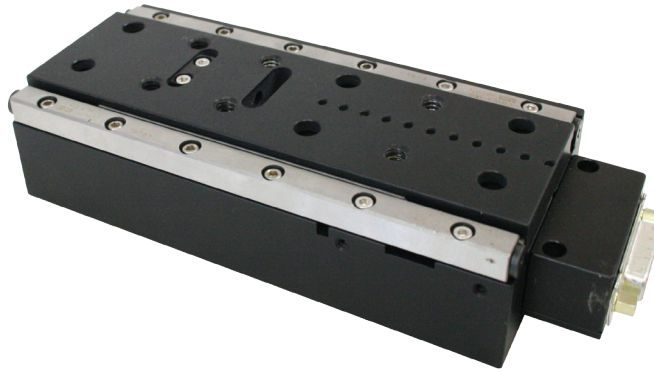


## LS-Series Linear Stages



### LS-Series Features

LS linear stages provide sub-micron accuracy, deriving their precise control by using closed-loop DC servomotors and employing high-resolution rotary encoders for positioning feedback. An optional linear encoder can be added to the unit to provide even greater positioning accuracy.

The stages utilize crossed-roller slides, precision lead-screws, and zero-backlash miniature geared DC servomotors for smooth and accurate motion. The units offer precise travel from 50 mm to 300 mm (2" to 12"). They can be used singly or stacked, vertically or horizontally, and can carry loads up to 4.5 Kg (10 lbs).

The units have built-in limit switches, and can be configured with a number of lead screw options as outlined in the table below. In standard rotary encoder

configuration and using ASI's MS-2000 control electronics, resolutions in the 50-to-100 nm range can be easily obtained. Repeatability factors of less than 300 nm RMS are also obtainable.

An optional linear encoder provides a scale resolution of 10 nm, and with a scale accuracy of  $\pm 3 \mu\text{m}$  per length of scale.

The MS-2000 controller provides automatic backlash correction, accepts industry standard commands, and accepts RS-232 or USB communication from a host computer.

### Lead Screw Options

| Lead Screw Pitch Options | Rotary Encoder Resolution | Maximum Speed |
|--------------------------|---------------------------|---------------|
| 25.40 mm (Ultra-coarse)  | 88 nm                     | 28 mm/sec     |
| 12.70 mm (Super-coarse)  | 44 nm                     | 14 mm/sec     |
| 6.35mm (Standard)        | 22 nm                     | 7 mm/sec      |
| 1.59 mm (Fine)           | 5.5 nm                    | 1.75 mm/sec   |
| 0.635 mm (Extra-fine)    | 2.2 nm                    | 0.7 mm/sec    |

*\*Shown with rotary encoder and 6.35 mm pitch lead screw*

## Specifications

| Specifications                        | LS-50                                   | LS-100          | LS-200             |
|---------------------------------------|---|-----------------|--------------------|
| <b>Resolution</b>                     | < 0.1 $\mu\text{m}$                     |                 |                    |
| <b>with Linear Encoder*</b>           | 10 nm                                   |                 |                    |
| <b>RMS repeatability (typical)</b>    | < 0.7 $\mu\text{m}$                     |                 |                    |
| <b>with Linear Encoder* (typical)</b> | 200 nm                                  |                 |                    |
| <b>Accuracy</b>                       | 0.25 $\mu\text{m}$ per mm               |                 |                    |
| <b>with Linear Encoder*</b>           | $\pm 3 \mu\text{m}$ per length of scale |                 |                    |
| <b>Maximum velocity</b>               | 7 mm/sec                                |                 |                    |
| <b>Range of travel</b>                | 50 mm (2")                              | 100 mm (4")     | 200 mm (8")        |
| <b>Length</b>                         | 152.5 mm (6")                           | 203.5 mm (8")   | 305 mm (12")       |
| <b>including connector</b>            | 181 mm (7 1/8")                         | 232 mm (9 1/8") | 333.5 mm (13 1/8") |
| <b>Width</b>                          | 69 mm (2 3/4")                          |                 |                    |
| <b>including top plate*</b>           | 102 mm (4")                             |                 |                    |
| <b>Height</b>                         | 35.5 mm (1.4")                          |                 |                    |
| <b>including top plate*</b>           | 45 mm (1 3/4")                          |                 |                    |
| <b>Weight</b>                         | 1.4 kg (3 lbs)                          | 1.9 kg (4 lbs)  | 2.4 kg (6 lbs)     |

\*\* Linear Encoder Option requires installation of the top plate