MFMA Series
Middle Inertia - Flat Type

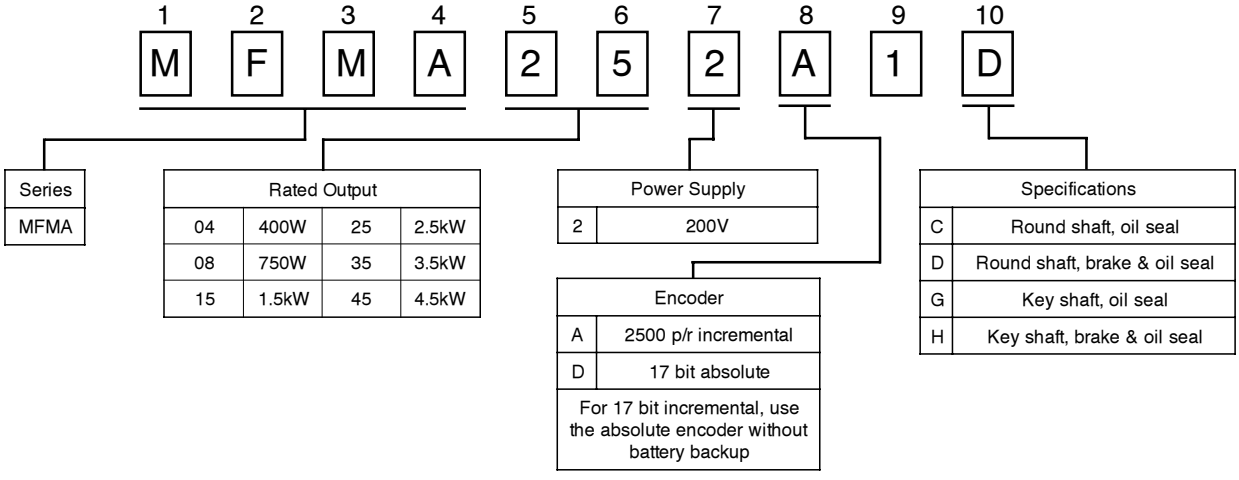
Outline

Output Range
0.4kW, 0.75kW, 1.5kW, 2.5kW, 3.5kW, 4.5kW

Middle Inertia - Flat Type
Rated Speed: 2000rpm
Maximum Speed: 3000rpm
Torque: From 46.94 to 486.23lb at peak

Applicable Amplifier
Use with MFDA Driver

Explanation of Part Numbers



Series
MFMA

Rated Output			
04	400W	25	2.5kW
08	750W	35	3.5kW
15	1.5kW	45	4.5kW

Power Supply	
2	200V

Encoder	
A	2500 p/r incremental
D	17 bit absolute
For 17 bit incremental, use the absolute encoder without battery backup	

Specifications	
C	Round shaft, oil seal
D	Round shaft, brake & oil seal
G	Key shaft, oil seal
H	Key shaft, brake & oil seal

Panasonic

Minas A Series Digital AC Servo Motors & Drivers

MFMA Series
(Middle Inertia)

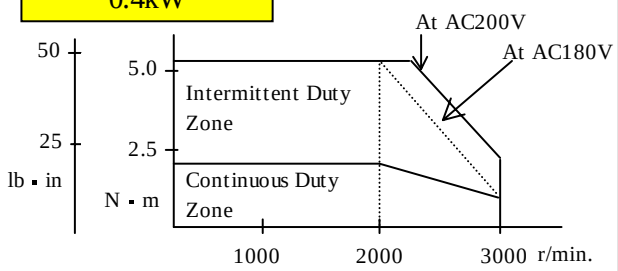
Basic Specifications

Note: Separate power source required for brake (DC24V)

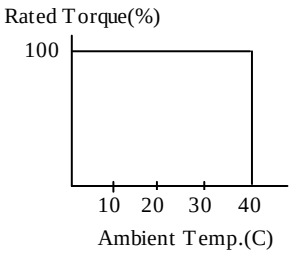
Rated Output		kW	0.4	0.75	1.5	2.5	3.5	4.5
Torque	Rated	N. m	1.9	3.57	7.15	11.8	16.6	21.5
		lb-in.	16.83	31.62	63.33	104.51	147.02	190.42
	Peak	N. m	5.3	10.7	21.5	30.4	44.1	54.9
		lb-in.	46.94	94.77	190.42	269.24	390.58	486.23
Rotor Inertia	Without Brake	x10kg.$^{-4}$m^2	2.45	10.1	20.1	41.3	51.6	72.3
		lb. in^2	0.837	3.451	6.868	14.112	17.632	24.705
	With Brake	x10kg.$^{-4}$m^2	2.7	10.9	21.5	45.3	55.7	78.5
		lb. in^2	0.923	3.725	7.347	15.479	19.033	26.823
Velocity	Rated	r/min.	2000					
	Peak	r/min.	3000					
Approximate Mass	Without Brake	kg	4.7	8.6	11.0	14.8	15.5	19.9
		lb	10.36	18.96	24.25	32.63	34.17	43.87
	With Brake	kg	6.7	10.6	14.0	17.5	19.2	24.3
		lb	14.77	23.37	30.86	38.58	42.33	53.57
Current	Rated	A(rms)	2.8	5.0	9.5	13.4	20.0	23.5
	Peak	A(0-P)	12	21	40	57	84	100
Power Rate	Without Brake	kW/s	14.9	12.6	25.5	34.0	53.1	63.7
	With Brake	kW/s	13.3	11.7	23.8	31.0	49.3	58.7
Brake (Option)	Voltage	V	DC 24 ± 2.4					
	Current	DC, A	0.59 ±10%	0.83 ±10%		0.75 ±10%		0.75 ±10%
	Static Friction Torque	N. m	4.9 or higher	7.8 or higher		21.6 or higher		31.4 or higher
		lb-in	43.40 or higher	69.08 or higher		191.3 or higher		278.1 or higher

S-T Characteristics

0.4kW

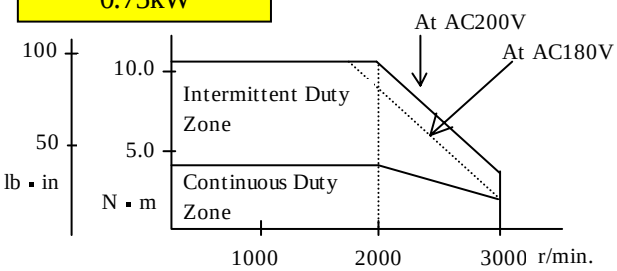


With Oil Seal

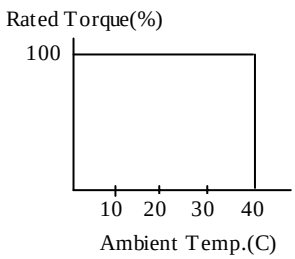


Note:
Oil seal comes as standard.

0.75kW

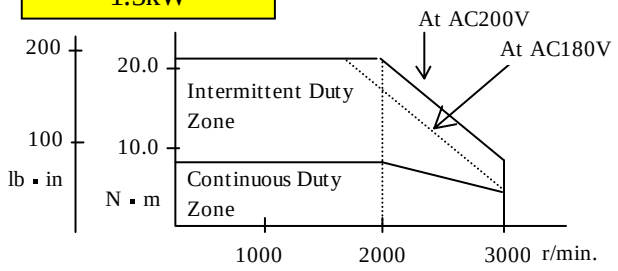


With Oil Seal

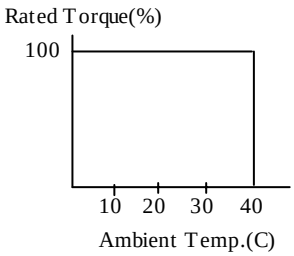


Note:
Oil seal comes as standard.

1.5kW

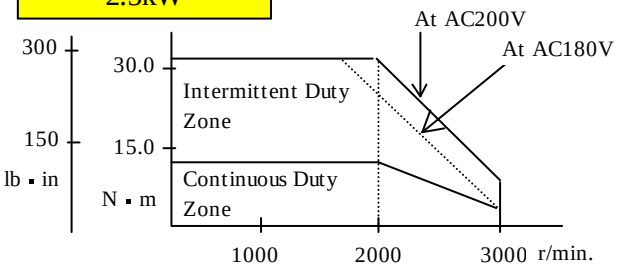


With Oil Seal

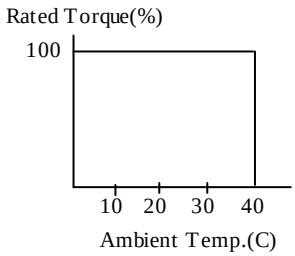


Note:
Oil seal comes as standard.

2.5kW

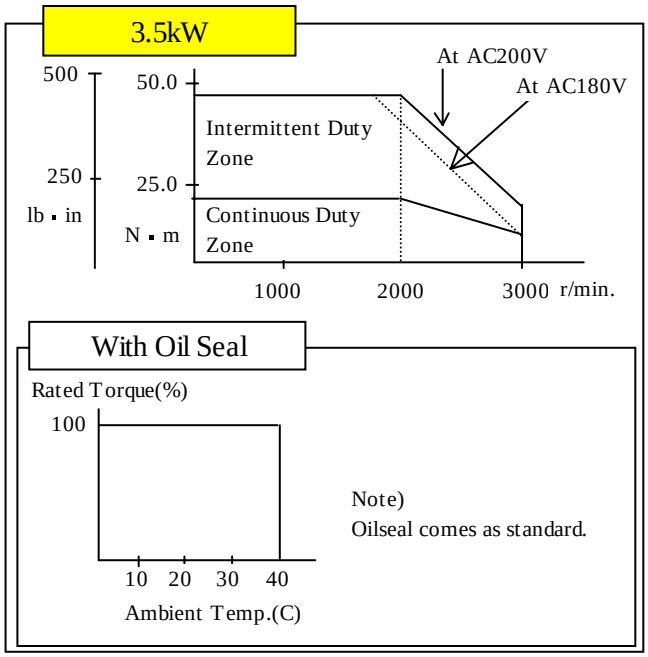


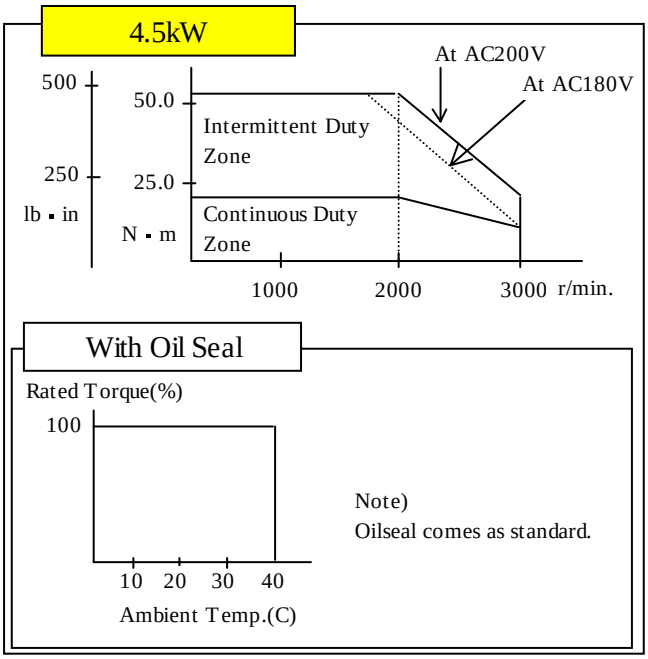
With Oil Seal



Note:
Oil seal comes as standard.

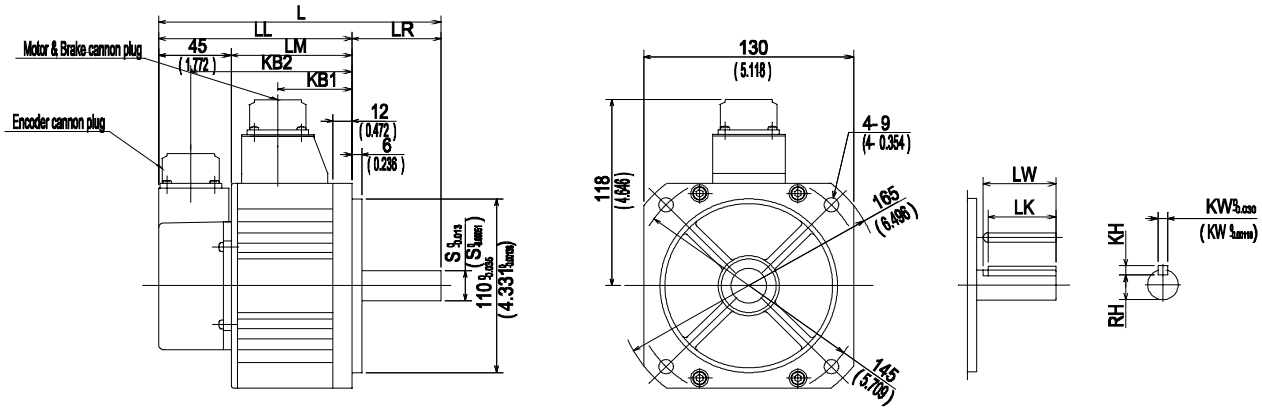
S-T Characteristics



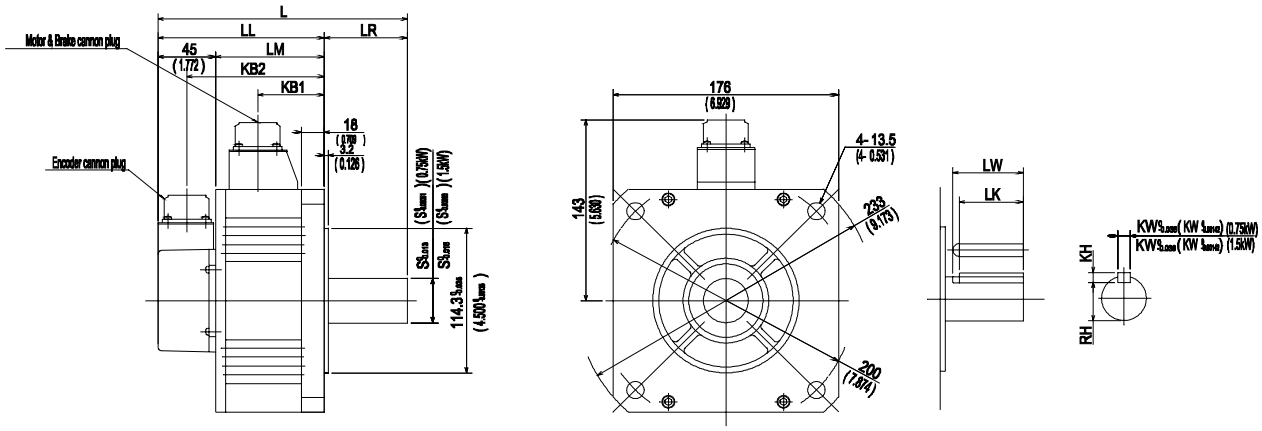


Dimensions

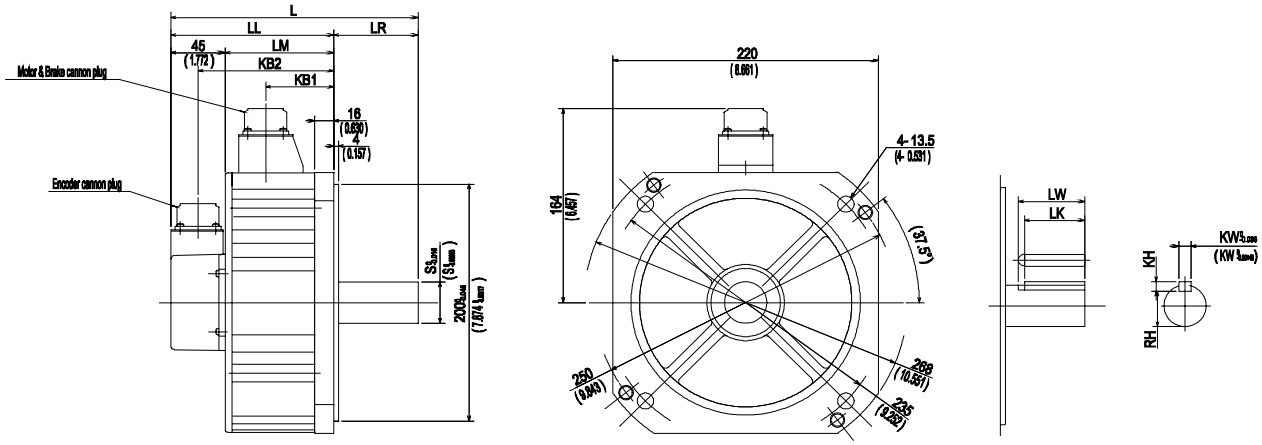
0.4 kW



0.75, 1.5 kW



2.5, 3.5, 4.5 kW



Dimensions

Unit: mm

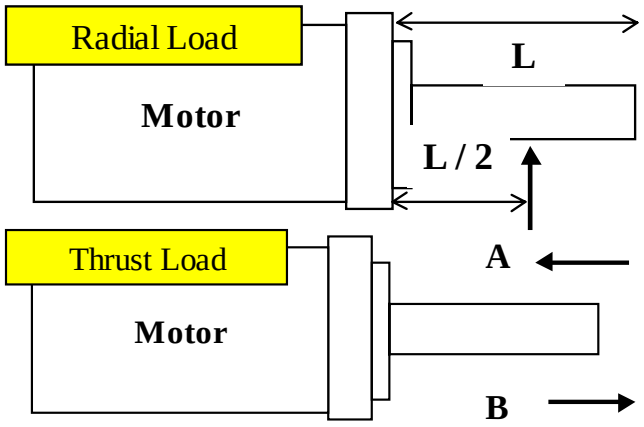
Output	Brake	L	LL	LM	KB1	KB2	S	LR	LW	LK	KW	KH	RH
0.4	Without	175	120	75	45	100	19	55	45	42	6	6	15.5
	With	200	145	100	70	125							
0.75	Without	177	122	77	47	102	22	55	45	41	8	7	18
	With	202	147	102	72	127							
1.5	Without	207	142	97	65	122	35	65	55	50	10	8	30
	With	232	167	122	90	147							
2.5	Without	201	136	91	62	116	35	65	55	50	10	8	30
	With	228	163	118	74	143							
3.5	Without	209	144	99	70	124	35	65	55	50	10	8	30
	With	236	171	126	82	151							
4.5	Without	230	160	115	86	140	35	70	55	50	10	8	30
	With	261	191	146	102	171							

Unit: in.

Output	Brake	L	LL	LM	KB1	KB2	S	LR	LW	LK	KW	KH	RH
0.4	Without	6.890	4.724	2.953	1.772	3.937	0.748	2.165	1.772	1.654	0.236	0.236	0.610
	With	7.874	5.709	3.937	2.756	4.921							
0.75	Without	6.968	4.803	3.031	1.850	4.016	0.866	2.165	1.772	1.614	0.315	0.276	0.709
	With	7.953	5.787	4.016	2.835	5.000							
1.5	Without	8.150	5.591	3.819	2.559	4.803	1.378	2.559	2.165	1.969	0.394	0.315	1.181
	With	9.134	6.575	4.803	3.543	5.787							
2.5	Without	7.913	5.354	3.583	2.441	4.567	1.378	2.559	2.165	1.969	0.394	0.315	1.181
	With	8.976	6.417	4.646	2.913	5.630							
3.5	Without	8.228	5.669	3.898	2.756	4.882	1.378	2.559	2.165	1.969	0.394	0.315	1.181
	With	9.291	6.732	4.961	3.228	5.945							
4.5	Without	9.055	6.299	4.528	3.386	5.512	1.378	2.756	2.165	1.969	0.394	0.315	1.181
	With	10.276	7.520	5.748	4.016	6.732							

Note: Same overall length for both incremental and absolute

Thrust and Radial Load



Output (kW)	Upon setting a motor to your system			Upon running a motor	
	Radial Load	Thrust A	Thrust B	Radial Load	Thrust Load
0.4	980 N	588 N	686 N	392 N	147 N
	220 lb	132 lb	154 lb	88 lb	33 lb
0.75, 1.5	980 N	588 N	686 N	490 N	196 N
	220 lb	132 lb	154 lb	110 lb	44 lb
2.5, 3.5, 4.5	1862 N	686 N	686 N	784 N	294 N
	418 lb	154 lb	154 lb	176 lb	66 lb

Connectors

Motor (Without Brake)

0.4-1.5kW	Plug	JL04V-2E20-18PE-B
	Female Plug - Straight	JL04V-6A20-18SE-EB
	Female Plug - L angle	JL04V-8A20-18SE-EB
	Cable clamp	JL04-2022CK(14)

Pin	Signal
G	No connection
H	No connection
A	No connection
F	U
I	V

Pin	Signal
B	W
E	FG-Frame ground
D	FG-Frame ground
C	No connection

2.5-4.5kW	Plug	JL04V-2E24-11PE-B
	Female Plug - Straight	JL04V-6A24-11SE-EB
	Female Plug - L angle	JL04V-8A24-11SE-EB
	Cable clamp	JL04-2428CK(17)

Pin	Signal
A	No connection
B	No connection
C	No connection
D	U
E	V

Pin	Signal
F	W
G	FG-Frame ground
H	FG-Frame ground
I	No connection

Motor (With Brake)

0.4-1.5kW	Plug	JL04V-2E20-18PE-B
	Female Plug - Straight	JL04V-6A20-18SE-EB
	Female Plug - L angle	JL04V-8A20-18SE-EB
	Cable clamp	JL04-2022CK(14)

Pin	Signal
G	Brake
H	Brake
A	No Connection
F	U
I	V

Pin	Signal
B	W
E	FG-Frame Ground
D	FG-Frame Ground
C	No connection

2.5-4.5kW	Plug	JL04V-2E24-11PE-B
	Female Plug - Straight	JL04V-6A24-11SE-EB
	Female Plug - L angle	JL04V-8A24-11SE-EB
	Cable clamp	JL04-2428CK(17)

Pin	Signal
A	Brake
B	Brake
C	No Connection
D	U
E	V

Pin	Signal
F	W
G	FG-Frame Ground
H	FG-Frame Ground
I	No connection

Encoder - 2500p/r Incremental

0.4-4.5kW	Plug	MS3102A 20-29P
	Female Plug - Straight	JA06A-20-29S-J1-EB
	Female Plug - L angle	JA08A-20-29S-J1-EB
	Cable clamp	JL04-2022CK(14)

Pin	Signal
A	A
B	$\overline{A}$
C	B
D	$\overline{B}$
E	Z
F	$\overline{Z}$
G	0V
H	+5V
J	FG-Frame ground

Pin	Signal
K	No connection
L	No connection
M	No connection
N	No connection
P	RX
R	$\overline{RX}$
S	No connection
T	No connection

Encoder - 17 bit

0.4-4.5kW	Plug	MS3102A 20-29P
	Female Plug - Straight	JA06A-20-29S-J1-EB
	Female Plug - L angle	JA08A-20-29S-J1-EB
	Cable clamp	JL04-2022CK(14)

Note: Pin assignment is for 17 bit absolute encoder.
Connection of pin S and T not required for 17 bit incremental

Pin	Signal
A	No connection
B	No connection
C	No connection
D	No connection
E	No connection
F	No connection
G	0V
H	+5V
J	FG-Frame ground

Pin	Signal
K	SD
L	$\overline{SD}$
M	No connection
N	No connection
P	No connection
R	No connection
S	Battery ground
T	No. 2 battery