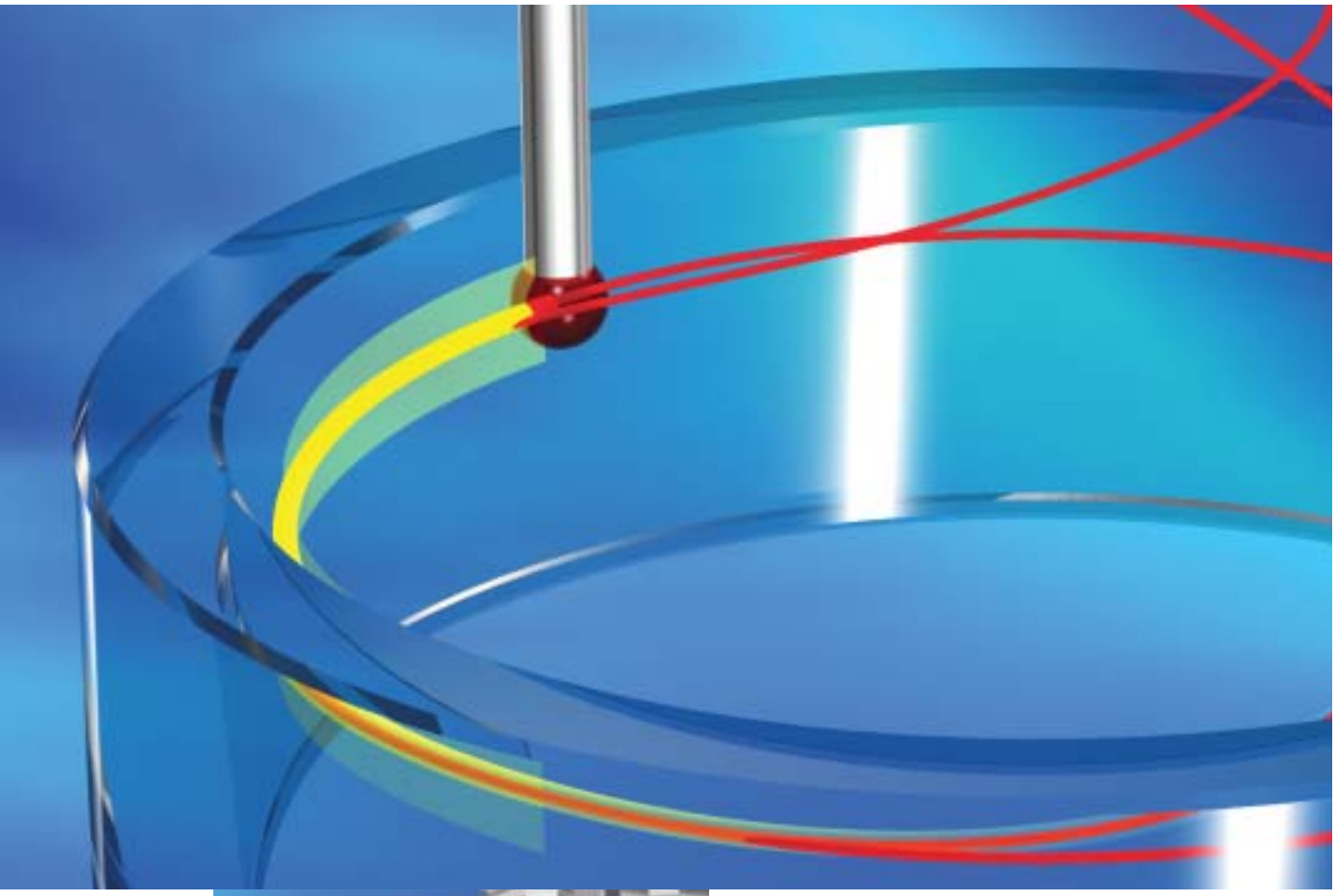
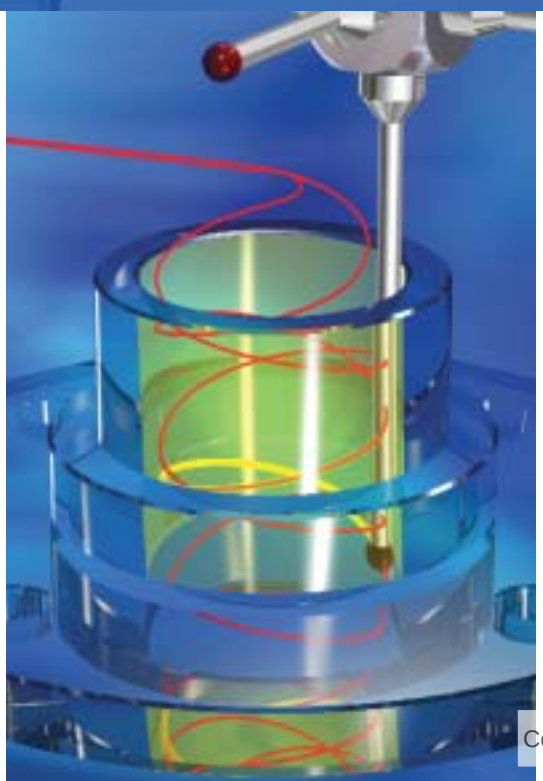
Surefire Success.
VAST Navigator.



VAST Navigator



ZEISS

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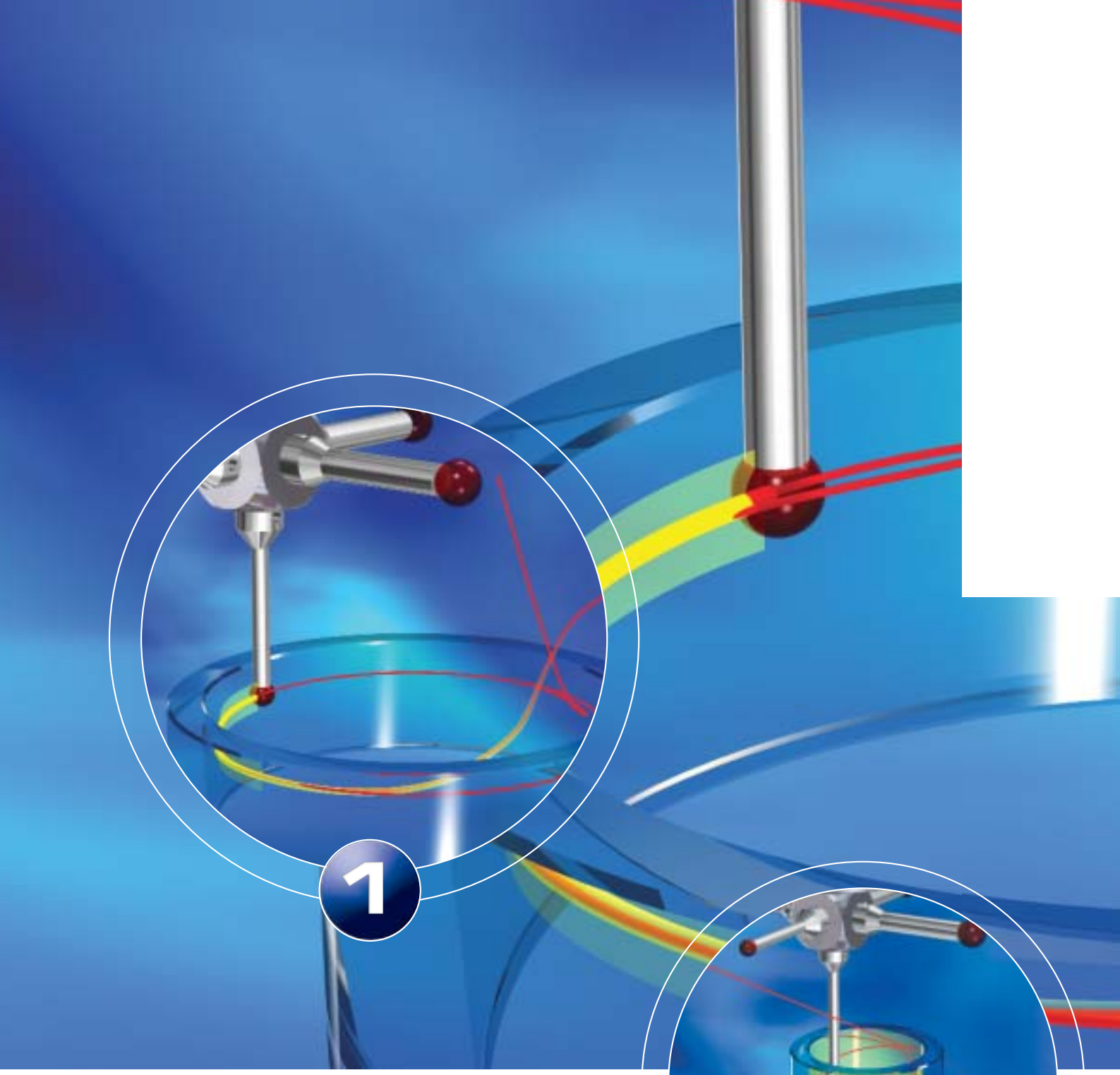


1. Tangential approach and probing
2. Helical scanning
3. Dynamic stylus calibration

Surefire Success.

Speed is all that counts in measuring technology, and nowhere else is it measured more than directly on or nearby the shop-floor. The faster you can verify a workpiece, the faster you can identify and eliminate possible errors.
Idle times can be reduced to a minimum or avoided altogether.

With the VAST technology, we have been addressing speed to measuring technology since 1994. The Carl Zeiss scanning method has revolutionized the entire development in scanning technology. Currently there are more than 2000 installations of PRISMO CMMs with VAST technology.

The new VAST Navigator is always one step ahead of metrology developments. See for yourself: the VAST Navigator leads to certain success.

High performance in metrology is a question of technology.

Measurement performance is directly related to measuring time. An increase in measurement performance is therefore synonymous with higher information contents in shorter time.

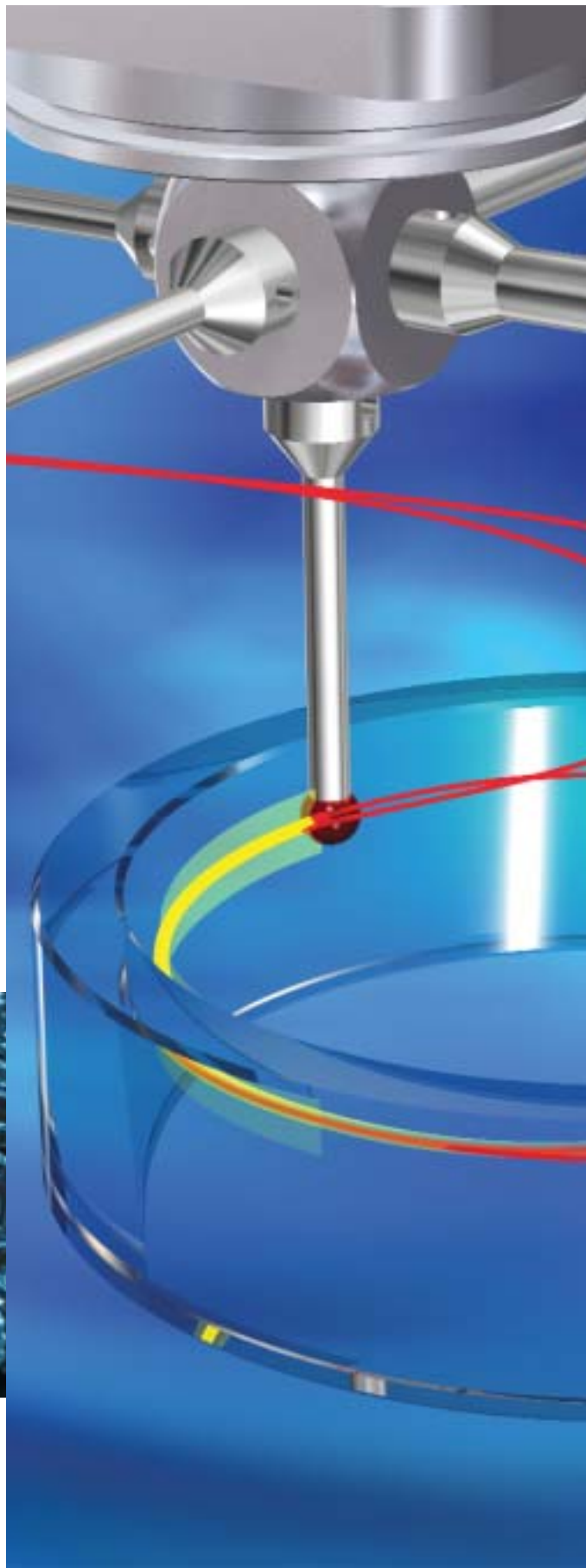
The time that could be saved if the travel speed were to be increased with conventional measuring technology would be negligible. Approaching and capturing the point, then moving to the next point is the actual measuring technology which decides on time.

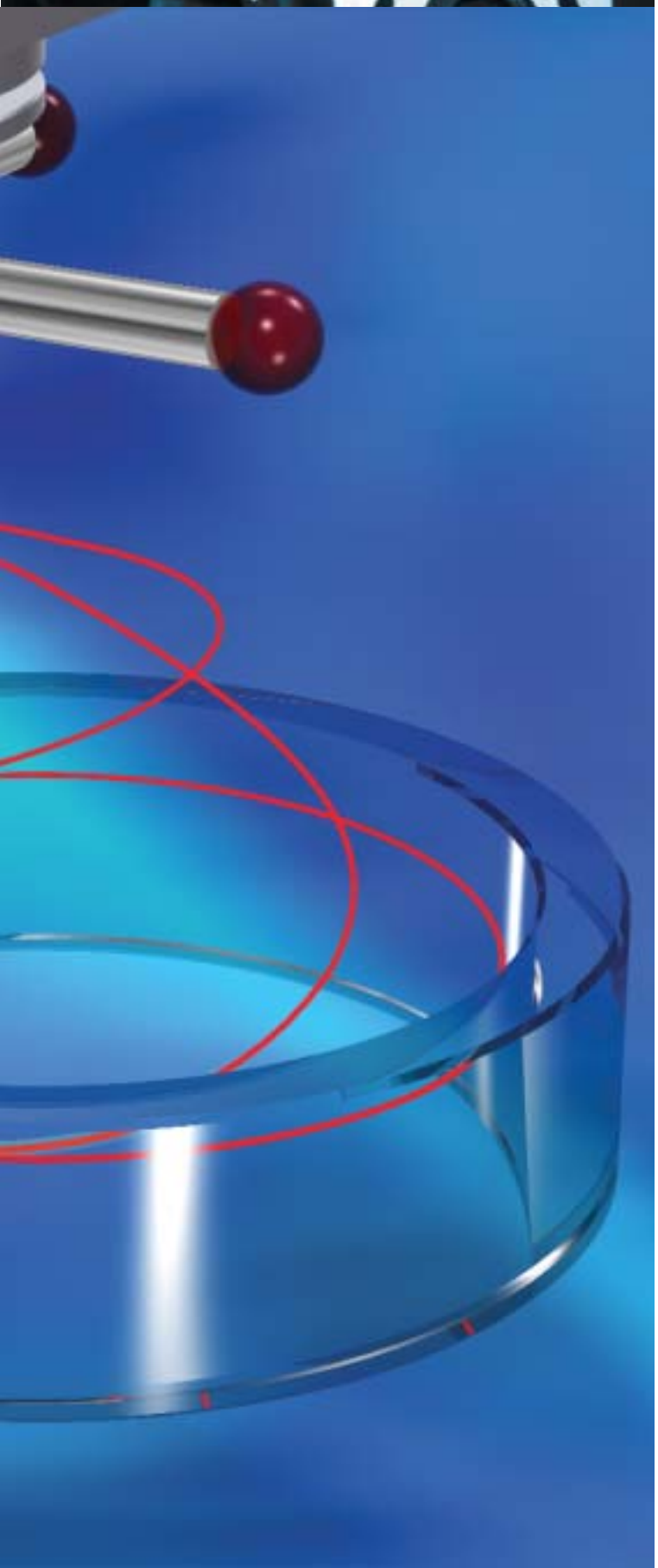
With the VAST Navigator, Carl Zeiss has launched an entirely new technology. Its secret can be attributed to:

$$\text{Measurement performance} = \frac{\text{Information Content}}{\text{Time}}$$

In other words, measurement performance means

- **more information content**
- **with more reliability**
- **in a shorter time.**





What does information content mean?

The information content is a function of two components. (1) the high point density, and (2) their evaluation quality.

How can you save measuring time?

1. All intermediate stops must be reduced to a minimum and approaches optimized.
2. Time-consuming measuring applications such as cylinder bores on engine blocks, for example, must be captured rapidly, adopting a new strategy.
3. The speed of scanning – which is already the fastest method – must be increased.

How much do you save?

The amount of time that can be saved is significant when measuring boreholes.
In metal cutting, bores are the most frequent application.
With the VAST Navigator you can now save up to 30% of actual measuring time. Do you know a faster measuring method?

VAST Navigator

- **Ready**
- **Steady**
- **Go**

Speed and accuracy are not contradictory.

With conventional measuring technologies, speed and accuracy are considerd "natural enemies". The faster you measure, the more inaccurate the result. The VAST Navigator eliminates this opposition. With clearly higher scanning speeds it succeeds in achieving perfect results.

Twice the scanning speed

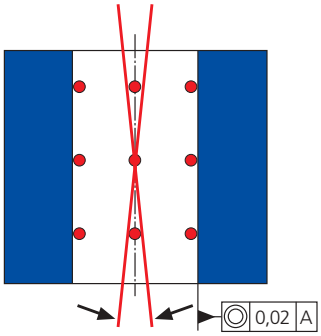
If you want to almost double the scanning speed, the dynamic influences have to be included in the stylus calibration.

For this reason, when performing calibrations on the reference sphere, the VAST Navigator must operate with speeds of 5 mm/sec and 50 mm/sec. In this way, the dynamic and static influences of the high accuracy and high speed areas are determined, and at the same time, corrected.

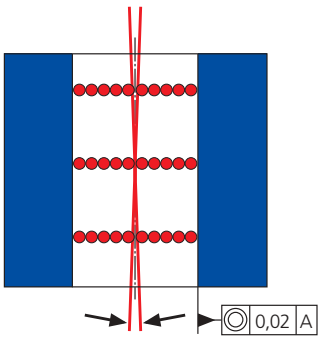
The new scanning technique of the VAST Navigator combines three benefits:

1. Unlike conventional methods, no ring gages are required for calibration.
2. The calibration procedure doesn't depend on the dimensions and 3D geometries of the individual features.
3. The calibration is performed exclusively on the calibration sphere.

After the dynamic stylus calibration you can measure with variable, high scanning speeds, at different scanning planes and with cutting-edge accuracy.

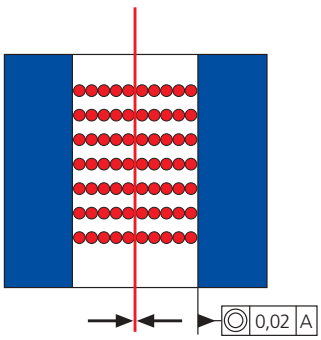


▲ Single points

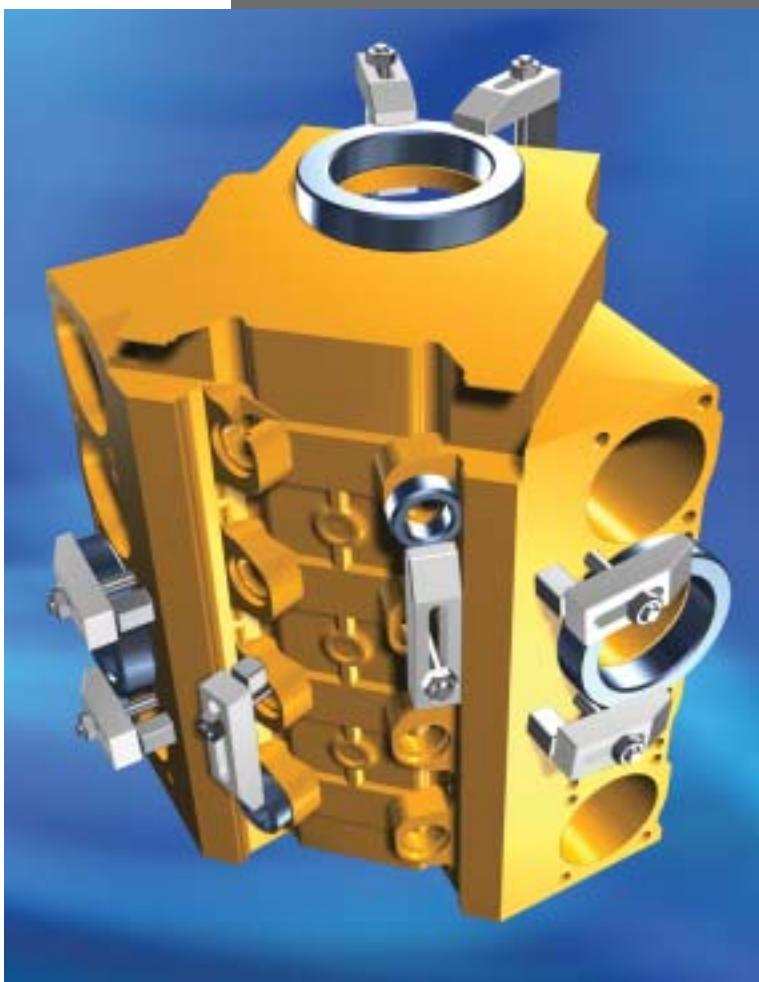


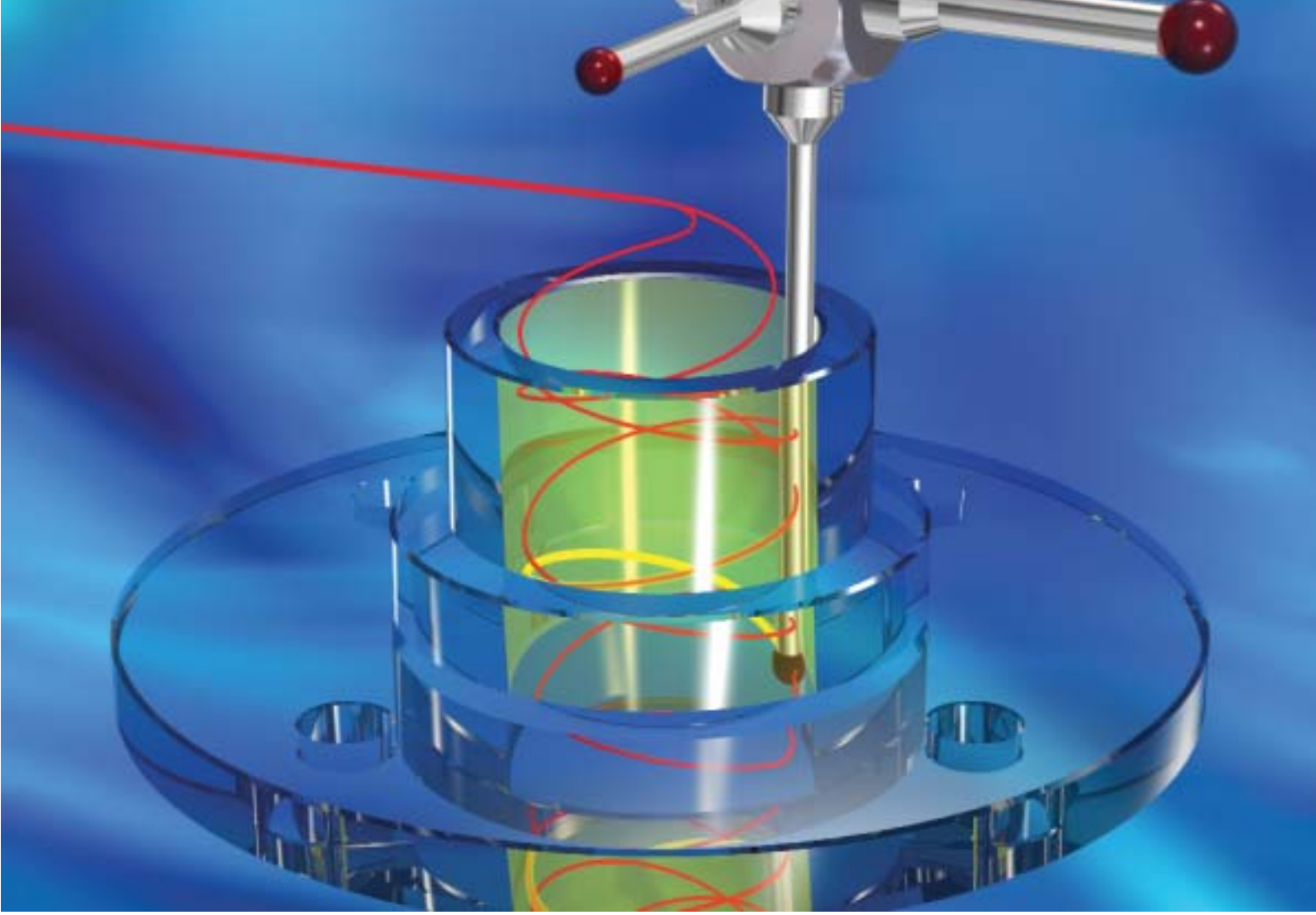
▲ Conventional scanning

With its high dispersion and low repeatability, single point measurement yields results of low accuracy. The VAST Navigator guarantees results of optimum quality and density due to its low dispersion and high repeatability.



▲ Helical scanning





The time-consuming calibrations on ring gages needed in conventional measuring methods are eliminated with the VAST Navigator.

The dynamic stylus calibration method of the VAST Navigator is so incredibly flexible that it can be used for all workpieces.

The stylus keeps the calibration data throughout the entire measuring program: for single points, for conventional scanning and for the dynamic VAST Navigator scanning.

In short:
Dynamic calibration at the limits – measuring at twice the speed.

Perfect results with helical scanning

Conventional scanning methods are cumbersome and time-consuming, particularly in cylinder measurement. In order to calculate a best-fit cylinder, several circular sections and surface lines need to be measured, and still the position of the cylinder can only be defined with a wide dispersion.

With the VAST Navigator you achieve short measuring times and high point density, which results in perfect quality. In scanning, the VAST Navigator adopts the helix interpolation principle. Helical scanning more or less simulates the classical dog house gage in order to obtain better coverage of the complete cylinder surface. Thereby we accomplish extremely stable results and optimum repeatability.

The VAST Navigator probes the cylinder as one element- in an uninterrupted helical line. You can rely on your VAST Navigator to perform your measurements with virtually the same perfection as an ideal gauge, and, on top of it, to provide absolute results.

In short:
Precise measurement in helical lines

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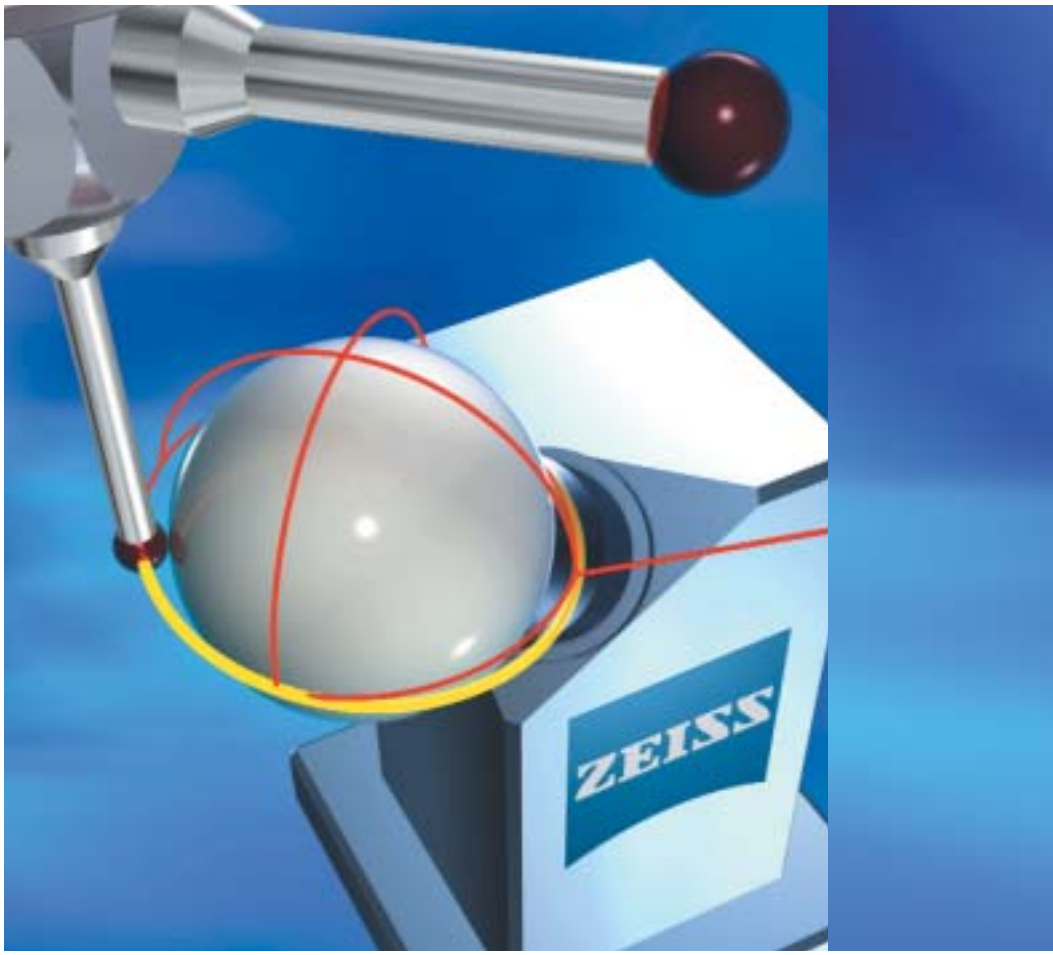

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