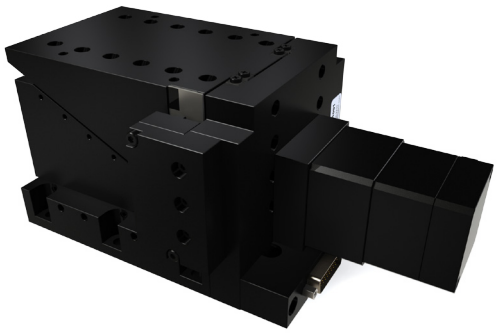
1040 CLASSIC ROAD | APEX, NC 27539
P: 866.906.2709 | F: 919.882.1430
www.griffinmotion.com

Precision Z Motion Platform

FEATURES

- 20mm Z Travel
- High rigidity wedge design
- Zero backlash, precision ground ball screw
- Optical limit switches with home
- High resolution rotary encoder
- Brushless servo motor drive
- Crossed Roller Bearings



The ELV-BS series stages are designed for a variety of applications. These reliable ball screw stages combine high speed and high accuracy and are built for high duty cycles and long life for laboratory, factory automation and semiconductor processing equipment. They are safe for upright or inverted use and can be configured with custom payload mounting holes. The wedge design and crossed roller bearings offer an extremely rigid Z stage.

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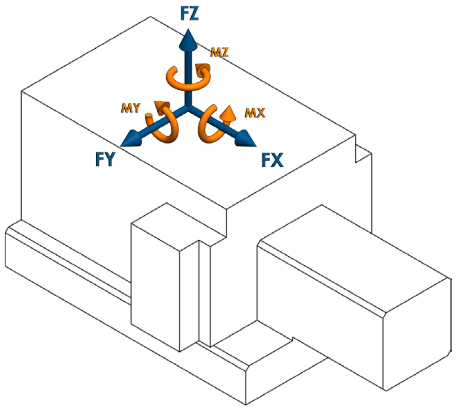
Product Specifications

Encoder Output	A quad B, index
Force X (N)	100
Force Y (N)	100
Force Z (N)	100
Height (mm)	90
Length (mm)	196
Limit Switches	Yes
Linear Accuracy (µm)	10
Encoder Resolution (µm)	0.0625
Linear Repeatability (µm)	2
Linear Velocity (mm/s)	50
Moment X (N·m)	5
Moment Y (N·m)	5
Moment Z (N·m)	5
Moving Mass Z (kg)	0.6
Pitch +/- (arc-sec)	10
Screw Lead (mm)	2
Stage Mass (kg)	2.32
Width (mm)	112
Yaw +/- (arc-sec)	10



LOAD DIRECTIONS

Part Number Description

ELV	ELV Series
020	20mm Travel
BS	2mm Lead Ball Screw Drive
A	Brushless Servo Motor
H	0.125µm Rotary Encoder
S	Standard Precision
0	No Additional Options
00	Standard Product (Call for custom)

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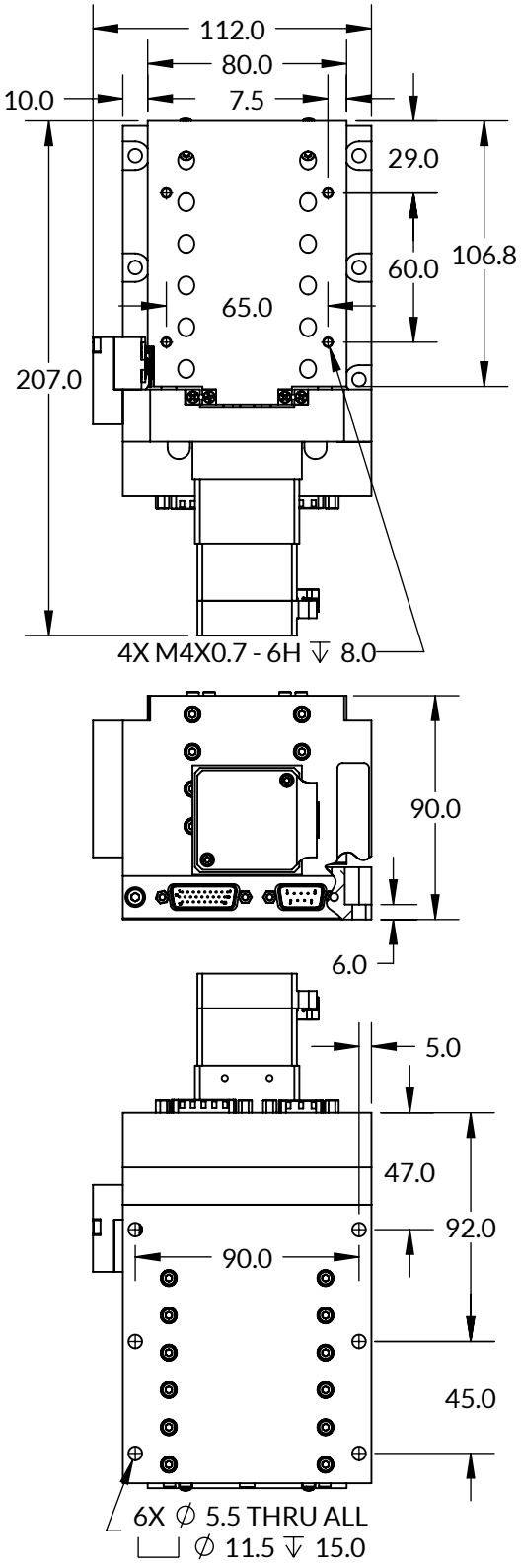
Mechanical Specifications



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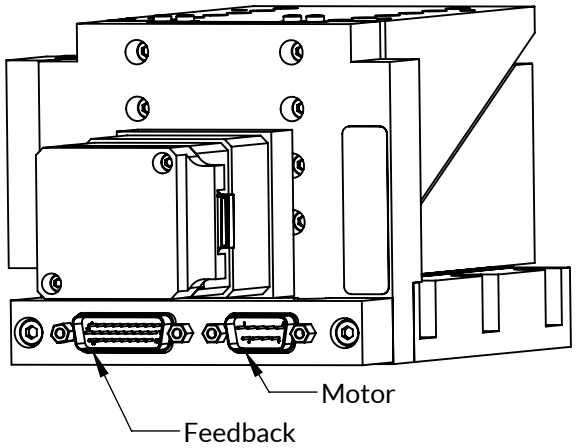
Electrical Pinout

Feedback Connector (DSUB26HD MALE)	
DSUB26HD PIN	NAME +5V
1	+5V
2	A+
3	B+
4	Z+
5	LIM+
6	*
7	*
8	*
9	*
10	*
11	A-
12	B-
13	Z-
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)	
DSUB9 PIN	NAME
1	*
2	*
3	*
4	*
5	*
6	PHASE A
7	PHASE B
8	PHASE C
9	*
* Reserved	

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)	101.6
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±10%
Supply Current (mA)	250
Encoder Feedback	Yes
Encoder Type	Incremental
Encoder Ouput	Square Wave Quadrature, RS-422 compatible, A,B,Z, Differential Pairs
Encoder Resolution	16000 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)	±20.0
Home Switch	Yes
Home Switch Output Type	CMOS
Home Switch Output current (mA)	±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.