

Product Information

ZHV μ 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) 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

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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

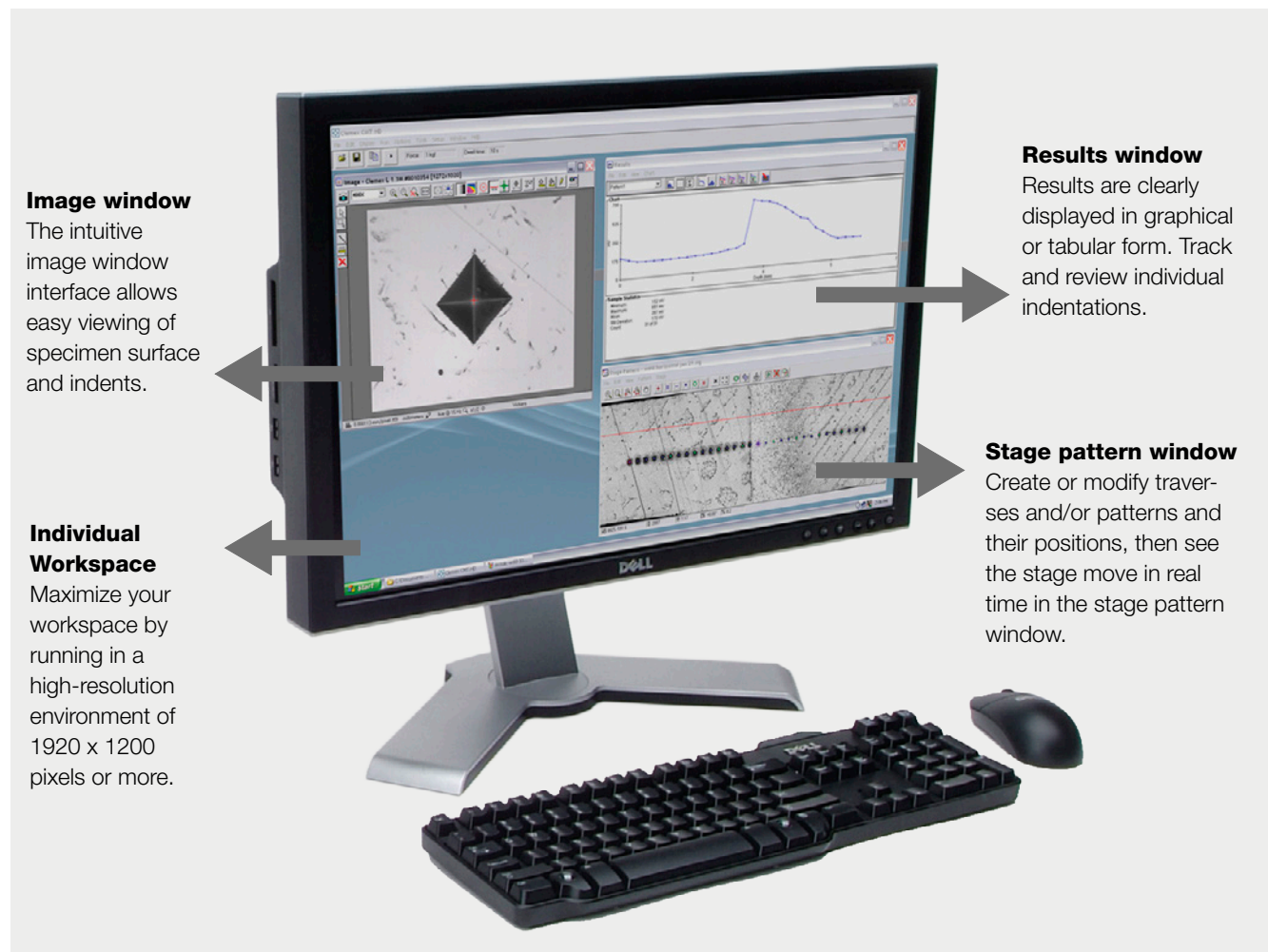
With its image of the entire specimen (Mosaics) and its annotation tools, HD Software enables you to position indents precisely where they are required.

Precise, reproducible measurements

The high image resolution of the HD Software together with shading correction, shutter speed optimisation, automatic focus, etch correction and two automatic measurement methods 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 autonomously for hours without interruption.

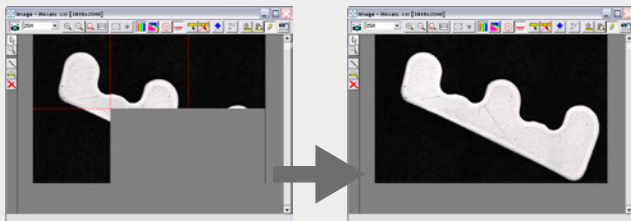


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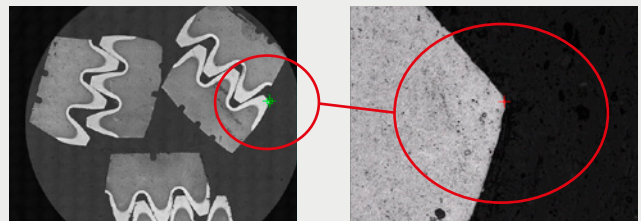
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Step 1: Set the entire specimen

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

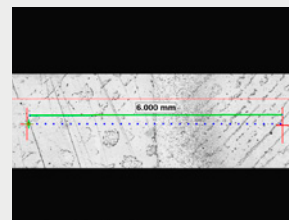
Open, modify, or create new traverses/patterns using reference points or lines. Traverses and patterns can be individually adjusted.



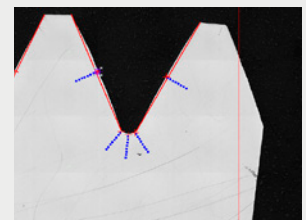
T-Bar rotation tool



Three traverses perpendicular to edge



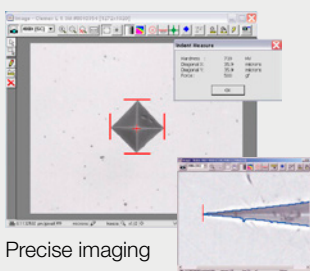
Traverse centred in weld sample



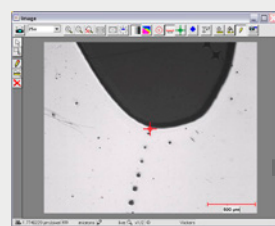
Five traverses perpendicular to the edge of the gear

Step 3: Click & walk away

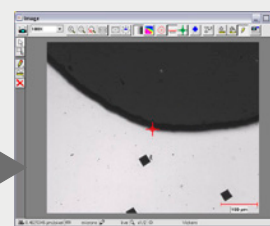
HD Software intelligently follows the predefined patterns, indents the specimen, focuses if needed, measures and generates data dynamically. Everything is automated, freeing users for other tasks.



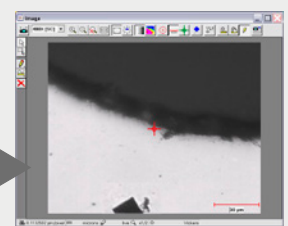
Precise imaging



with 2.5 x objective lens



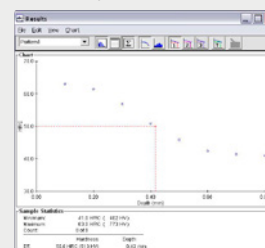
with 10 x objective lens



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 simply print standard or customized reports.



ACME Bolt, Inc. - QC Laboratory			
Date:	December 8th, 2009	Report No:	125576A
Operator:	John Smith	Sample ID:	5643S
Customer:	EMCE Inc.	Batch No:	66441A
Sample:	Type A Fastener	Plant No:	AUG11

STATUS
REJECT

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Type	ZHV μ -M manual	ZHV μ -S semi-automatic	ZHV μ -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: <ul style="list-style-type: none"> • Auto indentation measurement • Manual effective case depth determination 	ZHμ.HD-A: <ul style="list-style-type: none"> • 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)	560 x 240 x 430 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
Indenter, diamond pyramid 136° to Vickers	M1μ
Indenter, diamond pyramid to Knoop	M2μ
Indenter holder (one required for each indenter)	MH
Objective lenses 2.5-times Measuring range (mm): 0.500 - 4.000	X2.5
Objective lenses 5-times Measuring range (mm): 0.200 - 2.000	X5
Objective lenses 10-times Measuring range (mm): 0.100 - 1.000	X10
Objective lenses 20-times Measuring range (mm): 0.050 - 0.500	X20
Objective lenses 40-times Measuring range (mm): 0.025 - 0.250	X40
Objective lenses 50-times Measuring range (mm): 0.016 - 0.160	X50
Objective lenses 100-times Measuring range (mm): 0.010 - 0.100	X100
Objective lens holder (one required for each objective lens)	XH
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	C4a
with digital micrometers	C4
Manual X-y table 100 x 100 mm with 25 x 25 mm travel; with manual micrometers	C5a
with digital micrometers	C5
Manual single axis table with 25 mm travel; with manual micrometer	C6a
with digital micrometer	C6
Motorized X-y table 185 x 135 mm and 100 x 60 mm travel	C7
Motorized X-y table 350 x 218 mm and 200 x 100 mm travel	C8