USP:
Efficient inline production with maximum effect diversity

Effects:
Cold and hot foils, two Iridion® coatings, UV gloss and haptic soft dispersion coatings, blind embossing

Suitability:
Cosmetics industry | Food industry | Tobacco industry

Machine requirements:
Gallus ICS 670 with 7 EVA platforms, additionally equipped with 5 flexo modules, 1 cold-foil module and 1 hot-foil stamping module, inline cutter, inline die-cutting and embossing station, inline waste stripping station, delivery unit

Design requirements:
Distinct motif edges that can be brought out in cold- and hot-foil finishing, embossing and the coating effects; same colour space for all designs

Special features:
All four design versions are based on the same machine configuration and ink/coating sequence (cold foil / gravure printing, Iridion® Icy White / gravure printing, Hexachrome Orange / gravure printing, Brown / gravure printing, Black / flexo printing, Black / UV flexo printing, Iridion® Ultra Gold / flexo printing, SENOSOFT® WB matt coating / hot-foil stamping / UV flexo printing, gloss coating / die-cutting and embossing) and are produced together inline on a mixed sheet.

Description:
This new project of the Value Added Packaging Initiative is intended to show that even folding cartons with a very high degree of finishing can be efficiently produced inline, by using a Gallus ICS 670 printing system. When producing these two confectionery packagings in two different finishing versions each, a wide variety of foil and coating effects were made use of, as well as pigments and blind embossing, in order to manufacture realistic food packagings in a single production cycle. A combination of gravure and flexo printing was used in this context. Although likewise possible, the use of screen-printing components was disregarded owing to migrations risks. The special shape of this packaging was developed by A&R Carton. It is reminiscent of a cut diamond, but also features lateral surfaces with filigree curves, by means of which the effects used can develop their full impact at the POS due to their special reflective properties.

Remarks:
In this highly complex production process involving different printing processes, substrates and materials attention has to be paid to numerous parameters already at the production planning stage. First, a defined scaling factor has to be taken into account during form production (cylinders/flexo plates/die-cutting and embossing tools) in order to factor in the varying shrinkage of the board web resulting from the different contact pressures and drying temperatures. Without this, accurate production is impossible. Second, the materials, inks, coatings and foils in use have to be coordinated. Optimum results can only be achieved if there is a perfect interaction between material, man and machine. Consequently, it is essential that a project of this kind be clearly discussed with everyone involved, ahead of production. This makes it possible to avoid technical problems in advance and, where appropriate, also to incorporate changes into the design and production planning.

Since the product in question here is intended for use in the food industry, consideration also has to be given to all the legal requirements of particular institutions and countries of sale. The careful use of certified substrates and low-migration materials, especially inks and coatings, makes it possible to even produce highly sophisticated primary food packagings.

In terms of function, certified virgin fibre-based boards comply with all food law standards. This naturally also includes the materials used in this project: ALGRO DESIGN coated, bright white wood pulp board from Sappi and Carta Solida coated folding-carton board from MetsaBoard (standards BfR 36, FDA, etc.). With it they offer an outstanding base for sensitive groceries thanks to a high odour and taste neutrality (Robinson values ≤1) for direct food contact.
For these two print jobs in different finishing versions each, the first thing is to find a suitable colour space that permits spot-colour reproduction for all four packagings. Based on the market orientation „outer packaging for chocolate“, the decision was taken to work with a Hexachrome Orange, a saturated Brown tone (Pantone 478C) and Black.

All three inks are applied by gravure printing, on an Iriodin® previously also applied by the gravure process. For highest production flexibility, a second Black is used for language changes. It is designed as a flexo application to reduce the production costs (flexo plate vs. gravure cylinder). Based on this colour space, all four designs are now created in Illustrator.

In this context, the images of the two chocolate truffles used are converted into spot colours in Photoshop and exported as DCS files. All spot colour forms are subsequently created (coatings, foils, embossing), paying attention to sufficient spreading/choking. The final application sequence already has to be taken into account at this point, so that coating cut-outs and overprinting elements can be defined accordingly. After consulting the foil and coating suppliers regarding the planned hot-foil applications in this production project, cutting out of the ink and coating forms can be dispensed with owing to the filigree foil forms. This also has to be kept in mind when selecting the corresponding coatings and foils.

The finished designs are rendered as finished screen versions via Esko Visualizer and used for discussion with the customer and the whole production team. The interplay of the individual finishings and the technical specifications can already be visually verified and, if necessary, modified at this point.

Production of the final printing data should then be handled by a repro studio that has sufficient experience with this production system and is also familiar with, and capable of applying, the necessary register and scaling requirements of the production system. This is followed by a final quality control step before the data are forwarded to the individual production partners for preparation of the plates, cylinders and tools.

The appropriate anilox rollers then have to be used for production. In this context, the „cold foil adhesive“ was applied with 120 l/cm and a 12 cm³/m² anilox roller, flexo Black with 440 l/cm and 4.2 cm³/m², Iriodin® Ultra Gold with 120 l/cm and 14 cm³/m², SENOSOFT® with 100 l/cm and 10 cm³/m², and the gloss coating with 100 l/cm and 12 cm³/m².