

VON ARDENNE 

VACUUM COATING TECHNOLOGY & EQUIPMENT

CONTACT & PROTECTION COATINGS FOR METAL BIPOLAR PLATES

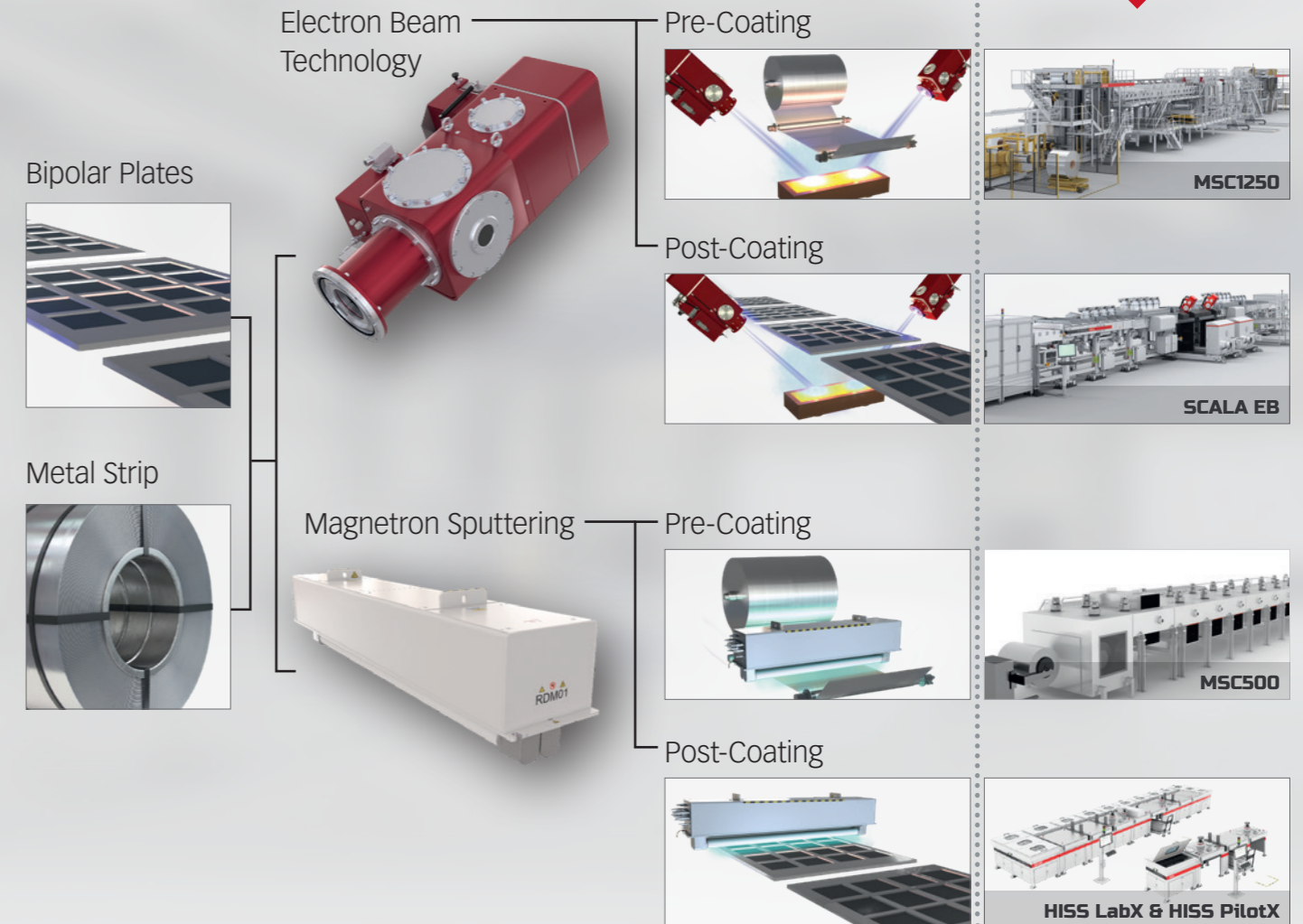
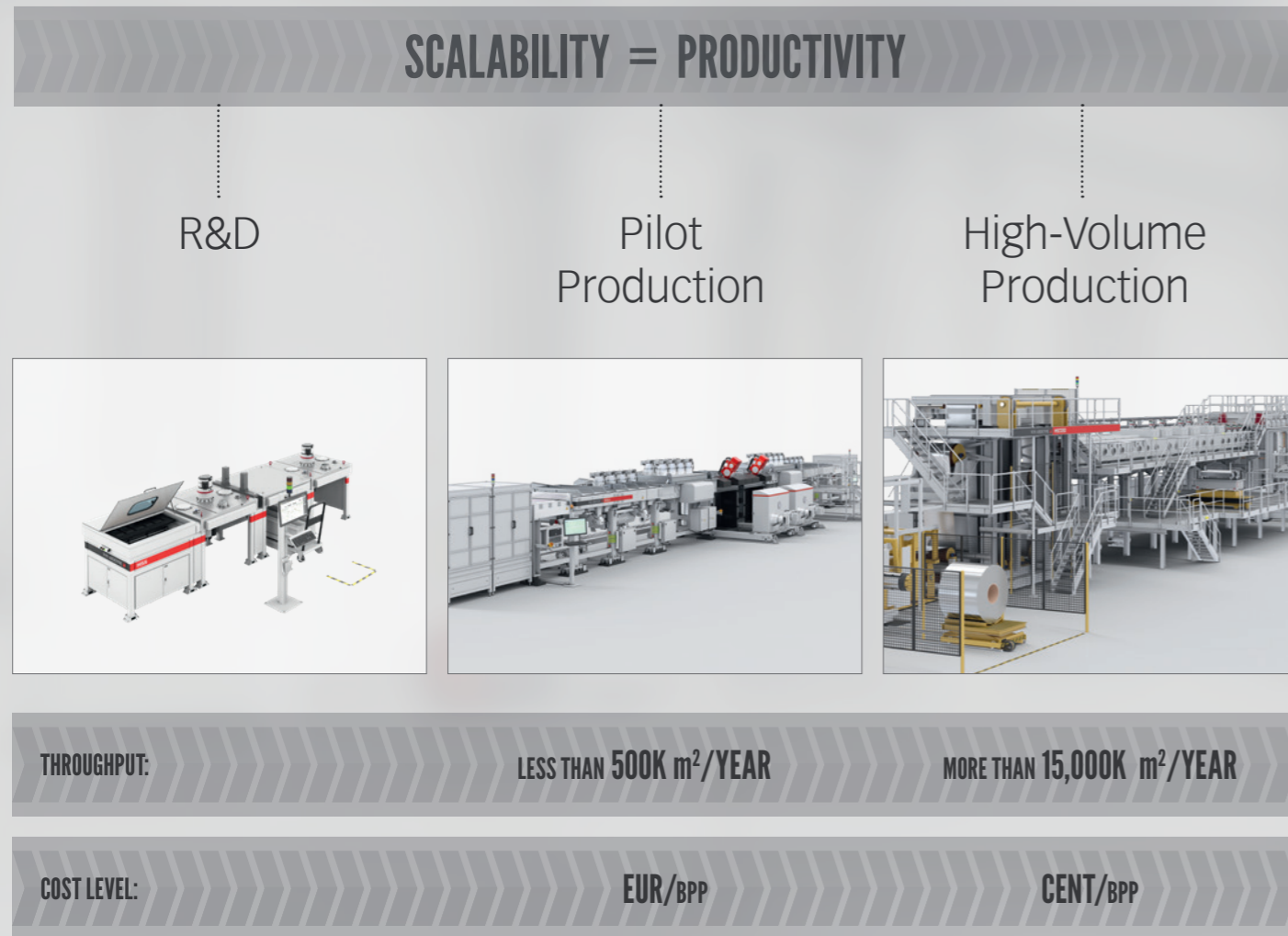
substrate provided by Borit NV

VACUUM COATING TECHNOLOGY & EQUIPMENT

Contact & Protection Coatings

for Metal Bipolar Plates

Coater Configuration Examples



Our Offer

Assessment of your fuel cell component coating requirements:

- ... Discussion of your coating requirements
- ... Assessment of manufacturability
- ... Adaptation or development of coater concept
- ... Cost of ownership calculation
- ... Proof of principle tests/sample coating on sheets/sample coating on rolls
- ... Ready for sampling: R2R (max. width 280 mm), S2S (max. 500 mm x 500 mm)
- ... Ready to quote: S2S and R2R pilot and production systems

Deposition Equipment

- ... High-throughput electron beam PVD and sputter coating of steel substrates with carbon, metals and oxides
- ... Plasma pretreatment for surface activation and cleaning
- ... R&D, pilot and production equipment for the coating of strip material (R2R) and embossed bipolar plates (S2S)

TECHNICAL DATA

Subject to change without notice due to technical improvement.

SUBSTRATE

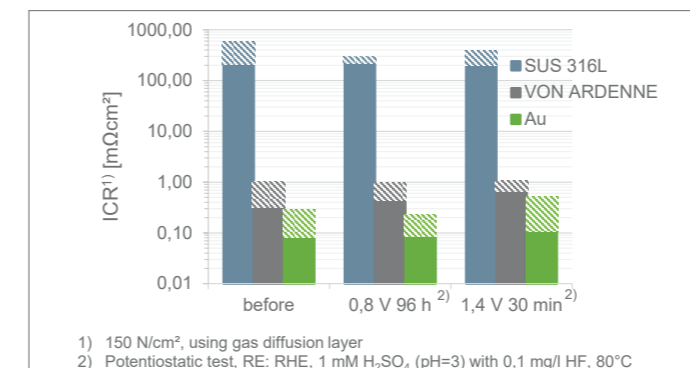
Material stainless steel e.g. SUS316L, Ti
 Size sheets: upon request, rolls: width up to 1200 mm
 Thickness < 1 mm, e.g. 100 µm

VON ARDENNE Reference Coating Stack for Bipolar Plates

Our carbon-based layer systems are optimized for a low ICR (interfacial contact resistance), good adhesion and high corrosion resistance. ICR, corrosion resistance and stack performance of this layer stack are **comparable to the gold standard** (see technical data).

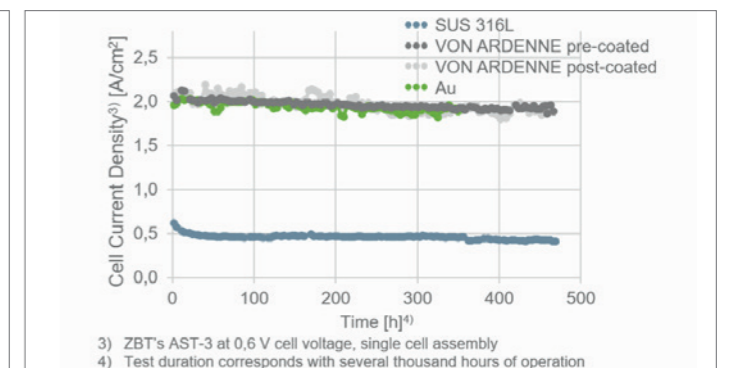
Electrochemical Test with Fraunhofer ISE

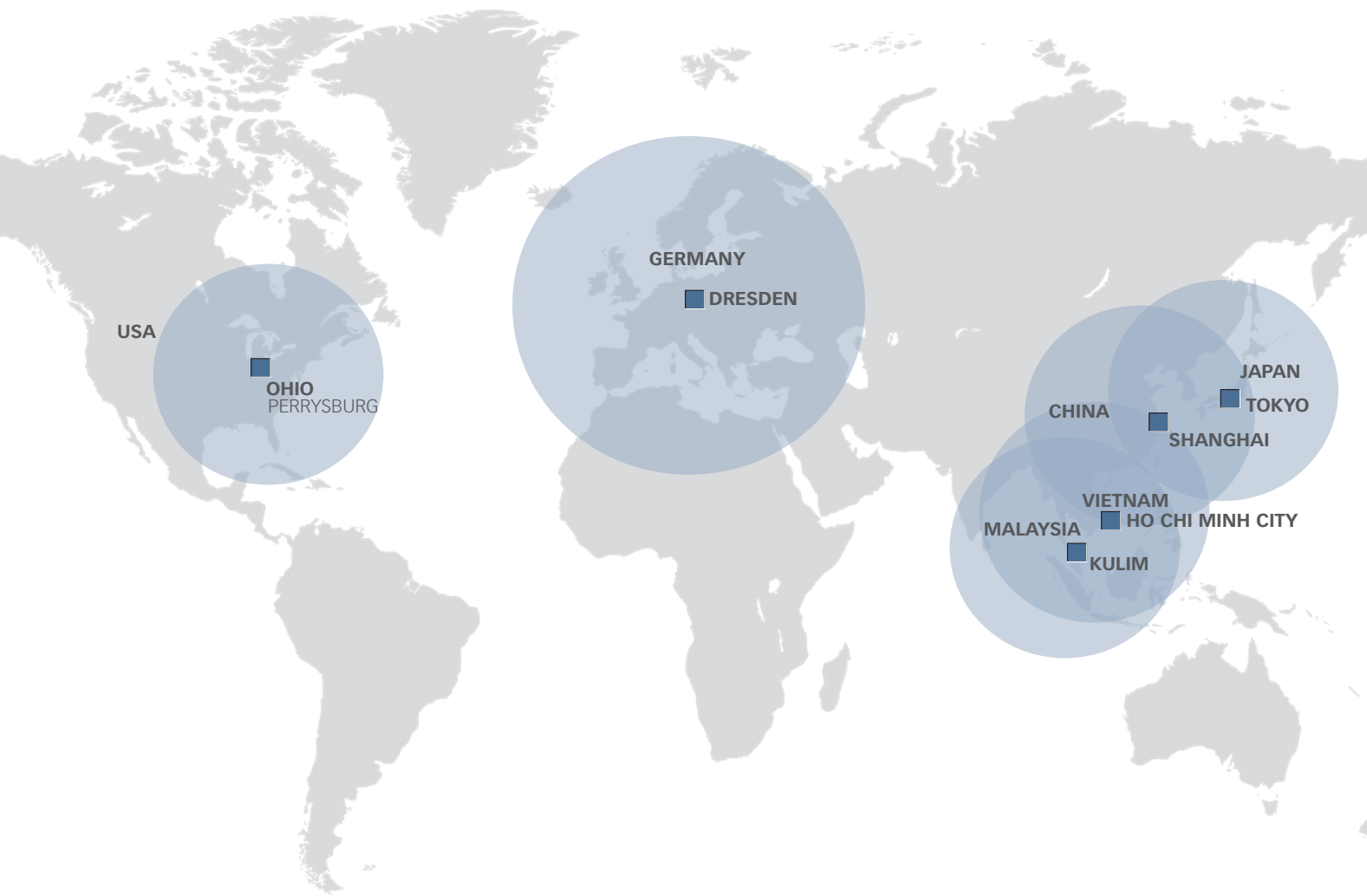
The VON ARDENNE carbon coatings are resistant to corrosion at fuel cell potential. Even at higher potential, they show a low contact resistance similar to a gold coating.



Accelerated Stress Test with ZBT

In the accelerated stress test, the performance of VON ARDENNE coatings (pre- and post-coating) can also reach the performance of a PVD-gold coating.





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COMPONENTS



www.vonardenne.biz

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.



**SALES
CONTACTS**



**SERVICE
CONTACTS**

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