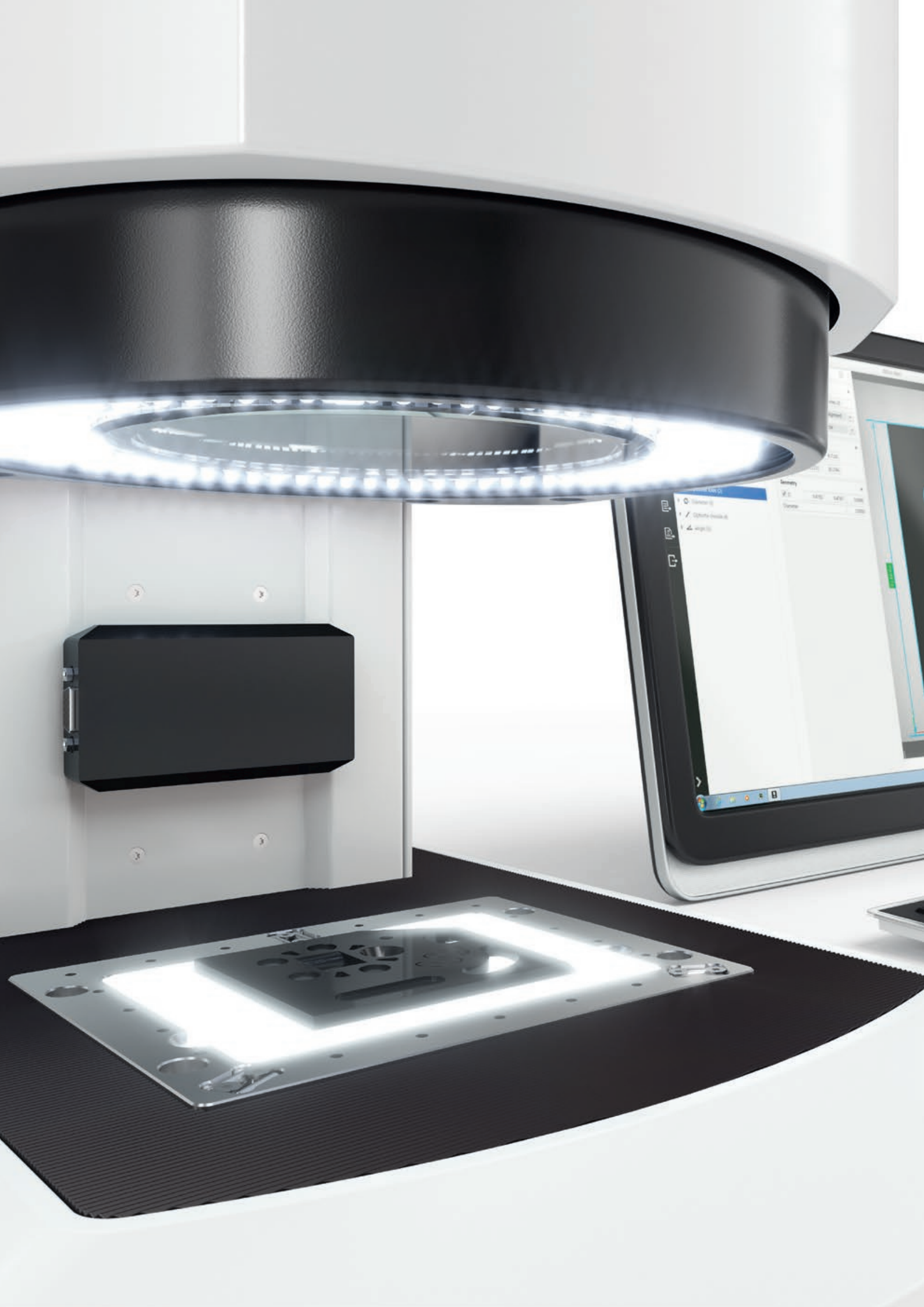
ZEISS O-SELECT

Digital Measuring Projector

Certainty at the push of a button.

ZEISS O-SELECT

// PRECISION
MADE BY ZEISS



Measure reliably at the push of a button

ZEISS O-SELECT makes the optical measurement of 2D and 3D parts easy and reliable. Thanks to fully automatic setting of both illumination and focus, measuring errors due to operator influence are eliminated. With the simple push of a button, ZEISS O-SELECT evaluates the characteristics and documents the results – also in a professional report if needed.

Fully automated

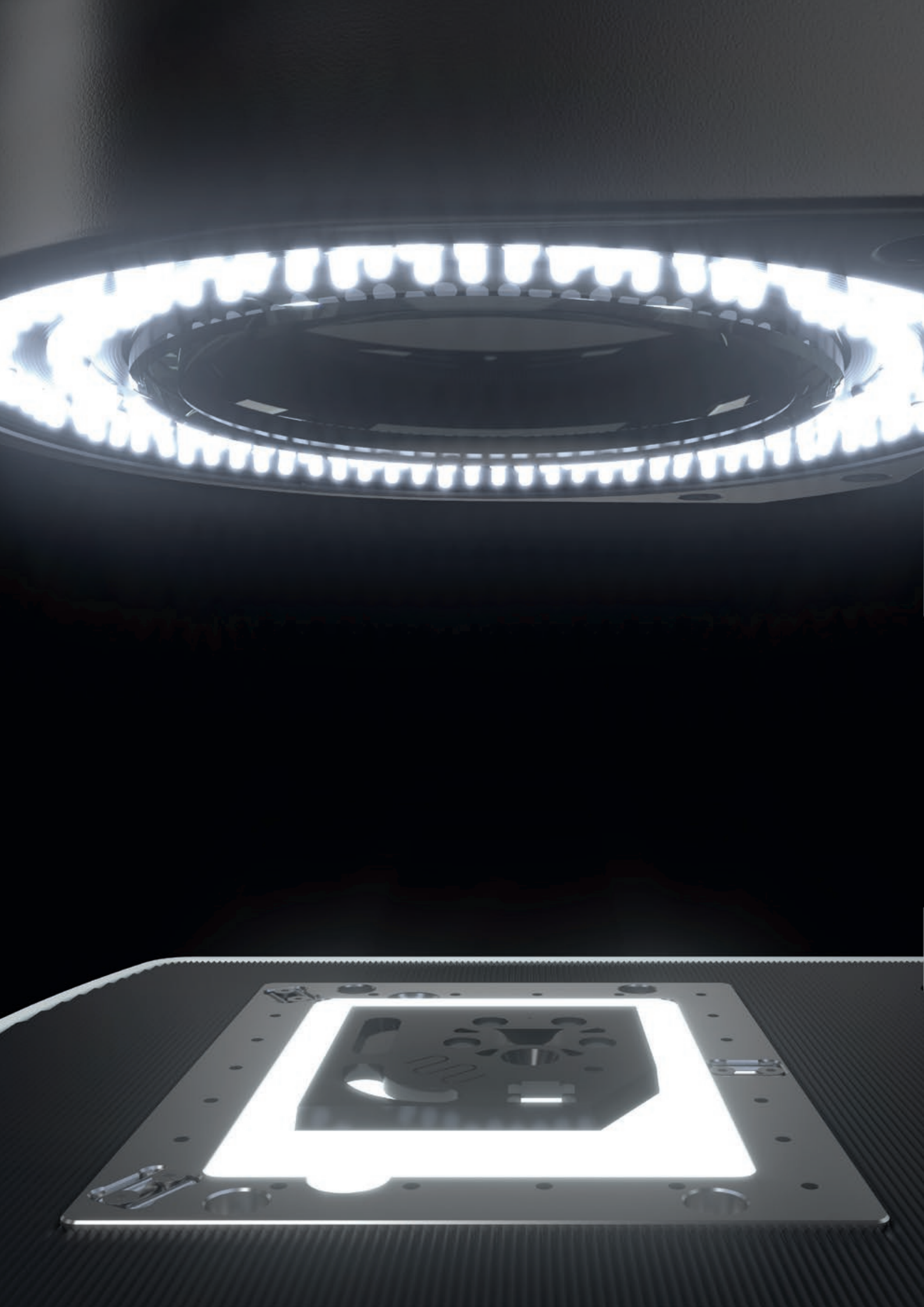
Position the part

1

Start the serial measurement

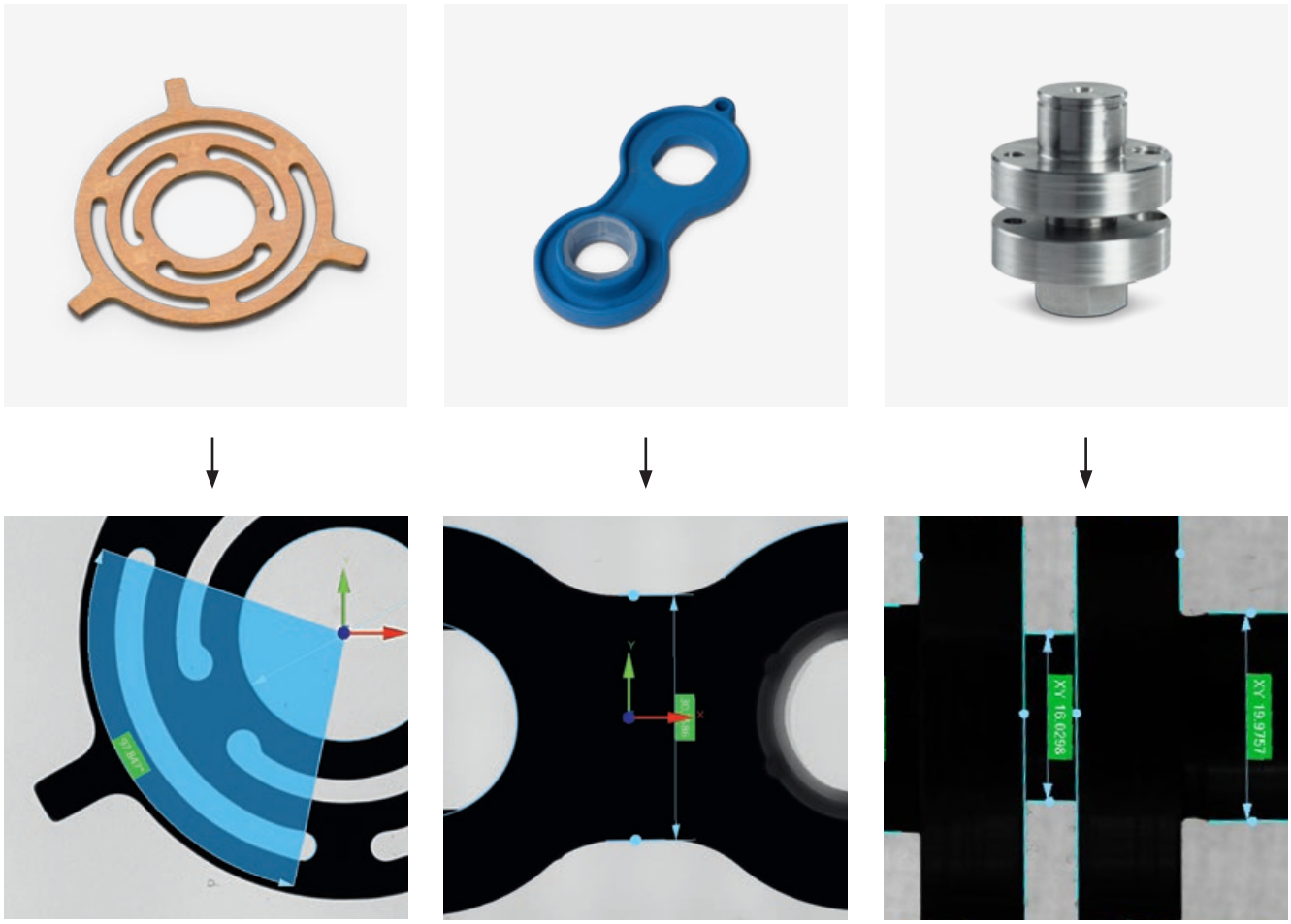
2

Reproducible, traceable results and automated report output



Fields of application

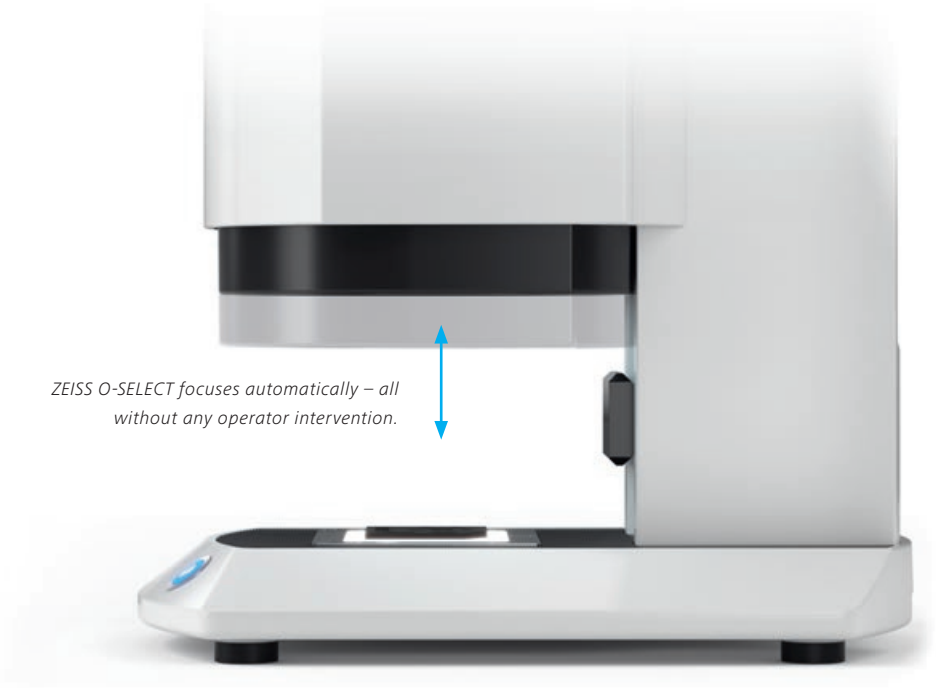
Whether it is used in the automotive, electronics or plastics processing industries, ZEISS O-SELECT provides precisely the simplicity and reliability needed in today's industrial environment. The digital measuring projector is particularly suitable for checking the dimensional accuracy of distances, radii or angles. Common test parts include punched and formed parts as well as injection-molded and laser-cut workpieces.



ZEISS O-SELECT measures characteristics like angles, distances and radii quickly and reliably.

Sharply defined edges every time

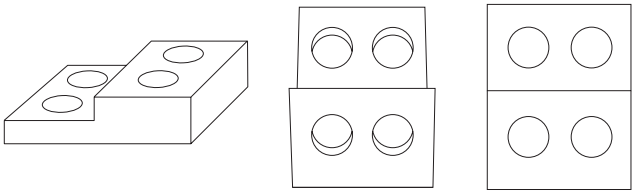
Manual focusing can often lead to errors without the operator noticing. The result: measuring errors of up to several micrometers. ZEISS O-SELECT automatically identifies the characteristics to be tested and sets the focal plane accordingly, thereby eliminating user errors.



ZEISS O-SELECT focuses automatically – all without any operator intervention.

Telecentric optics

Standard camera lenses are based on the central perspective principle: the farther away an object is, the smaller the sensor image becomes. A telecentric lens, on the other hand, does not change the reproduction scale when the object is moved axially. This enables the capture of the dimensional accuracy regardless of the distance to the object.



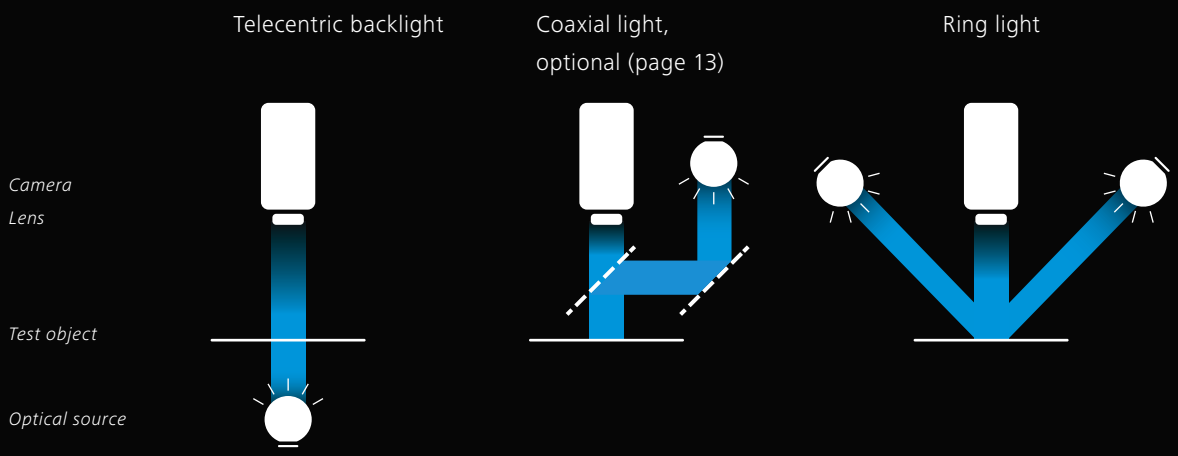
Center:
A standard, non-telecentric lens results in a distortion of perspectives.

Right:
A telecentric lens ensures that the perspectives remain undistorted.

The centerpiece of the optical system is a low-distortion, telecentric ZEISS optic with a high-resolution camera chip.

Automatically in the best light

Optical measurements can only succeed if the illumination is right. To ensure that each characteristic is seen in the best possible light, ZEISS O-SELECT offers a variable illumination system. The best part: the illumination is automatically adjusted for each characteristic, ruling out any possibility of operator error.



ZEISS O-SELECT automatically and individually adjusts the intensity of each of the eight segments of the double ring light – depending on the properties of the workpiece and the position of the characteristics.


Eight-segment double ring light for variable incident-light illumination
Mounting block for optional coaxial light
Telecentric transmitted light for maximum contrast

Intelligent, compact and reliable

The efficient system for 2D and 3D geometries

The ZEISS O-SELECT hardware and software are optimally matched to ensure that 2D and 3D geometries can be inspected with outstanding speed and reliability. Its compact size and robustness allow ZEISS O-SELECT to be installed at practically any location. You can measure your test parts precisely where you need to – whether in the receiving area or in production.

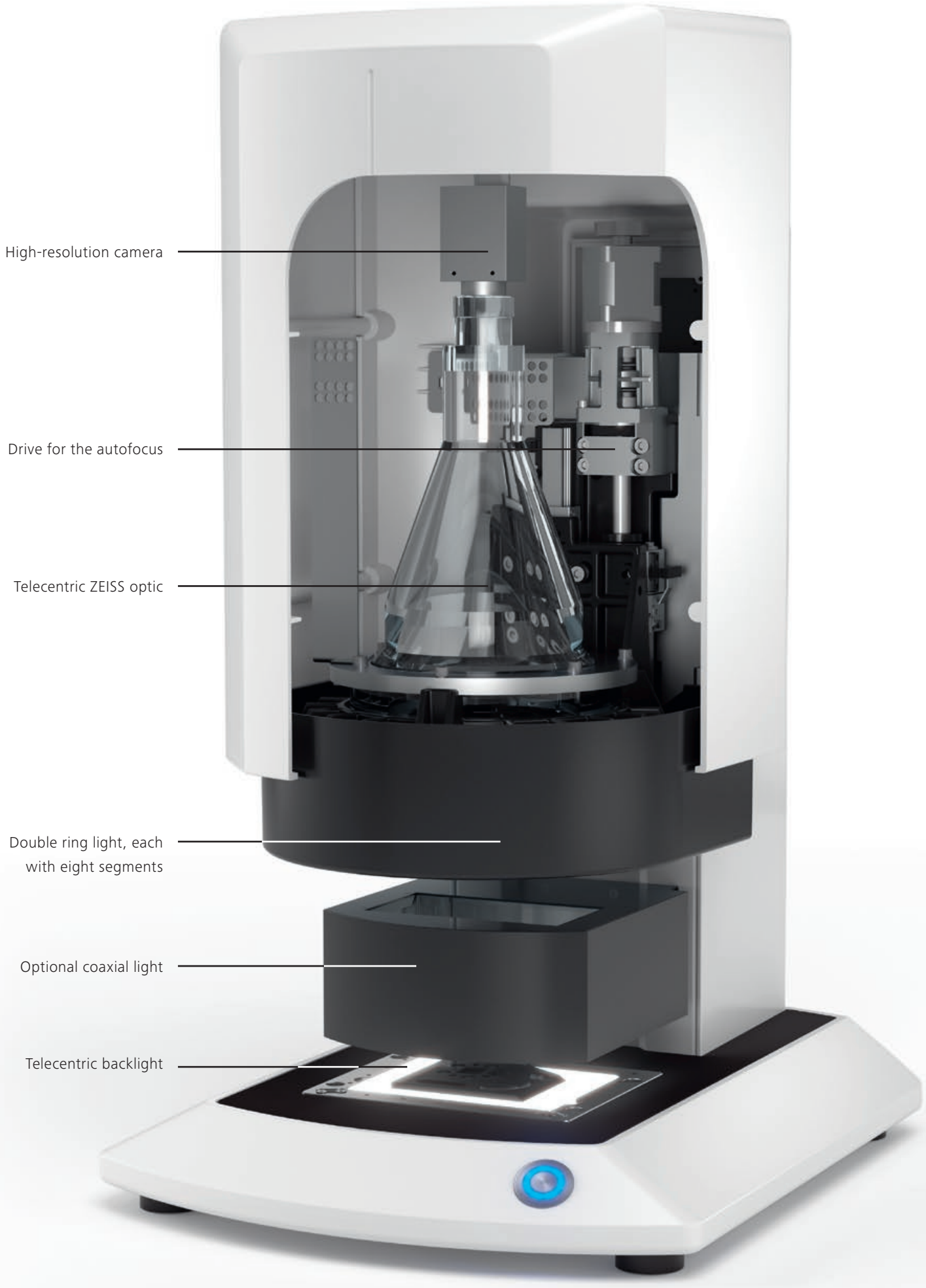
System components

The system consists of the measuring system, touch screen display, keyboard and the ZEISS NEO select software. The external display offers clear benefits over a small, integrated display: a better overview, better orientation and more detail. Its touch function further simplifies the operation of the system. The software was specially developed for the ZEISS O-SELECT system and features a new, innovative approach. This is a major benefit not only for inexperienced operators, but also for experts whose workload will be lightened by the intelligent software.

Coaxial light as an add-on

Illumination coaxial to the optics is also available. This is recommended for measuring deep-lying structures which would otherwise be concealed by shadow.

Machine size	402 mm x 510 mm x 727 mm (W x D x H)
Measuring field size	114 mm x 91.5 mm without shifting table (optional p. 14)
System components	Digital measuring projector, workstation, screen, incl. ZEISS NEO select software


High-resolution camera
Drive for the autofocus
Telecentric ZEISS optic
Double ring light, each with eight segments
Optional coaxial light
Telecentric backlight

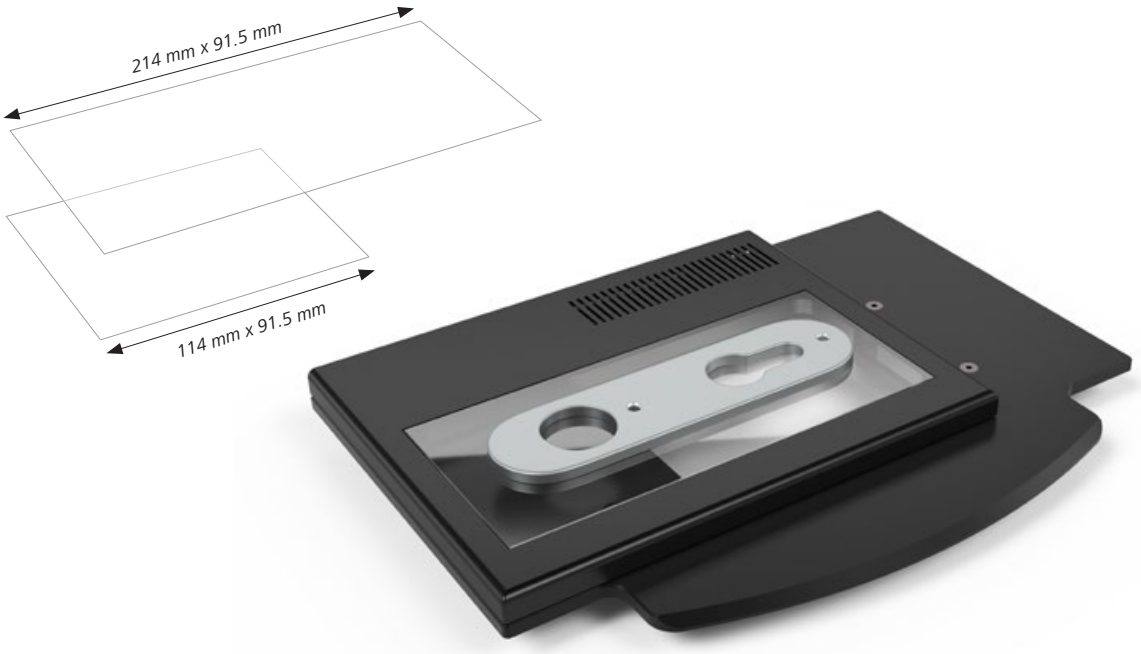
Measuring in new dimensions with the measuring field enlargement

The shifting table can be moved automatically and allows larger components to be measured quickly. The optional measuring field enlargement enables reliable and fast measurements across the entire extended measuring field at the push of a button – and, as usual, in accordance with the ISO standard 10360.

Easily extend the measuring range

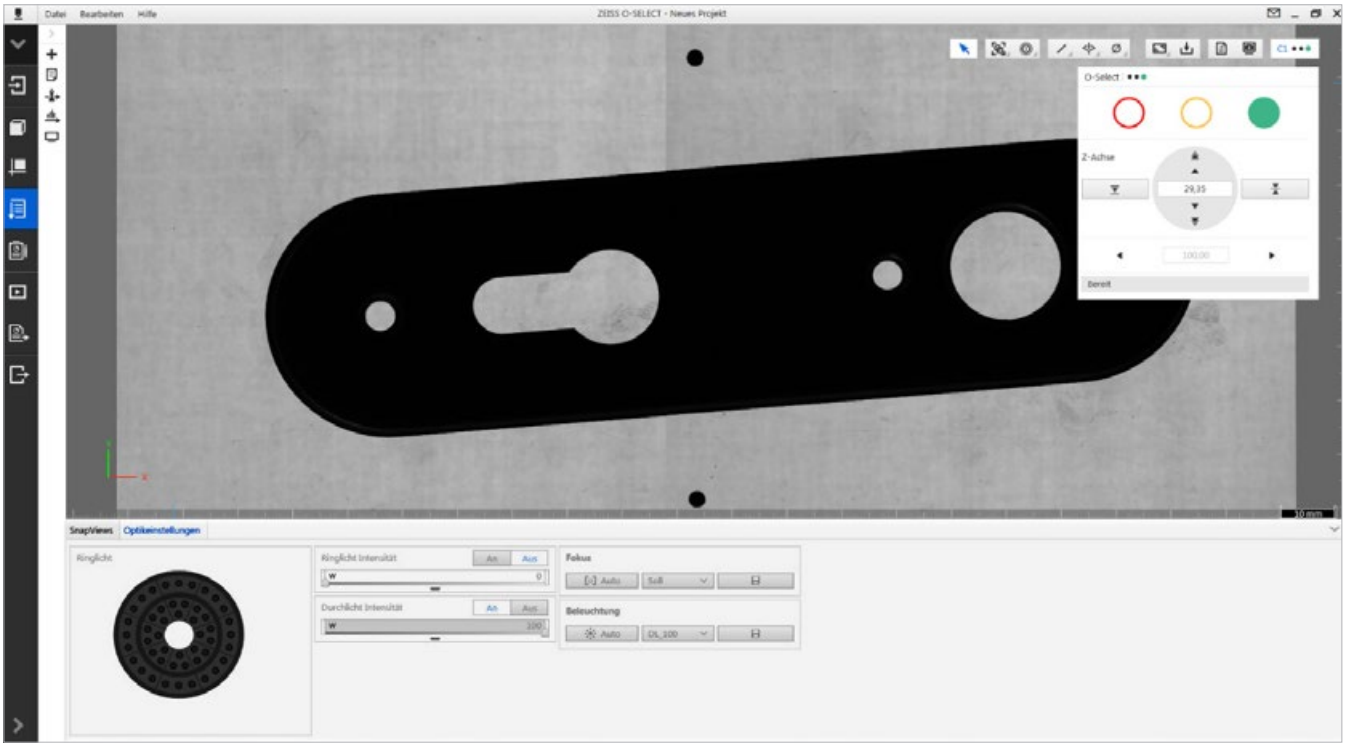
The optional measuring field enlargement expands the measuring range on the X axis from 114 mm to 214 mm, enabling larger workpieces to be measured with a single measurement plan.

Tasks performed with the shifting table are optimized for use with the backlight. Positioning the shifting table ensures that the workpiece is captured completely by the camera unit. The autofocus can also continue be used for the standard measuring range. This also applies to quick, direct measurements in the live image and the immediate creation of the measurement plan.



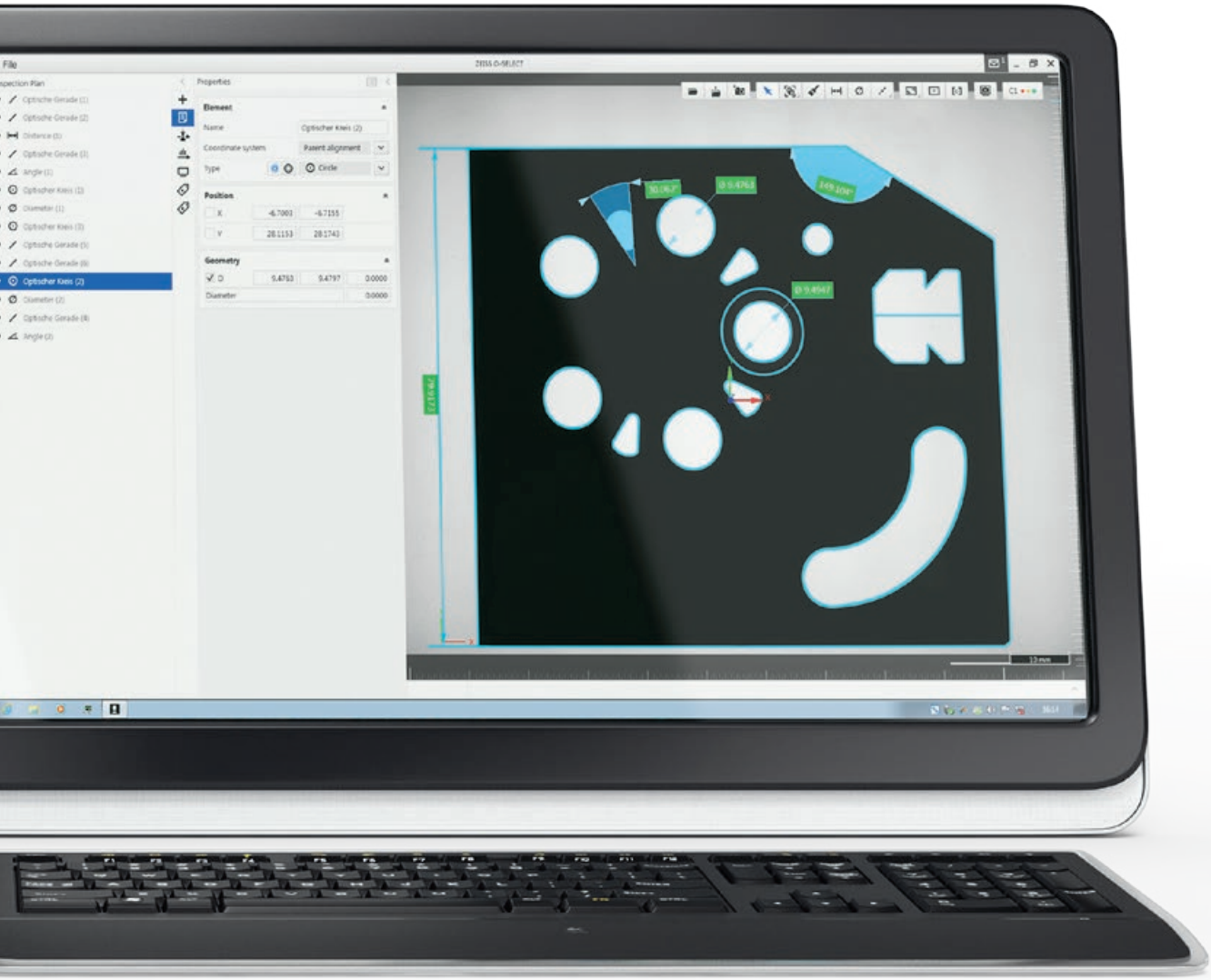
Measuring field size with shifting table	214 mm x 91.5 mm
Measuring field size without shifting table	114 mm x 91.5 mm

The shifting table can be easily moved and positioned within the traffic light window using the arrows.

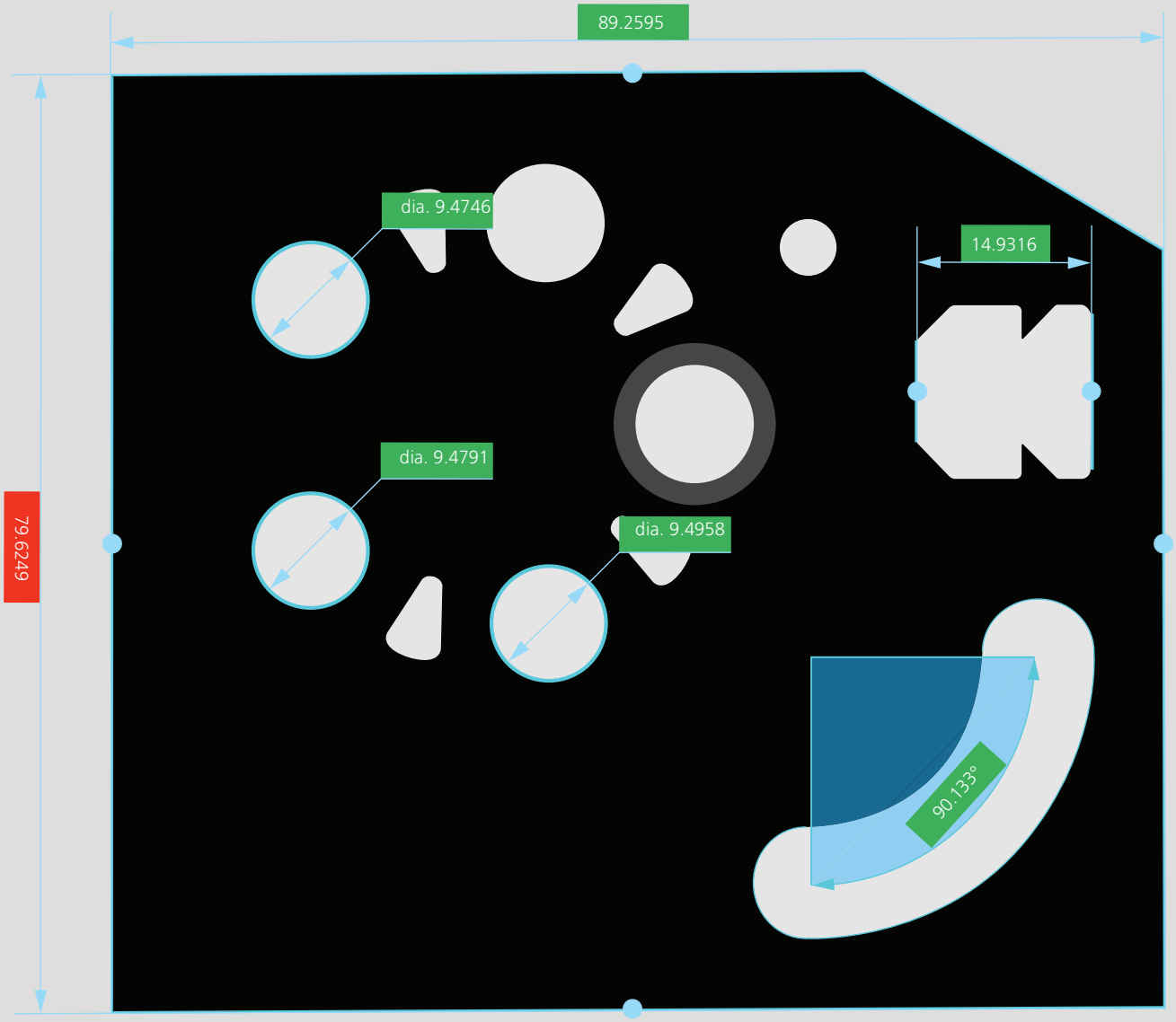


The fastest way to get your results
with ZEISS NEO select software

The ZEISS NEO select software combines ZEISS metrology know-how with innovative, simple operation. Serial measurements are performed at the push of a button – regardless of the operator. Single measurements and measurement plans are no problem with this software because it is so easy to understand, offers clear operator guidance and reduces the workload.



Controllable via touch screen display
Control ZEISS O-SELECT via a touch screen display and you will experience a new dimension in operator convenience. In many applications this means that a keyboard and mouse are no longer needed.



Results are superimposed directly in the image next to the dimensioning arrows. The color code indicates immediately what values are within tolerance.

Measure directly in the image

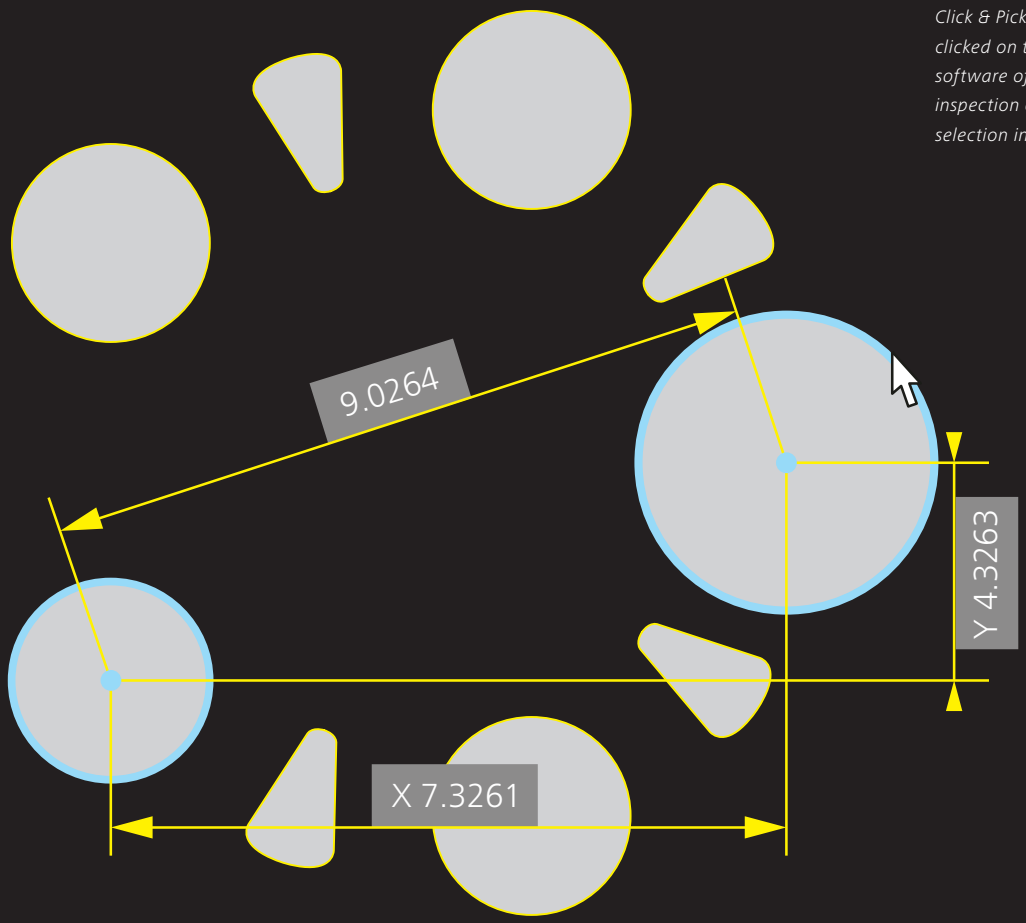
The graphical user interface of ZEISS NEO select is a true innovation. As required functions and information are all just a mouse click away, measurement plans can be generated at unparalleled speed. You only see what you need. For most measurements, you will never have to leave the main window. Instead of navigating through sub-menus, you measure directly in the image.

Clear orientation

The intuitive user interface makes it easier for operators to navigate through the software. It shows clearly what point they have reached and guides them through the entire run: from creating a new project to the measurement plan and specifying the measuring run all the way to the report.

Serial measurements at the push of a button

Parts for which a measuring plan has already been generated can be tested with ZEISS O-SELECT in next to no time. The system identifies the positioned part and loads the appropriate program automatically. The alignment is also automatic. ZEISS O-SELECT sets the optimal illumination and focuses automatically. This not only lightens the operator's workload, but also makes the measurement operator-independent and reproducible. If required, the reliable result is output or printed in a report.



Click & Pick: once you have clicked on the features, the software offers you a range of inspection characteristics for selection in the image.

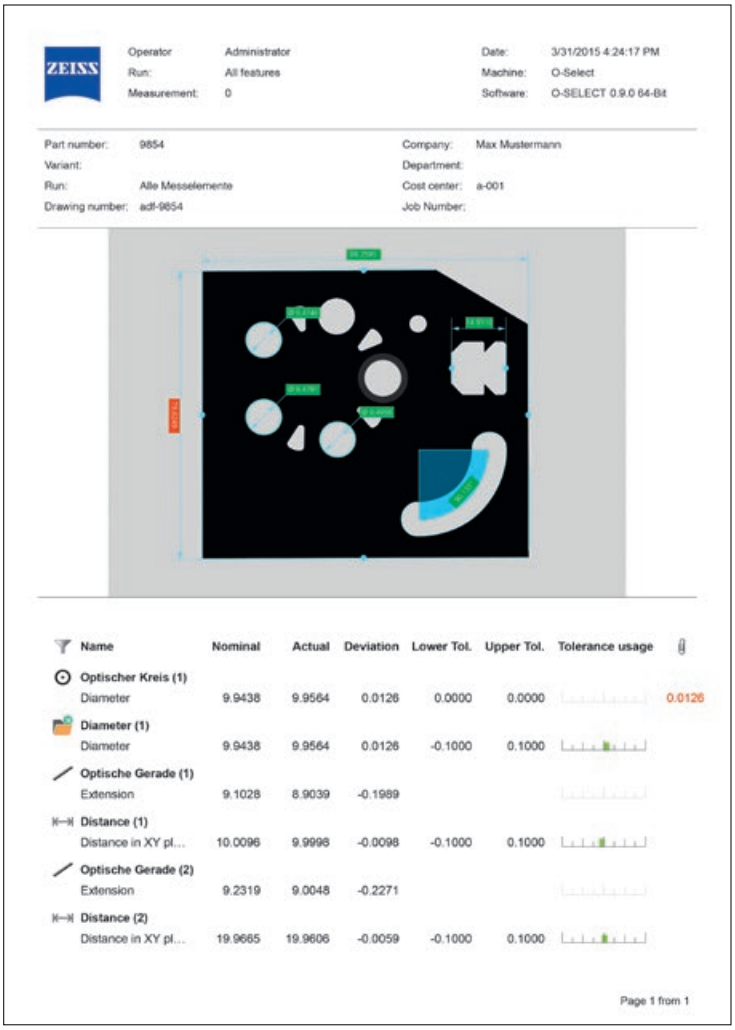
Single measurements the easy way – with Click & Pick

Even unknown parts for which no measurement plan has been generated can be measured quickly, easily and reliably with ZEISS O-SELECT. Using an automatically high-contrast and focused image, ZEISS O-SELECT identifies possible features like circles and straight lines.

When you move over one of these features with the mouse, possible characteristics such as radii, distances and angles are displayed. With the first **Click** you define an initial feature, and with the second **Pick** you select one of the suggested features – all intuitively and directly on the object. The measured value then appears next to the dimensioning arrow. This way, you receive all the desired dimensions of an unknown test part quickly.

Generate measurement plans

It's just a small step from a single measurement to a serial measurement. You proceed in the same way as for a single measurement and select the required characteristics in the image using the Click & Pick function. No special knowledge is needed, as the programming is totally intuitive and enjoyable too! During this process, a measurement plan is already being generated in the background. All you have to do is save it – that's all there is to it.



Operator: Administrator
Run: All features
Measurement: 0
Date: 3/31/2015 4:24:17 PM
Machine: O-Select
Software: O-SELECT 0.9.0 64-Bit

Part number: 9854
Variant:
Run: Alle Messelemente
Drawing number: adf-9854
Company: Max Mustermann
Department:
Cost center: a-001
Job Number:

Name	Nominal	Actual	Deviation	Lower Tol.	Upper Tol.	Tolerance usage
Optischer Kreis (1)						
Diameter	9.9438	9.9564	0.0126	0.0000	0.0000	0.0126
Diameter (1)						
Diameter	9.9438	9.9564	0.0126	-0.1000	0.1000	
Optische Gerade (1)						
Extension	9.1028	8.9039	-0.1989			
Distance (1)						
Distance in XY pl...	10.0096	9.9998	-0.0098	-0.1000	0.1000	
Optische Gerade (2)						
Extension	9.2319	9.0048	-0.2271			
Distance (2)						
Distance in XY pl...	19.9665	19.9606	-0.0059	-0.1000	0.1000	

Page 1 from 1

This is just one example of a report – ZEISS NEO select also offers many other templates.

Single measurement and measurement plan generation

1 Position the part

2 Start the single measurement

3 Select the characteristics with Click & Pick

Result and report

4 Save as measurement plan

Fully automatic serial measurement

1 Position the part

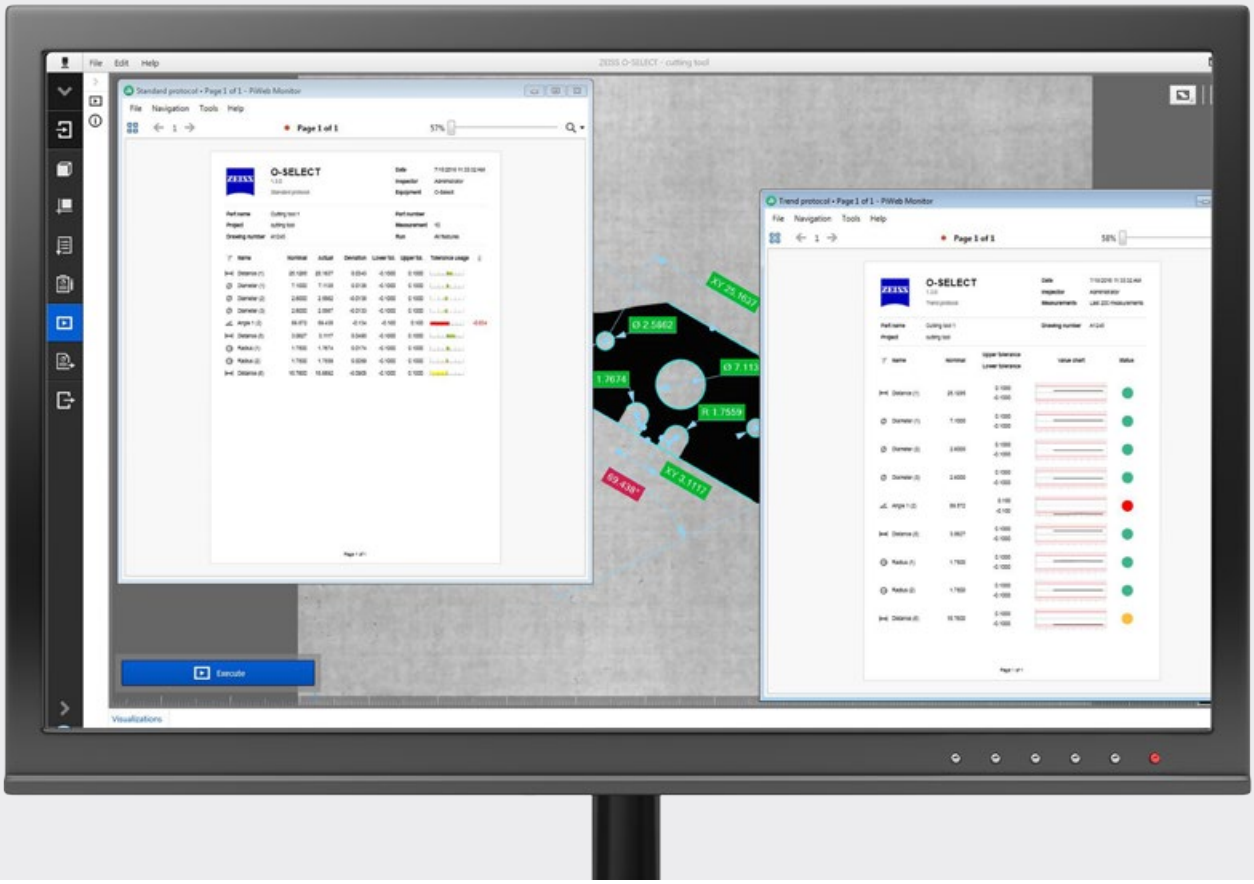
2 Start the serial measurement

Result and report

Professional reports

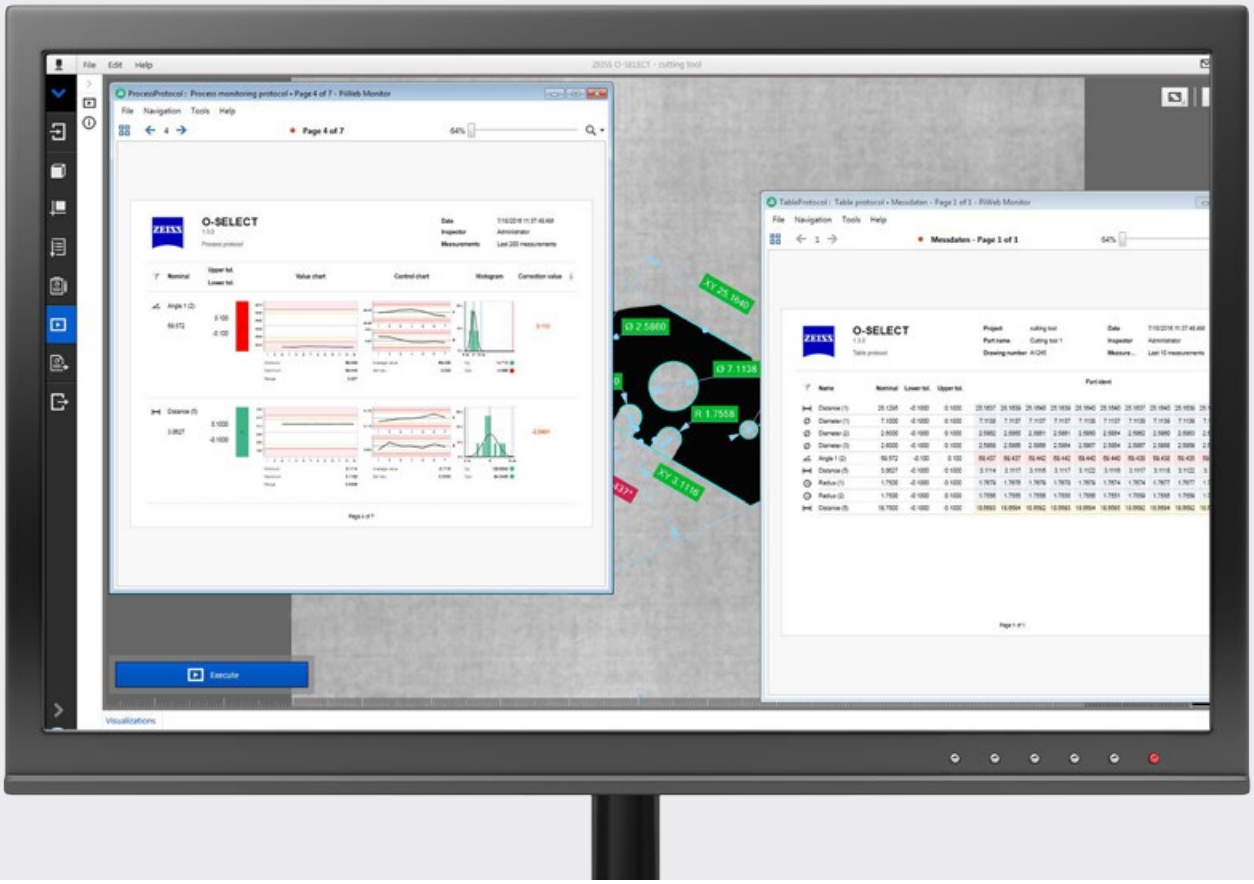
ZEISS PiWeb reporting is integrated into the measuring software and makes it possible to analyze and record measured values. For the efficient exchange of information, various report templates are available – from the straightforward graphic report to the detailed list report. This makes it possible to generate reports practically without effort and without any in-depth knowledge. One particularly simple possibility is the one-click report that outputs the current monitor view in a report at the push of a button. Templates with value displays in the image and form plots make it easier to understand the results. For the purpose of process inspection, templates with value flows and statistical parameters are also available. And if needed, you can also have a report in a specified format automatically displayed, saved or printed.

Create professional reports and perform statistical evaluations instead of manually transferring and managing data



In the standard report (see above, left) and using the traffic light display (see above, right) in the image the operator can see at a glance if the values are within tolerance.

The number of the total errors per measuring run and the number of defects per characteristic can be collected in the "Process Report." Trends and problematic characteristics can be identified immediately.



ZEISS PiWeb reporting features many possibilities for creating the report, including the "Table Report" and the "Process Report."

The "Process Report" also provides statistical information for every single characteristic, including suggested correction values.

Name	Nominal	Lower tol.	Upper tol.	Part ident							
Distance (1)	25.1295	-0.1000	0.1000	25.1637	25.1639	25.1640	25.1639	25.1640	25.1640	25.1637	25.1640
Diameter (1)	7.1000	-0.1000	0.1000	7.1138	7.1137	7.1137	7.1137	7.1138	7.1137	7.1138	7.1139
Diameter (2)	2.6000	-0.1000	0.1000	2.5862	2.5860	2.5861	2.5861	2.5860	2.5864	2.5862	2.5860
Diameter (3)	2.6000	-0.1000	0.1000	2.5868	2.5866	2.5866	2.5864	2.5867	2.5864	2.5867	2.5868
Angle 1 (2)	69.572	-0.100	0.100	69.437	69.437	69.442	69.442	69.440	69.440	69.438	69.438
Distance (5)	3.0627	-0.1000	0.1000	3.1114	3.1117	3.1116	3.1117	3.1122	3.1116	3.1117	3.1118
Radius (1)	1.7500	-0.1000	0.1000	1.7679	1.7676	1.7679	1.7678	1.7679	1.7674	1.7674	1.7677
Radius (2)	1.7500	-0.1000	0.1000	1.7556	1.7555	1.7556	1.7555	1.7556	1.7551	1.7559	1.7555

Keep a close eye on the measured value sequence with the "Table Report." The most recent measurement results are displayed line-by-line for every characteristic.
Critical characteristics are color coded for easy identification.

We make it visible

Optical inspection and measuring machines from ZEISS

ZEISS Industrial Metrology has set the quality standards and spearheaded innovation in the industry for almost 100 years. In the field of optics, ZEISS has set the pace for one and a half centuries. The optical machine family from ZEISS combines all of this know-how and expertise. This way you receive optical inspection and measuring machines that will impress you in every respect – right from day one.

Optical testing and visualization
ZEISS Smartzoom 5

Sensors	Optical (color camera)
Characteristics	Visualization and dimensioning of characteristics in the image

www.zeiss.com/smartzoom

Perform optical measurements and inspections
ZEISS O-SELECT

Sensors	Optical (grayscale camera)
Characteristics	Size, form and location in the image with subpixel accuracy, automatic part recognition; nominal/actual comparison using CAD data

www.zeiss.com/o-select

Perform optical and contact measurements
ZEISS O-INSPECT

Sensors	Contact, scanning/optical (grayscale camera)
Characteristics	Size, form and location in 3D, nominal/actual comparison using CAD data

www.zeiss.com/o-inspect

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