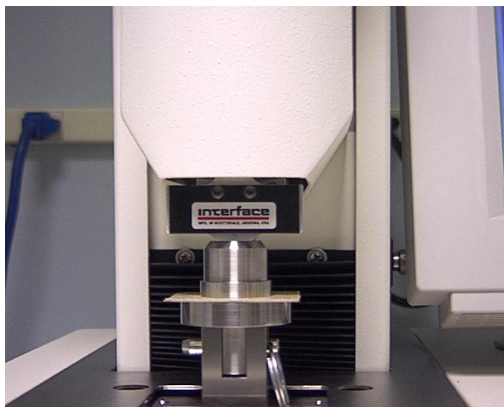
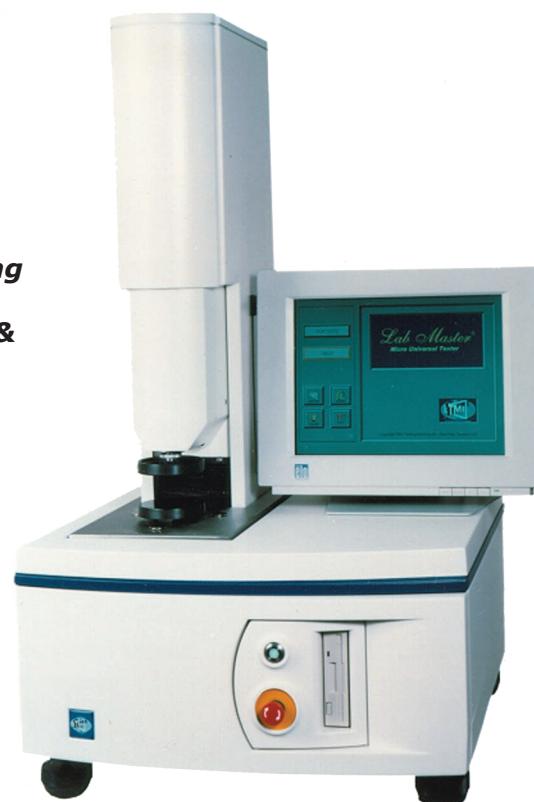


LAB MASTER® Z-DIRECTION TENSILE ZDT 84-92



***Internal Bond testing
in the Z-direction
Meets TAPPI T541 &
ISO 15754***



Z-DIRECTION TENSILE STRENGTH

The measurement of Z-Directional tensile strength was developed to determine the structure of a sheet of paper or board when subjected to tensile stresses in the out-of-plane direction or Z-Direction. Z-Directional Tensile Strength is a measure of the internal fiber bonding strength of a substrate.

ZDT

Z Directional Tensile Strength is different than other conventional means of measuring maximum force (Tensile Strength) or internal bonding strength such as the Scott Bond method for materials strength testing. Other strength properties for this type of measurement include internal bond strength, ply adhesion and ply bond strength.

LAB MASTER® ZDT

The Lab Master® ZDT Tester is a precision PC Controlled testing instrument which automatically determines internal bond strength according to TAPPI T 541. All testing parameters such as test speed, dwell time and compression force are selectable in an easy to use, intuitive software program supplied with the instrument.

PRECISION TESTING

Peak Force is measured to a maximum capacity of 1100 N (250 Lbs) with a 0.04 N (0.01Lbs) resolution and accuracy of $\pm 0.5\%$ of reading. Position is measured and controlled with 0.1 μ m resolution and 0.2 μ m repeatability. Peak force is measured by applying a force in the z-direction until ply separation occurs.

APPLICATIONS

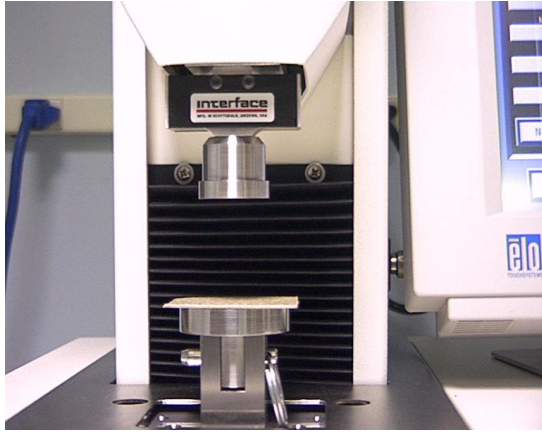
ZDT measurements are an effective tool for monitoring a variety of strength properties which aid in improving printing and coating applications, bonding strength of paper cores, delamination strength, intrinsic fiber bond strength, paperboard and combined board strength and fiber-to-fiber bond strength.

FEATURES

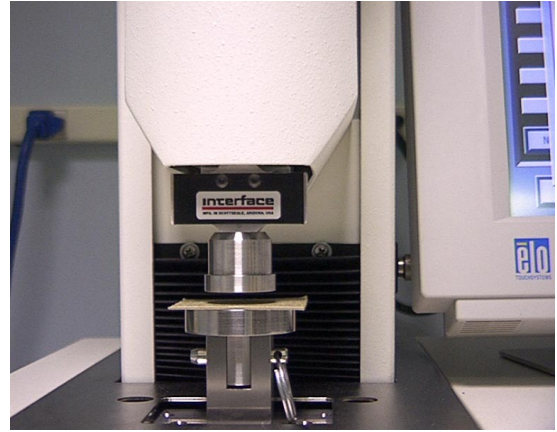
- Conforms to TAPPI T 541 Internal Bond Strength of Paperboard (Z-Direction Tensile)
- Conforms to ISO 15754 Paper and board - Determination of Z-directional tensile strength
- Color Touch Screen display
- Storage and editing of up to 300 readings
- Selectable units (kPa or psi), RS 232, settable limits, statistics-average, standard deviation, high/low results
- Report printout with optional printer
- 2 USB ports for easy data storage and/or printer
- User specifies force, position, speed & duration of test
- Variable speed up to 10cm (4 in) per minute
- Quick release locking pins offer easy removal and insertion of platens
- Table top, small dimension of the tester
- PC Controlled testing operation
- Displays Sample results and Test curve after each measurement

LAB MASTER® Z-DIRECTION TENSILE ZDT

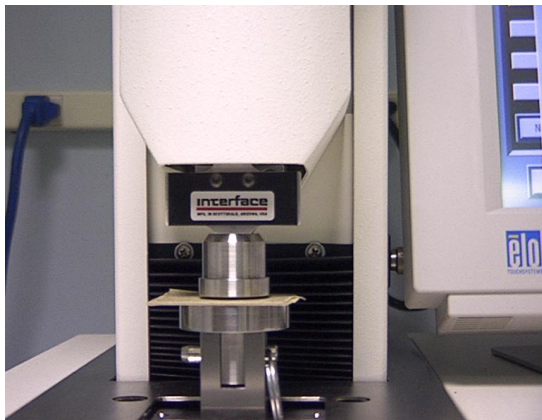
OPERATION



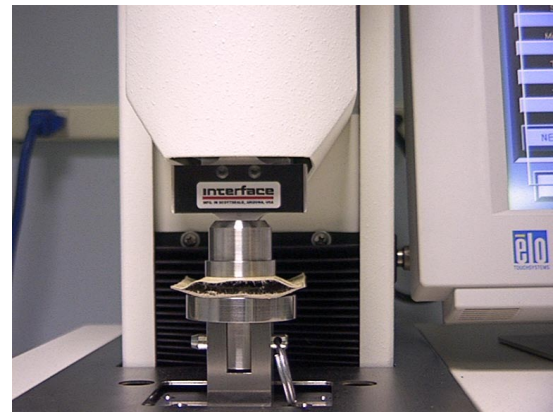
1 Sample on machine



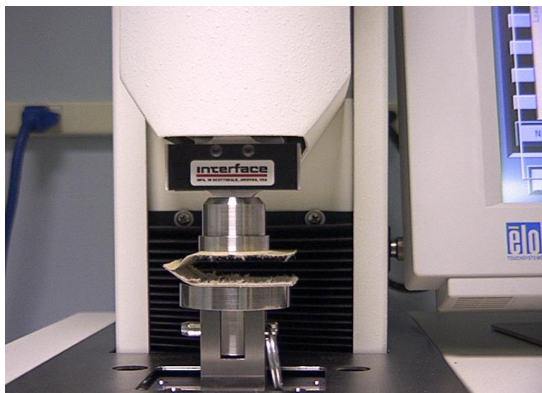
2 Upper platen closing on sample



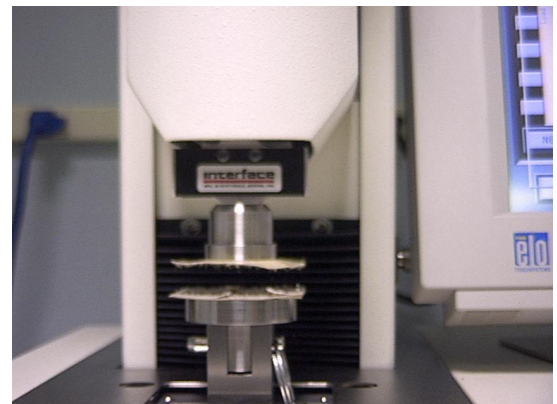
3 Pressure being applied



4 Sample being pulled apart

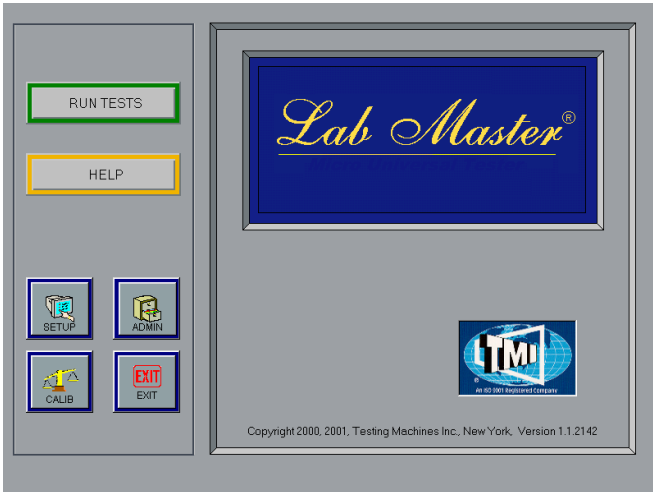


5 Sample starts to separate



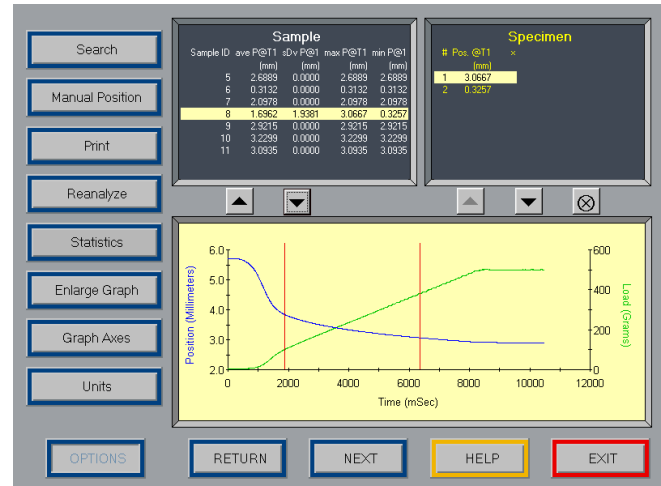
6 Test is complete

Lab Master® Software



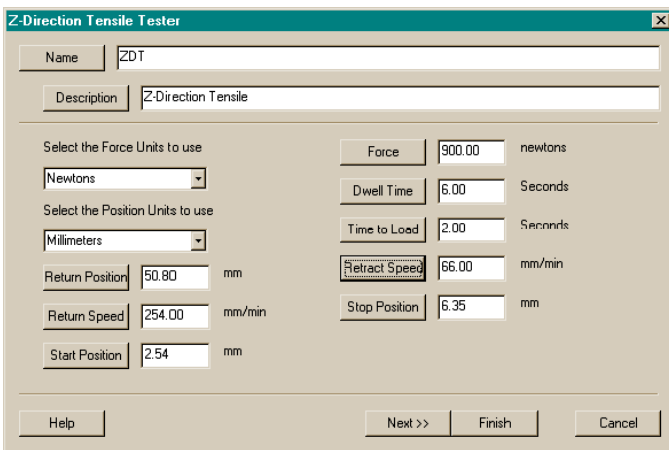
Includes a ZDT test method that automates the test process.

Test variables such as Compression and Tension test speeds, Compression Force, Dwell Time, Test Time, Results Calculations and Graphing are automatically performed by pressing the test key.

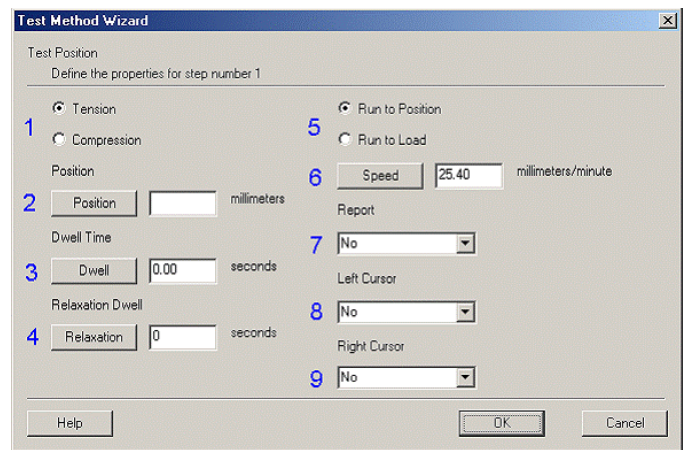


Lab Master allows editing of the following:

- Compression force
- Compression speed
- Dwell time
- Tensile speed
- Length of test



▲ Z-Direction Tensile set up screen allows test configuration to meet TAPPI T-541 test method.



▲ Test Method Wizard allows easy test set up for special test applications

Lab Master® ZDT Advantages

- Windows® Environment – Extremely simple to operate, it works on Windows XP.
- Data Storage – Sample and Test Information is stored for future recall
- Presentation – Easy operation of test instrument using Touch Screen, Result and test curve/graph information is displayed on display

SPECIFICATIONS

Force (tension and compression)

Maximum	1100 N	±250 lbs	
Resolution	0.04 N	0.01 lbs	
Accuracy	±0.5% of reading	±0.5% of reading ±0.25 lb.	Exceeds the requirements of ISO 7500-1 Class 0.5 Tension or Compression
Overload rating	150%	150%	

Travel and Position

Travel (maximum)	160 mm	6.25 inches	Varies depending on attachment
Position Resolution	0.1µm	0.00004 inches	
Position Repeatability	0.2 µm	0.00008 inches	
Position Accuracy	±1.0 µm	±0.00004 inches	
Position Accuracy (cumulative)	±1.0 µm/60mm (cum.)	±0.000017 inches/2.4 inches (cum.)	

Speed

Range	0.01 to 13 mm/second	0.01 to 0.5 inches/second
Accuracy (steady state)	Better than 0.05%	Better than 0.05%
Data Acquisition rate	2 kHz	2 kHz

Throat Depth

	82 mm	3.3 inches
Number of repeat cycles	As required	As required
Display- TFT flat panel touch screen	300 mm	12 inch

Environmental Range

Temperature (operating)	5°C to 35°C	40° to 95°F
Temperature (storage)	-20°C to 55°C	-4° to 130°F
Humidity (operating and storage)	10% to 85% Non-condensing	10% to 85% Non-condensing

Physical Dimensions

W X D X H	490 X 535 X 880 mm	19.25 X 21 X 34.75 in
Working Surface Height	290 mm	11.5 inches
Weight	50 kg	110 lbs.

Electrical Characteristics

Supply Voltage	100-240 VAC
Current (max.)	10 Amperes
Frequency	50-60 Hz

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