



Coatema company presentation

Overview

Introduction

Our markets

Equipment

R&D

Summary

Introduction

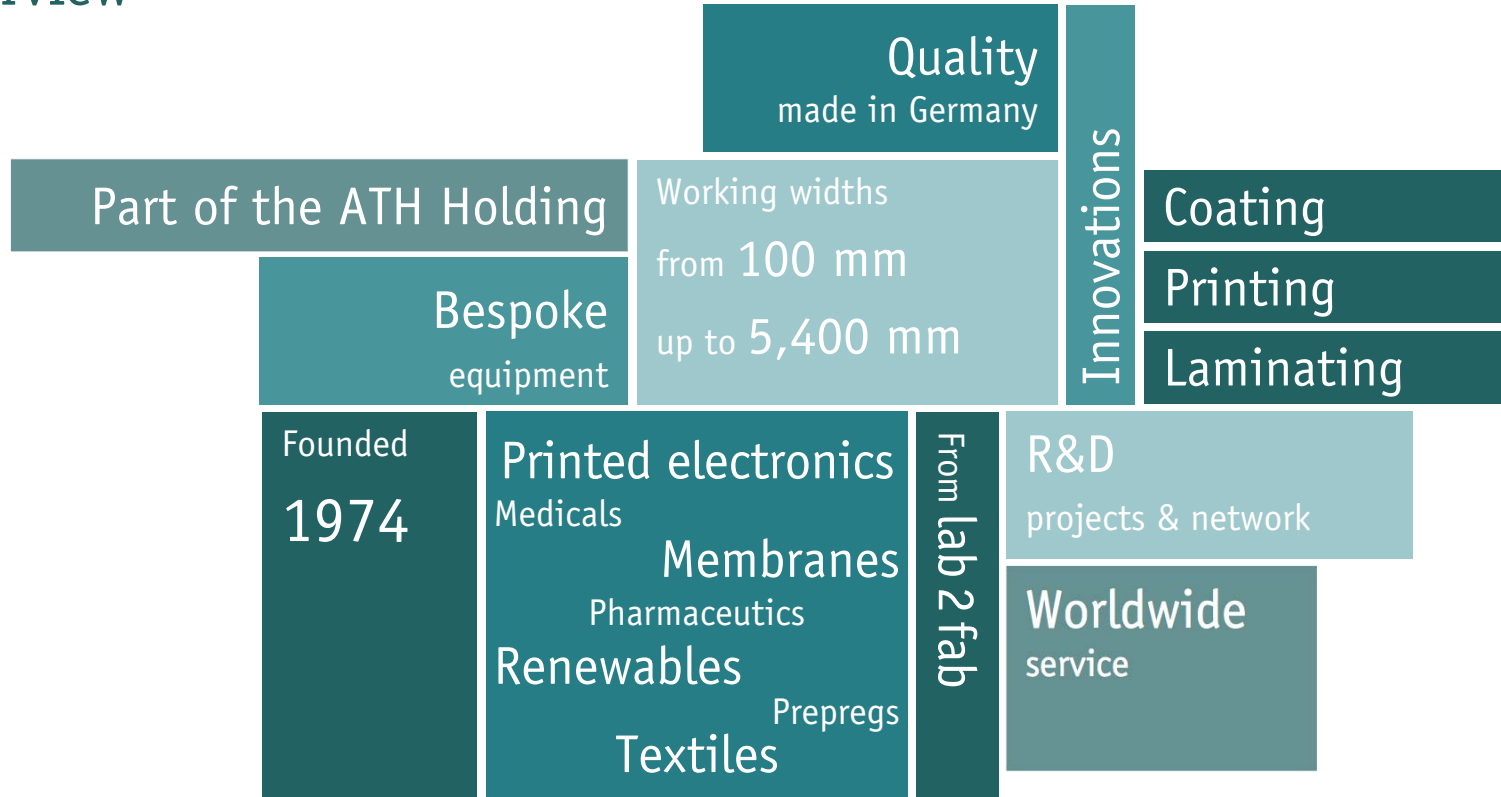
Our markets

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Overview



Group of companies

ATH ALTONAER
TECHNOLOGIE
HOLDING



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

DRYTEC

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



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



ANTRIEBSSYSTEME

- ✓ Founded 1919
- ✓ Approx. 140 employees
- ✓ Located in Hamburg

Represented worldwide



Headquarter in Dormagen



- ① Head office
- ② R&D centre
- ③ Assembly
- ④ Loading dock
- P Visitor parking

Vision – from lab 2 fab



Lab



Pilot



Production

Coatema equipment platform strategy for lab 2 fab

Milestones

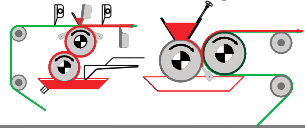
1974

Foundation



2003

Patent „Doublesided coating system“ and „Indirect knife system“



2006

New company site, expansion to 10,000 qm



2007

Click&Coat Registered as Trademark



2013

New corporate design



2000

First Coatema Symposium



2001

New company site with a centre for research and development



2007

Opening R&D housed in an area of 1,200 square meters



2011

IDTechEx award „Technical Development: Manufacturing Europe & USA“

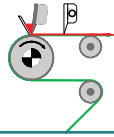


2018

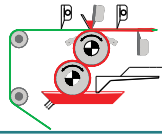
KROENERT and Coatema under one umbrella company



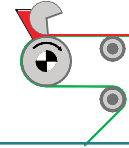
Coating systems



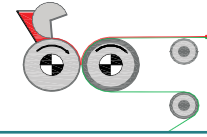
Knife system



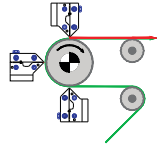
Double side system



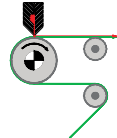
Commabar system



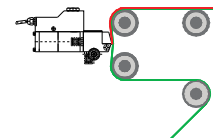
Reverse commabar system



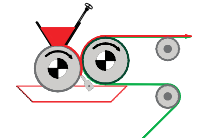
Slot die system



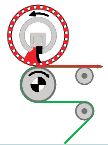
Curtain coating system



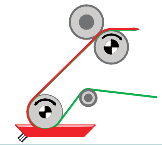
Hotmelt slot die system



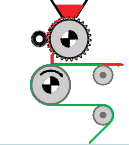
Case knife system



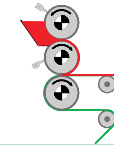
Rotary screen system



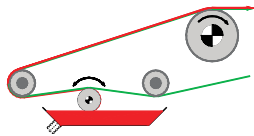
Dipping system (Fouard)



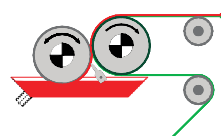
Powder scattering system



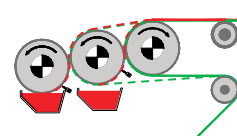
Reverse roll system



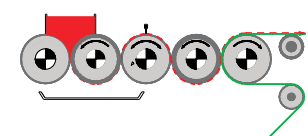
Micro roller system



2 Roller system

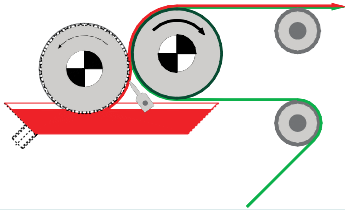


3 Roller combi system

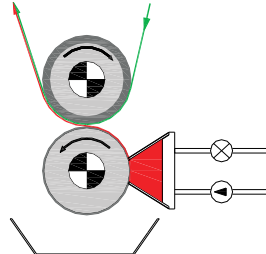


5 Roller system

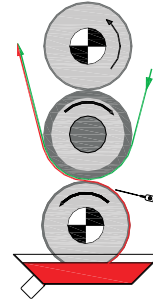
Printing systems



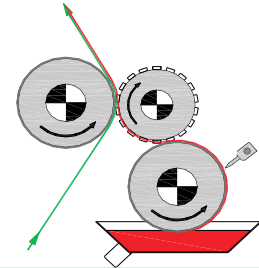
Engraved roller system



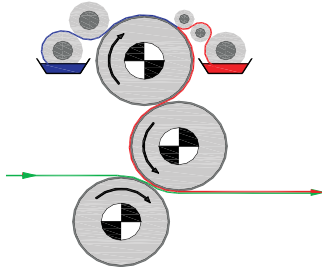
Gravure roller system



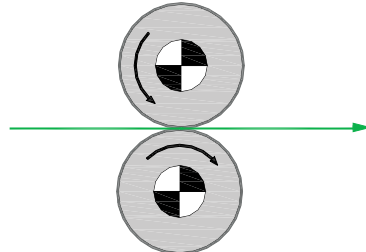
Gravure indirect system



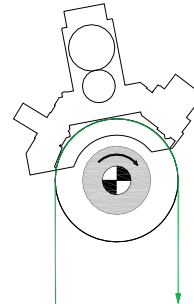
Flexography system



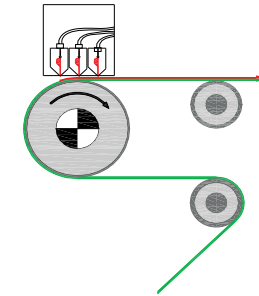
Offset lithography system



Hot embossing system



Nanoimprint system



Inkjet system

Our work in associations – global networking



Board Member:
OE-A

Advisory Board:
Fraunhofer ITA

Coatema customers



Summary

Introduction

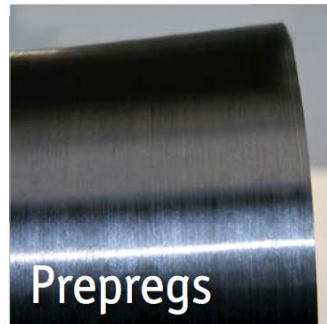
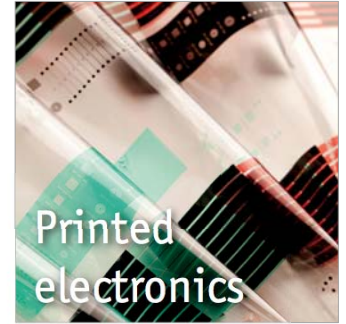
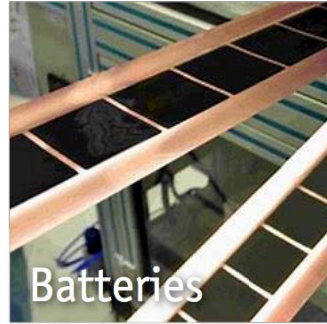
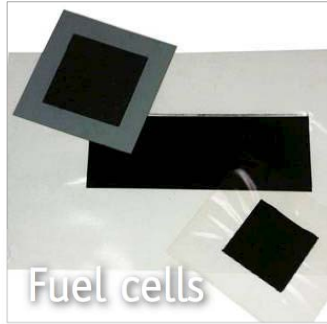
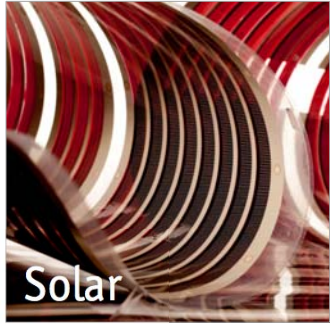
Our markets

Equipment

R&D

Our markets

Our markets



Renewables



Markets:

✓ Batteries

✓ Fuel cells

✓ Solar



Printed electronics



Markets:

- ✓ Conductive coatings
- ✓ Smart systems
- ✓ Displays
- ✓ RFID
- ✓ OLED
- ✓ OPV
- ✓ Electronics



Membranes



Markets:

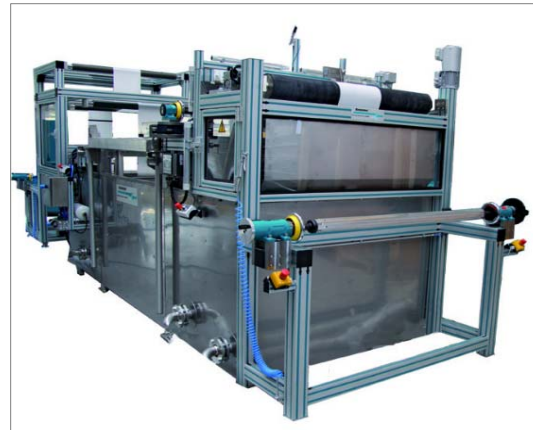
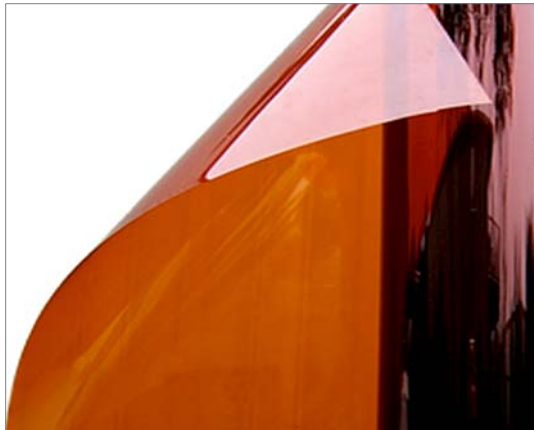
✓ Reverse osmosis

✓ Water purification

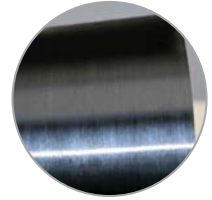
✓ Medical filtration

✓ Gas filtration

✓ Nanofiltration



Prepregs

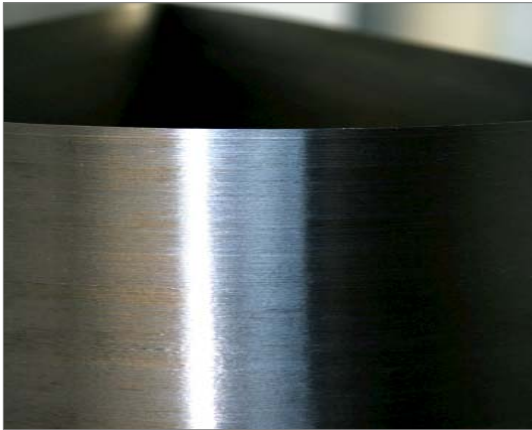


Markets:

✓ Automotives

✓ Aerospace

✓ Constructions



Medical applications



Markets:

✓ Silicone gels

✓ Hydrogels

✓ Plaster

✓ Surgical materials



Pharmaceutics



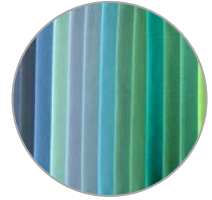
Markets:

✓ ODF (Oral Dispersible Film)

✓ Transdermal systems

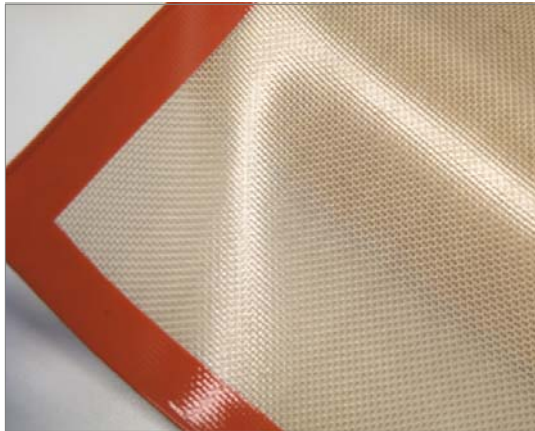


Textiles



Markets:

- ✓ Technical textiles
- ✓ Construction textiles
- ✓ Medical textiles
- ✓ Geotextiles
- ✓ Home textiles



Summary

Introduction

Our markets

Equipment

R&D

Equipment

Lab units

Lab



Test Solution S2S



Easycoater



Test Solution R2R

Pilot lines

Pilot



Click&Coat™



Smartcoater



Basecoater 3rd Generation

Pilot lines

Pilot



Deskcoater



Linecoater



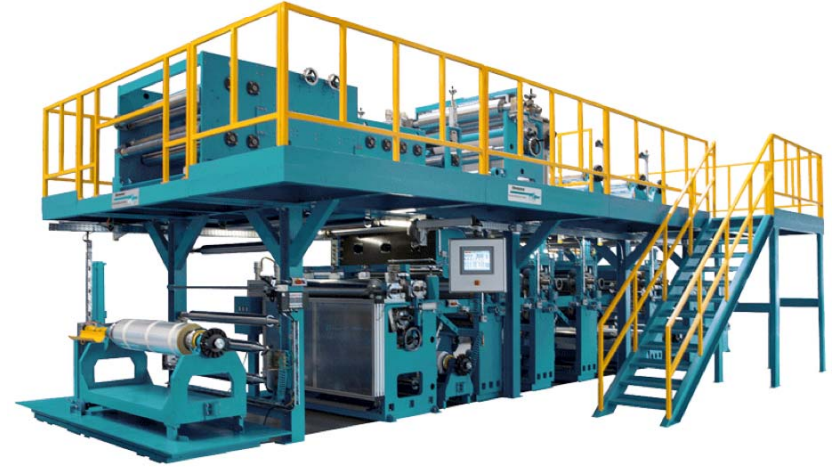
Verticoater

Production lines

Production



Production lines



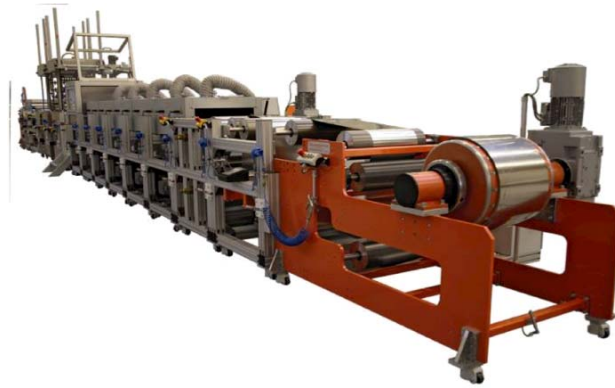
Prepreg plant

Bespoke equipments

Custom
made



Printed oleds



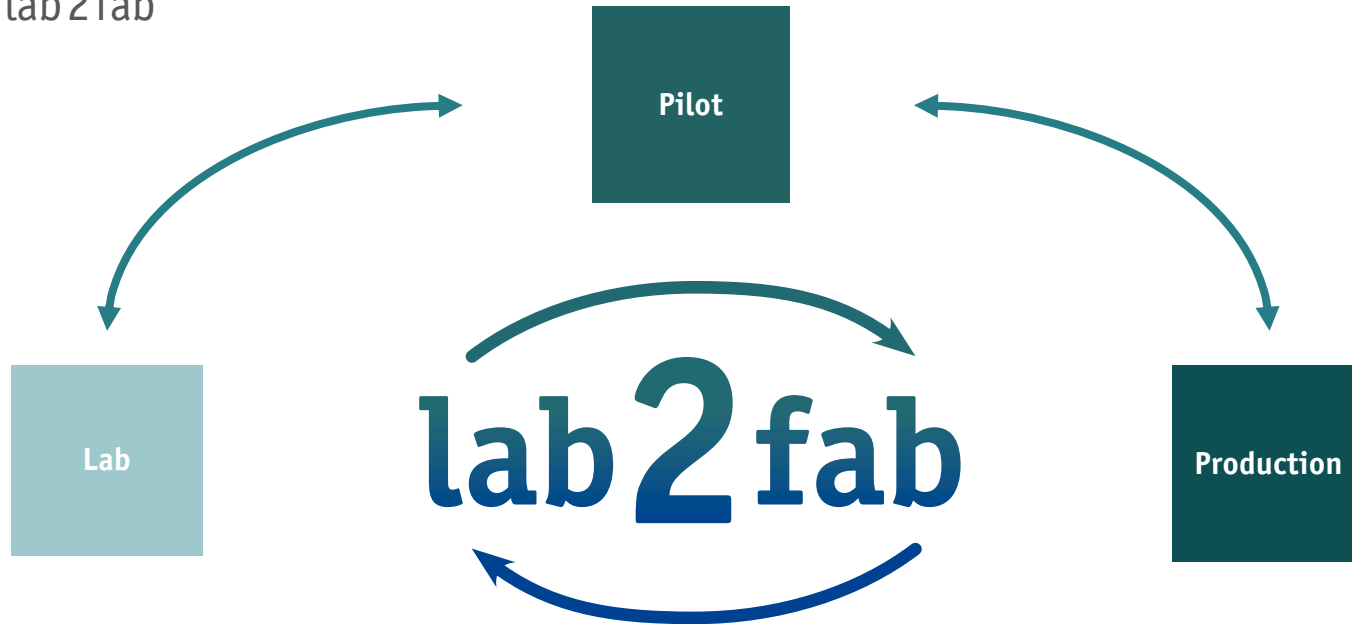
Batteries



Composite fibres

Scaling up new technologies

Tools for lab2fab



Summary

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Equipment

Our markets

R&D

B&D

R&D power houses

KROENERT – Drytec – Coatema

- ✓ R&D space: 2 000 m²
- ✓ R&D units: 15
- ✓ From R2R to S2S
- ✓ Working width: 100 mm to 1 300 mm
- ✓ Operation speed: 0.1 to 1 610 m/min
- ✓ 15 parallel public funded R&D projects
- ✓ R&D staff: 25

Product portfolio:

- ✓ Basic research, process- and product development
- ✓ Product improvement
- ✓ Trainings and conferences



R&D centre KROENERT & DRYTEC



R&D centre Coatema

Use of the Coatema research & development centre



Technologies

Coating, printing, laminating, imprinting, pretreatment, drying, curing, cross linking, cutting

Number of units available

10 – 12 units on 1 200 sqm

Sheet-to-Sheet – S2S

up to 300 mm x 500 mm

Roll-to-Roll – R2R

up to 500 mm width

Operation speed

0.1 to 100 m/min

Product portfolio

Process development

- ✓ Feasibility study
- ✓ Ink – process study
- ✓ Process analysis
- ✓ Proof of concept
- ✓ Small scale prototype

Test production

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

Education

- ✓ Coatema conference
- ✓ Training of customers
- ✓ Education of students

After sales service and ramp up of processes

- ✓ of Coatema units

Development of custom made design for equipment

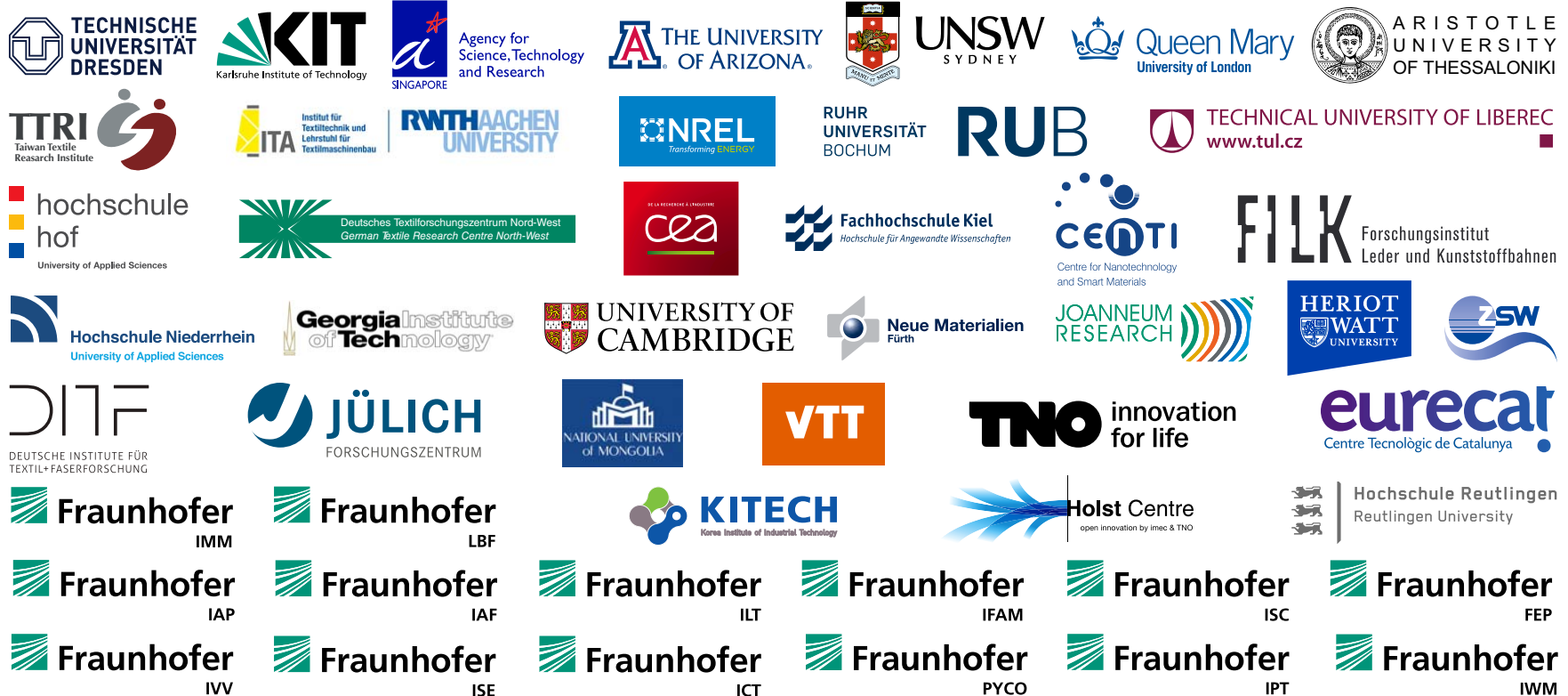
- ✓ Prototyping
- ✓ Proof of concept

Funded research projects

- ✓ German funded
- ✓ Horizon 2020
- ✓ Global 2+2 projects
- ✓ B2B projects



R&D customers



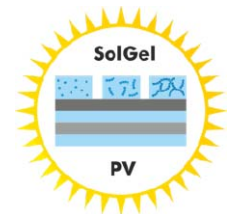
R&D projects overview 2020





Oled Solar



E-Nanoprint Pro





R&D projects 2020

Bundesministerium für Wirtschaft und Energie
FKZ: ZF4099702BL6
FKZ: TF4018750BL6c

PowderSizing: Process chain for powder laminated **glass fiber** enhanced compounds. 3 years, 0.8 M€

Coatema: Developing coating rollers for improved surface coverage of fibers.

Bundesministerium für Wirtschaft und Energie
FKZ: 03ET1470D

FLEX-G: Flexible **roof and facade elements**. 3 years, 2.4 M€



Coatema: Transferring the lab process to a R2R process and upscaling.




GA No. 761000

Greensense: Sustainable **paper-based** printed electronics and **biosensing platform**. 4 years, 8.0 M€



Coatema: Engineering of machinery and process development for Nano Cellulose.

GA No. 0800645

Supersmart: Scale-Up of Printed Electronics Recyclable SMART materials. 3 years, 5.0 M€



Coatema: Subtask partner for machinery development.

Bundesministerium für Wirtschaft und Energie
FKZ: 03XP0129C

SOLID: Innovative **solid state batteries** with Sol-Gel, Li anodes and 3D structuring. 3 years, 2.1 M€



Coatema: Upscaling of lab processes for Sol-Gel materials and integration of new concepts.

GA No. 820789

OLEDsolar: Scale-Up of optoelectronics to production. 3 years, 7.8 M€



Coatema: Improving registration accuracy in R2R processes.

ZF4099704SL8

EL-FIB: Development of **electroluminescent tapestry**. 2 years, 1.2 M€

Coatema: Upscaling of printing and coating processes, **intermittent slot die**

Bundesministerium für Bildung und Forschung
FKZ: 02WCL1019C

PEPcat: Plasmonically Enhanced Photocatalysis for Waste-Water Treatment. 3 years, 3.0 M€

Coatema: Novel Easycoater Design for S&R R2P NIL; Enhancing the system accuracy to **5 digit micrometer range**.

R&D projects 2020

E-Nanoprint Pro

Rocket-Re: -I-XXX

E-Nanoprint Pro: Nanowire printing Process development for Health-medical applications.

Coatema: Integration E-Nano printing head in R2R process equipment



EFRE-0801555

Effilayers: Flexible **organic solar-cells**.

3 years, 1.5 M€

Coatema: Process development and equipment for R2R Process



GA No. 862442

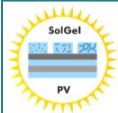
RealNano: In-line and Real-time Nano-characterization technologies for flexible OE. 3 years, 4.9 M€

Coatema: Integration of characterization tools in pilot to production line



GA No. 862156

FF2S: Upgrade of various **pilot lines** and connection to an open-innovation test bed (**OITB**). 4 years, 16 M€
Coatema: Upgrade of the R&D centre and of two external pilot lines; development of a R2R ALD system; execution of user and pilot cases



Bundesministerium
für Bildung
und Forschung
FKZ: 0324151C

SOLGEL-PV: multipurpose **Sol-Gel films for PV**.

3 years, 2.0 Mio.€

Coatema: Upscaling of **R2R Nano-Imprint process toward Click&Coat®**

Do not hesitate to contact us!



Anything missing?

Let us know and we will make it happen!

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

Sales department:
sales@coatema.de

Thank you



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