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 IS0 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 [1] 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

[1] Function not availble in the US

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

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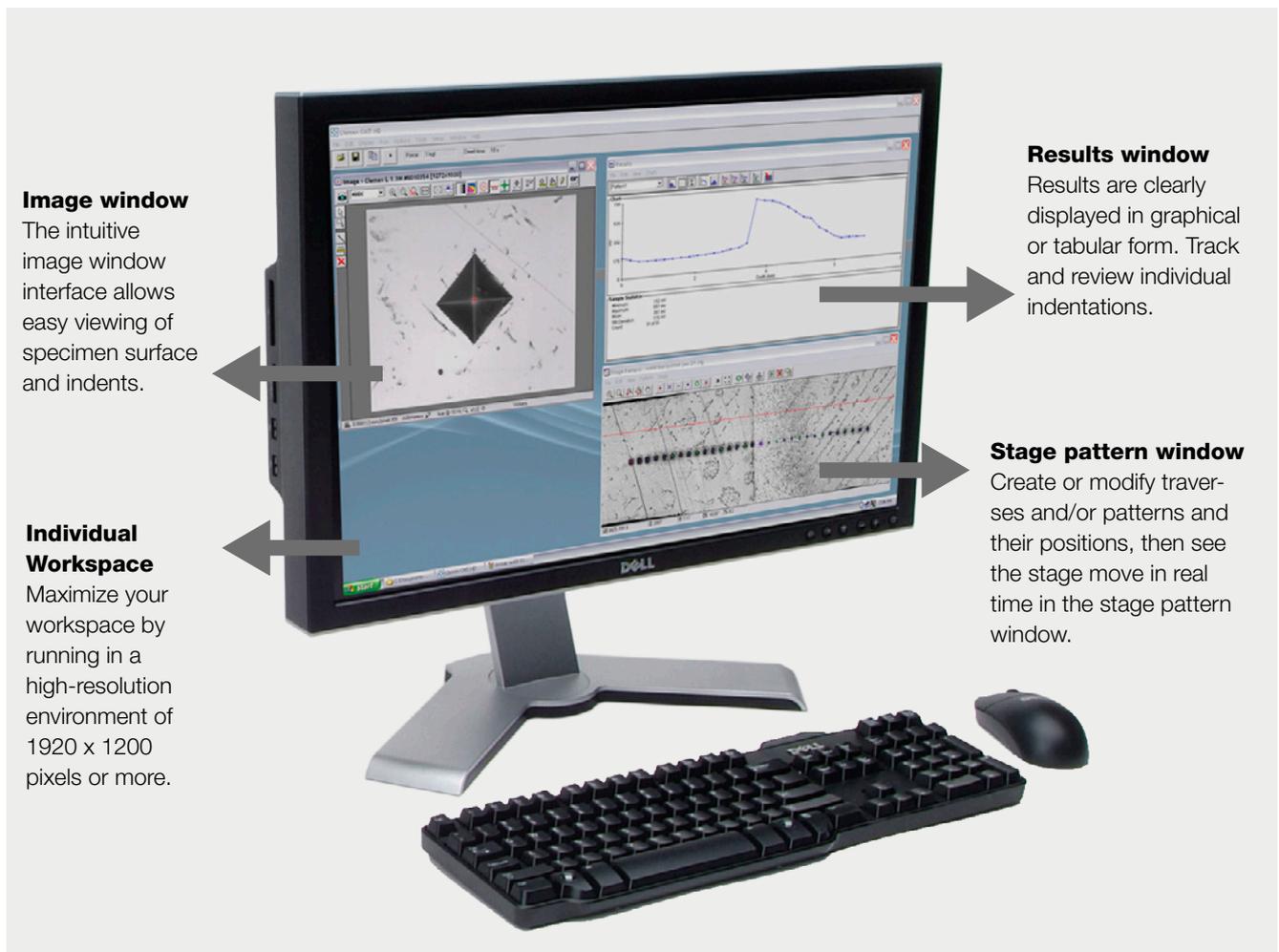
Precise, reproducible measurements
The high image resolution of the HD Software allows measurement of indents to be precise and reproducible.

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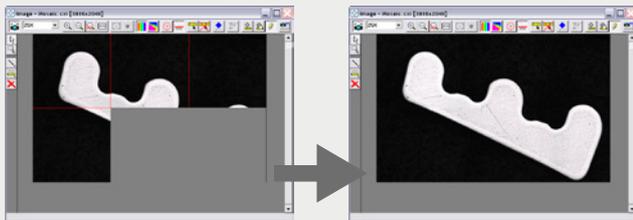
Image window
The intuitive image window interface allows easy viewing of specimen surface and indents.

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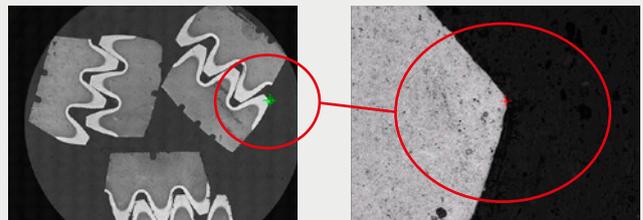
Product Information
ZHU250CL Universal Hardness Tester (Force Range: 0.5kg - 250kg)

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.

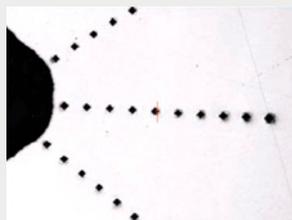
Building mosaic image to a complete image

Precise positioning at any magnification
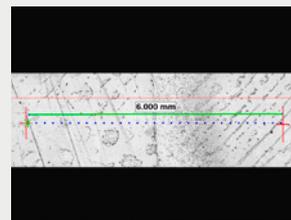
Step 2: Set-up traverses/patterns
Open, modify, or create new traverses/patterns using reference points or lines. Traverses and patterns can be individually adjusted.
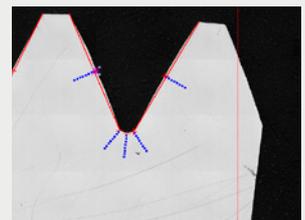

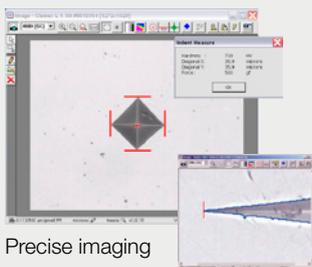T-Bar rotation tool

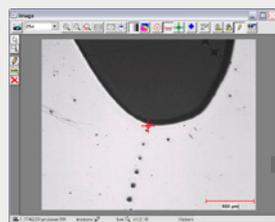Three traverses perpendicular to edge

Traverse centred in weld sample

Five traverses perpendicular to the edge of the gear
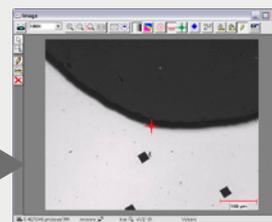
Step 3: Click & walk away
HD Software intelligently follows the predefined patterns, indents the specimen, focuses if needed, measures and generates data dynamically. Everything is automated, freeing users for other tasks.
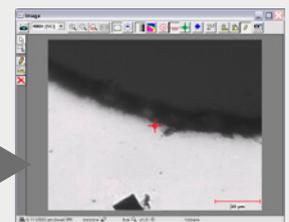

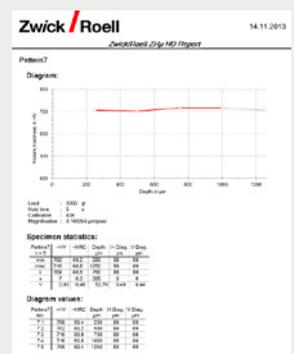Precise imaging

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

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 digitall 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**