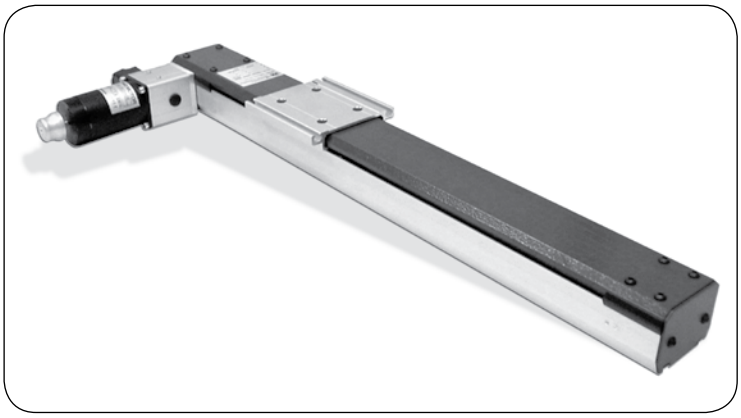
FEATURES:

- Carriage rides on two Ø8 mm (.3 in) precision ground steel shafts that are supported along the entire length of travel to minimize deflection
- Lengths up to 2 meters (6.6 ft)
- Resolution is 0.12 mm (.005 in) / step in half-step mode and 0.012 mm (.0005 in) / pulse with standard servomotor
- Available with either a 160 N·cm stepper motor, 145W servomotor, 216W servomotor, or no motor
- Maximum speed: 2.4 m/s (7.9 ft/s). This is based on the mechanical system; different motors and drives will produce different results
- Belt is 3 mm (.118 in) HTD®, 15 mm (.6 in) wide. HTD® belt profile helps reduce backlash
- Home and end reference switch repeatable to < 0.1 mm (.004 in)
- Available in stainless steel



BLUELINE 1 BELT DRIVE SELECTION

CATALOG NUMBER

HL3101MP ☐☐☐☐☐

Code

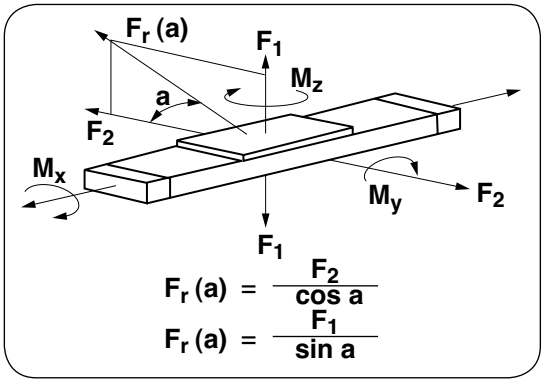
045
055
065
075
085
095
105
115
125
135
145
155
165
175
185
195
205

Motor Mounting
0 Right-hand side
1 Left-hand side

Motor Type
X No motor
L Servomotor (145W)
V Servomotor (216W)
S Stepper motor (160 N·cm)

Blueline 1

LOAD and MOMENT DATA		
F1 Stat	2648.0 N	(595.3 lbf)
F1 Dyn	1382.7 N	(310.8 lbf)
F2 Stat	3061.5 N	(688.3 lbf)
F2 Dyn	1598.1 N	(359.3 lbf)
Mx Stat	37.2 N·m	(329.2 lb·in)
My Stat	98.8 N·m	(874.4 lb·in)
Mz Stat	114.3 N·m	(1011.6 lb·in)
Mx Dyn	19.4 N·m	(171.7 lb·in)
My Dyn	51.6 N·m	(456.7 lb·in)
Mz Dyn	59.7 N·m	(528.3 lb·in)



Code	L Length mm (in)	Travel mm (in)
045	450 (17.7)	143 (5.6)
055	550 (21.7)	243 (9.6)
065	650 (25.6)	343 (13.5)
075	750 (29.5)	443 (17.4)
085	850 (33.5)	543 (21.4)
095	950 (37.4)	643 (25.3)
105	1050 (41.3)	743 (29.3)
115	1150 (45.3)	843 (33.2)
125	1250 (49.2)	943 (37.1)
135	1350 (53.1)	1043 (41.1)
145	1450 (57.1)	1143 (45)
155	1550 (61)	1243 (48.9)
165	1650 (65)	1343 (52.9)
175	1750 (68.9)	1443 (56.8)
185	1850 (72.8)	1543 (60.7)
195	1950 (76.8)	1643 (64.7)
205	2050 (80.7)	1743 (68.6)

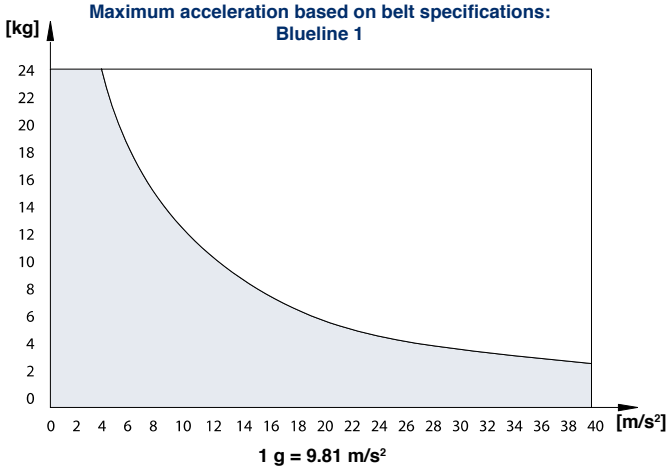
For mating connectors and cables, see page 119. For motor standoffs and couplings, see page 107.

Technical Data

- Accuracy: ±0.25 mm (.010 in) / 300 mm (11.8 in)
- Repeatability: ±0.1 mm (.004 in)
- Resolution: Stepper 0.12 mm (0.0047 in)
  Servo 0.012 mm (0.00047 in)
- Belt type: 3 mm (.118 in) HTD®, 15 mm (.6 in) wide
- Mass of carriage: 0.730 kg (1.6 lbs)
- Weight without motor module:
  ≈ 6.25 kg (13.8 lbs) / 1000 mm (39.4 in)
- Specific mass of belt: 0.0375 kg (.083 lb) / 1000 mm (39.4 in)
- Diameter of pulley: 15.28 mm (.6 in)
- Pulley mass moment of inertia: 1.461 x 10^{-6} kg·m²
- Effective circumference: 48 mm (1.9 in)

NOTE: One revolution of motor shaft produces 48 mm (1.9 in) of linear travel. This determines travel resolution.

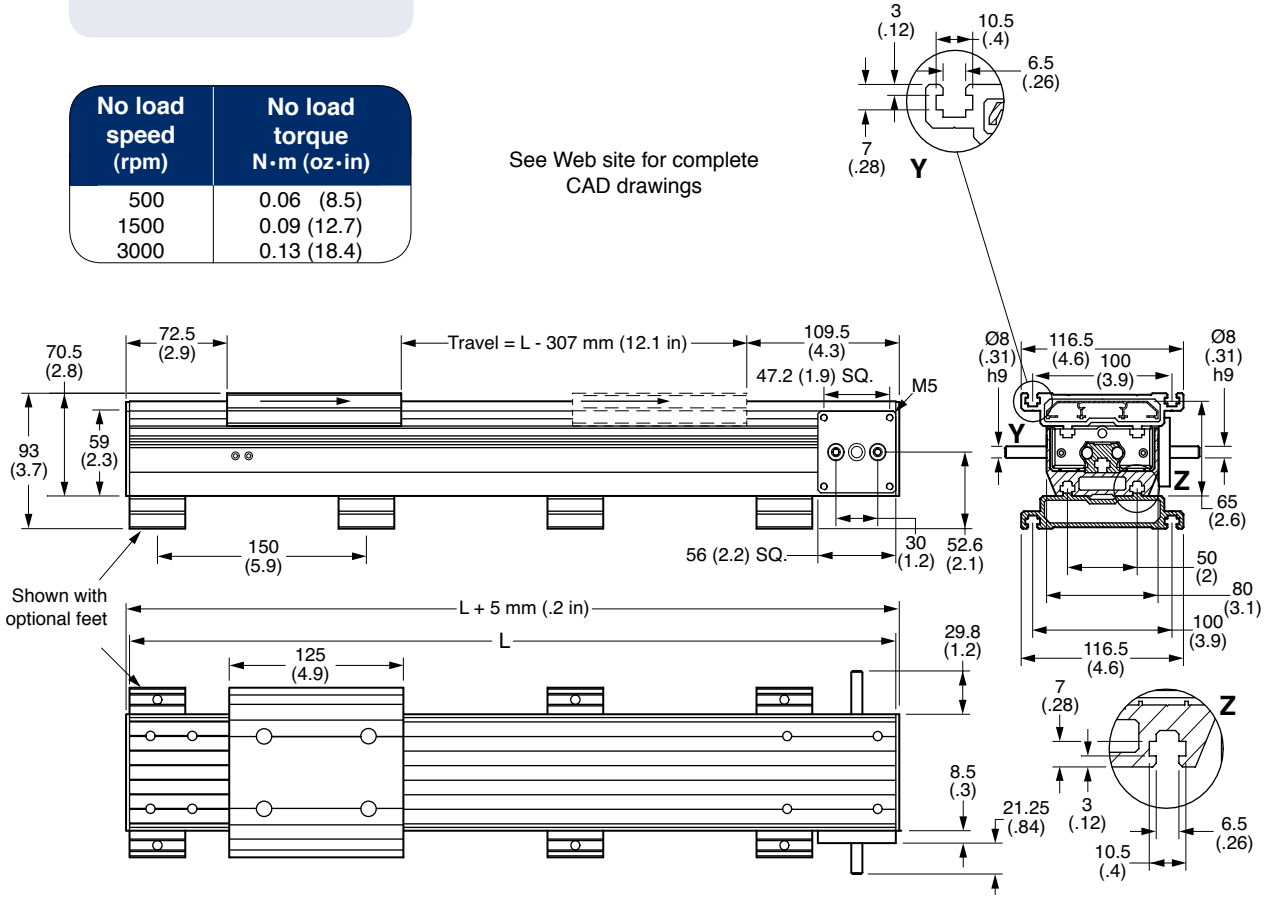
Maximum acceleration based on belt specifications: Blueline 1



1 g = 9.81 m/s²

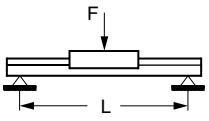
No load speed (rpm)	No load torque N·m (oz·in)
500	0.06 (8.5)
1500	0.09 (12.7)
3000	0.13 (18.4)

See Web site for complete CAD drawings

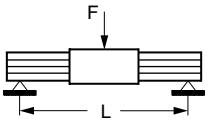


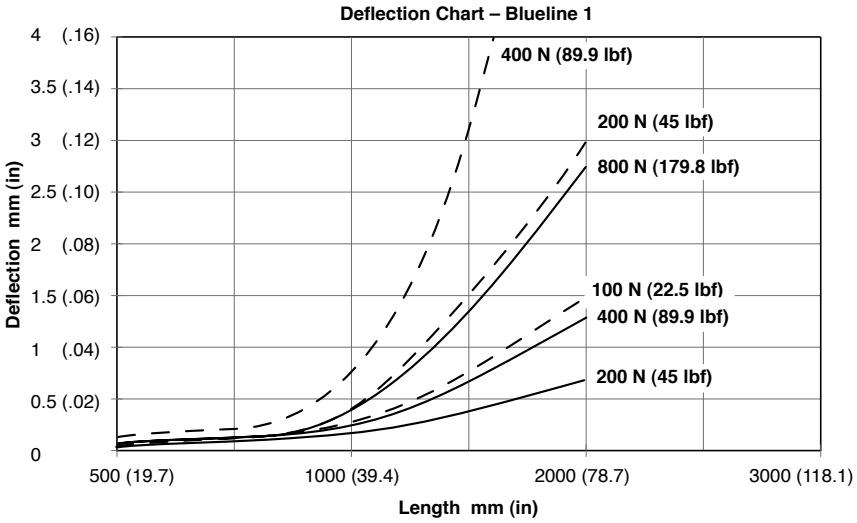
NOTE: Dimensions in ( ) are inch

Load 1 — — -



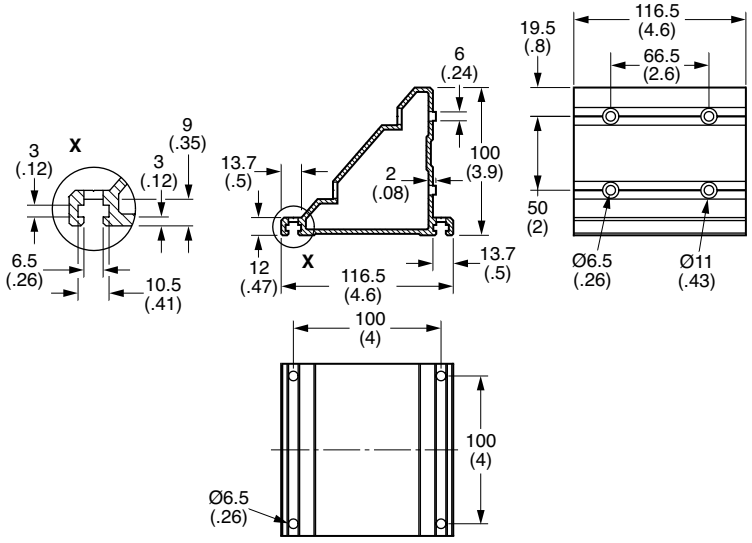
Load 2 ——

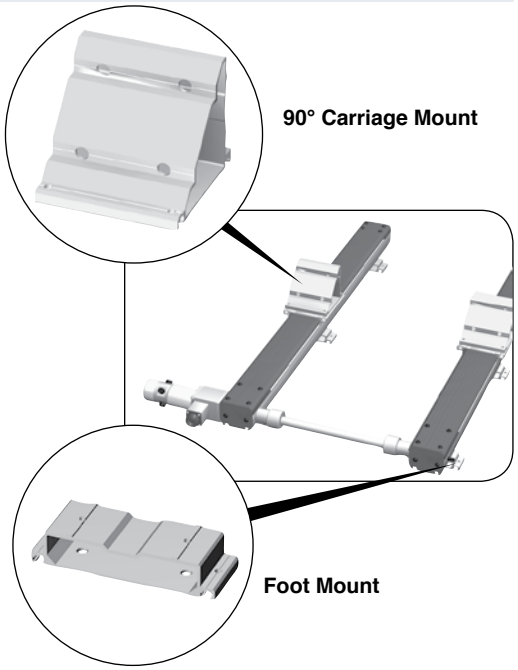




90° Carriage Mount

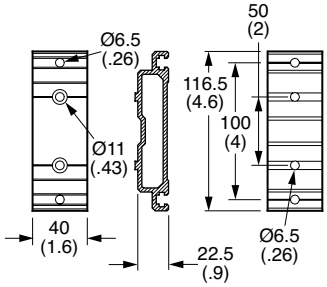
CATALOG NUMBER: HL4700M232100

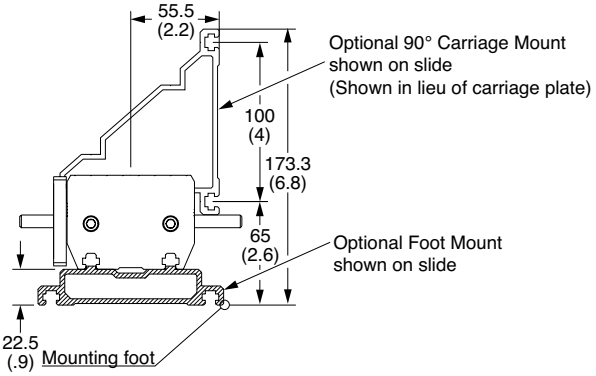




Foot Mount

CATALOG NUMBER: HL4700M232199

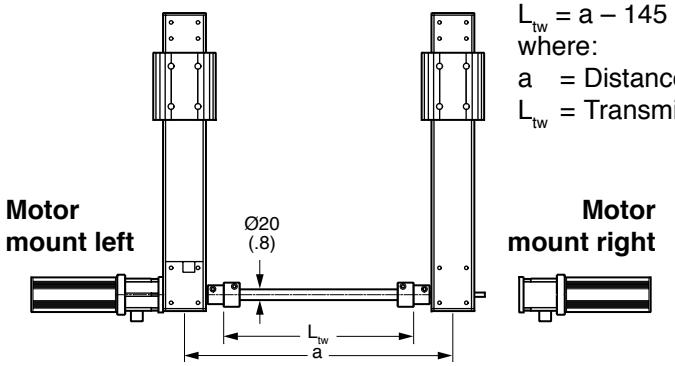




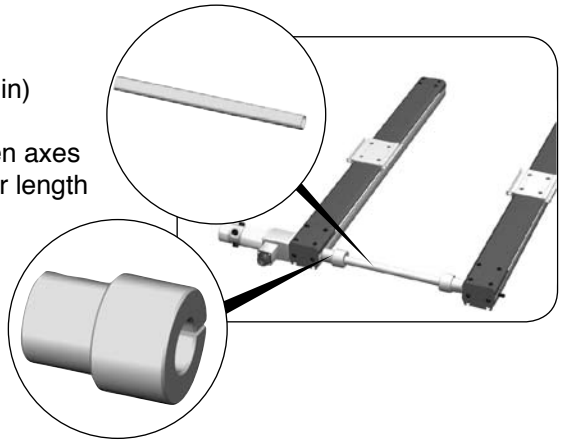
Assembly End View

Transmission Bar

CATALOG NUMBER: HL5500M219002-1 – 1 meter (3.3 ft) long
HL5500M219002-2 – 2 meters (6.6 ft) long

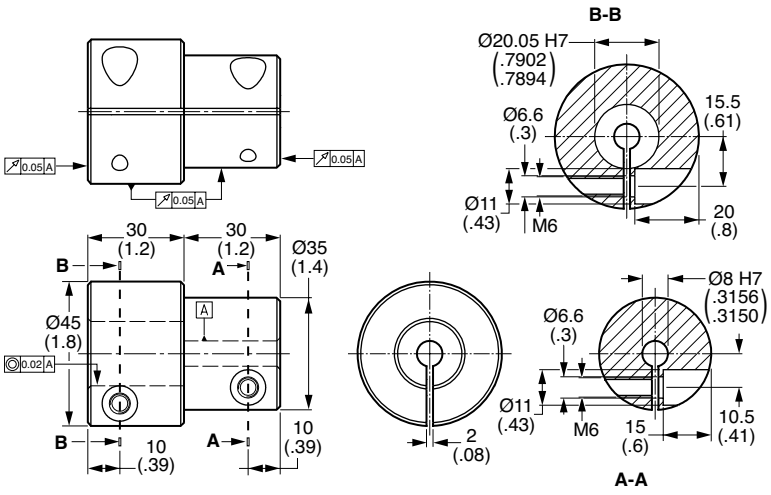


L_{tw} = a – 145 mm (5.7 in)
where:
a = Distance between axes
L_{tw} = Transmission bar length



Coupling for Transmission Bar

CATALOG NUMBER: HL5500M218051 – Coupling for Ø20 mm (.78 in) Transmission Bar (two are included per set)



MOMENT OF INERTIA
For Coupling:
$J_K = 4.258 \cdot 10^{-5}$ Kg•m²
For Transmission Bar:
$J_{TRS} = 2.513 \cdot 10^{-6}$ Kg•m²/100 mm

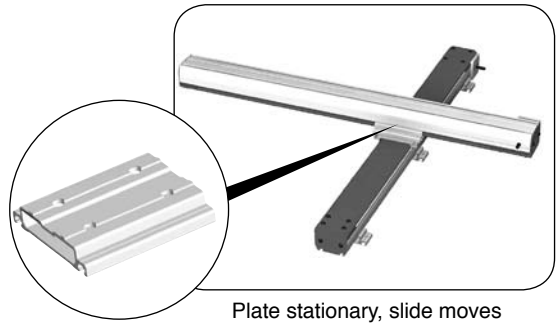
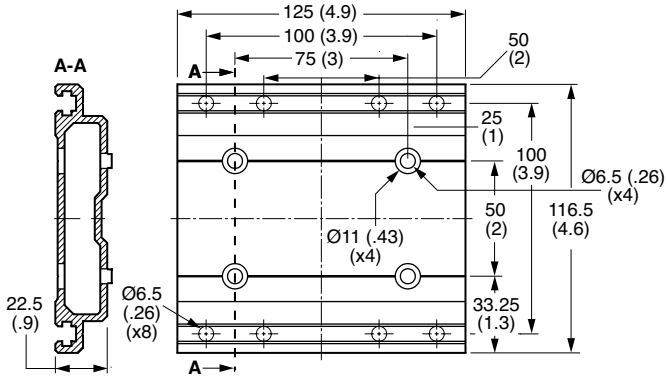
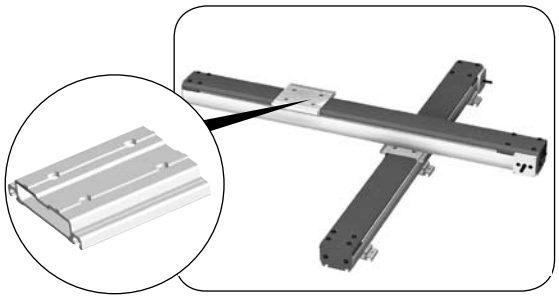


Plate stationary, slide moves

Carriage Plate

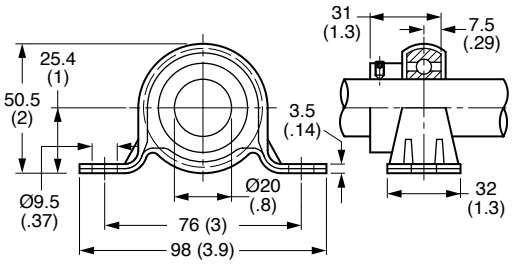




Slide stationary, plate moves

Support Bearing Assembly for Transmission Bar

CATALOG NUMBER: HL5500M896202502 - Ø20 mm

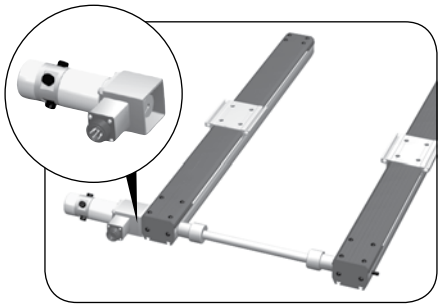


DC Servomotor

CATALOG NUMBER: HZ2600M1050XY3 ("V" Motor Option)

SPECIFICATIONS	
Power 216W	**Rated Voltage DC** ..... @48V
Maximum Operating Speed ..... 8000 rpm	**No Load Current** ..... 0.45A MAX
Rated Torque ..... 3.6 kgf·cm (50 oz·in)	
Maximum Continuous Current ... 4.5A	

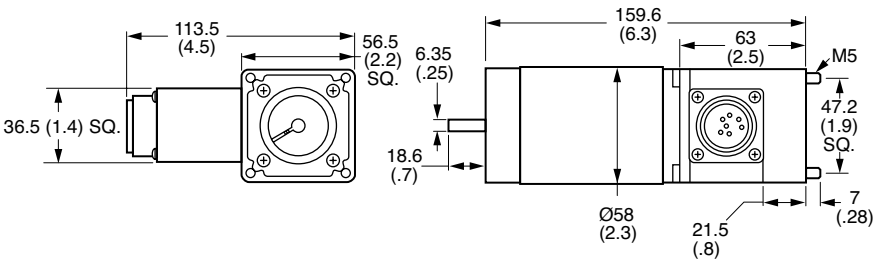
For servomotor specifications, see page 131.

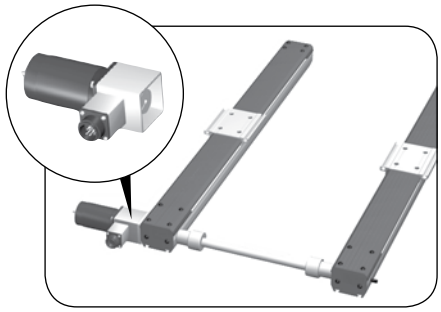


Stepper Motor

CATALOG NUMBER: HL2600M210022 ("S" Motor Option)

SPECIFICATIONS	
Holding Torque (bipolar) ..... 160 N·cm	**Resistance** ..... 1.2 Ω
Steps **Full** ..... 1.8°	**Inductance** 2.2mH
Half ..... 0.9°	**Current (bipolar)** 4.1A
Voltage (bipolar) 1.7V	



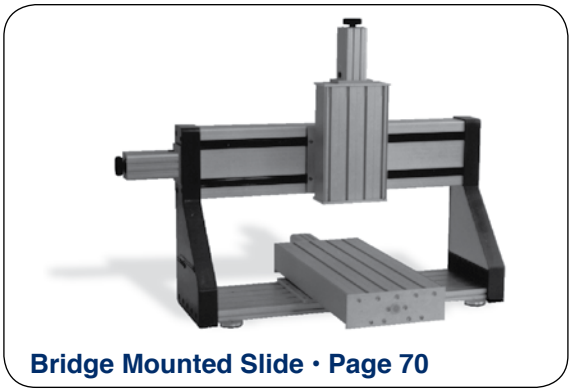


2- OR 3-AXES GANTRY DESIGN • FORMAT#1

Gantry FB2 • Page 64

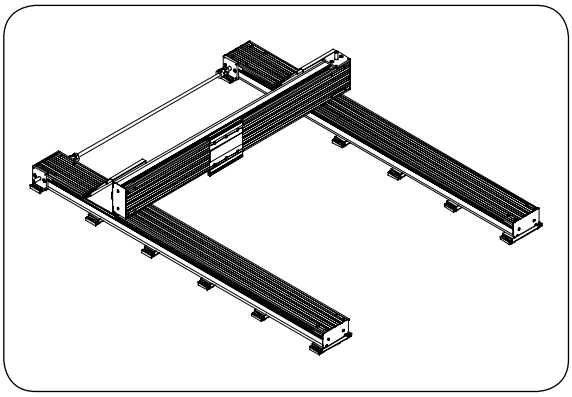
3-AXES BRIDGEGANTRY DESIGN • FORMAT#2

Suggested Applications:
- Adhesive Dispensing
- Inspection Equipment
- Light Machine Tools
- Laser Measurement



Bridge Mounted Slide • Page 70

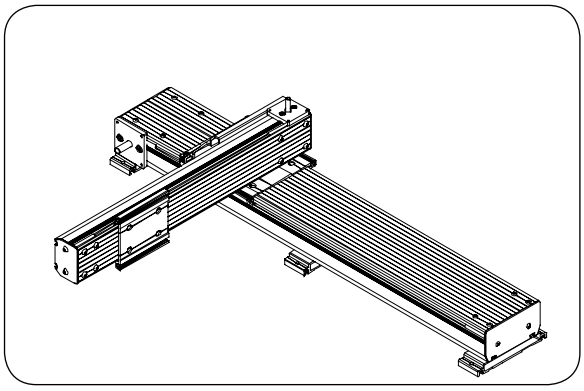
2-AXES H-DESIGN • FORMAT#3



3 x Blueline 1
(2) 90° Carriage Mounts
(1) Transmission-shaft Bar
(12) Mounting feet
(1) Coupling set

2-AXES CANTILEVER • FORMAT#4

Suggested Applications:
- Test Stands
- Medical Equipment
- Packaging Equipment



1 x Blueline 1
1 x Blueline 3
(1) 90° Carriage Mount
(3) Mounting feet