

**oerlikon**  
nonwoven

**Coform  
for disposable  
hygiene applications**



From cellulose and polymers to coform substrates



## Why we should be your partner

The Phantom technology took the best from all the available technologies, from our experience, from that of other sectors, from wherever there was something to learn.

We decided to create the best technology simply by choosing not to accept even a technical problem, however small it may be, or a feature that didn't work the best way we thought we could make it work. We have not been able to agree about compromises.

And from the beginning we had a great commitment: we wanted to be sure that the Phantom technology was versatile, that spinning was able to work well in the presence for many materials while preserving the characteristics.

This choice has worked well and has brought us, and is yet to bring us, results in the future. The Phantom technology is already able to be used with polymers that do not yet exist, making the technology future-proof.

In addition to this, the Phantom technology already has the advantage with a single plant, in that it produces different substrates – allowing manufacturers to tap into different markets and businesses.

The substrates that the Phantom technology triumphs at making are those destined to become personal hygiene wipes, surgical wipes, pads, diapers, heavy-use wipes, anti-bacterial wipes and hygiene cores. How to have three plants in one.

# Your environmental innovation specialist

For Oerlikon Nonwoven, innovation has to do with measurable improvements; these can be direct or indirect and in the conditions of the environment in which we live. In the Phantom technology's case, the decision from the beginning was to reduce the amount of polymer used. There has been a development that began with a largely plastic-less concept that we know will lead to a plastic-free substrate reality.

In the same way as with water: we decided to carry out a process whereby water had nothing to do with it. We chose this because we wanted to achieve two important goals: to protect water reserves and to save the energy that would be needed to manage the water. We know the costs of hydroentanglement from an environmental point of view.

Whoever does our job, imagining a part of the future, is involved in innovation. They must imagine the future and be ready for it. We constantly ask ourselves what people will need, what converting machines our substrates will use and the products it they will make which will become a part of people's lives, what characteristics the substrates will need to have in order to be processed better, to have a better performance, whether there are laws or customs that have an influence in one way or another.

This is a backwards path that originates from necessity and our will to improve people's lives in a sustainable way. Now we are focused on developing technologies that enable 100% green substrates. We are following different research paths: natural fibres treated mechanically or chemically, or even non-natural materials chemically treated to become compostable and green. At the same time, we are however also looking at recycled materials.

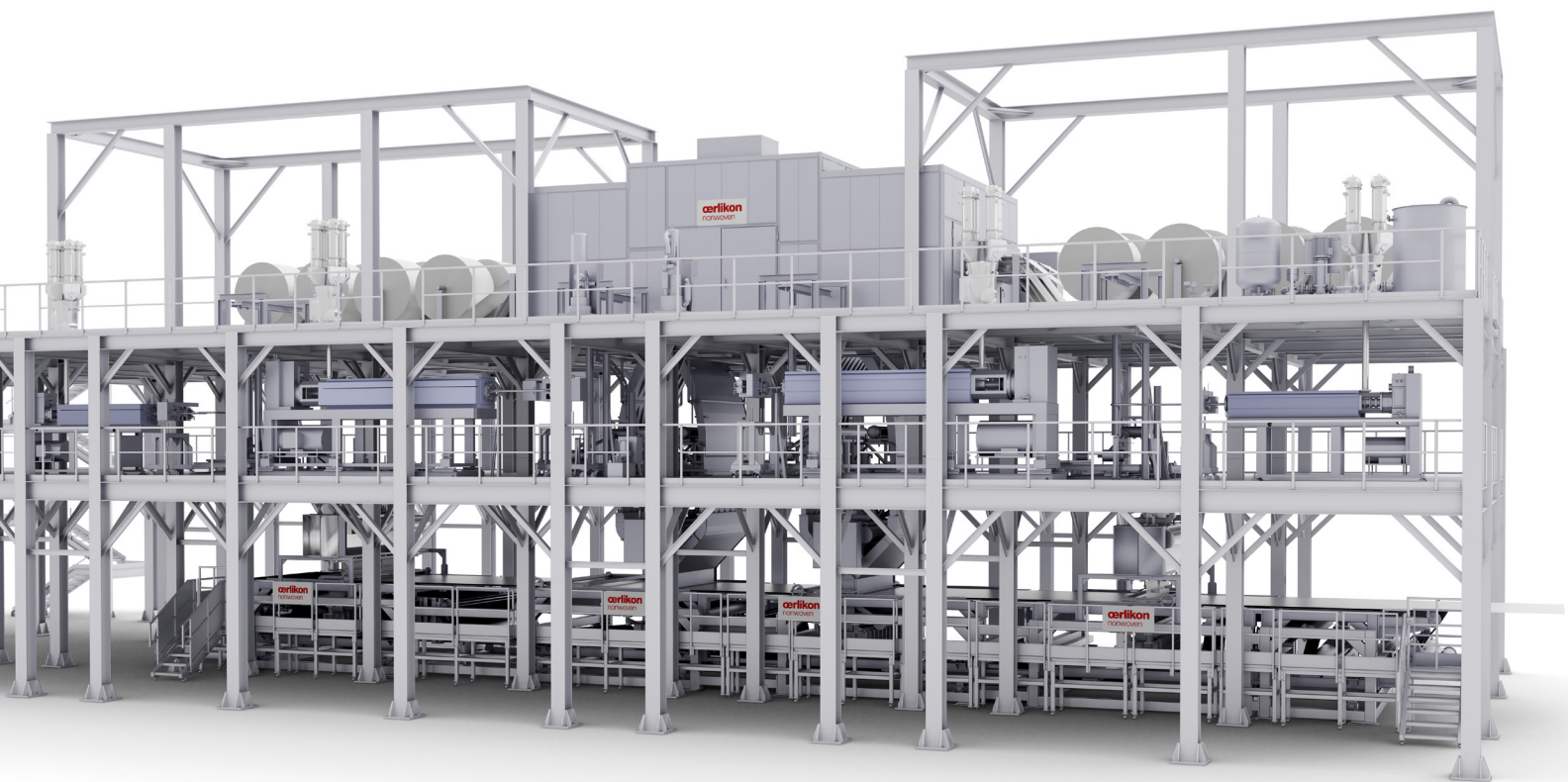
Having many lines of research offers us more opportunities to find the magic triangle that allows our customers to create sustainable products because they are plastic-free, quality products and products with a price tag that ensures them good operating margins.

Of course, we cannot write more about this research that the group is conducting. This is a precaution concerning confidentiality, which is necessary to protect us, and above all, the future of our customers who will be able to use our discoveries and inventions first. What interests us right now is making it clear what we are working for.

We have chosen and continue to want the Phantom technology to have a positive effect on profit margins, marketing opportunities and production flexibility, but we also want the environment to have its own personal gain through the choices we make and have made.

In addition, it has always been clear, at least here at Oerlikon, that the most sustainable choices are often those that lead us closer to finding alternative solutions, different technologies, non-trivial choices that then also translate into economic advantages and an approach to the future. It seems simple to us: every time we manage to maximise an energy unit or even eliminate one, making sure that the function (if necessary) is still satisfied, there is an energy saving and subsequently, an economic advantage: our customer has more profit, our plants have a faster payback. Virtuous choices are also destined to prevail in the market. This is the bet we made when we decided to overturn the paradigm of what was then the market leader and realised that it was no longer the time for incremental innovation, but that revolutionary innovation was required. The benchmarks for our key product, the wet wipe, was spunlace technology. As the first design choice, we overturned the ratio between cellulose pulp and polymer and then we made sure that everything else worked.



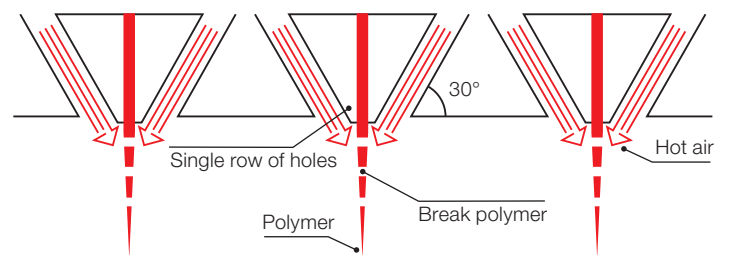


## A simpler, better, coaxial solution

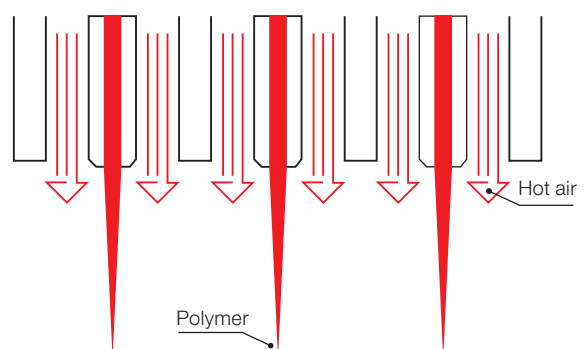
Whether we are talking about polymers, biopolymers or materials that have not yet been invented, the solution to have electrospinning with a coaxial air flow in the filament is the most efficient solution compared to traditional and outdated solutions whereby the air flow is incident compared to the 30-degree filament. In this way, in fact, the filaments are not subject to stretching, the risk of breakage or micro-ruptures is reduced, and the filament is created with a soft and elastic molecular chain in contrast with the alternative that led to stretched and linear molecular chains with internal micro-ruptures. With this method and for these reasons, substrates are created with a high level of web integrity, which means that they are more elastic and able to extend lengthwise without breaking. Of the many advantages, this feature allows for a core of super-absorbent material to be contained.

In the solution with a standard meltblown nonwoven, the processed substrate tends to break and the super-absorbent part tends to shorten and collapse centrally. For this reason, the Phantom technology is ideal for producing substrates for both wet wipes and cores.

### Standard Coform



### coaxMELT





# Tailored for business

The versatility provided by the possibility of using different polymers and the variety of systems allows us to say that our standard is not to have standards, but to create one for every need, even when it comes to consolidated solutions.

The Phantom technology is a project that was devised and developed with P&G and has taken great advantage of its technological and market expertise. Oerlikon is the only company that has received permission to produce, develop and introduce Phantom to the market.

The Phantom technology has developed in two different size formats and types, targeted at different market and customer needs: Phantom and Phantom Lite. One is more productive and the other is less productive, one is able to make products of the highest market range and the other is able to make optimum, versatile and excellent substrates.

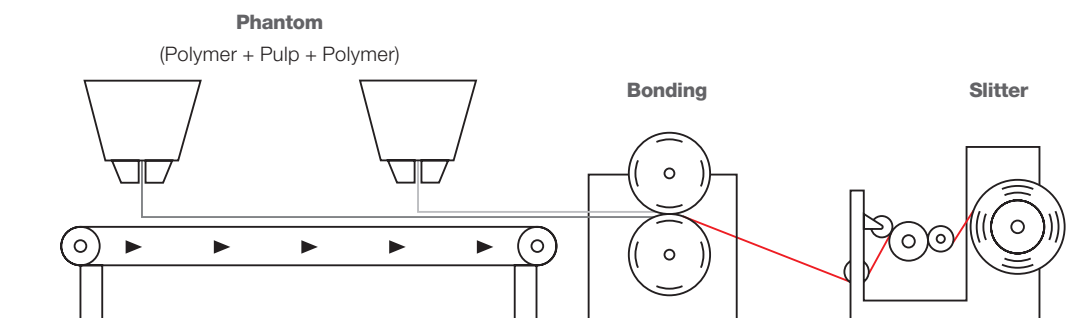
The two solutions have in common the conform process, where cellulose pulp comes into direct contact with the polymer before reaching the belt upon which the substrate is formed. In both solutions, we have the possibility of creating products that are obviously superior, as we have shown through many

tests performed with consumers and which are available for a joint analysis during the negotiation or evaluation phase.

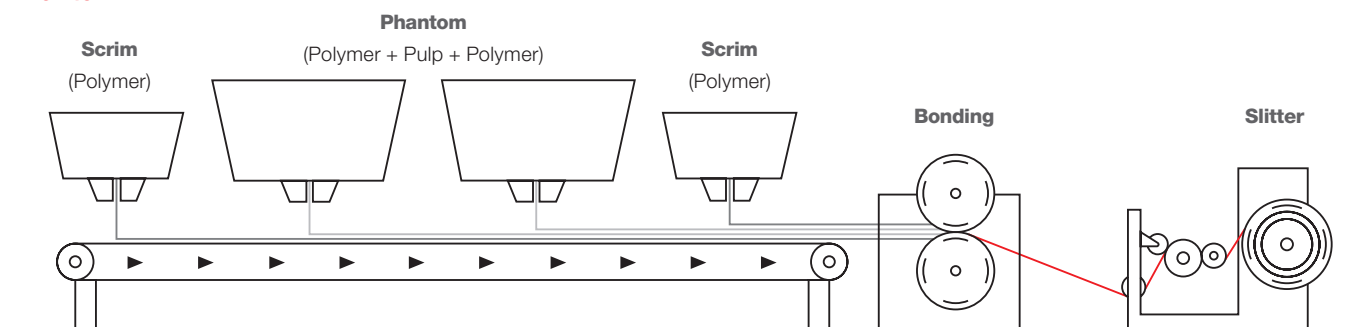
This range allows our customers to have the best approach to any type of market, to every type of situation that your company is going through, whether you want to produce an entry level product or a premium one, or you want to try to enter a new market with a small amount of material.

The Phantom Lite version can be later converted into the full Phantom version if required, but we prefer to think that there are more cases in which a Phantom Lite product that has worked very well and yielded profits and satisfaction would be complemented by a brand-new, full Phantom system.

## Phantom Lite



## Phantom



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