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RESOTECH UNIVERSAL TESTING PROPOSAL

Professional Manufacturer of Test Equipment



MAKE - RESOTECH
MODEL NO. - OMEGA2607

Type of Testing

- Tensile Test
- Elongation Test
- Strain Test
- Stress Test
- Bending

MANUFACTURERS & SUPPLERS

SPECIAL PURPOSE MACHINE, MATERIAL TESTING MACHINE, LEAKAGE TESTING MACHINE, PACKAGING 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.

The mechanical properties of materials are determined by performing carefully designed laboratory experiments that replicate as nearly as possible the service conditions. In the real life, there are many factors involved in the nature in which loads are applied on a material. The following are some common examples of how these loads might be applied: UNIVERSAL, compressive and shear, just to name a few. These properties are important in materials selections for mechanical design.



APPLICATIONS

- Suitable for testing wood & allied products, timber, wires & ropes, Plastic, Rubber, FRP

Materials etc. in Tensile, Compression, Bend, Flexure Metallic alloys, wires, fasteners, and non-metallic material such as Ceramics, Rubbers, Cables,

Fabrics, Tapes, Plastic, Polymers, Composites, flexure shear, indentation, Elastomers,

Geo-synthetic (Geotextile, Geomembrane, Geogrid, Geonet etc.) etc. conforming to

Testing procedure laid down in relevant ASTM/ ISO/IS & BS standards.

INTRODUCTION

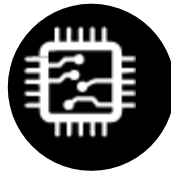
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UNIVERSAL TESTING MACHINE

MAKE – RESOTECH

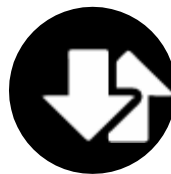
MODEL NO. – OMEGA2607



Microprocessor Based Panel



Load Accuracy as high as $\pm 1\%$



Motor driven threaded columns for quick & effortless adjustment of lower cross-head –to facilitate rapid fixing of test specimen





APPLICABILITY AND RANGE OF APPLICATION

Universal Testing Machines ,designed for wide variety of testing ,such as Universal testing machine of different Materials are having rigid construction .due to use of modern electronics in the mechanical machines, the machine features, higher productivity and it offers many facilities useful in the testing of various materials.

Operation of the Machine is by mechanical transmission of the load from test specimen to LOAD CELL where it is converted into electronic signal and processed for Digital load indication. The drive for the machine is obtained through chain and sprocket which are driven by A.C. SERVO motor .The variable traverse speed can be obtained by entering suitable as mm/min in Electronic panel which changing motor speed directly. The displacement is measured though rotary encoder and displayed on the Electronic panel.

DETAILED SPECIFICATIONS

UTM is electromechanical system with integrated digital closed-loop control, data acquisition

system with measurement of load, crosshead travel and extension (through extensometers). The

basic system comprises of Electromechanical Load frame, Signal conditioning and Control Unit,

Standard Computer, Software Package, Load Cells, Displacement Transducer and Grips/

Fixtures (As per requirement).



TECHNICAL SPECIFICATION

- Maximum Capacity : 1KN-100 KN
- Frame Capacity : 150 KN
- Test Speed :0.001mm to 500mm/minute or better.
- Measuring Range of testing force : 1% - 100%
Of the max. Testing force
- Accuracy of testing machine : over +- 1% than
- The value display
- Accuracy of deformation measure: +- 1%
- Accuracy Of speed : 0.5 %
- Data Accusation: 25 Hz
- Accuracy of testing Force value display : over
- +-1% than the value display
- Measure range deformation : 2 – 100%
- Accuracy of large deformation : within +- 1%
Of the value display
- Dimension of testing Space (mm) :
1100mm X 700mm X 2250mm
- Height of testing Space (mm) : 1000
Structure Mild – Steel
- Servo Motor & Drive : Panasonic , Japanese MAKE
- Double Ball Screw
- Load Sensor
- Electrical Panel
- UTM Software
- Interface Unit
- Indicator
- Load Cell – Make – MAXLOAD (Canada)
- Load Cell Capacity – 150 KN



Emergency Stop

- **Type of Testing**

1. Tensile Test
2. Elongation Test
3. Strain Test
4. Stress Test
5. Bending

- **Graphical Representation**

1. Load V/S Displacement
2. Stress V/S Strain
3. Load V/S Time
4. Displacement V/S Time

- **Report Format**

Excel

Pdf

word



SERVO CONTROL PANEL:

A.C. servomotor drives the gear box, rotates and gear box output shaft drives a belt which in turn lead screws. The gearbox & motor is mounted on a plate, which in turn is fixed to the bottom plate being a variable speed motor the middle cross head can be moved up and down at the required speed.

A rotary encoder is in-built in the servomotor to measure the middle cross head movement and in turn the elongation, displacement in the specimen

METHOD OF TESTING:

Initial Adjustment:-

Select suitable grips for the specimen to be tested various types of grips can be supplied to the customer depending on the requirement. the grips are designed in Such way that they can be mounted easily on the machine by inserting a pin or by tightening the threads in the joints. Adjust the cross head as per the specimen length and grips.

If load v/s Displacement, curve is to be recorded. Connect the printer to the interface circuit socket



AC Servo Drive & Motor

ECMA series servomotors are permanent AC servo motors, capable of combining with 200 to 230V ASDA-A2 220V series AC servo drives from 50W to 15kW and 380V to 480V ASDA-A2 400V series AC servo drives from 750W to 7.5kW.

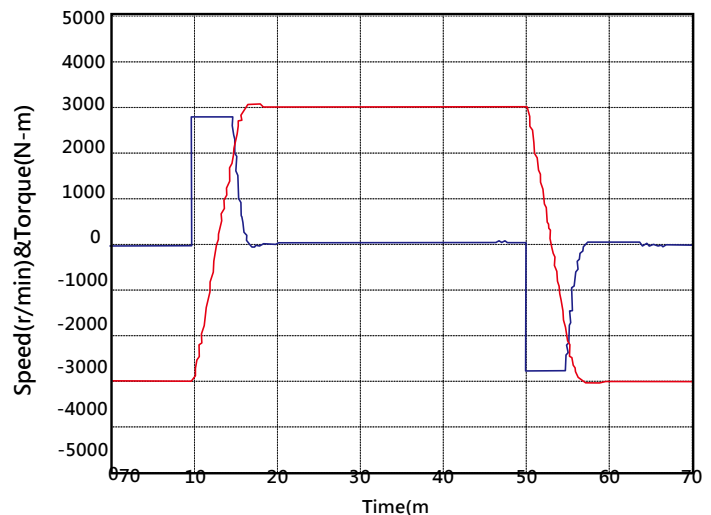
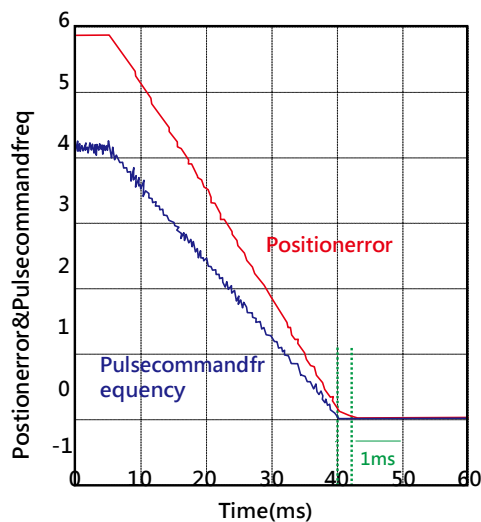
For the 220V series, there are 40mm, 60mm, 80mm, 86mm, 100mm, 130mm, 180mm, and 200mm eight kinds of frame sizes available. The motor speed is from 1000 r/min to 5000 r/min and the torque output is from 0.477N-m to 224N-m.

For the 400V series, there are 60mm, 80mm, 86mm, 100mm, 130mm, 180mm, six kinds of frame sizes available. The motor speed is from 1500 r/min to 5000 r/min and the torque output is from 3.82N-m to 119.36N-m. In terms of optional configurations, ECMA series provides brake and oil seal to fully support our customers' needs. It also offers two different shaft selections, round shaft and keyway, for various applications.



High Responsiveness

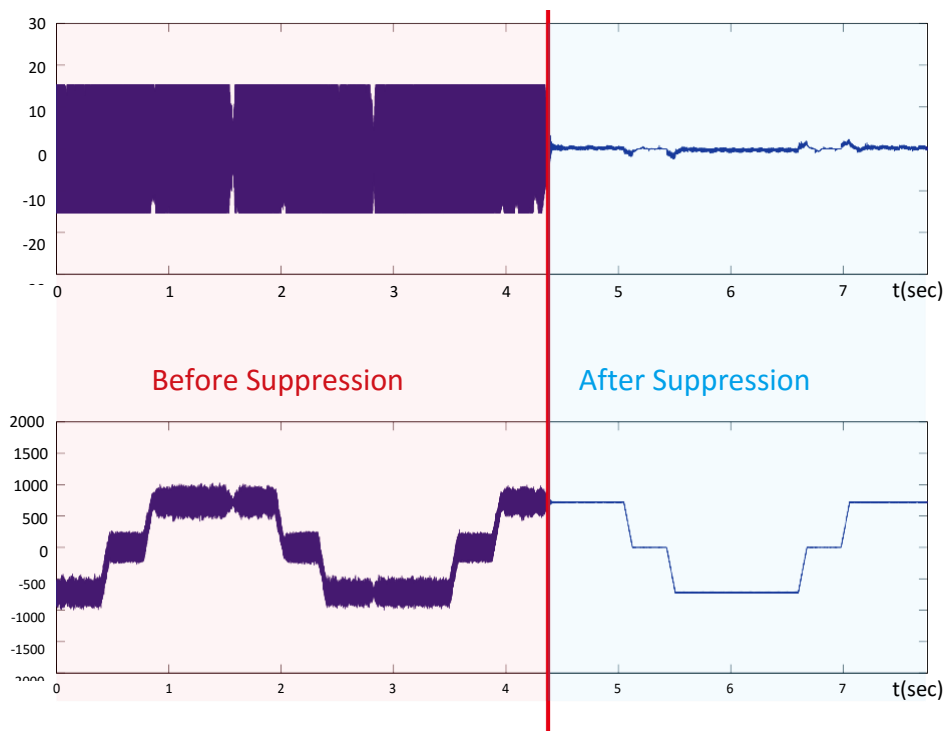
- ▶ Upto 1kHz frequency response.
- ▶ Settling time below 1ms.
- ▶ 7ms acceleration time for speeds from -3000r/min to 3000r/min with an empty load!
(Note: The test record of a 400W motor with 60mm frame size)



Excellent Suppression Functions

- ▶ Vibration Suppression (Low Frequency)
Two vibration suppression filters are provided for long arm system to minimize the vibration at machine edges effectively.

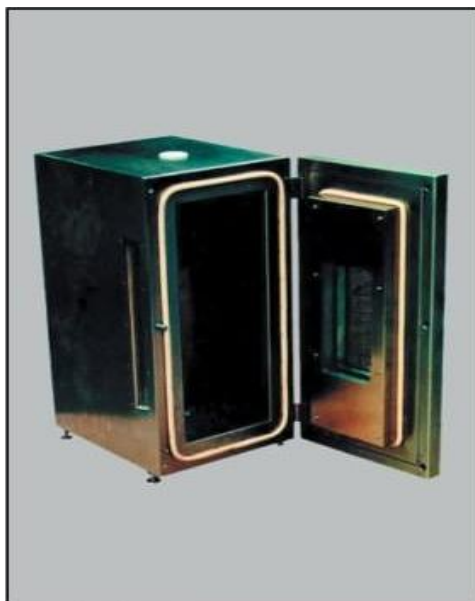
Resonance
Suppression (High
Frequency)
Two auto notch filters and one manual notch filter are provided to suppress mechanical resonance efficiently.



GRIPS



Longitudinal extensometer DA164



Climatic chamber



Manually applied extensometer MF



Bending jig SP 173



Chucks for crimped joints SP 189



Manually applied extensometer EP



Eccentric roller grips SP 174



Screw grips SP 175



Foil grips SP 178



Scissors grips SP 179



Wedge grips SP 180



Wire and rope grips SP 183



Rope grips SP 184



Pull-off device SP 187

LOADING FRAME:

The base has a AC Servo motor and two main ball screws at both ends. The middle cross head is mounted on screws through main nuts. The middle cross head can be moved up or down through chain transmission and geared motor to adjust the initial tensile/compression clearance. Inside base of machine rests an assembly of upper, lower cross head and two columns.

LOADING RATE / STRAINING RATE CONTROL

This is superfine controlling system which controls loading rate / straining rate as per commands from electronic machine control system. Software can send loading rate / straining rate to electronic system for fully automatic testing.

OPERATION

Tension test is conducted by gripping the test specimen in the upper and middle cross head. Compression, Bending, Transverse, Shear and Hardness tests are conducted between the middle and lower cross head by using appropriate fixtures. The rapid adjustment of middle crosshead facilitates easy fixing of tensile / Compression specimens of different lengths.

ACCURACY & CALIBRATION

Every machine is calibrated in accordance with procedure laid down in BS-1610-1964 IS 1828-1991. ' Computerized UTM Testing Machines comply with grade of BS 1610-1964 and Grade 1.0 of IS 1828-1991. An accuracy of $\pm 1\%$ guaranteed from 2% to 100% of capacity of the machine. In the computerized UTM, the computer is an integral part of the entire system and not just an ADD ON feature. This puts a lot of power and versatility into the hands of the operator and makes the system much more self-contained than usual, as it includes many functions usually only available as additional (often expensive) optional features.

TENSILE TEST PACKAGE

Wedge Grips: A set customized collect that directly integrated with the universal grip pull rods to test flat specimens from 0.5 mm to 5mm in thick and 25mm wide and vee wedge for 4 to 6mm diameter round specimen.

AXIAL EXTENSOMETER FOR TENSILE TEST

Gauge Length: 12.5 Measuring range: +6.25/-3.1mm Accuracy: +/-0.5% of read out value as per ASTM E83 Excitation: 5 to 10 VDC sensitivity : 2 to 4 mv/V full bridge , 350ohms strain gauges design these extensometers should be designed for testing wide range of materials including metals composites ceramics and plastics these should work in both tension and compression dual fixture design makes them very rugged and insensitive to vibrations which permits higher frequency operation and should be supplied with standard quick attach kit for easy mounting on the specimen mechanical over travel limits in both directions

TENSILE & COMPRESSION TESTING

Software to perform Tensile & Compression test compatible with controller, machine and power pack etc. the user interface Contain Specimen description loading parameters pump control test run /stop graph display, numeric readout of multiple relevant test parameters.

PRINTER PORT FOR PRINTER INTERFACE

GRAPH & RESULT PRINT-OUT

BATCH CERTIFICATE PRINT - OUT

TEST CERIFICATE PRINT -OUT

SIMPLE STATICES PRINT - OUT

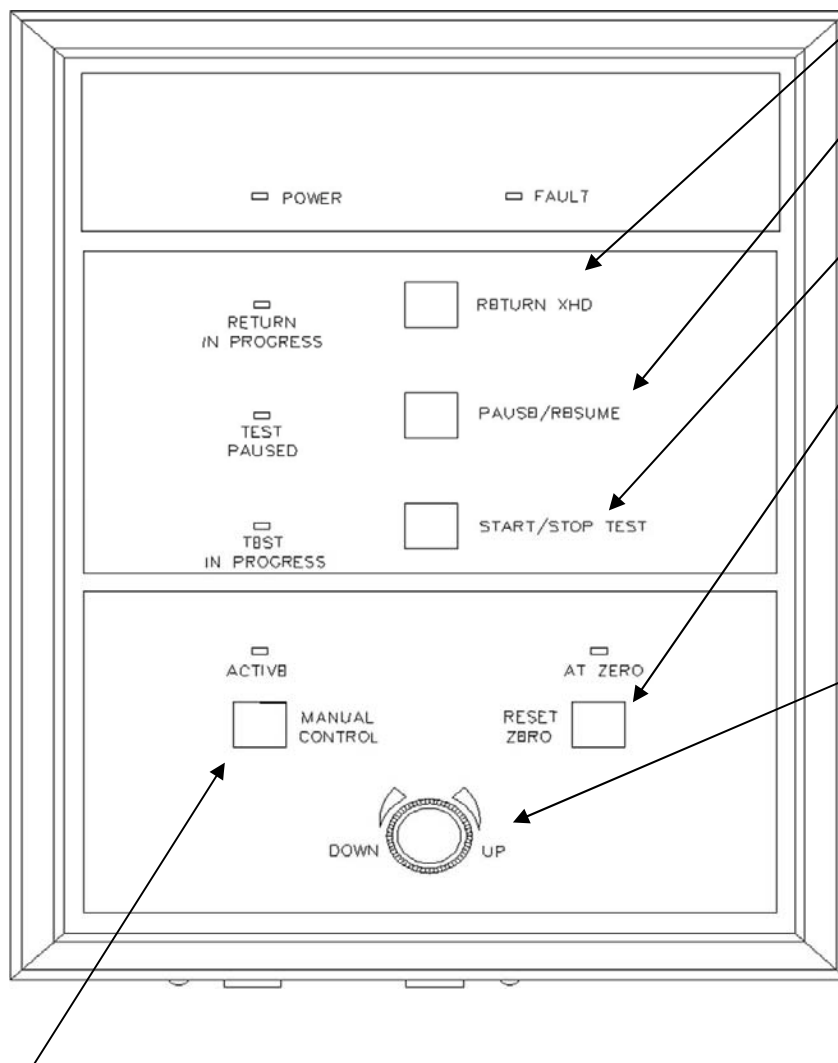
Section 4.

Controls

Manual Controls

The Series Universal Testing Machine (UTM) is computer-controlled, but limited functions can be controlled manually. The manual control station is mounted on the load frame and provides several test controls at this position. Below is a list of controls used during operation. Refer to Figure 2.

NOTE: In order for this equipment to be controlled manually, the software must be in operation.



Return XHD - This pushbutton (with corresponding LED) will return the crosshead to the zero position.

Pause/Resume - This pushbutton (with corresponding LED) will hold a test in progress or resume a paused test when pressed.

Start/Stop Test - This pushbutton (with corresponding LED) will start/stop the test from the load frame.

Reset Zero - This pushbutton resets the zero position of the crosshead to its current location when the button is pressed. The ACTIVE indicator and the Manual Control Window on screen must be present for this function to operate. An LED indicator above the button will indicate when the crosshead is at zero.

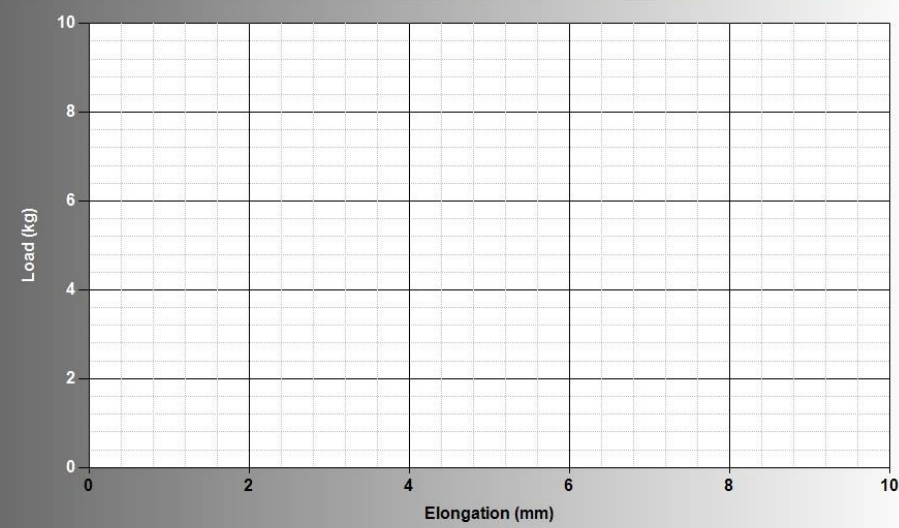
Jog Pot - This jog is a proportional control, permitting the user to manually operate the up and down movement of the loading crosshead. As the jog is turned in either direction, the moveable crosshead speed gradually increases. When the knob is released, the moveable crosshead movement stops. The active indicator and the Manual Control Window must be ON for this function to operate.

Manual Control - This pushbutton will enable the manual controls, by pressing the button and holding for 3 seconds. An illuminated LED indicator above the button shows when the manual control functions are active. When activated, the manual control window will appear on the computer screen. Manual control is accessed from either the load frame or the computer.

Emergency Stop - This pushbutton is mounted on the base of the UTM and provides an instant stop of all machine functions when depressed. The Emergency Stop function is available at all times when power is applied to the UTM. When pushed, the pushbutton will lock the power off. In order to restore power, turn the button.

ComputerControlFunctions

The Universal Test Machine is primarily computer-controlled using the software. Figure 3 shows a list of the software menu items available with this manual will explain how to perform functions in all the menu items except for some items available in the SYSTEM menu, as they should be accessed by resonance personnel only.

NEW TEST		HISTORY		INPUT		REPORT		EXCEL		CLOSE	
Load (kg) 0.3		Elongation (mm) 0.01		Stress (kg/cm ²) 0		Strain (%) 0		1/30/2022 11:06:42 PM		Time (sec) 0	
Test No - 1		Group - Trial		Test - Tensile		Shape - Rectangle		Spec. - Rubber		Select Group: Trial Operator: Select Graph: <input checked="" type="radio"/> Load Vs Elongation <input type="radio"/> Load Vs Time <input type="radio"/> Strain Vs Time <input type="radio"/> Stress Vs Strain	
								Peak Force = Elong. at Break = % Elongation = Modulus At 200% = Modulus At 500% = Elong. at Peak = Strength = Modulus At 100% = Modulus At 300% =			
Input Parameters: Width(mm) 10 Thickness(mm) 2 Length(mm) 20 Area(mm ²) 20 Speed(mm/min) 50								LOAD ZERO ELONG. ZERO <div style="display: flex; justify-content: space-around;"> <div style="background-color: green; color: black; padding: 5px; border: 1px solid black;">START</div> <div style="background-color: red; color: black; padding: 5px; border: 1px solid black;">STOP</div> </div> <div style="display: flex; justify-content: space-around;"> <div style="background-color: blue; color: black; padding: 5px; border: 1px solid black;">UP</div> <div style="background-color: blue; color: black; padding: 5px; border: 1px solid black;">DOWN</div> </div>			

Section 5. Operation

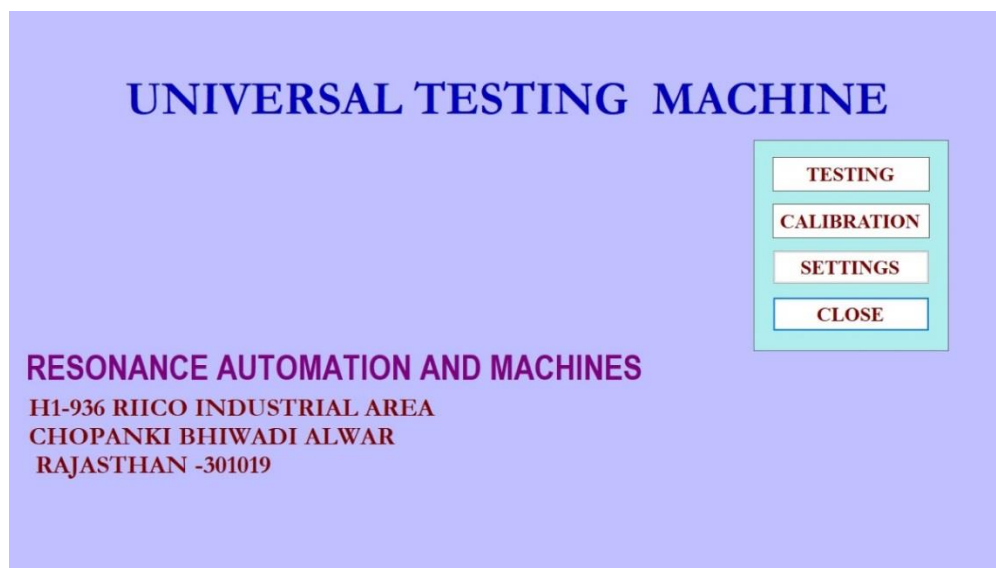
General

The purpose of this section is to describe procedures related to operating the Computer Controlled Universal Test Machine (UTM). Before a test can be conducted, Hardware Parameters and Software Preferences must be set.

- (Creating a Test
- < Positioning the Specimen
- (Running a Test
- (Manual Operation

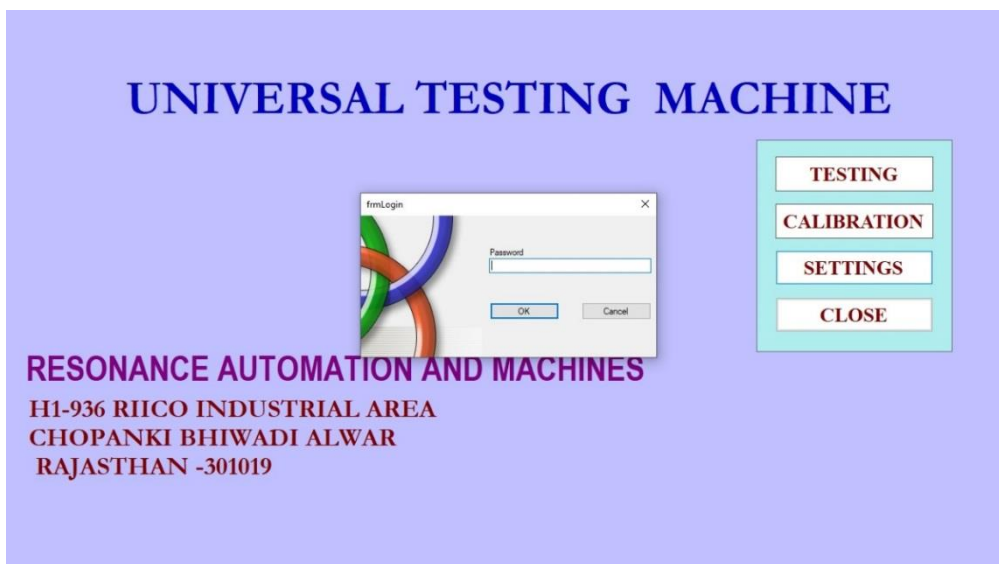
WELCOME SCREEN

Here operator can choose whether he wants to do samples testing or to do software settings,

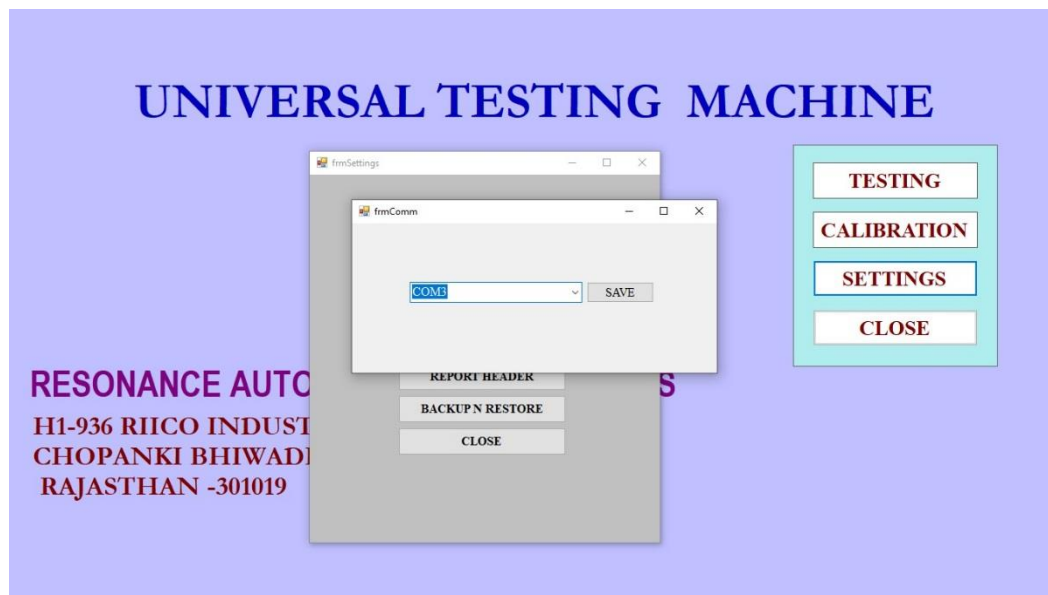
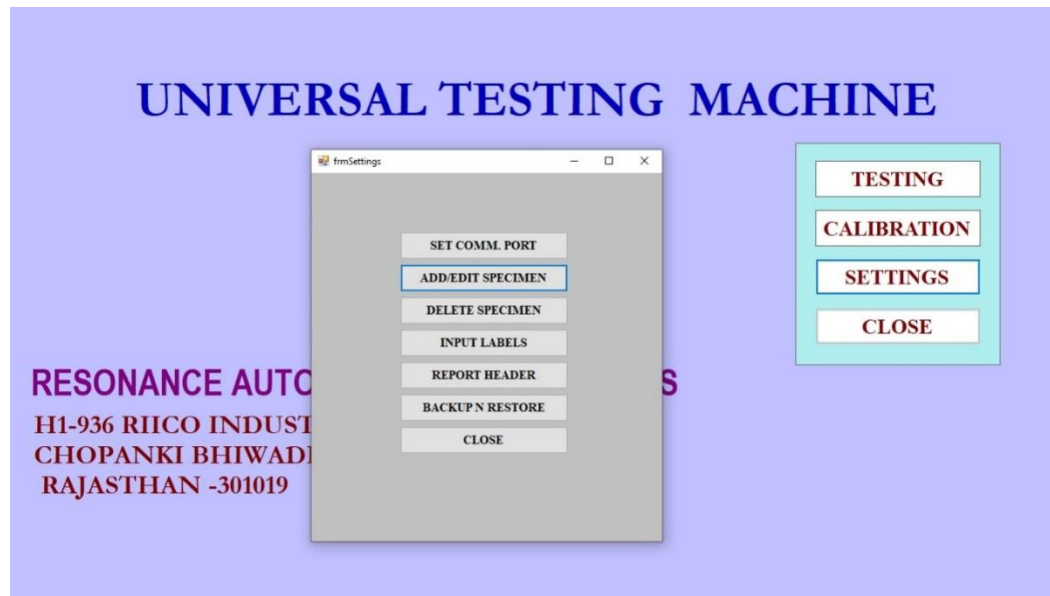


SETTINGS

All software settings and backup options are here. A "admin" password is required to get in to this option. Settings menu shown below.



To set communication port click on 'SET COMM. PORT' option and then choose the port no on which the Interface unit is connected



TEST SCREEN

NEW TEST

HISTORY

INPUT

REPORT

EXCEL

CLOSE

Load (kg) 0.3

Elongation (mm) 0.01

Stress (kg/cm²) 0

Strain (%) 0

1/30/2022
11:06:42 PM

Time (sec) 0

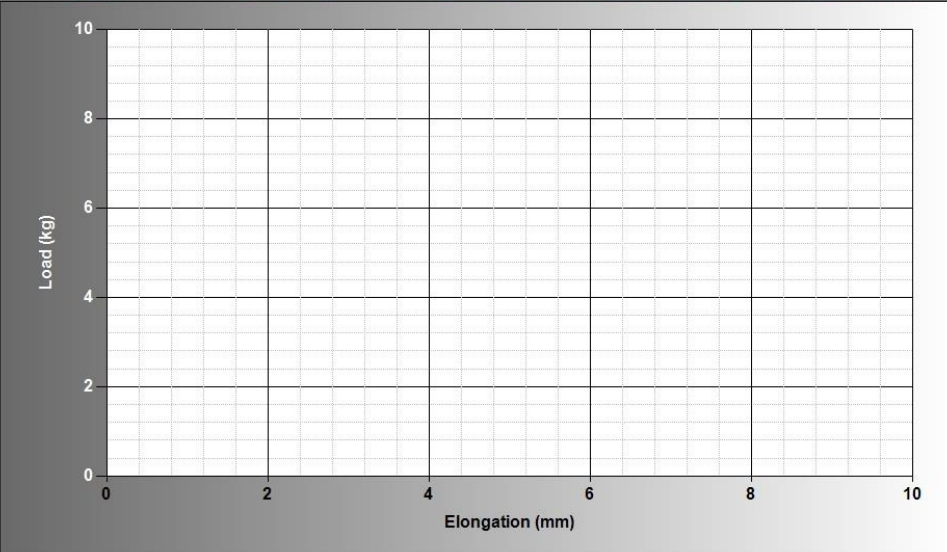
Test No - 1

Group - Trial

Test - Tensile

Shape - Rectangle

Spec. - Rubber



Select Group

Trial

Operator

Select Graph

☒ Load Vs Elongation
 ☐ Load Vs Time
 ☐ Strain Vs Time
 ☐ Stress Vs Strain

Peak Force =

Elong. at Peak =

Elong. at Break =

Strength =

% Elongation =

Modulus At 100% =

Modulus At 200% =

Modulus At 300% =

Modulus At 500% =

Input Parameters

Width(mm) 10

Length(mm) 20

Speed(mm/min) 50

Thickness(mm) 2

Area(mm²) 20

LOAD ZERO

ELONG. ZERO

START

STOP

UP

DOWN

INPUTS

All input settings are set here. Test Unit, Result Unit, Break Checking, Set Load, and Set Disp., whether to use extensometer or not, if proof load required set percentage for proof load, Test Direction and all other input parameters like test type, specimen, shape etc. Graph range settings also here.

Inputs

Group : Trial

TEST NAME : Tensile

SPECIMEN : Rubber

SPC SHAPE : Rectangle

Ref. Std.

Test Sample

Material

Sample ID

ADD GROUP

Test Unit : kg

Result Unit : kg/cm²

Load cell No.: 3

Y Load Range : 10

X Disp. Range : 10

X Time Range : 10

Y Load Inc Step : 5

X Disp. Inc Step : 5

X Time Inc Step : 5

Select Control Type

☒ Check Break

Break Percent

☐ Load Control
 ☐ Disp Control

☒ Auto Home
 ☐ Manual Entry Of Final Length

☐ Use Extensometer

P.Load % 0.2

TEST DIR UP

QUALITY None

ENTER

Select Graph

☒ Load Vs Elongation
 ☐ Elongation Vs Load

☒ Load Vs Time
 ☒ Elongation Vs Time
 ☒ Stress Vs Strain %

SAVE

EDIT

CLOSE

ADD EDIT SPECIMEN

Here the administrator can add new specimens like(Rubber, TMT Bar, Iron Rod, Door Hinge, Brake Hose etc) And assign test type(Tensile, Compression, Flexural, Elongation Test etc) also can select test results required For specified specimen.

Specimen Name	Test Name
<input type="text"/>	<input type="text"/>
Test Results	
<input type="checkbox"/> Peak Force	<input type="checkbox"/> Force at Break
<input type="checkbox"/> Elong. at Peak	<input type="checkbox"/> Elong. at Break
<input type="checkbox"/> Test Time	
<input type="checkbox"/> Peak Stress	<input type="checkbox"/> Peak Strain
<input type="checkbox"/> Strength	<input type="checkbox"/> % Elongation
<input type="checkbox"/> Yield Load	<input type="checkbox"/> Yield Stress
<input type="checkbox"/> Elong. at Yield	<input type="checkbox"/> Young's Modulus (E. Modulus)
<input type="checkbox"/> Avg Peak Force Average Multiple Peak Force (Adhesion)	
<input type="checkbox"/> Adhesive Strength (Avg Force/Width)	
<input type="checkbox"/> Tear Strength (Peak Force/Thickness)	
<input type="checkbox"/> Peel Strength (Peak Force/Width)	
<input type="checkbox"/> Proof Load	<input type="checkbox"/> Proof Stress
<input type="checkbox"/> Elong. at PL	<input type="checkbox"/> Modulus 100%
<input type="checkbox"/> Modulus 200%	<input type="checkbox"/> Modulus 300%
<input type="checkbox"/> Modulus 500%	<input type="checkbox"/> TS/YS Ratio
<input type="checkbox"/> Final Area	<input type="checkbox"/> YS/TS Ratio
<input type="checkbox"/> % Reduction Area	

SAVE	CLOSE
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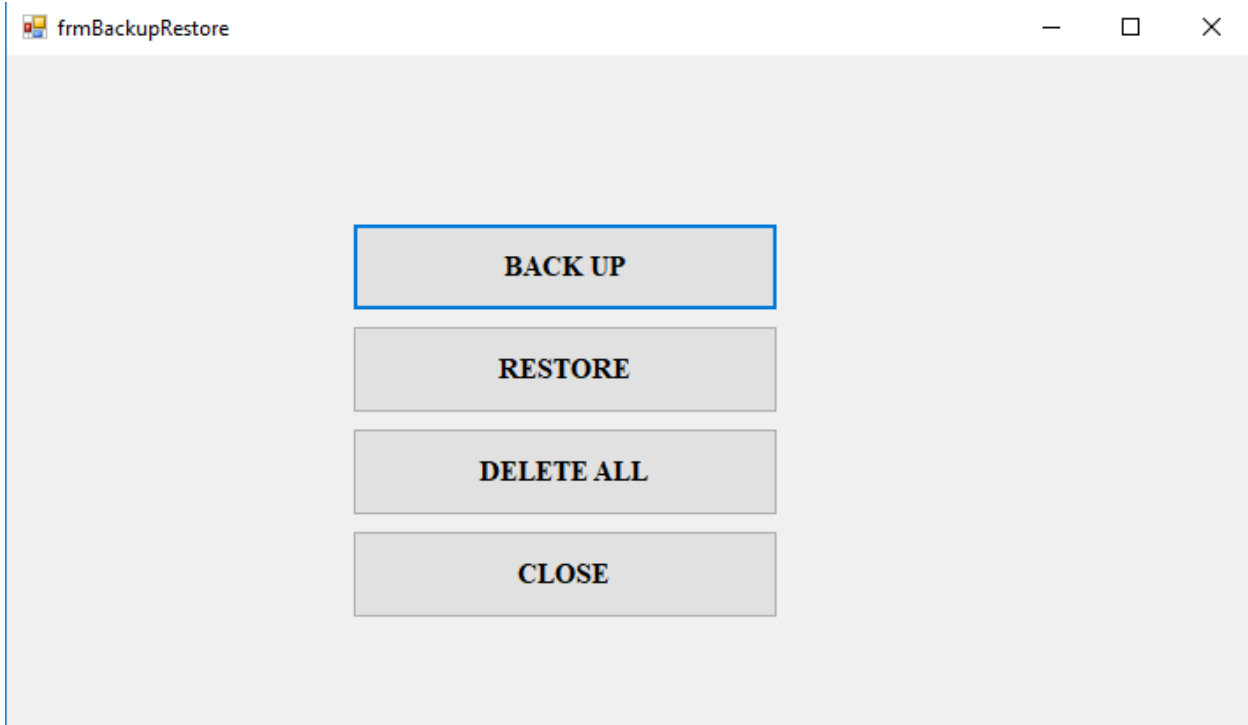
BACKUP & RESTORE

Backup

Administrator can take backup of all test and settings here. It is advised to take back in regular intervals.

Restore

Any time if your software get corrupted or loss of data, administrator can restore back data back to system using this option. Care should be taken while restoring the data, by clicking delete all data administrator has to clear all current then use restore.(Note : only the data till backup date will be restored).



HISTORY

Here user can see all previous test and take print out from here.

GROUP													
TEST DATE FROM				TEST DATE TO				SELECT RANGE CLICK					
TMT bar				13-Nov-17				14-Nov-17					
Sl. No.	Test No	Operator	Test Date	Peak Force	Force at Break	Elong. at Peak	Elong. at Break	Test Time	Proof Load	Peak Stress	Peak Strain	% Elong	
1	57		13-Nov-17 6:45:14 PM	24.721	24.056	18	17.5	7.1	0	258.75	0.18	18	
2	56		13-Nov-17 6:39:48 PM	80	80	90	91.5	37.1	76.5	837.34	0.92	92	
3	55		13-Nov-17 6:06:48 PM	80	80	90	162.5	66.1	76.5			162	
4	54		13-Nov-17 5:58:41 PM	79.562	79.486	84	83.5	33.8	76.5			84	
5	53		13-Nov-17 5:51:25 PM	80	80	90	110	44.7	76.5			110	
6	52		13-Nov-17 5:46:20 PM	80	80	90	96	38.9	0			96	
7	51		13-Nov-17 5:13:27 PM	65.129	64.721	54.5	54	0	0			54	
8	50		13-Nov-17 4:42:27 PM	80	80	90	126.5	51.3	0			126	
9	49		13-Nov-17 4:38:39 PM	80	80	90	159	138.1	0			159	
10	48		13-Nov-17 4:29:50 PM	80	80	90	120.5	48.9	0			120	
11	47		13-Nov-17 3:30:50 PM	80	80	90	195	0	0			195	
12	46		13-Nov-17 2:52:45 PM	80	80	90	100.5	0	0			100	
13	45		13-Nov-17 2:49:15 PM	80	80	90	99	0	0			99	
14	44		13-Nov-17 2:46:06 PM	80	80	90	98	0	0			98	
15	43		13-Nov-17 1:27:22 PM	11.212	8.09	7.6	8.2	0	0			8	
16	42		13-Nov-17 1:17:35 PM	11.421	5.041	8.7	9.3	0	0			9	
17	41		13-Nov-17 1:07:40 PM	9.929	9.114	5.8	5.9	0	0			6	
18	40		13-Nov-17 12:57:01 PM	6.578	3.248	6	6.4	0	0			6	

PRINT

EXIT

GROUP

TEST DATE FROM

TEST DATE TO

TMT bar

13-Nov-17

14-Nov-17

SELECT RANGE CLICK

Load Vs Elongation

Load Vs Elongation

Elongation Vs Time

Load Vs Time

Stress Vs Strain

	Sl. No.	Test No	Operator	Test Date	Peak Force	Force at Break	Elong. at Peak	Elong. at Break	Test Time	Pr				
	1	57		13-Nov-17 6:45:14 PM	24.721	24.056	18	17.5	7.1	0		258.75	0.18	18
	2	56		13-Nov-17 6:39:48 PM	80	80	90	91.5	37.1	76.5		837.34	0.92	92
	3	55		13-Nov-17 6:06:48 PM	80	80	90	162.5	66.1	76.5				162
	4	54		13-Nov-17 5:58:41 PM	79.562	79.486	84	83.5	33.8	76.5				84
	5	53		13-Nov-17 5:51:25 PM	80	80	90	110	44.7	76.5				110
	6	52		13-Nov-17 5:46:20 PM	80	80	90	96	38.9	0				96
	7	51		13-Nov-17 5:13:27 PM	65.129	64.721	54.5	54	0	0				54
	8	50		13-Nov-17 4:42:27 PM	80	80	90	126.5	51.3	0				126
	9	49		13-Nov-17 4:38:39 PM	80	80	90	159	138.1	0				159
	10	48		13-Nov-17 4:29:50 PM	80	80	90	120.5	48.9	0				120
	11	47		13-Nov-17 3:30:50 PM	80	80	90	195	0	0				195
	12	46		13-Nov-17 2:52:45 PM	80	80	90	100.5	0	0				100
	13	45		13-Nov-17 2:49:15 PM	80	80	90	99	0	0				99
	14	44		13-Nov-17 2:46:06 PM	80	80	90	98	0	0				98
	15	43		13-Nov-17 1:27:22 PM	11.212	8.09	7.6	8.2	0	0				8
	16	42		13-Nov-17 1:17:35 PM	11.421	5.041	8.7	9.3	0	0				9
	17	41		13-Nov-17 1:07:40 PM	9.929	9.114	5.8	5.9	0	0				6
	18	40		13-Nov-17 12:57:01 PM	6.578	3.248	6	6.4	0	0				6

PRINT

EXIT

TESTING

New Test – Old Test data and graph get cleared and ready for new test.

User has to select the group in which he want to do testing. When user select a group all settings get loaded.

Click Start to start test. Input details given below.

NEW TEST

HISTORY

INPUT

REPORT

EXCEL

CLOSE

Load (kN)

Elongation (mm)

Extension (mm)

Stress (N/mm²)

Strain (%)

13-Nov-17

Time (sec)

0

11:57:51 PM

Test No - 58

Group - TMT bar

Test - Tensile

Shape - Deformed Bar

Spec. - TMT Bar

50

40

30

20

10

0

Load (kN)

0

10

20

30

40

50

Elongation (mm)

Select Graph

Load Vs Elongation

Load Vs Time

Elongation Vs Time

Stress Vs Strain

Peak Force =

Force at Break =

Elong. at Peak =

Elong. at Break =

Test Time =

Proof Load =

Peak Stress =

Peak Strain =

% Elongation =

Young's Modulus =

Proof Stress =

Input Parameters

S.Mass(gm)

600

S.Length(mm)

800

Density(kg/mm)

0.00785

G.Length(mm)

100

Area(mm²)

95.541

Speed(mm/min)

50

LOAD ZERO

ELONG. ZERO

START

STOP

UP

DOWN

HISTORY

HISTORY

Here user can see all previous test and take print out from here.

GROUP

TEST DATE FROM

TEST DATE TO

TMT bar

13-Nov-17

14-Nov-17

SELECT RANGE CLICK

Load Vs Elongation

		Sl. No.	Test No	Operator	Test Date	Peak Force	Force at Break	Elong. at Peak	Elong. at Break	Test Time	Proof Load	Peak Stress	Peak Strain	% Elong
		1	57		13-Nov-17 6:45:14 PM	24.721	24.056	18	17.5	7.1	0	258.75	0.18	18
		2	56		13-Nov-17 6:39:48 PM	80	80	90	91.5	37.1	76.5	837.34	0.92	92
		3	55		13-Nov-17 6:06:48 PM	80	80	90	162.5	66.1	76.5			162
		4	54		13-Nov-17 5:58:41 PM	79.562	79.486	84	83.5	33.8	76.5			84
		5	53		13-Nov-17 5:51:25 PM	80	80	90	110	44.7	76.5			110
		6	52		13-Nov-17 5:46:20 PM	80	80	90	96	38.9	0			96
		7	51		13-Nov-17 5:13:27 PM	65.129	64.721	54.5	54	0	0			54
		8	50		13-Nov-17 4:42:27 PM	80	80	90	126.5	51.3	0			126
		9	49		13-Nov-17 4:38:39 PM	80	80	90	159	138.1	0			159
		10	48		13-Nov-17 4:29:50 PM	80	80	90	120.5	48.9	0			120
		11	47		13-Nov-17 3:30:50 PM	80	80	90	195	0	0			195
		12	46		13-Nov-17 2:52:45 PM	80	80	90	100.5	0	0			100
		13	45		13-Nov-17 2:49:15 PM	80	80	90	99	0	0			99
		14	44		13-Nov-17 2:46:06 PM	80	80	90	98	0	0			98
		15	43		13-Nov-17 1:27:22 PM	11.212	8.09	7.6	8.2	0	0			8
		16	42		13-Nov-17 1:17:35 PM	11.421	5.041	8.7	9.3	0	0			9
		17	41		13-Nov-17 1:07:40 PM	9.929	9.114	5.8	5.9	0	0			6
		18	40		13-Nov-17 12:57:01 PM	6.578	3.248	6	6.4	0	0			6

PRINT

EXIT

INPUT

INPUT

All input settings are set here. Test Unit, Result Unit, Break Checking, Set Load, and Set Disp., whether to use extensometer or not, if proof load required set percentage for proof load, Test Direction and all other input parameters like test type, specimen, shape etc. Graph

Inputs			Test Unit : kN		Select Control Type	
Group :	TMT bar	ADD GROUP	Result Unit :	N/mm ²	<input checked="" type="checkbox"/> Check Break	Break Percent 50
TEST NAME :	Tensile				<input type="checkbox"/> Load Control	
SPECIMEN :	TMT Bar				<input type="checkbox"/> Disp Control	
SPC SHAPE :	Deformed Bar				<input type="checkbox"/> Auto Home	<input type="checkbox"/> Manual Entry Of Final Length
Report No.	300				<input checked="" type="checkbox"/> Use Extensometer	P.Load % 0.2
Ref. Std.	rod		Graph Settings		TEST DIR	DOWN
Docket No.	bss		Y Load Range :	50	QUALITY	Graph ENTER
Test Sample	Rod		X Disp. Range :	50		
Material	Iron		X Time Range :	60		
Sample ID	J5216		Y Load Inc Step :	5		
			X Disp. Inc Step :	5		
			X Time Inc Step :	30		
					Select Graph	
					<input checked="" type="checkbox"/> Load Vs Elongation	
					<input checked="" type="checkbox"/> Load Vs Time	
					<input checked="" type="checkbox"/> Elongation Vs Time	
					<input checked="" type="checkbox"/> Stress Vs Strain %	

SAVE

EDIT

CLOSE

REPORT

After each testing the report will be auto generated and saved into specified folder. User can generate a report directly from testing window and from history. range settings also here.

COMPANY NAME

Address

Contact number

COMPONENT CERTIFICATION LAB

TEST REPORT

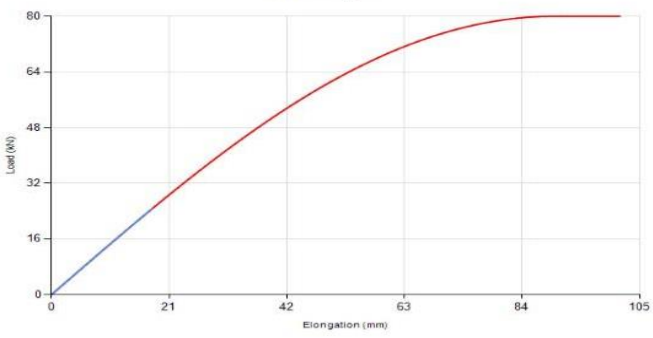
Test Report No.:

Test Date: 14-Dec-17
12:03:02 AM

TEST PARAMETERS

1. Reference Standard :	<input type="text" value="ROD"/>
2. Docket No. :	<input type="text" value="Bss"/>
3. Test Speed (mm/min) :	<input type="text" value="50"/>
4. Test Sample :	<input type="text" value="SAMPLE ROD"/>
5. Material :	<input type="text" value="MILD STEEL"/>
6. Title of Test :	<input type="text" value="TENSILE"/>
7. Sample ID No. :	<input type="text" value="J5216"/>
8. Area (mm ²) :	<input type="text"/>

Load Vs Elongation



The graph plots Load (kN) on the y-axis (0 to 80) against Elongation (mm) on the x-axis (0 to 105). The curve shows a linear elastic region followed by a non-linear region, peaking at 80 kN.

TEST RESULTS

Sample No	Max. Load (N)	Max. Displacement / Stroke(mm)	Tensile Strength (N/mm ²)	Elongation (%)	Measured Value of Test Piece		
					Thickness (mm)	Width (mm)	Length (mm)
1	80 kN	101 mm		101			
2	24.721 kN	17.5 mm		18			

Tested By,

Checked By,

EXCEL

EXCEL

User save raw test data into excel file using this option. TEST

REPORT FORMAT

EXCEL ,PDF, WORD.



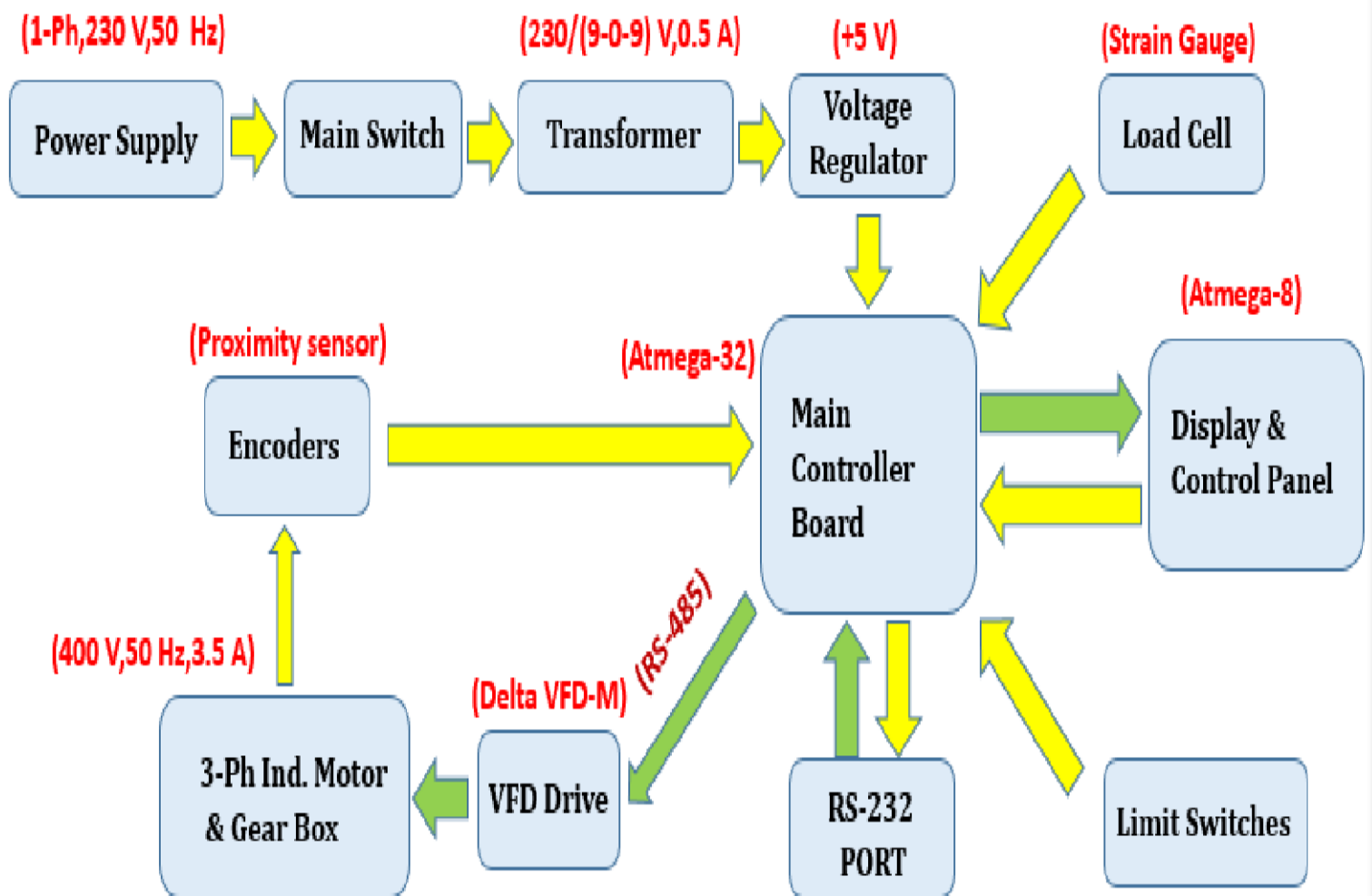
Test can be done in stroke or strain control. Online graphs of stress vs strain load vs displacement. Option to save the test profiles. Auto data acquisition settings, option to view multiple test graph in one plot. Option to run test in dual rate. Option to remove the extensometer and continue the test in stroke control. Option to stop the test after specified percentage load drop. Limit Settings on stroke, strain and load channels, offline post processing program to analyze the results in MS excel PDF and word.

COMPRESSION PLATENS

A set customized platens that directly integrated with the universal grip pull

CONTROL PANEL

Block Diagram



Resonance Automation and machines Universal testing machine is closely controlled for sensitivity, accuracy and calibration during every stage of manufacture. Machine is calibrated over each of its measuring range in accordance with the procedure laid down in as per tender specifications.



RESONANCE AUTOMATION AND MACHINES

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