SENSOFAR

METROLOGY

Large Area 3D Optical Metrology System

S wide

Surface Metrology

The 3D Optical System th boosts

Ultra-fast measurements

It only takes one second to acquire. With S wide's Fringe Projection technology and a suite of different acquisition modes, the measurements can be optimized to achieve the highest throughput.

Optimized measurement protocols

at your productivity

Easy to Use

Measuring with the S wide is as simple as it gets: load the sample, load the recipe, and check the results.

Quick set up

Capture every detail

This 3D scanner features a 5 MPx color camera that, along with its digital zoom capabilities, captures a variety of details on your inspected parts.

High data density

Large setups

Measure numerous arrays of samples and large areas thanks to the 300 x 300 mm stage configuration.

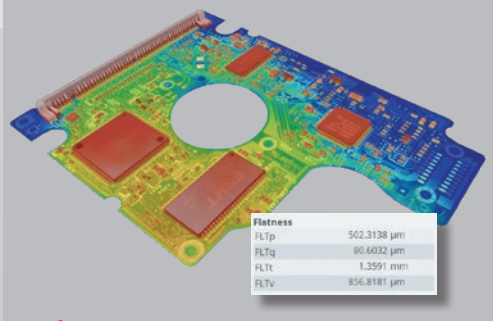
300 x 300 mm acquisition range

Meaningful data extraction

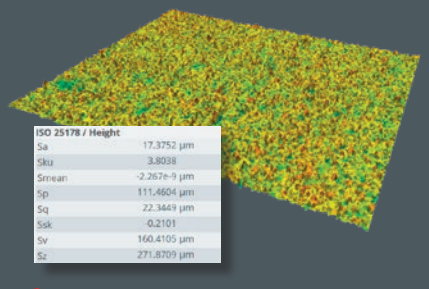
The S wide is packed with a suite of analysis tools to extract every piece of information from the measured data: roughness and flatness parameters, critical dimensions, GD&T, and CAD comparisons.

Interconnected workflows

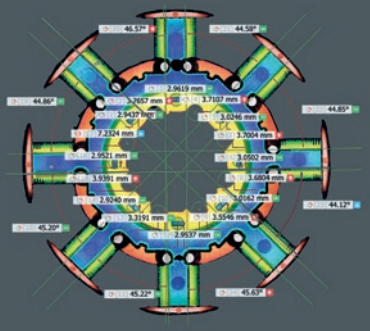
Suite of analysis tools



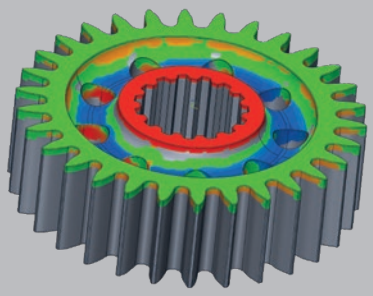
Flatness



Roughness



Critical dimensions



CAD compare and GD&T

The perfect system for big batches

Capture everything

Advanced stitching capabilities enable the S wide to acquire measurements across expansive areas. On top of that, users can easily define measurement layouts using the intuitive overview image and select rectangular, circular, or ring areas of interest.

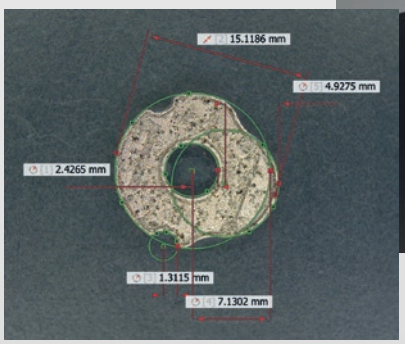
Evaluate the flatness of your most extensive specimen

The S wide is the ultimate 3D optical imaging system that elevates quality processes while improving productivity. It combines an extensive 300 x 300 mm working area with acquisition software packed with automation tools.

and big samples

Measure countless samples

The acquisition software provides a complete automatization of measurement procedures. It features tools for effortless programming of measurements at different positions. Other functionalities like fiducial alignment, user management or sample identification. Additionally, data exportation can be configured, aligning perfectly with your production environment requirements.



Capture critical dimensions from every item in your production run

Select your ideal configuration

The S wide offers four distinct configurations that fit various scenarios, either a standard setup for R&D or an advanced solution for inline process control. The largest structure can accommodate specimens with areas up to 300 x 300 mm^2 and up to 350 mm of height, significantly broadening its range of applications.

300 x 300 mm acquisition range

Optimized measurement protocols

Ultra-fast 3D imaging

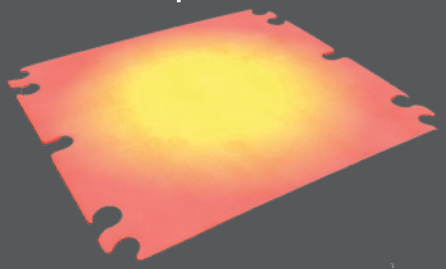
The S wide delivers quick measurements to minimize cycle time. It efficiently covers a large area without the need for Z movement. In addition, its customizable fringe projection modes further optimize measurement time for maximum efficiency.

Adaptable Algorithms

This imaging device has been carefully designed with different modes of the Fringe Projection algorithm.

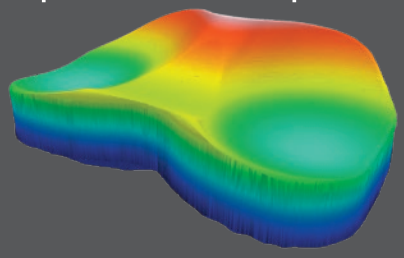
Optimized measurement protocols

Flat samples



Left / Right projector for flat samples

Shaped samples



Dual projector for samples with occluding features

Traceability

Every S wide is manufactured to deliver accurate and traceable measurements. Systems are calibrated using traceable standards according to ISO 25178 and VDI 2634-2.

Data traceability

ISO

CALIBRATION	ADJUSTMENT	VERIFICATION
Estimation of metrologic characteristics	Correction of systematic errors	Test of the validity of calibration and adjustment

Optical metrology system

The S wide is a non-contact 3D profiler that uses light to scan surfaces without causing damage, unlike contact or laser profilometers. It's highly resistant to vibrations and can be used in various environments. Its simplified design, with an 80 mm working distance and no need for a Z motorized stage, makes it exceptionally safe to use.

Immense single-shot acquisitions

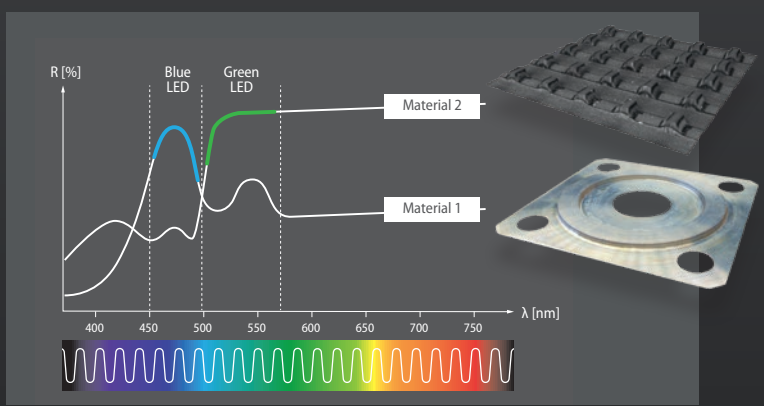
Our structured light system provides a large field of view (FOV) and depth of focus, enabling it to capture an impressive region of 35 x 29 x 40 mm. In other words, a volume of 40.6 mm^3 can be measured in just one shot without requiring a Z motorized stage.

Technology

Fringe Projection is an advanced optical technique that involves two projectors illuminating the sample with structured light. The deformed light patterns are captured by a camera through a telecentric lens, enabling precise acquisition of the 3D shape of the object.

Multiple light sources

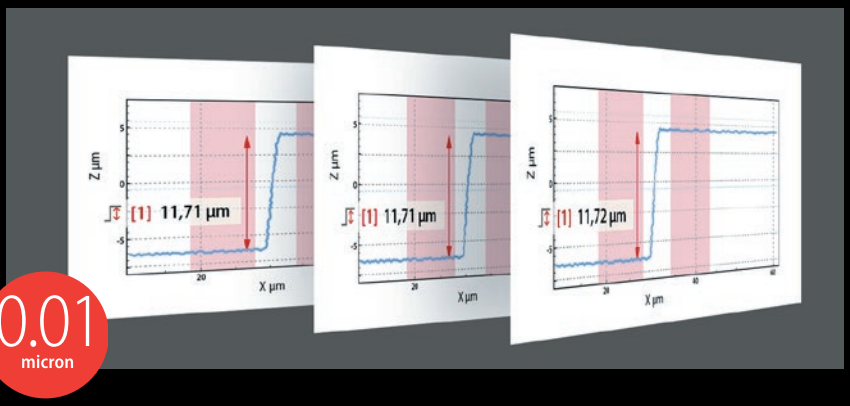
This 3D scanner is equipped with green and blue light sources. Having multiple light sources provides the flexibility to choose the most suitable option regardless of the color or reflectivity of the sample.

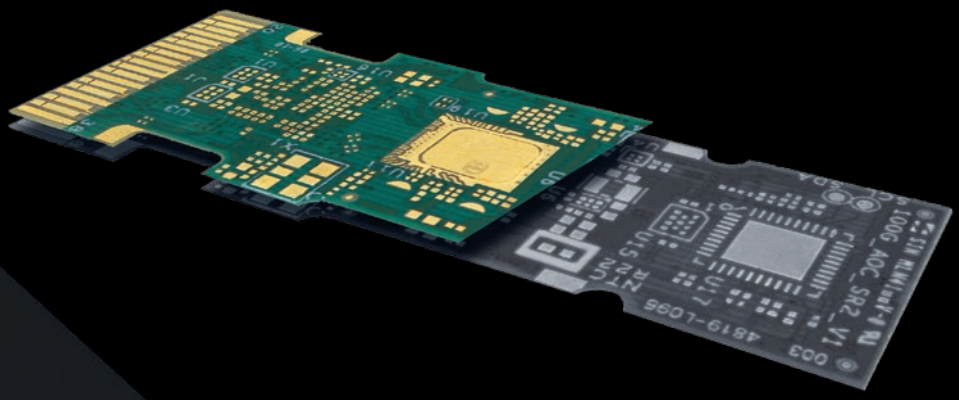


Micron accuracy in 3D measurements

Submicron repeatability

The proprietary Fringe Projection algorithms used by the S wide result in remarkable micron-level accuracy, providing unmatched submicron height repeatability across expansive measurement surfaces.





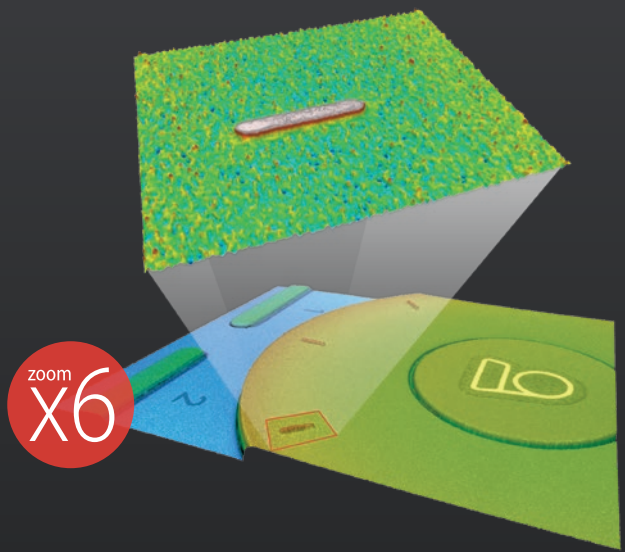
High resolution color camera

The S wide brings in the experience of a new level of visualization and precision. Its 5 Mpx color camera delivers vivid and detailed data.

Zooming feature

Digital zoom capabilities greatly enhance the ability to analyze and interpret surface features. In fact, it can increase the spatial response up to 6 times, allowing even the smallest details to be examined.

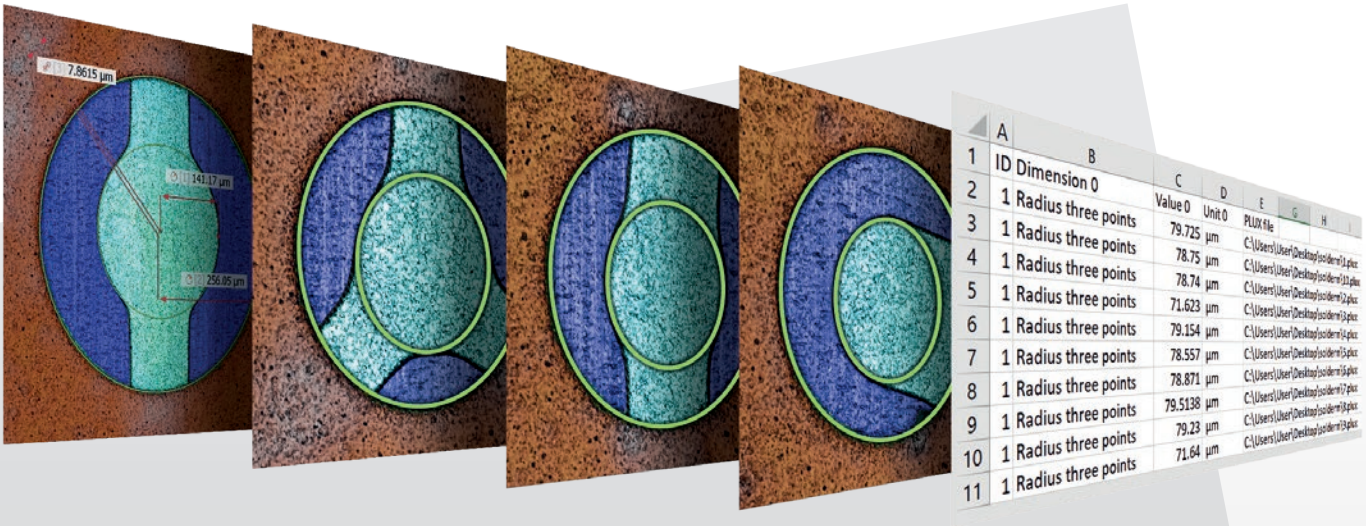
High data density



SensoVIEW

Automatic analysis

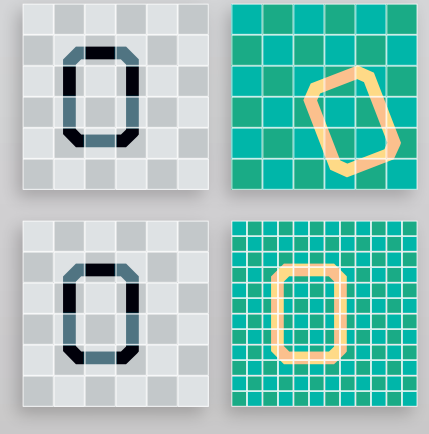
SensoVIEW is the ideal analysis software for a broad range of tasks. It includes a comprehensive suite of tools for preliminary examination and analysis of 3D or 2D measurements, allowing for roughness or volume calculations and gauging critical dimensions.



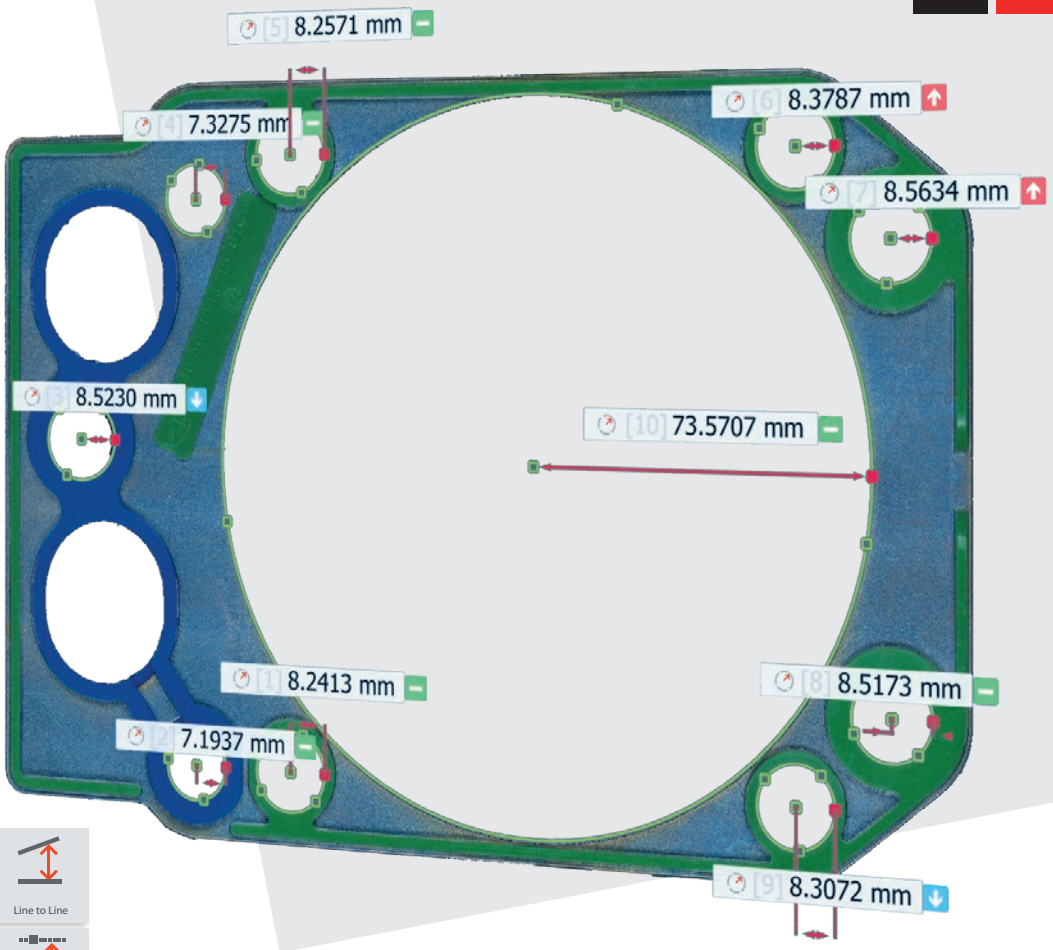
	A	B	C	D	E	G	H
1	ID	Dimension 0	Value 0	Unit 0	PLUX file		
2	1	Radius three points	79.725	µm	C:\Users\User\Desktop\sodern\1.plux		
3	1	Radius three points	78.75	µm	C:\Users\User\Desktop\sodern\11.plux		
4	1	Radius three points	78.74	µm	C:\Users\User\Desktop\sodern\2.plux		
5	1	Radius three points	71.623	µm	C:\Users\User\Desktop\sodern\3.plux		
6	1	Radius three points	79.154	µm	C:\Users\User\Desktop\sodern\4.plux		
7	1	Radius three points	78.557	µm	C:\Users\User\Desktop\sodern\5.plux		
8	1	Radius three points	78.871	µm	C:\Users\User\Desktop\sodern\6.plux		
9	1	Radius three points	79.5138	µm	C:\Users\User\Desktop\sodern\7.plux		
10	1	Radius three points	79.23	µm	C:\Users\User\Desktop\sodern\8.plux		
11	1	Radius three points	71.64	µm	C:\Users\User\Desktop\sodern\9.plux		

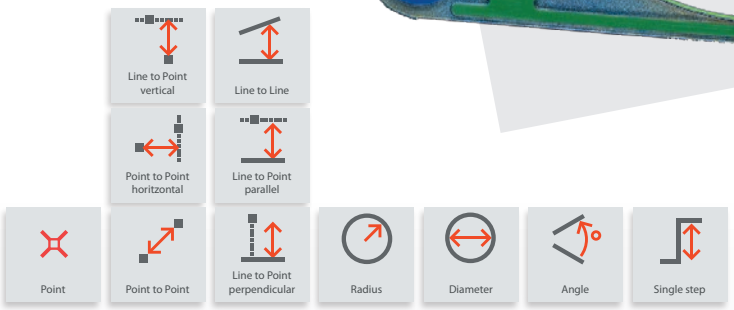
Analysis templates

Templates can be created from analysis processes and subsequently utilized for other measurements. The template will contain all the performed filters, critical dimensions, tolerances, and export settings. SensoVIEW's templates also have pattern recognition algorithms to correct any possible shift or rotation between the template and the topography.



Interconnected workflows





The critical dimension tools

SensoVIEW supplies a complete assortment of tools ready to obtain critical dimensions (radiuses, angles, diameters, step heights, and perpendicular & parallel distances).

Adding tolerances

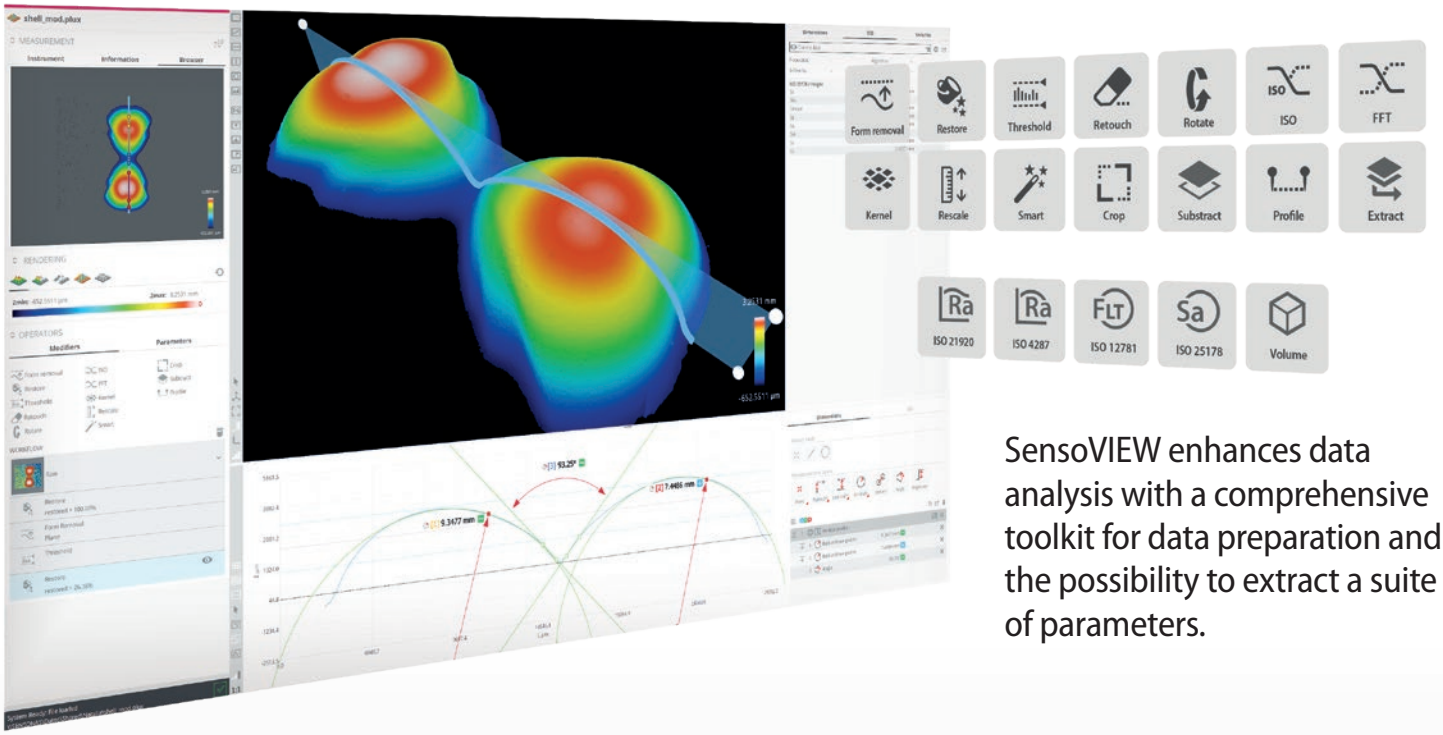
Tolerances are available to provide a complete dimensional characterization for both contour and profiles.

Edge detection features

The critical dimensions tools have an auto-adjustment feature. With the click of a button, the user can fit lines, circles, or points to the desired area.

SensoVIEW

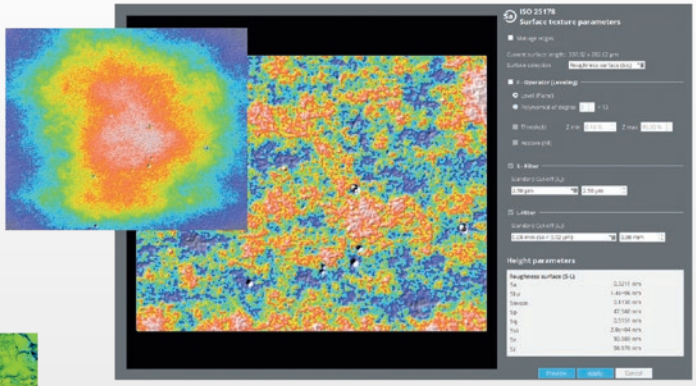
Broadening analysis h

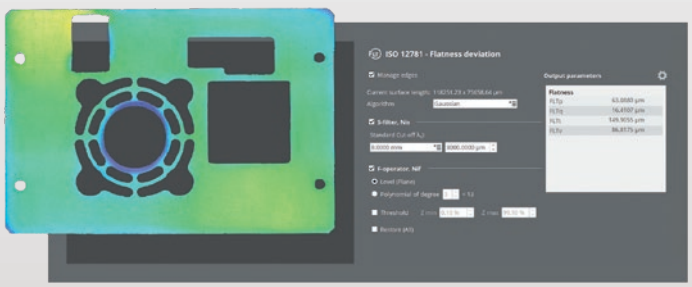


SensoVIEW enhances data analysis with a comprehensive toolkit for data preparation and the possibility to extract a suite of parameters.

ISO 21920, 25178 and 12781 calculations

Dedicated operators are available to simplify the calculation of surface texture parameters following ISO standards: ISO 21920 for roughness on profiles, ISO 25178 for roughness on areas, and ISO 12781 for flatness.





orizons

Tailor headers and footers to your taste

Select the content you want in your report

Choose the style to display your results

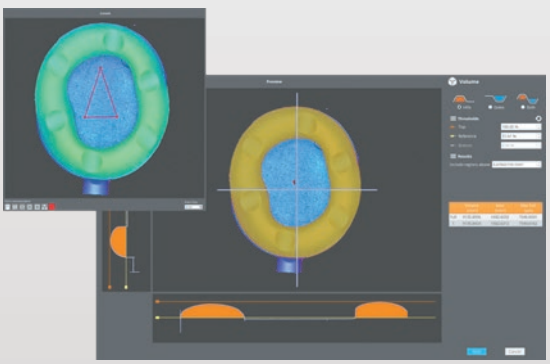
Edit your template to personalize it further

Customizable reports

SensoVIEW presents flexible reporting to obtain clear and well-structured documents displaying the acquisition information, multiple data visualizations, and all the analyses performed.

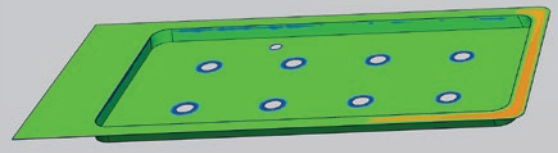
Volume geometries

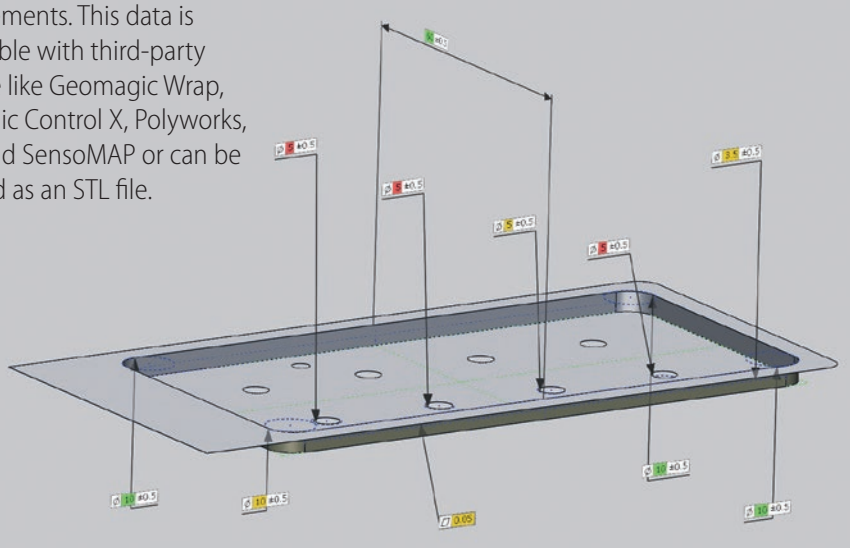
The volume operator stands out by allowing separate volume calculations for different regions within the topography. Smart segmentation algorithms utilize thresholds that can be adjusted to predefined values or carefully refined through manual tuning.



Tools to manage 3D datasets

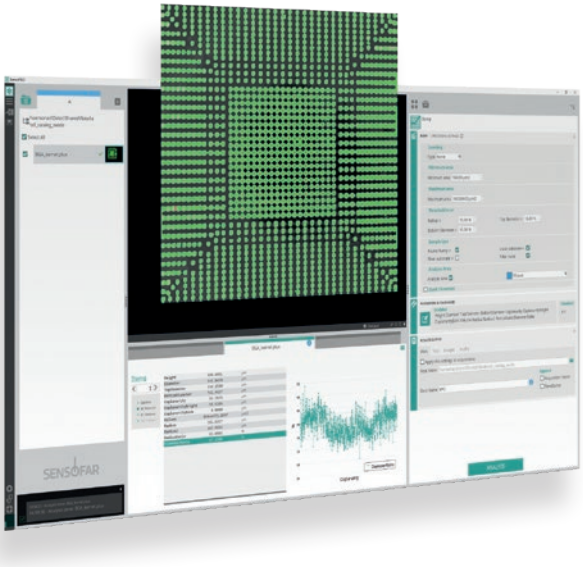
The S wide measurements can be exported as point cloud or mesh data, which opens the gate to performing CAD comparisons and taking GD&T measurements. This data is compatible with third-party software like Geomagic Wrap, Geomagic Control X, Polyworks, GOM, and SensoMAP or can be exported as an STL file.





SensoPRO

Rapid Quality Control



Automatic recognition of the features of interest

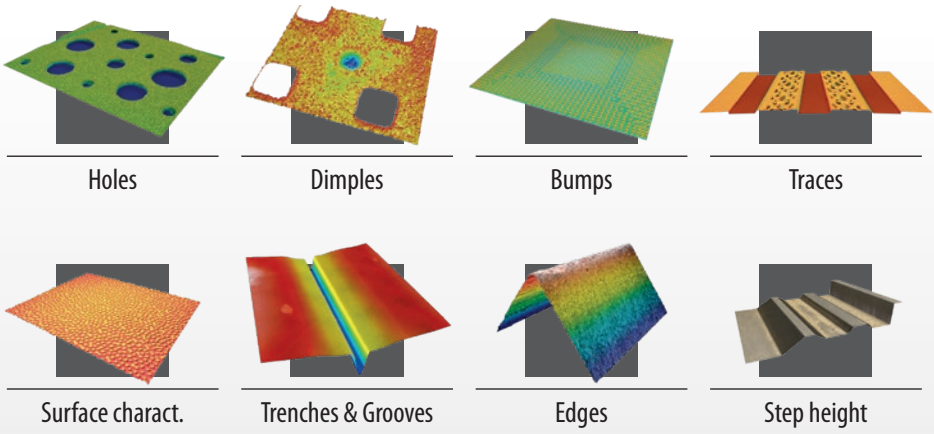
Analysis of a massive datasets (>100 files)

One second processing time per file

Configurable processing settings and parameters

Command line available for external SensoPRO integration

Pass/Fail reports based on predefined tolerances



Generic plugins

An extensive collection of general plugins addresses common structures and shapes encountered in surface characterization, offering efficient solutions for surface analysis.

Guide tool for the QC manager

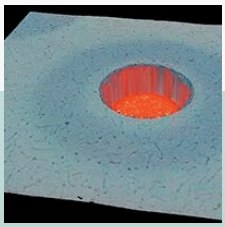
SensoPRO additionally includes a guiding assistant that simplifies establishing tolerances and highlights the parameters that can distinguish between different data sets for enhanced production control.

Interconnected workflows

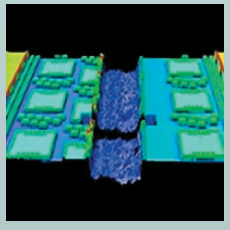
Do you need a custom solution?
We can adapt and develop any analysis solutions for your application.

Custom plugins

What sets SensoPRO apart is its ability to fulfill custom requirements. With over 60 plugins developed, SensoPRO has covered the distinctive needs of applications that demand complete automated analysis. Have a look at the following examples:



The Color Concentricity plugin assesses concentricity utilizing both color and height information.



The Wave Groove Line plugin set was designed to acurately define distances between specific lines, disregarding features on the top of the chip.

System specifications

Measuring Principle	Fringe Projection (Gray code & Slit, Gray code & Phase Shift)			
Observation types	Bi-telecentric lens with 0.243X magnification and 0.015 NA			
Color camera	5Mpx: 2448 x 2048 pixels (60 fps)			
	Default	Zoom [1]		
Magnifications	1x	2x	4x	6x
Effective magnification [2]	11X	22X	44X	66X
Field of view (mm)	34.8 x 29.1	17.4 x 14.5	8.7 x 7.3	5.8 x 4.8
Spatial sampling (µm)	14.2	7.1	3.6	2.4
Stitching range full resolution (mm) [3]	348 x 291	174 x 145	87 x 73	58 x 48
Stitching maximum range (mm) [4]	1380 x 1154	346 x 289	173 x 145	115 x 96
XY stage range [5]	Manual: 150x100 mm; Motorized: 154x154 mm, 302x302 mm			
Vertical measuring range	10 mm (up to 40 mm) without z range movement			
Ring light illumination	White			
LED light sources	Green (530 nm) and blue (460 nm)			
WD (mm)	80			
Sample height	105 mm (standard); 280 mm (optional)			
Sample weight	Up to 25 Kg			
User management rights	Administrator, advanced operator, operator			
Advanced software analysis	Included: SensoVIEW; Optional: SensoPRO, SensoMAP, Geomagic®			
Power	Line Voltage 100-240 V AC; frequency 50/60 Hz single phase			
Computer	Latest INTEL processor; 3840x2160 pixels resolution (4K) (27")			
Operating system	Microsoft Windows® 10, 64 bit			
Weight	55 Kg (121 lbs) table-top system; 8 Kg (18 lbs) integrable head			
Environment	Temperature 10 ºC to 35 ºC; Humidity			

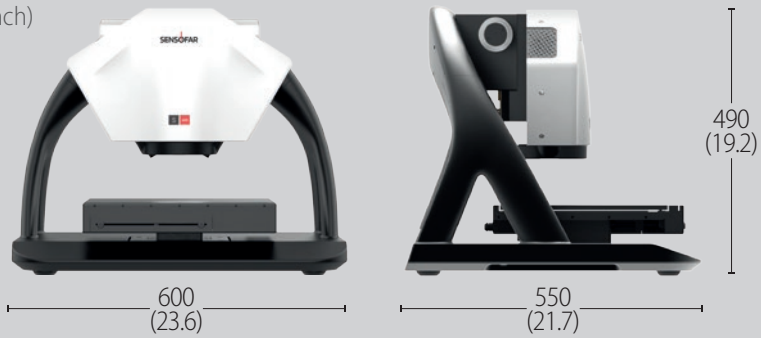
1 The zoom available is a digital zoom. **2** Magnifications with a 27 inch monitor. **3** 5 Mpx and overlap of 10%. **4** SD acquisition for 1X and HD for 2X, 4X and 6X with an overlap of 10%. **5** Other options are available under custom configurations or as an integrable head.

Accuracy and repeatability

Standard	U , σ
Step height	U = 2.5 µm, σ = 0.05 µm
Area roughness (Sa)	U = 1 µm, σ = 0.01 µm
Profile roughness (Ra)	U = 1 µm, σ = 0.05 µm

Dimensions

mm (inch)



SENSOFAR

METROLOGY

SENSOFAR is a leading-edge technology company that has the highest quality standards within the field of surface metrology

Sensofar provides high-accuracy optical profilers based on confocal, interferometry, and focus variation techniques, from standard setups for R&D and quality inspection laboratories to complete non-contact metrology solutions for in-line production processes. The Sensofar Group has its headquarters in Barcelona, a European technology and innovation hub. The Group is represented in over 30 countries through a global network of partners and has its own offices in Asia, Germany, and the United States.

HEADQUARTERS

SENSOFAR | BARCELONA - Spain | T. +34 93 700 14 92 | info@sensofar.com

SALES OFFICES

SENSOFAR ASIA | SHANGHAI - China | T. +86 21 61400058 | info.asia@sensofar.com

| TAIPEI - China | T. +886 988106002 | info.asia@sensofar.com

SENSOFAR DACH | LANGEN - Germany | T. +49 151 14304168 | info.germany@sensofar.com

SENSOFAR USA | CONNECTICUT - United States | T. +1 617 678 4185 | info.usa@sensofar.com

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