



ENKAY

INDIA'S MOST ADVANCED

UTM

- ⇒ Capacity Available upto 3000kN
- ⇒ Stress & Strain Control via Computer
- ⇒ Load Hold Capability for 24 Hrs
within $\pm 1\%$ of Set Load Value



UNIVERSAL TESTING MACHINE
—SERVO SERIES—

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SERVO SERIES

The machine is hydraulically operated, vertical, floor mounted, designed for testing metals and other materials under Tension, Compression, Bending/Transverse Loads.

The Machine comprises of loading unit and control Panel.

LOADING UNIT

This consist of a hydraulic 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 straight 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 the any possible side loading by the provision of ball seating. Tension test is conducted by gripping the test specimen between the upper lower cross-heads. Compression, traverse, bending shear and hardness tests are conducted between the lower cross-head and the table. The lower cross head can be raised or lower rapidly by the operating the screwed columns thus, facilitating ease of fixing of the test specimens.

Technical Features :

- ⇒ Stress Controlled 0.1kN/min. to Full Load kN/min.
- ⇒ Strain Controlled 0.01 mm/min. to 100 mm/min.
- ⇒ Torque Compensated Power Pack for 100% Oil Delivery at all Load Values
- ⇒ Air Cooled inter cooler for maintaining oil temperature below 45° at running conditions
- ⇒ 100% control via Rj45 / USB Interface
- ⇒ On-Board Characteristics linearizing
- ⇒ Fully Computer Controlled
- ⇒ Bumpless P.I.D Control using software controllable PID settings
- ⇒ Dual Channel shifting
- ⇒ 64 KHz data sampling rate
- ⇒ Capacity : Upto 3000 kN)
- ⇒ With On-Line application of software for generating test reports and graphical plots - Loading/Straining Rate control - with perpetual license
- ⇒ Least Count : 0.001 kN for Load
- ⇒ Accuracy : 0.5%
- ⇒ Displacement Resolution : 0.001 mm
- ⇒ Loading and Straining Rate controlled through PC.
- ⇒ Minimum Loading Rate : 0.5% (of Machine Capacity) to Full Scale load per minute
- ⇒ Maximum Load Rate : Full Scale Load per minute
- ⇒ Minimum Strain Rate 0.01 mm per Minute to 100 mm/Minute
- ⇒ On-Line Graph on PC or on standard PC, system
- ⇒ Batch Test Facility (upto 10 curves on single graph)
- ⇒ Hydraulic Pump withstand a maximum pressure up to 250 kg/cm²
- ⇒ High Pressure Hydraulic Flexible Pipes/Anti Corrosive steel pipes as per requirement.
- ⇒ Hydraulic Power Pack immersed in oil reservoir, coupled with AC Induction Motor enabling easy maintenance.
- ⇒ As a standard we use all reputed branded components, with International warranty
- ⇒ Straining at variable speeds to suit a wide range of materials as per IS / BS standards
- ⇒ Motor driven threaded columns for quick effortless adjustment of lower cross - head to facilitate rapid fixing of test specimen.
- ⇒ Large effective clearance between columns enables testing of standard specimens as well as structures.
- ⇒ Easy change from plain to threaded and screwed specimens using Push button.
- ⇒ Robust staining frame of an extremely rigid construction. Simple controls for ease of operation.
- ⇒ Safe operation ensured by means of safety devices **(using Unique ENKAY Six Stage Protector)**
- ⇒ Chrome plated metal components
- ⇒ Plain & threaded columns are hard chrome-plated to give the machine a perpetual new look.
- ⇒ **Load Hold capability for 24 Hrs. within ± 1% of set load value**

CONTROLO PANEL

- ⇒ 3500 psi, 250bar Hydraulic Pumping Unit:
- ⇒ Suitable for Single Acting Cylinders on Universal Testing Machines
- ⇒ 3 HP motor
- ⇒ 250 bar (3500psi) pressure capability
- ⇒ 0.4gpm pump flow rate
- ⇒ 50 ltrs. tank capacity
- ⇒ Electrically operated servo control valve
- ⇒ 5 micron tank return line filter
- ⇒ Fast return dump valve
- ⇒ 220V single phase 50/60Hz

Machine Parameters

Sample Loading: Front loading (Hydraulic Gripping available as option)

Effective Testing Area: 900 mm (Max), can be modified upto 1800mm, prior approval required

Ram Stroke: 250 mm

Tensile Test

- ↻ Grips for round specimen : 5 mm to 100 mm (Max)
- ↻ Grip for flat specimen : 0 to 100 mm thickness, width 100 mm (max)

Compression Test

- ↻ Plate dia 200 mm (both upper and lower)
(Can be modified upto 200mm - prior approval required)

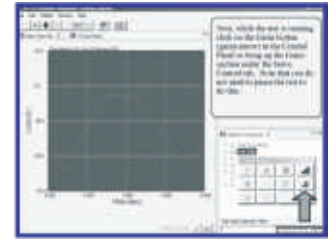
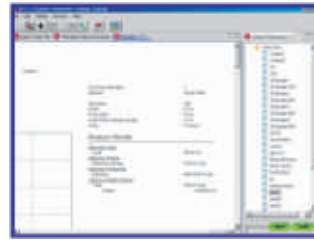
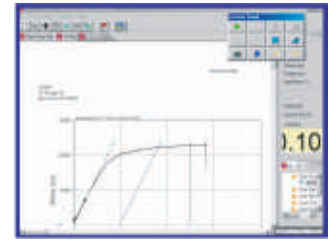
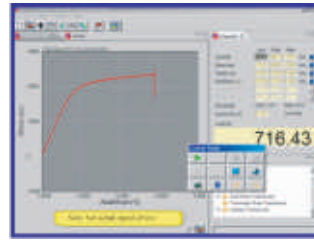
Bend Test

- ↻ Bend fixture unit. Gap between rollers 50 mm to 700 mm (Variable) (Max gap upto 1200mm)

Standard Accessories

- ↻ Set of Round and Flat Grips for conducting test on round and flat specimens
- ↻ Pair of Compression Platens 200 mm dia hardened ground and polished and provided with grooved lines ensuring specimen to kept co axial with hydraulic ram
- ↻ Brinell Hardness Test Attachment for 2.5, 5 and 10 mm Ball Indentors
- ↻ Shear Test Assembly for Double and Single Shear Harness Test Attachment (Sizes as per customer requirements)
- ↻ Bending / Transverse Table having adjustable rollers
- ↻ Electronic Extensometer with software for determination of proof stress
- ↻ Computer of HP/COMPAQ/WIPRO of latest configuration
- ↻ Material Testing Software for conducting test as per national / international standards least count
- ↻ Analogue Load gauge with load range 0 - 1000 KN with least count of 5 kn (As standby in case of computer failure)

Software Screens



PC Configuration:

- ↻ Processor: Intel Core3 Processor (2.0GHZ or higher)
- ↻ RAM: 3 GB DDR
- ↻ H.D. Drive: 320 GB, DVD ROM Drive
- ↻ LCD Screen
- ↻ 104 Key keyboard, Optical Mouse
- ↻ Printer : inkjet (Laser Printer optional at extra cost)
- ↻ UPS of at least 600VA capacity.

NOTE : Computer of latest configuration available at the time of supply would be provided

SAFETY FEATURES:

Unique Six Stage Protection

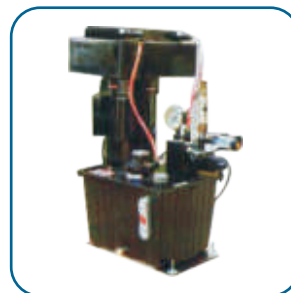
- Machine stop after specimen failure
- Safety against over travel of piston
- Safe guard against high temperature
- Surge protector
- Auto machine diagnosis
- Safety against over load



Mechanical Extensometer
Least Count 0.01 mm



Electronic Extensometer with
1 micron accuracy & Interfacing
software to PC



Torque compensate
Power Pack with
Inter-cooler



Electronic Controller
(Optional Standalone System)

MATERIALS TESTING SYSTEM

DESCRIPTION:

- Perform all common mechanical tests in tension, compression, Shear, Hardness or flexure according to BS, IS, ASTM, DIN, ISO and JIS standards.
- Create simple or complex methods to meet your own in-house testing requirements.
- Password protection of supervisor/operator modes allows test methods to be activated, then locked so they cannot be changed inadvertently.
- Closed loop servo control with PID compensation. Includes monotonic, cyclic, and segmented control profiles with software Selectable control channels that can be changed on the fly.
- Change control gains and endpoint values during a test. Ideal for system tuning during dynamic fatigue tests.
- Easy-to-use. No formal training is required to setup or run tests.
- All capabilities are standard.

INPUT CHANNELS:

- Two (2) high speed, high precision input channels for Load, Position
- One auxiliary input channel for collecting real-time data from a furnace, side load actuator, torsion actuator or other measurement device.
- Optional automatic transducer recognition for each input channel to help minimize test setup errors.
- Option for up to three (3) additional data recording input channels.
- Eight (8) Digital inputs for monitoring machine status such as over travel limit switches, interlocks and interfacing to external devices.

OUTPUT CHANNELS:

- One servo control analog output for machine control.
- Option for two (2) 14-bit +/-10V analog outputs for use with an XY
- Recorder or external data logging device. Outputs correspond to real-time XY graph channel assignments.
- Eight (8) Digital outputs for interfacing to the testing machine and external devices.

REPORTS:

- Calculation of key test parameters such as Peak Load, Ultimate Strength, Offset Yield, Modulus of Elasticity, Elongation and more.
- Features an extensive set of data analyses that meet ASTM, DIN, ISO and JIS Standards.
- Calculation of high, low, mean, and standard deviation for a group of tests.
- Hardcopy printout of a single test report including XY graph or group test report including statistical summary.
- Hardcopy printout of up to ten (10) curves on a single set of graph axes.
- Up to ten (10) user-definable information fields and twenty report header fields.

DATA and TEST FILES:

- Save and recall test methods for accurate and repeatable testing.
- Automatic saving of test data to file for later recall, graphing and results calculation.
- Storage of test data and results to hard disk in ASCII delimited format for easy import into popular database and spreadsheet programs.
- Seamless access to many of today's popular spreadsheet programs, saving and recalling of test data over a network, and use of virtually any printer.
- Access XY data in real-time via shared file access for coordination with other real-time data sources such as video images and external data acquisition systems.
- Free use of demo version for performing analyses and generating reports on remote computers.

CALIBRATION:

- Unlimited calibration tables per analog channel for multiple load cell and extensometer requirements.
- Up to 10 calibration points per transducer with piecewise linear fit between points for maximum accuracy. All calibration data is password protected and saved to disk.
- Automatic transducer identification available (option) on all channels.

TECHNICAL SPECIFICATIONS:

- Comes standard with an external machine interface box that includes connections to all input transducers, servo actuators and a high speed
- USB link to a personal computer running Software
- User selectable low (mv/v) and high (+/- 10V) level analog inputs with resolution greater than 1 part in 1,000,000.
- Maximum data log rate of 1kHz.
- 32-bit quadrature encoder input with maximum input frequency of 200kHz.
- 14-bit +/- 10V servo control output with 1 kHz update frequency.
- A Personal Computer running Windows XP/Vista with at least 1GB DRAM and a USB port is needed to operate the system



Manufactured by:

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