OPTIK · MESS- UND PRÜFTECHNIK
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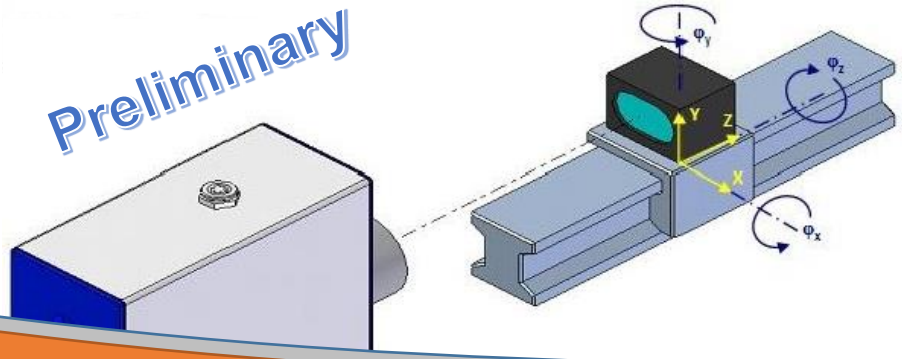
Preliminary

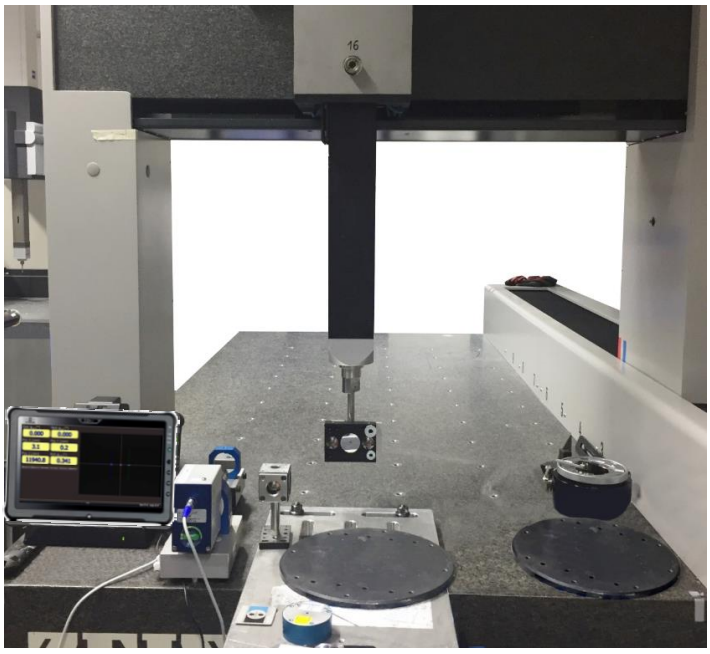


ELWIMAT®-VFS 6000

3D volumetric calibration with 6 DoF acquisition

Coordinate measuring machines - machine tools - adjustment systems

The ELWIMAT 6000 is a purely optical precision measuring device for recording all 6 degrees of freedom. Position, tilt angle, roll angle and translation (straightness) are recorded simultaneously with just one set-up. In this way, the measurement data of a machine are precisely determined within the shortest measurement times and the compensation data can be incorporated into the control. This results in very low commissioning and calibration costs and therefore hardly any downtime for service and calibration work.



Applications

- Detection of up to 6 degrees of freedom 6DoF
- Monitoring of measuring and calibration systems
- Calibration of CMM coordinate measuring machines
- Adjustment of measuring axes and precision guides
- Use in any position (spatial axis)
- Wireless reflector without tangled cables
- Small and compact, even for service work
- For long measuring distances of up to> 100 m
- Can also be used in vacuum

Features and Advantages

- Battery operation for 8 h use
- Absolute position determination
- Reproducibility < 10 µ / m; optional laser < 1 µm / m
- Rotation resolution < 0.3 arcsec / m
- Straightness accuracy up to <0.5 µm / m
- Roll angle also @vertical axis: Resolution < 1 arcsec
- 11“ touchscreen IP 65, robust and light weight
- Measurement of 6 DoF’s at the speed of light
- Data transfer via LAN and W-LAN
- Report generation with document tracking
- Data transfer / remote control via smartphone

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Reflector

The reflector is attached to the traverse or quill of the machine with simple means. The reflector and measuring system are precisely aligned within a few minutes using the absolute display of all degrees of freedom.

Evaluation ISO 230

The measurement can be made at any position or according to VDI / ISO 230. The deviation from the ideal straight line (optical axis, etc.) is measured and displayed immediately and directly.

Software

Intuitive touch operation on a robust IP65 tablet

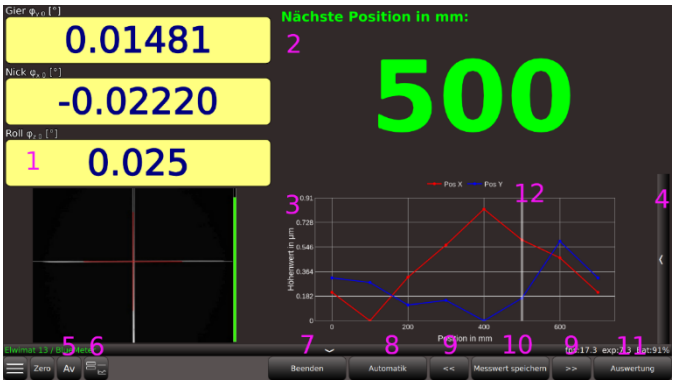

Bild: Touch-Monitor with Prozess Control

1. Measured value from an additional roll angle measuring device.
2. Display of the next measurement position.
3. Measurement data as a graphic or as a table.

Graphic evaluation with simple menu navigation including report

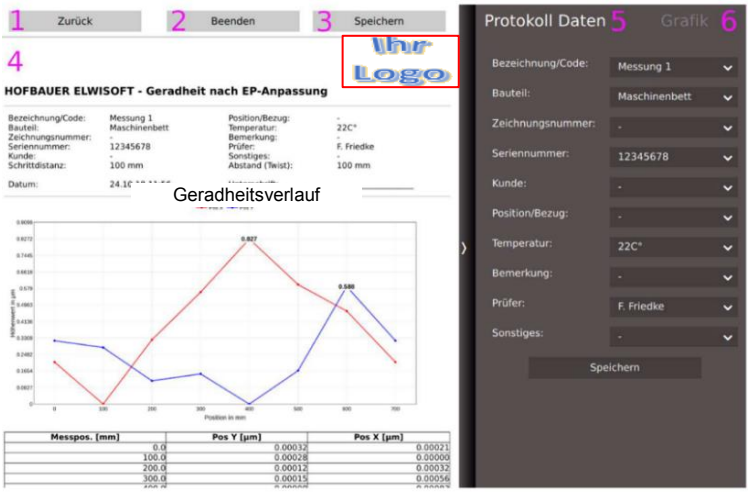

Fig.: Graphic evaluation, menu navigation and report

Technische Daten

ELWIMAT 6000 with 6 DoF		**Modell**					
Measured variable		46-4,8	46-4,8-L-W*	140-8	140-8-L-W*	300-15	300-15-L-W*
Position Linear	Resolution/ µm	1	0,001	5	0,001	10	0,001
	Reproducibility** R / µm	20 µm/m	0,5 µm/m	20 µm/m	0,5 µm/m	20 µm/m	0,5 µm/m
	Accuracy, Linearity**/ µm	50 µm/m	1 µm/m	50 µm/m	1 µm/m	50 µm/m	1 µm/m
	Measurement length M/ m	0,2 - 4 m		0,4 - 30 m		1 - 80 m	
Rotation Tip – Tilt bzw. Nicken - Gieren	Resolution/ wsec	0,1		0,05		0,025	
	Reproducibility** R/ wsec	0,3		0,1		0,05	
	Accuracy, Linearität **/ wsec	0,01A + 1"		0,005A + 1"		0,003A + 1"	
	Measurement Range*** w/ °	± 3,25		± 1,1		± 0,5	
Translation Straightness lateral to linear axis	Resolution/ µm	0,1		0,05		0,03	
	Reproducibility** R/ µm	0,4 µm + 5 µm/m x M		0,4 µm + 1 µm/m x M		0,2 µm + 0,5 µm/m x M	
	Accuracy, Linearity**/ µm	< 1 % des Messwertes + 2R					
	Measurement Range***/ mm	± 10…300		± 15…500		± 20…1000	
Rotation Roll angle	Resolution/ wsec	0,1“	0,2“	0,1“	0,2“	0,1“	0,2“
	Reproducibility R**/ wsec	< 5“/ m****	0,2“	< 5“/ m****	0,2“	< 5“/ m****	0,2“
	Accuracy, Linearity/ wsec	< 0,01 A + 2R					
	Measurement Range/ °	n x 360°	10 mrad	± 10°	10 mrad	± 5° ***	10 mrad
Weight AC-Sensor/ kg		0,7 kg	2 kg	0,8 kg	2,1 KG	1 kg	3 kg
Dimensions AC-Sensor		Ø 40 f8; 107 x 62 x 110 mm³					
Interfaces		USB 3.0 / RS 232 / JSON					
Reflector advised		Reflektor R1, R2, R3 und Spezialreflektoren					
Scope of delivery		Messkopf, 11“-Touch-Modul, Netzteil, Sensorkabel, USB Null-Modem-Kabel, Reflektor, Fernbedienung					
Order no.:		802 341	802 341 L-W	802 343	802 343 L-W	802 345	802 345 L-W

* with optional laser interferometer and electronic spirit level
** Depending on environmental influences, environmental conditions and their compensation
*** X-Richtung, Y-Richtung = 0,75 * X; depending on working distance M (s. Position)
**** with special reflector
M = Measurement length; working distance; A = measured value
Reproducibility R corresponds to the simple standard deviation s for statistical measurement evaluation under laboratory conditions

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