

Motor Specifications and Ratings 200V MSMA

1.0kW to 2.0kW Low inertia, Medium Capacity

		AC200V						
Motor model		MSMA	102P1□	102S1□	152P1□	152S1□	202P1□	202S1□
Applicable driver	Model No.	A4 series	MDDDT5540			MEDDT7364		
		A4F series	MDDDT5540F			MEDDT7364F		
		A4P series	MDDDT5540P			MEDDT7364P		
	Frame symbol		Frame D			Frame E		
Power supply capacity (kVA)			1.8		2.3		3.3	
Rated output (W)			1000		1500		2000	
Rated torque (N · m)			3.18		4.77		6.36	
Momentary Max. peak torque (N · m)			9.5		14.3		19.1	
Rated current (Arms)			7.2		9.4		13.0	
Max. current (Ao-p)			30		40		56	
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2						
	DV0P4284	No limit Note)2					–	
	DV0P4285 x 2	–					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		1.69		2.59		3.46	
	With brake		1.88		2.84		3.81	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 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			4.5 (5.1)		5.1 (6.5)		6.5 (7.9)	

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)		4.9		7.8
Engaging time (ms)		50		50
Releasing time (ms) Note)4		15 (100)		15 (100)
Exciting current (DC) (A)		0.74		0.81
Releasing voltage		DC2V or more		
Exciting voltage		DC 24 V ±10%		

Permissible load			
During assembly	Radial load P-direction (N)	686	980
	Thrust load A-direction (N)	392	588
	Thrust load B-direction (N)	490	686
During operation	Radial load P-direction (N)	392	490
	Thrust load A-direction (N)	147	196
	Thrust load B-direction (N)	147	196

For motor dimensions, refer to page A4-119, and for the diver, refer to pages A4-23, 24, 49, 50, 74 and 75.

Model designation MSMA series, 1.0kW to 2.0kW

e.g.)

M S M A 1 0 2 S 1 G

Symbol	Type
MSMA	Low inertia (1.0kW-2.0kW)

Voltage specifications	
Symbol	Specifications
2	200V

Design order 1 : Standard

Motor structure

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way	without	with	without	with
C	●		●			●
D	●			●		●
G		●	●			●
H		●		●		●

Products are standard stock items or build to order items. See index (page F31).

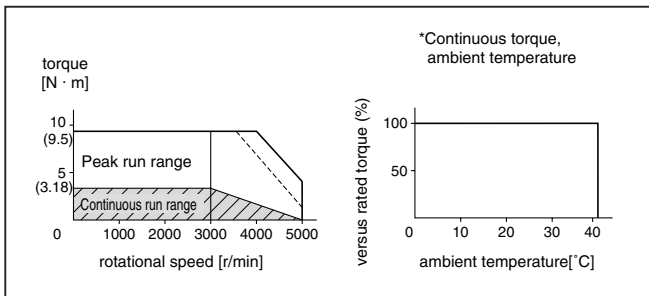
Motor rated output	
Symbol	Rated output
10	1.0kW
15	1.5kW
20	2.0kW

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

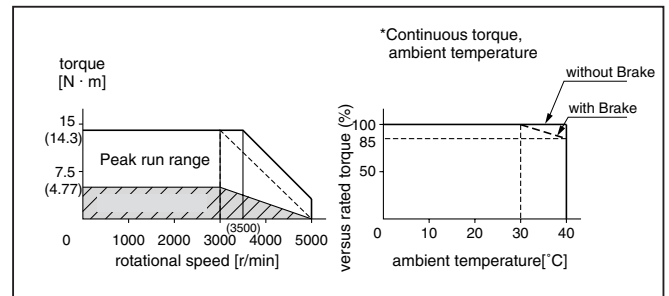
Torque characteristics at AC200V of power voltage

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

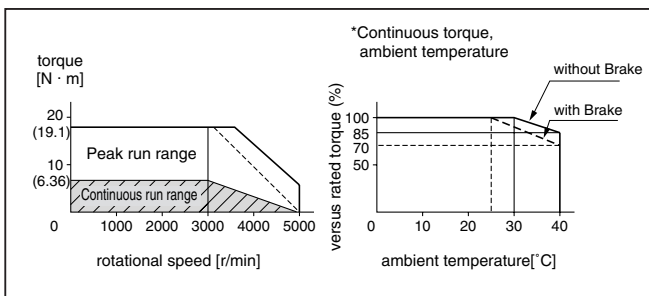
MSMA102□1□



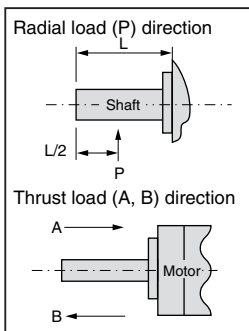
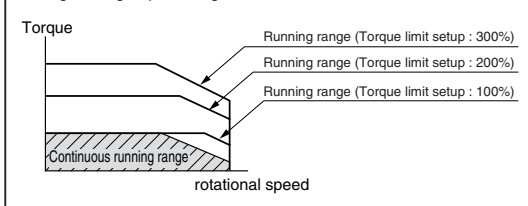
MSMA152□1□



MSMA202□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 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 regenerative 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 (Z15D151 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)

Motor Specifications and Ratings 200V MSMA

3.0kW to 5.0kW Low inertia, Medium Capacity

		AC200V							
Motor model		MSMA		302P1□	302S1□	402P1□	402S1□	502P1□	502S1□
Applicable driver	Model No.	A4 series	MFDDTA390			MFDDTB3A2			
		A4F series	MFDDTA390F			MFDDTB3A2F			
		A4P series	MFDDTA390P			MFDDTB3A2P			
	Frame symbol		Frame F						
Power supply capacity (kVA)		4.5		6.0		7.5			
Rated output (W)		3000		4000		5000			
Rated torque (N · m)		9.54		12.6		15.8			
Momentary Max. peak torque (N · m)		28.6		37.9		47.6			
Rated current (Arms)		18.6		24.7		28.5			
Max. current (Ao-p)		80		105		120			
Regenerative brake frequency (times/min) Note1	Without option	No limit Note)2				326			
	DV0P4285 x 2	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	6.77		12.7		17.8			
	With brake	7.45		14.1		19.7			
Recommended moment of inertia ratio of the load and the rotor Note)3		15 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		9.3 (11.0)		12.9 (14.8)		17.3 (19.2)			

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)	11.8	16.1
Engaging time (ms)	80	110
Releasing time (ms) Note)4	15 (100)	50 (130)
Exciting current (DC) (A)	0.81	0.90
Releasing voltage	DC2V or more	
Exciting voltage	DC 24 V \pm 10%	

Permissible load			
During assembly	Radial load P-direction (N)	980	
	Thrust load A-direction (N)	588	
	Thrust load B-direction (N)	686	
During operation	Radial load P-direction (N)	490	784
	Thrust load A-direction (N)	196	343
	Thrust load B-direction (N)	196	343

For motor dimensions, refer to page A4-120, and for the diver, refer to pages A4-24, 50 and 75.

Model designation MSMA series, 3.0kW to 5.0kW

e.g.)

M S M A 3 0 2 S 1 G

Symbol	Type
MSMA	Low inertia (3.0kW-5.0kW)

Voltage specifications	
Symbol	Specifications
2	200V

Design order
1 : Standard

Motor structure

Symbol	Shaft		Holding brake		Oil seal	
	Round	Key-way	without	with	without	with
C	●		●			●
D	●			●		●
G		●	●			●
H		●		●		●

Motor rated output	
Symbol	Rated output
30	3.0kW
40	4.0kW
50	5.0kW

Rotary encoder specifications

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

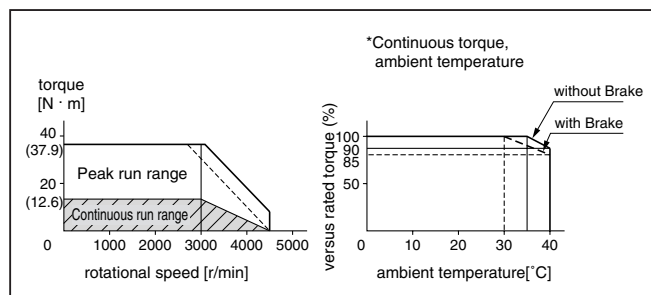
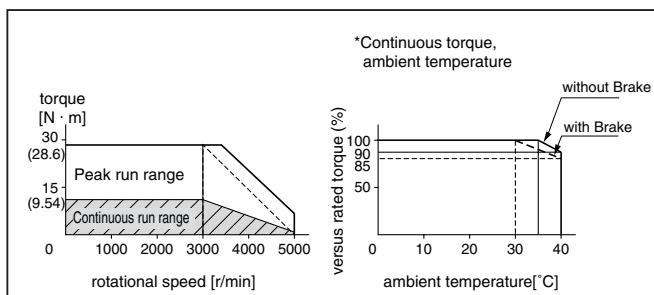
Products are standard stock items or build to order items. See index (page F31).

Torque characteristics at AC200V of power voltage

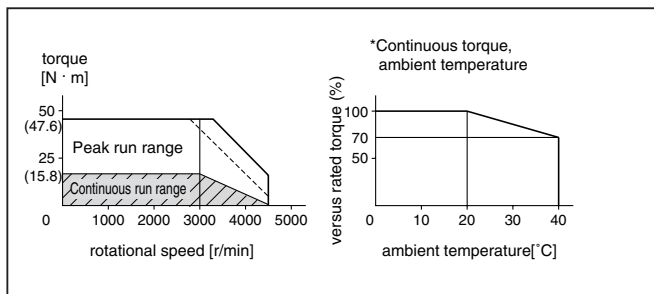
(Dotted line represents the torque at 10% less supply voltage.)

MSMA302 □1 □

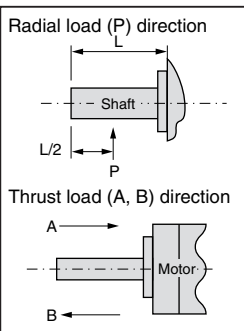
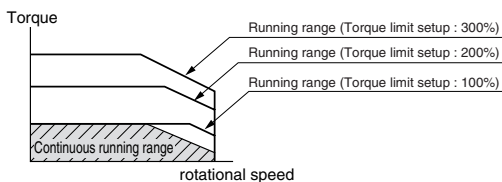
MSMA402 □1 □



MSMA502 □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.

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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 (Z15D151 by Ishizuka Electronic or equivalent).
() represents the actually measured value using a diode (200V, 1A or equivalent)