

UPR-120 Ultraprecision Rotation Stage

Excellent Stability and Travel Accuracy



- Unlimited travel range
- Velocity to 360 °/s
- Incremental angle measuring system with 0.00002° resolution
- Clear aperture with 35 mm diameter
- Optional: Air bearings for optimized flatness

Reference-class rotation stage

High travel accuracy. High position resolution due to incremental encoder with analog signal transmission (sin/cos, 1 V_{pp})

Magnetic direct drive

Ironless magnetic direct drive (torque motor) for high velocity and acceleration. High position resolution.

Fields of application

Industry and research. Metrology, semiconductor manufacturing and testing, synchrotron applications

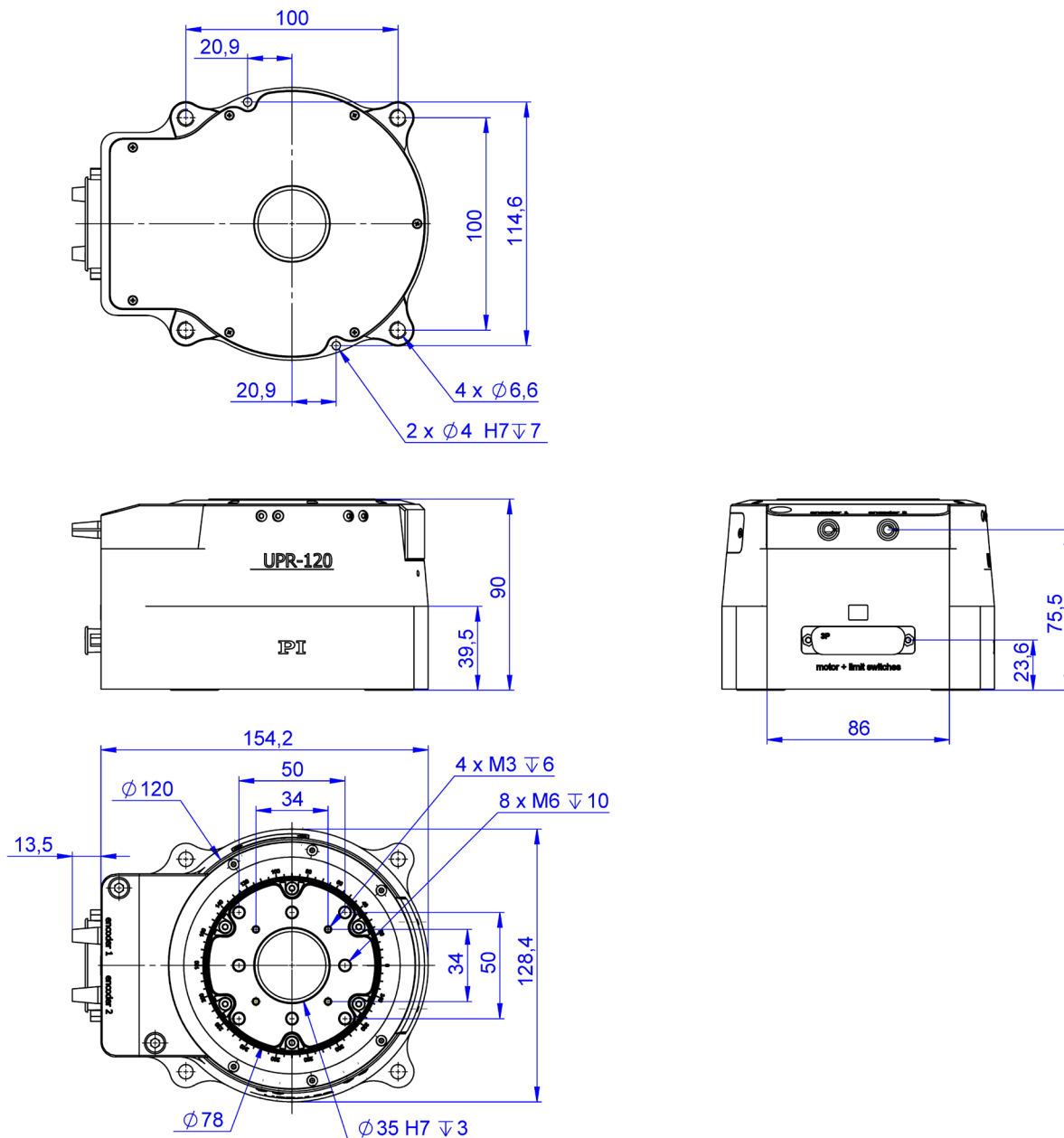
Specifications

	6808911130 UPR-120	6824911130 UPR-120 AIR	Unit	Tolerance
Motion and Positioning				
Active axes	θ_z	θ_z		
Travel range	>360	>360	°	
Integrated sensor	Incremental angle measuring system	Incremental angle measuring system		
Sensor resolution*	0.00002	0.00002	°	
Min. incremental motion	0.00008	0.00004	°	typ.

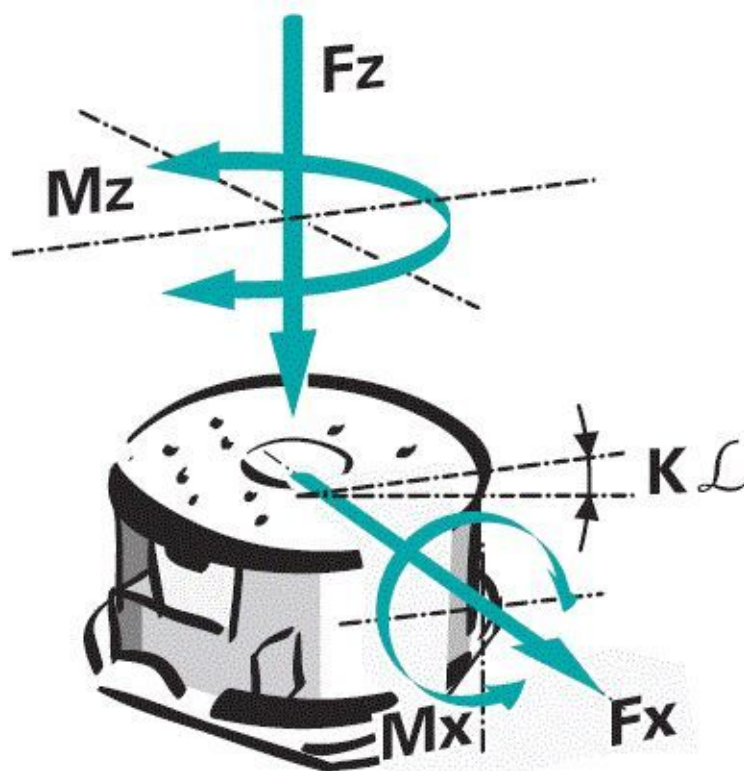
Unidirectional repeatability	0.00008	0.00005	°	typ.
Bidirectional repeatability	±0.0001	±0.00008	°	typ.
Flatness	±1	±0.05	µm	typ.
Eccentricity	±3	±0.1	µm	typ.
Wobble	±25	±1.25	µrad	typ.
Velocity	360	360	°/s	max.
Mechanical Properties				
Max. load, axial	100	100	N	max.
Max. load, radial	50	50	N	max.
Moved mass	0.8	1.1	kg	
Overall mass	6	6.5	kg	
Drive Properties				
Drive type	Torque motor, ironless	Torque motor, ironless		
Intermediate circuit voltage	48	48	VDC	max.
Peak torque	2.08	2.08	Nm	typ.
Nominal torque	0.76	0.76	Nm	typ.
Nominal current, effective	7.7	7.7	A	typ.
Torque constant, effective	0.26	0.26	Nm/A	typ.
Resistance per phase	2.2	2.2	Ω	typ.
Inductivity per phase	1.17	1.17	mH	typ.
Back EMF phase-phase	0.18	0.18	Vs/rad	max.
Limit switches	optical	optical		
Miscellaneous				
Operating temperature range	10 to 50	10 to 50	°C	
Humidity	20 – 90% rel., not condensing	20 – 90% rel., not condensing		
Material	Aluminum, (black anodized)	Aluminum, (black anodized)		
Recommended controller	SMC Hydra, ACS SPii+EC and other industrial solutions	SMC Hydra, ACS SPii+EC and other industrial solutions		

* With SMC Hydra controller.

Drawings and Images



UPR-120, dimensions in mm



Direction of the axes and torques for rotation stages

Ordering Information

6808911130

UPR-120 Ultra Precision Rotation Stage, Torque Motor, High-Resolution Angle Measuring System with Sin/Cos Signal Transmission, Optical Limit Switch

6824911130

UPR-120 AIR Ultra Precision Rotation Stage, Torque Motor, Air Bearing, High-Resolution Angle Measuring System with Sin/Cos Signal Transmission, Optical Limit Switch