



# Dry Phase Patterning

Revolutionizing electronic circuitry manufacturing  
and patterning of laminates



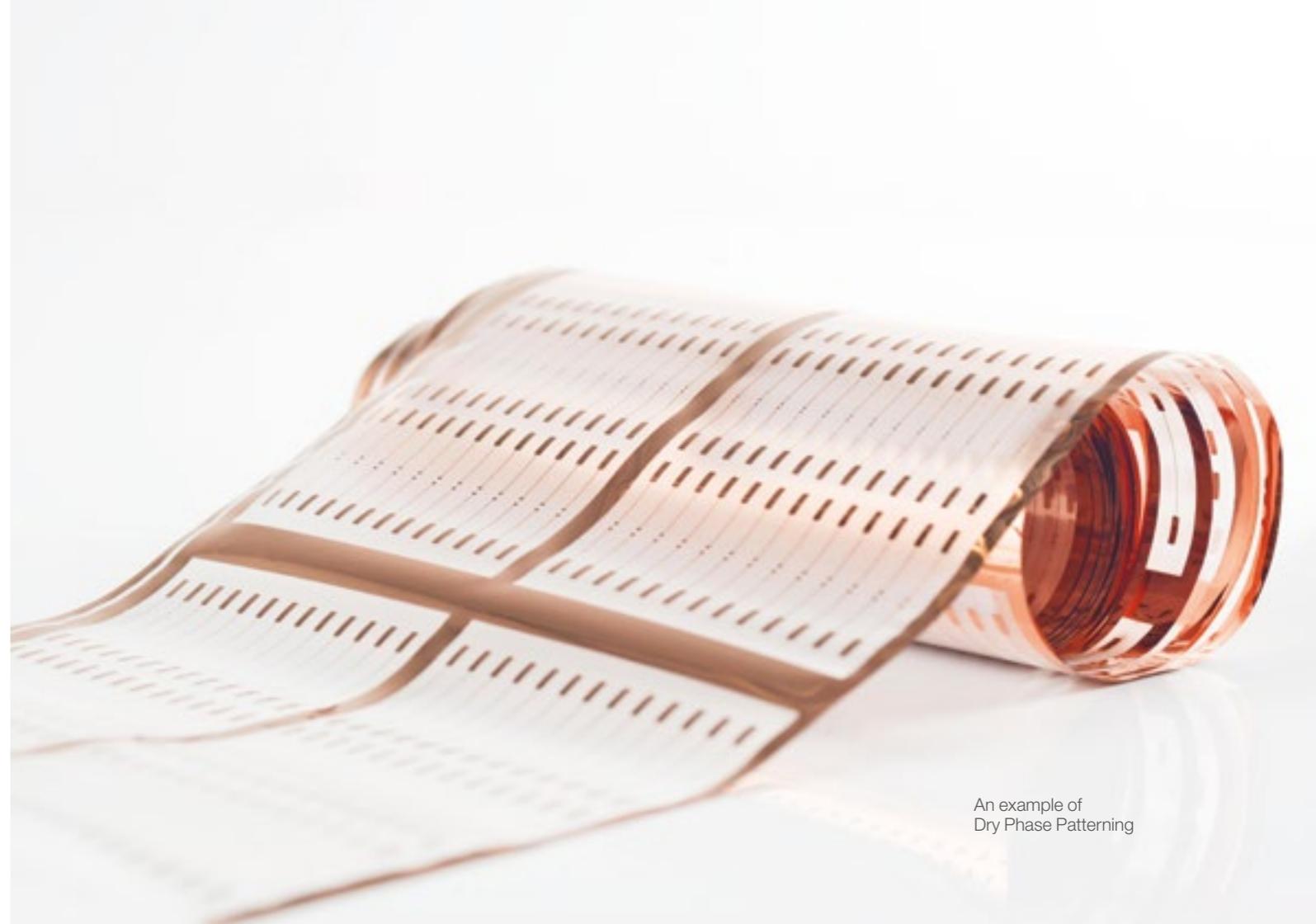
# Innovation isn't about complexity. It's all about simplicity.

The first thing you notice about groundbreaking technology isn't the bells and whistles. It's how it simplifies your everyday life that makes the real difference. DPP (Dry Phase Patterning) is a new technology that not only revolutionizes the manufacturing of electronic circuits – it turns it upside down. Our process is based on mechanical machining of the material, rather than the traditional use of chemical etching. This brings you instant advantages such as cost-efficiency and significantly reduced production times. But it is also the choice for everyone

who is looking for an environmentally friendly, sustainable solution that meets tomorrow's demands.

DPP is still a spark of genius even if you don't manufacture electronics. There are numerous applications for our technology when it comes to patterning laminates. Try DPP – an innovative approach.

But we offer more than ideas and technology. We offer the DPP-100 and DPP-330. Flexible and highly efficient dry phase patterning machines that makes every possibility become reality.



An example of Dry Phase Patterning

# Take a quick glance at the DPP process. You'll never look at traditional methods again.

Let's get down to basics. Once you get the big idea with Dry Phase Patterning, it's easy to see the countless possibilities. First, let us explain what our process ISN'T. DPP isn't chemically based and environmentally hazardous. It isn't time-consuming. And it isn't a process where you must depend on several subcontractors to realize your ideas.

Instead, DPP is a revolutionary, fast, flexible and environmentally friendly method of producing conducting structures on flexible materials, such as metals, paper, plastic or fabric. To put it short, our process works by

use of a cliché that presses out your desired pattern on a material, or "web", consisting of a top layer and an underlying laminate. A milling wheel then mechanically removes the protruding pattern from the top layer (the pattern layer), while the bottom layer laminate remains untouched. This leaves a conductive pattern on the laminate. Of course, our technology can also be used for non-electronic/non-conductive applications. And with DPP, you have the freedom to use moisture and heat sensitive materials that are impossible to use in chemical etching.



- 1 The web (e.g. a foil, film etc.)**  
This is the material on which the pattern will be produced. It consists of a bottom carrying layer of e.g. plastic or paper, and a top layer to be patterned, for instance a metal or a polymer.
- 2 The die cutter**  
This is an optional die cutter.
- 3 The cliché with the desired pattern**  
A standardized and easily replaceable type of custom made cliché that is used for instance in the printing industry.

- 4 The milling wheel**  
In this step, the elevated pattern is mechanically removed from the top layer. Residue can easily be recycled.
- 5 The cutting blade**  
The cutting blade mills away the pattern that the cliché (3) has pressed out through the material, with great precision.
- 6 The created pattern**  
Your product is ready!

# So you get the idea? Now get the machine.

*Innovation is nothing without the means to make it happen. And it must happen in a fast, flexible, environmentally friendly and cost-efficient way. That is why we offer the DPP-100 and DPP-330, our patented dry phase patterning machines that put all the possibilities of our process literally in your hands.*

## DPP-100

The DPP-100 is fast, producing up to 30 metres/min, and handles rolls with a width of 2-10 cm. It can easily be integrated in-line with other roll-to-roll processes. There is no need for extra heating or chemicals, and the residue from the milling process can easily be recycled. On top of that, it is cost-efficient – about 1/7 of the total cost of traditional etching methods. Last, and in fact, least – the size. Its desktop size lets you easily fit the DPP-100 wherever you wish.



## DPP-330

Just like its little brother, the DPP-330 can easily be integrated with other roll-to-roll processes. But it has a significantly increased capacity and can handle wider rolls than the DPP-100, ranging from 20 to 40 cm. The DPP-330 requires around 50 m<sup>2</sup> of space, but no modification of your facilities.



For additional information about DPP-100 and DPP-330, please see our website.

# Over to you. What do you need?

The applications for Dry Phase Patterning are countless. In fact, we may not even know about some of them yet. But in other cases, we know very well how DPP can improve your business. During our research and development process, we identified a number of areas that would benefit greatly from using our products and production technologies. These are:

- ➔ Antennas, RFID, EAS, Mobiles, etc.
- ➔ Heating foils
- ➔ Flexible PCBs
- ➔ Others: For example tapes, flexible cables etc.

But this is only the beginning. Working closely with you, we can develop the best solution for your unique needs. The flexibility of our technology makes your imagination



the only limitation. For instance, imagine the freedom of instantly manufacturing a new product prototype by using your own DPP-100, without having to depend on subcontractors. Sounds good, right?

You are welcome to contact us if you want more information. We'll be happy to visit you and explain more how your business can benefit from our technology.

# Tell us more about your business. We'll tell you how DPP can improve it.

We are always eager to meet new customers. In fact, it's the best part of our job, seeing how our technology can be put to use. The best way to get to know DPP is to meet us in person. We love talking about our products and technologies.



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