Q-Motion® Rotation Stage

Compact Through Piezo Motor: 30 mm Turntable Diameter

Q-632

- Only 32 mm in width and 8 mm in height
- Direct position measurement with incremental encoder with 0.75 µrad resolution
- Up to 3 µrad minimum incremental motion
- Rotation range >360°
- Velocity 45 °/s
- Suitable for vacuum to 10^{-6} hPa

Piezoelectric inertia drive

Piezo inertia drives are space-saving and affordable piezo-based drives with relatively high holding forces and a virtually unlimited travel range. The inertia drive principle is based on a single piezoelectric actuator that is controlled with a modified sawtooth voltage provided by special driver electronics. The actuator expands slowly and moves the runner. Due to its inertia, the runner is unable to follow the subsequent fast contraction of the actuator and remains at its position. With an operating frequency of up to 20 kHz, the drives acting directly on the runner and achieve velocities of max. 45 °/s

Application fields

Microassembly, photonics, optical alignment, microscopy, beamline instrumentation, semiconductor technology, test applications

10.05.2019

Specifications

Motion and positioning	Q-632.930	Unit	Tolerance
	Rotation stage with position sensor for closed-loop operation		
Active axis	θ_z		
Rotation range	>360	°	
Integrated sensor	Incremental encoder		
Sensor resolution	0.75	µrad	
Minimum incremental motion	3	µrad	typ.
Unidirectional repeatability	6	µrad	typ.
Maximum velocity, closed loop	20	°/s	

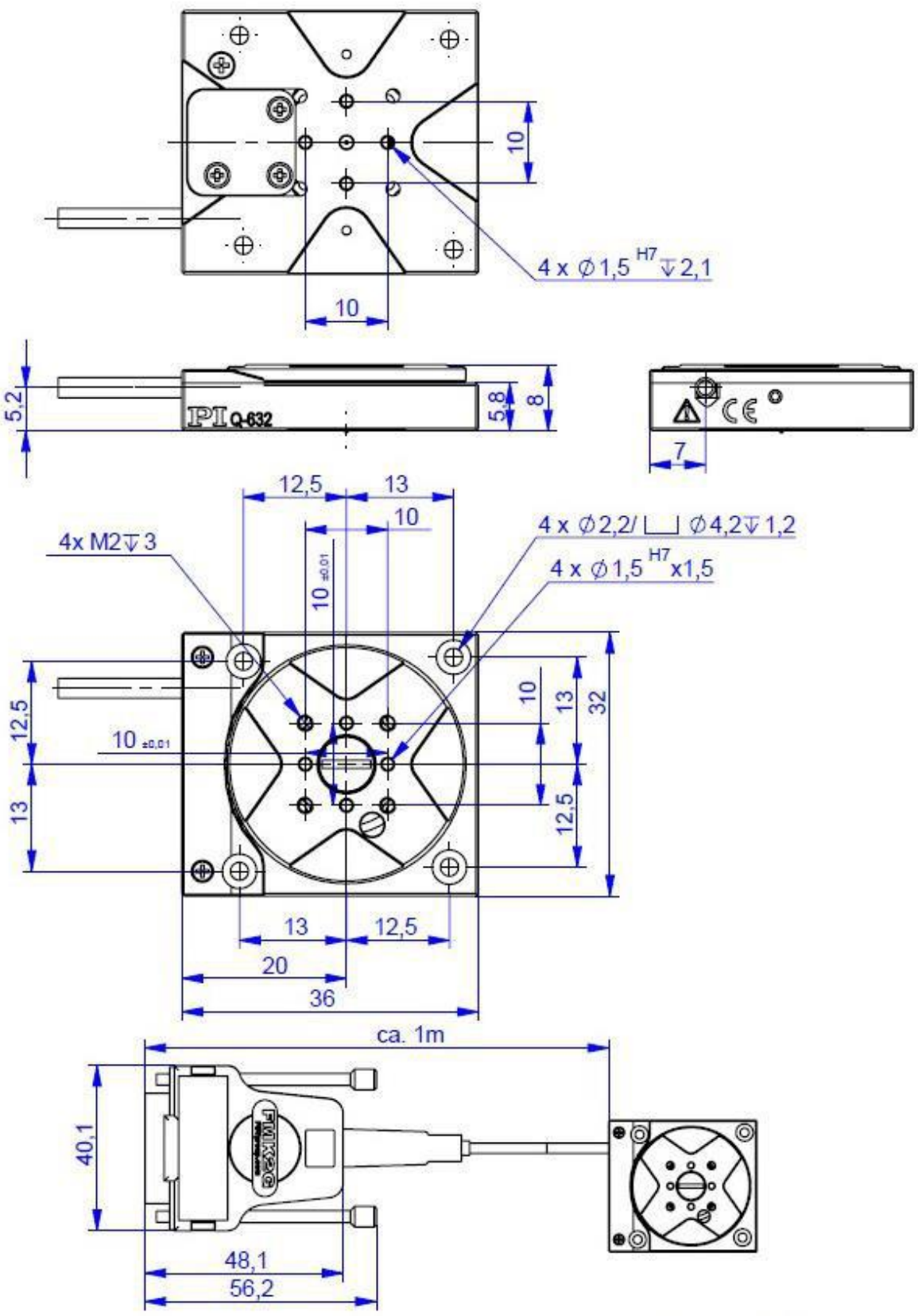
Mechanical properties	Q-632.930	Unit	Tolerance
Load capacity, any orientation	0.1	kg	
Self-locking	7	mN·m	min.
Drive torque	6	mN·m	typ.
Length	36	mm	
Width	32	mm	
Height	8	mm	
Turntable diameter	29	mm	

Drive properties	Q-632.930	Unit	Tolerance
Motor type	Piezoelectric inertia drive		

Miscellaneous	Q-632.930	Unit	Tolerance
Operating temperature range	0 to 40	°C	
Material	Aluminum, steel		
Mass without cable	25	g	±10 %
Cable length	1	m	
Connector	D-sub		
Recommended electronics	E-873.1AT, E-873.3QTU, E-873.10C885		

For operation in a vacuum, we recommend a reduced duty cycle of 20% and a reduced rotation speed of 50% compared to a standard environment.
Specifications tested with E-873.1AT
Ask about customized versions.

Drawings / Images



Q-632, dimensions in mm

Ordering Information

Q-632.930
Q-Motion® rotation stage, piezoelectric inertia drive, >360° rotation range, incremental encoder, 0.75 µrad resolution, 6 mNm torque, 30 mm diameter, vacuum compatible to 10^{-6} hPa