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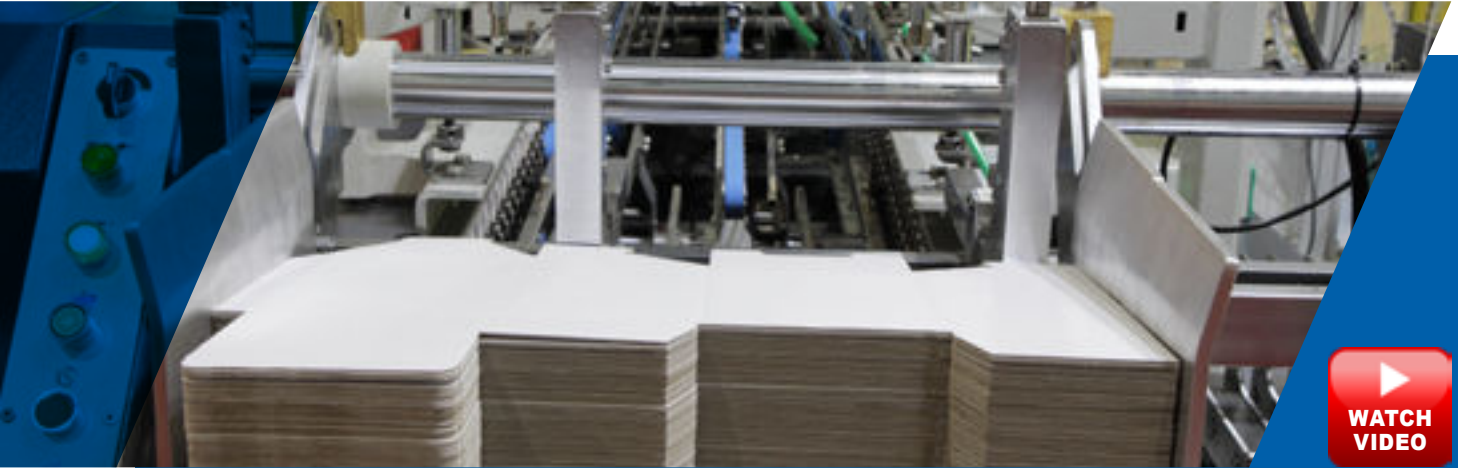


**RHOPOINT** UFT  
UNIVERSAL FRICTION TESTER

## 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.

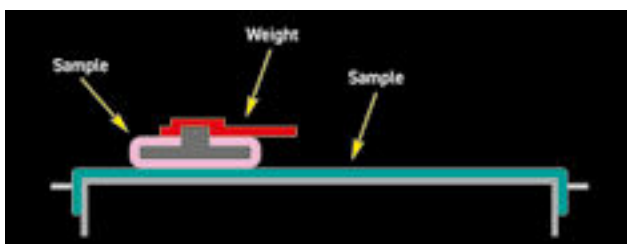
## What is slip/friction?

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.



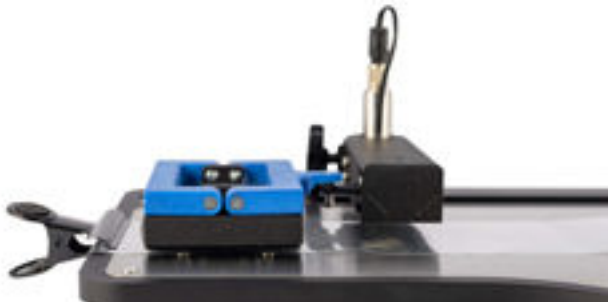
A fixed link between the sled and the load cell means that there are no errors in friction from pulley wheels or cords associated with other measuring instruments.



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)

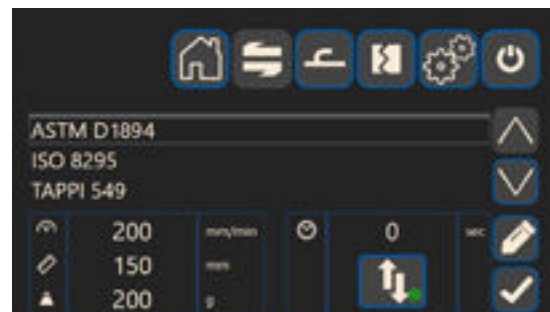
Pre-loaded ISO/ASTM/friction test methods with the option to create a custom test.

## 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

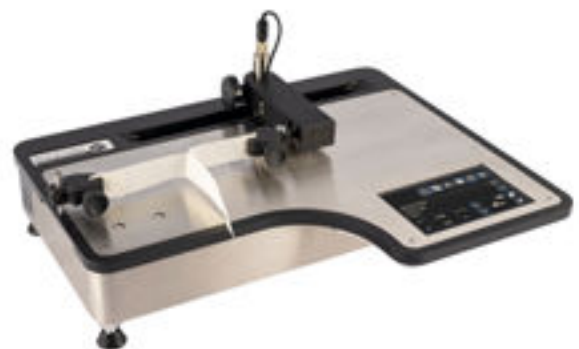
Included tear strength attachment allows the user to measure and control tear strength to international standards.

- ✓ Trouser tear method



## Seal integrity test

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

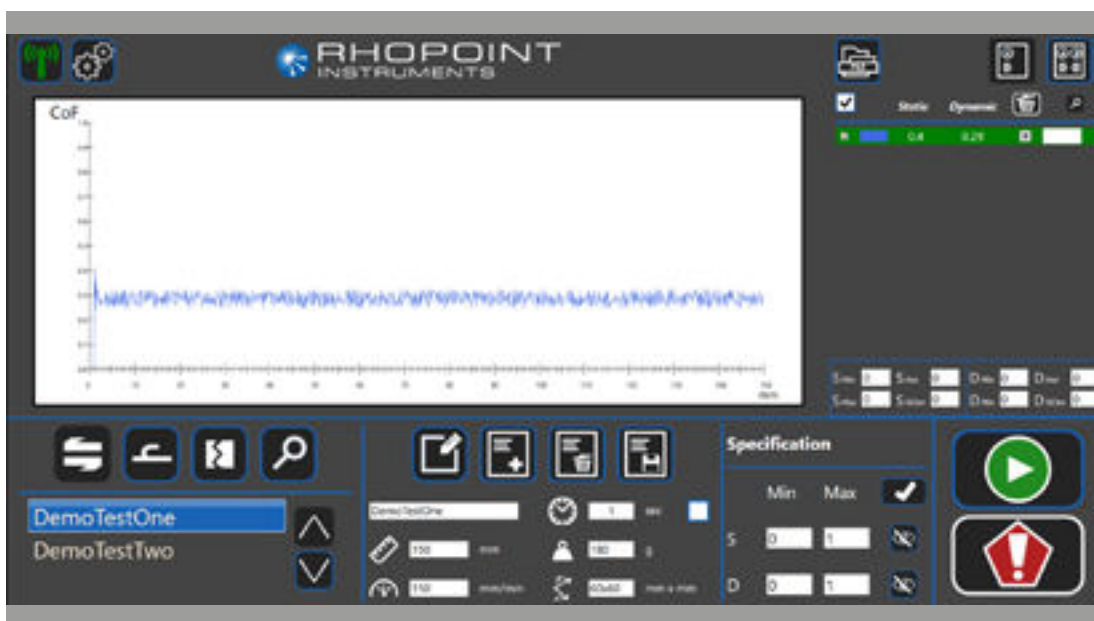


# Software (optional)

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.

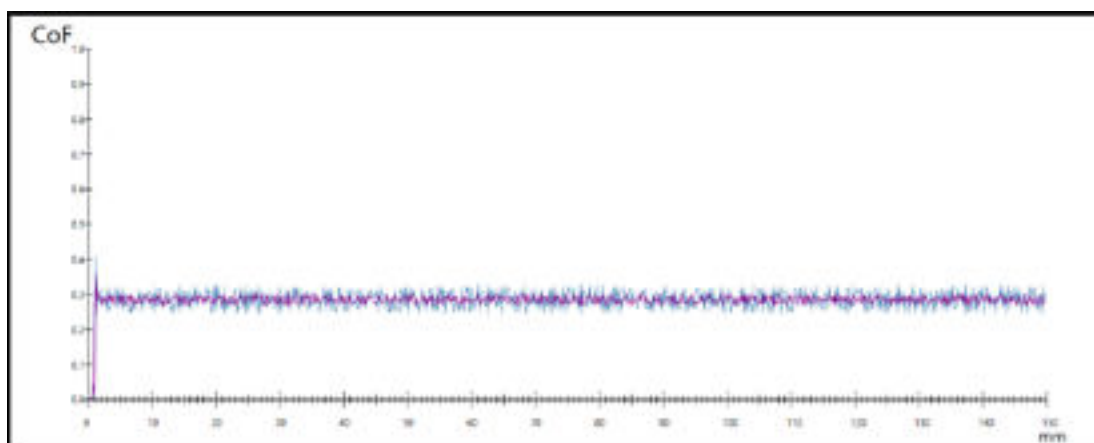
## Features

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.



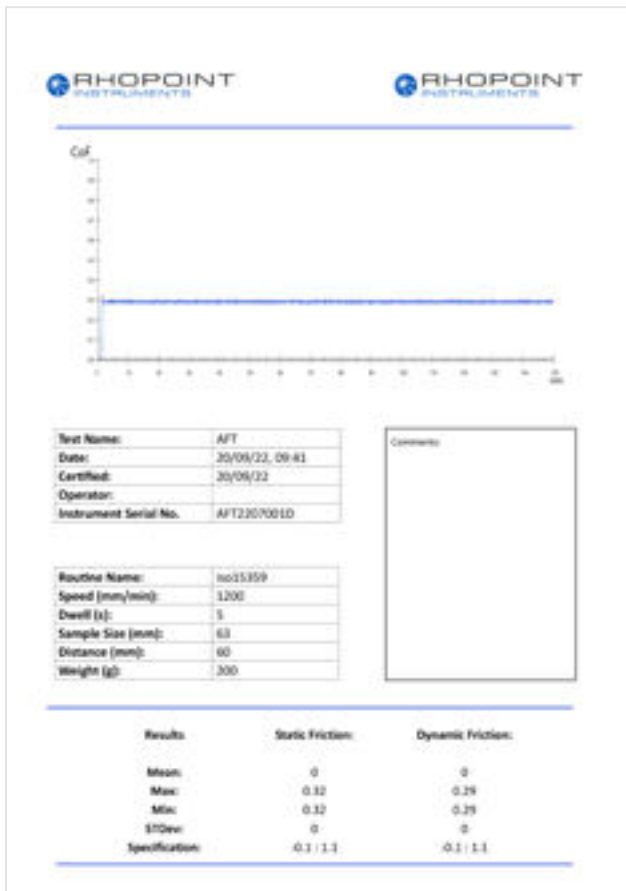
## Analysis of Results

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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# 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

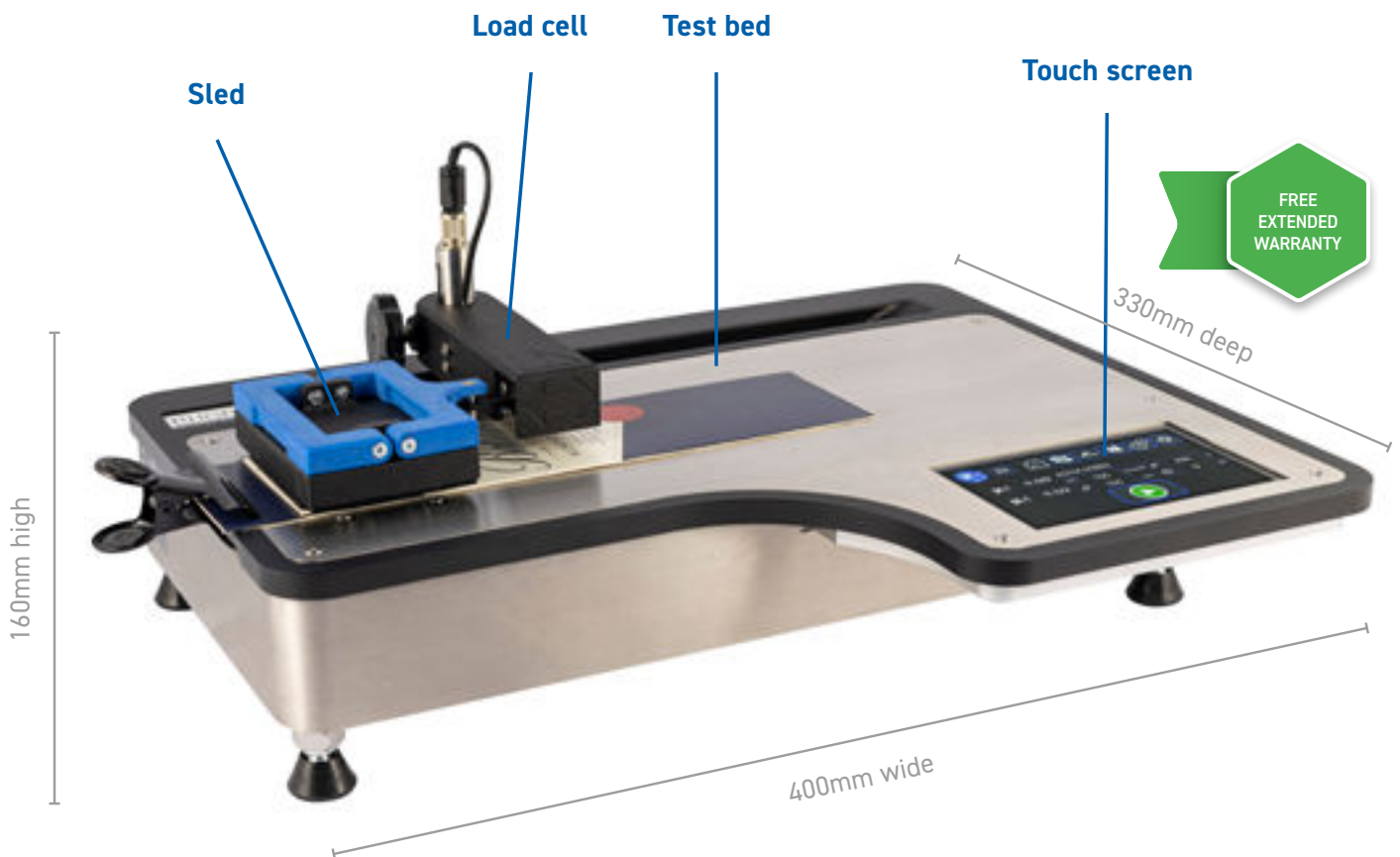


Packaging Industry



# 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<br>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<br>Includes peel, tear and seal test attachments |
| HAN-B6060-001     | UFT Lab software package, includes USB-Network adapter and network cable   |

# Accessories

## Included Accessories:

- 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          |
|----------------------------|--|---------------|
| HAN-B6060-010              | UFT friction template - board  | 63.5 x 63.5mm |
| HAN-B6060-011              | UFT friction template - film   | 63.5 x 148mm  |
| HAN-B6060-012              | UFT peel and seal strength template  | 25 x 200mm    |
| HAN-B6060-013              | UFT tear template  | 50 x 175mm    |
| HAN-B6060-014              | UFT seal strength template 2   | 15 x 200mm    |
| HAN-B6060-015              | UFT seal strength template 3   | 25.4 x 200mm  |
| RL-B80-001                 | Universal roller sample cutter (requires a die, select from below options) |               |
| RL-B-CUTTER/FRICTION       | Cutter die - friction - for use with carton & board                        |               |
| RL-B-CUTTER/FRICTION-PLAST | Cutter die - friction - for use with plastics                              |               |



**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.



### 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.



**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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