

Press release (DLEplus)

## **Deeper. Sharper edges. And better than nature: Hymmen goes one step further with its patented digital structuring process.**

**Bielefeld, November 12, 2020** – *Digital structuring as a logical addition to digital decor printing has been a topic of discussion since Interzum 2017. From the beginning, the machine and plant manufacturer Hymmen has played a leading role in the development of appropriate processes for the wood-based materials industry. The company has already launched several systems in the market. At Interzum 2019, Hymmen received the Innovation Award for its digital lacquer embossing (DLE) technology. But the spirit of innovation always drives Hymmen's R&D team forward. So, in 2020, the company was able to present an even more advanced process.*

### **Digital structuring in the context of previous developments**

In order to be able to correctly classify this further development, let's briefly examine it in the context of previous technical achievements: Wood-based material manufacturers are increasingly making use of the advantages of digital printing when refining their surfaces on an industrial scale:

- Industrial production of small output quantities per decor
- Integration of digital printing into the process chains of the decor industry
- Customized mass production
- Quick response to market trends
- Shorter time to market
- Shorter set-up times
- Lower storage costs
- New design options (register lengths, colors, visual depth)

In addition to the look, an appealing and authentic surface feel has also become an indispensable quality feature for furniture, floors, and the like. Press plates or structural cylinders are still widely used to create a surface structure. But little by little, the market is realizing that this means the many benefits of digital printing are not taken advantage of. Or worse, they are counteracted if a digital process was used for decor printing earlier on in the production process.

With this in mind, Hymmen developed the industry-standard – and now patented – digital lacquer embossing (DLE) process. The company was able to benefit from its extensive experience in digital decor printing, liquid coating, and implementing customer-specific surface quality requirements. Back in 2018, Dr. René Pankoke, managing partner of Hymmen (Fig. 1), already emphasized: “It

was clear to us from the start that customers have strict requirements when it comes to textured surfaces. If these are not met, a new technology has no chance of replacing tried-and-tested processes.” This includes the scratch resistance of the lacquer surface as well as its appearance with regard to the synchronization with any underlying decor, and with regard to different gloss grades and the depth of the texture.

For this reason, approaches with positive material application with digital technology were discarded right from the start of the development process because they did not meet the requirements for abrasion resistance. Even approaches in which the surface texture was to be achieved by direct application of the varnish or in which the primer specified the structure were not effective. The laboratory tests in the Hymmen Technology Center produced a clear winner: the digital lacquer embossing (DLE) process.

### **Digital lacquer embossing (DLE) — the technology**

With this innovative technology, a transparent medium is printed in a layer of uncured conventional lacquer. This is done with the help of the proven technology of the Hymmen JUPITER Digital Printing Lines. Physical and chemical reactions create a deep and unique texture.

Digital lacquer embossing exploits all the commercial and technical advantages of Hymmen’s established digital single-pass printing process. These include properties such as high flexibility, short set-up times, no storage costs, new design options and customization, and doing away with the need to change cylinders or press plates.

With a width of 70 mm to 2,100 mm and only one digital pressure bar, the technology can be easily integrated into existing processes. Using just small amount of the structuring medium does not change any of the tried-and-tested properties of the varnish, such as hardness, adhesion, scratch resistance, and chemical resistance. Ultimately, textures can be created that run synchronously with the surface decor – regardless of whether this decor was achieved through analog or digital printing.

### **Prize-winning, yet still further developed**

At Interzum 2019, Digital Lacquer Embossing (DLE) received great recognition and won the Innovations Award for high product quality (see Fig. 2). Still, the Hymmen development team did not rest on its laurels after this success but went on to rethink the process from the perspective of customer requirements. Because while the previous procedure was ideal for certain digital textures,

there was still room for improvement when it came to other textures. For special decors, the distinctive depth effect and sharp edges are particularly important in order to get as close to the original as possible.

The breakthrough came in 2020, and the first laboratory samples from the company's own technology center have already impressed international customers from the wood-based materials industry: "DLE plus", the advanced Digital Lacquer Embossing process for floors and furniture offers surface textures with deeper lines and sharp edges. It can be used on wood-based panels as well as other materials such as multi-layer substrates, plastics, and glass. "Better than nature", said a customer who thought that the digitally printed surface had even better properties than real wood. The linked video (see Fig. 2) and the pictures of different decors and textures (see Fig. 3) give a first impression of the surfaces.

The advantages of the DLE plus digital lacquer embossing process can be summarized as follows:

- A large texture depth of 10 – 200 µm
- Special effects due to high variability in depth
- Sharp edges
- Different gloss grades
- On request synchronized with the printed decor
- Paint surface quality is retained
- Technology can be added to existing conventional paint lines

Seeing and touching authentic surfaces is made possible by the continuous application of industrial digital printing from Hymmen – including its commercial and technical advantages. Digital Lacquer Embossing thus offers a completely new additional benefit for surface finishing – and, with DLE plus, for an even wider variety of textures.



**Fig. 4: Dr René Pankoke, managing partner and CEO of Hymmen**



**Fig. 2: Hymmen wins the Innovation Award at INTERZUM 2019**



**Fig. 3: Link to Hymmen's "DLE plus" video**



**Fig. 4: Various digital decors and textures -“DLE plus”**

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