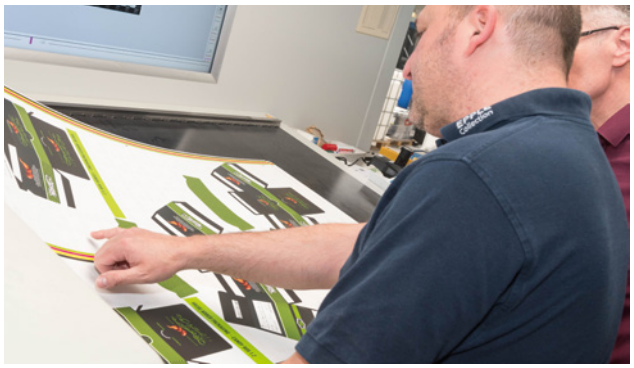
Value Added Packaging - Tutorial Candy Box 1.2



USP: Distinctive folding box with unusual shape, look and haptics

Effects: Haptic SENOSOFT® matt coating in contrast with high-gloss spot varnish, Pyrisma® effect pigment, hot foil embossing, blind embossing

Suitability: Cosmetics industry | Food industry (indirect food contact) | ~~Tobacco industry~~

Machine requirements: Four-colour offset press with two coating units and UV capability, offline hot foil embossing unit, flatbed die-cutter, gluing system.

Design requirements: Distinct motif contours that can be rendered via cold and hot foil finishing, embossing and varnish effects.

Special features: The special shape of the folding box had to be tailored to the requirements of an automated gluing process, and the integrated crease/cutting rules (tear perforations) optimised on the substrate.

Description: This new project completed by the Value Added Packaging Initiative aims to illustrate that with good planning, even unusual packaging dielines involving extensive finishing can be produced highly efficiently and cost-effectively. It further demonstrates that various finishing effects can also be combined to good effect in the food packaging segment. This same package, with a modified dieline, was also produced simultaneously in an inline flexo production process. Here, too, agreements and preparations had to be made in order to perfectly coordinate the colouring and appearance of the two packages.

Remarks: Numerous parameters had to be taken into account during production planning in order to ensure flawless processing. Most importantly, finishing is an offline operation involving different systems and stations, and the processes, effects and materials therefore must be perfectly coordinated. Optimum results can only be achieved in such a process with perfect interplay between man, machine and material. Consequently, a project meeting with all stakeholders in the preparation phase of such a production process is imperative, as it helps to avoid technical problems from the start and possibly to integrate such considerations in design and production planning.

This folding box is intended to serve as secondary packaging for foil-wrapped candy. All the materials and auxiliaries therefore had to be approved for food applications and the contracted print shop, as well as any suppliers and print finishers, had to be certified to produce food packaging. The BoFood MU inks from Epple used here are a range of low-migration inks for offset printing developed specifically for the safe printing of primary food packaging. The inks offer maximum-level safety both for printers and end consumers. In terms of the ink, the BoFood MU line fulfils all the technical requirements imposed on food packaging: Low-odour, low-swelling and low-migration/migration-safe. Weilburger's dispersion coatings and UV lacquers in the SENOLITH® FP NDC and SENOSOFT® FP NDC lines are also certified for indirect food contact and thus ideal for this project. The Prime FBB folding box board from MetsäBoard, chosen for this project and specially developed for primary food packaging, is also destined for jobs like this thanks to its homogeneously coated surface, easy shaping and high dimensional stability in processing. Virtually all effect pigments from Merck, and the foils from Kurz used here, are approved for use in the food industry, and therefore likewise present no problems when it comes to the suitability of the final packaging for food applications.

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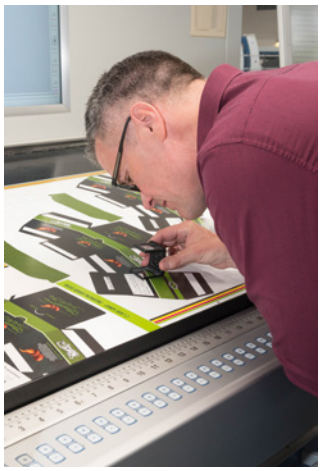
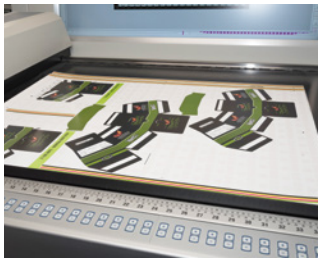
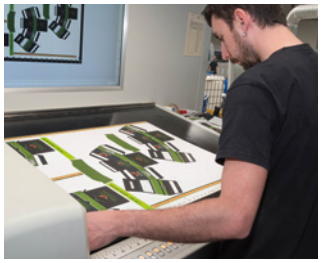
Realisation:







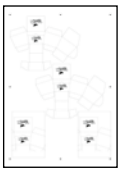
Because this folding box was not to have a standard dieline, the shape of the final carton (essentially a section of an upside-down pyramid with a square base) first had to be developed in a CAD software program. For this purpose, the targeted capacity of the box and the thickness of the substrate first had to be calculated and the optimum package size for standard palletising requirements determined. Based on these values, the dieline for the folding box is generated and optimized for automated gluing. In this context, it is important to incorporate a straight side edge in the final dieline, which can be used as the contact edge. The creases, cuts and perforations incorporated in the dispenser opening then had to be optimized for the chosen substrate to ensure easy opening of the final packaging, but prevent the dispenser opening from breaking open unintentionally. Here it is important to start the perforation with a gap for easy opening.

Once the contour data is complete, and has been evaluated and optimised on the original substrate via cutting plotter tests, the graphic design process can begin. Product images of the chocolates first had to be retouched and clipped. To avoid unwanted white-space, it can help, after creating the clipping path, to eliminate strong colour contrasts below the path. To do so, a contour of about 0.5 mm wide (stamping tool) and image content from the area right beneath the inner clipping path are generated outside this path, meaning the image is "trapped" manually. The CMYK image is then converted to spot colours, i.e. directly in Photoshop with the help of the spot channels. To ensure that the spot channels are exposed together with the spot colours of the other design elements in the final print, the name of these spot channels in Photoshop must be absolutely identical to the names of the spot colours in the subsequent illustration program. The image is saved in Photoshop psd format. The actual package design is then created in Illustrator. The contour is imported first and evaluated for dimensional accuracy. Importing the Photoshop file automatically imports the spot colours created there. Any spot inks for all forms, tools, and dies (green tone, grey tone, three different varnishes, hot foil, cold foil, blind embossing, die-cutting and creasing) are created first, followed by a print margin of about 3 mm outside the dieline as a path. The position of the blank areas for the glued flaps must then be set in such a way that no unwanted white-space is visible on the final, erected and filled package and all glued areas are free of ink and varnish. For this purpose, it can be helpful to cut a colour proof with a cutting plotter or by hand, and construct a sample folding box.

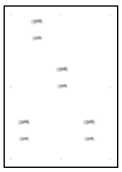
Because the SENOSOFT® matt coating is excellently suited to overstamping, the area left blank for the hot foil elements can be ignored for once in the coating form and the underlying printed image. This reduces the risk of unwanted whites-space being visible as a result of slight misregistration in the embossing process and thus increases process reliability.

After the design process was concluded, the next step was to prepare the data for printing. This involved applying the trapping technique as dictated by the targeted design and effects, and generating the imposition for the folding boxes as well as the DIN A4 print sample also incorporated on the sheet. The substrate's grain direction plays a decisive role in this context. Finally, the data and all other detailed information is forwarded to the embossing tool, cutting die, coating plate and flexo plate suppliers.

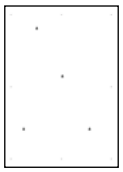
During production, the right anilox rollers must be used for the three varnishes. The SENOSOFT® matt coating is applied with a 13.2 cm^3/m^2 anilox roller with 120 lines/cm, the carrier coating for the Pyrisma® pigment with a 15 cm^3/m^2 ART and the UV gloss lacquer with an 18 cm^3/m^2 ART anilox roller.



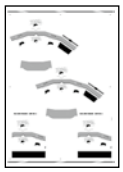
Die-cutting and stamping (die-cutting tool from **WekaForm**, stamping die from **hinderer+mühlich**)



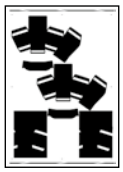
Kurz
Hot stamping foil Alufin® MTS, Stamping die from **hinderer+mühlich**



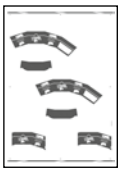
Kurz
Hot stamping foil Laser Seamless® AL-XL, Stamping die from **hinderer+mühlich**



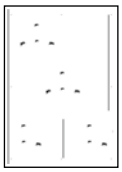
WEILBURGER Graphics
SENOLITH® UV GLOSS LACQUER INLINE
FP NDC
360424.



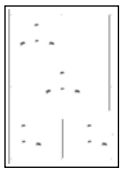
WEILBURGER Graphics
SENOSOFT® WB MATT COATING
FP NDC
350210



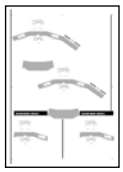
Merck
Pyrisma® effect pigment
T 30-24;
in carrier coating
WEILBURGER Graphics
SENOLITH® WB GLOSS PRIMER
FP NDC
350072



Epple
Process Yellow
BoFood MU
Next Generation
107385



Epple
Process Magenta
BoFood MU
Next Generation
107386



Epple
Pantone 376 c
BoFood MU
GREEN
123362

Epple
Pantone Black 7c
BoFood MU
BLACK
124402

Design, technical design:
METSÄ BOARD Packaging Services
Technical design optimisation, gluing:
AR Packaging

Production management / Reprography / Documentation:
Alexander Dort - CMD
Coating plates:
Flint Group

Substrate:
MetsäBoard Prime FBB 270 g/m^2
Printed at:
Joh. Leupold GmbH & Co KG