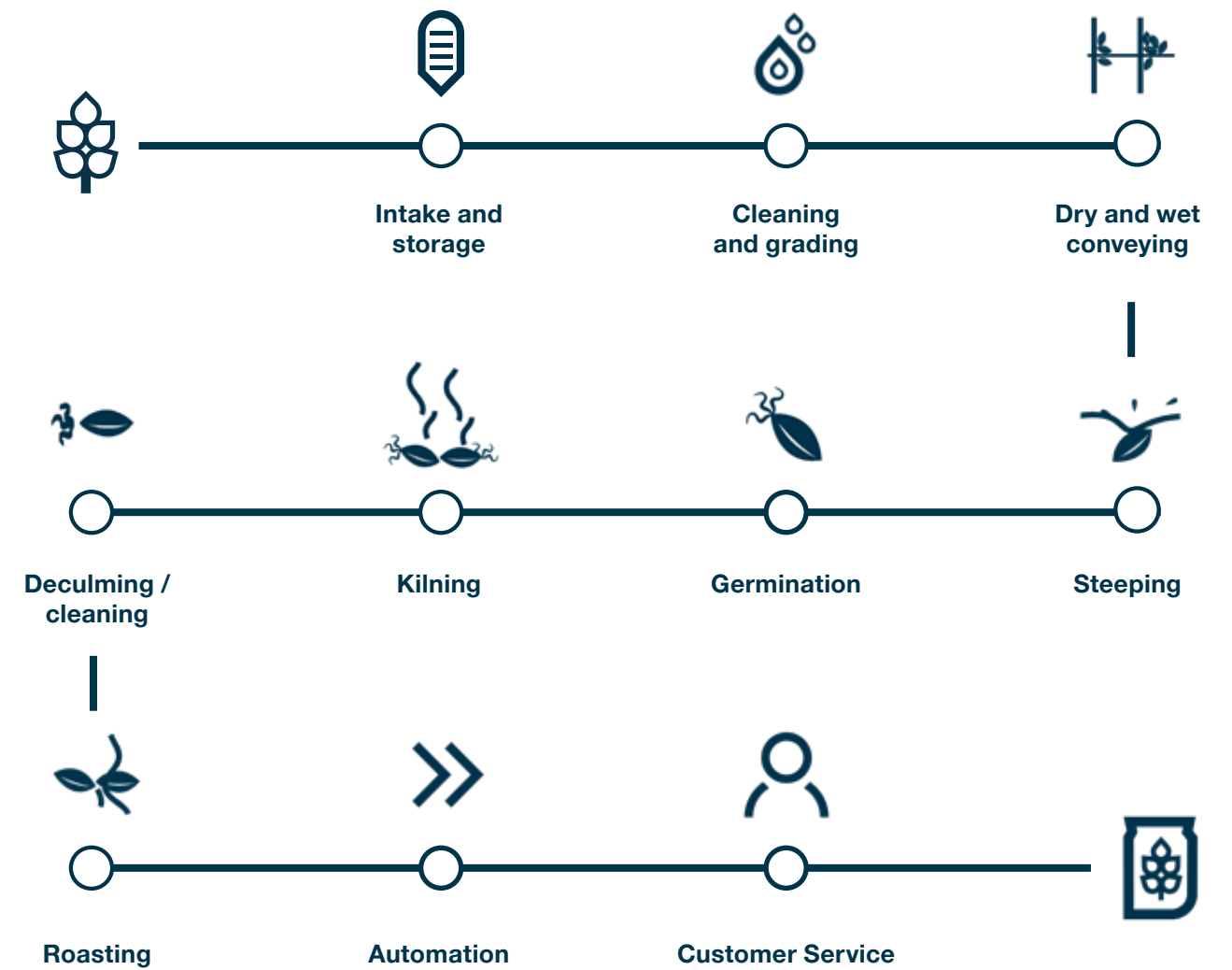


The best beer starts
with the best malt.
**Our malting
systems.**

Bühler malting systems. Your perfect partner for the best malt.

Every year around 2 billion hectoliters of beer and more than 25 million tons of malt are industrially produced worldwide. With our extensive portfolio of process solutions, we support you all the way – from the raw product to the best malt.



Malting

More about the
malting process:



Flexible and modular. Our systems for your success.

We don't believe that one size fits all. Advanced solutions from our extensive portfolio can be combined to suit your specific requirements, providing you with the maximum flexibility. Our experts will help tailor the right solution for you.



Our modular system adapts to your needs. No matter what production capacities you are looking for, we are the ideal partner for your project.

To get an idea of our flexible solutions for industrial malting, take a look at these two examples. Both are designed for 360 days a year production time, 24 hours kilning time and 96 hours germination time, with a yield of 83%. Our flexible steeping concept based on 65-ton cylindro-conical steep tanks. Germination and kiln vessels can be delivered in different batch sizes with our patented modular design elements. This shortens the assembly time of your new plant and meets the highest hygiene requirements.

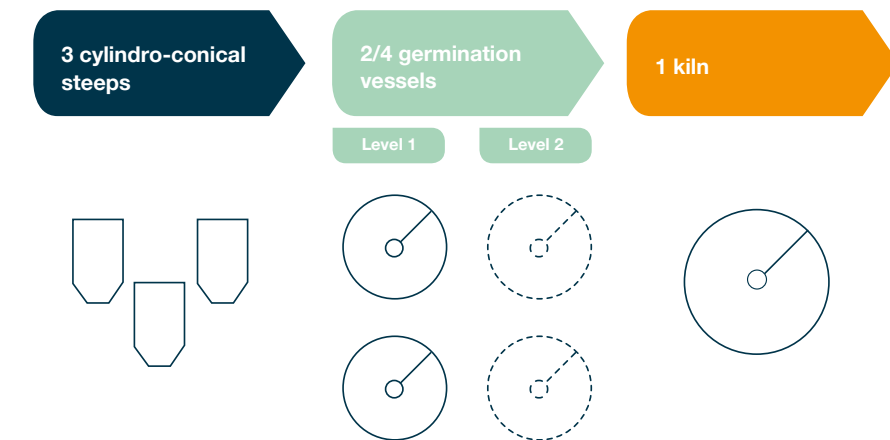
Advantages at a glance:

- Individual complete solutions from an extensive portfolio
- Professional project management and innovative automation solutions
- High plant availability
- Low maintenance costs

Modular malting configuration.

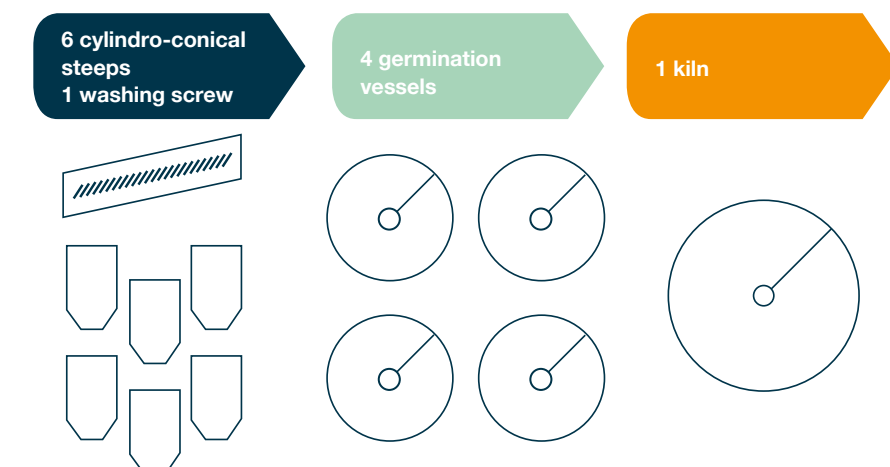
With our modular, expandable system you can achieve different batch sizes according to your requirements. For a batch size of 180 tons and an annual production of up to 54,000 tons, the system could work like this:

Level 1: 180 t/batch / 2 GV		Level 2: 180 t/batch / 4 GV	
Barley (t/y)	Malt (t/y)	Barley (t/y)	Malt (t/y)
32,400	26,900	64,800	53,800



To achieve a batch size of 360 tons and an annual production of 108,000 tons, the following set-up could be used:

360 t/batch	
Barley (t/y)	Malt (t/y)
129,600	107,600



We offer integrated solutions. Along the entire process.

Our solutions support you at your malting plant and brewery through every process step. Because in addition to steeping, germination and kilning, we also offer powerful machines for the upstream and downstream process.



Grain intake and storage

The first process steps is the intake of raw materials at the malthouse. Solutions from Bühler are designed for intake by ship, truck or rail. Whichever option you choose, we take care of safety and product quality by our dedusting solutions.

That is why we offer the latest dedusting technology for the intake of barley. For the storage of raw, intermediate and end products we provide you with a range of flexible solutions. We are happy to advise you from start to finish to find the configuration that is exactly right for you.

Grain and malt cleaning / Grain grading

Cleaning raw materials and malt effectively increases the shelf life and quality of your product and makes the production process safer. We continuously improve and develop our machinery so you can always achieve the best results.

Weighing

We offer a variety of weighing solutions focusing on accuracy and high throughput so that your malting plant can work as effectively as possible.



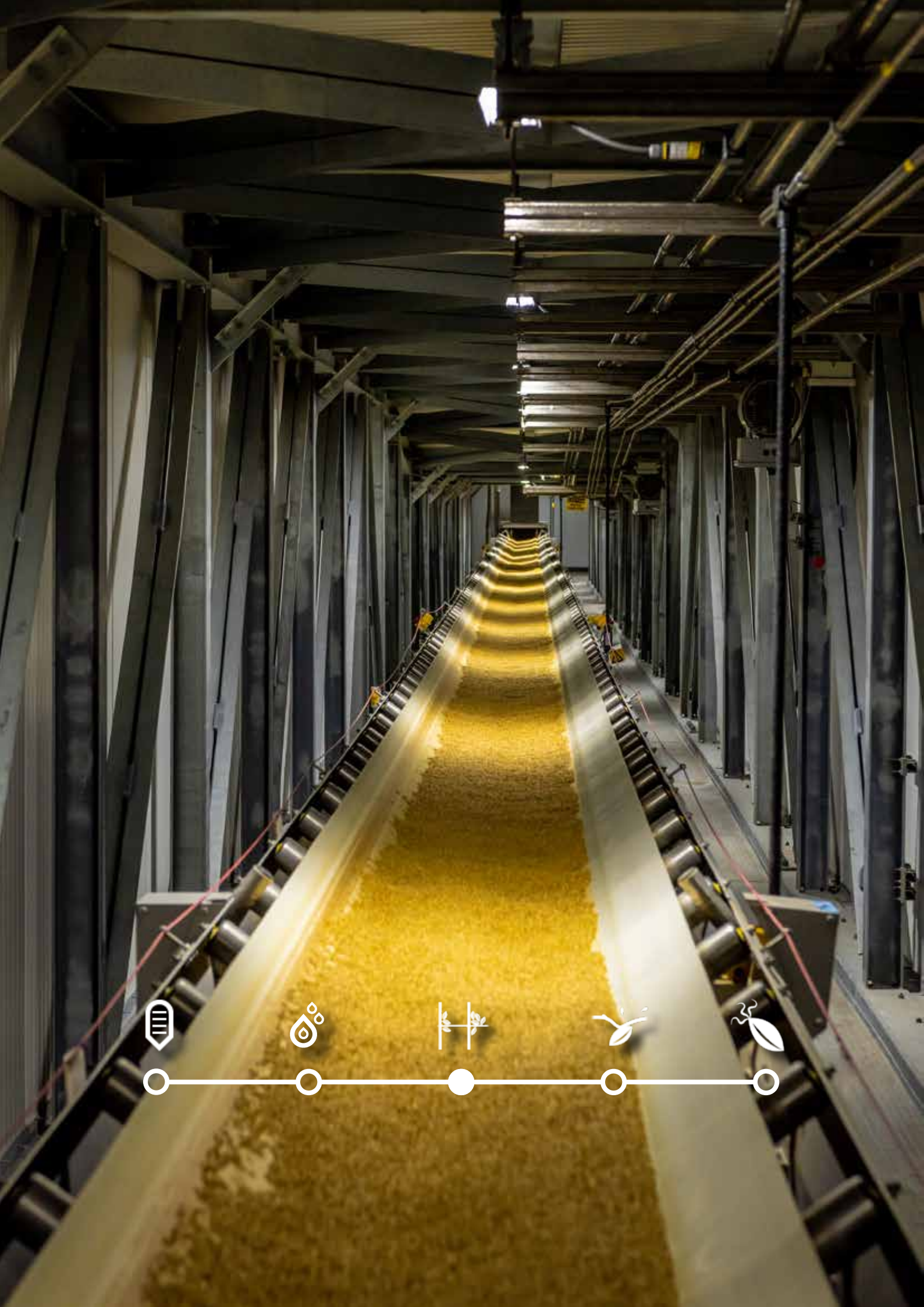
Flexible, reliable and powerful. **Dry and wet transport.**

Our conveying systems are designed to meet your requirements. Whether you are transporting raw material or green malt, you can completely rely on our conveyor technology.



We offer a range of solutions to convey all products in the malting plant gently between production steps, including belt conveyors, troughed chain conveyors, screw conveyors and belt elevators.

Our transport systems for wet grain and green malt feature an integrated washing unit and numerous access points for manual cleaning, ensuring low-residue transportation. In order to achieve the highest levels of food safety, our conveyors are made of stainless steel.



Reduce your water consumption. **Steeping systems.**

Steeping is a key step in the malting process, determining the product quality and yield. The aim is to achieve a high level of homogeneity in the barley. Our steeping systems ensure optimal process management while minimizing labor demand as well as energy and water consumption.

You can choose from a variety of equipment, including units for pressure aeration and CO2 extraction, heating, cooling and humidification of air. All steep vessels provide connections for appropriate ventilation, CO2 extraction and height adjustable skimming devices.



Washing screws

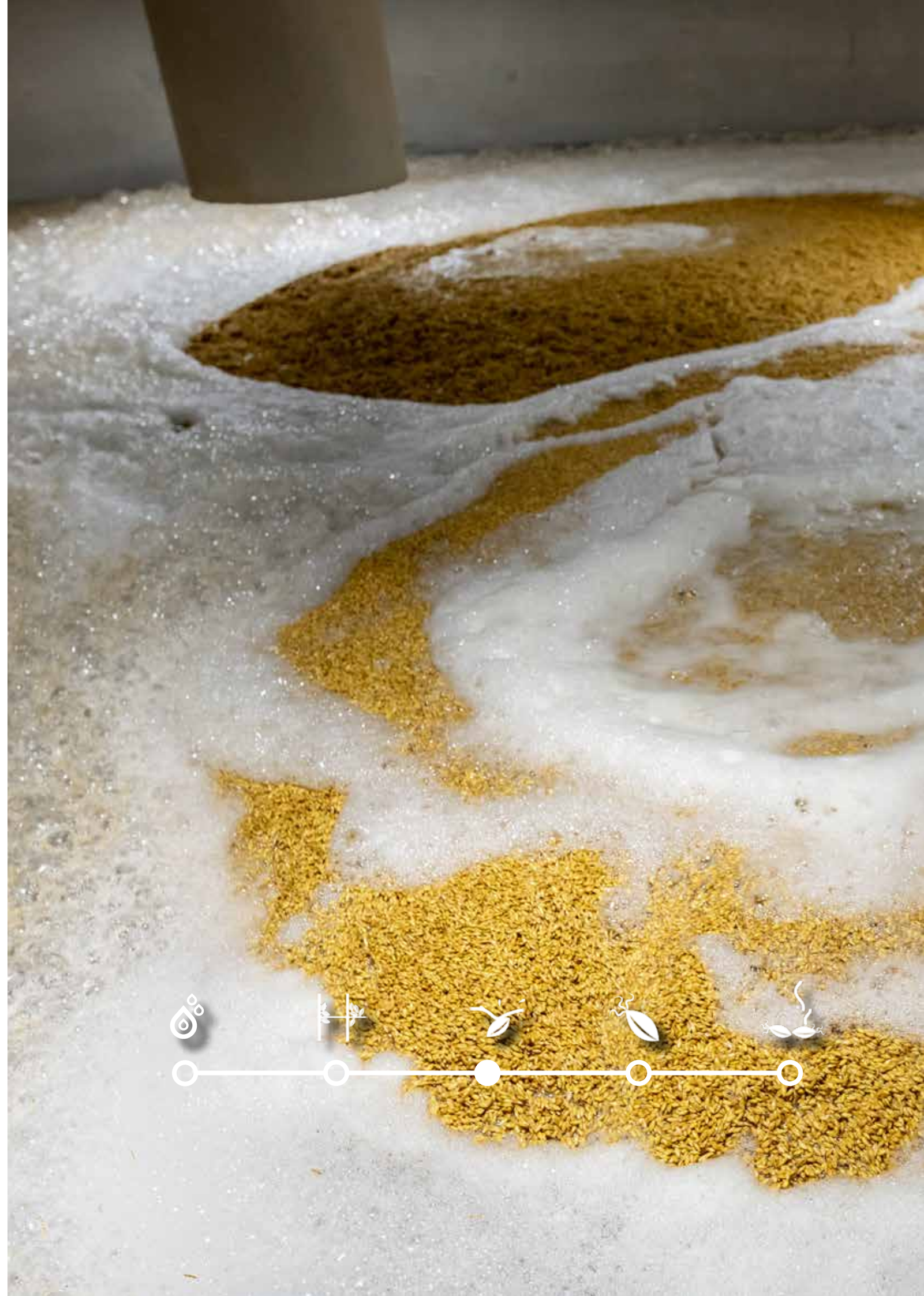
Grain transport, washing and steeping in one step, within the shortest possible time. Compared to conventional cylindroconical turnouts, you can achieve fresh water savings of up to 50% and waste water savings of up to 35% with the washing screw. It allows a faster and more homogenous pre-germination. A grain moisture of up to 25% after the first dry stand can be achieved.

Cylindro-conical steeps

Our steeping tanks provide you with the benefits of low water consumption, simple construction, and ease of operation, maintenance and cleaning. Hygiene requirements are met to the highest standards. Cylindro-conical steeps with a capacity of up to 65 tons per vessel are available in open and closed design.

Flat bottom steeps

Flat bottom steeps are designed for large batch sizes. The uniform product bed guarantees a homogenous aeration and CO2 extraction of the grain, giving you the best malt quality. In addition, pre-germination can already start in the flat bottom steep.



Customized to meet your needs. **Germination systems.**

Our germination systems feature a sturdy and low-maintenance design, high loading and unloading capacities, and excellent hygiene standards. Bühler's patented modular system for building germination vessels caters for different batch sizes.

Product loading and unloading is quick and smooth with our germination boxes. The combined turning, loading and unloading screw provides for homogeneous mixing and aeration, resulting in the best malt quality.

The units feature effective green malt sprinkling and a high-performance aeration system. Powerful aeration fans and ventilation system control the temperature and humidity of the air.

A high-pressure cleaning system automatically cleans above and beneath the germination floor, ensuring the highest level of hygiene and sanitation. You can choose between round versions for installation in towers and flat plants, or rectangular versions for flat plants.

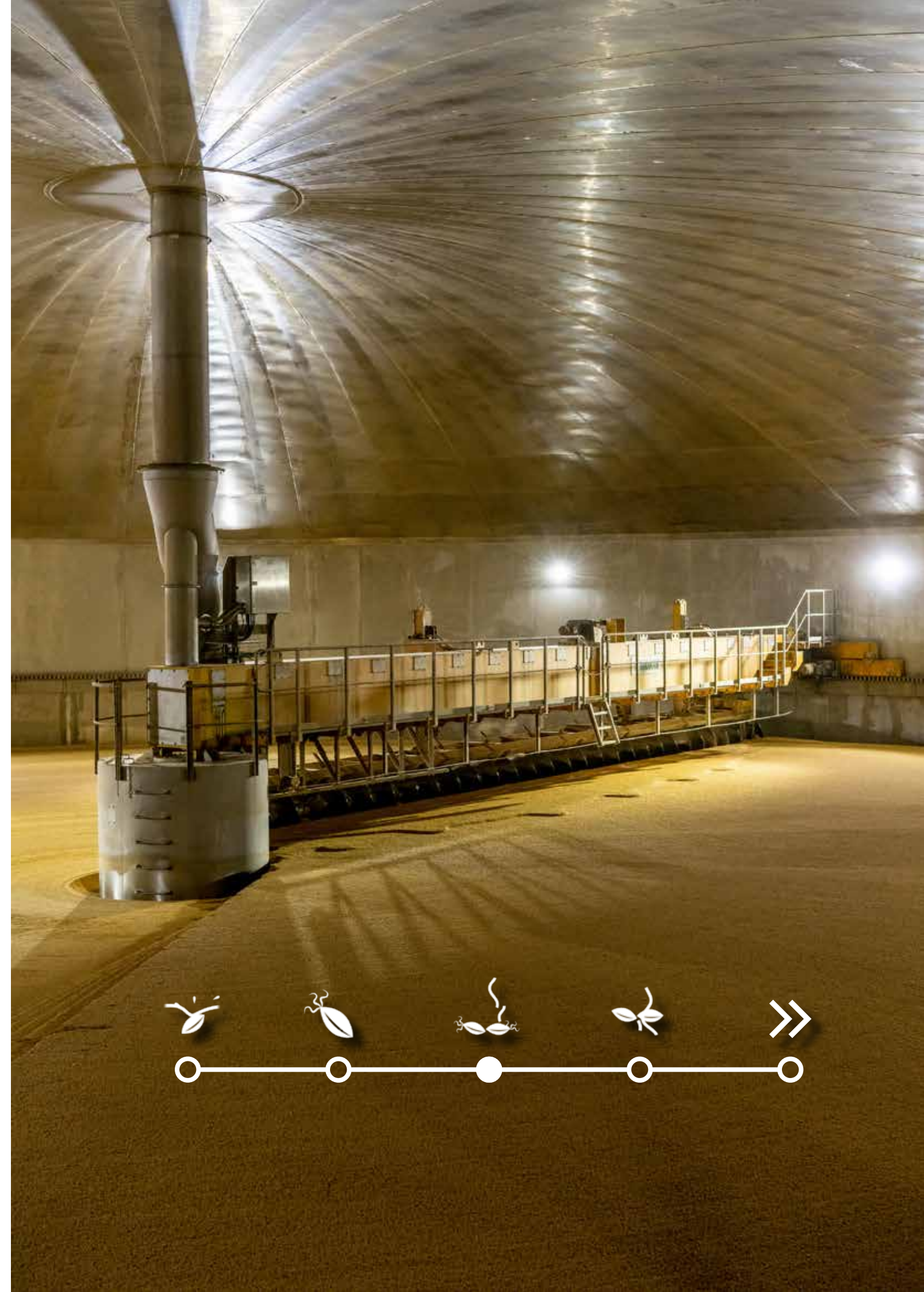


The best drying for your malt. **Kilning systems.**

Our solutions provide efficient malt drying in whichever climate zone you operate. Low specific loads and the use of heat recovery systems (cross-flow heat exchangers) are standard features, keeping your operating costs as low as possible.

With uniform loading and unloading, and an adaptable loading height, our kilns ensure homogeneous drying and optimized process time, thus helping to increase the efficiency of your plant. Efficient fans, an indirect heating system and a cross-flow heat exchanger as standard for heat recovery complete the functional range of our kilns while reducing energy costs.

Our different kiln designs are suitable for installation in tower or flat plants, depending on your specific construction requirements. Depending on the requirements, different construction methods can be realized, be it as a classic single-floor kiln or as a double kiln coupled in air and heat technology.



Product differentiation by color and taste. Roasting systems.

The growing demand for characteristic flavored and dark beer has led to an increased demand for corresponding special malts. Our roasters combine proven technology with intelligent innovations so that malthouses and breweries can achieve the highest quality roast.



The art of roasting grain and malt requires in-depth knowledge of production processes to achieve the desired product qualities. With 50 years of experience in the field, we have successfully achieved the best results for a wide range of color and taste profiles.

Zonda 100

The Zonda 100 roaster is an ideal entry-level model. It is also well-suited to roasting special products in small quantities or developing new recipes. The compact roaster for small batches from 60 to 100 kg works purely through conduction and is therefore very gentle on the product. Fully automatized operation and recipe-controlled processes allow for reproducibility of batches as well as a high degree of flexibility.

With their batch process, both the Tornado and the Zonda roasters allow you to manufacture special malts with high levels of reproducibility. Specific roasting profiles make it possible to differentiate end products according to their flavor and color potential, resulting in an almost unlimited variety of new recipes and allowing for maximum differentiation.

Tornado RSX

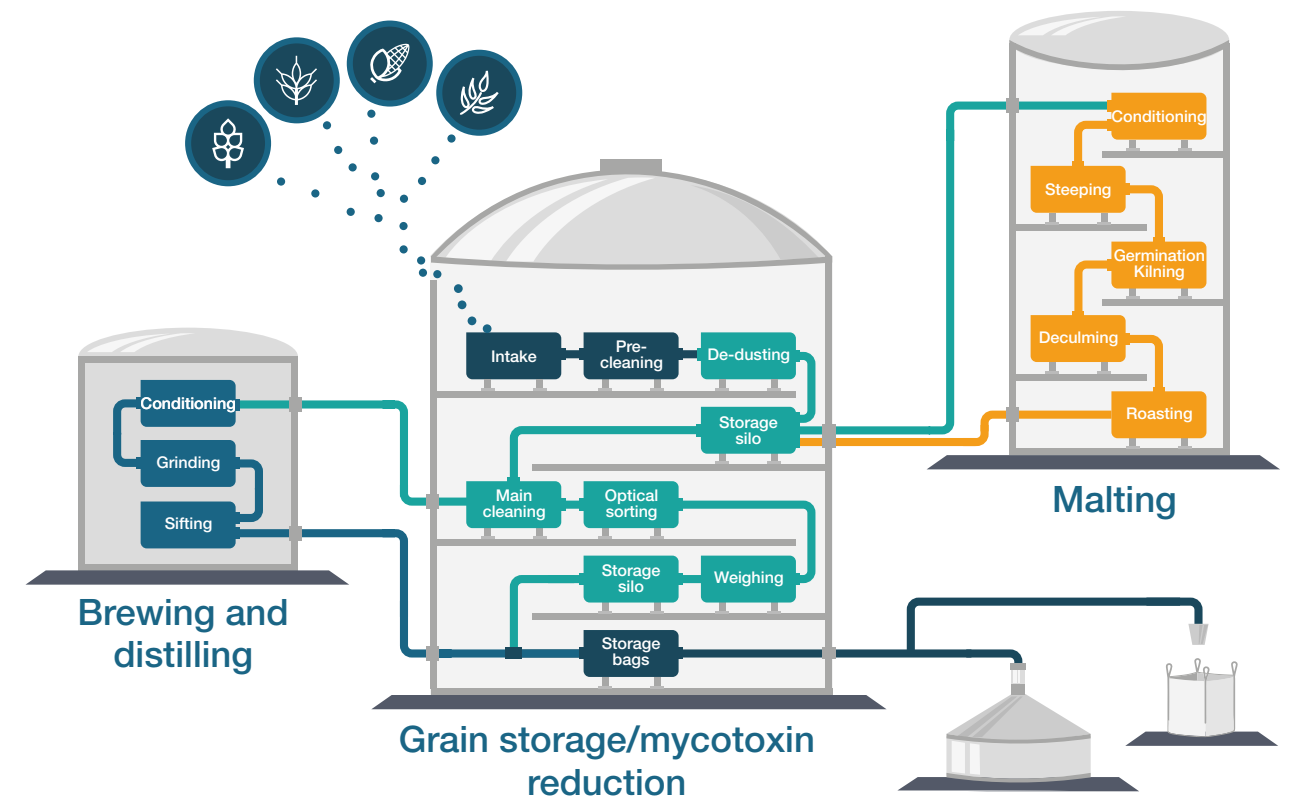
The large-format Tornado RSX roasters provide maximum flexibility and process control for capacities from 3000 to 5000 kg. Processes can be securely and individually managed with the option of switching between conductive and convective roasting and precision vacuum control during the mashing phase. You can produce and track a wide range of recipes with the simple and flexible process controls.

Investing in the future. Our Application Center.

We all know the challenges we face in future – we have to save resources, make processes more efficient, and react more quickly and flexibly to new food trends. At Bühler we work every day to meet these challenges, keep up with the fast pace of change, and make a valuable contribution to the future.

How do we do it? In order to achieve our ambitious goals, we have set up a unique research facility at our site in Beilngries in Germany. Here we focus on new production designs and develop innovative concepts for malting and brewing processes along the entire value chain. Which machine is best suited for your processes? How can new recipes and products be created and developed efficiently? We offer you a wide range of solutions that bring you numerous advantages.

With our cleaning line, for example, you can reduce mycotoxins and validate the quality of your products, as well as improve it. What makes our research facility special is its flexibility - we can carry out tailor-made tests for your company and offer you entirely individual solutions. See for yourself! We look forward to meeting you in our new Application Center in Beilngries.



Control your business. Our solutions for automation.

We understand: In order to succeed you need systems you can rely on. Our customized automation solutions are designed to support your business and increase efficiency.



Mercury MES

Mercury MES allows for a seamless exchange of information between all systems involved in the production process. Thanks to the communication between ERP, Quality Control, Maintenance and other systems, workflows can be efficiently optimized. The system is web-based, highly adaptable and available to every device.



Retrofit

Is the display installed in your system no longer available and the official replacement device is not compatible with your control system? That's why we offer retrofits that ensure production reliability over the long term. With these spare parts, you can continue to control your system and maintain it at low cost.



Benchmalting

Monitor and optimize your malting process from different angles, even on the go! Our web-based systems link process, consumption, quality data and costs.



PreMa

Lower the risk of damage during storage and reduce maintenance costs! PreMa gives you an overview of storage conditions, anywhere and anytime.

Stay on top of things. With our machinery for your laboratory.

We offer you the ideal solution for the optimal preparation of all common laboratory analyses. The laboratory sieve and the disk mill enable you to carry out analyses with the highest precision.



Laboratory sifter MLUA

The laboratory sieve provides for simple and fast particle size measurement, with standard sieve sets available for grist, grits and flour, in accordance with MEBAK and EBC standards.



Laboratory disk mill DLFU

The laboratory disk mill allows for precision grinding of grains and malt, for all common laboratory analyses. Recognized by EBC, MEBAK and IOB.



Coopers Brewery Limited. Adelaide, Australia.

In order to brew beer of the highest quality, Coopers Brewery Limited decided to build their own malthouse.



Project details.

- Production capacity: 54,000 tons of malt per year
- Processing technology: Barley cleaning, grain cleaning machine batteries, machines for malt germination, malt dedusting
- Conveyor technology: Chain conveyors, elevators, screw conveyors, belt conveyors
- Dedusting technology: Round filters
- Cycle time: 24 hours
- 3 cylindro-conical steeps,
4 germination vessels,
1 kiln
- Commissioning: 2018

The customer.

Coopers is the largest family-operated brewery in Australia and therefore requires not only large quantities of malt but also high-quality raw materials.

With their new malthouse built according to the highest technical standards and with a direct connection to their own brewery, Coopers can now not only meet their own malt demand, but also that of external customers.

"The sophistication of this plant, the complexity of the different design elements; automation, energy savings, cleanability and the safety features have convinced us. We are delighted to have Bühler as a partner. We look forward to working with Bühler on a long-term basis."

Tim Cooper, Managing Director bei Coopers

See the
customer success
story as a video



Grupo Modelo. Zacatecas, Mexico.

Grupo Modelo's malthouse sets new standards in hygiene and quality, with automatized high-pressure underfloor cleaning and manual high-pressure cleaning in the flat-bottom steep.



Project details.

- Production capacity: 98,400 tons of malt per year
- Conveyor technology: Wet transport, belt conveyors, elevators, chain conveyors (all stainless steel and self-cleaning)
- 7x spot filters (only dry transport)
- 2x batch silos (capacity 780 tons)
- Cycle time: 28 hours
- 2 flat-bottom steeps, 3 germination vessels, 1 kiln
- Commissioning: 2018

The customer.

The new plant for Grupo Modelo was commissioned on time and with the associated product reliability. The customer wanted the latest technology, energy savings, and the highest hygiene standards and malt quality. These requirements were achieved by installing fold-down germinating floors in the flat-bottom steep and a custom high-pressure cleaning system which allows the operator to connect a cleaning device to any point of the system.

The modular tank design patented by Bühler is quickly assembled, offers flexibility and low-cost maintenance. In the event of system interruption, a redundant control system ensures that malt production can continue again quickly with minimum downtime and without loss of quality.

Viking Malt. Halmstad, Sweden.

For Viking Malt in Sweden, control software was retrofitted in record time and a failsafe, modern plant was created by installing a retrofit in the existing malting plant.

Project details.

- Modernization of the PLC from Siemens S5 to Siemens S7-1516
- New process control system WinCos.r2
- Conversion of all decentralized IOs S5 to Siemens ET200M
- New server system and operator stations
- Advanced and optimized recipes for maximum flexibility
- 2 steeping lines each with 5 vessels, 6 germination vessels and 3 kilns
- Reducing of the loading times of the kiln by 20% due to optimized processes
- Commissioning during ongoing production
- Commissioning: 2016

The customer.

Viking Malt, based in Halmstad, produces 220,000 tons of malt per year. In order to maintain this high production rate, the existing outdated control system in one of the malt towers, which had been provided by another manufacturer, had to be completely overhauled.

Opting for an automation retrofit reduced the downtime by almost 70%. In addition, the throughput time was optimized, allowing for increased flexibility in developing new recipes. For Viking Malt, it was the key to digitalizing their plant and creating a future-proof system.

"We chose Bühler because of their experience in malting plants so that we could focus on achieving the desired advantages instead of simply just getting the system to run."

Mattias Arturson, project manager for retrofitting at Viking Malt



Get to know the system in a video:



Great Western Malting Co. Pocatello ID, USA.

Thanks to the new installation, Great Western Malting Co. was able to more than double its capacity. Bühler was available to the customer as a full-service provider throughout the project.

Project details.

- Production capacity: 120,000 tons of malt per year
- Cleaning technology: 2x TAS 206A-2, each 90 t/h
- Conveyor technology: Chain conveyors, belt conveyors, elevators
- Cycle time: 24 hours
- 2x 8 cylindro-conical steeps, 4 germination vessels, 1 kiln
- Commissioning: 2017

The customer.

Great Western Malting Co. in Pocatello already operated a malting plant with a production capacity of 100,000 tons of malt per year. Bühler was the main partner in expanding capacity by another 120,000 tons of malt per year.

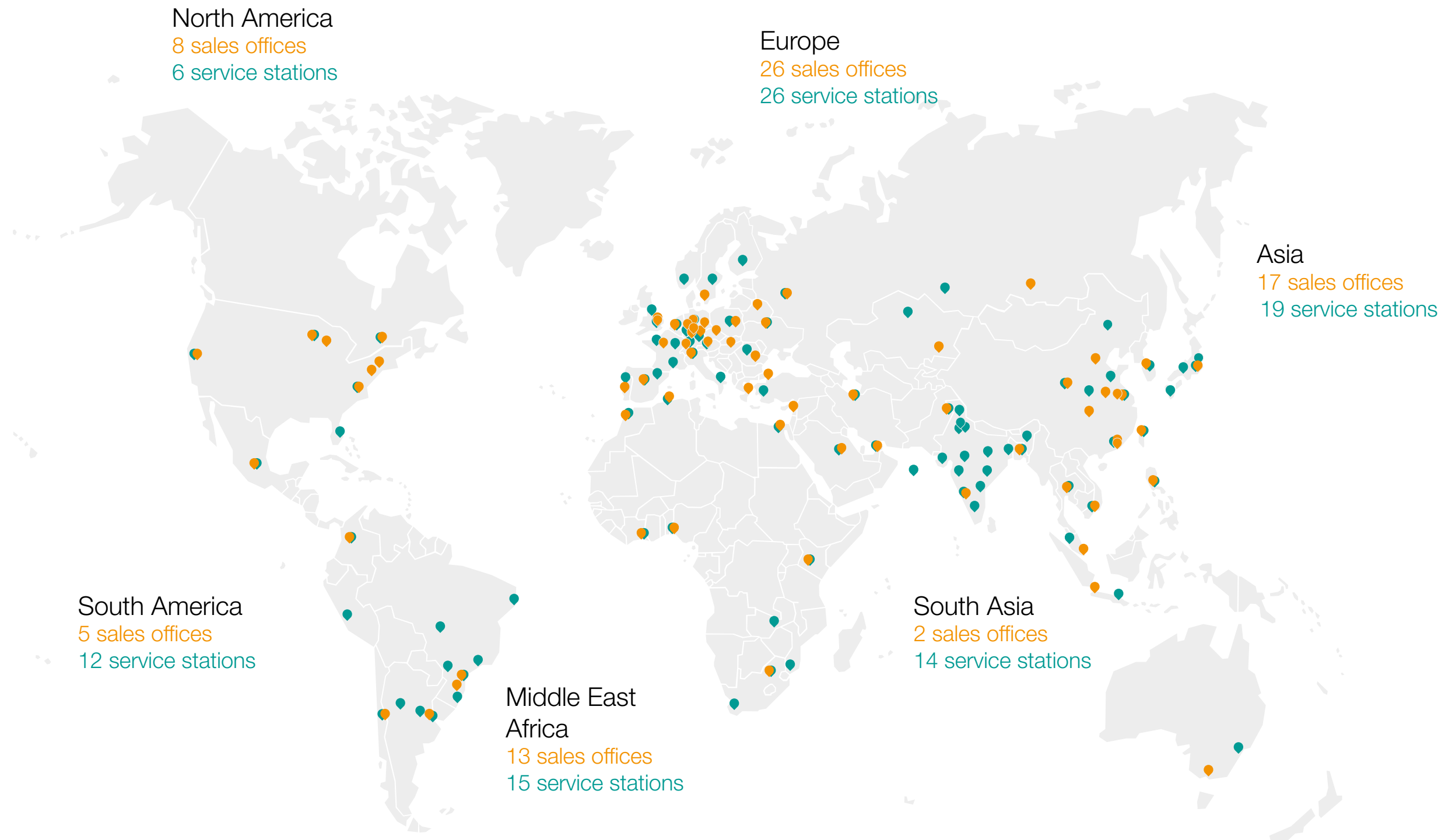
We delivered the core elements of the new malting plant: two steep groups each with eight cylindro-conical steeps, four germination vessels, a kiln, as well as the conveyor technology for barley, steeped material, green malt and malt.



We are already thinking about tomorrow, today.

Our service for you.

With nearly 100 service stations throughout the world, we are always available on-site whenever and wherever you need us. Our regional presence means that we speak your language and that we can supply you with replacements or wear parts quickly and easily.





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