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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.
VON ARDENNE provides tailored web coating solutions for today’s most ambitious thin-film applications on polymer and metal films comprising equipment, key technology components and application technology.

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

As a leading developer and manufacturer of industrial-proven vacuum deposition equipment for large-area coatings, VON ARDENNE has incorporated its broad knowledge and expertise in EB-PVD technologies and web handling into this platform.

HIGHLIGHTS
What makes the FOBA really special?
Gas supported cooling drum: enhances thermal contact to cooling drum in case of dual side coatings or metal foil substrates
Crucible level adjustment
VON ARDENNE high-power electron beam guns:
  — Perfect focus thanks to lanocathode™ technology
  — Acceleration voltage up to 50 kV for higher rate
  — Mid-frequency cut-off free power supply
  — Optimized for fast and easy maintenance

KEY FEATURES
— Dual drum, single chamber
— Reverse mode
— Powerful vacuum pump set

PROCESS
one or two eb-pvd processes equipped with one coating drum each
Pre-treatment
  — Plasma discharge
  — Sputtered bond layer
Coating
  — One or two EB-PVD process stations
  — Up to 4 EB guns per process station
  — Cut-off free MF EB power supply
  — Crucible adapted to process variants
  — Single layer uniformity up to +/-3% (depending on material)
Vacuum
  — Single chamber made of mild steel or stainless steel
  — Individually pumped process compartments made of stainless steel
  — Cryo trap at unwinder, pre-treatment and in each process compartment
Pump-down times
  — Process compartment (< 3 x 10⁻⁶ mbar) down to 60 min, depending on configuration
  — Ultimate pressure down to 8 x 10⁻⁷ mbar, depending on configuration

ADVANCED EB-PVD PROCESS TECHNOLOGY
Rate and thickness control of EB-PVD layers available

SUBSTRATES
<table>
<thead>
<tr>
<th>WIDTH</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 mm to 2400 mm</td>
<td>4.5 μm to 200 μm</td>
</tr>
</tbody>
</table>

SUBSTRATES
<table>
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<tr>
<th>WIDTH</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPE, PET, CPP, CPE, PE, MDPE, BOPE, AL foil, CU foil</td>
<td></td>
</tr>
</tbody>
</table>

QUALITY CONTROL
— Optical transmission and reflection measurement (wavelength range on request)
— Eddy current sheet resistance, measuring range on request
— RGA connector at each process compartment
— XRF layer thickness measurement on request
— Camera observation system / defect detection on request

ADVANCED WINDING SYSTEM
High-parallelism winding system with active tension control, isolation and/or torque control
— Outer roll diameter
— Coating Direction
— Speed range: up to 1000 m/min, Accuracy: ± 0.5 %
— Options: Web edge control + teetering + Particle cleaning rollers

FACILITY
— Overhead crane for substrate coil and target exchange
— Easily accessible for compartment maintenance
— Heat exchanger (optional, provided by VON ARDENNE)

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