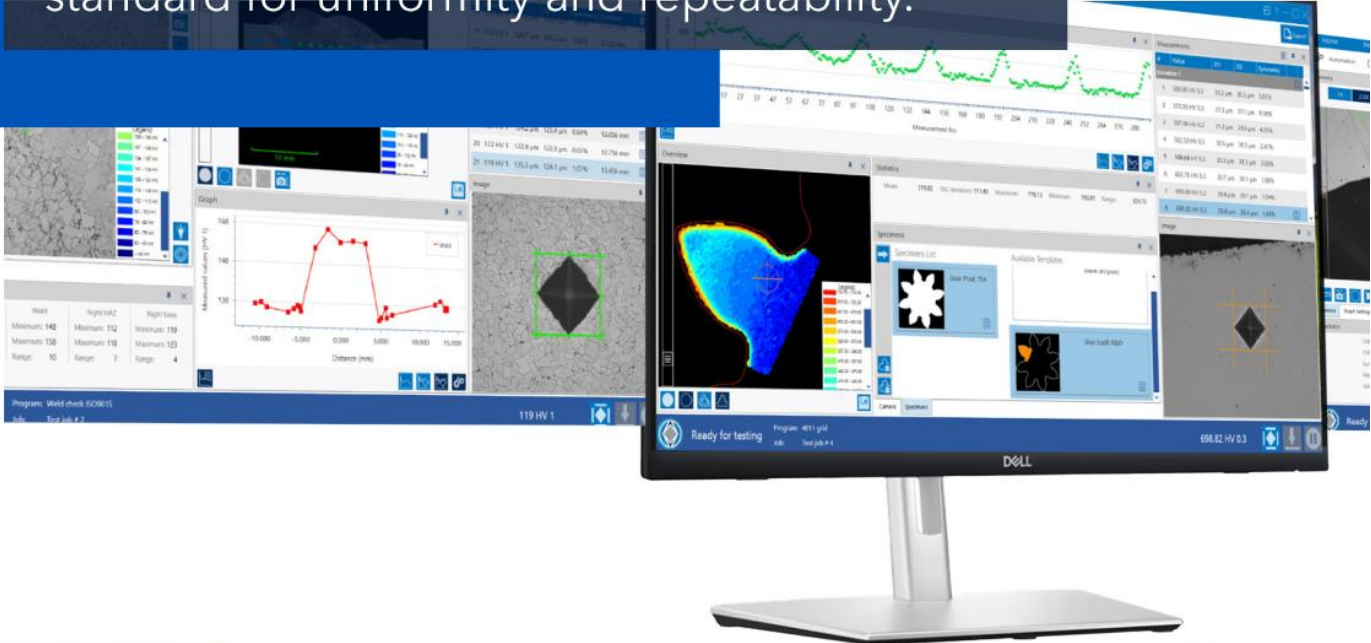
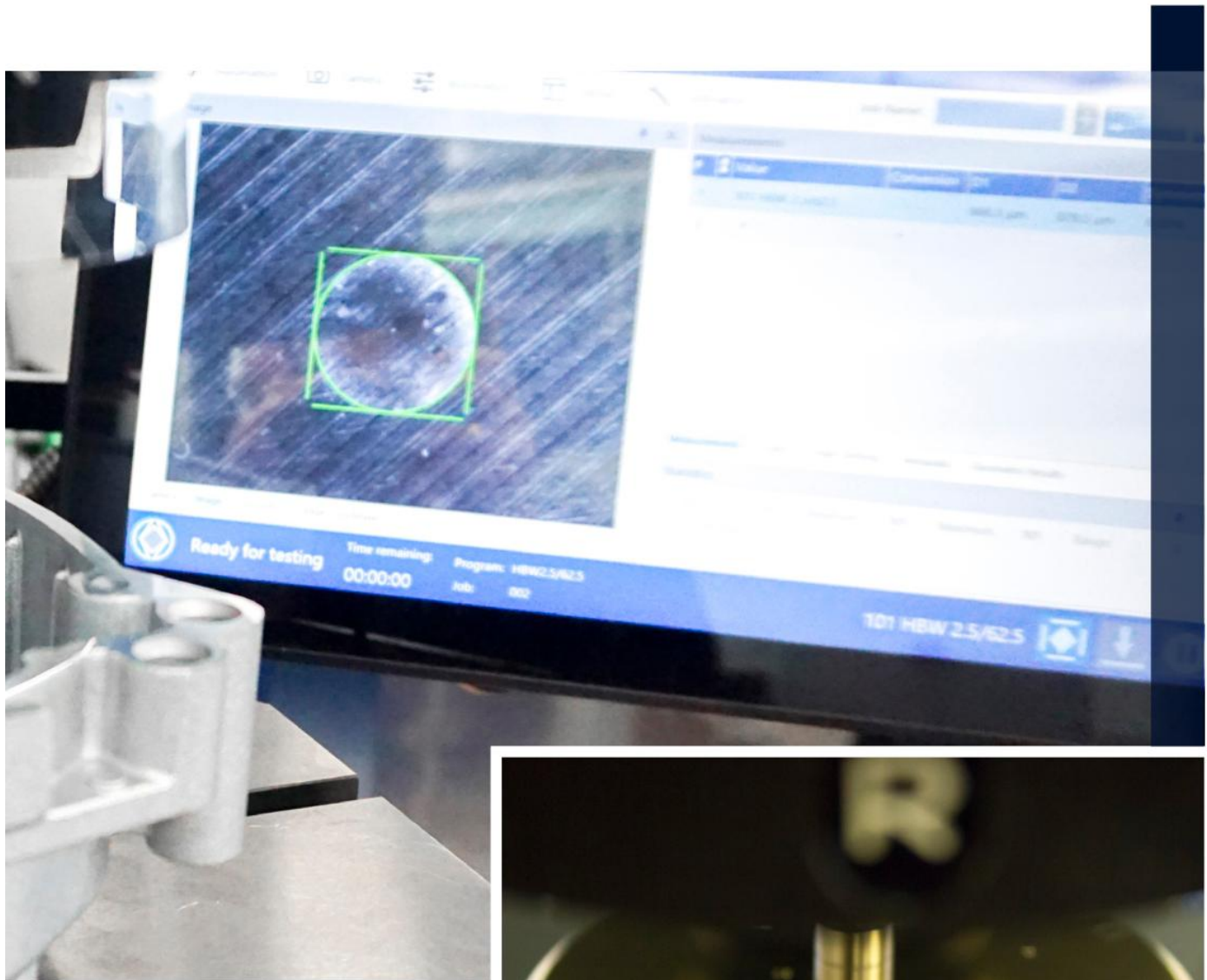


# HARDNESS TESTING

Buehler offers complete hardness solutions with testers, test blocks, and software designed by Buehler. Our fully integrated systems remove the guesswork from hardness testing with intuitive interfaces and software combined with test blocks that set the standard for uniformity and repeatability.

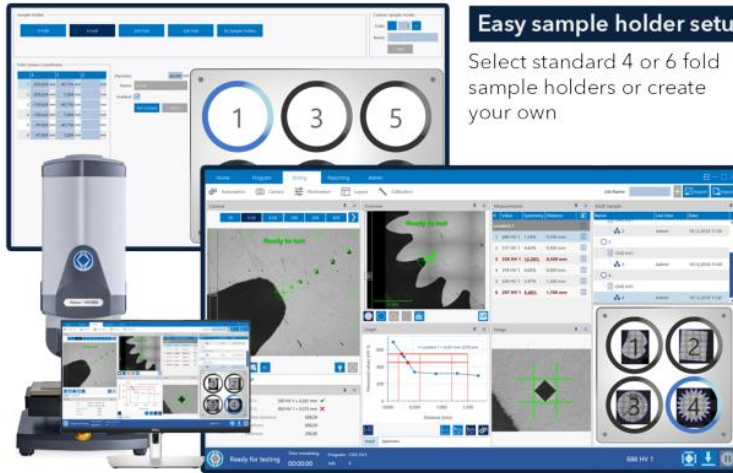




# DiaMet - Hardness Testing Made Easy

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 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.

## Wilson® DiaMet® Multisample



### Easy sample holder setup

Select standard 4 or 6 fold sample holders or create your own

### Define start coordinates

For each sample, the center or any needed X, Y or Z coordinate can be programmed and used for navigation or pattern placement

### Perfect overview

When scanning the contour or the whole sample, it is displayed on the holder

### Simple Stage Navigation

Click on the sample of the holder and move to the defined sample coordinates

### Easy testing workflow

Clear your tested sample holder and start with the next batch of samples right away

## 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.

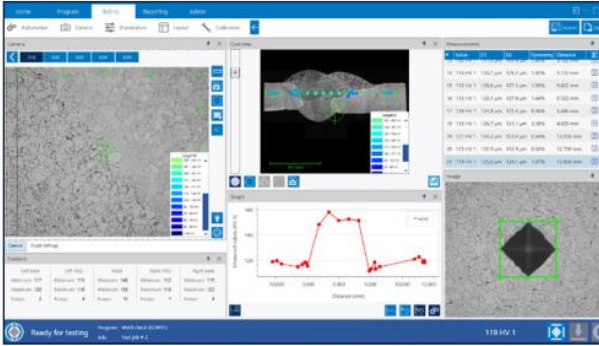
### DiaMet Features

	Manual (Cam Only)	Basic	Semi-Automatic	Full-Automatic	Enterprise
Manual Indent Measure	●	●	●	●	●
Auto Indent Measure	●	●	●	●	●
Barcode Scanner Interface	●	●	●	●	●
Statistics, Reporting & Export tools	●	●	●	●	●
K1c Testing	●	●	●	●	●
Weld Testing	●	●	●	●	●
Auto-illumination		●	●	●	●
Digital zoom		●	●	●	●
Motorized XY-stage control			●	●	●
Multi Sample Testing				●	●
Auto-focus				●	●
Edge detection				●	●
Contour, Scanning & stitching					●
Hardness mapping					●
Specimen templates					●

# DiaMet - Hardness Testing Functions

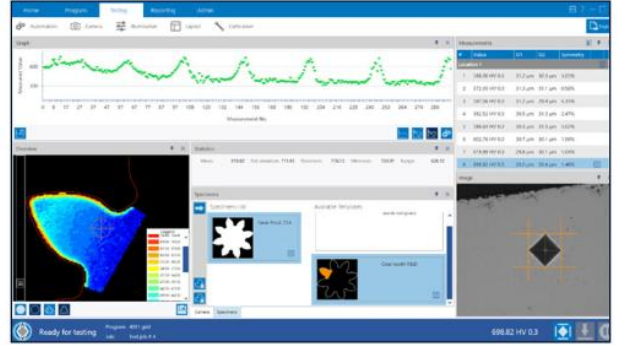
## Weld Testing

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.



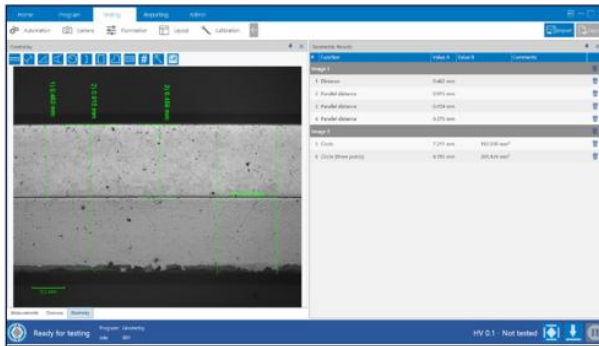
## Color & 3D Mapping

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



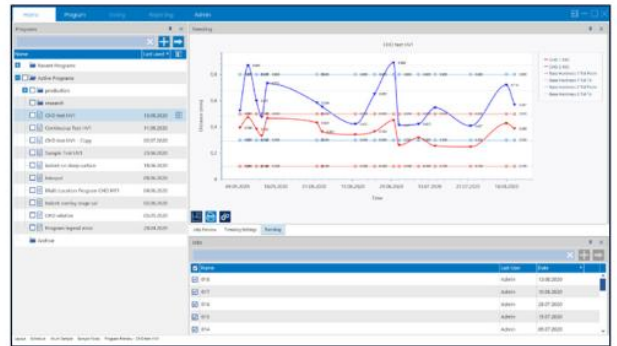
## Geometric Functions

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



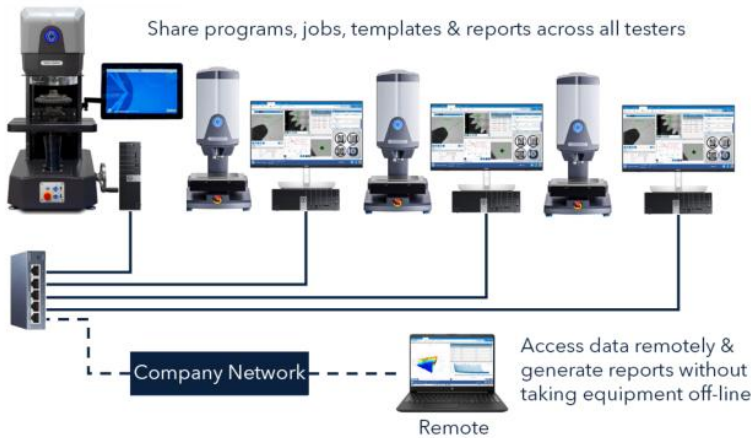
## Results Trending

Trending of selection of test jobs of a specific program enables to track the process performance of customer samples/test programs



## Shared Database Networking

Multiple testers can share programs and jobs to maximize throughput of hardness testing. Access data from all testers remotely to generate reports without downtime.





# Wilson® VH3100 & VH3300 All-in-One

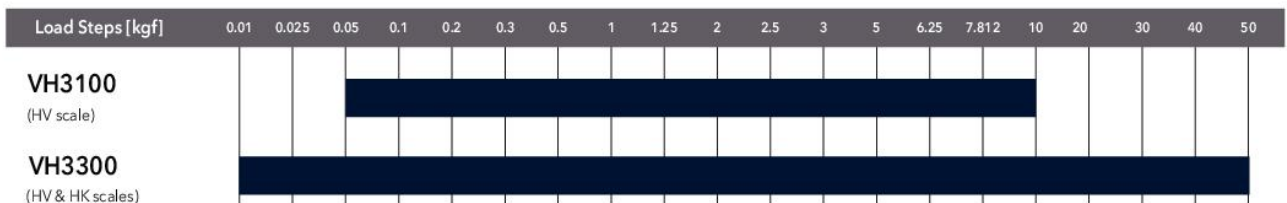


The best fully automated Vickers and Knoop hardness testers. The Wilson VH3100 and VH3300 All-in-One platforms have all you need for your production control hardness testing needs. Machine setups are pre-configured to easily perform hardness tests with our most advanced software solution – DiaMet Enterprise.

**Dimensions** 13.39in [340mm]W x 23.62in [600mm]D  
**Vertical Test Capacity** -  
 VH3100: 4.92in [125mm]  
 VH3300: 4.1in [105mm]  
**Horizontal Test Capacity** - 9.23in [235mm]  
**Weight** VH3100: 82.7 lbs [37.5kg]  
 VH3300: 144 lbs [65kg]

## Load Range & Hardness Scales

Proper load range and scales are critical to accurate testing. The Wilson VH3100 All-in-One tester accommodates one load-cell and a Vickers indenter. The wider load range of the VH3300 All-in-One is populated with three loadcells and indenters, resulting in a load range of 10gf to 50kgf and accommodations for both Vickers and Knoop hardness testing.



# All-in-One System Configuration Comparisons

View the configurations for the VH3100 and VH3300 below to compare and pick the right fit for Hardness Testing

Features	VH3100 Part Number VH3100	VH3300 Part Number VH3300
Hardness Scales	Vickers	Vickers & Knoop
Load Cells	0.05 - 10kgf (0.49 - 98.07N)	10gf - 1kgf (.10 - 9.81N) & 1 - 50kgf (9.81 - 490.33N)
Objectives	10x and 50x	
Overview Camera	Separate Overview Camera	Turret Intergrated
Stage	Motorized 180x180mm stage	
DiaMet Enterprise	All software features you need - including mapping, edge detection, scanning, stitching of overview image, CHD calculations, statistics, weld testing, exporting and barcode scanner interface	
DiaMet Workstation & Monitor	High performance PC with 24" FullHD touchmonitor	
Vertical Test Capacity	125mm	105mm
Turret	Virtual Turret	6 Position Star Turret
Collision Resistance	Collision Detection System prevents indenter or objective damage by detecting unintended obstructions in the test path.	

## Need More Versatility?

The full VH3000 series of Vickers and Knoop hardness testers can be fully configured to match the system with your application. Customize your VH3100 or VH3300 machine from motorized stage sizes, vertical test capacity, optics, and load cell selections. Options available through hardware and software allow testers tailored to your specific needs and requirements.



\* Please select your sample holder from the Vickers-Knoop Hardness Accessories Page

# Wilson® VH3100 & VH3300



**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]  
**Weight** VH3100: 82.7 lbs [37.5kg]  
 VH3300: 144 lbs [65kg]

The Wilson VH3000 Series 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 0.01 - 50kgf (0.098 - 490.33N) 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 testing to Vickers, Knoop and Brinell standards ASTM E10, E92, & E384, ISO 4545, 6506, & 6507, JIS Z-2243, Z-2244, & Z-2251

## 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.

## 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 objectives + 1 indenter
- 0.050 - 10kgf load range
- Includes DiaMet workstation and 24" monitor

W3111



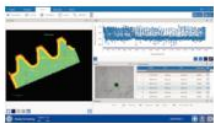
#### Wilson VH3300

- 3 objectives + 3 load cells
- 0.010 - 50kgf load range\*
- Includes DiaMet workstation and 24" monitor

\*depending on configuration

W3210

### Software Options



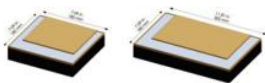
#### DiaMet Full-Automatic software package

W3100A03

#### DiaMet Enterprise software package

W3100A15

### Motorized Stages



#### Standard size (180 x 180mm)

W3000SS

#### Large size (300 x 180mm)

W3000SL

### Vertical Test Capacity



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

W3200D01 - height 105mm  
 W3200D02 - height 155mm

# System Configurations *(Continued)*

## Wilson VH3100

## Wilson VH3300

### Load Cell

select one for VH3100,  
select one per indenter for  
VH3300, up to three total

W3100E02 - 100N loadcell

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

### Vickers/Knoop 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*

\* Loadcell supports Brinell up to HBW62.5

### Overview Camera



- Separate overview camera for VH3100
- Includes Scan & Stitch function in the DiaMet software

W3110F01

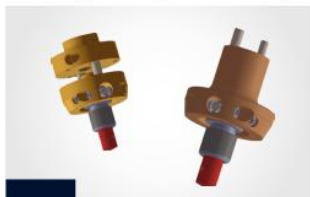
- Turret integrated camera for VH3300
- Includes Scan & Stitch function in the DiaMet software

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



#### Indenter Holder\*

Standard holder  
W3100G01

SnapGrip Holder  
W3100G02



#### Vickers Indenter

Vickers Indenter, ISO & ASTM  
Certified  
W9100687



#### Knoop Indenter

Knoop Indenter, ISO & ASTM  
Certified  
W9100684



#### Brinell Indenters

1mm Brinell ball indenter,  
ISO & ASTM Certified,  
W741237

2.5mm Brinell ball indenter,  
ISO & ASTM Certified  
W741238

### Objectives



Part Number	Native Mag.	Max. Field of View	Part Number	Native Mag.	Max. Field of View
W5XLWDO	5x	3600µm	W40XLWD	40x	450µm
W10XLWD	10x	1800µm	W50XLWD	50x	360µm
W20XLWD	20x	900µm	W100XLWD	100x	180µm

\* Please select your sample holder from the Vickers-Knoop Hardness Accessories Page



# Wilson® VH1102-1202



## 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]  
**Weight** - 110lbs [50kg]

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, ASTM E92, and ASTM E384
- The wide load range with 9 individual load steps, offer testing capabilities from 0.01 - 2kgf (0.098 - 19.61N)

### VH1102 Standalone Tester

**Part Number** - W1102D01

#### Description

Hardness scales	HV
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 (19mm pin) & Analog XY Stage

### VH1202 Standalone Tester

**Part Number** - W1202D01

#### 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 (19mm pin) & Analog XY Stage

## VH1102-1202 with DiaMet® Automation Software

DiaMet workstation and 24" monitor included with VH1102-1202 Hardness Tester



Testers	DiaMet Basic: Manual (Analog)	DiaMet Basic: Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1102 Vickers	W1102D31	W1102D33	W1102D35	W1102D37	W1102D45
VH1202 Vickers & Knoop	W1202D31	W1202D33	W1202D35	W1202D37	W1202D45
<b>Automation included</b>	Camera only	Camera, Digital Stage Readout	Camera, Motorized 100x100 mm Stage	Camera, Motorized 100x100 mm Stage, Auto-Focus	Camera, Motorized 100x100 mm Stage, Auto-Focus

# Wilson® VH1150

The Wilson VH1150 is the ultimate evolution of the deadweight Vickers hardness tester with a unique load range, 0.3 - 50kgf (2.94 - 490.33N), 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 E92.
- 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 (19mm pin) & Analog 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]  
**Weight** - 154 lbs [70.5kg]

## VH1150 with DiaMet® Automation Software

DiaMet workstation and 24" monitor included with VH1150 Hardness Tester



Testers	DiaMet Basic: Manual (Analog)	DiaMet Basic: Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1150	W1151D31	W1151D33	W1151D35	W1151D37	W1151D45
Automation included	Camera only	Camera, Digital Stage Readout	Camera, Motorized 100x100 mm Stage	Camera, Motorized 100x100 mm Stage, Auto-Focus	Camera, Motorized 100x100 mm Stage, Auto-Focus

## 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

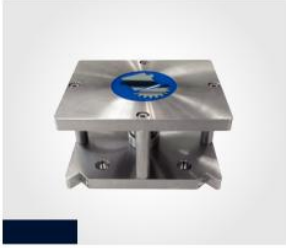
\* Not for use with VH1150

### 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

# 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 one round mounted sample up to 40mm (requires additional insert), incl. magnets

886164

Self leveling vise for a single 50mm round mounted sample, no inserts applicable. Incl. magnets.

886167



## 4 Fold Leveling Vise

Self leveling vise for four round mounted samples up to 40mm (requires additional inserts). Incl. magnets.

886169

Self leveling vise for four 50mm round mounted sample, no inserts applicable. Incl. magnets.

886175



## 6 Fold Leveling Vise

Self leveling vise for six round mounted samples up to 40mm (requires additional inserts). Incl. magnets.

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
  - 9100574 Magnetic Stop and Stage Mount
- \*Mount Cap requires the Canister*



## Sample Holder Insert

Sample holders 886164, 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 [460 x 610mm]

9100904 for VH3300 and Rockwell Testers  
9100905 for VH3100 and VH1000 series

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

# 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 in conformance with ASTM E18 and ISO 6508.

## 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.
- Standard 0.75 in (19mm) pin anvils are shared with the Wilson RB2000 and RH2150 testers to simplify accessories in a lab

### 574R Regular - for all Regular test scales

Part Number - WH574R

Description	
Pre-load	10kgf (98.07N)
Main-load	60, 100, 150kgf (588.39, 980.67, 1471N)
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

### 574T Twin - for all Regular and Superficial test scales

Part Number - WH574T

Description	
Pre-load	3, 10kgf (29.42, 98.07N)
Main-load	15, 30, 45, 60, 100, 150kgf (147.1, 294.19, 441.29, 588.39, 980.67, 1471N)
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



#### 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

**Weight** - 165 lbs [75kg]

#### Auto-clamping device

Clamping device with auto-stop function, clamping force ca. 60kgf (130lbs)

**Part Number** WH-CLFX-574

# Wilson® Rockwell® RH2150



The Wilson RH2150 hardness tester is designed for high volume production labs and production floor Rockwell testing, as well as supporting worldwide research facilities with its vast amount of testing scales with a maximum loadrange from 1 - 187.5 kgf (9.81 - 1838.7N) . The Wilson RH2150 is available in two different sizes, with a vertical capacity of 10 and 14 inch (254 and 356mm respectively). It is fully protected from outside influences with sheet metal casing and a loadcell protection. The intuitive user interface aligns with our DiaMet software - making it easy to use. A DiaMet package is available to have all advanced features of DiaMet.

## Wilson® RH2150 Series Features

- Auto-stop clamping device holds down the sample and secures it during the testing.
- The adjustable LED workspace illumination highlights the test location to ensure clarity and full visibility.
- Indenter extensions are optionally available in several sizes to enable testing also on hard to reach test locations (only usable with clamping device)
- Standard 0.75 in(19mm) pin anvils are shared with the Wilson RB2000 and R574 testers to simplify accessories in a lab
- The operator panel can be adjusted on the frame or taken off completely to put aside the machine if needed - ensuring full flexibility and an ergonomic test process
- USB connection for easy data output to memory drives
- In conjunction with the clamping device, the external footswitch can be used in multiple ways:
  - clamping and manual start
  - clamping and automatic start
  - manual release after test
  - automatic release after test
- Rockwell Fast Mode, achieving test results in seconds

### Dimensions

600 mm [28 in] × 350 mm [21 in] × 1260 mm [39.2 in]  
(Size 1) or 1360mm [41.2in](Size 2)

### Vertical Test Capacity -

Size 1: 10in [254mm] or Size 2: 14in [356mm]

Weight - 275 lbs [125 kg]

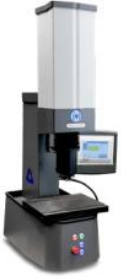
### Description

Available indenters	Rockwell: Rockwell diamond cone 120°, 1/16", 1/8", ¼", ½" carbide ball indenters, Brinell: 2.5mm, 5mm and 10mm ball indenters
Rockwell test procedures ISO 6508-1, ASTM E18	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V, 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y
Plastic testing Ball indentation ISO 2039-1	HB5: 49N, 132N, 358N, 961N
Plastic testing Ball indentation ISO 2039-2	HRR, HRL, HRM, HRE
Rockwell carbon testing Ball indentation DIN 51917	HR2.5: 7, HR5: 7, 20, 40, 60, 100, 150, HR10: 20, 40, 60, 100, 150
Brinell depth testing (non-standardized) HBW-T	HBW-T2.5: 31.25, 62.5, 187.5, HBW-T5: 25, 62.5, 125, HBW-T10: 100

# System Configurations

Select the Main Unit with the needed vertical capacity as well as the scales selection - regular or regular & superficial Rockwell scales.

## Main Unit

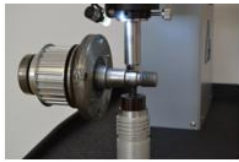


Part Number	Description
W2101R	Size 1 - 10in [254mm] - with regular Rockwell scales, 10-187.5 kgf
W2102R	Size 2 - 14in [356mm] - with regular Rockwell scales, 10-187.5 kgf
W2101T	Size 1 - 10in [254mm] - with regular and superficial Rockwell scales, 1-187.5 kgf
W2102T	Size 2 - 14in [356mm] - with regular and superficial Rockwell scales, 1-187.5 kgf

Every tester includes a 63mm flat anvil, as well as a 1/16" ball indenter

## Additional Accessories

### Auto Clamping Device



Clamping device with auto-stop function, clamping force ca. 60kgf (130lbs)

W2100CL

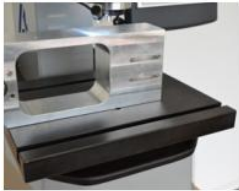
### Software Options



DiaMet basic software option, start test cycle by software and manage & export test data, program generation, statistics etc., incl. DiaMet workstation and 24" FullHD monitor

W1001R31

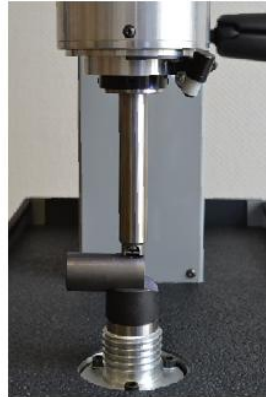
### T-Slot Table



13.3in x 11in [340x280mm] T slot table, 12mm slot width, with bore pattern for spindle adaption

W2100C02

### Indenter Extension



Indenter extension 2" [50mm], only in combination with clamping device W2100CL

W2100E2

Indenter extension 4in [100mm], only in combination with clamping device W2100CL

W2100E4

Indenter extension 6in [150mm], only in combination with clamping device W2100CL

W2100E6

### Foot Switch



Footswitch for external test cycle start, intelligent trigger logic

W2100FS

### Gooseneck Adapter

Gooseneck indenters are used for internal testing on rings and tubes. Gooseneck anvils also available for external testing of springs and coils.



Max. internal reach diameter is 9.5mm  
Min inside diameter is 14mm  
Max. outside diameter with Min. inside diameter at Max. internal reach is 45mm

W2100G2

Rockwell indenters for Gooseneck Adapters  
900001459 (A scale)  
900001460 (N scale)



Max. internal reach diameter is 26mm  
Min inside diameter is 35mm  
Max. outside diameter with Min. inside diameter at Max. internal reach is 130mm  
Available Rockwell Diamond indenters are all standard Rockwell indenters (cf. Table)

W2100G5

# Rockwell® Indenters

All indenters fit on Wilson legacy testers and R574, RH2150 and RB2000 testers. The indenter shaft length is 11,1mm and 6,34mm in diameter.

Part Number	Description
9100401	Rockwell indenter C scale , 120° diamond cone, ASTM certified
9100402	Rockwell indenter C, D, A, N scales, 120° diamond cone, ASTM certified
9100431	Rockwell indenter C, A, D scales, 120° diamond cone, ISO and ASTM certified
9100432	Rockwell indenter N scales, 120° diamond cone, ISO and ASTM certified
9100434	Rockwell indenter C,A,D,N scales, 120° diamond cone, ISO and ASTM certified
900003405	Rockwell indenter A scale for Carbides, 120° diamond cone, ASTM certified
900002015	Rockwell indenter N scale, 120° diamond cone, ASTM certified
9100405	Rockwell indenter 1/16" WC ball with 4 spare balls, ASTM, ISO and JIS certified
9100406	Rockwell indenter 1/8" WC ball with 4 spare balls, ASTM, ISO and JIS certified
9100407	Rockwell indenter 1/4" WC ball with 1 spare ball, ASTM, ISO and JIS certified
9100408	Rockwell indenter 1/2" WC ball with 1 spare ball, ASTM, ISO and JIS certified
9100422	1/16" Diameter WC Balls, 5 pcs, ASTM, ISO and JIS certified
9100423	1/8" Diameter WC Balls, 5 pcs, ASTM, ISO and JIS certified
9100424	1/4" Diameter WC Balls, 3 pcs, ASTM, ISO and JIS certified
9100425	1/2" Diameter WC Ball, 1 pcs, ASTM, ISO and JIS certified
W2100B2	Brinell indenter 2.5mm WC ball, ASTM, ISO and JIS certified
W2100B5	Brinell indenter 5mm WC ball, ASTM, ISO and JIS certified



\* C, D and A scales refer to regular Rockwell scales, N scales refer to superficial Rockwell scales  
\*\* WC = tungsten carbide

# Rockwell® Verification Kits

The kits contain recommended indenters and blocks for the dedicated scales.

Part Number	Description
A582143	Rockwell Regular Kit - includes Rockwell C Indenter, 25 HRC, 63 HRC and 80 HRB test blocks
A58239	Rockwell Superficial Kit - includes Rockwell N Indenter, 46 HR30N, 80 HR30N and 70 HR30T test blocks
A582144	Rockwell Twin Kit - includes Rockwell C and N Indenters, 25 HRC, 63 HRC, 80 HRB, 80 HR30N and 70 HR30T test blocks

# Rockwell® Anvils

Anvils fit RH2150, R574, R2000, VH1102, VH1202, VH1150, and legacy testers with 19mm pinhole.

## Flat anvil



2.5" [63mm]  
900001236

## Testing Table



7.50" (190mm)  
W741246

## V Anvil Shallow



0.5" [12.7mm] stem  
height for cylindrical  
parts < 0.25" [6,3mm]  
900007388

## V Anvil Shallow



1" [25mm] stem  
height for cylindrical  
parts < 0.25" [6,3mm]  
900007195

## V Anvil Standard



For cylindrical parts  
> 0.25" [6,3mm]  
900030797

## Anvil Cylindron Jr.



For cylindrical parts  
0.25-3" [6-76mm]  
900007425

## Anvil Cylindron



For cylindrical parts  
2-8" [50-203mm]  
900007147

## Anvil for Ball Testing



For cylindrical parts  
1/16"-1" [1,6-25mm]  
900001371

## Eyeball Anvil



For pieces with  
slight taper (to  
mount on spindle)  
900007088

## Pedestal spot Anvil



0.5" [12,7mm] stem  
height, 0.27" [7mm]  
spot diameter  
900007387

## Pedestal spot Anvil



1" [25mm] stem  
height, 0.27" [7mm]  
spot diameter  
900007156

## Diamond spot anvil



For HR30T scale,  
0.39" [10mm] spot  
diameter  
900007400

# 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).
- Standard 1.0 in (25mm) pin anvils are shared with UH4000 Series and legacy testers to simplify accessories in a lab

## BH3000

**Part Number:** WH3000BH

Description	
Hardness scales	HB
Main-load	62.5 - 3000kgf (612.92 - 29419.95N)



### Dimensions

10.4in [265mm]W x 23.9in [608mm]D x 39.5in [1000mm]H  
**Vertical Test Capacity** - 11 in [280mm]  
**Horizontal Test Capacity** - 5in [130mm]  
**Weight** - 550 lbs [250kg]

## 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*



Item	Magnification	Field of View [mm]	Measuring Range [mm]	Direct reading [µm]	Height [mm]
WHSCOPE20X	20x	8	7	50	150
WHSCOPE40X	40x	5	4	20	155
WHSCOPE60X	60x	2,5	2	12,5	155



# Wilson® UH4000 Series



## 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]

**Weight** - 660 lbs [300kg]

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 (4,90 - 2451,66 N) and 3 - 750kgf (29,42 - 7354,99N), 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.

## System Configurations

Start by selecting either the UH4250 or UH4750 and continue on to create a customized Universal Hardness tester. The standard models UH4250 and UH4750 will be controlled by DiaMet Basic, including autofocus and automeasurement. The UH4250 Auto model includes a motorized stage and will be controlled by DiaMet Enterprise.

### Main Unit



#### Wilson UH4250

- Load Range 0.5-250kgf, Standard Monitor 24" W4250
- Load Range 0.5-250kgf, Touchscreen 19.5" W4251



#### Wilson UH4750

- Load Range 3 - 750kgf, Standard Monitor 24" W4750
- Load Range 3 - 750kgf, Touchscreen 19.5" W4751



#### Wilson UH4250 Auto\*

- Load Range 0.5- 250kgf, 24" Standard Monitor, 180 x 180mm motorized stage W4250XY
- Load Range 0.5-250kgf, 19.5" Touchscreen, 180x180mm motorized stage W4251XY

\* Clamping device W4100CL not applicable

### 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                           |



### Laser

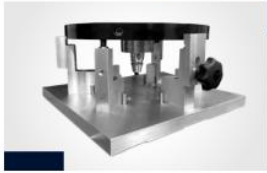
- |        |                   |
|--------|-------------------|
| W4100L | Positioning Laser |
|--------|-------------------|

### 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                |

# Additional Accessories

## GP-HDT Sample Fixture

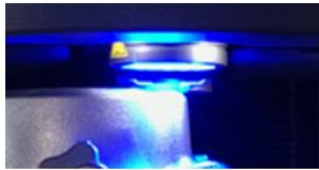


NEW

Adjustable fixture for use with Grinding & Polishing central force specimen holders. Fixture directly accepts specimen holder and allows for multi-sample hardness testing without the need for unloading and reloading individual samples.

886180

## 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 1000w x 700d x 800h mm [30 x 27 x 31in]. Includes instructions for spindle hole build

944872

## Anvils (25mm)

Anvils fit UH4000 series, BH3000, and legacy testers with 25mm pinhole.



V anvil for max. 45mm diameter cylindrical workpieces

740096



V anvil for max. 85mm diameter cylindrical 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

# Wilson® Rockwell® 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)
- Available in full range of regular scales HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRL, HRM, HRP, HRR, HRS, HRV and superficial scales HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y.



[View Options](#)

According to ASTM E18, ISO 6508-3 and JIS B 7730



Block size: Ø 2.4 in x 0.35 in (Ø 60mm x 9mm)

	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
9205020W		63HRE
9205050W		81HRE
9205060W		87HRE
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 (not applicable in EU)

Part Number	Description
9201002	Special value - please provide hardness value and Rockwell scale
9201003	Special value with grid - please provide hardness value and Rockwell scale
9201006	API compliance - special tolerance - please provide hardness value and Rockwell scale
9201007	API compliance with grid - special tolerance - please provide hardness value and Rockwell scale

# Wilson® Vickers-Knoop Test Blocks



According to ASTM E92, ISO 6507-3 and JIS B 7735

## Vickers Test Blocks

HV0.05	HV0.1	HV0.2	HV0.3	HV0.5	HV1	HV2	HV3	HV5	HV10	HV20	HV30	HV50	Value
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	150
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	200
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	250
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	300
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	350
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	400
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	450
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	500
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	550
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	600
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	700
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	775
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	830
50 gf	100 gf	200 gf	300 gf	500 gf	1 kgf	2 kgf	3 kgf	5 kgf	10 kgf	20 kgf	30 kgf	50 kgf	Value

Item number example: 93003700 for a 700 HV0.3 test block

Range for each block may be +/- 25 HV from the nominal value listed in the table.

not ISO 6507 due to <20µm diagonal length

Micro Vickers blocks (1.25in x 0.63in [32mm x 16mm])

Macro Vickers blocks (2.4in x 0.35in [60mm x 9mm])

## Knoop Test Blocks

According to ASTM E92, ISO 4545-3 and JIS B 7734

Available in full range of HK Scales and with special certifications.

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

Not applicable for Europe, please contact Buehler Europe

Part Number	Description
93-000-001*	Special block - please provide hardness value and Vickers scale
93-000-002*	Special block - please provide hardness value and Vickers scale
94-000-001*	Special block - please provide hardness value and Knoop scale
93-000-012*	Special block - 2 scales certification - please provide hardness value and Vickers/Knoop scale
93-000-013*	Special block - 3 scales certification - please provide hardness value and Vickers/Knoop scale
93-000-014*	Special block - 4 scales certification - please provide hardness value and Vickers/Knoop scale

\*Specify hardness required and load force for calibration

\*Specify additional load force for calibration



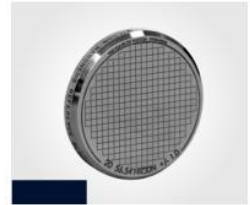
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# Wilson® Brinell Test Blocks

According to ASTM E10, ISO 6508-3, and JIS B 7736

**Brinell reference blocks up to 250kgf load** Blocksize: Ø 2.4 in x 0.35 in (Ø 60mm x 9mm)

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** Block size: 6" x 4.5" (152 x 114 x 18mm)

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 †

not applicable for Europe, please contact Buehler Europe

Part Number	Description
WHSMLBRIN*	Special block - please provide hardness value and Brinell scale using 1mm or 2.5mm ball indenter

Part Number	Description
WHSPECBRIN*	Special block - please provide hardness value and Brinell scale using 5mm or 10mm ball indenter

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



See Test Block Guide for More Information

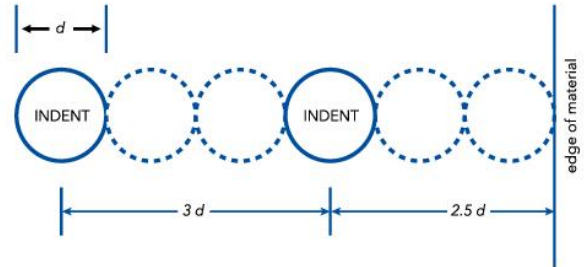
# Proper Indent Spacing

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.

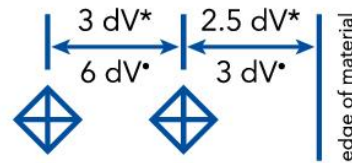
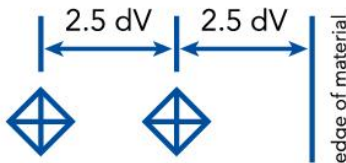
The distance from the center of any indentation to an edge of the test piece shall be at least two and a half times the diameter of the indentation.



## 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.



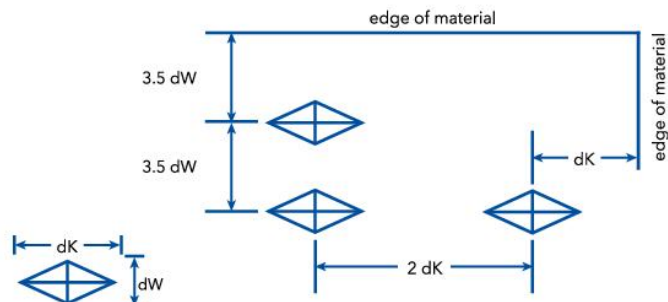
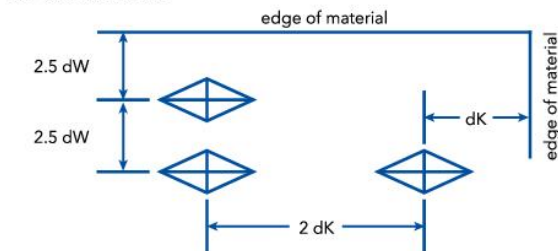
$dV$  = Vickers Diagonal

\* 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

## Consumable Shelf Life

Shelf life is defined as the length of time listed products are considered best suitable for performance. This does not mean that a product will not perform beyond this time period, nor does it mean that the product will be usable continuously for this time frame. The shelf life is independent of the warranty\* period as defined below. The shelf life depends on proper storage - i.e. Abrasive Cut-Off Wheels must be stored lying flat and in a dry location. Stored standing up or in a humid area breaks down the wheel composition.

Product Name	Shelf Life**
Abrasive Cut Off Wheels	2 years
CarbiMet Paper, PSA or S Backed	1 year
CarbiMet Paper, Plain Backed	2 years
Acrylic Systems	1 year
Aluminum Oxide Powder	2 years
Apex® Bimetallic Plate	1 year
Apex CGD and DGD	1 year
Apex Hercules Grinding Disc	1 year
Apex Magnetic Disc	1 year
Apex S Carrier Films	1 year
AutoMet® Lapping Oil	2 years
Cool 3 Fluid	2 years
Diallyl Phthalate Powder	2 years
Epoxy Systems	1 year
EpoMet® F & G Powder	1 year
FibrMet® Discs PSA Backed	2 years
Flat Edge Filler	2 years
IsoCut® Cutting Fluid	1 year
KonductoMet Powder	1 year
MasterMet® 2	3 years
MasterMet	2 years
MasterPolish®	1 year
MasterPrep	2 years
MetGrip® Liners	1 year
MetaDi® Fluid	2 years
MetaDi® Suspensions & Pastes	2 years
MicroPolish Alumina Suspension & Powder	1 year
PhenoCure® Powder & PreMolds	2 years
Pigments for Castable Mounts	1 year
Planar Grinding Stones	2 years
Polishing Cloths with PSA	1 year
Powdered Mold Release	2 years
ProbeMet® Powder	1 year
Release Agent	1 year
Silicon Carbide Powder	2 years
TransOptic Powder	1 year
UltraPrep® Diamond Lapping Film	1 year
Wafering Blades	1 year

\*Warranty depends on Quality Assurance/Lab evaluation on an individual basis

\*\*Shelf life starts when product is shipped

See Terms & Conditions for warranty information