AIREX

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I100 Iron Core Linear Motor Double Parallel Connection Specification						
General Motor Specifications	**UNITS**	**Dash #**	**4**	**8**	**10**	**12**
Attractive Preload Force using 0.5mm[.02"] clearance gap	N		2318	4636	5795	6954
	Lbf		521	1042	1303	1563
Attractive Preload Force using 1.0mm[.04"] clearance gap	N		985	1970	2463	2956
	Lbf		221	443	554	664
Max Operating Temperature	°C		125	125	125	125
Maximum Temp. Rise	°C		105	105	105	105
Coil Resistance (6 lead @ 25°C)	Ω		0.35	0.70	0.56	1.06
Coil Resistance (6 lead @ Max. °C)	Ω		0.50	1.00	0.80	1.49
Inductance @ 1kHz	mH		2	4	3	6
Thermal Resistance (Bracket Top Mount)	°C/W		0.08	0.04	3.19	0.03
Continuous Power Top Mount (Max. °C)	W		1400	2800	3500	4200
Continuous Power, top mount to plate**(Max. °C)	W		480	961	1201	1441
Motor Constant	lb_f/sqrt(W)		2.9	4.1	4.6	5.0
	N/sqrt(W)		12.8	18.2	20.3	22.2
Peak Power (Max. °C, 10% Duty)	W		14000	28000	35000	42000
Electrical Time Constant (@ 25°C)	ms		5.7	5.7	5.7	5.7
Maximum Line to Line Voltage	Vrms		670	670	670	670
Coil Weight	Pounds		0.0	0.0	0.0	0.0
	Kilograms		0.0	0.0	0.0	0.0
Coil length (inside magnet track without HED)	inch		9.61	19.21	24.01	28.81
HED increases coil length by 1.48 inch (37.6mm)	mm		244	488	610	732
Delta Connected Specifications	**UNITS**	**Dash #**	**4**	**8**	**10**	**12**
Force Constant using 0.5mm[.02"] clearance gap	N/A		7.9	15.8	15.8	23.7
	lb_f/A		1.8	3.5	3.5	5.3
Force Constant using 1mm[.04"] clearance gap	N/A		7.3	14.5	14.5	21.8
	lb_f/A		1.6	3.3	3.3	4.9
Phase Resistance (Δ @ 25°C)	Ω		0.2	0.5	0.4	0.7
Phase Resistance (Δ @ Max. °C)	Ω		0.3	0.7	0.5	1.0
Inductance @ 1kHz	mH		1.3	2.7	2.1	4.0
Continuous Force using 0.5mm[.02"] clearance gap	N		480.6	961.1	1201.4	1441.7
	lb_f		108.0	216.1	270.1	324.1
Continuous Force using 1.0mm[.04"] clearance gap	N		442.1	884.2	1105.3	1326.3
	lb_f		99.4	198.8	248.5	298.2
Continuous Current	A		61.0	61.0	76.2	61.0
Peak Force* using 0.5mm[.02"] clearance gap	N		662	1324	1656	1987
	lb_f		149	298	372	447
Peak Force* using 1.0mm[.04"] clearance gap	N		609	1218	1523	1828
	lb_f		137	274	342	411
Peak Current*	A		84.0	84.0	105.0	84.0
Continuous Force, aluminum plate heat sink** (see below)	N		300.0	600.0	750.0	900.0
	lbf		67.4	134.9	168.6	202.3
Back EMF Constant using 0.5mm[.02"] clearance gap	V/m/s		7.9	15.8	15.8	23.7
	V/in/s		0.2	0.4	0.4	0.6
WYE connected Specifications	**UNITS**	**Dash #**	**4**	**8**	**10**	**12**
Force Constant using 0.5mm[.02"] clearance gap	N/A		13.7	27.3	27.3	41.0
	lb_f/A		3.1	6.1	6.1	9.2
	N/A		12.6	25.1	25.1	37.7
Force Constant using 1.0mm[.04"] clearance gap	lb_f/A		2.8	5.6	5.6	8.5
Phase Resistance (Ψ @ 25°C)	Ω		0.7	1.4	1.1	2.1
Phase Resistance (Ψ @ Max. °C)	Ω		1.0	2.0	1.6	3.0
Inductance @ 1kHz	mH		4.0	8.0	6.4	12.0
Continuous Force using 0.5mm[.02"] clearance gap	N		480.6	961.1	1201.4	1441.7
	lb_f		108.0	216.1	270.1	324.1
Continuous Force using 0.5mm[.02"] clearance gap	N		442.1	884.2	1105.3	1326.3
	lb_f		99.4	198.8	248.5	298.2
Continuous Current	A		35.19	35.19	43.99	35.19
Peak Force* using 0.5mm[.02"] clearance gap	N		1619	3239	2868	4858
	lb_f		364	728	645	1092
Peak Force* using 1.0mm[.04"] clearance gap	N		1490	2980	2638	4470
	lb_f		335	670	593	1005
Peak Current*	A		118.6	118.6	105.0	118.6
Continuous Force, aluminum plate heat sink** (see below)	N		300.0	600.0	750.0	900.0
	lbf		67.4	134.9	168.6	202.3
Back EMF Constant using 0.5mm[.02"] clearance gap	V/m/s		13.7	27.3	27.3	41.0
	V/inch/s		0.3	0.7	0.7	1.0

* 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 10 seconds.
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 52 ampere.
Magnet track maximum environment temperature is 50 Deg. C.
Cable adds 0.055Ω/m
Shaded Column represents "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 is 3.9kg/m (2.6 pounds/foot).