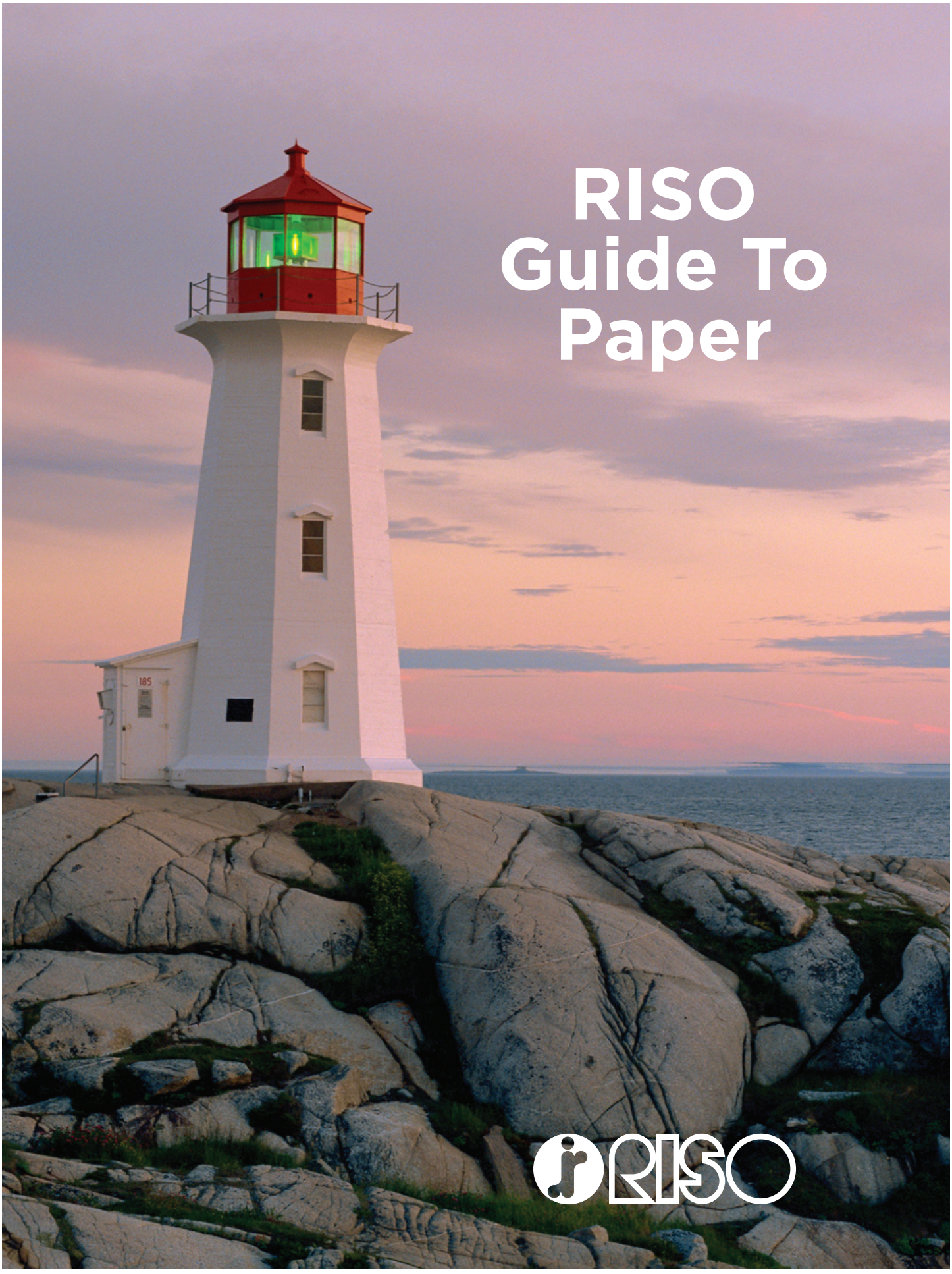

RISO Guide To Paper

RISO

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RISO Guide To Paper

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The World of Paper

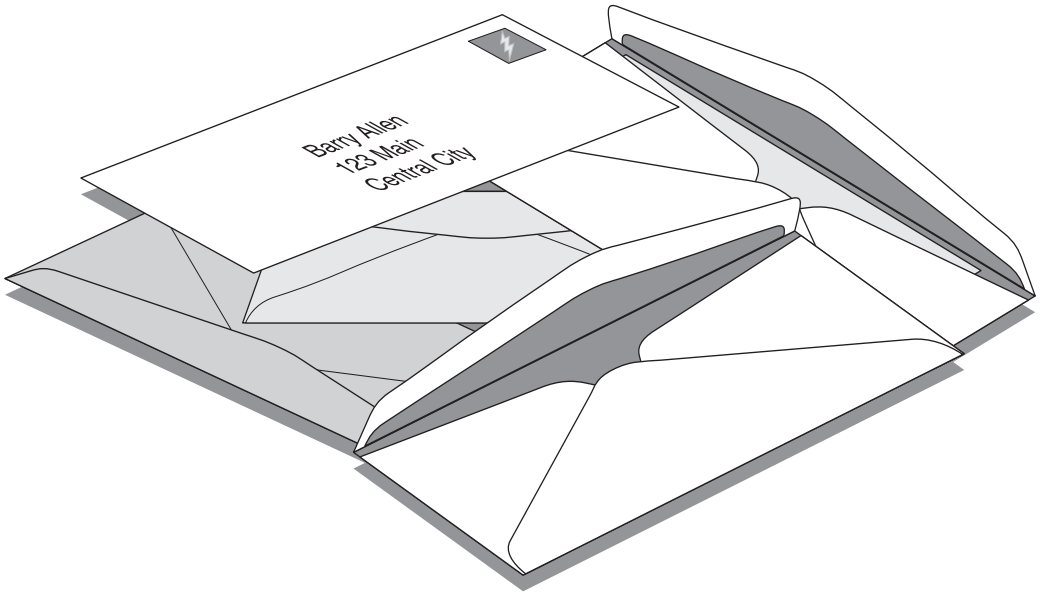
The Purpose of this Guide

The paper chosen for any printing job has a significant effect and impact on the quality of the finished product. This is true for output printed on a copier, offset press, laser printer, RISO digital duplicator, or RISO ComColor Printer. Therefore, everyone involved in the printing process should possess a basic knowledge of paper characteristics as they can have a critical effect on the appearance and the ability to print a job.

The objective of this guide is to familiarize you with the types of papers that are available, and explain paper compatibility when used with the RISO Printers. This guide will help you choose the best papers for each printing application.

The "RISO Guide To Paper" starts with with a comprehensive glossary with in-depth explanations of paper terminology. Subsequent sections discuss paper Selection Tips, Paper Storage and Handling Suggestions, and Recycled papers. Sections on paper weight and a handy envelope guide complete the first section. The next two sections focus on the uniqueness and benefits of the RISO digital duplicator and the RISO ComColor Printer.

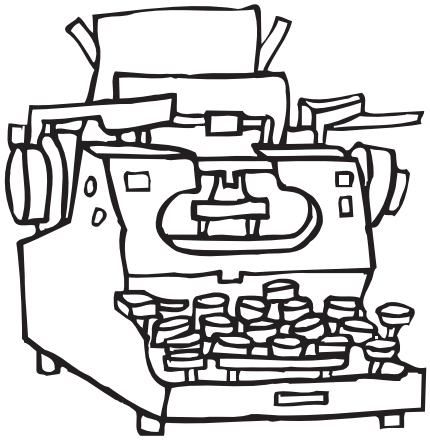
This format is designed to get you off and running quickly with an understanding of paper and its effect on your output. The more educated you are, the more you can inform your staff so they will be equipped to use RISO Printers to their fullest potential. Use this document as a resource when purchasing paper so you'll have the information that you need at your fingertips.



Glossary of Paper Terms

Antique — A rough finish created by reducing pressure at the press section of the paper machine and with little calendering. This term describes a rougher than usual finish when used as a prefix, (such as Antique Vellum, Antique Eggshell, etc.).

Basis weight — This is the standard method of categorizing paper. Although sheets of paper are sold in different sizes, there is a basic size for each category which is used to calculate the basis weight. For example, a basic size of 17″ x 22″ is used to calculate the basis weight and the price of a bond paper. The basis weight is calculated on 500 sheets, so a label that reads "17″ x 22″ - 20 lb," means that 500 sheets of 17″ x 22″ paper have a weight of 20 lb.



Bond papers (basic size 17″ x 22″) — This is the paper most often used in an office for letters and business forms. A durable multi-purpose paper that withstands repeated folding, bond is used for writing, typing, correspondence, and photocopying. Bond may contain cotton, chemical pulp, or a combination of the two, and is often referred to as "writing" paper. Its basic size is 17″ x 22″ and its basis weights are 20 lb or 24 lb; 500 sheets of bond paper weigh 20 lb or 24 lb.

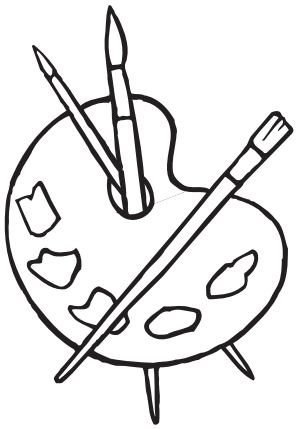
Brightness — Affects the contrast and brilliance of the printed subject. It is the measurement of quantity of light reflected by the paper. Artificial brighteners can affect color reproduction since most are not neutral in color and have excess blue reflectance. If the paper is too bright, the sheet can cause eyestrain. If too dull, the paper will lack contrast and not be easily read. The most suitable paper for color reproduction is the neutral white because color printed on it will be the most balanced, without having a bluish or yellowish tint.

Bristol papers (basic size $22^1/_2$″x $28^1/_2$″) — A light cardboard made from chemical pulp, bristol comes in a variety of colors and textures. Its strength and durability make it ideal for high-speed folding, stamping and embossing. Bristol is particularly suited for printed pieces that will be handled frequently. Its basic size is $22^1/_2$″ x $28^1/_2$,″ with basis weights varying from 74 lb to 140 lb.

Calendering — A process on the paper machine whereby paper is run between polished steel rolls to give desired smoothness. Uncoated paper is calendered in this sequence: Vellum (roughest), Antique, Wove, Smooth (smoothest).

Glossary of Paper Terms (continued)

Coated papers (25″ x 38″) — When high printing quality is desired, this paper's greater surface smoothness and uniform ink receptivity make it ideal. Coated printing papers are available coated one side only for labels, packaging and covers; or coated two sides for books, publications, and commercial printing. This type of paper is not applicable for the RISO digital duplicator because the ink cannot be absorbed into the paper.



Color — A characteristic achieved by dying paper in various hues, often in shades exclusive to a particular mill. Paper color affects readability and color reproduction. Even white papers have color, varying in tone from blue to yellow to pink. Type is more easily read when printed on a soft white sheet, while black colors reproduce most accurately on neutral white paper. Paper with good color characteristics will produce excellent results.

Cover papers (basic size 20″ x 26″) — Used to complement text papers, cover papers are heavier and stiffer in order to protect their contents. At the same time, they exhibit all the aesthetic characteristics of text papers: attractive colors, textures, and finishes. Special characteristics of cover pages include dimensional stability, durability, uniform printing surface, good scoring, folding, embossing, and die-cutting qualities. Cover papers may also be used for invitations, business cards, and business reply cards. It is a useful rule of thumb that cover stock of the same basis weight as text paper has about twice the thickness. Their basic size is 20″ x 26″, with basis weights ranging from 50# to 80#. Due to the RISO digital duplicator's ability to feed and print on a wide range of paper weights, cover papers are frequently used with the RISO digital duplicator for many applications.

Dirt — Loose material from all manufacturing sources, such as slitter and trimmer dust, lint, starch, anti-setoff spray, loose coating pigments or fillers, or loosely bonded fibers on the surface can contribute to poor copy quality when dust transfers onto the master or paper plate of a RISO digital duplicator.

Index papers (basic size $22^{1}/_{2}$″ x 35″) — These papers have two outstanding characteristics — stiffness and receptivity to writing ink. Commonly used whenever an inexpensive stiff paper is required. Basis weights are 90 lb, 110 lb, and 140 lb. Due to its hard smooth surface there is not enough ink receptivity to allow for absorption, therefore, index is not a suggested paper for the RISO digital duplicator. If used with Thermography, though, this paper would be very acceptable.

Glossary of Paper Terms (continued)

Ink holdout — The ability of paper to keep ink on its surface rather than absorb into the sheet. For example, paper with good ink holdout would require less ink and exhibit less "feathering" than a highly absorbent paper. Since the RISO digital duplicator ink dries primarily through absorption, too much holdout would not be recommended. A balance between paper absorbency and holdout is preferable for acceptable print quality.

Laid — A paper finish produced by the pressure of a dandy roll — a wire mesh roll located on the wet end of a paper machine used to mark paper with a finish or watermark — which produces markings of lines across the grain of the paper.

Lightweight papers — Such as onionskin and Bible paper, these stocks are specialty grades that have been produced for years. Recently, increasing mailing costs have encouraged the development and use of lighter-weight newsprint and magazine papers. These lightweight papers will perform well with the RISO digital duplicator as long as the finish allows for the ink to be absorbed.

Newsprint (basic size 24" x 36") — Used in printing newspapers and primarily made up of groundwood pulp, with some chemical pulp. It is made in basis weights from 28 to 35 lb., with 30 lb. being the most popular. This paper stock performs well with the RISO digital duplicator.

Offset papers (basic size 25" x 38") — The most common sheet used for flyers and commercial printing, offset papers are made from chemical pulp to which starch is added for better offset press performance. This "sizing" helps the paper resist the slight moisture present in offset printing. A separate treatment also makes this paper tear-resistant. These also come in a range of colors, finishes and basis weights. Offset papers have a basic size of 25" x 38", and basis weights ranging from 40 lb to 100 lb. Offset papers are made to perform with ink; therefore, they work well with the RISO digital duplicator.

Glossary of Paper Terms (continued)

Opacity — The paper's ability to stop the transmission of light. When printing images on both sides of a sheet of paper, it is essential that the reverse image is not seen from the front of the sheet. This is known as "show through" and occurs when the paper is insufficiently opaque. Opaque papers are recommended for duplexing and for multi-color work. Opaque papers are available in smooth and vellum finishes and matching cover stock is also available thus offering variety. Usually, the lower the basis weight (20# versus 24#), the less opacity. When duplexing or printing in color with the RISO digital duplicator, as with other printing methods, it is recommended that an opaque paper of higher basis weight be used in order to avoid showthrough.

Paper gloss — The shiny and lustrous appearance due to the addition of coating and calendering in manufacturing. Due to its hard surface and the inability of the paper to absorb the ink, glossy paper is not recommended for use with the RISO digital duplicator.

Paper grades — Paper may be defined in terms of its use. Each grade serves a purpose, usually suggested by its grade name. Some of the most common classifications of printing papers are bond, coated, text, cover, book, offset, index, label, tag, and newsprint.

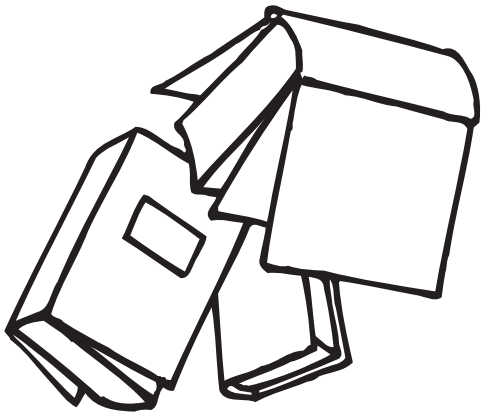
Paper-ink affinity — Affects ink drying, setoff, absorbency, and ink holdout. Ink absorbency and holdout are related. For example, if paper absorbs too much ink (as in newsprint) the images appear weak and flat. If absorbency is slow, the ink sets near the surface and dries more slowly. This is called holdout.

Runnability — An important factor that affects the printing of papers by any process is runnability. Runnability affects the ability to feed the paper and failures in runnability can cause downtime.

Glossary of Paper Terms (continued)

Sizing — The treatment of paper which gives it resistance to the penetration of liquids (particularly water) or vapors. Internal sizing helps to determine the rate at which paper absorbs moisture. External sizing helps glue down the fibers and enhances the prospect of a clean print job.

Smoothness — A surface characteristic relating to the flatness of a sheet, which affects ink receptivity. Smooth surfaces have irregularities that cannot be seen by the naked eye but can be detected by a magnifying glass. As smoothness decreases, solids and halftones get sandy and rough in appearance but type is not affected much. Smoothness is essential for achieving maximum print contrast. The RISO digital duplicator produces good quality output on smooth paper, as long as the paper isn't so smooth as to not allow ink absorption.



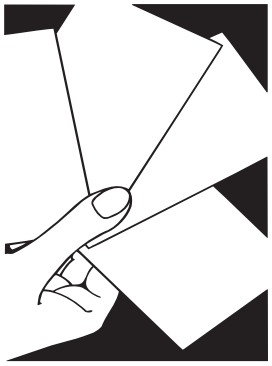
Text papers (basic size 25″ x 38″) — These are the most popular papers because they offer the widest range of colors and textures. The finish may be vellum, smooth, linen, or laid. Text papers are commonly used for promotional materials, and are used with their matching cover counterparts to produce brochures, reports and books. Their basic size is 25″ x 38″, with basis weights varying between 60 lb and 80 lb. Text papers with finishes best suited for use with the RISO digital duplicator (vellum, laid or smooth) typically perform well.

Trimming — Sheets should be square and accurate in size to properly feed.

Vellum — Vellum finish papers possess a fine, toothy surface which is relatively absorbent for fast ink penetration.

Paper Selection Tips

Are there other papers worth testing with RISO Printers?



Certainly! To find other papers that perform well with RISO Printers, here are a few suggestions:

1. Check the yellow pages for local paper merchants (be sure they handle a fine paper line). It is important to purchase your paper through a reputable distributor to ensure the best possible quality paper for peak performance and acceptable output.

2. Develop a good relationship with one or two merchants. Tell them about the RISO digital duplicator and ComColor Printer. Get them involved and interested about your printing technology and they will be able to assist and recommend suitable paper for you.

3. Ask merchants to send you sample booklets from several different paper mills. And don't be afraid to ask for their advice.

4. Once you've reviewed the sample booklets and decided on paper, request a few hundred sheets to test print on your RISO Printer prior to purchasing cases of paper. Test your applications before running the entire job.

5. When testing, look for consistently sharp copies, density consistency, good runnability, and minimum setoff.

6. The RISO digital duplicator performs well with papers from all price ranges, allowing for versatility, flexibility, and economy in every printing application. Depending on your application, you may find a variety of papers that work with the ComColor Printer

It is helpful to test several brands from each category. Keep in mind that some paper manufacturers don't sell every brand nationwide, so paper we recommend may not necessarily be available in your area. Ask your paper distributor to recommend an equivalent or alternative paper stock. Almost every style of paper has its share of competitors.

Paper Selection Tips (continued)

What are the best types of papers to use to communicate your message most effectively?

Choose paper that will produce the best possible output for your application. The copy quality must be consistently dense, the paper must be sufficiently opaque and/or heavy enough to avoid showthrough, and the paper should be absorbent enough to eliminate setoff. You also want a high quality paper that is crisp and with enough brightness to produce the best image.

Your paper selection will have a major impact on your message and design, as much as the printed word on the page. Be creative and innovative! Choose a paper with a finish, texture, and color that will convey your message with style and pizazz.

Output Samples

Create a collection of output samples to show the huge variety of applications you can create with RISO digital duplicators and HC ComColor printers. Start by collecting samples of all the jobs you print on your RISO Printers, and store them in sheet protectors in a 3-ring binder. You may find it valuable to add notes on the particular paper you chose, including manufacturer, stock name, weight, and finish. When it comes time to choose paper for your next print job, your output sampler can stimulate creative ideas and improve your overall communication.

Paper Storage and Handling

Does paper require special handling for optimum quality output?

Paper is made of many tubular cellulose fibers which can be easily damaged if the paper is handled badly in manufacturing or by the operator. Paper that is physically damaged could cause misfeeds or poor imaging.

Paper left unwrapped will absorb 90% of the relative humidity of its environment in two minutes. Paper that has picked up excess moisture will tend to "corrugate" or ripple, which makes it difficult to feed.

To avoid these problems, reduce the effects of humidity on paper and know how best to store paper.

- If paper is stored away from the printing area, only unwrap it when it has reached the temperature of the printing area. If cold paper is opened in warm conditions, moisture will condense and cause wavy edges.
- To help reduce curling, allow paper to reach room temperature for at least 24-48 hours before using.
- Never remove paper from its wrapper until you are ready to use it.
- Always protect unwrapped paper, especially during weekends when the temperature of the room can change drastically. If necessary, cover it with a plastic sheet or paper wrappers.

Recycled Papers

In response to growing demand for recycled paper products, paper recycling is increasing worldwide. In the U.S., recycled newsprint has been used for years, but recycled papers for business and commercial printing only came into moderate use during the late 1980s. Driven by concerns over landfill closures and the need to reduce municipal solid waste, shipments of recycled fiber content printing and writing grades of paper are increasing rapidly. While some recycled papers have some appearance or performance differences when compared to their virgin counterparts, most show no noticeable differences.

Recycled Papers (continued)

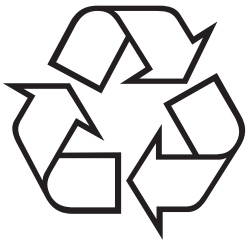
EPA Guidelines — The Environmental Protection Agency defines recycled paper as that made from 50 percent recycled fiber, which can come from two sources: pre-consumer waste or post-consumer waste. Pre-consumer waste is material that is sent back to recycling before it enters the waste cycle. Post-consumer waste includes paper already used by a consumer that has been de-inked, cleaned, and reprocessed. RISO digital duplicators handle recycled paper stocks very well because they are dust tolerant and do not suffer from the selenium drum abrasion problem of photocopiers.

Recycled Paper — Paper that is manufactured with a percentage of recovered materials that would otherwise end up in the waste stream.

Types of Waste — A recycled paper will contain some kind of waste products. There are three basic types, as follows:

- **Mill Waste** — All paper recovered from the paper-making process. This type of waste is not included in the recycled content count. Like post-commercial waste, mill waste has always been recycled.
- **Post Commercial Waste** — The paper waste created from the printing and paper manufacturing process. It might contain unsold paper, or trim from envelopes and binding merchants. Post-commercial waste has been recycled for years. This type of waste is considered in the recycled content count.
- **Post Consumer Waste** — The paper waste created by the end user from general usage (i.e. from businesses, homes, schools, and institutions, etc.) and diverted into a paper-making plant. This type of waste is included in the recycled content count.

Recycling



Recyclable

The recycling symbol, represented by three solid chasing arrows, may be used on products and packages made from recycled paper. It represents the three phases of recycling — collection of recyclable materials, production into new recycled paperboard products and packaging, and consumer recognition of the role recycling plays in society. The recyclable symbol, represented by three hollow chasing arrows, is used on products that can be recycled. When using the three-arrow recyclable symbol or when any other claim to recycled material content is made, manufacturers must indicate the percentage of weight of recycled material contained in the product or package.

Equivalent Weights (based on ream weights)

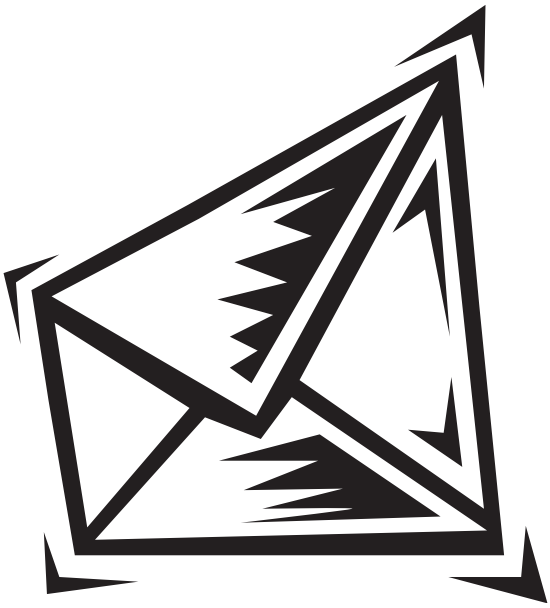
	Book/Text Offset 25" x 38"	Writing Bond/Ledger 17" x 22"	Cover 20" x 26"	Vellum Bristol 22.5" x 28.5"	Index 25.5" x 30.5"	Tag 24" x 36"
Text Book/Offset (Basis weights in shaded area)	30 40 45 50 60 70 80 90 100 120	12 16 18 20 24 28 31 35 39 47	16 22 25 27 33 38 44 49 55 66	20 27 30 34 40 47 54 60 67 80	25 33 37 41 49 57 65 74 82 98	27 36 41 45 55 64 73 82 91 109
Writing Bond/Ledger (Basis weights in shaded area)	33 41 51 61 71 81 91 102	13 16 20 24 28 32 36 40	18 22 28 33 39 45 50 56	22 27 34 41 48 55 62 69	27 33 42 50 58 67 75 83	30 37 46 56 64 74 83 93
Cover (Basis weights in shaded area)	91 110 119 146 164 183 201 219	36 43 47 58 65 72 79 86	50 60 65 80 90 100 110 120	62 74 80 99 111 124 136 148	75 90 97 120 135 150 165 179	82 100 108 134 149 166 183 199
Vellum Bristol (Basis weights in shaded area)	100 120 148 176 207 237	39 47 58 70 82 93	54 65 81 97 114 130	67 80 100 120 140 160	81 98 121 146 170 194	91 109 135 162 189 216
Index (Basis weights in shaded area)	110 135 170 208	43 53 67 82	60 74 93 114	74 91 115 140	90 110 140 170	100 122 156 189
Tag (Basis weights in shaded area)	110 137 165 192 220 275	43 54 65 76 87 109	60 75 90 105 120 151	74 93 111 130 148 186	90 113 135 158 180 225	100 125 150 175 200 250

How To Use This Chart Find the desired basis weight (shaded area) in the paper grade column. Then read across the line (left or right) to find the equivalent weight of the desired paper stock.

Example 70# book is equivalent to 28# bond paper.

RISO Guide To Paper

Envelope Guide



OFFICIAL/COMMERCIAL

Name	Envelope	Enclosure
6 1/4	3 1/2" x 6"	3 1/4" x 5 3/4"
6 3/4	3 5/8 x 6 1/2	3 1/2 x 6 1/4
8 5/8	3 5/8 x 8 5/8	3 1/2 x 8 3/8
7	3 3/4 x 6 3/4	3 1/2 x 6 1/2
monarch (7 3/4)	3 7/8 x 7 1/2	3 3/4 x 7 1/4
9	3 7/8 x 8 7/8	3 3/4 x 8 5/8
10	4 1/8 x 9 1/2	4 x 9 1/4
11	4 1/2 x 10 3/8	4 1/4 x 10 1/8
12	4 3/4 x 11	4 1/2 x 10 3/4
14	5 x 11 1/2	4 3/4 x 11 1/4

BOOKLET

Name	Envelope	Enclosure
3	4 3/4" x 6 1/2"	4 1/2" x 6"
5	5 1/2 x 8 1/8	5 1/4 x 7 5/8
6	5 3/4 x 7 7/8	5 1/2 x 8 3/8
6 1/2	6 x 9	5 3/4 x 8 1/2
6 5/8	6 x 9 1/2	5 3/4 x 9
6 3/4	6 1/2 x 9 1/2	6 1/4 x 9
7 1/2	7 1/2 x 10 1/2	7 1/4 x 10
9	8 3/4 x 11 1/2	8 1/2 x 11
9 1/2	9 x 12	8 3/4 x 11 1/2
10	9 1/2 x 12 5/8	9 3/4 x 12 1/2

CATALOG

Name	Envelope	Enclosure
7 Glove	4" x 6 3/8"	3 3/4" x 5 7/8"
8 Glove	3 7/8 x 7 1/2	3 5/8 x 7
10 Policy	4 1/8 x 9 1/2	3 7/8 x 9
11 Policy	4 1/2 x 10 3/8	4 1/4 x 9 7/8
14 Policy	5 x 11 1/2	4 3/4 x 11
1 Scarf	4 5/8 x 6 3/4	4 3/8 x 6 1/4
3 Scarf	5 x 7 1/2	4 3/4 x 7
4 1/4 Scarf	5 1/2 x 7 1/2	5 1/4 x 7
6 Scarf	5 1/2 x 8 1/4	5 1/4 x 7 3/4
1 Catalog	6 x 9	5 3/4 x 8 1/2
1 3/4 Catalog	6 1/2 x 9 1/2	6 1/4 x 9
3 Catalog	7 x 10	6 3/4 x 9 1/2
6 Catalog	7 1/2 x 10 1/2	7 1/4 x 10
8 Catalog	8 1/4 x 11 1/4	8 x 10 3/4
93/4 Catalog	8 3/4 x 11 1/4	8 1/2 x 10 3/4
10 1/2 Catalog	9 x 12	8 3/4 x 11 1/2
12 1/2 Catalog	9 1/2 x 12 1/2	9 1/4 x 12
13 1/2 Catalog	10 x 13	9 3/4 x 12 1/2
14 1/2 Catalog	11 1/2 x 14 1/2	11 1/4 x 14
15 Catalog	10 x 15	9 3/4 x 14 1/2
15 1/2 Catalog	12 x 15 1/2	11 3/4 x 15

SQUARE

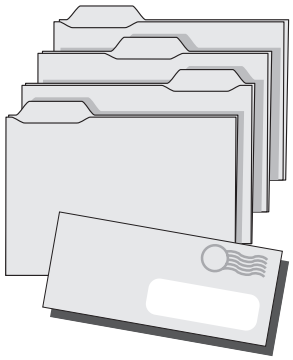
Name	Envelope	Enclosure
6 1/2	6 1/2" x 6 1/2"	6 1/4" x 6 1/4"
7	7 x 7	6 3/4 x 6 3/4
7 1/2	7 1/2 x 7 1/2	7 1/4 x 7 1/4
8	8 x 8	7 3/4 x 7 3/4
8 1/2	8 1/2 x 8 1/2	8 1/4 x 8 1/4
9	9 x 9	8 3/4 x 8 3/4
9 1/2	9 1/2 x 9 1/2	9 1/4 x 9 1/4
10	10 x 10	9 3/4 x 9 3/4

A-STYLE

Name	Envelope	Enclosure
A-2	4 3/8 x 5 3/4	4 3/16 x 5 1/2
A-6	4 3/4 x 6 1/2	4 5/8 x 6 3/16
A-7	5 1/4 x 7 1/4	5 x 6 7/8
A-8	5 1/2 x 8 1/8	5 1/4 x 7 3/4
A-Long	3 7/8 x 8 7/8	3 3/5 x 8 5/8
A-10	6 x 9 1/2	5 3/4 x 9 1/8

Recommended Papers for the RISO Digital Duplicator

Recommended Papers for the RISO Digital Duplicator



"Is the RISO digital duplicator versatile and able to print on a wide range of papers?"

The RISO digital duplicator will print on an extremely wide variety of paper sizes and weights:

- paper sizes from 4″ x 6″ to 11″ x 17″
- paper weights from 14 to 110 lb

and on a wide range of paper types, textures, and specialty stocks:

- cover stock
- vellum
- textured
- recycled
- envelopes
- newsprint
- carbonless forms
- labels
- door hangers
- tent cards
- card stock
- even paper bags

There are certain paper grades and finishes that work better with the RISO digital duplicator than others. Since the RISO digital duplicator prints using ink, papers that are made for offset tend to work very well. Offset papers come in vellum and smooth finishes, however, the smoother finishes tend to result in some setoff. Hard stocks, such as index, do not allow for fast absorption, and therefore setoff may result.

Following is a chart of "Recommended Papers For The RISO digital duplicator." The chart includes a selection of papers, varying in both price range and application uses, that perform well with the system. These papers work well because of the grade, weight, finish, and quality of the paper. They exhibit optimum print quality, consistent density, and minimum setoff.

And, since the RISO digital duplicator prints on envelopes, the Envelope Guide on page 18 is a reference tool for the wide range of available envelopes that can accompany many of the print jobs your customers will produce. The Equivalent Weights chart on page 17 is useful to find papers in different grades that are equivalent in weight or when selecting a desirable cover stock to match documents such as portfolios, sales guides, manuals, reports, handbooks, operation guides, etc.

Keep in mind, these are just some of the papers that work well with the RISO digital duplicator. There are many paper manufacturers that produce hundreds of types of papers that may also produce excellent output.

RISO Guide To Paper

Recommended Papers for the RISO Digital Duplicator

Mill	Paper Name	Weight/Grade	Colors	Fin/Texture	Opacity	Cost
Beckett	Cambric*	24 # Writing/70 # Text	Whites/Colors	Linen	High	$$$$
Beckett	Concept*	24 # Writing/70# Text	Whites/Pastels	Speckled	High	$$$
Beckett	Enhance!*	24# Writing/70# Text	Whites/Colors/Marbles	Satiny	High	$$$$
Champion	Benefit*	24# Writing/70# Text	Whites/Colors	Vellum	High	$$$
Champion	Carnival*	24# Writing/70# Text	Whites/Colors	Vellum, Smooth	High	$$
Cougar	Cougar Opaque Text Vellum	50# Text	White/Natural	Vellum	High	$
Cougar	Cougar Vellum Cover	65# Cover	White/Natural	Vellum	High	$
Cougar	First Choice	24# Writing	White	Smooth	High	$
Cougar	Opaque Smooth	65 lb Cover	White	Smooth		
Cougar	Opaque Smooth	60/24 lb Text/Bond	White	Smooth		
Eastern	Opaque*	50# Book/70# Text	White	Vellum	High	$
Eastern	Opaque*	65# Cover	White	Vellum	High	$
Finch	Opaque Bright White Vellum	60lb Text	Bright White	Vellum		
Fox River	Confetti*	28# Writing/80# Text	Whites/Colors	Smooth,Speckled	High	$$$$
Hammermill	Accent Opaque Antique	28# Writing/70# Text	Whites/Colors	Vellum, Smooth	High	$
Hammermill	Accent Opaque Antique	65# Cover	Whites/Colors	Vellum, Smooth	High	$
Hammermill	Fore DP	24/60	Whites/Pastels	Smooth	Med	$
Hammermill	Fore DP Vellum Bristol	67# Bristol Cover**	Whites/Pastels	Vellum	High	$
Hammermill	Offset Opaque Vellum	60# Text	Whites/Colors	Vellum	High	$
James River	Curtis Brightwater Marble*	70# Text	Earth Shades	Marble	N/A	$$$
James River	Dello Opaque	60# Text	White	Vellum	High	$
James River	Graphika Parchment	60# Text	Whites/Earth Shades	Parchment	High	$$$
James River	Graphika Vellum*	70# Text	Whites/Earth Shades	Vellum	High	$$
James River	Retreeve*	70# Text	Whites/Earth Shades	Felt	High	$$$
James River	Tuscan Terra*	80# Text	Earth Shades	Fibers	N/A	$$$
Monadnock	Astrolite	70# Text	Bright White	Vellum, Smooth	High	$$$
Monadnock	Astrolite	65# Cover	Bright White	Vellum, Smooth	High	$$$
Monadnock	Caress	70# Text	Warm White (Cream)	Smooth	High	$$$$
Blanks USA	RISO Recommended	65# Bright	White, Pink, Yellow	Vellum	High	$
Blanks USA	RISO Recommended	67# Bristol	White, Bl, Canary, Lav	Vellum	High	$
Scott	SpectraTech Opaque DP	24/60	Whites/Pastels	Vellum	High	$
Scott	SpectraTech Opaque DP	65# Cover	Whites/Pastels	Vellum	High	$
Scott	Offset Text	50, 60# Text	White	Vellum	High	$
Scott	Vellum Bristol Cover	67# Bristol Cover*	Whites/Colors	Vellum	High	$
Scott	Vellum Opaque	60, 70, 80# Text	Pastels	Vellum	N/A	$
Simpson	Gainsborough Script*	24# Writing	Earth Shades	Speckled	N/A	$$$
Simpson	Equinox Recycled*	70# Text	Earth Shades	Speckled/Felt	N/A	$$$
Springhill	Opaque	60#	White	Vellum	High	$
Strathmore	Pastelle Deckle	65# Cover	Whites/Pastels/Earth	Felt	High	$$$$
Unity	DP*	20, 50#	Earth White	Smooth	Low	$
Union Camp	Williamsburg Smooth Offset	60# Text	White	Smooth	Low	$
Union Camp	Williamsburg Vellum Offset	60# Text	White	Vellum	Low	$
Union Camp	Yorktown Xerographic DP*	20# Writing	White	Smooth	Low	$
Unisource	Goldcrest Bond	24# Writing	White	Light Cockle	Med	$$
Unisource	Pressmaster	60# Text	White	Smooth	High	$
Unisource	Starbright Opaque	24,60# Text	White	Smooth	High	$
Ward	Brite-Hue*	60# Text	Bright Colors	Semi-Vellum	N/A	$$
Ward	Brite-Hue*	65# Cover	Bright Colors	Semi-Vellum	N/A	$$

* Recycled papers are available.
** Equivalent to 55 lb cover.
Cost Ranges from $ to $$$$ (inexpensive to expensive). Price position relative to the wide range of papers listed in this chart.

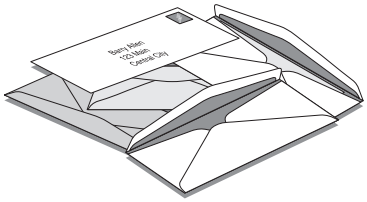
RISO Digital Duplicator Paper Selection Notes

The stocks mentioned in this list have been used successfully with the RISO digital duplicator. Additional weights and finishes of the above stocks are often available and may also work well with the RISO digital duplicator. Consult your local paper distributor for paper availability in weights, colors, finishes, and sizes. In addition to those mentioned here, there are many other paper stocks available; experiment with other stocks using the paper criteria discussed in this guide. It is strongly recommended that you obtain evaluation samples for your specific applications.

Carbonless Forms

The carbonless forms noted here are recommended for the RISO digital duplicator. Carbonless forms are available in sets of different quantities and colors. Call your local paper merchant for availability.

Envelopes



Many paper stocks are available with matching envelopes. There are many styles and types available (see attached "Envelope Guide"). Business size #10, A2, A6, A7, and A8 are the most commonly available envelopes and are usually stocked. Good quality envelopes are recommended for use with the RISO digital duplicator to ensure proper paper feeding and to produce desirable results.

We have found success with Tyvek® brand envelopes. Call your local paper merchant for availability and ordering requirements.

RISO Recommended Specialty Stocks

RISO has a recommended list of specialty stocks for use with the RISO digital duplicator. Items include business cards, pocket folders, door hangers, envelopes, hang tickets, panel cards, post cards, and tickets — both numbered and un-numbered. All are excellent samples because they are real applications that are nearly impossible to perform on other types of printing equipment.

RISO Guide To Paper

Recommended Specialty Stocks for the RISO Digital Duplicator

Paper Name	Application	Weight/Grade	Stock Size	Finish Size
Mac Tac Starluxe	Adhesive Labels	60# Vellum		
3M Scotchmark	Carbonless Forms	Uniform 20# Sets	8 1/2" x 11"	Same
Mead Excel	Carbonless Forms	20/17/20# Sets	8 1/2" x 11"	Same
Appleton NCR Paper	Carbonless Forms	SUPERIOR 20# sets	8 1/2" x 11"	Same
EarthCARE Blank	Door Hanger	65#		
Kraft Tab	File Envelope with Tab	28#		
Strathmore	Writing Label Stock	80# Text Vellum		
Blanks USA	Business Cards 67# Vellum Bristol	10-up 81/2 x 11	2" x 3 1/2"	
Blanks USA	Business Cards - Bright	65#	10-up 8 1/2" x 11"	2" x 3 1/2"
Blanks USA	Deep Pkt Folders w/B.C. Slits	67# Vellum Bristol	1-up 8" x 12"	4" x 9"
Blanks USA	Deep Pkt Folders w/B.C. Slits -	65#	1-up 8" x 12"	4" x 9" Bright
Blanks USA	Door hanger - Regular ArcHanger	67# Vellum Bristol	2-up 8" x 10"	4" x 10"
Blanks USA	Door Hanger - Bright ArcHanger	65#	2-up 8" x 10"	4" x 10"
Blanks USA	Door Hanger - Small	67# Vellum Bristol	3-up 8 1/2" x 11"	3 2/3" x 8 1/2"
Blanks USA	Door Hanger - Bright Small	65#	3-up 8 1/2" x 11"	3 2/3" x 8 1/2"
Blanks USA	Door Hanger - Jumbo	67# Vellum Bristol	2-up 8 1/2" x 11"	4 1/4" x 11"
Blanks USA	Door Hanger - Bright Jumbo	65#	2-up 8 1/2" x 11"	4 1/4" x 11"
Blanks USA	Envelopes	60# Offset1	A2 (4 3/8" x 5 3/4")	Same
Blanks USA	Envelopes	60# Brights	A2 (4 3/8" x 5 3/4")	Same
Blanks USA	Hang Tickets	67# Vellum Bristol	1-up 8" x 10 5/8"	8" x 10 5/8"
Blanks USA	Hang Tickets - Bright	65#	1-up 8" x 10 5/8"	8" x 10 5/8"
Blanks USA	Panel Cards - Fold Over	67# Vellum Bristol	2-up 8 1/2" x 11"	8 1/2" x 5 1/2"
Blanks USA	Panel Cards - Fold Over Bright	65#	2-up 8 1/2" x 11"	8 1/2" x 5 1/2"
Blanks USA	Panel Cards - Standard	67# Vellum Bristol	4-up 8 1/2" x 11"	4 1/4" x 5 1/2"
Blanks USA	Panel Cards - Standard Bright	65#	4-up 8 1/2" x 11"	4 1/4" x 5 1/2"
Blanks USA	Post Cards - Regular	67# Vellum Bristol	4-up 8 1/2" x 11"	4 1/4" x 5 1/2"
Blanks USA	Post Cards - Bright	65#	4-up 8 1/2" x 11"	4 1/4" x 5 1/2"
Blanks USA	Tickets - Jumbo Numbered	67# Vellum Bristol	4-up 8 1/2" x 11"	2 3/4" x 8 1/2"
Blanks USA	Tickets - Jumbo Numbered Bright	65#	4-up 8 1/2" x 11"	2 3/4" x 8 1/2"
Blanks USA	Tickets - Jumbo	67# Vellum Bristol	4-up 8 1/2" x 11"	2 3/4" x 8 1/2"
Blanks USA	Tickets - Jumbo Bright	65#	4-up 8 1/2" x 11"	2 3/4" x 8 1/2"
Blanks USA	Tickets - Regular Numbered	67# Vellum Bristol	4-up 8 1/2" x 6 1/2"	2 1/8" x 6 1/2"
Blanks USA	Tickets - Regular Numbered Bright	65#	4-up 8 1/2" x 6 1/2"	2 1/8" x 6 1/2"
Blanks USA	Tickets - Regular	67# Vellum Bristol	4-up 8 1/2" x 6 1/2"	2 1/8" x 6 1/2"
Blanks USA	Tickets - Regular Bright	65#	4-up 8 1/2" x 6 1/2"	2 1/8" x 6 1/2"

Recommended Papers for the RISO ComColor® Printer

RISO ComColor Printer Paper Selection Notes

The ComColor printer will print on a wide variety of stocks, giving you the opportunity to choose the correct paper for your needs. The chart on the next page gives a number of stocks and our ratings, but "beauty is in the eye of the beholder." The results you receive with one paper may delight you, but another user may prefer a different stock.

When choosing a stock for the ComColor, keep in mind paper weight and brightness. Papers between 28# and 32# (recommended minimum 24#) generally give the best results, while papers with 98+ brightness are also preferable.

Where do you get paper to use with your ComColor? Like with RISO digital duplicators, paper suppliers have a wide variety of high-quality stocks to choose from, though you generally will have to purchase larger quantities. Office supply stores also carry many different types of paper, many that can be purchased in ream increments. Some high-quality specialty stocks are available in 100-piece packages. (In addition to the papers listed, RISO offers its own matte paper. Contact your reseller for more details.)

What is the best stock for your ComColor? It's really up to you. We recommend that you experiment with a variety of papers, and find several in different price ranges that give the results you like. When it is time to print your next job, you can choose your paper based on the print job itself, paper quality, and paper cost.

The RISO Guide to Paper was printed on Hammermill Color Copy, 28# bond. We find this paper has excellent overall output quality and duplexes well.

RISO Guide To Paper

Recommended Papers for RISO HC Series and RISO ComColor® Printers

Paper Name	Finish	Weight	Paper Type	Color	Brightness	Best Settings Combination Printing	Rating
COUGAR							
Opaque Smooth	Smooth	60/24 lb	Text/Bond	White	95		
*Opaque Smooth	Smooth	65 lb	Cover	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
**Opaque Super Smooth	Super Smooth	80 lb	Cover	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
Opaque Super Smooth	Super Smooth	28 lb	Text	White	70	Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
*Opaque Smooth	Smooth	65 lb	Cover	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
DOMTAR							
First Choice Inkjet		24lb	Bond	White	113	Standard 1, 300x300 dpi, Level 3 Std 1, 300x600 dpi, Level 3 single sided	4
First Choice Color Print		28lb	Bond	White	113	Same as above	4
EPSON							
Prem Brt Wht Inkjet Paper-2 sided	Smooth	24 lb	Bond	White	108		4.5
EXACT							
Color Copy		28 lb	Bond	White			
FINCH							
Laser Opaque Bright White	Smooth	24lb	Bond	Bright White	94		
Opaque Bright White Vellum	Vellum	60lb	Text	Bright White		Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 2 Standard 1, 300x600 dpi, Level 3 single sided	3
GRAYTEX PAPERS							
Ruff N Tuff			27lb		White	Plain, 300x300 dpi Plain, 300x600 dpi	4
Matte Coated		32lb	Bond	White	94	Plain, 300x300 dpi Plain, 300x600 dpi	5
HAMMERMILL							
Ink Jet Paper	Smooth	24 lb	Bond	White	92		
Ultra Premium Inkjet	Smooth	24 lb	Bond	White	106+		2.5
Accent Opaque Smooth	Smooth	24/60		White			
Accent Opaque Vellum	Vellum	24/60		White			
Color Copy	Smooth	28 lb	Bond	White	96	Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 3 High Quality 1, 300x300 dpi, Level 3 High Quality 1, 300x600 dpi, Level 3	4.5
*Accent Opaque Super Smooth Cover	Smooth	65 lb	Cover	White			4.5
Color Copy	Smooth	32 lb	Bond	Photo White	96	Same as above	4.5
Laser Print (Teal Label)	Smooth	28 lb	Bond	White	96	Same as above	4.5
Laser Print (Teal Label)	Smooth	32 lb	Bond	White	96	Same as above	4.5
HP							
Brochure & Flyer Paper	Matte	48 lb	Bond	White	102	Standard 1, 300x300 dpi Standard 1, 300x600 dpi High Quality 1, 300x300 dpi High Quality 1, 300x600 dpi, Level 3, single sided	5
Premium Presentation Paper	Matte	32 lb	Bond	White	98	Standard 1, 300x300 dpi Standard 1, 300x600 dpi High Quality 1, 300x300 dpi High Quality 1, 300x600 dpi	5
Bright White Inkjet		24 lb	Bond	White	96	Standard 1, 300x300 dpi, Level 2 & 3 Standard 1, 300x300 dpi, Level 4, single sided Standard 1, 300x600 dpi, Level 1 & 2 Standard 1, 300x600 dpi, Level 3, single sided High Quality 1, 300x300 dpi, Levels 1 & 2 High Quality 1, 300x300 dpi, Level 3, single sided High Quality 1, 300x600 dpi, Level 3, single sided	4

*For use with HC5500 and ComColor Series. **For use with ComColor Series only

Recommended Papers for RISO HC Series and RISO ComColor® Printers

Paper Name	Finish	Weight	Paper Type	Color	Brightness	Best Settings Combination Printing	Rating
HP (CONTINUED)							
Indigo Premium Text Uncoated		80lb/118gsm	Text	White	96	This paper is available through Xpedx. It comes in 12" x 18" only and will need to be cut down. Paper performs excellent for non bleed/show through.	
Indigo Text Uncoated		70lb/105gsm	Text	White	92	This paper is available through Xpedx. It comes in 12" x 18" only and will need to be cut down. Paper performs excellent for non bleed/show through.	
JAPAN PULP & PAPER US CORP.							
Crown Digital HS		31lb	Bond	White		Plain, 300x300 dpi Plain, 300x600 dpi	5
Crown Digital HS		24lb	Bond	White		Plain, 300x300 dpi Plain, 300x600 dpi	5
Crown Digital HS		21lb	Bond	White		Plain, 300x300 dpi Plain, 300x600 dpi	5
KODAK							
Bright White Inkjet		24 lb	Bond	White		Standard 1, 300x300 dpi Level 3 Standard 1, 300x600 dpi Level 3	3
MOHAWK							
Satin 2.0 Cool White	Smooth	28 lb	Bond	Cool White			
Satin 2.0 radiant white coming	Smooth	28 lb	Bond	Radiant White			
Options Smooth True White	Smooth	28 lb	Bond	White		Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 3	3.5
MONADNOCK							
**Astrolite Smooth	Smooth	120 lb	Cover	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	4
Astrolite Silk	Silk	28 lb	Bond	White			
NEUSIEDLER (MONDI PAPERS)							
IQ Triotec Unique		24 lb	Bond	White	98	Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 3, single sided	3
Color Copy Paper		27 lb	Bond	White	98	Same as above	3
Color Copy Paper		32 lb	Bond	White	98	Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 3, single sided	3
NEXFOR FRASER PAPERS - SMART PAPERS							
Pegasus Writing		24lb	Bond	Brilliant White		Standard 1, 300x300 dpi, Level 3 single sided Standard 1, 300x600 dpi, Level 3 single sided	2.5
RISO							
Bright White Matte Paper	Matte	32lb	Bond	White		High Quality 1, 300x300 dpi, Level 3 High Quality 1, 300x600 dpi, Level 3	5
Recycled Matte Paper	Matte	93 gsm	Bond	White		Standard Quality 1, 300x300 dpi, Level 3 High Quality 1, 300x300 dpi, Level 3	5
*Bright White Matte Paper	Matte	170 gsm	Cover	White		Standard, 300x300 Standard, 300x600 High Quality, 300x300	5
STAPLES							
Ink Jet Paper		24 lb	Bond	White	102	Standard 1, 300x300 dpi, Level 3 Standard 1, 300x600 dpi, Level 3	
Unisource	Starbrite Opaque Smooth		60 lb	Offset	White	Standard 1, 300x300, Level 3 Standard 1, 300x300, Level 3 single sided Standard 1, 300x600, Level 2 Standard 1, 300x600, Level 3 single sided High Quality 1, 300x300, Level 3, single sided	3
WAUSAU PAPER							
Exact Digital HD Recycled Laser	Smooth	24 lb	Writing	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
Exact Digital HD Recycled Color Copy	Smooth	28lb	Writing	White		Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
Exact Ice		Smooth	80lb	Cover	White	Plain, 300x300 dpi Plain, 300x600 dpi Matte, 300x300 dpi Matte, 300x600 dpi	5
Exact Digital HD Color Copy	Smooth	24lb	Writing	Hyper White		Standard, 300x300	3
Exact Opaque White	Smooth	60lb	Text	White		Standard, 300x300	3

Additional Paper Selection Notes for Pages 28 & 29

- Note: Results may vary from Standard 1 to High Quality 1 Settings and for duplex printing. For best performance and results do not use auto-duplex for paper over 28lb bond/105 gsm weight.
- Combination printing incorporates text, graphics and photos. The file used to test all listed papers is the 20% fill demo original. Rating is based on a scale of 1 to 5, 5 being the best.
- Papers with a rating next to them were tested by RISO, Inc.
- Proper handling required. All papers should be free of rips, wrinkles, curls, holes, moisture, chemical treatment and bent corners.
- RISO makes no claims as to the reliability or availability of these papers. Price and availability of paper may vary. Check your local paper distributor for details.
- 3-hole punch paper, labels/papers with adhesives, stocks over weight specifications, transparancies and coated/gloss stocks cannot be used in the HC5000/HC5500 & ComColor models. Refer to the model's specification sheet for complete paper specifications.
- Use of Tyvek and carbonless paper is not recommended. Colored, pre-printed, embossed, tabbed, scored and perforated paper may cause errors or misfeeding.
- Be sure to consult the user's manual for maximum weight and size paper when printing from feed trays. Consult the user's manuals for paper specifications for the HC5000/HC5500 and ComColor models.
- Do not run paper printed on an HC and ComColor through a laser/toner or other heat-based device as the ink may transfer onto the imaging drum. Interleaveing paper printed on the HC or ComColor with toner documents may cause them to adhere together.
- Specifications are subject to change without notice.
- Cover stocks will require the optional special paper feed kit for the ComColor Series.

Summary

Summary

Just as all printing jobs are not the same, neither are all papers. High-quality, jam-free printing begins with choosing the right paper for the job. The RISO digital duplicator is very versatile, and able to feed and print on a wide variety of paper stocks, weights, and sizes. Some papers, however, produce better output than others. As you have read, paper characteristics—such as color, brightness, opacity, smoothness, paper gloss, and sizing—have a profound effect on the ability to produce a high quality product.

Generally, the types of paper that perform well with the RISO digital duplicator include offset, vellum, bond, dual purpose (dp), and card stock. Absorption is an important factor to a paper stock so that the ink will be absorbed, thus alleviating setoff issues.

Environmental concerns, landfill closures, and the need to reduce solid waste have led to a growing demand for recycled paper. While a small portion of these grades have performance or appearance characteristics not equal to their virgin counterparts, the vast majority exhibit no noticeable differences. So you can be environmentally friendly and use recycled paper for almost every printing application produced on a RISO digital duplicator.

Experiment with papers for the ComColor® printer! When choosing a stock for the ComColor, keep in mind paper weight and brightness. Papers between 28# and 32# (recommended minimum 24#) generally give the best results, while papers with 98+ brightness are also preferable.

RISO digital duplicators and ComColor printers allow for great versatility in printing applications and the ability to print on a wide variety of paper stocks and weights. By using the paper guidelines and suggestions presented in this document, you will be able to choose the paper that is best suited to the equipment and your printed application. So, use your imagination! Be creative and add excitement to every document you produce!