
SURFCOM 3000
RONDCOM65A

RONDCOM Series Units

Table Rotating Type

RONDCOM 65A

RONDCOM 55A

RONDCOM 47A

RONDCOM 60A

RONDCOM 46A

RONDCOM 43C

RONDCOM 40C
RONDCOM 45A

RONDCOM 41C
RONDCOM 31C

RONDCOM 30C

CE marking is a mandatory mark for certain product groups to indicate conformity with the essential health and safety requirements set out in European Directives.

Detector Rotating Type

RONDCOM 75GB

- Complete unattended operation, from measuring point position to generation of measured data.
- Proven air bearings and 7-axis CNC control.
- World's highest precision:
  Rotating accuracy: 0.4 μm (when 700mm long shaft measuring tool is used)
  Straightness accuracy: 1.5 μm (when 700mm long shaft measuring tool is used)

RONDCOM 71C series

- Ideal for measurement of heavy items and long parts such as shafts.
- Data processing system features powerful surface analysis function.

RONDCOM 72A

- Tailored to requirements of machine tool and automobile part production floors.
- Rotation accuracy of 0.06 μm is the highest in this class.

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

The Challenge: The No. 1 Precision in the World

RONDCOM 65A

We continue to take up the challenge of providing the number one precision in the world to respond to the needs of our customers. This has resulted in the adoption of granite for the standard guide that features minimal change over years of use, air bearings with extremely small frictional drag and advanced correction technology to achieve nanometer level accuracy.

RONDCOM 65A

Features

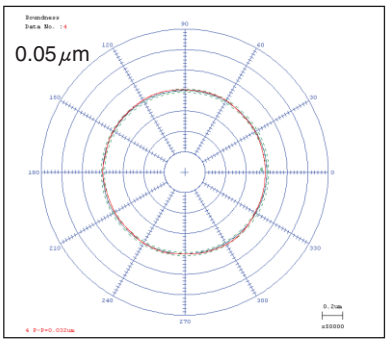
- World's top rotation accuracy: 0.01 μm.
- TIMS next-generated analysis program (ACCRETECH integrated measuring program).
- World's highest throughput (within 60 seconds for auto centering/tilting).
- Proven air bearings adopted for measuring axes.
- Attractive and user-friendly new design.
- Standard air vibration isolation guarantees accuracy.
- New detector with safety mechanism.

Fully Automatic Detector Holder (option)

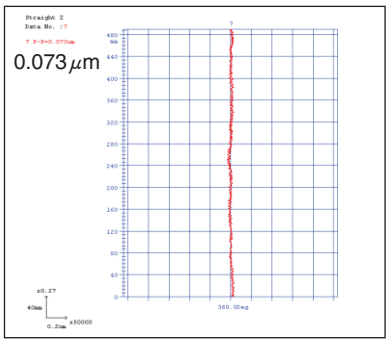
(Patent pending)

The fully automatic detector holder has two rotating axes: One for rotation in the horizontal plane (XY plane), and one for rotation in the vertical plane (YZ plane). In the past, the operator had to align the detector with the measuring point. This new holder fully automates this process, enabling automatic measurement of inner diameter, outer diameter, upper surface, lower surface and taper surface.

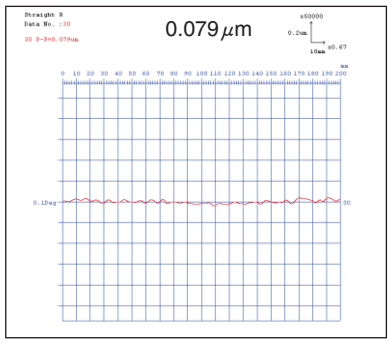
● World's Top Accuracy for Each Axis



Roundness (using master ball)



Up/down direction verticality (using straight edge)



Left/right direction verticality (using optical flat)

Specifications

Model		RONDCOM 65A
Measuring range	Max. measuring diameter	ϕ420 mm
	Left/right feed (R axis)	220 mm
	Up/down feed (Z axis)	500 mm
	Max. load diameter	ϕ680 mm
	Max. measuring height	Outer diameter: 500mm (825mm for roundness/concentricity measurement), Inner diameter: 500mm
Rotation accuracy	JIS B7451	(0.010 + 6H / 10000) μm H: Height from table surface to measuring point (mm)
	Max. deviation from min. square circle	(0.005 + 3H / 10000) μm
Straightness accuracy	Up/down direction (Z axis)	0.05μm/100mm, 0.2μm/500mm
	Radius direction (R axis)	0.5μm/200mm
Parallelness accuracy	Up/down direction (Z axis)	1.5μm/500mm
Indication accuracy	Radius direction (R axis)	(2 + L / 220) μm L: Movement distance (mm)
Rotation speed (θ axis)	Measurement	2 – 10/min
	Alignment	6, 10 or 20/min
Up/down speed (Z axis)	Measuring speed	0.6 – 6.0 mm
	Movement speed	0.6 – 30.0 mm
Up/down speed (R axis)	Measuring speed	0.6 – 6.0 mm
	Movement speed	0.6 – 20.0 mm
Auto stop	Function	Z axis, R axis
	Stop accuracy	Z axis: ±5μm, R axis: ±5μm
Table load conditions	Table outer diameter	ϕ290 mm
	Centering adjustment range	±5mm
	Tilting adjustment range	±1° (automatic/manual)
	Load	60 kg (for measurement and centering)
Detector	Measuring force	30 – 100 mN
	Stylus shape	ϕ1.6mm carbide ball
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)
Measuring items	Rotation direction (θ)	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, non-uniformity, squareness, run-out, diameter
	Rectilinear direction (Z)	Straightness, taper, cylindricity, squareness, parallelness
	Radius direction (R)	Straightness
Functions		CNC measuring function, Notch function (level, angle, cursor), parameter design value collation
Types of filters		Digital filters (2RC, Gaussian)
Cut-off value	Rotation direction (θ)	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation
	Rectilinear direction (Z)	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm
Display	Monitor	Color monitor
	Content	Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan, shading)
		Printer output conditions, comments, error message, etc.
Recording unit	Method	Select color printer or laser printer
	Magnification	10 – 200 K (22 steps), auto, measuring magnification
Power source		AC 100V, 50/60 Hz
Power consumption		800 VA (not including printer)
Air source		0.5 – 0.7 MPa
Air consumption		49 ℓ/min.
Installation dimensions		1900 (W) × 950 (D) × 1800 (H) mm
Weight		700 kg

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

0.02μm Rotation Accuracy and Alignment Within 60 Seconds!

RONDCOM 60A

Air bearings have been provided on the Z axis and R axis for the first time in the industry. In addition, the RONDCOM 60A qualifies for the CE marking, guaranteeing conformance with health and safety requirements.

* Vibration isolation stand and system rack are options.

RONDCOM 60A

Fully Automatic Detector Holder (option) (Patent pending)

Features

Ideal as Line-Side Evaluation Machine

The RONDCOM 60A has the accuracy, throughput, analysis functions, resistance to environmental elements and safety features required in a line-side measuring unit.

Diameter Measuring Function

The R-axis scale makes it possible to measure diameter of workpiece while the machine is in operation to measure soundness.
* Optical calibration is necessary to measure diameter.

Teaching Function Automates Measurements

Theaching function enables the machine to sun full-automatically to perform such as, auto alignment, plural section measurement by rotary / linear motion, creation of inspection certificate for measuring results.

Measured Data Recalculation Function

The measured data for up to 40 sections can be recalculated after changing the measuring conditions and reference axis center. This enables profile analysis from a variety of viewpoints.

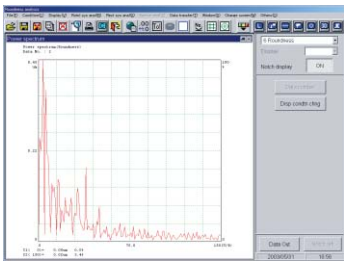
Granite Used for Column/Base/R Axis

Each axis has air bearings that feature no contact resistance. In addition, granite is used for the guides, boasting an absolute minimum of change over time and easy maintenance.

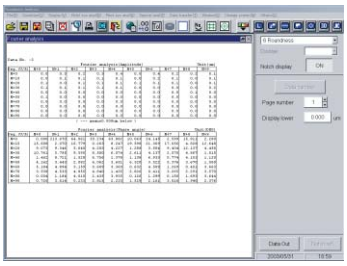
Ideal for Inspection of Automobile/Machine Tool Parts

The RONDCOM 60A has the precision needed for the measurement of pistons, fuel valves, ball bearings and various types of fluid dynamic bearings. It is also suitable for the non-contact measurement of photocopier drums and other components.

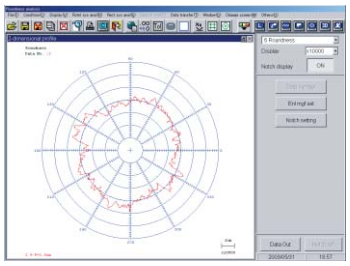
● Example Fourier analysis performed from roundness profile to evaluate influence on vibration



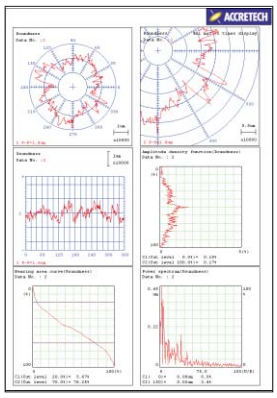
Power spectrum



Fourier analysis



Roundness



Specifications

Model		RONDCOM 60A
Measuring range	Max. measuring diameter	ϕ420 mm
	Left/right feed (R axis)	220 mm
	Up/down feed (Z axis)	500 mm
	Max. load diameter	ϕ680 mm
	Max. measuring height	Outer diameter: 500mm (700mm for roundness/coaxiality measurement), Inner diameter: 500mm
Rotation accuracy	JIS B7451	(0.020 + 6H / 10000) μm H: Height from table surface to measuring point (mm)
	Max. deviation from min. square circle	(0.010 + 3H / 10000) μm
Straightness accuracy	Up/down direction (Z axis)	0.1μm/100mm, 0.25μm/500mm
	Radius direction (R axis)	0.5μm/200mm
Parallelness accuracy	Up/down direction (Z axis)	1.5μm/500mm
Indication accuracy	Radius direction (R axis)	(2 + L / 200) μm L: Movement distance (mm)
Rotation speed (θ axis)	Measurement	2 – 10/min
	Alignment	6, 10 or 20/min
Up/down speed (Z axis)	Measuring speed	0.6 – 6.0 mm/s
	Movement speed	0.6 – 30.0 mm/s
Radius speed (R axis)	Measuring speed	0.6 – 6.0 mm
	Movement speed	0.6 – 20.0 mm
Auto stop	Function	Z axis, R axis
	Stop accuracy	Z axis: ±5μm, R axis: ±5μm
Table load conditions	Table outer diameter	ϕ290 mm
	Centering adjustment range	±5mm (manual/automatic)
	Tilting adjustment range	±1° (manual/automatic)
	Load	60 kg (for measurement and centering)
Detector	Measuring force	70 mN
	Stylus shape	ϕ1.6mm carbide ball
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)
Measuring items	Rotation direction (θ)	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, squareness, non-uniformity, run-out, diameter
	Rectilinear direction (Z)	Straightness, taper, cylindricity, squareness, parallelness
Functions		CNC measuring function, Notch function (level, angle, cursor), division print function, real-time display function, combination of roundness evaluation methods, parameter design value collation
Type of filter		Digital filter (2RC, Gaussian)
Cut-off value	Rotation direction (θ)	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation
	Rectilinear direction (Z)	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm
Display	Monitor	Color monitor (15 inch)
	Content	Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan) Printer output conditions, comments, error message, etc.
Recording unit	Method	Select color printer or laser printer
	Magnification	10 – 200 K (22 steps), auto, measuring magnification
Power source		AC 100V, 50/60 Hz
Power consumption		800 VA (not including printer)
Air source		0.5 – 0.7 MPa
Air consumption		49 ℓ/min.
Installation dimensions		2000 (W) × 950 (D) × 1950 (H) mm*
Weight		600 kg

* When air vibration isolation stand and system rack are used.

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

CNC Machine with Superior Cost Performance

RONDCOM 55A

RONDCOM 55A

* Vibration isolation stand and system rack are options.

Features

Top Class Rotation Precision

The use of high-precision air bearings, a core ACCRETECH technology, guarantees the world's top class of rotation accuracy.

High-Speed Alignment for High Measuring Efficiency

Faster alignment and measuring speeds enable high-efficiency measurements, making the 55A ideal as a line-side evaluation instrument.

Automatic Measurements Reduce Manpower Requirements

The teaching/playback function automates the procedures from measurement to printout, making the unit perfect for measurement of mass-produced items.

Standard [TIMS] Next-Generation Program

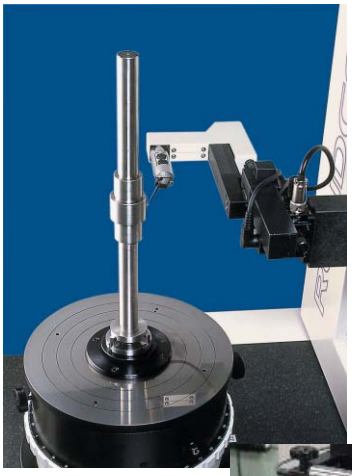
The TIMS integrated program is perfectly matched to the age of networks, allowing data to be freely exchanged between different measuring instruments.

Fully Automatic Detector Holder (option)

The fully automatic detector automates measurement of inner diameter, outer diameter, upper surface and lower surface.

Roughness Measuring Function (Option)

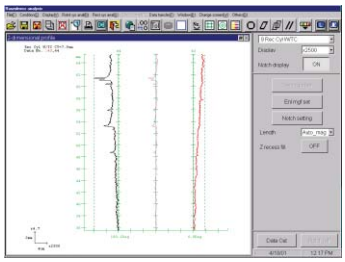
Additional measuring function of roughness enables measurement of roughness in directions of Z-axis and R-axis.



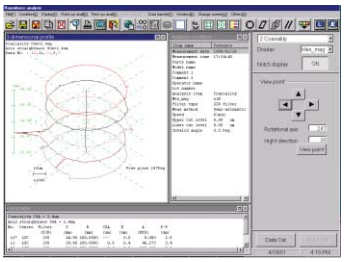
Fully Automatic Detector Holder (option)
* Patent pending

Roughness Measuring Function (Option)

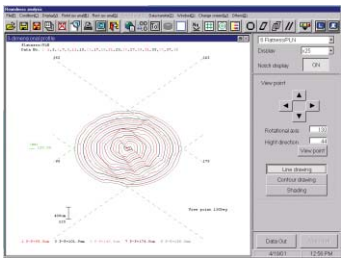
● Diverse evaluation of cylindrical workpieces



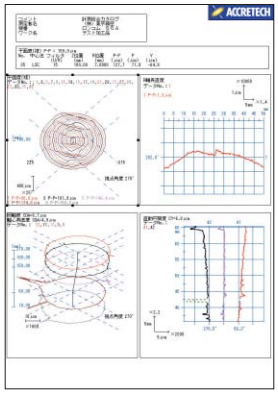
Cylindricity



Coaxiality



Flatness



Specifications

Model		RONDCOM 55A
Measuring range	Max. measuring diameter	ϕ350 mm
	Left/right feed (R axis)	191 mm
	Up/down feed (Z axis)	350 mm
	Max. load diameter	ϕ600 mm
	Max. measuring height	Outer diameter: 350mm (675mm for roundness/coaxiality measurement), Inner diameter: 350mm
Rotation accuracy	JIS B7451	(0.02 + 6H / 10000) μm H: Height from table surface to measuring point (mm)
	Max. deviation from min. square circle	(0.01 + 3H / 10000) μm
Straightness accuracy	Up/down direction (Z axis)	0.15μm/100mm, 0.3μm/350mm
	Radius direction (R axis)	1μm/100mm
Parallelness accuracy	Up/down direction (Z axis)	1.5μm/350mm
Rotation speed (θ axis)	Measurement	2 – 10/min
	Alignment	6, 10 or 20/min
Up/down speed (Z axis)	Measuring speed	0.6 – 6.0 mm
	Movement speed	0.6 – 30.0 mm
Radius speed (R axis)	Measuring speed	0.6 – 6.0 mm
	Movement speed	0.6 – 15 mm
Auto stop	Function	Z axis, R axis
	Stop accuracy	Z axis: ±5μm, R axis: ±5μm
Table load conditions	Table outer diameter	ϕ290 mm
	Centering adjustment range	±5mm (automatic)
	Tilting adjustment range	±1° (automatic)
	Load	60 kg (for measurement and centering)
Detector	Measuring force	30 – 100 mN
	Stylus shape	ϕ1.6mm carbide ball
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method)
		MCC (min. circumscribed circle center line method), N.C. (no correction)
Measuring items	Rotation direction (θ)	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, non-uniformity, squareness, run-out
	Rectilinear direction (Z)	Straightness, taper, cylindricity, squareness, parallelness
	Radius direction (R)	Straightness
Functions		CNC measuring function, Notch function (level, angle, cursor), parameter design value collation
Types of filters		Digital filters (2RC, Gaussian)
Cut-off value	Rotation direction (θ)	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation
	Rectilinear direction (Z)	0.025, 0.08, 0.25, 0.8, 2.5 or 8 mm
Display	Monitor	Color monitor (15 inch)
	Content	Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan, shading)
		Printer output conditions, comments, error message, etc.
Recording unit	Method	Select color printer or laser printer
	Magnification	10 – 200 K (22 steps), auto, measuring magnification
Power source		AC 100V, 50/60 Hz
Power consumption		800 VA (not including printer)
Air source		0.5 – 0.7 MPa
Air consumption		30 ℓ/min.
Installation dimensions		2000 (W) × 950 (D) × 1950 (H) mm
Weight		600 kg

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

Semi-Automatic Unit with Superior Operating Ease and Cost Performance

RONDCOM 47A

RONDOM 47A

* Vibration isolation stand, system rack and printer are options.

Features

●TIMS New-Concept Integrated Program

TIMS provides a full range of functions, including power spectrum, load curve and other surface characteristic analysis functions, as well as contour line, shading and other visualization functions. Flexibility for mutual access of measuring systems has also been enhanced.

●Easy Operation

A variety of incorporated functions reduce operator load, such as the centering/tilting support function to simplify alignment, magnification calibration function to facilitate easy detector calibration, and the ability to rearrange the icons to suit each operator.

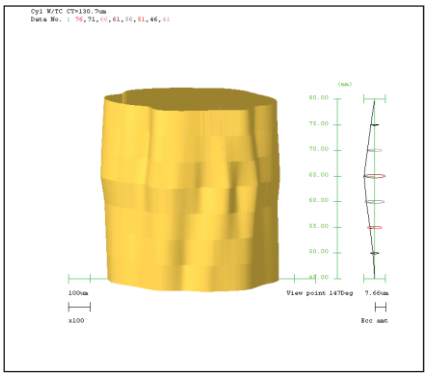
●Enhanced Safety

The detector has a standard emergency stop function. In the event the detector tip is subjected to an overload, the emergency stop mechanism is tripped.

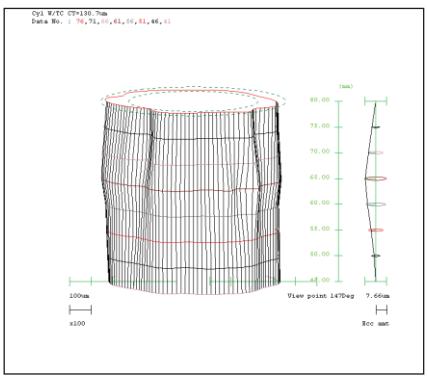
●Easy Analysis and Higher Efficiency

The roundness judgment method, filter value, display magnification, measuring standard and other analysis conditions can be freely changed and reanalysis performed.

In addition, a maximum of 40 contour sections can be freely combined at a time for analysis.



Shading diagram



3D display diagram

Specifications

Model		RONDCOM 47A
Measuring range	Max. measuring diameter	ϕ350 mm
	Left/right feed (R axis)	191 mm
	Up/down feed (Z axis)	350 mm
	Max. load diameter	ϕ600 mm
	Max. measuring height	Outer diameter: 350mm, 675mm for roundness/coaxiality measurement, Inner diameter: 300mm
Rotation accuracy	JIS B7451 - 1997	(0.02 + 6H / 10000) μm H: Height from table surface to measuring point (mm)
	Max. deviation from min. square circle	(0.01 + 3H / 10000) μm
Straightness accuracy	Up/down direction (Z axis)	0.15μm/100mm, 0.3μm/350mm
Parallelness accuracy	Up/down direction (Z axis)	1.5μm/350mm
Rotation speed		6/min
Up/down speed (Z axis)	Measuring speed	0.6, 1.5, 3, 6 mm/s
	Movement speed	15 mm/s
Radial speed (R axis)		5 mm/s
Auto stop function	Z axis/R axis	±5μm
Rotary table	Table outer diameter	ϕ220 mm
	Centering adjustment range	±2mm
	Tilting adjustment range	±1°
	Load	60 kg
Detector (E-DT-R83A)	Linearity range	±1mm
	Measuring force	30 - 100 mN (variable)
	Stylus shape (EM46000-C302)	ϕ1.6mm carbide ball, Length: 53mm
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method)
		MCC (min. circumscribed circle center line method), N.C. (no correction)
Measuring items	Rotation	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity
		Diameter deviation, squareness, non-uniformity, run-out
	Rectilinear	Straightness, taper, cylindricity, squareness, parallelness
Functions		Centering/tilting support function, shading processing function,
		Notch processing function (level, cursor), simplified automatic measuring function,
		real-time display, combination of roundness evaluation methods, design value collation
Types of filters		Digital filters (2RC, Gaussian)
Cut-off value	Rotation (Low pass)	Select 15, 50, 150, 500 peaks/rotation or 15 - 500 peaks/rotation
	(Band pass)	15 - 150, 15 - 500, 50 - 500 peaks/rotation
	Rectilinear (Low pass)	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm, set in 0.0001mm units
Display		Color monitor (15 inch)
Display items		Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan)
		Printer output conditions, comments, error message, etc.
Recording method		Select color printer or laser printer
Measuring magnification		50, 100, 200, 500, 1k, 2k, 5k, 10k, 20k, 50k, 100k
Power source		AC 100 - 240V, 50/60 Hz (set at factory when shipped)
Power consumption		Approx. 600 VA (not including printer)
Air source		Supply pressure: 0.5 - 0.7 MPa, Usage pressure: 0.4 MPa
Air consumption		30 ℓ/min. (standard conditions)
Installation dimensions		2000 (W) × 1000 (D) × 1950 (H) mm *
Weight		600 kg

* Space occupied when optional vibration isolation stand (E-VS-S21A) and system rack (E-DK-S24A) are used.

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

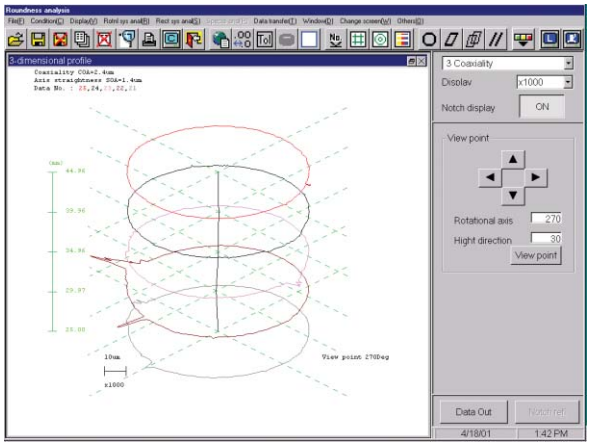
Ceramic Column Roundness / Cylindrical Profile Measuring Instrument

RONDCOM 46A

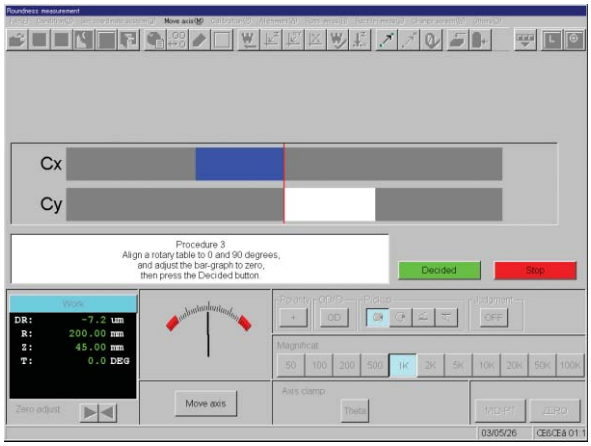
RONDCOM 46A

Features

- Highly precise and durable ceramic column.
- Incorporates centering and tilting support functions.
- Load curve, amplitude distribution curve, power graph, Fournier analysis and other functions facilitate powerful surface characteristic analysis.
- Desired roundness evaluation methods can be selected and combined.
- Multiple sections can be combined and analyzed.

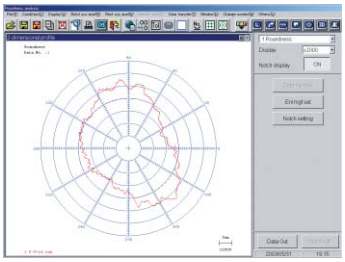


Coaxiality display

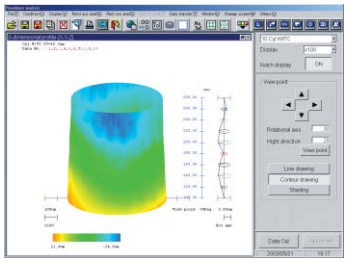


Support function

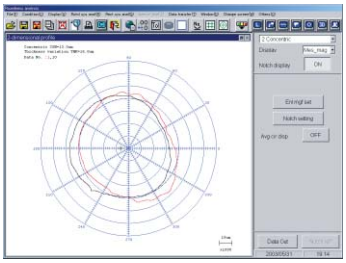
● Surface characteristic analysis function provides advanced 2D evaluation and superior visualization for 3D evaluation



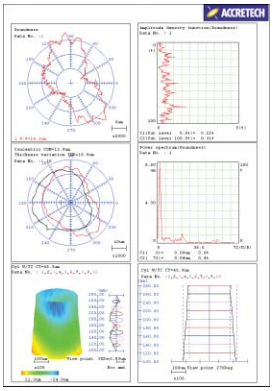
Roundness display



Contour line display



Concentricity display



Specifications

Model		RONDCOM 46A
Rotation accuracy	JIS B7451	(0.04 ± 6H / 10000) μm H: Height from table surface to measuring point (mm)
	Max. deviation from min. square circle	(0.02 ± 3H / 10000) μm
Straightness accuracy		0.15μm/100mm, 0.3μm/350mm
Parallelness accuracy		2μm/350mm
Rotation speed		6/min
Up/down speed (Z axis)	Drive speed	0.6, 1.5, 3, 6 mm/s, Rapid feed: 15 mm/s
	Stroke	350 mm
Radius direction (R axis)	Drive speed	5 mm/s
	Stroke	130 mm
Auto stop function		Z axis, R axis
Auto stop accuracy		Z axis: ±5μm, R axis: ±5μm
Max. measuring diameter		ϕ260 mm
Max. load diameter		ϕ400 mm
Max. measuring height		Outer diameter: 550mm, Inner diameter: 350mm
Max. depth		90 mm (Inner diameter 40mm or more)
Load		25 kg
Table outer diameter		ϕ148 mm
Centering adjustment range		±2mm
Tilting adjustment range		±0.6°
Detector	Measuring force	70 mN
	Stylus shape	ϕ1.6mm carbide ball
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)
Measuring items	Rotation	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, squareness, non-uniformity, run-out
	Rectilinear	Straightness, taper, cylindricity, squareness, parallelness
Display unit		Color monitor (15 inch)
Display items		Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan, shading), printer output conditions, comments, error message, etc.
Functions		Centering support function, simplified automatic measuring function, notch processing function (level, angle, cursor), division print processing function, real-time display function, combination of roundness evaluation methods, design value collation
Type of filter		Phase compensation/2RC
Cut-off value	Rotation	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation
	Rectilinear	0.025, 0.08, 0.25, 0.8, 2.5 or 8 mm
Measuring magnification		50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K (11 steps)
Recording method		Select color printer or laser printer
Power source		AC 100V, 50Hz/60 Hz (select)
Power consumption		900 VA (not including printer)
Air source		0.35 – 0.7 MPa
Air consumption		30 ℓ/min. (standard status)
Installation dimensions		2000 (W) × 1000 (D) × 1000 (H) mm
Weight		190 kg

* Please use the dedicated vibration isolation stand (option) when measuring in a location where there is considerable external vibration or at a magnification of 20,000 times or more.

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

Compact Desktop Roundness Measuring Instruments with Superior Cost Performance and Analysis Functions of a High Class Machine

RONDCOM 43C/41C/31C

RONDCOM 43C

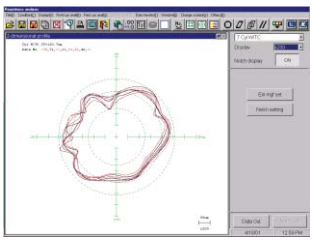
RONDCOM 41C

RONDCOM 31C

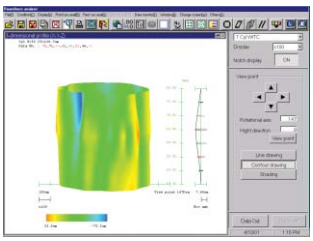
Superior Cost-Performance Roundness Measuring Instrument with TIMS Next-Generation Integrated Program

- Standard high-precision static-pressure air bearings (θ axis).
- Provided with TIMS next-generation integrated program.
- High-precision column (Z axis) enables cylindricity analysis (for 43C/41C).
- User-friendly centering/tilting support function.
- Standard semi-automatic measuring function where height is specified.
- Provided with power spectrum, Fournier analysis and other surface analysis functions.

RONDCOM 43C/41C

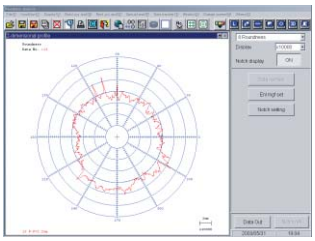


Cylindricity display

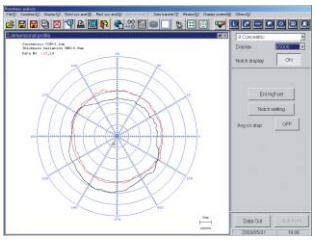


Contour line display

RONDCOM 31C



Roundness display



Concentricity display

Specifications

Model		RONDCOM 43C	RONDCOM 41C	RONDCOM 31C
Measuring range	Max. measuring diameter	ϕ250 mm		
	Left/right feed (R axis)	125 mm		
	Up/down feed (Z axis)	300 mm		200 mm
	Max. load diameter	ϕ400 mm		
	Max. measuring height	OD: 520mm / ID: 300mm		OD: 420mm / ID: 200mm
Rotation accuracy	ISO 4291/ JIS B7451	(0.02 + 6H / 10000) μm	(0.04 + 6H/10000) μm	
	Max. deviation from min. square circle	(0.01+3H/10000) μm	(0.02+3H/10000) μm	
Straightness accuracy		0.25μm/100mm, 0.8μm/300mm	0.50μm/100mm, 1.5μm/300mm	------
Parallelness accuracy		1.5μm/300mm	3μm/300mm	------
Rotation speed (θ axis)		6/min		
Up/down speed (Z axis)	Measuring	0.6 – 6 mm/s		5 mm/s
	Movement	15 mm/s		5 mm/s
Radius speed (R axis)		5 mm/s		
Auto stop function	Z axis/R axis	±5mm		
Rotating table	Table outer diameter	ϕ148 mm		
	Centering adjustment range	±2mm		
	Tilting adjustment range	±1°		
	Load	25 kg *		
Detector	Linearity range	±400 μm		
	Measuring force	70 mN		
	Stylus shape	ϕ1.6mm carbide ball		
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)		
Measuring items	Rotation direction (θ)	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, squareness, non-uniformity, run-out		Roundness, flatness, parallelness, concentricity, coaxiality, squareness, non-uniformity, run-out
	Rectilinear direction up/ down direction (Z)	Straightness, taper, cylindricity, squareness, parallelness		------
Functions		Centering/tilting support function, shading processing function, notch processing function (level, angle, cursor), real-time display function, simplified automatic measurement, combination of roundness evaluation methods, design value collation function		
Types of filters		Digital filters (phase compensation, 2RC)		
Cut-off value	Rotation (low pass)	15, 50, 150, 500 peaks/rotation		
	Rotation (bound pass)	15 – 150, 15 – 500 peaks/rotation		
	Rectilinear direction up/ down (low pass)	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm/s		------
Display		Color monitor (15 inch)		
Display items		Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan)		
		Printer output conditions, comments, error message, etc.		
Recording unit	Method	Select color printer or laser printer		
	Magnification	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K (automatic)		
Power source		AC 100V, 50/60 Hz		
Power consumption		600 VA		
Air source		0.35 – 0.7 MPa		
Air consumption		30 ℓ/min. (standard status)		
Installation dimensions		1800 (W) × 1000 (D) × 1700 (H) mm (when optional system rack is used)		
Weight		130 kg	120 kg	

* When optional E-VS-S38A vibration isolation stand is used for RONDCOM 43C, the allowable load is 15 kg or less.

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

On-Site Easy to Operate Desktop Roundness Measuring Instruments

RONDCOM 45A/40C/30C

RONDCOM 45A

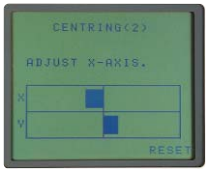
Features

- **High Precision/High Durability Ceramic Column (45A only)**
  The provision of a ceramic column with the high precision and durability to provide 0.15 μm/100mm (0.3 μm/350mm) straightness enables measurement of straightness, cylindricity and squareness.
- **Guaranteed Parallelness Accuracy (45A only)**
  The parallelness of the center of the rotating axis to the column is guaranteed to be 2 μm/350mm. This achieves high measuring accuracy for cylindricity, squareness and taper.

RONDCOM 40C

RONDCOM 30C

Highly Rigid Static-Pressure Air Bearings
Static-pressure air bearings with a proven track record have been adopted for the rotation mechanism, providing the highest load resistance and extended rotation precision in this class of machine.

Operator-Friendly Centering/ Tilting Support Function


Eccentricity in the X and Y directions of the center of the workpiece axis with respect to the center of the rotating axis, as well as tilting are displayed in bar graphs on the LCD panel. This simplifies alignment.

Automatic Measuring Function
Each axis is provided with a motorized auto stop function, automating movement, measurement and retract operations. This function is extremely effective for repeated measurements of mass produced workpieces on the production floor.

Automatic Magnification Calibration Function
This function simplifies calibration of magnification when the stylus is changed to accommodate different workpieces profiles. The sensitivity for four types of detectors can be registered.

Automatic Eccentricity Correction/Tilt Correction Function
Analyzing the eccentricity and tilting of the workpiece in the measuring range and automatically correcting for it have dramatically reduced the time and effort needed to perform alignment.

Combination of Center Line Definition Methods
Four types of center line definition methods can be freely selected and combined for concentricity, squareness and other measuring items.

Standard High Speed Graphic Printer
A high speed graphic printer that uses recording paper with a recording width of 104mm immediately provides a high-resolution record of measurement. Since various measuring conditions and parameter results are recorded at the same time, it can be used as a data sheet.

Standard IC Card Unit
The provision of an IC card unit enable all measuring condition settings and measured data to be stored. Special programs that are provided in response to customer requests can be loaded using the IC card unit.

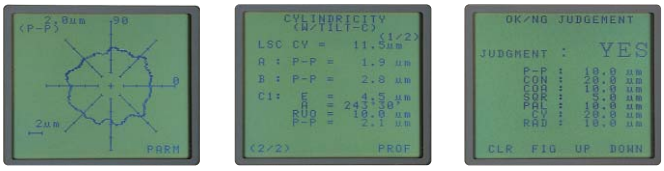
Compact Easy to Operate Roundness Measuring Instrument

Setting Procedure

Menus to set measuring, analysis, display and recording conditions


Viewing the eccentricity graph display during centering simplifies the procedure.

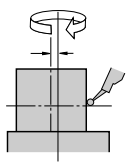
Measurement



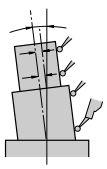
Parameter values and measuring profile for roundness, coaxiality, cylindricity and squareness, etc.

Functions to Reduce Operator Load

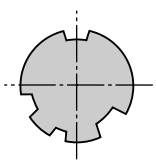
Automatic Eccentricity Correction


Corrects for deviation of rotating axis center and center of workpiece, and prints outs an easy-to-view record.

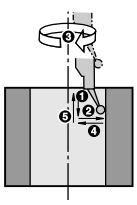
Automatic Tilt Correction

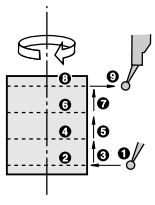

Corrects for tilting of rotating axis center and center of workpiece, enhancing judgment accuracy of coaxiality and cylindricity.

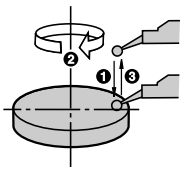
Notched Workpiece


Calculates center of workpiece from data for remaining round portion, enabling judgment that does not differ from person to person.

Automatic Measuring Functions

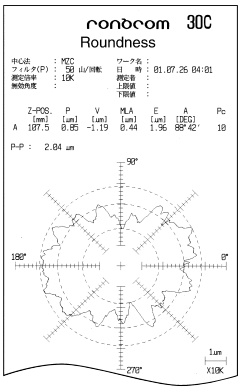

❶ Detector down
❷ Detector retract (ID), advance (OD)
❸ Measurement
❹ Detector advance (OD), retract (ID)
❺ Detector up


❶ Detector advance
❷ Measurements 4, 6, 8
❸ Movements 5, 7
❾ Detector retract

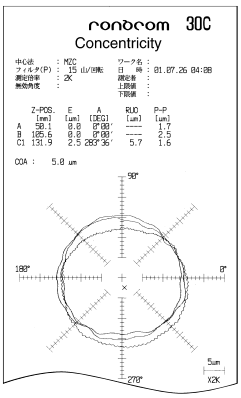

❶ Detector down
❷ Measurement
❸ Detector up

Sample Measurement Analysis

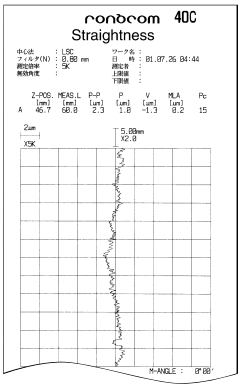
Roundness measurement



Concentricity measurement



Straightness measurement (40C/45A)



Specifications

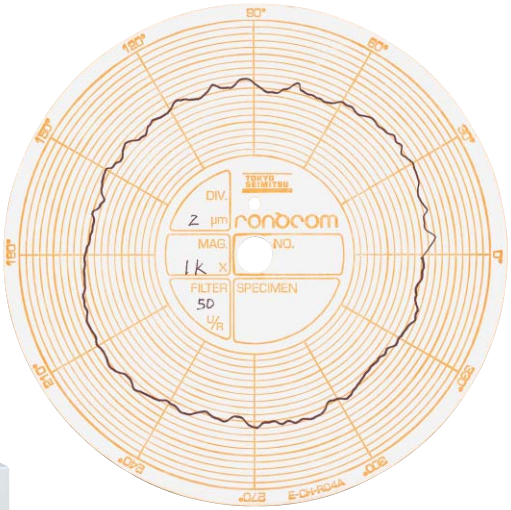
Model			RONDCOM 45A	RONDCOM 40C	RONDCOM 30C
Measuring range	Max. measuring diameter		ϕ260 mm		ϕ250mm
	Left/right feed (R axis)		130 mm		125mm
	Up/down feed (Z axis)		350 mm	300 mm	200mm
	Max. load diameter		ϕ400 mm		
	Max. measuring height	Outer diameter	550 mm	520 mm	420 mm
		Inner diameter	350 mm	300 mm	200 mm
Rotation accuracy	ISO 4291 / JIS B7451		(0.050+6H/10000)μm H: Height from table surface to measuring point (mm)		
	Max. deviation from min. square circle		(0.025+3H/10000)μm		
Straightness accuracy			0.15μm/100mm, 0.3μm/350mm	0.50μm/100mm, 1.5μm/300mm	------
Parallelness accuracy			2μm/350mm	3μm/300mm	------
Rotation speed (θ axis)			6/min		
Up/down speed (Z axis)			0.6, 1.5, 3 or 6 mm/s Rapid feed: Approx. 15mm/s		5 mm/s
Radius speed (R axis)			5 mm/s		
Auto stop function	Z axis/R axis		±1μm		
Rotating table	Table outer diameter		ϕ148 mm		
	Centering adjustment range		±2mm		
	Tilting adjustment range		±1°		
	Load		25 kg		
Detector	Linearity range		±800μm	±400μm	
	Measuring force		70 mN		
	Stylus shape		ϕ1.6mm carbide ball		
Roundness evaluation of profile error			MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)		
Measuring items	Circumferential direction (θ axis)		Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, squareness, non-uniformity, run-out		Roundness, flatness, parallelness, concentricity, coaxiality, squareness, non-uniformity, run-out
	Axial direction (Z axis)		Straightness, taper, cylindricity, squareness		------
Functions			Centering/tilting support function, AI measurement function, Notch function (level, angle), automatic eccentricity correction/tilt correction function, combination of roundness evaluation methods, pass/fail judgment function, automatic measurement		
Types of filters			2RC, phase compensation		
Cut-off value			15, 50, 150, 500 peaks/rotation		
Display			LCD panel		
Display items			Measuring conditions, measuring parameters, profile drawing, printer output conditions, comments, error message, etc.		
Recording system			Thermal dot array (Recording width: 104mm)		
Magnification			50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K		
Power source			AC 100V ±10%, 50Hz/60 Hz (must specify)		
Power consumption			250 VA		
Air source			0.3 – 0.7 MPa		
Air consumption			30 ℓ/min (standard status).		
Installation dimensions			1800(W) × 1000(D) × 850(H)mm	1400(W) × 900(D) × 850(H)mm	1400(W) × 900(D) × 750(H)mm
Weight			175 kg	120 kg	
Standard accessories			Magnification calibration block gauge, printing paper (E-CH-R06A), instruction manual		

Table Rotating Type Roundness・Cylindrical Profile Measuring Instruments

Roundness Measuring Instrument for the Production Floor

RONDCOM 15MA

RONDCOM 15MA



Roundness evaluation

Features

- Measuring position and recording position are completely synchronized, enabling use as line-side assembly adjustment device.
- Uses large, easy-to-read thermal recording paper.
- Simple machine for the production floor.
- Incorporates energy-efficient static-pressure air bearings.

Specifications

Model		RONDCOM 15MA
Measuring range	Rotational accracy	φ200 mm
	Measuring height (OD)	400 mm
	Measuring height (ID)	200 mm
	Max. load diameter	φ400 mm
	Load Weight	15 kg
Measuring maginification		50-10K times (8types)
Rotation accuracy (JIS B7451)		(0.1+6H/10000)μm, H:measuring height(mm)
Drive speed	Rotation direction	6/min
	Up/down direction	Manual
Measuring items		7 types of rotation measurements
Power source		AC 100V, 50Hz or 60 Hz (must specify)
Power consumption		250 VA
Air source		0.4 – 0.7 MPa, 30 ℓ/min.
Installation dimensions		590 (W) × 550 (D) × 570 (H) mm
Weight		150 kg

Detector Rotating Type Roundness・Cylindrical Profile Measuring Instruments

Air Bearings on Each Axis Achieve World's Top Precision

RONDCOM 75GB

RONDCOM 75GB

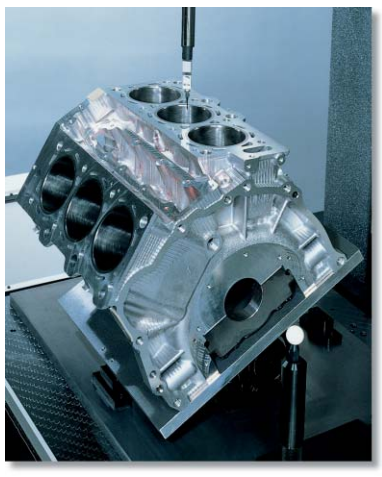
(Long shaft measuring tool is optional.)

Features

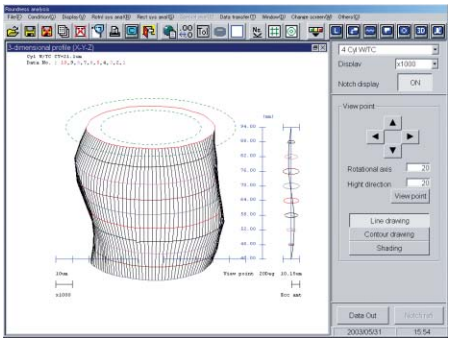
- **Rotation accuracy: 0.2μm (JIS B7451)**
- **Straightness: 1.5μm/700mm (When 700mm long shaft measuring tool is used)**
- Static-pressure air bearings on X axis, Y axis, Z axis and θ axis.
- Incorporates fully automatic 7-axis control function.
- Provided with TIMS next-generation integrated program.
- Automatic measurement of multiple workpieces.
- Teaching function.
- Granite used for column and base maintains precision for many years.
- Automatic part program call function (option).

Sample Applications

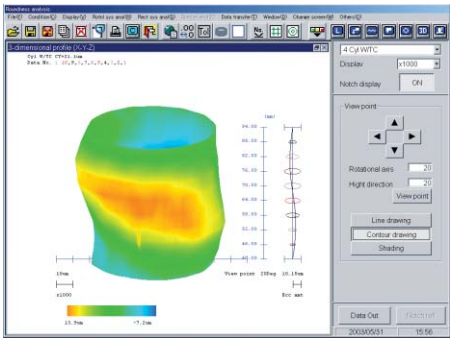
Crankshaft



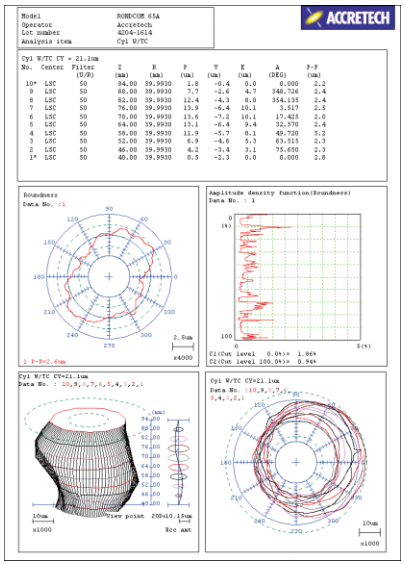
Cylinder block



3D display



Contour line display



Data sheet

Specifications

Model		RONDCOM 75GB Series		
		1000mm Type	1500mm Type	1 Ton Type
Measuring range	Max. measuring diameter	ϕ450 mm		
	Min. measuring ID	Filler diameter +2mm or more		
	Left/down feed range (X axis)	700 mm		1500 mm
	Front/rear feed range (Y axis)	200 mm		
	Up/down feed range (Z axis)	1000 mm	1500 mm	
	Max. load diameter	ϕ900 mm		
Rotation accuracy (JIS B7451)		0.2μm (standard detector), 0.4μm (long shaft measuring tool, ℓ = 700mm)		
Straightness accuracy		0.5μm/100mm (standard detector), 1.5μm/700mm (700mm long shaft measuring tool,)		
Parallelness accuracy	Up/down direction (Z axis)	1.5μm/100mm		
Drive speed	Rotation direction	2/min (measuring), 10/min (auto centering)		
	Up/down direction	0.6, 6 mm/s		
Table load conditions	Table dimensions	800 (W) × 680 (D) mm		1200 (W) × 800 (D) mm
	Load weight	200 kg		1000kg
Detector	Stylus profile	R0.25 mm sapphire		
	Measuring force	Arm a: 170 mN, Arm b: 85 mN		
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)		
Measuring items	Rotation direction	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, non-uniformity, squareness, run-out		
	Up/ down direction	Straightness, taper, cylindricity, squareness, parallelness		
Functions		CNC measuring function, auto tilting function, auto centering function, notch processing function (level, angle, cursor), parameter design value collation function, real-time display function, centering support function		
Types of filters		Digital filters (2RC, phase compensation)		
Cut-off value	Rotation direction	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation		
	Rectilinear direction	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm		
Display unit	Monitor	Color monitor		
	Content	Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan, shading) Printer output conditions, comments, error message, etc.		
Recording unit	Method	Select color printer or laser printer		
	Magnification	10 – 200 K, Auto, measuring magnification		
Power source		AC 100V, 50/60 Hz		
Power consumption		3 kVA		
Air source		0.35 – 0.7 MPa, 160 ℓ/min		
Installation dimensions (W × D × H)		4100 × 4200 × 3700	4100 × 4200 × 4100	4500 × 4300 × 4500
Weight	Measuring unit	6200 kg	6500 kg	11400 kg
	Control unit	100 kg	100 kg	100 kg

Detector Rotating Type Roundness・Cylindrical Profile Measuring Instruments

Tailored to Machine Tool and Automobile Part Production Floors

RONDCOM 72A/71C

Features

- Highest in class rotation accuracy of 0.06 μm.
- Auto centering/tilting functions.
- Incorporates fully automatic 7-axis control function.
- Fully automated, from auto centering to measurement.
- Achieves high-speed processing of cylindrical profile data.
- Load curve, amplitude distribution curve, power graph, Fournier analysis and other functions facilitate powerful surface analysis.
- Roundness evaluation methods can be combined for analysis.

RONDCOM 72A

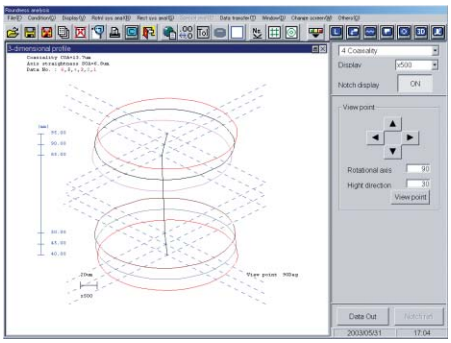
Crankshaft measurement

Features

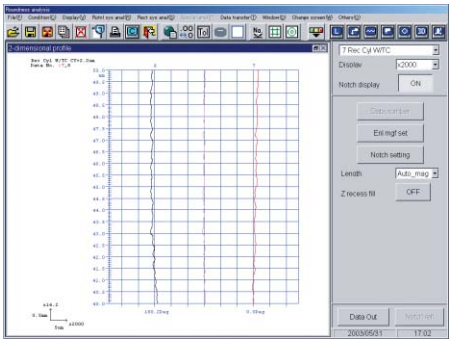
- Ideal for cylindrical analysis of different medium-sized workpieces.
- TIMS next-generation integrated program simplifies connection to LAN.
- Standard auto centering function.
- Semi-automatic measurement possible by specifying height.

RONDCOM 71C-70

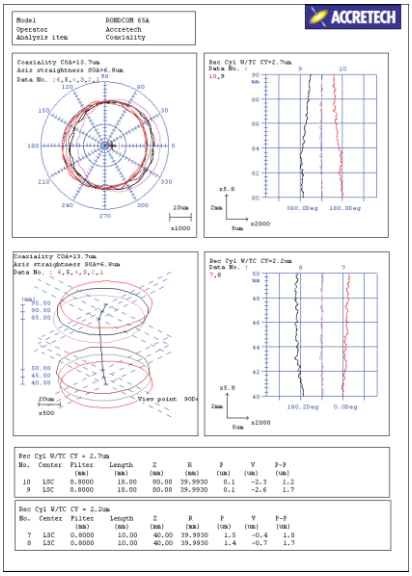
ACCRETECH TOKYO SEIMITSU



Coaxiality display



Cylindricity display



Data sheet

Specifications

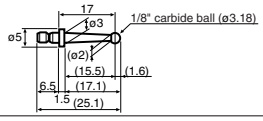
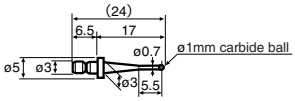
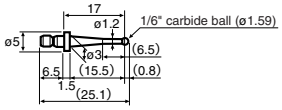
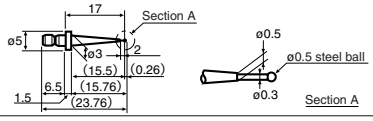
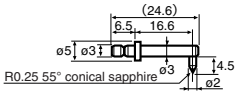
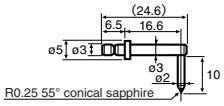
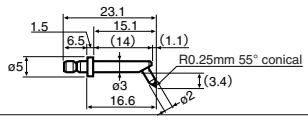
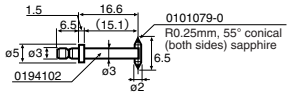
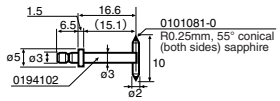
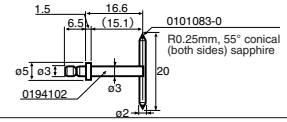
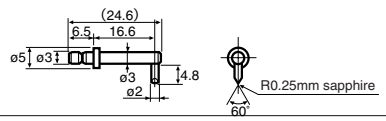
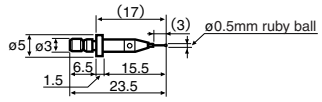
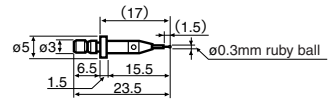
Model		RONDCOM 72A	RONDCOM 71C-70	RONDCOM 71C-10
Measuring range	Max. measuring diameter	ϕ450 mm		ϕ380 mm
	Min. measuring ID	Filler diameter +2mm or more		
	Left/down feed range (X axis)	600 mm		20 mm
	Front/rear feed range (Y axis)	50 mm	20 mm	
	Up/down feed range (Z axis)	1000 mm	700 mm	460 mm
	Max. load diameter	ϕ900 mm	ϕ520 mm	ϕ400 mm
Rotation accuracy (JIS B7451)		0.06 μm	0.08 μm (During arm operation)	
Straightness accuracy		2μm/200mm, 5μm/600mm	2μm/200mm (During arm operation)	
Parallelness accuracy	Up/down direction (Z axis)	2μm/100mm	3μm/100mm	
Drive speed	Rotation direction	2/min (measuring), 10/min (auto centering)	4/min (measuring), 10/min (auto centering)	
	Up/down direction	0.6, 1.5, 6 mm/s (measuring), Max. 30mm/s	0.6, 6 mm/s	
Table load conditions	Table dimensions	600 (W) × 550 (D) mm	600 (W) × 540 (D) mm	460 (W) × 400 (D) mm
	Load weight	200 kg		80 kg
Detector	Measuring force	70 mN	Arm a: 170 mN, Arm b: 85 mN	
	Stylus profile	ϕ1.6mm carbide ball	R0.25 mm sapphire	
Roundness evaluation of profile error		MZC (min. range center line method), LSC (min. square center line method), MIC (max. inscribed circle center line method), MCC (min. circumscribed circle center line method), N.C. (no correction)		
Measuring items	Rotation direction	Roundness, flatness, parallelness, concentricity, coaxiality, cylindricity, diameter deviation, non-uniformity, squareness, run-out		
	Up/ down direction	Straightness, taper, cylindricity, squareness, parallelness		
Functions		CNC measuring function, auto tilting function	Semi-automatic measurement	
		Auto centering function, notch processing function (level, angle, cursor), parameter design value collation function, real-time display function, centering support function		
Types of filters		Digital filters (2RC, phase compensation)		
Cut-off value	Rotation direction	15, 50, 150, 500, 15 – 150, 15 – 500 peaks/rotation		
	Rectilinear direction	0.025, 0.08, 0.25, 0.8, 2.5 or 8mm		
Display unit	Monitor	Color monitor (15 inch)		
	Content	Measuring conditions, measuring parameters, profile drawing (expansion plan, 3D plan, shading) Printer output conditions, comments, error message, etc.		
Recording unit	Method	Select color printer or laser printer		
	Magnification	10 – 200 K, Auto, measuring magnification		
Power source		AC 100V, 50/60 Hz		
Power consumption		3 kVA	1 kVA	
Air source		0.5 – 0.7 MPa, 30 ℓ /min	0.5 – 0.7 MPa, 90 ℓ /min	
Installation dimensions (W × D × H)		2850 × 3300 × 3000	3100 × 2500 × 2500	2200 × 2400 × 2100
Weight		3100kg	1700kg	1300kg

RONDCOM Options

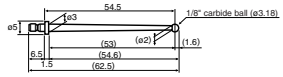
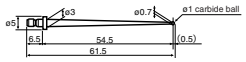
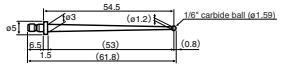
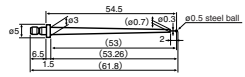
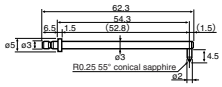
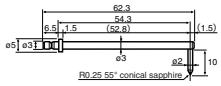
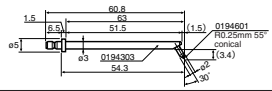
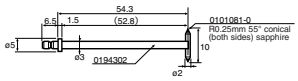
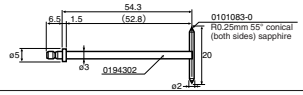
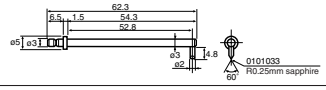
Styluses

Applicable Models
- E-DT-R32A (R15MA, R30C, R31C, R40C, R41C, R43C)
- E-DT-LK-R405A (R45A, R46A)
- E-DT-R74A (R60A)

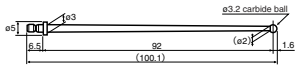
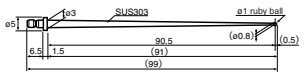
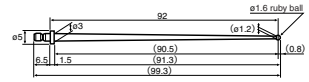
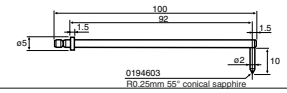
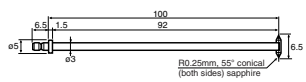
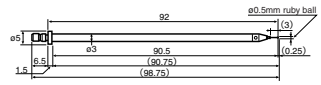
1:1 Standard Sensitivity, L = 17mm

Measuring Application	Model	Outer Appearance	Specifications	Remarks
General purpose	0194 000			φ3.2mm carbide ball
Small holes	0194 001			φ1mm carbide ball
General purpose	0194 002			φ1.6mm carbide ball Standard stylus
Extra small holes	0194 009			φ0.5mm steel ball
Grooves	0194 003			R0.25mm, 55° conical sapphire L type, L = 4.5mm
Deep grooves	0194 004			R0.25mm, 55° conical sapphire L type, L = 10mm
Corners	0194 005			R0.25mm, 55° conical sapphire L type, L = 3.4mm/30°
Grooves	0194 006			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Grooves	0194 007			R0.25mm, 55° conical sapphire T type, L = 10mm
Deep grooves	0194 008			R0.25mm, 55° conical sapphire T type, L = 20mm
Cutter mark removal	0194 010			R0.25mm sapphire L type, L = 4.8mm/R15mm
Extra small holes	EM49030-S361			φ0.5mm ruby ball
Extra small holes	EM49030-S381			φ0.3mm ruby ball

2:1 Sensitivity, L = 54mm

Measuring Application	Model	Outer Appearance	Specifications	Remarks
General purpose	0194 200			ϕ3.2mm carbide ball
Small holes	0194 201			ϕ1mm carbide ball
General purpose	0194 202			ϕ1.6mm carbide ball Standard stylus
Extra small holes	0194 209			ϕ0.5mm steel ball
Grooves	0194 203			R0.25mm, 55° conical sapphire L type, L = 4.5mm
Deep grooves	0194 204			R0.25mm, 55° conical sapphire L type, L = 10mm
Corners	0194 205			R0.25mm, 55° conical sapphire L type, L = 3.4mm/30°
Grooves	0194 206			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Grooves	0194 207			R0.25mm, 55° conical sapphire T type, L = 10mm
Deep grooves	0194 208			R0.25mm, 55° conical sapphire T type, L = 20mm
Cutter mark removal	0194 210			R0.25mm sapphire L type, L = 4.8mm/R15mm

3:1 Sensitivity, L = 92mm

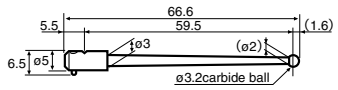
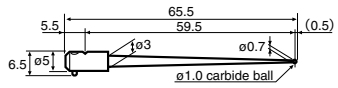
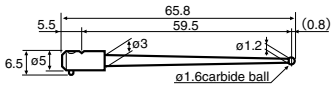
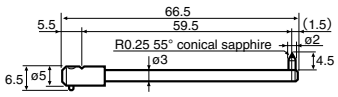
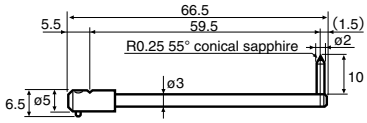
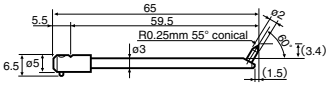
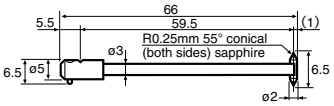
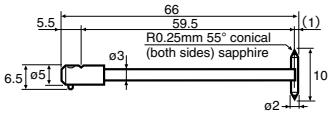
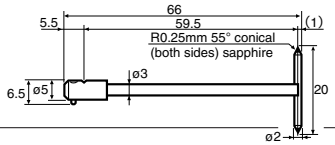
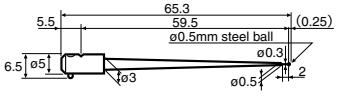
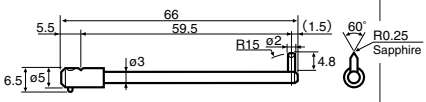
Measuring Application	Model	Outer Appearance	Specifications	Remarks
General purpose	0194 400			ϕ3.2mm carbide ball
Small holes	EM49201-S375			ϕ1 mm ruby ball
General purpose	EM49201-S374			ϕ1.6mm ruby ball
Deep grooves	EM49201-S315			R0.25mm, 55° conical sapphire L type, L = 10mm
Grooves	EM49201-S361			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Extra small holes	EM49201-S376			ϕ0.5mm ruby ball

RONDCOM Options

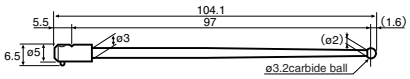
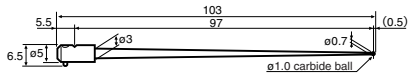
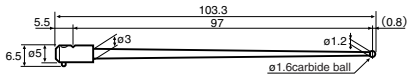
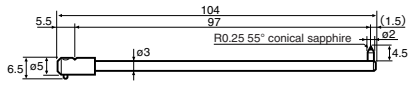
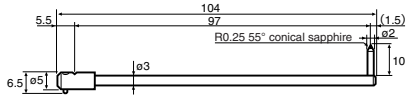
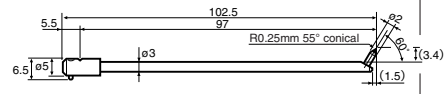
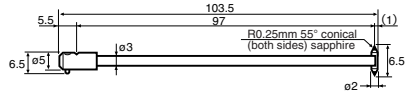
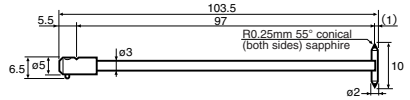
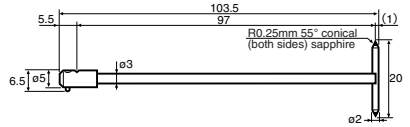
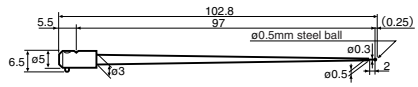
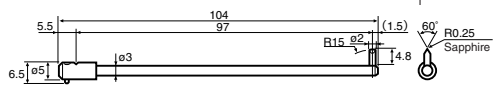
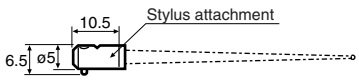
Styluses

Applicable Models ■E-DT-R95A（R30C, R31C, R40C, R41C, R45A, R46A, R60A）
■E-DT-R83A（R47A, R55A, R60A, R65A）

1:1 Standard Sensitivity, L = 59.5mm

Measuring Application	Model	Outer Appearance	Specifications	Remarks
General purpose	EM46000-S300			ϕ3.2mm carbide ball
Small holes	EM46000-S301			ϕ1mm carbide ball
General purpose	EM46000-S302			ϕ1.6mm carbide ball Standard stylus
Grooves	EM46000-S303			R0.25mm, 55° conical sapphire L type, L = 4.5mm
Deep grooves	EM46000-S304			R0.25mm, 55° conical sapphire L type, L = 10mm
Corners	EM46000-S305			R0.25mm, 55° conical sapphire L type, L = 3.4mm/60°
Grooves	EM46000-S306			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Grooves	EM46000-S307			R0.25mm, 55° conical sapphire T type, L = 10mm
Deep grooves	EM46000-S308			R0.25mm, 55° conical sapphire T type, L = 20mm
Extra small holes	EM46000-S309			ϕ0.5mm steel ball
Cutter mark removal	EM46000-S310			R0.25mm, sapphire L type, L = 4.8mm/R15mm

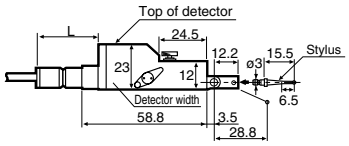
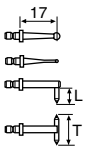
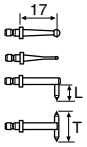
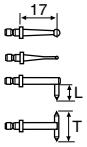
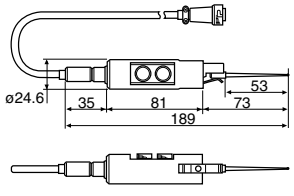
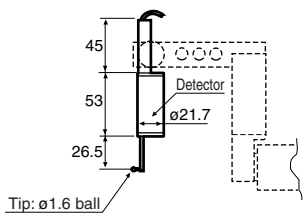
1:5 Sensitivity, L = 97mm

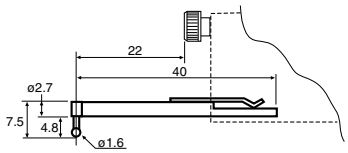
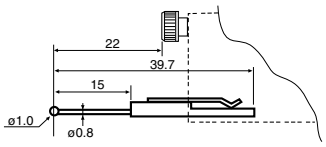
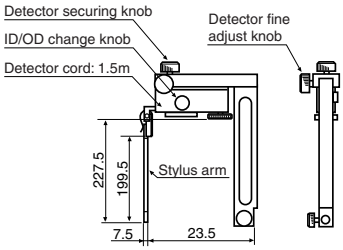
Measuring Application	Model	Outer Appearance	Specifications	Remarks
General purpose	EM46100-S300			ϕ3.2mm carbide ball
Small holes	EM46100-S301			ϕ1mm carbide ball
General purpose	EM46100-S302			ϕ1.6mm carbide ball
Grooves	EM46100-S303			R0.25mm, 55° conical sapphire L type, L = 4.5mm
Deep grooves	EM46100-S304			R0.25mm, 55° conical sapphire L type, L = 10mm
Corners	EM46100-S305			R0.25mm, 55° conical sapphire L type, L = 3.4mm/60°
Grooves	EM46100-S306			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Grooves	EM46100-S307			R0.25mm, 55° conical sapphire T type, L = 10mm
Deep grooves	EM46100-S308			R0.25mm, 55° conical sapphire T type, L = 20mm
Extra small holes	EM46100-S309			ϕ0.5mm steel ball
Cutter mark removal	EM46100-S310			R0.25mm, sapphire L type, L = 4.8mm/R15mm
Stylus attachment	EM-59103-S001			Attachment when 2:1 stylus for detectors E-DT-R32A / E-DT-LK-R405 / E-DT-R74A is mounted on detectors E-DT-R83A / E-DT-R95A

RONDCOM Options

Detectors

Applicable Models ■R15MA ■R30C ■R31C ■R40C ■R41C ■R43C ■R45A ■R46A ■R47A ■R55A ■R60A ■R65A

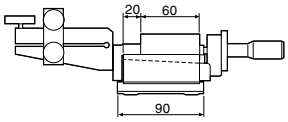
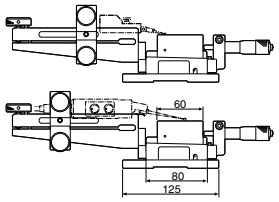
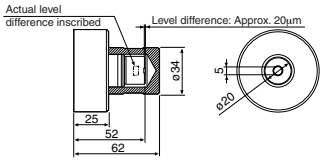
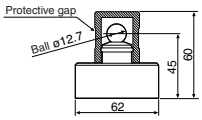
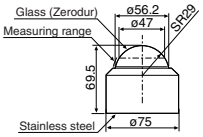
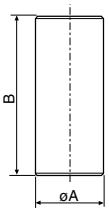
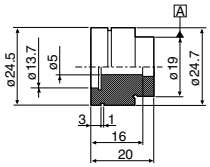
Name	Model	Outer Appearance	Specifications	Remarks
General purpose detector	E-DT-R32A	 R32A：L=25mm R405 R74A：L=45mm	Measuring range: ±400μm Measuring force: 70mN Front adjust mechanism ID/OD change function	Applicable models: R15MA, R30C, R31C, R40C, R41C, R43C Stylus: φ1.6 carbide ball (0194 002), option
General purpose detector	E-DT-LK-R405		Measuring range: ±800μm Measuring force: 70mN Front adjust mechanism ID/OD change function	Applicable models: R45A, R46A, 50B, 52B Stylus: φ1.6 carbide ball (0194 002), option
General purpose detector	E-DT-LK-R74A		Measuring range: ±800μm Measuring force: 70mN Front adjust mechanism ID/OD change function	Applicable models: R60A
Detector/ stylus set	E-DT-R37A			Detector: E-DT-R32A General-purpose stylus: 0194 000, φ3.2 carbide ball Small hole stylus: 0194 001, φ1 carbide ball Deep groove stylus: 0194 004, sapphire, L type, L = 10mm Groove stylus: 0194 007, sapphire, T type, L = 10mm
Detector/ stylus set	E-DT-R06B			Detector: E-DT-LK-R405 General-purpose stylus: 0194 000, φ3.2 carbide ball Small hole stylus: 0194 001, φ1 carbide ball Deep groove stylus: 0194 004, sapphire, L type, L = 10mm Groove stylus: 0194 007, sapphire, T type, L = 10mm
Detector/ stylus set	E-DT-R76A			Detector: E-DT-R74A General-purpose stylus: 0194 000, φ3.2 carbide ball Small hole stylus: 0194 001, φ1 carbide ball Deep groove stylus: 0194 004, sapphire, L type, L = 10mm Groove stylus: 0194 007, sapphire, T type, L = 10mm
General purpose detector	E-DT-R83A		Measuring range: ±1000μm Measuring force: 30 - 100 mN Front adjust mechanism ID/OD change function	Applicable models: R47A, R55A, R60A, R65A Detector safety device
General purpose detector	E-DT-R95A		Measuring range: ±1000μm Measuring force: 30 - 100 mN Front adjust mechanism ID/OD change function	Applicable models: R30C, R31C, R40C, R41C, R43C R45A, R46A, R55A, R60A
Low measuring force detector	E-DT-R10A		Measuring range: ±400μm Measuring force: 5mN	Applicable models: R30C, R31C, R40C, R41C, R43C R45A, R46A Stylus: φ1.6 ruby ball (010 2505), provided
Low measuring force detector	E-DT-R87A		Measuring range: ±400μm Measuring force: 5mN	Applicable models: R47A, R55A, R60A, R65A Stylus: φ1.6 ruby ball (010 2505), provided Used with E-DH-R639A detector holder

Name	Model	Outer Appearance	Specifications	Remarks
General purpose stylus	010 2505			Applicable models: E-DT-R10A,E-DT-R87A Stylus: ϕ1.6mm ruby ball
Small hole stylus	010 2516			Applicable models: E-DT-R10A,E-DT-R87A Stylus: ϕ1mm ruby ball
Deep hole detector	E-DT-R44A		Throat height: 199.5mm Throat depth: 144.5mm Magnification: 2000 or less	Applicable models: R45A, R46A, R60A
Deep hole detector	E-DT-R105A		Throat height: 199.5mm Throat depth: 144.5mm Magnification: 2000 or less	Applicable models: R30C, R31C, R40C, R41C, R43C, R47A, R55A, R65A

RONDCOM Options

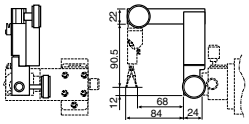
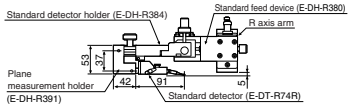
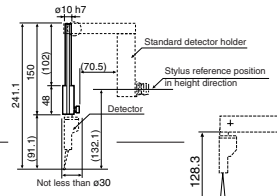
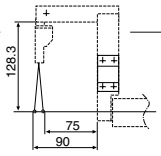
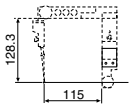
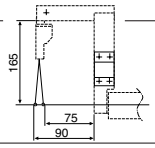
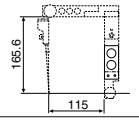
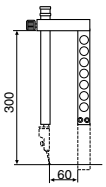
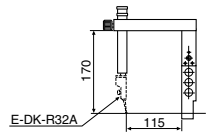
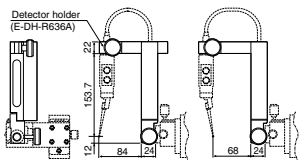
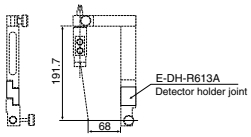
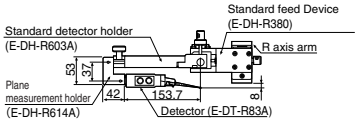
Calibrators

Applicable Models ■R15MA ■R30C ■R31C ■R40C ■R41C ■R43C ■R45A ■R46A ■R47A ■R55A ■R60A ■R65A

Name	Model	Outer Appearance	Specifications	Remarks
Magnification calibration set	E-MC-R04A		Max. calibration range: 400μm Min. scale interval: 0.2μm Weight: 17kg	Applicable models: E-DT-R32A E-DT-LK-R405A E-DT-R74A E-DT-R87A E-DT-R10A
Magnification calibration set	E-MC-R33A		Max. calibration range: 400μm Min. scale interval: 0.2μm Weight: 17kg	Applicable models: E-DT-R83A E-DT-R95A E-DT-R87A E-DT-R10A
Magnification calibration master	E-MC-R28A		Level difference: Approx. 20μm	Applicable models: TIMS specifications
Master ball	E-MG-R05A		Roundness: 0.05μm Material: Chrome bearing	Applicable models: All models Provided with wood box
Master ball	E-MG-R95A		Roundness: 0.035μm Diameter: φ56.2mm Material: Zerodur	Applicable models: All models Provided with wood box
Cylindrical square	E-MG-R06A	 φA, B: Refer to size	Roundness: 1μm/150mm Squareness: 2μm Size: 60×150mm	Applicable models: All models
Cylindrical square	E-MG-R08A		Roundness: 1.3μm/200mm Squareness: 2.5μm Size: φ60×200mm	Applicable models: All models
Cylindrical square	E-MG-R83A		Roundness: 2μm/400mm Squareness: 5μm Size: 92×400mm	Applicable models: All models
High accuracy cylindrical square	E-MG-R87A		Roundness: 0.28μm/100mm Squareness: 2μm Size: φ60×150mm	Applicable models: All models
Diameter master	E-MG-R88A		OD: φ24.5mm ID: φ13.7mm Actual value inscribed	Applicable models: R60A, R65A

Detector Holders

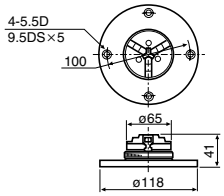
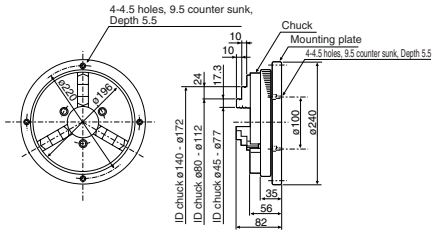
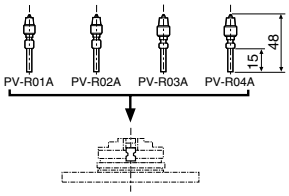
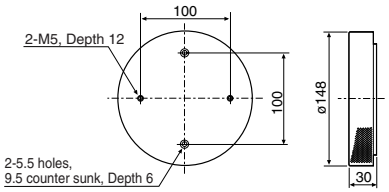
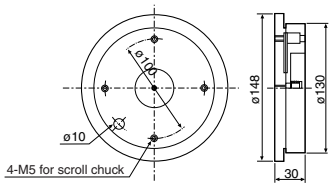
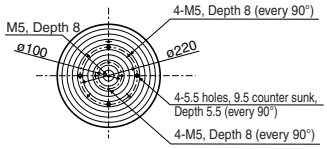
Applicable Models ■R30C ■R31C ■R40C ■R41C ■R43C ■R45A ■R46A ■R47A ■R55A ■R60A ■R65A

Name	Model	Outer Appearance	Specifications	Remarks
Detector holder	E-DH-R639A (E-DH-R384A)		Throat height H：90.5mm Throat depth D：68mm	Applicable models: R55A, R65A Applicable detectors: E-DT-R74A, E-DT-R87A ( ) for R60A
Plane measurement holder	E-DH-R391A			Applicable models: R60A Applicable detectors: E-DT-R74A
Detector holder	E-DH-R149A		ID measuring range: φ31mm～ Magnification: 2000 or less Stylus sensitivity: 1:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R80A		Throat height H：128mm Throat depth D：75mm Magnification: 20000 or less Stylus sensitivity: 2:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R327A		Throat height H：128mm Throat depth D：115mm Magnification: 10000 or less Stylus sensitivity: 2:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R354A		Throat height H：165mm Throat depth D：75mm Magnification: 5000 or less Stylus sensitivity: 3:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R348A		Throat height H：165mm Throat depth D：115mm Magnification: 2000 or less Stylus sensitivity: 3:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R329A		Throat height H：300mm (ID φ31mm or more) Throat depth D：60mm ID meas. range: φ20 - φ300mm Stylus sensitivity: 1:1 - 3:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R317A		Throat height H：170mm Throat depth D：115mm ID meas. range: φ20 - φ300mm Magnification: 2000 or less Stylus sensitivity: 1:1 - 3:1	Applicable models: R30C, R31C, R40C, R41C, R45A, R46A, R60A Applicable detectors: E-DT-R32A, E-DT-LK-R405 E-DT-R74A
Detector holder	E-DH-R636A (E-DH-R603)		Throat height H：154mm Throat depth D：68mm	Applicable models: R55A, R65A Applicable detectors: E-DT-R83A, E-DT-R95A ( ) for R60A
Detector holder	E-DH-R613A		Throat height H：192mm Throat depth D：68mm Magnification: 5000 or less	Applicable models: R60A Applicable detectors: E-DT-R83A, E-DT-R95A
Plane measurement holder	E-DH-R614A			Applicable models: R55A, R60A, R65A Applicable detectors: E-DT-R83A, E-DT-R95A

RONDCOM Options

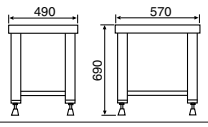
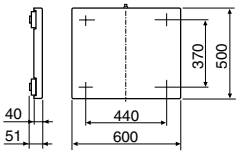
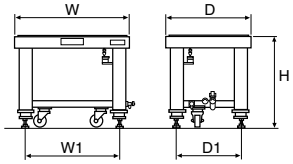
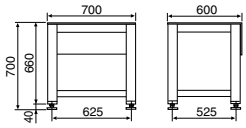
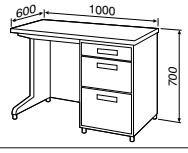
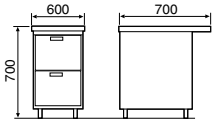
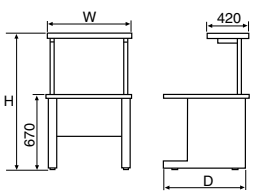
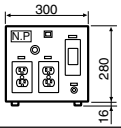
Adjustment Devices

Applicable Models ■R15MA ■R30C ■R31C ■R40C ■R41C ■R43C ■R45A ■R46A ■R47A ■R55A ■R60A ■R65A

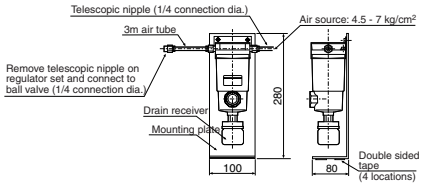
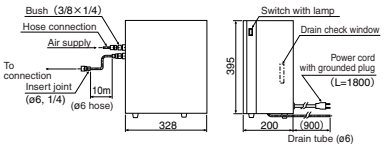
Name	Model	Outer Appearance	Specifications	Remarks
Scroll chuck	E-WJ-R01C		Securing range: ID ϕ2 - 75mm OD ϕ20 - 90mm OD: ϕ118mm Height: 41mm Weight: 1kg	Applicable models: All models
Scroll chuck	E-WJ-R104C		Securing range: ID ϕ45 - 77mm OD ϕ80 - 112mm OD: ϕ240mm Height: 82mm Weight: 14kg	Applicable models: All models
Pin vice set	E-WJ-R07A		Chuck range PV-R01A: ϕ0 - ϕ0.9mm PV-R02A: ϕ0.8 - ϕ1.3mm PV-R03A: ϕ1.3 - ϕ1.8mm PV-R04A: ϕ1.8 - ϕ2.2mm	Applicable models: All models
Spacer for scroll chuck	E-WJ-R19A		Flatness: 0.01mm Weight: 4.1kg	Applicable models: All models
Rotation spacer for scroll chuck	E-WJ-R20A		Weight: 3kg	Applicable models: All models
ϕ400 sub table	E-AT-R34A		Flatness: 0.01mm Weight: 14kg	Applicable models: All models

Peripheral Devices

Applicable Models ■R15MA ■R30C ■R31C ■R40C ■R55A ■R41C ■R60A ■R43C ■R65A ■R45A ■R46A ■R47A

Name	Model	Outer Appearance	Specifications	Remarks
Vibration isolation platform	E-DK-R11A			Applicable models: R30C, R31C, R40C R41C, R43C Dimensions: $510^{W}\times430^{D}\times640^{H}$mm For E-VS-S28A, E-VS-S38A
Desktop vibration isolation platform	E-VS-S38A		Vibration isolation: Diaphragm air spring Natural frequency: 1.5 - 3 Hz Load: 120 kg	Dimensions: $600^{W}\times500^{D}\times55^{H}$mm Air source: 350 - 700 kPa Weight: 26kg
Desktop vibration isolation platform	E-VS-S28A		Vibration isolation: Diaphragm air spring Natural frequency: 1.5 - 3 Hz Load: 120 kg	Dimensions: $600^{W}\times500^{D}\times55^{H}$mm Air source: Pump Weight: 26kg
Vibration isolation platform	E-VS-R16A		Vibration isolation: Diaphragm air spring Natural frequency: V: 2Hz, H: 2.2 Hz Load: 250 kg	Applicable models: R45A, R46A Dimensions: $980^{W}\times780^{D}\times700^{H}$mm $760^{w1}\times560^{D1}$mm Air source: 350 - 700 kPa Weight: 170kg
Vibration isolation platform	E-VS-S21A		Vibration isolation: Diaphragm air spring Natural frequency: V: 1.6Hz, H: 2 Hz Load: 550 kg	Applicable models: R55A, R60A Dimensions: $1100^{W}\times850^{D}\times700^{H}$mm $850^{w1}\times560^{D1}$mm Air source: 350 - 700 kPa Weight: 340kg
Vibration isolation platform	E-VS-R20A		Vibration isolation: Diaphragm air spring Natural frequency: V: 1.5Hz, H: 2 Hz Load: 550 kg	Applicable models: R55A, R60A Dimensions: $1100^{W}\times850^{D}\times500^{H}$mm $850^{w1}\times560^{D1}$mm Air source: 350 - 700 kPa Weight: 340kg
Platform	E-DK-R16A			Applicable models: R45A, R46A Dimensions: $700^{W}\times600^{D}\times700^{H}$mm
Desk	E-DK-R19A			Applicable models: All models Dimensions: $1000^{W}\times600^{D}\times700^{H}$mm
Desk	E-DK-R34A			Applicable models: All models Dimensions: $400^{W}\times700^{D}\times700^{H}$mm
System desk	E-DK-S24A			Dimensions: $800^{W}\times800^{D}\times1070\sim1370^{H}$mm Weight: 42kg
System desk	E-DK-S25A			Dimensions: $1200^{W}\times800^{D}\times1070\sim1370^{H}$mm
Power transformer box	E-TF-R25A		Input: 90V - 240V Output: 100V Capacity: 2.1 KVA	Specify the input voltage. Dimensions: $300^{W}\times350^{D}\times350^{H}$mm Weight: 45kg

RONDCOM Options

Name	Model	Outer Appearance	Specifications	Remarks
Water remover	L-WF-R08A			Applicable models: All models Dimensions: 100^{W}×80^{D}×280^{H}mm
Oil remover	L-WF-R07A		Filtration: 0.1 μm	Applicable models: All models Dimensions: 100^{W}×190^{H}mm Weight: 1.7kg
Freezer type air dryer	L-WF-R03B		Max. flow: 100 ℓ /min Power consumption: 165VA Weight: 15kg	Applicable models: All models (table rotating type) Dimensions: 200^{W}×350^{D}×400^{H}mm

Consumables

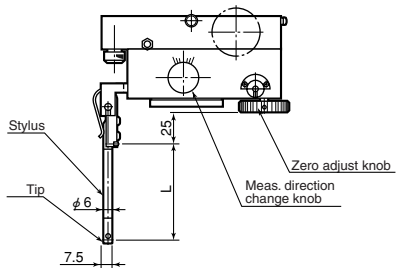
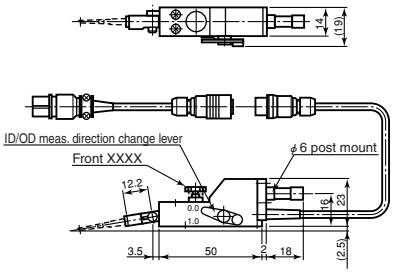
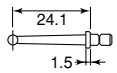
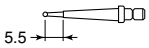
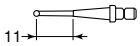
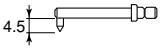
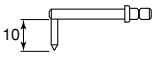
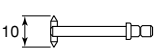
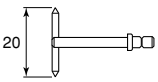
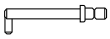
Applicable Models ■**R15MA** ■**R30C** ■**R31C** ■**R40C** ■**R41C** ■**R43C** ■**R45A** ■**R46A** ■**R47A** ■**R55A** ■**R60A** ■**R65A**

Name	Model	Device type	Applicable system	Remarks
Round recording paper	E-CH-R04A		10A, 20A, 50A/B, 52A/B, 70A/B, 71A/B	Thermal recording paper, 100 sheets/box
Round recording paper	Polar A4 trace sepia		6A, 50A/B-400, 70A/B, 71A/B-400 amplifier	Piston type, 100 sheets/box
Direct-writing recording paper	E-CH-R05A		50B, 52B, 70B, 71B	Thermal recording paper, 10 rolls/box Recording width: 40mm
Direct-writing recording paper	I-250-125		6A, 50A/B-400, 70A/B, 71A/B-400 amplifier	Piston type, 10 rolls/box
Printing paper	E-CH-R06A		30A/B/C, 40A/C, 45A	Thermal recording paper, 10 rolls/box Recording width: 104mm
Printing paper	E-CH-S05A		50B, 52B, 70B, 71B-300 amplifier	Thermal recording paper, 10 rolls/box Recording width: 40mm
Printing paper	E-CH-S03A		50A/B, 52A/B, 70A/B, 71A/B-500 amplifier	Thermal recording paper, 10 rolls/box Recording width: 120mm
IC pen	KT102		10A, 20A, 50A/B, 52A/B, 70A/B	
Polar sign pen (Red)	CP-192		6A, 50A/B-400, 70A/B, 71A/B-400 amplifier	Piston type
Rectilinear sign pen (Red)	CP-092		6A, 50A/B-400, 70A/B, 71A/B-400 amplifier	Piston type
Filter element	63092		15MA, 30C, 31C, 40C, 41C, 43C, 34A, 46A, 47A, 55A, 60A, 65A	
Micro filter element	630611		15MA, 30C, 31C, 40C, 41C, 43C, 34A, 46A, 47A, 55A, 60A, 65A	

RONDCOM Options

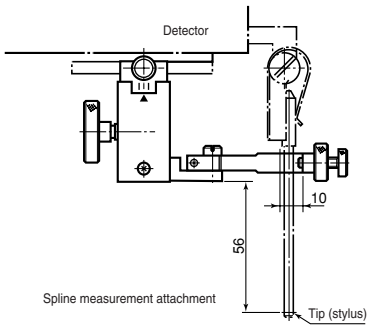
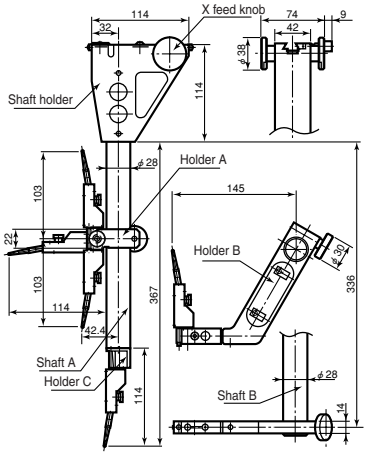
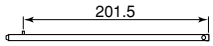
Accessories for RONDCOM 71C

Applicable Models ■R71C ■R72A ■R75GB

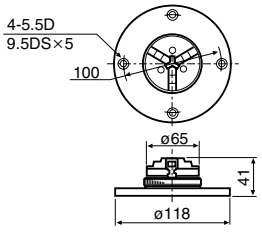
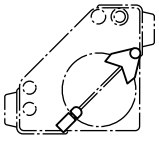
Name	Model	Outer Appearance	Specifications	Remarks
General purpose detector	E-DT-PA-101		Measuring range: ±500μm Measuring force: 170mN (when stylus arm a is used) Front adjust mechanism ID/OD change function (when stylus arm a is used)	Applicable model: R71C Configuration Stylus arm a, L=76mm, 60° conical sapphire: 1 Stylus arm b, L=201mm, 60° conical sapphire: 1
General purpose detector	E-DT-R60A		Measuring range: ±400μm Measuring force: 70mN Front adjust mechanism ID/OD change function	For long shaft measuring tools Stylus: φ1.6mm carbide ball (0194 412), option
Detector/ stylus set	E-DT-R93A			Detector: E-DT-R60A General-purpose stylus: 0194 410, φ3.2mm carbide ball Small-hole stylus: 0194 411, φ1mm carbide ball Deep groove stylus: 0194 414, sapphire, L type, L = 10 Groove stylus: 0194 417, sapphire, T type, L = 10
(Same sensitivity as E-DT-PA), L = 24.1mm				
General purpose	0194 410			φ3.2mm carbide ball
Small holes	0194 411			φ1mm carbide ball
General purpose	0194 412			φ1.6mm carbide ball Standard stylus
Small holes	0194 413			R0.25mm, 55° conical sapphire L type, L = 4.5mm
Deep grooves	0194 414			R0.25mm, 55° conical sapphire L type, L = 10mm
Corners	0194 415			R0.25mm, 55° conical sapphire L type, L = 3.4mm/60°
Grooves	0194 416			R0.25mm, 55° conical sapphire T type, L = 6.5mm
Grooves	0194 417			R0.25mm, 55° conical sapphire T type, L = 10mm
Deep grooves	0194 418			R0.25mm, 55° conical sapphire T type, L = 20mm
Extra small holes	0194 419			φ0.5mm steel ball
Cutter mark removal	0194 420			R0.25mm, sapphire L type, L = 4.8mm/R15mm

Each tip can be used with R72A and R75GB.

RONDCOM Options

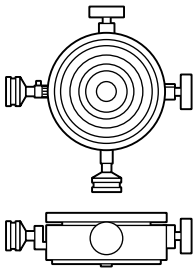
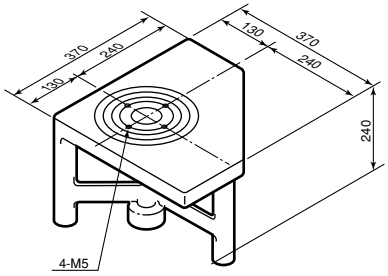
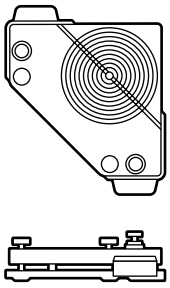
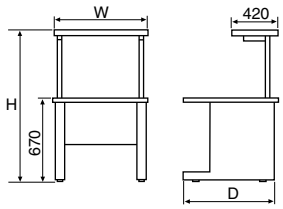
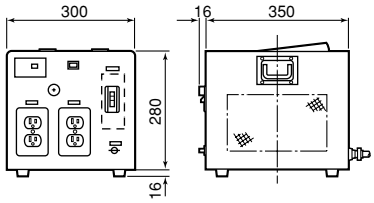
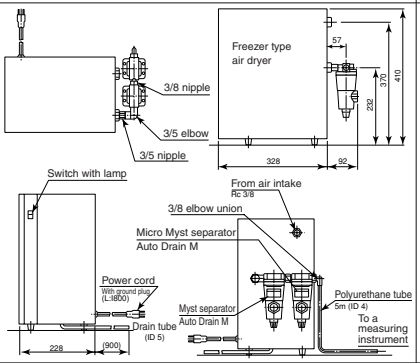
Name	Model	Outer Appearance	Specifications	Remarks
Spline measurement attachment	E-DA-R203A			For notched surfaces
Long shaft measuring tool	E-DH-R225A		Measuring length: 355mm Max. magnification: 2000 Filter: 15, 50 peaks/rev.	Configuration (options for R71C) Shaft mount: 1 Shaft A: 1 Shaft B: 1 Holder A: 1 Holder B: 1 Holder C: 1
Stylus Arms				
Stylus arm a	M-1014A-0001			R0.25mm sapphire stylus
Stylus arm b	M-1014B-0002			R0.25mm sapphire stylus
Stylus arm ϕ4	M-1014C-0003			
Replaceable stylus arm	M-1014D-0004			
Arm Parts				
Pipe	M-1014A-0505			ϕ6×180mm
Holder	M-1014A-0501			Detector side
Holder	M-1014A-0502			Stylus side

Stylus arm used with R72A or R75GB.

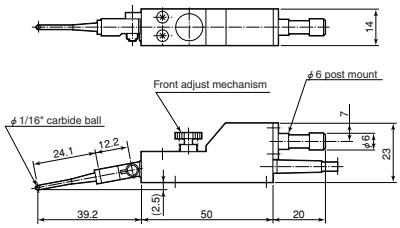
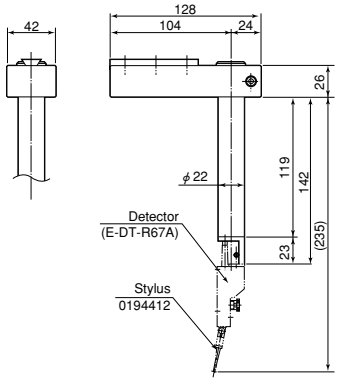
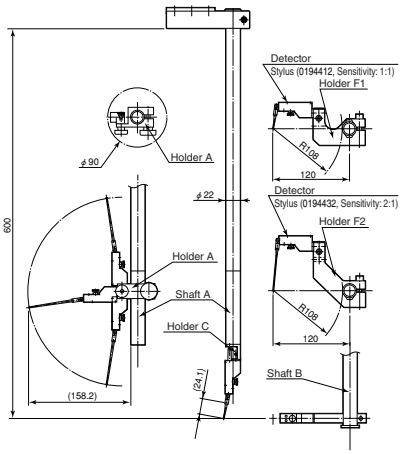
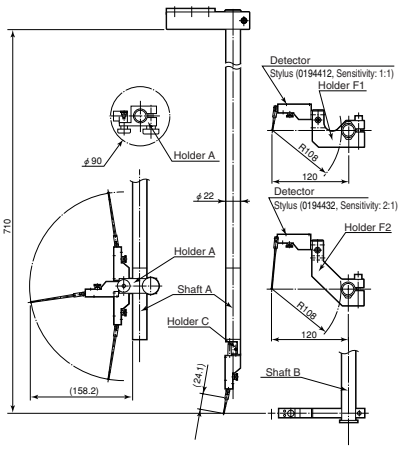
Name	Model	Outer Appearance	Specifications	Remarks
Stylus	0101 093			R0.25mm sapphire stylus, L = 5.5mm
Stylus	0101 079			R0.25mm sapphire stylus, L = 6.5mm
Stylus	0101 080			R0.25mm sapphire stylus, L = 7.5mm
Stylus	0101 081			R0.25mm sapphire stylus, L = 10mm
Stylus	0101 083			R0.25mm sapphire stylus, L = 20mm
Stylus	0101 089			R0.25mm sapphire stylus, L = 30mm (one side)
Stylus Kit	E-DA-R205A			Stylus arm ϕ4 M-1014C-0003 1 Replaceable stylus arm M-1014D-0004 1 Stylus 0194412 1 Pipe for special arm M-1014A-0505 5 Detector side holder M-1014A-0501 5 Stylus side holder M-1014A-0502 5 Special holder M-1017H-0401 5 Stylus (both sides) 0101 079 5 Stylus (both sides) 0101 080 5 Stylus (both sides) 0101 081 5 Stylus (both sides) 0101 083 5 Stylus (one side) 0101 089 5 Pipe bender 364-FHM6 1 Cutter 127-FB 1 Adhesive 1 In storage box
Magnification calibration set	E-MC-R04A		Max. calibration range: 400μm Min. increment: 0.2μm Weight: 17 kg	Applicable models: All models
Air bearing clamper	E-BA-R201A			When air supply is interrupted, air bearings are clamped to prevent rotation in order to protect them.
Rotation clamper	E-BA-R202A			Used to stop detector rotation when straightness is measured. Used to provide especially high straightness measurement precision.
Scroll chuck	E-WJ-R01C		Securing range: OD ϕ2 - 75mm ID: ϕ20 - 90mm OD: ϕ118mm Height: 41mm Weight: 1kg	Applicable models: All models
Workpiece holder	E-WJ-R209A		Chucking range: ϕ14 - 160mm	Mounted on E-AT-R237A tilting table

The styluses, stylus kits, magnification calibration sets and scroll chucks can be used with R72A and R75GB.

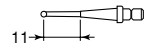
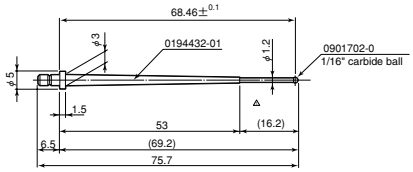
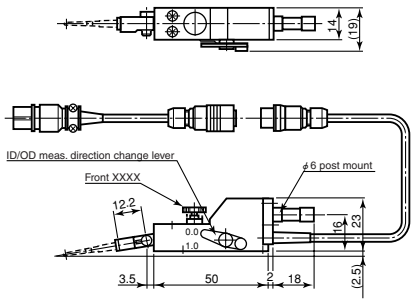
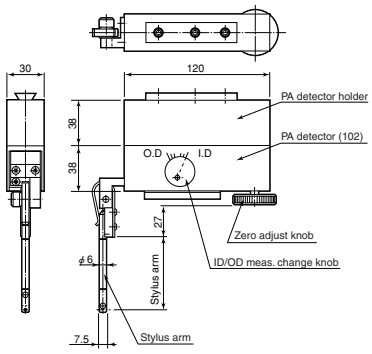
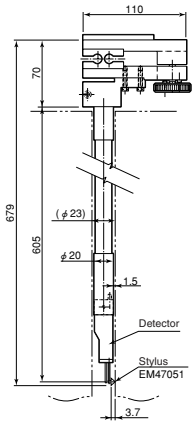
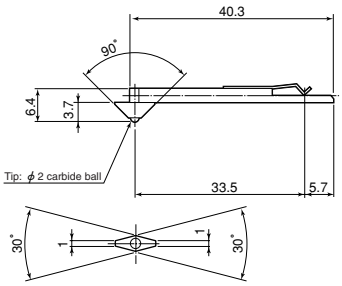
RONDCOM Options

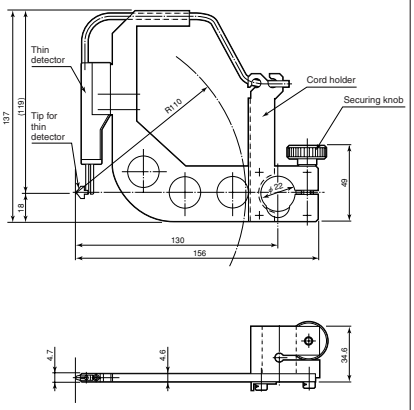
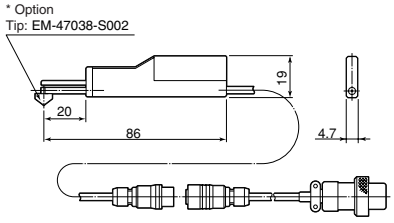
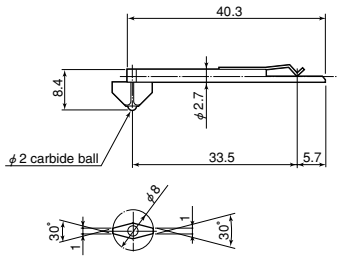
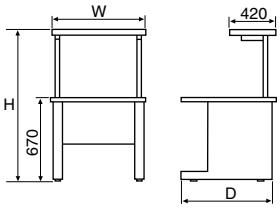
Name	Model	Outer Appearance	Specifications	Remarks
Tilting cross table	E-AT-R208B		Centering adjustment range: ±2mm Tilting adjustment range: ±0.6° Load: 15 kg	
Table spacer	E-AT-R214A		Spacer height: 240mm Max. load dia.: φ250mm (φ340mm) Load: 100 kg Weight: 20 kg	
Tilting table	E-AT-R237A		Tilting adjustment range: ±2° Max. load dia.: φ300mm Load: 20 kg (Eccentric load: 15kg/50mm) Weight: 17 kg	
System rack	E-DK-S24A			Dimensions: 800^{W}×800^{D}×1070 - 1370^{H}mm Weight 42kg
Power transformer box	E-TF-R25A			
Freezer type air dryer	L-WF-R10A		Max. flow: 200 l/min Power consumption: 210VA Weight: 16kg	Applicable model: R71C Power source: AC100V only
Air cleaner	L-WF-R11A			Applicable models: All Dimensions: 320W×170D×380H mm

ROUNDCOM 72A/75GB Accessories

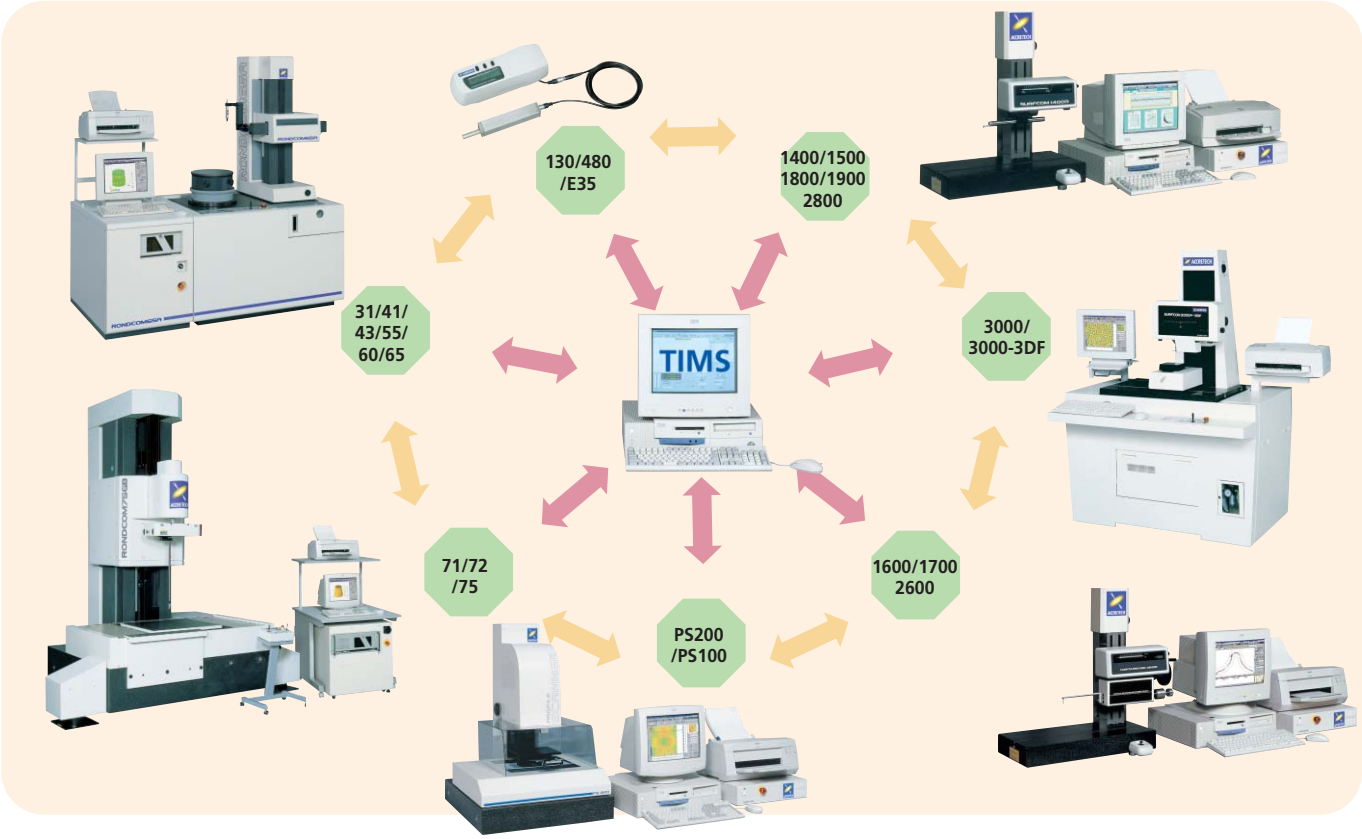
Name	Model	Outer Appearance	Specifications	Remarks
Detector	E-DT-R67A		Measuring force: 70 mN Linear range: ±800μm Mount: φ6mm post mount	R72A standard accessory Front adjust function
Detector holder	E-DH-R416A			R72A standard accessory
Long shaft measuring tool	E-DH-R413		Measuring length: 600mm Max. magnification: 2000 Filter: 15, 50 peaks/rev.	Configuration (Options for R72A) Shaft mount 1 Shaft A 1 Shaft B 1 Holder A 1 Holder C 1 Holder F1 1 Holder F2 1
Long shaft measuring tool	E-DH-R289B		Measuring length: 700mm Max. magnification: 2000 Filter: 15, 50 peaks/rev.	Configuration (Options for R75GBA) Shaft mount 1 Shaft A 1 Shaft B 1 Holder A 1 Holder C 1 Holder F1 1 Holder F2 1

RONDCOM Options

Name	Model	Outer Appearance	Specifications	Remarks
Stylus (general purpose)	0194 412		1:1 sensitivity	ϕ1.6mm carbide ball
Stylus (general purpose)	0194 432		2:1 sensitivity	ϕ1.6mm carbide ball
Detector	E-DT-R60A		Measuring force: 70mN Linear range: ±400μm Mount: ϕ6mm post mount	Front adjust function ID/OD change function Stylus not included in this configuration.
Detector	E-DT-R94A		Measuring range: ±500μm Measuring force: 130mN (when stylus arm **a** is used) Front adjust mechanism ID/OD change function (when stylus arm **a** is used)	Configuration Stylus arm **a**, L=75mm, 60° conical sapphire: 1 Stylus arm **b**, L=200mm, 60° conical sapphire: 1
Cam hole long shaft measuring tool	E-DT-R68A		Measuring length: 600mm Max. magnification: 1000 Filter: 15, 50 peaks/rev. Detection range: ±200μm Min. meas. dia.: ϕ23mm Max. meas. depth: 600mm	Configuration Thin detector (DM42001): 1
Stylus	EM47051			ϕ2mm, Carbide ball Distance between a stylus shaft and tip: 3.7mm Distance between a detector and a stylus tip: 1.5mm

Name	Model	Outer Appearance	Specifications	Remarks
Detector holder for crankshafts	E-DH-R473A		Max. magnification: 2000 Filter: 15, 50 peaks/rev. Up/down drive speed: 15 mm/s or less	
Thin detector	E-DT-R71A		Detection range: ±200 μm Measuring force: 15mN Front travel: 500 - 700 μm	
Stylus	EM47038			ϕ2mm carbide ball Extended dimension: 5.5mm
System rack	E-DK-S24A			Dimensions: 800W×800D×1070 - 1370H mm Power source: AC100V only
Freezer type air dryer	L-WF-R03A		Max. flow: 100 l/min Power consumption: 190VA Weight: 15kg	Applicable model: R72A Power source: AC100V only
Freezer type air dryer	L-WF-R10A		Max. flow: 200 l/min Power consumption: 210VA Weight: 16kg	Applicable model: R75GB Power source: AC100V only
Air cleaner	L-WF-R11A			Applicable models: All models Dimensions: 320W×170D×380H mm

TIMS Integrated Measuring System



[TIMS] Network Compatible Integrated Measuring System

The [TIMS] measuring system is a new concept network environment compatible system that allows free access between different systems without heavy dependence on hardware. It enables the creation of an organic system that is capable of all profiles from one terminal.

What is the [TIMS] Integrated Measuring System?

● **Creating No. 1 Products**

ACCRETECH continues to do what it takes to create products with the number one precision and performance in the dimension and profile measuring field.

● **Suited to Network Environments**

TIMS enables different measuring systems to be free accessed in order to share data, and measured data to be transferred to other programs on the market. Image data obtained using digital cameras and other tools can also be pasted into measured result sheets.

Each program is eacy to be linled by each icon.

● **[Easy to Operate]**

An AI function, customize function, auto measuring range expansion function and other functions implement our concept of creating [measuring systems that anyone can use]. (patented)

● **High Efficiency Measurement**

TIMS incorporates a variety of concepts to boost measuring efficiency, including a teaching/playback function to fully automate measurement, parallel processing by means of multi-tasking and high-speed alignment.

● **Use Anywhere in the World**

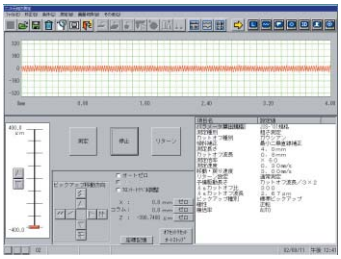
TIMS complies with ISO, JIS, DIN, ASME and other world standard, and can be used with English, Japanese, German, French, Italian and other languages. (Please consult with ACCRETECH when taking the system abroad.)

* The TIMS explanation assumes that roughness evaluation, contour evaluation, three-dimensional evaluation and roundness evaluation programs have all been installed.

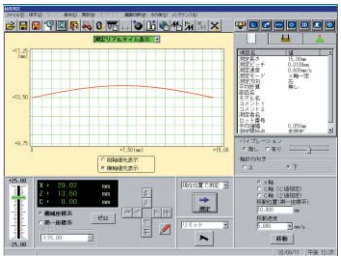
Measurement

A number of measuring windows for different hardware are available. The appropriate window can be selected by simply choosing the icon. The system incorporates a number of features to maximize ease of use, efficiency and performance. These include trace input for contours, R axis follow for roundness and 3-point alignment.

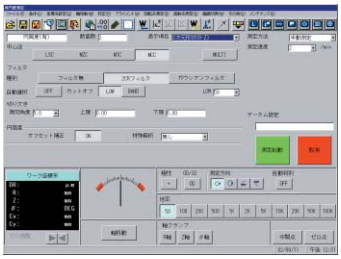
Roughness Measurement

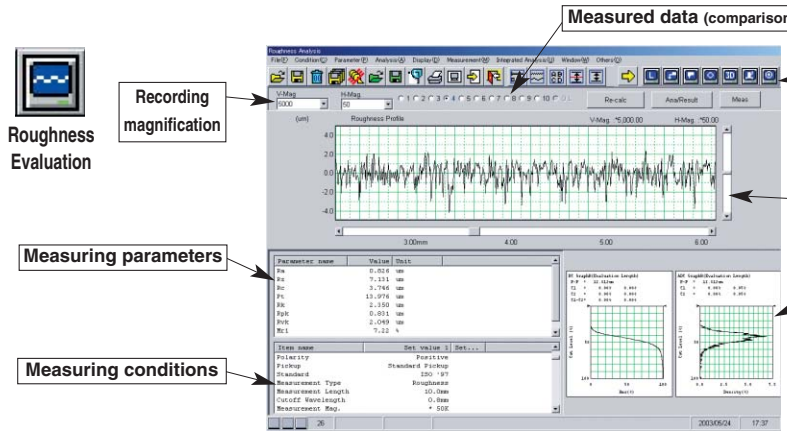


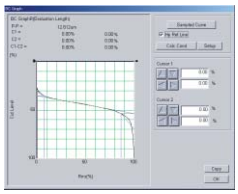
Contour Measurement

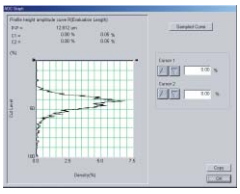


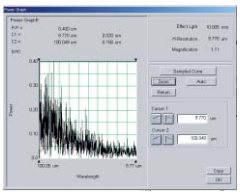
Roundness Measurement



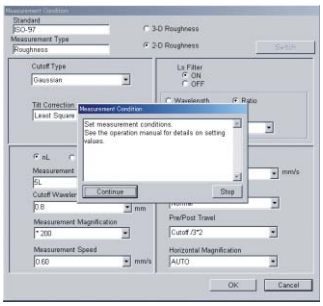


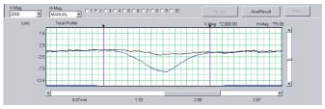

Load curve


Amplitude curve


Power graph

Lesson mode


Overlap function



■ AI Function Enables Beginners to Make Measurements (patented)

The system incorporates a tentative measuring mode that automatically selects the measuring conditions, and a lesson mode that provides the user with guidance on operation procedures. The customize function allows only the needed icons to be rearranged, enhancing ease of use.

■ Functions Responding to User Needs

The system comes with a number of standard functions that effectively respond to user needs. A step/surface measurement function facilitates evaluation of printed circuit board film thickness, and an overlap function allows wear evaluation and other data to be mutually compared.

■ Versatile Analysis of Measured Data (patented)

Once data has been captured, the measuring reference (line, front half, latter half, round surface, both end, spline) can be changed for reanalysis, the desired evaluation range set for reanalysis, or the standard changed to reevaluate the data as many times as desired.

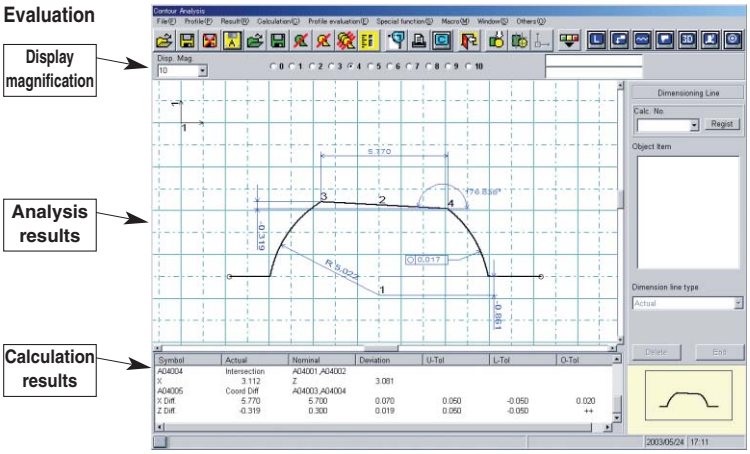
■ Fully Automation Enhances Measuring Efficiency

The teaching functions enables full automation of all procedures from measurement to inspection report generation, including column down, drive unit and tilt device operation.

Contour Evaluation

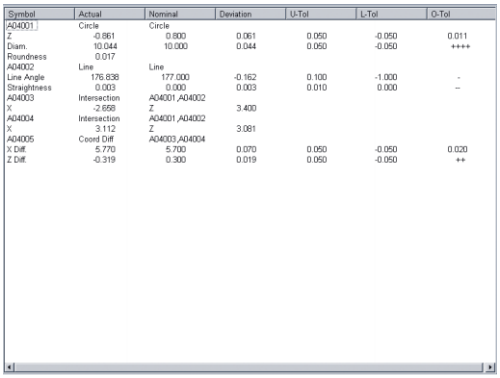
Dimension Line Display

Dimension lines can be denoted on measured result diagrams indicating the actual values for lines, circles, intersecting points, pitch and other items. Geometric deviation of roundness, straightness, etc. and surface roughness can also be denoted.



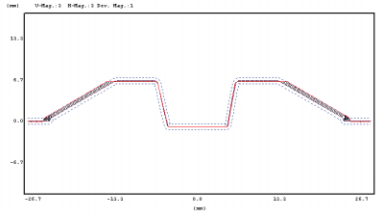
Calculated Result/Design Value Collation

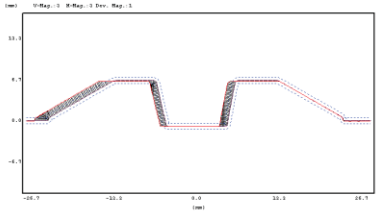
A pass/fail judgment can be made as the same time as measurement by entering the design values.



Profile Evaluation

With profile evaluation, error collation is performed for all profile points by comparing the design value dot sequential data with the actual measured value data. Design values can be obtained using one of three methods: (1) Measured data design value ratio (master collation), (2) Design value generation program or (3) Obtained from a CAD system. An IGES/DXF conversion function is available as a tool to exchange data with CAD systems.


Before best fit

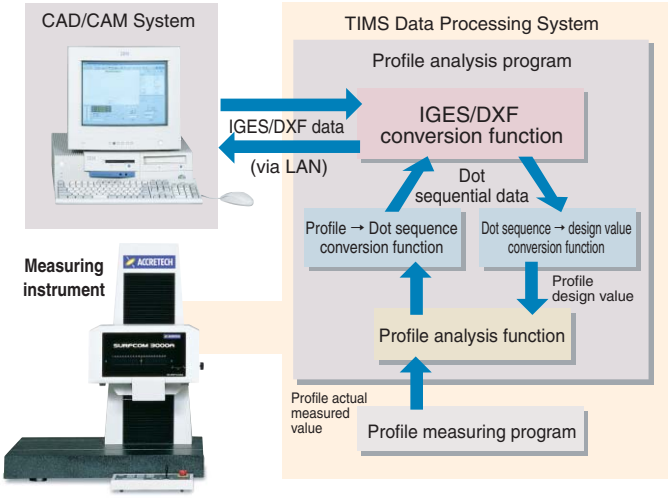

After best fit

Best fit movement

Symbol	Actual	Nominal	Deviation	U-Tol	L-Tol	O-Tol
C06001	Best fit					
X	-1.109	Z	0.000	Angle	0.000	

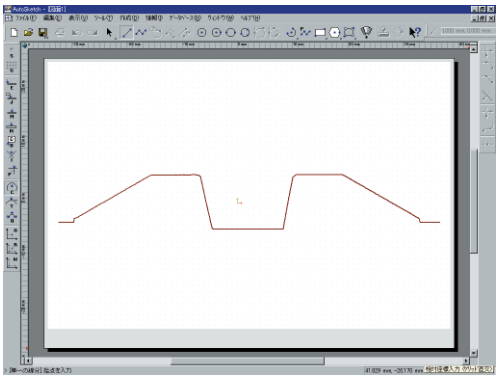
TIMS Integrated Measuring System

Form evaluation by CAD/CAM



Design Value Generation Program

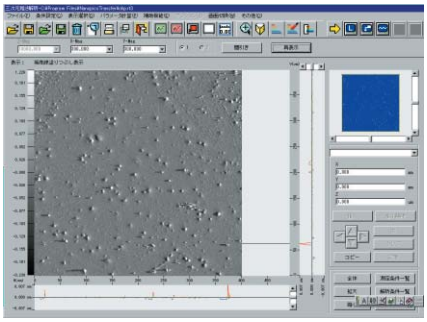
This program enables design value dot sequence data to be generated to profile error collation. An IGES/DXF conversion function is provided to mutually convert data to CAD systems.



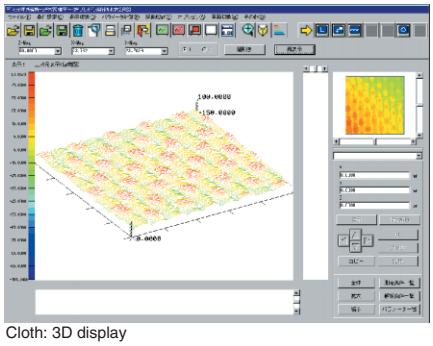
* Profile evaluation (including best fit) and design value generation program is an option for the 1600D/1800D/PS series.

3D Evaluation

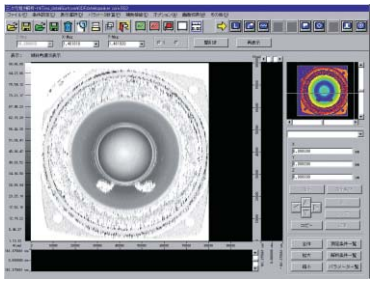
TIMS can be used for a diverse range of 3D roughness or 3D contour profile evaluation (depends on hardware). Details analysis of the surface profile can be performed with sampled data that contains a maximum of 2,000 scanning lines.
An outstanding visualization function facilitates an intuitive graph of surface characteristics.



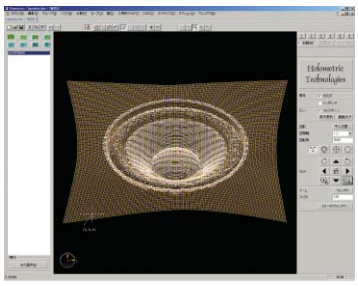
Film: Gray display



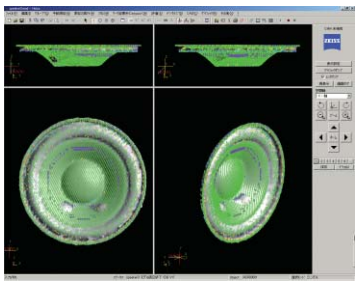
Cloth: 3D display



Profile dot sequence data can be captured using PS200 Profile Scanner or 3000A-3DF SURFCOM as a digitizer.



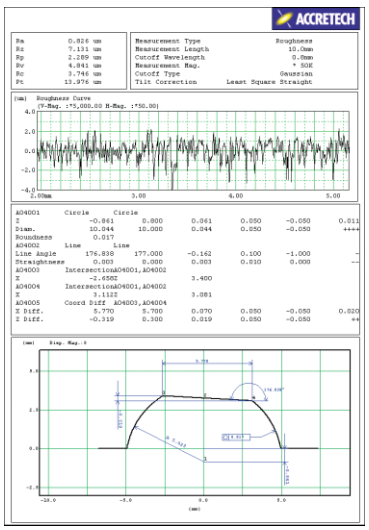
Dot group data can be generated by DIMENSION program.

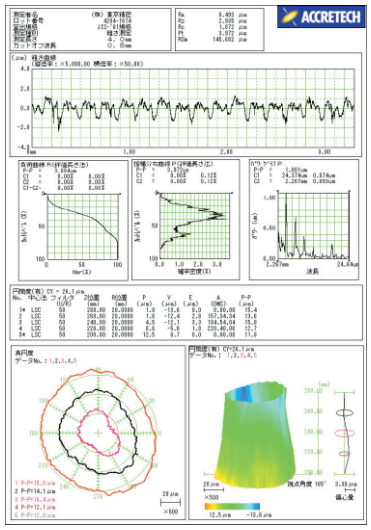


Point group data and CAD data can be compared with HOLOS program.

Printing

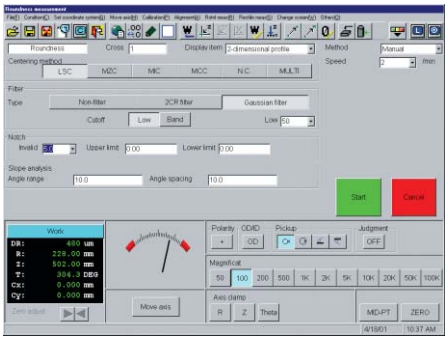
The analysis results for surface roughness and contour profile can be each printed on a single inspection report. The TIMS integrated measuring system enhances data organization efficiency and data can be used for presentations to other divisions.



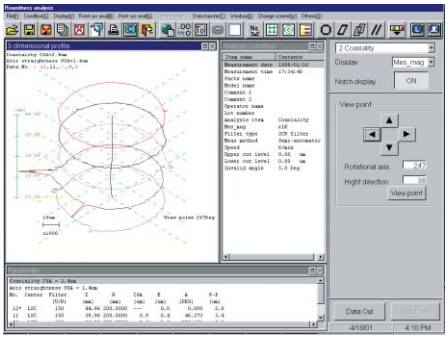


TIMS Integrated Measuring System

Roundness Evaluation



Measuring screen



Analysis screen

Superior User Interface

This easy to use system runs on Windows NT and features both icons and pull-down menus.

Easy Operation

Rearrange Icons

The ability to rearrange or not display icons enhances operational ease.

Auto Measuring Direction Recognition

The pick-up measuring direction setting can be automatically recognized.

Auto Magnification Calibration Function (patented)

Calibration can be automatically performed by measuring the calibration master.

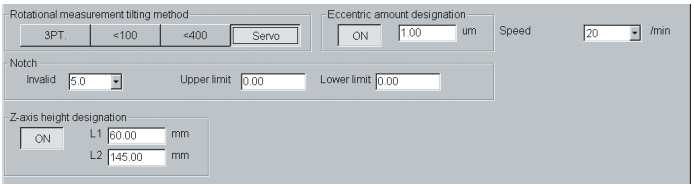
Teaching/Playback Function

Registration of the measuring procedures with the teaching function, including alignment, enables automation of everything from measurement to printout.

Auto Alignment Function

Exacting alignment must be performed in order to evaluate cylindrical shapes with high precision. The alignment accuracy can be set to the desired level.

Alignment can also be performed for parts with notches (function for automatic units) (Applicable models: 55/60/65/72/75).



External Output Function

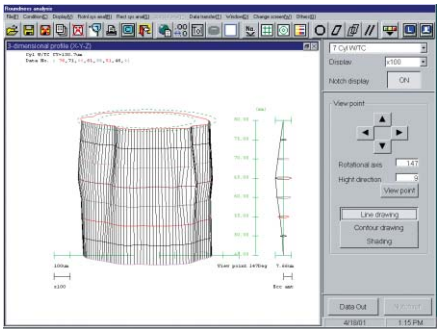
Parameter settings and measured point data can be output to an external device as a text file or using the RS232C port.

Visualization of Cylindrical Profile

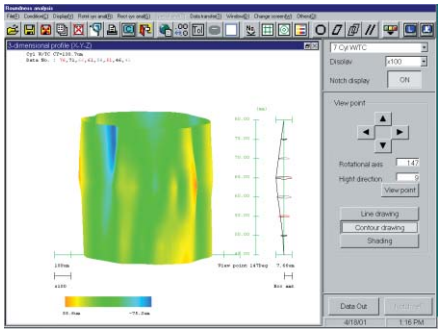
Cylindrical profiles can be visualized for evaluation purposes, and the viewpoint can be freely moved.

Contour line and shading display help clarify shrinkage, deformation of pressed part and other problems on plastic products.

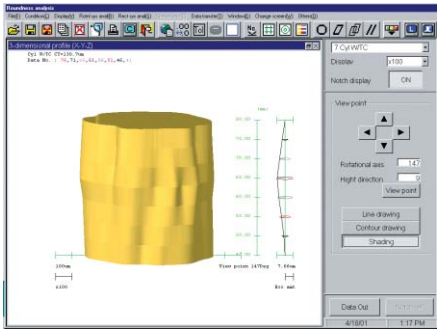
Cylindrical profile



3D profile display (line)

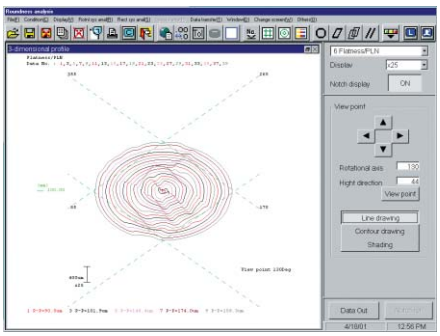


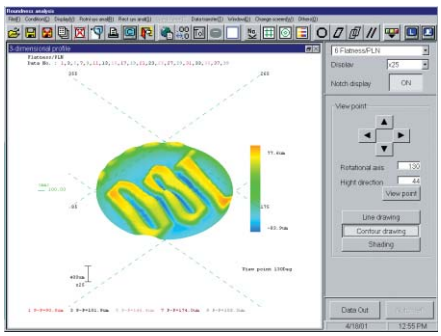
Contour line display

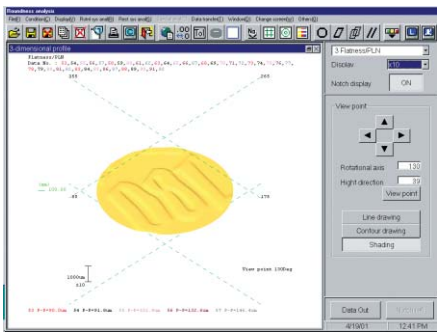


Shading

Flat profile





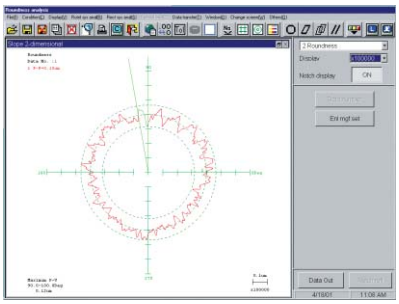


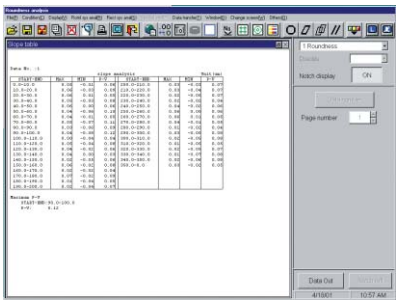
TIMS Integrated Measuring System

Various Profile Evaluation Functions

Slope Analysis

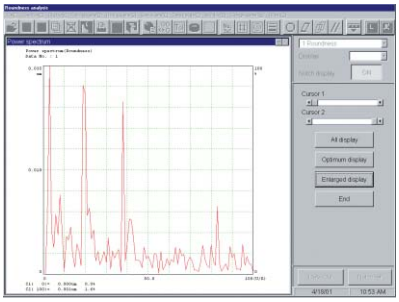
The tilt on the profile obtained from roundness or flatness measurement can be analyzed within the desired range.

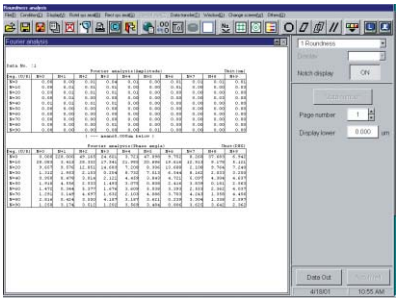




Power Spectrum/Fourier Analysis

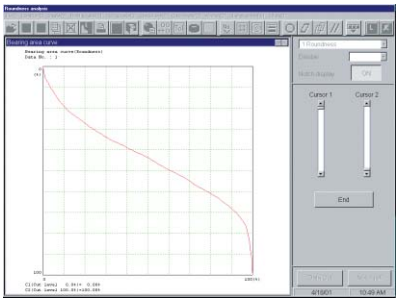
Analysis of the peak components included in the roundness profile contributes to an improvement in noise and vibration evaluation.

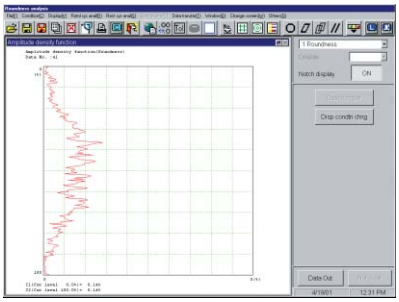




Load Curve/Amplitude Distribution Curve

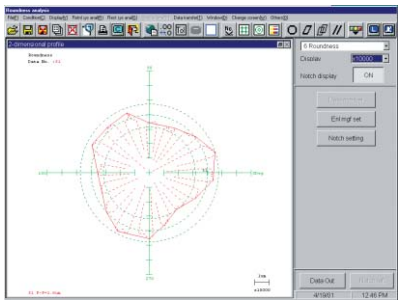
Analysis of the load curve or amplitude distribution curve for the surface characteristics on workpieces is effective for the evaluation of wear and life.





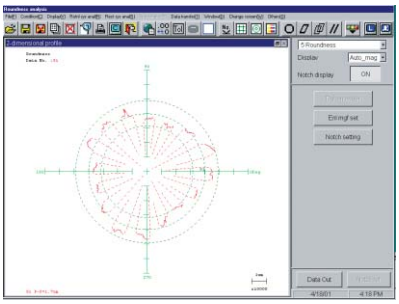
Gear Analysis Function (patented)

Connecting the peaks on notched workpieces such as plastic gears enables roundness evaluation.



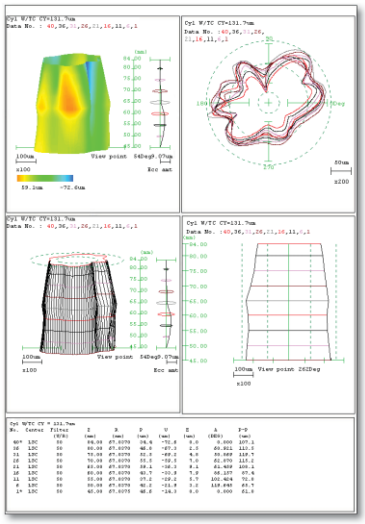
Notch Function

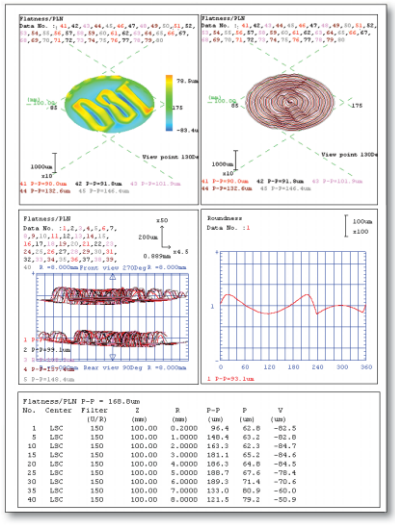
Inaccurate measured data on the edges of workpieces with notches can be automatically removed and calculation performed. The data can also be removed at the desired location by using the cursor.

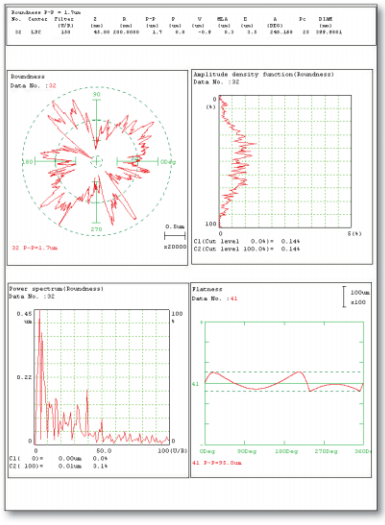


Flexible Printing Function

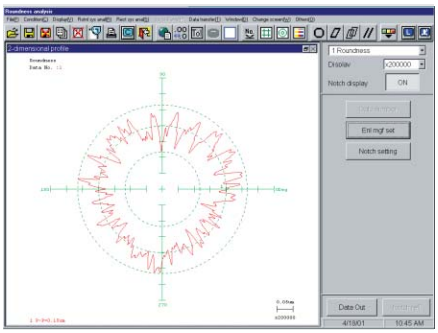
The data can be freely laid out by changing the frame size, past position and other attributes.
A surface texture measuring instrument and contour profile measuring instrument can be links for printout of all data (separate program is required).



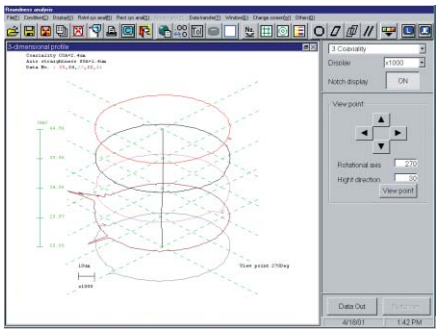




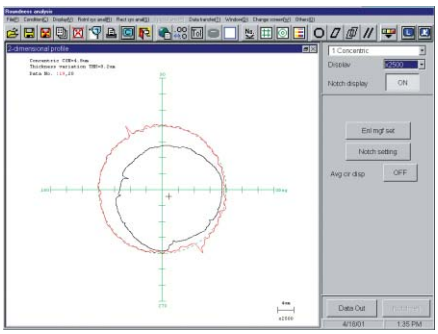
Measuring Items (portion)



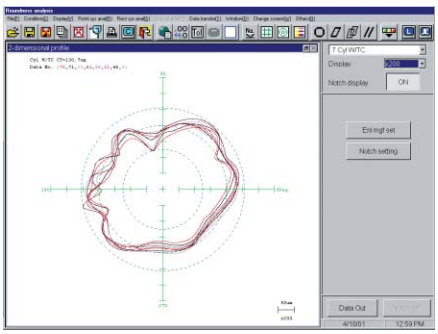
Roundness



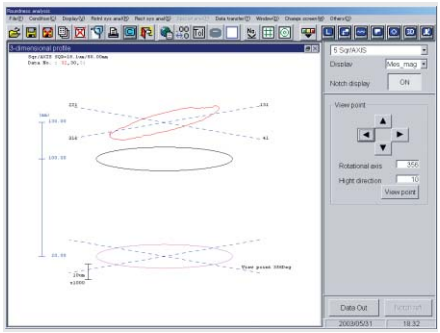
Coaxiality



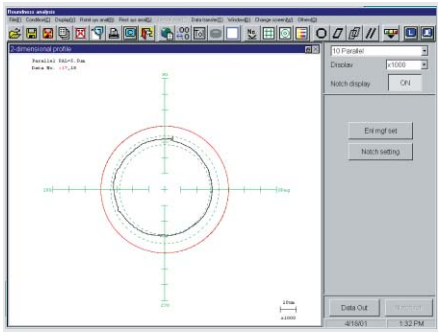
Concentricity/Non-Uniformity



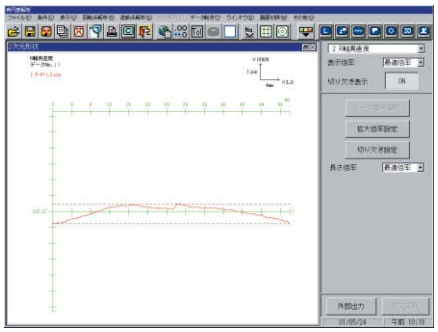
Cylindricity



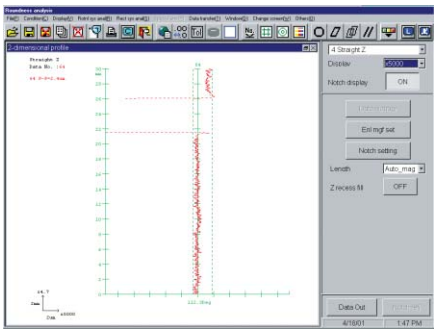
Squareness



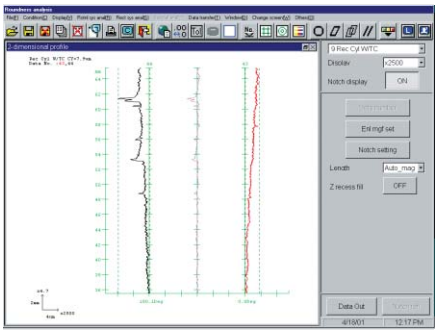
Parallelism



Straightness (R axis)



Straightness (Z axis)



Cylindricity (Rectilinear direction)

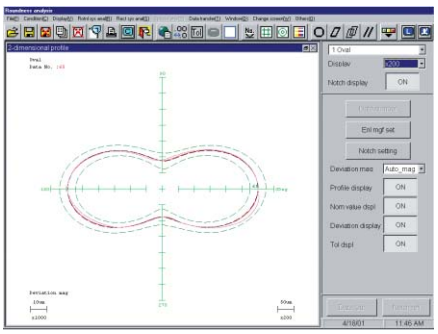
Optional Program

Piston Profile Analysis

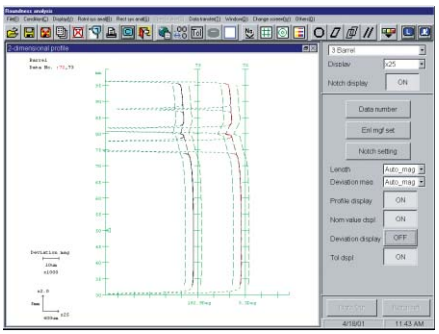
Design value collation can be performed for oval profiles and barrel profiles.

Value data for each angle or design values generated by a formula can be used as the design values.

Evaluation of ring groove tilt and waviness can also be performed.



Oval profile



Barrel profile

3D Vision System

Capture 3D Profile Data with High Precision, High Speed and High Density

Optigo

NEW

Optigo 200

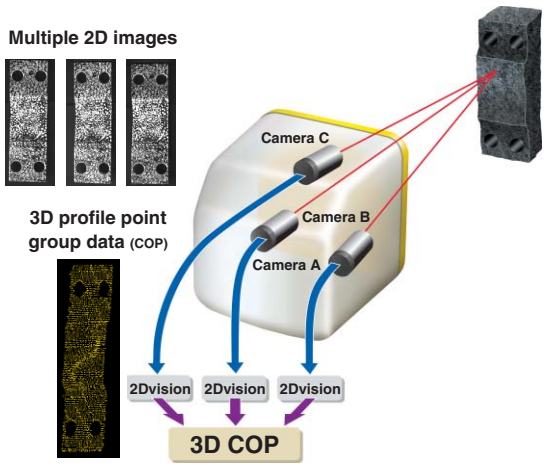
Optigo 10

- Portable design allows system to be moved to where it is needed.
- Can be used on the production floor. No special measuring room is required.
- Data can be captured and evaluated very quickly. One shot measurements can be performed within 10 seconds.
- Achieves outstanding total throughput.
- System is easy to understand and operate.
- 3D curve evaluation results can be immediately displayed in color.
- Non-contact measuring system facilitates measurement of workpieces that deform easily or extremely complicated workpieces.
- Contributes to a dramatic reduction in costs of jigs.

Trilinear Tensor Technology (patented)

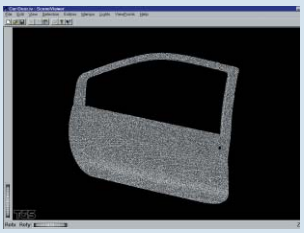
World's Most Advanced Image Processing Technology

Trilinear Tensor Technology is at the core of the technological superiority of the Optigo system. This image processing technology enables Optigo to precisely generate point group data for 3D profiles from multiple 2D images.

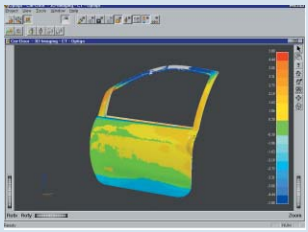


* Patented in Israel and the U.S.A.

Data and Measuring Items



3D profile point group data (COP)

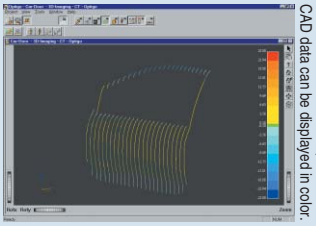


Comparison with CAD data

CAD and point data can be compared, and an OK/NG judgment made on the spot.

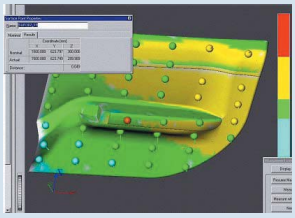
Round hole/long hole/square hole measurement

Hole dimension, position and pitch can be measured.

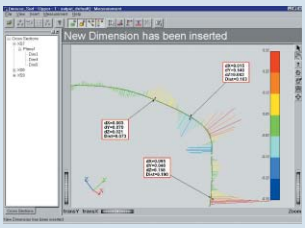


Section line evaluation

Section curve can be immediately calculated upon completed of measurement, and results of comparison with CAD data can be displayed in color.



Evaluation of specified points



2D evaluation of section line

Section can be calculated from CAD and point group, and evaluated.

(Including optional functions)

Specifications

Model	Optigo 200
Measuring field of view	190 × 260 × 150 mm (when standard lens is used)
Measuring accuracy *1	1 field of view measuring accuracy (OPTIGO 200 only): 45 μm Multiple fields of view measuring accuracy (OPTIGO 10): 45 + 35L / 1000 μm (when standard lens is used)
Measuring point accuracy	Max. 4 points/mm² (can be thinned out in subsequent processes)
Processing time	Image capture: Approx. 1msec, Calculation processing: 10 sec.
Optical measuring head dimensions	320 (W) × 200 (D) × 300 (H) mm
Optical measuring head + stand	Floor area: Approx. 960 × 960 mm, Height: 1100 – 2100 mm, 25 kg
Operation range	Up/down movement: 850 mm Tilt: ±70°, Horizontal rotation: ±180°
Control cabinet (including computer)	710 (W) × 600 (D) × 840 (H) mm 110 kg
Software	3D profile point group data (COP) capture Round hole/long hole/square hole measurement on sheet metal CAD data input (IGES/CATIA/STL/STEP, etc.)/COP data output (ASCII)
Optional software	COP-CAD analysis Sectional surface analysis *2
Power consumption	Max. 1.4 KVA
Workpiece surface	Can be measured in almost all cases without any special treatment *3
Light	Normal plant lighting is adequate *4

Model	Optigo 10
Field of view angle (H/V)	76°/56°
Operation distance	1 – 3 m
Field of view range	Depends upon operation distance
Camera dimensions/weight	158 × 194 × 88mm, 2.3 kg
Software	Mapping processing software

●Environmental Conditions

Temperature	10 – 35°C
Humidity	80% or less (no condensation)

*1 Sanctioned value obtained with specific 2-element distance using master provided by Cognitens Corporation is 2δ.
*2 Section profile error is a comparison evaluation for curve data.
*3 White powder may be required for mirror like surfaces (especially shiny surfaces), transparent or special black surfaces.
*4 Avoid direct sunlight and strong infrared light rays.

3D Vision System

Robot Type Automatic Measuring System for Production Floor, Process Control and Quality Control

OptiCell

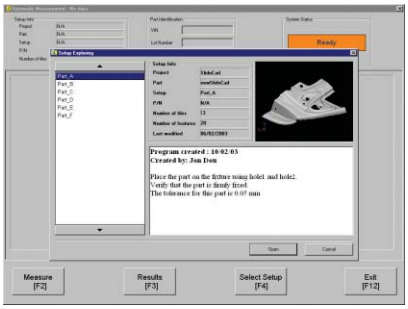
- Automatic measuring unit for production floor
- Flexible system can be used with a wide variety of parts
- High throughput
- Easy comparison with CAD/master parts
- Host of output functions
- Customizable configuration
- Easy to operate with a minimum of training

Advantages of Opticell

- Visualization: Visual display of problems enables them to be easily pinpointed.
- Reduces cost of inspection jigs: Opticell functions reduce the number of inspection jigs in many cases.
- Automatic measurement: High repeatability and the ability to copy measuring procedures substantially reduce operator load.
- Process management: Measurement during each process shortens the time required for warning of defect and its improvement.
- Increased number of samples: Inspecting a higher ratio of samples helps boost part and product quality.

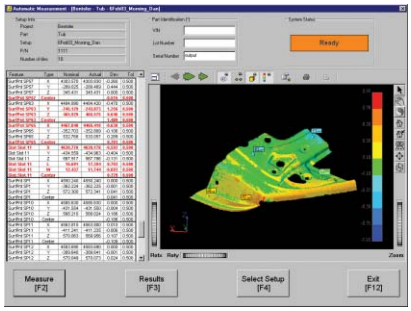
Three Easy Steps for Repeat Measurements

Measurement of parts for which the measuring process has been programmed can be performed in the following three steps:



Selection of part type

Click on Measure



Confirm results

Specifications

Model		OPTICELL
Throughput	Image capture	<0.001 sec
	Overall measuring time for typical sheet metal *	2 - 10 min.
Accuracy	Overall system accuracy **	100μm (3σ)
Optical head	Dimensions	300 (H) × 320 (W) × 300 (D) mm
	Weight	14 kg
	Focal distance	75 cm
Measuring field of view	Lens type	
	Small	140 (H) × 180 (W) × 60 (D) mm
	Medium	190 (H) × 260 (W) × 150 (D) mm
	Large	290 (H) × 380 (W) × 200 (D) mm
Control cabinet	Dimensions	1605 (H) × 700 (W) × 836 (D) mm
	Weight	220 kg
	Power consumption	1.4 KVA (Max, excluding robot)
Measurement/analysis functions		Point group acquisition, surface analysis, surface point measurement, edge point measurement, round hole/long hole/square hole measurement, edge line extraction, section analysis
Input	CAD model format	IGES, VDA-FS, STEP, CATIA, STL
	Special design values	DMIS, ASCII (specific format)
Output	File format	OpenInventor, PDF, Jpeg, Tebis DGT, DMIS, ASCII (copy format), Q-DAS, STL, PolyWorks PIF, Cognitens standard format
Operating temperature		5 - 40°C
Lighting		Normal lighting in plant is adequate
Vibration		Can be used in production environment
Max. workpiece size		Depends upon reach of robot
Robot ***		ABB IRB-4400, IRB-6400

* The exact throughput depends upon the size of the workpiece and the type of required data.
This time includes alignment, image acquisition, point group calculation, robot operation, surface analysis and calculation of defined geometric elements.
** Accuracy when ABB IRB-440 and medium lens are used to measure CogniTens test workpiece.
*** The type of robot can be tailored to customer needs.