

70 mm or Size 34, Encoder Feedback, Specifications

Parameter	Symbol	Units	N0701D	N0701F	N0702E	N0702F	N0703F	N0703G	N0704F	N0704G
			N0341D	N0341F	N0342E	N0342F	N0343F	N0343G	N0344F	N0344G
Stall Torque Continuous ¹	T_{cs}	lb-in	5.7	5.6	10.4	10.4	15.8	15.8	19.5	19.5
		oz-in	91	90	167	166	252	252	311	312
		Nm	0.63	0.63	1.17	1.16	1.77	1.77	2.18	2.19
Stall Current Continuous ^{1,4,8}	$I_{cs}(sine)$	Amps Peak	3.3	5.2	3.8	5.4	5.2	7.3	5.4	7.5
Stall Current Continuous ^{1,7}	$I_{cs}(trap)$	Amps DC	2.9	4.5	3.3	4.6	4.5	6.3	4.7	6.5
Peak Torque ⁶	T_{pk}	lb-in	17.0	16.8	31.2	31.1	47.3	47.3	58.4	58.6
		oz-in	272	269	500	498	757	757	934	937
		Nm	1.90	1.88	3.50	3.49	5.30	5.30	6.54	6.56
Peak Current ^{4,6,8}	$I_{pk}(sine)$	Amps Peak	10.0	15.6	11.5	16.1	15.7	21.9	16.3	22.6
Peak Current ^{6,7}	$I_{pk}(trap)$	Amps DC	8.7	13.5	10.0	13.9	13.6	19.0	14.1	19.6
Rated Speed ²	ω_r	rpm	7500	7500	7500	7500	6800	7500	5500	7500
Current @ Rated Speed	$I_r(sine)$	Amps	3.0	4.7	3.2	4.5	4.4	5.8	4.6	5.6
Current @ Rated Speed	$I_r(trap)$	Amps	2.6	4.1	2.8	3.9	3.8	5.0	4.0	4.9
Torque @ Rated Speed	T_r	lb-in	4.7	4.6	7.1	7.9	10.8	11.4	14.1	12.6
		oz-in	75	74	114	126	173	182	226	201
		Nm	0.53	0.52	0.80	0.88	1.21	1.27	1.58	1.41
Shaft Power @ Rated Speed	P_o	watts	416	411	632	699	870	1010	919	1115
Voltage Constant ^{3,4}	K_b	Volts/rad/s	0.221	0.140	0.353	0.253	0.392	0.282	0.468	0.338
Voltage Constant ^{3,4}	K_e	Volts/KRPM	23.14	14.66	36.97	26.49	41.05	29.53	49.01	35.40
Torque Constant ⁹	$K_t(sine)$	oz-in/Amp Peak	27.10	17.17	43.29	31.03	48.07	34.58	57.39	41.45
		Nm/Amp Peak	0.190	0.120	0.303	0.217	0.336	0.242	0.402	0.290
		oz-in/Amp DC	31.29	19.82	49.98	35.82	55.51	39.93	66.27	47.86
Torque Constant ^{3,4}	$K_t(trap)$	Nm/Amp DC	0.219	0.139	0.350	0.251	0.389	0.280	0.464	0.335
Resistance ³	R	Ohms	5.52	2.27	5.22	2.70	3.36	1.74	3.47	1.80
Inductance ⁵	L	mH	12.98	5.23	15.80	8.16	12.13	6.30	14.50	7.55
Maximum Bus Voltage	V_m	Volts DC	340	340	340	340	340	340	340	340
Thermal Res Wind-Amb	R_{th-w-a}	°C/watt	1.44	1.44	1.15	1.15	0.96	0.96	0.87	0.87
Motor Constant	K_m	oz-in/ \sqrt{watt}	13.32	13.16	21.88	21.80	30.28	30.27	35.57	35.67
		Nm/ \sqrt{watt}	0.093	0.092	0.153	0.153	0.212	0.212	0.249	0.250
Viscous Damping	B	oz-in/Krpm	0.2	0.2	0.4	0.4	0.6	0.6	0.8	0.8
		Nm/krpm	1.4 E-3	1.4 E-3	2.8 E-3	2.8 E-3	4.2 E-3	4.2 E-3	5.6 E-3	5.6 E-3
Static Friction	T_f	oz-in	0.8	0.8	1.6	1.6	2.4	2.4	3.2	3.2
		Nm	5.6 E-3	5.6 E-3	1.2 E-2	1.2 E-2	1.7 E-2	1.7 E-2	2.2 E-2	2.2 E-2
Motor Thermal Time Constant	τ_{th}	minutes	16.6	16.6	21.7	21.7	22.5	22.5	23.3	23.3
Electrical Time Constant	τ_{elec}	milliseconds	2.35	2.30	3.03	3.02	3.61	3.62	4.18	4.19
NeoMetric Mech. Time Const.	τ_{mch}	milliseconds	1.6	1.7	0.6	0.6	0.6	0.6	0.6	0.6
J Series Mech. Time Const.	τ_{mch}	milliseconds	14.7	14.7	5.7	5.7	3.2	3.2	N/A	N/A
Intermittent Torque Duration ¹⁰	T_{2x}	seconds	22	22	32	32	39	39	38	38
Peak Torque Duration ¹¹	T_{3x}	seconds	9	9	11	11	13	13	12	12
NeoMetric Rotor Inertia	J	lb-in-sec ²	1.1 E-4	1.1 E-4	1.7 E-4	1.7 E-4	2.4 E-4	2.4 E-4	3.1 E-4	3.1 E-4
		kg-m ²	1.2 E-5	1.2 E-5	2.0 E-5	2.0 E-5	2.7 E-5	2.7 E-5	3.5 E-5	3.5 E-5
		lb-in-sec ²	1.1 E-3	1.1 E-3	1.2 E-3	1.2 E-3	1.3 E-3	1.3 E-3	N/A	N/A
J Series Rotor Inertia	J	kg-m ²	1.3 E-4	1.3 E-4	1.4 E-4	1.4 E-4	1.5 E-4	1.5 E-4	N/A	N/A
Number of Poles	Np		4	4	4	4	4	4	4	4
NeoMetric Weight	#	lbs	3.5	3.5	4.5	4.5	6.0	6.0	7.3	7.3
		kg	1.6	1.6	2.1	2.1	2.7	2.7	3.3	3.3
J Series Weight	#	lbs	4.4	4.4	5.4	5.4	6.9	6.9	N/A	N/A
		kg	2.0	2.0	2.5	2.5	3.1	3.1	N/A	N/A
Winding Class			H	H	H	H	H	H	H	H

¹ @ 25°C ambient, 125°C winding temperature, motor connected to a 10"x10"x1/4" aluminum mounting plate.
² @40°C ambient derate phase currents and torques by 12%. Maximum speed is 7500 RPM with 500 line Encoder. For 1000 line encoders, derate to 6000RPM.
³ For higher speed operation please call the factory.
⁴ Measured Line to Line, +/- 10%.
⁵ Value is measured peak of sine wave.
⁶ +/-30%. Line-to-Line, inductance bridge measurement @1Khz.
⁷ Initial winding temperature must be 60°C or less before Peak Current is Applied.

⁷ DC current through a pair of motor phases of a trapaziodally (six state) commutated motor.
⁸ Peak of the sinusoidal current in any phase for a sinusiodally comutated motor.
⁹ Total motor torque per peak of the sinusoidal amps measured in any phase, +/-10%.
¹⁰ Maximum Time duration with 2 times rated current applied with initial winding temp at 60°C.
¹¹ Maximum Time duration with 3 times rated current applied with initial winding temp at 60°C.

Note: These specifications are based on theoretical motor performance and are not specific to any amplifier.

Servo Motors

