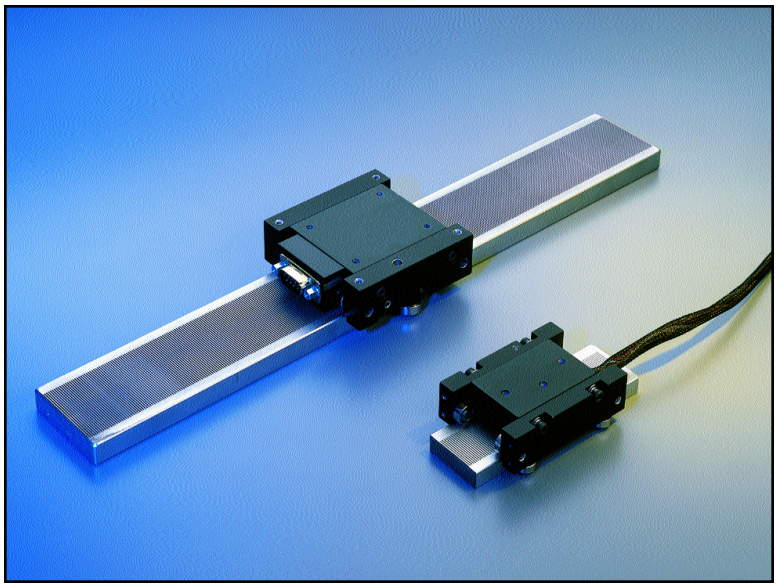
Single-Axis Stepper

- For open loop systems
- No servo tuning
- 1g [9.8 m/s^2] acceleration maximum
- Force to 50 Lbs. [222.4N]
- High repeatability 0.0012in[30.5µm]
- Resolution = $\frac{\text{Full Step}}{\text{Number of Microsteps}}$

  2-phase full step 0.010 in [0.25mm]

  4-phase full step 0.005 in [0.13mm]
- Multiple forcers with overlapping trajectories on a single platen
- Roller bearings on 0600 and 1300 series. High stiffness air bearings on 2000 and 2500 series
- Ceiling or wall mounted
- Air gap <0.001 in [25µm]
- Lowest cost positioning stage
- Required power supply:

  Microstepping driver



The 2 or 4-phase single-axis linear stepper motor consists of a moving forcer and a stationary platen. The forcer is made of two laminated steel cores precisely slotted with teeth and a single permanent magnet. The coil is inserted into the laminated assembly. Leads are provided at the beginnings and ends of the coils. Two interconnected assemblies result in a 2-phase motor. Four interconnected assemblies result in a 4-phase motor. The laminated assembly is encapsulated in an aluminum housing. The forcer is available in different sizes, depending on the application's force requirements.

The platen is a photo-chemically etched teeth on a steel bar filled with epoxy, ground and hard-chrome plated. Standard mounting holes are provided on forcer and platen. The platen is available in lengths over 100 in [2.54m]. The magnetic-attractive force between the forcer and platen is used as a preload for the bearing system. The platen to forcer air gap is maintained by the integral bearing system. The customer must bring power to the forcer with an umbilical cable.

Servo Systems Co. • 53 Green Pond Road, Suite #2 • Rockaway, NJ 07866
(973) 335-1007 • Toll Free: (800) 922-1103 • Fax: (973) 335-1661 • www.servos

Single-Axis Linear Stepper Motor Technical Data

CATALOG NO. **	Units	LMSS0602-2WW0	LMSS0604-2WW0	LMSS1302-2WW0	LMSS-1304-2AW0	LMSS2002-2AW0
No. of phases		2	2	2	2	2
Static Force	Lbs [N]	2.0 [8.9]	4.0 [17.8]	5.0 [22.2]	10 [44.5]	8.0 [35.6]
Resistance/Coil	ohms	1.5	0.8	2.2	1.1	3.0
Inductance/Coil	mH	1.4	0.5	2.6	1.2	6.6
Amps/Phase	amps	1.5	3.0	2.0	4.0	2.0
Weight	Lbs [kg]	0.4 [0.18]	0.6 [0.3]	0.7 [0.35]	0.9 [0.42]	0.8 [0.36]
Bearing Type		Wheel	Wheel	Wheel	AIR ***	AIR ***
Air Bearing Rqmts	CFM [L/min]	N/A	N/A	N/A	2.5 [70.8]	3.5 [99.1]
Attractive Force	Lbs [N]	16 [71]	32 [142]	40 [178]	72 [320]	90 [400]

CATALOG NO. **	Units	LMSS2004-2AW0	LMSS2504-2WW0	LMSS2508-2WW0
Number of Phases		2	2	2
Static Force	Lbs [N]	20.0 [89.0]	25.0 [111.2]	50.0 [222.4]
Resistance/Coil	ohms	1.5	1.8	4.6
Inductance/Coil	mH	1.0	4.0	3.0
Amps/Phase	amps	4.0	4.0	8.0
Weight	Lbs [kg]	1.2 [0.54]	1.1 [0.50]	2.4 [1.1]
Bearing Type		AIR ***	AIR ***	AIR ***
Air Bearing Rqmts	CFM [L/min]	3.5 [99.1]	3.5 [99.1]	3.5 [99.1]
Attractive Force	Lbs [N]	144 [640]	180 [800]	360 [1,600]

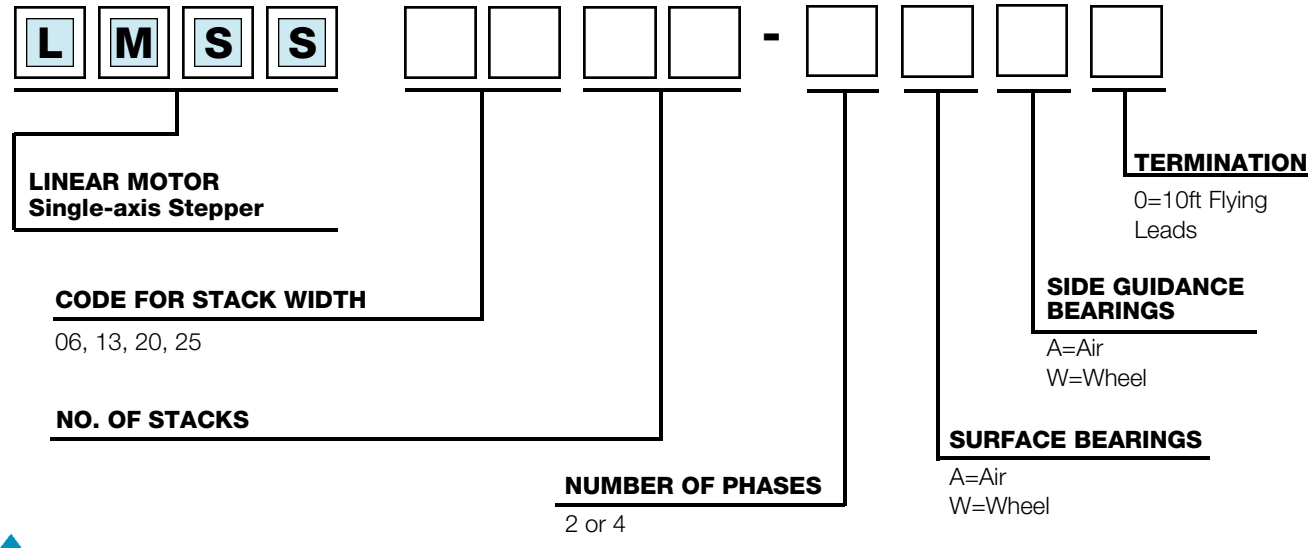
** Four phase is available with the same force ratings and physical size

*** Air bearing units use a side ball bearing for lateral guidance as standard. Side air bearings are optional and requires using a tube platen.

Repeatability=+0.0004 in (10µm). Resolution= +0.0001 in (2.5µm), Cyclic error= ±0.0002 in (±5µm) *dependent on drive electronics and system implementation Ball Bearing Airgap= 0.0015 in (38µm), Air Bearing Airgap= 0.0008 in (20µm), Air Pressure= 60-80 psi with a 3 micron filter.

All specifications are for reference only.

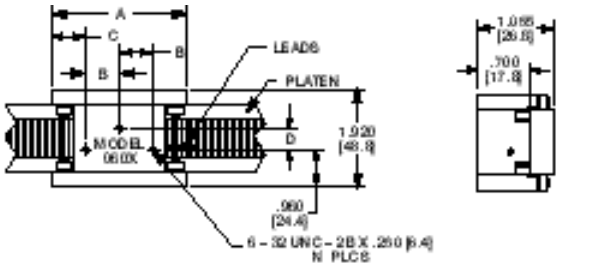
Single-Axis Stepper Forcer Catalog Number Identification/Option Specifying Information

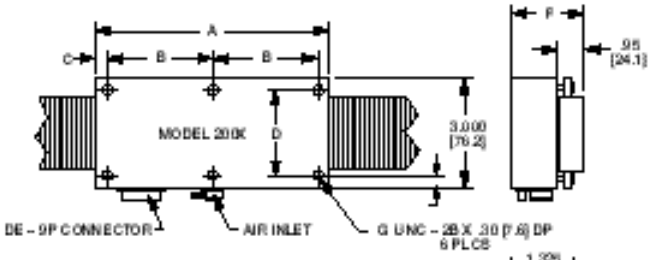


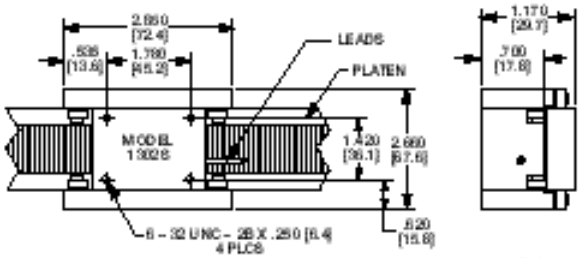
Servo Systems Co. • 53 Green Pond Road, Suite #2 • Rockaway, NJ 07866
(973) 335-1007 • Toll Free: (800) 922-1103 • Fax: (973) 335-1661 • www.servos

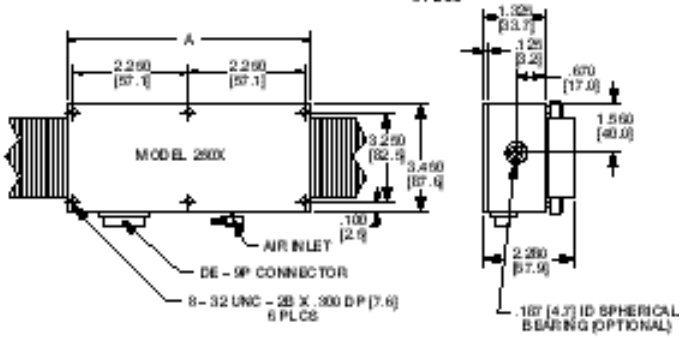
LMSS Series Linear Stepper Motor Forcer Dimensions

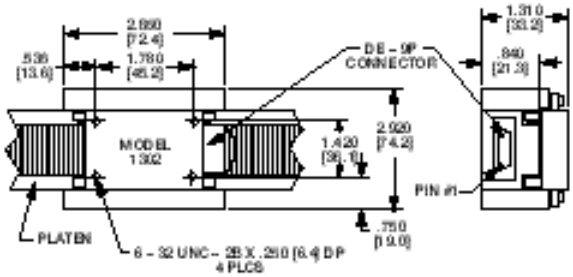
Inches [mm]



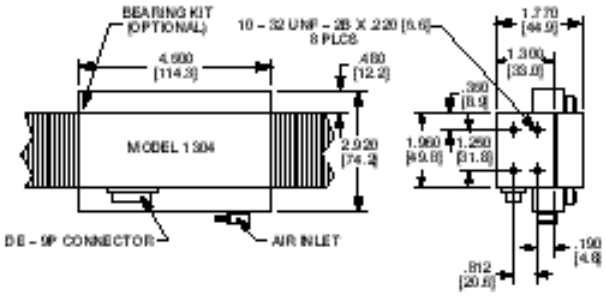


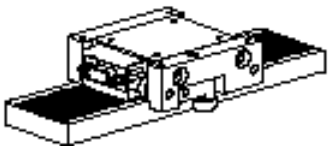






FORCER MODEL						
A	2.710 [68.8]	4.620 [117.3]	2.850 [72.4]	4.630 [117.6]	4.500 [114.3]	8.750 [222.3]
B	.675 [17.1]	0.0 [0.0]	1.780 [45.2]	2.160 [54.9]	N/A	N/A
C	.680 [17.3]	1.635 [41.5]	.540 [13.7]	.150 [3.8]	N/A	N/A
D	2.50 [6.3]	0.0 [0.0]	1.420 [36.1]	2.700 [68.6]	N/A	N/A
E	N/A	N/A	.790 [20.1]	.150 [3.8]	N/A	N/A
F	N/A	N/A	1.900 [48.3]	2.070 [52.6]	N/A	N/A
G	N/A	N/A	6 – 32	8 – 32	N/A	N/A
N	3	2	N/A	N/A	N/A	N/A





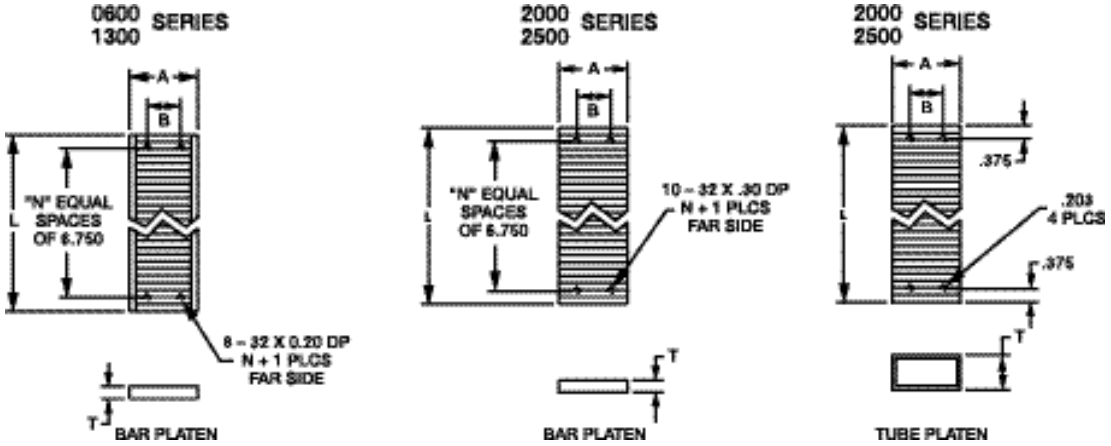
Servo Systems Co. • 53 Green Pond Road, Suite #2 • Rockaway, NJ 07866
(973) 335-1007 • Toll Free: (800) 922-1103 • Fax: (973) 335-1661
• www.servos

LTSS Series Stepper Motor Platen Dimensions

Inches [mm]

Platen will be cut to length per customer specification.
Bottom mounting holes pattern is as shown.

Series	Catalog Number	A In [mm]	T In [mm]	B In [mm]	Weight (lbs/in)	Mass kg/m)
0600 Bar	LTSS06WB-XXX	1.21 [30.7]	.35 [8.9]	0.9s6 [24.4]	0.118	2.11
1300 Bar	LTSS13XB-XXX	1.96 [49.8]	.468 [11.9]	0.96 [24.4]	0.264	4.72
2000 Bar	LTSS20XB-XXX	1.96 [49.8]	.468 [11.9]	0.96 [24.4]	0.264	4.72
2000 Tube	LTSS20XT-XXX	1.96 [49.8]	.468 [24.4]	0.96 [24.4]	0.153	2.73
2500 Bar	LTSS25XB-XXX	3.0 [76.2]	0.96 [24.4]	2.0 [50.8]	0.680	12.15
2500 Tube	LTSS25XT-XXX	3.0 [76.2]	0.96 [24.4]	2.0 [50.8]	0.223	3.99



LTSS Series Stepper Motor Platens Catalog Identification/Option Specifying Information

L	T	S	S					-			

LINEAR MOTOR
Single-axis Stepper

CODE FOR STACK WIDTH

06 = 0600 Series Forcers
13 = 1300 Series Forcers
20 = 2000 Series Forcers
25 = 2500 Series Forcers

TYPE OF FORCER

A = Air Bearing Forcers
W = Wheel Bearing Forcers

TYPE OF PLATEN

T = Tube Platen (2000 and 2500 Series only)
B = Bar Platen (All Series)

LENGTH

(In Inches)[1]
Per Customer Spec

[1] Length rounded up to nearest whole inch. Platen with length greater than 58.0 inches will only be available in modular form.

Servo Systems Co. • 53 Green Pond Road, Suite #2 • Rockaway, NJ 07866
(973) 335-1007 • Toll Free: (800) 922-1103 • Fax: (973) 335-1661 • www.servos