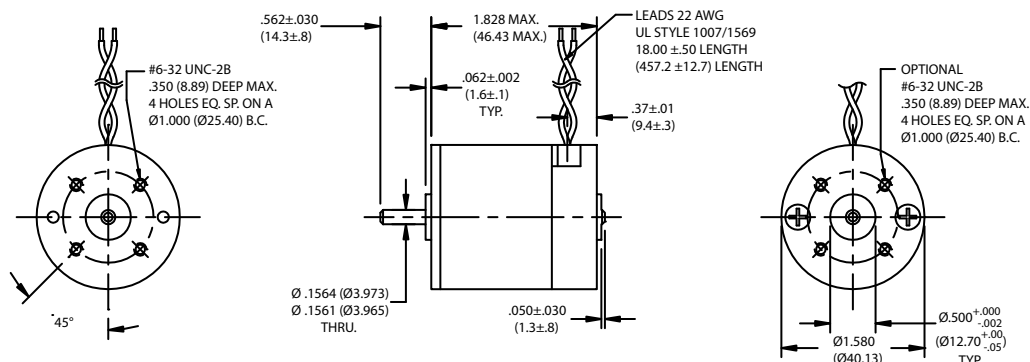
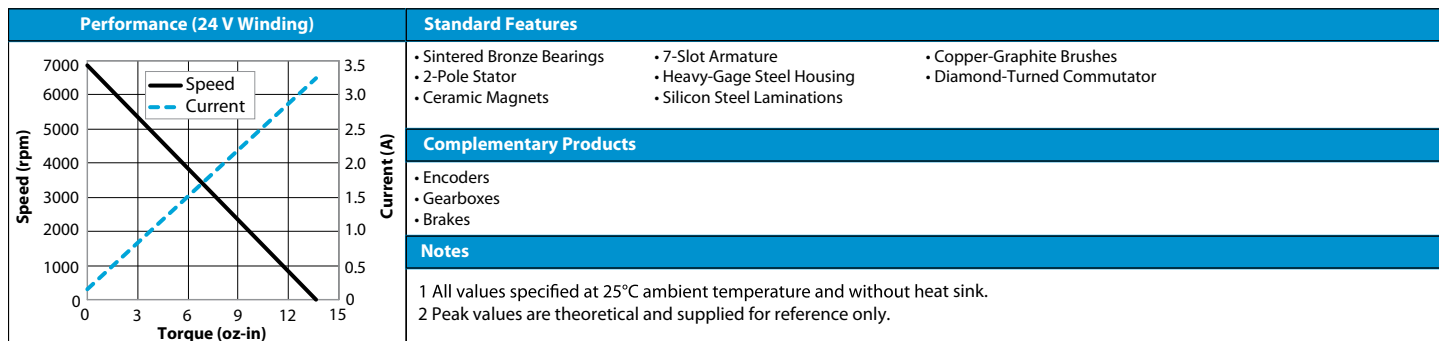


8540 Series Recommended for New Designs



		Part/Model Number							
Specification	Units	9232 9.55 V	9232 12.0 V	9232 15.2 V	9232 19.1 V	9232 24.0 V	9232 30.3 V	9232 38.2 V	9232 48.0 V
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Continuous Torque	oz-in	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	Nm	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169
Speed @ Cont. Torque	RPM	5100	5150	5280	5280	5290	5330	5320	5320
Current @ Cont. Torque	Amps (A)	1.95	1.53	1.21	0.96	0.77	0.61	0.48	0.38
Continuous Output Power	Watts (W)	9	9	9	9	9	9	9	9
Motor Constant	oz-in/sqrt W	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	Nm/sqrt W	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Torque Constant	oz-in/A	1.73	2.20	2.77	3.50	4.40	5.53	7.00	8.80
	Nm/A	0.012	0.016	0.02	0.025	0.031	0.039	0.049	0.062
Voltage Constant	V/krpm	1.28	1.63	2.05	2.59	3.25	4.09	5.18	6.51
	V/rad/s	0.012	0.016	0.02	0.025	0.031	0.039	0.049	0.062
Terminal Resistance	Ohms	1.25	1.93	2.99	4.70	7.38	11.6	18.5	29.2
Inductance	mH	0.72	1.16	1.83	2.94	4.64	7.34	11.7	18.6
No-Load Current	Amps (A)	0.41	0.32	0.25	0.20	0.16	0.13	0.10	0.080
No-Load Speed	RPM	6920	6860	6910	6880	6870	6900	6880	6880
Peak Current	Amps (A)	7.64	6.22	5.08	4.06	3.25	2.61	2.07	1.64
Peak Torque	oz-in	12.5	13.0	13.4	13.5	13.6	13.7	13.8	13.7
	Nm	0.0883	0.0918	0.0946	0.0953	0.096	0.0967	0.0974	0.0967
Coulomb Friction Torque	oz-in	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Nm	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
Viscous Damping Factor	oz-in/krpm	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
	Nm s/rad	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6
Electrical Time Constant	ms	0.58	0.60	0.61	0.63	0.63	0.63	0.63	0.63
Mechanical Time Constant	ms	16	15	15	15	15	15	14	14
Thermal Time Constant	min	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Thermal Resistance	Celsius/W	23	23	23	23	23	23	23	23
Max. Winding Temperature	Celsius	155	155	155	155	155	155	155	155
Rotor Inertia	oz-in-sec <sup>2</sup>	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027
	kg-m <sup>2</sup>	1.91E-6	1.91E-6	1.91E-6	1.91E-6	1.91E-6	1.91E-6	1.91E-6	1.91E-6
Weight (Mass)	oz	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98
	g	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9



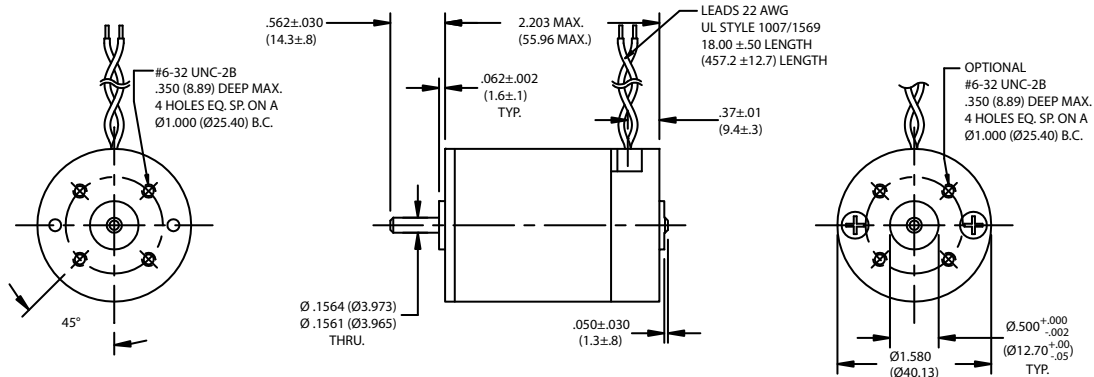
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## Brush Commutated DC Servo Motors

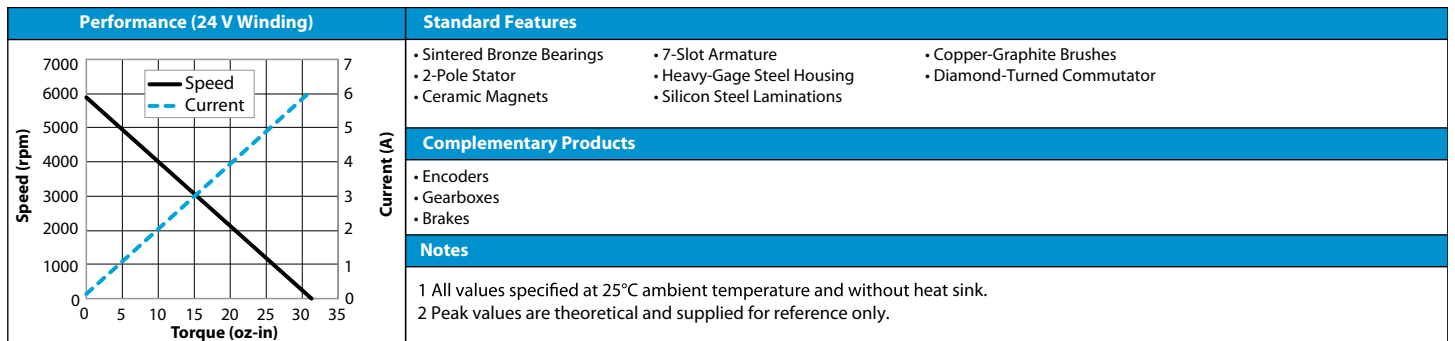
### 9233 Series

8540 Series Recommended for New Designs

# PITTMAN®



		Part/Model Number							
Specification	Units	9233 9.55 V	9233 12.0 V	9233 15.2 V	9233 19.1 V	9233 24.0 V	9233 30.3 V	9233 38.2 V	9233 48.0 V
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Continuous Torque	oz-in Nm	4.7 0.0332	4.7 0.0332	4.7 0.0332	4.7 0.0332	4.7 0.0332	4.7 0.0332	4.7 0.0332	4.7 0.0332
Speed @ Cont. Torque	RPM	4570	4650	4840	4850	4870	4890	4900	4900
Current @ Cont. Torque	Amps (A)	2.92	2.30	1.85	1.46	1.16	0.92	0.74	0.59
Continuous Output Power	Watts (W)	16	16	17	17	17	17	17	17
Motor Constant	oz-in/sqrt W	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.7
	Nm/sqrt W	0.018	0.018	0.018	0.018	0.019	0.019	0.019	0.019
Torque Constant	oz-in/A	2.10	2.67	3.31	4.20	5.28	6.68	8.40	10.6
	Nm/A	0.015	0.019	0.023	0.03	0.037	0.047	0.059	0.075
Voltage Constant	V/krpm	1.55	1.97	2.45	3.11	3.90	4.94	6.21	7.81
	V/rad/s	0.015	0.019	0.023	0.03	0.037	0.047	0.059	0.075
Terminal Resistance	Ohms	0.72	1.08	1.63	2.53	3.94	6.21	9.	15.4
Inductance	mH	0.52	0.84	1.29	2.08	3.29	5.27	8.32	13.2
No-Load Current	Amps (A)	0.38	0.30	0.24	0.19	0.15	0.12	0.10	0.080
No-Load Speed	RPM	5850	5800	5930	5880	5880	5860	5870	5870
Peak Current	Amps (A)	13.3	11.1	9.33	7.55	6.09	4.88	3.91	3.11
Peak Torque	oz-in	27.1	28.9	30.1	30.9	31.4	31.8	32.0	32.0
	Nm	0.1913	0.204	0.2125	0.2182	0.2217	0.2245	0.2259	0.2259
Coulomb Friction Torque	oz-in	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
	Nm	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
Viscous Damping Factor	oz-in/krpm	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034
	Nm s/rad	2.28E-6	2.28E-6	2.28E-6	2.28E-6	2.28E-6	2.28E-6	2.28E-6	2.28E-6
Electrical Time Constant	ms	0.72	0.78	0.79	0.82	0.84	0.85	0.85	0.85
Mechanical Time Constant	ms	11	10	10	9.3	9.2	9.1	9.0	9.0
Thermal Time Constant	min	11	11	11	11	11	11	11	11
Thermal Resistance	Celsius/W	19	19	19	19	19	19	19	19
Max. Winding Temperature	Celsius	155	155	155	155	155	155	155	155
Rotor Inertia	oz-in-sec <sup>2</sup>	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046	0.00046
	kg-m <sup>2</sup>	3.25E-6	3.25E-6	3.25E-6	3.25E-6	3.25E-6	3.25E-6	3.25E-6	3.25E-6
Weight (Mass)	oz	8.90	8.90	8.90	8.90	8.90	8.90	8.90	8.90
	g	252.3	252.3	252.3	252.3	252.3	252.3	252.3	252.3

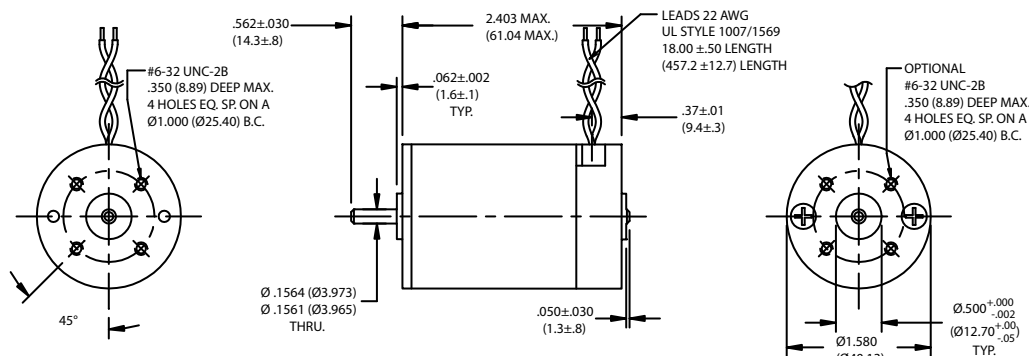
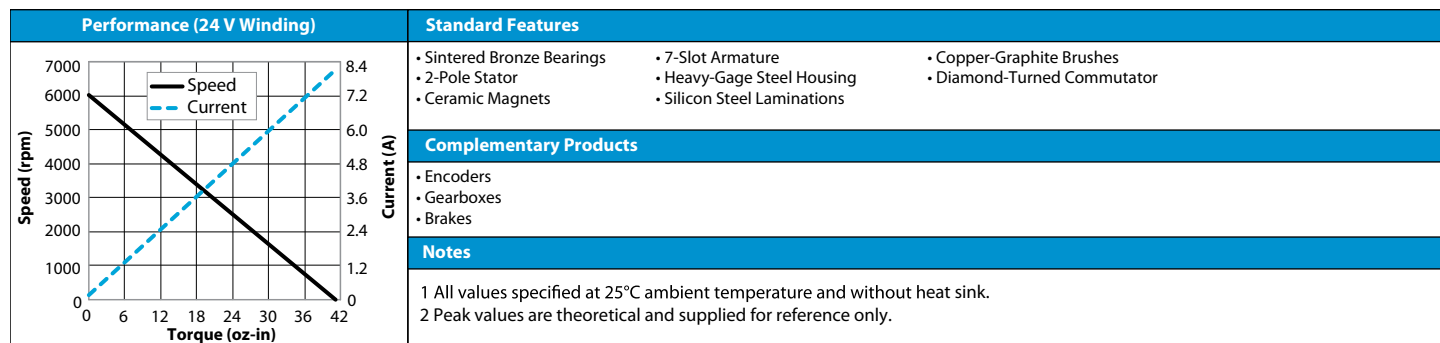


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## 9234 Series

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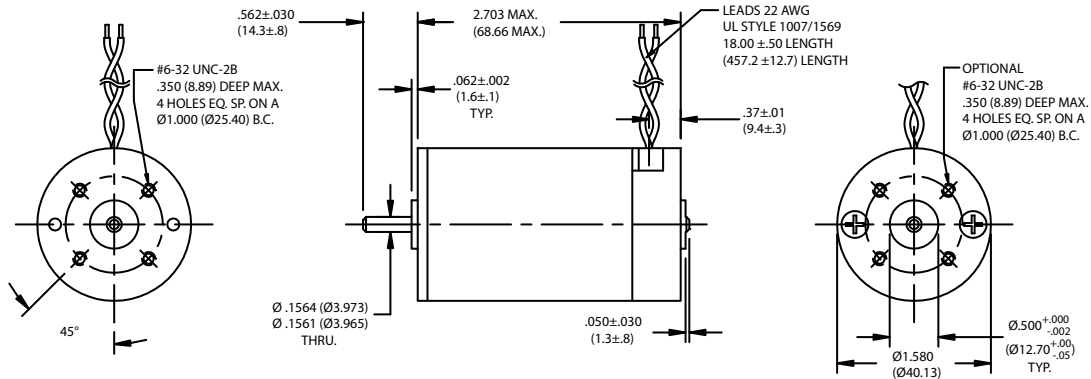
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## Brush Commutated DC Servo Motors

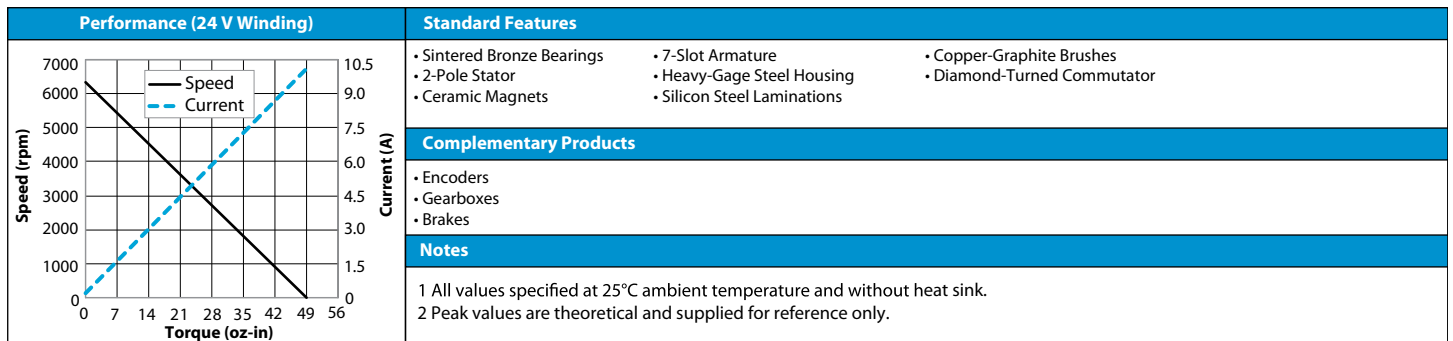
### 9235 Series

8540 Series Recommended for New Designs

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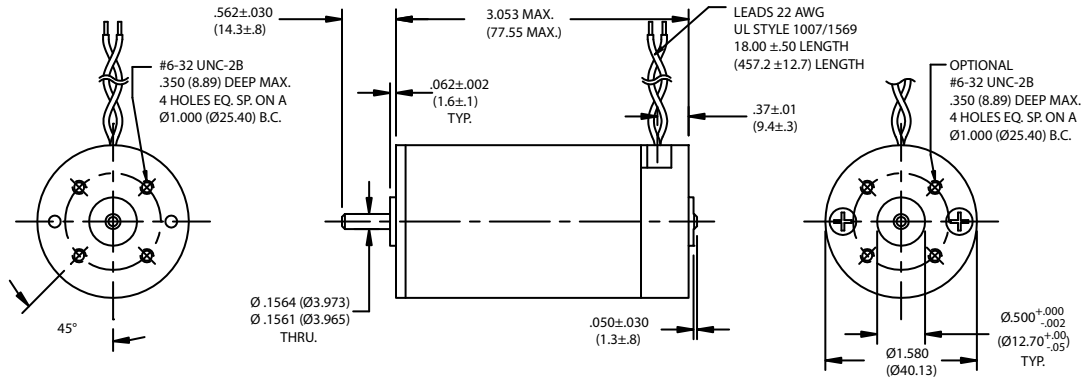


		Part/Model Number							
Specification	Units	9235 9.55 V	9235 12.0 V	9235 15.2 V	9235 19.1 V	9235 24.0 V	9235 30.3 V	9235 38.2 V	9235 48.0 V
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Continuous Torque	oz-in	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
	Nm	0.0487	0.0487	0.0487	0.0487	0.0487	0.0487	0.0487	0.0487
Speed @ Cont. Torque	RPM	4790	5090	5220	5250	5380	5390	5420	5400
Current @ Cont. Torque	Amps (A)	4.39	3.55	2.80	2.21	1.78	1.40	1.11	0.88
Continuous Output Power	Watts (W)	24	26	27	27	27	28	28	28
Motor Constant	oz-in/sqrt W	2.9	3.0	3.1	3.2	3.2	3.3	3.3	3.3
	Nm/sqrt W	0.02	0.021	0.022	0.023	0.023	0.023	0.023	0.023
Torque Constant	oz-in/A	2.00	2.47	3.14	3.99	4.94	6.27	7.89	9.98
	Nm/A	0.014	0.017	0.022	0.028	0.035	0.044	0.056	0.07
Voltage Constant	V/krpm	1.48	1.83	2.32	2.95	3.65	4.64	5.83	7.38
	V/rad/s	0.014	0.017	0.022	0.028	0.035	0.044	0.056	0.07
Terminal Resistance	Ohms	0.48	0.68	1.02	1.56	2.37	3.72	5.83	9.23
Inductance	mH	0.33	0.51	0.82	1.33	2.05	3.30	5.21	8.35
No-Load Current	Amps (A)	0.47	0.38	0.30	0.24	0.19	0.15	0.12	0.090
No-Load Speed	RPM	6180	6300	6290	6220	6320	6290	6300	6260
Peak Current	Amps (A)	19.9	17.6	14.9	12.2	10.1	8.15	6.55	5.20
Peak Torque	oz-in	38.9	42.6	45.9	47.9	49.1	50.1	50.8	51.0
	Nm	0.2746	0.3008	0.3241	0.3382	0.3466	0.3537	0.3586	0.3601
Coulomb Friction Torque	oz-in	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
	Nm	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046
Viscous Damping Factor	oz-in/krpm	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045
	Nm s/rad	3.02E-6	3.02E-6	3.02E-6	3.02E-6	3.02E-6	3.02E-6	3.02E-6	3.02E-6
Electrical Time Constant	ms	0.69	0.75	0.80	0.85	0.86	0.89	0.89	0.90
Mechanical Time Constant	ms	13	12	12	11	11	11	10	10
Thermal Time Constant	min	13	13	13	13	13	13	13	13
Thermal Resistance	Celsius/W	15	15	15	15	15	15	15	15
Max. Winding Temperature	Celsius	155	155	155	155	155	155	155	155
Rotor Inertia	oz-in-sec <sup>2</sup>	0.00079	0.00079	0.00079	0.00079	0.00079	0.00079	0.00079	0.00079
	kg-m <sup>2</sup>	5.58E-6	5.58E-6	5.58E-6	5.58E-6	5.58E-6	5.58E-6	5.58E-6	5.58E-6
Weight (Mass)	oz	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
	g	340.2	340.2	340.2	340.2	340.2	340.2	340.2	340.2

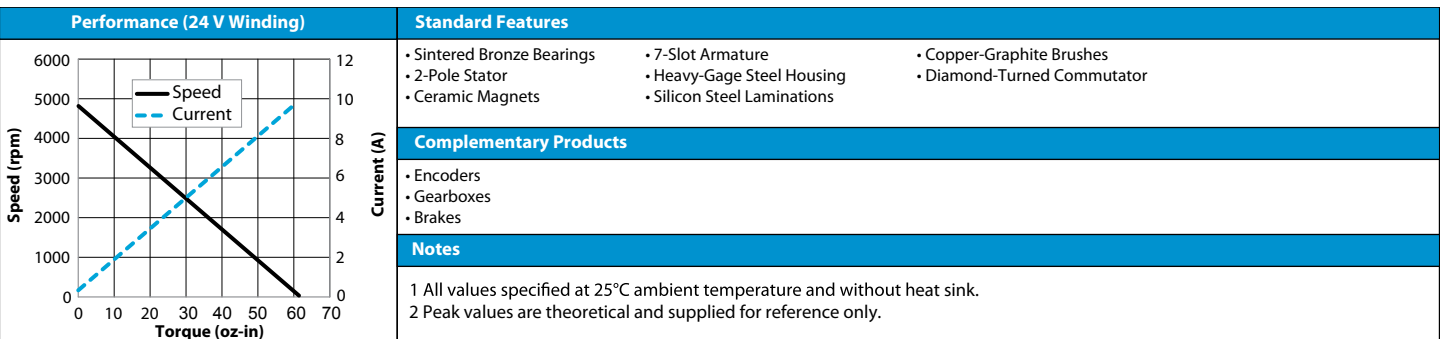


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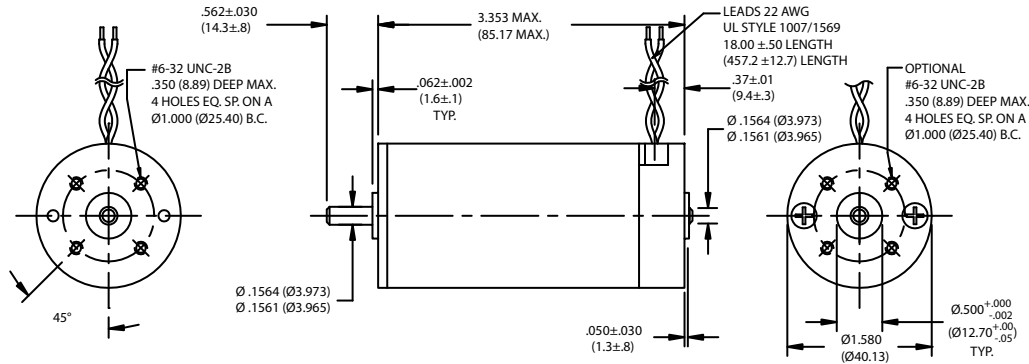
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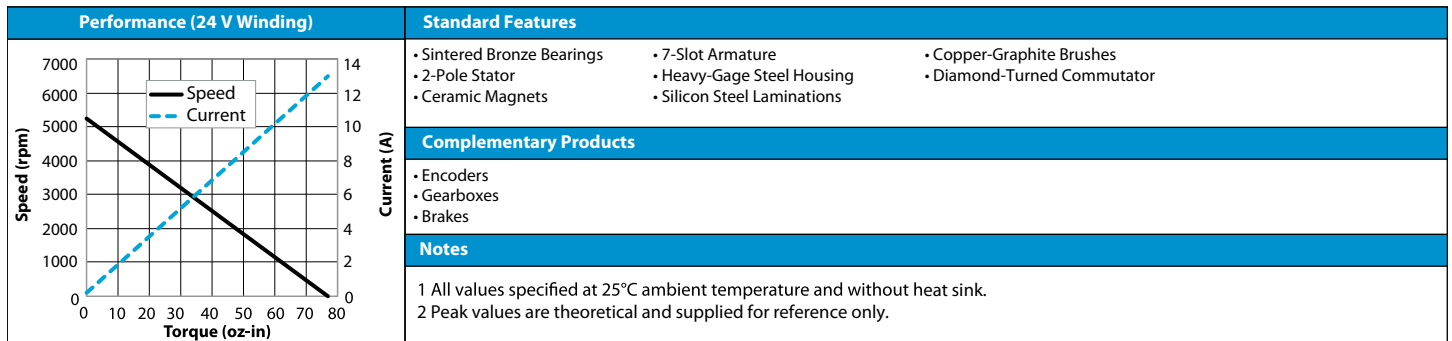
		Part/Model Number							
Specification	Units	9236 9.55 V	9236 12.0 V	9236 15.2 V	9236 19.1 V	9236 24.0 V	9236 30.3 V	9236 38.2 V	9236 48.0 V
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Continuous Torque	oz-in	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50
	Nm	0.0671	0.0671	0.0671	0.0671	0.0671	0.0671	0.0671	0.0671
Speed @ Cont. Torque	RPM	3530	3750	3850	3880	3980	3980	4010	3990
Current @ Cont. Torque	Amps (A)	4.52	3.65	2.88	2.26	1.82	1.44	1.14	0.90
Continuous Output Power	Watts (W)	25	26	27	27	28	28	28	28
Motor Constant	oz-in/sqrt W	3.7	3.9	4.0	4.1	4.1	4.2	4.2	4.2
	Nm/sqrt W	0.026	0.028	0.028	0.029	0.029	0.03	0.03	0.03
Torque Constant	oz-in/A	2.62	3.25	4.12	5.24	6.49	8.24	10.4	13.1
	Nm/A	0.019	0.023	0.029	0.037	0.046	0.058	0.073	0.093
Voltage Constant	V/krpm	1.94	2.40	3.05	3.87	4.80	6.09	7.66	9.69
	V/rad/s	0.019	0.023	0.029	0.037	0.046	0.058	0.073	0.093
Terminal Resistance	Ohms	0.50	0.71	1.07	1.64	2.49	3.91	6.14	9.72
Inductance	mH	0.43	0.66	1.06	1.72	2.63	4.24	6.70	10.7
No-Load Current	Amps (A)	0.40	0.33	0.26	0.20	0.16	0.13	0.10	0.080
No-Load Speed	RPM	4730	4800	4800	4750	4820	4790	4810	4770
Peak Current	Amps (A)	19.1	16.9	14.2	11.6	9.64	7.75	6.22	4.94
Peak Torque	oz-in	49.0	53.9	57.5	60.0	61.5	62.8	63.4	63.7
	Nm	0.3459	0.3805	0.406	0.4236	0.4342	0.4434	0.4476	0.4497
Coulomb Friction Torque	oz-in	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	Nm	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Viscous Damping Factor	oz-in/krpm	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.053
	Nm s/rad	3.56E-6	3.56E-6	3.56E-6	3.56E-6	3.56E-6	3.56E-6	3.56E-6	3.56E-6
Electrical Time Constant	ms	0.86	0.93	0.99	1.0	1.1	1.1	1.1	1.1
Mechanical Time Constant	ms	10	10	8.9	8.5	8.4	8.2	8.1	8.0
Thermal Time Constant	min	14	14	14	14	14	14	14	14
Thermal Resistance	Celsius/W	14	14	14	14	14	14	14	14
Max. Winding Temperature	Celsius	155	155	155	155	155	155	155	155
Rotor Inertia	oz-in-sec <sup>2</sup>	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
	kg-m <sup>2</sup>	7.06E-6	7.06E-6	7.06E-6	7.06E-6	7.06E-6	7.06E-6	7.06E-6	7.06E-6
Weight (Mass)	oz	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
	g	391.2	391.2	391.2	391.2	391.2	391.2	391.2	391.2



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		Part/Model Number							
Specification	Units	9237 12.0 V	9237 15.2 V	9237 19.1 V	9237 24.0 V	9237 30.3 V	9237 38.2 V	9237 48.0 V	9237 60.0 V
Supply Voltage	VDC	12.0	15.2	19.1	24.0	30.3	38.2	48.0	60.0
Continuous Torque	oz-in Nm	11.5 0.0812	11.5 0.0812	11.5 0.0812	11.5 0.0812	11.5 0.0812	11.5 0.0812	11.5 0.0812	11.5 0.0812
Speed @ Cont. Torque	RPM	4050	4310	4360	4370	4490	4490	4490	4490
Current @ Cont. Torque	Amps (A)	4.73	3.81	3.00	2.36	1.91	1.51	1.19	0.95
Continuous Output Power	Watts (W)	34	37	37	37	38	38	38	38
Motor Constant	oz-in/sqrt W	4.0	4.2	4.3	4.4	4.4	4.5	4.5	4.5
	Nm/sqrt W	0.028	0.03	0.03	0.031	0.031	0.032	0.032	0.032
Torque Constant	oz-in/A	3.00	3.72	4.72	6.00	7.43	9.40	11.9	15.0
	Nm/A	0.021	0.026	0.033	0.042	0.052	0.066	0.084	0.106
Voltage Constant	V/krpm	2.22	2.75	3.49	4.44	5.49	6.95	8.80	11.1
	V/rad/s	0.021	0.026	0.033	0.042	0.052	0.066	0.084	0.106
Terminal Resistance	Ohms	0.55	0.79	1.20	1.85	2.82	4.45	6.98	11.1
Inductance	mH	0.49	0.75	1.21	1.97	3.01	4.85	7.67	12.3
No-Load Current	Amps (A)	0.37	0.30	0.23	0.18	0.15	0.12	0.090	0.080
No-Load Speed	RPM	5210	5330	5290	5230	5330	5310	5280	5280
Peak Current	Amps (A)	21.8	19.2	15.9	13.0	10.7	8.58	6.88	5.47
Peak Torque	oz-in	64.3	70.5	74.0	76.8	78.7	79.6	80.8	80.9
	Nm	0.454	0.4977	0.5224	0.5422	0.5556	0.562	0.5704	0.5712
Coulomb Friction Torque	oz-in	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	Nm	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Viscous Damping Factor	oz-in/krpm	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
	Nm s/rad	3.69E-6	3.69E-6	3.69E-6	3.69E-6	3.69E-6	3.69E-6	3.69E-6	3.69E-6
Electrical Time Constant	ms	0.89	0.95	1.0	1.1	1.1	1.1	1.1	1.1
Mechanical Time Constant	ms	10	10	9.2	8.7	8.7	8.6	8.4	8.4
Thermal Time Constant	min	14	14	14	14	14	14	14	14
Thermal Resistance	Celsius/W	11	11	11	11	11	11	11	11
Max. Winding Temperature	Celsius	155	155	155	155	155	155	155	155
Rotor Inertia	oz-in-sec <sup>2</sup>	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
	kg-m <sup>2</sup>	8.47E-6	8.47E-6	8.47E-6	8.47E-6	8.47E-6	8.47E-6	8.47E-6	8.47E-6
Weight (Mass)	oz	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
	g	439.4	439.4	439.4	439.4	439.4	439.4	439.4	439.4



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