

Hardness testers - Measuring quality

MICROPIXEL

Precision, versatility and user-friendliness
at your fingertips



← MICROPIXEL - D1

Single tests
1 camera

← MICROPIXEL - D3

Multiple tests
Manual XY table with mechanical vernier
1 camera

← MICROPIXEL - D5

Multiple tests
Manual XY table with digital indicators
1 camera

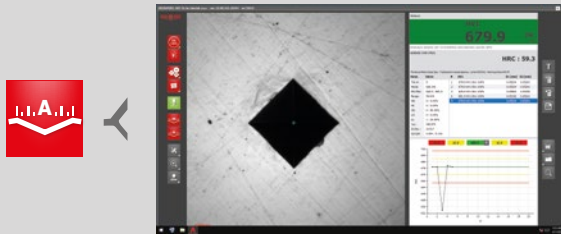
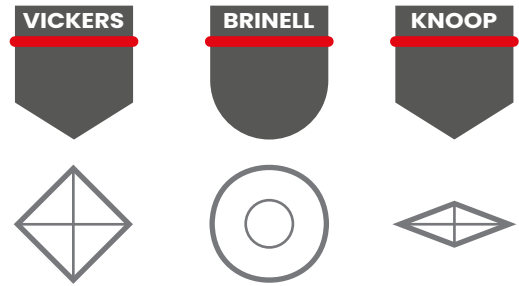


MICROPIXEL – D1

Fields of application

single micro and macro Vickers, Knoop and Brinell tests on all ferrous and non-ferrous materials such as: iron, steel, hardened steel, cast iron, brass, aluminium, copper and metal alloys. Heat treated, hardened, nitrided and cemented materials and filler materials. Testing of ceramics and glass.

In full compliance with the international reference standards, including ISO 6506, ISO 6507, ISO 4545, ASTM E10, ASTM E92, ASTM E384.

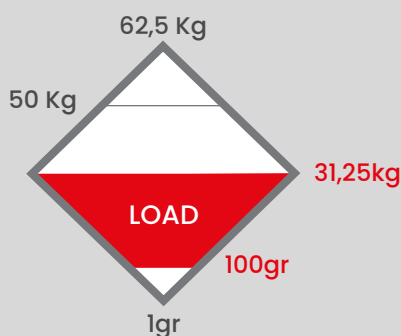
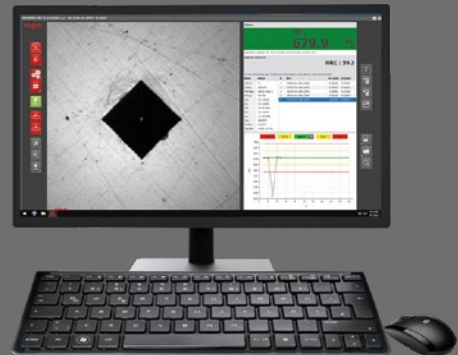


Manual focusing and automatic hardness calculation

focusing is manual with the support of the software. To ensure maximum reliability, the test cycle is automatic: the indenter generates the indentation, the lens performs the optical analysis and the hardness value appears on the PC monitor.

IT system

high-performance PC with pre-installed optical analysis and management software running on Microsoft Windows 10® operating system, keyboard, mouse and 24" Full HD monitor included



Unparalleled accuracy even at very low loads

thanks to the management of the forces (available from 100gf to 31.25kgf but customisable on request) through load cells with Closed Loop control and high sampling rate (20 bits at 1 kHz).

Turret with 3-position automatic changeover

designed to ensure **fast use** of the various high-quality optical lenses, which thanks to **energy-saving LED lighting** guarantee a natural colour view of the indentations.



2 lenses applied



1 indenter included



1 Manual test sample positioning

use the convenient lift screw to bring the test sample closer to or further away from the indenter. Start the test and there you go: the hardness value is calculated automatically.

2 Large working area

suitable for handling both small and medium-large samples.

3 Reliability in any situation:

thanks to the load cell system, Micropixel-D1 guarantees **high repeatability and reproducibility** under any test condition.

Versatile customisation:

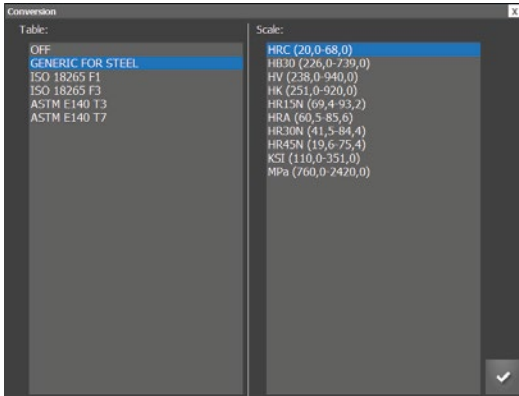
the range of forces and integrated accessories can be expanded or modified on request.



Software and connectivity

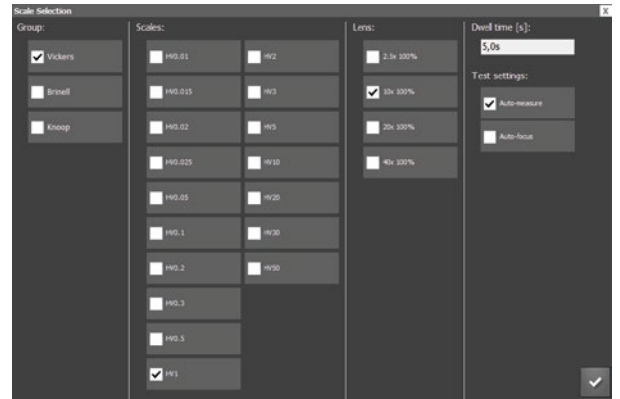
the software is entirely produced by us, with the aim of making intuitiveness and ease of use available to all. Micropixel-D1 follows the "less is more" principle, to guide you in the execution of the tests, without renouncing to advanced functions for the more experienced users

◉ **Integrated conversion tables:**



- ◉ **Smart auto-exposure:** optimisation of the indentation contrast level, increasing the reproducibility of the automatic measurement even under less than optimal conditions;
- ◉ **Possibility of creating statistics and storing them:** always keeping the test results with you between sessions, so that they are not lost.

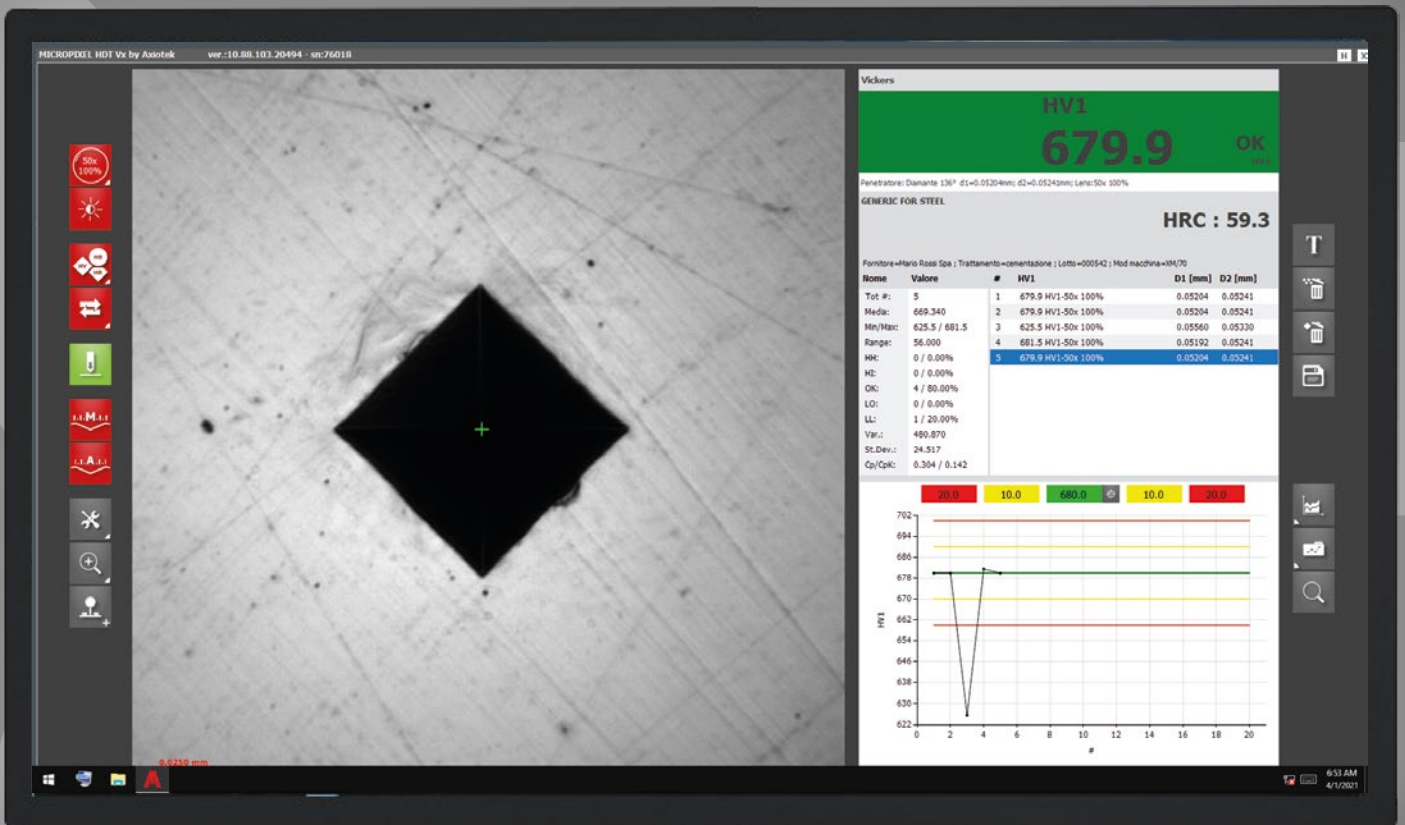
◉ **Change the test method with a simple click:** everything is handled through the software without the need to deal with inconvenient load selectors, therefore reducing the possibility of errors.



- ◉ Hardness value calculated in **automatic or manual mode**;
- ◉ **Dynamic zoom** with high definition view;

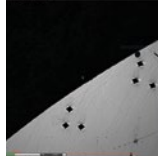
◀ 24" Full HD screen

◀ high definition display



Single tests in a few quick steps:

1 move to the test area
 frame the point where to execute the test and proceed with manual focusing

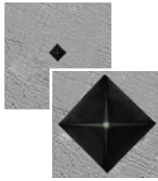


2 adjust everything you want

Lenses:



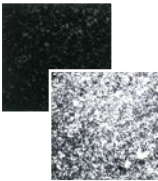
select the type of magnification desired.



Exposure:



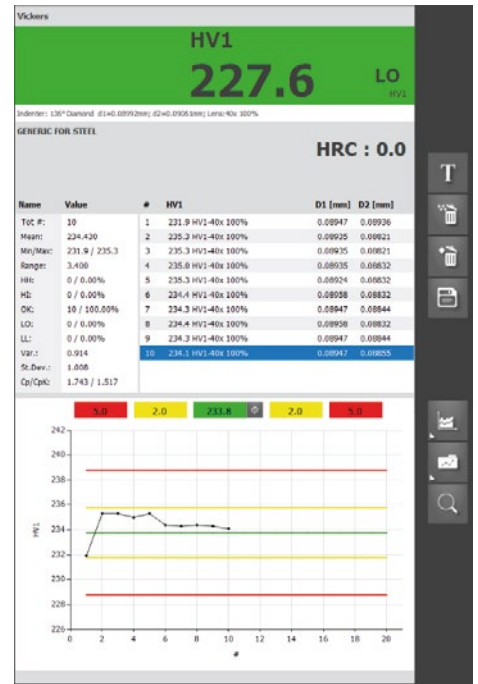
automatic exposure adjustment.



3 Press start:
 the single test starts and the reading is fully automatic



4 Analyse the results:
 all the results obtained are reported in comparison charts and statistical analyses, and can be exported at your convenience



Statistical export/printing of data

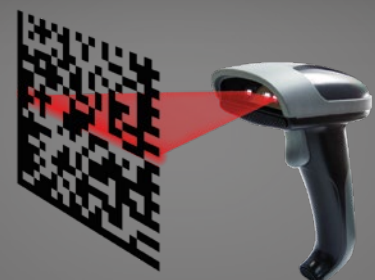
Basic and advanced statistical processing/printing functions with the possibility of direct interface to administration or processing software (such as company ERP) for data export/backup. (on request)

Data output: USB, Ethernet



Barcode scanner:

possibility of combining a barcode scanner (optional) to scan the barcodes found on the individual samples, making all the product details immediately accessible while the test is being carried out

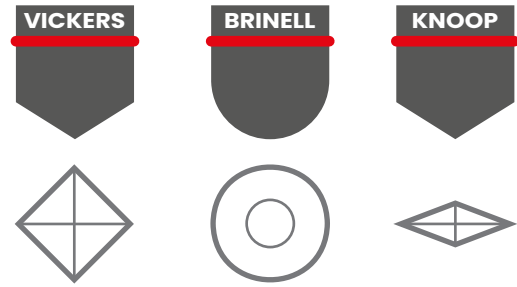


MICROPIXEL – D3

Fields of application

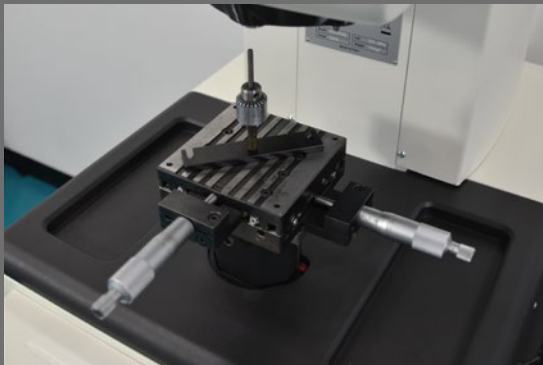
Single and multiple micro and macro Vickers, Knoop and Brinell tests on all ferrous and non-ferrous materials such as: iron, steel, hardened steel, cast iron, brass, aluminium, copper and metal alloys. Heat treated, hardened, nitrided and cemented materials and filler materials.

Testing of ceramics and glass. In full compliance with the international reference standards, including ISO 6506, ISO 6507, ISO 4545, ASTM E10, ASTM E92, ASTM E384.



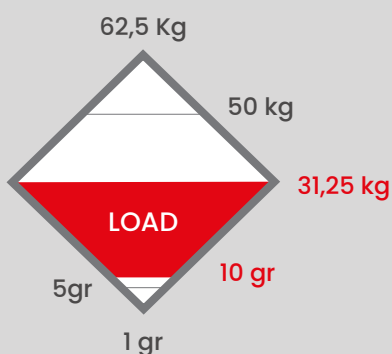
Manual movement of the test sample

using the practical micrometric handwheel with built-in reducer and recirculating ball bearing guide, for high precision and stability.



XY table with mechanical vernier

with a resolution of $\pm 10 \mu\text{m}$, ensuring that both single and multiple (stitch) guided tests can be performed.

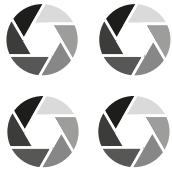


Unparalleled accuracy even at very low loads

thanks to the management of the forces (available from 10gf to 31.25kgf but customisable on request) through load cells with Closed Loop control and high sampling rate (20 bits at 1 kHz).

Turret with 5-position automatic changeover

Designed to ensure **fast use** of the various high-quality optical lenses, which thanks to **energy-saving LED lighting** guarantee a natural colour view of the indentations.



4 lenses applied



1 indenter included



1 Automatic hardness calculation:

Focusing is done manually with the support of the software: simply turn the micrometric handwheel to bring the sample closer to the measuring head with **extreme accuracy**. To ensure maximum reliability, the test cycle is automatic: the indenter generates the indentation, the lens performs the optical analysis and the hardness value appears on the PC monitor.

2 Comfortable working area:

suitable for handling both small and medium-small samples.

3 Reliability in any situation:

thanks to the load cell system, Micropixel-D3 guarantees **extreme reproducibility and repeatability in any test condition**.

Versatile customisation:

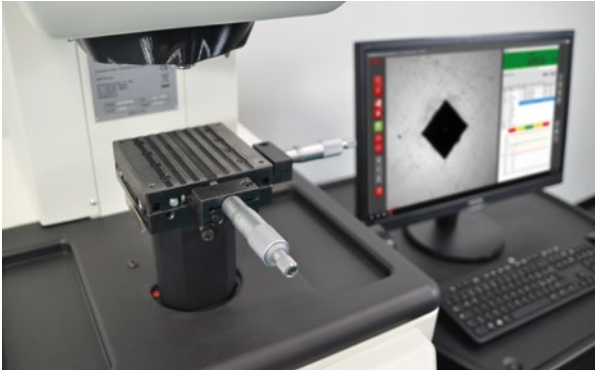
the range of forces and integrated accessories can be expanded or modified on request.



Software and connectivity

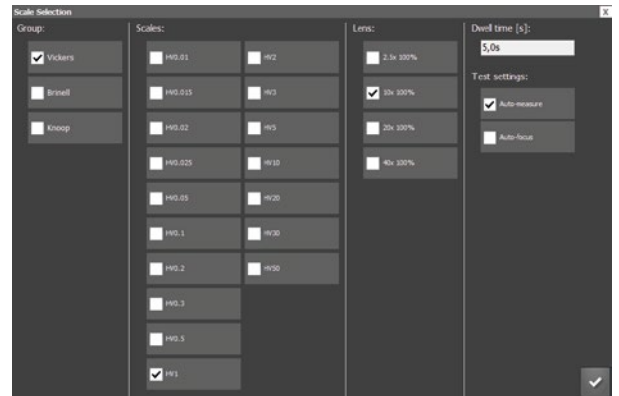
thanks to the processing of the image based on an **algorithm developed entirely by Axiotek**, Micropixel D3 allows **fast and accurate optical analysis even on test samples with less than optimal surface finish**.

- Step-by-step support for completing multiple tests thanks to the analogue XY table.



- Hardness value calculated in **automatic or manual mode**;
- Smart auto-exposure**: optimisation of the indentation contrast level, increasing the reproducibility of the automatic measurement even under less than optimal conditions.

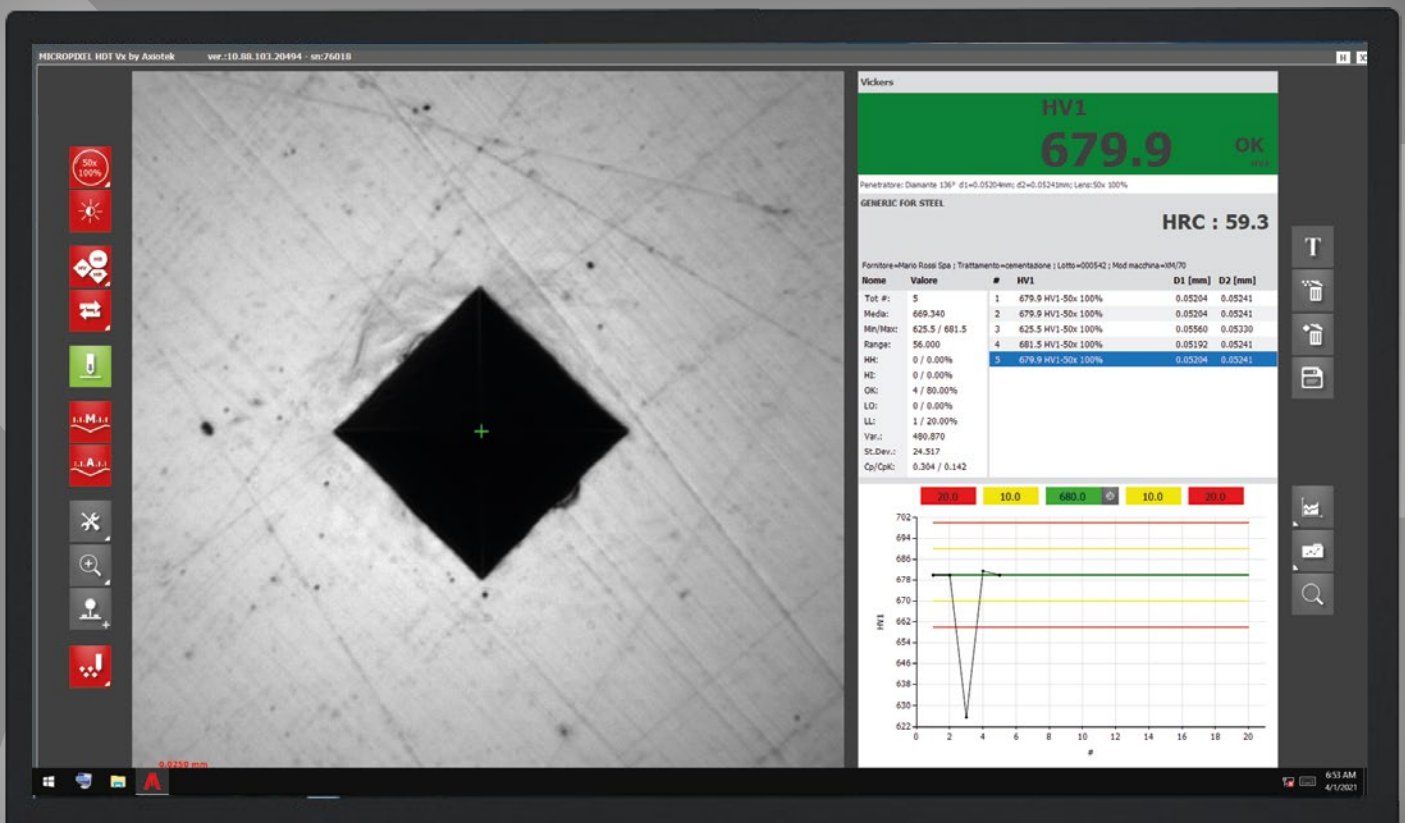
- Change the test method with a simple click**: everything is handled through the software without the need to deal with inconvenient load selectors, therefore reducing the possibility of errors.



- Dynamic zoom** with high definition view;
- Integrated conversion tables**;

◀ 24" Full HD screen

◀ high definition display



Multiple tests in a few quick steps:

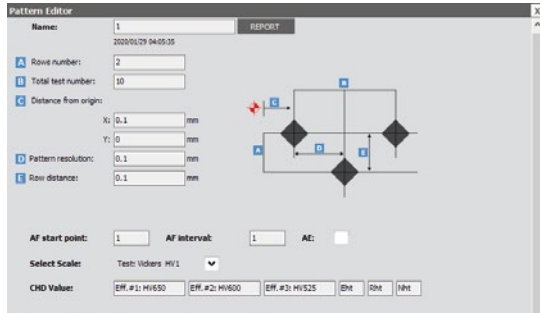
1 move to the test area

frame the point where to execute the test and proceed with manual focusing.



2 Set the patterns:

copy and paste or create and save the new patterns to use. Then select the execution orientation of the stitching as required with a single click.

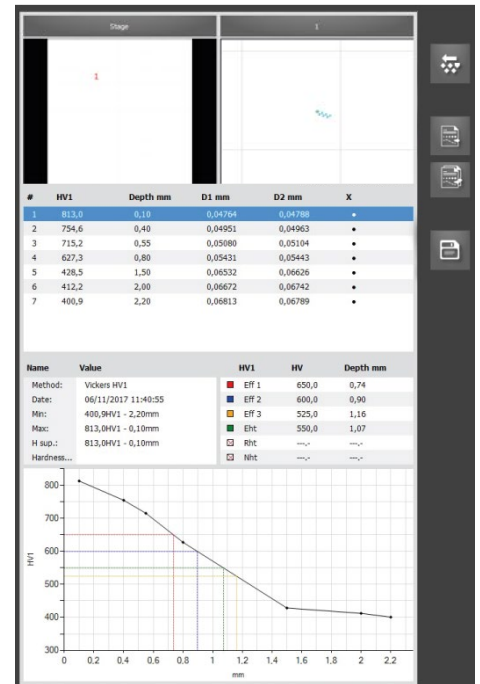


3 Press START

start the test: Micropixel-D3 will automatically create the indentations following the path with manual movement. Measurements are taken automatically, showing the hardness details on the screen

4 Analyse the results

all the results obtained are reported in comparison charts and statistical analyses, and can be exported at your convenience



Statistical export/printing of data

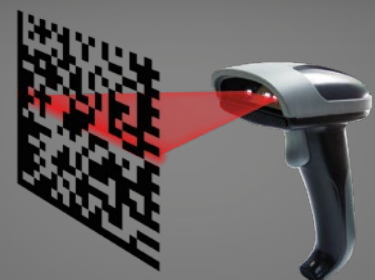
Basic and advanced statistical processing/printing functions with the possibility of direct interface to administration or processing software (such as company ERP) for data export/backup. (on request)

Data output: USB, Ethernet



Barcode scanner:

possibility of combining a barcode scanner (optional) to scan the barcodes found on the individual samples, making all the product details immediately accessible while the test is being carried out

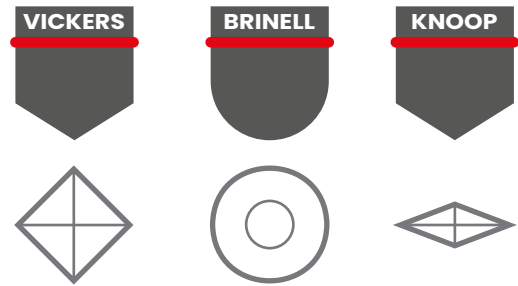


MICROPIXEL – D5

Fields of application

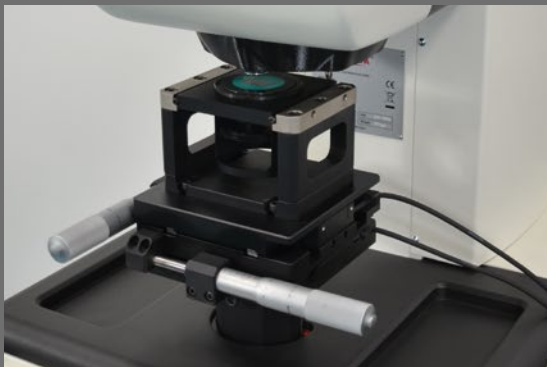
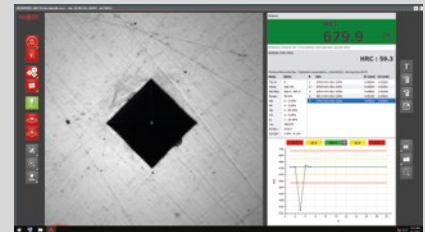
Single and multiple Micro/Macro Vickers, Knoop and Brinell tests on all ferrous and non-ferrous materials such as: iron, steel, hardened steel, cast iron, brass, aluminium, copper and metal alloys. Heat treated, hardened, nitrided and cemented materials and filler materials. Testing of ceramics and glass.

In full compliance with the international reference standards, including ISO 6506, ISO 6507, ISO 4545, ASTM E10, ASTM E92, ASTM E384.



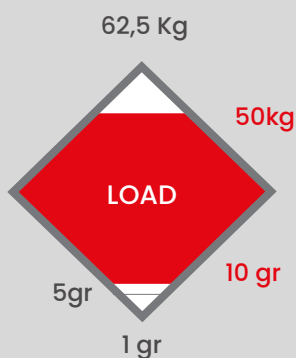
Automatic hardness calculation

after manual focusing, the test cycle is performed automatically: the indenter generates the indentation and the hardness value appears immediately on the PC monitor. *There you go!*



Digital XY table

with a resolution of $1\mu\text{m}$, to perform stitching and multiple tests, showing the coordinates on the display through a procedure guided by the software

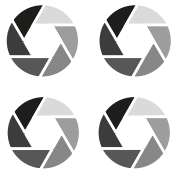


Unparalleled accuracy even at very low loads

thanks to the management of the forces (available from 10gf to 50kgf but customisable on request) through load cells with Closed Loop control and high sampling rate (20 bits at 1 kHz).

Turret with 5-position automatic changeover

designed to ensure **fast use** of the various high-quality optical lenses, which thanks to **energy-saving LED lighting** guarantee a natural colour view of the indentations.



4 lenses applied



1 indenter included



1 Semi-automatic micro hardness tester

ideal for those who need to perform **stitching of objects with complex geometries** on an occasional basis

2 Technology that reduces displacement errors

thanks to the linear transducers of the XY table being directly applied to the bearing surface

3 Reliability in any situation

thanks to the load cell system, Micropixel-D5 guarantees **extreme reproducibility and repeatability** in any test condition.

Versatile customisation:

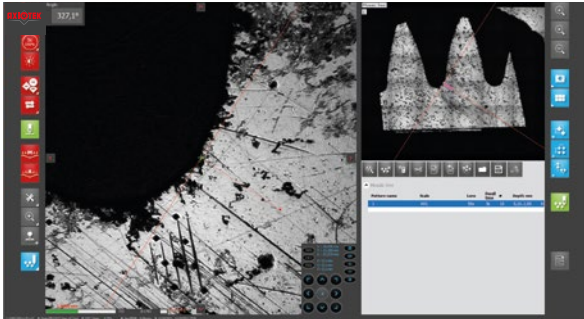
the range of forces and integrated accessories can be expanded or modified on request.



Software and connectivity

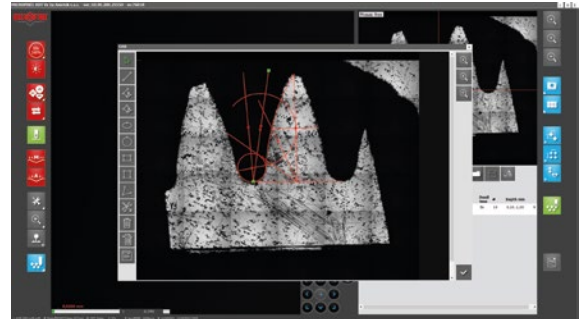
Micropixel-D5 is the **perfect combination of manual and automatic**: it features a powerful software with more functions than the D1 and D3 models. Because we want to offer you an even **more comfortable and in-depth user experience**

- ⊙ **Practical mosaic function**: full manual scanning of the test sample, ideal for measuring samples with complex geometries.



- ⊙ **Continuous interaction between software and micrometric XY table movements with digital indicators**, to manage the test cycle with a self-guided procedure;
- ⊙ **Dynamic zoom** with high definition view;
- ⊙ **Possibility of combining sets of sample drawers or special anvils**;

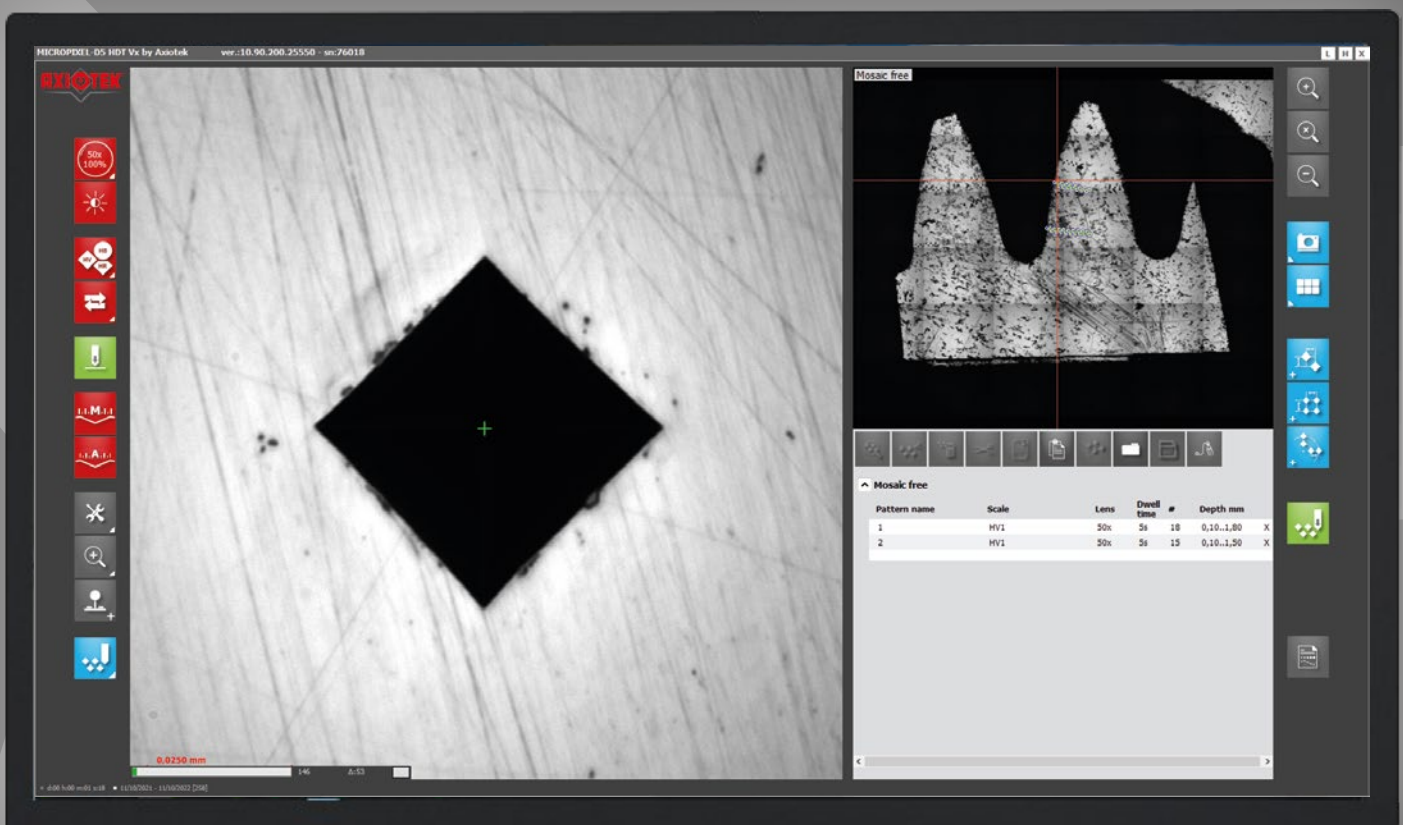
- ⊙ **CAD system**: Free drawing on the test surface, allowing the creation of indentation execution and reading orientation geometries (on request).



- ⊙ Hardness value calculated **in automatic or manual mode**;
- ⊙ **Smart auto-exposure**: optimisation of the indentation contrast level, increasing the reproducibility of the automatic measurement even under less than optimal conditions.
- ⊙ **Integrated conversion tables**.

← 24" Full HD screen

← high definition display



Multiple tests in a few quick steps:

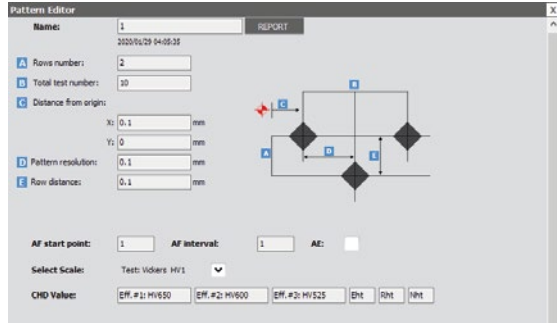
1 move to the test area

frame the point where to execute the test and proceed with manual focusing.



2 Set the patterns:

copy and paste or create and save the new patterns to use. Then select the execution orientation of the stitching as required with a single click.

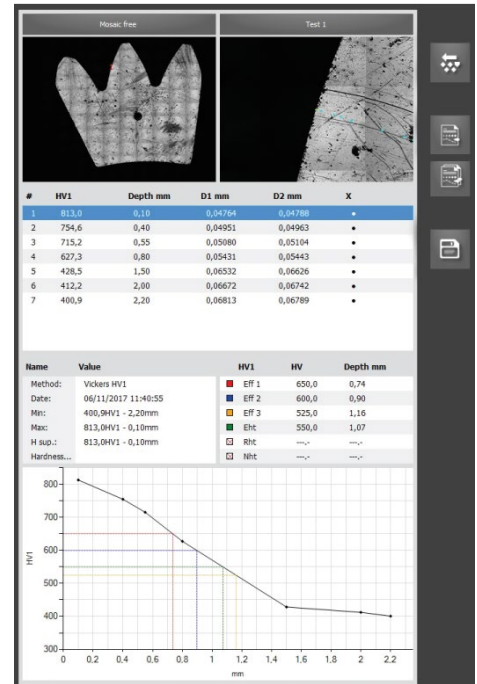


3 Press START

Press start: thanks to the direct and continuous interaction between software and XY table movements, stitching is even easier and faster. Measurements are taken in automatic mode

4 Analyse the results

all the results obtained are reported in comparison charts and statistical analyses, and can be exported at your convenience



Statistical export/printing of data

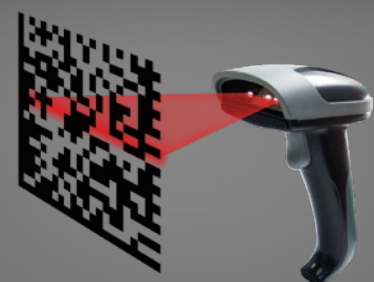
Basic and advanced statistical processing/printing functions with the possibility of direct interface to administration or processing software (such as company ERP) for data export/backup. (on request)

Data output: USB, Ethernet



Barcode scanner:

possibility of combining a barcode scanner (optional) to scan the barcodes found on the individual samples, making all the product details immediately accessible while the test is being carried out



MICROPIXEL - D1



download the data sheet
at the bottom of the page

MICROPIXEL - D3



download the data sheet
at the bottom of the page

MICROPIXEL - D5



download the data sheet
at the bottom of the page

TEST FORCES:

Vickers:

0,980 - 1,961 - 2,942 - 4,903 - 9,807 -
19,61 - 29,42 - 49,03 - 98,07 - 196,1 -
294,2 N
(0,1 - 0,2 - 0,3 - 0,5 - 1 - 2 - 3 - 5 - 10 -
20 - 30 Kgf)

Knoop:

0,980 - 1,961 - 2,942 - 4,903 - 9,81 N
(0,1 - 0,2 - 0,3 - 0,5 - 1 Kgf)

Brinell:

9,81 - 24,52 - 49,03 - 98,07 - 294,2 -
306,5 N
(1 - 2,5 - 5 - 10 - 30 - 31,25 Kgf)

POSSIBLE TESTS:

Vickers:

HV 0,1 - HV 0,2 - HV 0,3 - HV 0,5 -
HV 1 - HV 2 - HV 3 - HV 5 - HV 10 -
HV 20 - HV 30

Knoop:

HK 0,1 - HK 0,2 - HK 0,3 - HK 0,5 -
HK 1

Brinell:

HBW 1/1 - HBW 1/2.5 - HBW 1/5 -
HBW 1/10 - HBW 1/30 - HBW 2.5/31.25

TEST FORCES:

Vickers:

0,098 - 0,147 - 0,196 - 0,245 - 0,980 -
1,961 - 2,942 - 4,903 - 9,807 - 19,61 -
29,42 - 49,03 - 98,07 - 196,1 - 294,2 N
(0,01 - 0,015 - 0,02 - 0,025 - 0,1 - 0,2 -
0,3 - 0,5 - 1 - 2 - 3 - 5 - 10 - 20 - 30 Kgf)

Knoop:

0,098 - 0,196 - 0,254 - 0,490 - 0,980 -
1,961 - 2,942 - 4,903 - 9,81 N (0,01 - 0,02
- 0,025 - 0,05 - 0,1 - 0,2 - 0,3 - 0,5 - 1 Kgf)

Brinell:

9,81 - 24,52 - 49,03 - 98,07 - 294,2 -
306,5 N
(1 - 2,5 - 5 - 10 - 30 - 31,25 Kgf)

POSSIBLE TESTS:

Vickers:

HV0,01 - HV0,015 - HV0,02 -
HV0,025 - HV 0,1 - HV 0,2 - HV 0,3 -
HV 0,5 - HV 1 - HV 2 - HV 3 - HV 5 -
HV 10 - HV 20 - HV 30

Knoop:

HK0,01 - HK0,02 - HK0,025 -
HK0,05 - HK 0,1 - HK 0,2 - HK 0,3 -
HK 0,5 - HK 1

Brinell:

HBW 1/1 - HBW 1/2.5 - HBW 1/5 -
HBW 1/10 - HBW 1/30 - HBW 2.5/31.25

TEST FORCES:

Vickers:

0,098 - 0,147 - 0,196 - 0,245 - 0,980 -
1,961 - 2,942 - 4,903 - 9,807 - 19,61 -
29,42 - 49,03 - 98,07 - 196,1 - 294,2 -
490,3 N (0,01 - 0,015 - 0,02 - 0,025 -
0,1 - 0,2 - 0,3 - 0,5 - 1 - 2 - 3 - 5 - 10 -
20 - 30 - 50 Kgf)

Knoop:

0,098 - 0,196 - 0,254 - 0,490 - 0,980 -
1,961 - 2,942 - 4,903 - 9,81 N (0,01 -
0,02 - 0,025 - 0,05 - 0,1 - 0,2 - 0,3 - 0,5
- 1 Kgf)

Brinell:

9,81 - 24,52 - 49,03 - 98,07 - 294,2 -
306,5 N
(1 - 2,5 - 5 - 10 - 30 - 31,25 Kgf)

POSSIBLE TESTS:

Vickers:

HV0,01 - HV0,015 - HV0,02 -
HV0,025 - HV 0,1 - HV 0,2 - HV 0,3
- HV 0,5 - HV 1 - HV 2 - HV 3 - HV 5
- HV 10 - HV 20 - HV 30 - HV50

Knoop:

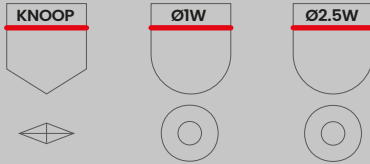
HK0,01 - HK0,02 - HK0,025 -
HK0,05 - HK 0,1 - HK 0,2 - HK 0,3 -
HK 0,5 - HK 1

Brinell:

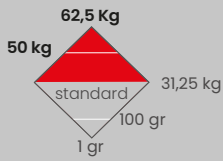
HBW 1/1 - HBW 1/2.5 - HBW 1/5 -
HBW 1/10 - HBW 1/30 - HBW 2.5/31.25



Lenses of your choice available to replace the standard ones: 2,5X; 5X and 20X



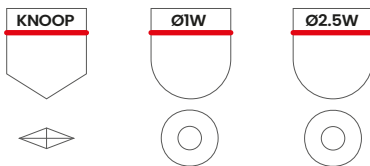
Indenters of your choice available to replace the standard one: Knoop; Ø1W; Ø2.5W



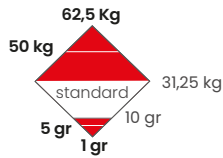
Range of customisable forces: up to 50Kgf or 62,5kgf



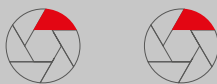
Lenses of your choice available to replace the standard ones: 2,5X



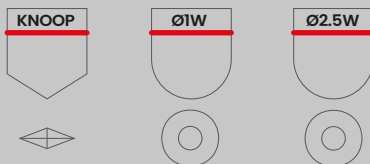
Indenters of your choice available to replace the standard one: Knoop; Ø1W; Ø2.5W



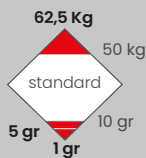
Range of customisable forces: up to 1gf; 5gf; 50kgf or 62,5kgf



Lenses of your choice available to replace the standard ones: 2,5X and 20X



Indenters of your choice available to replace the standard one: Knoop; Ø1W; Ø2.5W



Range of customisable forces: up to 1gf; 5gf or 62,5kgf

Service & Maintenance

Our generational experience based on more than 60 years of field work allows us to answer any of your questions or concerns.

Our highly strategic geographical position allows us to support you in the maintenance of your instrument, offering you completely made in Italy spare parts.

Why choose us?

- ◉ We guarantee **100% Italian quality**.
- ◉ We believe in **true innovation**: listening to your needs and making an hardness tester that can meet them.
- ◉ We promote an **empathic design**, which ensures functionality and harmony in the interaction with measuring instruments.
- ◉ **We are pragmatic and result-oriented**: what we design and produce is the result of years of study, research and experimentation.
- ◉ **We love to accompany you step by step**, listening and advising you what better embraces your needs



WHERE WE ARE

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