

## Precision Elevator-Rotary Stage

### FEATURES

#### Linear Axis

- 15mm Z Travel
- Brushless servo motor drive
- Zero backlash, precision ground ballscrew
- High resolution linear encoder
- High rigidity wedge design

#### Rotary Axis

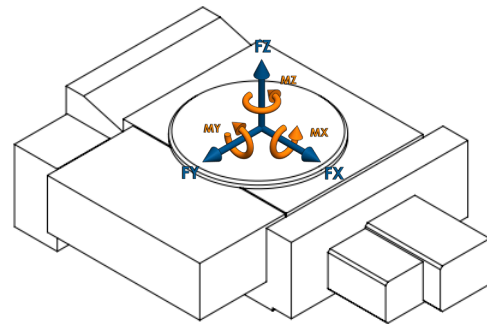
- +/- 5 degrees between electrical limits
- Brushless servo motor drive
- Zero backlash, precision ground ballscrew
- High resolution rotary encoder



The Elevator-Rotary 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.

## Product Specifications

Angular Repeatability (arc-sec)	7.2
Angular Velocity (deg/s)	30
Encoder Output	A quad B, index
Force Z (N)	130
Flatness (µm)	10
Height (mm) at lower electrical limit	90.0
Length (mm)	289.4
Limit Switches	Yes
Linear Accuracy (µm)	1
Linear Encoder Resolution (µm)	0.1
Linear Repeatability (µm)	1
Linear Velocity (mm/s)	9
Moving Mass Z (kg)	3.7
Peak Torque (Nm)	3.07
Pitch +/- (arc-sec)	20
Rotary Encoder Resolution (counts/motor rev)	16000
Rotational Inertia (kg*m <sup>2</sup> )	0.0023576
Stage Mass (kg)	8.52
Straightness (µm)	10
Width (mm)	241.5
Yaw +/- (arc-sec)	20



**LOAD DIRECTIONS**

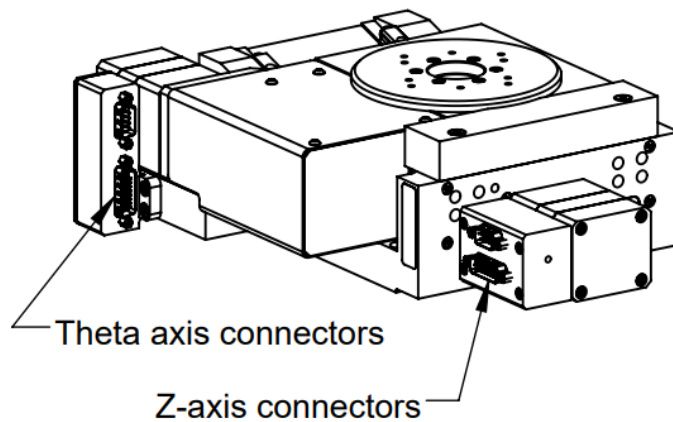
## Part Number Description

ECT	ECT Series
015	15mm Z Travel
BS	Ball Screw Drive
A	Brushless Servo Motor
M	0.1µm Linear SS Scale
S	Standard Precision
0	No Additional Options
00	Standard Product (Call for custom)



Feedback Connector (DSUB26HD MALE)	
PIN	NAME
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	*
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	





ECT-015-BS-A-M-S-0-00

## Electrical Specifications

Motor Specifications	
	<b>BOTH AXES</b>
Motor Type	3 $\Phi$ Brushless DC
BEMF Constant (V/KRPM)	1.88
Electrical Time Constant (ms)	0.38
Max Bus Voltage (VDC)	48
Max Continuous Current (A)	3.0
Motor Torque Constant (Nm/A)	0.027
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		
	<b>Z AXIS</b>	<b>THETA AXIS</b>
Supply Voltage (V)	5.0 $\pm$ 10%	
Supply Current (mA)	<250	250
Encoder Feedback	Yes	
Encoder Type	Incremental	
Encoder Output	Square Wave Quadrature, RS-422 compatible, A, B, Z, Differential Pairs	
Encoder Resolution	10000 cts/mm	16000 cts/motor rev
Hall Switch Output	Open-collector, no internal pullup resistor	
Hall Switch max current (mA)	-20	
Limit Switches	Yes	
Limit Switch Output Type	CMOS	CMOS, Push-pull
Limit Switches Output current (mA)	$\pm$ 20	
Index Pulse	Yes, center travel	Yes, once per motor revolution