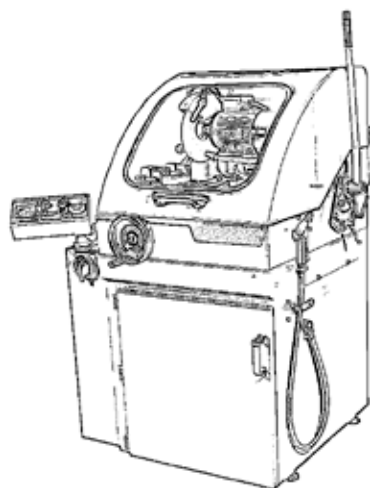
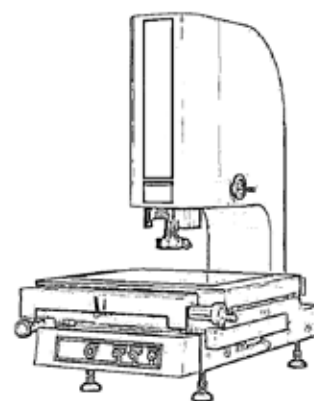
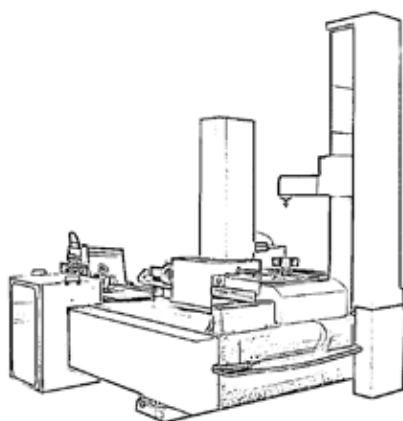
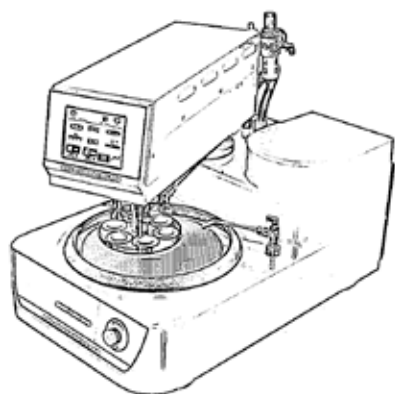


CRASE

MEASURING INSTRUMENTS



kiwa
ISO 9001

www.crase.com

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HARDNESS AND MICRO-HARDNESS TESTERS

SEMI-AUTOMATIC VICKERS HARDNESS TESTER

iHV-1/iHV-10/iHV-50 VICKERS TEST – KNOOP TEST

Description:



- Auto focus.
- 6-station precision turret.
- Z-axis automatic control and anti-collision protection.
- Modern minimalist style.
- Ultra high precision X Y workbench.
- Multiple language options.
- Workbench panoramic camera (optional): Equipped with a panoramic camera that does not require image stitching to generate sample panoramic images, with a built-in 12 million pixel high-definition industrial camera.
- Automatic measurement of hardness value: No need for manual positioning, the new algorithm for automatic and precise measurement can detect indentations on uneven or scratched surfaces.

Advantages:

- Independently developed software to achieve fast and accurate focusing on new algorithm and industry standards.
- HV – HK pressure head, multi objective configuration 10X, 40X (2.5X, 5X, 20X, 50X optional).
- Supporting high-speed automatic focusing with optical cross rail lifting mechanism and automatic collision prevention device.
- All built-in light sources, cameras, focusing and force changing devices.
- Workbench repeatability positioning accuracy: 1 micron stroke can reach a maximum of 200 mm.
- Multiple languages available in Chinese and English for selection and customization.
- Automatic switching of force values and brightness adjustment for each experiment. Automatic switching of force values for different materials, different surface conditions.

SEMI-AUTOMATIC VICKERS HARDNESS TESTER

Technical features:

Model	IHV-1AZ	IHV-10AZ	IHV-50AZ
Force range	10 gf - 1 Kgf	0,3 - 10 Kgf	0,5 - 50 Kgf
Automatic switching of force values	Yes		
Vickers measurement	Yes		
Knoop measurement	Yes		
Brinell measurement (optional)	Yes		
Automatic turret	Yes		
Number of turret workers	3(6)		
Objective lens	10X, 40X (2,5X, 5X, 20X, 50X)		
Panoramic camera	Optional		
Automatic brightness adjustment	Yes		
Laser crosshairs positioning	Optional		
Automatic measurement of hardness value	Yes		
Sample edge positioning	Optional		
Sample shape matching module	Optional		
Welding module	Optional		
Measurement of fracture toughness	Yes		
Report output	Yes		

AUTOMATIC VICKERS HARDNESS TESTER

iHV-1/iHV-10/iHV-50 VICKERS TEST – KNOOP TEST



Description:

- Auto focus.
- 6-station precision turret .
- Z-axis automatic control and anti-collision protection.
- Workbench panoramic camera (optional).
- Automatic measurement of hardness value.
- The light source, camera, focusing, and power conversion devices are all built-in.
- Ultra high precision X/Y workbench: Workbench repeatability positioning accuracy: 1 micron, maximum travel up to 200 mm.
- Multiple language options: Multiple languages available for selection and customization

Advantages:

- Our self-developed software achieves fast and accurate focusing, with new focusing algorithms that refresh industry standards.
- HV – HK pressure head, multi objective configuration 10X, 40X (2.5X, 5X, 20X, 50X optional).
- High speed automatic focusing using optical cross rail lifting mechanism and automatic anti-collision device.
- Automatically switch between different experimental force values, adjust brightness and contrast based on different materials and surface conditions.
- Equipped with a panoramic camera that does not require image stitching to generate sample panoramic images. Built in 12 megapixel high-definition industrial camera.
- No need for manual positioning, the new algorithm for automatic precise measurement can detect indentation on surfaces that are not smooth or have scratches.

AUTOMATIC VICKERS HARDNESS TESTER

Technical features:

Model	IHV-1AZXY	IHV-10AZXY	IHV-50AZXY
Force range	10 gf - 1 Kgf	0,3 - 10 Kgf	0,5 - 50 Kgf
Automatic switching of force values	Yes		
Vickers measurement	Yes		
Knoop measurement	Yes		
Brinell measurement (optional)	Yes		
Automatic turret	Yes		
Number of turret workers	3(6)		
Objective lens	10X, 40X (2,5X, 5X, 20X, 50X)		
Panoramic camera	Optional		
Automatic brightness adjustment	Yes		
Laser crosshairs positioning	Optional		
Automatic measurement of hardness value	Yes		
Sample edge positioning	Optional		
Sample shape matching module	Optional		
Welding module	Optional		
Measurement of fracture toughness	Yes		
Report output	Yes		

PORTABLE HARDNESS TESTERS



NOVOTEST

COMBINED HARDNESS TESTER T-UD2

The device works with both UCI (*Ultrasonic Contact Impedance*) and dynamic (*Leeb*) probes. User gets the benefits of two methods of measurement.

The **Leeb probe** is used for measuring the hardness of non-ferrous metals, cast iron, coarse-grained materials, massive products etc.

The **UCI probe** is used for measuring the hardness of small items, objects with a thin wall, complex form, and to measure the hardness of surface hardened layers.



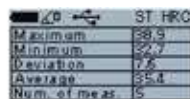
THE ADVANTAGES OF T-UD2

- Hardness measurement of any mass products with a thickness of 1 mm – inaccessible to the dynamic (Leeb) hardness testers (small parts, thin-walled structures, pipes, tanks, steel sheets, articles of complex shape, hardness control of metal coatings, etc.)
- Small imprint after measuring
- Measuring the hardness of surface hardened layer
- Wide range of hardness
- Only basic function, nothing extra
- Possibility to use in field conditions with high humidity and dust
- Convenience and ease of measurement
- Optimized number of buttons
- Contrast display with bright back-lighting
- Automatic recognition of probe
- Indication of the type of connected probe
- Calibrations stored in memory of probe
- Very easy in operation and calibration
- Internal memory and communication with PC
- New, intuitive menu with tips on the buttons
- Temperature range down to - 40°C
- Water resistant case
- Rubber bumper protected case

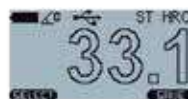
MANY MODES OF MEASUREMENT



Normal mode



Statistics mode



Smart mode



Signal mode

COMBINED HARDNESS TESTER T-UD2

OPTIONAL BLUETOOTH MODULE

Thanks to the special NOVOTEST app for Android, it is possible to do hardness measurements, calibrate the device, set up a convenient display of values, save the results of hardness measurements, synchronize the archive with your other devices and a PC, transfer measurement results to your colleagues with your smartphone.

Using a Bluetooth connection, your smartphone connects to the hardness tester and you have a completely new device. The intuitive interface, ample opportunities for documenting results, Internet access, touch screen, camera, microphone and GPS receiver of a smartphone turn the hardness tester T-UD2 into something completely unique and previously inaccessible.

WITH NOVOTEST APP IS POSSIBLE TO:

- Set and calibrate the hardness tester.
- Display measurement results in real time in numerical form with the construction of a graph, histogram or statistics.
- Take a picture of the test object with the putting of hardness marks.
- Create a video of the measured product.
- Recording audio notes about the tested object.
- Automatically save measurement's geolocation on Google maps.
- Display a Google map with markers of places of measurements made on it and the ability to view these measurements.
- Create the final comprehensive report on the measurement.
- Send a finished report to e-mail, messenger (or in any convenient way) directly from the application.
- Create folders and files with any names thanks to the flexible structure of the archive of measurements.
- Synchronize with PC and other smartphones.
- Access a cloud service for storing the archive of measurements.
- Automatically and manually synchronize the cloud measurement archives between devices.
- Use the Google navigation mode, building a route and accompanying to the point at which the measurements were made.
- Store archives of other devices with Bluetooth in one application.

COMBINED HARDNESS TESTER T-UD2

THREE TYPES OF UCI PROBES

Load	Advantages or benefits	Typical applications
98 N (10 kgf)	Leaves relatively large dent. Suitable for low finished surfaces.	Small forged products, cast materials, heat-treated materials, etc., turbine blades, inside tubes with $\varnothing > 90$ mm.
50 N (5 kgf)	Considered to be the universal type for most general applications. 50 N of downward hand pressure is required to activate the probe. Surface finish equivalent to 80 grind or better.	Induction or carburized machined parts, e.g., camshafts, turbines, weld inspection, HAZ. Measurement in grooves, gear tooth flanks and roots, turbine blades, inside tubes with $\varnothing > 90$ mm.
10 N (1 kgf)	Load is easy to apply; provides control to test on a sharp radius. Only 10 N of downward hand pressure is required to activate the probe. Surface finish equivalent to 150 grind or better.	Ion-nitrided stamping dies and molds, forms, presses, thin-walled parts. Bearings, tooth flanks, turbine blades, inside tubes with $\varnothing > 90$ mm.

TECHNICAL FEATURES

UCI probe types	1 kgf (10 N) - 5 kgf (50 N) - 10 kgf (98 N)
Leeb probe types	D, DC, DL, C, D+15, E, G
Indenter	Diamond indenter (UCI), hardened ball (Leeb)
Measuring direction	Any direction 360°
Data storage	Limited only by the memory card
Measurement hardness range:	
- Rockwell, HRC	20 - 70
- Brinell, HB	90 - 450
- Vickers, HV	230 - 940
- Tensile strength, MPa	370 - 1740
Measuring accuracy	HV \pm 3%; HRC \pm 1.5%; HB \pm 3%
Hardness scale	HRC, HB, HV, MPa
Materials	- UCI probe: pre-calibrated for steel - Leeb probe: pre-calibrated for steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper - Additional custom materials for calibration
Operating temperature range	-20 to +50° C
Power supply	2 AA batteries
Instrument dimensions	120 x 60 x 25 mm
Weight of electronic unit with batteries	0.2 kg (without probes)
Battery life	Not less than 20 hours

COMBINED HARDNESS TESTER T-UD3

The device works with both UCI (*Ultrasonic Contact Impedance*) and dynamic (*Leeb*) probes. User gets the benefits of two methods of measurement.

The **Leeb probe** is used for measuring the hardness of non-ferrous metals, cast iron, coarse-grained materials, massive products etc.

The **UCI probe** is used for measuring the hardness of small items, objects with a thin wall, complex form, and to measure the hardness of surface hardened layers.

Available with
Bluetooth



THE ADVANTAGES OF T-UD3

- Hardness measurement of any mass products with a thickness of 1 mm – inaccessible to the dynamic (Leeb) hardness testers (small parts, thinwalled structures, pipes, tanks, steel sheets, articles of complex shape, hardness control of metal coatings, etc.)
- Small imprint after measuring
- Measuring hardness of the surface hardened layer
- Wide range of hardness
- Various measurement modes
- Calibration of any scale in any range
- Convenience and ease of measurement
- Large full color graphic display with bright back-lighting
- Automatic recognition of probe
- Indication of the type of connected probe
- Calibrations stored in memory of probe
- Extended temperature range down to - 40°C
- Internal memory and communication with PC
- New, intuitive menu with tips on the buttons
- Optional wireless mini-printer
- Water resistant case
- Rubber bumper protected case

MANY MODES OF MEASUREMENT



1. GRAPH - the mode of building the graph
2. HISTOGRAM - the mode of building the histogram
3. STATISTIC - the mode of statistics
4. SMART - the mode of filtering incorrect measurements
5. SIGNAL - the mode of displaying the signal (only for Leeb probe)

COMBINED HARDNESS TESTER T-UD3

OPTIONAL BLUETOOTH MODULE

Thanks to the special NOVOTEST app for Android, it is possible to do hardness measurements, calibrate the device, set up a convenient display of values, save the results of hardness measurements, synchronize the archive with your other devices and a PC, transfer measurement results to your colleagues with your smartphone.

Using a Bluetooth connection, your smartphone connects to the hardness tester and you have a completely new device. The intuitive interface, ample opportunities for documenting results, Internet access, touch screen, camera, microphone and GPS receiver of a smartphone turn the hardness tester T-UD3 into something completely unique and previously inaccessible.

WITH NOVOTEST APP IS POSSIBLE TO:

- Set and calibrate the hardness tester.
- Display measurement results in real time in numerical form with the construction of a graph, histogram or statistics.
- Take a picture of the test object with the putting of hardness marks.
- Create a video of the measured product.
- Recording audio notes about the tested object.
- Automatically save measurement's geolocation on Google maps.
- Visualizzare una mappa di Google con le indicazioni dei luoghi delle misurazioni fatte e la possibilità di visionarle.
- Display a Google map with markers of places of measurements made on it and the ability to view these measurements.
- Create the final comprehensive report on the measurement.
- Send a finished report to e-mail, messenger (or in any convenient way) directly from the application.
- Create folders and files with any names thanks to the flexible structure of the archive of measurements.
- Synchronize with PC and other smartphones.
- Access a cloud service for storing the archive of measurements.
- Automatically and manually synchronize the cloud measurement archives between devices.
- Use the Google navigation mode, building a route and accompanying to the point at which the measurements were made.
- Store archives of other devices with Bluetooth in one application.

COMBINED HARDNESS TESTER T-UD3

THREE TYPES OF UCI PROBES

Load	Advantages and benefits	Typical applications
98 N (10 kgf)	Leaves relatively large dent. Suitable for low finished surfaces. Surface finish equivalent to 30 grind or better.	Small forged products, cast materials, heat-treated materials, etc., turbine blades, inside tubes with $\phi > 90$ mm.
50 N (5 kgf)	Considered to be the universal type for most general applications. 50 N of downward hand pressure is required to activate the probe. Surface finish equivalent to 80 grind or better.	Induction or carburized machined parts, e.g. camshafts, turbines, weld inspection, HAZ. Measurement in grooves, gear tooth flanks and roots, turbine blades, inside tubes with $\phi > 90$ mm.
10 N (1 kgf)	Load is easy to apply; provides control to test on a sharp radius. Only 10 N of downward hand pressure is required to activate the probe. Surface finish equivalent to 150 grind or better.	Ion-nitrided stamping dies and molds, forms, presses, thin-walled parts bearings, tooth flanks, turbine blades, inside tubes with $\phi > 90$ mm.

TECHNICAL FEATURES

UCI probe types	1 kgf (10 N) - 5 kgf (50 N) - 10 kgf (98 N)
Leeb probe types	D, DC, DL, C, D+15, E, G
Measuring range	HV: 230 ~ 940; HRC: 20 ~ 70; HB: 90 ~ 650 Tensile strength, MPa: 370 ~ 1740
Measuring accuracy	HV $\pm 3\%$; HRC $\pm 1.5\%$; HB $\pm 3\%$
Indenter	Diamond indenter (UCI), hardened ball (Leeb)
Data storage	Limited only by the memory card
Communication	Upload data to PC and export as a spreadsheet (USB cable and software included)
Hardness scale	HRC, HB, HV, HRB, HS, HL, MPa
Materials	- UCI probe: pre-calibrated for steel - Leeb probe: pre-calibrated for steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper - Additional custom materials for calibration
Data display	Load applied/contact (UCI), angle (Leeb), single test result. Max., min., average of tests, number of tests, deviation, var. coeff, histogram, signal and smart mode
Indication	Color LCD display (320 x 240)
Operating environment	Temperature: -20 to +40° C; Humidity: 30 to 80% RH
Power supply	DC 4.5 V (3 AA batteries)
Instrument dimensions	160 x 75 x 30 mm
Net weight	Approx. 0.3 kg (without probe)
Battery life	Approx. 10 hours

COMBINED HARDNESS TESTERS T-UD2/3

STANDARD SET T-UD2

- Electronic unit
- UCI probe
- Leeb probe
- 2 AA batteries
- Charger
- USB cable
- Operating manual
- Software for PC
- Case

AVAILABLE OPTIONS T-UD2

- UCI probe
- Leeb probe
- Batteries
- Charger
- USB cable
- Set of hardness measures
- Case



STANDARD SET T-UD3

- Electronic unit
- UCI probe
- Leeb probe
- 3 AA batteries
- Charger
- USB cable
- Operating manual
- Software for PC
- Case

AVAILABLE OPTIONS T-UD3

- UCI probe
- Leeb probe
- Rubber bumper protected case
- Wireless printer
- Portable grinding machine
- Set of hardness measures
- Three types of UCI probes (10 - 50 - 98 N)
- Batteries
- Charger
- USB cable
- Case



WIRELESS HARDNESS TESTER LAB UCI



Wireless portable hardness tester which implements the UCI (*Ultrasonic Contact Impedance*) method.

FEATURES

- Ultra-portable device for quick hardness testing anywhere – in laboratories or in field conditions, with autonomous continuous operation up to 20 hours.
- UCI hardness test method has almost no boundaries in relation to the test object, so this method is the most versatile of the existing ones.
- Multifunctional application with a user-friendly interface and cloud archive.

The NOVOTEST Lab application allows users to:

- Set up and calibrate the device;
- Get illustrations of measurements as graphs, histograms, and statistics;
- Save measurements with text-, audio-, photo- and even videos protocols;
- Transfer the protocol in one click by any convenient messenger or e-mail;
- Synchronize archive with cloud storage.

WIRELESS HARDNESS TESTER LAB UCI



ULTRAPORTABLE

Wireless connection allows user to get rid of wires, blocks, and it makes the device as portable as possible. It fits in any bag or even just a pocket.



HIGH AUTONOMY

The device charges from any USB 5V port, be it a PC, car, or a power bank. From one full charge, the device can work for more than 20 hours in a row.



SPECIAL NOZZLE

The special nozzle for products helps test radius surfaces and get accurate measurements on the flat products, included in the standard set. The device can also be used without a nozzle for narrow and hard-to-reach places.



CALIBRATION FOR ANY METAL

The device has preset calibrations for steel, aluminum and brass. If necessary, users can calibrate the device for any metal-scale combination if samples are available.

CROSS-PLATFORM ARCHIVE MANAGEMENT INTERFACE

Create comprehensive protocols and synchronize your archive with cloud storage managed in the Google Chrome browser.

WIRELESS HARDNESS TESTER LAB UCI



ADVANTAGES OF LAB UCI

- Wireless
- Ultraportable
- Autonomous
- Universal
- Accurate
- Widely applicable
- Multifunctional
- Easy to use

The device connects with your smartphone through the NOVOTEST application!



TECHNICAL FEATURES

Measuring range	HRC: 20~70, HB: 90~650, HV: 230~940, Tensile strength, MPa: 370~1740, User calibrations for any range (e.g.: HV20-2000)
Scales	HRC, HB, HV, HRA, HRB, MPa, and can be calibrated for any other
Materials	Steel, aluminum, brass and can be calibrated for any other
Weight	170 g
Dimensions	160 x 26 (36 with nozzle) mm
Battery life	20 hours
Power supply / Charging	Built-in battery / USB 5V
Operating environment	Temperature: -30°C ~ 60°C – Humidity: 30% ~ 80% R.H.

WIRELESS HARDNESS TESTER LAB UCI

STANDARD SET LAB UCI

- Hardness tester
- Special nozzle
- Software
- USB cable
- Case
- Operating manual

AVAILABLE OPTIONS LAB UCI

- Hardness test blocks
- UCI probe test stand for thin sheets
- Portable grinding machine

APPLICATIONS



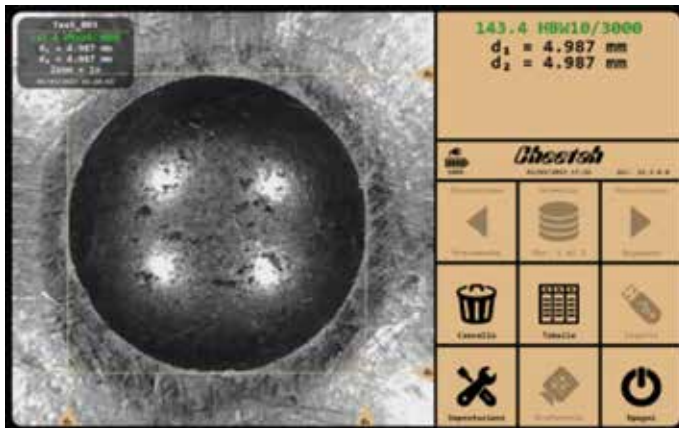
OTHER PORTABLE HARDNESS TESTERS



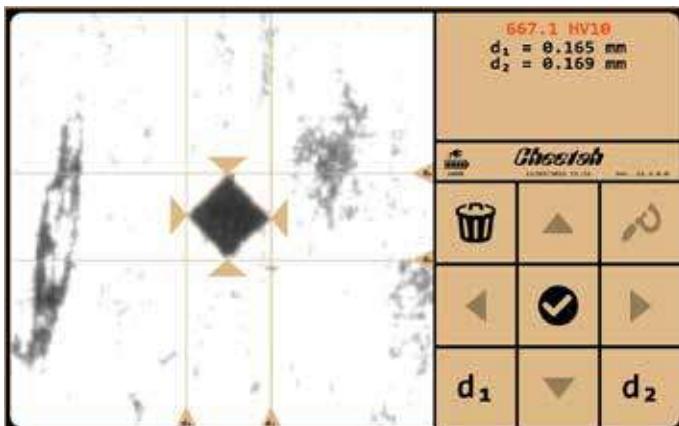
CHEETAH MEASURING SYSTEM

Brinell and Vickers indentation's digital reader

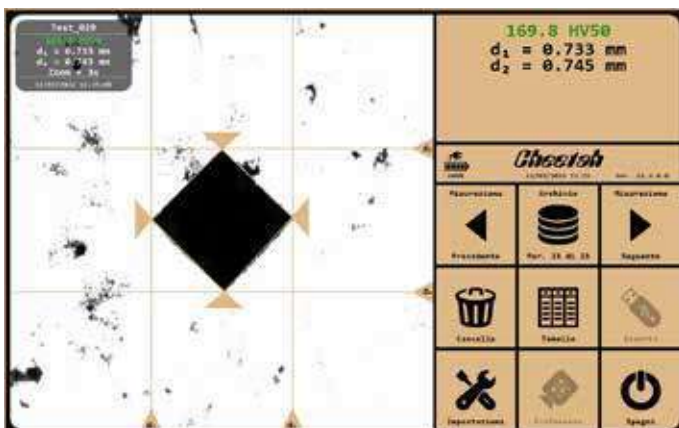
The software allows the user to measure Vickers and Brinell indentation in compliance with ISO and ASTM.



1/1 HB	2.5/6.25 HB	5/25 HB	10/100 HB
1/2.5 HB	2.5/15.6 HB	5/62.5 HB	10/250 HB
1/5 HB	2.5/31.5 HB	5/125 HB	10/500 HB
1/10 HB	2.5/62.5 HB	5/250 HB	10/1000 HB
1/30 HB	2.5/187.5 HB	5/750 HB	10/3000 HB



10 HV	20 HV	30 HV	50 HV
60 HV	100 HV		



10 HV	20 HV	30 HV	50 HV
60 HV	100 HV		

CHEETAH MEASURING SYSTEM

INSTRUMENT COMPOSITION:

- PC Tablet
- Measuring probe with built-in LED light and USB3 cable
- Measuring software on Windows operating system for automatic and manual reading of Brinell / Vickers indentation
- High-definition camera for optical evaluation of Brinell / Vickers indentation with digital zoom
- Connection cable
- Operating manual



TECHNICAL FEATURES

Typical parameters of a file are:

- File name, with creation of a tests storage
- Measuring mode Archive/Live
- Digital zoom 1x - 1.5x - 2x - 3x - 5x
- HRC conversion
- Tolerance with insert of min/max limits
- Instrument calibration
- Printing of the report with customisation of company details and own logo
- Indentation images memorisation
- Data export to PDF and EXCEL format
- Images export
- Dimensions: h 140 mm - Ø 50 mm
- Weight: 0.600 kg
- Camera resolution: 1440 x 1080 Pixel
- Brinell diameters range: 0.3 - 6.0 mm
- Vickers diameters range: from diagonals 100 micron

MECHANICAL PORTABLE HARDNESS TESTERS

BRINELL HARDNESS TESTER HBX 0,5



TECHNICAL FEATURES

Brinell hardness tester designed to measure steel and cast iron hardness up to 350 - 400 Brinell; the measurements can be carried out anywhere and in any testing direction.

With this instrument the classic consumables can be saved; it is lightweight, small and portable.

When **HBX 0,5** is pushed down, a pre-loaded spring sets free and releases the load on the underlying workpiece; the force of the spring is guided directly on the indenter. This creates the indentation.

After that, the indentation diameter will be measured thanks to the supplied micrometrical microscope or through digital measuring systems.

ROCKWELL HARDNESS TESTER PHT

TECHNICAL FEATURES

The mechanical **Rockwell** hardness tester, even if smaller than a bench one, does not lose in accuracy.

The smallest model weights only 0.7 kg and its use is similar to a classic micrometer. **PHT** directly measures 15 Rockwell scales: A, B, C, D, E, F, G, H, K, L, M, P, R and S (depending on the model).

Its accuracy is compliant with ISO 6508 and ASTM E-18 standards.

The measuring process is fast and easy, it leaves only a small test indentation on the piece's surface.



**METALLOGRAPHIC
MACHINES**

Chennai Metco

CUTTING MACHINES

Sectioning, the removal of a conveniently sized and representative specimen from a larger piece is the first major operation in the preparation of **metallographic specimen**. Incorrect preparation techniques can cause micro-structural changes that lead to erroneous interpretation.

The selection of the right cutter is the first crucial step of specimen preparation. Abrasive cutting, with copious supply of coolant to ensure that no thermal damage takes place, is the most widely used method of sectioning materials for microscopic examination.

CRASE provides a wide range of cutting machines by Chennai Metco; very large cutters to section bigger and long sized components, such as crankshafts, are also available.

BAINCUT LSS - Low Speed Saw

The precision section saw is designed for slicing all types of materials with ease.

The slow speed cutter is mostly used for accurate sectioning of very small, hard components for R&D.

FEATURES

- Cutting capacity up to 20 mm
- Built-in coolant tray
- Down-feed facility with different weights up to 400 g
- Variable speed up to 600 rpm
- Micrometer for cross-feed adjustment up to 25 mm
- AC motor single phase, 220 V / 50Hz or 110 V / 60 Hz
- Diamond blade size: Ø 127 mm
- Touch screen with pre-set programs
- Automatic safety button
- Dimensions: 400 x 300 x 250 mm



CUTTING MACHINES

BAINCUT HSS PLUS - High Speed Saw



The precision saw for cutting all types of materials with variable spindle speed. Automated Y movement adds to the convenience.

A must for slicing surface engineered components, hard, sensitive applications. Preferred by research laboratories.

FEATURES

- Cutting capacity up to 60 mm
- Variable speed 100-5000 rpm
- AC motor 3-phase (750 W), 220 V / 50 Hz or 110 V / 60 Hz
- Y axis automatic movement
- Z axis movement up to 40 mm
- Diamond or abrasive wheel up to Ø 200 mm
- Door safety interlock system
- Re-circulating coolant system
- Dimensions: 845 x 784 x 600 mm



BAINCUT M - Medium

A popular general purpose cut-off machine with viewing window, internal illumination, re-circulation coolant system, washing jet, safety limit switch. Chop cutting by lowering the wheel with the handle (Z movement).

FEATURES

- Cutting size up to 60 mm
- Spindle speed 2800 rpm
- Motor 3 HP, 3-phase, 415 V / 50 Hz or 220 V / 60 Hz
- Cutting wheel Ø 250 mm
- Z axis manual movement
- Built-in movable re-circulation coolant tank
- T-slot bed, 110 x 200 mm
- Dimensions: 850 x 750 x 1550 mm



CUTTING MACHINES

BAINCUT UM - Upper Medium

A sturdy floor model general purpose cutter. Large space in the cutting zone offers flexibility to use wide variety of fixtures. Cutting action is carried out by lowering the arm (Z movement) through cutting plane (Y axis); additional X axis movement. Suitable for many applications including small gears, medium sized auto components and shafts.

FEATURES

- Cutting capacity up to 80 mm
- Spindle speed 2800 rpm
- Cutting wheel 300 mm
- Motor 5 HP, 3-phase. 415 V / 50 Hz or 220 V / 60 Hz
- Three axes movement X, Y and Z
- Built-in movable re-circulation coolant tank
- Table size: 260 x 260 mm with 8 mm T-Slot
- Dimensions: 1100 x 1000 x 1650 mm



BAINCUT L - Large

Large heavy-duty cutting machine for sectioning large samples. Has similar features to UM model, but with higher capacity (Z, Y and X movements).

FEATURES

- Cutting capacity up to 110 mm (L Plus: 130 mm)
- Spindle speed 1900 rpm
- Cutting wheel 350 mm (L Plus: 400 mm)
- Motor 7.5 HP, 3-phase, 415 V / 50 Hz or 220 V / 60 Hz
- Built-in movable re-circulation coolant tank
- Easy operator panel
- Side opening for longer components
- Table size: 254 X 355 mm with 12mm T-Slot
- Dimensions: 1040 x 1600 x 1800 mm



CUTTING MACHINES

BAINCUT XL Auto



Automatic extra large cutting machine with integral sliding door. Standard Y axis automatic movement, optional Z axis automatic movement. Pulse cutting, step cutting, etc., for burn-free cutting. Preset parameters for consistency and ease of use.

FEATURES

- Cutting capacity up to 150 mm
- Automatic Z movement with Servo System
- Advanced PLC based graphical touch screen
- Variable cutting speed 1000 - 3000 rpm
- Cutting wheel Ø max. 500 mm
- Motor 15 HP, 3-phase, 415 V / 50 Hz or 480 V / 60 Hz
- Coolant tank with 150 L capacity
- Fume digester
- Table 500 x 500 mm with 12 mm T-Slot
- Dimensions: 1700 x 1700 x 1900 mm

BAINCUT XXL Auto

Automatic bigger sized fully loaded cutting machine. Two side sliding door provides voluminous internal space to section big components and also easy access. Standard automatic movement Y and Z axes. Pulse cutting, step cutting, etc., for burn-free cutting. Variable spindle speed included.

FEATURES

- Cutting capacity up to 200 mm
- Variable spindle speed 1000 - 3000 rpm
- Motor 30 HP, 3-phase, 415 V / 50 Hz or 480 V / 60 Hz
- Cutting wheel Ø max. 500 mm
- Advanced PLC based graphical touch screen
- Automatic Y and Z movement with Servo System
- Fume digester
- Table 500 X 500 mm with 12 mm T-Slot
- Dimensions: 2100 x 2150 x 2400 mm



MOUNTING MACHINES

Mounting the specimen after sectioning is often necessary for subsequent handling and metallographic polishing.

Mounting has several benefits, especially in hand polishing when specimen flatness and edge retention are important.

Specimen mounting has other benefits such as:

- uniform flatness for either manual or automatic grinding and polishing machine;
- easier handling of specimens that are too small and fragile;
- Chennai Metco **mounting presses** are engineered with best in class techniques with international standards.

BAINMOUNT H



FEATURES

- Hydraulic mounting press
- Touch screen LCD parameter indicator
- Mould dimensions Ø 30 - 40 - 50 mm
- Heater 1600 Watt, single phase
- Water cooling re-circulation system (optional)
- Digital temperature indicator and digital timer
- Timer-buzzer for heating and cooling cycles
- Dimensions: 580 x 610 x 550 mm

BAINMOUNT H AUTO

FEATURES

- Hydraulic automatic system
- Auto-doser
- Mould dimensions Ø 30 - 40 - 50 mm
- Heater 1600 Watt, single phase
- Automatic water cooling system
- Ideal for transparent, EPO and bakelite moulds preparation
- Timer-buzzer for heating and cooling cycles
- Presets and data storage up to 25 programs
- Dimensions: 430 x 570 x 510 mm



MOUNTING MACHINES

BAINMOUNT TWIN H AUTO



FEATURES

- Hydraulic automatic system
- Mould dimensions Ø 30 - 40 - 50 mm
- Heater 1600 Watt, single phase
- Automatic water cooling system
- User friendly advanced LCD touch screen
- Timer-buzzer for heating and cooling cycles
- Ideal for transparent, EPO and bakelite moulds preparation
- Presets and data storage up to 25 programs
- Simultaneous mounting in both cylinders
- Dimensions: 650 x 630 x 510 mm

GRINDING/POLISHING MACHINES

Grinding involves process of coarse grinding prior to fine grinding to obtain flat surface, followed with steps of fine grindings.

Polishing, in one or more final steps, in specimen preparation is to get mirror finished surface. This process is necessary to get the clear view of the microstructure in the specimen.

It is done through a series of SiC sheets, diamond platens, cloths, and suspensions to obtain mirror like and planar surface in the specimen.

Chennai Metco offers a full range of table top, floor model, manual, semi-automatic and fully automatic polishing machines. Fully automatic polishers are ideal for laboratories looking for high quality consistent results for demanding applications.

BAINLINE TWIN WET

FEATURES

- Endless belt, 100 x 915 mm
- Motor 1 HP, 3-phase
- Simplified belt change mechanism
- Water cooling system
- Speed 1440 rpm
- For flat, coarse grinding prior to fine grinding
- Dimensions: 670 x 680 x 290 mm



BAINLINE GP



FEATURES

- Endless belt 100 x 915 mm
- Motor 0.5 HP, single phase
- Simplified belt change mechanism
- For flat, coarse grinding prior to fine grinding
- Dimensions: 560 x 350 x 230 mm

GRINDING/POLISHING MACHINES

BAINPOL VT



FEATURES

- Single disc, standard Ø 200 mm
- Optional discs Ø 250 - 300 mm
- Motor 0.5 HP, single-phase, high torque
- AC drive
- Variable speed 50 - 1000 rpm or 50 - 600 rpm
- Display LCD
- Corrosion resistant
- Flexible water jet with control valve
- Power supply: 220 V / 50 Hz or 110 V / 60 Hz
- Dimensions: 360 x 660 x 310 mm

BAINPOL VTD

FEATURES

- Double disc, standard Ø 200 mm
- Optional discs Ø 250 - 300 mm
- Motor 0,5 HP, single-phase, high torque
- AC drive
- Variable speed 50 - 1000 rpm or 50 - 600 rpm
- Display LCD
- Corrosion resistant
- Flexible water jet with control valve
- Power supply: 220 V / 50 Hz or 110 V / 60 Hz
- Dimensions: 710 x 660 x 310 mm



GRINDING/POLISHING MACHINES

BAINPOL SEMI-AUTOMATIC

FEATURES

- AC motor 0.5 HP, single-phase
- LCD touch display
- Variable speed 50 - 600 rpm
- Head speed 100 rpm
- Digital timer
- Auto head to hold 3 samples: 30 - 40 - 50 mm
- Independent powered polish head
- Standard disc Ø 300 mm, optional Ø 250 mm
- Dimensions: 435 x 750 x 520 mm



Also available with double disc

BAINPOL AUTO

FEATURES

- AC motor 1 HP, single-phase, high torque
- LCD touch display, digital timer
- Variable speed 50 - 600 rpm
- Variable pressure 1 - 4 bar
- Water cooling system
- Automatic head, up to 6 moulds
- Independent powered polish head, variable speed 30 - 150 rpm
- Standard disc Ø 200 - 250 - 300 mm
- Dimensions: 850 x 500 x 600 mm



*Also available with double disc
Dimensions: 950 x 850 x 750 mm*

GRINDING/POLISHING MACHINES

BAINPOL VFD



FEATURES

- Heavy duty floor model with storage compartment
- Double disc, variable speed 50 - 600 rpm
- AC motor 0.5 HP, single-phase
- Standard disc Ø 300 mm
- Optional discs Ø 200 - 250 mm
- Corrosion resistant
- Drainage system
- Dimensions: 870 x 750 x 1020 mm

Also available the semi-automatic version

BAINPOL VFF

FEATURES

- Heavy duty floor model with storage compartment
- Four discs, variable speed 50 - 600 rpm
- AC motor 0.5 HP, single-phase
- Standard disc Ø 250 mm
- Optional discs Ø 200 - 300 mm
- Corrosion resistant
- Drainage system
- Dimensions: 1740 x 750 x 1020 mm



MICROSCOPES

Optical microscope remains the most important tool for the study of microstructure. All examination of microstructure should begin with use of light microscope starting at low magnification followed by progressively higher magnification. Reflected light microscopes are commonly used for the study of metals and are classified as *upright* and *inverted*. These terms refer to the orientation of the light path to the plane-of-polish of the specimen during observation.

METSCOPE - I

Trinocular inverted metallurgical microscope with plan optics and incident light illumination. Convenient model for quick micro analysis, with ergonomic design. Available options to add quality enhancing the optic. Objectives: 10x - 20x - 50x - 100x Magnification range: 100x - 1000x (standard) Illumination: 6 V, 20 Watt A third port available for camera.



VERTIMET CP

Trinocular vertical metallurgical microscope with plan optics and incident light illumination. Best suited for situations demanding vertical viewing. Practical no-frill microscope with amazing clarity. Objectives: 10x - 20x - 50x - 100x Magnification range: 100x - 1000x (standard) Illumination: 6 V, 20 Watt A third port available for camera.



MACSCOPE - Z (Stereo Zoom)

Stereo zoom microscope with camera port. Designed with excellent clarity and ergonomics. Modular design enables configuration to suit your applications. Standard magnification: 6.2x to 50x Magnification: 3.1x to 100x with suitable eye pieces and objectives Fiber optic illuminator (optional) Illumination: ring illuminator 10w bulb



GEAR TESTING MACHINES



GEAR TESTING MACHINES

CRASE has been in gear's market for more than 30 years; today is able to *sell, assist* and *retrofit* testing machines for spur and bevel gears' measurement.

We face problems about **gears' control** thanks to our knowledge developed during years of fieldwork and thanks to today's technology, presenting a wide range of offers.

MANUAL GEAR MEASURING MACHINES



MAAG - KLINGELNBERG - MAHR - FRESCO - HOFLER

Manual machines, with or without base plate, are a worthy technical-economic option to measure gears. Once instruments have been retrofitted, they get efficient and updated. Our technicians are able to update your gear measuring machine of any brand and model, both CNC and manual. Beyond updating the measuring system, we can repair or inspect mechanical and electronical parts of your instrument.

The software is able to measure in compliance with DIN 3960 / 3962 AGMA, JIS, BS, ISO in order to meet any customer's requirement; measurement of the outside of spur gears and pinions.

Measurement types in basic packet "Gear Soft":

- Straight profile and helix (0°).
- Sloped profile and helix.
- Profile with release of tip and root.
- Calculation of crowning Cb Ca.
- Measurement of the K-Chart profile for preset ranges of tolerance.

Applicable to completely manual gear measuring machines with production of the involute profile through base plate or mechanical sine-bar. Installation of a measuring probe LVDT and two optical lines interfaced to a PC with dedicated electronics. The instrument can be calibrated and controlled with any standard master gear.

Maag PH-60, Klingelberg-PFS-60,62,600, Hofler EFR 300, EFR 350, EFR 401, 401 MZ Golder Micron IL600, Karl Mahr 891T, David Brown 18T.

GEAR TESTING MACHINES

SEMI-AUTOMATIC GEAR MEASURING MACHINES

Measurement types in basic packet "Gear Soft":

- Straight profile and helix (0°).
- Sloped profile and helix.
- Profile with release of tip and root.
- Calculation of crowning Cb Ca.
- Measurement of the K-Chart profile for preset ranges of tolerance.

Applicable to gear measuring machines with motorised movement of the measuring axes for testing helix and involute, the system allows to increase and digitalise manual basic helix and, potentially, of the tailstock.



Maag PH-40,100, SP-60,100, Klingelnberg-PFSU 640,1200,1600, Hofler EFRS 401, EFRS 631, HFR 630.

CNC GEAR MEASURING MACHINES



Applicable to gear measuring machines with all motorised axes, interfaced to a programmable CNC movement controller. They perform a complete test of the gear with a totally automatic cycle for all the specified teeth. Gear Soft CNC offers the measurement of helix, profile and run-out charts and pitch measurement.

Klingelnberg PNC-33, PNC-40, PNC-60, Hofler EMZ 400,401,402,630,631,632, Hofler ZME 400, Hofler ZP 250,260,350,400, M&M.

Among CNC gear measuring machines we can find many instruments that range from 200 mm to 2000 mm diameter and completely automatic, which allows to measure in a fast and easy way. With only one measuring cycle, the machine provides a test report for the measure of helix, involute and division parameters.

Measurement types in basic packet "Gear Soft":

- Straight profile and helix (0°).
- Sloped profile and helix.
- Profile with release of tip and root.
- Calculation of crowning Cb Ca.
- Measurement of the K-Chart profile for preset ranges of tolerance.

Measurement types in CNC packet "Gear Soft":

- Error single pitch.
- Error adjacent pitch.
- Pitch variations.
- Error cumulative pitch.
- Division.
- Concentricity.

GMM - Gear Measuring Machines

Gear measuring machines GMM

The **GMM gear measuring machines** series, thanks to customizable software packets for different applications, is suitable for performing a wide range of measurements in a completely automatic way. It is a metrological multifunctional system which is able to recognise and carry out the most frequent measuring software processes in the industrial sector.

The structure is made of three linear coordinate axes with pneumostatic support on granite tracks, that totally delete any friction and wear.

The placement of two tailstocks is provided, one of that is integral with the rotary axis (W) and the other one is opposite and height adjustable, mounted on a specific granite column. The control of the tailstock is motorised. This four-axes coordinate system is fitted for the placement of an analog measuring head which, with the use of a tracer, physically touches the sample's surface and tests the theoretical trend, made by a suitable interpolation created by the test, on the basis of the mathematic formulation implemented in software.

GMM gear measuring machines are able to measure:

- straight, helical and parallel gears
- splined gears with inner and outer involute profile
- pitch errors and concentricity
- thickness on k teeth
- crown and worm gears with harmonic analysis of the profile
- shaving cutters
- gleason/hypoid pairs with calculation of machine's parameters
- hobs, reverse engineering and other solutions.



SOFTWARE GEARSOFT

GearSoft is the basic software of GMM series and it is implemented by applications which allow to perform complete measuring cycles in compliance with standards ISO, DIN and AGMA.

The measure includes the detection of the distortion of involute and helix, with the possibility to insert K charts on maximum four teeth, and the test of pitch error and concentricity and the thickness of the tooth.

GearSoft also allows to:

- print reports for the issue of trial certificates
- export and save files as PDF
- send data aimed to statistic analysis
- share acquired data, using the interconnection system compliant with the new regulatory standards.

GMM - Gear Measuring Machines

Main features of GMM gear measuring machines

- **SUPPORT BASE:**

The structure lies on the floor through self-levelling pneumatic supports.

- **GRANITE SURFACE:**

It serves as sliding surface for the Y axis, as support base for the tailstock, and as a base for the rotary table.

- **Y AXIS CARRIAGE:**

It carries X and Z axes. It shifts on granite tracks with pneumostatic supports. The transduction system is made of high-resolution protected optical lines. The movement occurs through linear motor on a neutral axis..

- **X AXIS CARRIAGE:**

With pneumostatic supports on granite tracks.

- **Z AXIS CARRIAGE:**

With pneumostatic supports on granite tracks with pneumatic stabilizing system.

- **ROTARY TABLE:**

Pneumostatic support system, with a treated steel backing pad, with clamping grooves and interchangeable lower tailstock. The transduction system is composed by a high-resolution rotary encoder. The movement is performed by an electronic axis by means of a torque motor, with peripheral traction.



- **TAILSTOCK:**

Realised with a sliding track on a granite column, movement with automatic tailstock's preloading system. Device for thermal lengthening equalization with suitable anti-expansion joint.

- **OPERATOR WORKSPACE:**

In the lower part there is all the control electronics and in the upper part is placed the PC complete with all the accessories (monitor, keyboard, mouse and printer) to draw up the final test certificates.

GMM - Gear Measuring Machines

GMM 40 - Small Size



IT MEASURES GEARS WITH OUTER DIAMETER UP TO 400 mm

It is a machine with high-level dynamic features thanks to the use of linear motors with pneumostatic supported tracks, which allow movement without any friction.

The structure includes three linear axes (X, Y, Z), a rotary axis (W) and a tailstock column, everything based on high-accuracy granite tracks. This permits a better long-term stability and a low thermodynamic response, even in case of temperature variation.

Technical features

Movement	
CNC on the four interpolated axes - joystick for manual movement	
Measuring effective strokes	
X axis	350 mm
Y axis	240 mm
Z axis	390 mm
Diabase levelling table	
Thickness	130 mm
Width	1160 mm
Length	1070 mm
Total size and weight	
Length *	2800 mm (*desk included)
Width	1350 mm
Height	2000 mm
Weight	2600 kg
Resolution	
Linear axes	0.0001 mm
Rotary axis	0.0001 °
Electricity supply and consumption	
Electric energy	Three-phase + Neutral AC 380 V ± 10% 50 Hz 2 KVA
Energy consumption	1.6 KWh
Compressed air	Working pressure: 0.6 Mpa ± 0.05 Mpa; Dried with impurity filtering of 0.01 µ; Available flow rate: 120 NI/min to 0.6 Mpa
Max measurable size and weight of spur gears	
Maximum diameter	425 mm
Maximum height	350 mm
Maximum height between tips	700 mm (on demand up to 1450 mm)
Maximum weight allowed	200 kg

GMM - Gear Measuring Machines

GMM 70 - Medium Size

IT MEASURES GEARS WITH OUTER DIAMETER UP TO 700 mm

Even though GMM 70 maintained the same construction principles, compared to the Small Size model, it has been created to allow to measure heavier and bigger samples with very high accuracy. The structure lies on the floor with pneumatic auto-levelling supports. This ensures that the whole measuring system is isolated from external stresses and that the kinetic energy of moving masses is absorbed. The rotary table is built in order to sustain a load of about 1500 kg thanks to the pneumostatic support on granite track.



Technical features

Measuring effective strokes	
X axis	650 mm
Y axis	350 mm
Z axis	590 mm
Diabase levelling table	
Thickness	300 mm
Width	1395 mm
Length	1370 mm
Total size and weight	
Length *	3200 mm (*desk included)
Width	1700 mm
Height	2350 mm
Weight	3500 kg
Resolution	
Linear axes	0.0001 mm
Rotary axis	0.0001 °
Electricity supply and consumption	
Electric energy	Three-phase + Neutral AC 380 V ± 10% 50 Hz 2 KVA
Compressed air	Working pressure: 0.6 Mpa ± 0.05 Mpa; Dried with impurity filtering of 0.01µ; Available flow rate: 120 NI/min to 0.6 Mpa
Max measurable size and weight of spur gears	
Maximum diameter	700 mm
Maximum height	550 mm
Maximum height between tips	1000 mm (on demand up to 2000 mm)
Maximum weight allowed	400 kg

GMM - Gear Measuring Machines

GMM 110 - Big Size



IT MEASURES GEARS WITH OUTER DIAMETER UP TO 1100 mm

GMM 110 is the larger model of the series and it has been sized and designed in order to be able to measure very big and heavy gears and other parts with high accuracy.

The structure is totally made of granite without any welded part. The sturdy rotary table, with a considerable diameter, lies on pneumostatic support tracks, and it is moved by an electronic axis and a next-generation encoder.

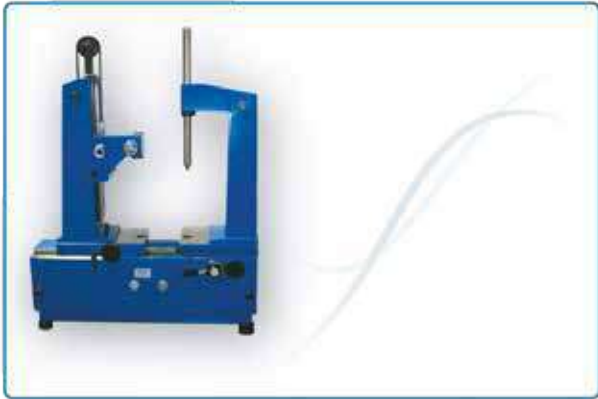
It can bear loads up to 2000 kg, maintaining a resolution of 0.36" of arc (3,600,000 counts per lap), thanks to a special torque motor with a big diameter and without using any type of mechanical reduction (electronic shaft).

Technical features

Movement	
CNC on the four interpolated axes - joystick for manual movement	
Measuring effective strokes	
X axis	900 mm
Y axis	600 mm
Z axis	600 mm
Diabase levelling table	
Thickness	450 mm
Width	1940 mm
Length	1570 mm
Total size and weight	
Length *	3350 mm (*desk included)
Larghezza	2115 mm
Height	2855 mm
Weight	5000 kg
Resolution	
Lineari axes	0.0001 mm
Rotary axis	0.0001 °
Electricity supply and consumption	
Electric energy	Three-phase + Neutral AC 380 V ± 10% 50 Hz 2 KVA
Compressed air	Working pressure: 0.6 Mpa ± 0.05 Mpa; Dried with impurity filtering of 0.01µ; Available flow rate: 120 NI/min to 0.6 Mpa
Max measurable size and weight of spur gears	
Maximum diameter	1100 mm
Maximum height	550 mm
Maximum height between tips	1200 mm (on demand up to 2000 mm)
Maximum weight allowed	2000 kg

OTHER GEAR TESTING MACHINES

GEAR TESTING MACHINES



Gears engagement testing is a functional control; we can offer both single-flank and double-flank gear testing machines. The double-flank ones are recommended for the test of spur gears; the single-flank instruments, instead, are recommended for the control of spur gears, bevel gears and worm gears. The test is performed with either a measuring master or a torque gear. The evaluation of results depends on the measuring system installed on the instrument.

ROUGHNESS TESTERS

Roughness measurement can be very important on some parts; it can make piece's operating features change in a very significant way. Using the roughness tester models SA6210, SA6230 and SA6260 can make easier to measure these parameters. These instruments are recognised to be efficient in hard-to-reach points' measurement. They are specially recommended for roughness measurement on gear teeth, along both profile and helix's direction.



VIDEO MEASURING SYSTEMS

VMA Manual video measuring machine

DESCRIPTION



- Powerful measuring software with auto tracing-edge function, multi-output report.
- Sub-pixel segmentation technology improves the ability of image boundary resolution.
- The surface cold light source can be used to measure the complex workpieces.
- With laser pointer, easy to find the specific location of the measured workpiece.
- Stable granite workbench with "00" Grade.
- German made high precision polish rod and bearing.
- High resolution video system.
- Renishaw measuring probe is optional for simple 3D purpose.

Technical features

Product name	Manual video measuring system			
2.5D model	VMA-2010	VMA-3020	VMA-4030	VMA-5040
3D model	VMA-2010P	VMA-3020P	VMA-4030P	VMA-5040P
X - Y axes travel distance	200 x 100 mm	300 x 200 mm	400 x 300 mm	500 x 400 mm
Z axis travel distance	200 mm			
Dimensions	600 x 500 x 920 mm	750 x 520 x 980 mm	1000 x 620 x 990 mm	1100 x 950 x 1660 mm
Net weight	120 kg	150 kg	180 kg	360 kg
X - Y axes accuracy	2.5+L/100 μ m			
Loading weight of working stage	25 kg			
Image sensor	TEO 1/3" colorful CCD camera			
Objective lens	Manual position zoom lens			
Video total magnification	Optic zoom lens: 0.7 ~ 4.5x; Objective lens: 20 ~ 148x			
Resolution	0.5 μ m			
Working distance (standard)	92 mm			
Object view	8.1 mm ~ 1.3 mm			
Movement system	X - Y axes: polish rod; Z axis: T-type screw rod			
Data processor	RS-100			
Illumination	Surface: 8-division LED cold light; Contour: adjustable 256-grades LED cold illumination			
Measuring software	Mikrosize			
Working environment	Temperature: 20°C \pm 2°C; Temperature variation < 2°C/hr; Humidity: 30 - 80%			
	Vibration < 0.002 g, 15 Hz			
Power source	AC 100 ~ 220 V, 50/60 Hz, 10 A			
Packing List				
Mainframe / Dell PC system	Zoom lens 0.7 - 4.5x		LED light source	
RS-100 data processor	1/3" CCD camera		Mikrosize measuring software	
Linear scale	Calibration block/Capture card		Instruction manual/Anti-dust cover	
Z axis high precision linear guide rail	100 mm length block (3D)		Renishaw probe (3D)	

VMC CNC Video measuring machine

DESCRIPTION

- CNC fully auto close loop control, auto measurement; integrative design, convenient for measuring.
- Stable and reliable marble base, ensuring high measure speed, accuracy and precision.
- Precision linear guide and grinding ball screw, AC servo motor ensures accuracy.
- High precision linear scale, resolution is 1 μm , great stability.
- Manual zoom lens and 1/2" color high resolution CCD camera.
- Programmable 5 ring, 8-division LED surface illumination.
- Contour parallel LED illumination, can realize 256 grade brightness adjustment intelligently.
- Optional touch probe, realize 3D measurement.



Technical features			
Product name	CNC automatic video measuring system		
2.5D model	VMC-3020	VMC-4030	VMC-5040
3D model	VMC-3020P	VMC-4030P	VMC-5040P
X - Y axes travel distance	300 x 200 mm	400 x 300 mm	500 x 400 mm
Z axes travel distance	200 mm		
Dimensions	750 x 520 x 980 mm	1000 x 620 x 990 mm	1300 x 750 x 1000 mm
Maximum load capacity	25 kg	25 kg	25 kg
Net weight	240 kg	280 kg	360 kg
X - Y - Z 3-axes linear scale (2.5D)	Resolution: 0.5 μm		
Accuracy	$E1(x/y) = 2.5+L/100 \mu\text{m}$		
Repeatability	$\pm 2 \mu\text{m}$		
Movement system	X - Y - Z axes: screw rod		
Movement control	CNC auto servo movement control		
Video system	TEO 1/2" color CCD camera		
	Manual coaxial zoom lens		
	Optical magnification: 0.7 - 4.5x; Video magnification: 20 - 148x		
	Working distance (standard): 92 mm		
Object view (standard)	11.1 ~ 1.7 mm		
Speed	X - Y axes: 200 mm/s; Z axis: 50 mm/s		
Illumination	Contour	Adjustable 256-grade LED parallel illumination	
	Surface	Adjustable 256-grades 5-ring and 8-division LED cold illumination	
3D measurement	3D module and UK Renishaw touch probe		
Measuring software	Mikrosize		
Working environment	Temperature: 20°C \pm 2°C; Temperature variation < 2°C/hr; Humidity: 30 - 80%		
Power source	AC 100 ~ 220 V, 50/60 Hz, 10 A		
Packing list			
Measuring software	CCD camera / Video capture card	Manual coaxial zoom lens	
Mainframe / Dell PC system	Scale transfer / Movement control card	48-division LED illumination	
Linear scale / Calibration block	100 mm length block (3D)	Renishaw probe MCP-K2 (3D)	

VMU CNC Video measuring machine

DESCRIPTION



- CNC fully auto close loop control, auto measurement; integrative design, convenient for measuring.
- Stable and reliable marble base and pillar, ensuring high measuring speed, accuracy and precision.
- Precision linear guide and grinding ball screw, AC servo motor ensures accuracy.
- High precision linear scale, resolution is 1 μm , great stability.
- Manual zoom lens and 1/2" color high resolution CCD camera.
- Programmable 5-ring, 8-division LED surface illumination .
- Contour parallel LED illumination, can realize 256 grade brightness adjustment intelligently.
- Optional touch probe for 3D measurement.

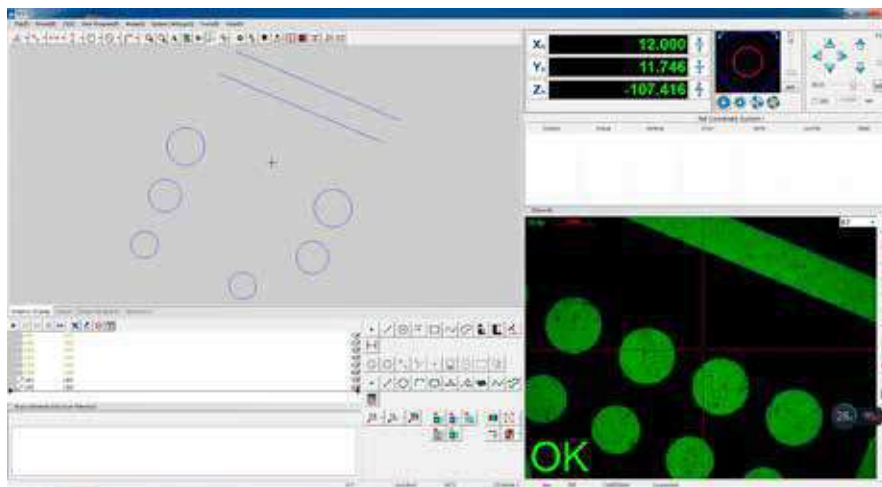
Technical features			
Product name		Fully automatic video measuring system	
2.5D model		VMU-3020	VMU-4030
3D model		VMU-3020P	VMU-4030P
X - Y axes travel distance		300 x 200 mm	400 x 300 mm
Z axis travel distance		200 mm	
Accuracy		$E1(x/y) = 2.5+L/100 \mu\text{m}$	
Video system		TEO 1/2" colorful CCD camera	
		6.5x auto coaxial zoom lens	
		Optical magnification: 0.7 - 4.5x; Video magnification: 20 - 148x	
		Working distance: 92 mm	
Object view (standard)		11.1 ~ 1.7 mm	
Linear scale resolution		0.5 μm	
Movement system		X - Y - Z axes screw rod	
Movement control		CNC auto servo movement control	
Speed		X - Y axes: 200 mm/s; Z axis: 50 mm/s	
Illumination	Contour	Adjustable 256-grade LED parallel illumination	
	Surface	Adjustable 256-grades 5-ring and 8-division LED cold illumination	
3D measurement		3D module and UK Renishaw MCP-K2 touch probe	
Measuring software		Mikrosize	
Maximum load capacity		25 kg	25 kg
Dimensions		750 x 520 x 980 mm	1000 x 620 x 990 mm
Net weight		240 kg	280 kg
Working environment		Temperature: 20°C \pm 2°C; Temperature variation < 2°C/hr; Humidity: 30 - 80%	
Power source		AC 100 ~ 220 V, 50/60 Hz, 10 A	
Packing list			
Measuring software		CCD camera / Video capture card	6.5x auto coaxial zoom lens
Mainframe / Dell PC system		Scale transfer / Movement control card	8-division LED illumination
Linear scale / Calibration block		100 mm length block (3D)	Renishaw probe (3D)

MIKROSIZE MEASURING SOFTWARE

Thanks to the Mikrosize 3D software with simple interface, intuitive operation, easy operation and powerful functions, users can complete the measuring task quickly and efficiently.

Simple and friendly interface

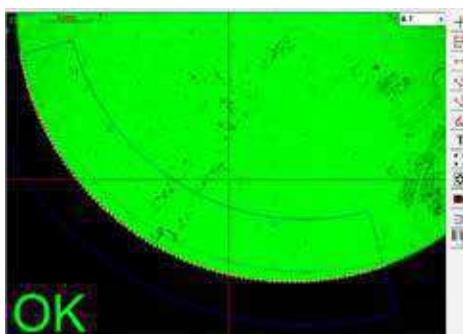
- The common functions are in the main interface, which is easy to get familiar with.
- Users can complete almost all measurement task by simply clicking and dragging the mouse.



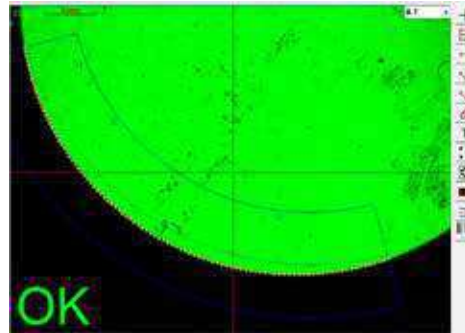
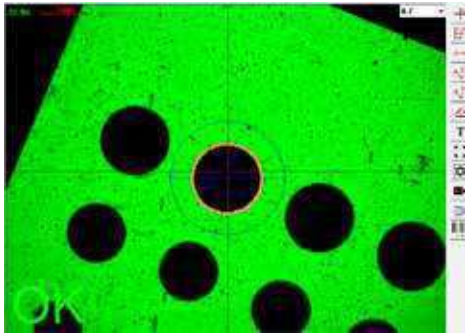
POWERFUL GEOMETRIC MEASUREMENT FUNCTION

Complete geometric measurement function

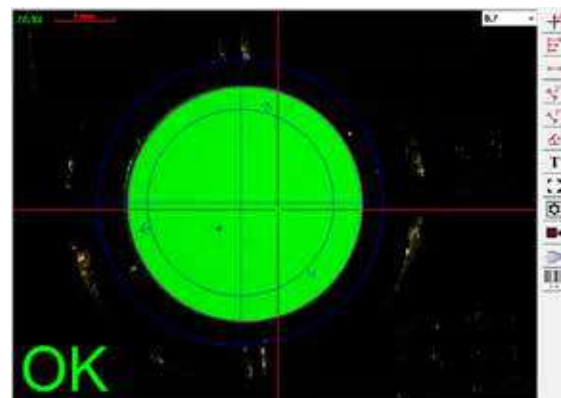
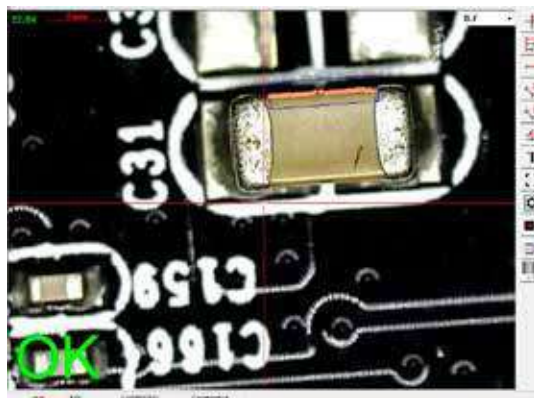
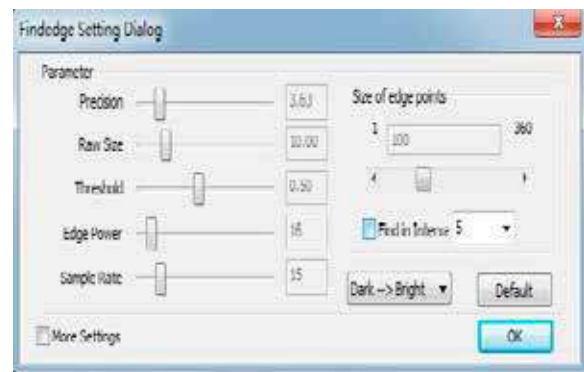
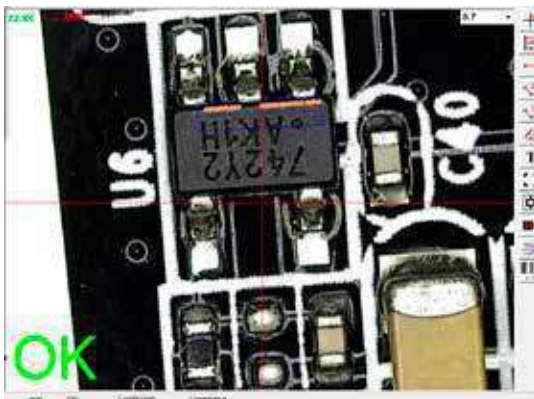
- Measurement of points, lines, arcs, circles, rectangles, ellipses, bond length (waist features), open curves, closed curves, planes, cylinders, cones, balls and other geometric elements.
- When a probe or laser displacement sensor is added to the z-axis, 3D graphic elements such as cylinder, cone, sphere and surface of 3D space can be measured. According to the actual characteristics of elements, each element can be measured by a variety of different methods.
- The coordinate value, length, area, volume and other data of the element can be obtained directly after edge searching.



MIKROSIZE MEASURING SOFTWARE



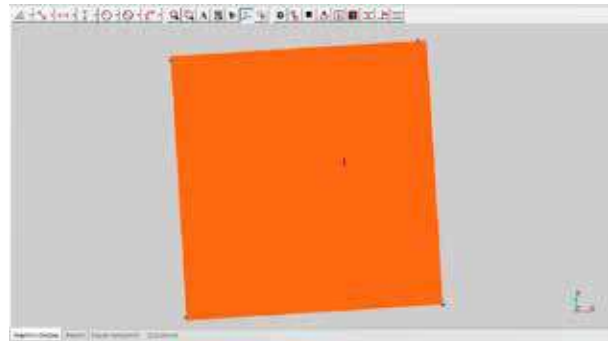
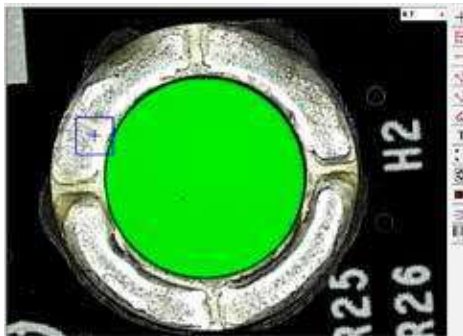
- It can grasp the weak edge, set the edge searching direction arbitrarily, avoid the edge selection error, set the edge searching parameters flexibly, and remove the influence of the rough edge.



MIKROSIZE MEASURING SOFTWARE

AUTO FOCUS FUNCTION AND FOCUS MEASUREMENT FUNCTION

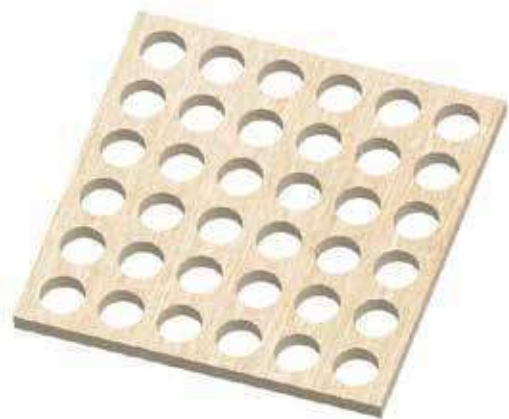
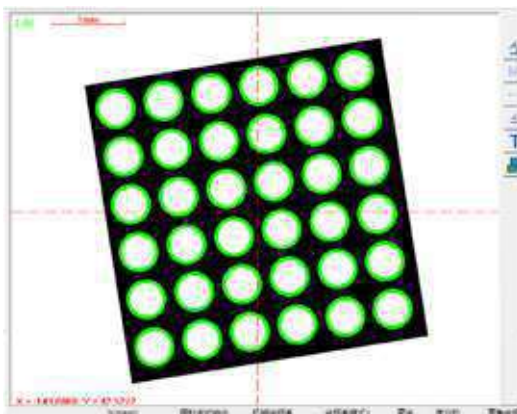
- The software can automatically determine whether the focus is the clearest or not. This function can also be used to measure height and flatness.



FAST RESPONSE TO MEASUREMENT OF COMPLEX SHAPE WORKPIECE AND MASS WORKPIECE (SPECIAL FUNCTION OF AUTOMATIC MACHINE)

Translational array measurement of elements

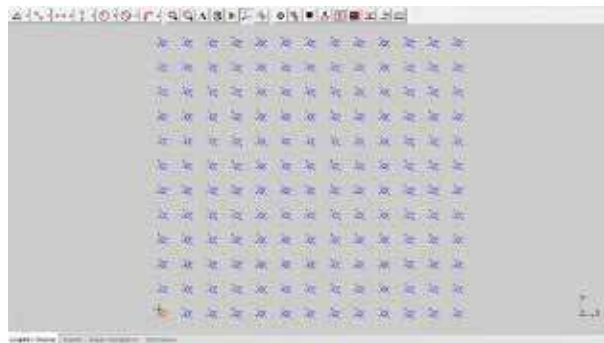
- For equidistant elements series, only one element needs to be measured manually, and then all elements can be measured automatically through the translation array function, which is very convenient to measure array features.



MIKROSIZE MEASURING SOFTWARE

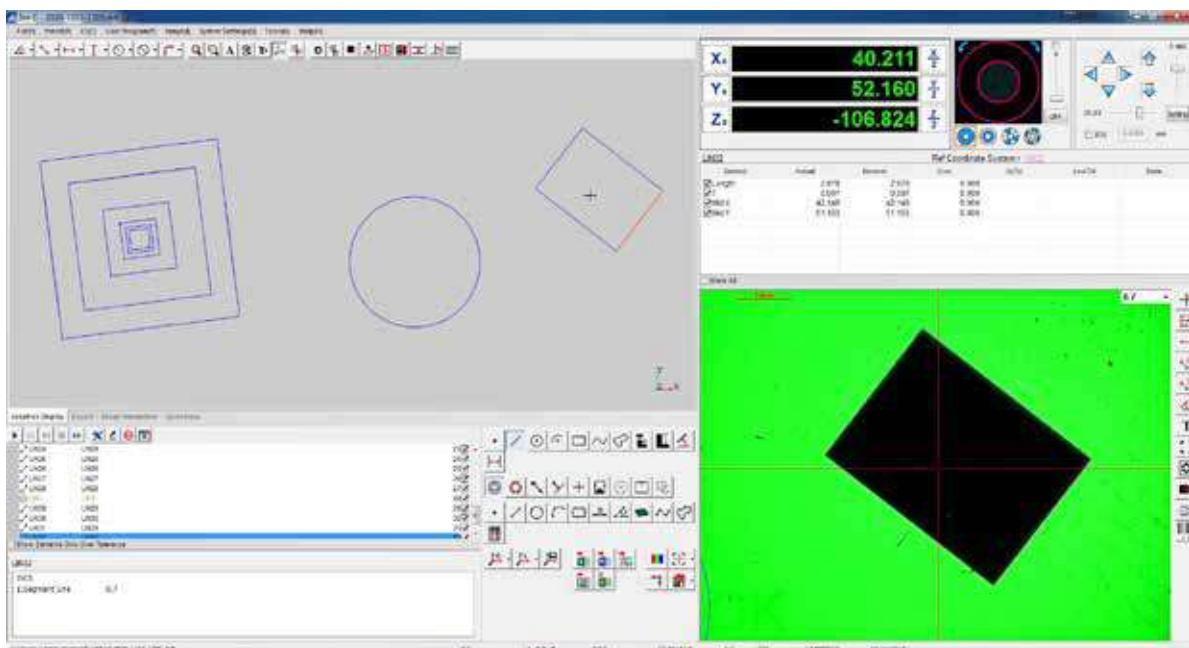
Workpiece array and macro array measurement (special function of automatic machine)

- When a large number of workpieces are measured, only one workpiece can be measured manually, and all workpieces can be measured automatically through the workpiece array and macro array function.
- Both a single fixture and multiple fixtures can deal with it at the same time. It can save time and improve measurement efficiency.



Import CAD drawing measurement function

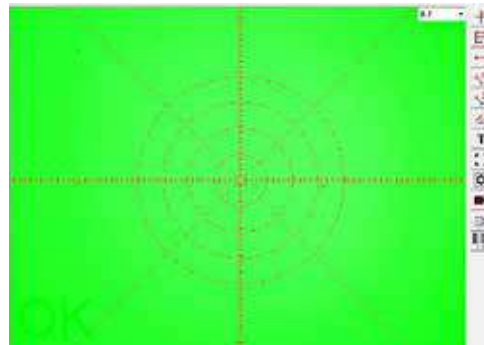
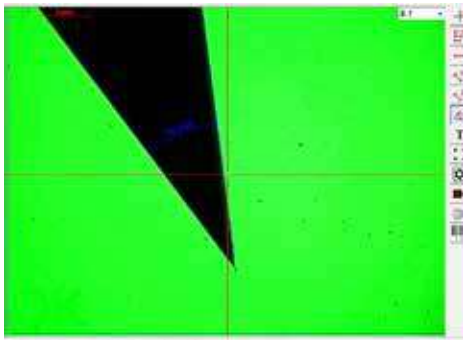
- The dimension drawing can be done directly by CAD software, and the automatic measurement can be realized after importing the software; there is no need to collect points for edge searching.
- It is very convenient for coordinate measurement and contour contrast measurement of complex or irregular shapes.



MIKROSIZE MEASURING SOFTWARE

Comparative measurement function

- The scale line, angle line and standard circle can be preset for comparative measurement of workpiece.
- The dimension line or angle line can also be drawn directly on the image outline, observe the length, angle, step height and diameter of the workpiece dynamically.



FLEXIBLE USER PROGRAM

- The software automatically compiles the user program according to the sequence of user measurement steps, and control the program running and stop.
- The user program and each step can be edited, sorted, inserted, deleted, so that it can adapt to various complex and changeable measurement steps.
- When measuring a large number of workpieces, only one edge measurement is needed.



MIKROSIZE MEASURING SOFTWARE

AUTOMATIC CALCULATION OF GEOMETRIC TOLERANCE OF ELEMENTS

- The software provides complete tolerance setting and calculation functions, which can set and calculate geometric tolerances such as straightness, roundness, flatness, cylindricity, profile, position, parallelism, perpendicularity, concentricity, circle runout, etc.
- It can automatically judge whether the tolerance is OK or NG, and has NG warning and prompt function. The visualized tolerance chart enables users to know the specific out of tolerance position and find out the cause of out of tolerance conveniently.

CIR1							Ref Coordinate System : PCS1
Content	Actual	Nominal	Over	UpTol	LowTol	State	
<input checked="" type="checkbox"/> Center X	10.527	10.527	0.000				
<input checked="" type="checkbox"/> Center Y	-2.613	-2.613	0.000				
<input checked="" type="checkbox"/> Diameter	5.088	5.088	0.000	0.030	-0.030	OK	
<input checked="" type="checkbox"/> T	0.000	0.000	0.000				
<input checked="" type="checkbox"/> Circularity %	100.000	0.000	100.000				

CIR5							Ref Coordinate System : PCS1
Content	Actual	Nominal	Over	UpTol	LowTol	State	
<input checked="" type="checkbox"/> Center X	44.624	44.624	0.000				
<input checked="" type="checkbox"/> Center Y	-34.724	-34.724	0.000				
<input checked="" type="checkbox"/> Diameter	3.987	3.987	0.000	0.030	-0.030	OK	
<input checked="" type="checkbox"/> T	0.031	0.031	0.000				
<input checked="" type="checkbox"/> Circularity %	99.201	0.000	99.201				

Show All

CIR7

PSN
 COC
 CRO
 LMC
 MMC

2D
 3D

Target:

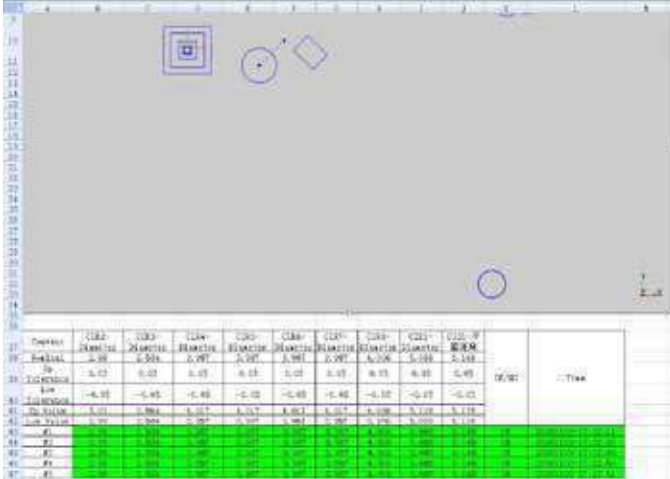
Base:

Measure:
 Nominal:
 Over:
 State:

MIKROSIZE MEASURING SOFTWARE

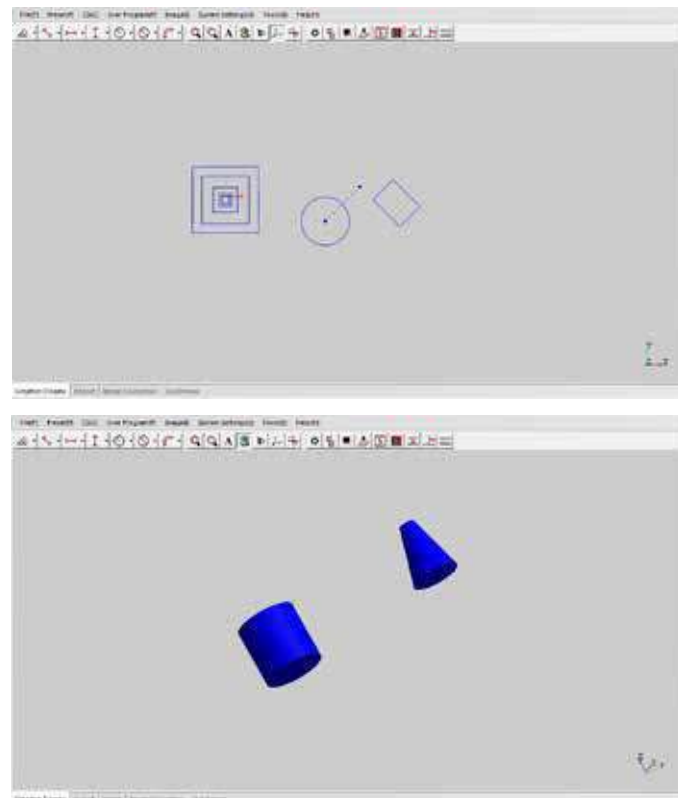
DIVERSIFIED DATA REPORT AND GRAPHIC DATA EXPORT FUNCTION

- The software can lead-out the result data in a variety of report formats, EXCEL, WORD, TXT, and support the Excel report format setting function.



Object	OBJ	OBJ	OBJ	OBJ	OBJ	OBJ	OBJ	OBJ	OBJ	OBJ
External	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Internal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thickness	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
Perimeter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weight	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- The software can export DXF and IGS format graphics data, and can be directly used in reverse engineering.



VMQ-100 Instant video measuring system



DESCRIPTION

One-key instant measuring, batch testing

- Measuring sample can be placed randomly without fixture positioning; software can identify and match automatically.
- Unlimited dimension measurement; measurement task can be completed within 1 second.
- CAD drawing import for direct measurement.
- One-time measurement of the same type of measuring sample.

Accurate calculation and high repeatability

- Unique patent technology of edge extraction and lens distortion correction.
- Automatic lighting, greatly improves the repeatability.
- It can be compared with the measurement accuracy and repeatability of traditional video measuring machines.

Easy to operate without training

- Anyone can get started quickly without training.
- Simple interface, intelligent measurement, optimized operation process, real-time operation tips.
- All measurement data can be automatically recorded, statistical analysis can be generated with one key, measurement results can be printed in various file formats or directly printed by printer.

Various function, automatic report

- The software is divided into three functional modes: measurement setting, continuous measurement and statistical analysis.
- Continuous measurement can be used for real-time measurement and it can judge NG / OK without pressing the key, providing 80 tools of extraction and analysis, including feature extraction tools (such as maximum point, center line, arc, peak circle, etc.), auxiliary tools (such as arbitrary point line circle, fitting line, fitting circle, tangent line, inscribed circle, etc.), intelligent annotation tool, geometric tolerance tool, special application tool (such as R angle, etc.).

VMQ-100 Instant video measuring system

Technical features		
Product name	Instant video measuring system	
Dimensions	480 x 240 x 680 mm	
Weight	30 kg	
Working stage capacity	3 kg	
Software	Fom2d	
Camera	5 MegaPixel CCD industrial camera	
Lens	Double telecentric lens	
Illumination	Program controlled parallel light or telecentric parallel light, each section of brightness is controlled independently	
Field of view	30 mm ~ 100 mm	
Focus	Manual	
Measuring accuracy	$\pm 3 \mu\text{m}$	
Measuring function	Point, line, circle, multipoint line, multipoint circle, automatic circle, arc, multisection circle, automatic R angle, contour scanning, fixed point, peak line, circle, etc	
Tagging function	Aligned, vertical, angular, radius / diameter	
Geometrical tolerance	Straightness, roundness, symmetry, profile, etc	
Virtual structure	Center line, bisector, tangent point, tangent point of circle line, circle center, line center, etc	
Automatic template matching	Support	
Report function	SPC analysis report (CPK, CA, PPK, CP, PP)	
Software customization	CAD import profile analysis, automatic management link, APP management application	
Measuring quantity	99 pieces/second	
Template quantity	Unlimited	
Power source	AC 100 ~ 240 V, 50/60 Hz	
Working environment	Temperature: $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$; Humidity: 20 - 80% RH	
Packing list		
Machine mainframe	Dell 24" computer	Mikrosized measuring software
Telecentric lens	High resolution camera	Surface lighting
Calibration block	Power line	Product certificate

VMQ-100 Instant video measuring system

APPLICATIONS

The software can be used in machinery, electronics, mold, injection molding, hardware, rubber, low-voltage electrical appliances, magnetic materials, precision stamping, connectors, terminals, mobile phones, household appliances, printed circuit boards, medical devices, watches, knives and other fields.



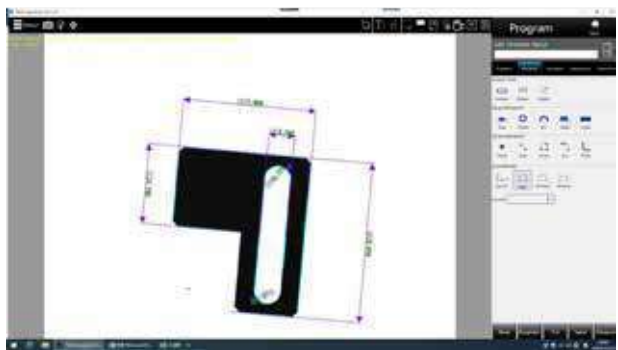
Gears



Mobile phones and watches



Semiconductors (film)

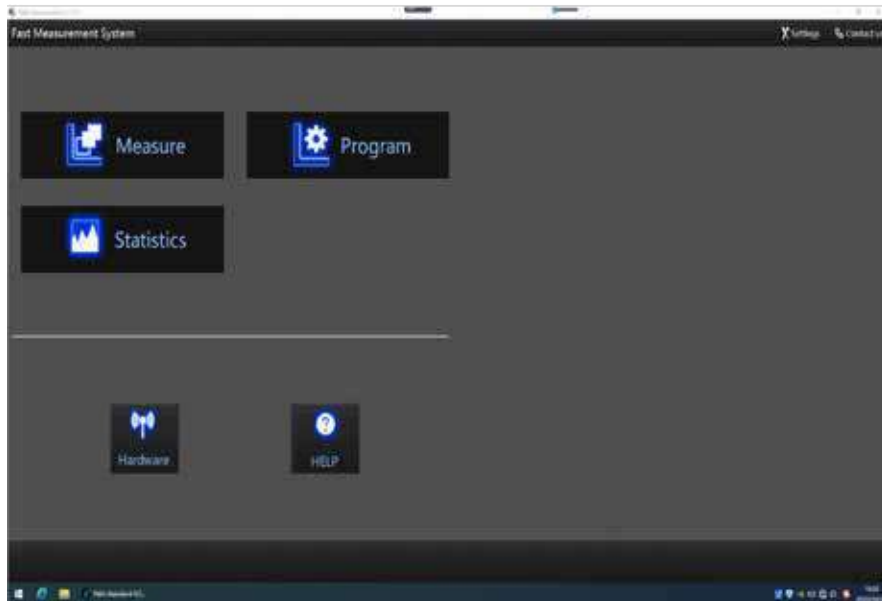


Hardware

VMQ-100 - MIKROSIZE MEASURING SOFTWARE

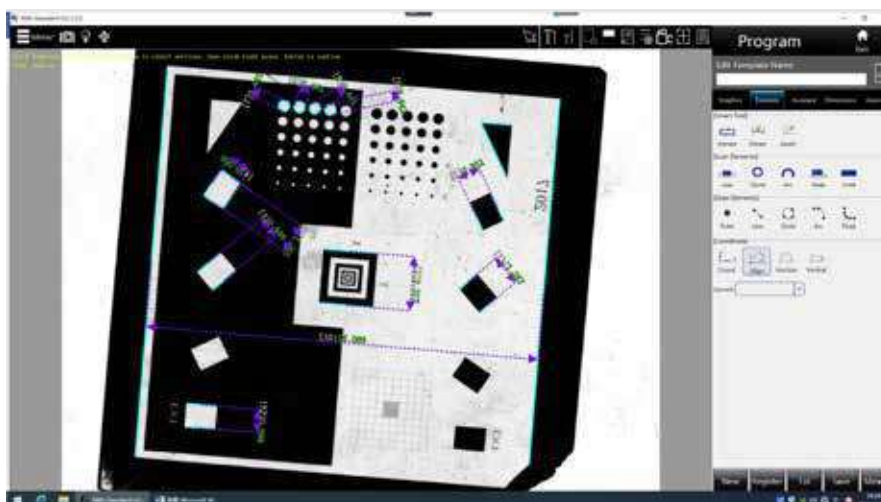
SOFTWARE INTERFACE

Software main interface is divided into three functional modes: measurement setting, continuous measurement and statistical analysis. Simple, easy to use.

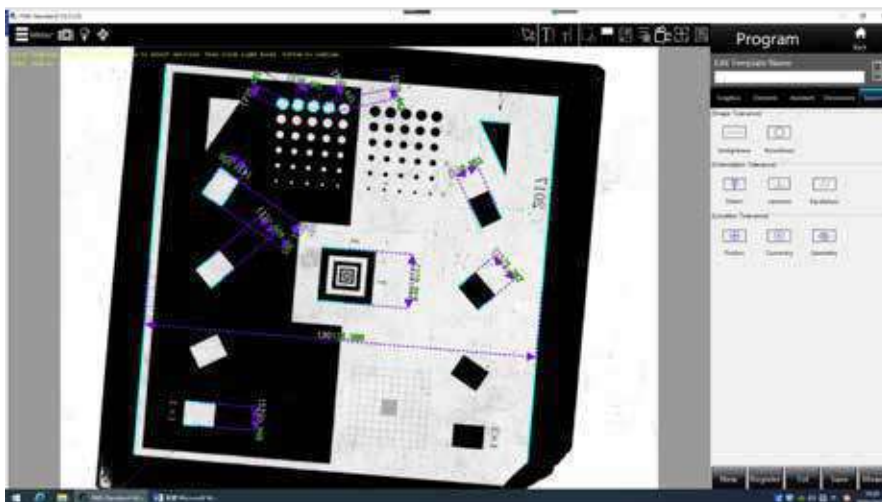
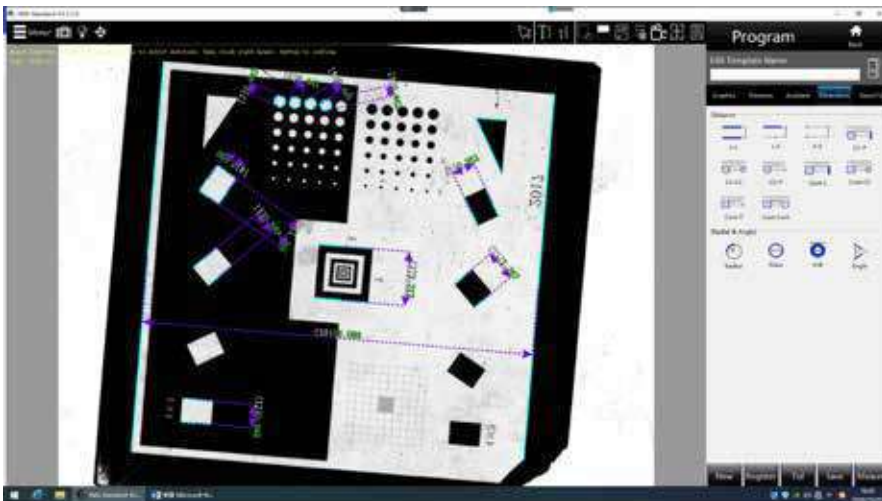
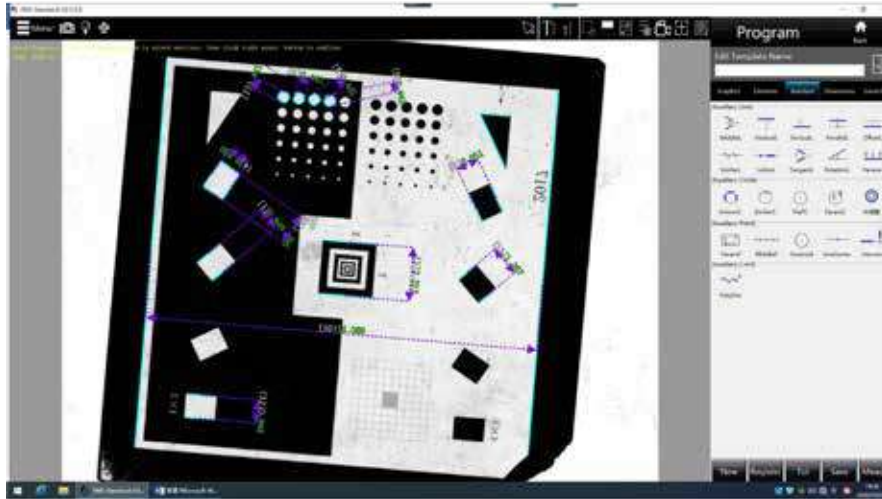


Measurement setting

In this mode, we can quickly extract geometric elements and do dimensioning to complete the measurement setting.



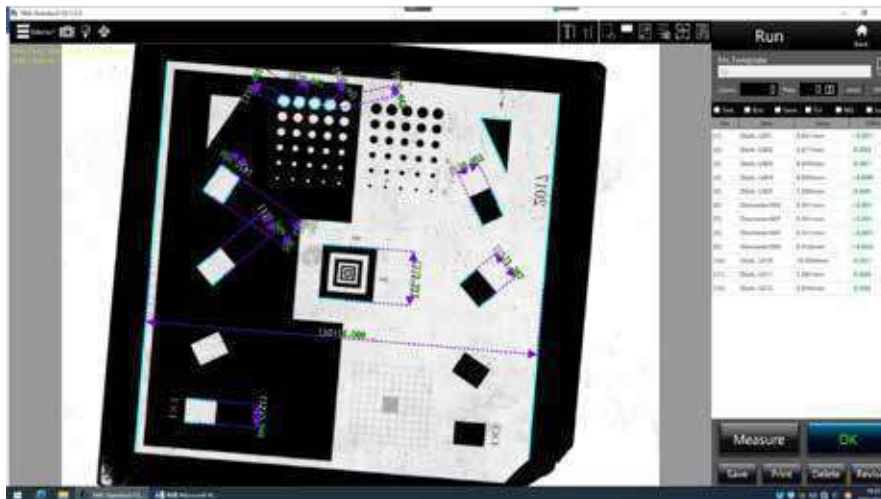
VMQ-100 - MIKROSIZE MEASURING SOFTWARE



VMQ-100 - MIKROSIE MEASURING SOFTWARE

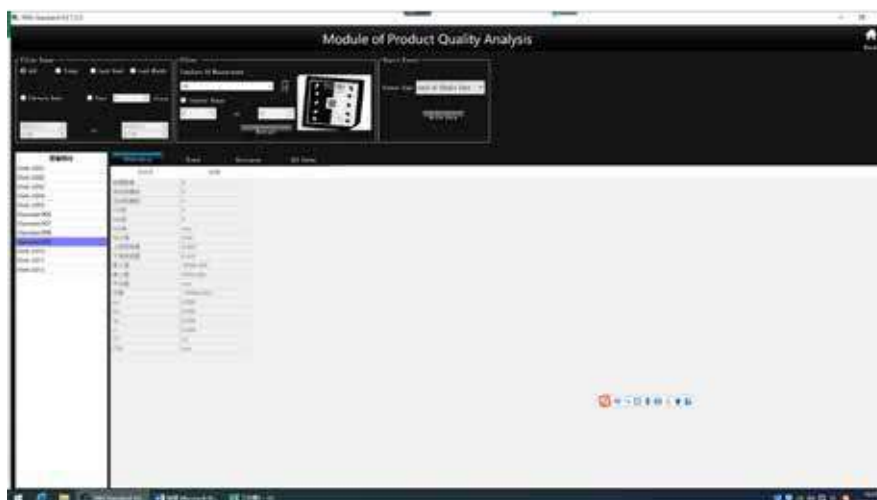
Continuous measurement

After measurement setting, software enters to the continuous measurement mode, which can be doing rapid and accurate batch measurement.



Statistical analysis

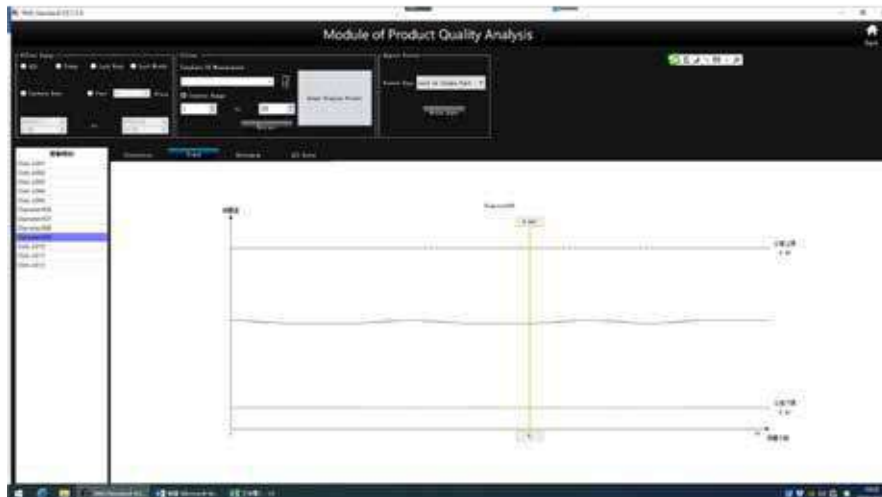
Mikrosie software provides a variety of extraction and analysis tools, the statistical analysis interface has statistical value, trend graph, histogram and data. Measurement results and main statistical information (such as average, σ , 3σ , 6σ , Cpk, etc.) will be automatically recorded and filed. The operator can select different filter conditions to extract history records.



VMQ-100 - MIKROSIZE MEASURING SOFTWARE

PRODUCING PROCESS CONTROL AND IMPROVE PRODUCT QUALITY

The trend graph can monitor the abnormal of producing equipment and producing process through the regular tendency of measured value, such as monotonic change and periodic change of measured value.



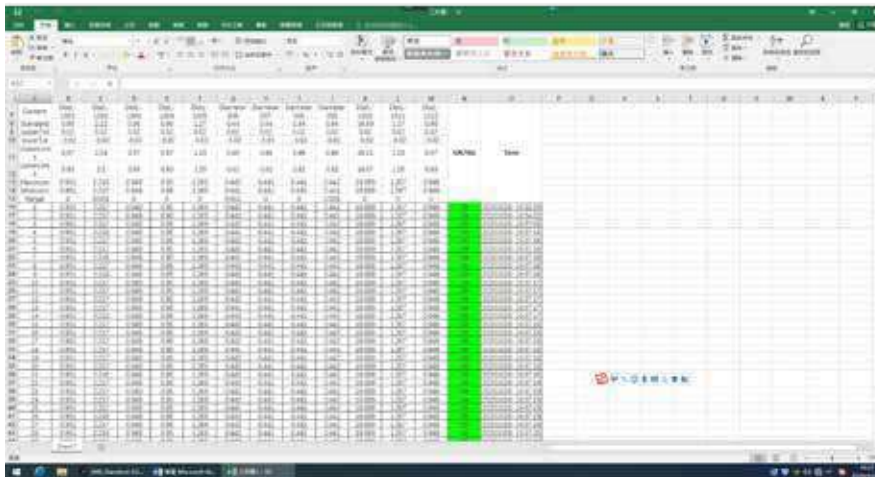
Histogram can reflect the fluctuation and distribution of product quality, and intuitively transfer the information of quality status, which can be used to judge and predict product quality and unqualified rate. By quality diagnosis, SPC uses statistical methods to monitor the change tendency of product quality and producing process. It plays a preventive role in the producing process as to improve the product quality.



VMQ-100 - MIKROSIE MEASURING SOFTWARE

Test report generated with one key

The test results report and SPC analysis report can be automatically generated with one key.

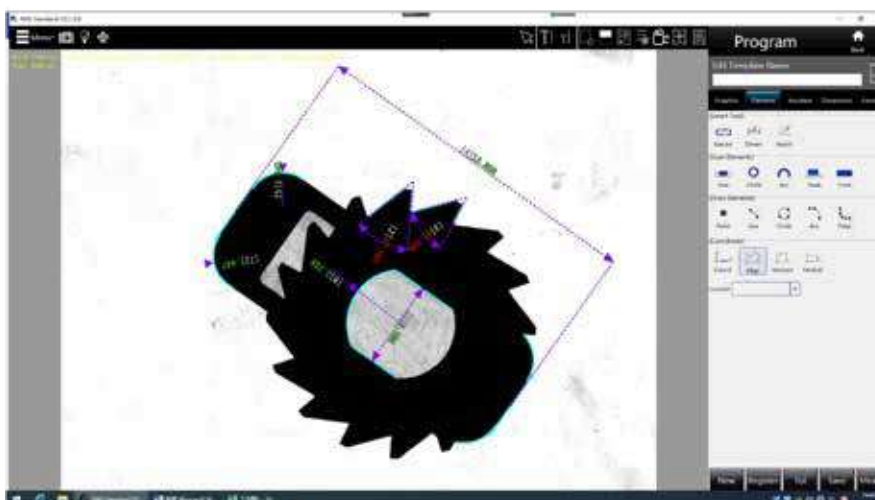


The screenshot displays a software window with a large data table. The table has multiple columns and rows, with a prominent green vertical highlight on one of the columns. The interface includes a menu bar at the top and a toolbar on the right side. The data appears to be organized in a structured format, likely representing test results or SPC analysis data.

Special function

- INTELLIGENT EXTRACTION FUNCTION:

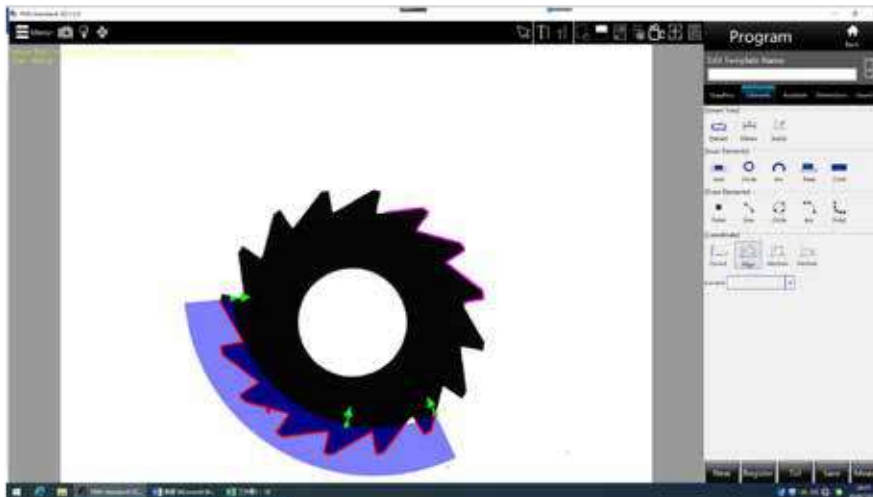
The line, arc and circle can be extracted automatically by mouse clicking the area near the elements to be measured.



VMQ-100 - MIKROSIZE MEASURING SOFTWARE

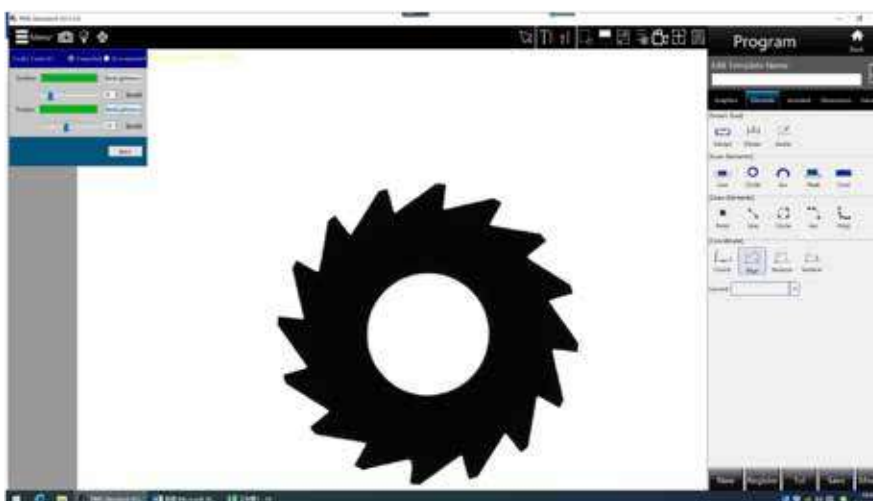
- CONTOUR EXTRACTION FUNCTION:

It provides various methods of contour extraction and contour conversion tools, which can measure irregular objects and small objects.



- AUTOMATIC LIGHTING:

When a single lighting unit, falling lighting or projection lighting, is used, the software can automatically and quickly determine the best illumination brightness (within 5 seconds).



VMQ-100 - MIKROSIZE MEASURING SOFTWARE

- QUICK MODULE SEARCH:

For the measurement of a large number of different spare parts, the software can automatically find out the corresponding measurement program (within 0.1s) from the measurement module pool after placing a spare part.



RETROFIT

Measuring instruments update

RETROFIT

VBM SYSTEM FOR HARDNESS TESTERS AND MICRO-HARDNESS TESTERS

This system has been created to be installed on Brinell and Vickers **hardness testers** with loads up to 250 kg. The system is installed on the original instrument and this procedure is always reversible, any time. A camera with suitable technical features and the needed lenses is set up. The whole system is connected to a PC.

The system consists of:

- VBM measuring software
- CCD or CMOS camera
- USB security key
- CD ROM with original software
- PC on customer's request



TC SOFTWARE SYSTEM FOR SPRING AND ELASTIC ELEMENT TESTING MACHINES

This system has been created to be installed on **spring testing machines**. It allows the user to have the same results as new and more efficient instruments, starting from machines with an outdated detection system but a very sturdy mechanical structure. New linear potentiometers or optical scales and new load cells are set up. The new system is connected to a detection unit which can interface with a PC.



The system consists of:

- TC measuring software for compression and traction testing
- Measuring optical scales or linear potentiometers for movement
- New load cell
- Digital control unit with microprocessor
- USB security key
- CD ROM with original software
- PC on customer's request

RETROFIT

GEAR SOFT SYSTEM FOR GEAR TESTING MACHINES

This system has been created to be installed on **manual** or **automatic gear measuring machines**. The system is installed on the original instrument; it allows the customer to obtain the same results as new and more efficient machines, starting from instruments with an outdated detection system but a very sturdy mechanical structure.

New measuring optical scales and a new testing head are installed according to the type of instrument, and the whole hardware is connected to an interface box that can be managed from any computer.



The system consists of:

- Gear Soft measuring software
- Measuring optical scales for movement
 - New LVDT testing head
 - Hardware interface box
 - USB security key
- CD ROM with original software
 - PC on customer's request

RETROFIT

TC SOFTWARE SYSTEM FOR TRACTION TESTING MACHINES

This system has been created to be installed on **universal testing machines**. It is installed on the original machine; it allows the customer to obtain the same results as new and more efficient instruments, starting from machines with an outdated detection system but a very sturdy mechanical structure. New linear potentiometers or optical scales, load cells and/or pressure sensors are installed according to the model and type of instrument. The new system is connected to a detection unit which can interface with a PC.



The system consists of:

- TC measuring software for traction, compression, bend and flexion testing machines
 - Measuring optical scales or linear potentiometers for movement
 - New load cell or pressure sensors (if necessary)
 - Digital control unit with microprocessor
 - USB security key
 - CD ROM with original software
 - PC on customer's request

NON-DESTRUCTIVE TESTING INSTRUMENTS

NON-DESTRUCTIVE TESTING

ULTRASONIC THICKNESS GAUGE UT-1M



Portable ultrasonic thickness gauge UT-1M, for operative non-destructive testing of the thickness, works on the principle of ultrasounds' propagation time measurement in the analysed material.

Advantages

- Wide range of measured thicknesses
- Convenience and ease in operation
- Minimum number of controls
- Select the type of probe through single button
- Preset velocity of ultrasound
- Graphical display with backlight
- Compensation of probe delay
- Control of the batteries
- Mapping the presence of acoustic coupling on the graphic display
- Fixation of the last measurement result in the removal of the transducer surface

ULTRASONIC THICKNESS GAUGE UT-2A (A-Scan)

It is a powerful, lightweight and portable instrument, made in an ergonomic shock-resistant case with rubber protectors – a modern industrial version of a general-purpose thickness gauge.

Advantages

- Wide range of measuring thicknesses.
- Function of thickness gauge and flaw detector.
- Convenience and ease in operation.
- B-scan mode, which allows user to get the product profile like a picture that is easy to read.
- Minimum number of controls.
- Select the type of probe from archive.
- Preset velocity of ultrasound.
- High brightness color display.
- Acoustic indicator of the presence of contact.



NON-DESTRUCTIVE TESTING

EMAT THICKNESS GAUGE UT-3M-EMA



EMAT thickness gauge allows users also to carry out tests in cases where traditional methods, such as piezo-ultrasonic, laser-optical, X-ray, mechanical, etc., are not applicable.

Electromagnetic-acoustic (EMA) technology for measuring thickness is based on the excitation of ultrasonic waves in the material by the generator of the device's probe, and fixing the path time of ultrasonic waves in the material.

The instrument automatically analyzes the signal, selects the correct measurement method, and adjusts the settings.

The gauge also features a B-scan mode. This mode gives users a visual profile of the product, like a picture, making it easy to read.

ACTIVE EMAT TRANSDUCER

This transducer expands the capabilities of standard flaw detector /thickness gauge with A-scan up to EMAT thickness gauge. It can be used with any ultrasonic thickness gauge with A-scan that enable bipolar excitation of the required amplitude.

The transducer allows to:

- measure the thickness of metal products through rust;
- measure the thickness of metal products through coatings;
- measure the thickness of metal products through an air gap (contactless);
- take product profile through the surface's scan (* through a special scanning trolley, buying separately).



NON-DESTRUCTIVE TESTING

COATING THICKNESS GAUGE TP-2020

Portable coating thickness gauge NOVOTEST TP-2020 - device for operative non-destructive testing of coating thickness with high measurement accuracy.

Advantages

- Automatic sensor detection
- Storing individual calibrations in probes memory
- Average calculation, minimum and maximum indication
- Transfer of measurement data to PC via USB
- Shockproof housing with a special protective silicone bumper case
- Four operating modes: Normal, Control, Statistics, Automatic Averaging mode
- Different specialized probes to measure many parameters



COATING THICKNESS GAUGE



Coating thickness knife tester is designed to measure the thickness of both single and multiple layer coatings on any grounds, both metallic and non-metallic. The operation principle is based on the local cut (notch) of the coating at the tested place of object with following thickness measurement of this coating. The thickness of coating is determined by the width of notch, it is possible because of the special form of cutter of the instrument.

The measurement is performed by any portable measuring microscope with a suitable measuring range.

Coating thickness knife tester TPN-1 complies with ISO 2808, ASTM B 4138, DIN EN 1071-2.

NON-DESTRUCTIVE TESTING

ULTRASONIC FLAW DETECTORS



An ultrasonic flaw detector is designed to search for voids and inhomogeneities inside the materials under testing with ultrasound. It is the most common device for non-destructive testing of metal (and other materials with low attenuation of ultrasonic waves) products in production, as well as objects in operation.

Ultrasonic flaw detector **UD2301** is a powerful, ergonomic, portable device that has all the functions of a general industrial ultrasonic flaw detectors and can be used in laboratories and workshops, and is perfect for field use. The device is supplied with PC software for uploading the measurement archive and processing the results.

Ultrasonic flaw detector **UD2303** is a compact version of an industrial flaw detector with a set of functions and modes that are designed to simplify the routine process of product quality control as much as possible. Shock-resistant aluminum alloy case with a large battery will provide a long service life of the device and ability to be used in adverse conditions. UD2303 ultrasonic flaw detector has the function of screen rotation.



The ultrasonic flaw detector **UD3701** is designed to detect internal defects, such as discontinuities and heterogeneities of materials in products and welds; determine coordinates and evaluate defect parameters; measure thickness and the velocity of propagation and attenuation of ultrasonic waves in the materials (metals, plastics, glass, etc.); the search for places of corrosion, cracks, internal delamination and other defects.

NON-DESTRUCTIVE TESTING

PULSE HOLIDAY DETECTOR



Pulse Holiday Detector is a device for detecting defects (thinning, microholes, cracks, etc.) in dielectric coatings on metals.

The principle of operation of the device is based on the electrospark method. A probe with electrode connected to one pole of the voltage source scans the surface of the tested object directly along the coating.

The second pole of the voltage source from the ground connector is connected directly to the metal structure.

The electronic unit fixes the gaps by voltage between the electrode and the conductive base.

MAGNETIC FLAW DETECTOR

Magnetic flaw detector (magnetic yoke) applies in circumstances where the electric equipment must not be used or is prohibited by the rules.

Device is used during magnetic particle inspection (where it is applicable) according to ASTM E 709, ASTM E 1444, ASME Section V Article 7 and MIL-STD-1949. Magnetic flaw detector is used to detect surface and subsurface cracks of all kinds (flake, lack of fusion welded joints, tears etc.) in structures made of ferromagnetic materials.

The device has two permanent magnets placed in a cylindrical shells, which are connected by a flexible magnetic wire, so it can be used for MPI of remote locations, corner welds and other products of various shapes and sizes.



NON-DESTRUCTIVE TESTING

MAGNETOMETER



Magnetometer is designed to control the residual magnetization and study the magnetic heterogeneity of the surface of ferromagnetic products, to control the level of residual magnetization before welding gas and oil pipes, to control the induction of static (DC), alternating (AC) and pulsed magnetic fields generated by various magnetic and electromagnetic devices, such as magnetic particle flaw detectors, magnetic tables and chucks of grinding machines, demagnetizing devices, permanent magnets etc. The device has the ability to create a measurement archive that can be transferred to a PC using special software.

STEEL STRUCTURE ANALYZER

Steel structure analyzer is designed for measuring coercive force of metal products and is used for non-destructive testing of chemical-thermal, thermal and thermomechanical treatments, evaluation of mechanical properties and residual stresses. It is used for determination of mechanical properties, and for measurement of the hardness of metal products, as well as measurements of products of ferromagnetic alloys in the presence of correlations between the studied parameters. In addition, the device is used for testing the surface layer of ferromagnetic material for grading the metal in steel grades. It has an electromagnet transmitter with integrated Hall sensor and removable pole tips.



NON-DESTRUCTIVE TESTING

ADHESION TESTERS

Adhesion is the tendency of dissimilar particles or surfaces to cling to one another. In the field of quality testing, adhesion of coatings to the base material, such as paints, plastic, epoxy mixtures, sprayed metal, laminate to wood and other metal and polymer coatings, is the most often measured. There are various instruments for adhesion testing of a coating over the base, depending on their nature and measurement's requirements.



Peel adhesion tester



Tensile adhesion tester



Bitumen and mastic insulation adhesion tester



Scratch adhesion tester



Cross hatch adhesion plate



Cross cut adhesion tester

NON-DESTRUCTIVE TESTING

DENSITY AND VISCOSITY CUPS

An important parameter of lubricants, paints and other liquids is viscosity. This parameter characterizes the ability of materials to resist the movement of one part relative to another.



Density cup – Pycnometer



Viscosity flow cup



Viscosity mug

COATING HARDNESS TESTERS

The coating surface hardness testing allows to measure the scratch resistance of coatings and paints.



Pencil coating hardness tester



Scratch hardness coating tester



Buchholz coating hardness tester

NON-DESTRUCTIVE TESTING

BENDING COATING TESTERS

The instrument measures the elasticity and the flexural strength of coatings through rounding the test sample on the set of cylindrical rods with different diameters. Starting from the rod with maximum diameter, if it does not cause any mechanical destruction or de-lamination of paint film, the user has to continue bending the test sample on smaller rods.

The result is the minimum diameter of the rod in millimetres that causes no destruction when testing the paint film.



Bending coating tester



Conical bending coating tester



Cylindrical bending coating tester



Bending coating tester ShG

NON-DESTRUCTIVE TESTING

IMPACT TESTERS

The impact coating strength tester is used to check the resistance of technical products to external factors during operation (such as punching, impacts), as well as to verify the manufacturer's specifications.

There are various instruments for measurements on different types of coating, like paints, laminate and plastic coatings, and many kinds of bases.

Impact testing is useful to measure coatings resistance to damages caused by accident, but also to verify the quality of coatings during the production process, so that all required resistance standards are satisfied. Tests result is evaluated based on cracking or deformation of the coating.



Pipe impact tester



Impact tester



Impact tester Universal

OTHER COATING TESTING INSTRUMENTS



Film applicator



Erichsen cupping tester



Pinhole detector

NON-DESTRUCTIVE TESTING

ROUGHNESS TESTERS

Instruments used to measure the roughness of surfaces in non-destructive way. Possibility to measure different parameters and to set various measurement profiles. They are commonly employed for quality control activities and to check incoming and outgoing goods.

iSurfa-100 Surface roughness tester



High measurement accuracy, wide measurement range, simple operation, easy portability and stable operation. It can be widely used in the detection of various metal and non-metal processing surfaces. It is a pocket instrument integrated with a host and a sensor. It has the characteristics of hand-held, and is more suitable for use in the production site. The exterior is made of aluminium, which is durable and has remarkable anti-electromagnetic interference ability. Low-power consumption ARM processor is used for data processing and calculation. Equipped with Bluetooth adapter, it can communicate with devices such as smart phones. The sensor probe has a protective door, which effectively protects the sensor probe and ensures the accuracy of measurement.

iSurfa-300 Roughness waviness tester

High precision large stroke guide rail, length up to 50 mm, and sensor range $\pm 500 \mu\text{m}$. 5 measurement types and skidless measurement for more realistic feedback on the morphology of machined surfaces. The sensor can be switched vertically or in the same direction with the guide rail at will, so the measurement of deep grooves can be made from the side without being limited by the depth of the stylus and groove. Data can be directly stored in the built-in memory of the machine. It supports automatic multiple calibration of standard blocks, so that the calibration error is greatly reduced.



NON-DESTRUCTIVE TESTING



iSurfa-360 Surface roughness gauge

Small size, light weight, and easy to use. Adopting DSP chips for control and data processing, with fast speed and low power consumption. Compatible with multiple national standards such as ISO, DIN, ANSI, and JIS. Large capacity data storage, capable of storing 100 sets of raw data and waveforms. Equipped with power saving functions such as automatic sleep and automatic shutdown. Displays various prompt instructions such as measurement information, menu prompt information, error information, and on/off machine information. Optional Bluetooth function; can connect computers and printers, prints all parameters or any parameters set by the user. Optional accessories such as curved sensors, small hole sensors, measuring platforms, sensor sheaths, extension rods, etc.

iSurfa-520 Surface roughness tester

Portable surface roughness tester is a high accuracy instrument for measuring surface roughness. It can be used on variety of machining parts and operates on various surfaces, not only flat but also outer cone, outer cylinder, curved, pinholes, grooves, recesses grooves and axle etc.

Portable surface roughness tester allows surface roughness measurement both on metal and non-metal workpieces. It is suitable for machining and manufacturing, quality control, inspection departments, especially for measurement on large and heavy workpiece, assembly line on site. The roughness tester is a non-destructive testing instrument, damage won't caused to testing piece.



NON-DESTRUCTIVE TESTING

VARIOUS NON-DESTRUCTIVE TESTING INSTRUMENTS



Grindometer



Concrete rebound hammer – Sclerometer



Strength meter



Concrete cover meter



Digital surface profile gauge



Dew point meter



Depth gauge

**ACCESSORIES
AND
SERVICES**

ACCESSORIES AND SERVICES

TECHNICAL SERVICE

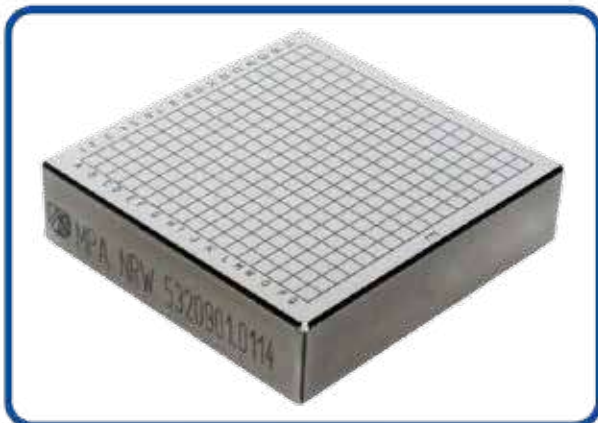


Installation, calibration and education: these are the services CRASE s.r.l. offers after sales. They are developed with planned maintenance contracts carried out directly by our specialized technicians.

SPARE PARTS

The spare parts' warehouse is equipped with the whole product line, and we are able to create accessories on customer's specific request.

- Instrument work benches
- Measuring dial gauges
- Lamps and lighting systems
- Diamond indenters with calibration certificate ISO - ASTM
- Ball indenters with calibration certificate ISO - ASTM
- Spares for measuring and optical microscopes
- Measuring probes
- Workpiece holders
- Reference test blocks with calibration certificate ISO - ASTM



ON-SITE REPAIR

In case of fault, the intervention is carried out on site by our technicians. In this way the downtime of your instrument can be reduced.



PREVENTIVE MAINTENANCE

We provide annual maintenance contracts which establish that your instruments would be maintained at regular prearranged intervals. Thanks to these contracts you will always have calibrated and verified instruments. A regular maintenance guarantees to the customer a longer lasting in time of the machine and a better control of operating costs.

ACCESSORIES AND SERVICES

INSTRUMENTS REPAIR SERVICE

Equipement for metrology room of all the best brands.



REPAIR:

Hardness testers (with issue of Accredia certificate, also on site), micrometers (also with surface polishing), dial gauges, thickness testers, glossmeters, roughness testers, bore meters, bench instruments, calipers, altimeters, profile projectors, pneumatic instruments and digital instruments.

SUPPLY:

Masters and calibration blocks
ORIGINAL SPARES



ACCESSORIES AND SERVICES

TECHNICAL CONSULTING

Thanks to technical knowledge of testing and production processes, CRASE s.r.l. offers a consulting service for choosing new or secondhand equipment to realize your project. In order to do that, we can count both on our staff and on collaborations with technicians and engineers working in the sector.



SECONDHAND SALE

CRASE s.r.l. is in secondhand market. Various instruments are available, such as hardness testers, gear measuring machines and universal testing machines, all inspected and with a warranty. You can find the complete list of available secondhand instruments on our website www.crase.com.

INSPECTION

CRASE s.r.l. offers measuring systems which allow to update almost every machine of various known brands. Our retrofits combined with mechanical inspections, carried out in our laboratory in Burago di Molgora, are able to lengthen the instrument's life, updating just the measuring system. In this way, our customers can have a modern and inexpensive testing machine.

CERTIFICATION

We guarantee our instruments for 12 months, the quality warranty is given by the *ACCREDIA* primary certificate, accomplished by an external laboratory.

ACCREDIA CALIBRATION CERTIFICATE: it is a document issued exclusively by an accredited calibration centre. This certificate is officially valid in Italy and it is recognised in the EA's European States. An *Accredia* certificate guarantees that the instrument has been calibrated according to all the procedures recognised as valid by primary institutions of expertise. The *Accredia* certificates relieve the user from proving that calibrations were carried out in compliance with the standards of calibration institutions' quality system (UNI CEI EN ISO/IEC 17025) and with methods approved by *Accredia*. The *Accredia* certified instruments and test blocks are usually used as "primary standards" for calibration and control of other instruments.

CALIBRATION REPORT WITH TRACEABILITY TO NATIONAL STANDARDS (RDT) (UNI EN ISO 10012: 2004): it is a document released by calibration centres which assure the measurement traceability to national standards, without any validation by the responsible institutions. The validity of these documents is given by the laboratory's qualification, the technical knowledge of workers and the used metrological procedures. The customer has the right to verify these elements with on-site inspections. A calibration report can be released either by an accredited *Accredia* centre or another centre, but in the first case you will have more guarantees.



ACCESSORIES AND SERVICES

INSTRUMENTS' CALIBRATION SERVICE

Equipement for metrology room of all the best brands.



CALIBRATION WITH POSSIBLE ISSUE OF ACCREDIA CERTIFICATE FOR:

Hardness testers, micrometers, dial gauges, thickness testers, bore gauges, roughness testers, bench instruments, smooth cylindrical buffers and rings, smooth flat buffers, measuring forks, set or single parallel reference test blocks, conical buffers, threaded buffers and rings, prisms, masters to design, calipers and special equipement, altimeters, profile projectors, pneumatic instruments, digital instruments, torque wrenches, thermocouples, conductivity meters, gas analyzers.



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