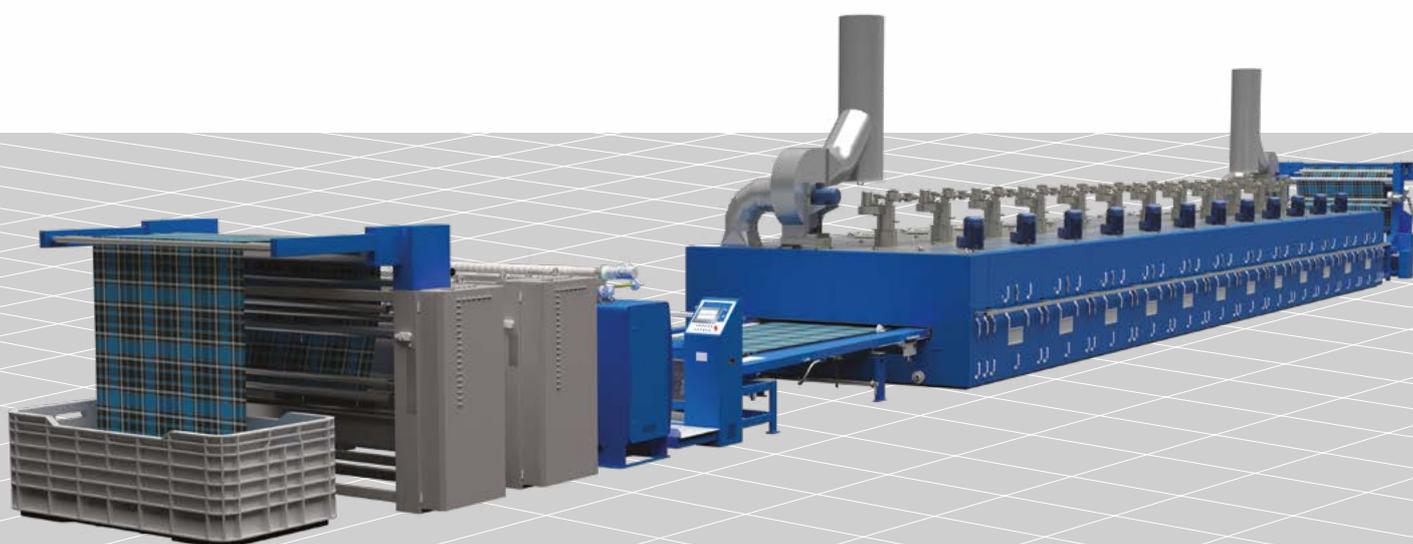


SANTEX  
RIMAR  
GROUP



# SANTA**FRAME**

STENTER AND  
HEATSETTING FRAME

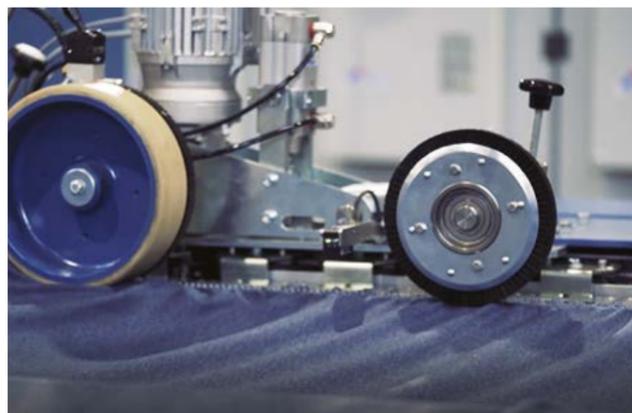
# SANTAFRAME

**This innovative stenter frame combines unrivaled performance to meet customer expectations, using a novel air-flow technique.**

High performance and precision in terms of efficiency and uniformity of treatment, assures customer value and quick return on investment.



With its robust design and advanced thermal insulation, the SANTAFRAME ensures significant cost-savings in comparison to conventional stenter designs.



The outstanding performance and production of the SANTAFRAME is based on continual development using the latest advances in thermodynamics, allied to the changing need of customers. It is particularly characterised by the following:

- Unsurpassed uniformity of the air flow and heat distribution throughout the 2-metre-long chamber modules, with circulating air fan and heating element uniquely positioned in sealed chamber above the fabric track.
- This arrangement eliminates the risk of condensation dripping onto the fabric.
- Positioning the heat source on the pressure side significantly increases the evaporation rate without any change in energy consumption, due to the higher air speed and specially designed nozzles.
- Excellent quality of the treated fabric due to the suitably designed AERO-SURF nozzle system, promotes even treatment (heat setting), excellent residual shrinkage, and softest handle for sensitive fabrics.
- Minimal combustion residue by utilising semi-indirect gas heating as an alternative to thermal oil heating during the heat setting or curing processes.
- Increased performance and precise temperature control during processing without any energy loss, by introducing bulkhead zones at both inlet and outlet.
- Savings in energy consumption as a result of a specially designed, built in exhaust air circulation duct, which in combination with heat recovery units reduce installation costs.
- Reduced machine service and maintenance with less time required for cleaning the retractable nozzles, ease of access to the heat exchangers, and the exhaust air ducts, which are located inside of frame.

## Modular design for quick setup

The modular design of the SANTAFRAME, which has been successfully employed in tensionless shrink and relaxation dryer, ensures cost savings during installation and commissioning, but also offers significant technical and technological advantages.

- The modular 2m long chamber design allows complete pre-shipment assembly, cabling, drive assembly, and installation of the selected electronic control system before the machine is despatched. The result, highest-quality assured standard of all delivered machines.
- The design of the SANTAFRAME provides effective insulation and does not require floor foundations for installation
- Bulkhead zones at the inlet and outlet of the treatment chambers form the drying and heat setting zone. The bulkhead zones features an automatic slot cover on the width adjustment at the fabric inlet and outlet, as well as an integrated exhaust air collection duct for the connection of exhaust air fan.



Thermo-processing chamber



Bulkhead zone

## Thermozone with highly effective air flow

The heating system is located above the fabric track in the upper part of the treatment zone. Circulating air fan draws the air from the nozzle and treatment zone through the filter panels and leads it along a short path to the heat exchanger, from where it is fed to the nozzles.

A regulating flap in front of the nozzle boxes allows the top and bottom air flow to be continuously adjusted. The arrangement of the heat source on the pressure side of the circulating air fan allows a high speed of the circulating air and thus a high drying capacity.

This leads to energy savings and cost reduction in the drying and heat setting of textile fabrics.

In the event the pin chains stops, the flow of hot air into the nozzles is immediately diverted by pneumatically operated flaps that are air tight. The hot air is routed into the bypass air flow where it maintains the process temperature in a controlled manner.

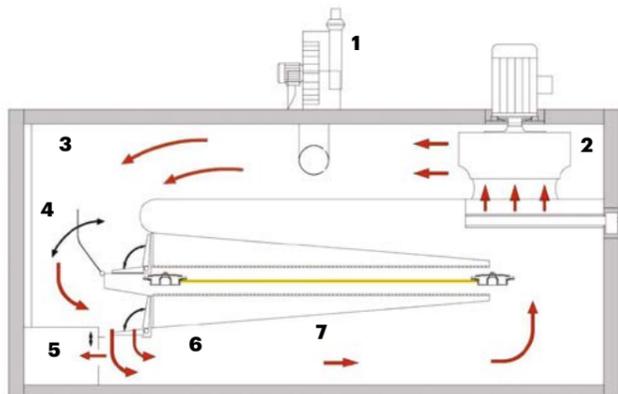
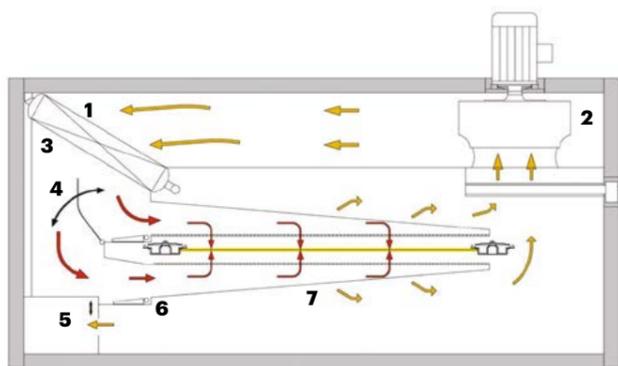
When production is restarted, there is no need to heat the circulating air again and fabric treatment can resume very quickly under optimum conditions at full production speed.

The SANTAFRAME heat source is based on locally available energy. These are optional:

- Thermal oil circulation heating
- Semi-indirect gas heating, natural or liquid gas
- Steam heating (not for heat setting processes)

With semi-indirect gas heating, the flames are located in a combustion chamber. The heated air is fed into the circulating air via a large, perforated distribution pipe, which ensures a very even temperature distribution.

Conventional systems heat the recirculated air over the open flame of the gas burner.



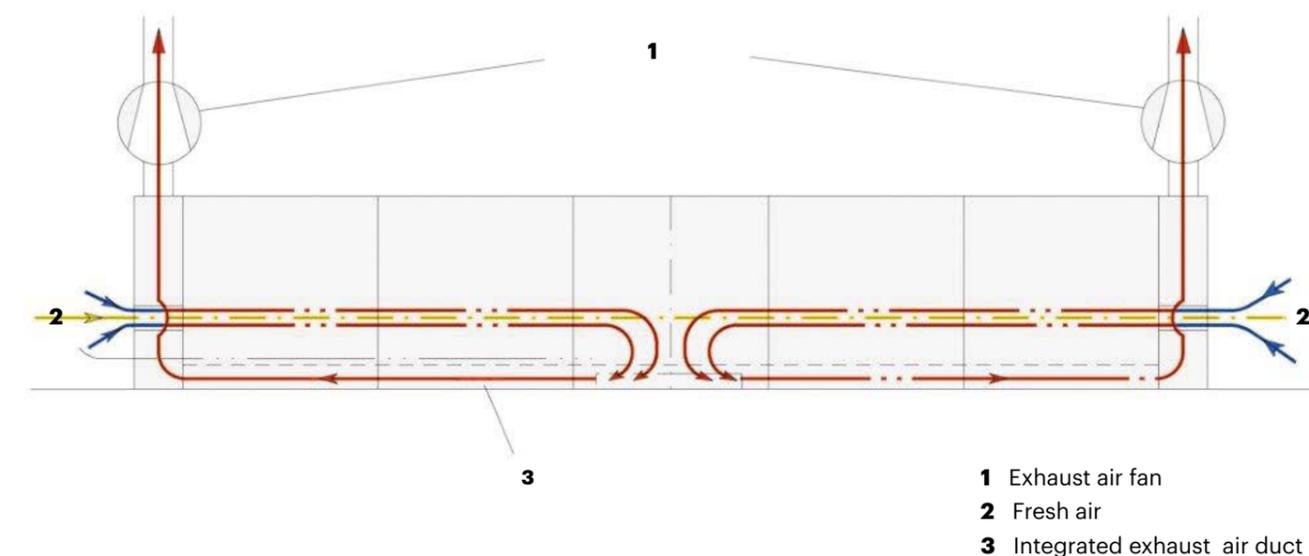
- |                        |                    |
|------------------------|--------------------|
| 1 Heating              | 5 Exhaust air duct |
| 2 Circulation air fan  | 6 By-pass flap     |
| 3 Distribution box     | 7 Nozzles          |
| 4 Upper/lower air flap |                    |



The damping system ensures an even heat transfer through the perforated distribution tube, where the temperature control is very accurate. The result is that emissions are drastically reduced.

Fresh air is introduced at both entrance and exit of the thermozone.

Circulating air enters the internal exhaust-air collection duct, located in the centre of the thermo-process zone. When compared to crossflow, parallel flow, or the simple counter-flow principle, energy consumption is greatly reduced.



- |                               |
|-------------------------------|
| 1 Exhaust air fan             |
| 2 Fresh air                   |
| 3 Integrated exhaust air duct |

## Quick cleaning and reduced maintenance enhance efficiency

Filter screens located above the nozzles simplify cleaning, even whilst the stenter frame is running.

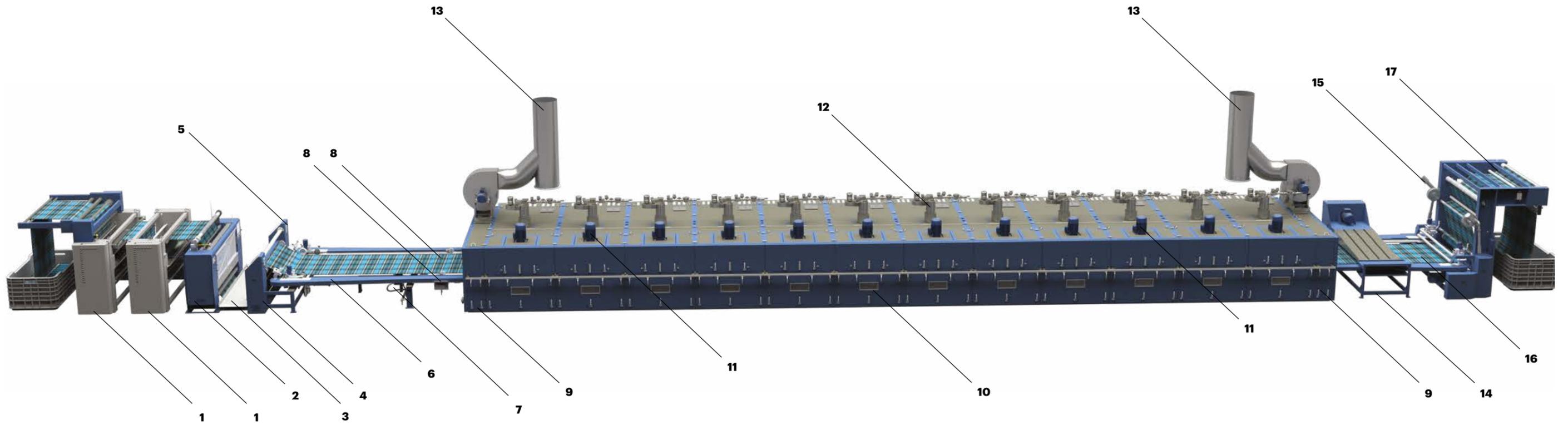
The exhaust air collection duct is integrated into the lower part of the thermal processing chamber.

The chamber doors allow easy access for the adjustment of the exhaust air volume and cleaning of the exhaust air duct.



# SANTAFRAME horizontal chain stenter and heat setting frame

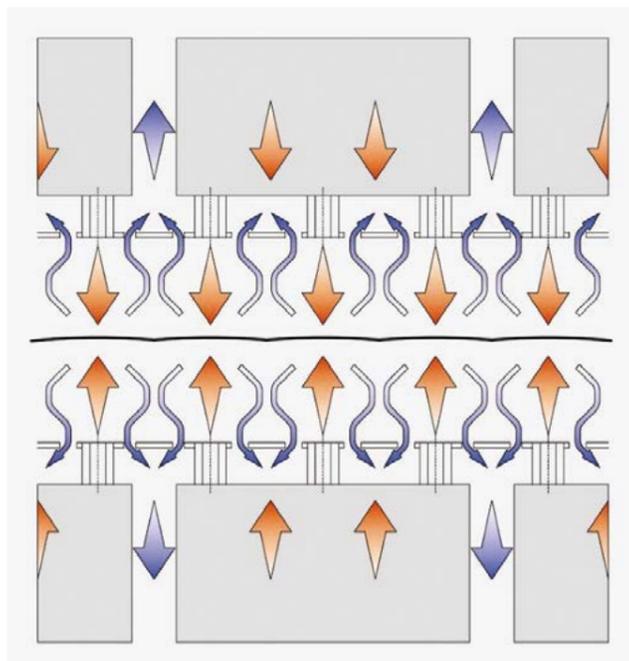
- 1** Padder
- 2** Weft straightener
- 3** Operating platform
- 4** Fabric entry
- 5** Control panel
- 6** infeed frame
- 7** Steamer
- 8** Selvedge gluing device
- 9** Bulkhead zone
- 10** Thermozone
- 11** Circulation air fan
- 12** Gas burner
- 13** Exhaust air fan
- 14** Cooling zone
- 15** Selvedge rimming device
- 16** Fabric exit
- 17** Plaiter



## Nozzles for highly intensive yet gentle fabric treatment

The AERO-SURF nozzle system is equipped with additional guide pipes, ensuring that a vertical stream of air is always directed at the fabric, even if treatment requires varying air speeds. This guarantees maximum heat transfer with the required volume of air to achieve optimum evaporation efficiency.

- Ring-shaped openings around each guide pipe ensures the controlled and turbulence-free return of air to the circulating air fans. As a result of the special nozzle design, the fabric "surfs" on an air cushion giving textiles a soft, voluminous handle, and excellent residual shrinkage.
- As an alternative to AERO SURF nozzles, simple hole-type nozzles can be fitted for the finishing of woven fabrics, or slotted nozzles for the swirl-free treatment of pile articles.
- SANTAFRAME contain nozzle boxes which are tapered on one side, inside which the nozzle plates are inserted. These nozzle plates can be easily removed for cleaning.



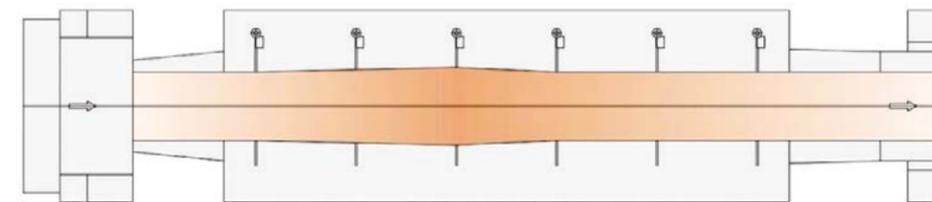
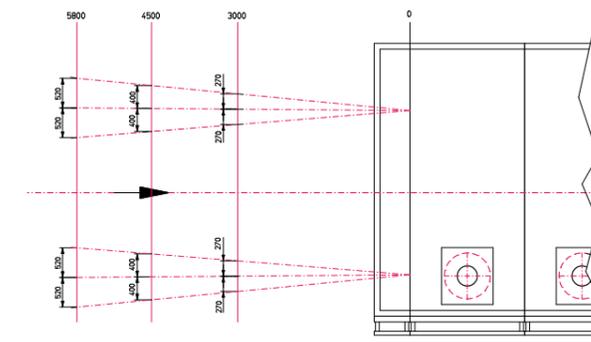
## Optimum final width adjustment

The length of the entry field can be specified according to the type of fabric. Automatic width adjustment of the entry field allows smooth opening and stretching, depending on the quality requirements.

The chain rails feature a horizontal needle sliding chain with high wear resistance.

Individual drives on the spindle type width adjustment system within thermo zone of the SANTAFRAME, guarantees accurate width adjustment. This ensures flexible stretching of goods being treated and can be programmed automatically from a central location.

Fabric transport chains are equipped as standard with independent frequency-controlled drives that they can be run either synchronised or off-set.



Width-adjustment system with individual drives

## Low-wear horizontal chain for vibration-free fabric transport

The SANTAFRAME is supplied with a lubrication free horizontal chain system that is easy to clean.

### Horizontal chain system

The transport chain is designed as gliding chain with high wear-resistance, requiring very little maintenance.

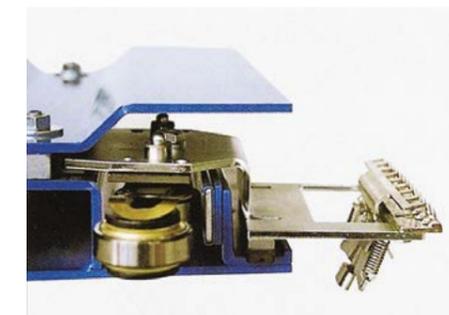


Combined pin-clip chain

Chain links are made from high-grade, durable PEEK material, or with ball bearing when processing heavier fabrics that requires a higher pulling tension.

The carrier parts can be supplied with pin plates either with or without depinning protection, or as a combined pin-clip or clip only.

Depending on the requirement, special pin bars and clip types are available on request.



Pin chain depinning protection

## Hydro-extracting and impregnating padder

The padding units are placed as hydro-extracting and finishing padder at the entry to the SANTAFRAME.

One driven spreading roller is located in front of each trough. Two other spreading rollers ensure optimal uncurling of the selvage before the fabric enters the nip section.

The impregnating trough with 65 litre content can be lowered for ease of cleaning. A displacer is installed to minimize the trough liquor content. The compartments are made entirely of stainless steel.

Each squeezing unit consists of two rollers 292mm in diameter with rubber coatings specially developed for Santex, in accordance with the padders function. One is in a fixed position in the machine frame, supported by strong roller bearings, whilst the other is movable and can be positioned by means of pneumatic cylinders.

These units are designed with centre-supported rollers to ensure linear pressure remains constant across the entire width. Maximum linear pressure 500 N/cm.

A short, controlled fabric path ensures minimum elongation of the fabric web.

### Options:

- heated chemical tank and/or trough
- rapid trough draining

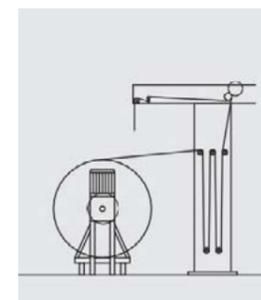


## Entry and exit configurations

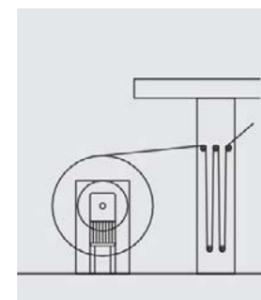
The SANTAFRAME offers a multitude of entry and exit variations:

- Unbatching systems for the most tension sensitive and less delicate qualities
- Unbatching systems for dye beams
- Centring devices for knits and/or woven fabrics
- Padders for the most diverse dewatering and impregnating processes
- Automatic weft straighteners are available from reputable European manufactures
- Non-stop entry and exit options with either fabric troughs or storage compensators
- Batching systems for the most tension sensitive and less delicate qualities
- Batching systems for dye beams
- Various exit combinations with plaiter

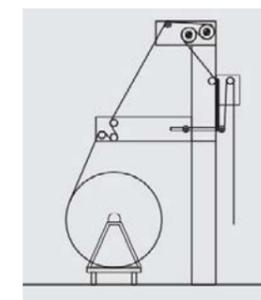
Special requests for fabric entry and/or exit can be offered.



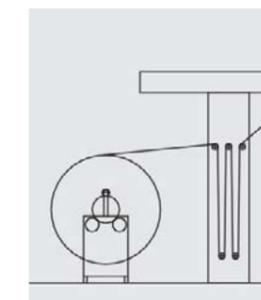
Center unwinding



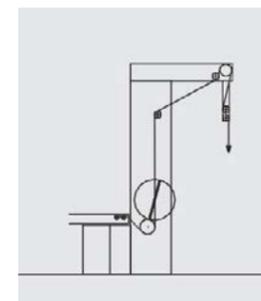
Dye beam unwinding with center drive



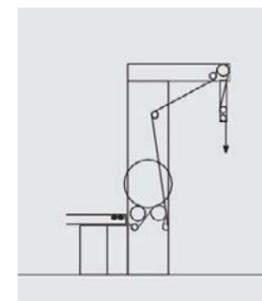
Entry with pull-in system



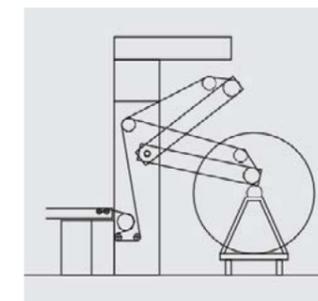
Dye beam unwinding with perimeter drive



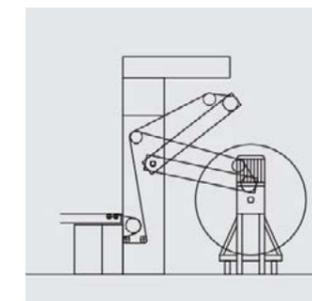
Ascending batch winder on draw-off roll



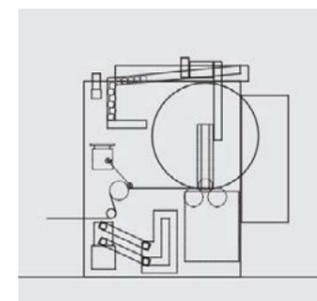
Ascending batch winder with 2nd draw-off roll



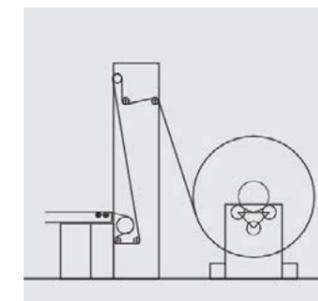
Surface winding



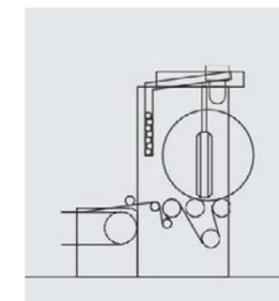
Center/surface winder



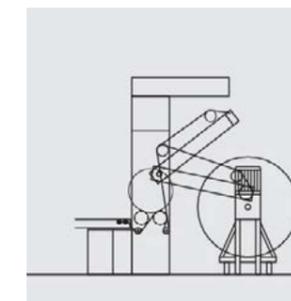
Non-stop ascending batch winder, separate



Non-stop ascending batch winder, integrated into exit



Non-stop ascending batch winder, integrated into exit



Combined exit with ascending batch winder, surface winder and center winder

## SANTAVISION

The demands placed on today's automation systems for textile finishing machines are both numerous and diverse. Automatic process control and regulation with customised programs containing all the parameters associated with the finishing operation.

Set-up and control requires minimal operator input, thus affording greater operator freedom for observation, preparation, and any final adjustments. These systems administer the production data, incorporating production planning, quality assurance as well as facilitating remote support, maintenance, and diagnostics.

SANTAVISION hardware and software supports process visualization. Stored-program control (SPS) provides optimal solutions for the automation, communication, data processing and storage on machines manufactured by SANTEX.

SANTAVISION is installed on an industrial PC communicating with a PLC controller connected to the machine.

### Programmable logic controller SPS (Siemens SPS S7)

- Control and regulation of the system
- Recording of process settings and any error alarms
- Provision for all setpoint and actual values

### SANTAVISION

- Link between the operator and the PLC of the plant
- Visualisation of operator messages and machine layout
- Input of preselection and target data
- Managing product-specific preselection in the database
- Recording and logging of production data, which is easily configured
- Data transmission to a printer
- Communication with the host computer
- Remote maintenance, service, and support

## The SANTAFRAME is the vision of modern textile machines.

**Whether in fashion, sport, or leisure, anytime best quality, wearability, and ease of care is required, SANTEX technology and advanced engineering meet the high demands of the textile finishing industry.**

Santex is the market leader in the finishing of knitted fabrics. The combination of energy efficient, high performance technology provides our customers with a high level of quality assurance and a quick payback.

Thanks to our worldwide reputation, we are committed to constantly upgrading our know-how, improving customer service and recognising new technologies.

Original spare parts are readily available for quick delivery worldwide.







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