

JUST MACHINE TOOLS

(House of Testing Machines)



HARDNESS TESTERS



An ISO 9001:2000 Certified Company



NMR

HARDNESS TESTERS FOR

STANDARD ROCKWELL METHOD

STANDARD ROCKWELL/BRINELL METHOD

SUPERFICIAL ROCKWELL METHOD

STANDARD ROCKWELL/SUPERFICIAL ROCKWELL METHOD

STANDARD BRINELL METHOD

STANDARD ROCKWELL/SUPERFICIAL ROCKWELL/BRINELL/VICKERS METHOD

VICKERS/BRINELL METHOD

VICKERS METHOD

'JUSTY' Hardness Testers have been designed and manufactured strictly conforming to IS, BS, ASTM, ISO and DIN Standards, "SINCE 1965" for most exact test requirements in the Laboratories and Workshops etc. These testers are designed and manufactured for measuring hardness of metals and alloys of all types, hard or soft, flat, round, tubular or irregular in shape. The testers are simple in design, easy to operate, yet very reliable and accurate.

STANDARD ROCKWELL METHOD MANUAL OPERATION

Model NMR-3 : With automatic zero setting dial gauge and automatic load selection. (Standard Model)

Model MR-3 : With automatic zero setting dial gauge device and automatic load selection. (Dx Model)

STANDARD ROCKWELL/BRINELL METHOD MANUAL OPERATION

Model NMRB-4 : With automatic zero setting dial gauge device and automatic load selection. Brinell Hardness Testing facility according to 30 F/D² ratio with 187.5 kgf load and 2.5 mm dia ball indenter. (Standard Model)

Model MRB-4 : With automatic zero setting dial gauge device and automatic load selection. Brinell Hardness Testing facility according to 30 F/D² ratio with 187.5 kgf load and 2.5 mm dia ball indenter. (Dx Model)

Model NMRB-S : Similar to NMRB-4, but with Manual load selection and additional test load of 250 kgf and 5 mm dia ball indenter, for testing Brinell hardness of non ferrous metals according to 10F/D² ratio. (Standard Model)

Model MRB-S : Similar to MRB-4, but with additional test load of 250 kgf and 5 mm dia ball indenter, for testing Brinell hardness of non ferrous metals according to 10F/D² ratio. (Dx Model)

Model MRB-5 : Similar to MRB-S but with additional test load of 125 kgf and 10 mm dia ball indenter, for testing Brinell hardness of softer non-ferrous metals according to 5F/D² and 1F/D² ratio. (Dx Model)

Note : All the above models can also be supplied incorporating a special device, in which the plunger is guided in a set of ball bearings on special request.

SUPERFICIAL ROCKWELL METHOD MANUAL OPERATION

Model NMRS-7 : With automatic zero setting dial gauge device and manual load selection. The plunger is guided in a set of ball bearings. (Standard Model)

Model MRS-7 : With automatic zero setting dial gauge device and manual load selection. The plunger is guided in a set of ball bearings. (Dx Model)

Model NMRS-8 : With automatic zero setting dial gauge device and automatic load selection. The plunger is guided in a set of ball bearings. (Standard Model)

Model MRS-8 : With automatic zero setting dial gauge device and automatic load selection. The plunger is guided in a set of ball bearings. (Dx Model)

STANDARD ROCKWELL/SUPERFICIAL ROCKWELL METHOD MANUAL OPERATION

Model NMRT-9 : Standard Rockwell/Superficial Rockwell Twin Hardness Tester with automatic zero setting dial gauge device and manual load selection, for minor and major loads. The plunger is guided in a set of ball bearings. For easy readability on the dial, the 'B' scale letters are coloured red, 'C' scale in black and superficial Rockwell scale in green. (Standard Model)



MR



B-3000(HM)

125, 150, 187.5 and 250 kgf for conducting Vickers, Brinell, Standard Rockwell and Superficial Rockwell method tests. The standard accessories includes all the required indentors and two microscopes separately one for the measurement of ball indentation dia for Brinell method test, and the other for the Vickers indentation diagonal measurement for Vickers method test. The least count of 25 x Brinell microscope supplied with illumination device is 0.1 mm directly on the scale and 0.01 mm with the attached micrometer. The least count of 100 x Vickers microscope also supplied with illumination device is 0.01 mm directly on the scale and 0.001 mm with estimation.

Model MRT-9 : Standard Rockwell/Superficial Rockwell Twin Hardness Tester with automatic zero setting dial gauge device and automatic load selection, for minor and major loads. The plunger is guided in a set of ball bearings. For easy readability on the dial, the 'B', scale letters are coloured red, 'C' scale in black and superficial Rockwell scale in green. (Dx Model)

STANDARD BRINELL METHOD

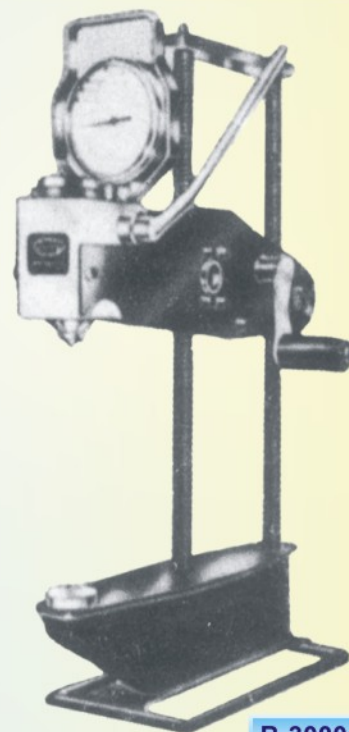
Model B-3000 (HM) : The machine is designed with electrically operated hydraulic power pack, for effort-less loading and unloading operation. The dial gauge is provided in front of the machine which measures the depth of the ball indentation. This facilitates production testing within tolerance limits by comparison method. A Brinell microscope is provided to measure the indentation of the Ball Indentor.

Model B-3000 (HM) O : Similar to B-3000 (HM) But without Dial gauge. A built in optical screen is provided to measure the Diameter of indentation of Ball indentor directly on the machine.

Model B-3000 (HP) : Hydraulic loading by hand cranking, suitable for Brinell tests. A positive acting relief valve prevents load, over 3000 Kgf. Other loads can also be applied accurately with 10 mm or 5 mm dia ball.

STANDARD ROCKWELL / ROCKWELL SUPERFICIAL / BRINELL / VICKERS METHOD - MANUAL OPERATION

Model MRTBV : Universal Hardness Tester, equipped with a set of six ball bearings guide device, for the plunger/spindle, automatic load selection for 15, 20, 30, 40, 45, 50, 60, 100,



B-3000(HP)

VICKERS METHOD

Model JV-50 : Provides facility of built in optical system with graduated read out for measurement of diagonal/diameter of indentation upto 0.001 mm accuracy on the focusing screen; With 70 x magnification and manual system for selection of required load. The swivelling unit in which the required indentor and objective lens are mounted, is attached to the loading spindle guided in a set of six ball bearings. A push button electric switch system is provided for starting the loading cycle. Unloading is accomplished through a hand lever.

Model JV-50 : (1Kgf) : Similar to JV-50 but the additional test load of 1 Kgf and Magnification of 70x and 140x

VICKERS / BRINELL METHOD

Model VB-250 : Provides facility of built in optical system with graduated read out for measurement of diagonal/diameter of indentation upto 0.001 mm accuracy on the focusing screen; With 35x and 70x magnification and mechanical Push button control for selection of required load. The swivelling unit in which the required indentor and objective lens are mounted, is attached to the loading spindle guided in a set of six ball bearings. A push button electric switch system is provided for starting the loading cycle. Unloading is accomplished through a hand lever.

All the hardness testing machines can be supplied with equivalent loads in SI (N) Units, if required. Because of continuous R & D activities manufacturers reserve the right to ammend design without Notice. Diamention given in the table are approximate.



VB-250

STANDARD ACCESSORIES

Description	MR-3	MRB-4	MRB-S	MRB-5	MRS-7&8	MRT-9
Calibrated weight set Kgf.	60,100,150	60,100,150 187.5	60,100,150 187.5 250	60,100,125,150 187.5 250	15,30,45	15,30,45 60,100,150
Suitable Dial gauge	1pc.	1pc.	1pc.	1pc.	1 pc.	1 pc.
Flat testing table 50 mm. dia.	1pc.	1pc.	1pc.	1pc.	1 pc.	1pc.
Testing table 40 mm.dia. with Vee groove	1pc.	1 pc.	1pc.	1pc.	1 pc.	1 pc.
Spot Anvil	nil	nil	nil	nil	1 pc.	1 pc.
Sphero-conical diamond cone penetrator 120°	1pc.	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
1/16" dia. steel ball indenter with extra 5 balls	1 pc.	1 pc.	1pc.	1 pc.	1 pc.	1 pc.
2.5 mm. dia. steel ball indenter	nil	1 pc.	1 pc.	1pc.	nil	nil
5 mm. dia. steel ball indenter	nil	nil	1 pc.	1pc.	nil	nil
10 mm. dia. steel ball indenter	nil	nil	nil	1 pc.	nil	nil
Test Block Rockwell C	1pc.	1pc.	1 pc.	1 pc.	nil	1 pc.
Test Block Rockwell B	1pc.	1pc.	1pc.	1 pc.	nil	1 pc.
Test Block Rockwell Superficial 30 N	nil	nil	nil	nil	1 pc.	1 pc.
Test Block Rockwell Superficial 30 T	nil	nil	nil	nil	1pc.	1 pc.
Test Block HB 2.5/187.5	nil	1 pc.	1 pc.	1pc.	nil	nil
Test Block HB 5/250	nil	nil	1pc.	1pc.	nil	nil
25X Brinell Microscope with achromatic objective & light	nil	1 pc.	1 pc.	1 pc.	nil	nil
Allen Spanner	2 pcs.	2 pcs.	2 pcs.	2 pcs.	2 pcs.	2 pcs.
Clamping device	1 pc.	1 pc.	1pc.	1pc.	1pc.	1 pc.
Dashpot Oil	1 bottle	1 bottle	1 bottle	1 bottle	1 bottle	1 bottle
Instruction Manual	1 book	1 book	1 book	1 book	1 book	1 book
Collapsible cover for main screw protection	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Storage case for accessories	1pc.	1pc.	1pc.	1pc.	1pc.	1 pc.

TECHNICAL DATA

Maximum load kgf.	150	187.5	250	250	45	150
Minor load Kgf.	10	10	10	10	3	3 & 10
Maximum test height(mm) with 50mm. dia flat anvil	305	305	305	305	305	305
Depth of throat (mm)	180	180	180	180	180	180
Maxim.depth of elevating screw below base(mm)	310	310	310	310	310	310
Elevating screw dia- (mm)	44	44	44	44	44	44
Size of base (mm)	225x515	225x515	225x515	225x515	225x515	225x515
Machine height (mm)	795	795	795	795	795	795
Weight (approx)	120 Kg.	130 Kg.	135 Kg.	140kg.	120kg.	140 Kg.

STANDARD ACCESSORIES

Description	B-3000 (HM)	B-3000 (HM) O	B-3000 (HP)
A loading pan and eleven loose weights	1 set	1 set	Nil
Testing table 200 mm dia.	1 pc.	1 pc.	Nil
Testing table 50 mm. dia.	Nil	Nil	1 Pc.
Testing table 70 mm- dia. with Vee groove	1 pc.	1 pc.	1 Pc.
Steel ball penetrator 5 mm. dia with 5 spare balls.	1 set	1 set	Nil
Steel ball penetrator 10 mm. dia with 5 spare balls.	1 set	1 set	Nil
5 mm. dia ball adapter with 5 spare balls	Nil	Nil	1 set
10 mm dia ball adapter with 5 spare balls	Nil	Nil	1 set
25 x Brinell & Microscope with achromatic objective & light	1 pc.	Nil	1 pc.
Optical Screen	Nil	1 set	Nil
Allen spanners	2 pcs.	2 pcs.	2 pcs.
Automatic zero setting dial guage	1 pc.	Nil	Nil
Load/Kgf indicating dial guage	Nil	Nil	1pc.
Telescopic cover for main screw protection	1 pc.	1 pc.	Nil
Standardised test block HB 5/750	1 pc.	1 pc.	1 pc.
Standardised test block HB 10/3000	1 pc.	1 pc.	1pc.
Storage box for standard accessories	1pc.	1pc.	Nil
Storage box for complete unit	Nil	Nil	1pc.
Base/adapter with adjustable test height	Nil	Nil	1 pc.
Load releasing spanner & H. Pump operating handle	Nil	Nil	1 set
Instruction Manual	1 book	1 book	1book

TECHNICAL DATA

Load range	250 Kgf, upto 3000 kgf in the stages of 250 kgf.	250 Kgf, upto 3000 kgf in the stages of 250 kgf.	500,750, 1000, 1500& 3000 kgf.
Drive	0.25/0.33 HP flange mounted electric motor	0.25/0.33 HP flange mounted electric motor	Manual.
Max. test height	410 mm.	410 mm.	341 mm, with std. base
Depth of throat	200 mm.	200 mm.	100 mm. with Std. base
Size of base	670 x 380 mm.	670 x 380 mm.	200 x 185mm.
Machine weight	Approx. 475 Kgs.	Approx. 475 Kgs.	Approx. 17 Kgs.
Machine height	Approx. 1250 mm.	Approx. 1250 mm.	Approx. 662 mm. with std. base
Main supply	400/440V, 3 Phase, 50 Hz.	400/440V, 3 Phase, 50 Hz.	Nil

STANDARD ACCESSORIES

Description	Models				
	NMR 3	NMRB-4	NMRB-S	NMRS-7&8	NMRT-9
Calibrated weight set Kgf.	60,100,50	60,100 150 187.5	60,100,150 187.5,250	15,30,45	15,30,45 60,100,150
Suitable Dial Gauge	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Flat testing table 50mm. dia	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Testing table 40mm. dia. with vee groove	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Spot Anvil	nil	nil	nil	1 pc.	1 pc.
Sphero-conical diamond cone penetrator 120°	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
1/16" dia. steel ball indenter with extra 5 balls	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
2.5 mm. dia steel ball indenter	nil	1 pc.	1 pc.	nil	nil
5 mm. dia steel ball indenter	nil	nil	1 pc.	nil	nil
10 mm. dia steel ball indenter	nil	nil	nil	nil	nil
Test Block Rockwell C	1 pc.	1 pc.	1 pc.	nil.	1 pc.
Test Block Rockwell B	1 pc.	1 pc.	1 pc.	nil.	1 pc.
Test Block Rockwell Superficial 30 N	nil	nil	nil	1 pc.	1 pc.
Test Block Rockwell Superficial 30 T	nil	nil	nil	1 pc.	1 pc.
Test Block HB 2.5/187.5	nil	1 pc.	1 pc.	nil	nil
Test Block HB 5/250	nil	nil	1 pc.	nil	nil
25x Brinell Microscope with achromatic objective light	nil	1 pc.	1 pc.	nil	nil
Allen Spanner	2 pc.	2 pc.	2 pc.	2 pc.	2 pc.
Clamping device	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Dashpot Oil	1 bottle	1 bottle	1 bottle	1 bottle	1 bottle
Instruction Manual	1 book	1 book	1 book	1 book	1 book
Collapsible cover for main screw protection	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.
Storage case for accessories	1 pc.	1 pc.	1 pc.	1 pc.	1 pc.

TECHNICAL DATA

Maximum load kgf.	150	187.5	250	45	150
Minor load Kgf.	10	10	10	3	3 & 10
Maximum test height(mm) with 50mm. dia flat anvil	230	230	230	230	230
Depth of throat (mm)	155	155	155	155	155
Maxim.depth of elevating screw below base(mm)	240	240	240	240	240
Elevating screw dia. (mm)	44	44	44	44	44
Size of base (mm)	170x475	170x475	170x475	170x475	170x475
Machine height (mm)	655	655	655	655	655
Weight (approx)	71 Kg.	78 Kg.	84 kg.	65kg.	71 Kg.

DIFFERENT OPTIONAL ACCESSORIES AND SPARES ARE AVAILABLE FOR 'JUSTY' HARDNESS TESTERS SOME OF THEM ARE :

- Quick lifting and release lever for production/batch testing, without resetting accommodates 1 mm. (0.040") tolerance on size.
- Steel ball indentors of different sizes and their spare balls.
- Testing table 70 mm dia with 'V' Groove.
- Vari-rest support,
- Oil Reservoir for lower part and automatic supplies of lubricant for the Elevating screw.
- Durable dust cover.
- Jack-rest support.
- Master checking set, consisting of master penetrator and two test blocks, each for higher and lower range of a particular scale, in a special wooden-box.
- Gooseneck adopters.
- Diamond spot anvil.
- Cast iron testing table 240 mm dia with 'T' slots.
- Shallow "Vee" anvil".
- a) for Rockwell HRC scale.
- b) for Rockwell HRC scale.
- c) for HB 10/3000 Kg
- d) for HB 5/750 Kg

STANDARD ACCESSORIES

Description	MRTBV	JV-50	VB-250
Calibrated weight set	1 set	1 set	1 set
Suitable dial gauge approx. 100 mm. dia	1 pc.	Nil	Nil
Flat testing table	1pc. 50mm	1pc. 100mm	1 pc, 100 mm.
Vee groove testing table	1pc. 40mm	1pc. 70mm	1 pc, 70 mm.
Spot anvil	1 pc.	Nil	Nil
Rockwell Diamond indenter	1 pc.	Nil	Nil
Vickers Diamond indenter	1 pc.	1pc.	1pc.
1/16" dia ball Indenter with 5 balls	1 set	Nil	Nil
2.5 mm dia ball indenter with 5 balls	1 set	Nil	1 set
5 mm dia ball indenter with 5 balls	1 set	Nil	1 set
10 mm dia ball indenter	1 pc.	Nil	Nil
Test block Rockwell 'B'	1 pc.	Nil	Nil
Test block Rockwell 'C'	1 pc.	Nil	Nil
Test block superficial Rockwell 'N' Scale	1 pc.	Nil	Nil
Test block superficial Rockwell 'T' scale	1pc.	Nil	Nil
Text block HB 2.5/187.5	1 pc.	Nil	1 pc.
Text block HV	1 pc.	1 pc.	1 pc.
Text block HB 5/250	1 pc.	Nil	Nil
25 x Brinell microscope with light	1 pc.	Nil	Nil
100 x Vickers microscope with light	1 pc.	Nil	Nil
Alien spanner	2pc.	Nil	Nil
Clamping device/cone	1 pc.	Nil	1 pc.
Dash pot oil	1 bottle	1 bottle	1 bottle
Operating manual	1 pc.	1 pc.	1 pc.
Telescopic cover for main screw	1pc.	Nil	Nil
Storage case for accessories	1pc.	1 pc.	1 pc.

TECHNICAL DATA

Minor Load Kgf	3 & 10	NA	NA
Loads kgf for superficial Rockwell	15, 30 & 45	NA	NA
Loads kgf for standard Rockwell	60, 100 & 150	NA	NA
Loads kgf for Vickers	20, 30, 40, 50 60 & 100	5, 10, 15, 20 30, 40, 50	5, 10, 15, 20, 30, 40 50, 60, 100 & 120
Loads Kgf for Brinell	100, 125, 187.5 & 250	NA	15, 62.5, 31.25, 62.5 187.5 & 250
Maximum Test height (mm)	305	200	200
Depth of throat (mm)	180	150	150
Max. depth of main screw below base (mm)	310	210	210
Main/elevating screw dia (mm.)	44	50	50
Size of base (mm)	225 X 615	300 X 670	300 X 670
Machine height (mm)	795	1050	1050
Machine weight approx. kg.	150	160	190
Optical measuring (mm)	N.A.	1.6 on 70x 0 to 0.8 on 140x	0 to 3.2 on 35 x 0 to 1.6 on 70 x
Required load	NA	0.1 kv single phase A.C. 220V., 50 Hz. alternative to special requirements can be Supplied.	0.1 kv single phase, A.C. 220V., 50 Hz. alternative to special requirements can be Supplied.

Note : An additional load of 1kgf is provided in Model : JV50(1kgf) along with the loads provided in Model : JV-50

Manufactured "SINCE 1965", as equipments of Superior Technology and lasting value, the 'JUSTY' Hardness Testers have been chosen by many reputed Indian/Foreign Industries, Engineering Colleges, Laboratories, Test Houses and Government Establishments.

A PARTIAL LIST OF SOME INDIAN USERS INCLUDES :-

- ☛ National Physical Laboratory.
- ☛ Indian Space Research Centre.
- ☛ Bhabha Atomic Research Centre.
- ☛ National Test Houses.
- ☛ Mechanical Engineering Research/ & Development Organisation.
- ☛ Research Designs & Standards Organisation (Ministry of Rly.)
- ☛ Metallurgical Laboratory (N.E. Rly).
- ☛ Solid State Physics Laboratory, (Ministry of Defence).
- ☛ Indian Institute of Technology.
- ☛ Defence Electronic Applications Laboratory (Ministry of Defence)
- ☛ Inspectorate of Small Arms (Ministry of Defence)
- ☛ Oil & Natural Gas Commission.
- ☛ Various Plants of Steel Authority of India Ltd.
- ☛ Hindustan Aeronautics Ltd. (HAL)
- ☛ Hindustan Machine Tools Ltd. (HMT).
- ☛ Tata Iron & Steel Co. Ltd.
- ☛ Small Arms Factory (Ministry of Defence)
- ☛ Gun Carriage Factory (Ministry of Defence)
- ☛ Heavy Vehicle (Tanks) Factory, (Ministry of Defence)
- ☛ Various Plants of Bharat Heavy Electricals Ltd. (BHEL)
- ☛ Artificial Limbs Manufacturing Corporation of India Ltd.
- ☛ Dewrance Macneill & Co. Ltd.
- ☛ Bharat Pumps & Compressors Ltd.
- ☛ Kirloskar Electric Co. Ltd.
- ☛ International Tractor Co. of India Ltd.
- ☛ Various Ordnance Factories (Ministry of Defence)
- ☛ Banaras Hindu University
- ☛ Anchor Engg. Inds. Pvt. Ltd.
- ☛ Gas Authority of India Ltd.
- ☛ Clutch Auto Ltd.
- ☛ Uncle Chips
- ☛ Indo Asian Switch Gear Ltd.
- ☛ Pooja Forge Ltd.
- ☛ Ghaziabad Precision Products Pvt. Ltd.
- ☛ Atma Steels Ltd.
- ☛ Jindal Strips Ltd.

Manufacturers :



JUST MACHINE TOOLS
(House of Testing Machines)

Office : 806A, Kirti Shikhar Tower, District Centre,
Janakpuri, New Delhi-58
Tel. : 41589060, 41589070
Fax : + 91-11-41589070
Works : 8/34, Kirti Nagar, Industrial Area,
New Delhi-110015 (INDIA)
Tel. : 25939435, 25927001, 64704227
Fax : +91-11-25100732

E-mail : sales@justytest.com, justytest@hotmail.com
Visit us at : www.justytest.com