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Smyth-Lithographic Label and File Specifications		

1.0 Purpose

To provide customers and label design firms specifications and guidance necessary to ensure the desired outputs are consistently achieved.

2.0 Scope

These specifications apply to all lithographically printed labels designed and/or printed at Smyth Companies.

3.0 Responsibilities

Customer Service Project Managers, Sales Account Managers, and PrePress Associates are responsible for assisting in the broad communication of these specifications to the parties affected.

4.0 Definitions

None

5.0 Specifications

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File Transfer Specifications

Media Accepted

- CD-ROM
- DVD-ROM

FTP Upload / Asset Management

Web uploads and asset/order management at www.smythco.com.
Please contact Customer Service for a login.

Contacts

Contact information must be supplied with each file submitted. For assistance, please contact Customer Service prior to shipping files and/or proofs.

Native Supplied File Specifications

File Formats Accepted

Macintosh Platform

- Adobe Creative Suite (Latest Version)

Note: Additional charges may apply for files submitted in formats other than those listed above.

Fonts

Printer fonts and screen fonts must be included with all native art files. Adobe Type 1, or Open Type, True Type, and Multiple Master fonts can be accepted. Fonts from quality foundries are recommended for best results. Stylizing fonts should be avoided, as output can be unpredictable.

Image Requirements

- High Resolution CMYK images (minimum 300 dpi)

Type and Rules

- Reverse type – 5.5 bold face minimum
- Reverse type out of more than one color
 - 7 pt. bold block type / 9 pt. roman block type
 - 8 pt. bold serif type / 10 pt. roman serif type
- Reverse type – Anything 7pt or less roman type, stroke .15pt white
- Positive type – 4.5 regular face minimum
- Reverse rules out of one color - .5 pt.
- Reverse rules out of more than one color – 1 pt.
- Positive rules – .25 pt.

Bleed

- Square cut – .062" bleed required on each side (total .125" height and width)
- Die cut – .125" bleed required on each side (total .25" height and width)

Borders / Copy to Trim Tolerances

- All copy must be .125" from trim and lap
- Borders, graphics and artwork must be .125" from trim
- **Beverage Cup In-Mold Label-Injection (IML-I)** must have .187" copy and border clearance from cut line

Die Cut

Please request die lines and die numbers from your Customer Service Representative prior to design development.

UPC Specifications

- Minimum Size 80%
- BWR (Bar Width Reduction) is .0006" or 15 microns
- Quiet zone should be 1/32" larger than UPC on each side.

- Truncation should not exceed 50%.
- Minimum percentage of reflectance – 32% (difference between bar code and background)
- Cyan should not be used as a barcode background color
- Please supply prefix number along with 10-digit UPC code if we are to create UPC codes for you.

Optimyser Supplied Files (7 color print process)

- Our optimizer process consists of four-color process plus Orange, Green and Blue (Reflex Blue).
- Typically, CT's should be scanned or supplied as CMYK and line work should be built for six colors.
- Reflex blue usually prints as a solid.
- Create file with process colors plus Pantone colors. Smyth Companies will convert to Optimyser 7-color process.

Press-Ready File Specifications

Compliance with these specifications will PREVENT ADDITIONAL COST AND/OR TIME DELAYS.

File Formats

PDF/X1a:2001, PDF/X3:2002

- One job per file.
- PDF/X1a can be used with most jobs.
- PDF/X-3 may be required for some duotones and special effects.
- Must be a single composite page, not separated gray pages.
- All files **must** have a varnish regardless of coating specification.
- Vector versions must be used when available.
- JPEG Compression should not be used
- Down-sampling must be disabled
- Compression such as LZW, Flate, or RLE is recommended.
- If only raster screened data is available (TIFF/IT or copy-dot), please contact customer service.
- Files must be **trapped**.
- **Do not** turn on Separation All or Spot Color All for any color in the PDF.
- Varnish should be set to “multiply” not “overprint” – unless outputting from ArtPro.
- Must be cropped to the bleed size of the label.

*****DCS Files are no longer accepted.**

Bleed

- Square cut – .062” bleed required on each side (total .125” height and width)
- Die cut – .125” bleed required on each side (total .25” height and width)

Borders / Copy to Trim Tolerances

- All copy must be .125” from trim and lap
- Borders, graphics and artwork must be .125” from trim

Die Cut

Please request die lines and die numbers from your Customer Service Representative prior to design development.

IML-i Match Point

It is not recommended to split graphic elements at the left and right edge of an IML-i wrap-around label. Due to the image tolerance, these graphic elements will never match perfectly at the match point.

UPC Specifications

- 100% of one color
- Minimum Size 80%
- BWR (Bar Width Reduction) is .0006" or 15 microns
- Quiet zone should be 1/32" larger than UPC on each side.
- Truncation should not exceed 50%.
- Minimum percentage of reflectance – 32% (difference between bar code and background)
- Cyan should not be used as a barcode background color
- Please supply prefix number along with 10-digit UPC code if we are to create UPC codes for you.

Additional Print Information

- *Solids and screens of the same spot color should be incorporated into the same separation*
- *Lithographic printing allows the use of gradations*
- *There is no requirement for minimum or maximum dot*
- *There is no need for register shift compensation*
- *There is no need for a Register Mark Position*
- *Special scales or marks are not needed*
- *Smyth utilizes an Epson proofer, using a printer-specific profile*
- *Screening: FM*
- *A "Rich Black", if desired, is defined by a build of 40C / 100K*

Optimyser Supplied File (7-color print process) Specifications

- Our optimizer process consists of four-color process plus Orange, Green and Blue (Reflex Blue).
- Typically, CT's should be scanned or supplied as CMYK and line work should be built for six colors.
- Create file with process colors plus Pantone colors. Smyth Companies₇ will convert to Optimyser 7-color process.

* To take advantage of the Optimyser Program CTP ready files must be PDF/X1a files. The Spotless technology is only compatible with PDF/X1a files.

Color Naming Specifications for Optimyser Printing

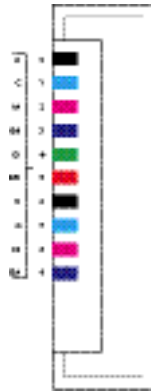
- Process and Optimyser colors should be named: Cyan, Magenta, Yellow, Black, Orange, Green, and Blue.
- All PANTONE color names should correspond with the PANTONE library: PANTONE 123 C, PANTONE Red 032 C.
- Dark Blue should be named: Dark Blue.
- Varnish should be: Defined as a spot color, named Varnish, set to multiply.
* PDF files created from ArtPro – Varnish should be overprinted.
- Die line should be: Defined as a spot color, named Die, set to overprint.
- White ink used on metallized jobs should be named Spot White.
- Perf line should be: Defined as a spot color, named Perf, set to overprint.
- Customer specific colors: please contact your customer service representative for proper naming of custom colors.

Color Naming Specifications for Standard Combo Printing

Should your product require a Pantone or custom color and you do not wish to utilize the Optimyser Print Program, please contact your Customer Service Representative for proper separation naming conventions.

Mix Prevention Lap Tick Marks

- Marks should be determined by the last 3 digits of the UPC.
- Marks should be located in the no ink / no varnish area.
- Marks should be .062" wide and .062" apart.
- Marks should be .187" long and bleed of the edge of the label.
- Marks should be set .187" from top edge of label.
- See guide below:



Construction

- All files
 - Files should not include cut lines or die lines
 - File should be named with no special characters. Underscore can be used, but spaces should not be used.
 - Trap values: 0.0050 IN (inches)
- Square Cut
 - Canvas size must be exact label size plus 1/16" overall (1/8" added to height and length) bleed for square cut.
 - Must have 1/8" clearance from cut line
- Die Cuts
 - Canvas size must be exact label size plus 1/8" overall (1/4" added to height and length) bleed for square cut labels.
 - Packer must request copy of digital die line prior to submission.
 - Must have printable corner marks that outline square cut size (pre-die cut)
 - Must have 1/8" copy clearance from cut line
 - Must have 3/16" border clearance from cut line
 - **Beverage Cup In-Mold Label-Injection (IML-I) must have 3/16" copy and border clearance from cut line**

Proofing

Files must be submitted with a contract proof. Proof must be submitted within 24 hours if file is submitted electronically. Smyth Companies will not assume responsibility for proofreading or verifying separations or composites.

Changes/Modifications

Making alterations to submitted files is not the responsibility of Smyth Companies. Any changes that are made by Smyth Companies to bring the file up to specifications may incur an additional charge.

Charges

There is a \$75.00 handling and archive fee for each file submitted. Additional charges may apply if submitted files are not within specifications and modifications are done by Smyth Companies to bring them into specification.

Liability

Smyth Companies will output and print files as submitted. Smyth Companies assumes no liability for UPC scanability, content or printability due to file construction. Smyth Companies assumes no liability for any files submitted non-conforming to these supplied file specifications, including, but not limited to file format and the Supplied Press-Ready File Checklist. Failure to conform to these specifications may result in delayed product production and shipping deadlines!

Supplied Press-Ready File Checklist

Date:						This form MUST be filled out for every file submitted			
Media:	CD:		FTP:		File Name:				
Location:									
Access Information:									
Contact:									
Contact Phone Number:									
Packer:									
Brand:									
UPC Code:									
Label Trim Size	Horizontal:					Vertical:			
Label Bleed Size (Canvas Size)	Horizontal:					Vertical:			
Lap Information:									
Colors (Must follow Smyth color naming conventions)									
<u>Process Colors</u>			<u>Varnish</u> <small>(All files must have Varnish)</small>			<u>Pantone and Special Colors</u>			
Yellow Magenta Cyan Black			Varnish						
Straight Cut		Die Cut		Backside Print					
Paper		Metalized		Synthetic		Type			
Contract Proof Supplied?		Yes		No					

Offset Print Process

Numbers of colors for one-pass printing

Smyth Companies – sheet-fed has the following offset printing equipment at our disposal:

➤ **Komori 840 RP**

- 8 color printing units. Reverse printing unit. Aqueous coating unit. This press is usually configured to run 7 colors + varnish, or aqueous coating. Reverse printing in one color if required

➤ **Mitsubishi 15000**

- 8 color printing units. Aqueous coating unit. This press is usually configured to run 7 colors + varnish or aqueous coating

➤ **Mitsubishi Diamond 3000**

- 8 color printing units. Anilox tower coater with chambered doctor blade system, extended delivery, closed-loop and CIP 4 systems, and an in-line Mabeg roll sheeter.

➤ **2 Mitsubishi 3000-LX**

- 8 color printing units. Tower coating unit. This press is usually configured to run hybrid UV inks, UV coating and synthetic stocks, and an in-line Mabeg roll sheeter.

➤ **Komori 844**

- 8 color printing units. Aqueous coating unit. This press is usually configured to run hybrid UV inks, synthetic stocks and C1S stocks

➤ **Heidelberg SM74-8P+L**

- 8 color printing units. Aqueous coating unit. 20x29inch small format press. This press can also print 4 over 1.

Coatings

- Press varnish
- Aqueous coating
- UV coating is available

Ink Down Sequence

- 1) Black
- 2) Cyan
- 3) Magenta
- 4) Yellow

Line Screen

150 Line Screen

Color Balance Control System

Spectrophotometry

Color Measurement Tools

X-Rite IntelliTrax Spectrophotometry System

Maximum Density

320% for paper (C1S and Metallized)

250% for synthetics

C1S Print Specifications

VALUE	DOT AREA	CYAN	DOT AREA	MAGENTA	DOT AREA	YELLOW	DOT AREA	BLACK
scale	CYAN	D-Gain	MAGENTA	D-Gain	YELLOW	D-Gain	BLACK	D-Gain
5%	12%	7%	12%	7%	11%	6%	13%	8%
10%	18%	8%	18%	8%	19%	9%	20%	10%
15%	28%	13%	28%	13%	28%	13%	30%	15%
20%	35%	15%	35%	15%	34%	14%	36%	16%
25%	40%	15%	40%	15%	39%	14%	41%	16%
30%	47%	17%	47%	17%	45%	15%	47%	17%
35%	52%	17%	52%	17%	52%	17%	54%	19%
40%	60%	20%	60%	20%	60%	20%	62%	22%
45%	66%	21%	66%	21%	65%	20%	68%	23%
50%	72%	22%	72%	22%	70%	20%	74%	24%
55%	74%	19%	74%	19%	72%	17%	76%	21%
60%	76%	16%	76%	16%	75%	15%	78%	18%
65%	80%	15%	80%	15%	80%	15%	82%	17%
70%	85%	15%	85%	15%	85%	15%	86%	16%
75%	88%	13%	88%	13%	88%	13%	90%	15%
80%	92%	12%	92%	12%	90%	10%	93%	13%
85%	94%	9%	94%	9%	93%	8%	95%	10%
90%	96%	6%	96%	6%	95%	5%	97%	7%
95%	98%	3%	98%	3%	99%	4%	99%	4%

Bleed Specifications

Packer supplies label dimensions. Smyth Companies does not specify label dimensions, however we will coordinate this with the packer to facilitate the process by supplying templates and die lines for existing sizes.

Straight Cut Labels

Straight cut labels require a .062" bleed on each side for all label sizes (.125" total height and width).

Laps for Straight Cut Labels

Color and graphics must extend into the lap, leaving unprinted space for glue application. The unprinted space is .25" away from the top and bottom trim and is 1/2 the distance of the lap to trim. If the lap is larger than .5", the unprinted space is .25" away from the lap.

Die Cut Labels

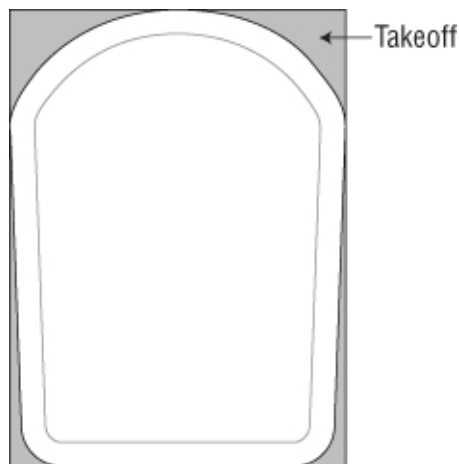
Die Cut Labels require a .125" bleed on each side (.25" total height and width). Die lines should be requested in advance from our Customer Service Representatives.

Die Manufacturing

It is required that a CAD (.dxf, .dwg) drawing of the die line be submitted for any die line to be produced for synthetic substrate.

Take off for Die Cut Labels printing on In-Mold stock

In order to produce work to tolerances needed for in-mold labeling requirements, it is necessary to fill the voids on die cut labels with color. If the void area on the file nets over 1 square inch, a screen value of 35% per color up to 4 colors of the lightest coverage inks is preferred. (See diagram below)



Label Tolerances and Capabilities

Print-to-Cut- the relative position of copy to the cut edge. Target is defined as a measurement from a specific point of label copy to the nearest vertical and/or horizontal cut edge.

Print-to-Cut capability is significantly affected by many variables including substrate, substrate construction, Coefficient of Friction (CoF), press powder usage, label design size, label design shape, sheet square, copy to sheet registration, sheet edge alignment (jog), block cutting, line cutting, die cutting, cutting method, cutting equipment, and die/knife sharpness, condition, and/or construction.

File construction is specified as 1/8" inch of copy-to-cut clearance.

We define our print-to-cut tolerance as +/- 1/16th inches.

The file construction specification coupled with our process tolerance ensures that label copy will not be cut.

Our experience indicates that as we manage the variables defined above we consistently deliver labels that meet market expectations.

On occasion customer label design will challenge our ability to control critical variables. In such circumstances, Smyth will notify the customer of the projected possible consequences to conformance.

IML-i Match Point

Delta position up to 1.5mm between left and right side.

It is not recommended to split graphic elements at the left and right edge of an IMLI wrap-around label. Due to the image tolerance, these graphic elements will never match perfectly at the match point.

Size- the specified target size of the label.

Size capability is significantly affected by many variables including substrate, substrate construction, Coefficient of Friction (CoF), press powder usage, label design size, label design shape, block cutting, line cutting, die cutting, cutting method, cutting equipment, and die/knife sharpness, condition, and/or construction.

Square cut label process size tolerance is +/- 1/64th inch.

Our experience indicates that our processes, and most labeling processes, can operate within this window efficiently.

Die cut labels must be evaluated against a drawing of the label size and shape. The required accuracy of the label size dictates the required accuracy of the drawing.

For cut-and-stack die cut labels a single-line drawing, usually via a printed copy of an electronic file in the portable documents format (.pdf) is suitable to verify and validate size conformance.

Where accuracy is process-critical such as IML-i and IML-b, drawing accuracy can only be suitable as an input to Smyth processes if such drawing is provided via an electronic copy of the engineering drawing and output on a calibrated plotter. This

can usually best be assured if a CAD file is provided in a drawing exchange format (.dxf).

Die cut label process size tolerance is +/- 1/64th (usually stated as +/- .015 for such processes) inch. Our experience indicates that our processes, and most IML-i and IML-b labeling processes, can operate within this window efficiently.

Our experience indicates that as we manage the variables defined above we consistently deliver labels that meet market expectations.

On occasion customer label design will challenge our ability to control critical variables. In such circumstances, Smyth will notify the customer of the projected possible consequences to conformance.

Where customer product or process requirements exceed the tolerances defined above customers are encouraged to prompt further discussion with their Smyth contacts.

Label Storage Recommendations

Smyth recommends that **cut & stack labels be stored in the following manner to ensure the best machineability results over time;**

- First-In, First-Out
- 55-65% relative humidity
- 60-80 degrees F
- Banded with chipboard on bottom
- Shrink-Filmed
- In Cases
- No direct sunlight
- No stacked loads

Smyth recommends that **in-mold labels be stored in the following manner to ensure the best machineability results over time;**

- First-In, First-Out
- 50% relative humidity (+/- 10%)
- 72 degrees F (+/- 5 degrees)
- Banded with chipboard on bottom
- Shrink-Filmed
- In Cases
- No direct sunlight
- No stacked loads
- Store in clean, moisture-free environment

Labels subjected to adverse conditions and/or held in inventory for greater than one-year should be fanned and inspected prior to use.

6.0 Records

Supplied Press Ready File Checklist is maintained by the Customer Service Project Manager within the customer files.

7.0 Revisions

The Document Control Coordinator must create an Adobe .pdf for all issued revisions and submit it to Corporate IT Department for posting on www.smythco.com.

09/17/08: Rev. 9- move from BCSF 029 to PW procedures. Complete re-write.

06/22/09: Rev.10- modified accepted native file formats, upc quiet zone, liability, die manufacturing. Added mix prevention lap bars, label tolerances.

07/29/09: Rev.12- added the Construction section under Press Ready File Specifications

10/19/09: Rev.13-added color naming specifications for standard combo printing.

07/08/10: include storage and shipping specs for in-mold labels, typos corrected on page 6, equipment updated.

07/12/10: added in-line Mabeg roll sheeter to Mitsubishi 3000-LX

01/07/11: add tolerance guidance, align p/c tolerances to +/- 1/16th.

01/24/11: changed the name of the file format under Native Supplied section

04/20/11: Rev.18- changed the "laps for straight cut labels' verbiage

08/10/11: Added to stroke reverse type, UPC 100% one color, IML-i match point

09/27/11: Added Additional Print Information

8.0 References

IMDA Storage and Handling Conditions for In-Mold