

# Motor Specifications and Ratings 200V MHMA

## 500W to 1.5kW High inertia, Medium Capacity

			AC200V					
Motor model		MHMA	052P1□	052S1□	102P1□	102S1□	152P1□	152S1□
Applicable driver	Model No.	A4 series	MCDDT3520		MDDDT3530		MDDDT5540	
		A4P series	MCDDT3520P		MDDDT3530P		MDDDT5540P	
	Frame symbol		Frame C		Frame D			
Power supply capacity (kVA)			1.1		1.8		2.3	
Rated output (W)			500		1000		1500	
Rated torque (N · m)			2.38		4.8		7.15	
Momentary Max. peak torque (N · m)			6.0		14.4		21.5	
Rated current (Arms)			3.2		5.6		9.4	
Max. current (Ao-p)			11.5		24.0		40.0	
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2			33		25	
	DV0P4283	No limit Note)2						
	DV0P4284		No limit Note)2					
Rated rotational speed (r/min)					2000			
Max. rotational speed (r/min)					3000			
Moment of inertia of rotor (x10 <sup>-4</sup> kg · m <sup>2</sup> )	Without brake	14.0		26.0		42.9		
	With brake	15.2		27.2		44.1		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 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 shaft through hole and cable end connector)					
Environment	Ambient temperature		0 to 40°C (free from freezing), Storage : -20 to +65°C (Max.temperature guarantee 80°C for 72 hours <Normal 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 <sup>2</sup> or less					
Mass (kg), ( ) represents holding brake type			5.3 (6.9)		8.9 (9.5)		10.0 (11.6)	

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)		4.9	13.7
Engaging time (ms)		80	100
Releasing time (ms) Note)4		70 (200)	50 (130)
Exciting current (DC) (A)		0.59	0.79
Releasing voltage		DC2V or more	
Exciting voltage		DC 24 V ±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
	Thrust load A-direction (N)	196
	Thrust load B-direction (N)	196

For motor dimensions, refer to page A4-101 , and for the diver, refer to pages A4-23 and 46.

## Model designation MHMA series, 500W to 1.5kW

e.g.)

M H M A 0 5 2 S 1 G

Symbol	Type
MHMA	High inertia (500W-1.5kW)

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).

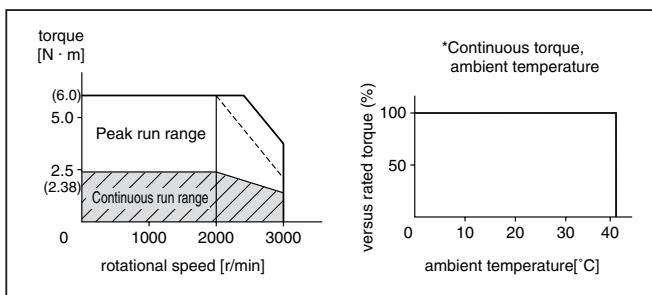
Motor rated output	
Symbol	Rated output
05	0.5kW
10	1.0kW
15	1.5kW

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

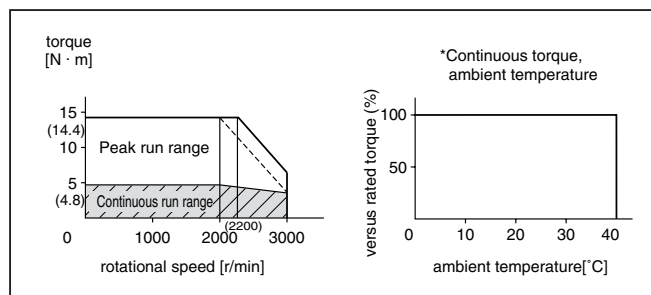
## Torque characteristics at AC200V of power voltage

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

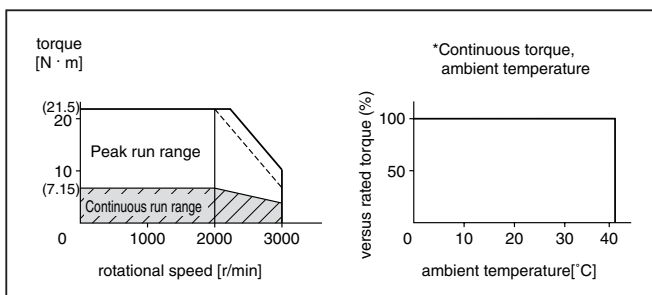
MHMA052□1□



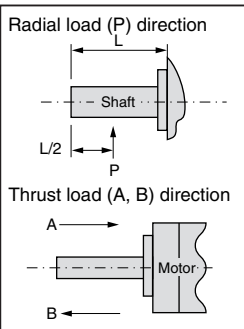
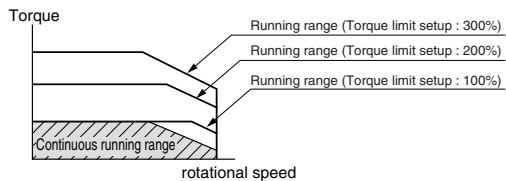
MHMA102□1□



MHMA152□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)

# Motor Specifications and Ratings 200V MHMA

## 2.0kW to 5.0kW High inertia, Medium Capacity

			AC200V								
Motor model			MHMA	202P1□	202S1□	302P1□	302S1□	402P1□	402S1□	502P1□	502S1□
Applicable driver	Model No.	A4 series	MEDDT7364		MFDDTA390		MFDDTB3A2				
		A4P series	MEDDT7364P		MFDDTA390P		MFDDTB3A2P				
	Frame symbol		Frame E			Frame F					
Power supply capacity (kVA)			3.3		4.5		6.0		7.5		
Rated output (W)			2000		3000		4000		5000		
Rated torque (N · m)			9.54		14.3		18.8		23.8		
Momentary Max. peak torque (N · m)			28.5		42.9		56.4		71.4		
Rated current (Arms)			12.3		17.8		23.4		28.0		
Max. current (Ao-p)			52.0		76.0		100.0		120.0		
Regenerative brake frequency (times/min) Note)1	Without option		38		43		32		20		
	DV0P4285		100		—————						
	DV0P4285 x 2		—————		No limit Note)2		200		150		
Rated rotational speed (r/min)			2000								
Max. rotational speed (r/min)			3000								
Moment of inertia of rotor (x10 <sup>-4</sup> kg · m <sup>2</sup> )	Without brake		62.0		94.1		120.0		170.0		
	With brake		67.9		100.0		126.0		176.0		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 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	2500P/r Incremental	17-bit Absolute/ Incremental	
			Resolution per single turn		10000	131072	10000	131072	10000	131072	10000
Protective enclosure rating			IP65 (except shaft through hole and cable end connector)								
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 <sup>2</sup> or less								
Mass (kg), ( ) represents holding brake type			16.0 (19.5)		18.2 (21.7)		22.0 (25.5)		26.7 (30.2)		

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)	24.5
Engaging time (ms)	80
Releasing time (ms) Note)4	25 (200)
Exciting current (DC) (A)	1.30
Releasing voltage	DC2V or more
Exciting voltage	DC 24 V ±10%

Permissible load		
During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A-direction (N)	343
	Thrust load B-direction (N)	343

For motor dimensions, refer to page A4-102 , and for the diver, refer to pages A4-24 and 47.

## Model designation MHMA series, 2.0kW to 5.0kW

e.g.)

M H M A 2 0 2 S 1 G

Symbol	Type
MHMA	High inertia (2.0kW-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		●		●		●

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

Motor rated output	
Symbol	Rated output
20	2.0kW
30	3.0kW
40	4.0kW
50	5.0kW

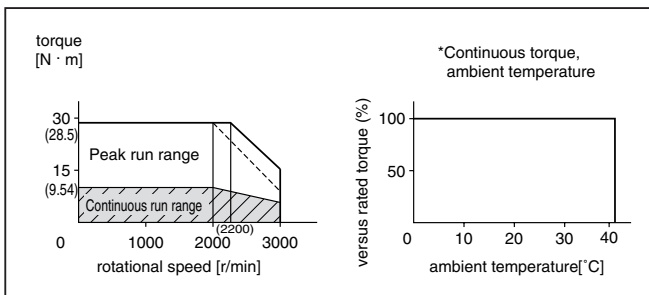
Rotary encoder specifications

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

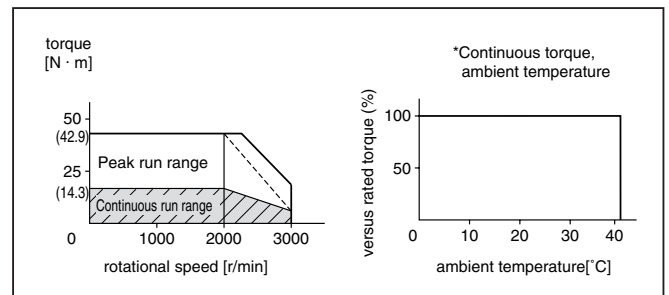
## Torque characteristics at AC200V of power voltage

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

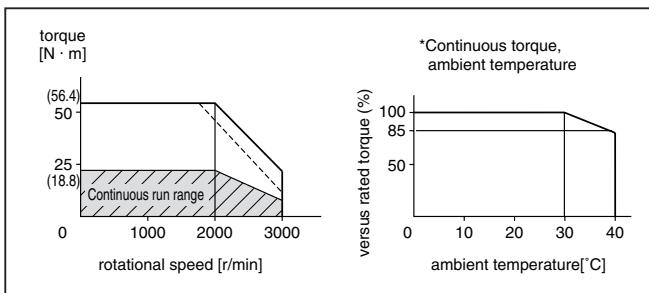
MHMA202□1□



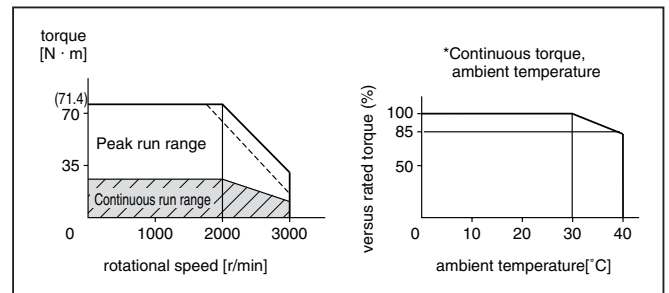
MHMA302□1□



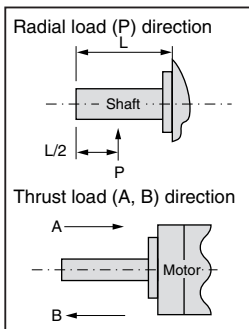
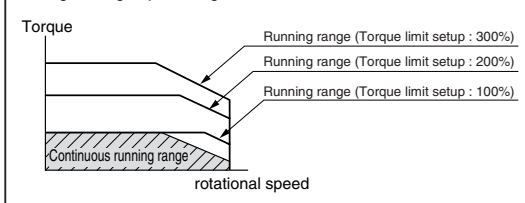
MHMA402□1□



MHMA502□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 MHMA

## 7.5kW High inertia, Large Capacity

		AC200V		
Motor model		MHMA	752P1□	752S1□
Applicable driver	Model No.	A4 series A4P series	<b>MGDDTC3B4</b>	
	Frame symbol		Frame G	
Power supply capacity (kVA)		11		
Rated output (W)		7500		
Rated torque (N · m)		48		
Momentary Max. peak torque (N · m)		119		
Rated current (Arms)		46.6		
Max. current (Ao-p)		165.0		
Regenerative brake frequency (times/min) Note)1	Without option	0		
	DV0P4285 x 4	No limit Note)2		
Rated rotational speed (r/min)		1500		
Max. rotational speed (r/min)		3000		
Moment of inertia of rotor (x10 <sup>-4</sup> kg · m <sup>2</sup> )	Without brake	282		
	With brake	288		
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		
Rotary encoder specifications		2500P/r Incremental		17-bit Absolute/ Incremental
		Resolution per single turn 10000		131072
Protective enclosure rating		IP65 (except shaft through hole and cable end connector)		
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	24m/s <sup>2</sup> or less		
Mass (kg), ( ) represents holding brake type		43.5 (47.5)		

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)	58.8
Engaging time (ms)	150
Releasing time (ms) Note)4	50 (130)
Exciting current (DC) (A)	1.40
Releasing voltage	DC2V or more
Exciting voltage	DC 24 V ±10%

Permissible load		
During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A-direction (N)	490
	Thrust load B-direction (N)	490

For motor dimensions, refer to page A4-103 , and for the diver, refer to pages A4-25.

## Model designation MHMA series, 7.5kW

e.g.)

M H M A 7 5 2 S 1 G

Symbol	Type
MHMA	High inertia (7.5kW)

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
75	7.5kW

Rotary encoder specifications

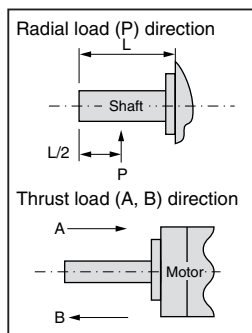
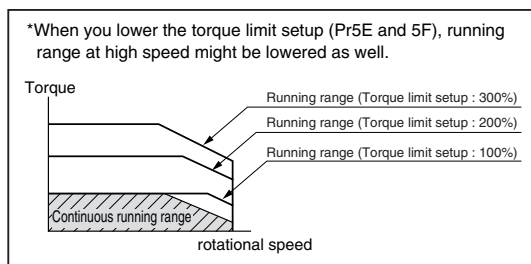
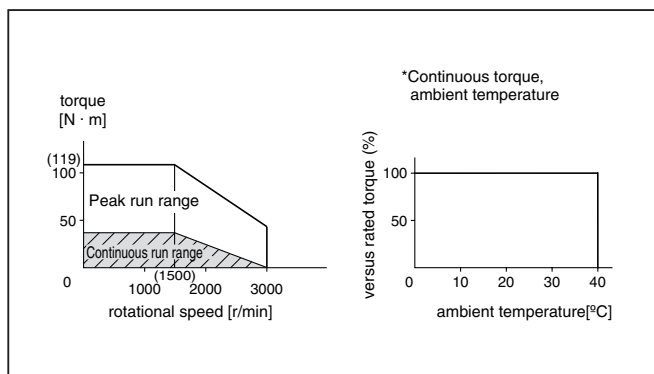
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500P/r	10000	5
S	Absolute/Incremental	17-bit	131072	7

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.)

MHMA752□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 (Z15D151 by Ishizuka Electronic or equivalent).  
( ) represents the actually measured value using a diode (200V, 1A or equivalent)