MACRO HARDNESS TESTER

QNESS 250 / QNESS 750 / QNESS 3000 E EVO

A hardness tester for all purposes: no matter if operated in a laboratory or in a rough production environment.

The fixed component support and extra-large test table area allow hardness testing of even the largest components.

In the "E" version, the test head is conveniently and dynamically controlled by the integrated asynchronous motor. Test pieces of virtually any size, **weighing up to 3500 kg**, are securely clamped in the device. The **maximum test height is 510 mm**.

Click to view video

Product Video

MACRO HARDNESS TESTER E EVO

8-POSITION TOOL CHANGER

FASTER TEST METHOD CHANGE-OVER

Brinell, Knoop, Rockwell or Vickers hardness testing? The sophisticated tool-changer concept with a rotational axis angle of 15° provides space for 8 tools in one uniquely compact unit. Downholder elements with a closed shape on three sides guarantee secure workpiece clamping around the test point – even for small test pieces.

TEST METHODS & FORCE APPLICATION

1 kg — 250 kg

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 5/250	HBW 10/100	HBW 10/250		
HBT (not acc. to standards)						

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

HV 1	HV 2	HV 3	HV 5	HV 10	HV 20	HV 30	HV 50	HV 100
HVT (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

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

HK1	HK2

Plastics
DIN EN ISO 2039

49.03 N	132.9 N	357.9 N	961 N

Integrated conversions: DIN EN ISO 18265, DIN EN ISO 50150

TEST FORCE VARIANTS

TEST METHODS & FORCE APPLICATION

0.3 kg — 750 kg

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 5/250	HBW 5/750	HBW 10/100	HBW 10/250	
HBW 10/500	HBT (not acc. to standards)					

Vickers

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

HV 0.3li>	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)										

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

Knoop

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

HK0.3	HK0.5	HK1	HK2

Plastics
DIN EN ISO 2039

49.03 N	132.9 N	357.9 N	961 N

Integrated conversions: DIN EN ISO 18265, DIN EN ISO 50150

TEST FORCE VARIANTS

TEST METHODS & FORCE APPLICATION

0.3 kg — 3000 kg

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 5/250	HBW 10/100	HBW 10/250	HBW 10/500
HBW 5/750	HBW 10/1000	HBW 10/1500	HBW 10/3000		
HBT (not acc. to standards)					

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

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

Rockwell
DIN EN ISO 6508, ASTM E-18

HRA - HRV	HR 15-N/T/W/X/Y	HR 30-N/T/W/X/Y	HR 45-N/T/W/X/Y

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

HK1	HK2

Plastics
DIN EN ISO 2039

49.03 N	132.9 N	357.9 N	961 N

Integrated conversions: DIN EN ISO 18265, DIN EN ISO 50150

LARGE-SCALE UNIVERSALITY

UNIQUE INSTRUMENT FEATURES

DYNAMIC HEIGHT ADJUSTMENT

The dynamic height adjustment enables comfortable positioning control via potentiometer (8 mm/s). Using the 2-hand-safety device allows a moving speed of up to 17 mm/s (included with E variant).

WORKPIECE RECOGNITION

Workpiece recognition with motorized height adjustment facilitates a high test head movement speed of 17 mm/s. Sensor technology enables the workpiece to be recognized and the bracing speed to be reduced accordingly to protect the device and workpiece.

SWIVELING DOWNHOLDER

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

SWIVEL-ACTION MACHINE TABLE

Unique operating convenience for large, awkwardly-shaped moulded and formed components and workpieces. The work table, optional with the M and E versions, can be tilted up to 5° – including built-in grips – no extra workpiece clamping necessary!

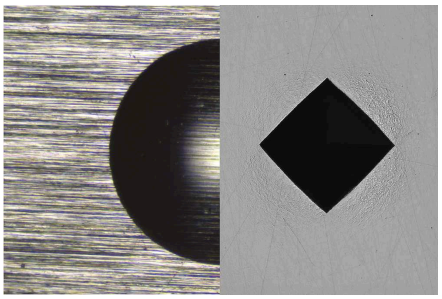
MAXIMUM CLAMPING SAFETY

High-performance induction motor in the E version facilitates a workpiece clamping force of up to 3500 kg. 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.

ENLARGED TEST HEIGHT

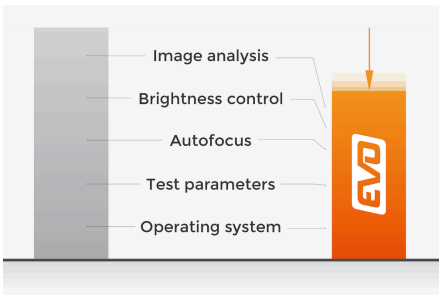
If the 510mm height of the test room is still not enough for especially large, bulky or difficult-to-clamp items, on request QATM can provide an even taller machine frame. The robust steel frame can be produced in customized dimensions.

HIGHLY ACCURATE RESULTS IN ULTRA-SHORT TIME



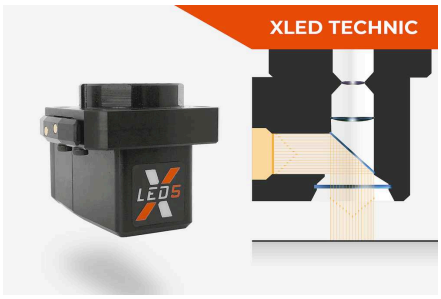
EXCELLENT IMAGE QUALITY

The optics system has been completely redeveloped. It was built on site in the cleanroom at the QATM plant and benefits from the company's comprehensive expertise. All the new devices share one universal microscope system covering all the necessary visual ranges between 0.1 mm and 8 mm in maximum clarity and contrast. The QATM system guarantees uniform illumination across the entire image, regardless of the degree of magnification, and without dark edges.



REDUCED CYCLE TIMES

The new EVO product line guarantees optimized test parameters, a faster Windows 10 PC, much shorter serial autofocus times, significantly faster regulation of brightness and image evaluation, all of which contributes to far more rapid cycle completion times in everyday hardness testing – with even quieter operating noises.



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.

UNLIMITED SUITABILITY FOR INDUSTRIAL APPLICATIONS

ETHERNET INDUSTRIAL CAMERAS

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 tester 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.

FREELY ADJUSTABLE OPERATING DISPLAY

The 12” ultra-flat, capacitive touch display can be raised, lowered and tilted smoothly via ball-and-socket joints for ergonomically optimized use.

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.

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.

QPIX T2 FULL SCREEN MODE

CLEAR FOCUS ON ESSENTIALS

RESULT OVERVIEW

The most important information is centralized and displayed in a main screen, so that user-friendliness and, above all, the test results are in focus. Functions: measurement list, progress curve, statistics, distribution, live force/time progress

MULTI-TOUCH CAPACITY FOR ULTRA-SIMPLE OPERATION

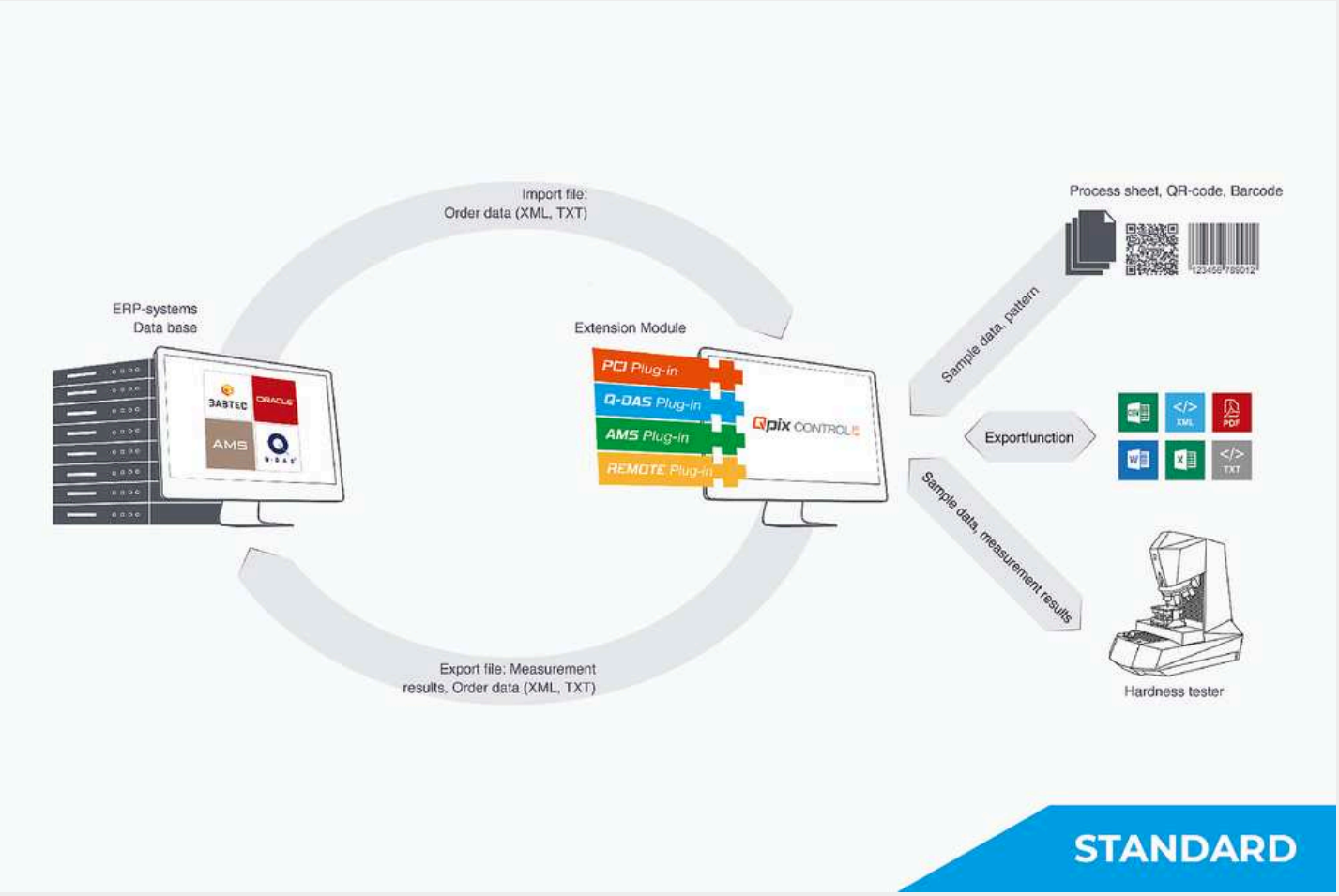
Modern multi-touch operation for simple zooming and easy menu navigation.

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)



FLEXIBLE, CUSTOMERS SPECIFIC AND AFFORDABLE

FOR YOUR TESTING NEEDS

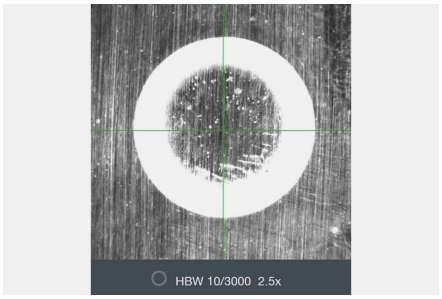
We offer the very best solutions for your testing needs - from workpiece bracing, extended test area and possibilities for automation to software adaption.

Workpiece bracing

Manually cross slide

Extended test area

Dark field illumination (option)



Ring light for soft materials (Option)

MACRO HARDNESS TESTER E EVO

TECHNICAL DATA

Supported test methods	Brinell, Vickers, Rockwell, Knoop, Plastics
Test force range	Qness 250 E EVO: 1 - 250 kg (9.81 - 2450 N) Qness 750 E EVO: 0.3 – 750 kg (2.94 – 7358 N) Qness 3000 E: 0.3 - 3000 kg (2.94 - 29430 N)
Height adjustment	electrical / asynchron motor
Test height / Throat depth	510 mm / 320 mm
Test anvil	584 x 450 mm
Max. work piece weight	"unlimited"
Weight of basic machine	500 kg
Test sequence	fully automatic / electronic force control
Camera system / Image transfer	5 MP Ethernet Industrial standard / up to 270FPS
Tool positions	2 (Standard) oder 8 (Tool Changer)

Software	Qpix T2 (Option: Qpix CONTROL 2 M)
Operating system / Hard disk	Windows 11 IoT / 128 GB SSD
Data interfaces	2x USB 3.0, 2x USB 2.0, 1x RJ45 (Ethernet), 1x RS232, 1x DisplayPort
Lenses	XLED 1, XLED 2, XLED 5, 5x, 10x, 20x, 50x, 100x
Fields of view (depending on tool selection)	0.113x 0.084 mm (100x) up to 7.98 x 5.97 mm (XLED 1)
Display	Capacitive 12“ Touch - Display
Power supply	230~ 50-60Hz 1/N/PE (option: 110~1/N/PE)
Max. power consumption	~ 1230 W
Additional options	designer pedestal, collision protection, cross laser, test anvils, prisms, data connections, barcode/QR code reader etc.

www.qatm.com/q250e

ORDER DATA