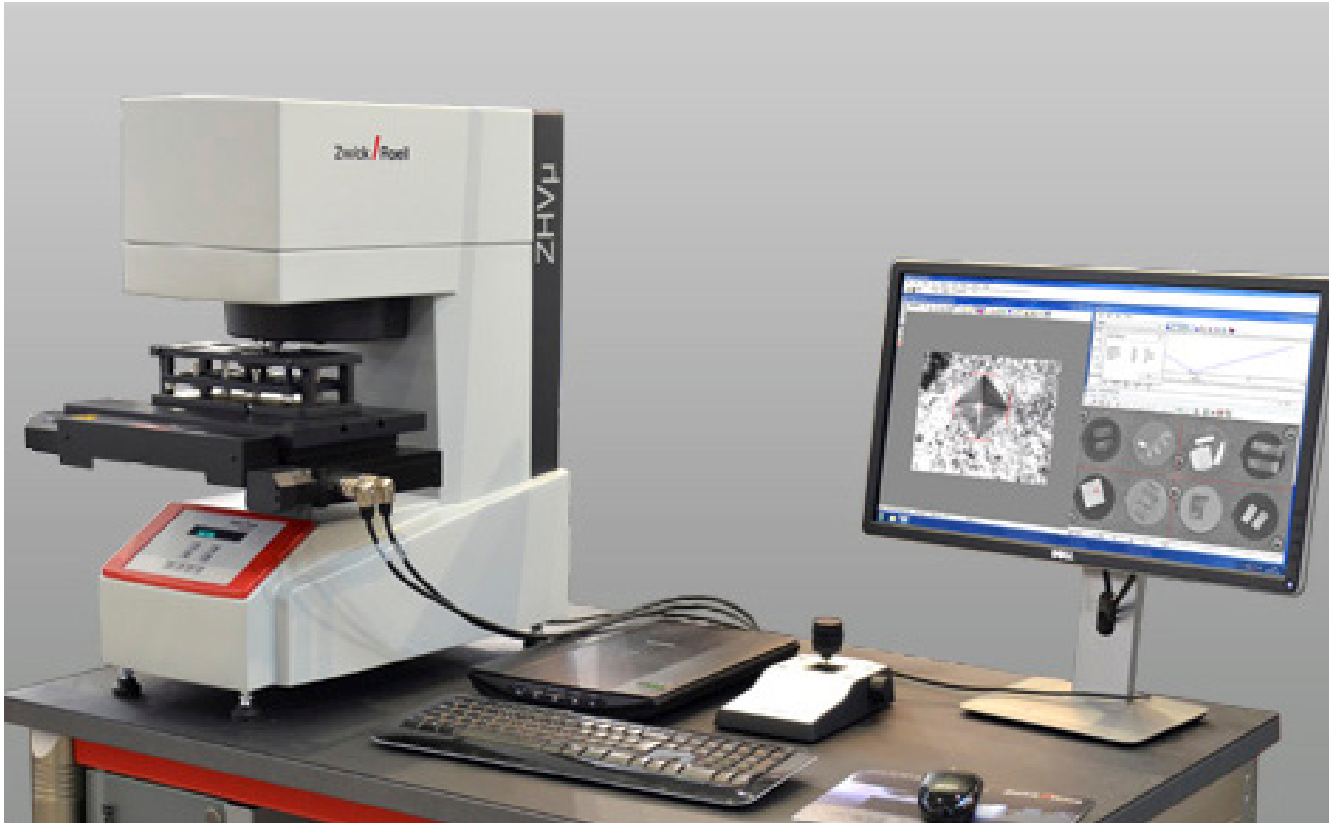# Product Information

ZHVμ Micro Vickers Hardness Tester - from manual to fully automatic

Range of application

Can be used for the optical hardness test methods Micro Vickers respectively Knoop to the following standards:

- Vickers hardness acc. to ISO 6507 and ASTM E384
- Knoop hardness acc. to ISO 4545 and ASTM E384

Advantages/features

- Load steps with motorized load change:
  10, 25, 50, 100, 200, 300, 500, 1000, 2000 (gf)
- Motorized turret allows automatic test sequence when changing indenter and lens position
- Capable of fitting one Vickers and one Knoop indenter simultaneously and up to four objective lenses
- Dead weight load application, provides long term test force stability and repeatability
- Variable dwell times, 5 ... 60 seconds
- Individual setting of illumination for each objective lens

Software controlled variants for **semi- to fully automatic hardness testing systems** provide the further features:

- Operation and control of the hardness tester via High Definition software (HD)
- 1.3 megapixel USB camera
- High-resolution overview image of specimen surface via scan function (stitching) [1] with 2.5 x objective lens
- Easy positioning of test points in the overview image
- Automatic indentation measurement with illumination and shadow correction removes operator influence in determining hardness values
- Motorized x-y table with 100 mm x 60 mm travel
- Automatic effective case depth determination

[1] Function not availble in the US

Product Information
ZHVμ Micro Vickers Hardness Tester - from manual to fully automatic

High Definition Testing Software

When a hardness testing solution which delivers reliable, accurate and repeatable test results is needed, choose from the HD line of macro and micro hardness testing solutions - field-proven systems, offering beyond comparison capabilities and fully ASTM E 384, ISO 6507 and ISO 4545-compliant.

Precise positioning
With its image of the entire specimen (Mosaics) and its annotation tools, HD Software enables you to position indents precisely where they are required.
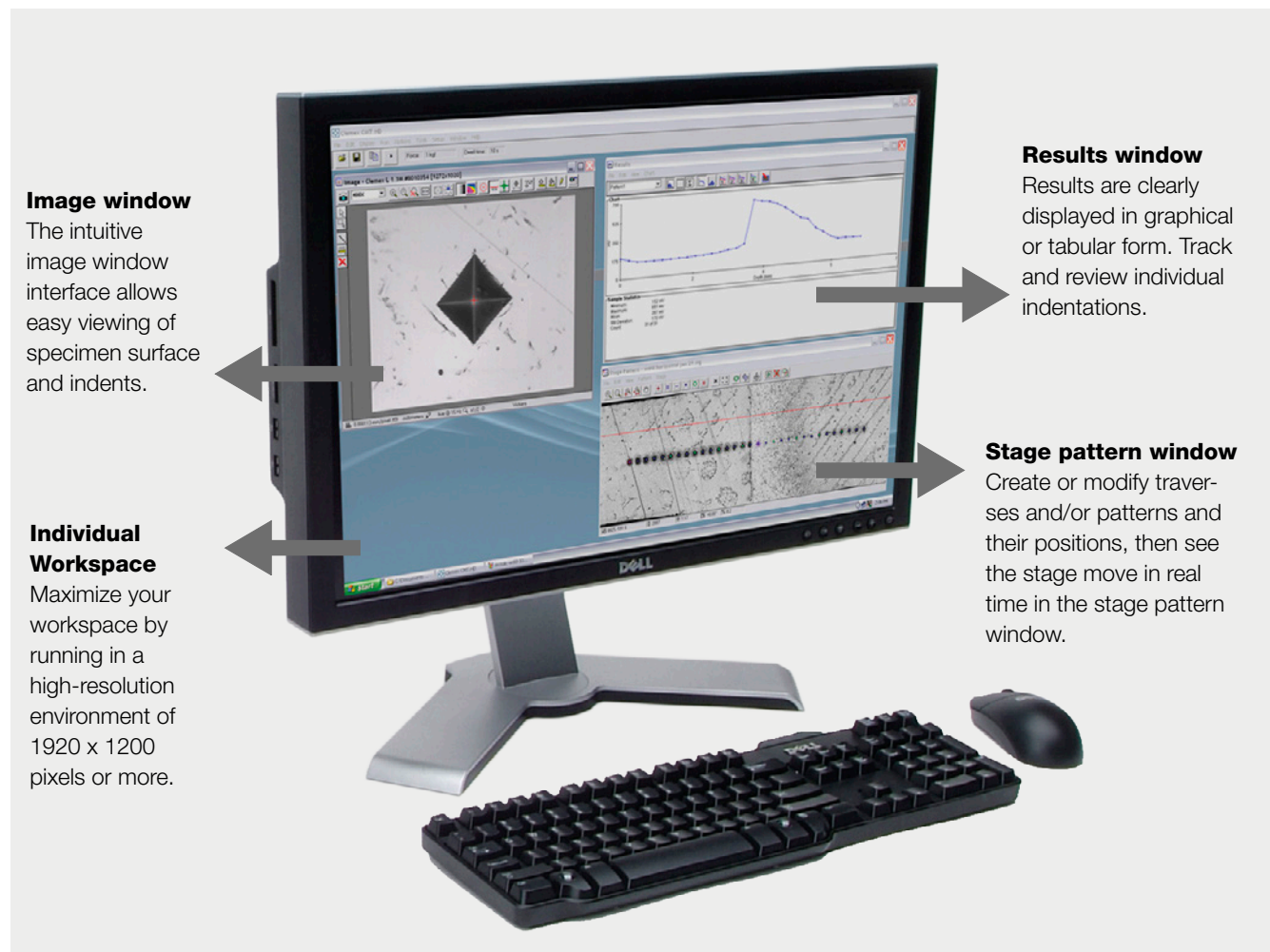
Precise, reproducible measurements
The high image resolution of the HD Software allows measurement of indents to be precise and reproducible.

Enhanced productivity
The HD Software combines ease of use, reliability and auto-calibration, minimizing the subjectively associated with human intervention. The system can run autonomous for hours without interruption.

Sophisticated reporting
The results are automatically transferred via data interface from HD software to testXpert III - the testing software for all Zwick testing machines and instruments. According to your requirements the reports are now generated.

Image window
The intuitive image window interface allows easy viewing of specimen surface and indents.

Individual Workspace
Maximize your workspace by running in a high-resolution environment of 1920 x 1200 pixels or more.

Results window
Results are clearly displayed in graphical or tabular form. Track and review individual indentations.

Stage pattern window
Create or modify traverses and/or patterns and their positions, then see the stage move in real time in the stage pattern window.
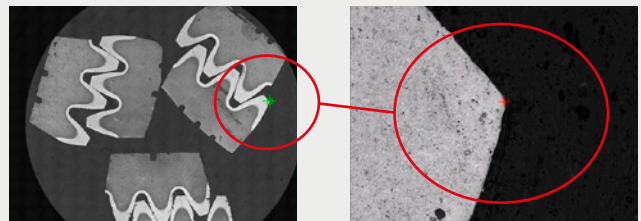
Product Information
ZHVµ Micro Vickers Hardness Tester - from manual to fully automatic

Step 1: Set the entire specimen

Place the specimen in the specimen holder and - with one click - build a mosaic image of the specimen and set reference points for more traverses using annotated tools.
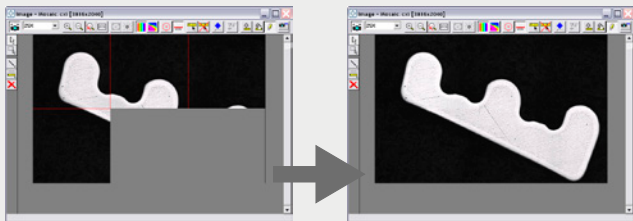
Building mosaic image to a complete image

Precise positioning at any magnification
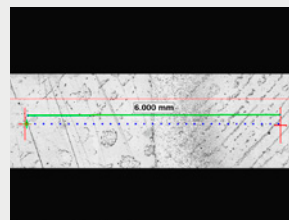
Step 2: Set-up traverses/patterns

Open, modify, or create new traverses/patterns using reference points or lines. Traverses and patterns can be individually adjusted.
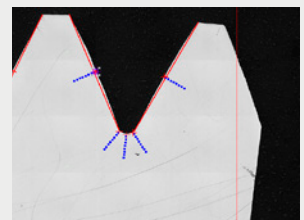

T-Bar rotation tool

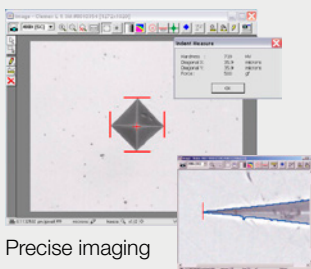Three traverses perpendicular to edge
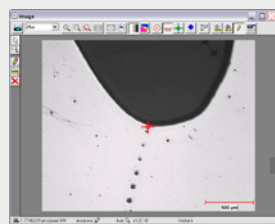
Traverse centred in weld sample

Five traverses perpendicular to the edge of the gear
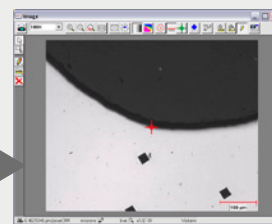
Step 3: Click & walk away

HD Software intelligently follows the predefined patterns, indents the specimen, focuses if needed, measures and generates data dynamically. Everything is automated, freeing users for other tasks.

Precise imaging
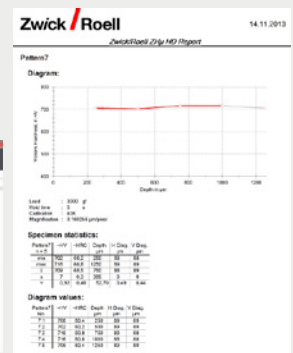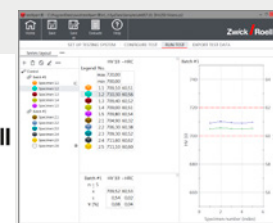
with 2.5 x objective lens

with 10 x objective lens

with 40 x objective lens

Step 4: Get results

Review results in graphical and/or tabular format. Export results to the spreadsheet application of your choice, or to **testXpert III** for creating and printing standard or customized reports.

Product Information

ZHVµ Micro Vickers Hardness Tester - from manual to fully automatic

Type	ZHVµ-M manual	ZHVµ-S semi-automatic	ZHVµ-A fully automatic
Micro Vickers test loads	10 ... 2000 gf	10 ... 2000 gf	10 ... 2000 gf
Display	integrated display	PC monitor[1]	PC monitor[1]
Data entry	integrated keyboard	PC keyboard[1]	PC keyboard[1]
Focussing	via hand wheel	via hand wheel	motorized
Optics	Measuring microscope	USB camera with HD connection	USB camera with HD connection
HD-Software	-	**ZHµ.HD-S:** • Auto indentation measurement • Manual effective case depth determination	**ZHµ.HD-A:** • Auto indentation measurement • Autom. effective case depth determination • Sample scanning and stitching capability

Test area (height x depth)	150 x 150 mm
Dimensions (H x W x D)	670 x 300 x 550 mm
Weight	30 kg
Power supply	3 A single phase, 240/120 V switchable
Inclusive accessory box and instruction manual	

[1] PC, monitor and keyboard already included in scope of supply.

Accessories

Description	Item number
Indentor, diamond pyramid 136° to Vickers	**2111218**
Indentor, diamond pyramid to Knoop	**2111219**
Indenter holder (one required for each indenter)	**2111217**
Objective lenses 2.5-times Measuring range (mm): 0.500 - 4.000	**2111210**
Objective lenses 5-times Measuring range (mm): 0.200 - 2.000	**2111211**
Objective lenses 10-times Measuring range (mm): 0.100 - 1.000	**2111212**
Objective lenses 20-times Measuring range (mm): 0.050 - 0.500	**2111213**
Objective lenses 40-times Measuring range (mm): 0.025 - 0.250	**2111214**
Objective lenses 50-times Measuring range (mm): 0.016 - 0.160	**2111215**
Objective lenses 100-times Measuring range (mm): 0.010 - 0.100	**2111216**
Objective lenses 40-times Long working distance	**2112291**
Objective lenses 50-times Long working distance	**2111259**
Objective lenses 100-times Long working distance	**2111260**
Objective lens holder (one required for each objective lens)	**2111209**
Hardness test blocks on request, e.g. 540 HV 1	

X-Y tables	Item number
Manual X-Y table 100 x 100 mm with 50 x 50 mm travel; with manual micrometers	**2111222**
Manual X-Y table 100 x 100 mm with 50 x 50 mm travel; with digital micrometers	**2111221**
Manual X-Y table 100 x 100 mm with 25 x 25 mm travel; with manual micrometers	**2111224**
Manual X-Y table 100 x 100 mm with 25 x 25 mm travel; with digital micrometers	**2111223**
Manual single axis table with 25 mm travel; with manual micrometer	**2111226**
Manual single axis table with 25 mm travel; with digital micrometer	**2111225**
Motorised X-Y table 185 x 135 mm and 100 x 60 mm travel	**2111227**
Motorised X-Y table 350 x 218 mm and 200 x 100 mm travel	**2111229**