Mitutoyo

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FORM MEASUREMENT

INDIVIDUAL SOLUTIONS, MATURE TECHNOLOGIES, CONVINCING CONCEPTIONS: FORM MEASURING INSTRUMENTS BY MITUTOYO.

FORM MEASUREMENT

PRE1154(7)

You define the task...

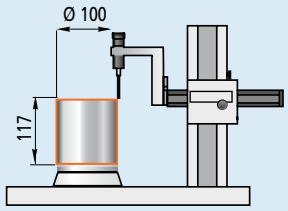
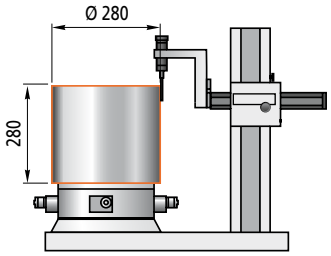
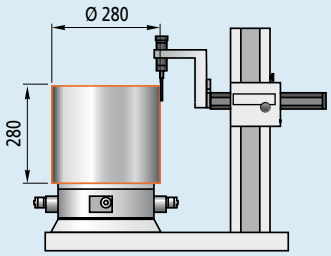
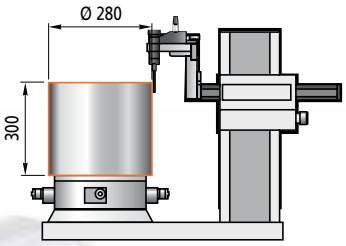
Measuring technology in top form. For the perfect testing of rotationally symmetric workpieces.

For the production line, quality control room or laboratory, Mitutoyo's wide choice of product offers effective, efficient solutions for all your roundform measurement needs. From the particularly easy-to-handle, compact instrument with dedicated processor and built-in printer up to the high-precision, PC-controlled reference model, there is a Mitutoyo measurement solution for rotationally symmetric workpieces to suit practically every application.

This brochure presents an overview of Mitutoyo's range of roundform measurement instruments to help you choose the system that best meets your individual measuring tasks. It shows instrument specifications, configurations, additional equipment options and premium software solutions. Individual product brochures are also available to provide detailed information on the measurement instrument of your choice.

Whichever model you choose, with a roundform measuring machine from Mitutoyo you can trust in the experience, competence and high performance of a world leader in measurement technology and be assured of first-class, customer-oriented service.

... we devise the perfect solution.

	Model	Description	Measuring range (mm)
Manual	**ROUNDTEST RA-10**	The entry-level solution for simple form measuring tasks in a production environment. With large, clear display for performing operations and displaying the measurement results.	
Manual	**ROUNDTEST RA-120**	The compact solution for precise, effective and easy form measurement in a production environment. With large, easily readable display for clear presentation of measurement results.	
Manual	**ROUNDTEST RA-120P**	A compact device that is easy to operate, equipped with the same features as ROUNDTEST RA-120, for use in production. With added PC connectability and high-performance ROUNDPAK measuring and analysis software.	
Semi-automatic	**ROUNDTEST RA-1600**	Compact table-top instrument designed for high standards of measuring accuracy. Provides an ample measurement range suited to middle-sized compact and complex workpieces.	

Specific device features

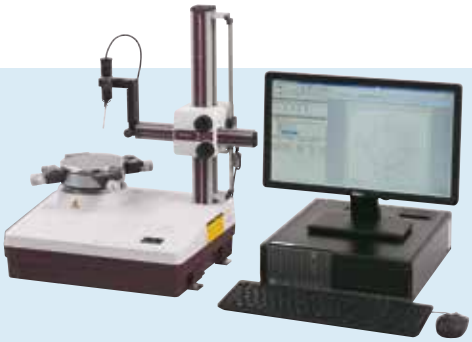
- Supports the most commonly used form analyses
- Integrated printer
- Extensive range of optional accessories
- Stand-alone machine with built-in processor and display
- Large coloured LCD
- EN ISO conform

ROUNDTEST RA-10

- Simple manual alignment of the workpiece
- Large centering range
- Integrated printer
- Extensive range of optional accessories
- Stand-alone machine with built-in processor and display
- Large coloured LCD
- EN ISO conform
- Support of 16 languages

ROUNDTEST RA-120

- Measuring and analysis software ROUNDPAK
- Simple manual alignment of the workpiece
- Large centering range
- Extensive range of optional accessories
- PC control versatility



ROUNDTEST RA-120P

- Measuring and analysis software ROUNDPAK
- Large centering range
- Extensive range of optional accessories
- Spiral-mode measurement function
- Z- and X-axis scales

ROUNDTEST RA-1600

User-oriented form measuring technology offering the highest levels of accuracy.

Semi-automatic

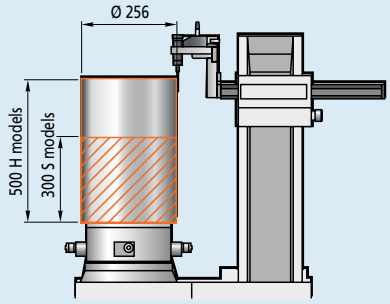
ROUNDTEST RA-2200

ROUNDTEST RA-2200 DS
ROUNDTEST RA-2200 DH

Table-top models for demanding, highly precise form measurement. Rapid manual centering and leveling of the workpiece on the digital adjustment table (DAT).

ROUNDTEST RA-2200 AS
ROUNDTEST RA-2200 AH

Table-top devices designed specially for automatic serial control, offering an impressive range of features. Automatic centering and leveling of the workpiece.

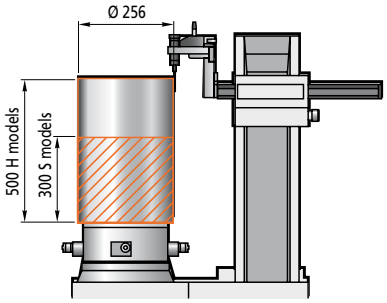


CNC

ROUNDTEST RA-2200 CNC

ROUNDTEST RA-2200S CNC
ROUNDTEST RA-2200H CNC

Automatic, highly precise measurement of complex individual workpieces and serial measurement. Automatic, freely definable angle adjustment of the probe system.

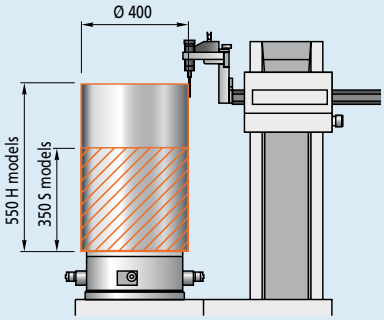


Semi-automatic

ROUNDTEST RA-H5200

ROUNDTEST RA-H5200 AS
ROUNDTEST RA-H5200 AH

Top-of-the-range stand-alone model with extremely fast and accurate automatic centering and leveling of the workpiece. Especially suited for larger workpieces and controlling largeseries.

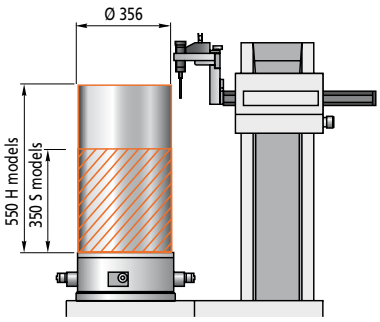


CNC

ROUNDTEST RA-H5200 CNC

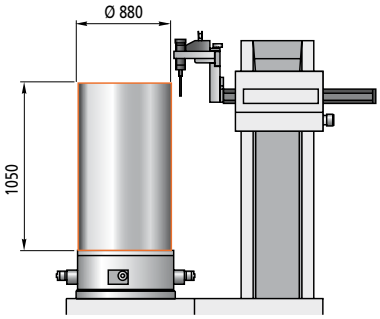
ROUNDTEST RA-H5200S CNC
ROUNDTEST RA-H5200H CNC

Meets the highest standards in terms of positioning speed, fastest automatic centering and leveling, utmost precision, measuring volume and workpiece weight-handling capability.
Automatically positionable, freely definable angle adjustment of the probe system.



ROUNDTEST RA-6000 CNC

Fully automatic CNC form measuring instrument for heavy and accurate workpieces with a maximum loading capacity of 350kg. Provides fast and accurate processing.



Convenient, powerful and economical.

- Measuring and analysis software ROUNDPAK
- Large centering range
- Extensive range of optional accessories
- Z- and X-axis scales
- Optionally available with surface roughness analysis

ROUNDTEST RA-2200

- Measuring and analysis software ROUNDPAK
- Large centering range
- Extensive range of optional accessories
- Z- and X-axis scales
- Fully automatically rotating and swiveling probe system
- Optionally available with surface roughness analysis

ROUNDTEST RA-2200 CNC

- Measuring and analysis software ROUNDPAK
- Large centering range
- Extensive range of optional accessories
- Z- and X-axis scales
- Optionally available with surface roughness analysis
- Active vibration damper
- FEM design for utmost stability

ROUNDTEST RA-H5200

- Measuring and analysis software ROUNDPAK
- Large centering range
- Extensive range of optional accessories
- Z- and X-axis scales
- Fully automatically rotating and swiveling probe system
- Optionally available with surface roughness analysis
- Active vibration damper
- FEM design for utmost stability

ROUNDTEST RA-H5200 CNC

- Measuring and analysis software Roundpak
- Huge measuring range of 1050mm in height
- Huge loading capacity of 350kg
- Fully automatic rotating and swiveling probe system
- Highly precise automatic centering and leveling turntable A.A.T.

Roundtest RA-6000CNC

Mitutoyo

ROUNDTEST RA-10
Entry-level class

RA-10

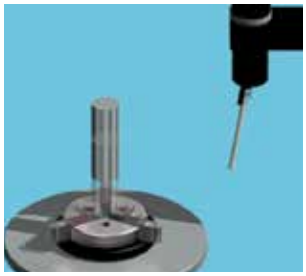
RA-10
Entry-level solution for simple form measuring tasks

- Designed for use in production or space-restricted locations
- Large coloured LCD panel
- Supports 5 important form analyses
- Handles workpieces up to 10 kg
- Measurable workpiece height up to 117 mm
- Measurable outer diameter up to 100 mm
- Large probe system measuring range of ±1000 µm
- 3600 measuring points/rotation
- Turntable with precision air bearing
- One key calling function
- Well designed, clearly structured user interface
- Optional centering and leveling table
- Support of 16 languages
- USB Communication Program to import results and create inspection certificates on PC as free download available

Rotational accuracy
(0.04 + 0.0006H) µm

Analysis options

Roundness
Flatness
Coaxiality
Concentricity
Runout radial
Discontinuous work pieces

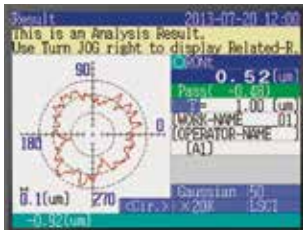


Compact table-top device for performing measurements right in the workshop or production. With large display and integrated printer.

ROUNDTEST RA-120
Simple, practical

The

RA-120



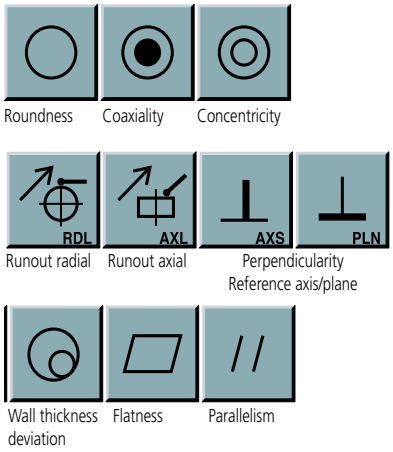
RA-120
Suitable for the workshop environment and eager to perform.
Easy-to-use and cost effective.

- For use in production environments
- Complies with EN ISO standard like 12181 and 12781
- Large coloured LCD panel
- Supports 10 important form analyses
- Measures workpieces up to 25 kg
- Measurable workpiece height up to 280 mm (depending on the measuring task, up to 480 mm)
- Measurable outer diameter up to 280 mm (depending on the measuring task, up to 380 mm)
- Large probe system measuring range of ±1000 µm
- Turntable with precision air bearing
- Centering, leveling table with 4 Digimatic micrometer heads
- ABS scale on the Z axis
- Convenient fine adjustment positioning
- One-key operation
- Well designed, clearly structured user interface
- Rotary knob for accurate menu operation
- Support of 16 languages
- USB Communication Program to import results and create inspection certificates on PC as free download available

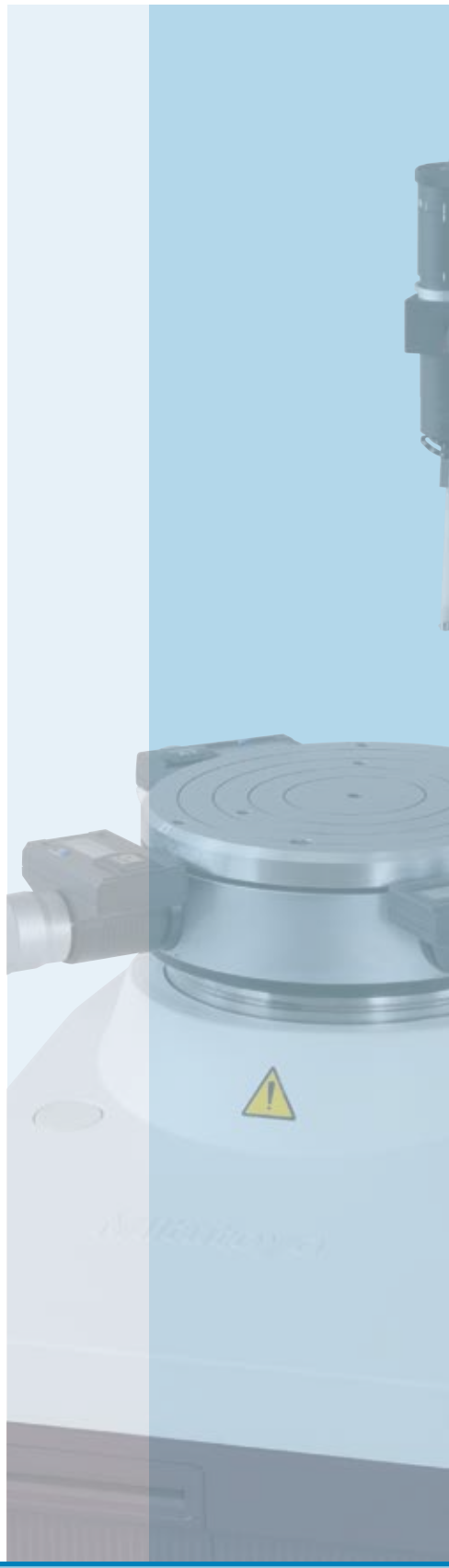
Rotational accuracy
(0.04 + 0.0006H) µm

10 analysis options

Roundness
Coaxiality
Concentricity
Runout radial
Runout axial
Perpendicularity
Wall thickness deviation
Flatness
Parallelism
Discontinuous workpieces



Roundness Coaxiality Concentricity
Runout radial Runout axial Perpendicularity Reference axis/plane
Wall thickness deviation Flatness Parallelism



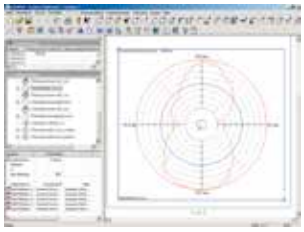
Compact table-top device for performing measurements right in the workshop or production. With large display and integrated printer.

ROUNDTEST RA-120P
The PC version

The

RA-120P

Rotational accuracy
(0.04 + 0.0006H) µm



Result screen: Concentricity

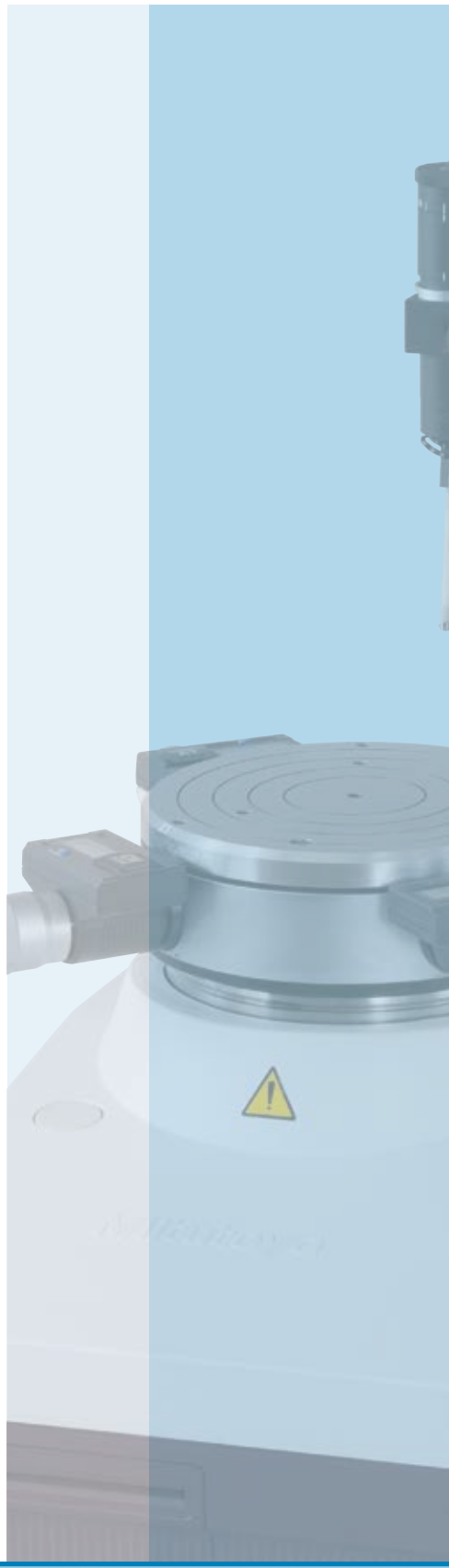
Result screen: Roundness

RA-120P:
PC connection for added versatility.
Top-flight software for easy of use.

- The PC version with high-performing ROUNDPAK software
- For use in production environments and measuring rooms
- Supports 12 form analyses
- Measures workpieces up to 25 kg
- Measurable workpiece height up to 280 mm (depending on the measuring task, up to 480 mm)
- Measurable outer diameter up to 280 mm (depending on the measuring task, up to 380 mm)
- Large probe system measuring range of ±1000 µm
- Turntable with precision air bearing
- 3600 measuring points/rotation
- Centering, leveling table with 4 Digimatic screws
- ABS scale on the Z axis
- Convenient fine adjustment positioning
- Fine positioning of the probe system with automatic zero point adjustment using ROUNDPAK software
- SOFTWARE ROUNDPAK user interface for rapid individual measurements, writing measurement programs, documentation and archiving of the results
- User-defined request to adjust the Digimatic centering-leveling micrometer heads
- SPC, USB interface

12 analysis options

Roundness
Coaxiality
Concentricity
Runout radial
Runout axial
Perpendicularity
Wall thickness deviation
Flatness
Parallelism
Discontinuous workpieces
Power spectrum
Harmonic analysis



Compact table-top device for performing measurements in production environments

PC version

ROUNDTEST RA-1600.
Servo-powered axes for added convenience

RA-1600

Rotational accuracy
(0.02 + 0.0006H) µm
Straightness of precision column (Z axis): **0.2 µm/100 mm**

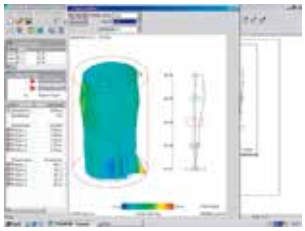
RA-1600

Easy manual centering and leveling of the workpiece. Turntable with air bearing for extremely precise, non-wearing rotation.

- The PC version with high-performing ROUNDPAK software
- Supports a wide range of form analyses
- Z- and X-axis scales
- Measures workpieces up to 25 kg
- Measurable probing height up to 300 mm
- Measurable outer diameter up to 280 mm
- Max. workpiece diameter 560 mm
- Large probe system measuring range of ±400 µm
- Adjustable measuring force
- Turntable with precision air bearing
- Max. 14400 measuring points/rotation
- Centering and leveling using digital adjustment table (DAT) supported by 4 Digimatic micrometer heads
- Large centering range ±3 mm
- Large leveling range ±1°
- Servo-powered Z axis
- Servo-powered X axis
- X-axis moving distance of 165 mm
- Software ROUNDPAK user interface for rapid individual measurements, writing measurement programs, documentation and archiving of the results
- User-defined request to adjust the DAT
- SPC, USB interface
- Large range of probe tips available

Analysis options

Cylindricity
Roundness
Concentricity
Coaxiality
Runout radial
Runout axial
Perpendicularity
Flatness
Parallelism
Discontinuous surfaces
Measurement across spiral line
Total Runout radial
Total Runout axial
Inclination
Taper Ratio
Power spectrum
Harmonic analysis


Result screen: Cylindricity, 3D view


Result screen: Cylindricity, view from above


Roundness measurement, external, vertical

Compact table-top model for demanding tasks, with cylindricity testing.

Roundness measurement, internal
left: Flatness measurement

Cylindricity measurement across spiral line

ROUNDTEST RA-2200
The allrounder

The a

RA-2200 DS/DH

Rotational accuracy
(0.02 + 0.00035H) µm
Straightness of precision column (Z axis):
0.1 µm / 100 mm


Digital micrometers for manual workpiece alignment (DAT)

RA-2200 DS and RA-2200 DH

Digital adjustment table (DAT) for rapid, simple and accurate manual workpiece alignment. The very best technology for demanding applications.

- Simple, accurate operation
- Easy, quick measurements, assessment and printout of measuring results
- Complete with PC
- High-performance ROUNDPAK measuring and analysis software
- Turntable with air bearing for highly accurate, non-wearing rotations
- Rapid, precise manual centering and leveling of the workpiece on the digital adjustment table (DAT)
- Ceramic guideways
- Large centering range ±5 mm
- Large leveling range ±1°
- For workpieces up to 580 mm in diameter and 30 kg
- Measurable diameter 300 mm
- Measuring probe with adjustable measuring force
- Measuring probe adjustment ±45°
- Probe system/Measuring range ±400 µm
- Measuring height 300 mm (DS) resp. 500 mm (DH)
- X axis moving distance 175 mm
- Auto follow function
- Wide range of optional accessories
- Optional probe system for surface roughness measurement. (Skidless system)


Cylindricity measurement across spiral line


Flatness measurement across spiral line

Table-top models offering an impressively wide range of features. Optionally available with manual or automatic centering and leveling of the workpiece.

all rounder

RA-2200 AS/AH

RA-2200 AS und RA-2200 AH

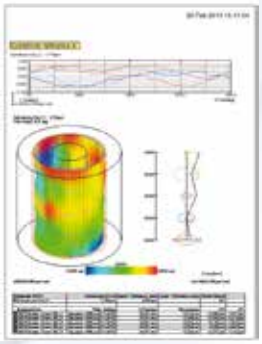
Pre-programmed success – reliable and rapid automatic centering and leveling of the workpiece. Ideal for demanding measurement tasks and automatic serial control.
(AAT: Automatic Adjustment Table)

Rotational accuracy
(0.02 + 0.00035H) µm
Straightness of precision column:
(Z axis)
0.1 µm / 100 mm

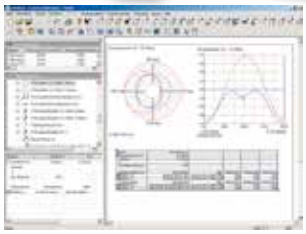
- Same range of features as RA-2200 DS and DH, but including:
- Convincingly fast, precise and automatic centering and leveling of the work piece
- Centering range ± 3 mm

Automatic work piece alignment using servo-powered micrometers (AAT)

Optional: Roughness measurement



Result screen: 3-D display



Result screen: Total Runout

Analysis options (selection)

Cylindricity	Discontinuous work pieces
Roundness	Measurement across spiral line
Concentricity	Total Runout radial and axial
Coaxiality	Horizontal and vertical straightness
Runout radial	Inclination
Runout axial	Radius deviation
Perpendicularity	Taper Ratio
Wall thickness deviation	Power spectrum
Flatness	Harmonic analysis
Parallelism	

ROUNDTEST RA-2200 CNC
Versatile, Automatic

The

RA-2200 S/H CNC

Rotation accuracy:
(0.02 + 0.00035H) µm
Straightness of precision column: (Z axis)
0.1 µm / 100 mm

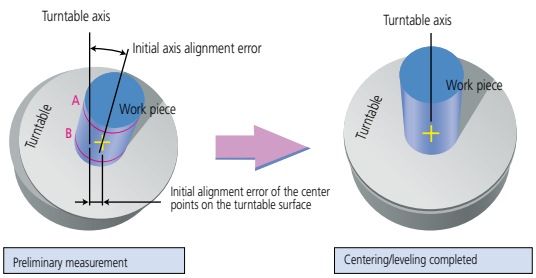
RA-2200 S CNC and RA-2200 H CNC:

Servo-powered table adjustment for rapid and precise work piece alignment. The very best technology for demanding users.

- High-performance ROUNDPAK measuring and analysis software
- Complete with PC
- Turntable with air bearing for highly accurate, non-wearing rotations
- Rapid, precise automatic centering and leveling of the work piece on the automatic adjustment table (AAT)
- Ceramic axes
- Large centering range ± 3 mm
- Large leveling range ± 1°
- For work pieces up to 580 mm in diameter and 30 kg in weight
- Measurable diameter 256 mm
- Servo-powered swiveling probe system
- Probe system measuring range of ±400 µm
- Auto follow function
- Fully automatic calibration
- Wide range of optional accessories
- Optional probe system for roughness measurement (Reference plane system)

Probe system positionable in 1° increments

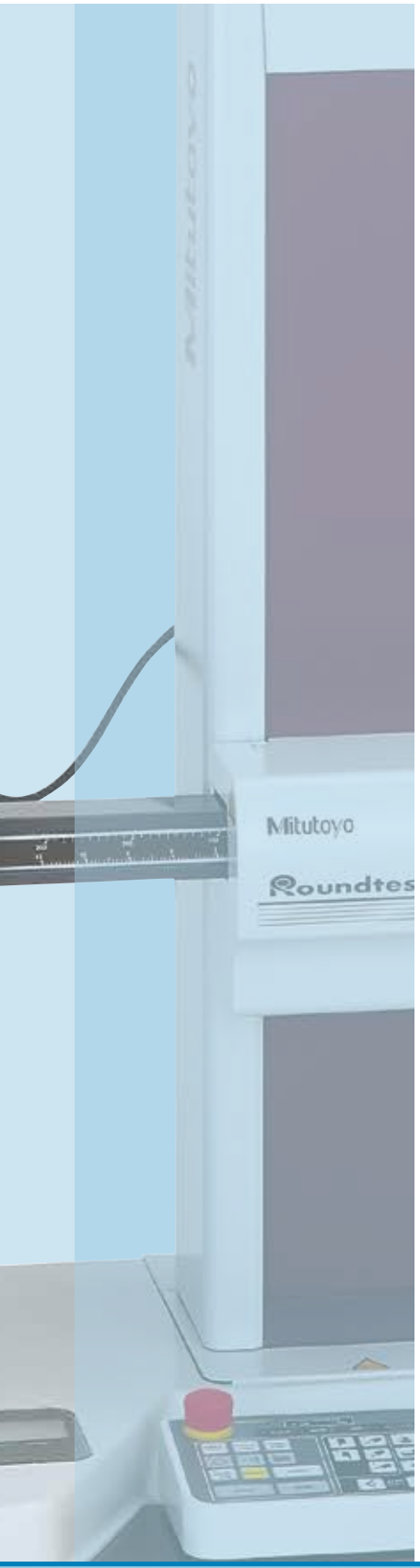
AAT (Automatic Adjustment Table) Automatic centering/leveling of the test specimen

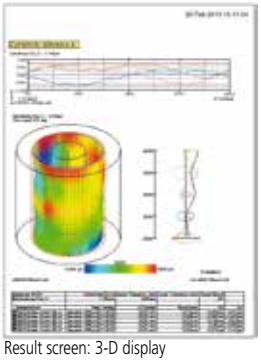


Preliminary measurement of two cross sections A' and B'

Automatic centering and leveling following preliminary measurement

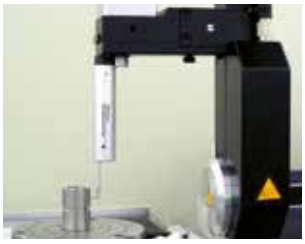
Table-top models offering a convincingly diverse range of features. Standard design with automatic centering and leveling of the work piece.



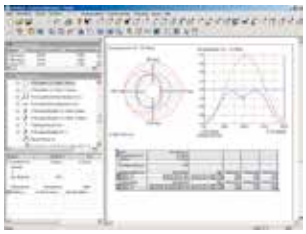


Result screen: 3-D display

Automatic work piece alignment using servo-powered micrometers (AAT)

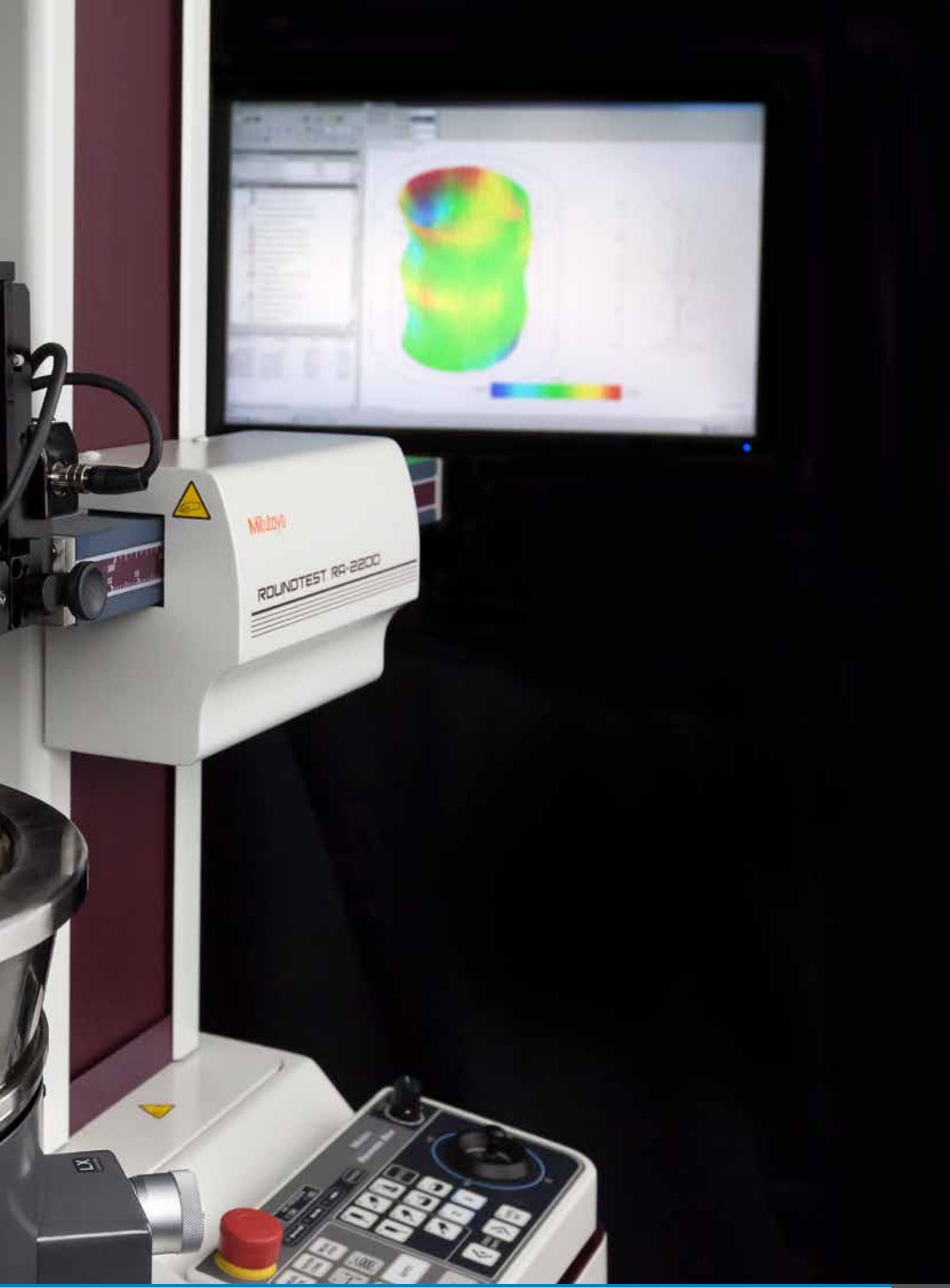


Optional: Roughness measurement



Result screen: Total Runout

Analysis options (selection)	
Cylindricity	Discontinuous work pieces
Roundness	Measurement across spiral line
Concentricity	Total Runout radial and axial
Coaxiality	Horizontal and vertical straightness
Runout radial	Inclination
Runout axial	Radius deviation
Perpendicularity	Taper Ratio
Wall thickness deviation	Power spectrum
Flatness	Harmonic analysis
Parallelism	

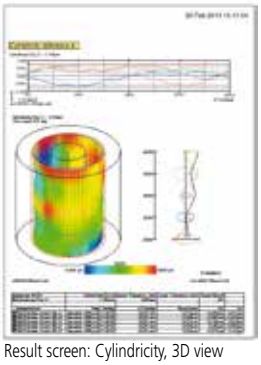

ROUNDTEST RA-2200

ROUNDTEST RA-H5200
Perfect in form

Perfec

RA-H5200

Rotation accuracy:
(0.02 + 0.00035H) µm
Straightness of precision column: (Z axis)
0.05 µm / 100 mm


Result screen: Cylindricity, 3D view

Analysis options (selection)

Cylindricity
Roundness
Concentricity
Coaxiality
Runout radial
Runout axial
Perpendicularity
Wall thickness deviation
Flatness
Parallelism
Discontinuous work pieces
Measurement across spiral line
Total Runout radial
Total Runout axial
Horizontal and vertical straightness
Inclination
Radius deviation
Taper Ratio
Power spectrum
Harmonic analysis

RA-H5200 AS and RA-H5200 AH:

This series is top in everything - technology, precision, measuring speed, positioning speed – and it can handle the heaviest work pieces.
With ROUNDPAK software support for form analyses that meet the highest standards.

- High-performance ROUNDPAK measuring and analysis software
- Turntable with air bearing for highly accurate, non-wearing rotations
- AAT precision table for convincingly fast, precise and automatic centering and leveling of the work piece
- FEM design with ceramic components for utmost stability
- Standard equipment includes active vibration damper
- Large centering range ± 5 mm
- Large leveling range ± 1°
- For work pieces up to 680 mm in diameter and 65 kg in weight
- Measurable diameter 400 mm
- Probe system with adjustable measuring force
- Probe system adjustment ± 45°
- Probe system measuring range ±400 µm
- Auto follow function
- Measuring height 350 mm (AS) resp. 550 mm (AH)
- Wide range of optional accessories
- Optional probe system for roughness measurement (Reference plane system)


Roundness measurement, external, vertical

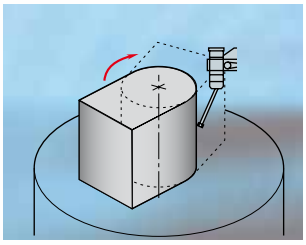

Roundness measurement, external, horizontal


Flatness measurement

Best-in-class highly accurate equipment for perfect precision measurement all round.

Cylindricity measurement across spiral line

Flatness measurement across spiral line



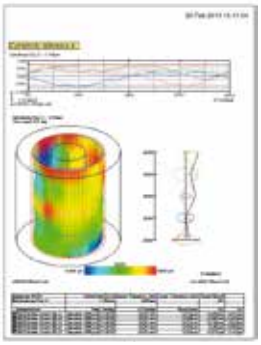
Partial circle measurement using precise control of the round table

ROUNDTEST RA-H5200 CNC
Perfect in form

Perfec

RA-H5200 S/H CNC

(0.02 + 0.00035H) µm
0.05 µm / 100 mm



Result screen: Cylindricity, 3D view

Analysis options (selection)

Cylindricity
Roundness
Concentricity
Coaxiality
Runout radial
Runout axial
Perpendicularity
Wall thickness deviation
Flatness
Parallelism
Discontinuous work pieces
Measurement across spiral line
Total Runout radial
Total Runout axial
Horizontal and vertical straightness
Inclination
Radius deviation
Taper Ratio
Power spectrum
Harmonic analysis

RA-H5200 S and RA-H5200 H CNC:

Full range of features for CNC form measurement. This series offers top technology, superb precision, highest measuring and positioning speeds, full flexibility for fully automatic positioning of the probe system, and can handle the heaviest work pieces. Controlled by high-performing ROUNDPAK form analysis software to solve complex measuring tasks to the highest standards.

- High-performance ROUNDPAK measuring and analysis software
- Complete with PC
- Turntable with air bearing for highly accurate, non-wearing rotations
- AAT precision table for convincingly fast, precise and automatic centering and leveling of the work piece
- FEM design with ceramic components for utmost stability
- Large centering range ± 5 mm
- Large leveling range ± 1°
- For work pieces up to 680 mm in diameter and 65 kg in weight
- Measurable outer diameter 356 mm
- Servo-powered positioning of the probe in 1° increments
- Probe system measuring range of ± 400 µm
- Auto follow function
- Fully automatic calibration
- Wide range of optional accessories
- Optional probe system for surface roughness (reference plane)
- Standard equipment includes active vibration damper

Best-in-class models that meet the highest standards of flexibility and precision for perfect measuring results

Automatic work piece alignment using servo-powered micrometers (AAT)

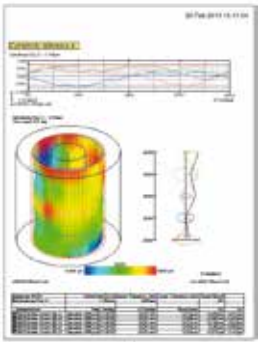
Probe system positionable in 1° increments

ROUNDTEST RA-6000 CNC
Large size measurement

Large

RA-6000 CNC

(0.05 + 0.0006H)µm
1.5 µm / 1050mm



Result screen: Cylindricity, 3D view

Analysis options (selection)

- Cylindricity
- Roundness
- Concentricity
- Coaxiality
- Runout radial
- Runout axial
- Perpendicularity
- Wall thickness deviation
- Flatness
- Parallelism
- Discontinuous work pieces
- Measurement across spiral line
- Total Runout radial
- Total Runout axial
- Horizontal and vertical straightness
- Inclination
- Radius deviation
- Taper Ratio
- Power spectrum
- Harmonic analysis

RA-6000CNC

Fully automatic CNC form measuring instrument for heavy and accurate workpieces.

- Huge measuring range of 1050mm in height for long workpieces
- Wide probing range enables measurements of form parameters of huge-diameter workpieces
- Maximum loading capacity of 350kg for heavy and big size workpieces
- Highly-accurate measurements of large workpieces
- Fully automatic measurement provides fast and accurate processing
- ROUNDPAK software also comprises easy-to use part programing and single measurement functions
- A highly accurate automatic centering and leveling turntable A.A.T. (Automatic Adjustment Table) is supplied as standard, rendering centering and leveling redundant

Maximum accuracy and flexibility – for highly precise, large and heavy workpieces

Automatic work piece alignment using servo-powered micrometers (AAT)

Probe system positionable in 1° increments

MiCAT
Mitutoyo Intelligent Computer Aided Technology
the standard in world metrology software
FORM

ROUNDPAK
FORM
Software package

Extension module

MeasurLink
Module for managing statistical measurement data and analyzing and storing measurement data.

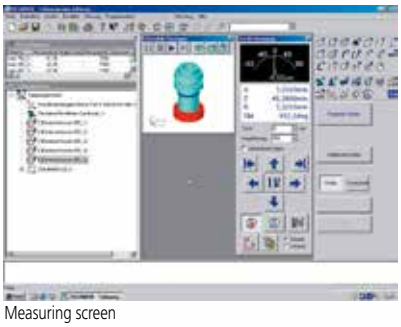
Complete with peak performance, flexibility and versatility:
RA-2200CNC, RA-H5200CNC and RA-6000CNC form measuring devices already come complete with PC and Mitutoyo's excellent new ROUNDPAK software. Based on MS-Windows, it allows you to take full advantage of the options available for your individual application. For even more flexibility, accuracy and measuring speed.

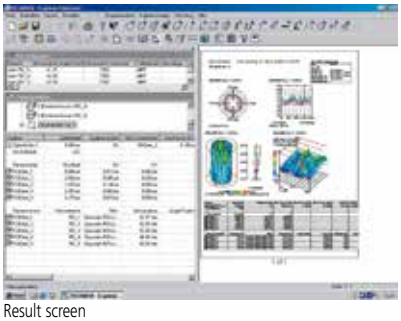
With ROUNDPAK you can easily set your specific measuring program, visualize the entire measuring process and document the results in impressive and clearly arranged diagrams and 3-D charts.

Storing and cataloging the measuring and evaluation conditions allows you to create a well sorted library of your work pieces. Several measurements can be incorporated into the measuring and evaluation conditions which, when linked to each other, considerably streamline any further measuring processes.

ROUNDPAK can:

- control all servo-powered axes
- center and level the turntable
- create part programs
- analyze deviations in form and position
- offer a wide range of graphic presentation options
- recalculate analyses
- analyze clashes
- create and store test reports


Measuring screen


Result screen

Accessories

Reference hemisphere
for checking the round table

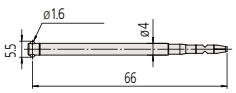
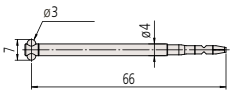
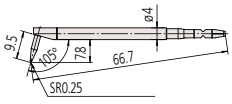
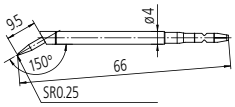
Centering chuck (optional)
for quick clamping work pieces

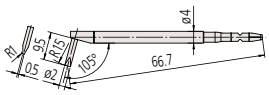
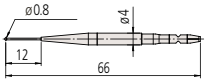
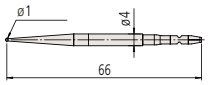
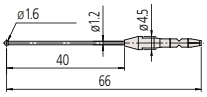
Calibration standard
for dynamic probe calibration

Surface roughness (optional)
A probe system for surface roughness measurement can be adapted, instead of using the form measurement probe system. (RA-2200, RA-H5200 and RA-6000CNC series)

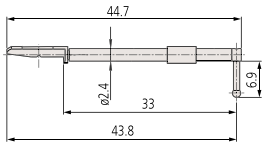
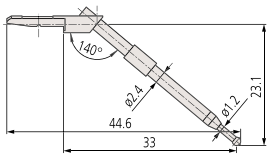
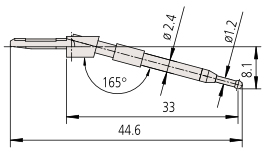
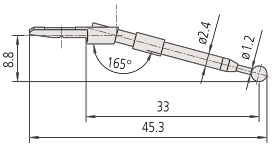
Monitor arm

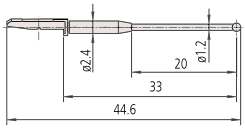
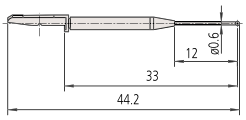
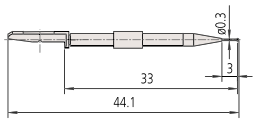
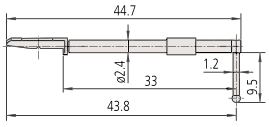
Examples of probe tips for manual and semi-automatic systems

Application/Type	Standard (included in the scope of delivery)	Surfaces	Deep groove	Corner
Probe tip	ø 1.6 mm Carbide	ø 3 mm Wolfram carbide	ø 0.25 mm Radius Sapphire	ø 0.25 mm Radius Sapphire
Dimensions (mm)				

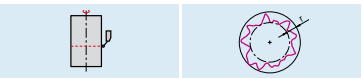
Application/Type	Blade	Small hole	Small hole	Small hole
Probe tip	15 mm Radius Carbide	ø 0.8 mm Carbide	ø 1 mm Carbide	ø 1.6 mm Carbide
Dimensions (mm)				

Examples of probe tips for the CNC range

Application/Type	Grooves	Even surface	Universal probe tip	Grooves
Probe tip	ø 1.6 mm Carbide	ø 1.6 mm Carbide	ø 1.6 mm Carbide	ø 1.6 mm Carbide
Dimensions (mm)				

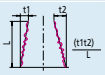
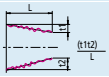
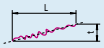
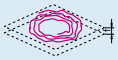
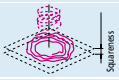
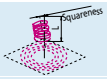
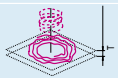
Application/Type	ø 1.6 mm Ball	ø 0.8 mm Ball	ø 0.5 mm Ball	Deep groove
Probe tip	ø 1.6 mm Carbide	ø 0.8 mm Carbide	ø 0.5 mm Carbide	ø 1.6 mm Carbide
Dimensions (mm)				

Analysis overview

Analysis	Application	Result	RA-10	RA-120	RA-120P	RA-1600	RA-2200	RA-H5200	RA-6000CNC
Analyses during turntable rotation									
Roundness			●	●	●	●	●	●	●
Flatness (1 element)			●	●	●	●	●	●	●
Flatness (n elements)			—	—	—	●	●	●	●
Perpendicularity (axis reference)		Axis reference point Squareness	—	●	●	●	●	●	●
Perpendicularity (surface reference)		Squareness Plane reference	—	●	●	●	●	●	●
Concentricity			●	●	●	●	●	●	●
Coaxiality (axis – element)			●	●	●	●	●	●	●
Coaxiality (axis – axis)	Axis 2 Axis 1		—	—	●	●	●	●	●
Parallelism (2 elements)			—	●	●	●	●	●	●
Parallelism (n elements)			—	—	—	●	●	●	●
Wall thickness deviation (radial)		d max d min d max - d min	—	●	●	●	●	●	●
Wall thickness deviation (axial)		d max d min d max - d min	—	—	—	●	●	●	●
Cylindricity		MZC Cylindricity	—	—	—	●	●	●	●
Taper Ratio		r1- r2	—	—	—	●	●	●	●
Runout radial		Runout radial	●	●	●	●	●	●	●
Runout axial		Runout axial	—	●	●	●	●	●	●
Total Runout radial		Total Runout radial	—	—	—	●	●	●	●
Total Runout axial		Total Runout axial	—	—	—	●	●	●	●
Diameter measurement	Standard Work piece Comparison		—	—	—	●	●	●	●

● available

Analysis

Analysis	Application	Result	RA-10	RA-120	RA-120P	RA-1600	RA-2200	RA-H5200	RA-6000CNC
Straight measurement analyses									
Straightness (vertical)			—	—	—	●	●	●	●
Straightness (horizontal)			—	—	—	●	●	●	●
Taper ratio (vertical)			—	—	—	●	●	●	●
Taper ratio (horizontal)			—	—	—	●	●	●	●
Inclination (vertical)			—	—	—	●	●	●	●
Inclination (horizontal)			—	—	—	●	●	●	●
Cylindricity			—	—	—	●	●	●	●
Perpendicularity			—	—	—	●	●	●	●
Coaxiality			—	—	—	●	●	●	●
Parallelism (vertical)			—	—	—	●	●	●	●
Parallelism (horizontal)			—	—	—	●	●	●	●
Spiral-shaped measurement analyses									
Cylindricity			—	—	—	●	●	●	●
Flatness			—	—	—	—	●	●	●
Coaxiality			—	—	—	●	●	●	●
Perpendicularity (axis reference)			—	—	—	—	●	●	●
Perpendicularity (surface reference)			—	—	—	—	●	●	●
Total Runout radial			—	—	—	●	●	●	●
Total Runout axial			—	—	—	—	●	●	●

● available

Coordinate Measuring Machines

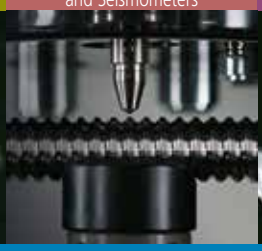
Vision Measuring Systems

Form Measurement

Optical Measuring

Sensor Systems

Test Equipment and Seismometers



Digital Scale and DRO Systems

Small Tool Instruments and Data Management

Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalogue

www.mitutoyo.eu

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