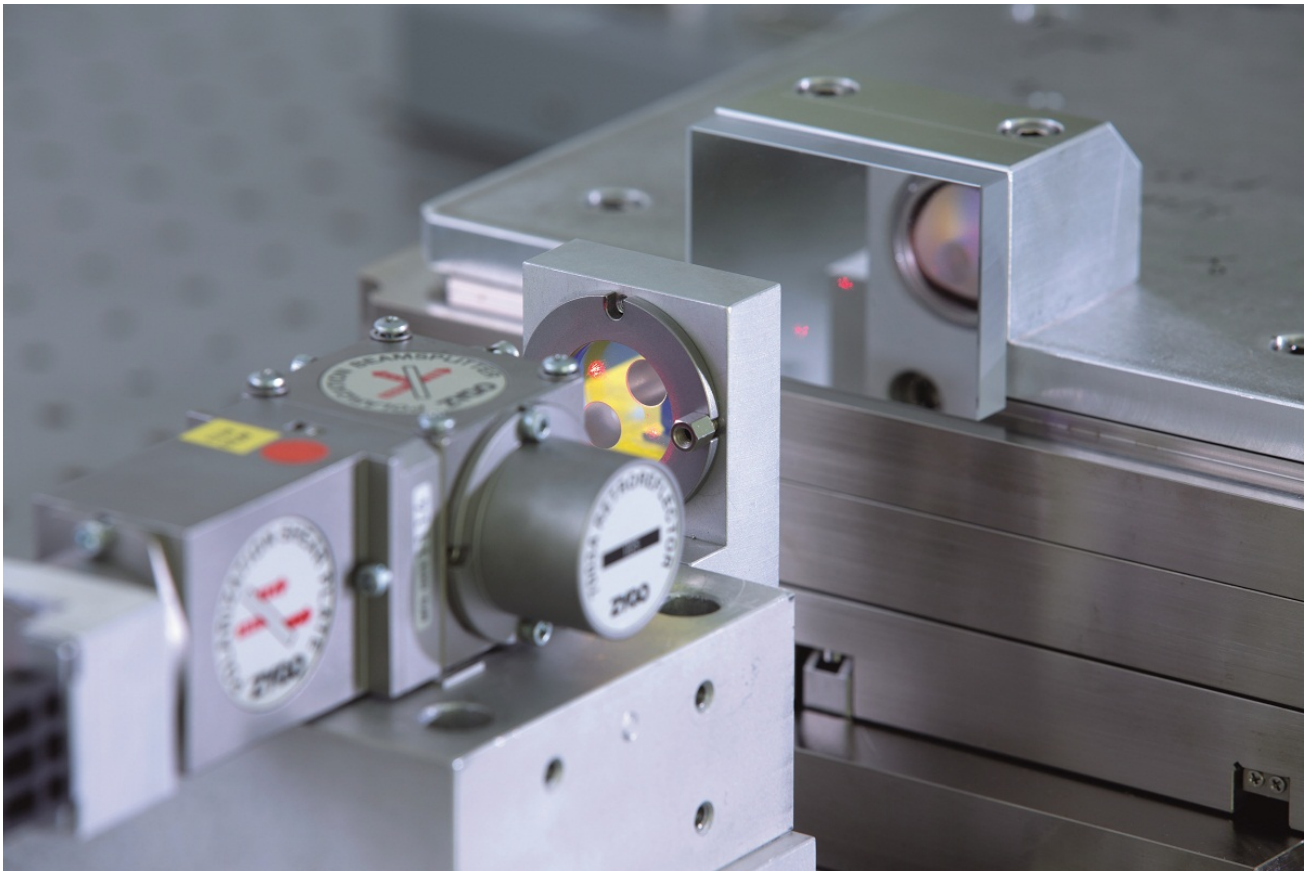
Metrology Equipment Overview

Measuring Environment / Measuring Equipment Portfolio



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Measuring Equipment According to Measurand

Length / Path			
Measuring equipment	**Measuring principle**	**Resolution/DPMI**	**Measuring range**
Tactile measuring sensor	Inductive (incremental)	to 5 nm	to 50 mm
Laser interferometer	Optical (incremental)	to 0.151 nm	to 10 m
Vibrometer	Optical (Doppler effect)	2 nm	40 mm
Multi-sensor measuring machine	Optical and tactile	0.1 µm	300 mm × 300 mm × 160 mm
CNC coordinate measuring machine	Incremental sensor with glass scale	0.1 µm	900 mm × 1800 mm × 800 mm
PISeca	Capacitive sensor	0.001 % of the travel range	to 100 µm

Angle			
Measuring equipment	**Measuring principle**	**Resolution/DPMI**	**Measuring range**
Laser interferometer	Optical (incremental)	to 34 nrad	± 0.11°
Autocollimator (AKF)	Optical (autocollimation)	to 0.05 arcsec	± 0.29° (up to ± 2.3°)
Angle measuring device / rotary encoder	Incremental	to 0.4 arcsec	360°

Velocity			
Measuring equipment	**Measuring principle**	**Velocity resolution**	**V_{max}**
Laser interferometer	Optical (incremental)	to 10 nm/s	up to 4 mm/s
Vibrometer	Optical (Doppler effect)	to 0.005 µm/s	up to 10 mm/s

Surface finish / surface flatness			
Measuring equipment	**Measuring principle**	**Resolution/DPMI**	**Measuring range**
White light interferometer	Optical (incremental)	λ/25	80 mm × 80 mm
White light interferometer	Optical (scanning white light interferometry)	to 1 nm for smooth surfaces	Z=70 mm X=38 mm Y =28 mm
Laser scanning microscope	Optical		X=100 mm; Y=100 mm; 1× - 8× objective

Eccentricity / wobble			
Measuring equipment	**Measuring principle**	**Resolution/DPMI**	**Measuring range**
Static spindle analyzer	Capacitive	80 µV/µm	Low ±125 µm High ±6.5 µm

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