

**P16 Series Connected Coil Performance Specification**

<b>General and 6 Lead Motor Specifications</b>	<b>UNITS</b>	<b>Dash #</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Force Constant	lb <sub>f</sub> /A		1.5	3.0	6.0	9.0	12.0
	N/A		6.7	13.4	26.7	40.1	53.5
Max Operating Temperature	°C		130	130	130	130	130
Maximum Temp. Rise	°C		105	105	105	105	105
Coil Resistance (6 lead @ 25°C)	Ω		4.3	8.6	17.1	25.7	34.2
Coil Resistance (6 lead @ Max. °C)	Ω		6.0	12.1	24.2	36.3	48.4
Inductance @ 1kHz	mH		0.8	1.7	3.3	5.0	6.7
Thermal Resistance (Bracket Top Mount)	°C/W		2.40	1.20	0.60	0.40	0.30
Continuous Power Top Mount (Max. °C)	W		44	88	175	263	350
Thermal Resistance, side mount (SP23, 1" hole spacing)	°C/W		2.70	1.35	0.68	0.45	0.34
Continuous Power using Side Mount (Max. °C)	W		39	78	156	233	311
Continuous Power, top mount to plate**(Max. °C)	W		28.6	46.3	74.3	99.5	123.6
Motor Constant	lb <sub>f</sub> /sqrt(W)		0.7	1.1	1.5	1.8	2.1
	N/sqrt(W)		3.33	4.71	6.66	8.16	9.42
Peak Power (Max. °C, 10% Duty)	W		438	875	1750	2625	3500
Back EMF Constant	V/inch/s		0.17	0.34	0.68	1.02	1.36
	V/m/s		6.7	13.4	26.7	40.1	53.5
Electrical Time Constant (@ 25°C)	ms		0.19	0.19	0.19	0.19	0.19
(@ 130°C)	ms		0.14	0.14	0.14	0.14	0.14
Maximum Line to Line Voltage	Vrms		500	500	500	500	500
Coil Weight	Pounds		0.10	0.20	0.40	0.60	0.80
	Kilograms		0.05	0.09	0.18	0.27	0.36
Coil length (inside magnet track without HED)	inch		1.21	2.41	4.81	7.21	9.61
HED increases coil length by 1.48 inch (37.6mm)	mm		30.7	61.2	122.2	183.1	244.1
Coil bracket length (without HED option)	inch		2.41	3.61	6.01	8.41	10.81
HED increases bracket length by .28inch, (7.1mm)	mm		61.2	91.7	152.7	213.6	274.6
<b>Delta Connected Specifications</b>	<b>UNITS</b>	<b>Dash #</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Force Constant	lb <sub>f</sub> /A		1.5	3.0	6.0	9.0	12.0
	N/A		6.7	13.4	26.7	40.1	53.5
Phase Resistance (Δ @ 25°C)	Ω		2.85	5.70	11.40	17.10	22.80
Phase Resistance (Δ @ Max. °C)	Ω		4.03	8.06	16.12	24.18	32.23
Inductance @ 1kHz	mH		0.6	1.1	2.2	3.3	4.4
Continuous Force	lb <sub>f</sub>		5.0	9.9	19.8	29.7	39.6
	N		22.0	44.1	88.1	132.2	176.2
Continuous Current	A		3.30	3.30	3.30	3.30	3.30
Peak Force*	lb <sub>f</sub>		16	31	63	94	125
	N		70	139	279	418	557
Peak Current*	A		10.42	10.42	10.42	10.42	10.42
Continuous Force, aluminum plate heat sink** (see below)	lb <sub>f</sub>		4.0	7.2	12.9	18.3	23.5
	N		17.8	32.0	57.4	81.4	104.7
Back EMF Constant	V/inch/s		0.2	0.3	0.7	1.0	1.4
	V/m/s		6.7	13.4	26.7	40.1	53.5
<b>WYE connected Specifications</b>	<b>UNITS</b>	<b>Dash #</b>	<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Force Constant	lb <sub>f</sub> /A		2.6	5.2	10.4	15.6	20.8
	N/A		11.6	23.2	46.3	69.5	92.6
Phase Resistance (Ψ @ 25°C)	Ω		8.55	17.10	34.20	51.30	68.40
Phase Resistance (Ψ @ Max. °C)	Ω		12.09	24.18	48.35	72.53	96.70
Inductance @ 1kHz	mH		1.7	3.3	6.7	10.0	13.3
Continuous Force	lb <sub>f</sub>		5.0	9.9	19.8	29.7	39.6
	N		22.0	44.1	88.1	132.2	176.2
Continuous Current	A		1.90	1.90	1.90	1.90	1.90
Peak Force*	lb <sub>f</sub>		16	31	63	94	125
	N		70	139	279	418	557
Peak Current*	A		6.02	6.02	6.02	6.02	6.02
Continuous Force, aluminum plate heat sink** (see below)	lb <sub>f</sub>		4.0	7.2	12.9	18.3	23.5
	N		17.8	32.0	57.4	81.4	104.74
Back EMF Constant	V/inch/s		0.3	0.6	1.2	1.8	2.4
	V/m/s		11.6	23.2	46.3	69.5	92.6

**\* Notes:**

Specifications based on heat sink maintained within 10°C of ambient temperature at motor bracket interface.

Dash 4 and larger coils may be constructed in multiple segments. Contact factory for availability.

On time of "Peak Power" (duration) less than 10 seconds.

Back EMF plus IR drop must not exceed "Maximum Terminal Voltage" listed.

Electrical cycle length is 1.2 inch (30.5mm).

Resistance Specifications do not include the cable resistance.

Custom cable required for peak current exceeding 17 ampere.

Cable adds 0.22Ω/m to 6-lead resistance, 0.146Ω/m to Delta resistance and 0.44Ω/m to WYE resistance.

\*\* Heat Sink is a 12" wide, 1/2" thick aluminum plate, extending 2" beyond each end of the coil bracket, in 258C free air.

Magnet Track weight is 4kg/m (2.7 pounds/foot).