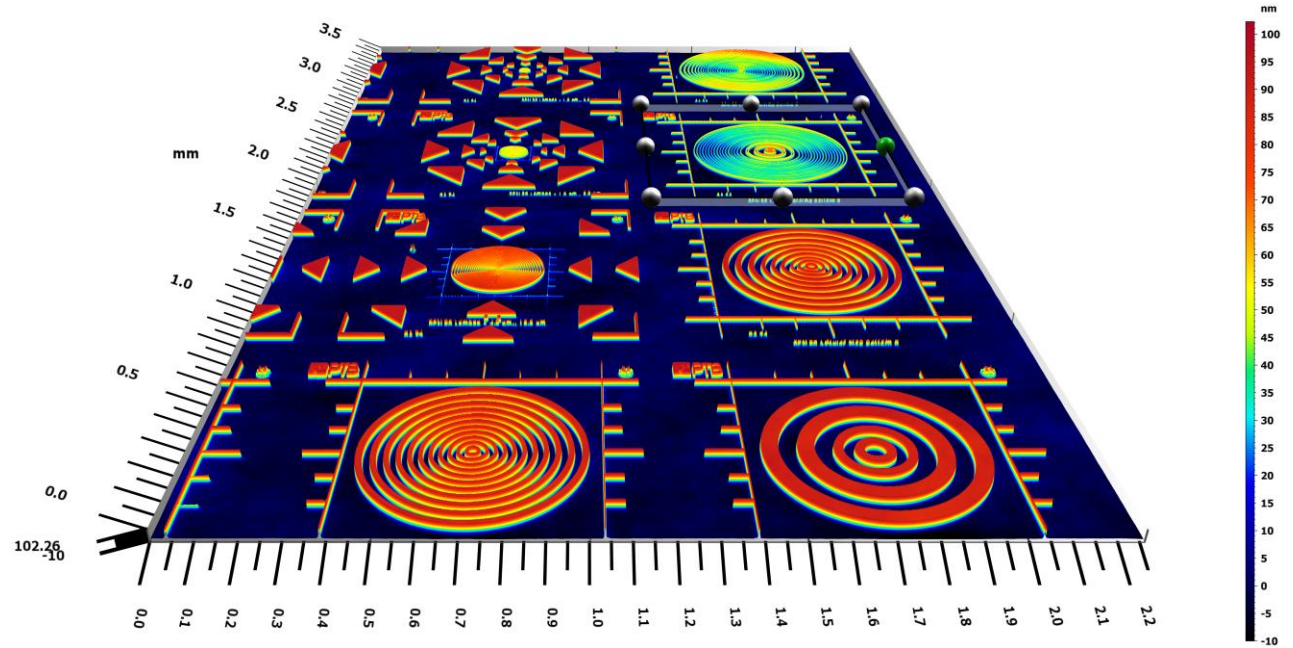


*universal lab measuring system  
with up to 4 objectives and motorized turret*



# 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 $\mu\text{m/s}$	5.2 $\mu\text{m/s}$
scanning speed full resolution 5x extended increments	56 $\mu\text{m/s}$	26 $\mu\text{m/s}$
camera speed subsampling	533 Hz (960 x 600 measuring points)	subsampling not available
scanning speed subsampling smallest increment	35,7 $\mu\text{m/s}$	subsampling not available
scanning speed subsampling 5x extended increments	178,5 $\mu\text{m/s}$	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 $\mu\text{m/s}$	22,8 $\mu\text{m/s}$
scanning speed medium ROI 5x extended increments	469 $\mu\text{m/s}$	114 $\mu\text{m/s}$
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 $\mu\text{m/s}$	134 $\mu\text{m/s}$
scanning speed small ROI 5x extended increments	1.072 $\mu\text{m/s}$	670 $\mu\text{m/s}$
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	



## 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

\* $\text{Sq}/\sqrt{2}$  – 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 / mm <sup>2</sup>	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
	point spacing camera / μm	1.9	0.96	0.48	0.19	0.1	0.08
	spacing super resolution / μm	0.63	0.32	0.16	0.063	0.033	0.027
5 MP camera	measuring field / mm <sup>2</sup>	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
	point spacing camera / μm	1.4	0.69	0.35	0.14	0.07	0.06
	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

總代理 大慶科技儀器有限公司 [www.dct3d.com](http://www.dct3d.com) TEL : 06-236-5697 email : [sales@dct3d.com](mailto:sales@dct3d.com)

# 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)	$\pm 3^\circ$

## xy stages

positioning area	movement	load capacity	resolution	orthogonality	encoder
73 x 55 mm <sup>2</sup>	manual	1 kg	-	-	-
75 x 50 mm <sup>2</sup>	motorized	1 kg	0.01 $\mu\text{m}$	<10arcsec	optional
100 x 100 mm <sup>2</sup>	motorized	2 kg	0.01 $\mu\text{m}$	<10arcsec	optional
150 x 150 mm <sup>2</sup>	motorized	3 kg	0.01 $\mu\text{m}$	<10arcsec	optional
200 x 200 mm <sup>2</sup>	motorized	3 kg	0.01 $\mu\text{m}$	<10arcsec	optional
300 x 300 mm <sup>2</sup>	motorized	5 kg	0.01 $\mu\text{m}$	<5arcsec	optional





## components

**industrial 19" rack with housing**

**high performance PC**

Windows10  
measuring software smartVIS3D  
evaluation software MountainsMap®

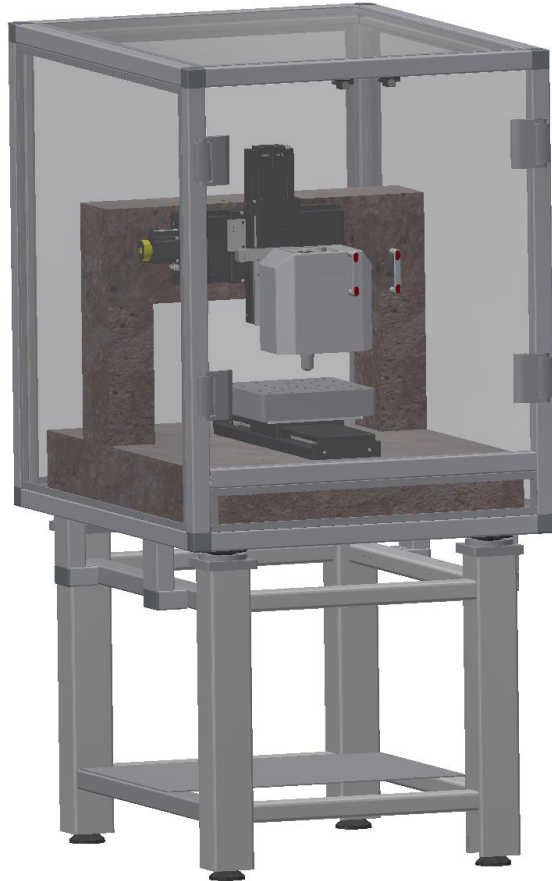
**scanning device controller**

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  $\pm 3^\circ$

### 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