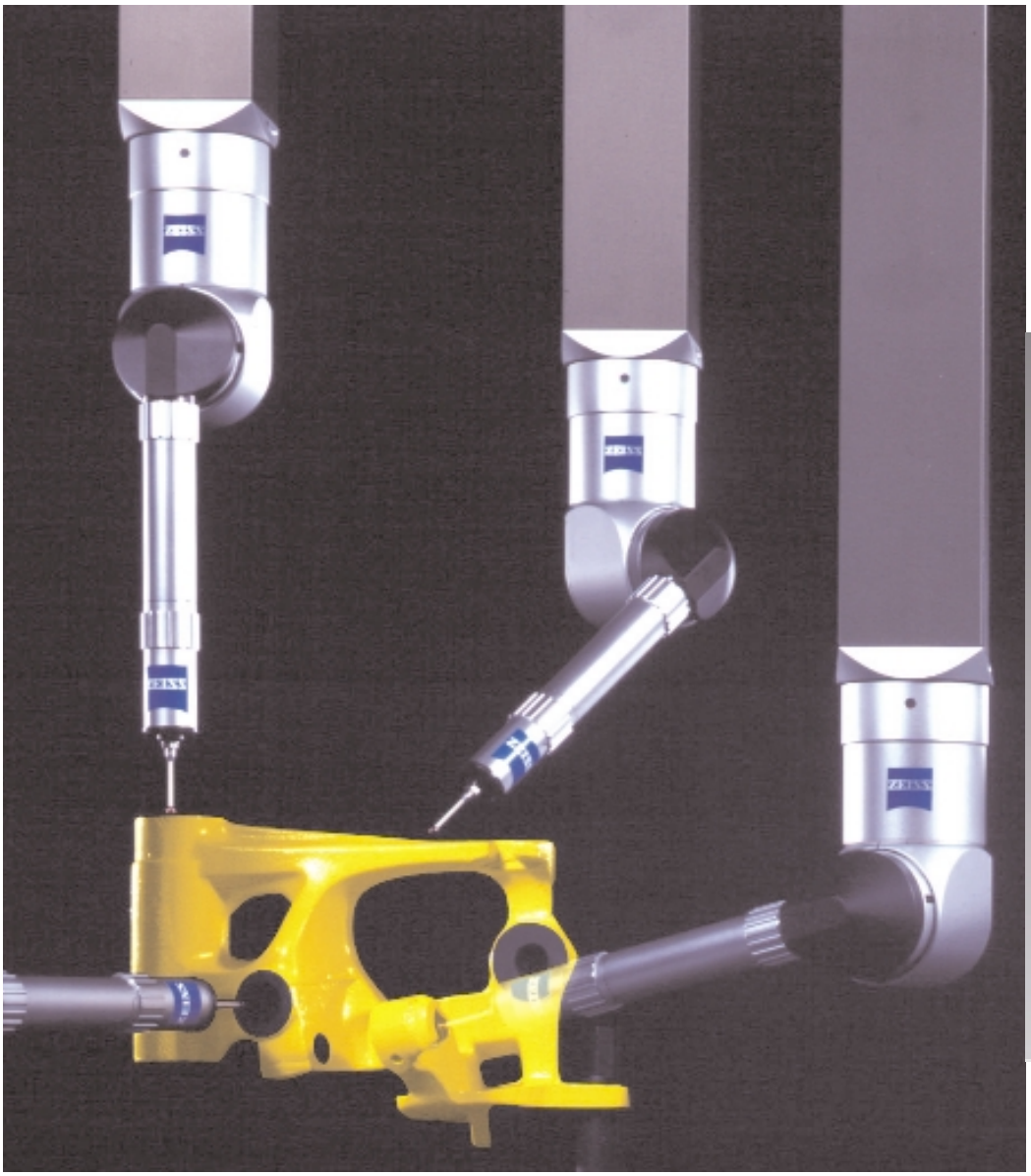
RDS.
Articulating Probe Holder.



ZEISS

SIMPLY MEASURE

Range of applications

You won't find a simpler or more versatile technology.

The Zeiss RDS makes it possible, for the first time ever, to reach virtually all spatial angles with an extremely large number of discrete positions.

This is especially beneficial for measuring intricate parts that normally require probes configured for many spatial directions.

The RDS knows no bounds.

A part is checked in its entirety using only one probe and one clamping setup.

Short set-up times.

No complicated probe combinations means simple parts programming.

Fast measuring run.

In most cases, no probe change is required. This increases your throughput rate and reduces idle times.

New:

RDS-CAA with drastically reduced calibration time for Horizontal Arm CMMs.

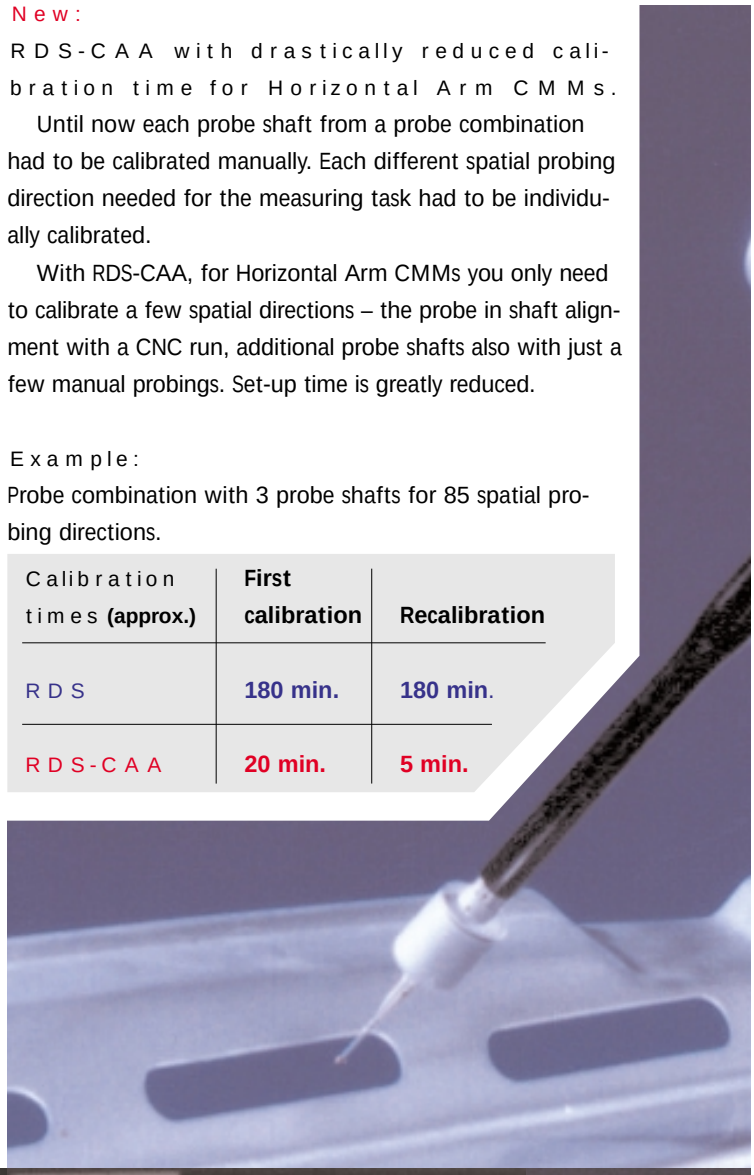
Until now each probe shaft from a probe combination had to be calibrated manually. Each different spatial probing direction needed for the measuring task had to be individually calibrated.

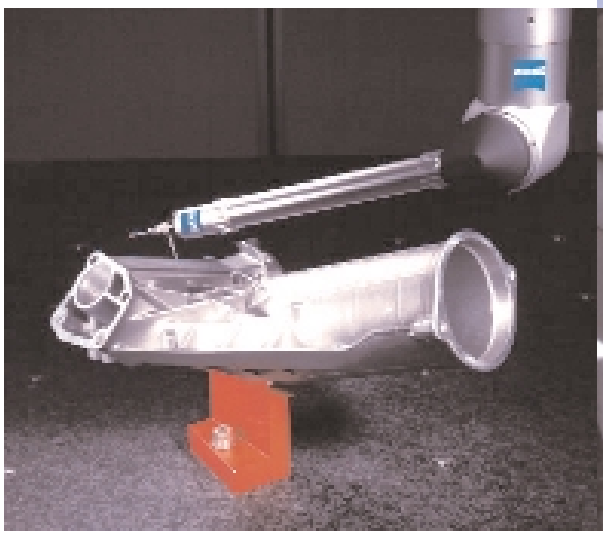
With RDS-CAA, for Horizontal Arm CMMs you only need to calibrate a few spatial directions – the probe in shaft alignment with a CNC run, additional probe shafts also with just a few manual probings. Set-up time is greatly reduced.

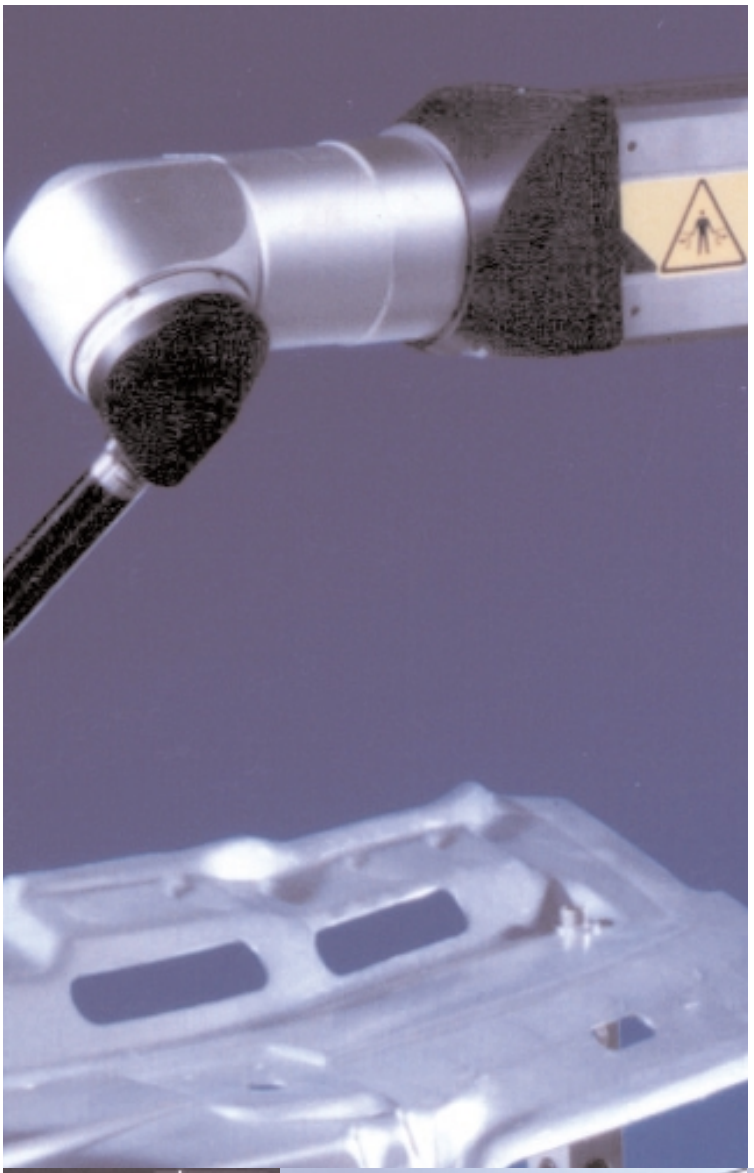
Example:

Probe combination with 3 probe shafts for 85 spatial probing directions.

Calibration times **(approx.)**	**First calibration**	**Recalibration**
RDS	**180 min.**	**180 min.**
RDS-CAA	**20 min.**	**5 min.**







Measuring deep bores.

Deep sloped bores can be probed without shaft contact. The RDS provides steps as small as 2.5°!

Ease of operation.

During programming, the joysticks of the control panel can be used to position the RDS. This greatly simplifies operation, reducing programming times and eliminating collisions.

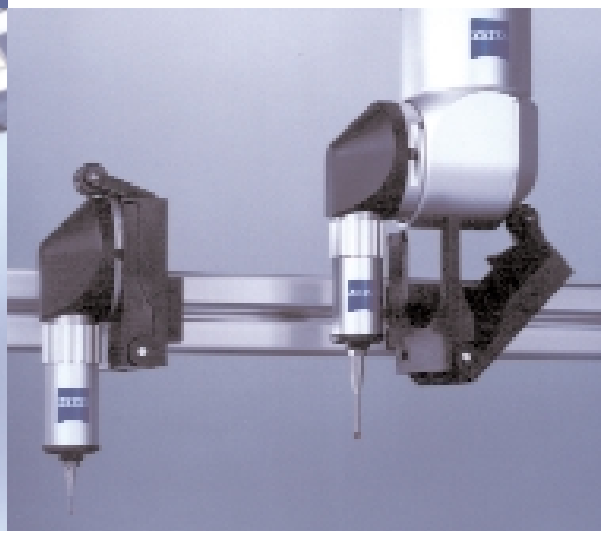
Due to full integration in the Zeiss software the RDS is able to be driven with the aid of joysticks in the workpiece coordinate system. Conventional systems only are able to be driven in the CMM coordinate system.

No inaccessible zones due to complete rotation about the axes.

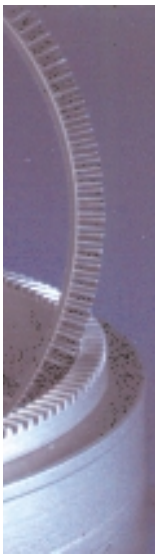
The two axes of rotation are arranged laterally and perpendicularly to each other; this ensures ±180° of rotation in either axis. The lateral position of the second axis results in optimum utilization of the CMM measuring range. In addition, the wide bearing base delivers high rigidity.

Manual or automatic probe change.

Different probe systems can be exchanged – even with extensions. CNC-change permits automatic operation.



Technology



The RDS owes its generally recognized Zeiss accuracy and reliability to a number of special features.

Small indexing steps of 2.5° and high precision yield a vast number of positions.

The wide base of the Hirth-type serration and the great number of teeth guarantee utmost positioning accuracy and minute step widths.

144 x 144 – 20.736 positions with ± 1 second accuracy.

Thermal stability due to external energy siting.

The control electronics are integrated in the CMM away from RDS. No separate housing unit is needed. The serration is decoupled pneumatically and positioning is performed by low-energy motors.

High probing accuracy.

The double-trigger principle of the piezo-electric RST sensor makes the system independent of the probing position and direction, and permits extensions of up to 300 mm (12 in.) and probes of up to 90 mm (3.6 in.) in length.

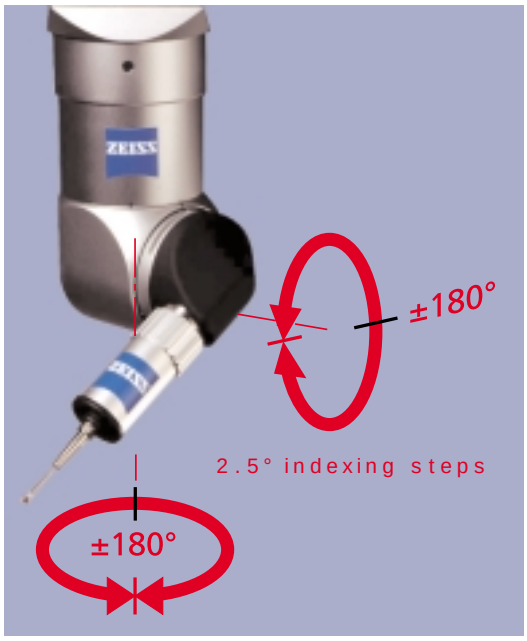
The Renishaw TP6 and TP2 sensors are manually or CNC changeable via a special probe-changer adapter plate with high reproducibility.

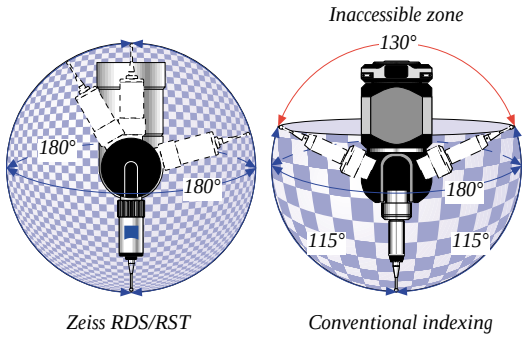
Inherent reliability.

Efficient collision protection comes from the RST sensor and disengagable adapter plate with drop protection. Active contacting delivers automatic sensor identification.

Featured ...

... in the standard initial setup or as a retrofitting option in all Zeiss CMMs with an ST3 probe head.





The RDS can reach 20,736 positions at 2.5° indexing steps. Other articulating probe holder only reach 720 positions (180°/115° with angular increments of 7.5°).

Specifications

General		RDS
Mounting on CMM		Reproducible 3-point mount (ST3)
Sensor reception	Standard:	Manual change via push of a button at the control panel (electromagnetic reception)
	Option:	CNC change in connection with probe magazine and control software
Dimensions, Weights		
Overall dimensions		
	Diameter in mm (in.)	64 (2.5)
	Height in mm (in.)	140 (5.5)
Weight (approx.)	kg (lb)	1 (2.2)
Performance Data		
Max. articulating range	Rotary axis	± 180°
	Swivel axis	± 180°
Increments		2.5°
Positions available		20.736 (144 x 144)
Maximum torque	(Nm)	0.5
Maximal extension for RST		
	in mm (in.)	300 (12)
Positioning repeatability		± 1"
Cycle time for 90° movement	(s)	< 3
Probe mounting repeatability		± 1"
Supply Data		
Air supply		Via air supply of CMM
Permissible environmental Conditions		
Ambient operating temperature		+5 °C to +40 °C (41 °F to 104 °F)
Sensors		
RST		
General		RST direction-independent dynamic probe head. Double-trigger principle by combining a mechanical switch and a piezoelectric sensor.
Performance data		
	Repeatability in µm (in.)	0.5 (0.000 020) at a probe length up to 20 mm (0.8 in.)
	Mounting position	Freely selectable
	Minimum probe tip dia. in mm (in.)	0.5 (0.02)
Permissible sound level		75 dBA at sinusodial excitation 80 dBA noise
Weights, dimensions		
Overall dimensions		
	Diameter in mm (in.)	26 (1)
	Length in mm (in.)	56 (2.2)
Weight	in g (oz.)	40 (1.4)
Extensions	Diameter in mm (in.)	26 (1)
	Max. length in mm (in.)	300 (12)
Renishaw	TP6, TP2	Mounted on a special probe-changer adapter plate; CNC-changeable from/to a magazine.

60-20-109/I-e Printed in Germany. III/2000 Noo
Subject to technical modification and to changes in scope and design.
Printed on chlorine-free paper.

Carl Zeiss
Unternehmensbereich
Industrielle Meßtechnik
D-73446 Oberkochen
Sales: +49 18 03/33 63 36
Service: +49 18 03/33 63 37
Fax: +49 73 64/20-38 70
E-mail: imt@zeiss.de
Internet: http://www.zeiss.de

VAST XXT –
the Zeiss scanning solution for RDS

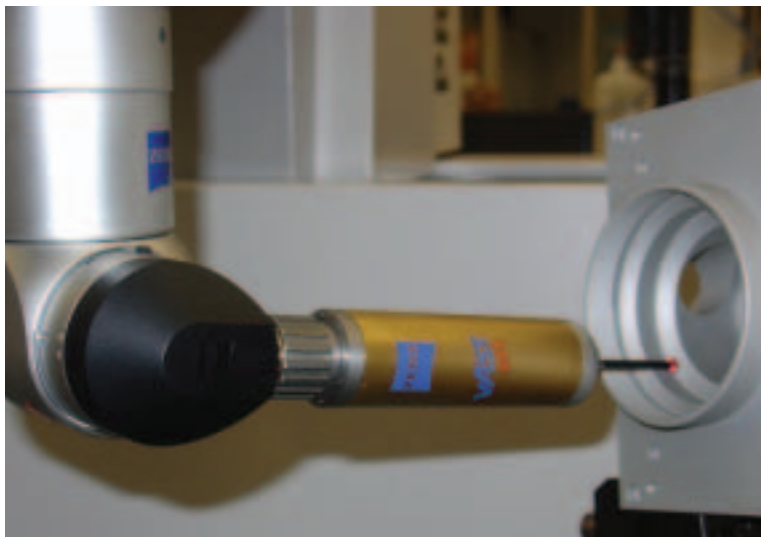
- Complete scanning ability on RDS
- Reliable and easy integration
- Affordable and accurate

ZEISS

We make it visible.

VAST XXT.
Scanning with an articulating probe holder

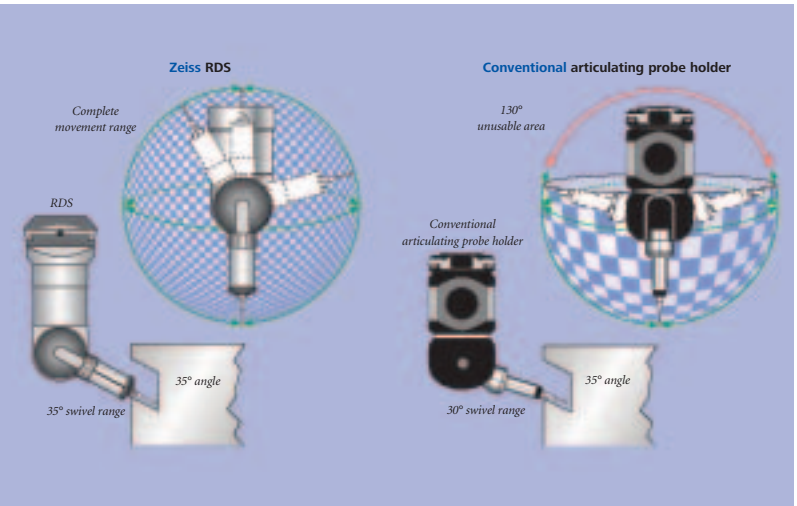
Our active scanning VAST sensors have become firmly established in metrology for applications requiring maximum accuracy with large stylus configurations. Next to these applications, however, there are a large number of areas where users welcome the flexibility offered by an articulating probe holder, if workpiece tolerances permit.

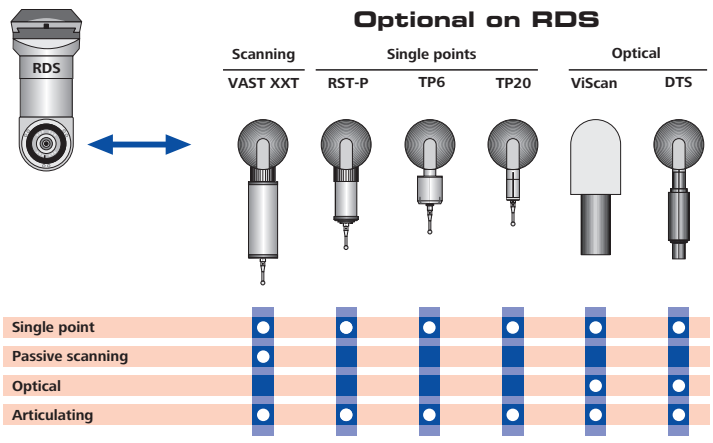


The VAST XXT passive sensor enables scanning with an RDS articulating probe holder with high accuracy and small dimensions. It supplements the VAST sensor line for applications in which the flexibility of an articulating probe holder is needed.

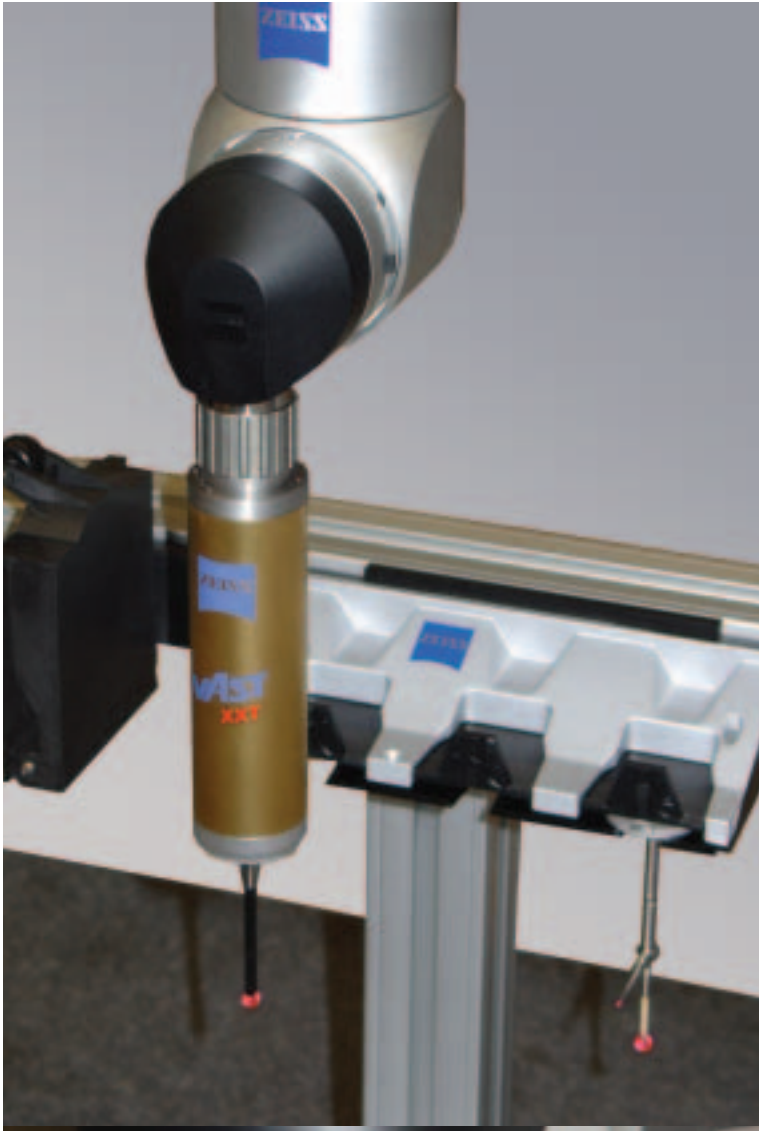
As a replacement for trigger sensors, VAST XXT offers better measurement reliability and accuracy. It also adds scanning functionality to the measurement spectrum, thus providing more information on the shape of features.

The 20,376 positions that the RDS articulating probe holder allows in 2.5° increments, guarantee optimal accessibility of the feature.





Stylus rack (top) and measurement with lateral stylus on VAST XXT (bottom)



Your one-stop provider

The development and integration of all relevant components at Carl Zeiss ensure maximum performance for the entire system.

- Sensors from Carl Zeiss
- Software from Carl Zeiss
- Calibration algorithms from Carl Zeiss
- Optimal integration
- Outstanding scanning software

The MCC 800 controller allows the use of VAST XXT on new coordinate measuring machines, as well as those that could previously only use touch-trigger probes. A synchronization procedure (patent pending) reliably allocates the machine co-ordinates without interruption. This significantly increases the stability of the system compared to standard analog signal transmission.

Highlights

- Only 2 thermally stable stylus modules
  - Fewer components
  - Reduced influence of errors
  - Less calibration
  - Fewer stylus changes
  - More productive measurement procedures
- Stylus lengths up to 250 mm
- 25 mm diameter adapter plate for maximum reproducibility
- Large deflection range: +/- 3 mm for highest possible collision protection
- Scanning sensor with automatic recognition of new stylus module
- Minimum influence of deflection in articulating mode
- Digital signal transmission for maximum operational reliability
- Lateral stylus can be used
- Automatic stylus change
- Sensor change on RDS (ViScan, RST...)
- Minimum measuring forces for a wide spectrum of work pieces

60-20-127-e Printed in Germany W-TS-VI/2004 Noo
Subject to change. Printed on chlorine-free paper.

Carl Zeiss
Industrielle Messtechnik GmbH
73446 Oberkochen
Germany
Tel.: ++49 (01803) 336 336
Email: imt@zeiss.de
Internet: http://www.zeiss.de/imt

For advice, please contact: