Bell Everman

Embedded Motion Systems

DATA SHEET

SLS Sealed Linear Stage

Clean motion for dirty machines.

Linear stages in industrial settings often suffer from contamination problems. As manufacturing debris, particulate or liquid contaminants work their way into the stage, they can abrade or gum up the drive mechanism and bearings. Loss of precision and shortened lifecycle follow. Our new **SLS Sealed Linear Stage** keeps contamination in its proper place—outside the stage housing.

Integrated Polyurethane Seal. The SLS features a proprietary linear lip seal design that integrates seamlessly with the stage's anodized aluminum housing. Made from a ruggedized polyurethane elastomer, the seal is:

- Resistant to chemicals, temperature extremes and mechanical wear.
- Field replaceable in minutes without the disassembling the stage—or even removing the payload in most cases.

True Positioning. Available with both linear motor and ballscrew drives, SLS is a precision positioning device at heart.

- In linear motor configurations, the SLS can achieve accuracies of ± 4 µm per meter of travel and bi-directional repeatability of ± 2 µm.
- In ballscrew configurations, the SLS can achieve accuracies of ± 10 µm per meter of travel and bi-directional repeatability of ± 5 µm.

Compact, Fast and Strong. Self-contained in a housing that's 185 mm wide and just 80 mm tall, SLS packs a lot of capabilities into a small package.

- Available with standard travel lengths from 100 to 1,000 mm and custom lengths to 2,000 mm.
- Speeds to 4 m/sec for linear motor drives and 0.4 m/sec for ballscrew drives.
- Continuous linear force to 300 N for linear motor drives and 1,540 N for ballscrew drives.

Demanding Applications. With its anodized housing and urethane seals, SLS targets applications with harsh operating environments including:

- Laser machining.
- Welding.
- Semiconductor.
- Machining.

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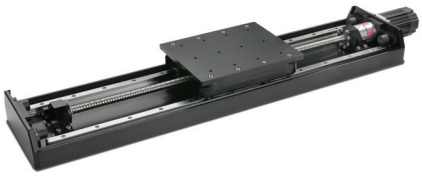
Technical Specifications		Sealed Linear Axis, Medium[2]	
		SLS-LM	SLS-B
			
Type		Direct Drive Linear	Ballscrew Drive Linear
Bearing Type		Preloaded 4-row recirculating ball (4)	
Maximum Travel Length (mm)		2,000	
Motor Type		Iron Core or Ironless Core	3-phase brushless servo
Lead		N/A	5mm, 10mm
Accuracy (µm)	Standard	±4µm per meter	±2µm per 50mm of travel
	w/error correction[3]	±1.0µm	±1.5µm per meter[4]
Bi-directional Repeatability (µm)		±0.5µm	±1.0µm
Pitch, Roll & Yaw (arc-sec)		±2µm/25mm NTE ±12µm at 1000mm	
Encoder Type and Resolutions		Linear Encoder 1µm, 0.5µm, 0.1µm	Rotary Encoder 16KCPR Linear Encoder 1µm, 0.5µm, 0.1µm
Max Dynamic Payload[1] (kg)		100	
Speed (m/sec)		4	0.2, 0.4
Continuous Linear Force (N)		200, 300 (Iron Core) 87, 116 (Ironless Core)	475 - 1,540
Max Load for 10^6m Bearing Life at 2m/sec (N-m)[5]		1,700	
Max Load for 10^6m Bearing Life at 0.5m/sec (N-m)[5]		6,600	
Max Cantilever Load for 10^6m Bearing Life at 2m/sec (N-m)[5]		90	
Max Cantilever Load for 10^6m Bearing Life at 0.5m/sec (N-m)[5]		360	
Moving Mass (kg)		Ironless Core: 2.0, 2.1 Iron Core: 3.5, 4.0	1.7
Friction With / Without Seals, N		20 / 7	

1 Recommend maximum payload for standard SLS contigurations.
Contact Bell-Everman engineering for payload maximum at desired velocity.
2 Shown without polyurethane seal.
3 Controller dependent.
4 Requires linear encoder.
5 Consult BEI Engineering for additional Load/Life specifications.

Get an instant quote for SLS sealed linear stages at **www.bell-everman.com/sls**.

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