

Ultraprecision Rotation Stage

Excellent Stability and Travel Accuracy



UPR-120

- Unlimited travel range
- Velocity to 360 °/s
- Incremental angle measuring system with 0.017 μ rad resolution
- Clear aperture with 35 mm diameter
- Optional: Air bearings for optimized flatness

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

Magnetic direct drive

3-phase magnetic direct drives do not use mechanical components in the drivetrain, they transmit the drive force to the motion platform directly and without friction. The drives reach high velocities and accelerations. Iron core motors are used when forces and accelerations need to be achieved in a limited installation space. The design with iron cores maximizes the magnetic forces and ensures high thermal stability of the drive.

Application fields

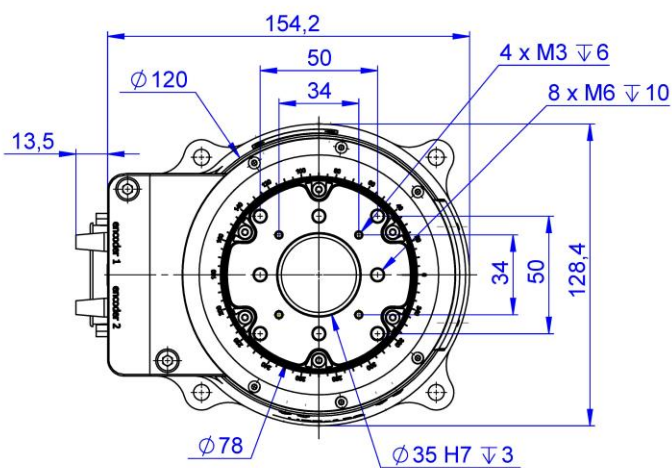
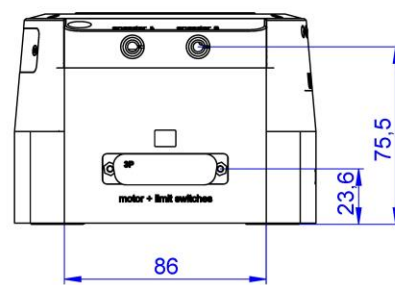
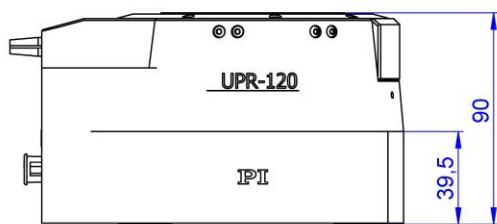
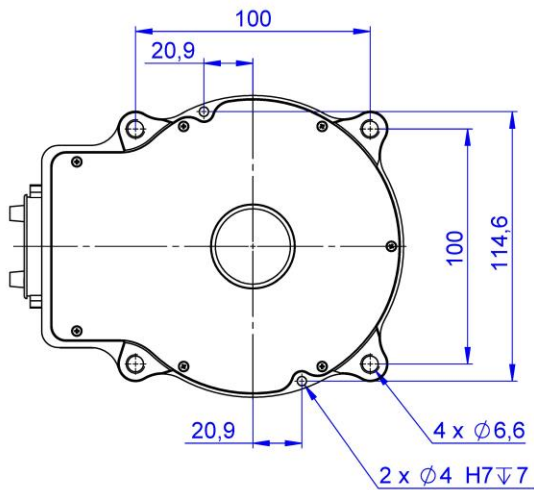
Medical industry, Sample inspection, Precision microassembly, Research, Biotechnology, Semiconductor technology, Metrology, Automation, Cleanroom

Specifications

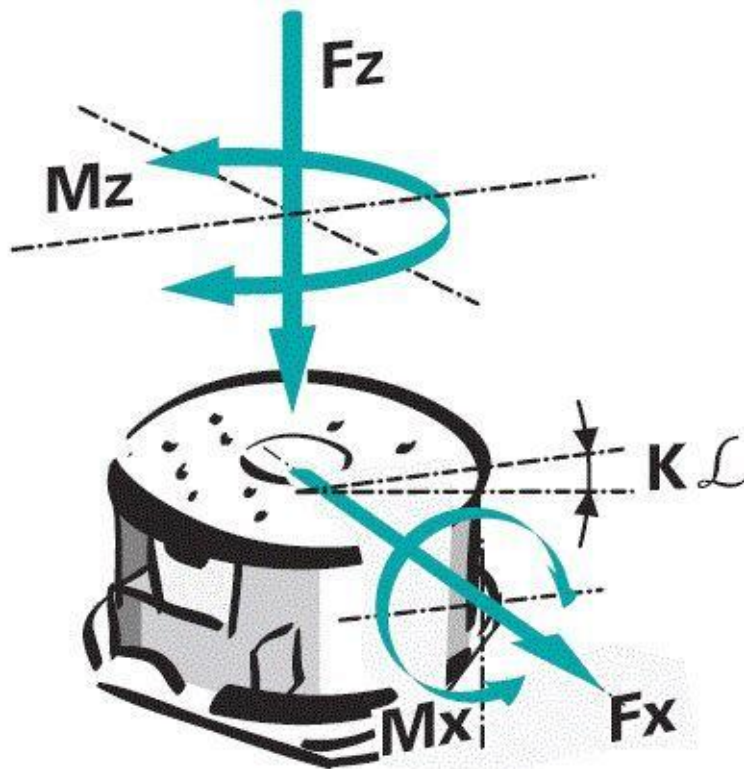
	6808911130 UPR-120	6824911130 UPR-120 AIR	Unit	Tolerance
Motion and positioning				
Active axes	θ_z	θ_z		
Travel range	>360	>360	°	
Integrated sensor	Incremental angle-measuring system	Incremental angle-measuring system		
Sensor signal	Sin/cos, 1 V peak-peak	Sin/cos, 1 V peak-peak		
Sensor resolution	15744	15744	Lines/revolution	
Minimum incremental motion	1.4	0.35	μrad	typ.
Unidirectional repeatability	1.4	0.7	μrad	typ.
Bidirectional repeatability	± 1.4	± 0.7	μrad	typ.
Flatness	± 1	± 0.05	μm	typ.
Eccentricity	± 3	± 0.1	μm	typ.
Wobble	± 25	± 1.25	μrad	typ.
Angular velocity	360	360	°/s	max.
Reference point switch	Encoder index	Encoder index		
Limit switches	Optical	Optical		
Mechanical properties				
Bearing	Crossed roller bearings	Air bearing		
Torque, power on	0.5	0.7	N·m	
Load capacity / axial force	200	200	N	max.
Permissible lateral force	100	40	N	max.
Drive properties				
Drive type	Iron-core 2-phase torque motor	Iron-core 2-phase torque motor		
Intermediate circuit voltage	48	48	V DC	max.
Nominal current, effective	7.7	7.7	A	typ.
Torque constant, effective	0.26	0.26	N·m/A	typ.
Resistance phase-phase	2.2	2.2	Ω	typ.
Inductance phase-phase	1.17	1.17	mH	typ.
Back EMF phase-phase	0.18	0.18	V·s/rad	max.
Miscellaneous				
Operating temperature range	5 to 40	5 to 40	°C	
Material	Aluminum, black anodized	Aluminum, black anodized		
MTBF	20000	20000	h	
Mass	6	6.5	kg	$\pm 5\%$
Moved mass	0.8	1.1	kg	$\pm 5\%$
Connection	Sub-D 9W4 (m) (motor) Sub-D 15 (m) (sensor) SMC Hydra (double axis) C-891 (single axis)	Sub-D 9W4 (m) (motor) Sub-D 15 (m) (sensor) SMC Hydra (double axis) C-891 (single axis)		
Recommended controller	C-885 with C-891.10C885 (up to 20 axes) ACS modular controller	C-885 with C-891.10C885 (up to 20 axes) ACS modular controller		

Connecting cables for motor and sensor are not in the scope of delivery and must be ordered separately.
Ask about custom designs!

Drawings and Images



UPR-120, dimensions in mm



Directions of the axes and torques for rotation stages

Ordering Information

6808911130

UPR-120 ultraprecision rotation stage, torque motor, high-resolution angle measuring system with sin/cos signal transmission, optical limit switch

6824911130

UPR-120 AIR ultraprecision rotation stage, torque motor, air bearing, high-resolution angle measuring system with sin/cos signal transmission, optical limit switch