a VERDER company

VICKERS / KNOOP / BRINELL / ROCKWELL MICRO HARDNESS TESTER

QNESS 10 / 60 A+

qatm.com/products/hardness-testing/micro-hardness-tester/qness-10-60-a/

QNESS 10 / 60 A+

MICRO HARDNESS TESTER

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 promises perfect automation and comes with precision positioning control for all three axis systems. Flexible XYZ progressions for thousands of analysis points allow 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.

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REVOLUTIONARY OPTIC SYSTEM

The QATM-developed, in-house manufactured lens system sets new standards. Koehler illumination uses white LED light and motor-operated aperture shuttering to produce ideal contrast even for high magnification images. The image quality is comparable with sophisticated microscopes and meets DIN EN ISO 6507-1/2:2018 requirements.

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PRODUCT ADVANTAGES

- Wide test force range (0.25 g – 62.5 kg)
- Ready to Test package: 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 +/- 2 µm)
- Variant A+ only: sample image camera with automatic image acquisition (52 x 39 mm)

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TEST METHODS & FORCE RANGE

QATM hardness testers accurately analyze according to all standard test methods. Electronically controlled, fully automated test cycles ensure fast, precise testing, fast method changes and automatic detection of the focal plane. With the Ready to Test package all Vickers methods are possible in the standard scope of delivery.

BRINELL

DIN EN ISO 6506, ASTM E-10
HBW 1/1 · 1/2.5 · 1/5 · 1/10 · 1/30 · 2.5/6.25 · 2.5/31.25 · 2.5/62.5 · 5/25 · 5/62.5

ROCKWELL

DIN EN ISO 6508, ASTM E-18
HRA – HRF · HR15-N/T · HR30-N/T · HR45-N/T

VICKERS / KNOOP

DIN EN ISO 6507, ASTM E-92, ASTM E-384:
HV 0.00025* – HV 60.

DIN EN ISO 4545, ASTM E-92, ASTM E-384:
HK 0.001 – HK 2 (source also lists HK 11).

* Not according to standards.

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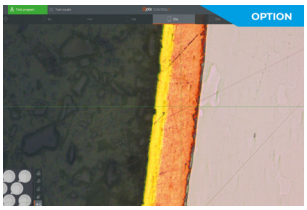
MICROSCOPY & ANALYSIS

PHASE ANALYSIS

DIN 9042, ASTM E-562, ASTM E-1245. Automatic image object dimensioning; analysis results as percentage proportions or nominal surface values.

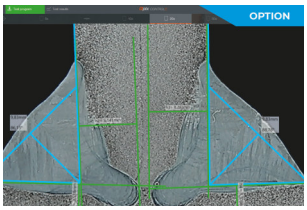
PARTICLE SIZE DETERMINATION

DIN EN ISO 643, ASTM E-112. Linear or circular section method. Results as tables or diagrams; Abrams Circles, Heyn Lines, Snyder-Graff Line.



LAYER THICKNESS MEASUREMENT

DIN EN ISO 1463. Semi-automated gauging of horizontal, vertical and radial layers.



WELD SEAM MEASUREMENT

DIN EN ISO 5817. Templates for throat thickness, weld reinforcement and penetration depth; automatic good/bad evaluation and report generation.

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CONTROLLED PRECISION

Dynamic two-Z-axis positioning, a motorized 8-position tool changer and Collision Avoiding System (CAS) technology combine for accurate force application and automatic testing. The A+ sample image camera captures a field of view of 52 x 39 mm.

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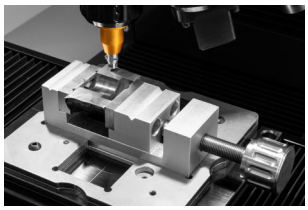
SAMPLE HANDLING

EMBEDDED SAMPLES

Redesigned holders with clamping force limiter and ball-joint plate. Available with 1, 4 or 8 holding positions and adapter rings.

NON-EMBEDDED SAMPLES

Universal sample holder with four clamping bolts that can be set variably in T-slots for many component shapes.



PRISMS AND VICES

Prisms support testing round components; QATM vices and templates enable samples to be repeatedly clamped in the same position.

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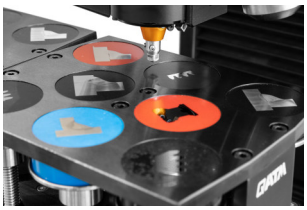
QPIX CONTROL2 SOFTWARE

PC-operated, next-generation software for Brinell / Knoop / Vickers / Rockwell hardness testers. The controlled test head has automatic height adjustment and contactless exploration, complete sample holder integration, CAD compatibility with 3D imaging and intuitive 3D control elements.

- Load samples: machine adjusts automatically and takes a sample image.
- Load row: drag test points to position; Auto-Snap corrects the starting point.
- Start: execute the test according to applicable hardness testing standards.

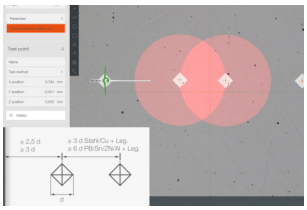
QPIX CONTROL2

INNOVATIVE SOFTWARE FUNCTIONS



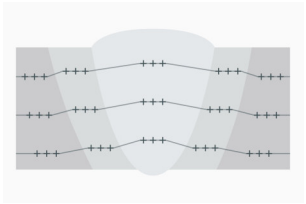
FULLY AUTOMATIC TESTING

Several progressions and samples are completed unmanned, e.g. 60 progressions on 8 samples in one test run.



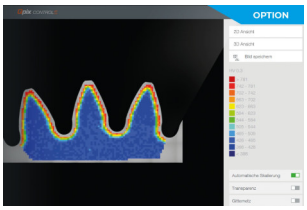
AUTOMATIC MINIMUM DISTANCE

Test-point distances are generated to the minimum standard distance; affected points are highlighted if too close.



ADVANCED WELDING

Norm-compliant EN ISO 9015 and EN ISO 22826 test mapping; interactive patterns adapt to each test piece.



OPTIONAL 2D/3D HARDNESS CHART

Detailed determination of hardness distribution over the total cross section, for heat-treated materials, weld testing or damage analysis.

INDUSTRY 4.0

QCONNECT

Connectivity from bi-directional XML interfaces to QDAS Plug-In+ and customer-specific solutions. Available formats include PDF, CSV, TXT, WORD, EXCEL, MAIL, Q-DAS, LIMS and OPCUA.

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TECHNICAL DATA

Test force range	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)
Test method	Vickers, Knoop, Brinell, Rockwell (option)
Test sequence	Fully automated / electronic force application
Z-axis	Dynamic, automated (CAS-Technic)
Z-axis travelling distance	150 mm (5.91“); Option: 260 mm (10.2“)
Throat depth	170 mm (6.69“)
Tool positions	8-fold motorized tool changer | max. 3 hardness testing modules, max. 7 lenses
Camera system	5 Mpixel - CMOS color, USB3.0
Optical system	Upright microscope with Koehler lighting
Aperture diaphragm	motorized
Lenses	XLED 2x, 2.5x, 5x, 10x, 20x, 50x, 100x
Lens types	Standard (Achromat) and High Quality (Semi-apochromat) for hardness testing and microscopy | XLED for optimised Brinell hardness testing
Field of view (acc. to equipment)	0.074x0.055 mm (100x) to 2.80x2.10 mm (XLED 2)

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TECHNICAL DATA

Sample image camera	5 Mpixel - CMOS color, USB3.0 | 52 x 39 mm (2.05 x 1.54“)
Test anvil / XY cross slide	Automatic cross slide
Table size	150 x 120 mm (5.91 x 4.72“); Option 300 x 120 mm (11.8 x 4.72“)
Positioning accuracy	+/- 2 µm
Traverse path at cross slide	X 150, Y 150 mm (5.91 x 5.91“); Option: X 300 x Y 150 mm (11.8 x 5.91“)
Control elements	Emergency stop, Start button, Joystick X/Y/Z
Software	Qpix Control2
Max. workpiece weight	50 kg (110 lbs)
Weight of basic device	60 kg (132.3 lbs)
Included basic equipment	Indenter Vickers ASTM + DAkkS; Lens 5x, 20x, 50x
Interfaces	1 x USB 3.0
Power connection	100 – 240 V ~1/N/PE, 45-65 Hz

MICRO HARDNESS TESTERS

CONFIGURE YOUR TESTER

With the QATM Configurator, tailor your hardness tester to your requirements. Select device version, equipment and accessories, and submit your configuration as a free, non-binding request for quotation.

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