

Introduction

Most commonly picking of paper is defined as the damage of the paper surface during the printing operation. At the time the printing form is lifted off the paper the ink is exerting a certain force on the paper. This force is increasing with an increase in the viscosity and tack of the ink and the printing speed. When this force exceeds a certain value, the surface of the paper will be damaged. This test can be used to determine the delamination of paperboard as well.

In IGT leaflets W31, W65 and W75 the standard pick test is described: making a print at an increasing speed and assessment of the speed at which picking begins.

More or less imitating what happens in practice in a multi colour printing press is the method in which a paper sample is printed for several times at a constant speed. After the first time of printing the ink is penetrating into the paper, so the tack and viscosity are increasing. Printing for several times on this printed paper will lead to higher splitting forces and after a certain number of prints the paper can be damaged.

This method is a rather popular method which is often used as an internal method of paper mills. There are three methods:

- W86 Aluminium disc (THIS leaflet).
- W87 Printing disc with rubber 85 Shore A.
- W88 Printing disc with rubber 65 Shore A.

Principle

Using the IGT printability tester the paper to be tested is printed with a standard tack graded ink at a constant speed for several times. If the paper shows a damaging, the number of printings is mentioned as the value for the paper. The higher the number of printings, the better the paper. Sometimes an own ink from practice is used.

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 and $50 \pm 2\%$ 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 papers, the ink and the equipment during >6 hours in the standard atmosphere.
2. Cut the paper strips and mark them with top and/or bottom side, machine and/or cross direction and a code for the type of paper.
3. Remove the brush from the tester.
4. Place the printing disc on the top printing disc shaft of the tester and mark the side of the disc at the point which is toward the sector.
5. Mount the packing on the sector. See W100.
6. For AIC2-5T2000 only:
 - 6.1. Adjust the printing force of the top printing disc shaft to 1000 N and pay attention for the right backlash. See W100.
 - 6.2. Adjust the desired printing speed in the constant speed mode (□). See note 2.
7. For GST 2/3H only:
 - 7.1. Switch "Fixed menus" in the menu "Options" to OFF.
 - 7.2. Select the menu "Print mottle" in the display.
 - 7.3. Adjust the printing force to 1000 N.
 - 7.4. Adjust the desired printing speed. See note 2.
 - 7.5. Adjust the interval time to 10 s.
8. Fill the ink pipette with the desired pick test ink.
NOTE: Low tack ink for weak papers and high tack ink for strong papers.
9. For High Speed Inking Unit 4 only:
Adjust the unit with the following settings:
 - Water bath: 23.0 °C (73.4 °F)
 - Top roller: 4-segmented, rubber for conventional inks
 - Mode: 2
 - Starting time: 10 s
 - Distribution time: 20 s
 - Distribution speed: 0,5 m/s
 - Inking time printing discs: 15 s
10. For inking unit AE FOUR only: see manual or W100.

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 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	402.331
6	IGT pick test ink nr.1, low tack or IGT pick test ink nr. 2, medium tack or IGT pick test ink nr. 3, high tack	404.800.001 404.800.002 404.800.003
7	Packing, paper, 55 mm	404.001.005

Strips of paper to be tested, preferable 55*340 mm², 5 strips per sample

Stopwatch

Lint free rags and cleaning naphtha

Printing force	1000 N
Printing speed	Constant, speed at choice
Ink film thickness (volume)	2,4 µm (0,10 cm ³)
Time between prints	10 s

► The numbers 1 thru 7 are available at IGT Testing Systems.

Execution

1. Mount a test strip on the sector by attaching the beginning of the test strip into the front clamp and fixing the end of the test strip on the sector with a piece of tape.
2. 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: It is not advised to add some ink after a test.
3. Place the printing disc on the printing disc shaft of the inking unit and ink the printing disc during the preset or desired time.
4. Take the printing disc from the inking unit and place it on the top printing disc shaft of the tester.
5. Turn the printing disc into the position that the starting point of the disc is toward the sector.
6. For AIC2-5T2000 only:
 - 6.1. Turn the sector into starting position.
 - 6.2. Move the printing disc into printing position against the test strip.
 - 6.3. Start the stopwatch.
 - 6.4. After 10 s after having started the stopwatch, make a print. See W100.
 - 6.5. Directly observe the surface of the paper:
 - 6.5.1. If the surface has been damaged, note the number of the print after which the damaging occurred and continue with point 9.
 - 6.5.2. If the surface has not been damaged, continue with the next point.
 - 6.6. Directly move the printing disc out of printing position.
 - 6.7. Directly turn the sector into starting position.
 - 6.8. Directly turn the disc into the position that the starting point of the disc is toward the sector.
 - 6.9. Directly move the printing disc into printing position against the test strip.
 - 6.10. After 10 s after having made the print, make a print again.
 - 6.11. Repeat the points 6.5 thru 6.10 for a maximum of 10 times.
7. For GST only:
 - 7.1. Press both side buttons to make a print and keep pressed the buttons to move the sector into the starting position; then release the side buttons.
NOTE: From the moment of printing the timer starts counting down from 10 s to 0 s.
 - 7.2. Directly observe the surface of the paper:
 - 7.2.1. If the surface has been damaged, note the number of the print after which the damaging occurred and continue with point 9.
 - 7.2.2. If the surface has not been damaged, continue with the next point.
 - 7.3. Directly turn the printing disc into the position that the starting point of the disc is toward the sector.



- 7.4. Before the timer in the display has reached 0 s, press the side buttons. As soon as the timer has count down to 0, a print is made and the sector is moved into the starting position; if the sector has stopped release the side buttons.
NOTE: From the moment of printing the timer starts counting down from 10 s to 0 s.
- 7.5. Repeat the points 7.2 thru 7.4 for a maximum of 10 times.
NOTE: The number of prints can be read in the display.
- 7.6. Press "Enter" to finish the test for this test sample.
8. Remove the test strip from the sector.
9. Take the printing disc from the shaft and clean it with rags and naphtha and let it dry.
10. Clean the rollers of the inking unit or use the next segment for the following test.
11. Repeat points 1 thru 10 for every test strip. It is recommended to perform the test at least 3 times per sample.
12. After having finished 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 and refer to W86.

Assessment

Observe the surface of the paper on damaging. If it has been damaged, note the number of prints after which the damaging occurred.

Notes:

1. Depending on the paper quality it is advised to choose the speed between 1 and 4 m/s; the lower speeds for weak papers and the higher speeds for strong papers.
2. The maximum storage life of the pick test ink in the original packing is 3 years, in an opened packing 1 year.

► 2012: This leaflet is valid for the AMSTERDAM and AE FOUR as well and contains some small text correction; the time between the prints has been fixed at 10 s.
► 2017: This leaflet is valid for the AIC2-5T2000 and GST 2/3H only and contains some small text corrections.