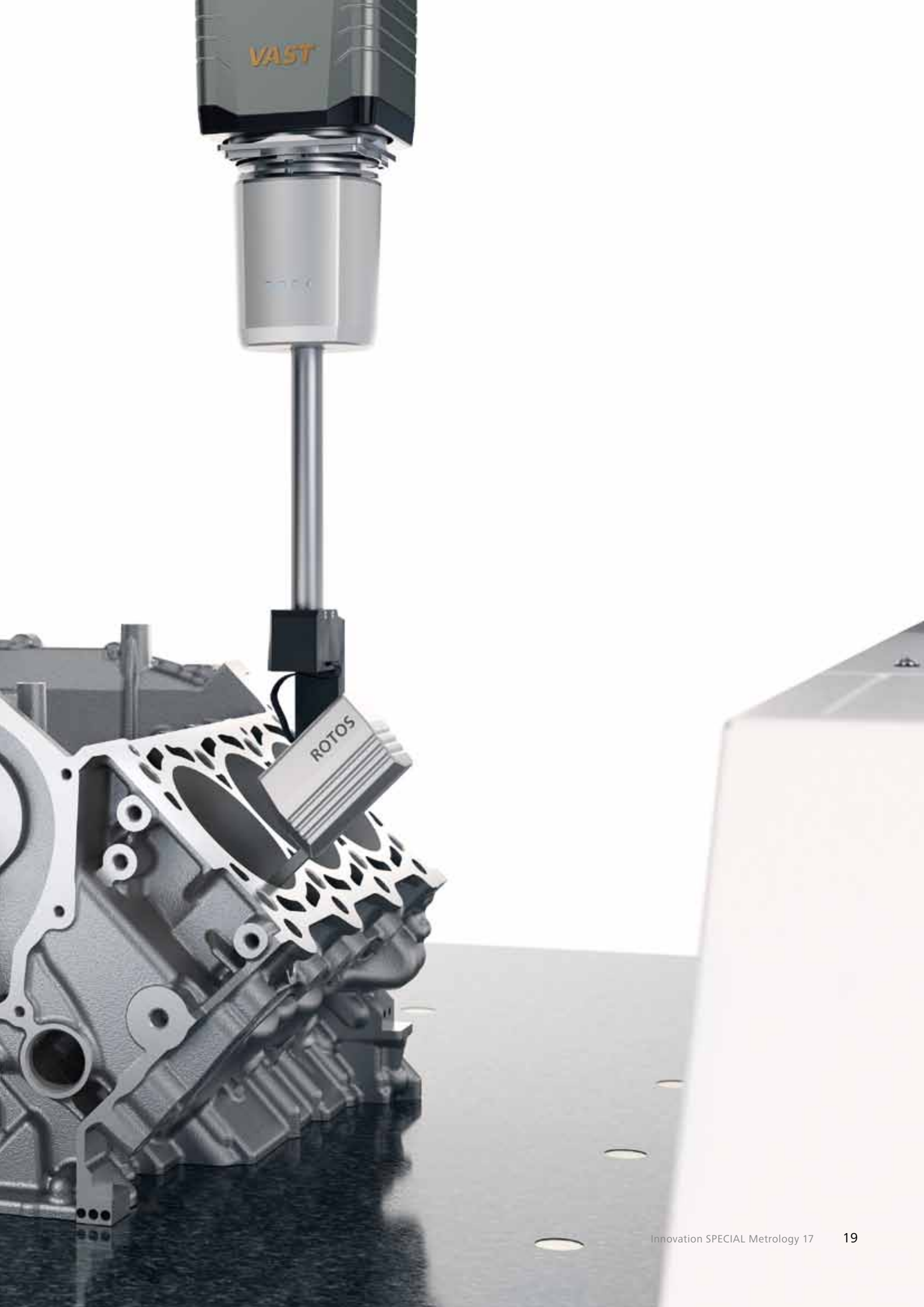


All Features, One Measuring Machine

The new ZEISS ROTOS roughness sensor

RODOS from ZEISS, the new roughness sensor, enables the standard-compliant inspection of roughness and waviness on a single coordinate measuring machine (CMM) for the first time. Therefore, all features of a technical drawing can be fully captured with one CMM and displayed in one report. It is no longer necessary to transfer to a surface measuring instrument. Various measuring positions can be reached without rechucking and a fully automatic run is possible without the operator influencing the surface measurement. The benefit: a simplified workflow for added measuring certainty and enormous time savings.





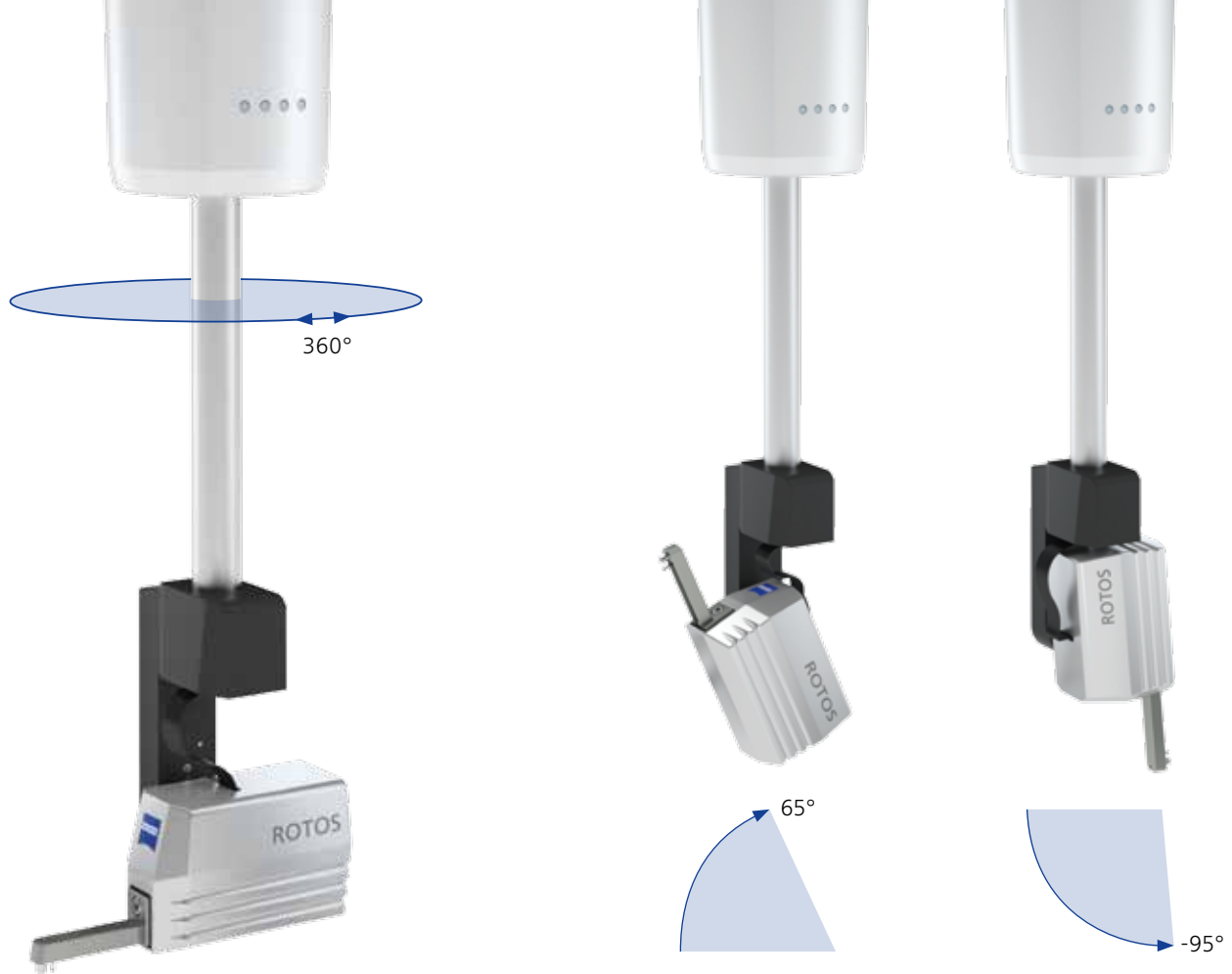
VAST

VTX

ROTOS

ZEISS ROTOS is ideal for powertrain components





Very mobile: the swivel range of ZEISS ROTOS encompasses 360° horizontal and 160° vertical

Today, roughness is usually measured using contact stylus instruments such as ZEISS SURFCOM in the measuring lab. In production, mobile devices such as the ZEISS HANDYSURF (skid probing system) and ZEISS SURFCOM 130 (free probing system) are frequently used. They can be quickly positioned at various areas on the workpiece for a surface measurement. However, the reliability of manual measurements depends on the expertise and diligence of the person operating the equipment. Furthermore, the results of mobile devices with a skid probing system generally do not correspond to the standards for surface measurements and are therefore not always accepted for conformity assessments.

New workflow

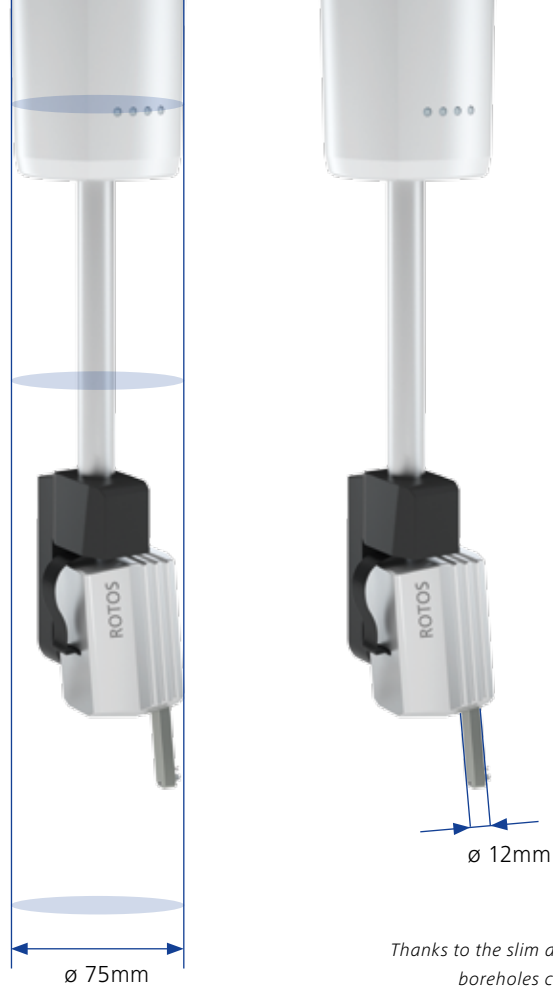
The new ZEISS ROTOS roughness sensor enables a new, simpler workflow in quality assurance. It is intended for users that inspect size, location or form

on a coordinate measuring machine and also need to measure roughness and waviness on the same workpiece. Instead of transporting the workpiece to a contact stylus instrument and clamping it, ZEISS ROTOS is used via the stylus changer interface on the probe of the coordinate measuring machine – under full CNC control. This takes just a few seconds compared to the previous several minutes. Because it is no longer necessary to transport and clamp the part, the susceptibility to errors throughout the process and operator influence are eliminated. The time savings with ROTOS from ZEISS become even more obvious when multiple roughness measurements in different orientations are required. On a contact stylus instrument, this means rechucking the workpiece every time or CNC-guided movement of the workpiece. On the coordinate measuring machine, the workpiece can generally remain in one setting for the entire process.

Can be flexibly positioned

ZEISS ROTOS can be positioned very flexibly to reach all surfaces on a part without rechucking. Furthermore, the sensor features a rotating/tilting axis. The rotary axis can turn a full 360 degrees. The sensor can be tilted perpendicularly downward, plus an additional five degrees via the tilt axis. It can tilt upwards by 65 degrees. This results in a tilt range of 160 degrees. The 36 millimeter long stylus arm can be inserted into boreholes with a diameter of at least 11 millimeters. The entire sensor is so compact that it fits in a 75 millimeter cylindrical borehole.

Because the entire measurement with ZEISS ROTOS is CNC-guided, the risk of operator errors has been considerably reduced. Unlike manual roughness sensors, measurements on a CMM are more reproducible and the measurement location is verifiable. This makes it easier to find the measurement



Thanks to the slim design, the interior of boreholes can also be inspected

location again. As a free probing system, ZEISS ROTOS is also suitable for standard-compliant conformity assessments for external parties.

Accuracy

The accuracy of ZEISS ROTOS covers the quality of all machined surfaces. The sensor is therefore ideal for the quality inspection of powertrain components.

ZEISS ROTOS is connected to the measuring machine via the VAST line of active probes, which dampen interferences from the machine and environment, and also determine the measuring position of ROTOS. Measurement data from ZEISS ROTOS is transmitted via Bluetooth to the analysis computer. The data is then imported into ZEISS CALYPSO CMM software via a machine driver and can be exported with other measurement data in a common report.

In short, the three key benefits of a workflow with ZEISS ROTOS are: improved measuring productivity, reliable and fully automatic measuring runs, and the common report. They

are based on the seamless interaction between the sensor, measuring machine and software. As a systems manufacturer, ZEISS guarantees the performance and precision of the entire system, which, after all, is what it's all about.





At a glance ZEISS ROTOS

- Improved measuring productivity through integrated CNC roughness measurement on the coordinate measuring machine
- Enables fully automatic measuring runs for size, form, location and surface quality
- Free probing system with 2 μm and 5 μm stylus radii
- Sensor is carried by the ZEISS VAST gold, VAST XT gold and VAST XTR gold active probes
- Two continuous rotation axes to reach many measurement positions