

**PUBLISH DATE**

2/5/2007

**REVISION HISTORY**


REV	ECO#	ARCHIVE	DESCRIPTION	BY	DATE	APPROVED
A	-	-	INITIAL RELEASE	JAW	4/16/2004	DJC
B	170	-	CHANGES PER ECO# 170	JAW	1/11/2005	DJC
C	233	ECO 233	CHANGES PER ECO# 233	JAW	2/5/2007	JAW

SERIES CONNECTED COILS						
MOTOR SPECIFICATIONS	UNITS	DASH #	1	2	3	4
Motor Constant	LB <sub>r</sub> /SQRT(W)		1.8	2.5	3.0	3.5
	N/SQRT(W)		7.82	11.06	13.54	15.64
Peak Power* (Max. °C, at 10% Duty Cycle)	WATT		816	1633	2449	3265
Continuous Power* (Max. °C)	WATT		82	163	245	327
Thermal Resistance	°C/W		1.59	0.80	0.53	0.40
Max Operating Temperature	°C		125	125	125	125
Maximum Temp. Rise	°C		105	105	105	105
Electrical Time Constant (D @ 25 °C)	mSec		0.34	0.34	0.34	0.34
Maximum Terminal Voltage	Vrms		500	500	500	500
Coil Weight	LB		0.50	1.10	1.60	2.20
	KILOGRAM		0.23	0.50	0.73	0.95
Magnet Track Weight	LB/IN		0.74	0.74	0.74	0.74
	Kg/IN		0.33	0.33	0.33	0.33
6 LEAD CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		4.1	8.2	12.2	16.3
	N/AMP		18.1	36.3	54.4	72.5
Back EMF Constant	V/IPS		0.5	0.9	1.4	1.9
	V/M/S		18.1	36.3	54.4	72.5
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		12.32	12.32	12.32	12.32
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.6	141.3	211.9	282.6
Continuous Current*	AMP		3.90	3.90	3.90	3.90
Coil Resistance (6 lead @ 25 °C)	OHM		5.82	11.65	17.47	23.29
Coil Resistance (6 lead @ Max. °C)	OHM		8.07	16.14	24.20	32.27
Inductance @ 1kHz	mH		2.0	4.0	6.0	8.0
Max Speed (500 Vrms limit)	M/S		39.0	19.5	13.0	9.7
DELTA CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		4.1	8.2	12.2	16.3
	N/AMP		18.1	36.3	54.4	72.5
Back EMF Constant	V/IPS		0.5	0.9	1.4	1.9
	V/M/S		18.1	36.3	54.4	72.5
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		12.32	12.32	12.32	12.32
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.6	141.3	211.9	282.6
Continuous Current*	AMP		3.90	3.90	3.90	3.90
Phase Resistance (D @ 25 °C)	OHM		3.88	7.76	11.65	15.53
Phase Resistance (D @ Max. °C)	OHM		5.38	10.76	16.14	21.51
Inductance @ 1kHz	mH		1.3	2.7	4.0	5.3
Max Speed (500 Vrms limit)	M/S		39.0	19.5	13.0	9.7
WYE CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		7.1	14.1	21.2	28.2
	N/AMP		31.4	62.8	94.2	125.6
Back EMF Constant	V/IPS		0.8	1.6	2.4	3.2
	V/M/S		31.4	62.8	94.2	125.6
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		7.11	7.11	7.11	7.11
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.7	141.3	212.0	282.6
Continuous Current*	AMP		2.25	2.25	2.25	2.25
Phase Resistance (Y @ 25 °C)	OHM		11.65	23.29	34.94	46.59
Phase Resistance (Y @ Max. °C)	OHM		16.14	32.27	48.41	64.54
Inductance @ 1kHz	mH		4.0	8.0	12.0	16.0
Max Speed (500 Vrms limit)	M/S		22.5	11.3	7.5	5.6

PARALLEL CONNECTED COILS						
MOTOR SPECIFICATIONS	UNITS	DASH #	1	2	3	4
Motor Constant	LB <sub>r</sub> /SQRT(W)		1.8	2.5	3.0	3.5
	N/SQRT(W)		7.82	11.06	13.54	15.64
Peak Power* (Max. °C, at 10% Duty Cycle)	WATT		816	1633	2449	3265
Continuous Power* (Max. °C)	WATT		82	163	245	327
Thermal Resistance	°C/W		1.59	0.80	0.53	0.40
Max Operating Temperature	°C		125	125	125	125
Maximum Temp. Rise	°C		105	105	105	105
Electrical Time Constant (D @ 25 °C)	mSec		0.34	0.34	0.34	0.34
Maximum Terminal Voltage	Vrms		500	500	500	500
Coil Weight	LB		0.50	1.10	1.60	2.20
	KILOGRAM		0.23	0.50	0.73	1.00
Magnet Track Weight	LB/IN		0.74	0.74	0.74	0.74
	Kg/IN		0.33	0.33	0.33	0.33
6 LEAD CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		2.0	4.1	6.1	8.2
	N/AMP		9.1	18.1	27.2	36.3
Back EMF Constant	V/IPS		0.2	0.5	0.7	0.9
	V/M/S		9.1	18.1	27.2	36.3
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		24.64	24.64	24.64	24.64
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.6	141.3	211.9	282.6
Continuous Current*	AMP		7.79	7.79	7.79	7.79
Coil Resistance (6 lead @ 25 °C)	OHM		1.46	2.91	4.37	5.82
Coil Resistance (6 lead @ Max. °C)	OHM		2.02	4.03	6.05	8.07
Inductance @ 1kHz	mH		0.5	1.0	1.5	2.0
Max Speed (500 Vrms limit)	M/S		78.0	39.0	26.0	19.5
DELTA CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		2.0	4.1	6.1	8.2
	N/AMP		9.1	18.1	27.2	36.3
Back EMF Constant	V/IPS		0.2	0.5	0.7	0.9
	V/M/S		9.1	18.1	27.2	36.3
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		24.64	24.64	24.64	24.64
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.6	141.3	211.9	282.6
Continuous Current*	AMP		7.79	7.79	7.79	7.79
Phase Resistance (D @ 25 °C)	OHM		0.97	1.94	2.91	3.88
Phase Resistance (D @ Max. °C)	OHM		1.34	2.69	4.03	5.38
Inductance @ 1kHz	mH		0.3	0.7	1.0	1.3
Max Speed (500 Vrms limit)	M/S		78.0	39.0	26.0	19.5
WYE CONNECTED SPECIFICATIONS						
UNITS	DASH #	1	2	3	4	5
Force Constant	LB <sub>r</sub> /AMP		3.5	7.1	10.6	14.1
	N/AMP		15.7	31.4	47.1	62.8
Back EMF Constant	V/IPS		0.4	0.8	1.2	1.6
	V/M/S		15.7	31.4	47.1	62.8
Peak Force*	LB <sub>r</sub>		50	100	151	201
	N		223	447	670	894
Peak Current*	AMP		14.23	14.23	14.23	14.23
Continuous Force*	LB <sub>r</sub>		15.9	31.8	47.7	63.5
	N		70.7	141.3	212.0	282.6
Continuous Current*	AMP		4.50	4.50	4.50	4.50
Phase Resistance (Y @ 25 °C)	OHM		2.91	5.82	8.73	11.65
Phase Resistance (Y @ Max. °C)	OHM		4.03	8.07	12.10	16.14
Inductance @ 1kHz	mH		1.0	2.0	3.0	4.0
Max Speed (500 Vrms limit)	M/S		45.0	22.5	15.0	11.3

\*NOTES:

- SPECIFICATIONS BASED ON STANDARD COIL USED WITH STANDARD MAGNET TRACK IN 25°C AMBIENT TEMPERATURE AT 1 ATMOSPHERE.
- SPECIFICATIONS BASED ON AN INFINITE HEATSINK (LARGE HEATSINK MAINTAINED WITHIN 10°C OF AMBIANT TEMPERATURE AT MOTOR BRACKET INTERFACE).
- DUTY CYCLE OF 10% REFERS TO PEAK POWER. ON TIME OF "PEAK POWER" (DURATION) MUST BE LESS THAN 10 SECONDS.
- BACK EMF PLUS IR DROP MUST NOT EXCEED MAXIMUM TERMINAL VOLTAGE.
- CABLE RESISTANCE NOT INCLUDED IN THE ABOVE DATA. FOR STANDARD CABLE ADD 0.003 OHMS PER INCH [0.11 OHMS PER METER] EACH WAY.
- UNLESS OTHERWISE SPECIFIED, VALUES ARE ZERO TO PEAK.

UNLESS OTHERWISE SPECIFIED: - DIMENSIONS ARE IN mm [INCHES] - TOLERANCES ON: X.XX ± 0.25mm [± 0.01inches] X.XXX ± 0.125mm [± 0.005inches] X/X ± N/A [± 1/32inches] ANGLES ± 0°30' DRAWING CONFORMS TO ANSI Y14.5	DRAWN	DATE	 <p>Precision Electromagnetic Component Design and Manufacturing www.airex.com</p>
	CHECKED	DATE	
	APPROVED	DATE	
	RELEASED	DATE	
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	NTS	1 OF 1	P20 SERIES MOTOR PERFORMANCE DATA
MATERIAL	SIZE	PART NO	REV
N/A	B	11057	C
FINISH	NEXT LEVEL ASSEMBLY		
N/A			