

Precision Linear Motion Platform

FEATURES

- High capacity
- 250mm Travel
- Zero backlash, precision ground ball screw
- Optical limit switches with home
- High resolution rotary encoder
- Brushless servo motor drive
- Recirculating ball linear ways



The HDS-BS Series stages are designed for high loading capacities and long travels in a variety of applications. This ball screw stage is built for high duty cycles and long life and can attain high velocities for factory automation and semiconductor processing equipment. Recirculating ball linear ways and a precision ground ball screw offer extremely smooth operation and velocity control. The HDS-BS series stages can be stacked to create X, Y, and Z motion. An optional brake can be added for safety.



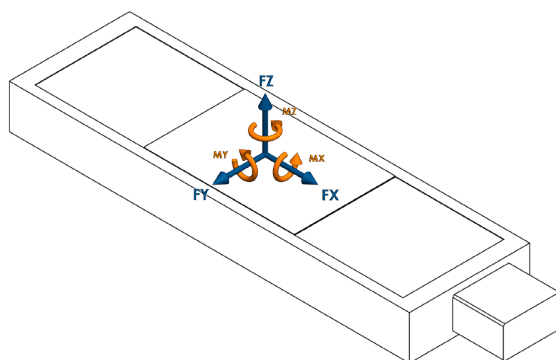
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HDS-250-BS-A-H-S-E-00

Motion Specifications

Product Specifications

Encoder Output	A quad B, index
Force X (N)	200
Force Y (N)	500
Force Z (N)	1000
Flatness (μm)	8
Height (mm)	55
Length (mm)	557
Limit Switches	Yes
Linear Accuracy (μm)	20
Linear Encoder Resolution (μm)	0.125
Linear Repeatability (μm)	2
Linear Velocity (mm/s)	150
Moment X (N-m)	200
Moment Y (N-m)	300
Moment Z (N-m)	100
Moving Mass X (kg)	1.71
Pitch +/- (arc-sec)	14
Screw Lead (mm)	2
Stage Mass (kg)	7.42
Straightness (μm)	8
Width (mm)	150
Yaw +/- (arc-sec)	14



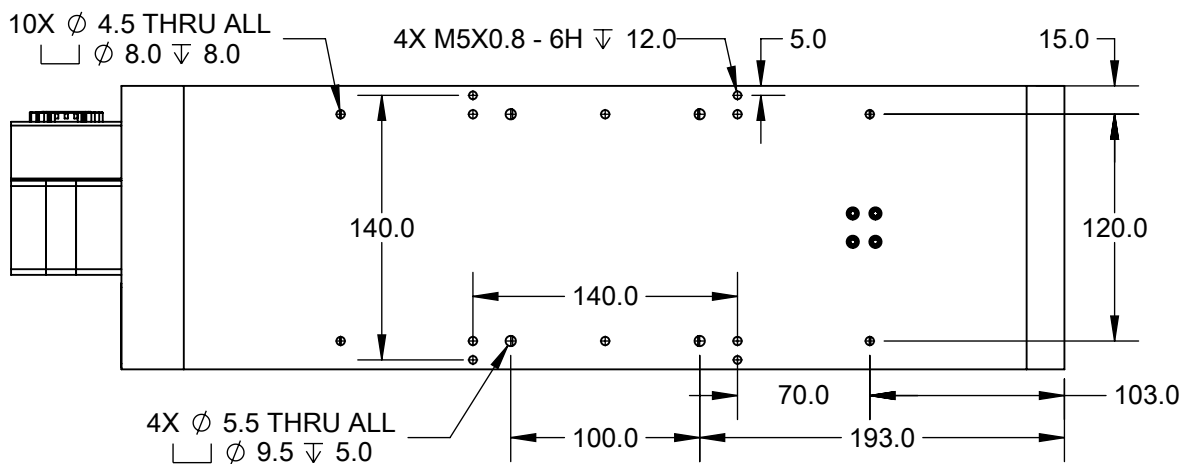
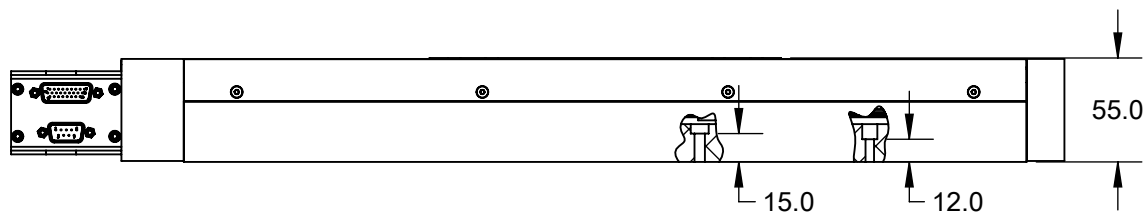
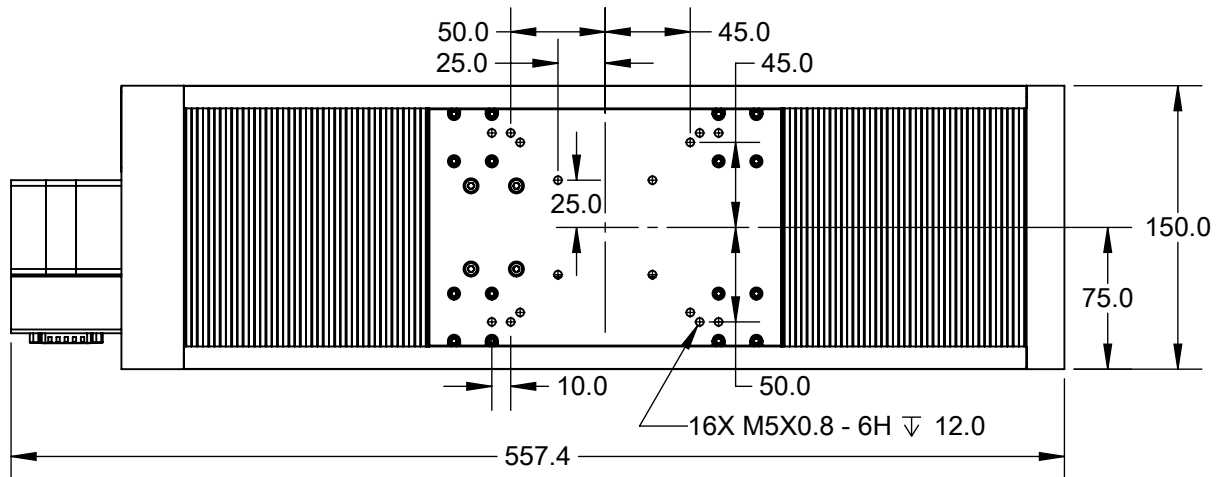
LOAD DIRECTIONS

Part Number Description

HDS	HDS Series
250	250mm Travel
BS	Ball Screw Drive
A	Brushless Servo Motor
H	0.125 μm Rotary
S	Standard Precision
E	Bellows
00	Standard Product (Call for custom)

HDS-250-BS-A-H-S-E-00

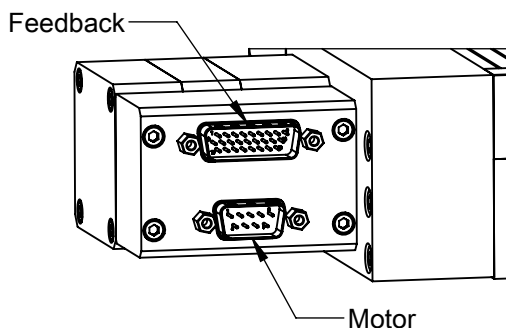
Mechanical Specifications



HDS-250-BS-A-H-S-E-00

Electrical Pinout

Feedback Connector (DSUB26HD MALE)	
PIN	NAME
1	+5V
2	A+
3	B+
4	RI+
5	LIM+
6	*
7	*
8	*
9	*
10	*
11	A-
12	B-
13	RI-
14	LIM-
15	*
16	*
17	*
18	*
19	GND
20	HALL A
21	HALL B
22	HALL C
23	HOME
24	*
25	*
26	*
* Reserved	



Motor Connector (DSUB9 MALE)	
PIN	NAME
1	*
2	*
3	*
4	*
5	*
6	PHASE A
7	PHASE B
8	PHASE C
9	*
* Reserved	



HDS-250-BS-A-H-S-E-00

Electrical Specifications

Motor Specifications	
Motor Type	3 Φ Brushless DC
BEMF Constant (V/KRPM)	1.88
Electrical Time Constant (ms)	0.38
Max Bus Voltage (VDC)	24
Max Continuous Current (A)	3.0
Motor Force Constant (N/A)	50.8
Peak Current (A)	10.0
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	Incremental
Encoder Output	Square Wave Quadrature, RS-422 compatible, A,B,Z, Differential Pairs
Encoder Resolution	8000 cts/mm
Hall Switch Output	Open-Collector, No Pullup Resistor
Hall Switch max current (mA)	-20
Limit Switches	Yes
Limit Switch Output Type	CMOS
Limit Switch Output current (mA)	\pm 20.0
Home Switch	Yes
Home Switch Output Type	CMOS
Home Switch Output current (mA)	\pm 20.0

A home switch is provided near center mechanical travel and a limit switch at each end of travel. The encoder will output one index pulse per revolution of the motor. This pulse is highly repeatable and can be used in coordination with the home switch to find an absolute position after power-up.

The limit switches will be pulled low throughout the travel range of the stage. The output will swing high at the end of travel and remain high until the mechanical limit of the stage is reached.