

- **Highest Performance**
- **Easy Handling**
- **Versatility Through Modularity**

DME Compact Granite with DS 95 SPM Head

The Tool for Fast and Reliable SPM Results

DME DS 95 SPM Scanner Series

With the DS 95 SPM scanner series we provide the ultimate unification of ease of use and performance! Decade lasting experience in the field of SPM application and manufacturing are united in the DS 95 SPM scanners to help the user achieve the best and most reliable results in the shortest possible period of time.

The **compact design** of the DS 95 SPM scanner guarantees outstanding stability and scan rates.

The unique **plug and play cantilever exchange** secures fast and safe operation of the instrument.

An **integrated optical axis** in the SPM scanner provides total visual control during approach and positioning.

The DS 95 SPM scanner provides the facilities for **all common and advanced SPM modes**.

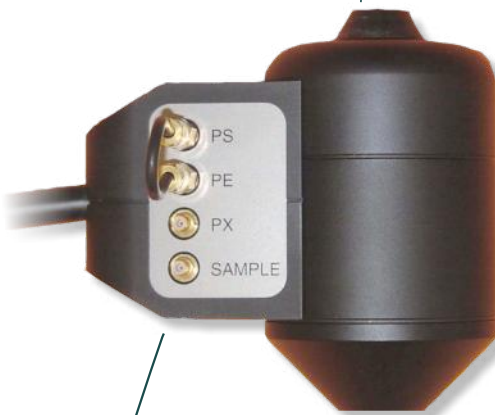
Integrated electronics in the scan head guarantees lowest noise values in electrical SPM modes.

DS 95 multi mount allows installation of the DS 95 SPM scanner into DME Stages and other facilities like nanoindenters, optical microscopes, etc.

Integrated Optical Axis



Multi Mount for the Installation in DME Stages and Wherever Needed

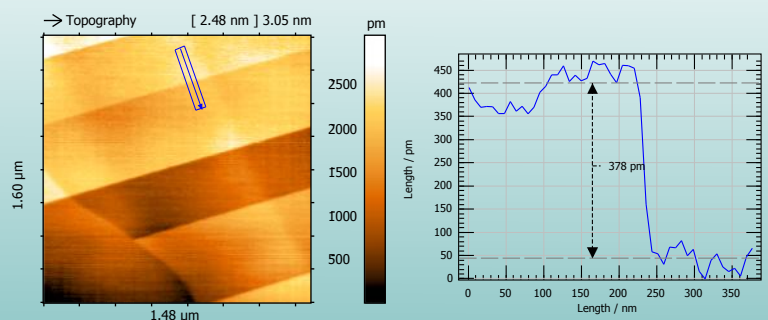


95mm

Highest Stability by Compact Design

On-Side Amplifier Electronics and Contacts

Easy Plug and Play Cantilever Exchange



Superior stability and ease of use: Atomic layers on HOPG in less than 1 min from switching on the system.

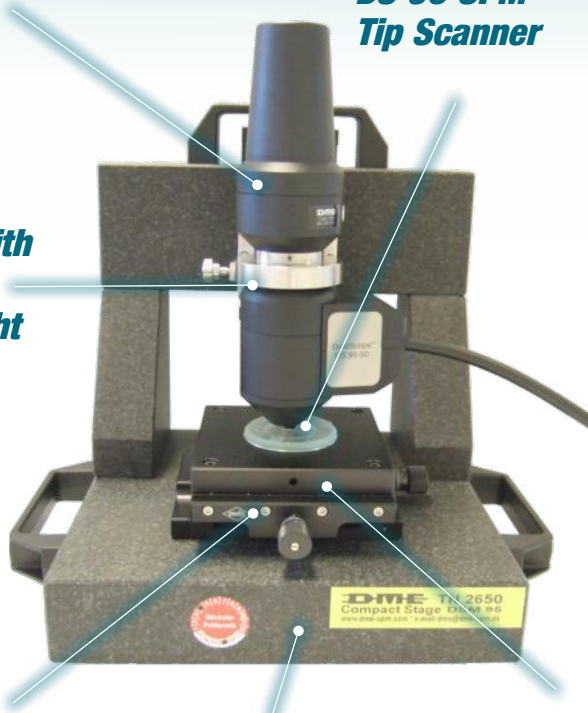
DME DS 95 AFM Scanner

Flexibility and Stability: The DME Compact Granite Stage Unites Extremes

**High Resolution
Digital CCD Camera
for Visual Control**

**DS 95 SPM
Tip Scanner**

**Super Rigid
Railmount with
Manual Z
Sample Height
Adjustment**



**Sample Table:
Choose from a Wide
Variety of Manual
and Motorized XY
Translators and
Sample Holders**

**Free Sidewise
Access to
Sample**

**Granite Portal:
Stable Like a Rock!**

The DME compact granite stage provides the possibility of investigating nearly **all samples** by SPM.

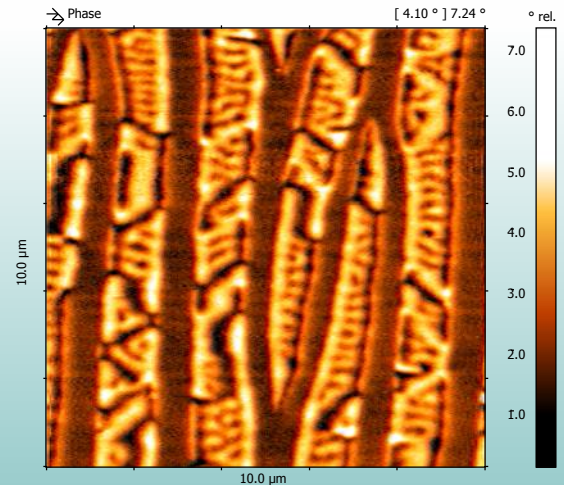
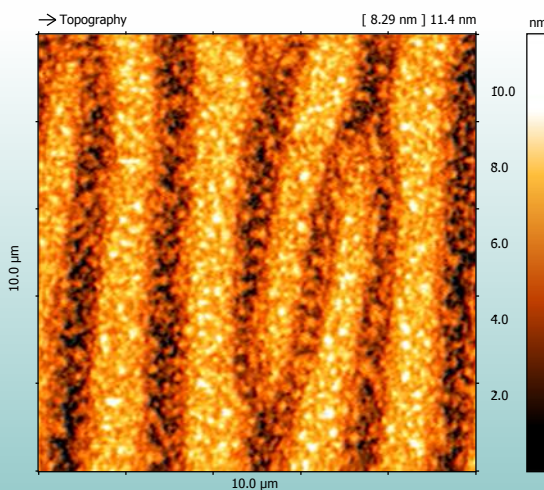
From a splitter of a coated wafer to a whole nano-coated surgical implant, the compact granite stage will surprise you with its **flexibility**.

Thereby, the design makes no compromises concerning **stability**.

Scanning atomic layers on a standard writing desk is possible.

The open tip scanner design gives room for **free sample access** and a variety of selectable XY translators and special measurement stages as a temperature control stage or liquid cell.

Customized illumination or sample stages and sample holder for exotically shaped sample objects can be provided.



Application example: Topography and magnetic information of a inplane magneized Pt/Co multilayer. Imaged with the DME Small Granite DS95 50 system. (Sample generously provided by TU Berlin, AG Eisebitt)

DME Compact Granite Stage

System specifications:

	Igloo	Compact Granite	Proberstation 150	Navigator 220
Sample Size	50 mm	150 mm	350 mm	150 mm
Sample thickness	5 mm	60 mm	60 mm	60 mm
XY movement of sample	16 x 16 mm	16 x 16 mm or 50 x 50 mm	200 x 150 mm	200 x 150 mm
XY movment	manual	manual or motorized with joystick and auto- mated table control	motorized with or without reference coordinate system, joystick and auto- mated table control yes	motorized by piezo table with reference coordinate system joystick and auto- mated table control yes
Completely automated measurement	no	no	yes	yes
Automated find and re-find routine	no	no	no	yes
High resolution CCD camera	yes	yes	with bright and dark field or DIC imaging yes	with bright and dark field or DIC imaging yes
LED transmission and reflecting illumination	yes	yes	yes	yes
Scanner SPM modes	see below all modes,	see below all modes,	see below all modes,	see below all modes,
PC with Windows Controller	optional C26	optional C26	optional C26	optional C26
Software DiProWa (digital programmable waveform analyzer)	ScanTool, optional	ScanTool, optional	ScanTool, optional	ScanTool, optional
Liquid cell	optional	optional	optional	optional
Magnetic stage	optional	optional	optional	optional
Thermal stage	optional	optional	optional	optional
Probe assembly tool ki	optional	optional	optional	optional

Scanner DS 95

- Scan volume: 50 x 50 x 5 mm (DS 95-50) or 200 x 200 x 15 mm (DS 95-200)
- Tipscanner XYZ: independent on sample size! (important criteria for a general purpose AFM),
- Highest mechanical stability (atomic step resolution in Z direction 0.06 nm RMS on HOPG!)
- Fast scan rates up to 30Hz line rate
- Hardware linearized scan motion in z direction
- Noise Level < 0.05 nm rms in z direction
- Self adjusting laser/cantilever deflection system
- Min. amplitude setting in AC mode < 1 nm
- Integrated optical axis on cantilever
- Plug and play cantilever insertion, fastest and safest cantilever exchange on the market ! (unique feature)
- Highly sensitive approach procedure by piezo motors (unique feature)
- SPM modes: AC including amplitude imaging and phase imaging, DC including LFM, MFM, KPFM, EFM, SCM, STM

Electronics

- Triple CPU Design, 1x32 MHz, 1x16 MHz, 1 FPGA 80 MHz, for autonomous scan operation and realtime processing
- Feedback: 32 bit internal resolution
- Full digital (PID filtered) or digital/analog (P filtered) operation, active Q-control
- Digital lock-in based AC detection, fully digital AC signal synthesizer (Q Booster) and demodulator
- Built in automatic self test
- Automatic Z detector gain adjustment
- All signals accessible, 8 channels simultaneously available
- AC amplitude selectable over a large range (high sensitivity high reliability for automation) (unique feature)

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