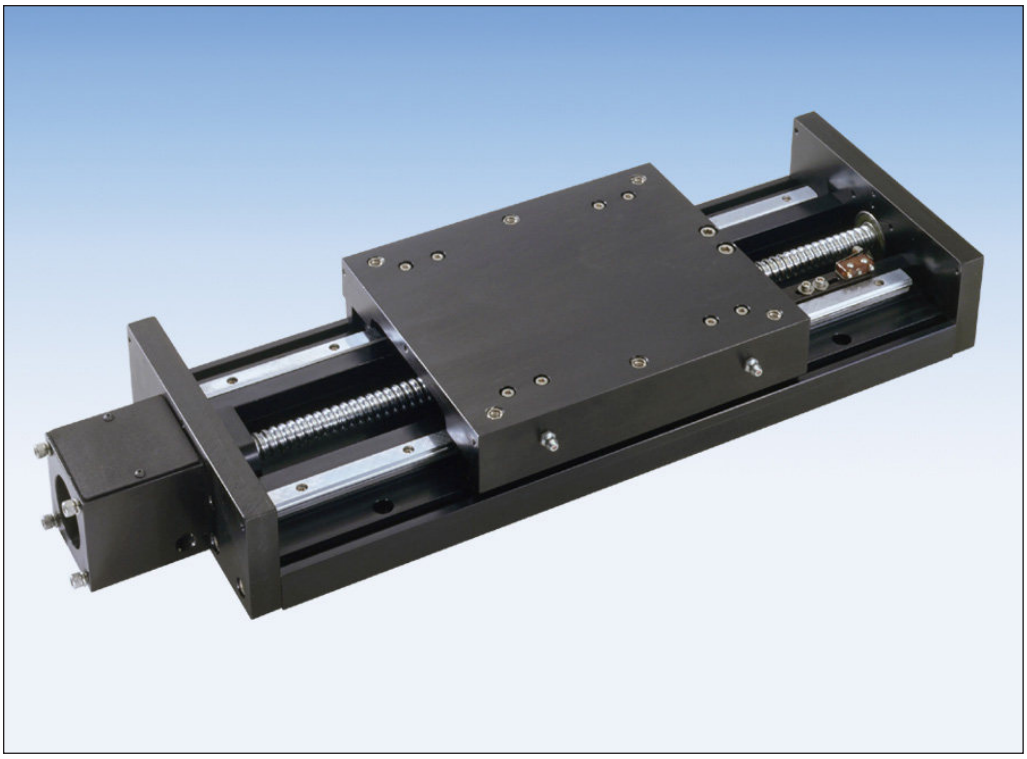
250 Series
Positioning Tables



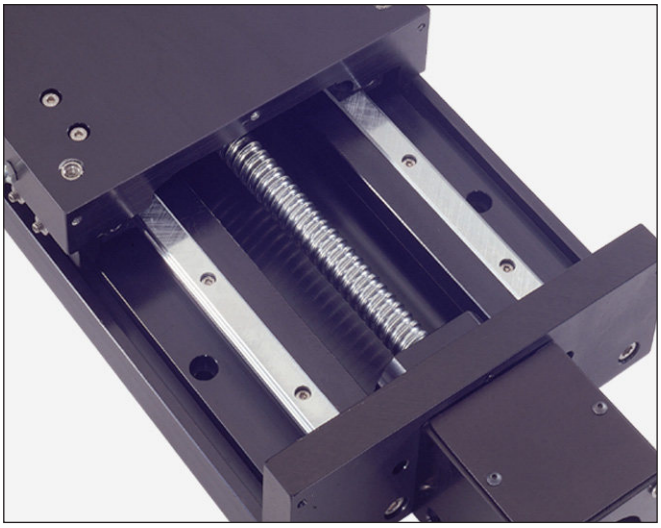
Single or Multiple Axis

LINTECH's 250 series positioning tables offer precision performance and design flexibility for use in a wide variety of Motion Control applications.

- *Welding*
- *Test Stands*
- *Part Insertion*
- *Laser Positioning*
- *Liquid Dispensing*
- *Semiconductor Processing*
- *Gluing*
- *Pick & Place*
- *Part Scanning*
- *Inspection Stations*
- *General Automation*

Quality Construction

LINTECH's 250 series tables are designed with a low friction, preloaded, recirculating linear ball bearing system, which rides on a precision ground linear rails. The linear rails are mounted to a precision machined aluminum base, which offers a rigid support over the entire travel of the table's carriage. The load is mounted to a precision machined aluminum carriage, which has threaded stainless steel inserts for high strength and wear life. There are 25 different acme & ball screw options, that offer high efficiencies and long life at an economical price. These tables are designed to allow for numerous options. They include EOT & Home switches, linear & rotary encoders, power-off electric brakes, motor wrap packages and versatile mounting brackets for multiple axis applications.



Available Options

Acme Screws & Ball Screws

An assortment of acme screws and ball screws can be installed in the 250 series tables, providing solutions to load back driving, high duty cycle, high speed, extreme smoothness, and sensitive positioning applications.

Vertical Angle Brackets

Optional vertical angle brackets can be mounted directly to the top of various *LINTECH* positioning tables, thus providing for easy multiple axis configurations.

Waycovers

For operator protection, these tables can be fitted with a protective bellows. The entire length of the lead screw and linear bearing system will be covered.

End of Travel and Home Switches

The 250 series tables can be provided with end of travel (EOT) and home switches mounted and wired for each axis. Most position controllers can utilize the EOT switches to stop carriage motion when the extreme table travel has been reached in either direction. The home switch provides a known mechanical location on the table.

Linear and Rotary Encoders

Incremental encoders can be mounted to the table in order to provide positional data back to either a motion controller, or a digital display.

Motor Adapter Brackets

NEMA 34, NEMA 42, or any metric mount motor can be mounted to a 250 series positioning table with the use of adapter brackets.

Turcite Nut With Rolled Ball Screw

This solid polymer nut has no rolling elements in it, and performs very similar to an acme nut. It can provide smoother motion & less audible noise than most ball nuts, and is ideal for corrosive & vertical applications.

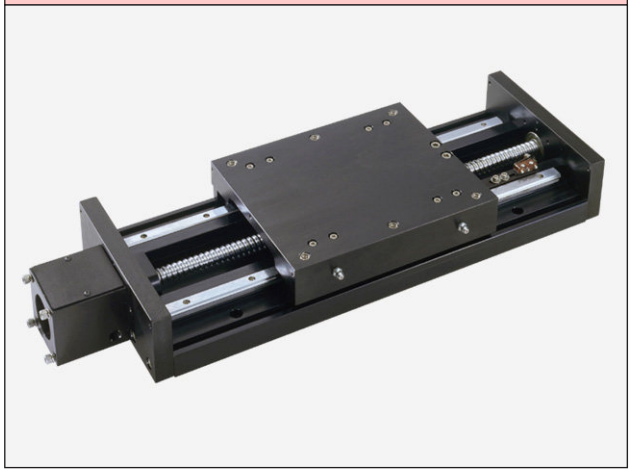
Other

The 250 series tables can accommodate **chrome plated linear bearings, rails, & screws** for corrosive environment applications, **power-off electric brakes** for load locking applications, **and motor wrap packages** for space limited applications.

Standard Features - 250 Series

- Compact 10.0 inches (254 mm) wide by 4.875 inches (124 mm) tall
- Travel lengths from 6 inches (150 mm) to 56 inches (1420 mm)
- Threaded stainless steel inserts in carriage for load mounting
- 0° F to +185° F (-18° C to +85° C) operating temperature
- 2 rail, 2 & 4 bearing, 6 & 12 inch long carriages
- Recirculating linear ball bearing system
- Precision ground square rail design

250-WC0 Series



250-WC1 Series

Options - 250 Series

- Chrome plated linear bearings, rails and screws
- End of travel (EOT) and home switches wired
- CAD drawings available via the internet
- Adapter brackets for non-NEMA motors
- Linear and rotary incremental encoders
- NEMA 34 & 42 motor wrap packages
- NEMA 42 adapter bracket
- Power-off electric brakes
- Vertical angle bracket
- Turcite nut option
- Motor couplings

- Ball screws:

  Rolled - Non-preloaded & Preloaded Nuts:

  1.000 inch diameter, 0.250 inch lead
  1.000 inch diameter, 0.500 inch lead
  1.000 inch diameter, 1.000 inch lead

  Precision - Non-preloaded & Preloaded Nuts:

  1.000 inch diameter, 0.200 inch lead
  25 mm diameter, 10 mm lead
  25 mm diameter, 25 mm lead

  Ground - Preloaded Nuts Only:

  1.000 inch diameter, 0.200 inch lead
  1.000 inch diameter, 0.500 inch lead
  25 mm diameter, 25 mm lead

- Acme screws:

  Rolled - Non-preloaded & Preloaded Nuts:

  1.000 inch diameter, 0.100 inch lead
  1.000 inch diameter, 0.200 inch lead

25 06 06 - WC1 - 1 - S021 - M04 - C175 - L01 - E00 - B00

Table Series

Carriage Length

06 - 6 inches **12** - 12 inches

Travel Length (see pages I-6 & I-8)

06 - 6 to 56 inches

Waycovers

WC0 - with no waycovers **WC1** - with waycovers

Carriage Inserts (see pages I-7 & I-9)

1 - English mount **2** - Metric mount

Screw Options (see pages I-18 to I-21)

Rolled ball screws

S021 - 1.000 x .250 NPL
S022 - 1.000 x .250 PL
S023 - 1.000 x .250 NPL(T)
S024 - 1.000 x .250 PL(T)
S025 - 1.000 x .500 NPL
S026 - 1.000 x .500 PL
S027 - 1.000 x .500 NPL(T)
S028 - 1.000 x .500 PL(T)
S029 - 1.000 x 1.000 NPL
S030 - 1.000 x 1.000 PL
S031 - 1.000 x 1.000 NPL(T)
S032 - 1.000 x 1.000 PL(T)

Precision ball screws

S130 - 1.000 x .200 NPL
S131 - 1.000 x .200 PL
S132 - 25 x 10 NPL
S133 - 25 x 10 PL
S134 - 25 x 25 NPL
S135 - 25 x 25 PL
S999 - other

Ground ball screws

S218 - 1.000 x .200 PL
S219 - 1.000 x .500 PL
S220 - 25 x 25 PL

Rolled acme screws

S310 - 1.000 x .100 NPL
S311 - 1.000 x .100 PL
S312 - 1.000 x .200 NPL
S313 - 1.000 x .200 PL

Motor Mount (see pages I-7 & I-9, I-24 to I-25)

M00 - none
M04 - NEMA 34 mount (E)
M05 - NEMA 34 mount (M)
M08 - NEMA 34 (RH) wrap
M09 - NEMA 34 (LH) wrap
M10 - NEMA 42 mount (E)
M11 - NEMA 42 mount (M)
M12 - NEMA 42 (RH) wrap
M13 - NEMA 42 (LH) wrap
M99 - other

Coupling Options (see pages I-22 to I-23)

C000 - none
C064 *to* **C068** - C125
C091 *to* **C097** - C150
C175 *to* **C182** - H131
C212 *to* **C222** - H163
C455 *to* **C462** - G126
C492 *to* **C502** - G158
C999 - other

Limit & Home Switches (see pages I-15 to I-17)

L00 - no switches
L99 - other

	Mechanical	Reed	Hall	Prox (NPN)	Prox (PNP)
EOT & home switches	**L01**	**L04**	**L07**	**L10**	**L13**
EOT switches only	**L02**	**L05**	**L08**	**L11**	**L14**
home switch only	**L03**	**L06**	**L09**	**L12**	**L15**

Encoder Options (see page I-27)

E00 - none
E01 - rotary (500 lines/rev)
E02 - rotary (1000 lines/rev)
E03 - rotary (1270 lines/rev)
E10 - linear (2500 lines/inch)
E11 - linear (125 lines/mm)
E99 - other

Power-off Brakes (see page I-26)

B00 - none **B05** - 24 VDC **B06** - 90 VDC **B99** - other

(E) - English Interface
(LH) - Left Hand
(M) - Metric Interface
(NPL) - Non Preloaded
(PL) - Preloaded
(RH) - Right Hand
(T) - Turcite Nut

Specifications

Load Capacities		6 inch (2 bearing) Carriage	12 inch (4 bearing) Carriage
Dynamic Horizontal	2 million inches (50 km) of travel	8,300 lbs (3765 kg)	16,600 lbs (7530 kg)
Dynamic Horizontal	100 million inches (2540 km) of travel	2,225 lbs (1009 kg)	4,455 lbs (2020 kg)
Static Horizontal		13,600 lbs (6169 kg)	27,200 lbs (12338 kg)
Dynamic Roll Moment	2 million inches (50 km) of travel	1,655 ft-lbs (2244 N-m)	3,310 ft-lbs (4488 N-m)
Dynamic Roll Moment	100 million inches (2540 km) of travel	445 ft-lbs (603 N-m)	895 ft-lbs (1213 N-m)
Static Roll Moment		2,715 ft-lbs (3681 N-m)	5,425 ft-lbs (7355 N-m)
Dyn. Pitch & Yaw Moment	2 million inches (50 km) of travel	455 ft-lbs (617 N-m)	3,930 ft-lbs (5328 N-m)
Dyn. Pitch & Yaw Moment	100 million inches (2540 km) of travel	121 ft-lbs (164 N-m)	1,065 ft-lbs (1444 N-m)
Static Pitch & Yaw Moment		635 ft-lbs (861 N-m)	6,450 ft-lbs (8745 N-m)
Each Bearing Dyn. Capacity	2 million inches (50 km) of travel	4,150 lbs (1882 kg)	4,150 lbs (1882 kg)
Each Bearing Dyn. Capacity	100 million inches (2540 km) of travel	1,115 lbs (505 kg)	1,115 lbs (505 kg)
Each Bearing Static Load Capacity		6,800 lbs (3084 kg)	6,800 lbs (3084 kg)
Thrust Force Capacity	10 million screw revolutions	1,685 lbs (764 kg)	1,685 lbs (764 kg)
Thrust Force Capacity	500 million screw revolutions	455 lbs (206 kg)	455 lbs (206 kg)
Maximum Acceleration		386 in/sec^2 (9,8 m/sec^2)	772 in/sec^2 (19,6 m/sec^2)
d_1	Center to center distance (spread) between the two rails	6.000 in (152,4 mm)	6.000 in (152,4 mm)
d_2	Center to center distance (spacing) of the bearings on a single rail	-	6.730 in (170,9 mm)
d_r	Center distance of the bearing to top of carriage plate surface	2.180 in (55,4 mm)	2.180 in (55,4 mm)

Other	For 6 inch (2 bearing) & 12 inch (4 bearing) Carriages
Table Material	Base, Carriage, End Plates, & Cover Plate option - 6061 anodized aluminum
Linear Rail Material	Case Hardened Steel
Screw Material (see pages I-18 to I-21)	Acme Screw - Stainless Steel
Screw Material (see pages I-18 to I-21)	Rolled Ball, Precision Ball, & Ground Ball - Case Hardened Steel
Straightness	< 0.00004 in/in (< 1,02 microns/25mm)
Flatness	< 0.00004 in/in (< 1,02 microns/25mm)
Orthogonality (multi-axis systems)	< 15 arc-seconds
Friction Coefficient	< 0.01
Motor Mount	NEMA 23 & 34 Mounts, Metric Mounts, Motor Wraps, and Hand Crank Option
Coupling	Three (3) different styles available
Waycover Material	Hypilon Polyester Bellows firmly mounted to carriage & end plates

Dimensions & Specifications

- Without Waycovers -

Model Number	Travel Length inches (mm)	Table Dimensions inches (mm)		Mounting Dimensions inches (mm)			Screw Length inches (mm)	Table (1) Weight lbs (kg)
		A	B	C	D	M		
250607-WC0	7.5 (190)	15.25 (387,3)	18.25 (463,5)	2.370 (60,2)	3	8	17.05 (433)	51.8 (23,5)
250614-WC0	14.5 (365)	22.12 (561,8)	25.12 (638,0)	2.310 (58,7)	5	12	23.92 (608)	65.6 (29,8)
250621-WC0	21.5 (545)	29.25 (742,9)	32.25 (819,1)	2.370 (60,2)	7	16	31.05 (789)	80.4 (36,5)
250628-WC0	28.5 (720)	36.12 (917,4)	39.12 (993,6)	2.310 (58,7)	9	20	37.92 (963)	95.2 (43,2)
250635-WC0	35.5 (900)	43.12 (1095,2)	46.12 (1171,4)	2.310 (58,7)	11	24	44.92 (1141)	110.0 (49,9)
250642-WC0	42.5 (1075)	50.12 (1273,0)	53.12 (1349,2)	2.310 (58,7)	13	28	51.93 (1319)	124.8 (56,7)
250656-WC0	56.0 (1420)	64.00 (1625,6)	67.00 (1701,8)	2.250 (57,1)	17	36	65.80 (1671)	153.4 (69,6)
251207-WC0	7.5 (190)	21.25 (539,7)	24.25 (615,9)	1.870 (47,5)	5	12	23.05 (585)	76.8 (34,8)
251214-WC0	14.5 (365)	28.12 (714,2)	31.12 (790,4)	1.810 (46,0)	7	16	29.93 (760)	91.6 (41,5)
251221-WC0	21.5 (545)	35.25 (895,3)	38.25 (971,5)	1.870 (47,5)	9	20	37.05 (941)	106.4 (48,3)
251228-WC0	28.5 (720)	42.12 (1069,8)	45.12 (1146,0)	1.810 (46,0)	11	24	43.92 (1116)	121.2 (55,0)
251235-WC0	35.5 (900)	49.12 (1247,6)	52.12 (1323,8)	1.810 (46,0)	13	28	50.92 (1293)	136.0 (61,7)
251242-WC0	42.5 (1075)	56.12 (1425,4)	59.12 (1501,6)	1.810 (46,0)	15	32	57.92 (1471)	149.8 (67,9)
251256-WC0	56.0 (1420)	70.00 (1778,0)	73.00 (1854,2)	1.750 (44,4)	19	40	71.80 (1824)	179.4 (81,4)

06 = 6 inch (152,4 mm) carriage length; 2 bearings; carriage weight = 14.0 lbs. (6,35 kg)

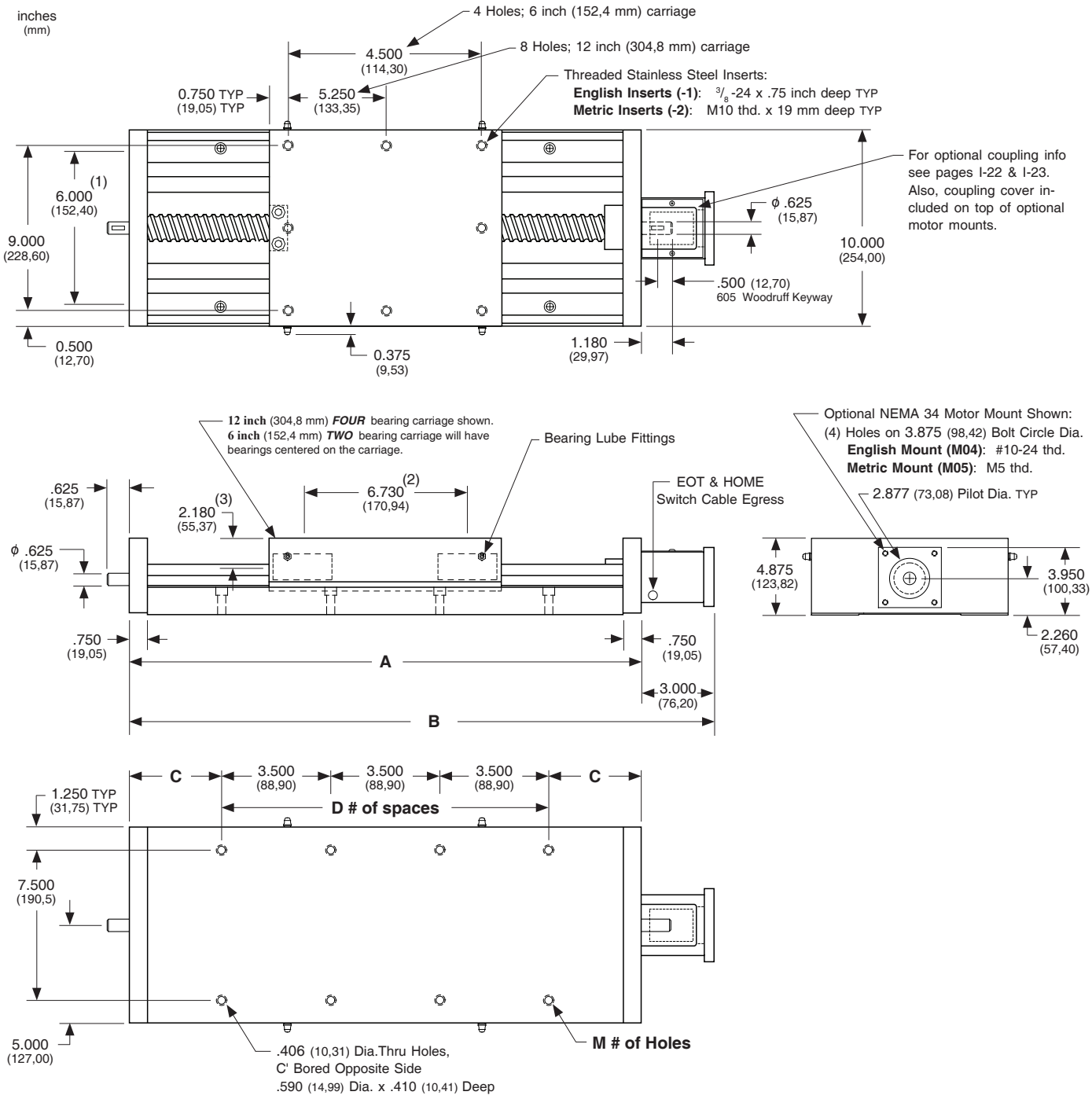
12 = 12 inch (304,8 mm) carriage length; 4 bearings; carriage weight = 26.0 lbs. (11,79 kg)

Footnotes:

(1) Weight shown is with a 1.000 inch (25 mm) diameter screw, a NEMA 34 motor mount [0.54 lbs (0,24 kg)], and a C125 style [0.22 lbs (0,10 kg)] coupling.

Dimensions

- Without Waycovers -



(1) This value is center to center distance (spread) between the two rails **(d_1)**.

(2) This value is center to center distance (spacing) of the bearings on a single rail **(d_2)**.

(3) This value is center distance of the bearing to top of carriage plate surface **(d_r)**.

Note: Any 250 series table can be mounted on top of any second 250 series, in order to create X-Y multiple axis configurations. The carriage's threaded stainless steel insert hole pattern DOES NOT exactly match the base mounting hole pattern on each table, therefore machining of the bottom axis carriage plate is required. Contact *LINTECH*.

Dimensions & Specifications

- With Waycovers -

Model Number	Travel Length inches (mm)	Table Dimensions inches (mm)		Mounting Dimensions inches (mm)			Screw Length inches (mm)	Table (1) Weight lbs (kg)
		A	B	C	D	M		
250606-WC1	6 (150)	15.25 (387,3)	18.25 (463,5)	2.370 (60,2)	3	8	17.05 (433)	54.0 (24,5)
250612-WC1	12 (300)	22.12 (561,8)	25.12 (638,0)	2.310 (58,7)	5	12	23.92 (608)	69.0 (31,3)
250618-WC1	18 (455)	29.25 (742,9)	32.25 (819,1)	2.370 (60,2)	7	16	31.05 (789)	85.0 (38,6)
250624-WC1	24 (605)	36.12 (917,4)	39.12 (993,6)	2.310 (58,7)	9	20	37.92 (963)	101.0 (45,8)
250630-WC1	30 (760)	43.12 (1095,2)	46.12 (1171,4)	2.310 (58,7)	11	24	44.92 (1141)	117.0 (53,1)
250636-WC1	36 (910)	50.12 (1273,0)	53.12 (1349,2)	2.310 (58,7)	13	28	51.93 (1319)	133.0 (60,3)
250648-WC1	48 (1215)	64.00 (1625,6)	67.00 (1701,8)	2.250 (57,1)	17	36	65.80 (1671)	164.0 (74,4)
251206-WC1	6 (150)	21.25 (539,7)	24.25 (615,9)	1.870 (47,5)	5	12	23.05 (585)	79.0 (35,8)
251212-WC1	12 (300)	28.12 (714,2)	31.12 (790,4)	1.810 (46,0)	7	16	29.93 (760)	95.0 (43,1)
251218-WC1	18 (455)	35.25 (895,3)	38.25 (971,5)	1.870 (47,5)	9	20	37.05 (941)	111.0 (50,3)
251224-WC1	24 (605)	42.12 (1069,8)	45.12 (1146,0)	1.810 (46,0)	11	24	43.92 (1116)	127.0 (57,6)
251230-WC1	30 (760)	49.12 (1247,6)	52.12 (1323,8)	1.810 (46,0)	13	28	50.92 (1293)	143.0 (64,9)
251236-WC1	36 (910)	56.12 (1425,4)	59.12 (1501,6)	1.810 (46,0)	15	32	57.92 (1471)	158.0 (71,7)
251248-WC1	48 (1215)	70.00 (1778,0)	73.00 (1854,2)	1.750 (44,4)	19	40	71.80 (1824)	190.0 (86,2)

06 = 6 inch (152,4 mm) carriage length; 2 bearings; carriage weight = 14.0 lbs. (6,35 kg)

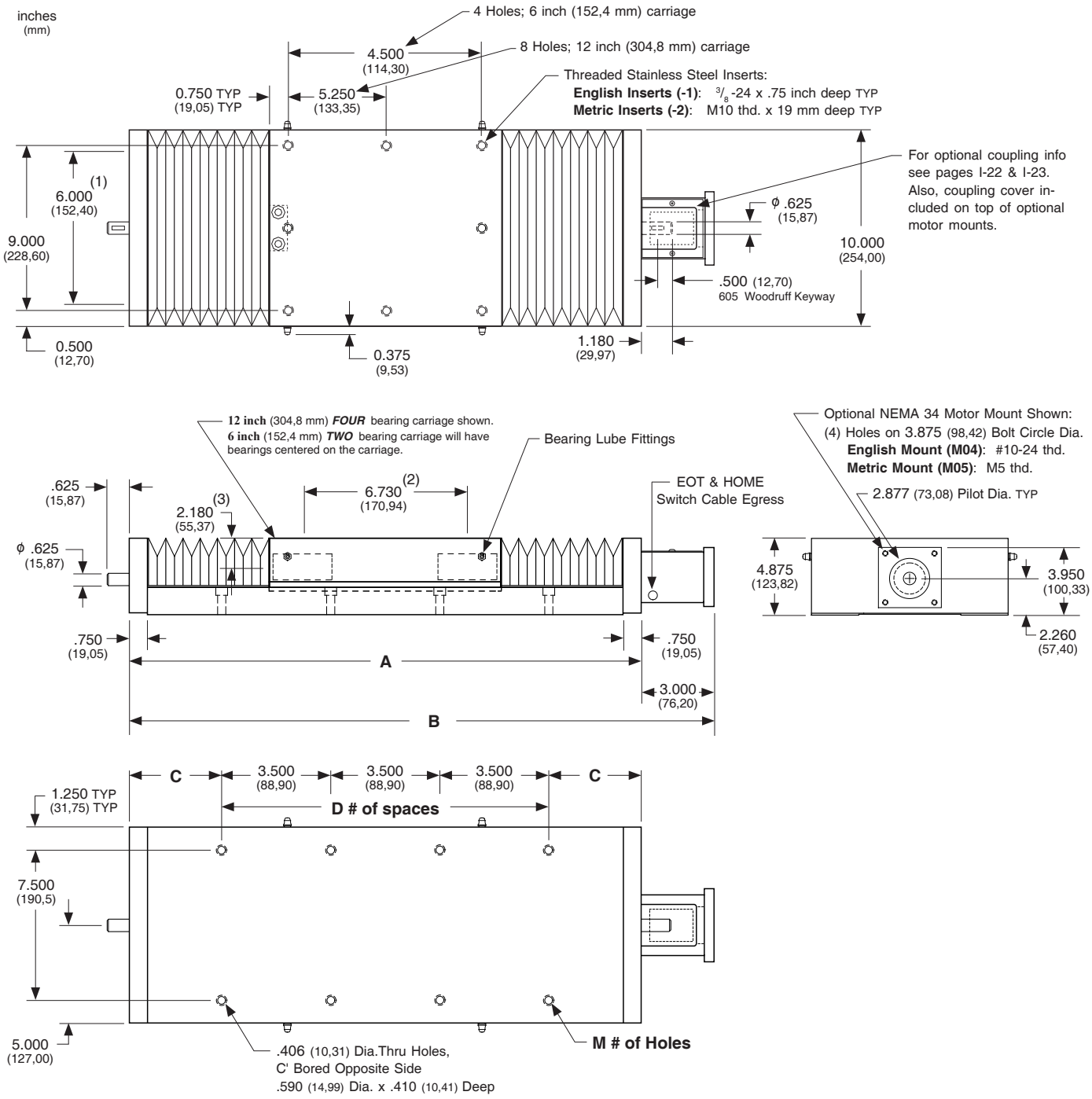
12 = 12 inch (304,8 mm) carriage length; 4 bearings; carriage weight = 26.0 lbs. (11,79 kg)

Footnotes:

(1) Weight shown is with a 1.000 inch (25 mm) diameter screw, a NEMA 34 motor mount [0.54 lbs (0,24 kg)], and a C125 style [0.22 lbs (0,10 kg)] coupling.

Dimensions

- With Waycovers -



(1) This value is center to center distance (spread) between the two rails **(d_1)**.

(2) This value is center to center distance (spacing) of the bearings on a single rail **(d_2)**.

(3) This value is center distance of the bearing to top of carriage plate surface **(d_r)**.

Note: Any 250 series table can be mounted on top of any second 250 series, in order to create X-Y multiple axis configurations. The carriage's threaded stainless steel insert hole pattern DOES NOT exactly match the base mounting hole pattern on each table, therefore machining of the bottom axis carriage plate is required. Contact *LINTECH*.

Linear Bearing Load Capacities

The following equation, and graphs, can be used to help determine the linear bearing life, and load capacity, of a 250 series positioning table.

$$L = \left[\frac{R}{F \times S} \right]^3 \times B$$

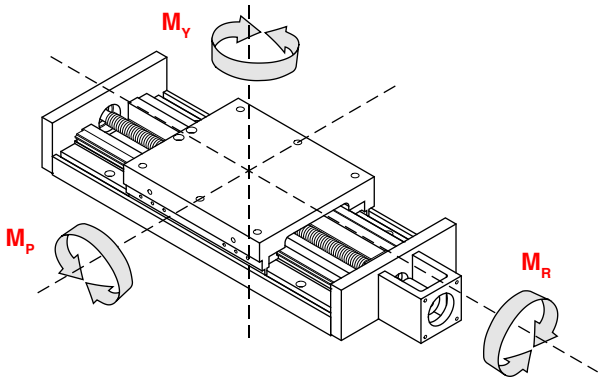
L = calculated travel life (millions of inches or Km)

R = rated dynamic load capacity of carriage (or each bearing) at 2 million inches of travel or 50 Km

F = user applied load

S = safety factor (1 to 8)

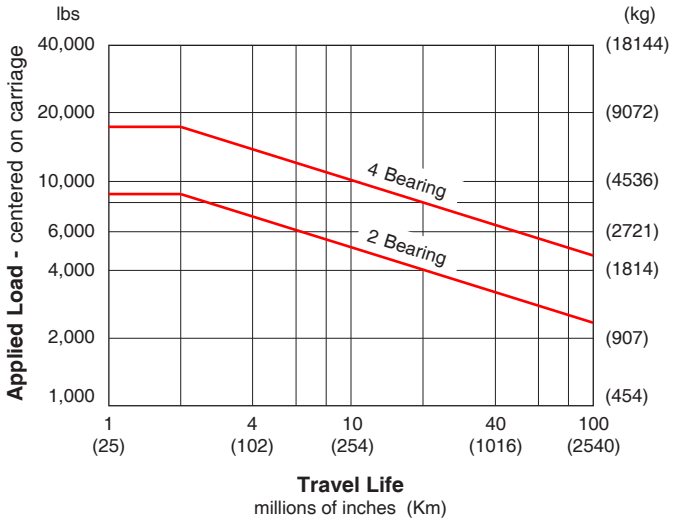
B = either 2 (for millions of inches) or 50 (for Km)



Dynamic Horizontal Load Capacity

Load Centered on Carriage

travel life		2 Bearing		4 Bearing	
millions of inches	(Km)	lbs	(kg)	lbs	(kg)
2	(50)	8,300	(3765)	16,600	(7530)
50	(1270)	2,830	(1284)	5,660	(2567)
100	(2540)	2,225	(1009)	4,455	(2020)

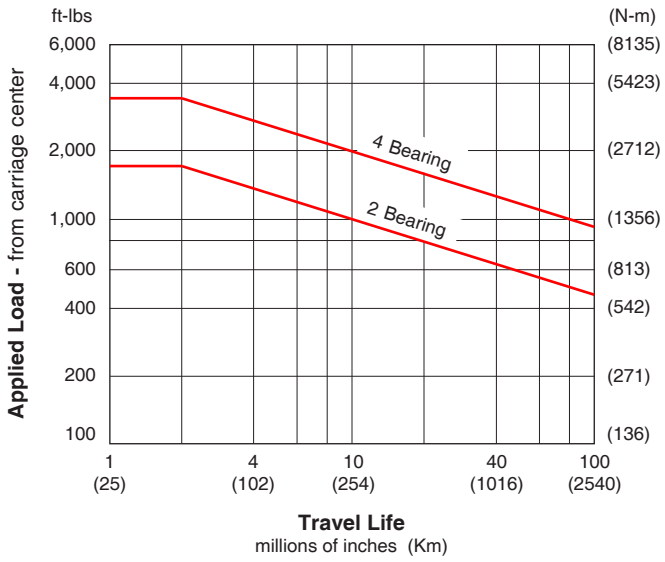


Dynamic Moment Load (M_R) Capacity

Load applied away from Carriage Center

travel life		2 Bearing		4 Bearing	
millions of inches	(Km)	ft-lbs	(N-m)	ft-lbs	(N-m)
2	(50)	1,655	(2244)	3,310	(4488)
50	(1270)	560	(759)	1,130	(1532)
100	(2540)	445	(603)	895	(1213)

Ratings are based on d_3 = 12 inches (305 mm) & d_4 = 0

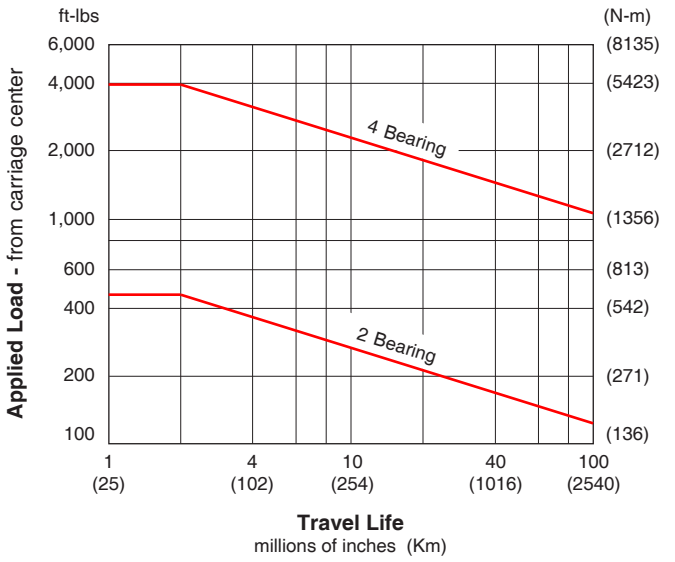


Dynamic Moment Load (M_P & M_Y) Capacity

Load applied away from Carriage Center

travel life		2 Bearing		4 Bearing	
millions of inches	(Km)	ft-lbs	(N-m)	ft-lbs	(N-m)
2	(50)	455	(617)	3,930	(5328)
50	(1270)	154	(209)	1,340	(1817)
100	(2540)	121	(164)	1,065	(1444)

Ratings are based on d_3 = 0 & d_4 = 12 inches (305 mm)



Specifications subject to change without notice

Screw Travel Life

The life of an acme or ball screw can be estimated by evaluating the load applied to the nut. The applied load "as seen by the screw nut" depends upon the table orientation. Typically, the extra force acting upon the screw nut during the acceleration interval is offset by a reduction in force during the deceleration interval. Therefore, evaluating the life of the screw nut at a constant speed is adequate. The life of the screw nut may not be the limiting element for a given application. See page I-12 for load/life capacity of the screw end support bearings.

Horizontal Application

$$F = (W \times \mu) + E$$

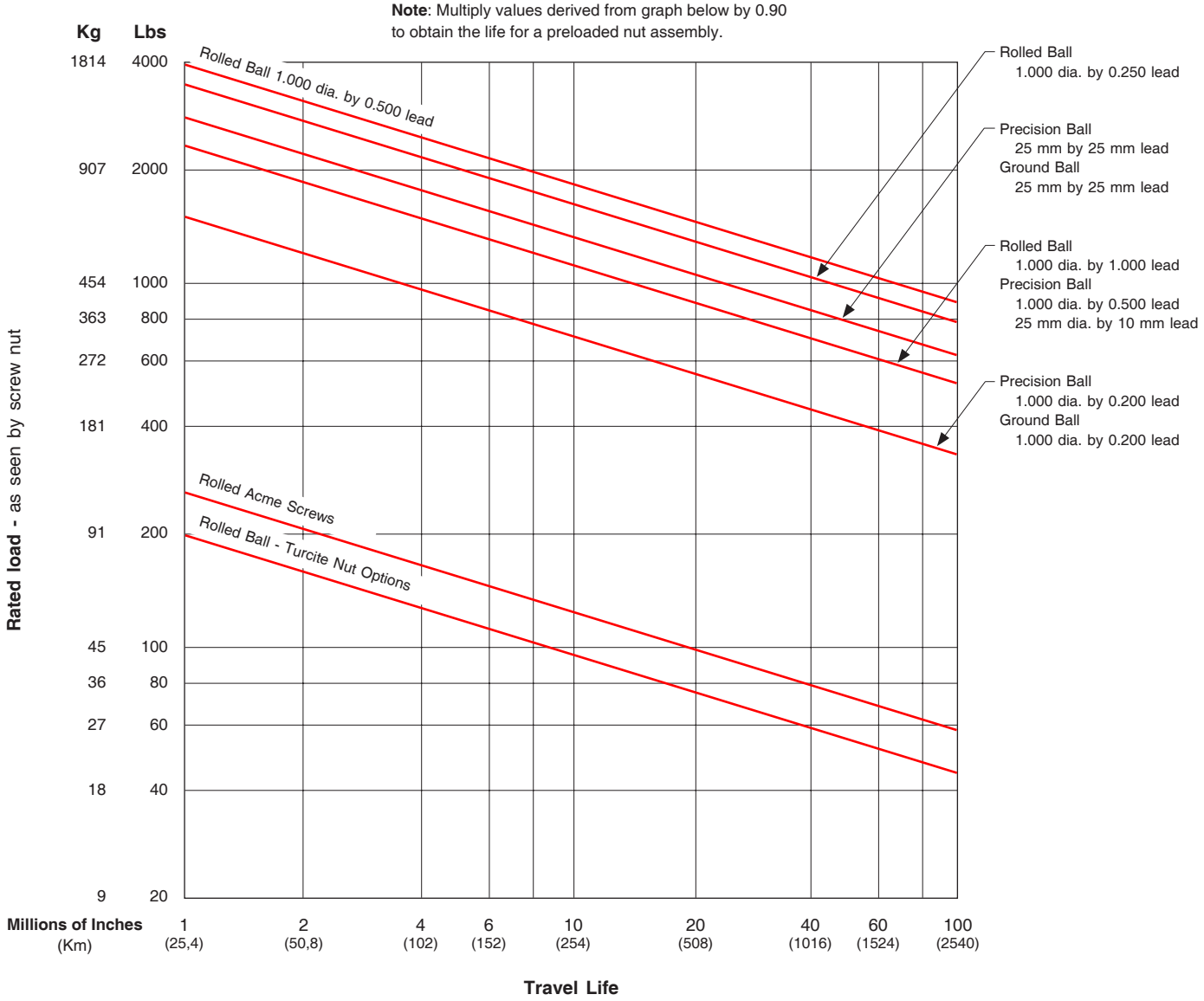
Vertical Application

$$F = W + E$$

$$L = \left[\frac{R}{F \times S}\right]^3 \times B$$

B = either 1 (for millions of inches) or 25 (for Km)
E = externally applied extra forces
F = applied axial load *(as seen by screw nut)*
L = calculated travel life (millions of inches or Km)
R = rated dynamic load capacity of screw nut at 1 million inches of travel or 25 Km (see pages I-20 & I-21)
S = safety factor (1 to 8)
W = user mounted load weight to carriage
μ = coefficient of friction for linear bearing system (0.01)

Note: Multiply values derived from graph below by 0.90 to obtain the life for a preloaded nut assembly.



Thrust Capacity (axial load)

The life of the screw end support bearings can be estimated by evaluating the applied axial (thrust) load. The applied load "as seen by the bearings" depends upon the table orientation. Typically, the extra force acting upon the bearings during the acceleration interval is offset by a reduction in force during the deceleration interval. Therefore, evaluating the life of the bearings at a constant speed is adequate. The life of the screw end support bearings may not be the limiting element for a given application. See page I-11 for load/life capacity of acme and ball screw nuts.

Horizontal Application

$$F = (W \times \mu) + E$$

Vertical Application

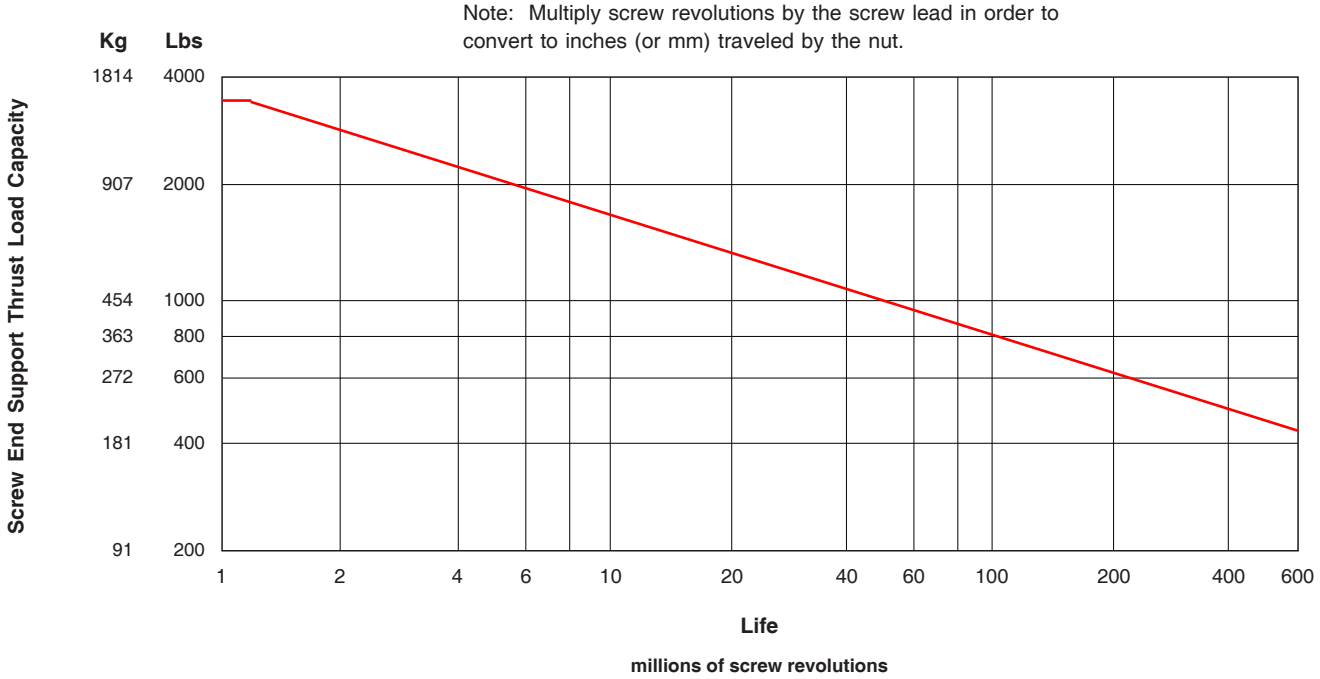
$$F = W + E$$

$$L = \left[\frac{R}{F \times S}\right]^3 \times B$$

B = 2 (for millions of revolutions)
E = externally applied extra forces
F = applied axial load *(as seen by the bearings)*
L = calculated life (millions of revolutions)
R = dynamic load capacity of bearings at 2 million screw revolutions (see below)
S = safety factor (1 to 8)
W = user mounted load weight to carriage
μ = coefficient of friction for linear bearing system (0.01)

Screw End Supports		Number of Screw Revolutions millions of screw revolutions						
		Static	1	2	10	50	100	500
Thrust Capacity	lbs (kg)	3,630 (1646)	3,630 (1646)	2,880 (1306)	1,685 (764)	990 (449)	795 (360)	455 (206)

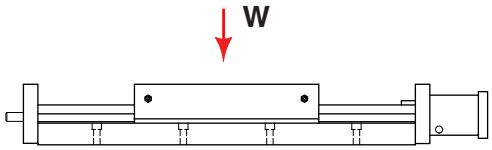
Note: Multiply screw revolutions by the screw lead in order to convert to inches (or mm) traveled by the nut.



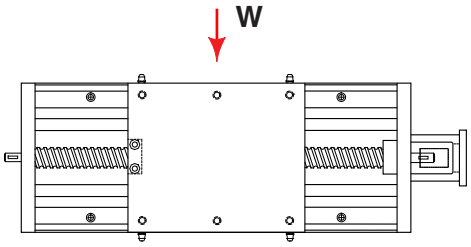
Moment of Inertia Values

The "moment of inertia" of an object is a gauge of the strength of that object to resist deflecting when used in an application or orientation where deflection might occur. The higher an I value relates to a lower amount of deflection.

I = 3.81 in^4 (15.86 x 10^5 mm^4)



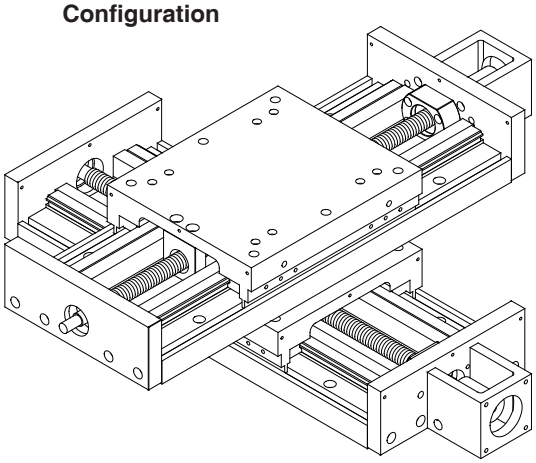
I = 144.1 in^4 (599.9 x 10^5 mm^4)



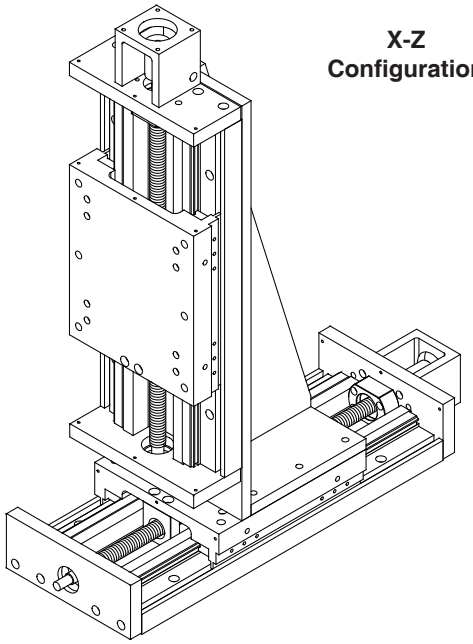
Multi-Axis Configurations

LINTECH can provide various adapter plates, and vertical adapter brackets, to facilitate the construction of X-Y, X-Z, and X-Y-Z multiple axis configurations. There are literally hundreds of different possible configurations available. See below for some of the more common systems. *LINTECH* has a great deal of experience in dealing with multiple axis configurations. Sometimes different standard table series can be mounted together to form a custom system. Other times, a complete custom assembly is created, due to the application details. Contact *LINTECH* for more information.

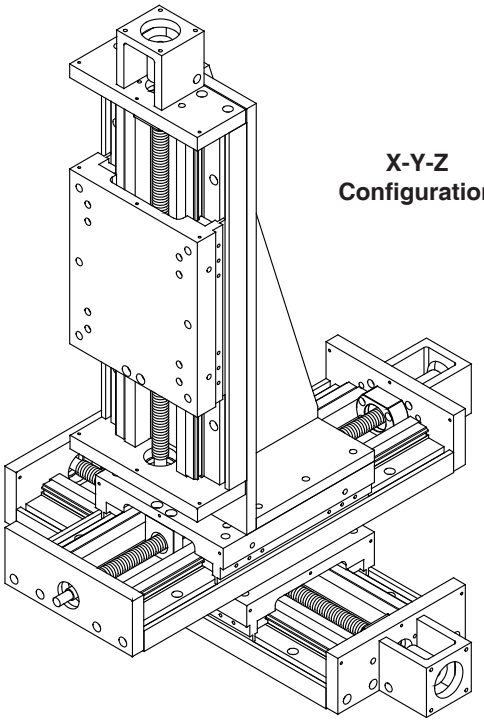
X-Y Configuration



X-Z Configuration



X-Y-Z Configuration



End of Travel (EOT) Switches & Home Switch

LINTECH provides several options for EOT & home switches. One style uses mechanically actuated switches, while other styles use "non-contact" versions. When ordered with a *LINTECH* 250 series table, each switch is mounted to the base of the table, while the actuating cams are mounted to the carriage assembly. Each switch is mounted to a plate that allows for a 0.625 inch (16 mm) adjustment range. The switches are pre-wired by *LINTECH* for easy interfacing to the users Motion Controller.

End of Travel (EOT) Switches

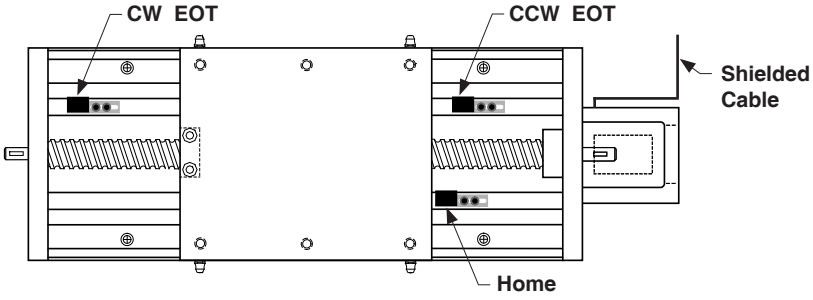
End of travel (EOT) switches can be utilized by a motion controller to stop carriage motion, thereby preventing any damage to personnel, table carriage, or user mounted load if the extreme end of travel has been reached by the carriage. There are two EOT switches mounted to the side of the table, one on each end. The CCW switch is mounted at the motor mount end, while the CW switch is located at the opposite end of the table. *LINTECH* provides normally closed (NC) end of travel switches. This provides for a power-off fail safe system, where the position controller can detect broken wires. *It is highly recommended that any positioning table used with a position controller, should have end of travel switches installed for protection of personnel, table carriage, and user mounted load.*

Home Switch

The home switch can be utilized by a motion controller as a known fixed mechanical location on the positioning table. The switch is located on the opposite side of the EOT switches, at the motor mount end, and is a normally open (NO) switch.

Switch Locations

The following diagram shows the locations of the switches when ordered from *LINTECH*.



Note: For the 250-WC0 series, EOT switches are normally located 0.125 inches (3 mm) inward from the maximum travel hard stops. Thus, reducing overall system travel by 0.25 inches (6 mm) from listed table travel for each model #. For the 250-WC1 series there is NO reduction of listed travel length when using EOT switches.

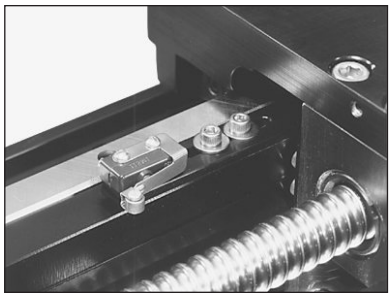
Note: Each switch bracket has a 0.625 inch (16 mm) adjustment range

Switch Type	Cost	Repeatability inches (microns)	Actuated	Power Supply Required	Activation Area inches (mm)	Comments
mechanical	least expensive	+/- 0.0002 (5)	mechanical	No	1.75 (44,45)	for most applications
reed	slightly more	+/- 0.0020 (50)	magnetic	No	0.30 (7,62)	for non-contact & low repeatable applications
hall effect	medium priced	+/- 0.0002 (5)	magnetic	Yes	0.32 (8,13)	for non-contact and wash down applications
proximity	most expensive	+/- 0.0002 (5)	non-magnetic	Yes	1.75 (44,45)	for non-contact, high speed, & wash down applications

Note: The repeatability of any switch is dependent upon several factors: carriage speed, accel rate, load weight, switch style, and the position controller. *LINTECH*'s ratings are based upon a carriage speed of 0.5 inches/sec (12.7 mm/sec) and a no load condition.

End of Travel (EOT) Switches & Home Switch

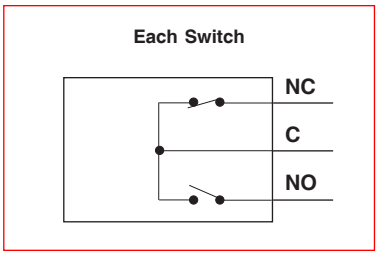
Mechanical Switches



Repeatability : +/- 0.0002 inch (5 microns)
Electrical : 5 amps @ 125 VAC
1 amp @ 85 VDC

Activation Style : mechanical cam
Activation Area : 1.75 inches (44,45 mm) of travel
Temperature Range : - 25° C to + 85° C
Environment : non wash down
Added Table Width : none

Individual Switch Wiring : none

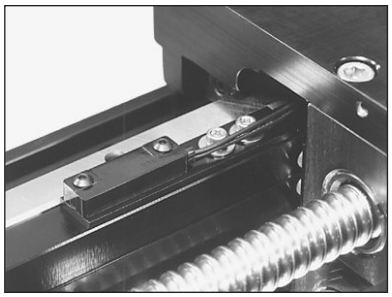


Standard *LINTECH* Wiring *(provided when switch option is ordered with any table)* : from table end plate, 10 foot (3 m) shielded cable, 6 conductor, 24 AWG, unterminated leads

Wire Color	Description
Black	CW EOT
Blue	CW Common
Red	CCW EOT
White	CCW Common
Brown	HOME
Green	HOME Common
Silver	Shield

Note: Hermetically sealed mechanical switches can be ordered as an option. This may be desired for "wash down" applications. Contact *LINTECH*.

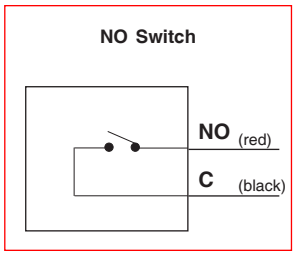
Non-Contact Reed Switches

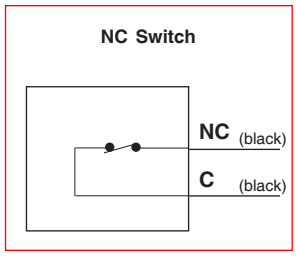


Repeatability : +/- 0.0020 inch (50 microns)
Electrical : 1.0 amps @ 125 VAC
0.5 amps @ 100 VDC

Activation Style : magnetic
Activation Area : 0.30 inches (7,62 mm) of travel
Temperature Range : - 10° C to + 60° C
Environment : non wash down
Added Table Width : none

Individual Switch Wiring : 12 inch (305 mm) leads





Standard *LINTECH* Wiring *(provided when switch option is ordered with any table)* : from table end plate, 10 foot (3 m) shielded cable, 6 conductor, 24 AWG, unterminated leads

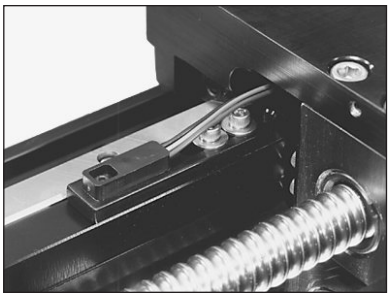
Wire Color	Description
Black	CW EOT (black)
Blue	CW Common (black)
Red	CCW EOT (black)
White	CCW Common (black)
Brown	HOME (red)
Green	HOME Common (black)
Silver	Shield

CW - Clockwise
CCW - Counter Clockwise
EOT - End of Travel
NC - Normally Closed
NO - Normally Open

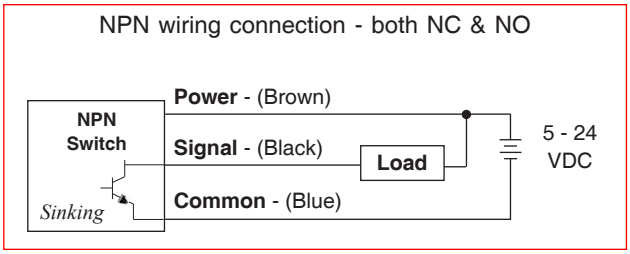
Specifications subject to change without notice

End of Travel (EOT) Switches & Home Switch

Non-Contact Hall Effect Switches



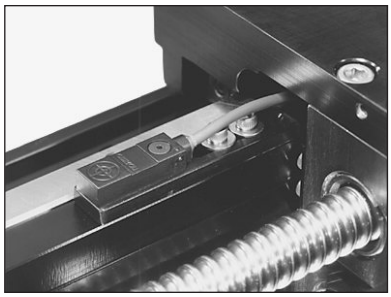
Repeatability	: +/- 0.0002 inch (5 microns)
Electrical	: 5 - 24 VDC 15 mA - power input 25 mA max - signal
Actuation Style	: magnetic
Activation Area	: 0.32 inches (8,13 mm) of travel
Temperature Range	: - 10° C to + 60° C
Environment	: wash down
Added Table Width	: none
Individual Switch Wiring	: 12 inch (305 mm) leads



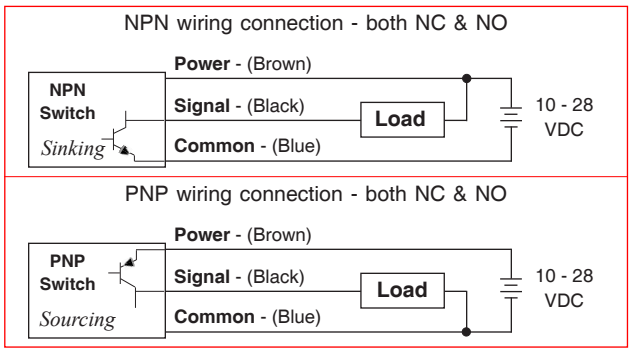
Standard *LINTECH* Wiring
(provided when switch option is ordered with any table)
: from table end plate, 10 foot (3 m) shielded cable; 9 conductor, 24 AWG, unterminated leads

Wire Color	Description			
Brown	CW Power	(brown)	switch	**NC**
Black	CW EOT	(black)		
Blue	CW Common	(blue)		
Red	CCW Power	(brown)	switch	**NC**
White	CCW EOT	(black)		
Green	CCW Common	(blue)		
Orange	Home Power	(brown)	switch	**NO**
Yellow	Home	(black)		
Grey	Home Common	(blue)		
Silver	Shield			

Non-Contact Proximity Switches



Repeatability	: +/- 0.0002 inch (5 microns)
Electrical	: 10 - 28 VDC 15 mA - power input 100 mA max - signal
Actuation Style	: non-magnetic cam
Activation Area	: 1.75 inches (44,45 mm) of travel
Temperature Range	: - 25° C to + 75° C
Environment	: IEC IP67 wash down
Added Table Width	: none
Individual Switch Wiring	: 6.5 foot (2 m) cable for NPN : 3.3 foot (1 m) cable for PNP



Standard *LINTECH* Wiring
(provided when switch option is ordered with any table)
: from table end plate, 10 foot (3 m) shielded cable; 9 conductor, 24 AWG, unterminated leads

Wire Color	Description			
Brown	CW Power	(brown)	switch	**NC**
Black	CW EOT	(black)		
Blue	CW Common	(blue)		
Red	CCW Power	(brown)	switch	**NC**
White	CCW EOT	(black)		
Green	CCW Common	(blue)		
Orange	Home Power	(brown)	switch	**NO**
Yellow	Home	(black)		
Grey	Home Common	(blue)		
Silver	Shield			

Screws - Acme & Ball

Acme screws use a turcite (polymer), or bronze nut. The nut threads ride in the matching acme screw threads, much like the ordinary nut and bolt system. This produces a higher friction (lower efficiency) system than a ball screw assembly, since there are no rolling elements between the nut and the acme screw threads. For applications requiring low speeds, noise and duty cycles, an acme screw works fine. Also, an acme screw is a good choice for most vertical applications, as it typically prevents back driving of the attached load.

Ball screws are the screw of choice for high duty cycle, high speed, and long life applications. The 250 series tables can be fitted with an assortment of ball screws. The ball screw nut uses one or more circuits of recirculating steel balls which roll between the nut and ball screw grooves, providing an efficient low friction system. Using a higher lead ball screw (for example a 0.500 inch lead instead of a 0.200 inch lead) will offer greater carriage speed for applications requiring rapid traverse, or fast, short incremental moves. Low wear and long life are key features of a ball screw system.

LINTECH provides three different ball screw configurations. The rolled ball screw system utilizes a tapped nut with a standard accuracy grade rolled screw. The precision ball screw system utilizes a ground nut with a higher accuracy grade rolled screw. The ground ball screw system utilizes a ground nut with a high accuracy precision ground screw.

Some screws are available with preloaded nuts. The preloaded nut assembly offers high *bidirectional* repeatability by eliminating backlash.

Consideration	Acme Screw	Ball Screws			Comments
		Rolled	Precision	Ground	
Audible noise	least audible noise	most audible noise	less audible noise than rolled screw	less audible noise than precision screw	***Acme***: no rolling elements provide for quiet operation. ***Ball***: recirculating balls in nut assembly transmit audible noise during motion; due to more accurate machining procedures - precision & ground ball screws are quieter than rolled ball screws.
Back Driving Loads	may prevent back driving	can easily back drive a load	can easily back drive a load	can easily back drive a load	***Acme***: good for light loads & vertical applications. ***Ball***: recirculating balls in nut assembly produce a low friction system; vertical applications may require a brake to hold the load when no power is applied to the motor.
Backlash *non-preloaded nut*	will increase with wear	constant	constant	constant	***Acme***: preloaded nut assembly eliminates backlash. ***Ball***: preloaded nut assembly eliminates backlash.
Duty Cycle	low to medium (< 50 %)	high (100 %)	high (100 %)	high (100 %)	***Acme***: low duty cycle due to high sliding friction. ***Ball***: high duty cycle due to recirculating balls in nut assembly; high efficiency & low friction system.
Life	shorter due to higher friction	long	long	long	***Acme***: mechanical wear related to duty cycle, load & speed. ***Ball***: minimal wear if operated in proper environment, within load specifications, and periodically lubricated.
Relative - Cost	slightly more than rolled ball	least expensive	slightly more than rolled ball	most expensive	***Acme***: a little more expensive than the rolled ball screw. ***Ball***: due to more accurate manufacturing procedures precision rolled & ground ball screws are more expensive.
Screw Efficiency	low 40 % -Acme 60 % -Turcite	high (90 %)	high (90 %)	high (90 %)	***Acme***: low efficiency due to high sliding friction. ***Ball***: high efficiency due to recirculating balls in nut assembly - low friction system.
Smoothness	can be smooth	least smooth	medium smoothness	smoothest	***Acme***: due to friction can start/stop at very low speeds. ***Ball***: smoothness is constant through a wide speed range; due to more accurate manufacturing procedures precision rolled & ground ball screws are smoother than rolled ball screws.
Speeds	low	high	high	high	***Acme***: high friction can causes excess heat & wear at high speeds. ***Ball***: recirculating balls in nut provide for a high speed system due to low friction & high efficiency.

Screws - Acme & Ball

250-WC0 series		250-WC1 series		Maximum Safe Table Operating Speed (1) in/sec (mm/sec)						
				Screw						
Model Number	Travel Length in (mm)	Model Number	Travel Length in (mm)	1.000 dia. 0.100 lead	1.000 dia. 0.200 lead	1.000 dia. 0.250 lead	1.000 dia. 0.500 lead	1.000 dia. 1.000 lead	25 mm dia. 10 mm lead	25 mm dia. 25 mm lead
250607	7.5 (190)	**250606**	6 (150)	5.0 (127)	10.0 (254)	12.5 (317)	25.0 (635)	50.0 (1270)	22.6 (574)	49.2 (1250)
250614	14.5 (365)	**250612**	12 (300)	5.0 (127)	10.0 (254)	12.5 (317)	25.0 (635)	50.0 (1270)	22.6 (574)	49.2 (1250)
250621	21.5 (545)	**250618**	18 (455)	5.0 (127)	10.0 (254)	12.5 (317)	25.0 (635)	50.0 (1270)	22.6 (574)	49.2 (1250)
250628	28.5 (720)	**250624**	24 (605)	4.4 (112)	8.9 (226)	11.1 (282)	22.2 (564)	44.5 (1130)	17.2 (437)	43.0 (1092)
250635	35.5 (900)	**250630**	30 (760)	3.1 (79)	6.2 (157)	7.8 (198)	15.6 (396)	31.2 (792)	12.1 (307)	30.2 (767)
250641	42.5 (1075)	**250636**	36 (910)	2.3 (58)	4.6 (117)	5.8 (147)	11.5 (292)	23.1 (587)	8.9 (226)	22.4 (569)
250655	56.0 (1420)	**250648**	48 (1215)	1.4 (36)	2.8 (71)	3.5 (89)	7.1 (180)	14.2 (361)	5.5 (140)	13.7 (348)
251207	7.5 (190)	**251206**	6 (150)	5.0 (127)	10.0 (254)	12.5 (317)	25.0 (635)	50.0 (1270)	22.6 (574)	49.2 (1250)
251214	14.5 (365)	**251212**	12 (300)	5.0 (127)	10.0 (254)	12.5 (317)	25.0 (635)	50.0 (1270)	22.6 (574)	49.2 (1250)
251221	21.5 (545)	**251218**	18 (455)	4.7 (119)	9.3 (236)	11.7 (297)	23.4 (594)	46.7 (1186)	18.1 (460)	45.2 (1148)
251228	28.5 (720)	**251224**	24 (605)	3.3 (84)	6.5 (165)	8.2 (208)	16.4 (417)	32.7 (831)	12.7 (323)	31.7 (805)
251235	35.5 (900)	**251230**	30 (760)	2.4 (61)	4.8 (122)	6.0 (152)	12.0 (305)	24.1 (612)	9.3 (236)	23.2 (589)
251242	42.5 (1075)	**251236**	36 (910)	1.8 (46)	3.7 (94)	4.6 (117)	9.2 (234)	18.4 (467)	7.1 (180)	17.8 (452)
251256	56.0 (1420)	**251248**	48 (1215)	1.2 (30)	2.4 (61)	3.0 (76)	5.9 (150)	11.8 (300)	4.6 (117)	11.5 (292)

Footnotes:

(1) These listed speeds are a mechanical limitation. The maximum speed of a positioning table depends on the screw diameter, screw lead, screw length, and the screw end bearing support configuration. *LINTECH* uses a fixed-simple screw end bearing support configuration in its positioning tables. The correct motor & drive system needs to be selected in order to obtain the above maximum table speeds.

Screws - Acme & Ball

SCREW	ROLLED BALL SCREWS							
	Dyn. (1) Capacity lbs (kg)	Static Capacity lbs (kg)	Screw Efficiency %	Breakaway Torque oz-in (N-m)	Position Accuracy inch/ft (microns/300 mm)	Backlash inches (microns)	Unidirectional Repeatability inches (microns)	Bidirectional Repeatability inches (microns)
1.000 inch dia. 0.250 inch lead								
Non-preloaded **(S021)**	3,350 (1519)	30,750 (13947)	90	25 (0,18)	< 0.009 (225)	< 0.009 (229)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0092 (234)
(2) *Preloaded* **(S022)**	3,015 (1367)	30,415 (13796)		40 (0,28)		0		+ 0.0002 (5) *to* - 0.0002 (5)
Non-preloaded **Turcite Nut (S023)**	195 (88)	1,500 (680)	60	35 (0,25)		< 0.009 (229)		+ 0.0002 (5) *to* - 0.0092 (234)
Preloaded **Turcite Nut (S024)**	175 (79)	1,500 (680)		60 (0,42)		0		+ 0.0002 (5) *to* - 0.0002 (5)
1.000 inch dia. 0.5000 inch lead								
Non-preloaded **(S025)**	3,950 (1791)	32,300 (14650)	90	30 (0,21)	< 0.009 (225)	< 0.009 (229)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0092 (234)
(2) *Preloaded* **(S026)**	3,555 (1612)	31,905 (14471)		50 (0,35)		0		+ 0.0002 (5) *to* - 0.0002 (5)
Non-preloaded **Turcite Nut (S027)**	195 (88)	1,500 (680)	60	45 (0,32)		< 0.009 (229)		+ 0.0002 (5) *to* - 0.0092 (234)
Preloaded **Turcite Nut (S028)**	175 (79)	1,500 (680)		80 (0,56)		0		+ 0.0002 (5) *to* - 0.0002 (5)
1.000 inch dia. 1.000 inch lead								
Non-preloaded **(S029)**	2,250 (1020)	13,750 (6236)	90	35 (0,25)	< 0.009 (225)	< 0.009 (229)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0092 (234)
(2) *Preloaded* **(S030)**	2,025 (918)	13,525 (6134)		60 (0,42)		0		+ 0.0002 (5) *to* - 0.0002 (5)
Non-preloaded **Turcite Nut (S031)**	195 (88)	1,500 (680)	60	50 (0,35)		< 0.009 (229)		+ 0.0002 (5) *to* - 0.0092 (234)
Preloaded **Turcite Nut (S032)**	175 (79)	1,500 (680)		90 (0,64)		0		+ 0.0002 (5) *to* - 0.0002 (5)

Footnotes:

(1) Dynamic load capacity of screw based on 1 million inches of travel (25Km).

(2) There is a 1.4 inch (35,6 mm) reduction of carriage travel (from the listed travel) when using a preloaded nut with this screw option for all the 250-WC0 (6 inch carriage) model versions. All the 12 inch carriage model numbers and the 250-WC1 series are not affected.

Screws - Acme & Ball

SCREW		PRECISION BALL SCREWS							
		Dyn. (1) Capacity lbs (kg)	Static Capacity lbs (kg)	Screw Efficiency %	Breakaway Torque oz-in (N-m)	Position Accuracy inch/ft (microns/300 mm)	Backlash inches (microns)	Unidirectional Repeatability inches (microns)	Bidirectional Repeatability inches (microns)
1.000 inch dia. 0.200 inch lead	*Non-preloaded* (S130)	1,420 (644)	4,600 (2086)	90	20 (0,14)	< 0.002 (50)	< 0.003 (76)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0032 (81)
	Preloaded (S131)	1,275 (578)	4,140 (1878)		30 (0,21)		0		+ 0.0002 (5) *to* - 0.0002 (5)
25 mm dia. 10 mm lead	*Non-preloaded* (S132)	2,305 (1045)	6,250 (2835)	90	25 (0,18)	< 0.002 (50)	< 0.003 (76)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0032 (81)
	Preloaded (S133)	2,075 (941)	5,625 (2551)		40 (0,28)		0		+ 0.0002 (5) *to* - 0.0002 (5)
25 mm dia. 25 mm lead	*Non-preloaded* (S134)	2,785 (1263)	7,550 (3425)	90	35 (0,25)	< 0.002 (50)	< 0.003 (76)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0032 (81)
	Preloaded (S135)	2,506 (1,137)	6,795 (3082)		60 (0,42)		0		+ 0.0002 (5) *to* - 0.0002 (5)

SCREW	GROUND BALL SCREWS							
	Dyn. (1) Capacity lbs (kg)	Static Capacity lbs (kg)	Screw Efficiency %	Breakaway Torque oz-in (N-m)	Position Accuracy inch/ft (microns/300 mm)	Backlash inches (microns)	Unidirectional Repeatability inches (microns)	Bidirectional Repeatability inches (microns)
1.000 dia., 0.200 lead *Preloaded* (S218)	1,420 (644)	4,600 (2086)	90	30 (0,21)	< 0.0006 (15)	0	+/- 0.0001 (2,5)	+ 0.0001 (2,5) *to* - 0.0001 (2,5)
1.000 dia., 0.500 lead *Preloaded* (S219)	2,470 (1120)	6,695 (3037)	90	40 (0,28)	< 0.0006 (15)	0	+/- 0.0001 (2,5)	+ 0.0001 (2,5) *to* - 0.0001 (2,5)
25 mm dia., 25 mm lead *Preloaded* (S220)	2,785 (1263)	7,550 (3425)	90	50 (0,35)	< 0.0006 (15)	0	+/- 0.0001 (2,5)	+ 0.0001 (2,5) *to* - 0.0001 (2,5)

SCREW		ROLLED ACME SCREWS							
		Dyn. (1) Capacity lbs (kg)	Static Capacity lbs (kg)	Screw Efficiency %	Breakaway Torque oz-in (N-m)	Position Accuracy inch/ft (microns/300 mm)	Backlash inches (microns)	Unidirectional Repeatability inches (microns)	Bidirectional Repeatability inches (microns)
1.000 inch dia. 0.100 inch lead	*Non-preloaded* (S310)	250 (113)	1,250 (567)	40	20 (0,14)	< 0.003 (75)	< 0.008 (203)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0082 (208)
	Preloaded (S311)	225 (102)	1,125 (510)		40 (0,28)		0		+ 0.0002 (5) *to* - 0.0002 (5)
1.000 inch dia. 0.200 inch lead	*Non-preloaded* (S312)	250 (113)	1,250 (567)	40	30 (0,21)	< 0.003 (75)	< 0.008 (203)	+/- 0.0002 (5)	+ 0.0002 (5) *to* - 0.0082 (208)
	Preloaded (S313)	225 (102)	1,125 (510)		60 (0,42)		0		+ 0.0002 (5) *to* - 0.0002 (5)

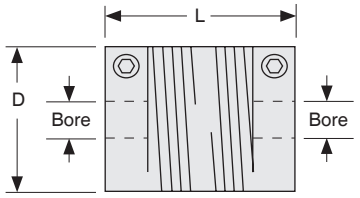
Footnotes:

(1) Dynamic load capacity of screw based on 1 million inches of travel (25Km).

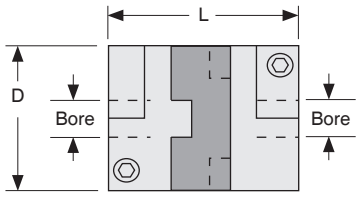
Motor Couplings

LinTech provides three different types of couplings that can be used to mount a motor to a positioning table. These couplings compensate for misalignment between the motor shaft & screw shaft extension. This provides for trouble-free operation as long as certain precautions are taken. The connected motor output torque should never exceed the coupling maximum torque capacity. Larger capacity couplings may be required for applications having high accelerations, large back driving loads, high torque output motors, or servo motors.

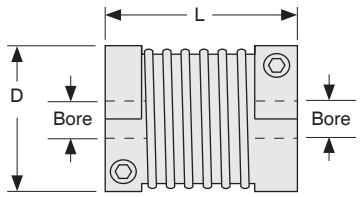
C Type - Helical-Cut Clamp Style Design
(Aluminum)



H Type - 3 Member Clamp Style Design
(Aluminum Hubs with Acetal Disc)



G Type - Low Wind-up, High Torque Clamp Style Design
(Aluminum Hubs with Stainless Steel Bellows)



Model Number (1)	D inches (mm)	L inches (mm)	Bore Diameters Table	Motor	Minimum (in)	Minimum (mm)	Maximum (in)	Maximum (mm)	Weight ounces (grams)	Inertia oz-in² (g-cm²)	Wind-up arc-sec/oz-in (deg/N-m)	Max Torque oz-in (N-m)
C125-625-aaa	1.25 (31,8)	2.00 (50,8)	**625**	**aaa**	.250	6	.500	14	3.5 (99)	.68 (124)	15.0 (0,59)	700 (4,9)
C150-625-aaa	1.50 (38,1)	2.37 (60,2)	**625**	**aaa**	.375	10	.625	16	5.5 (156)	1.54 (282)	13.0 (0,51)	950 (6,7)
H131-625-aaa	1.31 (33,3)	1.89 (48,0)	**625**	**aaa**	.250	6	.625	16	2.9 (82)	.62 (114)	2.5 (0,098)	1,000 (7,1)
H163-625-aaa	1.63 (41,4)	2.00 (50,8)	**625**	**aaa**	.375	10	.750	20	5.4 (153)	1.79 (328)	1.2 (0,047)	2,000 (14,1)
G126-625-aaa	1.26 (32,1)	1.62 (41,0)	**625**	**aaa**	.250	6	.625	16	2.7 (74)	.54 (99)	0.3 (0,012)	1,100 (7,7)
G158-625-aaa	1.58 (40,2)	1.85 (47,0)	**625**	**aaa**	.375	10	.750	20	4.3 (120)	1.34 (245)	0.2 (0,008)	2,400 (17,0)
Possible values for **aaa**	250 = .250 inch 375 = .375 inch 500 = .500 inch 625 = .625 inch		750 = .750 inch		006 = 6 mm 008 = 8 mm 010 = 10 mm		012 = 12 mm 014 = 14 mm 016 = 16 mm 018 = 18 mm		019 = 19 mm 020 = 20 mm			

Footnotes:

(1) See page I-23 for maximum coupling diameter and length specifications for use with the optional NEMA 34 and 42 motor mounts. Custom motor mounts can be provided upon request.

Motor Couplings

Coupling	Cost	Torque Capacity	Wind-up	Suggested Motor	Comments
C Type	least expensive	light	the most	stepper	ideal for most step motor applications
H Type	medium priced	medium	medium	stepper or servo	use for high accels & for starting & stopping large inertia loads
G Type	most expensive	high	the least	servo	use for very high torque requirements & very high servo accelerations

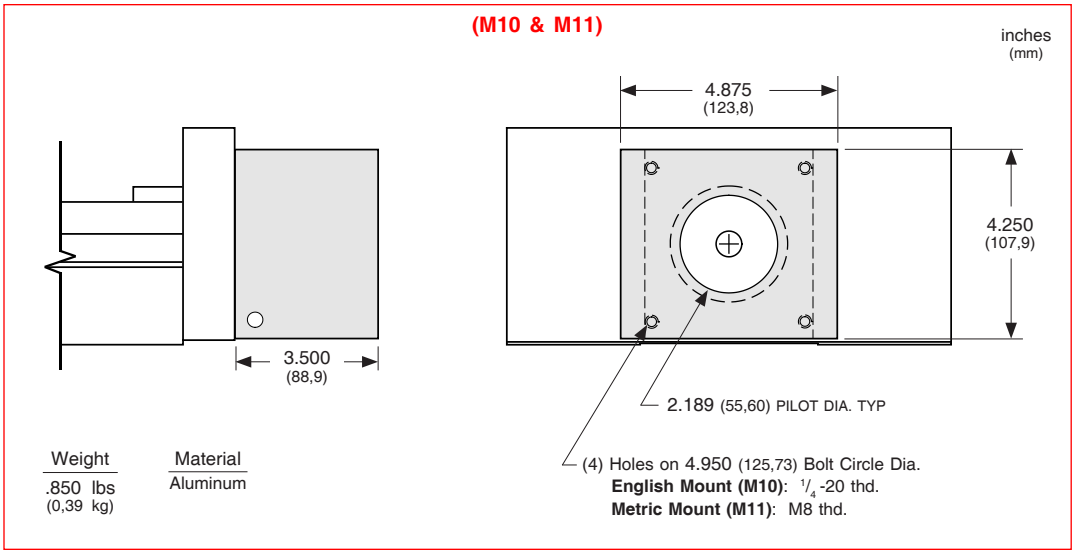
Specification	**250 Series** NEMA 34 bracket inches (mm)	**250 Series** NEMA 42 bracket inches (mm)
Shaft extension diameter at motor mount end	0.625 (15,9)	0.625 (15,9)
Maximum coupling diameter	2.000 (50,8)	2.000 (50,8)
Maximum coupling length	2.500 (63,5)	2.500 (63,5)
Note: Custom brackets available upon request.		

Coupling Part Numbers

C064	C125-625-375	**C175**	H131-625-375	**C455**	G126-625-375
C065	C125-625-500	**C176**	H131-625-500	**C456**	G126-625-500
C066	C125-625-010	**C177**	H131-625-625	**C457**	G126-625-625
C067	C125-625-012	**C178**	H131-625-008	**C458**	G126-625-008
C068	C125-625-014	**C179**	H131-625-010	**C459**	G126-625-010
		C180	H131-625-012	**C460**	G126-625-012
C091	C150-625-375	**C181**	H131-625-014	**C461**	G126-625-014
C092	C150-625-500	**C182**	H131-625-016	**C462**	G126-625-016
C093	C150-625-625				
C094	C150-625-010	**C212**	H163-625-375	**C492**	G158-625-375
C095	C150-625-012	**C213**	H163-625-500	**C493**	G158-625-500
C096	C150-625-014	**C214**	H163-625-625	**C494**	G158-625-625
C097	C150-625-016	**C215**	H163-625-750	**C495**	G158-625-750
		C216	H163-625-010	**C496**	G158-625-010
		C217	H163-625-012	**C497**	G158-625-012
		C218	H163-625-014	**C498**	G158-625-014
		C219	H163-625-016	**C499**	G158-625-016
		C220	H163-625-018	**C500**	G158-625-018
		C221	H163-625-019	**C501**	G158-625-019
		C222	H163-625-020	**C502**	G158-625-020

NEMA 42 Motor Mount

The NEMA 42 motor adapter bracket is an aluminum bracket that mounts to the 250 series tables. The bracket can be ordered in either an English, or Metric motor mount. *LINTECH* can provide adapter brackets for any step motor, or servo motor, that has other mounting requirements.



Chrome Plated Linear Bearings, Rails, and Screws

For applications in high moisture, high humidity, clean room, or highly corrossive environments, chrome plating of the linear bearings, linear rails, and the screw will offer superior resistance to corrosion than stainless steel components, resulting in longer table life. The process uniformly deposits dense, hard, high chromium alloy on the rails or screw, and has a Rockwell C hardness value of 67-72. This process also conforms to MIL Spec: (MIL-C-23422). The chrome plating bonds to the parent material and will not crack or peel off under the high point loading of balls on the rail, or screw. This chrome plating process differs from a normal hard chrome plate which just lays on the surface of the part plated.

Motor Wrap Packages

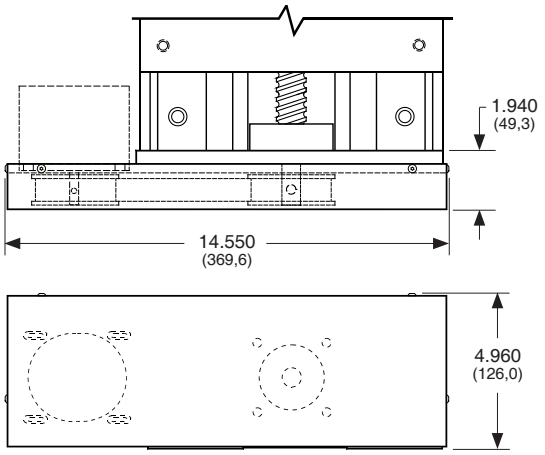
For space limited 250 series applications, a belt and pulley system can couple the screw shaft extension to the motor shaft. This wraps the motor parallel to the table in order to decrease the overall positioning system length. Pulley weights and diameters are given in order to assist in calculating motor torque requirements.

NEMA 34 Right Hand Motor Wrap (M08)

2.0 lbs (0,91 kg) added to table weight

Motor Pulley Bore: 0.375 inch (9,52 mm)

inches (mm)

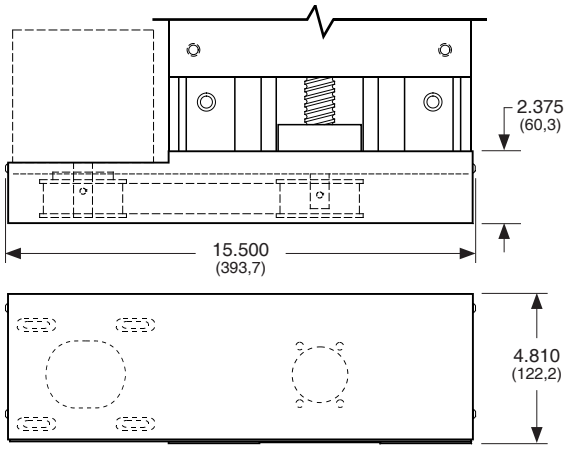


NEMA 42 Right Hand Motor Wrap (M12)

2.2 lbs (1,00 kg) added to table weight

Motor Pulley Bore: 0.625 inch (15,87 mm)

inches (mm)



Motor Wrap Frame Size	**Motor Pulley Dia.** inches (mm)	**Motor Pulley Wt.** ounces (kg)	**Screw Pulley Dia.** inches (mm)	**Screw Pulley Wt.** ounces (kg)	**Belt Weight** ounces (kg)
NEMA 34	1.65 (41,9)	8.0 (0,23)	1.65 (41,9)	8.0 (0,23)	1.2 (0,034)
NEMA 42	2.12 (53,9)	19.2 (0,54)	2.12 (53,9)	19.2 (0,54)	3.0 (0,085)

Note: Right hand motor wraps shown. The left hand wrap packages orient the motor to the opposite side of the table. Motor pulley & belt shipped "loose". No motor mount nuts & bolts are provided. Custom motor wrap packages are available upon request. Other motor pulley bores MUST be specified for non-NEMA motors.

Power-off Electric Brakes

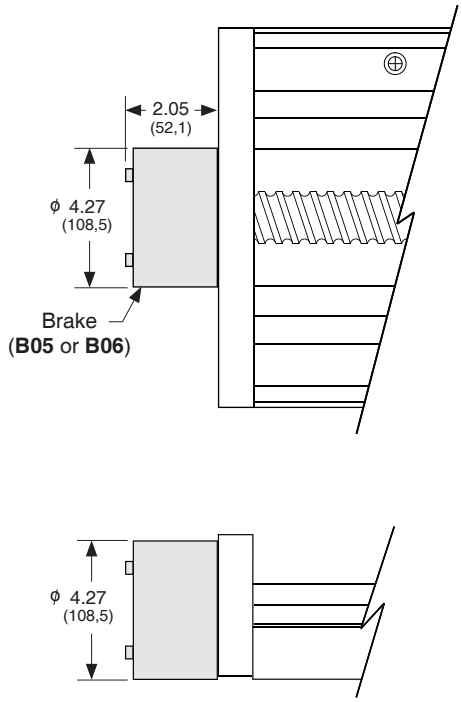
For vertical table applications, or for those applications requiring the load to be locked securely in place, an electric brake may be mounted to the positioning table. The 250 series will have the brake mounted to the screw shaft extension located on the table end, opposite the motor mount bracket. With proper wiring from a control system, this power-off friction brake can ensure that the carriage is firmly held in place, when no electric power is applied to the brake. When power is applied to the brake, the brake is opened or "released".

For proper emergency braking of the positioning table, this electric brake needs to be interfaced to a position controller or relay network. *LINTECH* also provides 24 & 90 VDC power supplies which can be used to power the brakes.

250 Series

inches (mm)

Table end opposite motor mount bracket



Brakes

Model Number	Holding Force in-lbs (N-m)	Excitation Voltage volts	Current amps	Weight lbs (kg)
B05	180 (20,3)	24 VDC	1.136	4.5 (2,04)
B06	180 (20,3)	90 VDC	0.287	4.5 (2,04)

Note: This power-off electric brake MUST NOT be engaged when the positioning table is in motion. Moving the table with the brake applied could damage the brake and the positioning table. Also, continuous use of this brake to stop a table (load) that is in motion could damage the brake and the positioning table. Dynamic braking of a positioning table should be done by the motor and not the brake.

Power Supplies

Model Number	DC Output			AC Input		
	volts	amps	style	volts	amps	Hz
41970	5	3.0	regulated	120 / 240	0.8 / 0.4	47-63
37488	24	1.2	regulated	120 / 240	0.8 / 0.4	47-63
37489	90	0.8	unregulated	120	1.0	50/60
37490	90	0.8	unregulated	240	0.5	50/60

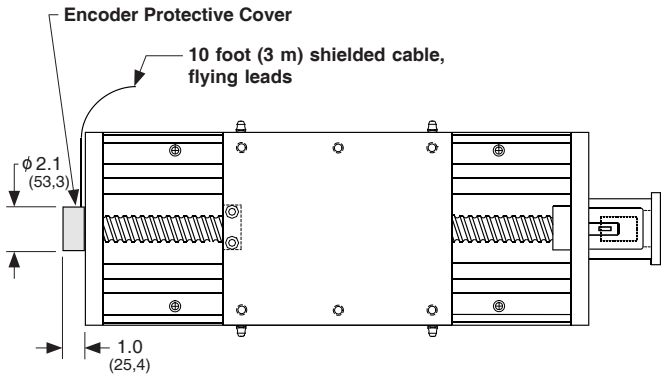
Linear & Rotary Incremental Encoders

Fully enclosed, incremental, optical linear encoders can be mounted along side any *LINTECH* 250 series table. Shaftless, incremental, optical rotary encoders can be mounted to the screw shaft extension opposite the motor mount end on the 250 series positioning tables. These encoders provide positional feedback to either a motion controller, or a digital position display.

LINEAR		ROTARY	Description
Din Pin #	Wire Color	Wire Color	
C	*Green*	*White*	Channel A^+ (or A)
D	*Yellow*	*Blue*	Channel A^- (or $\overline{A}$)
E	*Pink*	*Green*	Channel B^+ (or B)
L	*Red*	*Orange*	Channel B^- (or $\overline{B}$)
G	*Brown*	*White/Black*	Channel Z^+ (or Z)
H	*Grey*	*Red/Black*	Channel Z^- (or $\overline{Z}$)
A	*Shield*		Case ground
B	*White*	*Black*	Common
K	*Black*	*Red*	+ 5 vdc (+/- 5%)

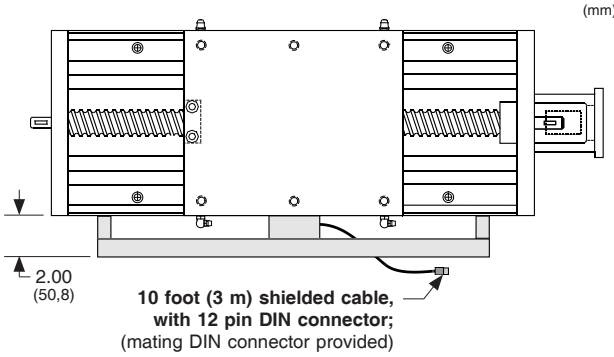
Rotary Encoder - 250 Series

inches (mm)



Linear Encoder - 250 Series

inches (mm)



Note: The encoder read head is mounted to the table carriage with the encoder lip seal facing down.

Specification	ROTARY ENCODERS			LINEAR ENCODERS	
	E01	E02	E03	E10	E11
Line Count	500 lines/rev	1000 lines/rev	1270 lines/rev	2500 lines/inch	125 lines/mm
Pre Quadrature Resolution	0.002 revs/pulse	0.001 revs/pulse	0.00079 revs/pulse	0.0004 inch/pulse	8 microns/pulse
Post Quadrature Resolution	0.0005 revs/pulse	0,00025 revs/pulse	0.00019 revs/pulse	0.0001 inch/pulse	2 micron/pulse
Accuracy				+/- 0.0002 in/40"	+/- 5 microns/m
Maximum Speed	50 revs/sec			79 inches/sec	2 m/sec
Maximum Accel	40 revs/sec^2			130 ft/sec^2	40 m/sec^2
Excitation Power	+ 5 VDC @ 125 ma			+ 5 VDC @ 150 ma	
Operating Temperature	32^0 F to 140^0 F (0^0 C to 60^0 C)			32^0 F to 120^0 F (0^0 C to 50^0 C)	
Humidity	20% to 80% non condensing			20% to 80% non condensing	
Shock	10 G's for 11 msec duration			15 G's for 8 msec duration	
Weight	0.7 lbs (0,283 kg)			0.7 oz/inch (0,00078 kg/mm) length of scale + 0.5 lbs (0,23 kg) read head and brackets	
Cable Length	10 ft (3 m), unterminated 26 gauge leads			10 ft (3 m) with DIN connector	
Zero Reference Output	Once per revolution			At center of encoder length	
Outputs	TTL square wave; Two channel (A+ & B+); Differential (A- & B-); Line Driver				

Notes