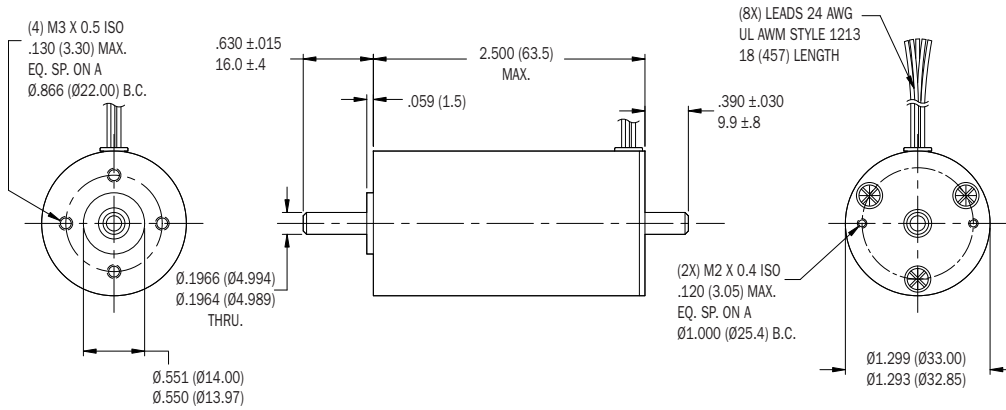


# 1303 BRUSHLESS DC SERVOMOTOR



## Motor Connection Chart

Color	Function
Brown	Motor ØA
Red	Motor ØB
Orange	Motor ØC
Grey	Sensor 1
Blue	Sensor 2
White	Sensor 3
Violet	Vcc (+5 to 24 VDC)
Black	Ground



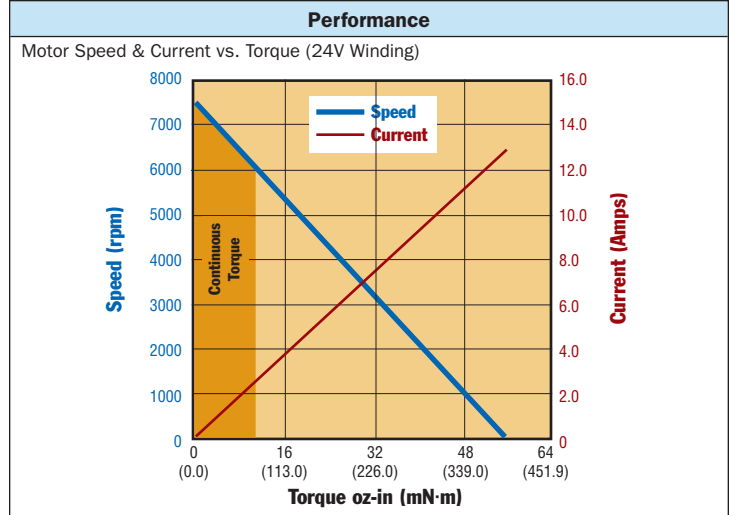
Winding Data	Symbol	Units	1303													
Reference Voltage	E	V	12.00 ✓	15.20	19.10	24.00 ✓	30.30	38.20	48.00	60.00						
Torque Constant	$K_T$	oz-in/A	2.15	2.64	3.30	4.29	5.28	6.60	8.58	10.6						
		N-m/A	0.0151	0.0186	0.0233	0.0303	0.0373	0.0466	0.0606	0.0746						
Back-EMF Constant	$K_E$	V/krpm	1.59	1.95	2.44	3.17	3.90	4.88	6.34	7.81						
		V/rad/s	0.0151	0.0186	0.0233	0.0303	0.0373	0.0466	0.0606	0.0746						
Resistance	$R_T$	$\Omega$	0.53	0.77	1.17	1.84	2.82	4.32	7.10	11.0						
Inductance	L	mH	0.26	0.39	0.62	1.0	1.6	2.5	4.2	6.3						
No-Load Current	$I_{NL}$	A	0.37	0.30	0.24	0.19	0.15	0.12	0.09	0.08						
Peak Current (Stall)	$I_{PK}$	A	23	20	16	13	11	8.8	6.8	5.5						

Motor Data	Symbol	Units	1303	
Continuous Torque (Max.) <sup>1</sup>	$T_C$	oz-in	9.0	
		N-m	0.064	
Peak Torque (Stall) <sup>2</sup>	$T_{PK}$	oz-in	54.3	
		N-m	0.383	
Motor Constant <sup>2</sup>	$K_M$	oz-in/vW	3.11	
		N-m/vW	0.0220	
No-Load Speed	$S_{NL}$	rpm	7590	
		rad/s	795	
Friction Torque	$T_F$	oz-in	0.80	
		N-m	0.0056	
Rotor Inertia	$J_M$	oz-in-s <sup>2</sup>	3.9E-04	
		kg-m <sup>2</sup>	2.7E-06	
Electrical Time Constant	$\tau_E$	ms	0.55	
Mechanical Time Constant	$\tau_M$	ms	6	
Viscous Damping—Infinite Source Impedance	D	oz-in/krpm	0.032	
		N-m/rad/s	2.2E-06	
Viscous Damping—Zero Source Impedance	$K_D$	oz-in/krpm	7.2	
		N-m/rad/s	4.8E-04	
Maximum Winding Temp.	$\theta_{MAX}$	°F	266	
		°C	130	
Thermal Impedance	$R_{TH}$	°F/watt	39	
		°C/watt	21	
Thermal Time Constant	$\tau_{TH}$	min	11	
Motor Weight (Mass)	$W_M$	oz	8.50	
		g	241	

<sup>1</sup> Continuous torque specified at 25°C ambient temperature and without additional heat sink.

<sup>2</sup> Theoretical values supplied for reference only.

✓ Available through the MotionExpress program.



### Standard Features

- Shielded Ball Bearings
- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Stator
- Hall Sensors
- Aluminum Housing

### Complementary Products (See Bulletin CP)

- G32A Planetary Gearbox
- G35A Spur Gearbox
- E30A Optical Encoder
- E35A Optical Encoder
- G32B Planetary Gearbox
- E22A Optical Encoder
- E30B Optical Encoder