



VACUUM WEB COATING SYSTEM

FOSA MX

FOSA MX VACUUM WEB COATING SYSTEM

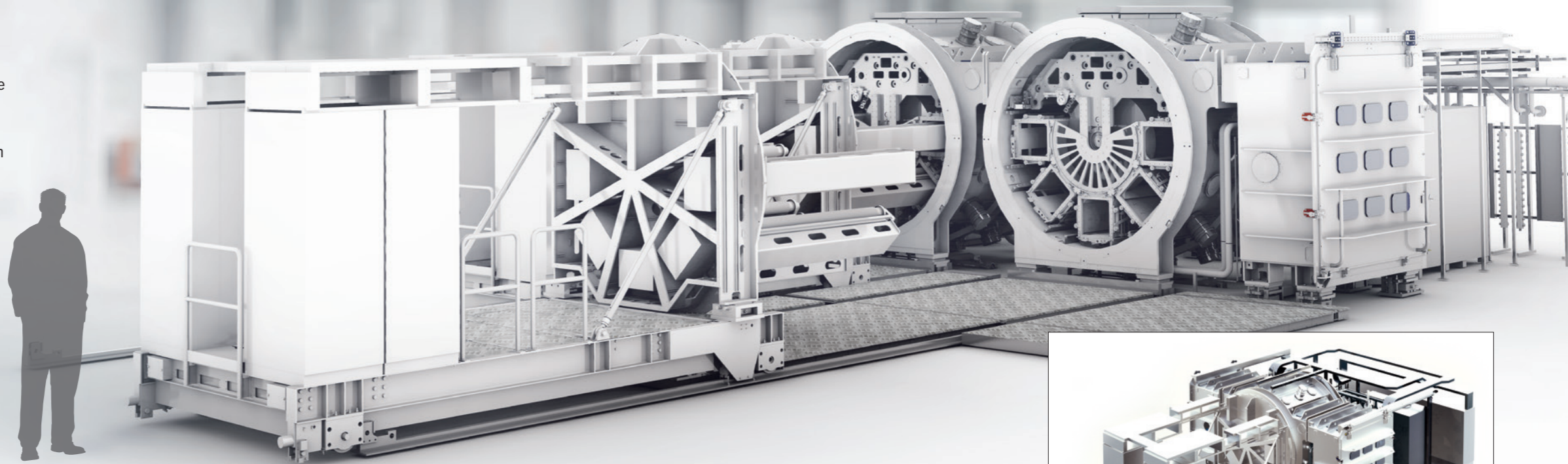
STATE-OF-THE-ART MODULAR SPUTTER SYSTEM FOR FLEXIBLE ELECTRONICS & WINDOW FILMS

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

The FOSA MX is a web coating system with a modular design. It is ideal for high-volume production and can be configured with up to three coating drums. Furthermore, it offers an advanced maintenance concept.

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 PVD technologies and web handling into this platform.

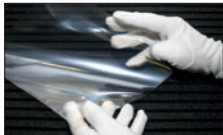
- Advanced complex layer stacks (AR, window films)
- High-throughput sensor applications (ITO & Cu coating)



KEY FEATURES

- High-volume production tool
- Multi-chamber design
- Load locks with gate valves for short campaign times
- Individually pumped process sections
- Superior maintenance concept
- High-utilization, large-scale rotatable magnetron technology

SUBSTRATES

	300 mm to 1600 mm	23 µm to 250 µm
PET, PE, PI, TAC ...	WEB WIDTH	THICKNESS

PROCESS BOX DESIGN

- Up to 6 particle-optimized process compartments arranged around one coating drum
- effective maintenance: full separation of sputter shield, target and winding section

PRE-TREATMENT

- IR heater
- Plasma discharge
- Option: in separate intermediate chamber C2

COATING

- Up to 12 rotatable or planar targets per coating drum
- AC / DC or bipolar power
- Up to 3 process gases per magnetron
- Single layer uniformity: up to +/- 1.5 %

ADVANCED SPUTTER PROCESS TECHNOLOGY



DAS - Dual Anode Sputtering, dual rotatable magnetron available



Reactive process control (impedance or PEM control) available

SPUTTER RATE EXAMPLES at dual rotatable magnetron

- AC powered pair of rotatable cathodes, Vaprocos controlled reactive process [120 nm*m/min, SiO₂ – ddr]
- DC powered pair of rotatable cathodes [160 nm*m/min, ITO – ddr]
- Pair of rotatable cathode with bipolar power supply, Vaprocos controlled [80 nm*m/min, Nb₂O₅ – ddr]

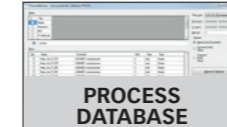
VACUUM

- Process chamber made of mild or stainless steel
- Active gas separation between adjacent process compartments: standard 1:100, max. 1:300
- Cryo trap at unwinder, pre-treatment and in each process compartment

PUMP-DOWN TIMES


- Winding chamber [$< 1 \times 10^{-3}$ mbar] approx. 30 min
- Process compartment [$< 3 \times 10^{-5}$ mbar] approx. 60 min
- Ultimate base pressure [8×10^{-7} mbar]

INLINE PROCESS QUALITY CONTROL



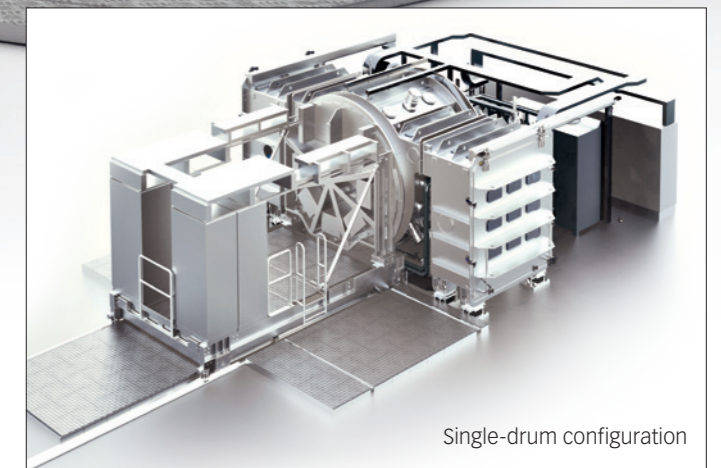
- Optical transmission and reflection measurement (wavelength range on request), 3 measurement traces (max. 5)
- Eddy current sheet resistance, measuring range on request, 3 measurement traces (max. 5)
- RGA connector at each process compartment
- State-of-the-art process database for process data and retrospective trend analysis
- Extensive QA/QC capabilities
- Winding system observation with cameras

ADVANCED WINDING SYSTEM

- Outer roll diameter: max. 820 mm
- Coating Direction: 
- Speed range: 0.2 m/min to 20 m/min, Accuracy: ± 0.5 %
- Options: Web edge control + teetering + Particle cleaning rollers

FACILITY REQUIREMENTS

- FOSA MX is cleanroom compatible
- Service tools for substrate coil, target exchange and compartment maintenance included
- Heat exchanger (optional, provided by VON ARDENNE)
- **FOSA MX 1600 D10:** Length: 21 m Width: 14 m Height: 3.6 m
- **FOSA MX 1600 S5:** Length: 21 m Width: 10 m Height: 3.6 m

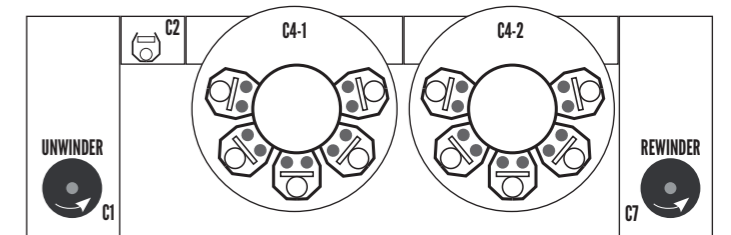


CONFIGURATION EXAMPLE

Subject to change without notice due to technical improvement.

FOSA MX 1600 D10

	Dry Index matching ITO	Cu Metal Mesh
Substrate material	PET	PET
Good coating width	1.56 m	1.56 m
Web thickness	125 µm	125 µm
Coating speed	10 m/min	2.4 m/min
Annual production	2.7 M m²	1.6 M m²





FOSA MX 300



PRODUCT
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PRODUCT
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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.



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