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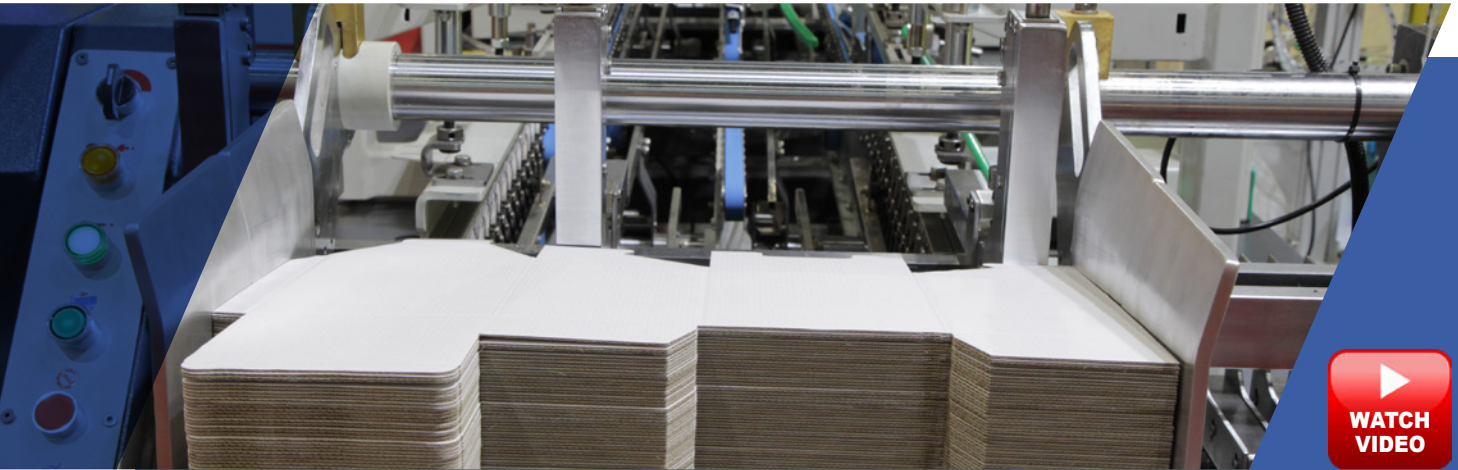


**RHOPOINT** UFT  
UNIVERSAL FRICTION TESTER

## Universal Friction Tester

- Static and dynamic (COF)
- Fast, repeatable measurements
- Includes peel, tear and seal integrity tests

# Who measures slip/friction?



**Friction testing is used in the packaging industry to measure the slip resistance of a product, with the aim of predicting feed and running speed on an automatic glueing, erecting, filling or packaging line.**

Friction parameters help the manufacturer understand how the finish of the blown film or printed carton can influence the feeding and running speeds. Surface slip is a key factor when printing, erecting or filling packaging materials on an automatic line.

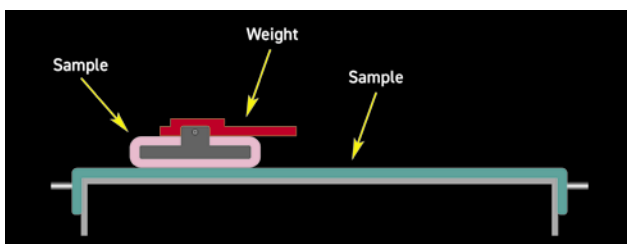
## What is slip/friction?

A product's slip resistance is characterised by its coefficients of friction (COF):

$$\text{Static COF} = F_s/N$$

$$\text{Dynamic COF} = F_d/N$$

Where  $F_s$  is the maximum static frictional force and the  $F_d$  is the average dynamic frictional force.



$N$  is the Normal force, i.e. the force of gravity acting on the sample and test sled.

In practical terms, the static slip relates to the force required to get two resting surfaces moving, dynamic slip is the smaller force that is required to keep the surfaces moving once this initial "inertia" is overcome. These values are expressed as ratios and do not have units, they are usually quoted as a decimal value between 0 and 1.

## How can Coefficient of Friction Values Relate to Packaging Speeds?

COF can often be related to the feeding and running attributes of products, for instance UV varnished food cartons have a slip coefficient that is related to the formulation of the UV coating its cure and film weight.

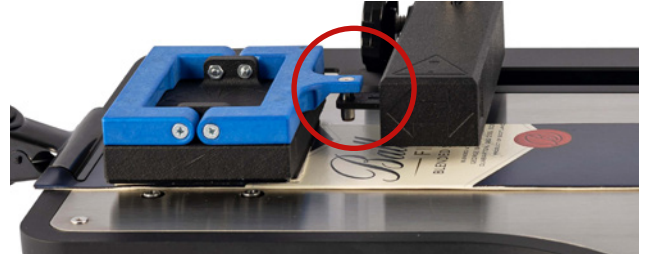
Cartons that have a very low static coefficient of friction may have handling difficulties as they will tend to slide apart and are difficult to place into feeding hoppers.

In contrast, products which have a high COF will tend to stick together and can be prone to misfeeding due to multiple cartons entering the packaging line at once.

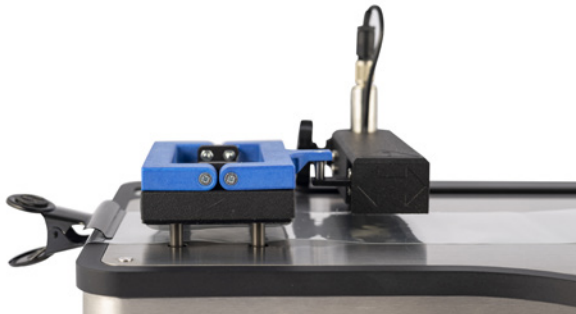
# Universal Friction Tester Features

The Universal friction tester allows the user to test static and dynamic coefficient of friction with minimal training.

Ultra-repeatable static COF; automatic sled placement with variable dwell times.



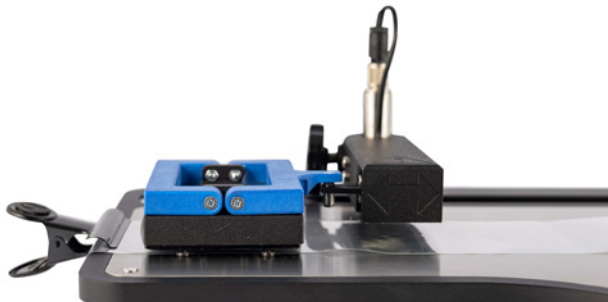
A fixed link between the sled and the load cell means that there are no errors in friction from pulley wheels or cords associated with other measuring instruments.



Initial sled placement

## Touch screen interface

The UFT uses an intuitive touch screen user interface making it accessible and easy to use.



Placement pins retract into the instrument; the test is ready to begin

## Quality Assurance (QA)

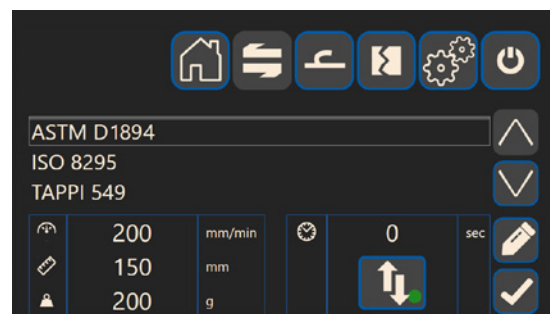
Pre-loaded ISO/ASTM/friction test methods with the option to create a custom test.

## Advantages:

The sled is placed in exactly the same position each time the test is run.

The user-defined dwell time controls the blocking effect of tackier films.

*Controlling the above ensures repeatable static COF results, independent of the operator.*



The UFT sled design makes the loading of film samples ultra-easy

# Universal Friction Tester - Package



## Universal Friction Tester - Instrument

This standalone instrument is designed for simple QA testing of static and dynamic COF. The instrument is preloaded with ISO/ASTM/friction test methods with the option to create a custom test. Included in the package are the attachments for performing peel, tear and seal strength tests.



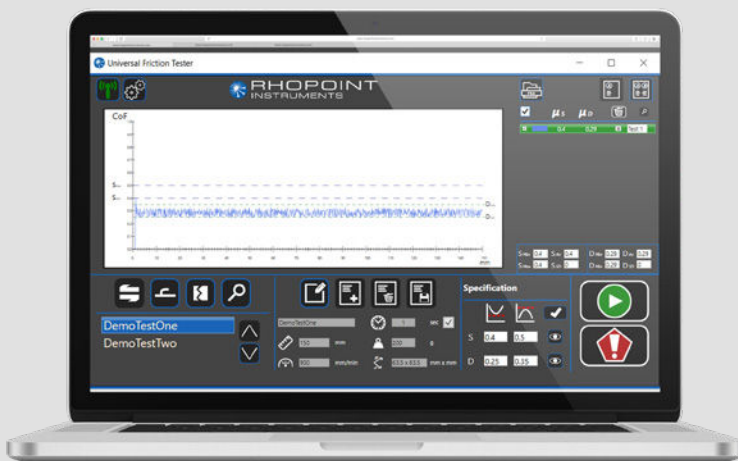
Peel



Tear



Seal



## UFT Lab Software

Optional full analysis software allows for detailed statistical and graphical analysis of results, full PDF reporting and the creation of custom test routines.

# Additional test types

## Peel Testing

Included attachments transform the UFT into a precision peel test instrument, accurately measuring the force required to separate glued or laminated films, tapes, labels etc.

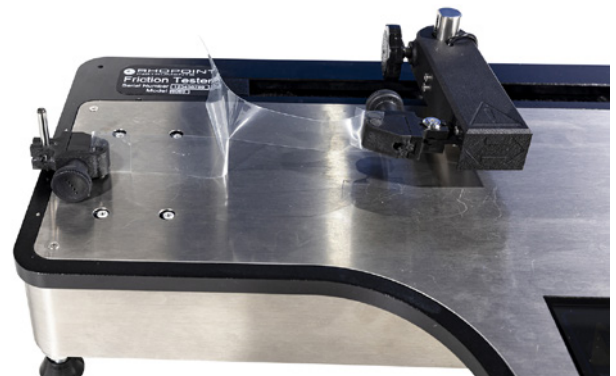
- ✓ All tests are to FINAT international standards
- ✓ T-Peel, 180° peel or 90° peel tests



## Tear Testing – Substrate Strength

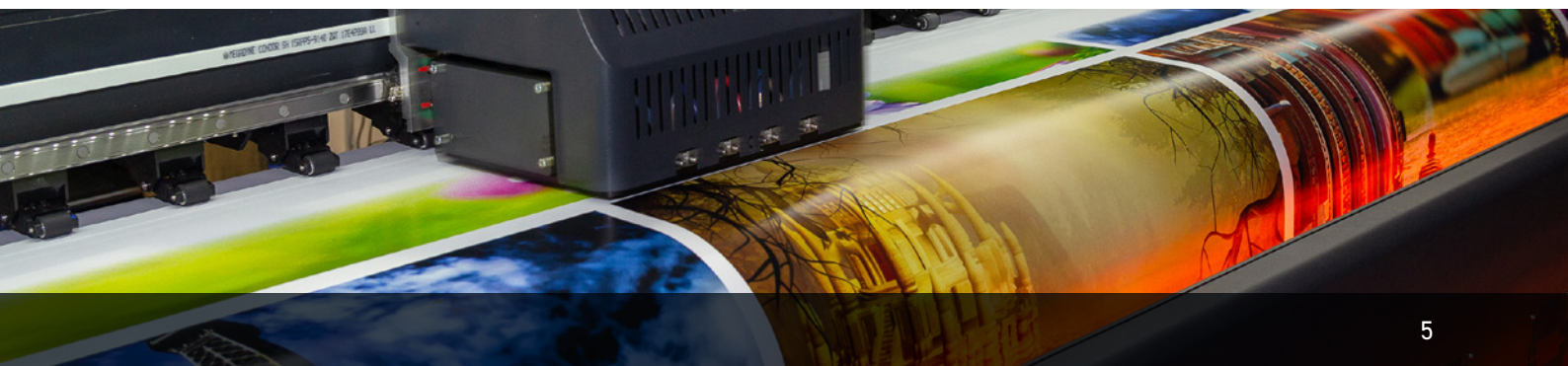
Included tear strength attachment allows the user to measure and control tear strength to international standards.

- ✓ Trouser tear method



## Seal integrity test

Included test attachments for testing seal integrity of films or laminates.

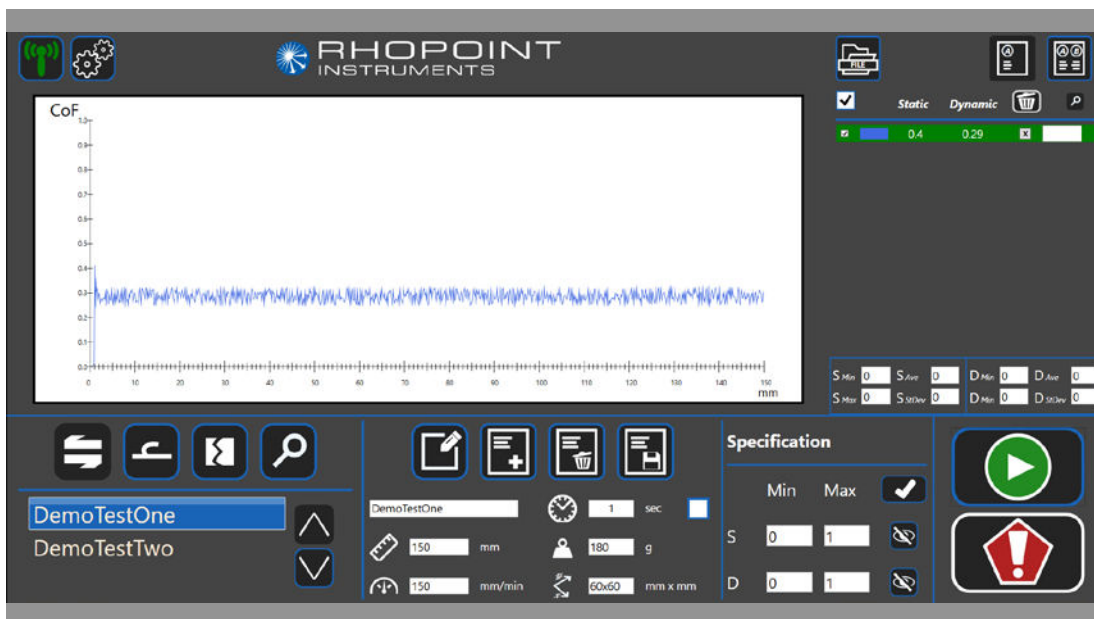


# Software (optional)

Easy to use software allows the user to change the configuration of the UFT instrument and produces detailed force graphs that can be saved and compared.

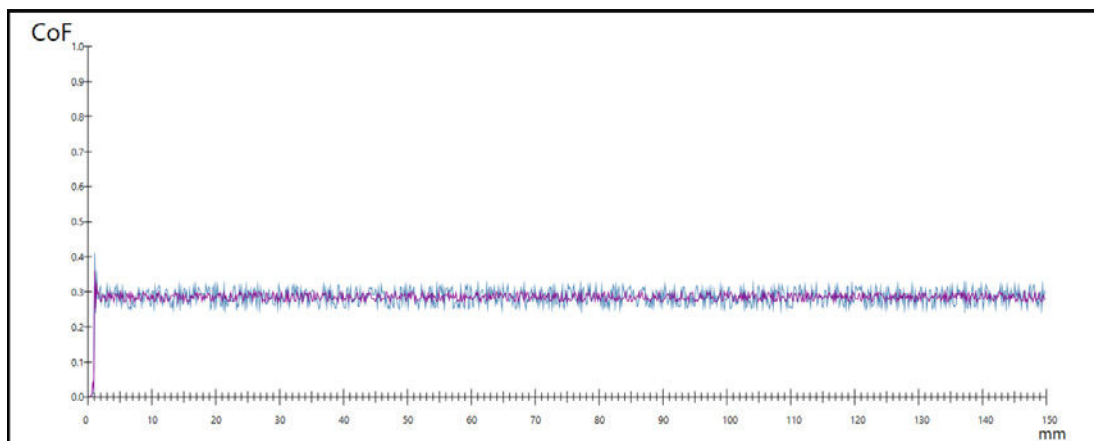
## Features

The Universal Friction Tester software features graphical reporting of results and allows unlimited custom test routines to be created in minutes. Tolerances for both static and dynamic COF can be set for each test routine allowing for easy identification of non-conformances.



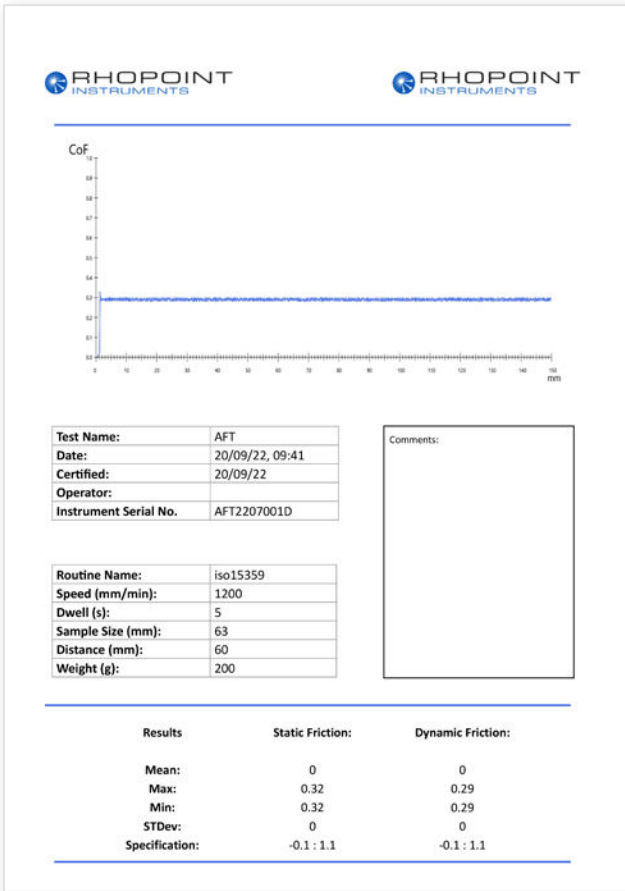
## Analysis of Results

Multiple tests can be run per file and a graphical trace given for each. A master or reference file for the material can be overlaid to give a quick visual comparison of batch to batch consistency and quality.



### Test Results in PDF Format

Full graphical and statistical analysis of test results can be printed to PDF for easy reporting.



**Results Data**

1	0.32	0.29
2	0.32	0.29
3	0.32	0.29
4	0.32	0.29
5	0	0
A long string to demonstrate a longer note being stored		
6	0	0
7	0	0
8	0	0

**Reference Data**

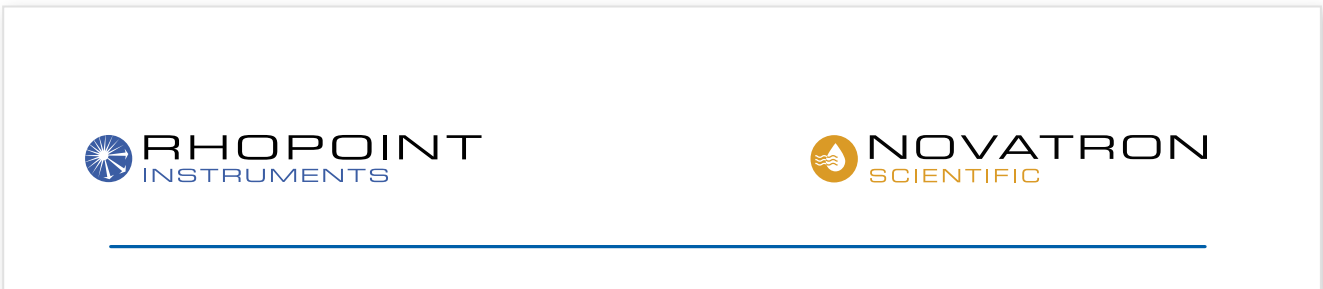
0	0.003	-0.001
1	0	0
2	0	0
3	0	0
4	0	0

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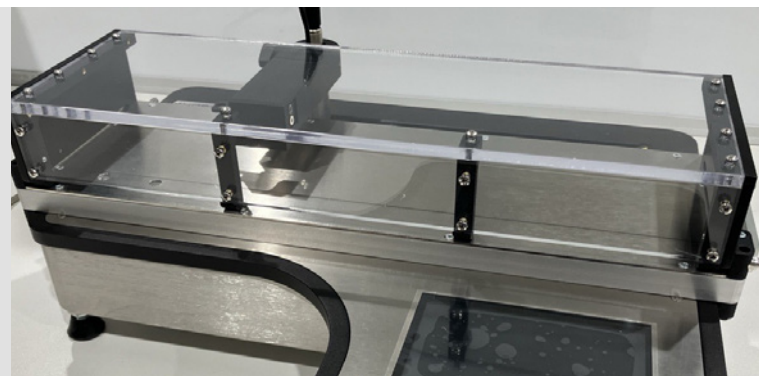
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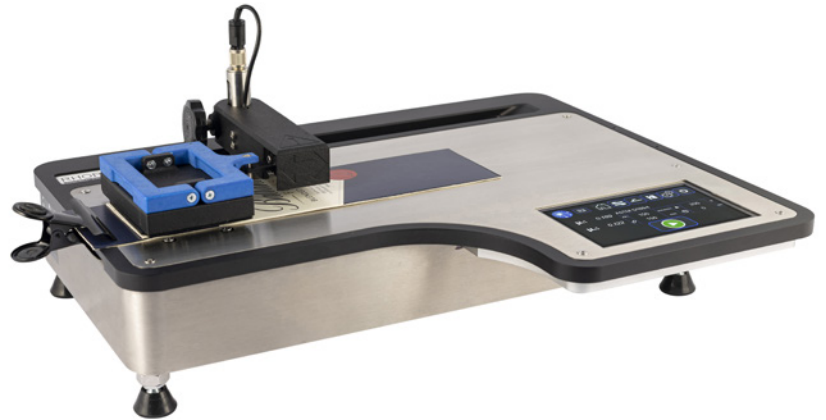
### Detachable heated bed

The Universal Friction Tester is available with a detachable heated bed to enable testing up to 120°C.



# Applications

The Universal Friction Tester (UFT) produces detailed fingerprints of new substrates, coatings and production samples. These characteristics can be saved and compared at any time allowing the manufacturer to specify the optimum surface finish for any packaging process.



## Printed packaging

Determination of the static and dynamic Coefficients of Friction



## Plastic film

Standard test method for static and dynamic COF  
**ASTM D1894, ISO 8295**



## Leather

Friction measurement of leather



## Labels

Friction measurement of labels



## Foils

Friction measurement of foils



## Paper

Determination of the static and dynamic Coefficients of Friction  
**ISO 15359**



## Printed paper

Coefficients of static and dynamic friction of uncoated writing and printing paper by use of the horizontal plane method  
**TAPPI T549**



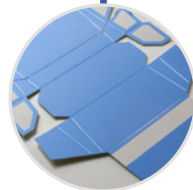
## Textiles

Determination of tear resistance  
**ISO 6383**



## Cartons

Friction measurement of cartons



Production



Print Industry

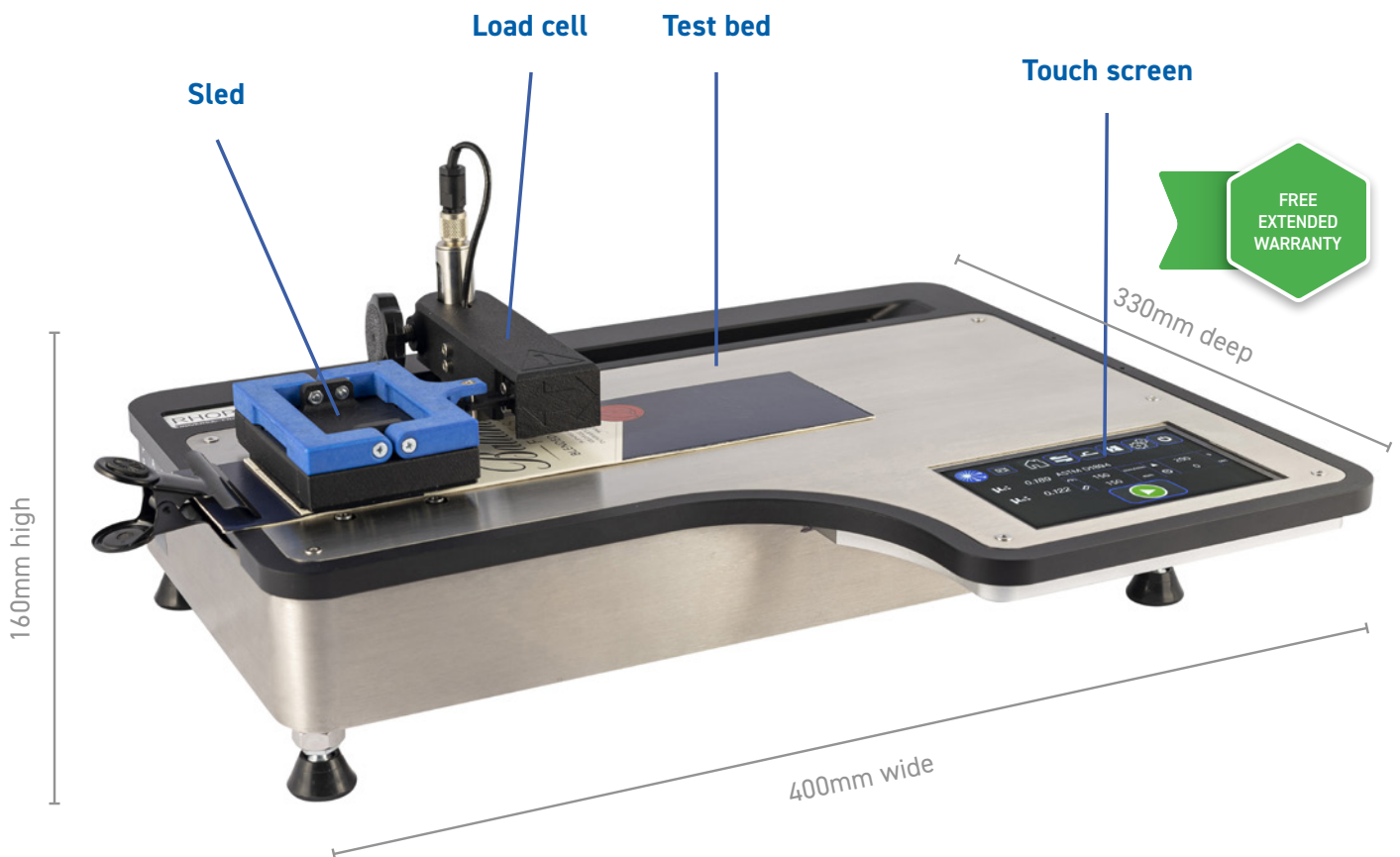


Packaging Industry



# Features

The Universal Friction Tester (UFT) allows the user to measure and store the full force curve which graphically illustrates the frictional characteristics in addition to providing the static and dynamic COF values.



# Specifications

Standard	Application	Details
ISO 8295	Plastics - film and sheeting	Determination of the coefficients of friction
ASTM D1894	Plastics - film and sheeting	Standard test method for static and dynamic coefficients of friction
TAPPI 549	Printing paper	Coefficients of static and dynamic friction of uncoated writing and printing paper by use of the horizontal plane method
ASTM D2534	Wax coating	Standard test method for coefficient of dynamic friction for wax coatings
ASTM D3330	Tape	Standard test method for peel adhesion of pressure sensitive tape
FTM1FINAT	Peel test	Test method no. 1, Peel adhesion (180°) at 300mm per minute
FTM2FINAT	Peel test	Test method no. 2, Peel adhesion (90°) at 300mm per minute
FTM3FINAT	Adhesion	Test method no. 3, Low speed release force
FTM21FINAT	Adhesion	Test method no. 21, Ink Adhesion - basic
ISO 6383	Textile	Determination of tear resistance -- Part 1: Trouser tear method
ASTM F88	Seal	Standard test method for seal strength of flexible barrier materials

Instrument Specifications	Details
Resolution	0.1g / 0.001 COF
Accuracy	0.5g
Sleds	200g Other sled weights by request. Custom sled base materials available
Speed	User definable, 100 - 1200mm/min
Dwell time	User definable, 0-90 seconds
Test distance	User definable, up to 200mm
Power	110/240v 50/60Hz
Load cell capacity	30N

Instrument Dimensions	Details
Size	(H) 160mm x (W) 400mm x (D) 330mm
Net weight	6.5kg
Gross weight	10kg

Order Codes:	Details
HAN-A6060FRICTION	Universal Friction Tester - Includes peel, tear and seal test attachments
HAN-B6060-001	UFT Lab software package, includes USB-Network adapter and network cable



**Free extended 2 year warranty:** Requires registration at [www.rhopointinstruments.com](http://www.rhopointinstruments.com) within 28 days of purchase. Without registration, 1 year standard warranty applies.

**Calibration and service:** Fast and economic service via our global network of accredited calibration and service centres. Please visit [www.rhopointinstruments.com](http://www.rhopointinstruments.com) for detailed information.

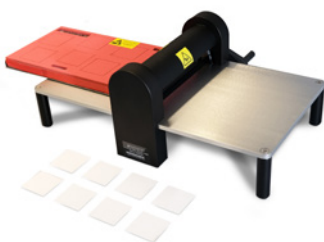
# Accessories

## Included Accessories

Description
90° & 180° peel test attachments
Tear test attachments
Seal test attachments
Sample securing magnets
2 x Sample clamps
Traceable calibration certificate
1 x 100g calibration check weight
1 x Calibration attachment with fixing attachments

## Optional Accessories

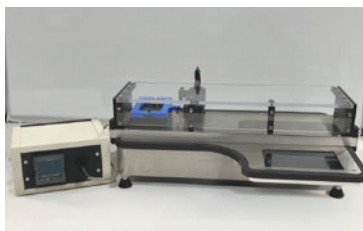
Order Codes:	Description	Size
<b>HAN-A6060HEATBED</b>	Detachable heated bed up to 120°C with temperature controller, 240V	
<b>HAN-A6060HEATBED/115V</b>	Detachable heated bed up to 120°C with temperature controller, 115V	
<b>HAN-B6060-010</b>	UFT friction template - board	63.5 x 63.5mm
<b>HAN-B6060-011</b>	UFT friction template - film	63.5 x 148mm
<b>HAN-B6060-012</b>	UFT peel and seal strength template	25 x 200mm
<b>HAN-B6060-013</b>	UFT tear template	50 x 175mm
<b>HAN-B6060-014</b>	UFT seal strength template 2	15 x 200mm
<b>HAN-B6060-015</b>	UFT seal strength template 3	25.4 x 200mm
<b>HAN-A6060HEATBED</b>	Detachable heated bed	
<b>RL-B80-001</b>	Universal roller sample cutter (requires a die, select from below options)	
<b>RL-B-CUTTER/FRICTION</b>	Cutter die - friction - for use with carton & board	
<b>RL-B-CUTTER/FRICTION-PLAST</b>	Cutter die - friction - for use with plastics	



### Optional Accessory

Simple sample preparation with the [Hanatek Universal Sample Cutter \(USC\)](#).

The Hanatek USC has been designed for the simple cutting of samples for the packaging industry. Additional Dies can be configured to cut samples for most test types including: friction, tensile, grammage, O<sub>2</sub> permeability, CO<sub>2</sub> permeability, WVTR, rub resistance, carton crease, carton stiffness and many more.



### Elevated temperature testing

The Rhopoint Universal Friction Tester has an optional detachable heated bed with temperature controller which allows tests to be conducted at a temperature up to 120°C

The sled placement pins can still be used with this attachment.



**TRY BEFORE YOU BUY**

## We offer two options for you to try out the Universal Friction Tester before buying

1

**Online demonstration:** Online presentation of the Universal Friction Tester with your samples measured LIVE on Microsoft Teams. Includes a consultation with an application specialist.

2

**Factory sample testing:** Send in samples of your material for testing and receive a comprehensive test report.

[Arrange a demo](#)

Ready to receive a quote?

[Click here](#)

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