

# Mitutoyo

Mitutoyo Quality

## Rockwell Hardness Testing Machine HR-530 Series

Test Equipment



# Rockwell Hardness Testing Machine

## HR-530 Series

Unique electronic control makes the HR-530 series of hardness testers capable of Rockwell, Rockwell Superficial, Rockwell testing of plastics (A & B) and Light Force Brinell hardness testing.



**HR-530  
(810-237)**

Maximum specimen size:  
Height 250 mm, Depth 150 mm



**HR-530L  
(810-337)**

Maximum specimen size:  
Height 395 mm, Depth 150 mm



## Inside ring hardness testing



Test the hardness of the inside wall of a ring without cutting the ring into pieces. (All models.) Minimum diameter is 34 mm, but inside diameters as small as 22 mm can be tested by using the optional 5 mm diamond indenter (19BAA292).

## Display with color touch-screen



5.7-inch color LCD

The HM and HV series user interface has been adapted to include Rockwell hardness testing capabilities. Versatile color screens display the results of statistical calculations and graphics functions, etc.



When space restrictions are an issue, the touch-panel display unit can be mounted on top of the tester.

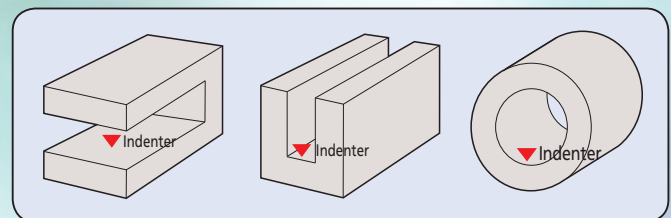
## Graphic display of statistical calculation results and $\bar{X}$ -R control charts

This series allows numeric display of statistical analysis results such as maximum and minimum values, mean value and graphic display of  $\bar{X}$ -R control charts and histograms required for hardness evaluation.



## Measurement with a nose indenter shaft

A nose-type indenter enables measurement not only of the flat top surface of a specimen, but also the inside surface of a cylindrical specimen.



## Continuous measurement function

When testing multiple workpieces with the same height, continuous testing is possible by pressing the foot switch or the START button.

## RS-232C, Digimatic and USB interface ports





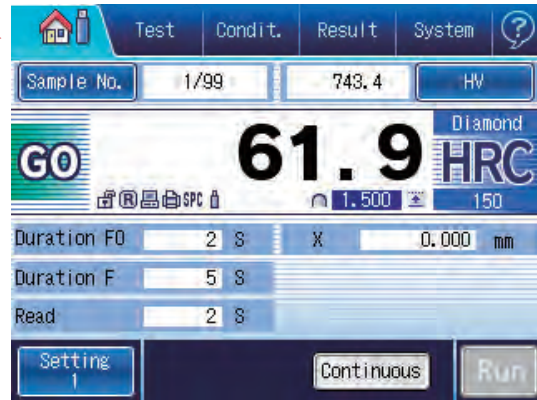
# Touch-panel display and function

The HR-530/530L models offer the combination of functionality and operability in a touch-panel display.



HR-530  
(810-237)

## • Standard operating display



Statistical calculation results and test conditions can be stored as text data and graphs can be stored as graphic data.

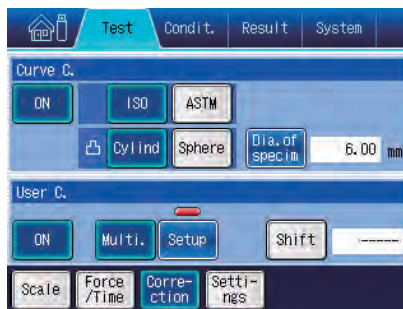
## • Direct hardness scale selection

The required hardness scale can be selected with the touch panel. The initial test force and loading force are automatically set in accordance with the selected scale.



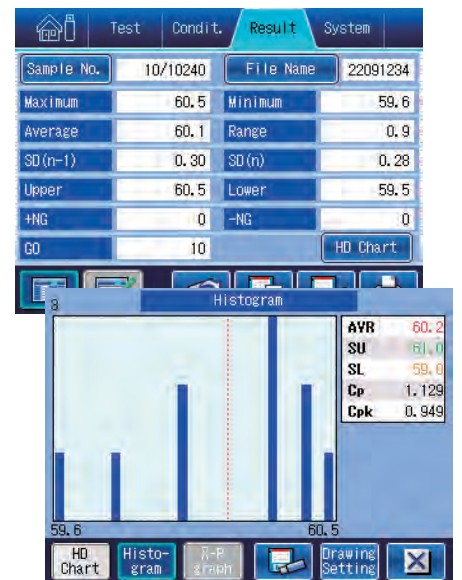
## • Curved surface compensation and measurement

The curved-surface correction function enables curved surfaces, such as round bars and spheres, to be tested for hardness as easily as flat surfaces.

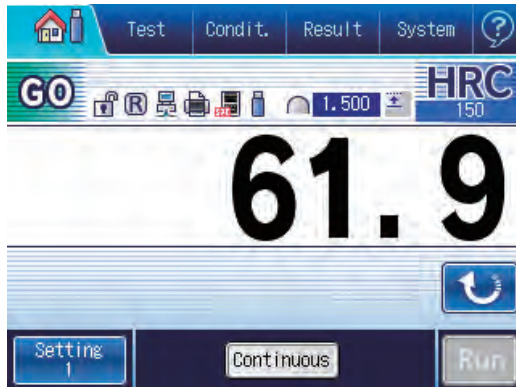


## • Statistical analysis

The quality control of industrial materials by hardness testing uses a judgment based on multi-point test results. Moreover, the statistical calculation of the maximum value, minimum value, mean value, standard deviation, etc., is useful when analyzing multi-point test results.



• Simple display



Only displays a test result and scale, making it appropriate for repeated testing under the same conditions.

• Multi-point test display



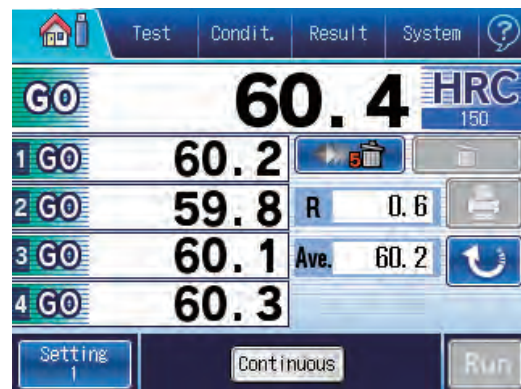
Provided with the navigation function to lead to each test point that has been set. This display is dedicated to the Jominy test which allows multi-point testing with simple operation.

• List display (mean value)



Displays the mean hardness value averaged over multiple arbitrarily specified points.

• List display (5-point display)



Displays records of test results as a list. This display is appropriate for establishing the relationship between prior and subsequent test results in terms of variation and mean value.

# Specifications/Standard accessories/Options

## Specifications

Order No.	810-237	810-337
Model	HR-530	HR-530L
Hardness testing methods	Rockwell/Rockwell Superficial/Brinell/Plastics hardness	
Initial test force (N)	29.42N (3kgf), 98.07N (10kgf)	
Test force (N)	Rockwell Superficial	147.1N (15kgf), 294.2N (30kgf), 441.3N (45kgf)
	Rockwell	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)
	Light Force Brinell	61.29 (6.25kgf), 98.07 (10kgf), 153.2 (15.625kgf), 245.2 (25kgf), 294.2 (30kgf), 306.5 (31.25kgf), 612.9 (62.5kgf), 980.7 (100kgf), 1226 (125kgf), 1839 (187.5kgf)
Test force control	Automatic (load/hold/unload)	
Table up/down mechanism	Manual (automatic braking and load sequencing)	
Control unit	Color touch-panel	
Test force switching	Operated with the display unit	
Test force hold time	1 to 120s (Selectable in units of 1s)	
Maximum specimen size	Height: 9.8" (250 mm) Depth: 5.9" (150 mm)	Height: 15.5" (395 mm) Depth: 5.9" (150 mm)
Permissible inside diameter of a tube specimen	Minimum hole diameter: 1.38" (35 mm) (when using the special indenter: .87" (22 mm))	
Maximum table loading	45 lb (20 kg)	
Ball indenter	Tungsten carbide ball indenter	
Unit (display unit)	inch	
Display	Hardness value, test condition, go/no-go judgment result, statistical calculation result, X-R control chart, hardness conversion value	
	Conversion function [HV, HK, HR (Rockwell hardness A, B, C, D, F, G / Rockwell Superficial 15T, 30T, 45T, 15N, 30N, 45N), HS, HB, tensile strength]	
	Go/no-go judgment function	
	Continuous test function (for specimens with the same thickness)	
	Cylindrical correction, spherical correction, offset correction, multi-point correction functions	
	Statistical calculation function (maximum value, minimum value, mean value, standard deviation, upper limit value, lower limit value, go count, range, no-go count)	
Language support	Japanese, English, German, French, Italian, Spanish, Korean, Chinese (simplified characters/traditional characters), Turkish, Portuguese, Hungarian, Polish, Dutch and Czech	
	Graph generation function (X-R control chart)	
External data output	RS-232C, digimatic, USB2.0	
Power supply	AC 120V	
External dimensions	Main unit	9.84" x 26.38" x 23.82" (250(W)x667(D)x621(H) mm)
	Touch-panel display	11.8" x 26.2" x 30.1" (300(W)x667(D)x766(H) mm)
Mass	191(W)x147(D)x71(H) mm	Approx. 60 kg
Mass	Approx. 69 kg	

Note: Plastic testing may not be enabled, depending on the material.

## Standard accessories

Order No.	Item	Description	Order No.	Item	Description	–	Item	Description
19BAA073	Diamond indenter	For Rockwell and Rockwell superficial testing	11AAD185	Display mounting bracket		–	Hardness test block	30-35HRC
11AAD465	Ball indenter	1/16" Tungsten carbide ball (ø1.5875)		Power cord	For AC 115V	–	Hardness test block	60-65HRC
19BAA507	Spare ball	1/16" WC (ø1.5875) ball		Vinyl cover		–	Hardness test block	90-95HRB
810-039	Flat anvil	ø64 mm		Manual		–	Hardness test block	64-69HR30N
810-040	V-anvil	ø40 mm, Groove width 30 mm				–	Hardness test block	70-79HR30T
						–	Accessory Box	

## Optional accessories

The relationship between test force, optional indenter size (metric, tungsten carbide) and scale range in Brinell hardness testing is shown in the table below.

Test force (N)	Brinell hardness testing									
	61.29	98.07	153.2	245.2	294.2	306.5	612.9	980.7	1226	1839
11AAD469 ø1 Indenter		HBW1/10			HBW1/30					
11AAD470 ø2.5 Indenter	HBW2.5/6.25		HBW2.5/15.625			HBW2.5/31.25	HBW2.5/62.5			HBW2.5/187.5
11AAD471 ø5 Indenter				HBW5/25			HBW5/62.5		HBW5/125	
11AAD472 ø10 Indenter								HBW10/100		



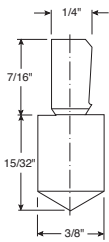


### Calibration Set

Order No.	Order No.	Order No.	Order No.
64BAA241	64BAA242	64BAA243	64BAA244
C Scale Set	B Scale Set	30N Scale Set	30T Scale Set
Test Blocks	Test Blocks	Test Blocks	Test Blocks
64BAA125	64BAA126	64BAA128	64BAA129
64BAA124	64BAA132	64BAA165	64BAA140
64BAA158	64BAA135	64BAA167	64BAA130
Indenter	Indenter	Indenter	Indenter
64BAA072	64BAA078	64BAA073	64BAA078

Please see Catalog US-1004 for a complete list of test blocks.

### Rockwell Diamond Indenters



Order No.	Scale
64BAA072	C
64BAA073	N
64BAA086	A
64BAA071	C & N

### Carbide Ball Indenters

Order No.	Description
19BAA515	1/16" Carbide ball indenter
19BAA504	1/8" Carbide ball indenter
19BAA505	1/4" Carbide ball indenter
19BAA506	1/2" Carbide ball indenter
19BAA507	1/16" Carbide ball (1pc.)
19BAA508	1/8" Carbide ball (1pc.)
19BAA509	1/4" Carbide ball (1pc.)
19BAA510	1/2" Carbide ball (1pc.)

### Digimatic mini-processor DP-1VR

264-504-5A

Connection cable not supplied. (To be ordered separately.)  
Connection cable (1m) 12AAJ323



### Printer DPU-414

02AGD600B  
with connection cable



### USB Direct Input Tool 06ADV380D

For connection to a USB port on a PC.

### Data processing software 11AAC237

### Foot switch 11AAD537

### Round table

810-038 Outside  $\phi$ 250 mm



For large specimens such as molded items

### Round table

810-037 Outside  $\phi$ 180 mm



For large specimens such as molded items

### V-anvil (large)

810-040

(Outside  $\phi$ 40 mm,  
Groove width 30 mm)



For round specimens (max.  $\phi$ 60 mm)

### V-anvil (small)

810-041

(Outside  $\phi$ 40 mm,  
Groove width 6 mm)



For shaft materials (max.  $\phi$ 8.4 mm)

### Spot anvil

810-043

(Outside  $\phi$ 12 mm)



### Spot anvil

810-044

(Outside  $\phi$ 5.5 mm)

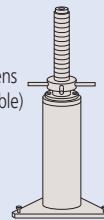
For sheet specimens



### Jack rest

810-028

For supporting long specimens  
(Used with anvil or round table)



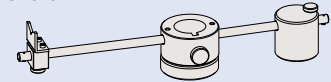
### Vibration isolator

810-643

Only for mounting hardness testing machines

### VARI-REST

810-027

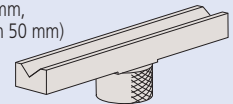


For testing long specimens (commonly used for the anvil)

### Special V-anvil

810-029

(Length 400 mm,  
Groove width 50 mm)



For round specimens  $\phi$ 14-98 mm

### Fine-adjustment table for Jominy testing

810-700



JIS G 0561  
For steel hardenability testing

### Diamond-spot anvil

810-030

(Outside  $\phi$ 10 mm)

For sheet specimens



\*Dedicated to the Rockwell Superficial hardness test

### Small V-anvil

810-042

(Outside  $\phi$ 10 mm)

For round specimens (max.  $\phi$ 16 mm)



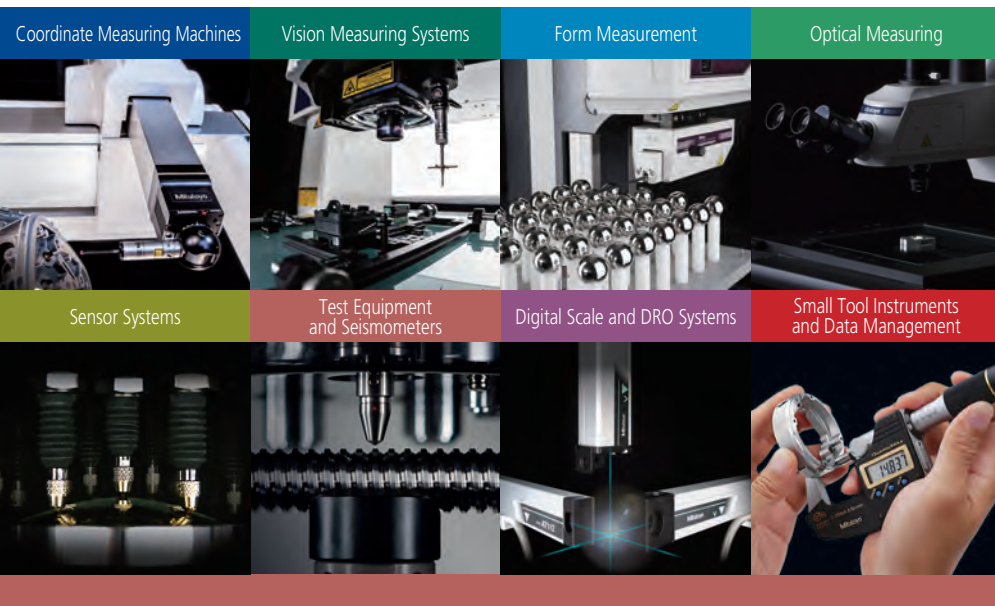
### Testing machine table

11AAD186

Supplied with stability bracket

Testing machine table





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Mitutoyo supports you from start to finish.**

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Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



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