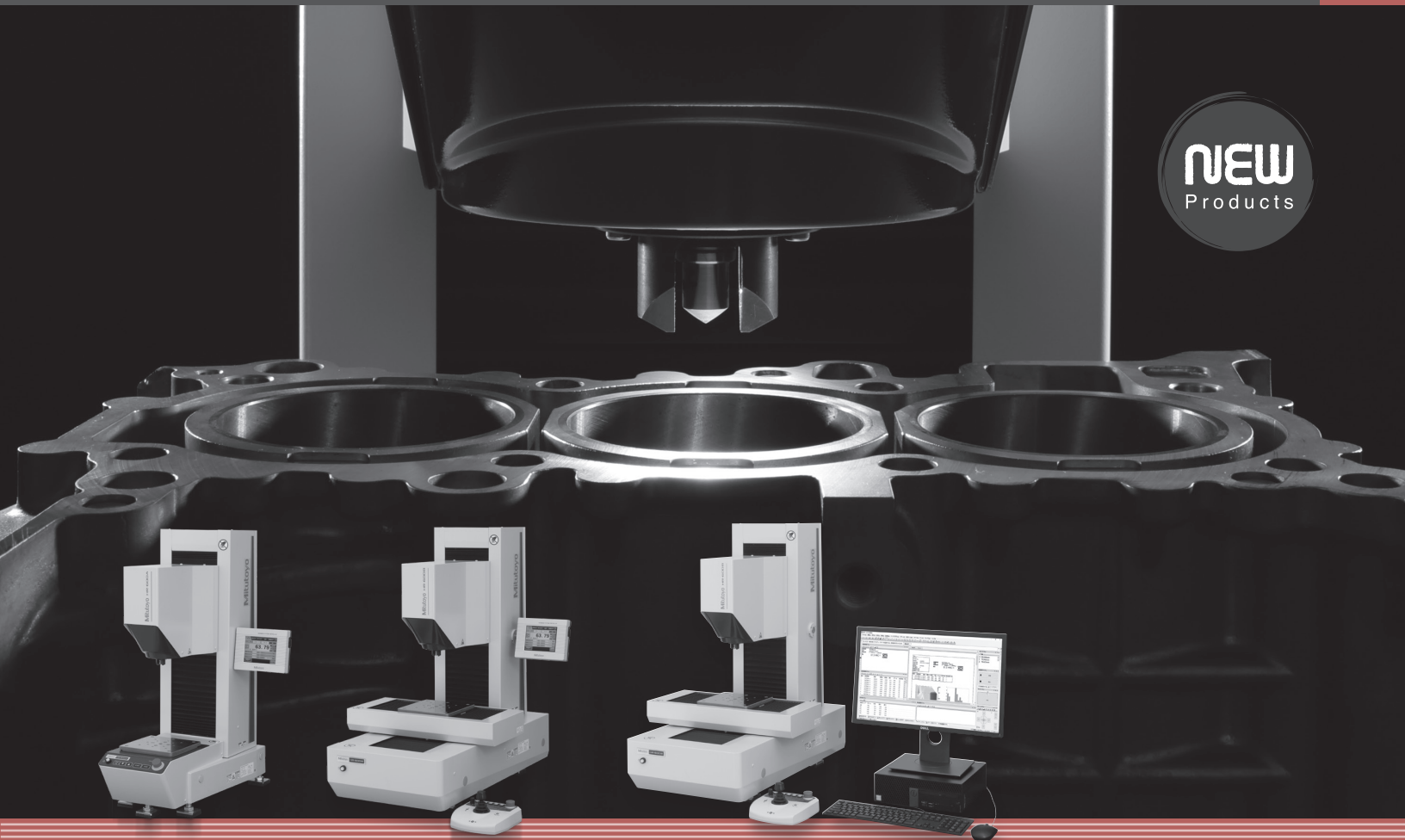


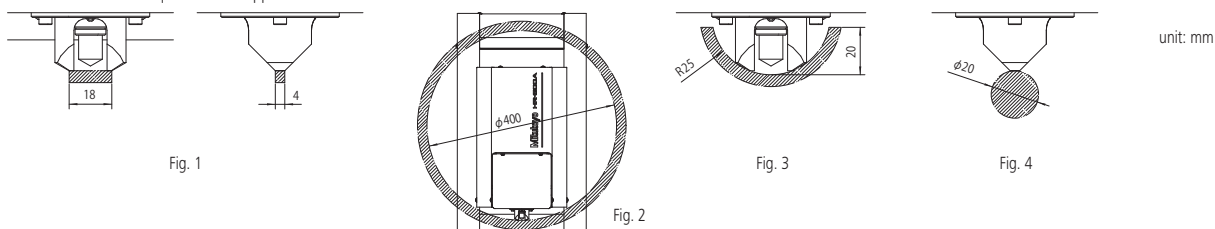
High-End CNC Rockwell Hardness Testing Machine HR-600 Series Specifications Sheet



Tester (main unit)

Order No.	810-511-13	810-521-13	810-526-11
Model	HR-610A	HR-620A	HR-620B
Unit (display unit)	inch/mm	inch/mm	inch/mm
Indenter type *1	1/16" Tungsten carbide ball		
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 (See "Testable workpieces")		
Testable workpieces	Minimum surface dimensions	18 x 4 mm (See Figure 1)	
	Minimum inner diameter of pipe-type workpiece	φ 400 mm (See Figure 2)	
	Concave workpiece	R25 mm or more, Height 20 mm or less (See Figure 3)	
	Minimum outside diameter	φ 20 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

Note: Plastic testing may not be enabled depending on the material. For the test of Brinell hardness, indentation Brinell hardness, and plastic hardness, other special accessories are required. *1 Supplied as standard.



Applicable standards and test force HR-610 / HR-620

		HR-610	HR-620
Hardness testing methods	Rockwell	JIS B 7726, ISO 6508-2, ASTM E18	
	Brinell	JIS B 7724, ISO 6506-2, ASTM E10	
	Plastic	ISO 2039-1	
	Indentation Brinell hardness	JIS K 7202-2, ISO 2039-2, ASTM D785	
Initial test force N (kgf)	Rockwell	29.42 (3) 98.07 (10)	9.807 (1)
	Plastic	98.07 (10)	
	Indentation Brinell hardness	98.07 (10) 490.3 (50)	
	Indentation Vickers hardness	9.807 (1)	
Test force N (kgf)	Rockwell	147.1 (15) 294.2 (30) 441.3 (45) 588.4 (60) 980.7 (100) 1471 (150)	9.807 (1) - 2452 (250)
	Light Force Brinell	49.03 (5) - 1839 (187.5)	49.03 (5) 132.4 (13.5) 358.0 (36.5) 962.1 (98.1)
	Plastic	588.4 (60) 980.7 (100) 1471 (150)	
	Indentation Brinell hardness	612.9 (62.5) 1839 (187.5) 2452 (250)	
	Indentation Vickers hardness	294.2 (30) 490.4 (50)	

*2 For Brinell hardness testing, an indenter (option) and a measurement microscope are required.

Display unit Standard on Type A models

Display	Standard	Number of data displayed: 1, Hardness value, Scale, Test numbering, Hold time (Initial test force), Hold time (Total test force), Reading time, Hardness conversion, Judgment, Correction, Unit
	Simple	Number of data displayed: 1, Hardness value, Scale, Judgment, Correction
	List average / list	Number of data displayed: 5, Hardness value, Average hardness value, Hardness variation, Scale, Hardness conversion, Judgment, Correction
Calculation	Multipoint	Depending on set test points, Hardness value, Scale, Test numbering, Judgment, Correction, Unit
	GO / NG judgment function	Test results judged according to set maximum / minimum values
Correction functions	Conversion function	Converts obtained test results to another scale
	Curved surface compensation	Corrects results according to specimen shape (cylindrical, spherical, etc.)
	User correction	Shift Corrects by increasing / decreasing value according to hardness value Multipoint Corrects based on the results of tests conducted on multiple standard blocks (Rockwell/superficial only)
External output settings	Serial	For printer (RS-232C compliant) 1-ch
	Digimatic	Digimatic interface outputs 1-ch
	USB2.0	1-ch for PC communication / for USB memory
Languages		Supports the following 15 languages Japanese, English, German, French, Italian, Spanish, Korean, Chinese (simplified characters), Chinese (traditional characters), Turkish, Portuguese, Polish, Czech, Hungarian and Dutch
Hardness value	Digital display	Max. 7-digit (including decimal point and sign)
	Minimum reading	0.01 (settings can be changed)
Average hardness value		Average value of valid data
Hardness variation		Variations in valid data (Max. - Min.)
Scale		HRC/HR15N/HBW2.5/187.5 etc.
Test numbering		When testing a single specimen: 1, 2, 3...
		When testing a group of specimens: 1/5-1, 2/5-1, 3/5-1, 4/5-1, 5/5-1, 1/5-2, 2/5-2...
Hold time	Initial test force	1 - 120s (configurable in seconds)
	Total test force	1 - 120s (configurable in seconds)
Reading time		0 - 120s (configurable in seconds)
Hardness conversion		MITUTOYO HARD STEEL, SOFT METAL / SAE J417 T1 / ASTM E140 T1, T2, T4 ISO 18265 TA, 1/BS 860 T2, T3, T4
Judgment		OK, ±NG
Correction		Displays whether or not correction was applied: cylindrical, spherical, user (multipoint / shift correction)
Unit		in/mm (X-, Y- and Z-axis stage displacements)

Standard accessories

Order No.	Description	Specifications	Qty
11PAA366	HR-600 accessory box		1
11AAD665	Booster	φ 120 mm	1
19BAA073	Diamond indenter	Dedicated to the Rockwell Superficial hardness test	1
11AAD465	1/16" carbide ball indenter		1 (models with carbide ball indenters only)
19BAA507	Spare ball	Carbide ball 1/16"	1 (models with carbide ball indenters only)
02ZAA010	Power cable	200 V 120 V	
11BAC135	Cable clamp CKN-13		3 (HR-610A/620A only)
			1 (HR-620B only)
538615	Allen wrench	Size 2.5 mm	1

Optional accessories

Testing machine table, X-axis stage, etc.

Order No.	Description	Remarks
11AAD668	Testing machine stand A	For HR-610A/620A
11AAD671	Testing machine stand B	For HR-620B
11AAD599	Display unit	HR-610A/620A is supplied as standard
810-530	160 mm X-axis stage (For A Models)	For HR-610A/620A
810-531	300 mm X-axis stage (For A Models)	For HR-610A/620A
810-535	160 mm X-axis stage (For B Models)	For HR-620B
810-536	300 mm X-axis stage (For B Models)	For HR-620B
11AAD630	V anvil	
11AAD385	Contactor (large)	For 1/4, 1/2, 5mm, 10mm indentors
264-505A	Digimatic Mini-Processor DP-1VA LOGGER	
936937	Digimatic Mini-Processor DP-1VA LOGGER Connecting cable (1 m)	Digimatic Mini-Processor for DP-1VA LOGGER
02AGD600	Thermal printer DPU-414	
06AFM380D	USB Input Tool Direct USB-ITN-D	
02AZD730G	Measurement Data Wireless Communication System U-WAVE U-WAVE-T	IP67 type
02AZD880G	Measurement Data Wireless Communication System U-WAVE U-WAVE-T	Buzzer type
02AZD790D	Measurement Data Wireless Communication System U-WAVE U-WAVE-T Connecting cable	
02AZD810D	Measurement Data Wireless Communication System U-WAVE U-WAVE-R	
11AAD537	Foot switch	

Indenter

Order No.	Description	Remarks
19BAA072	Diamond indenter	Dedicated to the Rockwell hardness test
19BAA073	Diamond indenter	Dedicated to the Rockwell Superficial hardness test
11AAD461	1/16" steel ball indenter	
11AAD462	1/8" steel ball indenter	
11AAD733	1/4" steel ball indenter	
11AAD734	1/2" steel ball indenter	
19BAA082	Steel ball (spare) 1/16"	10 pcs./set
19BAA083	Steel ball (spare) 1/8"	10 pcs./set
19BAA084	Steel ball (spare) 1/4"	10 pcs./set
19BAA085	Steel ball (spare) 1/2"	10 pcs./set
11AAD465	1/16" carbide ball indenter	
11AAD466	1/8" carbide ball indenter	
11AAD735	1/4" carbide ball indenter	
11AAD742	1/2" carbide ball indenter	
19BAA507	Carbide ball (spare) 1/16"	1 pc./set
19BAA508	Carbide ball (spare) 1/8"	1 pc./set
19BAA509	Carbide ball (spare) 1/4"	1 pc./set
19BAA510	Carbide ball (spare) 1/2"	1 pc./set

For Brinell/HBT* hardness test

Order No.	Description (mm)	Remarks
11AAD721	Carbide ball indenter (φ 1)	
11AAD722	Carbide ball indenter (φ 2.5)	
11AAD723	Carbide ball indenter (φ 5)	
11AAD724	Carbide ball indenter (φ 10)	
19BAA281	φ 1 carbide ball	1 pc./set
19BAA283	φ 2.5 carbide ball	1 pc./set
19BAA162	φ 5 carbide ball	1 pc./set
19BAA163	φ 10 carbide ball	1 pc./set

* Brinell depth measurement

For HVT hardness test

Order No.	Description	Specifications
11AAE254	HVT indenter	Dedicated to HVT

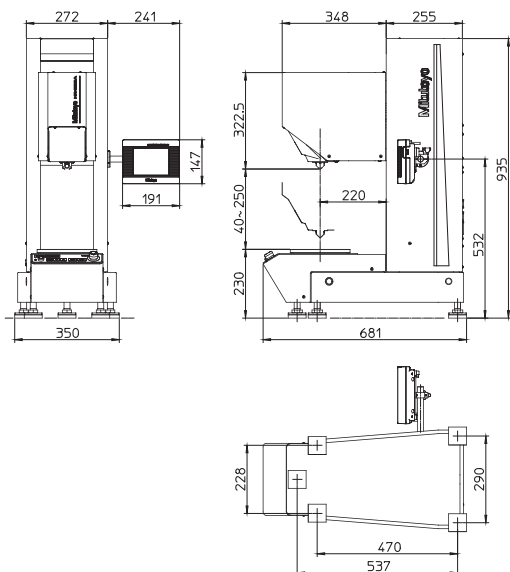


For additional hardness tester accessories, see current catalog

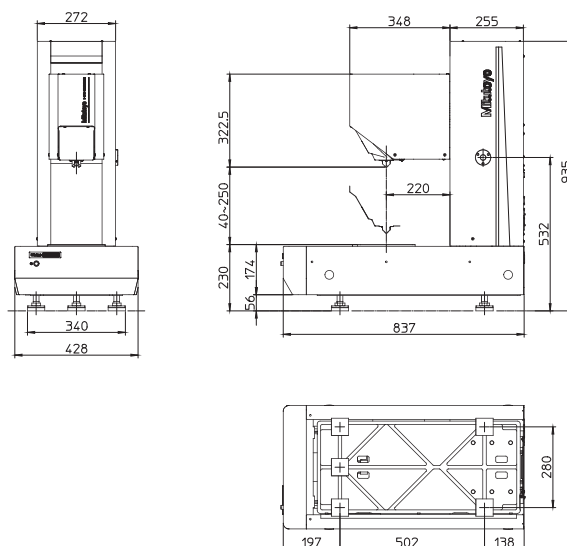
Dimensions

unit: mm

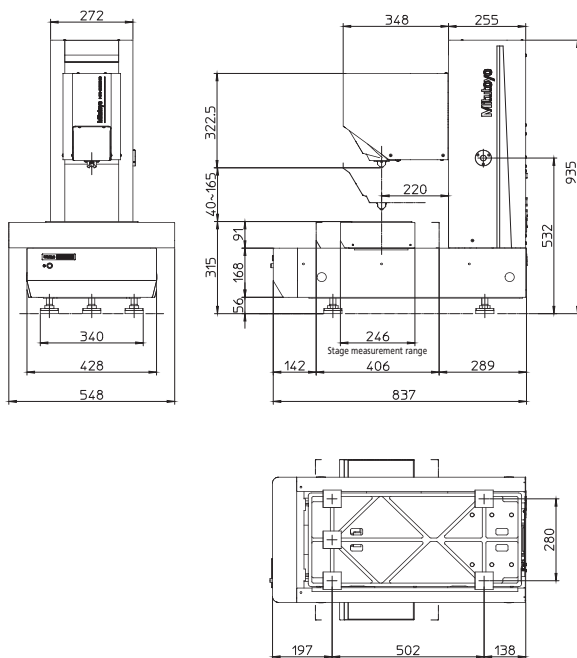
HR-610A, HR-620A



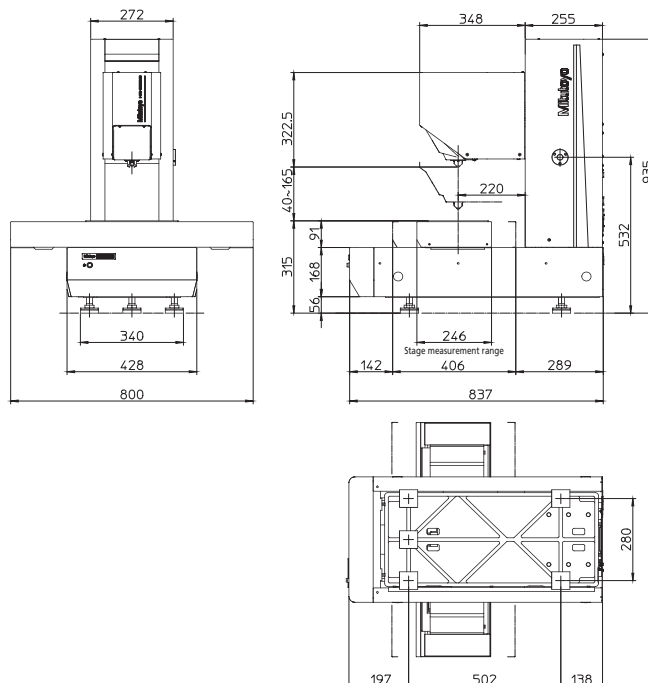
HR-620B



HR-620B + 160 mm X-axis stage



HR-620B + 300 mm X-axis stage



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