

VON ARDENNE 

# VACUUM WEB COATING SYSTEM

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BARRIER COATINGS FOR SUSTAINABLE FLEXIBLE PACKAGING

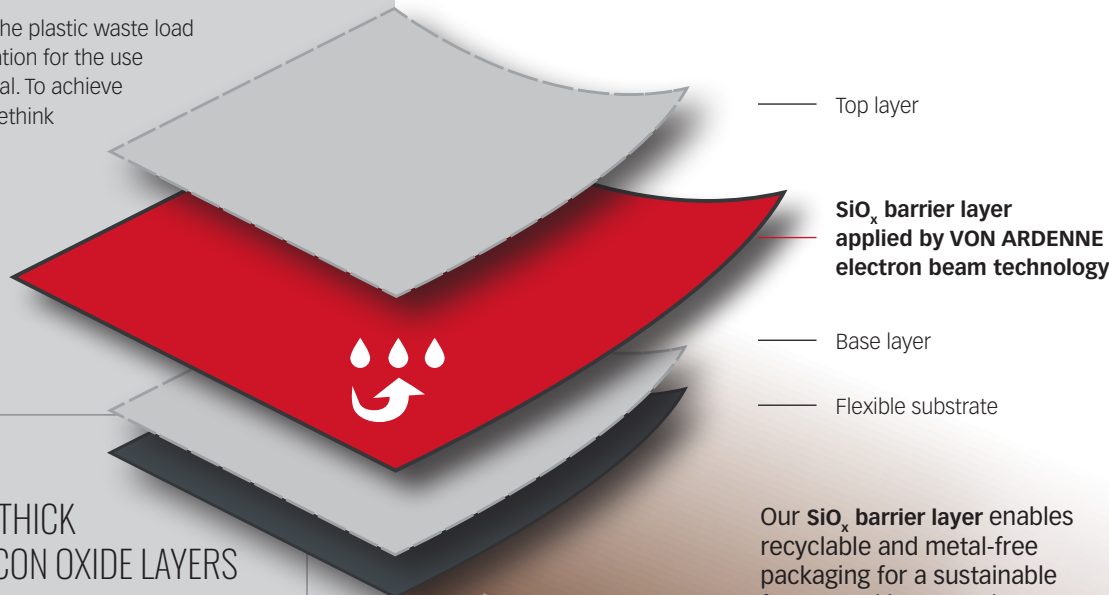


# Tackling the Challenges

The central challenge for the packaging industry is the transformation towards sustainability.

It will be necessary to reduce the plastic waste load and to adapt to the new legislation for the use of recyclable packaging material. To achieve that, the industry will have to rethink manufacturing.

Tackle this challenge together with VON ARDENNE.



With the help of just a

## FEW NANOMETERS THICK TRANSPARENT SILICON OXIDE LAYERS

monomaterials can be provided with excellent barrier properties. Thus, materials can be produced that combine the high demands of the food packaging industry with the benefits of a circular economy.

VON ARDENNE has developed a process for applying  $\text{SiO}_x$  barrier layers on flexible substrates that combines high layer performance with maximum productivity.

VON ARDENNE provides you with tailored web coating equipment for sophisticated thin-film applications on polymer and metal. That includes equipment, key technology components and application technology.

The **FOBA** is a compact system for the roll-to-roll coating of flexible materials. It uses proven electron beam (EB) evaporation technology to deposit functional layers at high rates on polymer film or thin metal strip. The **FOBA** is ideal for high-volume production. It is available for applications requiring one or two EB deposition layers.

You can rely on our experience of many years of providing vacuum deposition equipment for large-area coatings. We have incorporated this experience and our technology and web handling expertise into this platform.

Get in touch for more information.



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# Transparent $\text{SiO}_x$ Barrier Layers

Our  $\text{SiO}_x$  barrier layer enables recyclable and metal-free packaging for a sustainable future. And it meets the upcoming regulations.

## SIOX-COATED BOPP

WVTR [ $\text{g}/(\text{m}^2 \text{ d})$ ] 0.3\* [UNCOATED BOPP: 6.8]

OTR [ $\text{cm}^3/(\text{m}^2 \text{ d bar})$ ] 2.1\* [UNCOATED BOPP: 1060]

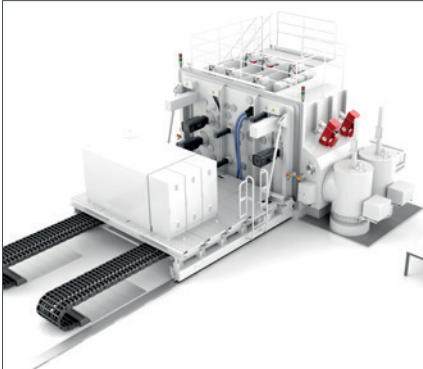
\*depending on substrate

# Scalable Production of Barrier Coatings

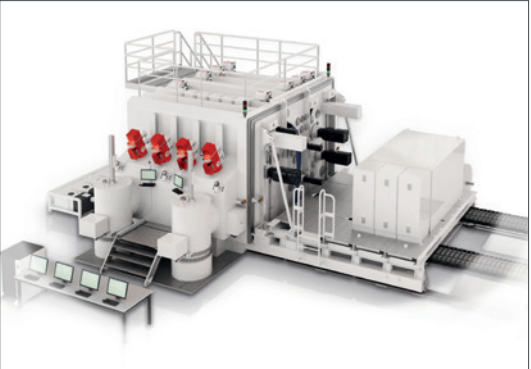
## FOBA Platform



FOBA 600



FOBA 1600



FOBA 2800

You can upscale the productivity by increasing the coating width from 600 millimeters to up to 2800 millimeters.

## ELECTRON BEAM GUNS



## EXCELLENCE IN ROLL-TO-ROLL WEB COATING

UP TO 50 % HIGHER EVAPORATION RATE

UP TO 2800 mm COATING WIDTH

UP TO 1200 m/min WEB SPEED

## TECHNICAL DATA

Subject to change without notice due to technical improvement.

... Variety of substrate materials	e.g. PET, PP, PA, PE, PLA pre-coated paper
... Substrate thickness range	4.5 $\mu\text{m}$ to 200 $\mu\text{m}$
... High operation speed range	up to 1200 m/min
... Good coating width	max. 2800 mm
... Typical uniformity	+/- 8 %
... Several pre-treatment options available	
... Max. coil length at 12 $\mu\text{m}$ substrate thickness	100 000 m

## YOUR BENEFITS

- Highest productivity**
  - ... 50 kV acceleration voltage enables up to 50 % higher evaporation rate
- Excellent product quality**
  - ... 5 drive winding system with high roller parallelism and closed loop process control
- Fast & easy maintenance**
  - ... Integrated stations for fast exchange to a preloaded crucible and new substrate coil

# OUR STRENGTHS

## In-House Technology & Application Center

- Sample coatings of customer applications
- Development of customized layer stacks
- Product & process verification and optimization
- Testing of new technologies and components

## Professional Simulation Support

We offer professional simulation technology to ensure best process quality with regards to plasma, heat and cooling. Furthermore, our simulation tools help demonstrate, develop and improve layer properties and define or optimize processes, details and the performance of our systems.

## Close Partnership

VON ARDENNE has a network of partners for even more profound R&D work and to identify future technologies. It consists of:

- Fraunhofer Institutes
- Institutes of the Helmholtz Association
- Universities
- Companies

## Global Project Experience

VON ARDENNE equipment is used in over 50 countries. We have established an installed base of hundreds of coating systems worldwide, ranging from small tools to equipment for large-area coating applications for several markets.

## Comprehensive Service Portfolio

- VON ARDENNE service hubs around the world
- On-site service
- Remote access by our technology department
- Regular technical and technological trainings
- Spare & wear part warehouse close to customers
- Lifecycle extension of wear parts

## Upgrades & Retrofits

As soon as your business is growing, your VON ARDENNE equipment will grow accordingly - thanks to its modular design and the upgrades we provide. We will also supply you with the necessary technology upgrades if you decide to change your applications.

Furthermore, when your equipment is ageing, we will retrofit your systems with new components, no matter if they are VON ARDENNE or third-party machines.

# WHO WE ARE & WHAT WE DO

VON ARDENNE develops and manufactures industrial equipment for vacuum coatings on materials such as glass, wafers, metal strip and polymer films. These coatings give the surfaces new functional properties and can be between one nanometer and a few micrometers thin, depending on the application. Our customers use these materials to make high-quality products such as architectural glass, displays for smartphones and touchscreens, solar modules and heat protection window film for automotive glass.

We supply our customers with technologically sophisticated vacuum coating systems, extensive expertise and global service. The key components are developed and manufactured by VON ARDENNE itself. Systems and components made by VON ARDENNE make a valuable contribution to protecting the environment. They are vital for manufacturing products which help to use less energy or to generate energy from renewable resources.

# WORLDWIDE SALES AND SERVICE

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