Dyeing Solutions
Woven Line
Leader in wet textile finishing

Benninger Processes

BEN-BLEACH
Continuous demineralization and bleaching in one step
- High productivity
- Best pre-treatment results
- 30% lower production costs

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-ECO
Environmental protection and cost savings by recovering energy and resources
- Caustic recovery systems
- Heat recovery
- Waste water recycling and "zero discharge" solutions
- Energy-efficient drive technology

BEN-COLOR
The complete program for continuous 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

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Dyeing Solutions

Washing Solutions

Mercerizing Solutions

Resource Management
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.

**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.

**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.

**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 continuously 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

Fully continuous PAD-STEAM process

Continuous dyeing of cotton
With reactive and sulphur dyes, or vat wet/wet

Maximum productivity
Very good fastness properties
High dye yield

CPB dyeing station

Cold pad batch process CPB
Dyeing of cotton with reactive dyes

Minimum production costs
Also suitable for short lots
High fixation rate

Fully-continuous PAD-DRY and PAD-STEAM processes

Pad-dry and pad-steam processes for continuous dyeing of cotton with reactive and vat dyes as well as cotton/polyester with disperse dyes

High degree of flexibility
For long batch lengths
Very good fastness properties
An optimum solution for every application

Facts

- Full product range for continuous dyeing
- Even dyeing results
- Very good dye fastness properties
- Short throughput times
- High productivity
- Universal and versatile system
- Crease-free
- High reproducibility

Combined drum and roller vat washing machine

Washing after Dyeing
Washing after Printing

High fastness degree for washing, water and rubbing fastness
**Flexible layouts**

The systems can be flexibly designed for all dyeing processes and extended at any time. A DyePad unit and an EXTRACTA washing plant are already sufficient for a semi-continuous CPB dyeing station for 100% cotton. Additional system elements are, however, necessary for cotton/polyester or for continuous processes.

With the DyePad padder or a Booster and a REACTA dyeing steamer the CPB system becomes a PAD-STEAM dyeing system. A Pad-Dry dyeing system, a drying section with IR pre-dryer and HOTFLUE THERMOSOL are also required for cotton and cotton/polyester.

**Comprehensive know-how**

With the BEN-COLOR process range Benninger supplies overall solutions for continuous dyeing at the highest technical level and fully satisfies all requirements.
## FACTS

- Even dyeing results
- Excellent dye fastness properties
- Short throughput times
- Cost-effective process
- High productivity
- Universal and versatile system
- Crease-free
- High reproducibility

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<td><strong>REACTAsteamer</strong></td>
<td><strong>EXTRACTA</strong></td>
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<td>Rinsing and soaping</td>
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<td>Oxidation and soaping</td>
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S-ROLLER TECHNOLOGY
Reproducible results

S-roller
Maximum correction range

Even line pressure over the entire width
Edge lifting
Edge pressing
Higher pressure on one side

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<td>Fabric width (mm)</td>
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<td>2400–3600</td>
<td>3800–5200</td>
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<td>Diameter of the S-rollers (mm)</td>
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<td>300</td>
<td>350</td>
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<td>linear pressure (N/mm)</td>
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<td>10–40</td>
<td>12–40</td>
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KÜSTERS DyePad
Dyeing without compromises

S-roller padder
Optimum padder configuration for all applications

For woven fabric and knitwear with quick cleaning
For woven fabric without quick cleaning
For nip dyeing

FACTS
- High reproducibility
- Lower waste water contamination due to low liquor content
- Even, linear liquor application due to two deflection-controlled rollers
- Very low energy consumption
- Minimum liquor content during nip dyeing
- Low investment costs
The special squeezer of the BOOSTER guarantees uniform liquor pick-up irrespective of the speed and fabric weight. The linearity of the squeezing nip is still ensured in spite of the freely adjustable contact pressure. The liquor pick-up ranges from 70 – 130 %.

**FACTS**
- Cylindrically ground soft rubber rollers
- Excellent accessibility
- Very easy to clean
- Moveable liquor displacer
- Chemical feed across the entire width
**REACTA DYEING STEAMER**
Perfect dyestuff fixation

**Perfect dyestuff fixation in the REACTA**
Constant saturated steam conditions in the steamer are the basic requirement for perfect dyeing and reproducibility. Benninger routes the steam through a conditioning unit so that it is always supplied constant and saturated to the REACTA dyeing steamer. The design of the steamer and monitoring of the steam conditions guarantee that the steamer is absolutely air-free. Minimum deviations immediately trigger automatic correction of the steam supply.

**FACTS**
- High reproducibility
- High process reliability (guaranteed saturated steam conditions)
- Airfree
- Tension-free and crease-free fabric transport
- High efficiency due to bi-functional design
- Short downtimes
- Optimum automatic cleaning
- Temperature-controlled water seal
- Good accessibility, no dead zones, large windows
- Roof heating
**EXTRACTA**
High washing efficiency due to the multi-chamber system

Counterflow principle
The meander counterflow configuration permits a concentration gradient. The washing process is divided into several washing steps that are repeated. The washing results can therefore be calculated on the basis of models and guaranteed.

**FACTS**
- Washing in repeatable 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 assignments and also combined with waste water recycling or partial flow disposal
- Can be combined with all Benninger washing units
TEMPACTA
Washing through to the core

Washing and dwelling unit for soaping processes

**FACTS**
- Dwell time of 3 to 20 minutes guarantees successful washing results
- Washing at boiling point
- Washing assistance or intermediate rinsing processes with washing drum technology
- Can be combined with steam blade for intensifying the mechanical washing effect
- High modularity
- Suitable for lightweight as well as heavy fabrics
- Suitable for diffusion washing processes (fastness 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 technologies

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