



COMPUTERISED UNIVERSAL TESTING MACHINE

MODEL : UTE-HGFL



Statistics

With PC interface & Real Time Graph
(PC controlled)



Real time graph on panel



Graph with electronic extensometer



Graph comparison point tracing

FIE introduces its new model of universal testing machine with design flexibility, a modern appearance and high performance electronics. Some of the features include :-

- Open type cross head
- Hydraulic wedge action grips
- Long test stroke and test space
- Loading Accuracy as high $\pm 1\%$
- Straining at variable speeds to suit a wide range of materials
- Windows based Touch screen control panel with printing connectivity
- Tension, Compression and Transverse test facility.
- Motor Driven Threaded Columns for quick effortless adjustment of middle crosshead to facilitate rapid fixing of test specimen
- Simple controls for ease of operation
- Robust straining frame of an extremely rigid construction.
- Safe operation insured by means of safety devices
- Fully enclosed and protected pressure transducer
- Manual Control and Release valve operation

Application

FIE Front Loading Hydraulic Grip Universal Testing Machine is designed for testing metals and other materials under tension, compression, bending, transverse and shear loads. Hardness test on metals can also conducted



(FRONT LOADING HYDRAULIC WEDGE ACTION GRIPS)

Principle of Operation:

Operation of the machine is by hydraulic transmission of load from the test specimen through pressure transducer to a separately house 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 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 digital electronic fitted on the straining unit gives the mechanical displacement to the electronic display unit. Both the signals are processed by the microprocessor and load and displacement is displayed on the digital readouts simultaneously.

Machine consists of :

Straining Unit :

This consists of a cylinder motor with chain & 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 crosshead 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.

An displacement scale with a minimum graduation of 1mm, is provided to measure the deformation of the specimen.

Tension test is conducted by gripping the test specimen between the upper and lower crossheads.

Compression, transvers, bending, shear & hardness tests are conducted between the lower crosshead and the table.

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

Typical HGFL design includes a basic universal testing machine frame with open type crossheads & hydraulic wedge action grips.

Control Panel

The control panel consists of a power pack with drive motor, oil tank, Control Valves and PC based 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.

Another power pack is used to operate wedge action grips by means of hydraulic cylinder by using solenoid valve operation

For Hydraulic Wedge action grips separate control remote is provided with selector switches indicating clamp – declamp and null positions.

Electronic Control Panel



Series UT – 2014 - TS

PLC based panel incorporating state of art technology with following features :-

- Front panel 14" touch screen display
- Data entry of test parameters including preload, 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 results/data in pdf, excel, word and 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 then calibrated over each of its measuring range in accordance with the procedure laid down in British standards 1610 : Part1 : 1992 & IS 1828 : Part1 : 1991.

FIE Electronic Universal Testing Machine complies with Grade "A" of BS: 1610:Part1:1992 and class 1 of IS-1828-Part1:1991.





COMPUTERISED UNIVERSAL TESTING MACHINE MODEL – UTE HGFL

MODEL	UNITS	UTE-10	UTE-20	UTE-40	UTE-60	UTE-100
Maximum Capacity	kN	100	200	400	600	1000
Measuring Range	kN	0-100	0-200	0-400	0-600	0-1000
Load Resolution (20,000 counts full scale)	N	5	10	20	30	50
Load Range with Accuracy of measurement $\pm 1.0\%$	kN	2 to 100	4 to 200	8 to 400	12 to 600	20 to 1000
Resolution of piston movement (Displacement)	mm	0.1	0.1	0.1	0.1	0.1
Clearance for tensile at fully descended working piston.	mm	50-700	50-700	50-700	50-800	50-850
Clearance for compression test at fully descended working piston.	mm	0-700	0-700	0-700	0-800	0-850
Clearance between columns.	mm	500	500	500	600	750
Ram Stroke	mm	150	200	200	250	250
Straining/piston speed (at no load)	mm/min	0-300	0-150	0-150	0-100	0-80
CONNECTED LOAD						
Power	kW	1.0	1.0	1.7	1.9	2.6
V		400-440	400-440	400-440	400-440	400-440
\emptyset		3	3	3	3	3
DIMENSIONS						
LxWxH (approx.)	mm	2032 x 750 x 1960 x	2032 x 750 x 1960 x	2060 x 750 x 2180 x	2265 x 750 x 2534 x	2415 x 815 x 2900 x
WEIGHT (approx.)	kg.	1500	1500	2500	3500	5500
STANDARD ACCESSORIES						
FOR TENSION TEST (FRONT LOADING HYDRAULIC WEDGE ACTION GRIPS)						
● Clamping jaws for round specimens of Diameters.	mm	10-20 20-30	10-20 20-30	10-20 20-30 30-40	10-20 20-30 30-40	10-20 20-30 30-40 40-50
● Clamping jaws for flat specimens of thickness.	mm	0-10 10-20	0-10 10-20	0-10 10-20 20-30	0-10 10-20 20-30	0-10 10-20 20-30 30-40
Width	mm	50	50	65	70	70
FOR COMPRESSION TEST						
Pair of compression plates of dia.	mm	120	120	120	120	160
FOR TRANSVERSE TEST						
Table with adjustable rollers width of rollers.	mm	160	160	160	160	160
Diameter of Rollers	mm	30	30	30	50	50
Maximum clearance between supports	mm	500	500	500	600	800
Radius of punch tops.	mm	6,12	6,12	12,16	16,22	16,22

SPECIAL ACCESSORIES & OPTIONS:

- Load stabilizer
- Printer
- Piston movement resolution of 0.01mm
- Mechanical Extensometer
- Brinell Test attachment
- Electronic Extensometer
- Software packages
- Shear Test attachment
- Extended Tensile & Compression clearance

Wide range accessories offered on request at additional cost.

- Due to constant R & D specifications & features are subject to change without notice.
- The dimensions given above are approximate.

CANAN TESTING SERVICES

Accredited by NABL (Dept. of Science & Technology - Govt. of India)

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