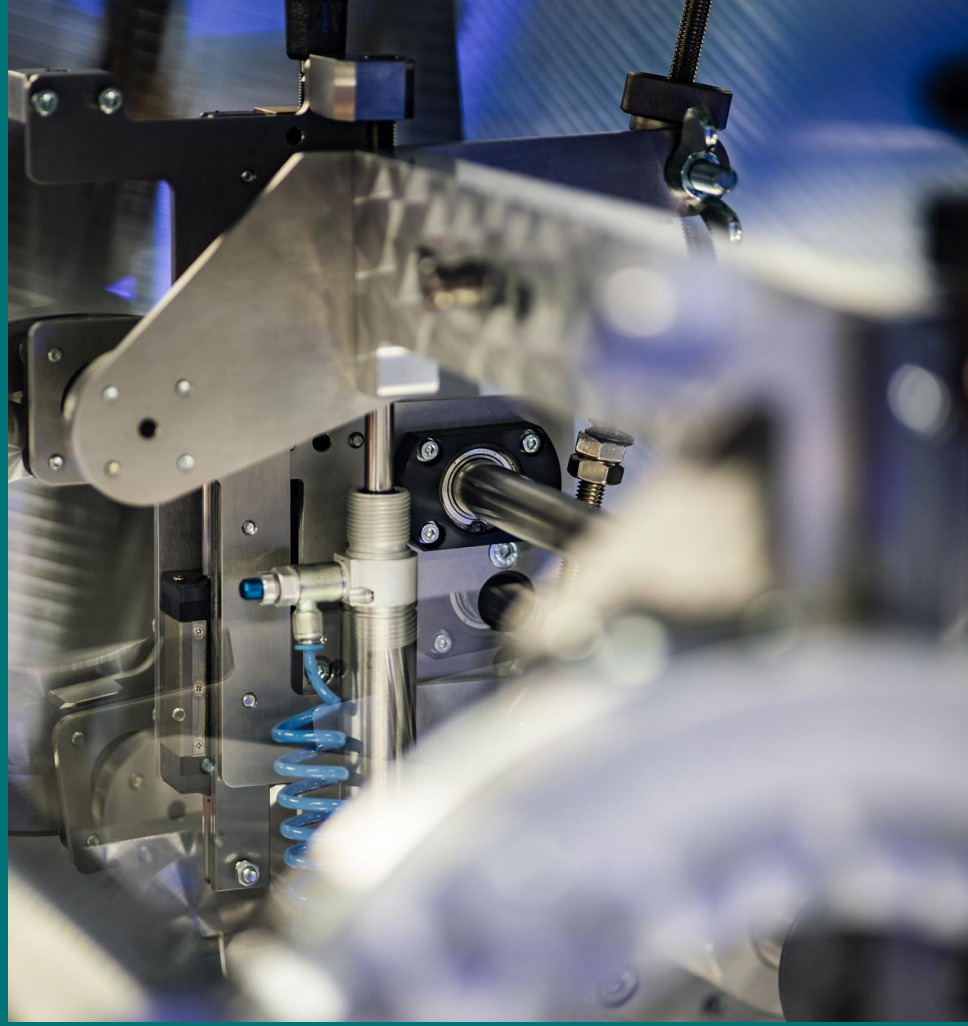
Coatema Smartcoater

03/06/25

MEMBER OF ATH

Agenda

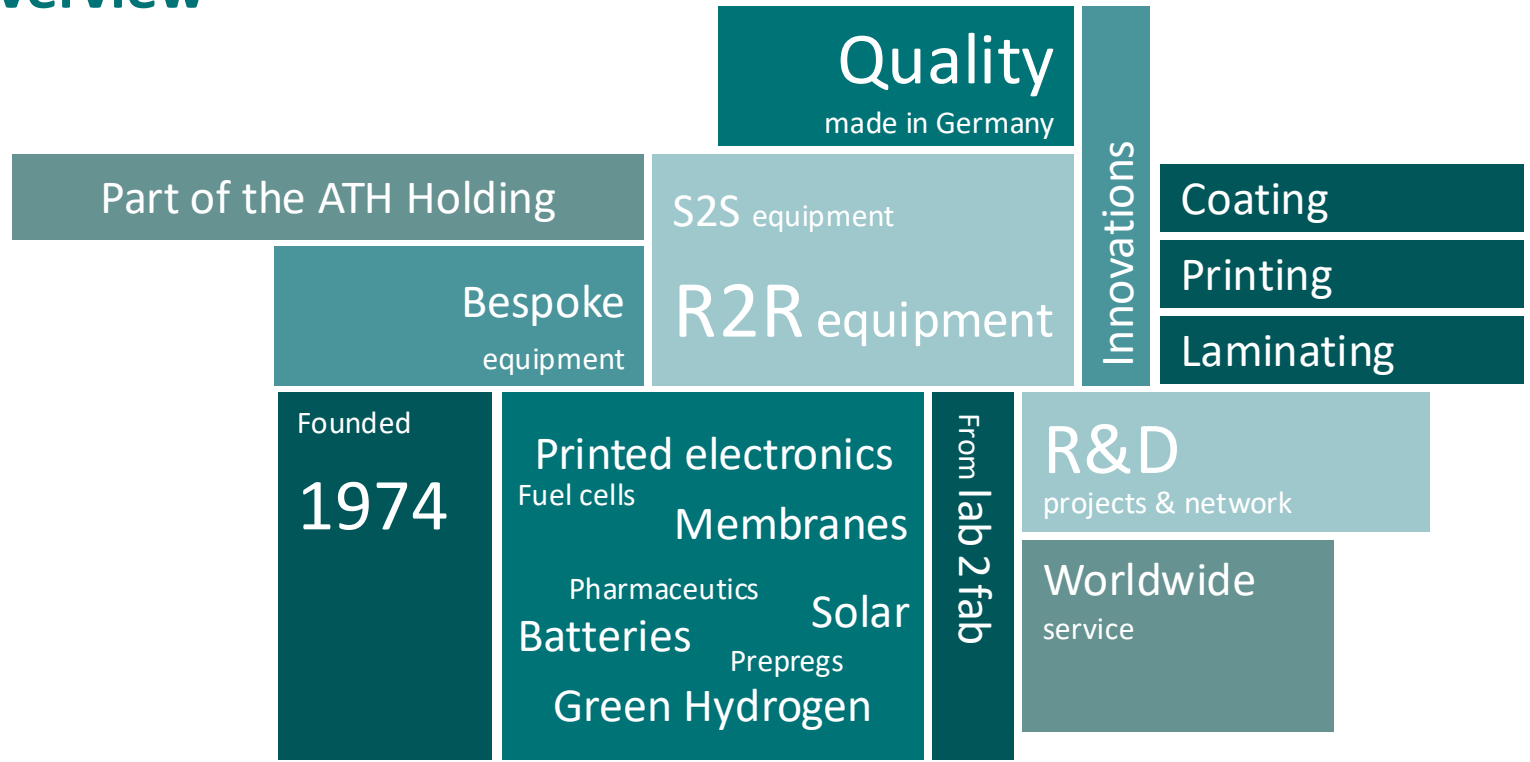
1. Introduction
2. Coatema Smartcoater
3. Overview on the unit
4. Application systems
5. Drying, curing & crosslinking
6. Options & specifications
7. Summary



1.

Introduction

Overview


Quality
made in Germany
Innovations
Part of the ATH Holding
S2S equipment
R2R equipment
Bespoke
equipment
Coating
Printing
Laminating
Founded
1974
Printed electronics
Fuel cells
Membranes
Pharmaceutics
Solar
Batteries
Prepregs
Green Hydrogen
From lab 2 fab
R&D
projects & network
Worldwide
service

Group of companies

ALTONAER
TECHNOLOGIE
HOLDING

KROENERT

- ✓ Founded 1903
- ✓ Approx. 200 employees
- ✓ Located in Hamburg

DRYTEC

- ✓ Founded 1995
- ✓ Approx. 50 employees
- ✓ Located in Norderstedt

Coatema®
Coating Machinery GmbH

- ✓ Founded 1974
- ✓ Approx. 50 employees
- ✓ Located in Dormagen

Coatema equipment platform strategy for lab2fab

Lab

- ✓ State-of-the-art research and development equipment
- ✓ Sheet-to-sheet to roll-to-roll systems on smale scale & footprint

Pilot Production

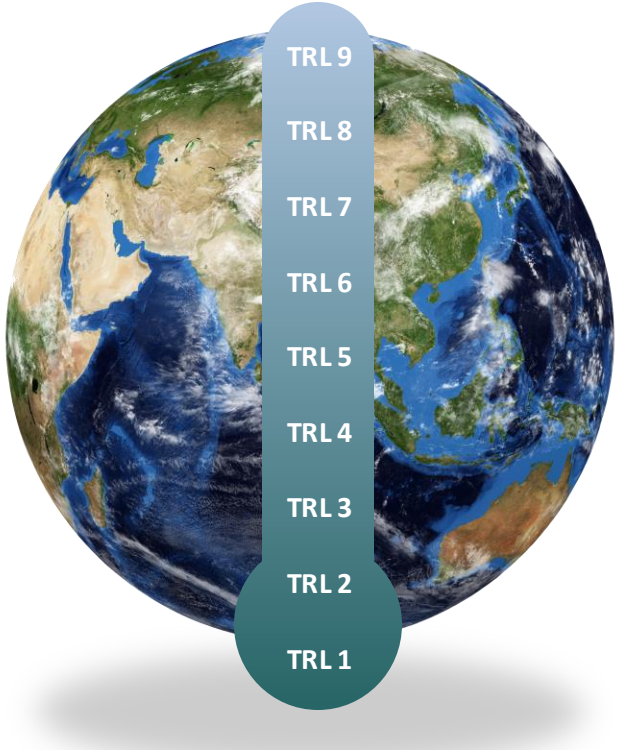
- ✓ Proven processes for printing, coating and laminating equipment
- ✓ Highest-quality pilot lines enable stable pilot production and reduce cost of operation
- ✓ Scaling laboratory equipment to enable pilot production

Production

- ✓ Full-scale production lines
- ✓ Optimize the manufacturing process, including streamlining assembly, reducing material waste, and optimizing the carbon footprint

Our markets – Coatema focus areas

- Green Hydrogen
- Fuel cells
- Batteries
- Solar



- Sustainability
- Digital fabrication
- Printed electronics
- The next thing

R&D centre USP

Process development
- ✓ Feasibility study
- ✓ Ink – process study
- ✓ Process analysis
- ✓ Slot die coating simulations
- ✓ Proof of concept
- ✓ Small scale prototype

Test production
- ✓ Prototyping
- ✓ Near to market testing
- ✓ TRL evaluation
- ✓ Training of staff

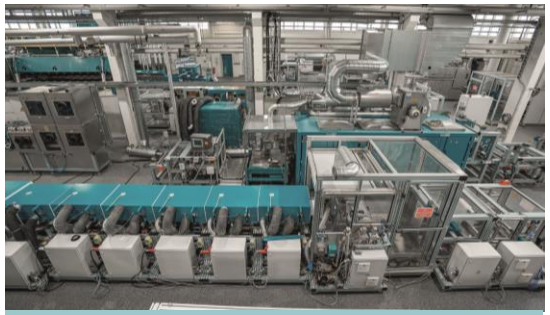
Education
- ✓ Coating conference
- ✓ Partner trainings
- ✓ Education of students
- ✓ Workforce training

Development of custom-made design for equipment
- ✓ Prototyping
- ✓ Proof of concept

Public funded research projects know-how
- ✓ German funded
- ✓ Horizon 2020
- ✓ Global 2+2 projects
- ✓ B2B projects

Coatema services as an overview

The Coatema R&D centre



Accelerate your innovation in our dedicated pilot facility with advanced lab & pilot lines and expert guidance – bridging the gap from #lab2fab.

The Coatema Coating Symposium

Join the global network of coating experts at our annual event, where cutting-edge developments meet industry collaboration for next-level innovation.

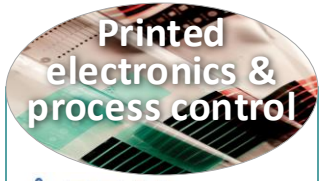
The Coatema Slot Die Masterclass

Master precision coating in our hands-on training program, led by industry specialists to optimize slot-die performance and product excellence.

Coatema®
Coating Machinery GmbH

R&D customers

R&D projects overview 2022 – 2025

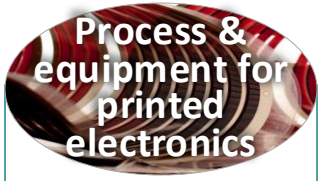


REAL NANO

In-line and real-time digital nano-characterization for flexible organic electronics

NOUVEAU

The NOUVEAU project will develop solid oxide cells (SOCs) with innovative La- and PMG-free electrode materials

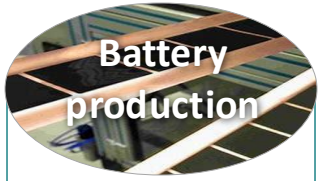


FLEX2ENERGY
AUTOMATED MANUFACTURING PRODUCTION LINE FOR IPVS

R2R production line for OPV solar with integrated backend

FLEX-G 4.0

Upscaling and development of EC based switchable films to decrease energy use in buildings



IDEEL

Implementation of laser drying processes for lithium-ion battery production

SOLiD

R2R process optimization for solid state batteries

pepLAT

Plasmonically enhanced photocatalysis for wastewater treatment

ROLL 2 SOL

R2R nanostructuring of functional films

WATER PROOF

The WaterProof project aims at developing an electrochemical process that converts CO_2 emission

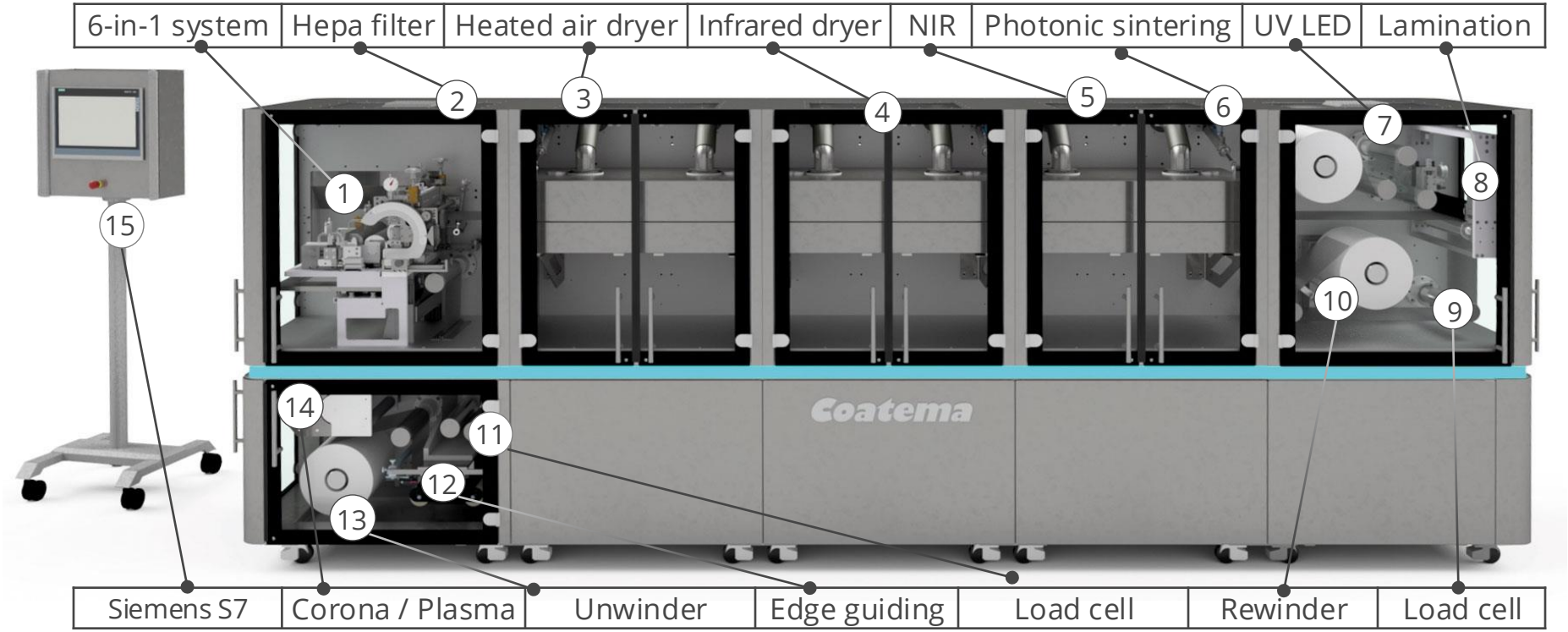
FLEX FUNCTION 2 SUSTAIN

Creating an open-innovation testbed for sustainable packaging

2.

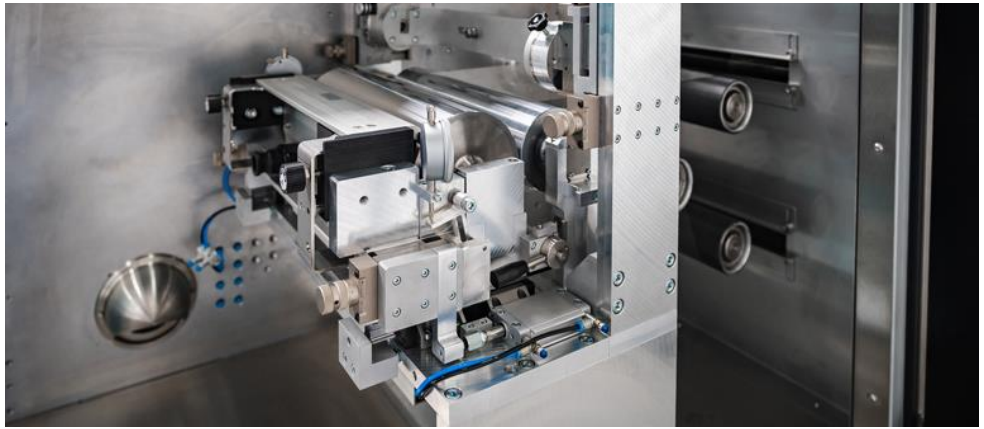
Coatema Smartcoater

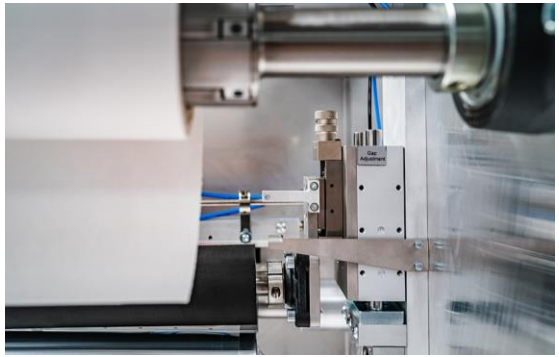
Overview of product features & options

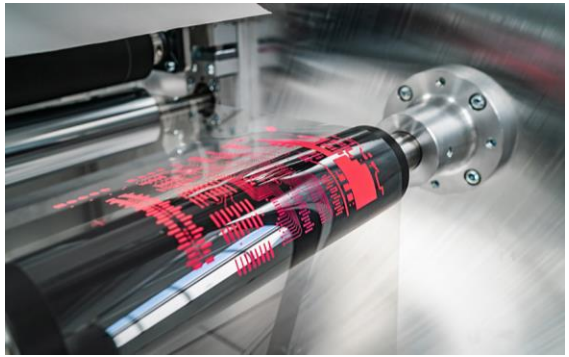


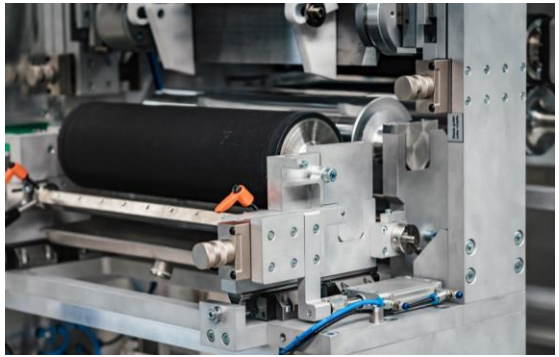
The Coatema Smartcoater

The Coatema Smartcoater

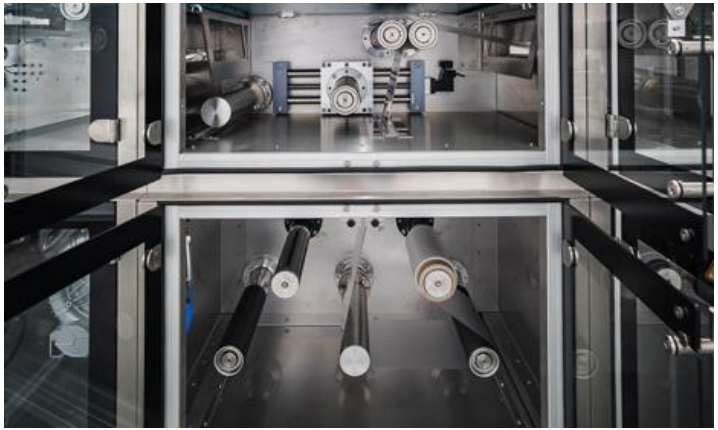








The Coatema Smartcoater



What is the Smartcoater vision

- ✓ 300 mm plattform with options as standard or custom made version
- ✓ Compact design, but all features in to support the lab2fab upscaling process
- ✓ Modular design with optimum user expieirence
- ✓ QS control and systems as an integrated approach as needed
- ✓ IOT gateway and UPC-UA data exchange options
- ✓ Standars for batteries, fuel cells, membranes, solar and nanoimprint available
- ✓ All features can be tested in the Coatema R&D center

Design and layout of processes always optimized for the customer

Membrane application

Summary of benfits of the Smartcoater

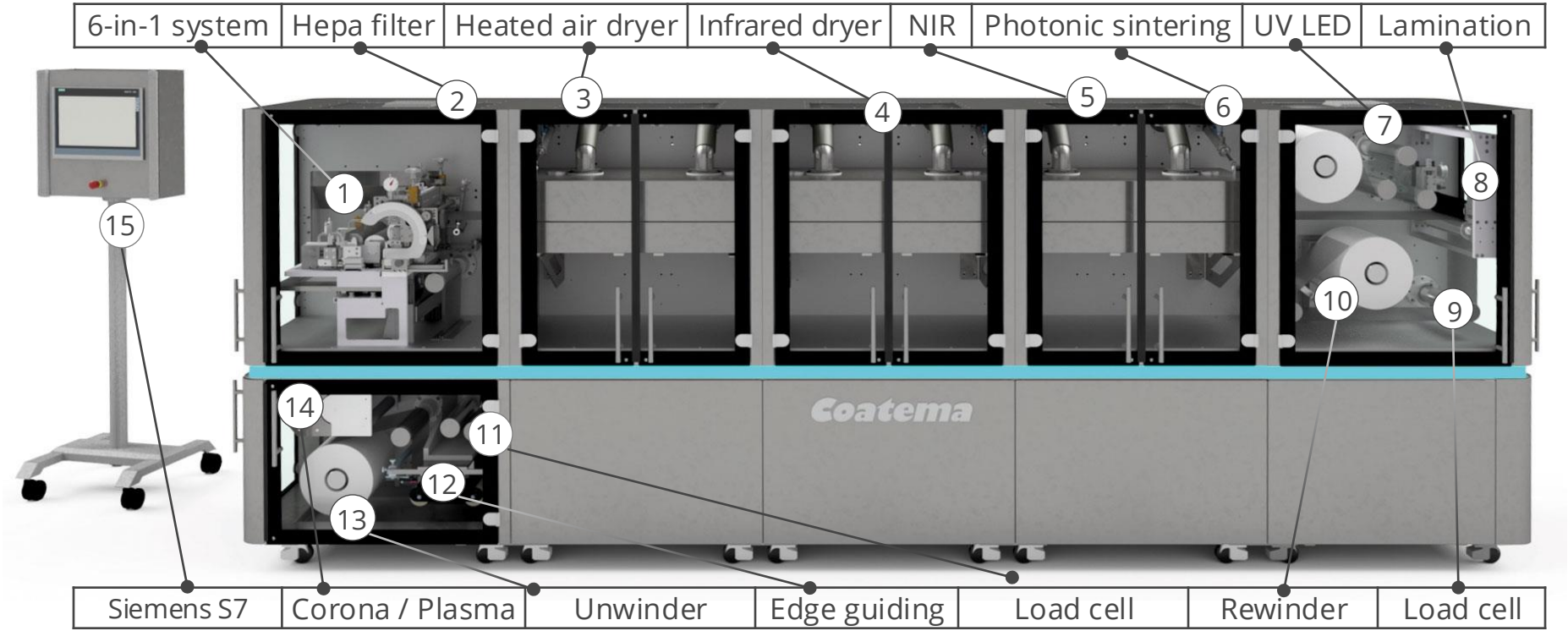
Application systems

- ✓ Coating
- ✓ Printing
- ✓ Modular platform
- ✓ Over 32 technologies
- ✓ Interchangeable modules
- ✓ Inert atmosphere as option

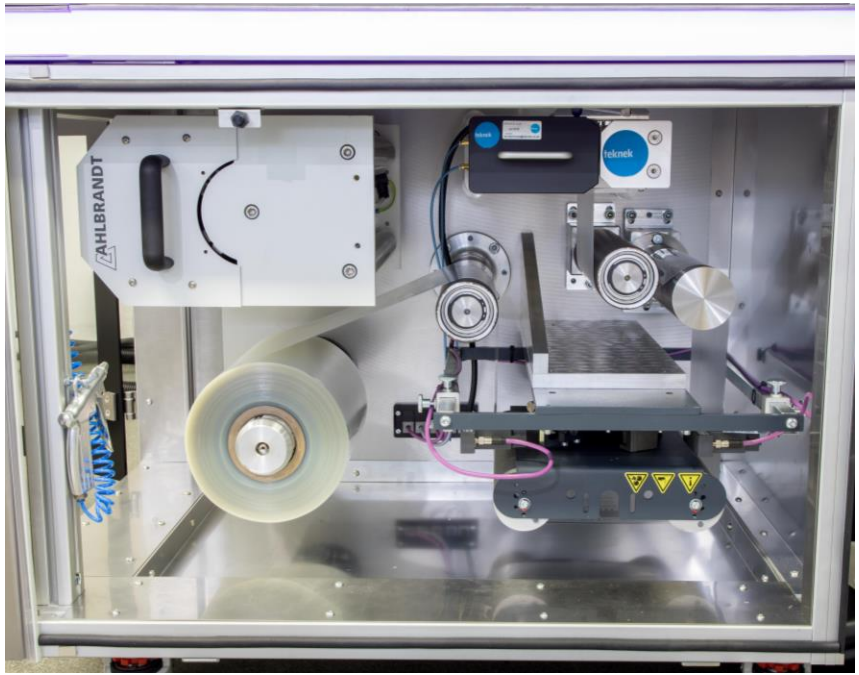
3.

Overview of the unit

Overview of product features & options

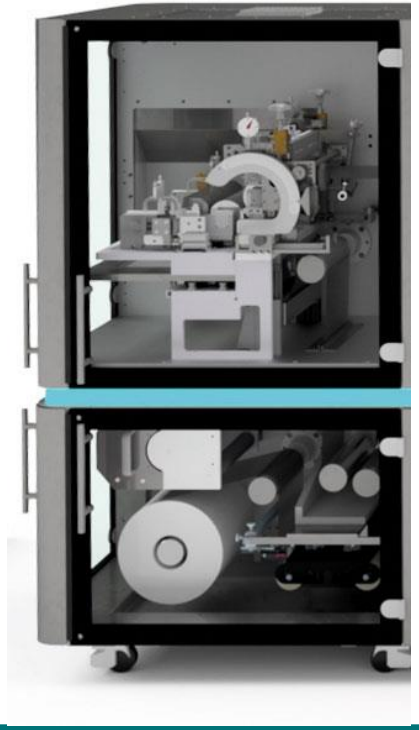


Unwinder module

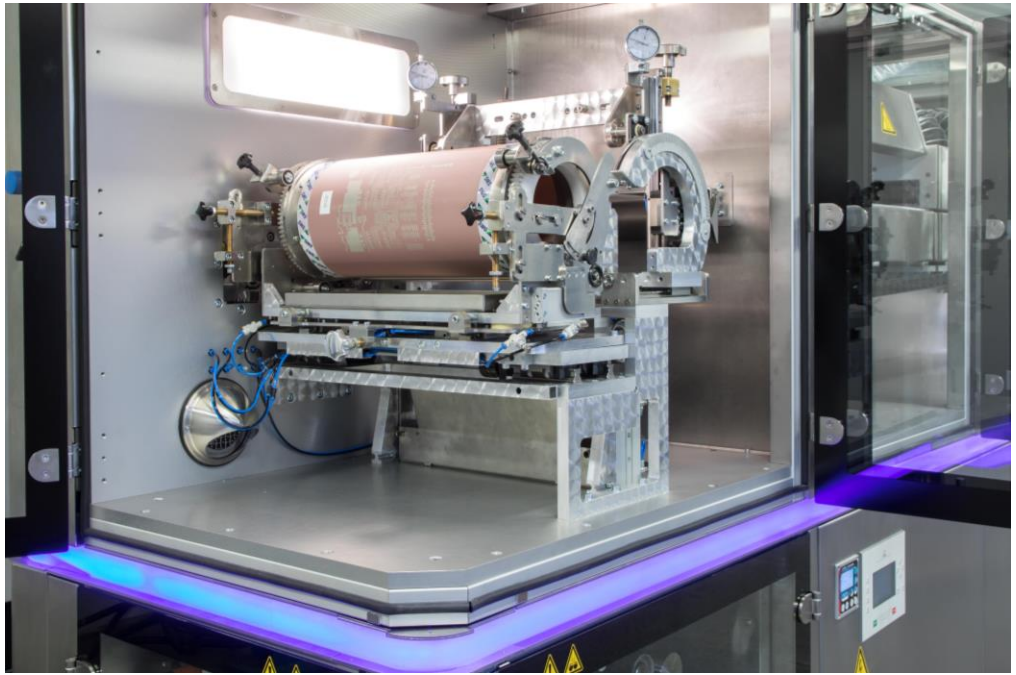


Unwinder systems

- ✓ Unwinder
- ✓ Load cell
- ✓ Edge guide
- ✓ Web cleaning
- ✓ Corona plasma
- ✓ Anti static



Application area



Application area for 6 in 1

- ✓ 6 in 1 system with slot die
- ✓ Rotary screen
- ✓ Micro roller
- ✓ Engraved roller
- ✓ Doctor blade
- ✓ Comma bar

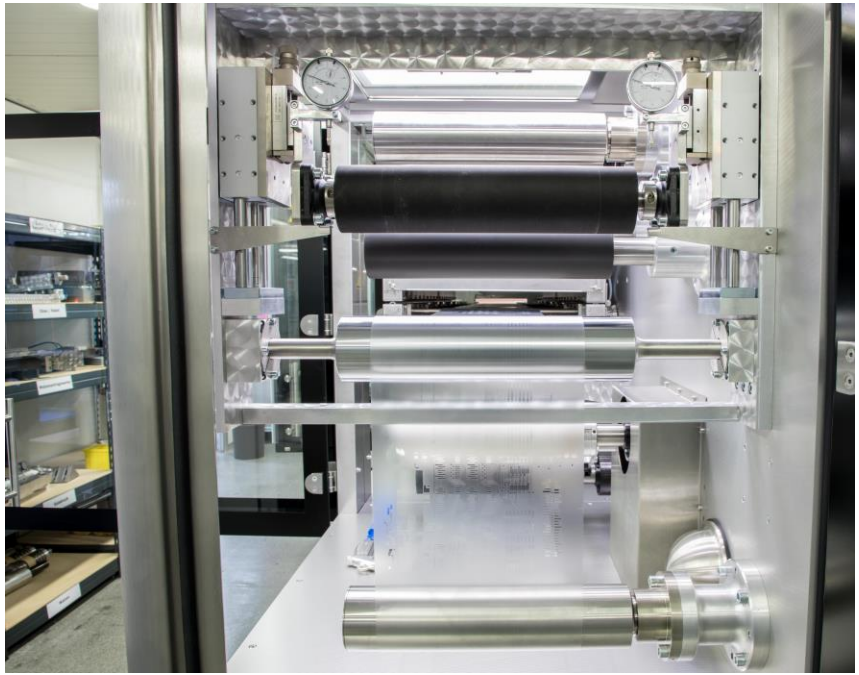
Drying / crosslinking options

- ✓ Heated air
- ✓ IR
- ✓ NIR
- ✓ Laser
- ✓ UV

Available quality and process control systems

- ✓ Thickness
- ✓ XRF
- ✓ Optical quality control
- ✓ Coating control
- ✓ Register control
- ✓ Low tension regimes

Rewinder



Rewinder

Delamination unit

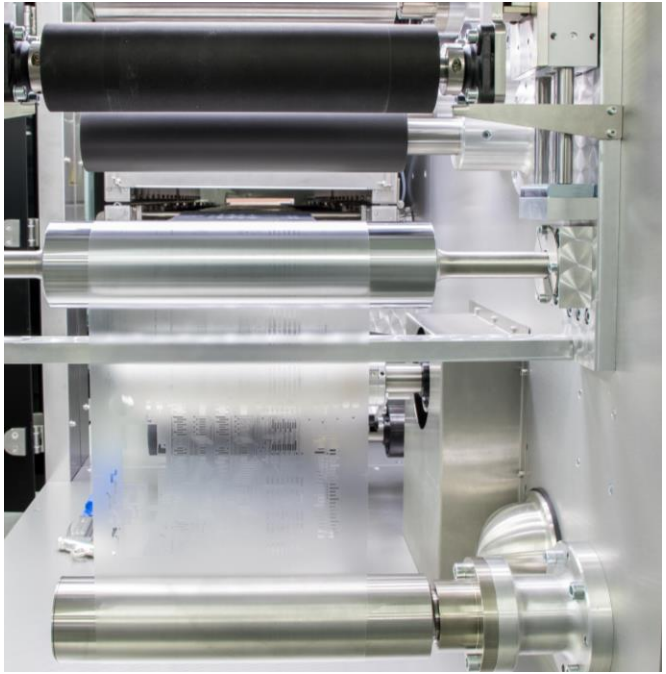
Slitting

Cross cutting

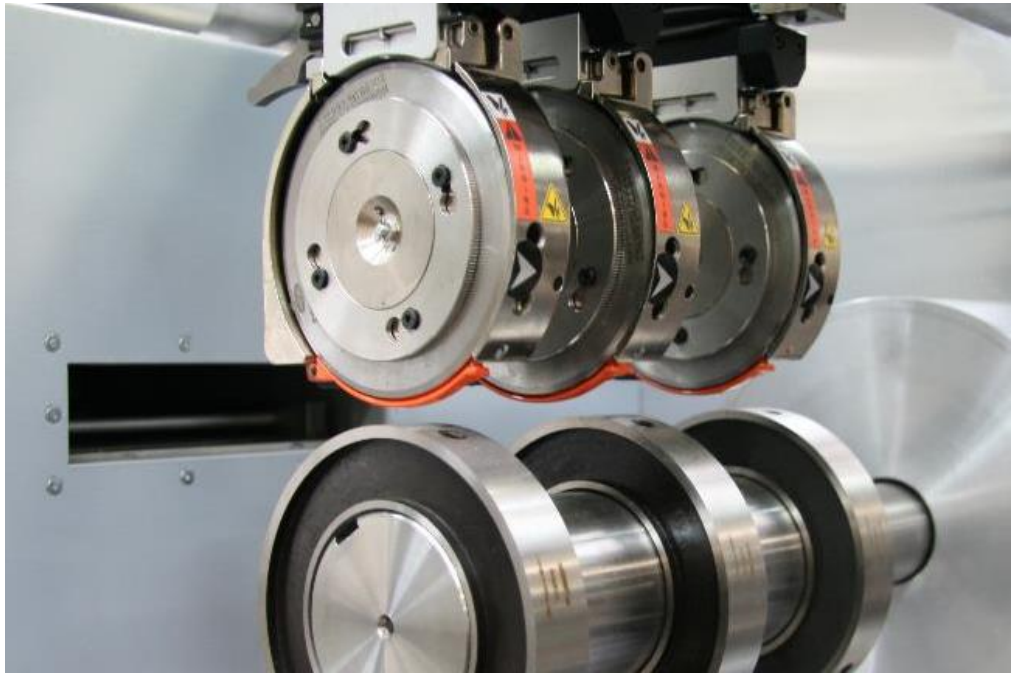
✓ Load cell

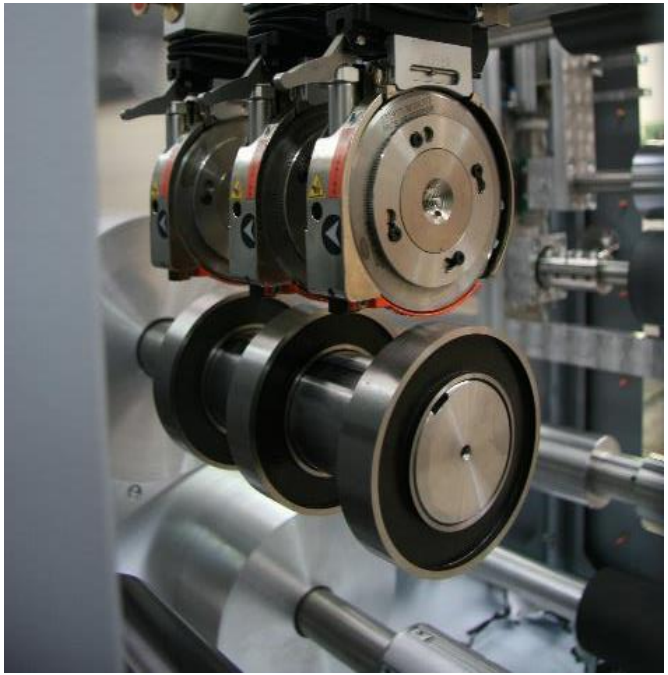
✓ EPC

Rewinder module



Cutting device as one of the options

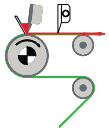




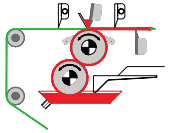
4.

Application systems

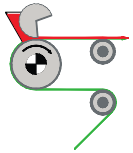
Coating systems



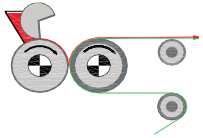
Knife system



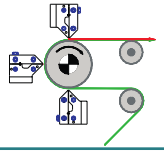
Double side coating system



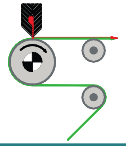
Commabar system



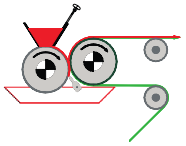
Reverse commabar system



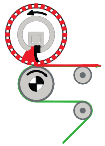
Slot die system



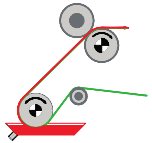
Curtain coating system



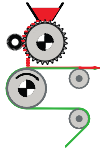
Case knife system



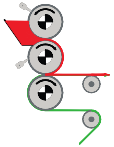
Rotary screen system



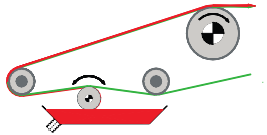
Dipping system (Foulard)



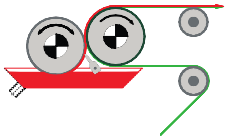
Powder scattering system



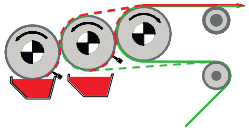
Reverse roll coating system



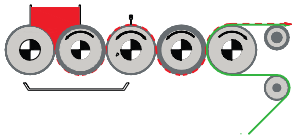
Micro roller coating system



2-roller coating system

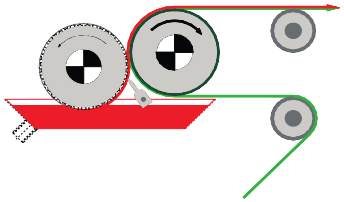


3-roller combi coating system

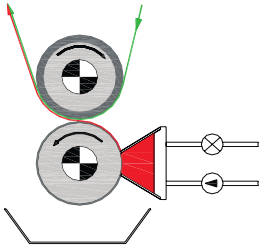


5-roller coating system

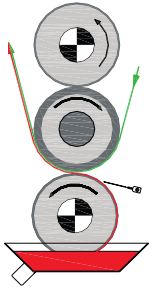
Printing systems



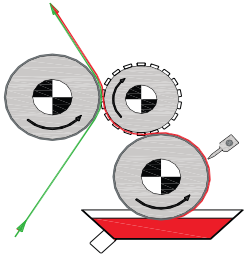
Engraved roller system



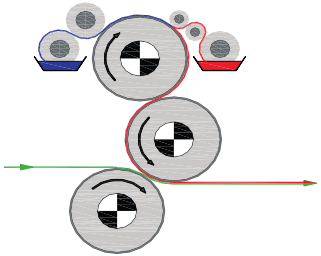
Gravure roller system



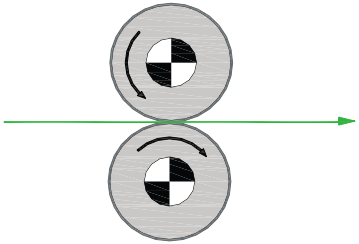
Gravure indirect system



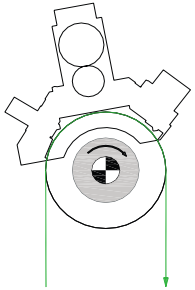
Flexography system



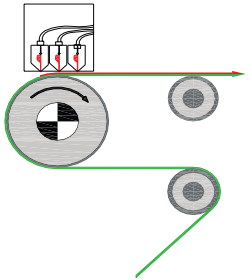
Offset lithography system



Hot embossing system

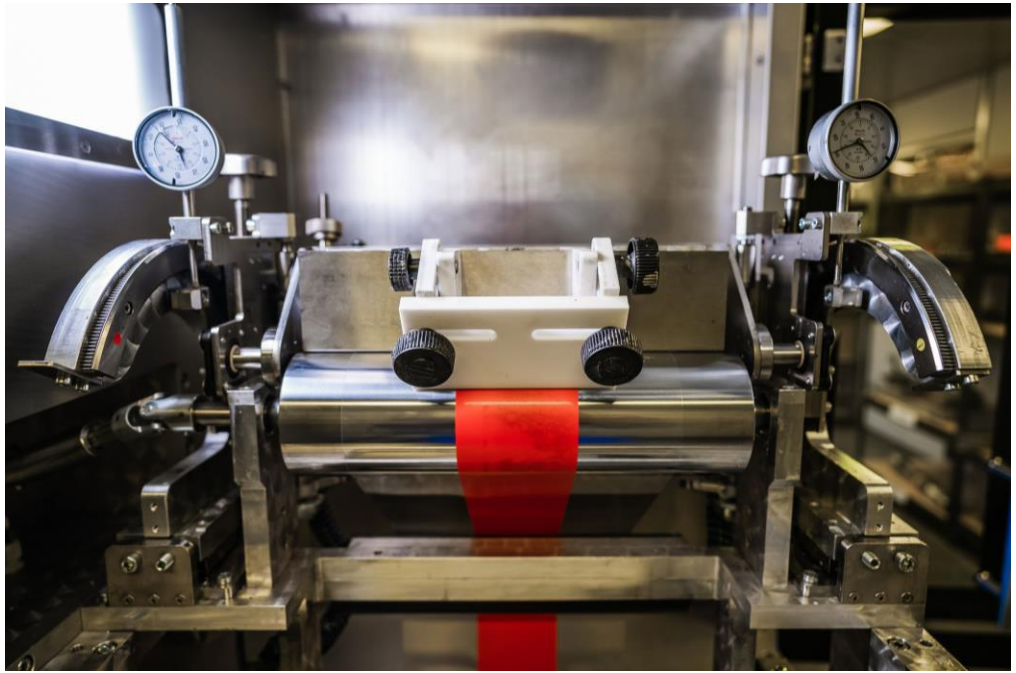


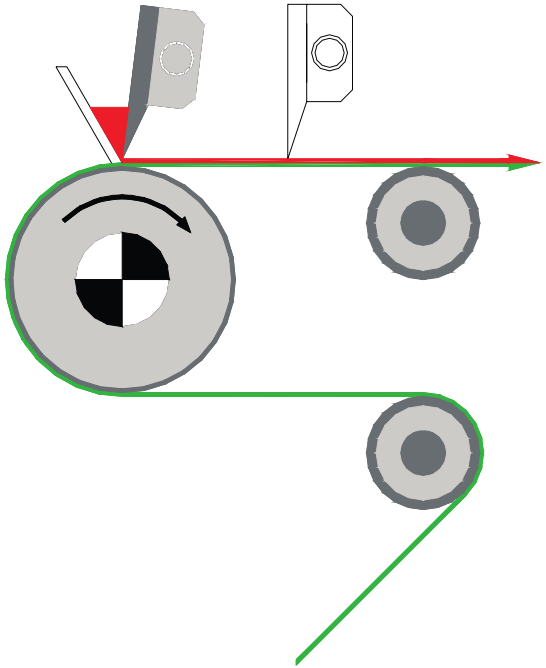
Nanoimprint system



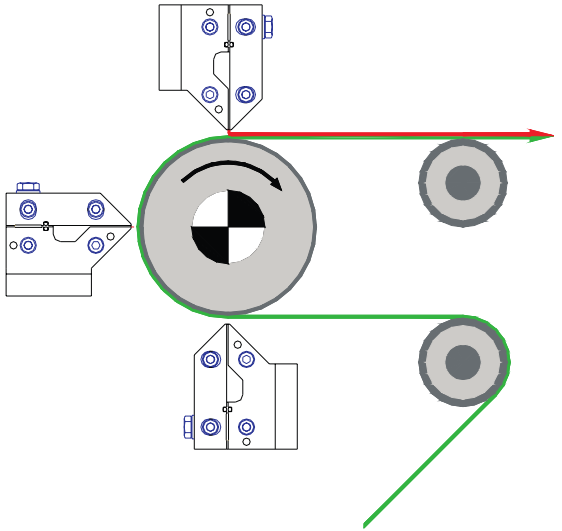
Inkjet system

Doctor blade

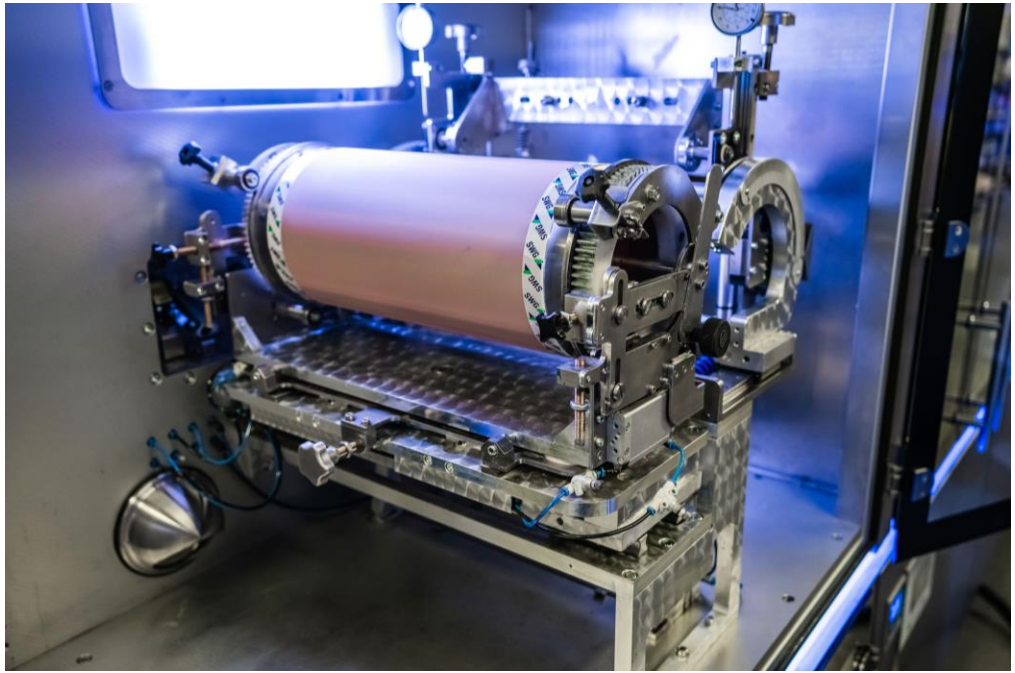


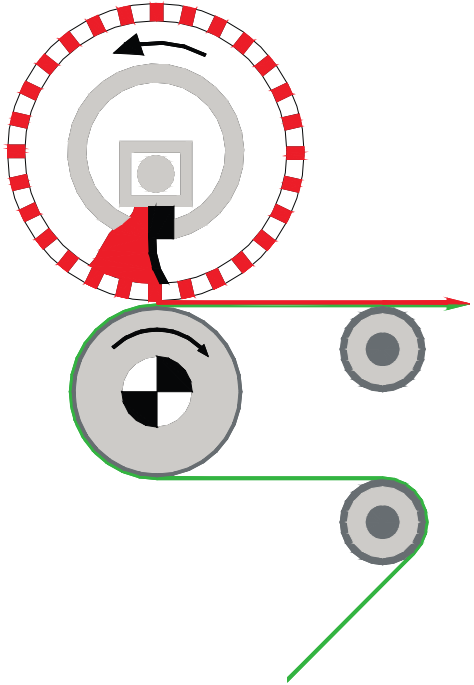


Slot die

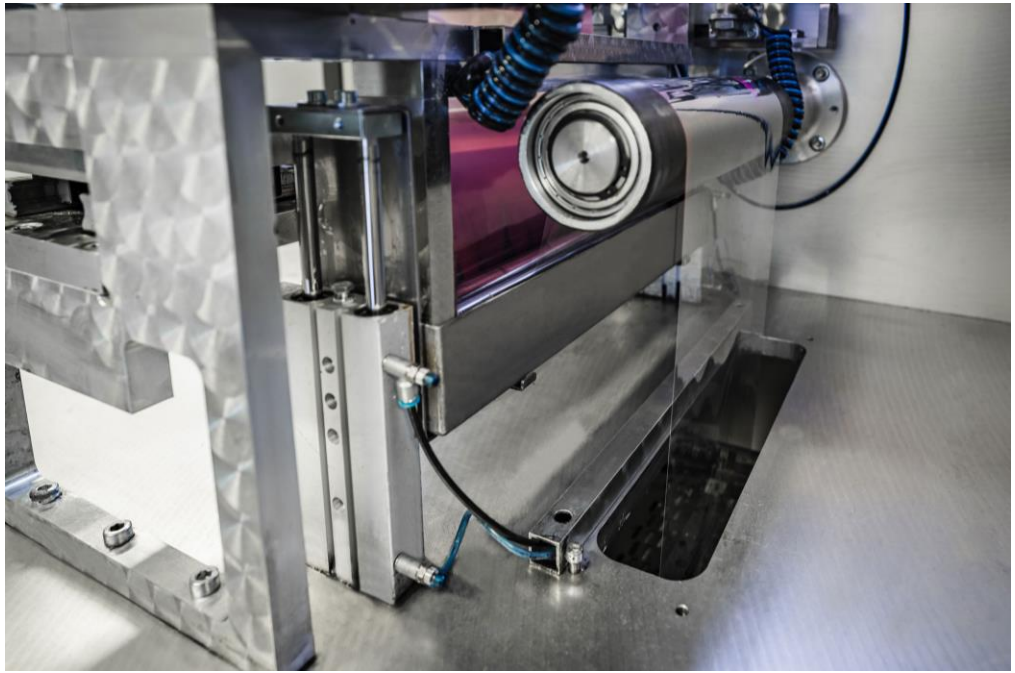


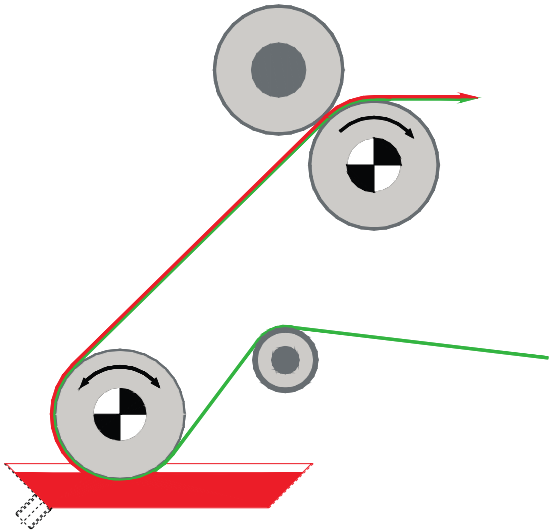
Rotary screen printing



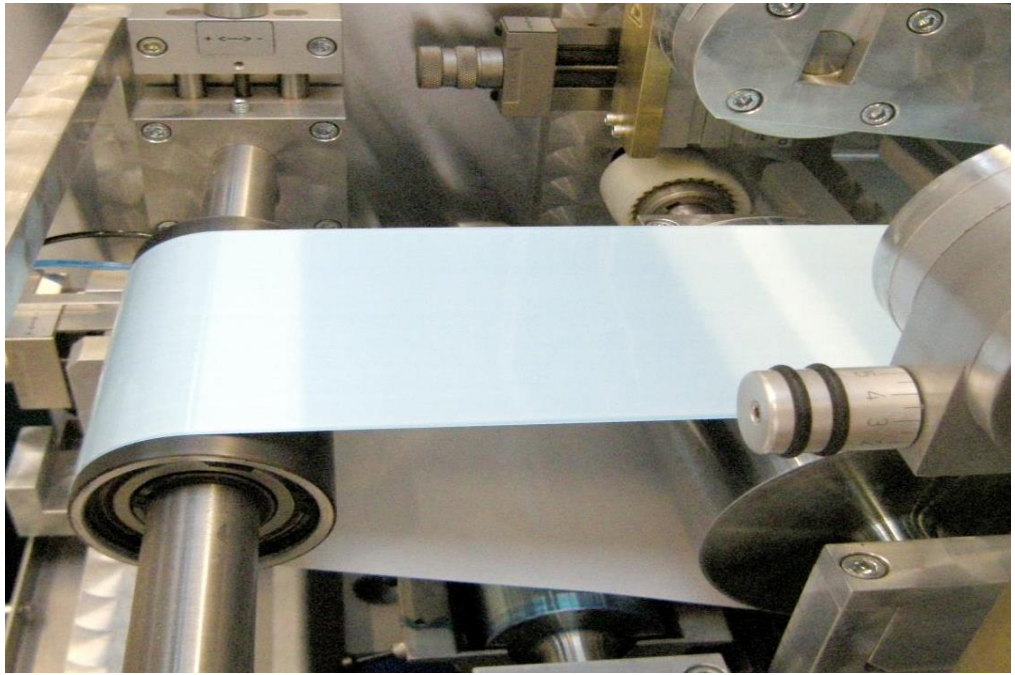


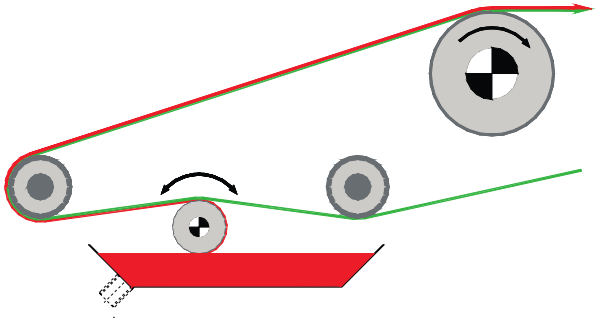
Dipping



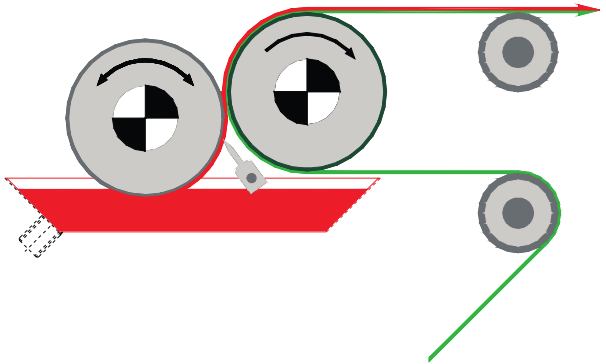


Micro roller





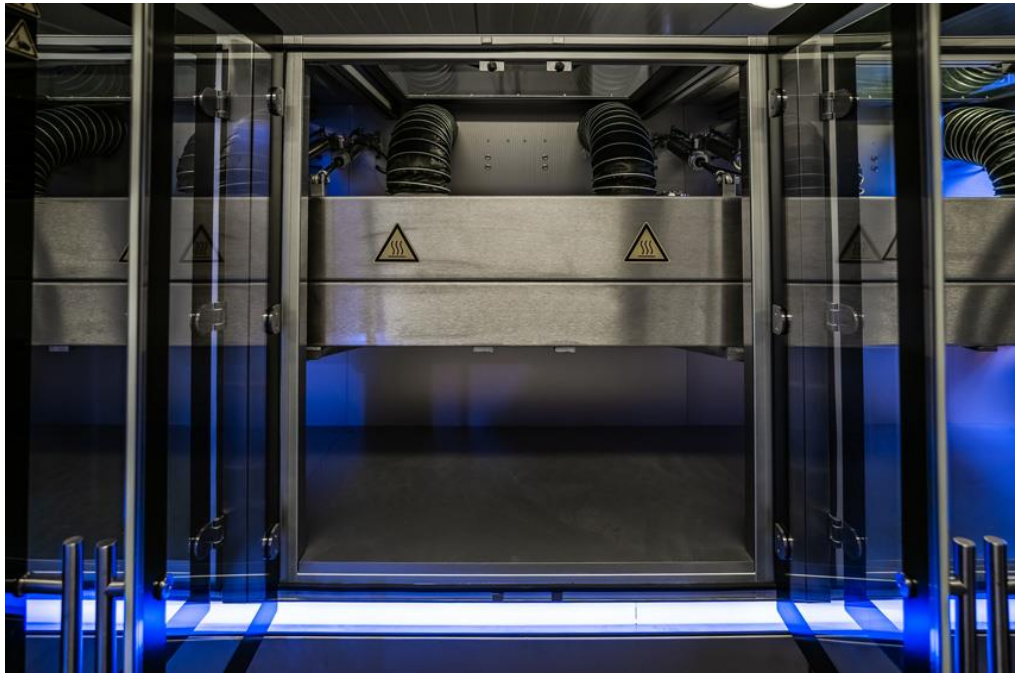
Engraved roller system



5.

Drying, curing & crosslinking

Dryer modules

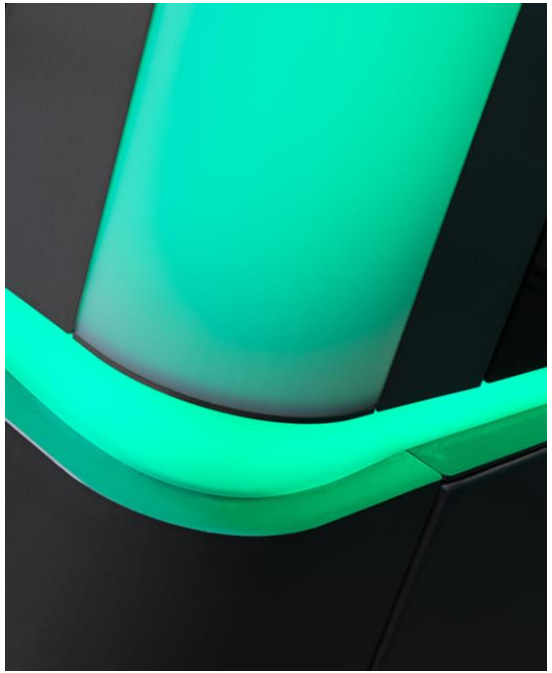


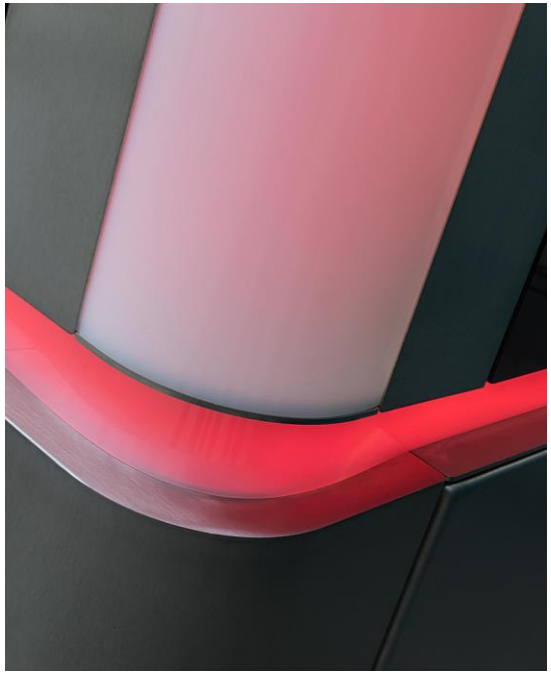
Dryer modules

6.

Options & specifications

Technical specifications





Technical specifications in detail

Coating + printing Options
- ✓ Continous R2R coating
- ✓ Printing
- ✓ Laminating in one unit

Dimensions
- ✓ 1,260 x 850 x 1,750 mm (LxWxH), (for the shown unit)
- ✓ Working width: 100 mm / 300 mm, V: 0.1 – 10 m/min, F: 10 – 250 N
- ✓ Roller width: 350 mm

Dryer
- ✓ 1.000 mm electrical heated air dryer, 9 kW max.
- ✓ Dryer temperature: max. 235°C
- ✓ IR / NIR available
- ✓ UV LED available

Operation options
- ✓ Tension control system with load cell and Siemens S7 system

Facts
- ✓ 6-in-1 application system (knife / dip / engraved /slot die / micro roller / screen) as starter option or 32 other systems
- ✓ Unit can run backwards as option
- ✓ Unwinding and rewinding motor driven and tension controlled
- ✓ Enclosure – glove box option
- ✓ Switch cabinet
- ✓ Power: 400 V / 50 Hz / 32 A

7.

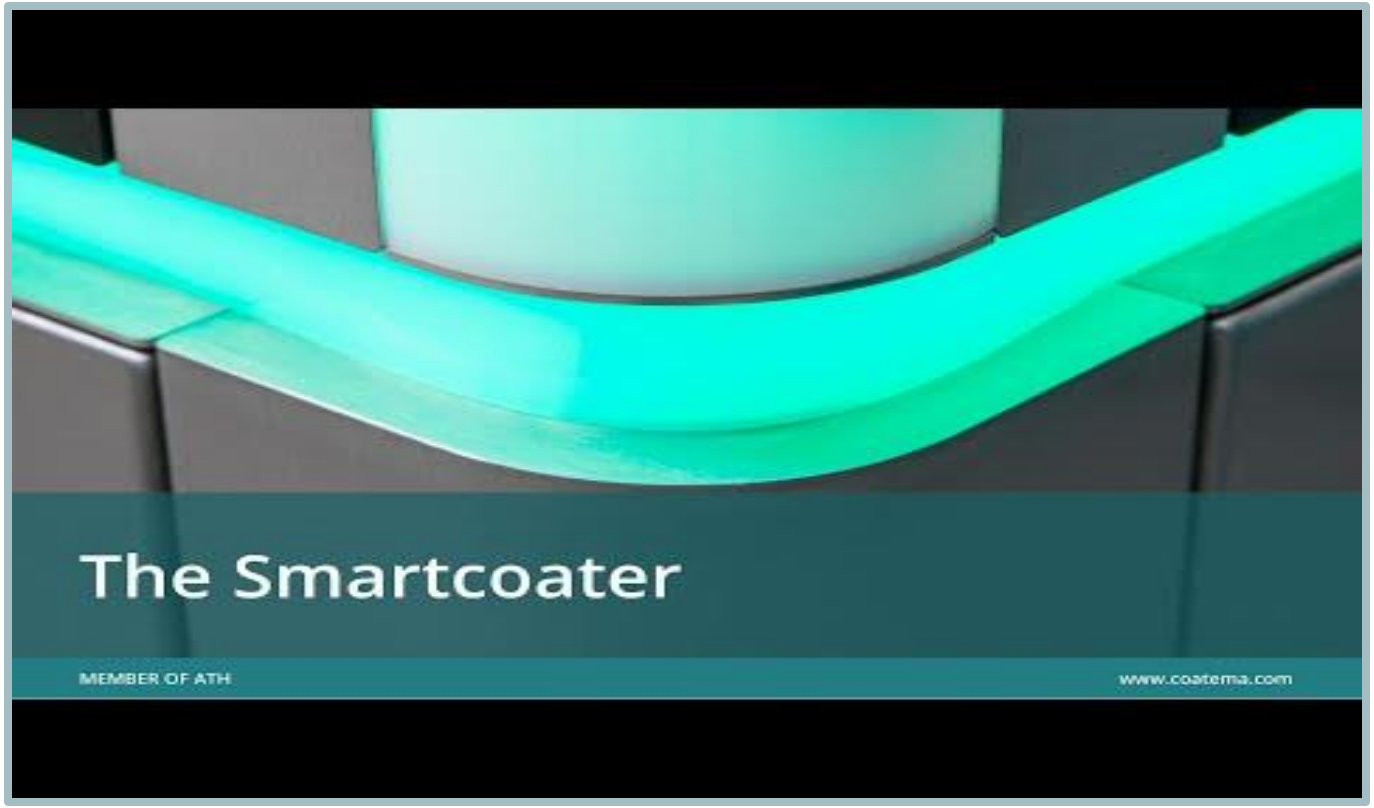
Summary

The customer benefits

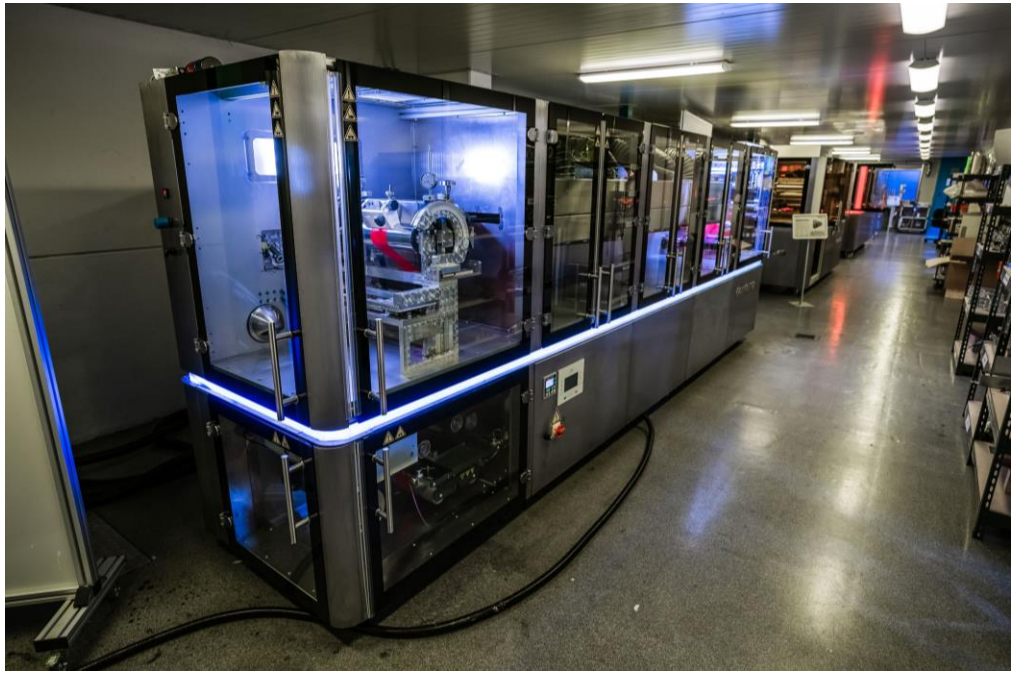
- ✓ Small scale R2R unit – easy to use
- ✓ Small amount of inks being used – less trial cost
- ✓ Reproducible results – scalable R&D
- ✓ Can have the option to runs backwards – multilayer in a short time
- ✓ EEx operation on small scale
- ✓ Inert atmosphere as option

Smartcoater

Press Button to show the video



Do not hesitate to contact us!



The Smartcoater is part of the Coatema lab and pilot line platform strategy.

Our R&D centre is worldwide the most versatile centre for coating, printing and laminating.

Anything missing?
Let us know and we will make it happen!

Sales department:
sales@coatema.de

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Thank you

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