

to suit practically every application...



HR-430MR Order No. 963-240-10A
Rockwell Hardness Testing Machine

- ◆ Economy type tester loaded with the features of a more expensive tester such as an Automatic Brake and Start system that stops the application of the initial (Minor) test force and starts the total (Major) test force cycle.
- ◆ Adjustable Dwell time.
- ◆ Dial Selection of total test force. MS model also feature easy dial change between Rockwell and Superficial Scales.



HR-430MS Order No. 963-241-10A
Twin type (Rockwell/Rockwell Superficial combined use) Hardness Test equipment

- ◆ The digital type (HR-430MR and HR-430MS), with the adoption of the automatic elevating screw brake & the automatic load sequence, with only simple handling test possibility.



- ◆ The digital type (HR-320MS, HR-430MR and HR-430MS) has a digimatic output and our Digimatic Mini-Processor (DP-1VR) to print and input tools (USB-ITN-E) to connect to a PC and use for data transfer.



- ◆ Light Force Brinell hardness tests can be performed by using the available optional accessories: a Brinell indenter, a weight set and a measurement microscope.

Specifications

Inch (mm)

Order Number	963-220-10A	963-231-10A	963-240-10A	963-241-10A
Model	HR-210MR	HR-320MS	HR-430MR	HR-430MS
Test Scales	Rockwell	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)	98.07N (10kgf), 29.42 (3kgf)	98.07N (10kgf), 29.42 (3kgf)	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	Dial	Matrix Backlight LCD		
Hardness Minimum Value	0.5 HR	0.1 HR		
Scale Conversions	—	HRC, HRB, HV, HBW, HS, Mpa plus offset, OK/NG		
Preliminary Test Force	Manual (with automatic zero set)	Manual (with Loading Navigator)	Manual (with automatic brake-start)	
Total Test Force Control	Automatic (loading, duration, unloading)			
Loading Method	Dead Weight			
Load Duration (Dwell)	Fixed (3s to 5.5s) or Manual		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)	20.15" (512mm) 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)	20.6" (523mm) x 9.25" (235mm) x 30.7" (780mm)
Mass	100.53lb (45.6kg)	102.07lb (46.3kg)	108.69lb (49.3kg)	110.01lb (49.9kg)

STANDARD ACCESSORIES

All Models		MR Models		MS Models	
Item	Description	Item	Description	Item	Description
V Anvil (large)	30mm				
Flat Anvil	64mm	Diamond Indenter	Rockwell	Diamond Indenter	Rockwell and Superficial
1/16" Carbide Ball Indenter		Hardness test Block		Hardness test Block	60 HRC
AC Adapter		Hardness test Block	60 HRC	Hardness test Block	30 HRC
Users Manual		Hardness test Block	30 HRC	Hardness test Block	90 HRBW
Vinyl Cover			90 HRBW	Hardness test Block	65 HR30N
Accessory Box				Hardness test Block	70 HR30TW
Level					

ROCKWELL HARDNESS SCALES

Scale	Hardness symbol*1	Indenter	Preliminary test force	Total test force	Hardness range applicable
A	HRA	Conical diamond	98.07N (10kgf)	588.4N (60kgf)	20-95HRA
D	HRD			980.7N (100kgf)	40-77HRD
C	HRC			1471N (150kgf)	10-70HRC
F	HRF	Sphere ø1.5875mm (1/16")		588.4N (60kgf)	60-100HRF
B	HRB			980.7N (100kgf)	20-100HRB
G	HRG	Sphere ø3.175mm (1/8")		1471N (150kgf)	30-94HRG
H	HRH			588.4N (60kgf)	80-100HRH
E	HRE	Sphere ø6.35mm (1/4")		980.7N (100kgf)	70-100HRE
K	HRK			1471N (150kgf)	40-100HRK
L	HRL	Sphere ø6.35mm (1/4")		588.4N (60kgf)	
M	HRM		980.7N (100kgf)		
P	HRP	Sphere ø12.7mm (1/2")	1471N (150kgf)		
R	HRR		588.4N (60kgf)		
S	HRS	Sphere ø12.7mm (1/2")	980.7N (100kgf)		
V	HRV		1471N (150kgf)		

Scale	Hardness symbol*1	Indenter	Preliminary test force	Total test force	Hardness range applicable
15N	HR15N	Conical diamond	29.42N (3kgf) Coverage	147.1N (15kgf)	70-94HR15N
30N	HR30N			294.2N (30kgf)	42-86HR30N
45N	HR45N			441.3N (45kgf)	20-77HR45N
15T	HR15T	Sphere ø1.5875mm (1/16")		147.1N (15kgf)	67-93HR15T
30T	HR30T*2			294.2N (30kgf)	29-82HR30T
45T	HR45T	Sphere ø3.175mm (1/8")		441.3N (45kgf)	10-72HR45T
15W	HR15W			147.1N (15kgf)	
30W	HR30W	Sphere ø3.175mm (1/8")		294.2N (30kgf)	
45W	HR45W			441.3N (45kgf)	
15X	HR15X	Sphere ø6.35mm (1/4")		147.1N (15kgf)	
30X	HR30X		294.2N (30kgf)		
45X	HR45X	Sphere ø12.7mm (1/2")	441.3N (45kgf)		
15Y	HR15Y		147.1N (15kgf)		
30Y	HR30Y	Sphere ø12.7mm (1/2")	294.2N (30kgf)		
45Y	HR45Y		441.3N (45kgf)		

*1: In the case of scales which specify a spherical indenter, a letter should be appended to the hardness symbol ("S" for steel, "W" for tungsten carbide) when quoting the measurement result to show that it was obtained with an indenter made of the indicated material.

*2: Applied to a specimen of less than 0.6mm thickness a special test, which takes account of the influence of the impression made by the test sphere on such a thin specimen, may be designated as HR30Tm and is defined in JIS Z 2245 appendix A.