3D Measuring systems

Micomesure2 equipped with a "point"sensor

The MICROMESURE 2 system, equipped with CCS-Prima, STIL-DUO or CHR150 sensors is the ideal tool for non contact surface measurement, including 3D roughness, shape metrology and 3D microtopography.

The MICROMESURE 2 system fully exploits the extraordinary performances of STIL's non contact sensors in various applications and fields.

Delivered with the necessary control & acquisition hardware and software, the MICROMESURE 2 system is a "turn key" device that is immediately operational after its installation.

Advantages

Due to Confocal Chromatic sensors

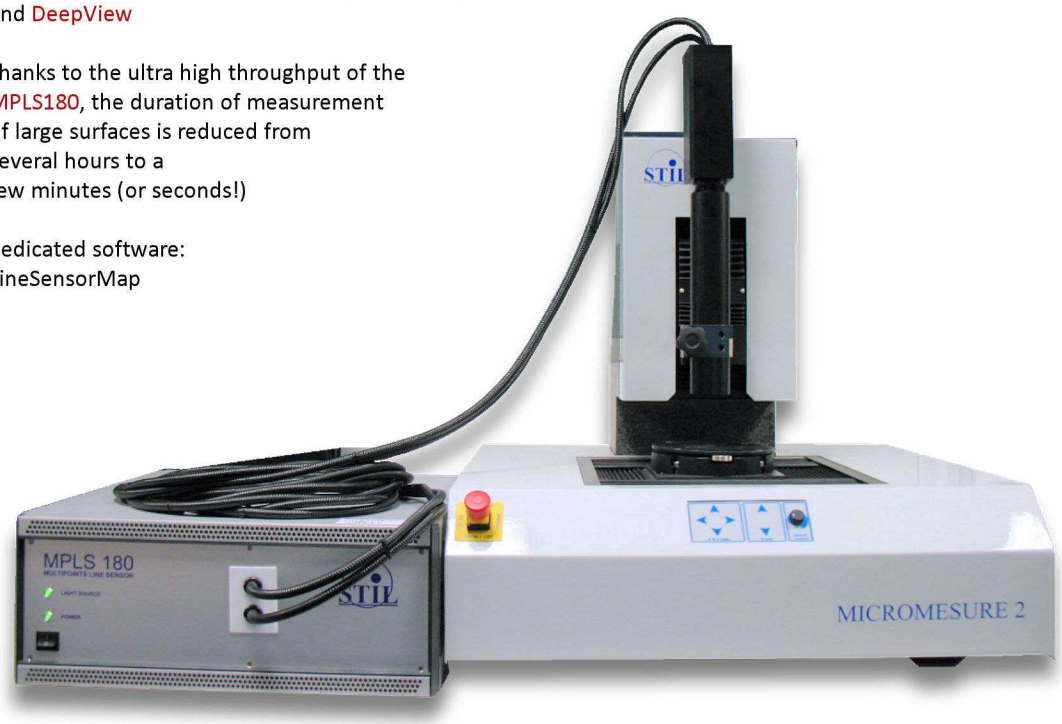
- Non contact dimensional measurement
- Nanometric and Micrometric resolutions
- White light sensor (no speckle, wide measuring range)
- Coaxial measurement (no shadowing)
- High local slopes on specular (reflective) surfaces
- Insensitive to ambient light
- Can measure on metal, glass, semi-conductor, ceramics and more
- Thickness & form Measurement of transparent objects
- Wide measuring ranges capabilities (from 20 µm to 24 mm)

Due to high quality scanning system

- 0.1 µm encoder on Z axis (series product)
- 0.1 µm encoders on X & Y axes (optional)
- Low vibrations
- Orthgonality and flatness corrections
- Transparent housing for avoiding air-turbulences

Micromesure2 equipped with a "line"sensor

- **New product 2014:**
  MICROMESURE 2 with a MPLS180 Line sensor
- 3 optical heads available: NanoView, MicroView, and DeepView
- Thanks to the ultra high throughput of the MPLS180, the duration of measurement of large surfaces is reduced from several hours to a few minutes (or seconds!)
- Dedicated software: LineSensorMap



Specifications

Scanning system specifications for series MICROMESURE 2

	X & Y axes		Z axis
Configuration [1]	**3M - 1R**	**3M - 3R**	**Both**
Travel	100 mm	100 mm	50 mm
Encoder	No	Yes	Yes
Position accuracy	10 µm / 100 mm	1 µm / 100 mm	1 µm / 100 mm
Position resolution	0.1 µm	0.1 µm	0.1 µm
Flatness	1 µm / 100 mm	1 µm / 100 mm	1 µm / 100 mm
Max. speed	20 mm / s	20 mm / s	5 mm / s

(1) For other configurations contact us

Sensor specifications

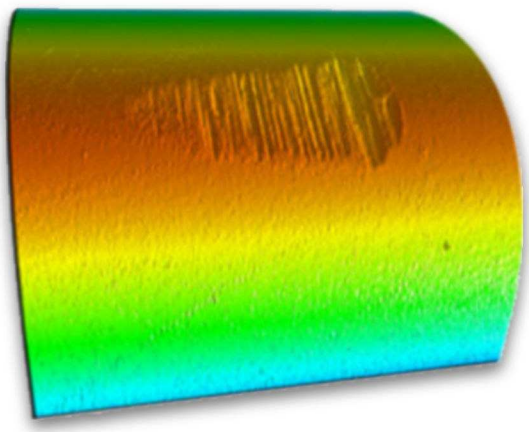
For detailed specifications refer to the following pages

"Point" sensor controllers:

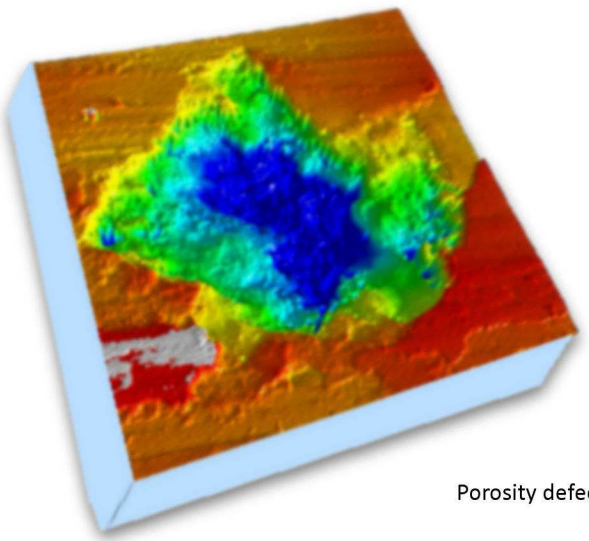
"Point" sensor optical pens:

"Line" sensor controllers:

"Line" sensor optical heads:

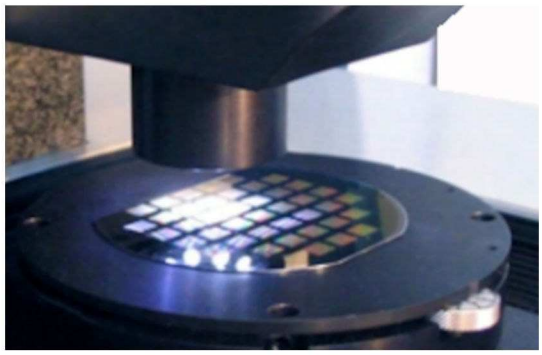


Wearing on metallic tube



Porosity defects

Application types



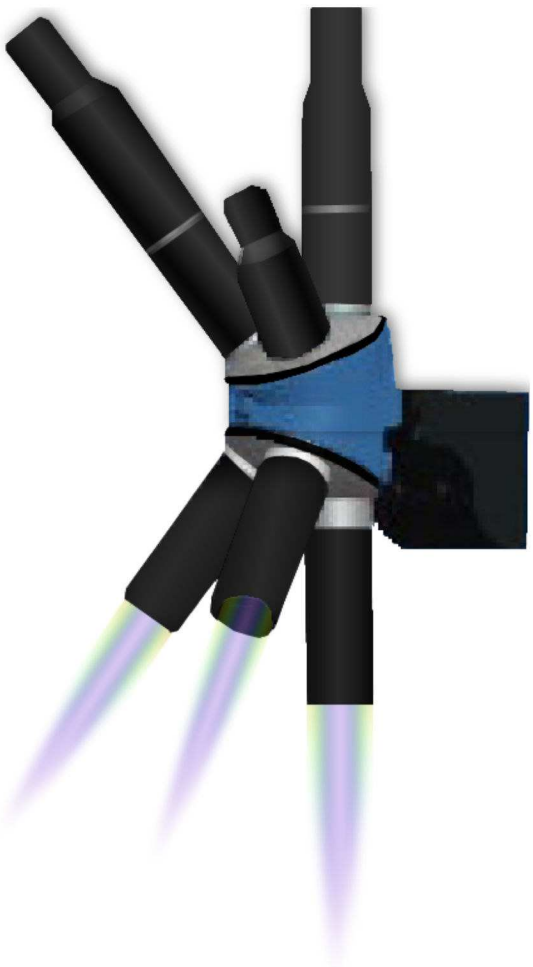
- Shape and texture analysis
- Fine mechanics inspection
- Surface characterization
- 3D altitude and thickness topography / profilometry
- Roughness measurement
- Dimensional metrology

Application fields

- Mechanics (roughness, tribology, 3D metrology, corrosion analysis...)
- Glass industry (float glass on line thickness control, 3D metrology...)
- Microelectronics (roughness, 3D metrology, defects analysis...)
- Optics (roughness, 3D metrology...)
- Horlogy (flatness, roughness, thickness...)
- Nuclear fuel industry (roughness, tribology, 3D metrology, corrosion analysis...)
- Aeronautics (roughness, turbine shape)

Options and accessories

Options:



- Post-processing software: SPIP from Image Technology
- Linear encoders on X & Y axes for real 3D metrology (position accuracy = 1 µm / 100 mm)
- Video Camera
- Simple turret or double turret for changing the optical pens
- Vibration-damping stand
- 1-axis and 2-axes configurations (1)
- X & Y travel up to 300 mm (2)
- Z travel up to 100 mm (2)

(1) For details contact us
(2) Transparent housing not available

Metrology artifacts:

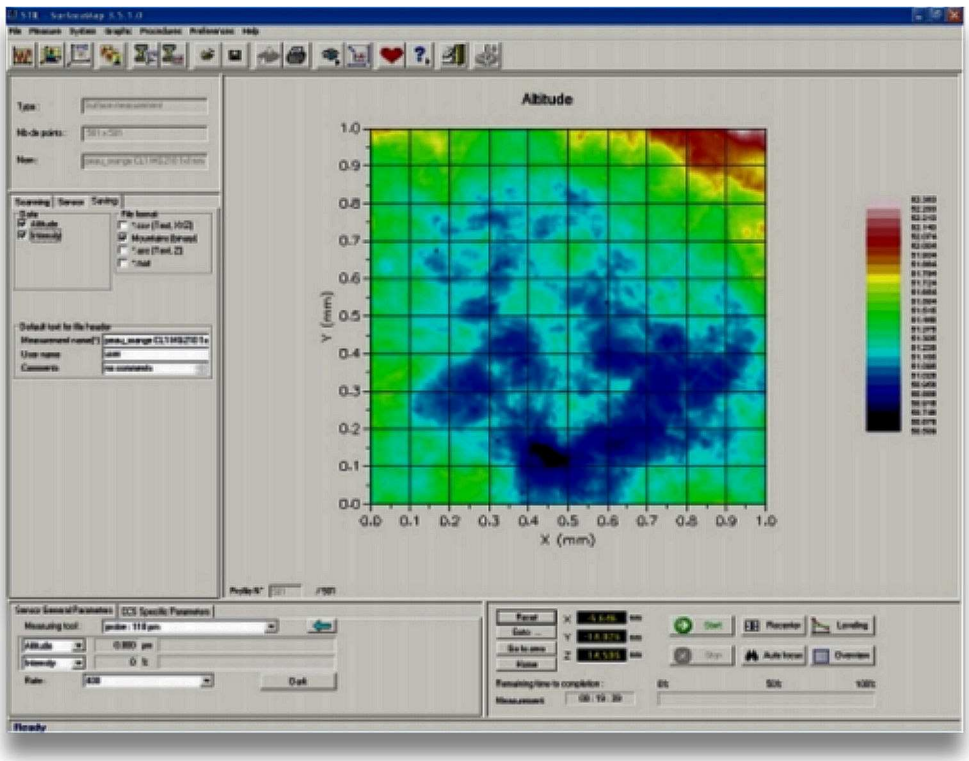
- Calibrated groove (depth = 10 µm)
- Roughness standard (Ra = 0.8 µm)
- Optical flat (diameter = 140 mm)
- Offset reticle (for setting video camera offset)

Software for Micromesure2

Control and acquisition Software Surface Map by STIL SA

Surface Map Control & Acquisition Software	
Main Functions	
Type of acquisition	Profile Scanning (X, Y, Oblique)
	Surface Scanning
	Point series acquisition
	Repetitive Measurements
	Multi acquisition sequence
	Video image (if camera option)
Scanning parameters setting	Dimensions
	Step along each axis
Sensor parameters setting	Altitude Mode
	Thickness Mode
	Optical pen choice
	Averaging
	Double frequency (if available)
Scanning type	Constant speed (with backlash compensation)
	Constant speed 'back & forth)
	Step by step
	Z following
Data saving	Folder selection
	Format selection (binary, csv)
User's Supervision	Measurement Progress
	X, Y, & Z Coordinates
	Sensor Status
Automatic Procedures	Hardware homing
	Leveling
	Autofocus
	Recentering
	Preview


Surface Map
Motion Control & acquisition Software
for Micromesure systems
STIL

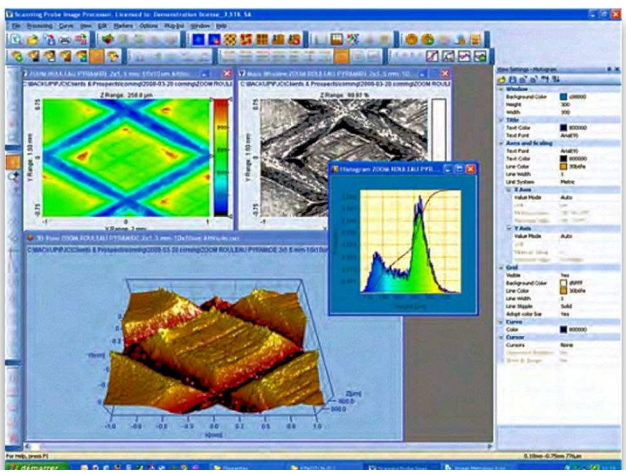

Altitude
Y (mm)
X (mm)

Post Processing Software SPIP by Image Technology

SPIP Post processing Main Functions		4 modules Version	8 modules Version
Basic Module	Plane correction / Flattening	Yes	Yes
	Cross section & Profiling	Yes	Yes
	Altitude Histogram	Yes	Yes
	Fourier Transform	Yes	Yes
	Correlation functions	Yes	Yes
	Image Substration & Addition	Yes	Yes
	Color coding	Yes	Yes
	Zoom	Yes	Yes
	Transformation: Mirrors, rotations	Yes	Yes
	Plug-in interface	Yes	Yes
	Copy, print & save functions	Yes	Yes
Roughness Analysis (ISO 25178 + ANSI B46.1)		Yes	Yes
3D Visualization Studio		Yes	Yes
Filter Module		Yes	Yes
Extended Fourier Analysis			Yes
Grain Analysis			Yes
Batch processing			Yes
ImageMet Explorer			Yes

Scanning Probe Image Processor SPIP™

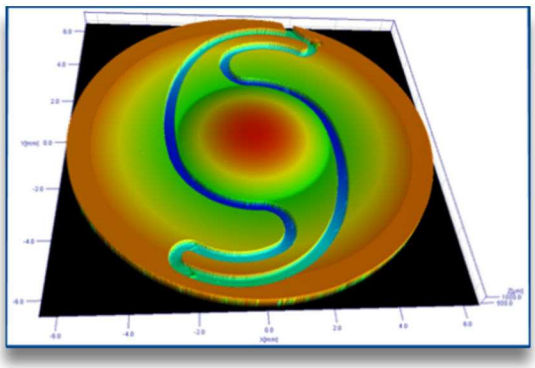
Image Metrology was founded as a world-wide leading supplier of software for nano and microscale image processing. Over the years, the Scanning Probe Image Processor, SPIP™, has become the de-facto standard for image processing at nanoscale.



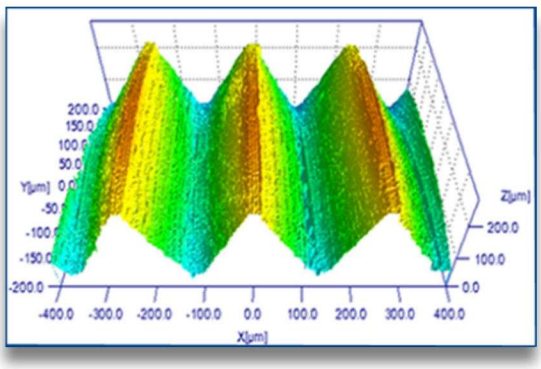
SPIP provides customers with state-of-the-art image processing software for microscopy, including:

- Correction tools for creating the most accurate presentation of the "true" surface,
- Automated analysis techniques ensuring high accuracy, quality and cost efficiency,
- Visualization and reporting tools enabling convincing and impressive communication of results.

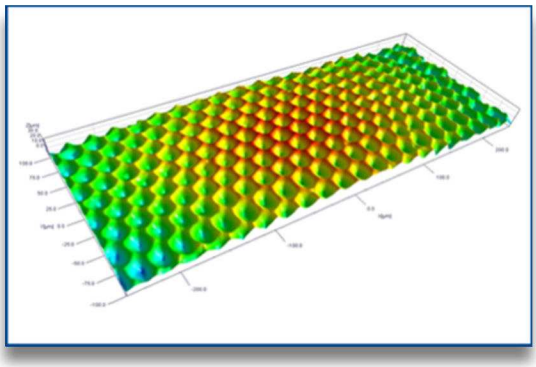
Measuring examples



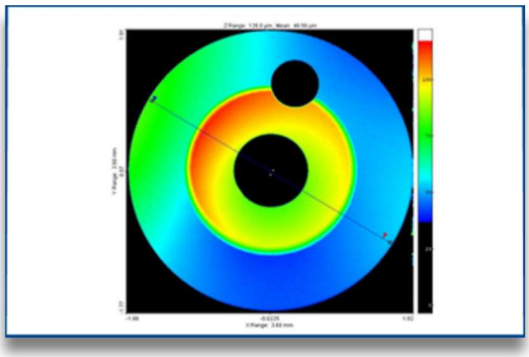
Ophtalmic Implant



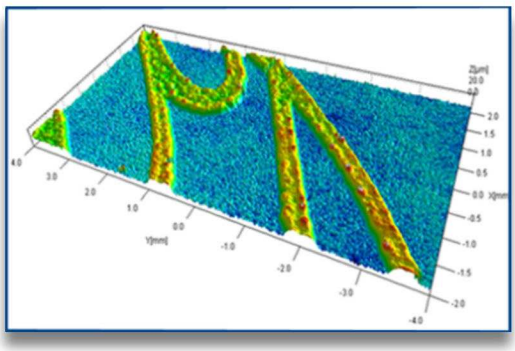
Thread



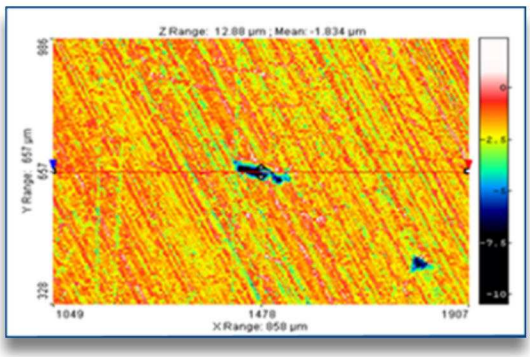
Texture - Wasp' eye



Flatness Watch Industry



Coating Thickness



Roughness

STIL-STEP Comparator

New product 2014

Applications

Measuring thickness, step height, hole depth, liquid level

Sensor

- Chromatic confocal "point" sensor: CCS Optima+ or CCS Prima,
- Large choice of optical pens (chromatic lenses) with different measuring ranges and different spots-sizes to suit all applications,
- Turret for holding 3 optical pens (option)
- Digital outputs (RS232 / RS422 / USB)
- Analog outputs (V-10V)
- Trigger modes (hardware or software)

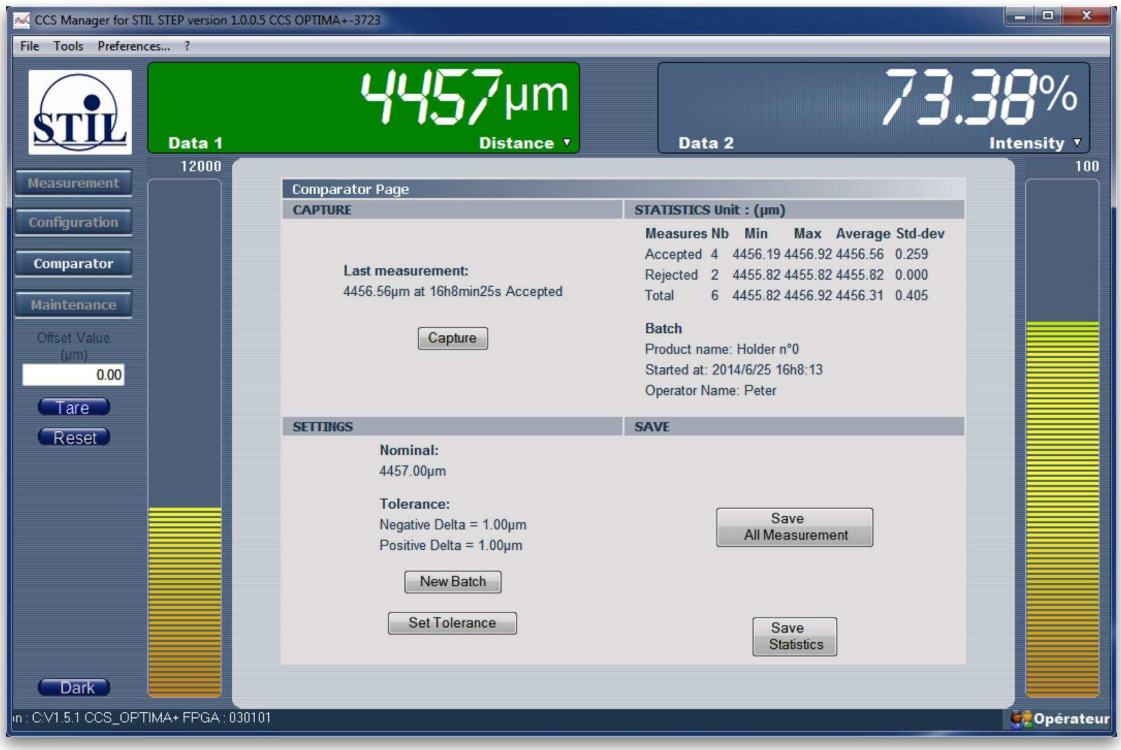
Advantages

- No risk of damaging the sample
- Static sensor, no direct contact with operator hand for better thermal stability
- High measuring rate (up to 10 Khz)
- Any material: metal, glass, plastics, ceramics, rubber....
- Any sample type: glossy or diffusive, rough or polished, soft or sticky, deformable, transparent, liquid...
- Compact and light weight

Software

- User friendly "STIL-Step Manager" program
- Tolerance control (3 tolerance levels)
- Batch statistics

STIL-STEP Manager: tolerance control



STIL-STEP Manager: batch statistics