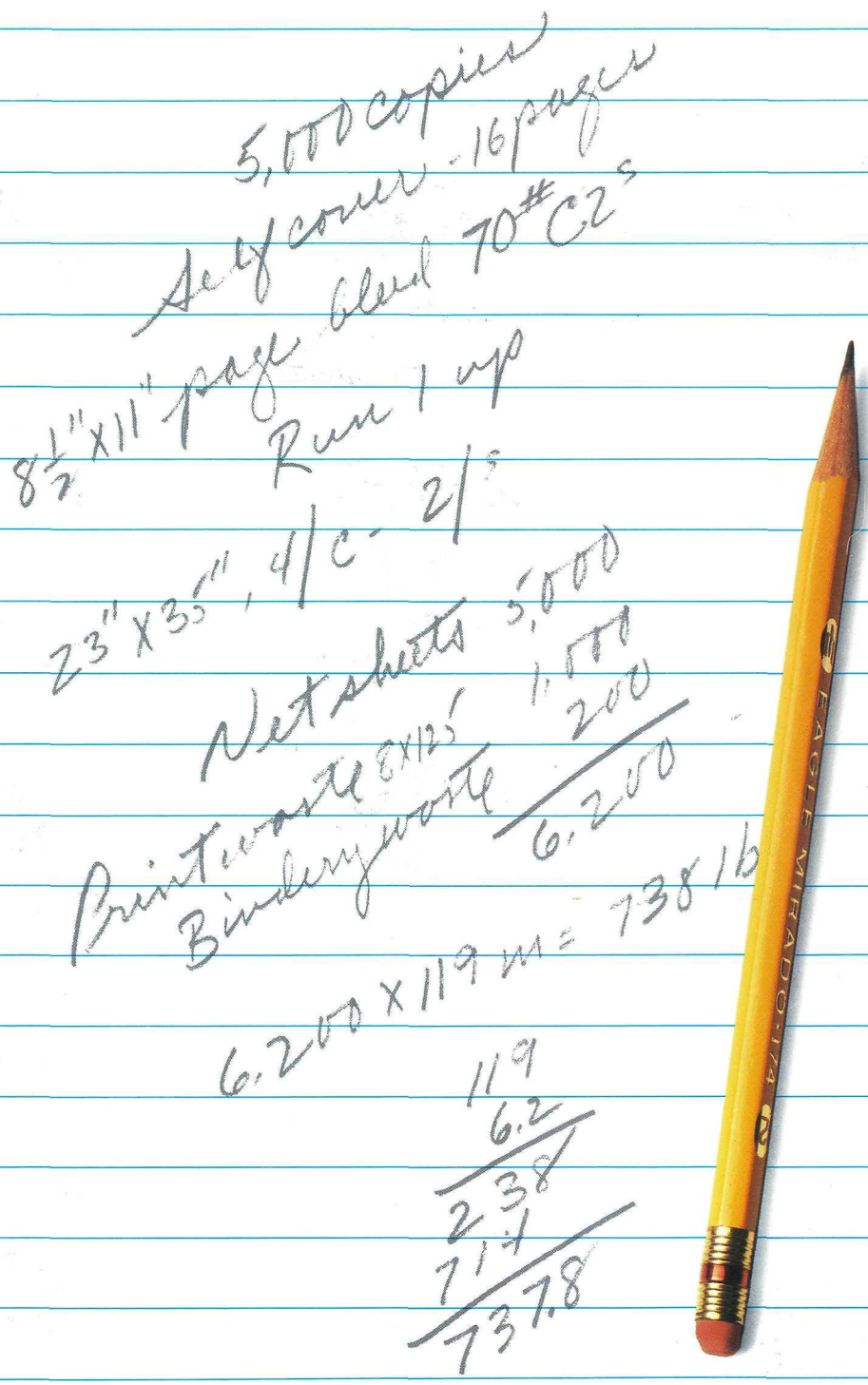

5,000 copies
Self cover - 16 pages
8½" x 11" page Cloud 70# C2S
Run 1 up
23" x 35", 4/C - 2/S
Net sheets 5,000
Printed waste 1,000
Binding waste 200
6,200
6,200 x 119 M = 738 lb
119
6.2
238
714
737.8
EAGLE MIRADO 174

The Warren Paper Estimating Guide

Contents

Introduction

There's more to paper estimating than a dictionary definition would imply. A few mathematical formulas can tell you how *much* paper you'll need for a particular printing job, but some understanding is also necessary of the papermaking process, available grades (or types of paper) and their uses, as well as the different sizes of presses being used today.

This is a beginner's manual. Our object is not to give you all the answers, but to enable you to arrive at your own — to give you the tools with which to solve more difficult problems by studying the elementary examples that will follow. It will help if you familiarize yourself with the terms listed in the glossary. These will appear periodically in our discussions of estimating problems.

Perhaps one of the most important points you will learn is that you can achieve economy by creating a standard size printed piece, using standard sizes of printing paper. Standard size envelopes are also available, and could constitute additional savings.

If you want to go into more depth in any particular area, please write for our free book *HOW TO PLAN PRINTING:* S.D. Warren Company, 225 Franklin St., Boston, MA 02101.

How Paper Is Made

It all starts with logs that are debarked, turned into woodchips, then placed in digesters, which are like huge pressure cookers. This cooking process separates cellulose fiber—the most important papermaking ingredient—from the gums, resins and other impure materials that bind them together. These impurities are then washed away, the cellulose is screened out, and chemical wood pulp is created.

Multiple stages of bleaching come next, because the whiter the pulp, the whiter the finished paper will be. Constant quality checks are mandatory along the way to insure maximum brightness without damage to fiber strength. Over-bleaching can weaken paper in much the same way that it can ruin clothing.

After bleaching, the pulp is refined and blended with other papermaking materials, using a special, predetermined formula for each grade. Then it is piped onto the "wet end" of the paper machine.

It is interesting to note that paper is 99% filtered water and only 1% papermaking ingredients in the beginning. But, as the paper moves toward the dry end of the machine, all but 5% of this water is removed by gravity, mechanical means, and evaporation through heated drums.

Some "plain" papers require no further finishing, while others can be coated on the paper machine. For still others, the coating takes place *off* the paper machine as a separate operation.

Generally speaking, coated papers are supercalendered by being passed between a series of polished steel and compressed cotton rollers, under pressure, to increase their gloss and smoothness.

Types Of Paper

The papers manufactured by S.D. Warren Company come in a variety of weights and finishes, with each best suited for a particular purpose. We will discuss each category in general terms here, and a detailed listing of available Warren grades is located on page 38.

UNCOATED OR "PLAIN" PAPERS

ANTIQUE

An antique surface is relatively rough, and the paper itself is bulky. A good example is Olde Style Wove. It and other antique papers are limited to type and line engravings by letterpress and may be used for the reproduction of simple halftones by offset. Commercially published books are an important end use, because high bulk is generally an important consideration.

M.F (MACHINE FINISH)

M.F. papers are used for basically the same purposes as antique, except that they are smoother and have less bulk. Thus, they can be printed with more detailed illustrations. Warren's "1854" is in this category.

WOVE OFFSET

Wove Offset is an uncoated paper with a smooth surface that can be used as an economical text paper. Scott Offset is an example of this quality.

COATED PAPERS

MATTE

Matte paper, such as Patina, has a layer of mineral particles called "coating pigments" applied to its surface which makes it smoother and more ink receptive. Designed for both sheet-fed and web offset printing, these papers are suitable for single and process color work.

COATED

This paper is created when a much thicker layer or layers of coatings are applied, imparting greater smoothness and, consequently, better printing quality than that of pigmented paper. It comes in both gloss and dull surfaces, as well as embossed finishes. Top quality grades like Cameo will reproduce the finest halftones by offset lithography.

Coated papers like Lustro Web are designed to meet the requirements of web offset printing, while others are suitable for gravure.

WARRENFLO

Flokote, Warrenflo, Warrenflo Web, and Webflo are made by the Warrenflo process.® These papers represent a dramatic innovation in papermaking, which eliminates supercalendering. It is exclusive to the Warren Company.

Warrenflo papers offer the printing capabilities of regular coateds, but have substantially *greater bulk,* giving the heft and feel of a higher basis weight. They also offer considerable savings on postage for mailing pieces because of the higher bulk to weight ratio, when compared to conventionally coated and calendered papers. Flokote was the first Warrenflo paper to be introduced.

CAST-COATED

Another method, known as cast-coating, results in a mirror-like finish with exceptionally high gloss, giving the finest possible printing surface. Lusterkote Cover One Side is an example.

Printing Methods

What is going to be printed in a booklet and how the printing will be done will figure greatly in the decision of what particular paper to use. Cost, too, is an important factor.

Companies tend to choose the finest papers available for annual reports and other prestige literature. On the other hand, budgetary problems and printing requirements will often call for the use of more economical grades. So it is as important to learn the advantages and limitations of the papers available, as it is to know what size and quantity to specify.

Warren offers a large selection of swatchbooks and printed promotions to aid individuals in intelligent paper selection. These are available through your local paper merchant (a list is located on page 46), or by writing to S.D. Warren Company, a Division of Scott Paper Company, 225 Franklin St., Boston, MA 02101.

OFFSET LITHOGRAPHY

Offset, or planographic printing, is based on the principle that oil and water do not mix. Offset presses contain three cylinders, and the printing surface is not raised. One cylinder holds the plate, parts of which have been chemically treated to repel ink, and parts of which have been made ink receptive. This cylinder transfers the image to the second (blanket) cylinder, which then transfers the image to the paper carried by the third (impression) cylinder.

WEB OFFSET LITHOGRAPHY

This high-speed printing method differs from regular offset lithography because a roll of printing paper is fed into the press, paper is usually printed on both sides simultaneously and the ink is usually oven-dried before being sheeted or folded into signatures.

GRAVURE

Gravure is an intaglio process, as opposed to letterpress printing's relief process. This means that the image is etched below the surface of the plate. A gravure press has two cylinders — one for printing and the other for impression — in addition to a system that applies ink to the printing cylinder, then scrapes away the excess with a blade.

LETTERPRESS

In letterpress printing, ink is applied to a raised surface and transferred to the paper by pressure. Three familiar types of presses are platen, flat-bed and rotary.

FLEXOGRAPHY

This is an inexpensive printing method, used primarily for reproduction where exceptional fidelity is not necessary. The system is a simple two-roller type, utilizing rubber plates with a raised image, and water or solvent based inks for fast drying. Flexography is often used to print on cellophane, milk cartons, vinyl, business forms and notion tags.

Glossary

ACCORDION FOLD
Having folds like the bellows of an accordion, created by the paper being folded two or more times in a parallel direction. See page 13 for example.

BACKING UP
Printing the opposite side of a sheet, after the first has already been printed.

BARREL FOLD
When paper is folded two or more times in the same direction, sometimes called a wrap-around fold. See page 25 for example.

BASIS WEIGHT
The weight of a ream of paper (500 sheets) based on a standard size for each type of paper, which is: Book paper—25 x 38, Cover—20 x 26, Bristol—22½ x 28½ or 22½ x 35, Index—25½ x 30½, Business paper (including bond, ledger, mimeograph, duplicator and manifold)—17 x 22, and Tag—24 x 36. One ream of 25 x 38, 80 lb. book paper will weigh 80 lbs.

BLEED
When the printed image extends to the trim edge of a sheet or page.

BULK
The thickness of a single sheet of paper, expressed in points. A point is one thousandth of an inch.

CALENDERING
When paper is passed between a stack of horizontal rollers, under pressure, to increase the smoothness and gloss of its surface and reduce its bulk.

COLLATING
Gathering or arranging printed sheets or signatures into the desired sequence, either by hand or by machine.

FOLIO
A page number; also the numbering of pages.

FORM
The positioning of positives or negatives ready for platemaking, sometimes known as a flat.

FORMAT
The final physical form of a printed piece, including size, design, type style, margins and printing requirements.

FRENCH FOLD
A sheet folded twice to make a 4-page folder, and usually printed on one side only. An example is a greeting card.

GATE FOLD
An outside page of a book folded so as not to extend beyond the edges. An additional fold-out like one would see in a magazine that has extended its cover. See page 10 for example.

IMPOSITION
The positioning of type pages, negatives or plates in proper relationship to each other, so that the pages will follow in sequence when the printed sheets are folded. The imposition is usually determined by the printer in consultation with the binder.

INSERT
A separate printed piece that is collated, tipped, or stitched into the binding of a book or magazine.

LAYOUT
A sketch or drawing of a subject which is going to be printed.

MECHANICAL BINDING
A method of punching holes near the spine of a book and inserting metal or plastic bindings so the book will lie flat when opened.

MECHANICALS
Art work and type proofs mounted in a camera-ready position.

M WEIGHT
The weight of one thousand sheets of paper, any size.

OBLONG
A book, catalog, or other printed piece bound on the short dimension.

PAPER DUMMY
An unprinted sample of a book or other printed piece, bound and presented in the correct size, usually using the desired grade of paper.

PERFECT BINDING
A style of binding in which all pages are trimmed at the binding edge and held together by glue. Large telephone directories, catalogs and most "paperbacks" are bound in this way.

PRESS PROOF
A press proof may be submitted to a client by a printer for color correction and copy O.K. It is an exact sample of the finished product in press sheet form.

PROGRESSIVE PROOF
Proofs of each individual plate showing each color to be printed separately and in combination, in the sequence they will run on the press.

REPRO PROOF
A carefully made proof of type matter on coated paper, which serves as photographic copy.

RIGHT ANGLE FOLD
Two or more folds at 90 degree angles to each other. See page 19 for example.

ROUGH PROOF
A rough example of what a finished product will look like.

SADDLE WIRING, SEWING OR STITCHING
A method of binding sheets by opening the sheets to the center of the fold and fastening all together by means of wire or thread. The folded sheets ride on a saddle while this type of stitching is being done.

SALT PRINT
Photographic copy of type and illustrations in position, generally *not* showing color break-up. Also called blue line, brown line, Fotoproof Ozalid, and Dylux.

SCORING
Making an indentation, generally in the heavier weights of paper, to facilitate cleaner and easier folding.

SELF-COVER
When the inside stock of a booklet also serves as the cover, and is usually printed on the same press sheet.

SEWN BOOK
A popular style of book binding, the signatures of which are gathered in sequence and sewn individually in 8's, 16's or 32's. The sewing threads are visible at the center of each signature. Often called Smyth sewn.

SHEET
Represents two pages, for both sides of the sheet of paper.

SHEETWISE
When each side of a sheet is printed from a different plate or type form.

SIDE WIRING OR STITCHING
A method of binding sheets with wire from the front to the back on the side near the spine.

SIGNATURE
A folded, printed sheet forming a section of a printed piece or book. The number of pages in a signature is usually a multiple of four, and more often a multiple of eight. The word is generally omitted in specifications, as gathered or sewn in 16's, etc.

SLITTING
The use of cutting wheels or knives on the press or folding machines to separate signatures into sections.

SPINE (BACKBONE)
The part of a book's binding which connects the front and back covers.

STOCK
The material, paper or otherwise, which is to be printed.

SUBSTANCE
Alternative word for basis weight, used commonly when referring to bond papers.

TIP-IN
One or more sheets or signatures inserted and glued into a book or magazine, often on a different quality paper.

WORK AND TURN
When the same plate or form is used for printing both sides of a sheet, by turning the sheet using the same gripper, but opposite side guide.

WORK AND TUMBLE
When the opposite side of a sheet is printed by turning the sheet from the gripper to the tail edge, using the same side guide.

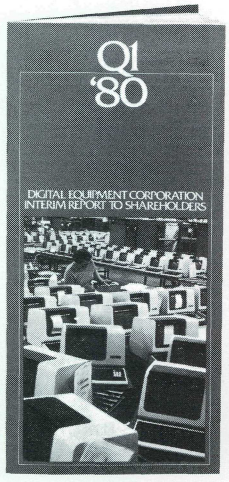
On the following pages you will find a comprehensive description of common printing jobs applicable to Warren's standard press sheet sizes. Offered for your convenience are detailed illustrations of the various press layout configurations. For each press sheet size we have shown how to calculate the required number of sheets for a given quantity of one of the jobs illustrated.

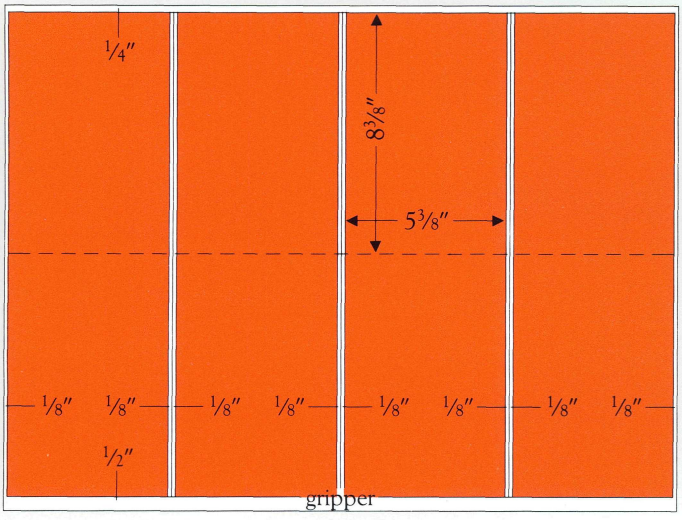
Also included in this section is roll information for web offset printing (see page 30).

Anyone who is interested in receiving similar examples to those illustrated in this section is invited to write the following address:

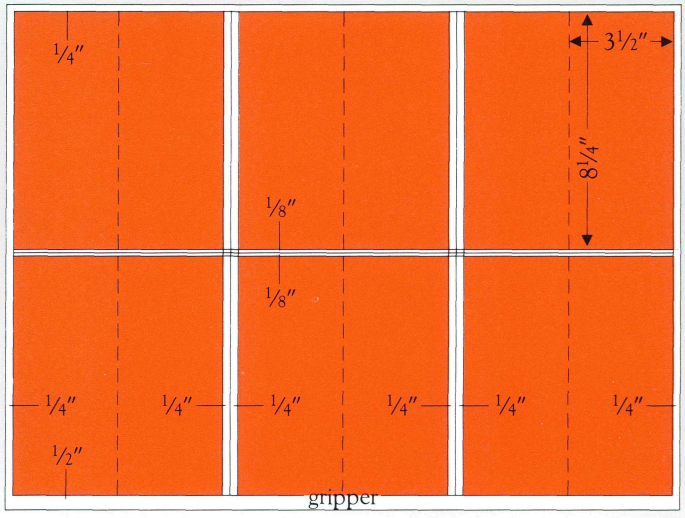
Idea Exchange
S.D. Warren Company
A Division of Scott Paper Company
225 Franklin Street
Boston, MA 02101

Standard Sheet Sizes
Text 17½ x 22½



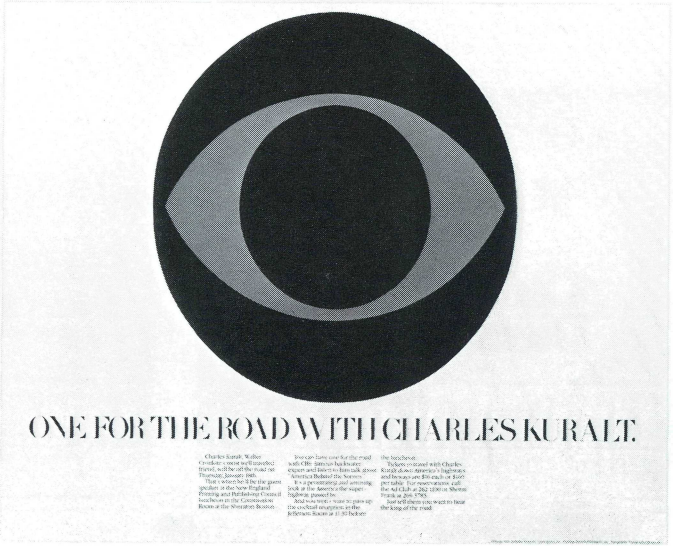


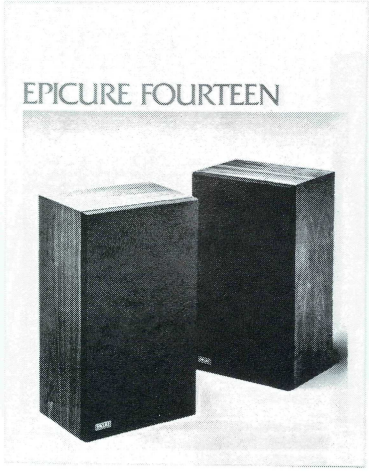
FOUR PAGE OBLONG FOLDER –
4 page folder, bleed design, page size 8⅜" x 5⅜", flat size 16¾" x 5⅜", the sheet layout is 2 up work and turn, 4 out of sheet.

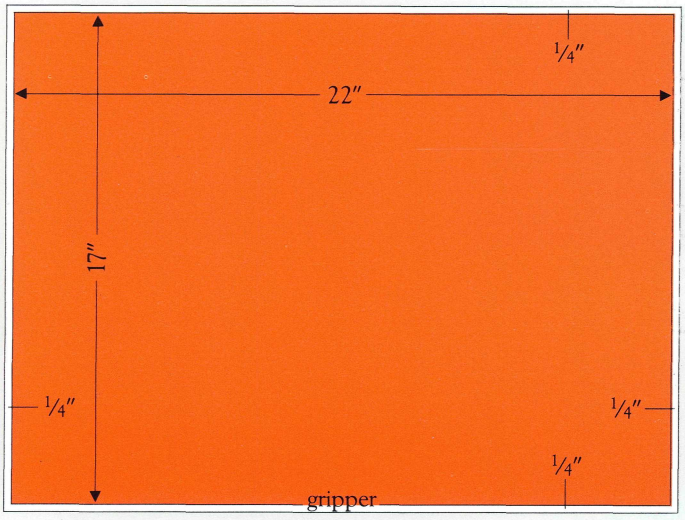


EIGHT PAGE UPRIGHT BOOKLET –
The page size is 3½" x 8¼" bleed design, saddle-stitched on the 8¼" side. The sheet layout is three books up sheetwise.

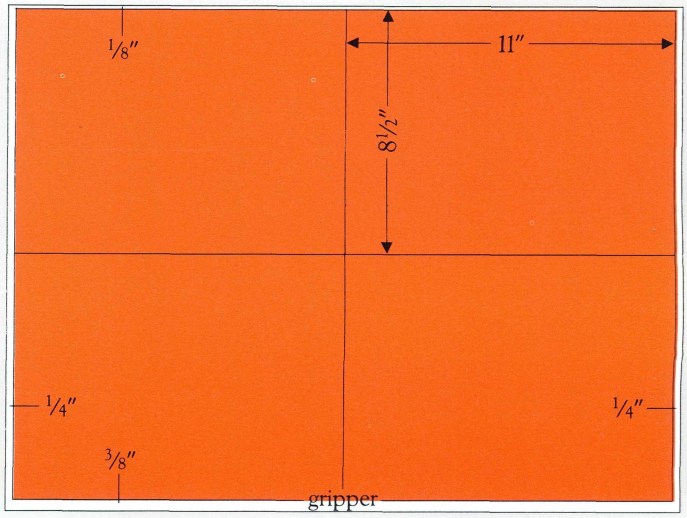
This size is often the work-horse sheet of small presses. It will accommodate 4 sheets out 8½" x 11", or 8 pages, or the equivalent area using other size options. In the event of heavy bleed, it is recommended the size of the printed piece be reduced slightly as shown in some of the examples below.





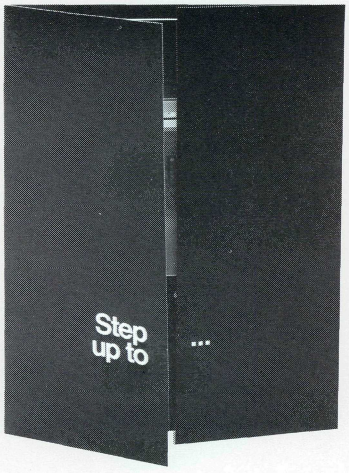


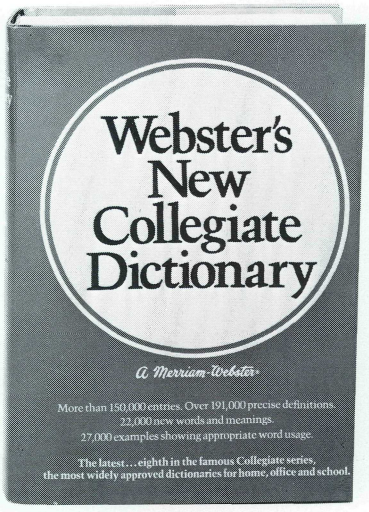
WALL POSTER — A 17" x 22"
non-bleed poster printing one side only, lays out one up.

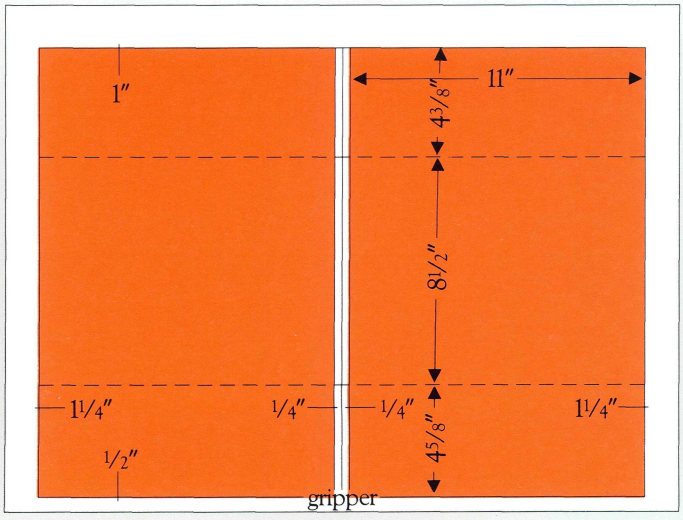


ONE SIDE FLYER — Two page single sheet size 8½" x 11", non-bleed, printing 4 out sheetwise.

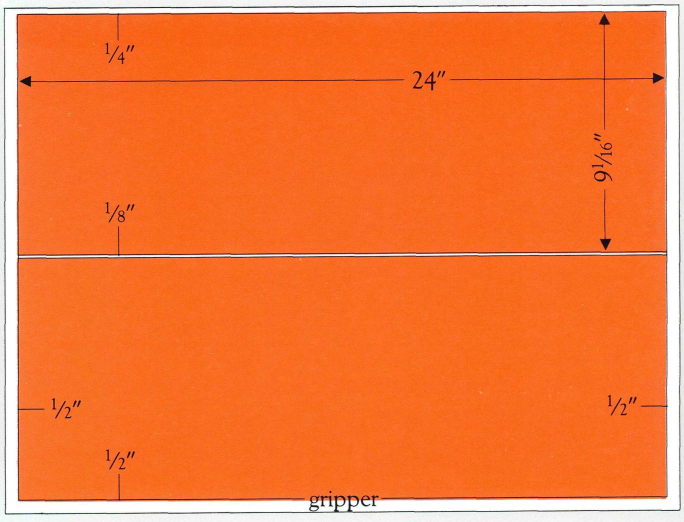
Text 19 x 25





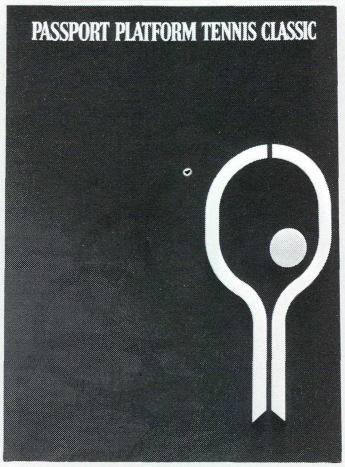


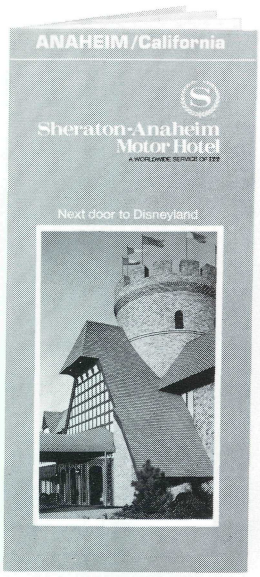
SIX PAGE GATE FOLDER — The flat size is 11" x 17½" with one panel 8½" x 11" and 2 panels. The layout is one up work and turn, 2 per sheet.

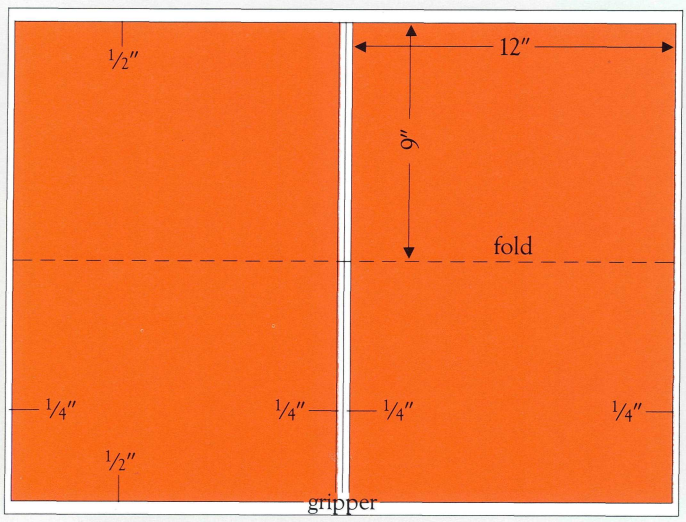


BOOK JACKET — Flat size book jacket 9 1/16" x 24" bleed design. The sheet layout is 2 up sheetwise.

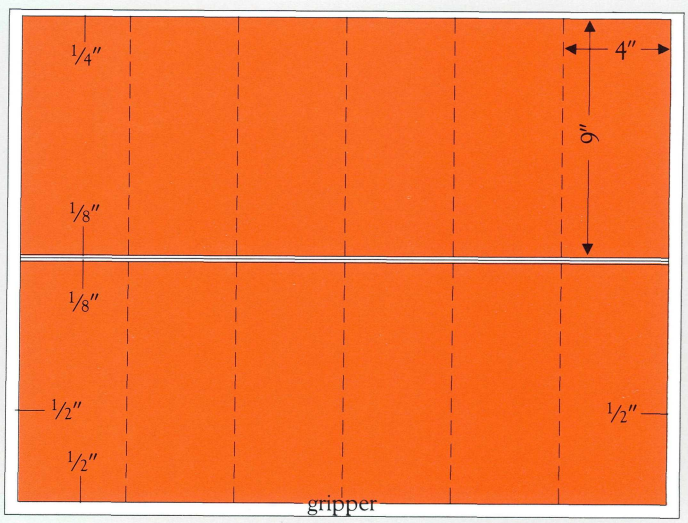
The 19″ x 25″ sheet size gives an efficient layout for page size 4″ x 9″, 6″ x 9″, and 9″ x 12″. However, these sizes may have to be reduced slightly if the job is a heavy bleed design. Many jobs with an 8½″ x 11″ page size should also be printed on this size sheet when the design has heavy ink coverage. This size can be cut from 25″ x 38″ giving a 25″ x 19″ grain short sheet.





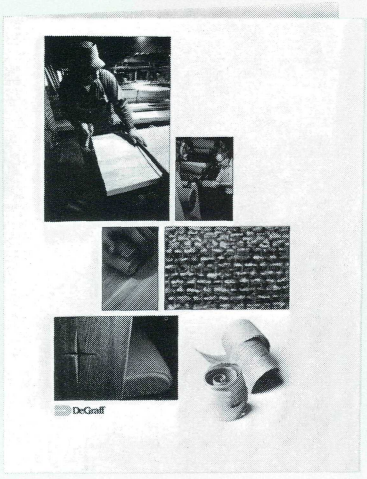


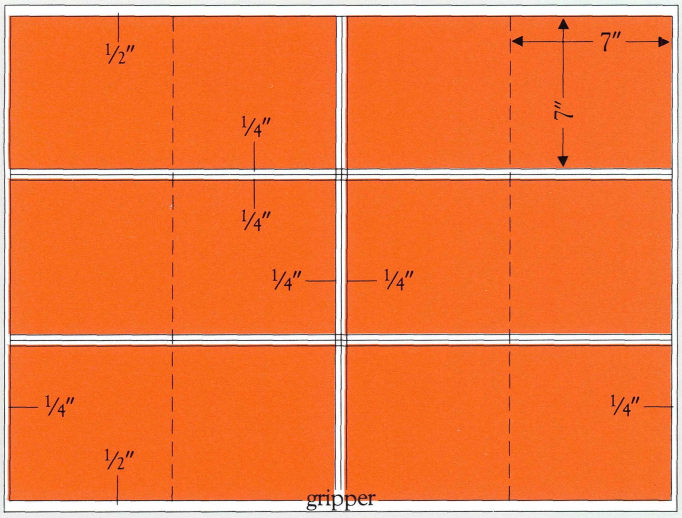
FOUR PAGE FOLDER — Flat size 12″ x 18″, folded 9″ x 12″. Print 2 up sheetwise.



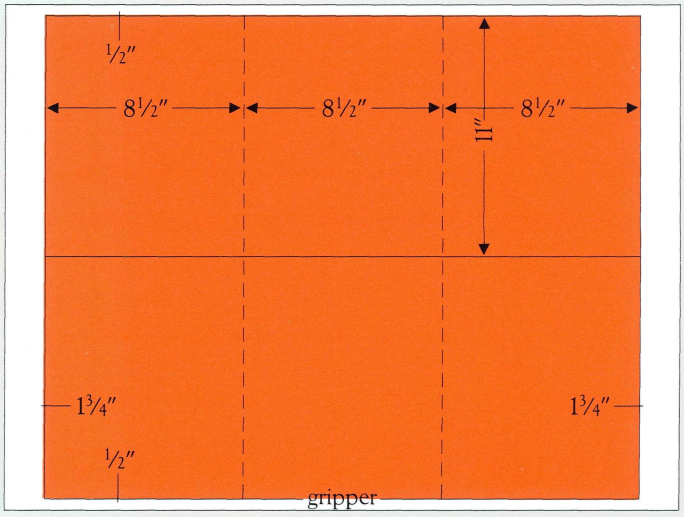
TWELVE PAGE RACK FOLDER — Flat size 9″ x 24″ and 4″ x 9″ folded, bleed design. The sheet layout is 2 up sheetwise. If the design is non-bleed or the size reduced, work and tumble layout is possible.

Text and Cover 23 x 29



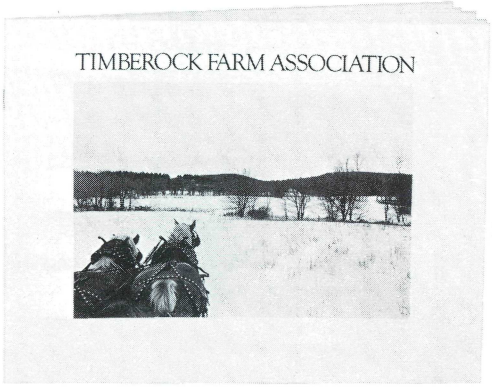


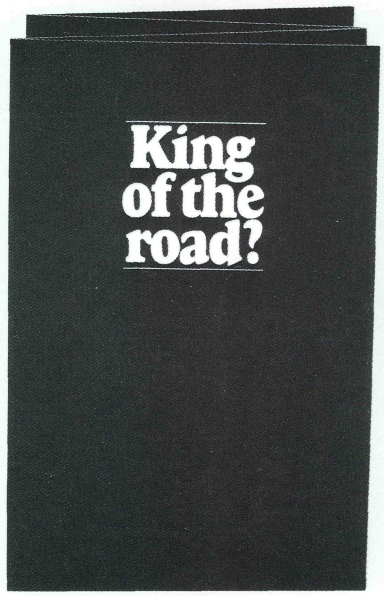
TWELVE PAGE SQUARE BOOK – Size 7" x 7" printing one up work and turn, 2 per sheet.

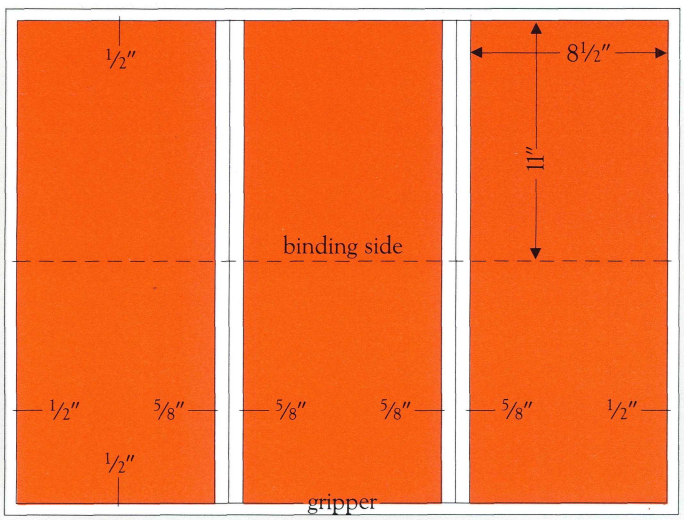


SIX PAGE FOLDER – Flat size 11" x 25½", page 8½" x 11" upright, no bleed laid out to print one up work and tumble, 2 per sheet.

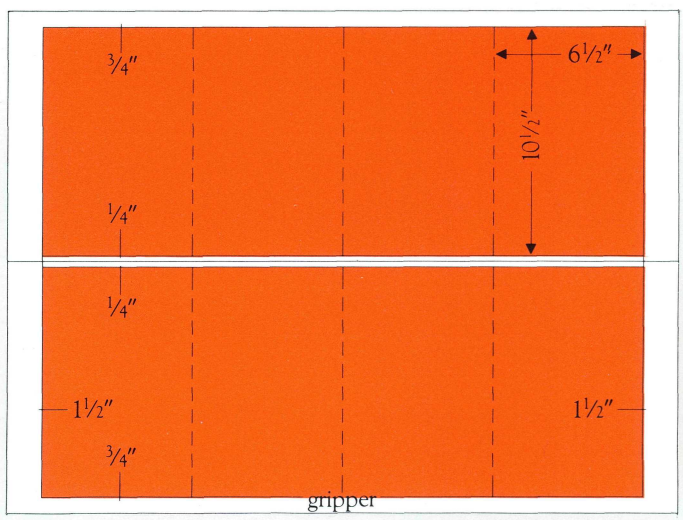
The 23″ x 29″ sheet could be called a special size to be used for certain jobs. There is also a press size with a maximum size of 23″ x 29″. A common use of this size is for a 6-page folder, page size 8½″ x 11″, printing two up. The size will also accommodate a 12-page book, size 8½″ x 11″, either oblong or upright. The upright book lays out as an eight page plus a four page. Other page sizes that lay out with a minimum of waste are 7″ x 10″, 7″ x 11″ and a square book size 7″ x 7″.





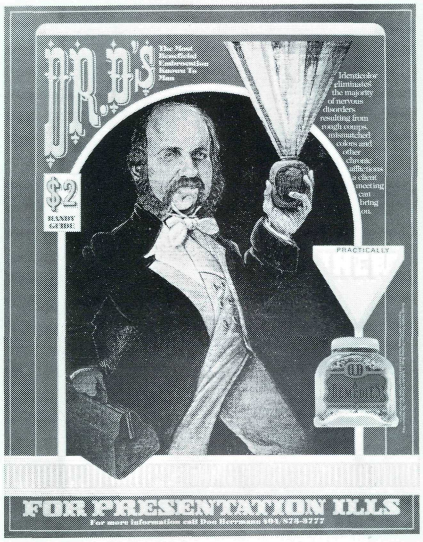


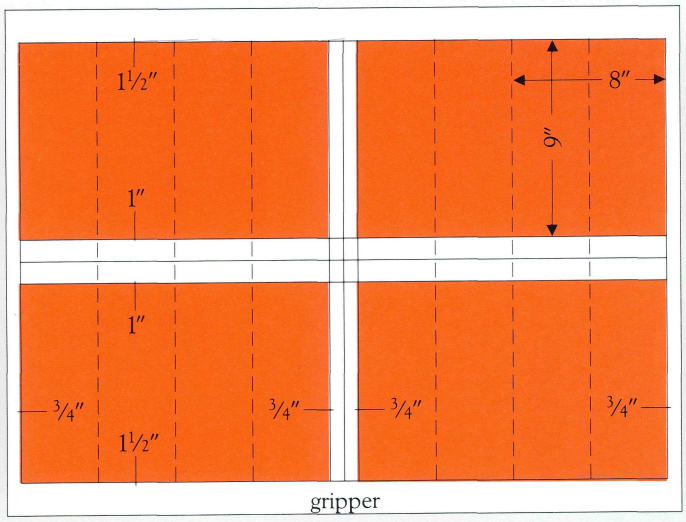
TWELVE PAGE OBLONG BOOK — Page size 11″ x 8½″ printing one up sheetwise.



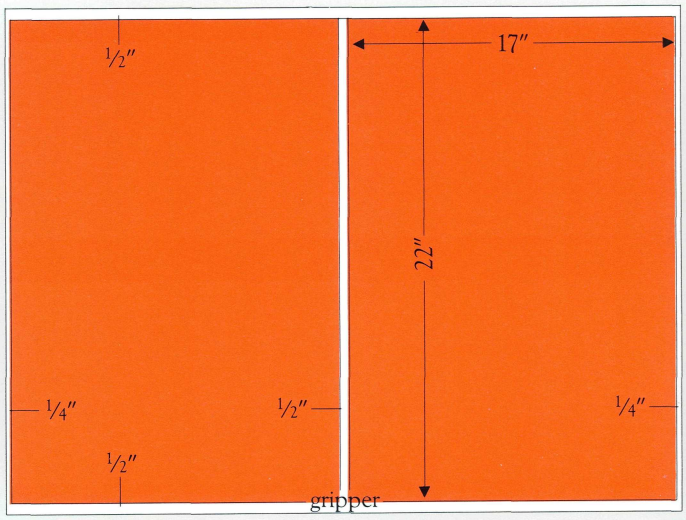
EIGHT PAGE ACCORDION FOLDER — Page size 6½″ x 10½″, flat 10½″ x 26″, one up work and tumble, 2 per sheet. Score before folding, if necessary.

Text and Cover 23 x 35



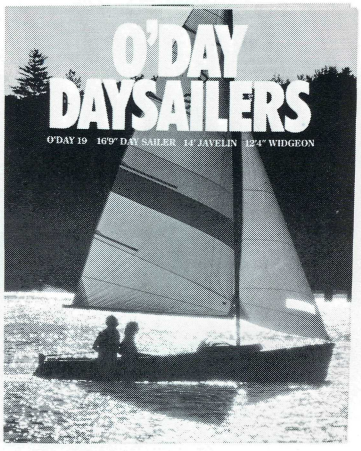


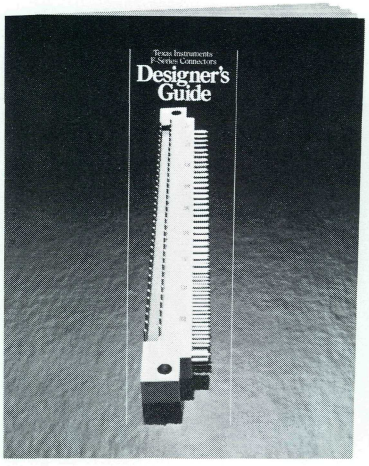
EIGHT PAGE RACK BOOKLET — Soft-folded, page size 8" x 9", saddlewire and soft-fold to 4" x 9". Run one up work and turn, 2 per sheet.

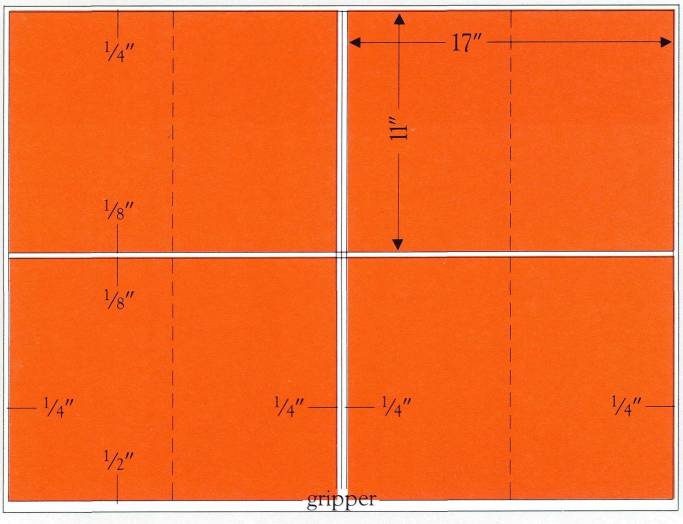


BLEED POSTER — A 17" x 22" poster, bleed design printing one side only, 2 per sheet.

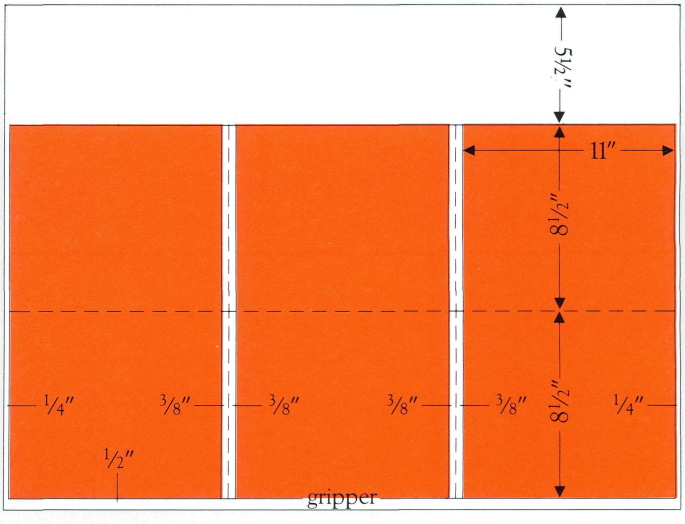
This size is used so frequently that printers quickly memorize the M weights for basis 50 pound through 100 pound. Made to print an 8½″ x 11″ page size, the sheet will yield a 16-page signature, or two 8-page signatures, or four 4-page signatures or folders. The 8½″ x 11″ size may be either oblong or upright. This size is also used for page size 5½″ x 8½″ and will print 32 pages. If 8½″ x 5½″ oblong, the design must be non-bleed.





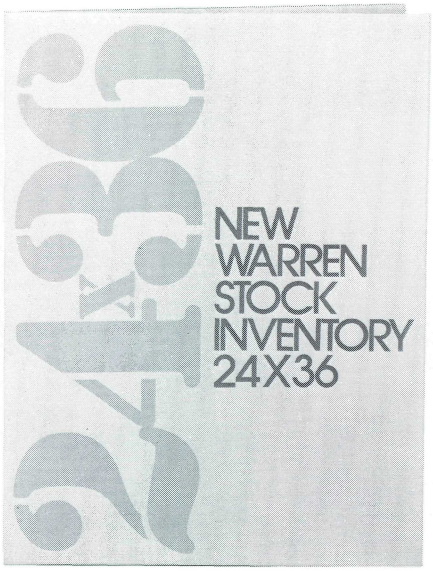


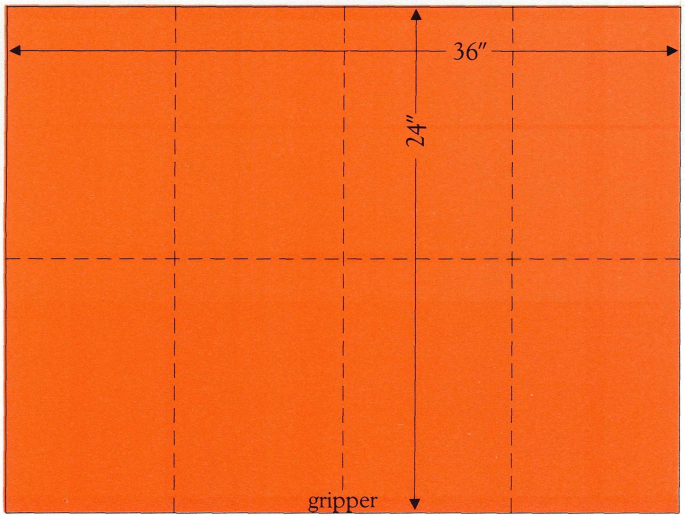
EIGHT PAGE BOOKLET – Size 8½″ x 11″, running one up work and turn, 2 per sheet.



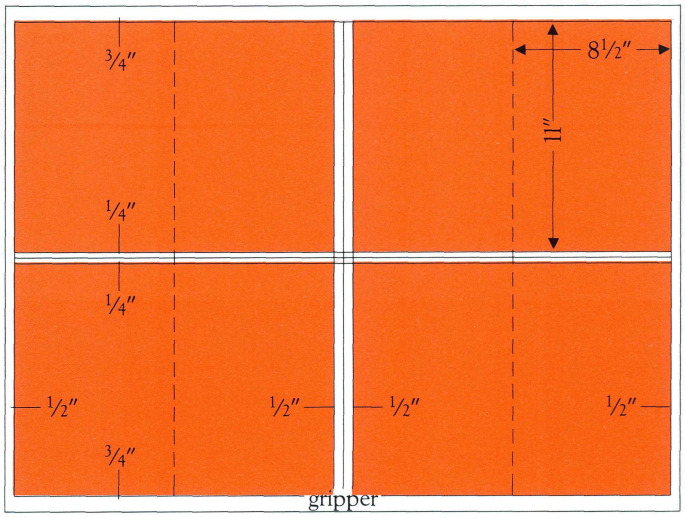
TWELVE PAGE BOOKLET – Bleed, size 8½″ x 11″, print one up sheetwise.

Text 24 x 36



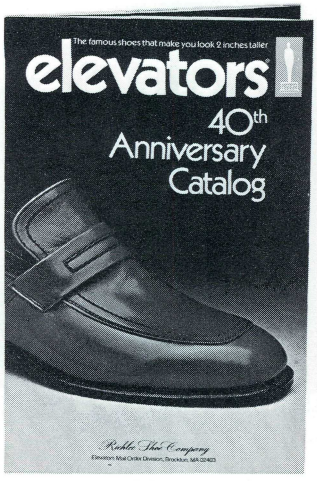


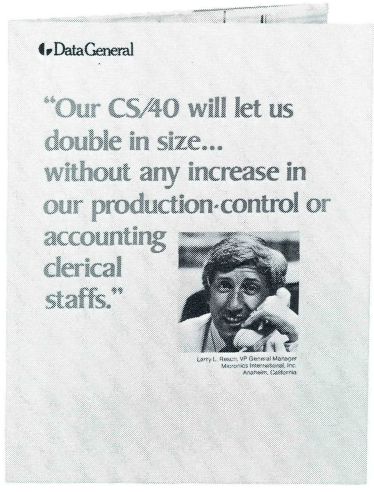
NON-BLEED POSTER — 24″ x 36″ poster printing one up sheetwise, non-bleed. Job uses entire sheet size.

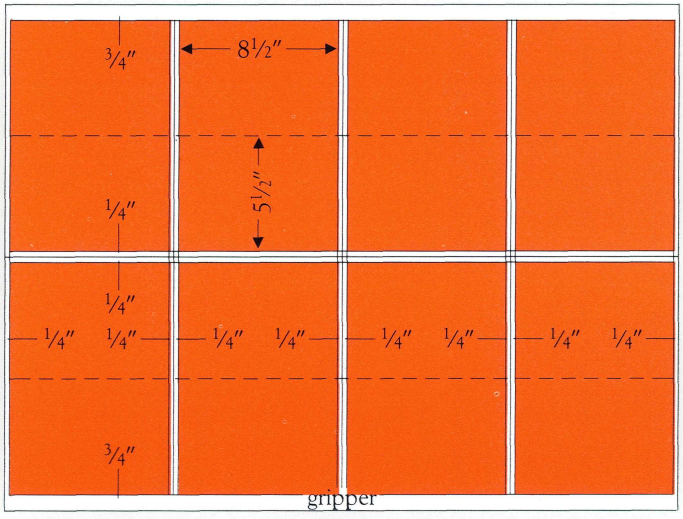


SIXTEEN PAGE BOOKLET — A 16 page self-cover saddle-stitched book, size 8½″ x 11″, bleed design. The sheet layout is one book up sheetwise.

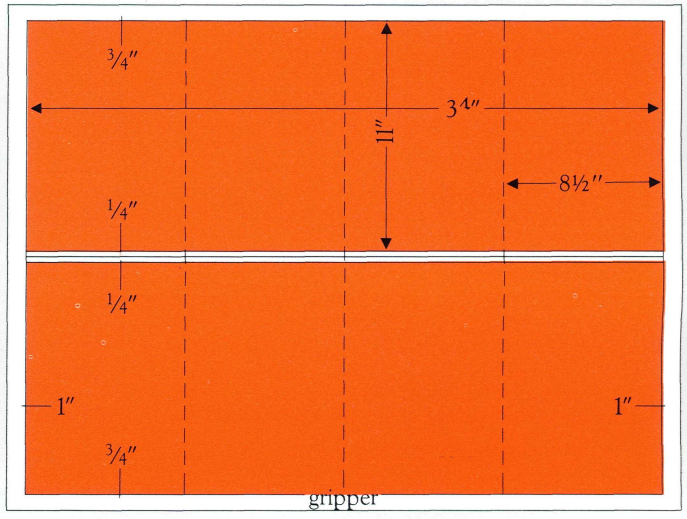
The 24″ x 36″ sheet is a relatively new size compared to all the others. When this size was not available and the printing form had too much ink coverage to print on a 23″ x 35″ sheet, it was necessary to use 25″ x 38″ stock. Now, the 24″ x 36″ size will handle bleed forms and save paper and money when compared to the use of 25″ x 38″ paper. Basically, this size will print all the page sizes listed for the 23″ x 35″ sheet but will also accommodate heavy coverage. It is also an efficient size to use for a 6-page folder with a bleed design.





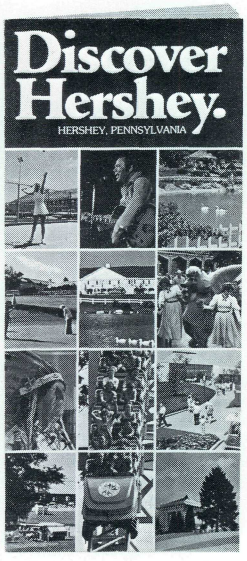


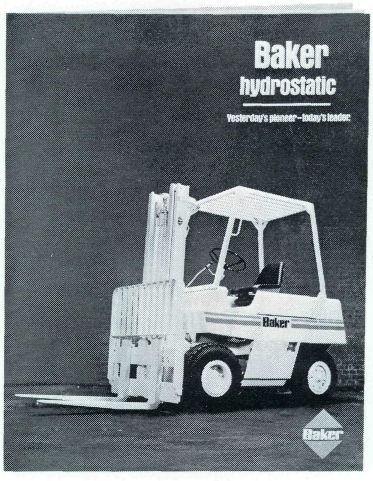
SIXTEEN PAGE BOOKLET — A 5½″ x 8½″ bleed design, 16 pages, saddle-stitched on 8½″ side. The sheet layout is one up work and turn, 2 out per sheet.

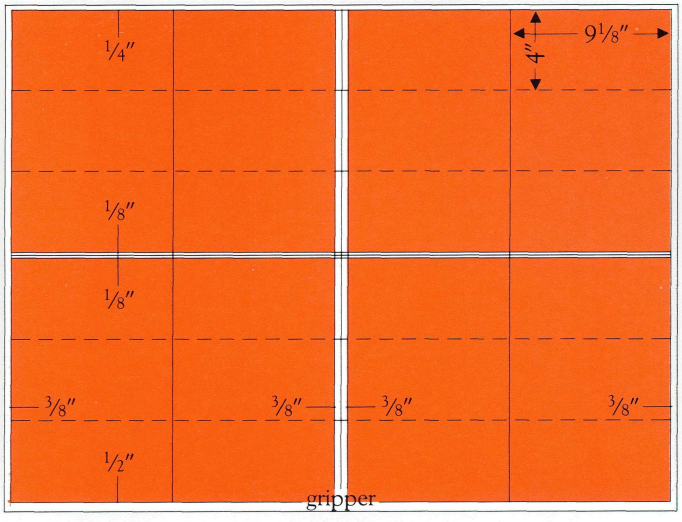


EIGHT PAGE FOLDER — Flat size 11″ x 34″, folded 8½″ x 11″. Job to print one up work and tumble, 2 per sheet.

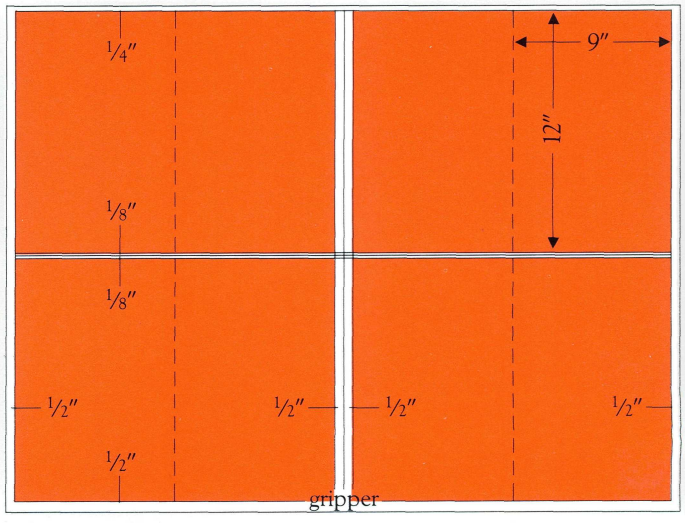
Text and Cover 25 x 38





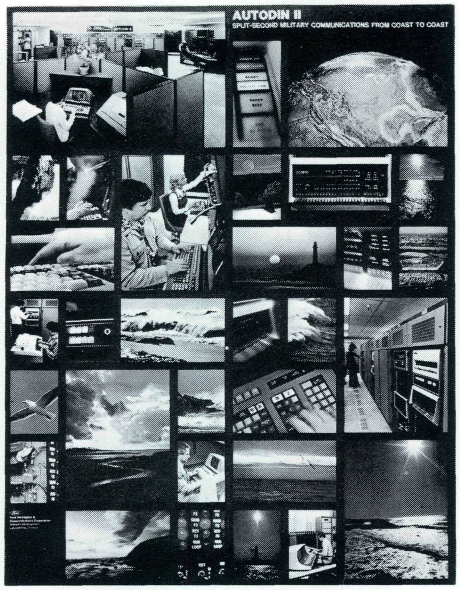


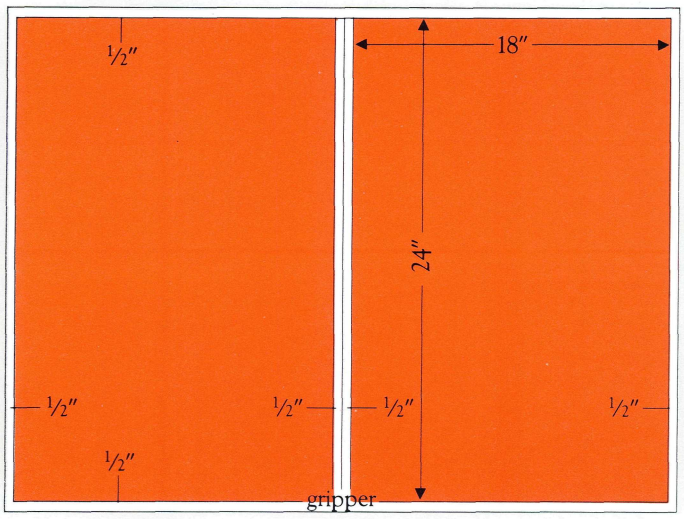
SIX PAGE RACK FOLDER – The flat size is 9⅛″ x 12″ bleed design, folding to 4″ x 9⅛″. Job to print 4 up work and turn, 8 out per sheet.



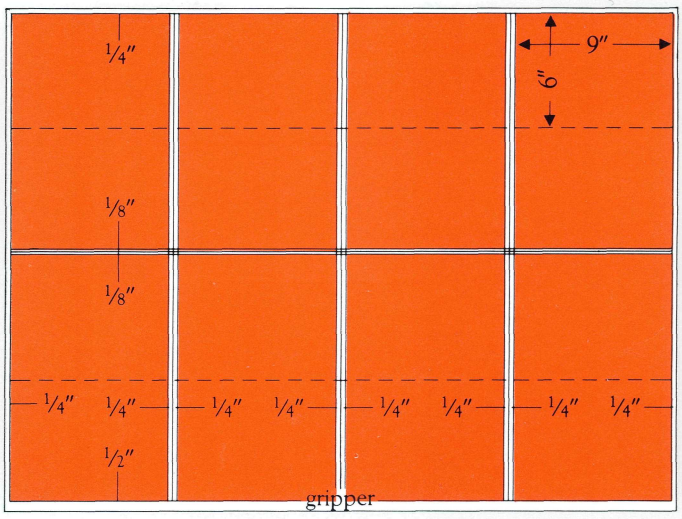
EIGHT PAGE BOOKLET – Saddle-wired booklet 9″ x 12″ upright. Run one up work and turn, 2 per sheet.

The 25″ x 38″ sheet size is ideal for a 6″ x 9″ or a 9″ x 12″ page. If page size 6″ x 9″, the sheet will print a 32-page signature, or 2 — 16's, or 4 — 8's or 8 — 4's. If size 9″ x 12″, the sheet will yield a 16-page signature or two 8-pages, or four 4-page signatures. The size may be either upright or oblong; however, a 9″ x 6″ oblong must be non-bleed or reduced to 9″ x 5⅞″ if bleed. This is the size that historically became the basis weight size for book papers. The weights of all other sizes are obtained by pro-rating up or down from the 950 square inch area of this 25″ x 38″ sheet. Also note that many cover weights are available in the 25″ x 38″ sheet size.



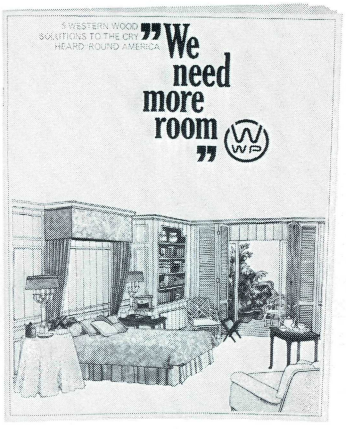


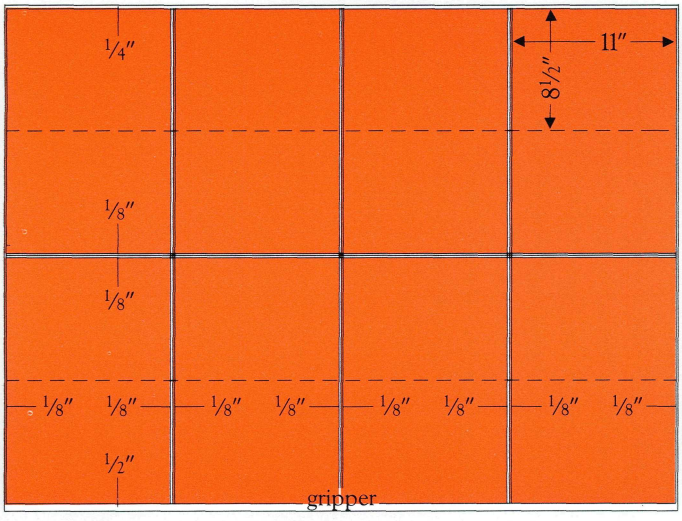
ONE-SIDED POSTER — An 18″ x 24″ poster, bleed design, printing one side only. Run 2 up sheetwise.



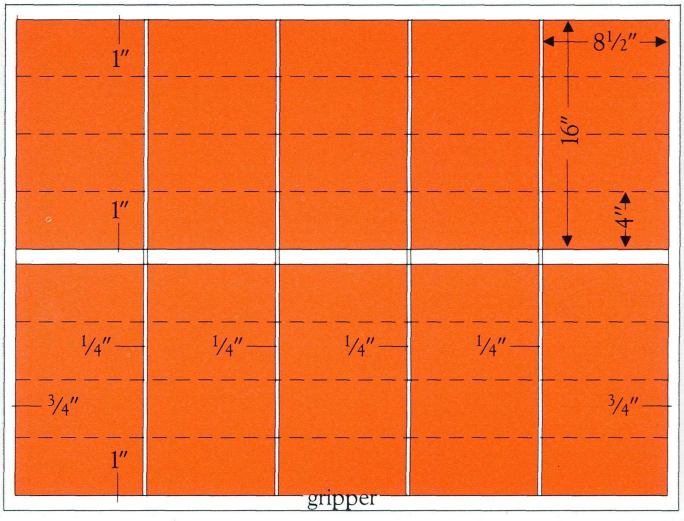
SIXTEEN PAGE BOOKLET — Self-cover booklet, page size 6″ x 9″ upright. Sheet layout up work and turn, 2 out per sheet.

Text 35 x 45



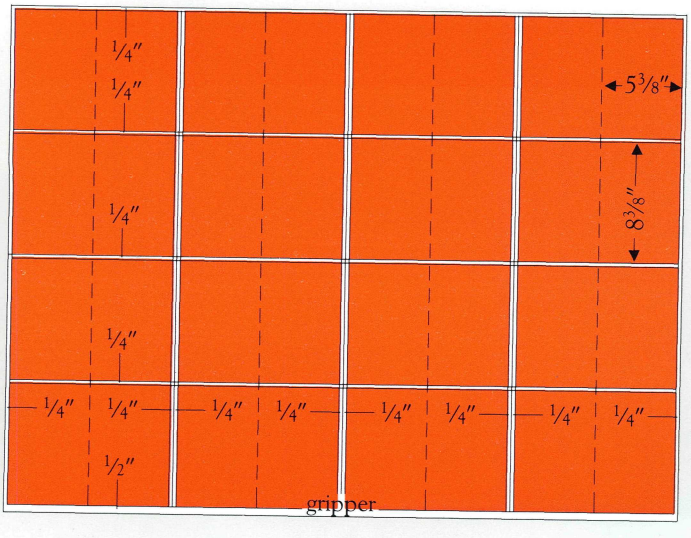


SIXTEEN PAGE BOOKLET — Size 8½" x 11" non-bleed, run one up work and turn, 2 out per sheet. Saddle-wire.

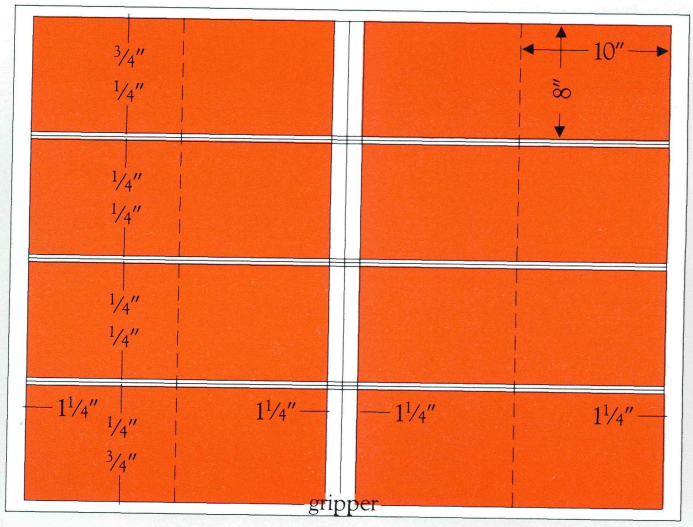


EIGHT PAGE RACK FOLDER — Flat size 8½" x 16", bleed design. Run 5 up work and tumble, 10 per sheet.

This size is manufactured for use on medium size sheet-fed presses. The size will print a 32-page signature one up sheetwise, or a 16-page signature two up, or an 8-page signature 4 up or a 4-page signature or folder 8 up. The page size may be a full 8½" x 11" if non-bleed, but should be nearer 8⅜" x 10⅞" if a heavy bleed design. On an 8½" x 11" upright book the grain of the stock is parallel with the eleven inch dimension, a feature that often aids the folding and binding operations.

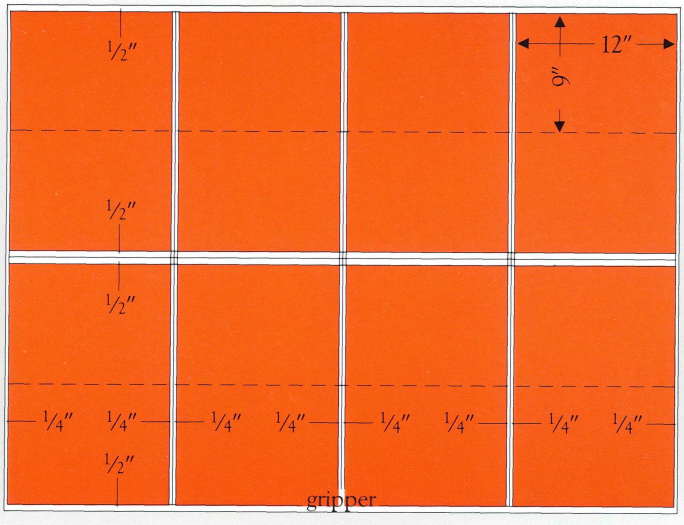


THIRTY-TWO PAGE BOOKLET – A 32 page saddle-stitched booklet, size 5⅜" x 8⅜" non-bleed. Sheet layout one up work and turn. 2 per sheet.

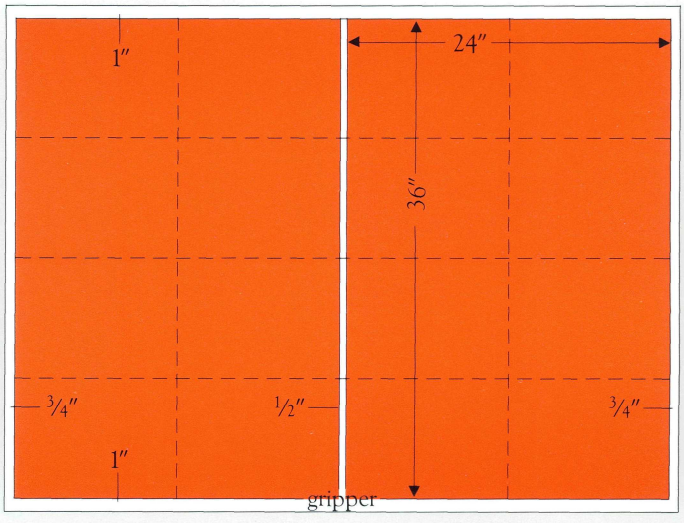


EIGHT PAGE OBLONG BOOKLET – Size 10" x 8" non-bleed. Run 2 up work and turn 4 per sheet. Job can layout for either 1 up or 2 up folding and binding.

Text 38 x 50

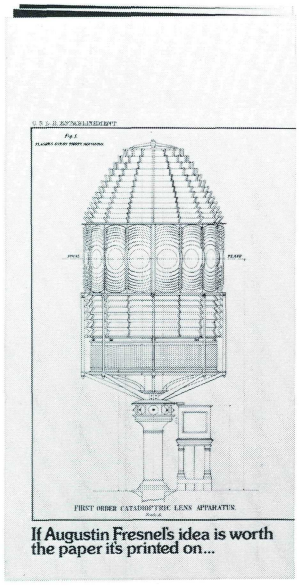


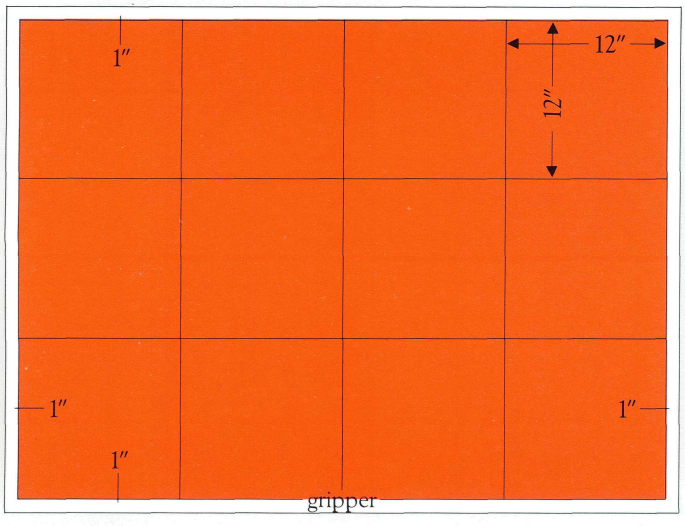
SIXTEEN PAGE BOOKLET – Saddle-stitched booklet, page size 9" x 12" upright, bleed design. Layout one up work and turn, 2 per sheet.



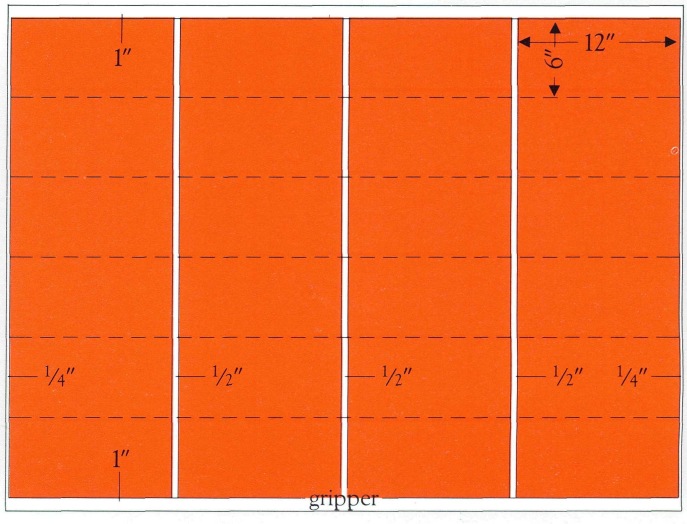
BLEED POSTER – Poster size 24" x 36" flat, bleed design, printing with different caps on 2 sides. Sheet layout one up work and turn, 2 per sheet.

The 38″ x 50″ size can be used by medium size presses or as a medium size sheet on large sheet fed presses. It can also be cut in half to a size 38″ x 25″ when a grain short sheet is required for smaller presses. This size will yield 64 pages 6″ x 9″ or 32 pages 9″ x 12″, either upright or oblong. This size is also used to print large size posters or banners or face sheets for large mounted displays.



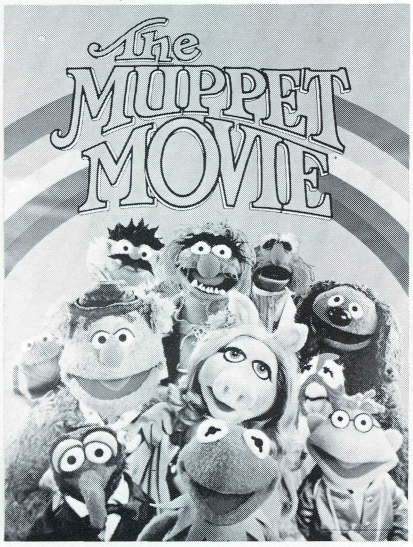


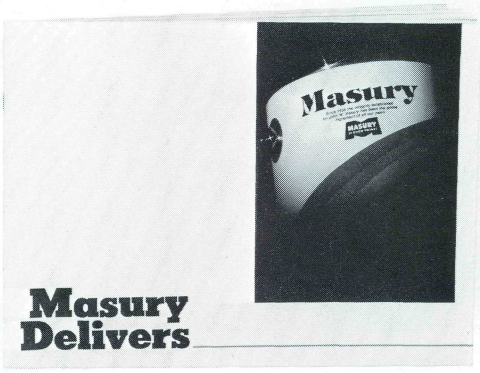
TWELVE LEAF CALENDAR — Size 12″ x 12″, non-bleed, printing two sides. Sheet layout one up of 12 leaves sheetwise. Plastic comb binding.

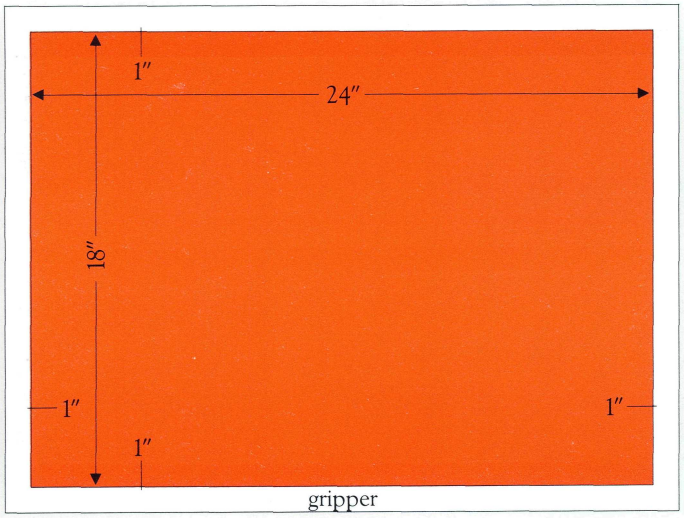


TWELVE PAGE ACCORDION FOLDER — Flat size 12″ x 36″ bleed, folded size 6″ x 12″. Run 2 up work and turn, 4 per sheet.

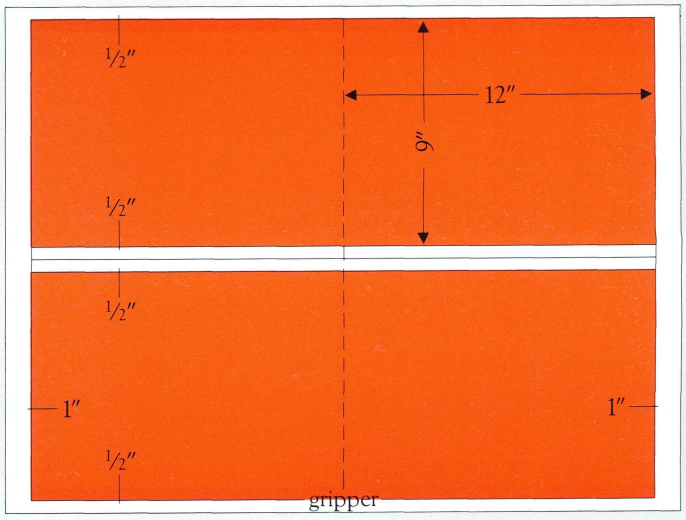
Cover 20 x 26





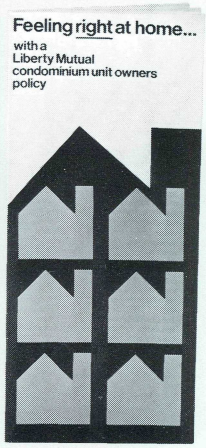


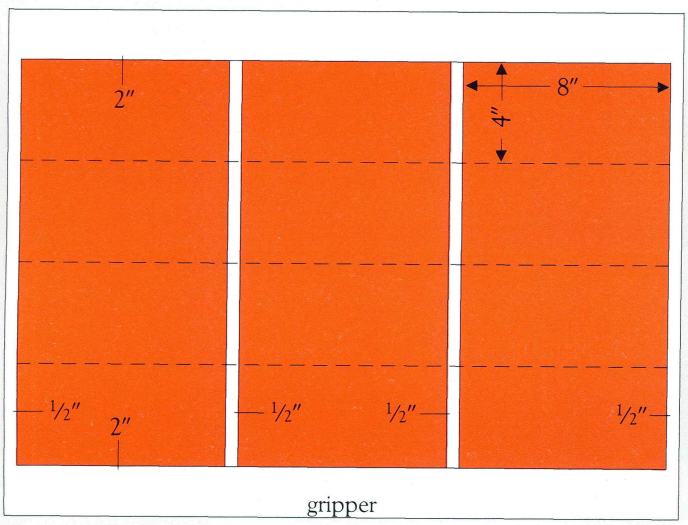
SHEET POSTER — A one out poster or point of purchase display.



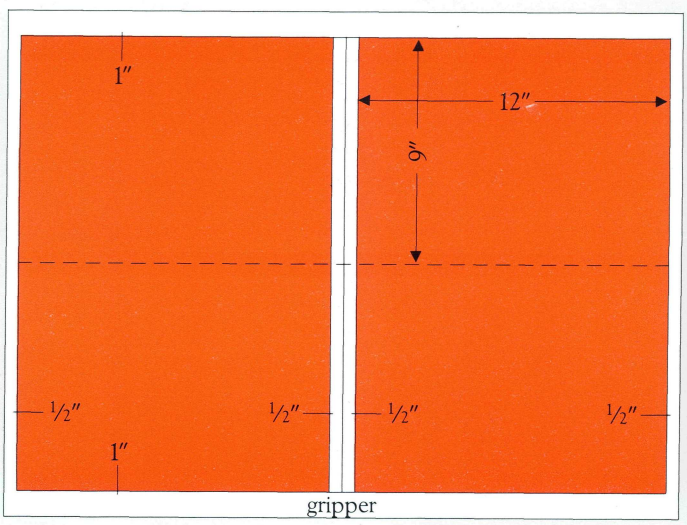
OBLONG FOLDER — One 4 page — 1 up 2 out work and tumble or 2 up 2 out sheetwise oblong cover, size 12″ x 9″.

Cover size — 2 covers out — 8½" x 11" or 9" x 12"; 4 covers 5½" x 8½" or 6" x 9" booklet. This is again the workhorse for the small press size. Upright or oblong variation of sizes are obtainable. One may use work and turn, or work and tumble forms and still have sufficient area left for bleeds, grippers and side guide.



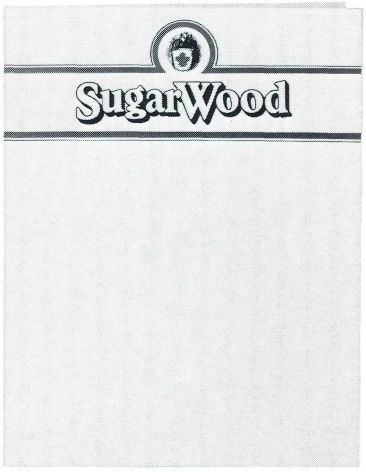


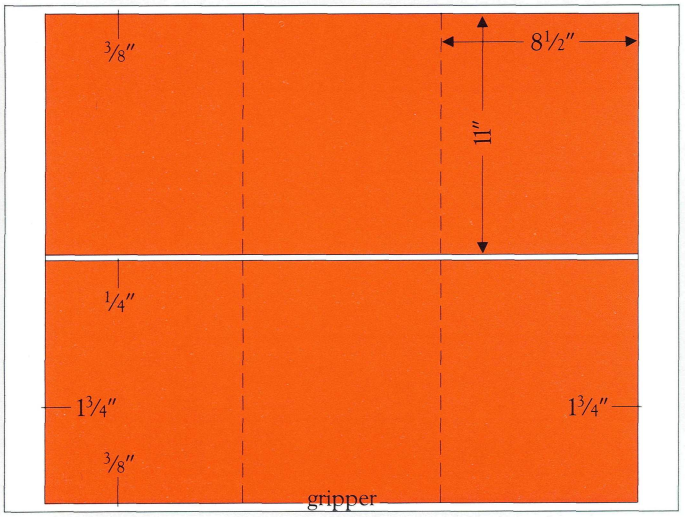
FOUR PANEL MAILER — A 3 out folder page size 4" x 8" — folds with grain. It may be barrel, parallel, double gate folder.



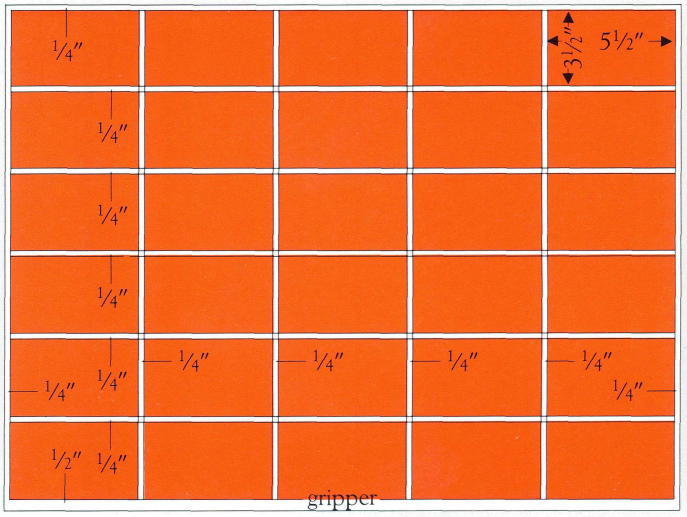
FOUR PAGE COVER — One 4 page — 1 up 2 out work and turn or 2 out sheetwise upright cover, size 9" x 12".

Text and Cover 23 x 29



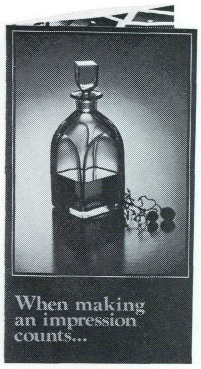


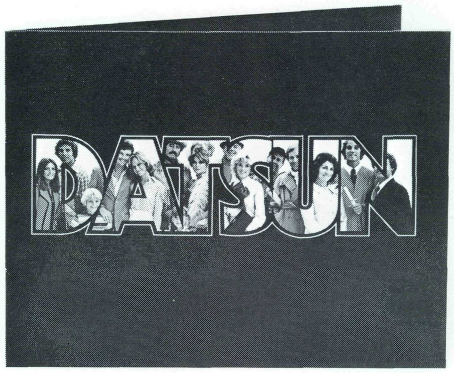
SIX PAGE MAILER — This may be a six page cover with perforation for a business reply card or may be a three panel folder. Sheet layout — runs 1 up, 2 out work and tumble or 2 out sheetwise.

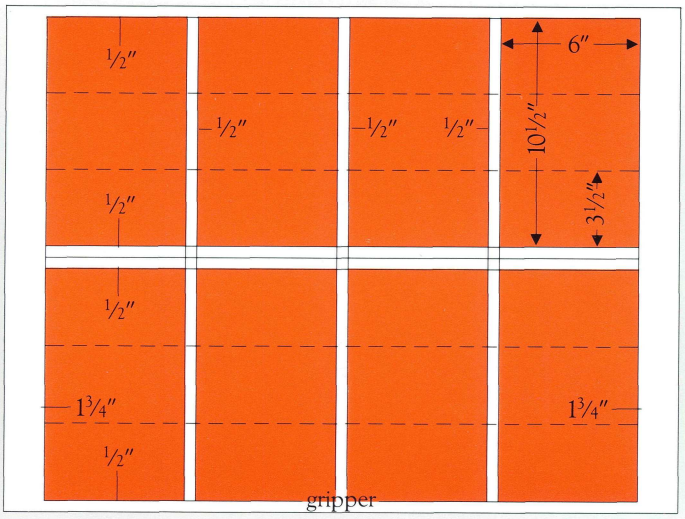


BLEED POSTCARD — Postcard using complete area. 30 pieces out sheetwise.

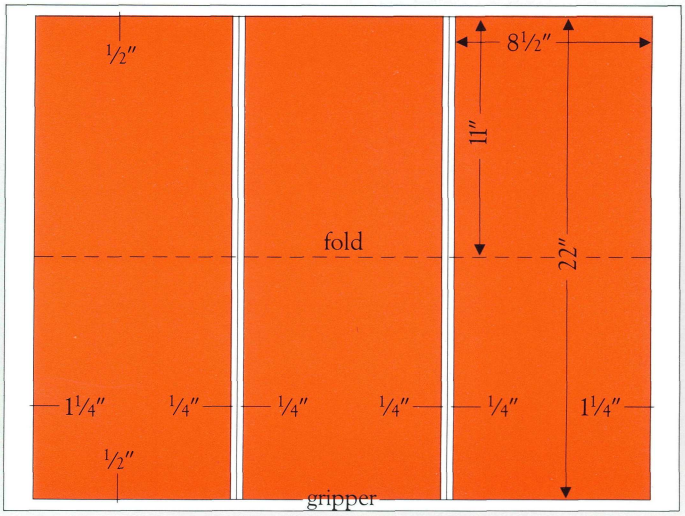
The utilization of a standard size cover sheet allows many variations of printed pieces — a 6-page cover — 8½" x 11"; an oblong cover — 11" x 8½"; post card — 3½" x 5½", or a portfolio with an area for pockets. This sheet is made to utilize the press size 23" x 29".





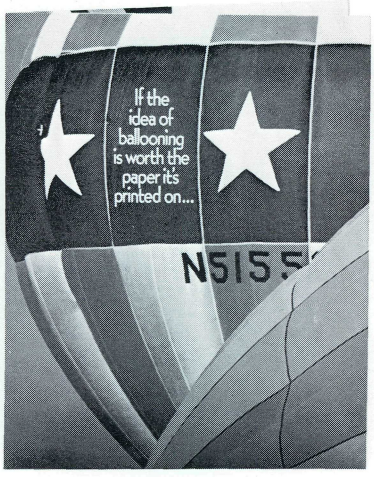


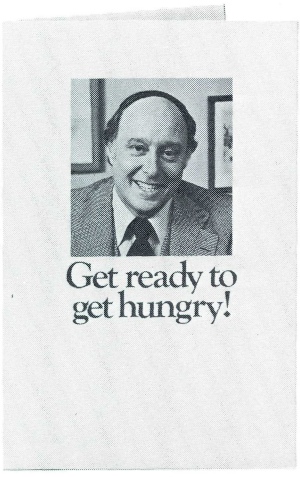
THREE PANEL MAILER — Piece printed 8 out sheetwise or 4 up 8 out work and turn, the piece may have a perforated panel for a business reply card.

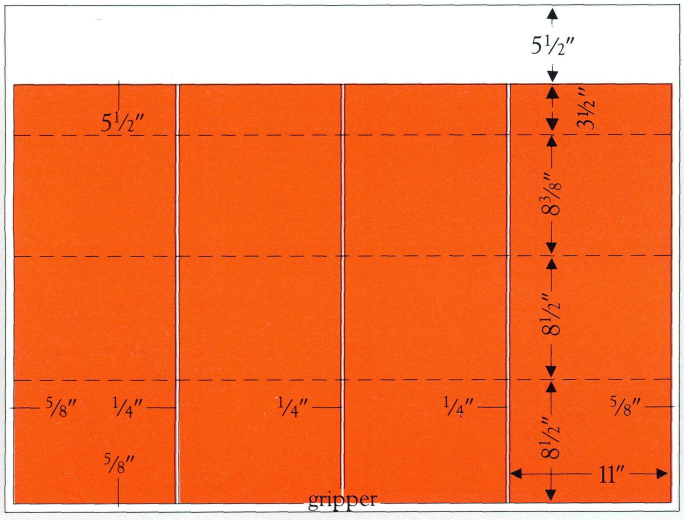


FOUR PAGE OBLONG MAILER — 11" x 8½" — oblong cover or folder run 3 out. This will print sheetwise.

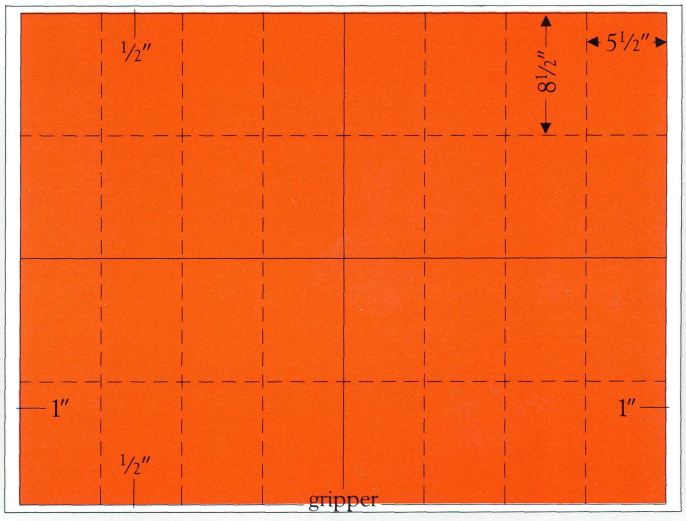
Text and Cover 35 x 46





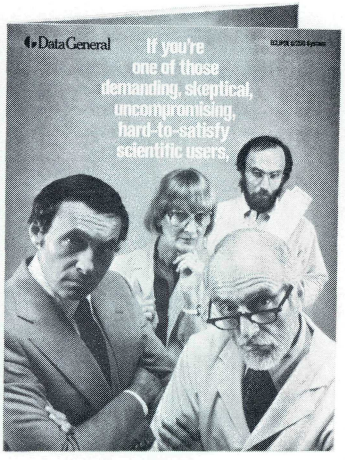


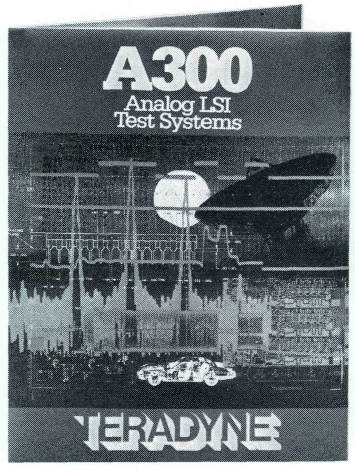
SIX PAGE FOLDER — 6 page folder or cover with business reply cards run 2 up, 4 out work & turn or 4 out sheetwise.

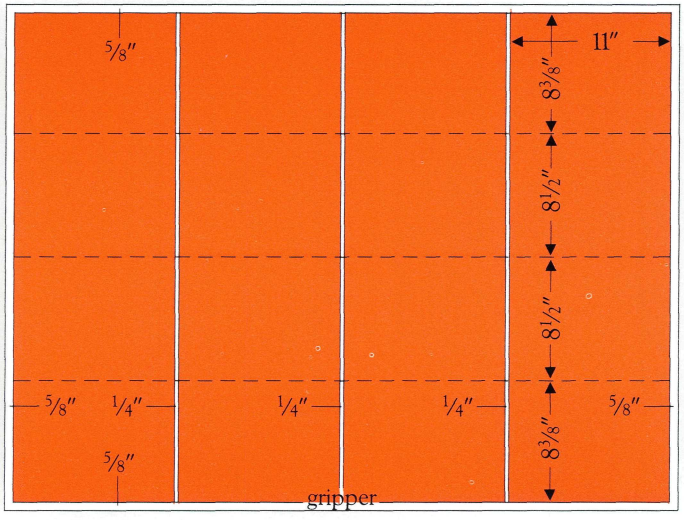


SIXTEEN PAGE FOLDER — A 16 page folder, flat size 17" x 22", folded to 5½" x 8½" run 2 up work and turn, 4 out per sheet.

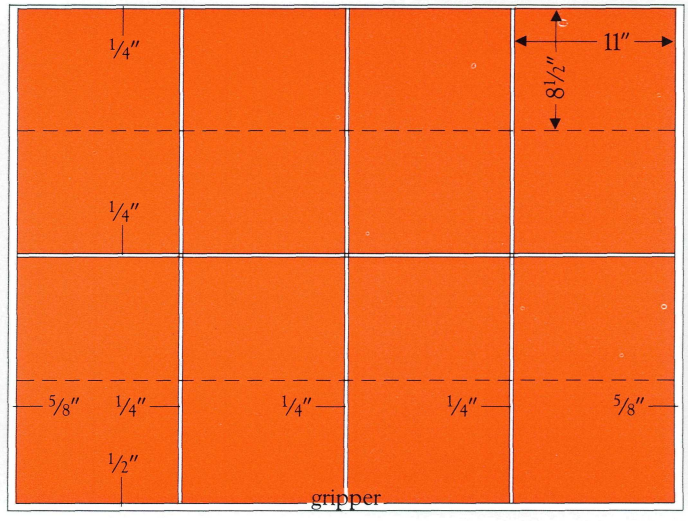
This is the largest standard size for cover stock and offers many sheet layout possibilities. Large and medium size presses use this size to print large quantities economically with multiple covers or pieces up per sheet. The 35″ x 46″ size may also be cut to sizes 35″ x 23″ or 17½″ x 23″ to run on smaller presses.







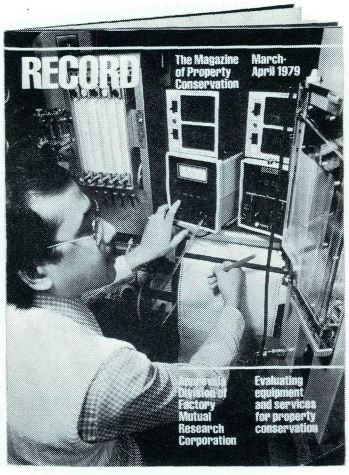
EIGHT PAGE FOLDER — This may be an 8 page, gate fold cover, or a 4 panel brochure either run 2 up, 4 out work and turn; or 4 out sheetwise.

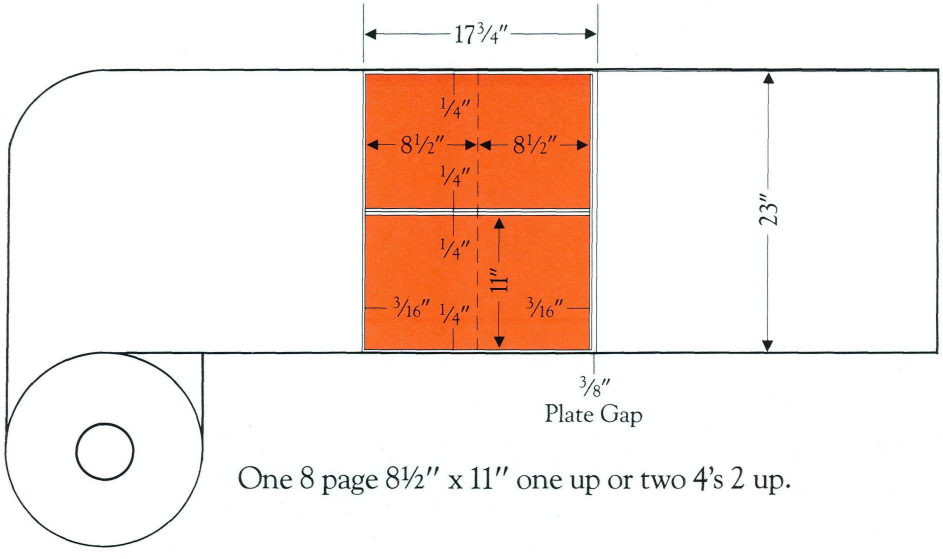


FOUR PAGE COVER — 4 page covers — 8½″ x 11″ 4 up — 8 out work & turn or 8 out sheetwise.

Web 17¾ x 23
(Cutoff 17¾)

This popular size has become known as "the half web". From it we obtain 8 pages—8½" x 11", or 16 pages, 5½" x 8½". If the web is run into the sheeter, a four page broadside 11" x 17" is produced, or we obtain an 8-page 4½" x 8½", 2 out or 12 pages 4" x 8½", 2 up. The width of the web may vary from 17½ up to either 23 or 26 depending upon the manufacturer of the press.



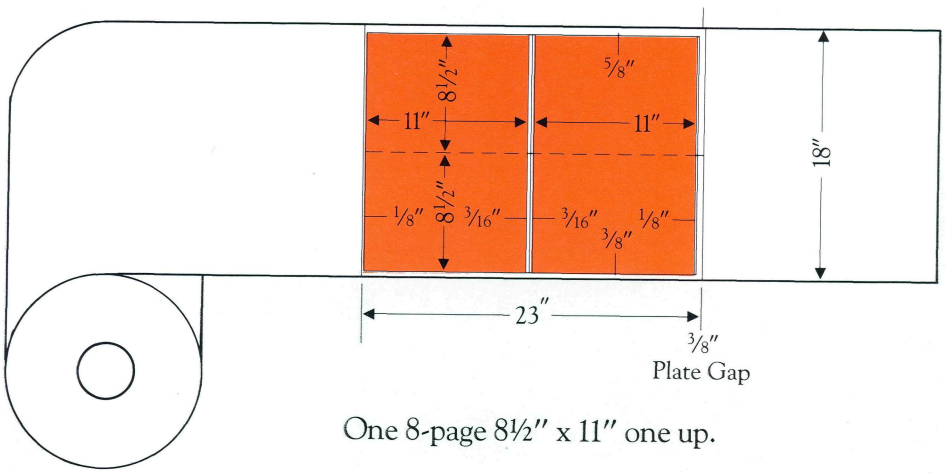


One 8 page 8½" x 11" one up or two 4's 2 up.

Some models of this press may be equipped to print a double web and thereby increase productivity on long runs.

Web 23 x 18
(Cutoff 23)

This size press is manufactured to fold with the grain for 8 pages — 8½" x 11". With a double parallel folder one can obtain two up, 5½" x 8½" 8-page signatures, either head to foot for two up saddle stitching, or head to head come and go imposition (2 up reverse) for perfect binding. A four-page broadside 11" x 17" can be printed two up.

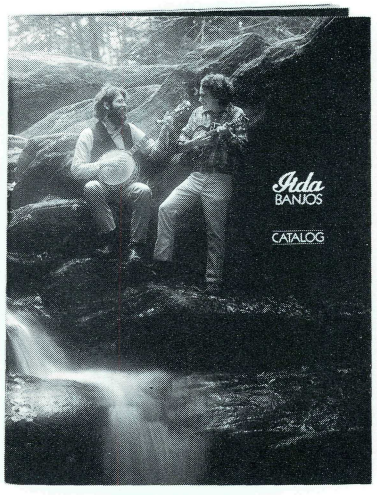


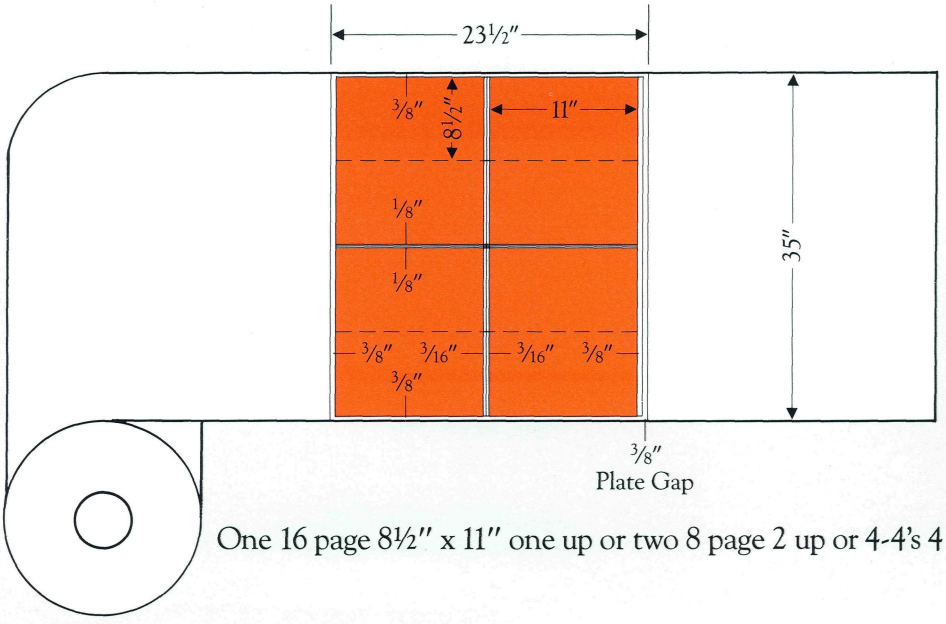
One 8-page 8½" x 11" one up.

This size press is often referred to as a jobber web. Because of its ability to make ready quickly the press is adaptable to quantities as low as 10,000 copies.

Web 23½ x 35
(Cutoff 23½)

This size has become the workhorse of the publication and trade web offset printers. Depending on folding capacity, this press will print 8 pages 2 up or 16 pages 1 up size 8½" x 11", or 16 pages 2 up. The 8½" x 11" folds with the grain while 5½" x 8½" is cross grain. This size is popular with small to medium run newspapers – 17" x 23". The layout possibilities increase with number of roll stands and the kind of finishing equipment after the printing units.



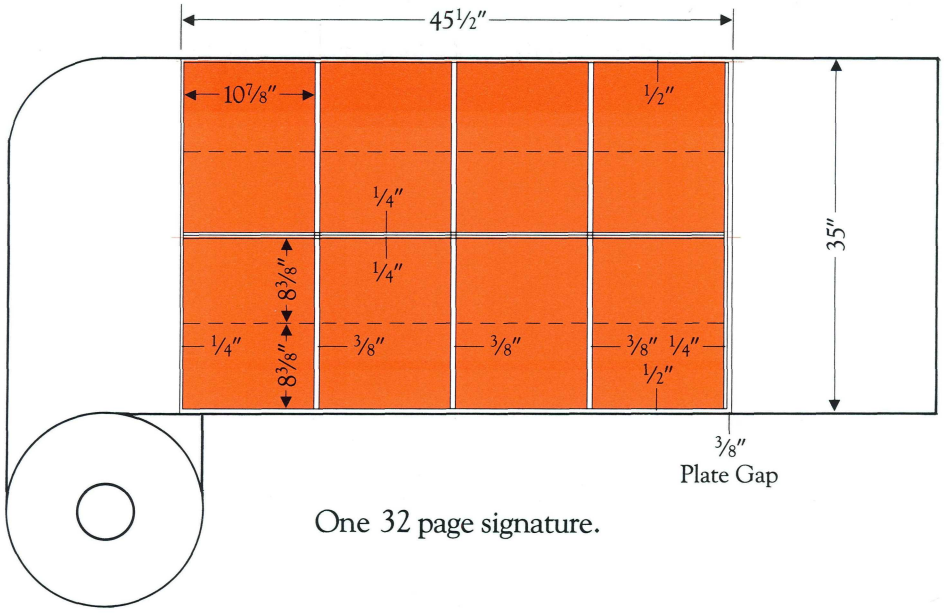


One 16 page 8½" x 11" one up or two 8 page 2 up or 4-4's 4 up.

There may be as many roll stands as perfecting units. Finishing units are folding parallel units, combination chopper units, sheeting units, die cutting unit, or rewind rolls.

Web 45½ x 35
(Cutoff 45½)

This doubles the capacity of 22½" x 35" — using the standard roll size 35" which is easy to handle. We now obtain 8 pages/4 up or 16 pages/2 up or 32 pages/1 up, size 8⅜ x 10⅞. The possibilities depend again on the equipment before and after the printing units. Most of these presses are built to custom specifications and conditions.



One 32 page signature.

Most lithographic web presses are limited by the cut off and somewhat on the width of the web. Because of this there is standardization of products.

Regular Sizes vs. Irregular Sizes: A Cost Comparison

The differential for irregular sizes in lots of 2,400 to 4,999 pounds is 10%. In many cases the adding of this differential makes an irregular size order cost more than the same number of sheets in the next larger regular size. Often, therefore, it is cheaper for the customer to order the next larger regular size.

The following table will be of help in figuring the advantageous size to buy.

REGULAR SIZES

38 x 50	If an irregular size in between 38 x 50 and 36 x 48 is required, use 38 x 50. For example: 36½ x 48½ with the 10% differential added will cost more than 38 x 50.
36 x 48	The regular size 36 x 48 is cheaper than an irregular 35½ x 45½.
35 x 45	If 32½ x 44½ is needed, you can use 35 x 45 for the same price or slightly less.
28 x 40	The 28 x 40 is cheaper than any irregular size down to the next regular size.
26 x 40	Any irregular size in between 26 x 40 and 25 x 38 will cost more than 26 x 40. Use 26 x 40 as a saving.
25 x 38	Use the 25 x 38 size as more economical than any size in between these two.
24 x 36	Use 24 x 36 as cheaper than any irregular size in between these two.
23 x 35	

Calculation Of M Weights

Use the trade basis weight to calculate the ream weight using three decimal places.

EXAMPLE: To calculate the ream weight for 80 pound cover size 7⅛ x 8⅛: 7⅛ x 8⅛ = 57.890 x 80 = 4631.2 ÷ 520 = 8.906/500.

For sheets 24 x 36, 864 square inches and larger, adjust the ream weight to the nearest whole pound and multiply by two.

EXAMPLE:

Ream weight — 149.4 adjusts to 149 pounds per ream and is doubled to make an M weight of 298.

Ream weight — 149.5 adjusts to 150 pounds per ream and is doubled to make an M weight of 300.

For sheets less than 24 x 36, 864 square inches down to and including 11 x 17, 187 square inches, adjust the ream weight to the nearest half pound and multiply by two.

EXAMPLE:

Ream weight — 73.24 adjusts to 73.0 pounds per ream and is doubled to make an M weight of 146.

Ream Weight — 73.25 adjusts to 73.5 pounds per ream and is doubled to make an M weight of 147.

For sheets less than 11 x 17, 187 square inches, adjust the ream weight to the nearest two decimal places and multiply by two.

EXAMPLE:

Ream weight — 10.77 pounds per ream is doubled to make an M weight of 21.54.

REAM WEIGHT AND M WEIGHT OF IRREGULAR SIZES

To calculate the ream weight of any sheet size multiply the sheet length by the sheet width by the basis weight and divide by the number of square inches associated with the basis weight, i.e.

BOOK = 950 (25 x 38); COVER = 520 (20 x 26); BRISTOL = 641.25 (22½ x 28½); INDEX = 777.75 (25½ x 30½); TAG = 864 (24 x 36); BUSINESS PAPERS = 374 (17 x 22)

EXAMPLE: To calculate the ream weight for 20 x 30 Basis 80# Cover:

$$\frac{20 \times 30 \times 80}{520} = 92.3076$$

Adjust results as outlined in calculation of M Weights. This will give the adjusted ream weight. To calculate the M-weight multiply the adjusted ream weight by two.

EXAMPLE: 92.3076 rounds to 92.5 x 2 — 185M for 20 x 30 Basis 80# Cover.

Regular Sizes* And Equivalent M Weights

REGULAR SIZES AND EQUIVALENT M WEIGHTS BOOK PAPERS

Basis	45	50	60	70	80	90	100	120
17 x 22	35	39	47	55	63	71	79	94
17½ x 22½	37	41	50	58	66	75	83	99
18 x 24	41	45	55	64	73	82	91	109
19 x 25	45	50	60	70	80	90	100	120
20 x 26	49	55	66	77	88	99	109	131
20 x 35	66	74	88	103	118	133	147	177
23 x 26½	58	64	77	90	103	115	128	154
23 x 29	63	70	84	98	112	126	140	169
23 x 35	76	85	102	119	136	153	169	203
23½ x 35	78	87	104	121	139	156	173	208
24 x 36	82	90	110	128	146	164	182	218
25 x 38	90	100	120	140	160	180	200	240
26 x 40	98	110	132	154	176	198	218	262
28 x 40	106	118	142	166	188	212	236	282
35 x 45	150	166	198	232	266	298	332	398
35 x 46	152	170	204	238	272	306	338	406
36 x 46	156	174	210	244	278	314	348	418
36 x 48	164	182	218	254	292	328	364	436
37 x 49	172	190	230	268	306	344	382	460
38 x 50	180	200	240	280	320	360	400	480
41 x 54	210	234	280	326	372	420	466	560
41 x 61	236	264	316	368	422	474	526	632
42 x 58	230	256	308	358	410	462	512	616
44 x 64	266	296	356	414	474	534	592	712
44 x 66	276	306	366	428	490	550	612	734
45 x 68	290	322	388	452	516	580	644	774
46 x 69	300	334	400	468	534	602	668	802
49 x 74	344	382	460	536	612	688	764	920
50 x 76	360	400	480	560	640	720	800	960
52 x 76	374	416	500	582	666	748	832	998

REGULAR SIZES AND EQUIVALENT M WEIGHTS COVER PAPERS

Basis	55/6 pt.†	60	63/7 pt.†	65	68/8 pt.†
20 x 26	110	120	126	130	136
23 x 29	141	154	162	167	174
23 x 35	170	186	195	201	211
25 x 38	200	220	230	238	248
26 x 40	220	240	252	260	272
35 x 46	340	372	390	402	422

Basis	80	82/10 pt.†	100	110	120
20 x 26	160	164	200	220	240
23 x 29	205	210	257	282	308
23 x 35	248	254	310	340	372
25 x 38	292	300	366	402	438
26 x 40	320	328	400	440	480
35 x 46	496	508	620	680	744

†Warrenflo Products
*Not all Regular Sizes are inventoried.

Carton Packing Schedules

SUMMARY OF PACKAGE CONTENTS

CARTONS – BOOK GRADES		CARTONS – COVERS (Excluding Lusterkote)	
M Weight	Sheets/ctn.	M Weight	Sheets/ctn.
50	3200	120	1200
58	2400	126	1100
60	2400	130	1200
66	2400	136	1100
70	2000	140	1000
80	2000	141	1000
84	1800	160	1000
85	1800	162	1000
98	1600	169	900
100	1600	174	900
102	1500	186	800
110	1400	195	800
112	1300	200	800
119	1200	201	700
120	1200	205	700
128	1200	211	700
136	1100	220	700
140	1000	230	600
146	1000	238	600
160	1000	240	600
166	900	248	600
169	900	252	600
182	800	260	600
198	800	272	600
200	800	292	500
232	600	310	500
240	600	320	500
266	600	340	400
280	500	366	400
320	500	372	400
332	500	400	400
400	400	402	400
		422	400
		496	300

CARTONS – LUSTERKOTE

Size	Thickness	Sheets/Ctn.
20 x 26	8 Pt.	1000
23 x 29	8 Pt.	700
23 x 35	8 Pt.	600
25 x 38	8 Pt.	500
26 x 40	8 Pt.	500
35 x 46	8 Pt.	300
20 x 26	10 Pt.	800
23 x 29	10 Pt.	600
23 x 35	10 Pt.	500
25 x 38	10 Pt.	400
26 x 40	10 Pt.	400
35 x 46	10 Pt.	250
20 x 36	12 Pt.	700
23 x 29	12 Pt.	500
23 x 35	12 Pt.	400
25 x 38	12 Pt.	400
26 x 40	12 Pt.	350

Comparison Of Basis Weights*

Over the years, as various kinds of papers were perfected, each developed its own category of basis weights and sizes. You'll note that the weights of the papers on this table are determined on the basis of *different* sizes. (Refer to "Basis Weight" and "Substance" in the glossary for a better understanding of this.)

It is possible, as the chart indicates, to *interchange* these types of paper. For example, if you wanted a 20 lb. bond paper and it was not available, you *could* specify (providing the surface characteristics were suitable) a 50 lb. book paper for the job.

BASIS WEIGHTS—
METRIC EQUIVALENTS

Book 25 X 38	Basis Weight	Grams per Square Meter (g/m^2)
	45	67
	50	74
	60	89
	70	104
	80	118
	100	148
	120	178

Cover 20 X 26	Basis Weight	Grams per Square Meter (g/m^2)
	55	148
	60	162
	63	170
	65	176
	68	184
	80	216
	82	222
	100	270

	Book 25 x 38	Bond and Ledger 17 x 22	Cover 20 x 26	Printing Bristol 22½ x 28½	Index 25½ x 30½	Tag 24 x 36
Book	**30**	12	16	20	25	27
	40	16	22	27	33	36
	45	18	25	30	37	41
	50	20	27	34	41	45
	60	24	33	40	49	55
	70	28	38	47	57	64
	80	31	44	54	65	73
	90	35	49	60	74	82
	100	39	55	67	82	91
	120	47	66	80	98	109
Bond and Ledger	33	**13**	18	22	27	30
	41	**16**	22	27	33	37
	51	**20**	28	34	42	46
	61	**24**	33	41	50	56
	71	**28**	39	48	58	64
	81	**32**	45	55	67	74
	91	**36**	50	62	75	83
	102	**40**	56	69	83	93
Cover	100	40	**55**	68	82	91
	110	43	**60**	74	90	100
	115	45	**63**	78	94	105
	119	47	**65**	80	97	108
	124	50	**68**	85	103	115
	146	58	**80**	99	120	134
	164	65	**90**	111	135	149
	183	72	**100**	124	150	166
	201	79	**110**	136	165	183
	219	86	**120**	148	179	199
Printing Bristol	84	33	46	**57**	69	77
	100	39	54	**67**	81	91
	120	47	65	**80**	98	109
	148	58	81	**100**	121	135
	176	70	97	**120**	146	162
	207	82	114	**140**	170	189
	237	93	130	**160**	194	216
Index	110	43	60	74	**90**	100
	135	53	74	91	**110**	122
	170	67	93	115	**140**	156
	208	82	114	140	**170**	189
Tag	110	43	60	74	90	**100**
	137	54	75	93	113	**125**
	165	65	90	111	135	**150**
	192	76	105	130	158	**175**
	220	87	120	148	180	**200**
	275	109	151	186	225	**250**

(Basis Weights in Bold)
*Based on Ream Weight

Paper Spoilage Allowances*

The offset press work and binding spoilage allowances are based on sheets of stock required for the job and not impressions for the job. A work and turn job of 5,000 quantity printed in one color is calculated as 2,500 sheets (quantity required for work and turn form which will allow two out of a sheet).

Care should be taken to make certain to use the correct figure when determining the number of sheets. For instance, 5,000 press sheets of 25 x 38 would take the 5,000 figure when figuring press work but would take the 10,000 figure when figuring folding, etc., if this sheet had to be cut in half to 19 x 25 before the binding operation.

Based on the experience of each plant, these figures may be modified.

The percentage of spoilage can be reduced slightly on large runs where plant experience so dictates.

SHEET-FED OFFSET

Percentage Represents Press Size Sheets, Not Impressions
The figures below do not include waste sheets used to run up color as it is assumed that waste stock is used for this purpose.

	1,000	2,500	5,000	10,000	25,000 and over
Single Color Equipment					
One color, one side	8%	6%	5%	4%	3%
One color, work and turn or work and tumble	13%	10%	8%	6%	5%
Each additional color (per side)	5%	4%	3%	2%	2%
Two Color Equipment					
Two colors, one side	—	—	5%	4%	3%
Two colors, work and turn or work and tumble	—	—	8%	6%	5%
Each additional two colors (per side)	—	—	3%	2%	2%
Four Color Equipment					
Four colors, one side only	—	—	—	6%	5%
Four colors, work and turn or work and tumble	—	—	—	8%	7%
Bindery Spoilage					
Folding, stitching, trimming	4%	3%	3%	2%	2%
Cutting, punching or drilling	2%	2%	2%	2%	2%
Varnishing and gumming	7%	5%	4%	3%	3%

The chart below includes waste for core, wrappers and damaged paper which is estimated at 2½%.

The chart is for blanket-to-blanket presses running two colors on two sides of the web, on uncoated paper 40 to 60 lbs., and using one folder. The chart includes makeready spoilage.

WEB OFFSET

	Waste % of Total Impressions
Press Run	
Up to 25M	18
Over 25M to 50M	15
Over 50M to 100M	13
Over 100M to 200M	11
Over 200M	9
Penalties to be added:	
For each additional web over 1	1
For using 2 folders	1
For 3, 4 or 5 colors	1
For Coated Paper	5
For Light Papers under 40#	2
For Heavy Papers over 60#	2

*These 1979 paper spoilage allowance charts have been reproduced through the courtesy of the "Printing Industries of Metropolitan New York" and demonstrate how paper spoilage is calculated by printers belonging to this association.

Warren Printing Papers

LUSTERKOTE COVER
Lusterkote is a cast coated paper with a glossy mirror-like finish on one side and a coated surface on the other. We recommend this grade for prestigious brochure covers, table tents, product bulletins and where the cast coated surface is needed to provide the ultimate in printed reproduction. It is available for sheet and web offset lithography.

CAMEO GLOSS
Cameo Gloss is a premium-quality coated paper that possesses a high degree of brightness and gloss. Metallic inks, gloss inks, press varnish and protective coatings show to advantage on this paper. Available in book and cover weights.

CAMEO DULL
A premium quality coated paper embodying a high degree of brightness. An exceptionally fine surface for combining legibility of type and precision color work. It is also manufactured in Saxony finish. It is available in cover and book weights, for sheet or web offset printing.

LUSTRO
Lustro is a quality coated sheet designed for sheet-fed or web lithography and has the refinement and levelness to support quality halftone printing, plus excellent ink holdout for high quality process color reproduction. It is available in Gloss, Dull and Saxony finishes and a special cream shade, book and cover weights.

FLOKOTE
Flokote is an unique kind of coated paper with a bulk that exceeds coated papers that are conventionally calendered. Plus it gives you brilliant ink gloss and excellent press performance. It is manufactured in book and cover weights for sheet-fed or web offset printing.

WARRENFLO
Warrenflo is a complete line of coated papers with a high bulk to weight ratio. This new printing surface offers excellent printability, foldability and gloss ink holdout in addition to the exclusive advantage of a higher bulk at a lower weight. Warrenflo is available in book and cover weights for sheet-fed or web offset printing.

PATINA
A bright white paper with a refined coated matte surface for sheet-fed or web offset lithography. Recommended for quality reproduction of work normally planned for wove offset. Patina is manufactured in book and cover weights.

OLDE STYLE
Olde Style is a well established, distinctive wove finish paper noted for its refinement and pleasing texture. This water marked grade is suitable for type and line sheet-fed and web offset printing. An important feature of Olde Style is its built-in permanence. It is manufactured in book weights in white.

"1854"
A mellow text paper manufactured primarily for book publishing end use where thin bulk is a requirement. Suitable for sheet-fed and web offset lithography. Permanence is a desirable feature of this grade. Available in Regular and Medium finishes in a cream shade.

NO. 66
A high bulking antique paper manufactured primarily for book publishing end use. This grade is suitable for sheet-fed and web offset lithography. Permanence is a desirable feature of this grade. No. 66 is manufactured in Antique and Eggshell finishes, in a cream shade.

WEB OFFSET

CAMEO WEB DULL
A premium quality paper of exceptional uniformity and brightness — free of glare. Suitable for prestige advertising and promotional pieces.

LUSTRO WEB
A quality web grade available in Gloss and Dull finishes. Our traditional highly refined coated surface suitable for high quality printing.

FLOKOTE WEB
This grade is made by the Warrenflo process® and provides more bulk than conventional coateds of the same weight. Permits savings in weight without sacrificing bulk or printing quality.

WARRENFLO WEB
Warrenflo Web is available in text and cover weights. This grade offers higher bulk to weight plus excellent print quality and runnability at an economical price.

PATINA WEB
Recommended for quality reproduction of work normally planned for wove offset. Patina Web is manufactured in book weights.

WEBFLO
An economical high bulk to weight product designed for long run work where coated quality is a requirement. This grade offers excellent ink hold out and press runnability.

Sheet Stocking Information

Cameo Dull

Size	80 lbs.	100 lbs.	Cartons
19 X 25	2,000 80		
23 X 29	1,300 112	1,000 140	
23 X 35	1,100 136	900 169	
24 X 36	1,000 146	800 182	
25 X 38	1,000 160	800 200	
35 X 45	600 266	500 332	
38 X 50	500 320	400 400	

Cameo Dull

Size	80 lbs.	100 lbs.	Skids
23 X 35	19,000 136	15,000 169	
24 X 36	18,000 146	14,000 182	
25 X 38	16,000 160	13,000 200	
38 X 50		6,000 400	

Cameo Dull Cover

Size	60 lbs.	80 lbs.	100 lbs.	Cartons
20 X 26	1,200 120	1,000 160		
23 X 35	800 186	600 248	500 310	
25 X 38	700 220	500 292	400 366	
26 X 40	600 240	500 320	400 400	
35 X 46	400 372	300 496		

Cameo Dull Cover

Size	80 lbs.	Skids
23 X 35	10,000 248	
25 X 38	9,000 292	
26 X 40	8,000 320	

Cameo Gloss

Size	80 lbs.	100 lbs.	Cartons
23 X 29	1,300 112		
23 X 35	1,100 136	900 169	
25 X 38	1,000 160	800 200	
35 X 45		500 332	
38 X 50	500 320	400 400	

Cameo Gloss Cover

Size	60 lbs.	80 lbs.	Cartons
20 X 26		1,000 160	
23 X 29		700 205	
23 X 35	800 186	600 248	
25 X 38		500 292	
26 X 40	600 240	500 320	

Note: Information for each item includes the number of sheets per carton or skid on the first line and the M weight on the second line.

Flokote

Size	70 lbs.	80 lbs.	100 lbs.	Cartons
17.5 X 22.5	2,400 58	2,400 66		
19 X 25	2,000 70	2,000 80	1,600 100	
23 X 29	1,600 98	1,300 112	1,000 140	
23 X 35	1,200 119	1,100 136	900 169	
24 X 36	1,200 128	1,000 146	800 182	
25 X 38	1,000 140	1,000 160	800 200	
35 X 45	600 232	600 266	500 332	
38 X 50	500 280	500 320	400 400	

Flokote

Size	70 lbs.	80 lbs.	100 lbs.	Skids
23 X 29	26,000 98	23,000 112	18,000 140	
23 X 35	21,000 119	19,000 136	15,000 169	
24 X 36	20,000 128	18,000 146	14,000 182	
25 X 38	18,000 140	16,000 160	13,000 200	
35 X 45	11,000 232	9,500 266		
38 X 50	9,000 280			

Flokote Cover

Size	55/6 pt.	68/8 pt.	Cartons
20 X 26		1,100 136	
23 X 29	1,000 141	900 174	
23 X 35	900 170	700 211	
25 X 38	800 200	600 248	
26 X 40	700 220	600 272	
35 X 46	400 340	400 422	

Lusterkote Cover/1 Side

Size	8 pt.	10 pt.	12 pt.	Cartons
20 X 26	1,000	800	700	
23 X 29	700	600	500	
23 X 35	600	500	400	
35 X 23	600	500	400	
25 X 38	500	400	400	
26 X 40	500	400	350	
40 X 26		400		
35 X 46	300	250		

Lustro Dull

Size	70 lbs.	80 lbs.	100 lbs.	Cartons
17.5 X 22.5		2,400 66		
19 X 25		2,000 80	1,600 100	
23 X 29	1,600 98	1,300 112	1,000 140	
23 X 35	1,200 119	1,100 136	900 169	
24 X 36		1,000 146	800 182	
25 X 38	1,000 140	1,000 160	800 200	
35 X 45	600 232	600 266	500 332	
38 X 50		500 320	400 400	

Lustro Dull

Size	70 lbs.	80 lbs.	100 lbs.	Skids
23 X 35	21,000 119	19,000 136	15,000 169	
24 X 36		18,000 146	14,000 182	
25 X 38	18,000 140	16,000 160	13,000 200	

Sheet Stocking Information

Lustro Dull Cover

Size	80 lbs.	100 lbs.	Cartons
20 X 26	1,000 160		
23 X 29	700 205		
23 X 35	600 248	500 310	
25 X 38	500 292	400 366	
26 X 40	500 320	400 400	

Lustro Dull Cover

Size	80 lbs.	Skids
23 X 35	10,000 248	
25 X 38	9,000 292	

Lustro Dull Cream

Size	80 lbs.	100 lbs.	Cartons
23 X 35	1,100 136	900 169	
25 X 38	1,000 160	800 200	
35 X 45	600 266	500 332	
38 X 50	500 320	400 400	

Lustro Dull Cream

Size	80 lbs.	Skids
23 X 35	19,000 136	
25 X 38	16,000 160	

Lustro Dull Cover Cream

Size	80 lbs.	Cartons
20 X 26	1,000 160	
23 X 35	600 248	
25 X 38	500 292	
26 X 40	500 320	

Lustro Gloss

Size	70 lbs.	80 lbs.	100 lbs.	Cartons
17.5 X 22.5	2,400 58	2,400 66		
19 X 25	2,000 70	2,000 80	1,600 100	
23 X 29	1,600 98	1,300 112	1,000 140	
23 X 35	1,200 119	1,100 136	900 169	
24 X 36	1,200 128	1,000 146	800 182	
25 X 38	1,000 140	1,000 160	800 200	
35 X 45	600 232	600 266	500 332	
38 X 50	500 280	500 320	400 400	

Lustro Gloss

Size	70 lbs.	80 lbs.	100 lbs.	Skids
19 X 25		32,000 80		
23 X 29	26,000 98	23,000 112	18,000 140	
23 X 35	21,000 119	19,000 136	15,000 169	
24 X 36	20,000 128	18,000 146	14,000 182	
25 X 38	18,000 140	16,000 160	13,000 200	
35 X 45		9,500 266		
38 X 50	9,000 280	8,000 320		

Lustro Gloss Cover

Size	60 lbs.	80 lbs.	100 lbs.	Cartons
20 X 26	1,200 120	1,000 160	800 200	
23 X 29		700 205	600 257	
23 X 35	800 186	600 248	500 310	
35 X 23		600 248		
25 X 38	700 220	500 292	400 366	
26 X 40	600 240	500 320	400 400	
35 X 46		300 496		

Lustro Gloss Cover

Size	80 lbs.	100 lbs.	Skids
20 X 26		13,000 200	
23 X 35	10,000 248	8,000 310	
25 X 38	9,000 292	7,000 366	
26 X 40	8,000 320		
35 X 46	5,000 496		

Lustro Saxony

Size	70 lbs.	80 lbs.	100 lbs.	Cartons
19 X 25	2,000 70	2,000 80		
23 X 29		1,300 112		
23 X 35	1,200 119	1,100 136	900 169	
25 X 38		1,000 160	800 200	
35 X 45		600 266		
38 X 50		500 320		

Lustro Saxony

Size	80 lbs.	Skids
25 X 38	16,000 160	

Lustro Saxony Cover

Size	80 lbs.	Cartons
20 X 26	1,000 160	
23 X 35	600 248	
25 X 38	500 292	
26 X 40	500 320	

Olde Style

Size	50 lbs.	60 lbs.	70 lbs.	Cartons
25 X 38	1,600 100	1,200 120	1,000 140	
35 X 45		800 198	600 232	
50 X 38	800 200	600 240	500 280	

Patina

Size	50 lbs.	60 lbs.	70 lbs.	80 lbs.	100 lbs.	Cartons
17.5 X 22.5		3,200 50	2,400 58	2,400 66		
19 X 25		2,400 60	2,000 70	2,000 80		
23 X 29		1,800 84	1,600 98	1,300 112	1,000 140	
23 X 35	1,800 85	1,500 102	1,200 119	1,100 136	900 169	
24 X 36		1,400 110	1,200 128	1,000 146		
25 X 38	1,600 100	1,200 120	1,000 140	1,000 160	800 200	
35 X 45	900 166	800 198	600 232	600 266	500 332	
38 X 50		600 240	500 280	500 320		

Sheet Stocking Information

Patina

Size	50 lbs.	60 lbs.	70 lbs.	80 lbs.	100 lbs.	Skids
23 X 35	30,000 85	25,000 102	21,000 119	19,000 136	15,000 169	
24 X 36		23,000 110	20,000 128	18,000 146		
25 X 38	25,000 100	21,000 120	18,000 140	16,000 160	13,000 200	
35 X 45	15,000 166	13,000 198	11,000 232			

Patina Cover

Size	65 lbs.	Cartons
20 X 26	1,200 130	
23 X 35	700 201	
25 X 38	600 238	
26 X 40	600 260	
35 X 46	400 402	

Patina Postcard

Size	7 pt.	Cartons
23 X 29	1,000 141	
23 X 35	900 170	
25 X 38	800 200	

Warrenflo

Size	60 lbs.	70 lbs.	80 lbs.	100 lbs.	Cartons
17.5 X 22.5	3,200 50	2,400 58	2,400 66		
19 X 25	2,400 60	2,000 70	2,000 80	1,600 100	
23 X 29	1,800 84	1,600 98	1,300 112	1,000 140	
23 X 35	1,500 102	1,200 119	1,100 136	900 169	
24 X 36	1,400 110	1,200 128	1,000 146		
25 X 38	1,200 120	1,000 140	1,000 160	800 200	
35 X 45	800 198	600 232	600 266		
38 X 50	600 240	500 280	500 320		

Warrenflo

Size	60 lbs.	70 lbs.	80 lbs.	100 lbs.	Skids
23 X 29		26,000 98	23,000 112		
23 X 35	25,000 102	21,000 119	19,000 136		
24 X 36	23,000 110	20,000 128	18,000 146		
25 X 38	21,000 120	18,000 140	16,000 160	13,000 200	
35 X 45		11,000 232	9,500 266		
38 X 50		9,000 280	8,000 320		

Warrenflo Cover

Size	55/6 pt.	63/7 pt.	68/8 pt.	82/10 pt.	Cartons
20 X 26		1,200 126	1,100 136	1,000 164	
23 X 29		1,000 162			
23 X 35	900 170	800 195	700 211	600 254	
25 X 38		600 230	600 248	500 300	
26 X 40	700 220	600 252	600 272	500 328	

Roll Stocking Information*

MOBILE

Warrenflo Web Roll Width	60 lbs.	70 lbs.
17½	K591	K594
18	K592	K595
23	K593	K596
23½	K576	K526
35½	K577	K527

MUSKEGON

Lustro Web Gloss Roll Width	70 lbs.	80 lbs.
17½	K603	K606
18	K604	K607
23	K605	K608
23½	K507	K509
35½	K508	K510

Lustro Web Dull Roll Width	70 lbs.	80 lbs.
17½	K609	K612
18	K610	K613
23	K611	K614
23½	K518	K520
35½	K519	K521

Patina Web Roll Width	70 lbs.	80 lbs.	100/7 pt.
17½	K615	K619	K623
18	K616	K620	K624
23	K617	K621	K625
23½	K618	K622	K626
35½	K516	K517	K627

WESTBROOK

Flokote Web Roll Width	70 lbs.	80 lbs.
17½	K628	K631
18	K629	K632
23	K630	K633
23½	K522	K524
35½	K523	K525

Warrenflo Web Roll Width	70 lbs.	80 lbs.	100/6 pt.
17½	K594	K597	K600
18	K595	K598	K601
23	K596	K599	K602
23½	K526	K578	K529
35½	K527	K528	K530

Warrenflo Web Cover Roll Width	63/7 pt.
17½	K634
18	K635
23	K636
23½	K637
35½	K638

*The stock number is designated by a "K" prefix.

Warren Paper Merchants

ALABAMA	
Birmingham	Sloan Paper Co.
Mobile	Strickland Paper Co.
	Unijax, Inc.
Montgomery	Weaver Paper Co.
ALASKA	
Anchorage	Zellerbach Paper Co.
ARIZONA	
Phoenix	Zellerbach Paper Co.
ARKANSAS	
Little Rock	Western Paper Co.
CALIFORNIA	
Fresno	Zellerbach Paper Co.
Los Angeles	Zellerbach Paper Co.
Sacramento	Zellerbach Paper Co.
San Diego	Zellerbach Paper Co.
San Francisco	Zellerbach Paper Co.
COLORADO	
Colorado Springs	Dixon Paper Co.
Denver	Carpenter Paper Co.
	Dixon Paper Co.
	Zellerbach Paper Co.
Grand Junction	Dixon Paper Co.
Pueblo	Dixon Paper Co.
CONNECTICUT	
Hartford	Carter Rice Storrs & Bement
	Lindenmeyr Paper Corp.
New Haven	Carter Rice Storrs & Bement
DISTRICT OF COLUMBIA	
Washington	Stanford Paper Co.
	Virginia Paper Co.
FLORIDA	
Jacksonville	Virginia Paper Co.
Miami	Palmer Paper Co.
	Virginia Paper Co.
Orlando	Palmer Paper Co.
	Virginia Paper Co.
Tampa	Palmer Paper Co.
	Virginia Paper Co.
GEORGIA	
Atlanta	Sloan Paper Co.
	Virginia Paper Co.
Columbus	Sloan Paper Co.
HAWAII	
Honolulu	HOPACO
	Zellerbach Paper Co.
IDAHO	
Boise	Dixon Paper Co.
	Zellerbach Paper Co.
ILLINOIS	
Champaign	Crescent Paper Co.
Chicago	Bradner Smith & Co.
	Chicago Paper Co.
	Hobart-McIntosh Paper Co.
	LaSalle Messinger Paper Co.
	Marquette Paper Corp.
	Midland Paper Co.
Peoria	Tobey Peoria Paper Co.
Rock Island	Leslie Paper
INDIANA	
Fort Wayne	Taylor-Martin Paper Co., Inc.
Indianapolis	C.P. Lesh Paper Co.
	Crescent Paper Co.
South Bend	C.P. Lesh Paper Co.
IOWA	
Ceder Rapids	Midwestern Paper Co.
Des Moines	Midwestern Paper Co.
KANSAS	
Wichita	Western Paper Co.
KENTUCKY	
Lexington	Southern Paper Co.
Louisville	Louisville/Southeastern Paper Co.
LOUISIANA	
Baton Rouge	Consolidated Marketing, Inc.
Lafayette	Consolidated Marketing, Inc.
New Orleans	Consolidated Marketing, Inc.
	Palmer Paper Co.
Shreveport	Consolidated Marketing, Inc.
	Western Paper Co.
MAINE	
Portland	C.M. Rice Paper Co.
	C.H. Robinson Co.
MARYLAND	
Baltimore	Baltimore-Warner Paper Co., Inc.
	The Barton, Duer & Koch Paper Co.
Columbia	Wilcox Walter Furlong Paper Co.
MASSACHUSETTS	
Boston	Carter Rice Storrs & Bement
	The Century Paper Co., Inc.
	Lindenmeyr Paper Co.
Springfield	Carter Rice Storrs & Bement
Worcester	Carter Rice Storrs & Bement
MICHIGAN	
Detroit	Chope-Stevens Paper Co.
	Seaman-Patrick Paper Co.
Grand Rapids	Carpenter Paper Co.
	Quimby-Walstrom Paper Co.
Lansing	Copco-Dudley Papers
Saginaw	Copco-Dudley Papers
MINNESOTA	
Minneapolis	Leslie Paper
St. Paul	Inter-City Paper Co.
MISSISSIPPI	
Jackson	Sloan Paper Co.
MISSOURI	
Kansas City	Midwestern Paper Co.
	Tobey Fine Papers
St. Louis	Shaughnessy-Kniep-Hawe Paper Co.
	Tobey Fine Papers
MONTANA	
Billings	Dixon Paper Co.
NEBRASKA	
Lincoln	Carpenter Paper Co.
Omaha	Carpenter Paper Co.
	Field Paper Co.
NEVADA	
Las Vegas	Zellerbach Paper Co.
Reno	Zellerbach Paper Co.
NEW HAMPSHIRE	
Concord	C.M. Rice Paper Co.
NEW JERSEY	
East Rutherford	Bulkley Dunton Linde Lathrop, Inc.
Newark	Central Paper Co.
Rutherford	Lindenmeyr Paper Corp.
Trenton	Central Paper Co.

NEW MEXICO	
Albuquerque	Dixon Paper Co.
NEW YORK	
Albany	Hudson Valley Paper Co.
Binghamton	Hudson Valley Paper Co.
	Seneca Paper Co.
Buffalo	Alling and Cory
	Seneca Paper Co.
New York City	Alling and Cory
	Baldwin Paper Co., Inc.
	Bulkley Dunton Linde Lathrop, Inc.
	Lindenmeyr Paper Corp.
	Marquardt & Co., Inc.
Rochester	Alling and Cory
	Seneca Paper Co.
Syracuse	Alling and Cory
	Seneca Paper Co.
Utica	Alling and Cory
NORTH CAROLINA	
Charlotte	Caskie Paper Co., Inc.
	Dillard Paper Co.
	Virginia Paper Co.
Greensboro	Dillard Paper Co.
	Virginia Paper Co.
Raleigh	Dillard Paper Co.
	Virginia Paper Co.
Wilmington	Dillard Paper Co.
Winston-Salem	Dillard Paper Co.
OHIO	
Akron	Alling and Cory
Cincinnati	The Diem & Wing Paper Co.
	Nationwide Papers
Cleveland	Alling and Cory
	Cleveland Paper Co.
Columbus	Cordage of Columbus
Dayton	The Diem & Wing Paper Co.
Toledo	Commerce Paper Co.
OKLAHOMA	
Oklahoma City	Western Paper Co.
Tulsa	Mead Merchants
	Western Paper Co.
OREGON	
Portland	Zellerbach Paper Co.

PENNSYLVANIA	
Allentown	Alling and Cory
	Lehigh Valley Paper Corp.
Erie	Alling and Cory
Harrisburg	Alling and Cory
Philadelphia	Alling and Cory
	Lindenmeyr Paper Co.
Pittsburgh	Alling and Cory
Scranton	Alling and Cory
RHODE ISLAND	
Pawtucket	Carter Rice Storrs & Bement
Rumford	The Rourke-Eno Paper Co., Inc.
SOUTH CAROLINA	
Columbia	Dillard Paper Co.
	Virginia Paper Co.
Greenville	Caskie Paper Co., Inc.
	Dillard Paper Co.
TENNESSEE	
Bristol	Dillard Paper Co.
Chattanooga	Sloan Paper Co.
	Southern Paper Co.
Knoxville	Dillard Paper Co.
	Southern Paper Co.
Memphis	Western Paper Co.
Nashville	Athens Paper
	Clements Paper Co.
TEXAS	
Amarillo	Dixon Paper Co.
Austin	Monarch Paper Co.
Dallas	Monarch Paper Co.
	Olmsted-Kirk Paper Co.
El Paso	Dixon Paper Co.
Fort Worth	Olmsted-Kirk Paper Co.
Houston	Bosworth Papers, Inc.
	Monarch Paper Co.
	Olmsted-Kirk Paper Co.
Lubbock	Dixon Paper Co.
San Antonio	Monarch Paper Co.
Waco	Olmsted-Kirk Paper Co.

UTAH	
Salt Lake City	Dixon Paper Co.
	Zellerbach Paper Co.
VERMONT	
Burlington	Hudson Valley Paper Co.
VIRGINIA	
Bristol	Dillard Paper Co.
Lynchburg	Caskie Paper Co., Inc.
Norfolk	Dillard Paper Co.
Richmond	Dillard Paper Co.
	Virginia Paper Co.
Roanoke	Dillard Paper Co.
WASHINGTON	
Seattle	Zellerbach Paper Co.
Spokane	Zellerbach Paper Co.
WEST VIRGINIA	
Charleston	Alling and Cory
Fairmont	Alling and Cory
WISCONSIN	
Appleton	Universal Paper Corp.
Brookfield	Reliable Paper Co.
Madison	Universal Paper Corp.
New Berlin	Universal Paper Corp.
EXPORT AND FOREIGN	
New York, N.Y.	Moller & Rothe, Inc.
Canada	
Calgary	Barber-Ellis
Edmonton	Barber-Ellis
Montreal	Lauzier Little, Inc.
Ottawa	Buntin Reid Paper
Regina	Barber-Ellis
Saskatoon	Barber-Ellis
Toronto	Buntin Reid Paper
Vancouver	Barber-Ellis
Winnipeg	Barber-Ellis
Australia	Edwards Dunlop and B.J. Ball

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WARREN

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