



Low-Profile Z Nanopositioning Stages **ANT95LZS**

Superior Vertical Motion, Compact Form Factor

ANT95LZS stages represent the ultimate in vertical motion performance with an ultra-low profile. Featuring dual side-mounted pneumatic counterbalances with extremely low frictional characteristics, they are best-in-class in combining resolution, accuracy, repeatability, size and reliability. With their impressive dynamic capabilities and enhanced load-carrying capacity, ANT95LZS stages are the premier choice when you need superior quality vertical motion in a compact form factor.

Key Applications

ANT95LZS is ideal for multi-axis applications that require high precision and dynamic positioning performance, including:

- ◆ Photonics assembly and inspection
- ◆ Fiber alignment and optimization
- ◆ Optics manufacturing, testing and inspection
- ◆ Sensor testing and qualification
- ◆ Semiconductor processing and inspection
- ◆ Research and laboratory applications



KEY FEATURES:

- ◆ Delivers **NANOMETER-LEVEL POSITIONING PERFORMANCE** over travel lengths up to 100 mm
- ◆ Achieves **MINIMUM INCREMENTAL MOTION TO 1 nm**
- ◆ Provides **ULTRA-LOW PROFILE** with dual side-mounted counterbalances capable of offsetting up to 5 kg payload for ultra-precise performance in the vertical direction
- ◆ Features high-precision crossed-roller bearings for **EXCELLENT DYNAMIC PERFORMANCE & GENEROUS LOAD CAPACITY**
- ◆ **MAXIMIZES PROCESS THROUGHPUT & RELIABILITY** with ironless direct-drive linear motor
- ◆ **ABSOLUTE** and **ULTRA-HIGH RESOLUTION** incremental encoder options are available

ANT95LZS SERIES SPECIFICATIONS

Mechanical Specifications		ANT95LZS-025	ANT95LZS-050	ANT95LZS-100
Travel		25 mm	50 mm	100 mm
Accuracy⁽¹⁾	Base Performance (-PL1)	±3.25 µm		±5.5 µm
	Plus Performance (-PL2)	±275 nm (-E1, -E2, -E3) ±175 nm (-E4)		±300 nm (-E1, -E2, -E3) ±200 nm (-E4)
Repeatability (Bidirectional)⁽¹⁾		±75 nm		
Resolution (Minimum Incremental Motion)		2 nm (-E1) 6 nm (-E3) 1 nm (-E4)		
Straightness⁽¹⁾		±1.75 µm		±3 µm
Flatness⁽¹⁾		±1.75 µm		±3 µm
Pitch		10 arc sec		
Roll		10 arc sec		
Yaw		5 arc sec		
Maximum Speed		200 mm/s (-E1, -E3, -E4) 145 mm/s (-E2)		
Maximum Acceleration (No Load)		1 g		
In-Position Stability⁽²⁾		<2 nm (-E1) <6 nm (-E3) <1 nm (-E4)		
Load Capacity⁽³⁾	Vertical	5 kg		
Moving Mass		0.50 kg	0.72 kg	1.08 kg
Stage Mass		1.17 kg	1.63 kg	2.40 kg
MTBF (Mean Time Between Failure)		30,000 Hours		
Material		Anodized Aluminum		

Notes:

1. Certified with each stage.
2. In-position stability is reported as 3-sigma value. Requires a 1 Vpp encoder.
3. Payload specifications assume payload is centered on-axis.
4. Specifications are reported for a single axis measured 25 mm above the tabletop. Performance of multi-axis systems depends on the payload and workpoint. Consult factory for multi-axis or non-standard applications.
5. PLUS performance requires the use of an Aerotech controller.
6. To ensure the achievement and repeatability of specifications over an extended period of time, environmental temperature must be controlled to within 0.25°C per 24 hours. Consult factory for more information.
7. Air supply for pneumatic counterbalance must be clean, dry to 0°F dewpoint, and filtered to 0.25 µm or better. Aerotech recommends using nitrogen at 99.9% purity. Supply pressure is determined by the amount of payload carried by the stage.

Electrical Specifications	ANT95LZS-025	ANT95LZS-050	ANT95LZS-100
Drive System	Brushless Linear Servomotor		
Feedback	Noncontact Linear Encoder 1 Vpp with 20 µm signal period (-E1) Digital RS422 with 5 nm electrical resolution (-E2) BiSS-C absolute + incremental 1 Vpp linear dual-track encoder (-E3) 1 Vpp with 4 µm signal period (-E4)		
Maximum Bus Voltage	±40 VDC		
Limit Switches	5 V, Normally Closed		
Home Switch	Near Center		

ANT95LZS SERIES ORDERING INFORMATION

Travel (Required)

-025	25 mm travel
-050	50 mm travel
-100	100 mm travel

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

Feedback (Required)

-E1	Incremental linear encoder, 1 Vpp amplified sine output
-E2	Incremental linear encoder, digital RS422 output, 5 nm electrical resolution
-E3	Absolute + Incremental 1 Vpp linear dual-track encoder
-E4	Incremental linear encoder, 1 Vpp amplified sine output, high-performance

Mounting Plate (Optional)

-MP	Mounting Plate
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Performance Grade (Required)

-PL1	Base performance
-PL2	High-accuracy performance, PLUS

Integration (Required)

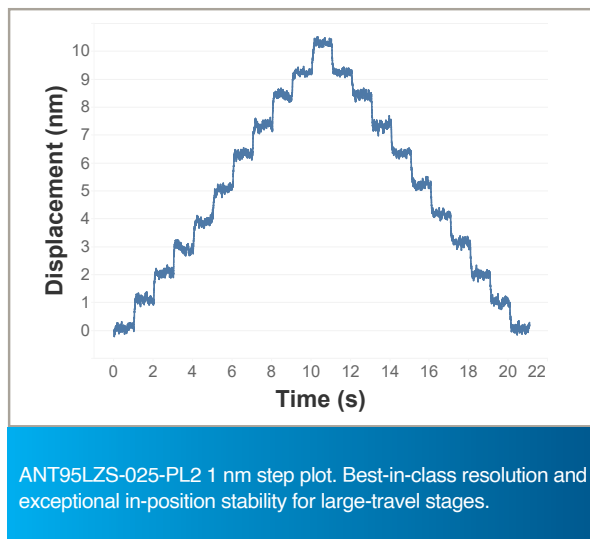
Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire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

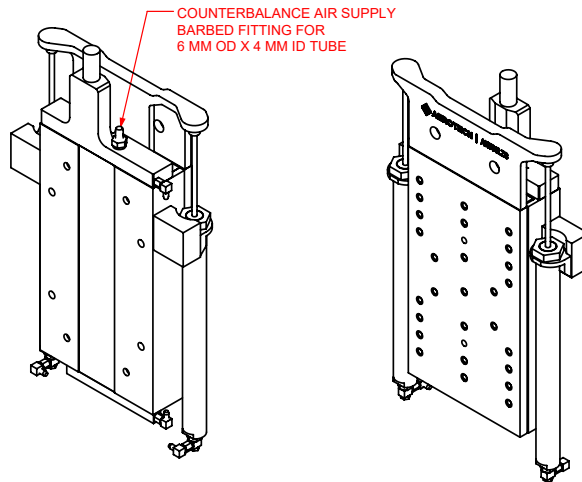
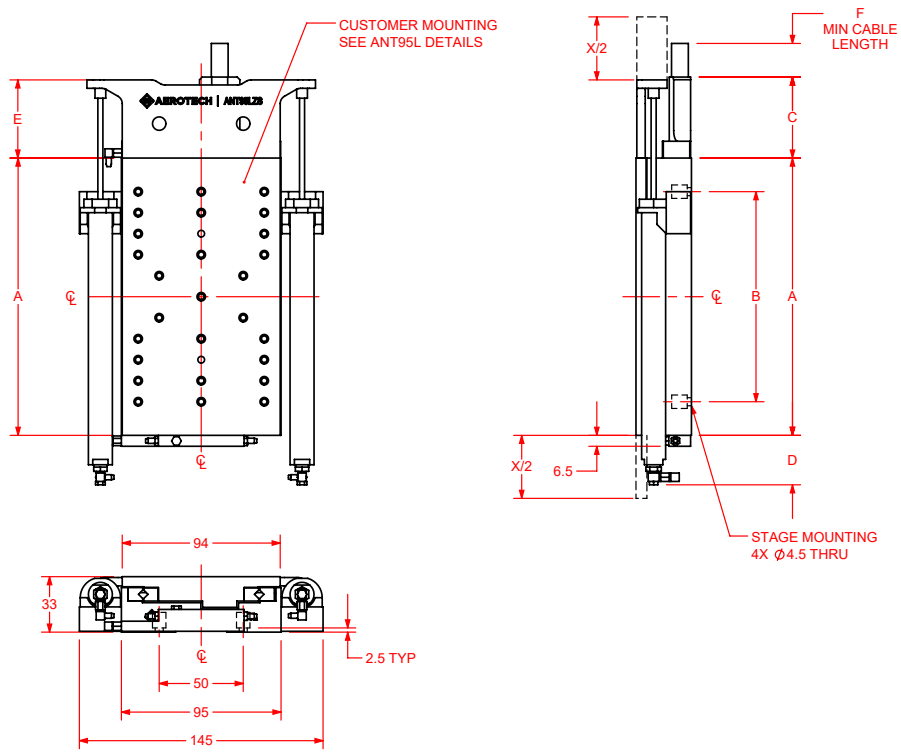
-TAC Integration - Test as components

Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.



ANT95LZS DIMENSIONS

ANT95LZS



TRAVEL OPTION	A STAGE LENGTH	X NOMINAL TRAVEL	X LIMIT TRAVEL	X HARDSTOP TRAVEL	B	C	D	E	F
-025	100	25	26	28	75	23	27	20	800
-050	140	50	52	56	100	23	22	39	775
-100	210	100	102	106	125	61	42	59	700

DIMENSIONS: MILLIMETERS

