

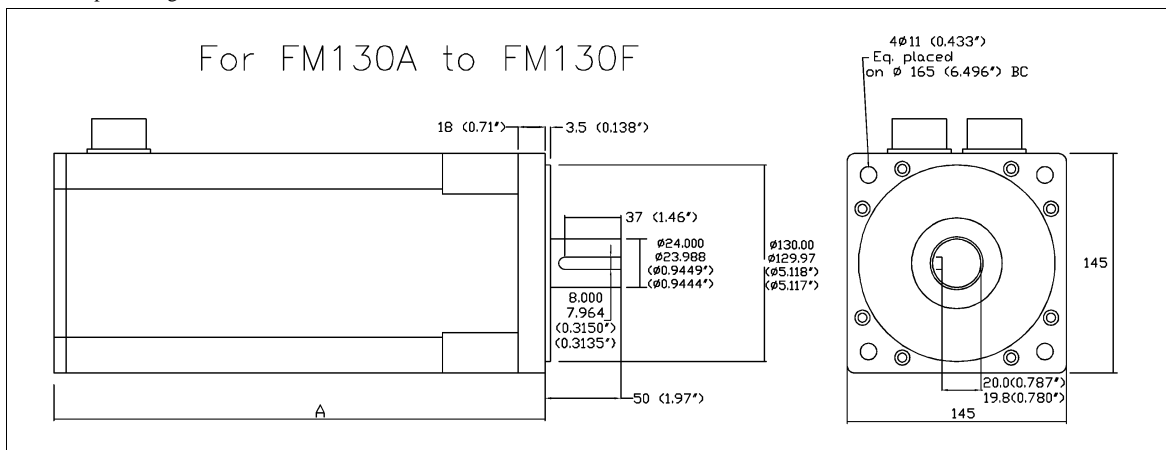
FM Brushless Motor Performance

FM130 Series Motor Data 145 mm Frame 230 V

Motor Parameters	Units	FM130C -62	FM130C -104	FM130F -69	FM130F -97	FM130J -69	FM130J -92
Horsepower	HP	5.5	3.8	8.8	6.4	11.4	9.3
Kilowatts	KW	4.1	2.8	6.5	4.8	8.5	6.9
Max. Speed	RPM	2400	1500	2400	1500	2400	1500
Rated Speed	RPM	2400	1500	2400	1500	2400	1500
Continuous Rated Torque	Nm(In-Lbs)	16.4 (145)	18.1 (160)	26.0 (230)	30.5 (270)	33.9(300)	44.1 (390)
Continuous Stall Torque	Nm(In-Lbs)	19.1 (169)	19.1 (169)	33.4 (295)	33.4 (295)	49.3(436)	49.3 (436)
Peak Torque	Nm(In-Lbs)	41.0 (363)	45.2 (400)	65.0 (575)	76.4 (675)	84.8 (750)	110 (975)
Continuous Line Current	Amps RMS	18.4	12.2	26.2	21.9	34.1	33.1
Peak Current	Amps RMS	46.0	30.4	65.4	54.7	85.2	82.9
Torque Constant K_T	Nm/Amps (RMS)	0.90	1.50	1.00	1.40	1.00	1.38
Back EMF Constant K_B	Vrms/Krpm	62.2	103.7	69.1	96.8	69.1	92.2
DC Resistance	Ohms	0.43	1.2	0.19	0.38	0.10	0.18
Inductance	Millihenries	6.5	18.0	4.0	7.8	2.4	4.3
Rotor Inertia	Kg-M ² (In-Lbs-Sec ²)	0.0019 (0.017)	0.0019 (0.017)	0.0036 (0.032)	0.0036 (0.032)	0.0058 (0.051)	0.0058 (0.051)
Static Friction	Nm(In-Lbs)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)
Motor Weight	Kg(Lbs)	22 (48)	22 (48)	28 (62)	28 (62)	34 (75)	34 (75)
Maximum Line Voltage	Vrms	250	250	250	250	250	250
Number of Poles		6	6	6	6	6	6

Notes:

1. Continuous rating @25°C. Motor mounted on a 330 mm X 330 mm X 10 mm Aluminum heatsink. Maximum winding temperature 155°C.
2. Test drive input voltage was 220 Vac.



Model	FM130C-62	FM130C-104	FM130F-69	FM130F-97	FM130J-69	FM130J-92
A	325 (12.80")	325 (12.80")	400 (15.75")	400 (15.75")	500 (19.69")	500 (19.69")

- Notes:**
- IEC mounting dimensions are shown. NEMA mountings are available, please contact Expro Engineering for information.
 - Radial load on output shaft < 450 N (100 Lbs). Axial load should be < 230 N (50 Lbs).
 - All data are subject to change without notice.

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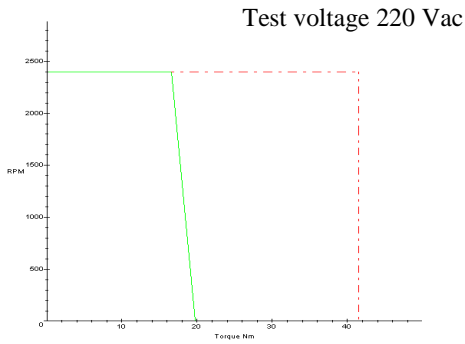
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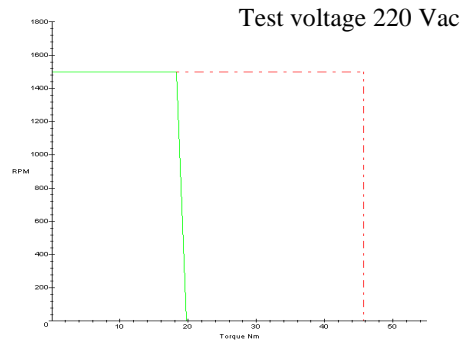
FM Brushless Motor Performance

FM130 Series Motor Data 145 mm Frame 230 Vac

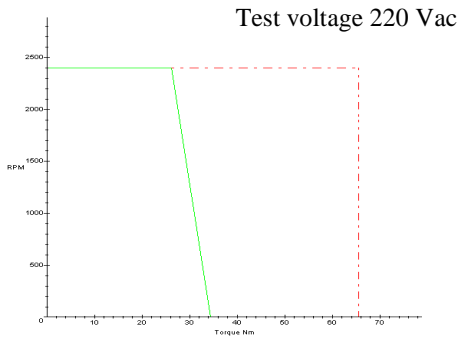
FM130C-62 PERFORMANCE



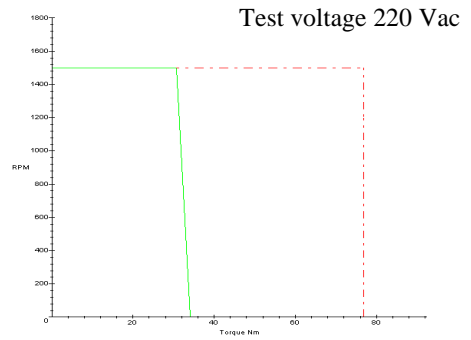
FM130C-104 PERFORMANCE



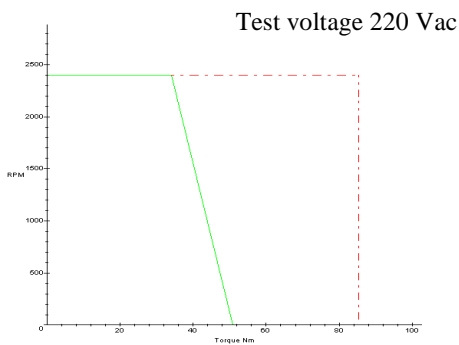
FM130F-69 PERFORMANCE



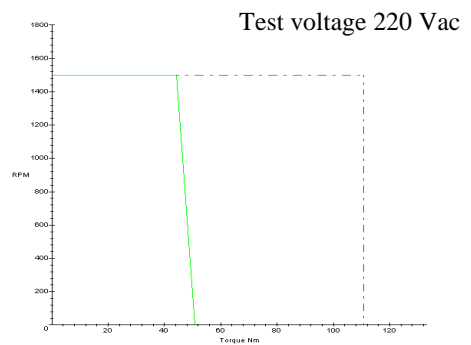
FM130F-97 PERFORMANCE



FM130J-69 PERFORMANCE



FM130J-92 PERFORMANCE



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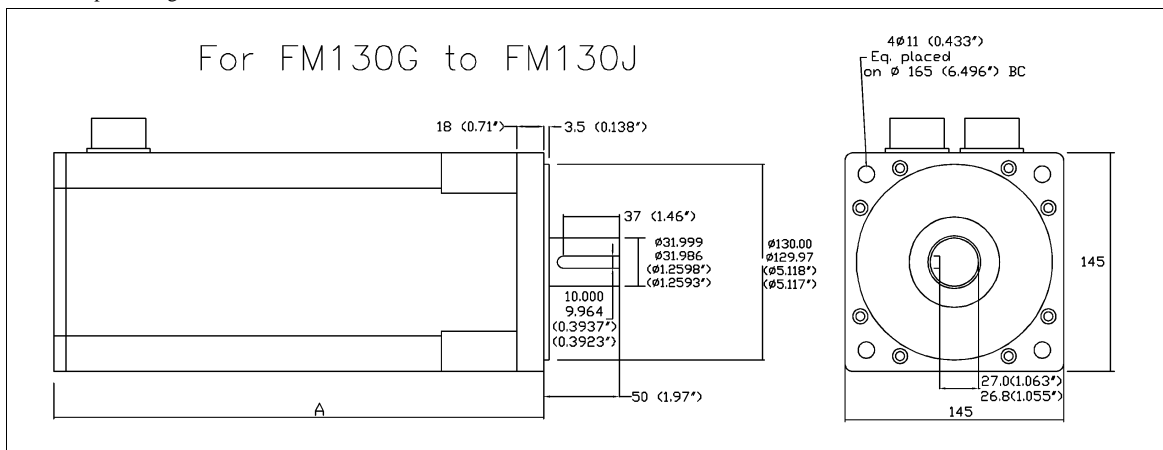
FM Brushless Motor Performance

FM130 Series Motor Data 145 mm Frame 460 V

Motor Parameters	Units	FM130C -124	FM130C -207	FM130F -138	FM130F -221	FM130J -138	FM130J -230
Horsepower	HP	5.5	3.8	8.6	6.4	11.0	9.2
Kilowatts	KW	4.1	2.8	6.4	4.8	8.2	6.8
Max. Speed	RPM	2400	1500	2400	1500	2400	1500
Rated Speed	RPM	2400	1500	2400	1500	2400	1500
Continuous Rated Torque	Nm(In-Lbs)	16.4 (145)	18.1 (160)	25.5 (225)	30.5 (270)	32.8 (290)	43.6 (385)
Continuous Stall Torque	Nm(In-Lbs)	19.1 (169)	19.1 (169)	33.4 (295)	33.4 (295)	49.3 (436)	49.3 (436)
Peak Torque	Nm(In-Lbs)	41.0 (363)	45.2 (400)	63.6 (563)	76.4 (675)	82.0 (725)	109 (963)
Continuous Line Current	Amps RMS	9.2	6.1	12.8	9.6	16.4	13.1
Peak Current	Amps RMS	23.0	15.2	31.9	23.9	41.1	32.6
Torque Constant K_T	Nm/Amps (RMS)	1.80	3.00	2.00	3.22	2.00	3.35
Back EMF Constant K_B	Vrms/Krpm	124.4	207.3	138.2	221.2	138.2	230.4
DC Resistance	Ohms	1.7	4.8	0.77	2.0	0.40	1.1
Inductance	Millihenries	25.9	71.9	16.0	40.9	9.6	26.7
Rotor Inertia	Kg-M ² (In-Lbs-Sec ²)	0.0019 (0.017)	0.0019 (0.017)	0.0036 (0.032)	0.0036 (0.032)	0.0058 (0.051)	0.0058 (0.051)
Static Friction	Nm(In-Lbs)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)	0.2 (1.8)
Motor Weight	Kg(Lbs)	22 (48)	22 (48)	28 (62)	28 (62)	34 (75)	34 (75)
Maximum Line Voltage	Vrms	460	460	460	460	460	460
Number of Poles		6	6	6	6	6	6

Notes:

1. Continuous rating @25°C. Motor mounted on a 330 mm X 330 mm X 10 mm Aluminum heatsink. Maximum winding temperature 155°C.
2. Test drive input voltage was 460 Vac.



Model	FM130C-124	FM130C-207	FM130F-138	FM130F-221	FM130J-138	FM130J-230
A	325 (12.80")	325 (12.80")	400 (15.75")	400 (15.75")	500 (19.69")	500 (19.69")

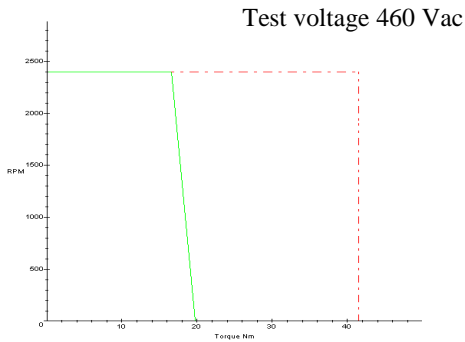
- Notes:**
- IEC mounting dimensions are shown. NEMA mountings are available, please contact Expro Engineering for information.
 - Radial load on output shaft < 450 N (100 Lbs). Axial load should be < 230 N (50 Lbs).
 - All data are subject to change without notice.

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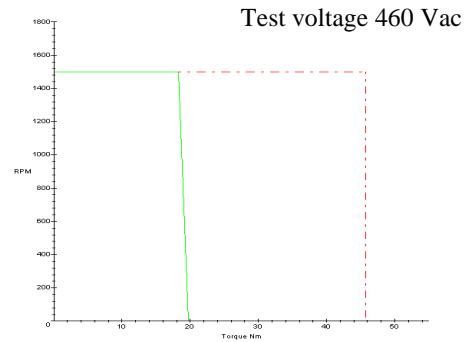
FM Brushless Motor Performance

FM130 Series Motor Data 145 mm Frame 460 Vac

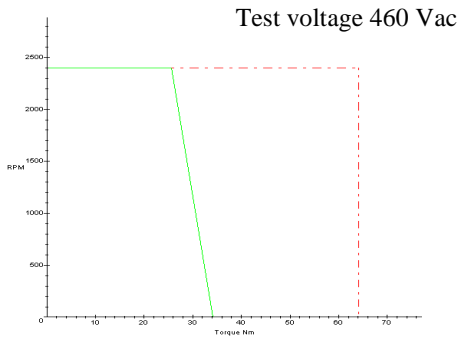
FM130C-124 PERFORMANCE



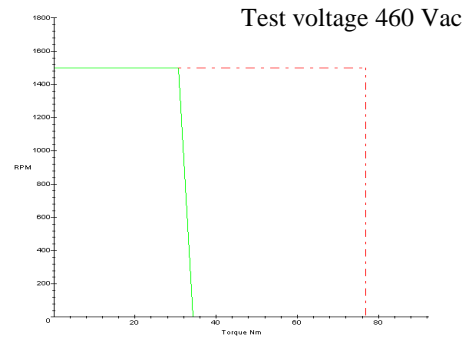
FM130C-207 PERFORMANCE



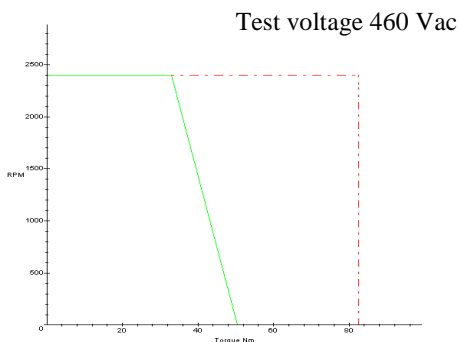
FM130F-138 PERFORMANCE



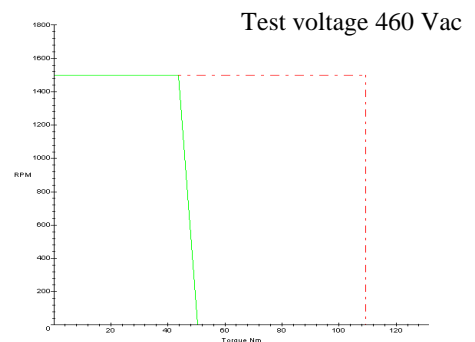
FM130F-221 PERFORMANCE



FM130J-138 PERFORMANCE



FM130J-230 PERFORMANCE



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FM130 Motor Connectors and Connector Pin Outs

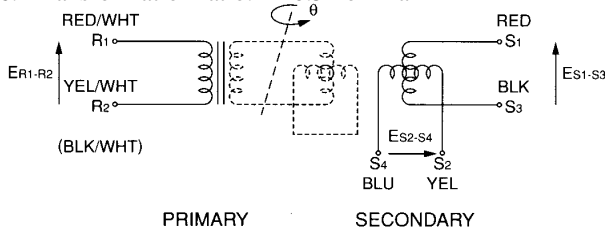
Motor Connector (MS3102E-22-22P) Straight Mating Plug: MS3106E-22-22S		
Pin	Function	Wire Color
A	ϕU	Red
B	ϕV	Black
C	ϕW	White
D	GND	Green

Resolver Connector (MS3102E-22-19P) Straight Mating Plug: MS3106E-22-19S		
Pin	Function	Wire Color
A	COS-(S1)	Red
B	COS+(S3)	Black
C	SIN-(S2)	Yellow
D	SIN+(S4)	Blue
E	Excit (R1)	Red/White
F	Excit GND (R2)	Yellow/White
G	THERM	Green
H	THERM	Green
J		
K	GND	Green
L		
M	* BRK(+)	
N	* BRK GND	
P	* BRK(-)	

* For brake option only.

RESOLVER ELECTRICAL SPECIFICATIONS:

1. Operation temperature: -55°C to 155°C
2. Maximum speed: 10,000 rpm
3. Dielectric strength: Vac 500, 1 minute
4. Excitation voltage: 7 Vrms 10 KHz
5. Electric error: $\pm 10'$ Max.
6. Transformation ratio: 0.5 nominal



Excitation : $E_{R1-R2} = E_{sin} \omega t$
 Output : $E_{S1-S3} = K E_{R1-R2} \cos \theta$
 $E_{S2-S4} = K E_{R1-R2} \sin \theta$
 K : Transformation Ratio

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