



Direct Drive Motor

Z series



Direct Drive Motor **Z series**

※Maximum torque values are shown.

Many variations available to meet every need!

ABS Optical encoder (Absolute type)
INC Optical encoder (Incremental type)

O.D. 150 Basic Series

Low cost version
Meets a wide range of requirements at any location

Flange less types
Outer rotor type

0 [Nm]	50 [Nm]	100 [Nm]	
	30 [Nm] ABS ZMD-10033E-007	65 [Nm] ABS ZMD-10073E-006	95 [Nm] ABS ZMD-10103E-005 Made - to - order product
	30 [Nm] INC ZMD-10033E-004	65 [Nm] INC ZMD-10073E-002	95 [Nm] INC ZMD-10103E-002 Made - to - order product

ABS P5-6
INC P7-8

O.D. 225 Flat Series

The thinnest class in the industry
Compatibility with highly flexible layouts

Flange types
Outer rotor type

0 [Nm]	50 [Nm]	100 [Nm]	
	15 [Nm] INC ZMD-10026E-002	22 [Nm] INC ZMD-20026E-007	45 [Nm] INC ZMD-20046E-001 Made - to - order product
			120 [N·m] INC ZMD-10126E-002 ※ABS type is a customizable product.

INC P9-10

O.D. 300 Resolution Series

New series that combines torque and thinness
Supporting advanced operation of cutting-edge equipment

Flange types
Outer rotor mechanism

0 [Nm]	300 [Nm]	600 [Nm]	
	250 [Nm] INC ZMD-10258E-004	400 [Nm] INC ZMD-10408E-004	

INC P7-8

O.D. 600 High Torque Series

High torque and high rigidity version
High torque series to support heavy equipment

Flange types
Inner rotor mechanism

0 [Nm]	500 [Nm]	1,000 [Nm]	
	400 [Nm] INC ZM-20A1-004 Made - to - order product	600 [Nm] INC ZMD-40609E-001 Made - to - order product	850 [Nm] INC ZM-25A1-003 Made - to - order product
		1,000 [Nm] INC ZMD-41009E-001 Made - to - order product	2,000 [Nm] INC ZM-17A1-004 Made - to - order product

INC P11-12

Pin map (Motor side)	P13-14
Relay cable (Motor cable/Encoder cable/Magnetic pole sensor cable)	P15-18
System configuration	P19
Servo amplifier (driver) Recommended amplifier manufacturer:Panasonic	P20

Direct Drive Motor **Z series**

ABS Absolute type

INC Incremental type

Features

Wide product selection

Line-up with maximum torque range of 15 to 2,000 Nm.



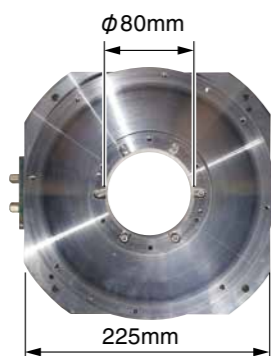
Large hollow diameter

Large hollow diameter allows easy component placement.

Example:

ZMD-20026E-007

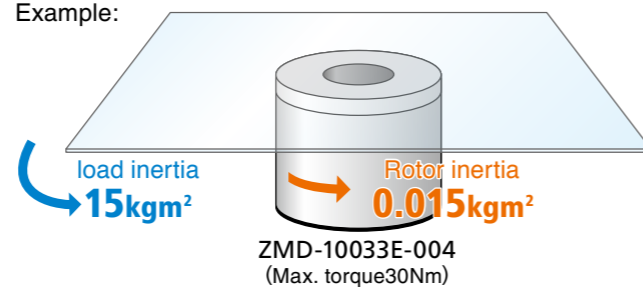
- Max. torque 22Nm
- Hollow diameter $\phi 80$
- Total length 45mm



Inertia ratio exceeding 1,000 times

※Please contact us for information on specific load conditions.

Example:



Improved environmental resistance and maintainability

Motor torque can be transmitted directly to the driven object without using mechanical parts such as reduction gears. This makes it ideal for use in a clean environment.



Highly flexible and easily customized

Precise surface and axial runout, built-in support, variable motor capacity, and vacuum compatibility.

Compatible with a variety of networks

Available amplifiers provide compatibility with a wide range of networks including EtherCAT, RTEX, and SSCNETIII/H.

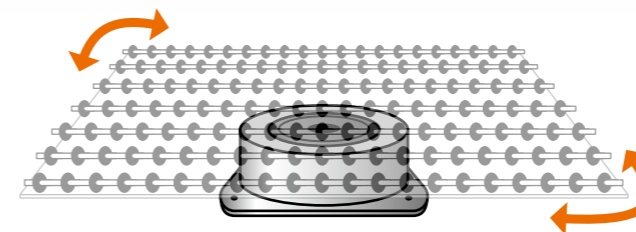
- * ETHERCAT is a registered trademark of Beckhoff Automation GmbH.
- * Realtime Express and RTEX are registered trademark of Panasonic Corporation.
- * SSCNETIII/H is a registered trademark of Mitsubishi Electric.

Short delivery time possible

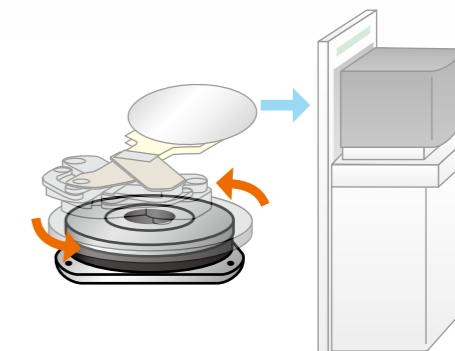
Please consult us regarding large projects.

Application example

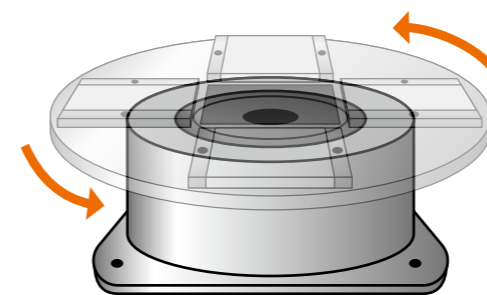
Turn table for Flat panel



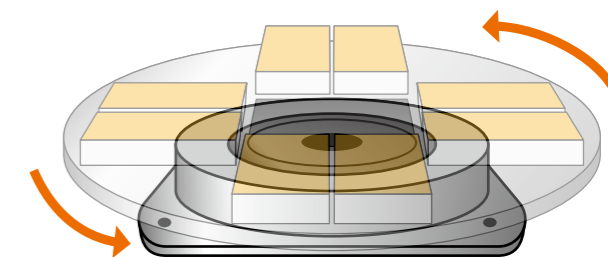
Semiconductor equipment (for Wafer Arm robot)



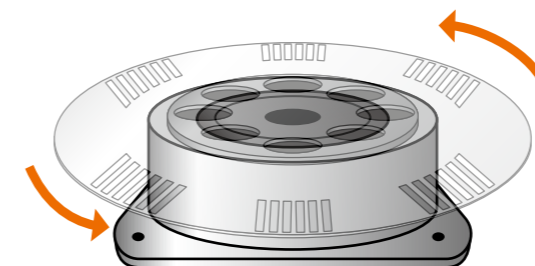
Solar panel screen printer



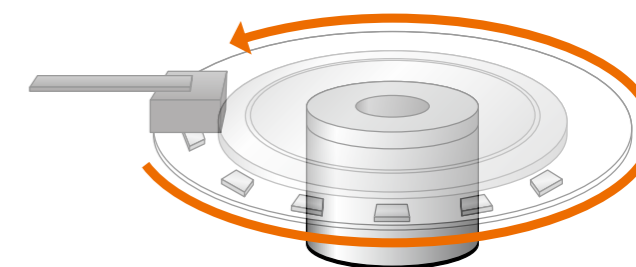
Printer



Core presser



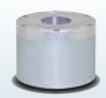


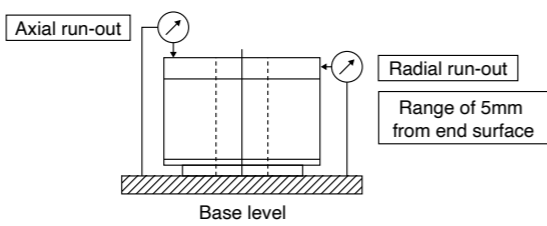
Electronic component inspection equipment



Direct Drive Motor *Z series*

ABS Absolute type / O.D.150

Specifications

Product			Made - to - order product 	
Model	ZMD-10033E-007	ZMD-10073E-006	ZMD-10103E-005	
Maximum torque	Nm	30	65	95
Continuous torque	Nm	10	21	24
Maximum current	A rms	3.6	7.1	10.0
Rated current	A rms	1.2	2.2	2.4
Maximum rotation	min ⁻¹	180		
Maximum output	kW	0.53	1.13	1.51
Repeatability positioning precision	arcsec	±1 ※1		
Index precision	arcsec	±15 ※1		
Surface and axial runout of output shaft	μm	70 ※2		
Allowed axial load	N	3,500 (12,000) ※3 ※4		
Allowed moment load	Nm	150 ※3		
IP Protection Rating	-	IP40 ※5		
Rotor inertia	kg · m ²	0.010	0.016	0.020
Weight	kg	8.0	11.0	13.7
Total length	mm	113	143	173
Outer dimensions (rotating part)	mm	φ150		
Hollow diameter	mm	φ50		
Number of pole pairs	-	20		
resolution	ppr	4,194,304 ※6		
Recommended servo-amplifier part number (Panasonic Corporation)		MBDLT25SM	MBDLT25SM	MCDLT35SM
Axial run-out / Radial run-out / Base level				

Specifications subject to change without prior notice. Please contact us if radial, axial, and moment load are to be applied simultaneously.

- ※1 Based on our company's measurement standards.
- ※2 Optional accessory for surface and axial runout: 10μm
- ※3 Permissible axial and moment load values are the maximum permissible when these loads are acting independently of each other. Each load must be unidirectional and single.
- ※4 Values enclosed in parenthesis () represent unilateral static tolerance.
- ※5 This value does not include the lead wire and connector.
- ※6 Single turn specifications.

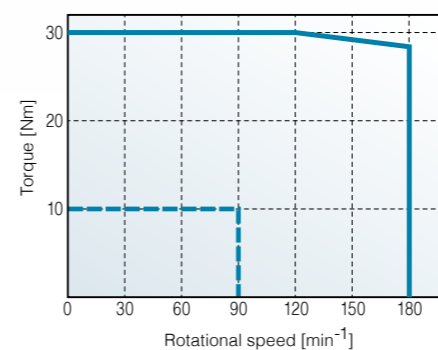
Operating environment

Ambient temperature	Operation : 0 to 40°C Storage : -15 to +70°C
Humidity	80% RH or less, no condensation
Environment	Keep away from corrosive gas or dust (indoor use)
Vibration/impact	9.8m/S ² or less
Altitude	1,000m or less

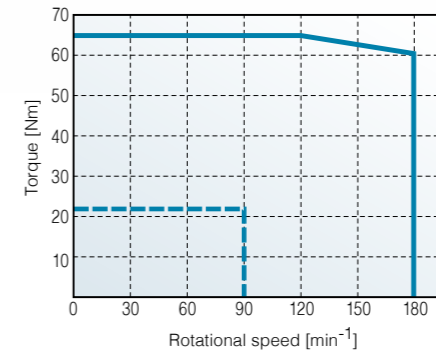
Torque performance

— Maximum torque - - - - - Continuous torque

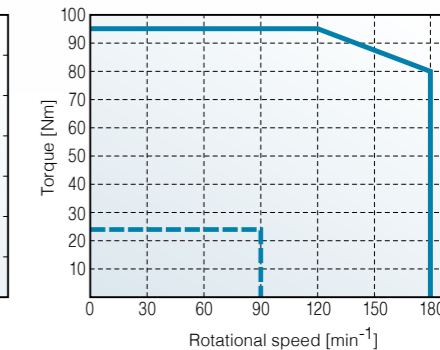
ZMD-10033E-007



ZMD-10073E-006



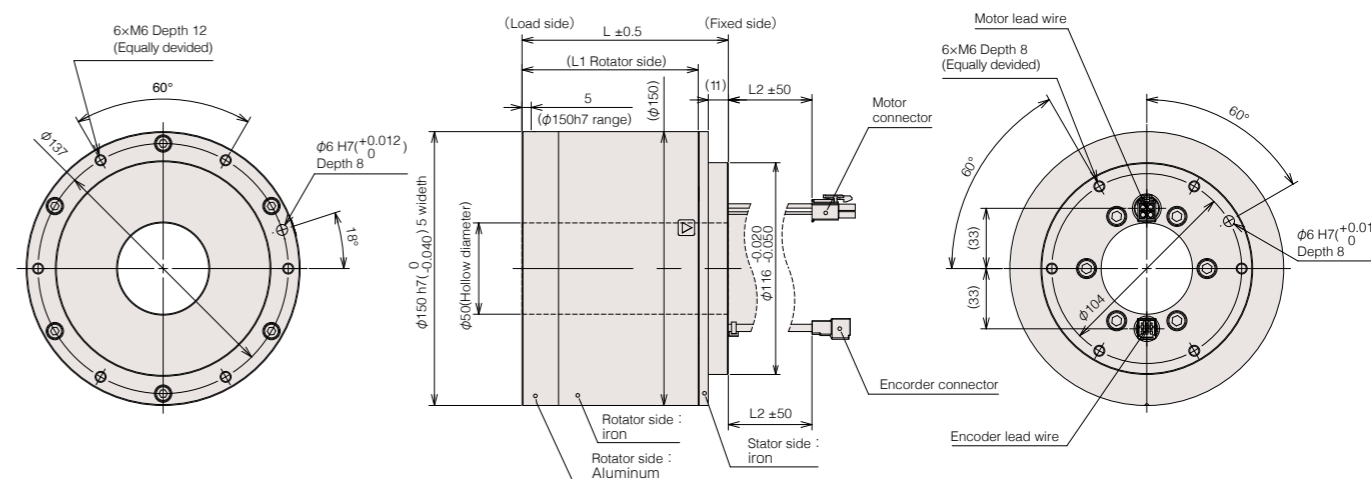
ZMD-10103E-005



※Main circuit power supply voltage is 200 VAC for the motor specifications.

Dimensions

Unit : mm






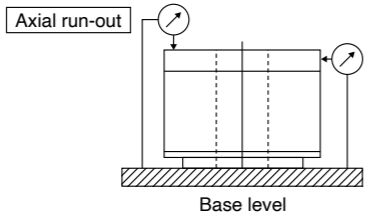
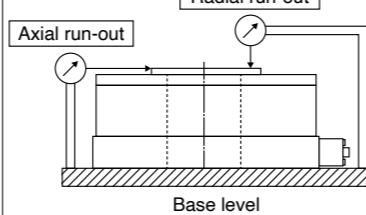


Model	ZMD-10033E-007	ZMD-10073E-006	ZMD-10103E-005	
Total length (L)	mm	113	143	173
External diameter of the motor (L1)	mm	96.5	126.5	156.5
Lead wire extended length (L2)	mm	200	150	150

Direct Drive Motor *Z series*

INC Incremental type O.D.150 O.D.300

Specifications

Product						
Model	ZMD-10033E-004	ZMD-10073E-002	ZMD-10103E-002	ZMD-10258E-004	ZMD-10408E-004	
Maximum torque	Nm	30	65	95	250	400
Continuous torque	Nm	10	21 (15) ※1	24 (17) ※1	90 (60) ※1	140 (90) ※1
Maximum current	A rms	3.6	7.1	10.0	14.8	23.0
Rated current	A rms	1.2	2.2 (1.6)	2.4 (1.7)	5.0 (3.3)	7.3 (4.7)
Maximum rotation	min ⁻¹	180			80	
Maximum output	kW	0.51	1.13	1.51	2.01	3.18
Repeat accuracy	arcsec	±2 ※2				
Surface and axial runout of output shaft	μm	70 ※3			70	
Allow axial load	N	3,500 (12,000) ※4 ※6			10,000 (35,000) ※4 ※6	
Allow moment load	Nm	150 ※4			500 ※4	
IP Protection Rating	—	IP40 ※5			IP30 ※5	
Rotor inertia	kg · m ²	0.015	0.017	0.020	0.140	0.197
Weight	kg	8.3	11.2	13.7	36	47
Total length	mm	113	143	173	103	133
Outer dimensions (rotating part)	mm	φ150			φ293	
Hollow diameter	mm	φ50			φ90	
Number of pole pairs	—	20				
Resolution	ppr	1,920,000			4,000,000	
Recommended servo-amplifier part number (Panasonic Corporation)		MBDLT25SM	MBDLT25SM	MCDLT35SM	MDDL45SM	MDDL55SM
Axial run-out / Radial run-out / Base level						

Specifications subject to change without prior notice.

Please contact us if radial, axial, and moment load are to be applied simultaneously.

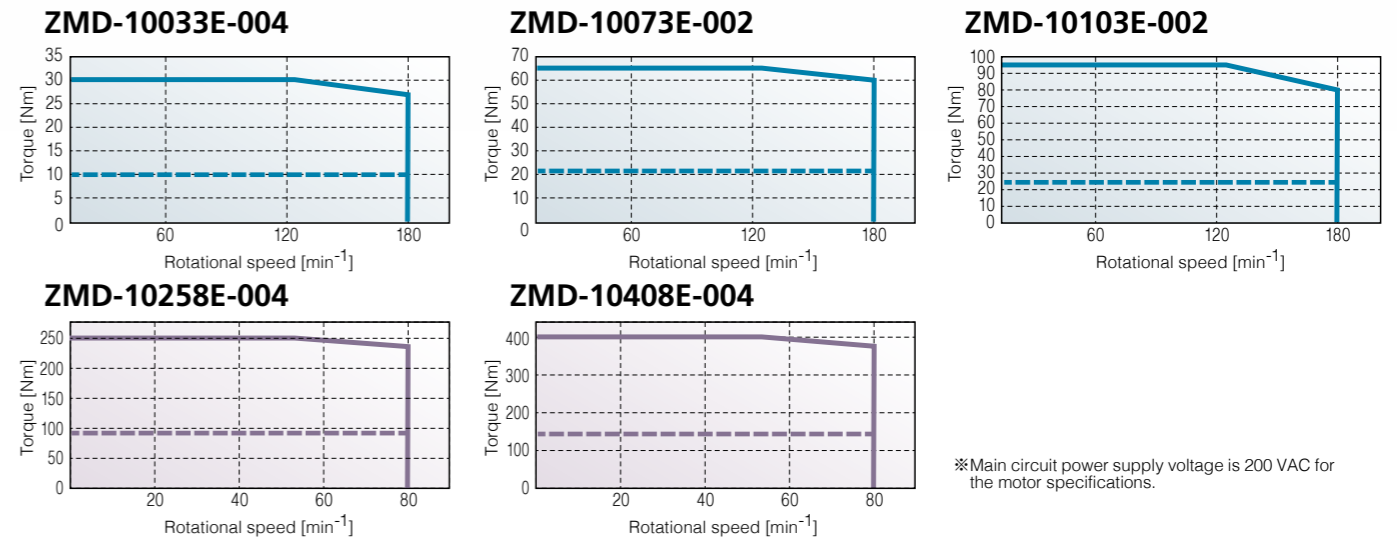
- ※1 No parenthesis indicate an ambient temperature of 20°C
Parenthesis indicate an ambient temperature of 40°C
- ※2 Based on our company's measurement standards.
- ※3 Optional accessory for surface and axial runout: 10μm
- ※4 Permissible axial and moment load values are the maximum permissible when these loads are acting independently of each other. Each load must be unidirectional and single.
- ※5 This value does not include the lead wire and connector.
- ※6 Values enclosed in parenthesis () represent unilateral static tolerance.

Operating environment

Ambient temperature	Operation : 0 to 40°C Storage : -15 to +70°C
Humidity	80% RH or less, no condensation
Environment	Keep away from corrosive gas or dust (indoor use)
Vibration/impact	9.8m/S ² or less
Altitude	1,000m or less

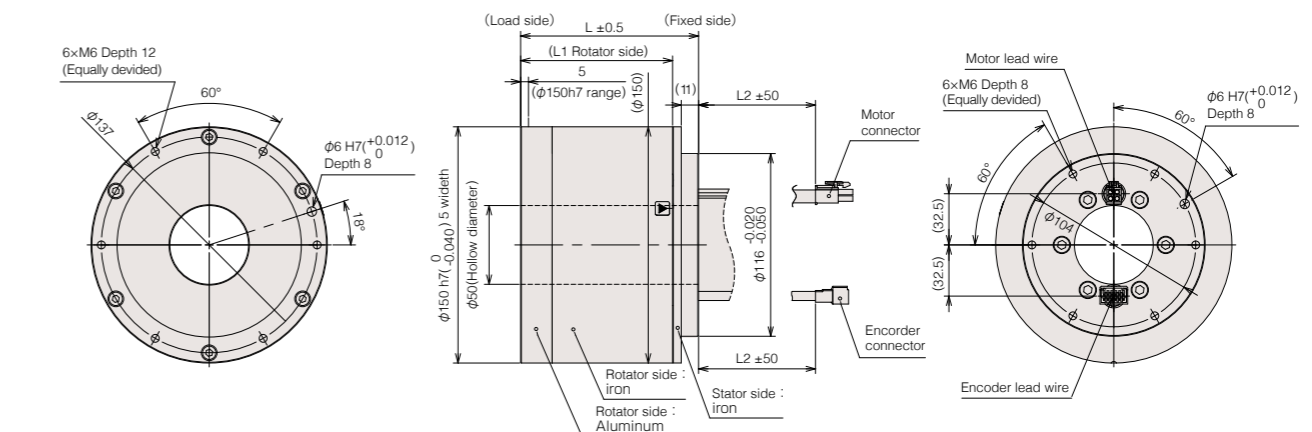
Torque performance

— Maximum torque — Continuous torque

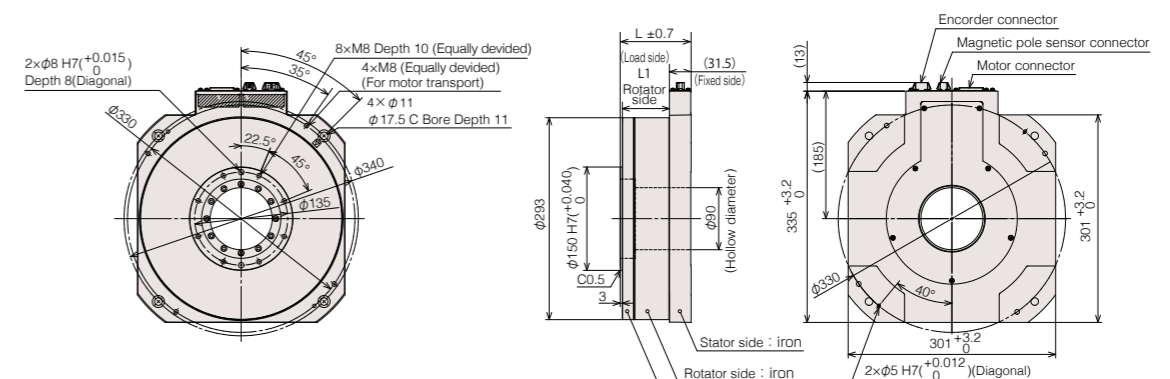


Dimensions

Unit : mm



Model	ZMD-10033E-004	ZMD-10073E-002	ZMD-10103E-002	
Total length (L)	mm	113	143	173
External diameter of the motor (L1)	mm	96.5	126.5	156.5
Lead wire extended length (L2)	mm	200	150	150





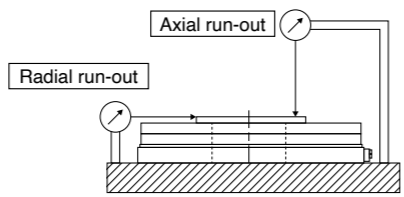


Model	ZMD-10258E-004	ZMD-10408E-004	
Total length (L)	mm	103	133
External diameter of the motor (L1)	mm	71.5	101.5

Direct Drive Motor *Z series*

INC Incremental type / O.D.225

Specifications

Product				
Model	ZMD-10026E-002	ZMD-20026E-007	ZMD-20046E-001	ZMD-10126E-002
Maximum torque	Nm 15	Nm 22	Nm 45	Nm 120
Continuous torque	Nm 5	Nm 7	Nm 15	Nm 38
Maximum current	A rms 3.4	A rms 5.6	A rms 8.1	A rms 13.5
Rated current	A rms 1.4	A rms 1.8	A rms 2.7	A rms 4.2
Maximum rotation	min ⁻¹ 120			
Maximum output	kW 0.16	kW 0.28	kW 0.57	kW 1.44
Repeat accuracy	arcsec ±2 ※1			
Surface and axial runout of output shaft	μm 70 ※2			
Allow axial load	N 800 (3,500) ※3 ※5			N 3,500 (12,000) ※3 ※5
Allow moment load	Nm 40 ※3			Nm 150 ※3
IP Protection Rating	IP30 ※4			
Rotor inertia	kg·m ² 0.014	kg·m ² 0.014	kg·m ² 0.016	kg·m ² 0.074
Weight	kg 5.0	kg 5.2	kg 7.8	kg 20.9
Total length	mm 45		mm 60	
Outer dimensions (rotating part)	mm φ225			
Hollow diameter	mm φ80			mm φ50
Number of pole pairs	— 20			
Resolution	ppr 2,880,000			
Recommended servo-amplifier part number (Panasonic Corporation)	MBDLT25SM	MBDLT25SM	MCDLT35SM	MDDL45SM
Axial run-out / Radial run-out / Base level				

Specifications subject to change without prior notice. Please contact us if radial, axial, and moment load are to be applied simultaneously.

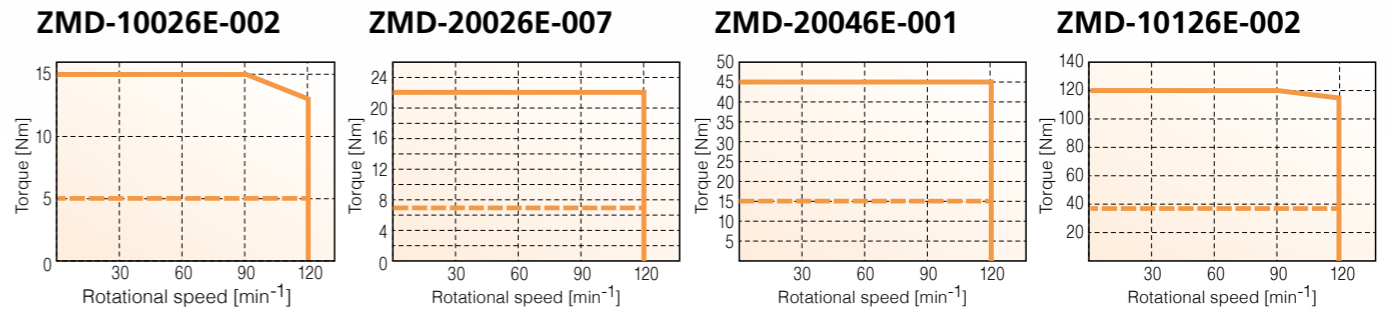
- ※1 Based on our company's measurement standards.
- ※2 Optional accessory for surface and axial runout: 10μm
- ※3 Permissible axial and moment load values are the maximum permissible when these loads are acting independently of each other.
- ※4 This value does not include the lead wire and connector.
- ※5 Values enclosed in parenthesis () represent unilateral static tolerance.

Operating environment

Ambient temperature	Operation : 0 to 40°C Storage : -15 to +70°C
Humidity	80% RH or less, no condensation
Environment	Keep away from corrosive gas or dust (indoor use)
Vibration/impact	9.8m/S ² or less
Altitude	1,000m or less

Torque performance

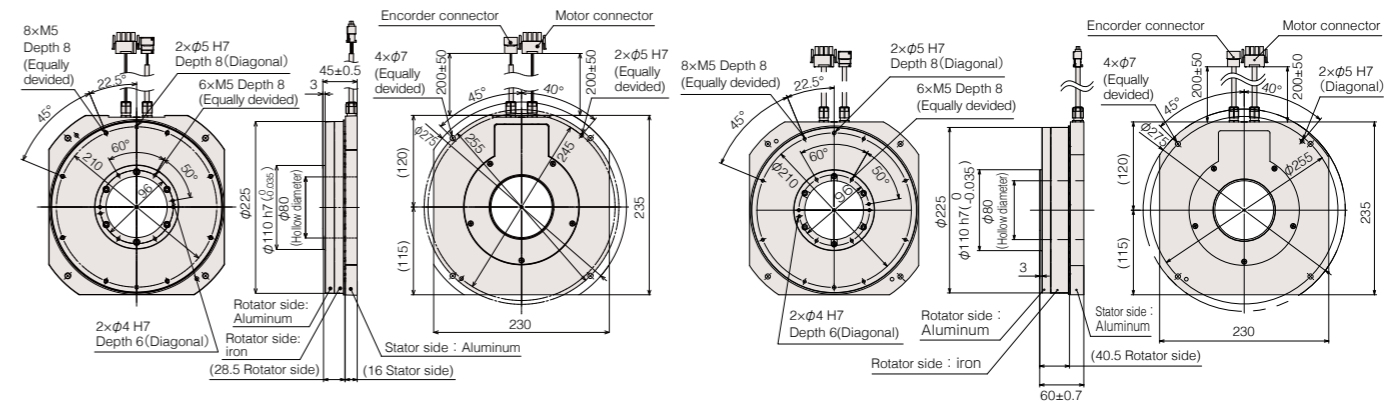
— Maximum torque — Continuous torque



※Main circuit power supply voltage is 200 VAC for the motor specifications.

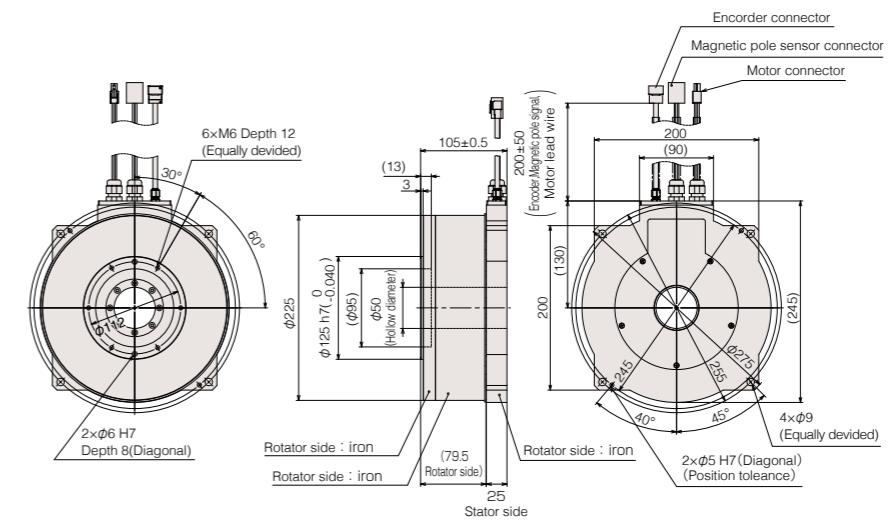
Dimensions

Unit : mm



Model	ZMD-10026E-002	ZMD-20026E-007
Total length	mm 45	

Model	ZMD-20046E-001
Total length	mm 60



Model	ZMD-10126E-002
Total length	mm 105

Direct Drive Motor **Z series**

INC Incremental type / O.D.600

Specifications

Made - to - order product

Product						
Model	ZM-20A1-004	ZMD-40609E-001	ZM-25A1-003	ZMD-41009E-001	ZM-17A1-004	
Maximum torque	Nm	400	600	850	1,000	2,000
Continuous torque	Nm	200	200	300	300	800
Maximum current	A rms	22	35	42	53	83
Rated current	A rms	11	11	15	15	32
Maximum rotation	min ⁻¹	80				20
Maximum output	kW	2.09	4.61	5.86	8.38	4.19
Repeat accuracy	arcsec	±2 ※1				
Surface and axial runout of output shaft	μm	70				
Allow axial load	N	18,000 (65,000) ※2 ※4				
Allow moment load	Nm	700 ※2				
IP Protection Rating	—	IP30 ※3				
Rotor inertia	kg · m ²	0.59	0.59	1.44	1.44	1.88
Weight	kg	113	114	154	156	210
Total length	mm	120	120	155	155	215
Outer dimensions (rotating part)	mm	φ585 (φ400)			φ585 (φ390)	
Number of pole pairs	mm	φ78				
Number of pole pairs	—	24				
Resolution	ppr	2,880,000				
Recommended servo-amplifier part number (Panasonic Corporation)		MEDLT83SM	MEDLT83SM	MFDLTA3SM	MFDLTA3SM	MGDLTC3SM

Specifications subject to change without prior notice. Please contact us if radial, axial, and moment load are to be applied simultaneously.

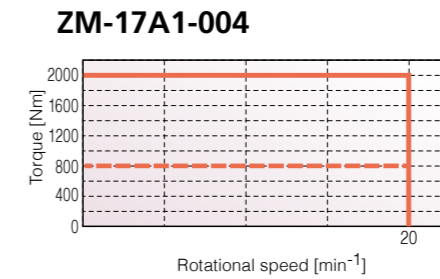
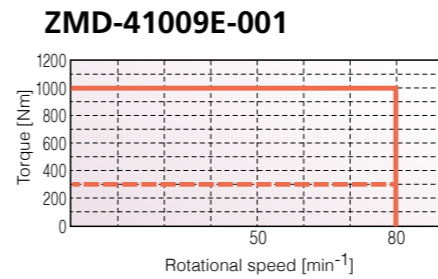
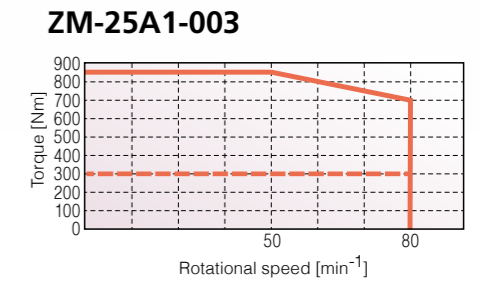
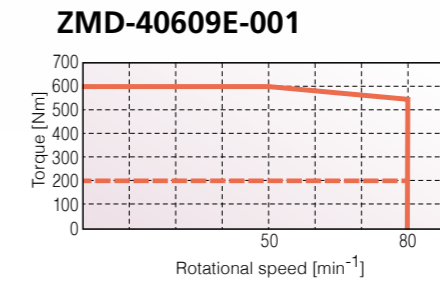
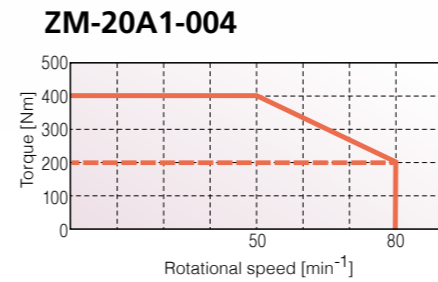
- ※1 Based on our company's measurement standards.
- ※2 Permissible axial and moment load values are the maximum permissible when these loads are acting independently of each other. Each load must be unidirectional and single.
- ※3 This value does not include the lead wire and connector.
- ※4 Values enclosed in parenthesis () represent unilateral static tolerance.

Operating environment

Ambient temperature	Operation : 0 to 40°C (ZM-17A1-004 : 0 to 25°C)	Storage : -15 to +70°C
Humidity	80% RH or less, no condensation	
Environment	Keep away from corrosive gas or dust (indoor use)	
Vibration/impact	9.8m/S ² or less	
Altitude	1,000m or less	

Torque performance

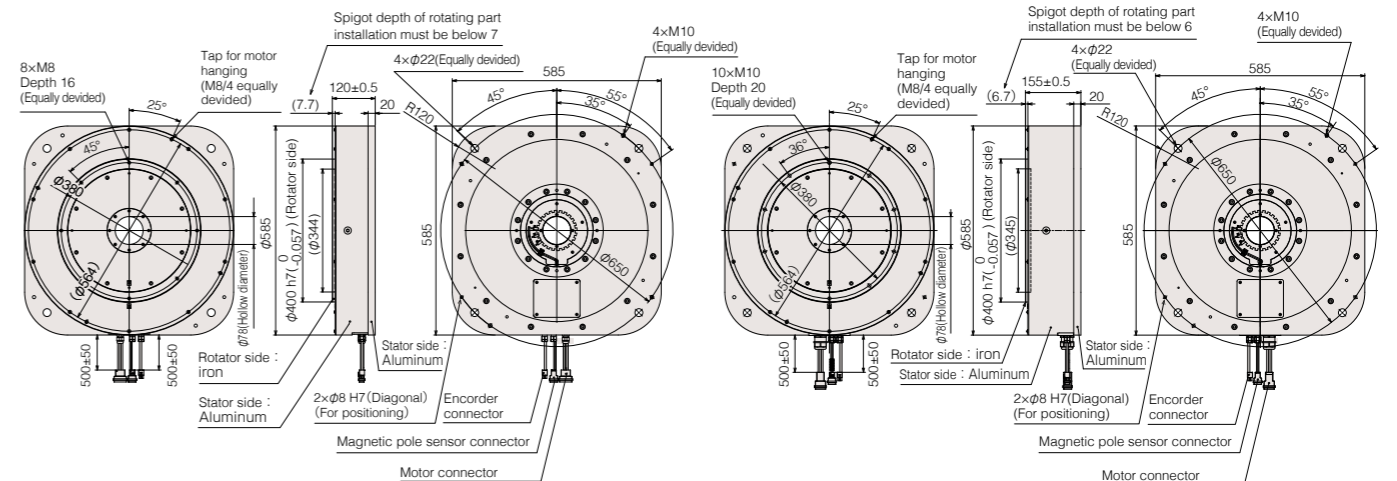
— Maximum torque - - - - Continuous torque



※Main circuit power supply voltage is 200 VAC for the motor specifications.

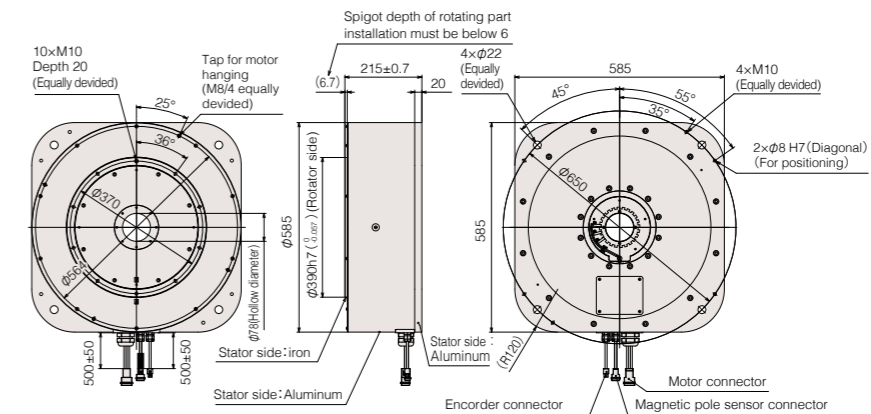
Dimensions

Unit : mm



Model	ZM-20A1-004	ZMD-40609E-001
Total length	mm	120

Model	ZM-25A1-003	ZMD-41009E-001
Total length	mm	155



Model	ZM-17A1-004	
Total length	mm	215

Pin map (Motor side)

ABS Absolute type / O.D.150

Model	ZMD-10033E-007			ZMD-10073E-006			ZMD-10103E-005		
Motor connector	172167-1			172167-1			172167-1		
Terminal for motor connector	171638-1			171638-1			171638-1		
Encoder connector	1-1903130-3			1-1903130-3			1-1903130-3		
Terminal for encoder connector	1903115-2			1903115-2			1903115-2		
Motor	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function
	1	RD	U	1	RD	U	1	RD	U
	2	WT	V	2	WT	V	2	WT	V
	3	BK	W	3	BK	W	3	BK	W
Encoder	A1	WT	5V	A1	WT	5V	A1	WT	5V
	A2	BK	0V	A2	BK	0V	A2	BK	0V
	A3	Shield	—	A3	Shield	—	A3	Shield	—
	B1	(Open)	—	B1	(Open)	—	B1	(Open)	—
	B2	BL	PS(SD)	B2	BL	PS(SD)	B2	BL	PS(SD)
B3	VT	/PS(/SD)	B3	VT	/PS(/SD)	B3	VT	/PS(/SD)	

*Connector and terminal part numbers are those used by Tyco Electronics

INC Incremental type / O.D.150 O.D.300

Model	ZMD-10033E-004			ZMD-10073E-002			ZMD-10103E-002			ZMD-10258E-004			ZMD-10408E-004		
Motor connector	172167-1			172167-1			172167-1			1-1747535-4			1-1747535-4		
Terminal for motor connector	171638-1			171638-1			171638-1			1747500-2			1747500-2		
Encoder connector	1-1903130-6			1-1903130-6			1-1903130-6			1-1903131-6			1-1903131-6		
Terminal for encoder connector	1903115-2			1903115-2			1903115-2			1903116-2			1903116-2		
Magnetic pole sensor connector	—			—			—			1-1903131-3			1-1903131-3		
Terminal for magnetic pole sensor connector	—			—			—			1903116-2			1903116-2		
Motor	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function
	1	RD	U	1	RD	U	1	RD	U	1	RD	U	1	RD	U
	2	WT	V	2	WT	V	2	WT	V	2	WT	V	2	WT	V
	3	BK	W	3	BK	W	3	BK	W	3	BK	W	3	BK	W
Encoder	4	GN/YE	E	4	GN/YE	E	4	GN/YE	E	4	GN	E	4	GN	E
	B1	BK	0V	B1	BK	0V	B1	BK	0V	B1	BK	0V	B1	BK	0V
	B2	BK/WT	5V	B2	BK/WT	5V	B2	BK/WT	5V	B2	BK/WT	5V	B2	BK/WT	5V
	B3	GN	A+	B3	GN	A+	B3	GN	A+	B3	GN	A+	B3	GN	A+
	B4	GN/WT	A-	B4	GN/WT	A-	B4	GN/WT	A-	B4	GN/WT	A-	B4	GN/WT	A-
	B5	RD	B+	B5	RD	B+	B5	RD	B+	B5	RD	B+	B5	RD	B+
	B6	RD/WT	B-	B6	RD/WT	B-	B6	RD/WT	B-	B6	RD/WT	B-	B6	RD/WT	B-
	A1	YE	Z+	A1	YE	Z+	A1	YE	Z+	A1	YE	Z+	A1	YE	Z+
	A2	YE/WT	Z-	A2	YE/WT	Z-	A2	YE/WT	Z-	A2	YE/WT	Z-	A2	YE/WT	Z-
	A3	—	Shield	A3	—	Shield	A3	—	Shield	A3	—	Shield	A3	—	Shield
	A4	—	—	A4	—	—	A4	—	—	A4	—	—	A4	—	—
A5	—	—	A5	—	—	A5	—	—	A5	—	—	A5	—	—	
A6	—	—	A6	—	—	A6	—	—	A6	—	—	A6	—	—	
Magnetic pole sensor	—			—			—			B1	BK	5V	B1	BK	5V
	—			—			—			B2	BK/WT	0V	B2	BK/WT	0V
	—			—			—			B3	—	—	B3	—	—
	—			—			—			A1	GN	CS3	A1	GN	CS3
	—			—			—			A2	GN/WT	CS2	A2	GN/WT	CS2
—			—			—			A3	RD	CS1	A3	RD	CS1	

*Connector and terminal part numbers are those used by Tyco Electronics

INC Incremental type / O.D.225

Model	ZMD-10026E-002			ZMD-20026E-007			ZMD-20046E-001			ZMD-10126E-002		
Motor connector	350779-1			350779-1			350779-1			172167-1		
Terminal for motor connector	350690-1			350690-1			350690-1			171638-1		
Encoder connector	1-1903130-6			1-1903130-6			1-1903130-6			1-1903130-6		
Terminal for encoder connector	1903115-2			1903115-2			1903115-2			1903115-2		
Magnetic pole sensor connector	—			—			—			178964-3		
Terminal for magnetic pole sensor connector	—			—			—			175287-2		
Motor	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function
	1	RD	U	1	RD	U	1	RD	U	1	RD	U
	2	WT	V	2	WT	V	2	WT	V	2	WT	V
	3	BK	W	3	BK	W	3	BK	W	3	BK	W
Encoder	4	GN	E	4	GN	E	4	GN	E	4	GN	E
	B1	BK	0V	B1	BK	0V	B1	BK	0V	B1	BK	0V
	B2	BK/WT	5V	B2	BK/WT	5V	B2	BK/WT	5V	B2	BK/WT	5V
	B3	GN	A+	B3	GN	A+	B3	GN	A+	B3	GN	A+
	B4	GN/WT	A-	B4	GN/WT	A-	B4	GN/WT	A-	B4	GN/WT	A-
	B5	RD	B+	B5	RD	B+	B5	RD	B+	B5	RD	B+
	B6	RD/WT	B-	B6	RD/WT	B-	B6	RD/WT	B-	B6	RD/WT	B-
	A1	YE	Z+	A1	YE	Z+	A1	YE	Z+	A1	YE	Z+
	A2	YE/WT	Z-	A2	YE/WT	Z-	A2	YE/WT	Z-	A2	YE/WT	Z-
	A3	—	Shield	A3	—	Shield	A3	—	Shield	A3	—	Shield
	A4	—	—	A4	—	—	A4	—	—	A4	—	—
	A5	—	—	A5	—	—	A5	—	—	A5	—	—
	A6	—	—	A6	—	—	A6	—	—	A6	—	—
	Magnetic pole sensor	—			—			—			B1	BK
—			—			—			B2	BK/WT	0V	
—			—			—			B3	—	—	
—			—			—			A1	GN	CS3	
—			—			—			A2	GN/WT	CS2	
—			—			—			A3	RD	CS1	

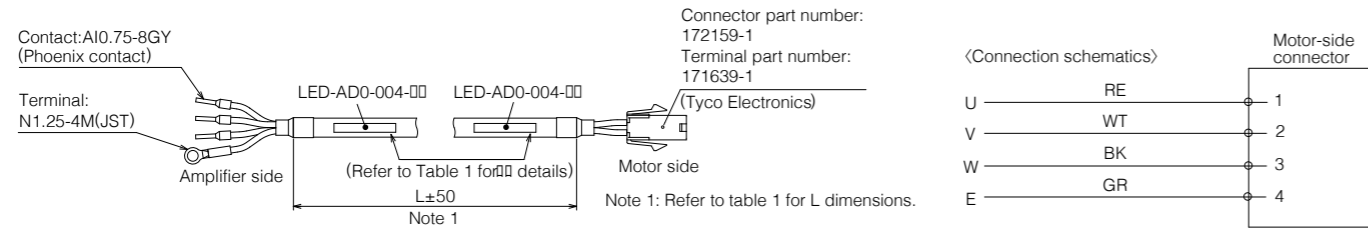
*Connector and terminal part numbers are those used by Tyco Electronics

INC Incremental type / O.D.600

Model	ZM-20A1-004			ZMD-40609E-001			ZM-25A1-003			ZMD-41009E-001			ZM-17A1-004			
Motor connector	1-1747414-4			1-1747414-4			1-917808-2			1-917808-2			1-917808-2			
Terminal for motor connector	0-1747500-2			0-1747500-2			0-917805-2			0-917805-2			174436-6			
Encoder connector	172169-1			172169-1			172169-1			172169-1			172169-1			
Terminal for encoder connector	170363-1			170363-1			170363-1			170363-1			170363-1			
Magnetic pole sensor connector	178964-3			178964-3			178964-3			178964-3			178964-3			
Terminal for magnetic pole sensor connector	175287-2			175287-2			175287-2			175287-2			175287-2			
Motor	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	Pin NO	Line color	Function	
	1	BK	U	1	BK	U	A1	BK	U	A1	BK	U	A1	BK	U	
	2	BK	V	2	BK	V	A2	BK	V	A2	BK	V	A2	BK	V	
	3	BK	W	3	BK	W	B1	BK	W	B1	BK	W	B1	BK	W	
Encoder	4	BK	E	4	BK	E	B2	BK	E	B2	BK	E	B2	BK	E	
	1	GN	A+	1	GN	A+	1	GN	A+	1	GN	A+	1	GN	A+	
	2	RD	B+	2	RD	B+	2	RD	B+	2	RD	B+	2	RD	B+	
	3	YE	Z+	3	YE	Z+	3	YE	Z+	3	YE	Z+	3	YE	Z+	
	4	GN/WT	A-	4	GN/WT	A-	4	GN/WT	A-	4	GN/WT	A-	4	GN/WT	A-	
	5	RD/WT	B-	5	RD/WT	B-	5	RD/WT	B-	5	RD/WT	B-	5	RD/WT	B-	
	6	YE/WT	Z-	6	YE/WT	Z-	6	YE/WT	Z-	6	YE/WT	Z-	6	YE/WT	Z-	
	7	BK/WT	5V	7	BK/WT	5V	7	BK/WT	5V	7	BK/WT	5V	7	BK/WT	5V	
	8	BK	0V	8	BK	0V	8	BK	0V	8	BK	0V	8	BK	0V	
	9	—	Shield	9	—	Shield	9	—	Shield	9	—	Shield	9	—	Shield	
	Magnetic pole sensor	B1	BK	5V	B1	BK	5V	B1	BK	5V	B1	BK	5V	B1	BK	5V
		B2	BK/WT	0V	B2	BK/WT	0V	B2	BK/WT	0V	B2	BK/WT	0V	B2	BK/WT	0V
		B3	—	—	B3	—	—	B3	—	—	B3	—	—	B3	—	—
		A1	GN	CS3	A1	GN	CS3	A1	GN	CS3	A1	GN	CS3	A1	GN	CS3
A2		GN/WT	CS2	A2	GN/WT	CS2	A2	GN/WT	CS2	A2	GN/WT	CS2	A2	GN/WT	CS2	
A3	RD	CS1	A3	RD	CS1	A3	RD	CS1	A3	RD	CS1	A3	RD	CS1		

*Connector and terminal part numbers are those used by Tyco Electronics

Motor cable O.D.150

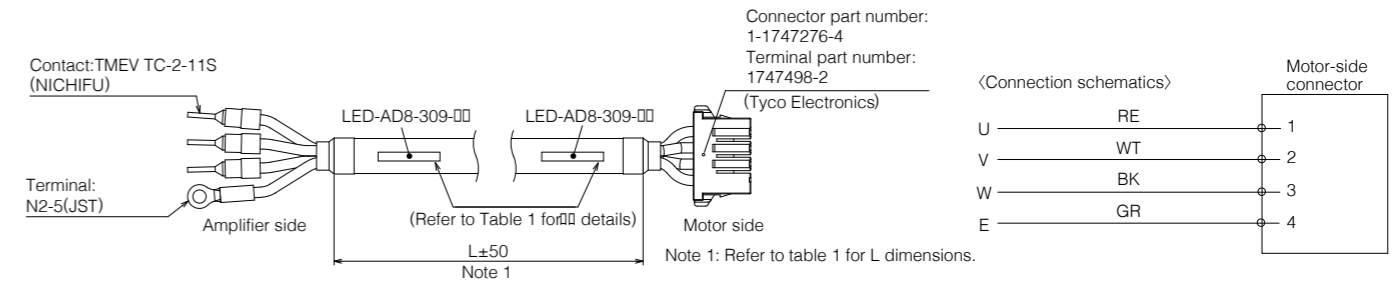


Applicable models	Absolute type	
	ZMD-10033E-007	ZMD-10033E-004
	ZMD-10073E-006	ZMD-10073E-002
	ZMD-10103E-005	ZMD-10103E-002

Note 1

L(mm)	Model
3,000	LED-AD0-004-03
5,000	LED-AD0-004-05

Motor cable O.D.300

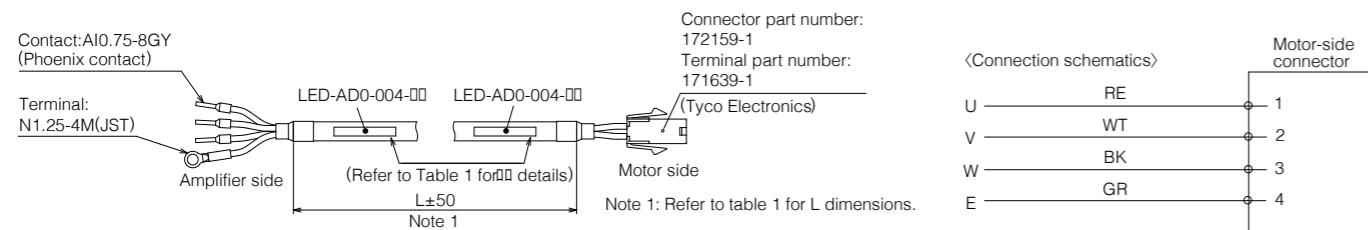


Applicable models	Incremental type	
	ZMD-10258E-004	
	ZMD-10408E-004	

Note 1

L(mm)	Model
3,000	LED-AD8-309-03
5,000	LED-AD8-309-05

Motor cable O.D.225

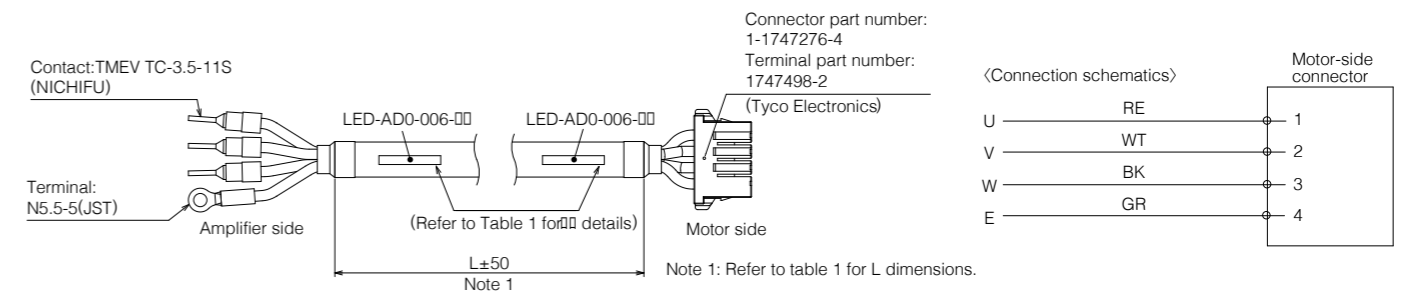


Applicable models	Incremental type	
	ZMD-10126E-002	

Note 1

L(mm)	Model
3,000	LED-AD0-004-03
5,000	LED-AD0-004-05

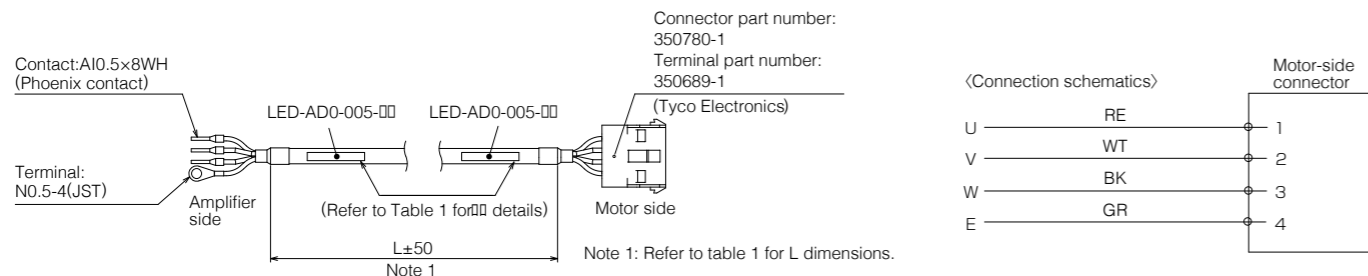
Motor cable O.D.600



Applicable models	Incremental type	
	ZM-20A1-004	
	ZMD-40609E-001	

Note 1

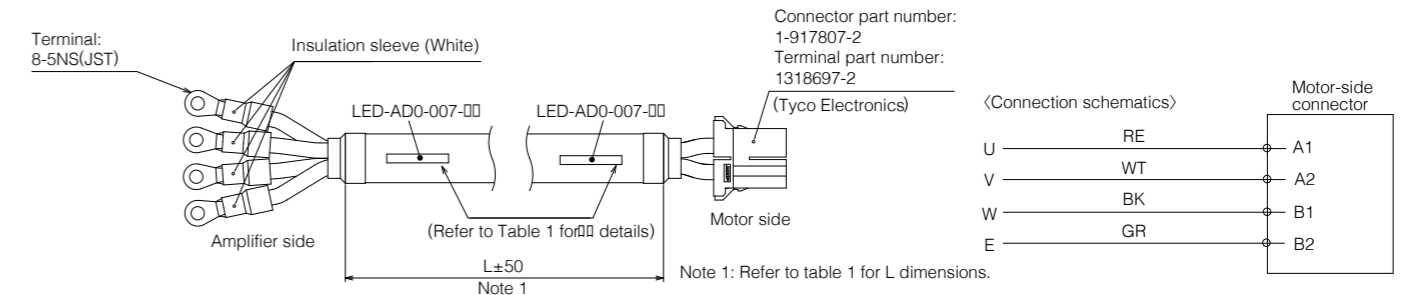
L(mm)	Model
3,000	LED-AD0-006-03
5,000	LED-AD0-006-05



Applicable models	Incremental type	
	ZMD-10026E-002	
	ZMD-20026E-007	
	ZMD-20046E-001	

Note 1

L(mm)	Model
3,000	LED-AD0-005-03
5,000	LED-AD0-005-05



Applicable models	Incremental type	
	ZM-25A1-003	
	ZMD-41009E-001	
	ZM-17A1-004	

Note 1

L(mm)	Model
3,000	LED-AD0-007-03
5,000	LED-AD0-007-05

※Connector and terminal part numbers are those used by Tyco Electronics

Encoder cable/Magnetic pole sensor cable

Encoder cable O.D.150

Connector part number: MUF-PK10K-X(JST)
 Connector part number: 1-1827864-3
 Terminal part number: 1827586-2
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V BK	E5V	A1
2	E0V BK/WT	E0V	A2
3	EXPS RD	PS	B2
4	/EXPS RD/WT	/PS	B3
5			B1 Open
6			
7			
8			
9			
10	Shell (Case)	Shield	Shield

Note 1

L(mm)	Model
3,000	LED-AD3-008-03
5,000	LED-AD3-008-05

Applicable models

Model
ZMD-10033E-007
ZMD-10073E-006
ZMD-10103E-005

Encoder cable O.D.600

Connector part number: MUF-PK10K-X(JST)
 Connector part number: 172161-1
 Terminal part number: 170365-1
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V WT	5V	7
2	E0V WT/BK	OV	8
3			
4	Open		
5	EXA GN	A+	1
6	/EXA GN/BK	A-	4
7	EXB BL	B+	2
8	/EXB BL/GR	B-	3
9	EXZ RD	Z+	5
10	/EXZ RD/BK	Z-	6
Shell (Case)	Shield	Shield	9

Note 1

L(mm)	Model
3,000	LED-AD3-006-03
5,000	LED-AD3-006-05

Applicable models

Model
ZM-20A1-004
ZMD-40609E-001
ZM-25A1-003
ZMD-41009E-001
ZM-17A1-004

Encoder cable O.D.150 O.D.225

Connector part number: MUF-PK10K-X(JST)
 Connector part number: 1-1827864-6
 Terminal part number: 1827586-2
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V BK/WT	B2
2	E0V BK	B1
3		
4	Open	
5	EXA GN	B3
6	/EXA GN/WT	B4
7	EXB RD	B5
8	/EXB RD/WT	B6
9	EXZ YE	A1
10	/EXZ YE/WT	A2
Shell (Case)	Shield	A3
		A4
		A5
		Open
		A6

Note 1

L(mm)	Model
3,000	LED-AD3-005-03
5,000	LED-AD3-005-05

Applicable models

Model
ZMD-10033E-004
ZMD-10073E-002
ZMD-10103E-002
ZMD-10026E-002
ZMD-20026E-007
ZMD-20046E-001
ZMD-10126E-002

Magnetic pole sensor cable O.D.300

Connector part number: 3E206-0100KV(3M)
 Shell kit part number: 3E306-3200-008(3M)
 Connector part number: 1-1827864-3
 Terminal part number: 1827587-2
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V BK	B1
2	E0V BK/WT	B2
3		B3 Open
4	Open	
5	CS3 GN	A1
6	CS2 GN/WT	A2
7	CS1 RD	A3
Shell (Case)	Shield	

Note 1

L(mm)	Model
3,000	LED-AD8-307-03
5,000	LED-AD8-307-05

Applicable models

Model
ZMD-10258E-004
ZMD-10408E-004

Encoder cable O.D.300

Connector part number: MUF-PK10K-X(JST)
 Connector part number: 1-1827864-6
 Terminal part number: 1827587-2
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V BK/WT	5V	B2
2	E0V BK	OV	B1
3			
4	Open		
5	EXA GN	A+	B3
6	/EXA GN/WT	A-	B4
7	EXB RD	B+	B5
8	/EXB RD/WT	B-	B6
9	EXZ YE	Z+	A1
10	/EXZ YE/WT	Z-	A2
Shell (Case)	Shield	Shield	A3
			A4
			A5
			Open
			A6

Note 1

L(mm)	Model
3,000	LED-AD8-308-03
5,000	LED-AD8-308-05

Applicable models

Model
ZMD-10258E-004
ZMD-10408E-004

Magnetic pole sensor cable O.D.225 O.D.600

Connector part number: 3E206-0100KV(3M)
 Shell kit part number: 3E306-3200-008(3M)
 Connector part number: 178289-3
 Terminal part number: 175216-2
 (Tyco Electronics)

Amplifier side Motor side
 (Refer to Table 1 for details)
 Note 1: Refer to table 1 for L dimensions.

Amplifier-side connector Motor-side connector

1	E5V BK	B1
2	E0V BK/WT	B2
3		B3 Open
4	Open	
5	CS3 GN	A1
6	CS2 GN/WT	A2
7	CS1 RD	A3
Shell (Case)	Shield	

Note 1

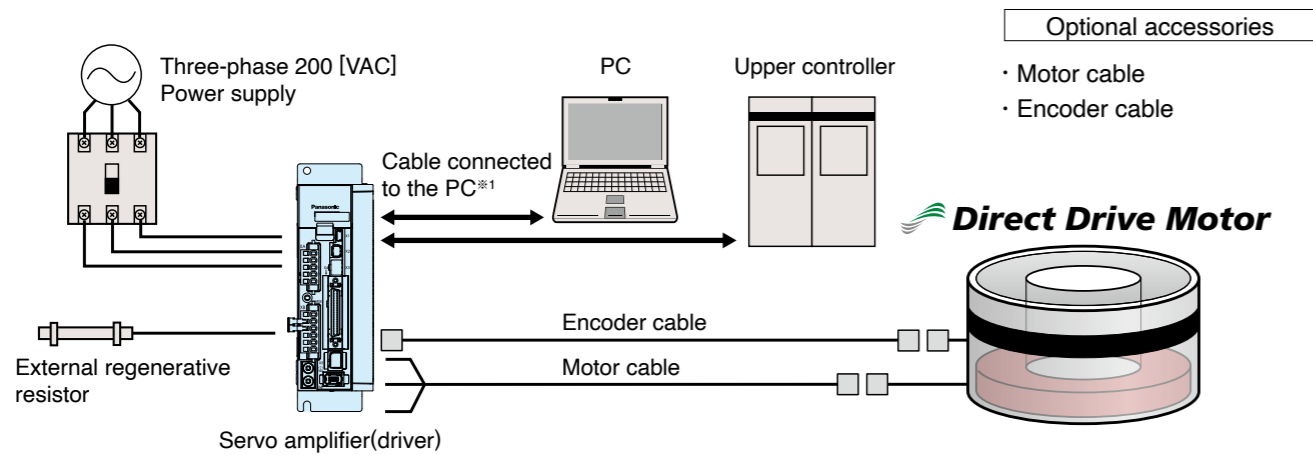
L(mm)	Model
3,000	LED-AD0-008-03
5,000	LED-AD0-008-05

Applicable models

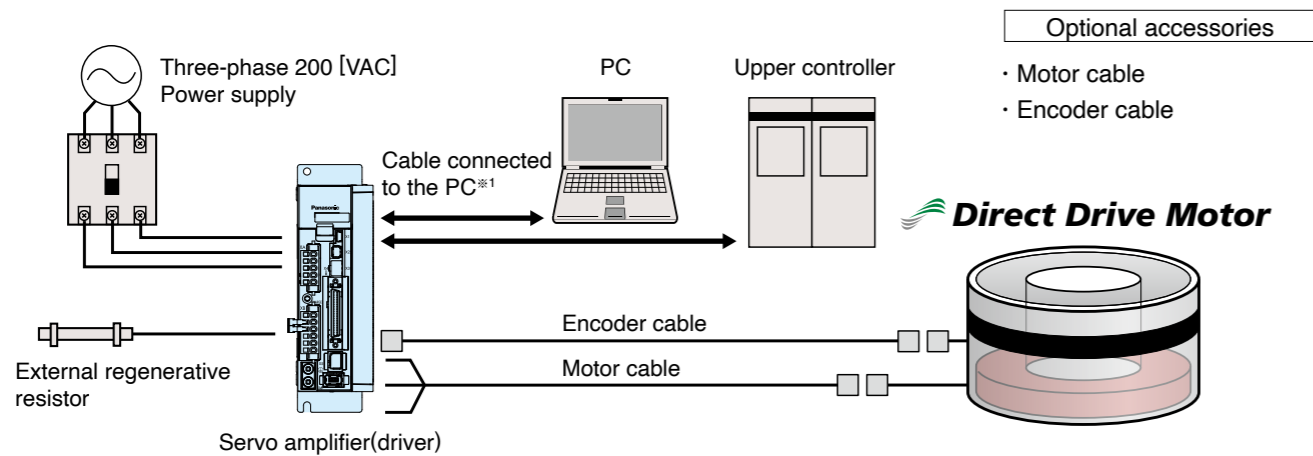
Model
ZMD-10126E-002
ZM-20A1-004
ZMD-40609E-001
ZM-25A1-003
ZMD-41009E-001
ZM-17A1-004

※Connector and terminal part numbers are those used by Tyco Electronics

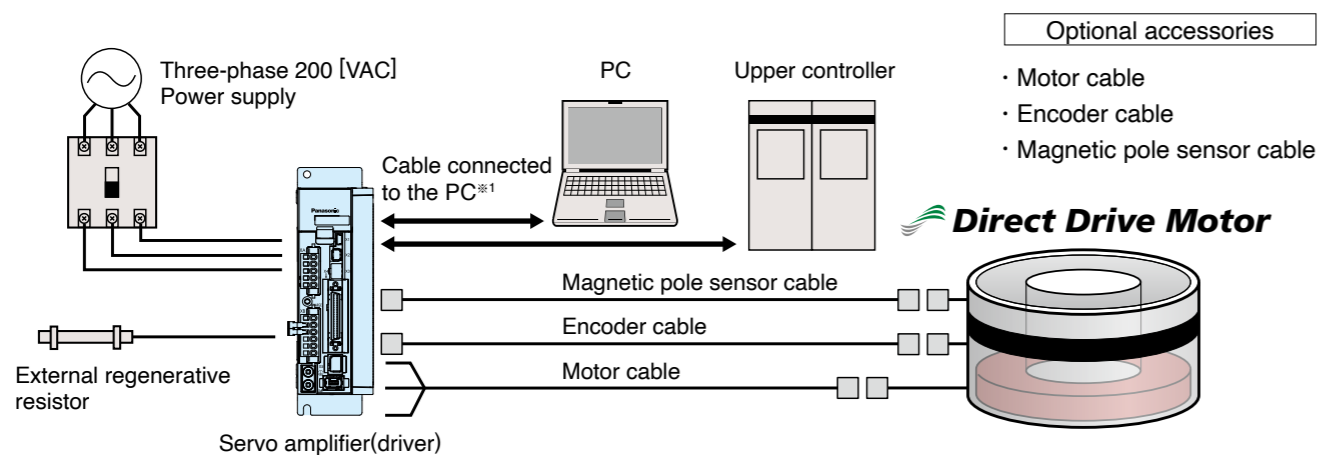
Absolute type / O.D.150



Incremental type / O.D.150 / O.D.225



Incremental type / O.D.225*2 / O.D.300 / O.D.600



※1. PC cable (USB mini-B cable) is not provided.
 ※2. For 225 frames, only ZMD-10126E-002 has magnetic pole sensor



A6L

An easy and more efficient way to control Direct Drive Motors thanks to a high reliability and most performing servo-driver

Model	MBDLT25SM	MCDLT35SM	MDDLTL45SM	MDDLTL55SM	MEDLT83SM	MFDLTA3SM	MGDLTC3SM	
Power	Main circuit power supply	3-phase / Single phase 200 to 240V				3-phase 200 to 240V		
	Control circuit power supply	Single phase 200 to 240V						
Rated current	Arms	2.4	4.1	5.2	9.3	12.5	18.1	40.5
Maximum current	Arms	7.3	13.2	15.5	26.1	37.4	54.4	115.9
Control system	IGBT PWM type sinusoidal-waveform-drive							
Encoder feedback	A/B phase, initialization signal differential input							
CS signal feedback	Supports CS signal input (CS1, CS2, CS3) and TTL level input							
Communication function	USB	Setting of parameter and state monitoring are possible by connecting to PC						
	RS232	1 : 1 communication						
	RS484	1:n communication up to 31 axes to a host						
	Modbus-RTU	1:1 (RS232) and 1:n (RS484) connection with upper controller are possible						
Control mode	①Position control ②Velocity control ③Torque control							
Applicable motor	ZMD-10026E-002 ZMD-20026E-007 ZMD-10033E-004 ZMD-10073E-002 ZMD-10033E-007 ZMD-10073E-006	ZMD-10103E-002 ZMD-10103E-005 ZMD-20046E-001	ZMD-10258E-004 ZMD-10126E-002	ZMD-10408E-004	ZM-20A1-004 ZMD-40609E-001	ZM-25A1-003 ZMD-41009E-001	ZM-17A1-004	



A6BL (EtherCAT network type)

An easy and more efficient way to control Direct Drive Motors thanks to a high reliability and most performing servo-driver

Model	MBDLN25BL	MCDLN35BL	MDDLNL45BL	MDDLNL55BL	MEDLN83BL	MFDLNA3BL	
Power	Main circuit power supply	3-phase / Single phase 200 to 240V				3-phase 200 to 240V	
	Control circuit power supply	Single phase 200 to 240V					
Rated current	Arms	2.4	4.1	5.2	9.3	12.5	18.1
Maximum current	Arms	7.3	13.2	15.5	26.1	37.4	54.4
Control system	IGBT PWM sinewave control drive						
Encoder feedback	A/B phase, initialization signal differential input						
CS signal feedback	Supports CS signal input (CS1, CS2, CS3) and TTL level input						
Communication function	EtherCAT※1	Operation command transmission in real time, parameter settings, status monitoring, etc. are possible					
	USB	Setting of parameter and state monitoring are possible by connecting to PC					
Control mode	①Position control ②Velocity control ③Torque control These control modes can be switched by the EtherCAT communication command.						
Applicable motor	ZMD-10026E-002 ZMD-20026E-007 ZMD-10033E-004 ZMD-10073E-002	ZMD-10103E-002 ZMD-20046E-001	ZMD-10258E-004 ZMD-10126E-002	ZMD-10408E-004	ZM-20A1-004 ZMD-40609E-001	ZM-25A1-003 ZMD-41009E-001 ※2	

※1. For EtherCAT communication, the ESI file for the Panasonic servo amplifier must be imported and initialized on the host computer. Please contact us separately for details.
 ※2. Please contact us separately for details on the ZM-17A1-004.

Warranty

1. Warranty period

The warranty for this product is valid for one year following installation on your premises.

2. Warranty coverage

If failure that is our responsibility occurs during the warranty period specified above, we will promptly repair the product free of charge. However, the warranty will not be valid under any of the following conditions:

- (1) When product modification, repair, part replacement, etc. has been performed by anyone other than our company or a manufacturer approved by our company.
- (2) When the product is used in combination with a servo amplifier not recommended by our company.
- (3) When the product is used under conditions and/or in an ambient environment that are outside those specified by our company.
- (4) When the product has been managed incorrectly or carelessly handled.
- (5) When the product has been damaged by natural disasters such as fire, earthquake, flood, or lightning.
This includes land deformation, pollution, gas and salt effects, abnormal voltages, and other external factors.
This warranty covers the delivered product only. It does not include damage caused by the failure of the product.

Installation, mounting, and service range

1. Mount the motor on a strong and rigid base.
2. During and after unpacking, do not pull on the lead wire to pull the product free or move the product.
3. During product transport, carefully secure the motor and load table.
4. The delivery price does not include service-related costs such as technician dispatch. The cost of start-up and maintenance performed by our company's technical staff must be paid separately without regard to the warranty period.
5. The motor is neither oilproof nor waterproof. Make sure that the installation environment has no oil or water leakage (dripping).

Matters of inquiry

Load inertia	(kgm ²) ※Including all the components connected to the motor		
load torque	Y	N	(N · m) ※Including mechanical loss compensator
External force	Y	N	(N) Orientation
Moment load	Y	N	(N) Distance from the center R (mm)
Radial load	Y	N	(N)
Axial load	Y	N	(N)
Motor mounting position			
Load-motor connection			
Environment	Operating environment		
	Operating temperature		
Load-mechanism schematic diagram (please fill out this field in detail, reporting information about position, dimensions, weight, material, etc.)			

Operating patterns

Position control	1cycle time (T)	(s)	Position control	Arresting time (t2)	(s)
	Transit time (t1)	(s)		Moving amount (angle)	[°]
	Acceleration time (t1a)	(s)		Rotation speed	[min ⁻¹]
	Feed time (t1c)	(s)		Operating time	(hr/day)
	Deceleration time (t1b)	(s)			

Accuracy conditions

Repeatability positioning precision ±	(°)
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Main Plants (Japan)

Motor factory

TOBA Factory



Toba 1-19-1, Toba, Mie 517-0011, Japan
Tel.+81-599-25-3231
Fax.+81-599-25-5162

[Products] Motion systems (Direct drive motors, high-speed motors for synthetic fiber manufacturing, HD linear motors, compact motors for specialist applications, active mass dampers)

ISE Plant



Takegahanacho 100, Ise, Mie 516-8550, Japan
Tel.+81-596-36-1111 Fax.+81-596-36-0577

[Main Products] Aerospace equipment, industrial vehicles, airport ground support vehicles, electromagnetic clutches and brakes, motion systems (transportation and power control systems), and digital photo printers, semiconductor / clean transport equipment

TOYOHASHI Plant

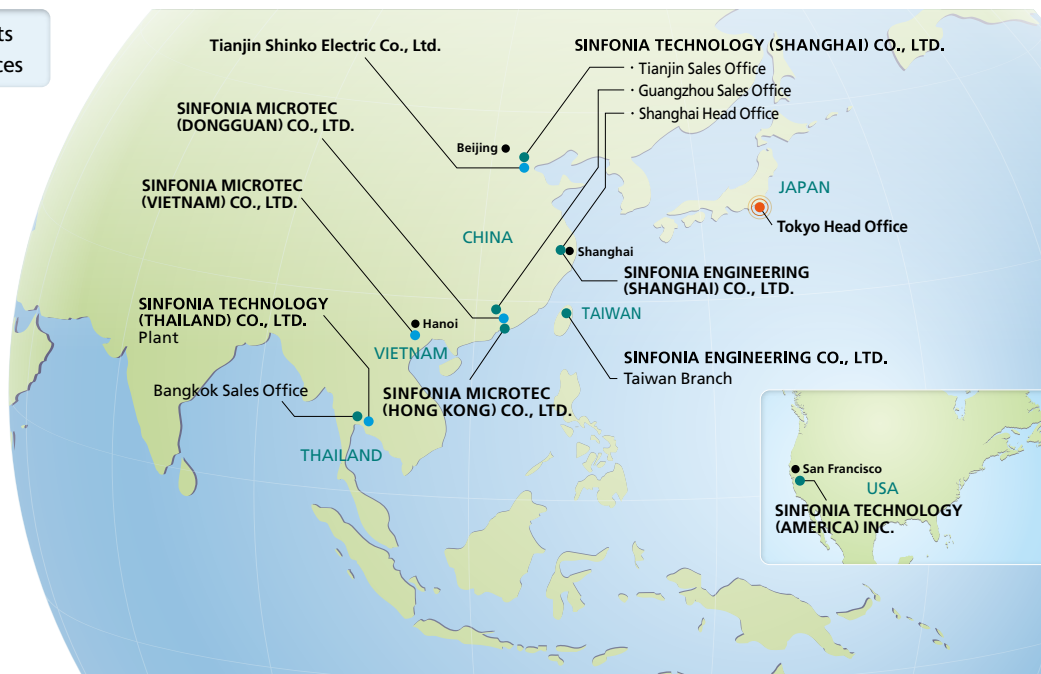


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For safe and reliable operation, it is essential to read the user's manual carefully before using this equipment.

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