

Industrial Solutions

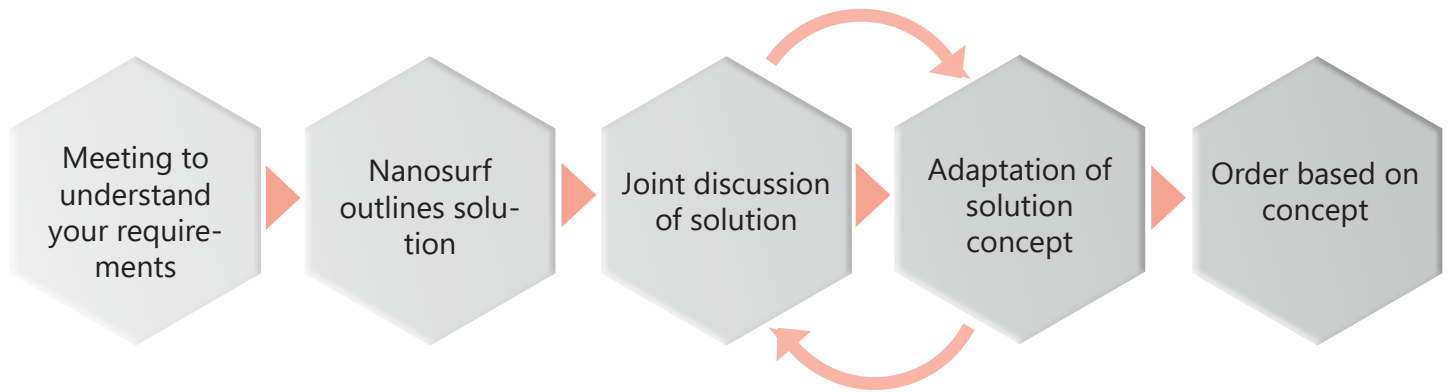
Fully automated & designed
to your specifications



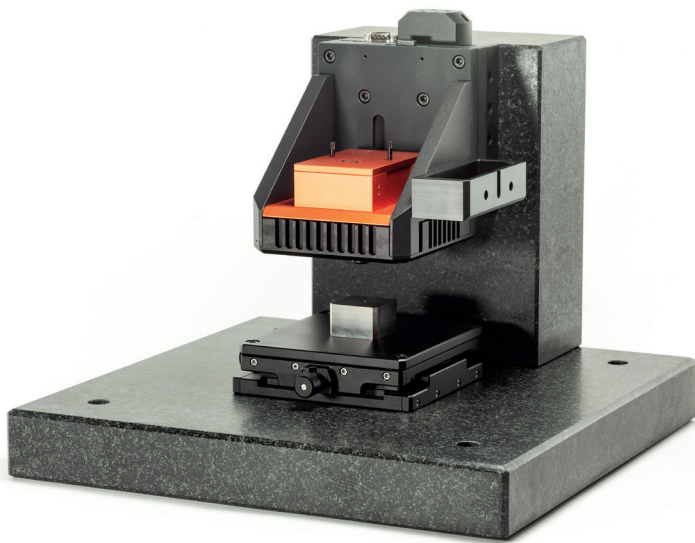
Sometimes custom adaptations make the difference

Do you need to perform AFM measurements, but your samples are large, require special handling or your experiments go beyond established techniques and methods? We take your needs seriously and will jointly work with you on a solution.

In close cooperation and in continuous dialog with you, our instrument development team will design and construct a system tailored to your exact needs. Contact us with a first description of your needs and we'll be happy to get back to you to discuss your project in depth.



Simple



400 mm stage

Max. traverse path XY	20 mm x 20 mm
Sample platform size	400 mm x 300 mm
Motorized Z travel	50 mm
Sample size	max. 150 mm x 150 mm x 73 mm* max. 400 mm x 300 mm x 105 mm**
Stage size	400 mm x 400 mm x 400 mm
Noise level	<0,4Å

*with XY stage

**without XY stage

Designed as an economical standard stage for the Flex-Mount scan head, this simple XYZ stage allows for larger-than-normal samples. The simple design makes it a very sturdy and robust solution for larger samples. The manual XY stage can be removed to give access to the whole sample platform.

Clean

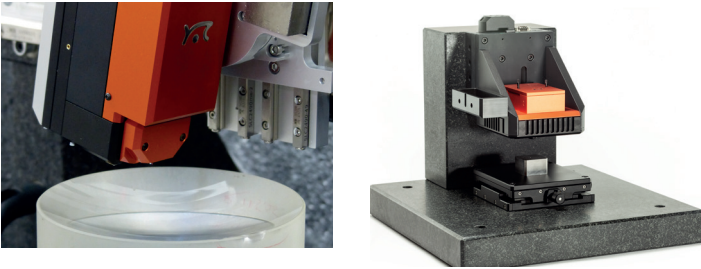


Motorized XYZΦ translation stage

Max. traverse path XYZΦ	230/485/20 mm / 360°
Sample platform size	Ø500mm
Sample size / weight	Ø500 x 80 mm / max. 20 kg
Stage size	1350 mm x 950 mm x 1360 mm
Stage weight	1300 kg
Noise level	<0.4Å

Engineered for the quality control of large glass samples, this custom stage keeps all movement below the sample - mitigating the risk of contamination due to abrasion in moving components. The manual change of the scan head position in two defined positions keeps the overall dimensions of the stage small while still allowing access to the whole sample under the same relative orientation.

Curved surface



Automated XZΘ translation stage

Max. traverse path XZ/Θ	250/60 mm / 100°
Sample size	max. Ø380 mm x 220 mm
Stage size	450 mm x 550 mm x 460 mm
Noise level	<0.5Å

AFM measurements on large concave or convex samples require the scan head to rotate such that the cantilever approaches the surface under the same angle on every location. Economic full 360° manual rotation of the sample platform and motorized XZΘ-travel ensures to reach every point on the sample.

Handling

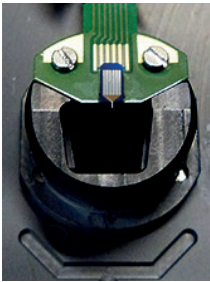


This micrometer transfer stage allows the examination of a sample with an inverted optical microscope, where the sample faces down, and with AFM, where the sample faces up. The sample – a glass lens – is fixed in place after the area of interest is located using the optical microscope and then flipped over and transferred to the AFM with a repositioning accuracy of better than 10µm.

Cantilever

Multifunctional cantilever holder

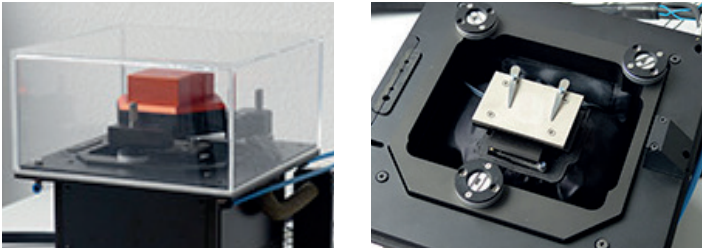
Static mode AFM	Enabled
Dynamic mode AFM	Enabled
Number of electrical contacts	7 (including ground)
Positioning accuracy	approx. 50 µm
Cantilever substrate size	3.0 mm x 1.5 mm x 0.65 mm



A custom cantilever holder and flex-print allowing to bond up to 6 electrical contacts to custom made cantilevers.

3D Magnetic Field Reconstruction Methodology Based on a Scanning Magnetoresistive Probe, F Richheimer, M Costa, D Leitao, J Gaspar, S Cardoso... - Sensors 2018, 18(7), 2049; <https://doi.org/10.3390/s18072049>

Levelling



Automated XYZΘΦ translation and goniometer stage

Max. traverse path XYZ/ΘΦ	72/46/5 mm / ±5°
Sample platform size	75 mm x 50 mm
Sample size	max. 75 mm x 50 mm x 13 mm

Precision alignment stage: two goniometer stages and three highly sensitive force sensors were incorporated to allow automated levelling of a sample plane with respect to the scan head within 0.005°. Humidity control and a custom built cantilever holder were developed to facilitate nano-imprint lithography.

LEE, I.-Ning, et al. Large-area scanning probe nanolithography facilitated by automated alignment and its application to substrate fabrication for cell culture studies. JoVE (Journal of Visualized Experiments), 2018, Nr. 136, S. e56967.

WANG, Shuai, et al. Large-area scanning probe nanolithography facilitated by automated alignment of probe arrays. RSC Advances, 2015, 5. Jg., Nr. 75, S. 61402-61409

Large sample



Motorized XYZ translation stage

Max. traverse path XYZΦ	550 mm x 1555 mm x 50 mm
Sample platform size	785 mm x 1950 mm
Sample size / weight	max. 540 mm x 1500 mm x 210 mm / max. 500 kg
Stage size	1450 mm x 2200 mm x 1350 mm
Stage weight	2250 kg
Noise level	<0.5Å

This high load, high precision and low noise translation stage uses air bearings to ensure stable measurement conditions and large travel ranges. Emphasis was given to creating an economical solution, using only passive anti-vibration and no glass scales.



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