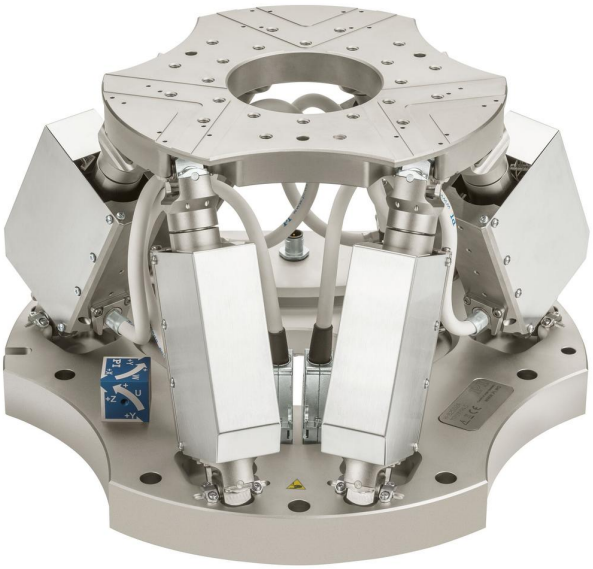
Hexapod

Compact Design, for Loads to 30 kg



H-825

- Self-locking to 300 N
- Travel range ±27.5 mm / ±25 mm / ±14 mm
- Rotation range ±11.5° / ±10.5° / ±19°
- Minimum incremental motion 0.3 µm / 0.3 µm / 0.25 µm
- Absloute encoder

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.

BLDC motor
Brushless DC motors are particularly suitable for high rotational speeds. They can be controlled very accurately and ensure high precision. Because they dispense with sliding contacts, they run smoothly, are wear-free and therefore achieve a long lifetime.

Absolute encoder
Absolute encoders supply explicit position information that enables immediate determination of the position. Therefore, no referencing is necessary when switching on and this increases efficiency and safety during operation.

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 microassembly, biotechnology, semiconductor manufacturing, optical alignment.

Motion	Unit		H-825.G2A
Active axes			X | Y | Z | θX | θY | θZ
Travel range in X	mm		±27.5
Travel range in Y	mm		±25
Travel range in Z	mm		±14
Rotation range in θX	°		±11.5
Rotation range in θY	°		±10.5
Rotation range in θZ	°		±19
Maximum velocity in X	mm/s		2.5
Recommended velocity in X	mm/s		2
Maximum velocity in Y	mm/s		2.5
Recommended velocity in Y	mm/s		2
Maximum velocity in Z	mm/s		2.5
Recommended velocity in Z	mm/s		2
Maximum angular velocity in θX	mrad/s		27
Recommended angular velocity in θX	mrad/s		5.5
Maximum angular velocity in θY	mrad/s		27
Recommended angular velocity in θY	mrad/s		5.5
Maximum angular velocity in θZ	mrad/s		27
Recommended angular velocity in θZ	mrad/s		5.5

Positioning	Unit	Tolerance	H-825.G2A
Minimum incremental motion in X	µm	Typ.	0.3
Minimum incremental motion in Y	µm	Typ.	0.3
Minimum incremental motion in Z	µm	Typ.	0.25
Minimum incremental motion in θX	µrad	Typ.	3.5
Minimum incremental motion in θY	µrad	Typ.	3.5
Minimum incremental motion in θZ	µrad	Typ.	4
Unidirectional repeatability in X	µm	Typ.	±0.5
Unidirectional repeatability in Y	µm	Typ.	±0.25
Unidirectional repeatability in Z	µm	Typ.	±0.1
Unidirectional repeatability in θX	µrad	Typ.	±2
Unidirectional repeatability in θY	µrad	Typ.	±2
Unidirectional repeatability in θZ	µrad	Typ.	±2.5
Backlash in X	µm	Typ.	3
Backlash in Y	µm	Typ.	3
Backlash in Z	µm	Typ.	1
Backlash in θX	µrad	Typ.	20
Backlash in θY	µrad	Typ.	20
Backlash in θZ	µrad	Typ.	25
Integrated sensor			Absolute rotary encoder, multi-turn

Drive Properties			H-825.G2A
Drive type			Brushless DC gear motor

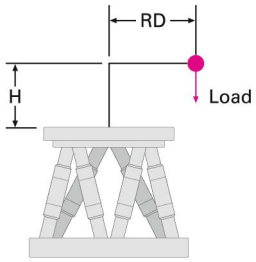
Mechanical Properties	Unit		H-825.G2A
Stiffness in X	N/µm		1.7
Stiffness in Y	N/µm		1.7
Stiffness in Z	N/µm		7
Maximum load capacity, base plate in any orientation	kg		15
Maximum load capacity, base plate horizontal	kg		30
Maximum holding force, base plate in any orientation	N		150
Maximum holding force, base plate horizontal	N		300
Overall mass	kg		10
Material			Aluminum

Miscellaneous	Unit		H-825.G2A
Operating temperature range	°C		-10 to 50
Connector for data transmission			HD D-sub 78 (m)
Connector for supply voltage			M12 4-pole (m)
Recommended controllers/ drivers			C-887.5x

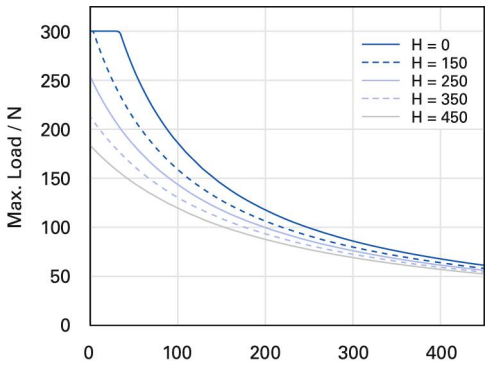
Connecting cables are not included in the scope of delivery and must be ordered separately.
Ask about customized versions.
When measuring position specifications, typical velocity is used. The data is included in the delivery of the product in the form of a measurement report and is stored at PI.
The 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

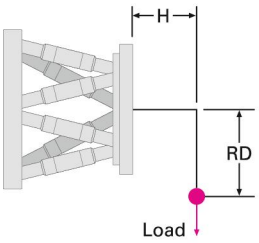


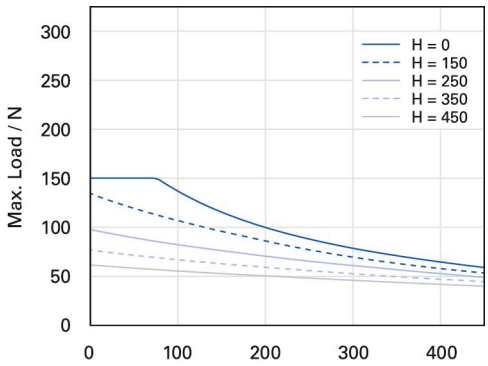
H-825.G2A



Maximum loads on the H-825.G2A when mounted horizontally

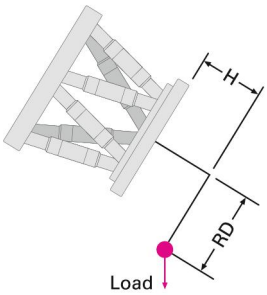
Drawings / Images

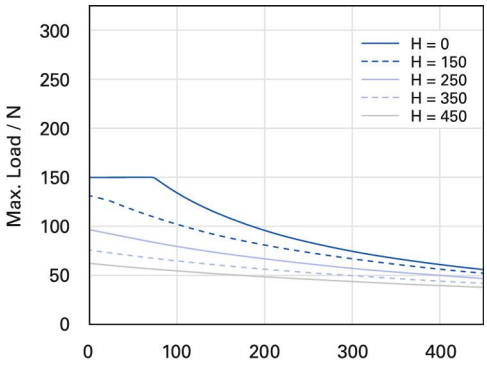




H-825.G2A

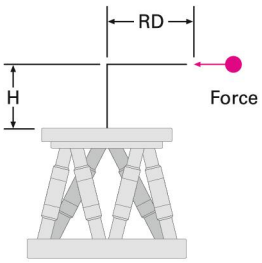
Maximum loads on the H-825.G2A when mounted vertically

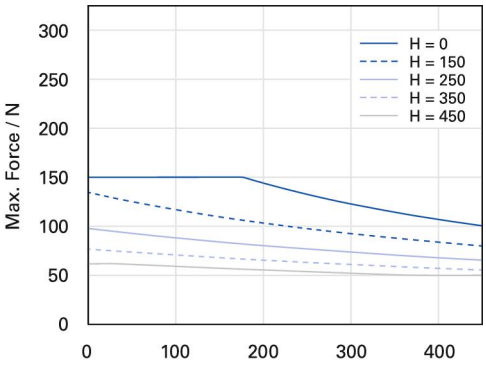




H-825.G2A

Maximum loads on the H-825.G2A when mounted at the most unfavorable angle

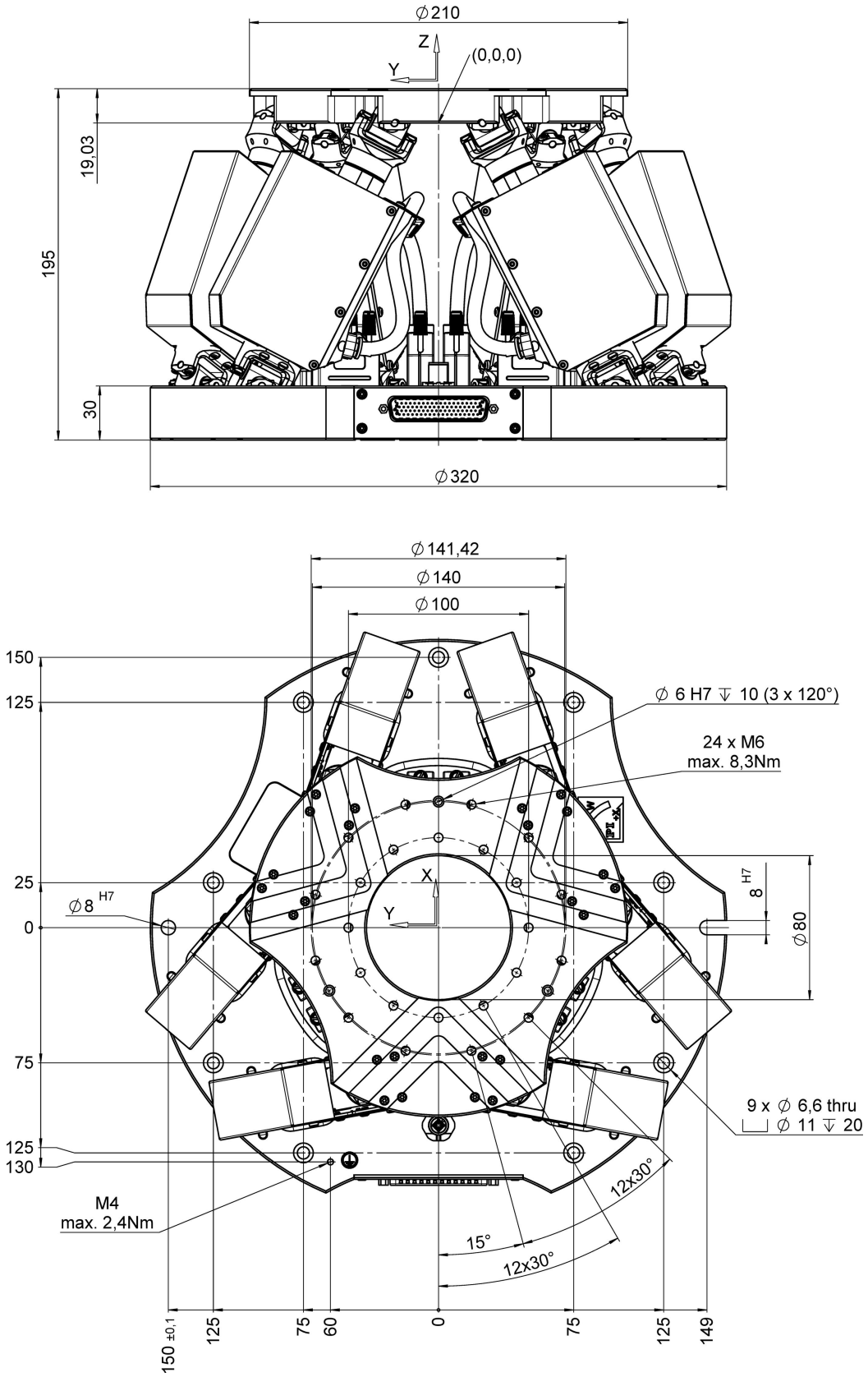




H-825.G2A

Maximum permissible force acting on the H-825.G2A when mounted horizontally

Drawings / Images



H-825, dimensions in mm, at zero position of nominal travel range

Order Information

H-825.G2A
Compact hexapod; brushless DC gear motor; absolute encoder; 30 kg payload; 2.5 mm/s maximum velocity. Connecting cables are not included in the scope of delivery and must be ordered separately.