



Title: Sustainable is Attainable: A Unique, Innovative and Proven Process Technology

Speaker: Michael Tobiasz

Company: IPCO US LLC



IPCO

Innovative Processes Creating Opportunities

IPCO AB

We are a global industrial process company developing customized solutions to drive customer productivity

600 EMPLOYEES

Presence in

35+ COUNTRIES

Part of the Wallenberg Group with ~ 600.000 employees and > 140 Billion EURO in total annual sales of holdings

Global Presence



NORTH AMERICA

USA Totowa
Mexico Monterrey

SOUTH AMERICA

Argentina Buenos Aires
Brazil Sao Paulo
Columbia Bogota
Peru Lima

ASIA/PACIFIC

Australia Perth
China Heze
China Guangzhou
China Shanghai
China Xian
India Pune
Indonesia Jakarta
Japan Kobe
Malaysia Kuala Lumpur
Singapore Singapore
South Korea Seoul
Taiwan Taipei
Thailand Bangkok
Vietnam Ho Chi Min

EUROPE & MIDDLE EAST

Austria	Vienna	France	Orleans	Poland	Warsaw	Switzerland	Luzern
Bahrain	Manama	Italy	Milan	Russia	Moscow	Turkey	Istanbul
Germany	Göppingen	Iraq	Erbil	Spain	Barcelona	Ukraine	Kiev
Germany	Ennepetal	Kazakhstan	Almaty	South Africa	Johannesburg	United Kingdom	Halesowen
Germany	Fellbach	Netherlands	Breda	Sweden	Sandviken		

A sustainable composite product is only impactful if it scales for volumes and global applications

Product quality and performance

Material supply chain and sourcing options

Price competitive

Scalable to produce meaningful volumes

Environmentally friendly, sustainable and repeatable, uses carbon sequestered materials

Profitable, feasible, and the right thing to do

Holistic design approach leads to game changing products

Three World's First Thermoplastic Composite Products

Sustainable, Carbon Neutral or Carbon Negative

Product Category:

Transportation: Natural Fiber BioPanel

Construction: Carbon Negative Carpet Tiles

Building Materials: A TP Building Material

Case study: Thermoplastic Bio-Panel Composite

IPCO is teaming with INCA Renewable Technologies to develop a unique twin steel belt press to produce the next generation of natural fiber composite panels and pre-pregs for the automotive, RV, transportation and building products industries

IPCO has designed and built the world's first continuous production process line that deposits multiple layers of randomly oriented natural and polymer fibers, then heats, consolidates and calibrates the mat into thermoform panels

The resulting panels are lighter, stronger, safer and less expensive than traditional nonwoven-based or wood-based panels

Thermoplastic BioPanel Composite

The BioPanel products sequester carbon, reduce deforestation, plastics pollution and GHG emissions while delivering stronger, lighter, cost-competitive solutions

The BioPanels can be remanufactured back into products at their end of their useful lifecycles. Thus, continuing to contain the sequestered carbon through multiple generations of production

Improved thermo molding, flex and tensile modulus properties

Enables Unibody construction with Class A Automotive Finish

Automotive Interior and exterior applications

INCA is already in joint development agreements with major OEMs in each of their target markets



BioPanels

76% lower carbon emissions, 82% lower water consumption, 89% lower waste production

100% sustainable

Transportation Category Sustainable TP Composite Applications



Automotive Exterior
Body Work Part
Organo Sheet
Underbody
Wheel Arch



Automotive Interior
Acoustic Insulation
Door Panel
Headliner
Trunk Liner
Parcel Shelf
Heavy Layer



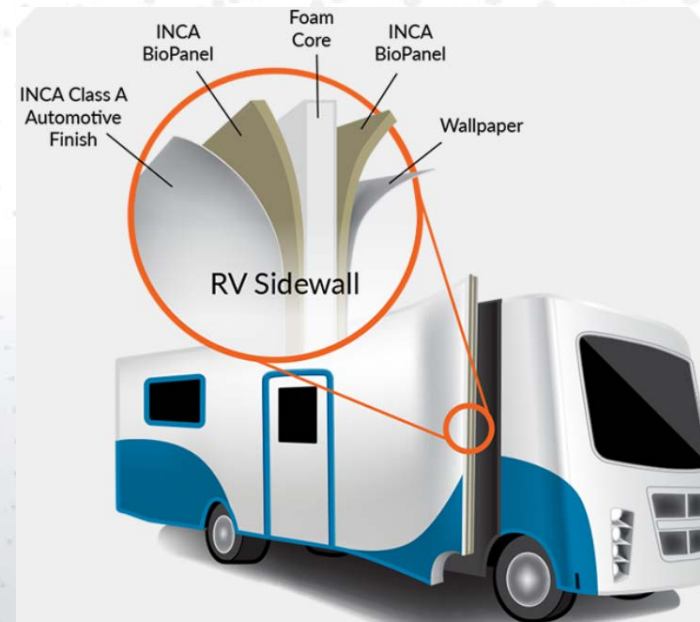
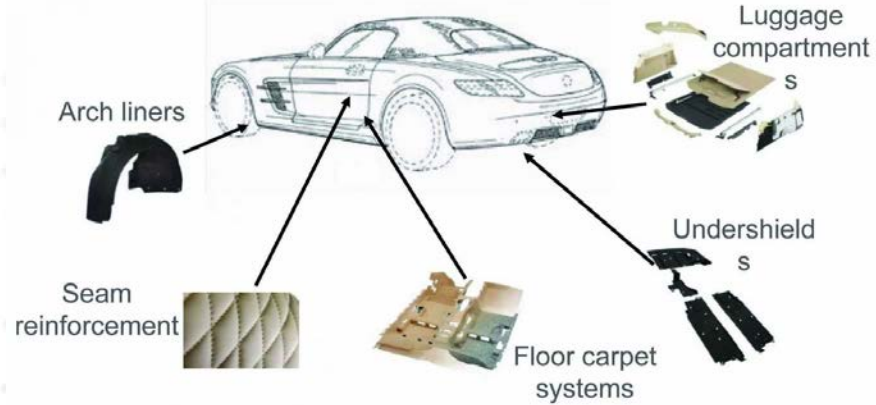
Container
Sea Container
Air Container
Composite Container



Truck & Trailer
Interior & Exterior
Side Skirts
Trailer Wall
Wind Deflector
Door Panel



Recreational Vehicles
Interior & Exterior
Ceiling
Floor
Wall



Precision Scattering Processing of Reclaimed fiber



- * Non-woven layer =
- * Production trim waste =
- * Non-woven layer =



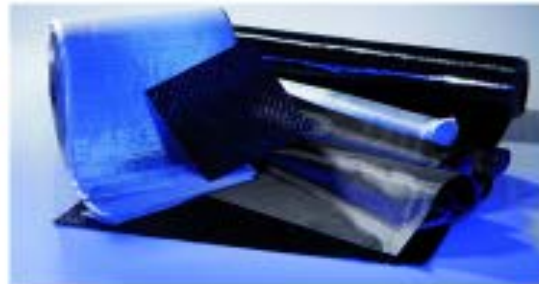
Scattering Recycled Materials



Interior/ Exterior components



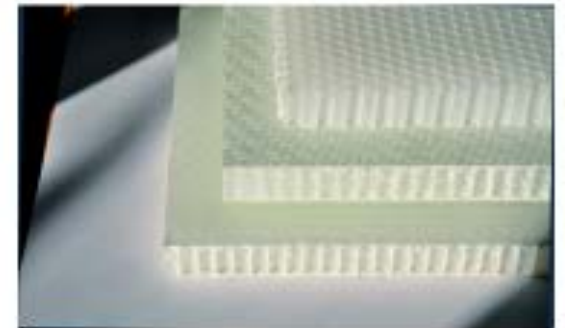
UD Tape



Organo sheet

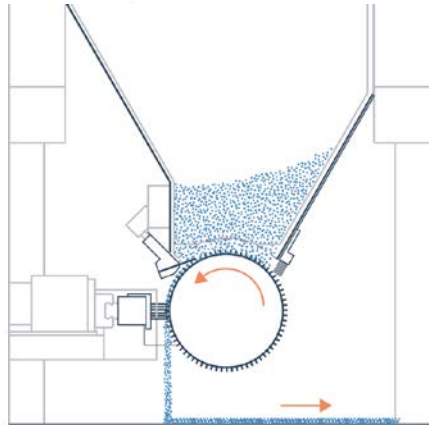


Hardfill waste Honeycomb



TP UD HC panels

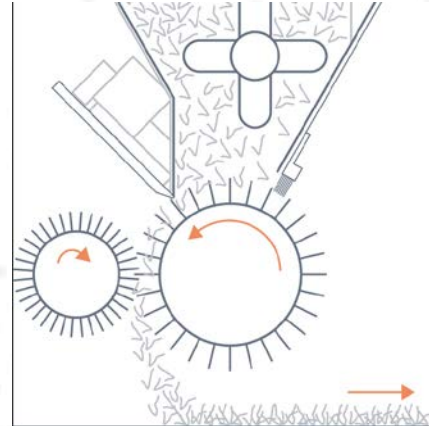
Precision Scattering Systems



SCATTERPRO P

for powder, glitter,
chips, sand, glass,
corundum, etc.

(0,03 mm – 1,2
mm– 1,2 mm)

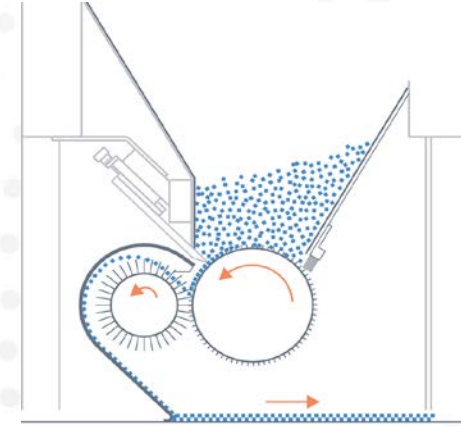


SCATTERPRO F

Rotating brush-off
system

for fibers

(0,5 - 60 mm)



SCATTERPRO G

for granulates,
flakes, chips, glass,
carbon black, etc.

(1 mm - 20 mm ø)

Interior/ Exterior automotive components



Case study: Sustainable thermoplastic construction materials

Woven GF substrate

Epoxy resin powder coating

Lightweight, impact resistant

Designed to be recyclable

Exterior cladding and interior - exterior wall panel

Contains recycled plastic

Sustainable thermoplastic construction materials

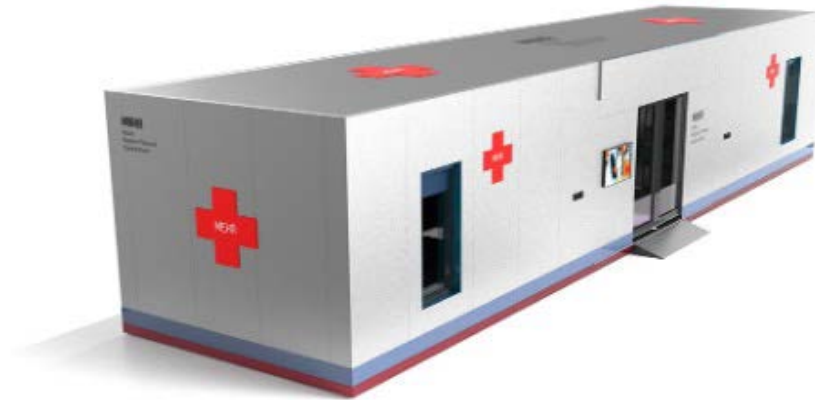
LCA study by MIT and Stanford: 40% less GHG emission than wood houses

70-year life span building

Greater seismic resistance, hurricane proof, exceeds fire and flame resistant (*IBC USA and EU*)

Lighter and multiple times stronger than steel

TP sheet performs like aluminum / steel



Composite Sectors, Applications and End Product Examples

Transportation: Automotive, Marine, RV, Aviation, Semi-trailers, Mass transit

Unibody wall panels with Class A surfaces

Interior and exterior panels for E-Vehicles, passenger and commercial

3D printing: Scattering Metal powders, sand, TP powders

Construction: Building materials

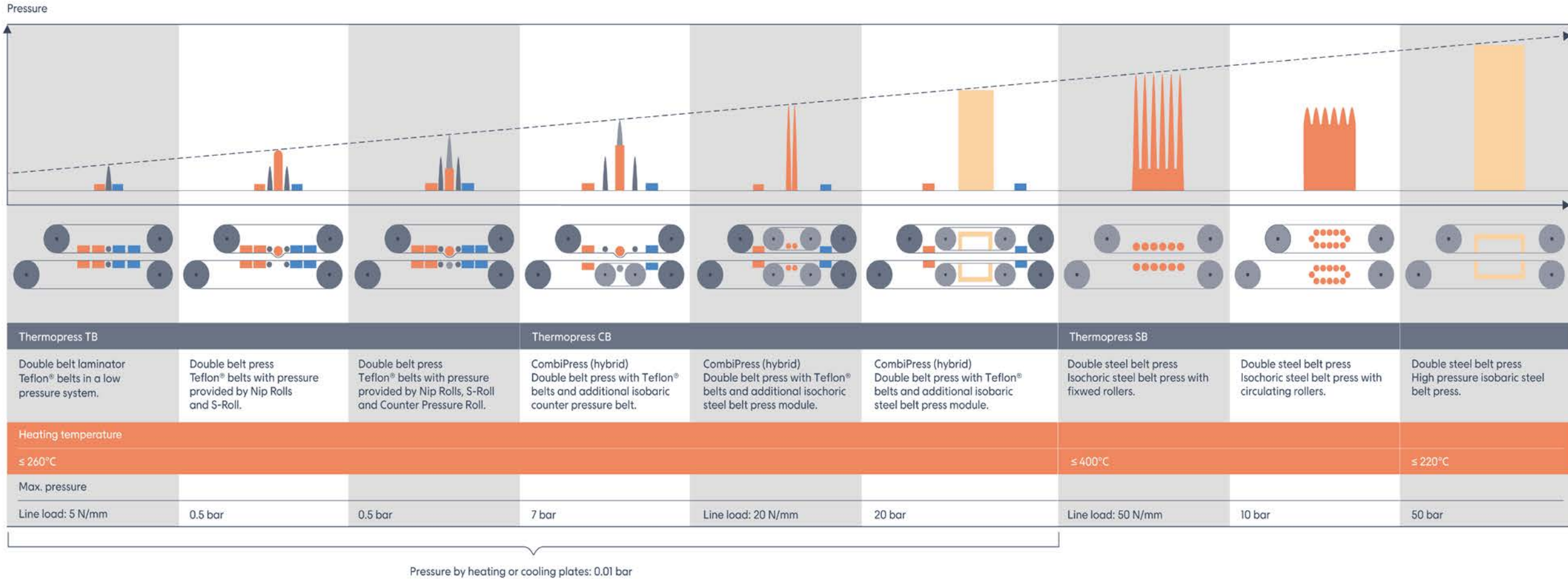
Honeycomb panels

Architectural cladding

Pre-fabricated houses / structures / Modular offices, hospital modules, multi-story buildings

Ballistic, technical composites, and other product categories

IPCO Composite Solutions Pressure Modules Patented



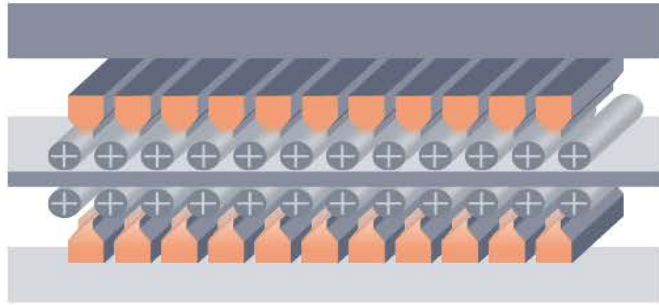
The systems and specifications shown here are representative of our standard ranges;

Type 1:

Isochoric double-belt press with fixed rollers

Heating: air, oil or electricity

Cooling: water

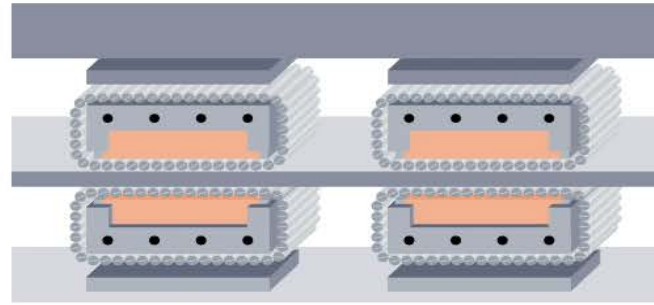


Type 2:

Isochoric double-belt press with circulating rollers

Heating: oil or electricity

Cooling: water

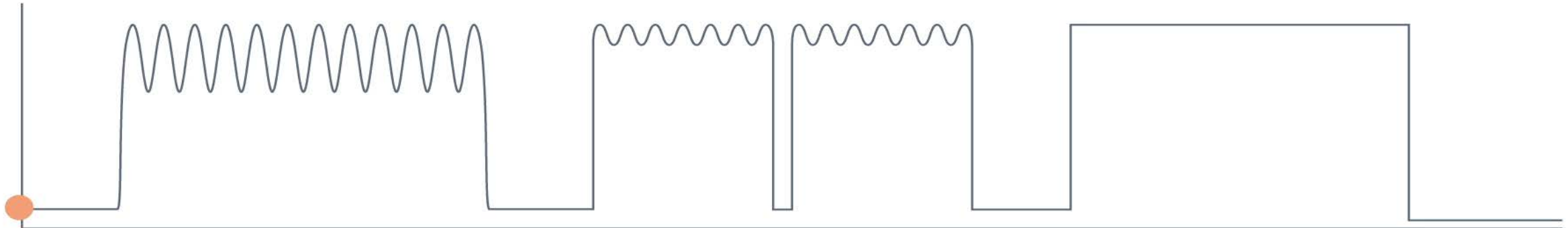
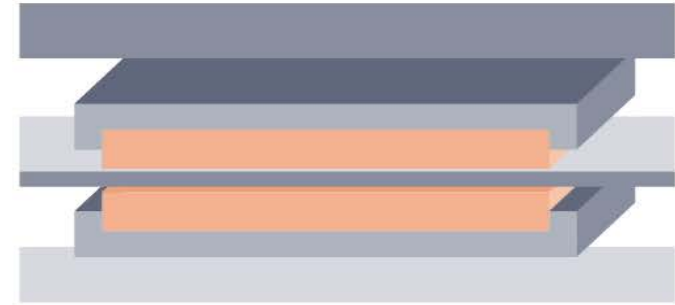


Type 3:

Isobaric double-belt press with hydraulic pressure cushion

Heating: oil

Cooling: water



IPCO Thermopress SB Double Belt Press



IPCO Precision Scattering and ThermoPress Technology

Continuous production process

Flexibility and versatile scattering and double belt press production processes

Precise consolidation, calibration, curing and cooling process control parameters

Consistent and repeatable process parameters

Temperature and pressure profiling in heating and cooling zones

Tempering sections to release tension in the material

Modular design for high degree of process flexibility and versatility

Similar and dissimilar materials

World's only OEM manufacturing steel belt and **PTFE** double belt presses

IPCO CS Productivity Center Göppingen Germany



— COMMITMENT

We believe in truly listening, understanding and responding to customer needs, establishing a feeling of partnership and trust. Our commitment to offer exceptional solutions and premium service builds long-term relationships.

— CONTINUOUS IMPROVEMENTS

We are constantly challenging and developing ourselves in close collaboration with our customers. We are the natural partner, continuously evolving and expanding our offering, always with the target to find better solutions for our customers.

— PASSION

We are hands-on and believe in transforming our know-how of industrial processes and materials into a wide range of solutions. We are passionate about what we do and apply our expertise in solving the most diverse challenges that comes our way.

— DO RIGHT

We have a high level of integrity and always strive to do right. We take responsibility for our actions and believe in honesty, ethics and transparency in all our interactions.

Thank you for the time provided to me today and for your participation in this session.

A big thank you to the ACMA for organizing this event, and for their tireless efforts in promoting the importance and wider use of thermoplastic composites

My colleagues and I remain at your disposal for any additional information

Respectfully,

Michael Tobiasz

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OTHER MATERIALS

COMPOSITES

