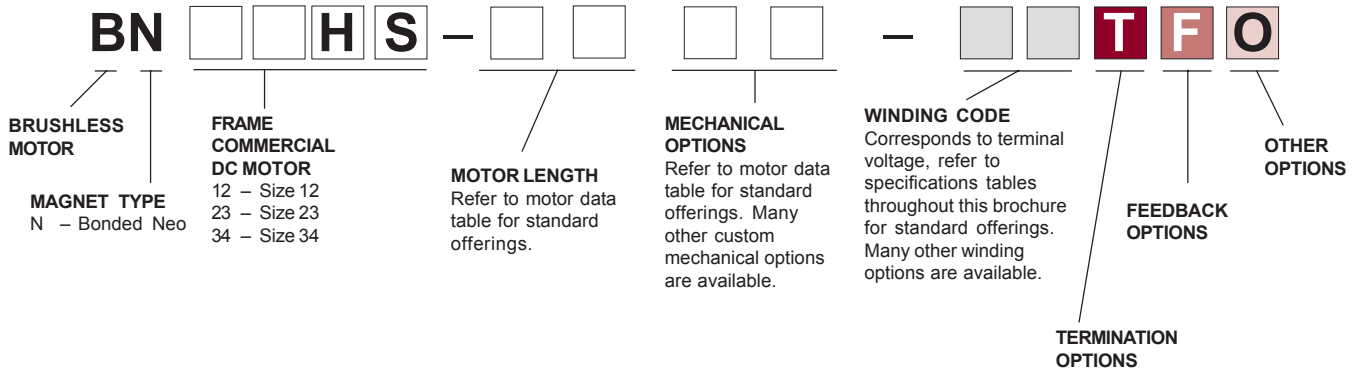


Brushless Motors

SPECIFICATION AND NUMBERING SYSTEM

Part Numbering System Guide



BN12HS SPECIFICATIONS -

Continuous Stall Torque 1.2 - 4.5 oz-in (0.0088 - 0.0318 Nm)
Peak Torque 5 - 27 oz-in (0.0353 - 0.1907 Nm)

Part Number*		BN12HS-13AF- <input type="checkbox"/> <input type="checkbox"/> TFO			BN12HS-18AF- <input type="checkbox"/> <input type="checkbox"/> TFO			BN12HS-23AF- <input type="checkbox"/> <input type="checkbox"/> TFO			BN12HS-28AF- <input type="checkbox"/> <input type="checkbox"/> TFO		
Winding Code**		01	02	03	01	02	03	01	02	03	01	02	03
L = Length	inches	1.30			1.80			2.30			2.80		
	millimeters	33.0			45.7			58.4			71.1		
Terminal Voltage	volts DC	12.0	24.0	36.0	12.0	24.0	36.0	12.0	24.0	36.0	12.0	24.0	36.0
Peak Torque	oz-in	5.0	5.0	5.0	11.0	11.0	12.0	18.0	20.0	20.0	27.0	27.0	27.0
	Nm	0.0353	0.0353	0.0353	0.0777	0.0777	0.0847	0.1271	0.1412	0.1412	0.1907	0.1907	0.1907
Continuous Stall Torque	oz-in	1.2	1.3	1.3	2.0	2.0	2.0	3.2	3.6	3.6	4.3	4.4	4.5
	Nm	0.0088	0.0092	0.0092	0.0141	0.0141	0.0141	0.0229	0.0254	0.0254	0.0304	0.0311	0.0318
Rated Speed	RPM	26000.00	35670.0	27570.0	23520.0	22800.0	24520.0	19650.0	20500.0	22740.0	20050.0	20270.0	18450.0
	rad/sec	2723	3735	2887	2463	2388	2568	2058	2147	2381	2100	2123	1932
Rated Torque	oz-in	1.2	1.2	1.2	2.0	2.0	2.0	3.0	3.3	3.3	3.9	4.0	4.2
	Nm	0.0085	0.0083	0.0083	0.0138	0.0141	0.0141	0.0212	0.0233	0.0233	0.0275	0.0282	0.0297
Rated Current	Amps	2.50	1.40	1.00	3.90	2.00	1.40	5.00	2.70	2.00	6.30	3.20	2.10
Rated Power	watts	21.00	22.0	24.00	34.0	34.0	37.0	44.0	50.0	55.0	58.0	60.0	57.0
Torque Sensitivity	oz-in/amp	0.44	0.89	1.27	0.51	1.05	1.50	0.62	1.25	1.72	0.64	1.28	2.07
	Nm/amp	0.0031	0.0063	0.0090	0.0036	0.0074	0.0106	0.0044	0.0088	0.0121	0.0045	0.0090	0.0146
Back EMF	volts/KRPM	0.32	0.66	0.94	0.38	0.78	1.11	0.46	0.92	1.27	0.48	0.95	1.53
	volts/rad/sec	0.0031	0.0063	0.0090	0.0036	0.0074	0.0106	0.0044	0.0088	0.0121	0.0045	0.0090	0.0146
Terminal Resistance	ohms	0.92	3.69	7.45	0.56	2.25	4.52	0.42	1.32	2.54	0.28	1.04	2.63
Terminal Inductance	mH	0.27	1.11	2.28	0.17	0.70	1.43	0.14	0.54	1.01	0.10	0.42	1.08
Motor Constant	oz-in/sq.rt.watt	0.46	0.46	0.47	0.68	0.70	0.71	0.96	1.09	1.08	1.21	1.26	1.28
	Nm/sq.rt.watt	0.00324	0.00327	0.00329	0.00481	0.00494	0.00498	0.00676	0.00768	0.00762	0.00854	0.00886	0.00901
Rotor Inertia	oz-in-sec ² x10 ⁻³	0.02	0.02	0.02	0.04	0.04	0.04	0.06	0.06	0.06	0.08	0.08	0.08
	g-cm ²	1.4	1.4	1.4	2.8	2.8	2.8	4.0	4.2	4.2	5.4	5.6	5.6
Weight	oz	5.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0	9.0	9.0	9.0
	g	142.0	142.0	142.0	170.4	170.4	170.4	198.8	198.8	198.8	255.6	255.6	255.6
# of Poles		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Timing		120°	120°	120°	120°	120°	120°	120°	120°	120°	120°	120°	120°
Mech. Time Constant	ms	13.5	13.2	13.1	12.2	11.6	11.4	8.8	7.2	7.3	7.4	7.2	6.9
Electrical Time Constant	ms	0.29	0.30	0.31	0.30	0.31	0.32	0.33	0.41	0.40	0.36	0.40	0.41
Thermal Resistivity	deg. C/watt	15.2	42.5	8.8	8.2	7.4	7.4	6.4	7.1	6.4	5.9	6.2	5.7
Speed/Torque Gradient	rpm/oz-in	6534.1	6281.9	6240.6	2889.6	2747.3	2714.7	1472.7	1147.8	1162.8	911.5	855.3	830.4

Notes:

- Motor mounted to a 4" x 4" x 1/4" aluminum plate, still air.
- Maximum winding temperature of 155°C.
- Typical electrical specifications at 25°C.
- Motor Terminal Voltages are representative only; motors may be operated at voltages other than those listed in the table. For assistance please contact an applications engineer.

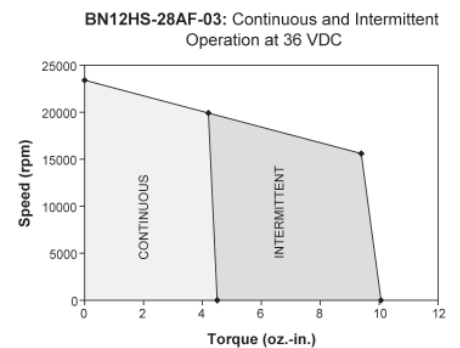
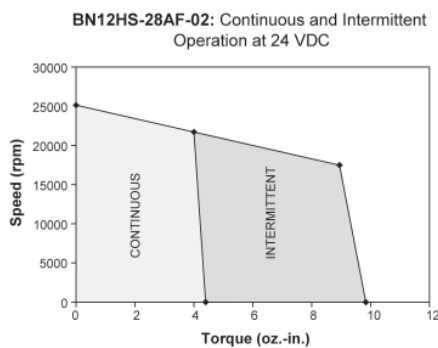
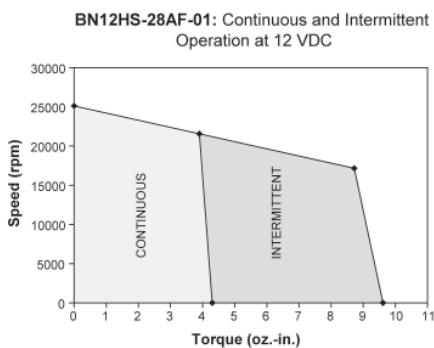
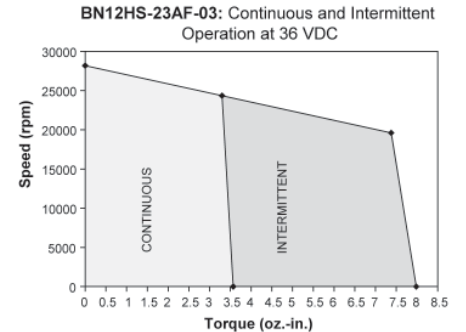
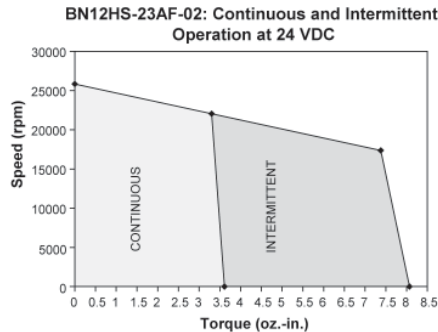
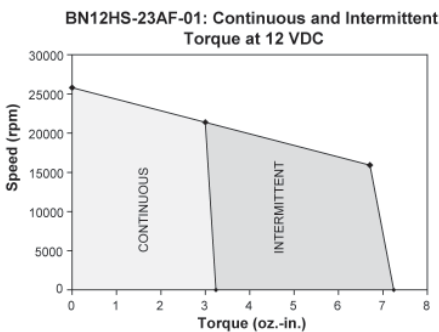
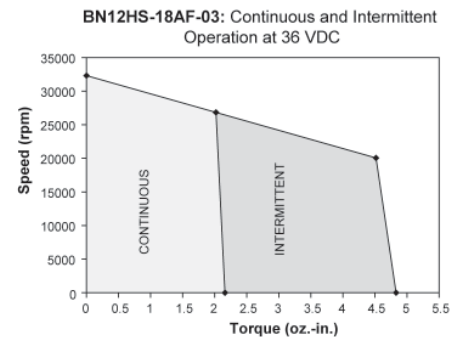
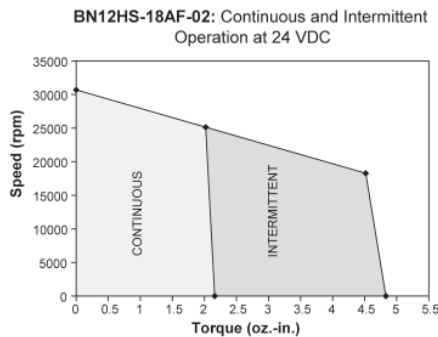
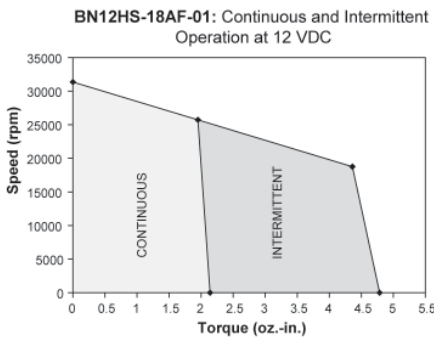
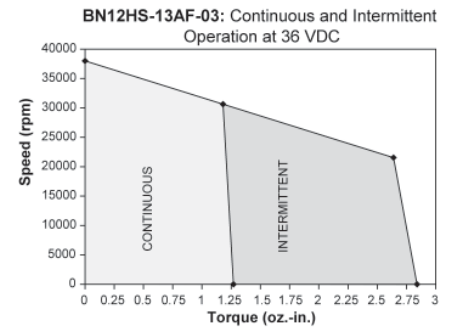
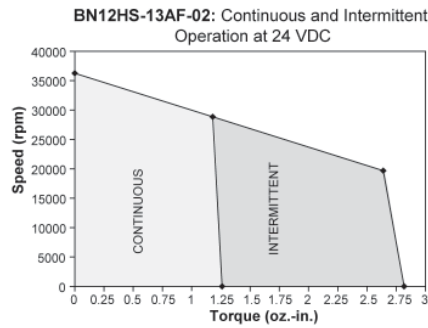
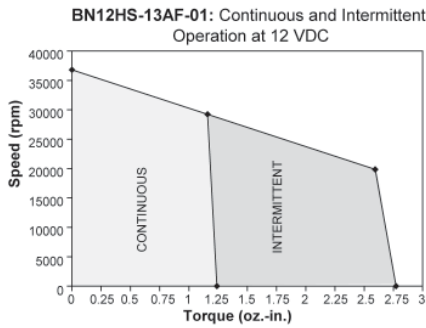
*Many other custom mechanical options are available – consult factory.

**Many other winding options are available – consult factory.

Select your options below and place their code in its corresponding block as shown above.

- | | | |
|-----------------------------|----------------------------------|-------------------------------|
| T TERMINATION | F FEEDBACK OPTIONS | O OTHER OPTIONS |
| L – Leads (std) | H – Hall Effect (std) | D – Drive |
| C – Connector | R – Resolver | E – Encoder |
| M – MS Connector | S – Sensorless | G – Gearhead |

BN12 Performance Curves



Note: Intermittent operation is based on a 20% duty cycle of one minute on, four minutes off.
Please contact the factory regarding the duty cycle of your application.

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