

MPS75SL

Miniature Mechanical-Bearing Screw-Driven Linear Stage

Compact 75 mm width, with travel to 100 mm

Precision ground ball-screw drive

DC servo or stepper motor

Anti-creep crossed-roller bearings

High resolution (0.1 μm), repeatability ($\pm 0.75 \mu\text{m}$) and accuracy ($\pm 1.0 \mu\text{m}$)

High vacuum compatible

Optional bellows waycovers

Compact multi-axis configurations



The MPS75SL shown with and without the optional bellows waycovers.

The MPS75SL is a compact, high-performance linear positioning stage that is perfect for the confines of the laboratory while providing the high reliability required in a production environment. It is the ideal choice for measurement, testing, accurate alignment, and component assembly.

High Accuracy

The precision ground ball-screw provides exceptional accuracy, repeatability, and ultra-fine positioning resolution capability to 0.1 micron. The DC servomotor is equipped with a rotary encoder. The anti-creep crossed-roller linear bearings provide smooth travel and excellent payload characteristics.

Optional Vacuum Preparation

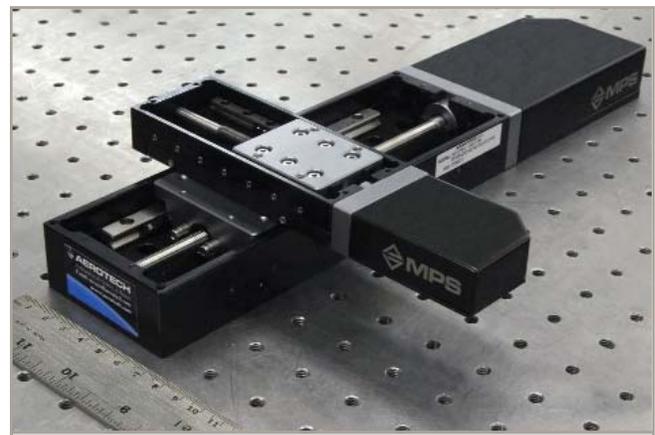
The MPS75SL is available with optional vacuum preparation to 10^{-6} Torr. It is the perfect compact stage choice for today's demanding vacuum applications in markets such as semiconductor manufacturing and inspection, optics fabrication, and military/aerospace.

Highly Configurable

An optional breadboard mounting plate provides direct mounting to both English and metric breadboards. Bellows waycovers are available for use in dusty environments. Any of the models can be mounted in an XY configuration and,

with the right-angle L-bracket, in XYZ configurations. It can also be mounted with the smaller MPS50SL stage.

The MPS75SL is a member of the MPS (Miniature Positioning Stage) family of linear, rotary, goniometer, and vertical lift and Z stages. Two or more stages can easily be mounted together in numerous combinations using standardized mounting patterns and adapter plates.



MPS50SL with MPS75SL in a dual-axis XY configuration.

MPS75SL Series SPECIFICATIONS

Mechanical Specifications			MPS75SL-025	MPS75SL-050	MPS75SL-075	MPS75SL-100
Travel			25 mm	50 mm	75 mm	100 mm
Accuracy	Uncalibrated		±2.5 µm	±3.0 µm	±3.5 µm	±4.0 µm
	Uncalibrated with Bellows		±3.5 µm	±4.0 µm	±4.5 µm	±5.0 µm
	Calibrated ⁽¹⁾		±1.0 µm	±1.0 µm	±1.5 µm	±1.5 µm
Resolution (Minimum Incremental Motion)			0.1 µm			
Repeatability (Bidirectional) ⁽¹⁾			±0.75 µm (Standard); ±1.2 µm (with Bellows)			
Straightness			±2.0 µm	±2.0 µm	±3.0 µm	±3.0 µm
Flatness			±2.0 µm	±2.0 µm	±3.0 µm	±3.0 µm
Maximum Speed	1.0 mm/rev Ball Screw	DC Motor (-M1)	50 mm/s	50 mm/s	50 mm/s	35 mm/s
		Stepper Motor (-M2)	30 mm/s	30 mm/s	30 mm/s	30 mm/s
Load Capacity ⁽²⁾	Horizontal		15 kg			
	Side		15 kg			
	Vertical		4 kg			
Stage Mass			1.7 kg	1.8 kg	1.9 kg	2.0 kg
Material			Anodized Aluminum Body			

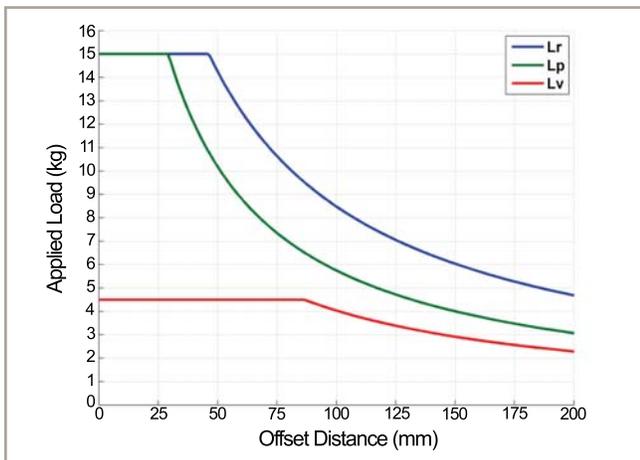
Notes:

1. With Aerotech controllers.
2. Payload specifications are single-axis system.
3. Excessive duty cycle may impact stage accuracy.
4. Specifications are for single-axis systems, measured 25 mm above the tabletop.
5. Contact factory for specifications of stages with bellows option.

Electrical Specifications	DC Motor (-M1) (Standard and VAC)	Stepper Motor (-M2) (Standard and VAC)
Drive System	DC Brush Servomotor	24 VDC Bipolar Stepper Motor
Feedback	10,000 lines/rev Rotary Encoder	N/A
Electronic Resolution	0.025 µm	0.025 µm @ 40,000 steps/rev Motor Resolution
Maximum Bus Voltage	48 VDC	48 VDC*
Limit Switches	5V, Normally Closed	

*With Aerotech control system.

Recommended Controller		
Multi-Axis	A3200	Npaq/Npaq MR/Ndrive MP
	Ensemble	Ensemble LAB/Epaq/Epaq MR/Ensemble MP
Single Axis	Soloist	Soloist MP



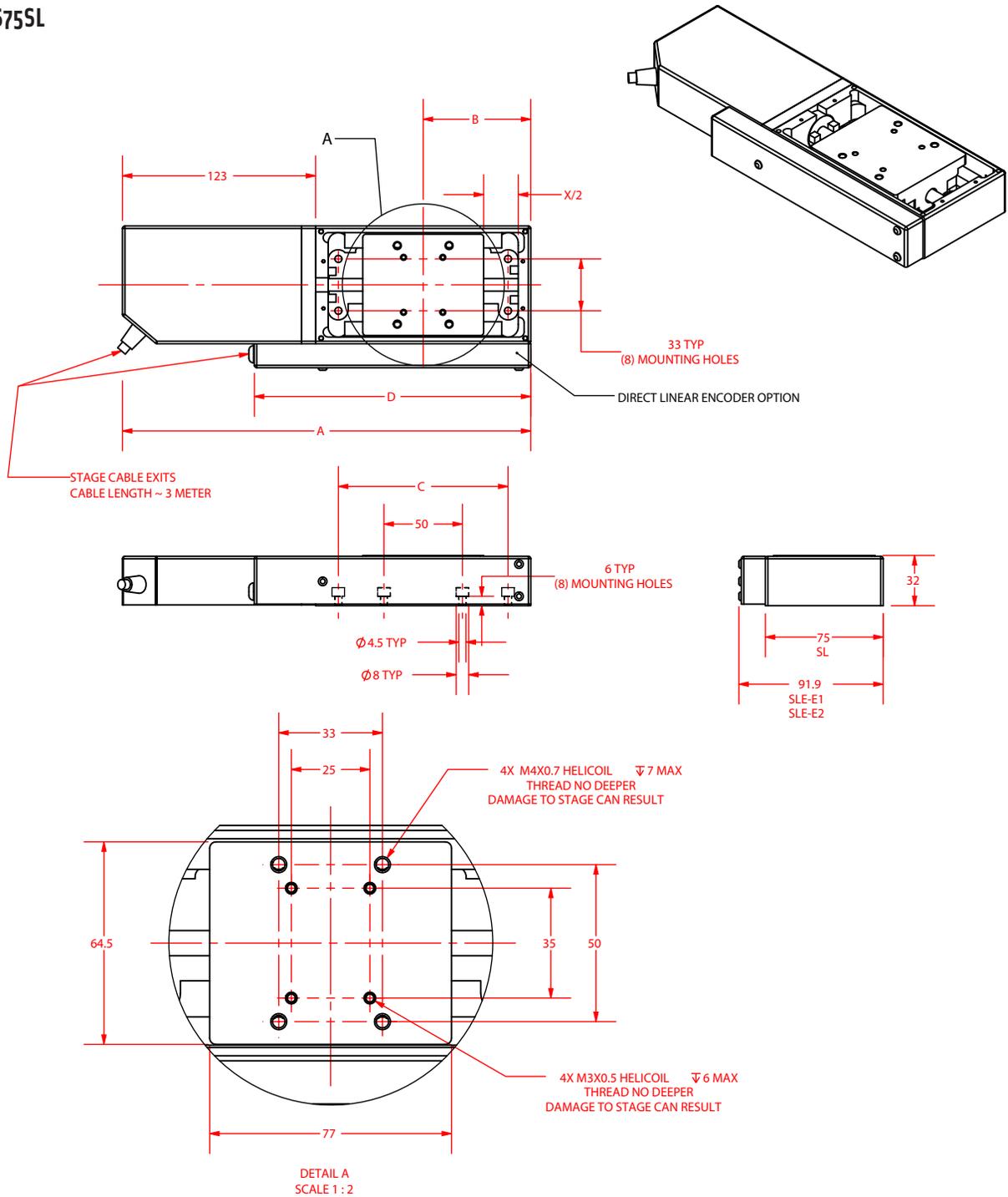
MPS75SL load curves.



The MPS75SL is also available in a vacuum-prepared version.

MPS75SL Series DIMENSIONS

MPS75SL

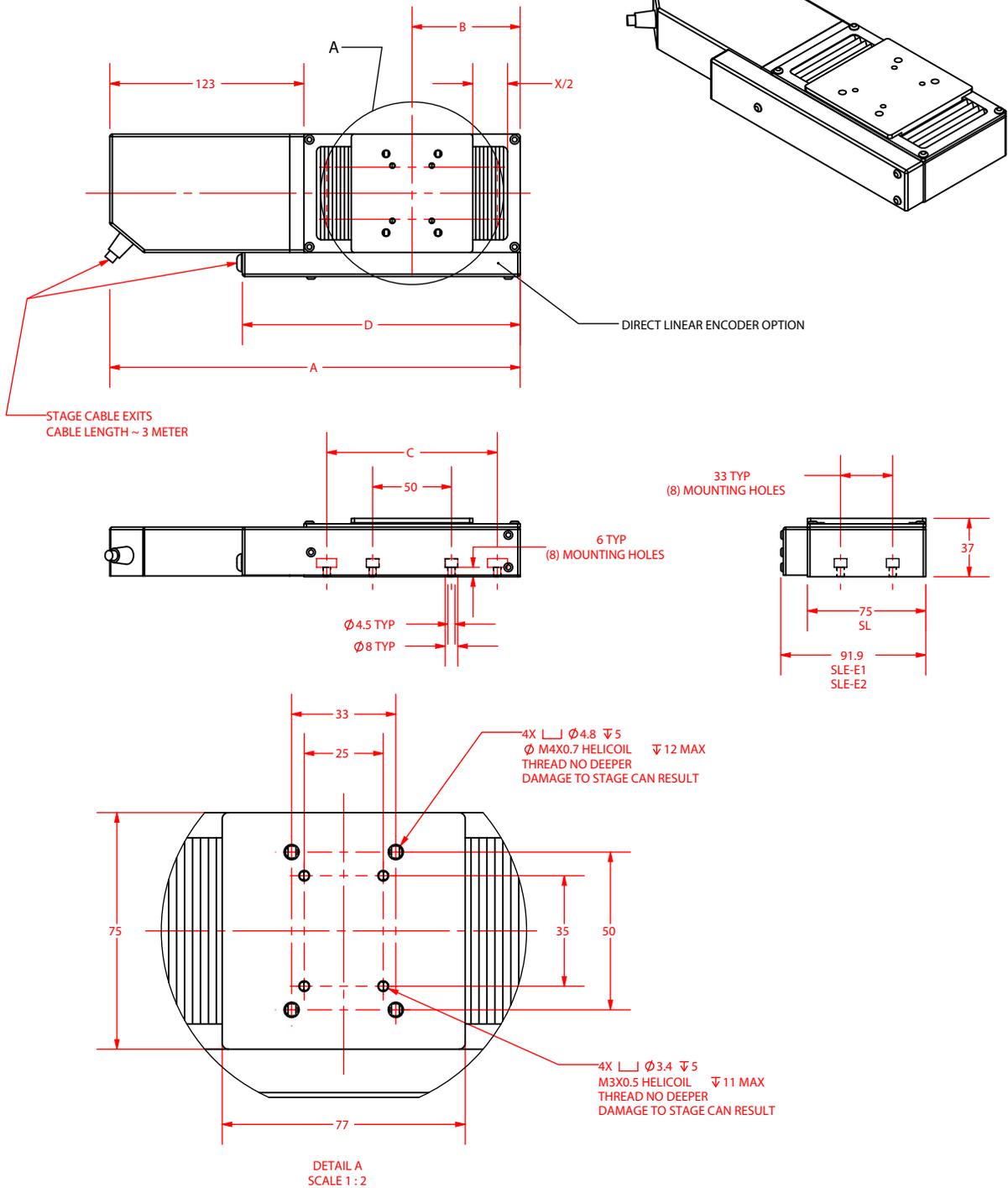


BASIC MODEL	A	B	C	D	X NOMINAL TRAVEL	X ELECTRICAL LIMIT TRAVEL	X MECHANICAL LIMIT TRAVEL
MPS75SL-025	260	68.5	108	176	25	29	34
MPS75SL-050	290	83.5	138	176	50	54	58
MPS75SL-075	320	98.5	125	260	75	79	84
MPS75SL-100	350	113.5	150	260	100	104	108

DIMENSIONS: MILLIMETERS

MPS75SL Series Bellows Option DIMENSIONS

MPS75SL - Bellows Option

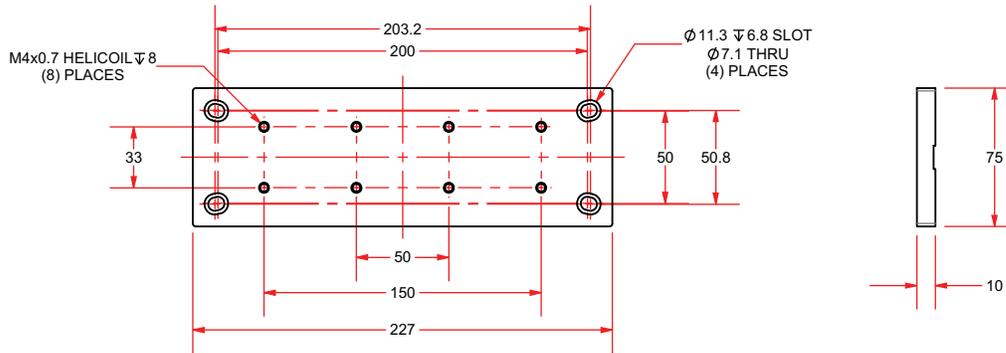


BASIC MODEL	A	B	C	D	X NOMINAL TRAVEL	X ELECTRICAL LIMIT TRAVEL	X MECHANICAL LIMIT TRAVEL
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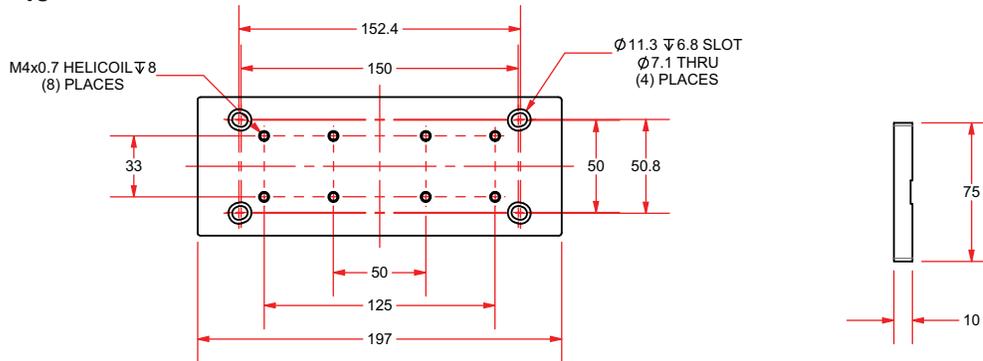
DIMENSIONS: MILLIMETERS

MPS75SL Mounting Plate DIMENSIONS

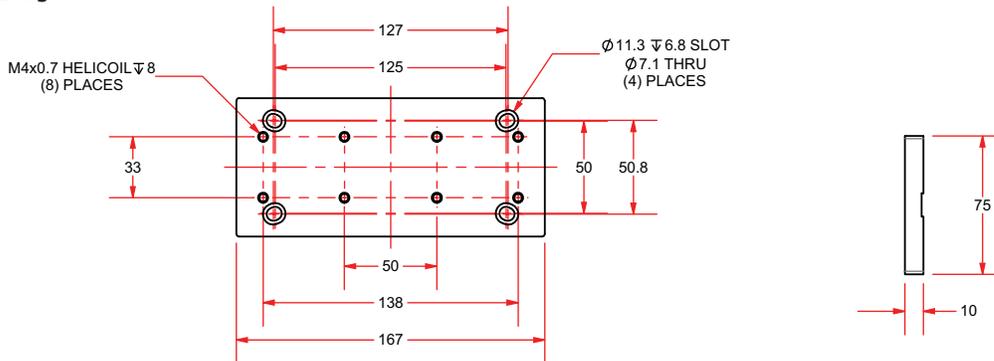
MPS75SL-100



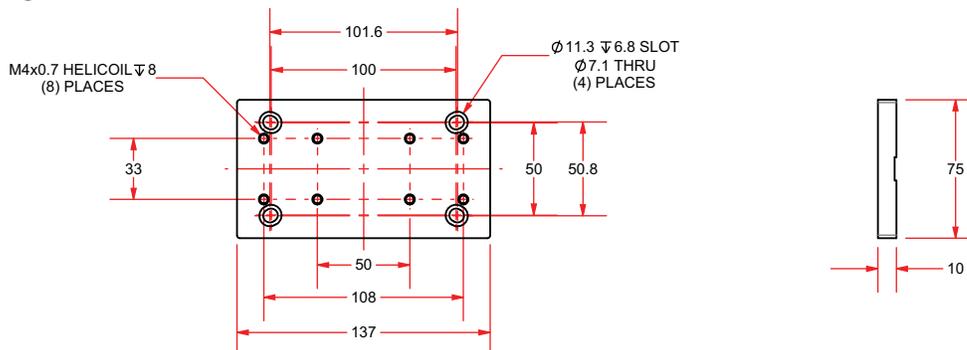
MPS75SL-075



MPS75SL-050



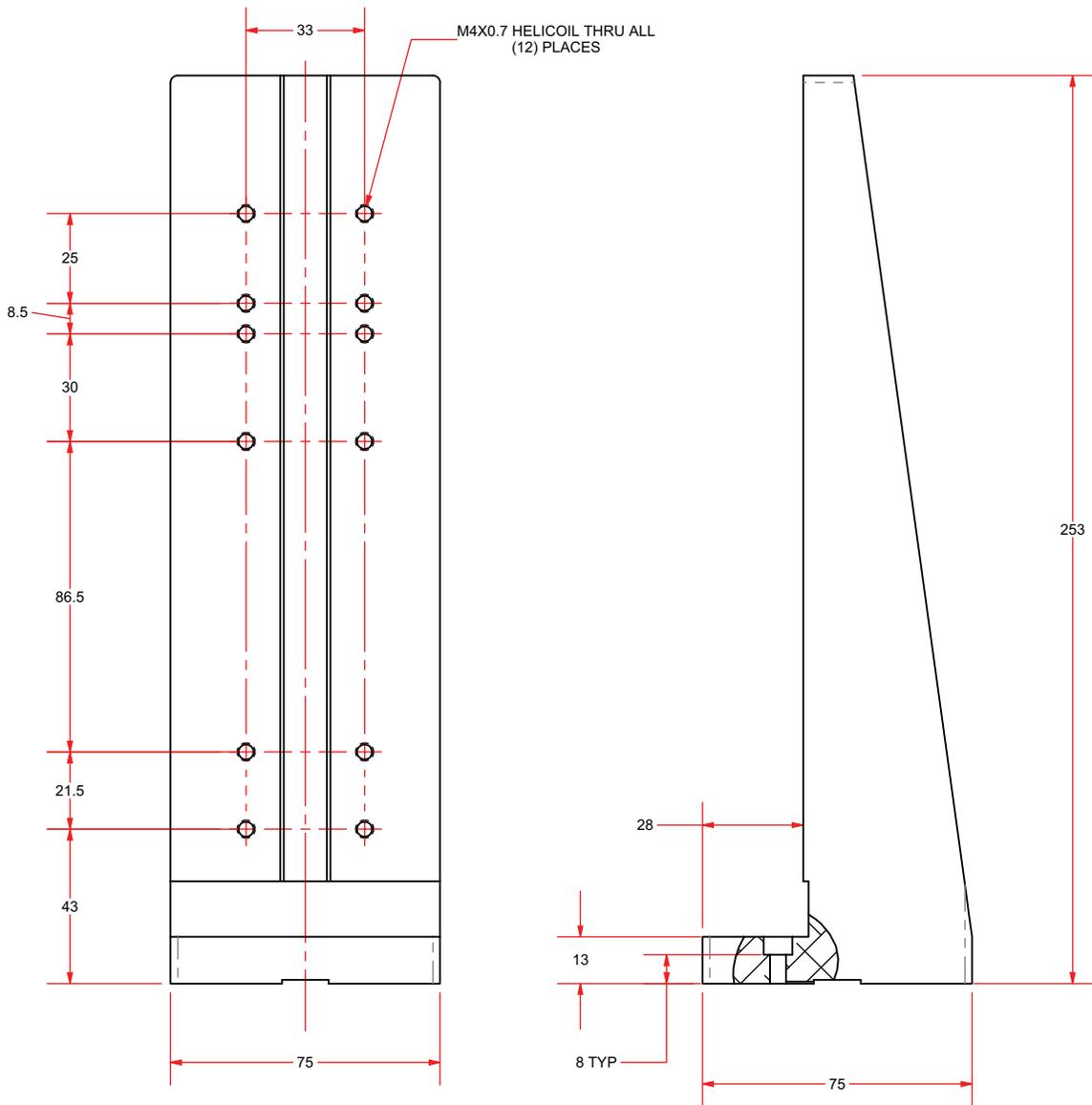
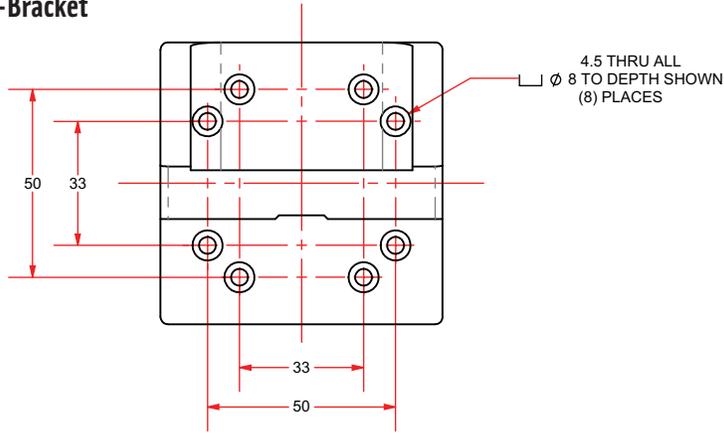
MPS75SL-025



DIMENSIONS: MILLIMETERS

HDZ-MPS75SL L-Bracket DIMENSIONS

HDZ L-Bracket



DIMENSIONS: MILLIMETERS

MPS75SL Series ORDERING INFORMATION

MPS75SL Miniature Mechanical-Bearing Screw-Driven Linear Stage

Travel (Required)

-025	25 mm travel stage
-050	50 mm travel stage
-075	75 mm travel stage
-100	100 mm travel stage

Vacuum Preparation (Optional)

-HV	High vacuum preparation to 10^{-6} Torr
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Motor (Required)

-M1	DC servomotor
-M2	Stepper motor

Bellows (Optional)

-BL	Bellows waycover
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Note: Bellows waycover not available with -HV vacuum preparation.

Mounting Plate (Optional)

-MP	Optical table mounting plate
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Metrology (Required)

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

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	<p>Integration - Test as system</p> <p>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.</p>
-TAC	<p>Integration - Test as components</p> <p>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.</p>

Accessories (to be ordered as separate line item)

HDZ-MPS75SL	Right angle bracket, MPS75SL
HDZ-MPS75SL-HV	Right angle bracket, MPS75SL, high vacuum preparation to 10^{-6} Torr