

# TR Scan

A Fresh and Simple Approach to Contactless Measurement

## TR Scan 2D & 2D ½

- ✓ Simplicity achieved through excellence
- ✓ Contactless
- ✓ Comparable to conventional measurements
- ✓ Nanometric resolution
- ✓ Large vertical measuring range
- ✓ 90x90 mm scope of application
- ✓ Extremely stable cast-iron base
- ✓ Completely CNC controlled
- ✓ Rigid X/Y table
- ✓ Parts weight up to 20kg



## INTRODUCTION

Trimos has drawn on its vast experience in metrology to develop a fresh perspective for contactless measurement.

The extremely stable mechanism enables contactless measurements down to a few nanometres.

The simple optical coupling system allows a quick change of measuring range.

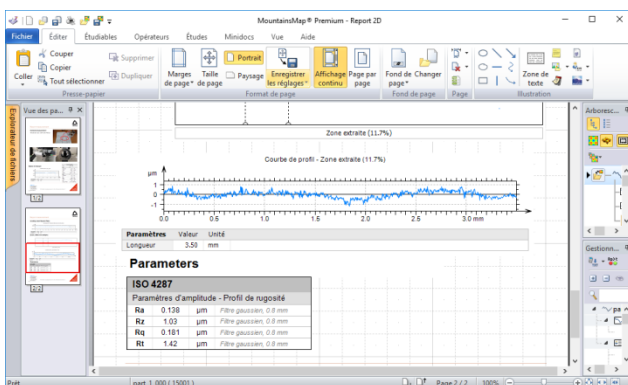
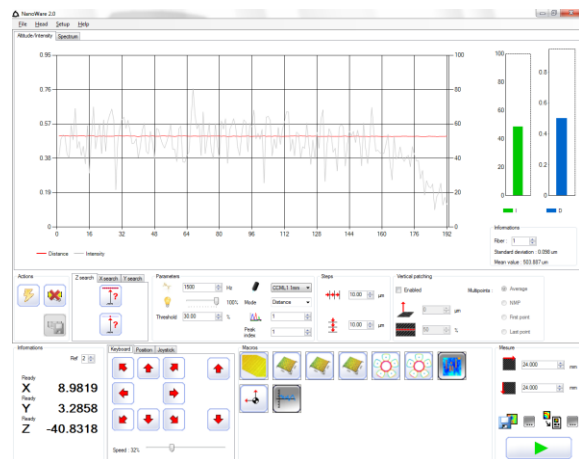


The wide range of sensors meets all your contactless measurement needs. The combination of the TR Scan with an optic with a large numerical aperture enables measurements on a 1 mm. distance with a 35-nanometre resolution and numerical aperture of +/- 45 degrees.

## PROGRAM

The simplicity of the Trimos Nanoware measurement programme allows any type of 2D mode measurement.

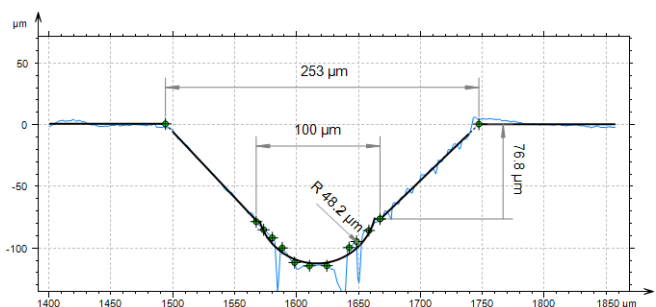
The integration of “vertical patching” enables to overstep the measuring range of the sensor. The creation of “Macro” allows entirely automatic measurement and the link with mini pallets a complete integration into the production line.



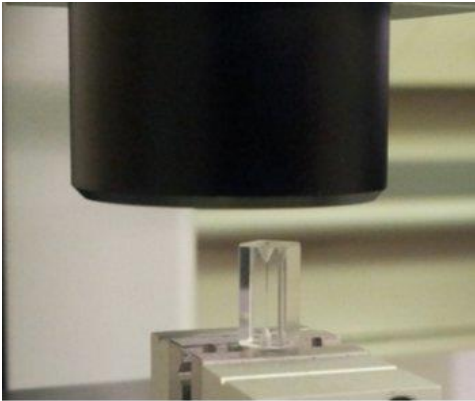
The multi-language analysis program means log sheets can be used in accordance with the current roughness standards and available parameters, such as Ra, Rz, Rq etc.

The same log sheet can be reused for several different items. A dynamic analysis can be created, allowing the selection of some specific parameters without having to remake the measurements.

It is possible to transform your profile into a contour analysis by using our “contour” option. DXF import functions allow quick contactless contour measurements.



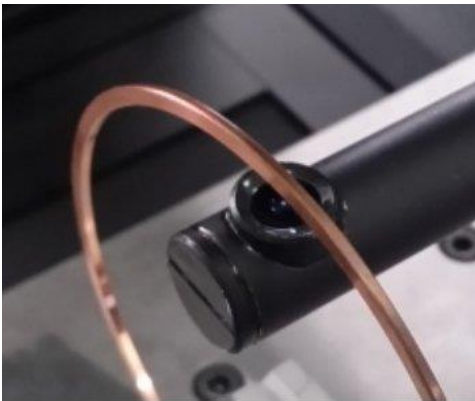
## APPLICATIONS



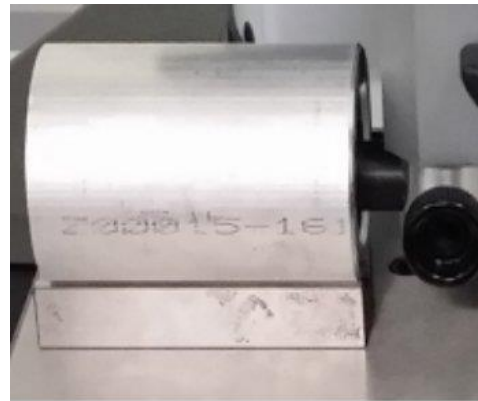
Translucid plastic parts



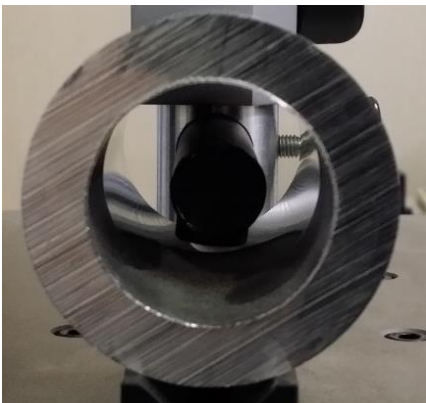
Shape on absorbing materials



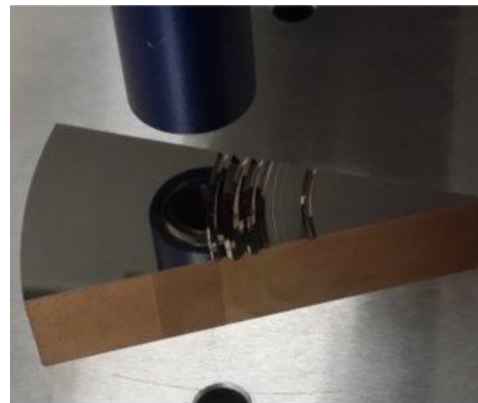
Measurements in various positions



Internal measurement on long distance



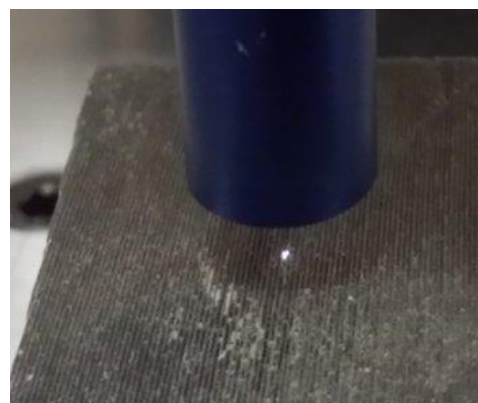
Roughness in internal diameters



Measure step / groove



Shape defects



Strong roughness

## TECHNICAL DATA



Specifications	CCMP1 2D	CCMP1 2D <sup>1/2</sup>	CCMP2 2D	CCMP2 2D <sup>1/2</sup>
Maximum displacement with axis X	100 mm	100 mm	100 mm	100 mm
Maximum displacement with axis Y	-	100 mm	-	100 mm
Maximum displacement with axis Z	240 mm			
Resolution of axes X/Y/Z	0.1 µm			
Positioning accuracy X/Y/Z	0.1 µm			
Maximum weight of the item	0.7	0.7	0.7	0.7
Spot size	3.5 µm	5 µm	5 µm	4 µm
Maximum weight of the item	20 Kg			
Measuring range	* depends on the optic used			
Resolution	* depends on the optic used			
Working distance	* depends on the optic used			

## OPTIC CCMP1

Optical sensor	CL1		CL2		CL3		CL4		CL5		CL6		
Measuring range	130 µm		400 µm		1400 µm		4000 µm		12000 µm		24000 µm		
Working distance	3.3 mm		11 mm		12.7 mm		16.4 mm		29 mm		19.6 mm		
Resolution	8 nm		22 nm		60 nm		130 nm		400 nm		780 nm		
Maximum angle	+/-42.5°		+/-28°		+/-25°		+/-21°		+/-14°		+/-8.5°		
<b>MG</b>	<b>MG210</b>	<b>MG140</b>	<b>MG210</b>	<b>MG140</b>	<b>MG70</b>	<b>MG140</b>	<b>MG70</b>	<b>MG35</b>	<b>MG20</b>	<b>MG35</b>	<b>MG20</b>	<b>MG35</b>	<b>MG20</b>
Spot diameter in µm	1.9	2.8	2.3	3.4	6.9	4	8	8	14	14	25.5	16	28
Lateral resolution	0.9	1.4	1.2	1.7	3.5	2	4	4	7	7	12.3	8	14
Photometric efficiency Hz	5.8	13	5.5	11.5	46	14	56	30	76	40	100	19.2	48

## OPTIC CCMP2

Optical sensor	CL100 µm	CL300 µm	CL350 µm	CL400 µm	CL600 µm	CL1000 µm
Measuring range	100 µm	300 µm	350 µm	400 µm	600 µm	1000 µm
Working distance 1)	1.4 mm	4.5 mm	8.4 mm	15.3 mm	6.5 mm	19.1 mm
Resolution	3 nm	10 nm	12 nm	14 nm	20 nm	35 nm
Maximum angle 2)	+/-45°	+/-30°	+/-20°	+/-45°	+/-30°	+/- 45°
Lateral resolution	1.8 µm	2.5 µm	2.5 µm	2 µm	2 µm	1.8 µm
Numerical aperture	0.7	0.7	0.7	0.7	0.7	0.26
Spot size	3.5 µm	5 µm	5 µm	4 µm	4 µm	3.5 µm
Optical sensor	CL2 mm	CL3 mm	CL6 mm	CL10 mm	CL25 mm	
Measuring range	2 mm	3 mm	6 mm	10 mm	25 mm	
Working distance 1)	61 mm	22.5 mm	35 mm	70 mm	76.5 mm	
Resolution	70 nm	100 nm	200 nm	300 nm	800 nm	
Maximum angle 2)	+/-15°	+/-30°	+/-25°	+/- 20°	+/- 15°	
Lateral resolution	6 µm	6 µm	8 µm	12 µm	12 µm	
Numerical aperture	0.26	0.5	0.43	0.33	0.26	
Spot size	12.5 µm	12 µm	16 µm	24 µm	25 µm	

- 1) Base of the sensor is in the centre of the measuring range
- 2) Accuracy decreases within the limits of the refraction index  $n = 1.5$

