

CORRECT PERFORATION AND SCORING – FOR A PERFECT FOLD

Torn paper, wrinkles, uneven edges and fold lines or even cracks in the coating – a great deal can go wrong when folding. In most cases, this is caused by inadequate or incorrect fold preparation when perforating or scoring.

PERFORATION

This process reduces the material tension within the sheet and makes it easier to achieve a clean fold. Wrinkles are prevented, as the air trapped in the sheet during folding can escape. The best solution for perforation is to use the upstream slitter shaft at the first folding station. This reduces the distance the sheet has to travel and ensures it is positioned cleanly – for smooth perforation edges and a precise perforation line, even at high speeds.



Tie length
Slot length

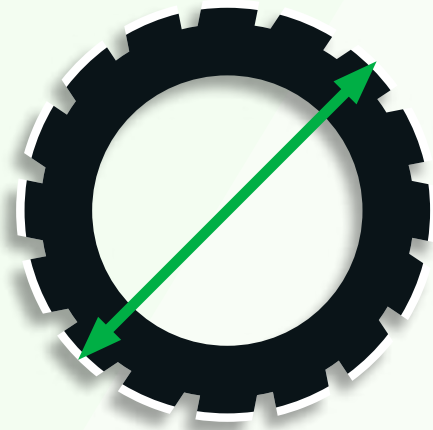
SLOT AND TIE LENGTH

The thicker or stiffer the product, the longer the slits and the shorter the ties. As a guideline, select a blade with short slots for up to 90 gsm paper, one with larger slots for art paper and large slots or a punching knife for thick, stiff materials. Following perforation, the tie must be sufficiently stable not to tear during subsequent processing (e.g. saddlestitching or adhesive binding).

SLOT OR PUNCH PERFORATION?

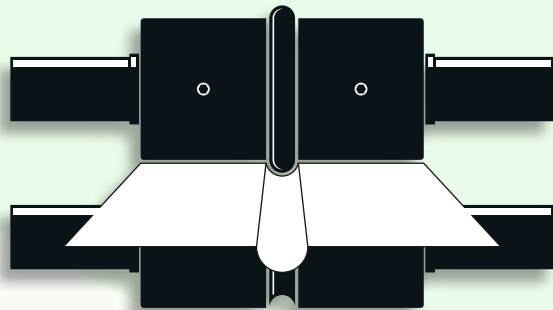
Slot perforation is suitable for signatures with less than 30 pages that undergo further processing after folding to create products such as brochures with saddle stitching or adhesive binding. Punch perforation is good for cross-folds with signatures of 32 pages or more and/or high grammages. Punching out tiny pieces of paper around 0.43 inches long and up to 0.047 inches wide (11 mm long and up to 1.2 mm wide) makes it easier for the air to escape than with slot perforation. Signatures prepared in this way hold together well at the sheet edges. The end product also lasts longer, for example book blocks with adhesive binding.





DIAMETER OF PERFORATING BLADE

The blade should extend at least 0.039 inches (1 mm) but no more than 0.078 inches (2 mm) into the counter blade. This enables it to cut through all layers of the fold without going too deep or tearing the paper on its way out. The undercut can be set precisely using the (upstream) movable upper slitter shaft.



SCORING

This process is suitable for products with surfaces that cannot be cut open such as brochures, maps and thread-stitched or thread-sealed signatures. Compressing and displacing the material at the fold line prevents it from cracking or splitting open when folding the material or opening the end product.

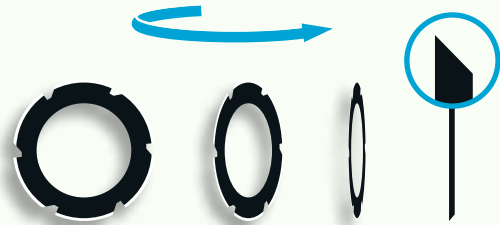


NEGATIVE SCORING

This method is ideal for thick grammages of 170 gsm or more. Fitting the scoring blade underneath rather than on top as is normally the case improves paper displacement during folding to create an inward-pointing scoring ridge. This prevents the paper's fibers and coating from cracking. It also creates clean fold edges. Alternatively, the Tri-Creaser Fast Fit can be used for grammages of up to 350 gsm. This tool has a rubber ring instead of a scoring blade. The ring runs against a steel female die (scoring groove) with recesses. The different groove widths and corresponding rubber rings are marked red, blue and yellow according to the thickness of the grammage to be processed.

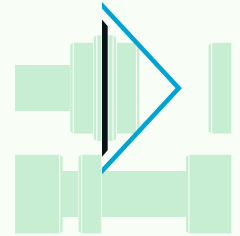
DIGITALLY PRINTED PAPER

This cracks more easily than offset sheets because the toner lies on the paper. To prevent this from happening, it is advisable to use the Tri-Creaser Fast Fit for scoring. The trick with this tool is not to select the same colored groove width for the rubber ring, but the next one up – the blue ring with the yellow groove, for example.

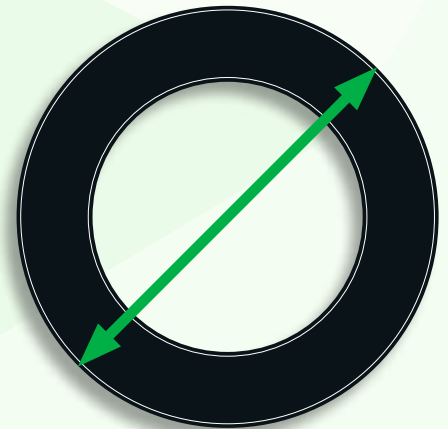


FITTING THE PERFORATING BLADE

The ground, inclined side should form an imaginary arrow pointing forward, e.g. toward the next folding station. This means the ties run backward when the sheet is inserted into the buckle plate. If the blade is fitted the other way around, the resultant forward projections can get caught when the sheet enters the buckle plate, which prevents a clean fold.



>> Direction of paper feed >>



DIAMETER OF THE SCORING BLADE

A scoring depth of 0.078 inches (2 mm) is sufficient in most cases. If the blade diameter is too large, it cuts into the sheet at the start and end and the sheet can tear at the front and rear edges. If the scores are too narrow, though, this may cause cracks in the fold or wrinkles at the scoring ridge.

