

Product Information

ZHU250CL Universal Hardness Tester (Force Range: 0.5kg - 250kg)



Range of Hardness Applications

Vickers according to ISO 6507 and ASTM E384
Knoop according to ISO 4545 and ASTM E384
Rockwell according to ISO 6508 and ASTM E18
Brinell according to ISO 6506 and ASTM E10

Advantages/features

- The latest close loop technology is used to apply test forces. The closed loop control system is designed to have a much lower signal-to-noise ratio than a traditional load cell, thus providing much greater consistency of test force application. Accuracy on all loads of <1% according to the relevant ISO standards
- Extremely wide test force range of 0.5 kg to 250 kg
- Unique "4-plus-4" turret able to carry up to 4 lenses and up to 4 indenters simultaneously. The turret is also designed to allow testing in hard to reach positions by using a unique vertical rotation mechanism.
- Variable dwell times 5-60 seconds
- Ability to vary indenter approach velocity
- Rockwell depth measured by the market leading Indentec transducer capable of a measuring resolution of 0.1 Rockwell point
- Software controlled semi or fully automatic hardness testing for all scales provides:
- Operation and control of the hardness tester via high definition software (ZHμ.HD)
- 4 megapixel USB camera
- High-resolution overview image of specimen surface via scan function ^(†) using either x2.5 lens (stitching) or flatbed scanner in automatic model
- Easy positioning of test points in the overview image
- Automatic indentation measurement - with illumination and shadow correction - removes operator influence in determining hardness values
- Motorised X-Y tables with optional travel distances
- Effective case depth determination
- testXpert II reporting option
- RS232 or USB 3.0 data export function

^(†) Function not available in the US

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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

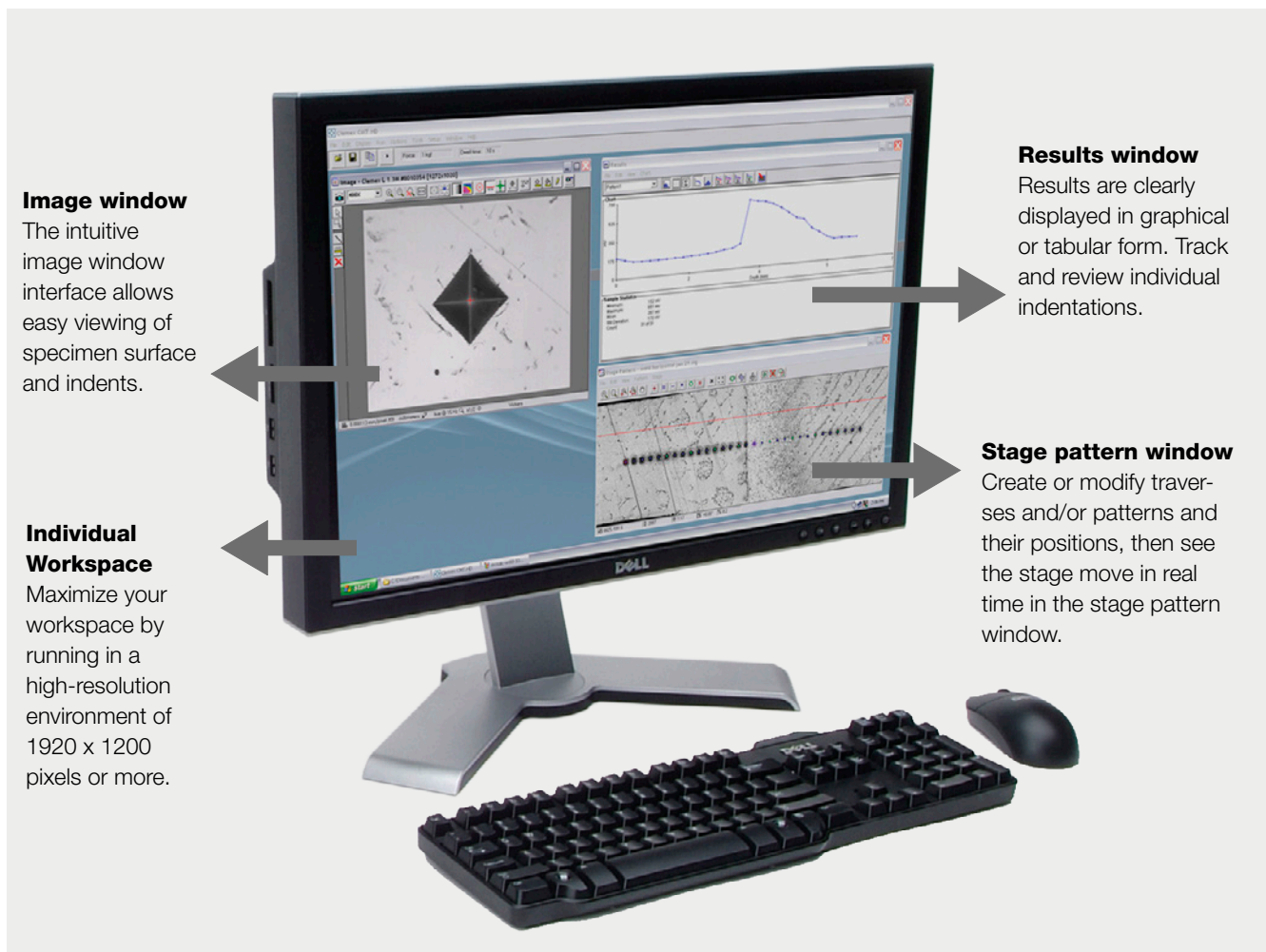
The high image resolution of the HD Software allows measurement of indents to be precise and reproducible.

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.

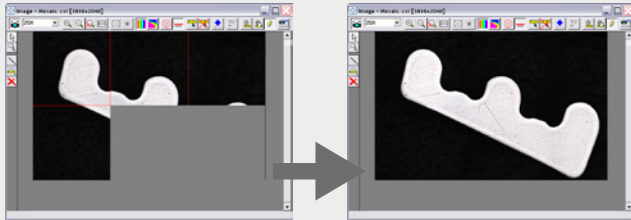


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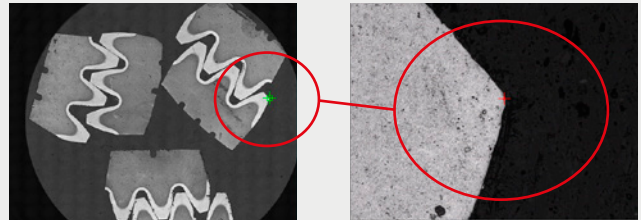
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Step 1: Set the entire specimen

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

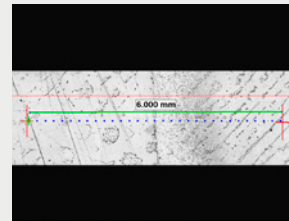
Open, modify, or create new traverses/patterns using reference points or lines. Traverses and patterns can be individually adjusted.



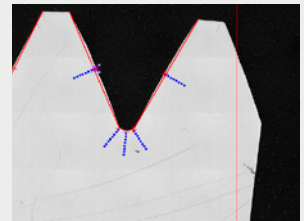
T-Bar rotation tool



Three traverses perpendicular to edge



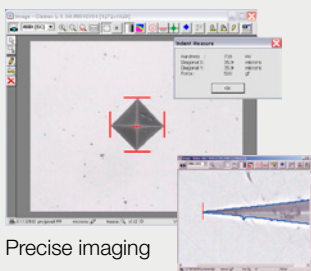
Traverse centred in weld sample



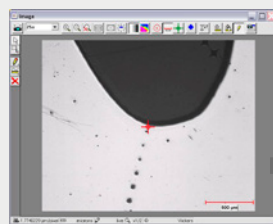
Five traverses perpendicular to the edge of the gear

Step 3: Click & walk away

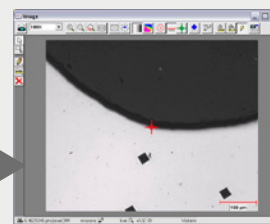
HD Software intelligently follows the predefined patterns, indents the specimen, focuses if needed, measures and generates data dynamically. Everything is automated, freeing users for other tasks.



Precise imaging



with 2.5 x objective lens



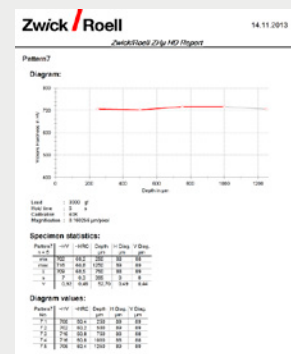
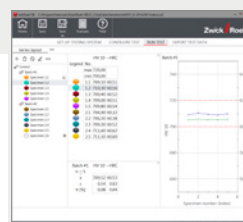
with 10 x objective lens



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 to **testXpert III** for creating and printing standard or customized reports.



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Feature	ZHU250CL-S	ZHU250CL-A
Loads	0.5 kg to 250 kg	0.5 kg to 250 kg
Load selection resolution	0.1 kg	0.1 kg
Vickers HV	Standard forces from HV1	Standard forces from HV1
Knoop HK	HK0.5 and HK1	HK0.5 and HK1
Brinell HBW	Standard forces with 1 mm and 2.5 mm ball and 5 mm up to 250 kg	Standard forces with 1 mm and 2.5 mm ball and 5 mm up to 250 kg
Rockwell and Superficial	Standard scales	Standard scales
Display	PC monitor ⁽¹⁾	PC monitor ⁽¹⁾
Data entry	PC keyboard ⁽¹⁾	PC keyboard ⁽¹⁾
Focussing	Manual via handwheel	Motorised, automatic
Optic	4 megapixel camera	4 megapixel camera
HD Software	ZHμ.HD-S	ZHμ.HD-A
Indenters	Up to 4 optional	Up to 4 optional
Lenses	Up to 4 optional	Up to 4 optional
Data output	RS232/USB	RS232/USB
Test area (height x depth)	379 mm x 150 mm	379 mm x 150 mm
Dimensions (depth x height x width)	600 x 1100 x 400 mm	600 x 1100 x 400 mm
Weight	150 kg	150 kg
Power supply	3 A single phase, 240/120V switchable	5 A single phase, 240/120V switchable
Inclusive instruction manual and dust cover. ⁽¹⁾ PC, monitor and keyboard included in the scope of supply		

Accessories

Description	Item Number
Indenter, diamond pyramid 136° to Vickers	2111468
Indenter, diamond pyramid to Knoop	2111479
Brinell ball indenter Sizes available: 1 mm, 2.5 mm, 5 mm, 10 mm	various
Rockwell diamond (UKAS)	2111456
Rockwell ball indenter Sizes available: 1/16", 1/8", 1/4", 1/2"	various
Indenter holder (one required for each indenter)	2111454
Objective lenses 2.5-times FOV: 4500 μm Resolution: 2.210 μm/pixel	2111210
Objective lenses 5-times FOV: 2200 μm Resolution: 1.110 μm/pixel	2111211
Objective lenses 10-times FOV: 1100 μm Resolution: 0.600 μm/pixel	2111212
Objective lenses 20-times FOV: 560 μm Resolution: 0.300 μm/pixel	2111213
Objective lenses 40-times FOV: 280 μm Resolution: 0.140 μm/pixel	2111214
Objective lens holder (one required for each objective lens)	2111209
70 mm flat anvil	2111157
Hardness test blocks on request, e.g. 540 HV 1	various

X-Y tables	Item Number
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 50 x 50 mm travel with manual micrometers	2111222
Manual X-Y table 100 x 100 mm with 25 x 25 mm travel with digital micrometers	2111223
Manual X-Y table 100 x 100 mm with 25 x 25 mm travel with manual micrometers	2111224
Manual single axis table with 25 mm travel with digital micrometer	2111225
Manual single axis table with 25 mm travel with manual micrometer	2111226
Motorised X-Y table 250 x 135 mm and 200 x 100 mm travel (300 kg rating)	2111482