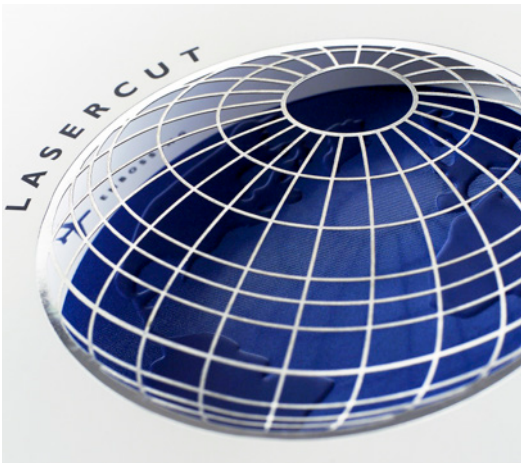
Key paperboard features

Which features do complex forms and latticed designs require in the paperboard? You need strength for the sake of formability. Tearing resistance and surface strength are definite musts to accomplish cut edges without cracks, debris or frays. To achieve cut surfaces as white as the paperboard surface itself, you need to use paperboard made solely from bleached pulp. Otherwise, the somewhat darker middle layers will show. Flatness and dimensional stability are crucial for enabling runnable production.



Take extra care when choosing the paperboard.



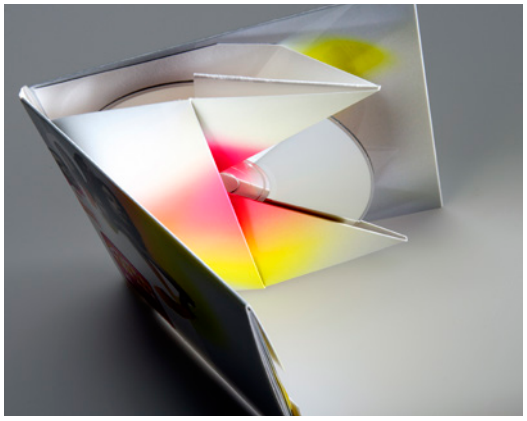
Straight and finely cut lines. This is a simple pattern but a complex design.

Creasing and folding

Unlike paper, paperboard can – and should – be creased before folding. What you gain by this operation, when using a multi-ply paperboard, is the quality expressed by distinct, durable and narrow fold lines, with no disfiguring cracks on the surface of the printed, varnished or laminated folds.



The design deserves distinct and narrow fold lines without cracks.



The multi-layer construction of the paperboard guarantees deep and narrow folds that can withstand frequent opening and closing without cracking.

Deep and narrow folds

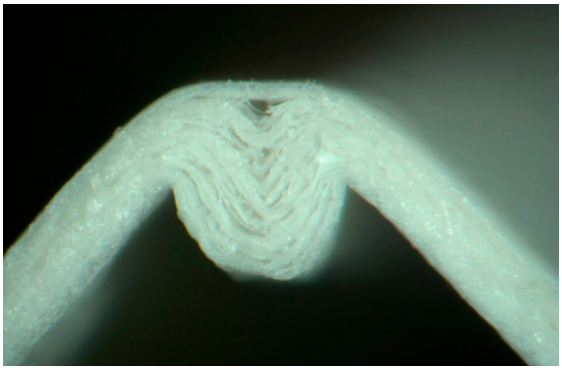
It is easy to fold creased paperboard. Without creasing, the surface layers will crack and/or the fold line will be undefined. During the creasing operation the paperboard is weakened along well defined folding lines, which then act as hinges for the folding. To achieve accurate folding with low folding resistance the crease should be deep and narrow – the deeper and narrower, the better. Very thick paperboard requires more than one crease or must be scored before folding.

Optimal creasing

Multi-ply paperboard makes it possible to achieve optimal creasing. Ideally, the paperboard should delaminate into a finite number of thin, unbroken layers throughout the thickness of the paperboard. In this way you obtain distinct and durable folds, which contribute to good function and an attractive appearance.



This is the proper way to fold – don't turn the crease inside-out, as sometimes happens.The folding should always be done towards the bead.



Optimal creasing is achieved when the multi-ply paperboard is delaminated into as many thin undamaged layers as possible along a well defined fold line.

The creasing operation

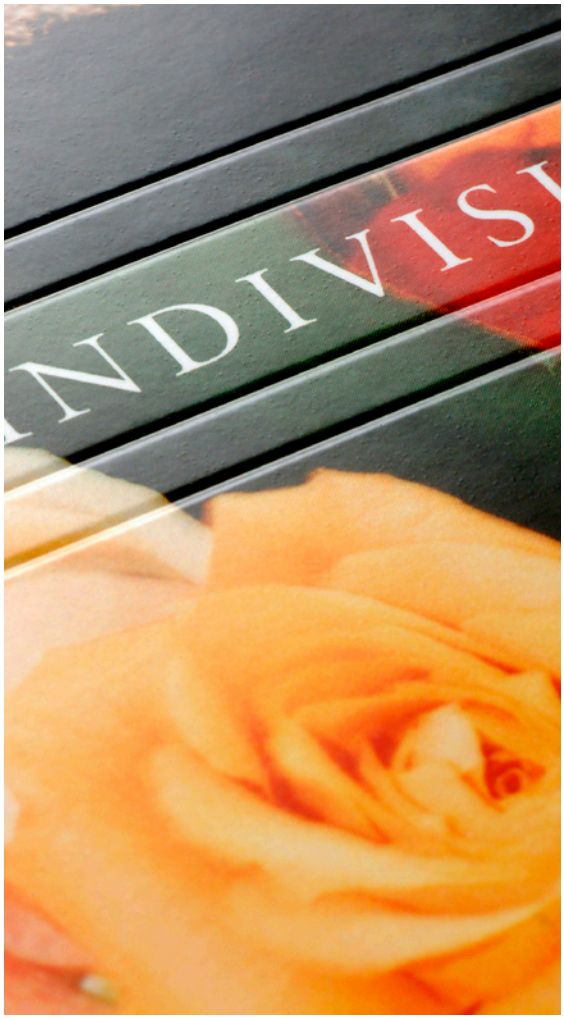
To form the crease, a thin strip of steel with a round, smooth edge (the creasing rule) pushes the paperboard into an accurately cut groove in a thin and hard material (known as the make-ready, matrix or counter-die). The width and depth of the crease are defined by the creasing tool geometry and the paperboard's ability to adapt to the tool. In bookbinding, creasing of the covers is often integrated in the binding machine. In this case the flatbed method described above cannot be used. The creasing is instead carried out using a steel wheel and a counterpart.

Creasability

What is creasability?

Creasability can be explained as follows:

- The paperboard's ability to permit deep and narrow creases. If the crease is too shallow or wide, the folding operation is difficult to perform. In contrast, it is very easy to fold paperboard with deep and narrow creases.
- The paperboard's ability to adapt to the shape of the creasing rule and retain the desired geometry of the crease. Accuracy and precision in crease shape and location are important.
- The paperboard's ability to "forgive". A forgiving paperboard is less sensitive to variations in the creasing conditions (for example due to the tools becoming blunt) and is therefore more reliable in converting machines.



Perfectly creased.

Ply construction

The creasing operation and settings should be carefully matched to the paperboard. The multi-ply construction of different paperboard products results in different characteristics. Your demands for optimising other paperboard features such as stiffness or strength will affect the creasing and folding performance in different ways. A strong paperboard such as an SBB will cater for deep and narrow creases despite being slightly resilient during the creasing operation. A stiff paperboard such as an FBB is easier to crease but will not allow the same fine crease dimensions as an SBB and this in turn affects the folding properties.

Binding — the last strong link

Binding is the last link in the chain of operations for converting paperboard into attractive and functional covers for brochures, annual reports, manuals, books and magazines. This link must be as strong as all the others, so it is important to select your paperboard to suit the binding method you are using.

Binding methods

When using paperboard for covers, the most common binding methods are saddle stitching, wire-O binding, glue binding, thread binding and fadensiegel binding.

Saddle stitching

Saddle stitching is normally used for brochures, annual reports, magazines and booklets. The binding operation consists of creasing, folding and stitching. The folds must not crack as a result of the creasing and folding operations nor during subsequent use. This is particularly important if there is printing over the folds. Saddle-stitched productions put a lot of strain on that small piece of paperboard that holds the cover to the insert by the staple. If you choose a paperboard made from virgin fibres, you minimise the risk of the cover becoming detached from the insert with use over time.



Saddle stitching puts a lot of strain on that small piece of paperboard that holds the cover to the insert by the staple.



There are a number of exciting alternatives to classic saddle stitching. As well as protecting printed materials, binding can also help them stand out from the crowd.