



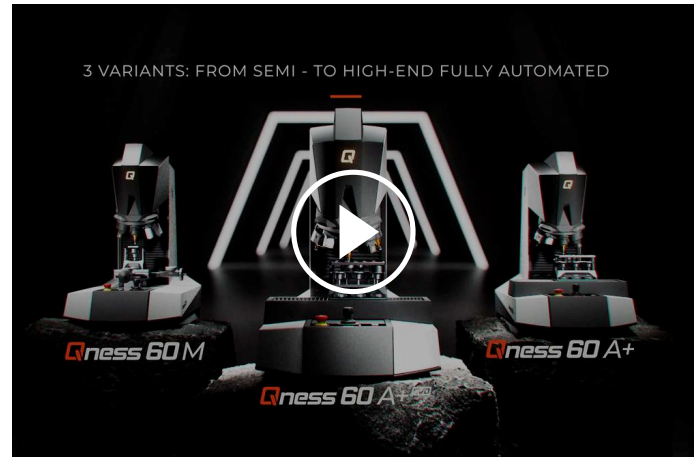
BRINELL / KNOOP / VICKERS MICRO HARDNESS TESTER

QNESS 10 / 60 A+

**The Vickers / Knoop / Brinell / Rockwell hardness tester series Qness 10 / 60 takes micro hardness testing to a whole new level: The high-end laboratory devices of the latest generation combine the best of both worlds – hardness testing and microscopy without compromise and with maximum operating convenience. The revolutionary optical system with color camera provides reproducible and reliable results every time.**

The classic „Qness 10 / 60 A+“ model of this Vickers / Knoop / Brinell / Rockwell hardness tester promises perfect automation and comes with a precision positioning control for all three axis systems. Flexible XYZ progressions for thousands of analysis points allow for exceptionally high throughput without operator intervention.

QATM micro hardness testers seamlessly integrate with the Verder Scientific IoT platform, featuring remote real-time monitoring, live notifications, effortless backups and automatic software updates.



[Click to view video](#)

### Product Video

## QNESS 10 / 60 A+

### PRODUCT ADVANTAGES

- | Wide test force range (0.25 g – 62.5 kg)
- | Ready to Test package, includes: ASTM+DAkkS certified Vickers diamond and 5x / 20x / 50x lenses
- | Dynamic test turret with 8-position tool changer
- | Qpix Control2 Software with innovative 3D operation
- | Modular activation of INSPECT microscopy features
- | Fully automated, unmanned test and analysis cycles
- | XYZ axis control with direct optical path measuring system (table position accuracy of +/- 2 µm)
- | Variant A+ only: Sample image camera with automatic image acquisition (52 x 39 mm)



QNESS 10 / 60 A+

EXPERIENCE THE 3D MODEL IN THE REAL WORLD!



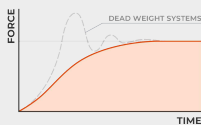
FEDAR

SHARE CHOOSE PRODUCT:  
**AR-Model** - Visit the page with your smartphone or scan the QR code under "View in Room" and experience the 3D model in the real world!

 Qness 10/60 A+ 

QNESS 10 / 60 A+

## TEST METHODS & FORCE RANGE



QATM hardness testers accurately analyze according to all standard test methods and cover a wide spectrum.

The electronically controlled, **fully automated test cycles** ensure fast, precise hardness testing, as well as fast method changes and automatic detection of the focal plane. With the **Ready to Test package** all Vickers test methods are possible with the standard scope of delivery.



### Vickers

DIN EN ISO 6507, ASTM E-384, ASTM E92

HV 0.00025*	HV 0.0005*	HV 0.001	HV 0.002
HV 0.003	HV 0.005	HV 0.01	✓ HV 0.02
✓ HV 0.025*	✓ HV 0.05	✓ HV 0.1	✓ HV 0.2
✓ HV 0.3	✓ HV 0.5	✓ HV 1	✓ HV 2, 5
✓ HV 3	✓ HV 5	✓ HV 10	HV 20
			HV 30
			HV 50
			HV 60*



### Knoop

DIN EN ISO 4545, ASTM E-384, ASTM E92

HK 0.001	HK 0.002	HK 0.005	HK 0.01	HK 0.015
HK 0.02	HK 0.025	HK 0.05	HK 0.1	HK 0.2
HK 0.3				
HK 0.5	HK 1	HK 2		





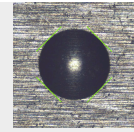
### Brinell

DIN EN ISO 6506, ASTM E-10

HBW 1/1	HBW 1/2.5	HBW 1/5	HBW 1/10	HBW 1/30
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HBW 2.5/6.5	HBW 2.5/31.25	HBW 2.5/62.5
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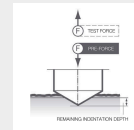
HBW 5/25	HBW 5/62.5
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### Rockwell

DIN EN ISO 6508, ASTM E-18

HRA	HRF	HR15-N/T	HR30-N/T	HR45-N/T
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### Integrated conversions

DIN EN ISO 18265, DIN EN ISO 50150, ASTM E-140

Qness 60 M/A+ / all Vickers test methods possible with standard scope of delivery

✓ Qness 10 M/A+ with standard scope of delivery HV0.02 to HV10 possible.

\* not according to standards

QNESS 10 / 60 A+

## MICROSCOPY & ANALYSIS WITH QPIX INSPECT



### PHASE ANALYSIS

DIN 9042, ASTM E-562

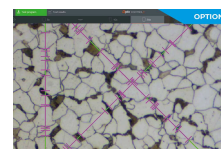
- | Automatic image object dimensioning
- | Provides analysis results as percentage proportions of a surface or as nominal surface values as tables or diagrams



### PARTICLE SIZE DETERMINATION

DIN 9042, ASTM E-562

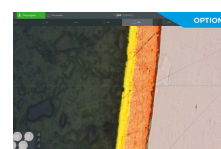
- | Particle size determined via linear or circular section method
- | Results of the analysis provided as tables or diagrams
- | Abrams Circles, Heyn Lines, Snyder-Graff Line



### LAYER THICKNESS MEASUREMENT

DIN EN ISO 1463

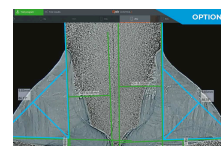
- | Determination of layer thickness
- | Semi-automated gauging of horizontal, vertical and radial layers.



### WELD SEAM MEASUREMENT

DIN EN ISO 5817

- | Standardised measurement and evaluation of weld seams
- | Prefabricated templates with all relevant measuring tools such as throat thickness, weld reinforcement, penetration depth, etc.



Automatic good/bad evaluation and report generation

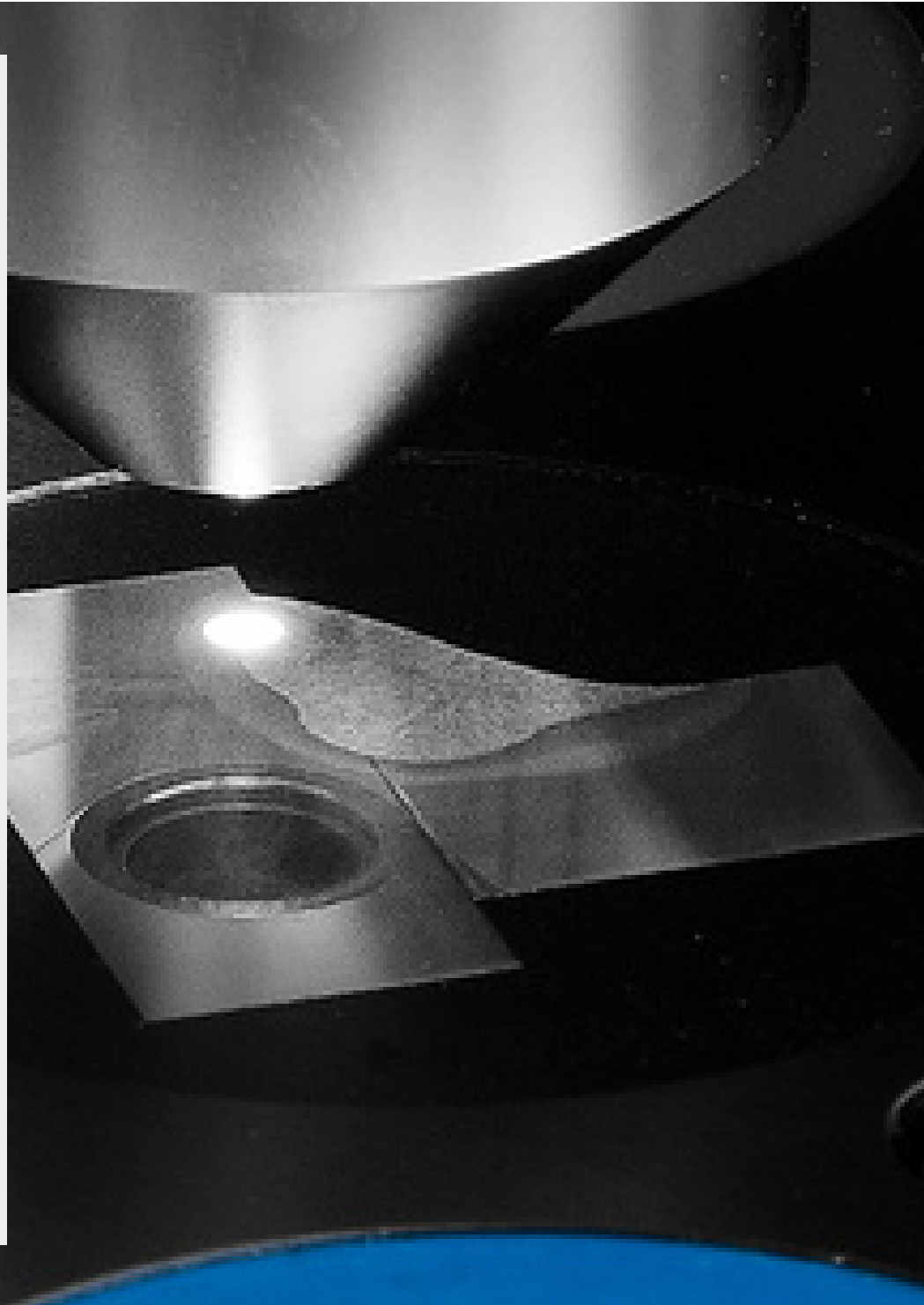


QNESS 10 / 60 A+

## REVOLUTIONARY OPTIC SYSTEM

The QATM-developed, in-house manufactured lens system sets new standards. As well as providing crystal clear image quality for hardness testing, Koehler illumination uses white LED light and motor-operated aperture shuttering to produce ideal contrast, even for high magnification images.

Experienced metallurgists agree the image quality provided by the Qness 10 / 60 A+ is comparable in all aspects with that of established sophisticated microscopes. The up-to-date concept and new lenses in the optic system enable the device to completely meet even the strictest physical 'test system definition' requirements in compliance with DIN EN ISO6507-1/2:2018.



QNESS 10 / 60 A+

## INNOVATIVE OPERATION



### TEST SPACE LIGHTNING

All devices are equipped with the new LED work space lighting: Simplified positioning of samples for single-piece tests.

ILLUMINATED STATUS  
DISPLAY

**BRINGS LIGHT  
INTO THE DARK**

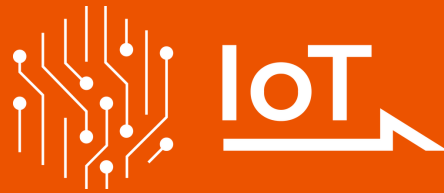
The illuminated QATM logo displays the current device status at a glance. The range of flash intervals indicates whether the device is operating automatically or is free to be used for new tasks for staff all around the lab. Furthermore, not only does the LED test space lighting, installed as standard, allow samples and sample holders to be set up correctly, in the A+ version it guarantees uniform light intensity for sample imaging.



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.



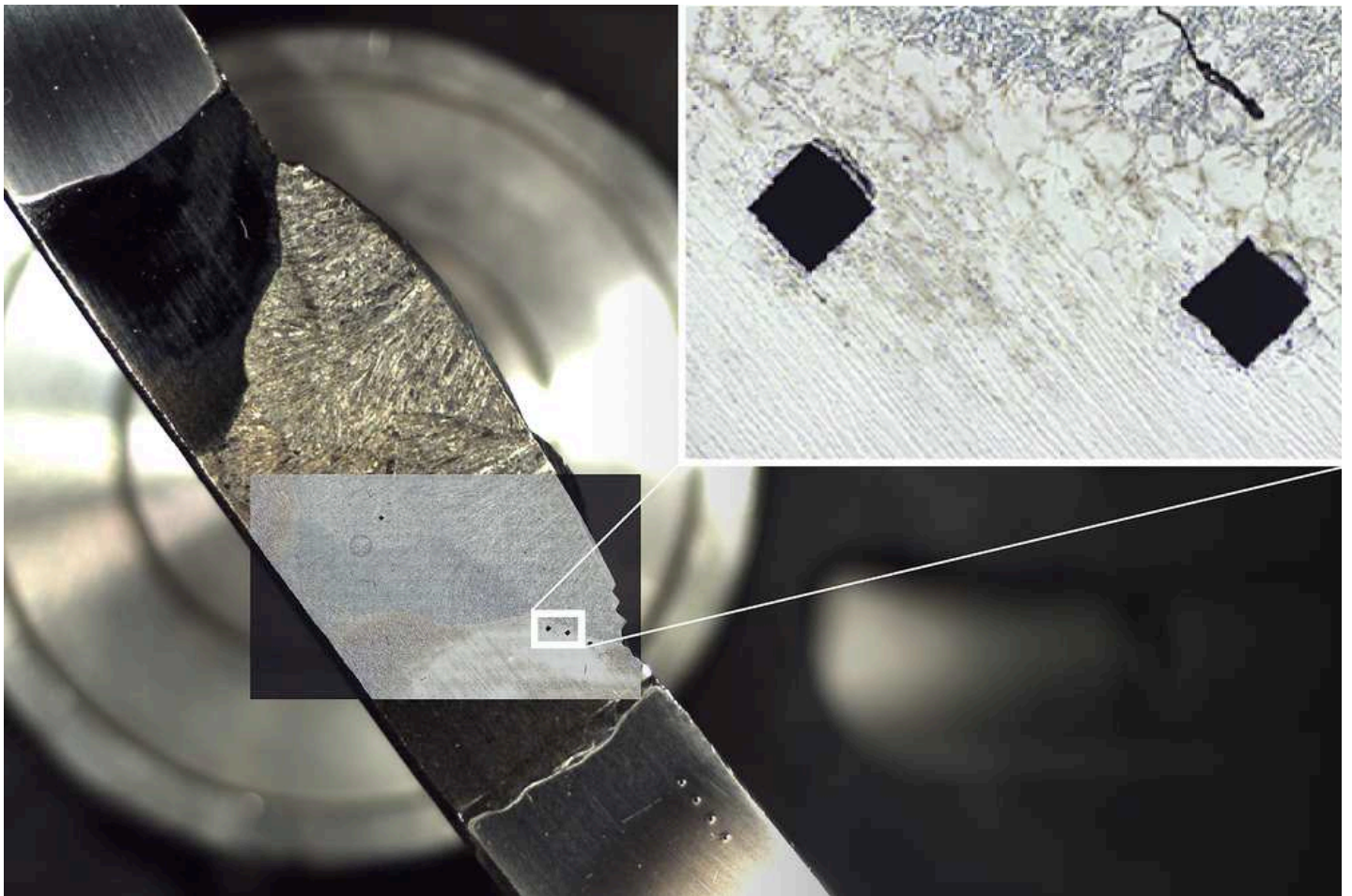
QNESS 10 / 60 A+

## PIONEERING TECHNOLOGY - UNIQUE IMPLEMENTATION



## **SAMPLE IMAGE CAMERA**

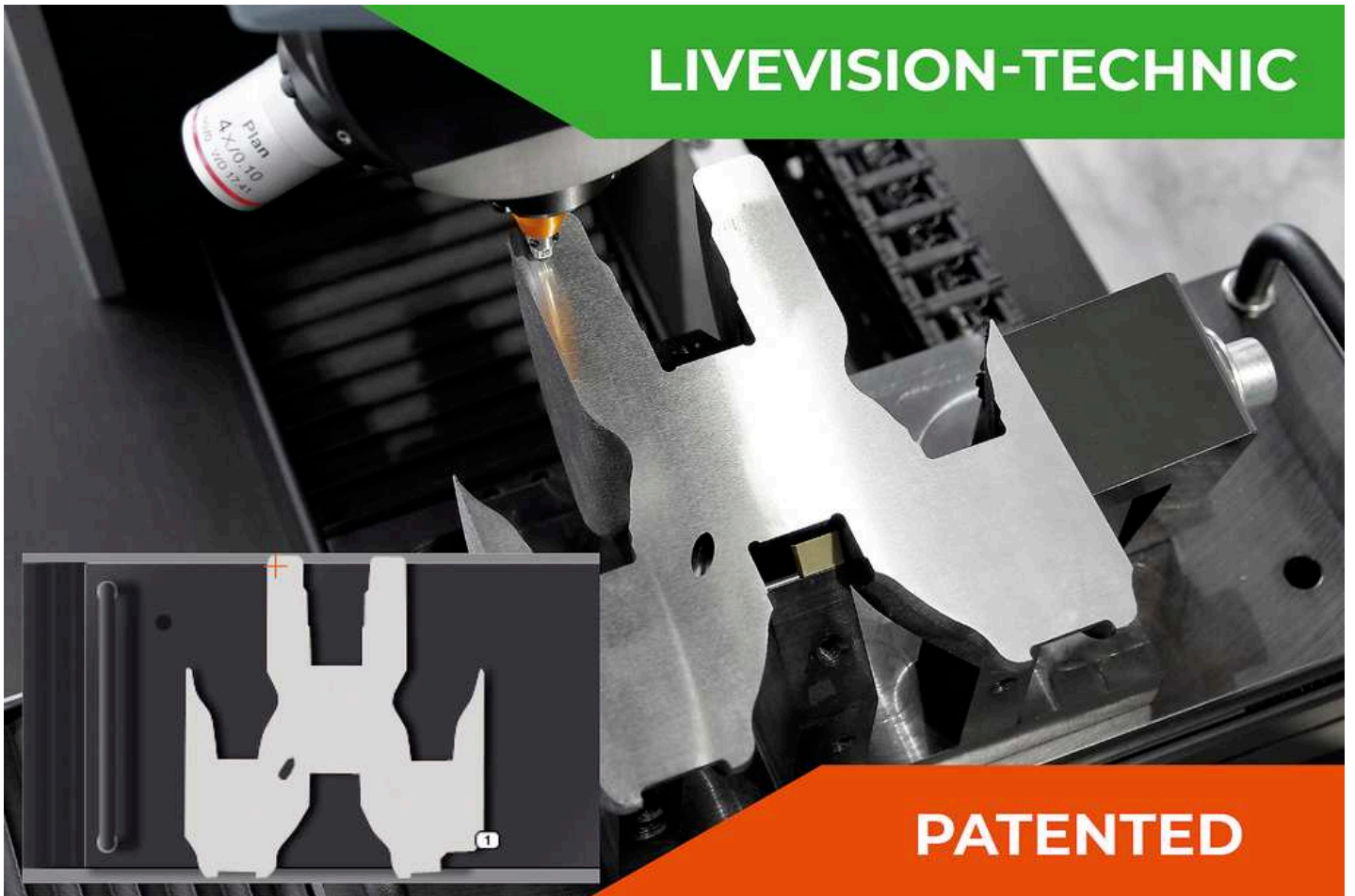
It's no coincidence that most QATM customers choose the 'A+' version with a built-in sample image camera. In a few seconds the image of the sample is shot with the additional camera (field of view 52 x 39 mm). The image provides excellent navigational support within the software, particularly in combination with DOUBLE-VIEW TECHNOLOGY, and aids enhanced documentation in the automatically compiled test report.



### **HIGH-RESOLUTION SAMPLE IMAGE (HRI)**

If high-quality images of larger areas are required (e.g. for weld seam measurements), the area can be scanned using the HRI function. The Qpix Control 2 software automatically combines the individual images into one large overall image.

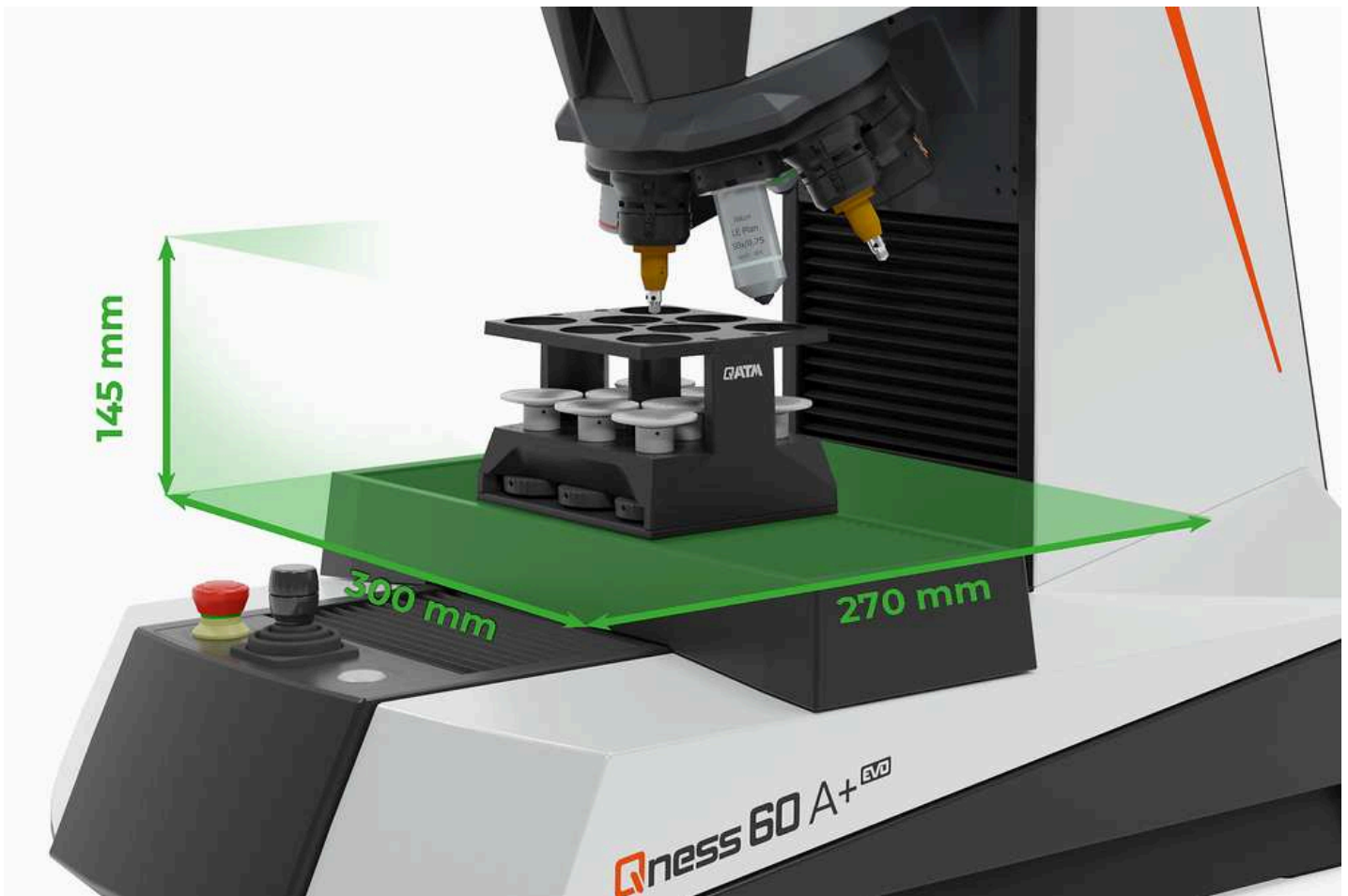
## LIVEVISION-TECHNIC



**PATENTED**

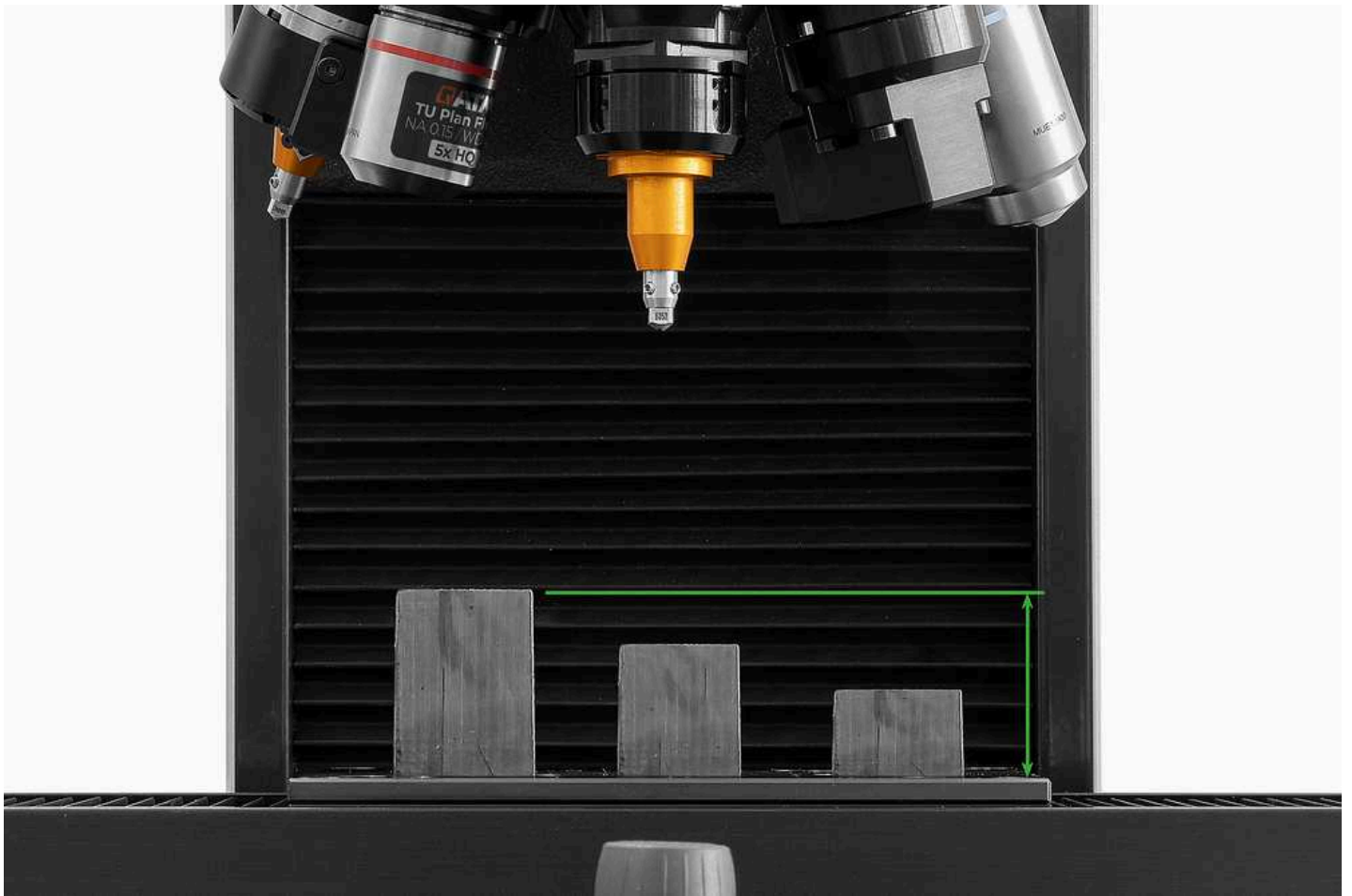
### **CUSTOMER-SPECIFIC SAMPLE HOLDER**

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



#### **EXACT POSITIONING AND A LARGE TEST SPACE**

All 3 axes are equipped with incremental measuring system. The axes and turret can be positioned to an accuracy of 4  $\mu\text{m}$ , so the perfect solution for classic micro hardness testing. Series measurements can be repeatedly and accurately approached.



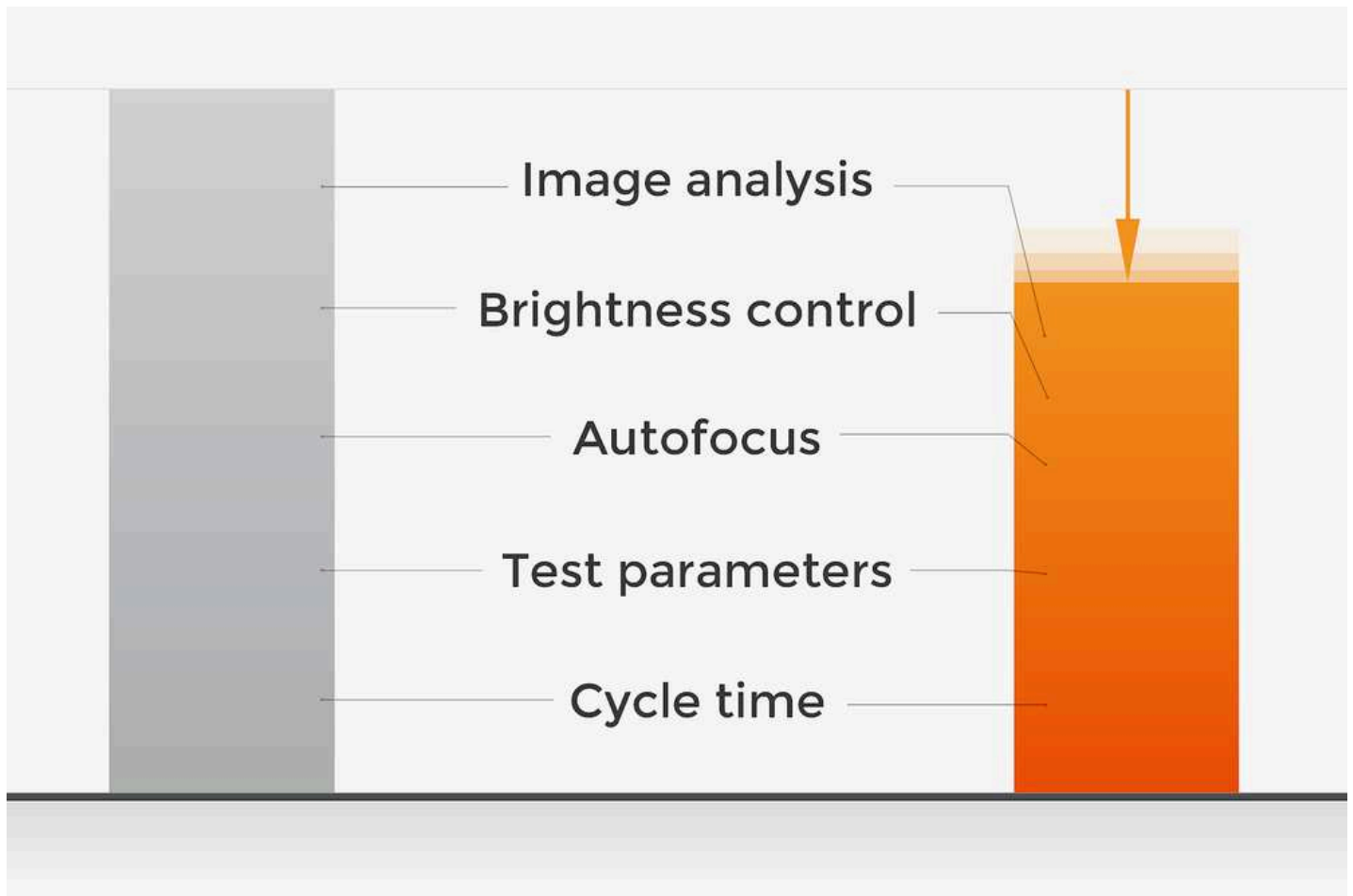
### **DIFFERENT TEST HEIGHTS**

The unique construction of the highly-dynamic tool changer turret allows the positioning of test pieces at various heights within the test area. Innovative CAS technology protects the unit from collisions.



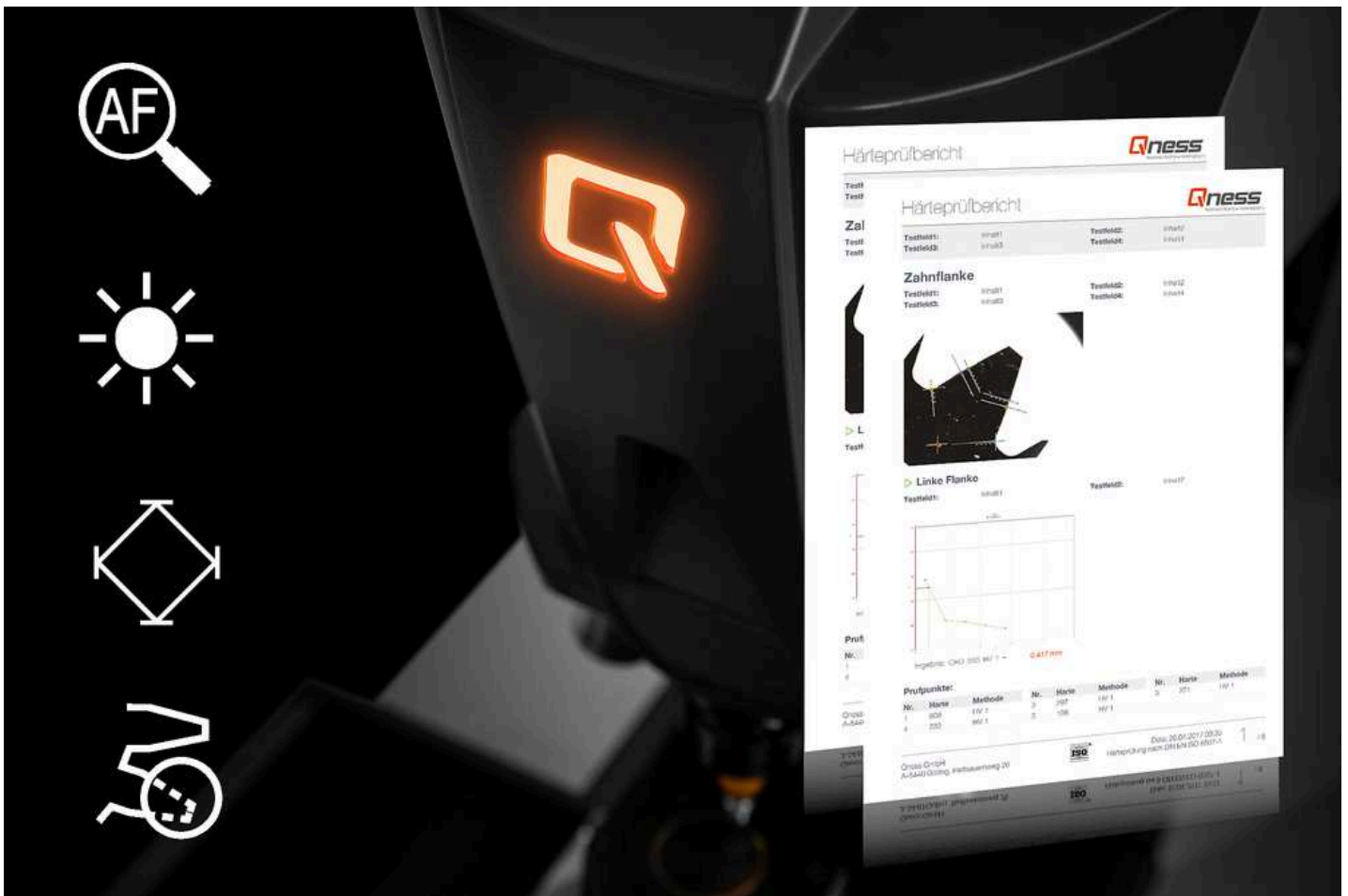
### **EVEN LARGER WORK ROOM**

The optional large slide doubles the test table surface area to 300 x 120 mm. If required, the test height can also be extended from 150 mm to 260 mm.



#### **OPTIMIZED PERFORMANCE AND SILENCED DESIGN**

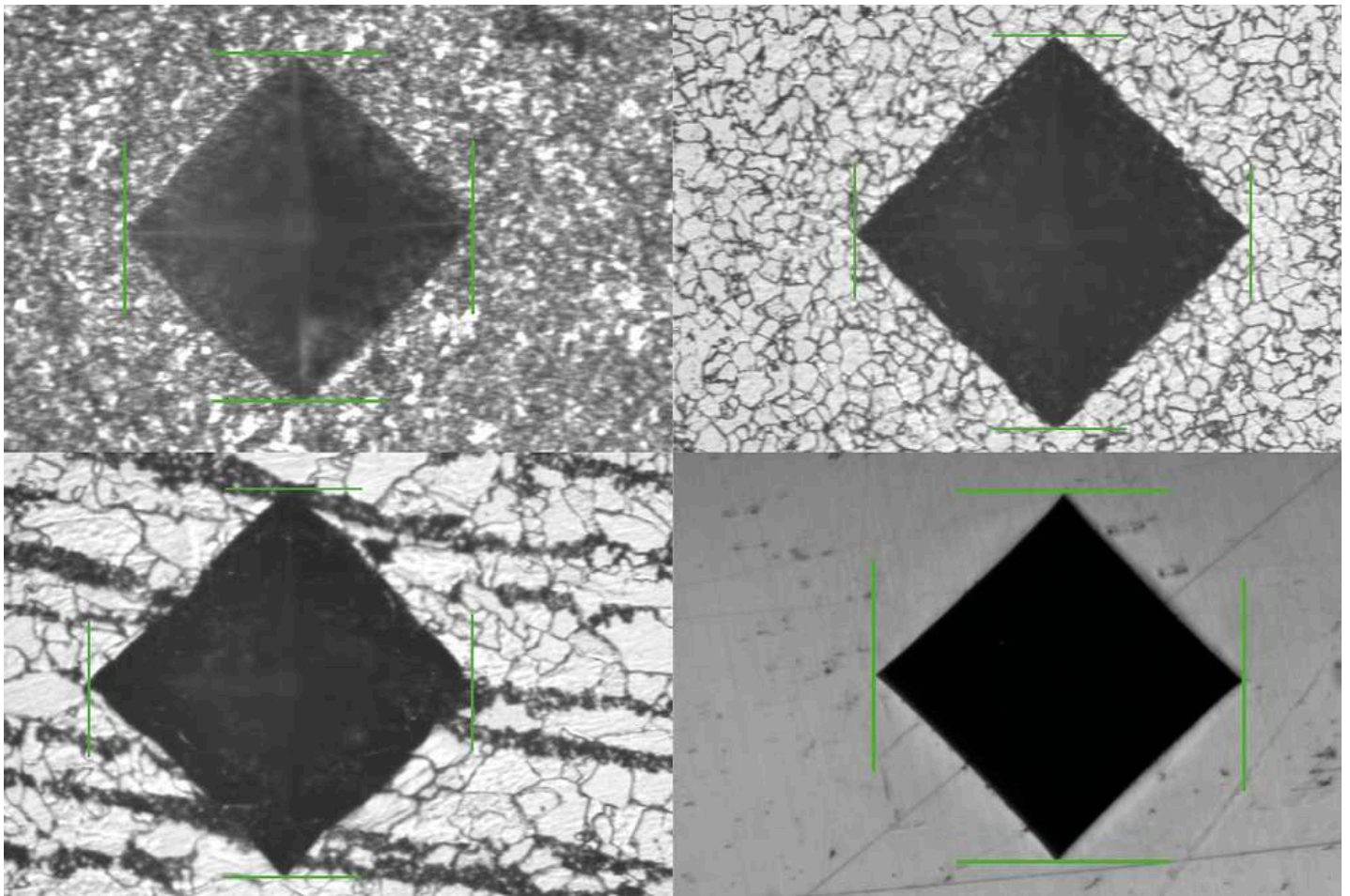
Optimized testing parameters and shorter intervals for serial autofocus, brightness regulation and image analysis, facilitate unbeatable cycle times during everyday operation involving hardness testing devices of the new micro hardness tester product line; and it's even faster than the previous model. A further benefit of the new machine concept is the emphasis on reduced noise emissions in operation and motion, making it particularly suitable for laboratory work.



## COMPREHENSIVE RANGE OF BASIC FUNCTIONS

Several labour-saving features are already included in the QATM base model:

- | Optimized autofocus system
- | Automatic brightness regulation
- | Automatic image evaluation for hardness testing with multiple evaluation modes
- | Built-in protocol generator



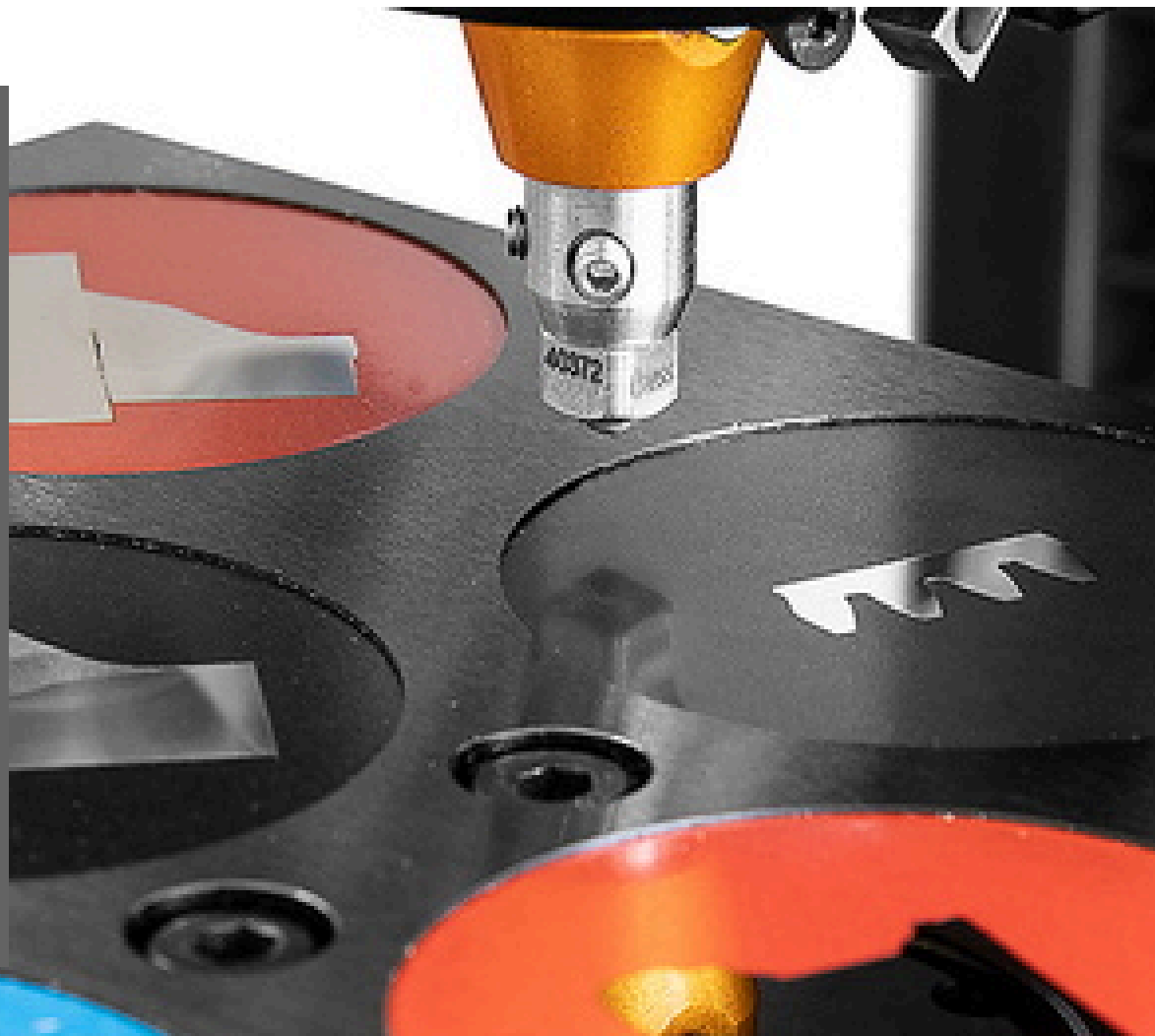
### **SURFACE INDENTATION RECOGNITION**

The adjustable surface indentation recognition function reduces the required effort of sample preparation for testing the hardness of non-optimum surfaces. Hence, automatic indentation recognition is also possible on critical surfaces (etching, grinding...).

## 8-FOLD SAMPLE HOLDER

# PERFECTION IN FULL AUTOMATION

QATM sample holders are designed to ensure maximum throughput. 'A+' device test tables include enough space for an 8-fold sample holder as standard; up to two holders can be used in parallel with the optional 300 mm slide.



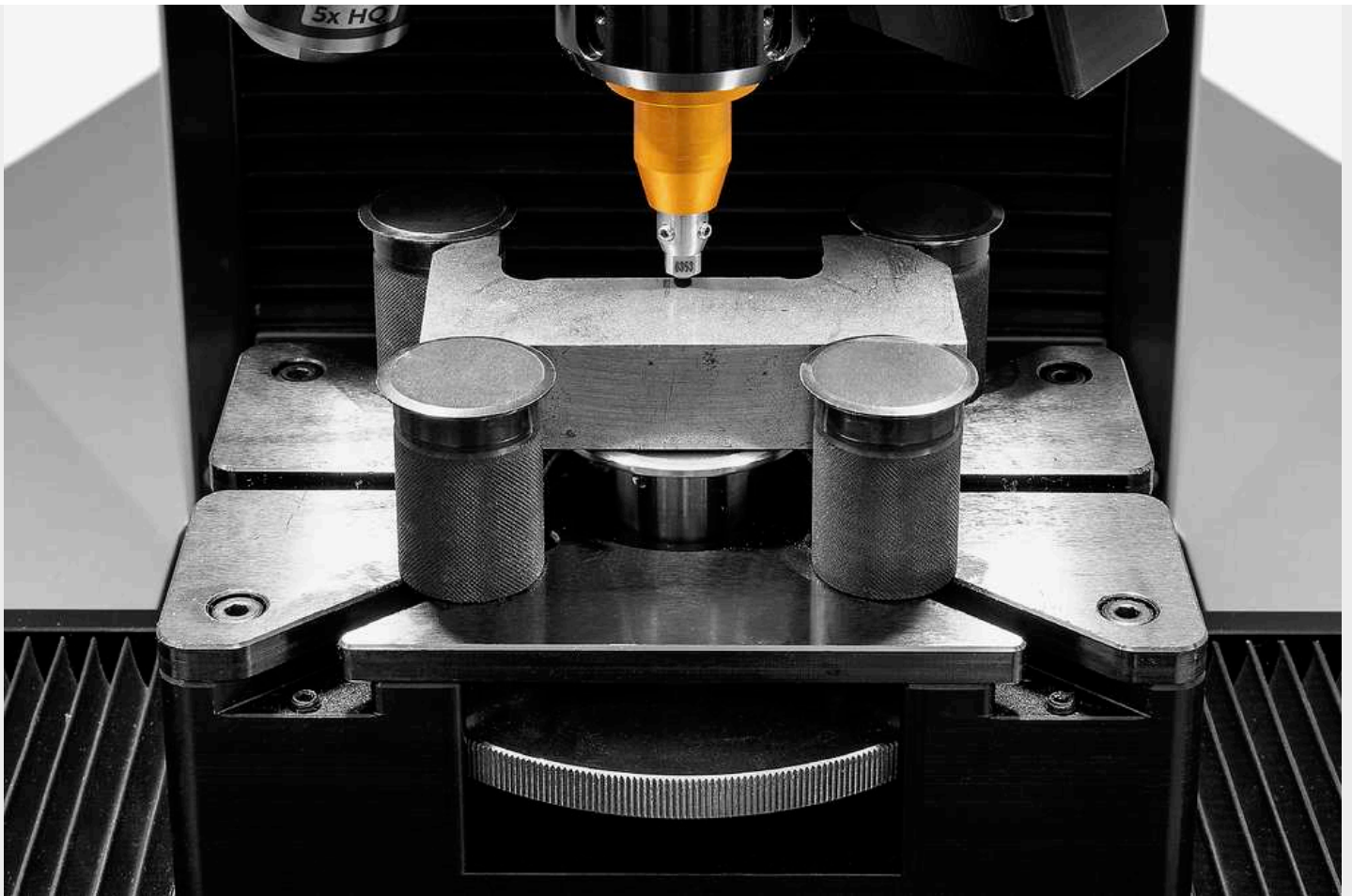
QNESS 10 / 60 A+

## SAMPLE HANDLING FOR INDIVIDUAL & SERIES TESTING



### EMBEDDED SAMPLES

The secure clamping of samples thanks to a redesigned holder with a built-in clamping force limiter, simplifies sample centering and positioning. A plate with a ball-joint even clamps specimen that cannot be held flat to prevent tilting or sliding during analysis. Available with 1, 4 or 8 holding positions and adapter rings for a large range of metric and imperial sample diameters.



### **NON-EMBEDDED SAMPLES**

Components of almost all geometrical shapes can be fitted into the universal sample holder. Four clamping bolts can be set variably in various T-slots.



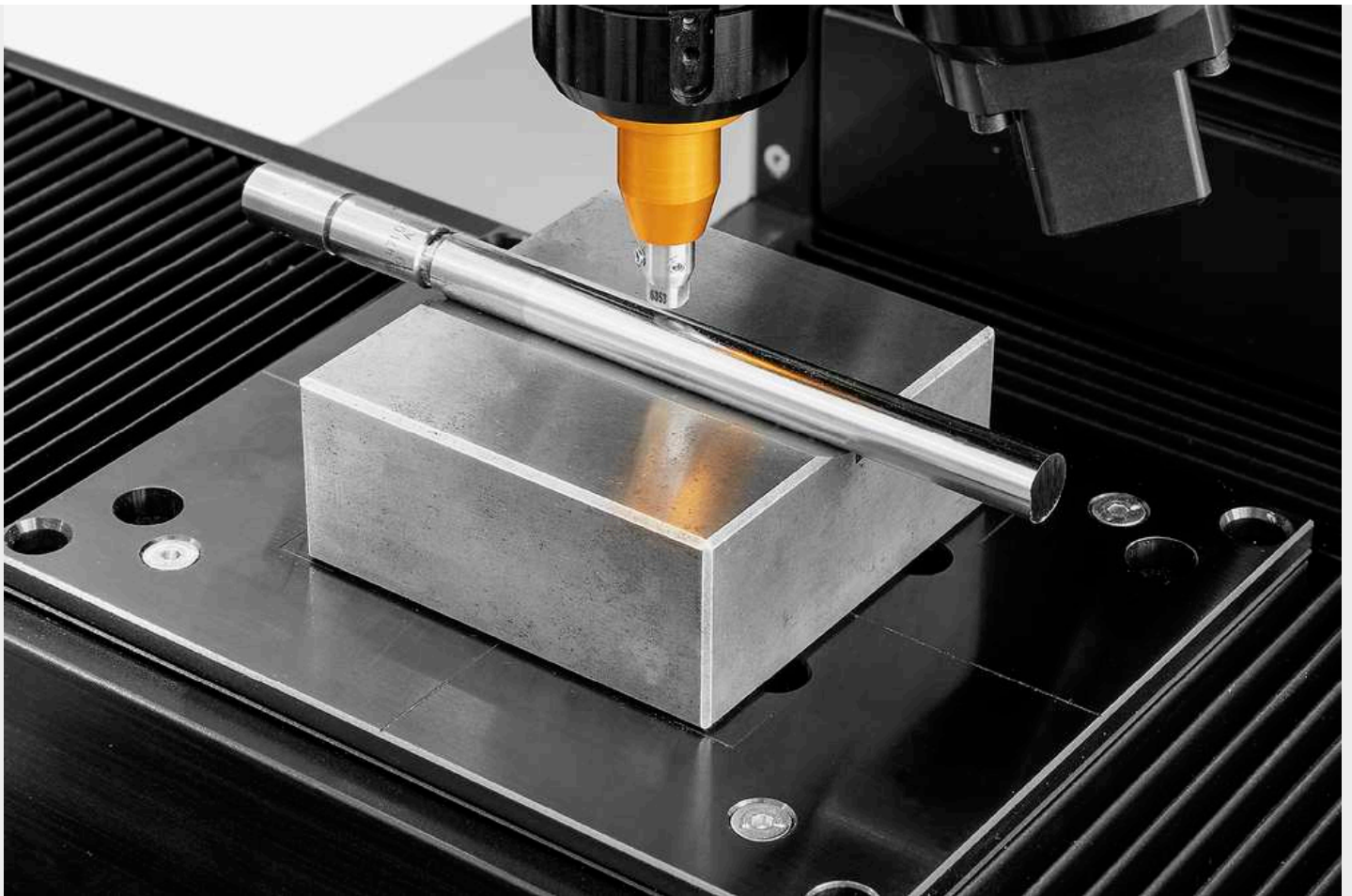
### **SPECIAL CLAMPING DEVICES**

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.



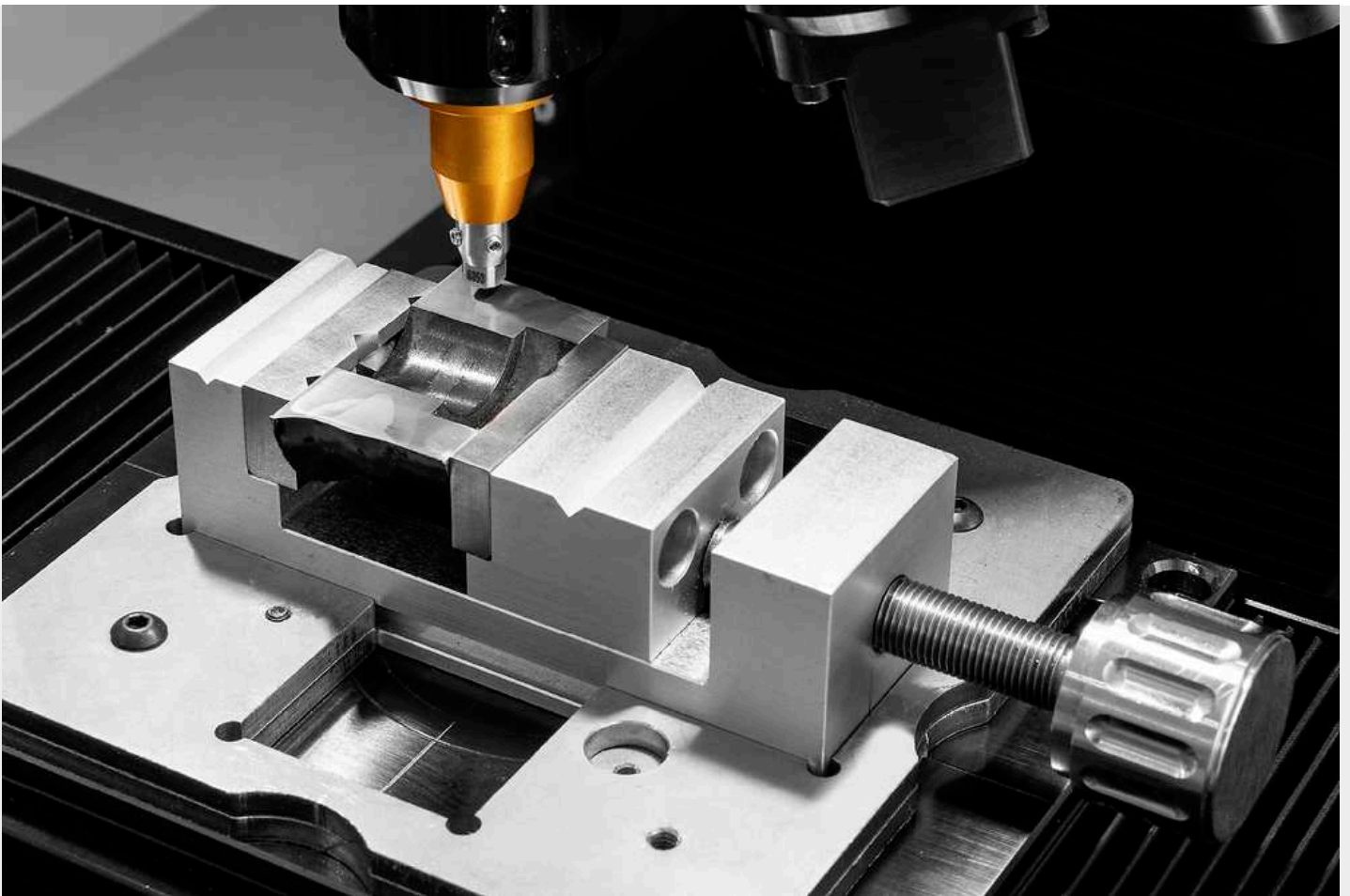
### **IDENTICAL SAMPLE TESTS**

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.



## **PRISMS**

QATM prisms also enable round components to be tested with our devices. Benefit: Integration of the 3D model in the software automatically determines the center of the component and the highest point of each piece.



## VICES

The clearly-organized, large and robust test room facilitates universality. Additionally, clamping samples straight into conventional vices reduces the effort required to prepare the sample, and expands the range of possible future test applications. QATM vices are also available with extra templates, enabling samples to be repeatedly clamped in precisely the same position.

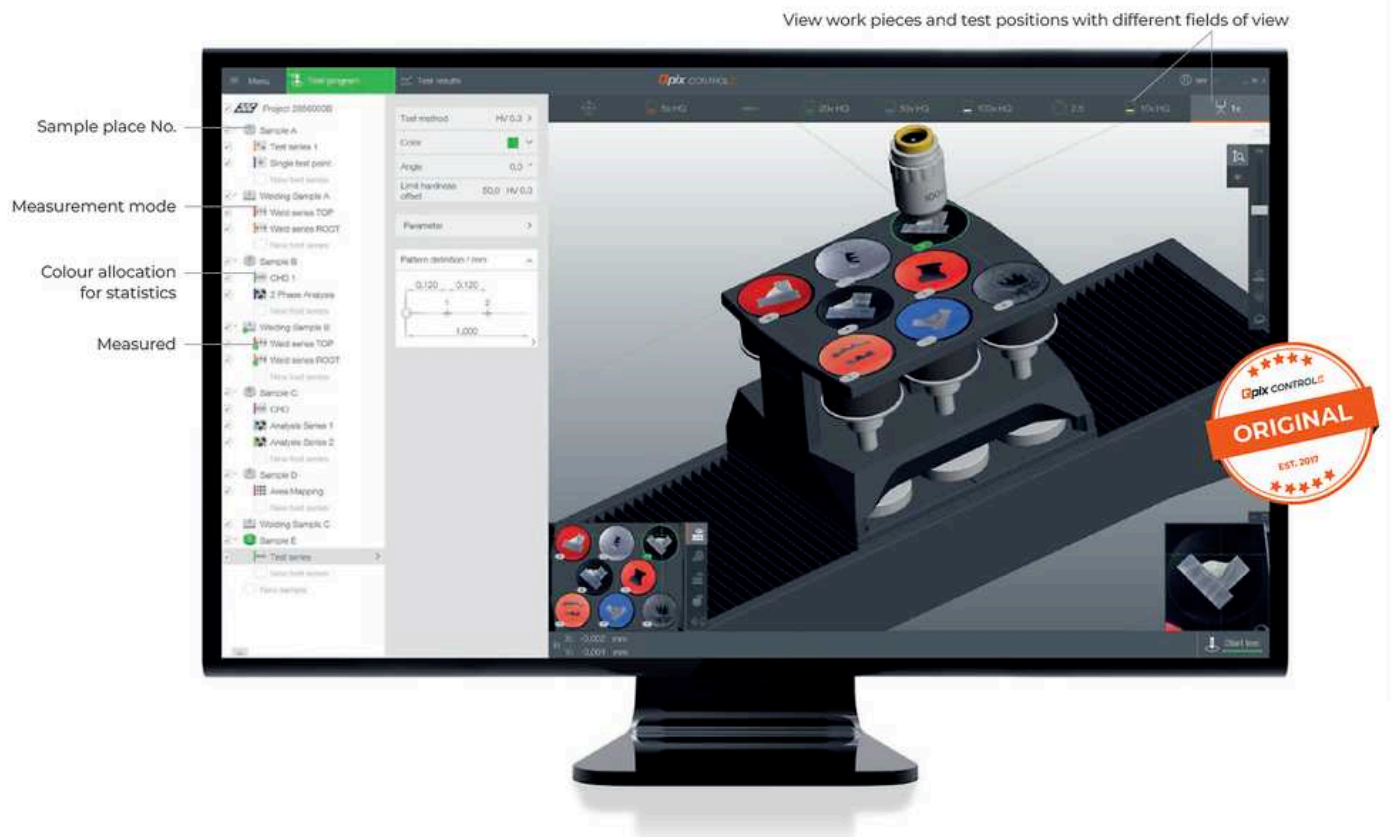
# Qpix CONTROL<sup>2</sup>

REVOLUTIONARY 3D OPERATING CONCEPT

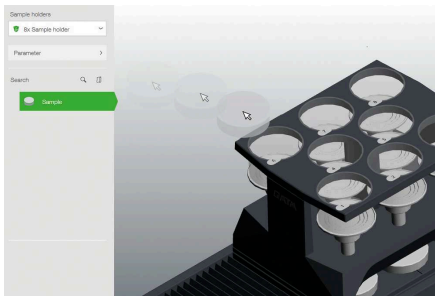
## NEXT-GENERATION SOFTWARE FOR YOUR HARDNESS TESTER

Intuitive, clearly organized and professional: Qpix Control2 is a pc-operated, next-generation software for Brinell

/ Knoop / Vickers / Rockwell hardness testers, developed based on customer feedback and input for maximum user-friendliness. The controlled test head benefits from automatic height adjustment and contactless exploration, complete integration of the sample holder, CAD compatibility with 3D imaging and a whole range of easily understood 3D control elements and views included in the software. It sets new standards in hardness testing.

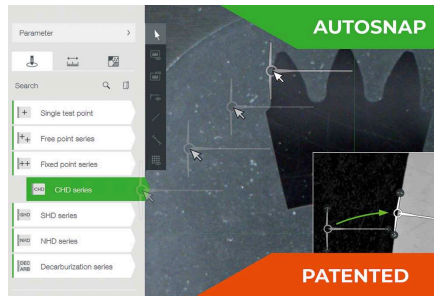


LOAD SAMPLES, LOAD ROW, START  
**3 STEPS TO THE RESULT**



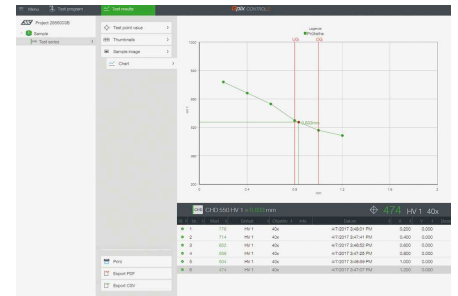
### 1. LOAD SAMPLES

The machine moves automatically to sample holder height. Image of sample is taken automatically.



### 2. LOAD ROW

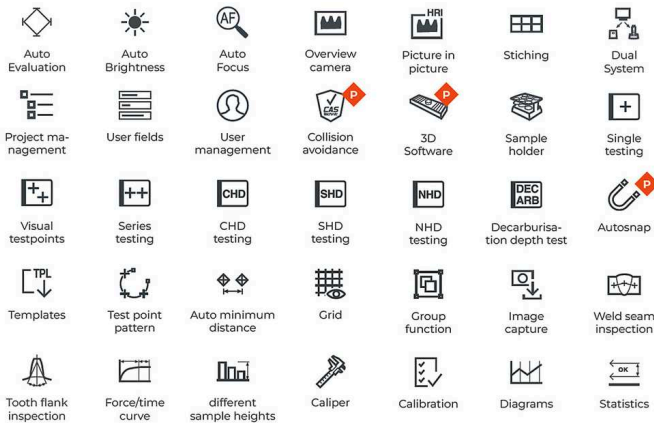
AutoSnap - Speedy Row Set-up: Drag the row of test points to the desired position. The serial Auto-Snap function corrects the starting point of the test row automatically.



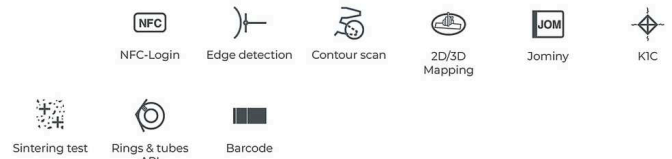
### 3. START TEST SEQUENCE

The test sequence is executed according to the applicable hardness testing standards.

## STANDARD FEATURES



## OPTIONAL FEATURES



## MICROSCOPY & ANALYSIS



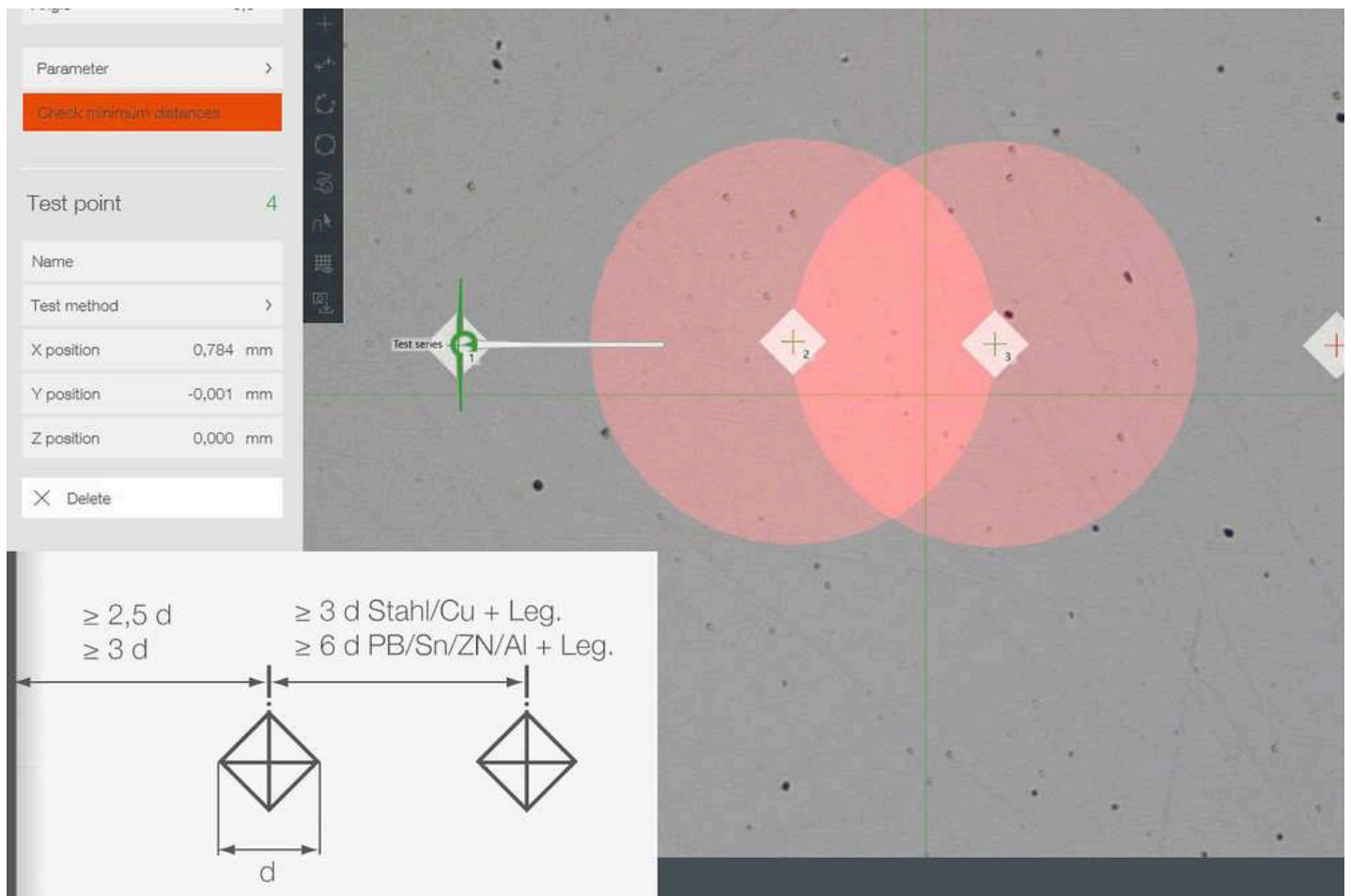
### QPIX CONTROL2

## INNOVATIVE SOFTWARE FUNCTIONS



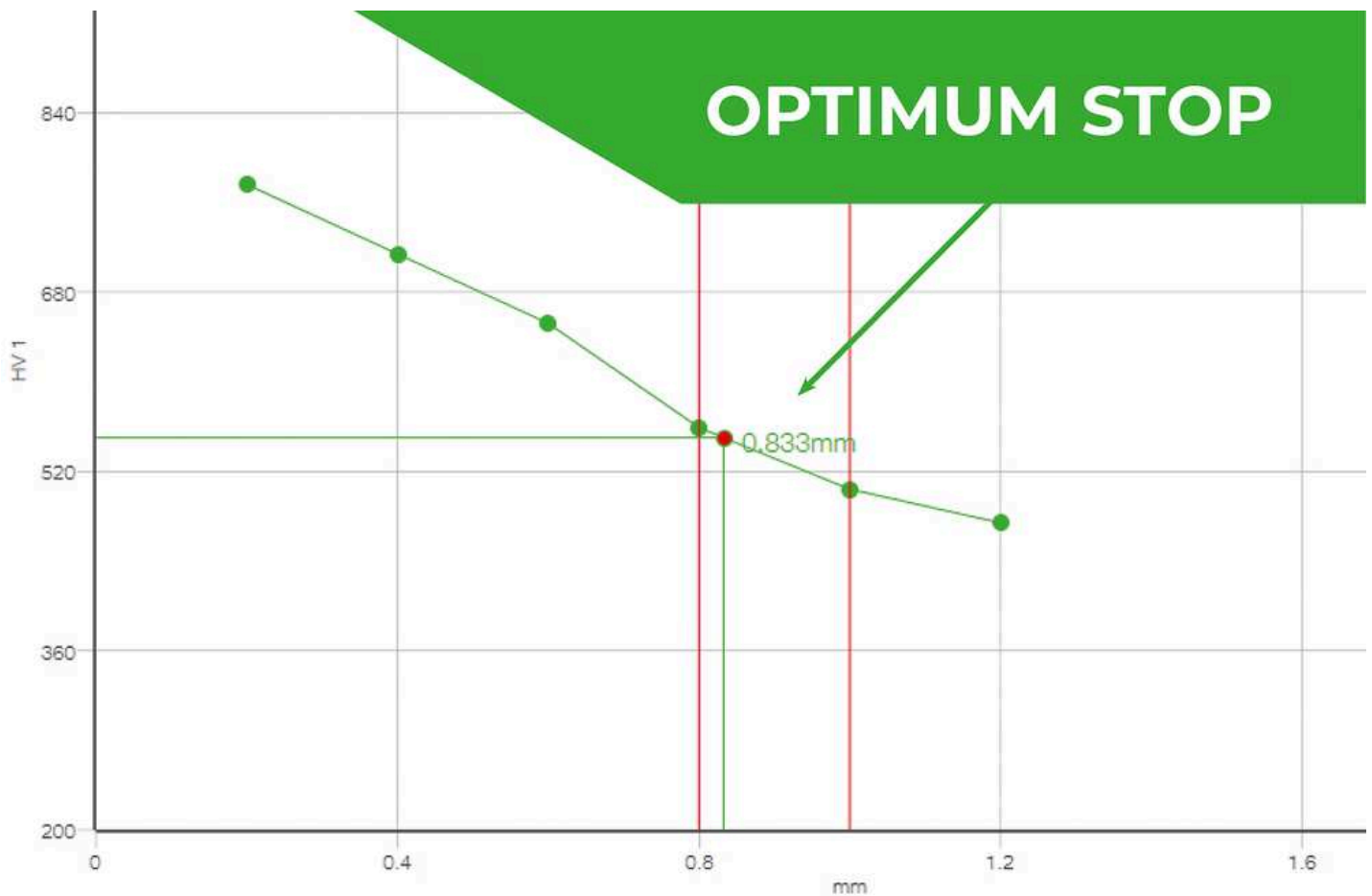
### **FULLY AUTOMATIC HARDNESS TESTING**

Several progressions and samples are created and completed "unmanned" (i.e. 60 progressions on 8 different samples in one test run)



### AUTOMATIC MINIMUM DISTANCE

The distances between the test points are generated fully automatically to the minimum standard distance. This makes the test results even more accurate. If the distance is less than required by the standard, the affected test points are highlighted accordingly.



### 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.

Test results pix CONTROL

Test method    **Parameter**    Conversion    Correction

---


### Lens



**XLED 2x**

0    HV 10    1000


568



**5x HQ**

0    HV 10    1000


17    242



**10x HQ** ✓

0    HV 10    1000


67    967



**20x HQ**

0    HV 10    1000

270



**50x HQ**

0    HV 10    1000

Digital zoom    ...

### Parameter

Test force time	5,0 s
Target value	300,0 HV 10
Estimated Indentation depth	35,515 $\mu$ m
Minimum distance factor	3 x diag

K<sub>IC</sub> measurement

K<sub>IC</sub> measurement

### SIMPLIFIED LENS SELECTION

Based on the selected method (e.g. HV10), the suitable hardness range is displayed for each lens, which can be measured. The most suitable lens is also highlighted.



## DUAL SYSTEM

With the Qpix Control 2 software, several QATM devices (for example a Qeye 800 and a Qness 60 A+ EVO) can be operated with the same PC system. It is easy to switch back and forth between the two devices in the software.



## 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

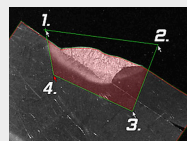
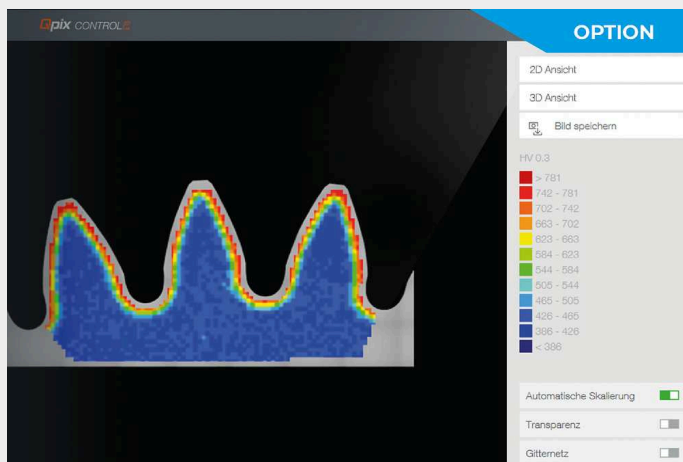


### **WELD SAMPLE TESTING AND ANALYSIS**

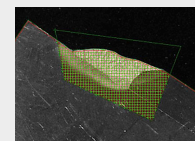
Serial provision of 'Advanced Welding' functions facilitates the simple, norm-compliant (e.g. EN ISO 9015 & EN ISO 22826) integration of test mapping for Brinell / Knoop / Vickers hardness testing. Pre-defined patterns can be simply adapted to each respective test piece via interactive functions. If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

## OPTIONAL SOFTWARE MODULE 2D/3D HARDNESS CHART

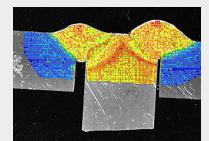
The optional software module '2D/3D hardness chart' is the perfect aid for the detailed determination of hardness distribution over the total cross section, especially for heat-treated materials. This is extremely important in material exploration, and also for weld testing or in damage analysis.



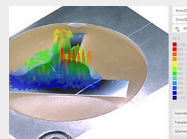
1. Create area



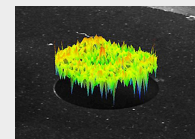
2. Define grid



3. Display in 2D



Display in 3D



Homogenous  
hardness  
distribution  
chart on wire  
cross section



Test point  
pattern on a  
non-bedded  
specimen

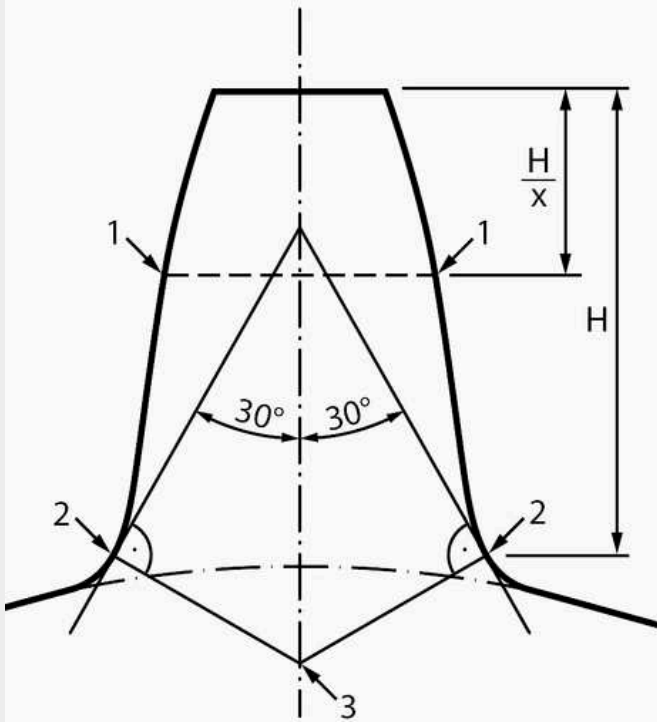
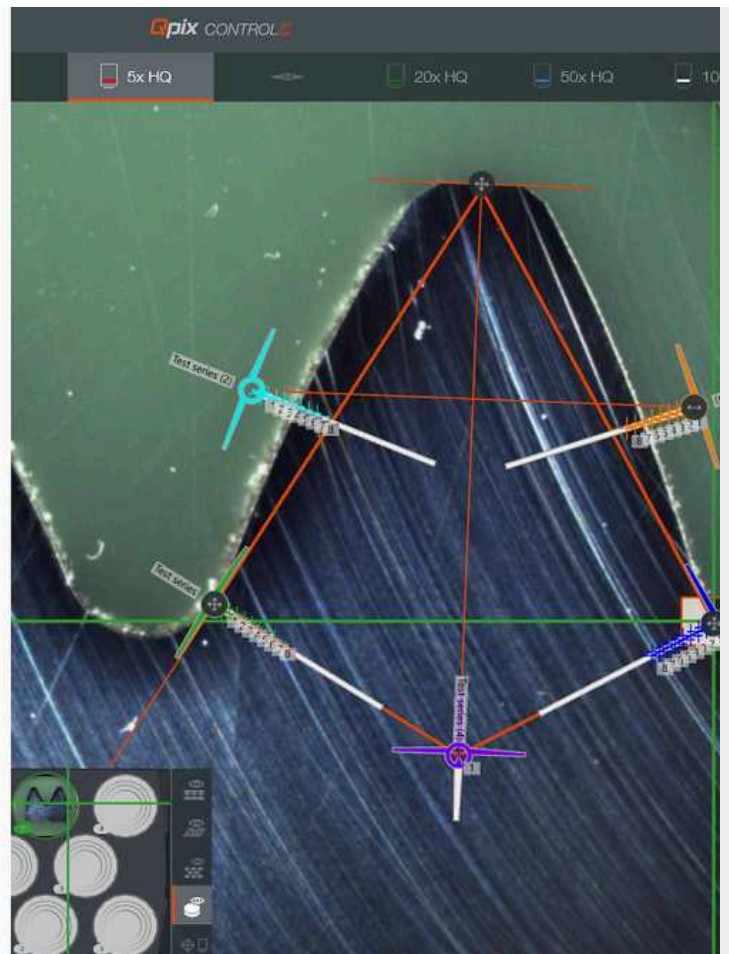
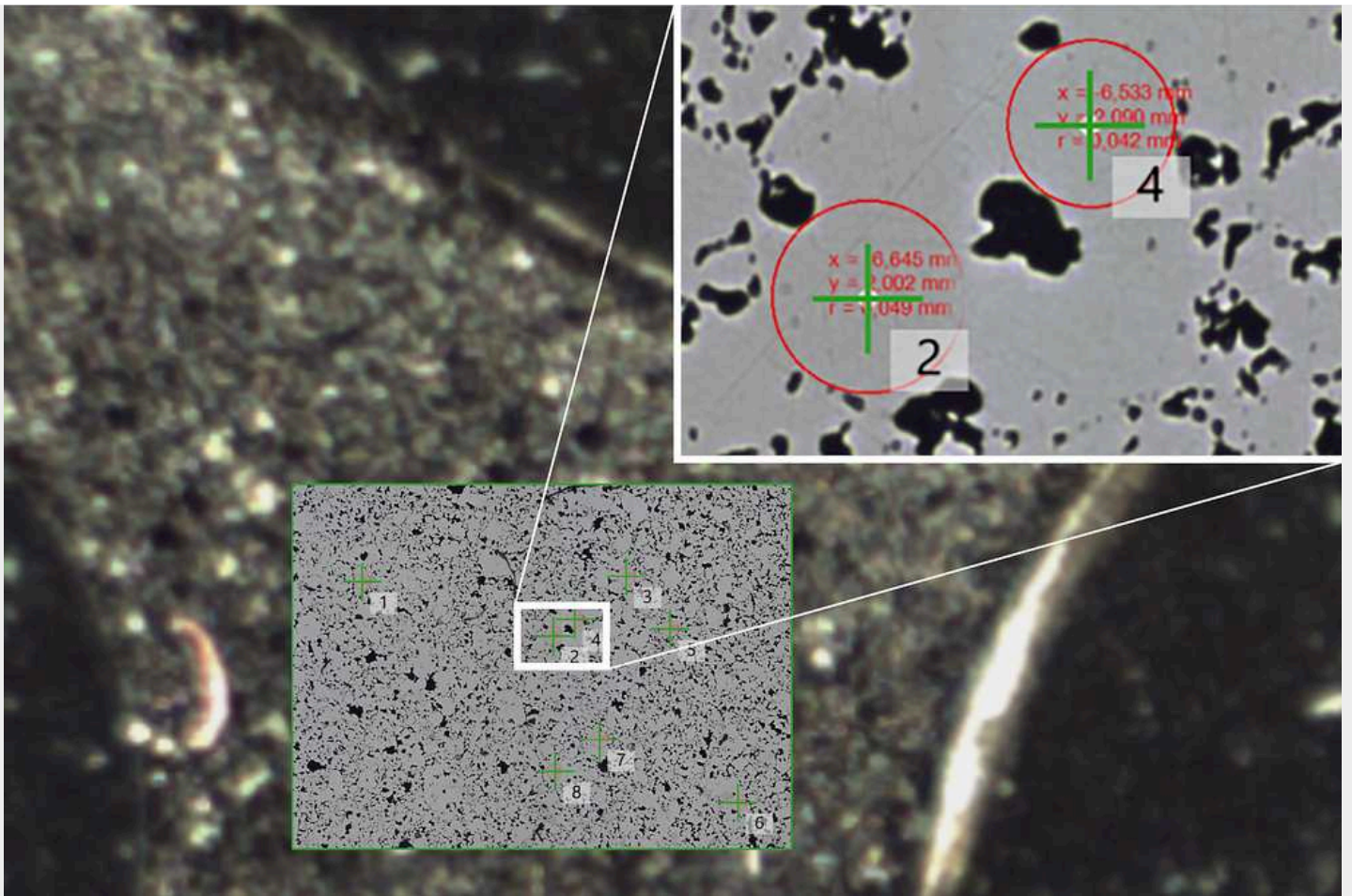


Bild 1 - Schliff  
Normalschnitt (90° zur Oberfläche)



## 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.

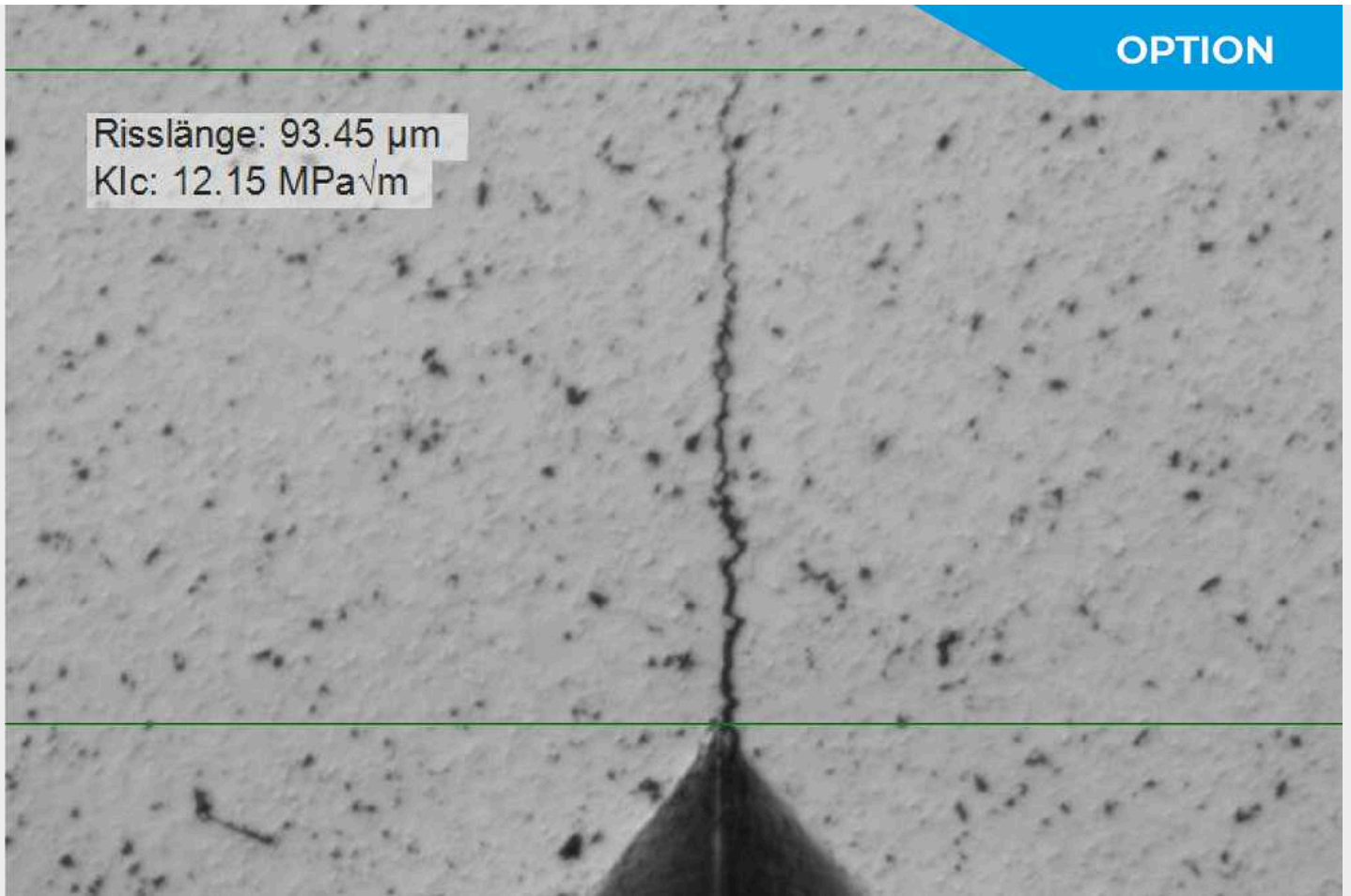


### MODULE FOR SINTERED COMPONENTS

With this module, an area on the component can be easily defined and the number of hardness test points defined, especially for sintered samples. The software automatically searches for a position in the selected area where a hardness test indentation can be placed so that it is placed at a suitable location.

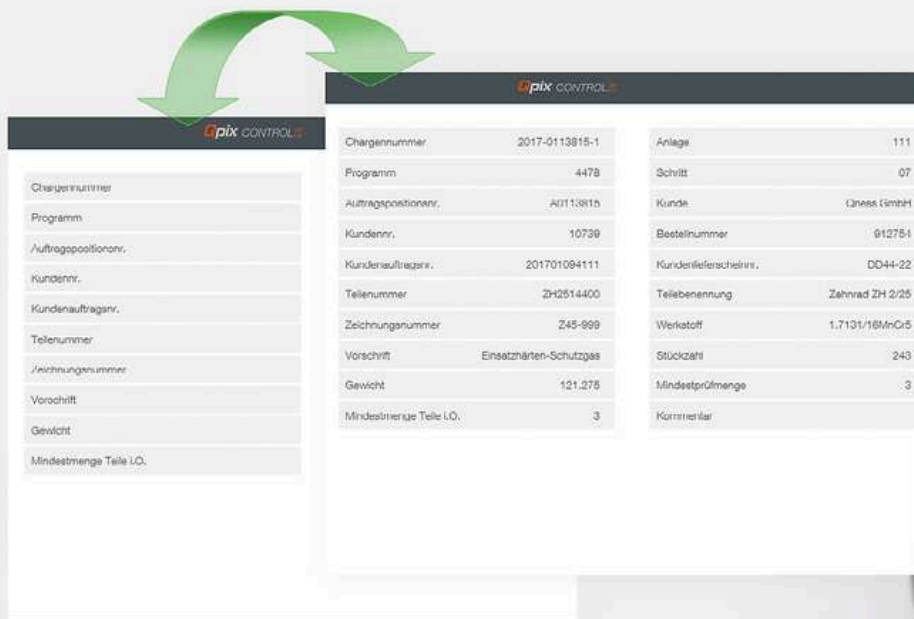
OPTION

Risslänge: 93.45  $\mu\text{m}$   
K<sub>Ic</sub>: 12.15 MPa $\sqrt{\text{m}}$



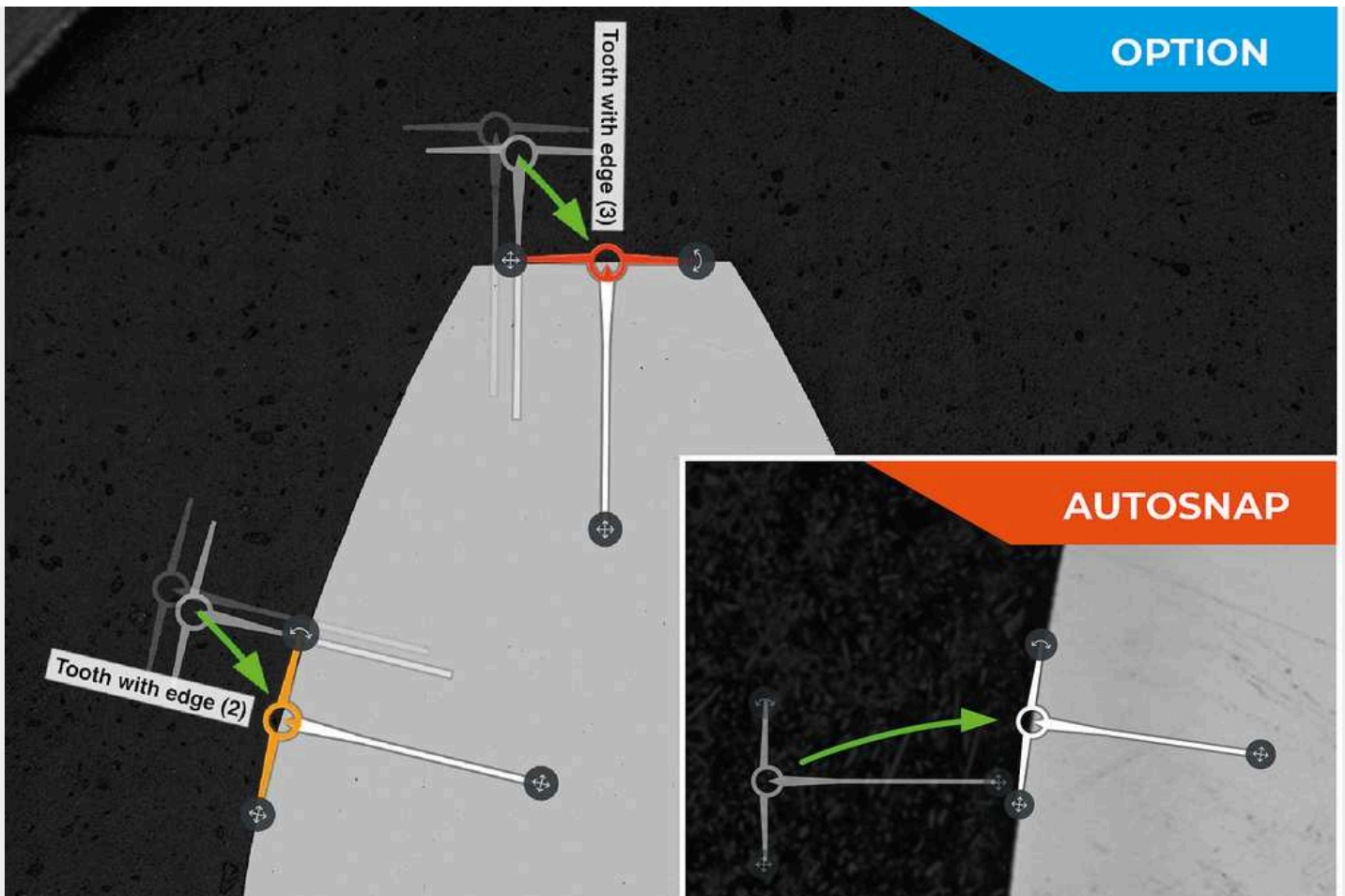
#### FRACTURE LENGTH MEASUREMENT

The K<sub>Ic</sub> value is established via norm-compliant measurement of the 4 fracture lines. The MPa $\sqrt{\text{m}}$  is subsequently calculated automatically.



### BARCODE/QR CODE/DMC READER

Qpix software platforms support barcode and QR code readers. Whether simply inserting header files (serial), managing the complete integration of reading devices for the automatic selection of templates, or calling up data from superordinate systems (optional) – barcode/QR code readers simplify work procedures for the tester, while also preventing operating errors.



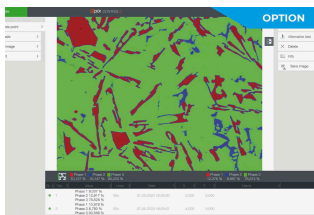
### EDGE RECOGNITION

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.

STRUCTURAL ANALYSIS MADE EASY

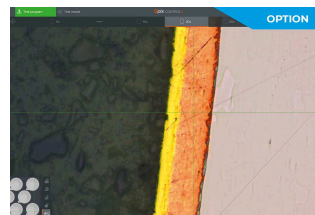
## QPIX INSPECT FOR MICROSCOPIC EVALUATIONS

The intuitive and user-friendly Qpix INSPECT software functionality provides a comprehensive toolbox for microscopic evaluations and result documentation. The multifunctional software can be customized for customer-specific measuring tasks and complemented with add-on modules.



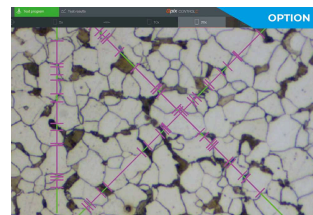
### INSPECT PHASE ANALYSIS

- | Automatic image object dimensioning
- | Evaluation of phase fractions according to ISO 9042 and ASTM E562
- | Provides analytics results as percentage proportions of a surface or as nominal surface values as tables or diagrams



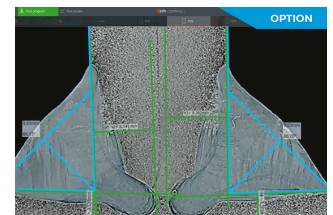
### INSPECT LAYER THICKNESS MEASUREMENT

- | Determination of layer thickness according to DIN EN ISO 1463
- | Semi-automated gauging of horizontal, vertical and radial layers
- | Provision of layer thickness as statistical values for lengths as tables or diagrams



### INSPECT PARTICLE SIZE DETERMINATION

- | Particle size determined according to DIN EN ISO 643 and ASTM E112 via linear or circular section method
- | Results of the analysis provided as tables or diagrams
- | Documentation of statistical characteristics of particle size and segment lengths cutting through the particles



### INSPECT WELD SEAM MEASUREMENT

- | Standardised measurement and evaluation of weld seams
- | Prefabricated templates with all relevant measuring tools such as throat thickness, weld reinforcement, penetration depth, etc.
- | Automatic good/bad evaluation and report generation.

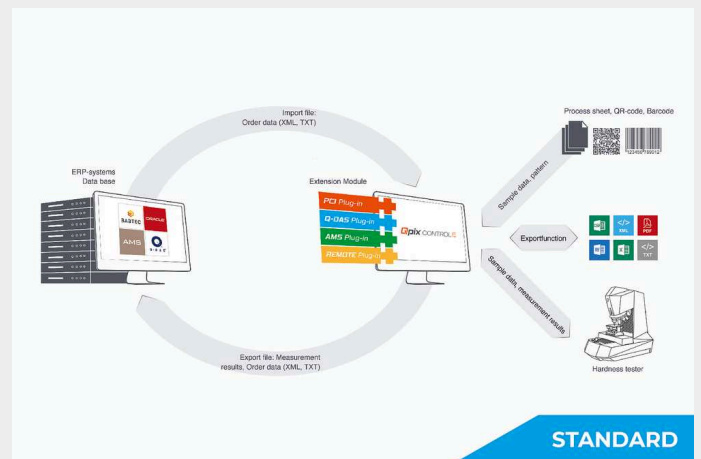
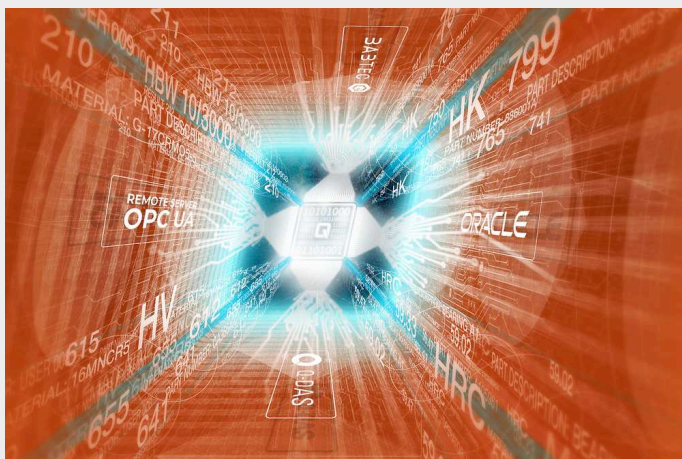
INDUSTRY 4.0

## QCONNECT FOR CONNECTED TOMORROWS

Qconnect is the interface in QATM Qpix Control2 software, providing customers with a full portfolio of inter-device connectivity - from serial production, open XML interfaces (bi-directional) and pre-specified plug-in solutions, such as the QDAS Plug-In+, through to customer-specific connectivity solutions implemented completely by QATM. We have a professional solution for every applicational requirement.

**Available functionalities & formats:**

REPORT, PRINT, PDF, XML IE, CSV, TXT, WORD, EXCEL, AUTO EXPORTER, MAIL, Q-DAS, AMS IE, IOT, LIMS, OPCUA, PCI IE (ERP, BABTEC, ORACLE, SAP)



APPROVED QUALITY

## CALIBRATION & MONITORING



## CALIBRATION MANAGER

### This is a leap forward for calibration result management

- The QATM Calibration Manager reminds operators of the necessary tests at freely definable intervals. Test results are added to the ongoing statistical record at the push of a button.

## PREMIUM HARDNESS TEST BLOCKS

Premium quality in comprehensive variety. Independent DAKKS (ISO/IEC 17025) calibration according to DIN EN ISO and ASTM including software for periodic norm-compliant tests.

## LOGIN VIA NFC

The Qpix Control 2 software supports user login using an external NFC reader. Depending on the NFC tag/card, the customer's existing access cards can also be programmed in, for example.

<b>Test force range</b>	Qness 10 A+: 20 gf - 10 kgf (0.196 - 98.07 N) Qness 60 A+: 0.25 gf - 62.5 kgf (0.00245 - 612.92 N)
<b>Test method</b>	Vickers, Knoop, Brinell, Rockwell (option)
<b>Test sequence</b>	Fully automated / electronic force application
<b>Z-axis</b>	Dynamic, automated (CAS-Technic)
<b>Z-axis travelling distance</b>	150 mm (5.91"); Option: 260 mm (10.2")
<b>Throat depth</b>	170 mm (6.69")
<b>Tool positions</b>	8-fold motorized tool changer max. 3 hardness testing modules, max. 7 lenses
<b>Camera system</b>	5 Mpixel - CMOS color, USB3.0
<b>Optical system</b>	Upright microscope with Koehler lighting
<b>Aperture diaphragm</b>	motorized
<b>Lenses</b>	XLED 2x, 2.5x, 5x, 10x, 20x, 50x, 100x
<b>Lens types</b>	Standard (Achromat) and High Quality (Semi-apochromat) for hardness testing and microscopy XLED for optimised Brinell hardness testing
<b>Field of view (acc. to equipment)</b>	0.074x0.055 mm (100x) to 2.80x2.10 mm (XLED 2)
<b>Sample image camera</b>	5 Mpixel - CMOS color, USB3.0 52 x 39 mm (2.05 x 1.54")
<b>Test anvil / XY cross slide</b>	Automatic cross slide
<b>Table size</b>	150 x 120 mm (5.91 x 4.72"); Option 300 x 120 mm (11.8 x 4.72")
<b>Positioning accuracy</b>	+/- 2 µm
<b>Traverse path at cross slide</b>	X 150, Y 150 mm (5.91 x 5.91"); Option: X 300 x Y 150 mm (11.8 x 5.91")
<b>Control elements</b>	Emergency stop, Start button, Joystick X/Y/Z

<b>Software</b>	Qpix Control2
<b>Max. workpiece weight</b>	50 kg (110 lbs)
<b>Weight of basic device</b>	60 kg (132.3 lbs)
<b>Included basic equipment</b>	Indenter Vickers ASTM + DAkkS; Lens 5x, 20x, 50x
<b>Interfaces</b>	1 x USB 3.0
<b>Power connection</b>	100 – 240 V ~1/N/PE, 45-65 Hz

[www.qatm.com/qness-10-60-a](http://www.qatm.com/qness-10-60-a)

## ORDER DATA