

Motor Specifications and Ratings 100V MSMD

50W to 100W Low inertia Small Capacity

		AC100V					
Motor model		MSMD		5AZP1□	5AZS1□	011P1□	011S1□
Applicable driver	Model No.	A4 series	MADDT1105		MADDT1107		
		A4F series	MADDT1105F		MADDT1107F		
		A4P series	MADDT1105P		MADDT1107P		
	Frame symbol		Frame A				
Power supply capacity (kVA)		0.5			0.4		
Rated output (W)		50			100		
Rated torque (N · m)		0.16			0.32		
Momentary Max. peak torque (N · m)		0.48			0.95		
Rated current (Arms)		1.1			1.7		
Max. current (Ao-p)		4.7			7.2		
Regenerative brake frequency (times/min) Note1	Without option	No limit			Note)2		
	DV0P4280	No limit			Note)2		
Rated rotational speed (r/min)		3000					
Max. rotational speed (r/min)		5000					
Moment of inertia of rotor (x10 ⁻⁴ kg · m ²)	Without brake	0.025			0.051		
	With brake	0.027			0.054		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less					
Rotary encoder specifications		2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental		
		Resolution per single turn	10000	131072	10000	131072	
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)					
Environment	Ambient temperature	0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Nomal temperature>)					
	Ambient humidity	85%RH or lower (free from condensing)					
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust					
	Altitude	1000m or lower					
	Vibration resistance	49m/s ² or less			49m/s ² or less		
Mass (kg), () represents holding brake type		0.32 (0.53)			0.47 (0.68)		

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)	
Static friction torque (N · m)	0.29
Engaging time (ms)	35
Releasing time (ms) Note)4	20 (-)
Exciting current (DC) (A)	0.30
Releasing voltage	DC1V or more
Exciting voltage	DC 24 V ±5%

Permissible load		
During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117
During operation	Radial load P-direction (N)	68
	Thrust load A-direction (N)	58
	Thrust load B-direction (N)	58

For motor dimensions, refer to page A4-116, and for the diver, refer to pages A4-22, 48 and 73.

Model designation MSMD series, 50W to 100W

e.g.)

M S M D 5 A Z S 1 S

Symbol	Type
MSMD	Low inertia (50W-100W)

Voltage specifications	
Symbol	Specifications
1	100V
Z	100/200V (50W only)

Motor structure

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way, center tap	without	with	without	with*
A	●		●		●	
B	●			●	●	
S		●	●		●	
T		●		●	●	

*Motor with oil seal is manufactured by order.

Design order 1 : Standard

Motor rated output	
Symbol	Rated output
5A	50W
01	100W

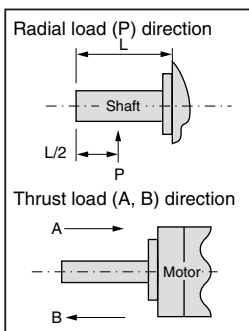
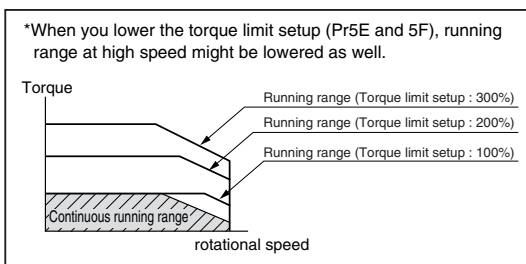
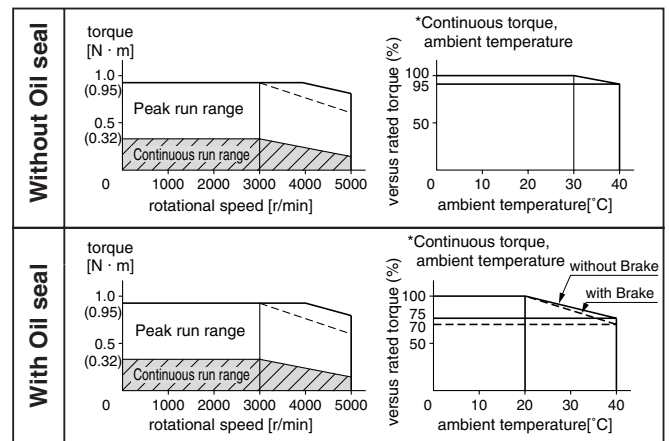
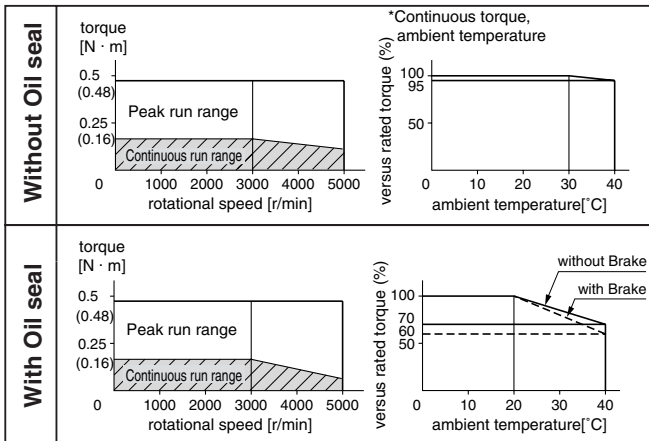
Rotary encoder specifications				
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500P/r	10000	5
S	Absolute/Incremental	17-bit	131072	7

Torque characteristics at AC100V of power voltage

(Dotted line represents the torque at 10% less supply voltage.)

MSMD5AZ□1□

MSMD011□1□



- Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
- If the load is connected, frequency will be defined as $1/(m+1)$, where m =load moment of inertia/rotor moment of inertia.
 - When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC115V (at 100V of the main voltage).
If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
 - When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
2. If the effective torque is within the rated torque, there is no limit in generative brake.
3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D271 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)

Motor Specifications and Ratings 100V MSMD

200W to 400W Low inertia Small Capacity

		AC100V					
Motor model		MSMD		021P1□	021S1□	041P1□	041S1□
Applicable driver	Model No.	A4 series	MBDDT2110		MCDDT3120		
		A4F series	MBDDT2110F		MCDDT3120F		
		A4P series	MBDDT2110P		MCDDT3120P		
	Frame symbol	Frame B			Frame C		
Power supply capacity (kVA)		0.5			0.9		
Rated output (W)		200			400		
Rated torque (N · m)		0.64			1.3		
Momentary Max. peak torque (N · m)		1.91			3.8		
Rated current (Arms)		2.5			4.6		
Max. current (Ao-p)		10.6			19.5		
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2			No limit Note)2		
	DV0P4282	—			No limit Note)2		
	DV0P4283	No limit Note)2			—		
Rated rotational speed (r/min)		3000			3000		
Max. rotational speed (r/min)		5000			5000		
Moment of inertia of rotor (x10 ⁻⁴ kg · m ²)	Without brake	0.14			0.26		
	With brake	0.16			0.28		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			30 times or less		
Rotary encoder specifications		2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental
		Resolution per single turn	10000	131072	10000	131072	10000
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)			IP65 (except rotating portion of output shaft and lead wire end)		
Environment	Ambient temperature	0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Nomal temperature>)			0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Nomal temperature>)		
	Ambient humidity	85%RH or lower (free from condensing)			85%RH or lower (free from condensing)		
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust			Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust		
	Altitude	1000m or lower			1000m or lower		
	Vibration resistance	49m/s ² or less			49m/s ² or less		
Mass (kg), () represents holding brake type		0.82 (1.3)			1.2 (1.7)		

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)	
Static friction torque (N · m)	1.27
Engaging time (ms)	50
Releasing time (ms) Note)4	15 (-)
Exciting current (DC) (A)	0.36
Releasing voltage	DC1V or more
Exciting voltage	DC 24 V ±5%

Permissible load		
During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A-direction (N)	98
	Thrust load B-direction (N)	98

For motor dimensions, refer to page A4-117, and for the diver, refer to pages A4-22, 23, 48, 49, 73 and 74.

Model designation MSMD series, 200W to 400W

e.g.)

M S M D 0 2 1 S 1 S

Symbol	Type
MSMD	Low inertia (200W-400W)

Voltage specifications	
Symbol	Specifications
1	100V

Design order
1 : Standard

Motor structure

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way, center tap	without	with	without	with*
A	●		●		●	
B	●			●	●	
S		●	●		●	
T		●		●	●	

* Motor with oil seal is manufactured by order.

Motor rated output

Symbol	Rated output
02	200W
04	400W

Rotary encoder specifications

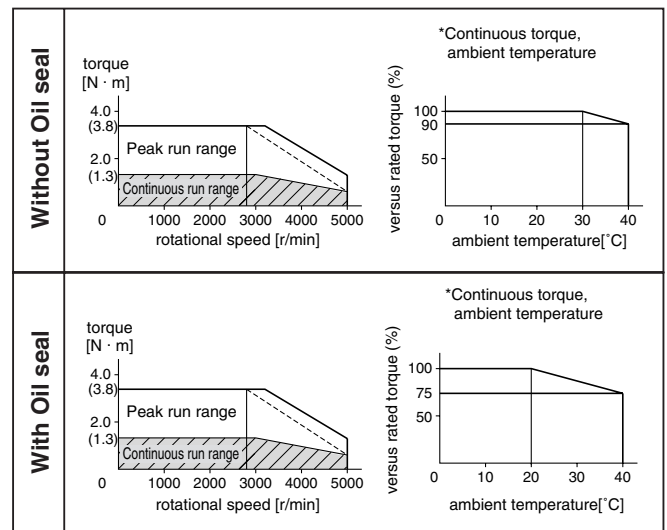
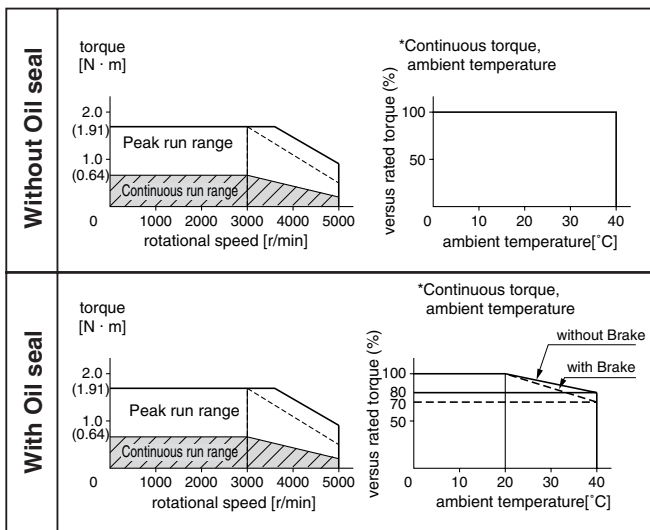
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500P/r	10000	5
S	Absolute/Incremental	17-bit	131072	7

Torque characteristics at AC100V of power voltage

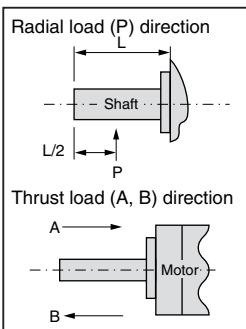
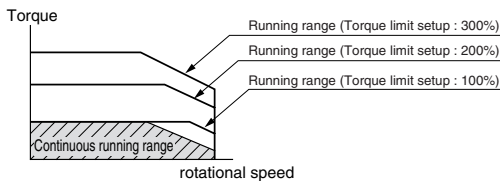
(Dotted line represents the torque at 10% less supply voltage.)

MSMD021□1□

MSMD041□1□



*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well.



Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defined as $1/(m+1)$, where m =load moment of inertia/rotor moment of inertia.
 - When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC115V (at 100V of the main voltage).
If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
 - When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
2. If the effective torque is within the rated torque, there is no limit in generative brake.
3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D271 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)

Motor Specifications and Ratings 200V MSMD

50W to 100W Low inertia Small Capacity

		AC200V				
Motor model		MSMD	5AZP1□	5AZS1□	012P1□	012S1□
Applicable driver	Model No.	A4 series	MADDT1205			
		A4F series	MADDT1205F			
		A4P series	MADDT1205P			
	Frame symbol	Frame A				
Power supply capacity (kVA)		0.5		0.5		
Rated output (W)		50		100		
Rated torque (N · m)		0.16		0.32		
Momentary Max. peak torque (N · m)		0.48		0.95		
Rated current (Arms)		1.1				
Max. current (Ao-p)		4.7				
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2				
	DV0P4281	No limit Note)2				
Rated rotational speed (r/min)		3000				
Max. rotational speed (r/min)		5000				
Moment of inertia of rotor (x10 ⁻⁴ kg · m ²)	Without brake	0.025		0.051		
	With brake	0.027		0.054		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less				
Rotary encoder specifications		2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental	
	Resolution per single turn	10000	131072	10000	131072	
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)				
Environment	Ambient temperature	0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Nomal temperature>)				
	Ambient humidity	85%RH or lower (free from condensing)				
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust				
	Altitude	1000m or lower				
	Vibration resistance	49m/s ² or less		49m/s ² or less		
Mass (kg), () represents holding brake type		0.32(0.53)		0.47(0.68)		

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)	
Static friction torque (N · m)	0.29
Engaging time (ms)	35
Releasing time (ms) Note)4	20 (-)
Exciting current (DC) (A)	0.30
Releasing voltage	DC1V or more
Exciting voltage	DC 24 V ±5%

Permissible load		
During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117
During operation	Radial load P-direction (N)	68
	Thrust load A-direction (N)	58
	Thrust load B-direction (N)	58

For motor dimensions, refer to page A4-116, and for the diver, refer to pages A4-22, 48 and 73.

Model designation MSMD series, 50W to 100W

e.g.)

M S M D 5 A Z S 1 S

Symbol	Type
MSMD	Low inertia (50W-100W)

Voltage specifications	
Symbol	Specifications
2	200V
Z	100/200V (50W only)

Motor structure

Design order 1 : Standard

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way, center tap	without	with	without	with*
A	●		●		●	
B	●			●	●	
S		●	●		●	
T		●		●	●	

* Motor with oil seal is manufactured by order.

Motor rated output

Symbol	Rated output
5A	50W
01	100W

Rotary encoder specifications

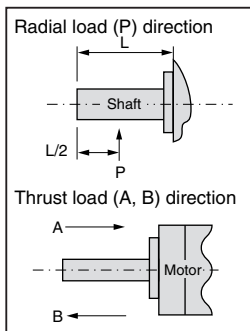
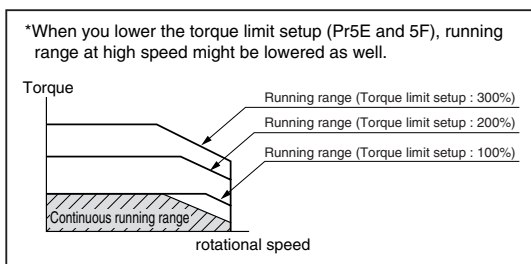
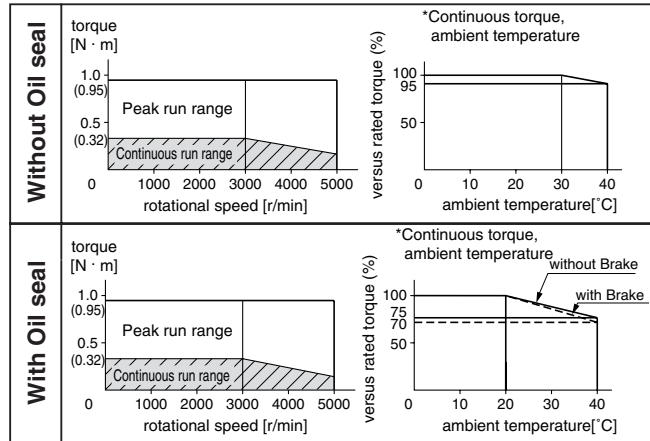
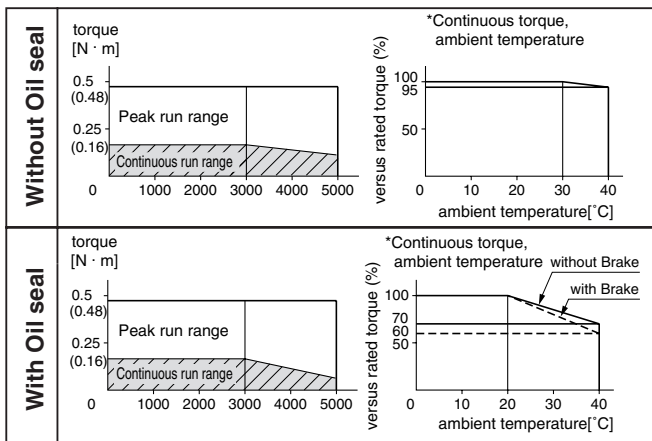
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500P/r	10000	5
S	Absolute/Incremental	17-bit	131072	7

Torque characteristics at AC200V of power voltage

(Dotted line represents the torque at 10% less supply voltage.)

MSMD5AZ□1□

MSMD012□1□



Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as $1/(m+1)$, where m =load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230V (at 200V of the main voltage).
If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/230) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
- 2. If the effective torque is within the rated torque, there is no limit in generative brake.
- 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
- 4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D271 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)

Motor Specifications and Ratings 200V MSMD

200W to 750W Low inertia Small Capacity

		AC200V							
Motor model		MSMD		022P1 □	022S1 □	042P1 □	042S1 □	082P1 □	082S1 □
Applicable driver	Model No.	A4 series	MADDT1207		MBDDT2210		MCDDT3520		
		A4F series	MADDT1207F		MBDDT2210F		MCDDT3520F		
		A4P series	MADDT1207P		MBDDT2210P		MCDDT3520P		
	Frame symbol	Frame A		Frame B		Frame C			
Power supply capacity (kVA)		0.5		0.9		1.3			
Rated output (W)		200		400		750			
Rated torque (N · m)		0.64		1.3		2.4			
Momentary Max. peak torque (N · m)		1.91		3.8		7.1			
Rated current (Arms)		1.6		2.6		4.0			
Max. current (Ao-p)		6.9		11.0		17.0			
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2							
	DV0P4283	No limit Note)2							
Rated rotational speed (r/min)		3000							
Max. rotational speed (r/min)		5000				4500			
Moment of inertia of rotor ($\times 10^{-4}$ kg · m ²)	Without brake	0.14		0.26		0.87			
	With brake	0.16		0.28		0.97			
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less				20 times or less			
Rotary encoder specifications		2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental	2500P/r Incremental	17-bit Absolute/ Incremental		
Resolution per single turn		10000	131072	10000	131072	10000	131072		
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)							
Environment	Ambient temperature	0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Nomal temperature>)							
	Ambient humidity	85%RH or lower (free from condensing)							
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust							
	Altitude	1000m or lower							
	Vibration resistance	49m/s ² or less							
Mass (kg), () represents holding brake type		0.82 (1.3)		1.2 (1.7)		2.3 (3.1)			

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)		
Static friction torque (N · m)	1.27	
Engaging time (ms)	50	
Releasing time (ms) Note)4	15 (-)	
Exciting current (DC) (A)	0.36	
Releasing voltage	DC1V or more	
Exciting voltage	DC 24 V \pm 5%	

Permissible load			
During assembly	Radial load P-direction (N)	392	686
	Thrust load A-direction (N)	147	294
	Thrust load B-direction (N)	196	392
During operation	Radial load P-direction (N)	245	392
	Thrust load A-direction (N)	98	147
	Thrust load B-direction (N)	98	147

For motor dimensions, refer to page A4-117, and for the diver, refer to pages A4-22, 23, 48, 49, 73 and 74.

Model designation MSMD series, 200W to 750W

e.g.)

M S M D 0 2 2 S 1 S

Symbol	Type
MSMD	Low inertia (200W-750W)

Voltage specifications	
Symbol	Specifications
2	200V

Motor structure

Design order 1 : Standard

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way, center tap	without	with	without	with*
A	●		●		●	
B	●			●	●	
S		●	●		●	
T		●		●	●	

* Motor with oil seal is manufactured by order.

Motor rated output	
Symbol	Rated output
02	200W
04	400W
08	750W

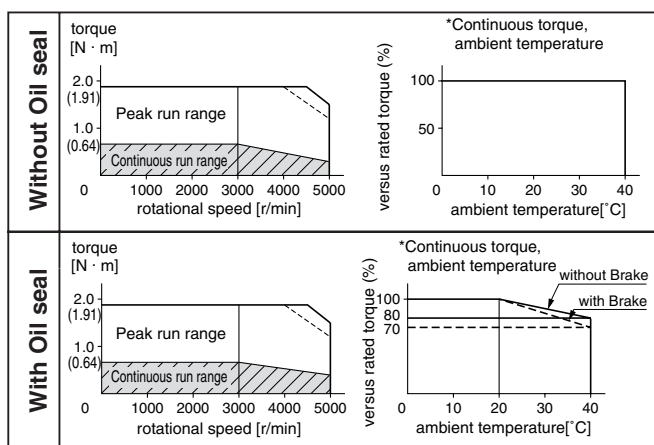
Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500P/r	10000	5
S	Absolute/Incremental	17-bit	131072	7

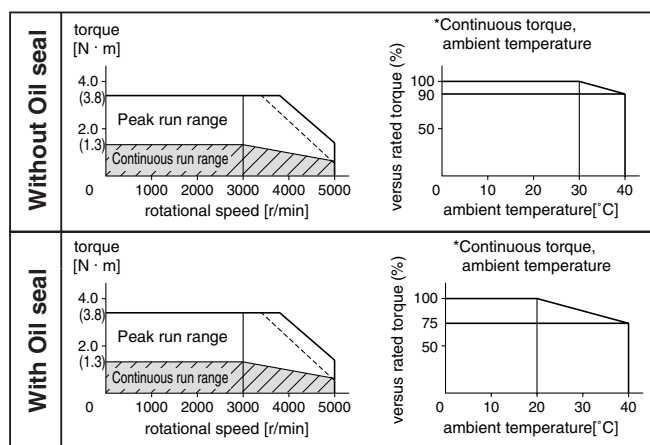
Torque characteristics at AC200V of power voltage

(Dotted line represents the torque at 10% less supply voltage.)

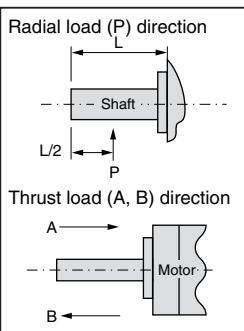
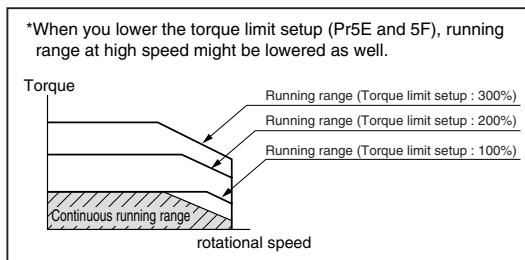
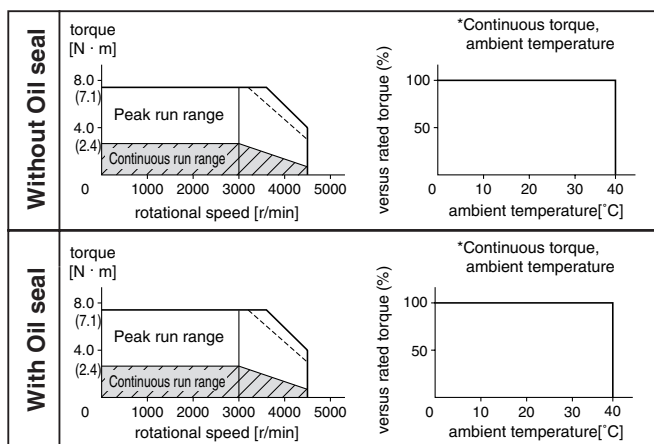
MSMD022□1□



MSMD042□1□



MSMD082□1□



Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defined as $1/(m+1)$, where m =load moment of inertia/rotor moment of inertia.
 - When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC230V (at 200V of the main voltage).
If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/230) relative to the value in the table.
 - When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
2. If the effective torque is within the rated torque, there is no limit in generative brake.
 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
 4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D271 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)