RESOTECH®

PLOT NO. 1131 HARI ENCLAVE KIRARI SLEMAN NAGAR NEW DELHI-110086
2ND PLANT H-936 RIICO CHOPANKI INDUSTRIAL AREA ALWAR RAJSTHAN-301707

RESOTECH- HARDNESS TESTING MACHINE

Professional Manufacturer of Test Equipment

MAKE :- RESOTECH
MODEL NO. :- RESOTECH HARDNESS-2607

RESONANCE AUTOMATION AND MACHINES

MANUFACTURERS & SUPPLERS

SPECIAL PURPOSE MACHINE, MATERIAL TESTING MACHINE, LEAKAGE TESTING MACHINE, PACKIGING TESTING MACHINE, ENVIRONMENTAL TEST CHAMBER, ASSY. LINE EQUIPMENT, SOLUTION FOR ELECTRONIC AUTOMATION AND PRODUCT DEVELOPMENT, COMPUTERIZED CONTROL MACHINE , PLC HMI SCADA VISUAL BASIC SOFTWARE DEVELOPMENT SOLUTION AND OTHER SERVICES.

HARDNESS TESTING SOLUTION BY RESOTECH

Physical Testing Machines

Hardness Testing Machines

- Rockwell, Brinell, Vickers.
- Motorized or Manual operations.
- Digital or Analogue Rockwell.
- Optical system for Brinell & Vickers.

Hardness Testing Machines -

- Brinell / Vickers / Micro-vickers.
- Portable Rockwell.

Laminated Spring Testing Machines Hoz. Rope & Chain Testing Machines

ErichsenTesting Machines

Others -

- Diamond Indenters for Rockwell/Vickers.
- Master Test Blocks for Rockwell/Brinell/Vickers.
- Brinell Microscope.
- Computerized Brinell Image Analysis System (B.I.A.S.)

Physical Testing Machines

Horizontal Type -

- End driven or Belt driven.
- Reference signal from phase generator or photo scanner or stroboscope.
- Hard bearing or soft bearing.
- Microprocessor controlled measuring panel with electronic digital readout.
- Computerized model based on advanced DSP technology.
- Tooled up machines for production balancing.

Vertical Type -

- Hard bearing or Soft bearing.
- Single or two plane.
- Microprocessor controlled measuring panel with electronic digital readout.
- Computerized model based on advanced DSP technology.
- Drilling/welding attachments to suit customers needs for production balancing.

Analogue Rockwell Hardness Tester,

Features :

- Suitable for Rockwell Tests.
- Manually operated.
- Preliminary Test Force : 98.07 N(10 kgf)
- Additional Test Force : 490.3, 882.6, 1373 N (50,90,140 kgf).
- Total Test Force : 588.4, 980.7, 1471 N (60,100,150 kgf).
- test Force Selection by external dialing.
- Auto zero setting dial gauge.

Analogue Rockwell Cum Brinell Hardness Tester,

Features :

- Suitable for Rockwell Tests.
- Manually operated.
- Preliminary Test Force : 98.07 N(10 kgf)
- Additional Test Force : 490.3, 882.6, 1373 N (50,90,140 kgf).
- Total Test Force : 588.4, 980.7, 1471 N (60,100,150 kgf).
- Test Force Selection by external dialing.
- Auto zero setting dial gauge.
- for Brinell
- Total Test Force : 1839, 2452 N (187.5, 250 kgf).

Analogue Rockwell Cum Superficial Hardness Tester,

Features :

- Suitable for Rockwell & Rockwell Superficial Tests.
- Manually operated.
- Preliminary Test Force : 29.42, 98.07 N (3,10 kgf)
- Additional Test Force : 177.7, 264.8, 411.9, 490.3, 882.6, 1373 N (512,27,42,50,90 &140 kgf).
- Total Test Force : 147.1,294.2, 441.3, 588.4, 980.7, 1471 N (15,30,45,60,100,150 kgf).
- Auto zero setting dial gauge.

Analogue Motorised Rockwell Hardness Tester,

Features :

- Suitable for Rockwell Tests.
- Motorized for automatic operation cycle i.e Load/Dwell/Unload.
- Preliminary Test Force : 98.07 N(10 kgf)
- Additional Test Force : 490.3, 882.6, 1373 N (50,90,140 kgf).
- Total Test Force : 588.4, 980.7, 1471 N (60,100,150 kgf).
- Test Force Selection by external dialing.
- Auto zero setting dial gauge.

HARDNESS TESTING SOLUTION BY RESOTECH

Analogue Rockwell Hardness Testers

RESOTECH Series of Hardness Testing Machines comes with much improved design & look with following major design changes.

1) The machine body having a taper front look and a big size dial gaugein the front. The machine is powder coated for better look.
   The paint shade do not fade and machine looks like new over year.
2) The elevating screw of machine is guided in a hardened and ground bush, not allowing movement of elevating screw more than 0.05mm when raised to full height. The accuracy is returned for years together due to hardened bush.
3) A hardened and ground stepped bush is fixed on top of main screw for location and rest surface. This guarantees no change in results due to rough handling of test table or test piece. It means a trouble free long life machine accuracy.
4) An antifriction linear bearing with almost no clearance is provided for a prefect vertical movement of loading plunger with minimum friction. This enable testing of a small dia. pin or ball up to 3mm dia.
5) All machine modes are provided with automatic zero setting dial gauge readout. Hence zero setting at every test is avoided.

Principle :

Rockwell, Rockwell superficial & Rockwell cum Brinell test consists of forcing an indenter (Diamond or Ball) into the surface of a test piece in two steps i.e. first with preliminary test force and thereafter with additional test force and then measuring depth of indentation after removal of additional test force (Remaining preliminary test force active) for measurement of hardness value.

Technical Specifications :

Model	Unit		RESOTECH HARDNESS-2608	RESOTECH HARDNESS-2608	RESOTECH HARDNESS-2608
Major Load	N	288.4, 980.7, 1471	588.4,980.7,1471, 1839, 2452	147.1,294.2,441.3, 588.4,980.7,1471	588.4,980.7,1471
	(kgf)	(60, 100, 150)	(60,100,150,187.5,250)	(15,30,45,60,100,150)	(60, 100, 150)
Minor Load	N (kgf)	98.07 (10)	98.07 (10)	29,42,98.07 (3,10)	98.07 (10)
Max. Test Height	mm		230	230	230
Depth of Throat	mm	130	133	133	133
Net Wt. Approx.	kg.	65	70	62	67
M/c. Dimensions (Approx)	mm	L-450, W-265, H-627	L-450, W-265, H-627	L-450, W-265, H-627	L-450, W-180, H-627

Optional Accessories :

- Steel Ball Indenter 1/8", 1/4", 1.2"
- Testing table 200mm dia.
- Testing table 70mm dia. with V groove for round jobs 10mm to 80mm dia.
- Vari-rest to support odd shaped jobs.
- Jominy test fixture for end quench test.
- Gooseneck Adopter No.1
- Special DiamondIndenter suitable for Gooseneck Adopter No.1.
- Short Nib Diamond Indenter suitable for Gooseneck Adopter No. 1.
- Gooseneck Adopter No. 2 .
- Special Diamond Indenter suitable for Gooseneck Adopter No.2.
- Gooseneck Adopter No.3.
- Raised center testing table 15mm dia.
- Diamond Spot Anvil
- Cylindron anvil for testing big jobs above 20mm dia.
- Eyeball anvil with 25.4mm dia. or 38mm dia. ball.
- Gooseneck anvil for pipes 5 to 25mm ID with 5mm step inserts.
- Jack rest for long and heavy jobs.

MODEL NO. :- RESOTECH HARDNESS-2608

HARDNESS TESTING SOLUTION BY RESOTECH

Digital Rockwell Hardness Testers

Digital Rockwell Hardness Tester,

Digital Rockwell Cum Superficial Hardness Tester,

Digital Rockwell Cum Brinell Hardness Tester,

Features :

- Suitable for Rockwell Tests.
- Manually operated.
- Test force selection by external dialing.
- Auto zero setting dial gauge.
- Result print-out through built-in thermal printer.
- Built-in hardness converter

Scope :

Present digital hardness testing machines are with Digital dial gauge. Output of which are 2 sine waves of 20 microns. It requires bulky and complicated circuit to get 1 micron resolution. Because of this there will be possibility of errors, maintenance problems and bulky electronic circuit required.

Data Entry :

Data entry provision is implemented using front panel keyboard, user friendly for operator setting for result, programmable dwell setting & scale selection also done using front panel keyboard.

Auto / Manual Mode :

Bulk number of Specimens is to be test. Auto mode operation is very helpful operation. Auto or manual mode selection provision is provided in menu.

Operation Cycle :

At Power ON, TFT Display Shows bar indication with dial reading, also selected scale will get displayed. Due to advance micro-controller system and user friendly.

Place the specimen on table and lift the table till set point to reach.

Once set point reached depending on the mode of operation selected eitherAuto or Manual, further operation takes place.

If Auto mode operation is selected, no need of pressing start button further operation like loading, dwell and unloading takes place automatically.

If Manual mode operation is selected then, Press
cycle start button to start cycle.

Loading Starts :

When load position (timer) switch gets operated motor stops automatically for entered dwell time. Motor starts again after dwell & cycle gets completed when home switch gets operated, with hardness value & remark display.

Final Result Window

Result Print-out

MODEL NO. :- RESOTECH HARDNESS-2609

HARDNESS TESTING SOLUTION BY RESOTECH

DIGITAL ROCKWELL HARDNESS TESTERS

Standard Accessories :

Model	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609
Testing table 50mm dia	1	1	1
Testing table 38mm dia with "V" groove for round jobs 6-45 mm dia.	1	1	1
Diamond indenter - Rockwell RA	1	-	1
Diamond indenter - Rockwell SF	-	1	-
Steel Ball indenter 1/16" with 5 spare balls	1	1	1
Steel Ball indenter 2.5 mm with 5 spare ball	-	-	1
Test block Rockwell "C"	1	1	1
Test block Rockwell "B"	1	1	1
Test block HB 2.5/187.5	-	-	1
Test block HR 30 N	-	1	-
Allen Spanners	5	5	5
Screw Driver	1	1	1
Clamping device	1	1	1
Wooden box for std. accessories	1	1	1
Telescopic sleeves for elevating screw position	1 set	1 set	1 set
Spare fuse 1 AMP	1	1	1
Power cable	1	1	1
Brinell microscope	-	-	1
Machine cover	1	1	1
Instruction Manual	1	1	1

Technical Specifications :

Model	Unit	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609
Major Load	N kgf	588.4, 980.7, 1471 (60,100,150)	147.1, 294.2, 441.3, 588.4, 980.7, 1471 (15,30,45,60,100,150)	588.4, 980.7, 1471, 1839, 2452 (60,100,150,187.5,250)
Minor Load	N kgf	98.7 (10)	29, 42, 98.07 (3, 10)	98.07 (10)
Max Test height	mm	230	230	230
Depth of throat	mm	133	133	133
Net Wt. Approx.	kg	75	77	77
M/c dimensions	mm	L-450, W-175 H-627	L-450, W-175 H-627	L-450, W-175 H-627

'RESOTECH' Motorized Digital Hardness Tester :

Model	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609	RESOTECH HARDNESS-2609
Type	Digital Rockwell	Digital Rockwell & Rockwell Superficial	Digital Rockwell cum Brinell
Operation Cycle	Automatic Load/Dwell/Unload	Automatic Load/Dwell/Unload	Automatic Load/Dwell/Unload
Preliminary Test Force	98.07 N (10 kgf)	10,30,45,60,100,150kgf	98.07 N (10 kgf)
Additional Test Force	490.3, 882.6, 1373 N (50, 90, 140 kgf)	177.7, 264.8, 411.9, 490.3, 882.6, 1373 N (12, 27, 42, 50, 90, 140 kgf)	490.3, 882.6, 1373, 1471, 2354 N (50, 90, 140, 177.5, 240 kgf)
Total Test Force	588.4, 980.7, 1471 N (60, 100, 150 kgf)	141.7, 294.2, 441.3, 588.4, 980.7, 1471 N (15, 30, 45, 60, 100, 150 kgf)	588.4, 980.7, 1471, 1839, 2452 N (60, 100, 150, 187.5, 250 kgf)
Test Force Selection	By external dialing	By external dialing	By external dialing
Set Position	With LCD bar indicator	With LED bar indicator	With LCD bar indicator
Key Board Entry	Through membrane key for scale, GO-NO GO & dwell time selection.	Through membrane key for scale, GO-NO GO & dwell time selection.	Through membrane key for scale, GO-NO GO & dwell time selection.
Resolution	0.1 Rockwell	0.1 Rockwell or 0.1 Rockwell Superficial	0.1 Rockwell
Output	Output through Serial Thermal Printer.	Output through Serial Thermal Printer.	Output through Serial Thermal Printer.
Optional	Serial PC interface & windows software	Serial PC interface & windows software	Serial PC interface & windows softwarefor only Rockwell scales.

Note : For Brinell scale - manually select (187.5 or 250 kgf) with respected ball indentor. At that time take reference of set point only,apply the load, then measure the impression dia by Brinell microscope only. (No Brinell scale display on screen).

Optional Accessories : • Steel Ball Indenter 1/8", 1/4", 1.2" • Testing table 200mm dia. • Testing table 70mm dia. with V groove for round jobs 10mm to 80mm dia. • Vari-rest to support odd shaped jobs. • Jominy test fixture for end quench test. • Gooseneck Adopter No.1 • Special DiamondIndenter suitable for Gooseneck Adopter No.1. • Short Nib Diamond Indenter suitable for Gooseneck Adopter No. 1. • Gooseneck Adopter No. 2 . • Special Diamond Indenter suitable for Gooseneck Adopter No.2. • Gooseneck Adopter No.3. • Raised center testing table 15mm dia. • Diamond Spot Anvil • Cylindron anvil for testing big jobs above 20mm dia. • Eyeball anvil with 25.4mm dia. or 38mm dia. ball. • Gooseneck anvil for pipes 5 to 25mm ID with 5mm step inserts. • Jack rest for long and heavy jobs.

HARDNESS TESTING SOLUTION BY RESOTECH

Rockwell Hardness Testers Digital Touch Screen

Digital Touch Screen Rockwell Hardness Tester

Digital Touch Screen Rockwell Cum Superficial Hardness Tester

Digital Touch Screen Rockwell Cum Brinell Hardness Tester

Features :

- Suitable for Rockwell tests.
- Manually operated.
- Test force selection by external dialing.
- Auto zero setting dial gauge.
- Motorized loading unloading system.
- 4.3" Touch screen display.
- Built-in Hardness converter.

Optional Built-in Thermal Printer, Auto load &scale selections.

RESOTECHE series machines are suitable for Rockwell superficial & Rockwell cum Brinell tests. These are motorized Digital Hardness tester having 4.3'' TFT High quality Color display with touch screen for easy hardness measurement. The results are displayed in 0.1 Rockwell units for more accurate measurement.

Operation:

Various parameters of test can be set on setting screen on touch screen.

Such as a High/low limits, dwell time, auto/manual start, printer selection, scale selection etc. All data can verify on pre load screen.

Machine operation is very simple. The normal mode pre load bar follow the pre load ok position, As a Same Time status bar will indicate pre load condition.

Raise elevating screw slowly by the up push button continuously till pre load bar pre load ok position which will show “CYCLE START” indication at status bar. Now press “CYCLE START” button.

Loading/unloading cycle will be completed and hardness is shown on Result Screen with HIGH/OK/LOW indication. Lower down elevating screw.

Screen will show normal mode for next cycle. Also when we required 'AUTOSTART' set “AUTO MODE ON” on setting screen system will set for Auto mode.

Then raise elevating screw slowly through pre load bar indication till ok position then it will start loading /unloading cycle automatically & hardness is shown on Result screen with HIGH/OK/LOW indication, which Indenter we are use which load we are selected and what was a dwell set in cycle.

RESOTECH's new 'RESOTECHE' series of Hardness Testing Machines come with much improved design & look with following major design changes.

These models are provided with automatic working cycle and 4.3'' TFT High quality Color display with touch screen with 0.1 Rockwell resolution.

This insures productivity with better accuracy.

Final Result Window

MODEL NO. :- RESOTECH HARDNESS-2610

HARDNESS TESTING SOLUTION BY RESOTECH

Digital Touch ScreenRockwell Hardness Testers

Standard Accessories :

Model	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610
Testing table 50mm dia	1	1	1
Testing table 38mm dia with "V" groove for round jobs 6-45 mm dia.	1	1	1
Diamond indenter - Rockwell RA	1	-	1
Diamond indenter - Rockwell SF	-	1	-
Steel Ball indenter 1/16" with 5 spare balls	1	1	1
Steel Ball indenter 2.5 mm with 5 spare balls	-	-	1
Test block Rockwell "C"	1	1	1
Test block Rockwell "B"	1	1	1
Test block HB 2.5/187.5	-	-	1
Test block HR 30 N	-	1	-
Allen Spanners	5	5	5
Screw Driver	1	1	1
Clamping device	1	1	1
Wooden box for std. accessories	1	1	1
Telescopic sleeves for elevating screw position	1 set	1 set	1 set
Spare fuse 1 AMP	1	1	1
Power cable	1	1	1
Brinell microscope	-	-	1
Machine cover	1	1	1
Instruction Manual	1	1	1

Technical Specifications :

Model	Unit	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610
Major Load	N kgf	588.4, 980.7, 1471 (60,100,150)	147.1, 294.2, 441.3, 588.4, 980.7, 1471 (15,30,45,60,100,150)	588.4, 980.7, 1471, 1839, 2452 (60,100,150,187.5,250)
Minor Load	N kgf	98.7 (10)	29, 42, 98.07 (3, 10)	98.07 (10)
Max Test height	mm	230	230	230
Depth of throat	mm	133	133	133
Net Wt. Approx.	kg	75	77	77
M/c dimensions	mm	L-450, W-175 H-627	L-450, W-175 H-627	L-450, W-175 H-627

RESOTECH Digital Hardness Tester :

Model	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610	RESOTECH HARDNESS-2610
Type	Digital Rockwell	Digital Rockwell & Rockwell Superficial	Digital Rockwell cum Brinell
Operation Cycle	Automatic Load/Dwell/Unload	Automatic Load/Dwell/Unload	Automatic Load/Dwell/Unload
Preliminary Test Force	98.07 N (10 kgf)	29.42 N (3kgf) & 98.07N (10 kgf)	98.07 N (10 kgf)
Additional Test Force	490.3, 882.6, 1373 N (50, 90, 140 kgf)	177.7, 264.8, 411.9, 490.3, 882.6, 1373 N (12, 27, 42, 50, 90, 140 kgf)	490.3, 882.6, 1373, 1471, 2354 N (50, 90, 140, 177.5, 240 kgf)
Total Test Force	588.4, 980.7, 1471 N (60, 100, 150 kgf)	141.7, 294.2, 441.3, 588.4, 980.7, 1471 N (15, 30, 45, 60, 100, 150 kgf)	588.4, 980.7, 1471, 1839, 2452 N (60, 100, 150, 187.5, 250 kgf)
Test Force Selection	By external dialing	By external dialing	By external dialing
Set Position	With LCD bar indicator	With LCD bar indicator	With LCD bar indicator
Data Entry	Through TFT screen for scale, GO-NO GO & dwell time selection.	Through TFT screen for scale, GO-NO GO & dwell time selection.	Through TFT screen for scale, GO-NO GO & dwell time selection.
Resolution	0.1 Rockwell	0.1 Rockwell or 0.1 Rockwell Superficial	0.1 Rockwell
Output	USB Storage facility for test results & ethernet connectivity for computers.	USB Storage facility for test results & ethernet connectivity for computers.	USB Storage facility for test results & ethernet connectivity for computers.
Optional	Built-in Thermal Printer, Auto load & scale selections.	Built-in Thermal Printer, Auto load & scale selections.	Built-in Thermal Printer, Auto load & scale selections.

Note : For Brinell scale - manually select (187.5 or 250 kgf) with respected ball indentor. At that time take reference of set point only,apply the load, then measure the impression dia by Brinell microscope only. (No Brinell scale display on screen).

Optional Accessories : • Steel Ball Indenter 1/8", 1/4", 1.2" • Testing table 200mm dia. • Testing table 70mm dia. with V groove for round jobs 10mm to 80mm dia. • Vari-rest to support odd shaped jobs. • Jominy test fixture for end quench test. • Gooseneck Adopter No.1 • Special DiamondIndenter suitable for Gooseneck Adopter No.1. • Short Nib Diamond Indenter suitable for Gooseneck Adopter No. 1. • Gooseneck Adopter No. 2 .
• Special Diamond Indenter suitable for Gooseneck Adopter No.2. • Gooseneck Adopter No.3. • Raised center testing table 15mm dia. • Diamond Spot Anvil • Cylindron anvil for testing big jobs above 20mm dia. • Eyeball anvil with 25.4mm dia. or 38mm dia. ball. • Gooseneck anvil for pipes 5 to 25mm ID with 5mm step inserts. • Jack rest for long and heavy jobs.

TECHNICAL SPECIFICATION

TEST LOAD	1.0, 2.0, 3.0, 5.0, 10Kg
RANGE	25-95
DIAMETER	2.50 +/- 0.01mm
PRESSURE FOOT	20 +/- 1MM
FORCE ON PRESSURE FOOT	8.30 +/- 1.5 N
CONTACT FORCE	0.30 +/- 0.02 N
INDENTING FORCE	5.40 +/- 0.0N
DIAL GAUGE	0-10X0.01MM
ACCURACY OF MEASUREMENT	0.5% FOR TEST RESULT
LOAD APPLICATION	USING CALIBRATED ELECTRONIC LOAD CELL TECHNOLOGY-LOAD IS APLIED THROUGH A CLOSE LOOP SYSTEM(CONTROL UNIT-LOAD CELL DC MOTOR-ELECTRONI MEASUREMENT CONTROL) TO AVOID OVER/UNDER LOADING.
OBJECTIVE LENSES	10X, 20X, 40X
CAMERA	HIGH RESOLUCTION 05 MP OR BETTER COLOUR CAMERA FOR ACCURATE CAPTURE OF INDENTATION IMAGE AND DIAGONAL MEASUREMENT
OPTICAL ZOOM	4X OR BETTER ZOOM AS STANDARD FOR EACH LENS.
SYSTEM LEAST COUNT OF OPTICAL	0.001mm
ILLUMINATION	AUTOMATIC LED ILLUMINATION ADJUSTMENT SYSTEM BASED ON THE SPECIMEN SURFACE FINISH
TEST HEAD	VERTICALLY MOVABLE MOTORIZED TEST HEAD ALONG WITH TURRET CONTANNING VERTICAL MOVEMENT WITH THORAT DEPTH OF 150mm.
TEST RUN	AUTOMATIC STANDARDIZED TEST RUN WITH ELECTRONIC LOADING AND UNLOADING APPLICATION. (ELECTRONICALLY CONTROLLED TEST FORCE)
MACHINE WITH TEST LOAD OF	2.5Kg
DISPLAY	LCD/LED (DATA CALCULATION FUNCTION AND CALCULATED HARDNESS SHALL.
COMPUTER SYSTEM	1.CORE i5, INTEL BOARD 8TH GENERATION, WINDOW10+LICENSED COPY. 2.1 TB HDD 3.8 GB RAM 4.STANDARD KEYBOARD AND MOUSE (OPTICAL) 5.UPS 1KVA OFFLINE 6.DVD WRITER 7.19.5INCH LED IPS MONITOR 8.LASER JET PRINTER 9.DISPLAY RESOLUTION: 0.1 HV AND BETTER 10.IMAGE ANALYSIS: IT IS MANUAL AND AUTOMATIC BOTH
STANDARD ACCESSORIES (1 SET PER MACHINE)	1. DIAMOND INDENTER(BUILT IN): 01no 2. FLAT TABLE MINIMUM :01no 3. V TABLE FOR SPECIMAN 6-80mm DIAMETER : 01no 4. HARDNESS TEST BLOCK (200HV APPROX): 01no 5. DUST COVERS, SERVICE KEY: 01no 6. PRECISION VICE MAX.45mm OPENING :01no
POWER SUPPLY	440 V/230V (± 10%), 3-PHASE OF 50 Hz ELECTRICAL SUPPLY NEAR THE MACHINE INSTALLATION PLACE.
ADDITIONAL SPARES (FOR TWO MACHINES)	A> 04 NOS OF HARDNESS TEST BLOCK OF 200HV FOR EACH M/C B> 02 NOS OF DIAMOND INDENTER (WITH 136^{0} ANGLES)

HARDNESS TESTING SOLUTION BY RESOTECH

Fully Automatic Touch ScreenRockwell Hardness Testers

Fully Automatic Touch Screen Rockwell Hardness Tester

Fully Automatic Touch Screen Rockwell Cum Superficial Hardness TesterModel

Fully Automatic Touch Screen Rockwell Cum Brinell Hardness Tester

Features :

- Suitable for Rockwell tests.
- Fully automatic Motorized operation.
- Auto zero setting dial gauge.
- Motorized loading unloading system.
- 4.3"Touch screen display.
- Built-in Hardness converter.
- With Built-in Thermal printer.
- Auto load & scale selections.

RESOTECH series machines are suitable for Rockwell superficial &Rockwell cum Brinell tests.

These are motorized Digital Hardness tester having 4.3'' TFT High qualityColor display with touch screen for easy hardness measurement.

The results are displayed in 0.1 Rockwell units for more accuratemeasurement.

Operation:

Various parameters of test can be set on setting screen on touch screen. Such as a High/low limits, dwell time, auto/manual start, printer selection, scale selection etc.

All data can verify on pre load screen.

Machine operation is very simple. After pressing “CYCLE START” elevating screw will be raised till pre-load position followed by dwell time & Cycle complete with hardness indication in HIGH/OK/LOW.

After hardness indication user can get a result print-out indicating date, time, hardness value, type of indenter & load applied.

Elevating screw will lowered automatically to its previous position.

Hardness conversions can be done through smart hardness converter onScreen.

RESOTECH's new 'RESOTECHE-TSFA' series of Hardness Testing Machines come withmuch improved design & look with following major design changes.

These models are provided with automatic working cycle and 4.3'' TFT Highquality Color display with touch screen with 0.1 Rockwell resolution & Built-in Thermal Printer.

This insures productivity with better accuracy.

Result Print-out

Final Result Window

MODEL NO. :- RESOTECH HARDNESS-2611

HARDNESS TESTING SOLUTION BY RESOTECH

Fully Automatic Touch ScreenRockwell Hardness Testers

Standard Accessories :

Model	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611
Testing table 50mm dia	1	1	1
Testing table 38mm dia with "V" groove for round jobs 6-45 mm dia.	1	1	1
Diamond indenter - Rockwell RA	1	-	1
Diamond indenter - Rockwell SF	-	1	-
Steel Ball indenter 1/16" with 5 spare balls	1	1	1
Steel Ball indenter 2.5 mm with 5 spare balls	-	-	1
Test block Rockwell "C"	1	1	1
Test block Rockwell "B"	1	1	1
Test block HB 2.5/187.5	-	-	1
Test block HR 30 N	-	1	-
Allen Spanners	5	5	5
Screw Driver	1	1	1
Clamping device	1	1	1
Wooden box for std. accessories	1	1	1
Telescopic sleeves for elevating screw position	1 set	1 set	1 set
Spare fuse 1 AMP	1	1	1
Power cable	1	1	1
Brinell microscope	-	-	1
Machine cover	1	1	1
Instruction Manual	1	1	1

Technical Specifications :

Model	Unit	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611
Major Load	N kgf	588.4, 980.7, 1471 (60,100,150)	147.1, 294.2, 441.3, 588.4, 980.7, 1471 (15,30,45,60,100,150)	588.4, 980.7, 1471, 1839, 2452 (60,100,150,187.5,250)
Minor Load	kgf	98.7 (10)	29, 42, 98.07 (3, 10)	98.07 (10)
Max Test height	mm	230	230	230
Depth of throat	mm	133	133	133
Net Wt. Approx.	kg	75	77	77
M/c dimensions	mm	L-450, W-175 H-627	L-450, W-175 H-627	L-450, W-175 H-627

RESOTECH Digital Hardness Tester :

Model	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611	RESOTECH HARDNESS-2611
Type	Digital Rockwell	Digital Rockwell & Rockwell Superficial	Digital Rockwell cum Brinell
Operation Cycle	Automatic - Load/Dwell/Unload Auto load & scale selections.	Automatic - Load/Dwell/Unload Auto load & scale selections.	Automatic - Load/Dwell/Unload Auto load & scale selections.
Preliminary Test Force	98.07 N (10 kgf)	29.42 N (3kgf) & 98.07N (10 kgf)	98.07 N (10 kgf)
Additional Test Force	490.3, 882.6, 1373 N (50, 90, 140 kgf)	177.7, 264.8, 411.9, 490.3, 882.6, 1373 N (12, 27, 42, 50, 90, 140 kgf)	490.3, 882.6, 1373, 1471, 2354 N (50, 90, 140, 177.5, 240 kgf)
Total Test Force	588.4, 980.7, 1471 N (60, 100, 150 kgf)	141.7, 294.2, 441.3, 588.4, 980.7, 1471 N (15, 30, 45, 60, 100, 150 kgf)	588.4, 980.7, 1471, 1839, 2452 N (60, 100, 150, 187.5, 250 kgf)
Test Force Selection	By external dialing	By external dialing	By external dialing
Set Position	With LCD bar indicator	With LCD bar indicator	With LCD bar indicator
Data Entry	Through TFT screen for scale, GO-NO GO & dwell time selection.	Through TFT screen for scale, GO-NO GO & dwell time selection.	Through TFT screen for scale, GO-NO GO & dwell time selection.
Resolution	0.1 Rockwell	0.1 Rockwell or 0.1 Rockwell Superficial	0.1 Rockwell
Output	USB Storage facility for test results & ethernet connectivity for computers. Built-in Thermal Printer.	USB Storage facility for test results & ethernet connectivity for computers. Built-in Thermal Printer.	USB Storage facility for test results & ethernet connectivity for computers. Built-in Thermal Printer.

Note : For Brinell scale - manually select (187.5 or 250 kgf) with respected ball indentor. At that time take reference of set point only,apply the load, then measure the impression dia by Brinell microscope only. (No Brinell scale display on screen).

Optional Accessories : • Steel Ball Indenter 1/8", 1/4", 1.2" • Testing table 200mm dia. • Testing table 70mm dia. with V groove for round jobs 10mm to 80mm dia. • Vari-rest to support odd shaped jobs. • Jominy test fixture for end quench test. • Gooseneck Adopter No.1 • Special DiamondIndenter suitable for Gooseneck Adopter No.1. • Short Nib Diamond Indenter suitable for Gooseneck Adopter No. 1. • Gooseneck Adopter No. 2 . • Special Diamond Indenter suitable for Gooseneck Adopter No.2. • Gooseneck Adopter No.3. • Raised center testing table 15mm dia. • Diamond Spot Anvil • Cylindron anvil for testing big jobs above 20mm dia. • Eyeball anvil with 25.4mm dia. or 38mm dia. ball. • Gooseneck anvil for pipes 5 to 25mm ID with 5mm step inserts. • Jack rest for long and heavy jobs.

Optical VickersHardness Testers

Optical Vickers Hardness Tester

Features :

- Testing range is very wide, from soft metal such as lead, upto the hardest, like hard steel.
- Same hardness number is obtained on the same specimen, regardless of the load applied.
- The indication is tiny and allows testing of a precision finished part.
- Loading and unloading cycle is motorized.
- Thin sheet metal is perfectly tested because the load applied very small.
- Built-in projection screen to get accurate results.

Application :

'RESOTECH' Vickers Hardness Tester is a simple and accurate means to produce and measure the diamond indentation.

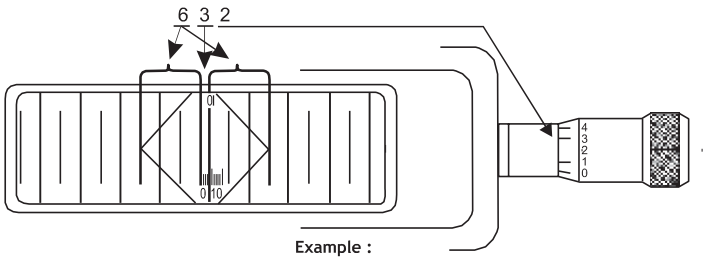
These testers are suitable for measuring the hardness of precision metallic parts with wide testing range - from soft to hard and their accurate results are widely acclaimed.

These testers strictly confirm to IS : 1501-2 and ISO 6507-2.

Technical Specifications :

Test Loads	5,10,20,30,50 kgf.
Optical Magnification	70 X
Optical Measuring Range (mm)	0.1 to 1.0
Max. Test Height (mm)	200
Scale least count (mm)	0.001
Throat Depth (mm)	135
Machine Dimension (mm)	L585 x W290 x H 860
Weight (Approx.)	70 kg
Power Supply	220 VAC, 50 Hz, 1 Phase

Number of special accessories are available on request and as perspecial requirement.



Example :
Applied objective with 70-fold magnification
Length of diagonal of indentation 632 micron = 0.632mm

MODEL NO. :- RESOTECH HARDNESS-2612

Construction :

The robust machine frame is designed to accommodate the high precision loading system and an optical projection screen.

Specimen is placed on a testing table. The test cycle is fully automatic.

The accurate load is applied on a diamond indenter by means of a lever and weights. After a specific laps of time, the load is removed automatically.

The objective is indexed with the test piece and the diamond indentation is projected on the measuring screen.

The diagonals of the indentation can be measured by means of the micrometer thimble of the projection screen.

Standard Accessories :

Standard Test Block	1 No.
Diamond Indenter	1 No.
Weights	1 Set
Flat Anvil	1 No.
Vee-type anvil (Small & Big)	1 No. each
Spanners	1 Set
Electric Cord	1 No.
Halogen Lamp	1 No.
Instruction Manual	1 Book

HARDNESS TESTING SOLUTION BY RESOTECH

ComputerizedVickers Hardness Tester

Computerized Vickers Hardness Tester

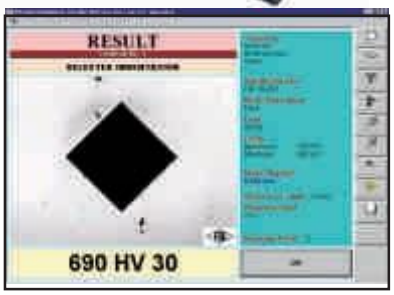
MODEL NO. :- RESOTECH HARDNESS-2613

Features :

- Computerized (PC based) Vickers Hardness Machine.
- Direct & accurate measurement of Vickers hardness numberusing "State of the art" image processing technology.
- Wide testing range : from soft metal up to hardest.
- High accuracy & repeatability of measurement at all loads.
- Faster measurement yielding to higher productivity.
- Small size of indentation makes it a non destructive testing on finished components.
- Motorized loading and unloading cycle.
- Small loads allow testing on thin sheet metals.

Advanced Window based software : With latest GUI features :

- User friendly software with windows features.
- Online indentation setting & focusing on PC monitor.
- Advance image processing : Algorithms implemented for precise calculation of hardness numbers with various options to cover all ranges of specimen.
- Batch file processing : Option for Data, storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram etc.
- Wide options in calibration mode.
- Calibration/Verification on PC monitor makes easier to operate.



Application:

'RESOTECH' Computerized Hardness Tester is a simple and accurate means to produce and automatically measure the diamond impression to give Vickers hardness number.

These testers are suitable for measuring the hardness of precision metallic parts with wide testing range - from soft to hard and their accurate results are widely acclaimed.

Construction:

The robust machine frame is designed to accommodate the high precision loading.

Specimen is placed on a testing table. The test cycle is fully automatic. The accurate load is applied on a diamond indenter by means of a lever and weights. After a specific lapse of a time the load is removedautomatically.

The image is digitized using a CCD camera fitted on the machine and is captured by the PC.

The diagonals of the indentation are automatically measured by PC to give the Vickers Hardness Number.

Technical Specifications :

Test Loads	5,10,20,30,50 kgf.
Maximum test height (mm)	200
Scale least count (mm)	0.001
Diagonal measuring range (mm)	0.05 to 0.4
Throat Depth (mm)	135
Machine dimension (mm)	L 585 x W 290 x H 860
Weight (approx)	70 kg.
Power supply	220 VAC, 50 Hz,1-Ph.

* PC & Printer is not in our standard scope of supply.

Standard Accessories :

Standard Test Block	1 No.
Diamond indenter	1 No.
Weights	1 Set
Flat Anvil	1 No.
Vee-type anvil (Small & Big)	1 No. each
Spanners	1 Set
Electric Cord & PC interface cord.	1 No. each
USB device for Video	1 No.
Vicksys software CD	1 No.
Instruction Manual	1 Book

Computerized Touch screen Vickers Hardness Tester

Computerized Touch Screen Vickers Hardness Tester

Features :

- Fully Computerized Touch Screen Vickers Hardness Testing Machine.
- Accurate Measurement of Vickers Hardness number using “State of theart” image processing technology.
- Wide testing range : from soft metal up to hardest.
- High accuracy & repeatability of measurement at all loads.
- Faster measurement yielding to higher productivity.
- Small size of indentation makes it a non destructive testing on finished components.
- Motorised loading and unloading cycle.
- Small loads allow testing of thin sheet metals.
- Advanced windows based software
- PLC based system
- Inbuilt branded touch screen laptop.
- Front panel touch screen display.

Latest GUI features :

- User Friendly software with windows features.
- Online indentation setting & focussing on front touch screen display.
- Advance image processing : algorithms implemented for precise calculation of hardness numbers with various options to cover all ranges of specimen.
- Batch file processing : Option for data storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram etc.
- Wide options in calibration mode – calibration/verification on PC monitor makes easier to operate.
- USB Printer/Wi-fi printer port for printer interface with result & graph print-out.
- Facility to test in Manual, Semi–automatic & Automatic Mode.
- Facility to export result/data in PDF format.

Application :

'RESOTECH' touch screen Vickers hardness tester is a simple and accurate means to produce and automatically measure the indentation to give Vickers hardness number.

These testers are suitable for measuring the hardness of precision metallic parts with wide testing range from soft to hard and their accurate results are widely acclaimed.

Construction :

The robust machine frame is designed to accommodate the high precision loading equipped with front touch screen laptop.

Specimen is placed on a testing table. The test cycle is semi automatic.

The accurate load is applied on a diamond indenter by means of lever and weights. After a specific lapse of time the load is released automatically.

The image is digitalized using USB camera fitted in the machine & is captured by the front touch screen laptop.

The diagonals of the indentation are automatically measured by software togive the Vickers hardness number.

The machine is equipped with latest touch screen branded laptop so their isno need to arrange for computer.

MODEL NO. :- RESOTECH HARDNESS-2614

Technical Specifications :

Test Loads	5, 10, 20, 30, 50 kgf.
Maximum Test Height (mm)	200
Scale least count (mm)	0.001
Diagonal measuring range (mm)	0.05 to 0.3
Throat Depth (mm)	135
Machine Dimensions	L600 x W440 x H920 Approx.
Weight	100 Kg. Approx.
Power Supply	220VAC, 50Hz, 1-Ph.

Standard Accessories :

Standard Test Block	1 No.
Diamond Indenter	1 No.
Weights	1 Set
Flat Anvil	1 No.
Vee – type anvil (Small & Big)	1 No. Each
Spanners	1 Set
Software CD	1 No.
Instruction Manual	1 Book

Vickers Touch ScreenSoftware Packages

Touch Screen Software Package includes :

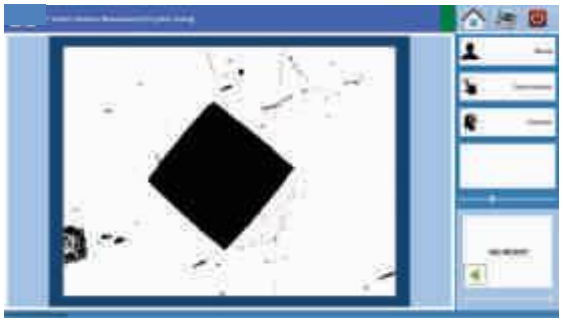
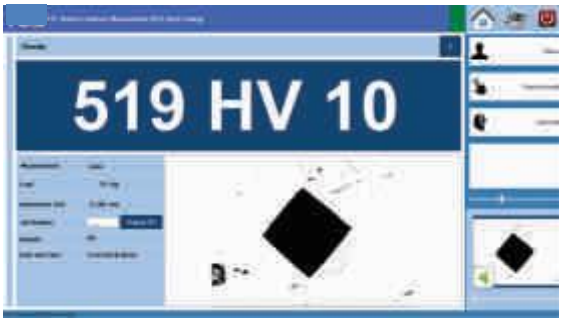
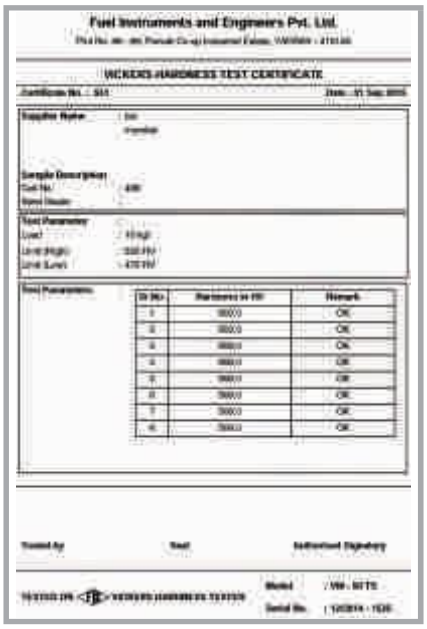


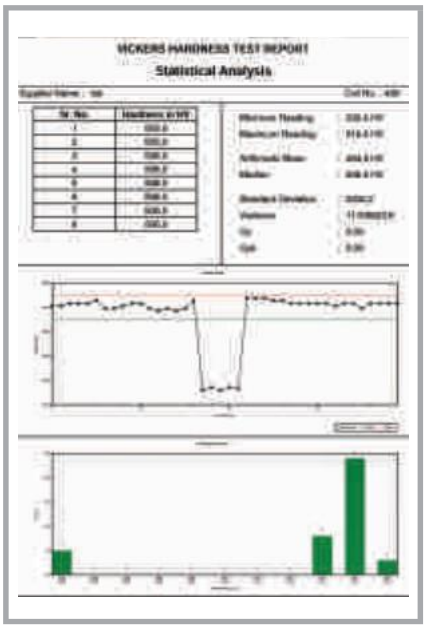
Image View



Result Window

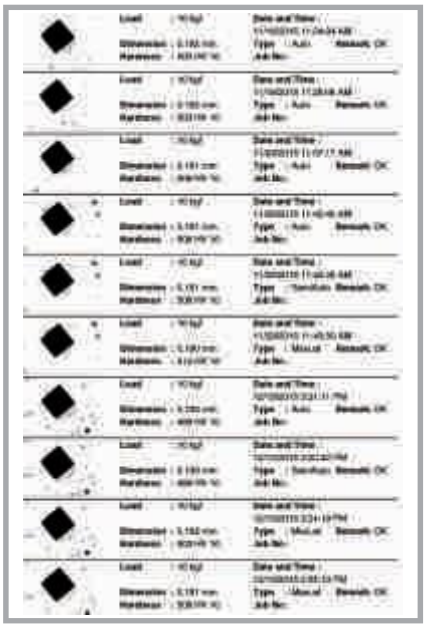


Test Certificate



Statistics

Batch Analysis



Readings Window

HARDNESS TESTING SOLUTION BY RESOTECH

ComputerizedMicro-Vickers Hardness Tester

Computerized Micro-Vickers Hardness Tester

MODEL NO. :- RESOTECH HARDNESS-2615

Indentation View

Result View

Features:

- Fully computerized (PC based) Micro hardness tester.
- Direct and accurate measurement of micro hardness numberusing 'state of art' image processing technology.
- Wide testing range from soft metal such as lead up to hardest, like hardened steel.
- High accuracy and repeatability of measurement at all loads.
- Small size of indentation makes it a nondestructive testing on finished components.
- Load selection by external knob.
- Motorized loading and unloading cycle.
- Small loads allow testing of thin sheet metals.
- Advanced windows based software includes :
  - Latest GUI features with user friendly software.
  - Online indentation setting & focusing on PC monitor.
  - Advanced image processing algorithms implemented for precise calculations of hardness numbers with various options to cover all ranges of specimen.
  - Batch file processing:Option for data/storage & reports generation forcase depth analysis etc.
  - Statistical evaluation:Software for calculating standard deviation , mean, medium, frequency distribution graph, variation graph etc.
  - Calibration mode facility.

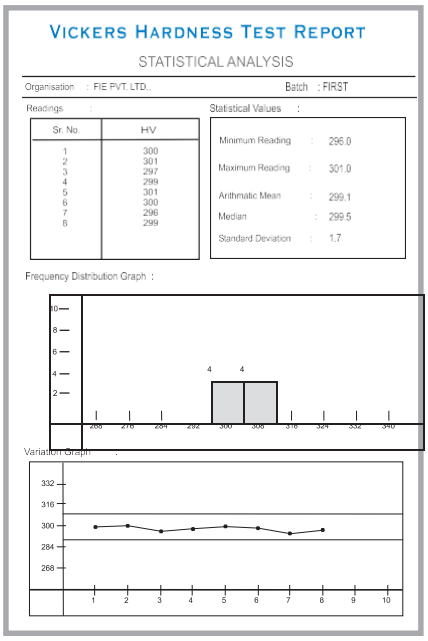
Construction :

The machine frame is designed to accommodate the high precision loading system. Specimen is clamped by vice or supported by proper fixtures. The test cycle is fully automatic. The accurate load is allied on a diamond indenter by means of dead weights. After lapse of time, the load is removed automatically. The image is digitalized using a CCD camera fitted on the machine and is captured by the PC. The diagonals of the indentation are measured by the PC and the Micro hardness number is displayed directly on monitor.

Application :

'RESOTECH' Computerized Micro-vickers hardness tester is a simple and accurate means to produce and automatically measured the diamond indentation togive micro hardness number directly.

These testers are suitable for measuring the hardness of precision metallic parts with wide testing range from soft to hard and their accurate results are widely acclaimed. these testers are strictly confirms to IS :1754:2002 & ISO6507-2:1997.



Technical Specifications :

Test Loads	10,20,50,100,200,300,500,Kgf.
Maximum test height	30mm with clamping vice 50mm without clamping vice
Scale least count	0.0001 mm
Sample Stage (XY stage) with micrometer heads of 0.01 mmLeast Count.	10mm movement in each axis.
Clamping vice capacity	40mm Max.
Measuring Range	0.01 to 0.2 mm.

* Optional Test Load : 1000 gf.
* PC & Printer is not in our standard scope of supply.

Standard Accessories :

Standard Test Block	1 No.
Diamond indenter	1 No.
Spanners	1 Set
Electric Cord & PC interface cord.	1 No. each
Video Capture Card	1 No.
Micro-Vicksys software CD	1 No.
Instruction Manual	1 Book

HARDNESS TESTING SOLUTION BY RESOTECH

Computerized BrinellHardness Testers

MODEL NO. :- RESOTECH HARDNESS-2616

Computerized Brinell Hardness Testers

Features :

- Fully computerized (PC based) Brinell Hardness Tester.
- Direct and accurate measurement of Brinell hardness number using 'State of the art' image processing technology.
- 'Wide testing range' from soft metal to medium hardness steels.
- High accuracy and repeatability of measurement at all loads.
- Faster measurement yielding to higher productivity.
- Hydraulic loading and unloading cycle.
- Advanced window based software.

Latest GUI Features :

- User friendly software with all help file and Windows features.
- Online indentation setting and focusing on PC monitor.
- Advance Image Processing : Algorithms implemented for precise calculation of hardness numbers with various options to cover all ranges of specimen.
- Batch File Processing : Option for data/storage and reports generation.
- Statistical Evaluation : Software for calculating deviation, mode, medium, histogram etc.
- Wide option in calibration mode.
- Extensibility for future advanced image processing analysis requirements.

Application :

'RESOTECH' Computerized Brinell Hardness Tester, is a simple and a accurate means to produce and automatically measure the ball indentation to give Brinell hardness number.

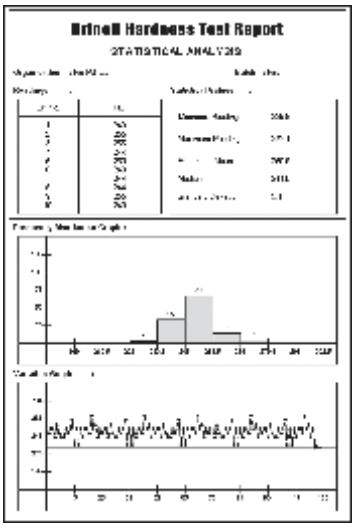
These testers are suitable for measuring the hardness of metallic parts with wide testing range - from soft to hard and their accurate results are widely acclaimed.

Construction :

The robust machine frame is designed to accommodate the high precision loading system and an optical device with CCD camera. Specimen is placed on testing table and brought in contact with clamping cone.

Load/Unload/Read operations are done through a 3-position hand lever. The image is digitalized using a CCD camera fitted on the optical device and is captured by the PC.

The diameters of the indentation are directly measured by PC to give the Brinell hardness number directly.



∗ PC & Printer is not in our standard scope of supply.

Technical Specifications :

Test Loads	kgf	250 to 3000 in stages of 250 kgf.
Magnification of objectives	-	5X, 10X
Brinell ball indenter	mm	2.5
Maximum Test Height	mm	380
Scale least count	mm	0.01
Indication Accuracy	+-	0.1
Throat Depth	mm	200
Weight (Approx.)	mm	450
Power Supply	V/Cy/Ph	415/50/3
Measurement Range	Hbw	650 HBW Min

Standard Accessories :

Testing Table 200mm dia.	1 No.
Testing Table 70mm dia. with 'V groovefor round jobs 10 to 80mm dia.	1 No.
Ball holder 5mm	1 No.
Ball holder 10mm	1 No.
Test Block HB-5/750	1 No.
Test Block HB-10/3000	1 No.
Allen Spanner	4 Nos.
Telescopic cover for elevating screw protection.	1 Set
Electric Cord	1 No.
USB device for Video	1 No.
Instruction Manual	1 Book

Knoop Hardness Testing

Hardness is a characteristic of a material, not a fundamental physical property. It is defined as the resistance to indentation, and it is determined by measuring the permanent depth of the indentation.

More simply put, when using a fixed force (load) and a given **indenter**, the smaller the indentation, the harder the material. Indentation hardness value is obtained by measuring the depth or the area of the indentation using one of over 12 different test methods.

The **Knoop hardness test method**, also referred to as a **microhardness test method**, is mostly used for small parts, thin sections, or case depth work.

The Vickers method is based on an optical measurement system. The Microhardness test procedure, ASTM E-384, specifies a range of light loads using a **diamond indenter** to make an indentation which is measured and converted to a hardness value. It is very useful for testing on a wide type of materials as long as test samples are carefully prepared.

A pyramid shaped diamond is used for testing in the Knoop scale. This indenter differs from the pyramid **indenter used on a Vickers test**. The **Knoop indenter** is more elongated or rectangular in shape. The Knoop method is commonly used when indentations are closely spaced or very near the edge of the sample.

The width of the Knoop indentation can provide more resolution for measurement and the indentation is also less deep. Consequently, it can be used on very thin materials.

In a Knoop test, a predetermined test force is applied with a pyramid-shaped diamond **indenter** for a specified dwell time period. The indenter used on a Knoop test is pyramid-shaped but more elongated than the indenter used on a Vickers test. After this dwell period, the force is removed.

Unlike the Vickers test where the indentation length on the vertical and horizontal axes are measured and averaged, the Knoop method only uses the long axis. This measurement is then converted to a Knoop hardness number using a chart.

Since the test indentation is very small in a Knoop test, it is useful for a variety of applications: testing very thin materials like foils or measuring the surface of a part, small parts or small areas, measuring individual microstructures, or measuring the depth of case hardening by sectioning a part and making a series of indentations to describe a profile of the change in hardness.

Sectioning is usually necessary with a microhardness test in order to provide a small enough specimen that can fit into the tester. Additionally, the sample preparation will need to make the specimen's surface smooth to permit a regular indentation shape and good measurement, and to ensure the sample can be held perpendicular to the **indenter**.

Often the prepared samples are mounted in a plastic medium to facilitate the preparation and testing. The indentations should be as large as possible to maximize the measurement resolution. (Error is magnified as indentation sizes decrease) The test procedure is subject to problems of operator influence on the test results.

For more information, see our guide **Selecting a Newage Microhardness Tester** or **contact us**.

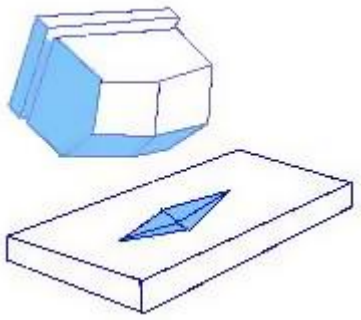


Image:
The long side faces are set at 172 degree, 30 minute angle to one another. Short side faces are set at a 130 degree angle one another.

Knoop hardness testing machine

MODEL NO. :- RESOTECH HARDNESS-2617

Touch Screen Computerized Brinell Hardness Tester

MODEL NO. :- RESOTECH HARDNESS-2618

Features :

- Fully Computerized Touch Screen Brinell Hardness Testing Machine.
- Accurate Measurement of Brinell Hardness number using “State of theart” image processing technology.
- Wide testing range : from soft metal up to hardest.
- High accuracy & repeatability of measurement at all loads.
- Faster measurement yielding to higher productivity.
- Small size of indentation makes it a non destructive testing on finished components.
- Hydraulic loading and unloading cycle.
- Advanced windows based software
- Inbuilt branded touch screen laptop.
- Front panel touch screen display.

Latest GUI features

- User Friendly software with windows features.
- Online indentation setting & focusing on front touch screen display.
- Advance image processing : algorithms implemented for precise calculation of hardness numbers with various options to cover all ranges of specimen.
- Batch file processing : Option for data storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram etc.
- Wide options in calibration mode – calibration/verification on PC makes easier to operate.
- Extensibility for future advanced image processing analysis requirements.
- USB Printer port for printer interface with result & graph print out.
- Facility to measure in Manual, Semi – automatic & Automatic Mode.
- Facility to export result/data in PDF format.

Application :

'RESOTECH' touch screen Brinell hardness tester is a simple andaccurate means to produce and automatically measure the indentation to give Brinell hardness number.

These testers are suitable for measuring the hardness of precision metallic parts with wide testing range from soft to hard and their accurate results are widely acclaimed.

Construction :

The robust machine frame is designed to accommodate the high precision loading system and an optical device with CCD Camera equipped with fronttouch screen laptop.

Specimen is placed on a testing table and brought in contact with clampingcone. Load/Unload/Read operations are done through 3 position hand lever.

The image is digitalized using CCD camera fitted on the optical device and is captured by the front touch screen laptop.

The diameters of the indentation are directly measured by software to give the Brinell hardness number.

The machine is equipped with latest touch screen branded laptop so their is no need to arrange for computer.

Technical Specifications :

Test Loads	250 to 3000 in stages of 250kgf.
Magnification of objectives	5X, 10K
Measuring Range	1 to 6mm
Maximum Test Height (mm)	380
Scale least count (mm)	0.01
Throat Depth (mm)	200
Machine Dimensions	L1025 x W645 x H1178 Approx.
Weight	450 Kg. Approx.
Power Supply	415V, 50Hz, 3-Ph.

Standard Accessories :

Testing Table 200mm dia	1 No.
Testing Table 70mm dia with 'V groove for round jobs 10 to 80mm dia.	1 No.
Ball Holder 5mm	1 No.
Ball Holder 10mm	1 No.
Test Block HB-5/750	1 No.
Test Block HB-10/3000	1 No.
Allen Spanner	4 Nos.
Weights	1 Set
Telescopic cover for elevating screw protection	1 Set
Electric cord	1 No.
USB device for Video	1 No.
Instruction Manual	1 Book.

Brinell Image Analysis

The B.I.A.S. virtually eliminates operator influence :

It is found that measuring Brinell indentations can result in measurement errors between operators. This B.I.A.S. can virtually eliminate operator influence on test results.

Just place and click ! Operating B.I.A.S. is easy :

With this handy instrument entire test sequence is simple. Place the scan hand on the work piece and move it so the impression appears near the middle of the screen. Just touch on 'Auto' in tool bar on laptop. The B.I.A.S. automatically measures the diameter of indentation with resolution of 0.01mm and displays Brinell value with diameter measurement. All data storage functions are automatically performed according to batch parameters.

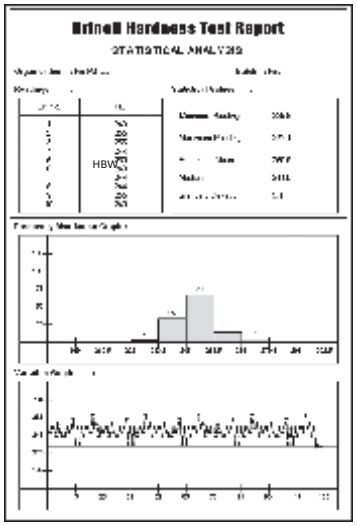
The B.I.A.S. can be configured to meet your needs :

An unlimited number of batches can be created each with its own test parameters and certificates. The operator can select test load and indenter size with party name, address, certificate no. date batch no. and description, high and low limits for readings etc. The previous batches can be reopened for viewing and address change etc.

The B.I.A.S. has built in statistical capabilities with graph and certificates for report generation and printing. It includes frequency distribution and variation graphs.

The system includes calibration and check facilities to calibrate the system and for checking of calibration. This eliminates any system error in measurement.

The range of measurement is form 1mm to 6 mm of diameter with resolution of 0.01 mm.



MODEL NO. :- RESOTECH HARDNESS-2619

The Software Includes :

- Facility for Auto / Semi Auto / Manual modes of operation.
- Well managed database saves readings w.r.t. batch and certificate.
- Report generation in the form of certificate and graph asper customer requirements.
- Facility for calibration and check of calibration.

Application :

- To measure Brinell Hardness directly on machine where presently Brinell-Microscope is used. This avoids eye straining of operator on production testing. In addition it gives far better repeated accuracy.
- High-low limits selection enables operator easy acceptance rejection of components.
- Easy to transport anywhere and handy for use with easy setup.

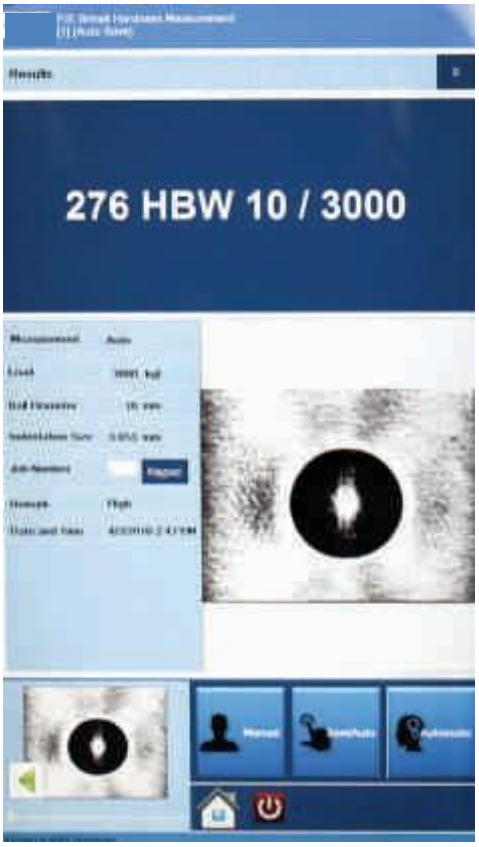
Scope of Supply :

- One hand held unit containing CCD Camera, optics and illumination system with connecting cable.
- USB for Video.
- Brinell Image Analysis System Software.
- PC and windows operating system is to be procured by customer.

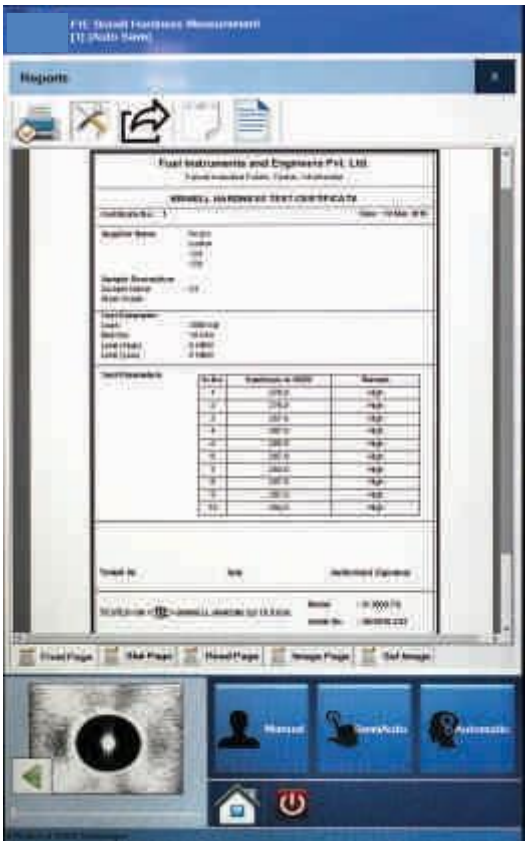
Also Available :

- Computerized Brinell Hardness Tester (B 3000 PC)
- Computerized fully automatic Brinell Hardness Tester (B 3000 PC FA)

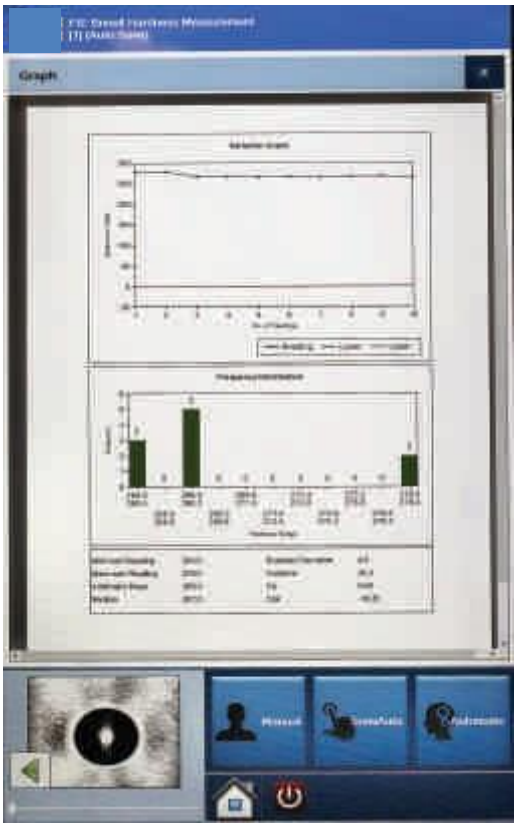
Software Packagesfor B 3000-TS & B.I.A.S.



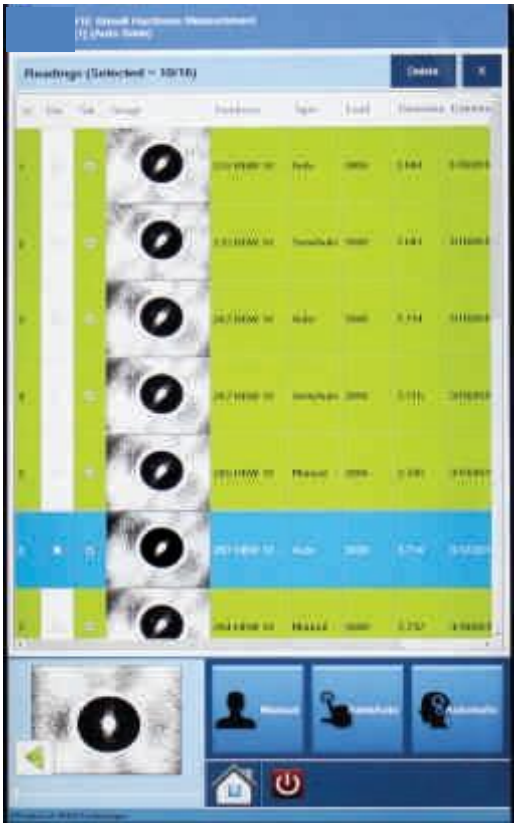
Result Window



Test Certificate



Statistics



Readings with Impression Window

Fully Automatic Computerized Brinell Hardness Testers

Fully Automatic Computerized Brinell Hardness Test

Features :

- Fully automatic machine for production testing.
- Fully computerized (PC based) Brinell hardness tester.
- Direct and accurate measurement of Brinell hardness number using'State of the Art' image processing technology.
- Wide testing range : From soft metal such as lead up to hardest, like tempered steel.
- High accuracy and repeatability of measurement at all loads.
- Advanced Window based software :

Latest GUI features :

- Latest GUI features with user friendly software.
- Online indentation setting & focussing on PC monitor.
- Advance image processing : algorithms implemented for precise calculation of hardness numbers with various options to cover all ranges of specimen.
- Batch file processing : Option for data storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram frequency distribution graph, Variation graph etc.
- Calibration mode facility.
- Extensibility for future advanced image processing analysis requirements.
- "Auto measurement start" from machine.

Application :

'RESOTECH' Computerized Brinell Hardness Tester, is fabricated from steel plates and is designed for precise loading system.

It is fully automatic machine for production testing.

Ones the job is placed on testing table and press "Cycle start" button the job is raised and brought in contact with clamping device.

Then loading operation starts. After preset dwelling timer, unloading operation starts. As soon as load is fully removed, the indenter is swivelled and the image is digitalized using a CCD camera fitted on machine and captured by the PC.

The diameter of indentation is measured by PC and the Brinell hardness is displayed on monitor with help of "state of the art" technology software. The job is lowered down and here the auto cycle is over.

Operationally the machine can be operated after lapse of interval without operation of push button, so that operator has only to do loading and unloading of job on machine.

This tester is designed for measuring hardness of metallic parts with widetesting range from soft to hard and its accurate results are widely acclaimed.

Scope of Supply :

- Basic machine with CCD camera, optics with illumination system and connecting cable.
- USB device for Video.
- PC and Windows operating system is to be procured by customer.

Technical Specifications :

Test Loads	kgf	250 to 3000 in stages of 250 kgf.
Magnification of objectives	-	5X, 10X
Maximum Test Height	mm	380
Scale least count	mm	0.01
Throat Depth	mm	200
Weight (Approx.)	mm	450
Power Supply	V/Cy/Ph	415/50/3
Measurement Range	mm	1-6

MODEL NO. :- RESOTECH HARDNESS-2620

Standard Accessories :

Testing Table 200mm dia.	1 No.
Testing Table 70mm dia. with 'V groove for round jobs 10 to 80mm dia.	1 No.
Ball holder 5mm	1 No.
Ball holder 10mm	1 No.
Test Block HB-5/750	1 No.
Test Block HB-10/3000	1 No.
Allen Spanner	4 Nos.
Telescopic cover for elevating screw protection.	1 Set
Electric Cord	1 No.
USB device for Video	
Instruction Manual	1 Book

Customized Brinell Hardness Testers

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