Hexapod

Compact and Precise

H-824

- Self-locking to 100 N
- Travel range ±22.5 mm / ±22.5 mm / ±12.5 mm
- Rotation range ±7.5° / ±7.5° /±12.5°
- Minimum incremental motion to 0.3 µm / 0.3 µm / 0.3 µm
- Repeatability to ±0.1 µm / ±2 µrad
- Velocity to 25 mm/s

Precision-class 6-axis positioning system
Parallel-kinematic design for 6 degrees of freedom, making it significantly more compact and stiff than serial-kinematic systems, higher dynamics, no moved cables: higher reliability, reduced friction. Compact due to folded drive design.

PIVirtualMove
The simulation software simulates the limits of the workspace and payload of a hexapod. Therefore, even before purchasing, you can check whether a particular hexapod model can handle the loads, forces, and torques occurring in an application. For this purpose, the simulation tool takes the position and motion of the hexapod as well as the pivot point and several reference coordinate systems into account.

Application fields
Industry and research. For micromanipulation, biotechnology, semiconductor manufacturing

Motion	Unit		H-824.D2	H-824.G2
Active axes			X | Y | Z | θX | θY | θZ	X | Y | Z | θX | θY | θZ
Travel range in X	mm		±22.5	±22.5
Travel range in Y	mm		±22.5	±22.5
Travel range in Z	mm		±12.5	±12.5
Rotation range in θX	°		±7.5	±7.5
Rotation range in θY	°		±7.5	±7.5
Rotation range in θZ	°		±12.5	±12.5
Maximum velocity in X	mm/s		25	1
Recommended velocity in X	mm/s		10	0.5
Maximum velocity in Y	mm/s		25	1
Recommended velocity in Y	mm/s		10	0.5
Maximum velocity in Z	mm/s		25	1
Recommended velocity in Z	mm/s		10	0.5
Maximum angular velocity in θX	mrad/s		270	11
Recommended angular velocity in θX	mrad/s		55	5.5
Maximum angular velocity in θY	mrad/s		270	11
Recommended angular velocity in θY	mrad/s		55	5.5
Maximum angular velocity in θZ	mrad/s		270	11
Recommended angular velocity in θZ	mrad/s		55	5.5

Positioning	Unit	Tolerance	H-824.D2	H-824.G2
Minimum incremental motion in X	µm	Typ.	2	0.3
Minimum incremental motion in Y	µm	Typ.	2	0.3
Minimum incremental motion in Z	µm	Typ.	1	0.3
Minimum incremental motion in θX	µrad	Typ.	12	3.5
Minimum incremental motion in θY	µrad	Typ.	12	3.5
Minimum incremental motion in θZ	µrad	Typ.	14	3.5
Unidirectional repeatability in X	µm	Typ.	±0.5	±0.25
Unidirectional repeatability in Y	µm	Typ.	±0.5	±0.25
Unidirectional repeatability in Z	µm	Typ.	±0.15	±0.1
Unidirectional repeatability in θX	µrad	Typ.	±3	±2
Unidirectional repeatability in θY	µrad	Typ.	±3	±2
Unidirectional repeatability in θZ	µrad	Typ.	±2.5	±2
Backlash in X	µm	Typ.	1.5	2
Backlash in Y	µm	Typ.	1.5	2
Backlash in Z	µm	Typ.	1	0.7
Backlash in θX	µrad	Typ.	15	14
Backlash in θY	µrad	Typ.	15	14
Backlash in θZ	µrad	Typ.	30	17

Drive Properties	Unit		H-824.D2	H-824.G2
Drive type			DC motor	DC gear motor
Nominal voltage	V		24	24

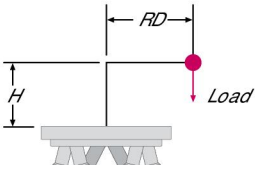
Mechanical Properties	Unit		H-824.D2	H-824.G2
Stiffness in X	N/µm		1.7	1.7
Stiffness in Y	N/µm		1.7	1.7
Stiffness in Z	N/µm		7	7
Maximum load capacity, base plate in any orientation	kg		2.5	5
Maximum load capacity, base plate horizontal	kg		5	10
Maximum holding force, base plate in any orientation	N		5	50
Maximum holding force, base plate horizontal	N		15	100
Overall mass	kg		8	8
Material			Aluminum	Aluminum

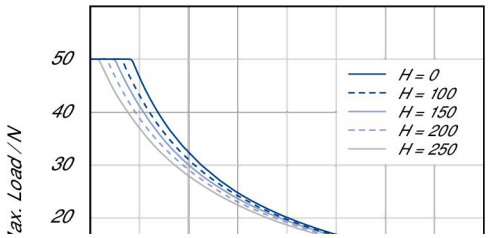
Miscellaneous	Unit		H-824.D2	H-824.G2
Operating temperature range	°C		-10 to 50	-10 to 50
Connector for data transmission			HD D-sub 78 (m)	HD D-sub 78 (m)
Connector for supply voltage			M12 4-pole (m)	M12 4-pole (m)
Recommended controllers/ drivers			C-887.5x	C-887.5x

Connecting cables are not included in the scope of delivery and must be ordered separately.
Ask about customized versions.
When measuring position specifications, typical velocity is used. The data is included in the delivery of the product in the form of a measurement report and is stored at PI.
The maximum travel ranges of the individual coordinates (X, Y, Z, θX, θY, θZ) are interdependent. The data for each axis shows its maximum travel range when all other axes are in the zero position of the nominal travel range and the default coordinate system is in use, or rather when the pivot point is set to 0,0,0.

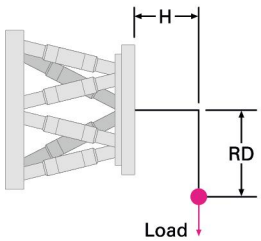
At PI, technical data is specified at 22 ±3 °C. Unless otherwise stated, the values are for unloaded conditions. Some properties are interdependent. The designation "typ." indicates a statistical average for a property; it does not indicate a guaranteed value for every product supplied. During the final inspection of a product, only selected properties are analyzed, not all. Please note that some product characteristics may deteriorate with increasing operating time.

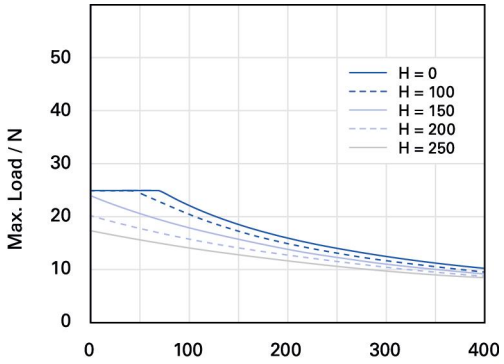
Drawings / Images





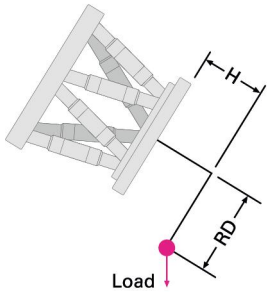
Maximum loads on the H-824.D2 when mounted horizontally

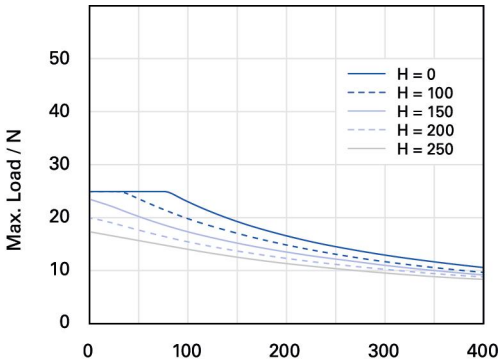




H-824.D2

Maximum loads on the H-824.D2 when mounted vertically

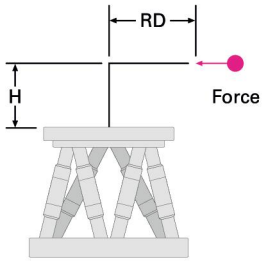




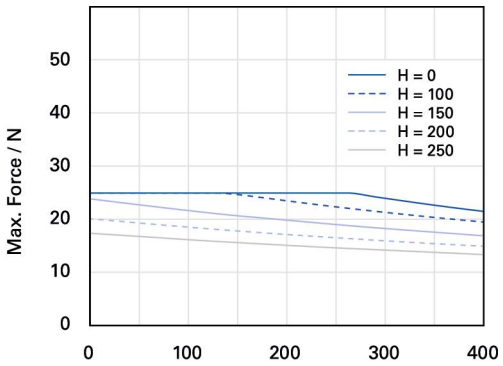
H-824.D2

Maximum loads on the H-824.D2 when mounted at the most unfavorable angle

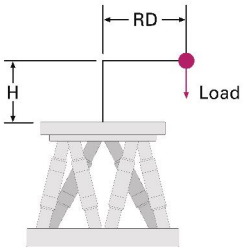
Drawings / Images



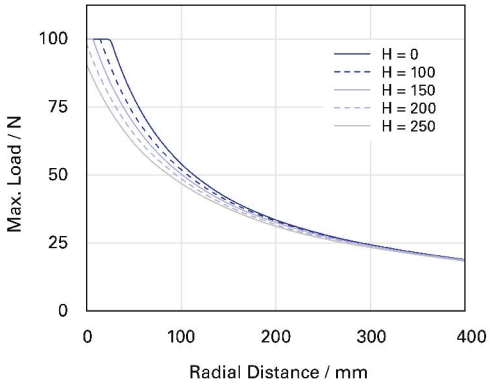
H-824.D2



Maximum permissible force acting on the H-824.D2 when mounted horizontally

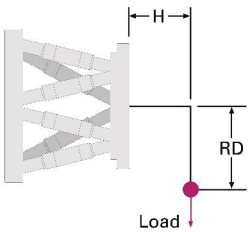


H-824.G2

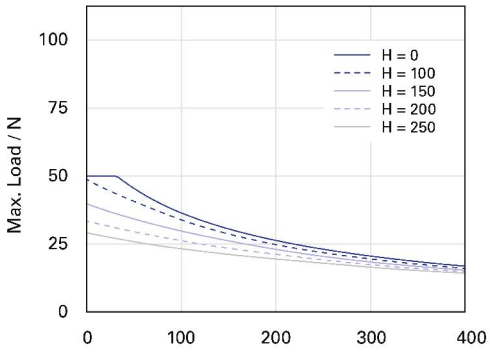


Maximum loads on the H-811.G2 when mounted horizontally

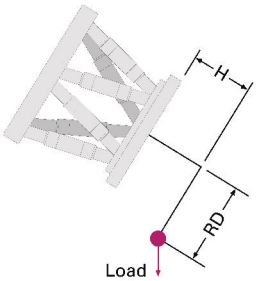
Drawings / Images



H-824.G2



Maximum loads on the H-824.G2 when mounted vertically



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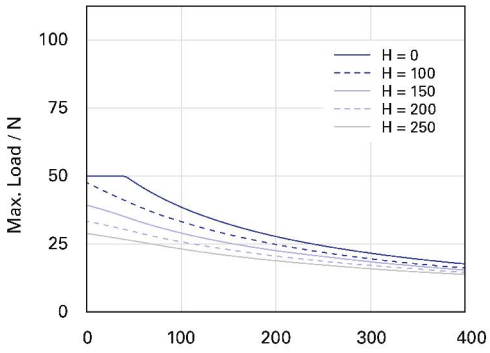
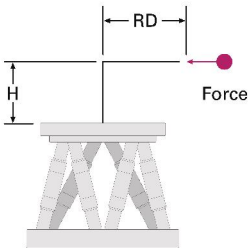
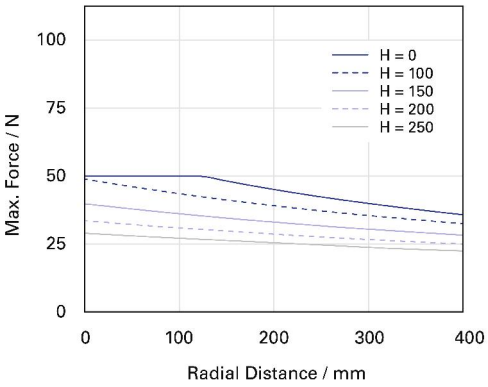


Maximum loads on the H-824.G2 when mounted at the most unfavorable angle

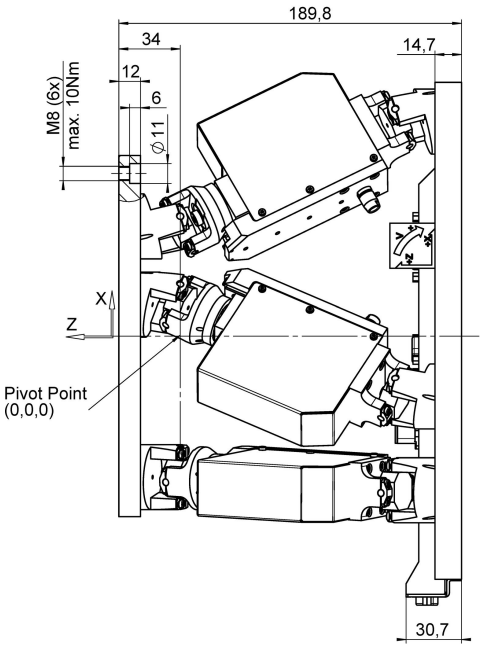
Drawings / Images

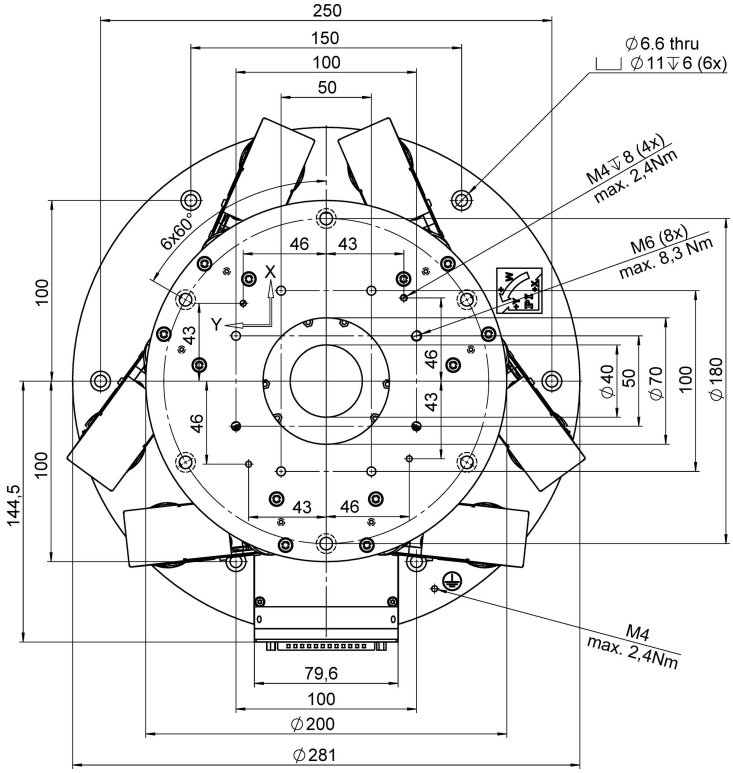


H-824.G2



Maximum permissible force acting on the H-824.G2 when mounted horizontally





H-824, dimensions in mm, at zero position of nominal travel range

Order Information

H-824.D2
Compact hexapod; direct drive; 5 kg payload; 25 mm/s maximum velocity; D-sub connector. Connecting cables are not included in the scope of delivery and must be ordered separately.

H-824.G2
Compact hexapod; gearhead; 10 kg payload; 1 mm/s maximum velocity; D-sub connector. Connecting cables are not included in the scope of delivery and must be ordered separately.