



VACUUM WEB COATING SYSTEM

FOSA CX

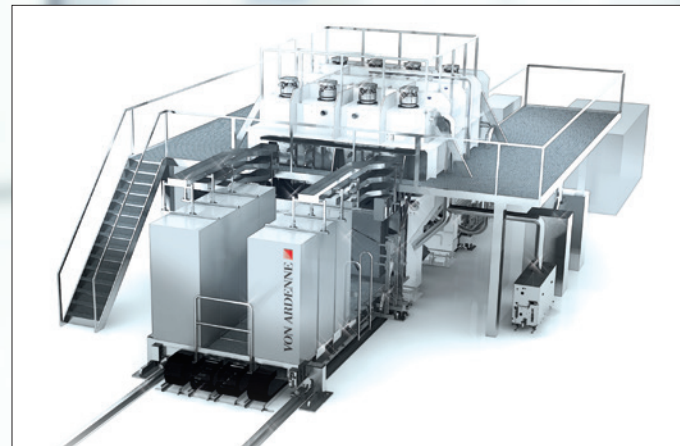
FOSA CX VACUUM WEB COATING SYSTEM

COMPACT PRODUCTION TOOL FOR THE ROLL-TO-ROLL DEPOSITION OF THIN FUNCTIONAL LAYERS ON POLYMER 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.

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.

The FOSA CX is a compact production tool for the roll-to-roll deposition of thin functional layers on polymer films. It is ideal for high-volume production and is optimized for single drum applications. Furthermore, it benefits from a freely configurable compartment structure and can be maintained easily from two sides.



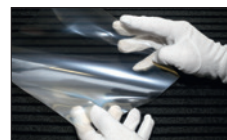
KEY FEATURES

HIGH THROUGHPUT AND COMPACT DESIGN THANKS TO

- Single drum, single chamber
- Reverse mode
- Powerful vacuum pump set

Engineered for long production campaigns with minimal operator intervention.

SUBSTRATE



PET, TAC, COC

1600 mm
to
2150 mm

WEB WIDTH

23 µm
to
200 µm

THICKNESS

PROCESS

- Up to 6 particle optimized process compartments arranged around one coating drum

PRE-TREATMENT

- IR heater
- Plasma discharge

COATING

- Up to 12 rotatable or planar targets around 1 coating drum
- AC / DC or bipolar power
- Up to 3 process gases per magnetron
- Good coating width: 2060 mm (standard)
- Single layer uniformity: up to +/- 1.5 %

ADVANCED SPUTTER PROCESS TECHNOLOGY



PROCESS CONTROL Reactive process control (impedance or PEM control) available

SPUTTER RATE EXAMPLES at dual rotatable magnetron

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

VACUUM

- Single chamber made of mild steel or stainless steel
- Individually pumped process compartments made of stainless steel
- Active gas separation between adjacent process compartments: standard 1:100, max. 1:150
- Cryo trap at unwinder, pre-treatment and in each process compartment

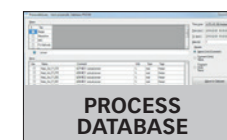
PUMP-DOWN TIMES

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

QUALITY CONTROL



INLINE MEASUREMENT



PROCESS DATABASE

- 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

ADVANCED WINDING SYSTEM

High-parallelism winding system with active tension control and isolation

- Outer roll diameter
- Coating Direction:
- Speed range: 0.2 m/min to 20 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)

FOSA CX 2100 S6 Length: 26 m Width: 10 m Height: 5.7 m

CONFIGURATION EXAMPLE

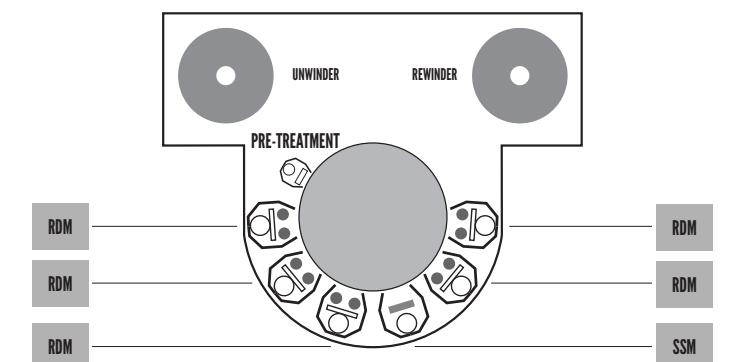
Subject to change without notice due to technical improvement.

FOSA CX 2100 S6

for von ardenne double silver low-e coating stack on 50 µm pet; forward & backward coating

Substrate material	PET
Web width	2.15 m
Web thickness	50 µm
Coating speed	0.95 m/min
Production days	331
Annual production	896 660 m²
Total cost*	5.14 EUR/m²

* Based on Ag price of 570 USD per kg





FOSA CX 2100 S6



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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