3SAE PENTAPOD® MULTI-AXIS POSITIONER

3SAE's PentaPod® is a groundbreaking Parallel-Kinematic Multi-Axis Positioning Stage. This innovative stage seamlessly merges the benefits of both a Parallel stage and a Serial stage, delivering an impressive 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, 6-degree of freedom joints that facilitate sub-micron precision motion in 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-01-0125	PentaPod® (6-Axes) - USB	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-01-0130	PentaPod® (6-Axes) - USB & Ethernet	

Technical Specifications

Feature	Specification
Dimensions (mm)	215.0 (W) x 91.7 (D) x 101.5 (H)
Weight:	~4.5lbs
Power Source	(1) 12VDC, 4A
Control / Operation	Executable Control Software
Actuator Type	Stepper
Stiffness (N/µm)	24
Stage Footprint (cm^2)	197
Stage Volume (cm^3)	1600
Maximum Velocity X, Z (mm/sec)	3.6
Maximum Velocity Y (mm/sec)	2.4
Maximum Velocity θX, θZ (mrad/sec)	78
Maximum Velocity θY (mrad/sec)	117
Load Capacity Centered (g)	2000

Feature	Specification
Independent Travel Range X (mm)	+3.0/-6.0
Independent Travel Range Y, Z (mm)	±6.0
Independent Travel Range θX, θY, θZ (mrad)	±100
Minimum Incremental Motion X, Y, Z (µm)	0.05
Minimum Incremental Motion θX, θZ (µrad)	1.7
Minimum Incremental Motion θY (µrad)	3.4
Unidirectional Repeatability X, Y (µm)	0.2
Unidirectional Repeatability Z (µm)	0.3
Unidirectional Repeatability θX, θY, θZ (µrad)	10
Bidirectional Repeatability X, Z (µm)	0.5
Bidirectional Repeatability Y (µm)	1
Bidirectional Repeatability θX, θZ (µrad)	20
Bidirectional Repeatability θY (µrad)	40

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Specifications are subject to change without notice.

Made in the USA
www.3SAE.com

3SAE TECHNOLOGIES

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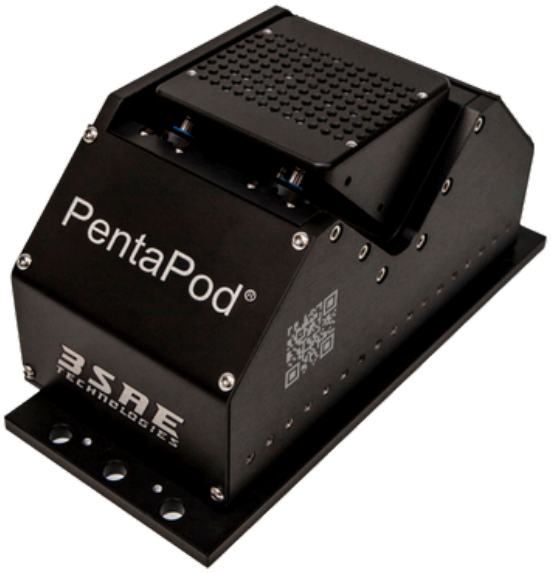

PentaPod® vs. Hexapod

Features	PentaPod ®	Hexapods (Stewart Platform)
Motion Capability		
Axes	6	6
Scanning & Alignment functionality	Built in (OctaPod™)	Varies
Long-term alignment lock-on	Yes (OctaPod™)	No
Virtual pivot point	Yes	Yes
Stiffness	Exceptional	Offset Cardanic joint designs: Good Ball joint designs: Fair Flexure designs: Poor
Robustness		
Stability	Best	Good
Vibration resistance	Best	Good
Inverted mounting	Yes	Yes (some models)
Cleanliness	Best	Varies
Tuning	Not required	On application or load change
Oscillation & runaway	Not possible	Possible
Integration & Support		
Field Serviceability	Yes	Generally No
MTBF	>20000 hr	Rarely stated
Installed Industrial Base	Large	Moderate
Controller	Integrated	Separate, rack- or panel-mount
Cabling	Small USB-C or Ethernet	Thick, costly, proprietary
Fan	None	Yes (causes vibration, noise)
Communications & Programming		
Interfacing	High-speed USB-C Ethernet (optional) EtherCAT (optional)	Varies
Software	Platform-independent, mnemonic ASCII command set. Libraries included but not necessary. User-friendly GUI included. LabView source code available	Varies

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