

TRIMLINE-6



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PRODUCT SUMMARY

Trimline-6 Modular Series, screw driven linear translation stages offer exceptional performance characteristics. Combining precision features into a rugged, versatile stage design, trimline-6 is suitable for use in automated, inspection, measurement and fabrication processes, and multiple other industrial and laboratory applications.

- Long life linear motion guide bearing system
- Ultra-fine resolution
- Integral bellows way covers
- Low profile, compact design
- Submicron repeatability
- Optional high-accuracy linear encoder

Trimline-6 Features & Benefits

*The fine-pitch roller lead screw offers higher resolution and is capable of substantial transport velocities. The continuous rolling motion action of the roller lead screw permits high rpm motor speed for increased translation speed. This drive screw mechanism is integrally preloaded for a play-free operation and features low hysteresis which improves bi-directional repeatability. The fine-pitch roller lead screw drive does not require an electric brake to prevent back-driving when **trimline** stages are used in vertical, Z axis, applications.*

Constant support geometry creates a mechanical bearing platform where the saddle is always supported at the load point in an identical way over the entire length of travel. This creates a trajectory with a lower error bandwidth. The pre-loaded multi-track precision linear guide system with four bearing carriages together with the mono-block extruded high-strength aluminum alloy base achieve higher accuracy and stiffness and superior flatness and straightness not affected by moment loading and load location.

Applications

Trimline positioning stages are designed as versatile high performance modules. Selected high-performance components are combined with precision fabricated machined components to achieve outstanding positioning performance with extended life expectancy. The stage base is fabricated from a specially selected hardened high-strength aluminum alloy slab, precision machined to extremely close tolerances. In addition, the saddle is equipped with a wear resistant hard-coat anodized protective finish.

TML-6 SP	
Travel Length mm	100-300
Drive System	NEMA # 23 Servo motor Roller Lead Screw 1mm pitch
Maximum Acceleration	Payload Dependent
Maximum Speed	Unladen 40 mm/s
Maximum Thrust	50 N
Recommended Maximum Loading	50 kg
L1 Parallel to Base	50 kg
L2 Tension Perpendicular to base	50 kg
L3 Compression Perpendicular to base	50 kg
Feedback	Rotary Encoder
Accuracy	+/- 20μm /300mm
TTL resolution	1μ/pulse
Repeatability	5x Resolution
Construction	Aluminum Alloy Body Hard Coat Gray Anodize

TRIMLINE SPECIFICATIONS

	<i>TML-604</i>	<i>TML-606</i>	<i>TML-608</i>	<i>TM-610</i>	<i>TML-612</i>
Travel Length (mm)	100 mm	150 mm	200 mm	250 mm	300 mm
Trajectory Control					
Accuracy					
Rotary Encoder	± 10 µm	± 15 µm	± 20 µm	± 20 µm	± 20 µm
Linear Encoder					
Straightness/Flatness	± 1.0 µm	± 1.5 µm	± 2.0 µm	± 2.5 µm	± 3.0 µm
Yaw/Pitch/Roll	10 arc-sec	10 arc-sec	10 arc-sec	10 arc-sec	10arc-sec
2 axis system					
Orthogonality					
Standard Grade	10 arc-sec	10 arc-sec	10 arc-sec	10 arc-sec	10arc-sec
High Precision	5 arc-sec	5 arc-sec	5 arc-sec	5 arc-sec	5 arc-sec

NOTES:

- All trajectory data based on axis uniformly supported over full length on precision mounting surface with vibration isolation.
- Payload capacities are recommended values to achieve maximum lifetime in the worst-case scenario featuring maximum dynamic operation and off-center loading.
- Force, acceleration and speed performance are based on operations with NUTEC ELECTRONIC controls.