

Rockwell Hardness Testing Machines

HR-300/400 Series



HR-320MS Dual type (Rockwell/ Rockwell superficial) hardness testing machine

Changing of weights is required. Motor drive controls loading sequence. Loading navigator provides feedback for applying preliminary force.



HR-430MR Rockwell hardness testing machine

Equipped with automatic brake handle for auto start feature. Motor drive controls loading sequence.



HR-430MS Dual type (Rockwell/ Rockwell superficial combined use) hardness testing machine

Equipped with automatic brake handle for auto start feature. Motor drive controls loading sequence.



The digital type (HR-430MR and HR-430MS) with the adoption of the automatic brake handle and load sequence.



Features

- The newly designed frame provides maximum clearance for positioning the workpiece. A flat table is all that is needed for mounting these testing machines.
- The digital type (HR-320MS, HR-430MR and HR-430MS) has digimatic output and our Digimatic Mini-Processor (DP-1VA LOGGER) to print and input tools (USB-ITN-E) to connect to a PC and use for data transfer.

SPECIFICATIONS

Model	HR-320MS	HR-430MR	HR-430MS
Order No	810-192-31A	810-193-31A	810-193-31A
Type of hardness test	Rockwell superficial	Rockwell	Rockwell superficial
Preliminary test force (N)	29.42, 98.07 (3Kgf, 10Kgf)	98.07 (10Kgf)	29.42, 98.07 (3Kgf, 10Kgf)
Test force (N)	Superficial 147.1, 294.2, 441.3 (15Kgf, 30Kgf, 45Kgf)	Rockwell 588.4, 980.7, 1471 (60Kgf, 100Kgf, 150Kgf)	147.1, 294.2, 441.3 (15Kgf, 30Kgf, 45Kgf)
Standard	IS B 7726 ISO6508-2 ASTM E18		
Display	Digital		
Minimum reading	0.1 HR graduation		
Preliminary test force (handling support)	Loading navigator indication	Automatic brake handle	
Preliminary test force setting	Dial Switching	-	Dial switching
Total test force setting	Weight change	Dial switching	
Total test force control	Motor drive, Button start	Motor drive, Automatic start	
Test force duration	3-5.5 s setting, Manual	1-99 s setting, Manual	
Maximum specimen dimensions	Height 180 mm (100 mm if the cover is attached), depth 165 mm (from indenter axis to the frame)		
Function	Success or failure decision function		
	Offset revision function		
	Hardness conversion function		
Data output	Digimatic RS-232C		
Power supply	AC Input : 100-240 V, 50-60 Hz, 1.8 A, DC Output: 12 V – 4.17 A		
Dimensions	214 (W) x 512 (D) x 780 (H) mm		
Mass	Approximately 47kg	Approximately 50kg	

Hardness Testers are compliant with ASTM requirements

810-192-21A and 810-194-21A come with diamond indenter, 1/16" carbide ball indenter, HRC30 Block, HRC63 Block, HRBW95 Block, HR30N 60 Block and HR30TW 70 Block

810-193-31A comes with diamond indenter, 1/16" carbide ball indenter, HRC30 Block, HRC63 Block, and HRBW95 Block

HR-530/530L



HR-530
(810-233-33A)



Standard operating display

Fine-adjustment table for Jominy testing 810-700



Optional Accessories: See page K-11, 12

Function: Touch-screen type

- Touch-screen operation with a back-lit LCD graphic display.
- Remote selection of the test force linked to the hardness scale selection.
- Choice of message language in English, German, French, Spanish, Italian and Japanese.
- Cylindrical and spherical surface compensation.
- Data offset.
- Conversion to other hardness scales.
- Powerful statistical processing with flexible data point editing and 1024 data memory.
- Measured data editing
- Go/no-go tolerance judgment.
- Statistical processing, histogram and \bar{x} -R chart

SERIES 810 — Rockwell Type Hardness Testing Machines

- Closed Loop Test Force Control allows for a wide variety of hardness testing including Rockwell, Superficial and Light Force Brinell (6.25 to 187.5 kgf).
- Hardness testing of plastics according to ASTM D785 (Procedure A and B) and ISO 2039-2 are also possible.
- Projected nose type tester allows testing of interior parts
- 5 display formats are possible to show you the information you need. Statistics and graphs can also be displayed on the color touch screen control panel.
- Machine, blocks, and indenters are ASTM E18 compliant.
- Simple-to-use automatic brake-start system begins the test automatically when initial force is reached
- The HR-530 is available in 9.8" (250mm) or 15.5" (395mm) height capacity models.
- Complete with a combination diamond indenter, a 1/16" carbide ball indenter, one flat and one V anvil, 2 HRC, 1 HRBW, 1 HR30TW and 1 HR30N test block.



5.7-inch color LCD

SPECIFICATIONS

Model	HR-530	HR-530L
Order No.	810-233-33A	810-333-33A
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) Graph generation function (X-R control chart)	
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, SPC, USB2.0	
Power supply	AC120V	
External dimensions	Main unit: 9.84" x 26.38" x 23.82" (250(W) x 667(D) x 621(H) mm)	11.8" x 26.2" x 30.1" (300(W) x 667(D) x 766(H) mm)
	Touch-panel display	191(W) x 147(D) x 71(H) mm
Mass	Approx. 60 kg	Approx. 69 kg

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

Hardness Testing Machines



MeasurLink ENABLED
Data Management Software by Mitutoyo



HR-600 SERIES 810 — CNC Rockwell Hardness Testing Machines

- A workpiece that cannot be placed on a tester due to its large size can be placed on the stage of this product and tested as-is. (Maximum loading mass 100 kg)
- The motorized stage makes automatic multi-point testing at multiple places and of multiple workpieces possible.
- Plastic hardness testing is also available in addition to Rockwell/Brinell tests on metal. Brinell and Vickers indentation hardness tests which do not require vision measurement can also be performed.
- ASTM E18 compliant
- The **HR-610A / 620A** is operable with a touch panel display (some functions are operable with **AVPAK** software) and the **HR-620B** is operable with a touch panel display and **AVPAK** software.
- Automatic testing by moving in the X-, Y- and Z-axis directions for workpieces with uneven surfaces or steps is made possible by adding X-axis stage and **AVPAK** software to **HR-620B**, which is equipped with a motorized Y-axis stage as standard. Also, using **FORMEio** software makes easy communication with PLCs for automation purposes, such as control of handling devices and work cells, possible.



HR-610A
(Motorized X-axis stage is available)



HR-620B
(With a motorized Y-axis stage as standard and an optional motorized X-axis stage)

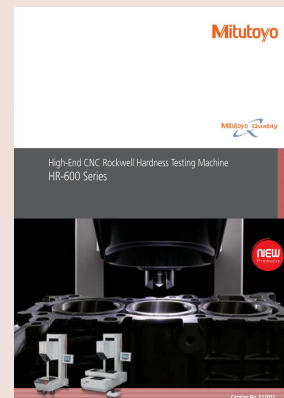


SPECIFICATIONS

Model	HR-610A	HR-620A	HR-620B
Order No.	810-512-23A	810-522-23A	810-527-21A
Unit (display unit)	Rockwell/Rockwell Superficial/Brinell/Plastics hardness		
Indenter type *1	Diamond indenter and 1/16th inch carbide ball indenter		
Test force range	29.42 - 1839 N (3 - 187.5 kgf)	9.807 - 2452 N (1 - 250 kgf)	
Specimen height (Z-axis stroke)	40 - 250 mm		
Testable workpieces	Minimum surface dimensions	18 × 4 mm	
	Minimum inner diameter of pipe-type workpiece	ø400 mm	
	Concave workpiece	R25 mm or more, Height 20 mm or less	
	Minimum outside diameter	ø20 mm (See Figure 4)	
Z-axis speed	Approx. 10 mm/s		
Maximum depth (from indenter center)	220 mm		
X-axis stroke	None (Option: 160 mm or 300 mm)		
Y-axis stroke	None	160 mm (±80 mm)	
Y-axis speed	-	Approx. 50 mm/s	
Y-axis feed error	-	±0.1 mm or less	
Maximum table loading	100 kg		
Power supply	AC100 - 200 V 50/60 Hz		
Mass	176 kg	181 kg	205 kg

Hardness Testers are compliant with ASTM requirements

All **HR-600** machines come with diamond indenter, 1/16" carbide ball indenter, HRC30 block, HRC 63 block, HRBW 95 block, HR30N 60 block, and HR30TW 70 block

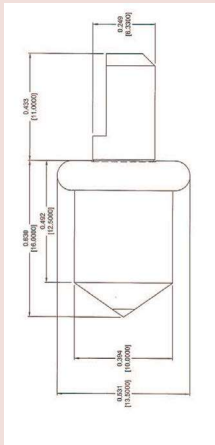


Refer to the **HR-600** Series Brochure (2295) for more details.

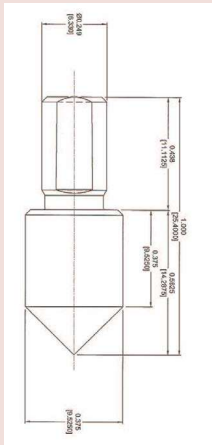
Optional Accessories

Rockwell Type Diamond Indenters

Scale	Mitutoyo Round Style Order No.	Universal w/ Flat Style Order No.
C	64HAA105	64HAA100
N	64HAA106	64HAA101
C&N	64HAA107	64HAA104
A		64HAA102
"A" for Carbides		64HAA103



Round Style



Universal with Flat



Test Blocks and Diamond Indenters

Test Blocks

Rockwell Test Blocks

Order No.	Hardness
64HAA145	HRA22 Rockwell Test Block
64HAA147	HRA30 Rockwell Test Block
64HAA149	HRA39 Rockwell Test Block
64HAA151	HRA49 Rockwell Test Block
64HAA153	HRA63 Rockwell Test Block
64HAA155	HRA68 Rockwell Test Block
64HAA157	HRA73 Rockwell Test Block
64HAA159	HRA78 Rockwell Test Block
64HAA161	HRA83 Rockwell Test Block
64HAA163	HRBW0 Rockwell Test Block
64HAA164	HRBW10 Rockwell Test Block
64HAA165	HRBW20 Rockwell Test Block
64HAA166	HRBW30 Rockwell Test Block
64HAA167	HRBW40 Rockwell Test Block
64HAA168	HRBW50 Rockwell Test Block
64HAA169	HRBW60 Rockwell Test Block
64HAA170	HRBW70 Rockwell Test Block
64HAA171	HRBW80 Rockwell Test Block
64HAA172	HRBW95 Rockwell Test Block
64BAA124	HRC40/45 Rockwell Test Block
64BAA123	HRC30/35 Rockwell Test Block
64BAA158	HRC20/25 Rockwell Test Block
64HAA173	HRC25 Rockwell Test Block
64HAA174	HRC30 Rockwell Test Block
64HAA175	HRC35 Rockwell Test Block
64HAA176	HRC40 Rockwell Test Block
64HAA177	HRC45 Rockwell Test Block
64HAA178	HRC50 Rockwell Test Block
64HAA179	HRC55 Rockwell Test Block
64HAA180	HRC60 Rockwell Test Block
64HAA181	HRC63 Rockwell Test Block
64HAA182	HRC65 Rockwell Test Block
64HAA183	HRC67 Rockwell Test Block
64HAA193	HREW57 Rockwell Test Block
64HAA194	HRE62 Rockwell Test Block
64HAA195	HRE68 Rockwell Test Block
64HAA196	HRE75 Rockwell Test Block
64HAA197	HRE81 Rockwell Test Block
64HAA198	HRE87 Rockwell Test Block
64HAA199	HRE93 Rockwell Test Block
64HAA200	HRE99 Rockwell Test Block
64BAA156	HR15T61/63 Rockwell Test Block

* Please inquire for other hardness ranges

Test Blocks

Superficial Test Blocks

Order No.	Hardness
64HAA251	HR15N 72 Rockwell Test Block
64HAA253	HR15N 78 Rockwell Test Block
64HAA255	HR15N 83 Rockwell Test Block
64HAA257	HR15N 88 Rockwell Test Block
64HAA259	HR15N 91 Rockwell Test Block
64HAA261	HR15N 94 Rockwell Test Block
64HAA262	HR30N 46 Rockwell Test Block
64HAA264	HR30N 55 Rockwell Test Block
64HAA266	HR30N 64 Rockwell Test Block
64HAA268	HR30N 73 Rockwell Test Block
64HAA270	HR30N 80 Rockwell Test Block
64HAA272	HR30N 86 Rockwell Test Block
64HAA273	HR45N 25 Rockwell Test Block
64HAA276	HR45N 43 Rockwell Test Block
64HAA278	HR45N 55 Rockwell Test Block
64HAA280	HR45N 67 Rockwell Test Block
64HAA282	HR45N 72 Rockwell Test Block
64HAA284	HR15TW 61 Rockwell Test Block
64HAA286	HR15TW 67 Rockwell Test Block
64HAA288	HR15TW 73 Rockwell Test Block
64HAA290	HR15TW 80 Rockwell Test Block
64HAA292	HR15TW 86 Rockwell Test Block
64HAA294	HR30TW 15 Rockwell Test Block
64HAA296	HR30TW 28 Rockwell Test Block
64HAA298	HR30TW 43 Rockwell Test Block
64HAA300	HR30TW 56 Rockwell Test Block
64HAA302	HR30TW 70 Rockwell Test Block
64HAA304	HR45TW 2 Rockwell Test Block
64HAA306	HR45TW 23 Rockwell Test Block
64HAA308	HR45TW 42.5 Rockwell Test Block
64HAA310	HR45TW 67 Rockwell Test Block
64HAA278	HR45N 55 Rockwell Test Block
64HAA280	HR45N 67 Rockwell Test Block
64HAA282	HR45N 72 Rockwell Test Block

Calibration Set

Order No. 64HAA462	Order No. 64HAA463	Order No. 64HAA464	Order No. 64HAA465
HRC Scale Test Blocks	HRBW Scale Test Blocks	HR30N Scale Test Blocks	HR30TW Scale Test Blocks
64HAA181	64HAA172	64HAA270	64HAA303
64HAA177	64HAA170	64HAA266	64HAA301
64HAA173	64HAA168	64HAA262	64HAA299
Universal Style Indenter with Flat			
64HAA100	64HAA119	64HAA101	64HAA119

Carbide Ball Indenters

Description	Mitutoyo Round Style Order No.	Universal w/ Flat Style Order No.	Tapered w/Flat Style Order No.
1/16" Carbide ball indenter	64HAA120	64HAA119	64HAA129
1/8" Carbide ball indenter		64HAA122	
1/4" Carbide ball indenter		64HAA124	
1/2" Carbide ball indenter		64HAA126	
1/16" Carbide ball (10pc.)		64HAA131	
1/8" Carbide ball (1pc.)		64HAA133	
1/4" Carbide ball (1pc.)		64HAA135	
1/2" Carbide ball (1pc.)		64HAA137	

Steel Indenters/Balls Available Upon Request

Optional Accessories

For Rockwell/Rockwell Superficial Type Hardness Testing machine

Round table

810-038 Outside \varnothing 250 mm



For large specimens such as molded items

Round table

810-037 Outside \varnothing 180 mm



For large specimens such as molded items

V-anvil (large)

810-040

(Outside \varnothing 40 mm,
Groove width 30 mm)



For round specimens (max. \varnothing 60 mm)

V-anvil (small)

810-041

(Outside \varnothing 40 mm,
Groove width 6 mm)



For shaft materials (max. \varnothing 8.4 mm)

Spot anvil

810-043

(Outside \varnothing 12 mm)



Spot anvil

810-044

(Outside \varnothing 5.5 mm)

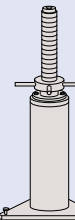
For sheet specimens



Jack rest

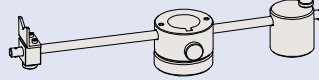
810-028

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



VARI-REST

810-027

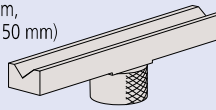


For testing long specimens (commonly used
for the anvil)

Special V-anvil

810-029

(Length 400 mm,
Groove width 50 mm)



For round specimens \varnothing 14-98 mm

Diamond-spot anvil

810-030

(Outside \varnothing 10 mm)

For sheet specimens



*Dedicated to the Rockwell Superficial hardness test

Small V-anvil

810-042

(Outside \varnothing 10 mm)

For round specimens (max. \varnothing 16 mm)



Testing machine table

11AAD186

Supplied with
stability bracket

Testing machine table



Vibration isolator

810-643

Only for mounting hardness testing machines

Foot switch

11AAD537



Digimatic mini-processor

DP-1VA

264-505A

Connection cable not supplied. (To be ordered separately.)



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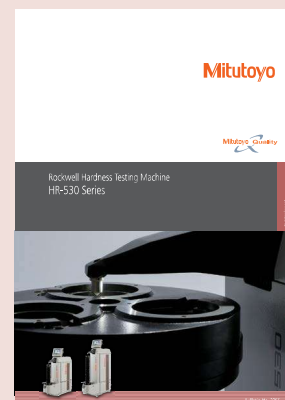
936937

Optional Accessories

HM200 and HR-530 Series:

06AFM380D: USB input tool – Tester to PC

936937: Tester to DP1-VA Printer



Refer to **HR-530 Series Brochure (2255)** for more details.



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