

U Series Ultra Resolution Positioners (XY/10nm)

Specifications

Travel		
Axis	U Actuator Travel	Output Travel
Z - focus	12.7mm (0.50")	12.7mm (0.5")
Y - vertical	12.7mm (0.50")	2.5mm (0.1")
X - lateral	12.7mm (0.50")	2.5mm (0.1")
Roll	12.0 mm (0.47")	±1.5 degrees
Yaw	6.0 mm (0.24")	±1.5 degrees
Pitch	6.0 mm (0.24")	±1.5 degrees

Resolution				
Axis	Resolution	Full Steps	μ-Steps	Comments
Z	50nm (2μ-inch)	4,167	266,666	Resolution at the output of the positioning stage is based on the micro-stepping controller operating at 64μ-steps/full step. One full step = 0.00012" [3.048 μm] at the actuator. One μ-Step = 1.875 μ-inch [47.6 nm] at the Z output. At the X and Y output, consistent 10nm movements are delivered.
Y	10nm (0.4μ-inch)	4,167	266,666	
X	10nm (0.4μ-inch)	4,167	266,666	
Roll	0.043 arc sec	3,937	251,968	
Yaw	0.086 arc sec	1,968	125,952	
Pitch	0.086 arc sec	1,968	125,952	

Stage Configuration & Arc Error Motion			
Axis	Flexure Type	Drive Type	Arc Error
Z	Dual	Direct Drive	None - True Linear Motion
Y	Single	<u>5x Ratio Drive™</u>	Max 30μm - Arc Error in Z only
X	Single	<u>5x Ratio Drive™</u>	Max 30μm - Arc Error in Z only
Roll	Single	Rotational	Max 35μm
Yaw	Dual	Rotational	None
Pitch	Dual	Rotational	None

Linear Stiffness		
Along Axis	Stiffness	Comments
Z	130 kN/m	measured at the rotation center
Y	95 kN/m	
X	40 kN/m	

Torsional Stiffness		
About Axis	Stiffness	Comments
Z - roll	75Nm/rad	measured at the rotation center
Y - yaw	100Nm/rad	
X - pitch	130Nm/rad	

Maximum Load		
Static Load	Transient Load	Comments
2.2 lbs (1 kg)	10 lbs (4.5 kg)	Stage must be protected from shock loading during transport and usage

Physical Properties		
Characteristics	Specifications	Comments
Construction	Aluminum	6061 & 7075 - T6 anodized
Weight	1.5 kg	Approximate
Body Dimensions	5.79" x 1.75" x 5.19"	LxWxH excluding micrometers
Mounting Height	5.19"	Base to top of mounting plate
Mounting Configuration	0.26" diameter holes	1.00" x 4.00" centers (compatible with 1.00" grid optical tables, units mount on 2" intervals with 0.25" allowance for routing of cables, etc.)
Coincident Rotation Center	1/2"	Above top of mounting plate
	1"	Out from end of mounting plate