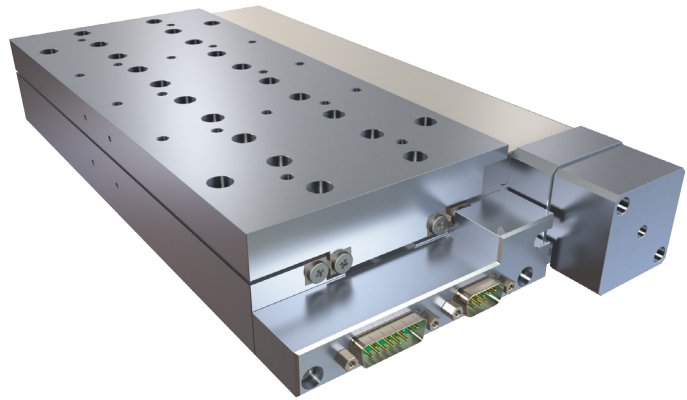


## Precision Linear Motion Platform

### FEATURES

- Compact Low-Profile Design
- 150mm Travel
- Zero backlash, precision ground ball screws
- Optical limit switches with home
- High resolution linear encoder
- Brushless servo motor drive
- Crossed Roller Bearings
- Vacuum Preparation



The LNS-BS Series stages are designed for a variety of applications. This compact low profile ball screw stage is built for high duty cycles and long life and can attain high velocities for factory automation and semiconductor processing equipment. This stage has exceptional levels of accuracy, repeatability, flatness and straightness. The crossed roller bearings and a precision ground ball screw offer extremely smooth operation and velocity control. The LNS-BS Series stages can be stacked to create X, Y and Z motion. The stage can operate in any orientation and has an optional brake for added safety.

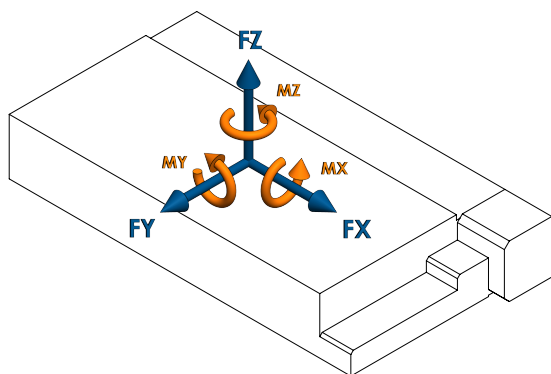


LNS-150-BS-A-C-S-B-00

## Motion Specifications

## Product Specifications

Encoder Output	1Vp-p Sin, Cos, Index
Force X (N)	50
Force Y (N)	300
Force Z (N)	600
Flatness ( $\mu\text{m}$ )	6
Height (mm)	45
Length (mm)	296
Limit Switches	Yes
Linear Accuracy ( $\mu\text{m}$ )	10
Linear Encoder Resolution ( $\mu\text{m}$ )	40 $\mu\text{m}$ period
Linear Repeatability ( $\mu\text{m}$ )	1
Linear Velocity (mm/s)	150
Moment X (N-m)	70
Moment Y (N-m)	290
Moment Z (N-m)	130
Moving Mass X (kg)	2.06
Pitch +/- (arc-sec)	12
Screw Lead (mm)	2
Stage Mass (kg)	4.46
Straightness ( $\mu\text{m}$ )	6
Width (mm)	153
Yaw +/- (arc-sec)	12



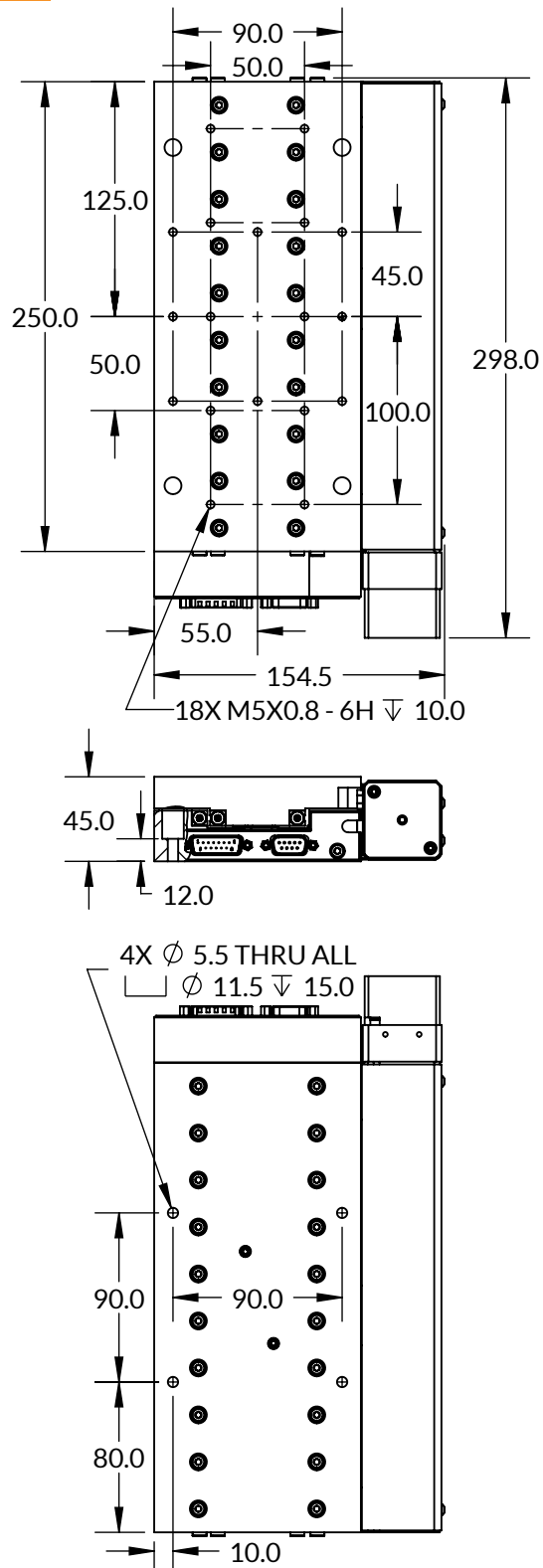
LOAD DIRECTIONS

## Part Number Description

LNS	LNS Series
150	150mm Travel
BS	Ball Screw Drive
A	Brushless Servo Motor
C	40 $\mu\text{m}$ Linear Glass Scale
S	Standard Precision
B	Vacuum Preparation
00	Standar Product (Call for custom)

LNS-150-BS-A-C-S-B-00

## Mechanical Specifications

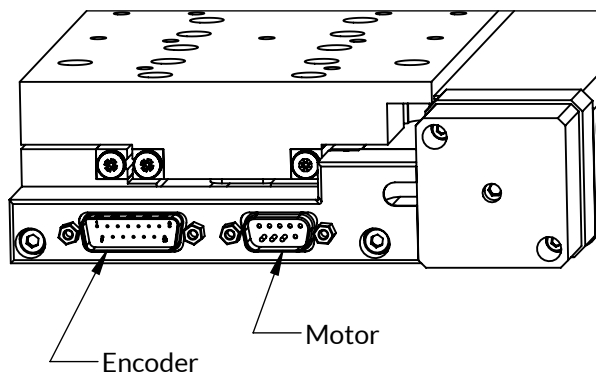


LNS-150-BS-A-C-S-B-00

Rev 2

### Encoder Connector (DSUB15 MALE)

PIN	NAME
1	*
2	GND Sense
3	*
4	Index -
5	Cos -
6	Sin -
7	+5V Sense
8	+5V Supply
9	GND Supply
10	Limit -
11	Limit +
12	Index +
13	Cos +
14	Sin +
15	Shield
* Reserved	



### Motor Connector (DSUB9 MALE)

PIN	NAME
1	+5V Hall Supply
2	Hall C
3	Hall B
4	Hall A
5	GND Hall Supply
6	Phase A
7	Phase B
8	Phase C
9	*
* Reserved	



LNS-150-BS-A-C-S-B-00

Electrical Specifications

Motor Specifications	
Motor Type	3 $\Phi$ Brushless DC
BEMF Constant (V/KRPM)	2.84
Electrical Time Constant (ms)	0.38
Max Bus Voltage (VDC)	40
Max Continuous Current (A)	1.0
Motor Force Constant (N/A)	76.34
Peak Current (A)	3.33
Pin to Pin Inductance (mH)	0.55
Pin to Pin Resistance (ohm)	1.51
Poles per Revolution	6

Feedback Specifications	
Supply Voltage (V)	5.0 $\pm$ 10%
Supply Current (mA)	250
Encoder Feedback	Yes
Encoder Type	Sinusoidal
Encoder Output	Sin, Cos, Index; Differential Pairs, 1Vpp
Encoder Resolution	40um Signal Period
Hall Switch Output	Open-Collector, No Pullup Resistor
Hall Switch max current (mA)	-20
Limit Switches	Yes
Limit Switch Output Type	Open-Collector, No Pullup Resistor
Limit Switch Output current (mA)	-20.0
Home Switch	No
Index Pulse	Yes, center travel

The encoder will output one index pulse near center travel. This pulse is highly repeatable and can be used upon power-up to find an absolute position to use for further measurements.

Two limit switches are provided at the ends of travel. The limit switches will be pulled low throughout the travel range of the stage. The output will swing to high-impedance at the end of travel and remain high-impedance until the mechanical limit of the stage is reached.