



BENNINGER

Knit
Solutions

Knit Line

Leader in wet textile finishing



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 reductions by the use of the latest technologies



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-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-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

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

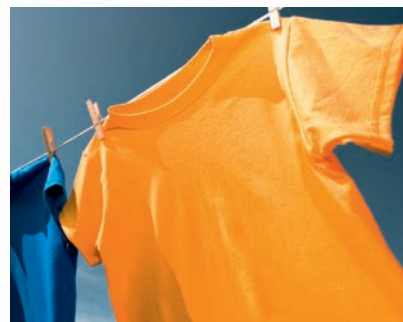
Our clients do not need products, they need solutions. At Benninger, customer benefits and needs are the central focus of all activities. High quality, process know-how, many years of specialist competence, unique application know-how, local availability and flexibility make us a reliable solution provider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

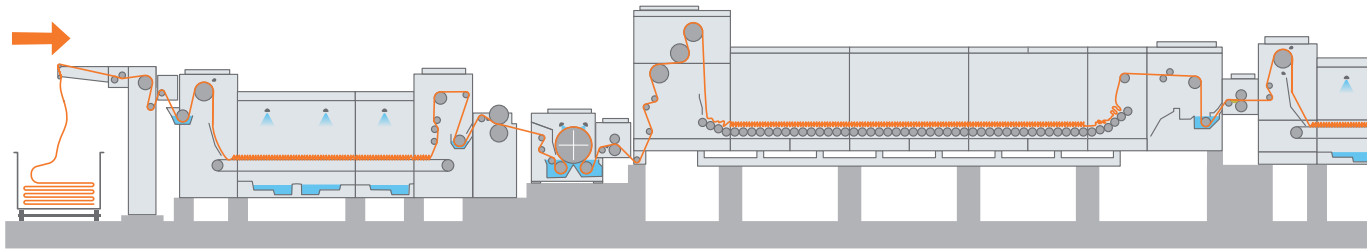
The future is rooted in the past. There is hardly anything more important than one's own history, as the innovations and business relationships of today and tomorrow are founded on the experience and know-how gained in the past. Benninger has been a global benchmark for competence and outstanding performance 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

Bleaching system

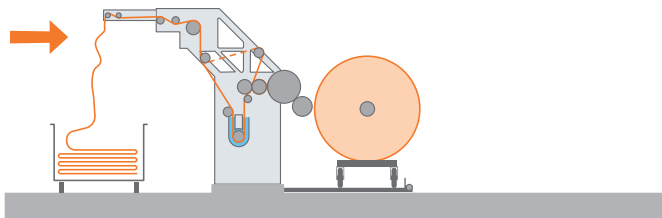


Demineralization
Peroxide hot bleaching



No catalytic damage / very low tension
Reproducible bleaching results
High washing efficiency with low use of resources

CPB dyeing station

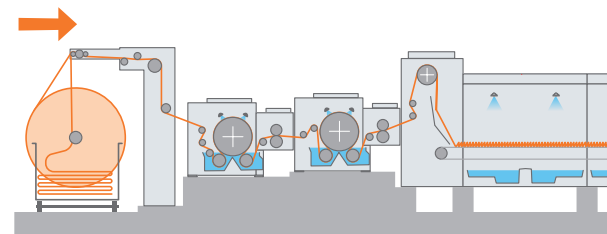


Dyeing with reactive dyes
CPB dyeing process



Liquor ratio < 1:1
No steam consumption

Washing after dyeing and printing

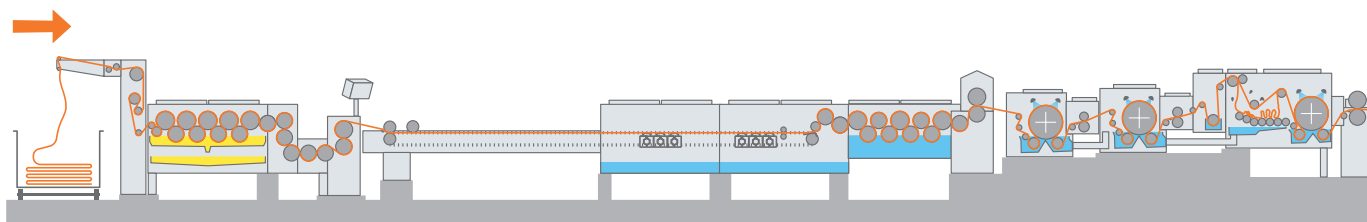


Washing after dyeing
Washing after printing



High fastness degree
Washing, water and rubbing fastness properties

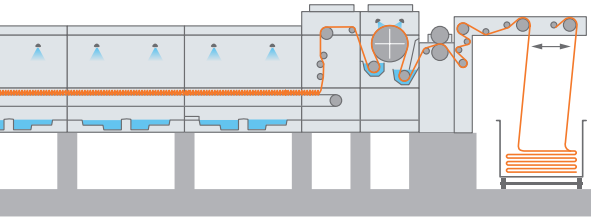
Dimensa mercerizing plant for knitwear



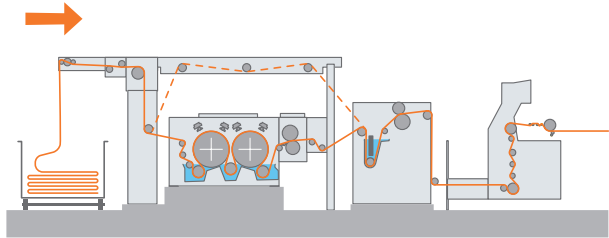
Mercerizing of cotton
Caustification of Viscose, Modal and Tencel



High luster
Outstanding dimensional stability
High dye yield

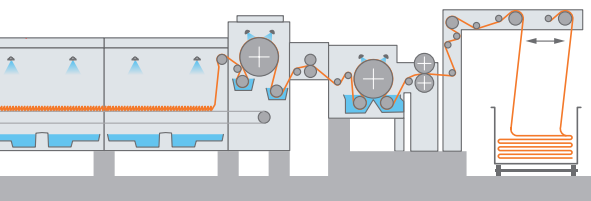


Deoiling Range

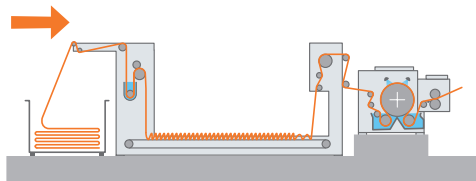


Pre-washing
Preparation washing
Relaxing of elastane blends

Reduced quantity of oil residuals
Controlled shrinkage of synthetic fibers (separate or in line with dryer)

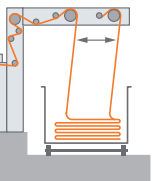


Preswelling



Swelling of printing thickeners

Easier removal of synthetic thickeners



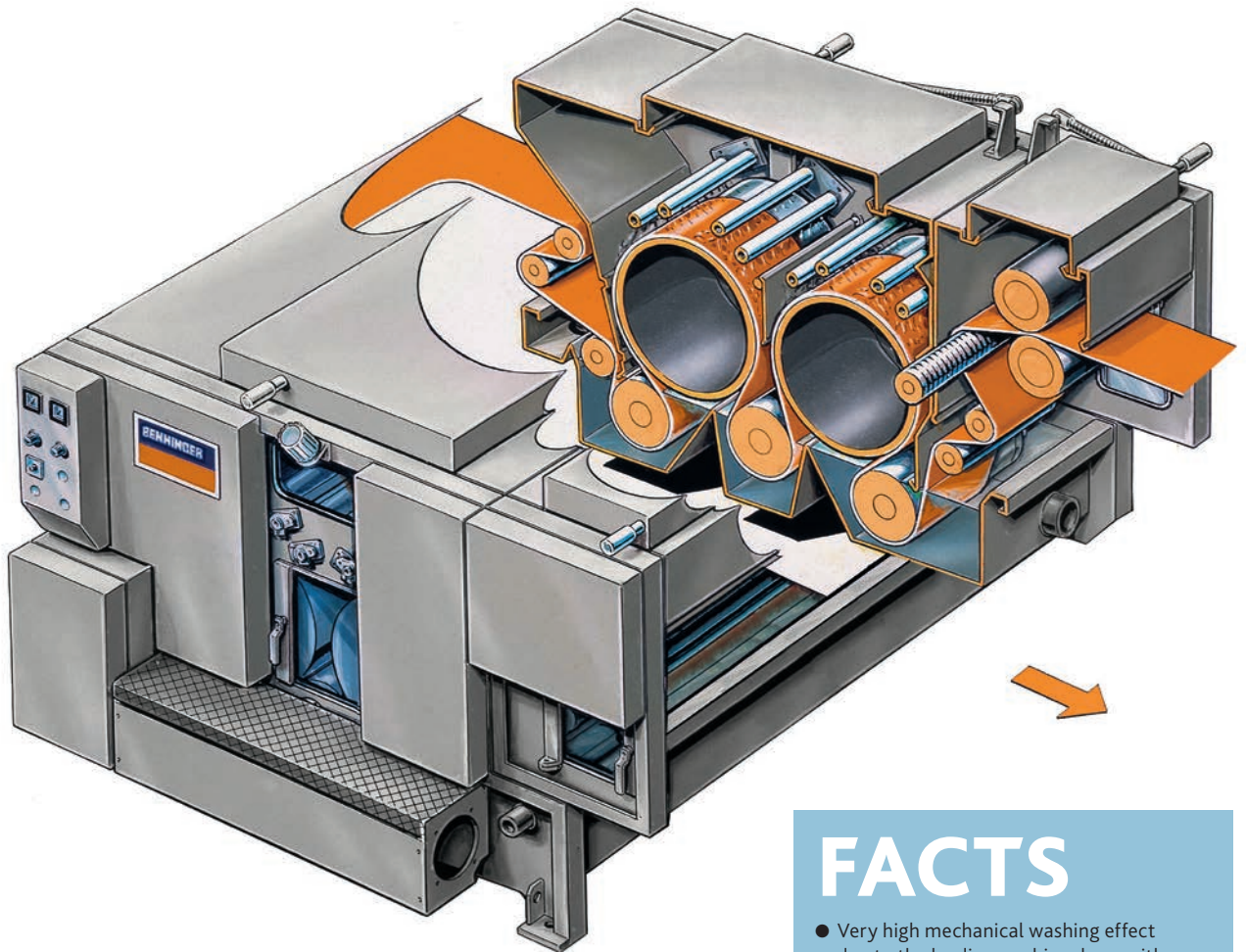
FACTS

- Smoother, glossy fabric surface
- Steam and water consumption at least cut in half
- 25–30% lower, variable costs
- CPB dyeing with reactive dyes possible
- High productivity (25 tons/d)
- No enzyme treatment necessary
- No quality losses due to abrasion marks
- Crease-free relaxation of synthetic and elastane fibers
- Low weight losses

TRIKOFLEX

Efficient washing of tension-sensitive textiles

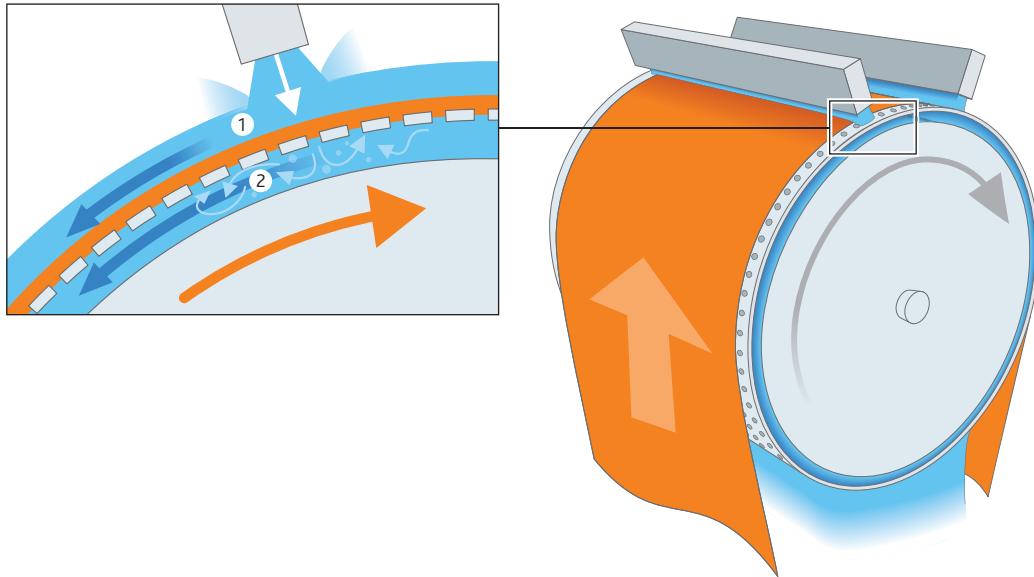
Drum washing compartment
for tension sensitive knitwear



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 fibres
- Specially developed overflow blade for flushing out oil and grease during the preparation wash
- Can be combined with all Benninger washing units

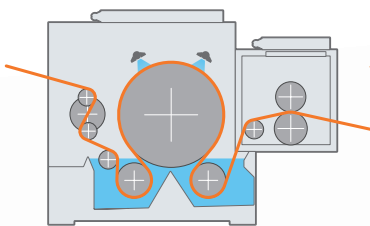
Optimum washing effect due to the leading drum washing technology



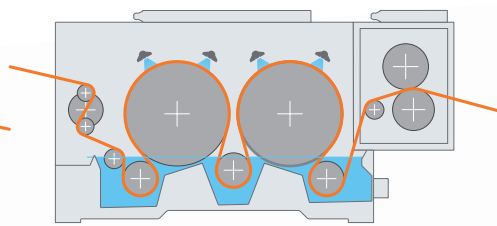
"Front and back washing" principle

The washing liquor penetrates the fabric and forms a liquor flow on the front (1) and back (2). With this method, dirt on both sides of the fabric is quickly transported away. The washing effect is increased by 40% in comparison to net and screen drum systems.

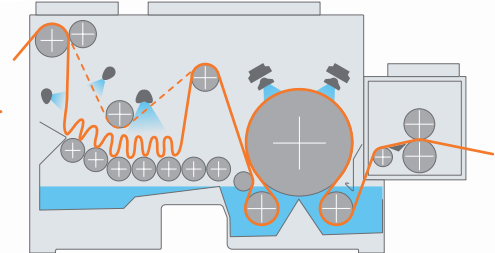
High-efficiency drum washing compartment



High-efficiency double drum washing compartment



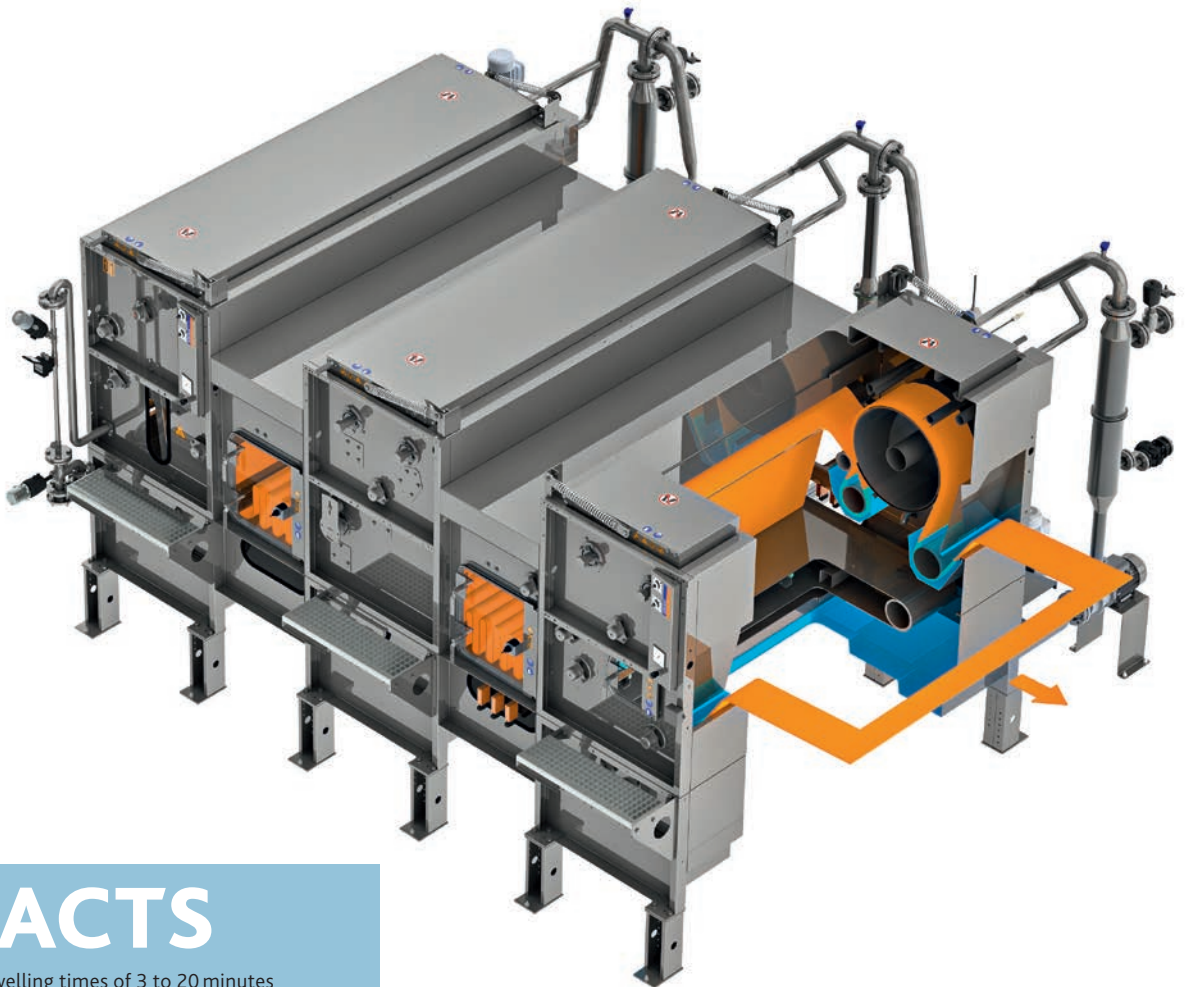
High-efficiency drum washing compartment with integrated dwelling zone



TEMPACTA

Washing through to the core

Washing and dwelling unit
for reaction, relaxation and soaping processes

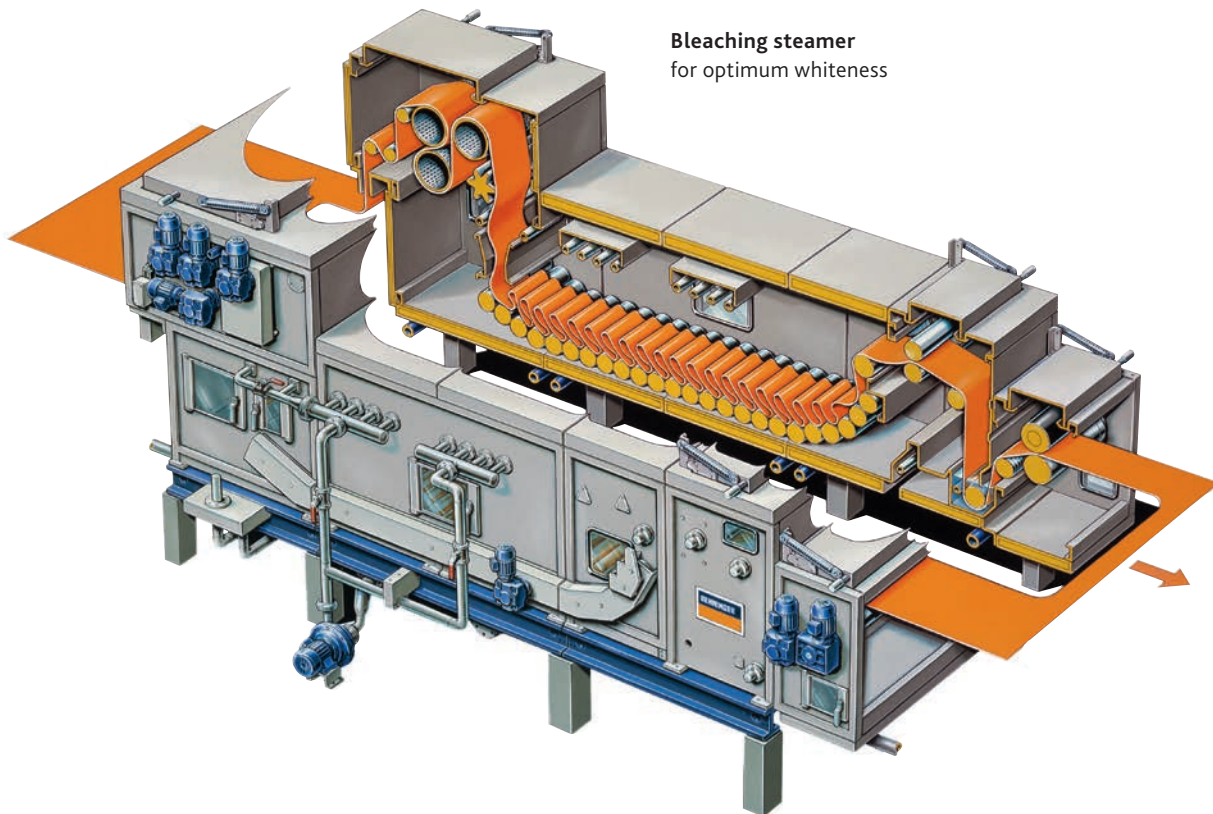


FACTS

- Dwelling times of 3 to 20 minutes guarantee successful washing results
- Washing at boiling point
- Washing assistance or intermediate rinsing processes with drum washing technology
- Can be combined with steam blade for intensifying the mechanical washing effect
- High modularity
- Suitable for lightweight and thin fabrics as well as heavy fabrics
- Suitable for diffusion washing processes (fastness wash) and for relaxation
- Can be combined with all Benninger washing units

REACTA

Controlled chemical reaction



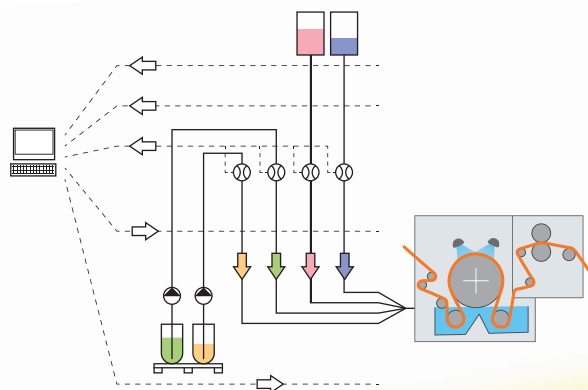
Bleaching steamer
for optimum whiteness

Chemical dosing station

An exact amount of chemicals is added as dosing is based on the fabric throughput. The impregnation system is self-regulating. The water is dosed separately and is level-controlled. Operation is very simple and only requires input of the fabric weight and recipe. Initial filling (preparation liquor) is automatically calculated. The feed liquor is calculated on the basis of the input parameters and the current machine speed.

FACTS

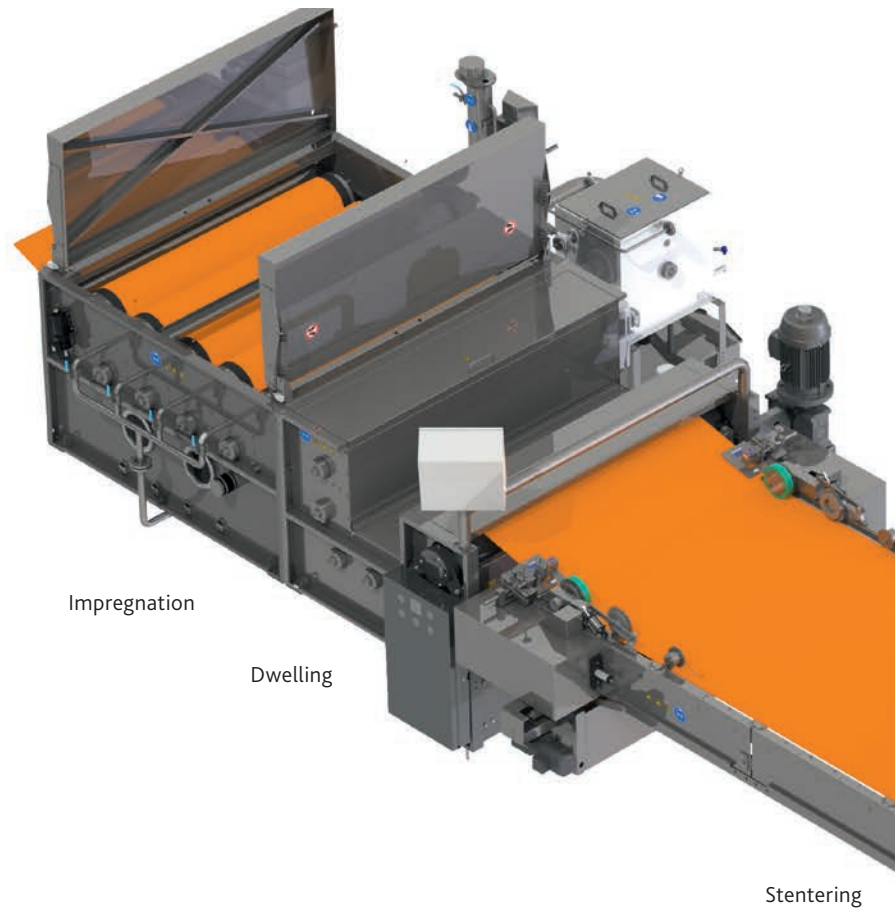
- Controlled bleaching process
- Air Free Steamer
- Controlled heating of the fabric from both sides due to perforated transport rollers
- Dwelling times of 8 to 20 minutes
- External steam generation (no catalytic damage)



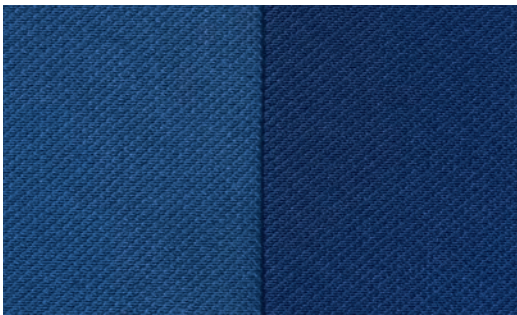
DIMENSA

For higher fabric quality and appearance

Mercerizing and caustification system
for knitwear



Dye savings with DIMENSA technology



Not mercerized

Mercerized

FACTS

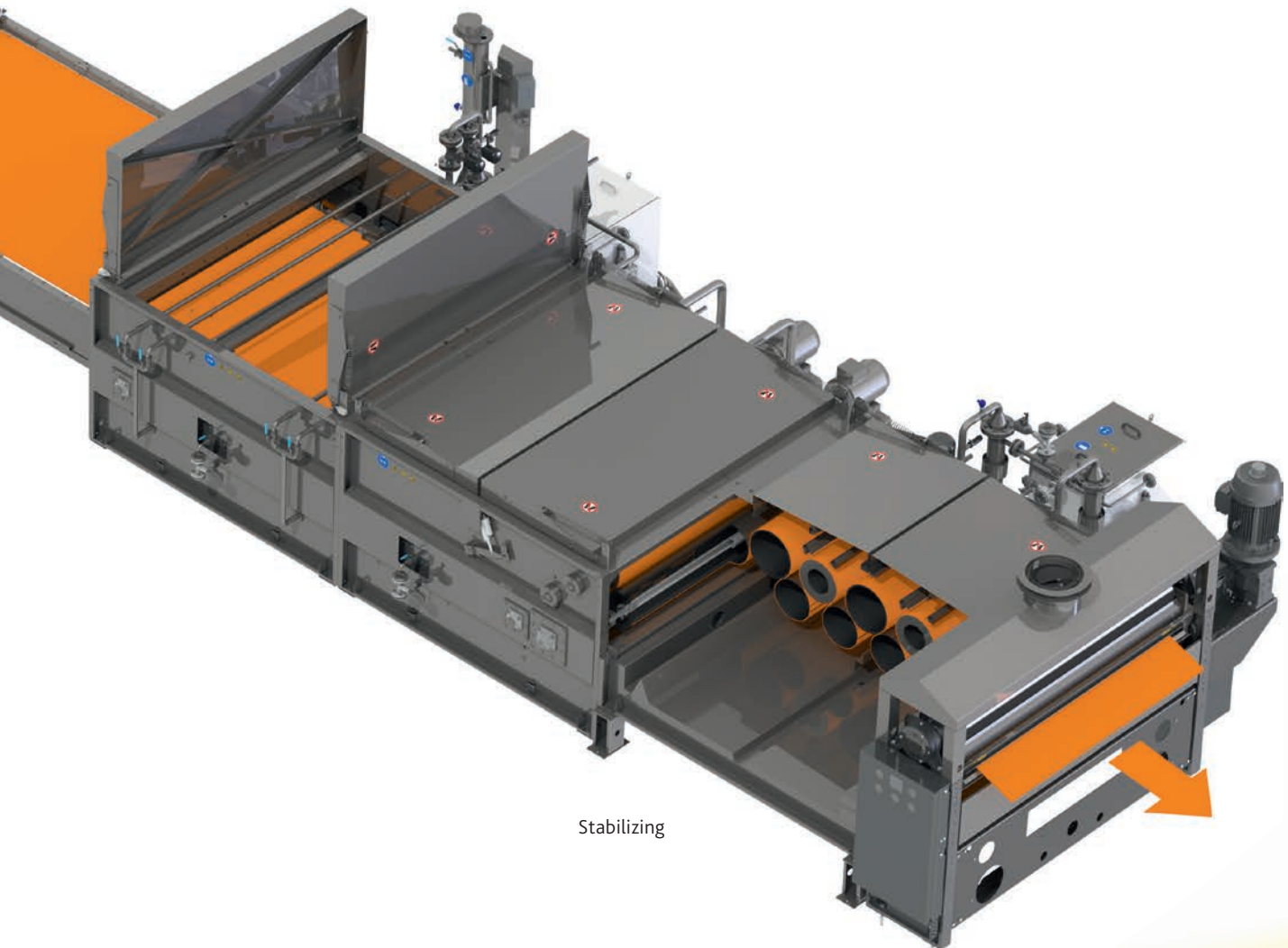
- Combination of chainless and chain mercerizing principle
- Patented selvedge stretching device "Section Control" for correction of selvedge thickening
- Operative range between 6 to 30 °Bé for Viscose, Modal, Tencel fibers and Cotton
- Excellent width and length shrinkage values
- Very high luster
- Very high dye yield
- Fully-automatic lye concentration regulation by rinsing water management
- Capacity-oriented system configuration (from 3 t/d to 25 t/d)

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. With the concept based on the unique combined chain and chainless principle, the stitch courses and wales are positively influenced and get memorized during stabilizing.

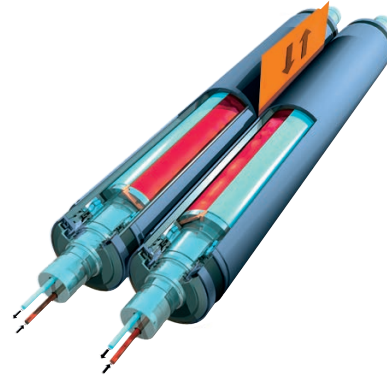


KÜSTERS DyePad

Dyeing without compromise



CPB dyeing station
For energy-efficient dyeing



During the CPB dyeing process the reactive dye is fixed during dwelling at room temperature. The Benninger Küsters CPB dye station with controlled dyeing conditions makes this process ideal for cellulose fibers on knitwear without restrictions. Savings are not only achieved by the fact that the dye is fixed at room temperature, but also by the outstanding dye yield.

A CPB dyeing station comprises the following components:

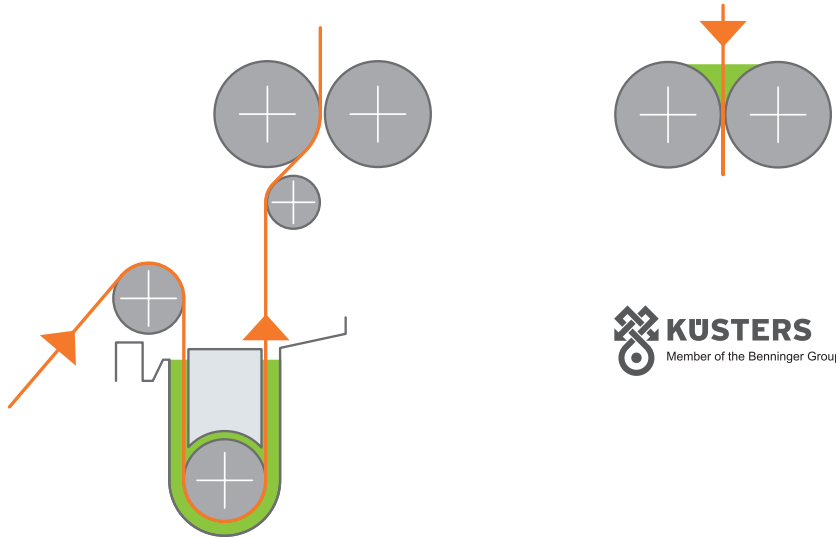
- Fabric inlet
- Dyeing padder with variable nip and minimum dye liquor content
- Tension-controlled winding
- Just-in-time preparation of the dyestuff/alkaline mixture

FACTS

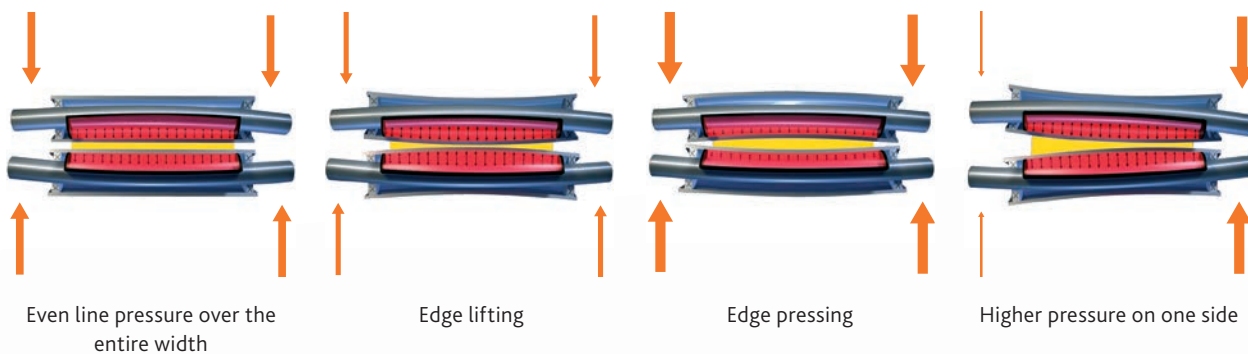
- Two swimming Küsters S-rollers for maximum correction of the pressure profile (left/center/right)
- Very low-tension fabric transport
- Excellent uncurling of the selvages directly in front of the nip
- Dyeing in the nip or trough available
- Automatic 4:1 dosing
- Temperature management
- High productivity
- Liquor ratio < 1:1
- No steam consumption

KÜSTERS S-ROLLER TECHNOLOGY

Trough or nip dyeing



	Trough Dyeing	Nip Dyeing
Liquor content	12 l/m	1.8l/m
Speed	Up to 60m/min	Up to 50 m/min
Fabric weight	For heavy fabrics	For light to medium fabrics
Batch size	Batch size: 200 m to ...	Batch size: 30 m to ...
Fabric tension	Low	Very low
Application	Cold bleaching, caustification, dyeing	Dyeing, caustification



The S-roller as the heart of the system permits reproducible results as the pressure on the two S-rollers can be controlled as required. With intelligent software support, efficient adjustment of the necessary dye application correction is achieved. The varied customer requirements regarding quality and material can therefore be optimally met.

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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