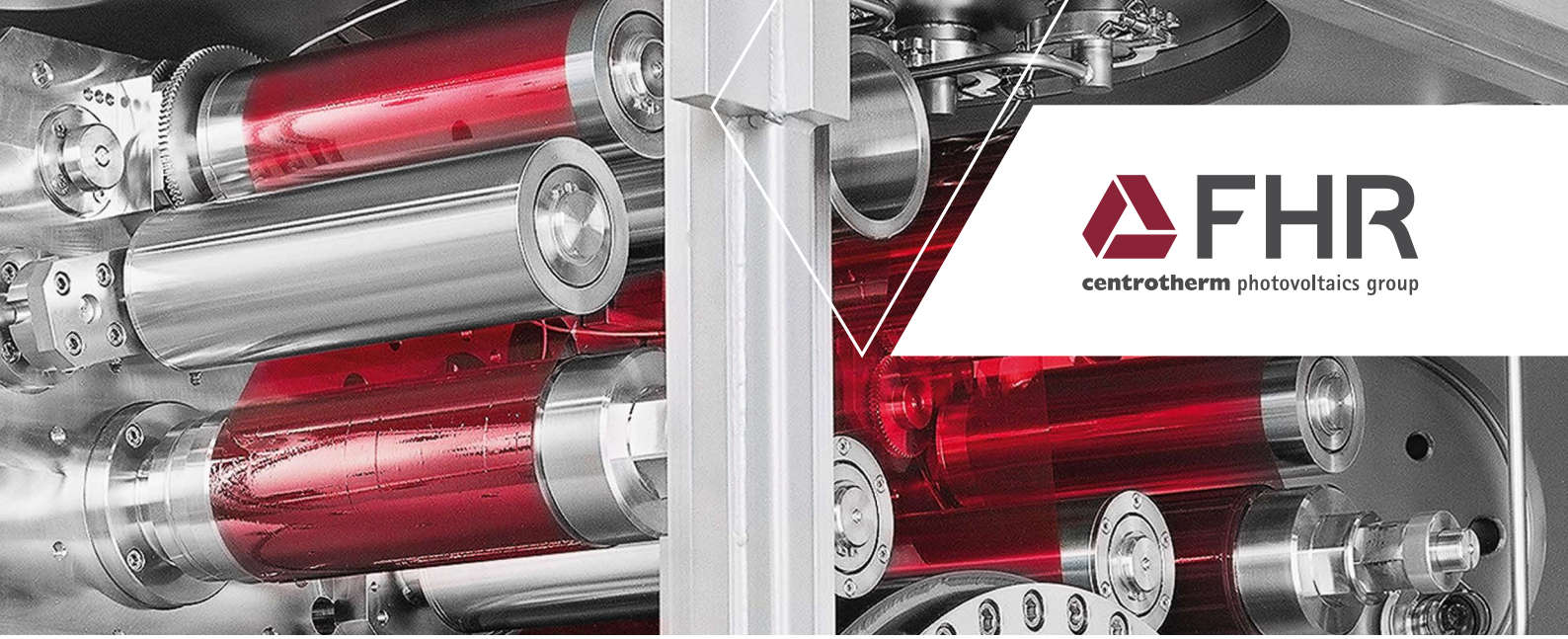

FHR
centrotherm photovoltaics group

FHR Roll300 PVD

Roll-to-roll platform for the deposition of polymer and metal films

Description of system

The film deposition platform FHR.Roll.300-PVD is suitable for the deposition of metal, oxide and nitride layers onto polymer or metal films under vacuum. The deposition system is designed as a roll-to-roll system. The process stations are positioned in a curved layout around a central process drum. In the process, the film substrate can be made to make multiple passes past the process stations by reversing the transport direction. Depending on the customer's preferences, magnetron sputtering or thermal vapor deposition are used as the PVD deposition technology.

Process

- Reactive and non-reactive magnetron sputtering, sputter mode: MF (unipolar pulsed, bipolar sine, bipolar pulsed), DC or RF
- Thermal vapor deposition
- Pre-treatment (e.g. inverse sputter etching)

Advantages for customers

- Tried and tested and reliable plant concept
- Low investment costs and operating costs
- Equally well suited to research and production applications
- Highly flexible plant control via proprietary FHR software
- Excellent target yield of up to 80 % in the sputter system
- User-friendly access to the plant on three sides keeps maintenance time to a minimum

FHR Roll300 PVD

Roll-to-roll platform for the deposition of polymer and metal films

Key data

FHR.Roll.300-PVD	
Dimensions (l × w × h), weight	1470 mm × 2240 mm × 3760 mm, 6750 kg
Number of process stations	6 (max.)
Substrate size	width: 300 mm, thickness: 25 µm ... 150 µm
Substrate length	340 m (150 µm) ... 2000 m (25 µm)
Transport speed	0.05 m/min ... 5 m/min
Process temperature	-10 °C ... 600 °C
Pump-down time (range 10^{-6} mbar)	< 30 min
Uniformity of the layer thickness	+/- 3 %

Special features

- Roll-to-roll substrate transport via coils and central process drum
- Integrated substrate temperature control via cooling or heating
- Different types of source can be used (e.g. tubular targets, planar targets, saggar evaporators, effusion cells)
- Vacuum chambers and built-in components made of stainless steel

Options

- Customer-specific adaptation to suit the individual productivity requirements and layer system (layer stack)
- Measuring equipment for in-situ measurement can be integrated into the process control system
- Individual combination of pre/post-treatment steps with the deposition technology
- Suitable for equipping with cryopumps
- Optional conditioning of the film substrate
- Optional intermediate layer films possible
- Vacuum chambers and built-in components also available made of construction steel

Typical applications

- Deposition of functional layers for thin-film solar cells (CIGS, a-Si, CdTe)
- Deposition of contact layers, insulation layers and barrier layers for flexible electronics and battery technology
- Deposition of optical layer systems with highly reflective, anti-reflective or thermally reflective properties

Thin-film equipment. Customized.

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