QATM®
a VERDER company

INDIVIDUAL PLANNING AND PROFESSIONAL PROJECT MANAGEMENT

# SPECIAL SOLUTIONS IN THE FIELD OF HARDNESS TESTING

CUSTOMER-ORIENTED SOLUTIONS - WITH COMPETENCE AND PASSION

# HARDNESS TESTING MACHINES AND CUSTOMIZED DEVICES

Special geometries, hard-to-access test locations - together we will find the right solution for perfect hardness testing! As a manufacturer of high quality testing equipment, we know the needs of our customers.

## QATM OFFERS:

- State-of-the-art manufacturing methods and a high level of vertical integration
  We always maintain control over all equipment components in our machines and ensure the unique QATM product quality „Made in Germany“ and „Made in Austria“.

- Application consulting and individually designed technical seminars
  The experts in our application laboratories will develop for you the ideal parameters and instrument configurations for sample preparation of your material. Our laboratory and teaching team realize also tailor-made and advanced technical seminars.

- In-house software and instrument development
  Because all development at QATM takes place in-house, we can respond to individual customer specifications and find the right solution for every requirement.

Customers from all over the world appreciate the extensive QATM sales and service network and the direct contact with the experts. The extensive expertise and creativity of our employees are what make the consistently high quality of our solutions.

## VICKERS, BRINELL, KNOOP AND ROCKWELL

Manual or fully automated - we can create the perfect solution for complex test part geometries by means of fixtures. Automated program flow has long since ceased to be a wishful thinking wishful thinking of many companies - with our products it has become reality. Small components as well as large components can be mapped by coordinated test patterns. Throughput times are adjusted to the optimum and programs can be processed in a standardized way. Even when complexity increases, we can respond individually to customer specifications and find the right solution for every find the right solution for every requirement.

## SPECIAL SOLUTIONS IN THIS BROCHURE

AXIS MACHINE QNESS 250/750/3000 A+ EVO

# FULLY AUTOMATIC HARDNESS TESTING IN LARGE FORMAT

## ADVANTAGES

- Fully automatic XY-slide with high precision positioning drive.
- Dynamic joystick for control of the 3 axes x, y, z.
- Usable supporting surface 450 x 300 mm or on request larger traverse paths and support surfaces are also possible on request.
- Laser, signal lamp, barcode reader, etc.

## INTEGRATED SIGNAL LIGHT

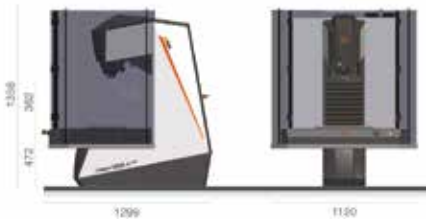
It is ensured that the current status of the test system is visible from all directions.

## FULLY AUTOMATIC 3-AXIS CONTROL

Fully automatic and loadable XY-slide with high-precision positioning drive. Dynamic joystick for control of all 3 axes (XYZ). Usable supporting surface 450 x 300 mm resp. on request also larger traverse paths and test tables possible.


## ELECTRICALLY SWIVELING DOWNHOLDER

For hardness tests according to Rockwell or Brinell, securely held down the downholder are indispensable - for general procedures, such as edge detection or during programming of test samples, the downholder programming of test specimens, the blank holder is not required. In the innovative EVO system, the blank holder can therefore be switched between different processes in a matter of seconds. between different operations in a matter of seconds. Operating convenience and cycle times are reduced even further.



A+ EVO

| | |
|---|---|
| Test force range | Qness 250 1 - 250 kg (9.81 - 2450 N)<br>Qness 750 0.3 - 750 kg (2.94 - 7358 N)<br>Qness 3000 0.3 - 3000 kg (2.94 - 29430 N) |
| Specimen imaging camera | resolution 5 megapixel |
| Height adjustment | electrically via asynchronous motor |
| Test height / projection | 362 / 320 mm |
| Test table / cross table | motorized 450 x 297 mm |
| Travel | X 460 / Y 350 mm |
| Max. workpiece weight | „unrestricted“ |
| Weight basic unit | 695 kg |

| | |
|---|---|
| Software | Qpix CONTROL |
| Interfaces | 1x RJ45 (Ethernet) |
| Tool positions | 2 (standard) or 8 (tool changer) |
| Power supply | 230~1/N/PE (option: 110~1/N/PE) |
| Max. power consumption | ~ 1680W (A+) |
| Accessories and options | XLED1, XLED2, XLED5, 5x, 10x, 20x, 50x, 100x Indenters (Vickers, Rockwell, Brinell), fixed or swiveling hold-down, signal lamp (A+) |
| Jominy | Jominy 8-fold sample holder incl. test module (optional) |


CUSTOMIZED CLAMPING FIXTURES

# SPECIAL FIXTURES FOR PERFECT TESTING OF UNUSUAL GEOMETRIES

Qpix CONTROL 2

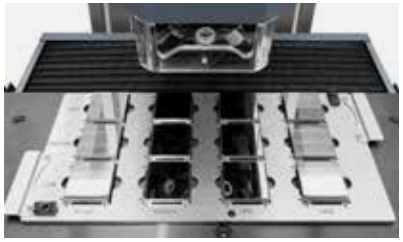
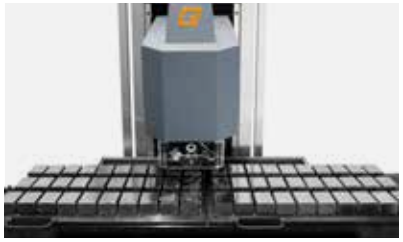
## OPERATION BY EXTERNAL PC SYSTEM

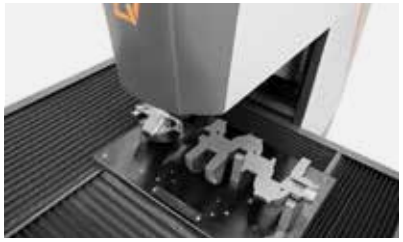
# REVOLUTIONARY 3D OPERATING CONCEPT

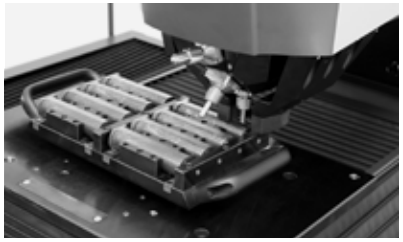
- High quality fixture, specially adapted to each part geometry
- Software visualization of the fixture for better operability
- 3D operating concept
- Recurring specimens can be graphically stored to scale as a 3D model


The innovative CAS technology (Collision Avoiding System) protects the mechanical components of the instrument through 3D precalculation of the movements in the visualized test space from collisions and operator errors.

Ring & pipe testing according to the American Petroleum Institute (=API)






ROCKWELL HARDNESS TESTING MACHINE

# CUSTOMIZED HARDNESS TESTING STATION

INDENTOR EXTENSION FOR HARD-TO-REACH TEST LOCATIONS

## HARDNESS TESTING ON CRANKSHAFTS - INDIVIDUALLY TAILORED SOLUTIONS FOR COMPLEX TESTING REQUIREMENTS

- Hardness testing possible even in extremely hard-to-reach places
- Cross laser pointer for test point determination
- Sprocket testing
- Stroke and main bearing testing (360°)
- Testing on the side of the guide bearing
- Stored test programs
- Program selection and part data filling through integration of a DMC code scanner
- Fully integrated into quality management system


HARDNESS TESTING OF CRANKSHAFTS

THE QPIX SOFTWARE PLATFORMS SUPPORT THE USE OF BARCODE AND QR CODE READERS

QNESS 60 / 150 RCS

# FOR FAST AND PRECISE ROCKWELL TESTING



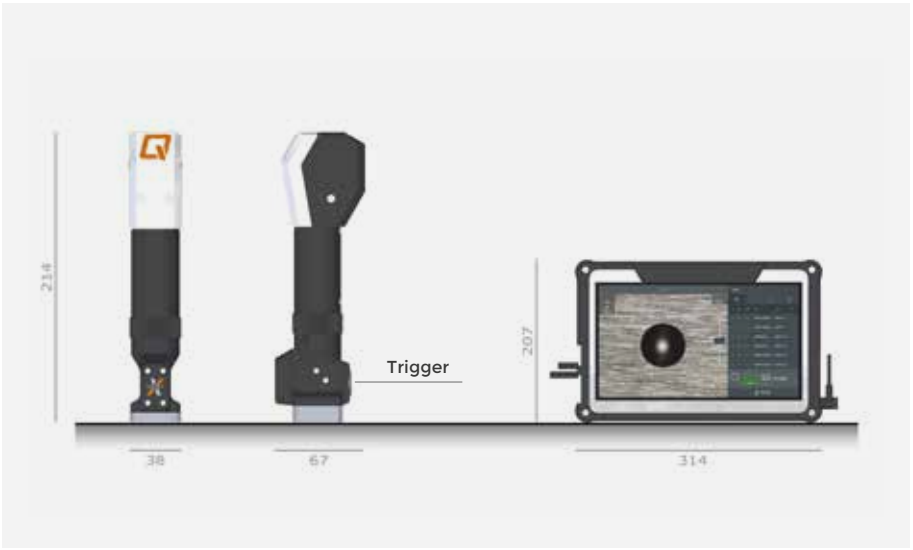
| | Qness 150 RCS | Qness 60 RCS |
|---|---|---|
| Test method | HRC | HBT 2.5 |
| Test load range | 150 kg (1471.5 N) | 62.5 kg (613.1 N) |
| Height adjustment | Handwheel | |
| Test height / projection | 180 / 180 mm | |
| Test table | Ø 100 mm | |
| Weight basic unit | 120 kg | |
| Interfaces | 1 x RS232, 1 x RJ45 (Ethernet) | |
| Power supply | 230~1/N/PE, 110~1/N/PE | |
| Max. power consumption | ~ 360 W | |
| General | Indenters (Rockwell, Brinell) | |
| Inline - solution | in coordination | |
| Options | Special fixtures, special test tables, Profibus, sorting lamps, flashlight | |

## ONE OF THE FASTEST ROCKWELL HARDNESS TESTERS IN THE WORLD

- Extremely fast hardness testing cycle under 2 seconds
- State-of-the-art technology, innovative design
- Innovative Siemens S7 control system
- Siemens 4“ touch display
- Workspace illumination
- 2 load ranges available: HRC or HBT 2.5/62.5 (others on request)
- Can be integrated into production line for automation

QMOBILE EVO

# PORTABLE EVALUATION OF HARDNESS TEST IMPRESSIONS ACCORDING TO BRINELL




## ADVANTAGES

- Consignment includes case
- Ultra-modern technology
- Image evaluation via built-in microscope and XLED Optic
- Replaceable head for customer-determined applications
- Innovative Qpix T2 Software
- Industry compatible tablet PC
- Data output via interfaces (USB 3.0)
- Ergonomic system design

## SUPPORTING TEST METHODS

| | | |
|---|---|---|
| HBW2.5/31.25 | HBW2.5/62.5 | HBW2.5/187.5 |
| HBW5/62.5 | HBW5/125 | HBW5/250 |
| HBW5/750 | HBW10/100 | HBW10/250 |
| HBW10/500 | HBW10/3000 | |

## CONVERSION

| | |
|---|---|
| DIN EN ISO 18265 | DIN EN ISO 50150 |
| ASTM E140 | Standard free |

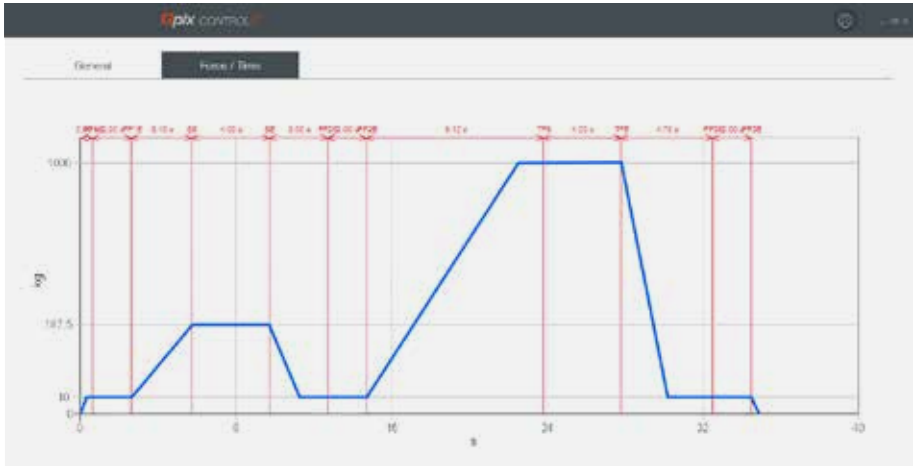
| | Qmobile EVO |
|---|---|
| Hardness test evaluation | Brinell<br>HBW 10/3000, HBW 5/750, HBW 2.5/187.5 |
| Field of view | 7.9 x 5.9 mm |
| Camera | 5 Megapixel |
| Interfaces | 1 x USB 3.0 |
| Weight of Qmobile EVO | 0.7 kg |
| Tablet screen | 11.6” |
| Options | Operation via external PC |

DCM 1000

# HARDNESS TESTER FOR DIRECT DETERMINATION OF THE CASE HARDNESS DEPTH

## VERSIONS: MACHINE TYPE FOR ALL MACRO MACHINES

DCM 1000 CS with spindle and height adjustable test table - test height 175 mm
DCM 1000 C with spindle and height adjustable test table - test height 395 mm
DCM 1000 E with large test table, electrically movable test head - test height 450 mm



Software for evaluation of case hardening depth

## ADVANTAGES OF THIS HARDNESS TESTING METHOD

Instead of the previously time-consuming preparation of polished cut specimens, this efficient method offers the possibility of one hundred percent batch testing. The case hardness can be determined within one minute. The test method allows a quick and non-destructive statement as to whether workpieces have an inhomogeneous hardness distribution in the surface zone.

## SPECIFICATIONS

- DCM = Direct CHD measurement / surface hardness testing
- Equivalent to former Briro E method
- Determination of case hardening depth via direct testing
- In addition, hardness testing of all Rockwell methods according to DIN EN ISO and ASTM in conformity with standards
- Test height 395 mm for DCM 1000 C
- Projection 220 mm,
- Evaluation via software as with Briro E-machines
- General PC version with monitor
- Limit hardness for:
  CHD 525, depth 0.2 - 1.4 mm
  CHD 550, depth 0.2 - 1.4 mm
  CHD 600, depth 0.2 - 1.4 mm
- Pedestal, accessories, prisms and test tables on request
- Cross laser for test point finding
- Data connections
- Barcode / QR Code Reader

QNESS BASE

# FULLY AUTOMATIC HARDNESS TESTING STATION

## ADVANTAGES

- standardized Brinell and Rockwell methods according to EN ISO and ASTM
  fully automatic hardness testing cycle
- fully automatic image evaluation with brightness control
- Can be used as an inline solution in heavy machine construction
- fully automatic test point preparation
- exact milling depth settings

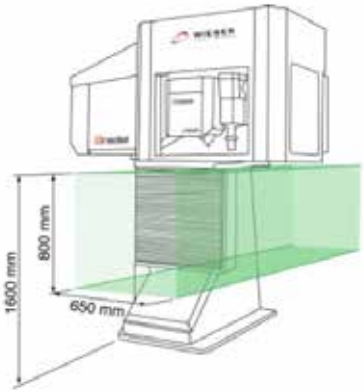
## PROFESSIONAL DATA MANAGEMENT

- numerous statistics functions:
  bar chart, progression, histogram
- export measured value list as „Excel“ (CSV)
- A4 test report as PDF / direct printout
- Data storage on USB stick
- Data connection to ERP systems and databases
- Order registration
- Target value transfer
- Actual value transfer

## OPTIONS

- Marking device by means of needle embosser
- Milling chip extraction
- Qdas connection
- ERP connections
- Can be equipped as inline solution with can be equipped
- Ultrasonic testing, VP testing (spectral analysis)
- Integrated workpiece measuring systems
- Handling manipulators
- Adjustable inspection height
- Multiple inspection points with average values
- Test point can be defined via light point

**TEST METHOD ACCORDING TO STANDARD HBW5/750, HBW10/3000, HRC**



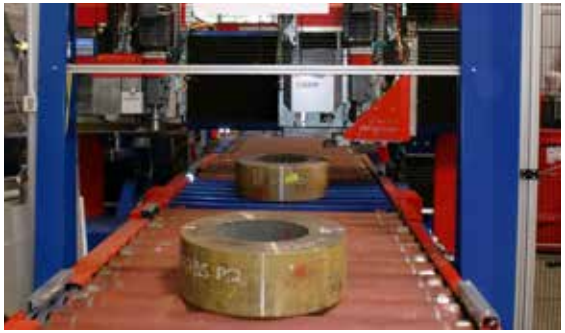

**BASIC POSITION**

**LOADING AND UNLOADING POSITION**

**MILLING AND HARDNESS TESTING POSITION**


INLINE SOLUTIONS

# INLINE BRINELL HARDNESS TESTING SYSTEM



## RING HARDNESS TESTING SYSTEM

Hardness testing according to Brinell, measuring station for Ø-interrogation, mix-up test (spectral analysis), automatic test point preparation, marking device, transport device.

## HARDNESS TESTING PORTAL FIXED OR MOVABLE

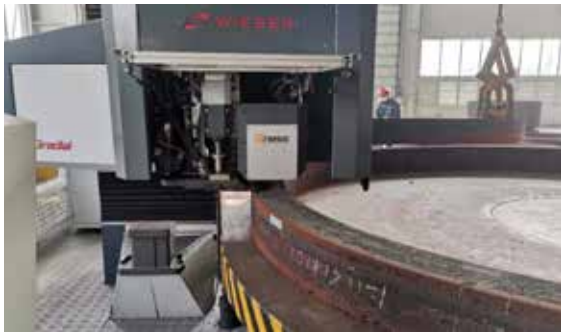
Hardness testing according to Brinell, spectral analysis, workpieces 3x3x12 m, automatic test point preparation.

## WHEELS/WHEEL TIRES FULLY AUTOMATIC HARDNESS TESTING MACHINE

Brinell hardness test, workpieces Ø600-1200 mm, automatic test point test point preparation, manipulator.

## INTEGRATED INLINE HARDNESS TESTING PORTAL

Brinell hardness testing for tubes, die forgings, automatic test point preparation test point preparation, transport device.



## RING HARDNESS TESTING MACHINE

Hardness testing according to Brinell, automatic test point preparation, rotary indexing table.

## FULLY AUTOMATIC HARDNESS TESTING MACHINE

For small and large parts, hardness testing according to Brinell, automatic loading and unloading via gantry.

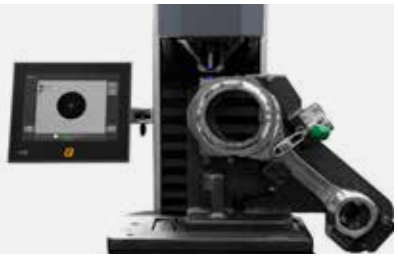

SPECIAL FIXTURES

# CUSTOMIZED SPECIAL FIXTURES

Grinding, polishing and hardness testing in one design.
Specimen holder is compatible with Qpol XL grinding and polishing machine.
Different variations possible according to customer's requirements.


SPECIMEN GRIPS FOR A WIDE VARIETY OF MOUNTING FORMS POSSIBLE.
SPECIMEN HOLDER ADAPTATIONS FOR SPECIFIC EMBEDDING FORMS CAN BE MADE BY AGREEMENT.

JOMINY TEST ACCORDING TO TEST METHOD ISO 642 AND ASTM A255-10.
EXACT POSITIONING BY MEANS OF HANDWHEEL AND ENGRAVEDDIMENSION.

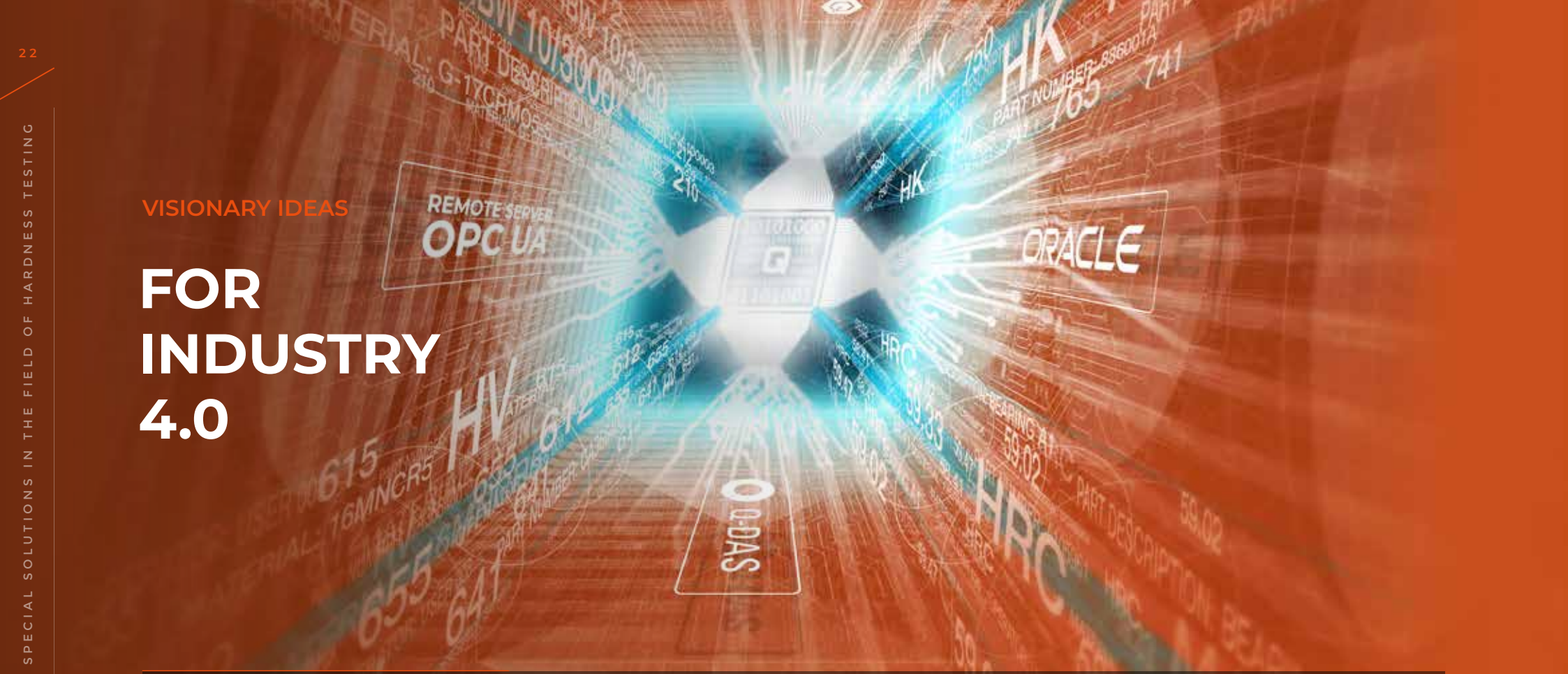


QATM IS THE PERFECT CONTACT FOR COMPLEX REQUIREMENTS AND CLAMPING DEVICES!

WE WOULD BE PLEASED TO TAKE OVER CONSULTING, CONCEPTION AND IMPLEMENTATION OF YOUR CUSTOMIZED SOLUTION, BECAUSE RELIABLE RESULTS CAN ONLY BE GUARANTEED WITH THE RIGHT COMPONENT CLAMPING.

VISIONARY IDEAS

# FOR INDUSTRY 4.0




## #QNESSCONNECTEDFUTURE

Linking up production machinery, intelligent controls for production plants and automated data-sharing for work process planning, have become essential aspects of manufacturing operations over the past few years. Visionary ideas for the Internet of Things and Industry 4.0 now ensure we also offer interconnected test and result monitoring for quality assurance.

## QATM HAS A CLEARLY-DEFINED GOAL

We aim to develop all the requisite technologies, processes and resources, and ensure that customers get 100% of the benefits from all the interconnected devices installed by QATM and to profit from optimized data management. All the steps, tools and developments this requires, are integral to our project: **#QnessConnectedFuture** We can already meet many of these requirements today!

## BENEFITS

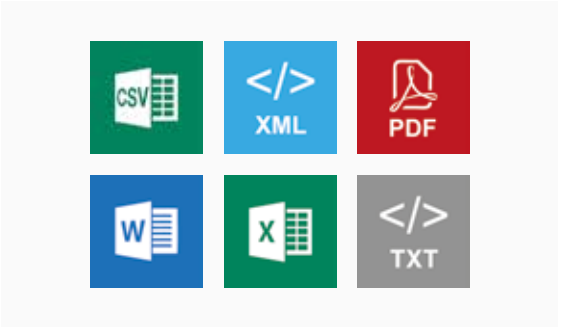
- Efficient documentation
- Reduced operation influence
- Minimization of error sources
- Faster and improved process monitoring
- Real-time results
- Reduced costs

## INTELLIGENT DATA EXCHANGE SOLUTIONS TODAY

# FOR CONNECTED TOMORROWS


### QCONNECT

Qconnect is the interface in Qness 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 Qness. We have a professional solution for every applicational requirement.




### AUTOMATIC EXPORT FUNCTIONS

Many pro-level export functions are built into Qness solutions as standard. Raw data is exported into CSV/TXT and XML, report exports into MS Word, Excel, PowerPoint and PDF – as part-specific issues or as individual exports. All export configurations can be stored individually for templates.


### 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.

### 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.

**FIND OUT MORE ABOUT THE INTERCONNECTIVITY OF QNESS-FAMILY HARDNESS TESTING DEVICES**

**#QNESSCONNECTEDFUTURE**

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