



**Thwing-Albert
Instrument Company**

More Than a Century of Testing Solutions

Materials Testing Equipment

Quality - Excellence - Experience - Reliability



www.thwingalbert.com

**ISO 9001
Registered**

More Than a Century of Testing Solutions

Thwing-Albert is committed to manufacturing and supplying materials testing instruments designed to meet a variety of applications. Whether you are testing for quality control, process control or product development, get the answers you need to ensure a successful program.

Thwing-Albert's instruments are used across a diverse group of industries including:

- Adhesives
- Corrugated
- Foil/Metal
- Food Testing
- Ink/Graphic Arts
- Medical
- Nonwovens
- Packaging
- Paper
- Paperboard
- Plastic Film
- Tissue
- Textiles
- and more...

With a comprehensive offering of test instruments, our products can be configured to meet hundreds of industry standards including ASTM, ISO, TAPPI, FINAT, EDANA, WSP, INDA, PSTC and DIN.

Testing Excellence - Since 1899...



Dr. Charles B. Thwing founded Thwing Instrument Company in 1899. Mr. Edward J. Albert joined him shortly thereafter forming Thwing-Albert Instrument Company. Under their leadership, Thwing-Albert developed a complete line of physical testing instrumentation that research laboratories and quality control departments throughout the world confidently rely on today. Our product line includes instrumentation to test physical properties of materials such as tear strength, coefficient of friction, peel strength, thickness, tack, handle, compressive strength and burst strength.

Headquartered in West Berlin, NJ, Thwing-Albert Instrument Company has sales offices worldwide.

Visit www.thwingalbert.com for more detailed information about our testing machines. Thwing-Albert is able to assist in customized testing needs for many industries. If you don't see what you need in this catalog, please contact us directly about your application at (856) 767-1000 or info@thwingalbert.com.

ISO 9001 Certification - Quality is Our Top Priority



In our efforts to maintain the highest quality products and services, Thwing-Albert has a total quality system in place which is in full conformance with ISO 9001 requirements.

Quality equates to success for our customers so it is the first consideration in every process we incorporate as well as all of the products we manufacture.

Thwing-Albert Instrument Company's quality policy is to continually improve products, services, processes, methods and work environment to ensure that each customer receives consistently high quality products and services on time. Our goal is to meet or exceed the needs and requirements of all our customers. We will achieve customer satisfaction through continued process improvements. We will ensure the necessary environment, procedures, training, tools and equipment are available to support all of our customers.





Adhesion Testing

Coefficient of Friction

Food Testing

Grips & Fixtures

Peel Testing



Puncture Testing

Tear Testing

Tensile Testing

Thickness Testing



Custom Applications

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- Vantage Series
- Testing Software
- QC-3A
- Grips & Fixtures

Section 2: Physical Testing Instruments [Pg 19]

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- ProTear Elmendorf Tearing Tester
- ProGage Thickness Tester
- PCA Score Bend Tester
- Bending/Stiffness Tester
- Burst Strength Tester
- Dart Drop Tester
- Handle-O-Meter
- WinWedge Software Connection

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Section 4: Continued

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- QuickPeek® Color Proofing Kit
- Ink Rub Testers

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- Calibration Services
- Repair Services
- Full Service Contracts
- Rental Equipment
- Installation and Training

Universal Materials Testing Machines

A universal testing machine, also known as a UTM or tensile tester, is used to test the tensile stress and compressive strength of materials. It is named after the fact that it can perform many standard tests including tensile and compression tests for a wide range of materials.

Thwing-Albert's universal materials testers can be modified to meet a broad range of test applications from simple to complex. Choose between simplified instruments with built-in systems or computer-controlled testing machines that offer advanced software packages.

Configure your universal materials testing machine to measure a variety of physical properties:



- Tensile
- Coefficient of Friction
- Compression
- Burst
- Flexural Bending
- Peel
- Puncture

These machines can be paired with grips and fixtures as well as custom fixtures to meet most international standards including ASTM, ISO, TAPPI, DIN and others. If you have a method you need to meet, we can find a solution for you.

Section 1

Universal Materials Testing Machines



Vantage Series



Testing Software



QC-3A



Grips & Fixtures

Vantage^{NX} Series

The Vantage^{NX} Series Tensile Tester can be configured to meet a variety of tests when paired with the proper grips and fixtures. A library of industry standards is preloaded to run tensile strength, compression, puncture and other tests for plastic film, flexible packaging, food testing, paper, paperboard, tissue paper, textiles, and many other industries.

The Vantage^{NX} is ideal for quality control, engineering and research and development. The small footprint of the single column machine and its ease of use makes it an ideal instrument for your lab. Single column frames are available in 1kN, 2kN and 5kN capacities. Dual column machines are available for heavier capacity testing needs in either 5kN or 10kN frames.

Meet many industry standards including ASTM, ISO, DIN, TAPPI and others.

Vantage^{NX}



Common Industry Standards:

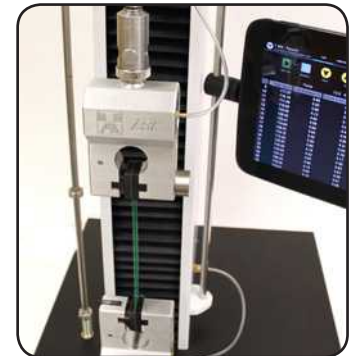
- ASTM E4
- ISO 5893, ISO 7500-1, ISO 9283
- EN 1002/1-4
- ASTM, ISO, TAPPI, and more

Applications ↘

Adhesives, Corrugated, Foil/Metals, Food, Medical Devices, Nonwovens, Packaging, Paper, Paperboard, Plastic Film, Rigid Plastic, Rubber/Foam, Tissue, Textiles

Vantage Series Tensile Tester Options:

- **Vantage^{NX}-1 [Model 1900 - Single Column Frame]**
Capacity: 1kN, 225 lbs
Crosshead Travel: 610 mm (24"), 915 mm (36"), 1219 mm (48")
- **Vantage^{NX}-2 [Model 1902 - Single Column Frame]**
Capacity: 2kN, 450 lbs
Crosshead Travel: 610 mm (24"), 915 mm (36"), 1219 mm (48")
- **Vantage^{NX}-5 [Model 1905 - Single Column Frame]**
Capacity: 5kN, 1140 lbs
Crosshead Travel: 508 mm (20"), 813 mm (32 in), 1092 mm (43")
- **Vantage^{NX}-5 [Model 1910 - Dual Column Frame]**
Capacity: 5kN, 1140 lbs
Crosshead Travel: 660 mm (26"), 927 mm (36 in), 1181 mm (46")
- **Vantage-10 [Model 1760 - Dual Column Frame]**
Capacity: 10kN, 2280 lbs
Crosshead Travel: 610 mm (24"), 1067 mm (42")
Ideal for rigid plastics, textiles and custom applications
Load Cell Capacities: 5 N (1.1 lbs) to 10 kN (2280 lbs)



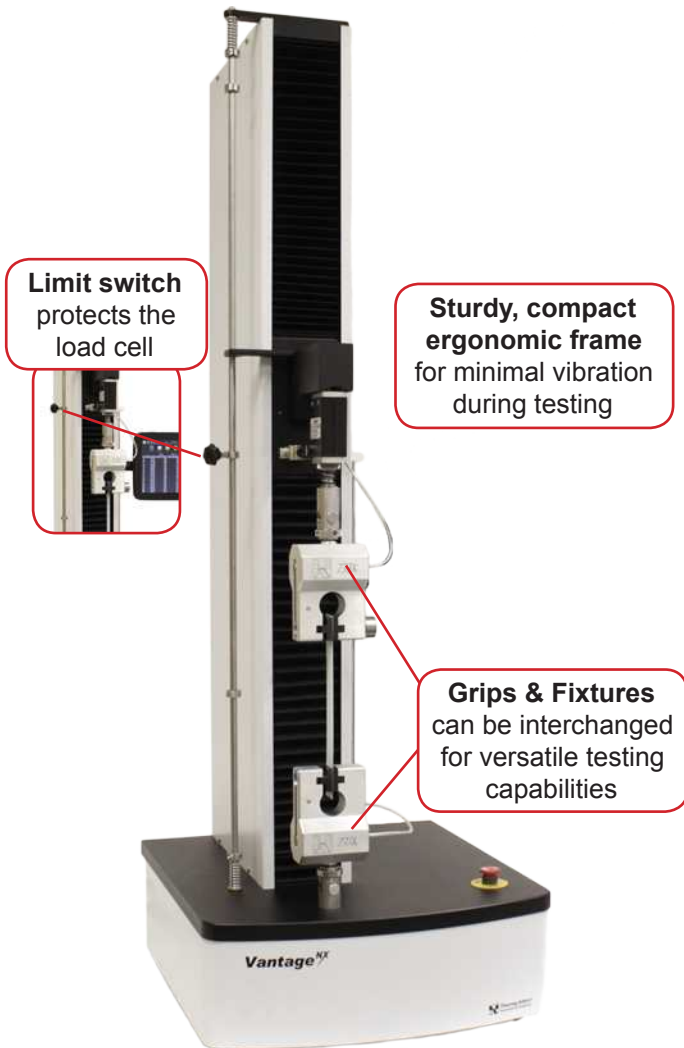
Features:

- Compact frame
- Computer controlled
- Built-in load cell protection
- Automatic load cell recognition
- One-touch auto zero
- Simple connection via USB port
- Electronic air switches simplify test set-up
- Digital motion-controller uses pulse width modulation for greater position accuracy
- Side panel for easy access to electronics

Instrument Control Options



Choose **MAP4 Software** or the **Touch Screen Instrument Controller** to run your tests. Or choose to have both systems for more complex testing needs and analysis.



Optional Touch Screen Instrument Controller

Choose the option to control the Vantage^{NX} using a touch screen tablet connected to a Bluetooth system. Run basic test functions with the touch of your fingertips.

- Designed for **quick and easy testing**
- **NO PC needed** to run tests
- Minimal operator training required
- Ready to test:
Tensile, Peel, Compression, COF
- Easily modify test parameters
- Bluetooth communication
- Network printer support





▲ ZDT Tester measures the internal bond strength of paperboard.

Vantage Z-Directional Tester (ZDT)

Thwing-Albert's ZDT Tester is a compact, precision PC-controlled instrument that measures the internal fiber bond strength of paper, paperboard, liner board and coated fine papers.

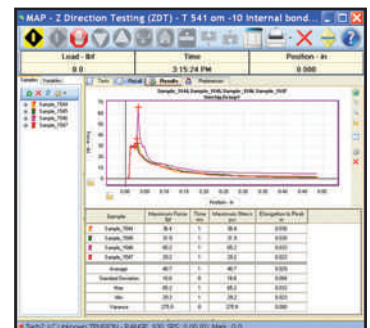
Z-Directional force provides an indication of expected material performance relating to glue-bonding of carton corners and seams, delamination and the use of high tack coatings.

The ZDT Tester is a fully automated instrument that performs sample compression, dwell time and ZDT according to TAPPI T541. A self-adjusting test platen ensures uniform tension is applied to pull the sample apart.

Features

- MAP4 software included
- One USB Interface to a PC
- No PC interface cards
- Serial load cell interface
- Self-adjusting test platen
- Automatic electronic calibration
- Movable test control panel
- Side electronics panel for easy serviceability

Industry Standards:
TAPPI T541 & ISO 15754

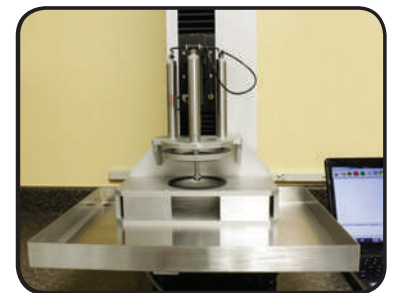


Vantage Tissue Burst Tester

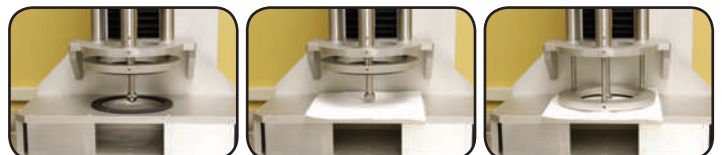
The Tissue Burst Tester is a precision, PC-controlled instrument that measures the wet and dry burst strength properties of tissue papers and tissue products, paper towels, nonwovens and other substrates. Standard results provided include burst strength, burst displacement, burst energy, total burst energy and statistics.

Dry Burst Strength is useful to determine strength required to avoid breaks or tears during manufacturing or converting.

Wet Burst Strength is a critical property, as tissue and paper towel products are subject to aqueous fluid during normal use.



Industry Standards:
ASTM D6548-00, TAPPI T570-00,
ISO 12625-9:2004, CEN 1265-9

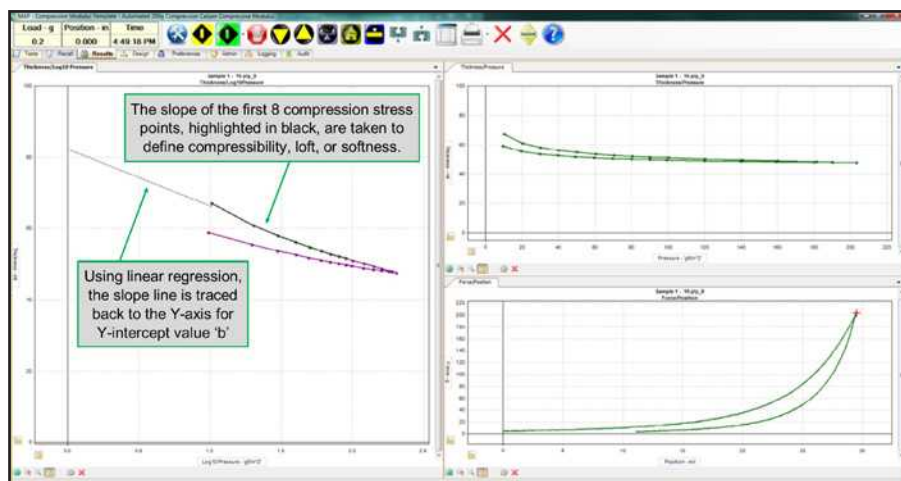


Vantage Compression Tester/Softness/Tissue Tester

This instrument provides an objective measure of material softness by evaluating sample loft, thickness, compressibility and structural softness of sheet materials including paper tissue, toweling, nonwovens and textiles.

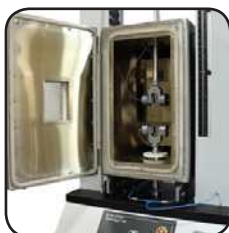
For the highest level of accuracy, the Vantage Compression/Softness Tester compresses test plates to a user-defined force value with no sample installed, resulting in a curve (A) that represents the deflection of the machine, load cell and fixture. This curve is subtracted from the test curves, which removes all instrument deflection that could affect test results.

During a test, thickness values are captured until the maximum load is reached. Thickness values are captured in both the compression (B) and recovery phase (C) resulting in two unique curves. The distance between the two curves represents energy lost and is a function of several properties including loft, thickness, compression/recovery and structural softness.



Accessories for Materials Testing

Environmental Chambers



Designed for use with Vantage Series single or dual-column testing machines. Configured for hot or cold applications.

The chamber can be mounted on fixed mounting brackets which bolt to the test frame or roller mounting brackets which enables the chamber to be easily moved when not in use. Ideal for plastic film, laminates, textiles, fibers, and other substrates.

High Elongation Extensometer



The extensometer adds the capability to measure strain in elastomeric materials such as rubber, vinyl, semi-rigid plastics and plastic films for the Vantage Universal Materials Tensile Tester.

MAP4 Materials Testing Software

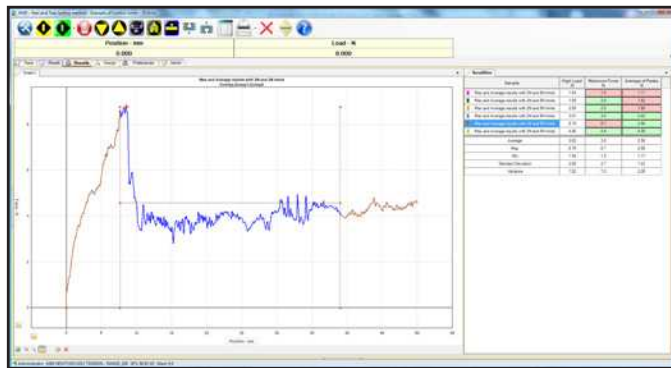
MAP4 is a comprehensive, advanced materials testing software system used for many applications. There is no need for expensive add-on modules.

Easy to use - design, customize and maximize your testing procedures and final output with simple menus. Write custom scripts based from templates or from scratch.

This software comes equipped with a library of preset standards available for use out of the box. The MAP4 software is compatible with the Vantage Series testing machines, the FP-2260 Friction/Peel Tester and the Handle-O-Meter. MAP4 can exponentially multiply the possibilities and ease of testing in your laboratory.

Built-in test methods are used for various applications, including tension, compression, peel, tear and friction. The ability to customize the potential is unlimited.

When it comes to flexibility and capability, MAP4 software can be used to run tests for a variety of materials, including paper, plastic, rubber, textiles, medical devices, seals and foam.



- ✓ View real-time graphical test results
- ✓ Pre-installed Test Standards
- ✓ Create custom templates and reports
- ✓ Auditing/Record keeping capabilities
- ✓ Control your test result display
- ✓ Simplify analysis by tracking variables
- ✓ Group statistics for powerful analysis
- ✓ Easy unit conversion built-in
- ✓ Multi-lingual system capabilities
- ✓ SPC Capabilities



System Requirements

- ✓ Operating System: Windows® 7, 8, or 10
- ✓ 64-bit Software (32-bit compatible)
- ✓ Microsoft .NET Framework 4.5
- ✓ Processor: 2 GHz or faster processor
- ✓ RAM: 4GB
- ✓ Hard Disk Size: 250GB
- ✓ 2 USB Ports
- ✓ Video: 1024 x 768 minimum
- ✓ Bluetooth ready



Configurable Test Result Display

Users can customize the "Result" screen to view results based on required needs.



Auditing/Record Keeping

Keep accurate details of testing and changes per user to keep compliant for quality metrics.



Tracking Variables

Add "Tracking Variables" that let you track critical results, search the database and group results on screen to review the statistics.



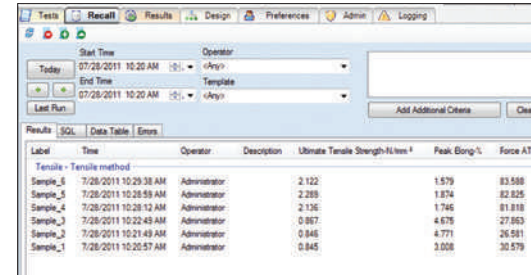
Multiple SQL Databases

Easily manipulate test results from multiple databases. They can be queried, recalled and exported to Excel for enhanced analysis.



Set Pass/Fail Conditions

Increase productivity by setting pass/fail conditions for testing methods to alert technicians when a test result is out of specification.

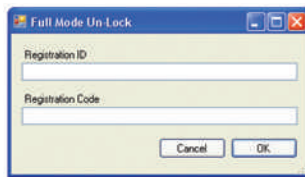


Label	Time	Operator	Description	Ultimate Tensile Strength/klb/in ²	Peak Elong./%	Force AT
Tensile - Tensile method						
Sample_6	7/28/2011 10:29:38 AM	Administrator		2.122	1.579	83.588
Sample_5	7/28/2011 10:28:59 AM	Administrator		2.289	1.874	82.825
Sample_4	7/28/2011 10:28:12 AM	Administrator		2.136	1.746	81.818
Sample_3	7/28/2011 10:27:49 AM	Administrator		0.887	4.878	27.863
Sample_2	7/28/2011 10:21:49 AM	Administrator		0.846	4.771	26.581
Sample_1	7/28/2011 10:20:57 AM	Administrator		0.845	3.008	30.579



Password Protection

Advanced users can set up user groups and individual software privileges.



Statistical Process Control (SPC) Software

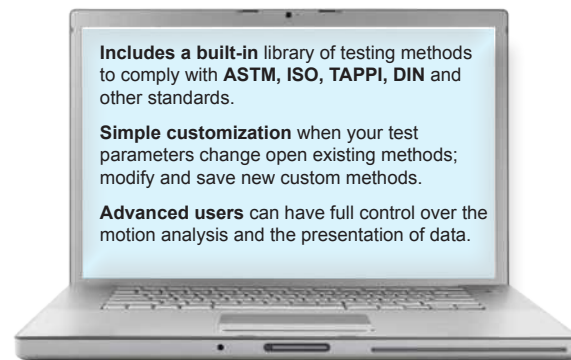
SPC involves complex calculations, data analysis methods and reports. It also allows customers to ensure that their production process is at a consistent quality level.



Language Database

Administrators can add and edit the database for any language.

Multi-Lingual Capabilities:
English, Spanish, German,
French, and more...



MAP4 LTE Basic Software Option Available for FP-2260:



This is a simplified MAP4 Software option recommended for ease of use and basic data evaluation purposes.

- Instantly view and analyze test data
- Report statistical data
- Store test procedures
- Establish tracking variables
- SQL database for test results

QC-3A Universal Testing Machine



Thwing-Albert's QC series of electronic materials testers provide quality solutions and have earned a well-deserved reputation as an easy-to-use, dependable testing machine.

The QC-3A upholds the standards of the QC line while adding the functionality of a RS-232 interface, a digital load controller and enhanced software.

Ideal for tensile, compression, coefficient of friction and peel analysis, the QC-3A is a versatile cost-effective testing system. The single-screw frame provides up to 1100 lbs (5kN/500 kg) tensile force with extremely accurate control throughout the entire load range. The digital load controller ensures extremely accurate, reliable test data.

A wide range of precision load cells are available for compression and tensile testing needs. Interchangeable load cells are available from 2000 g to 500 kg.

Available Models:

- 1265-2010 254mm (10") Frame
- 1265-2011 460mm (18") Frame
- 1265-2013 Extended Frame



Applications ↘

Adhesives, Corrugated, Foil/Metals, Food, Medical Devices, Nonwovens, Packaging, Paper, Paperboard, Plastic Film, Rigid Plastic, Rubber/Foam, Tissue, Textiles

Features:

- Simplified testing machine
- Menu-driven software
- RS-232 PC interface
- Distance & load traps
- Digital load controller
- Fixed and variable crosshead speeds
- Pretest speed to selectable force
- Load cell unit conversions
- Statistical analysis
- No additional software required

Computer Interface

The QC-3A is equipped with a serial port that enables test data to be automatically downloaded to a PC for data analysis.

Powerful Software Built In

An internal software system is built in to the QC-3A Universal Testing Machine. This software allows you to set distance and load traps when testing in the tensile or compression modes. Some of the system functions that can be customized include:

- Sample ID
- Set distance and load traps (tension or compression mode)
- Define pre-load values and dual speed settings (pretest/test)
- Crosshead return at end of test
- Halt test when memory is full
- Test and report destination ports
- Raw data (forced and position values) transmission through the RS-232 port allows the operator to verify the results calculated, print a curve using excel or other programs and store data in an external database.
- Date and time settings can be customized and printed in the report header



▲ QC-3A Load Cell

The QC tester can be set up to meet a wide range of tests when fitted with optional grips and fixtures. Specialized grips enable you to test paper, plastics, textiles, fibers, foils and other materials. Fixtures permit compression, flexural rigidity, peel, coefficient of friction (COF) and other tests. **See pages 14-17 for a sampling of grips and fixtures available.**



▲ QC-3A Splash Guard (Part No. 1476-0080) is recommended for use with wet samples to keep the keypad protected.



▲ QC-3A Load Cell Adapter (Part No. 771-3000) can be ordered to move the load cell outside of the frame to add extra crosshead travel.

Grips and Fixtures

Thwing-Albert offers a variety of tensile testing grips, fixtures and accessories to outfit your universal materials tensile tester. Our grips are ideal for the Vantage and QC-3A, but can also be adapted to many manufacturer's testing machines.



733K Pneumatic Grips (500 N, 100 lbf)

These pneumatic grips are constructed of aluminium and designed to hold pulp handsheets, paper, paperboard, and plastic films, as well as other sheet materials for tensile testing.

The 500 N (100 lbf) capacity makes these grips a good option for a variety of testing needs. Loading samples of varied widths is simplified by the open-ended design.

Inserts must be ordered separately (4 faces are required per set). Additional sizes and faces, such as rubber, line contact and diamond serrated faces are available. The maximum insert width can be up to 300 mm (6").

- Applicable for paper, plastic films, and flexible packaging
- Aluminum construction
- Grip opening 3/16"
- Length of single grip 5.25"
- Weight of a single grip:
650 gm (1.4 lb) without 1" inserts
750 gm (1.6 lb) with 1" inserts



733LW Pneumatic Grips

(25N, 5lbf) Lightweight design enables the use of low capacity load cells. Open-ended design allows for various sample sizes.



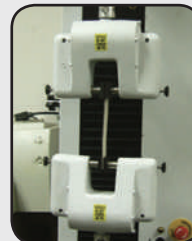
795 Pneumatic Grips

(500N, 110lbf) Open-ended design ideal for plastic film, packaging film and foils. Available grip faces up to 101.6mm (4") wide.



734K Pneumatic Grips

(125N, 25lbf) Ideal for light-weight materials - paper, tissue, toweling, nonwovens and films. Available grip faces up to 100 mm (4") wide.



747D Pneumatic Grips

(750N, 170lbf) Ideal for thick materials including nonwovens. Available grip faces up to 152.4 mm (6") wide.



733GC Pneumatic Grips

(125N, 25lbf) A fixed, stop design makes it easy to load a variety of samples up to 100 mm (4") wide.



747B Pneumatic Grips

(1.25kN, 280lbf) Designed for textiles and fabrics with low tensile strength. Available grip faces up to 152.4 mm (6") wide.

Available Grip Styles

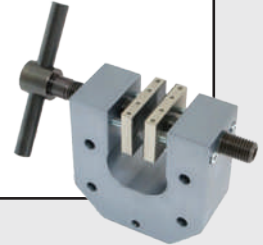
Pneumatic Grips



Pneumatic Grips are ideal for testing sheet materials including films, tapes, paper, textiles, nonwovens and tissue. There are a wide range of capacities available. Pneumatic operation makes sample insertion faster and easier than manual grips and ensures a contact uniform pressure.

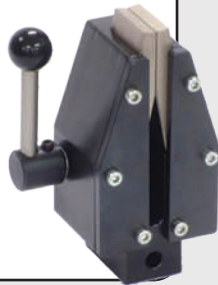
Mechanical Vise Grips

Mechanical Vise Grips are designed for low, medium and high capacity applications. The vise grips are ideal for general tensile strength testing of paper, plastics, foils, textiles and other sheet materials.



Mechanical Wedge Action Grips

Wedge Action Vice Grips are ideal for tensile strength testing of rigid plastics and composites of flat or round samples. The jaw faces are spring loaded for effortless opening and closing of the grip.



Drum/Rubber Grips

Drum/Rubber Grips are uniquely designed to securely hold flat samples of rubber, plastics and general polymers.



Yarn, Rope, Wire & Cord Grips

Specifically designed for testing thin, flexible materials, these grips ensure a secure hold to maximize test result accuracy and repeatability.



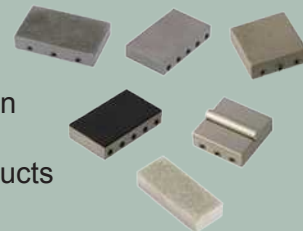
Pincer Grips

Ideal for small forces, pull off tests, tear test of components, adhesive bonds, plastic weldings (paper, plastics, rubber) etc. Chain mounting available for flexible positioning.



Insert Options for Grip Versatility

- Smooth** - standard with most grips, ideal for tissue
- Rubber Coated** - ideal for thin samples with higher friction
- Diamond** - ideal for hard materials like rigid plastic
- Line Contact** - ideal for plastic films and paper products
- Serrated** - ideal for higher capacity samples



If you don't see what you need here, contact Thwing-Albert for custom options (856) 767-1000

Popular Grip Solutions...

↘ Pneumatic Grips



TA94
200N



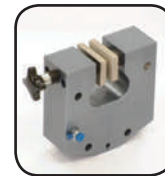
TA149
2.4kN



TA56g+Ko
2.6kN



TA108
3.5kN



TA83
7kN



TA232
16kN

↘ Mechanical Vise Grips



TA227
100N



TA56k
1kN



TA240k
1, 2.5kN



TA240g
5kN



TA56g
5kN



TA154
10kN

↘ Mechanical Wedge Grips



TAS7
2kN



TA256
5kN



TAS622
10kN



TA243
20kN

↘ Drum/Rubber Grips



TA7-1
1kN



TA7-10
10kN

↘ Pincer Grips



TAS205k
20N



TAS341
100N



TAS501
2kN



TA230
2kN



TA11
2, 5, 20, 50kN

↘ Yarn, Rope, Wire and Cord Grips



TAS-13k
200N



TAS13
2kN



TA76
1, 5, 20kN



TA170
50kN

↘ Grip Selection

Choosing the proper grip and grip faces is essential for accurate testing. Please contact us if you don't see what you are looking for within these categories. This is a sampling of what is available. We can manufacture custom grips for many applications.

Fixtures



Film Puncture
ASTM D4833



Puncture
ASTM D6241



Puncture
ASTM D751



Tissue Burst
TAPPI T570



Ball Burst
ASTM D6797



Compression Platens
50, 100, 150 mm



Foam Compression
ASTM D3574



Film Blocking Fixture
ASTM D3354



Coefficient of Friction



Finch Wet Strength Device



180° Peel



90° Peel



Loop Tack



Variable Angle Peel



3 Point Bend Fixture

Custom Fixture Examples

Thwing-Albert has designed many fixtures for custom applications and we would be glad to create one for you. Our grips are ideal for the Vantage Series and the QC-3A Universal Testing Machines and can be adapted to fit most universal materials testing machines.



Tissue Ply Strength



Blister Pack



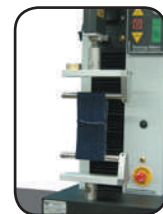
Tuft Bind



Pull Strength



Perforation Strength



Textile Bands

You have materials to test...we have the machines you need!

Adhesives & Coatings

Contact Angle/Surface Free Energy
Friction/Slip
Loop Tack
Tensile Bond Strength
Tensile-Shear Strength
90° & 180° Peel

Biomaterials & Medical

Bi-Directional Cycling
Catheters, Stents, Bandages, Sutures
Medical Device Testing
Medical Packaging
Syringe Insertion/Extraction

Foam, Rubber & Elastomers

Compression Cycling
Elastomer Elongation Testing
IFD/CFD Compression Testing

Food

Compression Testing
Food Texture
Puncture
Package Seal Testing

Packaging & Plastic Film

Burst Strength
Compression/Recovery
Finch Wet Testing
Friction/Slip
Opening Strength
Ply Adhesion
Ply Bond
Rigidity/Softness
Seal Strength
Tear Strength
Thickness

Graphic Arts & Printing

Ink Proofing
Ink Rub Testing
Ink Tack
Print Quality
Print Simulation

General Manufacturing

Building Materials
Mechanical Devices
Perforation Tear
Product Testing
Sand Core Strength
Springs
Wire

Paper & Paperboard

Burst
Cobb (Automatic & Manual)
Compression
Crush
Elmendorf Tear
Pulp Preparation
Score Bend/Opening Force
Surface Properties
Tensile Strength
Tear Strength
Z-Directional Testing (ZDT)

Section 2

Physical Testing Instruments



Adhesive Testing



Corrugated Testing



Packaging Testing



Paper Testing



Plastic Film Testing

FP-2260 Friction/Peel Tester



This coefficient of friction (COF)/peel tester can measure static and kinetic coefficient of friction, as well as run seal strength tests, 180° peel, 90° peel and T-peel tests. The FP-2260 also offers a tensile mode to perform lightweight tensile tests up to 10 kg (22 lbf). The small, bench-top design makes the FP-2260 lightweight, allowing it to be used in a laboratory or set up out on the production floor for offline testing as needed.



▲ Heated Platen Option
21°C to 204°C
(70°F to 350°F)

Applications ▼

Adhesives, Corrugated, Foil/Metals, Nonwovens, Packaging, Paper, Paperboard, Plastic Film, Rigid Plastic, Rubber/Foam, Tissue, Textiles

Coefficient of Friction Testing (COF)

The COF test mode can be configured to measure the static and kinetic coefficient of friction, as well as slide angle.

Adjustable crosshead and load cell make COF testing easy to adjust for multiple sample sizes and test setups.

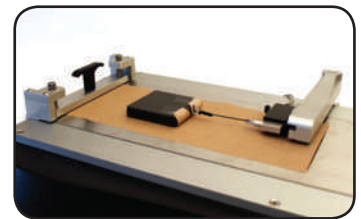
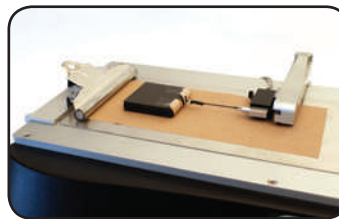
The FP-2260 features load cell recognition and can be powered by MAP4 Software allowing for extensive reporting capabilities.

The machine can be operated with the built-in multifunctional keypad.

Five languages are programmed into the machine: English, Spanish, French, German and Italian.

The FP-2260 is equipped with the spring clip clamp assembly for thick or thin sample materials. There is an optional clamp that is ideal for thin-sheeted materials.

Customize setups easily to meet your testing application needs and to modify industry standards.



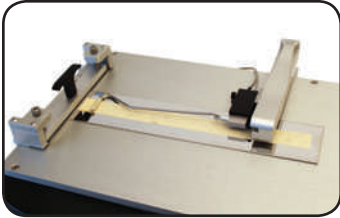
▲ COF Sleds ►





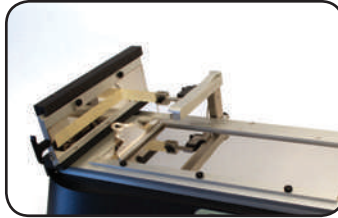
Peel Testing - 180°, 90°, T-Peel

The 180 degree peel arm is included with all FP-2260 instruments. If you wish to test additional adhesion properties, there are additional fixtures that can be added to the instrument.



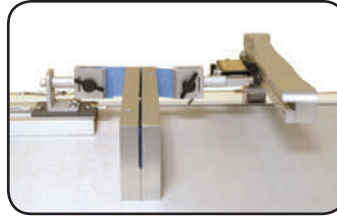
▲ 180° Peel (included)

Can be setup to prepare multiple samples to pull the adhesive at a 180° angle.



▲ 90° Peel

Slides as the clamp and load cell pull the adhesive, maintaining a 90° angle.



▲ T-Peel

When both materials are similar or flexible, this will pull in both directions with equal load

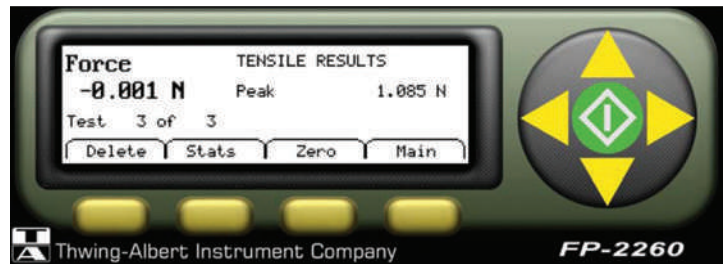


▲ Tray Peel Fixture

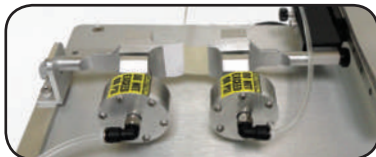
Measure the seal strength properties of rigid trays.

Tensile Testing

The FP-2260 can also be used to perform lightweight tensile tests up to 10 kg (22 lbf). Select from sample clamp options that are pneumatic or manual to run tests.



Tensile Grip Options



Air Clamps



Vise Clamps - 100N



Manual Clamps

MAP4 Software



Provides advanced data analysis with detailed user access. Includes a built-in script library for a variety of tests. No need for expensive add-on modules.

MAP4 LTE Software

Simplified MAP4 Software option is recommended for ease of use and basic data evaluation purposes.

See pages 10-11 for more details.

The FP-2260 Friction/Peel Tester can be set up with attachments that allow testing for a wide variety of standards. Sample tests include:

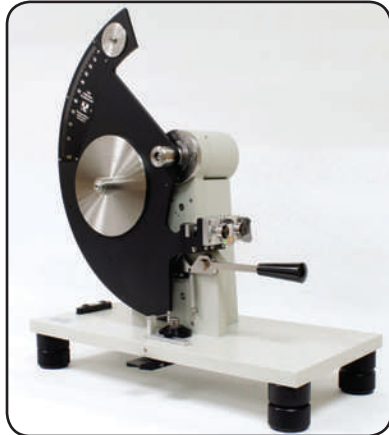
- ASTM D1894 (COF for Plastics)
- ASTM D4521 (COF for Corrugated/Fiberboard)
- ASTM D2534 (Coefficient of Kinetic Friction for Wax Coatings)
- ASTM D3330 (Peel Adhesion for Pressure Sensitive Tape 180°)
- ASTM F88 (Seal Strength for Flexible Barrier Material)
- AFERA: 4001 P11
- FINAT: FTM 1-6, 10, 11
- ISO 6383 (Tear Resistance of Plastic Films)
- ISO 8295 (COF for Plastics)
- PSTC: 101 (A, B, C, D, E, F), 4, 15, 55
- TAPPI T816 (COF for Corrugated and Paperboard)
- TAPPI T549 (COF for Uncoated Writing & Printing Paper)
- TLMI: L-IA1, L-IA2, L-IA3

Elmendorf ProTear - Tearing Tester

Original Manufacturer

With over 90 years of experience as the original manufacturer of the Elmendorf design, Thwing-Albert's ProTear is used as a worldwide standard for measuring the internal tear resistance of sheet materials. They are available in a wide range of capacities and are easily modified with augmenting weights.

Applications ↘
Building Materials, Corrugated, Foil/Metals, Nonwovens, Packaging, Paper, Paperboard, Plastic Film, Rubber/Foam, Tissue, Textiles



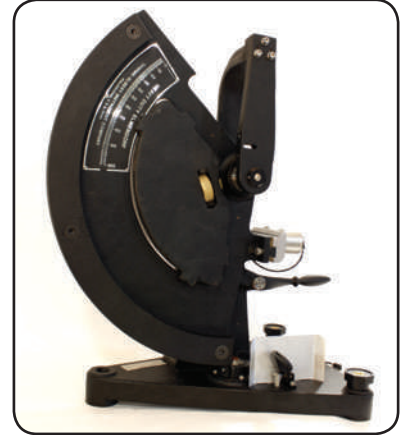
Mechanical ProTear

This tester is an economical alternative to the electronic version. This model offers the quick change pendulum configuration without an electronic readout. Test results are obtained by means of a pointer on a graduated scale from 0-100%. Capacity ranges from 400 to 6,400 grams.



Electronic ProTear

All test results and statistics are calculated automatically and displayed on the touch-screen panel. Compatible with MAP4 Software and a direct printer for reporting data. Capacity ranges from 200 to 12,800 grams.



Heavy-Duty ProTear

Ideal for measuring the tearing strength of textile materials and is available as an electronic or mechanical model. Extremely durable yet compact, this rugged instrument provides capacities of 6,400, 12,800, and 25,600 grams.

ASTM D751, D1424, D5734



The Elmendorf ProTear Tester can be configured to meet a variety of standards. Common industry standards include:

- ASTM D295, D752, D4247, D1424, D1922, D5734
- TAPPI T414, T496
- BS 2782, 4253, 4468
- CPPA D.9
- DIN 53862, 53128
- ISO 1974, 6383-2, 9290
- EN21974
- SCAN P11

Heavy-Duty ProTear Standards:
ASTM D751, D5734, ASTM D1424
ISO 13937-1

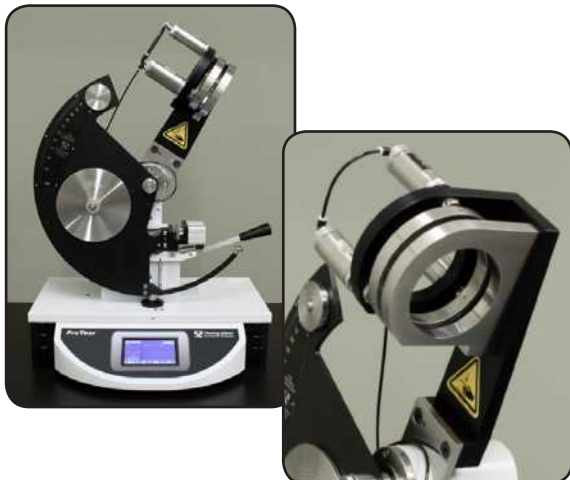
Spencer Impact Tester - ASTM D3420

The Spencer Impact Attachment is a modification to the standard ProTear Elmendorf Tearing Tester. The setup consists of a curved metal arm that is permanently attached to the pendulum and is fitted on the end with an interchangeable impact head that is available in various shapes and sizes. This allows different materials and tests to be performed with one machine. An O-ring Sample Clamp is mounted at the top of the clamp upright. The pendulum swings the impact head through the clamped specimen with sufficient force to puncture the sample and the energy used is recorded.

The Spencer Impact Attachment provides a convenient method for determining the impact resistance of plastic films and packaging materials. This test simulates conditions that closely approximate the strain rates that the material is subject to in end-use applications. Extremely consistent, the Spencer Impact Attachment provides one of the most repeatable methods of testing impact resistance of plastic film. The air-operated clamping assembly automates the clamping mechanism to ensure an even higher level of accuracy.

Specifications

- **Standard Impact Head:**
 - Radius:
0.5 inches (12.7 mm)
 - Diameter:
0.75 inches (19.0 mm)
- **O-Ring Clamp:**
Inside Diameter: 89 mm
- **Sample Size:**
5 x 5 inch square (127 mm x 127 mm)
or
5.25 inch diameter circle (133.35 mm diameter)



Features:

- Complies with ASTM D3420-94
- Air clamp assembly - min 60 PSI
- Capacities:
 - 200 gram (*Electronic ProTear Only)
 - 400 gram
 - 800 gram
 - 1600 gram
 - 3200 gram
 - 6400 gram

ProGage Thickness Tester

The ProGage Thickness Tester features a dual speed pressure foot which enables it to perform up to 20 test cycles per minute (depending on the setup) while maintaining a high degree of accuracy. The anvil design ensures excellent parallelism, as well as zero stability and calibration. A wide range of selectable presets for the measuring speed distance and the pressure foot speed, as well as pressure foot diameter and weight, enable the unit to be configured to meet a variety of specific international standards.



Measuring Ranges:

- 40 mil (1 mm)
- 100 mil (2.5 mm)
- 200 mil (5 mm)
- 500 mil (12.7 mm)

Applications ↘

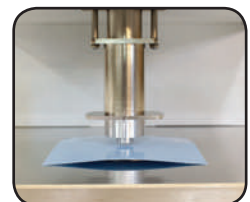
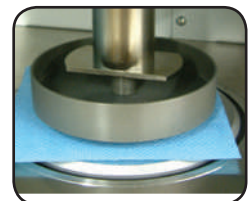
Adhesives, Corrugated, Foil/Metals, Nonwovens, Paper, Paperboard, Plastic Film, Rubber/Foam, Tissue, Textiles

Features:

- Auto push-button zero control
- Dual speed setting for test cycle increases samples measured per minute
- Rigid mechanical design ensures zero and parallel stability
- Stores up to 99 samples [average, high, low and standard deviation]
- Single or continuous cycling mode
- Push-button unit conversion [mils, microns, millimeters, inches]
- Adjustable travel height of pressure foot
- PC compatible, RS-232 port
- Standard Pressure Feet:
 - Paper Foot: 0.630" (16mm) Dia, 50 kPa
 - Film Foot: 0.190" (4.83mm) Dia, 62 kPa
 - Film Foot: 0.250" (6.35mm) Dia, 51.71 kPa
 - Tissue Foot: 2.0" (50.8mm) Dia, 1.52 kPa
 - Nonwoven Foot: 2.221" (56.4mm) Dia, 0.5 kPa
 - Custom feet to meet a variety of sizes and weights



Pressure Feet Examples



Common Industry Standards: ASTM D374, D1777, D645, D6988, TAPPI T411, BS3983, BS4817, EN20534, ISO 534, ISO 3034, ISO 4593, ISO 12625-3, DIN 53105, 53353, EDANA 30.4-89

Selecting the right instrument to measure thickness of compressible materials?

Accurate thickness measurements are critical to product quality in many manufacturing applications such as paper, plastic film, nonwovens and textiles. Testing can optimize the raw materials for production and ultimately reduce costs.

Working with compressible materials, a contacting method can be used to determine the thickness of a material. This type of method can characterize the thickness of a material when subjected to a compressive force over a given area. However, based on the material tested, there are critical parameters that need to be controlled to ensure accurate measurements. Often times with “snap”-type and manual gages, the amount of pressure exerted can be directly influenced by the operator. Automatic, motorized instruments eliminate this user bias.

Which micrometer is right for me? Consider these parameters when making your decision to help control these factors while eliminating significant operator bias:

Accuracy: Compare the stated accuracy with the testing methods you will be meeting. Will the instrument meet the needed tolerances? This will be important to determine changes in thickness between specimens.

Pressure Foot Diameter: Is the foot the right diameter? For compressible materials, a larger diameter is recommended to disperse the load over an area for more uniform pressure.

Pressure: The amount of pressure applied can significantly change the measured thickness of a material so it must be controlled.

Contact Speed: The rate in which the pressure foot contacts the material needs to be controlled. A higher contact rate can result in lower thickness values.

Dwell Time: Controlling the dwell time is important as the longer a pressure foot remains in contact with materials, such as tissue paper, nonwovens and high loft materials, can result in lower thickness measurements.

Parallelism: The contacting pressure foot and anvil should be sufficient to eliminate any bias due to the edge of the pressure foot making contact with the specimen as opposed to the entire pressure foot. Complete contact of the specimen with the pressure foot needs to be maintained to ensure accurate measurements.

While “snap”-type and manual micrometers may appear to be a viable method for thickness measurements, they often fall short due to the lack of control over critical parameters resulting in poor product quality, inefficient raw material use and product rejects. Automated micrometers eliminate operator influences and ensure accurate, repeatable test results.

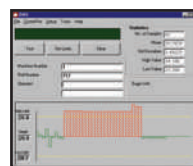
Sample Feeder Option



An automatic strip feeder is available for cross-reel profiling and roll or strip feeding of samples up to 7 inches (177.8 mm) wide.

The distance the sample is fed between tests can be set from 0.1 to 19.9 inches (2.5 to 505 mm). The feeder rate is 3.33 inches/sec (84.6 mm/sec).

DAS - Data Acquisition Software



Windows® based optional software package provides the ability to collect data and perform additional statistical analysis. DAS can plot results in real-time against defined limits, generate semi-custom reports and export test data to other spreadsheet packages for further management.

1270 PCA Score Bend Tester



The 1270 PCA Score Bend Tester measures the force to open or bend paperboard and scored paper carton. Force data is vital for accurately configuring machinery that controls cartons on form, fill and seal lines and to analyze carton performance for runnability and quality control.

Opening Force (Included Standard)

Measures the maximum force required to open a flat, folded carton along score lines.

Bending Force (Optional Fixture)

An optional bending fixture measures the maximum force to bend a carton sample up to 90°. Measure bending stiffness, score ratio of scored vs. unscored paperboard and carton fold springback force.

Coefficient of Friction (Optional Fixture)

The 1270 PCA includes necessary software to measure static and kinetic coefficient of friction. The optional COF Fixture allows the 1270 PCA Score Bend to meet additional standards.

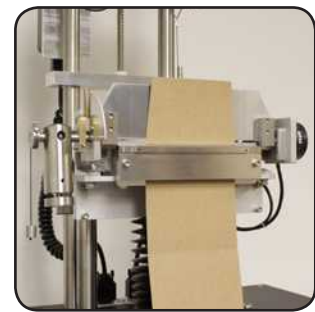
Applications ↘

Corrugated, Packaging, Paper, Paperboard

Features:

- Built-in Software Includes:
 - Opening Force
 - Bending Force
 - Coefficient of Friction (COF)
- Statistics reported include: average, high, low and standard deviation
- Spring back of fold test
- Score ratio test mode of scored vs. unscored paperboard
- Test result and curve data for PC interface
- Auto-zero
- Semi-automatic calibration
- Automatic return w/ overload protection
- RS-232 interface
- Optional WinWedge data acquisition software

Common Industry Standard:
TAPPI T577 Score Bend Test



▲ Bending Force Fixture



▲ Opening Force Fixture



▲ COF Fixture

Gurley™ 4171 Bending Stiffness Tester



The 4171 tester measures the force required to bend a variety of materials under controlled and repeatable conditions. This force may be equated to stiffness, resilience, flexibility or pliability depending on the nature of the materials and purpose of the test. This digital bending resistance/stiffness tester can be equipped with a parallel clamp and tubing clamp and connects to a computer via RS-232.

Flat Sheet Models:

- **Model 4171D**

Digital Bending Resistance/Stiffness Tester with parallel clamp.

- **Model 4171E**

Same as 4171D with RS-232 serial communications port and parallel clamp.

Flat sheet models meet industry standards TAPPI T543 & ASTM D6125

Tubing Models:

- **Model 4171DT**

Digital Bending Resistance/Stiffness Tester with parallel clamp and tubing clamp assemblies

- **Model 4171ET**

Same as 4171DT with RS-232 communications port, parallel and tubing clamp assemblies.

Applications ↘

Paper, Paperboard, Corrugated, Textiles, Nonwovens, Film, Tubing

BT-21 Burst Strength Tester



The BT-21 determines the bursting strength of paper, board and corrugated board. Two models are available to work with both light and heavy-weight materials. The BT-21 features steel frame body, strain gauge pressure transducer, pneumatic clamping system for the sample, built-in hydraulic system for the diaphragm, quick connector for calibration, built-in electronics and exclusive testing software.

Two Options Available:

- **BT-21P (70 to 1300 kPa)**

Ideal for testing paper and lightweight materials

430 kPa clamping pressure

Applicable standards: ISO 2758, TAPPI T403

- **BT-21C (from 350 to 5500 kPa)**

Ideal for testing paperboard, corrugated board, and heavy-weight materials

690 kPa clamping pressure

Applicable standards: ISO 2759, TAPPI T807, TAPPI T810

Applications ↘

Paper, Paperboard, Corrugated, Textiles, Nonwovens, Plastic Film

Dart Drop Impact Tester

The Dart Drop Impact Tester is an easy-to-use, ergonomically designed instrument used to measure the impact resistance of plastic film, coated paper and other materials utilizing the free falling dart method.

How it Works

A pneumatic sample clamp is used to secure the specimen in place for ease of operation and operator safety. The operator needs to simultaneously activate dual switches mounted on either side of the instrument to engage the clamp and initiate the free falling dart.

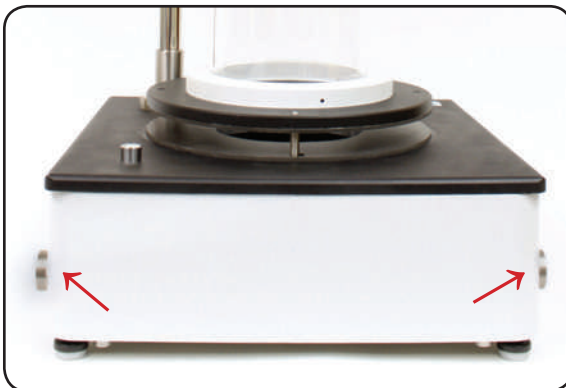
The final phase of the test is completed with an automatic dart release. A two second delay is in place for the safety of the operator. Once the switches have been pressed, the dart will release automatically.



▲ Dart Weights with Standard Dart Head

Applications ↘

Corrugated, Foil/Metals, Nonwovens, Paper, Paperboard, Plastic Film, Rigid Plastic, Rubber/Foam, Tissue, Textiles



▲ Dual Switches for Safety

Features:

- Ergonomic tabletop design
- Pneumatic dart release
- Wide range of incremental weights
- Weight set included
- Cushioned dart landing area

Common Industry Standards:

- ASTM D1709 Method A
- ASTM D1709 Method B
- ISO 7765-1

Handle-O-Meter

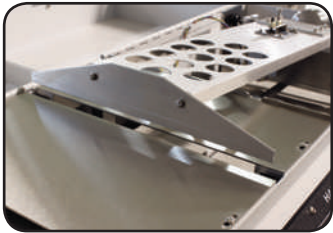


The Handle-O-Meter measures “handle” which is the combined effects of flexibility and surface friction of sheeted materials.

This instrument measures the resistance encountered when a penetrator beam forces the sample between the adjustable opening. The data generated has been shown to correlate well with the behavior of the material in production processes, as well as finished product performance.

Applications ▼

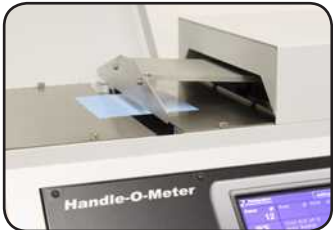
Nonwovens, Plastic Film, Tissues, Towelling, Textiles



▲ 100 gram beam



▲ Standard Plates



▲ 1000 gram beam



▲ Teflon Coated Plates

Common Industry Standards:

- ASTM D2923
Rigidity of polyolefin film and sheeting
- ASTM D6828
Stiffness of fabric by the blade/slot procedure
- TAPPI T498
Softness of sanitary tissue
- INDA IST 90.3
Stiffness of nonwovens and wovens
- NWSP 090.3.R0 (15)
Stiffness of nonwoven fabrics

Features:

- Touch screen controls
- Adjustable slot opening
- Interchangeable beams:
0-100 g
0-1000 g
- One-touch zero
- Enhanced statistical analysis with MAP4 Software
- USB and serial port connections
- Teflon coated plates for testing plastic film to reduce friction

MAP4 Software



Provides advanced data analysis with details user access. Includes a built-in script library for a variety of tests. No need for expensive add-on modules.

Automatically capture test results and statistics for softness/handle of materials.

See pages 10-11 for more details.

WinWedge® Software Connection for Data Analysis

WinWedge 32 Pro software provides a simple data collection solution for many Thwing-Albert Instruments including:

- QC-3A
- ProTear
- ProGage
- Friction/Peel Tester
- Handle-O-Meter
- 1270 PCA Score Bend/Opening Force

WinWedge captures serial data, customizes it to meet your needs, then transfers the data to any Windows or DOS application. Data transfer is accomplished by sending keystrokes to the application's window or by passing the data through Dynamic Data Exchange (DDE) conversions.

Add Data Acquisition to Windows Applications.

WinWedge provides a seamless interface between any Windows application (Excel, Access, LIMS and MMIs) and test data.

Quick Set-Up.

A menu-driven user interface lets you quickly customize WinWedge to individual requirements and collects real-time data. Utilizing any serial port (RS232, RS422 or RS485), it even collects data from multiple ports simultaneously.

Instrument Control.

WinWedge transmits prompts or commands from the serial port to control or query your instruments.

Diagnose Serial Communication Problems.

WinWedge quickly diagnoses and corrects serial communication problems with a powerful "analyze" feature.



ProGage



Friction/Peel Tester



ProTear

Features:

- Connect RS-232 Instruments to PC
- Up to 100 Comports Simultaneously
- Pre-Input Character Translation
- Data Filtering Capabilities
- Data Parsing Capabilities
- Data Transfer as Keystroke
- Data Transfer by DDE
- Serial Data Analyzer
- Math Expressions



PCA Score Bend Tester



QC-3A



Handle-O-Meter

Section 3

Sample Preparation Tools



JDC Precision Cutters



Alfa Sample Cutters & Dies



Other Cutters



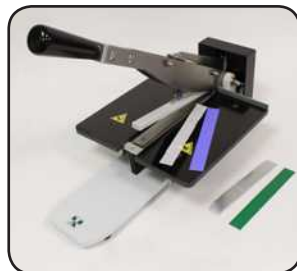
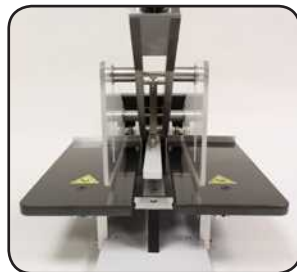
Heat Sealers

JDC Precision Sample Cutter

The JDC has become the accepted standard chosen by many corporations worldwide for preparing samples of paper, paperboard, metal foils, nonwovens, films, tissue and a variety of other materials. Lightweight and portable, the JDC features a 20" base length for added leverage and stability along with operator safety.

The JDC cuts test strips to an exact width and parallel throughout their entire length. The positive cutting action of the dual blades and precision ground base shear cut both sides of the sample at once, assuring you of a clean, accurate cut every time.

The cutting blades are made of special tool steel which is stress relieved by cycling between cold and hot temperatures to prevent the blades from warping.



Features:

- Dual blade cutting action
- Standard Lengths Available:
10", 12", 16"
- Standard Widths Available:
.25", 1", 2", 15 mm, 25 mm
- 1/8" to 3" wide custom cutters available
- **Popular Models:**
.5" x 10"
15 mm x 254 mm
1" x 10"
25 mm x 254 mm
2" x 10"
3" x 10"
1" x 12"
3" x 12"
1" x 16"
- Complies with tolerance requirements for ASTM F88, ASTM D882, ASTM E345 and many other standards requiring precise samples.

Optional Cutter Accessories (additional cost):



Platform Kit
(Part # 99-3011)



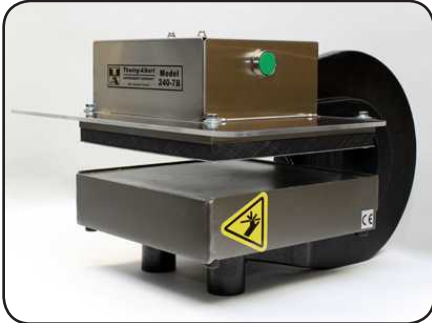
Safety Shield Kit
(Part # 99-3012)

Reconditioning Service - The JDC cutter is designed to last for many years, a reconditioning service is available that provides the capabilities of a brand new cutter for half the cost. Reconditioning includes regrounding the cutting blades and providing a new base shear.

► Contact service@thwingalbert.com for additional information. ◀

Alfa Laboratory Sample Cutters & Dies

Alfa cutters utilize interchangeable steel rule dies. A large selection of dies are available for all of your testing requirements. Dies can be configured to prepare any number and shape of test samples up to the maximum cutting area of the Alfa unit. The standard die is steel-ruled and mounted on a hard wood board. Steel-forged dies are also available for improved accuracy and durability. (Dies must be ordered separately).



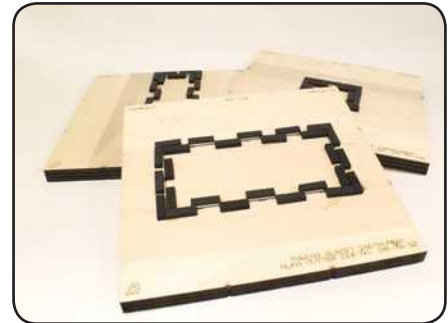
**Model 240-7B
Pneumatic Unit**

Air operated, this cutter quickly prepares test samples of tissue paper, plastics, fabrics, rubber, heavy papers, cardboard and foils. The 240-7B delivers 7 tons of cutting pressure at the touch of a button. The design of the 240-7B allows for the easy loading of dies, with a maximum sample size of 10" x 10".



**Model 240-15B
Pneumatic Unit**

Air operated, this cutter quickly prepares test samples of plastics, rubber, fabrics, gaskets, leather, paper stocks, etc. The 240-15B delivers 15 tons of cutting pressure at the touch of a button. The design of the 240-15B allows for the easy loading of dies, with a maximum sample size of 10" x 22".



Alfa dies are available for many configurations to meet a variety of standards for sample preparation and are available with or without welded corners.

- Geometric Samples (i.e. square or rectangle)
- Circular Samples
- Dog Bone or Dumbbell
- Custom Configurations (i.e. multiple samples)



**Model 240-10
Electro-Hydraulic Unit**

Capable of exerting 1000 PSI from the electro-hydraulic system. The 240-10 Alfa Cutter is ideal for preparing samples of heavier sheeted materials. Dual test buttons are spaced to ensure maximum operator safety. The maximum sample size is 12" x 12".

Optional Accessories:

Heavy Duty Stand

This stand and table top surface line up perfectly with the cutting deck which allows users to slide the material in and out of the cutter with ease.

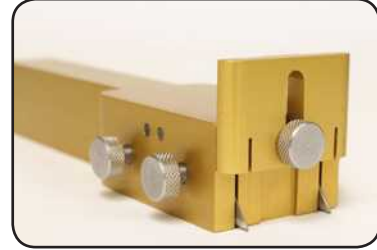
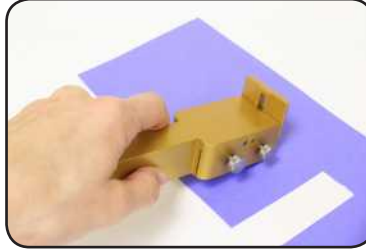
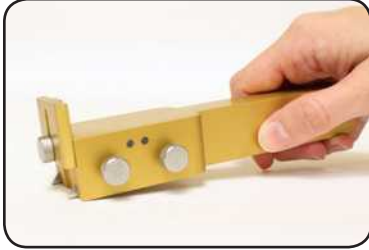


Steel Die Wear Plate

Ideal for thin materials, such as plastic film, tissue and thin papers to protect and extend the life of the upper platen.

MTT Strip Cutter

This manual strip cutter quickly prepares samples 1 inch (25.4 mm) wide for measuring material tensile or seal strength. Its sturdy mechanical design ensures the preparation of accurate test samples, critical for ensuring the integrity of your test data. It is equipped with a safety locking system that shields the blades while not being used to prepare samples.



Elmendorf Tear Sample Cutters

The samples for an Elmendorf tear test are 63 mm in length and at least 76 mm wide. Shown in the image to the right, the standard shapes include a rectangular sample, the textile sample, and a constant radius sample. Each sample shape is used for a specific material based on industry standards and the materials properties.

98-2000

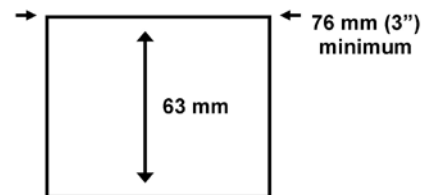
7.6 cm x 32 cm x 22 cm (3 in. x 12.5 in. x 8.5 in.)

The Elmendorf Precision Sample Cutter quickly prepares uniform samples for Elmendorf tear testing. Dual blade cutting action ensures tight control over sample preparation.

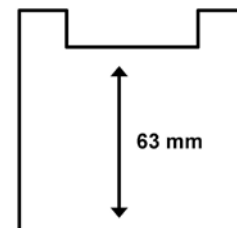
60-3004

Constant Radius Sample Template for plastic films in accordance to ASTM D1922. This template is used with a handheld blade to create samples.

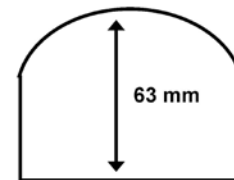
Alfa Dies can also be designed for use with the Alfa Cutter for quick and accurate cutting.



Rectangular Sample



Textile Sample



Constant Radius Sample



98-2000
Rectangular Samples



60-3004
Constant Radius Samples

Circular Sample Cutters

This Circular Sample Cutter quickly prepares samples used for determining basis weight of sheet materials including paper, textiles, and plastic films. Each cutter comes with a cutting mat and one set of replacement blades.



175B - 100 cm²



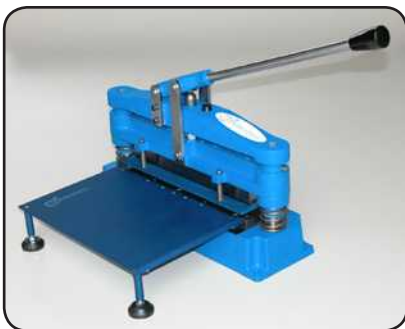
PS10 - 10 cm²

- Model 175B = 100 cm²
- Model PS50 = 50 cm²
- Model PS10 = 10 cm²

CAP-21 Corrugated Sample Cutter

Model CAP-21 is a pneumatic sample cutter used to prepare samples of corrugated board. The pneumatic drive system and sturdy, precise mechanical construction ensures rapid and accurate sample preparation. The cutter includes a template for cutting a corrugated strip, tools and a set of 10 spare cutting blades.

- Max width - 160 mm
- Standard cutting heights - 25, 32, 50, 60 and 63 mm
- Maximum cutting thickness - 12 mm



2G-15 Sample Cutter

The 2G-15 is used to prepare test samples with exact dimensions for several industry test standards for the physical properties of paper and board. This equipment is manually driven and has a reliable operation due to its rugged and accurate construction.

TA12-AS/1 & TA12-ASL/1 Heat Sealers

Precision Heat Sealers on an open-back frame featuring a digital timer and temperature controller, surface mounted thermocouple, dual action cylinders and electronic timer activation. The open-back frame allows for both front-to-back and lateral pass-thru capabilities.

- **AS/1** includes one flat 1" upper sealing die
- **ASL/1** includes one set of 1" upper and lower sealing dies

Standard available flat surface die widths:
1/8", 1/4", 3/8", 1/2", and 1"

Optional Serrated Dies Available:

- Coarse or Fine Serrations (20 serrations/inch)
- Crosswise (perpendicular to 12" length)
- Lengthwise (parallel to 12" length)

12" Models: TA12-AS/1 or TA12-ASL/1

24" Models: TA24-AS/1 or TA24-ASL/1



▲ TA12-AS/1



▲ TA12-ASL/1

TA4-GL/1 & TA24-ASG/1 Multi-Zone Heat Sealers



▲ TA4-GL/1

The TA4-GL/1 Heat Sealer is a 4-zone gradient hot bar heat sealer. Four temperature zones run along the length of the upper and lower heated jaws. Each of the

eight zones are independently controlled via eight separate digital temperature controllers. One foot switch to activate the cycle start is included with the TA4-GL/1 Heat Sealer.



▲ TA24-ASG/1

The TA24-ASG/1 is a 24" Heat Sealer that features eight temperature zones along the length of the upper heated jaw. Each of the eight zones can be independently controlled via

separate temperature controllers. The zones are 2 7/8" x 1" and there is 1/8" between each zone to minimize the effects of heat transfer from adjacent zones.

Pass Thru Heat Sealers



▲ TA12-P/2

The Pass-Thru Heat Sealers allows for both front-to-back and lateral pass-thru capabilities. The cycle is activated with a locking foot switch circuit. Safety features include zero access guarding and an e-stop circuit.

Impulse Bar Heat Sealer



▲ TA12-IH/2

This Laboratory Impulse Bar Heat Sealer features an upper heated die with dual action cylinders. The sealer also offers electronic timer activation, digital heating & cooling timers, a digital pressure meter and a digital temperature controller.

Available in 12" and 24" wide models.

Available in 12" and 24" wide models.

Section 4

Surface/Optical Testing Instruments



Air Permeability Testing



Water Vapor Testing



Opacity

Gurley 4340™ Automatic Densometer & Smoothness Tester



The Model 4340 Automatic Densometer & Smoothness Tester measures the porosity, air-permeability or air resistance of sheet-like materials. Densometers are the accepted instruments for measuring porosity, air-permeability or air resistance of sheet-like materials.

The 4340 combines the ability of a low, standard and high pressure densometer and smoothness tester and provides a reading in seconds. An auto-drive mechanism enables the user to program the number of tests and the span they are tested over.

- Porosity and smoothness of paper, textiles, paperboard, films, membranes, filter media, packaging, perforated metals and others.
- Quality control - Air permeability can be a direct representation of the uniformity of material.

Applications ↘
Filter Media, Plastic Film,
Paper, Paperboard

- Analyze effects of treatments such as coatings, sizing agents, inks, resins or other additives
- Porosity and smoothness tests
- Automatic and manual test modes
- ASTM D726, TAPPI T460, T536, T490, ISO 5636/5

Gurley Standard & Low Pressure Densometers



Densometers are the accepted standard for measuring the porosity of materials such as papers, wovens, plastics and membranes.

All Densometers measure the time required for a given volume and of air (25cc to 400cc) to flow through a standard area of material being tested under light uniform pressure. Certain models, such as the S-P-S Tester, are also used to measure surface smoothness and material softness.

Conforms to TAPPI T-460, ASTM D-726-58 & APPITA/AS 1301-420, BS 5926, CPPA D-14, ISO 5636/5, D-202-77, SCAN P-19 & P-53.

Gurley High Pressure Manual Densometers

High Pressure Densometers are the accepted standard for measuring the porosity, air-permeability or air-resistance of materials having low permeability.

Typical materials include coated papers, plastics and membranes. High Pressure units are recommended whenever a standard unit would yield excessive measurement times.

Applications ↘
Paper, Plastics,
Wovens, Textiles

Conforms to TAPPI T536-88 & ASTM D726-58, Method B.
Manual and automatic units available.



Gurley 4301 Permeometer



The Gurley Model 4301 Permeometer measures the porosity or air permeability of materials where air flow is an important characteristic relative to their use. These materials might be nonwoven or woven textiles, filter and tissue papers, facial tissues, paper and cloth felts, some types of blotting, saturating and absorbent bag papers as well as wire meshes.

Conforms to ASTM D737 and TAPPI T251

Applications ▼

Nonwovens, Textiles, Tissue

AKUSTRON Air Permeability



Measures the air permeability of filter papers, nonwovens and textile fabrics within seconds. Easily transportable, this unit is ideal for monitoring material on the production line, inspecting incoming material on-site and on-going quality control in the lab. Constructed of the most rugged materials, the AKUSTRON withstands the demands of constant usage.

The ease of operation ensures highly repeatable results and studies have proven that the results correlate accurately with DIN 53 887, DIN 53 120, ISO9237 and ASTM D 737-96.

- Hand lever, automated testing
- Brass reference plates for accuracy verification
- RS-232 PC interface (optional)

Applications ▼

Filter Paper, Nonwovens, Textiles

2100 Opacimeter



The Model 2100 measures the opacity of plastic, paper and glass products. It exceeds the instrument specifications of TAPPI T425.

This instrument also offers better resolution for high opacity paper by using direct illumination geometry backed by a high reflectivity, diffuse white body compared to diffuse illumination backed by a pad of paper.

- Electronic calibration
- Statistical analysis package
- Alumina Opacity Standards for system verification
- Meets TAPPI T425 for Opacity of Paper

Applications ▼

Plastic Film, Paper, Glass Products

HTM-1 Optical Transmission Meter

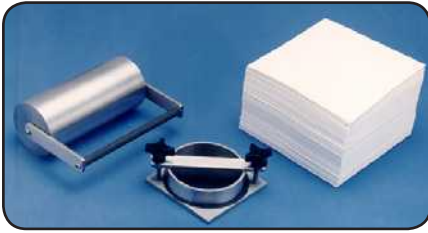


The HTM-1 is a fast, simple and economical tester for measuring the opacity of plastic, paper and glass products. The percent of light transmission through the sample is automatically shown on the display.

Applications ▼

Plastic Film, Paper, Glass Products

Gurley™ Manual Cobb Sizing Tester



The Cobb Sizing Tester provides a simple and economical way to determine the liquid absorptiveness or resilience of sheet materials. It can be used with a variety of liquids including water, oil and ink.

10, 25 and 100 sq cm. cylinders are available.

Applications ↘
Treated & Untreated
Paper, Cardboard, Fabrics

Order individual parts or kits that include:

- (1) Cobb Testing Apparatus
- (1) 10 kg Roller
- (1) Pack of Blotting Paper

Meets industry standards including:
TAPPI T205, TAPPI T441, EN 20535, IOS 535

EZ-Cup Vapometer

The Vapometer is used for determining the water vapor permeability of sheet materials such as specialty paper grades, polyethylene, building material, leather, weatherproof clothing, vinyl, foil, laminates and other thin sheet-materials. This property is essential in determining if a material is moisture proof or has the ability to protect contents from the transmission of water vapor.

The Vapometer Cup consists of a light-weight aluminum cup and an aluminum threaded flanged ring with two neoprene gaskets and a Teflon seal that holds the specimen in place. This design was specifically created to eliminate edge leakage and to provide fast, secure sealing of the specimen between the gaskets. Specimens are easily loaded and sealed in place by twisting the threaded upper aluminum flange in place. No more individual screws to tighten!



Industry Standards Include: ASTM E96, TAPPI T464, TAPPI T448, SAE J2655

Applications ↘
Specialty Paper Grades,
Polyethylene, Vinyl, Foil,
Laminates, Auto Industry



SAE J2655
Vapometer
Model
68-3014

1314 Internal Bond Tester (Scott Type)



The 1314 Internal Bond Tester utilizes the Scott Method to produce a high speed Z-Directional rupture of paper and paperboard. It is a dynamic test that measures and defines strength in terms of energy absorption. The Internal Bond Tester is ideal for monitoring the effects of dry strength additives and to evaluate stock preparation and refining.

- Magnetic pendulum release for positive positioning and repeatable drops
- Side knife-guides for easier and accurate sample preparation
- Meets TAPPI T569 Internal Bond Test

Applications ▾
Paper, Paperboard

7500 Basis Weight Scale

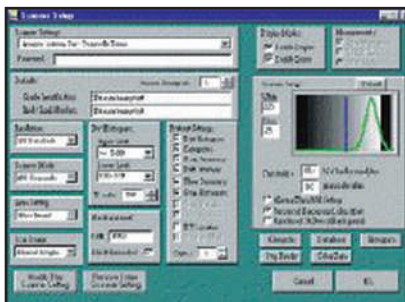


This basis weight scale provides the ability to preform paper ream calculations with speed and accuracy. The Model 7500 is ideal for paper or textile manufacturing, quality control and publishing/printing applications.

- Available Platforms:
8" x 8" or 12" x 14"
- Weight displayed in pounds or grams
- 480, 500, or 1000 sheet ream
- Optional battery/AC power for portability

Applications ▾
Paper, Textiles

Spec*Scan Image Analyzer Software



Spec*Scan software is used to measure and analyze impurities in pulp, paper and paperboard, utilizing images from a desktop scanner and advanced image analysis technology. Spec*Scan quickly counts, measures and sorts dirt specks, shives and stickies. It has user-friendly setup options that support many scanner configurations, threshold settings, print output and operational modes.

- ▲ One set-up screen with all image analysis & measurement parameters displayed.

Applications ▾
Paper, Paperboard, Pulp

Consistency is the Key

When you are testing materials to meet industry standards, accurate and repeatable test results are crucial.

So how do you maintain consistency? There are a variety of variables that can play a roll in accuracy including:

- Test Setup
- Test Procedure
- Environmental Conditions

These factors can all impact the physical properties of the material. The test setup should ensure that the appropriate gauge length, test speed, type of grips and results selected are the same. Ensure that the specimen is inserted in the grips correctly and clamped securely. Control, if possible, the environmental conditions (i.e. temperature and humidity) to standard laboratory conditions or record the actual conditions when a test is performed. Variations in testing can result in poor data and data correlation issues.

Section 5

Paper and Pulp Testing Instruments



Sheet Molds



Drying Machines



Pulp Testing

Formax Sheet Molds



Provides a standardized method to produce round handsheets which enables the measurement of the optical and physical properties of a given pulp. Ensure rapid and high quality formation of handsheets.

The unit is constructed of stainless steel for durable, maintenance-free operation. Individual forming wires are clamped by the deckle box, allowing rapid exchange and easy handling of the wet sheet for couching, pressing and drying.

- Formax C-100 (8" x 8")
- Formax G-100 (12" x 12")
- Complies with TAPPI T205

Formax Semi-Automatic Sheet Former



The Semi-Automatic Sheet Former and drainage system produces handsheets rapidly and consistently. The bench top control module regulates deckle filling, agitation, settling and drainage. The hand sheet

is automatically couched to reduce operator fatigue and increase sheet consistency.

Industry Standards:
TAPPI T205 & T219, ISO 5269/1,
CPPA C.4 & C.5

Formax Sheet Dryer (S-100)



The S-100 laboratory sheet dryer is designed for drying hand sheets from all sheet molds. The sheet dryer utilizes new heating element technology to provide a uniform surface temperature for rapid and consistent drying. The sheet dryer also has over-temperature protection.

Standard Sheet Mold (M-100)



The standard sheet mold provides a standard method for producing round handsheets which enables the measurement of the optical and physical properties of a given pulp.

Industry Standard:
TAPPI T205

Automatic Sheet Former



The SF-RK is an automatic sheet former used for the production of laboratory sheets in accordance to the Rapid Köthen method for measurement of the physical and/or optical properties of pulps.

Industry Standards:
ISO 5269/2 & ISO 5269/3

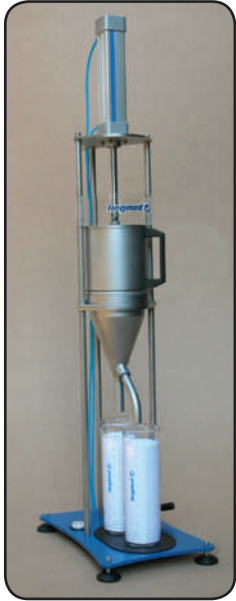
Drum Dryer (E-100)



The Drum Dryer is designed for drying handsheets in larger quantities with precise temperature control. It can accommodate a

wide range of handsheet dimensions up to 12" x 12" (300 x 300mm). Safe operation is ensured with the use of air heaters and no water or steam is used.

Schopper Riegler Freeness Tester



The SR/P is used for the determination of drainability of pulp suspension in water. The drainability is the measurable index of the refining degree of pulps. The refining of pulps is one of the most important stages in the paper production process and influences strongly the sheet forming and its physical properties. Applicable to all kinds of pulp in aqueous suspension.

- Speed of sealing cone: (100 ±10) mm/s
- Calibrated bottom orifice: (149.0 ±1.0) s for 1 L of H₂O
- Drainage chamber volume: 1000 mL
- Drainage area: 100 cm²
- Pneumatic drive: 2.0 kgf/cm²
- Measuring scales: (0-100) °SR
- Resolution: 1°SR
- Complies to ISO 5267/1

Canadian Freeness Tester



The CF-21 Canadian Freeness is used to determine the drainability of pulp suspensions. The drainability is the measurable index of the efficiency of refining process.

The refining of pulps is one of the most important stages in the paper production process and because it consumes much energy and influences

strongly the sheet forming and its physical properties.

- Calibrated bottom orifice: (74,7 ± 0,7) s for 1 L of H₂O
- Drainage chamber volume: 1000 mL
- Drainage area: 2 81 cm²
- Dimensions (W x L x H): 350 x 500 x 900 mm
- Industry Standards: TAPPI T-227
ISO 5267/2
SCAN C21/65

Laboratory Pulper (H-100)



A clean, compact design with an efficient, portable, trouble-free and inexpensive operation. This unit is considered an indispensable research and production control tool

in the well equipped laboratory. Useful for evaluating secondary fiber and predicting production pulping results.

Laboratory Digester (AU-E)



The laboratory digester AU-E/20 is used for chemical, semi-chemical, thermal and bleaching pulping studies in the pulp and paper industries.

20L or 27L options

Industry Standards:
ISO 5263-1, ISO 5263-2, TAPPI T205

DSG-21 Pulp Disintegrator



The DSG is vital for laboratory wet disintegration of pulp and the correct preparation of pulp and pulp suspensions. It eases the disintegration time by up to 87% compared to standard models.

This preparation is a key point for the determination of refining efficiency according to the Schopper-Riegler and Canadian Freeness methods, and for the preparation of laboratory sheets for physical testing according to the Conventional and Rapid-Köthen methods.



- Stainless steel construction
- Container with spiral baffles: 3.4 L total volume
- Rotational frequency of the propeller: 2900 rpm
- Digital controller for the number of rotations programmable up to 999.999 rotations with automatic shut-off at end of test.
- Bascule system to access the container

Industry Standards:
ISO 5263-1, ISO 5263-2, TAPPI T205

Pulp Disintegrator (T-100)



Built to TAPPI T205 and ISO 5263 specifications, the T-100 Pulp Disintegrator is used for the wet disintegration of pulp samples. The Disintegrator separates the fibers of most pulps, including recycled fibers, without appreciably changing their structural properties.

- Stainless steel construction
- Digital counter with two present values
- Dual safety interlock ensures safe operation
- Clear polycarbonate splash cover allows stock visualization
- Plastic CPVC disintegrator pot
- Motor is 1/3 HP with gear belt & pulley drive
- Power input:
110 V, single phase, 50/60 Hz 7.0 peak amperage
- Dimensions (W x L x H):
11 in x 22 in x 17 in (279.4 x 558.8 x 431.8 mm)
- Weight: 85 lb (39 kg)

Industry Standards:
ISO 5263-1, ISO 5263-2, TAPPI T205

Section 6

Graphic Arts Testing Instruments



Ink Testing



Color Proofing Kits



Ink Rub Testing

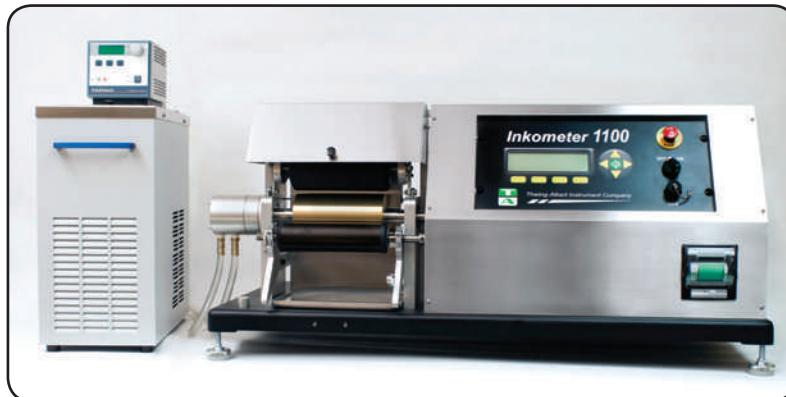
Inkometer 1100

The Inkometer 1100 measures the apparent tack of printing ink under conditions closely approximating the dynamic conditions of the ink-distribution system of a printing press. The testing instrument provides the highest accuracy and efficiency for research and development, quality control and process evaluation to verify, test and improve quality.

The instrument measures the integrated forces involved in ink film splitting and the effects of roller speed, film thickness, temperature and solvent evaporation.



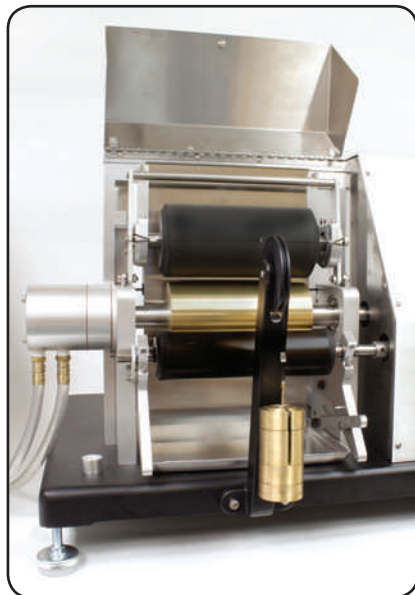
The Inkometer 1100 consists of three rollers. The center roller is a temperature controlled brass roller. The bottom roller is an oscillating rubber composition distribution roller. The top roller is a rubber composition roller attached to the measuring system which measures tack. Rollers are available for testing standard and UV inks. The brass roller temperature is controlled by circulating a coolant mixture provided by a Constant Temperature Circulator (CTC).



▲ CTC (constant Temperature Control) shown to left

Applications ▾
Ink/Graphic Arts

Common Industry Standard:
ASTM D4361



▲ Calibration Weights

Features:

- Reliable data about ink tack
- Digital keypad with simplified setup menus
- 4 Preset methods based on ASTM D4361
- Create and save 5 custom test methods
- Store up to 180 tack readings
- Preset & programmable speed options
- Built-in printer for instant results
- Portable data via USB port
- Calibration weights included
- Emergency stop button

QuickPeek® Color Proofing Kit



Applications ▼
Ink/Graphic Arts

The QuickPeek® color proofing kit provides a fast, inexpensive method for making an accurate color proof for whatever purpose the printer or ink maker may need. Provide an inexpensive fool proof method of checking ink color and strength for the ink maker and printer.

- Eliminate press downtime
- Ensure correct color and trapping
- Prevent offset and sticking
- Accurately indicate quantity of ink required
- Eliminate the need for work off inks
- Provide quick, inexpensive, accurate proofs of ink on colored stock or when overprinting another color.
- Provide proofs to test drying time, rub-off resistance and light-fastness
- Show ink color change when dry
- Produce quick color proofs for customer approval

The Proofing Kit Contains:

- Produce quick color proofs for customer approval
- Metal Bar
4" x .75", it has a small and large hole for measuring ink volume
- Small Ink Knife
- Metal Plunger
2.25" long, it has a small end and large end that conforms to the holes in the measuring bar
- Stainless Steel Plate
8" x 2.25"
- Package of Pipe Cleaners - to clean holes in measuring bar
- Roller Assembly (ordered separately - Part Number 00116-0022)



▲ Roller Assembly

Ink Rub Tester (RAS-21)

The RAS-21 is a state-of-the-art rub tester used to determine the abrasion resistance of different materials - printed, coated, wet or dry, on paper, cardboard or foil. The Ink Rub Test is used worldwide to determine the abrasion resistance of printed materials.

Abrasion resistance is a desirable and sometimes critical property of printed materials to ensure the quality of the final product throughout the shipment, storage and handling process. A material with a low abrasion resistance may suffer a significant decrease in product appearance and legibility of printed information. The Rub Tester is ideal for evaluating the abrasion resistance of any flat substrate including paper, board, corrugated board, plastic and aluminum film.

- Interchangeable Test Weights:
 - Light (soft rubber-coated)
908 g (2.0 lb), 100 x 50.5 mm
 - Heavy (soft rubber-coated)
1816 g (4.0 lb), 100 x 50.5 mm
- Standards: ASTM D5264, TAPPI T830



Applications ▾
Ink/Graphic Arts

Sutherland® 2000 Ink Rub Tester

The Sutherland Rub Tester was designed to determine the abrasion resistance of printed materials. It can be used to evaluate the scuffing or rubbing resistance of the printed or coated surface of paper, paperboard, film, etc. The tester is a motor driven instrument that moves a weighted test strip over a printed specimen through an arc. The tester's quick strokes simulate some types of rub damage including shipping damage.

The Sutherland Ink Rub Tester motor offers a few speed options that allow for customized testing procedures. The higher speeds will reduce the long test times needed for certain types of substrates (plastics, UV varnished, printed films, etc.)

A digital counter with a fiber optic sensor ensures the accuracy of the number of rubs for a given test. Simply enter the number of rubs desired and the instrument will stop automatically at exactly the correct number of strokes. A single mounting pad for the test strip is cut to fit the weight. Two pound and four pound weights and scoring fixture are included.



Applications ▾
Ink/Graphic Arts

Section 7

Service



Preventive Maintenance



Calibration Services



Repair Services



Full Service Contracts



Installation and Training

Customer Service

Your partner supporting you in all of your materials testing needs!



Whether you need a turnkey installation with training, annual maintenance, full-service contract, or an annual calibration for your materials testing equipment, Thwing-Albert's goal is to ensure your complete satisfaction. As an ISO 9001 Registered Company, we understand the challenges you face in maintaining top quality.

Because rapid response time is critical to most test laboratories, Thwing-Albert maintains support lines and has Sales & Service Offices throughout the United States and abroad. For more information on an office near you, **please call our Service Team at 856-767-1000 or contact us at service@thwingalbert.com.**

Preventive Maintenance with Certified Calibration

Thwing-Albert Instrument Company knows that the key to keeping your measuring system in compliance and working at peak performance is to schedule preventive maintenance with calibration verification.

Our factory trained technicians will inspect, calibrate and certify your testing system performance. In addition, your instruments are cleaned and lubricated. If the instrument requires repairs, our technicians can provide a solution at the time of inspection.

Let us take the worry out of keeping your instruments certified. Under one of our contracts options, calibration visits are scheduled in advance ensuring your certification is current.

Service Tip: Systems used to support production or used for product or process development may benefit from more frequent maintenance.

Contract Options:

- 1, 2, or 4 visits per year
- Full Service contract
- Calibration only
- Preventive maintenance only

As the OEM Thwing-Albert's Field Service Technicians possess the unique skill set and knowledge of specialized calibration procedures which cannot be duplicated by an outside metrology or calibration service provider. Our Field Service Technicians have on average over 20 years experience in calibrating, repairing and performing general maintenance of Thwing-Albert Testing Systems.

Calibrations are performed to traceable standards using methods such as:

- ISO
- ASTM [i.e. ASTM E4, D882]
- NIST
- ANSI
- and others



Certificate of Calibration

This certificate contains all the data your auditor will look for including as found and as left conditions, traceable standards used and any OOT conditions.

Thwing-Albert records and tracks your testing system's historical calibration data to enable us to advise any long term changes in the system.

Service Tip: Remember to have your testing system calibrated after moving the instrument or starting any new series of testing.



Repair Services

- Online or phone technical support
[service@thwingalbert.com or 856-767-1000]
- On-site service visit
- Factory repair in our facility

Full Service Contracts

Enjoy the peace of mind that comes with knowing your investment is protected by the best service plan in the industry. Our all-inclusive Full Service program entitles you to two PMI's including calibration per year and one free emergency service (not including travel expenses). The agreement includes all labor, repairs and most parts. (Does not include load cells, grips or peripherals.)

Rental Equipment

We understand that testing demands do not decrease when your equipment is being repaired or upgraded. To minimize down time, Thwing-Albert has several instruments that are available on a short-term basis until your unit is returned. Available rentals include current and legacy instruments. Contact service@thwingalbert.com for availability.

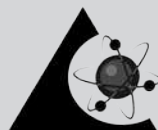
Installation and Training

Our support continues long past the initial sale. In addition to setup and installation, Thwing-Albert personnel are available to you throughout the lifetime of your instrument. Our dedicated Regional Account Managers are available to educate and train your staff. During installation, assistance is also available for Instrument Qualification (IQ), Operator Qualification (OQ) and Performance Qualification (PQ).

Service Tip: Routine maintenance of your testing system is crucial to protect your investment!

**Certified ISO/IEC
17025:2005 Accredited**

This accreditation expands our commitment to customer quality by adding to our scope of calibration covering mechanical, dimensional, mass, force, weighing devices and time and frequency instruments.



**P.J.L.A.
Calibration**
Accreditation #73494
ISO/IEC 17025:2005



Need Service Help ↘

Call us Monday through Friday 8:00 am to 5:00 pm (EST)

Contact our service team for answers to your questions

856-767-1000 or service@thwingalbert.com

Have your Serial # and Model # available when you call

THWING-ALBERT

ORDER NO.
SERIAL NO.
T/A NO.



Product Diversity - Meeting Your Needs.

Thwing-Albert offers a wide range of standard products to meet your testing requirements and we can design custom fixtures for unique applications.

Guaranteed Satisfaction - The Right Tool for the Job.

We will work with you to ensure that the equipment will meet your testing needs.

Service Excellence.

Your equipment will be serviced with the highest quality by our trained Thwing-Albert professionals in the field.



Global Contacts:

Thwing-Albert has distributors around the world.
Call 856-767-1000 for information specific to your region.

Argentina	Germany	Luxembourg	Spain
Austria	Great Britain	Malaysia	Sweden
Australia	Greece	Mexico	Switzerland
Bangladesh	Guam	Netherlands	Taiwan
Belgium	Guatemala	New Zealand	Thailand
Brazil	Hong Kong	Pakistan	Turkey
Canada	Hungary	Paraguay	United Arab Emirates
Chile	India	Peru	United Kingdom
China	Indonesia	Philippines	Uruguay
Colombia	Ireland	Poland	Venezuela
Denmark	Israel	Portugal	Vietnam
Egypt	Italy	Russia	And More...
Finland	Japan	Singapore	
France	South Korea	South Africa	