



POWERED BY INNOVATION

P15 Parallel Connected Coil Performance Specification

General and 6 Lead Motor Specifications	UNITS	Dash #	1	2	3	4	5	6
Force Constant	lb <sub>f</sub> /A		1.7	3.4	5.1	6.8	8.5	10.2
	N/A		7.5	15.1	22.6	30.1	37.7	45.2
Max Operating Temperature	°C		130	130	130	130	130	130
Maximum Temp. Rise	°C		105	105	105	105	105	105
Coil Resistance (6 lead @ 25°C)	Ω		3.1	6.2	9.4	12.5	15.6	18.7
Coil Resistance (6 lead @ Max. °C)	Ω		4.4	8.8	13.2	17.6	22.0	26.4
Inductance @ 1kHz	mH		0.8	1.6	2.4	3.2	4.0	4.8
Thermal Resistance (Bracket Top Mount)	°C/W		1.69	0.85	0.56	0.42	0.34	0.28
Continuous Power Top Mount (Max. °C)	W		62	124	186	248	310	372
Thermal Resistance, side mount (SP23, 1" hole spacing)	°C/W		2.37	1.19	0.79	0.59	0.47	0.40
Continuous Power using Side Mount (Max. °C)	W		44	89	133	177	222	266
Continuous Power, top mount to plate**(Max. °C)	W		38.0	63.3	86.1	108.0	129.4	150.6
Motor Constant	lb <sub>f</sub> /sqrt(W)		0.99	1.40	1.71	1.98	2.21	2.42
	N/sqrt(W)		4.39	6.21	7.61	8.79	9.82	10.76
Peak Power (Max. °C, 10% Duty)	W		620	1240	1861	2481	3101	3721
Back EMF Constant	V/inch/s		0.19	0.38	0.57	0.76	0.96	1.15
	V/m/s		7.5	15.1	22.6	30.1	37.7	45.2
Electrical Time Constant (@ 25°C)	ms		0.26	0.26	0.26	0.26	0.26	0.26
(@ 130°C)	ms		0.18	0.18	0.18	0.18	0.18	0.18
Maximum Line to Line Voltage	Vrms		500	500	500	500	500	500
Coil Weight	Pounds		0.31	0.62	0.93	1.24	1.55	1.86
	Kilograms		0.14	0.28	0.42	0.56	0.70	0.85
Coil length (inside magnet track without HED)	inch		2.41	4.81	7.21	9.61	12.01	14.41
HED increases coil length by 1.48 inch (37.6mm)	mm		61.2	122.2	183.1	244.1	305.1	366.0
Coil bracket length (without HED option)	inch		3.61	6.01	8.41	10.81	13.21	15.61
HED increases bracket length by .28inch, (7.1mm)	mm		91.7	152.7	213.6	274.6	335.5	396.5
<b>Delta Connected Specifications</b>	<b>UNITS</b>	<b>Dash #</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Force Constant	lb <sub>f</sub> /A		1.7	3.4	5.1	6.8	8.5	10.2
	N/A		7.5	15.1	22.6	30.1	37.7	45.2
Phase Resistance (Δ @ 25°C)	Ω		2.08	4.16	6.24	8.32	10.39	12.47
Phase Resistance (Δ @ Max. °C)	Ω		2.94	5.88	8.82	11.76	14.69	17.63
Inductance @ 1kHz	mH		0.5	1.1	1.6	2.1	2.6	3.2
Continuous Force	lb <sub>f</sub>		7.8	15.6	23.3	31.1	38.9	46.7
	N		34.6	69.2	103.8	138.4	173.0	207.6
Continuous Current	A		4.59	4.59	4.59	4.59	4.59	4.59
Peak Force*	lb <sub>f</sub>		25	49	74	98	123	148
	N		109	219	328	438	547	656
Peak Current*	A		14.5	14.5	14.5	14.5	14.5	14.5
Continuous Force, aluminum plate heat sink** (see below)	lbf		6.1	11.1	15.9	20.5	25.1	29.7
	N		27.1	49.4	70.6	91.3	111.8	132.1
Back EMF Constant	V/inch/s		0.2	0.4	0.6	0.8	1.0	1.1
	V/m/s		7.5	15.1	22.6	30.1	37.7	45.2
<b>WYE connected Specifications</b>	<b>UNITS</b>	<b>Dash #</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Force Constant	lb <sub>f</sub> /A		2.9	5.9	8.8	11.7	14.7	17.6
	N/A		13.0	26.1	39.1	52.2	65.2	78.3
Phase Resistance (Ψ @ 25°C)	Ω		6.24	12.47	18.71	24.95	31.18	37.42
Phase Resistance (Ψ @ Max. °C)	Ω		8.82	17.63	26.45	35.27	44.08	52.90
Inductance @ 1kHz	mH		1.4	2.8	4.1	5.5	6.9	8.3
Continuous Force	lb <sub>f</sub>		7.8	15.6	23.3	31.1	38.9	46.7
	N		34.6	69.2	103.8	138.4	173.0	207.6
Continuous Current	A		2.65	2.65	2.65	2.65	2.65	2.65
Peak Force*	lb <sub>f</sub>		25	49	74	98	123	148
	N		109	219	328	438	547	656
Peak Current*	A		8.39	8.39	8.39	8.39	8.39	8.39
Continuous Force, aluminum plate heat sink** (see below)	lbf		6.1	11.1	15.9	20.5	25.1	29.7
	N		27.1	49.4	70.6	91.3	111.8	132.1
Back EMF Constant	V/inch/s		0.3	0.7	1.0	1.3	1.7	2.0
	V/m/s		13.0	26.1	39.1	52.2	65.2	78.3

\* Notes:

- Specifications based on heat sink maintained within 10°C of ambient temperature at motor bracket interface.
- Dash 6 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 25°C free air.
- Magnet Track weight is 4.2kg/m (2.8 pounds/foot).
- Shaded column indicates "Special" model.