MACRO HARDNESS TESTER

QNESS 200 CSA+

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HIGHLY AUTOMATED, PRECISE AND RELIABLE

During the development of the Qness 200 units, particular attention was paid to the following things: Maximum performance with minimum effort.

A fully automatic XY slide will guarantee high precision hardness testing. It is ideal for fully automatic repeated tests and progression tests. Its optical system with color camera provides reproducible and reliable results every time.

Operation via an external PC system is carried out based on the user-friendly Qpix Control 2 hardness testing software, providing benefits such as automatic height adjustment, contactless exploration, or CAD compatibility.

Product Advantages

- Large test force range (0,5kg – 187,5kg)
- Automatic 3-axis control
- 5-position tool changer
- Robust, welded steel frame
- Test table 180 x 200 mm

Click to view video

Product Video

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TEST METHODS AND FORCE APPLICATION

Brinell
DIN EN ISO 6506, ASTM E-10

HBW 1/1	HBW 1/2.5	HBW 1/5	HBW 1/10	HBW 1/30	HBW 2.5/6.25
HBW 2.5/15.6	HBW 2.5/31.25	HBW 2.5/62.5	HBW 2.5/187.5	HBW 5/25	
HBW 5/62.5	HBW 5/125	HBW 10/100	HBT (not acc. to standards)		

Rockwell
DIN EN ISO 6508, ASTM E-18

HRA - HRV	HR15-N/T/W/X/Y	HR30-N/T/W/X/Y	HR45-N/T/W/X/Y

Vickers
DIN EN ISO 6507, ASTM E-92, ASTM E-384

HV 0,5	HV 1	HV 2	HV 3	HV 5	HV 10	HV 20	HV 30	HV 50	HV 100
HVT (not acc. to standards)									

Knoop
DIN EN ISO 4545, ASTM E-92, ASTM E-384

HK 0,5	HK 1	HK 2

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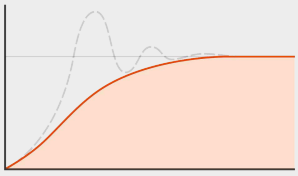
Plastics
DIN EN ISO 2039

49.03 N	132.9 N	357.9 N	961 N



FULLY AUTOMATED TEST CYCLE

Electronic force application and closed-loop control

Integrated conversions: DIN EN ISO 18265, DIN EN ISO 50150, ASTM E-140

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HIGHLY ACCURATE RESULTS IN ULTRA-SHORT TIME

COMPACT DESIGN - LATEST TECHNOLOGY

- Test force ranges 0.5 kg to 187.5 kg
- Two machine versions to serve all applications and test piece sizes
- Direct depth measurement system with a resolution of 0.05 µm
- Robust, welded steel frame and covers made of sheet steel

MADE IN AUSTRIA

Unmatched in its class! We know how important a long-serving superior-quality device can be and guarantee excellent quality from our Qness 200 CS/CSA+ series. Developed and manufactured in Austria!

XLED BRINELL EVALUATION LENSES

XLED illumination modules revolutionize the analysis of Brinell indentations. Due to beading on commercially available lenses, soft Brinell indentations in particular can be subject to imprecise gauging results. In contrast, XLED lenses guarantee precise and repeatable measurements, regardless of material type and hardness, due to direct and wide-extension illumination.

SWIVELING DOWNHOLDER

No long tool changeovers for inaccessible test positions. The downholder can be swiveled in and out via manual action. Furthermore, the clamping elements can be changed easily and adapted to suit the customer's component.

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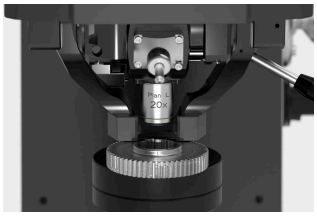
ETHERNET INDUSTRIAL COLOR CAMERA

High-quality CMOS 5-megapixel cameras with Ethernet data transfer define the current industrial standard. Unlike other camera systems, a far higher transmission stability is possible here. Additionally, the PC and hardness testing device can be set up remotely at great distances from each other. This is ideal in manufacturing environments in which the control infrastructure is installed in external switch cabinets.



OPTIMIZED TEST HEAD DESIGN

A range of clamping and holding elements can be configured to suit tooling requirements. The optional transparent collision guard can protect tools on the device from damage while ensuring an unrestricted view of the test cell interior.

RAPID INDENTER CHANGING SYSTEM

Uniquely simple, tool-free indenter changes due to indenter quick-release mechanism.

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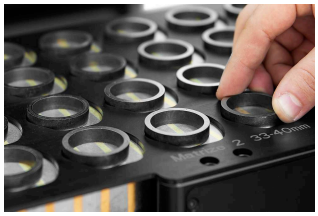
FULFILLS CLEAR REQUIREMENTS

SIMPLE AND RELIABLE

TEST TABLE HEIGHT ADJUSTMENT

The height of the test table is infinitely adjustable (position can be fixed) via the play-free roller-bearing spindle guide - ideal for fully automatic series and progression tests on parts with identical test height. The test sequence is performed without clamping. Individual tests can also be carried out with the patented, swivelling downholder clamp.

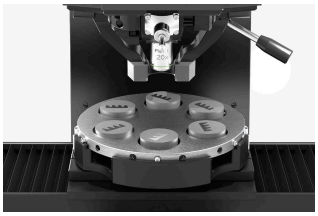


AUTOMATIC PROGRESSIONS

The automatic XY slide with high-precision positioning drive enables extensive test series and hardness curves. External joystick for controlling the axis. Usable support surface: 180 x 200 mm, Traverse path: X 220 / Y 220 mm.

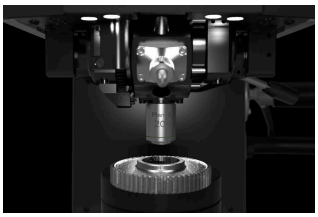
EMBEDDED SAMPLES

QATM sample holders, with up to eight mounted samples, can be placed on the large workpiece support to be tested in one operation.



GRINDING PLATE

Grinding, polishing and hardness testing - all in one work cycle. The machine is designed to be equipped with the grinding plates of the QPol machines, using a special contraption. This prevents the need to unclamp the samples in between steps.



WORKSPACE ILLUMINATION

The bright, uniform LED workspace lighting enables safe positioning

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of the test part. The workspace lighting is designed to illuminate the test area without disturbing shadows.

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HIGHLY PRECISE AND HIGHLY AUTOMATED

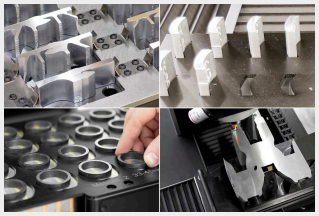
CUSTOMIZED FOR YOUR TEST REQUIREMENTS

FULLY AUTOMATED 3-AXIS CONTROL

Fully automatic and robust XY slide with high-precision positioning drive. Dynamic joystick to control all 3 axes (XYZ). Usable support surface 200 x 180 mm.

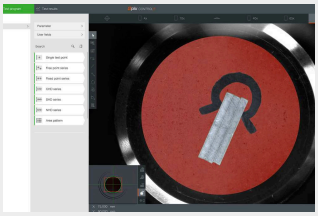
MAXIMUM CLAMPING SAFETY

High-performance induction motor facilitates an ideal workpiece clamping force. Clamping power is adapted to the test method and is automatically set to be greater than the test force. Operators do not need to set levels and can rely on the device to guarantee safe, optimized adaption.



SPECIAL CLAMPING DEVICES

QATM is the right stop for advice on complex requirements and clamping devices! It would be our pleasure to advise, devise, customize and implement a solution for you. Only the right component clamping solution can guarantee reliable results.



SAMPLE IMAGE CAMERA

Ultimate ease of use with 5 megapixel colour camera for recording the entire sample for a perfect overview and documentation in the protocol. It is standard in the CA+ and A+ versions to record the entire table surface as sample image.

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IDENTICAL SAMPLE TESTS

An entire range of relevant data, such as test patterns, test methods and user fields can be activated via pre-defined sample magazines. QATM can provide the most suitable clamping setup, matrices and cassette systems for every requirement.

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IOT - INTERNET OF THINGS

THE PLATFORM FOR REMOTE ACCESS TO YOUR DEVICES

All QATM hardness testers with QpixControl2 and QpixT2 software seamlessly integrate into the Verder Scientific IoT platform, providing enhanced functionality and seamless connectivity.

- **Real-time Monitoring**: Monitor your machinery in real time, from anywhere in the world. This data-driven approach empowers you to make informed decisions with ease.
- **Live Notifications**: Be ahead of the curve with immediate alerts and updates. Real-time notifications ensure you stay informed about your equipment's performance, leading to proactive maintenance.
- **Effortless Backup**: Simplify your data protection. Whether you need to back up a single device or an entire fleet, our platform streamlines the process, minimizing downtime and data loss.
- **Automatic & Free Software Updates**: Bid farewell to manual updates! Verder Scientific IoT ensures your customers' machines are consistently equipped with the latest software, optimizing performance and reliability.

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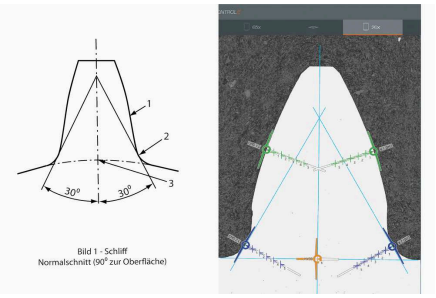
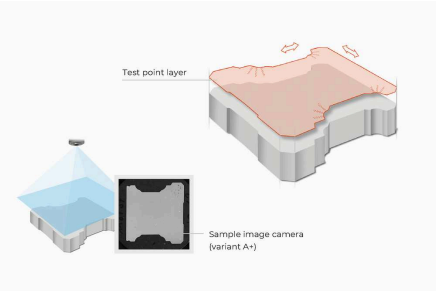
APPLICATIONS - PRACTICAL



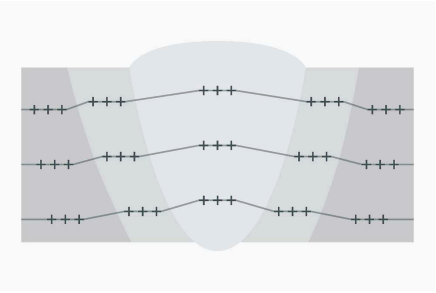
TOOTH FLANK TESTING

The time-consuming creation of test points, especially with tooth flank testing, is minimized by means of pre-defined templates. The A+ version enables the entire normed procedure between HV30 and HV1 to be done by one single device.



TEMPLATE FUNCTION

- Ideal for repeated tests / components
- Alignment of ‘test point mappings’ directly on the work piece with reference lines and bench marks
- Test point and analysis patterns without ‘fixed stop’ or sample holder
- The sample image can be used in a clearly-structured test report



WELD SAMPLE TESTING AND ANALYSIS

Serial provision of ‘Advanced Welding’ functions facilitates the simple, norm-compliant (e.g. EN ISO 9015 & EN ISO 22826) integration of test mapping for Brinell / Knoop / Vickers hardness testing. Pre-defined patterns can be simply adapted to each respective test piece via interactive functions. If required, Qpix INSPECT modules can also provide a simultaneous material-graphics analysis of the weld seam.

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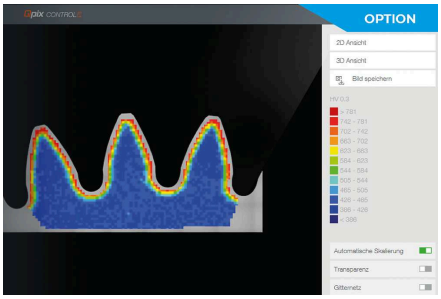
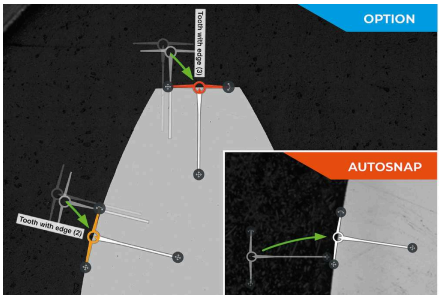


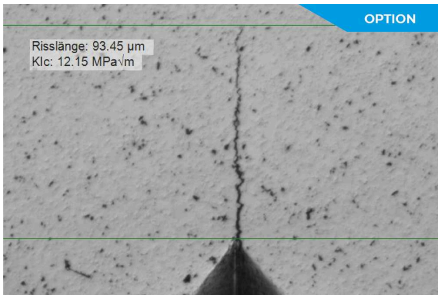
2D/3D AREA MAPPING

The optional software module ‘2D/3D hardness chart’ is the perfect aid for the detailed determination of hardness distribution over the total cross section, especially for heat-treated materials. This is extremely important in material exploration, and also for weld testing or in damage analysis.



EDGE RECOGNITION

Edge recognition involves automatic adaption of test row starting points to the sample edge when using the according project and templates. The module significantly increases the degree of automation and is an ideal add-on to the serially provided AutoSnap function.



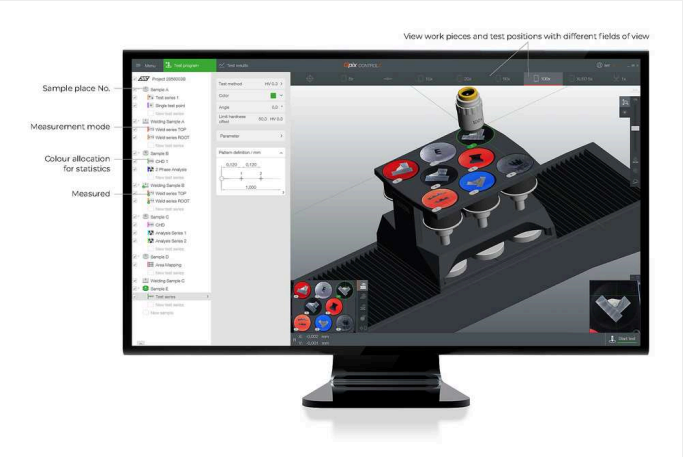
FRACTURE LENGTH MEASUREMENT

The K1C value is established via norm-compliant measurement of the 4 fracture lines. The MPa√m is subsequently calculated automatically.

OPERATION VIA EXTERNAL PC-SYSTEM

REVOLUTIONARY 3D OPERATING CONCEPT

Intuitive, clearly organized and professional: Qpix Control2 next-generation hardness testing software, developed based on customer feedback and input for maximum user-friendliness. 3D imaging and a whole range of easily understood control elements and views included in the software. It sets new standards in hardness testing.



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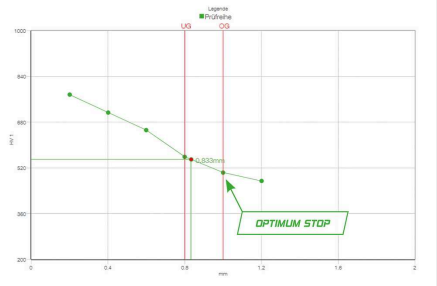
CUSTOMER-SPECIFIC SAMPLE HOLDER

Identical samples can be set up in the software in scale as a 3D model.



SAVE TIME WITH OPTIMUM STOP

Time-saving test mode ‘Complete all indentations – then evaluate’ and ‘Optimum Stop’ to complete test series as soon as the lower hardness limit has been undercut.

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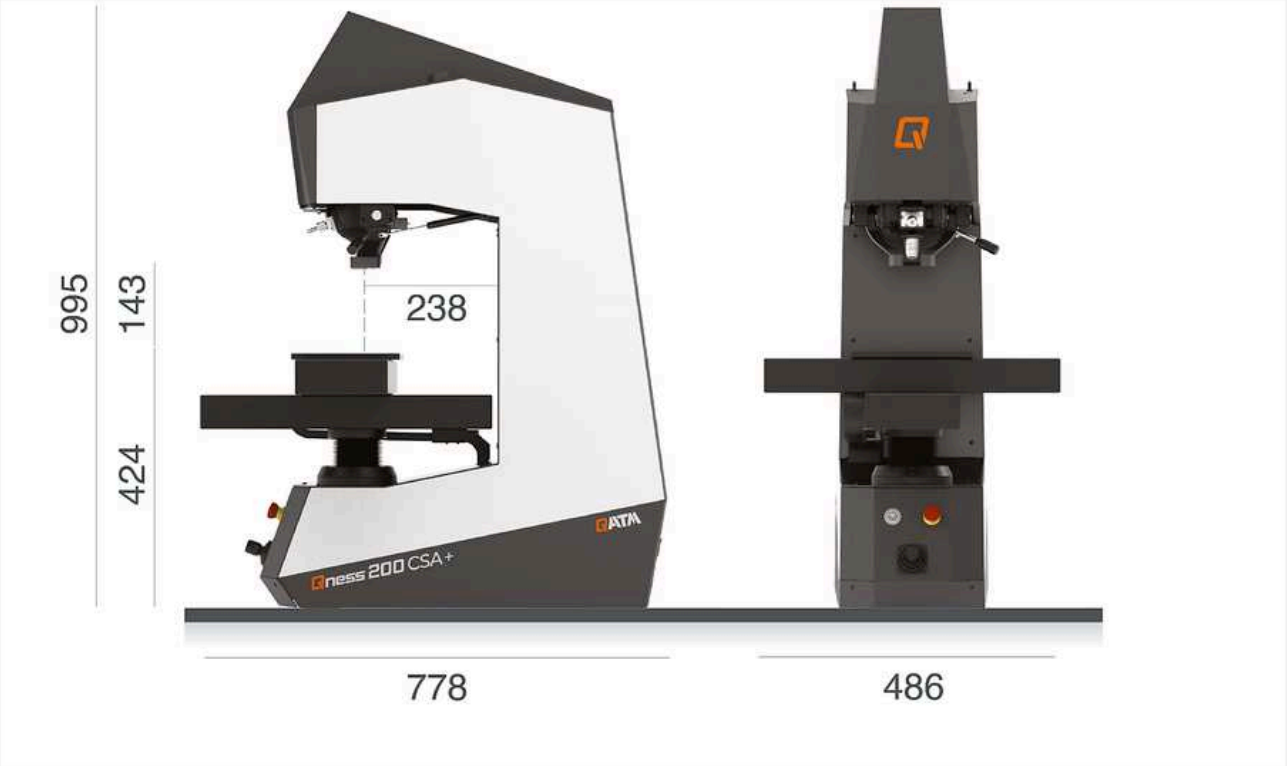
TECHNICAL DATA



Test force range	0.5 - 187.5 kg (4.9 - 1839 N)
Tool positions	5 (toolchanger)
Software	Qpix Control 2
Height adjustment	motorized
Test height	140 mm
Throat depth	238 mm
Test table	180 x 200 mm
Traverse path	X 220 / Y 220 mm
Max. workpiece weight	"unlimited"
Weight of basic device	174 kg
Test sequence	fully automated / electronic force application
Camera system / Image transfer	5 MP ethernet industrial standard

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Ports	1x RJ45 (Ethernet)
Lenses	XLED 2, XLED 5, 5x, 10x, 20x, 50x, 100x
Field of view (acc. to equip)	0.113 x 0.084 mm (100x) to 4.24 x 3.18 mm (XLED2)
Additional options	QATM designer pedestal, collision protection, cross laser, test anvils,prisms, data connections, barcode/QR code reader etc.

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ORDER DATA

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