



Shown with optional assemblies.

DC030C Series

The DC030C Series Brush Commutated DC Motor is a 30 mm diameter unit offered in 3 lengths with continuous output torques of 0.0177 to 0.0586 Nm.

DC Brush Commutated Motors For applications that require reliability and performance with basic control. Yields high efficiencies by consuming less electricity.

Motor Characteristics

Motor Data	Units	Part No.		
		DC030C-1	DC030C-2	DC030C-3
Max DC Terminal Voltage V_T	V	48		
Max Speed (Mechanical) ω_{MAX}	rpm	10000		
Continuous Stall Torque ¹ T_{CS}	Nm	0.019	0.041	0.060
	oz-in	2.7	5.8	8.5
Peak Torque (Maximum) ¹ T_{pk}	Nm	0.068	0.22	0.36
	oz-in	9.6	31	51
Coulomb Friction Torque T_f	Nm	0.0035	0.0042	0.0049
	oz-in	0.50	0.60	0.70
Viscous Damping Factor D	Nm/(rad/s)	3.0E-06	3.4E-06	3.7E-06
	oz-in/krpm	0.045	0.050	0.055
Thermal Time Constant τ_{th}	min	10	13	16
Thermal Resistance R_{th}	°C/W	17	14	11
Max. Winding Temperature Θ_{MAX}	°C	155	155	155
Rotor Inertia J_r	kg-m ²	2.0E-06	3.7E-06	5.8E-06
	oz-in-s ²	2.9E-04	5.2E-04	8.2E-04
Motor Weight W_m	g	130	170	210
	oz	4.7	6.1	7.6

¹Recorded at maximum winding temperature at 25°C ambient and without heatsink. **For PBL4850E to operate a brush motor, an encoder is required.

Benefits

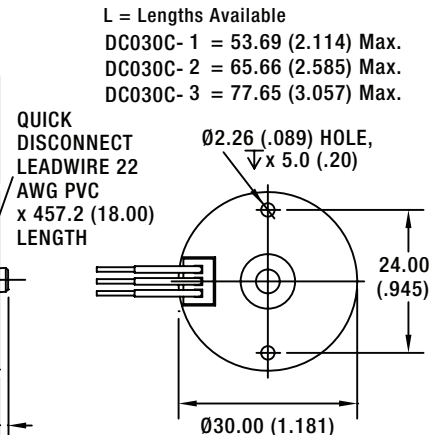
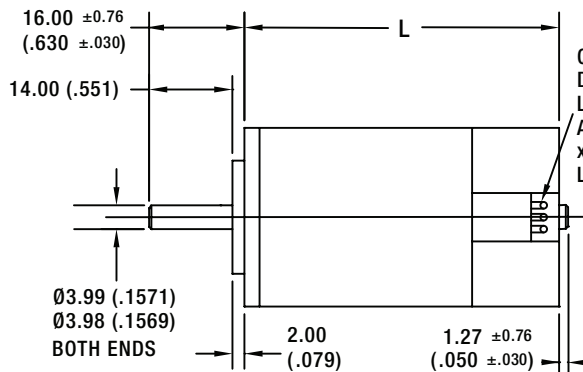
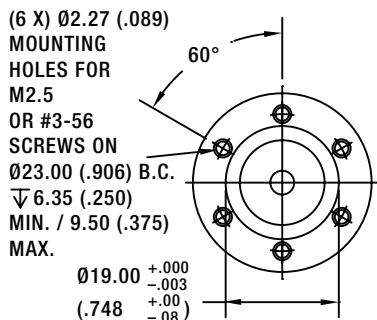
- Speeds up to 10,000 RPM possible
- DC bus voltage up to 48 VDC
- Eight standard windings, special windings available
- 2 pole stator with magnetic cogging reduction
- Bonded neodymium magnets
- 7 slot armature
- Heavy duty ball bearings
- Long life graphite brushes, RFI suppression available

Optional Assemblies

- Encoder: E30C/D
- Gearboxes: G30A, G35A, G51A
- Brake: B30A
- Programmable Drive: PBL4850E**

Dimensional Drawings: DC030C-1 • DC030C-2 • DC030C-3

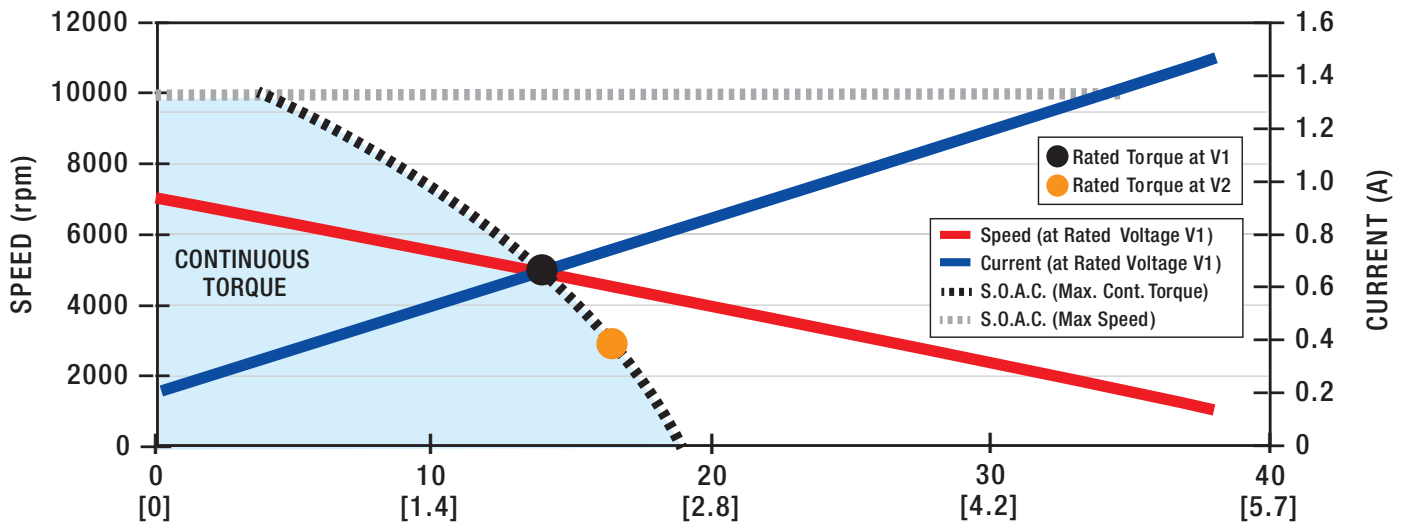
Dimensions = mm (inches)



L = Lengths Available
DC030C- 1 = 53.69 (2.114) Max.
DC030C- 2 = 65.66 (2.585) Max.
DC030C- 3 = 77.65 (3.057) Max.

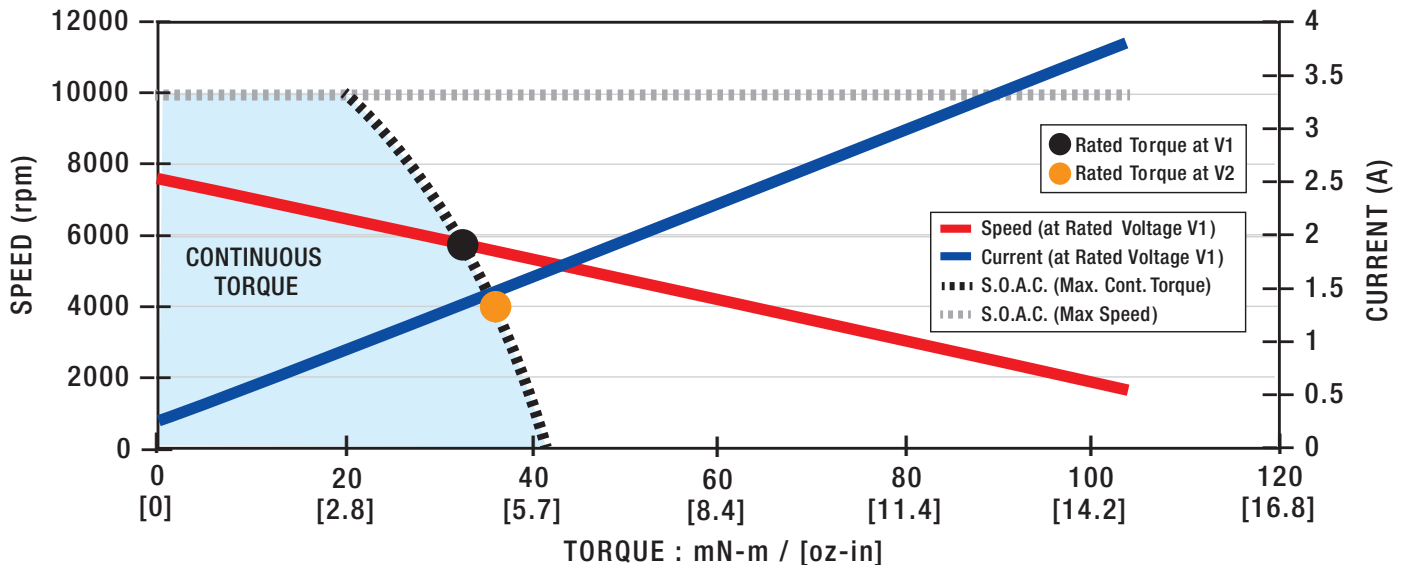
Motor Data		Units								
Rated Voltage V1	V_r	V	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Rated Torque ¹ •	T_r	Nm	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
		oz-in	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rated Speed ¹	ω_r	rpm	4850	4840	4830	4780	4830	4840	4790	4760
Rated Current ¹	I_r	A	1.7	1.3	1.0	0.83	0.66	0.52	0.41	0.33
Rated Power ¹	P_r	W	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0
No Load Speed	ω_{nl}	rpm	6820	6720	6750	6740	6740	6770	6730	6720
No Load Current	I_{nl}	A	0.46	0.36	0.29	0.23	0.18	0.15	0.12	0.090
Rated Voltage V2	V_r	V	7.58	9.55	12.0	15.2	19.1	24.0	30.3	38.2
Rated Torque ¹ •	T_r	Nm	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
		oz-in	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Rated Speed ¹	ω_r	rpm	2890	2920	2850	2870	2910	2880	2850	2850
Rated Current ¹	I_r	A	1.8	1.4	1.1	0.91	0.72	0.57	0.45	0.36
Rated Power ¹	P_r	W	4.9	5.0	4.9	4.9	5.0	4.9	4.9	4.9
No Load Speed	ω_{nl}	rpm	5350	5280	5270	5300	5300	5290	5270	5280
No Load Current	I_{nl}	A	0.43	0.33	0.27	0.21	0.17	0.14	0.11	0.083
Motor Constant	K_M	Nm/ \sqrt{W}	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
		oz-in/ \sqrt{W}	1.4	1.5	1.4	1.4	1.5	1.4	1.4	1.4
Torque Constant	K_T	Nm/A	0.0124	0.0159	0.0200	0.0251	0.0316	0.0397	0.0503	0.0633
		oz-in/A	1.76	2.24	2.83	3.56	4.48	5.63	7.13	8.97
Voltage Constant	K_E	V/(rad/s)	0.0124	0.0159	0.0200	0.0251	0.0316	0.0397	0.0503	0.0633
		V/krpm	1.30	1.66	2.09	2.63	3.31	4.16	5.27	6.63
Terminal Resistance	R_{mt}	Ω	1.50	2.37	3.81	6.08	9.50	15.1	24.3	38.6
Inductance	L	mH	1.1	1.8	2.9	4.6	7.3	12	18	29
Peak Current	I_{pk}	A	6.4	5.1	4.0	3.1	2.5	2.0	1.6	1.2
Electrical Time Constant	τ_e	ms	0.76	0.77	0.77	0.76	0.77	0.77	0.76	0.76
Mechanical Time Constant	τ_m	ms	20	19	20	20	19	20	20	20

¹Recorded at maximum winding temperature at 25°C ambient and without heatsink.



Motor Data		Units								
Rated Voltage V1	V _r	V	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Rated Torque ¹ •	T _r	Nm	0.037	0.036	0.035	0.033	0.032	0.031	0.031	0.031
		oz-in	5.3	5.2	5.0	4.7	4.5	4.4	4.4	4.4
Rated Speed ¹	ω _r	rpm	3410	4180	4960	5550	5750	6040	6010	6040
Rated Current ¹	I _r	A	3.8	2.9	2.3	1.7	1.3	1.1	0.83	0.66
Rated Power ¹	P _r	W	13	16	18	19	19	20	20	20
No Load Speed	ω _{nl}	rpm	6950	6940	7130	7110	7060	7180	7150	7150
No Load Current	I _{nl}	A	0.54	0.43	0.35	0.28	0.22	0.18	0.14	0.11
Rated Voltage V2	V _r	V	7.58	9.55	12.0	15.2	19.1	24.0	30.3	38.2
Rated Torque ¹ •	T _r	Nm	0.039	0.039	0.038	0.036	0.036	0.035	0.035	0.035
		oz-in	5.6	5.5	5.3	5.1	5.0	5.0	5.0	4.9
Rated Speed ¹	ω _r	rpm	1620	2410	3090	3740	3950	4160	4150	4210
Rated Current ¹	I _r	A	3.9	3.0	2.4	1.9	1.4	1.1	0.91	0.72
Rated Power ¹	P _r	W	6.7	9.7	12	14	15	15	15	15
No Load Speed	ω _{nl}	rpm	5460	5480	5590	5630	5590	5660	5650	5660
No Load Current	I _{nl}	A	0.50	0.40	0.32	0.26	0.20	0.16	0.13	0.11
Motor Constant	K _M	Nm/√W	0.013	0.014	0.015	0.016	0.017	0.018	0.018	0.018
		oz-in/√W	1.8	2.0	2.1	2.3	2.4	2.5	2.5	2.5
Torque Constant	K _T	Nm/A	0.0124	0.0158	0.0196	0.0248	0.0315	0.0392	0.0496	0.0624
		oz-in/A	1.76	2.23	2.77	3.52	4.46	5.54	7.02	8.83
Voltage Constant	K _E	V/(rad/s)	0.0124	0.0158	0.0196	0.0248	0.0315	0.0392	0.0496	0.0624
		V/krpm	1.30	1.65	2.05	2.60	3.30	4.10	5.19	6.53
Terminal Resistance	R _{mt}	Ω	0.960	1.29	1.71	2.27	3.33	4.90	7.83	12.2
Inductance	L	mH	0.49	0.79	1.2	2.0	3.2	5.0	8.0	13
Peak Current	I _{pk}	A	9.9	9.3	8.9	8.4	7.2	6.2	4.9	3.9
Electrical Time Constant	τ _e	ms	0.51	0.61	0.71	0.86	0.95	1.0	1.0	1.0
Mechanical Time Constant	τ _m	ms	23	19	16	14	12	12	12	12

¹Recorded at maximum winding temperature at 25°C ambient and without heatsink.



Motor Data		Units								
Rated Voltage V1	V _r	V	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Rated Torque ¹ •	T _r	Nm	0.056	0.054	0.052	0.050	0.051	0.050	0.048	0.048
		oz-in	7.9	7.7	7.3	7.1	7.2	7.0	6.8	6.7
Rated Speed ¹	ω _r	rpm	3320	4040	4620	4900	4770	4940	5140	5190
Rated Current ¹	I _r	A	4.7	3.6	2.7	2.1	1.7	1.3	1.0	0.80
Rated Power ¹	P _r	W	19	23	25	26	25	26	26	26
No Load Speed	ω _{nl}	rpm	6050	6060	6010	6070	6000	5980	6020	5980
No Load Current	I _{nl}	A	0.51	0.40	0.31	0.25	0.20	0.16	0.13	0.097
Rated Voltage V2	V _r	V	7.58	9.55	12.0	15.2	19.1	24.0	30.3	38.2
Rated Torque ¹ •	T _r	Nm	0.058	0.057	0.055	0.054	0.054	0.054	0.053	0.052
		oz-in	8.2	8.0	7.8	7.6	7.7	7.6	7.5	7.4
Rated Speed ¹	ω _r	rpm	1810	2550	3100	3410	3290	3440	3640	3710
Rated Current ¹	I _r	A	4.8	3.7	2.8	2.3	1.8	1.4	1.1	0.85
Rated Power ¹	P _r	W	11	15	18	19	19	19	20	20
No Load Speed	ω _{nl}	rpm	4770	4800	4720	4810	4760	4720	4760	4750
No Load Current	I _{nl}	A	0.47	0.38	0.29	0.24	0.19	0.15	0.12	0.090
Motor Constant	K _M	Nm/√W	0.017	0.019	0.022	0.023	0.023	0.024	0.025	0.025
		oz-in/√W	2.5	2.7	3.1	3.2	3.2	3.3	3.5	3.6
Torque Constant	K _T	Nm/A	0.0145	0.0183	0.0236	0.0294	0.0373	0.0474	0.0595	0.0752
		oz-in/A	2.06	2.60	3.34	4.17	5.29	6.71	8.42	10.7
Voltage Constant	K _E	V/(rad/s)	0.0145	0.0183	0.0236	0.0294	0.0373	0.0474	0.0595	0.0752
		V/krpm	1.52	1.92	2.47	3.08	3.91	4.96	6.23	7.88
Terminal Resistance	R _{mt}	Ω	0.700	0.900	1.17	1.66	2.74	4.04	5.87	8.98
Inductance	L	mH	0.42	0.64	1.0	1.6	2.6	4.1	6.6	10
Peak Current	I _{pk}	A	14	13	13	12	8.8	7.5	6.5	5.3
Electrical Time Constant	τ _e	ms	0.60	0.71	0.89	0.98	0.94	1.0	1.1	1.2
Mechanical Time Constant	τ _m	ms	19	16	12	11	11	10	9.6	9.2

¹Recorded at maximum winding temperature at 25°C ambient and without heatsink.

