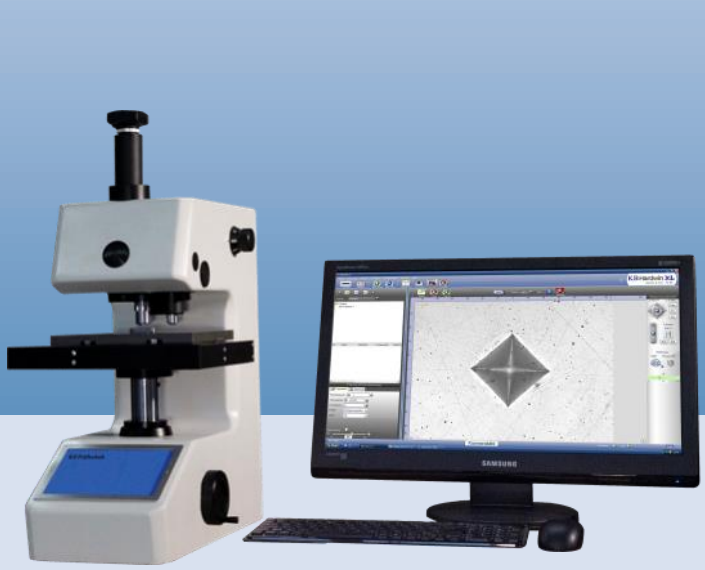
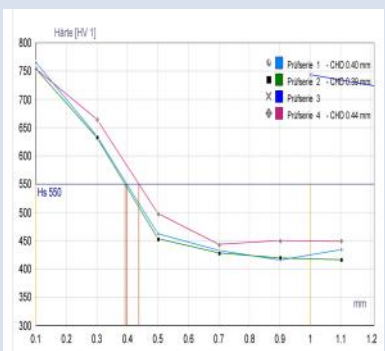
Vickers Hardness Testing Machines
KBW 1/2-V Video, SA, FA
KBW 10/50-V Video, SA

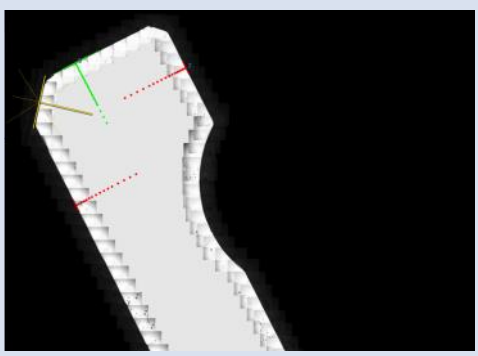


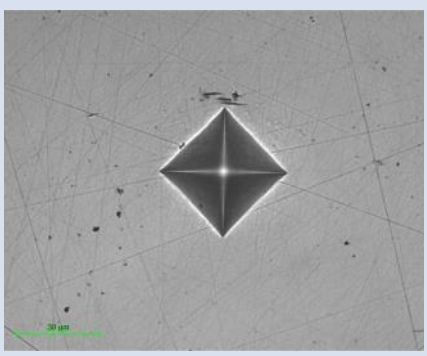
KBW 1-V FA Vickers Fully automatic



KBW 10-V Video Vickers Single measurement







KBW 1-V Video, SA, FA

KBW 2-V Video, SA, FA

KBW 10-V Video, SA

Mikro

Makro

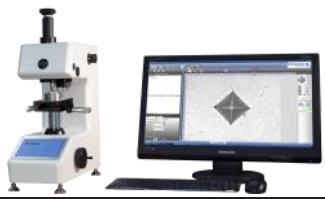
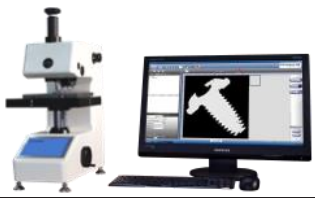
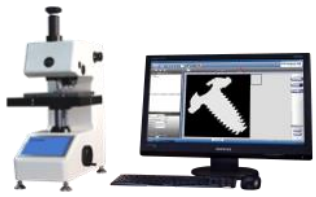
Hardness Testing Machines

Including automatic toll changer

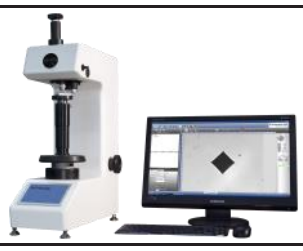
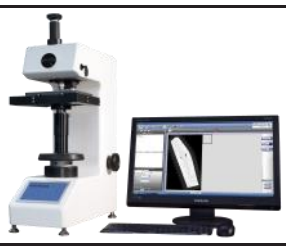
Vickers

Knoop

Hardness tester for the micro, low load and macro range KBW 1/2/10/50-V Video, SA, FA

KBW 1-V Video KBW 2-V Video	KBW 1-V SA KBW 1-V SA	KBW 1-V FA KBW 2-V FA
		
Control via PC	Control via PC with motorized X/Y-stage	Control via PC with motorized X/Y-stage
5 MP USB camera	5 MP USB camera	5 MP USB camera
Software KB Hardwin XL Video	Software KB Hardwin XL Semi	Software KB Hardwin XL FA basic

KB Hardwin XL BASIC → **KB Hardwin XL SEMI** → **KB Hardwin XL FULLY**

KBW 10-V Video KBW 50-V Video	KBW 10-V SA KBW 50-V SA
	
Control via PC	Control via PC with motorized X/Y-stage
5 MP USB camera	5 MP USB camera
Software KB Hardwin XL Video	Software KB Hardwin XL Semi

KB Hardwin XL BASIC → **KB Hardwin XL SEMI**

Standard equipment KBW 1/2-V

- Standard automatic 5-fold turret
- LED illumination
- 2 test blocks HV 1 und HV 0,2 with factory certificate
- Vickers indenter with factory certificate
- Basic objectives: 10x and 40x
- Manual X/Y-stage 110x110 mm incl. 25x25mm travel distance and analogue measuring screws
- Machine cover
- Auxiliary tools
- Accessory Box

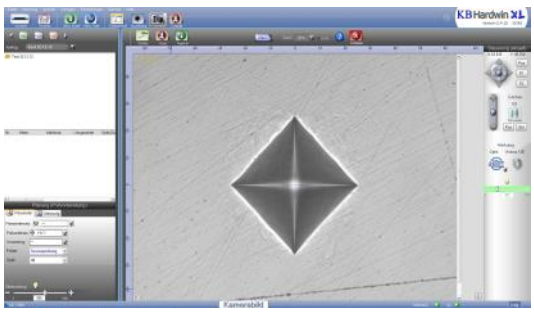
Standard equipment KBW 10/50-V

- Standard automatic 5-fold turret
- LED illumination
- 2 test blocks HV 1 and HV 010 with factory certificate
- Vickers indenter with factory certificate
- Basic objectives KBW 10-V: 10x and 40x
- Basic objective KBW 50-V: 10x
- Test table diameter 80 mm
- 2 Anvils V-shaped big and small
- Machine Cover
- Auxiliary tools
- Accessory Box

Planning and Operation

Menü navigation

- Efficient test procedure by a clearly arranged and user-oriented menu navigation
- Assistant for easy handling: solve standard tasks quickly on your own.
- Apply different load steps and magnifications in



USB camera 5 Megapixels

The high resolution 5 Megapixels USB camera achieves high quality pictures which are needed for the best auto measurement.

It enlarges the optical measuring range enormously due



Operating system

KB Hardwin XL supports Windows XP, Vista (32 bit), 7 (32 bit/ 64 bit) and 8. The use of a personal computer makes KB Hardwin XL network compatible.

Conversion tables

Conversion tables according to DIN 50150 and DIN EN ISO 18265 (without copper conversion) are basically included.

HB	Nmm²
HRC	Nmm²
HV	Nmm²

Data Management

Datenexport

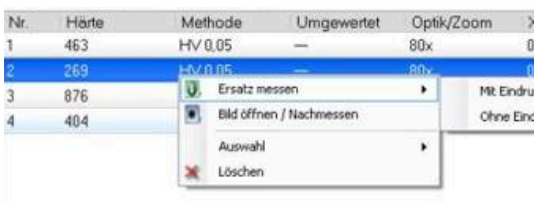
The data export is supported by **html, pdf, Excel, Word or txt.** Processing to SAP or Access is possible.

Scanner

KB Hardwin XL supports bar code scanner as well as QR code scanner.

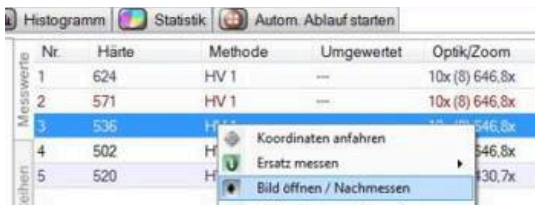
Thus, the sample data can easily be downloaded.

Post-editing and Archive



Measuring a substitution

There are three possibilities to re-measure an already existing indentation. Primarily, the image will be re-opened and then can be measured. The second possi-bility is to make a new picture of



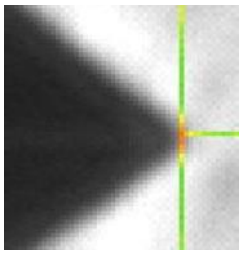
Fast access on filed test orders

Pictures and test values which belong to a previous test order can be re-adressed by one click.

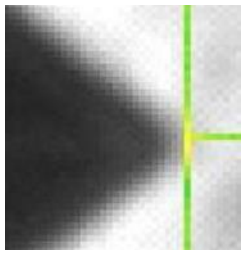
Evaluation

Operator independent manual measurement

Due to the **pixel-precise display** of the indentation picture and the **coloured measuring marks** each indentation is evaluated the same by each operator.



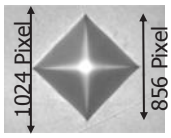
Rot: zu hart



Gelb: ok

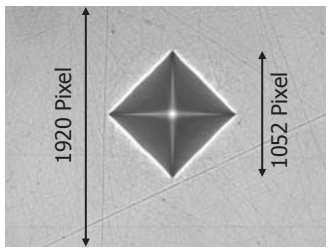
5 Megapixel camera (included)

The 5 MP camera allows measurements with highest precision. Due to the innovative technology the tradi-



80x objective

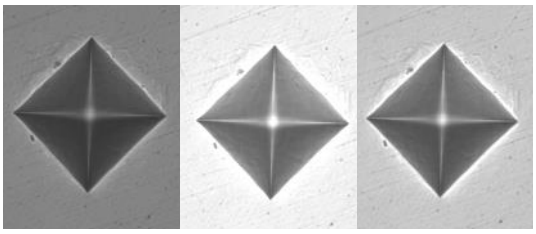
1,3 MP camera



40x objective; 5 MP camera

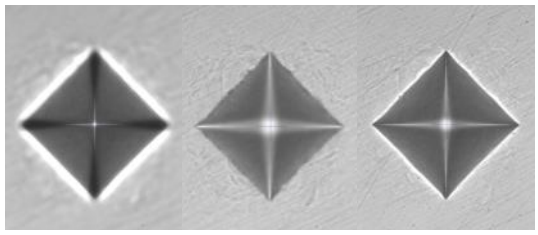
Automatic light control (optional for Video and SA)

High reproducibility and precision with the KB light control since the optimal illumination is adjusted without operator influence. This is especially important at automatic test procedures when the sample surface or the magnification are changing.

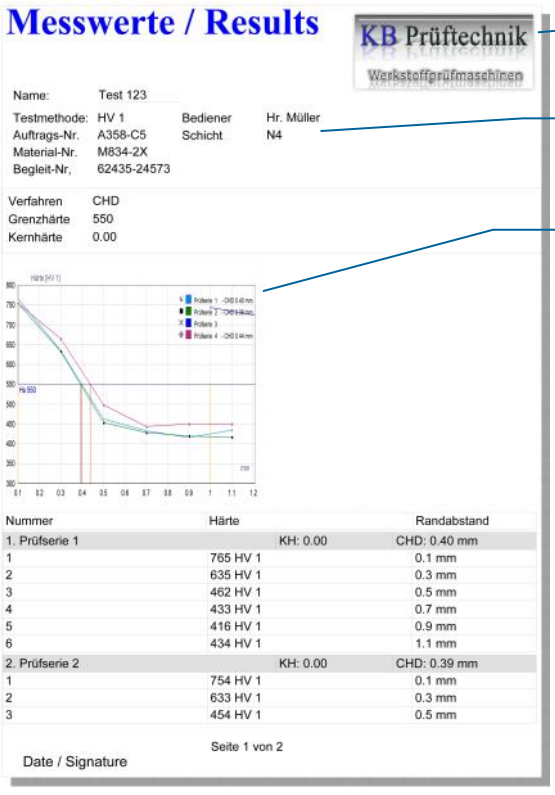


Unique auto focus (optional for Video and SA)

The KB auto focus works reliably, quickly and precisely. The correct position does not need to be set by the operator at first.



Test Report



Messwerte / Results

KB Prüftechnik
Werkstoffprüfmaschinen

Name:	Test 123		
Testmethode:	HV 1	Bediener	Hr. Müller
Auftrags-Nr.	A358-C5	Schicht	N4
Material-Nr.	M834-2X		
Begleit-Nr.	62435-24573		
Verfahren	CHD		
Grenzhärte	550		
Kernhärte	0.00		

Nummer	Härte	Randabstand
1. Prüfserie 1	KH: 0.00	CHD: 0.40 mm
1	765 HV 1	0.1 mm
2	635 HV 1	0.3 mm
3	462 HV 1	0.5 mm
4	433 HV 1	0.7 mm
5	416 HV 1	0.9 mm
6	434 HV 1	1.1 mm
2. Prüfserie 2	KH: 0.00	CHD: 0.39 mm
1	754 HV 1	0.1 mm
2	633 HV 1	0.3 mm
3	454 HV 1	0.5 mm

Seite 1 von 2

Date / Signature

Customized logos can be embedded

Number and content of the property labels are freely adjustable.

Diagrams and patterns can be integrated in the report.

The test reports can be freely adjusted by the report generator.

KB includes the report generator in each software packet including standard report types. Special test report types can be programmed on request.

The test reports can also be programmed by the operator if required.

The file format of the test report can be chosen between PDF, Excel, RTF, JPEG, PNG, EMF, TTY, CSV, XML etc.

Software Options

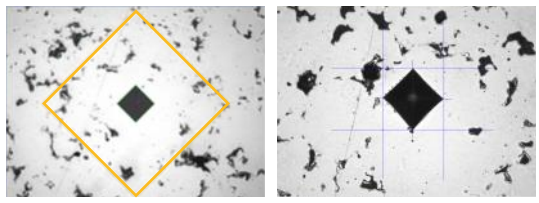
Part recognition „Reco Jet"

- After the scanning the right previously saved counter line will be recognized
- Position and angle will be identified accurately
- The pattern will be applied automatically on the right sample coordinates
- Extensive time saving since the pattern of samples has to be generated only one time.



Sinter testing

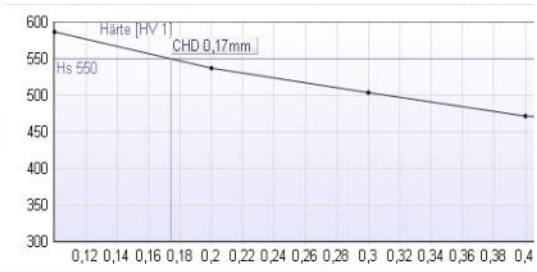
- CHD tests on sinter material
- Average-value curve is supported
- Automatic elimination of minimum and maximum values
- Interactive elimination of disadvantageously set indentations
- Indentation coordinates will be interactively checked and can be corrected
- Visualisation of the expected indentation size and the acc. to standard allowed distance to the



Pattern test

Fully automatic pattern test without any operator influence.

Time saving: The core hardness can be defined. If this value is reached, an adjustable number if indentations will be set before the test procedure will be completed.



Quicklink

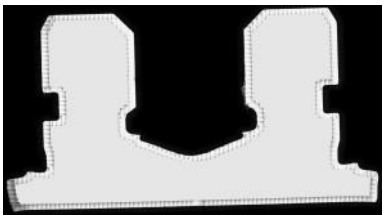
Adjust all test series of one pattern with one click. Orientation on significant points such as symmetry points, reference points, bench marks or pivotal points.



Scanning with KB Hardwin XL and the KB auto X/Y-stage

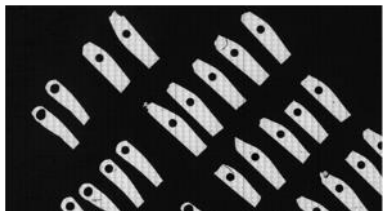
Contour scan with the microscope camera:

Just the outline contour of the sample will be scanned with the microscope camera. The single pictures will be automatically assembled.



Area scan with the microscope camera:

The complete sample will be scanned with the microscope camera. The size of the scan area can be freely chosen. The single pictures will be automatically as-



Technical Data

Resolution of the objectives with 5 MP camera

Objective	Resolution	KBW 1-V	KBW 2-V	KBW 10-V	KBW 50-V
5x	0,48	○	○	○	○
10x	0,24	■	■	■	■
20x	0,12	○	○	○	○
40x	0,06	■	■	■	○
80x	0,03	○	○	○	○

■ Standard

○ Optional

The KBW hardness tester can be equipped with 1, 2, 3 or 4

Attention:

If the resolution is smaller than 0,2 µm, also diagonals smaller 40 µm can be measured acc. to standard.

Load step range

Machine type	Load range
KBW 1-V	0,01 - 1 [kgf]
KBW 2-V	0,025 - 2 [kgf]
KBW 10-V	0,5 - 10 [kgf]
KBW 50-V	1 - 50 [kgf]

Dimensions

Machine type	KBW 1-V	KBW 2-V	KBW 10-V	KBW 50-V
Weight	43 kg	43 kg	83 kg	83 kg
Throat	118 mm	118 mm	160 mm	160 mm
Test height * without	90 mm	90 mm	200 mm	200 mm
Resolution Z-axis	0,005 µm	0,005 µm	0,005 µm	0,005 µm

Load steps

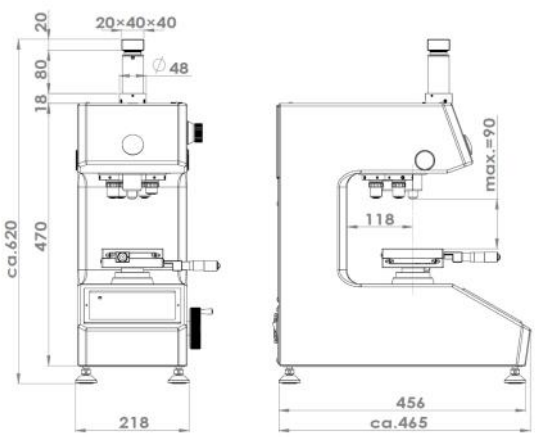
Vickers acc. to DIN EN ISO 6507 and ASTM E 384

Load step	0,01	0,025	0,05	0,1	0,2	0,3	0,5	1	2	3	5	10	20	30	50
KBW 1	■	■	■	■	■	■	■	■							
KBW 2		■	■	■	■	■	■	■	■						
KBW 10							■	■	■	■	■	■			
KBW 50								■	■	■	■	■	■	■	■

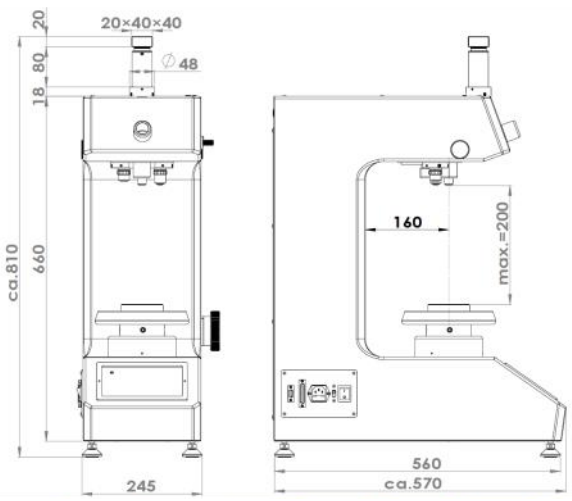
Knoop (optional) acc. to DIN EN ISO 4545 and ASTM E 384

Load step	0,01	0,025	0,03	0,05	0,1	0,2	0,3	0,5	1
KBW 1	■	■	■	■	■	■	■	■	■
KBW 2		■	■	■	■	■	■	■	■

KBW 1-V and KBW 2-V



KBW 10-V and KBW 50-V



Machine Variations and Options

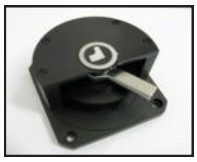
Legend	
Symbol	Meaning
-	Not applicable
X	Included
O	Option

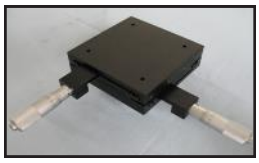
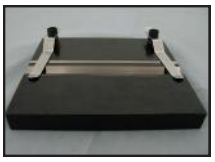
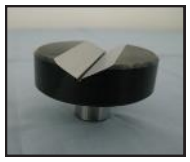


	Video	SA	FA Basic
Hardware			
5 Megapixel USB camera	X	X	X
Test table KBW 1/2-V	Manual X/Y-stage 110x110 mm, 25x25 mm movement	Auto X/Y-stage 100x100mm movement	Auto X/Y-stage 100x100mm movement
Test table KBW 10/50-V	Diameter 80 mm	Auto X/Y-stage 100x100mm movement	-
Software			
Automatic evaluation acc. to Vickers and Knoop	O	O	X
Multi Sampling	-	O	O
Part recognition „Reco Jet"	-	O + Scanning	O + Scanning
Scanning	-	O + Autofokus	O
Auto focus	O	O	X
Manual CHD pattern	O	-	-
Graphical editor	-	X	X
Quick Link	-	O + Scanning	O + Scanning
Light control	O	O	X
Welding test	-	O + Scanning	O + Scanning
Geometrical tools	-	O + Scanning	O + Scanning
Sinter	-	-	O
AMS interface	O	O	O

Options:

- Option Knoop with separate measuring objective: The indentation of Knoop as well as Vickers are displayed centric.
- DKD-certificate for the indenters
- Additional objectives 5x, 40x or 80x
- Measuring ocular and operation panel of the hardness tester for the operation without PC, switchable.
- Multiple accessories such as bench vices, precision holder, sample holder for imbedded samples etc.



Your Representative



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Information with reservation

KBW 1-50-V Video, SA, FA-eng - 11-2016