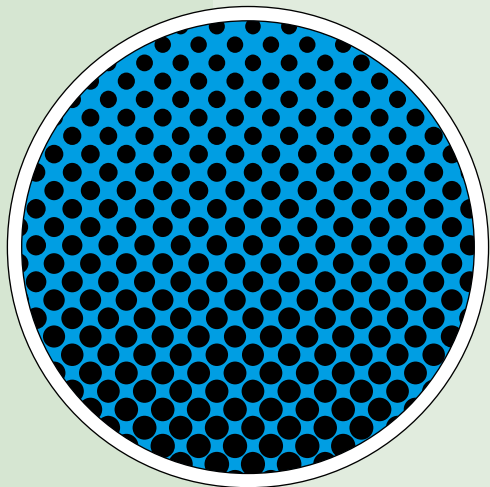


HOT OR COLD?

Hot and cold foils offer unbeatable visual appeal to conjure up eye-catching gloss or metallic effects. But when should you use each process?

In both processes, aluminum pigments are transferred from a foil carrier to the substrate. In hot-foil embossing, this is performed using heat and pressure by means of an embossing die applied offline after printing. In cold-foil finishing, a conventional printing plate in the first printing unit applies an adhesive to the areas to be finished. In the second printing unit, blanket and impression cylinders then press the cold foil onto the sheet to ensure the metallic pigments adhere to the tacky areas. "Normal" color printing can start from the third printing unit.



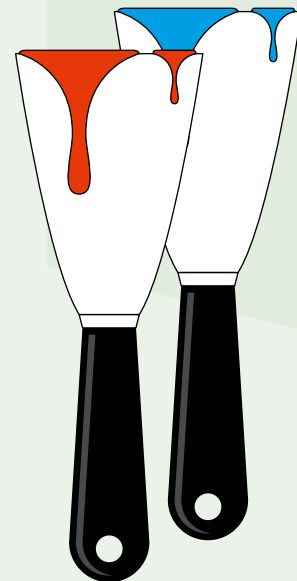
SCREENED METALLIC EFFECTS

Cold foil can be transferred in screen form to display metallic elements – such as the brushed surface of alloy wheel rims – in a four-color image. To do this, cold foil is treated in prepress like a spot color.

TIPS & TRICKS

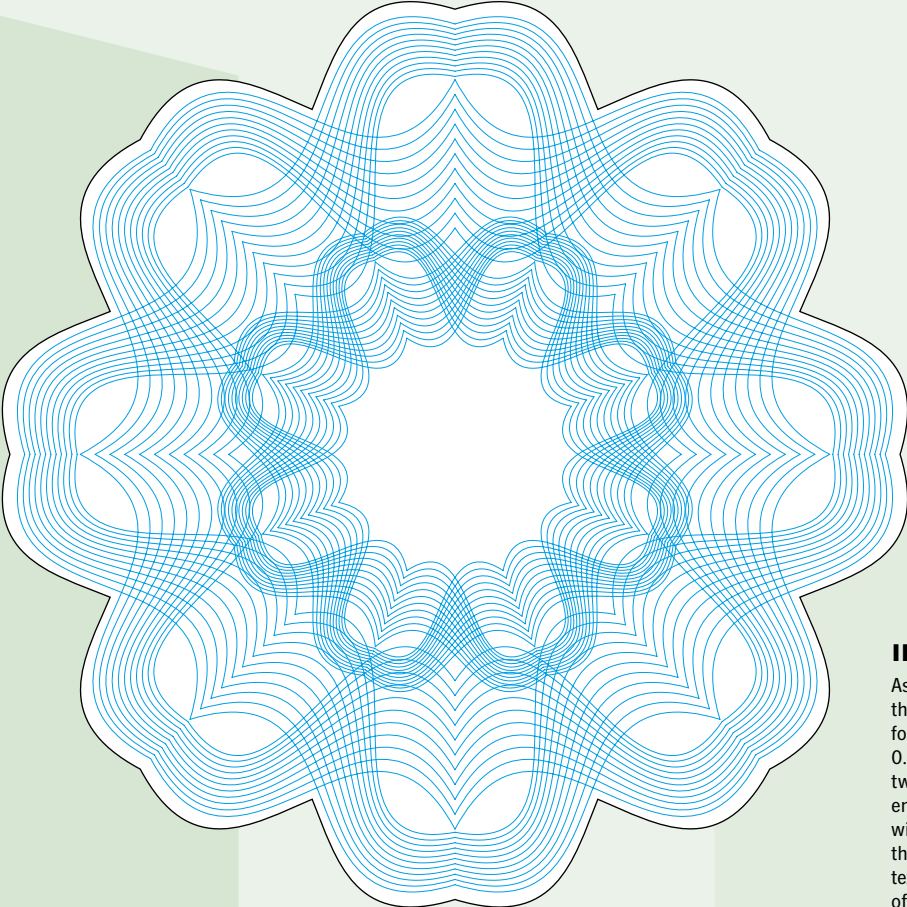
SHINY AND SMOOTH

Cold foil requires smooth surfaces to ensure the adhesive is not absorbed and the adhesive and pigments can be applied cleanly and flawlessly. In contrast, rough or wrinkled substrates are no problem for hot foil. Pressure and heat simply iron out unevenness and produce a high gloss finish. Hot foil can even be applied to flocked materials.



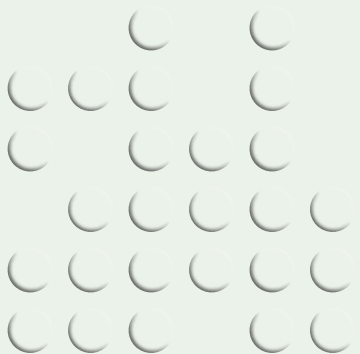
COLORS

Although hot foil is overprintable, it requires an additional process and thus additional outlay. The foil should therefore be applied in the required color wherever possible. Cold foil, on the other hand, can be overprinted with process or spot colors in a single pass to produce metallic gloss effects in any color nuances. However, it is important to note here that the foil's silver tone is a gray value. As a result, white highlight areas cannot be depicted, for example, and an achromatic structure is necessary for a high proportion of black.



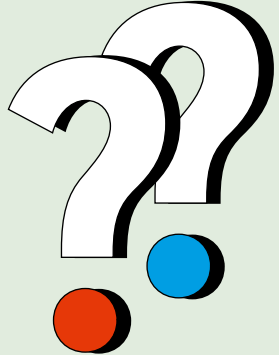
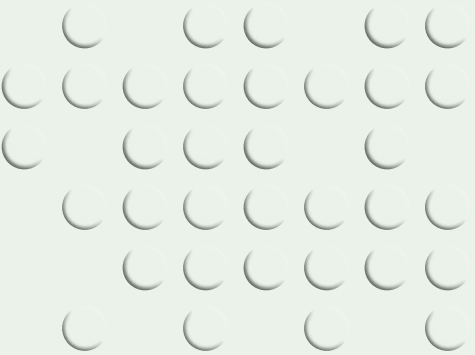
INTRICATE MOTIFS

As the adhesive is applied with register accuracy in the same way as an ink using an offset plate, cold foil can reproduce very fine text and thin lines of 0.0020 inches (0.05 mm). A further factor is that the two cylinders exert only minimal pressure. This enables the metal layer to be removed from the film with excellent edge sharpness, while distortion of the substrate is prevented. In contrast, motifs and text in hot foil are only possible from a line thickness of approximately 0.039 inches (1 mm).



HAPTIC EFFECTS

Dies can also be used to give substrates structures or three-dimensional elevations such as reliefs. If cold foil is applied using lithographic printing, a subsequent operation is required. Either shadows or textures are imitated by overprinting and coating, or the haptic effects are created by blind embossing.



COST-EFFECTIVENESS

Generally speaking, less foil is consumed using the hot process, as the feed adapts to the repeat length, and it is possible to use the foil areas using step & repeat between individual repeats. In the case of cold foil, the feed is synchronized to two-thirds of a cylinder rotation, regardless of the repeat length. The greater the area covered per repeat, the closer the foil consumption levels of the two processes to one another. Cold foil can be more cost-effective from around 35 percent area coverage, with factors such as run size and delivery time also playing a role. This is because, while cold foil can be applied inline at top production speeds, hot foil is applied at a speed of between 6,000 and 8,000 sheets an hour. Added to this is the much greater outlay in time and money for manufacturing embossing dies compared to offset plates. Cold foil really comes into its own for large-volume industrial printing thanks to the faster makeready and throughput times and lower costs to achieve a salable product. Hot foil is ideal for jobs that have a high artistic quality or cannot be produced inline with cold foil.