

P20 Motor Data

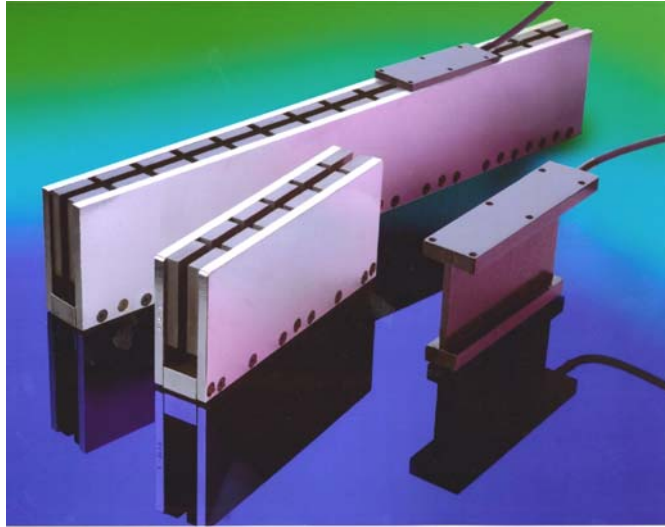
Brushless Linear Servo Motors designed for Advanced Motion Applications

Designed for today's most advanced applications, Airex Brushless Linear Servo Motors offer the absolute best in linear motion technology.

Airex patented machine winding technology produces motors with exceptional performance, smooth motion, high accuracy, unmatched unit-to-unit repeatability, high acceleration, and stiffness. Used in high precision processing equipment, these motors meet and exceed the rigorous demands required in today's mfg, assembly, test and inspection environments.

Applications include disk or semiconductor manufacturing and inspection, micro-machining equipment, scanning and optical devices, laser machining, and the manufacture, assembly and testing of electrical components.

The P20 is a standard design in the Solution Series linear motor family. Airex also offers custom designs in ironless rotary and linear configurations.



FEATURES:

- ***CONTINUOUS FORCE UP TO 80 LBS.***
- ***PEAK FORCE UP TO 250 LBS.***
- ***HIGHEST FORCE TO COIL MASS RATIO***
- ***HIGH ACCURACY/REPEATABILITY***
- ***EFFICIENT THERMAL PERFORMANCE***
- ***VELOCITIES > 5 M/SEC ACCELERATIONS > 10 G***
- ***ZERO MAGNETIC PRELOAD***
- ***SINUSOIDAL OR HALL EFFECT COMMUTATION***
- ***THERMISTOR & THERMOSTAT OPTIONS***
- ***HIGH PERFORMANCE RARE EARTH MAGNETS***
- ***LOW INDUCTANCE COIL FOR FAST RESPONSE***
- ***NON- CONTACTING ASSEMBLIES***
- ***CONTINUOUS TRACK TO 48 INCHES***
- ***CONFIGURABLE CONNECTIONS/CABLE OPTIONS***
- ***FULLY CUSTOMIZABLE DESIGN***

Solution Series™ Linear Motors

www.airex.com

P20 Motor Data

	UNITS	P20-1	P20-2	P20-3	P20-4	P20-5
COIL LENGTH *	INCHES [MM]	2.4 [61.0]	4.8 [122.0]	7.2 [182.9]	9.6 [243.8]	12.0 [305.0]
BRACKET LENGTH *	INCHES [MM]	3.2 [81.3]	5.6 [142.2]	8.0 [203.2]	10.4 [264.2]	12.8 [325.1]
COIL WEIGHT	LBS [KG]	0.5 [.23]	1.10 [.50]	1.60 [0.73]	2.20 [1.00]	2.70 [1.23]
MAGNET TRACK WEIGHT	LBS/IN [KG/CM]	.74 [0.132]	.74 [0.132]	.74 [0.132]	.74 [0.132]	.74 [0.132]
MAX. COIL TEMPERATURE	°C	125	125	125	125	125

Series Connected Coils

FORCE CONSTANT **	LBS [N]/AMP	4.1 [18.1]	8.2 [36.3]	12.2 [54.4]	16.3 [72.5]	20.4 [90.7]
COIL RESISTANCE ** (6 LEAD @25° C)	OHMS	5.82	11.65	17.47	23.29	29.12
PHASE RESISTANCE ** (@25° C. IN DELTA)	OHMS	3.88	7.76	11.65	15.53	19.41
COIL RESISTANCE ** (6 LEAD @125° C)	OHMS	8.07	16.14	24.20	32.27	40.34
PHASE RESISTANCE ** (@125° C IN DELTA)	OHMS	5.38	10.76	16.14	21.51	26.89
INDUCTANCE (6 LEAD [DELTA]) @ 1KHZ)	MH	2.0 [1.3]	4.0 [2.7]	6.0 [4.0]	8.0 [5.3]	10.0 [6.7]
CONTINUOUS FORCE	LBS [N]	15.9 [70.6]	31.8 [141.3]	47.7 [211.9]	63.5 [282.6]	79.4 [353.2]
CONTINUOUS CURRENT ***	AMPS	3.9	3.9	3.9	3.9	3.9
CONTINUOUS POWER (@125° C)	WATTS	82	163	245	327	408
PEAK FORCE	LBS [N]	50 [223]	100 [447]	151 [670]	201 [894]	251 [1117]
PEAK CURRENT ***	AMPS	12.32	12.32	12.32	12.32	12.32
PEAK POWER (@125° C; 10% DUTY CYCLE)	WATTS	816	1633	2449	3265	4082
BACK EMF CONSTANT	V/IPS [V /MPS]	0.5 [18.1]	0.9 [36.3]	1.4 [54.4]	1.9 [72.5]	2.3 [90.7]
ELECTRICAL TIME CONSTANT **	MSEC	.34	.34	.34	.34	.34
THERMAL RESISTANCE	°C/WATT	1.59	0.80	0.53	0.40	0.32
MOTOR CONSTANT	LBS [N]/√W	1.8 [7.82]	2.5 [11.06]	3.0 [13.54]	3.5 [15.64]	3.9 [17.48]

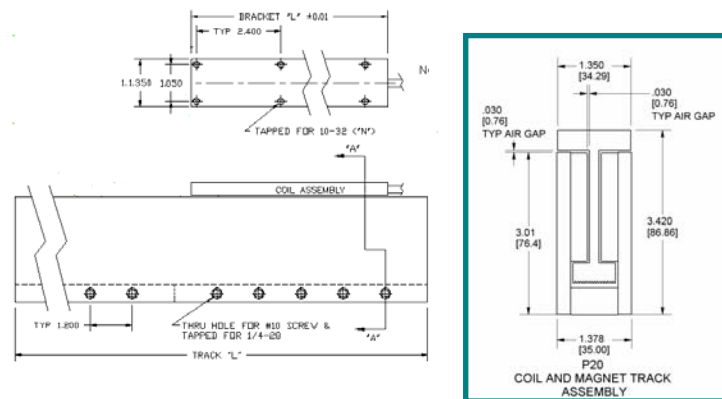
Parallel Connected Coils

FORCE CONSTANT	LBS [N]/AMP	2.0 [9.1]	4.1 [18.1]	6.1 [27.2]	8.2 [36.3]	10.2 [45.3]
COIL RESISTANCE ** (6 LEAD @25° C)	OHMS	1.46	2.91	4.37	5.82	7.28
PHASE RESISTANCE ** (@25° C IN DELTA)	OHMS	0.97	1.94	2.91	3.88	4.85
COIL RESISTANCE ** (6 LEAD @125° C)	OHMS	2.02	4.03	6.05	8.07	10.08
PHASE RESISTANCE ** (@125° C. IN DELTA)	OHMS	1.34	2.69	4.03	5.38	6.72
INDUCTANCE (6 LEAD [DELTA]) @ 1KHZ)	MH	0.5 [0.3]	1.0 [0.7]	1.5 [1.0]	2.0 [1.3]	2.5 [1.7]
CONTINUOUS FORCE	LBS [N]	15.9 [70.6]	31.8 [141.3]	47.7 [211.9]	63.5 [282.6]	79.4 [353.2]
CONTINUOUS CURRENT ***	AMPS	7.79	7.79	7.79	7.79	7.79
CONTINUOUS POWER (@125° C)	WATTS	82	163	245	327	408
PEAK FORCE	LBS [N]	50 [223]	100 [447]	151 [670]	201 [894]	251 [1117]
PEAK CURRENT ***	AMPS	24.64	24.64	24.64	24.64	24.64
PEAK POWER (@125° C; 10% DUTY CYCLE)	WATTS	816	1633	2449	3265	4082
BACK EMF CONSTANT	V/IPS [V /MPS]	0.2 [9.1]	0.5 [18.1]	0.7 [27.2]	0.9 [36.3]	1.2 [45.3]
ELECTRICAL TIME CONSTANT **	MSEC	.34	.34	.34	.34	.34
THERMAL RESISTANCE	°C/WATT	1.59	0.80	0.53	0.40	0.32
MOTOR CONSTANT	LBS [N]/√W	1.8 [7.82]	2.5 [11.06]	3.0 [13.54]	3.5 [15.64]	3.9 [17.48]

* Length is specified without Hall device

** These specifications reflect a 6 lead or delta connected coil with 1 foot of cable. A 6-lead motor has Start/Finish leads available at the cable end for control of each individual phase. Additional cable will increase resistance values.

*** An appropriate heat sink is required to dissipate the continuous power generated by the motor coil and maintain the coil assembly at or below the maximum specified operating temperature.



P20 Series	-1	-2	-3	-4	-5
Bracket "L"	3.2	5.6	8.0	10.4	12.8
inches [mm]	[81.3]	[142.2]	[203.2]	[264.2]	[325.1]
# of Holes "N"	4	6	8	10	12
Track "L"	Increments of 2.4" to 48" long				