# FEDERAL INDIA TRADING COMPANY

## INCREDIBLE EQUIPMENTS


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**ONE STOP SOURCE FOR TESTING EQUIPMENTS**

Testometric
materials testing machines

# Universal Testing Machine

**The New X-Series Range :**
New high performance and high speed modular electronic system with improved data acquisition rates up to 1000 Hz.

**Force Measurement :** Universally Calibrated, better than Grade 0.5 EN 10002.2, DIN 51221, ASTM E-4, AFNOR A03-501.

**Load Cells kN :** 0.2, 0.5, 1, 2.5, 3, 5, 10, 20, 25, 50, 100, 150, 200, 250, 300, 500, 600, 1000 kN

**Extension Measurement :**
Full Frame length to 0.00001 mm
Resolution 0.000001 mm
Accuracy 0.00001 mm

**WinTest Analysis Windows Software :** Gives full control of test parameters with auto set-up of the tester. Full test analysis with statistical and graphical print-out.

**WinTest Reports :** A report enhancement package for long term statistics and control charts with export in Access date table format to other Windows based systems.

**Grips :** Wide range of over 700 grips - manual, pneumatic, hydraulic grips and fixtures for tension, compression, flexural, shear, peel, puncture and product testing.

**Extensometer :** Non-contact Video extensometer suitable to measure both axial and transverse strains for r & n values - Poissons Ratio. Contact type extensometer also offered.

## Universal Testing Machine

- Universal Testing Machine or Tensile Tester are used in all industries from exacting research work to routine quality control in laboratories world wide.
- The New X-Series Range is the very latest expression of leadership in design and quality. They bring a new ease testing to material and products.
- Touch Screen Model and PC Compatible Model offered in all the capacity. PC Compatible Model - Any local make PC and Printer can be hooked.
- With the addition of only a printer, hard copies of the test report including results, statistics and graphs can be generated.
- With the addition of a PC and printer full Windows™ control and testing can be produced using Win Test™ Software.
- The testers have a full colour active matrix display with wide viewing angle. The full alpha numeric keypad with tactile buttons is fully sealed for industrial applications.
- The robust straining frames, have high stiffness which can be maximised by using the K factor input facility, this effectively eliminates all deflection errors in the system.
- Ease of testing with digital sample break detection, autoranging, auto calibration, quick tare and auto return facilities. 800% overload protection capability of loadcells in tension and compression mode.
- Automatic identification of loadcells. On-board 32-bit embedded controller technology for data handling.

| Machine Capacity | X250-1 | X250-2.5 | X250-3 | X350-5 | X350-10 | X350-20 | X500-25 | X500-30 |
|---|---|---|---|---|---|---|---|---|
| Force Capacity | 1 kN | 2.5 kN | 3 kN | 5 kN | 10 kN | 20 kN | 25 kN | 30 kN |
| Crosshead Travel Excluding Grips mm | 630 | 990 | 990 | 1100 | 1100 | 1100 | 1025 | 1025 |
| Width - Vertical space mm | 800 | 1160 | 1160 | 1275 | 1275 | 1275 | 1225 | 1225 |
| Position Control Resolution mm | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 |
| Distance Between Columns mm | 108 | 108 | 108 | 320 | 320 | 320 | 420 | 420 |
| Speed Range mm/minute | 0.00001 to 2500 | 0.00001 to 2500 | 0.00001 to 2500 | 0.00001 to 2000 | 0.00001 to 2000 | 0.00001 to 1000 | 0.00001 to 1000 | 0.00001 to 1000 |
| Loadcell Overload Capability | 800% | 800% | 800% | 800% | 800% | 800% | 800% | 800% |
| Frame Stiffness kN/mm | 8 | 8 | 8 | 50 | 50 | 50 | 120 | 120 |

# Universal Testing Machine

Testometric
materials testing machines

Environmental Chamber

Flexural Testing

COF - Friction Testing

Marks & Spencer Testing

Wide Frame Tester

Long Frame Tester

Pneumatiuc Grips

Video Extensometer

Multi Station Tester

R & N values/Poisson's Ratio

Global Monitoring System

Windows Software

## Applications :

- Adhesives
- Adhesive Label/Tape
- Aerospace
- Automotive
- Box Compression
- Cable & Wire
- Cargo Restraint
- Carpet Testing
- Composite Testing
- Concrete
- Container Testing
- Cord & Rope Testing
- Corrugated Board
- Elastic Testing
- Embellishments Testing
- Fabric Testing
- Fasteners
- Fibre Testing
- Foam Testing
- Food Testing
- Footwear Testing
- Geotextile
- GFRC Testing
- Glass Testing
- Identification/Credit Card
- Insulation Testing
- Marks & Spencer
- Medical Product
- Metals Testing
- Narrow Fabric
- Netting
- Packaging Testing
- Paper Testing
- Pipe Testing
- Plastic Film Testing
- Plastic Sheet Testing
- Plastics Testing
- Products Testing
- Polypropylene Sack
- Rubber Testing
- Spring Testing
- Switch Operating Force
- Timber Testing
- Toy Testing
- Webbing, Belting
- Wood Based Panel
- Yarn & Thread Testing
- Zip Testing

| X500-50 | X500-100 | FS-100 | FS-150 | FS-200 | FS-300 | FS-500 | FS-600 | FS-1000 |
|---|---|---|---|---|---|---|---|---|
| 50 kN | 100 kN | 100 kN | 150 kN | 200 kN | 300 kN | 500 kN | 600 kN | 1000 kN |
| 950 | 1100 | 900 | 900 | 1300 | 1300 | 1300 | 1300 | 1300 |
| 1150 | 1300 | 1200 | 1200 | 1600 | 1600 | 1600 | 1600 | 1600 |
| 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000001 |
| 420 | 420 | 480 | 480 | 600 | 600 | 600 | 600 | 600 |
| 0.00001 to 1000 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 | 0.00001 to 500 |
| 800% | 800% | 800% | 800% | 800% | 800% | 800% | 800% | 800% |
| 220 | 400 | 500 | 500 | 900 | 900 | 1000 | 1000 | 2000 |

# Permeation$^2$


The Permeation$^2$ is a combination package of OTR Tester and WVTR Tester offering substantial cost and space savings compared to the purchase of two separate permeation analysers. This package allows the sharing of one computer or tablet interface and results, saving time and space on the work bench.

The Permeation$^2$ utilises a shared nitrogen source which will save on running and cylinder costs. Includes all the features and benefits of Model 8100e Oxygen Permeation Analyser and Model 7100 Water Vapour Permeation Analyser.

**Environmental Chamber** offered
Optionally to test Finished Packages

## Permeation Applications :

- Barrier Films
- Films, Foils and Flexible Packages
- Aluminium Oxide Film
- Flexible Pouches
- Film over Solar Panels
- PET Bottle Testing
- Taps and Closures
- R & D
- Electrical Insulation Material
- Packets
- Bio-film Characterization
- Food Containers
- Contact Lenses
- Medical Devices
- Pharmaceutical
- Industrial Coatings

## Measurement Range :

Model 7100 - Unmasked : 0.002 to 70 g/m$^2$/day
Masked : 0.02 to 1000 g/m$^2$/day
Model 8100e - Unmasked : 0.005 to 432000 cc/m /day
Unmasked : 0.0003 to 28000 cc/100in /day
Model 8700 - Packages : 0.0000025 - 1.0 cc/pack/day

## Test sample size :

Films 50 cm$^2$, 100 cm$^2$ and Packages


## Applications :

PET bottles, Coated PET bottles, Coated bottles for beer and wine, Soft drinks bottles, Bottle closures.

# Oxygen Permeation Analyser

Oxygen Permeation Analyser for testing of multiple bottles as per : ASTM D3985, ASTM F2622, ISO 15105-2, DIN 53380, JIS K-7126, Electromagnetic Compatibility Directive 89/336/EEC, Low Voltage Directive 73/23/EEC.

Oxygen Permeation Analyser measures 11 samples simultaneously - individually started, stopped or delayed. Easy sample connection and rapid measurements make the 8700 the most efficient permeation analyser available.

Ultra fast testing - Systech Illinois Turbopurge tehnology ensures the fastest possible stabilisation time for the permeation measurement. Saving out-of-specification production time. Testing can be done in as little as 3 hours.

Simple Windows based software control - easy to set up with QuickStart stored testing configuration settings and clear concise results presentation.

# Water Vapour Transmission Rate Tester

SYSTECH Illinois


- No liquid coolants, catalysts or special gas mixtures required.
- Applications :
  Barrier Film, PET Bottles, Containers, Closures, Bags, Flexible Pouches, etc..
- Horizontally oriented chambers enable easy loading of samples.
- Water Vapour Permeation Analyzer for precision water vapour analysis of packaging films, foils, barrier films, bottles, flexible pouches as per New ASTM F3299, ASTM F1249, ISO 15106-3, ISO 15105-2, DIN 53122-2, etc.
- The widest measuring range :
  Films Unmasked : 0.002 to 70 g/m$^2$/day
  Films Masked : 0.02 to 1000 g/m$^2$/day
  Package : 0.00001 to 0.0550 g/pkg/day
- Flow, temperature and humidity control for ultimate responsiveness and repeatability.
- Proprietary Coulometric $P_2O_5$ sensor does not require calibration. $P_2O_5$ sensor is the primary method for absolute moisture measurement.
- Analytical performance is validated using NIST certified gases and NIST traceable films.
- A set of validation films and a spare $P_2O_5$ sensor comes as standard with the unit.
- System validation with certified gas or film for speed and convenience.

# Oxygen Transmission Rate Tester

- Oxygen Permeation Analyser for precision oxygen analysis of packaging film barriers as per ASTM F2622-08, ASTM D3985, ASTM F1927, ASTM F1307, ISO 15105-2, DIN 53380, etc..
- The widest measuring range :
  Films Unmasked : 0.005 to 432000 cc/m$^2$/day
  Films Unmasked : 0.0003 to 28000 cc/100in$^2$/day
  Package : 0.00004 to 2000 cc/pkg/day
- Flow, temperature and humidity control for ultimate responsiveness and repeatability.
- Coulometric oxygen sensor for precision. Wide measurement range.
- No liquid coolants, catalysts or special gas mixtures required.
- System validation with certified gas or film for speed and convenience.
- Intutitive Windows based Software. Fast permeation results.
- Up to five expansion modules available to increase testing throughput.


- Analytical system manufactured traceable to NIST standards
- The precise Relative Humidity control offers a range of 0 to 100%.
- Applications : Barrier Film, PET Bottles, Containers, Canisters, Bags, Flexible Pouches, etc..
- Horizontally oriented chambers enable easy loading of samples.

## Melt Flow Indexer - LMI 5000 :

The most precise instrument for the measurement of Melt Flow Rate (MFR - MFI) or Melt Volume Rate (MVR) in quality control and research application. The LMI 5000 is the first melt flow indexer to utilize a powerful 32 bit microprocessor to provide test parameter control, self-diagnostics and digital calibration. The touch screen computer controls and display temperature from 0.1°C to 500°C using a unique PID control algorithm. Two melt indexer models are offered in the advanced Dynisco LMI 5000 series, each with features designed to meet specific application requirements.

- Advanced microprocessor design
- ASTM D1238, ISO 1133 and other international standards
- LMI 5000 having inbuilt software which computes and prints data on MFI, Shear Rate, Shear Stress, Melt Viscosity at the end of each test (PC and Windows Software not required).
- Optionally Dynisco offers Windows Software for test database and analysis.
- Self-diagnostics capability
- Comprehensive statistical capability
- Simple push-button RTD calibration
- Smart Keys for easy programming
- Bright, 4-line by 20-character vacuum flourescent display

## Capillary Rheometer - LCR 7000 :

LCR is designed to meet the demand of a 24-hours-day shop floor operation while maintaining the highest possible level of accuracy, repeatability and sensitivity. The LCR series rheometers are versatile and easy to use yet they offer the most sophisticated materials characterization, date analysis and reporting capabilities. The LCR 7000 can be used with a standard load cell and barrel to measure thermal stability, thermal degradation of the polymers.Many years of service ensured though the use of tungsten carbide dies and a hardened and honed tool steel barrel. LAB KARS advanced rheology software provides programming, control, analysis and data storage capability.

- All digital calibration
- Piston speed of 0.01- 600 mm/minute
- Up to 45 shear stress of shear rate data points per test
- Unique algorithms for polymer melt stability
- Multiple barrel heating zones
- Accurate and uniform temperature range from 0.1°C to 500°C
- Precision servo-drive motor and transducers
- Tight control of stress and rate mode tests
- Laser micrometer for accurate measurements of die swell (optional)
- Dynisco also offers LCR 7002 Twin / Dual Bore Capillary Rheometer.
- Simulation of exact Injection Moulding, Extrusion or Calendring process is possible by running LCR on same Shear Rate, selecting Die of same L/D Ratio and increasing Residence Time of material in the barrel. Thermal Stability or Thermal Degradation test can be conducted.

## Laboratory Mixing Extruder - LME

- Mini Extruder for R&D Application consisting of
- Extruder, Take Up System and Chopper Accessories
- Uses as little as a few grams of material
- Standard configuration provides rod header with replaceable 1/8" (.3175cm) orifice
- Four optional headers available (ribbon, spinerette, tube and wire coating rod)
- Two separate temperature controls: rotor heater and header heater
- Short residence time – minimal thermal degradation during mixing process
- Complete processing instrument mixing, compounding and extrusion
- Unique, screwless design
- Maximum temperature 400°C
- Variable speed control, 5 to 260rpm
- Water-cooled feed hopper

## ViscoIndicator - Online Rheometer :

Based on the proven technology and success of ViscoSensor and CMR Online Rheometer, Dynisco is pleased to introduce new high performance and cost effective ViscoIndicator Online Rheometer.

Specifically designed for the thermoplastics resin industry, the ViscoIndicator provides continuous measurements of the melt flow rate, apparent viscosity, or intrinsic viscosity directly on the extruder. The ViscoIndicator online rheometer duplicates the test conditions of a laboratory Melt Flow Rate (MFR) tester or capillary rheometer.

Melt viscosity measurements such as melt flow rate and Intrinsic viscosity are primary specifications of thermoplastic resins. MFR and melt viscosity are related to polymer molecular properties so these numbers give some measure of the physical properties of their product as well as polymer processability.

## The ViscoIndicator RSU

A Rheological Sensing Unit (RSU) that connects directly to the process and samples, conditions, and measures the properties of the resin. It can be mounted on extruders, reactors, or molten polymer transfer lines in various orientation. It uses a metering pump to isolate it from the process, to direct the molten polymer across interchangeable capillaries, and discharges a minimal amount of material at a rate of approximately 0.5lb/hr (0.2kg/hr). A three wire platinum RTD is used control and measure the temperature of the molten polymer. A Verted Mercury Free pressure transducer mounted directly before te capillary die is use to capture the pressure drop.

## ViscoIndicator Human Machine Interface

The Human Machine Interface (HMI) remotely manages test parameters and provides measured and computed material properties. It provides rheological data similar to a lLaboratory Capillary Rheometer of MFI readings similar to a Melt Flow Indexer.

## ViscoIndicator iRCU

A Rheological Control Unit (iRCU) that connects directly to the process and samples, conditions, and measures the properties of the resin. It can be mounted on extruders, reactors, or molten polymer transfer lines in various orientation. It uses a metering pump to isolate it from the process, to direct the molten polymer across interchangeable capillaries, and discharges a minimal amount of material at a rate of approximately 0.5lb/hr (0.2kg/hr). A three wire platinum RTD is used control and measure the temperature of the molten polymer.A Verted Mercury Free pressure transducer mounted directly before te capillary die is use to capture the pressure drop.

## Minimum Detection Level

Resolution or minimum detection level of a change in material or contamination is an important criteria. The ViscoIndicator will detect very small changes in viscocity or melt flow rate of your material. A change of 1 Pa-s or 0.2MFR can be seen in measurement data. These changes is measurement can be used to quickly adapt the parameters of your process.

## Online Rheometer - ViscoSensor :

The world's smallest in-line polymer melt rheology instrument, measuring only 25 inches in length by 10 inches in width. The ViscoSensor is extremely easy to install, calibrate and operate making it the cost-effective in-line sensor on the market. The ViscoSensor's zero discharge system returns the polymer back to the process, eliminating material waste. The ViscoSensor can be used to generate shear rate v/s viscosity data or continuous ASTM melt index data. The ViscoSensor is an important quality control tool that can be used help improve product quality and consistency during processing.

- Attaches to the process using a single M18 port
- Online viscosity or melt index monitoring
- No waste stream
- Online ASTM D1238 Melt Flow Rate
- Apparent Viscosity and rate vs. viscosity data available
- Capillary is easy to replace
- ViscoSensor is a return stream type rheometer
- Dynisco also offers CMR - Continuous Melt Rheometer which is a bye-pass type rheometer.
- Melt Flow Index : 0.02 - 5000 g/10 min

# CARVER

## Hydraulic Laboratory Press

**Compression Press / Automatic Hydraulic Laboratory Press :**

The International standard for more than 100 years Carver hydraulic presses have been the standard for laboratories around the world. Caver Model 'C' presses alone are in use in more laboratories than any other press. The current Carver line with heating and cooling option, has been expanded and improved with more sizes, options, features, and quality performance than any other line of presses.

**The Widest Choices :**

Standard choices now include two-column and four column, bench top, floor standing, manual and automatic presses with clamping capacities from 12 tp 100 tons. Automatic " Auto Series " presses include user-friendly microprocessor based controls and integral safety enclosures.

**Applications Material Research :**

Ceramics, composites, construction materials, cosmetics, drugs, pharmaceuticals, powder metals, printed circuit boards, rubber, silicone and other elastomers, soil thermoplastic resins and thermosets.

**Quality and Performance Testing of Physical properties :**

Compression strength, physical properties : compression strength, shear strength, flow and color dispersion.

**Laboratory :**

ASTM test plaque of bar molds for polyethylene and polypropylene.

**Laminating :**

Credit cards, ID cards, Plaques and printed circuit boards.

**Other Application :**

Composite molding, compression moldings, crushing, encapsulation, extrusion, forming, insert pressing, producing KBr pellets for infrared spectroscopy,metal forming (dimpling), insert molding, oil extraction, pelletizing, specimen preparation splice molding, splitting chilled oils, transfer molding, and vulcanizing rubber stamps.

**Specialized applications :**

Special presses dedicated to specific application include ASTM test plaque or bar molding, pellet making (KBr specimens for infrared and x-ray spectroscopy), laminating and rubber stamp molding.

## Hydraulic Laboratory Press

WABASH

### Compression Press/Automatic Hydraulic Laboratory Press :

Genesis Series presses are state-of-the-art hydraulic presses for compression molding of rubber, plastics and composites; and for laminating and bonding or a pressure application where positive ram control is needed. The Genesis Series reflects more than a half a century of Wabash leadership in hydraulic press design and manufacturing. It is rugged enough for round-the-clock performance on the production floor, but works equally well as a precision laboratory press.

Genesis presses are available in 15 through 150 ton capacities. The hydraulic system produces faster closing and opening speeds, making it ideal for use with many of today's advanced molding compounds. Optional heated platens are available for 500°F, 650°F, 800°F, 1200°F and 1800°F operating temperatures, which are required for many composite, ceramic and other molding applications, including super plastic molding of titanium.


### Features :

- Adjustable clamp force : 15 to 150 tons
- Platen size : 12" x 12" to 30" x 30"
- Programmable controller with access module
- Automatic transfer from closing to pressing speed
- OSHA approved operating system
- Pressure adjustment valve
- Water cooled platens
- Pressing speed control

### Enhanced Controls :

Packages available for proportional control of pressure, position and temperature. Programmable through a touch screen.