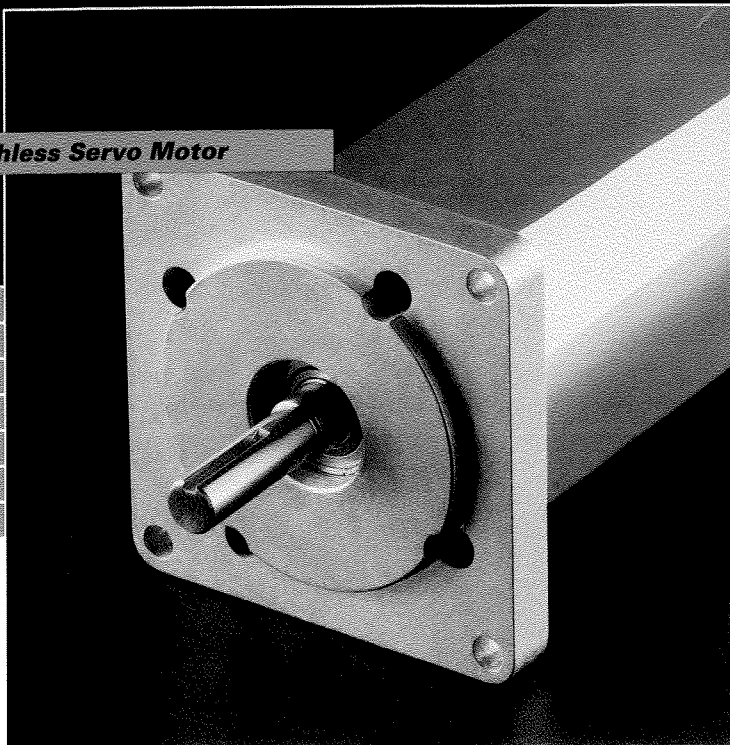


SERVOFLEX™

2" Frame Brushless Servo Motor



SPEED/TORQUE

RANGE:

2.2-7.8 IN/LBS

When you need maximum performance in a small motor for light duty applications we've got the power for you.

The ServoFlex Series of brushless servo motors gives you high torque in a small package, at a competitive price. This allows ServoFlex motors to be used in applications previously not considered.

ServoFlex motors utilize high performance neodymium magnets made of Magnequench® MQ3 magnet material. The result? You get more performance for every dollar you spend. Custom Servo Motors Inc. is the only manufacturer who can offer you this revolutionary technology in a servo motor.

Whether you are designing new systems or upgrading existing installations, Custom Servo Motors Inc. offers a family of 2 inch ServoFlex brushless servo motors to meet the requirements of your application. ServoFlex motors are available in four stack lengths to meet and exceed all your performance needs. They are available in four configurations:

- Resolver
- Commutating Encoder
- Hall Switching
- Optical Encoder

...or any combination of the above

Custom Servo Motors Inc.

A Subsidiary of MTS Systems Corporation

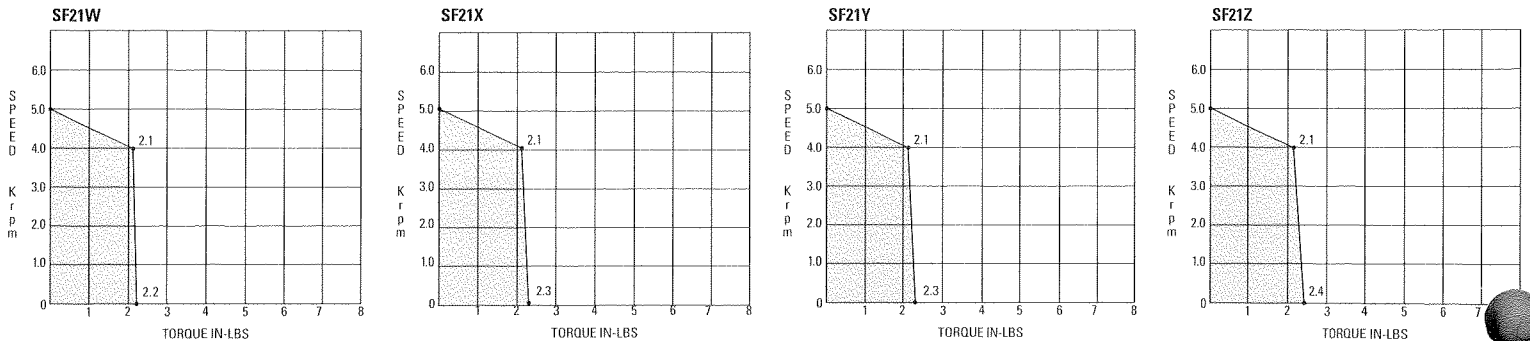
2" Frame Brushless Servo Motor

Motor Data-Table 1

Motor Parameters	Units	SF21W	SF21X	SF21Y	SF21Z
Horsepower	HP	0.13	0.13	0.13	0.15
Kilowatts	KW	0.10	0.10	0.10	0.11
Max. Operating Speed	RPM	5000	5000	5000	5000
Speed At Rated Torque	RPM	4000	4000	4000	4000
*Continuous Rated Torque	IN-LBS	2.1	2.1	2.1	2.3
at rated speed	Nm	0.23	0.24	0.24	0.26
*Continuous Stall Torque	IN-LBS	2.2	2.3	2.3	2.4
	Nm	0.25	0.26	0.26	0.27
Continuous Line Current	AMPS	2.5	1.5	1.2	0.9
Peak Torque	IN-LBS	7.9	8.0	8.0	8.5
	Nm	0.89	0.90	0.91	0.96
Peak Current	AMPS	8.7	5.4	4.3	3.2
Max. Theoretical Accel.	RAD/SEC ²	171,214	173,636	174,918	184,780
Torque Sensitivity	IN-LBS/AMP	0.9	1.5	1.9	2.7
	Nm/AMP	0.10	0.17	0.21	0.30
Back EMF-Line to Line	VRMS/K	8.0	13.2	16.5	23.7
D.C. Resistance	OHMS	7.1	18.9	29.1	53.8
Inductance	MILLIHENRIES	5.9	15.8	23.0	43.2
Rotor Inertia	IN-LBS-SEC ²	0.00005	0.00005	0.00005	0.00005
	Kg-m ²	0.000005	0.000005	0.000005	0.000005
Static Friction	IN-LBS	0.1	0.1	0.1	0.1
	Nm	0.01	0.01	0.01	0.01
Motor Weight	LBS	1.9	1.9	1.9	1.9
	Kg	0.9	0.9	0.9	0.9

*25°C Ambient with a maximum case temperature of 85°C on motor mounted on a 10" x 10" x 1/4" aluminum heat sink.

Torque Charts

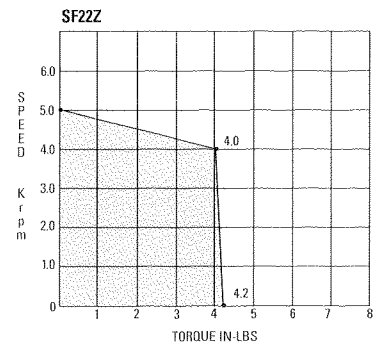
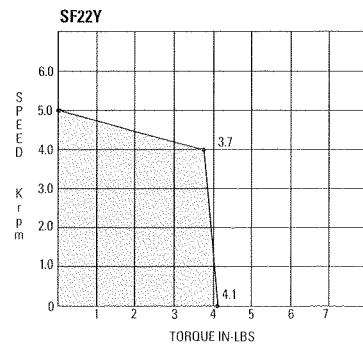
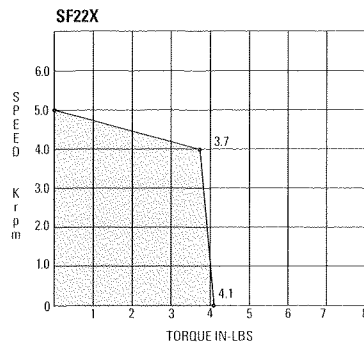
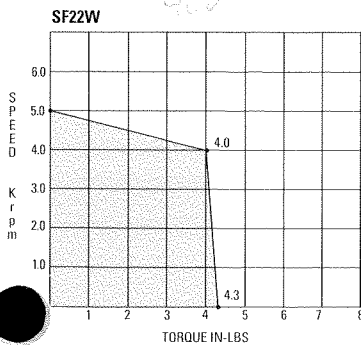


Motor Data-Table 2

Motor Parameters	Units	SF22W	SF22X	SF22Y	SF22Z
Horsepower	HP	0.25	0.24	0.23	0.25
Kilowatts	KW	0.19	0.18	0.18	0.19
Max. Operating Speed	RPM	5000	5000	5000	5000
Speed At Rated Torque	RPM	4000	4000	4000	4000
*Continuous Rated Torque	IN-LBS	4.0	3.7	3.7	4.0
at rated speed	Nm	0.45	0.42	0.42	0.45
*Continuous Stall Torque	IN-LBS	4.3	4.1	4.1	4.2
	Nm	0.49	0.46	0.46	0.47
Continuous Line Current	AMPS	4.8	2.6	1.9	1.6
Peak Torque	IN-LBS	15.2	14.2	14.4	14.6
	Nm	1.72	1.60	1.62	1.65
Peak Current	AMPS	16.9	9.1	6.5	5.5
Max. Theoretical Accel.	RAD/SEC ²	188,329	175,532	177,599	180,704
Torque Sensitivity	IN-LBS/AMP	0.9	1.6	1.9	2.7
	Nm/AMP	0.10	0.18	0.22	0.30
Back EMF-Line to Line	VRMS/K	8.0	13.9	17.2	23.8
D.C. Resistance	OHMS	1.8	6.3	12.3	17.4
Inductance	MILLIHENRIES	2.3	7.0	10.8	18.9
Rotor Inertia	IN-LBS-SEC ²	0.00008	0.00008	0.00008	0.00008
	Kg-m ²	0.000009	0.000009	0.000009	0.000009
Static Friction	IN-LBS	0.2	0.2	0.2	0.2
	Nm	0.02	0.02	0.02	0.02
Motor Weight	LBS	2.5	2.5	2.5	2.5
	Kg	1.1	1.1	1.1	1.1

*25°C Ambient with a maximum case temperature of 85°C on motor mounted on a 10" x 10" x 1/4" aluminum heat sink.

Torque Charts

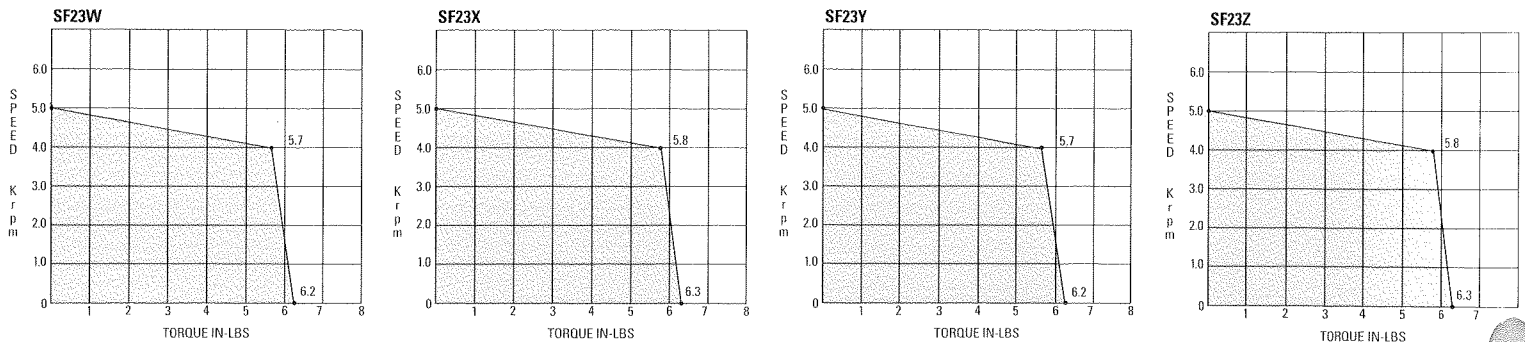


Motor Data-Table 3

Motor Parameters	Units	SF23W	SF23X	SF23Y	SF23Z
Horsepower	HP	0.36	0.37	0.36	0.37
Kilowatts	KW	0.27	0.27	0.27	0.27
Max. Operating Speed	RPM	5000	5000	5000	5000
Speed At Rated Torque	RPM	4000	4000	4000	4000
*Continuous Rated Torque	IN-LBS	5.7	5.8	5.7	5.8
at rated speed	Nm	0.64	0.66	0.64	0.66
*Continuous Stall Torque	IN-LBS	6.2	6.3	6.2	6.3
	Nm	0.70	0.72	0.70	0.71
Continuous Line Current	AMPS	6.7	4.1	3.3	2.5
Peak Torque	IN-LBS	21.7	22.2	21.7	22.1
	Nm	2.45	2.51	2.45	2.49
Peak Current	AMPS	23.5	14.2	11.5	8.6
Max. Theoretical Accel.	RAD/SEC ²	187,069	190,997	186,663	190,086
Torque Sensitivity	IN-LBS/AMP	0.9	1.6	1.9	2.7
	Nm/AMP	0.10	0.18	0.21	0.30
Back EMF-Line to Line	VRMS/K	8.0	13.9	16.8	23.8
D.C. Resistance	OHMS	1.2	3.2	4.9	8.8
Inductance	MILLIHENRIES	1.4	4.3	6.4	12.7
Rotor Inertia	IN-LBS-SEC ²	0.00012	0.00012	0.00012	0.00012
	Kg-m ²	0.000013	0.000013	0.000013	0.000013
Static Friction	IN-LBS	0.3	0.3	0.3	0.3
	Nm	0.03	0.03	0.03	0.03
Motor Weight	LBS	2.9	2.9	2.9	2.9
	Kg	1.3	1.3	1.3	1.3

*25°C Ambient with a maximum case temperature of 85°C on motor mounted on a 10" x 10" x 1/4" aluminum heat sink.

Torque Charts

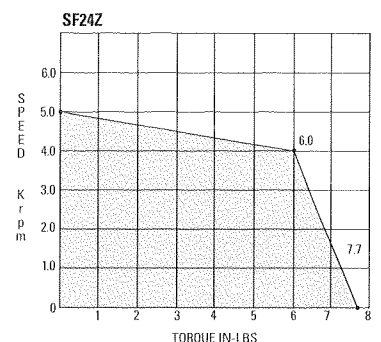
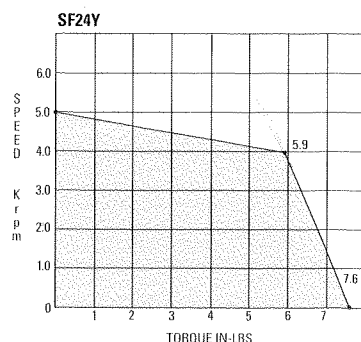
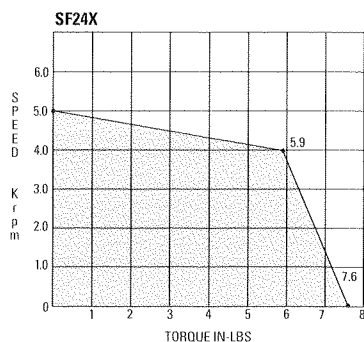
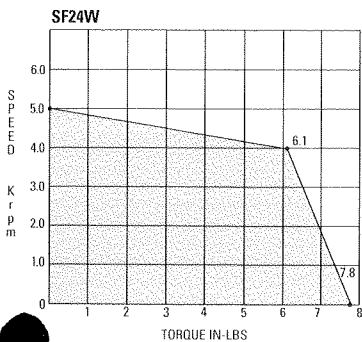


Motor Data-Table 4

Motor Parameters	Units	SF24W	SF24X	SF24Y	SF24Z
Horsepower	HP	0.39	0.37	0.37	0.38
Kilowatts	KW	0.29	0.28	0.28	0.28
Max. Operating Speed	RPM	5000	5000	5000	5000
Speed At Rated Torque	RPM	4000	4000	4000	4000
*Continuous Rated Torque	IN-LBS	6.1	5.9	5.9	6.0
at rated speed	Nm	0.69	0.67	0.67	0.68
*Continuous Stall Torque	IN-LBS	7.8	7.6	7.6	7.7
	Nm	0.88	0.86	0.86	0.87
Continuous Line Current	AMPS	8.7	4.7	3.8	2.8
Peak Torque	IN-LBS	27.3	26.6	26.6	26.9
	Nm	3.09	3.01	3.01	3.05
Peak Current	AMPS	30.4	16.5	13.1	9.9
Max. Theoretical Accel.	RAD/SEC ²	180,805	176,159	176,159	178,362
Torque Sensitivity	IN-LBS/AMP	0.9	1.6	1.9	2.7
	Nm/AMP	0.10	0.18	0.22	0.31
Back EMF-Line to Line	VRMS/K	8.0	13.9	17.2	24.2
D.C. Resistance	OHMS	0.7	2.3	3.6	6.3
Inductance	MILLIHENRIES	1.0	3.1	4.8	8.6
Rotor Inertia	IN-LBS-SEC ²	0.00015	0.00015	0.00015	0.00015
	Kg-m ²	0.000017	0.000017	0.000017	0.000017
Static Friction	IN-LBS	0.4	0.4	0.4	0.4
	Nm	0.04	0.04	0.04	0.04
Motor Weight	LBS	3.4	3.4	3.4	3.4
	Kg	1.5	1.5	1.5	1.5

*25°C Ambient with a maximum case temperature of 85°C on motor mounted on a 10" x 10" x 1/4" aluminum heat sink.

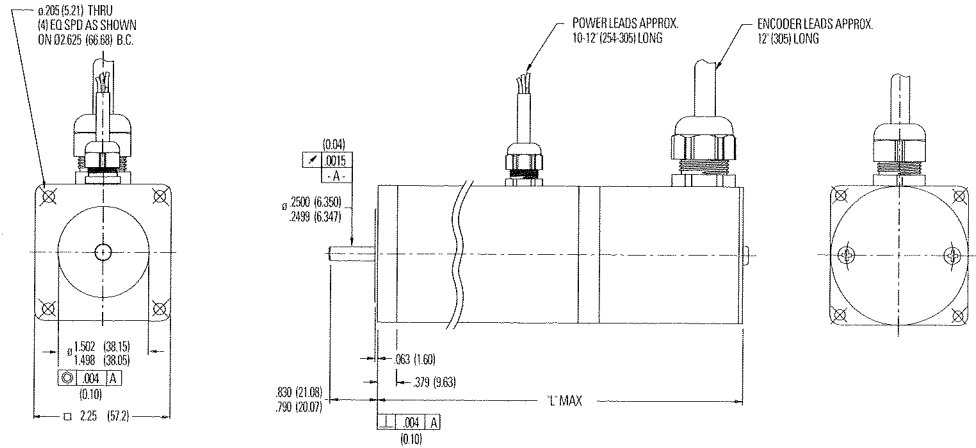
Torque Charts



2" English Motor with Encoder

Model	"L" Max	"L" Max (Brake Option)**
SF21*E*	6.20 (157.5)	7.40 (188.0)
SF22*E*	6.80 (172.7)	8.00 (203.2)
SF23*E*	7.40 (188.0)	8.60 (218.4)
SF24*E*	8.00 (203.2)	9.20 (233.7)

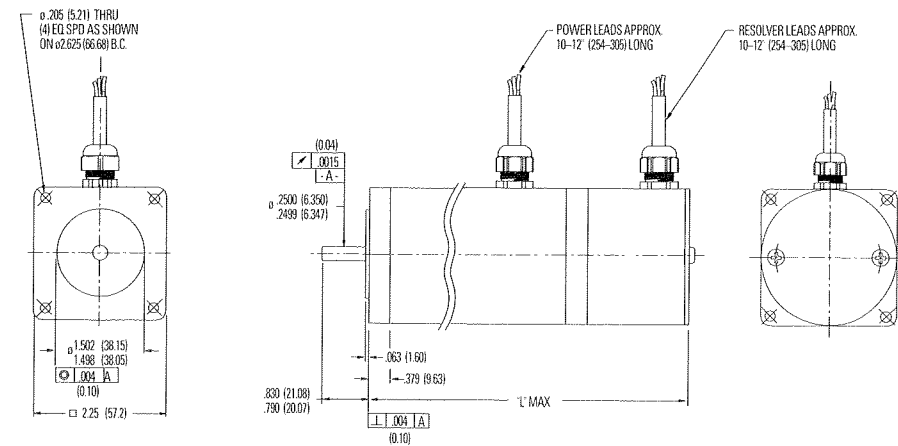
**Brake Leads to Exit with Power Leads



2" English Motor with Resolver

Model	"L" Max	"L" Max (Brake Option)**
SF21*ER	5.48 (139.2)	6.68 (169.7)
SF22*ER	6.08 (154.4)	7.28 (184.9)
SF23*ER	6.68 (169.7)	7.88 (200.2)
SF24*ER	7.28 (184.9)	8.48 (215.4)

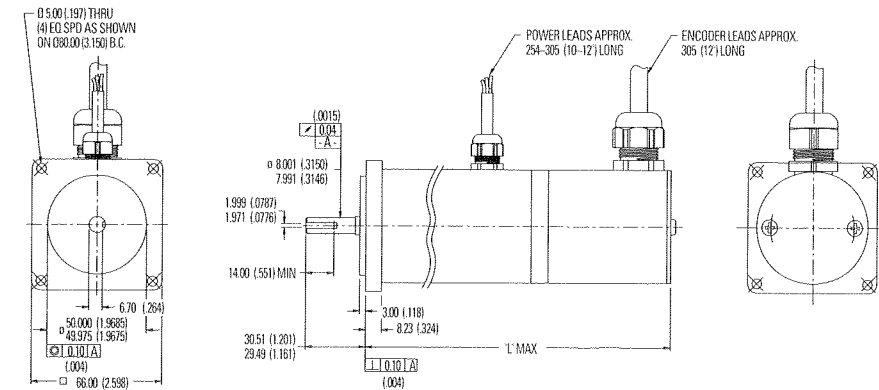
**Brake Leads to Exit with Power Leads



2" Metric Motor with Encoder

Model	"L" Max	"L" Max (Brake Option)**
SF21*M*	156.2 (6.15)	186.7 (7.35)
SF22*M*	171.5 (6.75)	201.9 (7.95)
SF23*M*	186.7 (7.35)	217.2 (8.55)
SF24*M*	201.9 (7.95)	232.4 (9.15)

**Brake Leads to Exit with Power Leads



2" Metric Motor with Resolver

Model	"L" Max	"L" Max (Brake Option)**
SF21*MR	137.7 (5.42)	168.1 (6.62)
SF22*MR	152.9 (6.02)	183.4 (7.22)
SF23*MR	168.1 (6.62)	198.6 (7.82)
SF24*MR	183.4 (7.22)	213.9 (8.42)

**Brake Leads to Exit with Power Leads

