



1270 PCA Scorebend Opening Force Tester



Thwing-Albert
INSTRUMENT COMPANY

*A Century of Testing
Solutions*

1270 PCA Scorebend/Opening Force Tester

The PCA Score Bend Tester measures the force required to bend carton stock along a score (crease) and the force required to open a flat folded carton. It can also do score ratio, springback and COF.





1270 PCA Scorebend

Features:

- Measurement capacity to 10 kg
Standard Load Cell — 2 kg
Optional Load Cells — 500 gram, 5 kg, 10 kg
- Bending & Opening Force measured in grams, ounces, pounds, newtons, kilograms
- Saves up to 99 test results
- Sample ID capability
- Constant loading rate
- Auto-zero & Semi-automatic calibration
- Air clamp control via Foot Pedal

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The 1270 PCA is used to:

- Predict the performance of cartons about to be produced
- Monitor the performance of cartons already produced through sampling
- Determine the ideal conditions for packaging machines

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Features:

- Statistics include average, high, low and standard deviation
- Selectable force, angle and distance trap results
- Statistics for peak and trap results
- RS-232 interface
- Test result and curve data for PC interface
- Score ratio test mode of scored vs unscored paperboard
- Coefficient of Friction testing
- Burst Testing

Sales meeting 2002



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Safety Features

- Overload protection system - Electronic
- Angle over-travel limit switch
- Load cell incorporates mechanical limit stops
- Upward and downward motion limit switches
- Emergency stop button

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Digital Measurement System

- Digital angle measurement system enable the user to specify variable angle measurements from 0 to 90°.
- Test speed is variable between 5 to 500 mm/min) with four available presets.

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Multiple Test Modes:

- Open
- Bend
- Score-ratio
- Springback (1, 2 or 3)
- Coefficient of Friction
- Burst

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Open Test Mode

- Opening force tests analyze the force required to open a flat folded carton along score lines.
- The crosshead will travel downward until the set travel distance is reached and then return to the starting position.

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Open Test Mode

- Configurable values are:
 - Travel Distance
 - Distance Trap during downward motion
 - Distance Trap during upward motion
 - Force Trap during downward motion
 - Force Trap during upward motion

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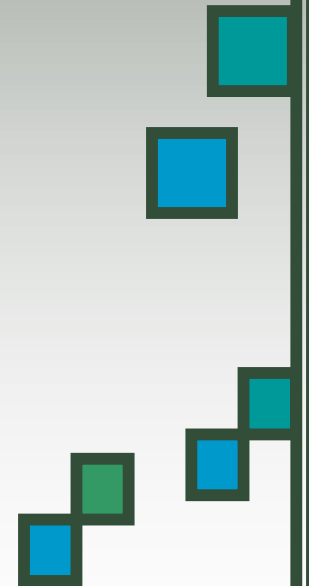
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Open Test Mode

- Results are:
 - Peak Force
 - Force values at each Distance trap
 - Distance values at each Force Trap
 - Test Number

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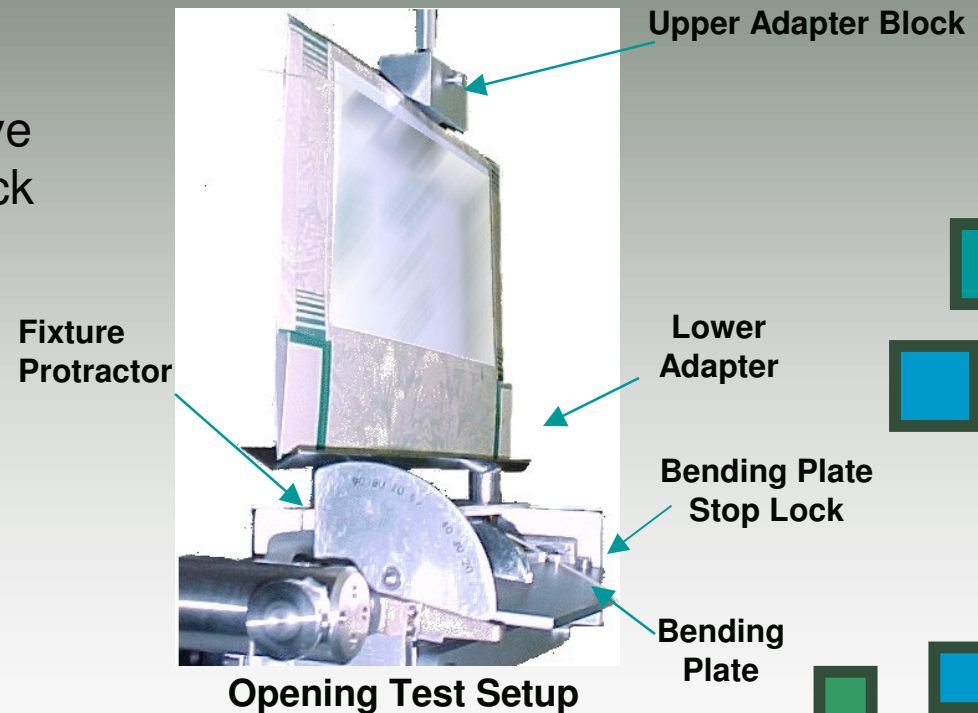
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Open Test Setup

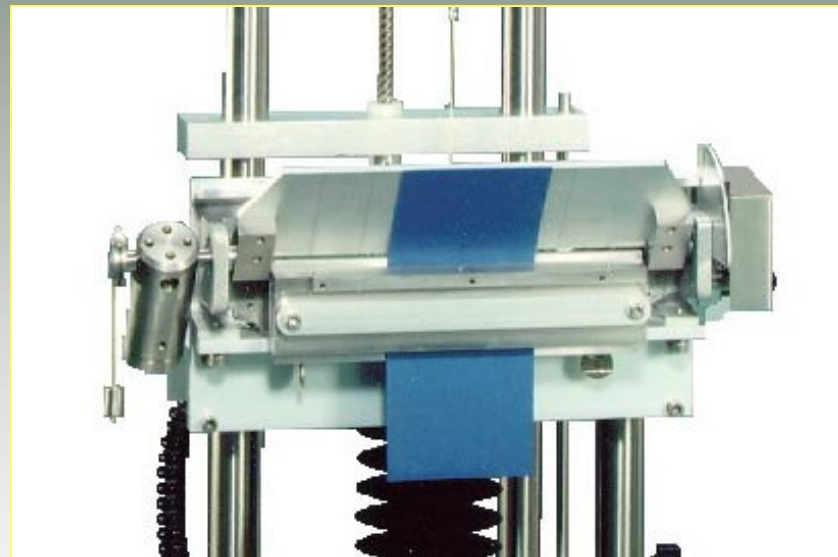
- To perform an opening test remove the hook in the upper adapter block
- Rotate the bending plate to the 90° mark on the protractor and tighten the bending plate stop lock assembly
- Insert the lower adapter behind the bending plate
- Position the sample between the upper and lower adapters.



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Bending Test Mode

- Bending force tests analyze the force required to bend a sample along a score line
- The crosshead will travel downward until the set stop angle is reached and then return to the starting position.



Bending Test Setup

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Bending Test Mode

- Configurable values are:
 - Stop Angle (0-90°)
 - Angle Trap during downward motion
 - Angle Trap during upward motion
 - Force Trap during downward motion
 - Force Trap during upward motion

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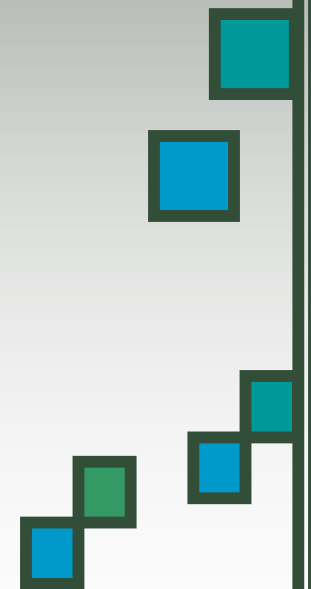
Bending Test Fixture

- The pneumatic clamping/bending fixture employs a compressed air clamp to secure the sample
- Foot control pedal opens and closes clamp.
- The Bending Plate exerts the force to bend the sample
- The counterweight balances the bending plate and the return weight keeps the bending plate vertical at the beginning of the test



Score Ratio Test Mode

- Score Ratio test is a two-cycle bending test.
- During the first cycle a scored sample is bent to a specified Stop angle.
- During the second cycle an unscored sample is bent to the same stop angle.



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Score Ratio Test Mode

- Configurable values are:
 - Stop Angle (0-90°)
- Results are:
 - Peak Force for both samples
 - Ratio of the scored sample Peak Force to the unscored sample Peak
 - Test Number



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Spring-back Test Mode - #1

- Spring-back Test Method #1 is a single-cycle bending test.
- The sample is bent to a specified angle, allowed to relax at that angle for a specified dwell time, after which the force is recorded and the crosshead will return to the home position.



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Spring-back Test Mode - #1

- Configurable values are:
 - Stop Angle (0-90°)
 - Trap angles for both bending and unbending portions
 - Dwell time (max allowable is 255 seconds)
- Results are:
 - Peak Force
 - Force at the end of Dwell time
 - Force at each Trap angle
 - Test Number

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Spring-back Test Mode - #2

- Spring-back Test Method #2 is a two-cycle bending test.
- During the first cycle, the sample is bent to a specified angle and the crosshead will return to zero.
- The sample will be allowed to relax for a specified dwell time.
- After completion of the dwell time, the sample is bent until a specified load is reached.

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Spring-back Test Mode - #2

- Configurable values are:
 - Trap angles for both bending and unbending portions
 - Stop Angle (0-90°) for first cycle
 - Dwell time for between cycles (max allowable is 255 seconds)
 - Contact force for the second cycle
- Results are:
 - Peak Force from the first cycle
 - Force at each Trap angle
 - Angle for the Contact force in the second cycle

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Spring-back Test Mode - #3

- Spring-back Test Method #3 is a single-cycle opening test.
- The sample is opened to a specified distance, allowed to relax for a specified dwell time, after which the crosshead will return to the zero position.

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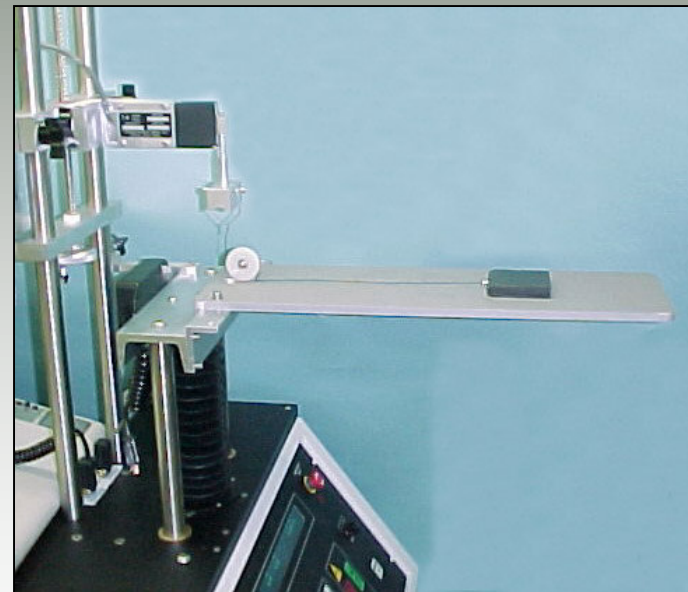
Spring-back Test Mode - #3

- Configurable values are:
 - Trap distances for both the bending and unbending portions
 - Stop distances
 - Dwell time (max allowable is 255 seconds)
- Results are:
 - Peak Force
 - Force after dwell time has expired
 - Force at each trap distance

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Coefficient of Friction Test Mode

- A special fixture is available which enables Coefficient of Friction Testing.
- Both static and kinetic coefficient of friction measurements are provided.



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Coefficient of Friction Test Mode

- Configurable values are:
 - Pre-Test distance
 - Test Distance
 - Sled Weight (allowable range is 1 to 9999 grams)
- Results are:
 - Static COF (the peak reading from the Pre-test section)
 - Kinetic COF (the mean reading from the Test section)

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Test Results & Reporting

- Test Results & Reports can be sent to several different destination ports:
 - RS-232
 - Parallel
 - Both or None
- Raw Data Transmission
 - Selecting this option transmits raw data during a test.
 - Raw data is only transmitted during testing.
 - Once the test is completed, the raw data is deleted.

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Raw Data Transmission

- When the raw data parameter is enabled, the raw data collected is transmitted immediately through the RS-232 port.
- When the test is completed, the transmission ends.
- The 1270 PCA Scorebend only retains test results in memory, not raw data. Once the test is completed, the raw data is deleted.
- For Opening Tests, Load and Displacement data is transmitted.
- For Bending Test, Load and Angle data is transmitted.