

3SAE PENTAPOD® MULTI-AXIS POSITIONER



3SAE's PentaPod® is a groundbreaking Kinematic Multi-Axis Positioning Stage. This innovative stage seamlessly merges the benefits of both a Parallel stage and a Serial stage, delivering an impressive 5/6 Degrees of Freedom (DOF). The PentaPod® features a genuine "parallel kinematic design," ensuring exceptional positional stiffness and minimal crosstalk across all axes. Experience unparalleled precision and versatility with the PentaPod® – setting a new standard in multi-axis positioning.

Key Features: PentaPod®

- Uses unique, patented, 5-degree of freedom joints that facilitate sub-micron precision motion in 5 or 6 axes.
- Offers a simple system integration with a single USB connection and no external controller required.
- Parallel Kinematic design providing exceptional positioning accuracy and stiffness.
- Software adjustable point of rotation.
- Small size and low profile without compromising on stroke, precision, or crosstalk.
- A fraction of the cost and complexity of a comparable Hexapod.

Standard Package

Part Number	Product	Includes
PPD-01-0100	PentaPod® (5-Axes)	Carriage platform with M3 threaded grid pattern, executable control software, USB Type A/C cable, power supply, electronic user's manual, manufacturer's 1-year parts and labor warranty
PPD-01-0105	PentaPod® (6-Axes)	

Technical Specifications

Feature	Specification
Dimensions:	5-axes – 215.0 (W) x 91.7 (D) x 97.3 (H) mm 6-axes – 215.0 (W) x 91.7 (D) x 101.5 (H) mm
Weight:	5-axes – 3.25lbs 6-axes – 4.25lbs
Power Source:	(1) 12VDC, 4A
Control / Operation:	Included Executable Control Software
Travel Range X (mm)	7.5
Travel Range Y, Z* (mm)	11.5
Travel Range θ X, θ Y, θ Z (deg)	12.5
Minimum Incremental Motion X, Y (μ m)	0.05
Minimum Incremental Motion Z* (μ m)	0.03
Minimum Incremental Motion θ X, θ Y (μ rad)	0.25
Minimum Incremental Motion θ Z (μ rad)	0.5
Max Centered Load (g)	2000
Stiffness Y (N/ μ m)	6

Feature	Specification
Actuator Type	Stepper
Maximum Velocity X, Y (mm/sec)	3.6
Maximum Velocity Z* (mm/sec)	2.4
Maximum Velocity θ X, θ Y (mrad/sec)	78
Maximum Velocity θ Z (mrad/sec)	117
Unidirectional Repeatability X, Y, Z* (μ m) +/-	0.3
Unidirectional Repeatability θ X, θ Y, θ Z (μ rad) +/-	6
Bidirectional Repeatability X, Y (μ m) +/-	0.5
Bidirectional Repeatability Z* (μ m) +/-	1
Bidirectional Repeatability θ X, θ Y (μ rad) +/-	20
Bidirectional Repeatability θ Z (μ rad) +/-	40
Stage Footprint (cm2) - 5 axes / 6 axes	197 / 197
Stage Volume (cm3) - 5 axes / 6 axes	1530 / 1600

* 6th Axis is optional