

HARDNESS TESTING MACHINES UNIVERSAL DIGITAL

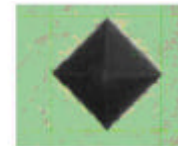
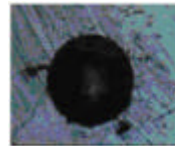
- *fully automatic test procedure*
- *optical evaluation via integrated CCD camera*
- *easy to use & powerful*
- *big LCD color display*
- *industrial type of foil keyboard*
- *flexible software applications*
- *zoom objective 1:7*
- *parallax free measurements*
- *controlled load application by load cells*
- *LED lighting*
- *Rockwell resolution of 0,025 HRC units*
- *200 free programmable test definitions*
- *available as a Master machine (option)*
- *new type of LED ring light (option)*
- *image analyzing system (option)*
- *2 interfaces: parallel + RS 232, & keyboard*
- *XL: extended load range (option)*
- *free selectable languages:*
 - *English, German, French, Italian*

Vickers

Rockwell

+ Brinell

tests acc. to standards



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KB Universelle Digital Hardness Testing Machines <i>Standard (•) Option (X)</i>	KB250 BVZ	KB250 BVRZ	KB750 BVZ	KB750 BVRZ	KB1000 RE	KB3000 BVZ	KB 3000 BVRZ	KB 150 R
Article no..	1051	846	1067	1066	1360	1048	1054	1047
Test load 0,5-250 kgf	•	•						3-150
Test load 3-750 kgf			•	•	5-1000			
Test load 30-3000 kgf						•	•	
Brinell ISO 6506	•	•	•	•		•	•	
Brinell Depth		•		•	•		•	•
Vickers ISO 6507	•	•	•	•		•	•	
Vickersl Depth		•		•	•		•	•
Rockwell ISO 6508		•		•	•		•	•
Superficial Rockwell ISO 6508		•		•	•		•	•
Ball Indentation ISO 2030 part 1		•						•
Test table 80 mm dia	•	•	•	•	•	•	•	•
Motor zoom 1:7	•	•	•	•		•	•	
Motorized spindle drive	X	X	X	X	X	X	X	X
Ringlight	X	X	X	X		X	X	
Objective 2,5x für HV30-HB10/3000	X	X	X	X		•	•	
Objective 4x für HV10-HB5/750	•	•	•	•		X	X	
Objective 10x für HV1-HB200 2,5 / 187,5	X	X	X	X		X	X	
Objective 20x für HV0,2-HV30	X	X	X	X		X	X	
Image Analyzing system	X	X	X	X		X	X	
Brinell ball	X	X	X	X		X	X	X
Vickers diamond	X	X	X	X		X	X	X
Rockwell diamond		X		X			X	
Indentor Ball Indent. Hrdn.		X						
Extended load steps	X	X	X	X		X	X	

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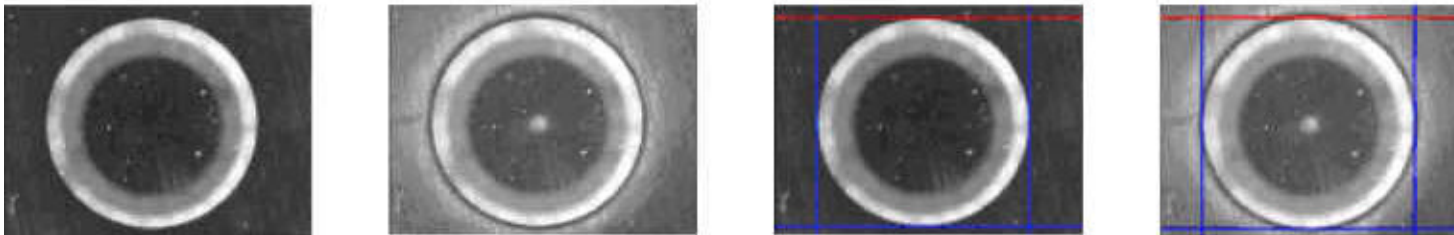
The universal hardness testing machines from KB are perfectly designed for automatic tests acc. to the standards. They can be used in a load step range from 0,2 to 3000 kgf for hardness tests acc. to Vickers, Brinell, Rockwell, Superficial Rockwell, Knoop (up to HK 1), Ball Indentation Hardness (for plastics) as well as Vickers and Brinell Depth Measurement. Fully automatic test procedure. Optical evaluation of the indentations are made on the big LCD screen via a built-in CCD camera plus a 10-step motorized zoom objective. All this give the guarantee for high precision measurements acc. to the standards. All hardness values are directly displayed digitally. The operating panel is very easy to use and extremely powerful. The indentations shown on the color LCD screen are clear, sharp and contrasty - no more parallaxic errors. The video image can be stored as a bmp-file optionally. All test loads are applied with highest precision, controlled by a load cell and electronics.

Accessories

All KB hardness testing machines are ready for use with ordered indentors. We do offer a big range of support devices, testing tables, indentors, basic objectives, test blocks etc. KB hardness testing machines can be connected to a PC or network system. Fully automated test procedures are possible with an image analyzing system and a motorized x/y-stage.

Option: Ringlight

Unique LED ring light illumination for Brinell and Vickers evaluation in a so-called dark field. That gives a light indentation and a dark surface of the specimen which will give you more precise measurements on specimens with bad surface and on softer materials as the real edges of an indentation can be seen clearly only with this type of illumination.



Option: Image Analyzing System

No further influences on the results given by the operators. Brinell and Vickers indentations are measured automatically with highest precision, also in connection with the optional ring light.

Extremely bad surface.

Example: cast iron with real bad surface - no problem to measure automatically with ring light

Option: Master machine for Vickers, Rockwell and Brinell

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Option: *Extended load range XL*

KB 187,5 XL: HV 0,2 up to HB 187,5

KB 3000 XL: HV 5 up to 3000 +Superficial Rockwell

Operating functions

Programmable digital panel with the following functions:

- *Evaluation on the LCD screen via electronical marks with no parallax errors*
- *Logical operation, easy to use*
- *Free definition of up to 200 different test programs*
- *Automatic load selection by choose of test scale*
- *Free definition of load application times*
- *Free definition of dwell times of total load*
- *Online help function*
- *Automtical correction of round surfaces ac c. to DIN EN ISO tables*
- *Control of the fully automated test procedure*
- *Direct + digital display of all hardness values*
- *Display of tolerances*
- *Conversions acc. to DIN 50150 table B1*
- *Protocol print-out in DIN A 4 format with every standard printer via parallel interface*
- *RS 232 interface for data output*
- *4 language selection (English, French, Italian, German9 others on request*

Statistical functions:

Nos of tests

min / max

Average value

Range

Standard deviation cp / cpk

Histogram

Dimensions

	KB 250	KB 750	KB 1000	KB 3000
A	1200 mm	1200 mm	1200 mm	1300 mm
B	240 mm	240 mm	240 mm	270 mm
C	max 300 mm	max 300 mm	max 300 mm	350 mm
D	250 mm	250 mm	250 mm	250 mm
E	735 mm	735 mm	735 mm	920 mm
G	320 mm	320 mm	320 mm	390 mm
Net weight	215 kg	225 kg	225 kg	418 kg

