

Source Technologies

Check Stock Guidelines 10/21/2022

Check stock has a large impact on the resultant quality and security of your MICR documents. Lexmark paper guidelines and Industry Standards for paper-based checks provide detailed information regarding the specifications for paper. This document pulls together the most critical specifications in those publications to provide guidance in designing check stock for a Source Technologies MICR capable printer.

The document will address paper specifications, paper security features, and storage and handling recommendations. The document is not intended to replace Lexmark guidelines or banking Industry standards.

Printing quality MICR documents with your ST MICR capable printer requires check stock that is matched to the printer's requirements. ST has tested and approved certain base paper stocks from numerous paper manufacturers. A current list can be found on the last page of this document. If you wish to order check stock from supplies, please show the following requirements to your sales representative.

PAPER TYPE

ST only supports Bond paper for checks.

PAPER WEIGHT

ST recommends 24 lb. to 29 lb. paper.

PAPER GRAIN DIRECTION

When using 24 lb. to 29 lb. bond paper ST printers support either long or short grain paper. Overall performance in the banks reader/sorters is best when the resultant grain direction is left to right when viewing the printed check. This is called check long grain. Check short grain should perform satisfactorily if the stiffness recommendation is met.

STIFFNESS

ST recommends Taber M.D. 2.5 (long grain) and C.D. 1.1 (short grain) at a minimum.

SMOOTHNESS

For the best toner adherence to the check paper ST recommends rougher surfaces within the base printer's specifications. The surface should not contain excessive sizing additives. A drop of water should be absorbed into the stock fairly quickly.

Some base papers for check stock offer optional toner adherence additives and should be considered.

REFLECTANCE

The minimum reflectance for the base check paper stock is 60% per the ANSI standards in the USA. A maximum reflection is not specified but caution is warranted for reflectance above 92% due to embedded paper whiteners or brighteners interfering with some check security features. High level of reflectance may also impact durability of the printed data. Best practice is to consider paper that is specified as being optically dull or UV dull by the paper manufacturer.

MOISTURE

The paper moisture content should be between 4.7 and 5.5%. Storage conditions can affect paper moisture. Store your check stock in a cool, dry, environmentally stable and secure area. Protective wrappings should be removed just prior to use. Excessive moisture will cause more curling in output pages. Some level of curl is always present with laser printers.

PERFORATIONS

All perforations in the stock should be Laser-perfs or Micro-perfs. They are a minimum of 20 cuts per inch. Perforations should not protrude from either side of the sheet to avoid nesting, and potential double feeding. Perforations should be clean, and if required, rolled or ironed flat.

Perforations should stop 0.06 inches from the edge of the form to avoid separation in the printer's transport.

INKS

Inks applied to check stock must be able to withstand the high 212 C (414 F) degree temperatures and pressure up to 25 PSI without contaminating the printer or creating hazardous fumes.

GLUING STRIPS

Z-Fold or C-Fold Pressure Seal stock with gluing strips for folder/sealer equipment must also withstand 212 C (414 F) degree temperatures and pressure up to 25 PSI.

CHECK STOCK SECURITY FEATURES

ST recommends security features be present in the check stock to offer some protection against both copying and alteration of original items. If these features can be detected visually, there should be information regarding their presence in a printed warning band or some other noticeable location on the document. While not a complete list, the following features have been found to be of merit:

Watermarks (copy protection)

White on White Artificial Watermark printing, generally printed on the back of a check, reveals words or patterns when viewed at an angle. They should not be visible in a photocopy.

True Watermarks pressed into the paper during manufacturing are an alternative. However, they can impact the fusing quality of the printed data at debossed or low depressed areas of the watermark pattern. Moving to true watermarks on the backside of the check stock may be a workable option.

Laid Lines (alteration protection)

Located typically on the back of a check, laid lines make cut and paste alteration visually detectable.

Void Pantographs (copy protection)

Background printing of the word VOID or COPY which appears on photocopies but is not obvious on the original document. Current high resolution color copier technologies may fail to detect the background patterns thereby reproducing the original image without the VOID or COPY message appearing. ST recommends an additional copy protection feature be present.

Chemical Additives (alteration protection)

If an ink eradicator (bleach, acetone, ink cleaning solvents, etc.) is applied to the document, the feature creates a permanent colored stain. The color varies dependent on the chemical applied and additive present.

Toner Fusing Enhancing Additive (alteration protection)

Applied to the base paper, the additive reduces the possibility of picking or lifting the toner off the paper.

Numbered Check Stock (copy protection)

Sequential numbering printed in dye that penetrates to the reverse side of the paper. This provides a method for inventory control and some copy protection. The number should not be directly linked to the check serial number. Laser printers WILL double feed on rare occasions.

This list is not intended to represent a complete list of security features. Your paper sales representative should always be consulted for the latest technologies and options.

OPERATIONAL TIPS AND SUGGESTIONS

The printer's User's Manuals have suggested operational procedures. In addition to this information, we offer the following:

PAPER FANNING

All printer manufacturers suggest paper be fanned by the operator prior to placing the paper in the Trays. Because we are not dealing with plain white bond, fanning the paper should be a consistent procedure. Check stock has ink applied. It has perforations. Some have gluing strips. There are far more opportunities for sheets to stick together and potentially double feed or jam.

When you are fanning freshly unwrapped paper and you detect excessive levels of sheets sticking together and popping noises, notify your supplier's representative. You could have stock that was packaged when ink was not dry, glue strips that are too tacky, or perforations that are interlocking.

500 SHEET TRAY TIP

Paper is normally packaged in 500 sheet reams. When putting a whole ream in a 500 sheet tray keep all 500 sheets together as unwrapped in the same sequence. This reduces static charges that can occur between individual sheets. And be sure to properly fan the ream.

OVERNIGHT MOISTURE BUILDUP

It's best not to store the paper overnight in the printer when the print application is large print jobs. One to two hour print jobs or longer are considered large. With large print jobs, the printer drives moisture out of the paper in the fusing process. When the printer is allowed to cool down, this moisture is absorbed by the paper left in the paper trays. The next time you print with this paper left in the trays, the level of curl is greatly increased. To reduce this curl the paper should be removed from the trays at the end of the day, or when the day's printing is complete.

We have not seen moisture and curl issues with lower volume printing applications caused by leaving paper in the trays overnight.

PAPER FEEDING RELIABILITY EXPECTATIONS

This document has focused on some of the factors that can affect feed reliability, sometimes referred to as a "Jam Rate Specification" from the printer manufacturer.

For the most recent laser printer models over the past few years, our testing has shown the capability of running greater than 1 in 25,000 paper feed reliability rate for standard office paper in an office environment. In a typical test cycle for each printer model, we feed multiple millions of sheets through the printer transport.

This performance is across many printer models, so is not a top model performance experience quotation. Standard office paper includes a mixture of 20 and 24 lb. Bond papers, plus some stock with perforations designed to the Micro-perf specifications previously mentioned above.

We understand that this reliability experience is from a testing laboratory with experienced operators. We can assume the paper trays were properly setup, the paper was fanned and inspected before loading the paper trays. With a focus on the information provided in this document, paper feeding reliability should not be an issue for our customers.