## Technology operation (SOP) SOP STUDIO 601

SOP group: studio (store)
SOP number: 601
SOP name: **Print data technical conditions**
Responsible person: sales representative
Version: 2.0
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## Conditions

- none

## Technology operation procedure (SOP description)

The customer manual shall be used to clarify the technical conditions of assigning book printing contracts and book printing in Finidr Ltd. It contains Finidr Ltd.'s commitment to comply with international standards and quality indicators and the requirement for the proper preparation of print data that the customer must observe for perfect image reproduction.

**1. The quality definition and our commitment to maintaining it**

Under, the printing house FINIDR understands the term "quality printed material" as fulfilling the three following conditions:

- The print colours are as close as possible to Fogra51/52L standard references, and the requirements of the ISO 12647-2:2013 printing standard,
- The bookbinding shall be solid and extremely precise,
- The commissions shall be dispatched on the prearranged date and at the agreed-upon price.

However, ensuring the quality described above requires cooperation with the contracting authority that undertakes to deliver correct print data within the deadlines specified. The printing house FINIDR undertakes to prepare high-quality printed matter using the accurate data and deliver it to the customer within the agreed time. Besides, FINIDR inspects all its production processes and adjusts their function so that they comply with international ISO printing standards or the recommendations of international arbitrators Fogra, Ugra, ECI, and GWG. The printing house FINIDR has prepared operating procedure documents specifying all production processes, describing the correct outputs and methods of measuring such processes and their results and determining that they meet the recommendations of ISO standards and international arbitrators. Employees are trained to manage these processes flawlessly and to use inspection tools. Implementation of this system means that high-quality printed matter will be made at the client's request, assuming the print data is delivered on time and according to the given parameters.

## 2. Supported print data formats

The customer is obliged to deliver print data in the format PDF.
The following versions are preferred:

- 1.3
- 1.4
- 1.6
- 2.0 (in preparation).

FINIDR strongly recommends using valid standards, which are published as part of the international standard ISO 15930. Specifically, the following standards:

- PDF/X-1a:2001:2003,
- PDF/X-4:2010,
- PDF/X-6 (standard based on PDF 2.0, in preparation).

Any other print data formats, such as EPS, TIFF, JPG, CDR, etc., require different, non-standard processing methods; therefore, we cannot guarantee the processing time and output quality in advance. Thus, the Finidr printing house does not accept these files by default.

Preferably, the print data should be kept in a single file containing all pages of the print commission, **including blank pages**. If it is necessary to divide the print data into several files, individual parts must be identified clearly and concisely without using diacritics (e.g. textbook_001-100.pdf; textbook_101-200.pdf etc.)

## 3. Determination of the reference colour scheme and allowed ICC profiles

The reference colour scheme of the print shall be based on meeting the requirements of the printing standard ISO 12647-2:2013. The printing house FINIDR uses **Fogra 51L, 52L** international references to reference the colour scheme of offset printing and all related technologies.
When processing print data, the printing house FINIDR undertakes to maintain the colour scheme on all printing machines (printing, digital proof, monitor preview). Customer must adhere to this reference and only use permitted licensed ICC profiles that were created based on this reference when preparing print data in programs such as Adobe Photoshop (they can be downloaded from http://www.eci.org/en/downloads):

- **PSOcoated_v3.icc**
- **PSOuncoated_v3_FOGRA52.icc**

## 4. Standard materials and standard print preparation parameters

The FINIDR printing house prints on all standardly available printing materials intended for offset printing and uses the following types of screening:

- Traditional AM screening with frequency 122-200 lpi,
- Stochastic FM screening with a scan point size of 25 µm for high-quality coated materials.

## 5. The FINIDR printing house performs the following colour conversions

**Converting non-standard colour space RGB:**
**RGB:**

- First of all, it shall be ascertained whether ICC profiles are embedded in the data. If so, CMYK conversion is applied. In this case, the conversion is as follows: ICC profile -> Fogra51L, Fogra43L, Fogra52L (depending on the screen and paper type).
- If the RGB data does not contain an ICC profile, we assume that it is an sRGB area and the conversion sRGB -> Fogra51L, Fogra43L, Fogra52L (depending on the screen and paper type) is performed in the prepress workflow.
  *Note: The RGB -> CMYK conversion is managed to minimise the loss of colour (which is always present in such conversions) and to match the result as closely as possible to the source data. In conversions, the perceptual method is always used.*

**CIE Lab:**

- CIE Lab colour space is converted to the CMYK regardless of the embedded profile; thus, the conversion runs as follows: Lab -> Fogra51L, Fogra43L, Fogra52L (depending on the screen and paper type).
  *Note: The Lab -> CMYK conversion is managed to minimise the loss of colour (which is always present in such conversions) and to match the result as closely as possible to the source data. In conversions, the perceptual method is always used.*

**ICC-based**

- ICC-based colour space with data in RGB colour space is converted using an embedded ICC profile. Thus, CMYK conversion is as follows: ICC profile RGB -> Fogra51L, Fogra43L, Fogra52L (depending on the screen and paper type).
- ICC-based colour space with data in the CMYK colour scheme is not converted; the embedded ICC profile is removed. By doing so, a "pure" CMYK colour space is created, which we treat as a standard colour space during processing.
  *Note: The ICC-based colour space occurs in features that are tagged with an ICC profile. Thus, the ICC-based colour space can describe both RGB and CMYK data.*

**CMYK-CMYK conversion:**

- For the AM rasterisation, the FINIDR printing house assumes that the data provided for printing is already in the given Fogra51L and Fogra52L colour space. Thus, FINIDR does not perform any colour conversions by default unless otherwise defined by the customer.

  In the case of uncoated materials, saturation will be attenuated due to its absorbency and surface treatment. The more the paper type differs from the paper

described in the 12647-2 norm (the norm stipulates high-quality, uncoated paper), the greater the deviation can be expected in printing.

- In the case of FM rasterisation and the output effect, **the FINIDR printing house applies the conversion Fogra51L -> Fogra43L** for the coated material.

**The maximum amount of colours in printing data or TAC (Total Area Coverage) shall not exceed 300% for printing on coated materials. Should a feature with such a TAC value be found on the page, it will be adjusted to this maximum value. However, there are no differences in the visual colour scheme.*

## 6. PDF print data quality requirements

Ideal PDF print data should meet the international ISO 15930-4 standard (PDF / X-1a format definition) and comply with the recommendations of the Ghent PDF Workgroup for sheet-fed offset printing machines technology (www.gwg.org). We, therefore, recommend that our customers check their PDF print data against the GWG requirements using one of the following inspection profiles:

- SheetCMYK 1v4 (Preflight Panel in Enfocus PitStop Pro),
- Sheetfed CMYK print (Preflight in Adobe Acrobat),
- Data transmission via PitStop Connector, provided by the Finidr printer free of charge.

The FINIDR printing house strongly recommends delivering the data in the required format. However, we offer our customers conversion of the print data into the required PDF/X-1a format and fine-tuning it to meet the ISO and GWG standards. In this case, however, there may be unwelcome changes in the structure of the print data; thus, we strongly recommend our clients to check the sent previews or plotters thoroughly.

There are also several significant limitations that the printing house cannot fix. In such a case, the printer informs the client to take adequate measures to correct the source application. The limitations are as follows:

- ☒ The print data shall not contain any passwords locking the document for editing and printing. The data must not be corrupted. (It can happen during the transmission via, e.g. FTP protocol.)
- ☒ All fonts must be inserted into the PDF document; both T1 (Adobe Type 1) and TT (TrueType) fonts are allowed. OpenType fonts can be used in graphics applications. They automatically upload to PDF as one of the versions described above. We do not recommend using TYPE 3 fonts.
- ☒ The bitmap resolution should be:

| Screen | Ideal |
|---|---|
| AM screen (contone, 8 bit) | **300 dpi** |

| | |
|---|---|
| FM screen (contone, 8 bit) | **600 dpi** |
| Line art (1bit) | **1200 dpi** |

☒ The net format size and extent (including blank pages) stored in the print data must correspond with the order. All the pages in the document must be of the same size and orientation (e.g. top side up).

Other errors or omissions in print data are annoying, but we can generally fix them in the prepress workflow:

- "Visible" and "Printed" layers will be automatically merged and printed. Invisible layers won't be printed.
- Requirements for bleed and safe area rely on inaccuracies in the finishing process, especially when folding and trimming. Bleed at the text block must be at least 3 mm, print marks begin inside the bleed (i. e. the marks must not interfere with the bleed). The minimum bleed for covers is 14 mm, 5 mm for wraps and endpapers, and 3 mm for dustjackets. The safe zone is an area of 3 mm around the edge of printed matter; there should be no text object so that it is not cut off during bookbinding. Therefore, indent objects and text within the page (i.e. in a net format) at least 3 mm from the cut (inside). The print data must have a trim box defined, determining the size of the net print format and a media box specifying the area where the page design shall be placed. The print data should also have a bleed box defined, stipulating the size of the bleed.
- Objects reprints shall be printed as set by the customer or application. Automatical corrections are performed only when reprinting "black text" objects type in size up to 17 pt.
- Colour space types and their conversion are discussed above in the sub-chapter "Converting non-standard colour spaces (RGB, CIE Lab, ICC-based)."
- The maximum sum of colours in print data or TAC (Total Area Coverage) for printing on coated materials should not exceed 300%. Should a feature with such a TAC value be found on the page, it will be adjusted to this maximum value. However, there are no differences in the visual colour scheme.
- The minimum text/line size is defined as follows:
    - At least 5 pt. for one plate test print, e.g. black,
    - At least 8 pt. for two or more plate text print,
    - At least 0,075 mm or 0,213 pt. for the smallest pass.
    - Smaller text sizes are unintelligible (serifs bleed together), or they cannot be ideally aligned (such text will be fuzzy when printed on an offset printer).
    - Lines thinner than specified are, in many cases, difficult to print on offset technology. Even if such a thin line is visible on an inkjet printer and plotter printouts, it will be probably damaged in the final offset printing. Therefore, lines under 0.04 mm are automatically adjusted to 0.075 mm.

- The actual page design must be centred horizontally and vertically relative to the page geometry.
- Spot colours are allowed, and their names in the data should be consistent with the marks in the swatches, for example, Pantone177C. HKS colour swatches are also allowed. If the order does not contain specifications of spot colours, it is assumed that they have been omitted in the data intentionally and are converted to CMYK separations.

**7. Language versions**

Each language version must contain complete CMYK data (the exact position of the images in all versions must be observed).

**8. Colour profile requirements**

The FINIDR printing house is obliged to comply with and accepts only the following colour profiles:

- Certified digital proof (hereinafter referred to as the proof) simulating Fogra51L, Fogra 52L references, which was validated in accordance with ISO 12647-7 methodology. The proof must contain Ugra/Fogra Media Wedge validation range, a label specifying the measurement result, and information stating the time and date of the proof creation, ICC profile or reference designation.
    i. The proof is created using the supplied print data and, therefore, contains the same features and design as the print data (the proof should be delivered to the printing house along with the data; at least three days before the printing starts);
    ii. The proof is created on a 1:1 scale, i.e. without enlargement/reduction (100 % scale).

- Other types of originals, such as sample books, shall be subject to examination by the printer and compared with the benchmark colour that matches the colour of the given reference. If so, it can be accepted as a colour profile.

There are specific colour profiles for which we cannot accurately estimate that they will ideally match the final printing on an offset machine (the printing house usually does not accept such profiles). They are as follows:

- Refined printed matter (e.g. by lamination or varnishing),
- Other types of originals that do not simulate offset printing, such as laser or inkjet printouts.

**9. Refinement of printed matter**

According to the customer’s requirements, the printed matter may be refined by using varnishing or lamination.

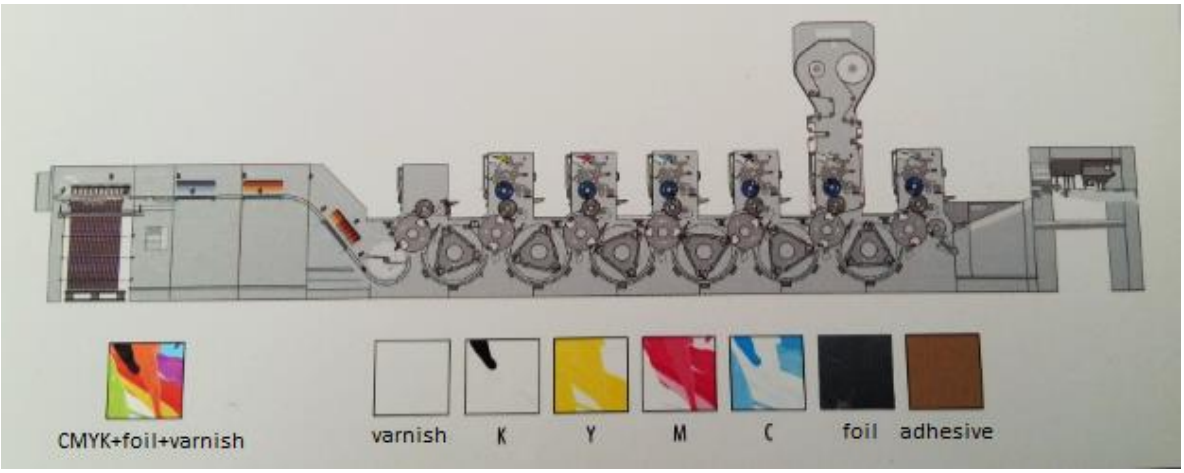
It should be noted that such finishes may significantly affect the colour of the print. Due to the light refraction, pictures may get darker on their coated, varnished or laminated side or may get reddish or yellowish shade. Compliance with the original colour scheme should be, therefore, assessed on the uncoated print.

Finishing the print by trapping the metallic and transparent colour cannot be simulated in advance. The colour perception may significantly affect the order of colours in the printing machine. Metallic colours shall not be used with a reduced coverage degree. Metallic colours are not designed for printing on uncoated materials.

# Cold stamping – data preparation and verification

*Technology information:*

- Cold stamping is performed on an offset printing machine. The maximum size of the print sheet is 1020 x 720 mm; the full width of applied foil is 980 mm.
- Machine configuration
  - Tower 1: Based on the date, the adhesive is applied where cold stamping effect shall appear,
  - Tower 2: Silver foil is applied to areas coated with the adhesive from Tower 1,
  - Towers 3-6: Standard colour offset printing towers,
  - Tower 7: Application of protective dispersion varnish.
- The applied **foil shall always be silver in colour** and placed under the print.
- Foil supplier swatches shall be used to **simulate CMYK colour profile;** they are available for the technology.
- Pantone colour profile on the silver foil cannot be simulated before the printing; a **print** test is, therefore, recommended.




Preparation and verification of cold stamping data:

- All data for Tower 1 and Towers 3-6 must be in one file.

- Adhesive for Tower 1 must be applied precisely at the foil location.
- The adhesive is specified as the fifth colour called "**cold stamping**".
- Data for Towers 3-6 have standard CMYK or Pantone designations.
- If the customer is unsure whether the resulting colour effect will be to his satisfaction, a print test must be performed. Print on cold stamping **cannot be simulated on a computer.**

## 10. Document Editing

PDF and PS files are, in other words, „closed data", and the printing house FINIDR shall not perform any text corrections or image changes.