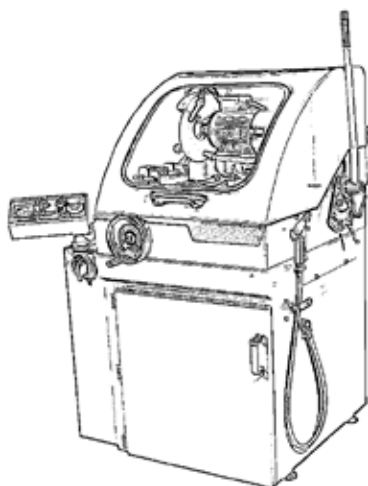
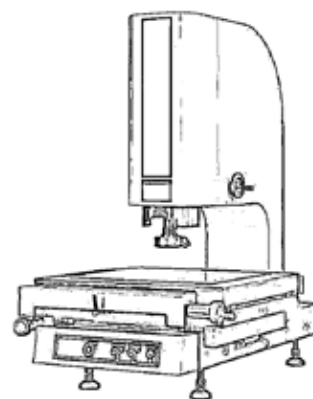
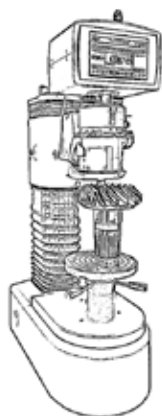
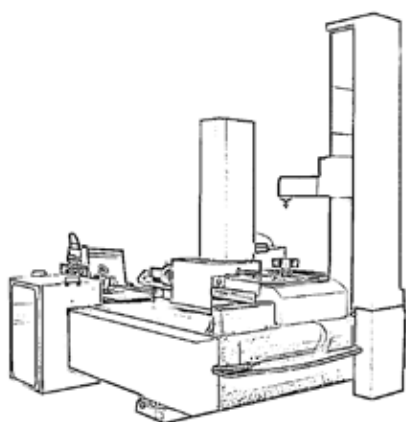




MEASURING INSTRUMENTS



www.crased.com

INDEX

INDEX	02
HARDNESS AND MICRO-HARDNESS TESTERS	04
• Rockwell hardness testers	05
• Vickers hardness testers	15
• Brinell hardness testers	21
CHD – CASE HARDNESS DEPTH ANALYZERS	28
• HTD1500 e HTD4000	29
• HTD30	31
PORTABLE HARDNESS TESTERS	33
• Rockwell portable hardness testers	34
• Brinell portable hardness testers	40
• CHEETAH - Brinell and Vickers indentation's digital reader	46
• Altair 20x microscope	48
• T-UD2 combined hardness testers	49
• T-UD3 combined hardness testers	52
<i>T-UD2/3 set</i>	55
• Lab UCI wireless hardness tester	56
• Mechanical portable hardness testers PHT - HBX 0,5	60
• Portable hardness tester based on the measurement of electrical resistance	61
METALLOGRAPHIC MACHINES	63
• Cutting machines	64
<i>Baincut LSS</i>	64
<i>Baincut HSS - Baincut M</i>	65
<i>Baincut UM - Baincut L</i>	66
<i>Baincut XL - Baincut XXL</i>	67
• Mounting machines	68
<i>Bainmount P auto - Bainmount H auto</i>	68
<i>Bainmount Twin H auto</i>	69
• Grinding/Polishing machines	70
<i>Bainline Twin Wet - Bainline GP</i>	70
<i>Bainpol VT - Bainpol VTD</i>	71
<i>Bainpol SA - Bainpol auto</i>	72
<i>Bainpol VFD - Bainpol VFF</i>	73
• Microscopes	74
<i>Metscope I - Vertimet CP - Macscope Z</i>	74
GEAR TESTING MACHINES	75
• Manual gear measuring machines	76
• Semi-automatic gear measuring machines	77
• CNC gear measuring machines	77
• GMM Gear Measuring Machines	78
<i>GMM 40 - Small Size</i>	80
<i>GMM 70 - Medium Size</i>	81
<i>GMM 110 - Big Size</i>	82
• Gear testing machines	83
• Roughness testers	83
VIDEO MEASURING SYSTEMS	84
• VMA Manual video measuring system	85

INDEX

• VMC CNC video measuring system	86
• VMU CNC video measuring system	87
• Mikrosize software	88
• VMQ-100 Instant video measuring system	95
• VMQ-100 Mikrosize measuring software	98
NON-DESTRUCTIVE TESTING INSTRUMENTS	105
• Ultrasonic thickness gauge UT-1M	106
• Ultrasonic thickness gauge UT-2A (A-Scan)	106
• EMAT thickness gauge UT-3M-EMA	107
• Active EMAT transducer	107
• Coating digital thickness gauge TP-2020	108
• Coating thickness gauge	108
• Ultrasonic flaw detectors	109
• Pulse Holiday Detector	110
• Magnetic flaw detector	110
• Magnetometer	111
• Steel structure analyzer	111
• Adhesion testers	112
• Density and viscosity cups	113
• Coating hardness testers	113
• Bending coating testers	114
• Impact testers	115
• Other coating testing instruments	115
• Roughness testers	116
• Various non-destructive testing instruments	118
RETROFIT	119
• VBM system for hardness testers	120
• TC Software system for spring testing machines	120
• Gear Soft system for gear testing machines	121
• TC Software system for traction testing machines	122
ACCESSORIES AND SERVICES	123
• Technical service	124
• Repair service	125
• Technical consulting	126
• Secondhand sale	126
• Inspection	126
• Certification	126
• Calibration service	127
CONTACTS	128

HARDNESS AND MICRO-HARDNESS TESTERS

Rockwell, Brinell, Vickers

ROCKWELL HARDNESS TESTERS

NR3D HARDNESS TESTER



Description:

The NR3-D hardness tester is an excellent choice for measuring hardness based on the Rockwell principle, with standardized preload and load. Available in both standard Rockwell and superficial versions, the NR3-D stands out for its versatility, allowing the testing of a wide range of materials, from the hardest metals to light alloys and even plastic. Its versatility is backed by a wide selection of loads and indenters, ensuring accuracy even for small and medium-sized items.

The NR3-D stands out for its consistent high quality, making it a reliable and affordable instrument for all hardness testing needs.

Features:

- Rockwell and Superficial Rockwell: Easy interchangeability between standard and superficial versions using the same stand.
- Measures in Brinell points too: Provides readings on standard HB 30 scales, HB 10, and HB 5 for light alloys and aluminum.
- High durability: The spring-loaded system makes the NR3-D ideal for challenging environments with extreme temperatures, dust, humidity, and vibrations.
- Robust and easy to use: Perfect for schools and laboratories, thanks to its sturdy structure and ease of use.
- Low investment: An affordable price that ensures a quick return on investment.

Advantages:

- Optimal for composite materials and spheres: The absence of the locking pin and presser allows for precise measurements even on small-sized parts.
- Brinell indenters available: Allows for accurate measurements using Brinell loads and indenters.
- Removable measuring head: Facilitates faster revisions and calibrations.

ROCKWELL HARDNESS TESTERS

NR3D technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62,5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.6 kgf - 30 kgf - 31.2 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Norms and certifications	ASTM E 18 EN ISO 6506	
Min. measurable diameter	4 mm	
Output interfaces	RS 232	
Reading	Digital on display	
Weight	58 kg	
Preload	10 kgf (98.1 N)	3 kgf (29.4 N)
Working principle	Rockwell	Superficial Rockwell
Standard scales	HRC, HRD, HRE, HRF, HRG, HRH, HRK, Brinell HB30	HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X
Load application method	Manual	
Load time	Operator choice	
Working area dimensions	3 x 3 mm	



ROCKWELL HARDNESS TESTERS

AT130 HARDNESS TESTERS



Description:

The AT130 bench hardness tester, based on the Rockwell principle in compliance with DIN and ASTM standards, ensures precision by eliminating the influence of material deflections. Measurement is taken directly on the sample surface, optimizing preparation.

The world-famous AT130 hardness tester, sold globally since the 1970s, is also available in a semi-automatic version. It provides precision and speed in all conditions, delivering results in just 4 seconds. Designed by Cisam-Ernst, it is a reliable and accurate instrument, ensuring high durability even in the most challenging conditions.

Advantages:

- Precision and speed: Tests completed in just 2 seconds using the Rockwell principle.
- Spring load system: Reliable measurements, insensitive to deflections.
- International compliance: Complies with UNI, ISO, DIN, and ASTM standards.
- Optimized productivity: One lever movement equals one test.
- Robustness: Ideal for critical environments with dust and vibrations.



ROCKWELL HARDNESS TESTERS

AT130 technical features

MODEL	MODEL R	MODEL SR
Loads	Rockwell 60kgf (N588.40) - 100kgf (N980.70) - 150kgf (N1471) - Brinell 62,5kgf (N612.90) - 125kgf (N1226) - 187.5kgf (N1839)	Rockwell 15 kgf (N 147) - 30 kgf (N 294) - 45 kgf (N 441) - Brinell 62.5 kgf (N 612.90)
Power supply	115VAC - 230VAC	
Norms and certifications	ASTM E-18, ISO 6508, ISO 6506 - ISO 6507	
Min. measurable diameter	6 mm Rockwell	4 mm Superficial Rockwell
Selectable functions	Scales, tolerances, calibration	
Output interfaces	RS232	
Reading	On display 7 segments	
Load application method	Semi-automatic	
Weight	AT130DNX: 95 kg - AT130DTX: 125 kg - AT130DCAR: 165 kg - AT130DMUR: 115 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Load time	Selectable	
Working area dimensions	STAND TX: Max. measurable height: 240mm (400mm w/o elevating screw) / depth: 225mm STAND NX: Max. measurable height: 210mm / depth: 240mm	
Overall dimensions	AT130DNX: 30x60x73 cm, AT130DTX: 30x60x95 cm, AT130DCAR: 95x33x133 cm, AT130DMUR: 30x70x110 cm	
Warranty	12 months	

ROCKWELL HARDNESS TESTERS

AT250 HARDNESS TESTERS



Description:

In the realm of materials engineering, Rockwell hardness testers are essential instruments for measuring material hardness. AT250 D model embodies the evolution of this tradition, offering a cutting-edge solution that combines the precision and speed of traditional Rockwell hardness testers with electronic innovation for test data processing.

The AT250 D line of hardness testers represents the evolution of the well-known AT130 model, a device sold in thousands of units worldwide since the 1970s. It brought significant innovation to the industry due to its ability to quickly measure the hardness of large components with a system insensitive to indentation and bending.

Advantages:

- A 2-second test speed enhances quality control efficiency, enabling companies to handle a higher test volume without compromising accuracy.
- The spring-loaded system ensures highly reliable measurements that comply with international standards, preventing errors and ensuring product compliance with industry requirements.
- The tester's versatility and precision allow it to evaluate a wide range of materials, ensuring compliance with UNI, ISO, DIN, and ASTM standards.
- The device's durability and adaptability enable it to be used in various environments, ensuring process continuity even under challenging conditions.
- The availability of interfaces allows for easy integration of the hardness tester with digital systems, improving data management and information sharing within the company, offering a competitive advantage.



ROCKWELL HARDNESS TESTERS

AT250 technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62.5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.625 kgf - 30 kgf - 31.25 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Power supply	Autosetting 100VAC - 240VAC	
Norms and certifications	Rockwell - ASTM E-18 - ISO 6508	
Min. measurable diameter	4 mm (indenter 048 + group 022)	
Selectable functions	Scale selection, load time, minimum thickness, mm/inch, round correction, calibration, calibration language, date/time, tolerances, type of indenter, file, measurement archive, printouts, statistics, icons, conversions, sequence, password	
Output interfaces	USB Printer - USB export on USB drive OPTIONAL: RS232 - RS485 - Profibus - Ethernet MODBUS-TCP Bluetooth	
Reading	On colour touch-screen display 800x480 px	
Load application method	Manual	
Weight	AT250NX: 95 kg, AT250TX: 125 kg, AT250CAR: 165 kg, AT250MUR: 115 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Languages	Italian, English, German, other languages on request	
Working area dimensions	STAND TX: Max. measurable height: 240mm (400mm w/o elevating screw)/depth: 225mm STAND NX: Max. measurable height: 210mm/depth: 240mm	
Overall dimensions	AT250NX: 30x60x73 cm, AT250TX: 30x60x95 cm, AT250CAR: 95x33x133 cm, AT250MUR: 30x70x110 cm	
Memory	400 files with 2500 storable values for every file	

ROCKWELL HARDNESS TESTERS

AT350 AUTOMATIC HARDNESS TESTERS



Description:

The AT350 hardness tester represents the cutting edge in hardness measurement based on the Rockwell principle. Automated and reliable, this instrument operates in accordance with EN, DIN, ISO, and ASTM standards, providing accurate results across a wide range of materials. Ideal for testing large parts and for Jominy testing, the AT350 simplifies processes with its motorized stand, adapting easily to different testing conditions.

Its ability to automatically apply preload during measurements reduces the required time and minimizes errors, allowing automatic batch control without the need for an operator. With Cisam-Ernst's patented spring load system, the AT350 ensures precision and reliability even in the harshest environments, withstanding extreme temperatures, dust, humidity, and vibrations. Thanks to Cisam-Ernst's commitment to precision and reliability, the AT350 is designed to withstand intensive use and the test of time, offering robust instruments that can maintain optimal performance over the long term.

Advantages:

- Rockwell principle – Rapidity of test.
- Automatic functioning – Insertion into production line.
- The spring loading system ensures tests insensitive to material deflection or bending during the test – Reliable and faster measurements.
- The spring load system ensures test speed 5 times higher than common systems with load cells – Rapid cost amortization.
- The spring loading system ensures precise and reliable testing in accordance with international standards – Compliance with international standards.
- Interconnection Industry 4.0 – Possibility to benefit from hyper-depreciation by law.

ROCKWELL HARDNESS TESTERS

AT350 technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62.5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.625 kgf - 30 kgf - 31.25 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Power supply	Selectable 115 VAC or 230 VAC	
Norms and certifications	ASTM E-18 ISO-EN 6508	
Min. measurable diameter	4 mm (indenter 048 + shroud 60° group 022)	
Selectable functions	Scale choice, load time, minimum thickness, mm/inch, calibration round correction, ùlanguage, date/time, tolerances, indenter, file, prints, statistics, icons, conversions, sequence, measure archive, password, start measure	
Output interfaces	USB Printer - USB export to USB drive OPTIONAL: RS232 - RS485 - Profibus - Ethernet Bluetooth	
Reading	On colour touchscreen display 800x480px, 150x90 mm	
Load application method	Automatic	
Weight	200 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Load time	Selectable form keyboard	
Languages	Italian, English, German, other languages on request	
Working area dimensions	255 mm (414 mm w/o elevating screw) / depth: 210 mm (on request increased columns: +300 mm or +500 mm for heights up to 920 mm)	
Overall dimensions	730x1080x850 mm	
Memory	400 files with 2500 results each	



ROCKWELL HARDNESS TESTERS

TWIN X AUTOMATIC HARDNESS TESTERS



Description:

The TWIN-X is a fully automated Rockwell hardness tester, designed for seamless performance in Rockwell and Super Rockwell hardness testing. Capable of handling large workpieces up to 420 mm in height in its standard configuration, this advanced hardness tester is a game-changer for efficiency and productivity.

Equipped with an innovative spring system that surpasses traditional load cell systems, TWIN-X reduces each test cycle by up to 10 seconds. This translates to remarkable productivity gains, saving 12 minutes per hour, or nearly two hours every working day.

Designed to meet diverse hardness testing needs, TWIN-X boasts an impressive indenter stroke of up to 45 mm, enabling testing on varying thicknesses without any manual adjustments. Its clamping shield facilitates accurate testing of overhanging pieces without external support.

With a fully automated vertical-axis movement and load application system, TWIN-X streamlines the entire hardness testing process. Its built-in safety device retracts the indenter to protect against misaligned pieces or foreign objects.

Specially engineered for non-standard applications, TWIN-X offers high flexibility for custom configurations. The screw unit can be removed to accommodate larger parts like molds and castings, and a specialized version with a +500 mm stand is available for testing pieces up to 950 mm in height. Additionally, the detachable measuring head integrates seamlessly into production line control systems, enhancing versatility and efficiency.

Key benefits of TWIN-X include enhanced productivity, versatile application, and custom configurability for specialized tasks.

Advantages:

- Rockwell and Super-Rockwell – Test speed: cycle time faster than 1,5 seconds.
- Automatic functioning – Insertion in the production line.
- The spring loading system ensures insensitive tests to material failure, bending or deflection during the test – Reliable and faster measurements.
- The spring load system ensures test speed 5 times higher than systems with load cells – Fast amortisation of costs.
- The spring loading system ensures precise and reliable testing in accordance with international standards

ROCKWELL HARDNESS TESTERS

Twin X technical features

Loads	Rockwell: 60 kgf - 100 kgf - 150 kgf (N 588 - 980 - 1471) Superficial Rockwell: 15 kgf - 30 kgf - 45 kgf (N 147 - 294 - 441) Brinell: 15.625 kgf - 31.25 kgf - 62.5 kgf - 125 kgf - 187.5 kgf (N 153.2-306.5-612.9-1226-1839)
Power supply	Single-phase, 230 VAC, 50/60 Hz, (115 VAC on request)
Norms and certifications	ASTM E-18 ISO-EN 6508
Output interfaces	USB for printer connection, USB for direct export to USB stick, Modbus-TCP, RS232, Profibus
Reading	Direct on touch-screen monitor
Languages	Italian, English, German, other languages on request
Load application method	Automatic by means of stepper motor (indenter stroke 45mm)
Weight	Gross: ca. 270 kg (hardness tester + bench) - Hardness tester: 160 kg
Preload	3 kgf (24.9 N) - 10 kgf (98 N)
Working principle	Rockwell and Super-Rockwell
Standard scales	Rockwell: HRA - HRB - HRC - HRD - HRF - HRG Super Rockwell: HR15N - HR30N - HR45N - HR15T - HR30T - HR45T Brinell: HB/30 - HB/10 - HB/5 - HB/2,5 - kgf/mm ² - N/mm ² - other scales on request
Load time	Selectable on touch-screen from 1sec to 45sec
Overall dimensions	90x70x115 cm
Configurable settings	400 storable files (for each file a product with the corresponding test parameters can be stored: code, customer name, hardness scale, tolerance values, etc.) Setting 5 tolerance ranges in series controls



VICKERS HARDNESS TESTERS

MANUAL VICKERS HARDNESS TESTER iHV-1/iHV-10/iHV-50 MPE



Description:

- The hardness tester has a simple design: built-in light source and camera, branded computer, hardness tester's specific control and measurement software.
- Built-in 5 million HD CCD camera, the light path is short, the image is clearer.
- Built-in high brightness, long life LCD light source.
- Built-in hardness tester special control and measurement software: hardness tester's control, pressure mark, automatic turret, brightness adjustment, automatic hardness measurement.

- The screw adopts unique optical cross-guide guide to ensure guidance accuracy. When the sample is lifted, the indentation can be better focused and the image position remains unchanged.
- Calibration using micrometer or hardness block calibration, can be automatically calibrated, so that the hardness value more accurate in line with the requirements.
- Hardness value statistics and hardness exceed alarm.
- Hardness according to the national standard and ASTM conversion into other hardness.
- The test report can be customized by the user, and all test data, including the indentation image, will be saved forever for easy historical inquiry.

Standard supply:

- | | |
|--|---|
| • PC (software and instruction manual included) | • Spirit level |
| • Built-in camera | • Screwdriver - 2 pcs |
| • Weight shaft | • Dust cover |
| • Weights - 6 pcs | • Power cord |
| • Micro-hardness blocks (1 pc high, 1 pc medium) | • Spare fuse (2A) - 2 pcs |
| • X-Y test stand | • Product certificate and warranty card |
| • Nylon cardan foot - 4 pcs | |

VICKERS HARDNESS TESTERS

Technical features

Model	THV-1MPE
Turret	Automatic
Test force	10 gf (0.098 N), 25 gf (0.245 N), 50 gf (0.49 N), 100 gf (0.98 N), 200 gf (1.96 N), 300 gf (2.94 N), 500 gf (4.9 N), 1 kgf (9.8 N)
Test force switching	Manual
Standards	GB/T4340.2, ASTM E92
Measurement resolution	0.01 μ m
Conversion ruler	Lowe's, Brinell
Hardness test range	8 - 2900 HV
Method of test force application	Automatic (loading, retaining, unloading)
Test objectives	10X, 40X
Test force retention time	1 - 99 sec
Maximum allowable specimen height	160 mm
Distance from indenter to machine wall	170 mm
X-Y test bench	Size: 100x100 mm - Maximum movement: 25x25 mm
Computer	21.5" monitor - 8 GB RAM + 256 GB hard disk, WIN10 Operating System, WIFI
Camera	5 megapixel
Power supply	AC 220 V + 5%, 50-60 Hz, 600 W
Weight	About 50 kg
Size	540 x 260 x 650 mm

VICKERS 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.

VICKERS HARDNESS TESTERS

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		

VICKERS HARDNESS TESTERS

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.

VICKERS HARDNESS TESTERS

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		

BRINELL HARDNESS TESTERS

EAGLE 3000 HARDNESS TESTER



Description:

The Eagle 3000 is a fully automatic hardness tester, compliant with Brinell standards DIN ISO EN 6506 and ASTM E-10.

It features a rotating turret that supports indenters and lenses for a complete Brinell test. It allows measurements on large samples up to 500 mm high and 300 mm deep.

It features a movable stand and measuring head to ensure ergonomic settings for each operator, a Windows 10+-based industrial PC, and a 5 megapixel camera.

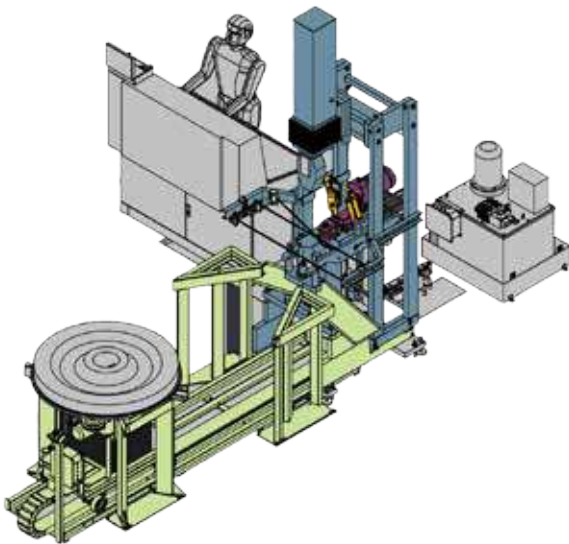
The integrated software allows for a complete and automatic reading of the indentation, with the option of also performing a manual measurement. The final results are displayed on a touchscreen LCD monitor, and all tests performed are stored.

Features:

- It can perform hardness tests with test forces in the range of 613.25 N to 29,413 N (62.5 kgf to 3,000 kgf) in accordance with DIN EN ISO 6506 and ASTM E10 standards for Brinell tests..
- It allows for easy selection of test forces.
- It can send data to a printer or network. The image of each indentation can be stored, allowing for measurement verification even long after the test.
- It is equipped with a high-precision 45° automatic rotating turret that supports indenters and lenses, allowing for precise viewing of the indentation image for further measurements.
- The interface can be set to English, French, German, or Italian. Other languages are available upon request. Furthermore, with just one click, it is possible to produce customized reports with the customer's logo.
- It is designed for quick and easy repair and/or maintenance. The test head includes all critical systems (both the loading system and the optical reading system): this allows, in the event of overhaul or repair, only the head to be dismantled and shipped.

BRINELL HARDNESS TESTERS

Bre-Aut SOR for the testing of finished train wheels



Requests:

Fully automatic Brinell hardness testing of finished train wheels with the following specifications:

- Surface preparation and measurement of finished trainwheels – need to measure wheels of different diameters (from 700 mm to 1300 mm).
- Speed up the entire testing process.
- Need to install into an existing production line consisting of machinery from other vendors.
- Need to comply with specific regulations that require two measurements at a distance of 25 mm from the first test if it is outside the range of hardness required.
- Need to mark non-conforming wheels.

Adopted solution:

- Line equipped with lamellar wheel unit for surface preparation of finished wheels.
- Mounting of the entire hardness tester on a PLC-controlled motor-driven slide.
- Creation of a transfer system that allows two wheels to be transported simultaneously from the loading point and the measuring point under the hardness tester to the unloading point.
- Implementation of specific communication protocols for the exchange of signals and information with the PLC line controller.
- Optimisation of the transfer system controls to allow the wheel to be moved for additional measurement positions. If the first test falls within the specified range, the wheel is transferred to the unloading position and at the same time a new wheel is brought from the loading position to the surface preparation and measurement position to be measured. If the first test is outside the set range, it will be automatically moved by 25 mm and a second and third test will be carried out. If both these tests give a positive result, the wheel will result compliant.
- If any of the above conditions do not occur, the wheel will be considered non-compliant and consequently marked with the spray paint unit located at the discharge position.

BRINELL HARDNESS TESTERS

Achieved results:

- Preparation of the finished surface limiting its alteration.
- The surface preparation and measurement unit automatically adapts to the wheel size.
- Integration of the automation of hardness measurement with the existing in-line system.
- 60 seconds for a hardness test including surface preparation.
- Automatic wheel movement for additional measurement positions.
- Automatic evaluation of the tests to be performed based on the tolerance parameters entered and automatic evaluation of the conformity or non-conformity of the measurement according to the standards.

Bre-Aut SOR technical features

Power supply	380 V 50 Hz
Loads	3000 kgf (29430 N)
Norms and certifications	ISO 6506/1 6506/2 6506/3 - ASTM E 10
Selectable functions	Load time, tolerances, stats, database of measurements and images with search on-board machine, languages
Output interfaces	Profibus, Ethernet
Reading	Automatic optical impression reading
Weight	9 t
Working principle	Brinell
Standard scales	HB 10/3000
Load time	Adjustable 1-30 sec
Overall dimensions	7000 x 8000 mm



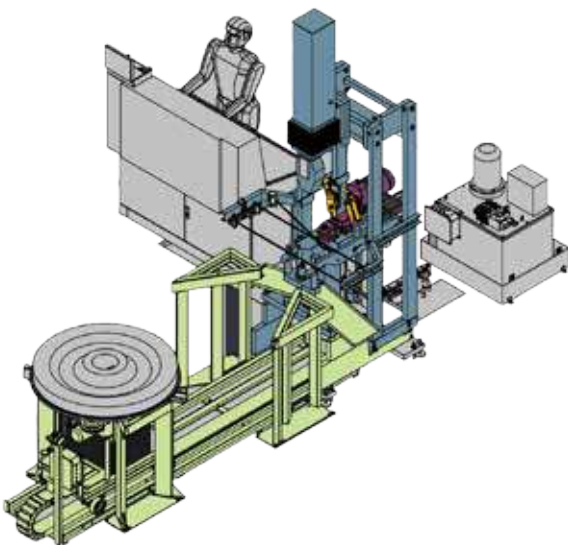
BRINELL HARDNESS TESTERS

Bre-Aut MAR for the testing of raw train wheels

Requests:

Automatic Brinell hardness testing of raw train wheels with the following specifications:

- Surface preparation at different depths and measurement of raw train wheels.
- Need to measure wheels of different diameters (from 700 mm to 1300 mm).
- Speed up the entire test process.
- Need to install into an existing production line consisting of machinery from other vendors.
- Need to comply with the specific regulations that impose two measurements at a distance of 25 mm from the first test if it is outside the required range of hardness



Adopted solution:

- System equipped with milling unit for surface preparation of raw wheels.
- Creation of a transfer system that allows the rotation and transport of a wheel from the loading/unloading point to the measuring point.
- Implementation of specific communication protocols for the exchange of signals and information with the PLC line controller.
- Optimisation of the transfer system controls to allow the wheel to be moved for additional measurement positions. If the first test falls within the specified range, the wheel is transferred to the unloading position and at the same time a new wheel is brought from the loading position to the surface preparation and measurement position to be measured. If the first test is outside the set range, it will be automatically rotated by 25 mm and a second and third test will be carried out. If both these tests give a positive result, the wheel is compliant.
- If any of the conditions of the above point does not occur the wheel will be considered non-compliant.

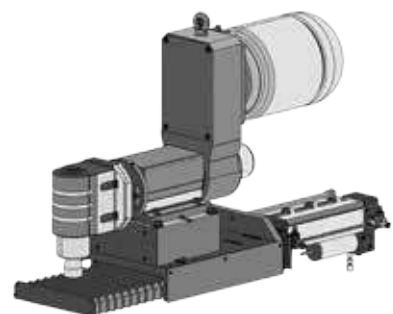
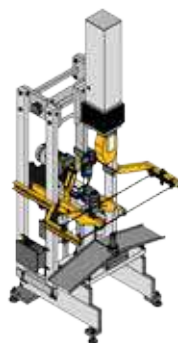
BRINELL HARDNESS TESTERS

Achieved results:

- Preparation of the rough surface by milling.
- The surface preparation and measuring unit automatically adapts to the wheel size.
- Integration of the automation of hardness measurement with the existing in-line system.
- 120 seconds for a hardness test including surface preparation.
- Automatic wheel rotation for additional measurement positions.
- Automatic evaluation of the tests to be performed based on the tolerance parameters entered and automatic evaluation of the conformity or non-conformity of the measurement according to the standards.

Bre-Aut MAR technical features

Power supply	380V 3ph - other power supplies on request
Loads	3000 kgf (29430 N)
Norms and certifications	IISO EN 10003 - ASTM E-10
Reading	Automatic impression reading, e-brio
Languages	Italian, English, German, other languages on request
Weight	ca. 5 t
Working principle	Brinell
Standard scales	HB30 / 3000kg
Load time	Selectable from 1 to 30 sec
Working area dimensions	5 x 3 m
Memory	Industrial PC



BRINELL HARDNESS TESTERS

Bre-Aut MAR with fixed clamps



Requests:

Replacement of an existing machinery:

- Automatic machine to be placed in production environment.
- Request for fully automatic machine cycle.
- Robust and durable machinery.
- Security system during machine operation.
- Possibility of processing and exporting measurement data.

Adopted solution:

- The provided machinery has a hydraulic principle to withstand production environments.
- PLC (Programmable Logic Controller) with touchscreen monitor for configuration and management of machine movements (input, output and signals), also includes the management of the hydraulic power unit.
- Oversized machine components allow continuous use of the instrument.
- Touchscreen monitor featured with Modbus serial communication protocol.

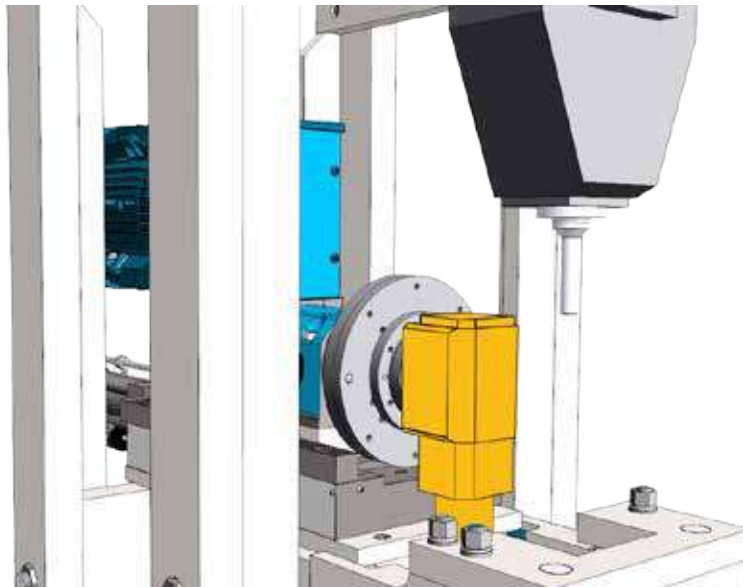
Achieved results:

- Machinery resistant to industrial and production environments.
- Automatic measurement including surface preparation.
- Machinery usable 24 hours a day.
- Machine operating remotely and in total safety.
- Data consultation on board machine.

BRINELL HARDNESS TESTERS

Bre-Aut MAR technical features

Power supply	Three-phase 480 V 60 Hz
Loads	750 / 3000 kgf (7360 / 29430 N)
Norms and certifications	ASTM E103
Selectable functions	Load time, tolerances, stats, languages
Reading	Automatic impression by depth probe
Weight	1.6 t
Working principle	Brinell
Standard scales	HB30
Load time	Adjustable from 1 to 30 sec
Overall dimensions	790 x 2930 mm



CHD – CASE HARDNESS DEPTH ANALYZERS

CASE HARDNESS DEPTH ANALYZERS

HTD1500 and HTD4000

Advanced Case Hardness Depth analyzers



HTD1500 and HTD4000 case hardness depth analyzers deliver quick, accurate, and non-destructive thickness verification up to 1.3 mm (HTD1500) and 2.7 mm (HTD4000)

The devices eliminate the cumbersome steps of traditional testing. Using continuous data collection, these analyzers deliver accurate results in under a minute. HTD1500 and HTD4000 redefine heat treatment depth measurement with their speed, precision and adaptability. These instruments represent a leap forward for industries requiring swift, accurate and integrated analysis of heat-treated layers.

Features:

- Non-destructive testing: Effortlessly measure the thickness of heat-treated layers without damaging the sample, preserving its integrity for further analysis or use.
- Ernst patented principle – Case hardness depth determination from 0.05 mm to 2.7 mm.
- Robust stand: Designed for high-capacity testing, the sturdy stand easily handles large dimension pieces, making it ideal for various industrial applications.
- Low maintenance: Built to thrive in challenging environments, the HTD1500 and HTD4000 require minimal maintenance, ensuring longevity and consistent performance.
- Durable carbide indenter: The carbide indenter performs 2,500 to 3,000 tests, depending on the material type and the applied load, providing long-lasting durability.

Advantages:

- Time savings: These systems streamline the testing process, drastically reducing analysis time compared to conventional methods.
- Incomparable precision: With continuous data recording, the HTD analyzers deliver reliable and accurate measurements for immediate process verification.
- High load testing: The HTD4000 handles up to 4000 kg of test force, offering a versatile solution for various sample sizes and materials.
- 1 test = 1 minute: Drastic reduction of the test times, increased productivity.
- One measurement: No need for cross-sectioning, polishing and mounting of the test piece.
- Seamless integration: Real-time data collection ensures thorough quality control, supporting immediate process optimization.

CASE HARDNESS DEPTH ANALYZERS

HTD1500 and HTD4000 technical features

MODEL	HTD1500	HTD4000
Loads	100 kgf - 1500 kgf (N 981 - N 14715)	200 kgf - 4000 kgf (N 1961 - N 39227)
Power supply	110-240 VAC 50/60 Hz	
Norms and certifications	ASTM E-18 indirect method on certified test block ISO 6508 indirect method on certified test block	
Min. measurable diameter	10 mm	
Selectable functions	Load selection, language, calibration, hardness measure, schematic curve, hardness curve, tolerances, sequence, file, scale, histogram	
Output interfaces	USB - Ethernet	
Reading	Direct reading of case depth on touch-screen display 8.4" Schematic curve with case depth value at the predetermined hardness Stats and overlay of curves	
Languages	Italian, English, German, other languages on request	
Load application method	Automatic with predetermined load value according to case depth	
Weight	ca. 440 kg	
Working principle	Evaluation of the load-penetration curve and tested algorithm	
Standard scales	Reference scale HV	
Load time	Test cycle depending on applied load	
Working area dimensions	Stand capacity 335 mm - H 315 mm	
Overall dimensions	720 (ca. 950 included PC) x 1200 x 880 mm	



CASE HARDNESS DEPTH ANALYZERS

HTD30

Case Depth measurement for hardened layers



HTD30, designed to deliver lightning-fast results in less than a minute, eliminates the need for time-consuming operations like sectioning, embedding, and polishing, preserving your workpiece's integrity.

HTD30 operates on a groundbreaking principle, patented by Ernst, which involves a single impression made while progressively applying load. This method ensures precise measurement without the interference of bending or subsidence, equivalent to conducting numerous impressions in a single point.

By continuously acquiring values during load application, HTD30 generates a load-hardness curve. Leveraging our proprietary algorithm, this curve provides invaluable insights, revealing the depth of the heat treatment and presenting a schematic of the hardened surface layer.

Features:

- Measurement range: Case depth determination from 0.02 mm to 0.2 mm.
- Rapid measurement: Obtain accurate results in less than a minute.
- Non-destructive: Safeguard the integrity of your workpiece.
- Precision: Eliminate influences from bending or subsidence.
- Proprietary algorithm: Transform data into actionable insights.
- Efficiency: Equivalent to numerous impressions in a single point.
- One measurement: No need for cross-sectioning, polishing and mounting of the test piece.

CASE HARDNESS DEPTH ANALYZERS

HTD30 technical features

Loads	1 kgf - 30 kgf
Power supply	100/250 VAC, 50/60 Hz
Norms and certifications	DIN 50158 ASTM E-18 indirect method on certified test block ISO 6508 indirect method on certified test block
Min. measurable diameter	4 mm
Selectable functions	Load selection, language, calibration hardness measure, schematic curve hardness curve, tolerances, sequence, file scale, histogram
Output interfaces	USB - Ethernet
Reading	Direct reading of case depth on touch-screen display 8" Schematic curve with case depth value at the predetermined hardness Stats and overlay of curves
Languages	Italian, English, German, other languages on request
Load application method	Automatic with selected load value according to case depth
Weight	ca. 32 kg
Working principle	Case depth through evaluation of the load-penetration curve and tested algorithm
Standard scales	mm/inch cut-off hardness in HV/HRC
Load time	Test cycle depending on maximum applied load
Overall dimensions	40 x 50 x 35 cm



PORTABLE HARDNESS TESTERS

Rockwell, Brinell, UCI, Leeb, wireless, mechanicals

ROCKWELL PORTABLE HARDNESS TESTERS

COMPUTEST LITE

Computest Lite, a 5kgf load portable Rockwell hardness tester, distinguishes itself from its larger sibling, the E-Computest, through its language-independent operation, onboard display, absence of data management or sharing functionalities, and a comprehensive set of preset scales.

Computest Lite prioritizes simplicity and autonomy, providing users with a hassle-free hardness testing experience without compromising on accuracy or functionality.



Advantages:

- Language independence: Computest Lite breaks language barriers, offering seamless operation without the need for language selection or customization. This ensures straightforward usability across diverse linguistic backgrounds, eliminating any language-related complexities.
- Onboard display: Equipped with an onboard display, Computest Lite provides instant results without the necessity for external devices or software. This feature streamlines the testing process, offering real-time feedback directly on the device, enhancing efficiency and convenience.
- No data management or sharing: Unlike its larger counterpart, Computest Lite focuses solely on hardness testing, omitting complex data management and sharing functionalities. This streamlined approach simplifies operation, catering to users who prioritize straightforward testing procedures without the need for data handling.
- Set of preset scales: Computest Lite comes preconfigured with a comprehensive set of preset scales, catering to common testing requirements across various industries. This eliminates the need for custom scale configurations, offering immediate usability out of the box.

Features:

- Portable miniaturised Rockwell hardness tester – On-site measurement of pieces of any size.
- Adjustable in all directions – Savings on handling and cutting costs.
- One diamond indenter for the entire range of metals – Speed and simplicity of the testing process.
- Testing is not affected by any yielding or bending – Reliable results in all test conditions.
- ACCREDIA certification (ILAC MRA-Mutual Recognition Arrangements) – Offers a competitive advantage in markets where certification is required.

ROCKWELL PORTABLE HARDNESS TESTERS

Computest Lite technical features

Loads	5 kgf (49 N)
Power supply	100 - 240 V
Norms and certifications	DIN 50157, ASTM E-110, ACCREDIA certificate upon request
Min. measurable diameter	2 mm with stand 12 mm with base for rounds
Selectable functions	Scales, tollerances, calibration, test load, stats, language, sequence, files, materials, partial average, clock, auto off timer, add notes, barcode scanner, geo-localization
Output interfaces	Wifi, Bluetooth, micro USB, micro SD slot
Reading	Tablet display touch-screen 6"
Languages	Italian, English, German, other languages on request
Load application method	Manual
Weight	Mechanical unit 750 g - Electronical unit 360 g
Preload	1.2 kgf (11.8 N)
Accuracy	HRC 0,3 HB < 1%
Working principle	Rockwell
Standard scales	HRC (10-70) - HB5 (21-190) - HB30 (80-700) - HV (35-1080) - DPTH (0-100)
Load time	Selectable 1 - 60 sec



ROCKWELL PORTABLE HARDNESS TESTERS

E-COMPUTEST

Rockwell portable hardness tester, an essential tool for precision metal quality control. Designed for versatility and ease of use, this advanced, miniaturized device is ideal for direct on-site measurements of any-sized parts, supporting a broad range of industrial applications. For professionals in the metalworking and industrial sectors seeking fast, accurate, and reliable quality control solutions, the Rockwell portable hardness tester is an invaluable resource.



Advantages:

- On-site measurement capability: The Rockwell portable hardness tester eliminates the need for transporting large parts to laboratories. By enabling direct measurements at the job site, it significantly cuts down on handling costs and reduces the waiting period for results, optimizing overall productivity in metal quality control.
- Flexible orientation: This device's ability to adjust to all directions makes it exceptionally user-friendly. It accesses hard-to-reach areas with ease, reducing the necessity to disassemble complex parts, thereby saving time and operational costs.
- Universal diamond penetrator: With a single diamond penetrator suitable for all metals, this hardness tester streamlines the setup process. It accelerates the measurement cycle, maintaining high precision and reducing downtime in industrial settings.
- Consistently reliable results: Engineered to withstand material deflections and deformations, the Rockwell portable hardness tester guarantees accurate and dependable outcomes essential for upholding stringent quality standards in metalworking industries.
- Global certification advantage: Compliant with ACCREDIA (ILAC MRA), the hardness tester not only meets international testing standards but also provides a significant competitive edge in global markets where equipment and result certification are crucial.

Standard supply:

- Diamond indenter
- Standard batteries for mechanical part
- 50 mm internal extension base extension
- Base for flat surfaces
- Lanyards
- Wrench for removing the battery cover
- HRC (~60 HRC) and HB30 (~210 HB/30) specimens
- Base with magnetic feet
- Base for rounds
- 3 non-magnetic non-slip feet for flat surfaces
- Wireless Charger
- Rechargeable battery (included in tablet)
- Android tablets
- Battery charger
- Measuring head
- Pin for E-Computest
- Shockproof case
- Pawl for Computest series

ROCKWELL PORTABLE HARDNESS TESTERS

E-Computest technical features

Loads	5 kgf (49 N)
Power supply	100 - 240 V
Norms and certifications	DIN 50157, ASTM E-110, ACCREDIA certificate upon request
Min. measurable diameter	2 mm with stand 12 mm with base for rounds
Selectable functions	Scales, tollerances, calibration, test load, stats, language, sequence, files, materials, partial average, clock, auto off timer, add notes, barcode scanner, geo-localization
Output interfaces	Wifi, Bluetooth, micro USB, micro SD slot
Reading	Tablet display touch-screen 6"
Languages	Italian, English, German, other languages on request
Load application method	Manual
Weight	Mechanical unit 750 g - Electronical unit 360 g
Preload	1.2 kgf (11.8 N)
Accuracy	HRC 0,3 HB < 1%
Working principle	Rockwell
Standard scales	HRC (0-70) - HV (35-1080) - HB30 (80-700) - HB/5 (21-190) - DPTH (0-100)
Load time	Selectable 1 - 60 sec



ROCKWELL PORTABLE HARDNESS TESTERS

E-DYNATEST

The E-Dynatest stands out for its high test load of 100 kgf (980 N), making it a powerful tool for precise hardness measurements. This high test load ensures reliable and consistent measurements, as the testing process is unaffected by the surface condition of the material. It is particularly ideal for testing large pieces that are difficult to move, as it can be used directly on-site. Combined with the wireless data transfer between the test head and the tablet, the E-Dynatest allows for quick, precise, and straightforward hardness testing, with results displayed directly on the 6-inch tablet display. The wireless connection ensures that data is captured without delay and can be evaluated in real-time.

The Android app allows test results to be not only stored but also efficiently managed, shared, and printed. The combination of high test load, precision, and user-friendliness makes the E-Dynatest an excellent choice for on-site hardness testing.



Features:

- Portable miniaturised Rockwell hardness tester – On-site measurement of pieces of any size.
- Adjustable in all directions – Savings on handling and cutting costs.
- High test load (100 kgf) – Two tools in one: measurements are comparable to a bench-top hardness tester.
- Measurement via a single manual pressure – Speed and simplicity of the measurement processes.
- ACCREDIA certification (ILAC MRA-Mutual Recognition Arrangements) – Offers a competitive advantage in markets where certification is required.



ROCKWELL PORTABLE HARDNESS TESTERS

E-Dynatest technical features

Loads	100 kgf (980 N)
Power supply	100 - 240 V
Norms and certifications	DIN 50157, ASTM E-110, ACCREDIA certificate upon request
Min. measurable diameter	25 mm standard - 12 mm with special penetrator shroud
Selectable functions	Scales, tollerances, calibration, test load, stats, language, sequence, files, materials, partial average, clock, auto off timer, add notes, barcode scanner, geo-localization
Output interfaces	Wifi, Bluetooth, micro USB, micro SD slot
Reading	Tablet display touch-screen 6"
Languages	Italian, English, German, other languages on request
Load application method	Manual
Weight	Mechanical unit 2050 g - Electronic unit 360 g
Preload	3.45 kgf (33.8 N)
Accuracy	HRC 0.3 HB < 1%
Working principle	Rockwell
Standard scales	HRC (10-70) - 1HB30 (160-700) - 2HB30 (100-500)

BRINELL PORTABLE HARDNESS TESTERS

E-Brio-W

E-Brio-W Brinell Optical Scope is a cutting-edge solution meticulously crafted to redefine efficiency and precision in Brinell testing. Developed with a keen eye on market needs and technological advancements, this innovative device embodies the essence of quality and user-centric design.



Features:

- Seamless wireless integration: The E-Brio-W seamlessly integrates wireless technology from Ernst's portable devices into an optical Brinell scope. With wireless functionality, users can experience safe and straightforward usage in any environment, ensuring unparalleled convenience.
- Precision simplified: Precision meets simplicity with the E-Brio-W. Engineered to offer unparalleled accuracy without compromising on usability, this device ensures that users can achieve precise measurements effortlessly.
- Adaptable performance: The E-Brio-W epitomizes adaptability, serving as an "essential" product that can be effortlessly enhanced with additional features as needed. This flexibility allows users to tailor their testing experience to meet evolving requirements without hassle. It operates seamlessly as a stand-alone unit, providing immediate measurements with its onboard display. Furthermore, users can enhance its capabilities at any time by purchasing the E-Brio-W Software, compatible with PC or tablet running Windows 10 or 11. This software unlocks a plethora of additional features, including data management, manual adjustment of the Brinell indentation, statistics, and report generation, providing users with comprehensive control over their testing processes.

Advantages:

- Exceptional precision – Advanced algorithm for edge detection ensures reliable and precise readings on any material and surface.
- Enhanced efficiency – Reduced Brinell indentation reading time to increase productivity.
- Unmatched flexibility – Stand-alone unit with integrated display or enhancement with additional software for data management, manual adjustment of Brinell indentations, and report generation.
- Wireless connectivity – Integrated wireless technology for a cordless experience, providing flexibility and freedom of movement in the work environment.
- Optimal price-performance ratio – High-level performance at a competitive price, ideal for companies seeking efficiency and precision in Brinell hardness testing.

BRINELL PORTABLE HARDNESS TESTERS

Technical features E-Brio-W

Norms and certifications	ACCREDIA (ILAC MRA)
Selectable functions	Brinell impression reading, test histogram, statistics, report, manual adjustment of Brinell indentation
Reading	Automatic - Camera resolution 752 x 480 Pixel
Weight	750 gr
Accuracy	0.001 mm
Working principle	Automatic Brinell hardness reader
Standard scales	HB30: HBW10/3000 - HBW5/750 - HBW2.5/187.5 - HB15: HBW10/1500 - HB10: HBW10/1000 HBW5/250 - HBW2.5/62.5 - HB5: HBW10/500 - HBW5/125 - HBW2.5/31.25 HB2.5: HBW10/250 - HBW5/62.5 - HBW2.5/15.625 - HB1.25: HBW10/125 - HB1: HBW10/100 also includes every scale for Ernst Shear Pins
Working area dimensions	Support base: Ø 30 mm
Overall dimensions	h 170 mm - Ø 66 mm
Resolution	1 µm optical resolution
Supported operating systems	Windows 10 - Windows 11
Connectivity	Wireless



BRINELL PORTABLE HARDNESS TESTERS

STE/A and STE/B

Face the challenges of hardness testing with the STE hardness tester, a reliable solution used globally since the 1980s. At the heart of the STE hardness tester are our innovative shear pins, ensuring precise and consistent results. This system precisely controls the force applied during indentation, ensuring reliable and repeatable measurements. The versatility of the STE hardness tester is undeniable. Thanks to its compact design, it can perform hardness tests on small surfaces and parts of various shapes and sizes, even in challenging positions. Whether you work in a crowded industry or a remote location, the STE hardness tester easily adapts to your needs. A distinctive feature of the STE hardness tester is its user-friendly design and the ability to measure all Brinell hardnesses from 100 to 700 HB with minimal investment.

Even non-expert operators can perform hardness tests with ease and precision thanks to the intuitive design of our instrument.

Our commitment is to provide a complete and reliable solution for hardness testing at an affordable cost. Each STE hardness tester comes with original ERNST patented shear pins and corresponding reading tables, ensuring a seamless testing procedure.

Join the numerous industries that rely on the STE hardness tester for their hardness testing needs. Invest in a proven solution that offers precision and reliability at a low cost, supporting your hardness testing processes with effectiveness and efficiency.



Features:

- Small and handy – Can be used on small surfaces, in all positions, on parts of any shape and size.
- Simple and versatile hardness tester – All Brinell hardnesses from 100 to 700 HB are available with a limited investment.
- Makes a standard Brinell measurement – It allows the immediate optical reading with ANTARES portable microscope or automatic e-Brio system that, being equipped with Ernst tables, gives back in real time the result in Brinell points.
- Complete and stand-alone system – It is supplied with original ERNST patent calibrated pins and with the corresponding reading tables.

BRINELL PORTABLE HARDNESS TESTERS

STE/A and STE/B technical features

MODEL	STE/A	STE/B
Loads	1580 kgf (15500 N)	
Min. measurable diameter	30 mm without preparation	
Reading	On ERNST reading table	
Load application method	Static	Dynamic
Weight	6.7 kg	6 kg
	(Weight of the clamp 3.6 kg - clamp capacity 150 mm)	
Working principle	STE PAT Ernst	
Standard scales	HB/30 - N/mm ² - kg/mm ² on reading table	
Load time	Instant	
Working area dimensions	Min. 20 x 20 mm	
Overall dimensions	40 x 23 x 8 cm	30 x 18 x 6 cm
Optics	STANDARD: 8x OPTIONAL: e-brio - Antares	



BRINELL PORTABLE HARDNESS TESTERS

KING

The KING portable Brinell hardness tester is the most reliable, userfriendly and affordable and the only portable Brinell hardness tester on the market that is directly verifiable.

It is particularly durable thanks to the tungsten carbide ball certified for density and roundness, and to the stroke limiter for reduced operator's error and consistent performance.



Features:

- Operation method/Principle: Brinell (tungsten carbide ball with a manual hydraulic applied load).
- Dimensions and weight: 59.7 x 28" x 30.5 cm – about 17 kg.
- Scales: HB30, HB15.
- Loads: 62.5 kgf to 3000 kgf.
- Load application: Manual.
- Hardness tester base capacity: 10 cm horizontal reach and 34 cm vertical (larger bases available).

Advantages:

- Can be used in any position; right side up, upside down, or even sideways.
- Portable so either the part can be moved to the tester or you can take the tester to the part.
- Lightweight and easy to maneuver.
- Fully interchangeable with multiple bases.
- Only one operator required.
- Flat, dome and "V" anvils supplied as standard equipment.
- Permanent impression can be checked and rechecked.
- 360° orientation and self-aligning.
- Manufactured to exacting tolerances ensuring consistent, repeatable results.
- Calibrated to build, then release, a load of 3000 kgf of pressure.
- Standards ASTM E-10, ASTM E-110, ISO 17025.
- Calibrated with traceability to NIST.
- Calibration and service plans available.
- One-year limited warranty.

BRINELL PORTABLE HARDNESS TESTERS

Great versatility:



KING portable Brinell gauges are versatile for testing metals of any size and shape.

Long piston test head for easy access to recessed areas or raised edges.

Low-pressure test head for softer metals, can be calibrated to deliver loads of 62.5 kgf, 125 kgf, 250 kgf, 500 kgf, 750 kgf, or 1000 kgf.

Chain adapter for testing an unlimited range of workpiece sizes. Supplied with 1.2 m chain. Longer lengths available.



KING test bases allow you to test taller and wider metal parts.

Standard Base C-1 - 13.5" clearance with a 4" throat for metal or round parts with a maximum diameter of 8".

Base C-5 - 13.5" clearance with a 6" throat for wide parts, including pipes with a maximum diameter of 12".

Base C-6 - 20" clearance with a 4" throat for tall parts, such as pipes with large openings.

Base C-7 - 20" clearance with a 6" throat for larger parts in the shop or in the field.



KING Tester microscopes and automatic readers meet your every need.

KingScope™ requires less surface preparation thanks to its nosepiece design.

The KingScope™ 100, a rugged and portable ASTM Type A endoscope with an accuracy of 0.01 mm, features LED illumination for quick and easy focusing.

The KingScan™ automatic digital microscope reads fingerprints with an accuracy of 0.001 mm. It uses a digital camera and software to record and save data.



KING Tester test blocks are traceable, serialized, affordable, and meet ASTM E-10 standards with a 1% tolerance. Our patented, etched, gridded design improves test accuracy.

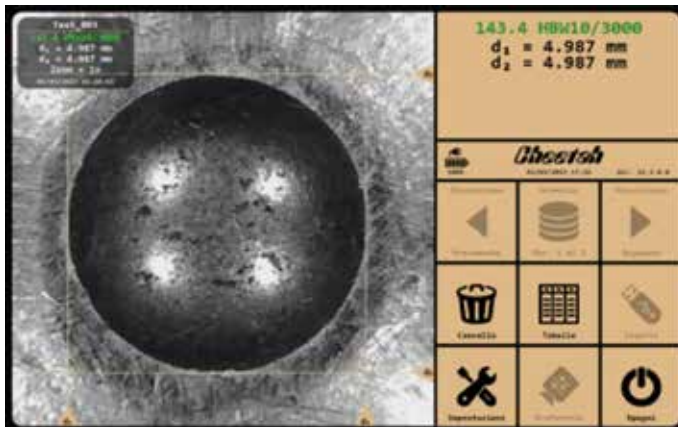
The KING Master test block (5 x 15 cm) is available in several sizes, including HB 30, HB 15, HB 10, and HB 5.

The KING Master test block (10 x 10 cm) is available for all Brinell scales. The larger block size reduces the cost per engraving. The etched alphanumeric grid improves recording accuracy.

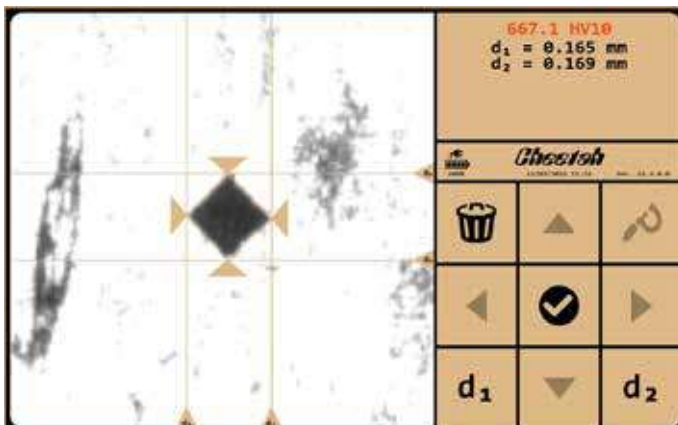
CHEETAH MEASURING SYSTEM

Brinell and Vickers indentation's digital reader

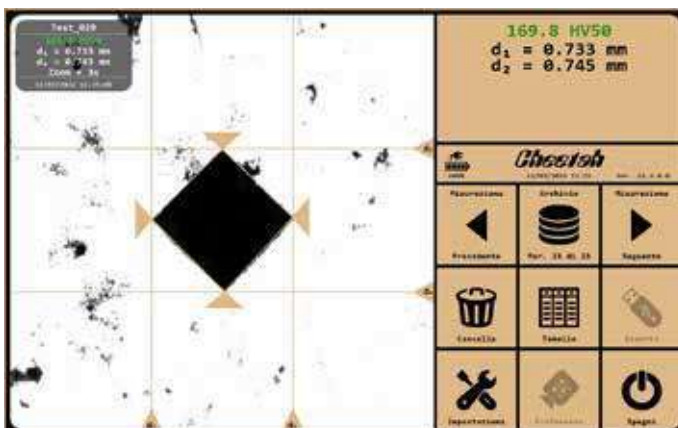
The software allows the user to measure Vickers and Brinell indentation in compliance with ISO and ASTM.



Parametri Brinell			
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



Parametri Vickers			
10 HV	20 HV	30 HV	50 HV
60 HV	100 HV		



Parametri Vickers			
10 HV	20 HV	30 HV	50 HV
60 HV	100 HV		

CHEETAH MEASURING SYSTEM

INSTRUMENT'S 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

ALTAIR - 20x MICROSCOPE



Features:

- Integrated light source: The built-in LED lighting ensures a bright, clear view of the reading area, enhancing visibility and accuracy.
- Removable base ring: The scope comes with a detachable base ring, allowing for versatile applications and easy adjustments.
- Adaptable base: The narrow base design makes it ideal for smaller, confined areas without compromising stability.
- Ergonomic design: Lightweight yet robust, the scope's ergonomic design ensures comfortable handling and ease of use, reducing fatigue during extended use.
- Precision measurements: Featuring a graduated scale of 0-6 mm and a resolution of 0.05 mm, it provides precise and reliable measurements for various applications.
- Compact dimensions: With a diameter of 66 mm and a height of 151 mm, this scope is compact and portable, weighing just 0.720 kg.
- Power supply: Operates on a standard AAA 1.5V battery, ensuring convenience and ease of replacement.
- ACCREDIA Certification: Available upon request, providing additional assurance of quality and accuracy.

Standard supply:

- Protective case: Ensures safe storage and transportation of your scope.
- Calibration certificate: Guarantees the accuracy and reliability of your measurements.
- Brinell indentation reading chart: A handy reference tool for quick and easy readings.
- Instructions for use: Comprehensive guide to help you get the most out of your Altair 20x Hi-Light Scope.

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.

Available with
Bluetooth



UCI probe

Leeb probe

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

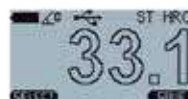
MANY MODES OF MEASUREMENT



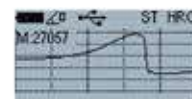
Normal mode



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 $\phi > 90$ 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
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 - Brinell, HB - Vickers, HV - Tensile strength, MPa	20 - 70 90 - 450 230 - 940 370 - 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



UCI probe

Leeb probe

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



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.



PORTABLE WIRELESS HARDNESS TESTER E-HANDY

Principle based on the measurement of electrical resistance

The E-Handy portable hardness tester is the ideal solution for those seeking precision and reliability in hardness measurements. Based on the patented ESATEST® principle by ERNST, E-Handy uses an innovative testing method that leverages the correlation between penetration depth and residual electrical resistance. This advanced method generates a precise measurement curve as the applied load varies, allowing the hardness tester to accurately determine hardness by comparing the curve with a previously acquired calibration.

Thanks to its cutting-edge technology, E-Handy stands out for its unique ability to measure hardness in extremely small areas, providing reliable and detailed results. Choose e-handy for your hardness measurement needs and discover how this tool can transform your industrial operations.



Advantages:

- **Advanced measurements:** Thanks to the ESATEST® principle, E-Handy offers the ability to measure in physically inaccessible points for traditional hardness testers, such as internal cavities, joints, and already assembled components, while preserving the integrity of the parts thanks to the use of very low loads.
- **Versatility and precision:** Accurately measures even on weld seams and in the Heat Affected Zone (HAZ), providing detailed information about the hardness and surface treatment of materials.
- **Advanced connectivity:** Allows wireless data sharing up to 100 meters, ensuring a state-of-the-art test results management system.
- **Certifications:** Compliant with the DIN 50158 standard and certifiable by ACCREDIA (ILAC MRA), the E-Handy hardness tester is designed to operate precisely in all positions.

Features:

- **Principle based on the measurement of electrical resistance** – Tests in points inaccessible to traditional hardness testers: gears, couplings, cavities, interiors, weld seams, HAZ (Heat Affected Zone).
- **One diamond indenter for the entire range of metals** – Simplicity and speed of the testing process.
- **Continuous measurement of hardness at various loads and immediate evaluation of the surface heat treatment** – A single tool, various detections.
- **ACCREDIA certification (ILAC MRA-Mutual Recognition Arrangements)** – Offers a competitive advantage in markets where certification is required.

PORTABLE WIRELESS HARDNESS TESTER E-HANDY

E-Handy technical features

Loads	Real time continuous progressive application with acquisition of load values and electrical resistance from 1kgf to 10kgf (9.81N to 98.1N)
Power supply	100 - 240 V
Norms and certifications	DIN 50158, ASTM E-110, ACCREDIA certificate upon request
Min. measurable diameter	5 mm - it is possible to execute tests in small cavities with the use of special penetrators
Output interfaces	Tablet with micro USB, micro TF slot, WiFi, Bluetooth, gps
Reading	Tablet display touch-screen 5,9"
Languages	Italian, English, German, other languages on request
Load application method	Manual
Weight	Mechanical unit 670 g - Electronic unit 380 g
Working principle	ESATEST® Pat ERNST - by means of electrical resistance
Standard scales	DRE - HB10 - HB30 - HB5 - HRA - HRB - HRC - HRF - HV - N/mm ²
Working area dimensions	2 x 2 mm
Memory	16 GB



**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 P AUTO



FEATURES

- Pneumatic operating system
- Digital temperature indicator and digital timer with display
- Mould dimensions Ø 30 - 40 mm
- Automatic water cooling system
- Quick ram return to speed up reloading and automatic cycle system
- Thermostatically controlled 1600 W mould heater
- Buzzer indication for cooling cycles
- Power supply: 220 V / 110 V
- Dimensions: 530 x 600 x 470 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 AND 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

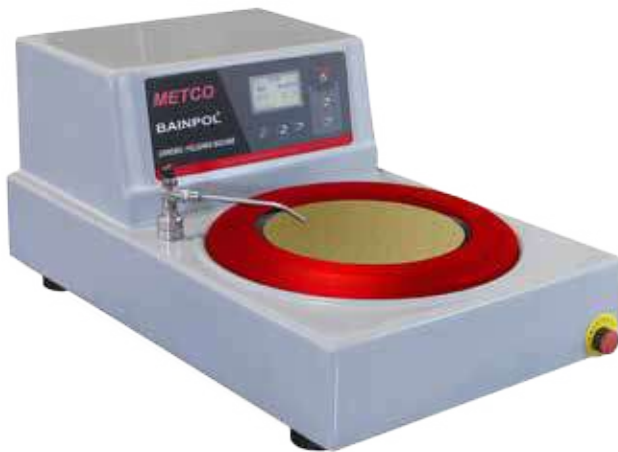
FEATURES

- 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 AND 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 AND 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 AND 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 measuring machines, roughness testers



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, Klingelnberg-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 $\pm$ 10% 50 Hz 2 KVA
Energy consumption	1.6 KWh
Compressed air	Working pressure: 0.6 Mpa $\pm$ 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 autolevelling 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 $\pm$ 10% 50 Hz 2 KVA
Compressed air	Working pressure: 0.6 Mpa $\pm$ 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	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 pneumatic 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 $\pm$ 10% 50 Hz 2 KVA
Compressed air	Working pressure: 0.6 Mpa $\pm$ 0.05 Mpa; Dried with impurity filtering of 0.01 μ ; Avilable 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 μm		
Repeatability		± 2 μm		
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 ± 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

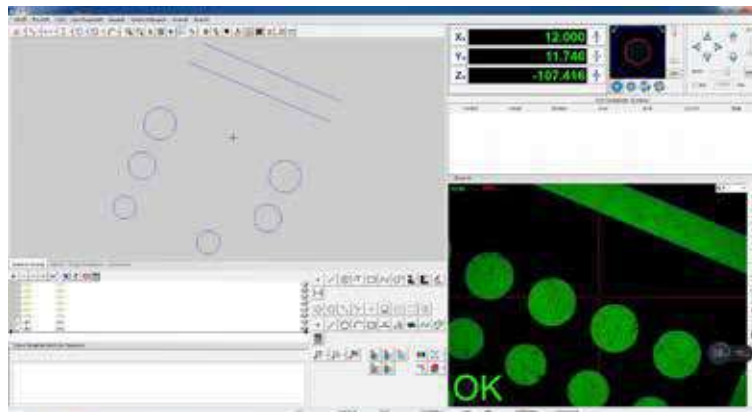
Technical features				
Product name		Fully automatic video measuring system		
2.5D model		VMU-3020	VMU-4030	VMU-5040
3D model		VMU-3020P	VMU-4030P	VMU-5040P
X - Y axes travel distance		300 x 200 mm	400 x 300 mm	500 x 400 mm
Z axis travel distance		200 mm		
Accuracy		E1(x/y) = 2.5+L/100 μm		
Video system		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		Mikrosizer		
Maximum load capacity		25 kg	25 kg	25 kg
Dimensions		750 x 520 x 980 mm	1000 x 620 x 990 mm	1300 x 750 x 1000 mm
Net weight		240 kg	280 kg	360 kg
Working environment		Temperature: 20°C ± 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

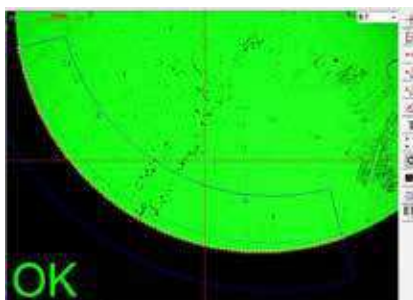
- The common functions are in the main interface, which is easy to get familiar with.
- Users can complete almost all measurement task by simply clicking and dragging the mouse.



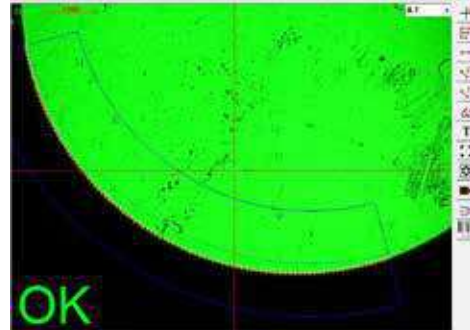
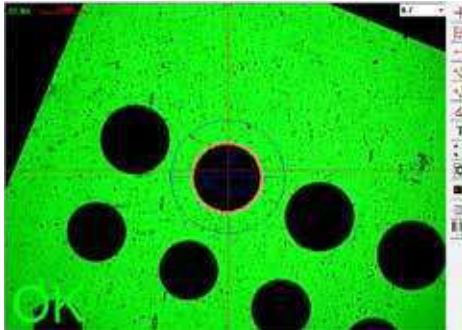
POWERFUL GEOMETRIC MEASUREMENT FUNCTION

Complete geometric measurement function

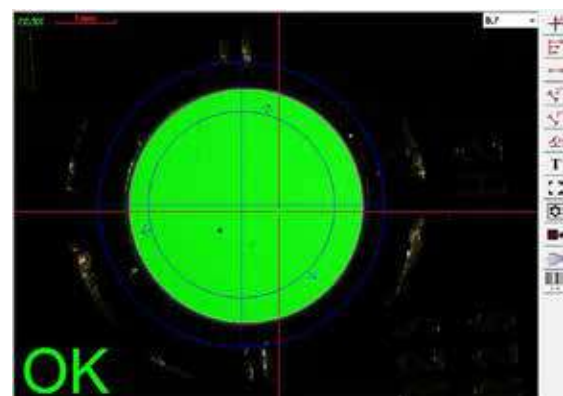
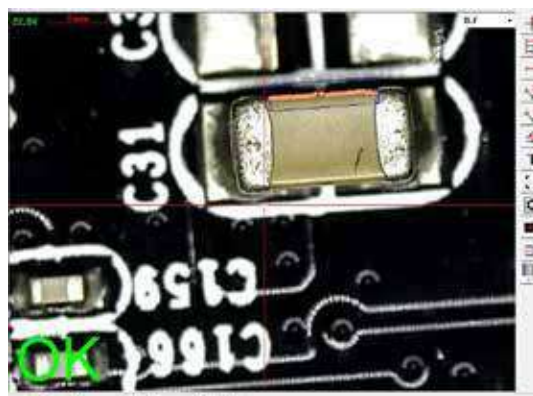
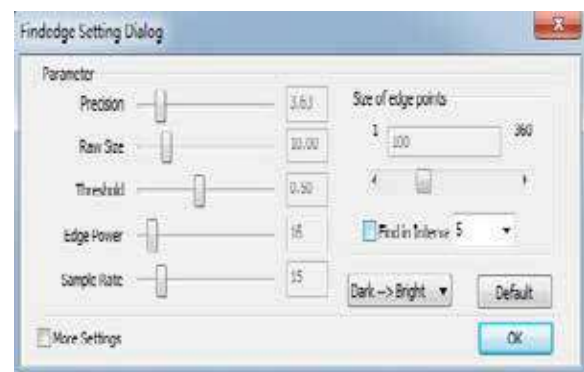
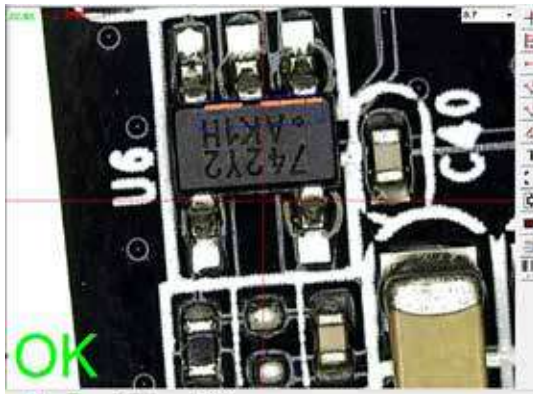
- Measurement of points, lines, arcs, circles, rectangles, ellipses, bond length (waist features), open curves, closed curves, planes, cylinders, cones, balls and other geometric elements.
- When a probe or laser displacement sensor is added to the z-axis, 3D graphic elements such as cylinder, cone, 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



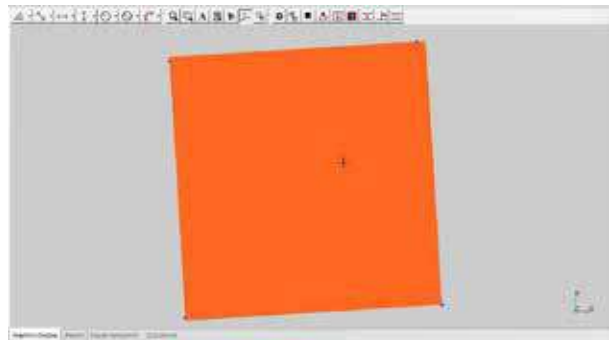
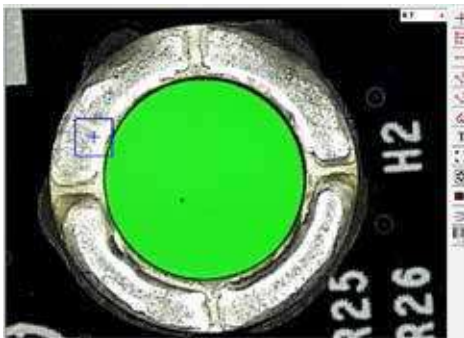
- It can grasp the weak edge, set the edge searching direction arbitrarily, avoid the edge selection error, set the edge searching parameters flexibly, and remove the influence of the rough edge.



MIKROSIZE MEASURING SOFTWARE

AUTO FOCUS FUNCTION AND FOCUS MEASUREMENT FUNCTION

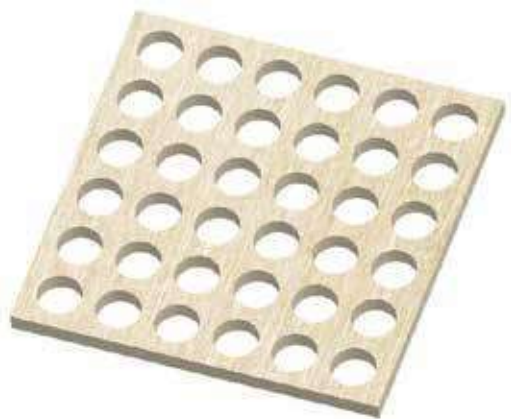
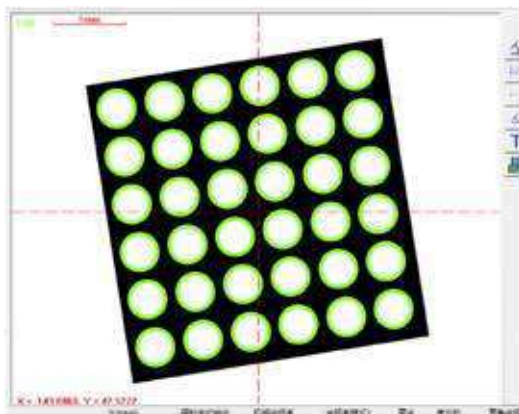
- The software can automatically determine whether the focus is the clearest or not. This function can also be used to measure height and flatness.



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

Translational array measurement of elements

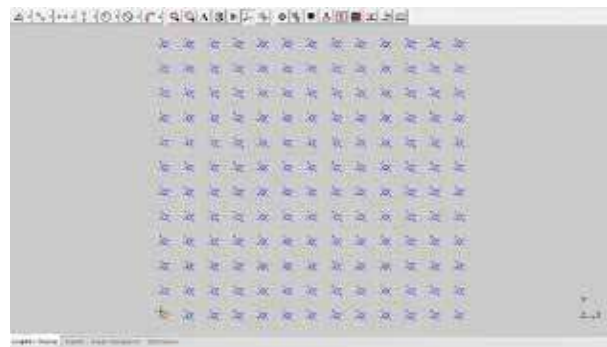
- For equidistant elements series, only one element needs to be measured manually, and then all elements can be measured automatically through the translation array function, which is very convenient to measure array features.



MIKROSIZE MEASURING SOFTWARE

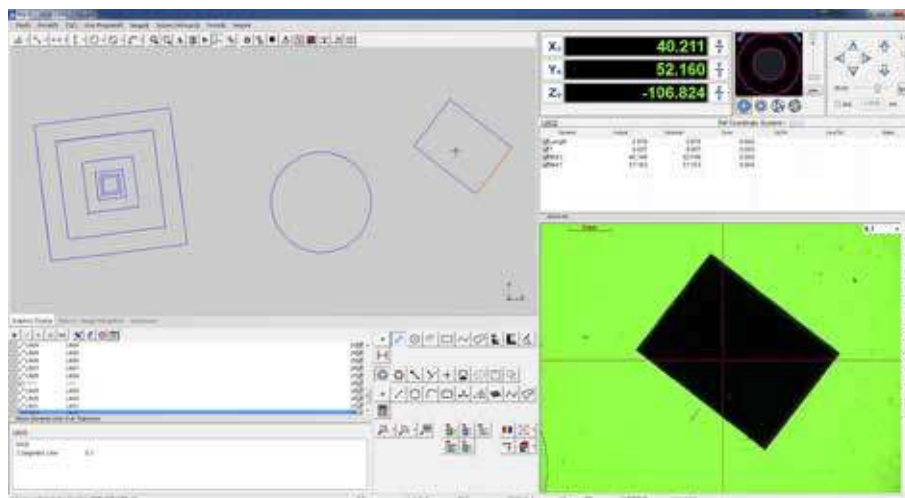
Workpiece array and macro array measurement (special function of automatic machine)

- 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

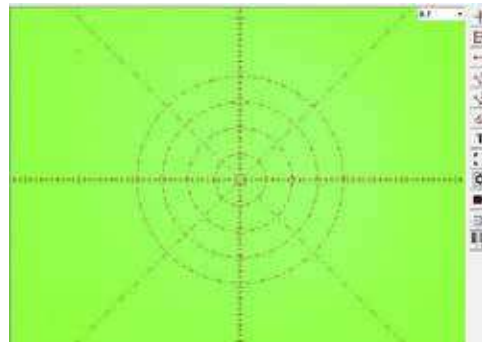
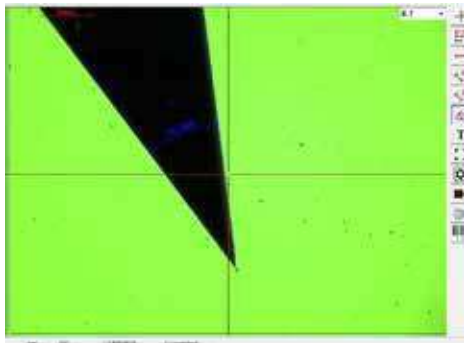
- The dimension drawing can be done directly by CAD software, and the automatic measurement can be realized after importing the software; there is no need to collect points for edge searching.
- It is very convenient for coordinate measurement and contour contrast measurement of complex or irregular 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
☒ Center X	10.527	10.527	0.000			
☒ Center Y	-2.613	-2.613	0.000			
☒ Diameter	5.088	5.088	0.000	0.030	-0.030	OK
☒ T	0.000	0.000	0.000			
☒ Circularity %	100.000	0.000	100.000			

CIR5 Ref Coordinate System : PCS1						
Content	Actual	Nominal	Over	UpTol	LowTol	State
☒ Center X	44.624	44.624	0.000			
☒ Center Y	-34.724	-34.724	0.000			
☒ Diameter	3.987	3.987	0.000	0.030	-0.030	OK
☒ T	0.031	0.031	0.000			
☒ Circularity %	99.201	0.000	99.201			

☐ Show All

CIR7

PSN

COC

CRO

LMC

MMC

2D

3D

Target: CIR7

Base: CIR8

Measure

Nominal

Over

State

0.012

0

0.012

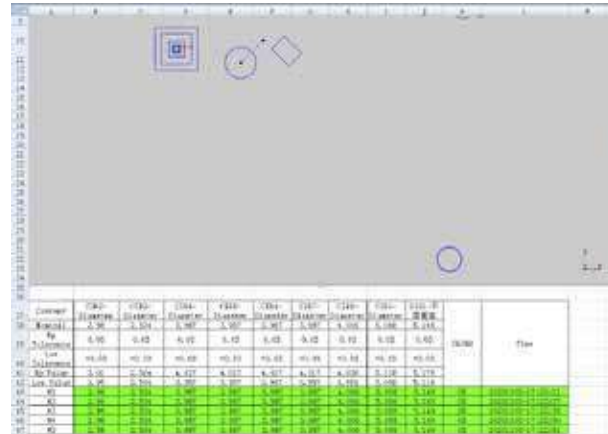
NG

Add

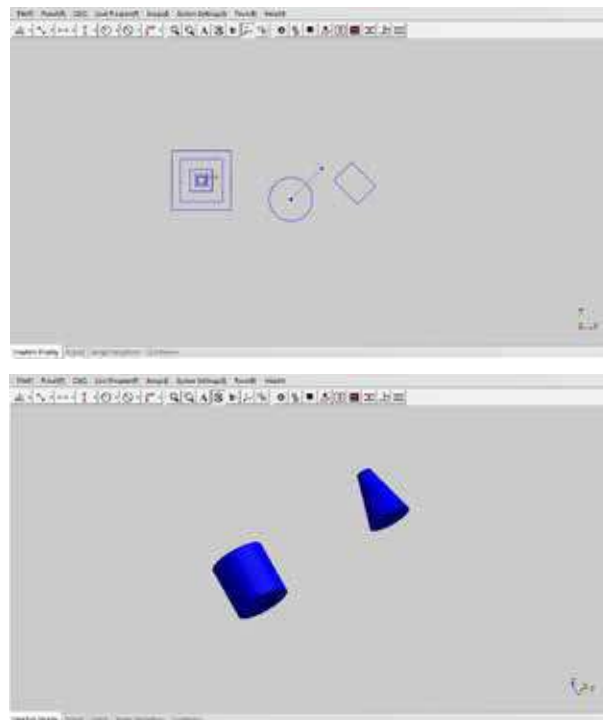
MIKROSIZE MEASURING SOFTWARE

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.



- 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

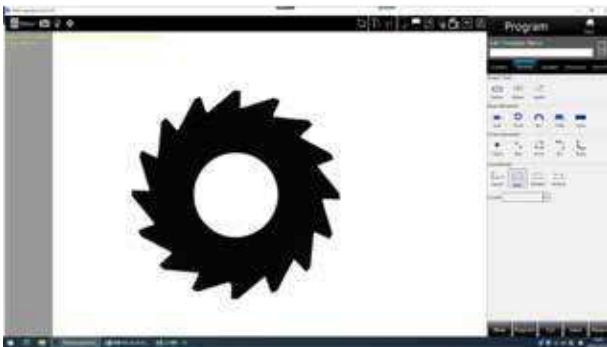
Technical features

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	± 3 μm	
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°C ± 2°C; Humidity: 20 - 80% RH	
Packing list		
Machine mainframe	Dell 24" computer	Mikrosize 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.



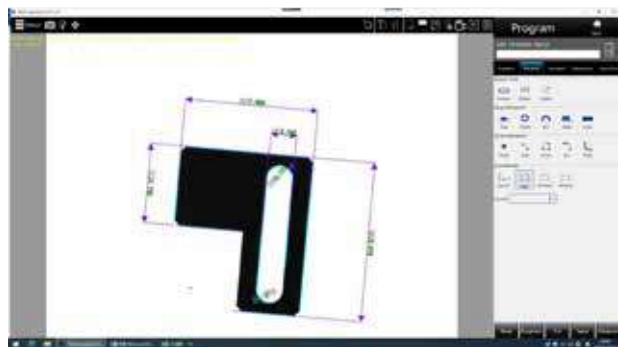
Gears



Mobile phones and watches



Semiconductors (film)

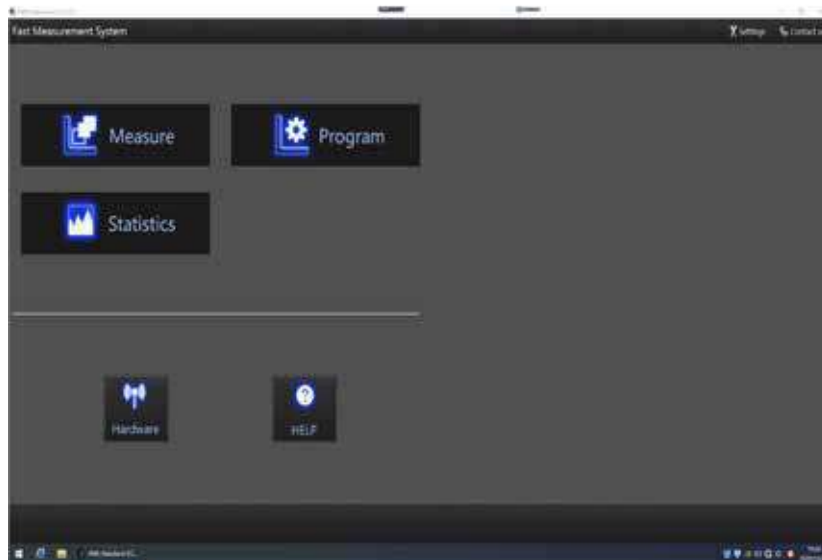


Hardware

VMQ-100 - MIKROSIZE MEASURING SOFTWARE

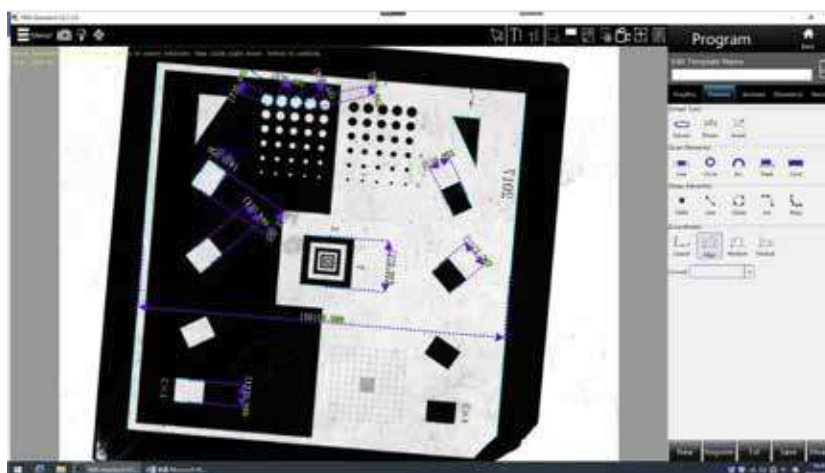
SOFTWARE INTERFACE

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

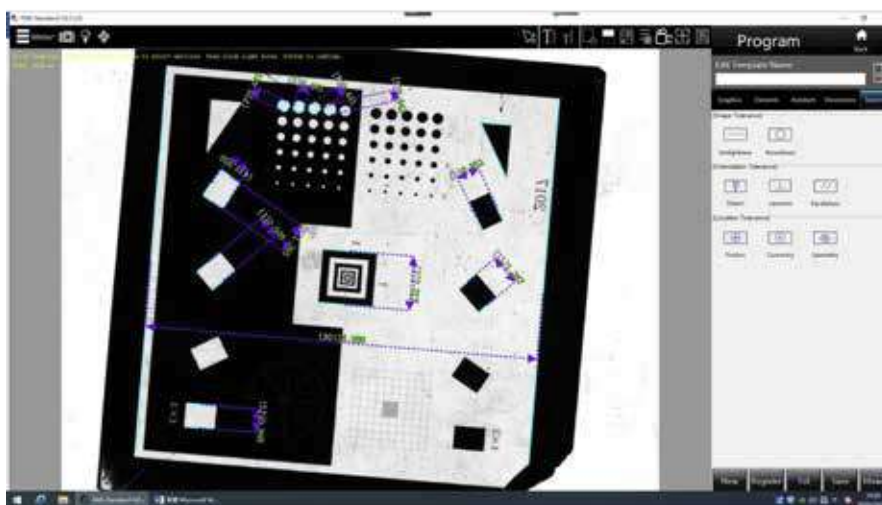
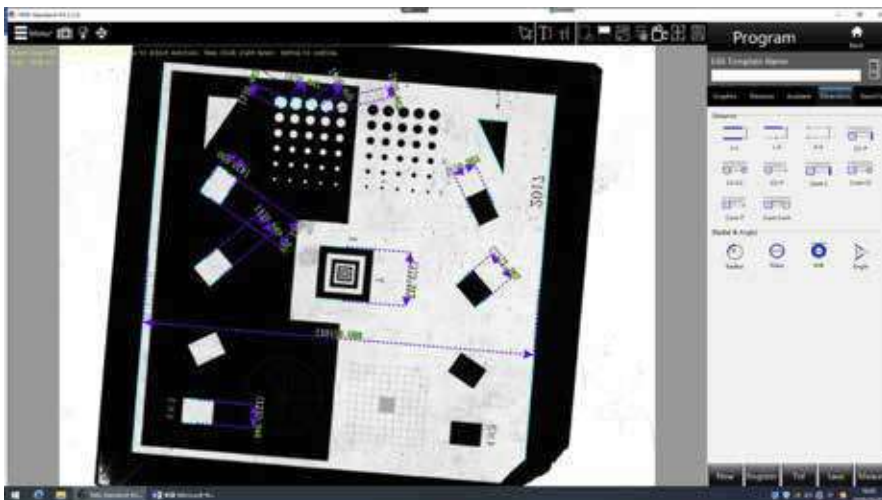
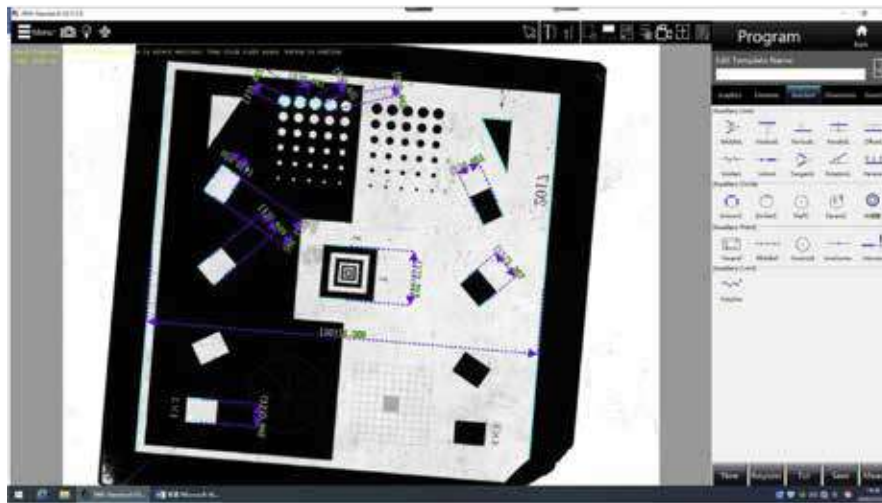


Measurement setting

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



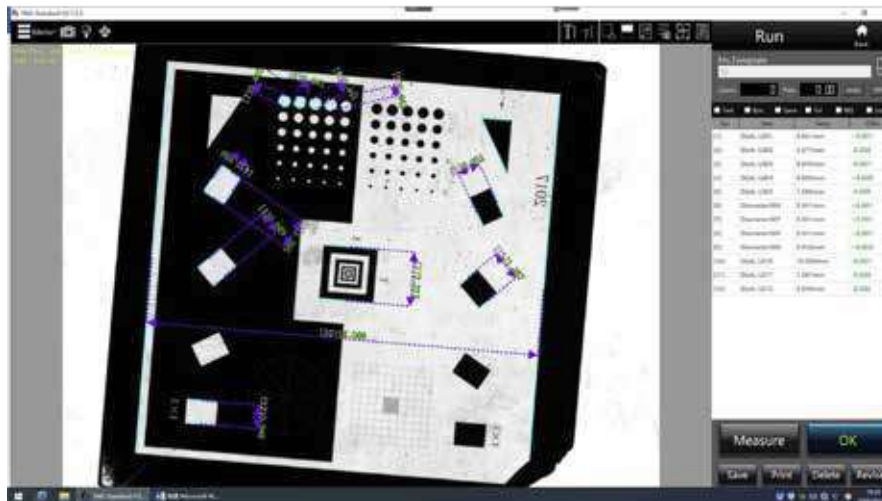
VMQ-100 - MIKROSIE MEASURING SOFTWARE



VMQ-100 - MIKROSIZE MEASURING SOFTWARE

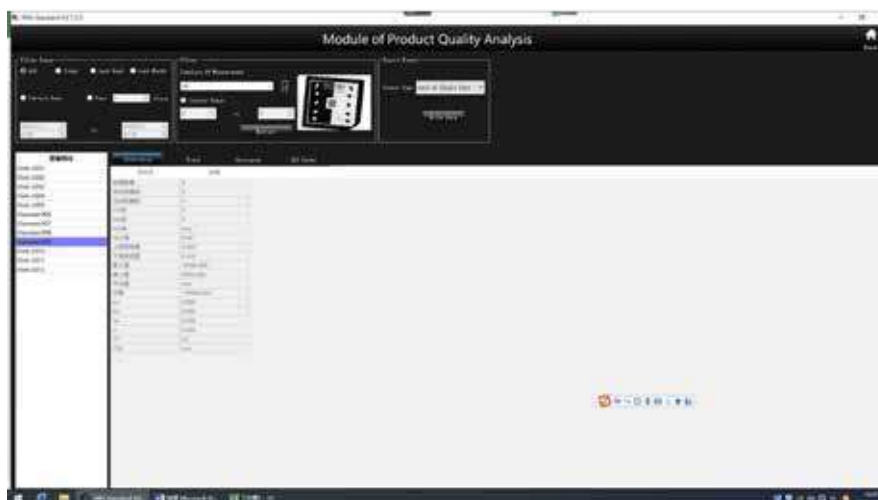
Continuous measurement

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



Statistical analysis

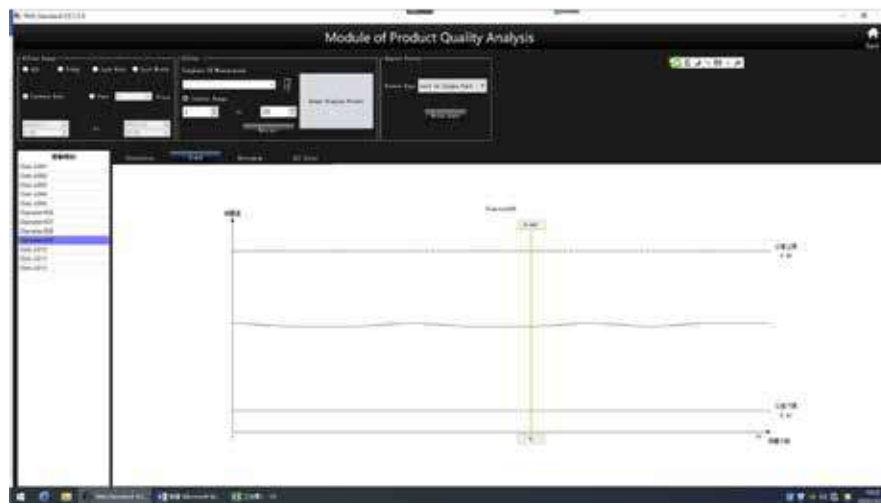
Mikrosize software provides a variety of extraction and analysis tools, the statistical analysis interface has statistical value, trend graph, histogram and data. Measurement results and main statistical information (such as average, σ , 3σ , 6σ , Cpk, etc.) will be automatically recorded and filed. 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.



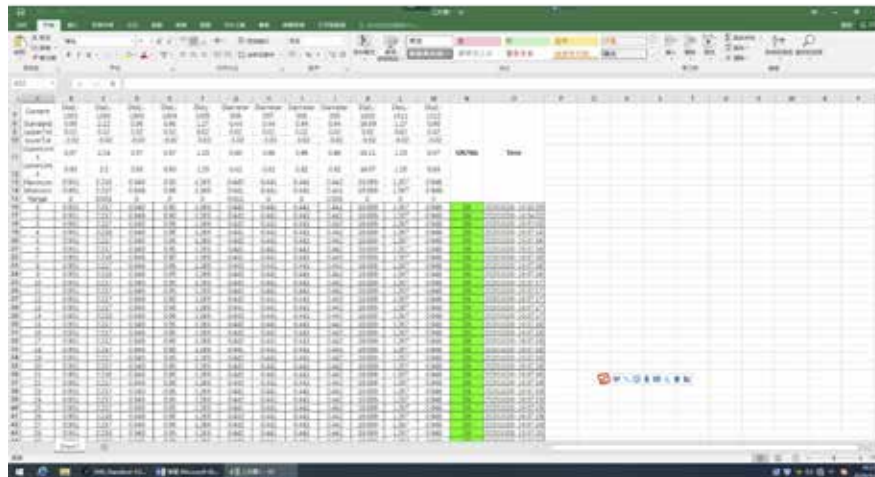
Histogram can reflect the fluctuation and distribution of product quality, and intuitively transfer the information of quality status, which can be used to judge and predict product quality and unqualified rate. By quality diagnosis, SPC uses statistical methods to monitor the change tendency of product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



VMQ-100 - MIKROSIZE MEASURING SOFTWARE

Test report generated with one key

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

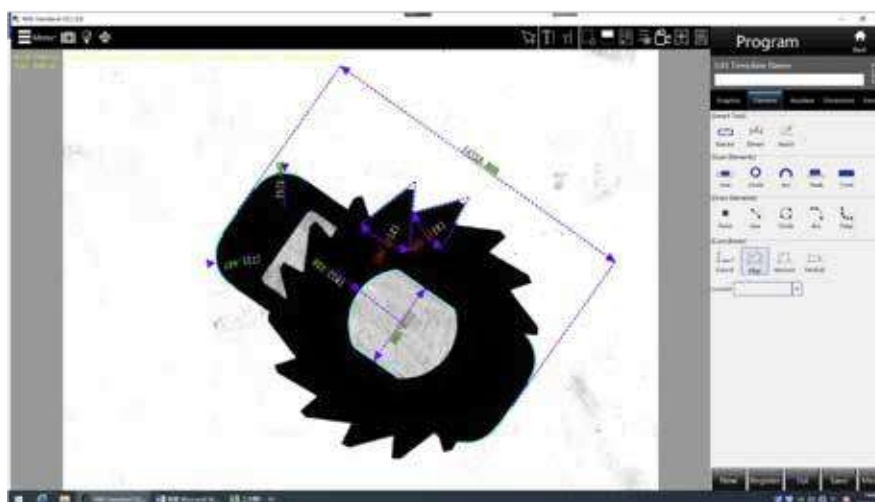


The screenshot displays the VMQ-100 software interface, which includes a data table with columns for various parameters such as 'Date', 'Time', 'Operator', 'Machine', 'Part', 'Lot', 'Spec', 'Min', 'Max', 'Avg', 'Std', 'Cp', 'Cpk', 'Pp', 'Ppk', 'I-MR Chart', 'X-Bar Chart', 'R Chart', 'P Chart', 'I-MR Chart', 'X-Bar Chart', 'R Chart', 'P Chart', 'I-MR Chart', 'X-Bar Chart', 'R Chart', 'P Chart'. The table contains numerous rows of numerical data, and a green highlight is visible on the right side of the table.

Special function

- INTELLIGENT EXTRACTION FUNCTION:

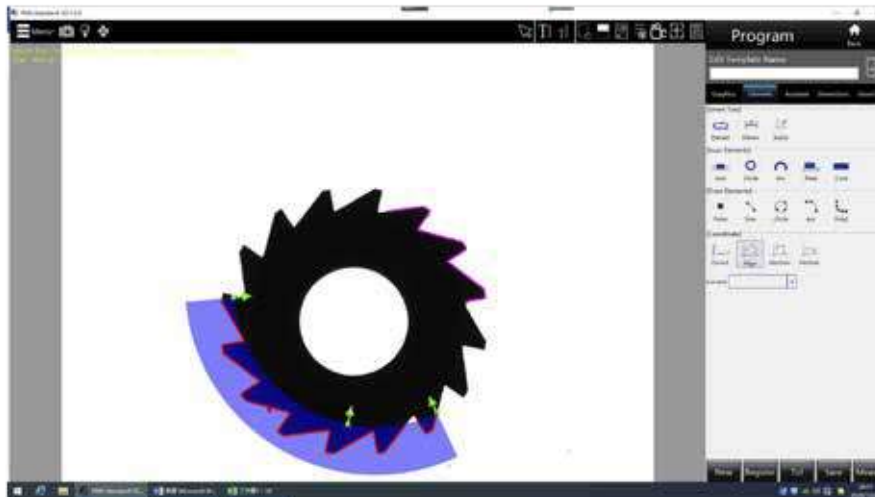
The line, arc and circle can be extracted automatically by mouse clicking the area near the elements to be measured.



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.



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 electrospray 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 integra-



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

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

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.

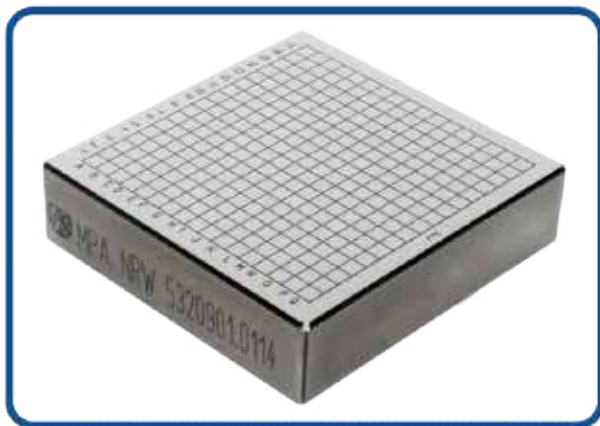
SPARE PARTS

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.



CONTACTS



HEADQUARTERS

Via Primo Villa, 15/f
20875 Burago di Molgora (MB)
Italy

Tel: +39 039 66 84 23

Sales

crasesrl@crase.com

Marketing

marketing@crase.com

Administration

amministrazione@crase.com

Service

service@crase.com

PARTNERS



Chennai Metco

