MATERIAL TESTING MACHINES

- COMPUTERIZED UNIVERSAL TESTING MACHINE
- TENSOMETER
- BRINELL HARDNESS TESTER
- ROCKWELL HARDNESS TESTER

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UNIVERSAL TESTING MACHINE COMPUTERIZED

The UTM is designed according to the testing standards rolled out by RAM and other relative authorities. The machine is designed to give precise and accurate test results. It has 2 beam structure with one movable plate having a fixture with attached grips. The grips are chosen as per the nature of the sample. They are designed in such a way so that one machine could test samples of different natures.

- Flexural,
- Elongation,
- Compression
- Coefficient of Friction,
- Peeling & bonding strength.

The machine has a smart controlling mechanism. It can be connected with the computer. Using the computer, machine can be operated and data can be logged. Once the sample is gripped in the machine, it can be completely operated from the computer, no human interference required. The machine comes with many interchangeable grips which can be purchased under customization request

SERVO CONTROLLED UNIVERSAL TESTING MACHINES

HYDRAULIC CONTROLS :

Hand operated wheels are used to control the flow to and from the hydraulic cylinder. The regulation of the oil flow is infinitely variable incorporated in the hydraulic system is a regulating valve, which maintains a practically constant rate of piston movement. Control by this valve allows extensometer readings to be taken.

ELECTRONIC CONTROL PANEL :

The electronic control panel is built using 8085 microprocessor which incorporates state of the art technology with following features :

- Front panel membrane type key board for test setup.
- 7 seg digital display of load displacement / extension.

  Printer port interface
- Serial port for communication with PC.
- Optional add-on facility for electronic extensometers & electronic load pacer.
- Storage of important parameters such as peak load, displacement at peak load & maximum displacement alter test.
- Period selection to take care of initial slippage.

ACCURACY AND CALIBRATION :

All FSM Electronic Universal Testing Machines are closely controlled for sensitivity, accuracy and calibration during every stage of manufacture. Every machine is then calibrated over each of its measuring ranges in accordance with the procedure laid down in British Standards 1610 : part 1 : 1992 and IO : 1828 : Part 1 : 1991.

Below 20% of the selected range, the maximum permissible error is 0.2% of the full load reading.

SERIAL COMMUNICATION & SOFTWARE PACKAGE ON PC :

The UTE series control panel can be hooked to any PC using RS-232 communication port. FSM offers different exhaustive application. Window based software packages on PC to enable the user to effectively evaluate different parameters. The features include :

- User friendly main menu with pop up menus prompt messages and help windows.
- Extensive graphics on screen for curve plotting, magnification and zooming.
- Evaluation of wide range of user selectable parameters such as young's modulus, yield stress, proof stress etc.

TENSILE TESTING MACHINE

The quality of a material is defined in many ways. Its appearance, sheen, strength, moulding properties and so on. And, out of all these, strength is one important factor. Technically, it can be defined as the ability of the material to resist failure to physical stress. The failure could be fracture or deformation. Tensile testing is one important test to assess the strength of the material.

What is Tensile Test?

The ability of the material to withstand the external strain is put on test. Any test material, metal, rubber, cloth, plastic, etc. can be put on test. A worth noting thing is that end product cannot be tested. A sample needs to be prepared. For every material type, sample has different specifications, the shape and dimensions

To start the test, the sample is clamped from both the ends. An outward pull applied on the sample until it fractures or deforms. Here, clamping of sample is very important. If the sample is dumb-bell shaped, the wide area should be completely clamped in the jaws of the machine. This concentrates the complete tension on the narrow area of the sample, instead of dispersing it throughout the sample. To perform this test, certainly a machine is required.

Universal tensile testing machine is ideal as this is completely computerised and requires no human interference.

ROCKWELL HARDNESS TESTERS
RAS - MODEL

We are offering for our clients, Rockwell cum **Rockwell Superficial Hardness Testing Machines** that are combined hardness testing machines used for checking hardness of very thin sheets and for checking surface hardness. These hardness testing machines are used in laboratories, tool rooms, heat treatment shops, R&D departments, inspection departments, foundries and educational institutions for measuring hardness of different kinds metals and alloys like hard, soft, round, flat or irregular shaped. It has an automatic weight selection with automatic zero setting dial gauge. It also has a superficial test minor load of 3 kgf and major loads of 15, 30, 45 kgf. Rockwell test minor load is 10 kgf and major loads are 60,100,150 kgf. It also has superficial hardness scales such as HRN and HRT and Rockwell hardness scales such as HRA, HRB and HRC which are obtained by using different types of indenters for example –Diamond and Ball. It has a Test height x Throat capacity of 295 x 148 mm. This product's motorized versions are also available. Its loading accuracy conforms to IS: 1586 -2000 as per international standards.

ROCKWELL HARDNESS TESTERS
RASN - MODELS

RASN

Rockwell system Hardness Tester
Model RASN

- 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.

Rockwell cum Brinell Tester,
Model RASN (B)

- Same as RASN above. In additional,
- Additional Test Force - 1471, 2354 N (177.5, 240 kgf)
- Total Test Force - 1839, 2452 N (187.5, 250 kgf)

RASN (T)

Rockwell cum Rockwell Superficial Hardness Tester, Model RASN (T)

- 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 (12, 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.

RASN (M)

Motorised Rockwell system Hardness Tester, Model RASN (M)

- Suitable for Rockwell Tests.
- Motorised 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.

DIGITAL ROCKWELL HARDNESS TESTERS

We offer **Digital Rockwell Hardness Testers**, Model: TRS - DN, TRB - DN, TRB - 250 DN and TSM – DM are designed and developed after years of experience in this field. All these models are manufactured under strict quality control of all manufacturing stages. These models are suitable for testing hardness of metals and alloys of all kind, hard or soft, whether flat or round etc. or of irregular shape. These models strictly conforms to IS 1586-2000, BSEN - ISO - 6508-2, ASTM - E -18 for Rockwell test and IS 2281 -1983, BS 240, ASTM - E -10 for Brinell test and IS 1586-2000, ASTM - E - 18 for Rockwell Superficial test.

Salient Features :

Motorized system for application & removal of major load.
Minor load setting by LCD bar graph.
Keyboard entry for scale selection.
Hi-ok-low(limits) indication for hardness value.
Easy to read, large size LCD display.
Centronics parallel port for connecting Dot Matrix printer (Dot Matrix printer to be provided by customer).
Sufficient error codes for smooth functioning of machine.
Three modes of operation of machine, viz. Motorized Automatic Mode, Semi Automatic Mode, Manual Mode.
Serial Interface(RS-232 prt) is provided for connecting it to computer (Computer to be provided by customer).
Standard Software (Consists of Sr. No., Hardness Values, Limits) in CD is provided.
Indenter is guided in linear bearings facilitates to test small diameter jobs.
Special software with statistical analysis can be given (Optional).

BRINELL HARDNESS TESTERS

FB 3000 (O)

FB 3000 (H)

B - 3000 (O)

Basic machine design & operation similar to B - 3000 (H). In addition 'optical device ' with 14 x magnification provided in front to project dia of ball impression on glass screen with a micrometer measuring system with 0.01mm accuracy. The Indentor swivels & projects dia of ball impression immediately after unloading operation which avoids additional time for measurement of bal impression.

B - 3000 (H)

Machine designed with a hydraulic power pack and control circuit for effortless loading unloading operation .

A dial gauge in front measure depth of ball penetration. This facilties production testing within tolerance limits by compression method

BRINELL IMPRESSION MEASSURING SYSTEM(BIMS)

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

Just place and click! Operating B.I.M.S is easy
With this handy instrument entire sequence is simple. Place the scan hand on the work piece and move it so the impression appears near the middle of the screen. The B.I.M.S automatically measures the diameter of. indentation with resolution of 0.01 mm and displays Brinell value with diameter measurement. All data storage functions are automatically performed according to batch parameters.

The B.I.M.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.M.S has built in statistical capabilities with graph And certificates for report generation and printing. It include Frequency distribution and variation graphs.

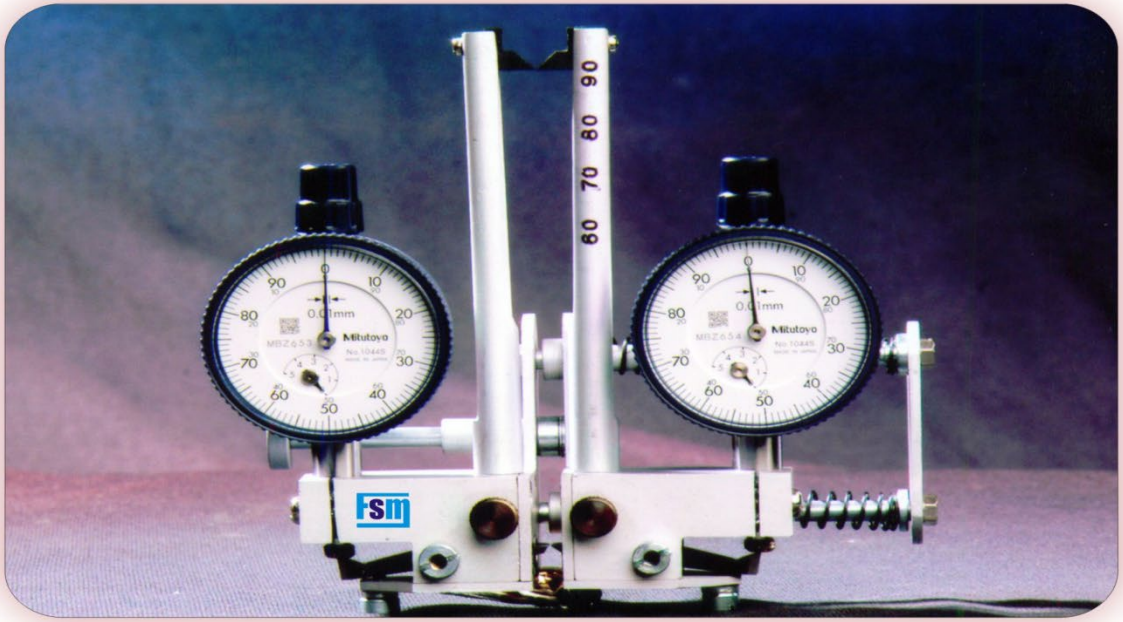
The system includes calibrate the system and for checking Of calibration. This eliminates any system error in measurement.

Specifications
The range of measurement is from 1min to 6mm of diameter with resolution of 0.01 mm.

Application
1. 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.

2. Easy to transport anywhere and handy for use with easy set up.

MECHANICAL EXTENSOMETERS



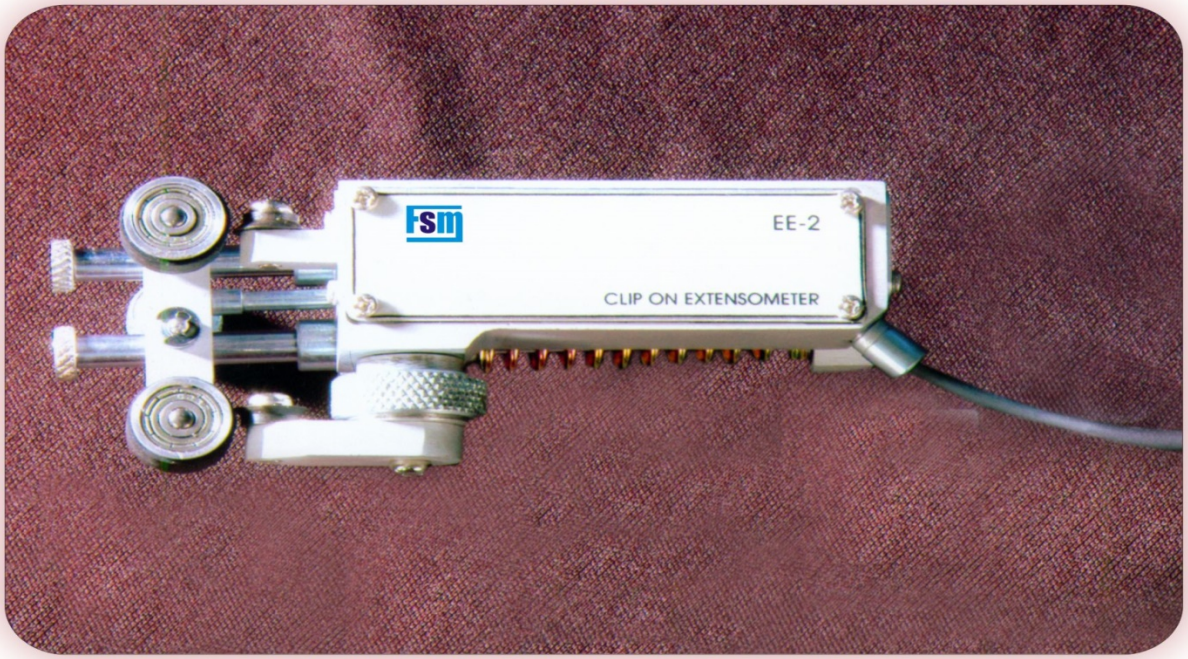
It is essential to measure the elongation of test specimen under load, to have it's mechanical properties. FSM Extensometer Model EM-1 is intended to serve the above purpose.

CONSTRUCTION & APPLICATION :

This consists of two long knife edges at top, two dial indicators and lower knife edges to actuate the dials. The bars are pressed against the specimen by means of clamp. So that the knife edges bite the specimen to avoid any slip. The upper edges are adjustable to provide different gauge lengths for measurement. As deformation takes place the lower knife edges transfer the movement to the dial gauges and the deformation of specimen is shown on dials, so that the change in length of specimen by 1/100 mm, equals to one division of the graduation on dial.

TECHNICAL DATA	
1) Measuring range	0 to 3 mm
2) Least Count	1/100 mm
3) Gauge Length (Adjustable)	30 to 120 mm
4) Thickness or Diameter of specimen	1 to 20 mm
5) Dimensions -BxDxH	120 x 50 x 150 mm (App.)
6) Net Weight	0.3 Kg Approx.

ELECTRONIC EXTENSOMETERS



- The electronic extensometer Model EE-2 is manufactured as per IS:12872:1990 & ISO 9513:1989 in class 1 accuracy.
- This equipment is basically used with Universal Testing Machines for tension test, It is used for measuring young's modules, proof stress or yield stress.
- EE2 extensometer requires electronic signal conditioning PCB to interface it with UTM electronic panel.

TECHNICAL DATA

1) Measuring range (Extension)	0.2 mm
2) Least Count	0.001 mm
3) Gauge Length (Adjustable)	25, 30, 45 & 50 mm
4) Thickness or diameter of specimen	1 to 20 mm
5) Excitation	+ 5 VDC
6) Out Put (Approx)	20 mV full scale

OPTIONAL ACCESSORIES

- EE - 2 with gauge length 25.4, 62.5, 70 & 80 mm.
- Specimen thickness or dia 4 to 40 mm & 4 to 50 mm.

PORTABLE HARDNESS TESTER

The New Generation of rebond Digital color Hardness Tester

Application Range

- Good for all metals
- Ideal for production level testing
- Best suited for on-site testing of heavy, big or alreadyinstalled parts
- Handy for difficult to access or confined test locations
- Automatic compensation for impact direction
- Excellent for material selection and acceptance tests
- Easy to use and accurate on curved test surfaces (R > 10 mm)

- Measuringrange : HLD (170 ~ 960) HLD
- Measuringdirection : 0°~360°
- HardnessScale : HL、HB、HRB、HRC、HRA、HV、HS

Salient Features

- Wide measuring grange.Basedon theprinciple of Leeb hardness testing theory.I tcan measure the Leeb hardness of all metallic materials.
- Seveni mpact devices are available for special application.Automatically identify the type ofimpact devices.. Donot re-calibrate when replacing.
- Automatically recognize impact direction ,360° all-round freedom measurement.
- Automatically detect the impact device status(connected,disconnected, fault etc)
- Big Colordisplay,320*240 TFT LCD display .Rich information, intuitive, clear display, adjustable brightness,easy to use under the dim light and intense sunlight environment.

PROFILE PROJECTOR

MODEL NO.	VT 300
Screen diameter (mm)	Φ300 mm,(fine ground glass with cross lines)
Rotating range	0o~360o(switchable degree/ decimal, L.C.1minute.
Rotating angle scale	1' Digital Angle Encoder with Zero settings.
Magnifications-Standard	Telecentric Optic : 10x, turret mount (sill optics Germany)
Working distance	138 mm
Standard Work Stage	TOP PLATE HARDEND 450mmx200mm
Measuring range X/Y Axis	200mm X 170mm
Operation	Manual on X,Y, Z Axis, and Motorization as per Optional
Indicator scale	0.001mm (built in glass scale)
Contour Illumination Accuracy	< 0.05% on screen
Surface Illumination Accuracy	< 0.075% on screen
Contour Illumination	150W, 24V with Heat Filter and Fan cooled system.
Surface Illumination	150W, 24V – 2 nos. with Heat Filter and Fan cooled system.
Illumination System	Dual Beam Split Light source with Light Control Intensifiers system to adjust bright surface Illumination Contrast for clear and sharp display on Screen, All bulbs are individually fan cooled for minimum heat generation.

SPRING TESTING MACHINE

Capacity	0 Kgf to 20 Kgf
Type	Universal, Tension & Compression
Least Count (Force)	0.01 Kccm
Least Count (Deflection)	0.01mm
Measuring Units	N, Kgf, Lbf selectable
Accuracy	± 0.5% of the reading
Display (Force & Deflection)	Microcontroller based 6 Digit Digital Display System & LCD.
Max. Deflection	300mm
Feature	Peak Load & Buzzer on Overload
Power required	180VAC to 260VAC @ 50 Hz
Load applying	Through hand operated rotating wheel
Specimen Fixture	Self Alligment PIN System for Centering of Specimen
Calibration	NABL / NPL Calibrated (Optional)
Warranty	12 months from the date of installation

TORSION TESTING MACHINE

: Single Phase, .5 hp Motor

Rotation Counter : Digital Electronic Counter with Proximity Switch

Description

A Unique Machine which conforms to three different test standards. The machine is manufactured as per IS 10810 Pt 38 (Torsion Test On Galvanized Steel Wires For Armoring.), IS 10810 Pt 39 (Winding Test On Galvanized steel Strips For Armoring.) and IS 10810 Pt 3 (Wrapping Test For Aluminum Wires). for wire.