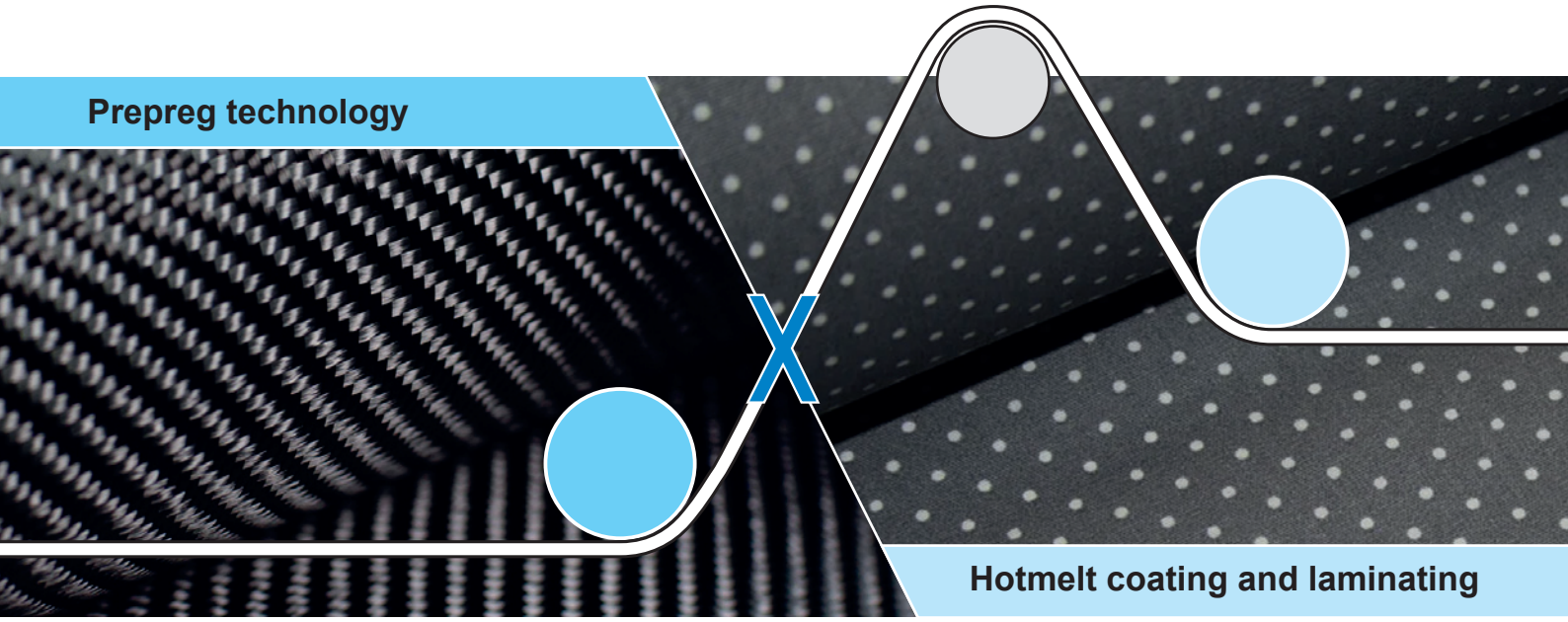
SANTEX RIMAR GROUP

CAVITEC



MACHINERY AND TECHNOLOGY FOR TECHNICAL TEXTILES

Santex Rimar AG

Santex Rimar AG – Tobel, Switzerland

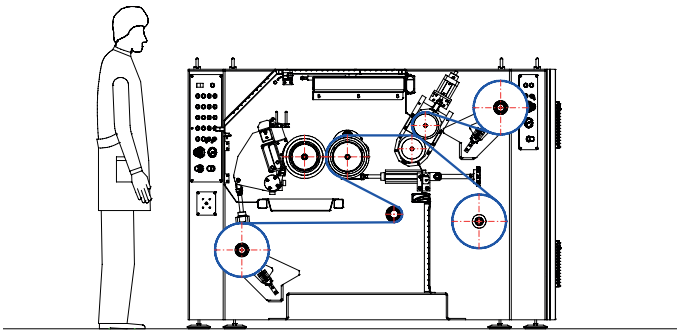
CAVITEC (brand of Santex Rimar AG) develops, designs and manufactures impregnating, coating and laminating lines based on the well-known technologies of the two in CAVITEC integrated companies Caratsch and Villars.

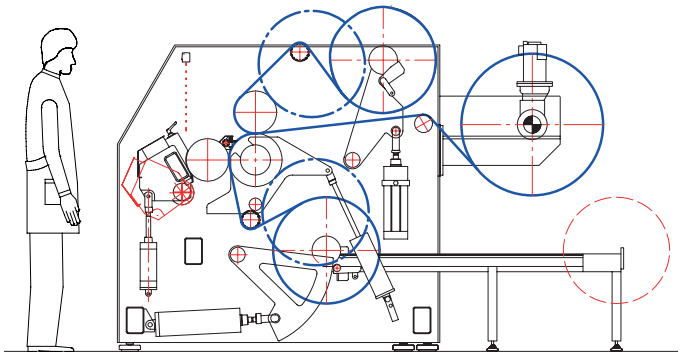
CAVITEC stands for SWISS TECHNOLOGY and is your most competent partner to supply machinery and technology for Prepregs for the Composite industry and Hotmelt Coating and Laminating for various technical textiles and apparel applications

Technology center

Our pilot plants support our customers to simulate full-scale production machines, develop new processes and materials and ensure performance and production rates.

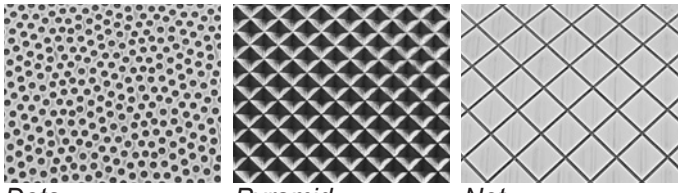
- Hotmelt coating and laminating
- Prepreg
- Wet impregnation
- Powder scattering





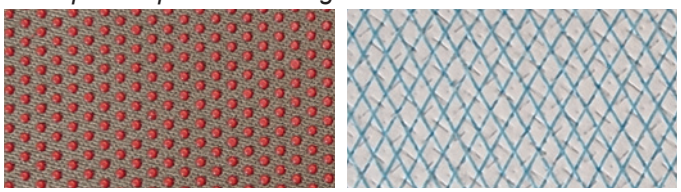
Cavimelt TSM (Test & Sampling Machine)

Examples of engraved roll patterns



Dots *Pyramid* *Net*

Examples of pattern coatings



Prepreg technology

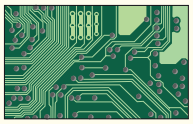
Plants for the impregnation of various types of glass and carbon fibers as intermediate products for composite materials.

PREPREGS are in principle flat semi-finished products consisting of polymer-based resin as the matrix and a variety of fibers such as glass, carbon, or aramid as the reinforcement.

There are basically two Manufacturing Technologies, namely hotmelt impregnation (solvent-free) and solvent-based impregnation. Both are thermoset resin systems.

Hotmelt resins reach the necessary viscosity for a perfect impregnation just by temperature effect.
Solvent-based impregnation means to saturate the fibers with a diluted resin-solvent mixture at room temperature. Afterwards, the solvents are removed in a dryer by evaporation. The resins are partially cured to a pre-polymerized stage.

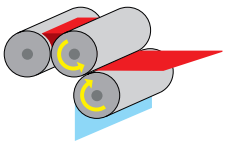
Applications

Aerospace	Defence	Electronics	Medical	Industrial	Sport
					
Civil aircraft	Defence aircraft	Printed circuit boards	Orthosis	Wind energy	Sporting goods
Primary parts	Marine	Mica insulating materials	Protheses	Automotive	Skis
Interiors	Helicopters	Housing for electronic devices	Implants	Oil and gas	Bikes
Aero-engines	Body armour		Equipement	Tooling	Motorsport
Space	Ballistic material				Sailing

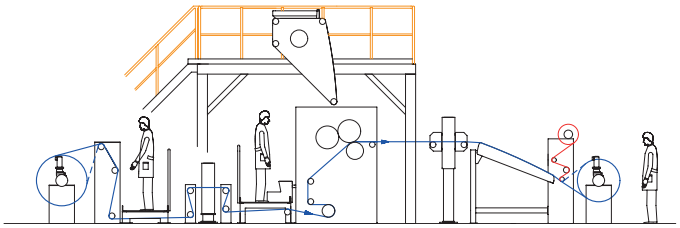
Prepreg solvent-free process

Film Line

Matrix Film Production
Coating of release paper with resin by direct roll, reverse roll or knife coating.

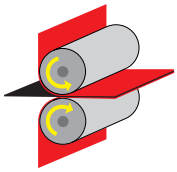


Working width	600 – 1’600 mm
Production speed	1 – 40 m/min.
Type of resin	Hotmelt Epoxy
Coating weight	10 – 250 g/m²

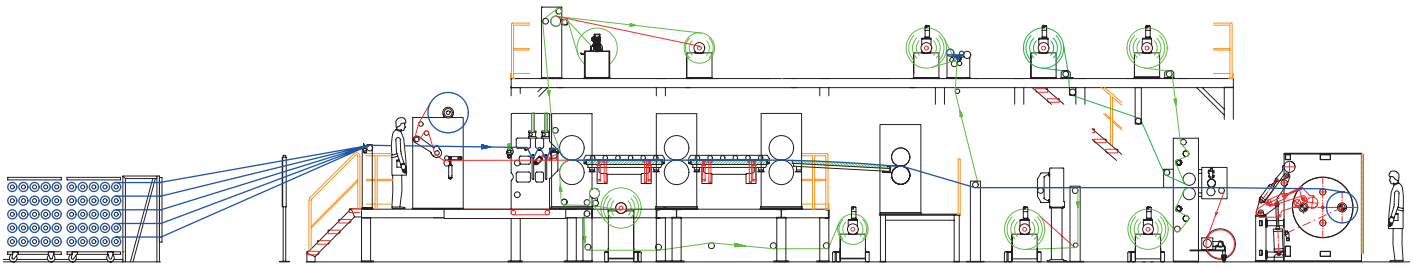


Tape Line *(Impregnation line)*

The reinforcement is embedded between 2 Matrix films.
Transfer of the resin from the release paper into the fibers, from bottom and/or top side.
Saturate the fibers by heat and pressure (consolidation).

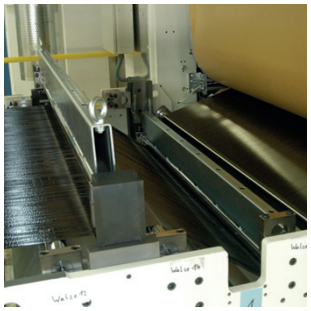


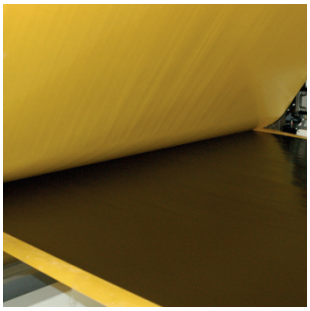
Working width	600 – 1’600 mm
Production speed	1 – 20 m/min.
Type of resin	Hotmelt Epoxy
Line pressure	up to 350 N/cm



Advantages

- High precision coating weight by patented gap setting system
- Perfect impregnation rate by precise gap control and cylindricity of the rollers
- High production speed by efficient consolidation
- Automatic web-handling system for non-stop operation

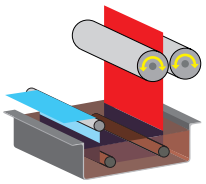




Prepreg solvent-based process

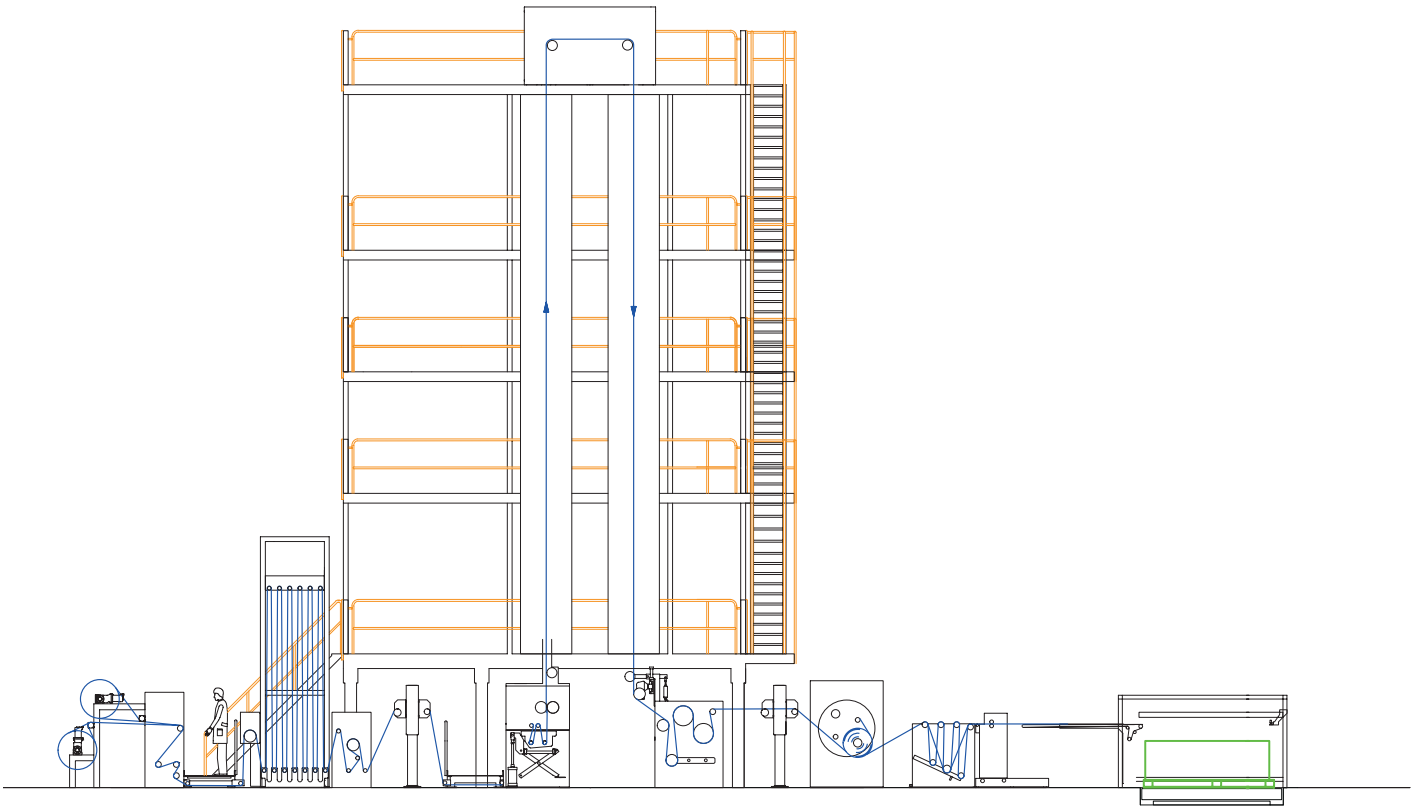
Vertical / Horizontal treater *(Impregnation line)*

The fibers passing a dip impregnation (mixture of resin and solvents) with the target of fully saturate the fibers followed by an Radiant oven to evapurate the solvents.



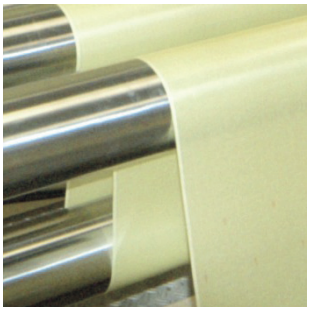
Working width	1’200 – 1’800 mm
Production speed	1 – 30 m/min.
Type of resin	Epoxy, Phenol, Polyamide
Type of solvents	Aceton, MEK, Toluol, etc.

The CAVITEC Radiant oven process permits simultaneous heating of the whole coating volume. The infrared heat waves are in a frequency range which allows an effective absorption by the resin. The temperature distribution over the web thickness becomes almost constant instead of being maximal at the two surfaces and minimal in the thickness center when using conventional dryer systems. This permits faster heating of the material, faster evaporation of solvents and curing of the resins without overheating or other undesired effects like skinning (bubbles).



Advantages

- Virtually no air inclusion in the Prepreg
- Consistent curing from the core to the surface
- High product quality at short curing time
- Maximum energy efficiency
- Instant temperature adjustment
- Strict individual zoning control



Hotmelt coating and laminating / Powder scattering

Hotmelt coating and laminating commonly used in textile and technical textile industry are one-component solvent-free thermoplastic polymers (non-reactive) or thermoset pre-polymers (reactive) heated to melting point prior to their application. Hotmelts are applied with different coating methods for a wide range of applications.

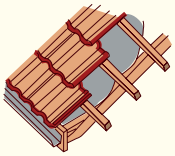
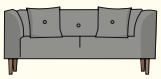
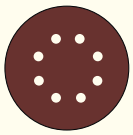
The extremely environmentally friendly process without high power consumption and variety processes for recyclability can replace conventional wet coatings, flame bonding or other environmentally harmful procedures in almost all industries.

Powder scattering enable to scatter various dry powder onto a moving web, over a horizontal surface. The powder is homogeneously distributed over the entire working width.

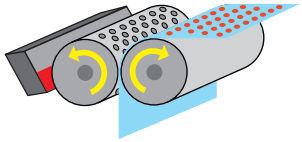
Complete coating and laminating lines include a feed-in system, a fast-reaction infrared sintering channel, as well as a calendaring and cooling unit.

The dosing roller is covered with a special needle clothing depending on powder particle size. An oscillating brush and its attached distribution sieve improve the scattering accuracy.

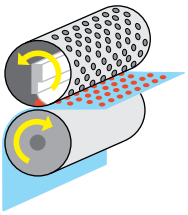
Applications

Automotive	Medical / Hygiene	Building	Home textiles	Industrial	Garments
					
Seat cover	Surgery cover	Roof underlay	Mattress ticking	Filter	Breathable active wear
Head liner	Mattress cover	Floor cover	Black-out curtain	Conveyor belt	Protection wear
Carpet	Face mask	Footfall insulation	Upholstery	Grinding paper	Fashion wear
Insulation	Cleaning wipe	Heat insulation	Home decor	Self-adhesive tape	Shoes
A, B, C columns	Surgery gloves	Sound insulation	Carpet	Sun protection	Lingerie

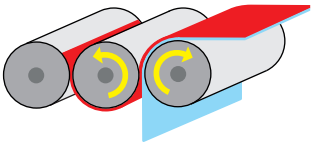
Hotmelt process



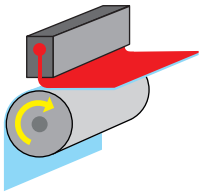
Rotogravure



Rotary Screen

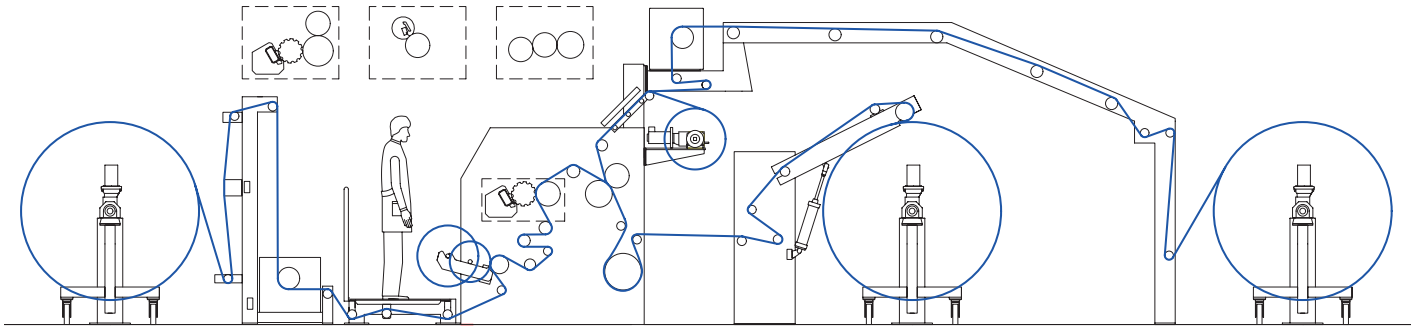


Multiroll



Slot Die

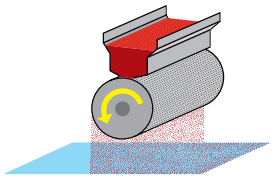
Working width	500 – 3’200 mm (or on request)
Production speed	1 – 60 m/min. (or on request)
Coating weight rotogravure and screen	3 – 80 g/m²
Coating weight multi-roller	10 – 500 g/m²
Thermoset adhesives (80 – 140°C)	Crosslinking reactive polyurethanes (PUR) 2‘000 - 20‘000 cps
Thermoplastic adhesives (140 – 230°C)	EVA, PSA, PP, PO, coPES, coPA etc. 3‘000 - 150‘000 cps



Advantages

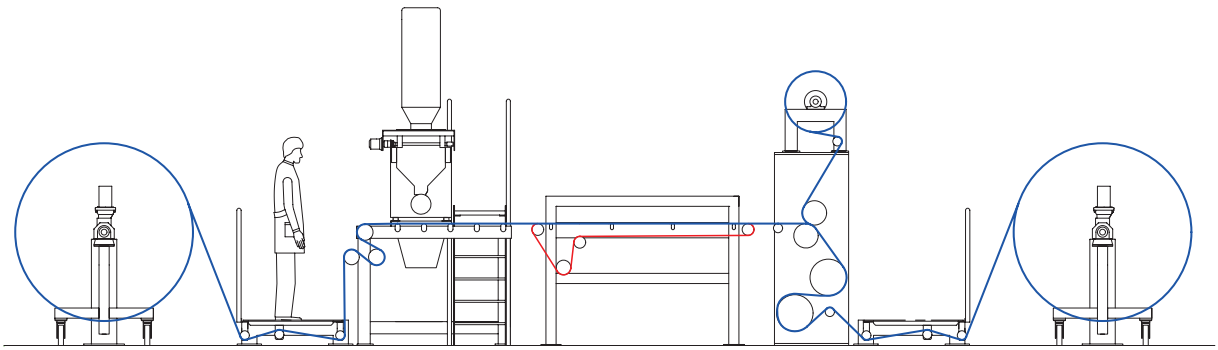
- Eco-friendly — Solvent and water free process (no drying needed)
- Accurate — Very high reproducibility thanks to stable system and product recipe
- Diversified — Bonding of dissimilar types of substrates (fabrics, foams, films, nonwovens)

Powder scatter process



Scatter coater

Working width	500 – 7’000 mm
Scatter capacity	4’000 g/m/min.
Powder particle size	50 – 800 µm
Type of powder	Thermoplastic, activated carbon, SAP, epoxy, phenolic, alumina abrasive, talcum, etc.
Substrate	Woven, knitted, nonwoven, film, membrane, foam, etc.



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