

## FEATURES

- ◆ Carriage rides on two Ø8 mm precision ground steel shafts that are supported along the entire length of travel to minimize deflection
- ◆ Lengths up to 3 meters
- ◆ Resolution is 0.175 mm/step in half-step mode and 0.0175 mm/pulse with standard Servo motor
- ◆ Available with either a 600 N·cm stepper motor, 300W servo motor or no motor
- ◆ Maximum speed: 5 m/s
- ◆ Belt is 5 mm HTD, 25 mm wide. HTD belt profile. helps reduce backlash
- ◆ Home and end reference switch repeatable to < 0.1 mm



### CATALOG NUMBER

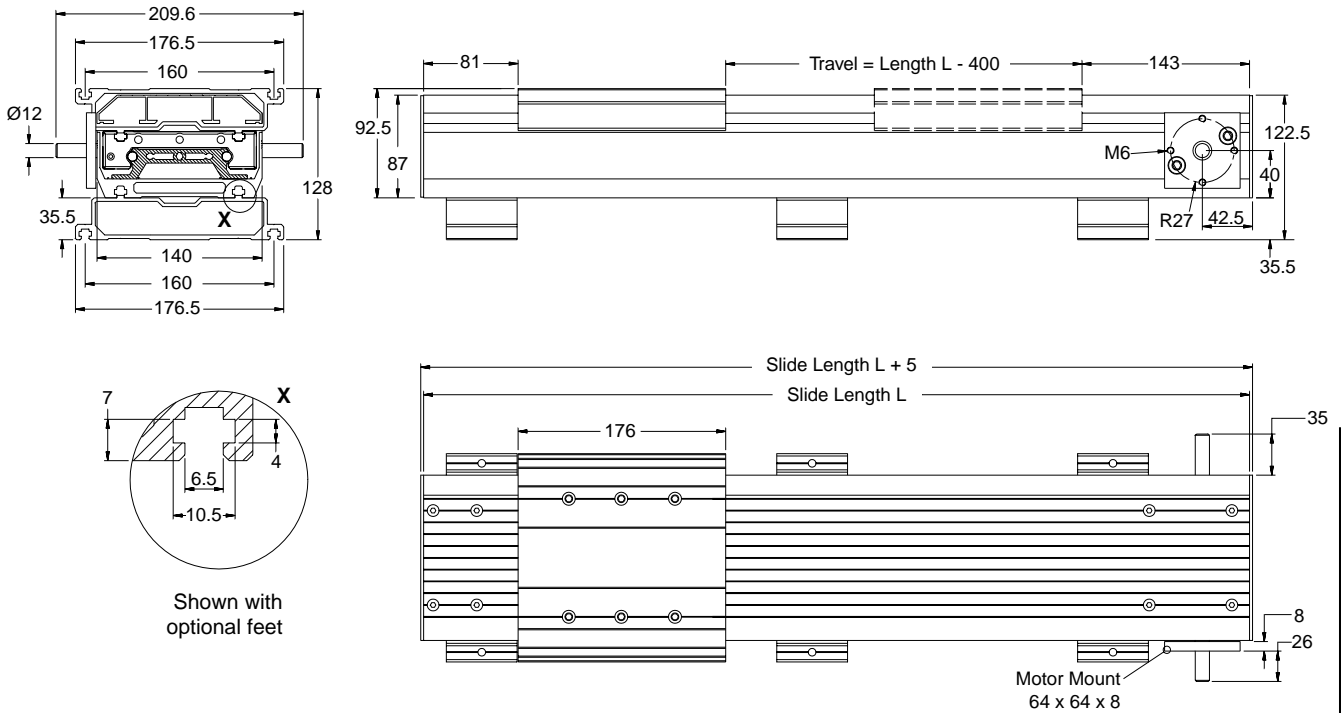
HL3103MP

- Motor Type**
  - X No motor
  - V Servo motor
  - S Stepper motor
- Motor Mounting**
  - 0 Right-hand side
  - 1 Left-hand side

### BLUELINE 3 BELT DRIVE SELECTION

Code	Length (mm)	Travel (mm)
080	800	400
110	1100	700
120	1200	800
160	1600	1200
210	2100	1700
260	2600	2200
290	2900	2500
300	3000	2600

For mating connectors and cables, see page 166. For motor standoffs and couplings, see page 132.

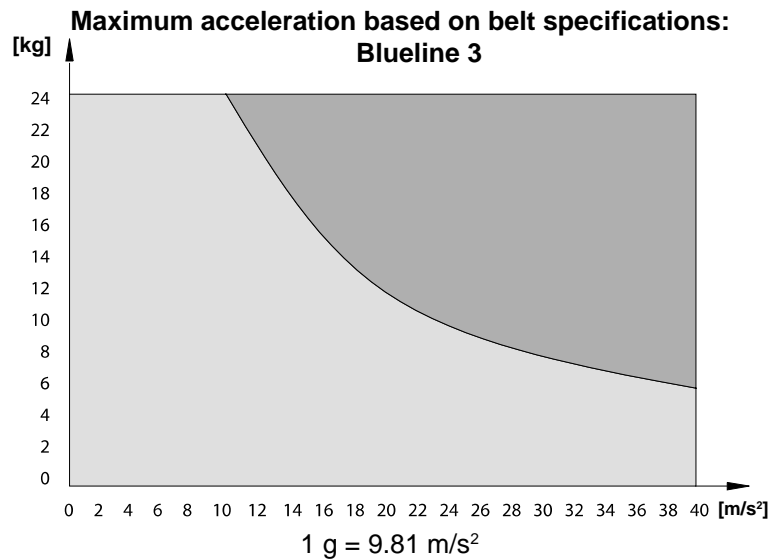


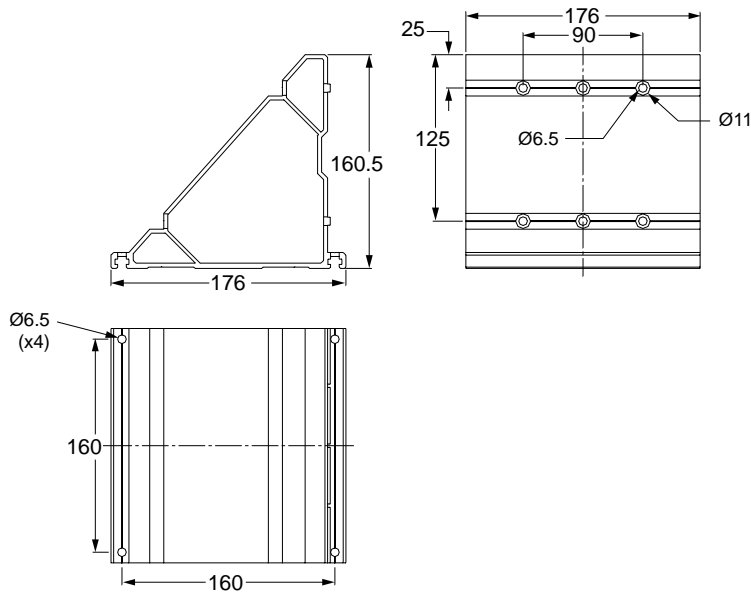
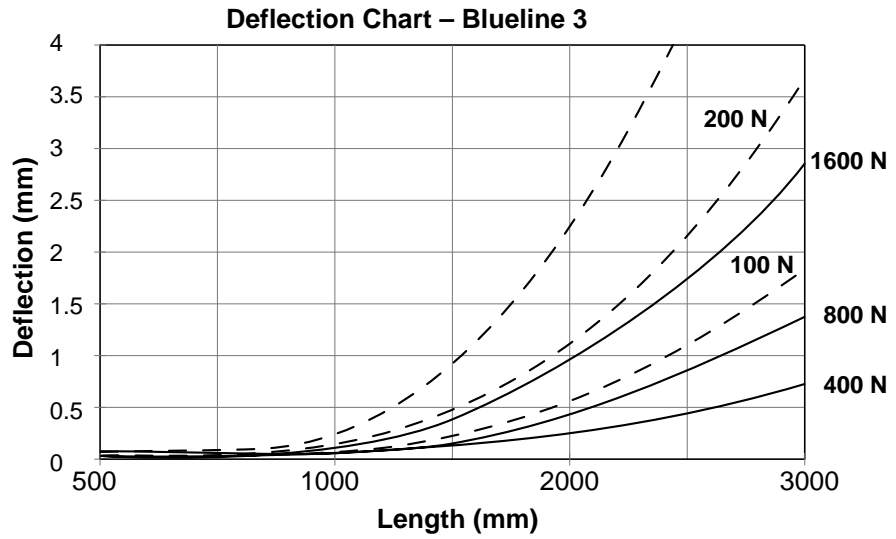
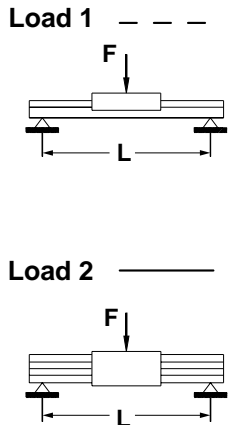
### Technical Data

- Belt type: 5 mm HTD, 25 mm wide
- Mass of carriage: 1.530 kg
- Weight without motor module: ≈ 12 kg/1000 mm
- Specific mass of belt: 0.09 kg/m
- Diameter of pulley: 22.28 mm
- Pulley mass moment of inertia:  $8.542 \times 10^{-5} \text{ kg} \cdot \text{m}^2$
- Effective circumference: 70 mm

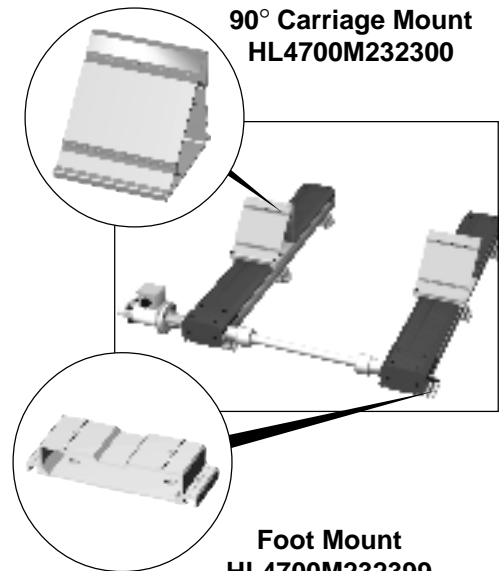
**NOTE:** One revolution of motor shaft produces 70 mm of linear travel. This determines travel resolution.

No load speed (rpm)	No load torque (N · m)
500	0.16
1500	0.24
3000	0.36



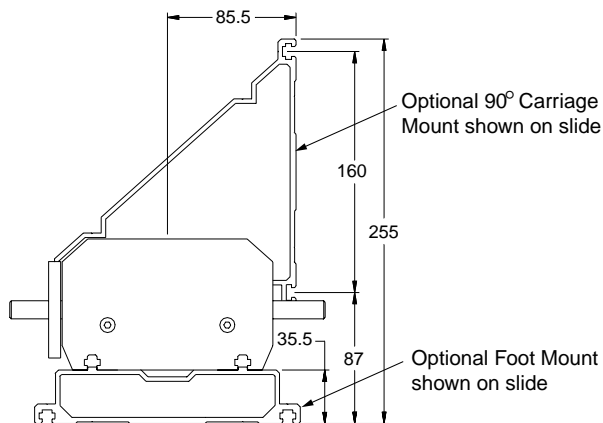


**90° Carriage Mount**

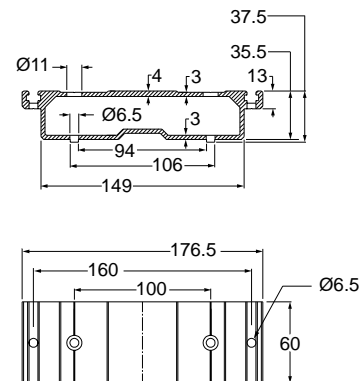


**90° Carriage Mount**  
HL4700M232300

**Foot Mount**  
HL4700M232399



**Assembly End View**

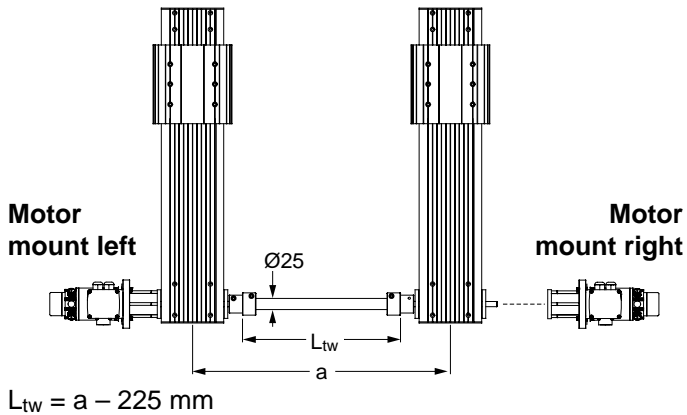


**Foot Mount**

2 MACHINES & SLIDES

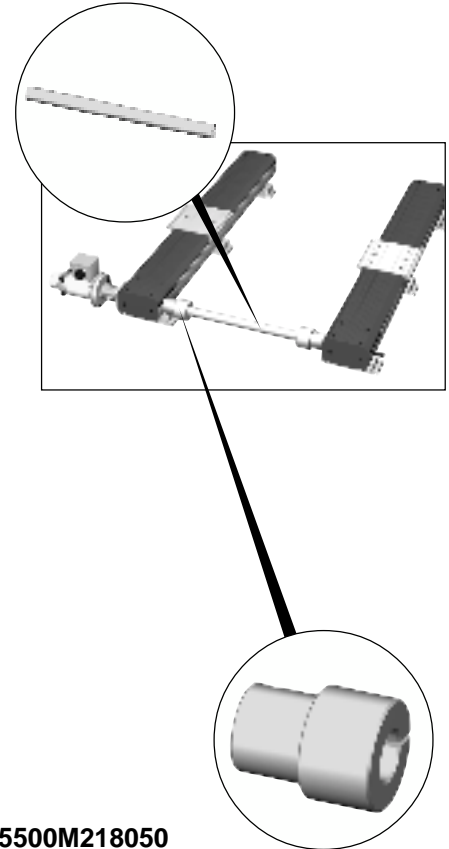
## Transmission Bar

**CATALOG NUMBER:** HL5500M219001-1 – 1 meter long  
HL5500M219001-2 – 2 meters long



where:

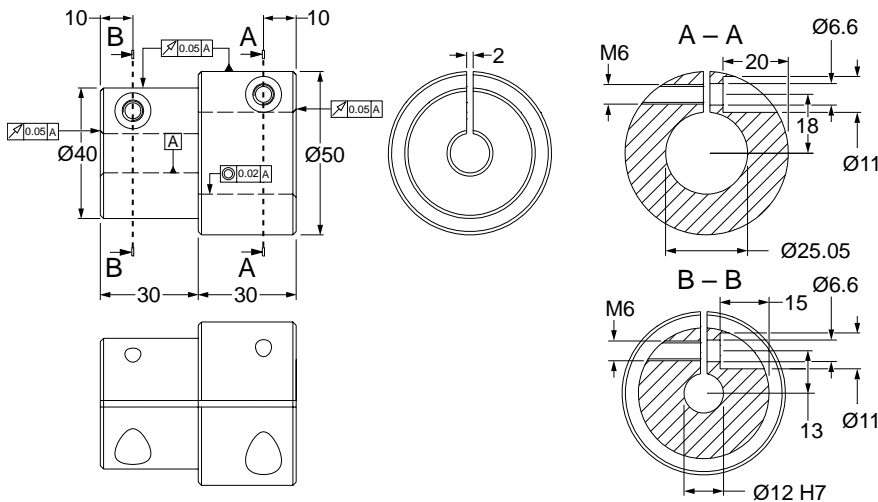
$a$  = Distance between axes  
 $\text{L}_{tw}$  = Transmission bar length



## Coupling for Transmission Bar

**CATALOG NUMBER:** HL5500M218050

Coupling for Ø25 mm Transmission Bar  
(two are included per set)



Moment of Inertia

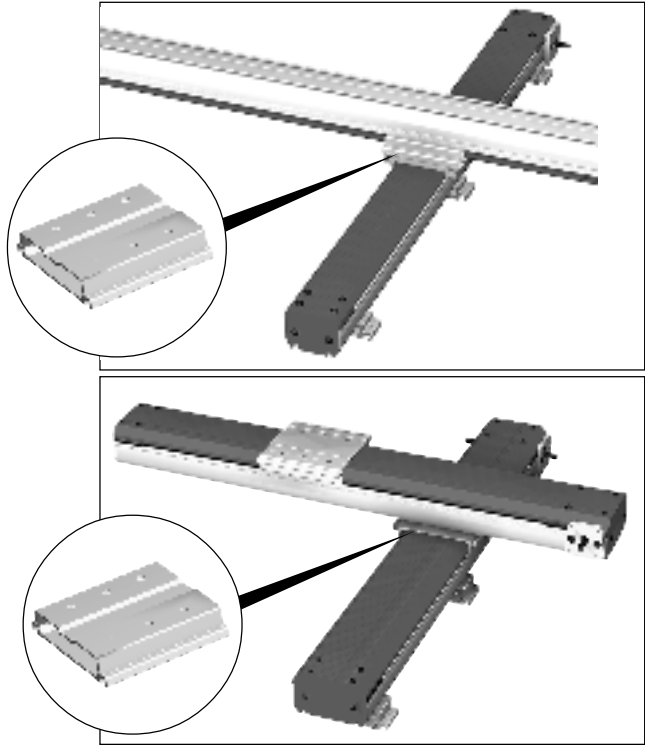
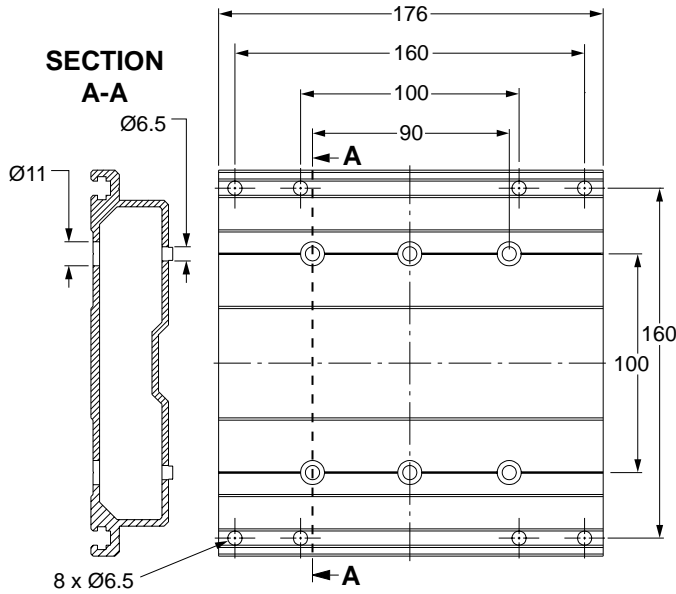
**For Coupling:**

$$J_K = 6.643 \cdot 10^{-5} \text{ kg} \cdot \text{m}^2$$

**For Transmission Bar:**

$$J_{TRS} = 5.218 \cdot 10^{-6} \text{ kg} \cdot \text{m}^2 / 100 \text{ mm}$$

Carriage Plate

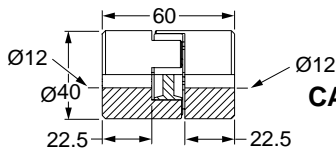
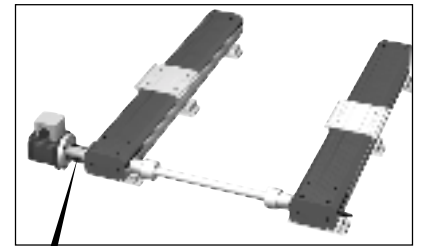
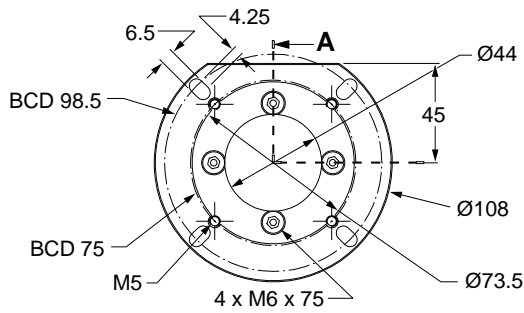
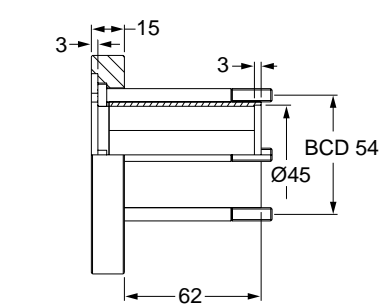


MACHINES  
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Motor Stand-Off

CATALOG NUMBER: HL5500M218100

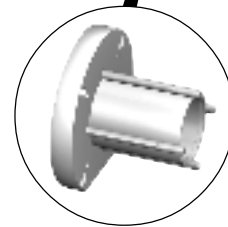
SECTION A



CATALOG NUMBER: HL5500M1214

40 x 60 Coupling  
not included

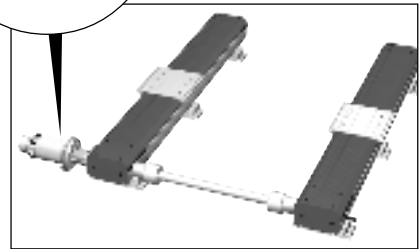
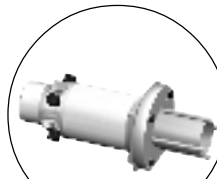
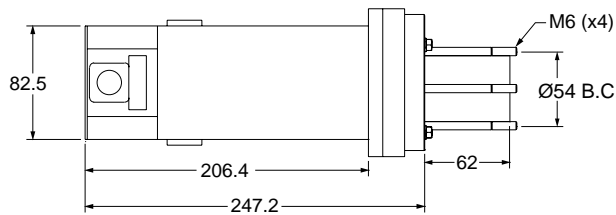
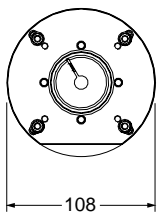
BCD: Bolt Circle Diameter



## DC Servo Motor

CATALOG NUMBER: HZ2600M396085293

Specifications			
Power .....	300W	Maximum Terminal Voltage .....	90V
Maximum Operating Speed .....	5000 rpm	Peak Stall Torque .....	825 oz•in
Continuous Stall Torque .....	165 oz•in	Maximum Pulse Current .....	38A
Maximum Continuous Current .....	6.4A	Operating Temperature .....	0°C to 40°C

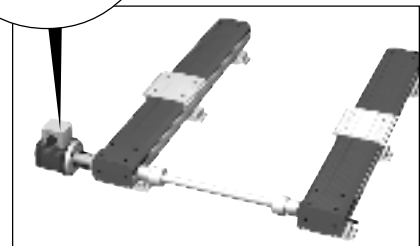
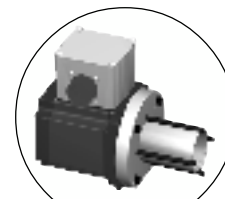
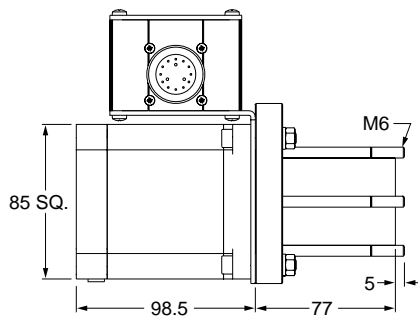
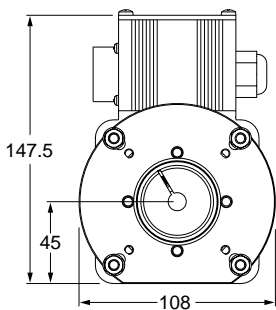


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## Stepper Motor

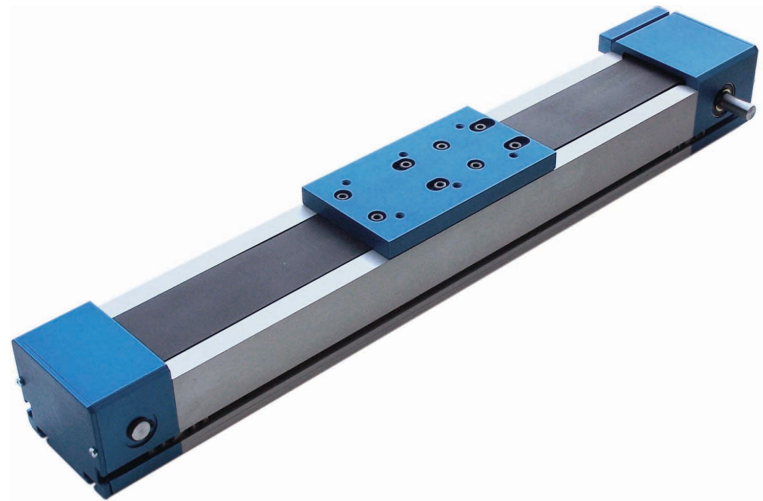
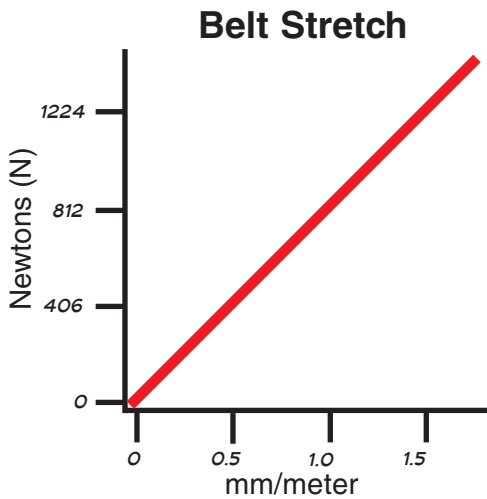
CATALOG NUMBER: HL2600M396085193 (Right Mount)  
HL2600M396085020 (Left Mount)

Specifications			
Holding Torque (bipolar) .....	600 N•cm	Resistance .....	0.66 Ω
Steps Full .....	1.8°	Inductance .....	2.5mH
Half .....	0.9°	Current (bipolar) .....	5.9A
Voltage (bipolar) .....	2.8V		



### Technical Data

- Mass of single carriage: 0.75 kg
- Mass of dual carriage: 1.40 kg
- Weight without motor module: 7.59 kg/meter
- Pitch diameter of pulley: 44.6 mm
- Pulley mass moment of inertia:  $0.0001393 \text{ kg} \times \text{meter}^2$   $1.39 \times 10^{-4} \text{ kg m}^2$
- Effective pulley circumference: 140 mm
- Max dynamic load per carriage: 22.3 KN
- Rail/carriage coefficient of friction: 0.003
- Belt type: 5 mm HTD, 50 mm wide
- Specific mass of belt: 0.205 kg/meter
- Max belt strength @3000rpm: 1300N
- Belt material: polyurethane, steel reinforced
- Overall belt thickness: 3.6 mm
- Tooth height: 2.1 mm
- Accuracy: 0.2 mm/300 mm
- Repeatability: 0.1 mm
- Breakaway torque:  $\leq .33 \text{ Nm (in-lbs.)}$



2  
MACHINES  
& SLIDES

NOTE: Maximum Speed of 5 m/s is the mechanical limit. Actual max speed will vary based on motor and drive package.

