

■ Notes on [Motor specification] page

Note) 1. Regenerative resistors are not built in drivers of A and B frames. When regeneration occurs, prepare an optional external regenerative resistor.

[At AC100 V of power voltage]

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 AC115 V (at 100 V 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.

[At AC200 V of power voltage]

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 AC230 V (at 200 V 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.

Note) 2. If the effective torque is within the rated torque, there is no limit in generative brake.

Note) 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.

■ Please contact us for Brake specifications, Permissible load, Environmental Conditions, Mass of motor.

■ About motor options

Other optional products such as motor cables are the same as the A6 series options. Please refer to A6 Family catalog.

■ Software version of applicable amplifier

Driver / Series number	Software version	Timing
A6SE / A6SF / A6SG Series	Ver1.09 or later	Production lot in Sep 2018
A6NE / A6NF Series	Ver1.23 or later	Production lot in May 2018
A6BE / A6BF Series	Ver1.04 or later	Production lot in Aug 2018

Repair

Consult to the dealer from whom you have purchased this product for details of repair work.
When the product is incorporated to the machine you have purchased, consult to the machine manufacturer or its dealer.

URL

Electronic data of this product (Instruction Manual, CAD data) can be downloaded from the following web site;
industrial.panasonic.com/ac/e/

● Contact to : _____

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INDUSTRY

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AC Servo Motor & Driver

MINAS A6 Family
Battery-less absolute encoder motor

IN Better Solution



Build an absolute system with no battery!

Reduced the battery for the absolute encoder by installing the power generating element in the motor.
In addition to improving maintainability, we support the construction of ecological and economical industrial machines and systems.

Maintenance-free - there is no need to perform battery replacement.

The battery-less absolute encoder is an innovative encoder requiring no hassle inventory management or cost of battery replacement. It contributes to the construction of ecological and economical industrial machines and systems.

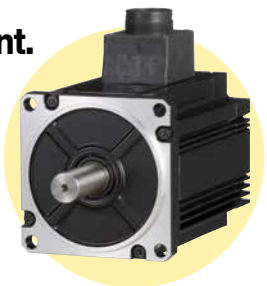


Table of Model Numbers ●Please refer to the end of this catalog for the software version of the applicable amplifier.

● 80 mm sq. or less 50 W to 1000 W MSMF, MQMF, MHMF Leadwire type IP65

Motor				Driver		Power capacity (at rated load)
Motor series	Power supply	Output (W)	Model No.	A6 series Model No.	Dimension Frame	
MSMF (Leadwire type) 3000 r/min Low inertia	Single phase 100 V	50	MSMF5AZA1□2	MADL☆01○★	A-frame	Approx. 0.4 kVA
		100	MSMF011A1□2	MADL☆11○★		
		200	MSMF021A1□2	MBDL☆21○★	B-frame	Approx. 0.5 kVA
		400	MSMF041A1□2	MCDL☆31○★	C-frame	Approx. 0.9 kVA
	Single phase/ 3-phase 200 V	50	MSMF5AZA1□2	MADL☆05○★	A-frame	Approx. 0.5 kVA
		100	MSMF012A1□2			
		200	MSMF022A1□2	MADL☆15○★	B-frame	Approx. 0.9 kVA
		400	MSMF042A1□2	MBDL☆25○★		
		750	MSMF082A1□2	MCDL☆35○★		
		1000	MSMF092A1□2	MDDL☆45○★		
MQMF (Leadwire type) 3000 r/min Middle inertia Flat type	Single phase 100 V	100	MQMF011A1□□	MADL☆11○★	A-frame	Approx. 0.4 kVA
		200	MQMF021A1□□	MBDL☆21○★	B-frame	Approx. 0.5 kVA
		400	MQMF041A1□□	MCDL☆31○★	C-frame	Approx. 0.9 kVA
	Single phase/ 3-phase 200 V	100	MQMF012A1□□	MADL☆05○★	A-frame	Approx. 0.5 kVA
		200	MQMF022A1□□	MADL☆15○★		
MHMF (Leadwire type) 3000 r/min High inertia	Single phase 100 V	400	MQMF042A1□□	MBDL☆25○★	B-frame	Approx. 0.9 kVA
		50	MHMF5AZA1□□	MADL☆01○★	A-frame	Approx. 0.4 kVA
		100	MHMF011A1□□			
		200	MHMF021A1□□	MBDL☆21○★	B-frame	Approx. 0.5 kVA
	Single phase/ 3-phase 200 V	400	MHMF041A1□□	MCDL☆31○★	C-frame	Approx. 0.9 kVA
		50	MHMF5AZA1□□	MADL☆05○★	A-frame	Approx. 0.5 kVA
		100	MHMF012A1□□			
		200	MHMF022A1□□	MADL☆15○★	B-frame	Approx. 0.9 kVA
		400	MHMF042A1□□	MBDL☆25○★		
		750	MHMF082A1□□	MCDL☆35○★		
		1000	MHMF092A1□□	MDDL☆55○★		

[Motor] □ : For more information, Please refer to “[Motor] Model Designation” in P.3.
[Driver] ☆○★ : For more information, Please refer to “[Driver] Model Designation” in P.3.

Table of Model Numbers ●Please refer to the end of this catalog for the software version of the applicable amplifier.

● 100 mm sq. or more 0.85 kW to 5.0 kW MSMF, MDMF, MGMF, MHMF
IP67 motor encoder connector (small size JN2) type

Motor				Driver		Power capacity (at rated load)
Motor series	Power supply	Output (W)	Model No.	A6 series Model No.	Dimension Frame	
MSMF (Small size JN2 type) 3000 r/min Low inertia	Single phase/ 3-phase 200 V	1000	MSMF102A1□□	MDDL☆55○★	D-frame	Approx. 2.4 kVA
		1500	MSMF152A1□□	MDDL☆55○★		Approx. 2.9 kVA
	3-phase 200 V	2000	MSMF202A1□□	MEDL☆83○★	E-frame	Approx. 3.8 kVA
		3000	MSMF302A1□□	MFDL☆A3○★	F-frame	Approx. 5.2 kVA
		4000	MSMF402A1□□	MFDL☆B3○★		Approx. 6.5 kVA
MDMF (Small size JN2 type) 2000 r/min Middle inertia	Single phase/ 3-phase 200 V	5000	MSMF502A1□□	MFDL☆B3○★	D-frame	Approx. 7.8 kVA
		1000	MDMF102A1□□	MDDL☆45○★		Approx. 2.4 kVA
	3-phase 200 V	1500	MDMF152A1□□	MDDL☆55○★	E-frame	Approx. 2.9 kVA
		2000	MDMF202A1□□	MEDL☆83○★		Approx. 3.8 kVA
		3000	MDMF302A1□□	MFDL☆A3○★	F-frame	Approx. 5.2 kVA
MGMF (Small size JN2 type) 1500 r/min Middle inertia	Single phase/ 3-phase 200 V	4000	MDMF402A1□□	MFDL☆B3○★		Approx. 6.5 kVA
		5000	MDMF502A1□□	MFDL☆B3○★	D-frame	Approx. 7.8 kVA
	3-phase 200 V	850	MGMF092A1□□	MDDL☆45○★		Approx. 2.0 kVA
		1300	MGMF132A1□□	MDDL☆55○★	E-frame	Approx. 2.6 kVA
		1800	MGMF182A1□□	MEDL☆83○★		Approx. 3.4 kVA
MHMF (Small size JN2 type) 2000 r/min High inertia	Single phase/ 3-phase 200 V	2400	MGMF242A1□□	MEDL☆93○★	F-frame	Approx. 4.5 kVA
		2900	MGMF292A1□□	MFDL☆B3○★		Approx. 5.0 kVA
	3-phase 200 V	4400	MGMF442A1□□	MFDL☆B3○★	D-frame	Approx. 7.0 kVA
		1000	MHMF102A1□□	MDDL☆45○★		Approx. 2.4 kVA
		1500	MHMF152A1□□	MDDL☆55○★	E-frame	Approx. 2.9 kVA
MHMF (Small size JN2 type) 2000 r/min High inertia	Single phase/ 3-phase 200 V	2000	MHMF202A1□□	MEDL☆83○★		Approx. 3.8 kVA
		3000	MHMF302A1□□	MFDL☆A3○★	F-frame	Approx. 5.2 kVA
	3-phase 200 V	4000	MHMF402A1□□	MFDL☆B3○★		Approx. 6.5 kVA
		5000	MHMF502A1□□	MFDL☆B3○★	D-frame	Approx. 7.8 kVA

[Motor] □ : For more information, Please refer to “[Motor] Model Designation” in P.3.
[Driver] ☆○★ : For more information, Please refer to “[Driver] Model Designation” in P.3.

Encoder Cable (Option)

● 80 mm sq. or less 50 W to 1000 W
MSMF, MQMF, MHMF
Leadwire type IP65

Length (m)	Part No.(ex.)
3	MFECA0030EAD
5	MFECA0050EAD
10	MFECA0100EAD

Please contact us for 10 m to 20 m.

【About motor options】

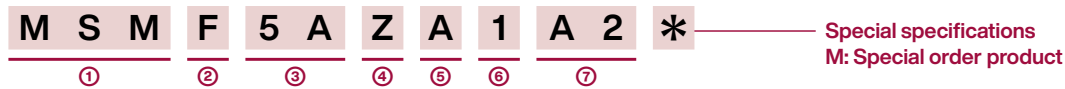
Other optional products such as motor cables are the same as the A6 series options. Please refer to A6 Family catalog.

● 100 mm sq. or more 0.85 kW to 5.0 kW
MSMF, MDMF, MGMF, MHMF
IP67 motor encoder connector (small size JN2) type

Length (m)	Part No.(ex.)
3	MFECA0030ETD
5	MFECA0050ETD
10	MFECA0100ETD

Please contact us for 10 m to 20 m.

[Motor] Model Designation



① Type

Symbol	Type
MSM	Low inertia (50 W to 5.0 kW)
MQM	Middle inertia Flat type (100 W to 400 W)
MDM	Middle inertia (1.0 kW to 5.0 kW)
MGM	Middle inertia Low speed/ High torque (0.85 kW to 4.4 kW)
MHM	High inertia (50 W to 5.0 kW)

② Series

Symbol	Series name
F	A6 family

③ Motor rated output

Symbol	Rated output	Symbol	Rated output	Symbol	Rated output
5A	50 W	10	1.0 kW	30	3.0 kW
01	100 W	13	1.3 kW	40	4.0 kW
02	200 W	15	1.5 kW	44	4.4 kW
04	400 W	18	1.8 kW	50	5.0 kW
08	750 W	20	2.0 kW		
09	0.85 kW, 1000 W (□130) (□80)	24	2.4 kW		
		29	2.9 kW		

④ Voltage specifications

Symbol	Specifications
1	100 V
2	200 V
Z	100 V/ 200 V common (50 W only)

⑤ Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
A	Battery-less absolute	23-bit	8388608	5

⑥ Design order

Symbol	Specifications
1	Standard

⑦ Motor specifications: 100 mm sq. to 220 mm sq.
MSMF, MHMF, MDMF, MGMF

Symbol		Shaft		Holding brake		Oil seal		Encoder terminal
		Round	Key-way	without	with	with	With protective lip	Connector Small size JN2 type
C	5	●		●		●		●
C	7	●		●			●	●
D	5	●			●	●		●
D	7	●			●		●	●
G	5		●	●		●		●
G	7		●	●			●	●
H	5		●		●	●		●
H	7		●		●		●	●

⑦ Motor specifications: 80 mm sq. or less MSMF 50 W to 1000 W

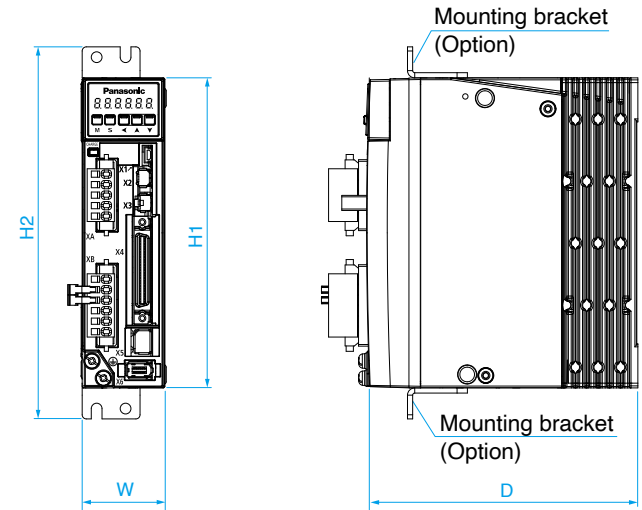
Symbol		Shaft		Holding brake		Oil seal		Motor encoder terminal
		Round	Key-way, center tap	without	with	without	with	Lead wire
A	2	●		●		●		●
B	2	●			●	●		●
C	2	●		●			●	●
D	2	●			●		●	●
S	2		●	●		●		●
T	2		●		●	●		●
U	2		●	●			●	●
V	2		●		●		●	●

⑦ Motor specifications: 80 mm sq. or less MQMF 100 W to 400 W
MHMF 50 W to 1000 W

Symbol		Shaft		Holding brake		Oil seal		Motor encoder terminal
		Round	Key-way, center tap	without	with	without	With protective lip	Lead wire
A	2	●		●		●		●
B	2	●			●	●		●
C	2	●		●			●	●
C	4	●		●			●	●
D	2	●			●		●	●
D	4	●			●		●	●
S	2		●	●		●		●
T	2		●		●	●		●
U	2		●	●			●	●
U	4		●	●			●	●
V	2		●		●		●	●
V	4		●		●		●	●

[Driver] Dimensions

■ A-frame, B-frame

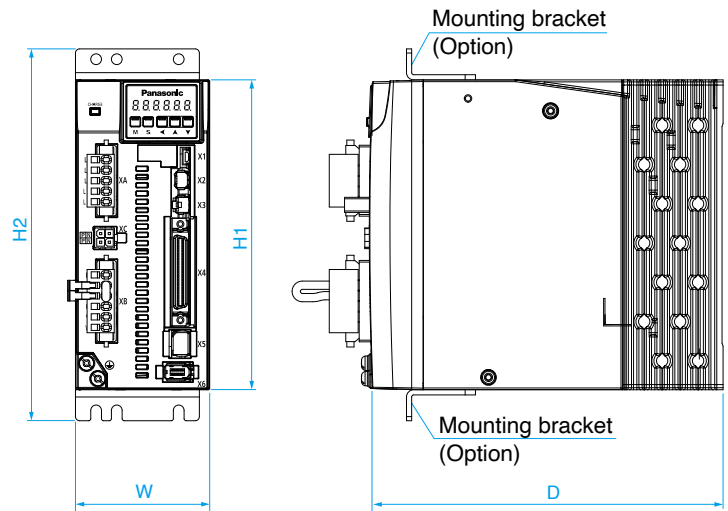


Rack mount type
(Base mount type [Back-end mounting] is also available.)

Frame symbol	W (mm)	H1 (mm)	H2 (mm)	D (mm)	Mass (kg)
A-frame	40	150	180	130	0.8
B-frame	55	150	180	130	1.0

● Please refer to A6 Family catalog for details.

■ C-frame, D-frame

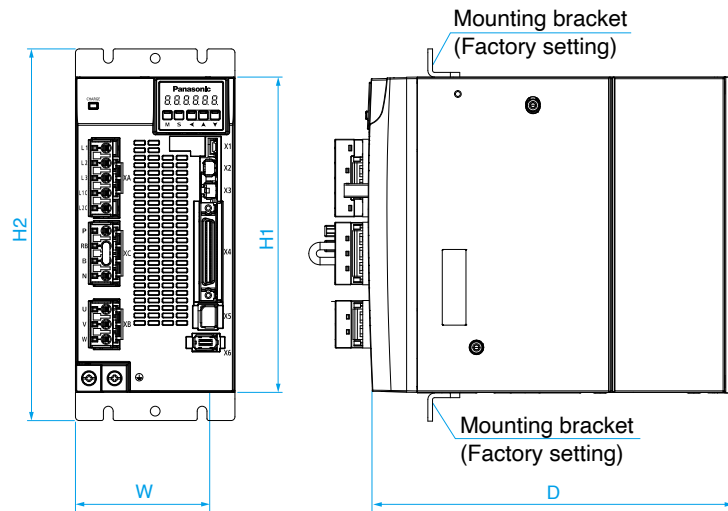


Rack mount type
(Base mount type [Back-end mounting] is also available.)

Frame symbol	W (mm)	H1 (mm)	H2 (mm)	D (mm)	Mass (kg)
C-frame	65	150	180	170	1.6
D-frame	85	150	180	170	2.1

● Please refer to A6 Family catalog for details.

■ E-frame, F-frame



Rack mount type
(Base mount type [Back-end mounting] is also available.)

Frame symbol	W (mm)	H1 (mm)	H2 (mm)	D (mm)	Mass (kg)
E-frame	85	168	198	193	2.7
F-frame	130	220	250	216	5.2

● Please refer to A6 Family catalog for details.

[Driver] Model Designation ● About “☆” “○” “★” in the P.1, P.2 table

(☆) Safety Function		(○) I/f specifications		(★) Classification of type	
Symbol	Specifications	Symbol (specification)		Symbol	Specifications
N	without the safety function	S (Analog/Pulse)		E	Basic type (Pulse train only)*1
T	with the safety function			F	Multi function type (Pulse, analog, full-closed)
N	without the safety function			G	RS485 communication type (Pulse train only)
N	without the safety function	N (RTEX)		E	Standard for rotary motor
T	with the safety function			F	Multifunction for rotary motor
N	without the safety function	B (EtherCAT)		E	Standard for rotary motor (Special order product)
T	with the safety function			F	Multifunction for rotary motor (Special order product)

*1 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

Motor Specifications

MSMF type [Low inertia]

			50 W		100 W	
			AC100 V	AC200 V	AC100 V	AC200 V
Motor model ^{*1}		IP65	MSMF5AZA1□2	MSMF5AZA1□2	MSMF011A1□2	MSMF012A1□2
Applicable driver	Model No.	Multifunction type	MADLT01SF	MADLT05SF	MADLT11SF	MADLT05SF
		RS485 communication type ^{*2}	MADLN01SG	MADLN05SG	MADLN11SG	MADLN05SG
		Basic type ^{*2}	MADLN01SE	MADLN05SE	MADLN11SE	MADLN05SE
	Frame symbol		A-frame		A-frame	
Power supply capacity (kVA)		0.4	0.5	0.4	0.5	
Rated output (W)		50		100		
Rated torque (N·m)		0.16		0.32		
Continuous stall torque (N·m)		0.16		0.32		
Momentary Max. peak torque (N·m)		0.48		0.95		
Rated current (A(rms))		1.1		1.6	1.1	
Max. current (A(o-p))		4.7		6.9	4.7	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}		No limit ^{Note)2}	
		With option	DV0P4280/No limit ^{Note)2}	DV0P4281/No limit ^{Note)2}	DV0P4280/No limit ^{Note)2}	DV0P4281/No limit ^{Note)2}
Rated rotational speed (r/min)		3000		3000		
Max. rotational speed (r/min)		6000		6000		
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.026		0.048	
		With brake	0.029		0.051	
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		30 times or less		30 times or less		
Rotary encoder specifications		23-bit Battery-less absolute		23-bit Battery-less absolute		
	Resolution per single turn		8388608		8388608	

			200 W		400 W	
			AC100 V	AC200 V	AC100 V	AC200 V
Motor model *1		IP65	MSMF021A1□2	MSMF022A1□2	MSMF041A1□2	MSMF042A1□2
Applicable driver	Model No.	Multifunction type	MBDLT21SF	MADLT15SF	MCDLT31SF	MBDLT25SF
		RS485 communication type *2	MBDLN21SG	MADLN15SG	MCDLN31SG	MBDLN25SG
		Basic type *2	MBDLN21SE	MADLN15SE	MCDLN31SE	MBDLN25SE
	Frame symbol		B-frame	A-frame	C-frame	B-frame
Power supply capacity (kVA)			0.5		0.9	
Rated output (W)			200		400	
Rated torque (N·m)			0.64		1.27	
Continuous stall torque (N·m)			0.64		1.27	
Momentary Max. peak torque (N·m)			1.91		3.82	
Rated current (A(rms))			2.5	1.5	4.6	2.4
Max. current (A(o-p))			10.6	6.5	19.5	10.2
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2		No limit Note)2	
		With option	DV0P4283 / 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)			6000		6000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.14		0.27	
		With brake	0.17		0.30	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		30 times or less	
Rotary encoder specifications			23-bit Battery-less absolute		23-bit Battery-less absolute	
	Resolution per single turn		8388608		8388608	

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □2 in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

			750 W	1000 W
			AC200 V	AC200 V
Motor model ^{*1}		IP65	MSMF082A1□2	MSMF092A1□2
Applicable driver	Model No.	Multifunction type	MCDLT35SF	MDDLT45SF
		RS485 communication type ^{*2}	MCDLN35SG	MDDLN45SG
		Basic type ^{*2}	MCDLN35SE	MDDLN45SE
	Frame symbol		C-frame	D-frame
Power supply capacity (kVA)		1.8	2.4	
Rated output (W)		750	1000	
Rated torque (N・m)		2.39	3.18	
Continuous stall torque (N・m)		2.39	3.18	
Momentary Max. peak torque (N・m)		7.16	9.55	
Rated current (A(rms))		4.1	5.7	
Max. current (A(o-p))		17.4	24.2	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}	No limit ^{Note)2}
		With option	DV0P4283 / No limit ^{Note)2}	DV0P4284 / No limit ^{Note)2}
Rated rotational speed (r/min)		3000	3000	
Max. rotational speed (r/min)		6000	6000	
Moment of inertia of rotor (×10 ⁻⁴ kg・m ²)		Without brake	0.96	1.26
		With brake	1.06	1.36
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		20 times or less	15 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

			1.0 kW	1.5 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MSMF102A1□□	MSMF152A1□□
Applicable driver	Model No.	Multifunction type	MDDLT55SF	MDDLT55SF
		RS485 communication type ^{*2}	MDDLNL55SG	MDDLNL55SG
		Basic type ^{*2}	MDDLNL55SE	MDDLNL55SE
	Frame symbol		D-frame	D-frame
Power supply capacity (kVA)		2.4	2.9	
Rated output (W)		1000	1500	
Rated torque (N・m)		3.18	4.77	
Continuous stall torque (N・m)		3.82	5.72	
Momentary Max. peak torque (N・m)		9.55	14.3	
Rated current (A(rms))		6.6	8.2	
Max. current (A(o-p))		28	35	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}	No limit ^{Note)2}
		With option	DV0P4284 / No limit ^{Note)2}	DV0P4284 / No limit ^{Note)2}
Rated rotational speed (r/min)		3000	3000	
Max. rotational speed (r/min)		5000	5000	
Moment of inertia of rotor (×10 ⁻⁴ kg・m ²)		Without brake	2.15	3.1
		With brake	2.47	3.45
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		15 times or less	15 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □2 and □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

Motor Specifications

MSMF type [Low inertia]

			2.0 kW	3.0 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MSMF202A1□□	MSMF302A1□□
Applicable driver	Model No.	Multifunction type	MEDLT83SF	MFDLTA3SF
		RS485 communication type ^{*2}	MEDLN83SG	MFDLNA3SG
		Basic type ^{*2}	MEDLN83SE	MFDLNA3SE
	Frame symbol		E-frame	F-frame
Power supply capacity (kVA)		3.8	5.2	
Rated output (W)		2000	3000	
Rated torque (N·m)		6.37	9.55	
Continuous stall torque (N·m)		7.64	11	
Momentary Max. peak torque (N·m)		19.1	28.6	
Rated current (A(rms))		11.3	18.1	
Max. current (A(o-p))		48	77	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4285 / No limit Note)2	DV0P4285 × 2 in parallel / No limit Note)2
Rated rotational speed (r/min)		3000	3000	
Max. rotational speed (r/min)		5000	5000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	4.06	7.04
		With brake	4.41	7.38
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less	15 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

			4.0 kW	5.0 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MSMF402A1□□	MSMF502A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE	MFDLNB3SE
	Frame symbol		F-frame	F-frame
Power supply capacity (kVA)		6.5	7.8	
Rated output (W)		4000	5000	
Rated torque (N·m)		12.7	15.9	
Continuous stall torque (N·m)		15.2	19.1	
Momentary Max. peak torque (N·m)		38.2	47.7	
Rated current (A(rms))		19.6	24	
Max. current (A(o-p))		83	102	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4285 × 2 in parallel / No limit Note)2	DV0P4285 × 2 in parallel / No limit Note)2
Rated rotational speed (r/min)		3000	3000	
Max. rotational speed (r/min)		4500	4500	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	14.4	19
		With brake	15.6	20.2
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less	15 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

Motor Specifications

MQMF type [Middle inertia Flat type]

			100 W		200 W	
			AC100 V	AC200 V	AC100 V	AC200 V
Motor model ^{*1}		IP65	MQMF011A1□□	MQMF012A1□□	MQMF021A1□□	MQMF022A1□□
Applicable driver	Model No.	Multifunction type	MADLT11SF	MADLT05SF	MBDLT21SF	MADLT15SF
		RS485 communication type ^{*2}	MADLN11SG	MADLN05SG	MBDLN21SG	MADLN15SG
		Basic type ^{*2}	MADLN11SE	MADLN05SE	MBDLN21SE	MADLN15SE
	Frame symbol		A-frame		B-frame	A-frame
Power supply capacity (kVA)			0.4	0.5	0.5	
Rated output (W)			100		200	
Rated torque (N·m)			0.32		0.64	
Continuous stall torque (N·m)			0.33		0.76	
Momentary Max. peak torque (N·m)			1.11		2.23	
Rated current (A(rms))			1.6	1.1	2.1	1.4
Max. current (A(o-p))			7.9	5.5	10.4	6.9
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2		No limit Note)2	
		With option	DV0P4280/No limit Note)2	DV0P4281/No limit Note)2	DV0P4283 / No limit Note)2	
Rated rotational speed (r/min)			3000		3000	
Max. rotational speed (r/min)			6500		6500	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.15		0.50	
		With brake	0.18		0.59	
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less		20 times or less	
Rotary encoder specifications			23-bit Battery-less absolute		23-bit Battery-less absolute	
	Resolution per single turn		8388608		8388608	

			400 W	
			AC100 V	AC200 V
Motor model ^{*1}		IP65	MQMF041A1□□	MQMF042A1□□
Applicable driver	Model No.	Multifunction type	MCDLT31SF	MBDLT25SF
		RS485 communication type ^{*2}	MCDLN31SG	MBDLN25SG
		Basic type ^{*2}	MCDLN31SE	MBDLN25SE
	Frame symbol		C-frame	B-frame
Power supply capacity		(kVA)	0.9	
Rated output		(W)	400	
Rated torque		(N·m)	1.27	
Continuous stall torque		(N·m)	1.40	
Momentary Max. peak torque		(N·m)	4.46	
Rated current		(A(rms))	4.1	2.1
Max. current		(A(o-p))	20.3	10.4
Regenerative brake frequency (times/min) <small>Note)1</small>		Without option	No limit <small>Note)2</small>	
		With option	DV0P4282/No limit <small>Note)2</small>	DV0P4283/No limit <small>Note)2</small>
Rated rotational speed		(r/min)	3000	
Max. rotational speed		(r/min)	6500	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.98	
		With brake	1.06	
Recommended moment of inertia ratio of the load and the rotor <small>Note)3</small>			20 times or less	
Rotary encoder specifications			23-bit Battery-less absolute	
	Resolution per single turn		8388608	

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

Motor Specifications

MDMF type [Middle inertia]

			1.0 kW	1.5 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MDMF102A1□□	MDMF152A1□□
Applicable driver	Model No.	Multifunction type	MDDLT45SF	MDDLT55SF
		RS485 communication type ^{*2}	MDDLN45SG	MDDLN55SG
		Basic type ^{*2}	MDDLN45SE	MDDLN55SE
	Frame symbol	D-frame	D-frame	
Power supply capacity (kVA)		2.4	2.9	
Rated output (W)		1000	1500	
Rated torque (N·m)		4.77	7.16	
Continuous stall torque (N·m)		5.25	7.52	
Momentary Max. peak torque (N·m)		14.3	21.5	
Rated current (A(rms))		5.2	8.0	
Max. current (A(o-p))		22	34	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4284 / No limit Note)2	DV0P4284 / No limit Note)2
Rated rotational speed (r/min)		2000	2000	
Max. rotational speed (r/min)		3000	3000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	6.18	9.16
		With brake	7.4	10.4
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less	10 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

			2.0 kW	3.0 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MDMF202A1□□	MDMF302A1□□
Applicable driver	Model No.	Multifunction type	MEDLT83SF	MFDLTA3SF
		RS485 communication type ^{*2}	MEDLN83SG	MFDLNA3SG
		Basic type ^{*2}	MEDLN83SE	MFDLNA3SE
	Frame symbol		E-frame	F-frame
Power supply capacity (kVA)			3.8	5.2
Rated output (W)			2000	3000
Rated torque (N·m)			9.55	14.3
Continuous stall torque (N·m)			10	15
Momentary Max. peak torque (N·m)			28.6	43
Rated current (A(rms))			9.9	16.4
Max. current (A(o-p))			42	70
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4285 / No limit Note)2	DV0P4285 × 2 in parallel / No limit Note)2
Rated rotational speed (r/min)			2000	2000
Max. rotational speed (r/min)			3000	3000
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	12.1	18.6
		With brake	13.3	19.6
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	10 times or less
Rotary encoder specifications			23-bit Battery-less absolute	23-bit Battery-less absolute
	Resolution per single turn		8388608	8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

			4.0 kW
			AC200 V
Motor model ^{*1}		IP67	MDMF402A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE
	Frame symbol		F-frame
Power supply capacity (kVA)		6.5	
Rated output (W)		4000	
Rated torque (N·m)		19.1	
Continuous stall torque (N·m)		22	
Momentary Max. peak torque (N·m)		57.3	
Rated current (A(rms))		20	
Max. current (A(o-p))		85	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}
		With option	DV0P4285 × 2 in parallel / No limit ^{Note)2}
Rated rotational speed (r/min)		2000	
Max. rotational speed (r/min)		3000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	46.9
		With brake	52.3
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		10 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	
	Resolution per single turn		8388608

			5.0 kW
			AC200 V
Motor model ^{*1}		IP67	MDMF502A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE
	Frame symbol		F-frame
Power supply capacity		(kVA)	7.8
Rated output		(W)	5000
Rated torque		(N·m)	23.9
Continuous stall torque		(N·m)	26.3
Momentary Max. peak torque		(N·m)	71.6
Rated current		(A(rms))	23.3
Max. current		(A(o-p))	99
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}
		With option	DV0P4285 × 2 in parallel / No limit ^{Note)2}
Rated rotational speed		(r/min)	2000
Max. rotational speed		(r/min)	3000
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	58.2
		With brake	63
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		10 times or less	
Rotary encoder specifications			23-bit Battery-less absolute
	Resolution per single turn		8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

Motor Specifications

MGMF type [Middle inertia]

			0.85 kW	1.3 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MGMF092A1□□	MGMF132A1□□
Applicable driver	Model No.	Multifunction type	MDDLT45SF	MDDLT55SF
		RS485 communication type ^{*2}	MDDLN45SG	MDDLN55SG
		Basic type ^{*2}	MDDLN45SE	MDDLN55SE
	Frame symbol		D-frame	D-frame
Power supply capacity (kVA)		2	2.6	
Rated output (W)		850	1300	
Rated torque (N·m)		5.41	8.28	
Continuous stall torque (N·m)		5.41	8.28	
Momentary Max. peak torque (N·m)		14.3	23.3	
Rated current (A(rms))		5.9	9.3	
Max. current (A(o-p))		22	37	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4284 / No limit Note)2	DV0P4284 / No limit Note)2
Rated rotational speed (r/min)		1500	1500	
Max. rotational speed (r/min)		3000	3000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	6.18	9.16
		With brake	7.4	10.4
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less	10 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

			1.8 kW	2.4 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MGMF182A1□□	MGMF242A1□□
Applicable driver	Model No.	Multifunction type	MEDLT83SF	MEDLT93SF
		RS485 communication type ^{*2}	MEDLN83SG	MEDLN93SG
		Basic type ^{*2}	MEDLN83SE	MEDLN93SE
	Frame symbol		E-frame	E-frame
Power supply capacity (kVA)			3.4	4.5
Rated output (W)			1800	2400
Rated torque (N·m)			11.5	15.3
Continuous stall torque (N·m)			11.5	15.3
Momentary Max. peak torque (N·m)			28.7	45.2
Rated current (A(rms))			11.8	16
Max. current (A(o-p))			42	67
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	No limit Note)2
		With option	DV0P4285 × 2 in parallel / No limit Note)2	DV0P4285 × 2 in parallel / No limit Note)2
Rated rotational speed (r/min)			1500	1500
Max. rotational speed (r/min)			3000	3000
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	12.1	46.9
		With brake	13.3	52.3
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	10 times or less
Rotary encoder specifications			23-bit Battery-less absolute	23-bit Battery-less absolute
	Resolution per single turn		8388608	8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to "[Motor] Model Designation" in P.3.

*2 Basic type and RS485 communication type are "Position control type". Detail of model designation, refer to "[Driver] Model Designation" in P.3.

			2.9 kW
			AC200 V
Motor model ^{*1}		IP67	MGMF292A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE
	Frame symbol		F-frame
Power supply capacity (kVA)		5	
Rated output (W)		2900	
Rated torque (N·m)		18.5	
Continuous stall torque (N·m)		18.5	
Momentary Max. peak torque (N·m)		45.2	
Rated current (A(rms))		19.3	
Max. current (A(o-p))		67	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}
		With option	DV0P4285 × 2 in parallel / No limit ^{Note)2}
Rated rotational speed (r/min)		1500	
Max. rotational speed (r/min)		3000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	46.9
		With brake	52.3
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		10 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	
	Resolution per single turn		8388608

			4.4 kW
			AC200 V
Motor model ^{*1}		IP67	MGMF442A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE
	Frame symbol		F-frame
Power supply capacity		(kVA)	7
Rated output		(W)	4400
Rated torque		(N·m)	28
Continuous stall torque		(N·m)	28
Momentary Max. peak torque		(N·m)	70
Rated current		(A(rms))	27.2
Max. current		(A(o-p))	96
Regenerative brake frequency (times/min) <small>Note)1</small>		Without option	No limit <small>Note)2</small>
		With option	DV0P4285 × 2 in parallel / No limit <small>Note)2</small>
Rated rotational speed		(r/min)	1500
Max. rotational speed		(r/min)	3000
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	58.2
		With brake	63
Recommended moment of inertia ratio of the load and the rotor <small>Note)3</small>		10 times or less	
Rotary encoder specifications			23-bit Battery-less absolute
	Resolution per single turn		8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to "[Motor] Model Designation" in P.3.

*2 Basic type and RS485 communication type are "Position control type". Detail of model designation, refer to "[Driver] Model Designation" in P.3.

Motor Specifications

MHMF type [High inertia]

			50 W		100 W	
			AC100 V	AC200 V	AC100 V	AC200 V
Motor model ^{*1}		IP65	MHMF5AZA1□□	MHMF5AZA1□□	MHMF011A1□□	MHMF012A1□□
Applicable driver	Model No.	Multifunction type	MADLT01SF	MADLT05SF	MADLT11SF	MADLT05SF
		RS485 communication type ^{*2}	MADLN01SG	MADLN05SG	MADLN11SG	MADLN05SG
		Basic type ^{*2}	MADLN01SE	MADLN05SE	MADLN11SE	MADLN05SE
	Frame symbol		A-frame		A-frame	
Power supply capacity (kVA)			0.4	0.5	0.4	0.5
Rated output (W)			50		100	
Rated torque (N·m)			0.16		0.32	
Continuous stall torque (N·m)			0.18		0.33	
Momentary Max. peak torque (N·m)			0.56		1.11	
Rated current (A(rms))			1.1		1.6	1.1
Max. current (A(o-p))			5.5		7.9	5.5
Regenerative brake frequency (times/min) <small>Note)1</small>		Without option	No limit <small>Note)2</small>		No limit <small>Note)2</small>	
		With option	DV0P4280/No limit <small>Note)2</small>	DV0P4281/No limit <small>Note)2</small>	DV0P4280/No limit <small>Note)2</small>	DV0P4281/No limit <small>Note)2</small>
Rated rotational speed (r/min)			3000		3000	
Max. rotational speed (r/min)			6500		6500	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.038		0.071	
		With brake	0.042		0.074	
Recommended moment of inertia ratio of the load and the rotor <small>Note)3</small>			30 times or less		30 times or less	
Rotary encoder specifications			23-bit Battery-less absolute		23-bit Battery-less absolute	
	Resolution per single turn		8388608		8388608	

			200 W		400 W	
			AC100 V	AC200 V	AC100 V	AC200 V
Motor model ^{*1}		IP65	MHMF021A1□□	MHMF022A1□□	MHMF041A1□□	MHMF042A1□□
Applicable driver	Model No.	Multifunction type	MBDLT21SF	MADLT15SF	MCDLT31SF	MBDLT25SF
		RS485 communication type ^{*2}	MBDLN21SG	MADLN15SG	MCDLN31SG	MBDLN25SG
		Basic type ^{*2}	MBDLN21SE	MADLN15SE	MCDLN31SE	MBDLN25SE
	Frame symbol		B-frame	A-frame	C-frame	B-frame
Power supply capacity (kVA)			0.5		0.9	
Rated output (W)			200		400	
Rated torque (N·m)			0.64		1.27	
Continuous stall torque (N·m)			0.76		1.40	
Momentary Max. peak torque (N·m)			2.23		4.46	
Rated current (A(rms))			2.1	1.4	4.1	2.1
Max. current (A(o-p))			10.4	6.9	20.3	10.4
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}		No limit ^{Note)2}	
		With option	DV0P4283 / 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)			6500		6500	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	0.29		0.56	
		With brake	0.31		0.58	
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}			30 times or less		30 times or less	
Rotary encoder specifications			23-bit Battery-less absolute		23-bit Battery-less absolute	
	Resolution per single turn		8388608		8388608	

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

			750 W	1000 W
			AC200 V	AC200 V
Motor model ^{*1}		IP65	MHMF082A1□□	MHMF092A1□□
Applicable driver	Model No.	Multifunction type	MCDLT35SF	MDDLT55SF
		RS485 communication type ^{*2}	MCDLN35SG	MDDLN55SG
		Basic type ^{*2}	MCDLN35SE	MDDLN55SE
	Frame symbol		C-frame	D-frame
Power supply capacity (kVA)		1.8	2.4	
Rated output (W)		750	1000	
Rated torque (N·m)		2.39	3.18	
Continuous stall torque (N·m)		2.86	3.34	
Momentary Max. peak torque (N·m)		8.36	11.1	
Rated current (A(rms))		3.8	5.7	
Max. current (A(o-p))		18.8	28.2	
Regenerative brake frequency (times/min) <small>Note)1</small>		Without option	No limit <small>Note)2</small>	No limit <small>Note)2</small>
		With option	DV0P4283 / No limit <small>Note)2</small>	DV0P4284 / No limit <small>Note)2</small>
Rated rotational speed (r/min)		3000	3000	
Max. rotational speed (r/min)		6000	6000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	1.56	2.03
		With brake	1.66	2.13
Recommended moment of inertia ratio of the load and the rotor <small>Note)3</small>		20 times or less	15 times or less	
Rotary encoder specifications		23-bit <small>Battery-less absolute</small>	23-bit <small>Battery-less absolute</small>	
	Resolution per single turn		8388608	8388608

			1.0 kW	1.5 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MHMF102A1□□	MHMF152A1□□
Applicable driver	Model No.	Multifunction type	MDDLT45SF	MDDLT55SF
		RS485 communication type ^{*2}	MDDLN45SG	MDDLN55SG
		Basic type ^{*2}	MDDLN45SE	MDDLN55SE
	Frame symbol		D-frame	D-frame
Power supply capacity (kVA)		2.4	2.9	
Rated output (W)		1000	1500	
Rated torque (N·m)		4.77	7.16	
Continuous stall torque (N·m)		5.25	7.52	
Momentary Max. peak torque (N·m)		14.3	21.5	
Rated current (A(rms))		5.2	8.0	
Max. current (A(o-p))		22	34	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}	No limit ^{Note)2}
		With option	DV0P4284 / No limit ^{Note)2}	DV0P4284 / No limit ^{Note)2}
Rated rotational speed (r/min)		2000	2000	
Max. rotational speed (r/min)		3000	3000	
Moment of inertia of rotor (×10 ⁻⁴ kg·m ²)		Without brake	22.9	33.4
		With brake	24.1	34.6
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		5 times or less	5 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

● For details of Note) 1 to Note) 3, refer to the back cover.

*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to “[Motor] Model Designation” in P.3.

*2 Basic type and RS485 communication type are “Position control type”. Detail of model designation, refer to “[Driver] Model Designation” in P.3.

Motor Specifications MHMF type [High inertia]

			2.0 kW	3.0 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MHMF202A1□□	MHMF302A1□□
Applicable driver	Model No.	Multifunction type	MEDLT83SF	MFDLTA3SF
		RS485 communication type ^{*2}	MEDLN83SG	MFDLNA3SG
		Basic type ^{*2}	MEDLN83SE	MFDLNA3SE
	Frame symbol		E-frame	F-frame
Power supply capacity (kVA)		3.8	5.2	
Rated output (W)		2000	3000	
Rated torque (N・m)		9.55	14.3	
Continuous stall torque (N・m)		11.5	17.2	
Momentary Max. peak torque (N・m)		28.6	43.0	
Rated current (A(rms))		12.5	17	
Max. current (A(o-p))		53	72	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}	No limit ^{Note)2}
		With option	DV0P4285 / No limit ^{Note)2}	DV0P4285 × 2 in parallel / No limit ^{Note)2}
Rated rotational speed (r/min)		2000	2000	
Max. rotational speed (r/min)		3000	3000	
Moment of inertia of rotor (x10 ⁻⁴ kg・m ²)		Without brake	55.7	85.3
		With brake	61	90.7
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		5 times or less	5 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

			4.0 kW	5.0 kW
			AC200 V	AC200 V
Motor model ^{*1}		IP67	MHMF402A1□□	MHMF502A1□□
Applicable driver	Model No.	Multifunction type	MFDLTB3SF	MFDLTB3SF
		RS485 communication type ^{*2}	MFDLNB3SG	MFDLNB3SG
		Basic type ^{*2}	MFDLNB3SE	MFDLNB3SE
	Frame symbol		F-frame	F-frame
Power supply capacity (kVA)		6.5	7.8	
Rated output (W)		4000	5000	
Rated torque (N・m)		19.1	23.9	
Continuous stall torque (N・m)		22	26.3	
Momentary Max. peak torque (N・m)		57.3	71.6	
Rated current (A(rms))		20.0	23.3	
Max. current (A(o-p))		85	99	
Regenerative brake frequency (times/min) ^{Note)1}		Without option	No limit ^{Note)2}	No limit ^{Note)2}
		With option	DV0P4285 × 2 in parallel / No limit ^{Note)2}	DV0P4285 × 2 in parallel / No limit ^{Note)2}
Rated rotational speed (r/min)		2000	2000	
Max. rotational speed (r/min)		3000	3000	
Moment of inertia of rotor (×10 ⁻⁴ kg・m ²)		Without brake	104	146
		With brake	110	151
Recommended moment of inertia ratio of the load and the rotor ^{Note)3}		5 times or less	5 times or less	
Rotary encoder specifications		23-bit Battery-less absolute	23-bit Battery-less absolute	
	Resolution per single turn		8388608	8388608

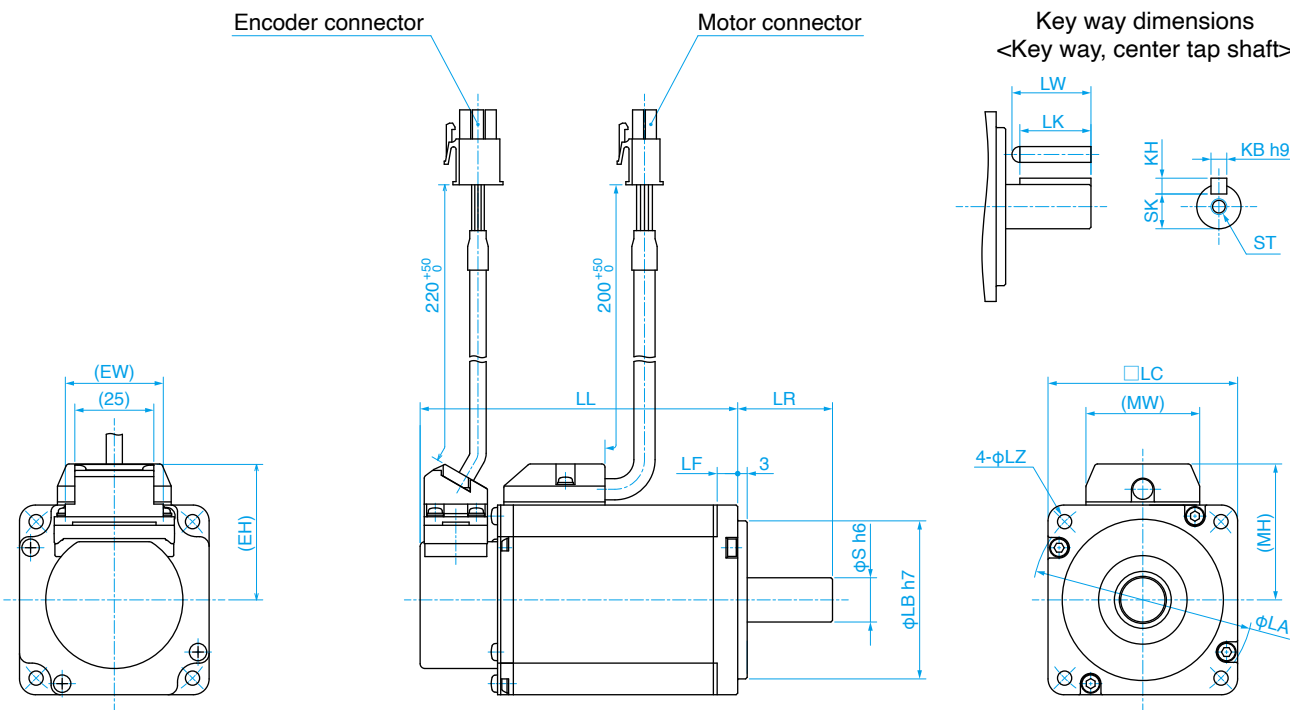
*1 □□ in the motor model number represents the motor specifications. Detail of model designation, refer to "[Motor] Model Designation" in P.3.

*2 Basic type and RS485 communication type are "Position control type". Detail of model designation, refer to "[Driver] Model Designation" in P.3.

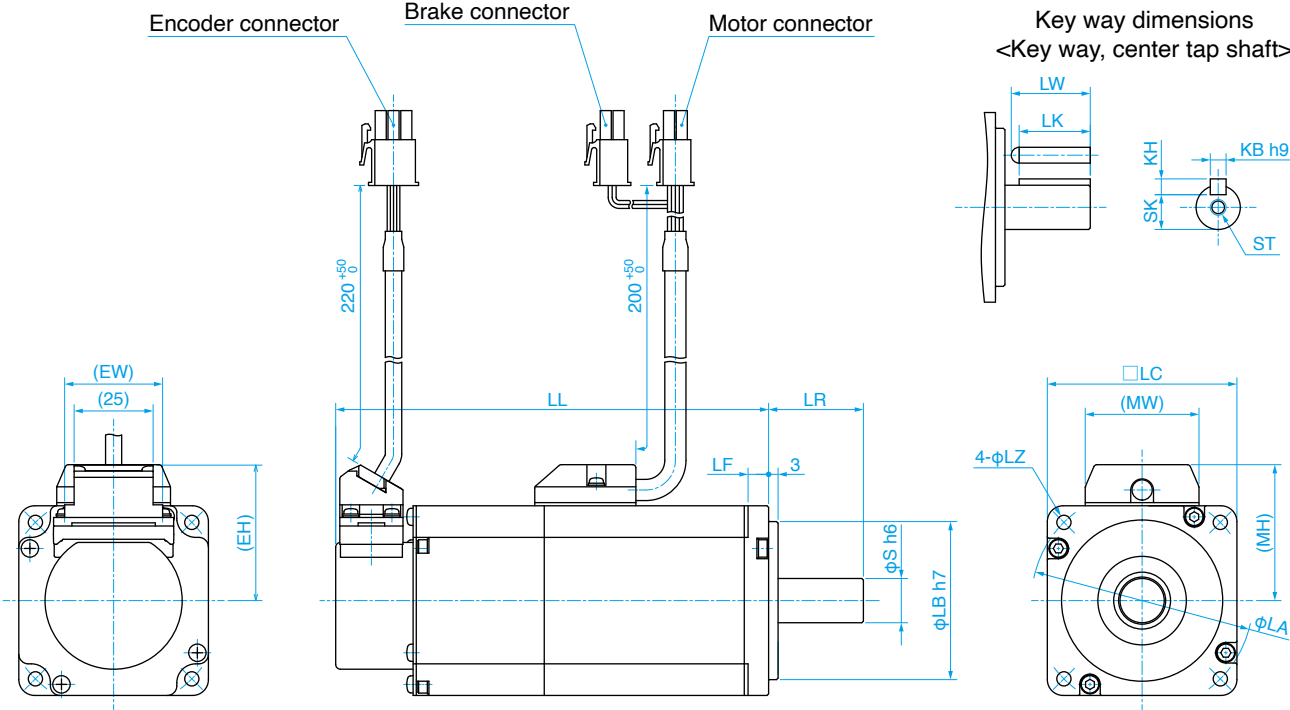
MEMO

This image shows a full page of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

■ without Brake



■ with Brake



● MSMF dimension table

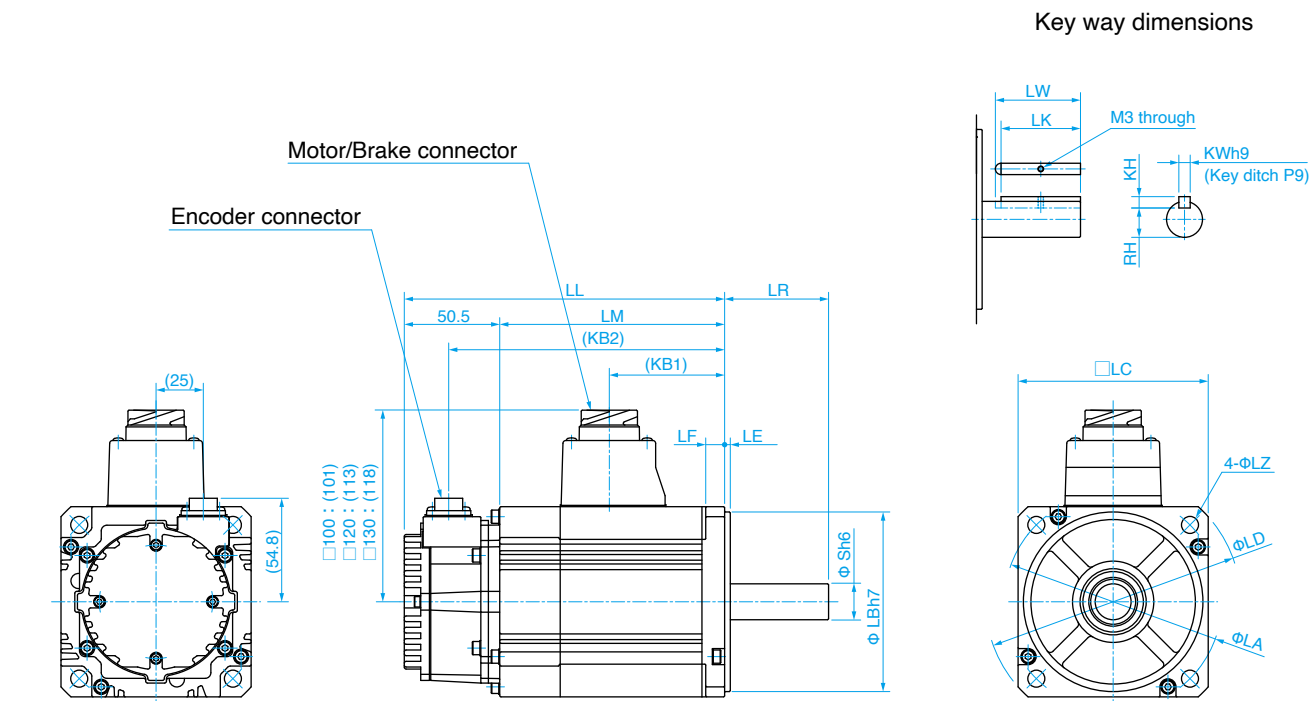
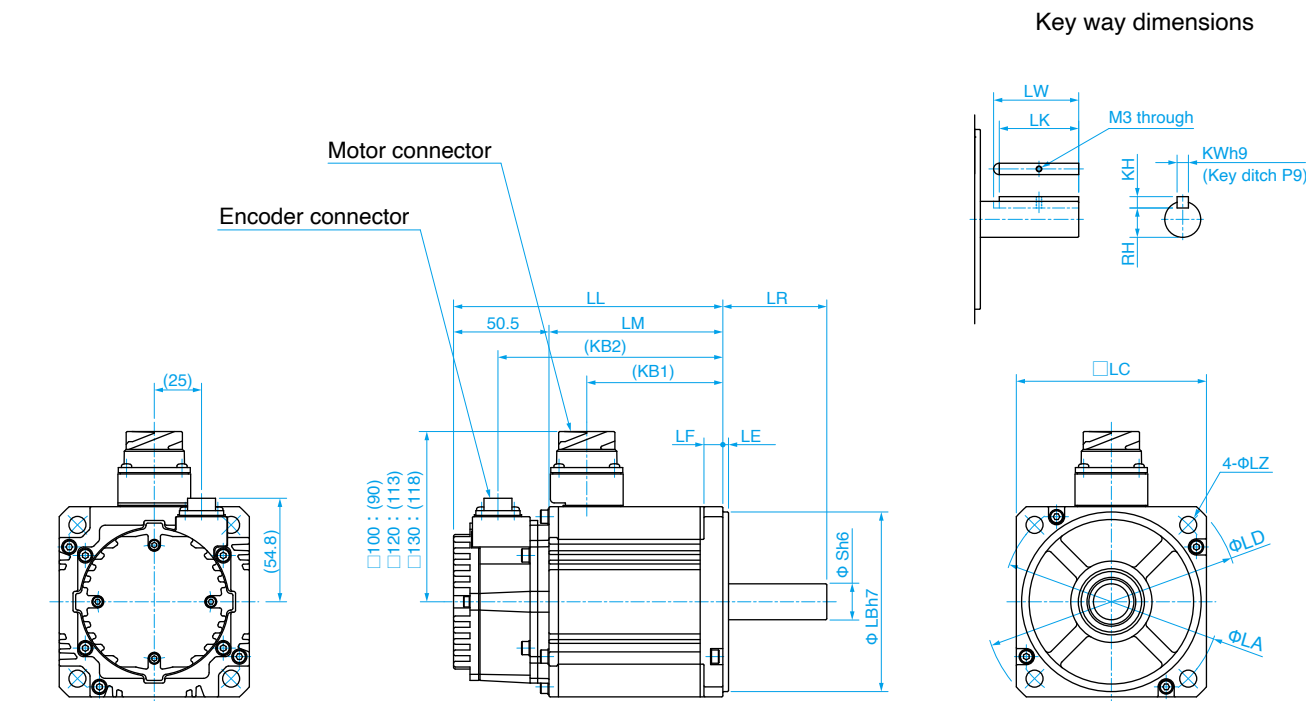
[Unit: mm]

MSMF type [Low inertia]	Motor model	Output (W)	LC	LL / Mass (kg)				LR		S	LA	LZ	LB	LF	SK	KH	KB	LW	LK	ST	MW	MH	EW	EH
				without Brake		with Brake		with / without Brake																
				without oil seal	with oil seal	without oil seal	with oil seal	with / without oil seal																
	MSMF5AZA1□2	50	38	76.6		106.6		25		8	45	3.4	30	6	6.2	3	3	14	12.5	M3 depth 6	27	32	30	36.3
				Mass : 0.32		Mass : 0.53																		
	MSMF01△A1□2	100	38	96.6		126.6		25		8	45	3.4	30	6	6.2	3	3	14	12.5	M3 depth 6	27	32	30	36.3
				Mass : 0.47		Mass : 0.68																		
	MSMF02△A1□2	200	60	81		117.5		30		11	70	4.5	50	6.5	8.5	4	4	20	18	M4 depth 8	36	43	31	42.9
				Mass : 0.82		Mass : 1.3																		
	MSMF04△A1□2	400	60	100.5		137		30		14	70	4.5	50	6.5	11	5	5	25	22.5	M5 depth 10	36	43	31	42.9
Mass : 1.2				Mass : 1.7																				
MSMF082A1□2	750	80	112.6		149.2		35		19	90	6	70	8	15.5	6	6	25	22	M5 depth 10	36	53	31	52.7	
			Mass : 2.3		Mass : 3.1																			
MSMF092A1□2	1000	80	127.6		164.2		35		19	90	6	70	8	15.5	6	6	25	22	M5 depth 10	36	53	31	52.7	
			Mass : 2.8		Mass : 3.6																			

△ in the motor model number represents the motor voltage specification, and □2 represent the motor specifications.
Please refer to "[Motor] Model Designation" in P.3.

without Brake

with Brake



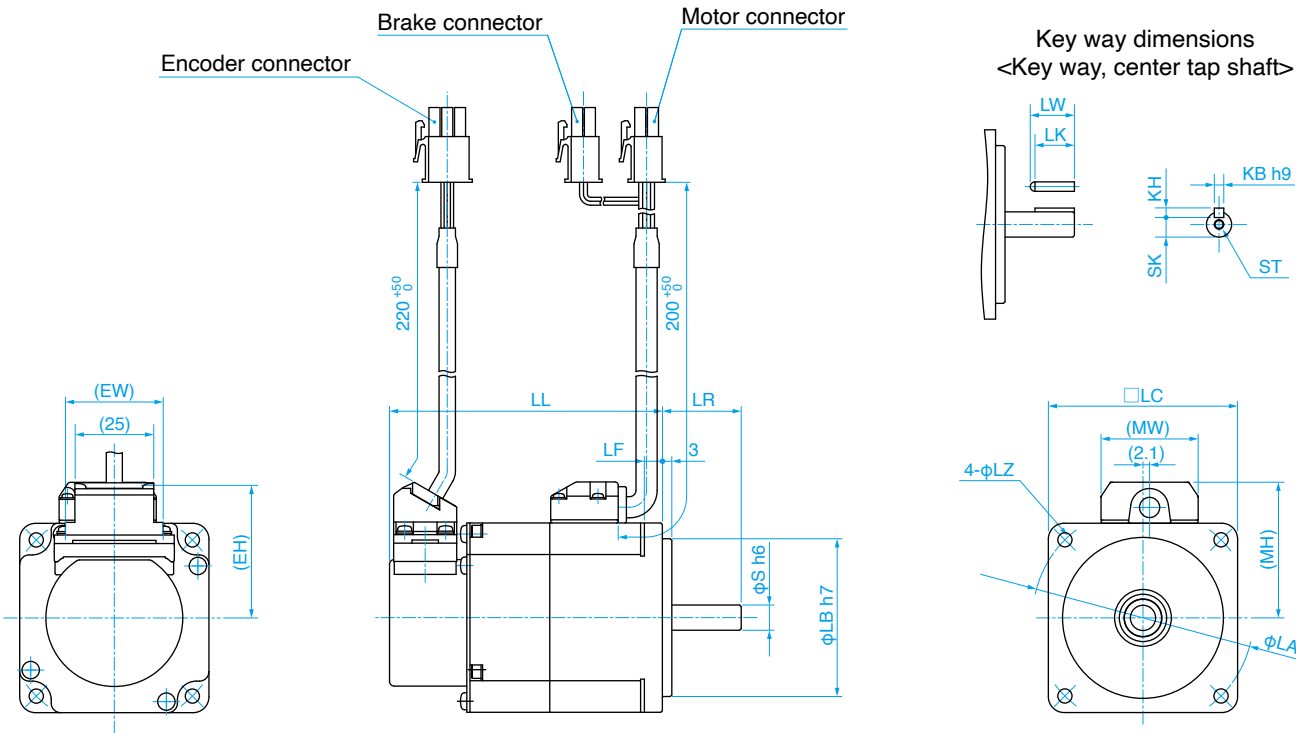
MSMF dimension table

[Unit: mm]

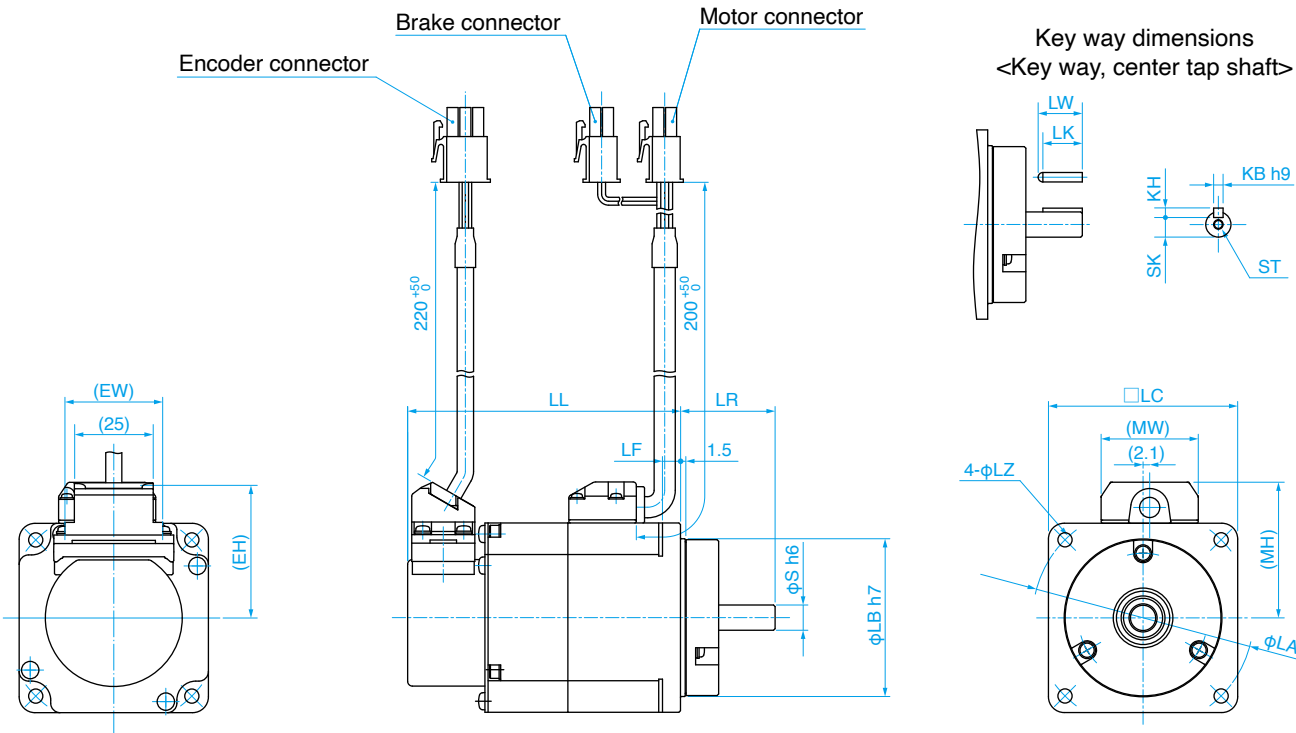
MSMF type [Low inertia]	Motor model	Output (W)	LC	LL / Mass (kg)		LR	LM		KB1			KB2		LF	LE	S	LB	LZ	LD	LA	LW	LK	KW	KH	RH
				without Brake	with Brake		without Brake	with Brake		without Brake		with Brake													
	MSMF102A1□□	1000	100	142.5	169.5	55	92	119	72	59		119	146	10	3	19	95	9	135	115	45	42	6	6	15.5
				Mass : 3.6	Mass : 4.7																				
	MSMF152A1□□	1500	100	161	188	55	110.5	137.5	90.5	77.5		137.5	164.5	10	3	19	95	9	135	115	45	42	6	6	15.5
				Mass : 4.6	Mass : 5.6																				
	MSMF202A1□□	2000	100	180	207	55	129.5	156.5	109.5	96.5		156.5	183.5	10	3	19	95	9	135	115	45	42	6	6	15.5
				Mass : 5.6	Mass : 6.6																				
	MSMF302A1□□	3000	120	191.5	216.5	55	141	166	107	107		168	193	12	3	22	110	9	162	145	45	41	8	7	18
				Mass : 8.7	Mass : 9.9																				
MSMF402A1□□	4000	130	210	238.5	65	160	188	123	123		187	215	12	6	24	110	9	165	145	55	51	8	7	20	
			Mass : 11.5	Mass : 13.2																					
MSMF502A1□□	5000	130	245.5	273.5	65	195	223	158	158		222	250	12	6	24	110	9	165	145	55	51	8	7	20	
			Mass : 14.5	Mass : 16.1																					

□□ in the motor model number represents the motor specifications. Please refer to "[Motor] Model Designation" in P.3.

■ with Brake / without protective lip



■ with Brake / with protective lip



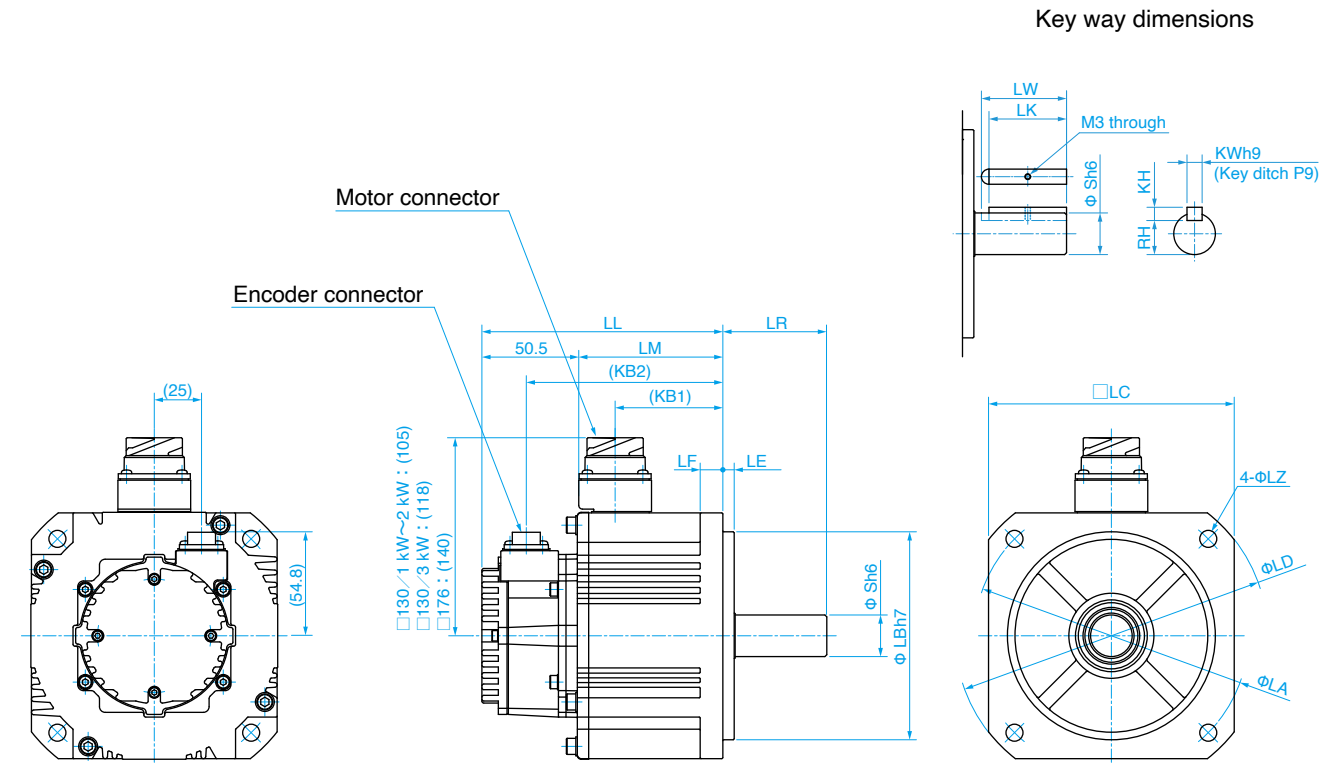
●MQMF dimension table

[Unit: mm]

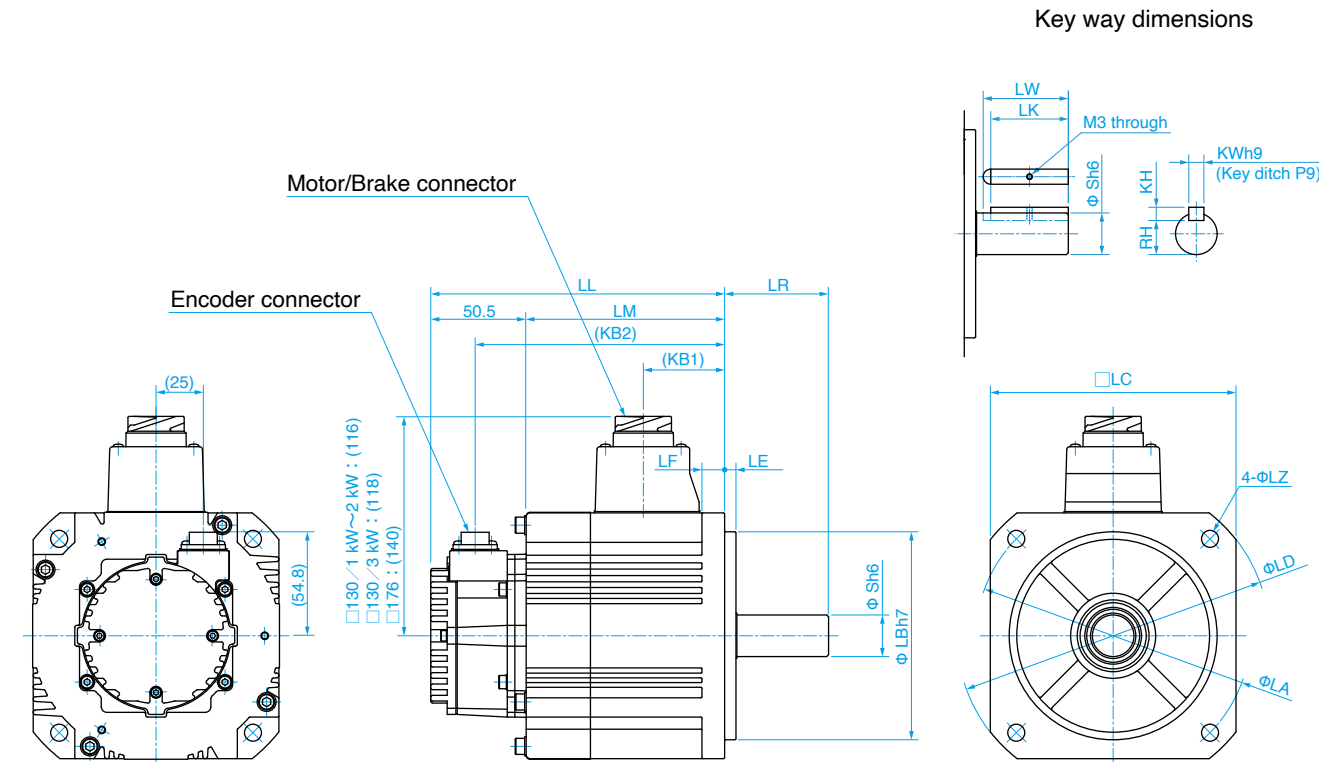
MQMF type [Middle inertia Flat typ]	Motor model	Output (W)	LC	LL / Mass (kg)						LR		S	LA	LZ	LB	LF	SK	KH	KB	LW	LK	ST	MW	MH	EW	EH	
				without Brake			with Brake				with / without Brake																
				without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip / with oil seal		with / without oil seal																with protective lip / with oil seal
MQMF01△A1□□	100	60	65.2	68.7	65.2	86.5	90	86.5		25	30	8	70	4.5	50	5.7	6.2	3	3	14	12.5	M3 depth 6	30.8	43	31	42.9	
			Mass : 0.54	Mass : 0.57	Mass : 0.61	Mass : 0.79	Mass : 0.82	Mass : 0.86																			
MQMF02△A1□□	200	80	71.1	74.6	71.1	94.9	98.4	94.9		30	35	11	90	6	70	8	8.5	4	4	20	18	M4 depth 8	30.8	53	31	52.7	
			Mass : 1.1	Mass : 1.2	Mass : 1.3	Mass : 1.5	Mass : 1.6	Mass : 1.7																			
MQMF04△A1□□	400	80	83.6	87.1	83.6	107.9	110.9	107.4		30	35	14	90	6	70	8	11	5	5	25	22.5	M5 depth 10	30.8	53	31	52.7	
			Mass : 1.5	Mass : 1.6	Mass : 1.7	Mass : 2.0	Mass : 2.1	Mass : 2.2																			

△ in the motor model number represents the motor voltage specification, and □□ represent the motor specifications.
Please refer to "[Motor] Model Designation" in P.3.

■ without Brake



■ with Brake



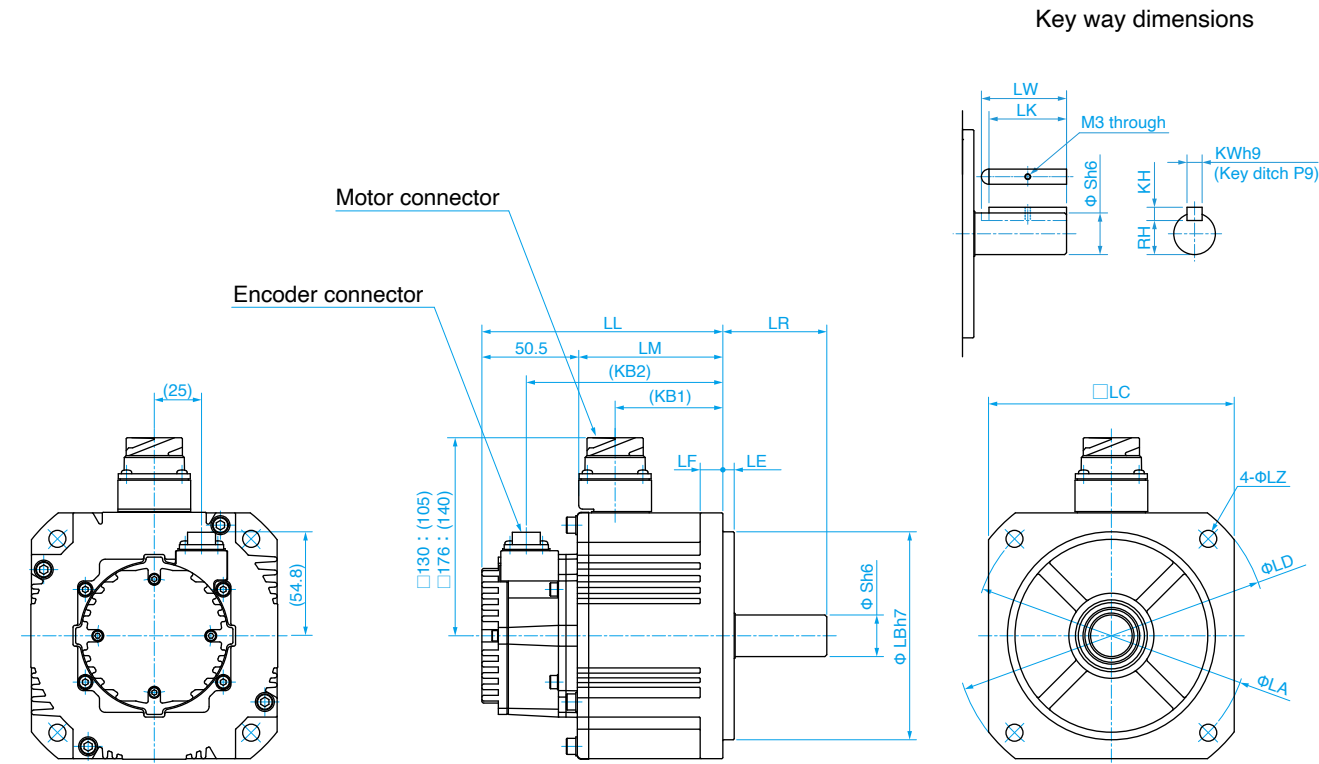
● MDMF dimension table

[Unit: mm]

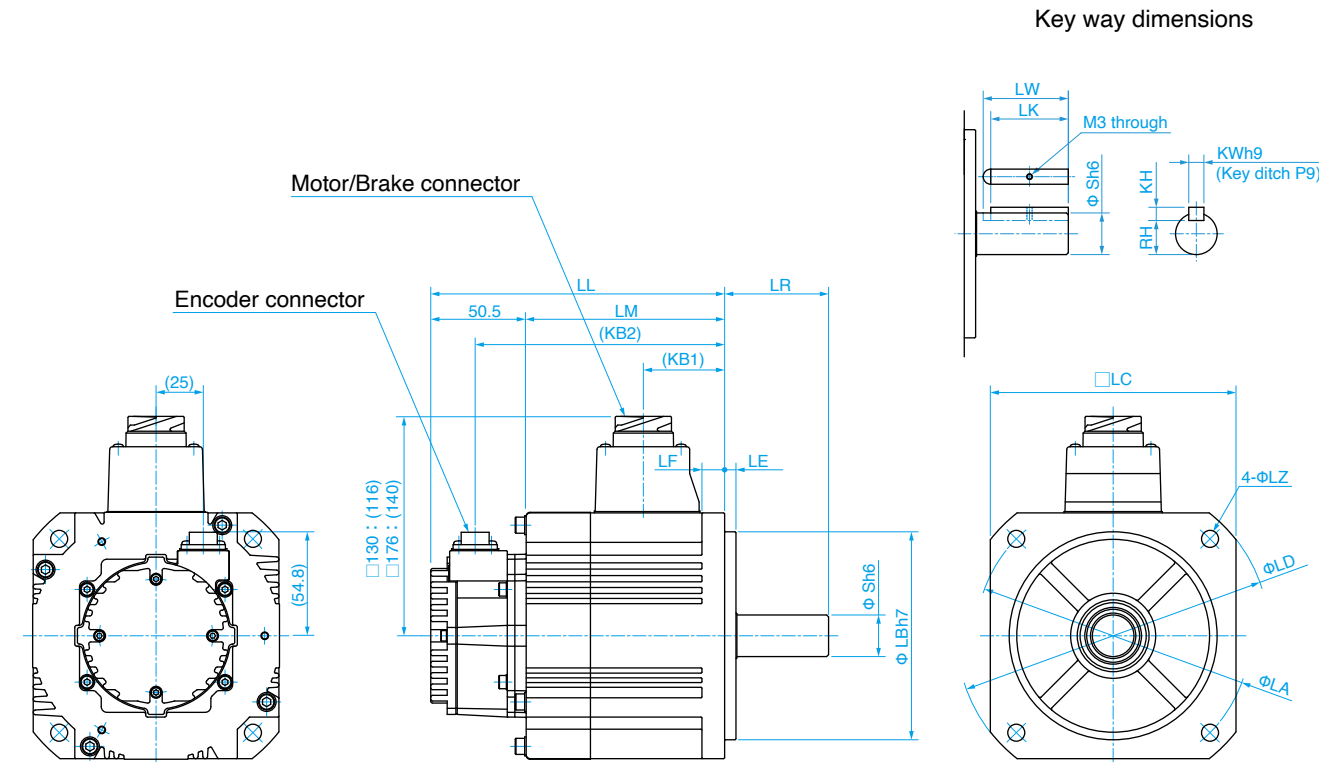
MDMF type [Middle inertia]	Motor model	Output (W)	LC	LL / Mass (kg)		LR	LM		KB1			KB2		LF	LE	S	LB	LZ	LD	LA	LW	LK	KW	KH	RH
				without Brake	with Brake		without Brake	with Brake	without Brake	with Brake		without Brake	with Brake												
	MDMF102A1□□	1000	130	127.5	155.5	55	77	105	57	43		104	132	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 4.6	Mass : 6.1																				
	MDMF152A1□□	1500	130	141.5	169.5	55	91	119	71	57		118	146	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 5.7	Mass : 7.2																				
	MDMF202A1□□	2000	130	155.5	183.5	55	105	133	85	71		132	160	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 6.9	Mass : 8.4																				
	MDMF302A1□□	3000	130	183.5	211.5	65	133	161	97	97		160	188	12	6	24	110	9	165	145	55	51	8	7	20
				Mass : 9.3	Mass : 10.9																				
	MDMF402A1□□	4000	176	166.5	195.5	70	116	145	79	79		143	172	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 13.4	Mass : 16.8																				
	MDMF502A1□□	5000	176	181.5	210.5	70	131	160	92	92		158	187	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 15.6	Mass : 19.0																				

□□ in the motor model number represents the motor specifications. Please refer to "[Motor] Model Designation" in P.3.

■ without Brake



■ with Brake



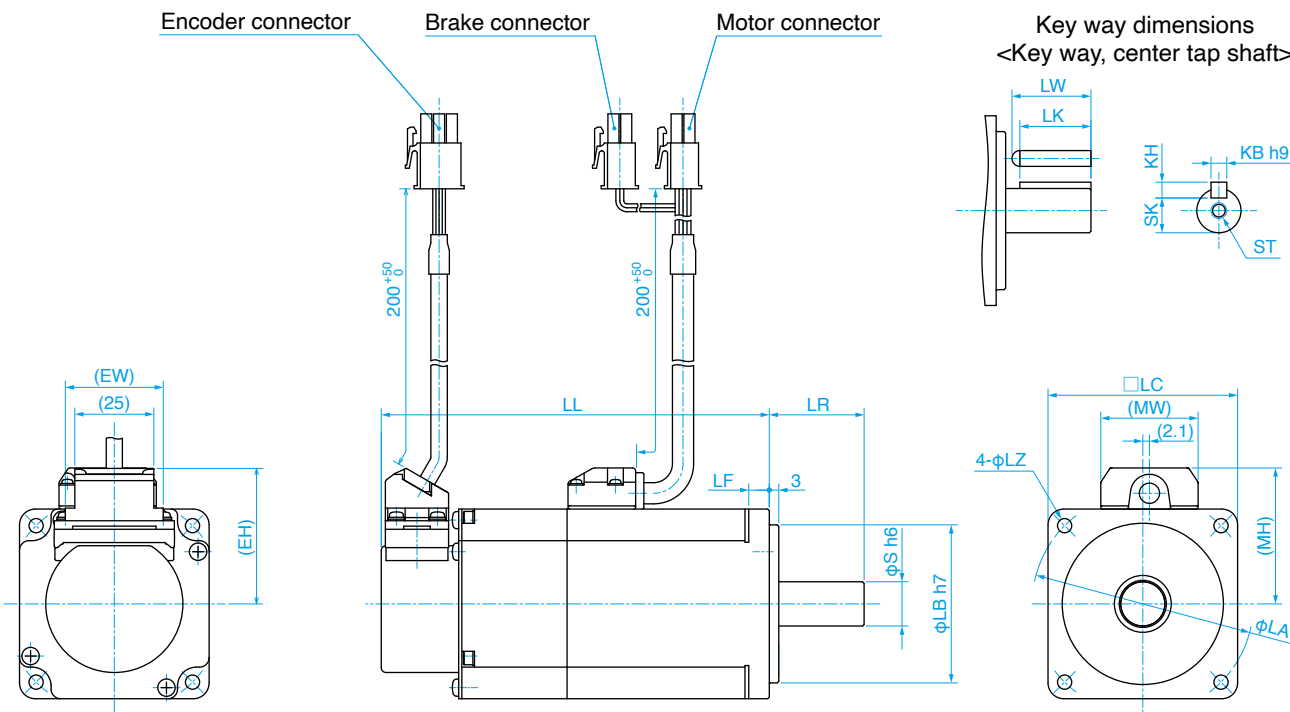
● MGMF dimension table

[Unit: mm]

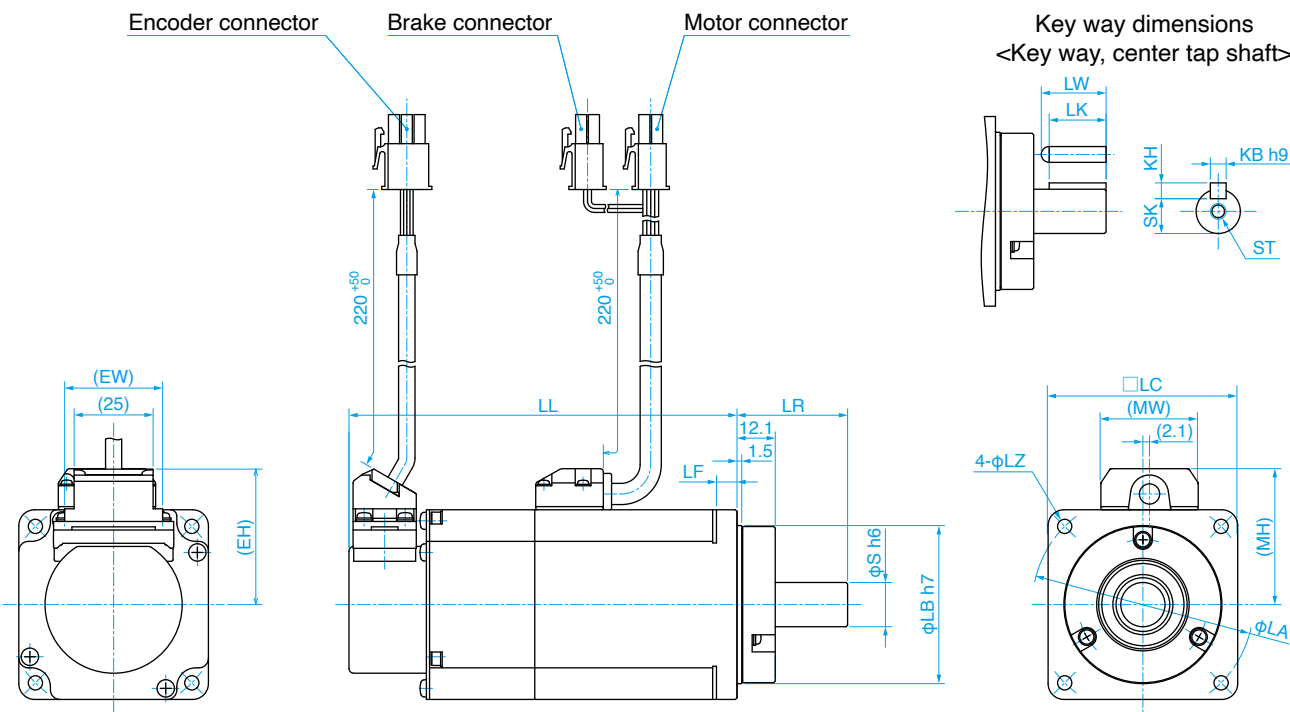
MGMF type [Middle inertia]	Motor model	Output (W)	LC	LL / Mass (kg)		LR	LM		KB1			KB2		LF	LE	S	LB	LZ	LD	LA	LW	LK	KW	KH	RH
				without Brake	with Brake		without Brake	with Brake	without Brake	with Brake		without Brake	with Brake												
	MGMF092A1□□	850	130	127.5	155.5	55	77	105	57	43		104	132	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 4.6	Mass : 6.1																				
	MGMF132A1□□	1300	130	141.5	169.5	55	91	119	71	57		118	146	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 5.7	Mass : 7.2																				
	MGMF182A1□□	1800	130	155.5	183.5	55	105	133	85	71		132	160	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 6.9	Mass : 8.4																				
	MGMF242A1□□	2400	176	166.5	195.5	70	116	145	79	79		143	172	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 13.4	Mass : 16.8																				
	MGMF292A1□□	2900	176	166.5	195.5	70	116	145	79	79		143	172	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 13.4	Mass : 16.8																				
	MGMF442A1□□	4400	176	181.5	210.5	70	131	160	92	92		158	187	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 15.6	Mass : 19.0																				

□□ in the motor model number represents the motor specifications. Please refer to "[Motor] Model Designation" in P.3.

■ with Brake / without protective lip



■ with Brake / with protective lip



● MHMF dimension table

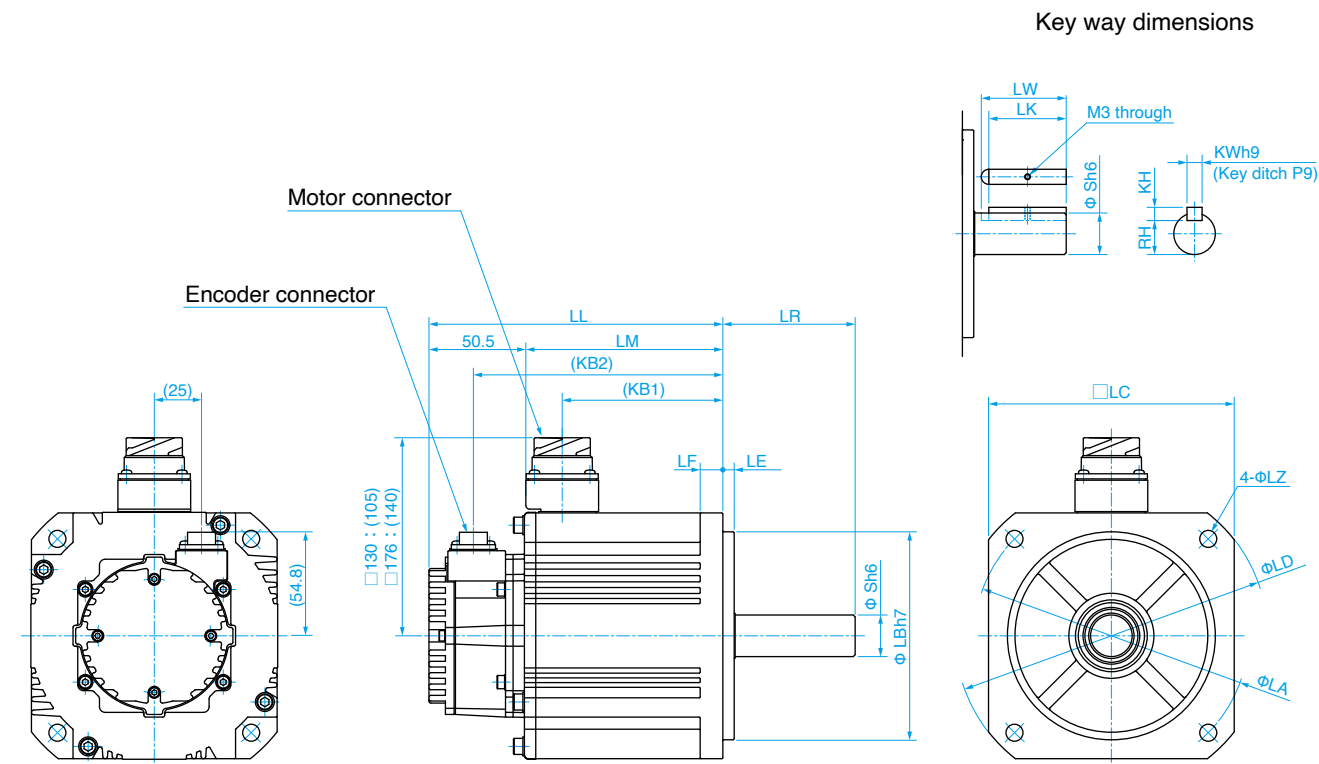
[Unit: mm]

MHMF type [High inertia]	Motor model	Output (W)	LC	LL / Mass (kg)						LR		S	LA	LZ	LB	LF	SK	KH	KB	LW	LK	ST	MW	MH	EW	EH	
				without Brake			with Brake				with / without Brake																
				without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip / with oil seal		with / without oil seal																with protective lip / with oil seal
	MHMF5AZA1□□	50	40	62.5	66.5	62.5	96.4	100.4	96.4	25	30	8	46	4.3	30	5	6.2	3	3	14	12.5	M3 depth 6	22.8	33	30	36.3	
				Mass : 0.29	Mass : 0.31	Mass : 0.32	Mass : 0.51	Mass : 0.53	Mass : 0.54																		
	MHMF01△A1□□	100	40	76.5	80.5	76.5	110.4	114.4	110.4	25	30	8	46	4.3	30	5	6.2	3	3	14	12.5	M3 depth 6	22.8	33	30	36.3	
				Mass : 0.40	Mass : 0.42	Mass : 0.43	Mass : 0.62	Mass : 0.64	Mass : 0.65																		
	MHMF02△A1□□	200	60	76.5	80	76.5	105.8	109.3	105.8	30	35	11	70	4.5	50	6.5	8.5	4	4	20	18	M4 depth 8	30.8	43	31	42.9	
				Mass : 0.75	Mass : 0.78	Mass : 0.81	Mass : 1.1	Mass : 1.2	Mass : 1.2																		
	MHMF04△A1□□	400	60	93.5	97	93.5	122.8	126.3	122.8	30	35	14	70	4.5	50	6.5	11	5	5	25 (20.5) ^{*1}	22.5 (18) ^{*1}	M5 depth 10	30.8	43	31	42.9	
Mass : 1.1				Mass : 1.2	Mass : 1.2	Mass : 1.5	Mass : 1.6	Mass : 1.6																			
MHMF082A1□□	750	80	100.7	104.2	100.7	134.5	138	134.5	35	40	19	90	6	70	8	15.5	6	6	25	22	M5 depth 10	30.8	53	31	52.7		
			Mass : 2.2	Mass : 2.3	Mass : 2.4	Mass : 2.9	Mass : 3.0	Mass : 3.1																			
MHMF092A1□□	1000	80	113.5	117	113.5	147.3	150.8	147.3	35	40	19	90	6	70	8	15.5	6	6	25	22	M5 depth 10	30.8	53	31	52.7		
			Mass : 2.7	Mass : 2.8	Mass : 2.9	Mass : 3.4	Mass : 3.5	Mass : 3.6																			

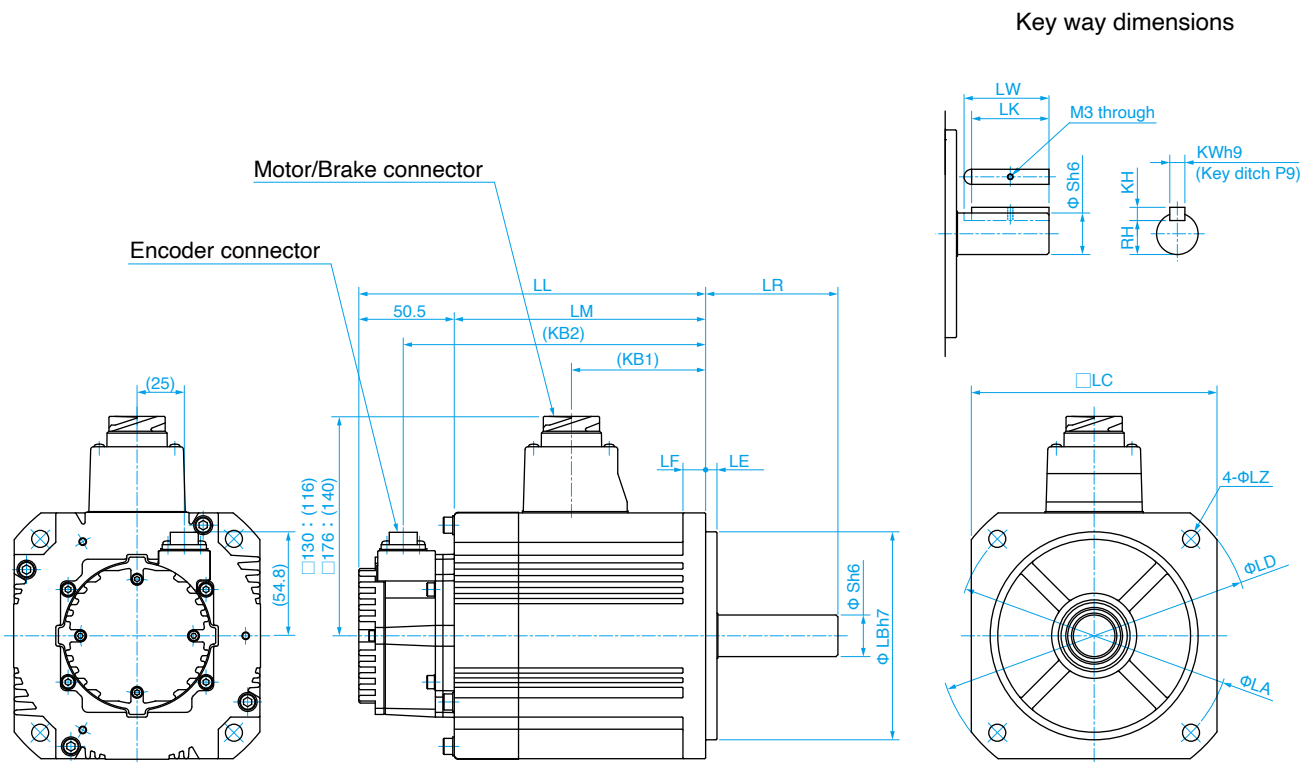
△ in the motor model number represents the motor voltage specification, and □□ represent the motor specifications.
Please refer to "[Motor] Model Designation" in P.3.

*1 Figures in () represent the dimensions of with protective lip / with oil seal.

without Brake



with Brake



● MHMF dimension table

[Unit: mm]

MHMF type [High inertia]	Motor model	Output (W)	LC	LL / Mass (kg)		LR	LM		KB1			KB2		LF	LE	S	LB	LZ	LD	LA	LW	LK	KW	KH	RH
				without Brake	with Brake		without Brake	with Brake		without Brake		with Brake													
	MHMF102A1□□	1000	130	155.5	183.5	70	105	133	85	71		132	160	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 6.1	Mass : 7.6																				
	MHMF152A1□□	1500	130	169.5	197.5	70	119	147	99	83		146	174	12	6	22	110	9	165	145	45	41	8	7	18
				Mass : 7.7	Mass : 9.2																				
	MHMF202A1□□	2000	176	166.5	195.5	80	116	145	79	79		143	172	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 11.3	Mass : 14.6																				
	MHMF302A1□□	3000	176	181.5	210.5	80	131	160	92	92		158	187	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30
				Mass : 13.8	Mass : 17.2																				
MHMF402A1□□	4000	176	196	225	80	145.5	174.5	108.5	108.5		172.5	201.5	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30	
			Mass : 16.2	Mass : 19.4																					
MHMF502A1□□	5000	176	212	241	80	161.5	190.5	124.5	124.5		188.5	217.5	18	3.2	35	114.3	13.5	233	200	55	50	10	8	30	
			Mass : 19.6	Mass : 22.8																					

□□ in the motor model number represents the motor specifications. Please refer to "[Motor] Model Designation" in P.3.