

## Does your printer have the necessary tools to ensure optimal printing?

Test formes for the evaluation and adjustment of ink and fountain solution rollers

Up until now, the control of the press and consequently, the indirect control of the ink-damping solution balance, have been primarily achieved by measuring the ink density of the control patches across the printed sheet.

By using the Fogra dampening control test forme in combination with the necessary adjustments, it is possible to achieve consistent print conditions on a printing machine. At present, this test forme is the only tool that allows a printer to achieve the most favourable ink-water balance in all units.

The test forme contains special targets, which are visual indicators to show the printer if his ink and fountain unit are close to critical conditions. The use of the test forme makes it very easy for the printer to know if the print will be uniform through out the sheet. It also helps to keep differences between units at a minimum.

Every printer wants to adjust his press optimally. Unfortunately, there has been a lack of control tools that are sensitive and capable enough to document the correct setting of a printing machine. Some time ago a special test forme [the Fogra dampening control test forme] was developed at Fogra, which allowed for the evaluation of the correct setting of a printing machine.

### Some of the most significant problems detected were:

- a shrunken rubber roller in the ink unit that only turned sporadically,
- badly adjusted roller settings, resulting in a dot gain up to 3% higher on the left side of the sheet,
- badly adjusted potentiometer on a web offset press, resulting in a serious deviation in the printed result in the upper ink unit as compared to the lower press unit,
- deformed and worn out damping rollers in individual press units, so that these units clearly deviated from each other in terms of dot gain.

### ■ What is the damping control test forme?

This test forme was developed at Fogra to help printers to check, adjust and document correct settings for a printing machine. The objective is to achieve stable damping solution application conditions within a press unit, thus facilitating uniform printing conditions over the format of the sheet and from one press unit to another.

The Fogra damping control test forme contains very sensitive elements that act as damping indicators, thus allowing an operator to optimise the setting of the press by specific adjustments to one unit. If optimum conditions are consistently maintained, printing from CtP plates, in particular, will benefit by using this test forme. Working with CtP plates or stochastic screening without the Fogra damping control test forme is rather like speeding in the fog – it can go well, but a pile up is possible at any moment. The test forme provides a documentation of print quality.

### ■ Quality control at a printing machine

Up until now, the control of the press and, consequently, the indirect control of the ink-damping solution balance have been primarily achieved by measuring the ink density of the control patches across the printed sheet. For standard print jobs this method does not offer adequate control accuracy, if one wants to achieve precise adjustment of the damping units. It is vital that the printer can quickly determine whether the printed result is uniform over the format of the whole sheet. It is also important that there are no major differences from one unit to another. The sole use of print control strips does not give any indication of correct adjustment of the ink or fountain unit rollers.

At present, this test forme is the only tool that allows a printer to achieve and record an optimum setting of the rollers in the ink and fountain unit. This ensures the most favourable ink-water balance in all units.

The print tests to achieve optimal setting in a printing unit are always done in the same fashion. First, the inking density is increased to a certain level by an increase of the duct rate. This is done without mechanical changes in the other settings of the printing machine (fig. 1).

As soon as the density has reached the targeted level in all zones, the fountain flow is reduced to the extent that smearing and toning appears (fig. 2). If the range of the ink-fountain-balance is to be determined, it is also necessary to increase the fountain flow. This is done by increasing the duct rate for the fountain solution by 5% steps or one step of

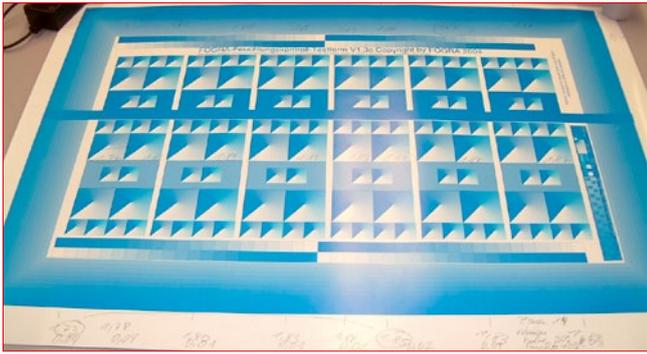


Fig. 1: Optimal print results with the Fogra dampening test forme at the state of over inking and optimal fountain flow.

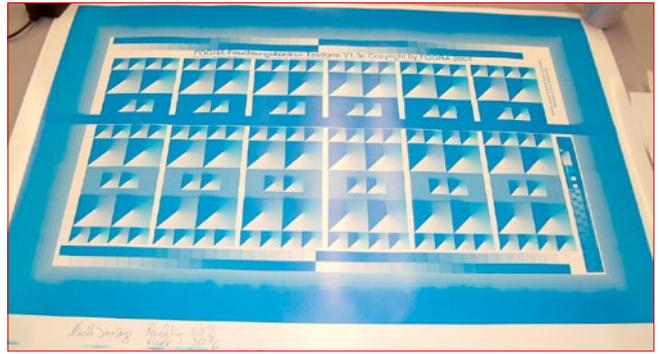


Fig. 2: Optimal print result with the Fogra dampening control test forme with too little fountain flow.

30% over the normal rate of fountain flow.

An optimally adjusted ink-fountain-balance can be noted by tone value measurements and is indicated by very little tone value deviation at different levels of fountain flow.

The use of the Fogra dampening control test forme and the consequent adjustments standardizes conditions on the press, which is an important pre-condition

for ensuring standardized production in the print shop. This eliminates the need for frequent printing trials to determine tone value correction curves. Identical printing conditions also reduces waste, make ready and waiting times. The test forme can be used at any type and make of printing machine and with any combination of printing ink, fountain additives, plate types, blankets and roller materials. For best evaluation of

the results, the paper used should be gloss coated.

Fogra has applied the test forme on over 110 printing machines. So far there has not been a single case in which the setting of printing machine was so exact that no further enhancement was possible. In many cases, when training was undertaken with the test forme, significant deficits became visible and additional maintenance and services for the printing machine were needed.

### Most commonly seen are

- chalk coating on rollers and unclean inking units (fig. 3 and fig. 4)
- wrong adjustment and/or unsuitable roller material in the fountain unit (fig. 5 and fig. 6)

### Conclusions

It has been proven that the Fogra dampening control test forme

- is a very good tool for a printer to use to achieve optimal mechanical settings of his printing machine
- helps find the right combination of printing ink and fountain additives for stable print production
- helps keep stable ink-water balance in all print units, be it sheet-fed or web offset presses
- is already implemented by Fogra in over 70 companies and for over 80 sheet-fed, over 25 web and 5 news paper printing machines.

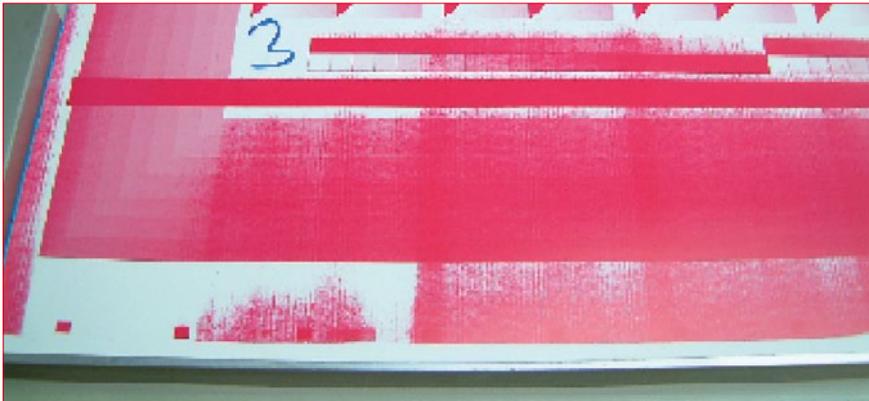


Fig. 3 (top) and Fig 4 (bottom): The printed sheet (top) clearly shows the impact of the defective rollers in the inking unit.

■ **How can a printer obtain the test forme**

The test forme is only made available as part of a total service package. Interested firms will receive a PDF file of the test forme, tailored to the maximum plate format of the press or the maximum sheet (i.e. web width) of a printing machine. It will also be tailored to the actual output resolution of the plate setter to be used. This test forme will be kept at the printing company to be used for future press evaluations.

As part of the service, a Fogra employee will evaluate the basic settings for a maximum of six units of the press chosen for the on site training. The main aim of this service is to train employees to correctly use the test forme and be able to interpret the results. In addition to the specimen sheets for all units, the company will receive written documentation of the session. If appropriate, further recommendations for maintenance and adjustment will be included. ■

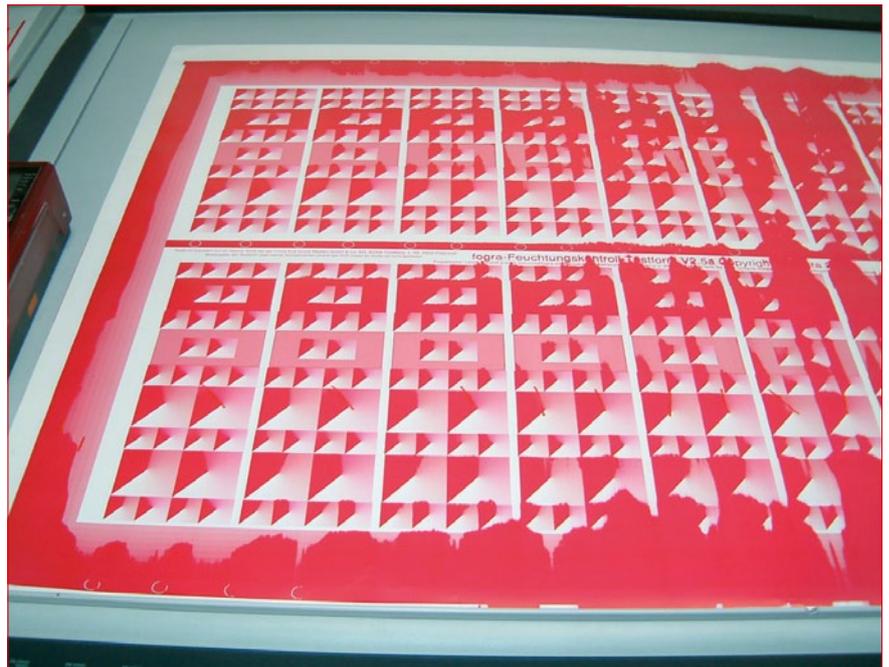


Fig. 5: Uneven toning with reduced fountain flow caused by the defective fountain unit (Fig. 6).



Fig. 6: Ink on chrome rollers in fountain unit after only 100 rotations.

**Appointment and costs**

The prices as well as the discount for Fogra members are listed in Fogra's price list. For an individual offer and to arrange an appointment please contact:

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