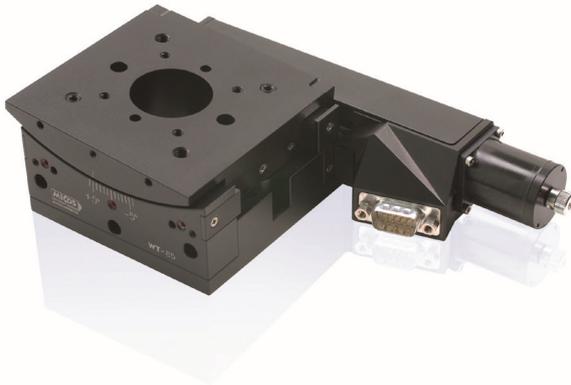


Motorized Precision Goniometer

Compact, with Aperture



WT-85

- Rotation range 10°
- Repeatability to 8.7 μ rad
- Load capacity to 2 kg
- Option: Direct position measurement with angle measuring system
- Combination with WT-100 with shared pivot point

Precision-class goniometer stage

Drive with high gear ratio for precision positioning. Two limit switches. Large clear aperture with 30 mm diameter. Can be combined with WT-100 for 2-axis motion with shared pivot point.

Versions

- DC servo motor with rotary encoder on the motor shaft
- Stepper motor
- Option: High-resolution optical angle measuring system for direct position measurement
- Vacuum versions available on request

Application fields

Precision microassembly. Metrology. Photonics. Optical alignment.

Specifications

	65409100	65409101	65409200-0000	65409201-0001	Unit	Tolerance
	DC motor with rotary encoder	DC motor with angle measuring system and rotary encoder	Stepper motor	Stepper motor and angle measuring system		
Active axes	θ_x	θ_x	θ_x	θ_x		

Motion and positioning	65409100	65409101	65409200-0000	65409201-0001	Unit	Tolerance
Rotation range	10	10	10	10	°	
Integrated sensor	Rotary encoder	Incremental angle measuring system Rotary encoder	–	Incremental angle measuring system		
Sensor signal rotary encoder	AB quadrature, RS-422	AB quadrature, RS-422	–	–		
Sensor signal angle measuring system		AB quadrature, RS-422	–	Sin/cos, 1 V peak-peak		
Sensor signal period angle measuring system	–	211	–	211	μrad	
Sensor resolution rotary encoder	2000	2000	–	–	Counts/rev.	
Design resolution	4.65	2.11	46.5 (full step)	2.11	μrad	
Minimum incremental motion	17.5	2	17.5	2	μrad	Typ.
Unidirectional repeatability	69.8	8.7	69.8	8.7	μrad	Typ.
Bidirectional repeatability	± 69.8	± 8.7	± 69.8	± 8.7	μrad	Typ.
Wobble	± 125	± 125	± 125	± 125	μrad	Typ.
Angular velocity	15	15	7	7	°/s	Max.
Gap from rotational axis to surface of the motion platform	80.5	80.5	80.5	80.5	mm	
Limit switches	2 × mechanical, N/C contact, to 30V, NPN	2 × mechanical, N/C contact, to 30V, NPN	2 × mechanical, N/C contact, to 30V, NPN	2 × mechanical, N/C contact, to 30V, NPN		

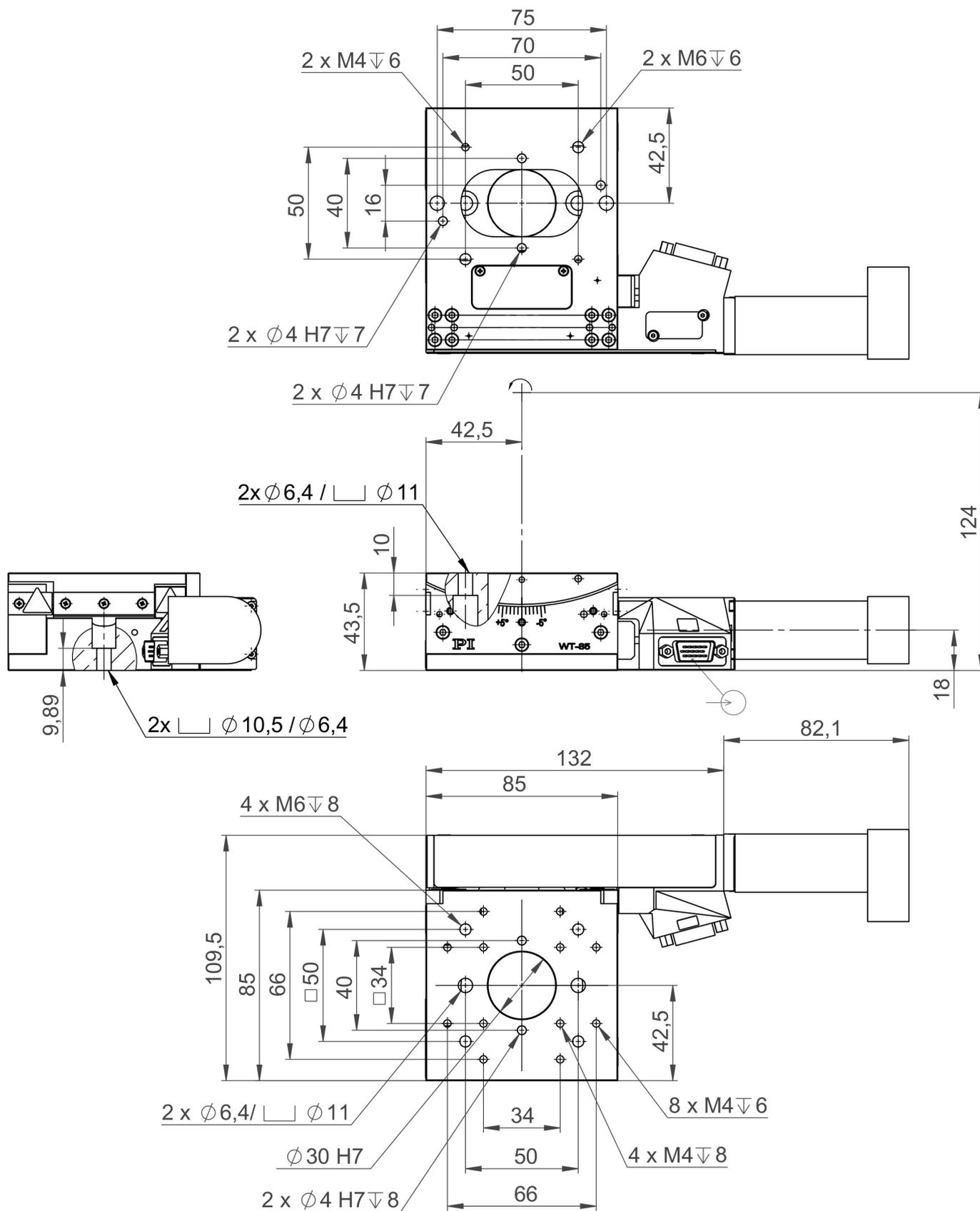
Mechanical properties	65409100	65409101	65409200-0000	65409201-0001	Unit	Tolerance
Drive screw type	Ball screw	Ball screw	Ball screw	Ball screw		
Drive screw pitch	1	1	1	1	mm	
Guide type	Ball bearings	Ball bearings	Ball bearings	Ball bearings		
Gear ratio	675:1	675:1	675:1	675:1		
Load capacity	20	20	20	20	N	Max.
Torque M_x , power on	0.75	0.75	0.75	0.75	N·m	Max.
Permissible lateral force	15	15	15	15	N	Max.
Permissible torque in θ_y, θ_z	4	4	4	4	N·m	Max.

Drive properties	65409100	65409101	65409200-0000	65409201-0001	Unit	Tolerance
Motor type	DC motor	DC motor	2-phase stepper motor	2-phase stepper motor		
Operating voltage, nominal	24	24	24	24	V	Nom.
Operating voltage, max.	48	48	48	48	V	Max.
Step resolution	–	–	200	200	Full steps/rev	

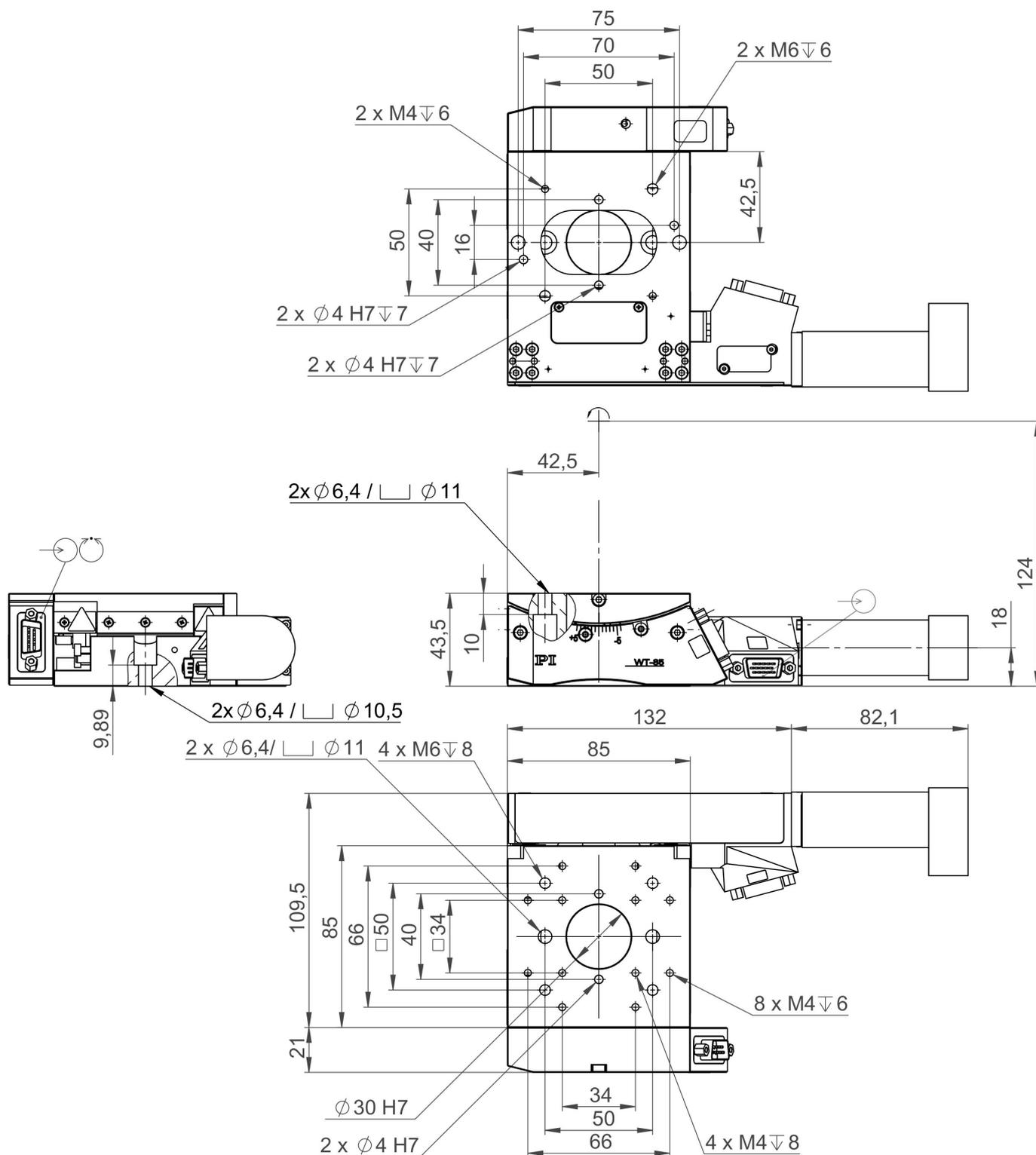
Miscellaneous	65409100	65409101	65409200-0000	65409201-0001	Unit	Tolerance
Operating temperature range	5 to 40	5 to 40	5 to 40	5 to 40	°C	
Material	Aluminum, anodized	Aluminum, anodized	Aluminum, anodized	Aluminum, anodized		
Mass	0.9	0.9	0.9	1.1	kg	±5%
Connector	HD D-sub 15 (m) (motor/sensor)	HD D-sub 15 (m) (motor) D-sub 9 (m) (sensor)	HD D-sub 15 (m)	HD D-sub 15 (m) (motor) D-sub 9 (m) (sensor)		
Recommended controllers/drivers	C-863 (single axis) C-884 (up to 6 axes) C-885 with C-863.20C885 (to 40 axes) ACS modular controller	C-863 (single axis) C-884 (up to 6 axes) C-885 with C-863.20C885 (to 40 axes) ACS modular controller	C-663.12 (single axis) SMC Hydra (double axis) C-885 with C-663.12C885 (up to 20 axes) ACS modular controller	C-663.12 (single axis) SMC Hydra (double axis) C-885 with C-663.12C885 (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 customized versions.

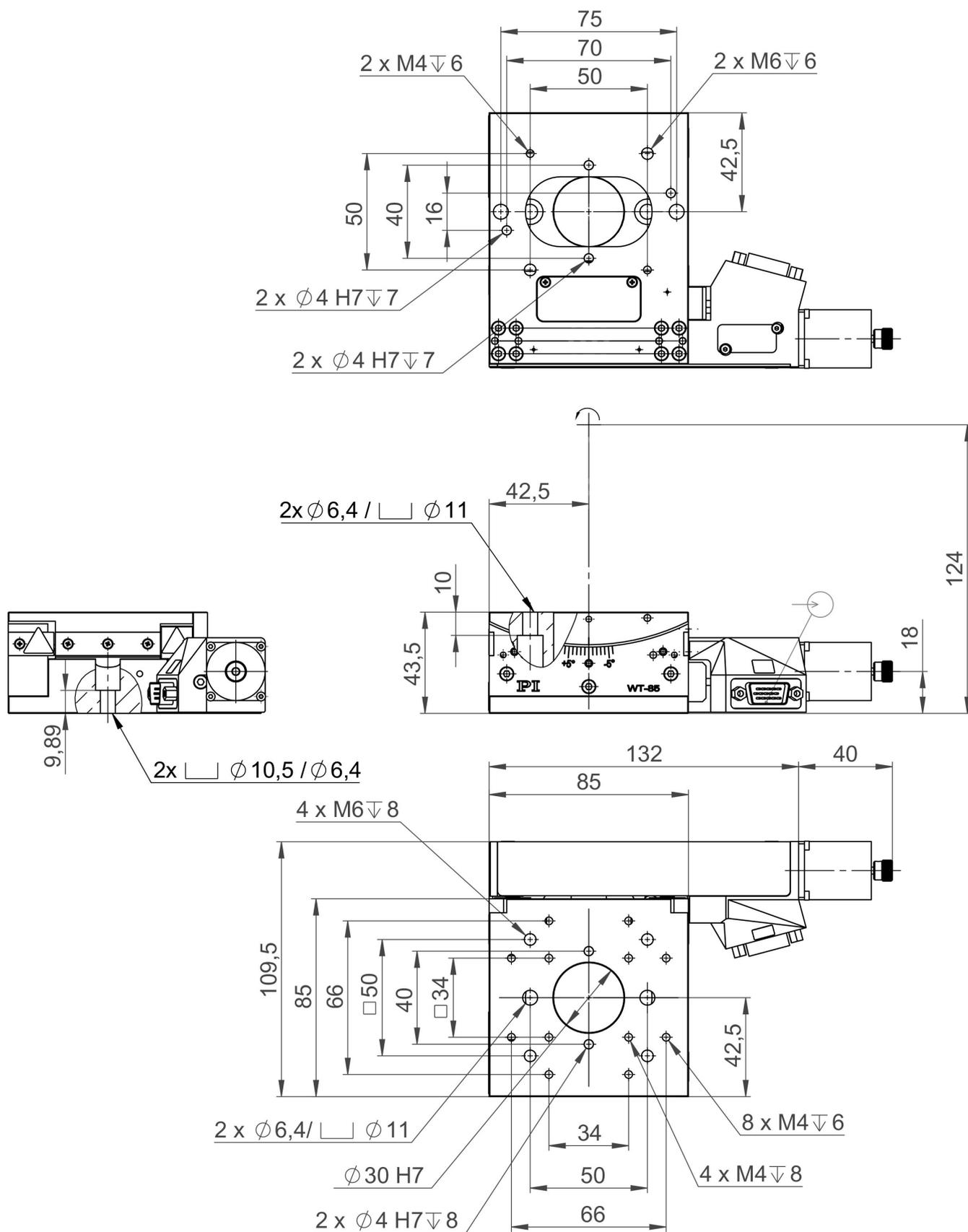
Drawings / Images



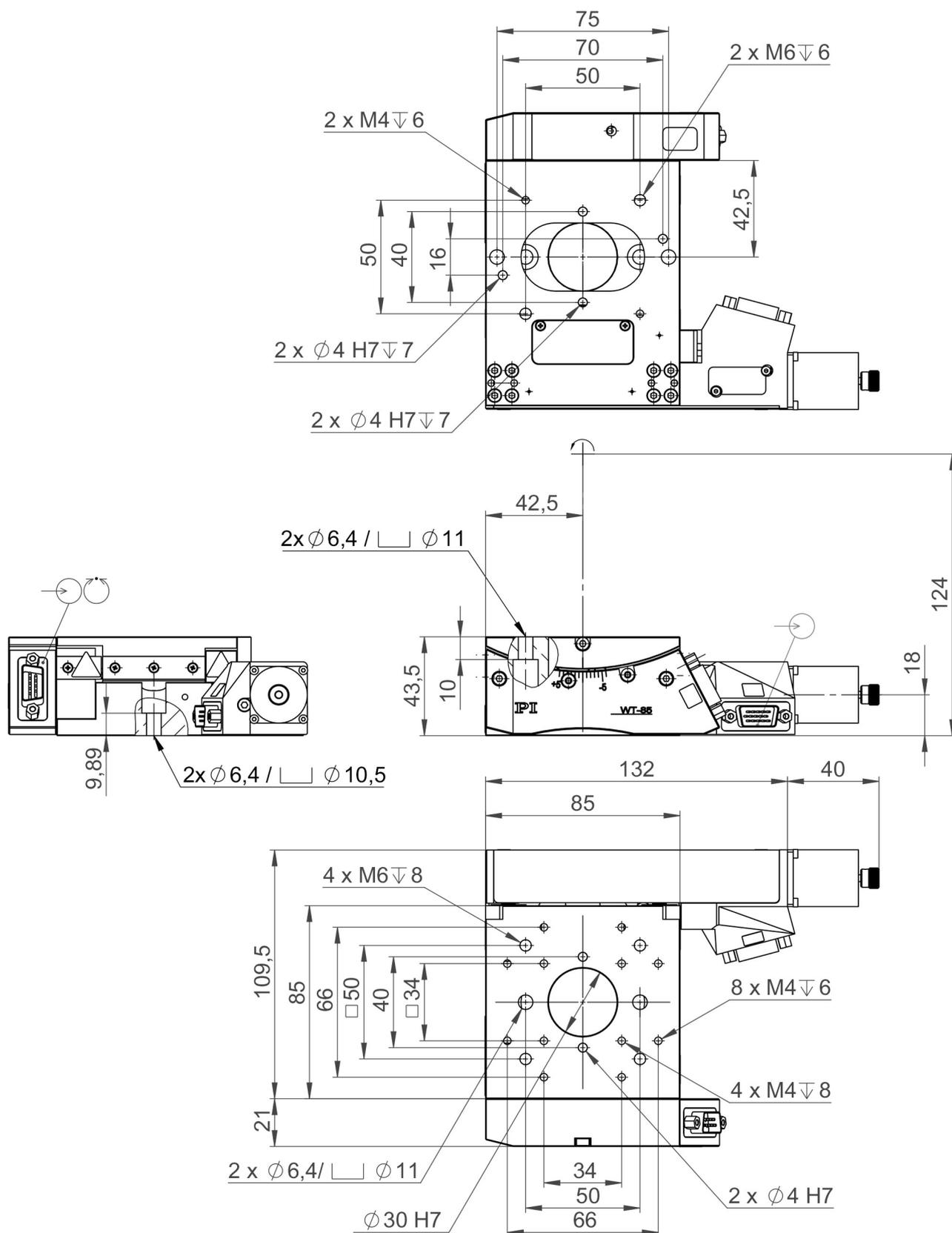
65409100, WT-85 goniometer, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.



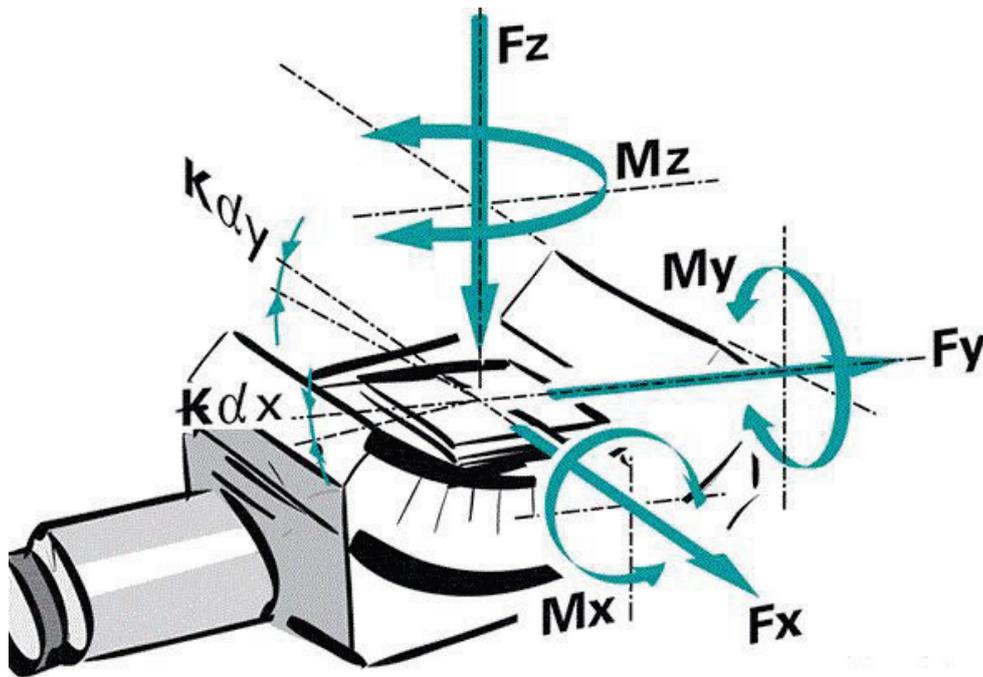
65409101, WT-85 goniometer with DC motor and incremental angle measuring system, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.



65409200-0000, WT-85 goniometer with stepper motor, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.



65409201-0001, WT-85 goniometer with stepper motor and incremental angle measuring system, dimensions in mm



Direction of the axes and torques for goniometer stages

Ordering Information

65409100

WT-85 goniometer stage, 85 mm width, DC motor, $\pm 5^\circ$ rotation range, clear aperture 30 mm diameter, mechanical limit switches

65409101

WT-85 goniometer stage, 85 mm width, DC motor, $\pm 5^\circ$ rotation range, angle measuring system with A/B quadrature signal transmission, clear aperture 30 mm diameter, mechanical limit switches

65409200-0000

WT-85 goniometer stage, 85 mm width, stepper motor, $\pm 5^\circ$ rotation range, clear aperture 30 mm diameter, mechanical limit switches

65409201-0001

WT-85 goniometer stage, 85 mm width, stepper motor, $\pm 5^\circ$ rotation range, angle measuring system with sin/cos signal transmission, clear aperture 30 mm diameter, mechanical limit switches