Discover the production aspects of paperboard – a base material that allows you to achieve more than you can imagine. Paperboard is more forgiving than paper but also a bit more demanding.

Knowing how and knowing why

In the following chapters we describe how to use paperboard with different printing and finishing techniques. You will find information on how to work with and handle paperboard, as well as the features that are crucial for achieving excellent results and cost-effective production.

The production aspects

The white sheet of paperboard and the designer's intentions are the starting points when transforming the creative dimensions of paperboard into reality. The production aspects of paperboard are based on its smooth, uniform, and well finished surface – and on all the built-in features underneath.

More forgiving and more demanding

Paperboard provides excellent printability and runnability in the printing and finishing processes as long as you take a few basic precautions when handling it. With skilled and experienced operators and well run machinery, the path from paperboard to finished product will be as straightforward as when using paper – only somewhat different. The difference can be summarised as follows: you can accomplish more with paperboard – it is a more forgiving base material but also a little more demanding.

Without its stiff construction, paperboard would not be able to perform its primary functions of providing rigidity and strength. Paperboard offers higher stiffness at a lower grammage than paper (you achieve the same stiffness at about 25% lower grammage). This is one of the most appreciated advantages when specifiers choose paperboard.

Paperboard properties are crucial for achieving high-quality results as well as good printability and runnability in the printing and finishing processes. Since paperboard is not used in the graphical industry as often as paper, we will be more specific about aspects to do with printing. When it comes to the different finishing techniques, paperboard's stability and strength offer unique and sometimes superior possibilities of enhanced design and converting efficiency compared to paper.

In the quest to achieve new levels of brand promotion, demands on marketing materials are constantly increasing. The combination of graphic design, finishing techniques and innovative shapes gives a product enhanced appeal and recognition. It is essential that designers and converters understand the interaction between paperboard properties and converting efficiency. The choice of paperboard will affect crucial conversion factors like printability, flatness, dimensional stability and creasing/folding properties, and thereby influence the ultimate design of the product. As a basic rule it is fair to say that the consistency of the paperboard product is the key to high efficiency.

Printing presses, finishing and converting machinery can accept a wide range of paperboard types at acceptable levels of productivity. However, tolerance for irregularities in critical parameters diminishes as speeds and complexity increase.

Handle the paperboard correctly and you will achieve first-class results from all available printing and finishing techniques. For general information on how to handle paperboard before, during, and after the printing and finishing processes, please refer to the chapter “Handling”.

Excellent print quality

Paperboard for graphical applications must provide excellent print quality. To achieve this, the paperboard must meet stringent requirements in terms of its appearance and its performance during the printing process. The ability of the board to fulfil these requirements is referred to as printability. On the whole, high print quality is characterised by uniform print results, high ink gloss, and true colour reproduction.

Uniform print results

To achieve a good print in both half and full tones it is essential that both the ink transfer and ink setting be uniform.

- Good ink transfer from the ink carrying surface to the paperboard is essential. A uniform surface tension enables sufficient wetting of the surface by the ink. This is particularly important in flexo applications, digital printing (liquid toner), or when printing on extruded plastic surfaces or surfaces coated in some other manner prior to printing.
- Good ink setting is important regardless of the printing process used. This is achieved by ensuring the uniform absorption of oil and/or water (depending on the ink solvent used). For oil-based inks in conventional offset printing, the absorption of both water and oil is required as ink transfer can be obstructed by the presence of fountain water on the substrate surface. In offset printing, irregularities in ink setting can cause mottle or ink dry back (back trap mottle).