TRIMOS

TR SCAN

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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.

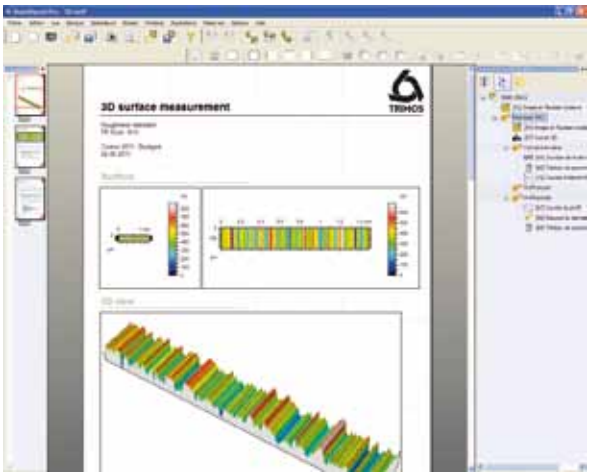
- INTUITIVE POSITIONING
- INSTANT MEASUREMENT
- PROGRAMMABLE MEASUREMENTS WITH PICTURE

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.

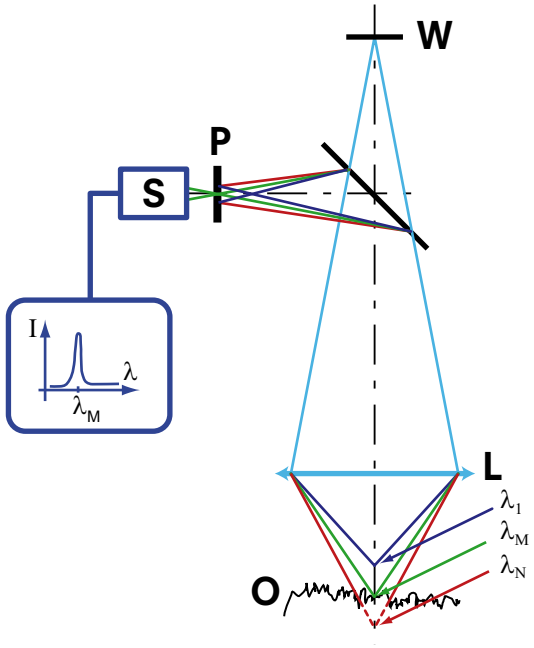
- POWERFUL ANALYSIS
- PROFESSIONAL REPORTING
- SUITABLE MODULE FOR EACH APPLICATION NEED
- COMPLIES TO ALL INTERNATIONAL STANDARDS



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

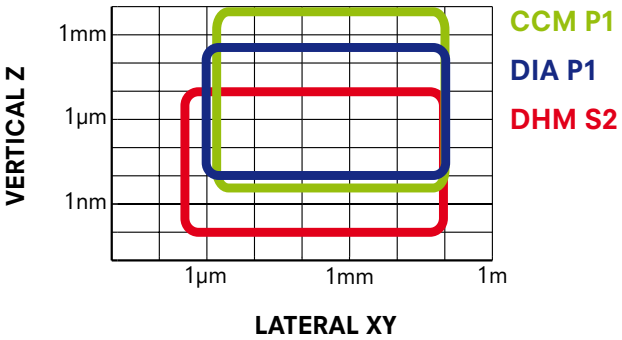
CCM-P1
(support & spectrometer)

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.



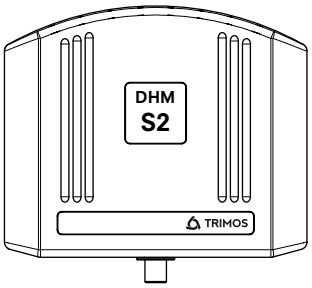
TR SCAN

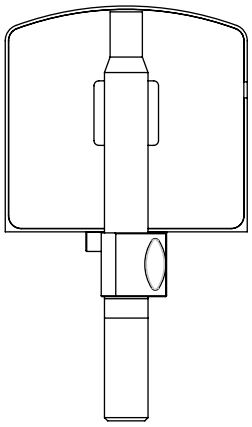
MEASURING HEADS

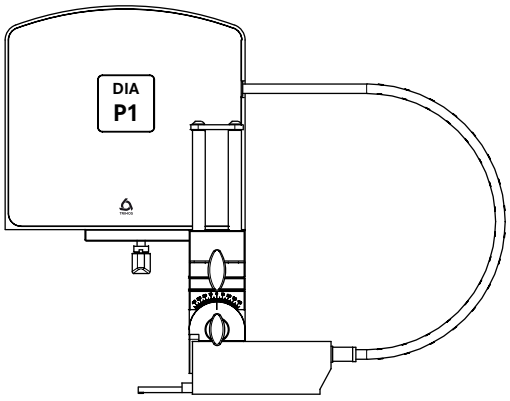
DHM S1 & S2
DHM Technology:
- Smooth, grinded and polished surfaces
- Steel, aluminium, titanium, silicon, gold, ceramics, glass
- High precision and speed, 2D/3D

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

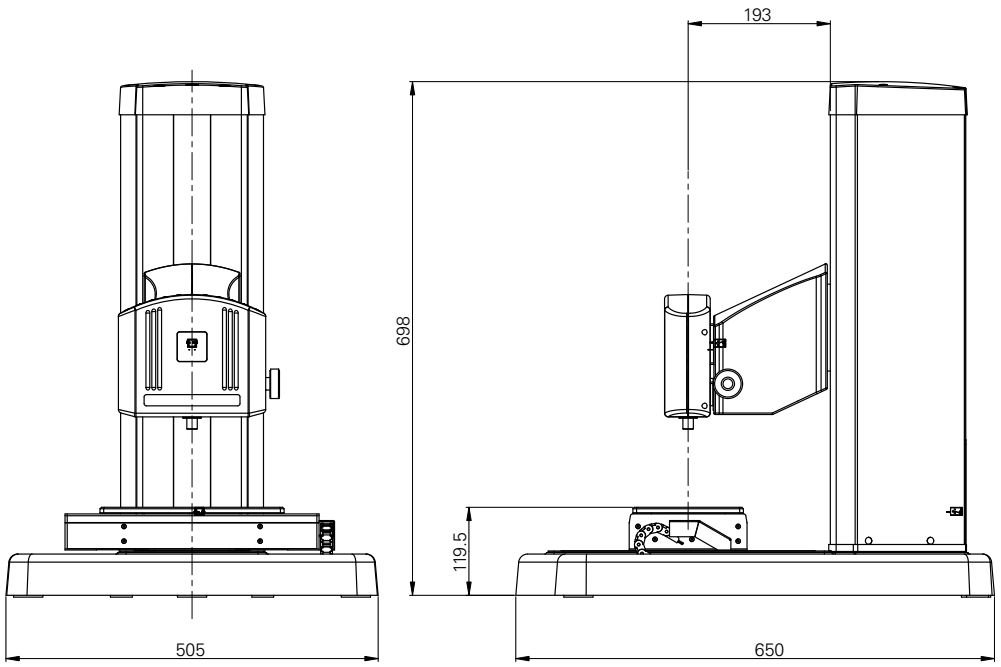
TR Scan		101	201	301
Horizontal measuring range X	mm	-	100	100
Horizontal measuring range Y	mm	-	-	100
Vertical measuring range Z	mm	240		
Measuring system resolution XYZ	µm	0.1		
Positioning accuracy XYZ	µm	1		
Rectitude of the guideways XY	µm	1.5		
Max weight of the part	kg	20		

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)

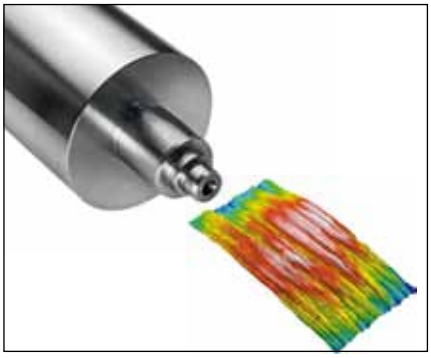
CODE NUMBER

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)

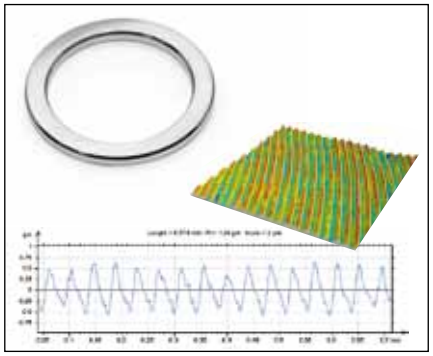
The TR Scan can also be specifically equipped according to the needs for each application (head(s) and measuring table, software). An exhaustive list of equipments can be found in the accessories section.

TR SCAN

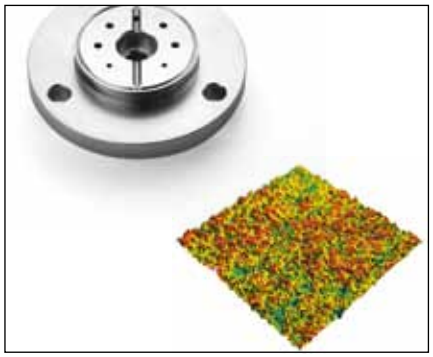
APPLICATIONS



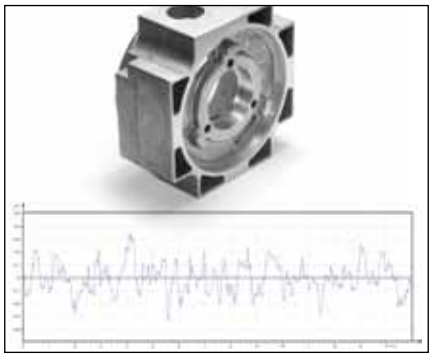
Surface spinning measurement on a steel printing roll (DHM S2)



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)