

System 3000



The Future in Bitumen Processing

System 3000 is a completely new production process with cooling belt technology, which has been developed based on experiences gained over decades with traditional and conventional production lines. It is designed as a modular system, which offers the possibility to plan production lines individually according to the required capacity and production needs. **System 3000** can be used for the production of all bituminous roofing membranes including single side coating for specialty products and membranes having several layers of reinforcement and coating including self-adhesive coatings and for the production of carrierless membranes.

The Future in Bitumen Processing

Important Advantages

- Low production costs due to material and energy savings
- Highest production quality
- Unmatched production variety
- Hassle-free operation and maintenance
- Modular design (may be used for the modernization of existing production lines of any kind)
- Available in output ranges from 600 m/hr to 6000 m/hr.

The Future in Bitumen Processing

- Completely new production process with cooling belt technology
- Designed as a modular system that offers the possibility to plan production lines individually according to the required capacity and production requirements
- Can be used for the production of bituminous roofing membranes having several layers and different self-adhesive coatings
- Can be used for the production of carrierless bitumen membranes



Impregnation System

Designed as a modular system, the **System 3000** impregnation unit can be used as a single unit or several units arranged in tandem so that one or several carriers can be impregnated simultaneously or several times in a row depending on production needs. The impregnator is designed with electrically heated rolls and a thermo fluid heated tank. The energy requirements for heating up and maintaining the temperature level using standard thermo fluid heating is very low and the temperature controls are extremely precise. The maximum time for heating-up, even after periods of standstill, is 1 hour. The unit has two connection points for saturant. One for filling the impregnator and the other for circulating the saturant back to the holding tank.

Coating Box Technology

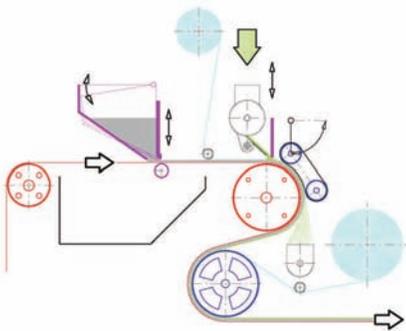
System 3000 divides the coating of the carriers into two separate operations. The top of the carrier is always coated first. The coating compound is applied onto the top of the

carrier at a very even temperature and constant tension. Next, the supported and coated carrier is conveyed to the top side mineral application system. The excess mineral material is immediately removed as the membrane is turned to the bottom. A height-adjustable cooling roller enables the controlled, complete and even pressing in of the top sanding material.

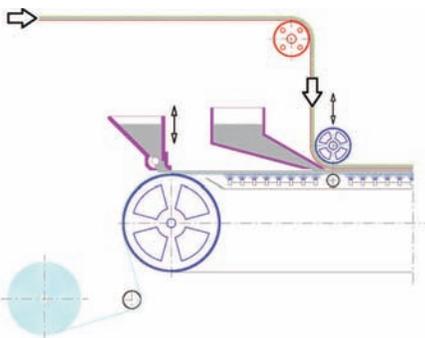


In order to produce sandwich membranes several top coating systems may be arranged in tandem. The thickness of the cover compound layer applied onto the carrier is always determinable and adjustable in a tolerance range of <math><0.1\text{mm}</math>. **System 3000**'s coating system achieves greater material savings because the bituminous membrane can always be produced at the lowest permissible level of thickness. Top side coating is designed as a modular system.

With **System 3000** coating thicknesses from 0.4 up to 3.0mm (0.016 up to 0.118 inches) may be applied.



By using more than one coating head in a row it is possible to apply entirely different coatings on one single carrier. Equally, it is possible to combine several carriers to sandwich elements with a clearly defined layer of bitumen in-between. During the coating process the carrier itself is always supported from below.



The bottom-side coating takes place in between the cooling belt and the deflection roller. The final thickness of the product is at all times equal to the distance between the steel belt and the

roller with an accuracy of $\pm 0.10\text{mm}$ (0.004 inches) over the entire production width. The gap between the cooling belt and coater box can be adjusted independently for each side of the coater box in order to achieve the desired thickness. Similarly to the top-side coating, it is possible to combine several coating heads inline at the bottom-side coating for strip or over all coating.



Production line for the production of high-tech bituminous roofing membranes with SBS, APP modified and self-adhesive bitumen compounds (2 top side coating heads, 3 cooling belt coating heads).

Universal production line for coating of EPDM-membranes with SBS modified and self-adhesive bitumen compounds



as also for the production of conventional and special bitumen membranes.

Cooling Belt Technology

The cooling belt performs several functions in **System 3000**. First and foremost it cools the finished product with its 1mm thick stainless steel belt and the spraying of cold water onto the lower side. It also serves the production of the lower bitumen layer and the lamination of extremely thin foils (5 μm minimum thickness) in the production of torch-on membranes as carriers. The cooling belt also is used to apply the thin self-adhesive with the use of an additional coating head. Post-coating on the top of the membrane by additional coating heads is possible as well. This technology makes it possible to produce membranes with single coats, with single or multiple carriers, membranes that are self-adhesive on one or both sides, as well as roofing membranes and various special products. The cooling power can be increased considerably if the product surface in the cooling belt is moistened.

Nested Accumulator

The all new nested accumulator can be used both as a splice accumulator for reinforcement and as a finished product accumulator. The accumulator utilizes sets of rollers ranging in diameter from 200 to 300 mm. The bottom sets of rollers are fixed while the top sets are attached to a floating



carriage. This configuration allows for easy thread up and for maximum storage capacity of material.

A programmable electronic counterweight balancing system insures constant and controllable tension of the membrane or reinforcement thus reducing stretch and the possibility of sheet breaks.

Performance Specifications

Coating Thickness (per layer)

Minimum Thickness	0.4 mm	0.016 in.
Maximum Thickness	3 mm	0.118 in.
Tolerance	+/- 0.1 mm	+/- 0.004 in.

Top Coatings

Coating Formulation	Coating Temp.	Reinforcements (Typical)	Top Surfacing
Oxidized Asphalt + Filler	165° to 190°C	Non Woven Fiberglass, 60 – 200 g/m ² Woven Polyester, 180 – 250 g/m ²	Granules, Sand, Film, Foil, Polyester Fabric, etc.
SBS Modified Bitumen + Filler	175° to 195°C	Non Woven Fiberglass, 60 – 200 g/m ² Woven Polyester, 180 – 250 g/m ²	Granules, Sand, Film, Foil, Polyester Fabric, etc.
APP Modified Bitumen + Filler	150° to 170°C	Non Woven Fiberglass, 60 – 200 g/m ² Woven Polyester, 180 – 250 g/m ²	Granules, Sand, Film, Foil, Polyester Fabric, etc.

Bottom Coatings

Coating Formulation	Coating Temp.	Bottom Surfacing
Oxidized Asphalt + Filler	165° to 190°C	Sand, Film, Polyester Fabric, etc.
SBS Modified Bitumen+ Filler	175° to 195°C	Sand, Film, Polyester Fabric, etc.
APP Modified Bitumen + Filler	150° to 170°C	Sand, Film, Polyester Fabric, etc.



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