Wilson™ VH1150

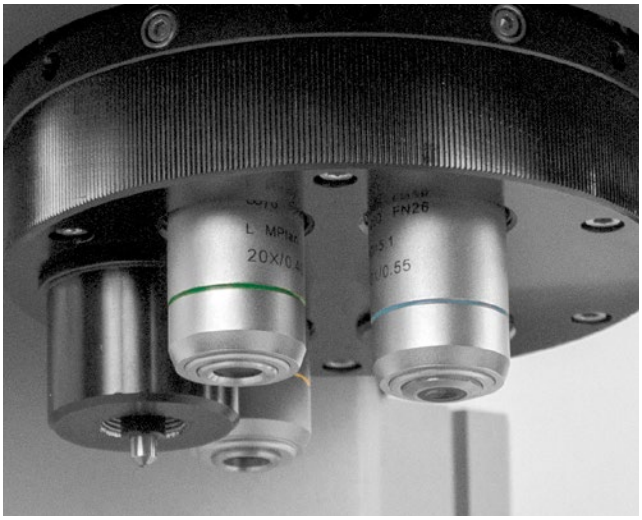
Macro Vickers Hardness Tester

BUEHLER

Wilson® VH1150

The *Ultimate* Deadweight Vickers-Hardness Tester

Versatility for Any Lab



The precision mechanics of the motorized turret, allows for a fast and quiet positioning. Switching between indenter and objective is part of the automated test cycle.

The turret offers 4 objective slots, allowing you to fit all the magnification power for your application. The standard 10x and 20x objectives can be extended with an 100x objective, thus allowing for a total magnification of upto 1000x. The 5x objective with it's large field of view, allows for easier navigation on your specimen, for example in automation situations with a motorized XY-stage.

The long working distance objectives (LWD) minimize the risks of a collision with the specimen, thus limiting downtime and reducing maintanance costs.

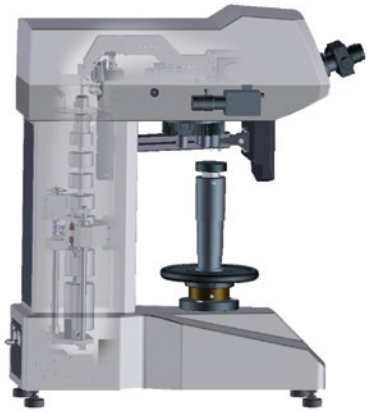
Best in Class Optics Ensure Accurate Results

A precise indenting system is a critical requirement for a hardness tester, but must be paired with a system capable of accurately measuring the indentations.

This high quality optical system, with proprietary components, provides an unparralled image, previously unavailable in hardness testing systems, providing the precision required for the most accurate meaurements possible.

The optional digital camera is integrated inside the housing, keeping it safe from dust and dirt as well as preventing it from getting misaligned.

Automatic Load Selection with 10 Load Steps



The menu controlled automatic load selection eliminates the need for a load selector knob, avoids human error and ensures an egonomic operation. And in combination with the DiaMet™ automation software, it is possible to select test loads from the PC.

The wide loadrange with 10 individual load steps, offer testing capabilities from 300gf up to 50kgf in one machine, without the need of changing internal mechanics.

0,3kgf	0,5kgf	1kgf	2kgf	3kgf	5kgf	10kgf	20kgf	30kgf	50kgf
HV0.3	HV0.5	HV1	HV2	HV3	HV5	HV10	HV20	HV30	HV50

Wilson® VH1150 Features

The Wilson® VH1150 Vickers Series Hardness Testers offer a versatile and user friendly solution for a wide range of hardness scale testing. For single scale hardness testing, the Wilson VH1150 Tester is equipped with a five-position turret which includes one indenter position as well as a 10x and 20x objective. For more demanding applications, the VH1150 can be equipped with two additional objectives.
The tester includes USB output, ten automatic selectable test forces and a clear full-color touch panel user interface for rapid test method handling and data collection.

Built-in Camera (Optional)

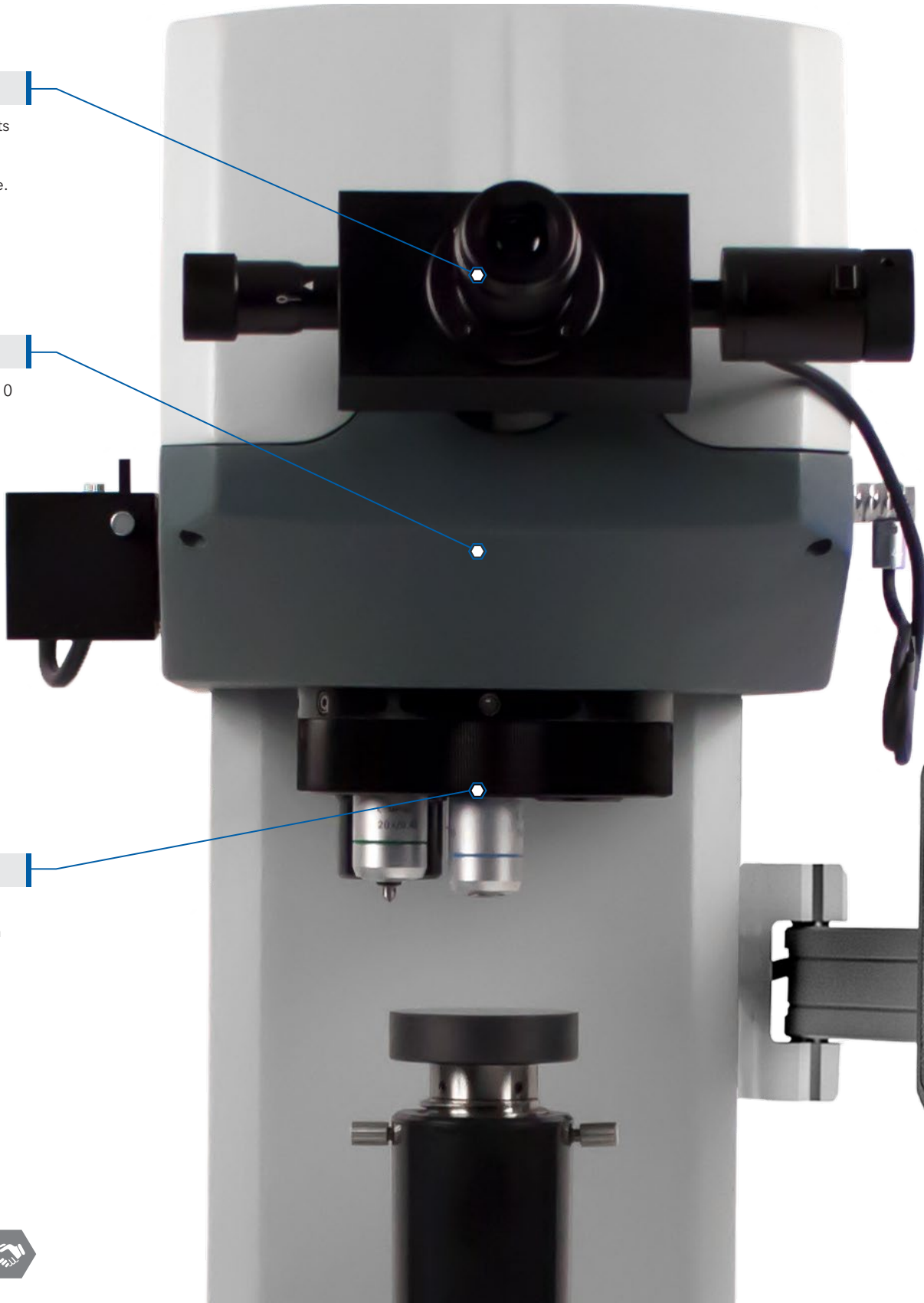
- The camera for PC measurements is protected against dirt and accidental misalignment, by accomodating it inside the frame.

0.3 - 50kgf load range

- A wide load range, divided into 10 individual load steps

5 Position Turret

- One indenter position (Vickers)
- Fast & quiet motorized operation
- Up to four objective positions



Advanced Functionality for Leading Industries

The global expertise of Buehler is strong as it now includes more than a century of experience from companies such as Wilson Instruments, Wolpert and Reicherter. With the design and manufacturing of the VH1150 tester, the DiaMet software and test blocks all in-house by Buehler, system integration is guaranteed. Smart software functions help the user with standards traceability.

Aerospace

The trend toward tighter manufacturing tolerances and more advanced heat treatment processes for the automotive industries require hardness testing systems to be durable while maintaining precise control during critical test data generation. The system and its interfaces must be easy to use, yet flexible enough to meet the increasing demands in the industry.

Automotive

The Wilson VH1150 deliver exceptional performance packaged in a reliable, easy to use system that offers superior accuracy and repeatability against low training requirements. With an optional DiaMet automation package this testing platform is capable of performing a vast number of indents an hour using a fully automated test program.

Heat Treament

Smart UI

The Wilson Smart-UI with it´s clever Tabs for Testing, statistics and set-up, has transitioned to a large 7" full-color TFT-screen for even more comfort and ease of use. Mounted on a flexible arm, the screen can be adjusted for the prefect ergonomical working position. Data export with a single button press, is what the VH1150 allows with their integrated USB port. Saving your data in CSV format on a thumb drive, allows you to evaluate your data on any PC with MS Excel. It´s advanced features include extended statiscics, eco-power mode, shape correction for convex or concave shaped specimens and hardness conversion to Rockwell, Brinell or Tensile strength according to ASTM E140 and ISO 18625

Automatic Load Selection

- Select your load on the touch screen menu and let the Buehler hardness tester adjust the mechanics for you.

Large Color LCD

- The largest LCD with 7" diagonal, for easy operation
- Only neccessary information is shown, The rest is found in clear tabular menu structure

USB Output

- Export your data in CSV format to Excel

DiaMet™ - Hardness Testing Made Easy

Navigation within the DiaMet™ Software is made easy by its clean design and is supported by simple and intuitive gestures. Virtual tabs on top of the screen let you navigate between to Home, Program, Testing and Reporting. Comprehensive feedback is shown on the status bar, which make interactions clear and efficient. Being designed for touch panel use, with an entirely new look and feel, DiaMet is simple, useful, and smart to work with! Easy To Operate by touch, mouse or keyboard. DiaMet Enterprise options lets you Scan, Stitch and edge detect your sample to find exact location where you can drop in pre-configured testing templates ("specimen") to speed up your operation.

Expert Control & Evaluation Software

DiaMet is optimized for evaluating Vickers, Rockwell, Brinell and Knoop measurements according to ISO 6506, ISO 6507, ISO 6508, ISO 4545 and ASTM E384, ASTM E92, ASTM E10 and ASTM E18. A standard DiaMet feature is an automatic symmetry calculation for Vickers, Knoop and Brinell indents. This extra validation, with clear visual indication, helps to ensure the results conform to standards.

Flexible UI

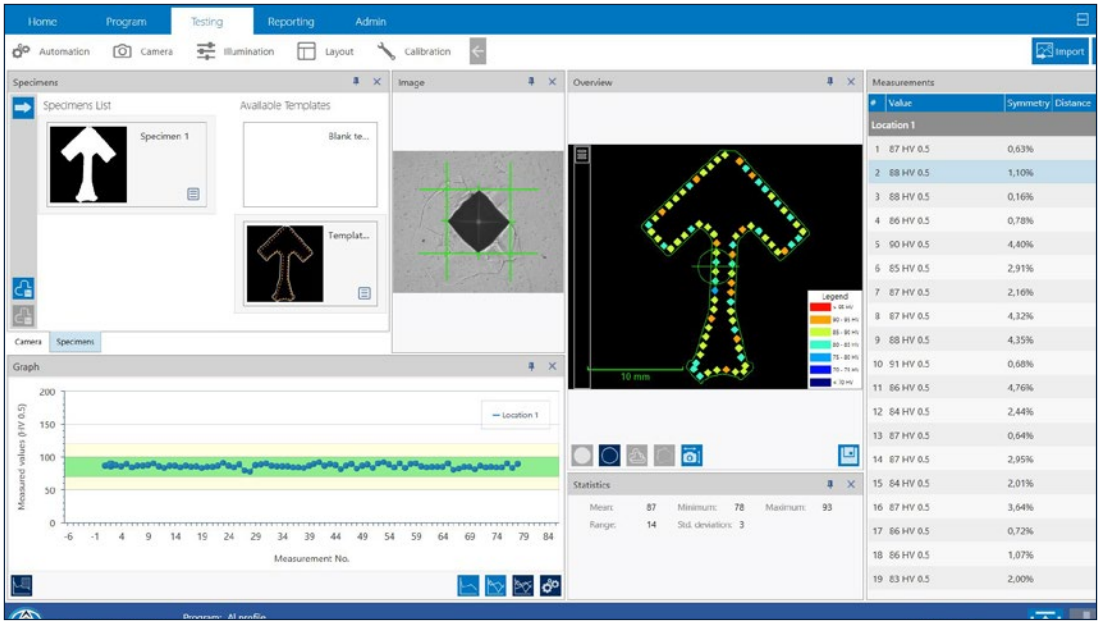
Use the functions you need – fully configurable

Measurement

State-of-the-art algorithms ensure auto-measure, illumination and focus

Overview

Use the overview window for specimen navigation and pattern placement



Specimens

Scan your samples and save them as templates - automatic pattern placement

Status Bar

Total test time and indent counter – plan your test cycles

Data Management

Review and manage your test data with easy access

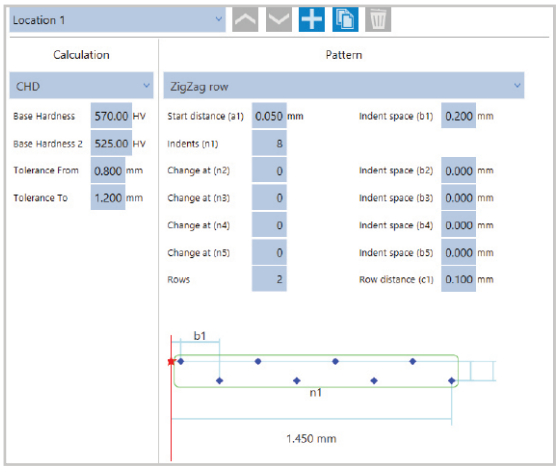
Expert Control & Evaluation Software

Often a high level of automation comes with a high level of complexity both in setup and in operation. Breaking convention, the DiaMet software focuses on fast and simple operation to compensate for less experienced operators while still offering a high feature set and flexibility required by expert users. Once a required test pattern is setup, any operator can run the series of Vickers indents with a minimum of four clicks or four touches depending on the monitor options.

DiaMet is optimized for evaluating Macro-Vickers and Micro-Vickers indents according to ISO 6507 and ASTM E384 standards. A standard DiaMet feature is an automatic symmetry calculation for Vickers. This extra validation, with clear visual indication, helps to ensure the results conform to standards.

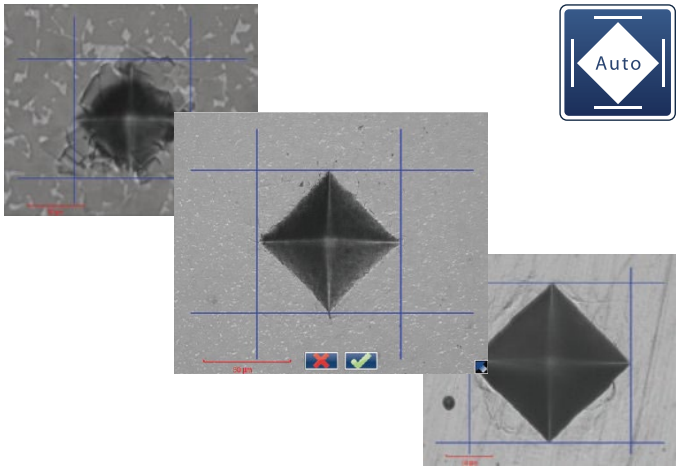
User Defined Programs

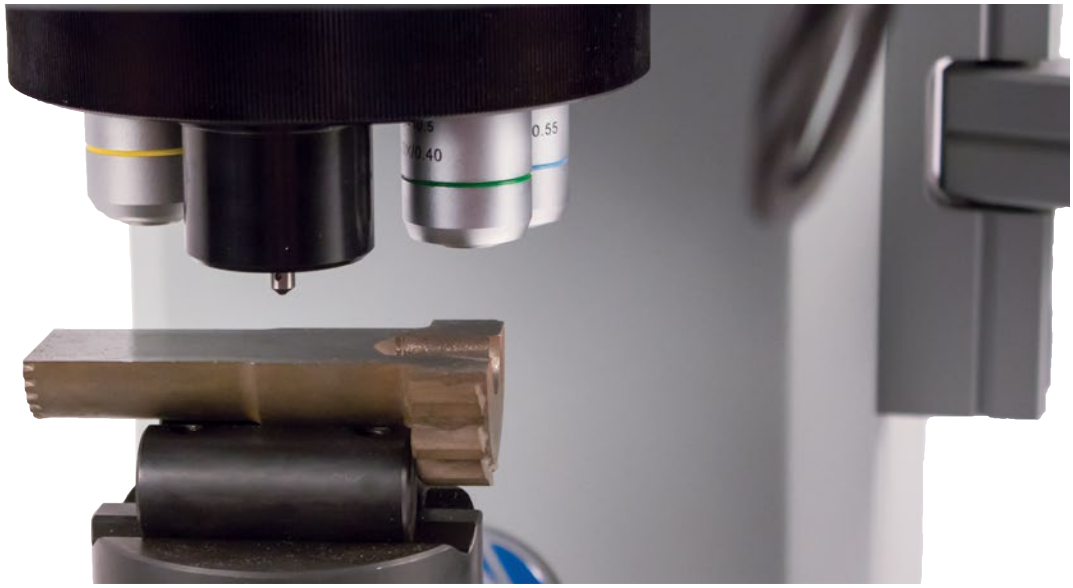
Using a set of simple tools, users can customize test patterns in a program. Programs can be saved, edited, copied or amended. Pre-fabricated programs can be loaded and amended to suit a particular application. Save set-up time and improve positioning accuracy with these automatic testing sequences.



Auto-Measurement

Manual positioning of filar-lines is no longer required with this refined measurement algorithm. Stay in control, and adjust the measurements by manipulating the filar lines. The manual measure mode is designed for use by touch and/or mouse. An automatic indent symmetry check for Vickers and Knoop can be enabled on demand.





Always a Perfect Fit For User Applications

The Wilson VH1150 can be perfectly configured to fit your application and budget. Operate it in standalone mode for the occasional test, or upgrade it with a Basic version of our DiaMet software for better repeatability and comfort. The 100x100mm motorized stage in combination with the DiaMet Software will upgrade the hardness tester to a semi-automatic system which allows to run automatic traverses. Auto focus of the full automatic systems unlocks the ability to run large series of indents without operator supervision; saving time and increasing throughput!

DiaMet - Automation Packages

Automated Microindentation system available with different levels of automation. All control of the hardness instrument can be handled through comprehensive software. Automatically test and measure indentations, as well as set up and run automatic testing sequences and generate reports through export of data with minimal operator interaction. All parameters of the test, such as load monitoring, dwell times, and focusing are controlled through the software providing a very user friendly system. Hardness conversion into other scales is supported.

	Manual	DiaMet Basic	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
Analog Micrometers		⬢			
Digital Micrometers		⬡			
Auto Measure	⬢	⬢	⬢	⬢	⬢
Auto Illumination		⬢	⬢	⬢	⬢
Motorized XY-Stage			⬢	⬢	⬢
Auto Focus				⬢	⬢
Scan, map & template					⬢

⬢ standard delivery

⬡ optional

Stand Alone

Effectively measure indents using the high-quality digital eyepiece and evaluate the readings on the comfortable 7" color screen. Data can be exported by using the USB port.

or

DiaMet™ Software Options For Hardness Testing

DiaMet Basic

The basic package offers a simple and comfortable indentation measurement on a PC and allows for a fast & safe data storage. The standard automatic measurement reduces overall testing time, as well as improves operator repeatability.

or

DiaMet Semi-Automatic

With the Semi-automatic version, the user defined pre-programmed indent patterns are placed automatically by means of a motorized 100 x 100mm XY-stage. This saves valueable operator time.

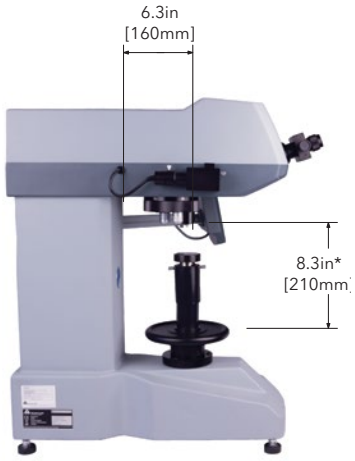
DiaMet Full Automatic

In Full-automatic mode, the motorized XY-stage for positioning is complemented with an Autofocus capability on the Z-axis. This allows the software to indent and measure multiple indents completely operator independant.

DiaMet Enterprise

Enterprise expands the Full automatic system with cutting edge capabilities feasures such as hardness mapping, scanning and pattern templates.

Technical Specifications



* With DiaMet Full Auto height dimension is affected.

Approx. Weight: 154 lbs [70.5kg]

VH1150

Scales	HV
Test Load range	300gf - 50kgf
Test load steps	0.3 – 0.5 – 1 – 2 - 3 -5 – 10 – 20 – 30 – 50kgf
Test Load Accuracy	±1.5% < 200g, ±1% > 200g
Force Application	Motor controlled dead weight
Dwell Time	1 - 99 seconds
Standard Compliance	ASTM E384 & E92; ISO 6507
Turret	Motorized 5- position turret
Objectives	10x, 20x LWD standard 5x, 40x, 50x & 100x LWD optional
Eyepiece	Digital, resoltion 0.01µm @200x
Light Source	LED
Operating Temperature	50 - 100°F [10 - 38°C]
Humidity	10 - 90% non-condensing
Power	65W - 100-240VAC, 50/60Hz

Ordering Information

VH1150 Package Options*

Testers	Stand Alone Tester	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1150	W1151D01	W1151D31	W1151D33	W1151D35	W1151D37	W1151D45

*DiaMet models require computer monitor package. See your sales representative.

Accesories

Objectives for VH1150

Part Number	Description
W5XLWD	5x Long working distance objective
W10XLWD	10x Long working distance objective
W20XLWD	20x Long working distance objective
W40XLWD	40x Long working distance objective
W50XLWD	50x Long working distance objective
W100XLWD	100x Long working distance objective

Indenters for VH1150

Part Number	Description
W9100687	Vickers indenter, includes ASTM &ISO Certificate
W9100684	Knoop indenter, includes ASTM & ISO Certificate

Manual Stages for VH1150

Part Number	Description
W9170506	Analogue XY-stage
W9170507	Digital XY-stage (ex. Cables)

Wilson® Test Blocks & Indenters

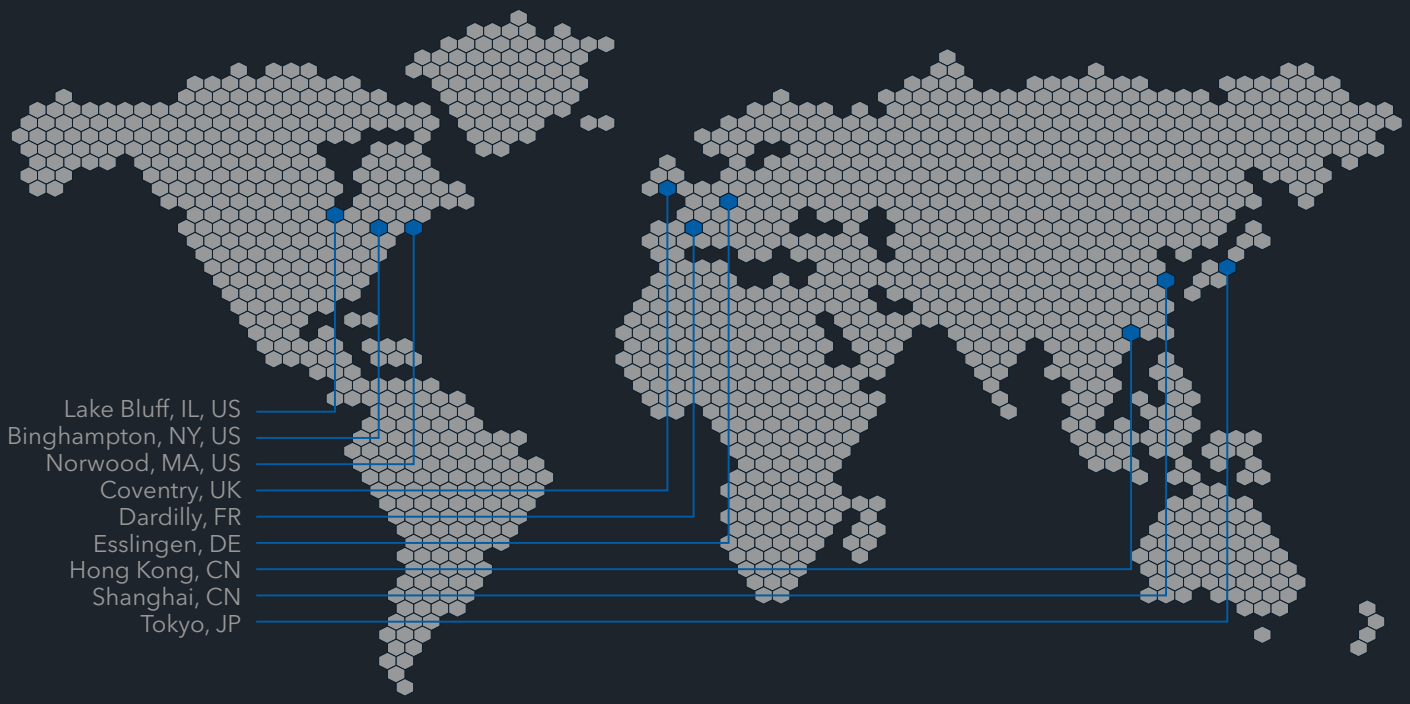
Wilson test blocks and indenters are provided for a wide range of Vickers & Knoop, as well as Rockwell® and Brinell applications. Certified to a range of international standards including ASTM and ISO, we manufacture test blocks in-house to ensure the highest quality test reference standards available. Test blocks and indenters are certified using the latest standardization and optical measuring technology. Buehler operates its own calibration laboratory, traceable to NIST and are accredited to ISO/IEC 17025 by A2LA®. For more information on the test blocks and indenters please see the current catalog or vist www.buehler.com.

NADCAP Accreditation

Buehler developed many methods to simplify material preparation and analysis for NADCAP accredited customers. The traceability of hardness testing machines is a very important step for materials inspection. In order to ensure all testing is performed by a verified machine, indirect verification needs to be performed on hardness reference blocks. Reference blocks are calibrated in accordance with ISO and ASTM standards, as well as engraved with a grid on the top surface, which allows each verification test to meet indent spacings requirement.

To ensure all verification measurements are performed as required (e.g. at a specific time, after scale change, after indenter change etc.) , Buehler developed a special software module within the DiaMet hardness software. The verification program will prompt operators to perform indirect verification tests as required. This way, full traceability is guaranteed and is clearly exhibited during audits. For additional information contact your sales representative.

Buehler Worldwide Locations



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