

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

DME Small Granite Stage with DS 95 SPM Head

The Tool for Fast and Reliable SPM Results

DME DualScope™ 95 SPM Scanner Series

With the DualScope™ 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 DualScope™ 95 SPM scanner guarantees outstanding stability and scan rates.

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

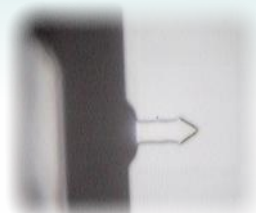
An **integrated optical axis** in the SPM scanner provides total visual control during approach and positioning.

The DualScope™ 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.

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

Integrated Optical Axis



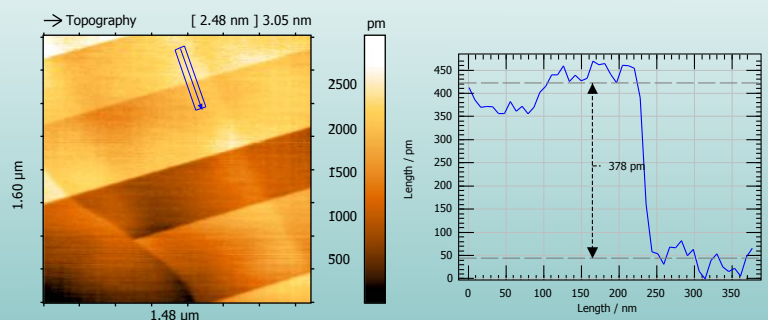
Multi Mount for the Installation in DME Stages and Wherever Needed

Highest Stability by Compact Design

95mm

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.

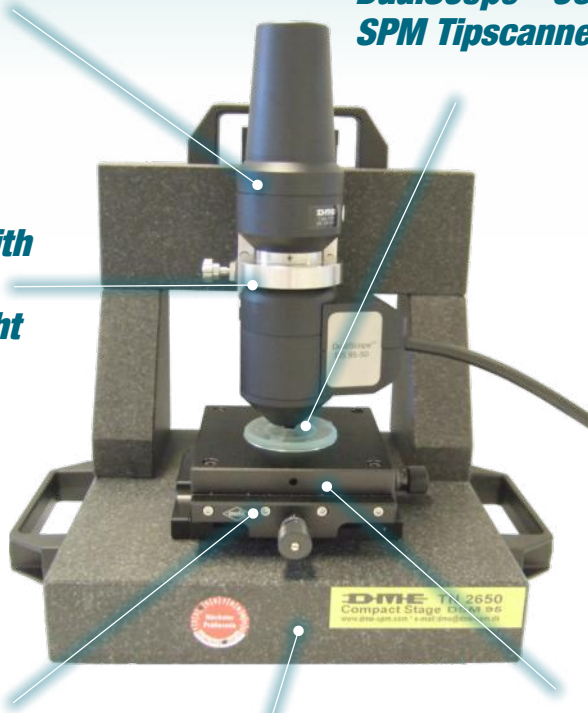
DME DualScope 95 AFM Scanner

Flexibility and Stability: The DME Small Granite Stage Unites Extremes

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

**DualScope™ 95
SPM Tipscanner**

**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**

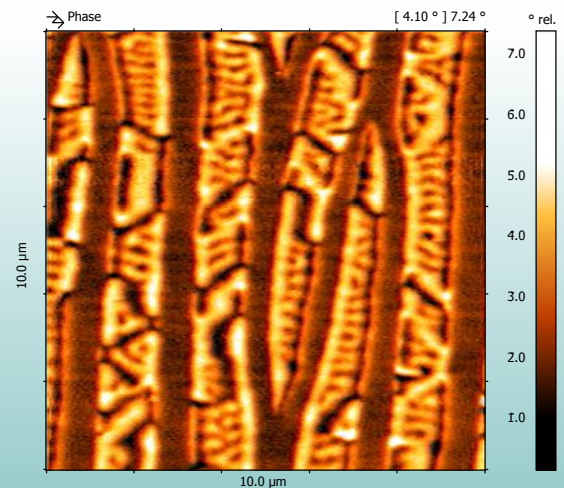
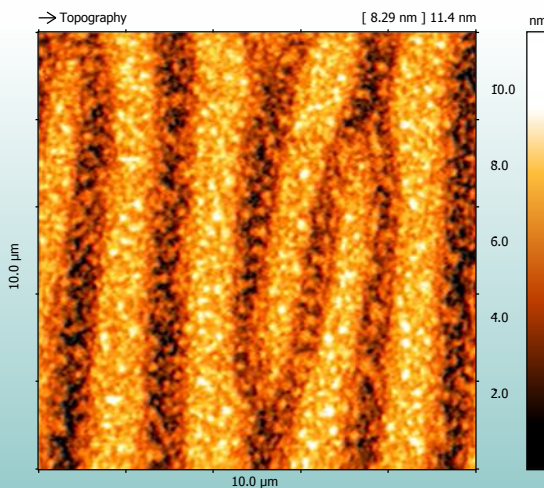
**Free Sidewise
Access to
Sample**

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

The DME small 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 small 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 magnetized Pt/Co multilayer. Imaged with the DME Small Granite DS95 50 system. (Sample generously provided by TU Berlin, AG Eisebitt)

DME small granite Stage

System specifications:

System configuration possibilities

	Scanner	Stage	Controller	Software
DS95 50 Igloo	DualScope 95 50	Igloo Stage	C26 SPM Controller	ScanTool
DS95 200 Igloo	DualScope 95 200	Igloo Stage	C26 SPM Controller	ScanTool
DS95 50 small granite	DualScope 95 50	Small granite	C26 SPM Controller	ScanTool
DS95 200 small granite	DualScope 95 200	Small granite	C26 SPM Controller	ScanTool
DS95 50 ProberStation	DualScope 95 50	ProberStation	C26 SPM Controller	ScanTool
DS95 200 ProberStation	DualScope 95 200	ProberStation	C26 SPM Controller	ScanTool

Options:

DiProWA digital programmable waveform analyzer

Glueing Tool (cantilever assembly)

Thermo stage

Liquid cell

Motorized xy sample tables with or without optical reference

SPM Facts:

Scanner:

Scanrange: DS 95 50 (E) 50 μm x 50 μm x 5 μm
 DS 95 200 (E) 200 μm x 200 μm x 15 μm

Accuracy and noise:

Hardware linearized scan motion in z direction
 Noise Level < 0.05 nm rms in vertical direction (Z)

Scan Speed: up to 100 $\mu\text{m}/\text{s}$ (DS 95 50)
 up to 50 $\mu\text{m}/\text{s}$ (DS 95 200)

Detection:

Self adjusting laser / cantilever deflection system

Min. amplitude setting in AC mode < 1 nm

Electronics:

Triple CPU Design, 1x 32 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 (filtered P) operation in contact, dynamic and STM modes

Digital Lock-in based AC detection

Fully digital AC signal synthesizer (Q Booster) and demodulator

Built in automatic self test

Flash memory for fast firmware updating

Automatic Z detector gain adjustment

Supported Modes:

Contact mode (DC), intermittent mode (AC), non-contact mode, frequency modulation mode, lateral force mode, force spectroscopy, EFM, kelvin probe force microscopy, MFM, scanning capacitance microscopy, STM

Stage:

Sample size up to 200 mm

XY movement of sample from 16 mm to 50 mm (optional motorized)

Joystick and automated XY table control

Max. sample thickness 60 mm

High resolution digital CCD camera

LED transmission and reflecting illumination

Customized mounting threads (on demand)

copyright: DME (NA)

DME NANOTECHNOLOGIE GMBH
 AM LISTHOLZE 82
 D-30177 HANNOVER
 DEUTSCHLAND
 TEL: 0700 1811 0700
 INT. CALL: +49 511 2627929
 FAX: +49 511 26279 30
 EMAIL: INFO@DME-SPM.DE

DME
 DANISH MICRO ENGINEERING A/S
 TRANSFORMERVEJ 12
 DK-2730 COPENHAGEN/HERLEV
 DENMARK
 TEL: +45 4484 9211
 FAX: +45 4484 9197
 EMAIL: DME@DME-SPM.DK



Danish Micro Engineering A/S
 DME NanoTechnologie GmbH