IGT F1 Printability testers

For flexo, gravure and electronic applications

F1 with LED-UV dryer

IGT Testing Systems has developed the advanced computerised F1 printability testers for flexo and gravure applications. The F1 makes prints with flexo and gravure inks, which can be used for many purposes as computerised colour measuring and colour matching systems and printed electronics. The F1 saves on costs because colour testing on the printing press is no longer necessary.

APPLICATIONS

The F1 printability testers are used to produce prints which are suitable for many purposes, such as:

- Measuring colour using colour measuring systems and colour matching systems
- Density measurements, including establishing tolerances, determination of coverage, wear resistance, abration resistance, flexibility, adhesion, gloss, ink transfer, light fastness, resistance to chemicals, etc.
- Testing printing quality
- Adhesion, conductivity, line raggedness in printed electronics

The F1 tester prints on all kinds of coated and uncoated materials like paper, board, plastic film, cellophane, laminate, metal foil, etc.

IGT F1 tester use in industries:

- **Flexo and gravure ink**
- **Flexo printers**
- **Plastics and packaging**
- **Paper, board and electronics**
- **Resins, varnishes, coatings**
- **Corrugated board**
- **Raw materials**

IGT F1 Printability testers

Modern design, simple to operate

F1 Corrugated

IGT F1

The F1 is the standard version of the F1 series. It gives the possibility to vary the printing speed from 0,2-1,5 m/s, anilox- and printing force from 10-500 N. This is important for the different types of ink and the viscosity, especially for the packaging industry with the large number of different substrates and applications. The print width is 40 mm, sufficient for most measurements.

F1 CORRUGATED

This tester is dedicated F1 to make prints on corrugated board or other rigid substrates like ceramics or glass with thickness up to 14 mm.

IGT F1-UV

The F1-UV consists of the F1 tester and an integrated UV-dryer. The tester has been developed to print UV-inks and to cure the ink directly after printing to reach the optimum print quality. The UV-radiation is adjustable and in combination with the printing speed, the properties of the print can be tested. The F1-UV is available in conventional version (Hg-lamp) and LED version (365-395 nm).

LED-UV version

STAND-ALONE UV DRYERS

The IGT UV dryers are small units for quick curing of UV inks and varnishes on flat material and small moulded parts like paper, plastic, printed circuit boards, glass or metal. In the graphic arts industry, these UV dryers are used to cure test prints for colour matching. In R&D they are used for simulation of the curing process. There are several versions available with Mercury lamps, with LED-UV technology or a combination. The testers are available with variable belt speed, adjustable lamp power and easy exchangeable lamps.

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IGT F1 Printability testers

Print coated and uncoated materials

IGT F1-100

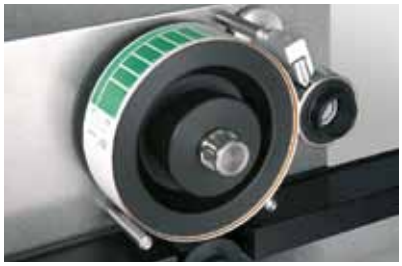
Most times the 40 mm print width is sufficient, but sometimes a wider print is desired. This device has its main application in the electronics industry. With special inks and/or substrates a wider print can give a wider range of applications.

F1 BASIC (HIGH - LOW)

The low-cost version is the F1 Basic. In this version the printing speed can be pre-programmed from 0,2 to 0,9 m/s. The anilox/printing force can be programmed in three combinations between 20 and 500 N. The F1 Basic is used when there is no need to change the speed or anilox- and printing force once it is set to the optimal values. This tester is specially used in QC of inks and substrates.

Applying the ink voor flexo printing

Mounting substrate for gravure



Gravure printing

FLEXO PRINTING

The F1 tester consists of a combined inking and printing section with an engraved roller (anilox disc), doctor blade, printing form and impression cylinder. The substrate is attached to a substrate carrier and placed on the substrate guide, between the printing form and the impression cylinder. With a (disposable) pipette, a few drops of ink are applied into the nip between the doctor blade and the anilox disc. Two revolutions are made automatically to ensure the cells of the anilox disc are well filled with ink. See instruction video on **www.igt.nl**.

GRAVURE PRINTING

For gravure printing, the F1, F1 corrugated or F1-UV is switched into the gravure mode. In this case, the impression roller on the lower shaft is not used. Only an engraved gravure roller, doctor blade and photopolymer cylinder are used. The photopolymer cylinder now has the function of impression cylinder. The substrate to be printed is attached on the photopolymer. With a (disposable) pipette, a few drops of ink are applied into the nip between the doctor blade and the engraved disc. See instruction video on **www.igt.nl**.

IGT F1 Printability testers

Variable printing forms and anilox rollers

PROPERTIES

- Modern design; sturdy construction for intensive use over a long period
- Easy and quick to clean
- Simple to operate; all testing conditions can be set on a touch screen; on the F1 Basic, testing conditions can be set with buttons
- Extensive processing possibilities for various flexo and gravure inks and substrates, engraved rollers and printing forms
- Simple and quick to change rollers, printing form and doctor blade
- Excellent reproducibility
- High degree of simulation of actual practice
- Electronic control of printing force and speed
- Low initial cost and low operating costs

ACCESSORIES

Discs for flexo and gravure

For flexo printing, many types of aniloxes are available. A choice can be made between copper engraved, chromium plated and laser engraved ceramic aniloxes. There are aniloxes with a solid engraving and others with different engravings. Special engraved aniloxes can be made on request.

For gravure printing a wide range of copper engraved, chromium plated discs are available.

Holder for printing discs

The F1 testers are equipped with an accessory to safely store anilox and gravure printing discs.

Reference papers

Prints to check colour and other ink properties can be made on in-company standard substrates or production papers. For comparison of test results between organizations or tests according ISO 2846 it is advised to use a reference paper. This paper, e.g. type C2846 for colour measurement and CT2846 for transparency determination, has been developed in cooperation between IGT and ISO TC130 to replace the former APCO material.

Printing form for flexo

The F1 tester can match all kind of printing forms. Solid and halftone photopolymer, thickness from 1,14 mm up to 6,35 mm. Customer supplied printing forms can also be used.

Substrate carrier for flexo

The substrate carrier is used to mount the substrate in case it is not stiff enough to be self supporting.

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IGT F1 Printability testers

Used for many testing methods

	F1 Basic	F1	F1 Corrugated	F1-100	F1-UV	F1 LED UV
Technical data						
Printing width	40 mm	40 mm	40 mm	100 mm	40 mm	40 mm
Printing length (2 prints)	2 x 190 mm	100 x 500 mm	100 x 500 mm	100 x 500 mm	2 x 190 mm	100 x 500 mm
Printing speed	3 speeds (0,2 -0,9 m/s)	0,2 - 1,5 m/s				
Anilox force	3 forces (10-500 N)	10 - 500 N				
Printing force		10 - 500 N				
Maximum thickness of substrate	4 mm	4 mm	14 mm	4 mm	4 mm	4 mm
Gravure mode	Yes	Yes				
Test methods						
Test methods inks	Colour, density, ink transfer, coverage, transparency, wear, abrasion, flexibility, adhesion, gloss, light fastness, chemical resistance, electronic tests: conductivity, raggedness					
Test methods substrates	Striking through, halftone printing, back trap mottle, print mottle, print smoothness, raggedness					
Compliance	ISO 2834, ISO 2836, ISO 2846, ISO 12647 and ASTM 7680					
Substrates	Paper, board, metal, plastic, textiles, electronic films					

Flexo print of four bands to check the colour in four ink layers

Gravure print to check the colour in ten coverages and/or to check the roughness of the substrate

Flexo print on reference paper with black band for coverage, transparancy, colour, density, etc.

Printed electronics

Flexo print on paper board to check colour, coverage and other dry properties

Standard flexo print of 100 mm width

IGT F1 Printability testers

Excellent reproducibility

TECHNICAL DATA

Inking and printing sections

- Electronic control of printing force and speed
- Printing speed:
  - 0,2 - 1,5 m/s (except F1 Basic)
  - 3 speeds 0,2 -0,9 m/s at choice (F1 Basic)
- Anilox/printing force:
  - 10-500 N (except F1 Basic)
  - 3 force combinations 10-500 N at choice (F1 Basic)
- Maximum substrate thickness:
  - 4 mm
  - 14 mm for F1 Corrugated
- Printing width on substrate:
  - 40 mm
  - 100 mm for F1-100
- Print length 100-500 mm
- Anilox- or engraved disc is inked automatically up to 20 times
- Photopolymer printing form can be inked-up to 20 times
- Flexo and gravure modes

UV devices

- F1 UV : conventional Hg lamp
- F1 LED : 395 or 365 nm LED
- UV Aktiprint mini : conventional HG lamp
- UV Aktiprint LED : 395 or 365 LED
- UV Aktiprint combi : Hg + LED (395 or 365)

Discs

- Flexo aniloxes
  - copper engraved, chromium plated, solid and 4 engravings
  - Ceramic, laser engraved, solid
  - Range of volumes
- Gravure engraved
  - In copper engraved, chromium plated
  - Many different volumes
  - Many different layouts

Doctor blade

- Doctor blade angle: 60°, trailing
- Doctor blade pressure: 6 - 7 N (12 – 14 N for F1-100)

Weight

- F1 : 35 kg
- F1 UV : 60 kg
- F1 LED : 40 kg
- F1 100 : 40 kg

Dimension (HxWxL): 400 x 600 x 350 mm

Electrical connection:
90 – 245 V / 50 – 60 Hz

Agent

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IGT Testing Systems

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

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