

EMBOSSED SURFACES

SMALL SHAPES — BIG JOBS

Embossing adds a third dimension to a wide range of materials. Surfaces refined in this way provide a haptic experience, not just a visual one, and embossing often enhances their functionality as well. With their extensive know-how, experience and technical skills, the embossing experts at Janoschka make full use of the enormous potential of this technology, while at the same time meeting the market requirements for high-grade surfaces, design and quality.



What does the spectacular One World Trade-Center in New York have in common with lift panels, supermarket check-outs, suitcases, game boards and the lids on yoghurt pots and coffee capsules? The answer's quite simple: their embossed surfaces, of course. Daniela Heidt (Sales Manager Embossing) and Matthias Heidt (Team Leader Embossing),

both from Janoschka Deutschland, know how to enhance such a wide range of materials and applications with haptic features, looks and functions. We talked to them about their work and found out a lot about specific and complex tasks as well as about enthusiasm and passion. »

An outstanding team at home and at work.
Daniela Heidt (Sales Manager Embossing)
and Matthias Heidt (Team Leader Embossing),
both: Janoschka Deutschland



YOU BOTH SPECIALIZE IN EMBOSSEING TOOLS. HOW WOULD YOU DESCRIBE YOUR WORK?

Daniela Heidt: In a nutshell, we translate customer wishes into the latest technology, always thinking outside the box. After all, we don't manufacture the embossed product that the customer shows us, but instead do the research to work out which properties and images an embossing tool requires to achieve exactly this result on the desired material. Reproducing customer specifications down to the finest

detail calls for a lot of creativity, experience and a high level of precision.

Matthias Heidt: Our job is to produce perfect embossing tools that go on to yield perfect embossing results. In the first step, good and close contact with the customer and direct communication are indispensable for the whole process. This allows us to gather extensive and precise

information about the desired product and all its properties. We then sit down to figure out how to prepare the data that our colleagues in production will use to put images on the embossing tool, so that in the final step – i.e. when the tool has done its job – the finished product is exactly what the customer wants. »

SO YOU BRING TOGETHER MANY YEARS OF EXPERIENCE, TECHNICAL KNOW-HOW AND EXTENSIVE SPECIALIST KNOWLEDGE?

Matthias Heidt: That's right. The world of embossing is huge. You have to imagine that you can emboss almost any material. You'll be familiar with various types of embossed paper and cardboard, like packaging, wallpaper and paper place mats on restaurant tables. Cellulose is embossed

to make kitchen roll and toilet paper. Embossed plastics are used in car interiors and strapping band. However, you can also emboss glass, sheet steel and composite materials for façades on spectacular buildings. Which embossing tool is used depends on the material. The technique we use to add

the image to the tool, i.e. either direct laser, CNC cutting or etching, depends on the motif: micro-embossing and intricate structures are normally produced using lasers. »

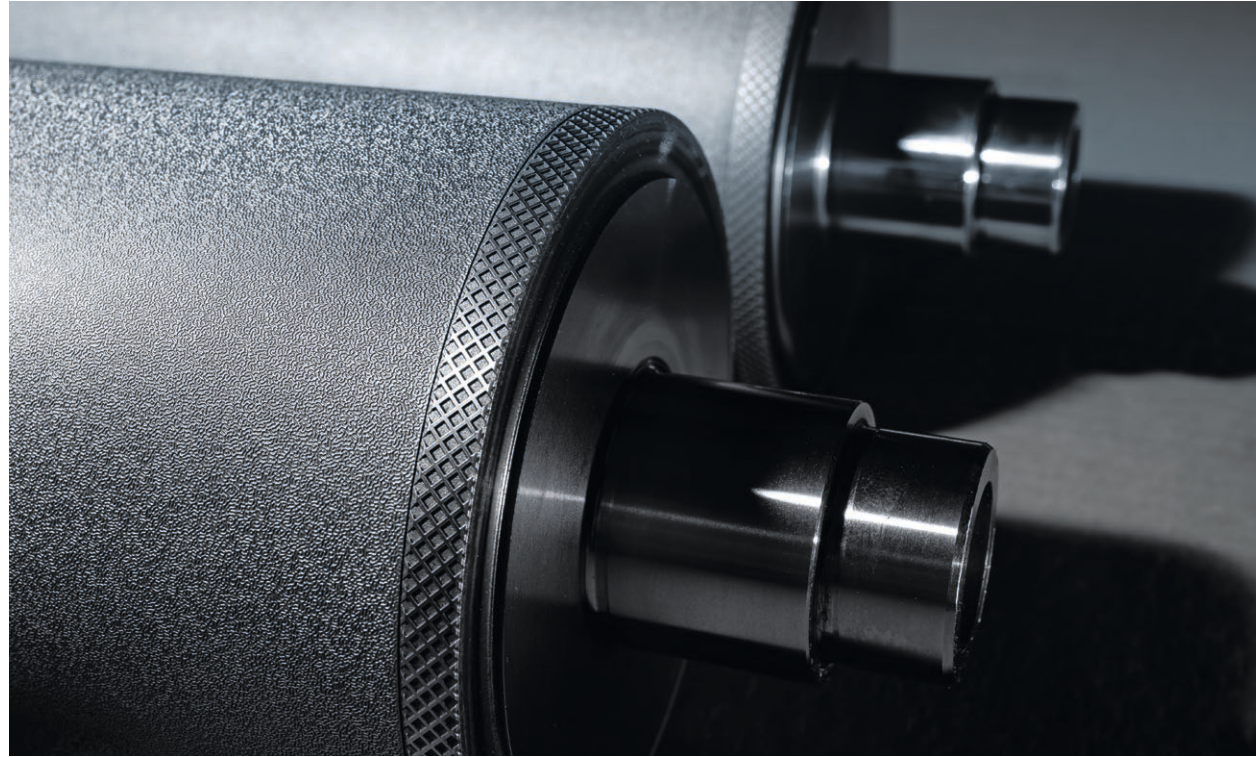


Each task in the embossing process is complex, owing to the combination and interaction of the various aspects: the material, the different design elements in the various embossing techniques, the finest lines and lettering or designs covering large surfaces – all of which play a role in achieving the desired results.



Daniela Heidt: And then there are all the different reasons why you might emboss surfaces: to make them look elegant, to catch your eye and to feel good in your hands – just for starters. The diverse and essential functions fulfilled by embossed surfaces are less obvious, but no less intriguing: on sheet steel in lifts or on sliding surfaces at

supermarket check-outs, the aim is to prevent soiling or to make the surface more slippery or easier to clean. Embossing makes labels more elastic and creates decorative patterns on tissue products like kitchen roll and toilet paper, thus strengthening it and holding the individual layers together. »



Janoschka Know-how Direct laser engraving into hardened steel



One outstanding and significant in-house development from Janoschka's embossing experts is direct laser engraving into deep-hardened steel. This ensures an exact fit for patrices and matrices, high-resolution engravings and extremely durable cylinders. Customers also receive their embossing tools much faster since the imaged cylinder no longer needs to be hardened. The downstream hardening process was not only time-consuming, but also problematic as the soft steel cylinders were sometimes damaged during the hardening process itself and also during transport.

Janoschka can rely on an experienced team who have employed state-of-the-art direct laser technology for this in-house development. A laser beam measuring approx. 10 µm (0.01 mm) in diameter ablates material from the embossing cylinder according to the prepared engraving data. Thanks to very precise control of the laser intensity and engraving depths up to 1,100 µm, highly detailed motifs can be created using almost any three-dimensional structure and on a range of materials like copper, zinc, steel and aluminium.

WE HAVE ALL SEEN WORM AND LINEN PATTERNS ON YOGHURT POT LIDS. WHAT ARE THEY FOR?



Daniela Heidt: Yes, you will have done. That kind of three-dimensional shaping across the whole surface makes yogurt lids stronger, for example. It allows several pots to be stacked on top of each other in supermarket refrigerators. In addition, the structure makes the material itself more durable and therefore also helps the contents last longer. Without this surface structure the lids would either have to be thicker or backed with another (com-

posite) material to achieve a similar loading capacity and robustness. So this technique meets sustainability requirements on several levels, too.

Matthias Heidt: This form of embossing also has important functions during the production process itself: the reliefs act as spacers to a certain extent so that the aluminium foil lids rest loosely on top of each other. This in turn allows the filling machine to separate the

individual lids more easily when it seals them onto the pots. Without the embossed structure, the very smooth pieces of metal foil would lie so compactly that the machine would not be able to separate and apply them so easily. This would cause production hold-ups and increase costs. »



Among other things, surface structures allow the capsules to sit properly when inserted into the machine and then be evenly perforated for perfectly brewed coffee.

THESE LITTLE PATTERNS FULFIL BIG TASKS THEN...

a success story. We spent a long time doing intensive research...

Daniela Heidt: ... with many, many hours of trial runs, countless experiments, feedback loops and tears ...

Matthias Heidt: ... until we made the major advancement of switching from manual to laser engraving to produce the rollers for these precise and detailed structures. When

we began developing it about six years ago, our customers were convinced that high quality could only be achieved with hand-engraved (Molette engraved) rollers. Other techniques, like direct laser engraving, were still in their infancy. In the initial phase, the patrices and matrices did not fit together 100 per cent when laser-engraved tools were used, or the roughness of the surfaces produced was not right. The whole manual engraving process, though, was extremely time-consuming: it can take weeks or sometimes even months depending on the roller size. If something goes wrong during production, you have to start the whole process all over again. The costs are

accordingly high. We managed to obtain comparable quality by using direct laser engraving. We are very proud of that.

Daniela Heidt: Above all, because we've since optimised it for the highest quality packaging. Coffee capsule manufacturers use this technique, for example. The finest grading and lines are important when embossing the lids for these capsules; the shine has to be perfect, the writing easy to read. Only then does the whole design communicate the exclusivity that consumers of this luxury product expect. ▶



"Sometimes on a Sunday an idea springs to mind while we're having breakfast on the terrace. Then, we end up pushing our croissants aside, opening the laptop and working out together whether this spontaneous idea could help solve our latest embossing issue ... or could perhaps even be the solution?!"

WHAT IS THE KEY TO SUCCESS WITH THIS KIND OF DEVELOPMENT?

Matthias Heidt: Alongside ongoing contact with the client, it is, above all, our enthusiastic, well attuned team of experts who make such intensive new developments at all possible with their interdisciplinary specialist knowledge and technical know-how. Each individual puts forward their

ideas, opens new perspectives. We function like a watch mechanism. Such projects can only be pushed forward and lead to success if we work together.

Daniela Heidt: Enthusiasm and passion are other important ingredients, in addition to meticulous work, precision

and team spirit – whether on the customer side or within our team. We do not stop until the customer is completely happy with the aesthetics and function of the surface; only then are we happy too. ▶

