

BLMX SERIES LINEAR MOTORS

Rare-Earth Magnet, Brushless Servomotors



Alternate motor designs optimized for cost, power, and speed are available. Please consult the factory or our web site for the latest designs.

- **49% greater continuous output force in the same physical envelope than competitive models**
- **Continuous force to 1186 N (266 lb); peak force to 4744 N (1064 lb)**
- **152.0 mm high x 50.8 mm wide cross section**
- **Special magnet options available for increased force output**



The BLMX series "U-channel" brushless linear servomotors offer over 49% greater continuous output force in the same physical envelope than similar models from other manufacturers.

BLMX series motors feature a high-efficiency magnetic circuit design that provides continuous force ratings to 1186 newtons (266 lb) and peak forces to 4744 newtons (1064 lb). This extremely high level of performance can be enhanced with special high-power magnet options that increase force output.


The BLMX moving forcer coil assembly contains Hall-effect devices, and a thermal sensor, and is constructed of reinforced ceramic

epoxy. This ironless design eliminates eddy-current losses that otherwise would limit speed and produce additional heat.

BLMX linear motors are direct drive and consist of a moving forcer coil and "U-channel" rare-earth magnet track. This design eliminates backlash, windup, wear and maintenance issues associated with ball screws, belts, and rack and pinions.

The BLMX series nonmagnetic forcer eliminates cogging and magnetic attraction to allow for extremely smooth motion and very tight velocity and position control. These linear motors are ideal for applications demanding the ultimate

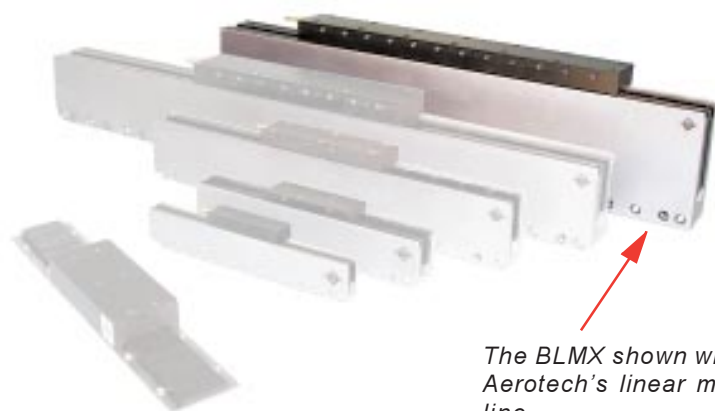
in force output. BLMX series linear motors are forgiving to align, easy to assemble, and keep the magnetic field well-contained. Magnet tracks are stackable for any travel length. These motors are well-suited for industrial applications.

The BLMX can be driven using standard Aerotech brushless amplifiers and controllers to provide a complete integrated system. 

AEROTECH ADVANTAGES



Higher output force than comparable models results in a more compact solution.



The BLMX shown with Aerotech's linear motor line.

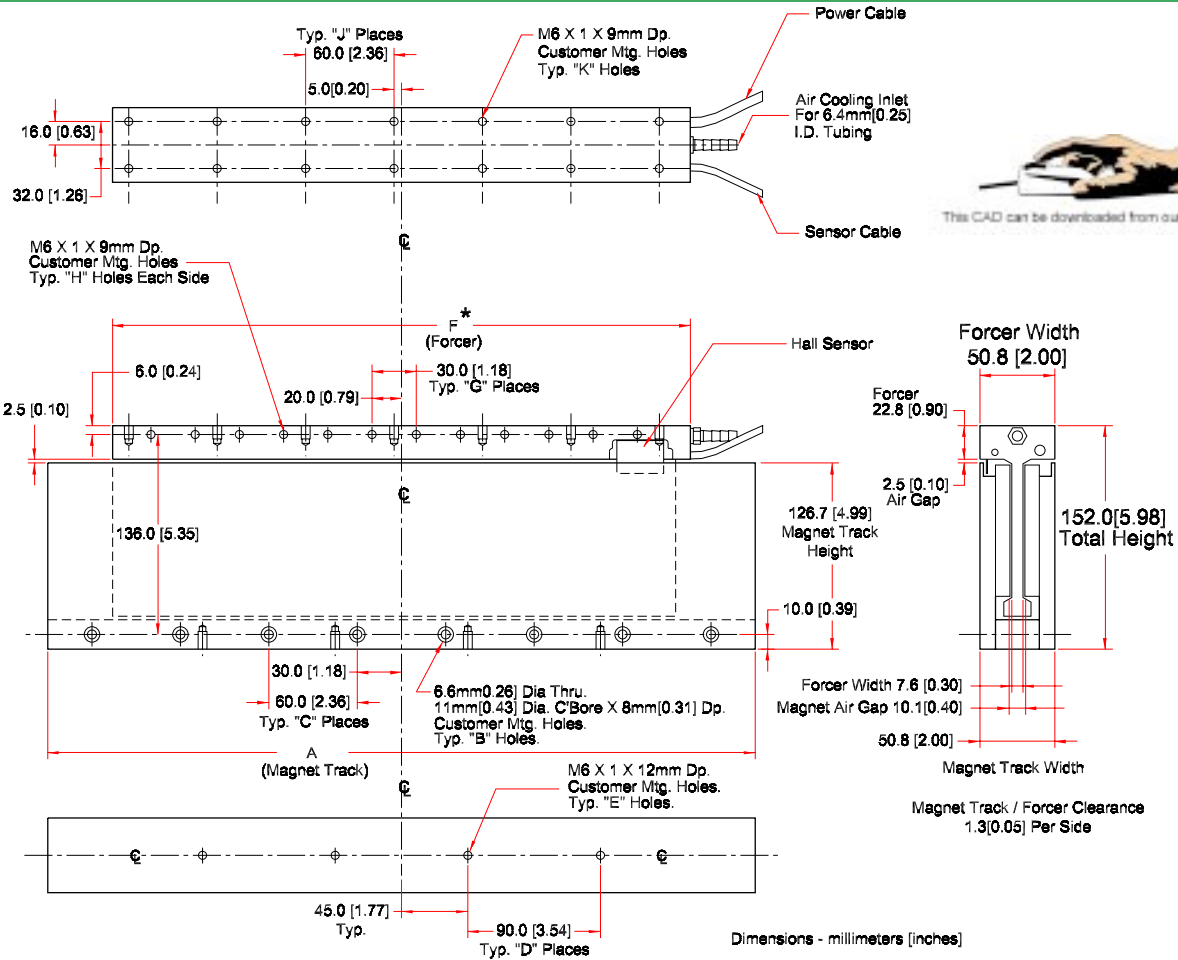
BLMX Specifications

MOTOR MODEL	UNITS	BLMX-382		BLMX-502	
PERFORMANCE SPECIFICATIONS					
Continuous Force @ 1.36 bar 20 psi	N lb	1030.0 231.0		1186.0 266.0	
Continuous Force, no air	N lb	669.0 150.0		816.0 184.0	
Peak Force	N lb	4120 924		4744 1064	
ELECTRICAL SPECIFICATIONS					
Winding Designation		-A	-B (opt)	-A	-B (opt)
BEMF, line-line	V/m/s V/in/s	74.02 1.88	145.67 3.70	109.05 2.77	54.33 1.38
Continuous Current @ 1.36 bar 20 psi	Amp _{pk} Amp _{rms}	16.12 11.40	8.06 5.70	12.59 8.90	25.03 17.70
Continuous Current, no air	Amp _{pk} Amp _{rms}	10.47 7.40	5.23 3.70	8.63 6.10	17.11 12.10
Force Constant, sine drive	N/Amp _{pk} lb/Amp _{pk}	63.64 14.35	127.28 28.71	94.75 21.35	47.38 10.61
	N/Amp _{rms} lb/Amp _{rms}	90.00 20.30	180.00 40.60	134.00 30.20	67.00 15.00
Motor Constant	N/√W lb/√W	33.60 7.57		41.20 9.30	
Thermal Resistance @ (1.36 bar, 20 psi) (No cooling)	°C/W	0.11 0.25		0.11 0.24	
Resistance, 25°C, line-line	ohms	3.4	13.6	5.1	1.3
Resistance, 125°C, line-line	ohms	4.8	19.0	7.1	1.8
Inductance, line-line	mH	3.0	12.0	4.0	1.0
Max Terminal Voltage	VDC	320		320	
MECHANICAL SPECIFICATIONS					
Air Flow	m ³ /s SCFM	5.4x10 ⁻³ 11.4		6.4x10 ⁻³ 13.7	
Coil Weight	kg lb	3.4 7.5		4.45 9.8	
Coil Length	mm in	382.0 15.0		502.0 19.8	
Heat Sink Area [Thickness 25.4 mm (1 in)]	mm in	254x406 10x16		254x510 10x20	
Magnet Track Weight	kg/m lb/ft	37.26 25.10		37.26 25.10	
Magnetic Pole Pitch	mm in	30.00 1.18		30.00 1.18	

All Aerotech amplifiers are rated in Amp_{pk}; use force constant in Amp_{pk} when sizing.
 All performance and electrical motor specifications ±10%.
 Specifications at 125°C operating temperature unless otherwise specified.



BLMX Dimensions / Ordering Information



Magnet Track

Model No.	A	B	C	D	E
MTX480	480mm 18.90"	6	7	3	4
MTX600	600mm 23.63"	10	9	5	6
MTX720	720mm 28.35"	12	11	7	8

MTXy custom track lengths available

Forcer

Model No.	F*	G	H	J	K
BLMX-382	382mm 15.04"	11	12	6	14
BLMX-502	502mm 19.76"	15	16	8	18

*Add 10mm[0.39] To Forcer Length For Cable Strain Relief.

PART NUMBER AND ORDERING EXAMPLE: BLMX-502-A

BLMX	-502	-A
Motor Series	Forcer Coil Length	Standard Winding
	382 mm, 502 mm	76 cm (2.5 ft) flying leads std

Brushless Linear Servomotors – BLMX Series “U” Channel Forcer Coils

BLMX-382-A Linear motor coil, with HED, air cooling, temp SW, Fcont=1030 N (231 lb) @ 20 psi
 BLMX-502-A Linear motor coil, with HED, air cooling, temp SW, Fcont=1186 N (266 lb) @ 20 psi

BLMX Options

-LH Remove HED sensor from BLMX series forcer coil

“U” Channel Magnet Tracks – MTX Series for BLMX motors

MTX480 “U” channel magnet track, for use with BLMX forcer coil, 480 mm (18.9 in) length
 MTX600 “U” channel magnet track, for use with BLMX forcer coil, 600 mm (23.6 in) length
 MTX720 “U” channel magnet track, for use with BLMX forcer coil, 720 mm (28.4 in) length
 MTXy Custom magnet tracks lengths available. Please consult factory.

