

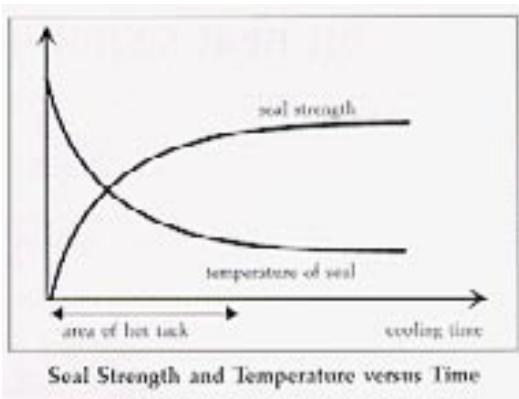


Hot-Tack Tester

The new Hot-Tack Tester - user friendly, ergonomic and repeatable measurements
The real ONE!

The Hot Tack Tester is a highly sophisticated instrument for testing sealing properties of packaging material. It is being used in research and development as well as in SQC/SPC applications for raw materials; semi finished goods and finished packaging products.

The Hot Tack Tester permits evaluation of sealability and hot tack under a broad range of testing conditions to optimize packaging machine settings and to ensure consistent quality of the product. The instrument is also a practicable and helpful tool to packaging material manufacturers and end-users for incoming material inspection and for obtaining optimal production line speed.



Hot Tack is the strength of a heat-seal immediately after sealing, that is, before it has cooled down and reached its maximum strength.

Conventional testing with a separate heat sealer and tensile tester seldom correlates with the strength of a hot seal as it is first exposed to stress on a packaging machine. The Hot Tack Tester has been designed for testing the heat seal strength under accurately controlled conditions.

Standard Test Method for Hot Seal Strength (Hot Tack) of Thermoplastic Polymers and Blends Comprising the Sealing Surfaces of Flexible Webs

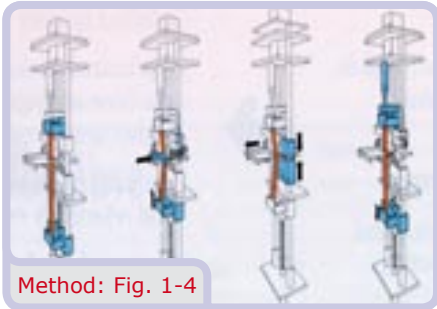
• ASTM F 1921-98

Standards



Testing Method:

Simulation on an automatic packaging machine



Method: Fig. 1-4

The Hot Tack Tester simulates heat sealing on an automatic packaging machine. It makes a hot seal and stresses it under pre-programmed conditions.

First the operator selects the desired parameter values in the Windows® software by using the keyboard and inserts the sample (fig.1). The testing sequence is activated and the lower sample clamp is moved to its upper position. The sample is automatically folded between the sealing bars with a special folding device (fig.2).

The bars close (fig.3) and after the pre-set sealing time has elapsed, the sealing bars open and the heat seal is complete. The selected cooling time elapses and the lower sample clamp moves down, peeling the seal (fig.4). During peeling, the force transducer attached to upper sample clamp measures the hot tack force. The signal from the transducer is transmitted to the computer to initiate data processing, displaying, reporting and storing of the testing data.

Computerized control of sealing parameter



Testing device

Computerized control of the existing parameters enables simulation of different packaging machines. An extensive adjustment range of parameter values enables testing of various materials used in different applications. The values of the following parameters are freely user-selectable:

- Sealing temperature
- Sealing time
- Sealing pressure
- Cooling time
- Peeling speed

The sealing device is conveniently located in the front panel allowing easy use and access to the most frequently used components. The clamps are specially designed for easy attachment of the sample. The clamping plates are automatically activated and firmly hold the sample during the test. Vertical movement of the lower clamp is controlled by an electric motor that enables accurate positioning and speed. The fully automatic folding device provides perfect alignment of the sample and a fully operator-independent operation. The sealing bars are Teflon coated to prevent sample sticking. The sealing bars include integrated heating-elements and thermocouples to keep the selected sealing temperature constant regardless of the ambient temperature.



Sealing device parts:

1. Sample clamps
2. Autom. sample folding device
3. Sealing bars
4. Seal force transducer



Software

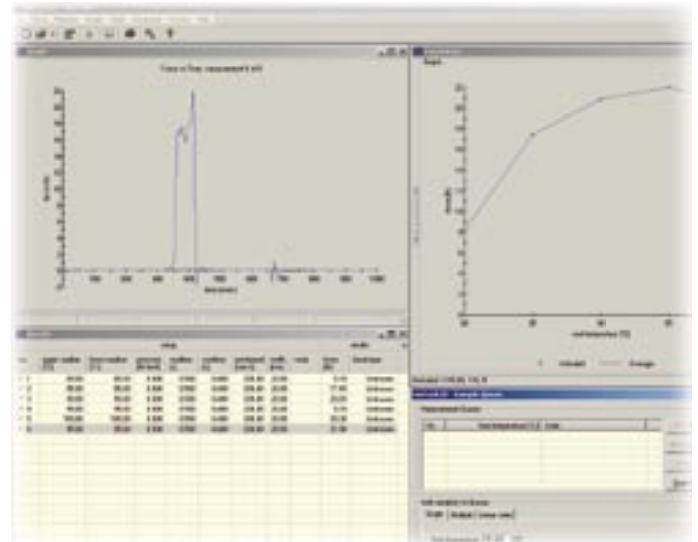


The software is Windows® designed using the latest tools available. It is easy to learn, easy to use and versatile. The software is mouse-operated and the functions are easy to activate. The parameter settings as well as the measuring results can be stored for future use. The software is compatible with commercially available SQC and spreadsheet software packages.

The advanced software enables efficient use of the instrument by any person involved in testing, from a production machine operator to quality control and R&D personnel.

Excellent reporting capabilities

A color monitor and printer are used for reporting. Once a test is completed, a graph of hot tack force versus time is displayed. The hot tack force is calculated automatically as well. The operator can also activate summary graphs from a testing sequence including hot tack force versus selectable variables. The summary reports are especially useful when analyzing optimum seal settings for different materials.



Further software features:

User Interface

- 32bits application
- MDI interface for more control of screen layout
- Save / Restore windows layout
- Most Recently Used (MRU) list added to file menu

Setup

- Create a new file based on an existing one
- Add custom fields to setup
- Ability to edit calibration values from within the program
- Select upper or lower seal bar as variable

Measuring

- Saves to a single file for a series of measurements
- Only zero or one variable per file
- Exclusion of measurements instead of deletion
- Setup a queue of measurements before measuring
- Re-arrange, add or delete measurements from queue during measuring
- Automatic save of measurement queue items left to measurement file

Analysis

- Tabular view of measurements results
- Add calculated results the tabular view
- Waterfall display of multiple measurements
- Reference graph for correlation graph
- View included and/or excluded samples in correlation graph
- Sorting of results in tabular view
- Copy measurements and graphs to the clipboard

Import/Export/Reports

- Export to Excel®
- Merge data into word template
- Custom Export using scripts
- In / export from / to Hottack for Windows
- Export to text
- Print only selected items and save those layouts for later use
- Print preview

Other Features

- Contents of measurement files can be viewed from within program
- HTML Help File



Technical Data:

Specifications

Sealing specifications

- Sealing bars: 2 Teflon-coated, including thermocouples and heaters
- Seal bars: 5 x 50 mm (≈ 0.2 x 2")
- Sealing operation: symmetrical, two sided
- Sample width: max. 40 mm (1.6")
- Sample thickness: max. 1 mm (0.04")
- Sealing time: 0.1...20 s
- Sealing temperature: 21°C or ambient ... 320°C (608 °F)
- Sealing pressure: 0.1...2.0 N/mm² (15...570 lb/inch)
- Sealing pressure control: electronic PID control
- Sealing pressure sensor: Strain gauge
- Sealing temperature control: electronic PID with fuzzy logic

Peeling specifications

- Cooling time: 0.1...99 s
- Peeling speed: 1...600 mm/s (0.04...25 inch/s)
- Peeling by: vertically moving lower sample clamp
- Peel control: electric servo motor
- Sample length: min. 250 mm (9.8 inch)

Hot tack force measurements

- Measurement range: 0...100 N (0...22 lb) auto scaling
- Sampling speed: max. 20 kHz depending on peel speed
- Number of samples: fixed 1000 per measurement
- ADC Resolution: 12 bits
- Sensor: Piezo electric force transducer

Testing mechanics

- Sample clamps: 2 automatic air activated clamps
- Sample folding: automatic, servo motor-controlled

Software

- Compatibility: Windows 9x/2000/XP
- Mouse operated graphic user interface
- Setting, storing and re-calling of test parameters
- Storing, re-calling and reporting of measuring results

Reporting

- Measurement result: hot tack force versus time graph
- Analysis: graphs from testing sequence versus variables
- Numeric: reporting with data export capabilities

Recommended PC

- Minimum Pentium III
- Inkjet or Laser printer
- Serial port RS-232C for interface to the instrument

Connections

- Power: 85 to 132 VAC or 170 to 264 VAC Automatic switching / 50 - 60 Hz / 200 VA
- Air supply: 6...8 bar (85...115 psi)

Dimensions

- Weight: ca. 26 kg (60 lb)
- Size (w x d x h): 434 x 290 x 749 mm (17.1 x 11.4 x 29.5 inch)

Design

- Specially designed to fulfill all ASTM* HotTack measuring requirements

Advanced features:

- Easily exchange of sealbars
- The tester is totally maintenance free
- The tester is prepared for Robotic operation
- With an included calibration kit, the user is able to do traceable calibration himself
- Strip Cutter can be supplied upon request



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