

F-SERIES MOTOR DATA

http://www.elwood.com/dF_Mtr_Data.pdf

MOTOR MODEL		F-4030	F-4050	F-4075	F-6100	F-6200	F-6300
MECHANICAL DATA (1)							
Rated Torque, Cont (Stall)	Nm	3.5	6.9	9.3	13.0	19.8	27.8
	lb-in	31	61	82	115	175	245
Peak Torque (Stall)	Nm	11.3	15.2	19.6	31.6	42.0	56.5
	lb-in	100	120	174	280	372	500
Rated Current	A _{0-PK}	8	15.9	15.8	22.8	35.3	47
Rated Power	kW	1.4	2.5	2.2	3.5	4.1	4.7
	hp	1.87	3.35	2.94	4.69	5.49	6.3
Rated Voltage (Drive Supply)	V _{rms}	230	230	230	230	230	230
Rotor Moment of Inertia	kg-m ²	0.0010	0.0021	0.0032	0.0064	0.0107	0.0162
	lb-in-s ²	0.01	0.02	0.03	0.06	0.10	0.14
Rotor Moment of Inertia Brake Motors	kg-m ²	0.0011	0.0022	0.0032	0.0070	0.0110	0.0170
	lb-in-s ²	0.010	0.020	0.030	0.061	0.098	0.147
Motor Shipping Weight	kg	11.0	15.8	21.4	25.1	33.5	45.8
	lb	23.0	34.8	47.2	55.4	73.8	101.0
Motor Shipping Weight Brake Motors	kg	12.5	17.8	23.9	30.0	38.4	51.4
	lb	27.6	39.2	52.6	66.0	84.4	113.1
Damping	Nm/kRPM	0.06	0.1	0.15	0.16	0.24	0.37
	lb-in/kRPM	0.50	0.94	1.30	1.40	2.10	3.30
Friction Torque	Nm	0.063	0.11	0.17	0.17	0.24	0.46
	lb-in	0.56	0.94	1.50	1.50	2.10	4.10
Max. Operating Speed	rpm	4000	4000	3000	3000	3000	3000
WINDING DATA (1)							
Poles		8	8	8	8	8	8
K _T , Sine Wave Torque Constant (2)	Nm/A _{0-PK}	0.54	0.54	0.73	0.71	0.70	0.73
	lb-in/A _{0-PK}	4.8	4.8	6.5	6.3	6.2	6.5
K _T , Square Wave Torque Constant (3)	Nm/A _{0-PK}	0.60	0.60	0.80	0.78	0.80	0.81
	lb-in/A _{0-PK}	5.3	5.3	7.1	6.9	6.8	7.1
K _E , Voltage Constant (4)	V _{0-PK} /kRPM	66	66	89	86	85	89
Winding Resistance Phase to Phase at 25±5°C	Ω ±15%	2.24	0.89	0.98	0.51	0.26	0.16
Winding Inductance Phase to Phase	mH	6.8	3.3	3.4	3.3	1.7	1.1
Thermal Constant (Rth)	°C/W	0.63	0.48	0.40	0.45	0.37	0.30
Thermal Constant (Cth)	W-s/°C	4286	7250	9300	9067	11838	19000
Dielectric Rating		Power Leads (R,S,T) to Ground:1500 VACrms 50/60 Hz for 1 minute.					
(1) Specifications are at 25°C unless otherwise noted.				(3) Peak value of per phase square wave Amperes			
(2) Peak value of per phase sine wave Amperes				(4) Volts 0-Peak, Line-Line / kRPM			

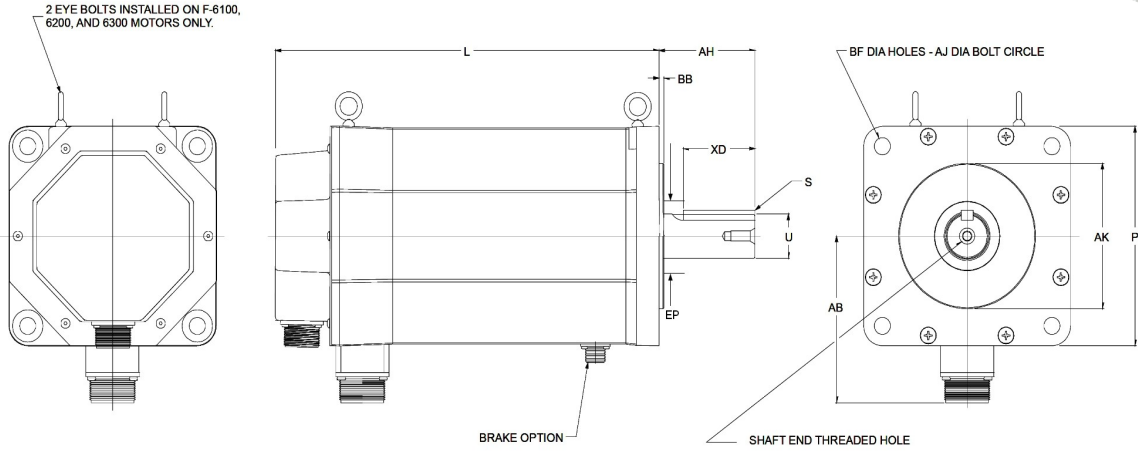
STORAGE AND OPERATING CONDITIONS	
Ambient Temperature	Operating: 0° to 40°C (32° to 104°F) Storage: -30° to 70°C (-25° to 158°F)
Relative Humidity	5% to 95% non-condensing

THERMOSTAT RATINGS	
Rated Voltage	0-250 Volts DC or 50/60 Hz AC*
Rated Current	2.5 Amps @ Power Factor of 1.0 1.6 Amps @ Power Factor of 0.6
Maximum Switching Current	5 Amps
Contact Resistance	<0.10 Ohms maximum
Contacts	Normally closed
Insulation Dielectric	Mylar Nomex capable of withstanding 1500 VAC RMS 50/60 Hz for 1 minute
Opening Temperature (+/- 5°C)	140°C

*The thermostat is normally used as a switch for a 15VDC logic signal.

F-SERIES DIMENSIONAL DATA

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Motor Dimensions													
Motor Model	AB mm/in	AH mm/in	AJ mm/in	AK mm/in	BB mm/in	BF mm/in	EP mm/in	L mm/in	L Brake mm/in	P mm/in	S mm/in	U mm/in	XD mm/in
F-4030	102/4.02	50/1.97	145/5.71	110/4.33	3/0.12	10/0.39	22.2/0.875	194/7.64	257/10.12	127/5.00	6x6/0.24x0.24	19/0.75	38/1.49
F-4050								272/10.71	335/13.19				
F-4075								350/13.78	413/16.26				
F-6100	131/5.16	80/3.15	200/7.87	114.3/4.50	4/0.16	13/0.53	36.5/1.438	255/10.04	326/12.83	173/6.81	10x8/0.39x0.32	35/1.38	60/2.36
F-6200								320/12.60	390/15.35				
F-6300								420/16.53	490/19.29				

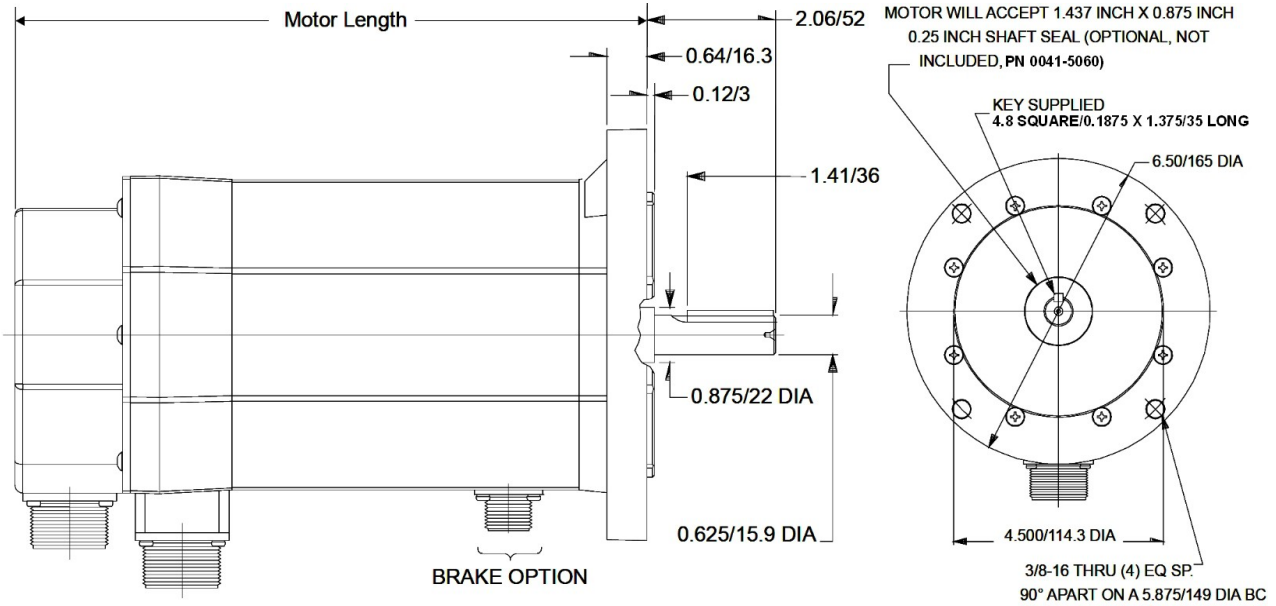
SUPPLEMENTAL MOTOR DIMENSIONS												
Length, from motor faceplate to center of connectors												
CONNECTOR	F-4030	BRAKE	F-4050	BRAKE	F-4075	BRAKE	F-6100	BRAKE	F-6200	BRAKE	F-6300	BRAKE
Brake (mm/in)	—	56/2.20	—	56/2.20	—	56/2.20	—	59/2.32	—	59/2.32	—	59/2.32
Encoder (mm/in)	126/4.96	189/7.44	204/8.03	267/10.51	282/11.10	345/13.58	183/7.20	254/10.0	248/9.76	318/12.52	348/13.70	418/16.46
Power (mm/in)	172/6.77	235/9.25	250/9.84	313/12.32	228/8.98	301/11.85	233/9.17	304/11.97	298/11.73	368/14.49	398/15.67	468/18.42

Shaft End Threaded Hole		
Motor Series	Thread	Thread Depth
F-4000	M6 x 1.00mm	15mm/.59in
F-6000	M8 x 1.25mm	20mm/.79in

Note: Motors are manufactured to Millimeter dimensions. Inch dimensions are approximate conversions from millimeters

F-SERIES NEMA 56C DIMENSIONAL DATA

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SUPPLEMENTAL MOTOR DIMENSIONS			
Length, from motor faceplate to center of connectors			
Motors	Brake (in/mm)	Power (in/mm)	Encoder (in/mm)
F-4030	—	4.97/126	6.77/172
F-4030 BRAKE	2.21/56	7.45/189	9.25/235
F-4050	—	8.04/204	9.84/250
F-4050 BRAKE	2.21/56	10.52/267	12.32/313
F-4075	—	11.12/282	12.92/328
F-4075 BRAKE	2.21/56	13.59/345	15.39/391

Dimensions	Without Brake	With Brake
Motors	in/mm	in/mm
F-4030 NEMA 56C	7.64/194	10.12/257
F-4050 NEMA 56C	10.71/272	13.19/335
F-4075 NEMA 56C	13.79/350	16.26/413

Note: NEMA 56C motors are manufactured to inch dimensions. Millimeter dimensions are approximate conversions from inches.



F-SERIES CONNECTOR DATA

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F-Series Motor Encoder	
Pin	Signal
A	A+
B	A-
C	B+
D	B-
E	I+
F	I-
G	ENCODER CASE
H	ABS
J	+5VDC
K	+5VDC
L	COM
M	COM
N	HALL B
P	HALL C
R	TS+
S	TS-
T	HALL A

MIL-SPEC Part Numbers	
MS3102R20-29P	
Mating Connector: Straight	
MS3106F20-29S	
Mating Connector: Right Angle	
MS3108F20-29S	

F-Series Motor Power	
Pin	Signal
A	R
B	S
C	T
D	MOTOR CASE

MIL-SPEC Part Numbers	
F-4000	MS3102R-20-4P
F-6000	MS3102R-24-22P
Mating Connector: Straight	
F-4000	MS3106F20-4S
F-6000	MS3106F24-22S
Mating Connector: Right Angle	
F-4000	MS3106F20-29S
F-6000	MS3108F20-29S

F-Series Motor Brake	
Pin	Signal
A	A+
B	A-

MIL-SPEC Part Numbers	
MS-3102R-12S-3P	
Mating Connector: Straight	
MS3106F12S-3S	
Mating Connector: Right Angle	
MS3108F12-3S	

SHAFT SEALS

F-Series Motor Shaft Seals

Motor Series	Part Number	Size (OD x ID x Thickness)
F-4000	0019-1060	36mm x 22mm x 6mm
F-6000	0019-1061	54mm x 37mm x 8mm

CABLES: CONTINUOUS FLEX RATED*

*Elwood's continuous flex rated cables replace both flexing and non-flexing cables for H and F Series motors.

Power Cables	"XXX" indicates length in feet		
	F-4030, F-4050, F-4075	F-6100 & F-6200	F-6300
Rockwell Model	9101-1382 2090-UXNPAHF-14S	9101-1383 2090-UXNPAHF-10S	9101-1399 2090-UXNPAHF-8S
Elwood Model	2090-XXNPHF-14S 141-HPXXX-02	2090-XXNPHF-10S 141-HPXXX-03	2090-XXNPHF-8S 141-HPXXX-04

Feedback Cables	"XXX" indicates length in feet	
	Ultra 100/200	Ultra 3000 & Kinetix
Rockwell Model	9101-1366	2090-UXNFBHF-S
Elwood Model	141-HFXXX-01	141-HFXXX-02

Brake Cables	"XXX" indicates length in feet	
	For All Drives	
Rockwell Model	n/a	
Elwood Model	141-HBXXX-01	



F-SERIES PART NUMBER IDENTIFICATION

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