

614 **6** **06** - **NE** - **TB0** - **BC0** - **1** - **S005** - **M02** - **C155** - **L01R** - **E00** - **B00**

Table Series

- 2 - 2 bearing carriage
- 4 - 4 bearing carriage

Carriage Length

- 6 - 6 inches

Travel Length (see pages F-6 to F-7)

- 06 - 6 to 60 inches

Screw Style

- NE** - no screw extension **SE** - screw extension

Tapped Mounting holes in Base (see page F-7)

- TB0** - No holes **TB1** - English holes **TB2** - Metric holes

Linear Bearing Type (See page F-11)

- BC0** - No Ball Chain **BC1** - With Ball Chain

Carriage Inserts (see page F-7)

- 1 - English mount 2 - Metric mount

Screw Options (see pages F-12 to F-17)

- | | | |
|-----------------------------------|----------------------------------|-------------------------------|
| <i>Rolled ball screws</i> | <i>Rolled ball screws</i> | <i>Precision ball screws</i> |
| S005 - .625 x .200 NPL | S017 - .750 x .500 NPL | S114 - .625 x .200 NPL |
| S006 - .625 x .200 PL | S018 - .750 x .500 PL | S115 - .625 x .200 PL |
| S007 - .625 x .200 NPL(T) | S019 - .750 x .500 NPL(T) | S116 - 16 x 5 NPL |
| S008 - .625 x .200 PL(T) | S020 - .750 x .500 PL(T) | S117 - 16 x 5 PL |
| S009 - .625 x 1.000 NPL | | S118 - 16 x 10 NPL |
| S010 - .625 x 1.000 PL | <i>Ground ball screws</i> | S119 - 16 x 10 PL |
| S011 - .625 x 1.000 NPL(T) | S212 - .625 x .200 PL | S120 - 16 x 16 NPL |
| S012 - .625 x 1.000 PL(T) | S213 - .625 x .500 PL | S121 - 16 x 16 PL |
| S013 - .750 x .200 NPL | S214 - 16 x 5 PL | S122 - .750 x .200 NPL |
| S014 - .750 x .200 PL | S215 - 16 x 16 PL | S123 - .750 x .200 PL |
| S015 - .750 x .200 NPL(T) | <i>Rolled acme screws</i> | S124 - 20 x 5 NPL |
| S016 - .750 x .200 PL(T) | S300 - .625 x .100 NPL | S125 - 20 x 5 PL |
| | S301 - .625 x .100 PL | S128 - 20 x 20 NPL |
| | S302 - .625 x .200 NPL | S129 - 20 x 20 PL |
| S999 - other | S303 - .625 x .200 PL | |

Motor Mount (see pages F-24 to F-25)

- | | | |
|---------------------------------|--------------------------------|--------------------------------|
| M00 - none | M02 - NEMA 23 mount (E) | M06 - NEMA 23 (RH) wrap |
| M01 - hand crank | M03 - NEMA 23 mount (M) | M07 - NEMA 23 (LH) wrap |
| M16 to M98 - see Website | M04 - NEMA 34 mount (E) | M08 - NEMA 34 (RH) wrap |
| M99 - other | M05 - NEMA 34 mount (M) | M09 - NEMA 34 (LH) wrap |

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

- | | | | |
|---------------------|----------------------------|----------------------------|----------------------------|
| C000 - none | C025 to C030 - C100 | C130 to C136 - H100 | C407 to C415 - G100 |
| C999 - other | C048 to C069 - C125 | C155 to C184 - H131 | C435 to C464 - G126 |
| | | C196 to C199 - H163 | C470 to C480 - G158 |

Limit & Home Switches (see pages F-19 to F-21 for location and sepcification)

- | | | | | | |
|--------------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| L00 - no switches | Mechanical | Reed | Hall | Prox (NPN) | Prox (PNP) |
| L99 - other | EOT & home switches | L01R or L | L04R or L | L07R or L | L10R or L |
| | EOT switches only | L02R or L | L05R or L | L08R or L | L11R or L |
| | home switch only | L03R or L | L06R or L | L09R or L | L12R or L |
| | | | | L13R or L | L14R or L |
| | | | | L15R or L | |

Encoder Options - SE OPTION ONLY (see page F-27)

- E00** - none **E01** - rotary (500 lines/rev) **E02** - rotary (1000 lines/rev) **E03** - rotary (1270 lines/rev) **E99** - other (linear or rotary)

Power-off Brakes - SE OPTION ONLY (see page F-26)

- B00** - none **B01** - 24 VDC **B02** - 90 VDC **B99** - other

Specifications subject to change without notice

Specifications

Load Capacities		Two (2) Bearing Carriage		Four (4) Bearing Carriage	
Dynamic Horizontal	2 million inches (50 km) of travel	3,890 lbs	(1765 kgf)	7,780 lbs	(3530 kgf)
Dynamic Horizontal	100 million inches (1270 km) of travel	1,045 lbs	(474 kgf)	2,090 lbs	(948 kgf)
Static Horizontal		5,820 lbs	(2640 kgf)	11,640 lbs	(5280 kgf)
Dynamic Roll Moment	2 million inches (50 km) of travel	460 ft-lbs	(624 N-m)	920 ft-lbs	(1247 N-m)
Dynamic Roll Moment	100 million inches (1270 km) of travel	124 ft-lbs	(168 N-m)	247 ft-lbs	(335 N-m)
Static Roll Moment		840 ft-lbs	(1139 N-m)	1,680 ft-lbs	(2277 N-m)
Dyn. Pitch & Yaw Moment	2 million inches (50 km) of travel	71 ft-lbs	(96 N-m)	980 ft-lbs	(1,328 N-m)
Dyn. Pitch & Yaw Moment	100 million inches (1270 km) of travel	19 ft-lbs	(26 N-m)	263 ft-lbs	(356 N-m)
Static Pitch & Yaw Moment		126 ft-lbs	(170 N-m)	1,770 ft-lbs	(2400 N-m)
Each Bearing Dyn. Capacity	2 million inches (50 km) of travel	1,945 lbs	(882 kgf)	1,945 lbs	(882 kgf)
Each Bearing Dyn. Capacity	100 million inches (1270 km) of travel	525 lbs	(238 kgf)	525 lbs	(238 kgf)
Each Bearing Static Load Capacity		2,910 lbs	(1320 kgf)	2,910 lbs	(1320 kgf)
Thrust Force Capacity	10 million screw revolutions	895 lbs	(406 kgf)	895 lbs	(406 kgf)
Thrust Force Capacity	500 million screw revolutions	240 lbs	(109 kgf)	240 lbs	(109 kgf)
Maximum Acceleration		386 in/sec ²	(9,8 m/sec ²)	772 in/sec ²	(19,6 m/sec ²)
d₁	Center to center distance (spread) between the two rails	3.228 in	(81,99 mm)	3.228 in	(81,99 mm)
d₂	Center to center distance (spacing) of the bearings on a single rail		-	3.476 in	(88,29 mm)
d_r	Distance from the bearing center to top of carriage plate surface	1.299 in	(32,99 mm)	1.299 in	(32,99 mm)

Other	For Two (2) & Four (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 F-13 to F16)	Acme Screw - Stainless Steel
Screw Material (see pages F-13 to F16)	Rolled Ball, Precision Ball, & Ground Ball - Case Hardened Steel
Unidirectional Repeatability	+/- 0.0002 in (5 microns)
Bidirectional Repeatability	+/- 0.0002 in (5 microns) to +/- 0.0082 in (208 microns) - depends on selected screw
Straightness	< 0.00016 in/in (< 4,06 microns/25mm)
Flatness	< 0.00016 in/in (< 4,06 microns/25mm)
Orthogonality (multi-axis systems)	< 30 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
Belt Cover Strip Material	Black - Polyurethane

Specifications subject to change without notice

Dimensions & Specifications

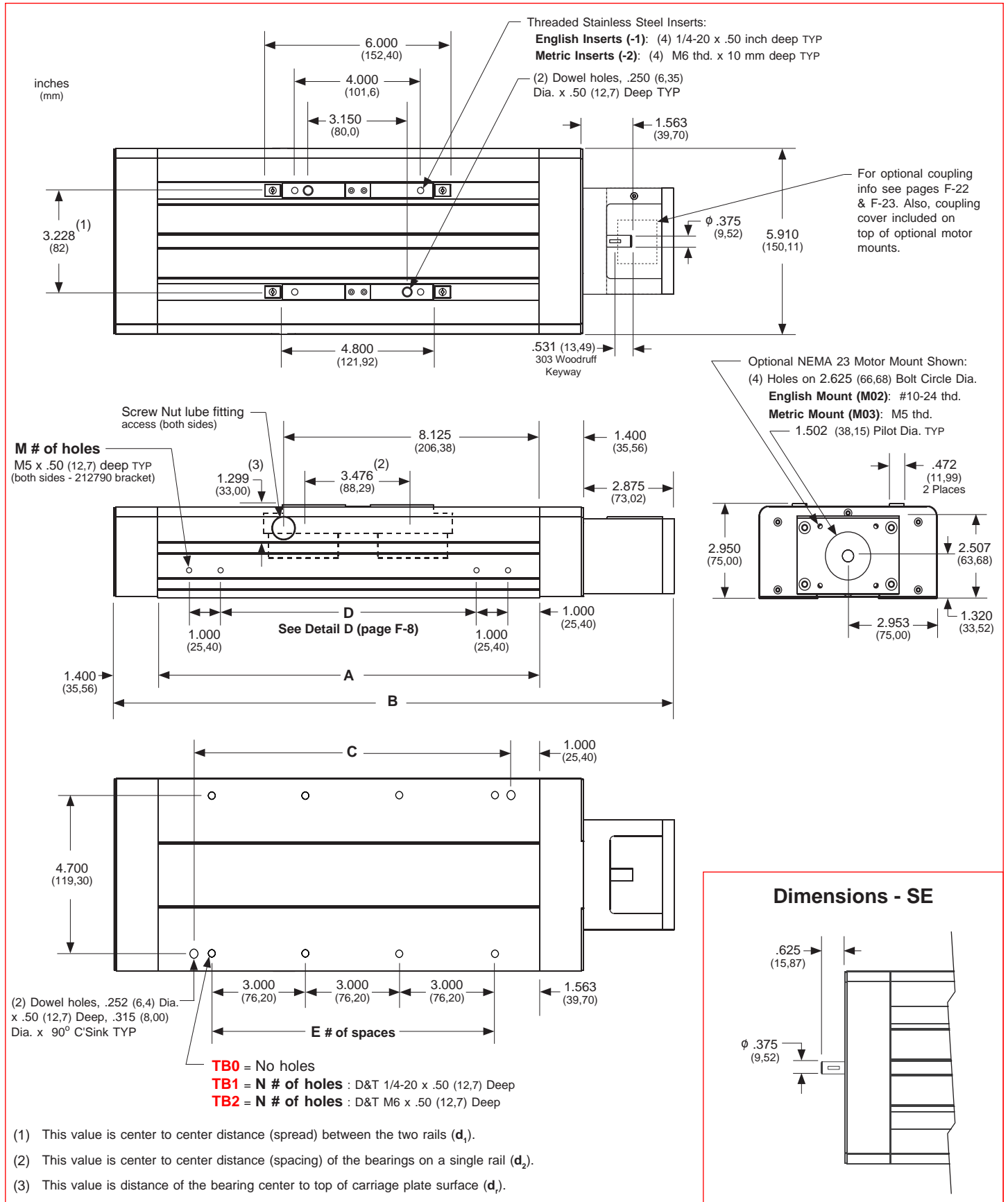
Model Number	Travel Length inches (mm)	Table Dimensions inches (mm)		Mounting Dimensions inches (mm)					Screw Length inches (mm)	Table ⁽²⁾ Weight lbs (kgf)
		A	B	C	D	E	M ⁽¹⁾	N		
614606-NE	6 (150)	12.125 (308,0)	17.800 (452,1)	10.125 (257,18)	8.125 (206,38)	3	8	8	13.40 (340)	17.8 (8,1)
614612-NE	12 (300)	18.125 (460,4)	23.800 (604,5)	16.125 (409,58)	14.125 (358,78)	5	8	12	19.40 (493)	23.0 (10,5)
614618-NE	18 (455)	24.125 (612,8)	29.800 (756,9)	22.125 (561,98)	20.125 (511,18)	7	8	16	25.40 (645)	28.2 (12,8)
614624-NE	24 (605)	30.125 (765,2)	35.800 (909,3)	28.125 (714,38)	12.563 (319,10)	9	12	20	31.40 (798)	33.5 (15,2)
614630-NE	30 (760)	36.125 (917,6)	41.800 (1061,7)	34.125 (866,78)	15.563 (395,30)	11	12	24	37.40 (950)	38.8 (17,6)
614636-NE	36 (910)	42.125 (1070,0)	47.800 (1214,1)	40.125 (1019,18)	18.563 (471,50)	13	12	28	43.40 (1102)	44.1 (20,0)
614642-NE	42 (1060)	48.125 (1222,4)	53.800 (1366,5)	46.125 (1171,58)	21.563 (547,70)	15	12	32	49.40 (1255)	49.3 (22,4)
614648-NE	48 (1215)	54.125 (1374,8)	59.800 (1518,9)	52.125 (1323,98)	16.042 (407,47)	17	16	36	55.40 (1407)	54.6 (24,8)
614654-NE	54 (1370)	60.125 (1527,1)	65.800 (1671,3)	58.125 (1476,38)	18.042 (458,27)	19	16	40	61.4 (1560)	59.9 (27,2)
614660-NE	60 (1520)	66.125 (1679,6)	71.800 (1823,7)	64.125 (1628,78)	20.042 (509,07)	21	16	44	67.4 (1712)	65.2 (29,6)

- x = 2; Carriage has 2 bearings; Carriage weight = 2.5 lbs (1,13 kg)
- x = 4; Carriage has 4 bearings; Carriage weight = 3.0 lbs (1,36 kg)

Footnotes:

- (1) Mounting holes are total number. These holes are used for vertically mounting using 212790 "L" bracket. See page F-9 for details on bracket.
- (2) Weight shown is with a 0.625 inch (16 mm) diameter screw, a NEMA 23 motor mount [0.42 lbs (0,19 kg)], a C100 style [0.09 lbs (0,04 kg)] coupling, and a 2 bearing carriage. When using a 0.750 inch (20 mm) diameter screw add 0.042 lbs per inch (0,00075 kg per mm) of screw length for a given model number.

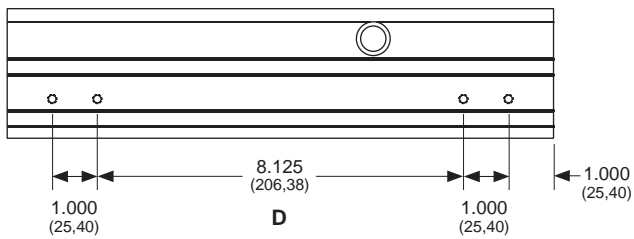
Dimensions - NE and SE



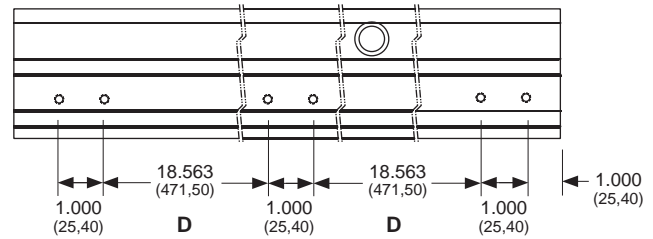
Note: Any 610 series can be mounted on top of a second 610 series table, in order to create X-Y multiple axis configurations. See page F-10 for optional 213320 carriage adapter plate information.

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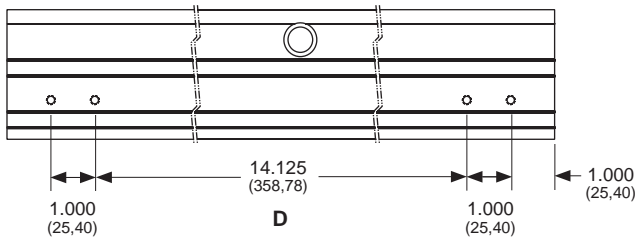
Dimensions - Detail D



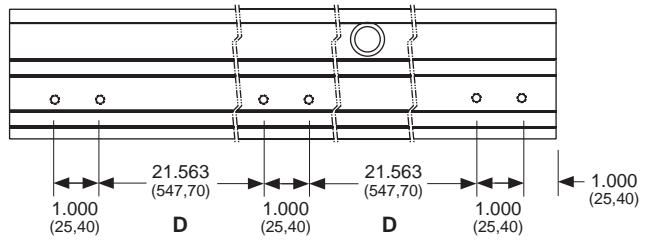
6" travel



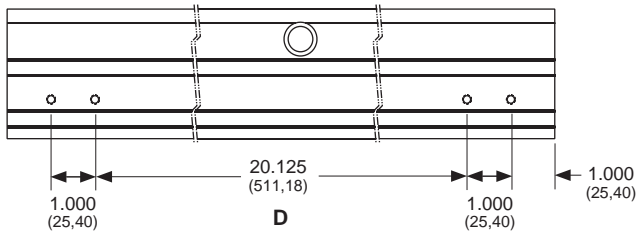
36" travel



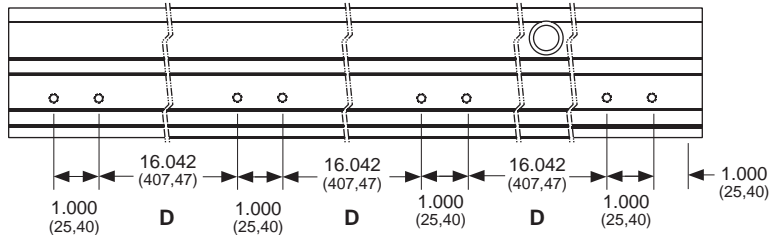
12" travel



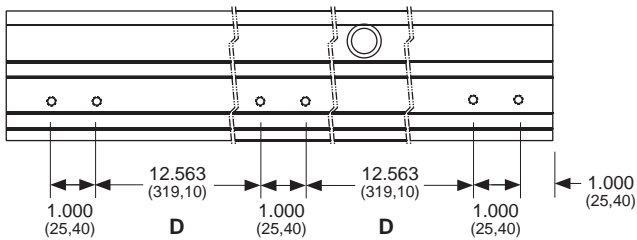
42" travel



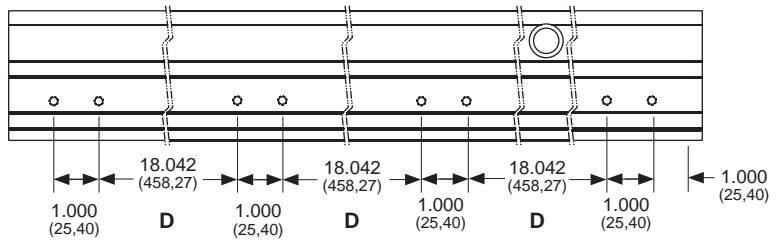
18" travel



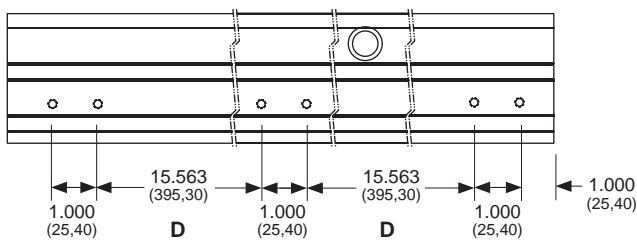
48" travel



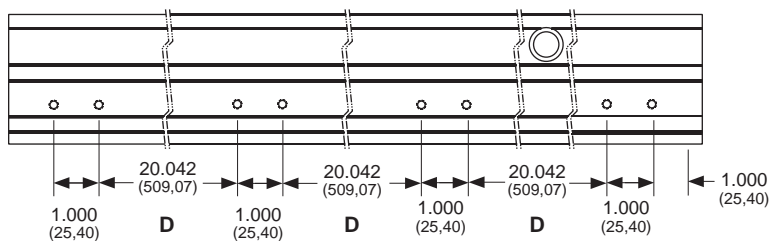
24" travel



54" travel



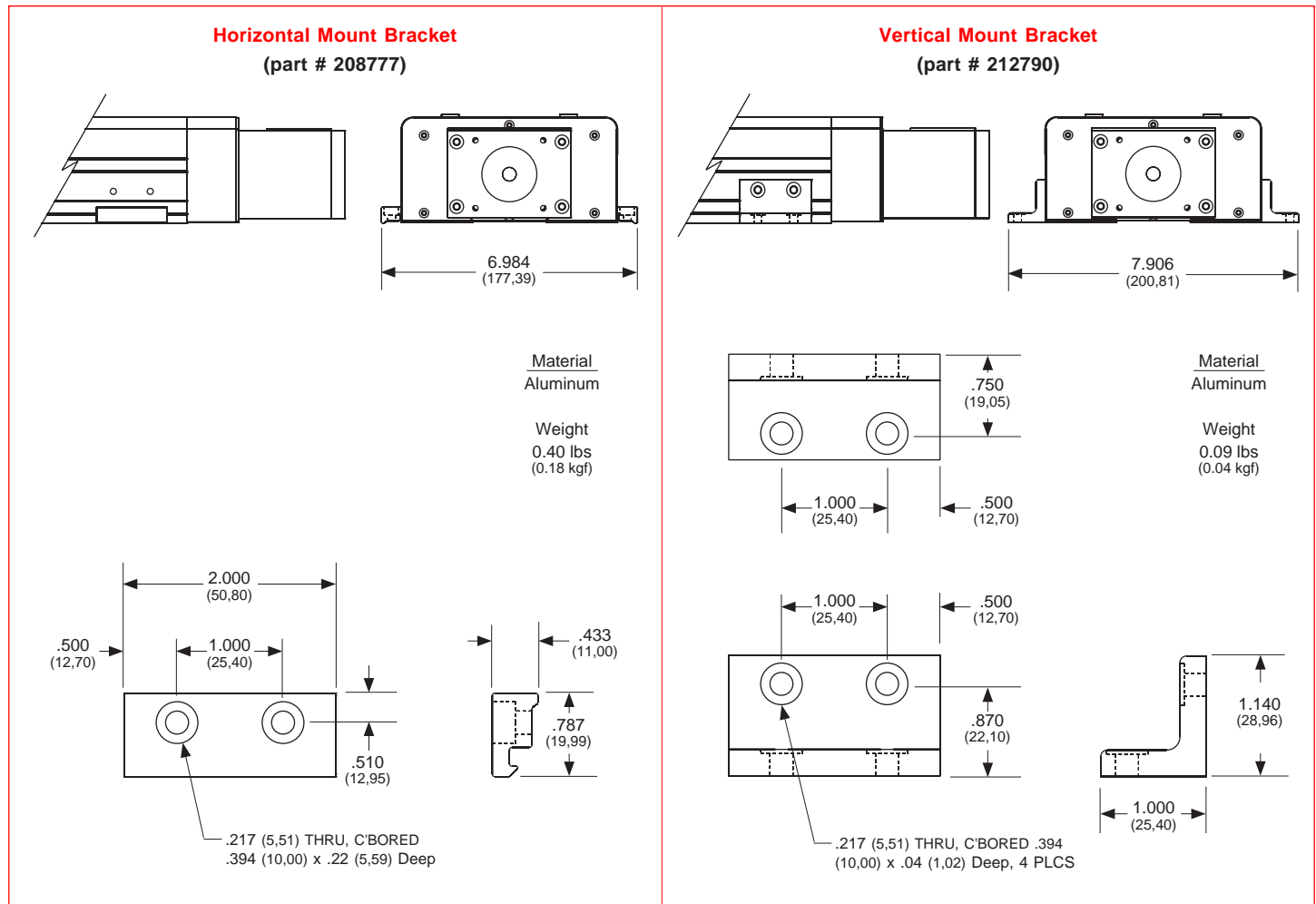
30" travel



60" travel

Mounting Brackets

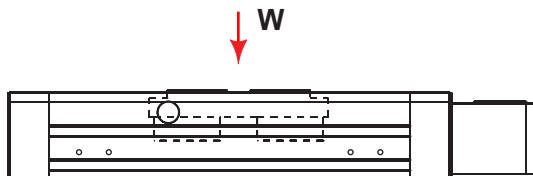
Mounting brackets (or tapped base holes see page F-7) are required in order to install the 610 onto a horizontal or vertical surface. Two bracket styles allow for ease of installation. The horizontal bracket uses the 610 extrusion slot on both sides to rigidly hold the unit. The vertical bracket uses drilled & tapped holes on the extrusion body on both sides. This provides a fixed and safer means of holding the unit when installed vertically.



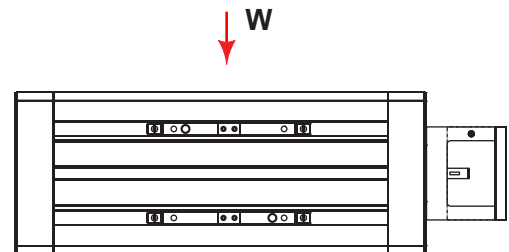
Moment of Inertia Values

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.

$I = 3.75 \text{ in}^4 (15.60 \times 10^5 \text{ mm}^4)$



$I = 23.84 \text{ in}^4 (99.23 \times 10^5 \text{ mm}^4)$



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