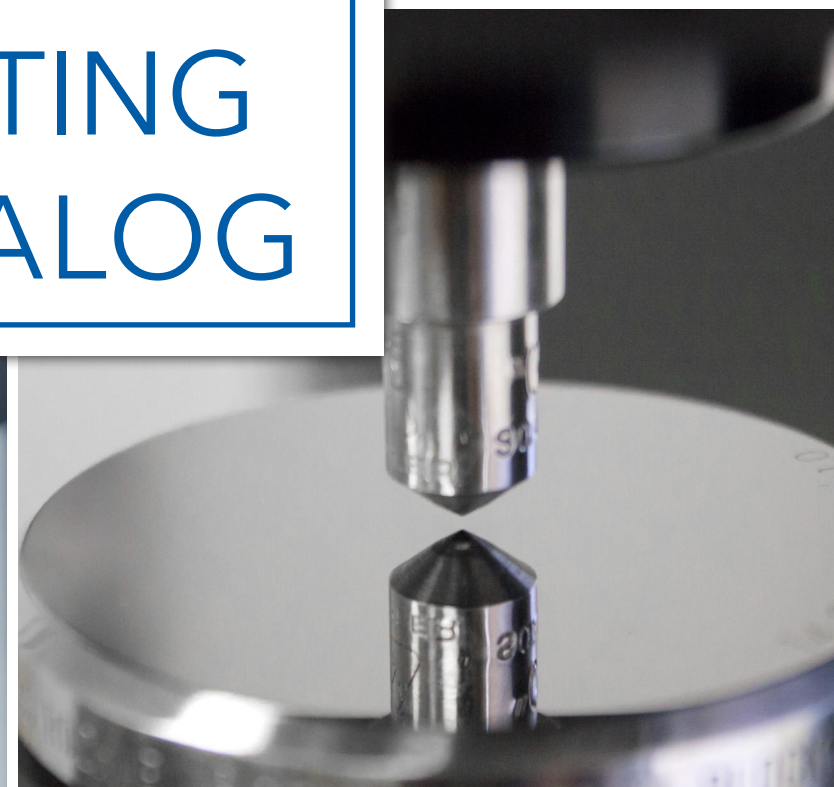


2019 HARDNESS TESTING CATALOG



Home of the hardness testing legacy brands



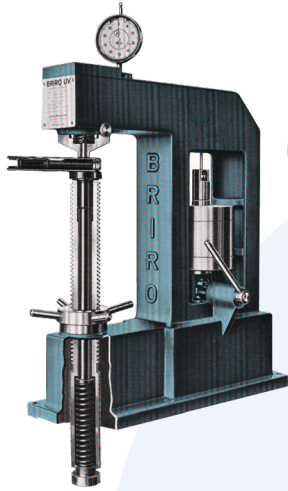
*Wilson
Instruments*



Buehler Leads the Way in Hardness Testing

Over 80 Years of Industry Leadership

Founded in 1936 in the United States, Buehler has become one of the world's leading companies in the area of hardness testing – both in industrial development and production-related quality assurance and in academic research.



*Wilson
Instruments*

From Research to Industrial Use, Buehler Provides Reliable Solutions

With Reicherter, Wilson and Wolpert, Buehler combines the names of great innovators in the area of hardness testing under one roof. With this knowledge and experience, the company has grown into one of the world's leading suppliers of hardness testing equipment. In 2011, Wilson Hardness merged with Buehler to provide an even broader product offering.

Wilson Rockwell, Knoop/Vickers and Brinell hardness testers, along with the associated software, and a comprehensive range of accessories constitute the core of the company's current product portfolio. Buehler products and processes are used in quality assurance and in the development laboratories of major research facilities in numerous sectors, amongst them the aeronautical and aerospace, automotive, electrical, energy generation and medical equipment industries.

Globally located Buehler Solution Centers provide customers with the opportunity to directly work with the company's specialists. These Solution Centers are located throughout the United States, Asia, United Kingdom, France and in Germany. They are equipped with the most up-to-date technology for the preparation of materialographic specimens and with latest-generation of hardness testers, including the DiaMet™ testing software that is perfectly adapted to hardness testing. Experienced specialists take a hands-on approach to solving our customers' testing challenges.

Buehler is a strong, trusted partner relied upon by organizations for reliable solutions and consistent results in material preparation, testing and analysis.





Buehler Celebrates 20 Years ISO Certification

In 2018 Buehler celebrated its 20-year anniversary with DQS, a global certification company. Buehler successfully earned certification for ISO 9001:2015 and ISO 14001:2015. Today all Buehler manufacturing centers in the United States, China and Germany are ISO 9001:2015 certified and Buehler US is also ISO 14001:2015 certified. It is Buehler's priority to deliver world class and environmentally responsible products guided by ISO 9001 Quality Management Principles and ISO 14001 Environmental Management System. Buehler is ISO certified to meet the customer's highest expectations. Buehler, is an A2LA certified organization meeting all standards for calibrations on measurement equipment, to protect customer investments.



Global Associates and Partners Ready to Assist You



No matter where you are located, Buehler has associates or partners ready to handle your inquiry. We have improved our response times through an online submission format.

Visit <http://www.buehler.com/contact-buehler.php> for prompt attention to your request for a quotation, lab solutions, service support, customer service or general feedback.

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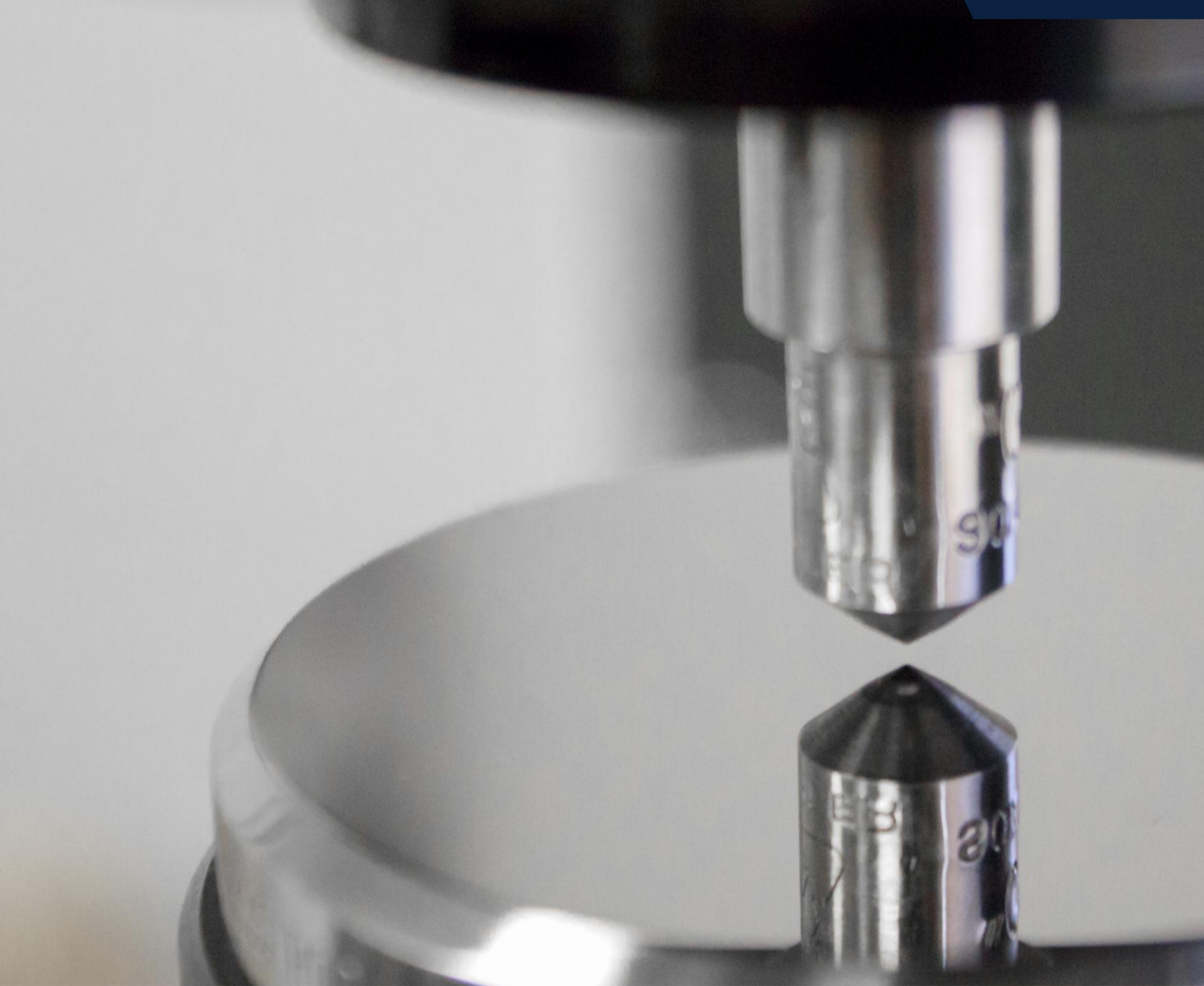
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HARDNESS TESTING

Wilson® hardness testers include a comprehensive range of hardness testers from Rockwell®, Knoop, Vickers, and Brinell

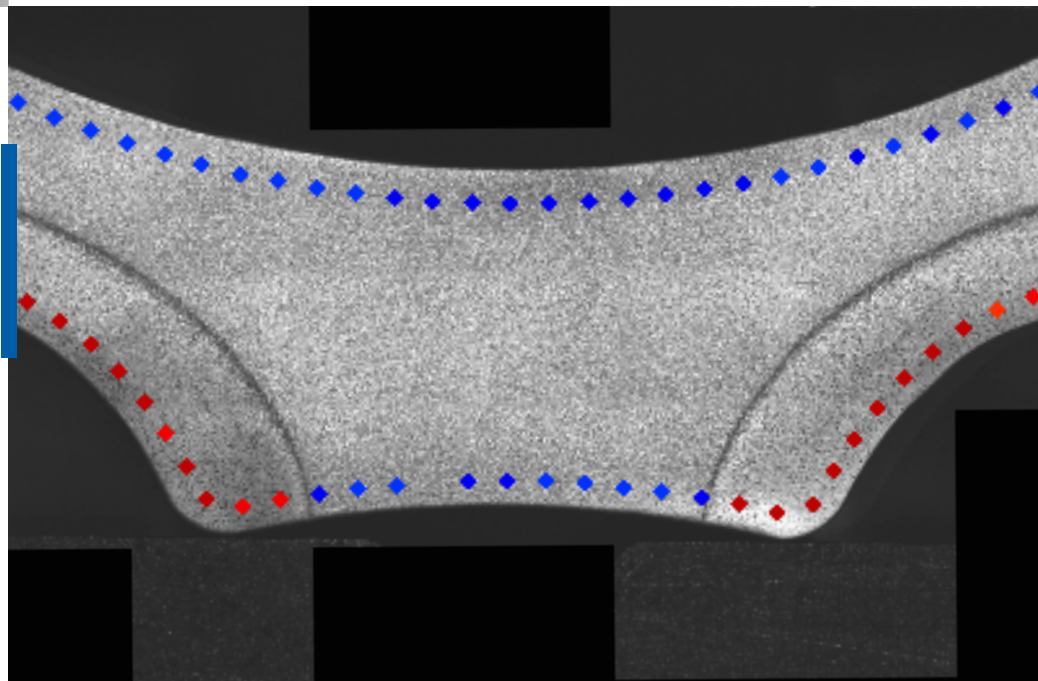
Wilson® hardness testers include a comprehensive range of hardness testers from Rockwell®, Vickers-Knoop, and Brinell to fully automatic production systems. Our testers are complemented by a range of test blocks, accessories, and fixtures. The Wilson Reference Block Laboratory is ISO/IEC 17025 certified and is recognized as the global leader in the production of premium test blocks and indenters.

Buehler is dedicated to ensuring the highest quality calibration, verification, service and applications support. Wilson hardness equipment, reference blocks and calibration services help customers meet Nadcap accreditation and audits.

Featured Microstructure:

Contour scan of an induction heat treated sample of a drive shaft using HV1. Color shows hardness level (red=hard, blue=soft).

~Buehler





DiaMet™ Hardness Software

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 makes 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 let you Scan, Stitch and edge detect your sample to find exact locations where you can drop in pre-configured testing templates to speed up your operation.

DiaMet Software Upgrade Available for Legacy Wilson Testers

The DiaMet upgrade package includes a USB3.0 digital camera, camera cable and workstation.

[DiaMet Basic Legacy Package](#) Item Number: W1001P31

Wilson Tukon 1102/1202

Buehler MicroMet 6000 series

[DiaMet Manual Legacy Package](#) Item Number: W1001P30

Wilson 402 MVD/SVD

Wilson 432/452 MVD/SVD

Buehler MicroMet 5100 series

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 User Interface

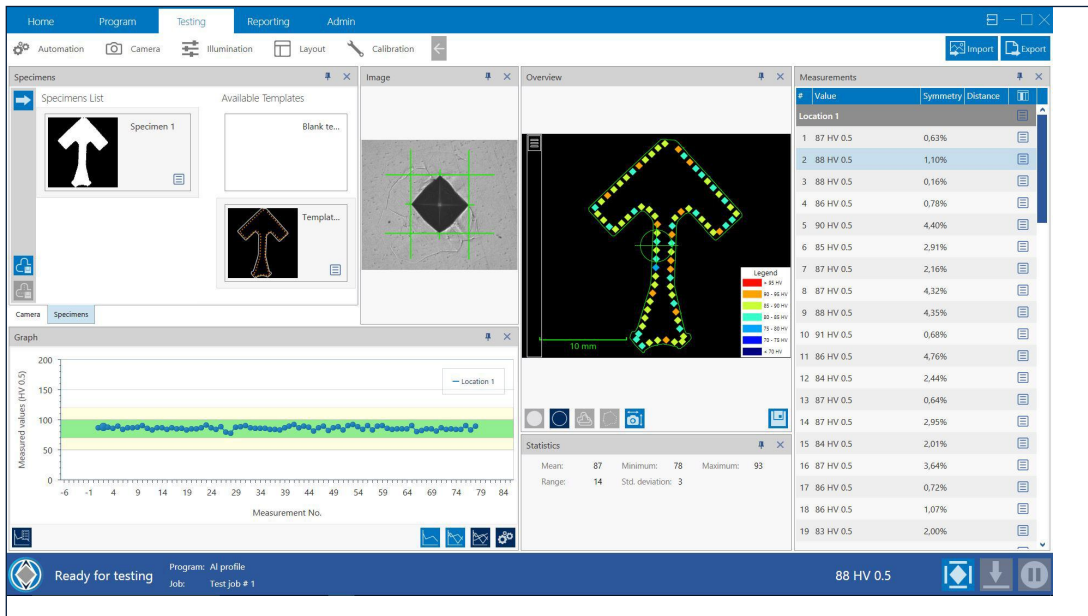
Use the functions you need - fully configurable

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

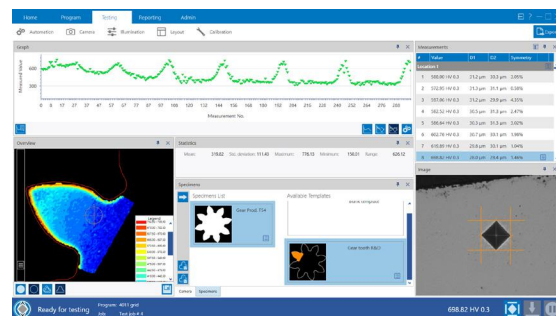
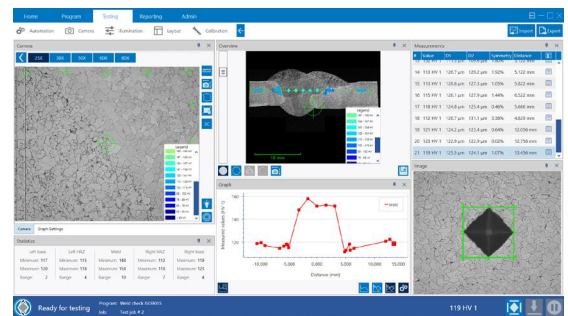
DiaMet - Automation Packages

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		●				● standard
Digital Micrometers		○				○ optional
Auto Measure	●	●	●	●	●	
Auto Illumination		●	●	●	●	
Motorized XY-Stage			●	●	●	
Auto Focus				●	●	
Scan, map & template					●	

Weld Testing

Weld testing has never been easier. Use the intuitive weld pattern generator in the program section and align your pattern on each weld section within seconds.

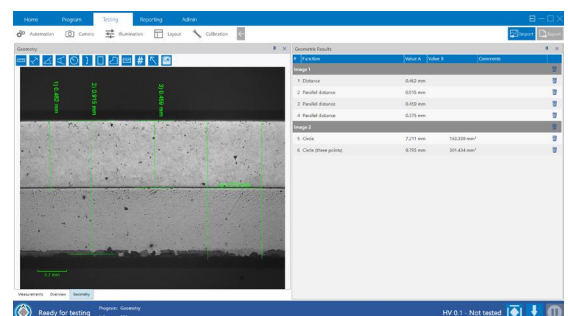


Color Mapping

Mapping gives an indication of the hardness distribution across a region of interest. Especially helpful for surface treated materials.

Geometric Functions

Basic measurements support you across the board of hardness testing. Make simple length or angle measurements, circle or area calculations with our geometry tool.



HARDNESS TESTING



Vickers-Knoop Hardness Testers

Wilson® VH3100-3300 Vickers-Knoop Hardness Tester

The Wilson Fully Automated Hardness Testing System provides a fully integrated platform for your complete Vickers and Knoop hardness testing needs. From leading edge modular frame, stage, and optic designs to a fully featured User Interface, our VH3100 and VH3300 Testers can be built to meet your Application needs today, tomorrow, and into the future.



Ease of use

- Focus on a fast and simple operation to satisfy the needs of novice operators, while maintaining the flexibility and complexity of features required by expert users with DiaMet operation software.

Flexibility

- With a 6 position vertical turret (Buehler patent), the VH3300 offers the flexibility to configure the tester for the complete 10gf - 50kgf load range or just a section of this.
- The zero-offset overview optics housed in the turret and is both illuminated and calibrated.
- Designed for Vickers testing to conform to international standards ASTM E384 & E92; ISO 6507, 9385, 4546.

Increase up-time & reduce service costs

- Collision Resistant System - prevents indenter or objective damage.
- All components and software are completely designed, manufactured and integrated by Buehler.

Dimensions

13.39in [340mm]W x 23.62in [600mm]D

Vertical Test Capacity - VH3100 choose: 4.92in [125mm], 6.69in [170mm] or 8.46in [215mm]

VH3300 choose: 4.1in [105mm] or 6.1in [155mm]

Horizontal Test Capacity - 9.23in [235mm]

System Configurations

Start by selecting either the VH3100 or VH3300 and continue on to create a customized Vickers-Knoop Hardness tester

Main Unit



Wilson VH3100

- 3+1 position virtual turret
- 0.050 - 10kgf load range

W3111



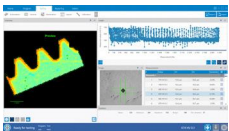
Wilson VH3300

- 3+3 position motorized turret
- 0.010 - 50kgf load range*

*depending on configuration

W3210

Software Options



DiaMet Full-Automatic software package

W3100A03

DiaMet Enterprise software package

W3100A15

Monitors



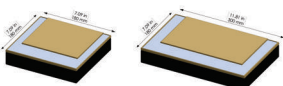
24" Touch screen

W3100B03

24" Full HD monitor

W3100B04

Motorized Stages



Standard size

- 180 x 180mm

W3100C02

Large size

- 300 x 180mm

W3100C03

Standard size

- 180 x 180mm

W3200C02

Large size

- 300 x 180mm

W3200C03

System Configurations *(Continued)*

Wilson VH3100

Wilson VH3300

Vertical Test Capacity



W3100D01 - height 125mm
 W3100D02 - height 170mm
 W3100D03 - height 215mm

W3200D01 - height 105mm
 W3200D02 - height 155mm

Load Cell

select one for VH3100,
 select between one and
 three for VH3300

W3100E02 - 100N loadcell

W3210E01 - 10N loadcell
 W3200E02 - 100N loadcell
 W3200E04 - 500N loadcell

Scales	HK0.01	HK0.025	HK0.05	HK0.1	HK0.2	HK0.3	HK0.5	HK1	HK2								
	HV0.01	HV0.025	HV0.05	HV0.1	HV0.2	HV0.3	HV0.5	HV1	HV2	HV3	HV5	HV10	HV20	HV30	HV50		

Wilson VH3100	Loadcell W3100E02															
Wilson VH3300	W3210E01															
	W3200E02															
	W3200E04															

Overview Camera



- Separate overview camera
- Includes Scan & Stitch function in the DiaMet software

W3110F01

- Turret integrated overview
- Includes Scan & Stitch function in the DiaMet software

W3200F01

Additional Accessories

For Indenters select one Indenter per Load Cell.
 For Long Working Distance Objectives select up to two for VH3100, select two or three for VH3300

Objectives			Indenter Holder*		Vickers Indenter	Knoop Indenter
Part Number	Native Mag.	Max. Field of View	Standard holder	W3100G01	Vickers Indenter, ISO & ASTM Certified	Knoop Indenter, ISO & ASTM Certified
W5XLWD	5x	3600µm	SnapGrip Holder	W3100G02	W9100687	W9100684
W10XLWD	10x	1800µm				
W20XLWD	20x	900µm				
W40XLWD	40x	450µm				
W50XLWD	50x	360µm				
W100XLWD	100x	180µm				

Please select your sample holder on page 78



Vickers-Knoop Hardness Testers

Wilson® VH1102-1202 Vickers-Knoop Hardness Tester

The VH1102 and VH1202 offer a versatile, affordable, and reliable solution for accurate micro-hardness testing, both for quality control and for metallurgical research applications. The VH1X02-series allows its operator to take measurements using the digital eyepiece in standalone mode or by using an optional integrated high-resolution camera and the powerful DiaMet™ software.



Best in Class Optics

- This high quality optical system, with proprietary components, provides an unparalleled image.
- 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

- Designed for Vickers and Knoop testing to conform to international standards ISO 6507, ISO 4545 and ASTM E384
- The wide load range with 9 individual load steps, offer testing capabilities from 10gf up to 2kgf

VH1102 Standalone Tester
Part Number - W1102D01 for Vickers
 W1102D02 for Knoop

VH1202 Standalone Tester
Part Number - W1202D01

Description	
Hardness scales	HV or HK
Main-load	0.01 - 0.025 - 0.05 - 0.1 - 0.2 - 0.3 - 0.5 - 1 - 2kgf
Objectives	10x and 50x Long Working Distance
Sample Support	Flat anvil & manual XY Stage

Description	
Hardness scales	HV & HK
Main-load	0.01 - 0.025 - 0.05 - 0.1 - 0.2 - 0.3 - 0.5 - 1 - 2kgf
Objectives	5x, 10x and 50x Long Working Distance
Sample Support	Flat anvil & manual XY Stage

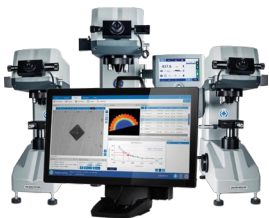
Dimensions

9.8in [250mm]W x 20.4in [520mm]D x 26.3in [670mm]H

Vertical Test Capacity - 5.1in [130mm]
 with XY-stage 3.7in [95mm]

Horizontal Test Capacity - 5.1in [130mm]

VH1102-1202 with DiaMet Automation Software



Testers	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1102 Vickers	W1102D31	W1102D33	W1102D35	W1102D37	W1102D45
VH1102 Knoop	W1102D32	W1102D34	W1102D36	W1102D38	W1102D46
VH1202 Vickers & Knoop	W1202D31	W1202D33	W1202D35	W1202D37	W1202D45

DiaMet models require computer and monitor package.

9314416 Small form personal computer and 24" touch monitor

9314415 Small form personal computer and 24" monitor.

Wilson® VH1150 Macro Vickers Hardness Tester

The Wilson VH1150 is the ultimate evolution of the deadweight Vickers hardness tester with a unique load range, 300gf - 50kgf, combined in one machine. The automatic load selection eliminates the need for a hard to operate manual selector knob, and opens new possibilities in semi-automation applications. Functions like multi-scale conversion, shape correction and USB data export, make hardness testing easier and help you focus on your actual process control.



Experience the flexibility of a segment leading wide load range

- The manual load selector knob is replaced with a durable motor to change the loads automatically.
- The fast & quiet motorized turret is integrated as part of completely automatic test cycle. One push of the start button is all it takes.

Versatile

- Designed for Vickers, testing conforms to international standards ISO 6507 and ASTM E384.
- Segment leading load range - 0.3 - 50 kgf load range over ten individual load steps.

VH1150 Standalone Tester
Part Number - W1151D01

Description	
Hardness scales	HV
Main-load	0.3 - 0.5 - 1 - 2 - 3 - 5 - 10 - 20 - 30 - 50kgf
Objectives	10x and 20x Long Working Distance
Sample Support	Flat anvil & manual XY Stage

Dimensions

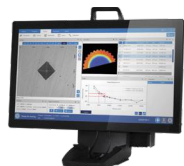
9in [230mm]W x 25in [625mm]D x 30in [760mm]H

Vertical Test Capacity - 8.2in [210mm]

with standard flat anvil

Horizontal Test Capacity - 6.3in [160mm]

VH1150 with DiaMet Automation Software



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

DiaMet models require computer and monitor package.

9314416 Small form personal computer and 24" touch monitor

9314415 Small form personal computer and 24" monitor.

Accessories

Indenters for VH1102-1202-1150

- W9100687 Vickers indenter, includes ASTM & ISO certificate
- W9100684 Knoop indenter, includes ASTM & ISO certificate

Manual Stages

- 9170506 XY-stage with analog metric micrometers
- 9170507 XY-stage with digital micrometers

Objectives for VH1102-1202-1150

- 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



Vickers-Knoop Hardness Accessories

Sample Holders and Accessories

A good sample holder keeps your specimen stationary and provides support during testing. Buehler sample holders also level tapered samples to ensure that the test surface is perfectly perpendicular to the indenter. This ensures an accurate and problem free execution of your test job.

Leveling Vise



Self leveling vise for a single round mounted sample up to 40mm (without insert).

886164

Self leveling vise for a single Ø 50mm round mounted samples with inserts.

[886167](#)

4 Fold Leveling Vise



4x Self leveling vise for round mounted samples up to 40mm (without inserts).

886169

4x Self leveling vise for Ø 50mm round mounted samples (with inserts).

[886175](#)

6 Fold Leveling Vise



6x Self leveling vise for round mounted samples up to 40mm (without inserts).

[886178](#)

Universal Leveling Vise



Universal clamping & leveling vise. Can be used to hold tapered pieces, wires and mounted samples.

[900086323](#)

EZ Clamp



Single mount canister

9100575 Canister (requires cap selection)

9100570 Mount Cap for 1in mounts

9100571 Mount Cap for 1.25in mounts

9100572 Mount Cap for 1.5in mounts

9100576 Mount Cap for 2in mounts

*Mount Cap requires the Canister

Sample Holder Insert



Sample holders 886168, 886169 and 886178 require one insert ring per slot.

886170 Ø 1in [25mm] insert

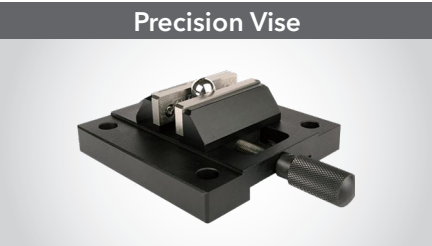
886171 Ø 30mm insert

886172 Ø 40mm insert

886173 Ø 1.25in insert

[886174](#) Ø 1.5in insert

Precision Vise



Opening max 45mm

[9100258](#)

Anti-Vibration Table



Active anti-vibration table 600 x 600mm [24 x 24in]

[9100906](#)

Passive Platform



Passive Vibration Isolation Platform 18 x 24in [610 x 460mm]

9100904 for VH3300

[9100905](#) for VH3100

For more sample holders and supports please contact our technical sales team.



Globally Recognized Accreditation



Solutions for NADCAP Accreditation

Buehler Has the Expertise for Direct Verification

As part of the ITW Test & Measurement Group, Buehler maintains its own service department of experienced service engineers and also coordinates direct verification with Instron and an experienced sales and distributor team. We have global presence and global experience in working with customers to meet NADCAP audits.

DiaMet Hardware Software - Prompts User to Perform Indirect Verification Tests

Buehler developed a special verification 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.

Calibration and Cleaning Services

Ensure consistent performance of equipment, minimize production downtime and reduce the likelihood of costly repairs with Buehler Calibration Services. Cleaning and calibration of high precision equipment provides repeatable and reliable results. As a valued customer, we appreciate your partnership and are here to support you with repair services and spare parts under warranty and beyond.

ISO / ASTM Calibrated Hardness Blocks Direct from Buehler

All hardness test blocks used in day to day indirect verification in accordance with ISO & ASTM standards and are calibrated in the Buehler standards laboratory on machines with Direct verification traceability.

A Solid Partner for Your Metallography Laboratory



Consultation Available for New Equipment or Improved Processes

Buehler field engineers and laboratory experts are available to provide custom solutions for your application.

Visit buehler.com/contact-buehler.php



Buehler carries a complete line of metallography equipment

From sectioning, grinding/polishing, mounting, image analysis to hardness testing.

Visit www.buehler.com/#products



Service Technicians Available for Calibration

An accredited technician will perform a scheduled calibration in compliance with current ASTM. E10, E18 or E384 using N.I.S.T. traceable standards where applicable.

Visit buehler.com/contact-buehler.php



Certified Hardness Reference Blocks

For Rockwell, Brinell, Vickers and Knoop hardness testers produced in our own facility.

Visit www.buehler.com/hardness-testing.php



Complete Line of Consumables Available

Most are in stock and ready to ship daily. Visit shop.buehler.com.





Universal Hardness Testers

Wilson® UH4000 Series Hardness Testers

The UH4000 series universal hardness tester is designed for high volume production labs and production floor. It is available in two different configurations, the UH4250 and UH4750. Universal hardness testers are designed to perform several hardness scales with one machine, in most cases for higher loads (>5kgf).

The UH4000 series testers contain all standardized and usual hardness testing methods between 0.5-250kgf and 3-750kgf, according to ISO 6506, 6507, 6508 and 4545 and ASTM E18, E10 & E92. Additionally, plastics and carbon testing can be performed according to ISO2039 and DIN51917.



Ease of use

- Focus on a fast and simple operation to satisfy the needs of novice operators, while maintaining the flexibility and complexity of features required by expert users with DiaMet operation software.

Flexibility

- The optional clamping tool will ensure stability during the test process.
- 8 position turret to have all objectives and indenters you need.
- Laser for easy test location targetting and a ringlight for best Brinell measurement accuracy

Increase up-time & reduce service costs

- Steel casting provides full protection for production environments.

Dimensions

28in [704mm]W x 21in [534mm]H x 39.2in [995mm]D

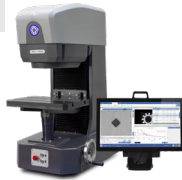
Maximum Specimen Height - 11.8in [300mm]

Test Stage Dimensions - T-slot stage with 12mm slot width, 11.8in [300mm] x 15.7in [400mm]

System Configurations

Start by selecting either the UH4250 or UH4750 and continue on to create a customized Universal Hardness tester

Main Unit



Wilson UH4250

- Load Range 0.5-250kgf, Standard Monitor 24" W4250
- Load Range 0.5-250kgf, Touchscreen 15" W4251



Wilson UH4750

- Load Range 3 - 750kgf, Standard Monitor 24" W4750
- Load Range 3 - 750kgf, Touchscreen 15" W4751

Configure Turret

Select up to 8 different items



Objectives

- | | |
|----------|---|
| W4100X2 | 2.5x Objective, optional with Ringlight |
| W4100X5 | 5x Objective |
| W4100X10 | 10x Objective |
| W4100X20 | 20x Objective |
| W4100X40 | 40x Objective |
| W4100X50 | 50x Objective |

Indenters

- | | |
|-----------|--|
| W4100K | Knoop Indenter with turret adapter |
| W4100V | Vickers Indenter with turret adapter |
| W4100B1 | Brinell Indenter 1mm with turret adapter |
| W4100B2 | Brinell Indenter 2.5mm with turret adapter |
| W4100B5 | Brinell Indenter 5mm with turret adapter |
| W4100B10 | Brinell Indenter 10mm with turret adapter |
| W4100R120 | Rockwell Diamond Cone Indenter |
| W4100R16 | Rockwell Indenter 1/16" Ball |
| W4100R8 | Rockwell Indenter 1/8" Ball |
| W4100R4 | Rockwell Indenter 1/4" Ball |
| W4100R2 | Rockwell Indenter 1/2" Ball |

Laser



- | | |
|--------|-------------------|
| W4100L | Positioning Laser |
|--------|-------------------|

Additional Accessories

Ring Light



Ringlight for 2.5x objective (improves reading of soft Brinell indents)
W4100RL

Auto Clamping Device



The unique clamping device for the UH4000 series hardness testers ensures that workpieces will be fixed properly during testing. The device is designed to adapt different types of clamping forks.
Clamping width: 35mm [1.37in]
W4100CL

Workbench



Workbench with Drawers 1000 x 700 x 800mm [30 x 27 x 31in] with spindle hole
944872

Anvils



V anvil for max. 45mm diameter
cylindric workpieces
740096



V anvil for max. 85mm diameter
cylindric workpieces
740095



10mm spot anvil for small
workpieces
740160



Auto-leveling anvil Planoflex -
flat 60mm diameter
740587



Test anvil flat 80mm diameter
740191



Test anvil flat 190mm diameter
740101



Rockwell Hardness Testers

Wilson® Rockwell® 574

The 574 Series Rockwell Hardness Testers offer quality, durability, and an industry leading Gauge Repeatability and Reproducibility (GR&R) making this hardness testing instrument best in class. This system is available in Regular, Superficial or Twin Scale models and capable of testing in all of the regular and superficial Rockwell hardness scales and can accommodate a wide variety of applications.



Dimensions

11.53in [292mm]W x 22.3in [566mm]D x 36.83in [934mm]H

Vertical Test Capacity - 11.43in [289mm] without accessories

Horizontal Test Capacity - 6.12in [155mm] at the bottom; 6.93in [175mm] at the top

Segment Leading GR&R Performance

- High precision depth measurement system for accurate and repeatable testing.
- Auto preload brake and automated main load test cycle ensure repeatability.

Ease of Use

- Powerful auto-braking system on preload ensures a seamless operation.
- Built in USB port offers rapid data transfer to Microsoft® Excel® or other applications.

Robust

- Proven robust design with all stainless steel internal components.

574R Regular - for all Regular test scales

Part Number - WH574R

Description	
Pre-load	10kgf
Main-load	60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

574S Superficial - for all Superficial test scales

Part Number - WH574S

Description	
Pre-load	3kgf
Main-load	15, 30, 45kgf
Hardness scales	15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y

574T Twin - for all Regular and Superficial test scales

Part Number - WH574T

Description	
Pre-load	3, 10kgf
Main-load	15, 30, 45, 60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y

Wilson® Rockwell® 2000

The Rockwell 2000 Series Hardness Testers achieve the highest level of depth measurement accuracy and resolution available and as a result has the best GR&R performance in the industry. This instrument is offered in two sizes, 10 - 14 in vertical capacity, to accommodate varying sample sizes and is available in three different variations of Rockwell Regular, Superficial, or Twin hardness scales.



Dimensions-
 13.5in [343mm]W x 23.2in [590mm]D x 48.5 [1232mm]H
Vertical Test Capacity -
 Size 2: 10in [254mm]
 Size 3: 14in [356mm]
Horizontal Test Capacity - 8.5in [216mm]

Industry Leading GR&R Performance

- Load cell force application ensures fast, precise, and reliable testing. Highly accurate "in-line" depth measuring scale.

Ease of Use

- One button start - tester controls load application speed and dwell times.
- A flexible and user friendly LCD control panel for method set up and configuration.

Flexible

- Available in two sizes ranging from 10 - 14 in (254 - 356 mm) to accommodate varying sample sizes.
- Available in three different variations: Regular, Superficial, or Twin hardness scales.

2002R & 2003R Regular - for all Regular test scales

Part Numbers - Size 2: WH2002R, Size 3: WH2003R

Description	
Pre-load	10kgf
Main-load	60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

2002S & 2003S Superficial - for all Superficial test scales

Part Numbers - Size 2: WH2002S, Size 3: WH2003S

Description	
Pre-load	3kgf
Main-load	15, 30, 45kgf
Hardness scales	15N, 30N, 45N, 15T, 30T, 45T, 5W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y

2002T & 2003T Twin - for all Regular and Superficial test scales

Part Numbers - Size 2: WH2002T, Size 3: WH2003T

Description	
Pre-load	3, 10kgf
Main-load	15, 30, 45, 60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y



Rockwell Hardness Testers Accessories

Rockwell® Hardness Testers Accessories

Part Number	Description
90007156	Anvil, Pedestal spot
90000788	Anvil, 0.5in [12.7mm] Shallow "V", < 6mm diam
900030797	Anvil, 1.5in [38.1mm] Standard "V", > 6mm diam
900007730	Flat Anvil, 8in [203mm] testing table
9100401	NIST standard "C" Diamond Indenter
900002015	NIST standard "N" Diamond Indenter
9100405	1-16in Carbide Ball Indenter with ball
9100406	1-8in Carbide Ball Indenter with ball

Part Number	Description
741038	Single Bar Jominy Fixture for stage mount
CP102392	Three Bar Jominy Fixture for stage mount
9100-564	Specimen Clamping Fixture
9100568	T-Slot table - 13 x 11in [330 x 280mm]

Kits contain recommended indenters and test blocks. Please refer to your local Buehler representative for details.

Part Number	Description
A582143	Regular scale accessory kit
A58239	Superficial scale accessory kit
A582144	Twin scale accessory kit

Rockwell® Diamond and Ball Indenters



Rockwell 2000 and Rockwell 574

Part Number	Description
9100401	Certified Diamond Indenter Rockwell "C" 120° Cone
900006838	Certified Diamond Indenter Rockwell "A" 120° Cone
900002015	Certified Diamond Indenter Rockwell "N" 120° Cone
9100405	Certified Carbide Ball Indenter, 0.0625in with 4 additional spare balls
9100406	Certified Carbide Ball Indenter, 0.125in with 2 additional spare balls
9100407	Certified Carbide Ball Indenter, 0.25in with 1 additional spare ball
9100408	Certified Carbide Ball Indenter, 0.5in with 1 additional spare ball

! Special Purpose Indenters available on request such as Thin Tipped Diamonds and Ball indenters, side cut for difficult applications. Please let us know if you have a special need or application.

Why Buehler for Hardness Testing?



Buehler® is committed to providing a superior range and level of support services to its customers. Buehler, the world's leading manufacturer of hardness testing equipment, has been in the forefront of manufacturing and servicing a comprehensive range of hardness testers manufactured by Wilson Instruments, Wolpert and Reichert for over 85 years.

Buehler offers an extensive range of calibration and verification services for hardness testing instruments and related equipment. Buehler's factory trained service engineers are uniquely qualified to not only perform accredited calibrations, but to also provide expert preventive maintenance, adjustments and repairs using parts from the factory that meet original equipment specs. This extends the life of your equipment and optimizes its accuracy and reliability.



Brinell Hardness Testers

Wilson® BH3000

The BH3000 is a durable, 30 kN (3000 kgf) Brinell Hardness Tester ideal for wide range of Brinell loads from 62.5 kgf - 3000 kgf. Designed with rugged construction to withstand harsh environments, the BH3000 combines high rigidity and closed-loop load cell technology to ensure accurate and safe load applications. The standards are ISO 6506, ASTM E10, JIS.



Ease of use

- Heavy duty clamping and protection

Accuracy

- Closed-loop system for quick and highly accurate test results.
- Integrated hardness calculator and conversions.

Flexibility

- Wide load range 613N - 29.42 KN (62.5 kgf - 3000 kgf.).
- Deep reading microscope (order separately).

BH3000

Part Number: WH3000BH

Description

Hardness scales	HB
Main-load	62.5 - 3000kgf

Dimensions

10.4in [265mm]W x 23.9in [608mm]D x 39.5in [1000mm]H

Vertical Test Capacity - 11in [280mm]

Horizontal Test Capacity - 5in [130mm]

Accessories

WHSCOPE20X	Brinell microscope 20X with LED light source	9110-122	Indenter 5mm Carbide Ball with certificate
WHSCOPE40X	Brinell microscope 40X with LED light source	9110-121	Indenter 2.5mm Carbide Ball with certificate
WHSCOPE60X	Brinell microscope 60X with LED light source	900000485*	10mm Carbide Ball with NVLAP certificate (Qty 2)
WHKINGSC4	King Scan IV - Computer Based Automatic Brinell Measurement System	900000595*	5mm Carbide Ball with NVLAP certificate (Qty 2)
9110-213	Testing table diameter 235mm	900007350*	10mm Ball Retainer, MJ, L, K, KDR, AP, & CLB3
9110-123	Indenter 10mm Carbide Ball with certificate		

**Products only available in North America & South America*



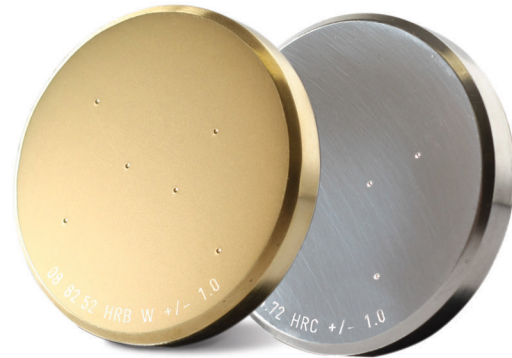
Wilson® Hardness Test Blocks

Wilson Hardness test blocks set the standard for the industry and are made from the highest quality material to insure the most uniform and repeatable blocks available. A comprehensive variety of scales and blocks are available to meet the wide ranges and hardness scales associated with Rockwell®, Brinell, Knoop and Vickers testing. All Wilson test blocks are calibrated in the Wilson Hardness Calibration Laboratory in Binghamton, NY. The Wilson lab is accredited to ISO-IEC 17025 by A2LA and the testers used in the calibration process undergo a stringent monitoring process using NIST traceable devices. For the ultimate accuracy and performance in tester verification, calibration sets are available for most Rockwell scales.

- We work directly with the steel and brass mills to specify the chemical composition
- Our machining processes (grinding, lapping, polishing) are all done in house, at the site of calibration
- 100% inspection to ensure that every single test block meets the physical requirements of ASTM (thickness, flatness, parallelism, surface roughness)

Wilson® Rockwell Test Blocks

	Part Number	Nominal Hardness
Rockwell A	9201110	63HRA
	9201150	73HRA
	9201190	83HRA
Rockwell B*	9202050W	40HRB
	9202060W	50HRB
	9202070W	60HRB
	9202080W	70HRB
	9202090W	80HRB
	9202100W	95HRB
Rockwell C	9203111	25HRC
	9203121	30HRC
	9203131	35HRC
	9203141	40HRC
	9203151	45HRC
	9203161	50HRC
	9203171	55HRC
	9203181	60HRC
	9203191	63HRC
Rockwell E*	9205010W	57HRE
	9205020W	63HRE
	9205050W	81HRE
	9205060W	87HRE
	9205070W	93HRE
Rockwell F*	9206020W	63HRF
	9206050W	80HRF
	9206070W	91HRF



	Part Number	Nominal Hardness
Superficial Rockwell 15-N	9212110	72HR15N
	9212150	83HR5N
	9212190	91HR15N
Superficial Rockwell 15-T*	9218020W	64HR15T
	9218050W	74HR15T
	9218070W	80HR15T
	9218090W	87HR15T
Superficial Rockwell 30-N	9213110	46HR30N
	9213130	55HR30N
	9213150	64HR30N
	9213190	80HR30N
Superficial Rockwell 30-T*	9219050W	43HR30T
	9219070W	56HR30T
	9219090W	70HR30T

• Certified using a Tungsten Carbide ball indenter

Special Order Items

Part Number	Description
9201002	Special Range-Hardness Request
9201003	Engraving for Indent Spacing
9201006	API Compliance

Wilson® Vickers-Knoop Test Blocks

According to ISO 6507 & ASTM E92



Vickers Test Blocks

Load (kg)	Part Number	Nominal Hardness	Range
HV0.1	93-001-200	200 HV	175-224
	93-001-425	425 HV	400-450
	93-001-515	515 HV	490-540
	93-001-775	775 HV	750-800
HV0.2	93-002-200	200 HV	175-224
	93-002-425	425 HV	400-450
	93-002-515	515 HV	490-540
	93-002-775	775 HV	750-800
HV0.3	93-003-200	200 HV	175-224
	93-003-310	310 HV	285-335
	93-003-425	425 HV	400-450
	93-003-515	515 HV	490-540
	93-003-700	700 HV	675-725
	93-003-775	775 HV	750-800
	93-003-830	830 HV	805-855
HV0.5	93-005-200	200 HV	175-224
	93-005-310	310 HV	285-335
	93-005-425	425 HV	400-450
	93-005-515	515 HV	490-540
	93-005-700	700 HV	675-725
	93-005-775	775 HV	750-800
HV1	93-010-200	200 HV	175-224
	93-010-310	310 HV	285-335
	93-010-450	450 HV	425-475
	93-010-515	515 HV	490-540
	93-010-700	700 HV	675-725
	93-010-775	775 HV	750-800
	93-010-830	830 HV	805-855

Load (kg)	Part Number	Nominal Hardness	Range
HV5	93-050-200	200 HV	175-224
	93-050-310	310 HV	285-335
	93-050-450	450 HV	425-475
	93-050-515	515 HV	490-540
	93-050-600	600 HV	575-625
	93-050-700	700 HV	675-725
	93-050-775	775 HV	750-800
	93-050-830	830 HV	805-855
	HV10	93-100-200	200 HV
93-100-310		310 HV	285-335
93-100-450		450 HV	425-475
93-100-515		515 HV	490-540
93-100-600		600 HV	575-625
93-100-700		700 HV	675-725
93-100-775		775 HV	750-800
93-100-830		830 HV	805-855
HV20		93-200-200	200 HV
	93-200-310	310 HV	285-335
	93-200-450	450 HV	425-475
	93-200-515	515 HV	490-540
	93-200-600	600 HV	575-625
	93-200-700	700 HV	675-725
	93-200-775	775 HV	750-800
	93-200-830	830 HV	805-855
	HV30	93-300-200	200 HV
93-300-310		310 HV	285-335
93-300-450		450 HV	425-475
93-300-515		515 HV	490-540
93-300-600		600 HV	575-625
93-300-700		700 HV	675-725
93-300-775		775 HV	750-800
93-300-830		830 HV	805-855

Knoop Test Blocks

Load (kg)	Part Number	Nominal Hardness	Range
HK0.5	94-005-225	225 HK	200-250
	94-005-315	315 HK	290-340
	94-005-440	440 HK	415-465
	94-005-540	540 HK	515-565
	94-005-630	630 HK	605-655
	94-005-730	730 HK	705-755
	94-005-850	850 HK	825-875

Special Order Items

Part Number	Description
93-000-001*	Vickers Microindentation (10gf - 500gf)
93-000-002*	Vickers Macroindentation (1kgf - 50kgf)
94-000-001*	Knoop Microindentation (10gf - 500gf)
93-000-012*	2 Vickers-Knoop Calibrations
93-000-013*	3 Vickers-Knoop Calibrations
93-000-014*	4 Vickers-Knoop Calibrations

*Specify hardness required and load force for calibration

•Specify additional load force for calibration



Wilson® Hardness Test Blocks

Wilson® Brinell Test Blocks

Brinell reference blocks up to 250kgf load

Nominal value	Range	HBW2.5-62.5 scale	HBW2.5-187.5 scale	HBW5-250 scale
140 HBW	115-169	WH-140HBW-625	WH-140HBW-1875	WH-140HBW-250
200 HBW	170-224	WH-200HBW-625	WH-200HBW-1875	WH-200HBW-250
250 HBW	225-274	WH-250HBW-625	WH-250HBW-1875	WH-250HBW-250
300 HBW	275-324	WH-300HBW-625	WH-300HBW-1875	
350 HBW	325-375	WH-350HBW-625	WH-350HBW-1875	
400 HBW	375-449		WH-400HBW-1875	
500 HBW	450-525		WH-500HBW-1875	

Brinell reference blocks up to 3000kgf load

Nominal value	Range	HBW5-750 scale	HBW10-3000 scale
140 HBW	115-169	WH-140HBW-750	WH-140HBW-3000
200 HBW	170-224	WH-200HBW-750	WH-200HBW-3000
225 HBW	212-238		WH-225HBW-3000
250 HBW	225-274	WH-250HBW-750	WH-250HBW-3000
275 HBW	262-288		WH-275HBW-3000
300 HBW	275-324	WH-300HBW-750	WH-300HBW-3000
325 HBW	312-338		WH-325HBW-3000
350 HBW	325-375	WH-350HBW-750	WH-350HBW-3000
375 HBW	362-388		WH-375HBW-3000
400 HBW	375-449	WH-400HBW-750	WH-400HBW-3000
500 HBW	450-525	WH-500HBW-750	WH-500HBW-3000



Other Brinell scales that use 1mm 2.5mm, 5mm or 10mm ball indenters †

Part Number	Description
WHSMLBRIN*	1mm or 2.5mm ball indenter

Part Number	Description
WHSPECBRIN*	5mm or 10mm ball indenter

† Specify hardness required, load force, and ball indenter size for certification



See Test Block Guide for More Information



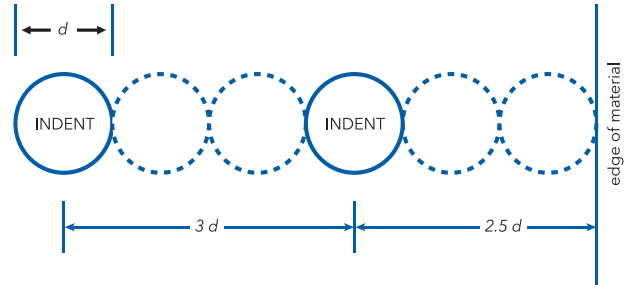
Proper Indent Spacing

When making indentations on a test block, the hardness of the material immediately surrounding an indentation will usually increase due to the residual stress and work hardening caused by the indentation process. If an indentation is made too close to the edge of a test piece, there may be insufficient material to constrain the deformation around the indentation. Both of these scenarios can lead to inaccurate hardness readings. To prevent incorrect readings, recommended spacing has been defined in the standards for each type of hardness test. To ensure proper spacing is followed, Buehler offers pattern engraving on the surface of test blocks.

Rockwell & Brinell

According to ASTM and ISO Standards: The distance between the centers of two adjacent indentations shall be at least three times the diameter (d) of the indentation.

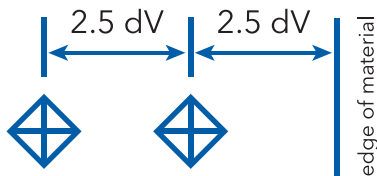
The distance from the center of any indentation to an edge of the test piece shall be at least two and a half times the diameter of the indentation.



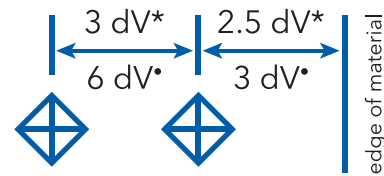
Vickers

According to ASTM Standards: The distance between two indents or an indent and the edge of the test piece shall be at least two and a half times the diagonal (dV) of the indentation.

According to ISO Standards: The distance between the centers of two indents shall be at least three times the diagonal (dV) of the indent for steel, copper and copper alloys, and at least six times for light metals, lead and tin and their alloys. The distance between the center of an indent and the edge of the test piece shall be at least two and a half times the diagonal (dV) for steel, copper and copper alloys, and at least three times for light metals, lead and tin and their alloys.



dV = Vickers Diagonal

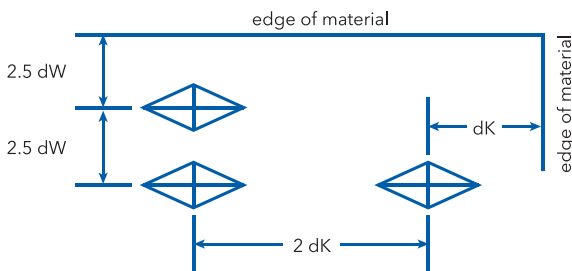


* For steel, copper and copper alloys
* For light metals, lead, tin and their alloys

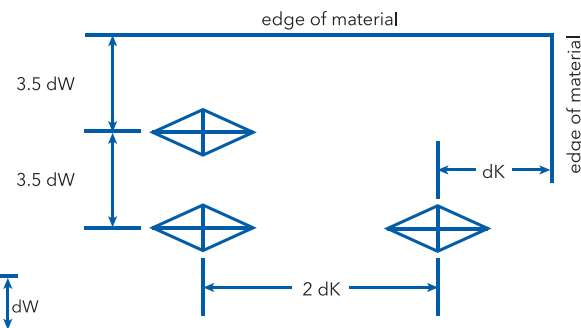
Knoop

According to ASTM Standards: The distance between two indents shall be at least two times the diagonal (dK) of the indentation and two and a half times the width (dW) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal (dK) or two and a half times the width (dW) of the indentation.

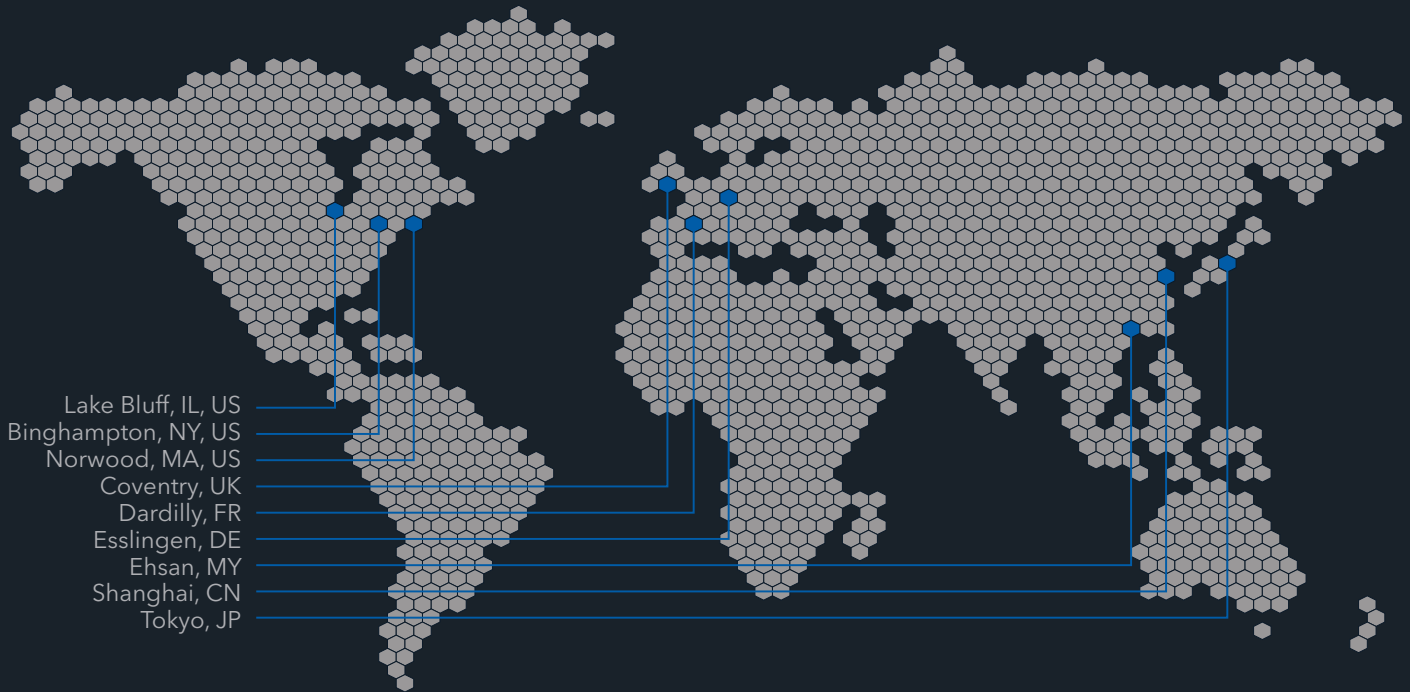
According to ISO Standards: The distance between two indents shall be at least two times the diagonal (dK) of the indentation and three and a half times the width (dW) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal (dK) or three and a half times the width (dW) of the indentation.



dK = Knoop Long Diagonal
 dW = Knoop Short Diagonal



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