

## Introduction:

In intaglio printing the pressure between the engraved cylinder and the paper is very high. From this the printed paper can have a certain deformation: the paper has been embossed. There can be a difference in embossing between types of paper and types of plastic film. This information leaflet describes a method to make a standard embossing.

## Principle:

A printing disc with a certain groove in it is rolled off against the substrate under standard conditions. The embossing is measured with a profile measurement system.

## Method of operation:

- It is recommended to execute the test in the standard atmosphere; to most standards it is  $23.0 \pm 1.0$  °C ( $73.4 \pm 1.8$  °F) and  $50 \pm 2\%$  rh.
- For the operation of the AIC2-5T2000 and Global Standard Tester follow the instructions of the manuals, IGT information leaflet W100 and the displays accurately.
- Handle the samples carefully.

## Preparation

1. Condition the papers or plastic film during > 6 hours in the standard atmosphere.
2. Cut the paper strips (preferable 55 x 340 mm, 12 strips per sample) and mark them with top and/or bottom side, machine and/or cross direction and a code for the type of material.
3. For AIC2-5T2000 only:
  - 3.1. Mount the packing on the sector. See W100.
  - 3.2. Adjust the printing force to a desired value and pay attention for the right backlash. See W100.
  - 3.3. Adjust the printing speed to 0.2 m/s in the constant speed mode (□).
4. For GST only:
  - 4.1. If not present on the Global Standard Tester, mount the sector with clamps. See W100.
  - 4.2. Mount the packing on the sector. See W100.
  - 4.3. Select the menu "Embossing" in the display.
5. Degrease the printing disc with a rag with ethanol.
6. Mount the printing disc on the printing disc shaft.
7. Check the functioning of the tester following the instructions in the chapter "Execution".

## Execution

1. Adjust the printing force to 100 N.
2. Mount a test strip on the sector.
3. Make a print. See W100.
4. Take off the printed strip from the sector and store it carefully.
5. Repeat the points 2 thru 4 for every test strip with the same printing force. The test has to be carried out at least three times.
6. Repeat the points 1 thru 5 for 300 N, 600 N and 1000 N. It is recommended to perform the test at least 3 times per sample.
7. Measure the results of embossing as described in the chapter "Assessment".
8. After finishing the tests clean the disc with rags and ethanol and grease it with acid free vaseline.
9. Store all parts as described in the manuals.
10. Make an accurate record of the conditions and the results of the test.

## Materials / testing conditions

1	IGT AIC2-5T2000 or IGT Global Standard Tester 2 or IGT Global Standard Tester 3 or IGT Global Standard Tester 3H	710.000.000 412.000.000 416.000.000 467.000.000
2	Printing disc, grooved, 24 mm wide, groove depth 120 µm and groove width 2 mm	402.324
3	Packing, paper, width 55 mm	404.001.005
4	Sector with clamps (for GST 2/3)	361.000.000
5	Strips of paper or plastic to be tested, preferable 55 x 340 mm, 3 strips per sample	
6	Lint free rags	
7	Ethanol	
8	Acid free vaseline	
9	Optical or mechanical profile measurement system	

Printing force	100, 300, 600 1000 N
Printing speed	Constant, 0.2 m/s

- ▶ The numbers 1 thru 4 are available at IGT Testing Systems.
- ▶ The numbers 2 and 3 can be obtained as Embossing Set for IGT AIC2-5T2000 and GST 2/3/3H, article number 478.000.710.
- ▶ *This leaflet contains article numbers per January 1st, 2006* ◀.

## Assessment

1. Measure the height of the embossing with the profile measurement system at least four times on every strip.
2. Calculate the average and if desired, the standard deviation. Sometimes it can be useful to mention the highest and lowest values as well.

## Notes:

1. The test results of the AIC2-5T2000, AIC2-5 and Global Standard Tester 2, 3 and 3-H compare well with one another, on the condition that they have been carried out under the same conditions.

▶ *In comparison to older IGT leaflets, this leaflet is valid for the AIC2-5T2000 and Global Standard Testers as mentioned*

This information leaflet has been compiled with the utmost care. However, may you find any inadequacies or if there are any comments, we kindly request you to send these to IGT Testing Systems, Sales Department.