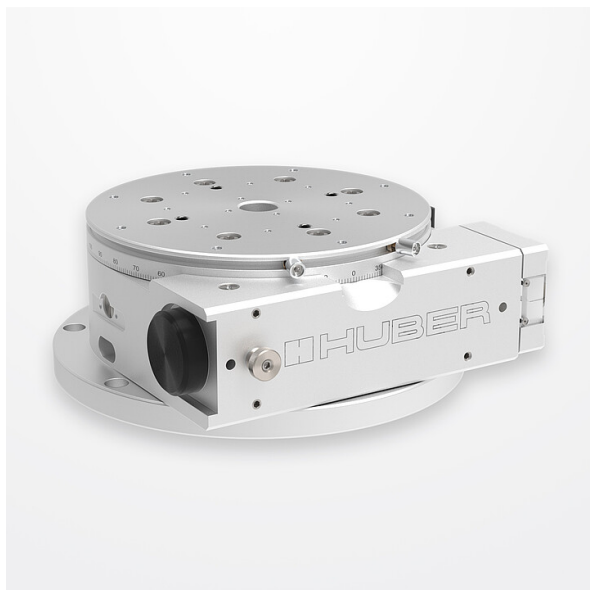




Goniometer 411/411A

- four precision configurations
- two load configurations

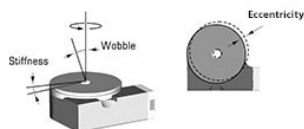
Application specific versions:

- vacuum suitable
- antimagnetic
- radiation resistant
- in black

Modularly individually configurable:

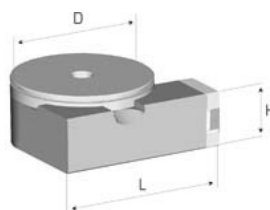
- from basic model to high-end system
- to multi-axis systems
- with individual transmission aperture
- with customer-specific hole pattern

Precision configurations:



	X1	X2	X3	XE
Accuracy ["]:	≤ 40	30	15	on request
Repeatability (unidir.) ["]:	≤ 4	2	2	on request
Reversal error ["]:	≤ 20	8	7	on request
Eccentricity [μm]:	≤ 5	3	2	2
Wobble ["]:	≤ 8	4	3	3

Dimensions [mm]:



D:	L:	H:
179	195	70

Accessories:

Motors:	2-/3-/5-Ph. Servo/DC
Hand wheels:	0056
Gear boxes:	2056.05 2056.10 2056.20
Limit switches:	included
Zero-point control:	9100
Encoder XE :	incremental absolute
Control system:	9300

Specifications:

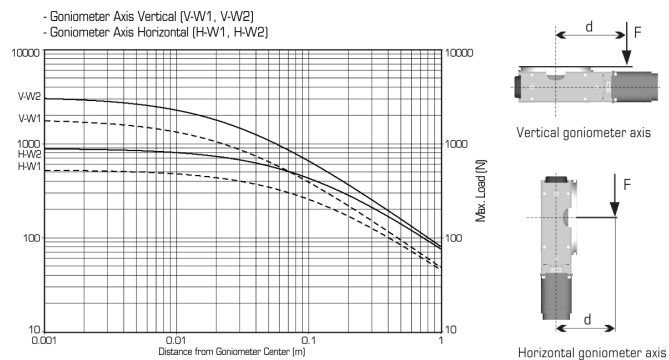
Travel range [°]:	360
Material (housing/worm gear):	Aluminium/Bronze
Gear ratio:	360:1 / 180:1*
Resolution [°]:	0.001 / 0.002* ** 0.0005 / 0.0001 minimum (with gear box 20:1)
Min. drive torque [Nm]:	0.40 / 0.45*
Max. output torque [Nm]:	15 / 18*
Stiffness [μrad/Nm]:	1
Weight [kg]:	6
Flange size [mm]:	56
Transm. aperture [mm]:	20 (standard) - 101

* values concerning 1-Circle Goniometer 411A

** step motor, 1000 steps/revolution

Load configurations:

		vertical gonio. axis	horizontal gonio. axis
Max. load [N]	W1 :	1800	500
Max. load [N]	W2 :	3100	870



- vertical goniometer axis (V- **W1** , V- **W2**)
- horizontal goniometer axis (H- **W1** , H- **W2**)

