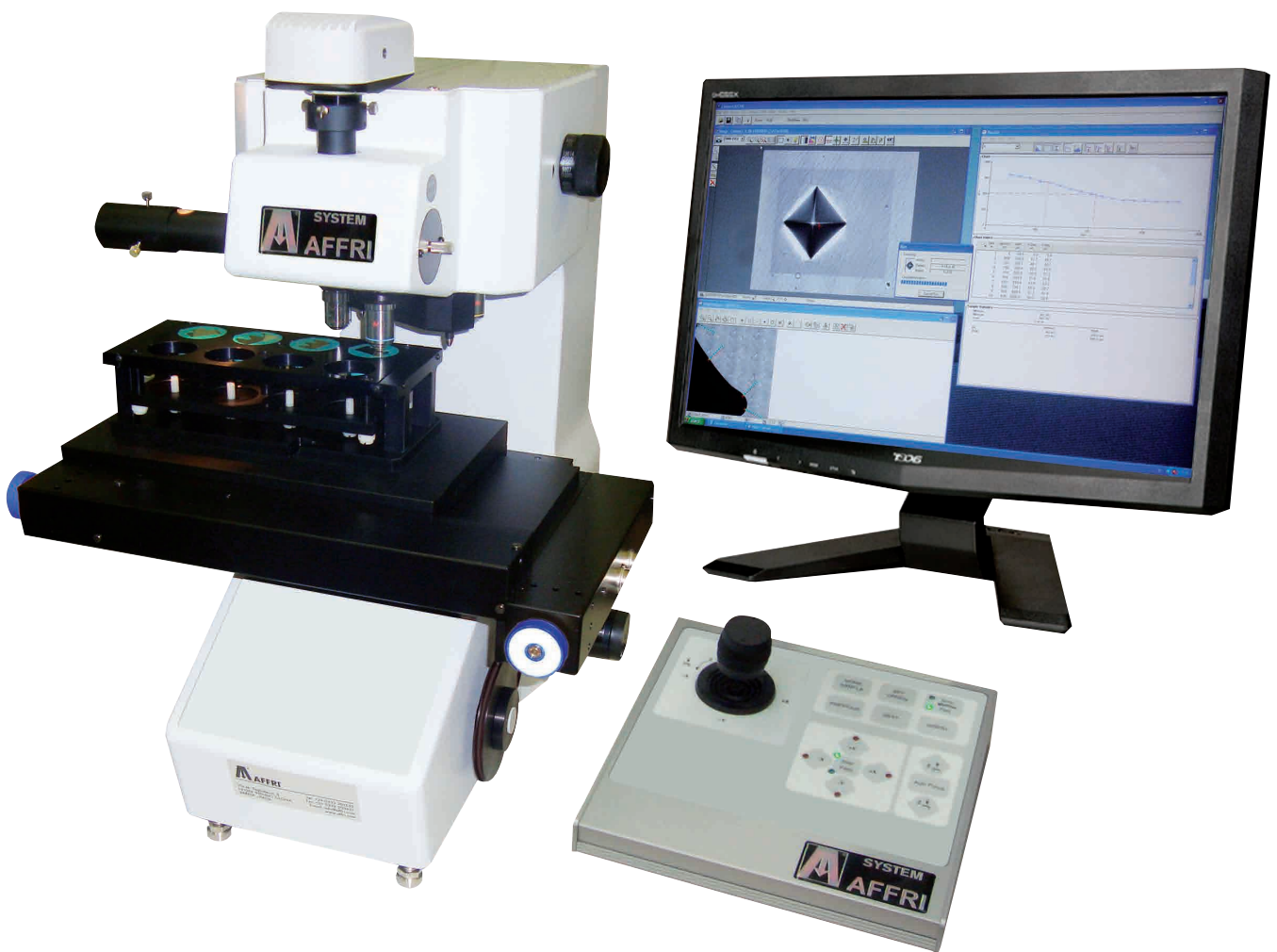


# DM AUTO

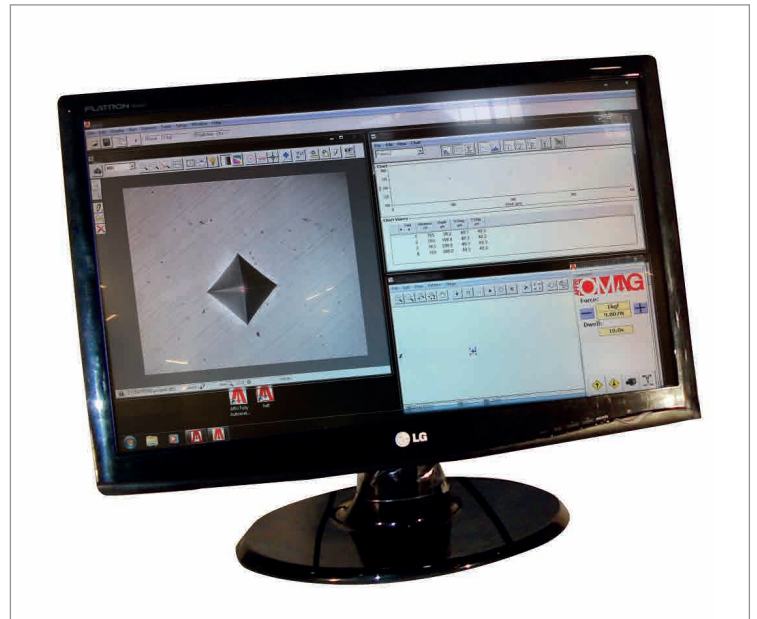
Fully Automatic Vickers  
Hardness Testing solution



When a macro or micro hardness testing solution that produces reliable, accurate and repeatable test results is needed, choose from DM AUTO hardness testing solutions. Field proven systems, they offer unparalleled capabilities and are fully ASTM E-384 and ISO 6507 compliant.

## INTELLIGENT WORKSPACE LAYOUT

- **HD Resolution**  
Maximize your workspace by running in a high-resolution environment of 1900 x 1200 pixels, or more.
- **Image Window**  
The intuitive Image Window interface allows easy viewing of sample surface and indents.
- **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.
- **Results Window**  
Results are clearly displayed in graphical or tabular form. Track and review specific indents.



## INTELLIGENT WORKSPACE

The DM AUTO is the top-of-the-line automated microhardness tester. With the new software 4 easy steps, it provides added precision when positioning indents thanks to its integrated image scanner technique and its layout tools. By visualizing the complete sample, no matter its size, traverses and/or patterns can now be mapped-out with unequalled precision. Auto focusing, and automatic measuring and reporting, allow this system to function unattended, thus increasing throughput and productivity



## SAVE TIME !

With the DM AUTO Tester you can now measure multi sample, no need restart at every sample cycle, more samples can be tested automatically at same test cycle!

## EASY TO MANAGE

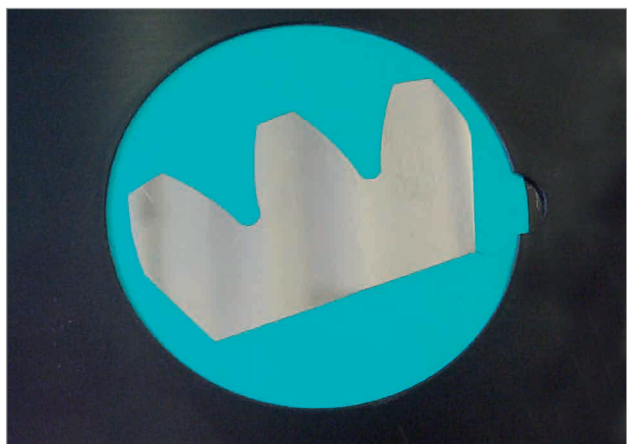
All is under your control

Joystick, fast and slow step for accurate positioning for X - Y and Z focus adjustment.

Test cycle input by a simply "click"

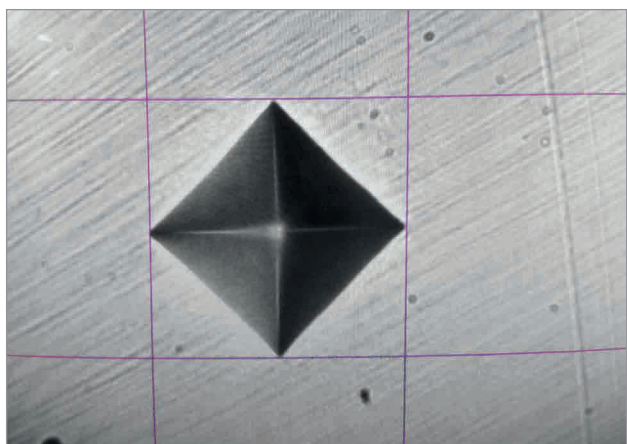
All command are ergonomically studied

## 4 EASY STEPS TO RUN ENTIRE CYCLE



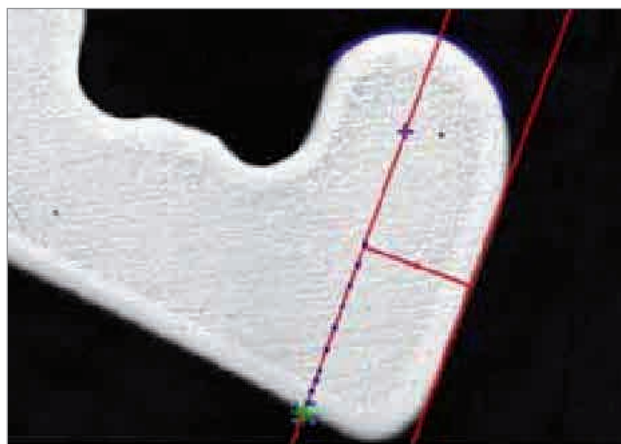
### 1. See the Entire Sample

Place the sample in the sample-holder and, with one click, set reference points for one or more traverses.



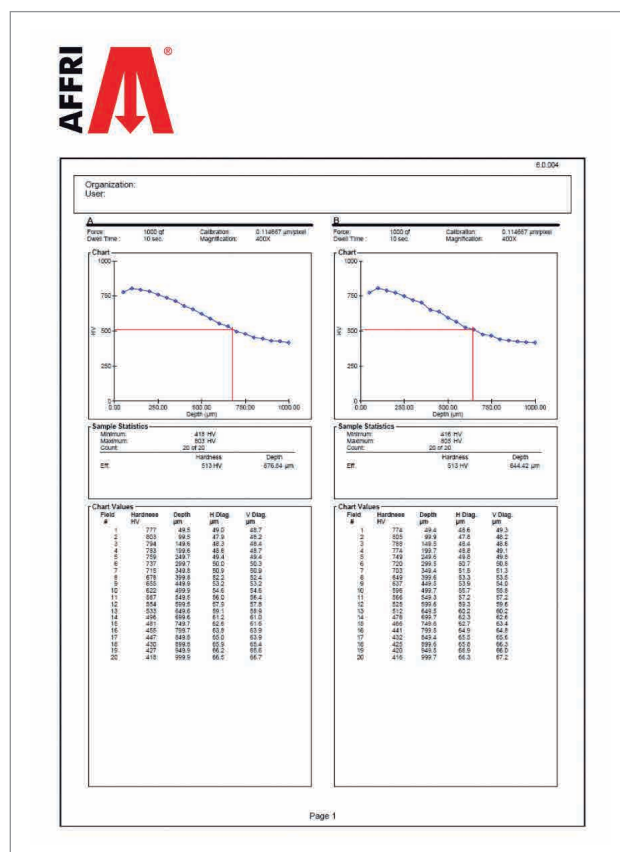
### 3. Click & Walk Away

Intelligently follows the predefined patterns, indents the sample, focuses when needed, measures, and generates data dynamically. Everything is automated, freeing users for other tasks.



### 2. Set-Up Traverses/Patterns

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

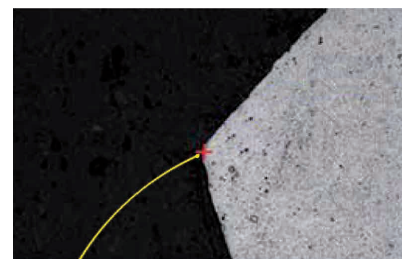
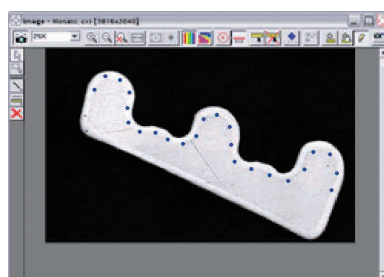
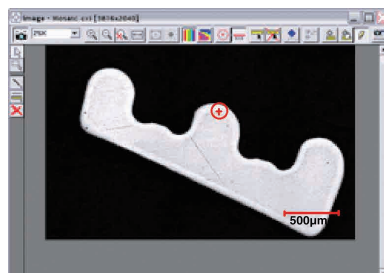
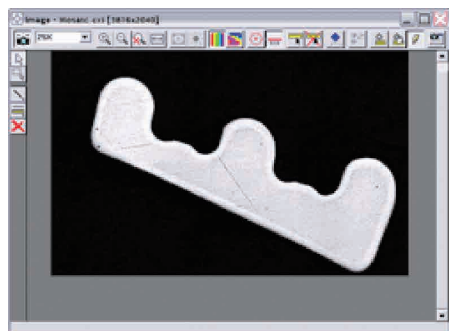


### 4. Get Results

Review results in graphical and/or tabular format. Export results to the spreadsheet application of your choice, or simply print standard or customized reports.

## MULTI SAMPLE VISION

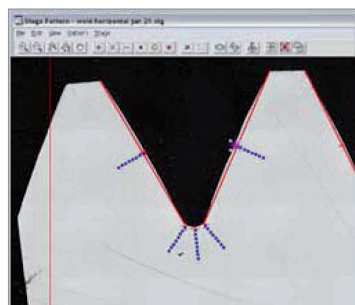
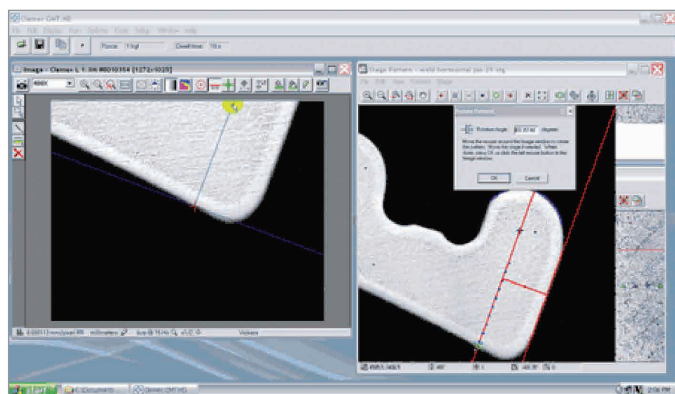
offers a complete, high definition image of a sample, no matter its size. This innovative feature provides an "aerial view" of the sample, offering sharp close-ups as well as global views. Multisample image makes it possible to position as many as 99 traverses – to within a few microns. Indentation patterns can then be placed within the area of interest more accurately.



Precise positioning at any magnification  
1 micron accuracy

## INTELLIGENT POSITIONING

With one simple click of the mouse the line is determined, the angle and the point of departure of the impressions. Zoom up to look at the entire sample in order to identify the pattern direction.



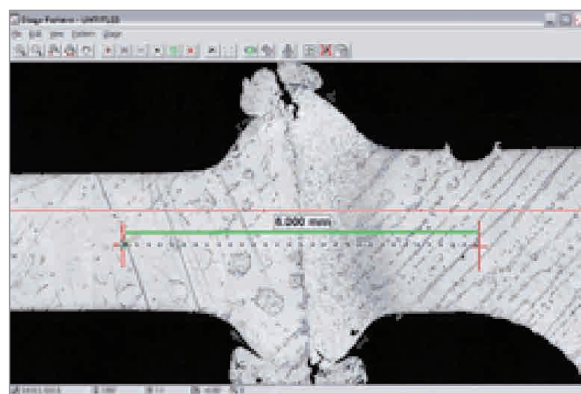
Five traverses  
perpendicular to edge  
of gear

## UNIQUE REFERENCE CIRCLE TOOL

This exceptional tool allows indents to be positioned at precise distances from the sample's edge. The Reference circle is the ideal tool for irregular or curved samples, where indents need to be at a given distance from the edge. Used as a visual guide in conjunction with the Stage Pattern Window.

## LINEAR MEASUREMENTS

Traverse centered on a weld sample. The entire indentation distance can be simply measure in one complete view and added to your final report.



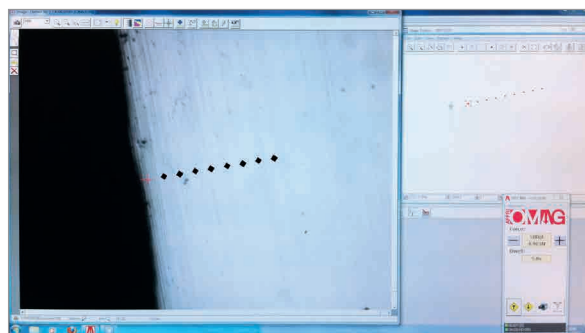


## EFFECTIVE CASE TRAVERSE MODE

Traverse layouts and test points can be programmed by simple clicking on the desired test point locations on a grid which represents the surface of the part. Allows programming of up to 24 separate straight line or staggered traverse patterns on a part, for use on all effective case depth applications.

## BACKGROUND- INDEPENDENT DETECTION

From perfectly polished to rough & etched samples the software will measure indents on any sample surface, regardless of the contrast level.

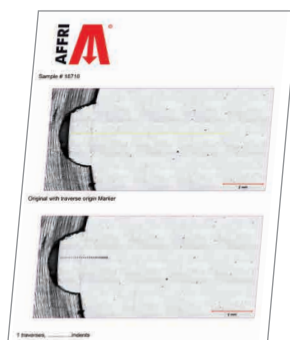


## MUTIPLE CONVERSION TABLES

Native hardness measurements are in HV or HK. Conversion tables for HRA, HRB, and HRC scales are in compliance with ASTM E-140 standards. Up to six additional custom conversion tables can be defined. Case depths are calculated automatically by selecting a case hardness value. A total of 4 case depths can be displayed simultaneously on the same graph.

## REPORT CREATION

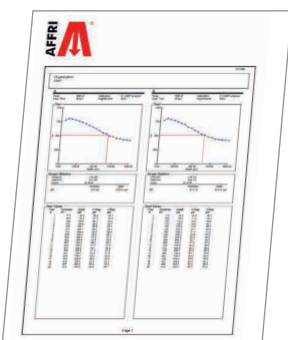
Print results directly from CMT or export data to the spreadsheet program of your choice for further statistical analysis. Images and histograms can easily be copied and laid out in a standard or customized MS Word report or MS Excel template.



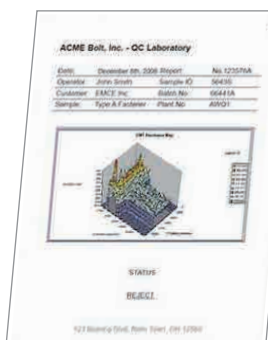
Report with integrated sample images and the indentation traverses.



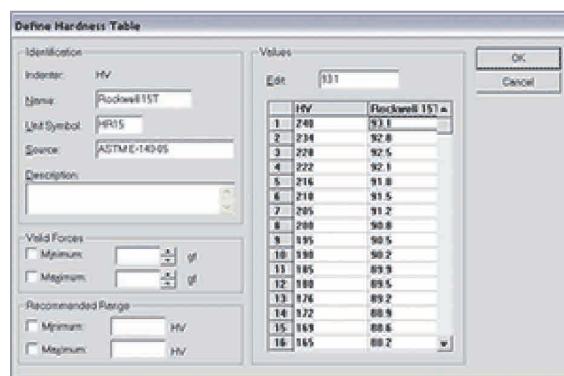
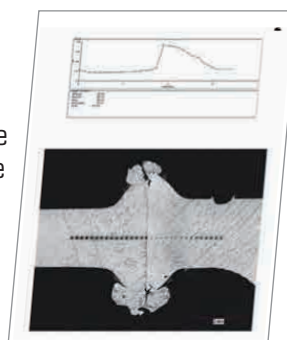
Diagram with CHD with outlined depth.



3D diagram with assigned colour at hardness value



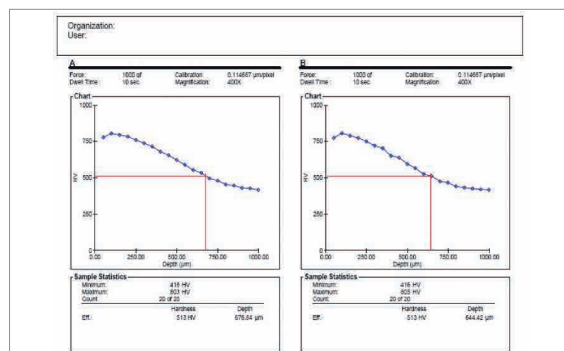
A large area can be visualized, tested and create diagram in short time



## RESULTS INSTANTANEOUS DATA REVIEW

Following an automated run, individual indents can be tracked by clicking on the numbered impression. Intelligent software accurately remembers where the impression was made and automatically moves the stage to the chosen indent.

You can choose to not include or re-measure the impression manually with the movable gridlines. When excluded or re-measured, statistics are updated on the fly. Instant graphical view of Effective Case Depth.

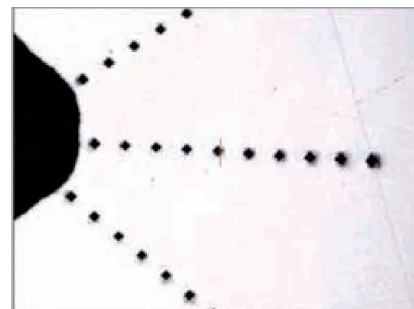


## MULTIDIRECTIONAL TRAVERSES

Thanks to the powerful DM AUTO Hardness Tester stage control interface, single or multiple traverses/patterns can be rapidly created. Save, copy, or paste traverses/patterns to predefined locations with a simple click of the mouse. The T-Bar tool rotates traverses to any angle to ensure its perpendicularity with the sample edge or to accommodate sample tilt. Up to 99 patterns or traverses can be created, with each traverse comprising up to 32,000 indents.



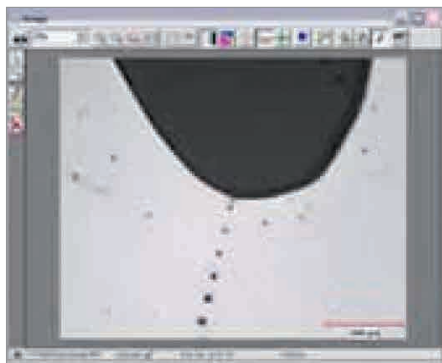
Rotation tool - T-Bar



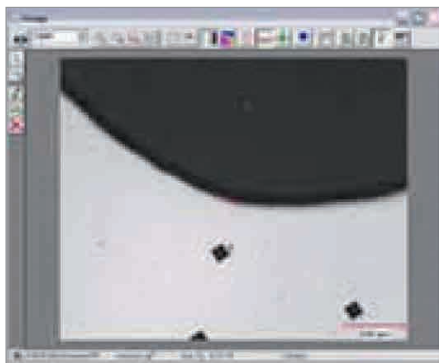
3 Perpendicular traverses to the edge

## SOFTWARE ILLUMINATION CONTROL

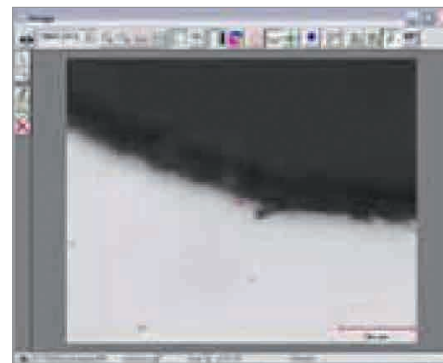
Equipped with a unique software controlled illumination, keeps image brightness levels constant on all objectives, any magnification. Samples are always properly illuminated.



Illumination at 25x



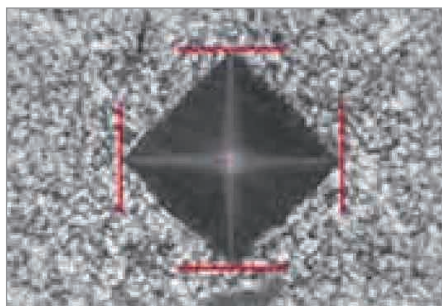
Illumination at 100x



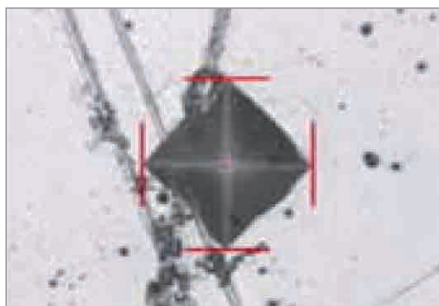
Illumination at 400x

## BACKGROUND-INDEPENDENT DETECTION

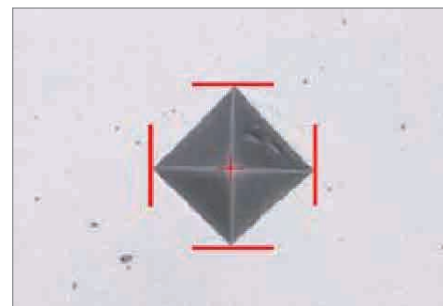
AFFRI DM AUTO hardness measurements are in HV or HK. Conversion tables for HRA, HRB, and HRC scales are in compliance with ASTM E-140 standards. Up to six additional custom conversion tables can be defined. Case depths are calculated automatically by selecting a case hardness value. A total of 4 case depths can be displayed simultaneously on the same graph.



Etched Sample



Roughly polished sample



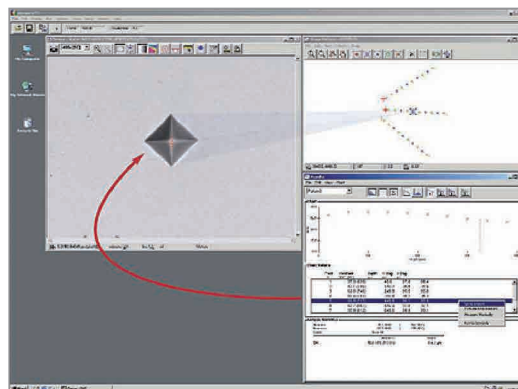
Clean sample

## RESULTS INTELLIGENT RESULTS

### Instantaneous Data Review

Following an automated run, individual indents can be tracked by clicking on the numbered impression. Intelligent software accurately remembers where the impression was made and automatically moves the stage to the chosen indent. You can choose to not include or re-measure the impression manually with the movable gridlines.

When excluded or re-measured, statistics are updated on the fly.



## BLUETOOTH OR USB COMMUNICATION INTERFACE



Connect to database networks, PC's and printers, to download data or for final custom reports.

## MULTI-SAMPLE SUPPORT

Sample holders have unique designs, allowing users to analyze mounted or un-mounted samples.

Samples are easily removed or inserted with a simple slide-in drawer system. Various type holders are available for 100 x 50 or 200 x 90mm auto-stages.



## INCORPORATED VALIDATION TEST BLOCK

Some holders accommodate a test block, allowing users to validate the calibration of the micro-hardness tester at any time without having to remove the sample.



## TECHNICAL SPECIFICATIONS:

	DM2 auto	DM 8 A auto	DM 8 B auto
Action	Automatic turret, automatic loading, automatic indentation's measurement by camera + auto XYZ and auto focus		
Accuracy	Better than 1 %		
Temperature Range	From 10 °C to 35 °C		
Data Output	RS 232 C / USB		
Power Supply	110 o 220 V / 50-60 Hz		
Software	AFFRI Fully Automatic System		
Principle of Operation	Dead Weight		
Force Range	0.098 - 0.245 - 0.490 N (10 - 25 - 50 gf) 0.980 - 1.961 - 2.942 - 4.903 - 9.807 N (0.1 - 0.2 - 0.3 - 0.5 - 1 kgf)	Vickers - Knoop (optional) 0.049 - 0.098 - 0.245 - 0.490 N (5 - 10 - 25 - 50 gf) 0.980 - 1.961 - 2.942 - 4.903 - 9.807 N (0.1 - 0.2 - 0.3 - 0.5 - 1 kgf)	Vickers - Knoop (optional) 0.0098 - 0.029 - 0.049 - 0.098 - 0.245 - 0.490 N (1 - 3 - 5 - 10 - 25 - 50 gf) 0.980 - 1.961 - 2.942 - 4.903 - 9.807 - 19.614 N (0.1 - 0.2 - 0.3 - 0.5 - 1 - 2 kgf)
Feasible Tests	Vickers (Knoop optional)		
Standards	ASTM E - 384, ISO 6507-2, JIS B 7734		
Turret	Automatic (4 positions optional)	Automatic (6 positions optional)	
Indenter	Vickers (Knoop optional)		
Camera	1.3 MP USB2 B/W HD		
Focus and Reading	Automatic (both)		
Lighting	LED		
Dwell Time	Programmable		
Vertical Stroke	110 mm	120 mm	
Depth Capacity	70 mm	160 mm	
Table (automatic or manual)	X-Y: 100 x 50 mm or 200 x 100 mm (automatic) with 0.5 µm step		
Network	Wire connection for technical assistance auto diagnosis		
Fields Of Use	For micro and macro Vickers and case depth test on every metals: iron, steel, tempered steel, cast iron, brass, aluminium, copper and metal alloys. Heat treatment, hardening, nitriding, cementation and hardfacing. Knoop test on ceramic and glass materials		
Gross Weight	70 kg		
Packaging Measurements	60 x 60 x 80 cm		

## STANDARD ACCESSORIES

- Precision vice 2"	1
- Standard test block (HVM700)	1
- Diamond indenter for HV (Built in)	1
- Object lens (Built in)	10x 40x
- Level adjusting leg	4
- Light source bulb (12V 18W)	2
- Fuse	100~240V 2A 200~240V 2A
- Power cord (3P-2.5m)	1
- Auxiliary tools	1 set
- Instruction manual	1
- Accessories box	1

## OPTION 6 POSITIONS TURRET

- Objective 60x	1
- Objective 100x	1
- Knoop indenter	1
- Knoop test block	1

**OMAG di AFFRI D. S.r.l.**  
Via M. Tagliaferro, 8  
I-21056 INDUNO OLONA - CEE (VA) - ITALY  
Tel. +39 0332 200546  
Fax +39 0332 203704  
info@omagaffri.com

**Exclusive distributor:**  
**AFFRI®**  
Via M. Tagliaferro, 8  
I-21056 INDUNO OLONA - CEE - (VA) - ITALY  
Tel. +39 0332 201533 +39 0332 206289  
Fax +39 0332 203621  
info@affri.com - www.affri.com

**America:**  
**AFFRI Inc.**  
111 S. Lombard Rd Unit #4  
ADDISON, IL 60101 - USA  
Tel. 224 374 0931 - 630 303 1588  
sales@affriusa.com  
www.affri.com