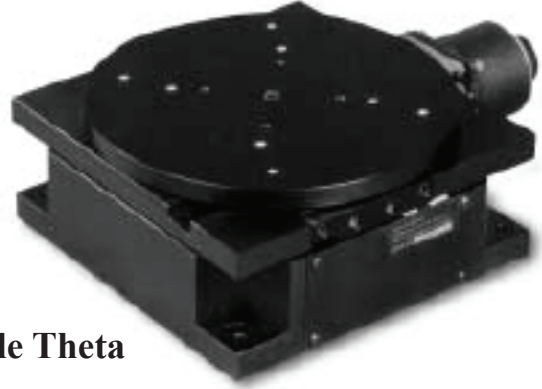


Z-Theta™ Z-Elevator with Small Angle Theta



Features

- :: Low profile with no cantilevering
- :: 0.5" vertical travel; ±4° theta travel
- :: High repeatability, anti-backlash friction nuts

Z-Elevator with Small Angle Theta

Our Z-Theta Stage adds a small angle theta-axis to our 0.5 inch travel Z-Elevator stage. This second axis adds only 15mm to the overall height, making the total collapsed height of this two-axis assembly only 3.465". It is designed to accommodate varying sample thicknesses and provide theta alignment.

The theta axis uses a leadscrew with a high repeatability friction nut as its drive mechanism while a decoupling device allows precise angular motion. Both axes incorporate 23 frame motors and Hall-effect limits with locking connectors.

SPECIFICATIONS		Z-AXIS	THETA AXIS
Travel		0.5 inch	±4 degrees
Positional Accuracy		10µm	0.05 degree
Bidirectional Repeatability		3µm	0.003 degree
Flatness & Straightness		5µm	—
Pitch & Yaw		15 arc-seconds	—
Load Capacity (kg)		10	10
Maximum Speed		15 leadscrew rps	7°/sec
Mass (kg)	Moving	5.3	3
	Total	10	10

CONFIGURATIONS (Apply to both of the above axes) ¹							
Leadscrew	Lead (inch)		0.50	0.40	0.20	0.10	0.02
	Z Resolution (inch x 10 ⁻⁶) ²		100	80	40	20	4
	Lead (mm)		3	2	1.4		
	Z Resolution (µm) ²		0.6	0.4	0.28		
	Theta Resolution ²		0.000752° (2.7 arc-seconds)				
Motor	Stepper (oz-in)	400 step/rev.	118		others available		
		200 step/rev.	53	100	others available		
	Servo ³		brush	brushless			

OPTIONS			
Encoder	Rotary (counts/rev.) ⁴	2000	4000

¹Standard configuration is highlighted.

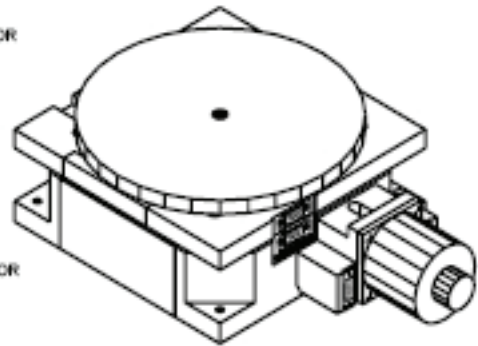
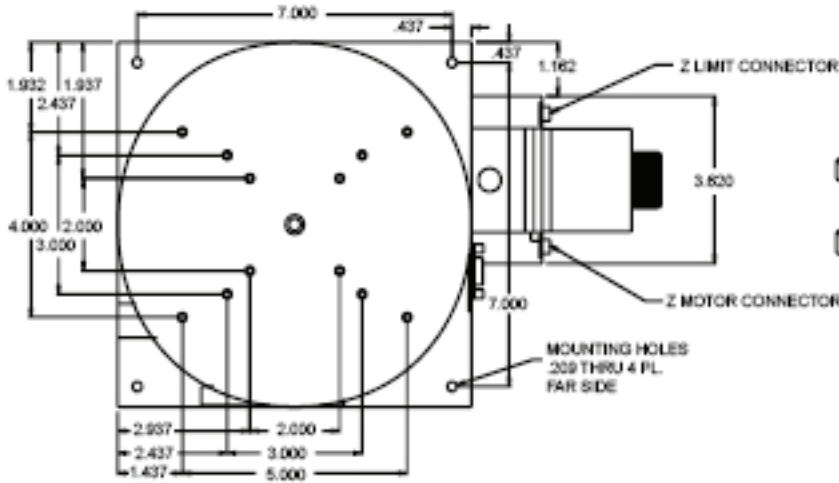
²Resolution assuming ± 10 microstep drive and standard 200 step/rev. stepping motor.

³Servo on Z axis only.

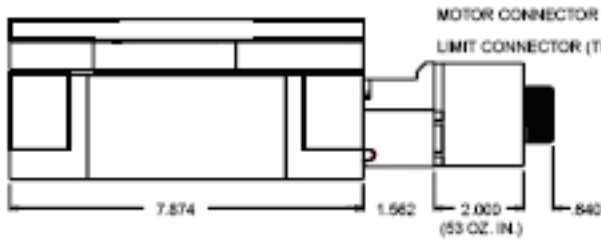
⁴Enclosed on Z axis only.

Z-Theta™ Z-Elevator with Small Angle Theta

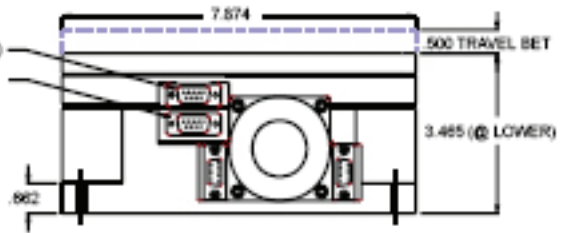
Top View

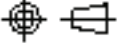


Side View



End View




 Third Angle Projection
 Note: All Dimensions in Inches