



Over **60** years of
consistent excellence

Computerized Touch Screen Universal Testing Machine

Model : UTE -TS



Micro Controller Based Panel,
Front Panel Touch Screen Display



Loading 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



Best in Class Analysis Software





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Features :

- Loading accuracy as high as $\pm 1\%$
- Straining at variable speeds to suit a wide range of materials.
- Windows based touch screen control panel with printing connectivity.
- Motor driven threaded columns for quick effortless adjustment of lower cross-head-to facilitate rapid fixing of test specimen.
- Wide range of standard and special accessories.
- Easy change from plain to threaded and screwed specimens.
- Large effective clearance between columns enables testing of standards specimens as well as structures.
- Simple controls for ease of operation.
- Robust straining frame of an extremely rigid construction.
- Safe operation ensured by means of safety devices.
- Fully enclosed and protected pressure transducer.
- Manual control & release valve operation.
- Load Capacity : 100 kN, 200 kN, 400 kN, 600 kN, 1000 kN, 1200 kN, 1500 kN and 2000 kN.

Application :

'FIE' Electronic Universal Testing Machine is designed for testing materials and other materials under tension, compression bending, transverse and shear loads. Hardness test on metals can also be conducted.

Machine Consists of -

Straining unit :

This consists of a cylinder motor with chain and sprocket drive and a table coupled with the ram of the hydraulic cylinder, mounted on to a robust base. The cylinder and the ram are individually lapped to eliminate friction. The upper cross-head is rigidly fixed to the table by two strengthened columns.

The lower cross-head is connected to two screwed columns which are driven by a motor. Axial loading of the ram is ensured by relieving the cylinder and ram of any possible side loading by the provision of ball seating.

A rotary encoder of minimum resolution of 0.01mm, is provided to measure the deformation of the specimen.

Tension test is conducted by gripping the test specimen between the upper and lower cross-heads.

Compression, transverse, bending, shear and hardness tests are conducted between the lower cross-head and the table.

The lower cross-head can be raised or lowered rapidly by operating the screwed columns, thus facilitating ease of fixing of the test specimen.

Control Panel :

The Control Panel consists of a power pack complete with drive motor and an oil tank, control valves and electronic display unit.

Power Pack :

The power pack generates the maximum pressure of 200 kgf/cm². The hydraulic pump provides continuously non-pulsating oil flow. Hence the load application is very smooth.

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 reading to be taken.

Principle of Operation for -

UTE-TS :

Operation of machine is by hydraulic transmission of load from the test specimen through pressure transducer to a separately housed load indicator.

The system is ideal since it replaces transmission of load through levers and knife edges, which are prone to wear and damage due to shock on rupture of test pieces.

Load is applied by a hydrostatically lubricated ram.

Main cylinder pressure is transmitted to the pressure transducer housed in the control panel.

The transducer gives the signal to the electronic display unit, corresponding to the load exerted by the main ram.

Simultaneously the encoder fitted on the straining unit gives the mechanical displacement to the electronic display unit.

Both the signals are processed by the microcontroller and load and displacement is displayed on the touchscreen simultaneously.

Computerized Touch Screen Control Panel Series : UT 2018-TS

Micro Controller based panel incorporating state of art technology with following features -

- Front panel touch screen display
- Data entry of test parameters including pre-load, rupture %, Safe Load & Specimen data etc.
- Online graph of load Vs Displacement directly on screen.
- USB Printer port for printer interface with graph & result print out.
- Facility to export the result/ Data to PDF, EXCEL & CSV formats.
- Windows based software available for Online graph on PC, Data analysis, Statistics, Point tracing, superimposing graphs to compare with standard, zooming graph etc.



Accuracy and Calibration :

FIE Electronic 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 IS 1828: Part1: 1991.

FIE Electronic Universal Testing Machine complies with Grade "A" of class 1 of IS-1828-Part1:1991.

Technical Specifications for - Computerized Touch Screen Universal Testing Machines Model – UTE-TS

MODEL	UNIT	UTE-TS 10	UTE-TS 20	UTE-TS 40	UTE-TS 60	UTE-TS100	UTE-TS 120	UTE-TS 150	UTE-TS 200
Maximum Capacity	kN	100	200	400	600	1000	1200	1500	2000
Measuring range	kN	0-100	0-200	0-400	0-600	0-1000	0 – 1200	0 – 1500	0-2000
Load resolution (40000 counts full scale)	N	2.5	5	10	15	25	30	37.5	50
Load range with accuracy of Measurement +/-1%	kN	2 to 100	4 to 200	8 to 400	12 to 600	20 to 1000	24-1200	30-1500	40-2000
Resolution of piston movement (Displacement)	mm	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Clearance for tensile test (At fully descended working piston)	mm	50-700	50-700	50-700	50-800	50-850	50-850	50-850	50-850
Clearance for compression test (At fully descended working piston)	mm	0-700	0-700	0-700	0-800	0-850	0-850	0-850	0-850
Clearance between columns	mm	500	500	500	600	750	750	750	750
Ram Stroke	mm	150	200	200	250	250	250	250	250
Straining/ Piston Speed (at no load)	mm/min	0-300	0-150	0-150	0-100	0-80	0-65	0-50	0-45
CONNECTED LOAD									
Power	HP	1.33	1.33	2.33	2.5	3.5	3.5	5	6
V		400-440	400-440	400-440	400-440	400-440	400-440	400-440	400-440
Φ		3	3	3	3	3	3	3	3
STANDARD ACCESSORIES									
FOR TENSION TEST									
Clamping jaws for round specimens of diameter	mm	10-20	10-20	10-25	10-25	10-25	10-25	10-25	10-25
		20-30	20-30	25-40	25-40	25-45	25-45	25-45	25-45
Clamping jaws for flat specimens of thickness	mm	0-10	0-10	0-15	0-15	0-22	0-20	0-20	0-20
		10-20	10-20	15-30	15-30	22-44	20-40	20-40	20-40
Width	mm	50	50	65	70	70	70	70	70
FOR COMPRESSION TEST									
Pair of Compression Plates of Dia.	mm	120	120	120	120	160	160	160	160
FOR TRANSVERSE TEST									
Table with adjustable rollers									
Width of rollers	mm	160	160	160	160	160	160	200	200
Diameter of Rollers	mm	30	30	30	50	50	50	50	50
Maximum clearance between supports	mm	500	500	500	600	800	800	800	800
Radius of punch tops	mm	6,12	6,12	12,16	16,22	16,22	16, 22	16, 22	16, 22

- Due to constant R& D specifications & features are subject to change without notice.
- Colour scheme subject to confirm at the time of order.



Over 60 years of consistent excellence

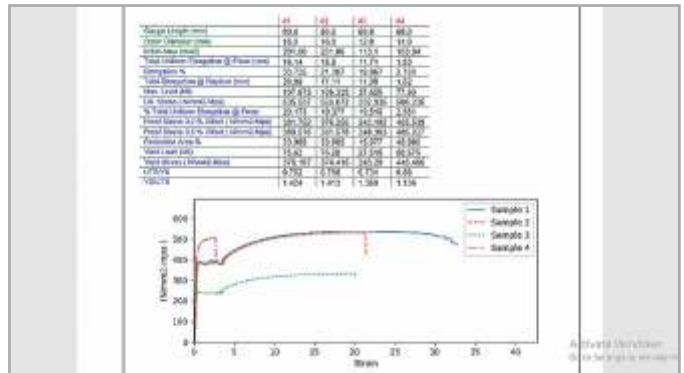
Computerized Touch Screen Universal Testing Machine Model : UTE-TS

'FIE' Tension & Compression Test Software Package for -
UTE-TS (Standard Supply with TS Models).

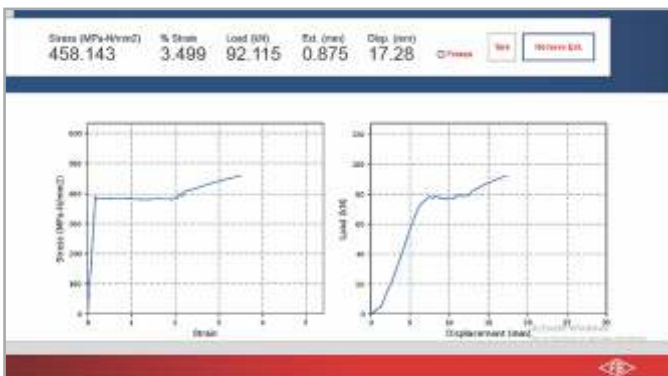
Home Screen



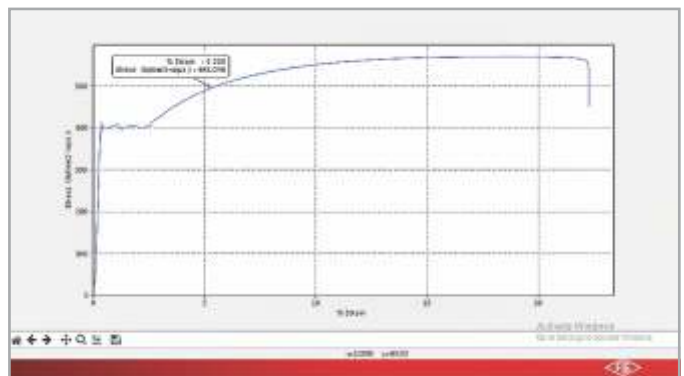
Graph of superimpose & Comparison



Real Time Graph



Point Tracing Zoom



Batch Results

Sl. No.	Design Length (mm)	Actual Measurement (mm)	Area (mm ²)	Area Ratio (%)	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)
A.1	80.0	80.0	204.88	10.14	23.73	31.48	89.25
A.2	80.0	79.0	204.88	10.15	23.39	31.11	89.32
A.3	80.0	79.0	143.11	13.14	24.44	31.88	81.62
A.4	80.0	79.0	162.54	11.62	23.56	31.42	81.61
MP			1.40	0.71	1.42	1.43	11.65
MP			16.18	16.12	16.16	16.13	161.03
MP			11.18	11.09	11.02	11.28	111.28
MP			9.78	11.79	11.94	11.93	111.93
MP			41.54	141.43	141.24	141.24	141.24

Results

Manufactured By :

Fuel Instruments & Engineers Pvt. Ltd.

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