

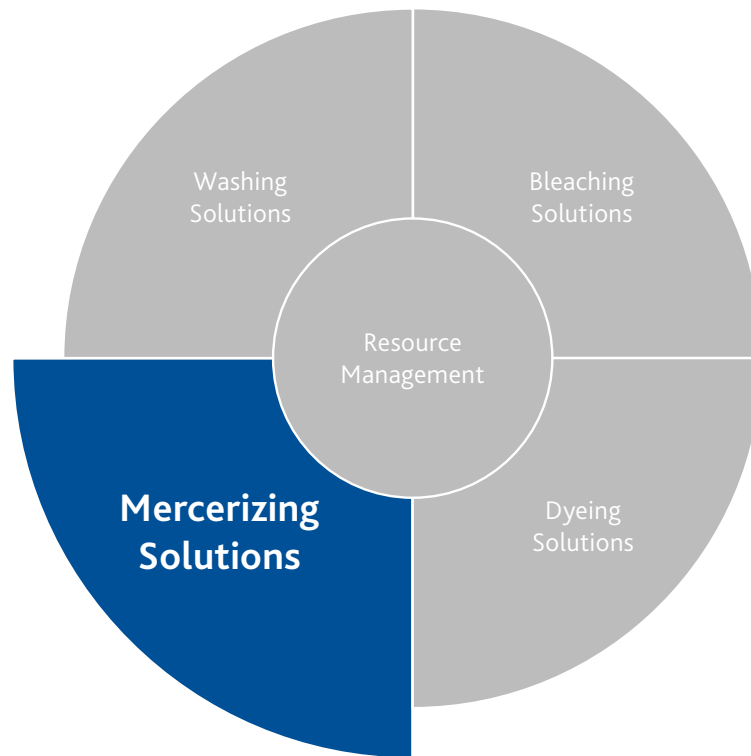


BENNINGER

Mercerizing
Solutions

Woven Line

Leader in wet textile finishing



BEN-DIMENSA

Highest quality mercerizing and caustification for maximum luster, dimensional stability and dye yield

- Improved dimensional stability
- Higher dye yield
- High luster
- For woven fabric and knitwear
- Silky, soft feel



BEN-BLEACH

Continuous desizing and bleaching in one step

- High productivity
- Best pre-treatment results
- 30% lower production costs



BEN-COLOR

The complete program for continuous and CPB dyeing

- High reproducibility
- Even dyeing results
- Low energy and water consumption
- High fastness properties
- No salt



BEN-WASH

The complete range for all washing processes

- Excellent washing performance
- Minimum water consumption
- High energy efficiency
- Up to 50% water and steam savings in comparison to the exhaust process



BEN-ECO

Environmental protection and cost savings by recovering energy and resources

- Caustic recovery systems
- Heat recovery
- Waste water recycling und "zero discharge" solutions
- Energy-efficient drive technology
- CO₂ reduction by the use of the latest developments

Customized textile solutions

Mission

Customized

Benninger supplies tailored process solutions with innovative and reliable products as well as comprehensive know-how in textile process engineering, always based on close collaboration and communication with our clients.

Textile

Our concepts are fully geared to the textile applications of our customers. With its many years of experience and comprehensive textile competence, Benninger creates long-term added value for its customers. Benninger is backed by a large number of reference installations for each of the individual applications.

Solutions

Benninger is an integral solution provider. We plan and implement technologically optimized and individual process and system solutions. We are a trustworthy and reliable partner throughout the entire life cycle of the plant.

Sustainability

For Benninger, assuming responsibility is a matter of course. We are committed to sustainability – for example by investing in the development of high-quality products as well as ecologically efficient processes. We actively save water, energy, chemicals and we also focus on recycling waste water, exhaust heat and valuable materials. Integral consideration of the relevant factors is equally as important to us as the balance between ecological and economic concerns.

With regard to sustainability, Benninger has central obligations. Wherever possible we work with maximum environmental awareness and conserve resources. We are aware of our social responsibility towards communities, consumers and our employees. We continuously improve our economic performance and support the sustainability aims of our customers.

Customer benefits

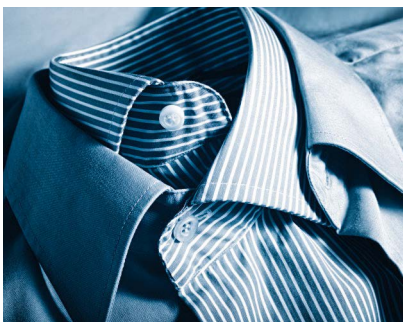
Our clients do not need products, they need solutions. At Benninger, customer benefits and needs are the central focus of all activities. High quality, process know-how, many years of specialist competence, unique application know-how, local availability and flexibility make us a reliable solution provider for the textile industry.

Our range of goods and services is continuously optimized and supplemented. We have tremendous innovative power, a high level of specialist and process expertise and have installed a large number of systems. New findings are continuously included into the development of solutions – always with the aim of enhancing the success of our customers. We improve the entire value-added chain of our customers by observing the process life cycles, and with quality products and a comprehensive range of services guarantee efficient and reliable plant operation.

Tradition

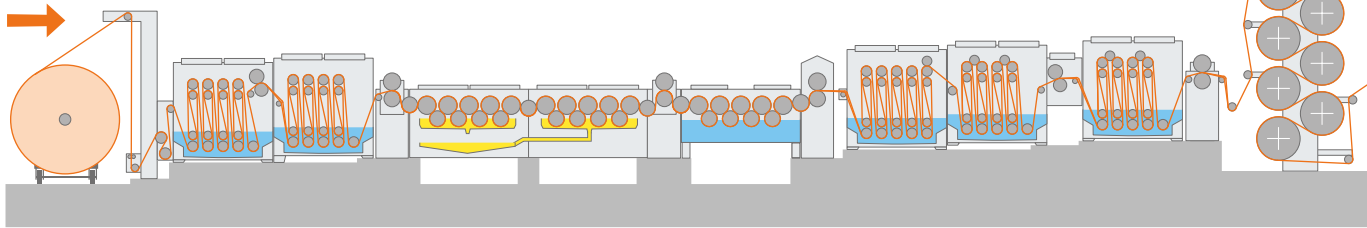
The future is rooted in the past. There is hardly anything more important than one's own history, as the innovations and business relationships of today and tomorrow are founded on the experience and know-how gained in the past. Benninger has been a global benchmark for competence and outstanding performance in wet textile finishing for more than 150 years. We always feel bound to our cultivated tradition of continually improving our services, products and processes so that the Benninger brand will continue to stand for quality, reliability and vision in the future.

As a company with international operations we are proud to support our customers on a basis of partnership and carry Swiss values such as high quality, reliability and trustworthiness out into the world.



An optimum solution for every application

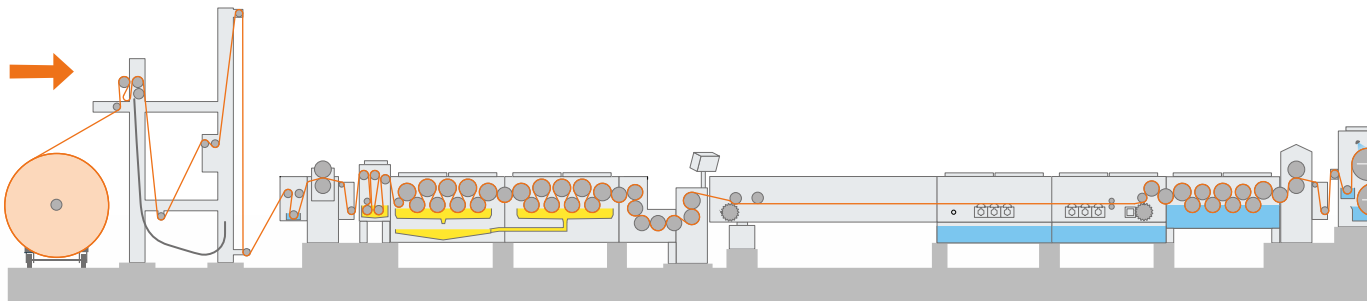
Chainless mercerizing machine



Wet-in-wet mercerizing of cotton
Caustification of Viscose, Modal and TENCEL®

Low production costs
Maximum luster, high dye yield
Higher tear strength

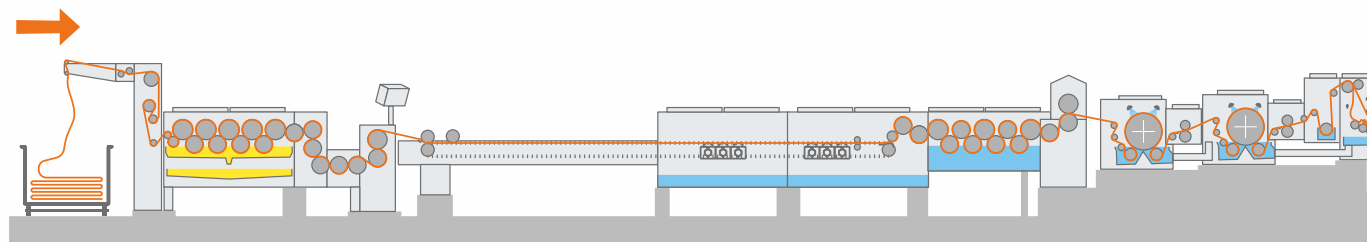
Mercerizing plant combined, chain and chainless



Mercerizing of cotton (dry in wet or wet in wet)
Caustification of Viscose, Modal and TENCEL®

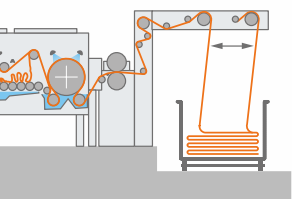
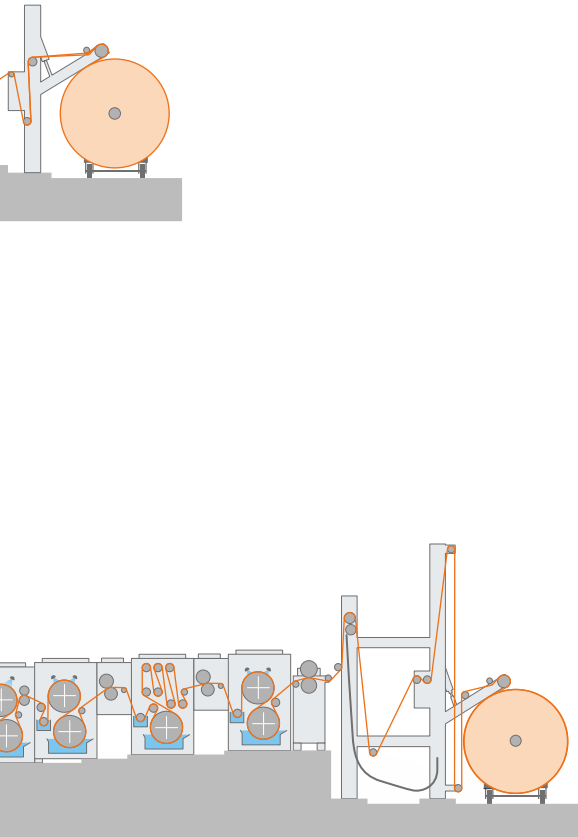
Maximum dimensional stability
Maximum luster, high dye yield
Higher tear strength

Dimensa mercerizing plant for knitwear

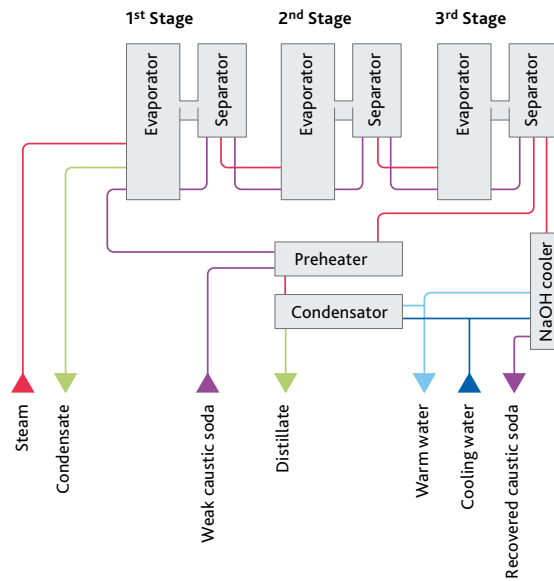


Mercerizing of cotton
Caustification of Viscose, Modal and TENCEL®

Maximum luster
Excellent width and length shrinkage values
High dye yield



Schematics of a three stage caustic soda recovery plant



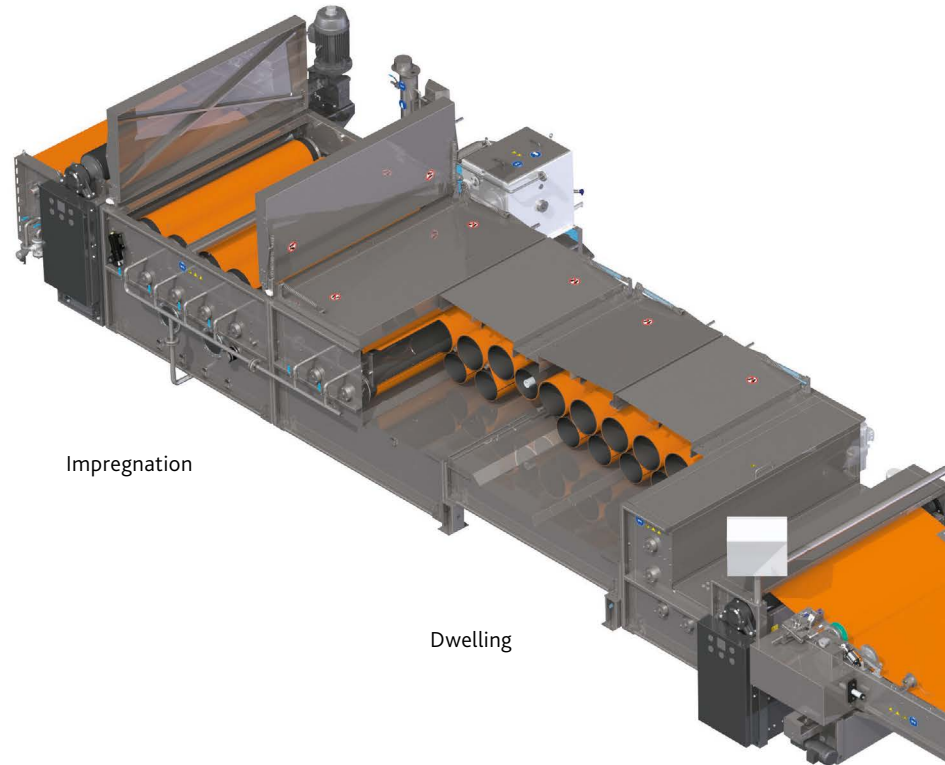
FACTS

- Up to 30% lower lye, water and steam consumption
- Optimal finished width with specific residual shrinkage
- More efficient manufacturing center of yarn dyed fabric due to the selvage-center-selvage consistency
- Smoother fabric appearance and softer feel
- No backstaining
- An optimized system concept for all applications
- Very fast change in concentration, resulting in shorter production downtimes

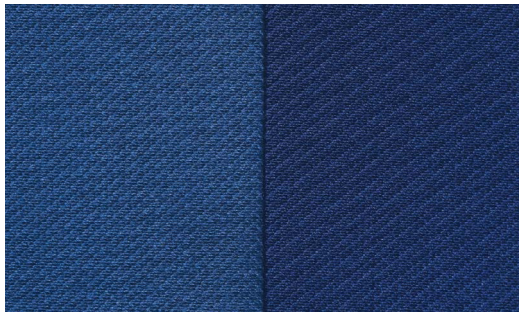
DIMENSA

For higher fabric quality and appearance

Mercerizing and caustification system
For woven fabrics and knitwear



Dye savings with DIMENSA technology



Not mercerized

Mercerized

FACTS

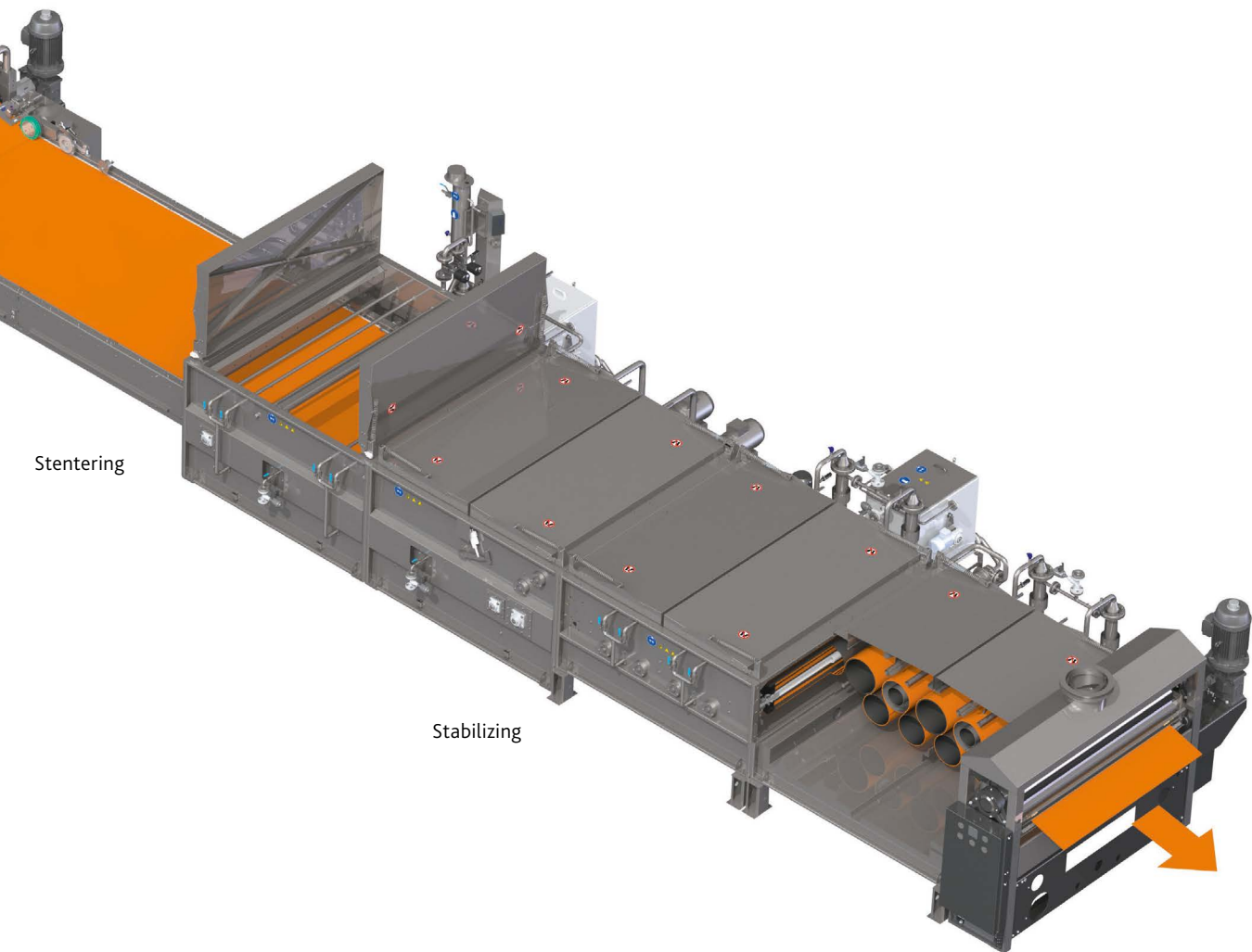
- Combination of chainless and chain mercerizing principle
- Patented selvedge stretching device
Section Control for correction of selvedge thickening
- Operative range between 6 and 30 °Bé for Viscose, Modal, TENCEL® and Cotton
- Excellent width and length shrinkage values
- Very high luster
- Very high dye yield
- Fully-automatic lye concentration by rinsing water management
- Capacity-based system configuration

DIMENSA

Process description

The combination of chain and chainless makes the difference

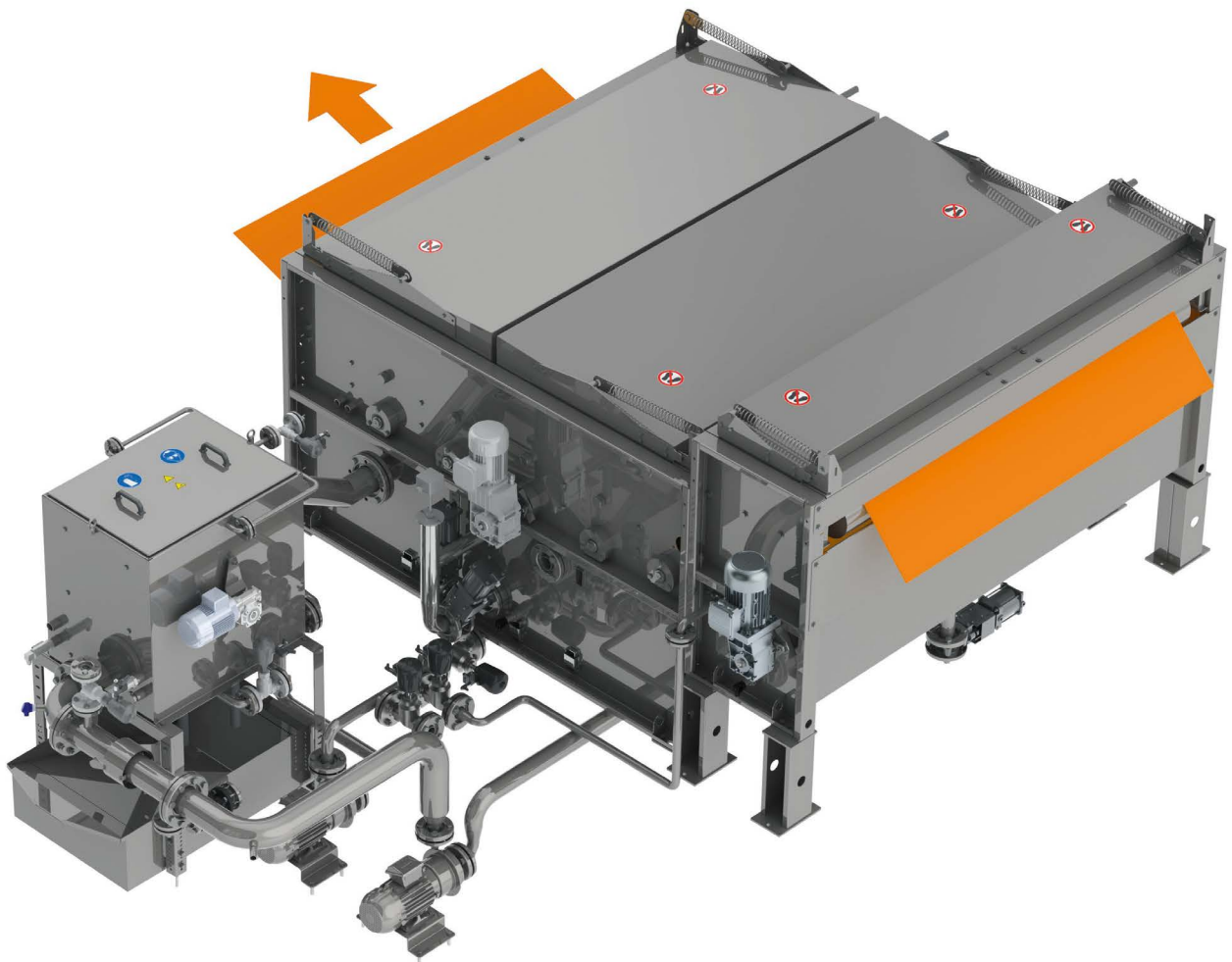
The process starts with controlled, tension-free impregnation with automatically controlled caustic soda concentration. Our unique concept based on combining chain and chainless principles ensures that the warp and weft threads are memorized during stabilization.



INTENSIVE IMPREGNATION

Compact overall solution

Impregnation compartment
For light and heavy woven fabrics



FACTS

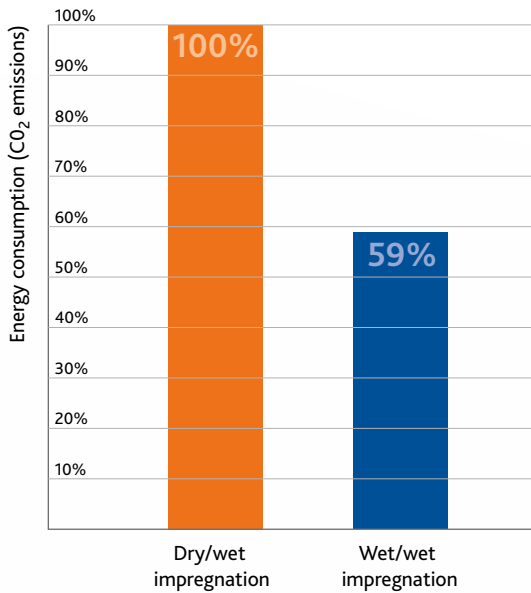
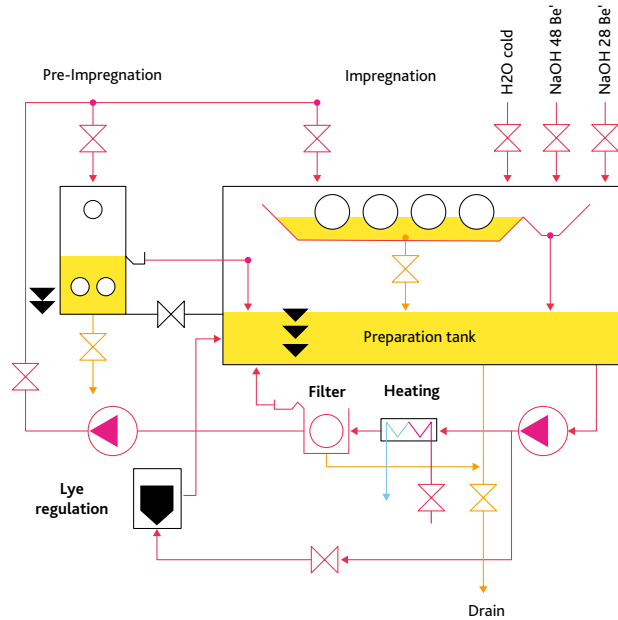
- For cold or hot mercerizing
- Pre-shrinking also possible thanks to the lifting rollers
- Intelligent lye management, particularly for wet-in-wet mercerizing
- Single or double impregnation depending on fabric weight and speed
- High liquor exchange
- Fully automatic control of all process parameters

DIMENSA

Pre-destined for automation

Elegant, strong lye management

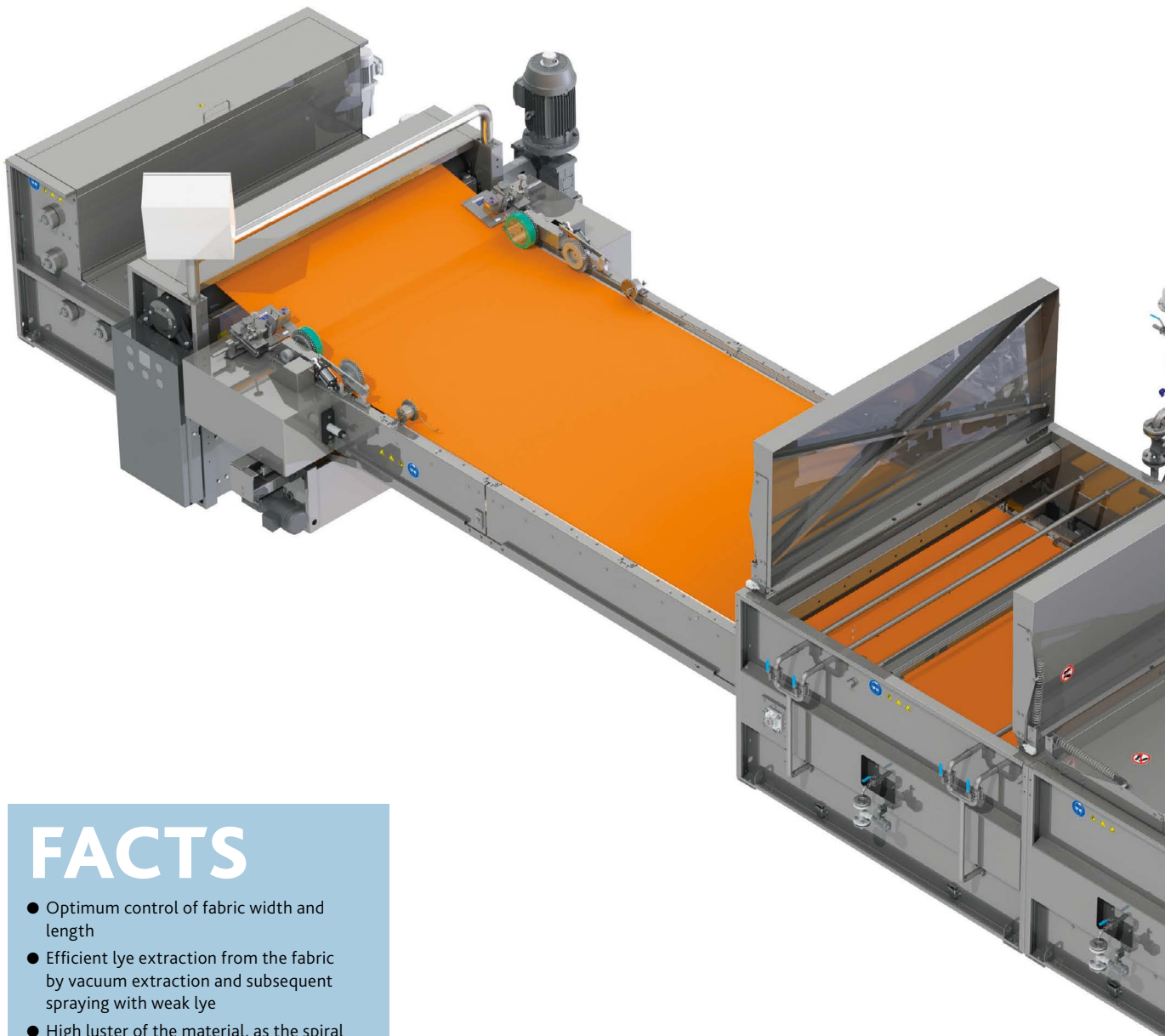
The compact impregnation compartment results in a low liquor volume. With DIMENSA, neither feed liquor nor storage tanks are necessary. Temperature and concentration of the lye are preselected on the control panel and automatically prepared and maintained at a constant level during production by the control system. It is possible to supply the strong lye as well as the liquor for dilution in different concentrations. Increases in volume as a result of changes in concentration are collected in the preparation tank below the impregnation trough. Changes in concentration can be made within a few minutes.



DIMENSA

Memorized fabric dimension

Integrated stenter frame
at the entry to the stabilizing zone

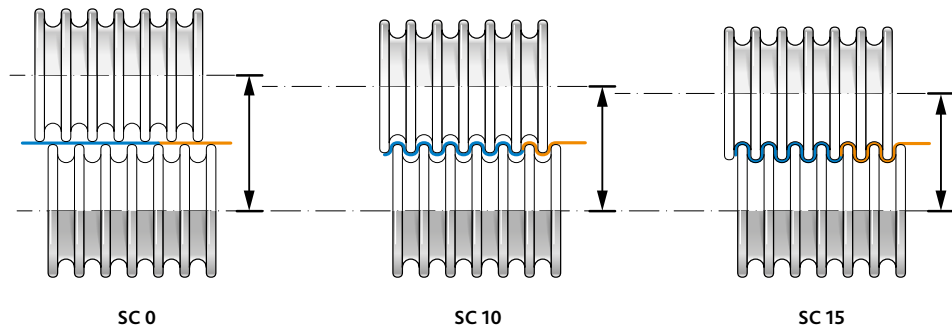


FACTS

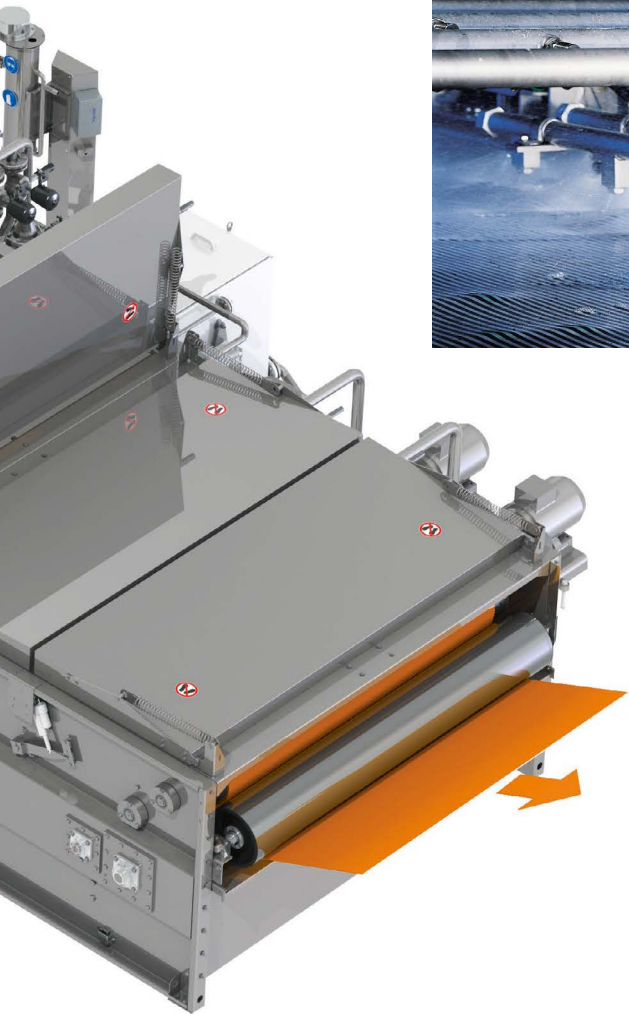
- Optimum control of fabric width and length
- Efficient lye extraction from the fabric by vacuum extraction and subsequent spraying with weak lye
- High luster of the material, as the spiral shape of the cotton fibers are completely opened and stabilized
- Full utilization of mercerizing due to the patented DIMENSA concept
- Defined lye concentration at the entry to the stabilizing zone

SECTION CONTROL

Always correct dimensions



This newly developed innovation is a mechanical selvedge stretching device that is integrated into the DIMENSA machine concept. Section Control is an instrument that prevents selvedge thickening on woven fabrics and knitwear.



FACTS

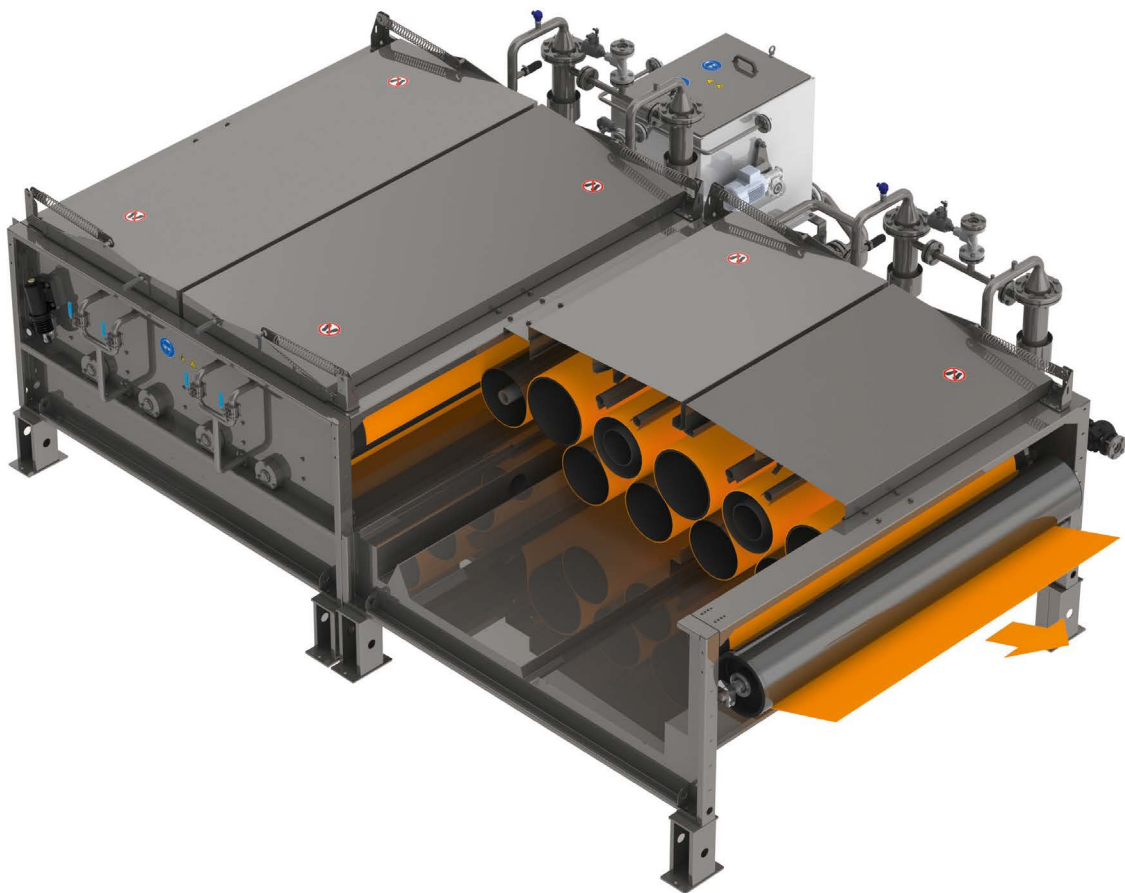
- Defined selvedge lye extraction
- No selvedge-center-selvedge variation due to the patented Section Control
- Constant number of ends over the width of the fabric

STABILIZING COMPARTMENT

Lye extraction with concentration controlled water supply

Stabilizing compartment

Intensive lye extraction with "front and backwashing"



FACTS

- Optimized lye extraction due to "front and backwashing" technology
- Minimum consumption due to concentration controlled water supply
- Tight fabric guidance prevents unwanted shrinkage
- Low lye concentration and lye quantity at the entry of the washing zone

HIGH-PERFORMANCE WASHING ZONE

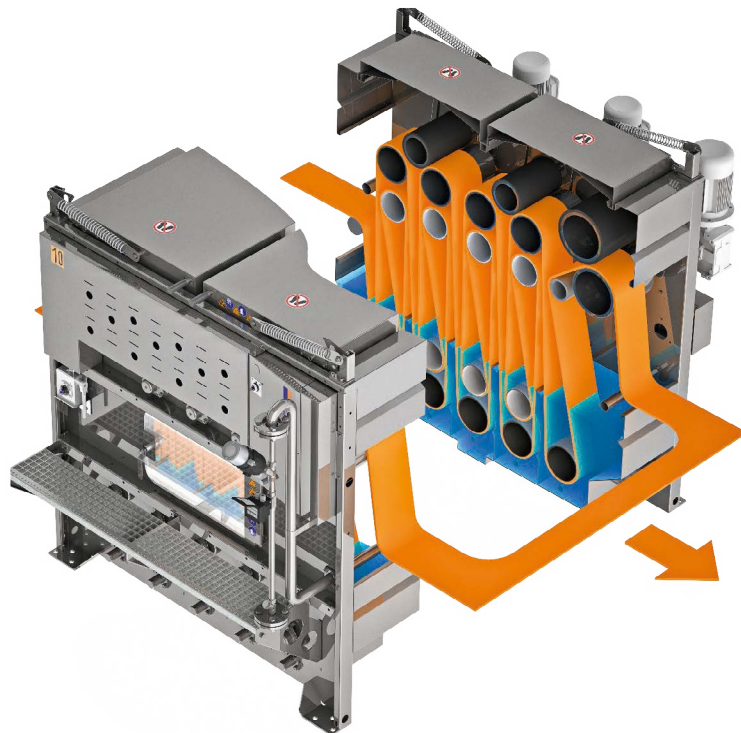
Water and energy-saving washing and neutralizing

EXTRACTA

Roller vat washing compartment for woven fabric

FACTS

- Washing in several small steps with liquor separation
- Calculable washing effect
- Low water and energy consumption
- Crease-free fabric run
- Steamtight
- Can be used for all high-performance washing tasks and also combined with waste water recycling or partial flow disposal
- Can be combined with all Benninger washing units

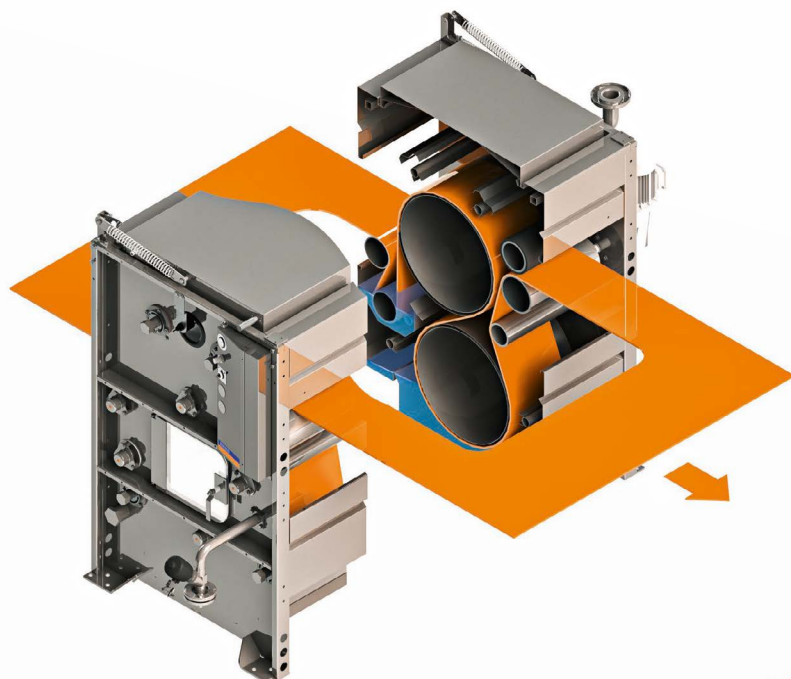


TRIKOFLEX

Drum washing compartment for elastic and technical fabrics

FACTS

- Very high mechanical washing effect due to the leading washing drum with "front and back washing" technology.
- Very low, controlled fabric tension
- Very low water and steam consumption thanks to counter-flow washing technology
- Crease-free fabric transport, also with sensitive fabrics
- Controlled relaxation of synthetic and elastane fibers
- Specially developed overflow blade for flushing out oil and grease during the preparation wash
- Can be combined with all Benninger washing units



WHAT ARE THE BENNINGER ADVANTAGES?

Benninger – your partner for textile finishing!

Technological competence

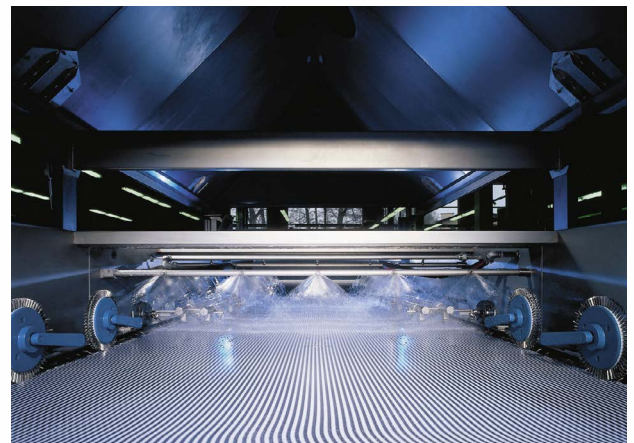
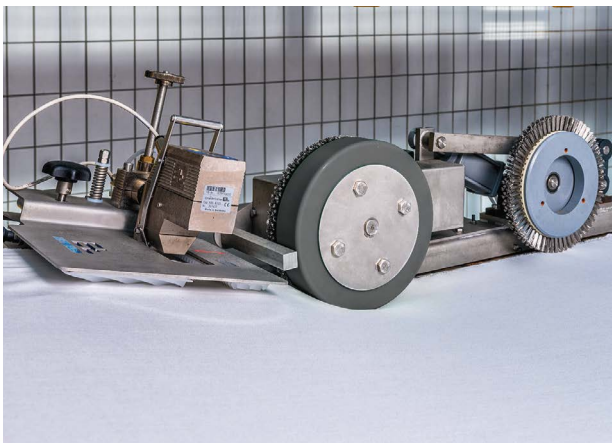
Benninger is distinguished by its comprehensive process know-how in both application consulting and project planning as well as by its close communication with customers throughout the entire life cycle of the installed plants. With its focus on engineering and a high standard of technical competence, Benninger is a recognized global pioneer in technology.

- High technology and application expertise
- Process consulting and project planning
- Sustainable resource management
- Carbon footprint
- Best available techniques (BAT)

System solutions

As the leader in its line of technology, Benninger provides competent advice and supplies innovative and effective product solutions to the required quality standard by the agreed deadline for a fair market price, backed by reliable, first class customer service.

- Complete product range (woven and knit)
- High process reliability and lower operating costs
- Performance guarantee / Payback calculation
- Technology trends and product innovation
- Premium-quality OEM components



After-sales service – full service

With Benninger you are always in good hands. Specialists are always at your disposal at the Benninger service centers and provide competent, prompt customer service. Regular maintenance by expert technicians minimizes unexpected downtimes and, as experienced instructors, they pass on their know-how. In addition, the specialized spare parts service team guarantees fast and reliable supply of original Benninger spare parts, rounding off the range of Benninger services.

- Customer-oriented service solutions
- Preventative maintenance (service contracts)
- Fast on-site service
- Competent help desk (software and hardware)
- Technical audits
- Customized modernization solutions
- Original Benninger spare parts (warranty)
- Customer training

Development cooperation and partnerships

Benninger is distinguished by its process and customer orientation, focus on the demands of the market and its customers, as well as continuous and systematic improvement. All this ensures customer confidence and satisfaction. Benninger – your partner for textile finishing!

- High specialist competence
- Consistent customer orientation
- Reliability and integrity
- Local representation in strategic markets
- Large number of reference installations
- Excellent reputation and long-standing customer relationships
- Goal-oriented development cooperation



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