



ART GUIDELINES MANUAL

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WELCOME TO POLYROL

The purpose of this manual is to help you understand the requirements to produce the high quality printing that has become a trademark of Polyrol Inc.

Good art is essential for high quality printing in flexography. It should not only anticipate potential advantages of flexography, but also the inherent limitations of the flexographic process. One of the most over-used and under-qualified phrases that the Pre-Press group encounters is "Use camera-ready art supplied". At least 95% of all art that is supplied by customers has to be handled by an artist in the Art Department. Although art is often received in a clean and well-constructed form, it is sometimes unusable "as is" because it was not designed for flexographic printing or did not take into account Polyrol Inc.'s manufacturing requirements.

Flexographic art is entirely different from art designed for offset or letterpress. Flexography is defined as "a method of direct rotary printing using resilient, raised image printing plates, affixed to variable repeat plate cylinders, inked by a roll or doctor blade wiped engraved metal roll, carrying fluid or paste type inks to virtually any substrate". The primary substrate that we print on is a stretchable form of Polyethylene. There are many factors that must be considered before the finished art can be prepared. Polyrol's Pre-Press Group is uniquely qualified to interpret the customer's wishes into an art of the highest quality, yet retain the reliability and simplicity required for efficient production. It is critical at the outset to prepare artwork with all the allowable tolerances and sharp, clean, mechanical elements, because the print job will never be better than the art.

ABOUT OUR SYSTEM



We currently use Macintosh computers to prepare the Graphics. The applications we use are Adobe Illustrator, Quark Express, and Adobe Photoshop (for supporting files).

It is essential that you include any supporting art (i.e. Tiff and EPS files, UPC codes, etc.) that is used in your file. We have a library of standard fonts, but you should send your own fonts used in your files or convert the type to outlines. **Not supplying these items will only lead to delays or additional costs in producing your art.** We understand there are instances when sending poor art is better than sending nothing. If this is the case, please send whatever you have so we can quote you the additional hourly art charges to create or process this type of artwork. Please provide a color print of the graphics or a PDF for reference.

We are a FLEXOGRAPHIC printer and several adjustments to graphics must be made for our printing presses and packaging machinery so we prefer you send graphics on CD's or DVD, email or FTP Site. We use an all digital workflow and go direct to digital plates so please do not send negatives. We will also do the trapping of colors for our printing process.

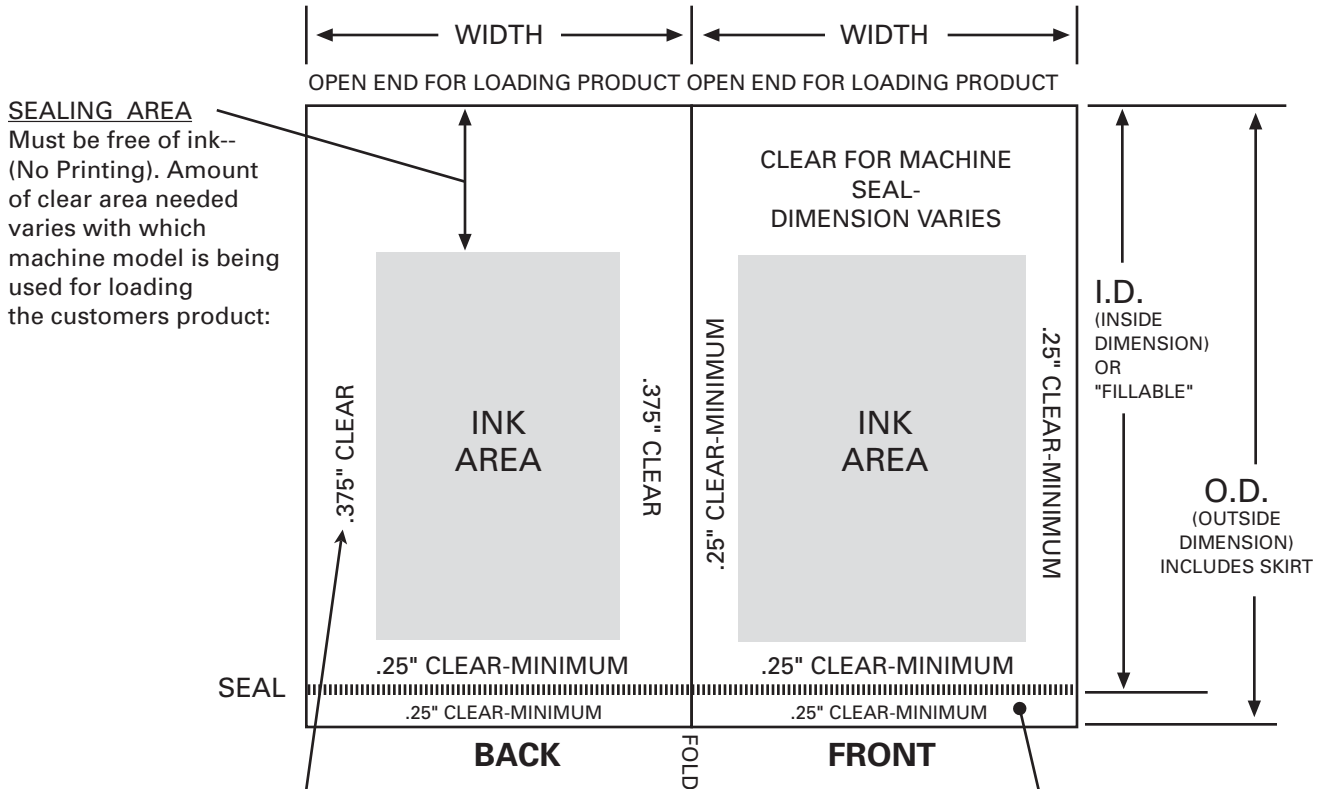
We print Screen Tints and Process Print at 110 lines per inch. Arts that are 7 or more colors will print at 133 lines per inch. Our presses require us to print screen angles 8 degrees off of standard LITHOGRAPHIC angles. All 4-color process arts must first be reviewed by the Graphics Customer Service Team.

The following pages provide a guideline for layout, size, color traps, etc. This is only a guideline. If you already have graphics available, we are fully staffed to make those adjustments digitally on the Mac (some additional charges may apply).

By referring to this guide, you will save valuable time in getting your art to press and ultimately bags to your facility.

GRAPHICS LAYOUT (BAGS)

We've shown the layout as if both front and back of the bag are printed. You do not have to print both sides of the bag. If you are only printing one side of the bag, use the FRONT diagram for size and layout.

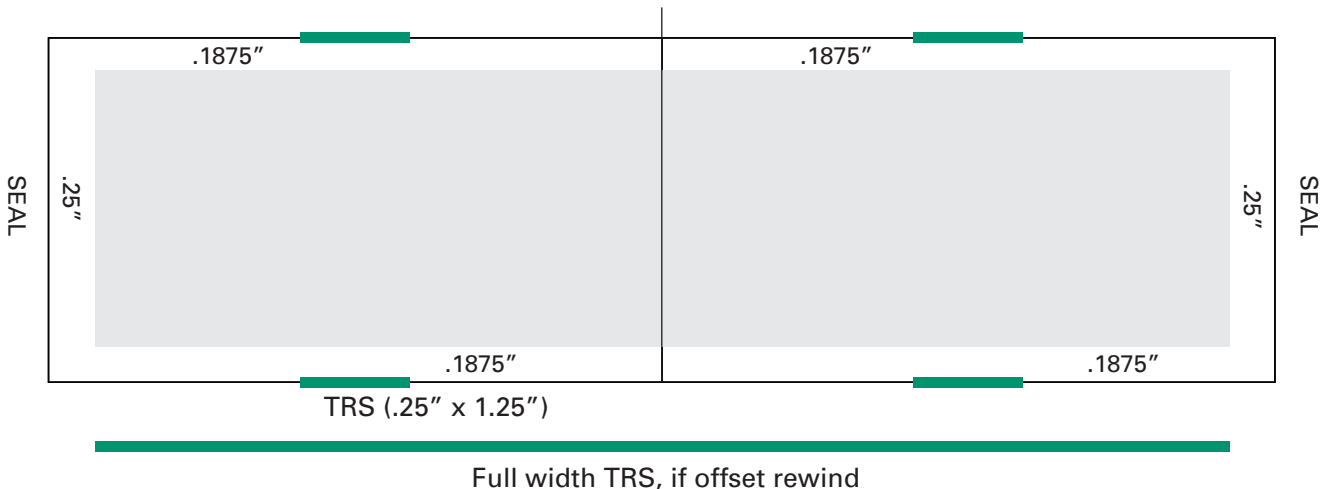


By making the back artwork narrower than the front artwork (using 3/8" Clear Area Margins), any small variations in folding during the construction of the bag will be less noticeable. (If the art widths were the same size the back art would show through the front in the clear areas). This only applies to bags made of clear poly.

ALL BAG'S have this extra skirt. The standard size is .25"

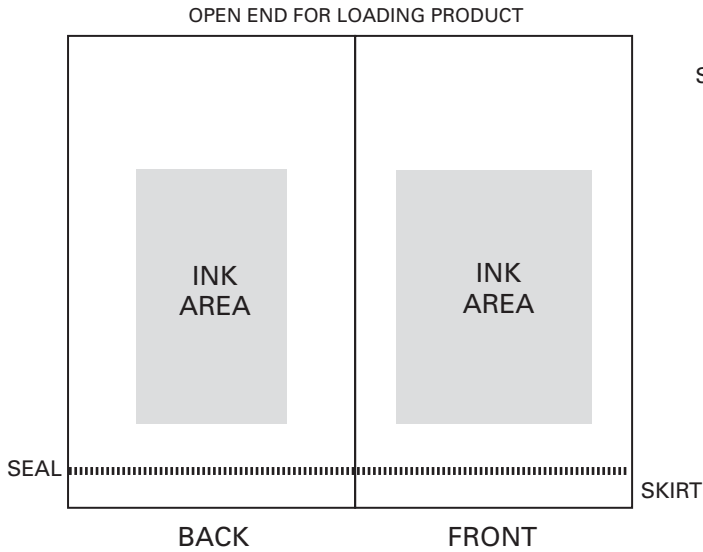
GRAPHICS LAYOUT (SLEEVES)

Dimensions from edge of Sleeve to edge of Varnish or artwork. Every sleeve requires a TRS, but not necessarily a varnish. Offset rewind sleeves require a full width TRS (full width of art, .25" from the sides).

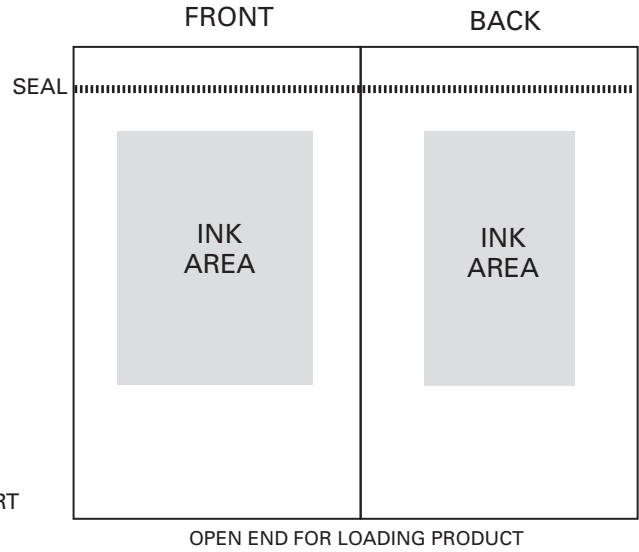


LOAD SPECIFICATIONS (BAGS)

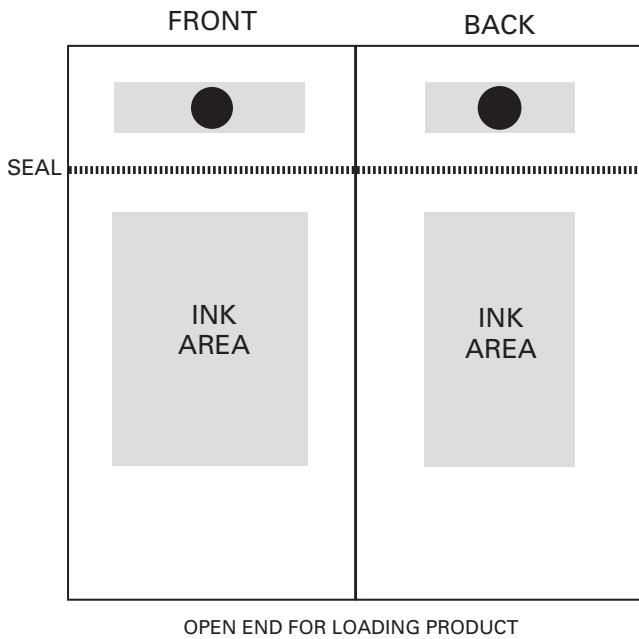
TOP LOAD -- STANDARD



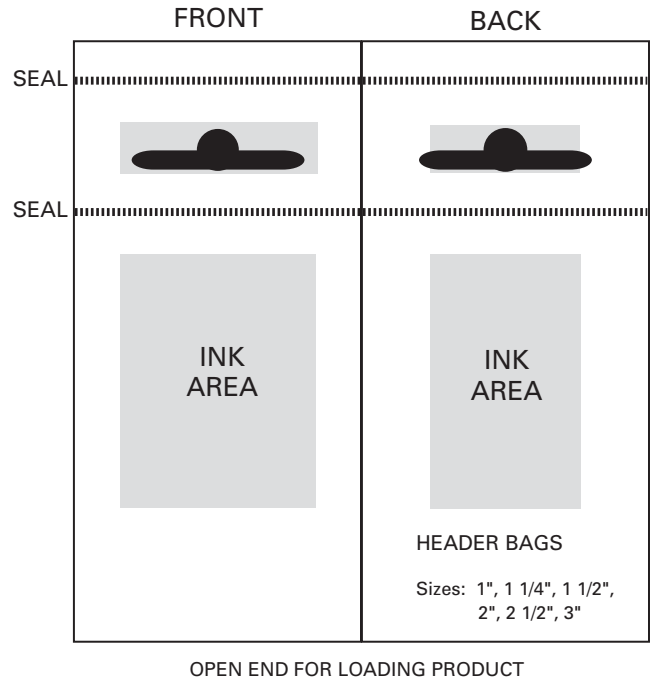
BOTTOM LOAD -- STANDARD



BOTTOM LOAD -- WITH A LONGER SKIRT AND HANGER HOLE

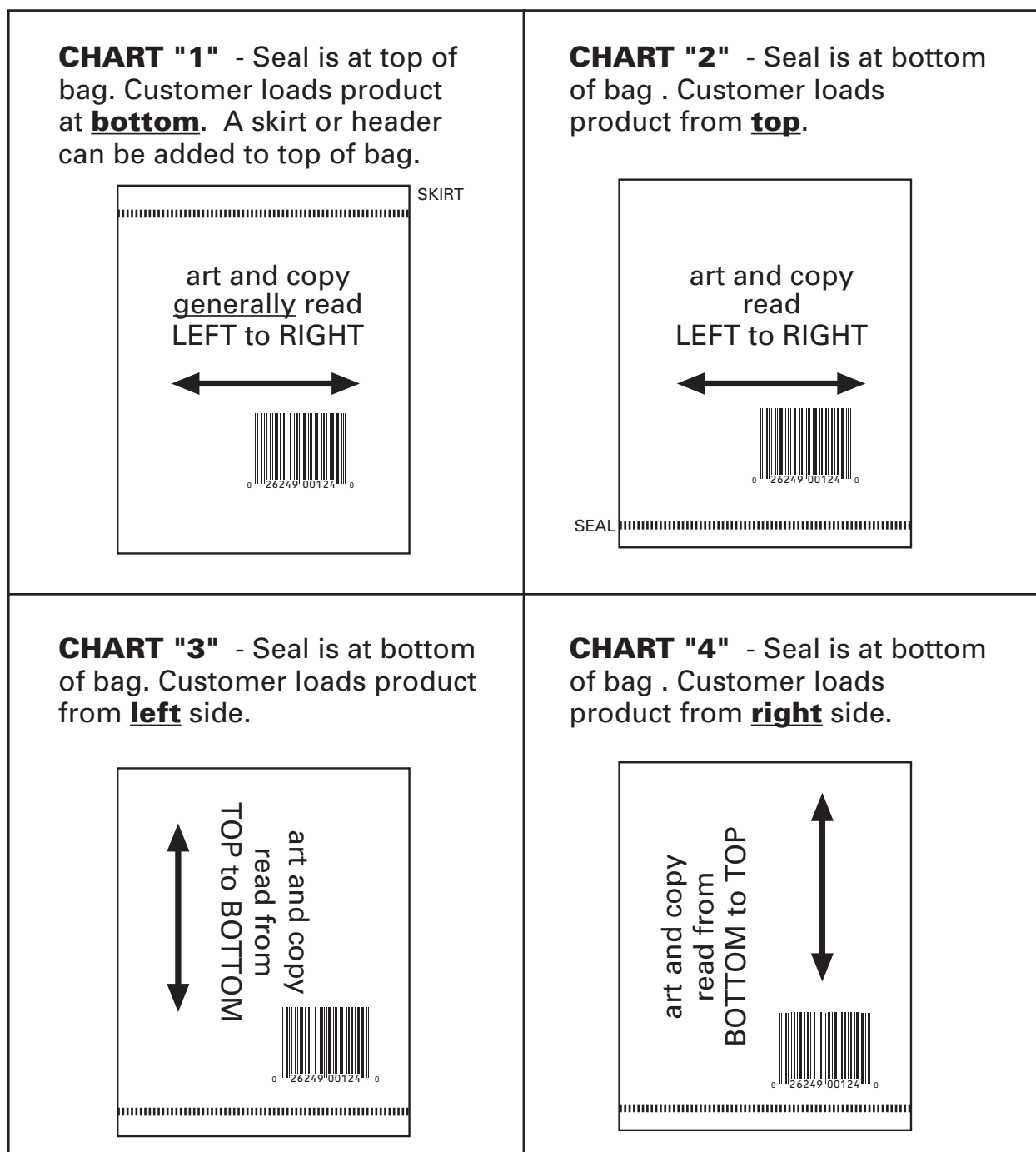


BOTTOM LOAD -- WITH A HEADER (TWO SEALS) AND BUTTERFLY HANGER HOLE



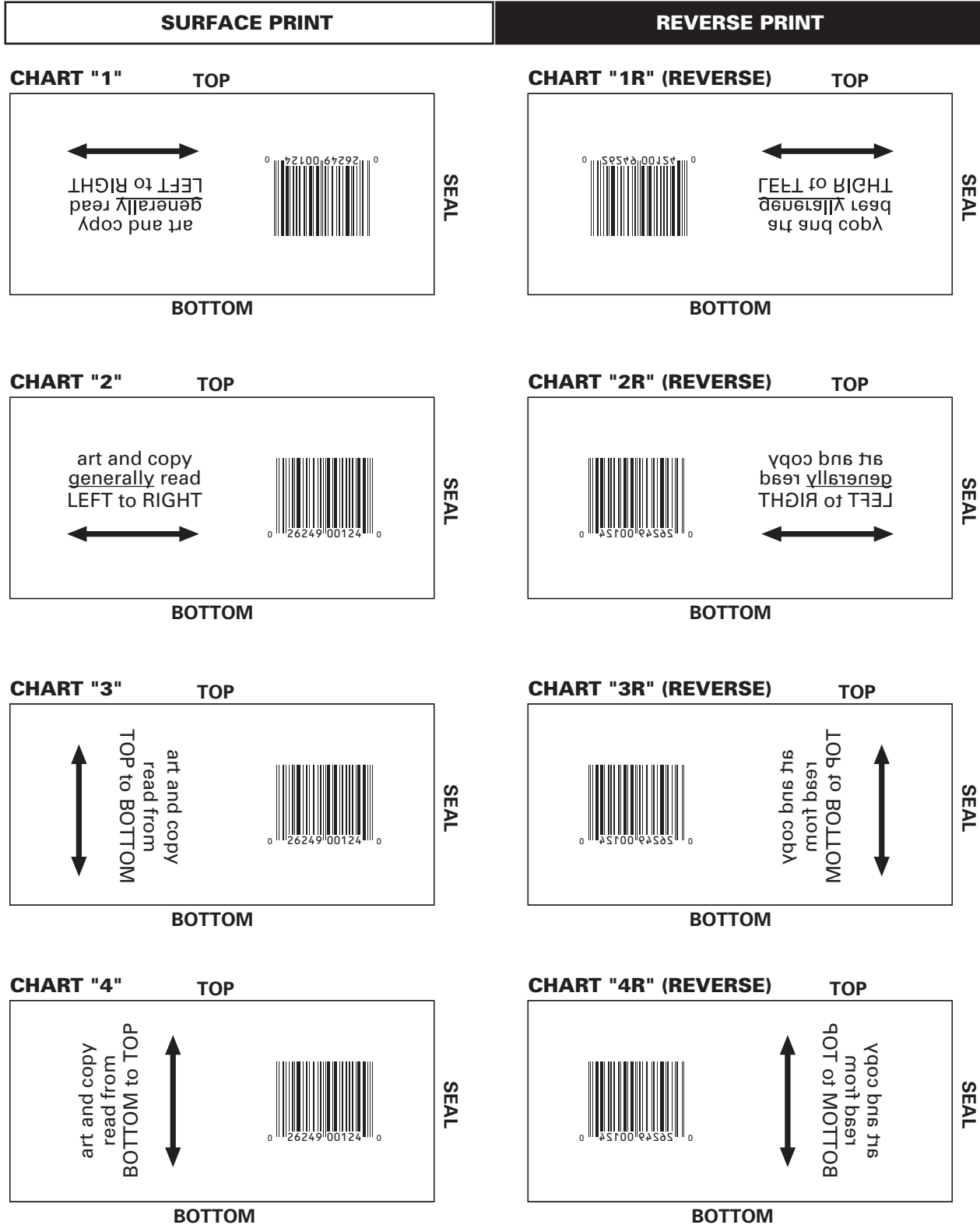
PRINT DIRECTION (BAGS)

The art can print in any direction on the bags. The only exception to this are UPC codes or any of the other types of bar codes. We use our own terminology "**CHART**", for print direction which relates to our manufacturing process. Note bar code orientation is with vertical lines. See examples below:



PRINT DIRECTION (SLEEVES)

The art can print in any direction on the bags. The only exception to this are UPC codes or any of the other types of bar codes. We use our own terminology "**CHART**", for print direction which relates to our manufacturing process. Note bar code orientation is with vertical lines. Chart 2 surface print opens on front, chart 2 reverse print opens on back.



BARCODE SPECIFICATIONS

Below you will find Polyrol's Flexographic specifications for making barcodes for printing and scanning. We have the software to create ALL codes in our Macintosh system but we need to know what kind of code (UPC, 3 of 9, Int. 2 of 5, code 128, etc.).








If the barcode is printing on clear material, it will require a white block underneath so the code will scan. Other scenarios where a white is required for scanability could include, but are not limited to barcodes printing on any other colored material but white. Most importantly, a high contrast between the barcode color and its background is essential for scanning. Two whites are required if the white print is an Autografix white ink.

The Art Department has a list of PMS colors and their reflectance values that help determine if the barcodes will scan when using certain Pantone colors. Generally, colors with high amounts of red will not scan.

**If you are a *Medical* customer and *must* create your own code, please contact us for current bar width reduction and size minimums.

Below are examples of the more common code types and our specifications used to create those codes:

ALL BARCODES REQUIRE A .5 MIL BAR WIDTH REDUCTION (BWR) 2D CODES REQUIRE A 1 MIL BWR

 <p>*+H1604341061110*</p>	<p>Code 128 No more than 18.0 CPI (characters per inch), Min .5" high, No less than .0101 narrow bar</p>
 <p>0 1 2 3 4 5 6 7 8 9</p>	<p>Code 39 No more than 6.8 CPI, Min. .5" high, No less than .0117 narrow bar and 2.4 ratio</p>
 <p>0 1 2 3 4 5 6 7 8 9</p>	<p>Int. 2 of 5 No more than 6.8 CPI, Min. .5" high, No less than .0120 narrow bar and 2.4 ratio</p>
 <p>0 12345 67890 5</p>	<p>UPC / EAN No less than 90% magnification, Min .5" high</p>
<p>2D codes (GS1 Datamatrix, Datamatrix, QR, etc.)</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>1 MIL Bar Width Reduction (BWR) No less than .018 cell size</p>	

COLOR

MATCHING

- We have the ability to match Pantone Matching System (PMS) colors.
- We can also custom match a sample supplied by the customer.

PRINTING COMBINATIONS

- Maximum Ten stations on press.
- Varnish overcoat requires one station.
- Target recognition (TRS) requires one station (if required).
- Sleeves require TRS

PRINTING SEQUENCES

Color laydown is from lightest to darkest.

Example:

- 1) White
- 2) Yellow
- 3) Blue
- 4) Black
- 5) Varnish (optional, only if product requires.)
- 6) TRS (optional, only if product requires.) (Sleeves require TRS)

OPACITY

- Inks are basically transparent.
- Use metallic inks or dark colors for greatest opacity.
- Colors are enhanced when printed over white, but still may be transparent.

TRAPPING

- Holding lines should be 1.5 point size minimum for registration.
- Adjoining colors must overlap by at least 1/64" (.0156") although 1/32" (.0312") is preferred. All trapping will be handled by our imaging department software.
- One metallic color cannot be printed over another metallic color.
- Color Traps (examples):
 - Blue over yellow produces green trap
 - Blue over red produces dark blue trap
 - Green over orange produces dark green trap
 - Pink over yellow produces red trap

FLEXOGRAPHIC TYPE SPECIFICATIONS FOR GUARANTEED READABILITY

See next 2 pages

- Minimum **positive** type is 5 point **Sans Serif**. (English characters only)
- Minimum **reverse** type is 6 point **Bold Sans Serif**. For reverse print, the bolder the style, the better the reproduction. (English characters only)
- Minimum positive line gauge is 1 point.
- Minimum reverse line gauge is 1-1/2 (1.5) points.
- Thin positive lines and type may print broken or wavy and may be unreadable.
- Thin reverse lines and type will fill in and may be unreadable.

TOTAL PLATE COSTS

(includes art, Imaging and plate department's, labor and material)

- Artwork **WILL NOT** be worked on until a signed plate quote with a P.O. is received from the customer. All new and revised arts will be quoted automatically.
- Customers are billed for the first set of plates.
- Plates are charged per color/station (not per how many sides printing).
- If a customer makes changes to an existing design, they are billed for only the plates that change.
- When plates wear out, we will replace them at no cost to the customer as long as no changes are needed.
- We will not run other plates other than our own on our presses. Our presses are tested and set-up to run our specific type of plate material and thickness.
- Final art and plates are stored on site for reruns.
- Artwork is the property of the creator of the Artwork; creator's Artwork and derivatives may be destroyed by Polyrol in the event that no orders are placed for a period of four years.
- Derivative works such as the digital file, negatives and plates are Customer's property upon payment.
- Indemnity: Customer warrants to Polyrol that it has the right to use and reproduce the artwork and will indemnify Polyrol against claims by any third party for unauthorzied use and/or infringement.

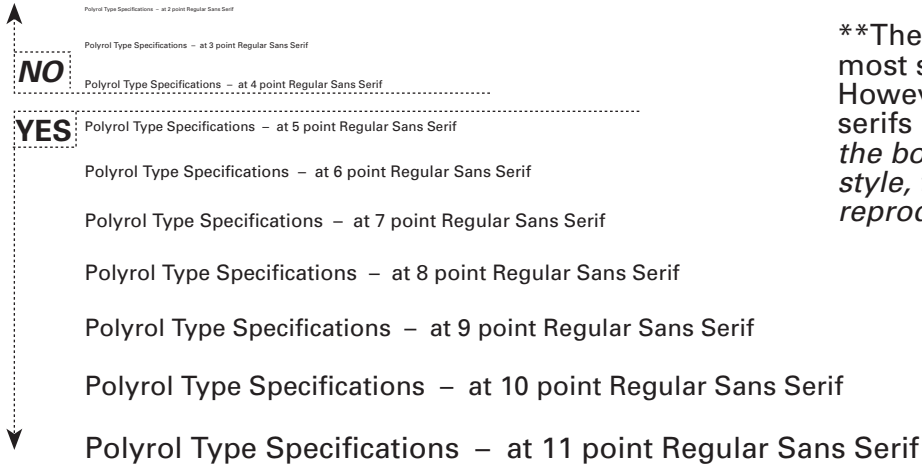
APPROVAL OF ARTWORK

- All new art and all revisions will be proofed by customer prior to scheduling of order.
- Proof formats:
 - Pdf (Adobe Acrobat) file that can be emailed to speed up approval process.

Note: This type of proof can only be used if color swatches do not have to be approved

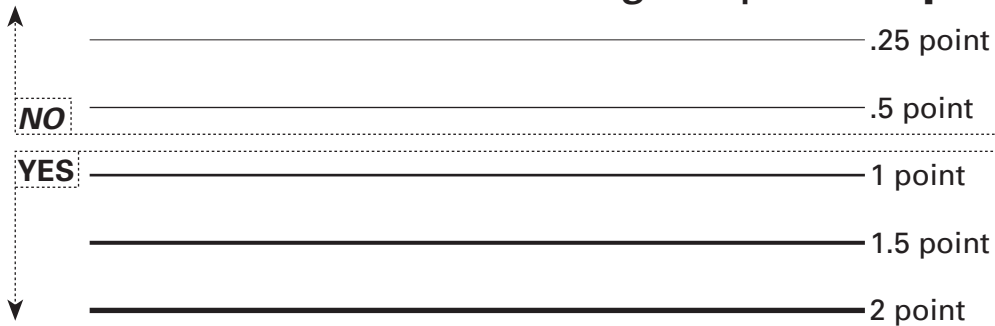
- Fax copy (revisions and simple new art)
- Digital Black & white or color paper proofs (new artwork)
- Color proofs on polyethylene substrate
- Digital color match proofs (Process print or color critical arts)
- Bag mock-ups
- Color samples of the actual Inks on Polyethylene are provided for color approval.
- Any revision requires written approval.
- **Production of your order cannot be scheduled until we receive your fully reviewed and signed approval.**

Minimum Positive Type Spec is 5 point Regular Sans Serif**

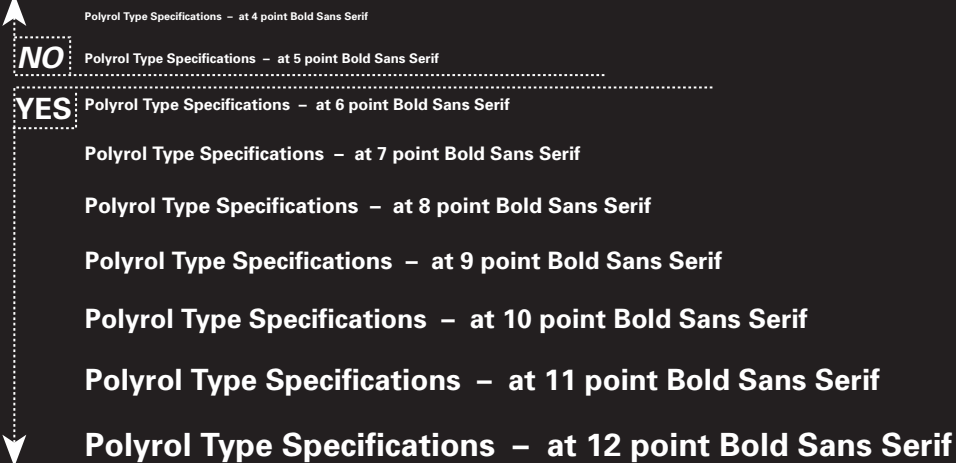


**These specs also apply to most serif fonts as well. However, in the case of thin serifs (such as: Bodoni Fonts), *the bolder and larger the style, the better the reproduction.*

Minimum Positive line weight Spec is 1 point.



Minimum Reverse Type Spec is 6 point Bold Sans Serif



Minimum Reverse line weight Spec is 1.5 points.



Japanese and Chinese type minimum sizes

日本和中国式最小尺寸
日本語と中国語の入力の最小サイズ

Minimum Positive Type Spec is 8 point Regular**

↑	<p>Polyrol 型规格 - 在4点正 (Chinese Simplified) Polyrol タイプ仕様 - 4ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 4 point Regular)</p> <p>Polyrol 型规格 - 在5点正 (Chinese Simplified) Polyrol タイプ仕様 - 5ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 5 point Regular)</p> <p>Polyrol 型规格 - 在6点正 (Chinese Simplified) Polyrol タイプ仕様 - 6ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 6 point Regular)</p> <p>Polyrol 型规格 - 在7点正 (Chinese Simplified) Polyrol タイプ仕様 - 7ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 7 point Regular)</p>
NO	
↓	<p>YES Polyrol 型规格 - 在8点正 (Chinese Simplified) Polyrol タイプ仕様 - 8ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 8 point Regular)</p> <p>Polyrol 型规格 - 在9点正 (Chinese Simplified) Polyrol タイプ仕様 - 9ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 9 point Regular)</p> <p>Polyrol 型规格 - 在10点正 (Chinese Simplified) Polyrol タイプ仕様 - 10ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 10 point Regular)</p> <p>Polyrol 型规格 - 在11点正 (Chinese Simplified) Polyrol タイプ仕様 - 11ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 11 point Regular)</p>

**We can print as small as 6 point positive type if only the Japanese or Chinese text is on it's own plate separate from all the other art.

Please note that this page is only a sample of the type and size. It does not truly reflect how the type will actually **print** on our presses.

Minimum Reverse Type Spec is 8 point Bold

↑	<p>Polyrol 型规格 - 在4点正 (Chinese Simplified) Polyrol タイプ仕様 - 4ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 4 point Bold)</p> <p>Polyrol 型规格 - 在5点正 (Chinese Simplified) Polyrol タイプ仕様 - 5ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 5 point Bold)</p> <p>Polyrol 型规格 - 在6点正 (Chinese Simplified) Polyrol タイプ仕様 - 6ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 6 point Bold)</p> <p>Polyrol 型规格 - 在7点正 (Chinese Simplified) Polyrol タイプ仕様 - 7ポイントレギュラーで (Japanese) (Polyrol Type Specifications - at 7 point Bold)</p>
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FEATURES AND TOLERANCES (bags)

PERFORATIONS

VERTICAL PERF (VEP)

- Runs parallel to side seal
- Easiest to manufacture; Least expensive

HORIZONTAL PERF (HEP)

- Runs parallel to manufactured seal
- Slower to manufacture; More expensive

PARTIAL PERF (PHP)

- A horizontal perf that does not extend all the way across the bag
- Specify length of perf

HORIZONTAL SEALED PERF (HSP)

- Sealed 'Cell' encloses along mfg. seal
- easy opening without contents contamination
- Specify length of perf


HOLES AND PUNCHES

AIR RELIEF HOLES:


PERFED (PRFD) OR THROUGH (AIR)

- 1/4" Standard
- Allows air to escape for flatter pkg.
- Avoid open end


ROUND HANGER HOLES (HGR)

- 1/4" to 2" (1/4" Standard) 
- Centered in header if position not specified
- Larger holes serve as door knob/hangers

BUTTERFLY HANGER HOLE (BTR)

- Retail use
- 1" or 1 1/4" width 

TRIANGLE HANGER HOLE (TRI)

- Retail use
- 5/8" or 1" wide 

BAG SIZES:

All bag sizes may vary +/- 1/8" in width and +/- 3/16" in length

SPECIAL FEATURES

All special features can vary +/- 1/4" vertically and +/- 1/8" horizontally. This includes hanger holes, air holes and perforations.


PRINTED GRAPHICS:

All colors that touch will have a standard 1/32" overlap or "trap" to allow for proper registration. This can create a discoloration with certain color combinations. Art can move +/- 1/8" horizontally and +/- 3/16" vertically. **Warning: it is possible for the art to float within tolerance and the feature to float within tolerance to the point where the tolerances overlap and cause some art to be unreadable, punched out, etc.**

REGISTRATION:

Print REGISTRATION is +/- 1/32" for LINE print and +/- 1/64" for PROCESS print. Whites are undercut 1/16" where applicable.

MICRODOTS:

These are very small squares (only .009 in., ) that are added to each color for registration. They are usually trimmed off during Conversion, but sometimes they do end up on the finished bag.

CLEAR AREAS:

A minimum 1/4" clear area is required between the print area and the factory seal,
A minimum 1/4" clear area is required between the print area and the side seals and header seals.
PRINT CANNOT GO ALL THE WAY TO THE SEALS UNLESS IT IS AUTOGRAFIX PRINT.
Autografix plate break is .375" +/- .25" based on cylinder availability. Wrap-around print allows us to extend the print through the sides seals only – a clear area is still required by the factory seal and open end of the bag based on machine clear sealing areas.

CLEAR SEALING AREAS:

Each model of machine has its own requirement for clear (No Printing) sealing area at the open end of the bag (where the customer's product is loaded) **Please contact your sales representative for this information.**

IMPRINTING:

The imprint area must be larger than the actual imprint copy by 3/4" in both length and width. Be sure to plan with the maximum imprint area for this bag if multiple imprints will be used. **FAILURE TO ALLOW PROPER MARGIN FOR IMPRINTING MAY CAUSE THE IMPRINT COPY TO FALL OUT OF THE PLANNED IMPRINT AREA.** Once the bag is printed, the only solution is to reduce the imprint copy.

BAG SKIRTS:

All Preopened Bags on a Roll will have a skirt. The standard skirt extends 1/4" (+/- 3/16") beyond the factory seal. Other skirt sizes must be specified clearly.

TYPE SIZE:

The minimum size for POSITIVE Type is 5 Point for Sans Serif typefaces. Reverse copy must be at least 6 Point BOLD – Sans Serif typefaces. Serif or decorative faces should be made larger. In many cases, art design may require the type size to be below our minimum size requirements. It is not uncommon for type "fill in" to occur, especially with reverse copy. (Polyrol cannot guarantee the print will be readable)

TOLERANCE GUIDELINES FOR SLEEVES

Plastic is, by nature, tough, resilient and smooth to the touch. Polyethylene has a smooth surface and can move during production. In order to minimize the effects of this naturally occurring slippage, we have set these production tolerances in order to create the best possible plastic products.

Please be sure to review these tolerances. If you have any questions, please consult your sales representative.

SLEEVE SIZES:

Sizes may vary +/- 1/32" in width and +/- 3/16" in length

PRINTED GRAPHICS:

Art can move +/- 1/8" horizontally and +/- 3/16" vertically. Spot color screen range is from 3%-98%. Process print screen range is from 1%-98%. There will be a small graphical shape printed on the top/bottom of the sleeves that will be used for offset rewind purposes, if applicable.

COLORS:

Maximum of 9 colors + TRS, or 8 + TRS + Varnish (if a varnish is required). If you require a varnish this is counted as a station. All colors that touch will have a standard 1/32" overlap or "trap" to allow for proper registration. This can create a discoloration with certain color combinations.

VARNISH:

Printed sleeves are subjected to many abrasive forces during printing, converting, shipping, and the end use. Our printed sleeves have been tested and pass the industry expectations which are: Surface Print Film: 100 rub cycles, 4-lb. Block, print to film. If you have need of additional protection, a varnish overprint may be required. Varnish also available on reverse print if required.

REGISTRATION:

Print REGISTRATION is +/- 1/32" for LINE print and +/- 1/64" for PROCESS print. Whites are undercut 1/16" where applicable.

CLEAR AREAS:

A 1/4" clear area is required on each side between the print areas when wrapped unless it is wrap print (bleed). A minimum 3/16" is required between the top and bottom of the art and the perf between sleeves, with a total of 3/8" clear area between the print areas from one sleeve to another unless a continuous print background or design is desired.

TYPE SIZE:

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BARCODES:

Barcodes can range from 90% - 120% (minimum 1/2" height). Barcodes can only print in one direction- picket fence style. A high contrast between the barcode color and it's background is essential for scanning. The Art Department has a list of PMS colors and their reflectance values that help determine if the barcode will scan. Barcodes will be created at the art proof stage. The number and type of code is all that is required.



COMPUTER EQUIPMENT AND APPLICATION INFO SHEET

114 Barrington Town Square, Suite #115 • Aurora, OH 44202
Phone: 800-505-2247 • Email: info@polyrol.com

We hope this information will help you in preparing your artwork on the Macintosh computer in the future. We are equipped to prepare Macintosh files for flexographic printing using your Mac files. We will be glad to get you started by making you a template of the bag or sleeve size you are ordering showing the available art area. Please call the phone number at the top of this page or use the email address below for further details.

PLEASE: Provide a MACINTOSH file AND a COLOR PRINT of your Graphics or a pdf if you are sending files electronically.

Email can be used to receive most types of files from customers and to send pdf proofs that don't require a color ink swatch to be approved by the customer. However, a full size color printout is still needed and should be sent unless the art will be emailed. If the files are sent electronically, please provide a pdf for reference.

The Macintosh applications we use are: Please call for latest version available.



Adobe
ILLUSTRATOR



Adobe
PHOTOSHOP



QUARK
Express

- We CANNOT use WINDOWS FONTS.
- We can convert SOME WINDOWS files.
- If you use Corel Draw, you MUST save the file as a "MACINTOSH-Adobe ILLUSTRATOR" file and convert the fonts to shapes or paths.

We understand there are instances when sending poor art is better than sending nothing. If this is the case, please send whatever you have so we can quote you the additional hourly art charges to create or process this type of artwork.

Current Equipment:

Macintosh: Mac Pro computers