

HR-521(L) / 523(L)

SERIES 810 — Rockwell Type Hardness Testing Machines

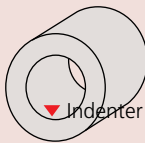
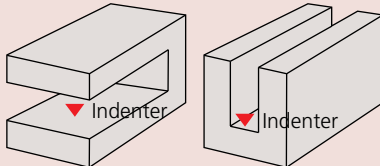
Technical Data

Preliminary test force:	29.42N, 98.07N
Test force	
Rockwell superficial:	147.1, 294.2, 441.3N
Rockwell:	588.4, 980.7, 1471N
Brinell*:	
Test force setting:	By control unit
Load control:	Automatic (loading, duration, unloading)
Load duration:	0s - 120s (1s increments)
Max. specimen height:	205mm (for standard flat anvil)
Max. specimen depth:	150mm (from the center of indenter shaft)
Stage elevation:	Manual or power drive
Control unit:	Sheet-switch type or touch-screen type
Data output:	RS-232C, Digimatic code (SPC) and Centronics
Power supply:	120V AC, 50/60Hz
Dimensions (W x D x H)	
Main unit:	250 x 670 x 605mm
Control unit:	165 x 260 x 105mm

Optional Accessories: See page K-11, 12

Various shapes of specimen can be measured. (Nose-type indenter axis mechanism has been adopted.)

The nose-type indenter mechanism allows measurement of pipe samples as well as the top surface of a flat sample.



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

FEATURES

- Multiple test force generation for Rockwell, Rockwell Superficial and Light Force Brinell hardness.
- Dolphin-nose indenter arm for easy reach of interior (min. \varnothing 40mm/ \varnothing 22mm*) and exterior surfaces.
*When using an optional diamond indenter (19BA292).
- Real-time electronic test force control for accurate loading. This eliminates load force overshooting.
- Indenter escape function for continuous testing at fixed table position. This eliminates instability caused by the table retraction.
- Auto-stop elevation table and automatic preliminary test force loading to provide stable test force generation.
- Complete with one flat and VEE anvil, diamond and 1/16" carbide ball indenters, 2 HRC and 1 HRBW Rockwell test blocks and an HR30N and HR30TW test block.



SPECIFICATIONS

Model	HR-521	HR521L	HR-523	HR-523L
Order No.	810-202-03A	810-205-03A	810-204-03A	810-207-03A
Preliminary Test Force	29.42N (3kgf), 98.07N (10kgf)			
Test Force	Rockwell	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)		
	Rockwell Superficial	147.1N (15kgf), 294.2N (30kgf), 441.3N (45kgf)		
Light Force Brinell	HBW2.5/187.5	HBW1/10, HBW1/30, HBW2.516.25, HBW2.5115.625, HBW2.5131.25, *1 HBW2.5162.5, HBW5/25, HBW5/62.5, HBW5/125, HBW10/100		
Force Control	Automatic control (unloading/duration/unloading) with closed-loop feed back			
Console/Display Unit	Touch-screen operation with back-lit LCD graphic display			
Test Force Selection	By touch screen			
Table up/down drive	Manual (w/Auto-brake mechanism)		Power-Drive (for full-automatic measurement)	
Load Duration	0 to 120 sec. (1 sec. step)			
Maximum Specimen Height	8.1" (205mm)	15.5" (395mm)	8.1" (205mm)	15.5" (395mm)
Maximum Specimen Depth	5.9" (150mm)			
Display Indication Functions	Hardness value, Converted hardness value, Test conditions, go/no-go tolerance judgment, statistical processing result Rockwell/Rockwell superficial hardness testing. Continuous testing. Cylindrical/spherical surface compensation, data offset. Hardness conversion (HV, HK, HRA/B/C/D/F/G/15T/30T/45T/15N/30N/45N, HS, HB, HBW, tensile strength) Go/no-go tolerance judgment, measured data editing, data memory (max 1024 data) SPC calculation (No. of data, max/min/mean values, range, upper/lower limit values, standard deviation, No. of passing/defective) Histogram, \bar{x} -R chart			
Data Output	RS-232C, SPC, Centronics			
Dimensions (W x D x H)	9.84" x 26.38" x 23.82" (250 x 670 x 605mm)			
Mass	60kg			

HR-320MS/430MR/430MS

SERIES 963 — Rockwell Hardness Testing Machines

FEATURES

- The new frame design allows the full 7.1" of specimen capacity without the need to cut a hole in the table.
 - Simple to operate; the digital HR320 model uses a flashing bar graph to indicate when the initial test force has been reached.
 - 430 models feature automatic brake and automatic start function that prevent overloading and begins test cycle.
- The HR430 model also includes the dial a weight system for easier load selection.
- All models are complete with Flat and VEE anvils, diamond and 1/16" carbide ball indenters, 2 HRC and 1 HRBW Rockwell blocks (MR models) or 3 Rockwell blocks and an HR30N and HR30TW for MS testers.



HR-320MS

Rockwell/Rockwell Superficial hardness testing machine

Motorized Loading
Motor drive - Button start model



HR-430MR

Rockwell hardness testing machine

Motorized Loading
Motor drive - Automatic start model



HR-430MS

Rockwell/Rockwell Superficial hardness testing machine

Motorized Loading
Motor drive - Automatic start model

Technical Data

Preliminary test force: 29.42N*, 98.07N
 Test force
 Rockwell superficial*: 147.1, 294.2, 441.3N
 Rockwell: 588.4, 980.7, 1471N
 Test force setting: By dial
 Load control: Automatic (loading, duration, unloading)
 Anvil: Flat (ø64mm)
 Max. specimen height: 7.1" / 180mm
 Max. specimen depth: 6.5" / 165mm (from the center of indenter shaft)
 Stage elevation: Manual
 Data output*: RS-232C, Digimatic code (SPC)
 Power supply: 120V AC, 50/60Hz

*HR320-430 only

SPECIFICATIONS

Order Number	963-231-10A	963-240-10A	963-241-10A
Model	HR-320MS	HR-430MR	HR-430MS
Test Scales	Rockwell and Rockwell Superficial	Rockwell	Rockwell and Rockwell Superficial
Standard	JIS B 7726 ISO 6508-2 ASTM E18-10		
Preliminary Test Force	98.07N (10kgf), 29.42 (3kgf)	98.07N (10kgf)	98.07N (10kgf), 29.42 (3kgf)
Test Force Rockwell	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)		
Test Force Superficial	147.1N (15kgf), 294.2N (30kgf), 441.3N (45kgf)	—	147.1N (15kgf), 294.2N (30kgf), 441.3N (45kgf)
Display	Matrix Backlight LCD		
Hardness Minimum Value	0.1 HR		
Scale Conversions	HRC, HRB, HV, HBW, HS, Mpa plus offset, OK/NG		
Preliminary Test Force	Manual (with Loading Navigator)	Manual (with automatic brake-start)	
Total Test Force Control	Automatic (loading, duration, unloading)		
Loading Method	Dead Weight		
Load Duration (Dwell)	Adjustable (1s to 99s) or Manual		
Maximum Specimen Ht.	7.1" (180mm)		
Maximum Depth	6.5" (165mm)		
Data Output	RS-232C, SPC		
Power Supply	120V AC (±10%), 60Hz		
Dimensions (D x W x H)	20.6"(523mm) x 9.25"(235mm) x 30.7"(780mm)	20.6"(523mm) x 9.25"(235mm) x 30.7"(780mm)	20.6"(523mm) x 9.25"(235mm) x 30.7"(780mm)
Mass	102.07lb (46.3kg)	108.69lb (49.3kg)	110.01lb (49.9kg)

Optional Accessories

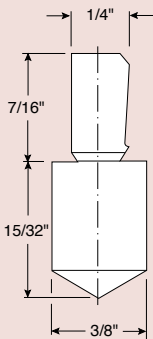
For Rockwell/Rockwell Superficial Type Hardness Testing machine



Calibration Set

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

Rockwell Type Diamond Indenters



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

Order No.	Hardness
64BAA159	HRA81/86 Rockwell Test Block
64BAA160	HRA75/79 Rockwell Test Block
64BAA161	HRA70/73 Rockwell Test Block
64BAA162	HRA65/68 Rockwell Test Block
64BAA163	HRA60/62 Rockwell Test Block
64BAA249	HRBW95/100 Rockwell Test Block
64BAA126	HRBW90/95 Rockwell Test Block
64BAA131	HRBW80/85 Rockwell Test Block
64BAA132	HRBW70/75 Rockwell Test Block
64BAA133	HRBW60/65 Rockwell Test Block
64BAA134	HRBW50/55 Rockwell Test Block
64BAA135	HRBW40/45 Rockwell Test Block
64BAA127	HRBW30/35 Rockwell Test Block
64BAA136	HRBW20/25 Rockwell Test Block
64BAA137	HRBW10/15 Rockwell Test Block
64BAA138	HRBW0/5 Rockwell Test Block
64BAA125	HRC60/65 Rockwell Test Block
64BAA157	HRC50/55 Rockwell Test Block
64BAA124	HRC40/45 Rockwell Test Block
64BAA123	HRC30/35 Rockwell Test Block
64BAA158	HRC20/25 Rockwell Test Block

Order No.	Hardness
64BAA129	HR30T74/79 Rockwell Test Block
64BAA139	HR30T70/73 Rockwell Test Block
64BAA140	HR30T63/67 Rockwell Test Block
64BAA141	HR30T56/60 Rockwell Test Block
64BAA142	HR30T49/53 Rockwell Test Block
64BAA130	HR30T43/47 Rockwell Test Block
64BAA143	HR30T36/39 Rockwell Test Block
64BAA144	HR30T29/33 Rockwell Test Block
64BAA145	HR30T22/26 Rockwell Test Block
64BAA146	HR30T15/18 Rockwell Test Block
64BAA147	HR15T90/92 Rockwell Test Block
64BAA148	HR15T86/69 Rockwell Test Block
64BAA149	HR15T83/85 Rockwell Test Block
64BAA150	HR15T80/82 Rockwell Test Block
64BAA151	HR15T77/79 Rockwell Test Block
64BAA152	HR15T72/74 Rockwell Test Block
64BAA153	HR15T70/72 Rockwell Test Block
64BAA154	HR15T68/69 Rockwell Test Block
64BAA155	HR15T64/66 Rockwell Test Block
64BAA156	HR15T61/63 Rockwell Test Block

Order No.	Hardness
64BAA222	HR45N65/70 Rockwell Test Block
64BAA223	HR45N55/60 Rockwell Test Block
64BAA224	HR45N45/50 Rockwell Test Block
64BAA225	HR45N35/40 Rockwell Test Block
64BAA226	HR45N25/30 Rockwell Test Block
64BAA128	HR30N64/69 Rockwell Test Block
64BAA164	HR30N68/73 Rockwell Test Block
64BAA165	HR30N59/64 Rockwell Test Block
64BAA166	HR30N50/55 Rockwell Test Block
64BAA167	HR30N40/45 Rockwell Test Block
64BAA168	HR15N90/93 Rockwell Test Block
64BAA169	HR15N85/88 Rockwell Test Block
64BAA170	HR15N80/83 Rockwell Test Block
64BAA171	HR15N75/77 Rockwell Test Block
64BAA172	HR15N69/72 Rockwell Test Block

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.)

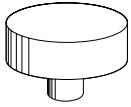
Steel Ball Indenters

Order No.	Description
64BAA074	1/16" diameter steel ball indenter
19BAA078	1/16" diameter steel ball indenter (auto-discrimination type)
64BAA075	1/8" diameter steel ball indenter
64BAA079	1/8" diameter steel ball indenter (auto-discrimination type)
64BAA076	1/4" diameter steel ball indenter
64BAA080	1/4" diameter steel ball indenter (auto-discrimination type)
64BAA077	1/2" diameter steel ball indenter
64BAA081	1/2" diameter steel ball indenter (auto-discrimination type)
64BAA082	1/16" diameter spare steel ball (10 pcs)
64BAA083	1/8" diameter spare steel ball (10 pcs)
64BAA084	1/4" diameter spare steel ball (10 pcs)
64BAA085	1/2" diameter spare steel ball (10 pcs)

Optional Accessories

For Rockwell/Rockwell Superficial Type Hardness Testing machine

Flat anvil



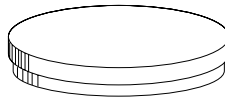
Diameter: 2.5"(64mm)

810-039

Diameter: 1.5"(38mm)

810-039-08

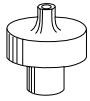
Round Table



Diameter: 7.08"(180mm)

810-037

Spot anvils



Diameter: .25"(6.4mm)

Height: .88"(22mm)

810-044



Diamond-tipped type for
Rockwell superficial hardness measurement

810-030

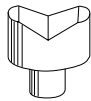
V-anvils



Diameter: 1.5"(38mm)

Groove width: .38"(9.7mm)

810-041



Diameter: 1.5"(38mm)

Groove width: 1.5"(38mm)

810-040



Diameter: .38"(9.7mm)

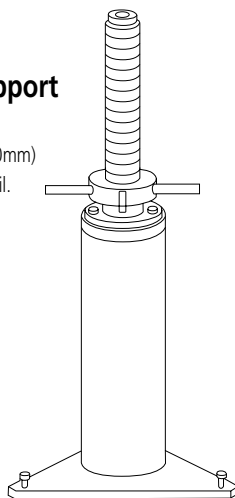
Groove width: .38"(9.7mm)

810-042

Adjustable support

Adjustable height:
13 to 18.5" (330 to 470mm)
Used to mount a V-anvil.

810-028



264-504-5A



937386



Optional Accessories

All tester Except HM 200:

06ADV380E: USB input tool – Tester to PC

937386: Tester to DP1-VR Printer

HM 200 Type:

06ADV380D: USB input tool – Tester to PC

936937: Tester to DP1-VR Printer