hanatek

RUB TESTER RT3

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INTRODUCTION TO RUB AND ABRASION TESTING

A laboratory rub proof tester is a tool for comparing the rubbing, scuffing and marking of inks and coatings on commercial print and packaging, it can be used as part of quality control in a production environment or an aid to development in the laboratory.

Protective packaging, magazines, commercial documents and promotional material are all printed with inks and coatings which are designed to remain clear, bright and undamaged during the items lifetime.

Unfortunately movement during packing, shipping or everyday handling can cause items to mark or scuff. The coatings and substrates used, the cure conditions and the amount of abrasion all affect the severity of this damage.

Modern papers and carton boards can prove a challenge for inks and coatings, harsh substrates such as matt paper and recycled board are prone to marking, scuffing and rubbing during post print production and transportation.

The rub tester allows the user to compare the durability of printed cartons, commercial print or proofs of ink and varnish on a wide range of substrates.

The tester uses a rotary motion to abrade the printed surface against virgin material, face to face against itself or to a reference material.
The user can vary the abrasion force or number of cycles to adjust the severity of the test.

The Hanatek rub tester has been designed and manufactured in conjunction with Pira International for assessing the rotational rub resistance of printed materials. It meets the requirements of BS 3110, Method 2 – “Methods for Measuring the Rub Resistance of Print – Rotary Method”.

The Hanatek rub tester replicates the test method used on older style instruments such as the Pira/Wallace rubproofness tester but benefits from the inclusion of digital weight and cycle selection, assuring accurate unsupervised abrasion testing.

Hanatek also supply two optional abrasion feet and replacement pads-

Scouring Abrasion-
Using standard 3M material the scouring abrasion test simulates heavy scratching and abrasion of the material under test. This test can be used for plastic materials such as labels. This test can be performed wet or dry.

Felt Pad-
Used to wet abrade the surface of the printed material this test can gauge soap/detergent/water resistance of the sample.

WARNING – THE HANATEK RUB TESTER HAS MOVING PARTS WHICH MAY CONSTITUTE A PINCHING RISK FOR HAND/FINGERS AND ENTANGLEMENT RISKS FOR HAIR OR CLOTHING

REASONABLE CARE MUST BE TAKEN AT ALL TIMES – DO NOT TOUCH THE MOVING PARTS DURING OPERATION AND ENSURE HAIR AND CLOTHING ARE KEPT CLEAR.

ASSEMBLY

Warning-The rub tester is heavy, two people are required to unpack and move the instrument.

1.0 Remove the Tester from all packaging

It is recommended that the case and packing material is retained in case of future shipment.

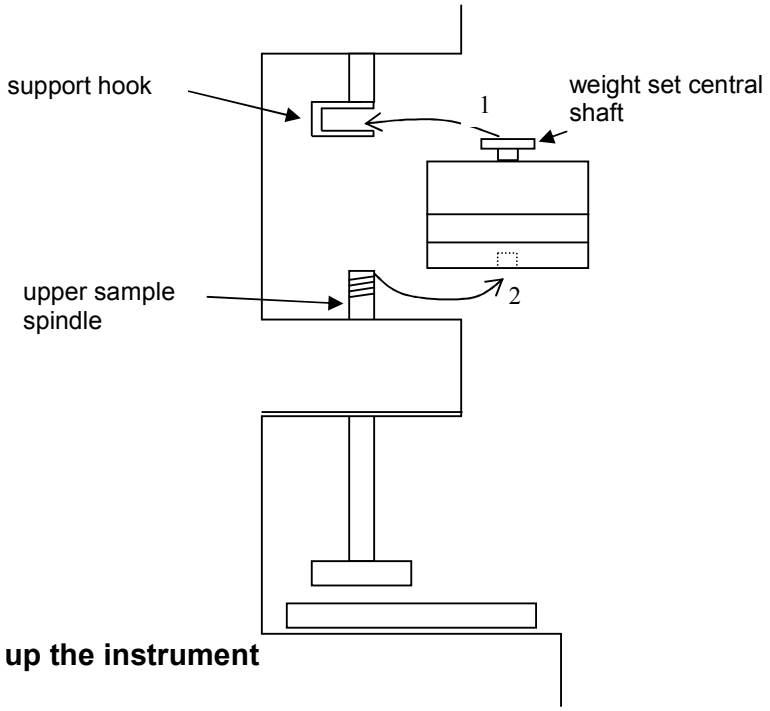
2.0 Fit the weights

The rub tester is shipped with the weight set separate to prevent damage to the upper spindle resulting from handling impacts.

The instrument should never be transported with the weight set attached.

To fit the weight set lift the central shaft within the weights and locate onto the support hook, turning the weights so that the flats on the shaft align with the entry gap in the hook.

Next raise the upper sample spindle into the threaded hole underneath the weights, and screw the weight set to the spindle.



Fitting the weight set – side view

Power up the instrument

1.0 Use the supplied mains lead to connect the Hanatek Rub Tester to a suitable mains supply.

2.0 Switch on the mains isolation switch at the rear of the instrument. Flick the front ON/OFF switch to the ON position.

-the **on** switch will illuminate

-the counter display will come live and display the last settings used (from when the instrument was last switched off)

-the green **up** button will illuminate – this is the default start-up setting. If the weights and spindle are in a lower position they will automatically drive to the up position on switch on.

3.0 The instrument is now powered up and ready for use.

RUBPROOFNESS TESTING

1.0 Prepare the upper sample

This 50mm dia. sample is usually cut from a sample of printed material. Select an area on the printed sample for testing, it is usual to test areas that are MOST likely to fail; these include any heavy ink build areas or spot colours

Use the sample cutter to cut a small circle from the printed area which corresponds to the selected test area.

It is usual to test several samples so an “average” result can be seen.

2.0 Prepare the lower sample

There are three options for testing;

-Face to face.
Select an area from the printed material and cut a large sample using the sample cutter.

-Face to virgin substrate
A large circle should be cut from a sheet of unprinted material and used for testing.

-Face to reference substrate
The large circle should be taken from a sheet of high quality reference material. Ivorex or Melotex paper boards are usual reference materials for offset print testing.

ABRASION TESTING

1.0 Determine the Abrasion method

Select either the Scouring pad or felt pad attachments to use in place of the upper sample (these are optional extras and can be purchased from Hanatek).

Scouring Pad- Simulates heavy abrasion of the material under test. This test can be used for plastic materials such as labels and can be performed wet or dry.

Felt Pad- Used to wet abrade the surface of the printed material, this test can the gauge soap/detergent/water resistance of a printed sample.

3.0 Prepare the lower sample

Cut a large (115mm dia. Sample) from the printed material, it is usual to test areas that are MOST likely to fail; these include any heavy ink build areas or spot colour.

TEST SET UP

1.0 Select the required number of abrasion-revolutions.
Increasing the number of revolution increases the severity of the test.
Typical values for offset inks/coatings are 50, 100 and 200 revolutions.

Rub Tester Digital Counter

Completed Revolutions

Target Revolutions

Digit Selection buttons

Reset Counter Button

Program and Select Buttons

2.0 To change the number of selected revolutions, press the select (SEL) button once so that "P1" appears in the upper part of the display.

3.0 Use the digit selection buttons to change the "Target Revolutions" to the correct value

4.0 Press the select (SEL) button once more to return to the normal display.

DOWN FORCE SELECTION

1.0 Select the required downforce.
The weight set provided allows for 3 test pressures,

pounds / inch^2 (p.s.i.)	**kPa equivalent**
0.5	3.45
1.0	6.90
2.0	13.80

2.0 The down forces are selected by turning the weight selection dial to apply the force of one, two or three weights onto the sample.

Increasing the down force increases the severity of the test.

The Weight Selection Dial showing 0.5, 1 and 2 psi.

SAMPLE POSITIONING- RUBPROOFNESS TESTING

1.0 Remove the metal ring from around the bottom platen.

2.0 Place the large cut sample in the ring and replace the ring around the bottom platen so the test side of the sample is uppermost.

3.0 Turn the float dial so that the upper spindle is resting a 2-3 millimetres above the test platen.

Slide the small test sample underneath the upper spindle with the side to be tested face down and in contact with the large sample.

Manually adjust the sample so that when the upper spindle is in contact with the lower sample, the small sample exactly covers the foam pad.

SAMPLE POSITIONING- ABRASION TESTING

1.0 Remove the metal ring from around the bottom platen.

2.0 Place the large cut sample in the ring and replace it around the bottom platen so the side to be tested is uppermost.

3.0 Select the required test attachment- Scouring Pad or Felt Pad.

STARTING THE TEST

1.0 Press the down button to bring the upper spindle in contact with the samples.

If performing a rubproofness test, once again check again that the sample is exactly under the upper foam pad. (adjust manually in conjunction with the float switch if necessary)

2.0 Press the start button to begin the test.

3.0 Upon completing the preset number of revolutions the upper platen will be raised and the test is complete.

4.0 The samples should be removed and assessed for their resistance to marking (rubproffness/abrasion resistance).

TERMINATING OR INTERRUPTING THE TEST

1.0 Press the “UP” button at any time to raise the upper spindle and interrupt the rotation.

2.0 To restart the test, use the float switch to position the upper spindle 1-2mm above the sample and press the “Down” button. The test will automatically restart continuing the number of counts on the display.

3.0 To Re-set the test and start the count from ZERO. Press the RESET key on the instrument counter.

Replace the samples if required and use the float switch to position the upper spindle 1-2mm above the sample and press the “Down” button. Press the “DOWN” button and the test will start automatically.

Note-When a test has been interrupted the instrument will restart the next time the “DOWN” button is pressed (without the need to press “START”).
It is therefore important that the sample is positioned correctly and the upper spindle is “FLOATED” 1-2 mm above the bottom platen.

If the upper spindle is “FLOATED” too high above the platen the rotations will begin before the weights are in contact with the sample.

SERVICE

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