

Introduction

There are many factors determining the final quality of the print. Among these the ink absorption of the rubber blanket is one of them. The absorption is influenced by the structure of the blanket. So, if there is a difference in the absorption between two rubber blankets, there is a difference in the structure and this can lead to a certain difference in the print quality, although the blanket has been saturated with ink during the printing process.

This IGT information leaflet describes the following methods:

- W61 absorption, 1, 2 or 4 fields, 0,7 m/s.
- W79 absorption, 4 or 10 fields, 0,2 m/s.

Principle

A strip of the rubber blanket to be tested is fixed on the sector of the printability tester. This strip is inked by printing it with an inked printing disc. After certain times the inked rubber blanket is brought into contact with a blank strip of a standard set off paper. Part of the ink, which is present at the surface of the rubber blanket, will smear on the set off paper strip. The more ink is being absorbed by the rubber blanket, the less ink will smear on the set off paper strip. The density of the smeared ink on the paper strip will be a value for the absorption.

The complete range of recommended set off times is about: 0,1-3-6-10-15-30-60-120 s. All these times can be tested with the IGT AIC2-5T2000 and Global Standard Tester 2; with the IGT Global Standard Tester 3H only the longer times can be tested.

For blankets with little absorption, longer times may be of more importance.

Method of operation

- It is recommended to execute the test in the standard atmosphere; to most standards it is 23,0 ± 1,0 °C and 50 ± 2% rh.
- For the operation of the AIC2-5T2000, Global Standard Tester, Inking Unit 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 blankets, the paper, the ink and the equipment during >6 hours in the standard atmosphere.
2. Cut the blanket strips and mark them with a code for the type of blanket.
3. Shorten the set off strips, IGT code C2846 to a length of 200 mm.
4. Remove the brush from the tester.



Fig. 1: Absorption of rubber blanket with Global Standard Tester 2

5. Mount a strip of rubber blanket on the sector. See W100.
6. For AIC2-5T2000 only:
 - 6.1. Adjust the printing force of the printing disc shafts to 625 N and pay attention for the right backlash. See W100.
 - 6.2. Adjust the printing speed to 0,7 m/s in the constant speed mode (□).
7. For GST2 only:
 - 7.1. Select the menu "Set off" in the display.
 - 7.2. Select the desired sub menu:
 - 7.2.1. "2 fields" for a test strip with 2 different interval times and adjust the speed to 0,7 m/s.
 - 7.2.2. "4 fields" for a test strip with 4 different interval times and adjust the speed to 0,7 or 0,2 m/s.
 - 7.2.3. "10 fields" for a test strip with 4 different interval times and adjust the speed to 0,2 m/s.
 - 7.3. Adjust the printing force of both printing disc shafts to 625 N.
 NOTE: for adjusting the printing force, it is necessary to switch the "Fixed Menus" in the "Options"-menu to OFF.
8. For GST 3H only:
 - 8.1. Select the menu "Colour/density" in the display.
 - 8.2. Adjust the printing force to 625 N.
 NOTE: for adjusting the printing force, it is necessary to switch the "Fixed Menus" in the "Options"-menu to OFF.
 - 8.3. Adjust the printing speed to 0,7 m/s
 NOTE: for adjusting the printing speed, it is necessary to switch the "Fixed Menus" in the "Options"-menu to OFF.

Materials / Testing conditions		
1	IGT AIC2-5T2000 or IGT Global Standard Tester 2 or IGT Global Standard Tester 3H	710.000.000 412.000.000 467.000.000
2	IGT High Speed Inking Unit 4 or IGT Inking Unit AE FOUR	466.000.710 465.000.710
3	Top roller with 4 segments for conventional inks	466.003.003
4	IGT ink pipette	408.000.200
5	Printing disc, aluminum, 50 mm (2x)	402.331
6	IGT Density ink	404.003.001
7	Strips of reference paper IGT code C2846 55 mm	404.009.029
Strips of rubber blanket to be tested, MD, preferable 55*340 mm ² , 3 strips per sample		
Densitometer (if required)		
Lint free rags and cleaning naphtha		
Petroleum ether		
Printing- and set off force	625 N	
Printing and set off speed	Constant, 0,7 m/s (W61) Constant, 0,2 m/s (W79)	
Times between printing and set off	At choice	
Ink film thickness (volume)	2,4 and 4,8 μm (0,10 and 0,20 cm ³)	
► The numbers 1 thru 7 are available at IGT Testing Systems.		

9. Fill the ink pipette with the IGT density ink.
10. For High Speed Inking Unit 4 only:
 Adjust the unit with the following settings:
 - Water bath: 23,0° C
 - Top roller: 4-segmented, rubber for conventional inks
 - Mode: 2
 - Startup time: 10 s
 - Distribution time: 20 s
 - Distribution speed: 0,5 m/s
 - Inking time printing discs: 15 s
11. For Inking Unit AE FOUR only: see manual or W100.
12. Take off the strip of rubber blanket from the sector.

Execution

1. Mount a strip of the rubber blanket to be tested on the sector. See W100.
2. Clean the blanket with lint free rags and petroleum ether and allow it to dry.
 WARNING: petroleum ether is very light flammable.
3. Mount a strip of the set off paper with a piece of tape at the beginning and the end of the strip on a clean printing disc.
4. Apply 0,10 cm³ of ink to a segment of the top roller of the inking unit and distribute the ink during the preset or desired time.
 NOTE: Due to the drying of the ink it is not advised to add some ink after a test.
5. Place a printing disc on the printing disc shaft of the inking unit and ink the printing disc during the preset or desired time.
6. Take the printing disc from the inking unit and place it on the top printing disc shaft of the tester.
7. For AIC2-5T2000 only:
 - 7.1. For 1 long interval time (>10 s):
 - 7.1.1. Set the interval timer on 0 s.
 - 7.1.2. Turn the sector into starting position.
 - 7.1.3. Start the stopwatch.
 - 7.1.4. Move the printing disc into printing position.
 - 7.1.5. At a certain time (e.g. 10 s) make a print. See W100.
 - 7.1.6. Move the printing disc out of printing position.
 - 7.1.7. Take off the printing disc from the shaft.
 - 7.1.8. Place the disc with the set off paper onto the top printing disc shaft.
 - 7.1.9. Turn the disc into the position that the beginning of the set off paper is pointing toward the sector.
 - 7.1.10. Turn the sector into starting position.
 - 7.1.11. Move the printing disc into printing position against the test strip.
 - 7.1.12. After the desired time on the stopwatch, make a "print" during which the ink is set off from the printed rubber strip to the unprinted paper. See W100.



- 7.2. For 2 short interval times:
- 7.2.1. Adjust the desired interval time. See W100.
 - 7.2.2. Turn the sector into starting position.
 - 7.2.3. Place the disc with the set off paper on the bottom printing disc shaft.
 - 7.2.4. Turn the disc into the position that the beginning of the set off paper is pointing upwards.
 - 7.2.5. Move the printing discs into printing position against the test strip.
 - 7.2.6. Make a print in which the rubber blanket strip is inked and the ink is transferred from this strip to the blank paper strip. See W100.
8. For GST2 only:
- 8.1. For 1 long interval time (>10 s):
 - 8.1.1. Set the interval timer on 0 s.
 - 8.1.2. Start the stopwatch.
 - 8.1.3. At a certain time (e.g. 10 s) make a print. See W100.
 - 8.1.4. Take off the printing disc from the shaft.
 - 8.1.5. Place the disc with the set off paper onto the top printing disc shaft.
 - 8.1.6. Turn the disc into the position that the beginning of the set off paper is pointing toward the sector.
 - 8.1.7. After the desired time on the stopwatch, make a print during which the ink is set off from the printed rubber strip to the unprinted paper. See W100.
 - 8.2. For 2, 4 and 10 interval times:
 - 8.2.1. Adjust the interval time.
 - 8.2.2. Place the disc with the set off paper on it on the bottom printing disc shaft.
 - 8.2.3. Turn the disc into the position that the beginning of the set off paper is pointing upwards.
 - 8.2.4. Make a print in which the rubber blanket strip is inked and the ink is transferred from this strip to the blank paper strip. See W100.

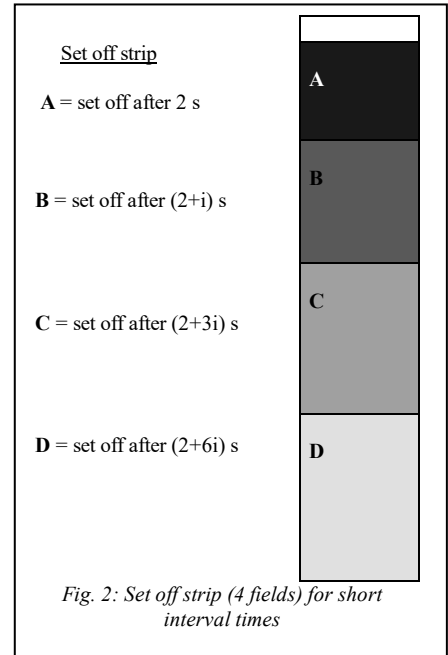
NOTE: During the waiting positions of the long interval times the side buttons can be released. Before the elapsed time is 5 s the side buttons must be pressed again to continue setting off and then the buttons can be released again during next waiting time.
9. For GST 3H only:
- 9.1. For 1 long interval time (>10 s):
 - 9.1.1. Start the stopwatch.
 - 9.1.2. At a certain time (e.g. 10 s) make a print. See W100.
 - 9.1.3. Take off the printing disc from the shaft.
 - 9.1.4. Place the disc with the set off paper onto the printing disc shaft.
 - 9.1.5. Turn the disc into the position that the beginning of the set off paper is pointing toward the sector.
 - 9.1.6. After the desired time on the stopwatch, make a print during which the ink is set off from the printed rubber strip to the unprinted paper. See W100.
10. Take off the printing disc with the set off strip from the shaft.
11. Remove the set off strip from the printing disc.
12. Mark the strip with the set off times.
13. Store the strips during > 4 hours in a safe and preferably to the standard atmosphere conditioned room.
14. Measure the test result as described in the chapter "Assessment".
15. Take the printing disc from the shaft.
16. Clean both discs with rags and naphtha and let them dry.
17. Clean the rubber blanket with rags and naphtha and thereafter with petroleum ether and let it dry.
- WARNING:** petroleum ether is very light flammable.
18. Clean the rollers of the inking unit or use the next segment for the following test.
19. If desired, repeat points 2 thru 18 for the same test strip of rubber blanket for the next interval time.
20. Repeat points 2 thru 19 with 0,20 cm³ for the same test strip of rubber blanket.
21. Repeat points 1 thru 20 for the next test strip of rubber blanket. It is recommended to perform the test at least three times per sample.
22. After having finished the tests clean and store all parts as described in the manuals.
23. Make an accurate record of the conditions and the results of the test refer to the testing method:
- 23.1. W61: 2 or 4 fields, 0,7 m/s.
 - 23.2. W79: 4 or 10 fields, 0,2 m/s.

Assessment

1. After > 4 hours after making the print measure the contrast density of the set off strips.
2. Calculate the average of the measured densities per set off time per type of blanket.
3. If desired calculate spreading and/or standard deviation. Sometimes it may be useful to not the highest and lowest values as well.
4. If desired make a table or graph.

Notes:

1. The maximum storage life of the IGT Density ink in the original, closed packing is 1 year; in an opened packing 3 months.



- 2006: In comparison to older IGT leaflets, this leaflet is valid for the AIC2-5T2000 and Global Standard Testers as mentioned.
- 2012: This leaflet is valid for the AMSTERDAM and AE FOUR as well and contains small text corrections.
- 2017: This leaflet is valid for the AIC2-5T2000 and GST 2/3H only and contains text corrections.