

Motor Specifications and Ratings 100V MQMA

100W to 400W Low inertia, Flat, Small Capacity

		AC100V							
Motor model		MQMA		011P1□	011S1□	021P1□	021S1□	041P1□	041S1□
Applicable driver	Model No.	A4 series	MADDT1107		MBDDT2110		MCDDT3120		
		A4F series	MADDT1107F		MBDDT2110F		MCDDT3120F		
		A4P series	MADDT1107P		MBDDT2110P		MCDDT3120P		
	Frame symbol	Frame A		Frame B		Frame C			
Power supply capacity (kVA)		0.4		0.5		0.9			
Rated output (W)		100		200		400			
Rated torque (N · m)		0.32		0.64		1.3			
Momentary Max. peak torque (N · m)		0.95		1.91		3.82			
Rated current (Arms)		1.6		2.5		4.4			
Max. current (Ao-p)		6.9		10.5		18.6			
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2							
	DV0P4280	No limit Note)2		_____		_____			
	DV0P4282	_____		_____		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 (x10 ⁻⁴ kg · m ²)	Without brake	0.09	0.10	0.34	0.35	0.64	0.65		
	With brake	0.12	0.13	0.42	0.43	0.72	0.73		
Recommended moment of inertia ratio of the load and the rotor Note)3		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	24m/s ² or less	49m/s ² or less	24m/s ² or less	49m/s ² or less	24m/s ² or less		
Mass (kg), () represents holding brake type		0.65 (0.90)	0.75 (1.0)	1.3 (2.0)	1.4 (2.1)	1.8 (2.5)	1.9 (2.6)		

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	1.27
Engaging time (ms)	50	60
Releasing time (ms) Note)4	15 (100)	15 (100)
Exciting current (DC) (A)	0.29	0.41
Releasing voltage	DC1V or more	
Exciting voltage	DC 24 V ±5%	

Permissible load			
During assembly	Radial load P-direction (N)	147	392
	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
During operation	Radial load P-direction (N)	68	245
	Thrust load A-direction (N)	58	98
	Thrust load B-direction (N)	58	98

For motor dimensions, refer to page A4-118, and for the diver, refer to pages A4-22, 23, 48, 49, 73 and 74.

Model designation MQMA series, 100W to 400W

e.g.)

M Q M A 0 1 1 S 1 S

Symbol	Type
MQMA	Low inertia (100W-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
01	100W
02	200W
04	400W

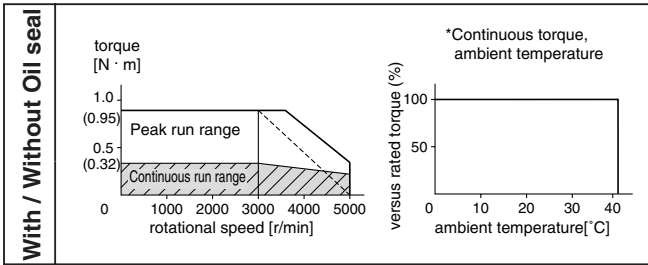
Rotary encoder specifications

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

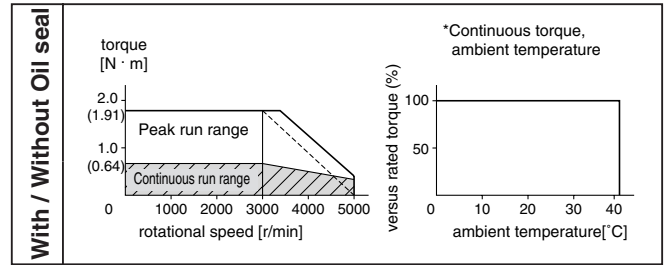
Torque characteristics at AC100V of power voltage

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

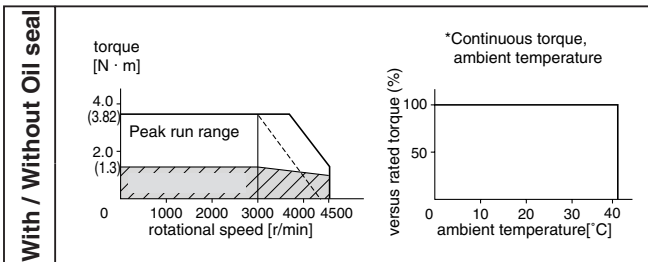
MQMA011 □1 □



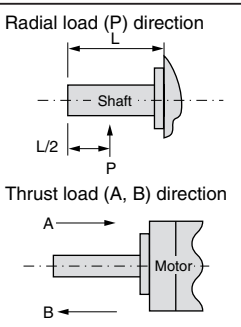
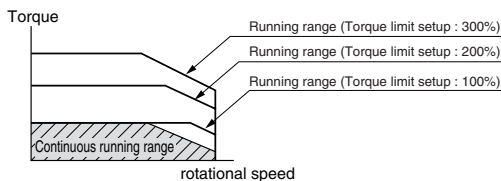
MQMA021 □1 □



MQMA041 □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 (Z15D151 by Ishizuka Electronic or equivalent).
 () represents the actually measured value using a diode (200V, 1A or equivalent)

Motor Specifications and Ratings 200V MQMA

100W to 400W Low inertia, Flat, Small Capacity

		AC200V							
Motor model		MQMA		012P1□	012S1□	022P1□	022S1□	042P1□	042S1□
Applicable driver	Model No.	A4 series	MADDT1205		MADDT1207		MBDDT2210		
		A4F series	MADDT1205F		MADDT1207F		MBDDT2210F		
		A4P series	MADDT1205P		MADDT1207P		MBDDT2210P		
	Frame symbol		Frame A				Frame B		
Power supply capacity (kVA)		0.3		0.5		0.9			
Rated output (W)		100		200		400			
Rated torque (N · m)		0.32		0.64		1.3			
Momentary Max. peak torque (N · m)		0.95		1.91		3.82			
Rated current (Arms)		1.0		1.6		2.5			
Max. current (Ao-p)		4.3		6.8		10.5			
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							
Moment of inertia of rotor ($\times 10^{-4}$ kg · m ²)	Without brake	0.090	0.100	0.340	0.350	0.640	0.650		
	With brake	0.120	0.130	0.420	0.430	0.720	0.730		
Recommended moment of inertia ratio of the load and the rotor Note)3		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	24m/s ² or less	49m/s ² or less	24m/s ² or less	49m/s ² or less	24m/s ² or less		
Mass (kg), () represents holding brake type		0.65 (0.90)	0.75 (1.0)	1.3 (2.0)	1.4 (2.1)	1.8 (2.5)	1.9 (2.6)		

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)	50
Releasing time (ms) Note)4	15 (100)
Exciting current (DC) (A)	0.29
Releasing voltage	DC1V or more
Exciting voltage	DC 24 V \pm 10%

Permissible load			
During assembly	Radial load P-direction (N)	147	392
	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
During operation	Radial load P-direction (N)	68	245
	Thrust load A-direction (N)	58	98
	Thrust load B-direction (N)	58	98

For motor dimensions, refer to page A4-118, and for the diver, refer to pages A4-22, 48 and 73.

Model designation MQMA series, 100W to 400W

e.g.)

M Q M A 0 1 2 S 1 S

Symbol	Type
MQMA	Low inertia (100W-400W)

Voltage specifications	
Symbol	Specifications
2	200V

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
01	100W
02	200W
04	400W

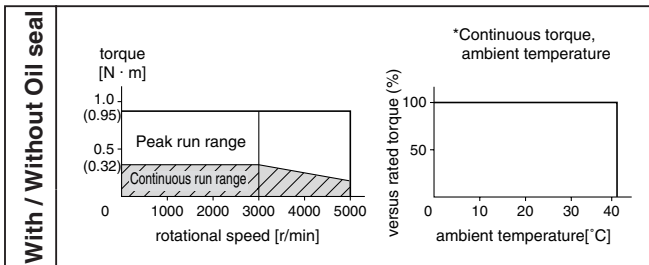
Rotary encoder specifications

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

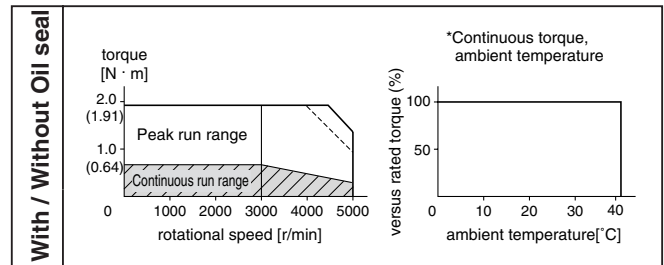
Torque characteristics at AC200V of power voltage

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

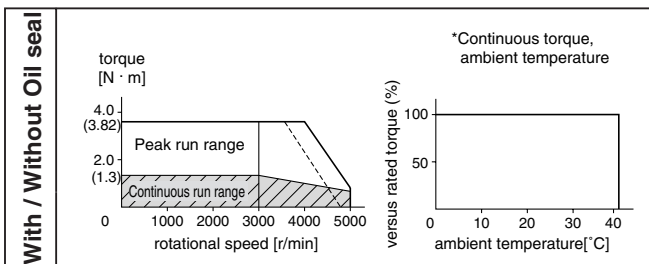
MQMA012□1□



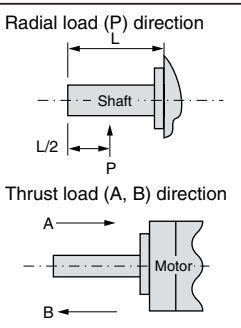
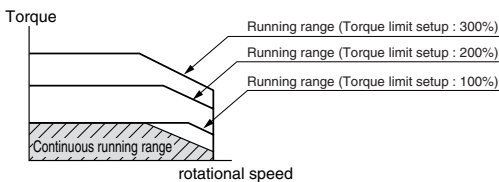
MQMA022□1□



MQMA042□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 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)