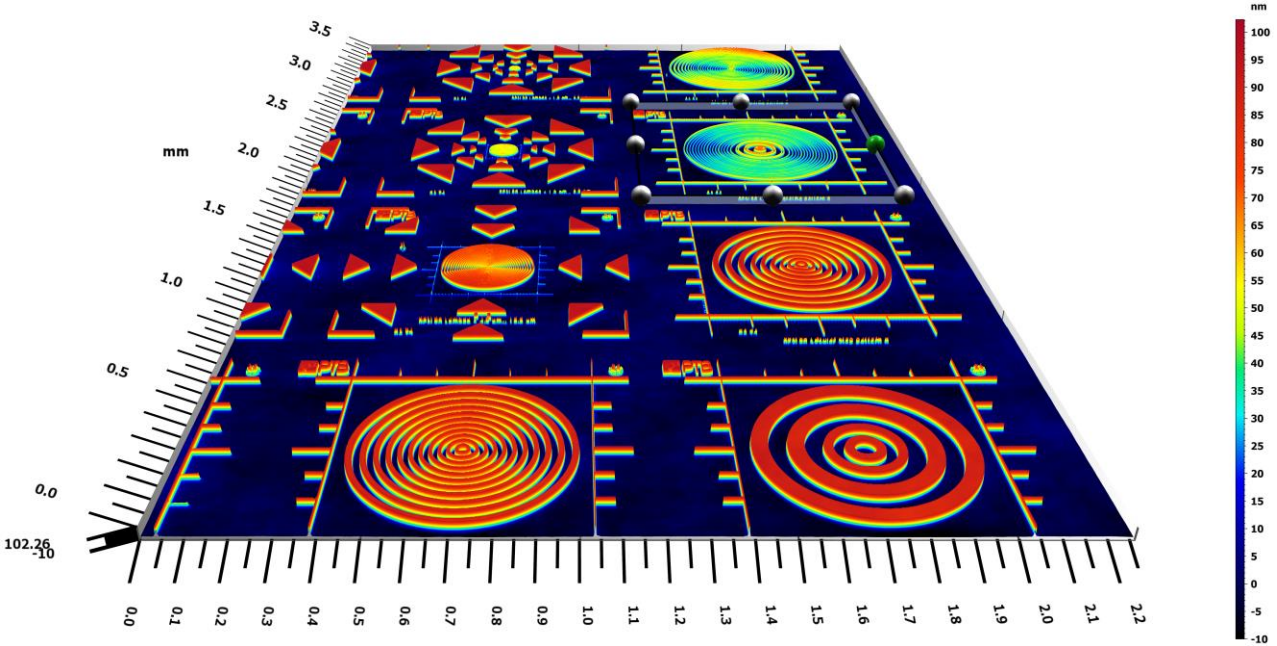
smartWLI next

universal lab measuring system
with up to 4 objectives and motorized turret



smartWLI

camera and speed specification

	2.3 MP high speed camera	5 MP high speed camera
camera speed full resolution	169 Hz (1920 x 1200 measuring points)	77 Hz (2456 x 2054 measuring points)
scanning speed full resolution smallest increment	11,4 µm/s	5.2 µm/s
scanning speed full resolution 5x extended increments	56 µm/s	26 µm/s
camera speed subsampling	533 Hz (960 x 600 measuring points)	subsampling not available
scanning speed subsampling smallest increment	35,7 µm/s	subsampling not available
scanning speed subsampling 5x extended increments	178,5 µm/s	subsampling not available
camera speed medium ROI	1.4 kHz (400 x 400 measuring points)	340 Hz (2456 x 400) measuring points)
scanning speed medium ROI smallest increment	93,8 µm/s	22,8 µm/s
scanning speed medium ROI 5x extended increments	469 µm/s	114 µm/s
camera speed small ROI	3.2 kHz (1920 x 36 measuring points)	2 kHz (2456 x 2 measuring points)
scanning speed small ROI smallest increment	214,4 µm/s	134 µm/s
scanning speed small ROI 5x extended increments	1.072 µm/s	670 µm/s
ROI	increased speed for less camera lines and rows	increased speed for less lines
data calculation	real time calculation of the 3d data on a GPGPU (general purpose graphic processing unit) with up to 10 TFLOPS	
supported scanning increments	1x, 3x, 5x, 7x, 11x	
high-speed “prescan” and z-range determination	the “prescan” can be used to determine and reduce the necessary z-range for high resolution measurements automatically this reduce the measuring time for surfaces with variable position inside of the scanning range drastically	

general specification

smartWLI next	
measurement technique	white-light interferometry
measurement software	smartVIS3D
evaluation software	MountainsMap® with optional GBS add-on modules
scanning device	piezo positioning system
scan range	200 µm
extended scanning range	optional with (additional) motorized scanning axis up to 200 mm
digitalization	up to 0.01 pm
system noise / topography reproducibility Nm*	< 0.08 nm (5 MP camera) / < 0.12 nm (2.3 MP camera)
1-σ reproducibility 0.4 µm step height	< 1 nm
1-σ reproducibility 12 µm step height	< 3 nm
1-σ reproducibility 100 µm step height	< 20 nm
sensor weight	approx. 5 kg
relative humidity, non-condensing	up to 80%
operation temperature	10 °C to 35 °C
power supply	100 to 240 VAC, 50/60 Hz

*Sq/√2 – profile difference of 2 scans, 10x objective, EPSI, single scan, without profile averaging, laboratory conditions, 1 million points after 3x3 denoising filter

objective specification

	magnification	5x	10x	20x	50x	100x	115x*
	working distance / mm	9.3	7.4	4.7	3.4	2	0.7
	aperture	0.13	0.3	0.4	0.55	0.7	0.8
2.3 MP Camera	measuring field / mm²	3.7 x 2.3	1.8 x 1.2	0.91 x 0.58	0.37 x 0.23	0.18 x 0.12	0.16 x 0.1
2.3 MP Camera	point spacing camera / µm	1.9	0.96	0.48	0.19	0.1	0.08
2.3 MP Camera	spacing super resolution / µm	0.63	0.32	0.16	0.063	0.033	0.027
5 MP camera	measuring field / mm²	3.4 x 2.8	1.7 x 1.4	0.85 x 0.71	0.34 x 0.28	0.17 x 0.14	0.15 x 0.12
5 MP camera	point spacing camera / µm	1.4	0.69	0.35	0.14	0.07	0.06
5 MP camera	spacing super resolution / µm	0.47	0.23	0.12	0.047	0.023	0.02

*115x objective –100x objective with a calculated relative magnification in relation to the 100x Nikon objective

small stands and xy stages

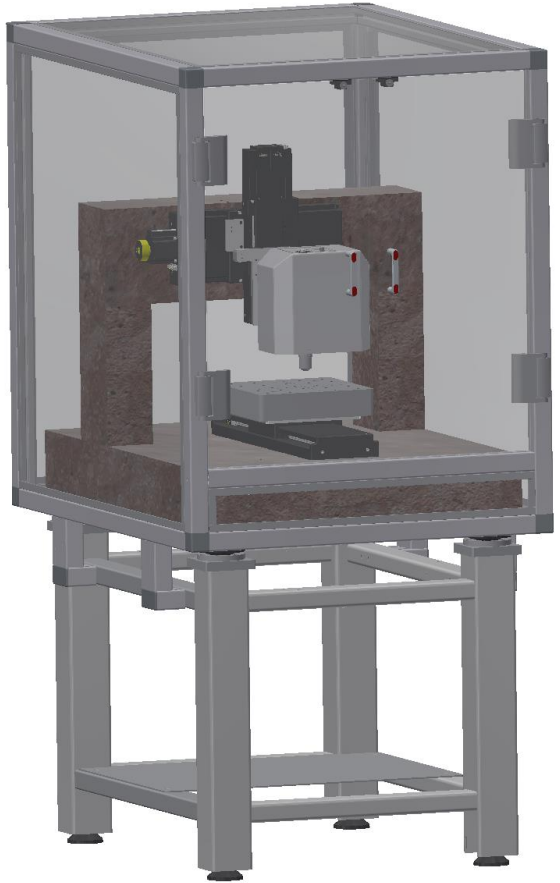
stand	
max. / coarse positioning range (manual z positioning)	70 mm
fine positioning range (manual z positioning)	1.9 mm
tilting angle (levelling device)	± 3°

xy stages					
positioning area	movement	load capacity	resolution	orthogonality	encoder
73 x 55 mm²	manual	1 kg	-	-	-
75 x 50 mm²	motorized	1 kg	0.01 µm	<10arcsec	optional
100 x 100 mm²	motorized	2 kg	0.01 µm	<10arcsec	optional
150 x 150 mm²	motorized	3 kg	0.01 µm	<10arcsec	optional
200 x 200 mm²	motorized	3 kg	0.01 µm	<10arcsec	optional
300 x 300 mm²	motorized	5 kg	0.01 µm	<5arcsec	optional

control unit

components
industrial 19” rack with housing
high performance PC Windows10 measuring software smartVIS3D evaluation software MountainsMap®
scanning device controller piezo positioning system (capacitive) interferometric calibrated closed loop control for positioning
LED light controller
XY positioning system controller (optional)

large and customized granite portals



smartWLI next – optional system components

housing
- protection against acoustical vibrations
- dust protection
- emergency and safety stop

granite portal
- highest stability
- customized dimensions
- available for large and heavy measuring objects

xyz – stages
- customized positioning range in xyz
- optional encoders for highest absolute accuracy
- optional axis for heavy work load
- high speed positionings
- extended scanning range for the z axis

motorized tilt system
- work load up to 10 kg
- tilt up to +-3°

anti vibration system
- integrated anti vibration system
- air dumping adapted to the granite portal
- low resonance frequency optimized to the portal weight

frame
- robust steel frame
- integrated control unit