PRINT SPECIFICATIONS
FLEXO PRINT,
ROTOGRAVURE PRINT
AND DIGITAL PRINT

VERSION 18/1
# 0.1 CONTENT

## PRINT SPECIFICATIONS FLEXO- & ROTOGRAVURE PRINT

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Foreword

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20.1 CONTENT

PRINT SPECIFICATIONS FLEXO- & ROTOGRAVURE PRINT
FOREWORD

The digital world of printing and pre-press is currently shaped by different platforms, file formats, programs and program versions. Possible consequences are incompatibility and extra effort.

Smooth data transfer can be ensured simply by adhering to a few standards in the interface between data supplier (agency, graphic designer, etc.) and data processor (PrePress, Repro).

They can reduce production and throughput times, and also reduce costs and errors. With the help of this information, data handling and data quality are matched from the beginning to the requirements of the packaging manufacturer.

These guidelines are intended as an aid for our customers to achieve optimum printing results. We put great value on the reliability of a qualified and standardised flexo and rotogravure print. Therefore we intensively check all data and templates which we receive.

BASICS OF THE PRINT DATA PROVISION

There is a fundamental difference between data suitable for the repro and print-ready data.

Data suitable for the repro must be prepared and corrected for the respective printing process after receipt.

Print-ready data require cooperation between data supplier (repro agency) and data processor (printer) in advance. In certain individual cases different guidelines may be developed and defined. The responsibility shifts to the data supplier.

Our contact persons are pleased to discuss everything with you in advance in order to achieve an optimum result for you.

THESE GUIDELINES ENSURE FOR YOU AND US ...

- Reliability in the respective production steps.
- Cost and time saving for the customer at the pre-press stage.
- High and consistent quality levels in print.
Flexo Print
1.1 SYSTEM

Apple Macintosh

1.2 PROGRAMS

- Adobe Photoshop CC
- Adobe Illustrator CC
- Adobe InDesign CC
- ArtPro (current version)

1.3 PROOF SYSTEMS

Plotter layout in original size on paper
Proofer binding color proof printed on transparent film or paper

1.4 DATA TRANSFER

- Data carrier
- FTP server

1.4.1 DATA CARRIER

- DVD
- CD-ROM
- USB stick
- External hard drive

1.4.2 FTP TRANSFER

FTP transfer Site: ftp://repro.suedpack.com

You will receive the login details directly from our contact persons.

The fastest and most economical method of data transfer is uploading your data to our FTP file server.

To enable a fast and smooth process, we request the following standards:

- Compress the data (zip, sitx, etc.)
- Data can be uniquely identified: name includes customer and product
- Data package includes a saved contact
- None of the elements contains special characters

» Please notify us of your upload by telephone or e-mail.

1.5 COLOR PROOFS

(COLOR MANAGEMENT)

A color proof is used before the actual production to present a target result that corresponds to the result of the later print run.

A proof is binding if an adaptation to the respective printing technology and printing machine to the output device of the producer of the proof has been carried out. Proofs are only binding for the scale colors cyan, magenta, yellow and black (CMYK). The representation of special colors can only be approximated with digital proofs, which is why the color fans are binding (Pantone or HKS).

We would be pleased to provide our internal standard profile for Adobe Photoshop (ICC) and for our proofers (MX4 and MX5).
2.1 PUNCH OUTLINE / TOOL DRAWING

All data records must be created in their original size (as per punch outline, tool drawing). The punch outline (package size and print image size) should have its own description and color and be set to „overprint“. We need a new printing specification for each new design.

2.2 PREPARATION OF SKETCHES / LAYOUTS

For special colors, the respective color codings with detailed information about the color in Pantone C or HKS K color shades must be provided in the layout files.

- PANTONE 8283 C
- PANTONE 7540 C

2.3 PROOF

Layout files supplied must include a binding color proof with UGRA/FOGRA media wedge. We would be pleased to provide our internal standard profile for Adobe Photoshop (ICC) and for our EPSON proofers (MX4 and MX5).

2.4 IMAGES

To achieve the highest quality of printing result, it is important for us that all images used in the layout are available in the highest quality. Image files must have at least a resolution of 300 dpi in the original size. Bitmaps and line drawings need a resolution of at least 1200 dpi. A Photoshop file (psd) with all layers, converted to CMYK, must be supplied.

2.5 FONTS

In an ideal situation, the fonts will be supplied with the layout file as a dataset. Alternatively, texts can also be converted into vector paths. Texts in chromatic colors must be printed with a special color (Pantone or HKS).

2.5.1 POSITIVE FONTS

- Minimum size 5 pt
- Preferably light-faced or light fonts
- Character spacing preferably wide

2.5.2 NEGATIVE FONTS

- Minimum size 6 pt
- Preferably bold fonts
- Character spacing wide or normal
- Avoid serifs

For serif fonts such as Garamond or Times, the minimum font size is 15 pt. For negative fonts smaller than 5 mm font height: no serifs! If this cannot be avoided, for example with established logos, the minimum font size of 15 pt must be observed. Cursive fonts such as English Cursive can only be reproduced as negative fonts with a minimum height of approx. 30 pt = 8 mm.

The following principle applies:
The smaller the font size, the “bolder” the font should be.
2.5.3 **NEGATIVE FONTS (ON MULTI-COLORED BACKGROUNDS)**

For small negative fonts on multicolored backgrounds, a thin outline in the appropriate color is generated by us. Minimum size without outline 15pt.

2.6 **OVERFILLING**

Slight register variations are unavoidable when printing on flexible materials, including films. Therefore color overfilling from color to color is necessary in both, rotogravure and flexo printing. This makes it possible to achieve a seamless colored transition and to avoid white areas. Overlapping is necessary for texts and motive elements on color backgrounds, including filled outline fonts (positive and negative). As a rule, the lighter color is overfilled by the darker.

The overlapping is defined with 2/10 millimetres. Overfilling is carried out in the pre-press stage by SÜDPACK or the agency.

2.7 **LINE WIDTHS**

The size of individual lines/drawing elements must be at least 0.15 mm as positive or 0.3 mm as negative. For lines on multicolored backgrounds, a size of 0.5 mm is required.

0,15 mm

0,5 mm

2.8 **PRINT QUALITY OF DIFFERENT COLORS**

- Black is the optimum printing color for fonts and EAN codes,

- To enable the optimum printing quality, particularly fonts, the darkest possible color should be used. When using light colors, such as light green or orange, surface coverage is often not optimal and visible squeezing rims could occur.

- If large areas (full tone) and fine drawing elements (continuous tone) in a printed image have the same color, these should be printed with two different color decks, i.e. saved as two different colors. This is of particular importance for the color white, since the technical equipment is configured for optimal white coverage (high ink transfer). Therefore fine drawing elements cannot be converted in a satisfactory manner.

- When choosing images and creating the subject, the fact that only color values up to a value > 5% can be printed in flexo print must be taken into consideration.

2.9 **COLOR COMPOSITION**

A maximum of 10 colors (including white + 1 lacquer) can be printed. If the packaging contains an oily or greasy product, two white print runs should be planned for high ink coverage (opacity).

2.10 **FINISHING**

Finishes such as matt finishes should be saved as separate colors and with identification of the required finishing method.
2.11 SCREEN WIDTHS AND GRADIENTS

According to our internal standard, 16 to 60 lines/cm are possible.

Please note the following with regard to screen gradients:

In all colors, screen gradients of approx. 5% - 98% of the tonal screen value are possible in flexo print. Metallic colors such as gold, silver, etc. are not bit-mapped. They can only be printed as spot colors (never as continuous tone). The visualization of individual tonal screen values during the printing process depends on the length of the entire screen gradient. The shorter the screen gradient, the smaller the scope of the tonal screen values. Screen gradients of less than 15 mm in length are very difficult to print and should, therefore, be avoided.

If deviations from these guidelines are necessary, please contact us in advance and we will be pleased to make suggestions.

2.12 HD FLEXO FROM ESKO AND KODAK FLEXCEL NX SYSTEMS

New imaging technologies can provide outstanding screen gradients without jagged lines.

Advantages

• Detailed images (high contrast) with soft gradients (approaching 0%)
• Clear, expressive full tones and an extended color space
• Higher solid densities compared to conventional printing plates

We can already provide HD flexo, full HD, KODAK Flexcel NX and Du Pont Cyrel DSP. For further information about these technologies, please do not hesitate to contact our contact persons.

2.13 EAN CODE

Also refer to EAN data sheet page 17

The EAN codes in their actual size must already be taken into consideration at the design/layout stage. The smallest reproduceable standard EAN code size is SC 01 in the reverse printing method in the running direction. Against the running direction, an EAN code size of SC 02 is necessary, with a minimum height of 16 mm.

For optimal results, the greatest possible contrast (black/white) is important. If the code is not produced in black/white, a consultation is recommended to check/ensure readability in advance. The reduction (adjustment of the printing size) of the code is carried out by the SÜDPACK Repro or the supplying repro.

2.13.1 EAN REQUIREMENTS FOR A+B VALUES

To achieve A + B values, it is necessary that:

• The EAN size in the running direction must be at least SC 02
• The EAN size against the running direction must be at least SC 03
• There must be 2x white (standard is 1x white)
• The printing color for EAN codes must be black
2.14 QR (Quick Response) Codes

The QR code consists of a square matrix of black and white dots that represent the data in coded binary form. A special mark in three of the four corners of the square provides the orientation. Included in the code are the information about the version and the data format used. The data part includes the coded data in redundant form.

The use of QR codes is free and requires no licence. The codes can be individually designed with lettering, a logo or image and with color changes.

The contrast (ideally black/white) is significant for the QR code. The code should be created in accordance with the ISO standard 18004:2006. The readability of the QR code is strongly dependent on the type of device and the software used. As a reference we recommend a size of 20 x 20 mm.
OCHSENHAUSEN (GERMANY)
SÜDPACK Verpackungen GmbH & Co. KG
Coordination Office
Jägerstraße 23 | 88416 Ochsenhausen | Germany
koordinationsstelle.spo@suedpack.com
(can be accessed by all staff members)

YOUR CONTACT PERSONS

Thomas Lerner
Phone   +49 7352 925 1381
Mobile  +49 160 96 38 70 47
thomas.lerner@suedpack.com

Rainer Stoffel
Phone   +49 7352 925 1361
Mobile  +49 170 228 86 91
rainer.stoffel@suedpack.com

Björn Bogazki
Phone   +49 7352 925-1535
Mobile  +49 151 191 949 88
bjoern.bogazki@suedpack.com

Matthias Weinzierl
Phone   +49 7352 925 1573
matthias.weinzierl@suedpack.com

Gunter Löchle
Phone   +49 7352 925 1171
gunter.loechle@suedpack.com

Harald Geiger
Phone   +49 7352 925 1345
Mobile  +49 171 772 12 15
harald.geiger@suedpack.com
ROTOGRAVURE PRINT
3.1 SYSTEM

Apple Macintosh

3.2 PROGRAMS

- Adobe Photoshop CC
- Adobe Illustrator CC
- Adobe InDesign CC
- ArtPro (current version)

3.3 PROOF SYSTEM

Plotter: layout in original size on paper
Proofer: binding color proof printed on transparent film or paper

3.4 DATA TRANSFER

- Data carrier
- FTP server

3.4.1 DATA CARRIER

- DVD
- CD-ROM
- USB stick
- External hard drive

3.4.2 FTP TRANSFER

FTP transfer → Site: ftp://repro.suedpack.com

You will receive the login details directly from our contact persons.

The fastest and most economical method of data transfer is uploading your data to our FTP file server.

To enable a fast and smooth process, we request the following standards:

- Compress the data (zip, sitx, etc.)
- Data can be uniquely identified:
  Name includes customer and product
- Data package includes a saved contact
- None of the elements contains special characters

Please notify us of your upload by telephone or e-mail.

3.5 COLOR PROOFS (COLOR MANAGEMENT)

A color proof is used before the actual production to present a target result that corresponds to the result of the later print run.

A proof is binding if an adaptation to the respective printing technology and printing machine to the output device of the producer of the proof has been carried out. Proofs are only binding for the scale colors cyan, magenta, yellow and black (CMYK). The representation of special colors can only be approximated with digital proofs, which is why the color fans are binding (Pantone or HKS).

We would be pleased to provide our internal standard profile for Adobe Photoshop (ICC) and for our proofers (MX4 and MX5).
4. SPECIFICATIONS

ROTOGRAVURE PRINT

4.1 PUNCH OUTLINE / TOOL DRAWING

All data records must be created in their original size (as per punch outline, tool drawing). The punch outline (package size and print image size) should have its own description and color and be set to „overprint“. We need a new printing specification for each new design.

4.2 PREPARATION OF SKETCHES / LAYOUTS

For special colors, the respective color codings with detailed information about the color in Pantone C or HKS K color shades must be provided in the layout files.

- PANTONE 8283 C
- PANTONE 7540 C

4.3 PROOF

Layout files supplied must include a binding color proof with UGRA/FOGRA media wedge. We would be pleased to provide our internal standard profile for Adobe Photoshop (ICC) and for our EPSON provers (MX4 and MX5).

4.4 IMAGES

To achieve the highest quality of printing result, it is important for us that all images used in the layout are available in the highest quality. Image files must have a resolution of at least 300 dpi in the original size. Bitmaps and line drawings need a resolution of at least 1200 dpi. A Photoshop file (psd) with all layers, converted to CMYK, must be supplied.

4.5 FONTS

The fonts should be submitted in the form of a dataset and be included in the layout file or the texts should have been converted into vector paths (ideally: an open file with the used font suitcases and a file with the texts converted into vector paths).

4.5.1 POSITIVE FONTS

- Minimum size 5 pt
- Preferably light-faced or light fonts
- The smaller the font size, the “finer” the font should be.

4.5.2 NEGATIVE FONTS

- Minimum size 7 pt
- Preferably bold fonts
- Character spacing wide or normal
- Avoid serifs

For serif fonts such as Garamond or Times, the minimum font size is 15 pt. For negative fonts smaller than 5 mm font height: no serifs! If this cannot be avoided, for example with established logos, the minimum font size of 15 pt must be observed. Cursive fonts such as English Cursive can only be reproduced as negative fonts with a minimum height of approx. 30 pt = 8 mm.

The following principle applies:
The smaller the font size, the “bolder” the font should be.
4.5.3 NEGATIVE FONTS (ON MULTI-COLORED BACKGROUNDS)

For small negative fonts on multicolored backgrounds, a thin outline in the appropriate color is generated by us. Minimum size without outline 15pt.

4.6 OVERFILLING

Slight register variations are unavoidable when printing on flexible materials, including films. Therefore color overfilling from color to color is necessary in booth, rotogravure and flexo printing. This makes it possible to achieve a seamless color transition and to avoid white areas. Overlapping is necessary for texts and motive elements on colored backgrounds, including filled outline fonts (positive and negative). As a rule, the lighter color is overfilled by the darker.

The overlapping is defined with 2/10 millimetres. Overfilling is carried out in the pre-press stage by SÜDPACK or the agency.

5.7 LINE WIDTHS

The size of individual lines/drawing elements must be at least 0.15 mm as positive or 0.3 mm as negative. For lines on multicolored backgrounds, a size of 0.5 mm is required.

0.15 mm

0.5 mm

4.8 PRINT QUALITY OF DIFFERENT COLORS

The best print color for fonts and EAN codes is black. All spot colors can be printed in the rotogravure technique. White surface, white texts and white screens can be printed with one printing cylinder. A separation is not necessary.

4.9 COLOR COMPOSITION

A maximum of 12 colors (including white) can be printed. If the packaging contains an oily or greasy product, two white print runs should be planned for high ink coverage (opacity).

4.10 FINISHING

Finishes such as matt finishes should be saved as separate colors and with identification of the required finishing method.
4.11 SCREEN WIDTHS AND GRADIENTS

With rotogravure, screen gradients in all colors can be realized in accordance with the rotogravure standards. If deviations from these guidelines are necessary, please speak in advance with the contact person and we will be pleased to make suggestions.

4.12 EAN CODE

Also refer to EAN data sheet page 17

The EAN codes in their actual size must already be taken into consideration at the design/layout stage. The smallest reproducible standard EAN code size is SC 01 in the reverse printing method in the running direction. Against the running direction, an EAN code size of SC 02 is necessary, with a minimum height of 16 mm.

For optimal results, the greatest possible contrast (black/white) is important. If the code is not produced in black/white, a consultation is recommended to check/ensure readability in advance. The reduction (adjustment of the printing size) of the code is carried out by the SÜDPACK Repro or the supplying repro.

4.13.1 EAN REQUIREMENTS FOR A+B VALUES

To achieve A + B values, it is necessary that:

• The EAN size in the running direction must be at least SC 03
• The EAN size against the running direction must be at least SC 04
• There must be 2x white (standard is 1x white)
• The printing color for EAN codes must be black

4.14 QR (QUICK RESPONSE) CODES

The QR code consists of a square matrix of black and white dots that represent the data in coded binary form. A special mark in three of the four corners of the square provides the orientation. Included in the code are the information about the version and the data format used. The data part includes the coded data in redundant form.

The use of QR codes is free and requires no licence. The codes can be individually designed with lettering, a logo or image and with color changes.

The contrast (ideally black/white) is significant for the QR code. The code should be created in accordance with the ISO standard 18004:2006. The readability of the QR code is strongly dependent on the type of device and the software used. As a reference we recommend a size of 20 x 20 mm.
YOUR CONTACT PERSONS

Norbert Klingner
Phone +41 91 874 82 82
norbert.klingner@suedpack.com

Barry Sidall
Phone +41 91 874 83 15
barry.siddall@suedpack.com

BIOGGIO (SWITZERLAND)

SÜDPACK Bioggio SA
Via Mulini | 6934 Bioggio | Switzerland
koordinationsstelle.spb@suedpack.com (can be accessed by all staff members)
5.1 8-DIGIT

<table>
<thead>
<tr>
<th>EAN Code</th>
<th>SC</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.26 mm</td>
<td>SC 0</td>
<td>80%</td>
</tr>
<tr>
<td>25.18 mm</td>
<td>SC 1</td>
<td>90.5%</td>
</tr>
<tr>
<td>27.8 mm</td>
<td>SC 2</td>
<td>100%</td>
</tr>
<tr>
<td>30.57 mm</td>
<td>SC 3</td>
<td>110%</td>
</tr>
<tr>
<td>33.65 mm</td>
<td>SC 4</td>
<td>121%</td>
</tr>
<tr>
<td>37.56 mm</td>
<td>SC 5</td>
<td>135,2%</td>
</tr>
<tr>
<td>42.23 mm</td>
<td>SC 6</td>
<td>152%</td>
</tr>
</tbody>
</table>

5.1 13-DIGIT

<table>
<thead>
<tr>
<th>EAN Code</th>
<th>SC</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.71 mm</td>
<td>SC 0</td>
<td>80%</td>
</tr>
<tr>
<td>34.53 mm</td>
<td>SC 1</td>
<td>90.5%</td>
</tr>
<tr>
<td>38.36 mm</td>
<td>SC 2</td>
<td>100%</td>
</tr>
<tr>
<td>42.18 mm</td>
<td>SC 3</td>
<td>110%</td>
</tr>
<tr>
<td>46.43 mm</td>
<td>SC 4</td>
<td>121%</td>
</tr>
<tr>
<td>51.84 mm</td>
<td>SC 5</td>
<td>135,2%</td>
</tr>
<tr>
<td>58.29 mm</td>
<td>SC 6</td>
<td>152%</td>
</tr>
</tbody>
</table>
1  Accepted File Formats

Preferred
PDF from version 1.4 or ArtPro
(Online shop only PDF from Version 1.4)

With additional effort
Open data as an archive from Adobe Illustrator or InDesign including all fonts and images/graphics used.

2  Tool Drawing/Print Position

All the data set generally need to be created in original size (as per printing specification, tool drawing). The “tool drawing” (package size and print image size) should have a unique description or color and should be marked as “overprinting”. For each new design, we need a new tool drawing. The tool drawing must be provided in PDF format.

3  Preparation of Drafts/Layouts

Spot colors used in the layout should be created utilising the Pantone-Solid-Coated color palette. Other colors will not be recognized and will only be simulated according to their CMYK-Values.

- PANTONE 8283 C
- PANTONE 7540 C

4  Images

To deliver the best quality and print results, it is important for us that every image used in the layout is provided in high resolution. Image files must have a resolution of min. 300 dpi. in original size.
5 **Fonts**

All fonts should be embedded in the PDF or converted to outlines (paths). When open data are supplied, the font files need to be included in the archive. The size of the positive fonts needs to be minimum 5pt, negative fonts need a minimum size of 6 pt.

6 **Colours**

A maximum of 16 separations are possible. Spot colors must be created in Pantone Solid Coated. In the digital print process, metallic colors like i.e. silver or gold are simulated in CMYK. Dielines or dimensioning must be defined as a spot color with the name „Die Cut” and complemented with the attribute “overprinting”. In case of printing on a transparent substrate, white must be marked as a spot color “white” with the attribute “overprinting”. ECI ISO-Coated V2 can be used as color profile.

7 **Barcode**

In the draft / layout, Barcodes must already be considered in original size as a placeholder. The highest possible contrast (black/white) is needed. If the code is not produced in black/white, it is recommended to check the readability in advance, to guarantee the best results. The reduction (compensation of dot gain) of the code will be adjusted by the prepress department.

7.1 **EAN-Requirements for A+B Values**

To achieve A+B values...
- the EAN-size in running direction must be min. SC 02.
- the EAN-size against running direction must be min. SC 03.
- the print color for EAN-Codes should preferably be black.

8 **QR (Quick Response) – Code**

The codes can be designed individually by adding a font, logo or image and by changing the color. The contrast is essential for the QR Code (ideally black/white). The QR-Code should be created in ISO standard 18004:2006. The readability of the code is greatly dependent on the device type and on the used software. A benchmark size of 20 x 20 mm is recommended.

9 **Personalisation**

Please contact our contact person for further information.

Packaging can be personalised as follows:
- personalised images
- personalised text
- personalised barcode, etc.

10 **Our Competence Centre**

SÜDPACK Verpackungen GmbH & Co. KG
Jägerstraße 23 | 88416 Ochsenhausen

Your contact person
Julian Zindl
Phone +49 7352 925 1318 | Mobile +49 160 923 397 02
julian.zindl@suedpack.com