

6-Axis Miniature Hexapod

High Precision in the Smallest Space



H-810

- Travel ranges to 40 mm / 60°
- Load capacity to 5 kg
- Repeatability to $\pm 0.1 \mu\text{m}$
- Velocity to 2.5 mm/s
- Works in any orientation
- Virtual pivot point

Parallel-kinematic design for six degrees of freedom making it significantly more compact and stiff than serial-kinematic systems, higher dynamic range, no moved cables: Higher reliability, reduced friction.

Brushless DC motor (BLDC)

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.

Fields of application

Research and industry. For micromanipulation, biotechnology, tool inspection.

Specifications

Motion and positioning	H-810.D2	Unit	Tolerance
Active axes	X, Y, Z, θ_x , θ_y , θ_z		
Travel range* X, Y	±20	mm	
Travel range* Z	±6.5	mm	
Travel range* θ_x , θ_y	±10	°	
Travel range* θ_z	±30	°	
Actuator design resolution	40	nm	
Min. incremental motion X, Y	1	μm	typ.
Min. incremental motion Z	0.5	μm	typ.
Minimum incremental motion θ_x , θ_y	15	μrad	typ.
Minimum incremental motion θ_z	30	μrad	typ.
Backlash X, Y	1	μm	typ.
Backlash Z	0.5	μm	typ.
Backlash θ_x , θ_y	15	μrad	typ.
Backlash θ_z	30	μrad	typ.
Repeatability X, Y	±0.5	μm	typ.
Repeatability Z	±0.1	μm	typ.
Repeatability θ_x , θ_y	±3	μrad	typ.
Repeatability θ_z	±15	μrad	typ.
Max. velocity X, Y, Z	2.5	mm/s	
Max. velocity θ_x , θ_y , θ_z	60	mrads	
Typ. Velocity X, Y, Z	2	mm/s	
Typ. Velocity θ_x , θ_y , θ_z	50	mrads	

Mechanical properties	H-810.D2	Unit	Tolerance
Load capacity (horizontal base plate / any orientation)	5 / 2.5	kg	max.
Holding force (horizontal base plate)	15	N	max.
Motor type	Brushless DC motor		

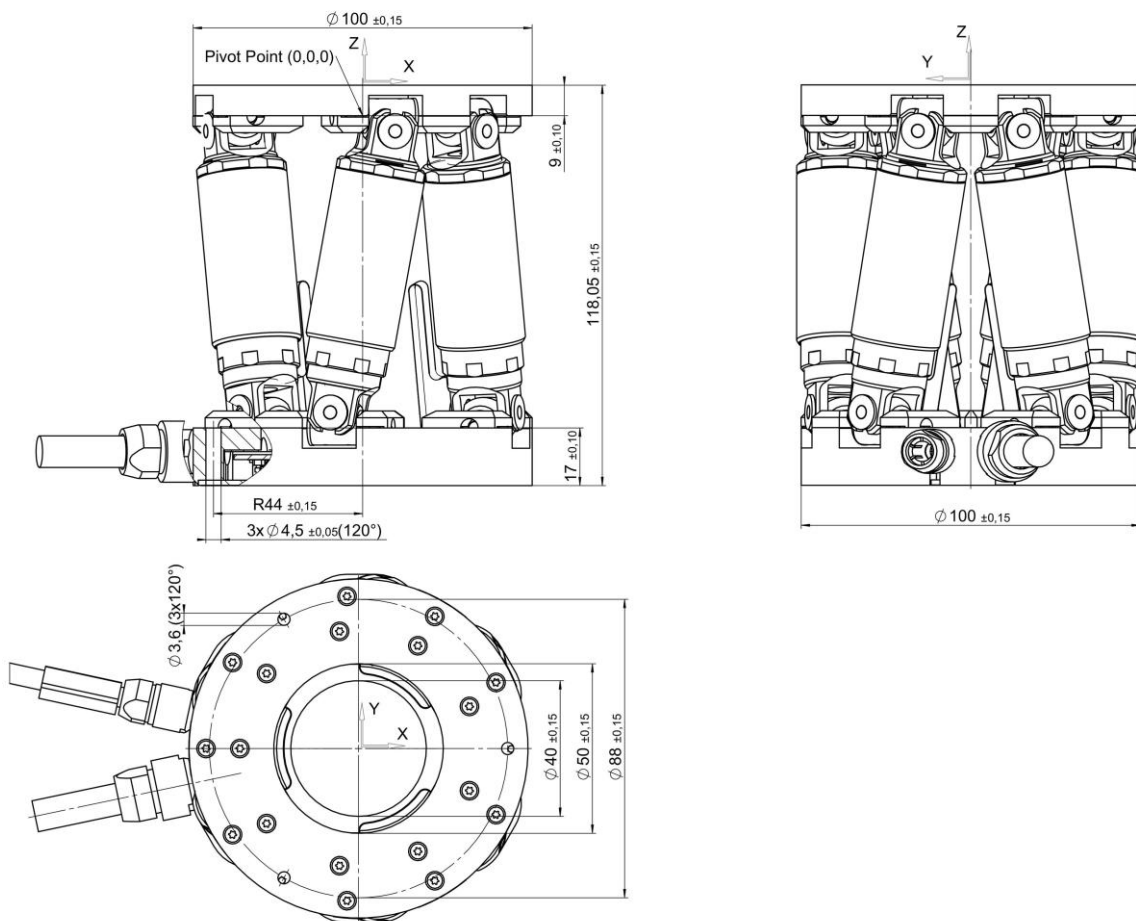
Miscellaneous	H-810.D2	Unit	Tolerance
Operating temperature range	0 to 50	°C	
Material	Stainless steel, aluminum		
Mass	1.7	kg	±5 %
Cable length	2	m	±10 mm
Recommended controller	C-887.5x		

Technical data specified at 20±3 °C.

* The travel ranges of the individual coordinates (X, Y, Z, θ_x , θ_y , θ_z) are interdependent. The data for each axis in this table shows its maximum travel range, where all other axes and the pivot point are at the reference position.

Ask about customized versions.

Drawings / Images



H-810, dimensions in mm

Ordering Information

H-810.D2

Miniature hexapod microrobot, direct drive, 2.5 mm/s, 5 kg load, 2 m cable, Sub-D connector, cable set 3 m