HXP1000 Hexapod

RoHS Compliant

HIGH LOAD 6-AXIS-PARALLEL KINEMATIC POSITIONING SYSTEM

- Integrated 6-axis positioner
- No moving cables
- High stiffness
- No accumulation of motion errors
- Virtual center of rotation, set by software

APPLICATIONS

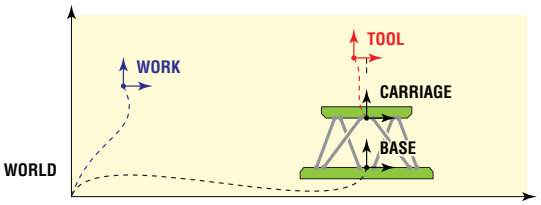
- Optics and satellite assembly and testing
- Alignment and bonding
- Biotechnology, surgery
- Material analysis
- Micromachining, micro-manipulation
- Sensor calibration and simulation

The HXP1000 Hexapod is a high load capacity parallel kinematic motion device that provides six degrees of motion. It also features long travel ranges, fast speeds, high stiffness and stability as well as very easy to use and flexible coordinate systems or pivot points.

Newport's HXP1000 Hexapod is driven by six DC servo motor driven actuators which provide precise MIM and fast speed. The quality of the actuators has obviously a strong impact on the overall motion performance of a Hexapod, but of equal importance are the joints with which the actuators are attached to the base and the moving top plate. The preloaded and backlash-free, cardan joints enhance not only the repeatability and positioning performance of the HXP1000, but are also key to its position stability and stiffness.

The HXP1000-ELEC controller accurately masters the synchronized transformations from Cartesian input coordinates to the motion of the Hexapod legs. In addition, the HXP1000-ELEC feature 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 make automating the application and programming much easier.

A requirement for many Hexapod motion applications is a virtual pivot point, allowing the user to freely choose the pivot point in space for all rotations. Newport has taken this a step further by providing two pivot points. The two user-definable coordinate systems provided, called tool (moves with the Hexapod) and work (stationary coordinate system) are programmable and flexible. Imagine a machine tool where one can adjust the orientation of both the cutting tool and workpiece or in photonics, the optical beam and the sample. Incremental displacements are possible in either one in user-friendly Cartesian coordinates, and positions can be easily switched from one system to the other by a function call. These powerful functions are a completely new way of mastering Hexapod motions 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.

Specifications

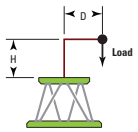
	X	Y	Z	Θx	Θy	Θz
Travel range [1]	-62; +93 mm	±69 mm	±39.5 mm	±11°	±10°	±19.5°
MIM, Minimum incremental motion	0.3 µm	0.3 µm	0.16 µm	0.06 mdeg	0.06 mdeg	0.1 mdeg
Uni-directional repeatability, typical	0.3 µm	0.3 µm	0.16 µm	0.06 mdeg	0.06 mdeg	0.1 mdeg
Max. speed	9 mm/s	9 mm/s	4 mm/s	1.4 °/s	1.4 °/s	2.8 °/s
Stiffness [2]	10 N/µm	10 N/µm	100 N/µm	–	–	–

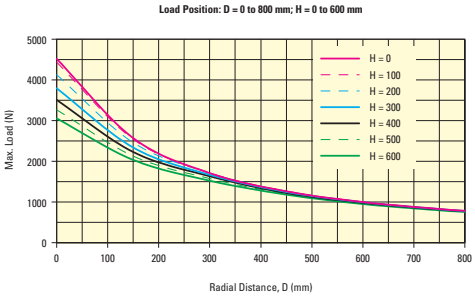
[1] Travel ranges are interdependent. The listed values are max. travels per axis when all other axis are in their centered position (Height = 395 mm for Z).
[2] Stiffness depends on Hexapod position. Values are given for all axis in their centred position.

Newport® Experience | Solutions

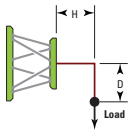
Max. Cantilever Distance of the Load

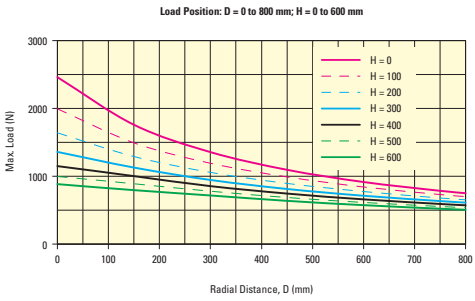
Horizontal Base Plate



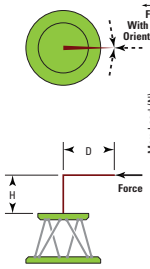


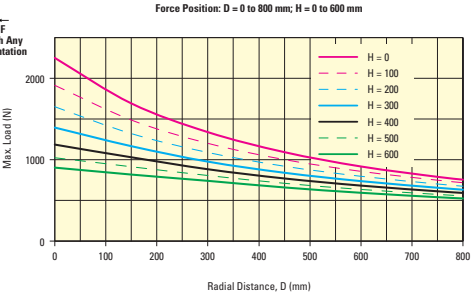
Vertical Base Plate



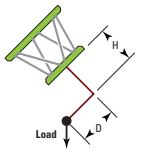


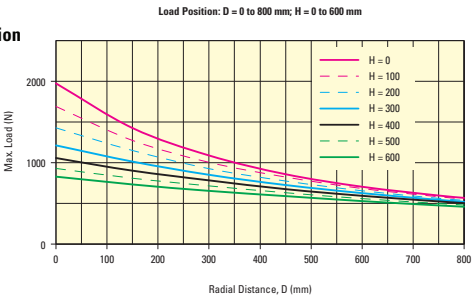
Horizontal Base Plate Lateral Force





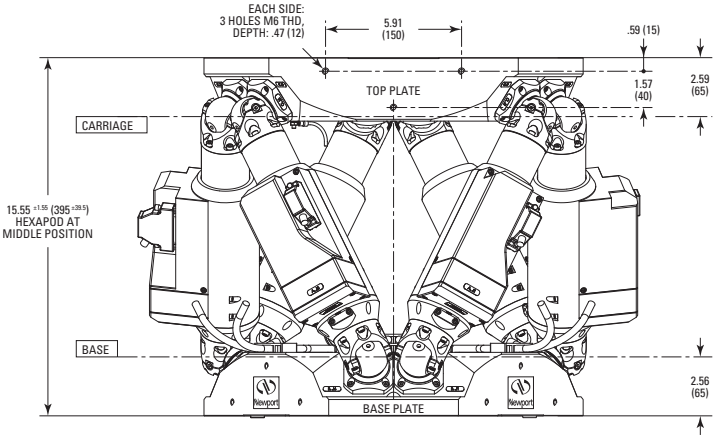
Base Plate at Any Position

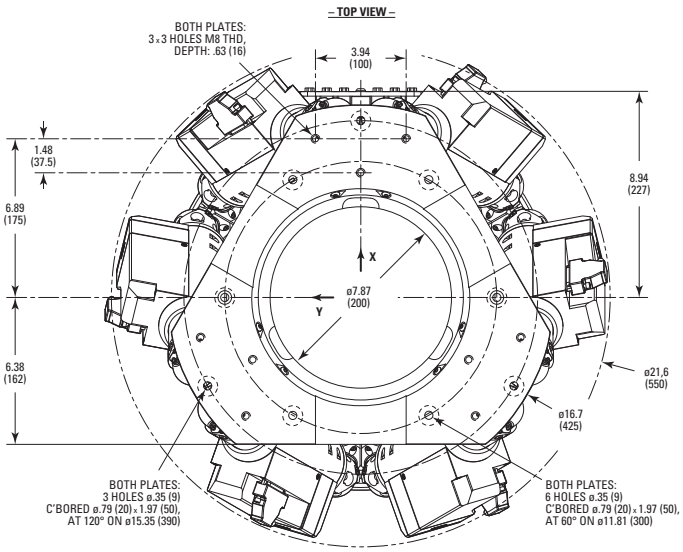




Dimensions

Note: Other top plate hole patterns or actuator configuration are available upon request.





MODEL SHOWN: HXP1000-MECA

DIMENSIONS IN INCHES (AND MILLIMETERS)

Ordering Information

Model	Description
HXP1000-MECA	Hexapod
HXP1000-ELEC	Hexapod Controller

Newport Corporation, Global Headquarters
1791 Deere Avenue, Irvine, CA 92606, USA
www.newport.com
PHONE: 1-800-222-6440 1-949-863-3144 FAX: 1-949-253-1680 EMAIL: sales@newport.com
Complete listings for all global office locations are available online at www.newport.com/contact

	PHONE	EMAIL
Belgium	+32-(0)0800-11 257	belgium@newport.com
China	+86-10-6267-0065	china@newport.com
France	+33-(0)1-60-91-68-68	france@newport.com
Japan	+81-3-3794-5511	spectra-physics@splasers.co.jp
Taiwan	+886 -(0)2-2508-4977	sales@newport.com.tw
Irvine, CA, USA	+1-800-222-6440	sales@newport.com
Netherlands	+31-(0)30 6592111	netherlands@newport.com
United Kingdom	+44-1235-432-710	uk@newport.com
Germany / Austria / Switzerland	+49-(0)6151-708-0	germany@newport.com