



Mechanical Bearing, Direct-Drive Linear Stage

PRO560LM



Precise, Reliable & Adaptable

The PRO560LM is a wide-body industrial stage with an exceptional payload-carrying capacity. Compared to PRO280LM, PRO560LM offers improved angular and geometric performance thanks to its wider bearing separation, making it an excellent base axis for a multi-axis stage assembly. Combining superior craftsmanship and the highest quality components, PRO560LM stages consistently and reliably deliver best-in-class positioning performance.

Key Applications

PRO560LM mechanical bearing, direct-drive linear stages are extremely versatile, trusted and proven in medium- and high-performance applications, such as:

- ◆ Laser material processing
- ◆ Precision metrology, inspection & microscopy
- ◆ Electronics & circuit board manufacturing & inspection
- ◆ Display processing
- ◆ Synchrotron & light source experiments
- ◆ Medical device manufacturing
- ◆ Semiconductor fabrication
- ◆ Fiber optics & silicon photonics processing
- ◆ Additive manufacturing & precision assembly

KEY FEATURES:

- ◆ **ULTRA HEAVY-DUTY LOAD CAPACITY** with premium geometric performance
- ◆ Ironless, cogless linear motor delivers **SMOOTH, ULTRA-PRECISE MOTION**
- ◆ **EXCELLENT POSITIONING & DYNAMIC CAPABILITIES** in a cost-effective package
- ◆ **BEST-IN-CLASS GEOMETRIC PERFORMANCE** ensures superior workpoint accuracy
- ◆ Rugged, reliable construction is ideal for **VERSATILE INDUSTRIAL USE**
- ◆ Hardcover & side seals offer **PROTECTION AGAINST CONTAMINATION & PARTICULATES**
- ◆ ThermoComp® option automatically **COMPENSATES FOR THERMAL DISTURBANCES**
- ◆ **VACUUM- & CLEANROOM-COMPATIBLE** versions available

PRO560LM SPECIFICATIONS

Mechanical Specifications		PRO560LM					
Travel		300	400	500	600	800	1000
Accuracy ⁽¹⁾	Standard	±10 µm	±12 µm	±14 µm	±15.5 µm	±17 µm	±18 µm
	Calibrated	±1 µm	±1 µm	±1 µm	±1 µm	±1.5 µm	±1.5 µm
Resolution (Min. Incremental Motion)		5 nm (-E1 Encoder)					
Bidirectional Repeatability ⁽¹⁾		±0.4 µm	±0.4 µm	±0.4 µm	±0.4 µm	±0.5 µm	±0.5 µm
Horizontal Straightness ⁽¹⁾		±3 µm	±4 µm	±5 µm	±6 µm	±7 µm	±8 µm
Vertical Straightness ⁽¹⁾		±3 µm	±4 µm	±5 µm	±6 µm	±7 µm	±8 µm
Pitch		49 µrad	60 µrad	70 µrad	78 µrad	90 µrad	110 µrad
Roll		39 µrad	44 µrad	53 µrad	58 µrad	73 µrad	87 µrad
Yaw		49 µrad	60 µrad	70 µrad	78 µrad	90 µrad	110 µrad
Maximum Speed ⁽²⁾		2 m/s					
Maximum Acceleration ⁽²⁾		3 g					
Maximum Force, Continuous		532.4 N – Standard 792.6 N – With Air Cooling (20 psig)					
Load Capacity ⁽³⁾	Horizontal	150 kg					
	Side	150 kg					
Moving Mass		25.0 kg					
Stage Mass		90.4 kg	99.5 kg	108.6 kg	117.7 kg	135.9 kg	154.1 kg
Material		Anodized Aluminum					
MTBF (Mean Time Between Failure)		20,000 Hours					

Notes:

1. Certified with -PL1/-PL2 option.
2. Requires the selection of an appropriate amplifier with sufficient voltage and current.
3. Axis-orientation for on-axis loading is listed.
4. Specifications are for single-axis systems measured 25 mm above the tabletop. Performance of multi-axis systems is payload and workpoint dependent. Contact factory for multi-axis applications.

Electrical Specifications	
Drive System	Brushless Linear Servomotor
Feedback	Non-contact Linear Encoder -E1: 1 V _{pp} , 20 µm signal period -E2: Digital RS422, 0.1 µm electrical resolution
Maximum Bus Voltage	340 VDC
Limit Switches	5 V, Normally-Closed
Home Switch	Near Center

PRO560LM ORDERING OPTIONS

Travel (Required)

- 0300 300 mm travel stage
- 0400 400 mm travel stage
- 0500 500 mm travel stage
- 0600 600 mm travel stage
- 0800 800 mm travel stage
- 1000 1000 mm travel stage

Other travel options are available upon request. Contact Aerotech for more information.

Tabletop (Required)

- TT1 Tabletop with metric dimension mounting

NOTE: -TT1 option required for lower axis of XY.

Other tabletop options are available upon request. Contact Aerotech for more information.

Feedback (Required)

- E1 Incremental linear encoder, 1 Vpp
- E2 Incremental linear encoder, 0.1 μ m digital TTL output

Other feedback options are available upon request. Contact Aerotech for more information.

Cable Management (Required)

- CMS0 No external CMS, motor/feedback connector bracket on carriage
- CMS1 External CMS for single axis
- CMS2 External CMS for lower-axis of two-axis PRO (XY) assembly
- CMS3 External CMS for lower-axis of two-axis (XZ or XT) assembly
- CMS6 External CMS for lower-axis of three-axis (XYZ or XYT) assembly
- CMS7 External CMS for lower-axis of three-axis (XZT) assembly
- CMS9 External CMS for lower-axis of four-axis (XYZT) assembly

Lifting Hardware (Optional)

- LF Lifting hardware

NOTE: Lifting option available on all travels.

ThermoComp (Optional)

- TCMP ThermoComp integrated thermal compensation, single or lower axis

Metrology (Required)

- PL0 No metrology performance plots
- PL1 Metrology, uncalibrated with performance plots
- PL2 Metrology, calibrated (HALAR) with performance plots

PRO560LM ORDERING OPTIONS

Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required or if you desire custom integration support with your system.

-TAS Integration - Test as system

Testing, integration and documentation of a group of components as a complete system that will be used together (ex: drive, controller and stage). This includes parameter file generation, system tuning and documentation of the system configuration.

-TAC Integration - Test as components

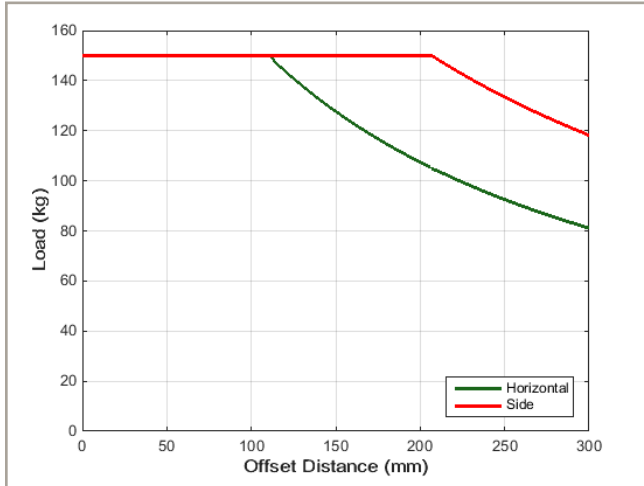
Testing and integration of individual items as discrete components. This is typically used for spare parts, replacement parts or items that will not be used or shipped together (ex: stage only). These components may or may not be part of a larger system.

Accessories (To Be Ordered As Separate Line Item)

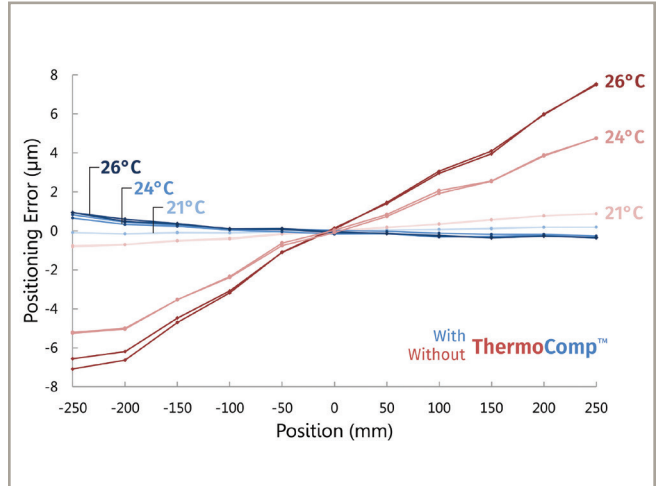
ALIGN-NPA	Non-precision XY assembly
ALIGN-NPAZ	Non-precision XZ or YZ assembly
ALIGN-PA10	XY assembly; 10 arc sec orthogonality. Alignment to within 7 microns orthogonality for short travel stages.
ALIGN-PA10Z	XZ or YZ assembly with L-bracket; 10 arc second orthogonality. Alignment to within 10 microns orthogonality for short travel stages.
ALIGN-PA5	XY assembly; 5 arc sec orthogonality. Alignment to within 3 microns orthogonality for short travel stages.



PRO560LM SPECIFICATIONS

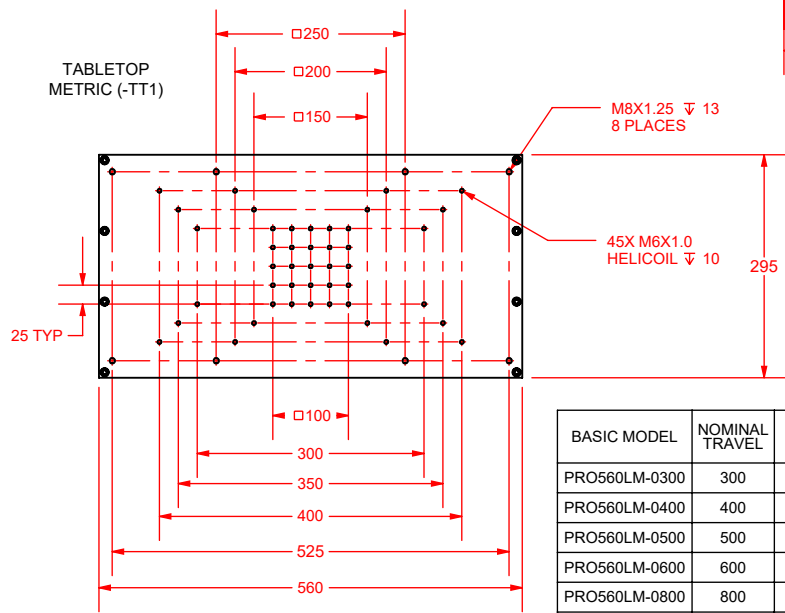
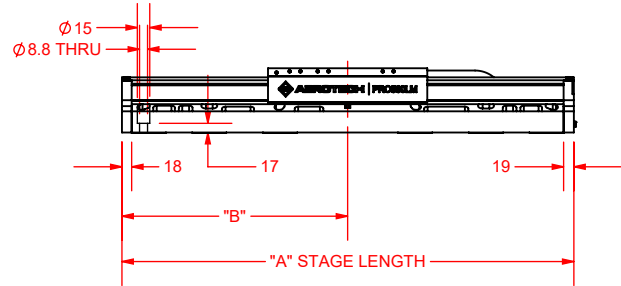
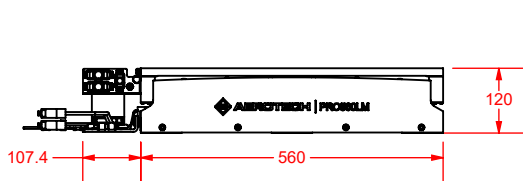
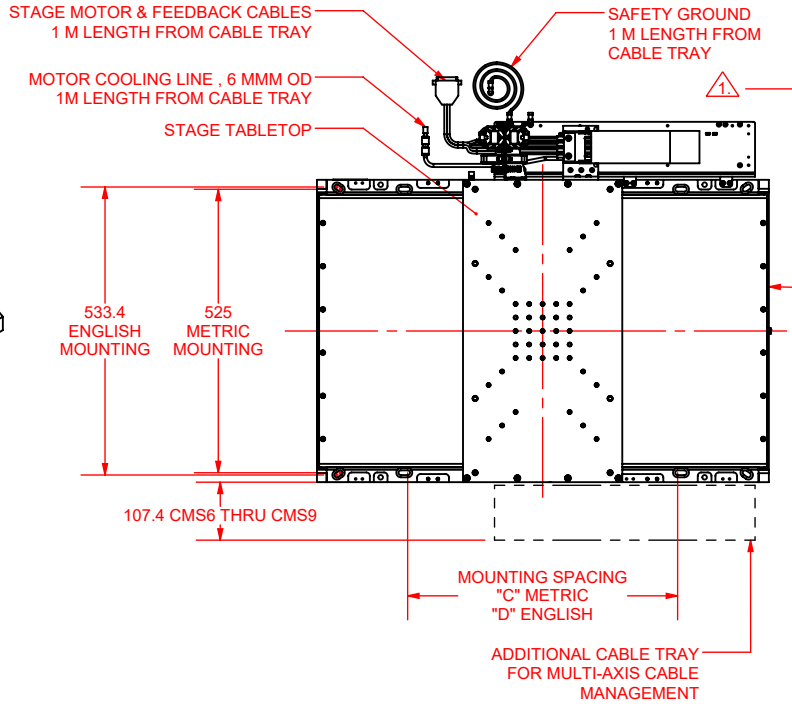
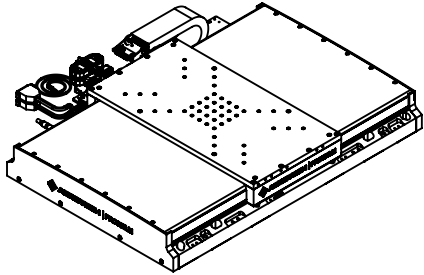


Cantilevered load capability of the PRO560LM.



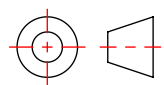
Measurement data showing successful compensation of thermal related positioning errors at several temperatures using the ThermoComp feature. Results are typical of stage performance with and without ThermoComp.

PRO560LM DIMENSIONS



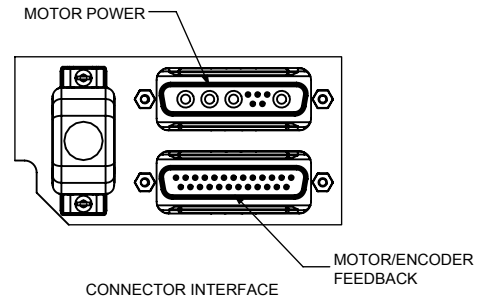
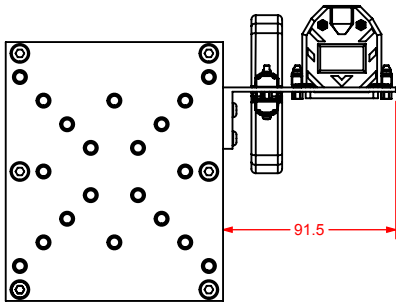
BASIC MODEL	NOMINAL TRAVEL	ELEC LIMIT TRAVEL	MECH LIMIT TRAVEL	A	B	C	D
PRO560LM-0300	300	302-308	334.4	737	368	250, 500-525	254
PRO560LM-0400	400	402-408	434.4	837	418	250, 500-525, 750	254, 762
PRO560LM-0500	500	502-508	534.4	937	468	250, 500-525, 750	254, 762
PRO560LM-0600	600	602-608	634.4	1037	518	250, 500-525, 750	254, 762
PRO560LM-0800	800	802-808	834.4	1237	618	250, 500-525, 750	254, 762
PRO560LM-1000	1000	1002-1008	1034.4	1437	718	250, 500-525, 750, 1250	254, 762, 1193.8

- NOTES:
- ⚠ M5X0.8 FOR CUSTOMER-INSTALLED AIR PURGE FITTING.
 - DIMENSIONS: MILLIMETERS

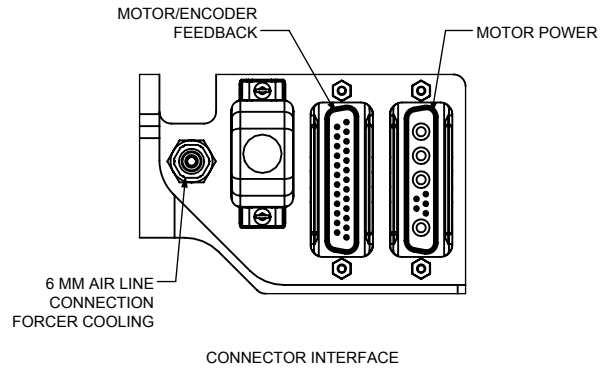
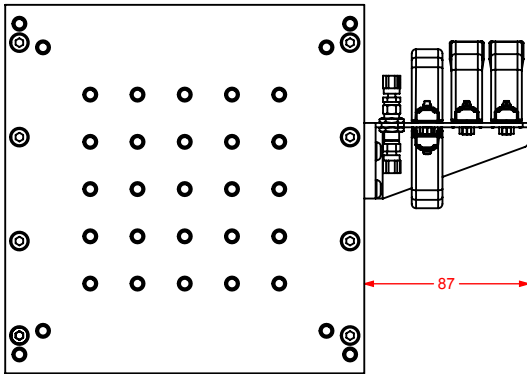


PRO560LM SERIES CABLE MANAGEMENT (-CMS0) DIMENSIONS

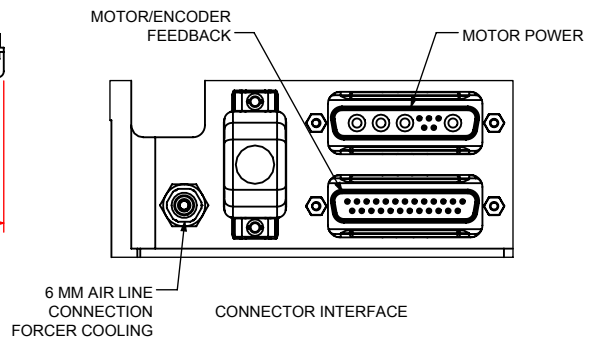
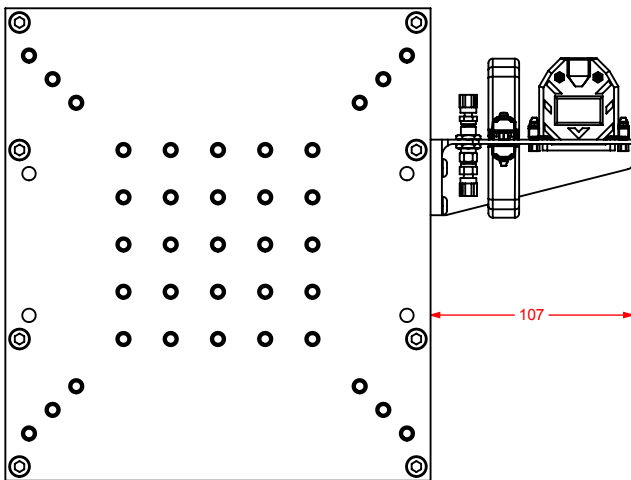
PRO115LM/PRO165LM -CMS0



PRO190LM -CMS0



PRO225LM/PRO280LM/PRO560LM -CMS0



DIMENSIONS: MILLIMETERS