RONDCOM Form Testers

Rotary table instruments and spindle form testers

RONDCOM TOUCH

RONDCOM 31, RONDCOM 41

RONDCOM NEX

RONDCOM Grande

RONDCOM NEX Rs

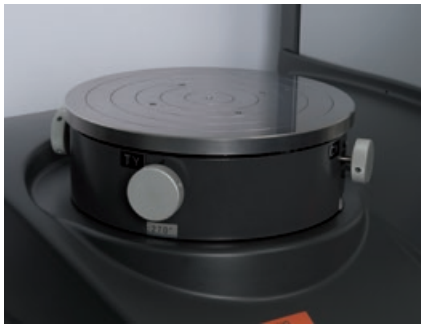
RONDCOM 60 A, RONDCOM 60 AS

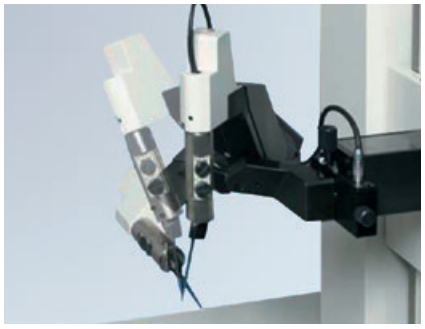
RONDCOM 65 B

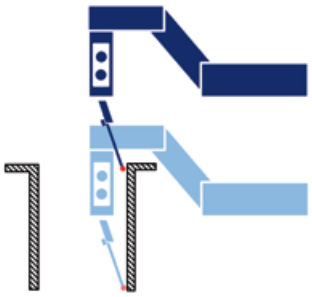
RONDCOM 73 A

RONDCOM 76 A

RONDCOM
Technological benefits



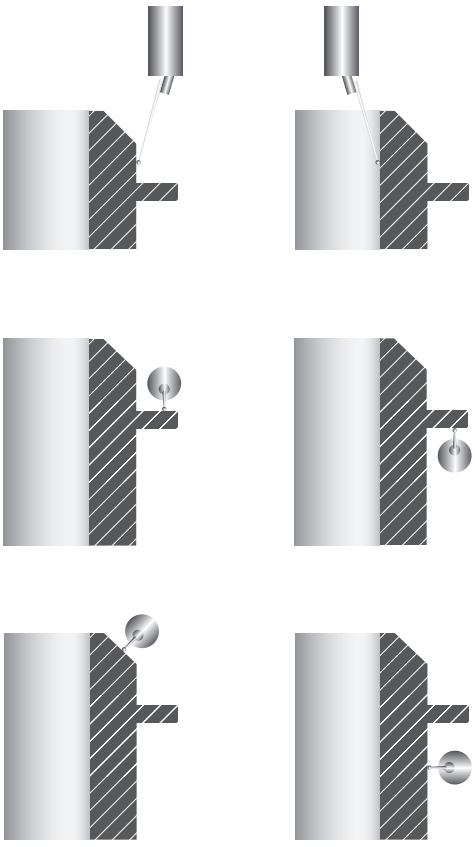




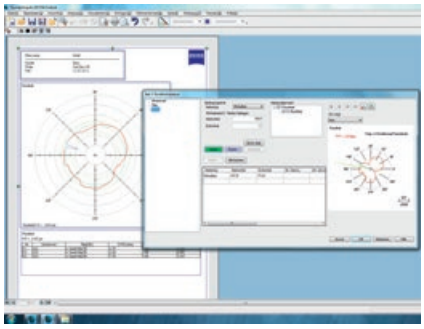
Air bearing technology
The heart of every RONDCOM form tester is the rotary table on air bearings. The benefits of air bearings compared to a rotary table with mechanical bearings are:

- High rigidity and long-term stability
- Non-contact travel, therefore drive vibrations do not affect the results
- No wear and tear
- No lubrication required
- High measuring speeds
- Maximum possible rotation accuracies of up to 10 nanometers

CNC offset probe mount
The patented CNC offset probe mount can be tilted and pivoted under CNC control to align a feature and is fully automated. The intelligent design makes it possible to reach deep measuring sites with short, accurate and specified styli. For example: using the 53 mm long standard stylus specified, it is possible to insert the stylus to a depth of 150 mm in an interior cylinder and perform a highly precise measurement. Thanks to the tilting and pivoting capabilities, measuring positions perpendicular to each other can be adjusted with virtually no movement of the R axis. This prevents measuring errors.



Different measuring positions can be quickly reached with the CNC offset probe mount – without compromising accuracy.

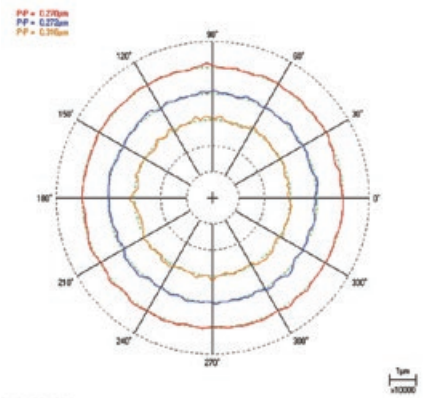


Dynamic calibration
The patented dynamic calibration of the probe reduces calibration time. Calibration is further simplified through the use of a special magnification standard. The calibration method is equal to a flatness measurement.

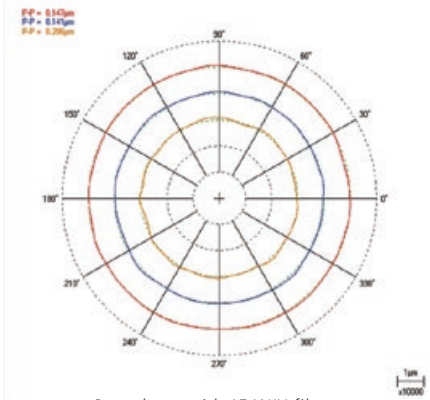
The high-resolution IMR probe
The IMR probe provides resolution of two nanometers over a wide range of ±1,000 µm. This high resolution enables the realization of an alignment routine in less than one minute.

ACCTee PRO Software
All RONDCOM systems are programmed using the intuitive ACCTee PRO software. The configurable interface can be quickly adapted to individual requirements. The repeat measurement at the push of a button is unique to ACCTee PRO. Changes in evaluation such as filter, centering method and nick cut out functions can be performed without a repeat measurement. The impact on the measuring results is displayed immediately. Inspection results can be displayed numerically and graphically. The display can be customized with just a few clicks of the mouse.

Stricter acceptance conditions
The accuracy that is achieved during the acceptance of a form tester depends on the filter and size of the stylus tip used for acceptance. Stronger filters and larger tips enable you to smooth over the results because fine irregularities are smoothed. Unlike many of our competitors, ZEISS uses a weak filter with 50 W/U and small stylus tips for acceptance. Roundness errors, which are more strongly filtered (15 W/U), are generally 40 % smaller.



Roundness with 50 W/U filter



Roundness with 15 W/U filter

	50 W/U filter	15 W/U filter
Roundness section 1 red	0.27 µm	0.147 µm
Roundness section 2 blue	0.272 µm	0.141 µm
Roundness section 3 yellow	0.316 µm	0.206 µm

RONDCOM TOUCH

A highly-compact form tester with a movable X axis

RONDCOM TOUCH with tablet

RONDCOM TOUCH
was developed to enable uncomplicated measuring during the manufacturing process. The size of the system is only 320 x 410 x 553 mm.

Compact design
Compared with previous systems in its class, the footprint and height of the RONDCOM TOUCH have been significantly reduced – sometimes by almost 50%.

Light-weight
Weighing just 26 kg, the RONDCOM TOUCH is one of the lightest systems in its category.

Horizontally movable column
The column of the RONDCOM TOUCH can be moved on the X axis, ensuring that the probe reaches the workpiece from all sides without any problem.

Options
- In addition to the standard desktop PC, the RONDCOM TOUCH can also be operated using a tablet with a touchscreen.
- The RONDCOM TOUCH can be connected to a tablet or printer via Bluetooth.
  Connection via a USB cable is also possible.

Advantages
- ACCTee PRO software with a graphic control unit for particularly fast and unproblematic alignment
- Measure the roundness of gears by including the tip circle

Technical data summary	
Roundness error[1]	0.02 + 0.0003* (50 W/U filter)
Measurable diameter	150 mm
Max. workpiece diameter	240 mm
Z axis straightness	–
Max. workpiece weight	15 kg
Z axis measuring range	160 mm

[1] µm + µm/mm measuring height

**Deviation from reference circle*

RONDCOM 31, RONDCOM 41

A solid form tester with high-quality functions

RONDCOM 41, with measuring Z axis

RONDCOM 31, without measuring Z axis

RONDCOM 41

Compact form tester with precision rotary table on air bearings and analysis functions from the high-class machines, such as fourier analysis

- Precise rotary table on air bearings for top radial runout properties and excellent measurement of narrow tolerances
- Patented software support with graphic user guidance for particularly easy and fast alignment
- High-quality measuring axis – for additional measurements of parameters such as cylinder form, parallelism, straightness, perpendicularity
- More effective through the use of semi-automatic measuring functions at a specified height
- Full-fledged, intuitive ACCTee PRO evaluation software (see p. 8)

Options

- 500 mm Z column for large parts

RONDCOM 31

- Like the RONDCOM 41 but with a shorter, non-measuring Z axis

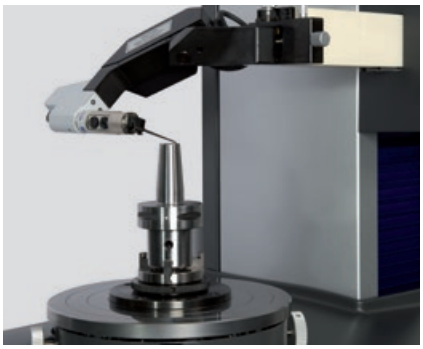
Technical data summary	
Roundness error[1]	0.02 + 0.0003* (50 W/U filter)
Measurable diameters	up to 250 mm
Max. workpiece diameter	400 mm
Z axis straightness (with RONDCOM 41)	0.5 µm (100 mm)
Max. workpiece weight	25 kg
Z axis measuring range	RONDCOM 41: 300 mm (500 mm) RONDCOM 31: 200 mm

[1] *µm + µm/mm measuring height*

**Deviation from reference circle*

RONDCOM NEX

Greatest accuracy in its class



CNC offset stylus mount

RONDCOM NEX

Highly-accurate form tester with the highest accuracy in its class and a wide range of applications

- Highly-accurate, wear-free rotary table on air bearings. Accuracy: 20 nanometers
- Higher throughput through fast, automatic alignment
- Large deflection range and high resolution of the detector and stylus system for higher throughput – pre-centering is not necessary for serial measurements
- Linear scale for highly accurate measurements in the R axis direction
- More accurate measurement via a CNC pivot around the measuring sphere
- Able to measure narrow tolerances
- Available as a SD version with different bases and tables, or as a space-saving DX version with active vibration-insulated measuring table and integrated computer as well as a compact FX version

Modular design

The RONDCOM NEX is available with a different range of functions as the RONDCOM NEX 100 (manual machine), the RONDCOM NEX 200 (automatic component alignment) and the RONDCOM NEX 300 (full CNC). The RONDCOM NEX 100 can be upgraded on-site at any time.

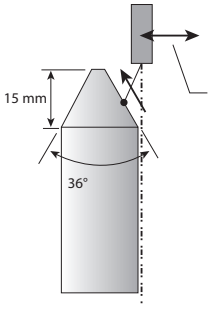
Onboard R axis ceramic

The RONDCOM NEX has a new R axis ceramic with higher rigidity and reduced weight. Thanks to the improved design, the RONDCOM NEX is even more stable against air circulation. The RONDCOM NEX has an expanded centration zone of ± 5 mm.

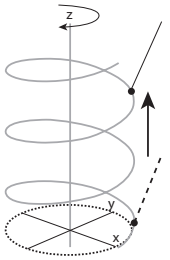
Technical data summary	
Roundness error[1]	0.01 + 0.00016* (50 W/U filter)
Measurable diameter	300 mm
Max. workpiece diameter	580 mm
Z axis straightness	0.1 µm (100 mm)
Max. workpiece weight	30 kg
Z axis measuring range	300 mm/500 mm

[1] *µm + µm/mm measuring height*

**Deviation from reference circle.*



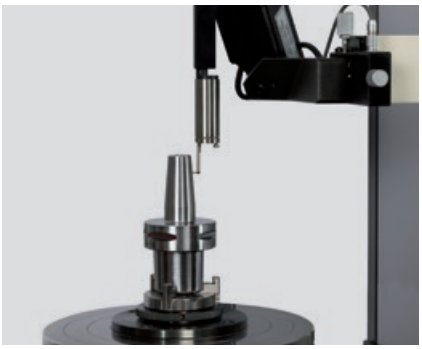
Improved angle measurement



Helix measurement

RONDCOM NEX Rs

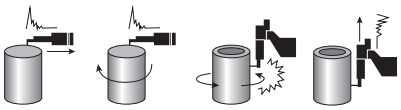
Highly-accurate measuring of forms and surfaces



CNC offset stylus mount

The RONDCOM NEX Rs
is a highly-accurate form measuring machine with a special rotary table for precisely measuring roughness and roundness on the R, T and Z axies.

- The ACCTee PRO integrated evaluation software has a simple user interface.
- Measure workpieces without interfering by using the test arm
- Easy to switch between the outer diameter and flatness
- Available as a comprehensive SD version, a space-saving DX version or a compact FX version

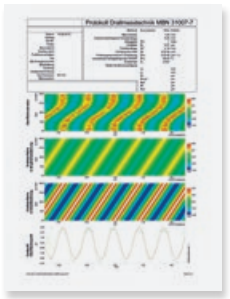


Possibilities of roughness measuring

Image of two measurement grids from axial profile cuts covering the area of the workpiece

36° Grid
- *72 profile cuts*
- *Distance 0.5°*
- *DG movement ≥ 15*

360° Grid
- *72 profile cuts*
- *Distance 5°*
- *DG movement < 15*



Example of a twist measurement

Modular design
The RONDCOM NEX Rs is available with a different range of functions as the RONDCOM NEX Rs 200 (automatic component alignment) and the RONDCOM NEX Rs 300 (full CNC).

Optional
- Measurement of shaft structures
- Twist measurement

Technical data summary	
Roundness error	0.01+0.00016* (50 W/U filter)
Measurable diameter	300 mm
Max. workpiece diameter	580 mm
Z axis straightness	0.1 µm (100 mm)
Max. workpiece weight	30 kg
Z axis measuring range	300 mm/500 mm
Radial roughness measurement	0.02 µm/4 mm Rt 0.2 µm/4 mm
Linear roughness measurement	0.02 µm/4 mm Rt 0.2 µm/4 mm

[1] µm + µm/mm measuring height

**Deviation from reference circle.*

RONDCOM 60 A, RONDCOM 60 AS

Highly-accurate form tester from the reference class

RONDCOM 60 A

Highly-accurate form tester from the reference class for excellent measurement of the tightest tolerances

- Ultra-accurate, wear-free rotary table on air bearings. Accuracy of 20 nanometers with a load capacity of 60 or 100 kg
- Extreme long-term stability through the quality design and heavy granite axes
- Maximum precision through R, Z and rotary axes on air bearings
- Incremental glass scale in the R axis direction
- Higher throughput thanks to fast, automatic alignment in less than one minute
- Large deflection range and high resolution of the detector and stylus system for higher throughput – centering is not necessary for serial measurements

Patented CNC offset stylus mount

For CNC-guided rotating and pivoting of the stylus

- Measurement below the R axis
- Deep penetration with the standard stylus

Options

- Customized R axis length for over-large component diameters
- Z measuring range available in 500, 800 and 1,000 mm

RONDCOM 60 AS

- Like the RONDCOM 60 A, but with even greater accuracy
- Nanometer accuracy for excellent measurement of even narrower tolerances thanks to optimized acceptance and correction methods
- Ultra-accurate, wear-free rotary table on air bearings. Accuracy: 10 nanometers; load: 60 kg

Technical data summary	RONDCOM 60 A	RONDCOM 60 AS
Roundness error[1]	0.010 + 0.0003* (50 W/U filter)	0.005 + 0.0003* (50 W/U filter)
Measurable diameter	420 mm (larger optional)	420 mm (larger optional)
Max. workpiece diameter	680 mm (larger optional)	680 mm (larger optional)
Z axis straightness	0.10 µm (100 mm)	0.05 µm (100 mm)
Max. workpiece weight	60 kg (100 kg optional)	60 kg

[1] *µm + µm/mm measuring height*

**Deviation from reference circle*

RONDCOM 65 B

Form tester in the ultra class

RONDCOM 65 B

- Ultra-accurate, wear-free rotary table on air bearings, 10 nanometer rotational error
- Extreme long-term stability through the quality design and heavy granite axes
- Ultra precision with R, Z and rotary axes on air bearings
- Thermally insulated, active vibration-insulated table
- Incremental scale in the R axis direction
- Higher throughput thanks to fast, automatic alignment in less than one minute

Optional:

Patented CNC offset stylus mount

For CNC-guided rotating and pivoting of the stylus

- Measurement below the R axis
- Deep penetration with the standard stylus

Options

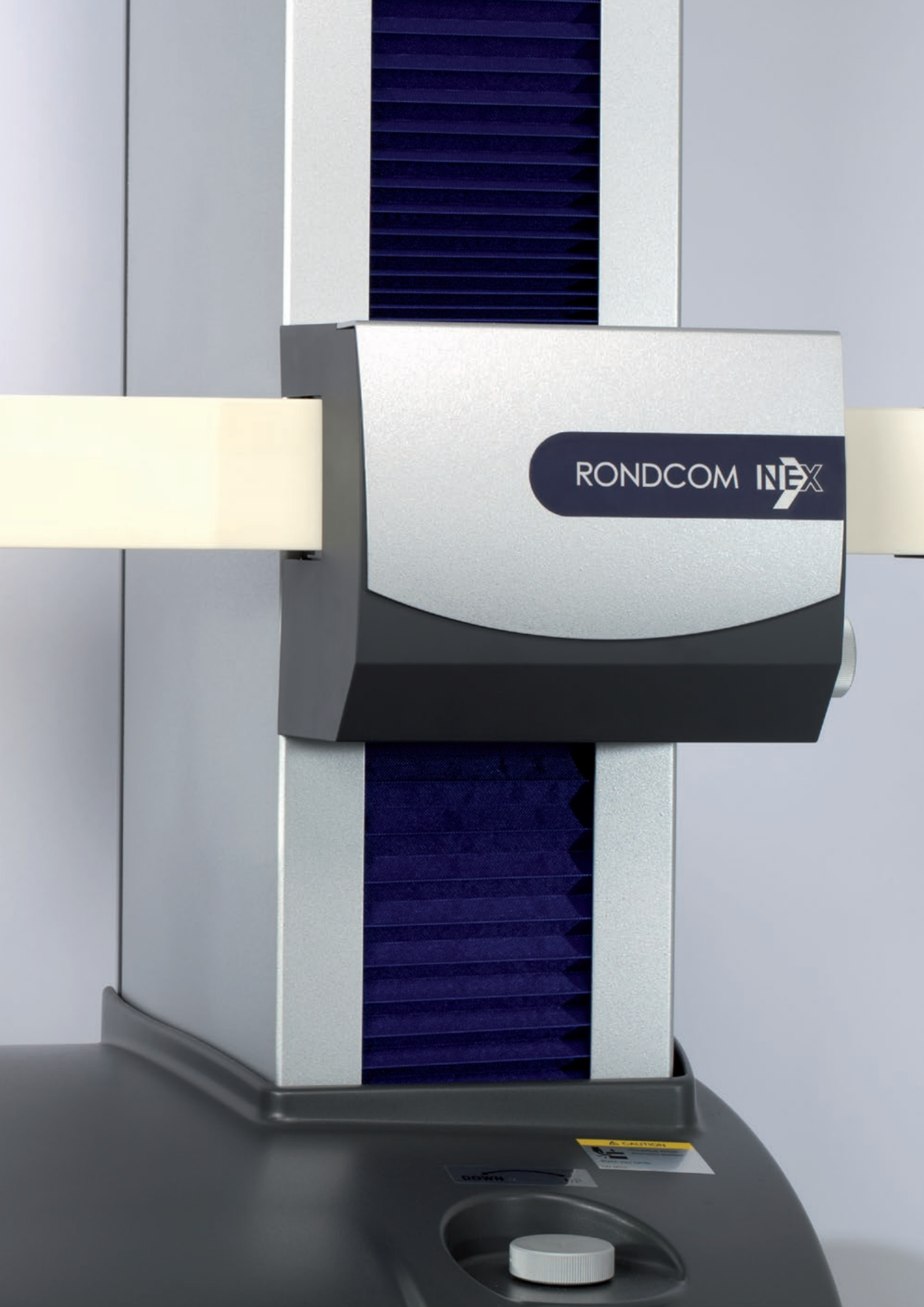
- 800 or 900 mm Z axis
- Optical white light sensor

Technical data summary	
Roundness error[1]	0.005 + 0.0002* (15 W/U filter)
Measurable diameter	420 mm
Max. workpiece diameter	680 mm
Z axis straightness	0.05 µm (100 mm)
Z axis parallelism	1.5 µm (500 mm)
R axis parallelism	0.5 µm (200 mm)
Max. workpiece weight	60 kg

[1] µm + µm/mm measuring height

**Deviation from reference circle*


CAUTION
Make calibration after
replacing a detector
TY
TY
180°
270°

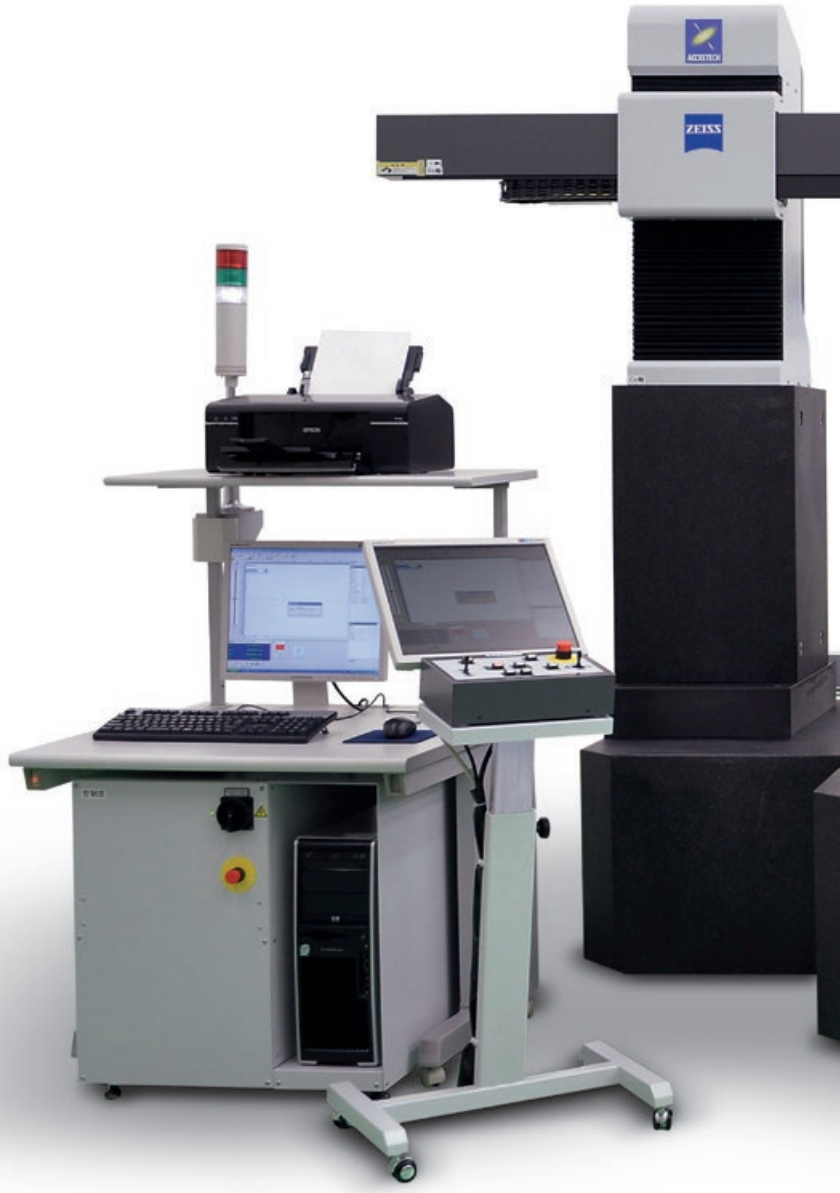

RONDCOM NEX

RONDCOM Grande

3-in-1 form, contour and surface measurement with one setup

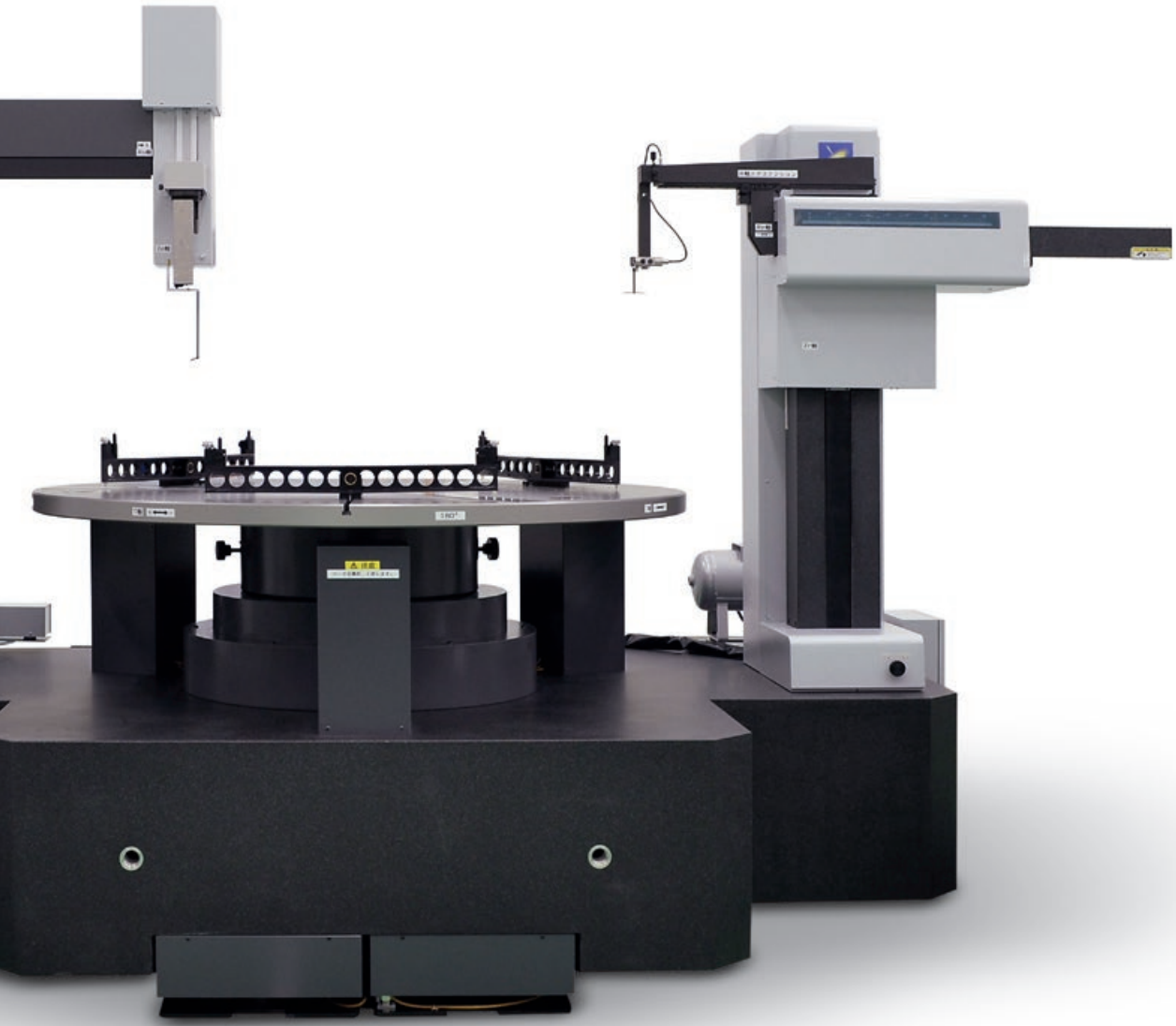
RONDCOM Grande

- For large, precision components for the wind, power and bearing industries
- Precision rotary table on air bearings with 80 nanometer rotation accuracy
- Form tester, contour measuring instrument and roughness measuring system in one
- Time saver: components are automatically measured in one setting
- New, highly precise air bearings for extremely reliable results
- Contour measurements with a large deflection range of ±26 mm at a resolution of 1.24 nanometers
- Roughness measurements with a large deflection range of ±2 mm at a resolution of 0.62 nanometers



Technical data summary	Form measurement
Measurable diameter	1,650 mm
Max. workpiece diameter	2,100 mm
Measuring height	500 mm
Roundness error[1]	0.08 + 0.001 (50 W/U filter)
Z straightness	0.15 µm (100 mm)
Max. workpiece weight	500 kg

[1] µm + µm/mm measuring height



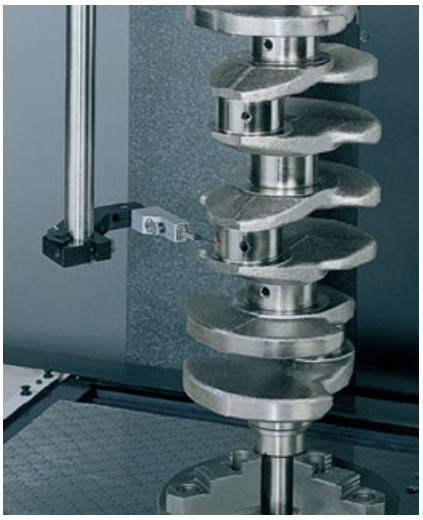
	Surface and contour measurements
Measurable diameters	150 - 1,700 mm
Max. workpiece diameter	2,100 mm
Measuring range height	40–540 mm
Roughness measuring range	± 13 mm
Roughness resolution	0.62 nm
Contour measuring range	± 26 mm
Contour resolution	1.24 nm

RONDCOM 73 A

Spindle form tester with large measuring range for heavy workpieces

RONDCOM 73 A
Universal spindle form tester with a large measuring range for heavy workpieces.

- More throughput thanks to automatic alignment and automatic CNC measuring runs
- More tolerance flexibility for production through high measuring accuracy
- Long-term stability through highly rigid machine design
- Easy to use thanks to modular ACCTee PRO software
- Fast CNC inspection plans via teach-in or offline programming
- Flexible thanks to extensive accessories and individually configurable equipment concept
- Ideal for applications such as cylinder heads, engine blocks, crankshafts and cam shafts, and for highly-accurate measurements on oversized workpieces



Crankshafts are among the main applications for spindle form testers from ZEISS

Technical data summary	
Roundness error	0.06 µm (50 W/U filter)
Z axis measuring path	1,000 mm
Z axis travel speed	up to 30 mm/s
R axis traversing length	50 mm
Max. measurable diameter	450 mm
Max. workpiece weight	200 kg

RONDCOM 76 A

The highest efficiency and accuracy in its class

RONDCOM 76 A

Spindle form tester featuring the highest efficiency and accuracy in its class for heavy workpieces.

- Reduced measuring times thanks to high travel speeds of 100 mm/s on all axes
- More throughput thanks to automatic alignment and automatic CNC measuring runs
- Fully automatic control of all 7 axes
- More tolerance flexibility for production through high measuring accuracy
- Machine bed and Z axis made of non-warping hard stone for long-term stability
- Integrated anti-vibration table with active damping
- Highly precise air bearings in X, Y, Z and rotation axes – low maintenance and durable
- Reliable thanks to extensive collision protection and its design
- Parallelism measurements via highly accurate and specified axes
- Informative multi-flatness evaluation in the R axis
- Exact diameter measurement
- Easy to use thanks to modular ACCTee PRO software
- Fast CNC inspection plans via teach-in or offline programming
- Flexible thanks to extensive accessories and individually configurable equipment concept
- Ideal for applications such as cylinder heads, engine blocks, crankshafts and cam shafts, and for highly-accurate measurements on oversized workpieces

Technical data summary	
Roundness error[1]	0.04 + 0.0003 (50 W/U filter)
Z axis measuring path	1,000 mm (optional 1,500 mm/2,000 mm)
Z axis travel path	700 mm (optional 1,500 mm)
Y axis travel path	200 mm
R axis traversing length	290 mm
Travel speed	100 mm/s
Max. measurable diameter	500 mm
Max. workpiece weight	200 kg (optional 1,000 kg)

[1] *µm + µm/mm measuring height*

Robot loading

Automatic serial measurements

In the production of serial componets with narrow tolerances like radii, contours and roughness, the robot loading of the SURFCOM NEX and the RONDCOM NEX work most efficiently – workpieces are loaded automatically.

RONDCOM NEX robot loading

RONDCOM NEX robot loading

Greater measuring productivity

Robot loading enables fully automated and unmanned measurement of entire component pallets. The components and the loading can be fully automated with our solutions.

We offer one-stop automation, measuring programs, workpiece clamping, workpiece pallets as well as stylus and enclosures.

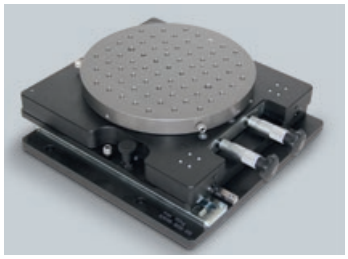
Advantages

- Safer and more cost-efficient: measure more components efficiently using an automated process
- Measure on the shop floor: an enormous reduction in transportation and handling times
- Automated pallet measuring for a greater measurement throughput
- Combine CNC-rotation and sliding modules – for the complete automated measurement of components
- Automated robot loading is possible
- All CNC-modules can be upgraded later
- Easy programming with Teach-In
- Enjoy the benefits of our long-time project and experience with automation

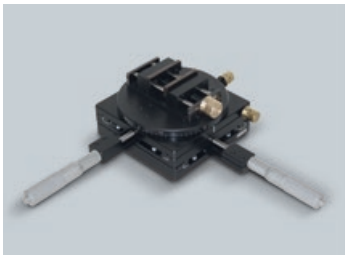
Accessories

Excerpt from our complete product catalog

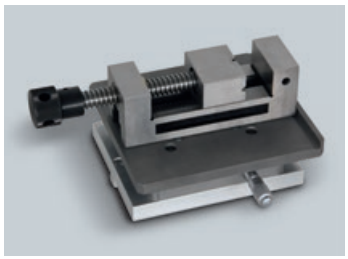
SURFCOM NEX



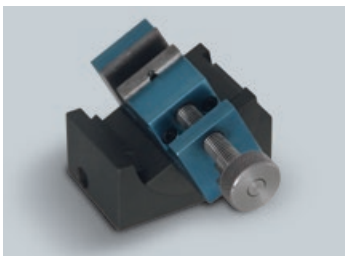
Large Y positioning and rotary table
200 mm linear guideways, precision configuration via a micrometer screw
Cat. no.
626108-9050-010



XY precision positioning table
With centering vise, precision configuration via a micrometer screw
Cat. no.
625006-3085-000

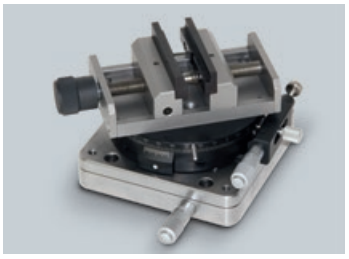


Precision vise
With sliding unit (Y) and stop plate for fast alignment
Cat. no.
626108-9021-050



Small angle vise
For small components
Cat. no.
625004-0034-000

Precision angle vise
Tip range ± 70°, rotation range°, ideally suited for the precision positioning table
Cat. no.
626108-9010-000



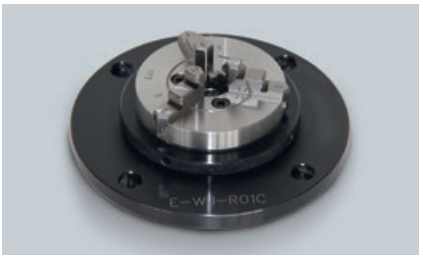
Sliding unit (Y), rotary unit and centering vise
Modular combinable assembly

Name	Cat. no.
Sliding unit (Y axis)	626108-9070-000
Rotary unit	626108-9080-000
Centering vise	626108-9021-125

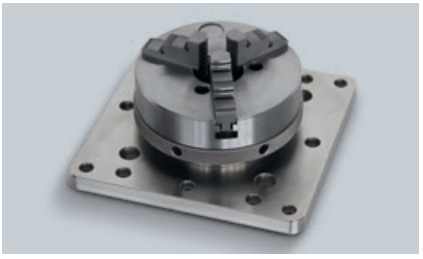
Special solutions
Customized, customer-specific and flexible special solutions such as this angular apparatus are available upon request.

RONDCOM

RONDCOM stylus kit
Kit for flexible stylus assembly.
Content: stylus, extensions, stylus tips, assembly tools.
Cat. no. 626108-9060-000



Precision crane chuck
Very flat for low assembly, smooth motion and rotatable brackets
Cat. no. 625007-3029-000



Crane chuck
With adapter plate, ideal for the RONDCOM NEX and the SURFCOM NEX, different sizes available
Cat. no. 626108-9031-125

Small crane chuck
Suitable for SURFCOM NEX CNC modules and the RONDCOM NEX rotary table, different sizes
Cat. no. 626108-9031-050
Image with adapter plate
Cat. no. 626108-9090-000