

X-Theta™ Stage



Features

- : Very thin cross section – only 1.2" high
- : Precision crossed-roller ways on linear axis
- : High speed belt-driven theta axis

Low Profile, X-Theta Stage

The Low Profile X-Theta Stage provides two axes of motion in a stage body height of only 1.2 inches, making it ideal for various inspection applications, including wafer, CD, and hard drive media. The X (linear) axis includes crossed roller ways and a precision ground leadscrew with a spring-loaded friction nut to maximize flatness, straightness, and linear positioning accuracy. The theta (rotary) axis provides high speed rotation. It uses a belt drive to move at speeds up to 360 degrees/second. The ratio of the motor shaft rotation with respect to rotation

of the rotary platter is 5.833:1. The resolution will be 0.03 degree with a 200 full step per revolution stepping motor and a divide-by-ten microstep drive.

Both axes include a motor with a coupling and a knob for manual positioning. Hall-effect limit sensors prevent overtravel protection on the linear axis, and accurate position references for both axes. Locking motor and limit/encoder connectors are mounted to the same table section to simplify external cabling.

SPECIFICATIONS	X-AXIS	THETA-AXIS
Travel	6 inches	360 degrees
Accuracy	30 μm ¹	1 degree
Bidirectional Repeatability	3 μm	0.5 degree
Flatness & Straightness	10 μm	—
Pitch & Yaw	40 arc-seconds	—
Axis Runout	—	25 μm
Radial Runout	—	25 μm
Load Capacity (kg) ²	10	10
Maximum Speed	15 leadscrew rps	360°/sec
Moving Mass (kg)	2.9	0.5
Total Mass (kg)	4.5	4.5

CONFIGURATIONS ³						
Leadscrew	Lead (inch)	0.50	0.40	0.20	0.10	0.02
	Lead (mm)	3	2	1.4		
Motor	Stepper (oz-in) 400 step/rev.	23	others available			
	200 step/rev.	44	others available			

¹Leadscrew accuracy
²Please contact our Applications Engineers for loads exceeding 5kg.
³Standard configuration is highlighted.

X-Theta™ Stage



Helping you build a better machine, faster.

Left Side View

Top View

Right Side View

