RHOPOINT INSTRUMENTS

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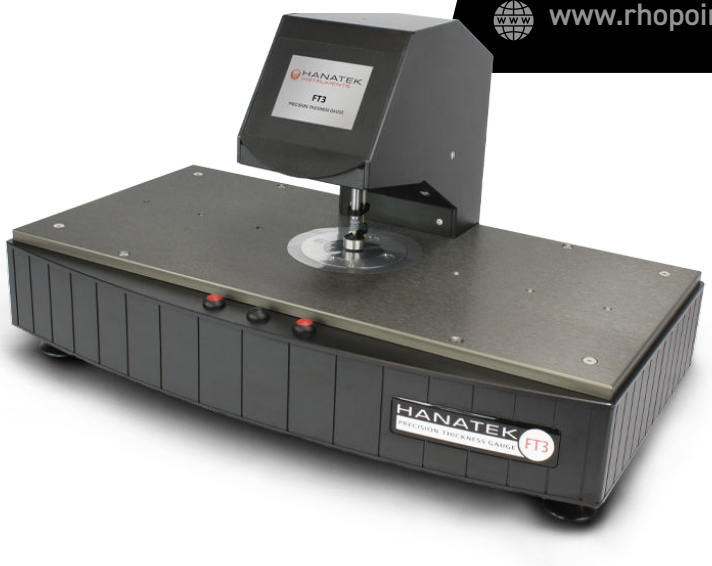


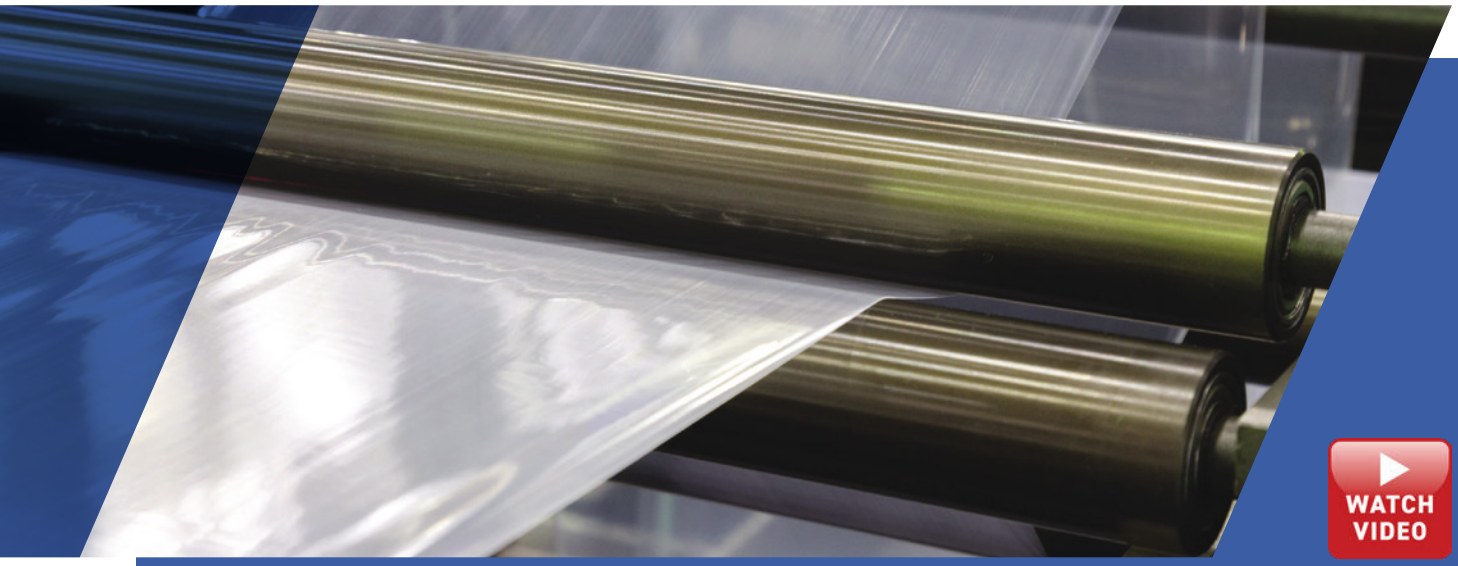
HANATEK FT3
PRECISION THICKNESS GAUGE

Precision Thickness Gauge

- Accurate and repeatable thickness measurements
- Compliant to multiple standards
- Choice of configuration

Manufactured by Rhopoint Instruments in the United Kingdom

Why is thickness measured?



Accurate and repeatable thickness measurements can improve product quality whilst controlling the costs associated with raw material usage.

The thickness of a material can directly impact the value of many other parameters including:

- **Strength**
- **Stiffness**
- **Puncture resistance**
- **WVTR**
- **CO^2**
- **0^2**
- **Haze**
- **Opacity**
- **Direct Costs**
  - Raw materials, especially speciality polymers
- **Indirect Costs**
  - Rework/Recycling/Replacement cost
  - Spoiled package content

Why is film thickness important?

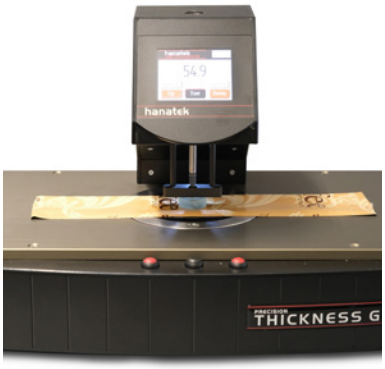
Plastic films are often used to encapsulate, protect and preserve products that are sold to consumers or industry. The film is used as a two way barrier to stop product leaking out and also external contaminants migrating in.

How is thickness measured?

Physical test parameters can be factory configured according to international standards or customer requirements. The accuracy of thickness measurement is determined by several key operating factors.

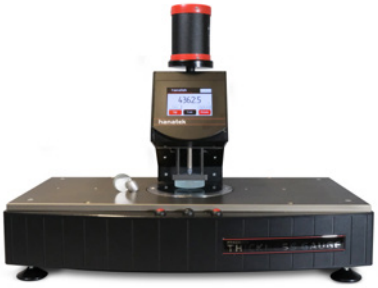
Parameters affecting the accuracy of thickness measurement:

Momentum and Profile of Measurement Probe



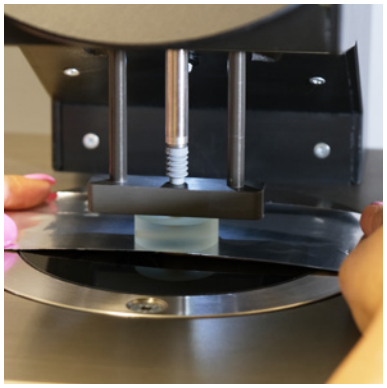
Measurement probes are factory configured according to the test standard required

Measurement Pressure



Additional weights are added to vary the pressure according to requirements from standards

Measurement Dwell Time

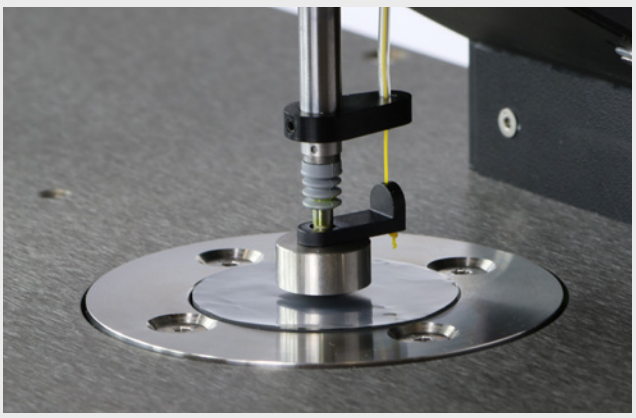


Dwell time can be varied according to application requirements

Instrument

The Instrument is linearised throughout its measurement range using multi point calibration

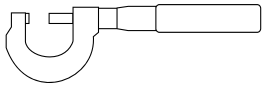
Flatness/Parallelism of Measurement Area

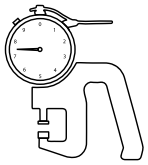


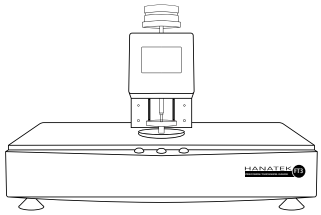
Flatness of measurement head/anvil < 0.2µm.
Typical parallelism < 1µm

Comparison of thickness measurement techniques

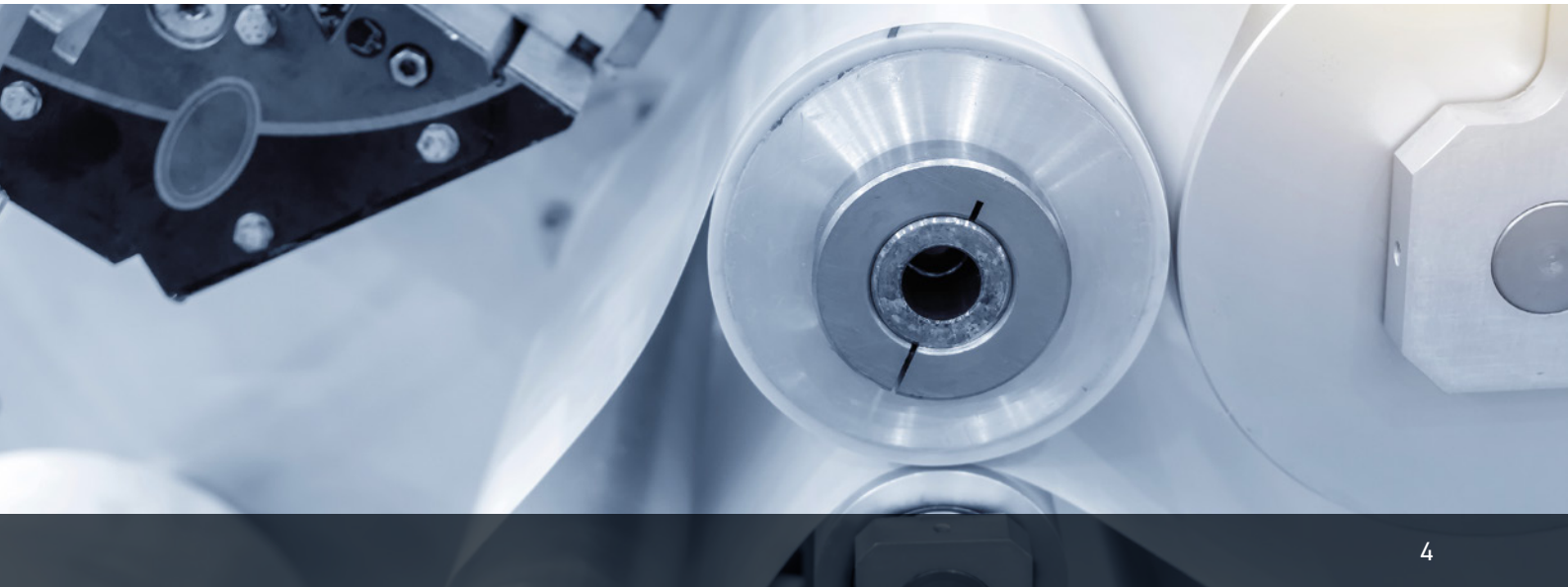
The accuracy of thickness measurement is determined by several key operating factors.







	Hand Held Micrometer	Bench/Sprung Micrometer	Precision Thickness Gauge
Measurement pressure	Variable by operator	Not always to standard	Fixed to standard or variable
Measurement foot	Not always to standard	Not always to standard	Fixed to relevant standard
Dwell time	Not controlled	Not controlled	Selected by operator
Measurement speed	Not controlled	Not controlled	Selected by operator
Programmable measurements	None	None	User select up to 500 readings
Statistical analysis	None	Manual/automatic	Automatic with time/date stamped printout
Sensor resolution	1 µm	1 µm	0.1 / 0.01 µm
Repeatability	2-10 µm	2-10 µm	0.4 µm (or better dependant on operating conditions)
Reproducibility	2-20 µm	2-10 µm	0.8 µm (or better dependant on operating conditions)

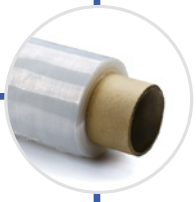


Applications

The Hanatek Precision Thickness Gauge (FT3) is specifically designed to quickly and accurately measure the thickness of a variety of substrates including film, paper, board, foil, tissue and textiles.

Carton board
Carton board thickness
ISO 3034

Plastic film
Thickness of plastic film
ASTM6988; ISO 4593 / BS2782



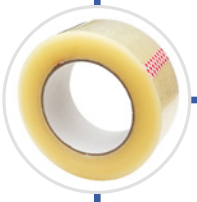
Flexible packaging
Flexible packaging thickness
ASTM F2251

Flooring
Floor coverings thickness
Solid throughout
EN428

Tissue paper
Tissue thickness
ISO 12625

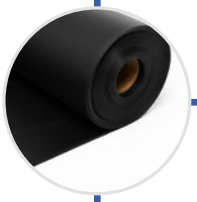
Paper
Thickness of paper and board
ISO 534, TAPPI T411

Adhesive tape
Thickness of pressure sensitive tapes
ASTM 3652

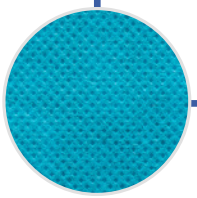


Textiles
Thickness of textile, leather
ASTM D1777, ISO 2589, ISO 5084

Geomembrane
Geosynthetics thickness
ASTM D5199

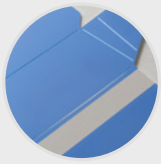


Nonwoven
Nonwoven thickness
ISO 9073-2/EDANA



Other Applications

Rhopoint can configure thickness gauges to suit applications that do not have a recommended international standard



Laminated packaging

Foil packaging

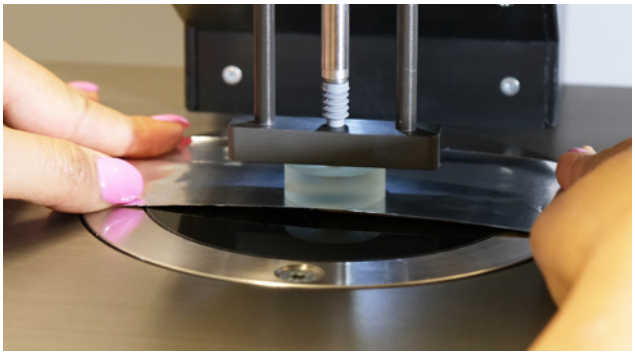
Barcode labels

Test types

Standard Test

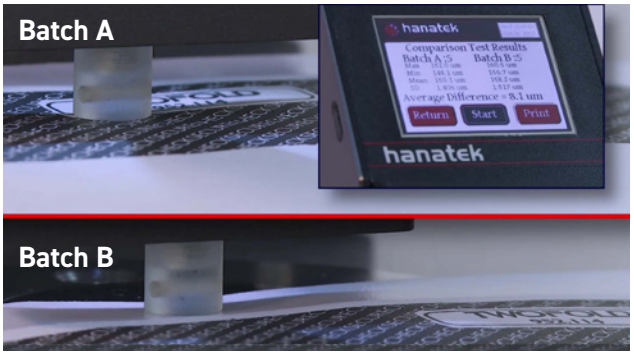
Full statistical analysis of up to 500 readings. Maximum, minimum, mean and standard deviation.

This option is for measuring sample sets using pre-defined up and down times as well as the speed of the measurement head.



Batch Test

This option puts the instrument into comparative test mode. This test is used to measure the relative thickness of two materials. Two batches of readings are taken; the average thickness difference between the two values is displayed. Calculates the thickness difference between two measurement sets, used to assess the thickness of coating, adhesives or sample batches.

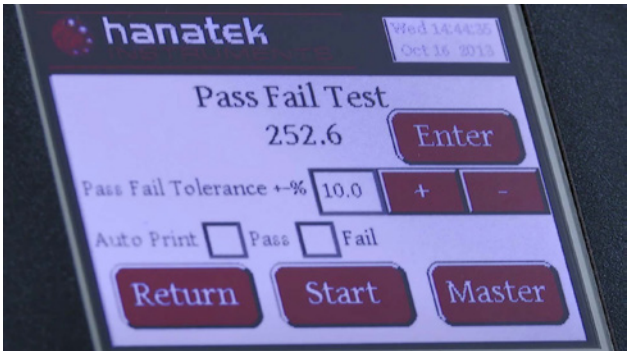


Standard Tare Test

Automatically tares the instrument before each test using user defined conditions. When this option is selected, the instrument is automatically TARED before each sample set is measured. This option virtually eliminates thermo-electronic drift and thermo-mechanical errors from measurement.

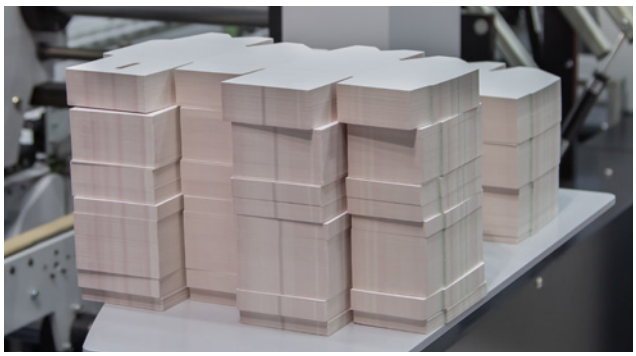
Pass/Fail Test

Enter the target material thickness and the allowed percentage tolerance. If the target thickness is not known, the material can be measured and assigned as the 'master'. Subsequent measurements this can be made against this reference material.



Sheet Count Test

This test mode will count sheets or layers of sample as well as showing the total thickness of a stack of samples. A master count of user selectable size is measured as a reference. This value is stored and subsequent measurements will be compared to this master reading. A pass/fail option is available to reject any reading out of the desired tolerance.



Benefits of using the Hanatek FT3

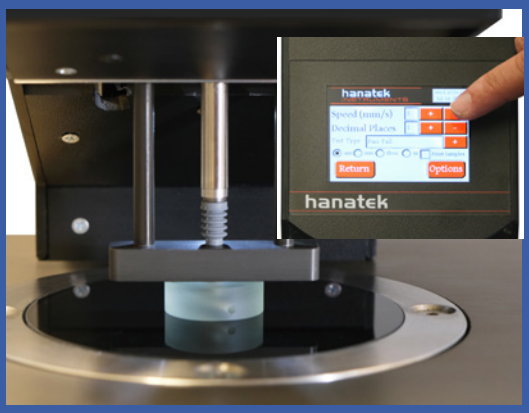
- Repeatability of better than 0.4 µm
- 0.01 µm resolution on the FT3-U version
- Measure in micron, millimeter or thou
- User programmable number of readings, dwell time and down speed
- Constant contact pressure, configured to ISO and ASTM standards

Defined Parameters

Up Time: This parameter allows the user to manipulate samples between measurements (1-10s).

Speed Measurement: The speed of the measurement head is especially important when measuring deformable materials (1-5mm/s).

Dwell/Down Time: The dwell time determines the setting time of the measuring head on compressible materials (1-1s).



Available configurations

Each standard of compliance specifies a different pressure which is calculated by the force applied to the sample through a measuring head of a given diameter.

FT3: Standard Instrument

Fixed pressure, factory configured to meet a single test standard or specification of your choice.

- Repeatability of better than 0.4 µm
- 0.1 µm resolution
- User programmable number of readings, dwell time and down speed

Thickness of plastic film ASTM 6988; ISO 4593/BS2782

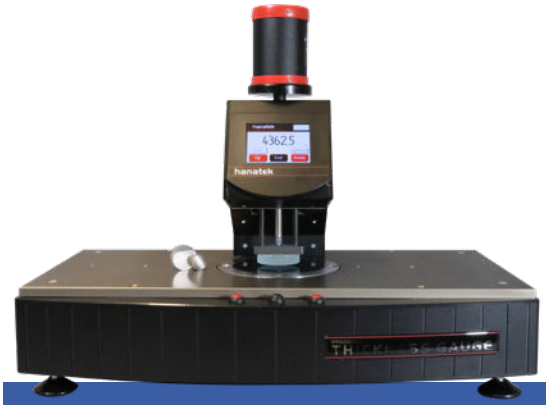
FT3-V: Variable Instrument*

Test pressure is varied by adding external weights to the instrument platform. Factory configured measurement head size. One external weight is included to achieve compliance to a second measurement standard or assess material compressibility.

- Additional external weights can be applied to increase measurement pressure up to 4kg total
- Variable force by manual addition of weight

Thickness of paper and card board ISO 534 & TAPPI T411

*Note: The standards must be able to utilise the same size measuring head



FT3V-LAB: Laboratory Instrument*

Test pressure is varied by adding extra weights to the instrument platform or changing the size of the measurement head.

- Two external weights and one additional measuring head included to achieve compliance to multiple standards or customer specifications
- Achieve compliance to multiple standards

Multiple standards and applications

*Note: This product is suitable for use by test and calibration laboratories as full re-calibration is required between measurement head changes

FT3-U: Ultra High Precision Instrument

Fixed pressure configured to meet a single test standard or specification

- Enhanced resolution of 0.01 µm for applications requiring ultra high precision
- Factory configured measurement mass between 50g and 500g available
- Measurement heads. 21.56mm & 30.00mm domed
- Custom radius domed heads available on request

ISO 4593 standard of compliance, fixed pressure

Accessories

Included:

UKAS traceable calibration certificate

Traceable 2000 µm and 500 µm checking gauges

Weights

Measurement heads

Instrument	UKAS traceable calibration certificate	Traceable 2000 µm and 500 µm checking gauges	Additional Weights	Additional Measurement Head
FT3: Standard Instrument	✓	✓	✗	✗
FT3-V: Variable Instrument	✓	✓	One weight included	✗
FT3-LAB: Laboratory Instrument	✓	✓	One weight included	One head included
FT3-U: Ultra High Precision Instrument	✓	✓	✗	✗

Results Printer

QA Labels Record Results

Throughout the Batch Securely time and date stamped labels with statistical results can be produced throughout a batch run and attached to job card or retained samples.

This traceable control gives the customer confidence that the whole batch of product is within specification and allows manufacturers to issue certificates of conformance.

Ordering information

Standard	Application	Details	Order Code
FT3-Standard			
ISO 3034	Carton Board	Board thickness	HAN-A8041-ISO3034
ASTM D5199	Geomembrane	Geomembranes thickness	HAN-A8041-ASTMD5199
ASTM6988	Film	Thickness of plastic film standard pressure	HAN-A8041-ASTMD6988/STD
ASTM6988	Film	Thickness of plastic film	HAN-A8041-ASTMD6988
ISO 4593 / BS2782	Film	PART B Plastic film thickness	HAN-A8041-ISO4593/BS2782-6
ASTM6988	Film	Thickness of plastic film, low pressure (films <25 µm)	HAN-A8041-ASTMD6988/LOW
ASTM F2251	Flexible Packaging	Flexible packaging thickness	HAN-A8041-ASTMF2251
EN428	Flooring	Resilient floor coverings thickness composition cork	HAN-A8041-EN428/11.3MM
EN428	Flooring	Resilient floor coverings thickness at least 1 non solid layer	HAN-A8041-EN428/25.3MM
EN428	Flooring	Resilient floor coverings thickness Rubber and other relief materials	HAN-A8041-EN428/50MM
EN428	Flooring	Resilient floor coverings thickness Solid throughout	HAN-A8041-EN428/8MM
ISO 9073-2/EDANA	Nonwoven	Nonwoven thickness	HAN-A8041-ISO9073/2
ISO 534	Paper, Carton Board	Thickness of paper and board	HAN-A8041-ISO534
TAPPI T411	Paper, Carton Board	Thickness of paper and board	HAN-A8041-TAPPIT411
TAPPIT411+ISO534	Paper, Carton Board	Thickness of paper and board	HAN-A8041-TAPPIT411+ISO534
ASTM 3652	Tape	Standard test method for thickness of pressure sensitive tapes	HAN-A8041-ASTM3652
DIN EN1942	Tape	Self-adhesive tape thickness	HAN-A8041-DINEN1942
ASTM D1777 Part 1	Textile	Woven, knitted and textured fabrics	HAN-A8041-ASTMD1777/1
ASTM D1777 Part 2	Textile	Coated fabrics, narrow fabrics, webbing, tapes, ribbons, braids	HAN-A8041-ASTMD1777/2
ASTM D1777 Part 3	Textile	Films, glass cloths, glass tapes thickness	HAN-A8041-ASTMD1777/3
ASTM D1777 Part 4	Textile	Glass fibre mat	HAN-A8041-ASTMD1777/4
ASTM D1777 Part 5	Textile	Blankets, pile fabrics, napped fabrics thickness	HAN-A8041-ASTMD1777/5
ISO 2589	Textile	Thickness of leather	HAN-A8041-ISO2589
ISO 5084	Textile	Thickness of textile	HAN-A8041-ISO5084
ISO 12625	Tissue	Tissue thickness	HAN-A8041-ISO12625
FT3-V			
TAPPI T411/ISO 534	Paper, Carton Board	Thickness of paper and board	HAN-A8041-TAPPIT411+ISO534
ASTMD6988 (both parts)	Film	Thickness of plastic film	HAN-A8041-ASTMD6988
ASTMD1777 Part 1 & 5	Textile	Thickness of textile	HAN-A8041-ASTMD1777/1+5
FT3V-LAB			
Multiple		Interchangeable measuring heads, variable downforce, includes 2 measuring heads, 2 weights and recalibration kit	HAN-A8041 P THICK L
FT3-U			
Multiple		Precision Thickness Gauge, Fixed Downforce, 21.56rad Domed Measuring Head, 0.01µm	HAN-A8041 P THICK U

Optional Accessories - Order Codes	
Printer	HAN-B-PRINTER/2
Footswitch	HAN-B8041-FOOTSWITCH

Please contact us for to configure an instrument to meet multiple standards not listed above

Specification

Instrument Specifications	Details
Resolution	0.1 µm (0.01 µm on FT3-U)
Repeatability	Better than 0.4 µm*
Reproducibility	Better than 0.8 µm*
Measurement range	0 – 4000 µm
Output	RS232
Power	110/240V 50/60Hz
	*Dependant on operating conditions and configuration of instrument

Instrument Dimensions	Details
Size (standard base)	320mm (H) x 543mm (W) x 300mm (D)
Size (small base)	320mm (H) x 350mm (W) x 242mm (D)
Net weight	10kg (max)
Packed dimensions (standard base)	550mm (H) x 620mm (W) x 430mm (D)
Packed dimensions (small base)	500mm (H) x 410mm (W) x 430mm (D)
Commodity code	9024 8019

Standard Measurement Heads for FT3, FT3-V & FT3-U	Details
Ball	3mm radius
Domed	21.56 / 30.0mm radius
Flat	6 / 6.35 / 8 / 10 / 11.3 / 16 / 25.3 / 28.7 / 35.7 / 50.5mm diameter**
	**Non standard heads between 6 and 50mm diameter are available on request

Test Masses	Details
FT3 Standard	50g - 2000g
FT3-V	100g - 4000g
FT3-U	50g - 500g
FT3V-LAB	100g - 4000g

Free extended 2 year warranty: Requires registration at www.rhopointinstruments.com within 28 days of purchase. Without registration, 1 year standard warranty applies.

Calibration and service: Fast and economical service via our global network of accredited calibration and service centres. Please visit www.rhopointinstruments.com for detailed information.

RHOPOINT INSTRUMENTS

RHOPOINT AMERICAS

TRY BEFORE YOU BUY

We offer two options for you to try out the Precision Thickness Gauge before buying

1. **Online demonstration:** Online presentation of the Precision Thickness Gauge 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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bsi ISO 9001 Quality Management Systems CERTIFIED FS 695372 ISO 14001 Environmental Management CERTIFIED EMS 741433

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