Multisensor Coordinate Measuring Machines

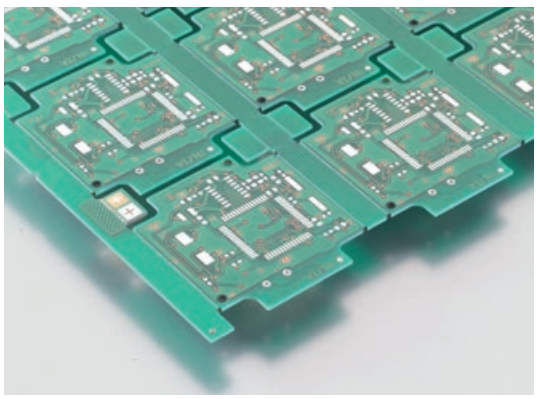
ZEISS O-INSPECT

Having all the necessary options for reliable measurements.

ZEISS O-INSPECT

// RELIABILITY
MADE BY ZEISS

The O-INSPECT multisensor measuring machines from ZEISS enable you to optimally measure each characteristic – optically or through contact measurement. The special feature: the ZEISS O-INSPECT delivers reliable 3D accuracy compliant with ISO standards at a temperature range of 18 – 30 °C.

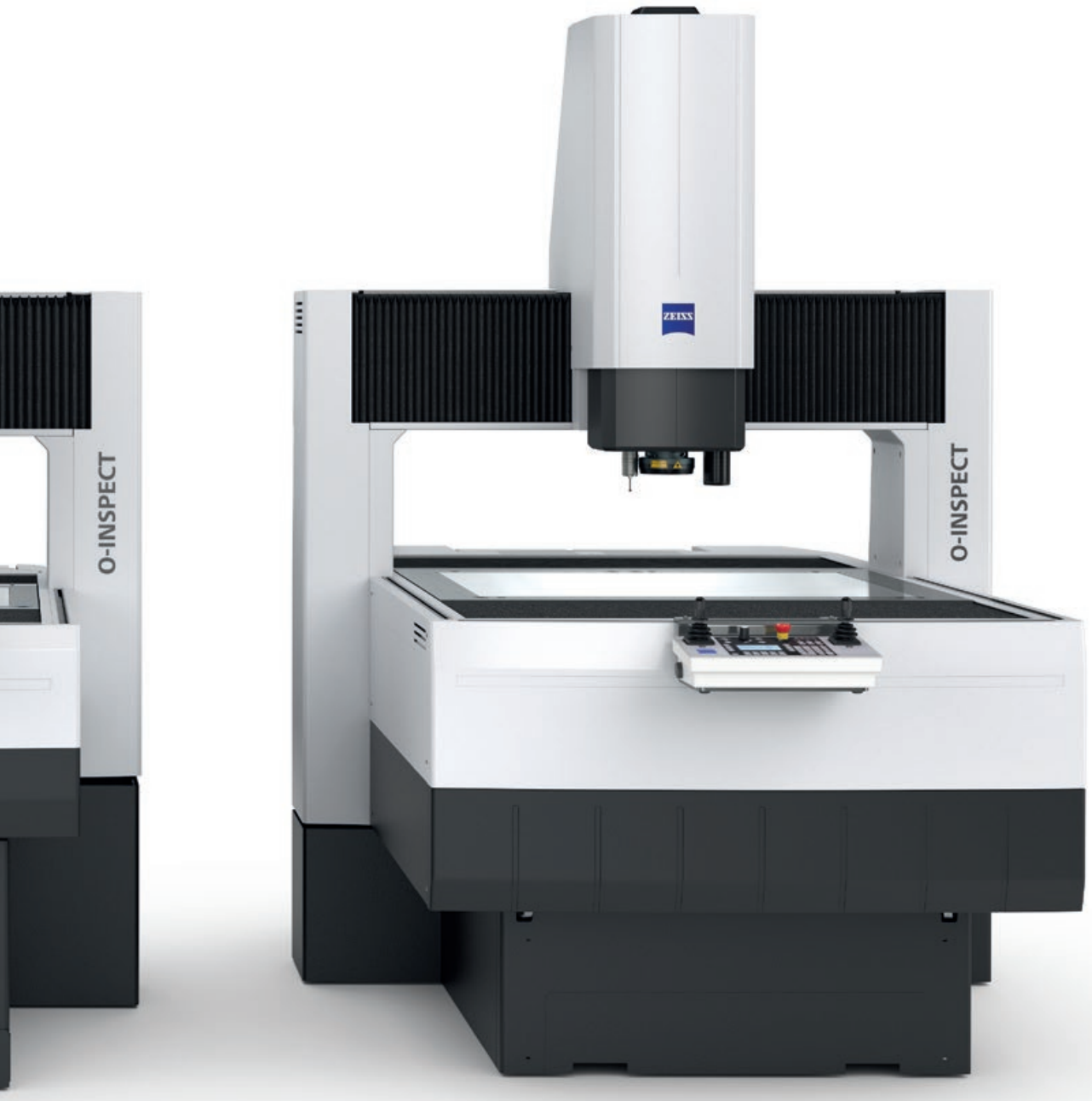


The flexibility of the ZEISS O-INSPECT makes it the ideal solution for inspection jobs in the medical technology, plastics technology, electronics and precision engineering industries

ZEISS O-INSPECT
Product family

ZEISS O-INSPECT 3/2/2
Measuring range [dm] 3/2/2
E0 from 1.6 µm

ZEISS O-INSPECT 5/4/3
Measuring range [dm] 5/4/3
E0 from 1.6 µm



ZEISS O-INSPECT 8/6/3

Measuring range [dm] 8/6/3

E0 from 1.9 µm


ZEISS
O-INSPECT

An expert in every discipline

The ZEISS O-INSPECT features premium sensors for leading-edge optical and contact performance – in full 3D without compromising software functionality. A particularly important highlight: ZEISS CALYPSO software not only delivers results easily, but also makes detecting and identifying defects straightforward.

The highlights

- VAST XXT contact scanning sensor: Minimal probing forces, small stylus tip diameter, many measurement points by using scanning for form inspections
- ZEISS Discovery.V12 zoom lens: Large, distortion-free field of view
- Chromatic-confocal white light sensor available as an accessory. Enables contactless measurements of small and sensitive workpiece surfaces.
- ZEISS CALYPSO reference software: Features the live image and result in one view, 3D CAD drawing, best fits
- Integrated pallet system with an interface for automatic temperature capture
- Optional rotary table for 360° measurements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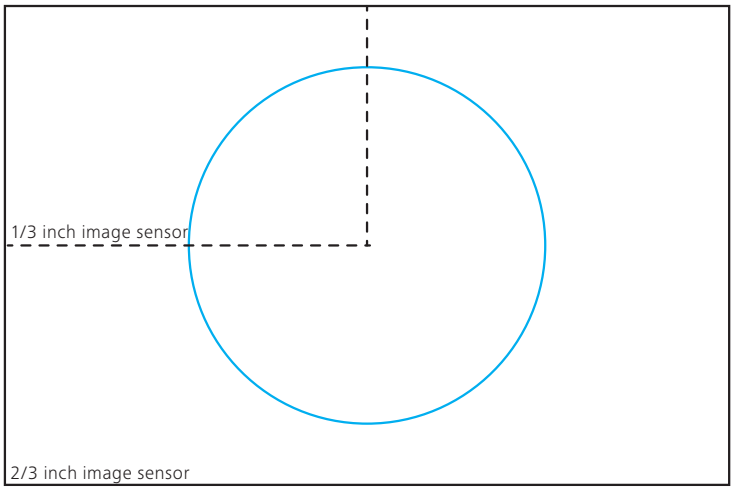
Large field of view, high image definition

ZEISS Discovery.V12 zoom lens

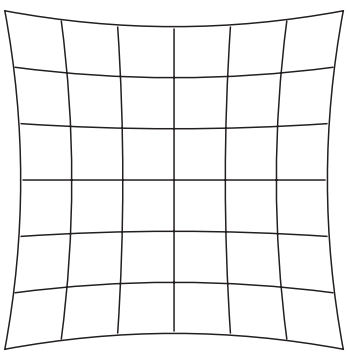
ZEISS Discovery.V12 comes from the ZEISS Microscopy division. Compared to standard lenses, it provides a 4x larger field of view and very good image definition, even in the peripheral zones. The result: excellent accuracy and a significant reduction in measuring time.

Large field of view for 2/3 inch sensor

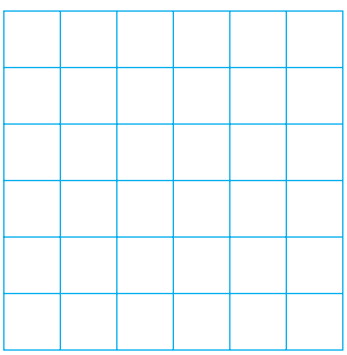


The large field of view on the ZEISS Discovery.V12 is fully covered by a 2/3 inch camera sensor, making it possible to completely capture e.g. a borehole with a single image. Camera travel and multiple image assembly is therefore not required.

Standard lens:
Distortion in the peripheral zone



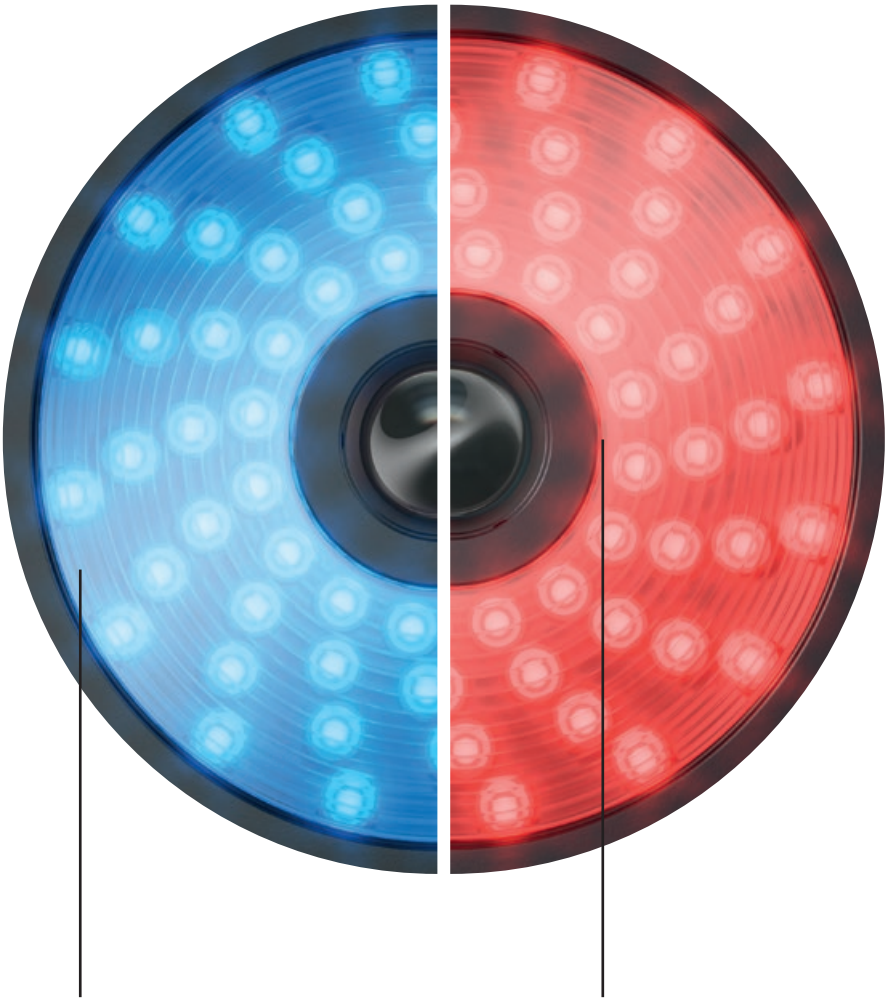
ZEISS Discovery.V12:
Practically distortion-free



Optimal contrast

The ZEISS O-INSPECT illumination system

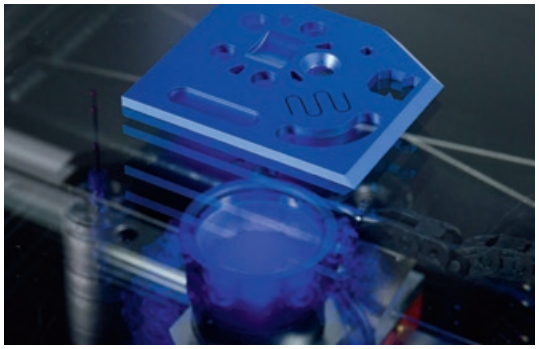
A high-contrast image is necessary for precise results. The ZEISS O-INSPECT features a highly versatile illumination system for this purpose. Extremely different shapes, textures and surface colors can be illuminated so that different angles of incidence can be realized, clearly accentuating edges.



Outer ring light in blue or red
The outer ring light is comprised of sixteen blue and sixteen red LEDs that can be individually controlled in eight segments. Together with the synchronized optic, the color LEDs enable the operator to filter out distracting ambient light and to illuminate e.g. colored materials with a high level of contrast.

Inner ring light in blue or red
The inner ring light also consists of sixteen blue and sixteen red LEDs. The inner ring light increases contrast in the surface texture, thus improving focusing – for more precise measuring results.

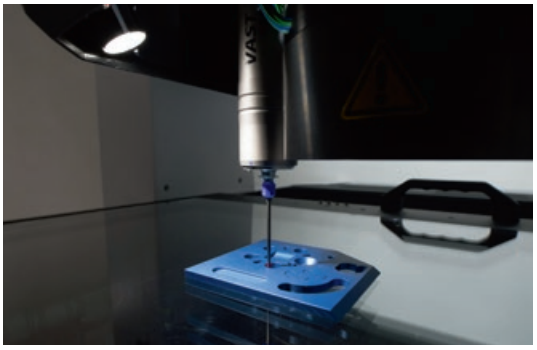
Backlight
Backlight generates the strongest light-dark contrasts, making it the ideal solution for outer edges and breaches.



Coaxial light
The depth of small boreholes can be illuminated using the coaxial light and determined precisely by focusing.

Coaxial laser pointer
The laser pointer integrated in the center of the lens simplifies navigation while programming.

Optional measuring lab illumination
The optional measuring lab illumination provides measuring technicians with an optimum view of the test piece and stylus at any time – regardless of ambient light.



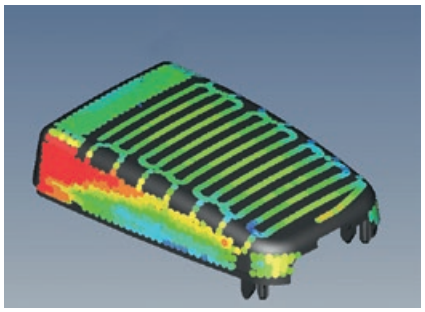
ZEISS DotScan

Scanning sensitive workpieces just got easier

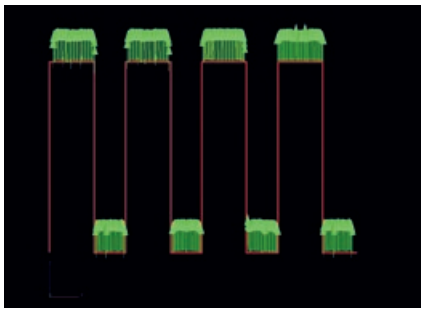
Chromatic-confocal white light sensors enable the non-contact capture of workpiece topography. These are generally employed when sensitive, reflective or low-contrast surfaces make it difficult to use other optical sensors.

The multisensor measuring machine is equipped with the ZEISS DotScan, a chromatic-confocal white light sensor. This can be seamlessly interchanged to enable the use of other contact or optical sensors during the measurement run – the addition of a rotary table enables four-axis scanning.
The ZEISS DotScan is available for a measuring range of one, three and ten millimeters and can easily be changed in or out as needed.

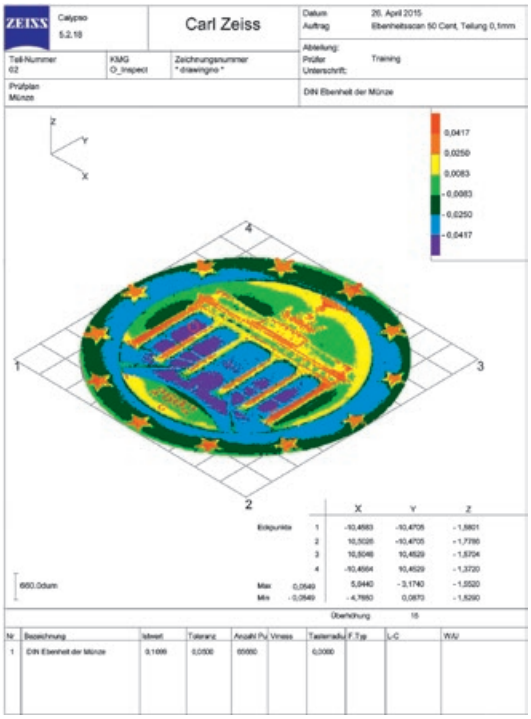
In the regulated mode, it is possible to scan a workpiece surface unconstrained. This ensures the reliable capture of data points, even with significant deviations. When performing thickness measurements on transparent materials, both the upper and lower side of a workpiece are captured, cutting the time required by more than half and enabling the operator to complete the measurement in a single run.



Plastic cover



Side view of a ribbed structure



Flatness scan of a fifty-cent coin

More measurement points, more information

ZEISS VAST XXT scanning sensor

With the ZEISS VAST XXT, the O-INSPECT system from ZEISS is equipped with a flexible, fast and highly precise contact sensor. This scanning sensor captures a large quantity of measurement points, providing relevant information on form and location – a unique feature in this class of system.

The ZEISS O-INSPECT enables scans with probing forces in the millinewton range, whereas other multisensor measuring machines can only measure in the single-point mode using relatively high probing force. This enables true 3D measurements of thin-walled plastic components – quickly and precisely.

Sensor versions

Two different sensors are available: the ZEISS VAST XXT TL1 features minimal measuring forces and is therefore ideal for scanning sensitive workpieces such as thin-walled, injection-molded plastic parts. The ZEISS VAST XXT TL3 accommodates higher stylus weights – for more flexibility with larger workpieces.

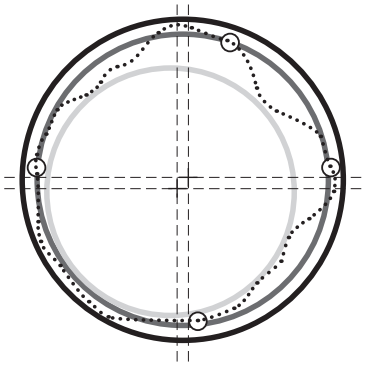
Free stylus selection

The ZEISS VAST XXT accommodates 30 – 125 mm styli so that is also possible to conveniently measure deep boreholes. Star styli with styli in three spatial directions and up to 65 mm projection ensure maximum flexibility. Even complex workpiece geometries can be measured without changing the stylus.

Faster stylus change-out

The stylus is also automatically detected when a change-out occurs, meaning time-consuming recalibration is not required.

With a star stylus, a stylus change-out is not required.



Minimum circumscribed circle determined using scanning values

Compensating circle calculated using 4 single points

Maximum inscribed circle determined using scanning values

Form evaluation

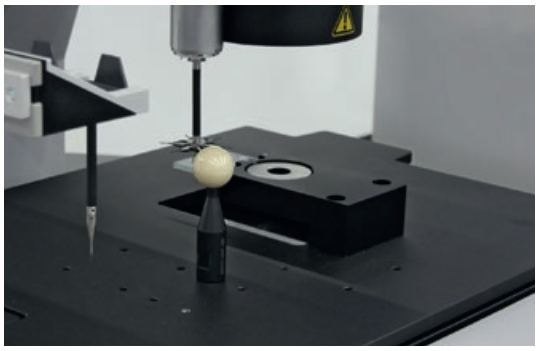
Single point (4-point measurement)

Different mid-point coordinates for minimum circumscribed/ maximum inscribed circle

Information on the form and location of a feature is only possible with a large number of measurement points (scanning).

Once it’s on the pallet, you’re ready to measure

Convenience and reliability are vital for everyday measurements. The pallet system, calibration objects and fixtures for the ZEISS O-INSPECT save time while ensuring greater reliability. A special feature: after mounting, the temperature of the workpieces on the pallet is automatically captured by four sensors and is used for temperature compensation.



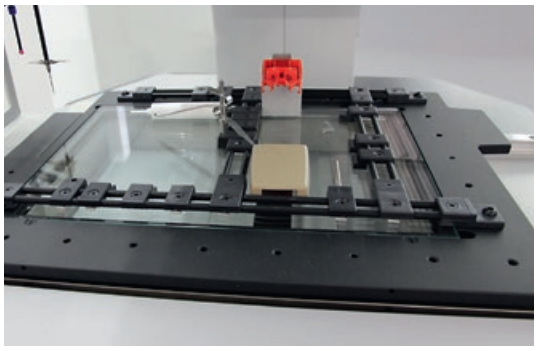
Calibration pallet
A reference sphere, a glass artifact and an adjusting ring can be mounted to the calibration pallet. The entire pallet is then moved to the machine table for calibrating the particular sensor, reducing setup time.

Glass pallet
The glass pallet is used for optical measurements performed with transmitted light. It protects the glass table of the machine and enables the remote setup of test pieces with the rail clamping system.

Hole grid pallet
The hole grid pallet supports all contact measuring methods and optical measurements using the reflected light method. Fixtures for clamping test pieces can be easily and reliably mounted to the hole grid.

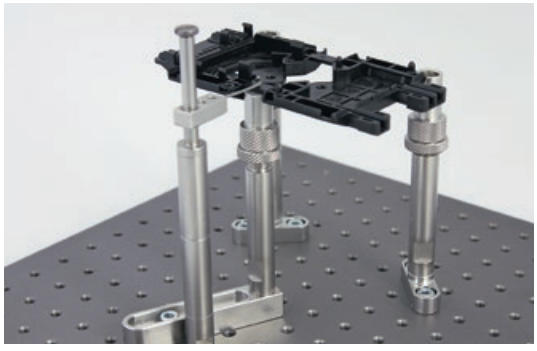
Rotary table

The optional rotary table enhances the ZEISS O-INSPECT with a programmable rotary axis, enabling the inspection of characteristics from all sides. You have the option of integrating it in a pallet to achieve different positions and shorten the setup time.



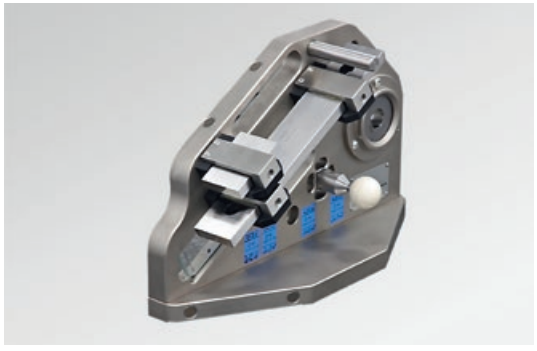
Rail clamping system

Correctly positioning and clamping workpieces is vital for guaranteeing precise measurements. The rail clamping system allows you to quickly and easily set up positioning or clamping equipment for optical and contact measurements.



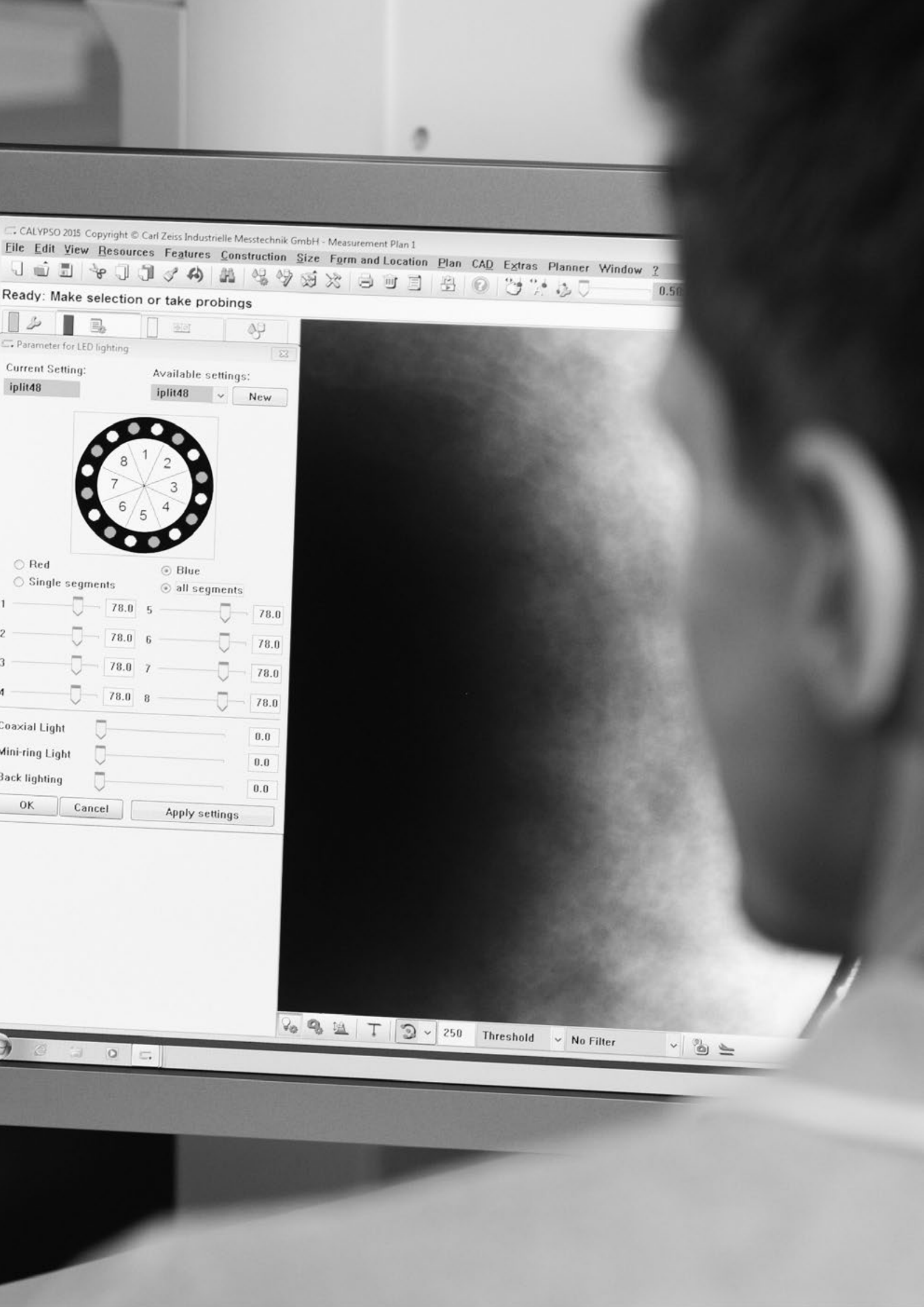
CARFIT CMK kit system

With the CARFIT CMK fixture kit system, parts can be easily mounted at a defined location on the hole grid pallet. All standard CARFIT components are compatible with each other and can be delivered on short notice.



Multisensor check

The multisensor check is a procedure for the standard-compliant monitoring of coordinate measuring machines with contact and optical sensors. The universal, calibrated test piece comes with the accompanying control and evaluation software.

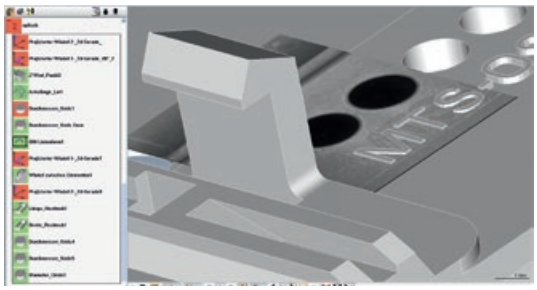

CALYPSO 2015 Copyright © Carl Zeiss Industrielle Messtechnik GmbH - Measurement Plan 1
File Edit View Resources Features Construction Size Form and Location Plan CAD Extras Planner Window ?
Ready: Make selection or take probings
Parameter for LED lighting
Current Setting:
iplit48
Available settings:
iplit48
New
1
2
3
4
5
6
7
8
Red
Blue
Single segments
all segments
78.0
Coaxial Light
Mini-ring Light
Back lighting
0.0
OK
Cancel
Apply settings
250
Threshold
No Filter

Seeing and understanding – with ZEISS CALYPSO

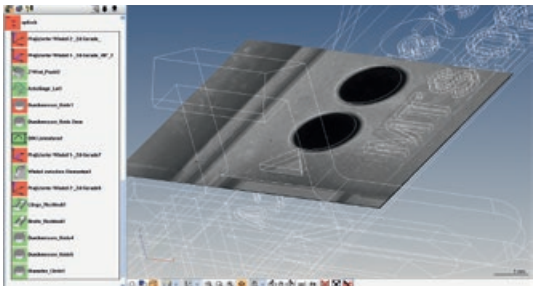
Camera image, CAD model and results in one view – ZEISS CALYPSO reference measuring software makes this possible. Its flexibility and simplicity put it squarely in the center of all industrial measuring technology.

Together with ZEISS CALYPSO measuring software, the ZEISS O-INSPECT opens up new visualization possibilities. You see the actual status, nominal display and a visualization of the errors for the component, making it particularly easy to properly allocate and interpret measurement results.

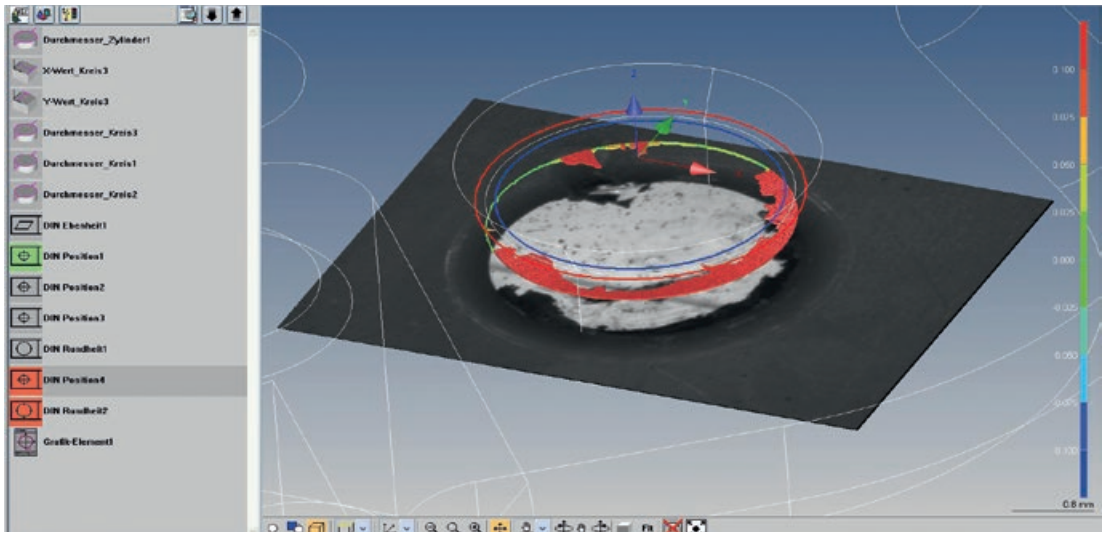
One piece of software for all measuring jobs
The ZEISS O-INSPECT does not skimp on software either. With ZEISS CALYPSO, you have access to the same software used to operate our other coordinate measuring machines. ZEISS CALYPSO combines a wide variety of functions and flexibility with a universal, intuitive operating concept. ZEISS CALYPSO allows you to quickly and easily complete a wide range of measuring jobs using various sensors in the same way.



CAD surface model and camera image



CAD line model and camera image



CAD model, camera image, actual and nominal features and errors

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