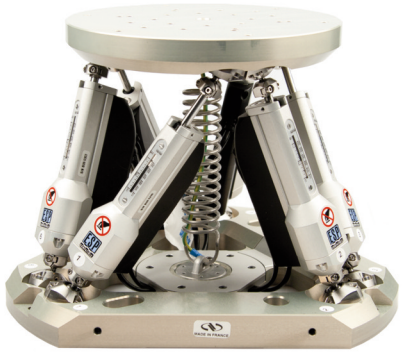
HXP100 Hexapod

RoHS Compliant

6-AXIS-PARALLEL KINEMATIC POSITIONING SYSTEM



- Integrated 6-axis positioner
- Light, compact and low-profile
- No moving cables
- High stiffness (in particular z)
- No accumulation of motion errors
- Two virtual centers of rotation, set by software
- RightPath™ trajectory control

APPLICATIONS

- Optics and satellite assembly and testing
- AED simulation
- Astronomy
- Biotechnology, surgery
- X-Ray diffraction
- Micromachining, micro-manipulation

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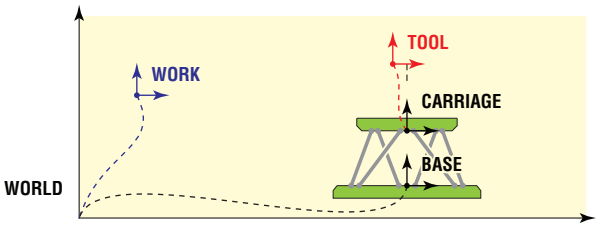
Experience | Solutions

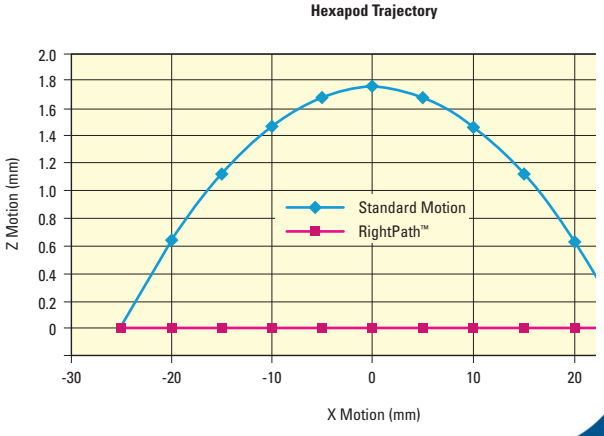
The HXP100-MECA 6-Axis Hexapod is a parallel kinematic motion device that provides six degrees of freedom: X, Y, Z, pitch, roll, and yaw. The HXP100 has long travel capability and is an effective solution to complex motion applications that demand high load capacity and accuracy in up to six independent axes. Contrary to the image of being complex and highly priced, the HXP100 hexapod is not only affordable but extremely easy to use. The HXP100 design also includes two programmable pivot points, enabling more flexibility to align a sample at a particular point or points of that sample. The HXP100 Series also takes advantage of the low-runout, RightPath™ trajectory capability. Available in the standard performance, higher precision and vacuum versions. Order with the corresponding HXP100-ELEC controller.

The HXP100-ELEC provides advanced features including instrument grade I/O's, hardware based input triggers, event triggers, high-speed on-the-fly data acquisition, fast TCP/IP communication, and integrated TCL programming language for on-board processes. All these features improve accuracy and throughput, making the programmer's life much easier.

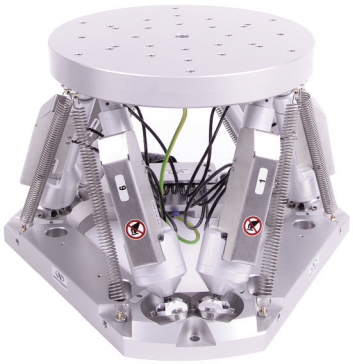
A common requirement for many Hexapod motion applications is a virtual pivot point, allowing the user to freely choose the point in space that is a pivot point for all rotations. The Newport Hexapod can not only relocate the pivot point, but through our advanced technology, the entire coordinate system can be relocated. In addition, two user-definable coordinate systems are provided, called tool (moves with the Hexapod) and work (stationary coordinate systems). Incremental displacements are possible in either one of these systems in user-friendly Cartesian coordinates, and positions can be easily calculated from one system to the other by a function call, without the need for complex external coordinate transformations.



Absolute moves and positions are defined in the work coordinate system. Incremental moves can be done in the tool or in the work coordinate systems.



RightPath™ Trajectory Control enables minimal runout in linear and arc trajectories.



HXP100P-MECA Hexapod.

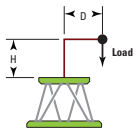
Specifications

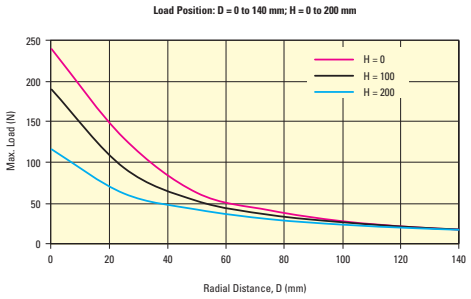
	HXP100-MECA					
	X	**Y**	**Z**	**Θx**	**Θy**	**Θz**
Travel range [1]	±27.5 mm	±25 mm	±14 mm	±11.5°	±10.5°	±19°
MIM, Minimum incremental motion	0.5 µm	0.5 µm	0.25 µm	0.25 mdeg	0.25 mdeg	0.5 mdeg
Uni-directional repeatability, typical	0.5 µm	0.5 µm	0.25 µm	0.25 mdeg	0.25 mdeg	0.5 mdeg
Bi-directional repeatability [2], typical	4 µm (1 µm)	4 µm (1 µm)	2 µm (0.5 µm)	2 mdeg (0.5 mdeg)	2 mdeg (0.5 mdeg)	4 mdeg (0.4 mdeg)
Max. speed	2.5 mm/s	2 mm/s	1 mm/s	1.8 °/s	1.7 °/s	3 °/s
Stiffness	5 N/µm	5 N/µm	40 N/µm	–	–	–
Centered load capacity [3]	200 N					

[1] Travel ranges are interdependent. The listed values are max. travels per axis when all other axis are in their centered position.
[2] With standard compensation (with hysteresis compensation).
[3] For allowable cantilevered loads, see Max. Cantilever Distance of the Load below.
[4] Vacuum version to 10^{-6} hPa.

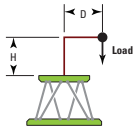
Max. Cantilever Distance of the Load

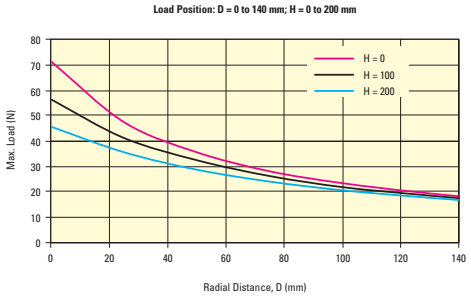
HXP100
Horizontal Base Plate





HXP100P
Horizontal Base Plate





Ordering Information

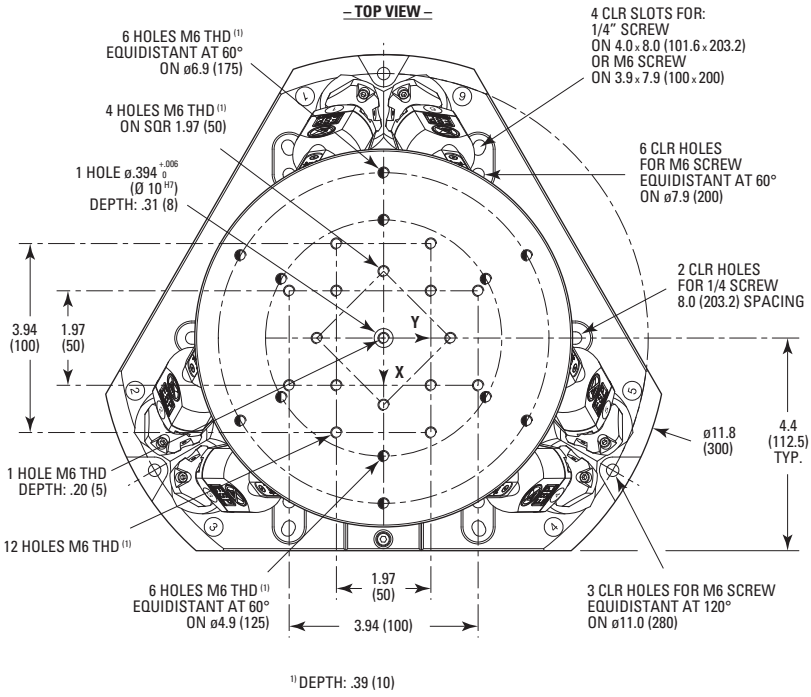
Model	Description
HXP100-MECA	Hexapod, 20 kg
HXP100P-MECA	Hexapod, 6 kg, Precision
HXP100-ELEC	Hexapod Controller for HXP100-MECA
HXP100P-ELEC	Hexapod Controller for HXP100P-MECA

Note: Call Newport for quotes on the 10^{-6} hPa vacuum version.

HXP100-MECAV6 [4]						HXP100P-MECA					
X	Y	Z	θx	θy	θz	X	Y	Z	θx	θy	θz
±27.5 mm	±25 mm	±14 mm	±11.5°	±10.5°	±19°	±27.5 mm	±25 mm	±14 mm	±11.5°	±10.5°	±19°
1 µm	1 µm	0.5 µm	0.5 mdeg	0.5 mdeg	1 mdeg	0.1 µm	0.1 µm	0.05 µm	0.05 mdeg	0.05 mdeg	0.1 mdeg
1 µm	1 µm	0.5 µm	0.5 mdeg	0.5 mdeg	1 mdeg	0.2 µm	0.2 µm	0.1 µm	0.1 mdeg	0.1 mdeg	0.2 mdeg
5 µm (1.5 µm)	5 µm (1.5 µm)	3 µm (1 µm)	2.5 mdeg (1 mdeg)	2.5 mdeg (1 mdeg)	5 mdeg (1 mdeg)	0.5 µm	0.5 µm	0.25 µm	0.25 mdeg	0.25 mdeg	0.5 mdeg
0.5 mm/s	0.5 mm/s	0.25 mm/s	0.2 °/s	0.2 °/s	0.4 °/s	12 mm/s	10 mm/s	5 mm/s	8 °/s	8 °/s	16 °/s
5 N/µm	5 N/µm	40 N/µm	–	–	–	3 N/µm	3 N/µm	24 N/µm	–	–	–
200 N						60 N					

Dimensions

HXP100 Hexapod



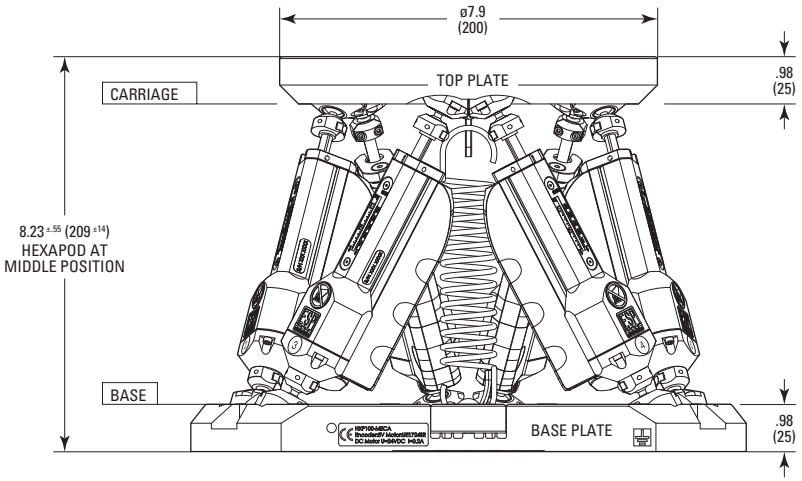
[1] DEPTH: .39 (10)

MODEL SHOWN: HXP100-MECA

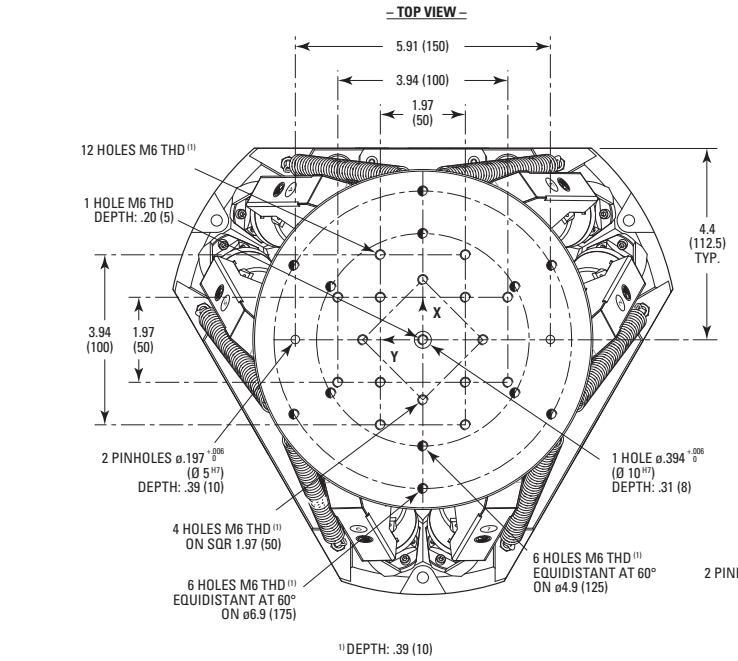
DIMENSIONS IN INCHES (AND MILLIMETERS)

Note: Other top plate hole patterns or a center aperture are available upon request.

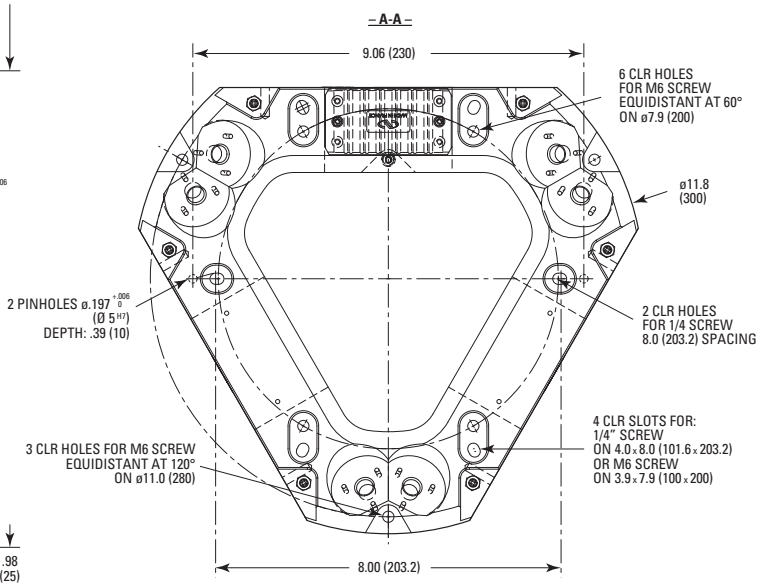
As a standard feature, the HXP100-ELEC controller allows the user to choose a virtual pivot point in space for all rotations.



HXP100P Hexapod

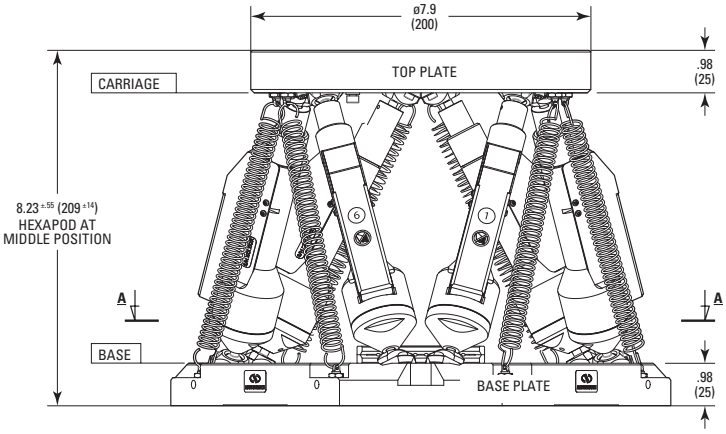


Note: Other top plate hole patterns or a center aperture are available upon request.



MODEL SHOWN: HXP100P-MECA

DIMENSIONS IN INCHES (AND MILLIMETERS)



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