

138 Iron Core Linear Motor Double Parallel		Connection Specification			
General Motor Specifications	UNITS	Dash #	4	8	12
Attractive Preload Force using 0.5mm[.02"] clearance gap	N		598	1196	1794
	Lbf		134	269	403
Attractive Preload Force using 1.0mm[.04"] clearance gap	N		254	508	762
	Lbf		57	114	171
Max Operating Temperature	°C		125	125	125
Maximum Temp. Rise	°C		105	105	105
Coil Resistance (6 lead @ 25°C)	Ω		1.04	2.08	3.12
Coil Resistance (6 lead @ Max. °C)	Ω		1.47	2.94	4.41
Inductance @ 1kHz	mH		1	2	3
Thermal Resistance (Bracket Top Mount)	°C/W		0.14	0.07	0.05
Continuous Power Top Mount (Max. °C)	W		737	1474	2211
Continuous Power, top mount to plate**(Max. °C)	W		367	734	1101
Motor Constant	lb _f /sqrt(W)		0.9	1.3	1.5
	N/sqrt(W)		3.9	5.6	6.8
Peak Power (Max. °C, 10% Duty)	W		7368	14737	22105
Electrical Time Constant (@ 25°C)	ms		0.9	0.9	0.9
Maximum Line to Line Voltage	Vrms		670	670	670
Coil Weight	Pounds		1.8	3.7	5.6
	Kilograms		0.8	1.7	2.5
Coil length (inside magnet track without HED)	inch		9.61	19.21	28.81
HED increases coil length by 1.48 inch (37.6mm)	mm		244	488	732
Delta Connected Specifications	UNITS	Dash #	4	8	12
Force Constant using 0.5mm[.02"] clearance gap	N/A		5.7	11.5	17.2
	lb _f /A		1.3	2.6	3.9
Force Constant using 1mm[.04"] clearance gap	N/A		5.3	10.6	15.8
	lb _f /A		1.2	2.4	3.6
Phase Resistance (Δ @ 25°C)	Ω		0.7	1.4	2.1
Phase Resistance (Δ @ Max. °C)	Ω		1.0	2.0	2.9
Inductance @ 1kHz	mH		0.6	1.2	1.8
Continuous Force using 0.5mm[.02"] clearance gap	N		106.8	213.6	320.4
	lb _f		24.0	48.0	72.0
Continuous Force using 1.0mm[.04"] clearance gap	N		98.3	196.5	294.8
	lb _f		22.1	44.2	66.3
Continuous Current	A		18.6	18.6	18.6
Peak Force* using 0.5mm[.02"] clearance gap	N		498	996	1494
	lb _f		112	224	336
Peak Force* using 1.0mm[.04"] clearance gap	N		458	916	1374
	lb _f		103	206	309
Peak Current*	A		86.7	86.7	86.7
Continuous Force, aluminum plate heat sink** (see below)	N		111.1	222.2	333.4
	lbf		25.0	50.0	74.9
Back EMF Constant using 0.5mm[.02"] clearance gap	V/m/s		5.7	11.5	17.2
	V/in/s		0.1	0.3	0.4
WYE connected Specifications	UNITS	Dash #	4	8	12
Force Constant using 0.5mm[.02"] clearance gap	N/A		9.9	19.9	29.8
	lb _f /A		2.2	4.5	6.7
	N/A		9.2	18.3	27.5
Force Constant using 1.0mm[.04"] clearance gap	lb _f /A		2.1	4.1	6.2
Phase Resistance (Ψ @ 25°C)	Ω		2.1	4.2	6.2
Phase Resistance (Ψ @ Max. °C)	Ω		2.9	5.9	8.8
Inductance @ 1kHz	mH		1.8	3.6	5.4
Continuous Force using 0.5mm[.02"] clearance gap	N		106.8	213.6	320.4
	lb _f		24.0	48.0	72.0
Continuous Force using 0.5mm[.02"] clearance gap	N		98.3	196.5	294.8
	lb _f		22.1	44.2	66.3
Continuous Current	A		10.74	10.74	10.74
Peak Force* using 0.5mm[.02"] clearance gap	N		498	996	1494
	lb _f		112	224	336
Peak Force* using 1.0mm[.04"] clearance gap	N		458	916	1374
	lb _f		103	206	309
Peak Current*	A		50.1	50.1	50.1
Continuous Force, aluminum plate heat sink** (see below)	N		111.1	222.2	333.4
	lbf		25.0	50.0	74.9
Back EMF Constant using 0.5mm[.02"] clearance gap	V/m/s		9.9	19.9	29.8
	V/inch/s		0.3	0.5	0.8

* Notes:

Specifications based on heat sink maintained within 10°C of ambient temperature at motor bracket interface.
 On time of "Peak Power" (duration) less than 1 second at peak current listed.
 Back EMF plus IR drop must not exceed "Maximum Terminal Voltage" listed.
 Electrical cycle length is mm. Skewed Track Cogging force estimated at 45N.
 Resistance Specifications do not include the cable resistance.
 Cogging force due to magnet saliency is about 45N
 Custom cable required for peak current exceeding 50 ampere.
 Magnet track maximum environment temperature is 50 Deg. C.
 Cable adds 0.01Ω/m
 Shaded columns represent "Special models."
 ** Heat Sink is a 0.5 meter wide, 15mm thick aluminum plate, extending 0.25 meter beyond each end of the coil bracket, suspended in 25°C free air using 0.5mm (.02") clearance gap.
 Magnet track weight 2KG/m (1.35lb/ft)