FAG

of Switzerland

Print Control Systems

Fit for the Future

- Optimise your printing processes
- Standardise your print quality
- Achieve greater customer loyalty
- Get access to future print markets
- Get an edge over your competition

A New World ...

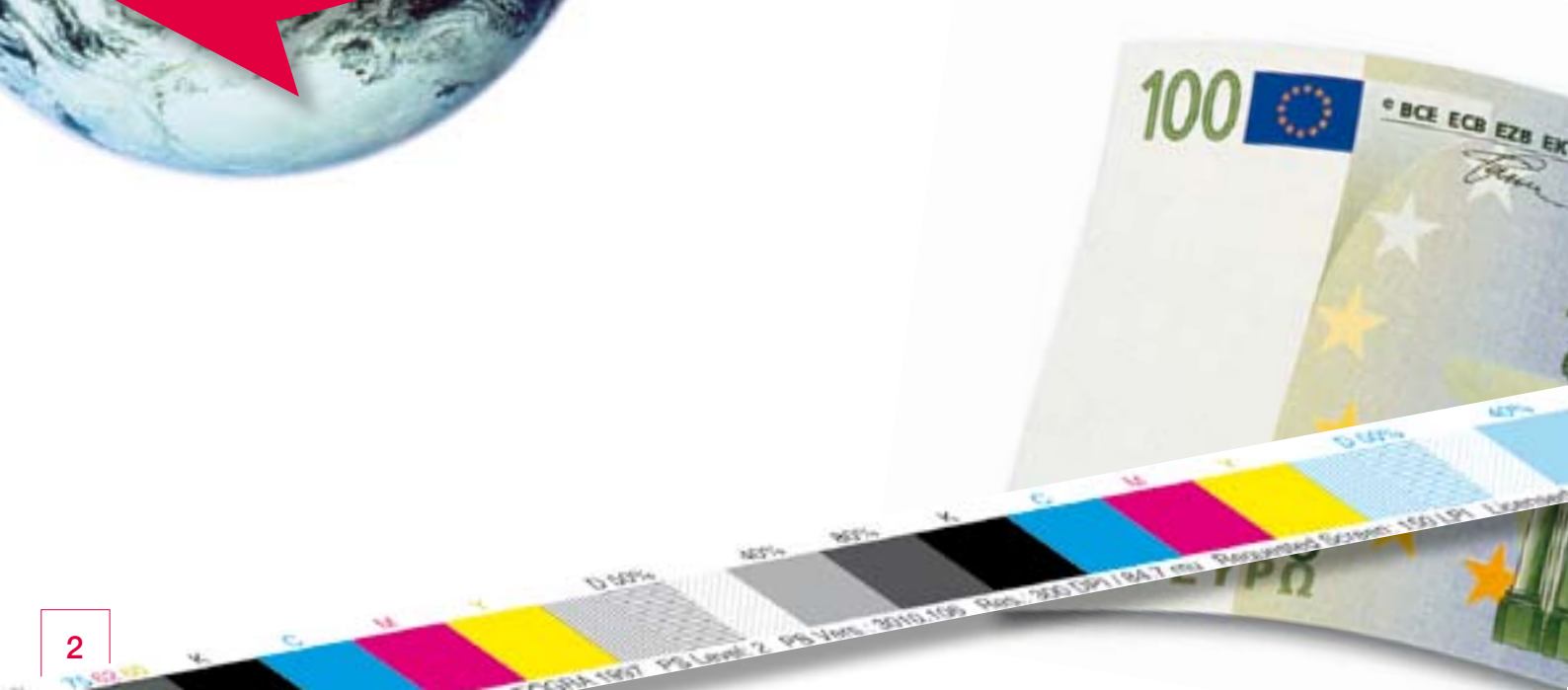
The Effects of Globalisation on the Printing Industry

The printing industry is reacting to a rapidly changing economic and political environment.

Everywhere in the world printing companies adopt modern technologies and optimise their processes to be fit for the increasingly international and competitive market for printed matter.

The effects of globalisation are the same for all printing companies:

- A demand for higher print quality in local markets.
- Local companies demand high quality packaging and brochures for their export markets.
- International companies contract on an international level and have their products printed simultaneously in many countries.
- More expensive high-quality paper and carton is used.
- More colors are applied, most jobs become full color (4-color) jobs, and many jobs comprise 5 or even more colors plus coating.
- Printing forms become more complex and more difficult to print.
- Qualified press operators are hard to find and expensive to employ.
- Jobs have to be done faster, customers expect the shortest delivery times.
- Companies tend to reduce the number of copies of a run and prefer to print on demand in order to lower storage costs, to make changes in brochures faster and thus react faster to changing market demands.



… A New Printing Industry

The Effects of Globalisation on your Printing Company

International print markets are highly competitive. Only those providing high print quality at reasonable prices will be able to survive.
Competition and a heavy pressure on prices force printers to organise their production process more effectively, more economically, safer and faster.

- Companies producing for the export market require print products conforming to international quality standards.
- International print buyers are having their jobs printed in various locations. They will determine fixed quality standards that you will have to guarantee and prove by objective and measured data.
- Variations in print quality during the run will not be accepted by your customers.
- A subjective assessment of print quality by your operators is no longer sufficient; it has to be backed up by objective measurement data.
- Only standardised processes lead to repeatable results and avoid wasted time and materials.

New Challenges

What can be done? Where are the chances?

All printers feel the rising pressure of changing markets and they are alarmed. Many of them assume that only a complete renewal of all their technical equipment involving a large investment would enable them to be safe in the future. This assumption is, in most cases, not correct.

Large potential can be realised by simply optimising your processes to make sure that costly errors, repetitions and wasted time and materials are avoided. The use of control elements and control instruments make print quality control much easier for the expert.

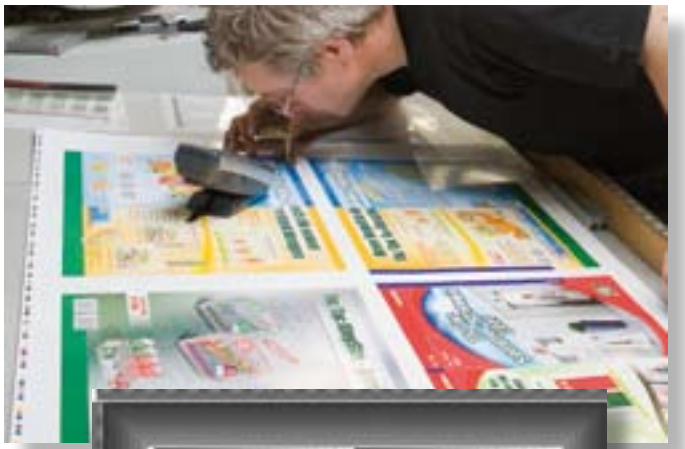
Here are some first steps:

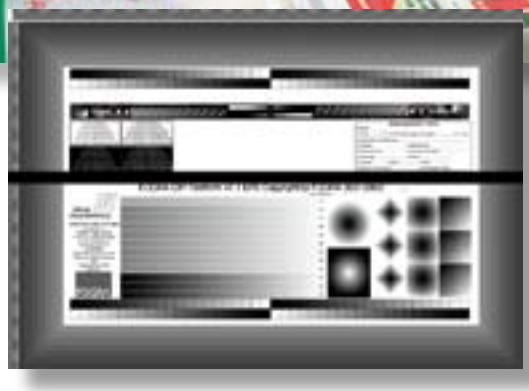
- Make sure that films and print forms are correct and exposed correctly. FAG supplies the appropriate devices.
- Make sure that plates are exposed correctly to avoid any possible errors before the plate has been mounted on the press. Check plates by objective measurement before they go to the press.
- Set standards for platemaking. When using a CtPlate system, precise calibration of the system is absolutely essential. Control elements and measuring devices from FAG make sure that no wrong halftone values are transferred.
- Make press setup faster and safer. The setup of a job can be made much faster and safer by using objective measuring devices, color bars, register systems etc.
- Reduce paper waste. Printing paper and other modern substrates are expensive. Densitometric control instruments provide safety and save time and materials.
- FAG VIPDENS instruments avoid variations in print quality during the print run. They are easy to operate, much more sensitive and react much faster than the human eye. Color variation trends during the print run can be corrected before they become noticeable.
- Make sure your printing press is always set correctly. The various causes of faults in printing can be detected and eliminated easily and quickly by means of modern measuring technology. Insufficient quality is often caused by incorrect press settings, e.g.: dot gain? doubling? Is it because of the plate? blanket? pressure setting? rolling conditions of the cylinders? inker settings? dampening?

  Objective measurement gives a clear and fast indication of how to correct the fault.

New Organisation of Print Processes

The initial costs of precision control devices from FAG are low – the benefit and additional profits created by standardising processes are very high for all printers, and this for many years!





- Considerable time savings
- Higher production capacity
- Considerable cost savings
- Optimised print quality
- More consistent print quality
- Reproducible quality
- Less dependency on the experience of individual operators
- Elimination of errors at an early stage
- Access to international groups and print buyers
- Access to local customers exporting to international markets
- Higher reputation in local markets
- Better competitive position
- Increased customer loyalty because of assured quality and short lead times

Create Added Value

Optimise your print processes with up to date control technologies from FAG

Customer supplies data	What is important at this step?
Prepress	
• Creation of printing form	Correct reproduction of line, screen and solids according to standards
• RIP (Raster Image Processor)	Correct reproduction of printing form on plate according to standards
• Film	
• Printing Plate	Reproducing the printing form on the plate in perfect register
Press	
• Makeready	Fast setting of correct plate register
• Plate Mounting	
• Pre-Setting Ink Slides	Fast fine adjustment of inking, low paper waste, fast detection of any faults in the offset process
• Pre-Run	
• Final Adjustment of Inking and Register	
• Print Production Run	Fast pre-setting of ink slides
• Inline Coating	Even gloss on whole sheet

Technical Press Upgrades Reduce Non-Productive Time

Prepress

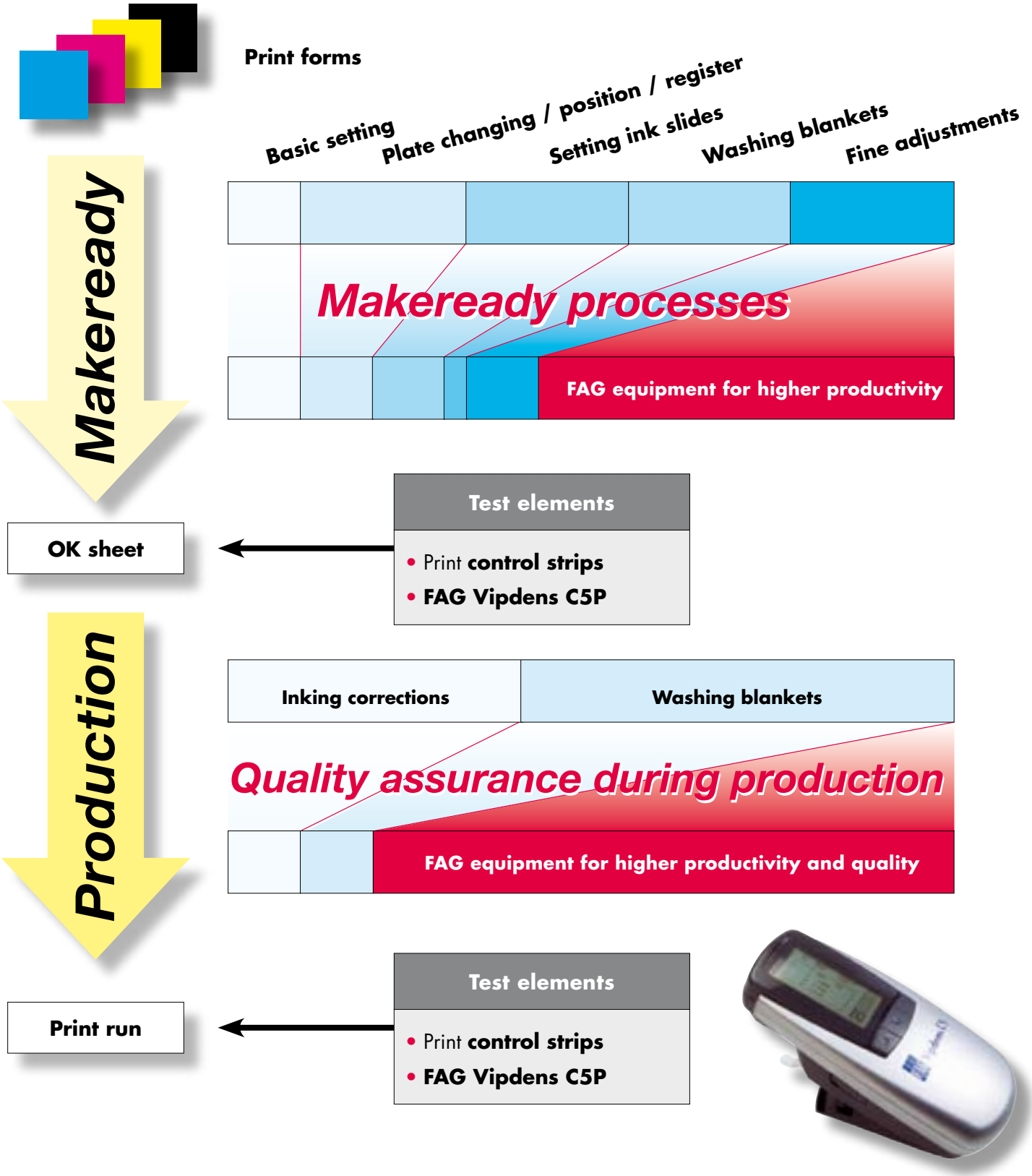
Instruments	Benefits	Other Products
Vipdens 150 	Save trouble, costs and time. Correct films and mounted printing sheets are the basis for economic printing and high qualtity.	
Vipcam 122 	Save trouble, costs and time. Expensive press standstills and remakes of faulty plates are avoided. High print quality requires plates copied with high and consistent precision.	

Press

	Save trouble, costs and time.	Register System plate Punch
	Saves costs, time and paper waste	Colorset, FAG VPS Bingoscan
Vipdens Spectromat	Makeready of a new job is the most time-consuming and costly process in offset printing. Speed and print quality achieved depends upon the experience of the operator if the process is not standardised and no electronic controls are used.	Colorset Blanket washing devices EAGLE EYE inspection systems
Vipgloss		

Create Added Value

Reduce non-productive makeready time and keep print quality consistently high through technical press upgrades



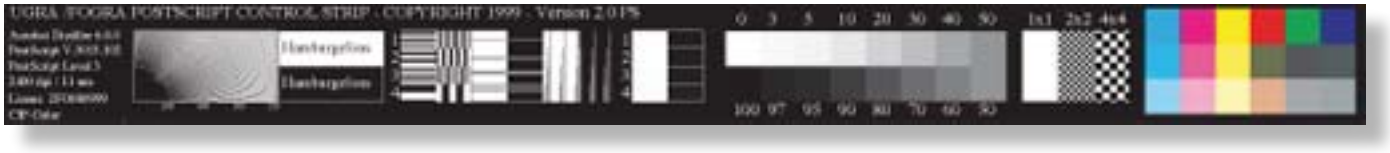
Which FAG control elements and instruments help to standardise offset printing?

1. Precision Control Bars

- FAG supplies different types of bars to control platemaking and the printing process. Especially increasing digitisation of processes makes objective measurement indispensable. FAG supplies you with precision control bars and the appropriate measuring devices.
- These control elements are imposed with the printing form and printed consecutively. They comprise elements for visual control, but they are first of all indispensable for a much faster and much more precise control by measuring devices. This avoids the press operator having to analyse and compensate for errors caused in upstream prepress processes.
- For these applications FAG supplies reasonably priced and easy to operate hand-held densitometers. As light source modern LED diodes are employed which have an extremely long durability of about 200,000 operating hours.

2. Densitometers

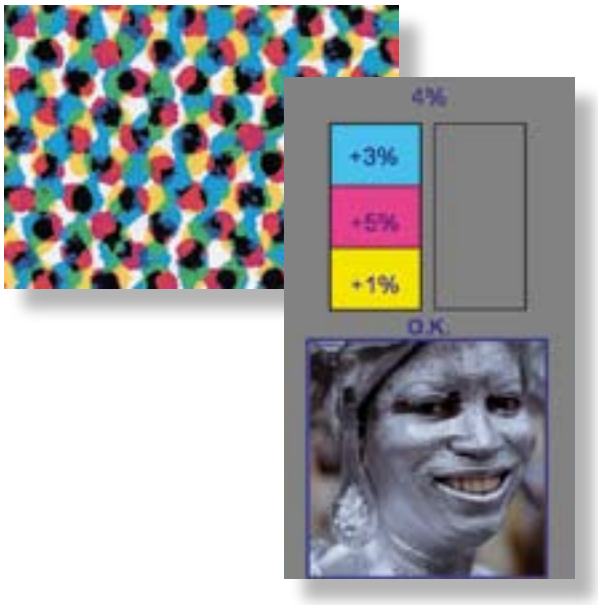
- Densitometry is an opto-electronic method of measuring the optical density of exposed films, plates and layers of printed inks. Precise and objective data for quality control and control of the whole process from prepress to finishing are gained by densitometric measuring devices.
- There are two types of densitometry: Transmission densitometry and reflection densitometry. Transmission means that a light ray passes through an object and is modified in this way, reflection means that light is sent, absorbed and reflected. In both cases the difference between light sent and light received is a precise indication of the quality of the respective intermediate or final product.
- Some densitometers are combined transmission and reflection densitometers suitable for both prepress and press applications.
- For all densitometric measurements suitable test elements are required and have to be imposed (film, plate) or printed along at the respective process step in print production. (See above).



New Technologies/Prepress

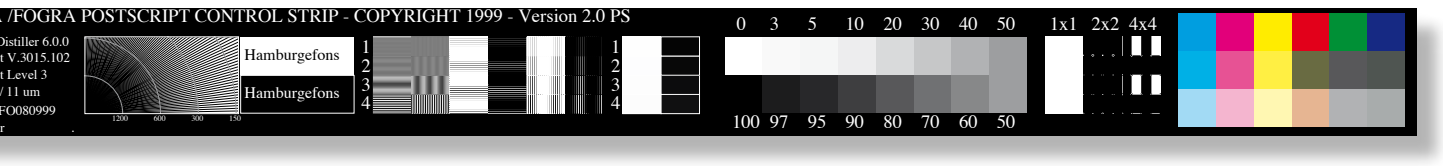
Prepress

- Transmission densitometry controls correct production of lithographic films. Light is sent through films to assess the quality and suitability of the reproduction of solids and screen on a film prepared for the production of printing plates.
- Transmission densitometers measure the opacity of the image and transparency of non-image areas of the film, telling you whether it will block or transmit enough light to produce a suitable printing plate. These densitometers also measure the tonal range and degree of dot gain in halftone film positives. Uncontrolled dot gain in CMYK film separations will lead to poor color reproduction when all four colors are combined in the printing process. Suitable hand-held devices are supplied by FAG with their VIPDENS series.



Platemaking

- In platemaking processes reproduction of fine elements and correct dot value is most critical.
- By examining the plate and detecting the limit of reproduction of these elements, which is usually about ten micrometers, the vacuum frame drawdown time and the plate exposure duration and uniformity can be monitored. Changes in plate types will require test exposures to be made to establish correct exposure times.
- FAG densitometers are also applicable for modern CtPlate technologies. When installing a new CtPlate-System, an initial calibration has to be made to ensure reliable and lasting results with different types of plates. Your FAG service team will he happy to give you support in this process.
- Other test elements to monitor the printing process (slur, trapping, grey balance, etc.) are also incorporated in print control strips. As their correct reproduction on the plate is decisive for their correct function in print, they are also checked by modern FAG densitometers.



Printing

- Today densitometry is indispensable in the offset printing process. Provided films and plates are made in accordance with the respective standard process chosen, in printing the correct thickness of the respective ink layer in the CMYK-process guarantees high quality reproduction of the image.
- Reflection densitometers for the pressroom calculate the thickness of the ink layer printed by sending a light ray through the ink on the printed sheet and measuring the proportion of light reflected by the white paper surface.
- By checking the color bar on the printed sheet, the printer is able to control the printing process. The solid ink densities can be kept uniform across the width of the printed sheet and color balance can be maintained by controlling dot gain.
- As all these measurements are very precise and fast, the makeready process when setting the inking for a new job will consequently be much faster and precise. Densitometric control of the uniformity of inking during the run will guarantee a high uniformity of the product. When a job is repeated, the original settings can be reached quickly and safely by densitometric control, so there will also be a high uniformity between original and repeat runs.
- Light reflection of wet ink is different from that of dry ink. To eliminate the effects of light reflection of wet ink when reading a freshly printed sheet during production, modern densitometers use polarising filters.
- Offset printing is a tricky process and not only a correct printing form but also many other technical conditions and settings of the press are just as decisive for a high quality printing result and fast, uniform and economical production. Possible causes of problems are unsuitable ink, inking and dampening unit settings, cylinder unrolling, unsuitable or defective blankets, electro-chemical properties of fountain solution, etc.
- The main control criteria in the printing process are: slur, trapping, dot gain, grey balance. There are two types of densitometers for pressroom applications. With hand-held densitometers each element of the color bar on the sheet is evaluated separately and step by step.
- Some printers prefer the much faster scanning densitometers which evaluate the whole bar automatically within a few seconds and display the readings on a computer monitor (FAG Spectromat).

New Technologies ...

3. Colorimetrics

- Density control by reflection densitometry as described above is a perfect instrument for quality control in standard CMYK processes. It does not however give an objective indication of chromaticity coordinates and precise visual impression of mixed or spot colors.
- If such mixed or spot colors are printed and a high degree of conformity to a given standard is requested - as happens very often with company logos and packaging – colorimetrical measurement is a suitable instrument for quality control.

- Colorimetric devices are available as spectroscopic or as combined instruments (density plus spectroscopy), and also available either as hand-held instruments or as scanning spectroscopes (FAG Spectromat).

4. Gloss Meters

- Similar to reflection densitometers, gloss meters calculate the degree of light reflected by a glossy surface (varnish, coating etc.). They serve to control the degree of gloss required according to the standards of the customers and the uniformity of gloss all over the sheet.
- The FAG gloss meter VIPGLOSS shows data according to internationally accepted DIN standards.

5. Technical Press Upgrades

Ink Fountain Remote Control

- If there are 30 ink slides per printing unit, the machine operator has to set 120 elements at a four color press – and this task is combined with long distances to cover.
- The setting and regulation of ink slides can be done much faster from a central remote control desk. This gives a remarkable reduction of set up time requirements and ink slide fine adjustments, inking corrections during the print run are more precise and reaction is much faster. All together this reduces set up time, material consumption and waste sheets and ensures constant print quality during the whole run.

- The FAG COLORSET device is a retrofit upgrade available for most offset presses and an investment that is well worth the price.

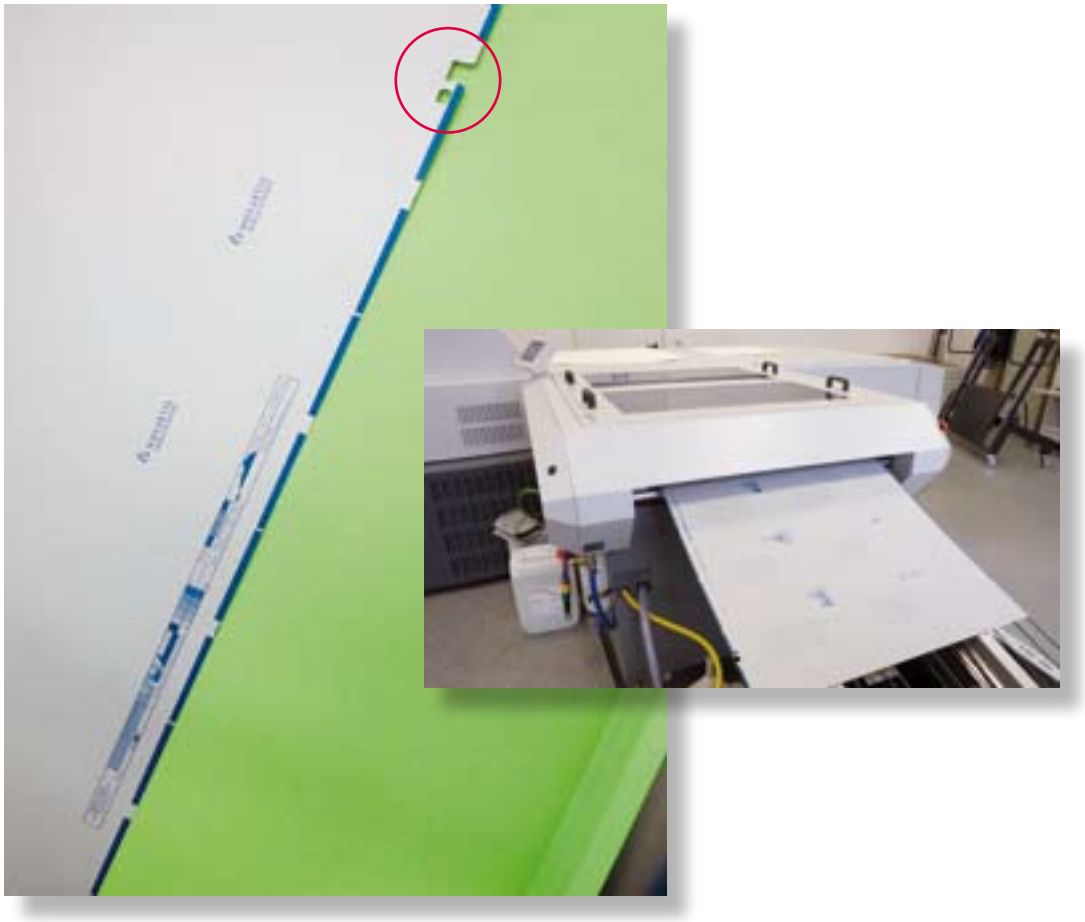
… Technical Upgrades

Register System

- The mounting of plates for a new print run is a critical job which requires a great deal of experience on the part of the operator. The more precisely plates are mounted in the first stage, the faster and more economical makeready will be. These problems can be overcome by an appropriate register system which guarantees that plates are in good register from the very beginning and only fast fine adjustments may be required.
- The FAG Register System with Plate Punch is a retrofit upgrade available for most offset presses.

Automatic Blanket Washing Device

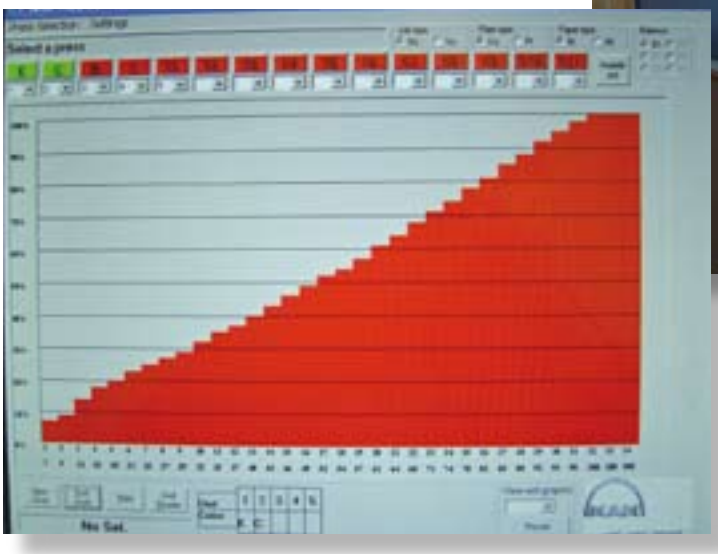
- Automatic Blanket Washing Devices provide fast wash-ups at the end of a job, before the start of a new run and fast cleaning during a run (paper dust on blanket) to maintain high print quality.
- The FAG LCC Automatic Blanket Washing Device is a retrofit upgrade. The benefits are substantial savings in time, waste sheets, chemicals, and blankets.



Our Products

Plate Scanner

- A plate scanner reads the percentage of coverage on the plate in the area of the ink zones and automatically calculates the ink profile, i.e. the degree of aperture of the respective ink zone.
  In combination with an ink fountain remote control system, a plate scanner is a powerful instrument to speed up makeready.
- The FAG scanner VPS Bingoscan also contains many self teaching features to adapt to paper, plate and machine characteristics.



Our Products

Quality Control in print production is a process consisting of a number of steps at sequential stages. FAG provides the appropriate devices for all these stages.

All FAG instruments conform to Swiss quality standards and DIN and ISO standards.

FAG VIPTAB is a special FAG software available for all FAG densitometers. All measurement data can be transferred to a PC and into an Excel data file and after that analysed according to the respective requirements.

Inspection of films and print form assembly:
Vipdens 150

- Ideal also for Desk Top Publishing.
- This densitometer has its own light source for precise and stable measurements on films. Digital "Ghost Dot" compensation improves the accuracy of first generation halftone readings.

Printing plate inspection:
Vipcam 122

- This CTP device guarantees accurate and fast quality control of computer to plate technologies and traditional prepress processes. With its built-in video camera it reads and analyses geometrically the dot area of each field with conventional or stochastic screening. It is also capable of measuring the dot diameter, screen angle and ruling, as well as the logarithmic visual area.
- The optional FAG-PQS (Print Quality Software) provides a complete job management and quality management system.

Our Products

FAG provides the appropriate measuring instrument for all these stages.

Vipdens for the pressroom: densitometrical and colorimetrical inspection of printed sheets
Vipdens C 5P

- The fully automatic densitometer with automatic recognition of color and functions, as well as solid, shadow and highlight dot gain and balance patch.

Vipdens specially for packaging printing:
Vipdens 2000

- The FAG VIPDENS 2000 is a multicolor densitometer (measurements of 4-color as well as up to 7-color printing) with colorimetrical functions to be used on the press. The FAG VIPDENS 2000 is universal because of the 7 colors cyan, magenta, yellow, orange, green, blue and black; which means that it can be used also for special colors.
- Because of its colorimetrical functions, the FAG VIPDENS 2000 gives all the information needed to calibrate the press.

Inspection of Gloss when Coating:
Vipgloss

- Finishing by coating creates added value. To give reliable data on gloss, this pocket-size instrument has been developed according to the standards of the German FOGRA institute, the German research institute for the graphic industry. Its advantages: perfect match between measuring value and visual impression, independent from the color of the surface of substrate or print.

Our Technological Leadership

In addition to the renowned Swiss precision, all FAG hand-held densitometers have the following characteristics in common:

- **All instruments comply with DIN and ISO standards**
- **All instruments can be upgraded with VIPTAB software**
- **All instruments are equipped with LED diodes for an extremely long life**
- **All instruments are equipped with an output for serial or USB connection**
- **All instruments have a warranty period of two years**

Ask for detailed information leaflets !

This information leaflet gives only a brief overview of the large FAG product range. More devices and instruments for standardisation and streamlining of printing workflows and printing processes are shown on our website, see

www.fag.ch

For direct personal advice, please send an email with your request to

info@fag.ch

FAG
of Switzerland

Our Experience – Your Benefits

FAG – a reliable partner of the printing industry and supplier of equipment and instruments for 70 years

- **To reduce set up time requirements**
- **To increase productivity**
- **To stabilise and standardise the printing process**
- **To control quality**

1937

Joseph-Otto Bobst founds FAG SA in Lausanne/ Switzerland. He introduces his Form-Test method in European printing companies. Form-Test means an effective preparation of a letterpress print form outside the press. With Form-Test, the downtime of presses was reduced, bringing a considerable increase in productivity.

1947

FAG establishes branch offices in Germany, Italy, France and Great Britain.

1962

Opening of a production plant at Avenches/ Switzerland.

1975

BOBST SA in Prilly takes over the capital stock of FAG. FAG company name and independence are maintained.

1980

The 200th FAG OFFSETPRESS 104 is delivered by the plant in Avenches.

1992

FAG-VRG S.A. and the German machine manufacturer MAX SIMMEL join their design potential and introduce the famous FAG-KORREX 2000.

1995

Launch of the new table-top FAG VIPSCAN and ink zone remote control system FAG COLORSET at DRUPA 1995.

Your Partner

1998

FAG-VRG S.A. becomes part of MAN ROLAND DRUCKMASCHINEN AG, Germany, and continues as an independent company under the name of FAG GRAPHIC SYSTEMS SA based in Lausanne/Switzerland.

1999

With the new measuring instruments FAG VIPFLEX 333 and FAG VIPDENS 2000, FAG achieves access to the flexographic printing market.

2000

At DRUPA 2000 the printing world is surprised by two innovations:

FAG VIPCAM 116, a portable measuring desk for printing plates, and the new FAG VIPCOLOR SOFTWARE 2000.

2002

FAG ICMD (Inline Color Measurement Device) is a new inline spectro-densitometer which is applied in offset as well as in flexographic printing. Introduction and market launch at IPEX 2002.

2003

Introduction of FAG VIPDENS 118.

2005

In 2005 MAN ROLAND sells all its FAG shares to Dr.-Ing. Jochem Tietze. Dr. Tietze is the owner of MABEG Maschinenbau GmbH & Co. KG, which he acquired before from MAN ROLAND as well.
Philippe Orville, for many years a director of FAG, renowned as "Mr. FAG"and an outstanding expert in the graphics industry, becomes co-partner and General Manager.

2006

With MABEG Machinery (Shanghai) Co. Ltd. (www.mabeg.cn), FAG establishes a sales and service centre in China, thus gaining a presence in one of the most important markets. FAG is now in a position to give optimal service to Chinese printers. The current product range comprises:

- Quality control systems for prepress (film and platemaking) and printing
- Color management systems
- Automatic sheet inspection systems
- Plate scanners for offset printing
- Automatic blanket wash up devices for offset presses
- Ink-zone remote control systems for offset presses
- Proof presses
- And many other products for optimisation and control in printing

FAG

of Switzerland

FAG
GRAPHIC SYSTEMS S.A.

5, rue de la Vigie
CH-1003 Lausanne

Telephone: **+41 21 343 23 23**
e-mail: **info@fag.ch**
Internet: **www.fag.ch**