TRIMOS

ISSOKU

TR SCAN

TR SCAN

INTRODUCTION

The TR Scan offers an innovative alternative to classical surface measurement. Its modular concept, allowing adaptation to each application, and its simple use, make it very efficient in the workshop. Because of its simplicity of use, the TR Scan can be operated by workshop personnel to get reliable results secured with minimum training. All measured surfaces can be treated according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the upcoming ISO 25178 3D standard.

The TR Scan is completely designed and manufactured in Switzerland according to the highest quality standards. Robustness, reliability and longevity are part of our tradition. Trimos instruments have been used in workshops and labs for over 30 years.

The interchangeability of the measuring heads gives the possibility to select the most appropriate technology for each application. This flexibility allows the characterization of surfaces in numerous application fields, such as mechanical industry (all types of machined surfaces), car and aerospace industries, photovoltaics, as well as plastics, papers, imprints, fibrous materials, wood, abrasives, paint, cosmetics, etc.

- MEASURING RESULTS FULLY COMPARABLE TO CLASSICAL SYSTEMS
- COMPLIES TO ALL INTERNATIONAL STANDARDS
- INTUITIVE, EASY TO USE INTERFACE
- ROBUST INDUSTRIAL SYSTEM FOR THE WORKSHOP
- POSSIBLE AUTOMATED MEASUREMENTS
- MODULAR AND COMPACT CONCEPT
- MEASUREMENT AND ANALYSIS WITHIN SECONDS

DESCRIPTION

AUTOMATED Z-AXIS
Motorized axis allow for precise and automated measurements. The working distance is automatically worked out by the system.

INTERCHANGEABLE MEASURING HEADS
The unique system of interchangeable measuring heads confers a high degree of adaptability to every application. Changing a head is quickly done and automatically recognized by the system. Several technologies are available for complete application coverage.

TRIMOS NANOWARE MEASURE
Software for the management of all measurement parameters

TRIMOS NANOWARE ANALYSIS
Software for the analysis of measured surfaces

Motorized table (XY)

TR SCAN

DISPLAY / SOFTWARE

TRIMOS NANOWARE MEASURE
This exclusive software allows the handling of the instrument (positioning and configuration of all measurements).

Positioning in X,Y,Z is performed either automatically by predefined parameters or via the use of an intuitive joystick aided by a integrated positioning laser and a camera (optional).

Once positioned, measurements are taken automatically with one click or via the use of a manual size parameter in a few seconds.

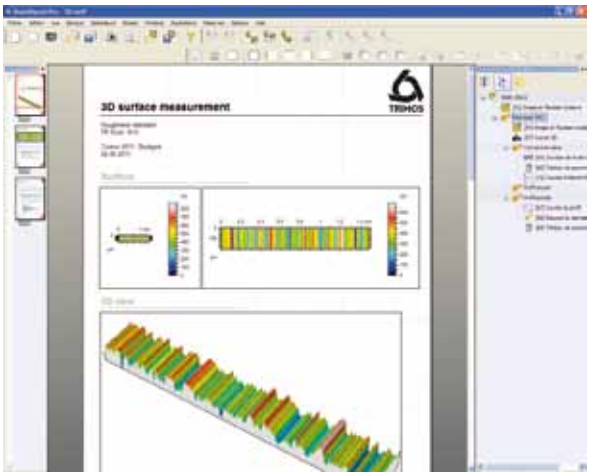
- INTUITIVE POSITIONING
- INSTANT MEASUREMENT
- PROGRAMMABLE MEASUREMENTS WITH PICTURE

TRIMOS NANOWARE ANALYSIS
This software allows the analysis of all measured surfaces according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the 3D standard ISO 25178.

Analysis can be performed automatically by the use of a template, or the user can have direct access to the raw data. The incorporated analysis software is powered by Mountains®, the most powerful and recognized 2D/3D surface analysis software available.

Reports are automatically generated during analysis. Any report can be used as a template later.

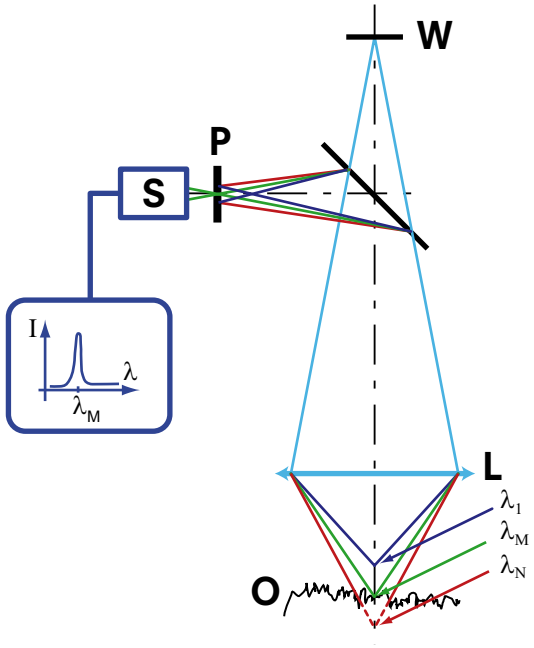
- POWERFUL ANALYSIS
- PROFESSIONAL REPORTING
- SUITABLE MODULE FOR EACH APPLICATION NEED
- COMPLIES TO ALL INTERNATIONAL STANDARDS



THE CCM TECHNOLOGY

Chromatic Confocal Microscopy (CCM) has been acknowledged worldwide as an accurate and reliable technique for non-contact surface measurement. A chromatic lens L generates the image of a point white-light source W as a continuum of monochromatic images located on the optical axis ("Chromatic coding"). A sample O is located inside the color-coded segment and its surface scatters the incident light beam. The backscattered light passes through the chromatic lens L in the opposite direction, and arrives at a pinhole P which filters out all wavelengths except a single wavelength, λM. The collected light is analysed by a spectrometer S. The sample position is directly related to the detected wavelength.

- High resolution
- Works on all types of sample materials
- Wide choice of measuring ranges
- Steep slope compatibility
- Coaxial (no shadowing)
- Recognised method by ISO 25178



CCM P1 MEASURING HEAD

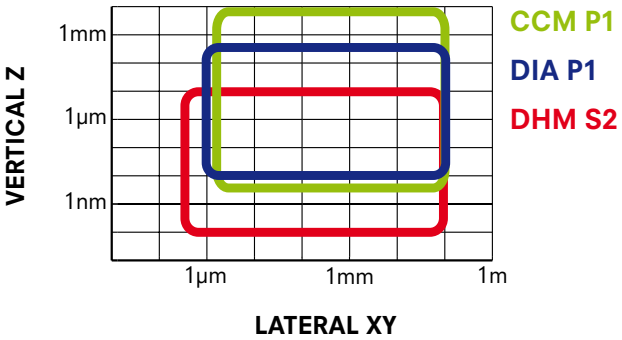
CCM-P1
(support & spectrometer)

TA-MI-701 ÷ 713
Optical pen

COMPLEMENTARY TECHNOLOGIES

There is no universal technology for surface measurement. The modularity of the TR Scan allows the use of the best adapted head for each application.

The diagram here below shows the application field of the TR Scan and of its various measuring heads according to the material structure.



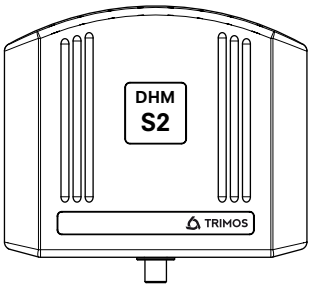
TR SCAN

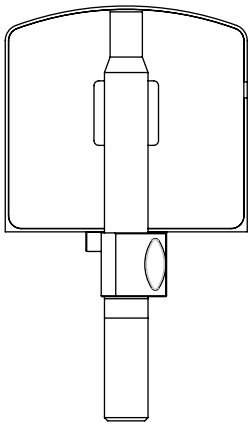
MEASURING HEADS

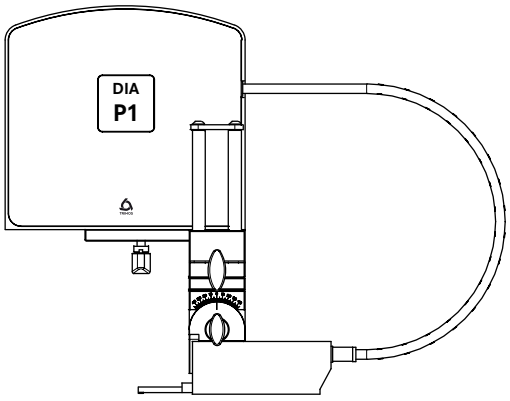
DHM S1 & S2
DHM Technology:
- Smooth, grinded and polished surfaces
- Steel, aluminium, titanium, silicon, gold, ceramics, glass
- High precision and speed, 2D/3D

CCM P1
Chromatic Confocal Technology:
- Machined and rough surfaces, micro-structures
- Metals, plastics, abrasives, papers, textiles, cosmetics
- Large vertical range, all materials, 2D/3D

DIA P1
Diamond Stylus Tip Technology:
- Roughness measurement with contact
- Classical roughness measurements (2D)
- Internal measurements







TECHNICAL SPECIFICATIONS

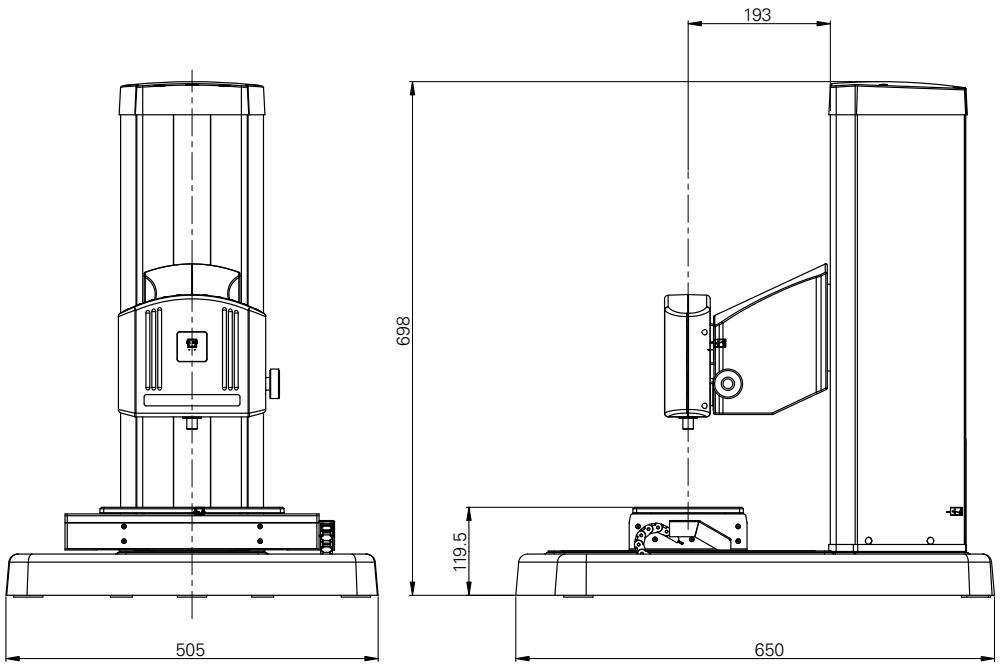
TR Scan		101	201	301
Horizontal measuring range X	mm	-	100	100
Horizontal measuring range Y	mm	-	-	100
Vertical measuring range Z	mm	240		
Measuring system resolution XYZ	µm	0.1		
Positioning accuracy XYZ	µm	1		
Rectitude of the guideways XY	µm	1.5		
Max weight of the part	kg	20		

Measuring heads		DHM S1	DHM S2	CCM P1	DIA P1
Vertical resolution (Z)	nm	1	1	8 ÷ 22 [2)]	10
Lateral resolution (XY)	µm	0.6	0.6	0.9 ÷ 3.5 [2)]	1
Typical measuring range Ra [1)]	µm	0.4	1.6	>200 [2)]	20
Vertical measuring range [1)]	µm	3	7	130 ÷ 400 [2)]	350
Max. permissible errors Ra	%	1%	1%	1% ÷ 5% [2)]	5%
Repeatability (Ra, 1σ)	nm	< 0.1	< 0.1	<5 ÷ 20 [2)]	9
Sample reflectivity	%	< 1% ÷ 100%	< 1% ÷ 100%	1% ÷ 100%	-
Field of view	mm	0.25 x 0.25	0.25 X 0.25	-	-

[1)] Values may differ depending on the surface texture

[2)] Objective dependent

DIAGRAM



STANDARD INSTRUMENT

The TR Scan instruments are supplied as follows:
Instrument according to specification (without measuring head)
1 measuring head (DHM S1, DHM S2, CCM P1+TA-MI-701/TA-MI-708)
PC with 1 TFT screen
Nanoware Measure and Nanoware Analysis software (according to selected model)
User's manual (750 50 0028 03)

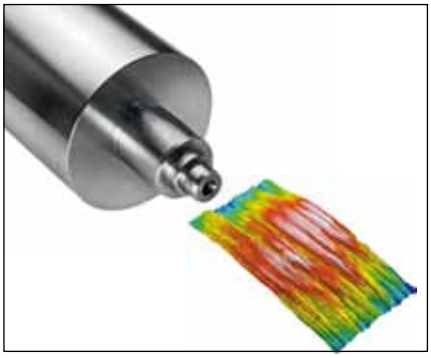
CODE NUMBER

TR Scan	Purpose	Meas. head	Axes	Software
TRS201CCM 700 405 20 11	Non-contact profiles measurements 2D	CCM P1	- 1 vertical axis Z - 1 horizontal axis X	Nanoware LT (2D analysis)
TRS201DHM 700 405 20 21	Extended profiles measurements 3D, metallic parts	DHM S2	- 1 vertical axis Z - 1 horizontal axis X	Nanoware STT (2D/3D analysis)
TRS301DHM 700 405 30 11	3D measurements, metallic parts	DHM S2	- 1 vertical axis Z - 2 horizontal axes XY	Nanoware STT (2D/3D analysis)

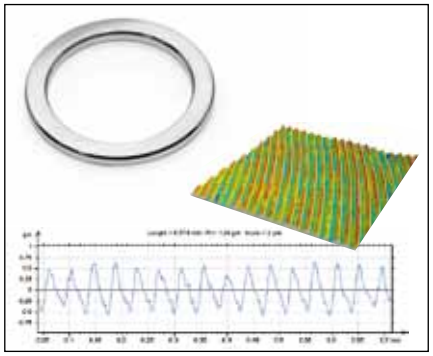
The TR Scan can also be specifically equipped according to the needs for each application (head(s) and measuring table, software). An exhaustive list of equipments can be found in the accessories section.

TR SCAN

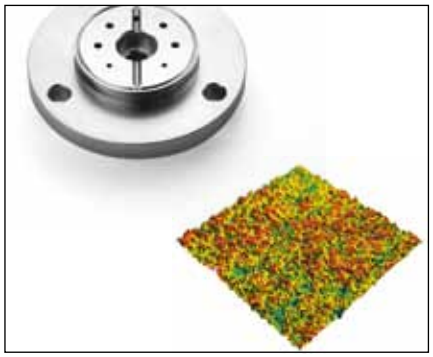
APPLICATIONS



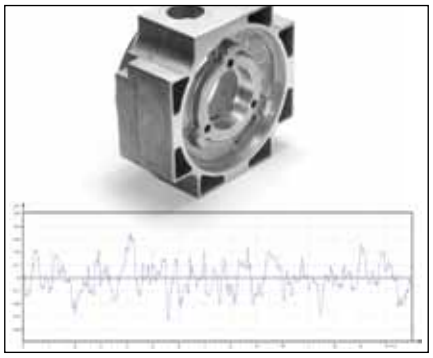
Surface spinning measurement on a steel printing roll (DHM S2)



Verification of an aluminium ring joint gasket for the aircraft industry (DHM S2)



Texture analysis of a chemically polished titanium surface (DHM S2)



Classical 2D internal roughness measurement (DIA P1)

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Instruments for Surface Texture Measurement

Swiss Measuring Instruments

1.

A REVOLUTIONARY CONCEPT

The need for miniaturization and increased machining accuracy has accelerated the evolution of materials technology from the micro to the nano scale. More and more, traditional scanning, 2D and contact metrological techniques do not have the capacity to properly characterize these surfaces. A new method of measurement is needed that has the required resolution and speed along with being non-destructive and truly three dimensional. The Trimos® TR Scan with DHM® technology is the solution.

Interchangeable Measuring Heads

The unique system of interchangeable measuring heads confers a high degree of adaptability to every application. Changing a head is quick and automatically recognized by the system. Several technologies are available for complete application coverage.

A. Automated Z-Axis and Modular Measuring Table

Motorized X, Y, Z axes allow for precise and automated measurements. It includes the ability to image large areas by the use of stitching and the convenience of automatic working distance detection. The modularity of the X or XY sample stage offers a high degree of customization based on application.

B. No special skills needed

Trimos Nanoware allows for measurements to be taken automatically, using predefined parameters, or manually with only the input of the measurement size. Reports can be generated with one touch through the use of predefined parameters and analysis templates, eliminating the need for specialized training and measurement errors.

Highly Flexible System

The Trimos TR Scan is a flexible and universal surface texture measurement system focusing on Digital Holographic Imaging Technology. No other tool can compare to its combined speed, resolution, ease of use and flexibility. Its automated and modular design allow for a high degree of customization based on application's needs and increased functionality with integrated stitching and profilometer compatibility.

Due to its simplicity, the TR Scan can be operated by workshop personnel and reliable results secured with minimum training.

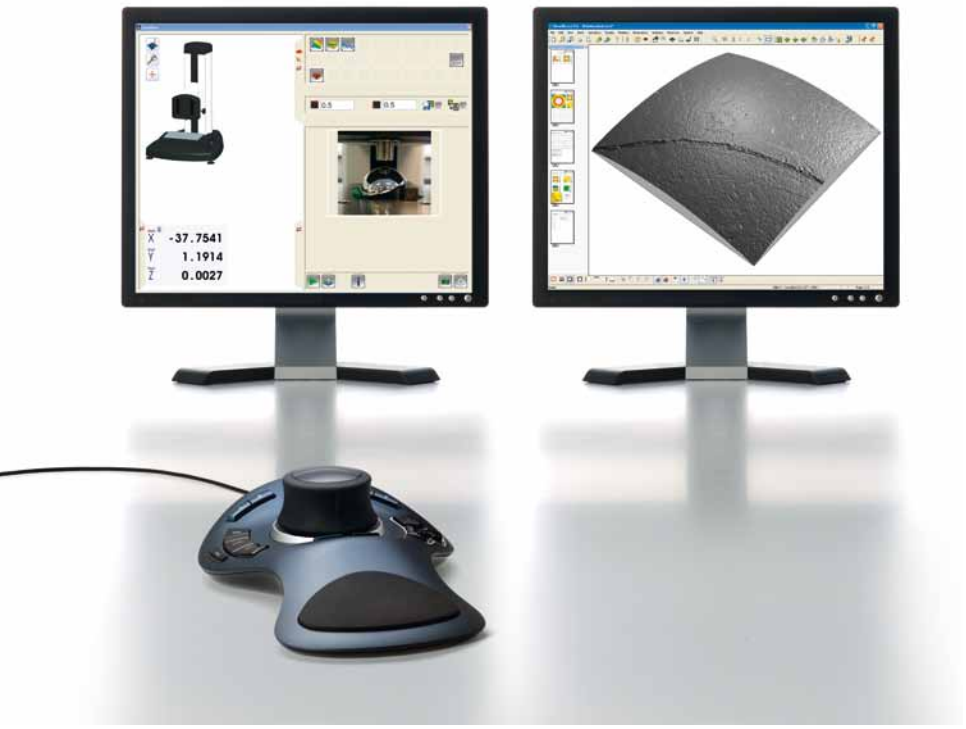
All measured surfaces can be treated according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the upcoming ISO 25178 3D standard.

The TR Scan is completely designed and manufactured in Switzerland according to the highest quality standards. Robustness reliability and longevity is our tradition. Trimos instruments have been used in workshops and labs for over 30 years.

Swiss Measuring Instruments

2.

QUICK AND EFFICIENT MEASUREMENTS

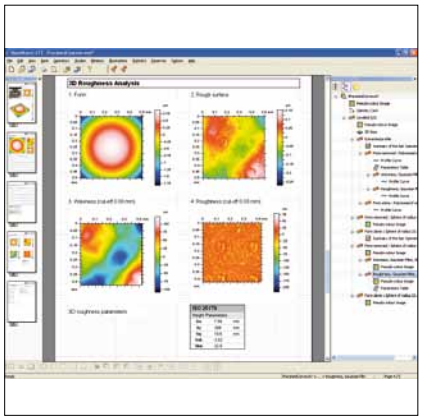


Intuitive Positioning

Positioning in X,Y,Z is performed either automatically by predefined parameters or via the use of an intuitive joystick aided by a integrated positioning laser and a camera (optional).

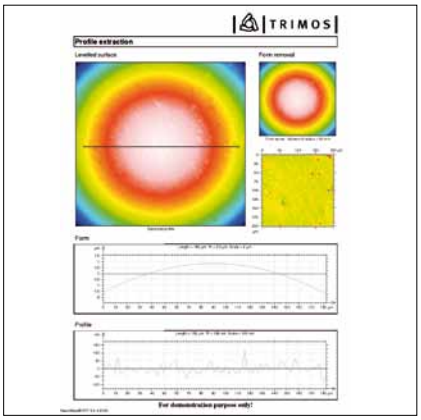
Instant Measurement

Once positioned, measurements are taken automatically with one click or via the use of a manual size parameter in a few seconds.



Powerful Analysis

Analysis can be performed automatically by the use of a template or the user can have direct access to the raw data. The incorporated analysis software is powered by Mountains®, the most powerful and recognized 2D/3D surface analysis software available.

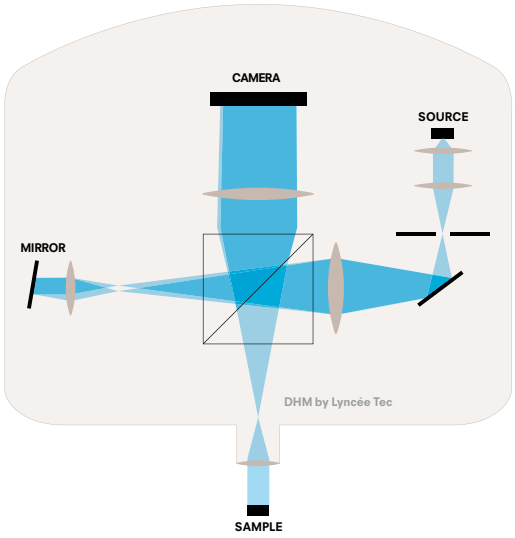


Professional Reporting

Reports are automatically generated during analysis. Any report can be used as a template later.

3.

THE DHM TECHNOLOGY



DHM® (Digital Holographic Microscopy) is a non-contact surface measurement technology originally developed for the biotech and medical industry. DHM generates a high-resolution 3D digital image of a sample using the principle of holography. A hologram generated by combining a coherent reference wave with the wave received from a sample is recorded by a CCD camera and transmitted to a computer for numerical reconstruction.

A single hologram is acquired in a few microseconds, making the whole system insensitive to vibrations. Software procedures allows computation of the complete wavefront emanating from an object and provides:

- Intensity images providing the same contrast as with classical optical microscopy
- Phase images providing quantitative data, defined at a sub-wavelength scale, used for accurate and stable 3D measurements.

The phase image reveals the surface topography with a sub-nanometric vertical resolution. This digital approach to holography allows the application of computer-based procedures at a level never reached in optical microscopy so far. In particular the DHM principle features software compensation of optical aberrations, digital image focusing and numerical compensation for sample tilt and environmental disturbances, making DHM instruments robust and easy to use for routine inspections at the nanometer and micrometer scale.DHM is used exclusively by Trimos for surface texture measurement. This technology has numerous advantages compared to other contact and non-contact measurement technologies: in particular extremely fast measurements, high resolution, simple working process no moving parts and no requirement for special environmental conditions.

- Acquisition in a few microseconds
- Vibration incensitive
- High image quality
- Subnanometric resolution
- No moving parts
- No requirement for special environmental conditions

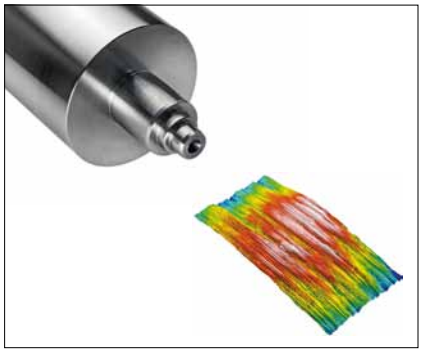
DHM is a recognized surface texture measurement method according to the standard ISO 25178-6.

4.

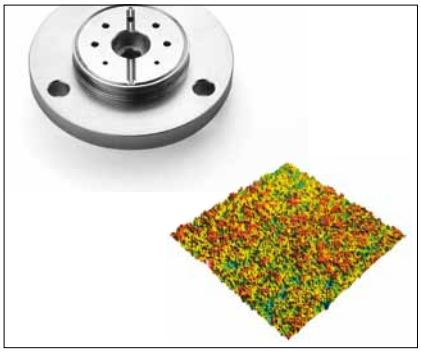
APPLICATIONS VERSATILITY

The TR Scan provides rapid, reliable and accurate surface texture characterization for a large application range and materials such as steel, aluminum, brass, titanium, silicon, gold, ceramics, glass etc. The system can be tailored to fit the requirements of many industries :

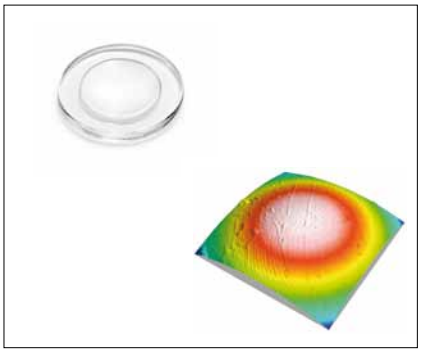
- Automotive
- Aircraft
- Machine Tool
- Watch
- Printing
- Railway
- Bearing
- Medical
- Materials
- Optics
- Forensic
- Photovoltaic
- MEMS
- Semiconductor
- Electronic



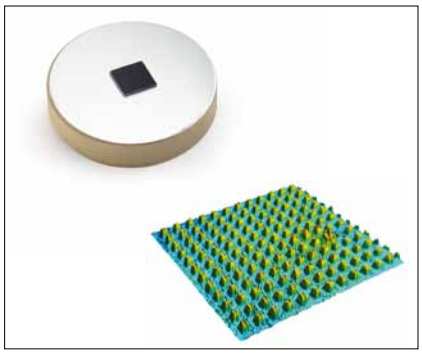
Steel Surface spinning measurement on a printing roll (DHM S2)



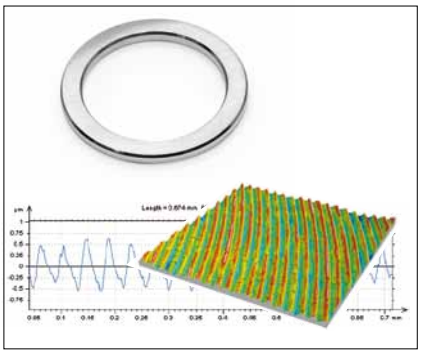
Titanium Texture analysis of a chemically polished surface (DHM S2)



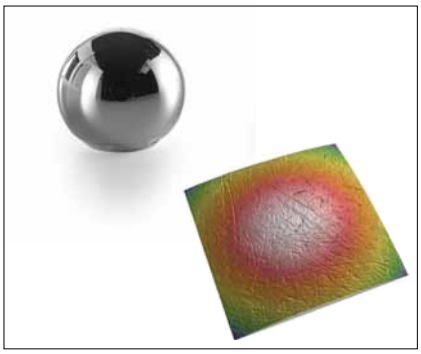
Glass Roughness inspection of micro lenses (DHM S2)



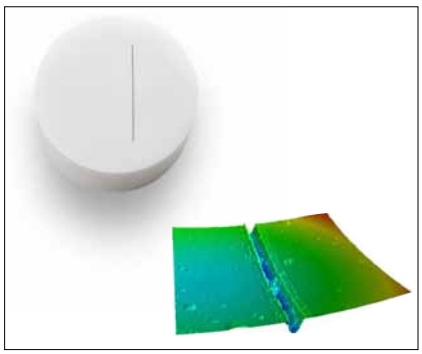
Silicon Analysis of a silicon microstructure (DHM S2)



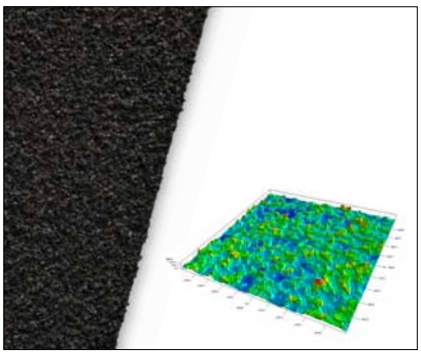
Aluminium Verification of a ring type joint gasket for the aircraft industry (DHM S2)



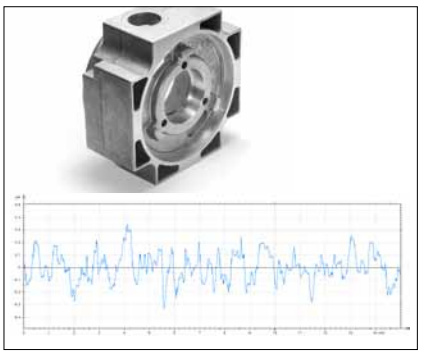
Cobalt-chromium Quality control of a polished prosthesis surface (DHM-S2)



Ceramics Depth measurement of a laser engraving (CCM-P1)



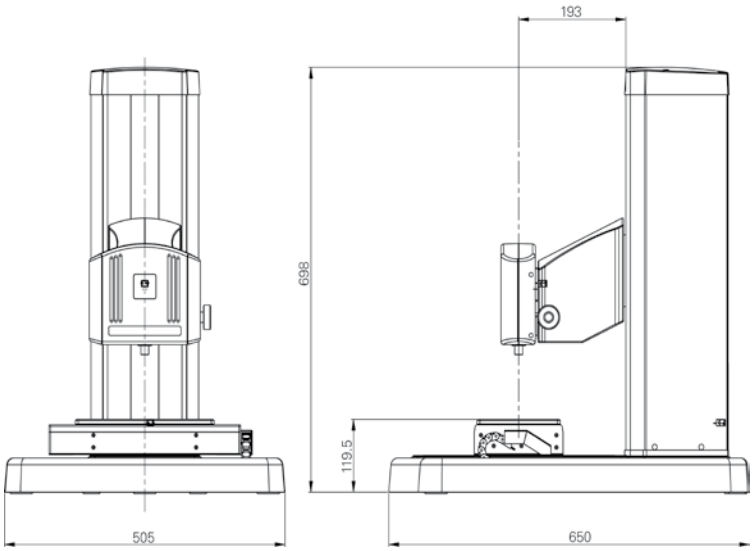
Abrasive Surface texture analysis of an industrial abrasive material (CCM P1)

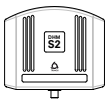


Stylus tip Classical 2D internal roughness measurement (DIA P1)

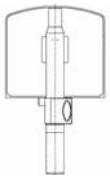
5.

TECHNICAL SPECIFICATIONS

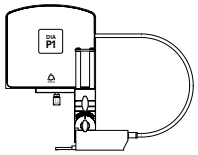




DHM S2
DHM Technology
- Smooth surfaces, grinded or polished
- High precision and measurement speed



CCM P1
Chromatic Confocal Technology
- Rough surfaces, microforms
- Light-diffusing materials, plastics, biomaterials



DIA P1
Diamond Stylus Tip Technology
- Classical roughness measurement
- Internal measurements

TR-SCAN

● MEASURING HEADS

		DHM S2	CCM P1	DIA P1
Technology		DHM	Chromatic Confocal	Stylus tip
Vertical resolution (Z)	nm	0.1	5 .. 35 [2]	10
Lateral resolution (XY)	µm	0.6	1.1 .. 4.0 [2]	1
Typical max. measuring range Ra[1]	µm	1	20 .. 200 [2]	20
Typical max. measuring range Rz[1]	µm	5	300 .. 1100 [2]	200
Max. permissible errors Ra	%	1%	1% .. 5% [2]	5%
Repeatability (Ra, 1σ)	nm	< 0.1	<5 .. 25 [2]	9
Sample reflectivity	%	< 1% - 100%	1% - 100%	-
Field of view	mm	0.25 x 0.25	-	-

1) Values may differ depending on the surface texture
2) Objective dependent

● INSTRUMENTS

TR Scan		100	200	300
Horizontal measuring range X	mm	-	100	100
Horizontal measuring range Y	mm	-	-	100
Vertical measring range Z	mm		240	
Meas. System resolution XYZ	µm		0.1	
Positioning accuracy XYZ	µm		1	
Max weight of the part	kg		20	

Instruments for Surface Measurement

TR PROFILE
Compact instrument for the
measurement of roughness profiles (2D)
Stylus with and without skid

TR PROFILE DH-7
Portable workshop instrument for the
measurement of roughness profiles (2D)
Stylus with and without skid

TR SCAN
CNC instrument for the measurement of
roughness profiles (2D) and surfaces (3D)
with and without contact

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750 02 0017 03 - version 1.1 / 2010-04 – Changes without prior notice

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TR SCAN PREMIUM

TR SCAN PREMIUM

INTRODUCTION

TR Scan Premium allows the measuring of the most sensitive surfaces with astounding speed and precision. It has become unavoidable in many cases for hi-tech applications, when the traditional measuring by contact has reached its limits. Medical appliances, prosthesis, wafers, MEMS, semiconductors, metallic layers deposits, polymer films, optical components, research and development, quality control, are the areas of expertise of TR Scan Premium.

The heart of the system, Trimos DHM® (Digital Holographic Microscopy), constitutes a derivation of a technology used in the biomedical engineering field. The system itself is based on the physical characteristics of the hologram for the topography generation of the analysed surface. This technology for checking industrial surfaces is exclusively used by Trimos. Its most distinctive feature to competitive products is the possibility of measuring extreme reflecting, mirror-polished or very small surfaces.

The exceptional high measuring speed coupled with an accuracy range of a nanometre form the main advantages of the TR Scan. Only some microseconds are needed for the acquisition of a three dimensional image (x, y, z) with a million points. This exceptional acquisition speed allows ignoring all problems traceable to vibrations, the traditional enemy of the majority of optical measuring systems. The mentioned advantages prove an enhanced productivity and a limited investment.

- EXCEPTIONAL FAST MEASURING SPEED
- INSENSITIVE TO VIBRATION
- VERTICAL RESOLUTION IN NANOMETER RANGE
- EXTREME SIMPLE POSITIONING OF THE PART THANKS TO LASER ALIGNMENT (DHM)
- NON-CONTACT MEASURING, NON DESTRUCTIVE
- SOFTWARE AT THE TOP OF THE TECHNOLOGY
- PRE-PROGRAMMED MEASURING PROCESSES
- COMPATIBLE WITH 2D AND 3D STANDARDS

DESCRIPTION

AUTOMATED Z-AXIS
The motorization of the axes allows entirely automatic measurements. The working distance is automatically given by the system. The measurement of surfaces wider than the field of vision of the lens is made possible thanks to a particularly efficient "stitching" function.

INTERCHANGEABLE MEASURING HEADS
The unique system of interchangeable measuring heads confers a high degree of adaptability to every application. Changing a head is quickly done and automatically recognized by the system. Several technologies are available for complete application coverage.

TRIMOS NANOWARE MEASURE
Software for the management of all measurement parameters

TRIMOS NANOWARE ANALYSIS
Software for the analysis of measured surfaces

Motorized table (XY)

TR SCAN PREMIUM

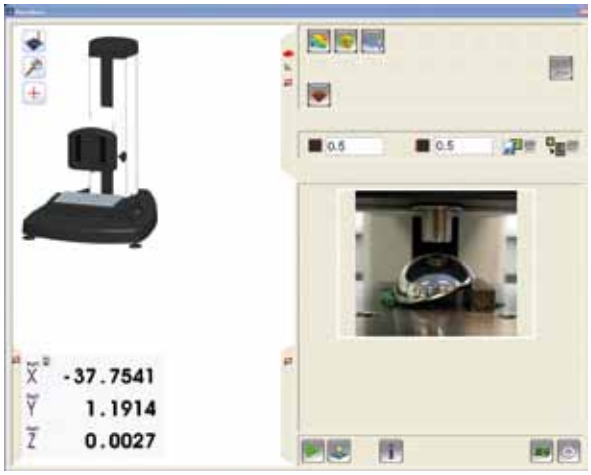
DISPLAY / SOFTWARE

TRIMOS NANOWARE MEASURE
This exclusive software allows the handling of the instrument (positioning and configuration of all measurements).

Positioning in X,Y,Z is performed either automatically by predefined parameters or via the use of an intuitive joystick aided by a integrated positioning laser and a camera (optional).

Once positioned, measurements are taken automatically with one click or via the use of a manual size parameter in a few seconds.

- INTUITIVE POSITIONING
- INSTANT MEASUREMENT
- PROGRAMMABLE MEASUREMENTS WITH PICTURE

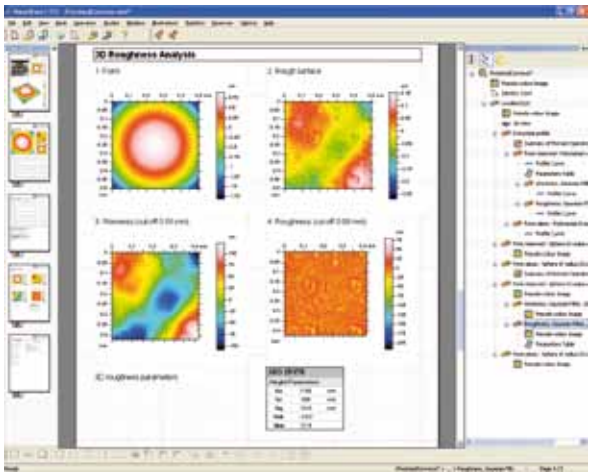


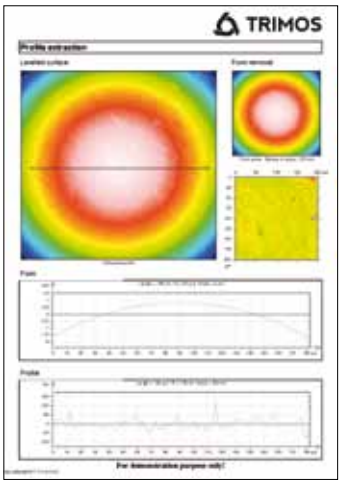
TRIMOS NANOWARE ANALYSIS
This software allows the analysis of all measured surfaces according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the 3D standard ISO 25178.

Analysis can be performed automatically by the use of a template or the user can have direct access to the raw data. The incorporated analysis software is powered by Mountains®, the most powerful and recognized 2D/3D surface analysis software available.

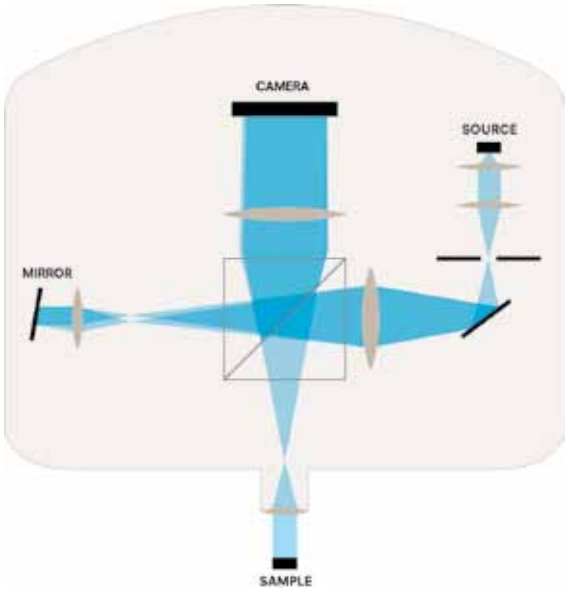
Reports are automatically generated during analysis. Any report can be used as a template later.

- POWERFUL ANALYSIS
- PROFESSIONAL REPORTING
- SUITABLE MODULE FOR EACH APPLICATION NEED
- COMPLIES TO ALL INTERNATIONAL STANDARDS





THE DHM TECHNOLOGY



DHM® (Digital Holographic Microscopy) is a non-contact surface measurement technology originally developed for the biotech and medical industry. DHM generates a high-resolution 3D digital image of a sample using the principle of holography. A hologram generated by combining a coherent reference wave with the wave received from a sample is recorded by a CCD camera and transmitted to a computer for numerical reconstruction.

A single hologram is acquired in a few microseconds, making the whole system insensitive to vibrations. Software procedures allows computation of the complete wavefront emanating from an object and provides:

- Intensity images providing the same contrast as with classical optical microscopy
- Phase images providing quanti tative data, defined at a sub-wavelength scale, used for accurate and stable 3D measurements.

The phase image reveals the surface topography with a sub-nanometric vertical resolution. This digital approach to holography allows the application of computer-based procedures at a level never reached in optical microscopy so far. In particular the DHM principle features software compensation of optical aberrations, digital image focusing and numerical compensation for sample tilt and environmental disturbances, making DHM instruments robust and easy to use for routine inspections at the nanometer and micrometer scale.DHM is used exclusively by Trimos for surface texture measurement. This technology has numerous advantages compared to other contact and non-contact measurement technologies: in particular extremely fast measurements, high resolution, simple working process no moving parts and no requirement for special environmental conditions.

- Acquisition in a few microseconds
- Vibration incensitive
- High image quality
- Subnanometric resolution
- No moving parts
- No requirement for special environmental conditions

DHM is a recognized surface texture measurement method according to the standard ISO 25178-6

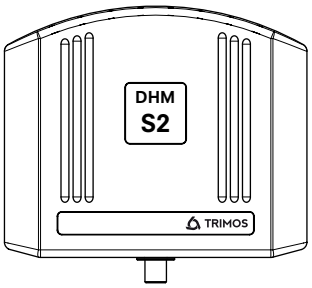
TR SCAN PREMIUM

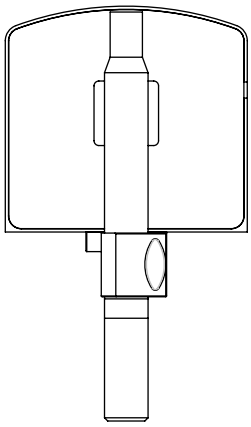
MEASURING HEADS

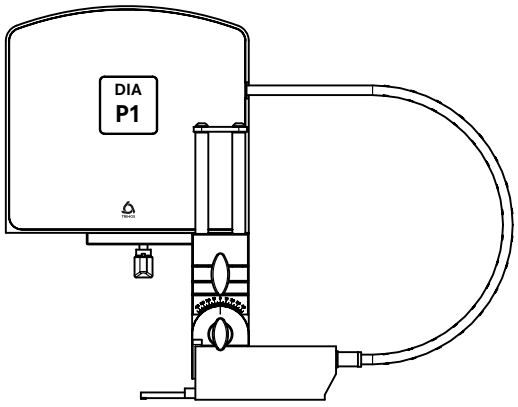
DHM S1 & S2
DHM Technology:
- Smooth, grinded and polished surfaces
- Steel, aluminum, titanium, silicon, gold, ceramics, glass
- High precision and speed, 2D/3D

CCM P1
Chromatic Confocal Technology:
- Machined and rough surfaces, micro-structures
- Metals, plastics, abrasives, papers, textiles, cosmetics
- Large vertical range, all materials, 2D/3D

DIA P1
Diamond Stylus Tip Technology:
- Roughness measurement with contact
- Classical roughness measurements (2D)
- Internal measurements







TECHNICAL SPECIFICATIONS

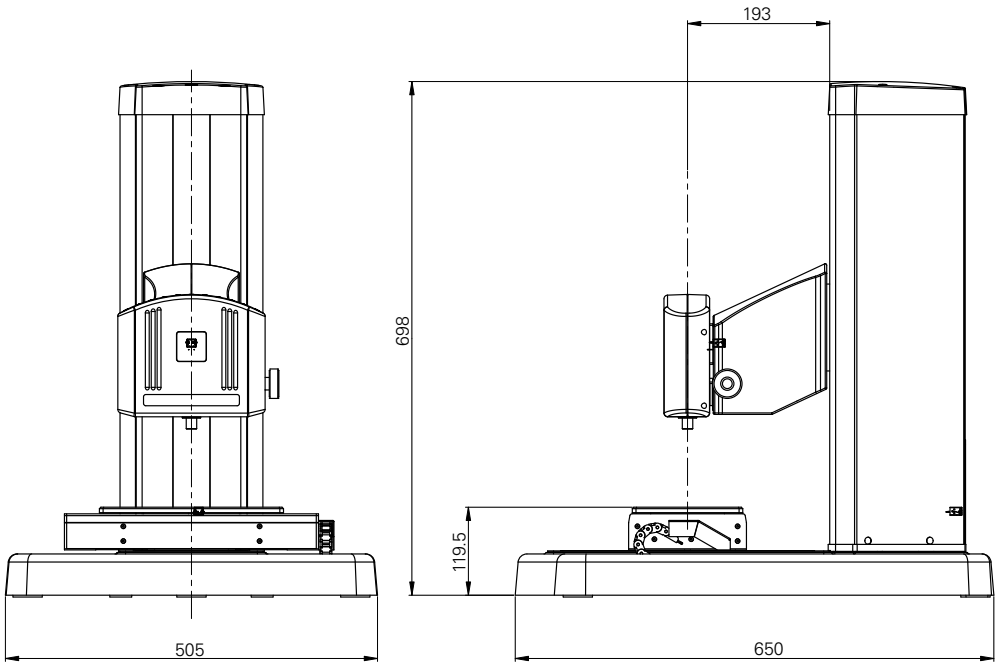
TR Scan Premium		101	301
Horizontal measuring range X	mm	-	100
Horizontal measuring range Y	mm	-	100
Vertical measuring range Z	mm	240	
Measuring system resolution XYZ	µm	0.1	
Positioning accuracy XYZ	µm	1	
Rectitude of the guideways XY	µm	0.3	
Max weight of the part	kg	20	

Measuring Heads		DHM S1	DHM S2	CCM P1	DIA P1
Vertical resolution (Z)	nm	0.1	0.1	8 ÷ 780 [2)]	10
Lateral resolution (XY)	µm	0.6	0.6	0.9 ÷ 14 [2)]	1
Typical measuring range Ra [1)]	µm	0.4	1.6	0.012 ÷ >200 [2)]	20
Vertical measuring range [1)]	µm	3	7	130 ÷ 24000 [2)]	350
Max. permissible errors Ra	%	1%	1%	1% ÷ 5% [2)]	5%
Repeatability (Ra, 1σ)	nm	< 0.1	< 0.1	<5 ÷ 25 [2)]	9
Sample reflectivity	%	< 1% ÷ 100%	< 1% ÷ 100%	1% ÷ 100%	-
Field of view	mm	0.25 x 0.25	0.25 X 0.25	-	-

[1)] Values may differ depending on the surface texture

[2)] Objective dependent

DIAGRAM



STANDARD INSTRUMENT

The TR Scan Premium instruments are supplied as follows:
Instrument according to specification (without measuring head)
1 measuring head (DHM S1, DHM S2, CCM P1+TA-MI-701 ÷ 713)
PC with 1 TFT screen
Nanoware Measure and Nanoware Analysis softwares (according to selected model)
User's manual (750 50 0028 03)

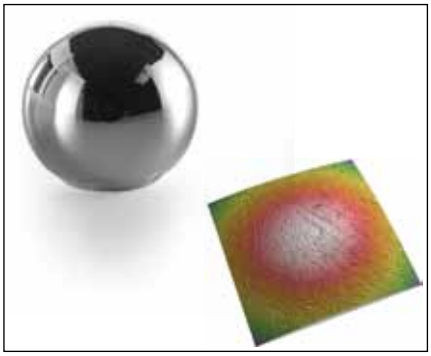
CODE NUMBER

TR Scan Premium	Purpose	Meas. head	Axes	Software
TRSP101DHM 700 405 10 11	3D Measurement of tiny parts	DHM S2	- 1 vertical axis Z	Nanoware STT (2D/3D analysis)
TRSP301DHM 700 405 30 21	3D measurement of metallic parts	DHM S2	- 1 vertical axis Z - 2 horizontal axes XY	Nanoware STT (2D/3D analysis)
TRSP301CCM 700 405 30 31	Universal 3D measurements	CCM P1	- 1 vertical axis Z 2 horizontal axes XY	Nanoware STT (2D/3D analysis)

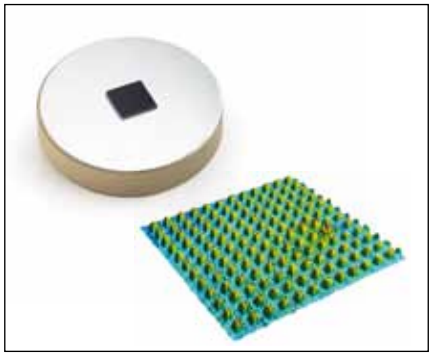
TR Scan Premium can also be specifically equipped according to each application need (head(s) and measuring table, software). An exhaustive list of equipments can be found in the accessories section.

TR SCAN PREMIUM

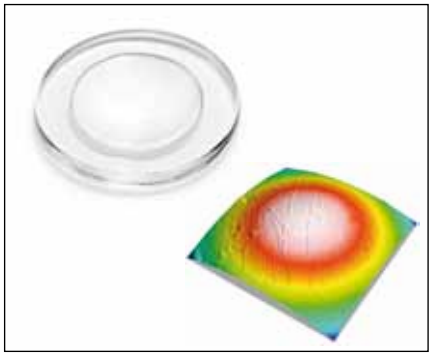
APPLICATIONS



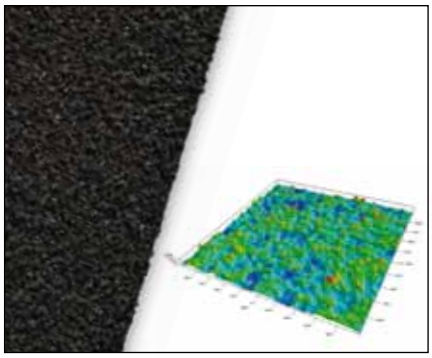
Quality control of a cobalt-chromium polished prosthesis surface (DHM-S2)



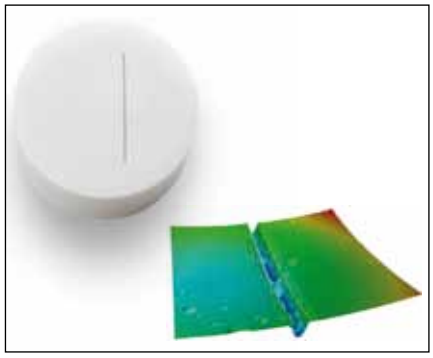
Analysis of a silicon microstructure (DHM S2)



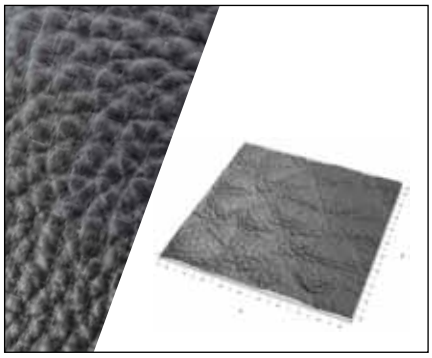
Roughness inspection of micro lenses (DHM S2)



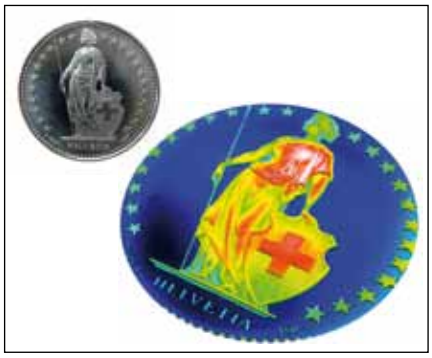
Surface texture analysis of an industrial abrasive material (CCM P1)



Depth measurement of a laser engraving on ceramics (CCM-P1)



Topographic analysis of a leatherette sample (CCM-P1)

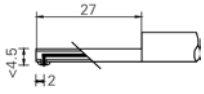


Measurment of macroscopic surface textures (CCM P1)

TRIMOS

ISSOKU

ACCESSORIES



		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-MI-701 279 970000 001	Optical pen, with optical fiber and certificate, measuring range=130 µm, lateral resolution=0.9 µm					●	●
TA-MI-707 279 970001 001	Optical pen, with optical fiber and certificate, measuring range=130 µm, lateral resolution=1.4 µm					●	●
TA-MI-708 279 970001 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=1.2 µm					●	●
TA-MI-702 279 970000 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=1.7 µm					●	●
TA-MI-713 279 970002 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=3.5 µm					●	●
TA-MI-709 279 970001 003	Optical pen, with optical fiber and certificate, measuring range=1400 µm, lateral resolution=2 µm						●
TA-MI-703 279 970000 003	Optical pen, with optical fiber and certificate, measuring range=1400 µm, lateral resolution=4 µm						●
TA-MI-710 279 970001 004	Optical pen, with optical fiber and certificate, measuring range=4000 µm, lateral resolution=4 µm						●
TA-MI-704 279 970000 004	Optical pen, with optical fiber and certificate, measuring range=4000 µm, lateral resolution=7 µm						●
TA-MI-711 279 970001 005	Optical pen, with optical fiber and certificate, measuring range=12000 µm, lateral resolution=7 µm						●
TA-MI-705 279 970000 005	Optical pen, with optical fiber and certificate, measuring range=124000 µm, lateral resolution=12.37 µm						●
TA-MI-712 279 970001 006	Optical pen, with optical fiber and certificate, measuring range=24000 µm, lateral resolution=8 µm						●
TA-MI-706 279 970000 006	Optical pen, with optical fiber and certificate, measuring range=24000 µm, lateral resolution=14 µm						●
TA-MS-601 279 980001 001	Standard tracer, with skid R = 25 mm bore > Ø 8 mm, depth < 27 mm	●	●	●	●		


TR Profile VH


TR Profile VHF

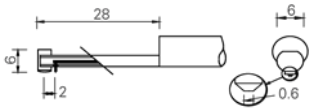
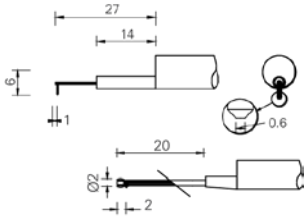
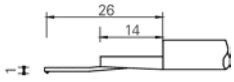
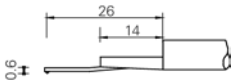
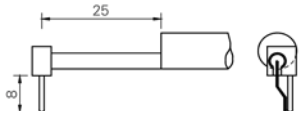
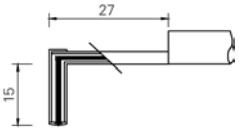
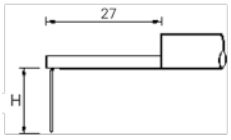
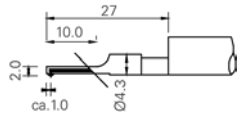
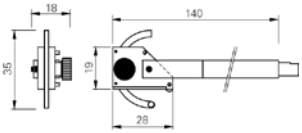
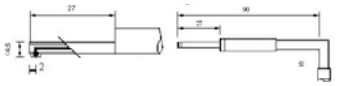
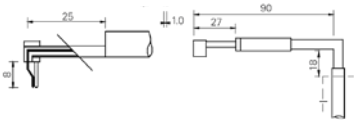

TR Profile DH-8 VH


TR Profile DH-8 VHF

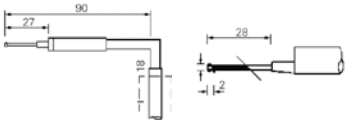

TR Scan

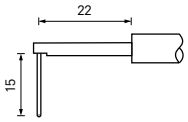

TR Scan Premium

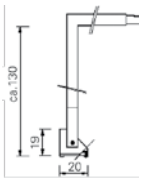
ACCESSORIES

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
	**TA-MS-602** 279 980001 002	Probe for small axes, knives, edges and wires with skid R=25 mm	●	●	●	●		
	**TA-MS-603** 279 980001 003	Probe for small axes, knives, edges and wires without skid		●		●	●	●
	TA-MS-604 279 980002 001	Bore probe with skid R=10 mm bore >Ø2.5 mm, depth < 20 mm	●	●	●	●		
	**TA-MS-605** 279 980002 002	Bore probe, without skid bore >Ø1.5 mm, depth < 12 mm		●		●	●	●
	**TA-MS-606** 279 980002 003	Small bore probe, without skid bore >Ø0.8 mm, depth < 12 mm		●		●	●	●
	**TA-MS-607** 279 980003 001	Concave-convex probe, with skid R=1 mm for concave & convex workpieces with R>5 mm	●	●	●	●		
	**TA-MS-608** 279 980004 001	Probe for slots, with skid R=25 mm slot depth < 15 mm, slot width > 3 mm	●	●	●	●		
	TA-MS-612 279 980004 005	Probe for slots, H=5 mm, without skid slot depth < 5 mm, slot width > 1.0 mm		●		●	●	●
	**TA-MS-611** 279 980004 004	Probe for slots, H=10 mm, without skid slot depth < 10 mm, slot width > 1.0 mm		●		●	●	●
	TA-MS-609 279 980004 002	Probe for slots, H=15 mm, without skid slot depth < 15 mm, slot width > 1.5 mm		●		●	●	●
	TA-MS-610 279 980004 003	Probe for slots, H=20 mm, without skid slot depth < 20 mm, slot width > 1.5 mm		●		●	●	●
	**TA-MS-620** 279 980005 001	Probe for gear tooth profiles, with skid , module >= 2	●	●	●	●		
	**TA-MS-621** 279 980006 001	Probe for circumference and balls, with skid for Ø >= 6 mm	●	●	●	●		
	**TA-MS-622** 279 980007 001	Transverse probe, with skid R=25 mm	●	●	●	●		
	**TA-MS-623** 279 980007 002	Transverse probe for slots, with skid R=1 mm slot depth < 7 mm	●	●	●	●		

ACCESSORIES







		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-MS-624 279 980007 003	Transverse probe for bores, with skid R=25 mm	●	●	●	●		
TA-MS-626 279 980007 004	Transverse probe left side, without skid		●		●	●	●
TA-MS-627 279 980007 005	Transverse probe right side, without skid		●		●		
TA-MS-625 279 980008 001	Depth measuring probe, with skid R=25mm depth < 130 mm	●	●	●	●		
TA-AD-601 279 980901 001	Extension 100 mm for probe	●	●	●	●		
TA-AD-602 279 980901 002	Extension 150 mm for probe	●	●	●	●		
TA-AD-603 279 980901 003	Extension 200 mm for probe	●	●	●	●		
TA-AD-604 279 980901 004	Extension 500 mm for probe	●	●	●	●		
TA-AD-605 279 980901 005	Extension 750 mm for probe	●	●	●	●		
TA-MS-650 279 980010 001	Contour tracer				●		
TA-MS-651 279 980010 002	Contour measurement kit - Simple (for TR Profile DH-8/VHF), Contour tracer (TA-MS-650) with standard (TA-MG-651), DIASOFT Standard (TA-SW-602) & contour module Simple (TA-SW-610)				●		
TA-MS-652 279 980010 003	Contour measurement kit - Advanced (for TR Profile DH-8/VHF, Contour tracer (TA-MS-650) with standard (TA-MG-651), DIASOFT Standard (TA-SW-602) & contour mod. Advanced (TA-SW-611)				●		
DHM-S1 709 70 001	Measuring head DHM S1					●	●
DHM-S2 709 70 002	Measuring head DHM S2					●	●


TR Profile VH


TR Profile VHF


TR Profile DH-8 VH


TR Profile DH-8 VHF


TR Scan


TR Scan Premium

ACCESSORIES

			TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
	**CCM-P1** 709 70 005	Measuring head CCM P1					●	●
	**DIA-P1** 709 70 003	Measuring head DIA P1					●	●
	**TA-SU-601** 279 981001 001	XY table, base plate 70 x 70 mm, travel range 25 x 25 mm	●	●	●	●		
	**TA-SU-602** 279 981901 001	Vice for XY table TA-SU-601, opening 22mm	●	●	●	●		
	**TA-AD-606** 279 982001 001	Measuring stand with drive unit holder with aluminium base and column H=250 mm	●	●	●	●		
	TA-AD-608 279 982001 003	Measuring stand with drive unit holder with aluminium base and column H=500 mm	●	●	●	●		
	**TA-AD-607** 279 982001 002	Measuring stand with drive unit holder with granite base and column H=250 mm	●	●	●	●		
	TA-AD-610 279 982001 004	Measuring stand with drive unit holder with granite base and column H=500 mm	●	●	●	●		
	**TA-AD-609** 279 982901 001	Drive unit holder	●	●	●	●		
	**TA-SU-603** 279 989001 001	Set with measuring stand and XY meas. table TA-AD-606 and TA-SU-601	●	●	●	●		
	**TA-SU-604** 279 989001 002	Set with measuring stand,XY meas. table and vice TA-SU-603 and TA-SU-602	●	●	●	●		
	**TA-SU-605** 297 700003 001	Swivelling stand, with magnetic base	●	●	●	●	●	●
	TA-SU-606 297 700004 001	Precision vice 15 x 15 x 50 mm	●	●	●	●	●	●
	**TA-SU-607** 297 700004 002	Precision vice 25 x 25 x 75 mm	●	●	●	●	●	●
	TA-SU-608 297 700004 003	Precision vice 35 x 35 x 100 mm	●	●	●	●	●	●

TRIMOS

ISSOKU

ACCESSORIES

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-SU-609 297 700005 001	Support plate for vice TA-SU-606	●	●	●	●	●	●
TA-SU-610 297 700005 002	Support plate for vice TA-SU-607	●	●	●	●	●	●
TA-SU-611 297 700005 003	Support plate for vice TA-SU-608	●	●	●	●	●	●
TA-SE-601 605 01 021	Clamping set, TA-SU-605/TA-SU-607/TA-SU-610	●	●	●	●	●	●
TA-MG-609 278 980001 001	Roughness standard, Ra=3.0 µm	●	●	●	●	●	●
TA-MG-610 278 980001 002	Roughness standard, Ra=3.0 µm, with SCS certificate	●	●	●	●	●	●
TA-MG-611 278 980001 003	Roughness standard, Ra=1.0 µm	●	●	●	●	●	●
TA-MG-612 278 980001 004	Roughness standard, Ra=1.0 µm, with SCS certificate	●	●	●	●	●	●
TA-MG-601 278 980010 001	Roughness standard Ra=25 nm, with DKD Certificate					●	●
TA-MG-602 278 980010 002	Roughness standard Ra=50 nm, with DKD Certificate					●	●
TA-MG-603 278 980010 003	Roughness standard Ra=80 nm, with DKD Certificate					●	●
TA-MG-605 278 980010 005	Roughness standard Ra=0.2 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-606 278 980010 006	Roughness standard Ra=0.5 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-607 278 980010 007	Roughness standard Ra=1.5 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-604 278 980010 004	Set of roughness standards Ra=25/50/80 nm with DKD Certificate					●	●
TA-MG-608 278 980010 008	Set of roughness standards Ra=0.2/0.5/1.5 µm with DKD Certificate	●	●	●	●	●	●
TA-MG-651 278 980001 011	Contour standard	●	●	●	●	●	●
TA-MG-652 278 980001 012	Contour standard, with SCS certificate	●	●	●	●	●	●
TA-EL-040 358 0020	Joystick					●	●


TR Profile VH


TR Profile VHF


TR Profile DH-8 VH


TR Profile DH-8 VHF


TR Scan


TR Scan Premium

ACCESSORIES







DIASOFT

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
LABC-40 356 0010	Laser printer (USB)					●	●
TA-EL-030 356 0016	Inkjet printer (USB)					●	●
TA-EL-001 332 10 0011	Power cable, 2 poles, Europe					●	●
TA-EL-002 332 10 0013	Power cable, 2 poles, USA/Japan					●	●
TA-EL-003 332 10 0016	Power cable, 2 poles, Australia					●	●
TA-EL-004 332 10 0014	Power cable, 2 poles, UK					●	●
TA-EL-005 616 20 003	Power cable, 2 poles, Korea					●	●
TA-SW-601 394 1 3301	Software DIASOFT Basic, Predefined protocol, roughness and Abbott curve,(Ra, Rq, Rv, Rp, Rt, Sm, Rsk, Rku, Rz, RTp, RHTp, RDq, RPc)	●	●	●	●		
TA-SW-602 394 1 3302	Software DIASOFT Standard, Same as TA-SW-601 + individual protocols, zoom, symmetry, profile comparison, (RLq, Rlo, RzJIS, R3z)	●	●	●	●		
TA-SW-603 394 1 3303	Software DIASOFT Automotive , Same as TA-SW-602 + additionally with ISO 12085 (CNOMO), and ISO 13565, (parameter Rk)	●	●	●	●		
TA-SW-604 394 1 3304	Software DIASOFT Expert. The most complete software for roughness measurement	●	●	●	●		
TA-SW-610 394 1 3310	Module DIASOFT Contour Simple (for TA-SW-602/603/604)				●		
TA-SW-611 394 1 3311	Module DIASOFT Contour Advanced (for TA-SW-602/603/604)				●		
TA-SW-612 394 1 3312	Module DIASOFT Statistics (roughness) (for TA-SW-602/603/604)	●	●	●	●		
Nanoware LT 616 60 010	Module for profile analysis NanoWare LT profile measurement 2D - Basic					●	●
Nanoware XT 616 60 011	Module for profile analysis Nanoware XT profile measurements 2D - Advanced					●	●
Nanoware STT 616 60 012	Module for profile and surface analysis NanoWare STT, 3D roughness Software - Basic					●	●
Nanoware XTT 616 60 013	Module for profile and surface analysis Nanoware XTT, Roughness software 3D - Advanced					●	●
Nanoware PRO 616 60 014	Complete module for profiles and surfaces Nano-Ware PRO, Roughness software 3D - Professional					●	●