



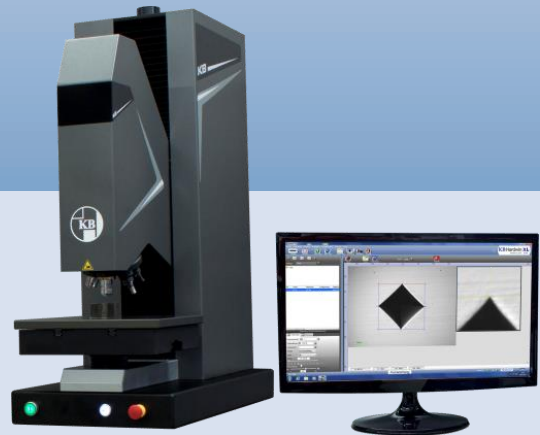
# Universal Hardness Testing Machines



**KB 250 BVRZ Standalone**



**KB 750 FA Fully Automatic**



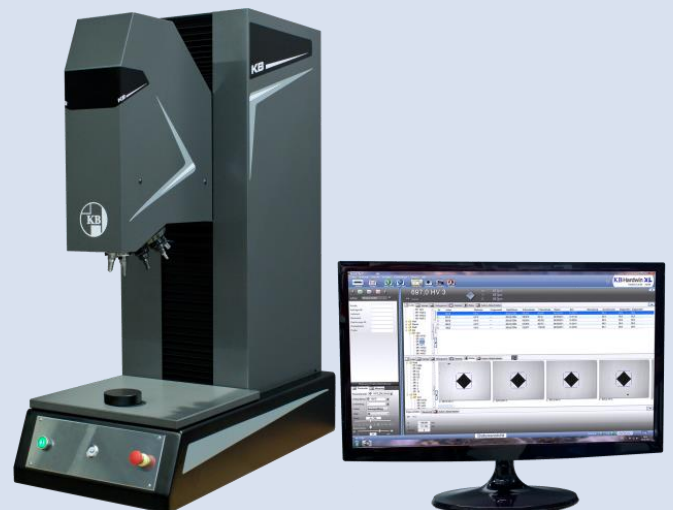
**KB 250 MHSR FA Universal Fully Automatic**



**KB 3000 BVRZ Standalone**



**KB 3000 Video**



**KB 750 MHSR Video Universal Single Measurement**

**Universal Hardness Testing Machines**



**KB 250 - 3000 BVRZ Standalone**  
**Hardness Testing from 0,2 kgf - 3000 kgf**



**KB 250 BVRZ Standalone**



**KB 3000 BVRZ Standalone**

**KB 250 - 3000 BVRZ**  
Standalone

Universal  
Hardness Testing Machine

Vickers  
Knoop  
Brinell  
Rockwell

## Universal Hardness Testing Machine KB 250 - 3000 BVRZ Standalone



- Standard 7x optical zoom: Highest measuring range with only one objective
- Evaluation manually via high resolution display
- Optional automatic evaluation
- Pixel by pixel evaluation via digital hand wheel
- Simplest operation via front panel and digital hand wheel
- No contamination of the screen due to touchscreen operation
- Simple change of the indenter because of the magnetic indenter holder
- Throat 250 mm
- Test room height:
 

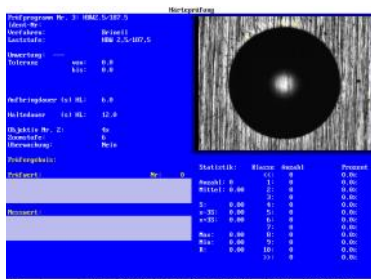
KB 250/ 750/ 1000	Standard: 320 mm
	Optional: 560, 700, 800 mm
KB 3000	Standard: 350 mm
	Optional: 560, 700 mm

### Options:

- Ring light: Dark field illumination for the correct evaluation of Brinell indentations
- Automatic 6-fold turret for up to 2 objectives and 4 indenters
- Motorized spindle drive
- Optional test room extension
- Huge variety on objectives and indenters
- XL Load: Load step extension to increase the measuring range

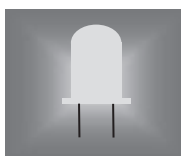
## Machine Performance

**Short training time** on the machine: The simple menu navigation allows starters to test after a short training time.

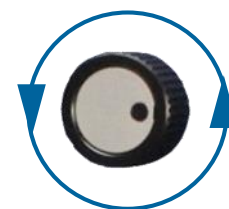


### LED Illumination

The optical evaluation works with **LED illumination**. LED illumination is **cost saving** since it provides a high duration of life (more than 10 years).

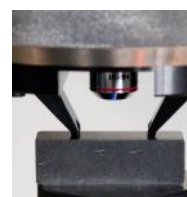


**Intuitive handling** by digital hand wheel



### Clamping Device

The KB clamping device uses movable holding-down fingers. Therefore samples off 10 mm can be clamped. Objectives with ring light can be changed **without** removing the clamping device.



Big samples

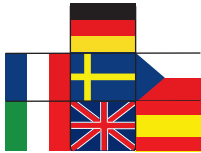


Small samples

**Machine Performance**

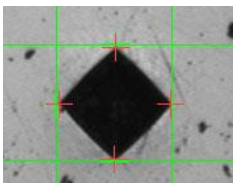
**Language Selection**

Freely switchable language selection:  
German, French, Swedish, Czech, Italian, English, Spanish



**Automatic evaluation**

- Optional automatic evaluation
- Brinell, Vickers, Vickers with ring light and Brinell with ring light will be automatically measured



**Video Panel**

- Easy handling via approved video panel with statistic overview
- Huge LCD colour display
- Most precise measurement by the use of the digital hand wheel



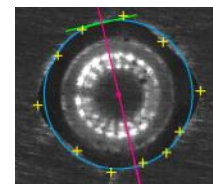
**Conversion Tables**

Conversion tables according to DIN EN ISO 18265 (without copper conversion) are included in the standard machine.

HB	Nmm <sup>2</sup>
HRC	Nmm <sup>2</sup>
HV	Nmm <sup>2</sup>

**Rotating measuring marks for Brinell**

Buckled indentations can be evaluated manually with the rotating measuring marks. The operator defines three points which calculate the circular indentation.

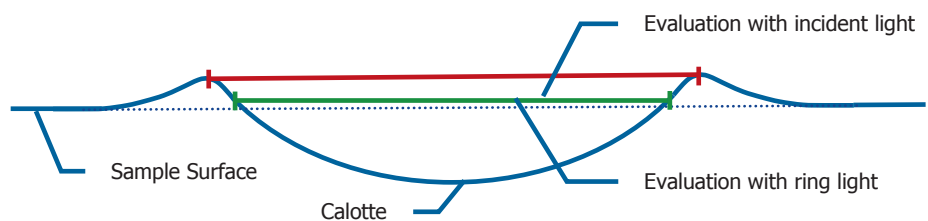
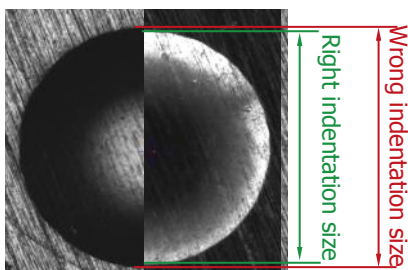


**Magnetic Indenter Holder**

- Tool-less indenter change
- No operator influence
- Minimized setting effects after the indenter change
- Retrofit possible

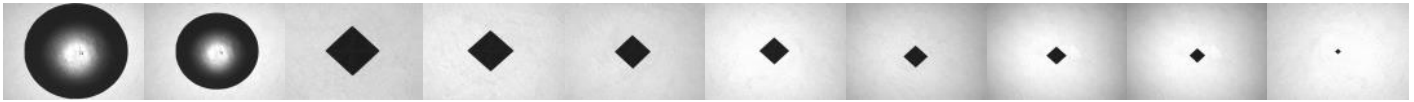


**KB Ring Light - Dark Field Illumination for Brinell and Vickers**



The KB ring light became irreplaceable in Brinell hardness testing. By the use of the patented dark field illumination even indentations on soft material will be evaluated correctly by presenting the indentation bright and the surface of the sample dark. The actual indentation becomes visible by the use of the indirect illumination, not the reflection of the bank which was accumulated during the test (see picture above). Furthermore the dark field illumination allows testing on samples with not optimal surface quality.

## KB Optical Zoom



### Optical magnification

The KB 250 - 3000 BVRZ Standalone hardness testing machines are equipped with the **KB optical zoom** (10 steps, 1:7 magnification). The optical zoom enlarges optically, not digitally. This provides a high picture quality even in big enlargements.

### Time and cost saving

The **KB optical zoom** reduces costs since it can **replace several objectives**. The objective change partially falls out completely

### Testing according to standards (DIN EN ISO, ASTM)

The KB optical zoom allows testing according to the standards for a **huge test load range**.

#### KB 3000 Standalone: Measuring Range Optics 0,44 Mp CCD 2/3" camera; 758x580 Pixels

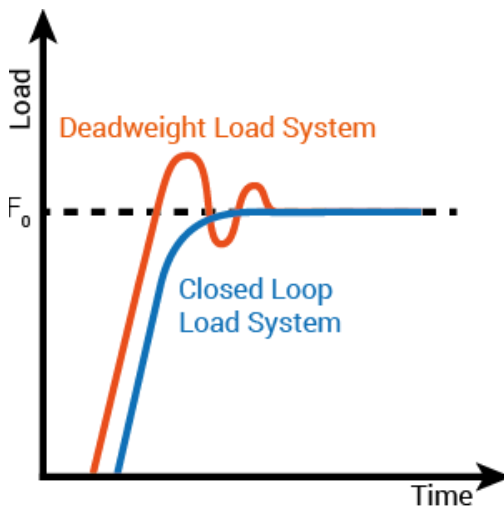
Objective	Optical Measuring Range	Min.	Max.	Resolution
4x (Standard)	421 HV 10 - 252 HB 10/ 3000	210 µm	3820 µm	1,05 µm
10x	263 HV 1 - 404 HB 5/ 750	84 µm	1520 µm	0,42 µm

#### KB 250– KB 1000 Standalone: Measuring Range Optics 0,44 Mp CCD 1/2" camera; 758x580 Pixels

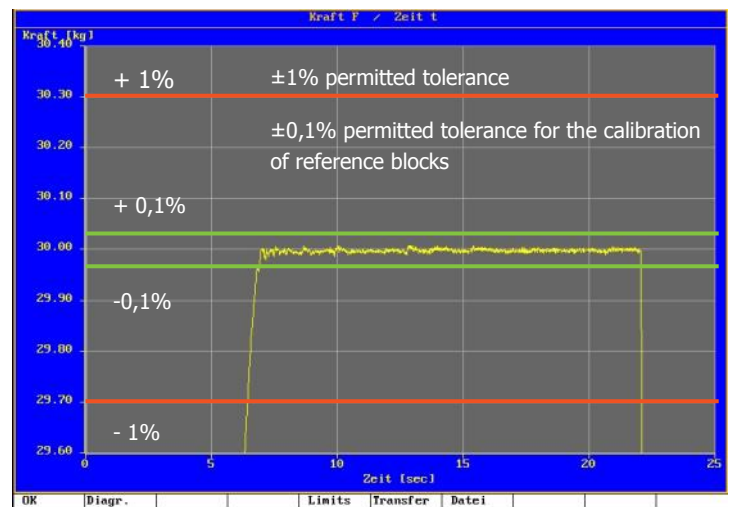
Objective	Optical Measuring Range	Min.	Max.	Resolution
4x (Standard)	824 HV 10 - 116 HB 5/ 750	150 µm	2750 µm	0,75 µm
10x	515 HV 1 - 180 HB 2,5/ 187,5	60 µm	1149 µm	0,3 µm
20x	618 HV 0,3 - 190 HV 30	30 µm	540 µm	0,15 µm

## What does load control mean?

- Load control is the load application controlled by one load cell:**  
 Due to the closed loop system the KB 250 - 3000 series achieves a high precision test load range from 0,2 kgf to 3000 kgf without load variation.
- Maximum Precision:**  
 The KB hardness testing machines apply the load controlled by a closed loop system. The **controlled load application** provides more accurate loads compared to a position controlled load application because the load will be supervised during the complete test procedure.
- Load application times: Flexible and according to the standard**  
 The load application time can be **individually adjusted**.
- Advantages compared to a deadweight system:**  
 In the closed loop load system the test load which is applied on the indenter will be constantly measured and adjusted.
- No overshoot behaviour**  
 The load overshoot behaviour is eliminated since the closed loop system controls the load application.



Systematical comparison deadweight to load controlled system



Load control on a KB 250 with 30 kgf

**Load Steps and Testing Procedures (controlled by one load cell)**



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

Load Step:	0,2	0,3	0,5	1	2	3	5	10	20	30	50	100	120
Type:													
KB 250													
KB 750													
KB 1000													
KB 3000													



**Brinell** acc. to DIN EN ISO 9506 and ASTM E 10

Load Step:	1/1	1/2,5	1/5	1/10	1/30	2,5/6,25	2,5/15,625	2,5/31,25	2,5/62,5	2,5/187,5
Type:										
KB 250										
KB 750										
KB 1000										
KB 3000										

Load Step:	5/25	5/62,5	5/125	5/250	5/750	10/100	10/125	10/250	10/500	10/1000	10/1500	10/3000
Type:												
KB 250												
KB 750												
KB 1000												
KB 3000												



**Knoop** acc. to DIN EN ISO 4545

Load Step:	0,2	0,3	0,5	0,6	0,7	0,8	0,9	1	2	3	5	10
Type:												
KB 250												
KB 750												
KB 1000												
KB 3000												

**Legend:**

	Standard
	Incl. option XL load
	Not acc. to standards

Further load steps on request



**Rockwell** acc. to DIN EN ISO 6508 and ASTM E 18

Suitable to all Rockwell testers: KB 250 - 3000 BVRZ

**Extremely high Rockwell resolution: 0,0125 HRC**

Every single Rockwell testing procedure can be calibrated by the operator. The Rockwell testing procedures have to be calibrated after an indenter change to reduce the influence of the indenter on the test value, The Rockwell calibration is protected by a pass word.

HRA- HRB- HRC- HRD- HRE- HRF- HRG- HRH- HRK- HRL- HRM- HRP- HRR- HRS- HRV	HR 15/ 30/ 45 W
HR 15/ 30/ 45 N	HR 15/ 30/ 45 X
HR 15/ 30/ 45 T	HR 15/ 30/ 45 Y



**Ball Indentation Hardness** acc. to DIN ISO 2039 T1 for plastics

Suitable to all Rockwell testers: KB 250 - 3000 BVRZ

Due to the use of a controlled load system for all load steps, accuracy and repeatability is achieved on a very high level.  
Load overshoot behaviour as it appears on dead weight machines does not show.



## Test Load Range

<b>KB 250</b>	0,5 kgf– 250 kgf
<b>KB 250 + Option XL Last</b>	0,2 kgf– 187,5 kgf
<b>KB 250 + Option XL Last</b>	0,3 kgf– 250 kgf
<b>KB 750</b>	1 kgf– 750 kgf
<b>KB 1000</b>	3 kgf– 1000 kgf
<b>KB 3000</b>	5 kgf– 3000 kgf

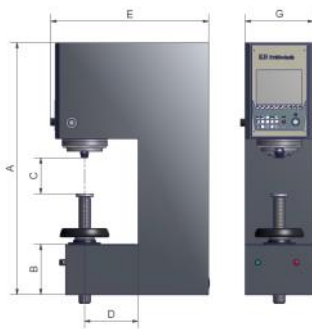
## Equipment, Options and Accessories

Legend	
Symbol	Explanation
X	Including
O	Optional

KB Universal Hardness Testing Machine	KB 150 R	KB 250 BVRZ	KB 250 BVZ	KB 750 BVRZ	KB 750 BVZ	KB 1000 RE	KB 3000 BVRZ	KB 3000 BVZ
Catalog number	1047	846	1051	1066	1067	1316	1054	1048
Test load range [kgf]	0,5-250	0,5-250	0,5-250	1-750	1-750	3-1000	5-3000	5-3000
Brinell ISO 6506		X	X	X	X		X	X
HB depth measurement	X	X		X		X	X	
Vickers ISO 6507		X	X	X	X		X	X
HV depth measurement	X	X		X		X	X	
Rockwell ISO 6508	X	X		X		X	X	
Rockwell ISO 6508 Super Rockwell	X	X		X		X	X	
Ball indentation hardness ISO 2039 T1	X	X		X		X	X	
Test table [mm] (further test tables on request)	Ø 80	Ø 80	Ø 80	Ø 80	Ø 80	Ø 80	Ø 148	Ø 148
KB optical zoom		X	X	X	X		X	X
Motorized spindle drive	O	O	O	O	O	O	O	O
Ring light dark field illumination		O	O	O	O		O	O
Clamping device	X	X	X	X	X	X	X	X
Auto turret 6-fold (clamping device optional)	O	O	O	O	O	O	O	O
Objective 4x for HV 10– HB 5/750		X	X	X	X		X	X
Objective 10x for HV1– 200 HB 2,5/ 187,5		O	O	O	O		O	O
Objective 20x for HV 0,2– HV 30		O	O	O	O		O	O
Automatic Evaluation		O	O	O	O		O	O
Brinell Ball indenter		O	O	O	O		O	O
Vickers Diamond indenter		O	O	O	O		O	O
Rockwell Diamond indenter	O	O		O		O	O	
Indenter for ball indentation DIN ISO T1	O	O	O	O		O	O	
XL load load step extension		O	O					

**Machine Dimensions - indication in [mm]**

	KB 250	KB 250	KB 250	KB250	KB 1000	KB 1000	KB 1000	KB 3000	KB 3000
	KB 750	KB 750	KB 750	KB 750	Standard	Art. Nr.: 1228	Art. Nr.: 1630	Standard	Art. Nr.: 1254
	Standard	Art. Nr.: 1228	Art. Nr.: 1630	Art. Nr.: 1394					
<b>A</b>	1180	1430	1638	1738	1180	1430	1638	1285	1645
<b>B</b>	232	232	232	232	232	232	232	282	282
<b>C Test Room Height</b>	<b>320*</b> <b>(270)</b>	<b>560*</b> <b>(510)</b>	<b>700*</b> <b>(650)</b>	<b>800*</b> <b>(750)</b>	<b>320*</b> <b>(270)</b>	<b>560*</b> <b>(510)</b>	<b>700*</b> <b>(650)</b>	<b>350*</b> <b>(295)</b>	<b>700*</b> <b>(645)</b>
<b>D</b>	250	250	250	250	250	250	250	250	250
<b>E</b>	735	735	735	735	735	735	735	765	765
<b>G</b>	320	320	320	320	320	320	320	334	334
Weight [kg]	215	230	240	245	280 kg	290 kg	305 kg	418 kg	443 kg



\*Test room height without spindle protection, special size available on request.

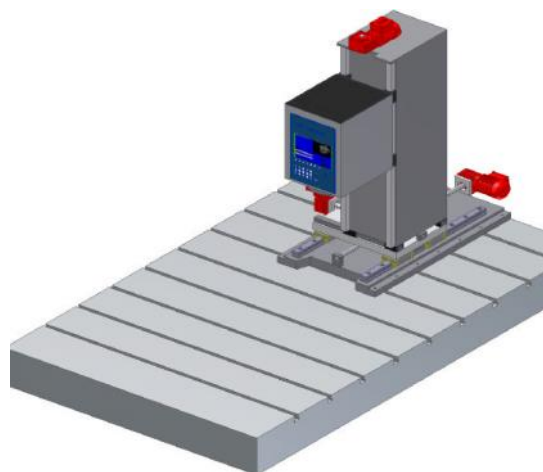
Test room height C including standard table Ø 80 mm or respectively Ø 148 mm.

( ) C including spindle protection.

**Maximum Sample Weight**

	KB 250	KB 750	KB 1000	KB 3000
<b>Manual spindle drive</b>	100 kg	100 kg	100 kg	250 kg
<b>Motorized spindle drive</b>	125 kg	125 kg	125 kg	200 kg

**Customized Solutions**



Due to our long-time experience in hardness testing and engineering we are able to find the suitable machine to your customized test procedure.

**Contact us!**



Your Representative



**KB Prüftechnik GmbH**  
Im Weichlingsgarten 10 b  
67126 Hochdorf – Assenheim

Tel: +49-6231 – 93992-0  
Fax: +49-6231 – 93992-69

Email: [info@kbprueftechnik.de](mailto:info@kbprueftechnik.de)  
Internet: [www.kbprueftechnik.com](http://www.kbprueftechnik.com)

Information with reservation.



PRÜFTECHNIK

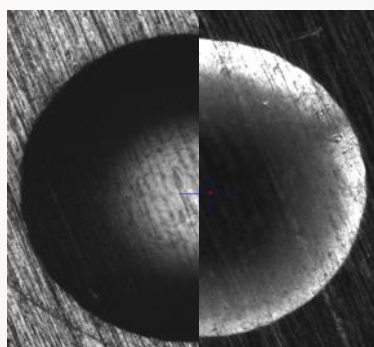
**KB 250-3000 VIDEO, SA, FA**  
**HARDNESS TESTING 0,2 kg - 3000 kg**



**KB 750 FA Fully Automatic**



**KB 3000 Video**






**KB 250-3000**  
**VIDEO, SA, FA**  
**Universal Hardness Testing Machines**

**KB 250**  
**KB 750**  
**KB 1000**  
**KB 3000**

**Vickers**  
**Knoop**  
**Brinell**  
**Rockwell**

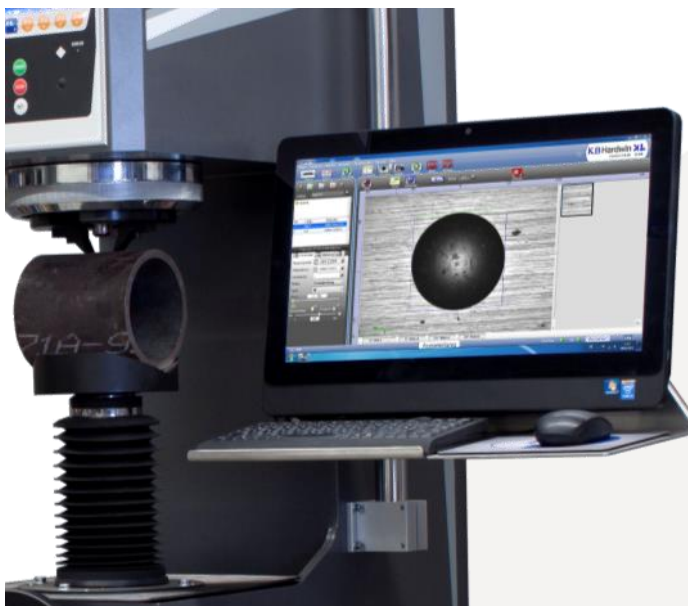
## Universal Hardness Testing Machine KB 250-3000 Video, SA, FA

VIDEO	SA (Semi Automatic)	FA (Fully Automatic)
		
Control via PC	Control via PC	Control via PC
Software KB Hardwin XL Video	Software KB Hardwin XL SA semi automat	Software KB Hardwin XL FA fully automat
5 MPs USB camera	5 MPs USB camera	5 MPs USB camera
7x optical zoom optional	7x optical zoom optional	7x optical zoom optional



The new generation of hardness testing machines from KB Prüftechnik GmbH convince by **extraordinary precision and reproducibility**. The user enters a whole new world of hardness testing by the use of the new hardness testing software KB Hardwin XL. The KB hardness testing machines can superiorly test **Brinell, Vickers, Rockwell and Knoop**.

New innovative developments allow new possibilities of automation which combines the function of a fully automatic machine and a universal hardness tester in one machine. The configuration levels combined with numerous additional options suit the KB hardness testing machines optimally to the operator's individual needs.



- High precision 1/2,5" 5 Megapixels camera 2500 x 2000
- Standard 4x digital zoom with 3 steps
- Clamping cap with flexible holding-down devices
- Automatic change of objective and indenter
- Magnetic indenter holder for the easy change of test tools
- Hardness testing software KB Hardwin XL
- Flexible configuration from single tests to fully automatic test procedures
- Data export to txt, Word, Excel, PDF
- Hierarchically structured user management
- Individually designable test reports
- Network capable
- Automatic load change

**Options:**

- Huge automatic X/Y-stage travel distance 300x200 mm for KB 250-1000 Semi and Fully
- Optional 7x optical zoom with 10 steps
- Optional auto turret with 6 positions for 2 objectives and 4 indenters
- Huge variety of indenters, test tables and sample supports (example see picture)

**Planning and operation**

**Menu navigation**

- Perfect test process by a clearly arranged and user-oriented menu navigation
- Apply different magnifications and load steps in one test procedure



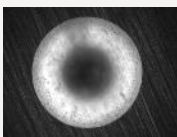
**USB camera 5 Megapixels**

The 5 Megapixels USB camera achieves high quality pictures which are essential for auto measurement. The 5 Megapixels camera enlarges the optical measuring range due to more picture information.



**Ring Light**

- Unique display of the Brinell and Vickers indentations in the darkfield illumination.
- The indentation looks white, the surface black. The edge is clearly displayed.
- Quick check of the indenter quality of Vickers and Rockwell indenters



**Load step change during one test procedure**

Different load steps and magnifications can be applied during one test procedure without breaking into the test process.

Histogramm Statistik Autom. Ablauf starten				
	Nr.	Härte	Methode	Umgewert
Messwerte	1	450	HV 5	---
	2	450	HV 5	---
	3	457	HV 5	---
IHM	4	842	HV 1	---
	5	717	HV 1	---

**Operating system**

KB Hardwin XL supports Windows XP, Vista (32 bit), 7 (32 bit/ 64 bit) and 10. The use of a personal computer makes KB Hardwin XL network compatible.



**Conversion tables**

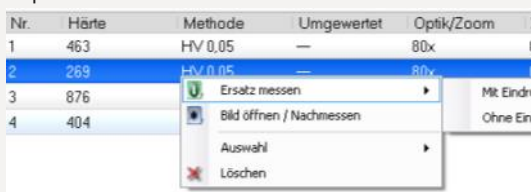
Conversion tables according to DIN 50150, DIN EN ISO 18265 (without copper conversion) and ASTM-140-T1-9-2007 are basically included.

HB	Nmm <sup>2</sup>
HRC	Nmm <sup>2</sup>
HV	Nmm <sup>2</sup>

**Post-editing and archive**

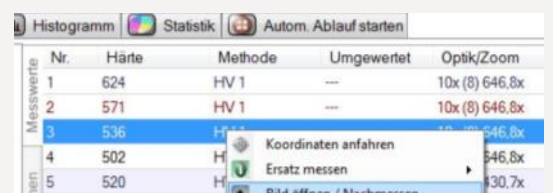
**Measuring a substitution**

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 possibility is to do a new picture of the old indentation on the live camera. Also a new indentation can be set on the sample. The new value replaces the old one.



**Fast access on filed test orders**

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

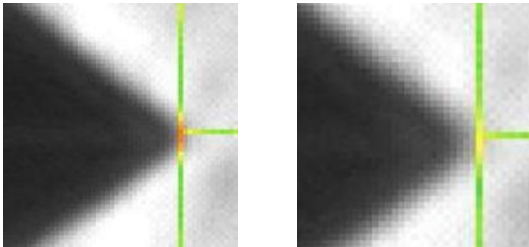




## Measurement

### 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.

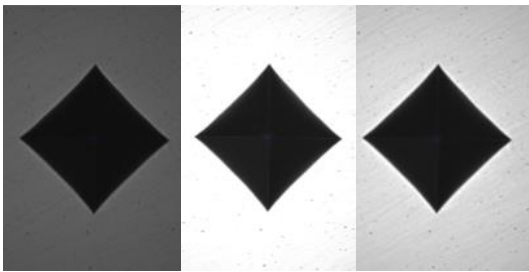


Red: too hard

Yellow: ok

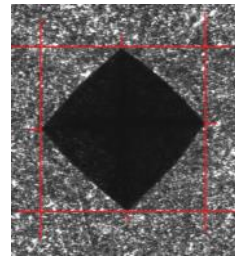
### Automatic light control

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

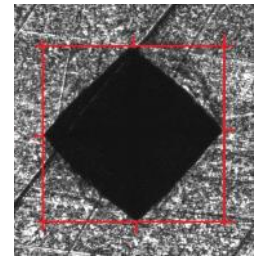


The improved automatic evaluation is now even more precise especially on not good surfaces.

Etched, sintered or scratched samples cannot interfere the automatic test procedure.



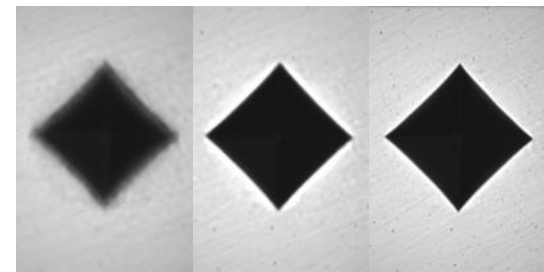
Etched surface



Scratched surface

### Unique auto focus

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



## Scanning with KB Hardwin XL and the KB X/Y auto 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 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 assembled.



## Data management

### Data export

The data export is supported by **html**, **pdf**, **Excel**, **Word** or **txt**.



### Scanner

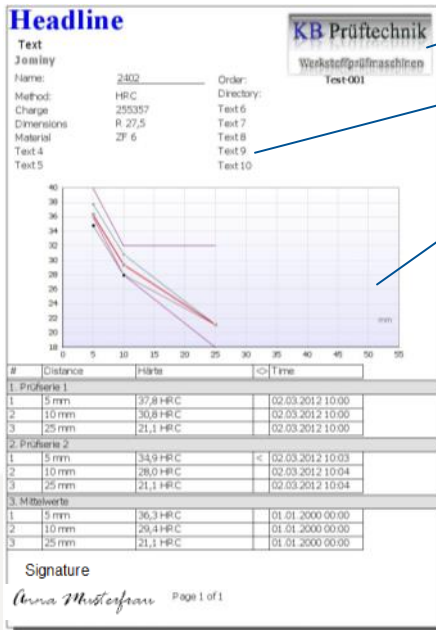
KB Hardwin XL supports bar code scanner as well as QR code scanner.

Thus, the sample data can be easily downloaded.



## Test Report

Example for a possible test report



Customized logos can be embedded

Number and content of the property labels are freely adjustable.

Diagrams and patterns can be integrated into the report.

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

KB includes the generator in each software packet with 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 report can be chosen between PDF, Excel, RTF, JPEG, PNG, EMF, TTY, CSV XML etc.

## Automated Data Management



Sample with bar or QR code on the lot slip



The code will be scanned and the saved order information and parameters will be downloaded of the ERP server.



The test order will be processed.



The measuring results will be exported and saved on the ERP server.



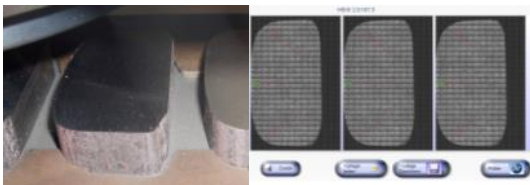


**Part Recognition Reco Jet**

- After the scanning the right previously saved counter line with pattern 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.


**Magazine**

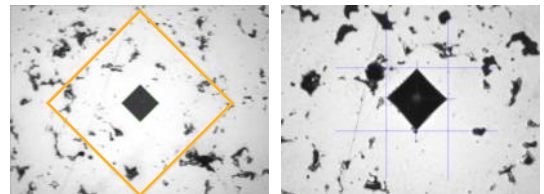
Customized magazine patterns can be programmed to test several samples of one kind.


**Jominy - end quench test**

The sample will be slightly grinded in longitudinal direction. Afterwards it will be positioned in the special sample holder and will be clamped. The hardness is measured alongside the test area. The hardenability follows of the hardness tests and the diagram which shows the hardening progress.


**Sinter testing**

- Average-values curve is supported
- Automatic elimination of min and max 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 standards allowed distance to the neighbour indentation

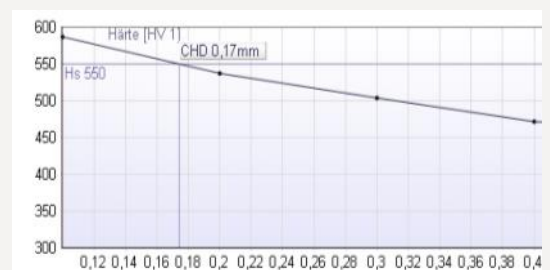

**Quicklink**

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.


**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 of indentations will be set before the test procedure will be completed.



## Accessories

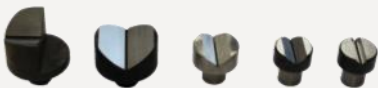
### Heat Exchanger

- For surrounding temperatures over 30°C
- For dirty environment
- Mounted on the backside of the machine



### Supports

Please contact our sales or service department concerning your special projects. We would like to help to find the perfect solution.



### Automatic Turret 6-fold

- 6 positions for 4 indenters and 2 objectives
- Automatic change of indenters and objectives
- Optional clamping cap with flexible holding down device for testing without clamping



### Manual X/Y stages

- Manual X/Y stage for KB 250, 25x25mm movement
- Manual X/Y stage for KB 250-750, 50x50mm movement
- Manual X/Y stage for KB 3000, 100x100mm movement

### Indenters

We do offer a huge variation of indenters. Please contact our sales or service department for any help.

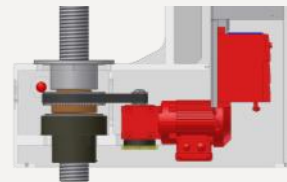


### Test Room Extension

Test room extension to 560 mm  
 Test room extension to 700 mm  
 Test room extension to 800 mm

### Motor Driven Spindle

- Comfortable lifting, even of heavy samples
- No manual hand drive
- Auto stop by clamping device



### Auto X/Y stages

- Auto X/Y stage for KB 150- 250, 180x180 movement
- Auto X/Y stage for KB 250, 300x200mm movement
- Auto X/Y stage for KB 250–1000, 300x200mm movement
- Auto X/Y stage for KB 3000, 300x200mm movement

## Load Steps (controlled by one load cell)

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

Load steps	0,2	0,3	0,5	1	2	3	5	10	20	30	40	50	60	80	100	120
KB 250																
KB 750																
KB 1000																
KB 3000																

**Knoop** acc. to DIN EN ISO 4545 and ASTM A 384

Load steps	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1	2	3	5	10
KB 250													
KB 750													
KB 1000													
KB 3000													

**Brinell** acc. to DIN EN ISO 6506 and ASTM E 10

Load steps	1/ 1	1/ 1,25	1/ 2,5	1/ 5	1/ 10	1/ 30	2,5/ 6,25	2,5/ 15,625	2,5/ 31,25	2,5/ 62,5	2,5/ 187,5	5/25	5/62,5	5/125	5/250
KB 250															
KB 750															
KB 1000															
KB 3000															

Load steps	5/ 750	10/ 100	10/ 125	10/ 250	10/ 500	10/ 1000	10/ 1500	10/ 3000
KB 250								
KB 750								
KB 1000								
KB 3000								

	Standard
	Including option XL Load
	Not acc. to standards

Further load steps on request.



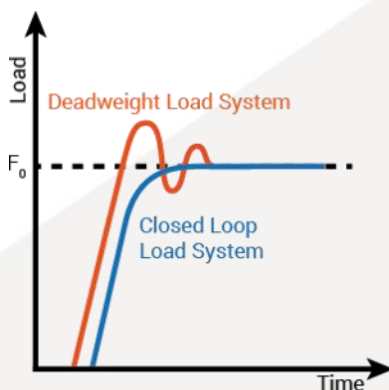
**Rockwell (optional)** acc. to DIN EN ISO 6508, ASTM D 785 and ASTM E 18  
**Super Rockwell**

HRA- HRB- HRC- HRD- HRE- HRF- HRG- HRH- HRK- HRL- HRM- HRP- HRR- HRS- HRV	HR 15/ 30/ 45 W
HR 15/ 30/ 45 N	HR 15/ 30/ 45 X
HR 15/ 30/ 45 T	HR 15/ 30/ 45 Y



**Ball indentation hardness** acc. to DIN ISO 2039 T1 for plastics

## Closed Loop Load Application



Systematically comparison deadweight to load controlled system

Due to the closed loop system the KB 250-3000 Video, SA, FA product range achieves a high precision test load range from 0,2 - 250 kgf without load variation.

**Maximum precision:**

The KB hardness testing machines apply the load controlled by a closed loop system. The **controlled load application** provides more accurate loads compared to a position controlled load application because the load will be supervised during the complete test procedure.

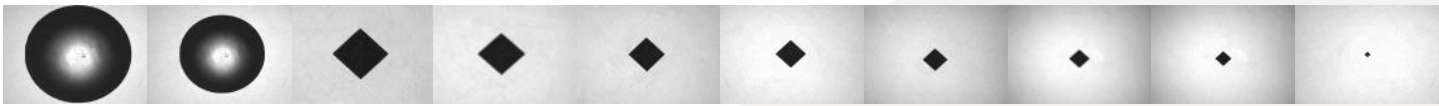
**Load application time: Flexible and according to the standard**

The application and the dwell time can be individually adjusted.

**Advantages compared to the deadweight system:**

In the closed loop system the test load which is applied on the indenter will be constantly measured and adjusted. The load overshoot behaviour is eliminated since the closed loop system controls the load application.

**KB optical zoom**



**Optical magnification**

The KB 250 MSHR is optionally equipped with the **KB optical zoom** (1:7 magnification in 10 steps). The optical zoom enlarges optically, not digitally. This allows a high picture quality, even in big magnifications.

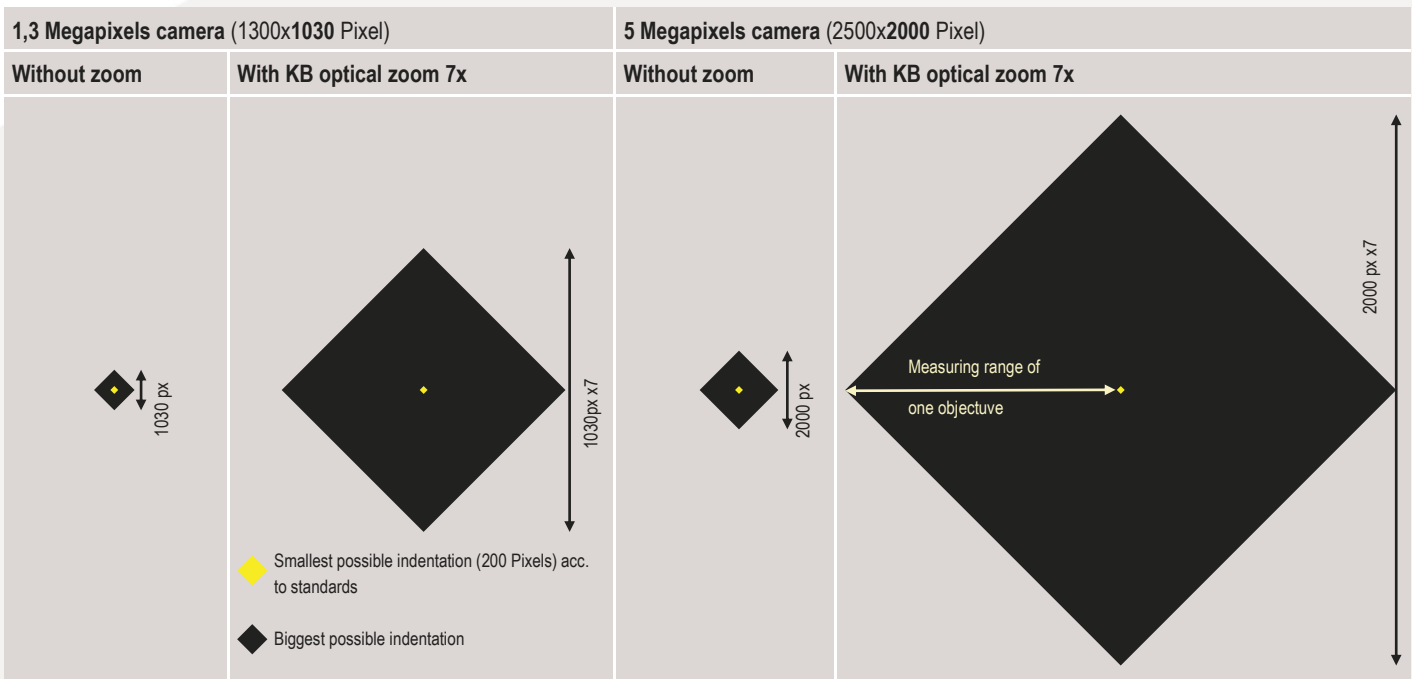
**Time and cost saving**

The KB optical zoom reduces costs since it can **replace up to 4 objectives**.

**Testing according to standards DIN EN ISO and ASTM**

The KB optical zoom allows testing acc.to standards of a **huge test load range**. The objective change falls away. By the use of the KB optical zoom a picture confirming to standards is always guaranteed.

**Systematical display of the measuring ranges of the different cameras**



**Overview optical measuring range with the 5 Megapixels camera**

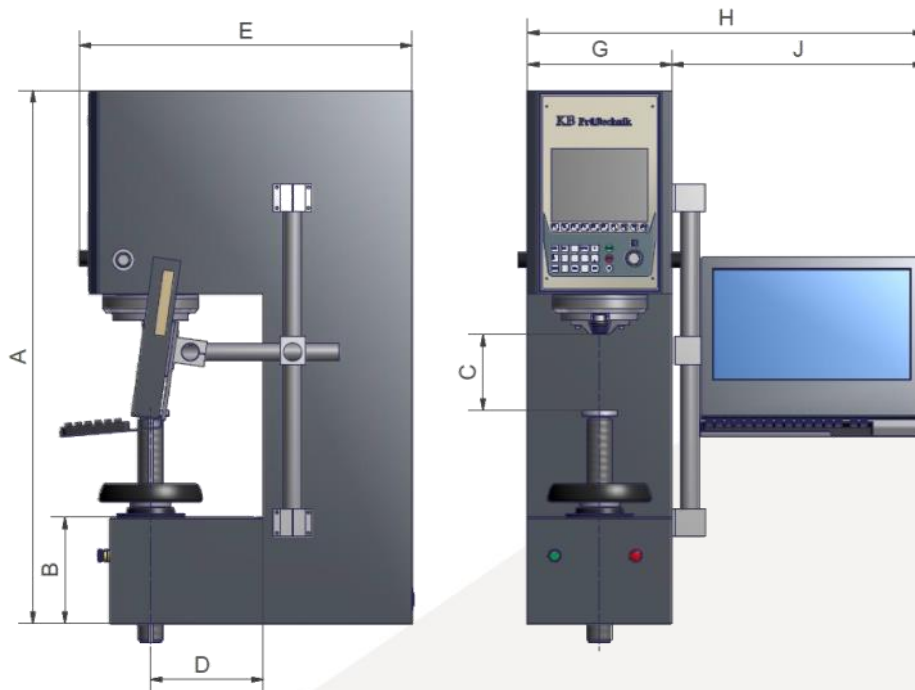
Hardness tester:	250		750		1000		3000	
	Min	Max	Min	Max	Min	Max	Min	Max
<b>Optical measuring range with <u>digital</u> zoom</b>								
4x objective Standard KB 750, 1000, 3000	HV 20 (100µm)	HB 5/250 (3800µm)	HV 20 (100µm)	HB 5/250 (3800µm)	HV 30 (140µm)	HB 10/1000 (5300µm)	HV 30 (140µm)	HB 10/3000 (5300µm)
10x objective Standard KB 250	HV 2 (60µm)	HB 2,5/187,5 (1500µm)	HV 2 (60µm)	HB 2,5/187,5 (1500µm)	HV 3 (56µm)	HB 5/750 (2100µm)	HV 5 (56µm)	HB 5/750 (2100µm)
20x objective	HV 0,5 (20µm)	HV 50 (750µm)	HV 0,5 (20µm)	HV 50 (750µm)	-	-	-	-
<b>Optical measuring range with <u>optical</u> zoom</b>								
4x objective Standard KB 1000, Standard 3000	800 HV 3 (85µm)	HB 5/250 (5000µm)	1200 HV 10 (120µm)	HB 5/750 (6000µm)	1200 HV 10 (120µm)	35 HB 10/1000 (6000µm)	1200 HV 10 (120µm)	95 HB 10/3000 (6000µm)
10x objective Standard KB 250, 750	750 HV 0,5 (35µm)	80 HB 5/250 (2500µm)	740 HV 1 (50µm)	143 HB 5/750 (2500µm)	740 HV 1 (50µm)	143 HB 5/750 (2500µm)	740 HV 1 (50µm)	143 HB 5/750 (2500µm)
20x objective	2000 HV 0,5 (17µm)	100 HV 50 (970µm)	1500 HV 0,5 (25µm)	140 HB 2,5/187,5 (1250µm)	1500 HV 0,5 (25µm)	140 HB 2,5/187,5 (1250µm)	1500 HV 0,5 (25µm)	140 HB 2,5/187,5 (1250µm)

## Machine Dimensions - Indication in [mm]

	KB 250 KB 750 KB 1000 Standard	KB 250 KB 750 KB 1000 Art. Nr.: 1228	KB 250 KB 750 KB 1000 Art. Nr.: 1630	KB 250 KB 750 KB 1000 Art. Nr.: 1394	KB 3000 Standard	KB 3000 Art. Nr.: 1254
<b>A</b>	1180	1430	1638	1738	1290	1645
<b>B</b>	232	232	232	232	282	282
<b>C</b> Test room height	320* (270)	560* (510)	700* (650)	800* (750)	350* (295)	700* (645)
<b>D</b>	250	250	250	250	250	250
<b>E</b>	736	736	735	735	797	797
<b>G</b>	320	320	320	320	334	334
<b>H (flexible)</b>	880-950	880-950	880-950	880-950	880-950	880-950
Weight	225 kg	240 kg	250 kg	255 kg	418 kg	443 kg

\*Test room height C without spindle protection and X/Y stage, special dimensions on request.  
Test room height C including standard test table.

() C including spindle protection.

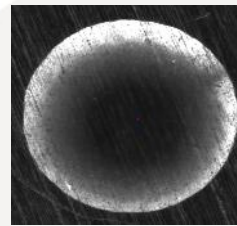


## Technical Data

Hardness testing machine:	KB 250	KB 750	KB 1000	KB 3000
Max. sample weight	100 kg	100 kg	100 kg	250 kg
Max. sample weight incl. X/Y stage	25 kg	50 kg	25 kg	25 kg
Throat depth	250 mm	250 mm	250 mm	250 mm
Durability of the LED light	> 10 years	> 10 years	> 10 years	> 10 years
Magnification optical zoom	1:7 in 10 steps	1:7 in 10 steps	1:7 in 10 steps	1:7 in 10 steps
Weight without auto X/Y stage	ca. 235 kg	ca. 245 kg	ca. 250 kg	ca. 440 kg
Weight with auto X/Y stage	ca. 244 kg	ca. 268 kg	ca. 305 kg	ca. 495 kg
Supply voltage	230 VAC, 3 A	230 VAC, 3 A	230 VAC, 3 A	230 VAC, 3 A

## Configuration levels and options

Legend	
Symbol	Meaning
-	Not applicable
X	Including
O	Option



	Video		SA		FA Basic		FA	
	KB 250-750	KB 1000-3000	KB 250-750	KB 1000-3000	KB 250-750	KB 1000-3000	KB 250-750	KB 1000-3000
<b>Hardware</b>								
5 Megapixels USB camera	X	X	X	X	X	X	X	X
Test table	Diameter 80 mm	Diameter 148 mm	Auto X/Y stage 180x180 mm movement	Auto X/Y stage 300x200 mm movement	Auto X/Y stage 180x180 mm movement	Auto X/Y stage 300x200 mm movement	Auto X/Y stage 180x180 mm movement	Auto X/Y stage 300x200 mm movement
Load range [kgf]	0,5 - 250 1 - 750	3 - 1000 5 - 3000	0,5 - 250 1 - 750	3 - 1000 5 - 3000	0,5 - 250 1 - 750	3 - 1000 5 - 3000	0,5 - 250 1 - 750	3 - 1000 5 - 3000
Optional load range (XL Last) [kgf]	0,2 - 187,5 0,3 - 250	-	0,2 - 187,5 0,3 - 250	-	0,2 - 187,5 0,3 - 250	-	0,2 - 187,5 0,3 - 250	-
Load step extension	O	-	O	-	O	-	O	-
Option Rockwell	O	O	O	O	O	O	O	O
<b>Software</b>								
Auto measurement for Vickers and Knoop incl. light control and auto focus	O	O	O	O	X	X	X	X
Auto measurement for Brinell incl. light control and auto	O	X	O	X	X	X	X	X
Multi Sampling	-	-	O	O	O	O	X	X
Part recognition	-	-	O + Scanning	O + Scanning	O + Scanning	O + Scanning	X	X
Scanning	-	-	O + Auto focus	O + Auto focus	O	O	X	X
Auto focus	O	O	O	O	X	X	X	X
Manual CHD Test	O	O	-	-	-	-	-	-
Graphical Editor	-	-	X	X	X	X	X	X
Quick Link	-	-	O + Scanning	O + Scanning	O + Scanning	O + Scanning	X	X
Light Control	O	O	O	O	X	X	X	X
Welding Option	-	-	O + Scanning	O + Scanning	O + Scanning	O + Scanning	X	X
Geometrical Tools	-	-	O + Scanning	O + Scanning	O + Scanning	O + Scanning	X	X
Sinter	-	-	-	-	O	O	O	O
AMS interface	O	O	O	O	O	O	O	O





## KB Prüftechnik GmbH - Your partner in matters of testing technology

The company KB Prüftechnik was founded in November 1997 by the former Wolpert development engineers Claus Keßler and Peter Beisel.

The acquisition of the hardness testing and pendulum department of the company Karl Frank happened in the year 1999.

The following years numerous modernizations of testing machines and new developments of hardness and spring testing machines with own machine control electronic and software were realized.

Since 2011 KB Prüftechnik GmbH receives its DAkkS certification ISO 17025.



**KB Prüftechnik GmbH**  
Im Weichlingsgarten 10 b  
67126 Hochdorf – Assenheim

Tel: +49-6231 – 93992-0  
Fax: +49-6231 – 93992-69

Email: [info@kbprueftechnik.de](mailto:info@kbprueftechnik.de)  
Internet: [www.kbprueftechnik.com](http://www.kbprueftechnik.com)

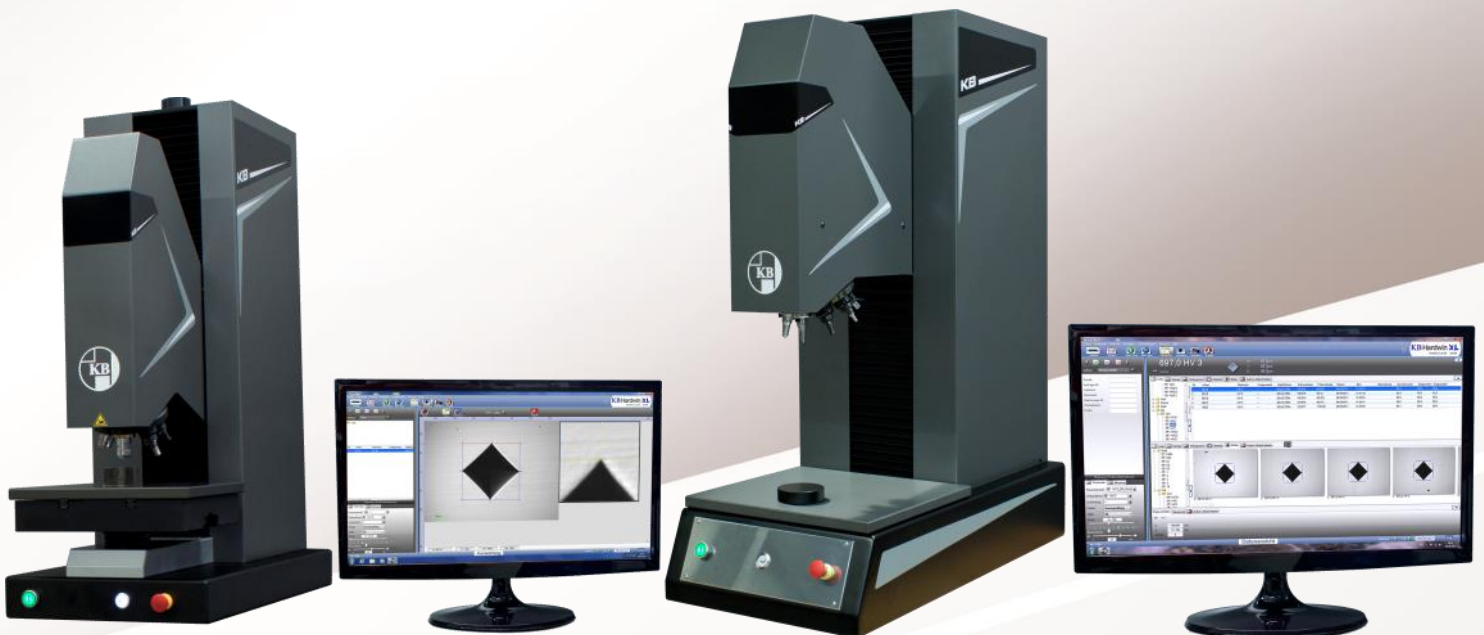
Information with reservation.



PRÜFTECHNIK

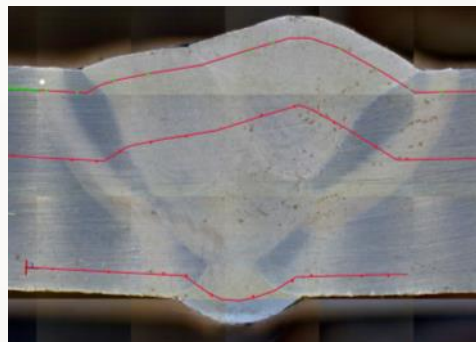
KB 250-3000 MHSR

HARDNESS TESTING RANGE 0,1 kgf - 3000 kgf



KB 250 MHSR FA Universal Fully Automatic

KB 750 MHSR Video Universal Single Measurement











KB 250-3000 MHSR  
VIDEO, SA, FA  
6-fold Automatic Turret  
8-fold Automatic Turret

Universal  
Hardness Testing Machine

Vickers  
Knoop  
Brinell  
Rockwell

## Universal Hardness Testing Machine KB 250-3000 MHSR

VIDEO (Single Measurement)	SA (Semi Automatic)	FA (Fully Automatic)
 KB 250 MHSR Video	 KB 250 MHSR SA	 KB 250 MHSR FA
 KB 750 MHSR Video	 KB 750 MHSR SA	 KB 750 MHSR FA
 KB 3000 MHSR Video	 KB 3000 MHSR SA	 KB 3000 MHSR FA
Control via PC	Control via PC and auto X/Y-stage	Control via PC and auto X/Y-stage
	Movement 180x180mm (KB 250/750 MHSR); 300x200mm (KB 3000 MHSR)	Movement 180x180mm (KB 250/750 MHSR); 300x200mm (KB 3000 MHSR)
Software KB Hardwin XL Video	Software KB Hardwin XL Semi	Software KB Hardwin XL FA/ FA basic
5 MPs USB Camera	5 MPs USB Camera	5 MPs USB Camera
Optical Zoom 7x Optional	Optical Zoom 7x Optional	Optical Zoom 7x Optional

KB Hardwin XL  
BASIC

KB Hardwin XL  
SEMI

KB Hardwin XL  
FULLY

**The new generation** of universal hardness testing machines from KB Prüftechnik GmbH convince by **extraordinary precision and reproducibility**. The user enters a complete new world of hardness testing by the use of the hardness testing software KB Hardwin XL. The KB hardness testing machines can superiorly test **Brinell, Vickers, Knoop and Rockwell**.

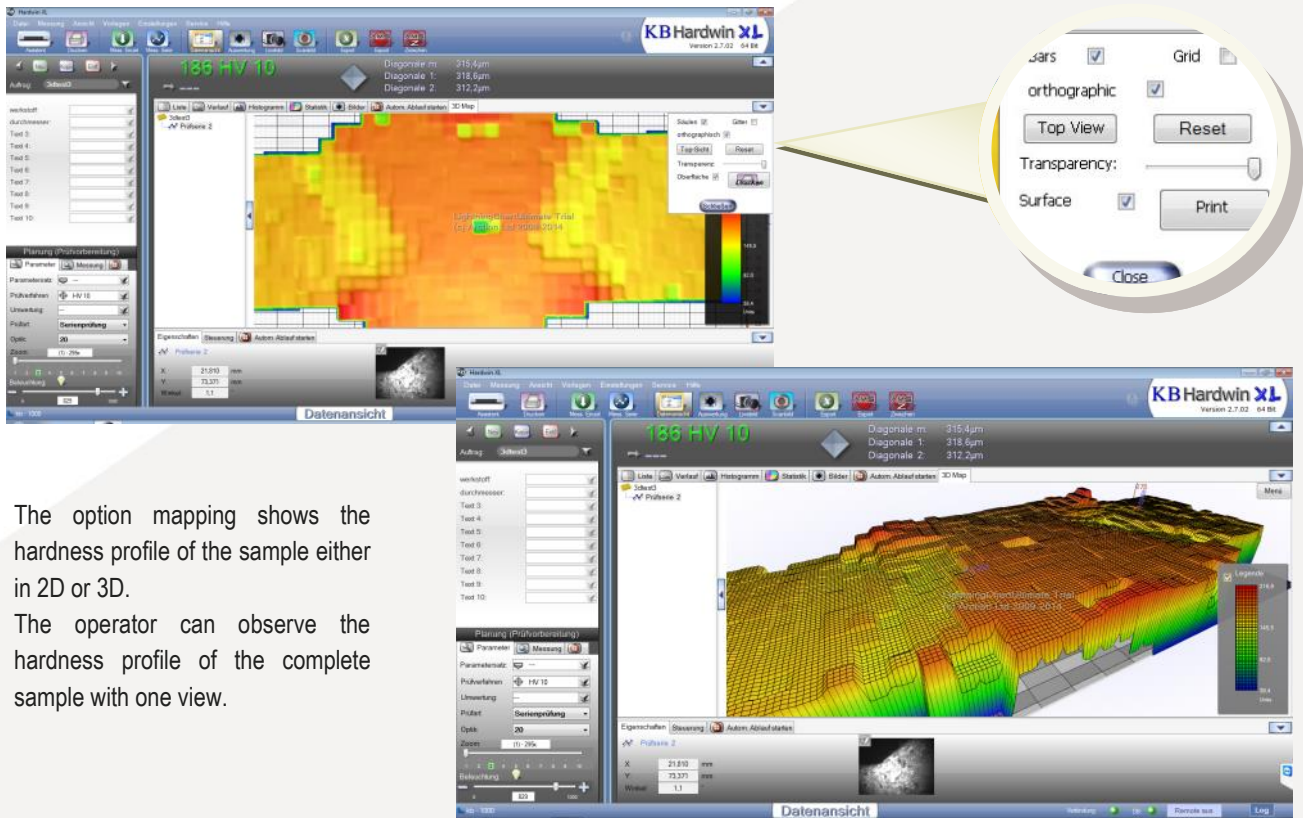
New innovative developments allow new possibilities of automation which combine the function of fully automatic machines and a universal hardness tester in one machine. The configuration levels combined with additional options suit the KB hardness testing machines optimally to the **operator's individual needs**.



- Standard automatic 6-fold turret
- 6 freely configurable positions for KB 250 MHSR
- 8 freely configurable positions for KB 750/ 3000 MHSR
- Fastest test tool change in 0,5 seconds
- High precision 1/2,5" 5 Megapixels camera 2500 x 2000
- Standard 4x digital zoom in 3 steps, 7x optical zoom optional
- Flexible expansion stages starting with single measurements up to a fully automatic test process
- Network capable, Data export in txt, Word, Excel, PDF
- Hierarchically structured user management
- Individually designable test reports
- Automatic load change



## Mapping



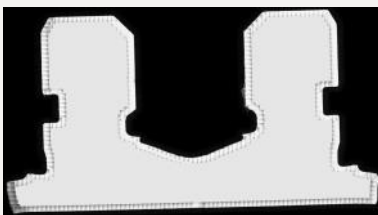
The option mapping shows the hardness profile of the sample either in 2D or 3D.

The operator can observe the hardness profile of the complete sample with one view.

## Scanning with KB Hardwin XL and the KB 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 assembled.



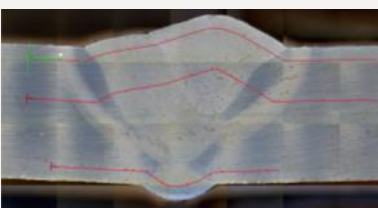
### Area scan with the microscope camera:

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 assembled.



### Area scan with the overview camera:

The complete sample will be scanned with the second camera. The size of the area can be freely chosen. The single pictures will be assembled.



### Snapshot with the overview camera:

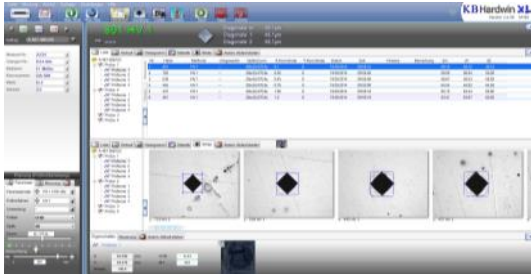
One single picture will be made by the overview camera.



## Planning and operation

### Menu navigation

- Perfect test process by a clearly arranged and user-oriented menu navigation
- Apply different magnifications and load steps in one test procedure



### Load step change during one test procedure

Different load steps and magnifications can be applied during one test procedure without breaking into the test process.

	Nr.	Härte	Methode	Umgewerte
Messwerte	1	450	HV 5	---
	2	450	HV 5	---
	3	457	HV 5	---
	4	842	HV 1	---
	5	717	HV 1	---

### USB camera 5 Megapixels

The 5 Megapixels USB camera achieves high quality pictures which are essential for auto measurement. The 1/2,5" chip enlarges the optical measuring range enormously due to more picture information.



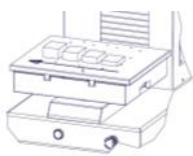
### Operating system

KB Hardwin XL supports Windows XP, Vista (32 bit), 7 (32 bit/ 64 bit) and 10. The use of a personal computer makes KB Hardwin XL network compatible.



### Different sample height

Samples of different height can be tested automatically. They must be positioned ascending X-direction.



### Conversion tables

Conversion tables according to DIN 50150, DIN EN ISO 18265 (without copper conversion) and ASTM-140-T1 to ASTM-140-T9 are basically included.

HB	Nmm <sup>2</sup>
HRC	Nmm <sup>2</sup>
HV	Nmm <sup>2</sup>

## Post-editing and archive

### Measuring a substitution

There are three possibilities to re-measure an existing indentation. The image will be re-opened and then measured. The second possibility is to do a new picture of the old indentation on the live camera. Also a new indentation can be set on the sample. The new value replaces the old one.

Nr.	Härte	Methode	Umgewertet	Optik/Zoom
1	463	HV 0.05	---	80x
2	269	HV 0.05	---	80x
3	876			
4	404			

### Fast access on filed test orders

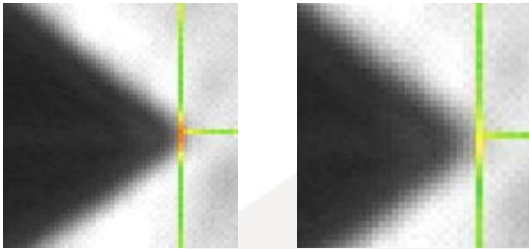
Pictures which belong to a previous test order can be re-addressed by one click.

	Nr.	Härte	Methode	Umgewertet	Optik/Zoom
Messwerte	1	624	HV 1	---	10x (B) 646.8x
	2	571	HV 1	---	10x (B) 646.8x
	3	536			10x (B) 646.8x
	4	502	H		10x (B) 646.8x
	5	520	H		10x (B) 646.8x

**Measurement**

**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.

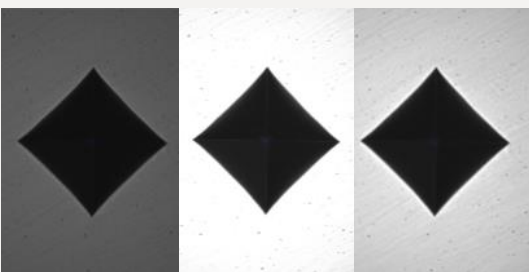


Red: too hard

Yellow: ok

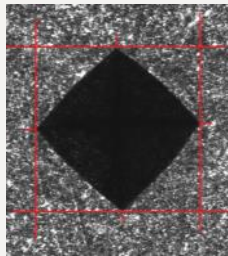
**Automatic light control**

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

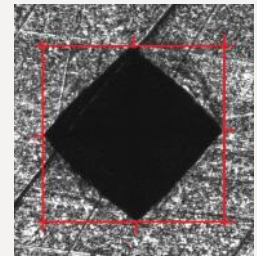


The improved automatic evaluation is now even more precise especially on not good surfaces.

Etched, sintered or scratched samples cannot interfere the automatic test procedure.



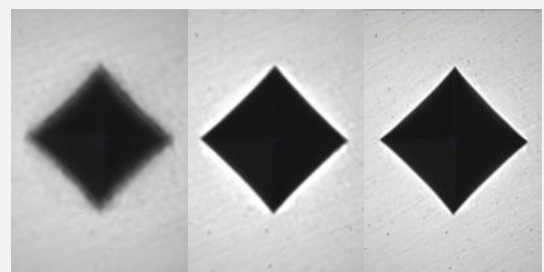
Etched surface



Scratched surface

**Unique auto focus**

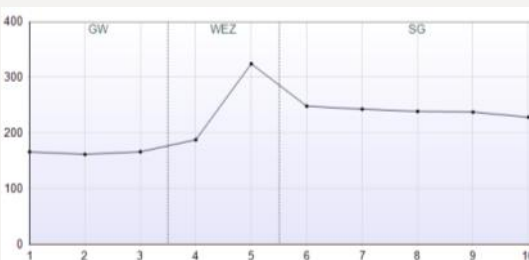
The KB auto focus works reliably, quickly and precisely. The correct position does not need to be set by the operator at first.



**Welding test**

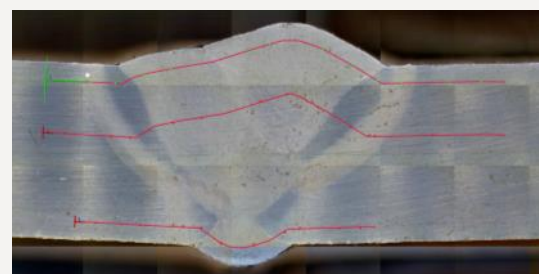
**Diagram with display of the zones**

The assigned zones will be shown in the diagram and the data evaluation.



**Tools**

The polygonal tool, circle tool and splitter tool help to define the test orders individually, simple and according to the standards.





## Software options

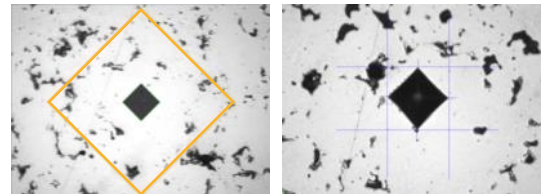
### Part Recognition Reco Jet

- After the scanning the right previously saved counter line with pattern 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.



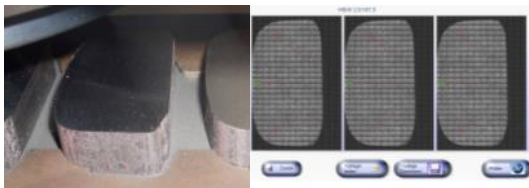
### Sinter testing

- Average-values curve is supported
- Automatic elimination of min/ max 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 standards allowed distance to the neighbour indentation



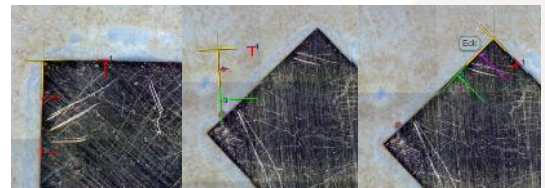
### Magazine

Customized magazine patterns can be programmed to test several samples of one kind.



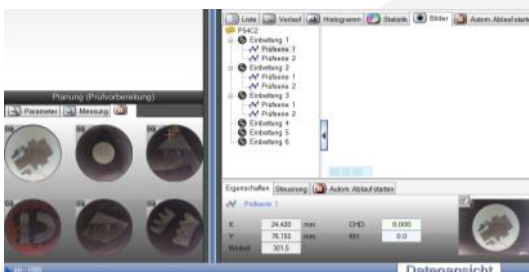
### Quicklink

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.



### Multiple sample holder

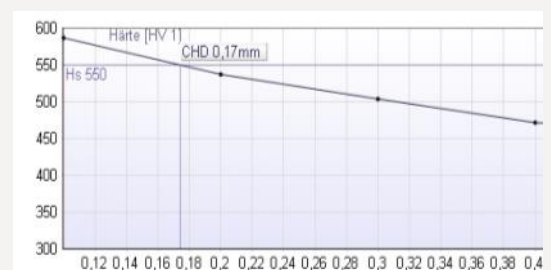
In combination with the sample holder multiple samples can be automatically tested fast, simple and effective.



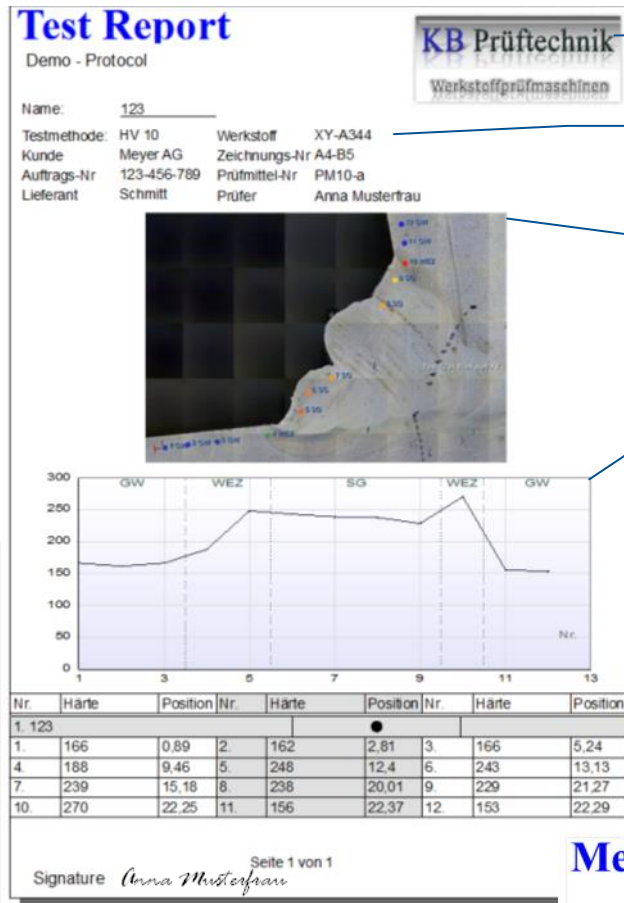
### Pattern test

Fully automatic pattern test without any operator influence.

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



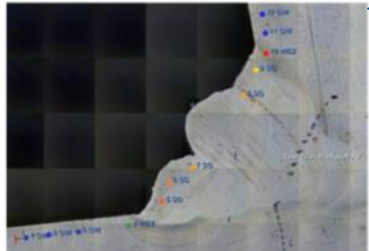
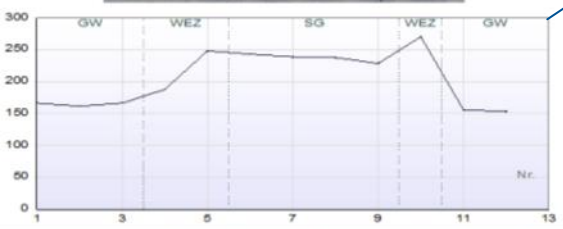
Test report



**Test Report**  
Demo - Protocol

**KB Prüftechnik**  
Werkstoffprüfmaschinen

Name: 123  
 Testmethode: HV 10    Werkstoff: XY-A344  
 Kunde: Meyer AG    Zeichnungs-Nr: A4-B5  
 Auftrags-Nr: 123-456-789    Prüfmittel-Nr: PM10-a  
 Lieferant: Schmitt    Prüfer: Anna Musterfrau

Nr.	Härte	Position	Nr.	Härte	Position	Nr.	Härte	Position
1. 123								
1.	166	0,89	2.	162	2,81	3.	166	5,24
4.	188	9,46	5.	248	12,4	6.	243	13,13
7.	239	15,18	8.	238	20,01	9.	229	21,27
10.	270	22,25	11.	156	22,37	12.	153	22,29

Signature: *Anna Musterfrau*    Seite 1 von 1

Customized logos can be embedded

Number and content of the property labels are freely adjustable.

The selection of the picture depends on each type of report and can be adjusted to individual needs. If necessary the picture of each indentation can be displayed.

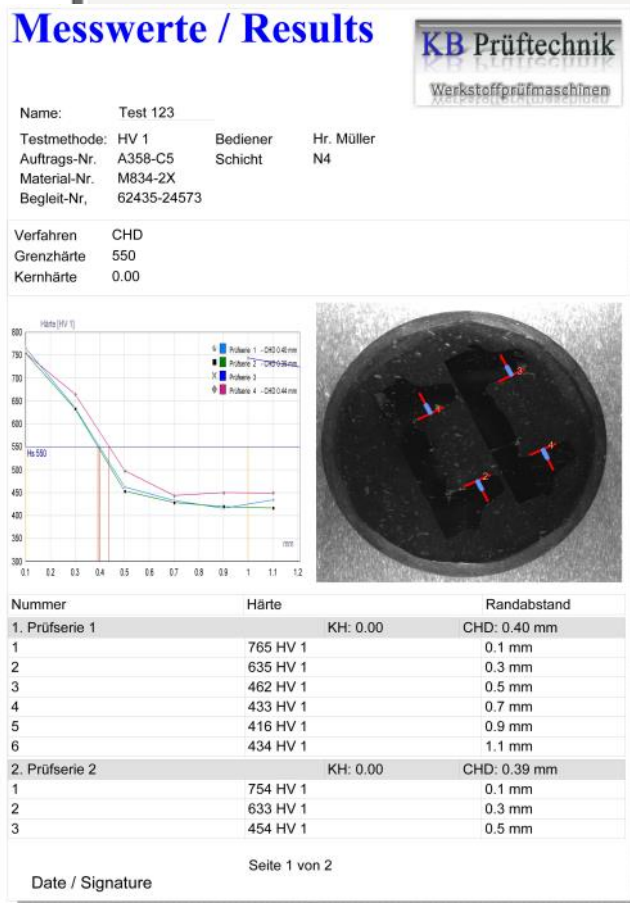
Diagrams and patterns can be integrated into the report.

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

KB includes the generator in each software packet with 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 report can be chosen between PDF, Excel, RTF, JPEG, PNG, EMF, TTY, CSV XML etc.

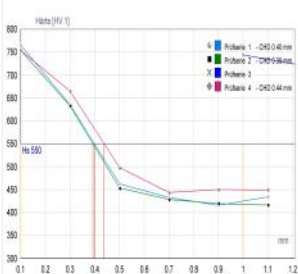
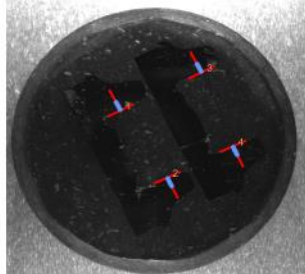


**Messwerte / Results**

**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	KH: 0.00	CHD: 0.40 mm
<b>1. Prüferserie 1</b>			
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
<b>2. Prüferserie 2</b>			
1	754 HV 1		0.1 mm
2	633 HV 1		0.3 mm
3	454 HV 1		0.5 mm

Date / Signature    Seite 1 von 2

## Data management

### Data export

The data export is supported by **html**, **pdf**, **Excel**, **Word** or **txt**.



### Scanner

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

Thus, the sample data can be easily downloaded.



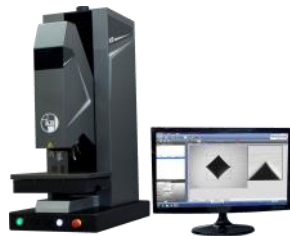
## Automated data management



Sample with bar or QR code on the lot slip



The code will be scanned and the saved order information and parameters will be downloaded of the ERP server.



The test order will be processed.



The measuring results will be exported and saved on the ERP server.



### Load steps (controlled by one load cell)



**Vickers** acc. to DIN EN ISO 6507 and ASTM E 384 — Option 2nd Load Cell

Load Steps	0,1	0,2	0,3	0,5	1	2	3	5	10	20	30	40	50	60	80	100	120
KB 250 MHSR																	
KB 750 MHSR																	
KB 3000 MHSR																	



**Knoop** acc. to DIN EN ISO 4545 and ASTM E 384 — Option 2nd Load Cell

Load Steps	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1
KB 250 MHSR										
KB 750 MHSR										
KB 3000 MHSR										



**Brinell** acc. to DIN EN ISO 6506 and ASTM E 10

Load Steps	1/	1/ 1,25	1/ 2,5	1/ 5	1/ 10	1/ 30	2,5/ 6,25	2,5/ 15,625	2,5/ 31,25	2,5/ 62,5	5/ 187,5	5/ 5	5/ 62,5	5/ 125	5/ 250	5/ 750	10/ 125	10/ 250	10/ 500	10/ 1000	10/ 3000	
KB 250 MHSR																						
KB 750 MHSR																						
KB 3000 MHSR																						

Further load steps on request.



**Rockwell/ Super-Rockwell (optional)** acc. to DIN EN ISO 6508

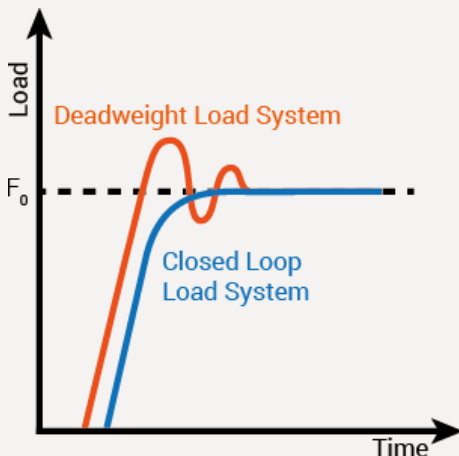
HRA- HRB- HRC- HRD- HRE- HRF- HRG- HRH- HRK- HRL-	HR 15/ 30/ 45 W
HR 15/ 30/ 45 N	HR 15/ 30/ 45 X
HR 15/ 30/ 45 T	HR 15/ 30/ 45 Y



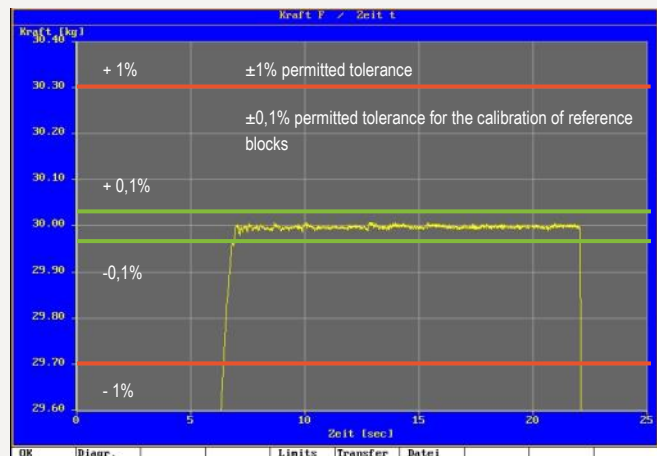
**Ball Indentation Hardness (optional)** acc. to DIN ISO 2039 T1 for plastic material

### What does load control mean?

- Load control is the **load application** controlled by **one load cell**:  
Due to the closed loop system the KB 250-750 MHSR series achieves a high precision test load range from 0,2 kgf to 3000 kgf without load variation.
- **Maximum Precision:**  
The KB hardness testing machines apply the load controlled by a closed loop system. The **controlled load application** provides more accurate loads compared to a position controlled load application because the load will be supervised during the complete test procedure.
- **Load application times: Flexible and according to the standard**  
The load application time can be **individually adjusted**.
- **Advantages compared to a deadweight system:**  
In the closed loop load system the test load which is applied on the indenter will be constantly measured and adjusted.
- **No overshoot behaviour**  
The load overshoot behaviour is eliminated since the closed loop system controls the load application.



Systematical comparison deadweight to load controlled system



Load control on a KB 250 with 30 kgf

## KB optical zoom



### Optical magnification

The KB 250 MSHR is optionally equipped with the **KB optical zoom** (1:7 magnification in 10 steps). The optical zoom enlarges optically, not digitally. This allows a high picture quality, even in big magnifications.

### Time and cost saving

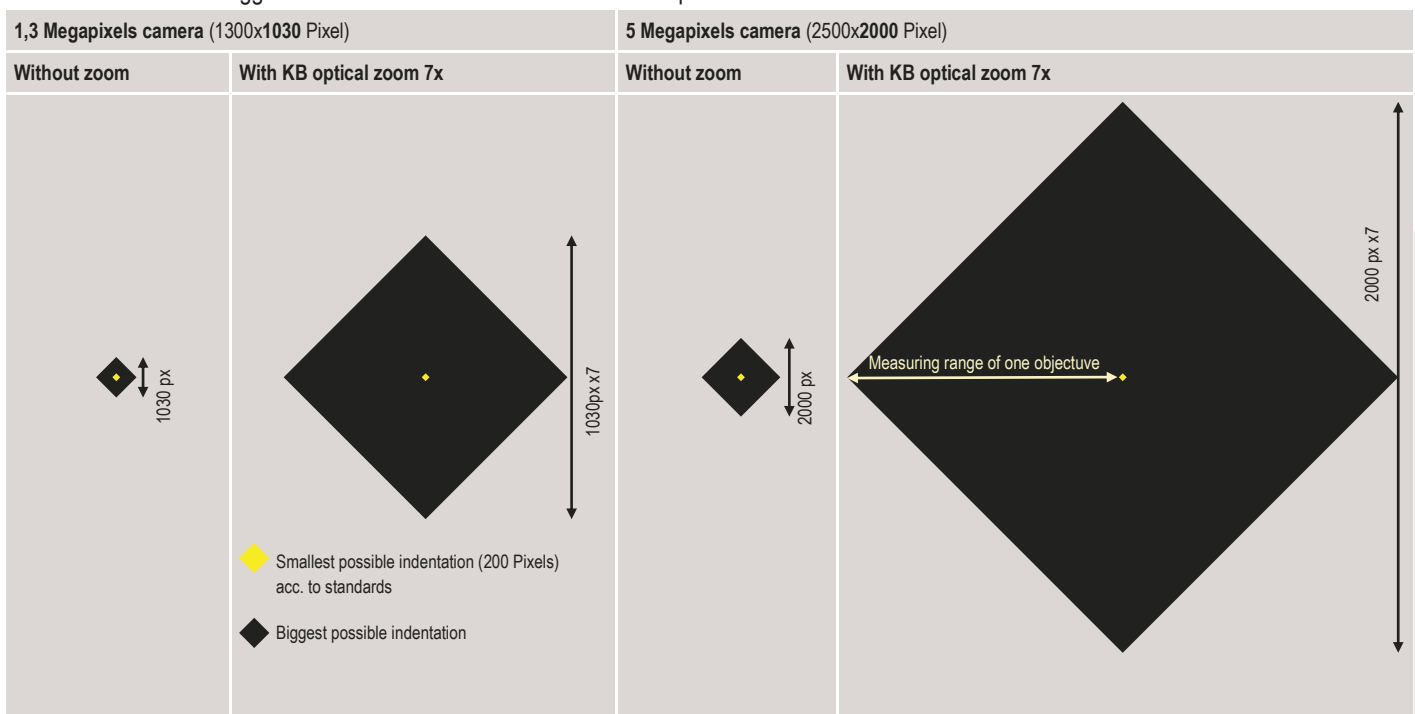
The KB optical zoom reduces costs since it can **replace up to 4 objectives**.

### Testing according to standards DIN EN ISO and ASTM

The KB optical zoom allows testing acc.to standards of a **huge test load range**. The objective change falls away. By the use of the KB optical zoom a picture confirming to standards is always guaranteed.

### Systematical display of the measuring ranges of the different cameras

The smallest and the biggest indentation is shown with and without optical zoom.



## Overview optical measuring range with the 5 Megapixels camera

KB 250/750 MHSR	0,2	0,5	1	2	3	5	10	20	30	50	100	62,5	187,5	250	750
Optical Measuring Range With Digital Zoom															
4x Objective	Resolution 0,41 µm														
10x Objective	Resolution 0,16 µm														
20x Objective	Resolution 0,08 µm														
Optical Measuring Range With Optical Zoom															
4x Objective	Resolution 0,4 µm														
10x Objective	Resolution 0,2 µm														
20x Objective	Resolution 0,1 µm														
KB 3000 MHSR	5	10	20	30	50	100	62,5	187,5	250	750	1000	3000			
Optical Measuring Range With Digital Zoom															
4x Objective	Resolution 0,7 µm														
10x Objective	Resolution 0,28 µm														
Optical Measuring Range With Optical Zoom															
4x Objective	Resolution 0,6 µm														
10x Objective	Resolution 0,24µm														

## Technical Data

	KB 250 MHSR	KB 750 MHSR	KB 3000 MHSR
Maximum sample weight	120kg (no X/Y-stage)	150kg (no X/Y-stage)	200 kg (no X/Y-stage)
Throat depth	225mm	260mm	260mm
Test room height without auto stage	320mm	320mm	320mm
Test room height with auto stage	250mm	235mm	225mm
Durability of LED illumination	> 10 years	> 10 years	> 10 years
Magnification optical zoom	1:7 in 10 steps	1:7 in 10 steps	1:7 in 10 steps
Resolution Z-axis	0,035µm	0,035µm	0,035µm
Weight without auto stage	Ca. 150kg	Ca. 260kg	Ca. 365kg
Weight with auto stage	Ca. 160kg	Ca. 285kg	Ca. 400 kg
Automatic turret	6-fold	8-fold	8-fold



## Configuration Levels and Options

	Video	SA	FA Basic	FA
<b>Hardware</b>				
5 Megapixels USB Camera	X	X	X	X
Test Table KB 250 MHSR	Diameter 80 mm	Auto X/Y-stage movement 180x180 mm	Auto X/Y-stage movement 180x180 mm	Auto X/Y-stage movement 180x180 mm
Test Table KB 750 MHSR	384 x 340 mm	Auto X/Y-stage movement 180x180 mm	Auto X/Y-stage movement 180x180 mm	Auto X/Y-stage movement 180x180 mm
Test Table KB 3000 MHSR	388 x 347 mm	Auto X/Y-stage movement 300x200 mm	Auto X/Y-stage movement 300x200 mm	Auto X/Y-stage movement 300x200 mm
Overview Camera	-	O + Scanning	O + Scanning	O
Load Step Extension	O	O	O	O
<b>Software</b>				
Auto Measurement for Vickers, Knoop and Brinell	O	O	X	X
Multi Sampling	-	O	O	X
Part Recognition „Reco Jet“	-	O + Scanning	O + Scanning	X
Scanning	-	O + Auto Focus	O	X
Auto Focus	O	O	X	X
Manual Pattern (CHD)	O	-	-	-
Grafical Editor	-	X	X	X
Quick Link	-	O + Scanning	O + Scanning	X
Light Control	O	O	X	X
Welding Test	-	O + Scanning	O + Scanning	X
Geometrical Tools	-	O + Scanning	O + Scanning	X
Sinter	-	-	O	O
Multiple Sample Holder	-	-	O+Scanning +Multisample	O
AMS Interface	O	O	O	O

### Legend

- = Not Applicable      X = Including      O = Option





## **KB Prüftechnik GmbH - Your partner in matters of testing technology**

The company KB Prüftechnik was founded in November 1997 by the former Wolpert development engineers Claus Keßler and Peter Beisel.

The acquisition of the hardness testing and pendulum department of the company Karl Frank happened in the year 1999.

The following years numerous modernizations of testing machines and new developments of hardness and spring testing machines with own machine control electronic and software were realized.

Since 2011 KB Prüftechnik GmbH receives its DAkkS certification ISO 17025.



**KB Prüftechnik GmbH**  
Im Weichlingsgarten 10 b  
67126 Hochdorf – Assenheim

Tel: +49-6231 – 93992-0  
Fax: +49-6231 – 93992-69

Email: [info@kbprueftechnik.de](mailto:info@kbprueftechnik.de)  
Internet: [www.kbprueftechnik.com](http://www.kbprueftechnik.com)

Information with reservation.

KB 250-3000 MHSR Video, SA, FA-eng - 04-2018