

Mitutoyo



**WILLRICH PRECISION
I N S T R U M E N T**
THINK MEASUREMENT... THINK WILLRICH

Ph 866-945-5742 email:sales@willrich.com

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.

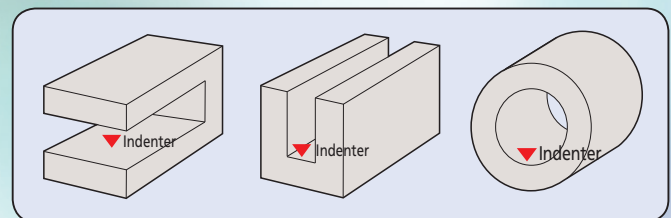
Graphic display of statistical calculation results and \bar{X} -R control charts

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.

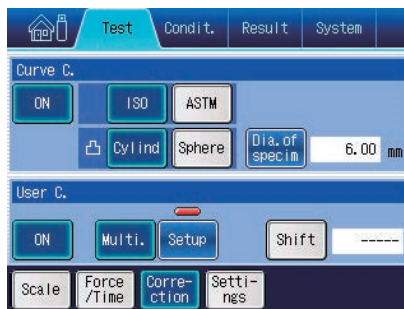
• Direct hardness scale selection

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.



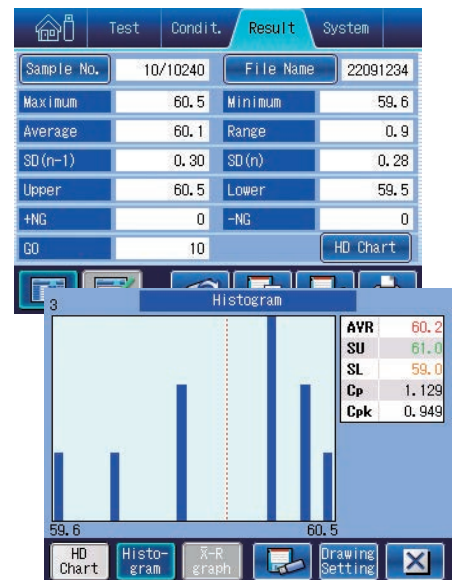
• Curved surface compensation and measurement

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.

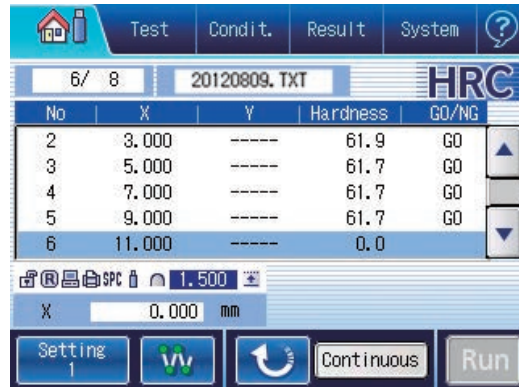


• Simple display



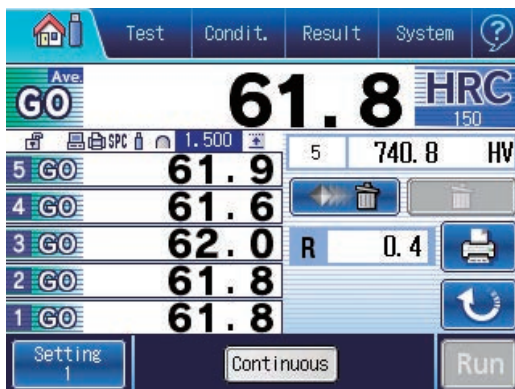
Only displays a test result and scale, making it appropriate for repeated testing under the same conditions.

• Multi-point test display



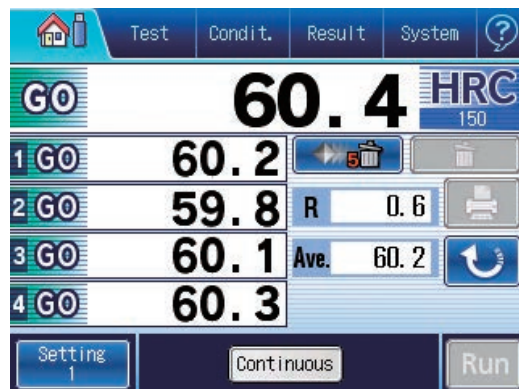
Provided with the navigation function to lead to each test point that has been set. This display is dedicated to the Jominy test which allows multi-point testing with simple operation.

• 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 | |
| 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 | Approx. 60 kg | 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 | | |

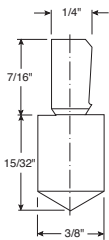


Calibration Set

| 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

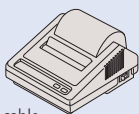
264-504-5A

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



Printer DPU-414

02AGD600B
with connection cable



USB Direct Input Tool 06ADV380D

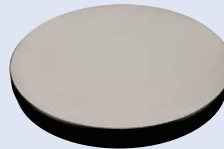
For connection to a USB port on a PC.

Data processing software 11AAC237

Foot switch 11AAD537

Round table

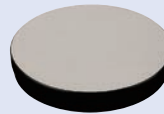
810-038 Outside ϕ 250 mm



For large specimens such as molded items

Round table

810-037 Outside ϕ 180 mm



For large specimens such as molded items

V-anvil (large)

810-040

(Outside ϕ 40 mm,
Groove width 30 mm)



For round specimens (max. ϕ 60 mm)

V-anvil (small)

810-041

(Outside ϕ 40 mm,
Groove width 6 mm)



For shaft materials (max. ϕ 8.4 mm)

Spot anvil

810-043

(Outside ϕ 12 mm)



Spot anvil

810-044

(Outside ϕ 5.5 mm)

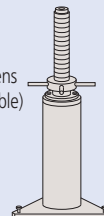
For sheet specimens



Jack rest

810-028

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



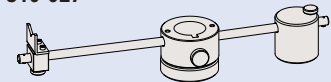
Vibration isolator

810-643

Only for mounting hardness testing machines

VARI-REST

810-027

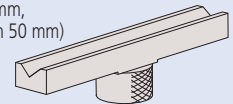


For testing long specimens (commonly used for the anvil)

Special V-anvil

810-029

(Length 400 mm,
Groove width 50 mm)



For round specimens ϕ 14-98 mm

Fine-adjustment table for Jominy testing

810-700



JIS G 0561
For steel hardenability testing

Diamond-spot anvil

810-030

(Outside ϕ 10 mm)

For sheet specimens



*Dedicated to the Rockwell Superficial hardness test

Small V-anvil

810-042

(Outside ϕ 10 mm)

For round specimens (max. ϕ 16 mm)



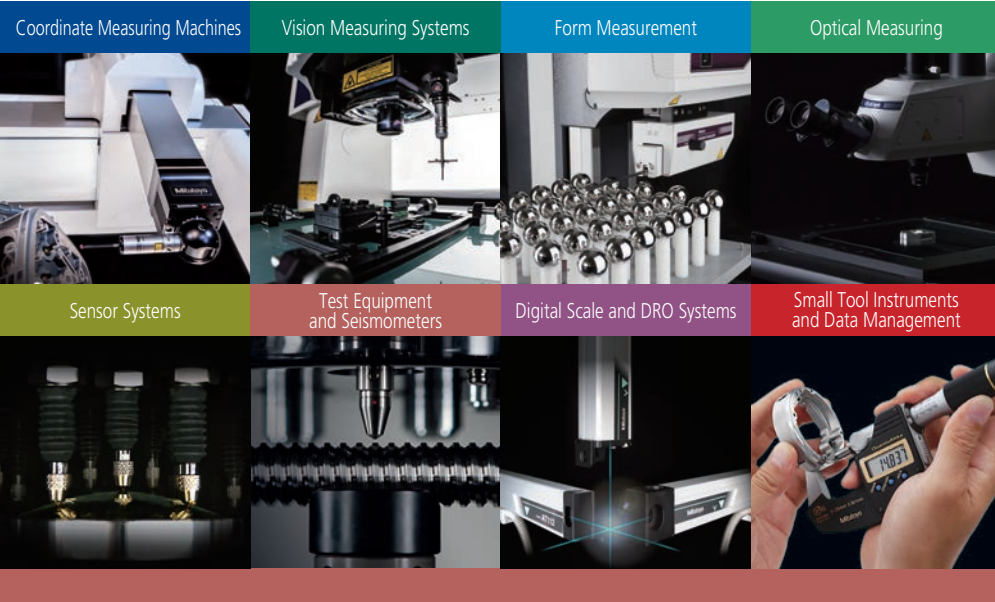
Testing machine table

11AAD186

Supplied with
stability bracket

Testing machine table





**Whatever your challenges are,
Mitutoyo supports you from start to finish.**

Mitutoyo is not only a manufacturer of top-quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed by comprehensive services that ensure your staff can make the very best use of the investment.

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.

Mitutoyo