IGT Testing Systems

Research, development and production of testing equipment for the printing and allied industries

IGT Information leaflet W68
PRINTING THROUGH (65 Shore A)
IGT AIC2-5T2000, Global Standard Tester 2/3/3H

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Introduction:

Many times paper is printed on both sides. The ink penetrates into the paper from the one side to the other side. When the ink penetration into the paper is very strong the ink can be visible at the other side and reading the printed matter at the other side can be disturbed. In this case we speak about striking through. This phenomenon can be tested with the print through or striking through test.

The method in this information leaflet describes the method with rubber of 65 Shore A; leaflet W43 describes the method with rubber of 85 Shore A

Principle:

Paper is printed at one side. The ink penetrates into the paper. After a certain time the ink does not penetrate any more. The whiteness at the back of the print and at the paper without the ink is measured. The print through is calculated as a percentage of the original whiteness of the paper.

Method of operation:

- It is recommended to execute the test in the standard atmosphere; to most standards it is 23.0 ± 1.0 °C (73.4 ± 1.8 °F) and 50 ± 2% rh.
- For the operation of the AIC2-5T2000, Global Standard Tester, High Speed Inking Unit 4 and ink pipette follow the instructions of the manuals, IGT information leaflet W100 and the displays accurately.
- Handle the samples carefully.

Preparation

1. Condition the papers, the ink and equipment during > 6 hours in the standard atmosphere.
2. Cut the paper strips (preferable 55 x 340 mm, 3 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. Adjust the printing force of the upper printing disc shaft to 625 N and pay attention for the right backlash. See W100. NOTE: This type of printing disc (ø 66 mm) is not the standard type for the AIC2-5T2000; for that reason the backlash must be adjusted.
   - 3.2. Adjust the printing speed to 0.2 m/s in the constant speed mode (▭).
4. For GST2/3/3H only: Select the menu "Print through" in the display.
5. Check the functioning of the tester following the instructions in the chapter "Execution".
6. Fill the ink pipette with the set off ink.
7. Adjust the High Speed Inking Unit with the following settings:
   - Water bath: 23.0º C (73.4º F)
   - Top roller: 4-segmented, rubber for conventional inks
   - Mode: 2
   - Starting time: 5 s
   - Distribution time: 10 s
   - Distribution speed: 1.2 m/s
   - Inking time printing disc: 5 s
8. Check the functioning of the High Speed Inking Unit.

Execution

1. Apply 0.35 cm³ of ink to a segment of the inking unit and distribute the ink. NOTE: It is not advised to add some ink after a test.
2. Place the printing disc on the printing disc shaft of the inking unit and ink the disc during the preset time.
3. Mount a test strip on the sector of the printability tester.
4. Remove the disc from the inking unit and place it on the (top) shaft of the printability tester.
5. Make a print. See W100.
6. Remove the test strip from the sector.

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	IGT High Speed Inking Unit 4	466.000.710
3	(Top roller with 4 segments for conventional inks)	(466.003.003)
4	IGT ink pipette	408.000.200
5	Printing disc, with rubber 65 Shore A, coated, 50 mm, ø 66 mm	402.087
6	Set off ink	404.520.068
7	Strips of paper to be tested, preferable 55 x 340 mm, 3 strips per sample	
8	Lint free rags	
9	Cleaning naphtha	
10	Whiteness tester	

Printing force	625 N
Printing speed	Constant, 0.2 m/s
Ink film thickness (volume)	8 µm (0.35 cm³)

► The numbers 1 thru 6 are available at IGT Testing Systems.
► The numbers 5 and 6 can be obtained as Striking Through Set for IGT AIC2-5T2000 and GST 2/3/3H, article number 475.000.710.068.
►*This leaflet contains article numbers per January 1st, 2006*◄.

7. Store the printed strip at a place that it cannot be damaged for at least 5 hours.
8. Check the test result after 5 hours as pointed out in the chapter "Assessment".
9. Remove the printing disc from the tester and clean it with the rags and naphtha.
10. Clean the rollers of the inking unit or use the next segment for the following test.
11. Repeat the points 1 thru 10 for the next test. It is recommended to perform the test at least three times
12. After finishing the tests clean and store all parts as described in the manuals.
13. Make an accurate record of the conditions and the results of the test.

Assessment

1. Measure the whiteness on the back of the paper strip on the place where the paper has been printed (R_b) and on the place where the paper has not been printed (R_w).
2. Calculate the print through as:
   Print through = (R_b : R_w) x 100%
3. Repeat the points 1 and 2 for every strip.
4. 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 Testers 2, 3 and 3H compare well with one another on the condition that the tests have been carried out under the same testing conditions.

2. The storage life of the ink in the original packing is 3 years maximum; in an opened packing 1 year.

► *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.

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