



Making paper fun

Preprint Guidelines for Laser and Digital Products

Techniques

Paper Selection

Select a paper with a smooth, level surface.

Using a minimum weight of 24 lb. (bond) or 60 lb. (offset) reduces the likelihood of transport and other problems.

Check the imaging equipment manual for acceptable paper weight before specifying.

Avoid embellished finishes, such as embossed, laid and other textured finishes.

Watch for toner that may not get down into the valley of irregular surfaces, resulting in broken letters and voids.

Avoid coated papers, as the heat from the laser process can blister the coating, causing particles to adhere to equipment.

Avoid multiple feeds and internal jamming by using paper that is precisely trimmed and clearly cut.

Regardless of the paper chosen, make a small trial run before printing the entire job.

Design

Design the material so that the final product (or the cut-down sheet) conforms to the grain direction specified in the laser printer's manual. Generally this will be "grain long." We offer folio products in both grain-short and grain-long options to ensure the final form can be fed through the laser printer grain long.

Avoid designs that contain large solids, as toner neither transfers well nor adheres properly to heavily inked surfaces. If solids must be used, break them up with halftones. The use of darker ink can compensate for the lost color density. Deeper-hued, high-density colorant inks can be utilized to minimize the amount of ink used.

Raised letterheads are not recommended. Letterheads made from high-temperature resins are preferable to standard "thermographic" type letterheads. Any embossed design can adversely



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affect print quality and also cause feed problems due to partially interlocked sheets. Avoid thermography, hot stamping and similar processes. Fuser heat in the laser process may melt the resins or foil.

If the preprinted material is to be pre-perforated, the location and area between perforations must be carefully chosen.

Avoid using a full-length perforation line parallel to the long side of the sheet and closer than three inches to the lead edge.

Ensure the paper is perforated so that the perforation ridge faces the back-side of the sheet.

Perforations

If duplexing, the ridge should be on the second side to be imaged.

Avoid printing within 1/8 inch of any perforation.

Puncture-type perforations must be flattened, rolled or ironed smooth to avoid problems in the feed or delivery areas of copiers and laser printers.

Forms utilizing micro perforations are preferred for use in laser printers.

Printing

Specify laser-compatible inks. Select inks that can withstand temperatures of 350-degrees to 400-degrees Fahrenheit and pressures of 70 to 140 pounds per square inch (psi) through the fuser of the laser printer.

Ink manufacturers offer thermal-resistant inks that oxidize and polymerize well. These oxidation-set, oilbased inks are preferable to cold-set, conductive and rubber-based inks.

Many cold-set inks are not capable of withstanding the heat and pressure of the xerographic process. Conductive inks with carbon black or metal powders may not hold a sufficient charge for good dry toner transfer. Rubber-based inks are not heat stable and may melt, or vaporize, and damage the photoreceptor or fusing unit.

To reduce the possibility of wavy and puckered paper:

- Minimize the amount of ink and fountain solution used.
- Minimize the number of ink colors, as each impression introduces additional moisture.
- Maintain a fountain solution target PH range of 4.0 to 5.0.
- Alcohol substitutes can improve drying and reduce water pick-up.



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Do not use anti-setoff powder or spray containing starch, rosin or talc, as these substances can inhibit feeding, imaging and fusing operations. These materials can also form deposits in the laser printer, causing damage and breakdowns.

If printing large folio sheets or rolls, be sure the final trimming of the document is clean, square and exactly to size. The trimmed grain direction of the document must conform to the requirements spelled out in the equipment manual for the laser printer.

Packaging & Storage

Preprinted material must be adequately cured before being placed in moisture-barrier wrapping. Allow preprinted materials to cure about three days before packaging. Maintain 50% humidity, and cover paper with plastic sleeves to minimize moisture changes to the material.

Package materials in moisture-barrier wrap for shipping and storage. If shrink-wrap is used, use chipboard on the top and bottom of the stack to minimize damage to edges and corners. Avoid packaging the materials too tightly; this can cause stress curl.

After wrapping, store materials at 50% humidity for one to two weeks before using in a copier. This completes the curing process and minimizes potential for ink offset in the copier.

Imaging

Most failures on preprint jobs occur due to either excessive image deletion or curl. Attention to dimensional stability over a wide range of environmental conditions must be practiced to be successful.

Toner adherence is critical to laser printing quality and is a function of the paper's smoothness, moisture content, and electrical conductivity. Xerographic and laser printers use electrical charge to transfer the image, and if the paper's moisture content and electrical properties are not properly controlled, the charge is dissipated and the toner transfer is uneven, resulting in voids.

High-speed printers can induce more curl to the sheet because they use fuser temperatures in the 350-degree to 400-degree Fahrenheit range, compared to slower equipment where the internal temperature may only reach 150 degrees Fahrenheit.

Two common quality problems with the laser printing system are offsetting and scuffing. Offsetting is ink transferring onto the fuser roll and then onto subsequent pages. To avoid offsetting, water and ink use should be minimized. Some xerographic machines have soft rolls, which are more prone to ink offsetting. Consult your equipment supplier for options.



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Scuffing is ink rubbing from one sheet to another or onto a feed belt. Scuffing occurs only at the area of the paper corresponding to the feed belt or feed roller position. Your equipment supplier can assist you in determining this location. Your designer should avoid placing ink in this area.

Guarantee

Our digital papers are engineered to provide consistent performance in a variety of high-speed digital printers. Our papers are identified for preprint guaranteed for offset printing and subsequent printing in electrophotographic equipment when used in mill finished sizes and following recommendations for non-metallic, thermal offset inks that are laser compatible. Guarantee of these products is limited to the recommendations of the original equipment manufacturer (OEM) for the specific printer/copier used and excludes issues related to form design, converting, post-processing or equipment. Selection, handling and conditioning of digital papers consistent with equipment manufacturing recommendations is the responsibility of the end user.

Our preprint guarantee is limited to Cougar Opaque (Smooth) basis 60 lb. and heavier weights, Cougar Digital, Lynx Digital, Husky Digital and Husky Plus.

Guarantee of these products, including cover weights, is limited to the recommendations of the original equipment manufacturer (OEM) for the specific printer/copier used.

Our liability is limited to the value of the paper at the time of shipment, based on invoice price. Please consult your Account Manager for specific grade and basis weight information, and be sure to specify laser or preprint guaranteed product when ordering.