EACM4(2WE)(5)AZAC-G (AZM46AC)	
EAC4 (2W-D)(5-AZA)(8-D)(10-G)	EACM4(2WD)(5)AZAC-G (AZM46AC)	
EAC6 (2-E)(5-AZA)(8-D)(10)	EACM6(2E)(5)AZAC (AZM66AC)	
EAC6 (2-D)(5-AZA)(8-D)(10)	EACM6(2D)(5)AZAC (AZM66AC)	
EAC6 (2W-E)(5-AZA)(8-D)(10)	EACM6(2WE)(5)AZAC (AZM66AC)	
EAC6 (2W-D)(5-AZA)(8-D)(10)	EACM6(2WD)(5)AZAC (AZM66AC)	
EAC6 (2W-E)(5-AZA)(8-D)(10-G)	EACM6(2WE)(5)AZAC-G (AZM66AC)	
EAC6 (2W-D)(5-AZA)(8-D)(10-G)	EACM6(2WD)(5)AZAC-G (AZM66AC)	

◇ Built-in Controller Type With Electromagnetic Brake

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4 (2-E)(5-AZM)(8-D)(10)	EACM4(2E)(5)AZMC (AZM46MC)	AZD-(8)D
EAC4 (2-D)(5-AZM)(8-D)(10)	EACM4(2D)(5)AZMC (AZM46MC)	
EAC4 (2W-E)(5-AZM)(8-D)(10)	EACM4(2WE)(5)AZMC (AZM46MC)	
EAC4 (2W-D)(5-AZM)(8-D)(10)	EACM4(2WD)(5)AZMC (AZM46MC)	
EAC4 (2W-E)(5-AZM)(8-D)(10-G)	EACM4(2WE)(5)AZMC-G (AZM46MC)	
EAC4 (2W-D)(5-AZM)(8-D)(10-G)	EACM4(2WD)(5)AZMC-G (AZM46MC)	
EAC6 (2-E)(5-AZM)(8-D)(10)	EACM6(2E)(5)AZMC (AZM66MC)	
EAC6 (2-D)(5-AZM)(8-D)(10)	EACM6(2D)(5)AZMC (AZM66MC)	
EAC6 (2W-E)(5-AZM)(8-D)(10)	EACM6(2WE)(5)AZMC (AZM66MC)	
EAC6 (2W-D)(5-AZM)(8-D)(10)	EACM6(2WD)(5)AZMC (AZM66MC)	
EAC6 (2W-E)(5-AZM)(8-D)(10-G)	EACM6(2WE)(5)AZMC-G (AZM66MC)	
EAC6 (2W-D)(5-AZM)(8-D)(10-G)	EACM6(2WD)(5)AZMC-G (AZM66MC)	

◇ Pulse Input Type Single Shaft

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4 (2-E)(5-AZA)(8-10)	EACM4(2E)(5)AZAC (AZM46AC)	AZD-(8)
EAC4 (2-D)(5-AZA)(8-10)	EACM4(2D)(5)AZAC (AZM46AC)	
EAC4 (2W-E)(5-AZA)(8-10)	EACM4(2WE)(5)AZAC (AZM46AC)	
EAC4 (2W-D)(5-AZA)(8-10)	EACM4(2WD)(5)AZAC (AZM46AC)	
EAC4 (2W-E)(5-AZA)(8-10-G)	EACM4(2WE)(5)AZAC-G (AZM46AC)	
EAC4 (2W-D)(5-AZA)(8-10-G)	EACM4(2WD)(5)AZAC-G (AZM46AC)	
EAC6 (2-E)(5-AZA)(8-10)	EACM6(2E)(5)AZAC (AZM66AC)	
EAC6 (2-D)(5-AZA)(8-10)	EACM6(2D)(5)AZAC (AZM66AC)	
EAC6 (2W-E)(5-AZA)(8-10)	EACM6(2WE)(5)AZAC (AZM66AC)	
EAC6 (2W-D)(5-AZA)(8-10)	EACM6(2WD)(5)AZAC (AZM66AC)	
EAC6 (2W-E)(5-AZA)(8-10-G)	EACM6(2WE)(5)AZAC-G (AZM66AC)	
EAC6 (2W-D)(5-AZA)(8-10-G)	EACM6(2WD)(5)AZAC-G (AZM66AC)	

◇ Pulse Input Type With Electromagnetic Brake

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4 (2-E)(5-AZM)(8-10)	EACM4(2E)(5)AZMC (AZM46MC)	AZD-(8)
EAC4 (2-D)(5-AZM)(8-10)	EACM4(2D)(5)AZMC (AZM46MC)	
EAC4 (2W-E)(5-AZM)(8-10)	EACM4(2WE)(5)AZMC (AZM46MC)	
EAC4 (2W-D)(5-AZM)(8-10)	EACM4(2WD)(5)AZMC (AZM46MC)	
EAC4 (2W-E)(5-AZM)(8-10-G)	EACM4(2WE)(5)AZMC-G (AZM46MC)	
EAC4 (2W-D)(5-AZM)(8-10-G)	EACM4(2WD)(5)AZMC-G (AZM46MC)	
EAC6 (2-E)(5-AZM)(8-10)	EACM6(2E)(5)AZMC (AZM66MC)	
EAC6 (2-D)(5-AZM)(8-10)	EACM6(2D)(5)AZMC (AZM66MC)	
EAC6 (2W-E)(5-AZM)(8-10)	EACM6(2WE)(5)AZMC (AZM66MC)	
EAC6 (2W-D)(5-AZM)(8-10)	EACM6(2WD)(5)AZMC (AZM66MC)	
EAC6 (2W-E)(5-AZM)(8-10-G)	EACM6(2WE)(5)AZMC-G (AZM66MC)	
EAC6 (2W-D)(5-AZM)(8-10-G)	EACM6(2WD)(5)AZMC-G (AZM66MC)	

● DC Power Supply Input

◇ Built-in Controller Type Single Shaft

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC2-E⑤-AZAKD-⑩	EACM2E⑤AZAK (AZM24AK)	AZD-KD
EAC2-F⑤-AZAKD-⑩	EACM2F⑤AZAK (AZM24AK)	
EAC2W-E⑤-AZAKD-⑩-G	EACM2WE⑤AZAK-G (AZM24AK)	
EAC2W-F⑤-AZAKD-⑩-G	EACM2WF⑤AZAK-G (AZM24AK)	
EAC4②-E⑤-AZAKD-⑩	EACM4②E⑤AZAK (AZM46AK)	
EAC4②-D⑤-AZAKD-⑩	EACM4②D⑤AZAK (AZM46AK)	
EAC4②W-E⑤-AZAKD-⑩	EACM4②WE⑤AZAK (AZM46AK)	
EAC4②W-D⑤-AZAKD-⑩	EACM4②WD⑤AZAK (AZM46AK)	
EAC4②W-E⑤-AZAKD-⑩-G	EACM4②WE⑤AZAK-G (AZM46AK)	
EAC4②W-D⑤-AZAKD-⑩-G	EACM4②WD⑤AZAK-G (AZM46AK)	
EAC6②-E⑤-AZAKD-⑩	EACM6②E⑤AZAK (AZM66AK)	
EAC6②-D⑤-AZAKD-⑩	EACM6②D⑤AZAK (AZM66AK)	
EAC6②W-E⑤-AZAKD-⑩	EACM6②WE⑤AZAK (AZM66AK)	
EAC6②W-D⑤-AZAKD-⑩	EACM6②WD⑤AZAK (AZM66AK)	
EAC6②W-E⑤-AZAKD-⑩-G	EACM6②WE⑤AZAK-G (AZM66AK)	
EAC6②W-D⑤-AZAKD-⑩-G	EACM6②WD⑤AZAK-G (AZM66AK)	

◇ Pulse Input Type Single Shaft

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC2-E⑤-AZAK-⑩	EACM2E⑤AZAK (AZM24AK)	AZD-K
EAC2-F⑤-AZAK-⑩	EACM2F⑤AZAK (AZM24AK)	
EAC2W-E⑤-AZAK-⑩-G	EACM2WE⑤AZAK-G (AZM24AK)	
EAC2W-F⑤-AZAK-⑩-G	EACM2WF⑤AZAK-G (AZM24AK)	
EAC4②-E⑤-AZAK-⑩	EACM4②E⑤AZAK (AZM46AK)	
EAC4②-D⑤-AZAK-⑩	EACM4②D⑤AZAK (AZM46AK)	
EAC4②W-E⑤-AZAK-⑩	EACM4②WE⑤AZAK (AZM46AK)	
EAC4②W-D⑤-AZAK-⑩	EACM4②WD⑤AZAK (AZM46AK)	
EAC4②W-E⑤-AZAK-⑩-G	EACM4②WE⑤AZAK-G (AZM46AK)	
EAC4②W-D⑤-AZAK-⑩-G	EACM4②WD⑤AZAK-G (AZM46AK)	
EAC6②-E⑤-AZAK-⑩	EACM6②E⑤AZAK (AZM66AK)	
EAC6②-D⑤-AZAK-⑩	EACM6②D⑤AZAK (AZM66AK)	
EAC6②W-E⑤-AZAK-⑩	EACM6②WE⑤AZAK (AZM66AK)	
EAC6②W-D⑤-AZAK-⑩	EACM6②WD⑤AZAK (AZM66AK)	
EAC6②W-E⑤-AZAK-⑩-G	EACM6②WE⑤AZAK-G (AZM66AK)	
EAC6②W-D⑤-AZAK-⑩-G	EACM6②WD⑤AZAK-G (AZM66AK)	







◇ Built-in Controller Type With Electromagnetic Brake


Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4②-E⑤-AZMKD-⑩	EACM4②E⑤AZMK (AZM46MK)	AZD-KD
EAC4②-D⑤-AZMKD-⑩	EACM4②D⑤AZMK (AZM46MK)	
EAC4②W-E⑤-AZMKD-⑩	EACM4②WE⑤AZMK (AZM46MK)	
EAC4②W-D⑤-AZMKD-⑩	EACM4②WD⑤AZMK (AZM46MK)	
EAC4②W-E⑤-AZMKD-⑩-G	EACM4②WE⑤AZMK-G (AZM46MK)	
EAC4②W-D⑤-AZMKD-⑩-G	EACM4②WD⑤AZMK-G (AZM46MK)	
EAC6②-E⑤-AZMKD-⑩	EACM6②E⑤AZMK (AZM66MK)	
EAC6②-D⑤-AZMKD-⑩	EACM6②D⑤AZMK (AZM66MK)	
EAC6②W-E⑤-AZMKD-⑩	EACM6②WE⑤AZMK (AZM66MK)	
EAC6②W-D⑤-AZMKD-⑩	EACM6②WD⑤AZMK (AZM66MK)	
EAC6②W-E⑤-AZMKD-⑩-G	EACM6②WE⑤AZMK-G (AZM66MK)	
EAC6②W-D⑤-AZMKD-⑩-G	EACM6②WD⑤AZMK-G (AZM66MK)	

◇ Pulse Input Type With Electromagnetic Brake

Product Name	Motorized Cylinder Product Name (Installed motor product name)	Driver Product Name
EAC4②-E⑤-AZMK-⑩	EACM4②E⑤AZMK (AZM46MK)	AZD-K
EAC4②-D⑤-AZMK-⑩	EACM4②D⑤AZMK (AZM46MK)	
EAC4②W-E⑤-AZMK-⑩	EACM4②WE⑤AZMK (AZM46MK)	
EAC4②W-D⑤-AZMK-⑩	EACM4②WD⑤AZMK (AZM46MK)	
EAC4②W-E⑤-AZMK-⑩-G	EACM4②WE⑤AZMK-G (AZM46MK)	
EAC4②W-D⑤-AZMK-⑩-G	EACM4②WD⑤AZMK-G (AZM46MK)	
EAC6②-E⑤-AZMK-⑩	EACM6②E⑤AZMK (AZM66MK)	
EAC6②-D⑤-AZMK-⑩	EACM6②D⑤AZMK (AZM66MK)	
EAC6②W-E⑤-AZMK-⑩	EACM6②WE⑤AZMK (AZM66MK)	
EAC6②W-D⑤-AZMK-⑩	EACM6②WD⑤AZMK (AZM66MK)	
EAC6②W-E⑤-AZMK-⑩-G	EACM6②WE⑤AZMK-G (AZM66MK)	
EAC6②W-D⑤-AZMK-⑩-G	EACM6②WD⑤AZMK-G (AZM66MK)	

Drivers and cables that are used with actuators are common to the **AZ** Series.

For details, see the catalogs of  Driver Specifications,  RS-485 Communication Specifications,  Dimensions (Drivers, Connection Cables),  Cautions for Using Connection Cables,  Connection and Operation,  Accessories (Extension Cables).



● The following symbols and number are substituted for ②, ⑤, ⑧ and ⑩ in the product names.
 ②: L (Left Side-Mounted) or R (Right Side-Mounted) indicating the motor installation direction is substituted. For the standard type, no symbol is substituted for this.
 ⑤: A number indicating the stroke length is substituted.
 ⑧: A (Single-Phase 100-120 VAC) or C (Single-Phase/Three-Phase 200-240 VAC) indicating the type of power supply voltage is substituted.
 ⑩: A number indicating the length of desired connection cable, if included. 1 (1 m), 2 (2 m) or 3 (3 m) is substituted. If no connection cable is included, the product name does not have ⑩.

Accessories (Sold Separately)

Connection Cable Sets, Flexible Connection Cable Sets Extension Cable Sets, Flexible Extension Cable Sets

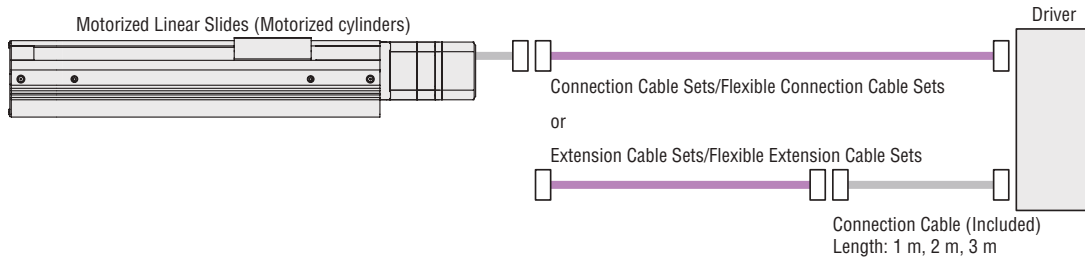
The **EAC** Series are available with a cable (1 m, 2 m or 3 m) for connecting the motor to the driver, and also without a cable.

If the distance between the motor and driver is extended to 3 m or longer, a connection cable set or extension cable set must be used.

The maximum length of the cable extension is 20 m (using included cable).

Connection cable sets and extension cable sets come as a set of cables for motor, encoder, and electromagnetic brake (electromagnetic brake type only).

Use a flexible connection cable set or flexible extension cable set if the cable will be bent repeatedly.



Note

● The motor cable and electromagnetic brake cable from the motor cannot be directly connected to a driver. To connect to a driver, use an accessory connection cable (sold separately) or the connection cable included in the product (if included).

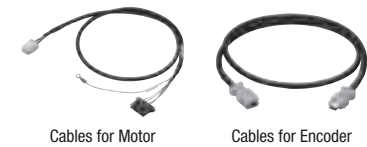
AC Power Supply Input

Connection Cable Sets, Flexible Connection Cable Sets

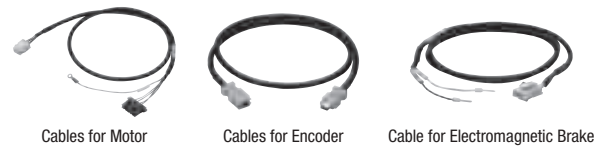
Product Line

● Connection Cable Sets

◇ For Standard Motor



◇ For Electromagnetic Brake Type Motor



Type	Product Name	Length L (m)	List Price
Connection Cable Sets	CC005VZF	0.5	SGD38
	CC010VZF	1	SGD38
	CC015VZF	1.5	SGD44
	CC020VZF	2	SGD50
	CC025VZF	2.5	SGD56
	CC030VZF	3	SGD63
	CC040VZF	4	SGD98
	CC050VZF	5	SGD110
	CC070VZF	7	SGD136
	CC100VZF	10	SGD176
Flexible Connection Cable Sets	CC150VZF	15	SGD244
	CC200VZF	20	SGD310
	CC005VZR	0.5	SGD84
	CC010VZR	1	SGD84
	CC015VZR	1.5	SGD92
	CC020VZR	2	SGD99
	CC025VZR	2.5	SGD106
	CC030VZR	3	SGD111
	CC040VZR	4	SGD126
	CC050VZR	5	SGD141
Flexible Connection Cable Sets	CC070VZR	7	SGD180
	CC100VZR	10	SGD236
	CC150VZR	15	SGD333
	CC200VZR	20	SGD426

Type	Product Name	Length L (m)	List Price
Connection Cable Sets	CC005VZFB	0.5	SGD53
	CC010VZFB	1	SGD53
	CC015VZFB	1.5	SGD60
	CC020VZFB	2	SGD68
	CC025VZFB	2.5	SGD75
	CC030VZFB	3	SGD83
	CC040VZFB	4	SGD121
	CC050VZFB	5	SGD135
	CC070VZFB	7	SGD166
	CC100VZFB	10	SGD214
Flexible Connection Cable Sets	CC150VZFB	15	SGD294
	CC200VZFB	20	SGD373
	CC005VZRB	0.5	SGD114
	CC010VZRB	1	SGD114
	CC015VZRB	1.5	SGD124
	CC020VZRB	2	SGD134
	CC025VZRB	2.5	SGD143
	CC030VZRB	3	SGD151
	CC040VZRB	4	SGD171
	CC050VZRB	5	SGD191
Flexible Connection Cable Sets	CC070VZRB	7	SGD240
	CC100VZRB	10	SGD311
	CC150VZRB	15	SGD433
	CC200VZRB	20	SGD551

Extension Cable Sets, Flexible Extension Cable Sets

Product Line

Extension Cable Sets

For Standard Motor



Cables for Motor

Cables for Encoder

Type	Product Name	Length L (m)	List Price
Extension Cable Sets	CC010VZFT	1	SGD71
	CC020VZFT	2	SGD81
	CC030VZFT	3	SGD91
	CC050VZFT	5	SGD110
	CC070VZFT	7	SGD136
	CC100VZFT	10	SGD176
	CC150VZFT	15	SGD244
Flexible Extension Cable Sets	CC010VZRT	1	SGD84
	CC020VZRT	2	SGD99
	CC030VZRT	3	SGD111
	CC050VZRT	5	SGD141
	CC070VZRT	7	SGD180
	CC100VZRT	10	SGD236
	CC150VZRT	15	SGD333

For Electromagnetic Brake Type Motor



Cables for Motor

Cables for Encoder

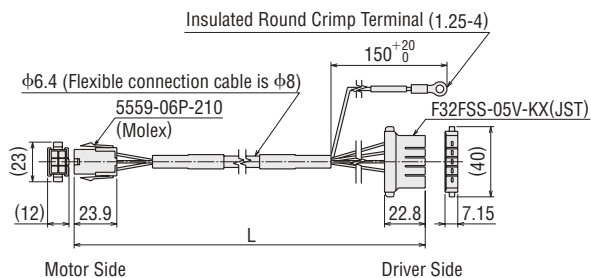
Cable for Electromagnetic Brake

Type	Product Name	Length L (m)	List Price
Extension Cable Sets	CC010VZFBT	1	SGD86
	CC020VZFBT	2	SGD98
	CC030VZFBT	3	SGD111
	CC050VZFBT	5	SGD135
	CC070VZFBT	7	SGD166
	CC100VZFBT	10	SGD214
	CC150VZFBT	15	SGD294
Flexible Extension Cable Sets	CC010VZRBT	1	SGD114
	CC020VZRBT	2	SGD134
	CC030VZRBT	3	SGD151
	CC050VZRBT	5	SGD191
	CC070VZRBT	7	SGD240
	CC100VZRBT	10	SGD311
	CC150VZRBT	15	SGD433

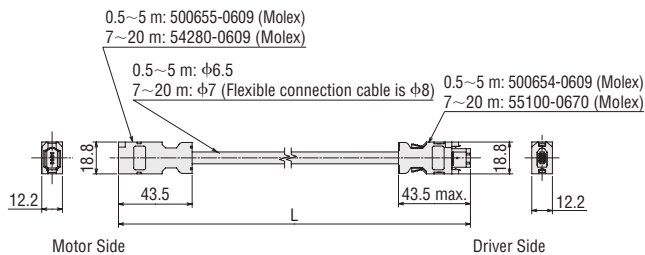
Dimensions (Unit: mm)

Connection Cable Set, Flexible Connection Cable Set

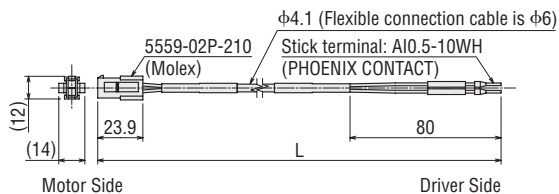
Cables for Motor



Cables for Encoder

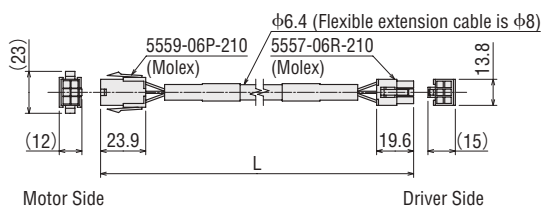


Cable for Electromagnetic Brake

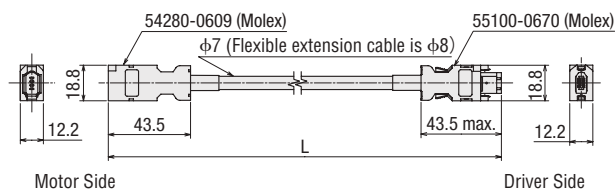


Extension Cable Set, Flexible Extension Cable Set

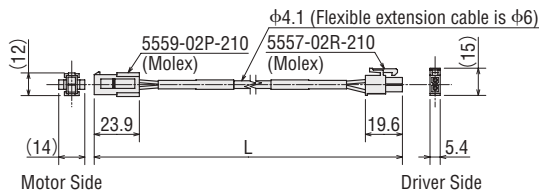
Cables for Motor



Cables for Encoder



Cable for Electromagnetic Brake



Connection Cable Sets, Flexible Connection Cable Sets

Product Line

[For **EAC2**]

- Connection Cable Sets
- ◇ For Standard Motor



Type	Product Name	Length L (m)	List Price
Connection Cable Sets	CC005VZ2F2	0.5	SGD38
	CC010VZ2F2	1	SGD38
	CC015VZ2F2	1.5	SGD44
	CC020VZ2F2	2	SGD50
	CC025VZ2F2	2.5	SGD56
	CC030VZ2F2	3	SGD63
	CC040VZ2F2	4	SGD98
	CC050VZ2F2	5	SGD110
	CC070VZ2F2	7	SGD136
	CC100VZ2F2	10	SGD176
Flexible Connection Cable Sets	CC150VZ2F2	15	SGD244
	CC200VZ2F2	20	SGD310
	CC005VZ2R2	0.5	SGD84
	CC010VZ2R2	1	SGD84
	CC015VZ2R2	1.5	SGD92
	CC020VZ2R2	2	SGD99
	CC025VZ2R2	2.5	SGD106
	CC030VZ2R2	3	SGD111
	CC040VZ2R2	4	SGD126
	CC050VZ2R2	5	SGD141
Flexible Connection Cable Sets	CC070VZ2R2	7	SGD180
	CC100VZ2R2	10	SGD236
	CC150VZ2R2	15	SGD333
	CC200VZ2R2	20	SGD426

[For **EAC4, EAC6**]

- Connection Cable Sets
- ◇ For Standard Motor



Cables for Motor

Cables for Encoder

Type	Product Name	Length L (m)	List Price
Connection Cable Sets	CC005VZF2	0.5	SGD38
	CC010VZF2	1	SGD38
	CC015VZF2	1.5	SGD44
	CC020VZF2	2	SGD50
	CC025VZF2	2.5	SGD56
	CC030VZF2	3	SGD63
	CC040VZF2	4	SGD98
	CC050VZF2	5	SGD110
	CC070VZF2	7	SGD136
	CC100VZF2	10	SGD176
Flexible Connection Cable Sets	CC150VZF2	15	SGD244
	CC200VZF2	20	SGD310
	CC005VZR2	0.5	SGD84
	CC010VZR2	1	SGD84
	CC015VZR2	1.5	SGD92
	CC020VZR2	2	SGD99
	CC025VZR2	2.5	SGD106
	CC030VZR2	3	SGD111
	CC040VZR2	4	SGD126
	CC050VZR2	5	SGD141
Flexible Connection Cable Sets	CC070VZR2	7	SGD180
	CC100VZR2	10	SGD236
	CC150VZR2	15	SGD333
	CC200VZR2	20	SGD426

- ◇ For Electromagnetic Brake Type Motor



Cables for Motor

Cables for Encoder

Cable for Electromagnetic Brake

Type	Product Name	Length L (m)	List Price
Connection Cable Sets	CC005VZFB2	0.5	SGD53
	CC010VZFB2	1	SGD53
	CC015VZFB2	1.5	SGD60
	CC020VZFB2	2	SGD68
	CC025VZFB2	2.5	SGD75
	CC030VZFB2	3	SGD83
	CC040VZFB2	4	SGD121
	CC050VZFB2	5	SGD135
	CC070VZFB2	7	SGD166
	CC100VZFB2	10	SGD214
Flexible Connection Cable Sets	CC150VZFB2	15	SGD294
	CC200VZFB2	20	SGD373
	CC005VZRB2	0.5	SGD114
	CC010VZRB2	1	SGD114
	CC015VZRB2	1.5	SGD124
	CC020VZRB2	2	SGD134
	CC025VZRB2	2.5	SGD143
	CC030VZRB2	3	SGD151
	CC040VZRB2	4	SGD171
	CC050VZRB2	5	SGD191
Flexible Connection Cable Sets	CC070VZRB2	7	SGD240
	CC100VZRB2	10	SGD311
	CC150VZRB2	15	SGD433
	CC200VZRB2	20	SGD551

Extension Cable Sets, Flexible Extension Cable Sets

Product Line

[For **EAC2**]

- Extension Cable Sets
- ◇ For Standard Motor



Type	Product Name	Length L (m)	List Price
Extension Cable Sets	CC010VZ2FT	1	SGD71
	CC020VZ2FT	2	SGD81
	CC030VZ2FT	3	SGD91
	CC050VZ2FT	5	SGD110
	CC070VZ2FT	7	SGD136
	CC100VZ2FT	10	SGD176
	CC150VZ2FT	15	SGD244
Flexible Extension Cable Sets	CC010VZ2RT	1	SGD84
	CC020VZ2RT	2	SGD99
	CC030VZ2RT	3	SGD111
	CC050VZ2RT	5	SGD141
	CC070VZ2RT	7	SGD180
	CC100VZ2RT	10	SGD236
	CC150VZ2RT	15	SGD333

[For **EAC4, EAC6**]

- Extension Cable Sets
- ◇ For Standard Motor



Cables for Motor

Cables for Encoder

Type	Product Name	Length L (m)	List Price
Extension Cable Sets	CC010VZFT	1	SGD71
	CC020VZFT	2	SGD81
	CC030VZFT	3	SGD91
	CC050VZFT	5	SGD110
	CC070VZFT	7	SGD136
	CC100VZFT	10	SGD176
	CC150VZFT	15	SGD244
Flexible Extension Cable Sets	CC010VZRT	1	SGD84
	CC020VZRT	2	SGD99
	CC030VZRT	3	SGD111
	CC050VZRT	5	SGD141
	CC070VZRT	7	SGD180
	CC100VZRT	10	SGD236
	CC150VZRT	15	SGD333

- ◇ For Electromagnetic Brake Type Motor



Cables for Motor

Cables for Encoder

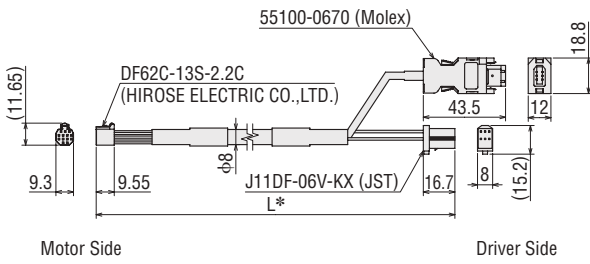
Cable for Electromagnetic Brake

Type	Product Name	Length L (m)	List Price
Extension Cable Sets	CC010VZFBT	1	SGD86
	CC020VZFBT	2	SGD98
	CC030VZFBT	3	SGD111
	CC050VZFBT	5	SGD135
	CC070VZFBT	7	SGD166
	CC100VZFBT	10	SGD214
	CC150VZFBT	15	SGD294
Flexible Extension Cable Sets	CC010VZRBT	1	SGD114
	CC020VZRBT	2	SGD134
	CC030VZRBT	3	SGD151
	CC050VZRBT	5	SGD191
	CC070VZRBT	7	SGD240
	CC100VZRBT	10	SGD311
	CC150VZRBT	15	SGD433

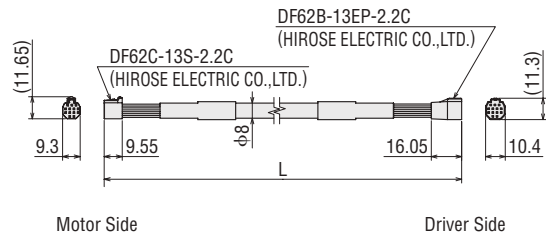
Dimensions (Unit: mm)

[For **EAC2**]

● Connection Cable Set, Flexible Connection Cable Set



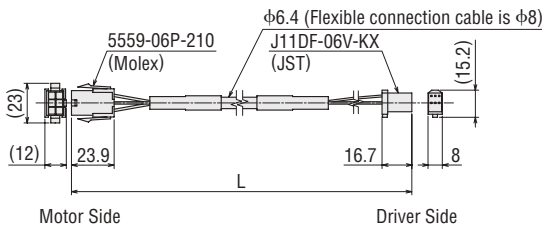
● Extension Cable Set, Flexible Extension Cable Set



[For **EAC4, EAC6**]

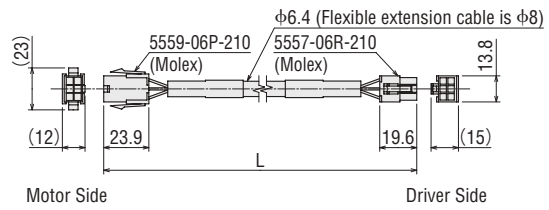
● Connection Cable Set, Flexible Connection Cable Set

◇ Cables for Motor

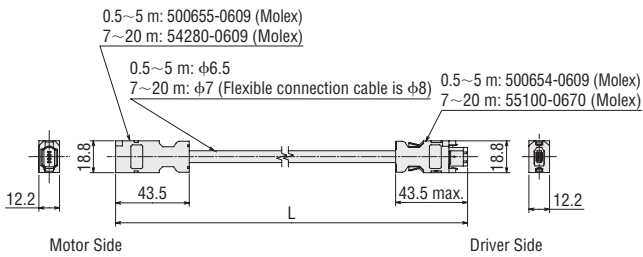


● Extension Cable Set, Flexible Extension Cable Set

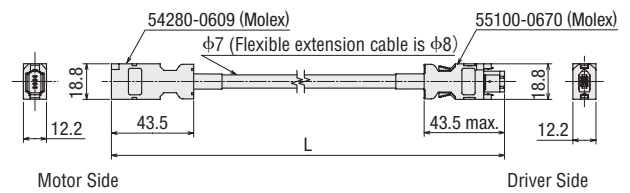
◇ Cables for Motor



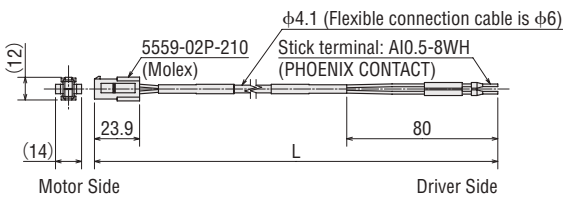
◇ Cables for Encoder



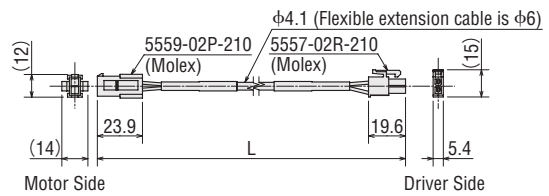
◇ Cables for Encoder



◇ Cable for Electromagnetic Brake



◇ Cable for Electromagnetic Brake

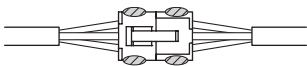


Notes on Use of Cables

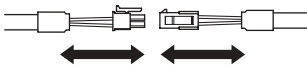
Notes on Connecting

Make sure to hold the connector when inserting/disconnecting the connector.

Pulling the cable may result in a bad connection.



Position to hold connector



When Inserting the Connector

Be sure to hold the connector and firmly insert it straight into the socket.

Inserting the connector at an angle may damage the terminal or result in a bad connection.

When Disconnecting the Connector

While releasing the lock of the connector, pull it out straight.

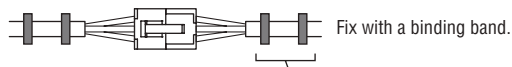
Pulling the cable (lead wire) may damage the connector.

Notes on Connecting the Flexible Cables

Do not bend the cable with the connector part. Stress may be applied to connectors and terminals, which may cause poor contact or disconnection.

Method for Fixing the Cable

Fix in two places so that the cable does not move.



Fix with a binding band.

A wide clamp is acceptable.

Wiring Length and Bending Radius of Cables

Wire it with an appropriate length so that it will not be pulled even if the cable moves.

The bending radius (R) should be at least 6 times the cable diameter.



Cable Interference

When wiring in the cable holder, make sure that the cables do not interfere with each other. Stress may be applied to the cable, which may cause an early disconnection.

Please use after checking the cautions on the cable holder.

Twist of Cable

Wire so that the cable does not twist. Flexing the cable in a twisted state will cause an early disconnection.

After wiring, please check that there is no twist on the cable as a guideline, such as printing on the surface of the cable.

Support Software MEXE02

In addition to operating data and various parameter settings with a computer, you can perform teaching and monitor I/O and operating speed waveform with Support Software.

Support Software can be downloaded from the Oriental Motor website.

Oriental Motor can also provide a CD-ROM.

Visit our website, or contact the nearest Oriental Motor sales office.

Computer and Driver Connection

Use a USB cable of the following specifications.

Specifications	USB2.0 (Full speed)
Cable	Length: 3 m or less Shape: A-mini-B

System Requirements

Operating System (OS)

The 32 bit (x86) edition and 64 bit (x64) edition are supported.

- Microsoft Windows XP Service Pack 3*
- Microsoft Windows Vista Service Pack 2
- Microsoft Windows 7 Service Pack 1
- Microsoft Windows 8
- Microsoft Windows 8.1

*For the 64-bit (x64) version, Service Pack 2 is used.

Computer

Recommended CPU*1	Intel Core processor 2 GHz or faster (OS must be supported)
Display	Video adapter and monitor with a minimum resolution of XGA (1024 × 768)
Recommended Memory*1	32 bit (x86) edition: 1 GB or more 64 bit (x64) edition: 2 GB or more
Hard Disk*2	Free disk space of at least 60 MB
USB Port	USB2.0 1 port
Disk Device	CD-ROM drive (for installation)

*1 The system requirements for the OS must be met.

*2 For **MEXE02**, Microsoft .NET Framework 4 Client Profile is required. If not installed, it will be installed automatically. For 64 bit (x64) or 32 bit (x86) editions OS, an additional 1.5 GB or 600 MB of free space, respectively, may be required.

- Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.
- Intel and Core are registered trademarks or trademarks of Intel Corporation in the United States and other countries.
- For the latest information of operating environment, refer to the Oriental Motor website.

Note

• Depending on your system environment, the required memory and hard disk may vary.

General-Purpose Cables for I/O Signals

General-purpose multi-core cables provide convenient connection between a driver and programmable controller.



RS-485 Communication Cables

This cable is used to link drivers in multi-axis operations with the built-in controller type. It also connects the network converter to the driver.



Product Line

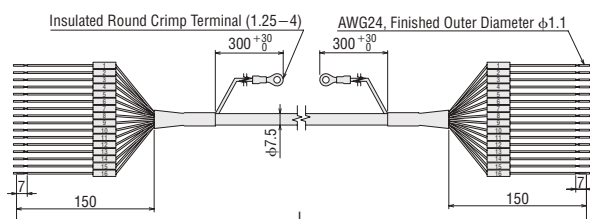
Product Name	Length L (m)	List Price
CC16D005B-1	0.5	SGD22
CC16D010B-1	1.0	SGD25
CC16D015B-1	1.5	SGD28
CC16D020B-1	2.0	SGD31

• The number of conductors of the products above is 16. Products with 6, 10, or 12 conductors are also provided.

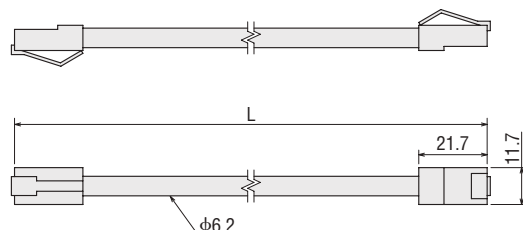
Product Line

Product Name	Applicable Drivers	Length L (m)	List Price
CC001-R54	DC Power Supply Input Driver	0.1	SGD25
CC002-R54	AC Power Supply Input Driver DC Power Supply Input Driver	0.25	SGD29

Dimensions (Unit: mm)



Dimensions (Unit: mm)



Installation Plates

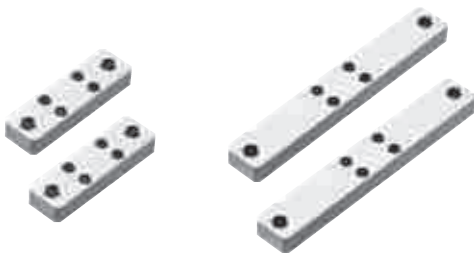
Dedicated installation plates are available for the **EAC** Series.

Foot Type

This is convenient for installing the motorized cylinder to the wall surface or floor surface of the equipment.

Product Name	List Price	Applicable Product
PAP2EAC	SGD25	EAC2
PAP2EACW	SGD25	EAC2W
PAP4EAC	SGD25	EAC4, EAC4R
PAP6EAC	SGD25	EAC6, EAC6R
PAP4EACW	SGD25	EAC4W, EAC4RW
PAP6EACW	SGD25	EAC6W, EAC6RW

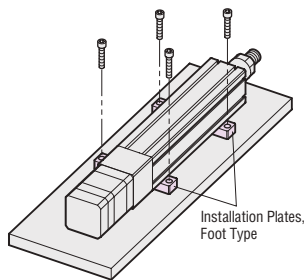
- The product names of the applicable products are described with alphanumeric characters by which the configuration can be identified.



PAP4EAC

PAP4EACW

● Installation Example Using the Foot Type

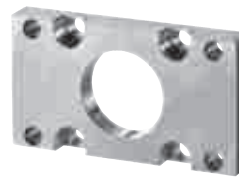


Flange Type

This is convenient for installing the flange surface of the motorized cylinder to the equipment.

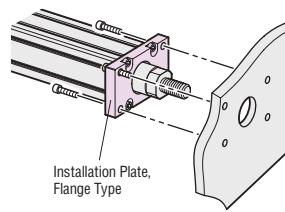
Product Name	List Price	Applicable Product
PAF2EAC	SGD25	EAC2
PAF4EAC	SGD25	EAC4, EAC4R
PAF6EAC	SGD25	EAC6, EAC6R

- The product names of the applicable products are described with alphanumeric characters by which the configuration can be identified.
- The flange type installation plate cannot be installed to models with a shaft guide and models with a shaft guide cover.



PAF4EAC

● Installation Example Using the Flange Type



Regeneration Resistor

The regeneration resistor is connected to the driver to release the regenerative power returned from the motor as thermal energy.

Product Line

Product Name	List Price	Applicable Product
RGB100	SGD56	EAC Series (AC Power Supply Input)

Specifications

Item	Description
Continuous Regenerative Power	50 W
Resistance Value	150 Ω
Thermostat Operating Temperature	Open: 150 ± 7°C Close: 145 ± 12°C (Normally closed)
Thermostat Electrical Rating	120 VAC 4 A 30 VDC 4 A (Minimum current 5 mA)

*Install the regeneration resistor in the location that has the same heat radiation capability as the heat sink (Material: aluminum, 350×350 mm, 3 mm thick).



Network Converters

The network converter converts host communication protocol to Oriental Motor's original RS-485 communication protocol. You can use a network converter to control Oriental Motor's RS-485-compatible products within the host communication environment.

Product Line

Network Type	Product Name	List Price
CC-Link Ver.1.1 Compatible	NETC01-CC	SGD275
CC-Link Ver.2 Compatible	NETC02-CC	SGD330
MECHATROLINK- II Compatible	NETC01-M2	SGD485
MECHATROLINK- III Compatible	NETC01-M3	SGD543
Compatible with EtherCAT	NETC01-ECT	SGD543



NETC01-CC



NETC01-M2



NETC01-M3



NETC01-ECT

LINEAR AND ROTARY ACTUATORS

Compact Linear Actuators

DRS2 Series

AZ Series Battery-Free Absolute Sensor Equipped

Battery-Free Absolute Sensor Equipped.
Delivers Advanced High Precision Positioning More Compactly.



Delivers Advanced Highly-Accurate Positioning More Compactly.

Integration of the stepping motor and the ball screw enables linear motion. Delivers high precision positioning in a compact body and space/wire-saving.

The **DRS2** Series is equipped with the hybrid control system **αSTEP** Series. The linear motion mechanism delivers motion unique to the **AZ** Series equipped with the hybrid control system **αSTEP** and the battery-free absolute sensor.

Best for Inching Feed and High Precision Positioning

Integral Structure of the Stepping Motor and the Ball Screw

The hollow rotor and the ball screw nut are integrated. Less connected parts reduces backlash caused by parts combination including coupling rigidity and delivers high precision positioning.

Two Types of Driving Screws available – Ground and Rolled Ball Screws

[Minimum traveling amount]

0.001 mm

[Repetitive positioning accuracy]

Ground ball screw: **±0.003** mm Rolled ball screw: **±0.01** mm

Delivers Large Transportable Mass and High Speed

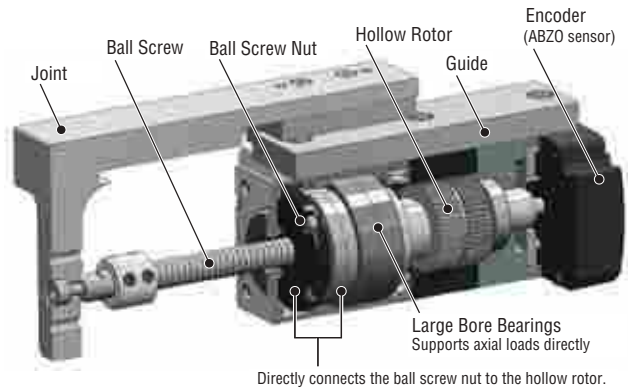
Guided type

[Transportable mass]

- Horizontal direction: **10** kg (2 mm lead), **5** kg (8 mm lead)
- Vertical direction: **10** kg (2 mm lead), **5** kg (8 mm lead)

[Maximum speed]

50 mm/sec (2 mm lead), **200** mm/sec (8 mm lead)



What is the ABZO Sensor?

It is a battery-free, mechanical driven, multi-rotation absolute sensor. It delivers benefits such as not only providing a compact, low-cost absolute system but also contributing to space-/wire-saving of equipment by not needing a home sensor.

Reduced Startup Time

Linear Motion Mechanism Equipped in a Compact Body

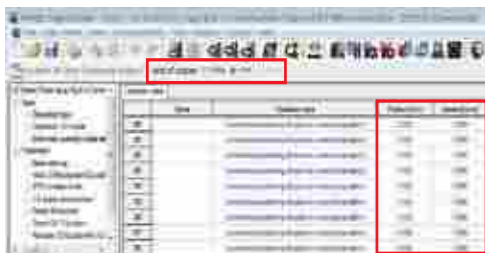
- Removing custom parts reduces time to design equipment and select parts.
- Reducing time for assembling and adjustments for installation accuracy increases production efficiency.

Parameters Set for Operation

[Minimum traveling amount]
Built-in controller type : 0.001 mm
Pulse input type : 0.001 mm

Specifiable by mm

You can specify the traveling amount in millimeters.

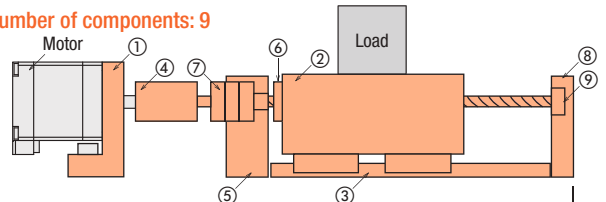


Comparison of Number of Components

Examples of configurations for load travel with the same stroke

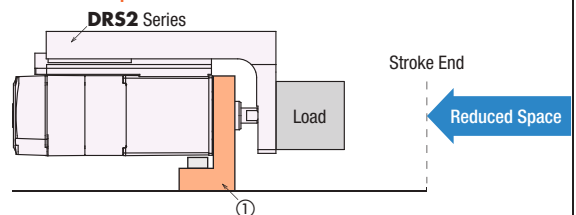
◇ Custom

Number of components: **9**



◇ DRS2 Series with a Guide

Number of components: **1**

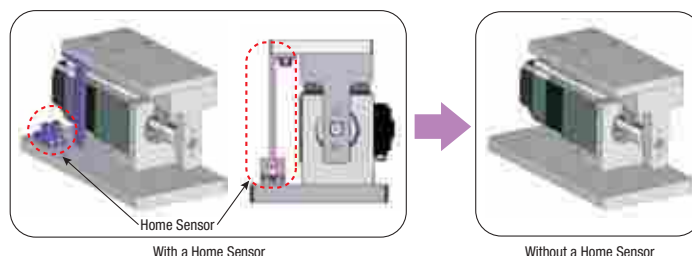


[Parts used] ① Mounting plate ② Transportation table ③ Linear guide ④ Coupling
⑤ Fixed side block ⑥ Ball screw ⑦ Fixed side bearing
⑧ Supported side block ⑨ Supported side bearing

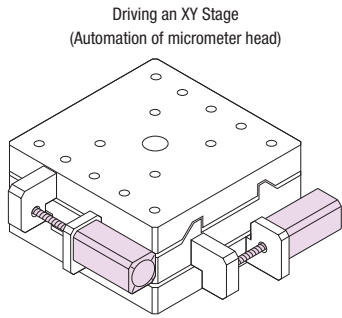
Space/Wire-Saving Achieved with the ABZO Sensor

The compact body allows downsized lightweight equipment. The equipment will also not require a home sensor with the equipped ABZO sensor. It contributes to saving further space and reducing wiring of the equipment, and avoids regular maintenance and issues that arise when using a home sensor.

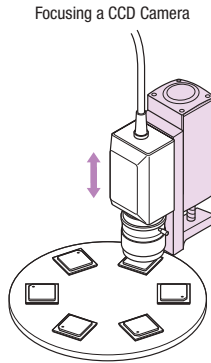
Application Example



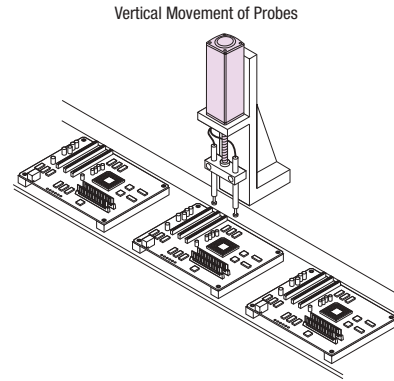
Typical Applications



Driving an XY Stage
(Automation of micrometer head)



Focusing a CCD Camera



Vertical Movement of Probes

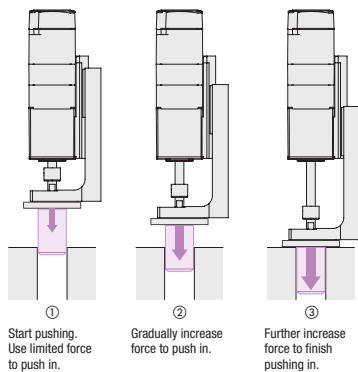
Enhanced Pushing Features

You can easily change the Push Force and Time.

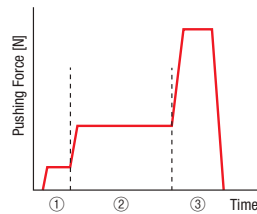
The **DRS2** Series simply switches to pushing after completing positioning. In addition, you can easily change the push force and time.

MERIT

- You can set the push force and time for each operation data No., allowing you to select data No. to change them easily.
- You can set a slow push-in stage for accurate positioning using a reduced force and a quick push-in stage using increased force.



<Push Force and Push Time>



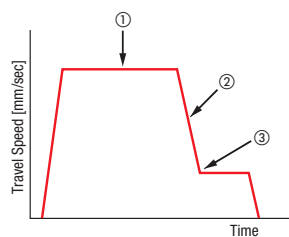
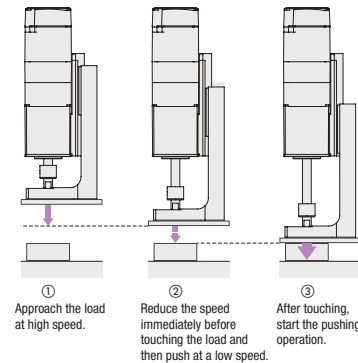
- Start pushing. Use limited force to push in.
- Gradually increase force to push in.
- Further increase force to finish pushing in.

Low Speed Pushing Possible

You can set to approach the load at high speed and then reduce the speed immediately before touching it and push at a low speed.

MERIT

- Since almost no impact occurs when pushing, no cushioning mechanism is required to absorb the impact.
- High-speed approach immediately before pushing reduces the tact time of the equipment.



- Approach the load at high speed.
- Reduce the speed immediately before touching the load and then push at a low speed.
- After touching, start the pushing operation.

Pushing also Possible with Pulse Input Type

Setting the T-MODE input allows pushing even with pulse input type without overload alarms. This is very useful for pulse train controls that requires pushing.



Drivers and cables that are used with actuators are common to the **AZ** Series.

For details, see the catalogs of the **AZ** Series or our website.

- Driver Specifications
- RS-485 Communication Specifications
- Dimensions (Drivers, Connection Cables)
- Cautions for Using Connection Cables
- Connection and Operation
- Accessories (Extension Cables)



Equipped with the ABZO Sensor.

The absolute system is achieved with battery-free.

Uses Newly Developed ABZO Sensor

Oriental Motor has developed a compact, low-cost, battery-free mechanical driven type absolute sensor <ABZO sensor> (Patented), improving productivity and reducing costs.

● Mechanical Driven Sensor

A mechanical driven sensor consisting of multiple gears recognizes the angle of each gear to detect positional information.

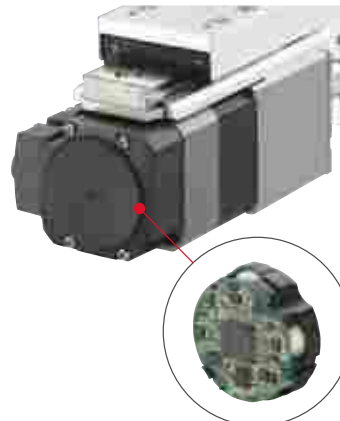
● Multi-rotation Absolute Sensor

From the reference point of the origin, absolute position for ± 900 rotations (for 1800 rotations) of the motor shaft can be detected.

● How to Set a Home Position

A home position can be easily set by pressing the switch on the driver, and the ABZO sensor saves it.

You can also use the support software (**MEXE02**) or external input signals to set a home position.



Battery-free Absolute Sensor (Equipped with ABZO sensor)

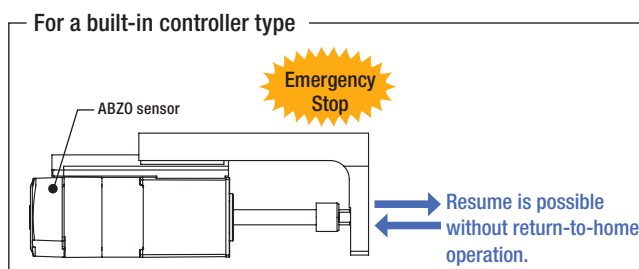
Battery-free

With a mechanical sensor, no battery is required.

The positional information is mechanically managed by the ABZO sensor.

● Keeping Positional Information

Positional information is kept even if power is shut down during positioning operation or the cable between the motor and the driver is removed. When a built-in controller type recovers from an emergency stop of the production line or from a power failure, it can resume positioning operation without returning to the home position.



● Less Maintenance Work

Do not require of battery replacement, able to reduce the maintenance work and costs.

● Desired Installation of the Driver

There is no need of space for battery replacement, thus the driver can be installed in any location, and more flexible in layout design for the control panel or other devices.

● Overseas Transportation Trouble-free

Care must be taken regarding battery discharge when transported over a long period of time for international or long-distance shipment. The ABZO sensor does not require a battery, and there is no time limit for retaining the positioning information. In addition, there is no need to consider the regulations applied to battery export.

No External Sensor Required

This series can configure the absolute system, which does not require external sensors such as a home sensor and a limit sensor.

● High-speed Return-To-Home

The return to home without using an external sensor is possible, enabling the return-to-home position at a high speed regardless of the sensor sensitivity. This leads to reduction in the machine cycle time.

● Cost Reduction

The sensor cost and the wiring cost can be reduced, lowering the total cost of the system.

● Wire-saving

Wire saving allows the equipment to be designed more flexibly.

● The Equipment is not affected by a malfunction of an External Sensor

There is no need to worry about the malfunction of the sensor, the failure of the sensor, or sensor wire disconnection.

● Accuracy Improvement in Return-To-Home

Returning to the home position is possible regardless of variation in the sensing of the home sensor, improving the accuracy of the home position.

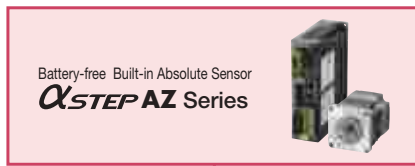
● If there is no limit sensor attached, you can use the software limit of the driver to prevent the threshold from being exceeding.

Product Variation with Unified Control Method

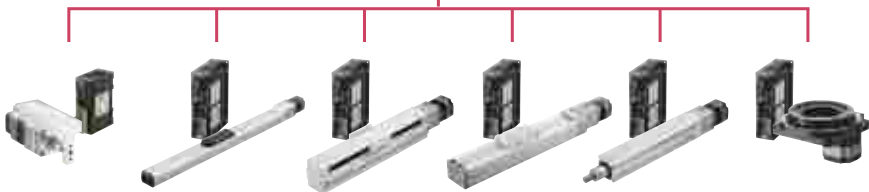
Mechanical products equipped with the α STEP AZ Series are available. With the same motor and the driver equipped in each of them, common wirings, controls, and maintenance parts can be used, reducing startup time and effort.

Advantages of Common Unit Use

- Integration of Wiring**
 The same pin assignment is used for I/O, saving effort for electrical design and wiring.
- Integration of Controls**
 With the same control method, units can be operated in the same manner. Additionally, remote I/Os and command codes are the same for network controls, reducing effort for program coding.
- Integration of Maintenance Parts**
 Using common motors, drivers, cables, and other parts reduces maintenance parts to the minimum. This leads to reduction in management cost (parts cost, management space).



α STEP AZ Series Equipped



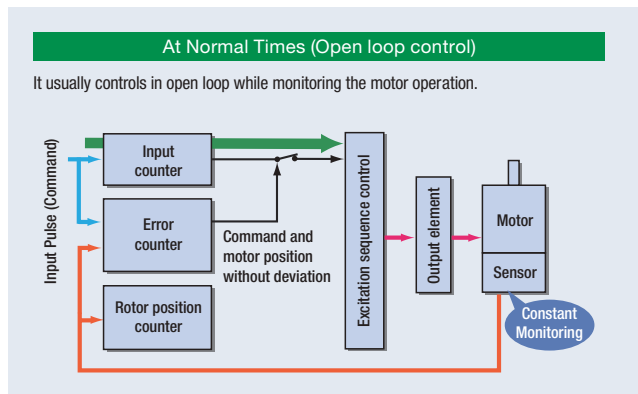
Compact Linear Actuators **DRS2 Series** Motorized Linear Slides **EZSH Series** Motorized Linear Slides **EAS Series** Motorized Linear Slides **EZS Series** Motorized Cylinders **EAC Series** Hollow Rotary Actuators **DGI Series**

● The lineup of built-in motors differs depending on the series. For details, see the catalogs or our website.

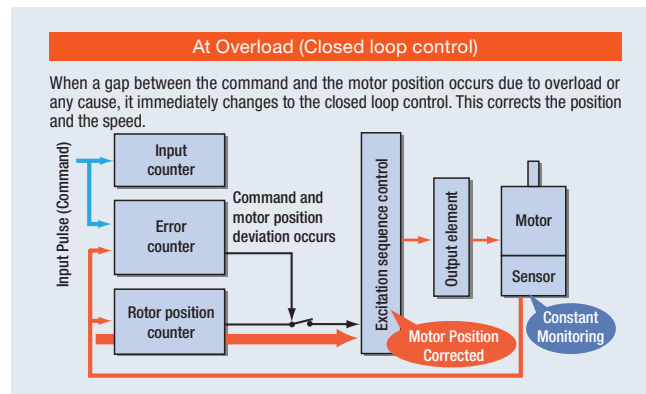
Features of the Hybrid Control System α STEP

The α STEP is a motor based on a stepping motor providing unique controls using advantages of both the "Open loop control" and the "Closed loop control". According to the situation, it automatically switches between the two controls while always monitoring the motor position.

● It usually uses Open Loop Control with usability like a Stepping Motor

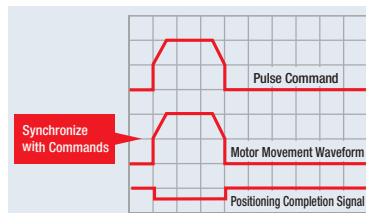


● More Secure Operation by Closed Loop Control at Overload



◇ High Response

Utilizing the high response of the stepping motor, the unit can move the device in a short distance for a short time. The unit can move the device by following the command and without delay.



◇ Operation Continues Even at Sudden Load Change or Sudden Acceleration

At normal times, this compact unit synchronizes with commands and operates with open loop control. When overloaded, the current control immediately changes to the closed loop control and corrects the position.

◇ Alarm Signal Output in Case of Abnormality

If continuously overloaded, an alarm signal is output. An END signal is output when positioning is finished. With these features, it provides reliability equal to that of a servo motor.

◇ The Stop Position is Retained without Hunting

During positioning, stoppage is done by the retaining force of the motor, without hunting. Therefore, the unit is most suitable for the applications in which a low-rigidity positioning mechanism is used and for which vibration should not occur during stoppage.

◇ No Tuning is Required

Under normal conditions, this unit operates by open loop control. This enables positioning without gain adjustment even when there is a change in the load in the belt mechanism, cum or chain drive, or other mechanical drives.

● Smooth Movement Even at a Low Speed

The micro-step drive and smooth driving functions* that are equipped with as standard functions suppress vibration at a low speed and allow smooth movement.

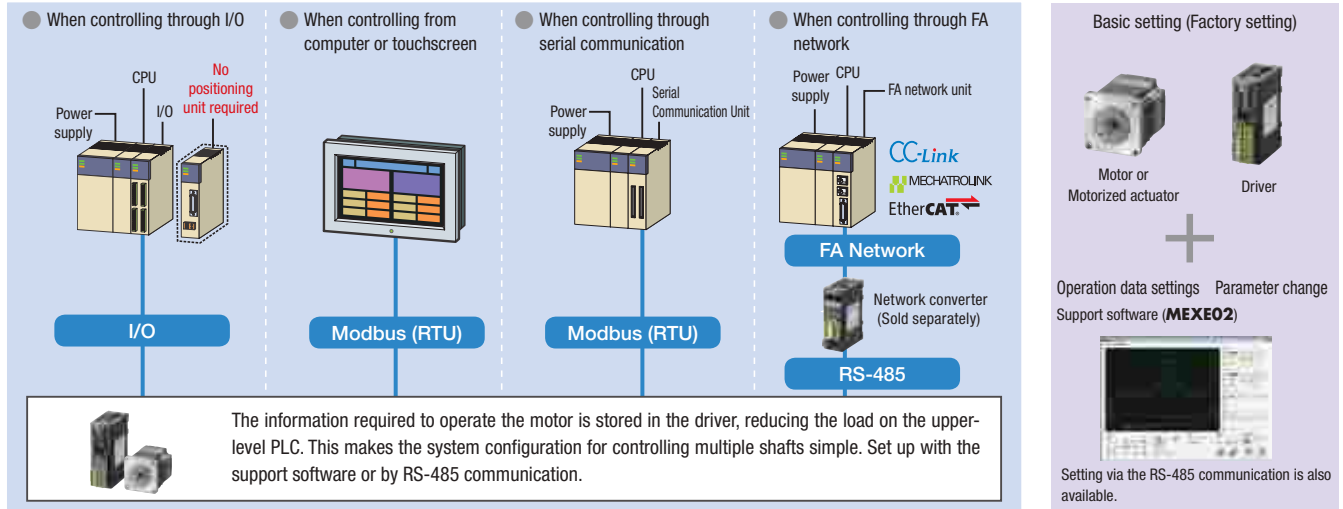
*These functions do not require any change of the pulse input setting but allow the micro-step drive the travel distance and speed of which are the same as those of full-step drive.

Drivers Selectable According to the Host System

A compatible driver can be selected for the **DRS2** Series according to your host system.

Built-in Controller Type **FLEX**

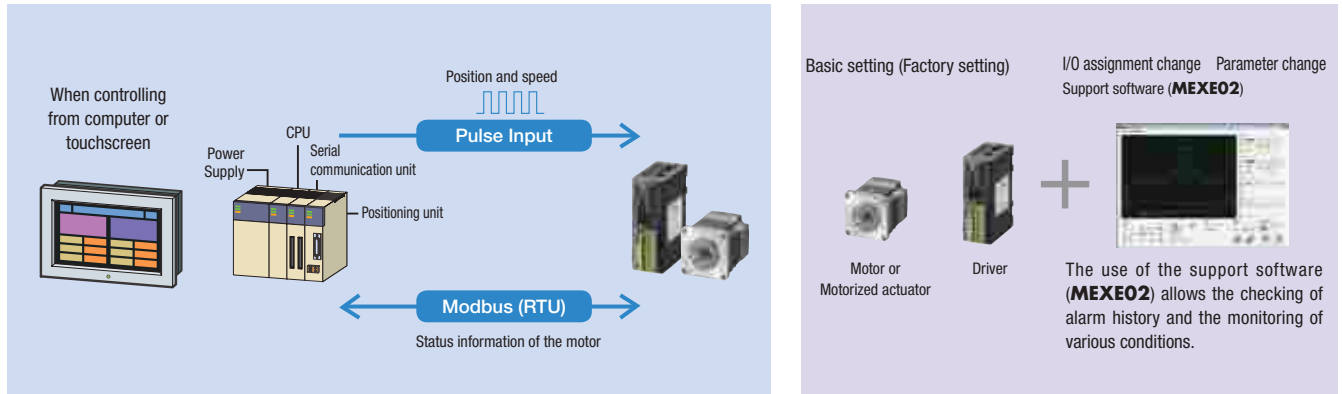
Set the operating data in the driver, and the operating data is selected and executed from the host system. Host system connection and control is performed through I/O, Modbus (RTU), RS-485 communication, or FA network. The use of a network converter (sold separately) allows control via CC-Link communication, MECHATROLINK communication, or EtherCAT communication.



FLEX FLEX is a general term of the products that support I/O control, Modbus (RTU) control, and FA network control via a network converter.

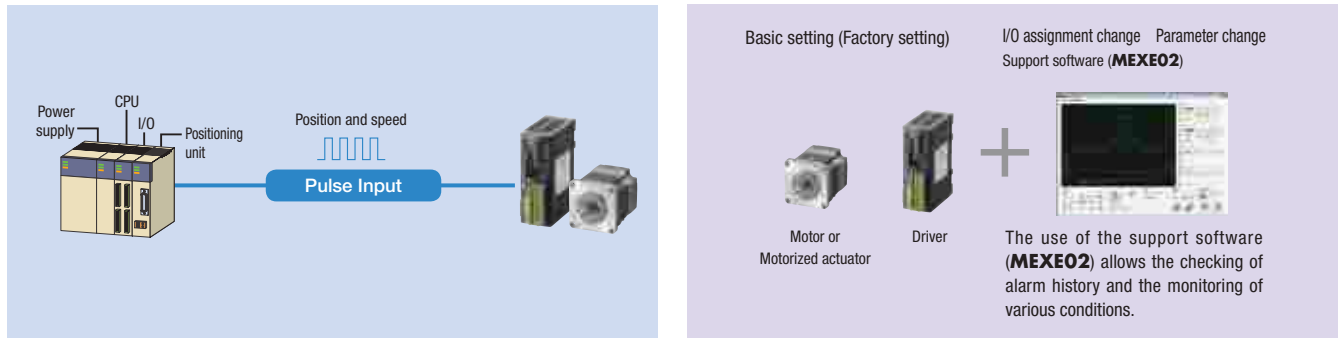
Pulse Input Type with RS-485 Communication

This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of RS-485 communication allows the monitoring of status information (position, speed, torque, alarms, temperature, etc.) of the motor.



Pulse Input Type

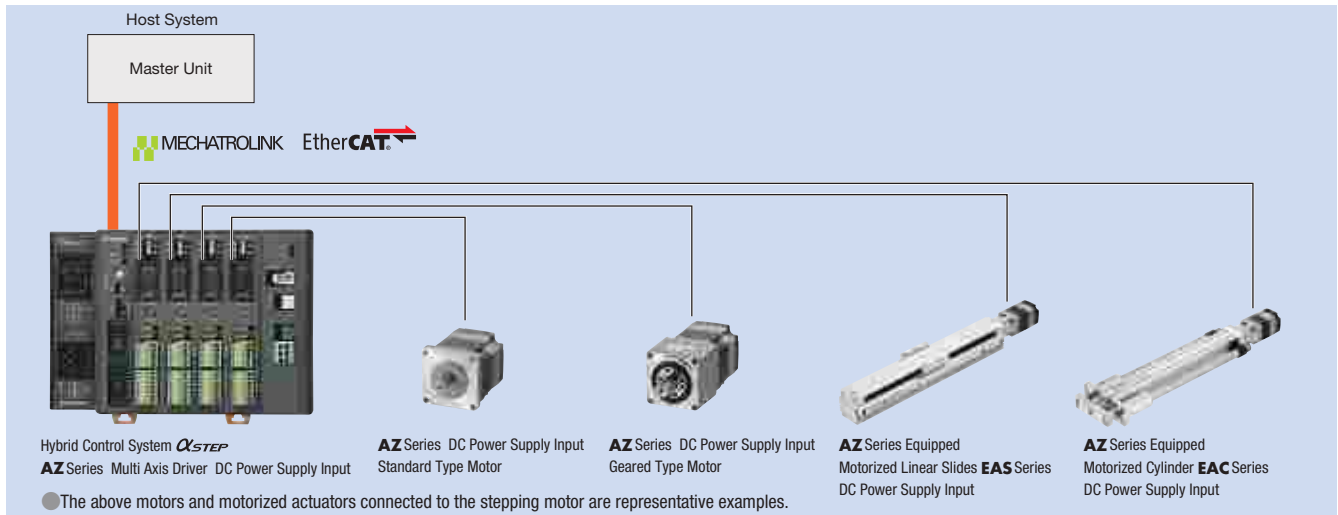
This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of the support software (**MEXE02**) allows the checking of alarm history and the monitoring of various conditions.



- **CC-Link** and **MECHATROLINK** are the registered trademarks of the CC-Link Partner Association and the MECHATROLINK Members Association, respectively.
- **EtherCAT** is the registered trademark licensed by Beckhoff Automation in Germany.
- The support software (**MEXE02**) can be downloaded from the Oriental Motor website. The media is also available (for free).

● **Network-compatible Multi Axis Driver* (DC power supply input)**

Multi axis driver that supports MECHATROLINK-III and EtherCAT Drive Profile. The driver can be connected to a DC power supply motor of the **AZ** Series and to an actuator equipped with motor. 2-axes, 3-axes, and 4-axes connectable drivers are available.



*For details of the products, see the Oriental Motor website.

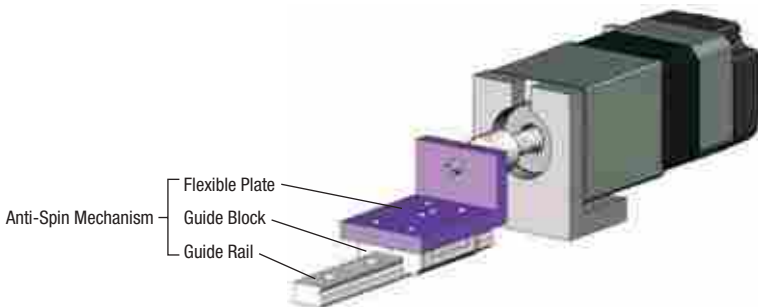
Lineup

Compact linear actuators, drivers and connection cables must be provided separately for the **DRS2** Series. They are provided in combination.

Compact Linear Actuator						Driver* (24 VDC/48 VDC)	Connection Cable Set
Shape	Frame Size	Stroke	Ball Screw Type	Lead [mm]	Cable Orientation		
With Guide	42 mm	40 mm	Rolled	2	Right/Left	● Built-in Controller Type	● Without Electromagnetic Brake For Motor For Encoder
				8			
Ground			2	● With Electromagnetic Brake			
			Without Guide			60 mm	
8	● Pulse Input Type						
Ground		2	For Electromagnetic Brake				
	Rolled	4					

*Multi-axis drivers which can control multi-axis drivers are available. For details, see Oriental Motor website.

● Products without a guide require an anti-spin mechanism for the screw mechanism.



Drive Easily with Support Software **MEXE02**

By using the support software, data settings, actual operation, and checks by the various monitor functions are also easily performed on the computer.

● Support Software **MEXE02**

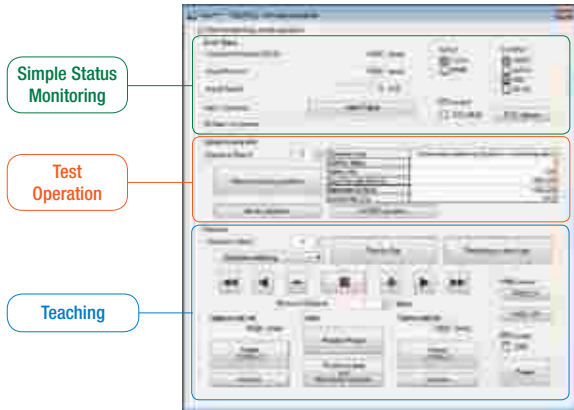
The support software can be downloaded from the Oriental Motor website.
The media is also available (for free).

● Teaching/Remote Operation

From the support software, you can easily set a home position or drive the motor. You can use this function for teaching or trial operation before connecting to the host system.

● I/O Monitoring

You can monitor input signals, and output forcibly output signals. Use function for wire connection with the host system or check network I/O operations.



Various Monitor Functions

● Waveform Monitoring

Similar to using an oscilloscope, the motor drive condition and output signal status can be checked. Use this during the startup of the device and when adjusting.



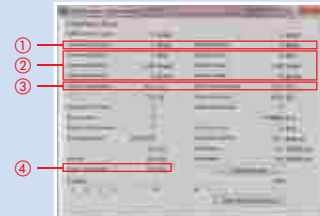
● Alarm Monitor

If an error occurs, you can check the error details, operation condition at the time of error occurrence, and measures to be taken.



● Status Monitoring

In addition to the speed, motor, temperature of the driver, and load factor, you can monitor other items including rotation amount accumulated from the start of use. Signals can be output for each item as needed, achieving efficient maintenance.



- ① The actual position is detected for the command position.
- ② The actual speed is detected for the command speed.
- ③ The temperatures of the encoder of the motor and the inside of the driver are detected.
- ④ This shows the current load factor to the output torque at the speed during rotation as 100%.

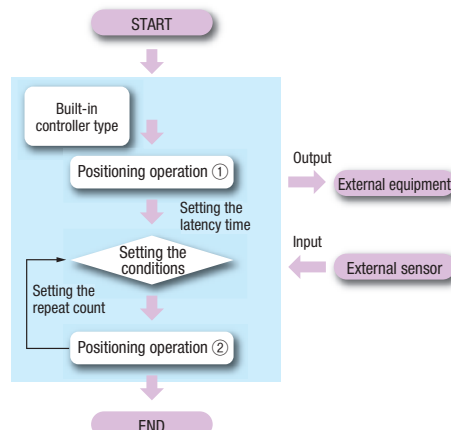
● Supporting multi-monitoring, the software allows you to perform remote operation or teaching while monitoring the operational status.

Sequence Function Simplifies Main Program

The built-in controller type of the **AZ** Series provides a rich variety of sequence functions including timer setting for link operations or intervals between operations, conditional branching, and number of loops. This helps to simplify sequence programs in the host system.

◇ For a Built-in Controller Type

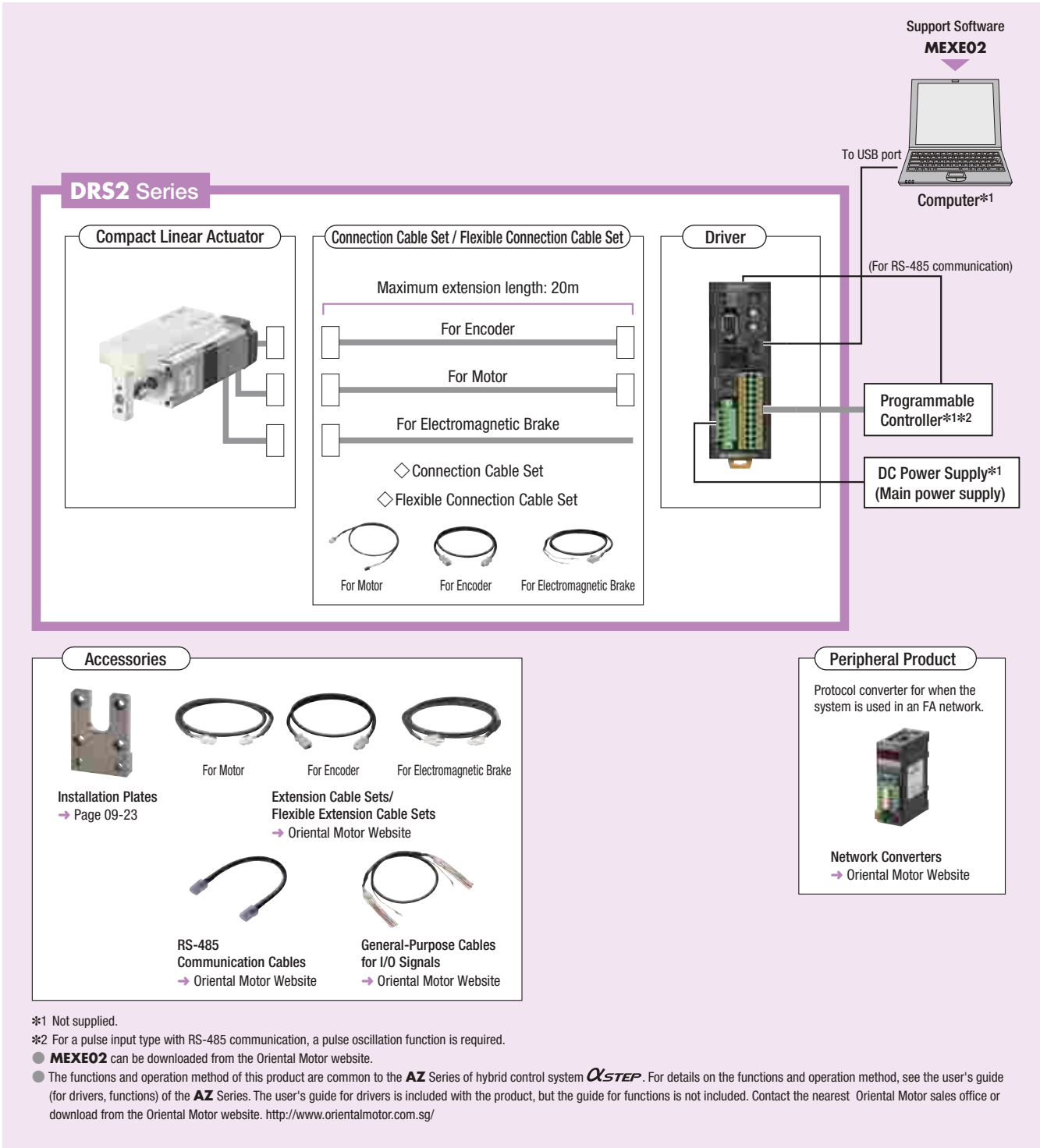
- No. of positioning operation data items that can be set (up to 256 points)
- No. of general-purpose I/O points (10 points for input and 6 points for output)
- No. of communication I/O points (16 points for input and 16 points for output)



System Configuration

- When using a motorized actuator with electromagnetic brake and a built-in controller type driver or a pulse input type driver with RS-485 communication feature

The figure below shows a sample configuration which includes a built-in controller type driver and which uses I/O control or RS-485 communication. The actuator, driver, and connection cable set/flexible connection cable set need to be separately provided.



System Configuration Example

DRS2 Series			Sold Separately	
Compact Linear Actuator	Driver	Connection Cable Set	Installation Plate	General-Purpose Cable for I/O Signals (1 m)
DRSM42RG-04A2AZMK	AZD-KD	CC030VZFB2	PADRL-42	CC16D010B-1
SGD1,225	SGD488	SGD83	SGD235	SGD25

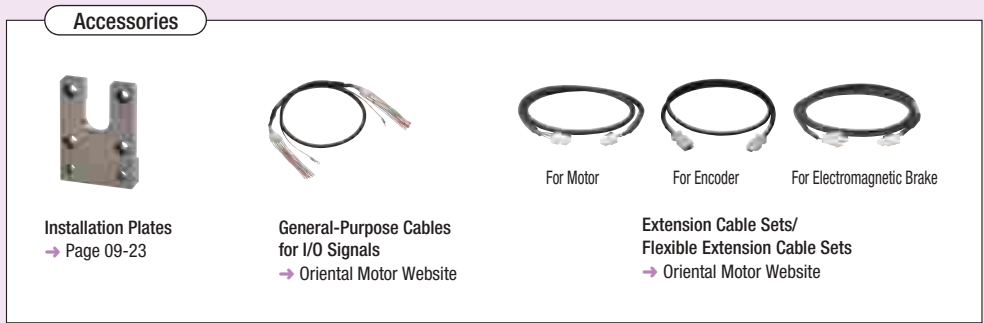
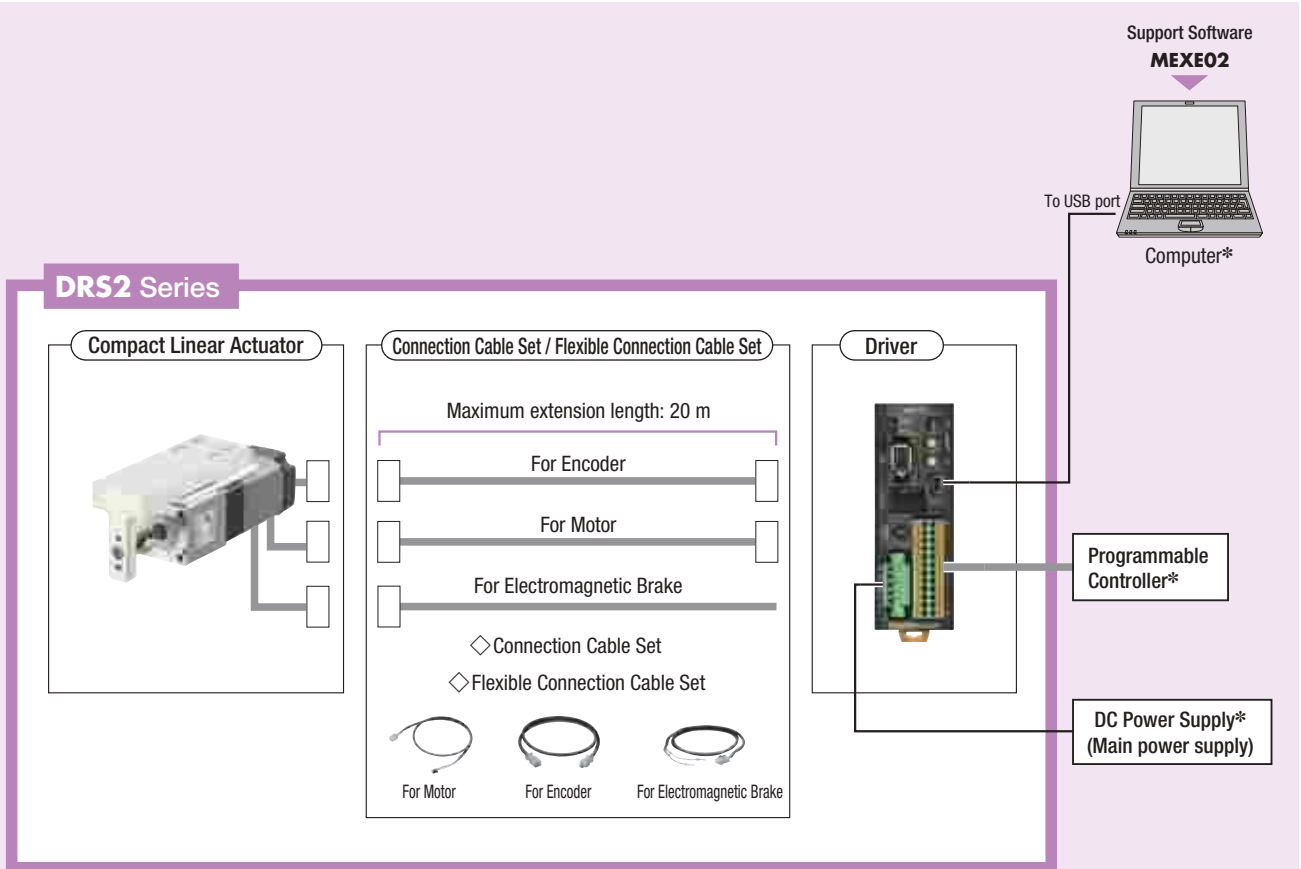
- The system configuration shown above is an example. Other combinations are available.

Note

- The motor cable and electromagnetic brake cable from the motor cannot be directly connected to a driver. To connect the motor to the driver, use a connection cable.

● When using a motorized actuator with electromagnetic brake and a pulse input type driver

The figure below shows a sample configuration of a single axis system which uses a programmable controller (equipped with a pulse oscillator). The actuator, driver, and connection cable set/flexible connection cable set need to be separately provided.



* Not supplied.

● MEXE02 can be downloaded from the Oriental Motor website.

● The functions and operation method of this product are common to the **AZ** Series of hybrid control system **αSTEP**. For details on the functions and operation method, see the user's guide (for drivers, functions) of the **AZ** Series. The user's guide for drivers is included with the product, but the guide for functions is not included. Contact the nearest Oriental Motor sales office or download from the Oriental Motor website. <http://www.orientalmotor.com.sg/>

● System Configuration Example

DRS2 Series			Sold Separately	
Compact Linear Actuator	Driver	Connection Cable Set	+	Installation Plate
DRSM42RG-04A2AZMK	AZD-K	CC030VZFB2		General-Purpose Cable for I/O Signals (1 m)
SGD1,225	SGD425	SGD83		PADRL-42
				CC16D010B-1
				SGD235
				SGD25

● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be directly connected to a driver. To connect the motor to the driver, use a connection cable.

Product Number Code

Compact Linear Actuator

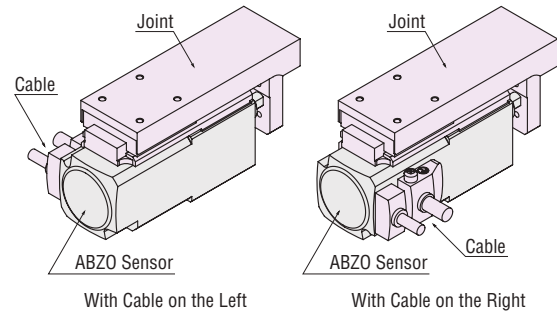
DRSM 42 R G - 04 A 2 AZ M K

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Series Name	DRSM: DRS2 Series
②	Frame Size	42: 42 mm 60: 60 mm
③	Cable Orientation*	R: Right L: Left Blank: Type without Guide
④	Shape	G: Type with Guide Blank: Type without Guide
⑤	Stroke	04: 40 mm 05: 50 mm
⑥	Ball Screw Type	A: Rolled Ball Screw B: Ground Ball Screw
⑦	Lead	2: 2 mm 4: 4 mm 8: 8 mm
⑧	Installed Motor	AZ: AZ Series
⑨	Electromagnetic Brake	A: Without Electromagnetic Brake M: With Electromagnetic Brake
⑩	Motor Specifications	K: DC Power Supply Input Specifications

*The cable orientation can be specified only for actuators without guide.

The cable orientation represents the cable orientation viewed from the encoder (ABZO sensor) with the joint on the top.



Driver

AZD - K D

① ② ③

①	Driver Type	AZD: AZ Series Driver
②	Power Supply Input	K: 24 VDC/48 VDC
③	Type	D: Built-in Controller Type X: Pulse Input Type with RS-485 Communication Blank: Pulse Input Type

Connection Cable Set/Flexible Connection Cable Set

CC 050 V Z F B 2

① ② ③ ④ ⑤ ⑥ ⑦

①		CC: Cable
②	Length	005: 0.5 m 010: 1 m 015: 1.5 m 020: 2 m 025: 2.5 m 030: 3 m 040: 4 m 050: 5 m 070: 7 m 100: 10 m 150: 15 m 200: 20 m
③	Reference Number	
④	Applied Model	Z: For AZ Series
⑤	Cable Type	F: Connection Cable Set R: Flexible Connection Cable Set
⑥	Description	Blank: For Motors without Electromagnetic Brake B: For Motors with Electromagnetic Brake
⑦	Type	2: For DC Power Supply Input

Product Line

Compact Linear Actuators

◇ Type with Guide
Rolled Ball Screw



With Electromagnetic Brake

Electromagnetic Brake	Lead [mm]	Cable Orientation	Product Name	List Price
Without Electromagnetic Brake	2	Right	DRSM42RG-04A2AZAK	SGD1,000
		Left	DRSM42LG-04A2AZAK	SGD1,000
	8	Right	DRSM42RG-04A8AZAK	SGD1,113
		Left	DRSM42LG-04A8AZAK	SGD1,113
With Electromagnetic Brake	2	Right	DRSM42RG-04A2AZMK	SGD1,225
		Left	DRSM42LG-04A2AZMK	SGD1,225
	8	Right	DRSM42RG-04A8AZMK	SGD1,338
		Left	DRSM42LG-04A8AZMK	SGD1,338

◇ Type with Guide
Ground Ball Screw



With Electromagnetic Brake

Electromagnetic Brake	Lead [mm]	Cable Orientation	Product Name	List Price
Without Electromagnetic Brake	2	Right	DRSM42RG-04B2AZAK	SGD1,340
		Left	DRSM42LG-04B2AZAK	SGD1,340
	8	Right	DRSM42RG-04B8AZMK	SGD1,565
		Left	DRSM42LG-04B8AZMK	SGD1,565

◇ Type without Guide
Rolled Ball Screw



With Electromagnetic Brake

Electromagnetic Brake	Lead [mm]	Product Name	List Price
Without Electromagnetic Brake	2	DRSM42-04A2AZAK	SGD725
	8	DRSM42-04A8AZAK	SGD838
	4	DRSM60-05A4AZAK	SGD938
With Electromagnetic Brake	2	DRSM42-04A2AZMK	SGD950
	8	DRSM42-04A8AZMK	SGD1,063
	4	DRSM60-05A4AZMK	SGD1,163

◇ Type without Guide
Ground Ball Screw



With Electromagnetic Brake

Electromagnetic Brake	Lead [mm]	Product Name	List Price
Without Electromagnetic Brake	2	DRSM42-04B2AZAK	SGD1,065
With Electromagnetic Brake		DRSM42-04B2AZMK	SGD1,290

● Drivers

◇ Built-in Controller Type



Product Name	List Price
AZD-KD	SGD488

◇ Pulse Input Type with RS-485 Communication



Product Name	List Price
AZD-KX	SGD488

◇ Pulse Input Type



Product Name	List Price
AZD-K	SGD425

● Connection Cable Sets/Flexible Connection Cable Sets

Use a flexible connection cable set if the cable will be bent.

◇ For Motors/Encoders



Type	Length L (m)	Product Name	List Price
Connection Cable Set	0.5	CC005VZF2	SGD38
	1	CC010VZF2	SGD38
	1.5	CC015VZF2	SGD44
	2	CC020VZF2	SGD50
	2.5	CC025VZF2	SGD56
	3	CC030VZF2	SGD63
	4	CC040VZF2	SGD98
	5	CC050VZF2	SGD110
	7	CC070VZF2	SGD136
	10	CC100VZF2	SGD176
	15	CC150VZF2	SGD244
	20	CC200VZF2	SGD310
Flexible Connection Cable Set	0.5	CC005VZR2	SGD84
	1	CC010VZR2	SGD84
	1.5	CC015VZR2	SGD92
	2	CC020VZR2	SGD99
	2.5	CC025VZR2	SGD106
	3	CC030VZR2	SGD111
	4	CC040VZR2	SGD126
	5	CC050VZR2	SGD141
	7	CC070VZR2	SGD180
	10	CC100VZR2	SGD236
	15	CC150VZR2	SGD333
	20	CC200VZR2	SGD426

◇ For Motors/Encoders/
Electromagnetic Brakes



Type	Length L (m)	Product Name	List Price
Connection Cable Set	0.5	CC005VZFB2	SGD53
	1	CC010VZFB2	SGD53
	1.5	CC015VZFB2	SGD60
	2	CC020VZFB2	SGD68
	2.5	CC025VZFB2	SGD75
	3	CC030VZFB2	SGD83
	4	CC040VZFB2	SGD121
	5	CC050VZFB2	SGD135
	7	CC070VZFB2	SGD166
	10	CC100VZFB2	SGD214
	15	CC150VZFB2	SGD294
	20	CC200VZFB2	SGD373
Flexible Connection Cable Set	0.5	CC005VZRB2	SGD114
	1	CC010VZRB2	SGD114
	1.5	CC015VZRB2	SGD124
	2	CC020VZRB2	SGD134
	2.5	CC025VZRB2	SGD143
	3	CC030VZRB2	SGD151
	4	CC040VZRB2	SGD171
	5	CC050VZRB2	SGD191
	7	CC070VZRB2	SGD240
	10	CC100VZRB2	SGD311
	15	CC150VZRB2	SGD433
	20	CC200VZRB2	SGD551

Accessories

● Actuators

Type	Accessories	Operating Manual
For All Types		1 set

● Drivers

Type	Accessories	Connector	Operating Manual
For All Types		Connector for CN4 (1 piece) Connector for CN1 (1 piece)	1 set

● Connection Cable Sets/Flexible Connection Cable Sets

Type	Accessories	Operating Manual
Connection Cable Set		—
Flexible Connection Cable Set		1 set

How to Read Specifications Table

For Compact Linear Actuator (Rolled ball screw of type with guide)

Actuator Product Name	Cable Orientation: Right		DRSM42RG-04A2AZAK	DRSM42RG-04A2AZMK	DRSM42RG-04A8AZAK	DRSM42RG-04A8AZMK
	Cable Orientation: Left		DRSM42LG-04A2AZAK	DRSM42LG-04A2AZMK	DRSM42LG-04A8AZAK	DRSM42LG-04A8AZMK
① Lead		mm	2		8	
② Electromagnetic Brake (Power off activated type)			Not provided	Provided	Not provided	Provided
③ Ball Screw Type			Rolled			
④ Repetitive Positioning Accuracy	① End	mm	±0.01			
	② Top	mm	±0.02			
⑤ Lost Motion		mm	0.05 or less			
⑥ Minimum Traveling Amount		mm	0.001			
⑦ Permissible Moment	Static Permissible Moment	N·m	Mp: 1.3 My: 1.0 Mr: 2.5			
	Dynamic Permissible Moment	N·m	Mp: 1.3 My: 1.0 Mr: 2.5			
⑧ Transportable Mass	Horizontal	kg	10	5	5	
	Vertical	kg	—	—	—	
⑨ Thrust		N	~200		~50	
⑩ Pushing Force		N	400		100	
⑪ Holding Force		N	200	200	50	50
⑫ Stroke		mm	40			
⑬ Maximum Speed		mm/s	50		200	

Some products may have limitations and notes on use. For details, see notes on respective product pages.

① Lead

Distance the screw shaft moves linearly in one motor rotation.

② Electromagnetic Brake (Power off activated type)

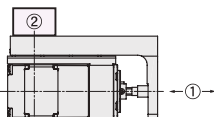
The product has types with and without an electromagnetic brake of power off activated type. Choose the type with electromagnetic brake for vertical drive.

③ Ball Screw Type

The product has rolled and ground ball screw types. Choose according to required accuracy.

④ Repetitive Positioning Accuracy

A value indicating the amount of error that is generated when positioning is performed repeatedly to the same position in the same direction. (The repetitive positioning accuracy is measured at a constant temperature under a constant load).



The repetitive positioning accuracy is measured on the end for ① and the linear guide for ②. Other items are common unless specified.

⑤ Lost Motion

A value indicating the amount of error that is generated when positioning is performed to the same position in a different direction.

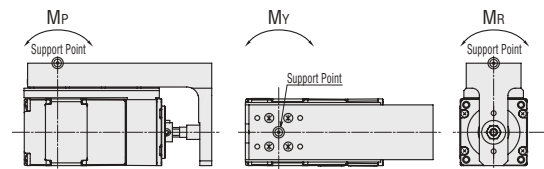
⑥ Minimum Traveling Amount

The traveling amount for each pulse, set by default.

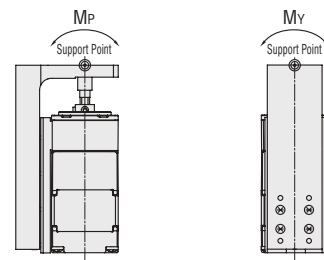
⑦ Permissible Moment

When the load is placed in a position eccentric from the actuator guide, force making the guide rotate applies. In this case, it indicates the maximum force applied to the guide. The dynamic permissible moment is the moment allowed during operation. The static permissible moment is the moment allowed during static conditions.

• Horizontal Direction



• Vertical Direction



⑧ Transportable Mass

• Horizontal Direction (Figure A)

Maximum mass that can be moved under operating performance in the horizontal direction of the actuator.

• Vertical Direction (Figure B)

Maximum mass that can be moved under operating performance in the vertical direction of the actuator.

Figure A

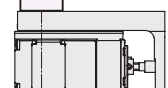
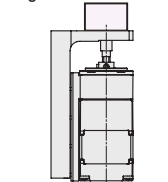


Figure B



⑨ Thrust

Force that pushes the load when speed is constant.

⑩ Pushing Force

The pressure applied to the load during the pushing operation.

⑪ Holding Force

Holding force when the motor is stopped or when the electromagnetic brake is operating, while power is supplied.

⑫ Stroke

Maximum distance to transport or push/draw the load.

⑬ Maximum Speed

Maximum speed to transport the load.

Compact Linear Actuator Specifications



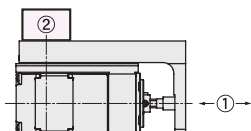
Type with Guide

Frame Size 42 mm

Actuator Product Name	Cable Orientation: Right		DRSM42RG-04A2AZAK	DRSM42RG-04A2AZMK	DRSM42RG-04A8AZAK	DRSM42RG-04A8AZMK	DRSM42RG-04B2AZAK	DRSM42RG-04B2AZMK
	Cable Orientation: Left		DRSM42LG-04A2AZAK	DRSM42LG-04A2AZMK	DRSM42LG-04A8AZAK	DRSM42LG-04A8AZMK	DRSM42LG-04B2AZAK	DRSM42LG-04B2AZMK
Lead	mm		2		8		2	
Electromagnetic Brake (Power off activated type)			Not provided	Provided	Not provided	Provided	Not provided	Provided
Ball Screw Type			Rolled				Ground	
Repetitive Positioning Accuracy	① End	mm	±0.01				±0.003	
	② Top	mm	±0.02				±0.005	
Lost Motion	mm		0.05 or less				0.02 or less	
Minimum Traveling Amount	mm		0.001					
Permissible Moment	Static Permissible Moment	N·m	Mp: 1.3 Mr: 1.0 Mr: 2.5					
	Dynamic Permissible Moment	N·m	Mp: 1.3 Mr: 1.0 Mr: 2.5					
Transportable Mass	Horizontal	kg	10	10	5	5	10	10
	Vertical	kg	—	—	—	—	—	—
Thrust	N		~200		~50		~200	
Pushing Force	N		400		100		400	
Holding Force	N		200	200	50	50	200	200
Stroke	mm		40					
Maximum Speed	mm/s		50		200		50	

Note

- The maximum speed may decrease depending on the ambient temperature and motor cable length.
- Repetitive positioning accuracy



The repetitive positioning accuracy is measured on the end for ① and the linear guide for ②.
Other items are common unless specified.

Type without Guide

Frame Size 42 mm



Actuator Product Name	DRSM42-04A2AZAK	DRSM42-04A2AZMK	DRSM42-04A8AZAK	DRSM42-04A8AZMK	DRSM42-04B2AZAK	DRSM42-04B2AZMK
Lead	mm		2		8	
Electromagnetic Brake (Power off activated type)	Not Provided		Provided		Not Provided	
Ball Screw Type	Rolled				Ground	
Repetitive Positioning Accuracy	mm		±0.01		±0.003	
Lost Motion	mm		0.05 or less		0.02 or less	
Minimum Traveling Amount	mm		0.001			
Transportable Mass	Horizontal	kg	40	40	10	10
	Vertical	kg	—	20	—	5
Thrust	N		~200		~50	
Pushing Force	N		400		100	
Holding Force	N		200	200	50	50
Stroke	mm		40			
Maximum Speed	mm/s		50		200	

Note

- The maximum speed may decrease depending on the ambient temperature and motor cable length.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.



Frame Size 60 mm

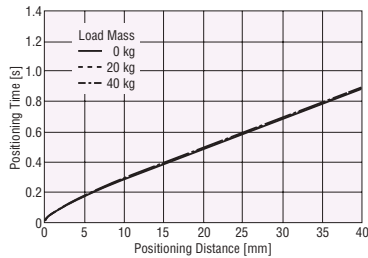
Actuator Product Name		DRSM60-05A4AZAK	DRSM60-05A4AZMK
Lead	mm		4
Electromagnetic Brake (Power off activated type)		Not Provided	Provided
Ball Screw Type			Rolled
Repetitive Positioning Accuracy	mm		± 0.01
Lost Motion	mm		0.05 or less
Minimum Traveling Amount	mm		0.001
Transportable Mass	Horizontal	kg	50
	Vertical	kg	50
Thrust	N		~ 500
Pushing Force	N		500
Holding Force	N	500	500
Stroke	mm		50
Maximum Speed	mm/s		50

Positioning Distance – Positioning Time

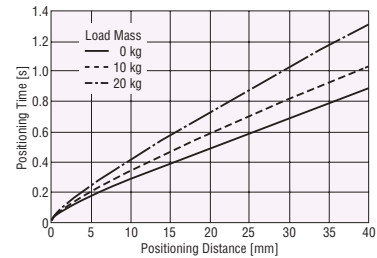
● Frame Size 42 mm/Power Supply Voltage 24 VDC

◇ Lead 2 mm

● Horizontal Direction Installation

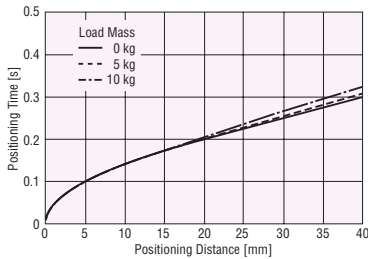


● Vertical Direction Installation

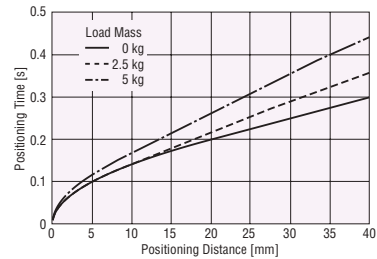


◇ Lead 8 mm

● Horizontal Direction Installation



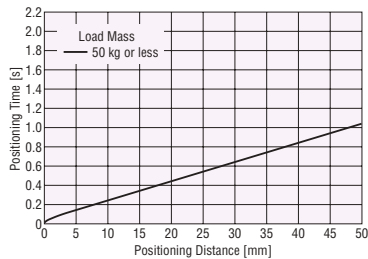
● Vertical Direction Installation



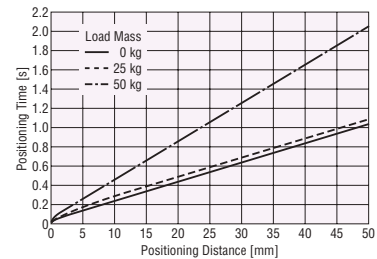
● Frame Size 60 mm/Power Supply Voltage 24 VDC

◇ Lead 4 mm

● Horizontal Direction Installation



● Vertical Direction Installation



● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

[Click Here](#)

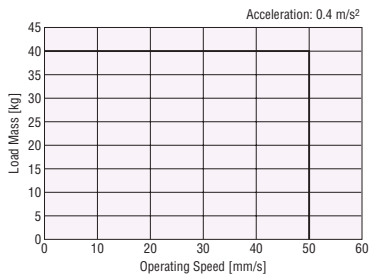
For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

Operating Speed – Load Mass

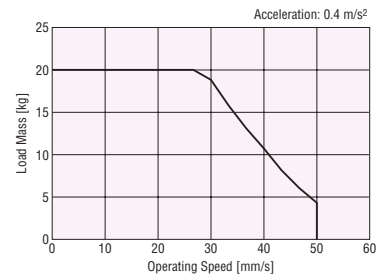
● Frame Size 42 mm/Power Supply Voltage 24 VDC

◇ Lead 2 mm

● Horizontal Direction Installation

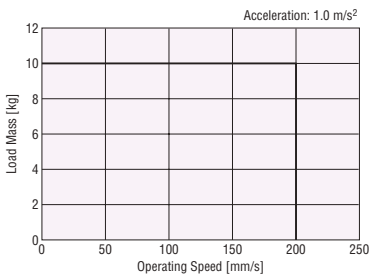


● Vertical Direction Installation

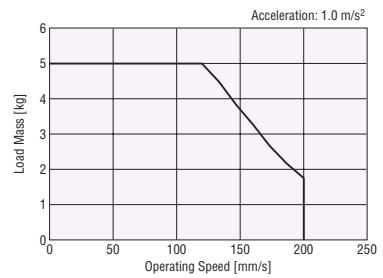


◇ Lead 8 mm

● Horizontal Direction Installation



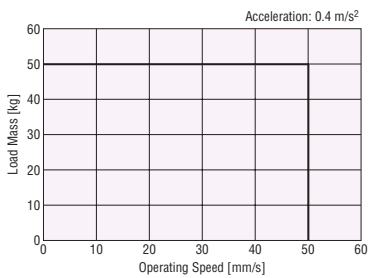
● Vertical Direction Installation



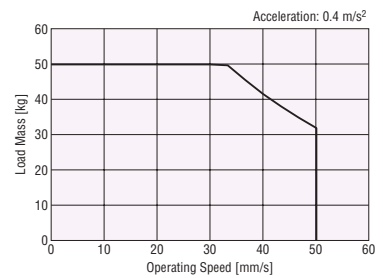
● Frame Size 60 mm/Power Supply Voltage 24 VDC

◇ Lead 4 mm

● Horizontal Direction Installation



● Vertical Direction Installation

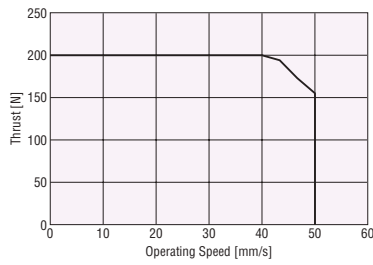


● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

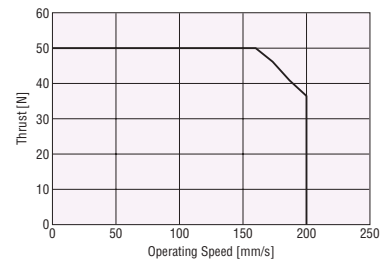
Operating Speed – Thrust

● Frame Size 42 mm/Power Supply Voltage 24 VDC

◇ Lead 2 mm

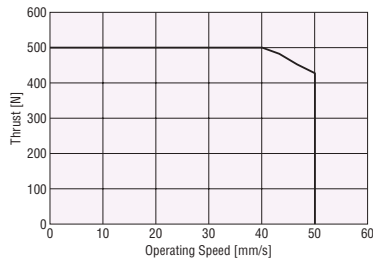


◇ Lead 8 mm



● Frame Size 60 mm/Power Supply Voltage 24 VDC

◇ Lead 4 mm

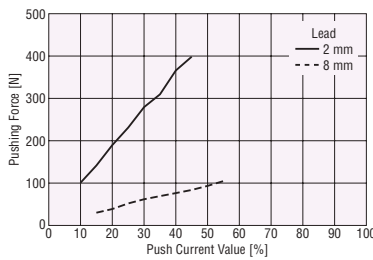


Actual Pushing Force Value

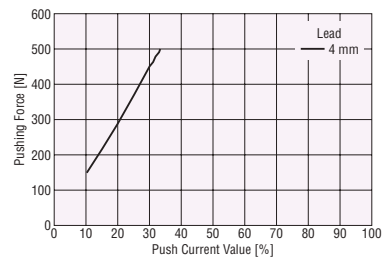
This section shows reference data of the push current values and the pushing force of the **DRS2** Series.

When using, check the actual pushing force.

● Frame Size 42 mm



● Frame Size 60 mm



- The characteristic diagrams above show the averages of measurement results of pushing during horizontal operation of the **DRS2** Series.
- The relationship between the pushing current and the pushing force differs depending on the following conditions. Check with actual equipment.
 - Installation conditions (horizontal or vertical installation)
 - Load conditions of the equipment
- The upper limit of the push-motion operating speed is 6 mm/s.

● For the specifications and characteristics for 48 VDC input, contact the nearest Oriental Motor sales office.

[Click Here](#)

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

Power Supply Input Specifications

Actuator Product Name		DRSM42	DRSM60
Power Supply Input	Voltage	24 VDC±5%* 48 VDC±5%	24 VDC±5%* 48 VDC±5%
	Input Current	1.72	2.45
	A	1.8	2.7
	Without Electromagnetic Brake		
	With Electromagnetic Brake		

*For the electromagnetic brake type, the 24 VDC±4% specification applies if the wiring distance between the motor and driver is extended by 20 m using a cable.

Electromagnetic Brake Specifications

Product Name		DRSM42	DRSM60
Type		Power off activated type	
Power Supply Voltage		24 VDC±5%*	
Power Supply Current	A	0.08	0.25
Brake Activate Time	ms	20	
Brake Release Time	ms	30	
Time Rating		Continuous	

*For the electromagnetic brake type, the 24 VDC±4% specification applies if the wiring distance between the motor and driver is extended by 20 m using a cable.

General Specifications

		Actuator	Driver
Heat-Resistant Class		130(B)	—
Insulation Resistance		The measured value is 100 MΩ or more when a 500 VDC megger is applied between the following locations: · Case – Motor windings · Case – Electromagnetic brake windings*1	The measured value is 100 MΩ or more when a 500 VDC megger is applied between the following locations: · Protective earth terminal – Power supply terminal
Dielectric Strength Voltage		No abnormality is found with the following application for 1 minute: · Case – Motor windings 1.0 kVAC 50 Hz or 60 Hz · Case – Electromagnetic brake windings*1 1.0 kVAC 50 Hz or 60 Hz	—
Operating Environment (In operation)	Ambient Temperature	0~+40°C (Non-freezing)*2	0~+50°C (Non-freezing)
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	Use in an area without corrosive gases and dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection		IP00	IP10
Range of Multiple Rotation Inspection at Power OFF		±900 rotations (1800 rotations)	

*1 Electromagnetic brake type only

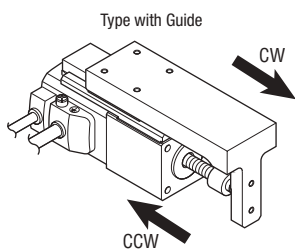
*2 Under the Oriental Motor's measurement conditions

Note

- When measuring insulation resistance or performing a dielectric strength voltage test, be sure to disconnect the motor from the driver beforehand. Also, do not conduct these tests on the ABZO sensor section of the motor.

Traveling Direction

The traveling direction of joint is set by default as follows:



Dimensions (Unit: mm)

Compact Linear Actuators

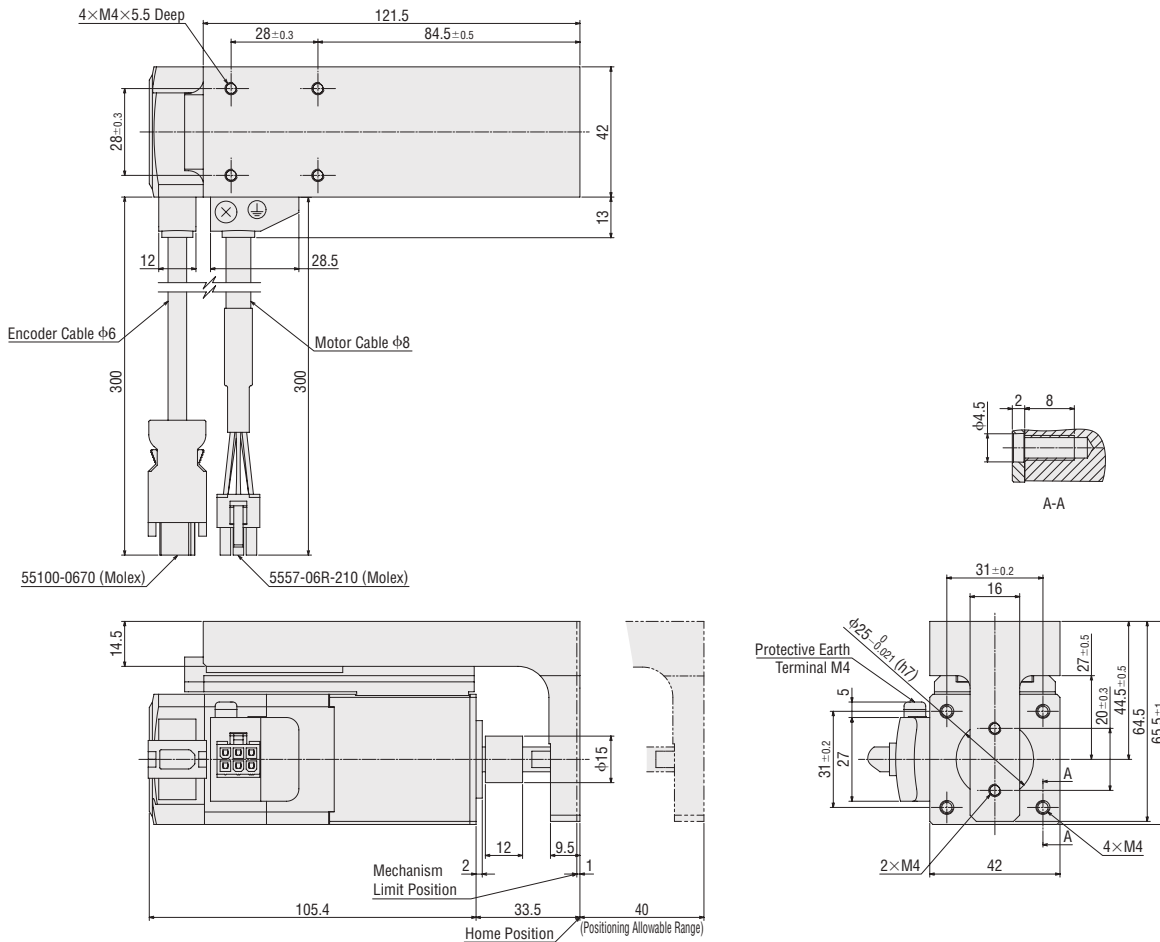
◇ Type with Guide (With cable on the right)

Frame Size 42 mm

2D & 3D CAD

Product Name	Mass kg	2D CAD
DRSM42RG-04A2AZAK DRSM42RG-04B2AZAK DRSM42RG-04A8AZAK	1.10	D7595

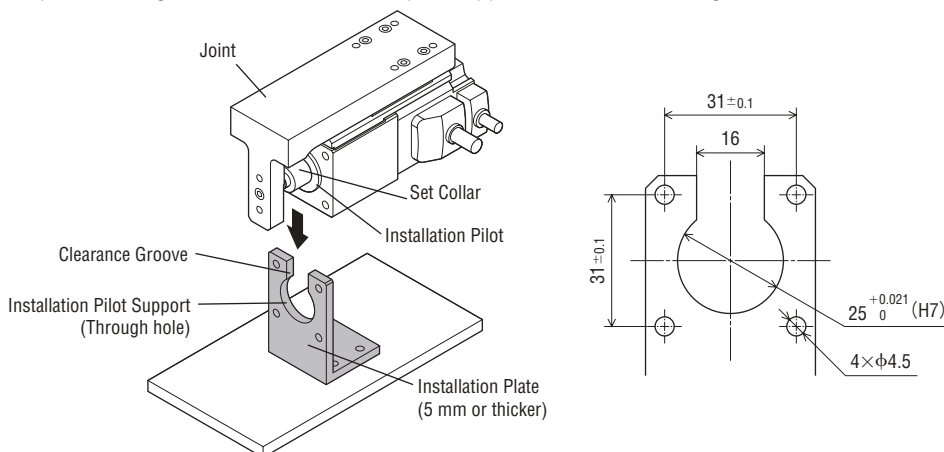
● For CAD data, please download from our website.
<http://www.orientalmotor.com.sg/>



● The above figure is an outline drawing of the cable on the right. For outline drawing of the cable on the left, see our website.
<http://www.orientalmotor.com.sg/>

Dimensions for Installation Plate (Unit: mm)

Prepare a through hole for the installation pilot support and the clearance groove for the ball screw shaft on the installation plate.



● For details of installation, see page 09-24.

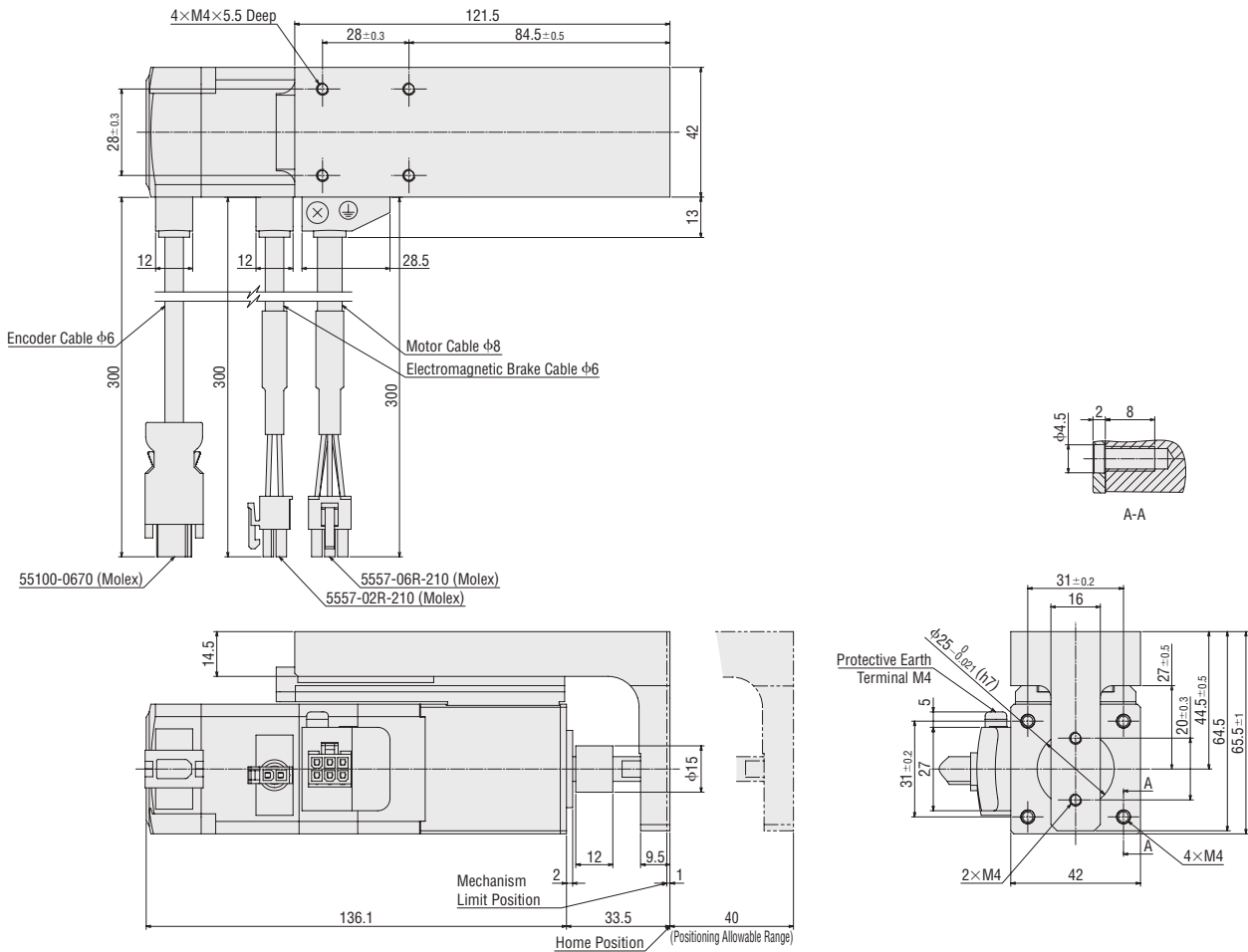
◇ Type with Guide With Electromagnetic Brake (With cable on the right)

Frame Size 42 mm

2D & 3D CAD

Product Name	Mass kg	2D CAD
DRSM42RG-04A2AZMK DRSM42RG-04B2AZMK DRSM42RG-04A8AZMK	1.30	D7598

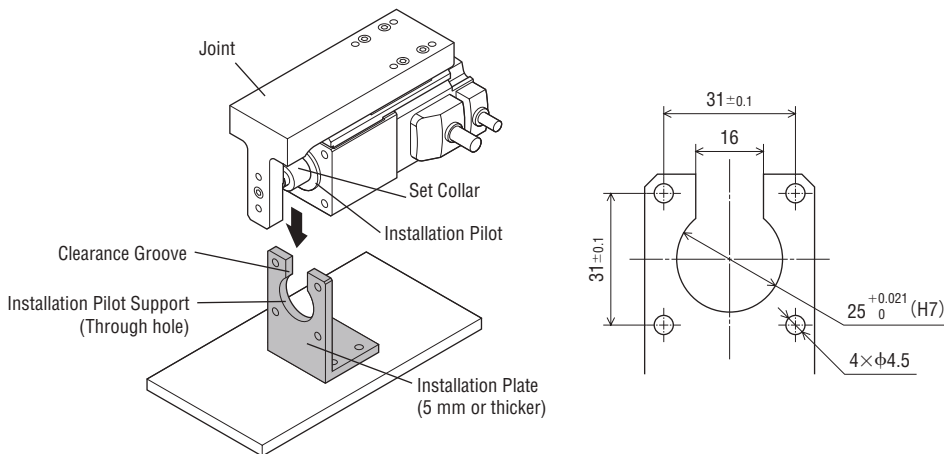
● For CAD data, please download from our website.
<http://www.orientalmotor.com.sg/>



● The above figure is an outline drawing of the cable on the right. For outline drawing of the cable on the left, see our website.
<http://www.orientalmotor.com.sg/>

Dimensions for Installation Plate (Unit: mm)

Prepare a through hole for the installation pilot support and the clearance groove for the ball screw shaft on the installation plate.



● For details of installation, see page 09-24.

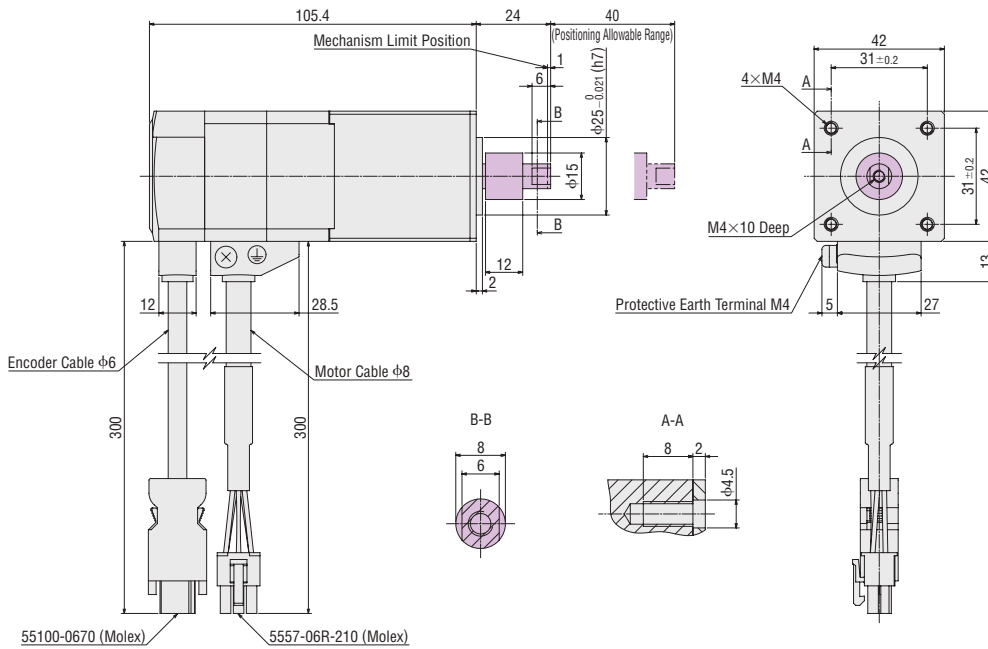
◇ Type without Guide

Frame Size 42 mm

2D & 3D CAD

Product Name	Mass kg	2D CAD
DRSM42-04A2AZAK DRSM42-04B2AZAK DRSM42-04A8AZAK	0.68	D7594

● For CAD data, please download from our website.
<http://www.orientalmotor.com.sg/>

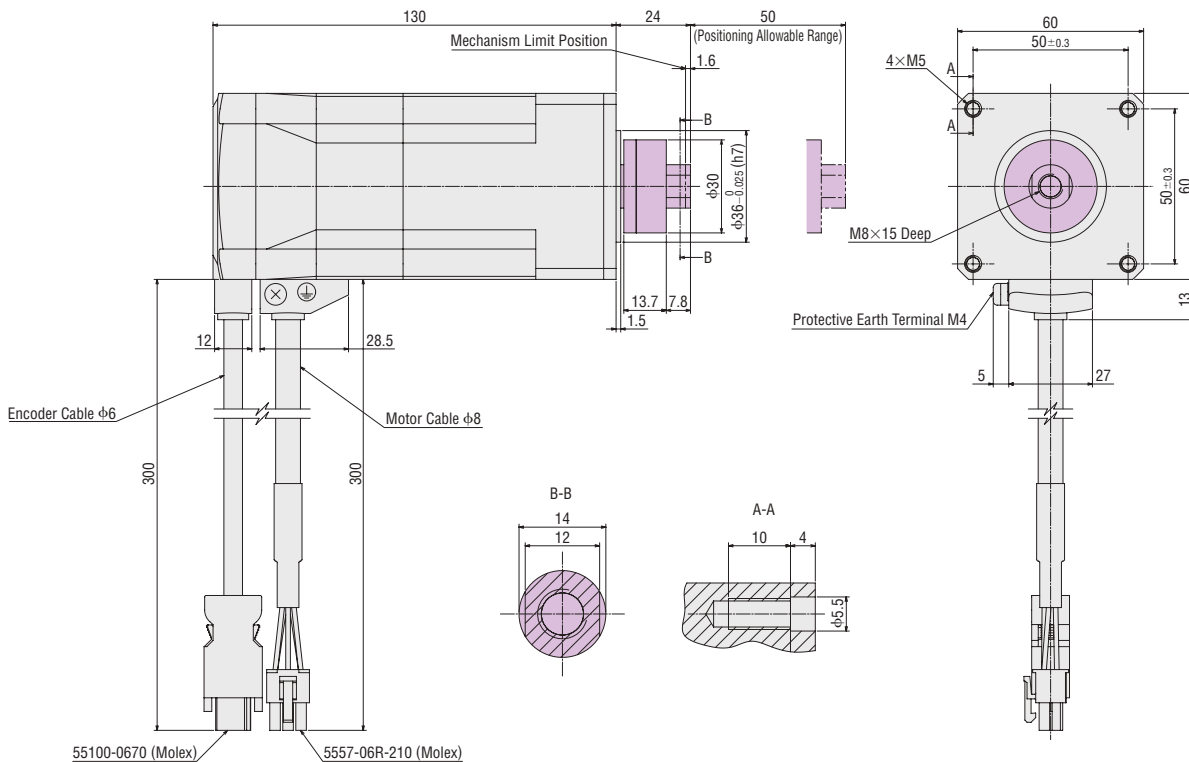


Frame Size 60 mm

2D & 3D CAD

Product Name	Mass kg	2D CAD
DRSM60-05A4AZAK	1.6	D7638

● For CAD data, please download from our website.
<http://www.orientalmotor.com.sg/>



● The shaded areas are moving parts.

Click Here

For more information, please visit ORIENTAL MOTOR Website:
<https://www.orientalmotor.com.sg/om/tp/index.html>

Accessories (Sold Separately)

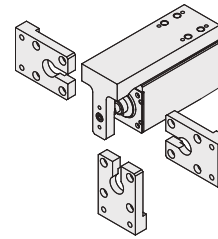
Installation Plates

Dedicated mounting bracket for installing actuators.
Screws between the actuator and the installation plate are included.

● Installation screws for installing to the equipment must be provided by the customer.

Material: Iron

Surface treatment: Black electroless nickel plating



The plate can be installed from three directions.

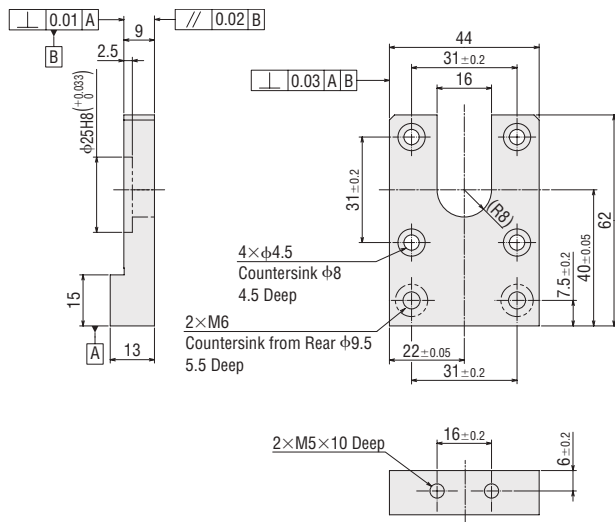
Product Line

2D & 3D CAD

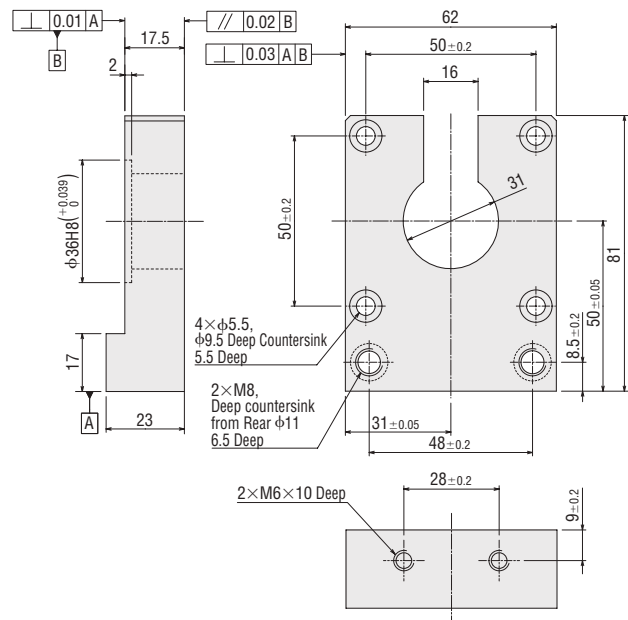
Product Name	List Price	Applicable Product	Mass (g)	2D CAD
PADRL-42	SGD235	DRSM42	165	D466
PADRL-60	SGD248	DRSM60	570	D2751

Dimensions (Unit: mm)

PADRL-42



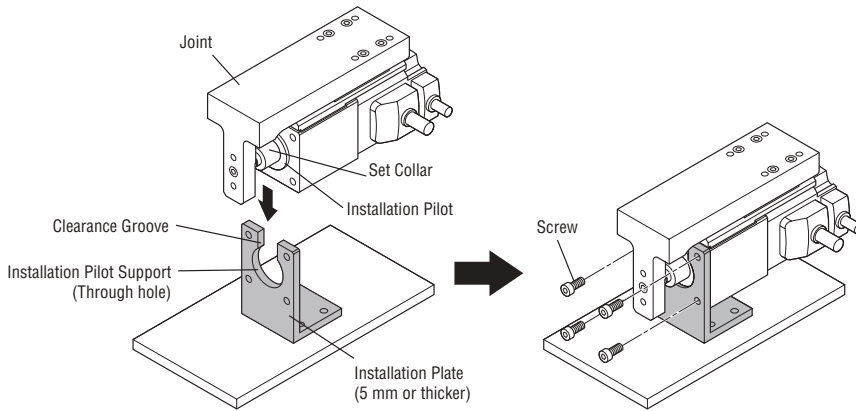
PADRL-60



Installation

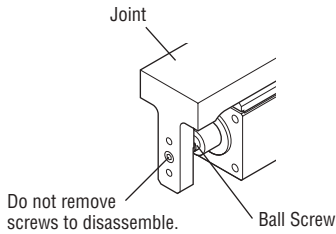
This section shows how to install the types with/without a guide.

Example of Installation for Type with Guide



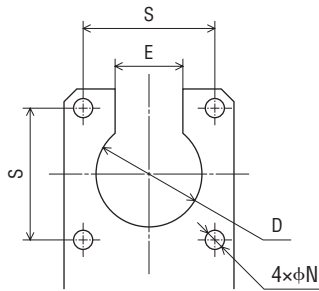
Note

Do not remove the joint from the ball screw shaft. Otherwise, the accuracy to install the ball screw shaft is reduced, causing a malfunction. Removing the joint may cause the home position set by default to shift and break the equipment in unexpected operations.



Shape of Installation Plate

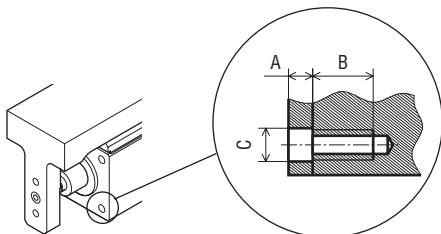
Prepare a through hole for the installation pilot support and the clearance groove for the ball screw shaft on the installation plate.



Product Name	D	E	S	φN
DR5M42	25 $^{+0.021}_{0}$ (H7)	16	31 ± 0.2	4.5

Unit: mm

Shape of Actuator Installation Hole



Product Name	Nominal Screw Diameter	Tightening Torque (N·m)	A	B	φC
DR5M42	M4	1.8	2	8	4.5

Unit: mm

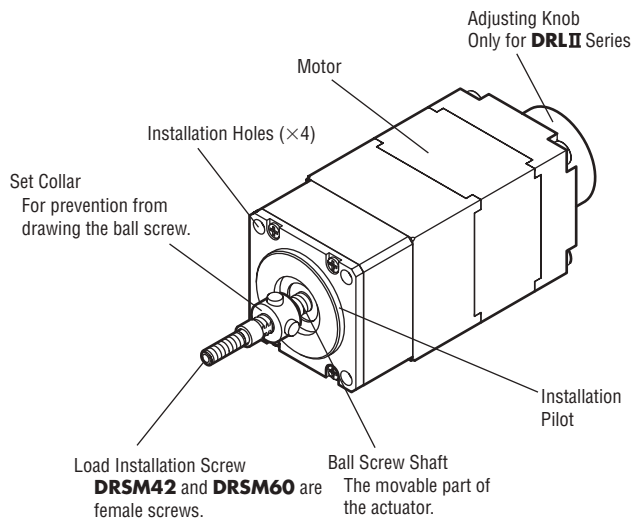
Installation Steps for Type without Guide

Names of Parts

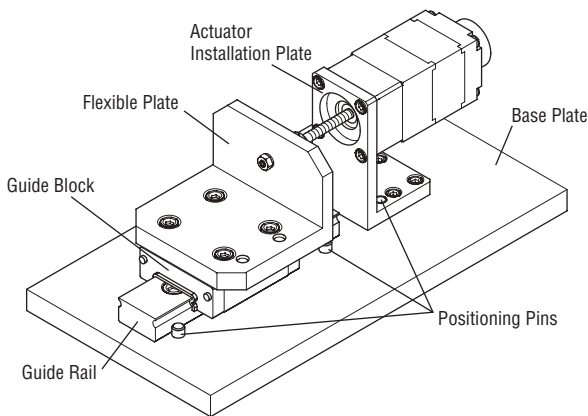
This section shows names of each part and those in a load installation example.

Type without Guide

This figure shows the type without guide for **DRL28**.



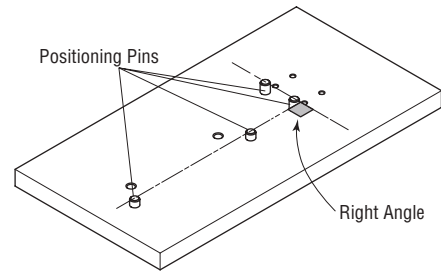
Load Installation Example



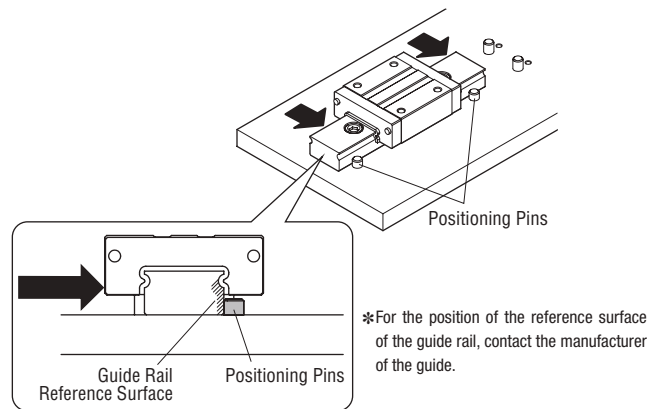
Installation Steps (Example)

Step1 Installing the Guide Rail

1. To position the guide rail and the actuator installation plate, install the positioning pins on the base plate.

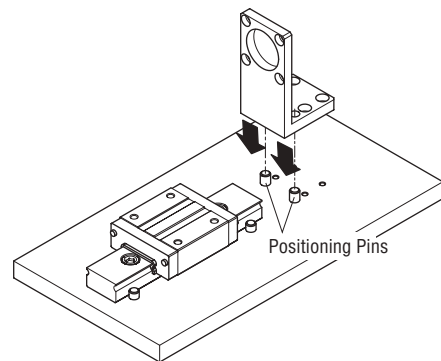


2. Pressing the reference surface of the guide rail against the positioning pins, fix it with screws.



Step2 Installing the Installation Plate

- Insert the actuator installation plate into the positioning pins on the base plate and fix it with screws.

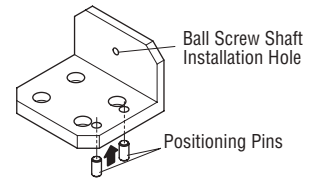
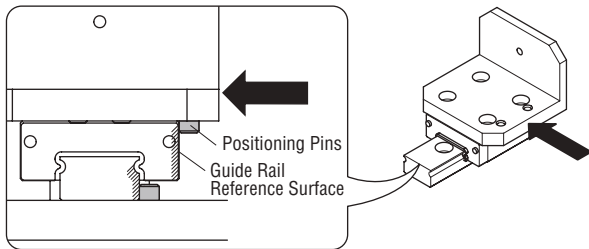


Step3 Installing the Flexible Plate

- If part precision centering is possible → ◇ Step3-A
- If part precision centering is not possible → ◇ Step3-B

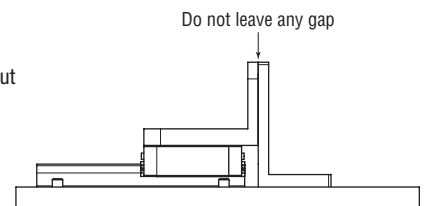
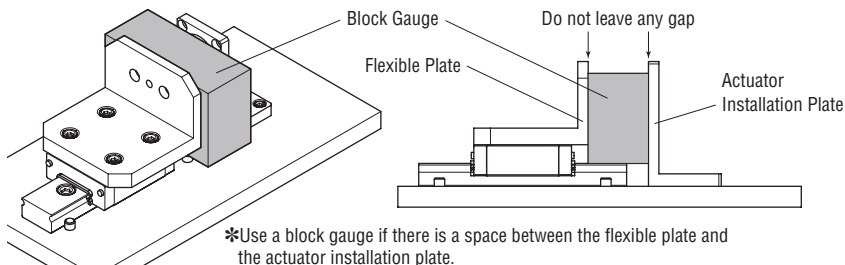
◇ Step3-A Installing the Flexible Plate (If part precision centering is possible)

1. To position the flexible plate and the guide block, install the positioning pins on the flexible plate.
2. Pressing the reference surface of the guide block against the positioning pins of the flexible plate, fix it with screws.

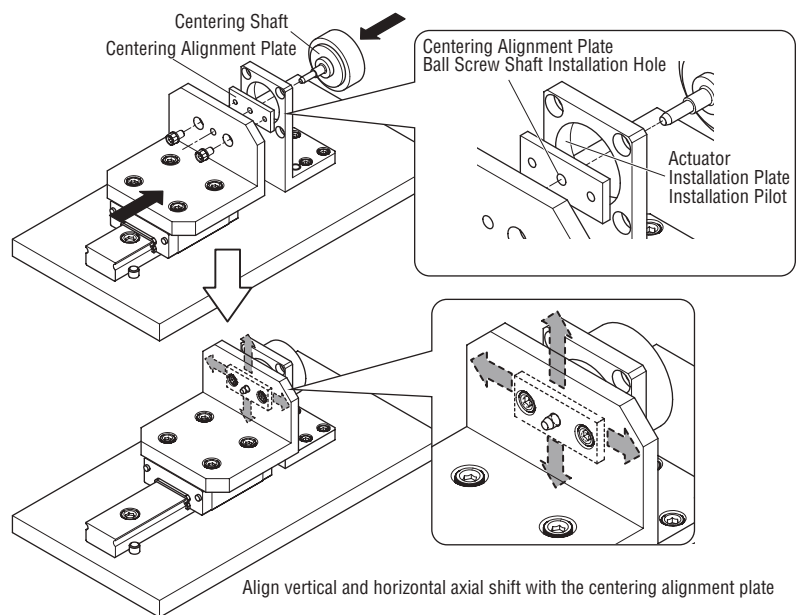


◇ Step3-B Installing the Flexible Plate (If part precision centering is not possible)

1. Install the flexible plate in either of the following ways:
 - Match the flexible plate and the actuator installation plate and fix them with screws not leaving any gap.
 - Insert a block gauge between the flexible plate and the actuator installation plate and fix them with screws without leaving any gap. If any gap is left, install the flexible plate again.

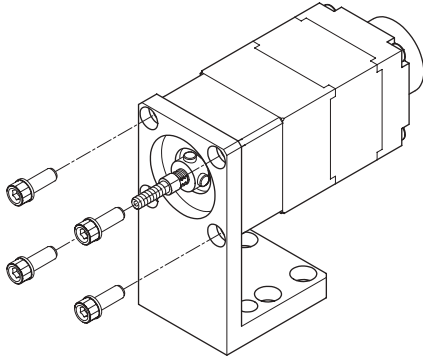


2. Using the centering shaft, align the axial center of the installation pilot of the actuator installation plate and the installation hole of the ball screw shaft on the centering alignment plate.
3. Slide the flexible plate back and force to check that it moves smoothly between the centering shaft and the flexible plate and then fix it. If the flexible plate does not move smoothly, move the centering alignment plate up and down and side by side to correct the axial shift.

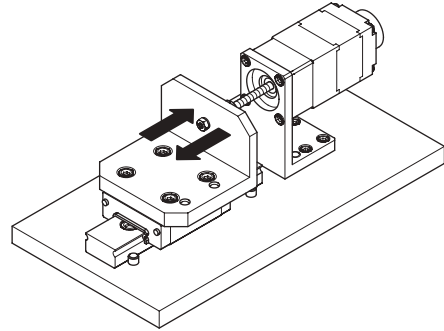


Step4 Fixing the Flexible Plate and the Ball Screw Shaft

1. Fix the compact linear actuator to the actuator installation plate with screws.

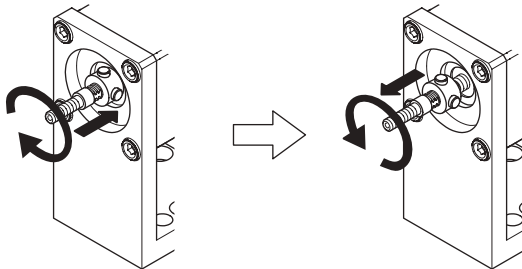


4. Run a test and check for no abnormal noise made from any part.

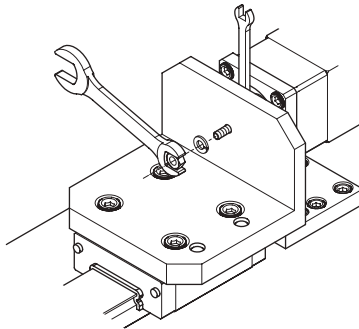


Product Name	Nominal Screw Diameter	Tightening Torque (N·m)
DRSM42	M4	1.8
DRSM60	M5	5

2. Press in the ball screw shaft until the set collar stops and then draw it out. The ball screw shaft should be drawn so that the set collar does not hit the actuator unit when tightening the shaft with a tool.



3. Insert the ball screw shaft into the installation hole for the shaft on the flexible plate and then fix with the nut. (Fix with a screw for **DRSM42** or **DRSM60**.)



Product Name	Nominal Screw Diameter	Tightening Torque (N·m)
DRSM42	M4 screw	1.8
DRSM60	M8 screw	5

LINEAR AND ROTARY ACTUATORS

Hollow Rotary Actuators

DGI Series

AZ Series Battery-Free Absolute Sensor Equipped

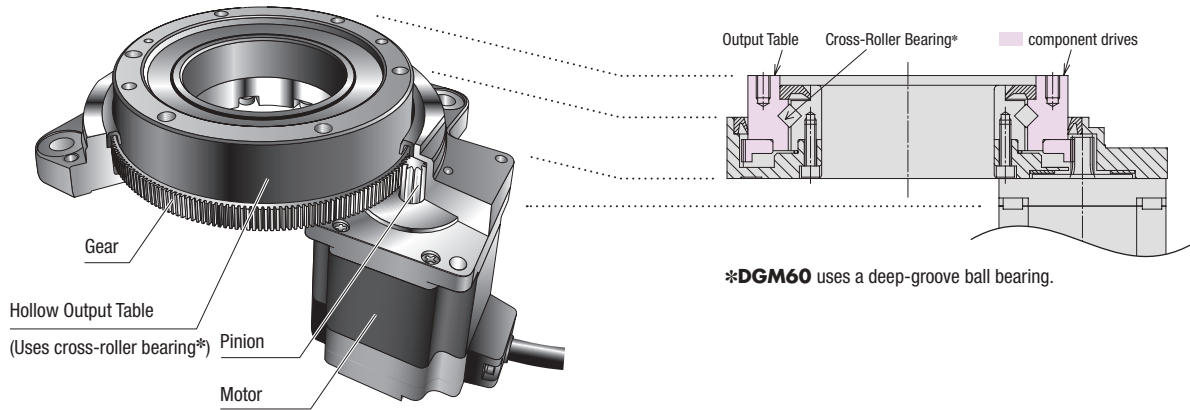


Hollow Rotary Actuator Characteristics

The **DGII** Series is a line of integrated products that combines a hollow rotary table with a stepper motor. The actuator has an internal speed reduction mechanism (gear ratio 18), which makes high power driving possible.

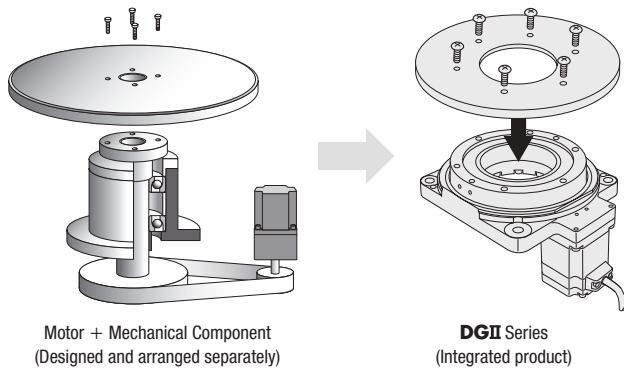
Features

A cross-roller bearing* is used on the output table, which allows for both high load and high rigidity.



Simplified Design

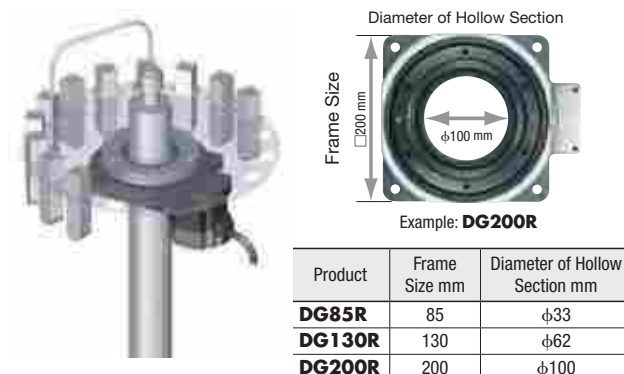
Tables and arms can be installed directly onto the output table. This saves the hassle and cost of designing an installation mechanism, arranging necessary mechanism parts, adjusting the belt tension, etc., when mechanical components such as a belt and pulley are used for installation.



Large-Diameter, Hollow Output Table Makes Simple Wiring and Piping Possible

The large diameter hollow hole (through-hole) helps reduce the complexity of wiring and piping, thus simplifying equipment design.

- Filling equipment with piped-in liquid



High Positioning Accuracy with Non-Backlash

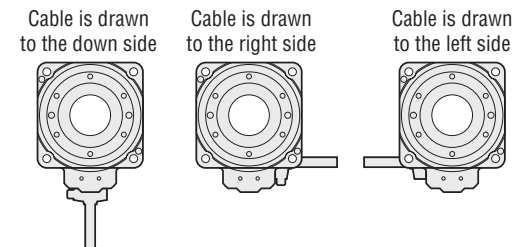
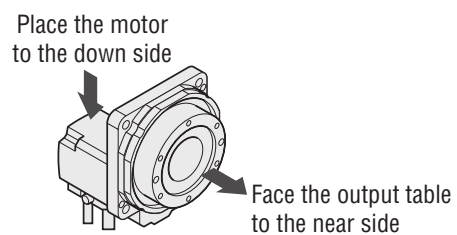
- Non-Backlash
- Repetitive Positioning Accuracy ± 15 arc seconds ($\pm 0.004^\circ$)

Note The repetitive positioning accuracy is measured at a constant temperature (normal temperature) under a constant load.

Selectable Cable Drawing Direction

3 types are available to choose from depending on the direction to draw out the motor cable.

- The cable drawing direction shows the cable direction when facing the output table to the near side and placing the motor to the down side.



Power Supply	Cable Drawing Direction	Hollow Rotary Actuator			
		Frame Size			
		60 mm	85 mm	130 mm	200 mm
AC Input	Down	—	●	●	●
	Right	—	—	●	●
	Left	—	—	●	●
DC Input	Down	●	●	●	—
	Right	—	—	●	—
	Left	—	—	●	—

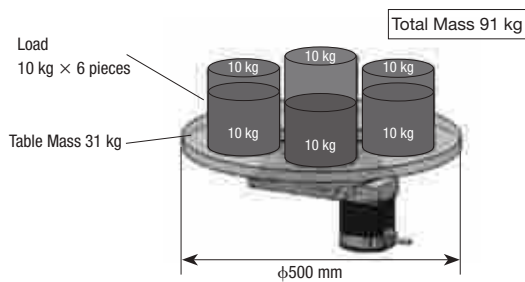
High Load and High Rigidity

DGII Series uses a cross-roller bearing on the output table bearing, which allows for both high load and high rigidity. (Except **DGM60** type)

- Maximum Permissible Axial Load 4000 N
- Maximum Permissible Moment 100 N·m

<Example Operation>

Actuator Product Name : **DGM200R-AZAC**
 Driver Product Name : **AZD-CD**
 Power-Supply Input : 230 VAC
 Load Mass : 91 kg (6 load pieces + table)
 : Load 10 kg/piece × 6 pieces
 : Table 31 kg
 (Diameter 500 mm, thickness 20 mm, iron)
 Overhang Distance : 160 mm
 Installation Direction : Horizontal



● High Load

The axial load for a total mass of 91 kg is 893 N.
 $(10 \text{ kg} \times 6 \text{ pieces} + 31 \text{ kg}) \times \text{gm/s}^2 \doteq 893 \text{ N}$
 The permissible axial load of the **DGM200R** is 4000 N, so this is within the permissible value.

High Load Driving is Possible

● High Rigidity

[Load Moment]

When a 10 kg load is placed 160 mm from the center of the table, the moment is 15.7 N·m.

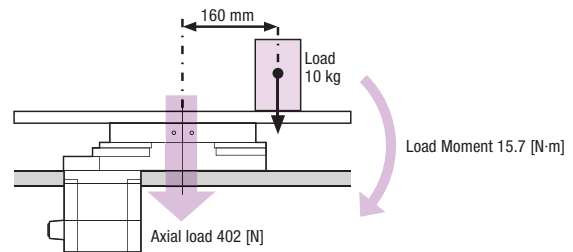
$$10 \text{ kg} \times \text{gm/s}^2 \times 0.16 \text{ m} \doteq 15.7 \text{ N}\cdot\text{m}$$

The permissible moment of the **DGM200R** is 100 N·m, so this is within the permissible value.

[Axial Load]

The axial load is: table + load $(31 \text{ kg} + 10 \text{ kg}) \times \text{gm/s}^2 \doteq 402 \text{ N}$

The permissible axial load of the **DGM200R** is 4000 N, so this is within the permissible value.

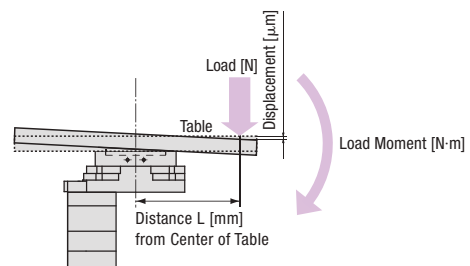


A high-rigidity rotary actuator allows a large load that is far away from the table center to be driven

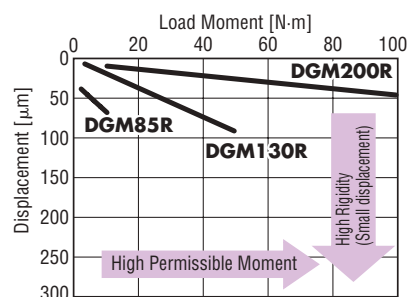
● Relationship Between Load Moment and Displacement when

Distance L=200 mm from Center of Table

The larger the frame size, the received permissible moment increases, but the displacement caused by the load moment decreases.

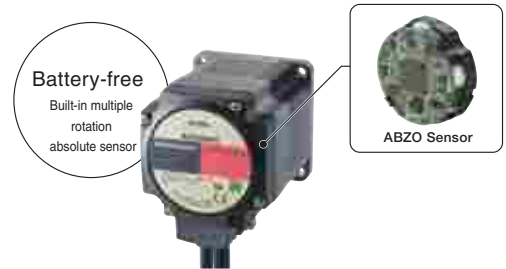


Displacement at Distance L = 200 mm from Center of Table



Simple Home Position Setting and Return-to-Home Thanks to Absolute System

The patented <ABZO Sensor>, a newly developed small mechanical multi-rotation absolute sensor. Contributes to improved productivity and cost reduction.



No Home Sensor Required

Because it is an absolute system, no home sensor is required.

Reduced Cost

Sensor costs and wiring costs can be reduced, allowing for lower system costs.

Simple Wiring

Wiring is simplified, and the degree of freedom for equipment design is increased.

Not Affected by Sensor Malfunctions

No need to worry about sensor malfunctions, sensor damage or sensor disconnection.

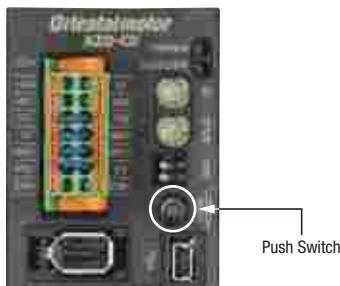
Improved Return-to-Home Accuracy

Home position accuracy is increased because the return-to-home action is performed regardless of any variations in home sensor sensitivity.

*If no limit sensor is installed, movements that exceed the limit values can be avoided through the use of the limits in the driver software.

Easy Home Position Setting

The home position can be easily set by pressing a switch on the driver's surface, which is saved by the ABZO sensor. In addition, home setting is possible with the **MEXE02** support software or by using an external input signal.

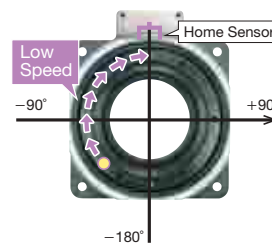


High-Speed Return-to-Home Operation

Because return-to-home is possible without using a home sensor, return-to-home can be performed at high speed without taking the specifications for sensor sensitivity into account, allowing for a shortened machine cycle.

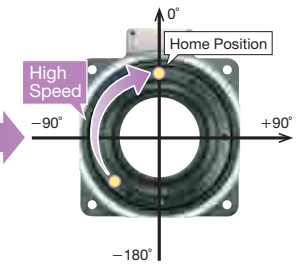
Return-to-Home Operation by Home Sensor Detection

Because home recognition is based on the sensor's sensitivity, travel is at low speed



Return-to-Home Operation of Products with AZ Series

Because the home position is known, high speed return-to-home is possible (ZHOME operation)

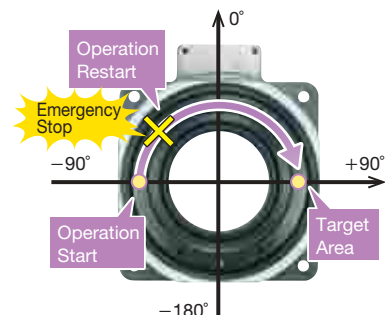


Return-to-Home Not Required

Even if the power shuts down during a positioning operation, the positioning information is retained. Furthermore, for built-in controller types, positioning operations can restart without a return-to-home when recovering from an emergency stop of the production line or a blackout.

Built-In Controller Type

After an Emergency Stop, Operation Can Restart Without Return-to-Home



Battery-Free Because it is a Mechanical-Type Sensor

Battery-Free

No battery is required because it is a mechanical-type sensor. Because positioning information is managed mechanically by the ABZO sensor, the positioning information can be preserved, even if the power turns off, or if the cable between the motor and the driver is disconnected.

Reduced Maintenance

Because there's no battery that needs replacing, maintenance time and costs can be reduced.

Unlimited Driver Installation Possibilities

Because there is no need to secure space for battery replacement, there are no restrictions on the installation location of the driver, improving the flexibility and freedom of the layout design of the control box.



Safe for Overseas Shipping

Normal batteries will self-discharge, so care must be taken when the equipment requires a long shipping time, such as when being sent overseas. The ABZO sensor does not require a battery, so there is no limit to how long the positioning information is maintained. In addition, there's no need to worry about various safety regulations, which must be taken into consideration when shipping a battery overseas.

Position Holding Even When the Cable Between the Motor and Driver is Detached

Positioning information is stored within the ABZO sensor.

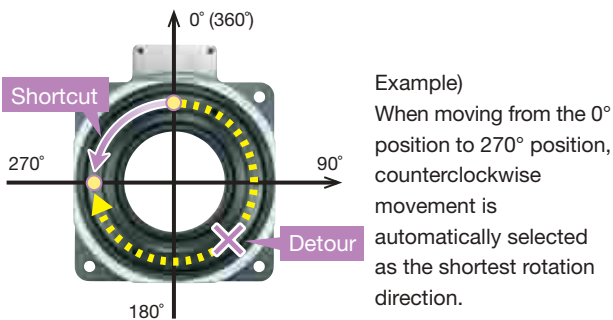
Convenient Functions Thanks to the Use of the AZ Series

Convenient Operation & Setting

By using models with **AZ** Series functions, coordinate management on the hollow rotary actuator output table can be carried out, and the follow operations are possible.

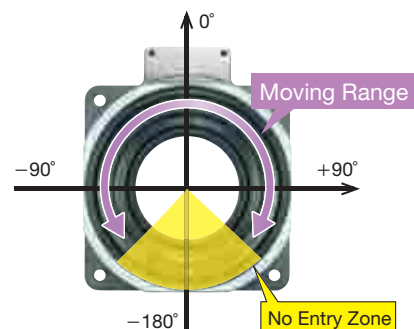
Reduce takt time with short-cut operations

This is an operation method in which the actuator rotates in the direction that is the shortest distance to the target position. This can reduce the takt time of the equipment.



Simple control by setting no-entry zones

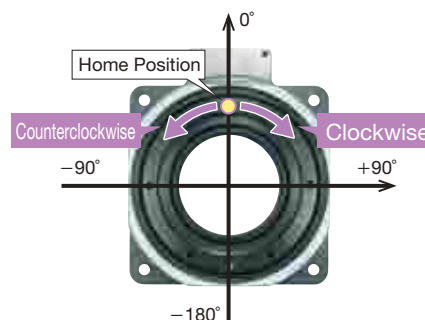
If there are obstructions on the equipment, it is possible to set a region on the output table that will be avoided.



Reduced Equipment Setup Time

The necessary operation parameters for the hollow rotary actuator are set at the time of shipment, which contributes to reduced equipment setup time.

- Home Position
- Resolution Setting (0.01°/step)
- Output Table Rotation Direction Setting
- Round Setting $\pm 180^\circ$
- All initial setting values can be changed.



High Performance and High Reliability Thanks to Stepper Motor and Driver Packages α STEP

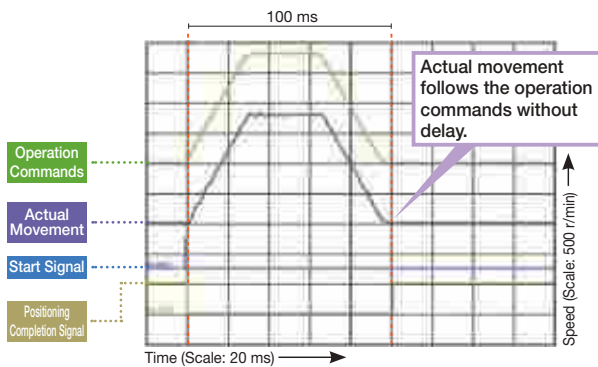
High reliability is provided by using stepper motor and driver packages that employ a control method unique to Oriental Motor, which combines the merits of both open loop control and closed loop control.

Quick Positioning through Agile Responsiveness

With stepper motors, short distance positioning is carried out in a short period of time.

Stepper motors are operated synchronously with pulse commands, and while they are compact, they still generate high torque and offer excellent acceleration performance and response.

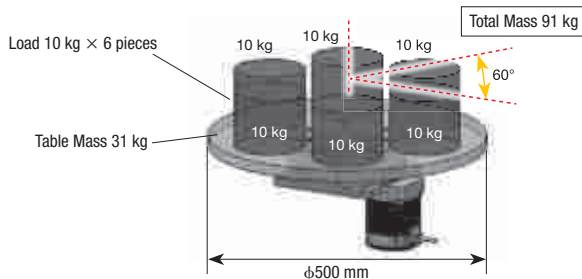
Actual stepper motor movement in response to operation commands



<Example Operation>

Actuator Product Name : **DGM200R-AZAC**
 Driver Product Name : **AZD-CD**
 Power-Supply Input : 230 VAC
 Load Mass : 91 kg (6 load pieces + table)
 : Load 10 kg/piece \times 6 pieces
 : Table 31 kg (Diameter 500 mm, thickness 20 mm, iron)
 Installation Direction : Horizontal
 Traveling Amount : 60°

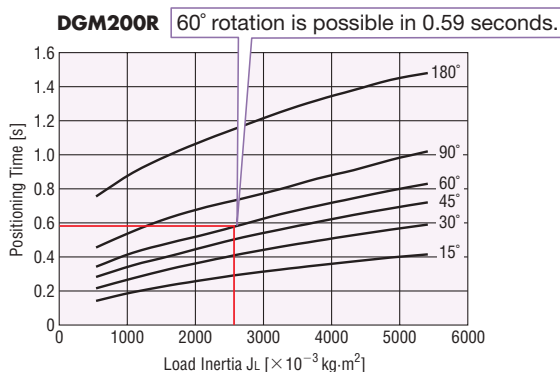
Total inertia of table and load = $2633 \times 10^{-3} \text{ kg}\cdot\text{m}^2$



● Quick Positioning

With the **DGM200R**, 60° rotation of a total mass of 91 kg is possible in 0.59 seconds.

Load Inertia – Positioning Time (Reference value)



The positioning time can be inferred using catalog data.

Quick positioning is possible even with large loads.



Stepper Motor and Driver Packages α STEP

AZ Series

With built-in battery-free absolute sensor

Continues Operation Even with Sudden Load Fluctuation and Sudden Acceleration

In normal conditions, it operates synchronously with pulse commands under open loop control, and because of its compact size and high torque generation, it has excellent acceleration performance and responsiveness. In an overload condition, it switches immediately to closed loop control to correct the position.

Low Vibration Even at Low Speed

Thanks to the microstep drive system and smooth drive function* of the stepper motor, resolution can be improved without mechanical elements such as a speed reduction mechanism. As a result, speed fluctuation is minimal even at low speeds, leading to improved stability.

*About the Smooth Drive Function

The smooth drive function automatically microsteps based on the same traveling amount and traveling speed used in the full step mode, without changing the pulse input settings.

Alarm Signal Output in Case of Abnormality

If a continuous overload is applied, an alarm signal is output. Also, when the positioning is completed, a signal is output. This provides high reliability.

No Tuning Required

Because it is normally operated with open loop control, even when the load fluctuates, no tuning is needed to obtain movement exactly as set.

Maintains Stop Position Without Hunting

Thanks to the normally open loop control, there is no hunting, the minute shaft movements that occur during stopping. Because the stop location is securely maintained, it is best suited for applications that undergo vibration during stops.

Applications & Uses

Applications that Require High Rigidity

- Applications in which a Moment Load is Applied (Ceiling mounted)



Applications that Require High Performance Motors

- High Positioning Accuracy Applications (Image inspection equipment)
- Applications with Load Fluctuations (Disc manufacturing equipment)

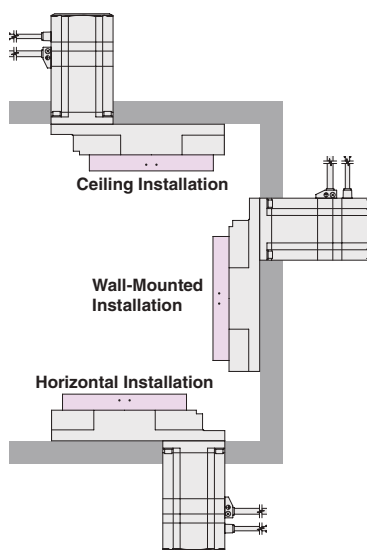


Installation Direction

In addition to horizontal installation, the **DGII** Series can also be ceiling-mounted or wall-mounted, expanding the possibilities of equipment design.

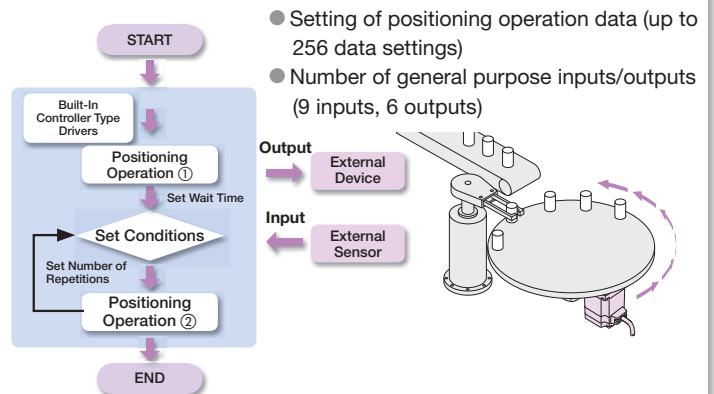
Note

A small amount of grease will occasionally seep out of the hollow rotary actuator. If a grease leak would cause a contamination issue near the machine, either perform routine inspections, or install protective equipment such as an oil sump.



Example Use of Simple Sequence Function (Built-in Controller Type)

The built-in controller type can simplify sequence control programming by outputting control signals to other devices, and incorporating external input signals from sensors, etc.

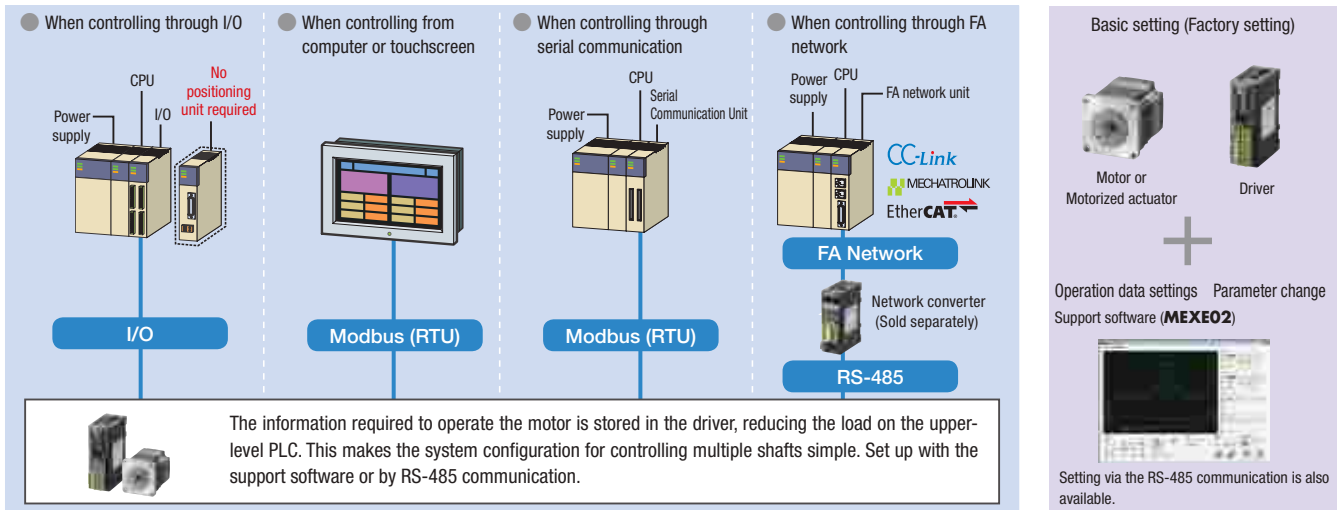


Drivers Selectable According to the Host System

A compatible driver can be selected for the **DGII** Series according to your host system.

Built-in Controller Type **FLEXO**

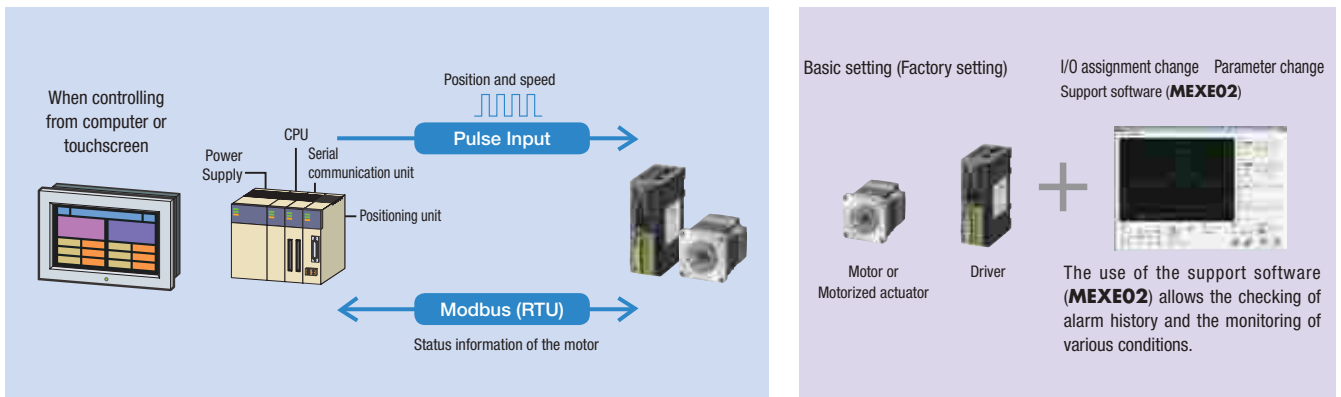
Set the operating data in the driver, and the operating data is selected and executed from the host system. Host system connection and control is performed through I/O, Modbus (RTU), RS-485 communication, or FA network. The use of a network converter (sold separately) allows control via CC-Link communication, MECHATROLINK communication, or EtherCAT communication.



FLEXO FLEX is a general term of the products that support I/O control, Modbus (RTU) control, and FA network control via a network converter.

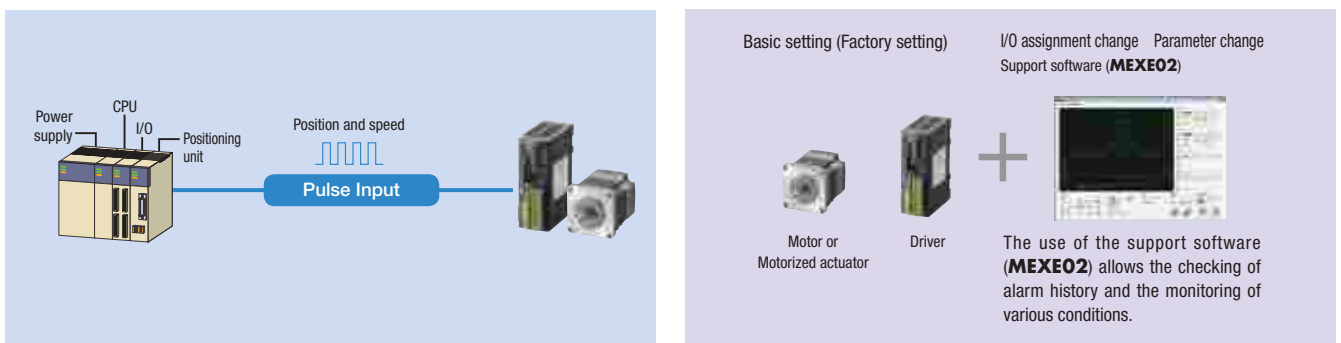
Pulse Input Type with RS-485 Communication

This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of RS-485 communication allows the monitoring of status information (position, speed, torque, alarms, temperature, etc.) of the motor.



Pulse Input Type

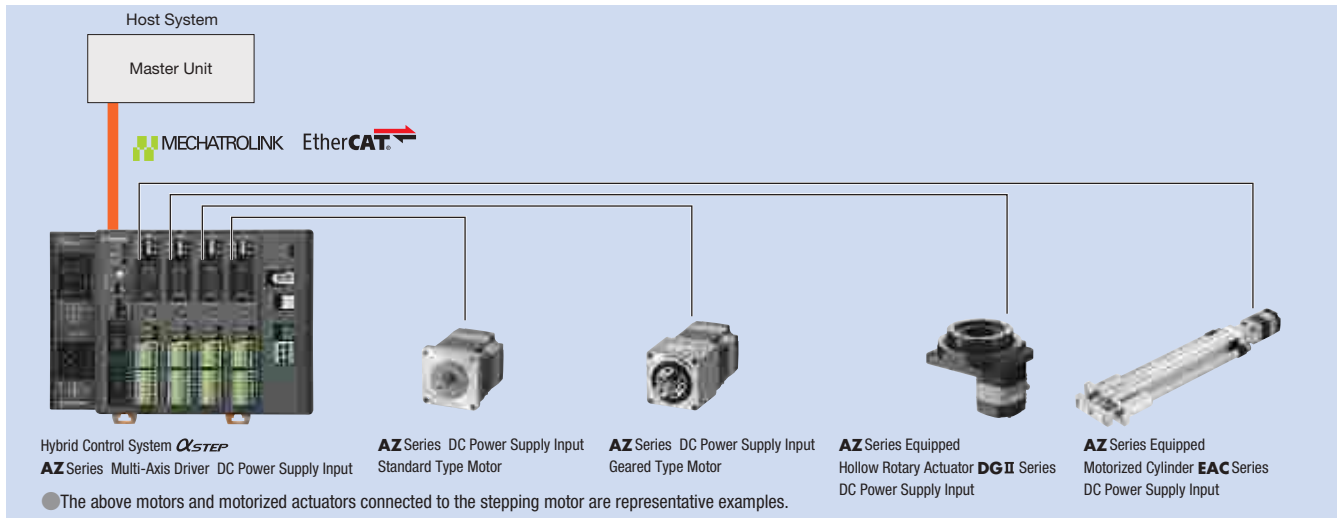
This type executes operation by inputting pulses to the driver. The motor is controlled from the positioning unit (pulse oscillator) provided by the customer. The use of the support software (**MEXE02**) allows the checking of alarm history and the monitoring of various conditions.



- **CC-Link** and **MECHATROLINK** are the registered trademarks of the CC-Link Partner Association and the MECHATROLINK Members Association, respectively.
- **EtherCAT** is the registered trademark licensed by Beckhoff Automation in Germany.
- The support software (**MEXE02**) can be downloaded from the Oriental Motor website. The media is also available (for free).

● **Network-compatible Multi-Axis Driver* (DC power supply input only)**

Multi-axis driver that supports MECHATROLINK-III and EtherCAT Drive Prole. The driver can be connected to a DC power supply motor of the **AZ** Series and to a actuator equipped with motor. 2-axes, 3-axes, and 4-axes connectable drivers are available.



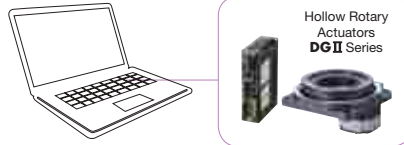
*For details of the products, see the Oriental Motor website.

Simple Operation with Support Software

Easy to use support software enables data setting and verification of the actual drive by using a computer.

Support Software (MEXE02)

The support software can be downloaded from the website. Oriental Motor also provides it on a CD-ROM free of charge.



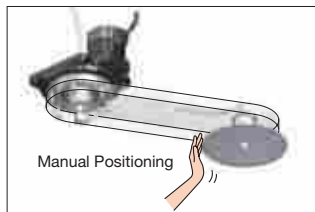
● **Operating Data and Parameter Settings**

Setting of operation data and parameters is easily performed via computer. Because the setting data can be saved, when the driver is replaced, the same settings can be used by transferring the saved data.



● **Teaching and Remote Operation**

By using the data setting software and manual positioning, the operation command information can be input into the driver. Use when setting up equipment.

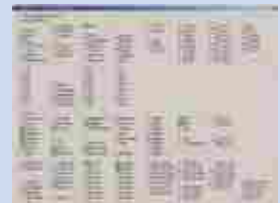


● Multi-monitoring enables remote operation and teaching while monitoring.

Various Monitoring Functions

● **I/O Monitoring**

The state of I/O wiring to the driver can be verified by computer. This can be used for post-wiring I/O checks or I/O checks during operation.



● **Waveform Monitoring**

The operational state of the motor (such as command speed and motor load factor), can be checked by an oscilloscope-like image. This can be used for equipment start-up and adjustment.



● **Alarm Monitoring**

When an abnormality occurs, the details of the abnormality and the solution can be checked.















Lineup

Hollow Rotary Actuators **DGII** Series *αSTEP AZ* Equipped

AC : Single-Phase 100-120 VAC,
Single-Phase/Three-Phase 200-240 VAC Input

DC : 24/48 VDC Input

Actuators													Driver				
Product Name Frame Size Power Supply Input	Electro- magnetic Brake	Diameter of Hollow Section [mm]	Permissible Torque [N·m]	Permissible Moment Load [N·m]				Permissible Axial Load [N]				Lost Motion [arcmin]	Backlash [arcmin]	Angular Transmission Accuracy [arcmin]	Repetitive Positioning Accuracy [arcsec]	Type	
				20	40	60	80	500	1000	2000	3000						
DGM60 60 mm NEW DC 	Not Equipped	φ28	0.9	2									2		4	±15	Built-in Controller FLEX  AC  DC <hr/> Pulse Input with RS-485 Communication  AC  DC <hr/> Pulse Input  AC  DC <hr/> Network -Compatible Multi-Axis Driver*  DC 
DGM85R 85 mm AC DC 	Not Equipped	φ33	4.5	10									2		4	±15	
	Equipped																
DGM130R 130 mm AC DC Selectable Cable Drawing Direction 	Not Equipped	φ62	12	50									2	Non- Backlash	3	±15	
	Equipped																
DGM200R 200 mm AC Selectable Cable Drawing Direction 	Not Equipped	φ100	50	100									2		2	±15	
	Equipped																

* For details please refer to our website.

How to Read Specifications

Specifications

Frame Size		85 mm	130 mm	200 mm
Actuator Product Name	Single Shaft Type	DGM85R-AZAC	DGM130R-AZAC □	DGM200R-AZAC □
	Electromagnetic Brake Type	DGM85R-AZMC	DGM130R-AZMC □	DGM200R-AZMC □
Driver Model Name	Built-in Controller Type	AZD-AD (Single-Phase 100-120 VAC), AZD-CD (Single-Phase / Three-Phase 200-240 VAC)		
	Pulse Input Type with RS-485 Communication	AZD-AX (Single-Phase 100-120 VAC), AZD-CX (Single-Phase / Three-Phase 200-240 VAC)		
	Pulse Input Type	AZD-A (Single-Phase 100-120 VAC), AZD-C (Single-Phase / Three-Phase 200-240 VAC)		
Built-In Motor (AZ Series)		AZM46	AZM66	AZM911
①	Type of Output Table Supporting Bearing	Cross-Roller Bearing		
②	Inertia	J: kg·m ²	21120 × 10 ⁻⁷ [26304 × 10 ⁻⁷]	147380 × 10 ⁻⁷ [199220 × 10 ⁻⁷]
	Gear Ratio		18	916400 × 10 ⁻⁷ [968240 × 10 ⁻⁷]
③	Minimum Traveling Amount of the Output Table	deg/STEP	0.01	
④	Permissible Torque	N·m	4.5	12
⑤	Holding Torque at Motor Standstill	Power ON	2.7	12
		Electromagnetic Brake	2.7	12
⑥	Max. Speed	deg/seconds	1200 (200 r/min)	
⑦	Repetitive Positioning Accuracy	arc second	±15 (±0.004°)	
⑧	Lost Motion	arc minute	2 (0.033°)	
⑨	Angular Transmission Accuracy	arc minute	4 (0.067°)	3 (0.05°)
⑩	Permissible Axial Load	N	500	2000
⑪	Permissible Moment	N·m	10	50
⑫	Runout of Output Table Surface	mm	0.015	
⑬	Runout of Output Table Inner (Outer) Diameter	mm	0.015	0.030
⑭	Parallelism of Output Table	mm	0.030	
⑮	Degree of Protection		IP40 (IP20 for motor connector)	
Power-Supply Input	Voltage and Frequency		Single-Phase 100-120 VAC, Single-Phase / Three-Phase 200-240 VAC	
	Input Current A	Single-Phase 100-120 VAC	2.7	3.8
		Single-Phase 200-240 VAC	1.7	2.3
		Three-Phase 200-240 VAC	1.0	1.4
Control Power Supply		24 VDC±5% 0.25 A [0.33 A]	24 VDC±5% 0.25 A [0.5 A]	

- ① Type of Output Table Supporting Bearing
This is the type of the bearing used for the output table.
- ② Inertia
This is the total sum of the rotor inertial moment of the motor and the inertial moment of the speed reduction mechanism converted to a moment on the output table.
- ③ Minimum Traveling Amount of the Output Table
This is the minimum traveling amount that can be set. (Factory setting)
- ④ Permissible Torque
This is the limit of mechanical strength of the speed reduction mechanism. Make sure the applied torque, including the acceleration torque and load fluctuation, does not exceed the permissible torque.
- ⑤ Holding Torque at Motor Standstill
Power ON: This is the maximum torque with which to hold the output table in position if it stops when the power is on.
Electromagnetic Brake: This is the maximum torque with which to hold the output table in position using an electromagnetic brake when it stops.
- ⑥ Max. Speed
This is the output table speed that the mechanical strength of the speed reduction mechanism can tolerate.
- ⑦ Repetitive Positioning Accuracy
This is a value indicating the degree of error that generates when positioning is performed repeatedly to the same position in the same direction.
- ⑧ Lost Motion
This is the difference in stopped angles achieved when the output table is positioned to the same position in the forward and reverse directions.
- ⑨ Angular Transmission Accuracy
This is the difference between the theoretical rotation angle of the output table as calculated from the input pulse counter, and the actual rotation angle.
- ⑩ Permissible Axial Load
This is the permissible value of axial load applied to the output table in the axial direction.
- ⑪ Permissible Moment
When a load is applied to a position away from the center of the output table, the output table receives a tilting force. The permissible moment load refers to the permissible value of moment load calculated by multiplying the offset distance from the center by the applied load.
- ⑫ Runout of Output Table Surface
This is the maximum value of runout of the installation surface of the output table when the output table is rotated under no load.
- ⑬ Runout of Output Table Inner (Outer) Diameter
This is the maximum value of runout of the inner diameter or outer diameter of the table when the output table is rotated under no load.
- ⑭ Parallelism of Output Table
This is the inclination of the installation surface of the output table compared with the actuator installation surface on the equipment side.
- ⑮ Degree of Protection
Based on IEC60529 and EN60034-5 (=IEC60034-5), dust-resistance and waterproofing regarding the degree of protection of the device is classified using a grade.

Hollow Rotary Actuators

DGII Series α STEP AZ Equipped AC Input

Product Number Code

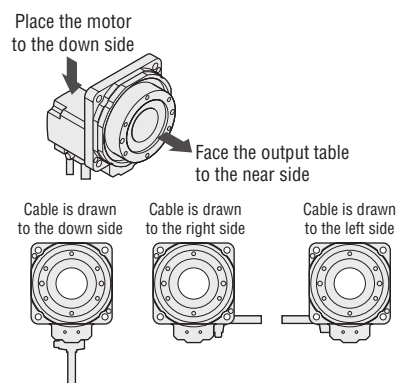
Hollow Rotary Actuators

DGM 130 R - AZ A C R

① ② ③ ④ ⑤ ⑥ ⑦

①	Series Name	DGM : DGII Series Actuator
②	Frame Size	85 : 85 mm 130 : 130 mm 200 : 200 mm
③	Type of Output Table Supporting Bearing	R : Cross-Roller Bearing
④	Motor Type	AZ : AZ Series
⑤	Motor Configuration	A : Single Shaft M : With Electromagnetic Brake
⑥	Motor Specification	C : AC Power Supply Input Specification
⑦	Cable Drawing Direction*	Blank : Down side R : Right side L : Left side

* The cable drawing direction represents the cable direction for when the output table is faced to the near side and the motor is placed to the down side.



Drivers

AZD - C D

① ② ③

①	Driver Type	AZD : AZ Series Driver
②	Power Supply Input	A : Single-Phase 100-120 VAC C : Single-Phase /Three-Phase 200-240 VAC
③	Type	D : Built-in Controller Type X : Pulse Input Type with RS-485 Communication Blank : Pulse Input Type

Connection Cable Sets/Flexible Connection Cable Sets

CC 050 V Z F B

① ② ③ ④ ⑤ ⑥

①		CC : Cable
②	Length	010 : 1 m 020 : 2 m 030 : 3 m 050 : 5 m 070 : 7 m 100 : 10 m 150 : 15 m 200 : 20 m
③	Reference Number	
④	Applicable Models	Z : AZ Series
⑤	Cable Type	F : Connection Cable Sets R : Flexible Connection Cable Sets
⑥	Electromagnetic Brake	Blank : Without Electromagnetic Brake B : With Electromagnetic Brake

Product Line

Hollow Rotary Actuators

◇ Single Shaft

Frame Size	Product Name	List Price
85 mm	DGM85R-AZAC	SGD1,938
130 mm	DGM130R-AZAC DGM130R-AZACR DGM130R-AZACL	SGD2,188
200 mm	DGM200R-AZAC DGM200R-AZACR DGM200R-AZACL	SGD2,613



◇ With Electromagnetic Brake

Frame Size	Product Name	List Price
85 mm	DGM85R-AZMC	SGD2,113
130 mm	DGM130R-AZMC DGM130R-AZMCR DGM130R-AZMCL	SGD2,413
200 mm	DGM200R-AZMC DGM200R-AZMCR DGM200R-AZMCL	SGD2,863



● Drivers

◇ Built-in Controller Type

Power Supply Input	Product Name	List Price
Single-Phase100-120VAC	AZD-AD	SGD650
Single-Phase/Three-Phase200-240VAC	AZD-CD	SGD650



◇ Pulse Input Type with RS-485 Communication

Power Supply Input	Product Name	List Price
Single-Phase 100-120VAC	AZD-AX	SGD650
Single-Phase/Three-Phase200-240VAC	AZD-CX	SGD650



◇ Pulse Input Type

Power Supply Input	Product Name	List Price
Single-Phase100-120VAC	AZD-A	SGD588
Single-Phase/Three-Phase200-240VAC	AZD-C	SGD588

● Connection Cable Sets/Flexible Connection Cable Sets

Use a flexible connection cable if the cable will be bent.

The motor cable and electromagnetic brake cable from the hollow rotary actuator cannot be connected directly to the driver. When connecting to a driver, use the accessory connection cable (sold separately) or use the included connection cable (for products which include a connection cable).

◇ For Motor/Encoder



Product Line	Length m	Product Name	List Price
Connection Cable Sets	0.5	CC005VZF	SGD38
	1	CC010VZF	SGD38
	1.5	CC015VZF	SGD44
	2	CC020VZF	SGD50
	2.5	CC025VZF	SGD56
	3	CC030VZF	SGD63
	4	CC040VZF	SGD98
	5	CC050VZF	SGD110
	7	CC070VZF	SGD136
	10	CC100VZF	SGD176
Flexible Connection Cable Sets	15	CC150VZF	SGD244
	20	CC200VZF	SGD310
	0.5	CC005VZR	SGD84
	1	CC010VZR	SGD84
	1.5	CC015VZR	SGD92
	2	CC020VZR	SGD99
	2.5	CC025VZR	SGD106
	3	CC030VZR	SGD111
	4	CC040VZR	SGD126
	5	CC050VZR	SGD141
Flexible Connection Cable Sets	7	CC070VZR	SGD180
	10	CC100VZR	SGD236
	15	CC150VZR	SGD333
	20	CC200VZR	SGD426

◇ For Motor/Encoder/
Electromagnetic Brake



Product Line	Length m	Product Name	List Price
Connection Cable Sets	0.5	CC005VZFB	SGD53
	1	CC010VZFB	SGD53
	1.5	CC015VZFB	SGD60
	2	CC020VZFB	SGD68
	2.5	CC025VZFB	SGD75
	3	CC030VZFB	SGD83
	4	CC040VZFB	SGD121
	5	CC050VZFB	SGD135
	7	CC070VZFB	SGD166
	10	CC100VZFB	SGD214
Flexible Connection Cable Sets	15	CC150VZFB	SGD294
	20	CC200VZFB	SGD373
	0.5	CC005VZRB	SGD114
	1	CC010VZRB	SGD114
	1.5	CC015VZRB	SGD124
	2	CC020VZRB	SGD134
	2.5	CC025VZRB	SGD143
	3	CC030VZRB	SGD151
	4	CC040VZRB	SGD171
	5	CC050VZRB	SGD191
Flexible Connection Cable Sets	7	CC070VZRB	SGD240
	10	CC100VZRB	SGD311
	15	CC150VZRB	SGD433
	20	CC200VZRB	SGD551

■ Included

● Actuators

Type	Included	Operating Manual
Common to All Types		1 Copy

● Drivers

Type	Included	Connector	Operating Manual
Common to All Types		<ul style="list-style-type: none"> • Connector for CN4 (1 piece) • Connector for CN1 (1 piece) • Connector for CN5 (1 piece) • Connector Wiring Lever (1 piece) 	1 Copy

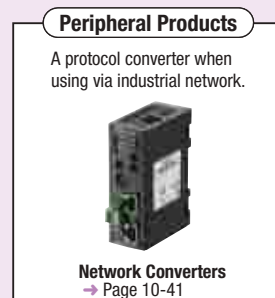
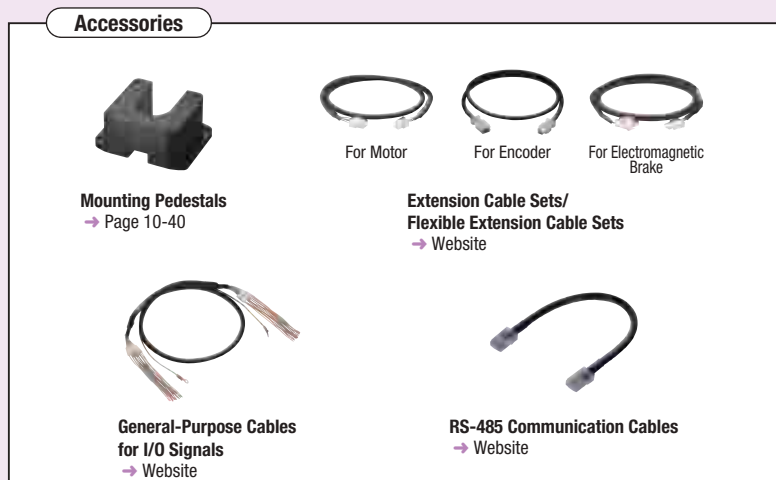
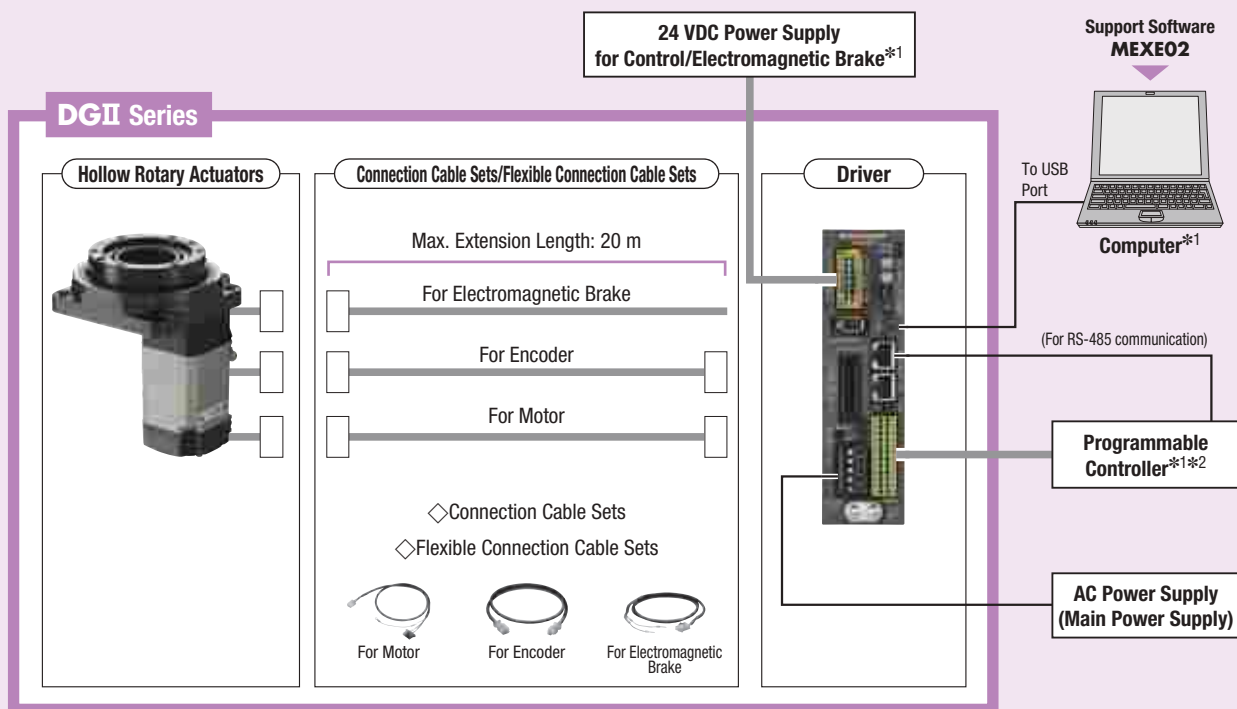
● Connection Cable Sets/Flexible Connection Cable Sets

Type	Included	Operating Manual
Connection Cable Sets		—
Flexible Connection Cable Sets		1 Copy

System Configuration

Combination of Linear & Rotary Actuator with Electromagnetic Brake, and either Built-in Controller Type Driver or Pulse Input Type Driver with RS-485 Communication

This is an example of a configuration using I/O control or RS-485 communication in a built-in controller type driver. Hollow rotary actuators, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



*1 Not supplied.

*2 For drivers of pulse input type with RS-485 communication, use a controller that has a pulse generating function.

● The **MEXEO2** can be downloaded from Oriental Motor Website Download Page.

● The functions and operating method of this product are common to those of the hybrid control system **αSTEP AZ** Series.

For the functions and operating method of this product, refer to the operating manuals (Driver Edition and Function Edition) of the **AZ** Series. The OPERATING MANUAL Driver Edition is included in the product, but the OPERATING MANUAL Function Edition is not included.

For detail, contact the nearest Oriental Motor sales office or download from Oriental Motor Website Download Page.

<http://www.orientalmotor.com.sg/>

System Configuration Example

DGII Series			+	Sold Separately
Hollow Rotary Actuator	Driver	Connection Cable Set (3 m)		General-Purpose Cable for I/O Signals (1 m)
DGM85R-AZMC SGD2,113	AZD-CD SGD650	CC030VZFB SGD83		CC16D010B-1 SGD25

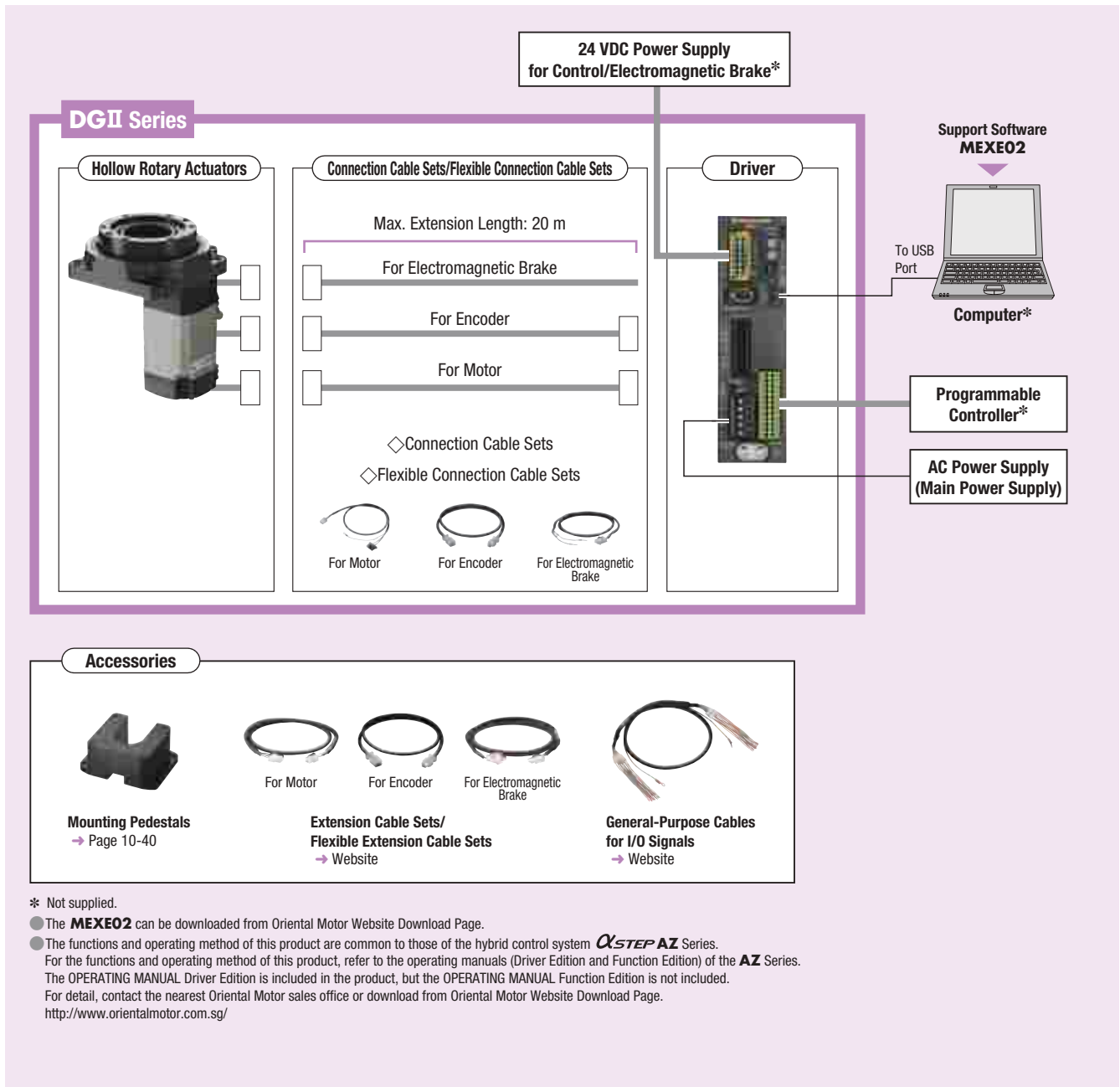
● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

● **Combination of Linear & Rotary Actuator with Electromagnetic Brake and Pulse Input Type Driver**

This is an example of a single-axis system configuration using a programmable controller (with pulse oscillation function). Hollow rotary actuators, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



● **System Configuration Example**

DGII Series			+	Sold Separately	
Hollow Rotary Actuator	Driver	Connection Cable Set (3 m)		General-Purpose Cable for I/O Signals (1 m)	
DGM85R-AZMC	AZD-C	CC030VZFB		CC16D010B-1	
SGD2,113	SGD588	SGD83		SGD25	

● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

Specifications

Frame Size		85 mm	130 mm	200 mm	
Actuator Product Name	Single Shaft	DGM85R-AZAC	DGM130R-AZAC □	DGM200R-AZAC □	
	With Electromagnetic Brake	DGM85R-AZMC	DGM130R-AZMC □	DGM200R-AZMC □	
Driver Product Name	Built-in Controller	AZD-AD (Single-Phase 100-120 VAC), AZD-CD (Single-Phase / Three-Phase 200-240VAC)			
	Pulse Input Type with RS-485 Communication	AZD-AX (Single-Phase 100-120VAC), AZD-CX (Single-Phase / Three-Phase 200-240VAC)			
	Pulse Input	AZD-A (Single-Phase 100-120VAC), AZD-C (Single-Phase / Three-Phase 200-240VAC)			
Motor Type (AZ Series)		AZM46	AZM66	AZM911	
Type of Output Table Supporting Bearing			Cross-Roller Bearing		
Inertia	J: kg·m ²	21120×10^{-7} [26304×10^{-7}]*1	147380×10^{-7} [199220×10^{-7}]*1	916400×10^{-7} [968240×10^{-7}]*1	
Gear Ratio		18			
Minimum Traveling Amount of the Output Table	deg/STEP	0.01			
Permissible Torque	N·m	4.5	12	50	
Holding Torque at Motor Standstill	Power ON	2.7	12	36 [20]*1	
	Electromagnetic Brake	2.7	12	20	
Maximum Speed	deg/s	1200 (200 r/min)		660 (110 r/min)	
Repetitive Positioning Accuracy	arcsec	±15 (±0.004°)			
Lost Motion	arcmin	2 (0.033°)			
Angular Transmission Accuracy	arcmin	4 (0.067°)	3 (0.05°)	2 (0.033°)	
Permissible Axial Load	N	500	2000	4000	
Permissible Moment	N·m	10	50	100	
Runout of Output Table Surface	mm	0.015			
Runout of Output Table Inner (Outer) Diameter	mm	0.015		0.030	
Parallelism of Output Table	mm	0.030		0.050	
Degree of Protection		IP40 (IP20 for motor connector)			
Power Supply Input	Voltage and Frequency		Single-Phase 100-120 VAC, Single-Phase / Three-Phase 200-240 VAC -15~+6% 50/60 Hz		
	Input Current A	Single-Phase 100-120 VAC	2.7	3.8	6.4
		Single-Phase 200-240 VAC	1.7	2.3	3.9
		Three-Phase 200-240 VAC	1.0	1.4	2.3
Control Power Supply		24 VDC ±5%*2 0.25 A [0.33 A]*1	24 VDC ±5%*2 0.25 A [0.5 A]*1		

● Either **R** (right) or **L** (left) is entered for the cable withdrawing direction in □ in the product name.

*1 The brackets [] indicate the specifications for the electromagnetic brake type.

*2 Changes to 24 VDC ± 4% if the electromagnetic brake type has been extended with the 20 m accessory cable.

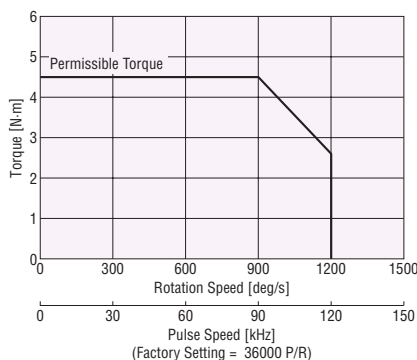
Note

● The repetitive positioning accuracy is measured at a constant temperature (normal temperature) under a constant load.

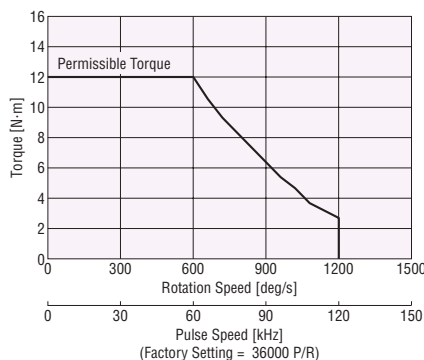
● The motor can not be removed.

Speed – Torque Characteristics (Reference values)

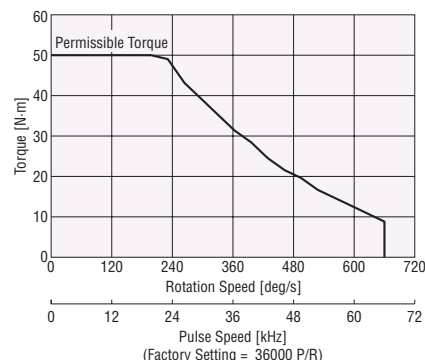
DGM85R-AZ



DGM130R-AZ



DGM200R-AZ



Note

● Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.

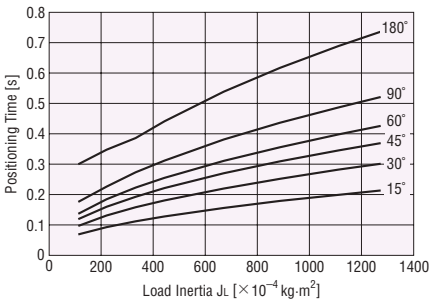
● Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Please keep the motor case temperature at a maximum of 80°C to protect the ABZO sensor.

(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C or less, since the motor is recognized as heat-resistant class A.)

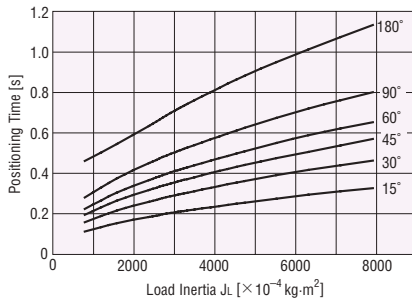
Load Inertia – Positioning Time (Reference value)

The load inertia refers to the inertia of the customer's load.

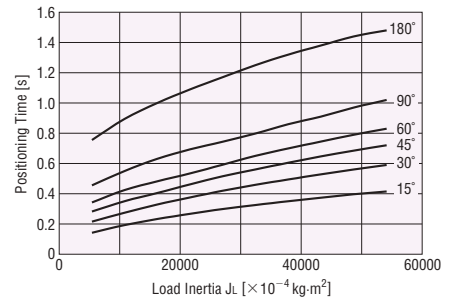
DGM85R-AZ



DGM130R-AZ



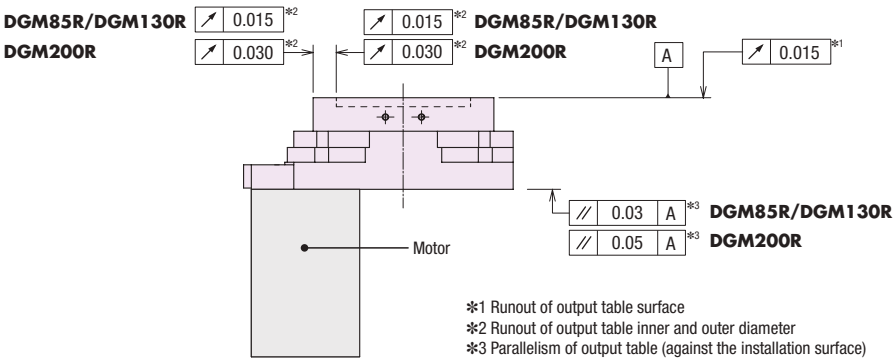
DGM200R-AZ



Note

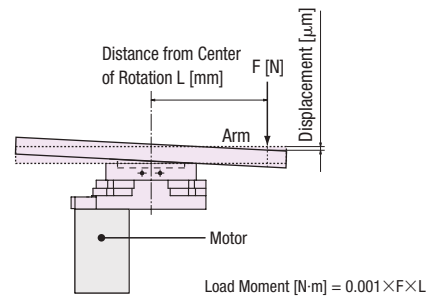
- Data for the load inertia - positioning time is theoretical value of 1.5 times torque safety factor at normal ambient temperature. If the conditions are changed, the characteristics may also change as a result.

Mechanical Precision (At no load)

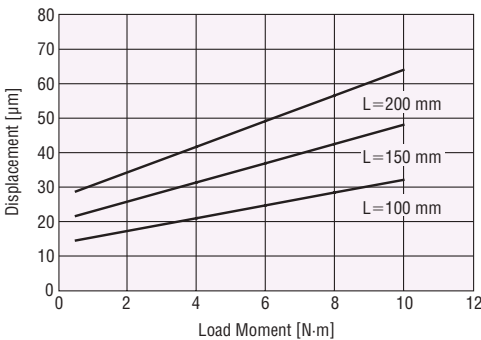


Displacement by Load Moment (Reference value)

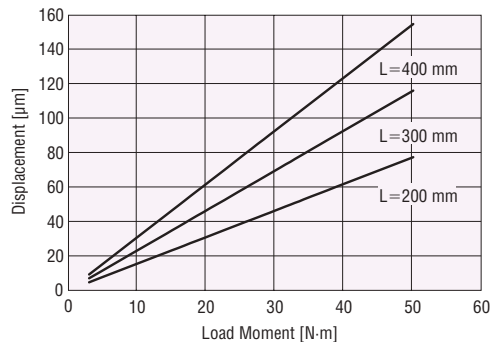
The output table will be displaced when it receives a load moment.
 The graph plots the table displacement that occurs at distance L from the rotation center of the output table when a given load moment is applied in one direction.
 The displacement becomes approximately twice the size when the load moment is applied in both the positive and negative directions.



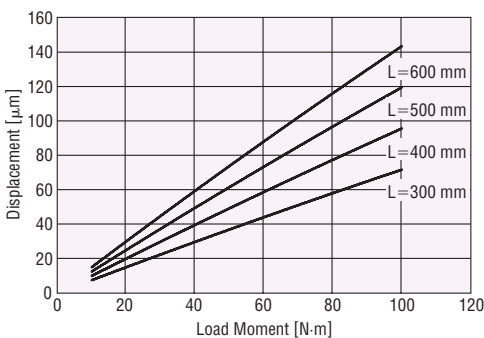
DGM85R



DGM130R



DGM200R



Electromagnetic Brake Specifications

Product Name	DGM85	DGM130	DGM200
Type	Power off activated type		
Power Supply Voltage	24 VDC±5%*		
Power Supply Current	A	0.08	0.25
Brake Activate Time	ms	20	
Brake Release Time	ms	30	
Time Rating	Continuous		

*For the electromagnetic brake type, the 24 VDC±4% specification applies if the wiring distance between the motor and driver is extended by 20 m using a cable.

General Specifications



	Actuator (Built-in Motor: AZ Series)	Driver	
		Built-In Controller Type Pulse Input Type with RS-485 Communication	Pulse Input Type
Thermal Class	130 (B) [Recognized as 105 (A) by the UL Standards]	-	
Insulation Resistance	The measured value is 100 MΩ or more when a 500 VDC megger is applied between the following locations: · Case – Motor windings · Case – Electromagnetic brake windings*2	The measured value is 100 MΩ or more when a 500 VDC megger is applied between the following locations: · Protective earth terminal – Power supply terminal · Encoder connector – Power supply terminal · I/O signal terminals – Power supply terminal	
Dielectric Strength	Sufficient to withstand the following for 1 minute: · Case – Motor windings 1.5 kVAC 50 Hz or 60 Hz · Case – Electromagnetic brake windings*2 1.5 kVAC 50 Hz or 60 Hz	Sufficient to withstand the following for 1 minute: · Protective earth terminal – Power supply terminal 1.5 kVAC, 50 Hz or 60 Hz · Encoder connector – Power supply terminal 1.8 kVAC, 50 Hz or 60 Hz · I/O signal terminals – Power supply terminal 1.8 kVAC, 50 Hz or 60 Hz	
Operating Environment (In operation)	Ambient Temperature	0~+40°C (Non-freezing)*3	
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	Use in an area without corrosive gases and dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection	IP40 (IP20 for motor connector)	IP10	IP20
Multiple rotation detection range in Power OFF state (Motor output shaft)	±900 rotations (1800 rotations)		

*1 For motor product names, not actuator product names.

*2 Only for electromagnetic brake type.

*3 It depends on the Orientalmotor's measurement conditions.

*4 When a heat sink of a capacity at least equivalent to an aluminum plate with a size of 200 × 200 mm and 2 mm thickness.

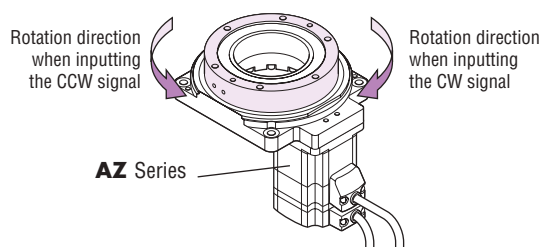
Note

Do not perform the insulation resistance measurement or dielectric voltage withstand test while the actuator and driver are connected.

Also, do not conduct these tests on the motor absolute sensor component.

Rotation Direction

The figure below shows the rotation directions seen from the output table.



Drivers and cables that are used with actuators are common to the **AZ** Series.

For details, see the catalogs of the **AZ** Series or our website.

- Driver Specifications
- RS-485 Communication Specifications
- Dimensions (Drivers, Connection Cables)
- Connection and Operation
- Accessories (Extension Cables)



Dimensions (Unit: mm)

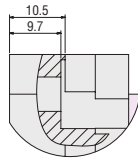
Hollow Rotary Actuators

◇ Frame Size 85 mm

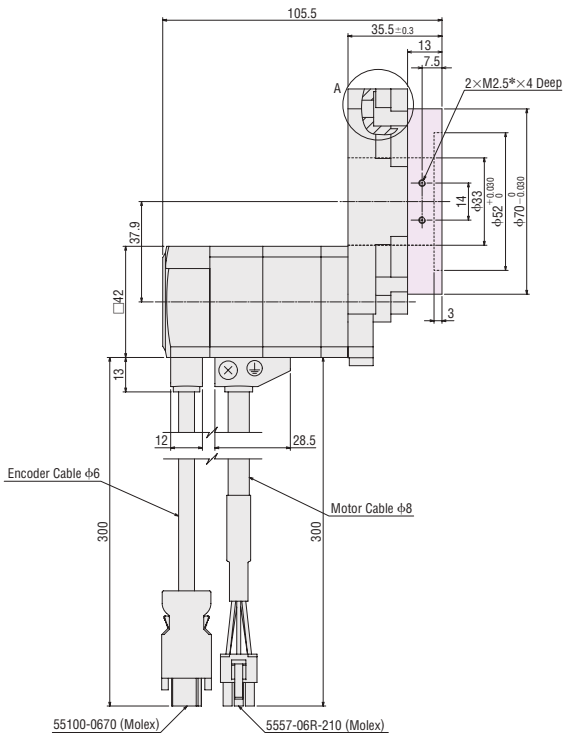
Single Shaft Type

2D & 3D CAD

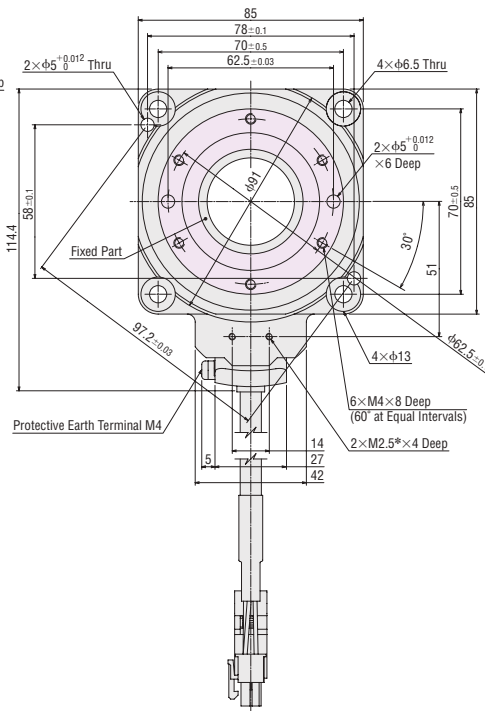
Product Name	Mass kg	2D CAD
DGM85R-AZAC	1.1	D4501



Detail of 'A'



● The shaded areas are rotating parts.

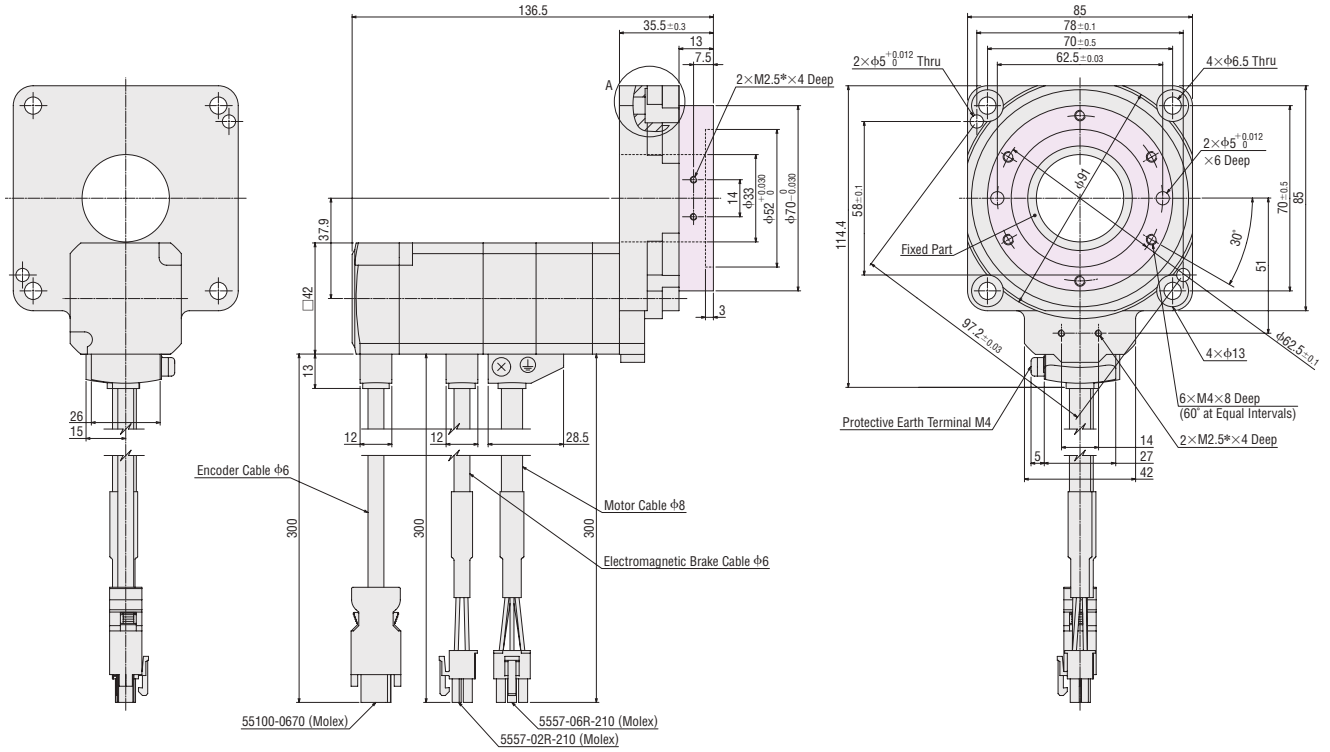
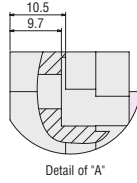


*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

Electromagnetic Brake Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
DGM85R-AZMC	1.3	D6452



● The shaded areas are rotating parts.

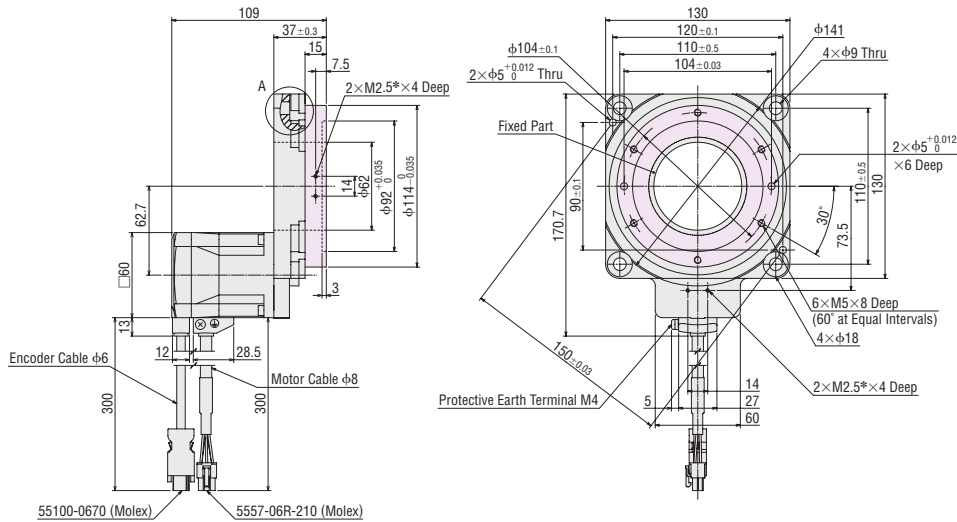
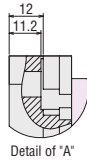
*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

◇ Frame Size 130 mm

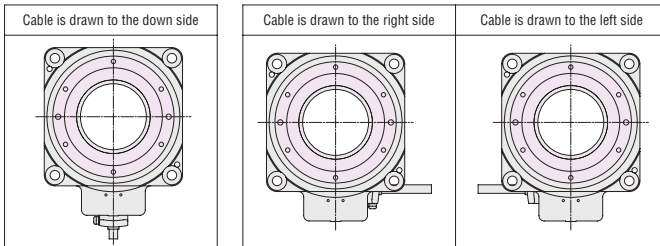
Single Shaft Type

2D & 3D CAD

Cable Drawing Direction	Product Name	Mass kg	2D CAD
Down	DGM130R-AZAC	2.7	D4502
Right	DGM130R-AZACR		D7645
Left	DGM130R-AZACL		D7644



Cable leading direction



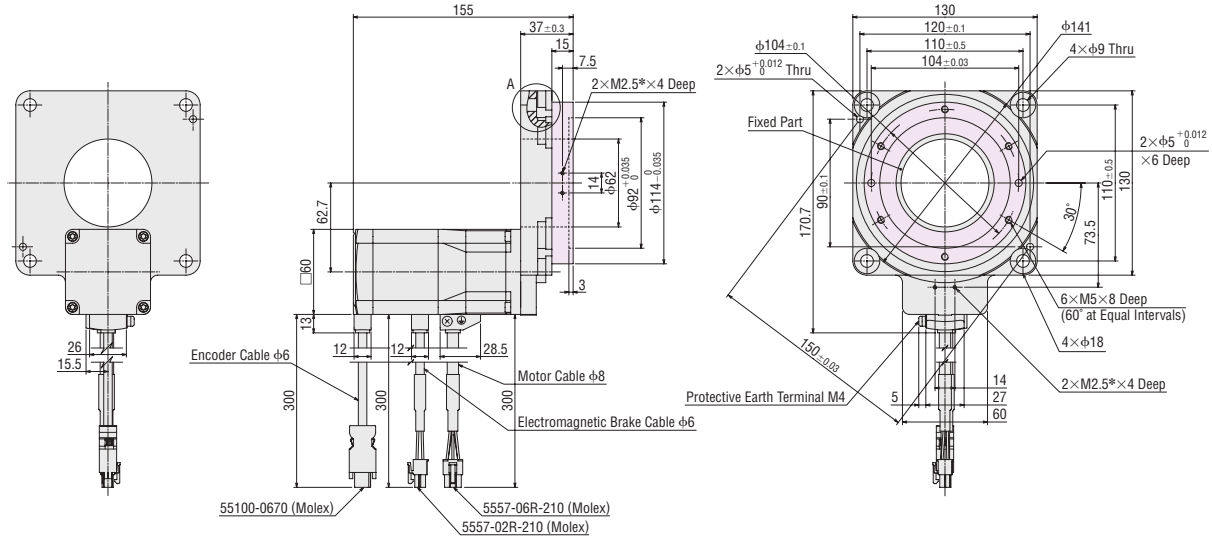
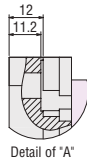
● The shaded areas are rotating parts.

*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

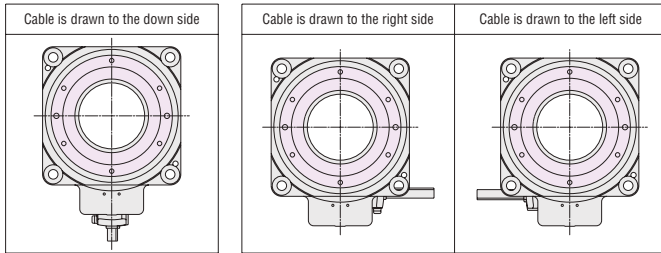
Electromagnetic Brake Type

2D & 3D CAD

Cable Drawing Direction	Product Name	Mass kg	2D CAD
Down	DGM130R-AZMC	3.1	D6453
Right	DGM130R-AZMCR		D7647
Left	DGM130R-AZMCL		D7646



Cable leading direction



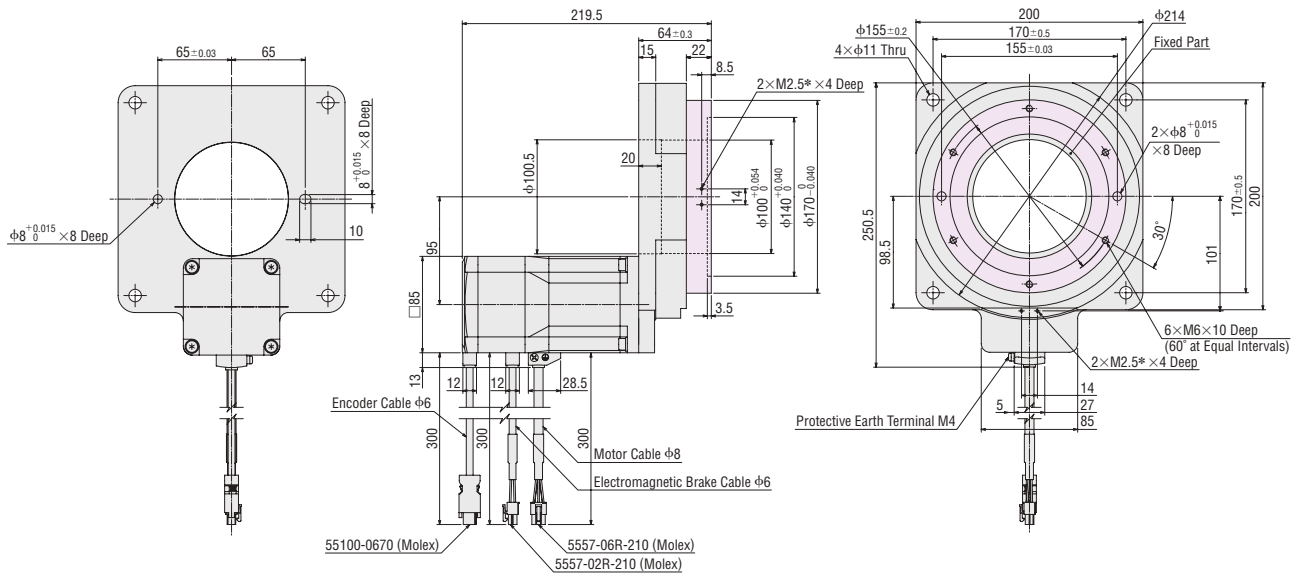
● The shaded areas are rotating parts.

※Use M2.5 screw holes when installing the home sensor set (sold separately). Do not use these holes for any purpose other than to install the home sensor.

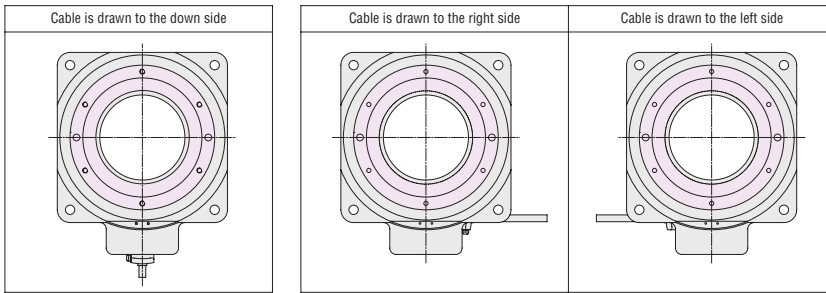
Electromagnetic Brake Type

2D & 3D CAD

Cable Drawing Direction	Product Name	Mass kg	2D CAD
Down	DGM200R-AZMC	10	D6455
Right	DGM200R-AZMCR		D7651
Left	DGM200R-AZMCL		D7650



Cable leading direction



● The shaded areas are rotating parts.

*Use M2.5 screw holes when installing the home sensor set (sold separately). Do not use these holes for any purpose other than to install the home sensor.

Hollow Rotary Actuators

DGII Series α STEP AZ Equipped DC Input

Product Number Code

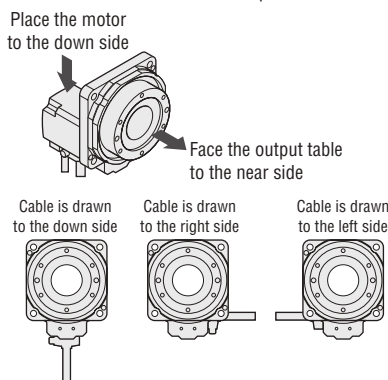
Hollow Rotary Actuators

DGM 130 R - AZ A K R

① ② ③ ④ ⑤ ⑥ ⑦

①	Series Name	DGM : DGII Series Actuator
②	Frame size	60 : 60 mm 85 : 85 mm 130 : 130 mm
③	Type of Output Table Supporting Bearing	R : Cross-Roller Bearing Blank : Deep-Groove Ball Bearing
④	Motor Type	AZ : AZ Series
⑤	Motor Configuration	A : Single Shaft M : With Electromagnetic Brake
⑥	Motor Specification	K : DC Power Supply Input Specification
⑦	Cable Drawing Direction*	Blank: Down side R : Right side L : Left side

*The cable drawing direction represents the cable direction for when the output table is faced to the near side and the motor is placed to the down side.



Drivers

AZD - K D

① ② ③

①	Driver Type	AZD : AZ Series Driver
②	Power Supply Input	K : 24/48 VDC
③	Type	D : Built-in Controller Type X : Pulse Input Type with RS-485 Communication Blank : Pulse Input Type

Connection Cable Sets/Flexible Connection Cable Sets

CC 050 V Z F B 2

① ② ③ ④ ⑤ ⑥ ⑦

①		CC : Cables
②	Length	010 : 1 m 020 : 2 m 030 : 3 m 050 : 5 m 070 : 7 m 100 : 10 m 150 : 15 m 200 : 20 m
③	Reference Number	
④	Applicable Models	Z : AZ Series
⑤	Cable Type	F : Connection Cable Sets R : Flexible Connection Cable Sets
⑥	Electromagnetic Brake	Blank : Without Electromagnetic Brake B : With Electromagnetic Brake
⑦	Cable Specifications	2 : DC Power Supply Input

Product Line

Hollow Rotary Actuators

◇ Single Shaft

Frame Size	Product Name	List Price
60 mm	DGM60-AZAK NEW	SGD1,081
85 mm	DGM85R-AZAK	SGD1,938
130 mm	DGM130R-AZAK DGM130R-AZAKR DGM130R-AZAKL	SGD2,188



◇ With Electromagnetic Brake

Frame Size	Product Name	List Price
85 mm	DGM85R-AZMK	SGD2,113
130 mm	DGM130R-AZMK DGM130R-AZMKR DGM130R-AZMKL	SGD2,413



● Drivers

◇ Built-in Controller Type

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-KD	SGD488



◇ Pulse Input Type with RS-485 Communication

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-KX	SGD488



◇ Pulse Input Type

Power Supply Input	Product Name	List Price
24/48 VDC	AZD-K	SGD425



● Connection Cable Sets/Flexible Connection Cable Sets

Use a flexible connection cable set if the cable will be bent.

The motor cable and electromagnetic brake cable from the hollow rotary actuator cannot be connected directly to the driver. When connecting to a driver, use the accessory connection cable (sold separately) or use the included connection cable (for products which include a connection cable).

For **DGM60**



◇ For Motor/Encoder

Product Line	Length m	Product Name	List Price
Connection Cable Sets	0.5	CC005VZ2F2	SGD38
	1	CC010VZ2F2	SGD38
	1.5	CC015VZ2F2	SGD44
	2	CC020VZ2F2	SGD50
	2.5	CC025VZ2F2	SGD56
	3	CC030VZ2F2	SGD63
	4	CC040VZ2F2	SGD98
	5	CC050VZ2F2	SGD110
	7	CC070VZ2F2	SGD136
	10	CC100VZ2F2	SGD176
Flexible Connection Cable Sets	15	CC150VZ2F2	SGD244
	20	CC200VZ2F2	SGD310
	0.5	CC005VZ2R2	SGD84
	1	CC010VZ2R2	SGD84
	1.5	CC015VZ2R2	SGD92
	2	CC020VZ2R2	SGD99
	2.5	CC025VZ2R2	SGD106
	3	CC030VZ2R2	SGD111
	4	CC040VZ2R2	SGD126
	5	CC050VZ2R2	SGD141
7	CC070VZ2R2	SGD180	
10	CC100VZ2R2	SGD236	
15	CC150VZ2R2	SGD333	
20	CC200VZ2R2	SGD426	

For **DGM85, DGM130**



◇ For Motor/Encoder

Product Line	Length m	Product Name	List Price
Connection Cable Sets	0.5	CC005VZF2	SGD38
	1	CC010VZF2	SGD38
	1.5	CC015VZF2	SGD44
	2	CC020VZF2	SGD50
	2.5	CC025VZF2	SGD56
	3	CC030VZF2	SGD63
	4	CC040VZF2	SGD98
	5	CC050VZF2	SGD110
	7	CC070VZF2	SGD136
	10	CC100VZF2	SGD176
Flexible Connection Cable Sets	1.5	CC150VZF2	SGD244
	20	CC200VZF2	SGD310
	0.5	CC005VZR2	SGD84
	1	CC010VZR2	SGD84
	1.5	CC015VZR2	SGD92
	2	CC020VZR2	SGD99
	2.5	CC025VZR2	SGD106
	3	CC030VZR2	SGD111
	4	CC040VZR2	SGD126
	5	CC050VZR2	SGD141
7	CC070VZR2	SGD180	
10	CC100VZR2	SGD236	
15	CC150VZR2	SGD333	
20	CC200VZR2	SGD426	



◇ For Motor/Encoder/
Electromagnetic Brake

Product Line	Length m	Product Name	List Price
Connection Cable Sets	0.5	CC005VZFB2	SGD53
	1	CC010VZFB2	SGD53
	1.5	CC015VZFB2	SGD60
	2	CC020VZFB2	SGD68
	2.5	CC025VZFB2	SGD75
	3	CC030VZFB2	SGD83
	4	CC040VZFB2	SGD121
	5	CC050VZFB2	SGD135
	7	CC070VZFB2	SGD166
	10	CC100VZFB2	SGD214
Flexible Connection Cable Sets	15	CC150VZFB2	SGD294
	20	CC200VZFB2	SGD373
	0.5	CC005VZRB2	SGD114
	1	CC010VZRB2	SGD114
	1.5	CC015VZRB2	SGD124
	2	CC020VZRB2	SGD134
	2.5	CC025VZRB2	SGD143
	3	CC030VZRB2	SGD151
	4	CC040VZRB2	SGD171
	5	CC050VZRB2	SGD191
7	CC070VZRB2	SGD240	
10	CC100VZRB2	SGD311	
15	CC150VZRB2	SGD433	
20	CC200VZRB2	SGD551	

Included

● Actuators

Type	Included	Operating Manual
Common to All Types		1 Copy

● Drivers

Type	Included	Connector	Operating Manual
Common to All Types		<ul style="list-style-type: none"> • Connector for CN4 (1 piece) • Connector for CN1 (1 piece) 	1 Copy

● Connection Cable Sets/Flexible Connection Cable Sets

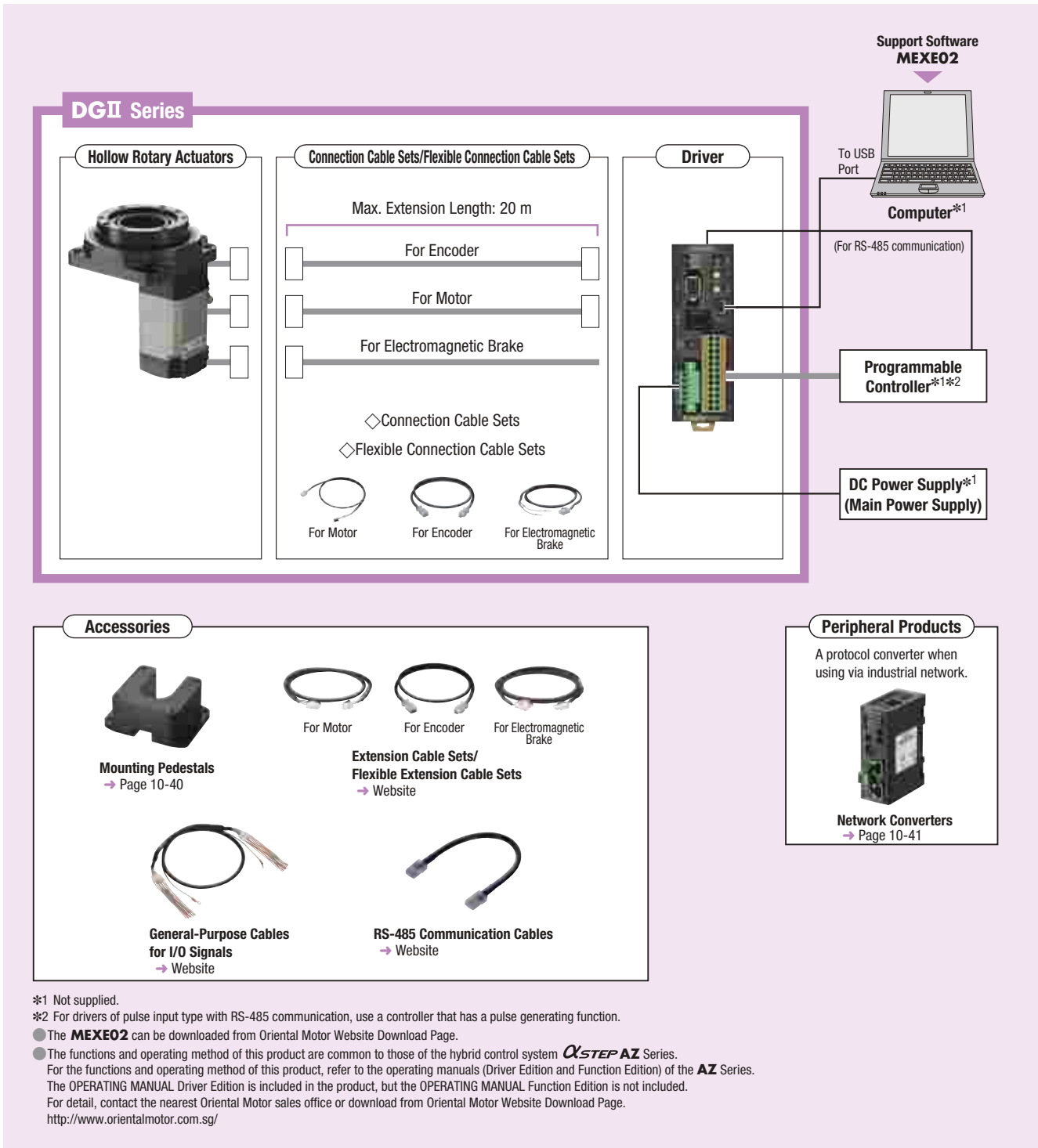
Type	Included	Operating Manual
Connection Cable Sets		—
Flexible Connection Cable Sets		1 Copy

System Configuration

Combination of Linear & Rotary Actuator with Electromagnetic Brake, and either Built-in Controller Type Driver or Pulse Input Type Driver with RS-485 Communication

This is an example of a configuration using I/O control or RS-485 communication in a built-in controller type driver.

Hollow rotary actuators, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



System Configuration Example

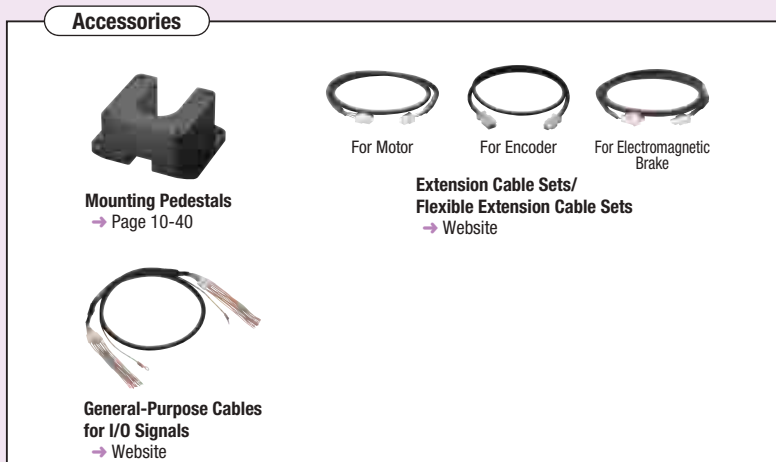
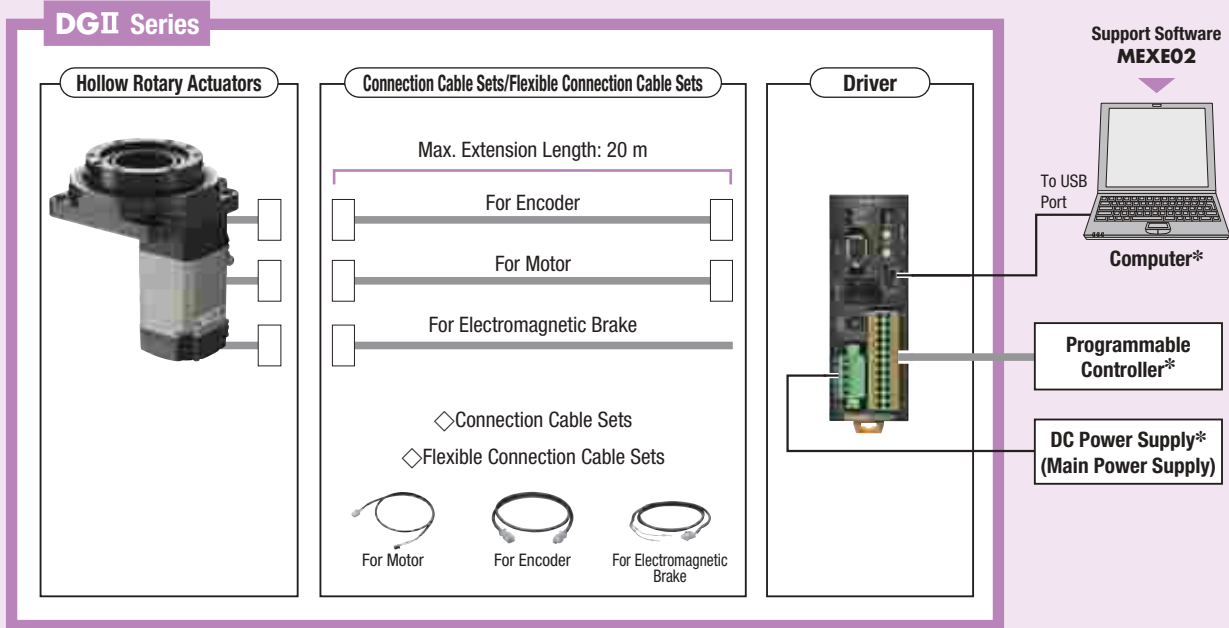
DG II Series			+	Sold Separately
Hollow Rotary Actuator	Driver	Connection Cable Set (3 m)		General-Purpose Cable for I/O Signals (1 m)
DGM85R-AZMK SGD2,113	AZD-KD SGD488	CC030VZFB2 SGD83	CC16D010B-1 SGD25	

● The system configuration shown above is an example. Other combinations are available.

Note

● The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

- **Combination of Linear & Rotary Actuator with an Electromagnetic Brake and Pulse Input Type Driver**
This is an example of a single-axis system configuration using a programmable controller (with pulse oscillation function). Hollow rotary actuators, drivers, and connection cable sets/flexible connection cable sets need to be ordered separately.



- * Not supplied.
- The **MEXE02** can be downloaded from Oriental Motor Website Download Page.
- The functions and operating method of this product are common to those of the hybrid control system **αSTEP AZ** Series. For the functions and operating method of this product, refer to the operating manuals (Driver Edition and Function Edition) of the **AZ** Series. The OPERATING MANUAL Driver Edition is included in the product, but the OPERATING MANUAL Function Edition is not included. For detail, contact the nearest Oriental Motor sales office or download from Oriental Motor Website Download Page. <http://www.orientalmotor.com.sg/>

● **System Configuration Example**

DGII Series			+	Sold Separately
Hollow Rotary Actuator	Driver	Connection Cable Set (3 m)		General-Purpose Cable for I/O Signals (1 m)
DGM85R-AZMK	AZD-K	CC030VZFB2		CC16D010B-1
SGD2,113	SGD425	SGD83		SGD25

- The system configuration shown above is an example. Other combinations are available.

Note

- The motor cable and electromagnetic brake cable from the motor cannot be connected directly to the driver. When connecting to a driver, use a connection cable.

Specifications

Frame Size		60 mm	85 mm	130 mm
Actuator Product Name	Single Shaft	DGM60-AZAK	DGM85R-AZAK	DGM130R-AZAK □
	With Electromagnetic Brake		DGM85R-AZMK	DGM130R-AZMK □
Driver Product Name	Built-in Controller	AZD-KD		
	Pulse Input Type with RS-485 Communication	AZD-KX		
	Pulse Input	AZD-K		
Motor Type (AZ Series)		AZM24	AZM46	AZM66
Type of Output Table Supporting Bearing		Deep-Groove Ball Bearing	Cross-Roller Bearing	
Inertia	J : kg·m ²	3700×10 ⁻⁷ —	21120×10 ⁻⁷ [26304×10 ⁻⁷]*1	147380×10 ⁻⁷ [199220×10 ⁻⁷]*1
Gear Ratio		18		
Minimum Traveling Amount of the Output Table	deg/STEP	0.01		
Permissible Torque	N·m	0.9	4.5	12
Holding Torque at Motor Standstill	Power ON	N·m	0.45	2.7
	Electromagnetic Brake	N·m	—	2.7
Maximum Speed	deg/s	1200 (200 r/min)		900 (150 r/min)
Repetitive Positioning Accuracy	arcsec	±15 (±0.004°)		
Lost Motion	arcmin	2 (0.033°)		
Angular Transmission Accuracy	arcmin	4 (0.067°)		
Permissible Axial Load	N	100	500	2000
Permissible Moment	N·m	2	10	50
Runout of Output Table Surface	mm	0.030	0.015	
Runout of Output Table Inner (Outer) Diameter	mm	0.030	0.015	
Parallelism of Output Table	mm	0.050	0.030	
Degree of Protection		IP40 (IP20 for motor connector)		
Power Supply Input	Voltage	24 VDC ±5%	24 VDC ±5%*2 / 48 VDC ±5%*3	
	Input Current	A	1.6	1.72 [1.8]*1

● Either **R** (right) or **L** (left) is entered for the cable withdrawing direction in □ in the product name.

*1 The brackets [] indicate the specifications for the electromagnetic brake type.

*2 Changes to 24 VDC ± 4% if the electromagnetic brake type has been extended with the 20 m accessory cable.

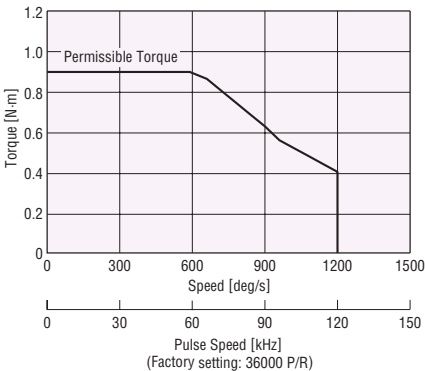
*3 When the motor is operated with 48 VDC input, as a reference, keep the load inertia 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque. (Excluding **DGM85**)

Note

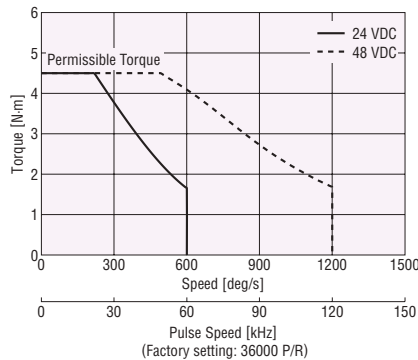
- The repetitive positioning accuracy is measured at a constant temperature (normal temperature) under a constant load.
- The motor can not be removed.

Speed – Torque Characteristics (Reference values)

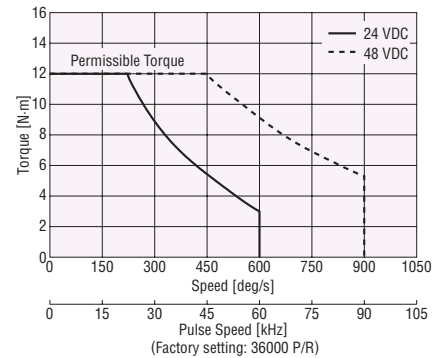
DGM60-AZ



DGM85R-AZ



DGM130R-AZ



Note

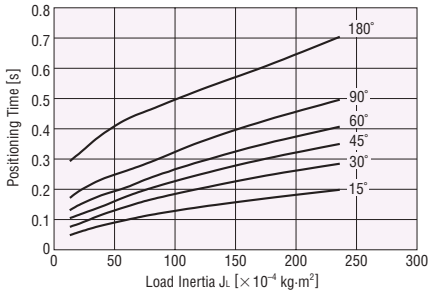
- Data for the speed – torque characteristics is based on Oriental Motor's internal measurement conditions. If the conditions are changed, the characteristics may also change as a result.
- Depending on the driving conditions, a considerable amount of heat may be generated by the motor. Please keep the motor case temperature at a maximum of 80°C to protect the ABZO sensor. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C or less, since the motor is recognized as heat-resistant class A.)

Load Inertia – Positioning Time (Reference value)

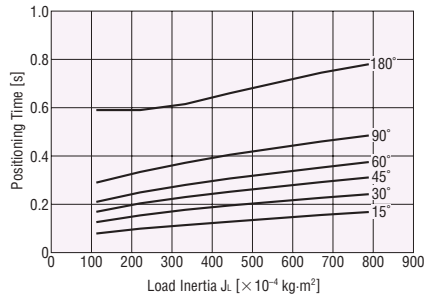
The load inertia refers to the inertia of the customer's load.

24 VDC

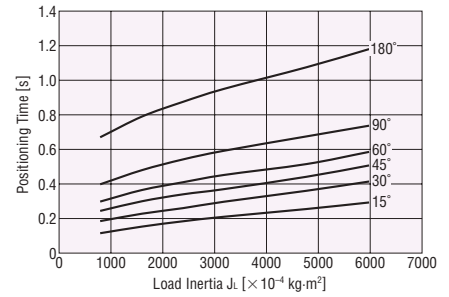
DGM60-AZ



DGM85R-AZ



DGM130R-AZ

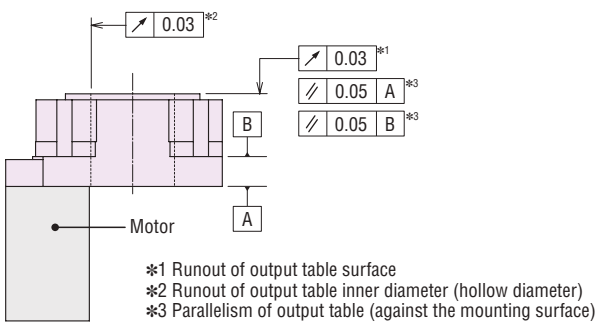


Note

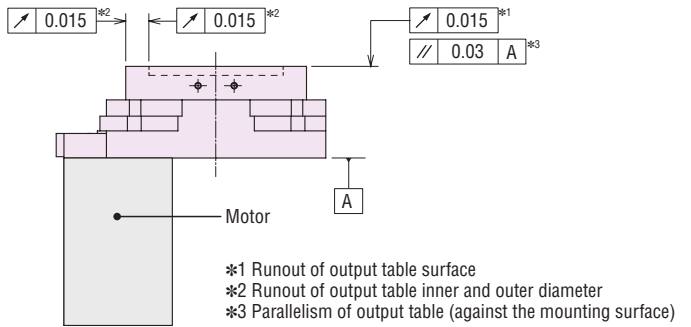
- Data for the load inertia - positioning time is theoretical value of 1.5 times torque safety factor at normal ambient temperature. If the conditions are changed, the characteristics may also change as a result.
- For details on 48 VDC input the Load Inertia - Positioning Time data, please refer to contact your nearest Oriental Motor sales office.

Mechanical Precision (At no load)

DGM60



DGM85R/DGM130R

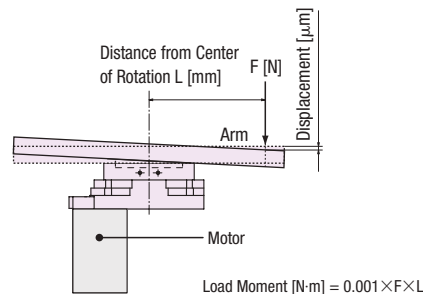


Displacement by Load Moment (Reference value)

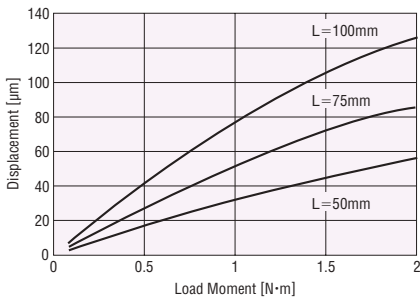
The output table will be displaced when it receives a load moment.

The graph plots the table displacement that occurs at distance L from the rotation center of the output table when a given load moment is applied in one direction.

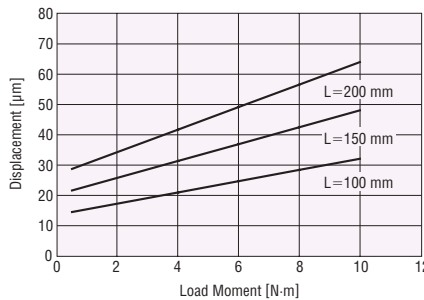
The displacement becomes approximately twice the size when the load moment is applied in both the positive and negative directions.



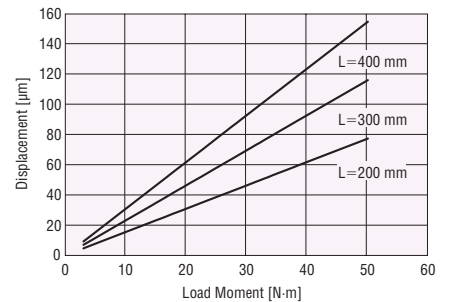
DGM60



DGM85R



DGM130R



Electromagnetic Brake Specifications

Product Name	DGM85	DGM130
Type	Power off activated type	
Power Supply Voltage	24 VDC±5%*	
Power Supply Current	0.08	0.25
Brake Activate Time	ms	
Brake Release Time	ms	
Time Rating	Continuous	

*For the electromagnetic brake type, the 24 VDC±4% specification applies if the wiring distance between the motor and driver is extended by 20 m using a cable.

General Specifications



		Actuator (Built-in Motor: AZ Series)	Driver
Thermal Class		130 (B) [Recognized as 105 (A) by the UL Standards]*1	—
Insulation Resistance		The measured value is 100 M Ω or more when a 500 VDC megger is applied between the following locations: · Case – Motor windings · Case – Electromagnetic brake windings*4	The measured value is 100 M Ω or more when a 500 VDC megger is applied between the following locations: · Protective earth terminal – Power supply terminal.
Dielectric Strength		Sufficient to withstand the following for 1 minute: DGM60 · Case – Motor windings 0.5 kVAC 50Hz or 60Hz DGM85, DGM130 · Case – Motor windings 1.0 kVAC 50Hz or 60Hz · Case – Electromagnetic brake windings*4 1.0kVAC 50Hz or 60Hz	—
Operating Environment (In operation)	Ambient Temperature	0~+40°C (Non-freezing)	0~+50°C (Non-freezing)
	Ambient Humidity	85% or less (Non-condensing)	
	Atmosphere	Use in an area without corrosive gases and dust. The product should not be exposed to water, oil or other liquids.	
Degree of Protection		IP40 (IP20 for motor connector)	IP10
Multiple rotation detection range in Power OFF state (Motor output shaft)		DGM60 : ±450 rotations (900 rotations) DGM85, DGM130 : ±900 rotations (1800 rotations)	

*1 Excluding **DGM60**

*2 For motor product names, not actuator product names.

*3 For motor product

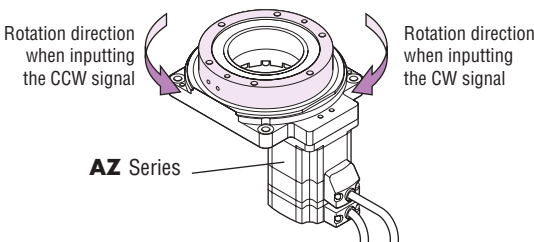
*4 Only for electromagnetic brake type

Note

● Do not perform the insulation resistance measurement or dielectric voltage withstand test while the actuator and driver are connected.
Also, do not conduct these tests on the motor absolute sensor component.

Rotation Direction

The figure below shows the rotation directions seen from the output table.



Drivers and cables that are used with actuators are common to the **AZ** Series.

For details, see the catalogs of the **AZ** Series or our website.

- Driver Specifications
- RS-485 Communication Specifications
- Dimensions (Drivers, Connection Cables)
- Connection and Operation
- Accessories (Extension Cables)



Dimensions (Unit: mm)

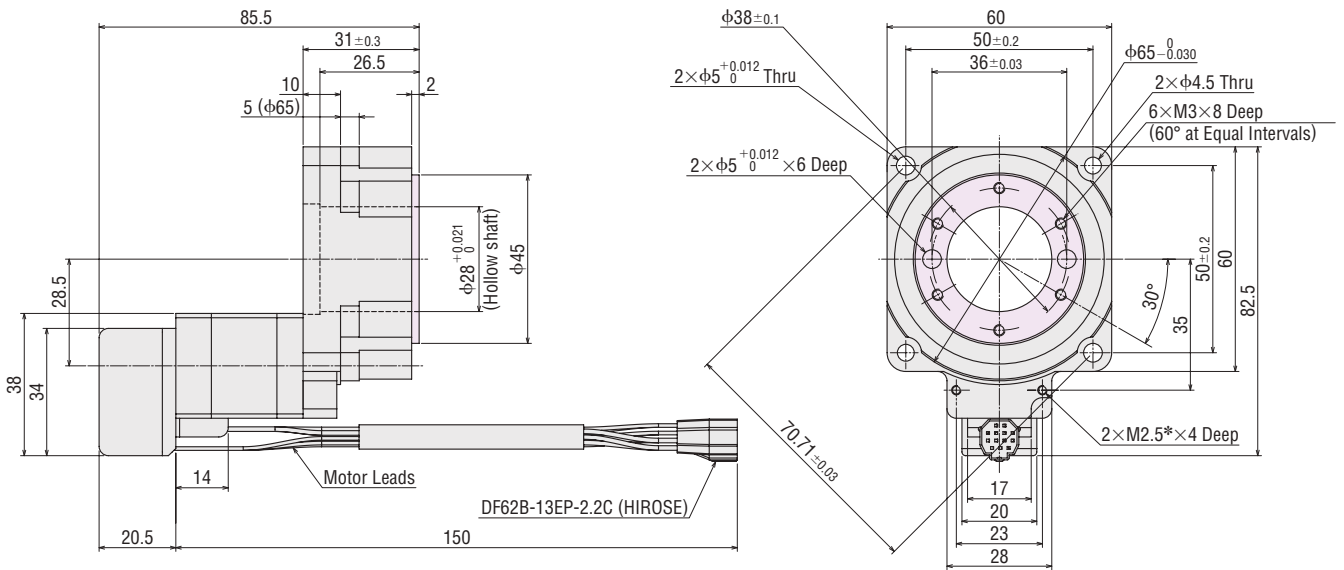
Hollow Rotary Actuators

◇ Frame Size 60 mm

Single Shaft Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
DGM60-AZAK	0.5	D7689



● The shaded areas are rotating parts.

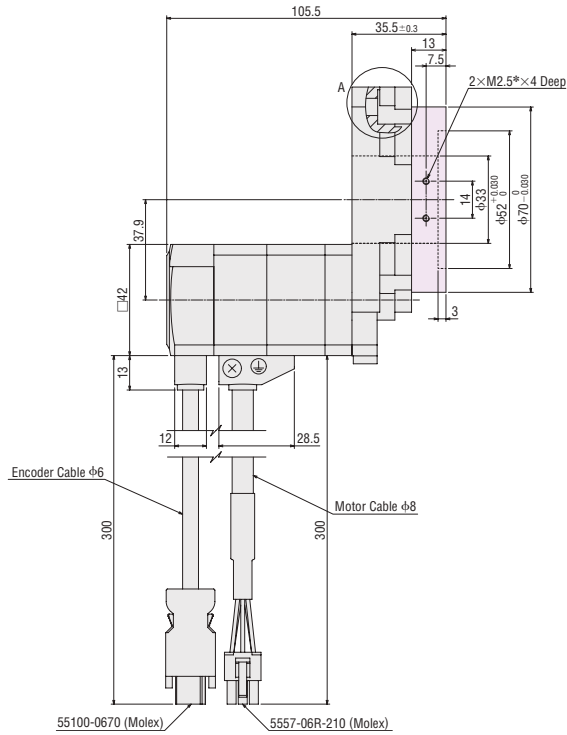
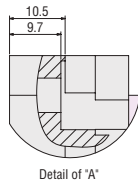
*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

◇ Frame Size 85 mm

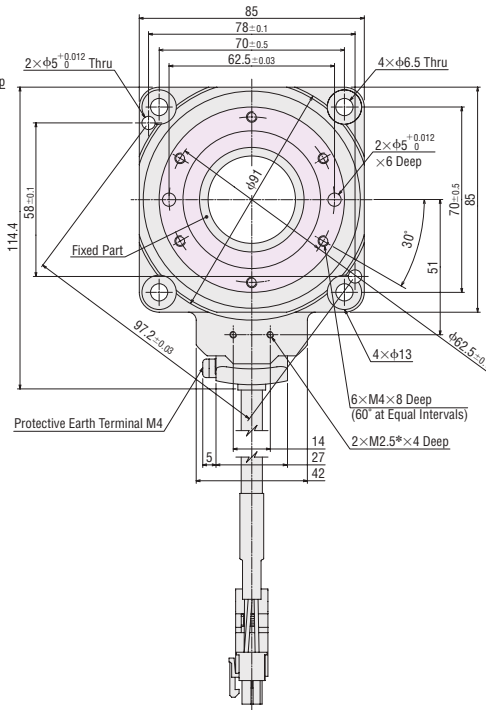
Single Shaft Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
DGM85R-AZAK	1.1	D4501



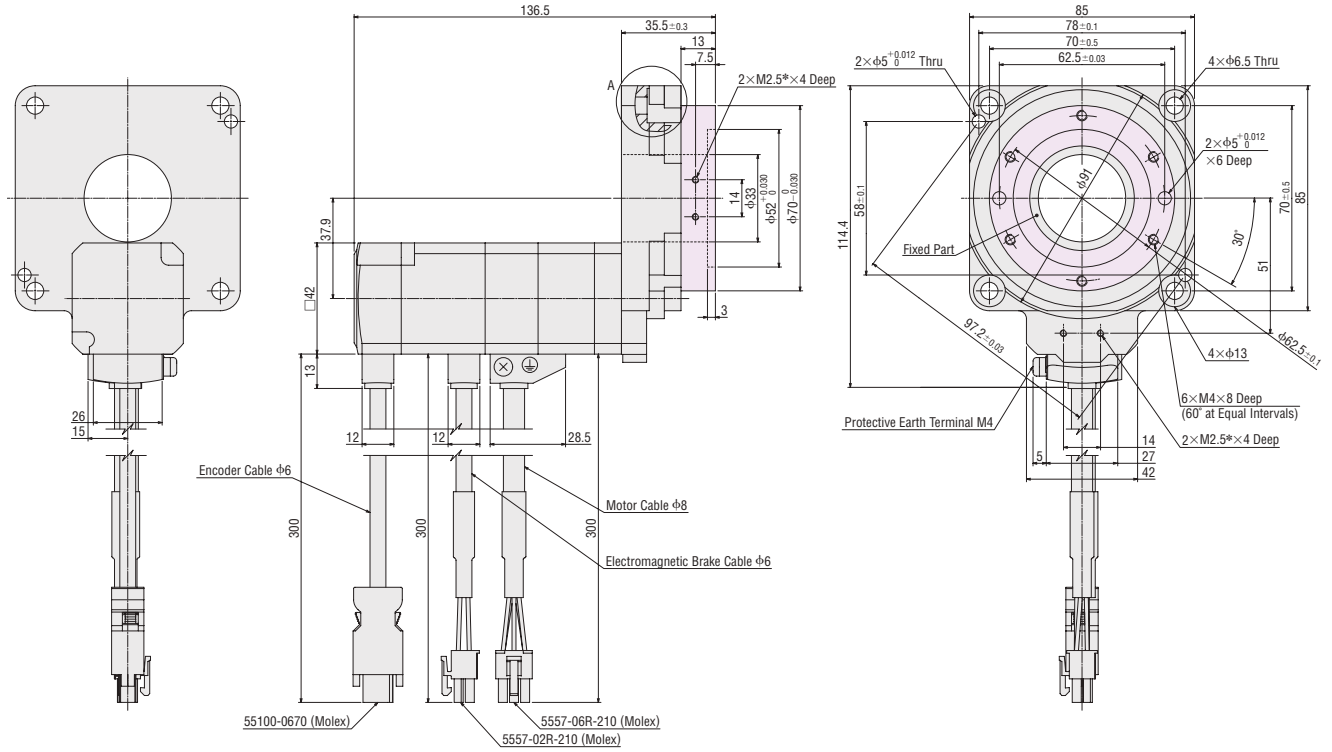
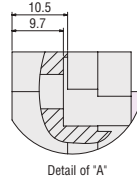
● The shaded areas are rotating parts.



*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

Electromagnetic Brake Type **2D & 3D CAD**

Product Name	Mass kg	2D CAD
DGM85R-AZMK	1.3	D6452



● The shaded areas are rotating parts.

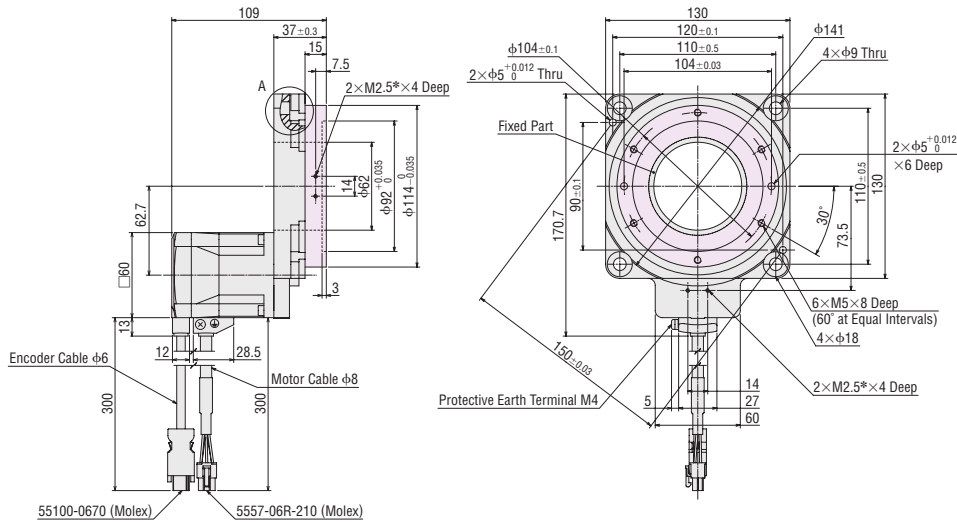
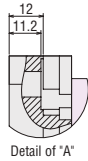
*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

◇ Frame Size 130 mm

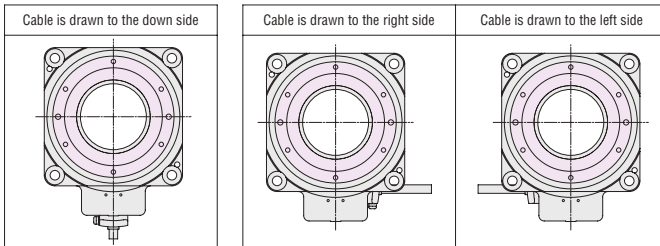
Single Shaft Type

2D & 3D CAD

Cable Drawing Direction	Product Name	Mass kg	2D CAD
Down	DGM130R-AZAK	2.7	D4502
Right	DGM130R-AZAKR		D7645
Left	DGM130R-AZAKL		D7644



Cable leading direction



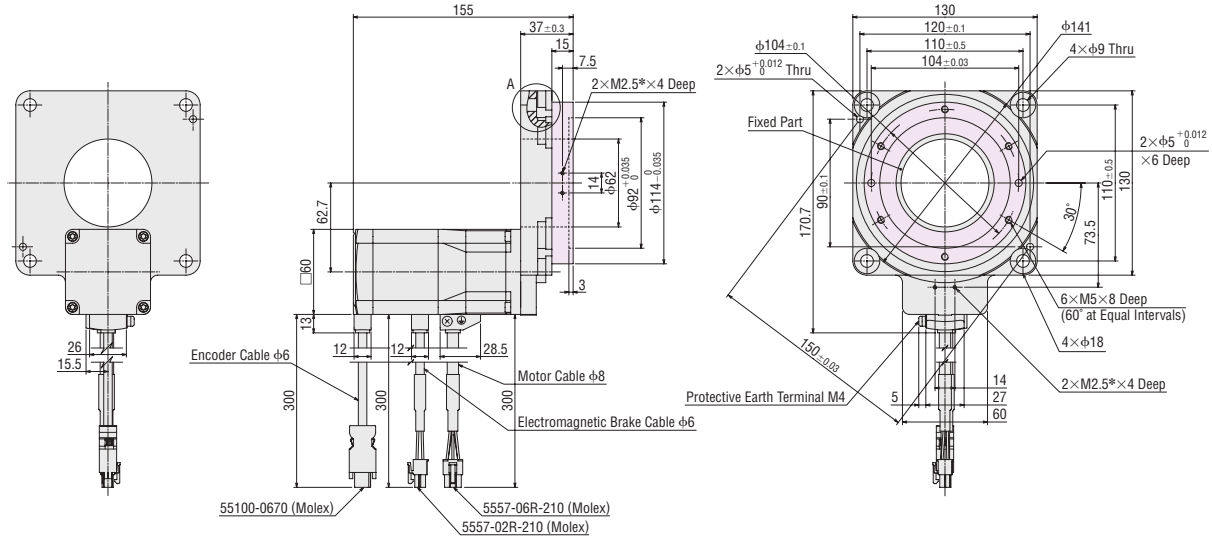
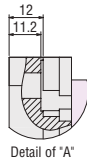
● The shaded areas are rotating parts.

*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

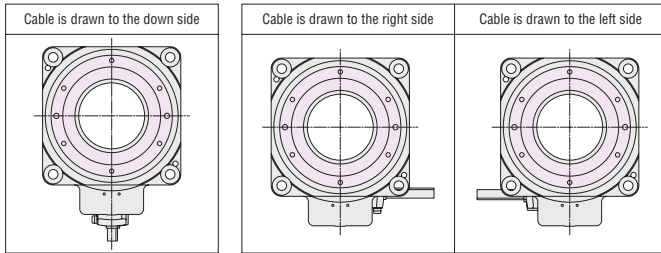
Electromagnetic Brake Type

2D & 3D CAD

Cable Drawing Direction	Product Name	Mass kg	2D CAD
Down	DGM130R-AZMK	3.1	D6453
Right	DGM130R-AZMKR		D7647
Left	DGM130R-AZMKL		D7646



Cable leading direction



● The shaded areas are rotating parts.

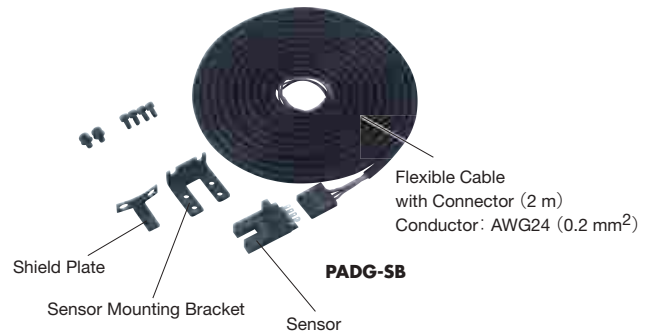
*Use M2.5 screw holes when installing the home sensor set (sold separately).
Do not use these holes for any purpose other than to install the home sensor.

Accessories (Sold Separately)

Home-Sensor Sets

A home-sensor set, which consists of a photomicro sensor, connector with cable, sensor mounting bracket, shield plate and installation screws, is provided to facilitate easy return to home operation.

All parts needed for return to home operation are included in the set, so you will spend less time designing, fabricating or procuring parts in connection with sensor installation. Installation is very easy, so you can start using the sensor right away.



Product Line

Product	Sensor Output	Applicable Product	List Price
PADG-SA	NPN	DGM60-AZ	SGD88
PADG-SB		DGM85R-AZ DGM130R-AZ DGM200R-AZ	SGD88
PADG-SAY		DGM60-AZ	SGD94
PADG-SBY	PNP	DGM85R-AZ DGM130R-AZ DGM200R-AZ	SGD94

Specifications

NPN Type

Product	PADG-SA (OMRON Model: EE-SX672A) PADG-SB (OMRON Model: EE-SX673A)
Power Supply	5~24 VDC ±10%, ripple (P-P) 10% or less
Current Consumption	35 mA or less
Control Output	NPN open-collector output, 5~24 VDC 100 mA or less Residual voltage 0.8 VDC or less (at load current of 100 mA)
Indicator LED	Detection display (red)
Sensor Logic	Normally open/normally closed (selectable, depending on connection)

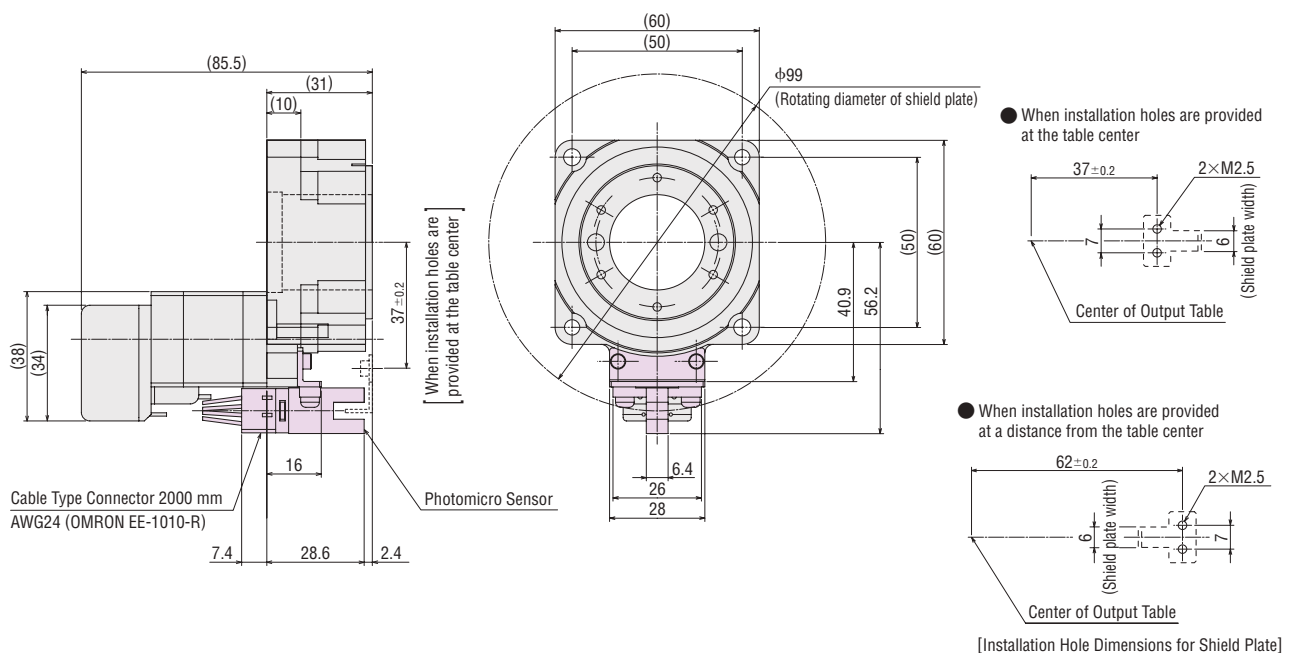
PNP Type

Product	PADG-SAY (OMRON Model: EE-SX672R) PADG-SBY (OMRON Model: EE-SX673R)
Power Supply	5~24 VDC ±10%, ripple (P-P) 10% or less
Current Consumption	30 mA or less
Control Output	PNP open-collector output, 5~24 VDC 50 mA or less Residual voltage 1.3 VDC or less (at load current of 50 mA)
Indicator LED	Detection display (red)
Sensor Logic	Normally open/normally closed (selectable, depending on connection)

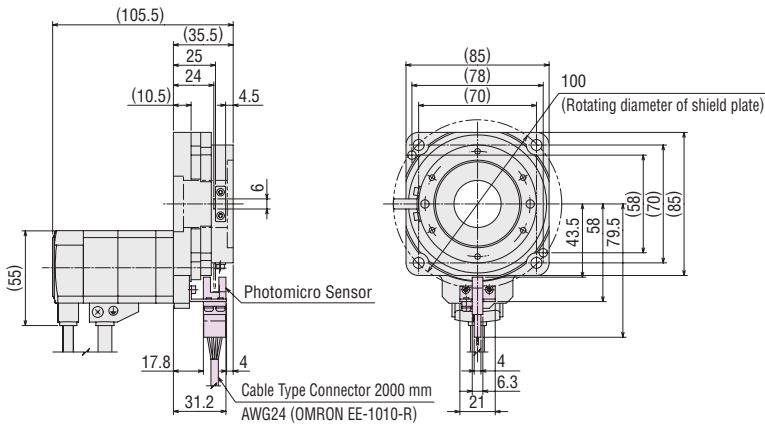
Dimensions of Sensor Installation (Unit: mm)

These dimensions apply when a home-sensor set is installed on a single shaft.
For the dimensions of other frame sizes, please refer to our website.

DGM60



DGM85R



2D CAD

Applicable Products	2D CAD
DGM60-AZAK	D7690
DGM85R-AZA <input type="checkbox"/>	D4503
DGM85R-AZM <input type="checkbox"/>	D6456
DGM130R-AZA <input type="checkbox"/>	D4504
DGM130R-AZA <input type="checkbox"/> R	D7653
DGM130R-AZA <input type="checkbox"/> L	D7652
DGM130R-AZM <input type="checkbox"/>	D6457
DGM130R-AZM <input type="checkbox"/> R	D7655
DGM130R-AZM <input type="checkbox"/> L	D7654
DGM200R-AZAC	D6458
DGM200R-AZACR	D7657
DGM200R-AZACL	D7656
DGM200R-AZMC	D6459
DGM200R-AZMCR	D7659
DGM200R-AZMCL	D7658

● Either **C** (AC power input) or **K** (DC power input) indicating the motor specification is entered where the box is located within the product name.

Mounting Pedestals

The mounting pedestal enables the **DGII** Series to be used as a direct drive motor. Applications that require height and installation from the side can also be performed, expanding the range of available operations.

Product Line

Material: Aluminum Alloy

Surface treatment: Alumite (**DGM60**, **DGM85**, **DGM130**),
Paint (**MDG200**)

2D & 3D CAD

Model Name	Applicable Products		List Price
	Type	Product Name	
MDG60B	Single Shaft	DGM60-AZA	SGD150
MDG85A2	Single Shaft	DGM85R-AZA	SGD213
MDG85B2	Single Shaft	DGM85R-AZA	SGD238
	Electromagnetic Brake	DGM85R-AZM	
MDG130A2	Single Shaft	DGM130R-AZA	SGD288
MDG130B2	Single Shaft	DGM130R-AZA	SGD338
	Electromagnetic Brake	DGM130R-AZM	
MDG200A	Single Shaft	DGM200R-AZA	SGD488
MDG200B	Single Shaft	DGM200R-AZA	SGD563
	Electromagnetic Brake	DGM200R-AZM	

● The product names of the applicable products are described with text by which the product name can be identified.



<Application Example>

Note

The mounting pedestals are cannot be used to the products with cable drawing direction is right and left sides.

They can be used with permissible values of **DGII** Series. Please use them facing upwards on the horizontal plane.

The following items are included with each product.
Hexagonal Socket Head Screws for Actuator Assembly, Positioning Pins, Bands (for Cable Clamping), Band Bases, Set Screws for Band Bases

Network Converters

Network converters convert host communication protocol to Oriental Motor's original RS-485 communication protocol. You can use a network converter to control Oriental Motor's RS-485-compatible products within the host communication environment.

Product Line

Network Type	Product Name	List Price
CC-Link Ver.1.1 Compatible	NETC01-CC	SGD275
CC-Link Ver.2 Compatible	NETC02-CC	SGD330
MECHATROLINK- II Compatible	NETC01-M2	SGD485
MECHATROLINK- III Compatible	NETC01-M3	SGD543
Compatible with EtherCAT	NETC01-ECT	SGD543



NETC01-CC

NETC02-CC

NETC01-M2

NETC01-M3

NETC01-ECT

