



Optimised rice
processing.
**Equipment
and solutions.**

Optimised rice processing. **Equipment and Solutions.**

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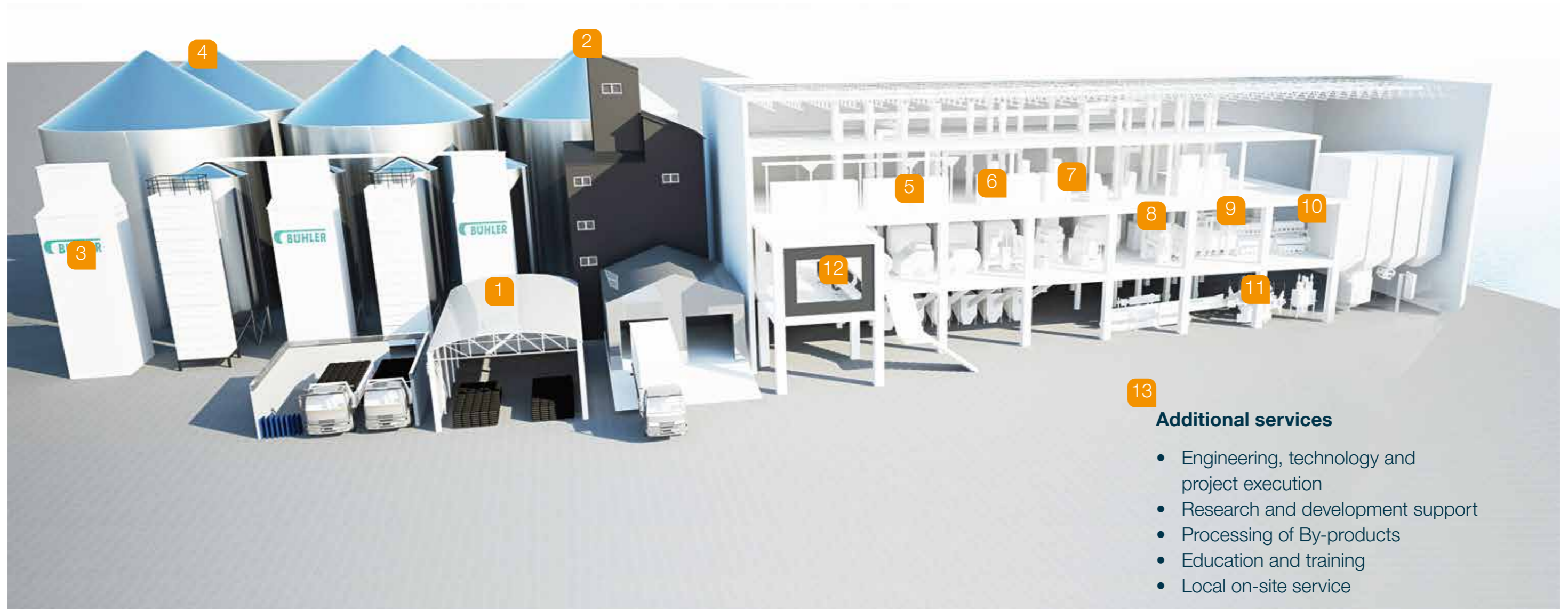
Every day, billions of people come into contact with Bühler technologies **to cover their basic needs for foods.**

Bühler is the global leader in the supply of industrial rice processing systems. In addition to competent consulting, Bühler is a reliable partner who will bear overall responsibility for designing, constructing and commissioning your installation. Vast experience in grain processing and process engineering in conjunction with research and development offers customers high profitability at low operating costs.



Integrated solutions for optimised Rice processing.

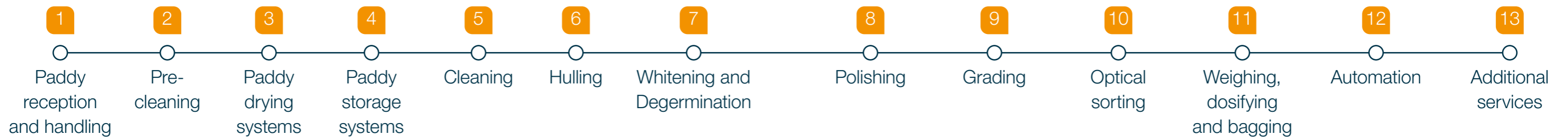
Bühler offers wide product portfolio for paddy processing line starting from 2 tons per above and above. The portfolio can be classified into 4 lines: SmartLine (2-5 TPH), TopLine (6-10 TPH), SuperLine (10-12 TPH), UltraLine (12-16 TPH).



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Additional services

- Engineering, technology and project execution
- Research and development support
- Processing of By-products
- Education and training
- Local on-site service



1 Efficient solutions for Paddy reception and handling.



Paddy reception

Reliable high-performance bulk and bagged paddy reception plus conveying systems are key contributor to success in production.

Apart from chain conveyors, screw and belt conveyors to elevators, Bühler offers customised solutions for efficient transport.

- Suitable for a capacity range of up to 300 tonnes/hour
- Flexible modular systems to suit every plant requirement
- Heavy-duty, stable off-track detector and speed monitor
- Designed for hygienic operation
- High product reliability with long service life

Filter and aspiration components

Filter and aspiration systems are found throughout the value chain of rice processing and are crucial to operate the plant according to regulations. Be it at product reception, conveying or further processing stages – with Bühler aspiration solutions, dust is always under control.

- Executions specially matched for the aspiration of rice bran
- Complete aspiration system including fan, silencer, deflector hood, air piping
- Explosion protection and decoupling components for the safety of employees and plant equipment and a guaranteed fit in the process
- Rotary valves for a diverse range of requirements
- Intermediate separator, ensuring minimum disruption to the milling process
- Container cover for dust loading to optimally discharge and collect dust outside of the building

Further scope of supply and services

- Low and high pressure filter
- Cyclone as total separator or as replacement of a filter for low dust loads or loose regulations concerning dust emission levels



2 Optimised Pre-cleaning solutions.



Drum Sieve

Efficiently separates coarse impurities such as pieces of straw, bag tapes, paper, pieces of wood and leaves, successfully protecting downstream processing and conveying systems from machine damage.

- Available in four models with a capacity range of up to 95 tonnes/hour
- Fast and easy drum change
- High degree of self-cleaning



TAS Cleaner

High separation efficiency, removing coarse, small and light impurities to maximise silo storage capacity, improve process flow and enhance process reliability.

- Available in four models with a capacity range of up to 100 tonnes/hour
- Heavy-duty, designed for round-the-clock operation
- Convenient air volume regulation
- Low vibration, no need for extensive structural platforms



Pick-up cleaner

The innovative pick-up cleaner is the only solution that can counteract the problem of clogged inlets and outlets of the machine. Therefore it is an essential first step in the cleaning process.

- Available in one model with a capacity range of up to 25 tonnes/hour
- Improved cleaning quality and higher capacities in subsequent processes
- Automated, high-capacity process



GrainPlus

Economic and compact screening machine. Even in particularly dusty environments, the machine of the GrainPlus series guarantees excellent cleaning results.

- Available in three models with a capacity range of up to 25 tonnes/hour
- Flexible configuration for multifunctional applications and the desired separation effect
- Minimum cleaning effort and high sanitation standard
- Compact design at investment-friendly prices





3 Innovative solutions for Paddy drying.



Drying systems: Eco Dry

Extremely gentle handling, significantly reduces thermal stresses to paddy.

Drying is one of the critical steps in paddy processing and, in addition to removing excess moisture content from raw material, it also has a major influence on the process efficiency, yield and final product quality.

Bühler's dryer product range consists of the harvest dryer, steaming process dryer and parboiling dryers.

- High capacity and reduced drying time through an optimised multiple stage process
- Low heat impact on paddy, reducing losses through product breakages as a result of stress cracking
- First in-First out delivers uniform and consistent drying results
- Elimination of variations in moisture levels in tempering bins

4 Handling solutions Paddy storage systems.



Paddy handling: storage systems

Bühler can supply a range of storage systems to suit individual requirements, environment and conditions. Depending on the prevailing conditions, different bin designs are possible. Storage bins are usually cleaned before intermediate storage of bulk materials. Cleaning may have a positive impact on the storability of the materials. At the same time, the quality of further processing is substantially enhanced. For checking the weight of bulk materials, fully electronic scales are applied which transmit the readings directly to master process control systems. Storage and retrieval of material into and from bins is controlled on the basis of material level detectors installed at different levels of the bin. The temperature of the stored bulk materials is continuously monitored by temperature sensors to ensure that the product temperatures will not exceed certain limits.

- Various storage solutions: steel silo bins, concrete silo bins and flat store
- Flexible configuration and expandability
- Maximised storage capacity
- Reduced foundation work

5 Efficient Cleaning solutions.



Separator MTRA/B/C with Aspiration Channel MVSF/H/L

Efficiently removes both coarse and fine impurities such as straw, wood, stones, soil and sand. An aspiration channel is fitted to remove low-density particles such as dust and loose husks.

- Fast and easily changeable sieves, exchangeable wear parts and absence of lubrication points
- Closed machine design prevents dust and safeguards food safety



Grain Plus LKGA/LAGA

Economic and compact screening machine. Even in particularly dusty environments, the machines of the GrainPlus series guarantee excellent cleaning results.

- Flexible configuration for multifunctional applications and the desired separation effect
- Minimum cleaning effort and high sanitation standard
- Compact design at investment-friendly prices



Magnetic Separator MMUA

The MMUA has a high magnetizing force removing metallic particles such as nails, wires and screws. For maximum detection, the MMUA is designed to ensure an even distribution of material stream.

- Magnets can be easily lifted out together with the separated iron parts without interrupting the product flow
- A dust-tight closed unit



Destoner MTSC/D and MTCG

Designed to meet food safety requirements, the MTSC/D and MTCG efficiently remove stones and other high-density impurities such as metal and glass.

- Enclosed machine design for reduced dust emissions
- Sturdy design, can withstand the abrasiveness caused by paddy
- Most efficient destoner available in the industry
- Double-deck models offer even better results for stone and glass removal



6 Innovative Hulling solutions.



TopHusk: DRHE / DRHK

Designed to be powerful & reliable – DRHE/DRHK compact huller is a perfect fit in modern rice mills. The TopHusk hulls paddy rice with highest care and efficiency. The huller adjusts its pressure appropriately to adapt to different types of paddy. The aspiration air blows around the rolls for intensive cooling.

- TopHusk DRHK is equipped with Bühler universal control unit MEAG. This means that it contains an automatic feed point control to compensate for the roll wear.
- Contains user friendly touch pad to control feed rate, hulling degree and manual discharge
- Product pre-acceleration via chute assures minimum breakage at high capacity
- Accurate setting of high hulling degree ensures perfect & constant hulling at high capacity



TopHusk DRSD III / DRSD IV

The generously sized husk separator works with optimized flow of grains in a closed air circuit to separate the husk from the brown rice accurately. This modern technology results in two clean fractions. This design eliminates a cumbersome third fraction and achieves accurate husk separation.



Rotosort: DRGA/B

Incorporates a unique Bühler patented design to provide an even product distribution with high precision slot width for accurate grading even during high capacity processing.

- Efficient adjustment of screen revolutions for optimised separation using the gear motor with frequency converter
- Shaftless peripheral drive for easier control and changing of screens
- Cleaning brush rotates with drums for continuous cleaning
- Easy to maintain – drums can be easily removed and replaced



SuperSelect: DRTA

Excellent separating efficiency, suitable for all varieties of rice. High throughput capacity but compact in size. Available with on and off control with infeed sensors for easier operation.

- Easy to operate and maintain
- Enclosed machine design for reduced dust emissions
- Sturdy drive system for minimal maintenance

7 Wide range of Whitening solutions.



TopWhite BSPB

The TopWhite uses the vertical abrasive, top-to-bottom working principle which has been proven to achieve the highest whole grain yield.

- Easy adaption to different requirements
- Adjustment even during whitening



TopWhite Automatic DRWC

The future of intelligent rice milling. The multifunctional control screen provides clear information on operational parameters for precise control.

- Digitalized output adjustment
- Recipe setting option
- Shaftless milling chamber



SuperWhite DRWB

The SuperWhite rice whitener DRWB is designed for high consistency & low energy consumption

- High yield of head rice
- Adaptable for a variety of grains



UltraWhite DRWA

Driven by Bühler's commitment to sustainable rice milling, the UltraLine portfolio thrives in a revolution of high capacity, energy efficient processing.

- Bühler's highest ever capacity and lowest energy consumption
- Superior yield and maximum profitability



SuperGerm

The degerminator DRDB is used for degermination during rice processing. It is an ideal choice for rice processors seeking improved performance, energy consumption and return on investment.

- Reliable operation
- Precision design
- Outstanding performance



Pre-conditioner / Mixing tube DRCA / DRPI

Independent unit which can be easily integrated into an existing milling line. When used with a whitener it helps to achieve:

- Higher whiteness or improved yield
- Reduced cleaning intervals





8 Wide range of Polishing solutions.



HighPoly DRPN

The HighPoly polisher is used in the final stage of processing to produce rice with a smooth, dust-free surface which flows freely like water through the fingers.

- Low power consumption
- Excellent rice surface and brightness



TopPoly AVPH

TopPoly Polisher is used in the final stage of the milling process to produce rice with a smooth, dust-free surface.

- Superior finish post polishing
- Improved taste & shelf life of the final product



HighPoly DRPQ

With surface polishing process specifically designed for rice processing, the machine is recognized as an ideal system for rendering rice with a smooth and shining surface.

- High degree of finish and brightness of rice
- Precise intelligent operating system



SuperPoly II DRPP

The SuperPoly rice polisher is equipped with an extended polishing roll and a strong aspiration system. Rice is polished using gentle friction and uniform water injection.

- Simple water flow measuring control unit
- Multi-point water addition system



UltraPoly DRPG

Driven by Bühler's commitment to encouraging sustainable rice milling, the UltraLine portfolio ushers in a revolution in high capacity, energy efficient processing.

- Delivering a superior polishing finish even at very high capacity processing
- Uniformity in polishing finish



Pre-conditioner / Mixing tube DRCA / DRPI

Independent unit which can be easily integrated into an existing milling line. When used with a polisher helps to achieve:

- Bran streak decrease
- Improve polish performance



9 High precision Grading solutions.



SuperSort DRAC

The SuperSort bran sifter separates tips and bran with high efficiency, leading to higher recovery of fractions. The machine has a lower operational speed and higher sieving area which results in gentle sieving action without further damaging the fractions.

- Shortened cleaning cycle to increase valuable production time
- Durable construction



Supersift Plansifter DRAB

Highly efficient solution for classifying white rice by its kernel size and configured to adapt to requirements. Machine also decreases moisture content and temperature of output.

- Three output fractions as standard
- Sturdy design for minimal maintenance and reduced wear



UltraTrieur LADB / TopTrieur DRGC

Machine delivers high precision of separating broken by size fraction, even at very high capacity processing. Available in different sizes and configurations, either serial or parallel drums to meet plant requirements.

- Most efficient Indent Cylinder available in the industry
- Pure fractions

10 Intelligent Optical sorting solutions.



Optical sorter: SORTEX S UltraVision™

Designed and built in the UK, SORTEX S UltraVision™ is a revolution in rice sorting, delivering the highest capacity and export quality standards with ease and pinpoint accuracy. Revolutionizing the rice market since 2014, the SORTEX S UltraVision™ has proven itself to be the market leading solution. Removing even the subtlest defects at the highest capacity ever seen in the industry the combination of huge return on investment, low footprint and total control over defect removal even at incredibly high capacities make the SORTEX S UltraVision™ perfect for complex color sorting.

- Highest ever Bühler capacity – available in 3, 4, 5 and 6 modules
- Patented feed system delivers an even higher capacity per chute
- New SORTEX ProSort™ operating software no lengthy manual set-up and configurations
- Pinpoint accuracy with Crosshair Targeting™ – accurately targets defects from the most subtle (yellows, white bellies, pecks) to obvious (rotten, unshelled grains) defects
- Textured LED lighting™ system ensures optimum defect separation and delivers a stable and durable performance maintenance
- Multiple Bühler patented features reduces broken, increases energy efficiency and delivers a hygienic operation for maximum food safety
- Low aspiration requirement



Optical sorter: SORTEX B

Incorporates a combination of new and improved technologies in the design of its lighting, inspection and ejection systems, the SORTEX B range offers the functionality and proven performance of the SORTEX brand.

- High capacity optical sorter, available in 2, 3, 4 and 5 modules
- For a range of sorting solutions, from high performance defect removal to everyday mainstream sorting
- LED lighting system for stable illumination
- Flexible configuration with up to 3 different divisions enabling millers to sort head rice and broken on different modules using the same sorter
- Product-tracking and Automatic-calibration delivers consistent performance and reliable operation



Optical sorter: DS-C

Design validated by SORTEX experts in London, the DS-C has been designed using DfR (Designed for Reliability) methodologies to be an all-in one sorting solution, that will stand the test of time. Flexibility to sort all rice varieties and the ability to meet domestic and export quality standards, irrespective of fluctuating raw material contamination levels, the DS-C will serve you well.

- Available in 5, 7 and 10-chute frame sizes to meet capacity requirements
- SortJet™ ejection system with a five year warranty*
- Custom RGB colour cameras and MagniGLOW™ high-intensity LED lighting combine to provide identification of all defects
- Adjudicator AI™ sorting algorithms calculate the grain profile for each grain through the sorter
- Quadrijet™ sorting option provides a fourth sorting division for an even more concentrated reject, or a separate sort (such as on broken grains)
- TouchSort™ allows for maximum performance with minimal training





11 Advanced solutions for Weighing, Dosing and Bagging.



Dosifying: Automatic Flow Balancer MZAH/L

The MZAH/L is a gravimetric proportioning solution for accurate blending. Features a constant throughput rate.

- Available in four models with capacity range from 0.1 to 100 tonnes/hour
- Automatically maintains a pre-specified throughput rate
- Integrated system for monitoring low levels and proportioning data
- Easy and fast weight alignment
- Suitable for buildings with low height requirements



Weighing: Differential proportioning scale Transflowtron MSDG

Highly accurate in regulating and measuring product flow. The MSDG is easy to operate and can be monitored online

- Available in four models with capacities of up to 72 tonnes/hour
- Throughput-oriented process
- Gravimetric measurement of quantity
- Recipe-oriented admixtures



Weighing: Automatic Hopper scale Tubex MSDL/M

The MSDL/M is an automatic hopper scale with a wide range of capacities – the ideal solution for precise final products and by-products weighing.

- Available in six models with capacities of up to 56 tonnes/hour
- Machine is designed for reduced dust accumulation
- Can be integrated into automation systems



Bagging: Fully Automated Bagging solution

Suitable for paper, plastic and textile bags, this bagging solution offers a fast and simple bag size changeover with a completely integrated scale control system.

- Reduce manpower costs
- User-friendly operator interface

12 Automation.

Juno PCS: An automation solution for simple grain processing plants

Juno PCS is Bühler's latest automation solution for simple grain processing plants. It focuses on making process automation straightforward and intuitive. Juno PCS is completely based on web-technologies and runs on a dedicated and standalone industrial PC.

Availability of instantaneous yield data (Head rice/Paddy & White rice/Paddy) is a key requirement in a rice mill. Such data will help rice millers to minimize unaccounted losses and have better control on production planning. Juno PCS plant control system is specifically designed for the requirements of small to medium-sized mills.

- 24/7 remote support through 3G/4G/WAN
- Plant-wide WiFi connectivity for mobile and tablets for ease of operation
- Rugged and reliable Industrial PC
- Latest IT security, compatible with industry 4.0 & IoT

WinCos: The solution for successful automation

In addition to delivering reliable operation, WinCos also promises you flexibility with over 80 different modules that can be configured specifically according to your operational objectives.

It doesn't matter if you are set up to produce in a few simple steps or produce with a high-volume, complex plant: WinCos is modular and scalable to any size of company, making it a safe investment.

- Complete product traceability records
- Hygiene management and certification systems
- WinCos recipe management
- Downtime analysis

Mercury MES: More than plant automation

Mercury MES enables a seamless exchange of information throughout the systems involved in the production process. Workflows can be optimized thanks to communication between ERP, quality control, maintenance and other systems. Data availability and real-time feedback allow smart decision-making, increasing your milling performance and productivity.

The web-based MES system is adaptive and fully functional on various devices in a secured network. Additional digital services allow real-time plant monitoring from anywhere at any time. Management information about yield or other efficiency parameters make benchmarking between production sites possible, thus providing the basis for smart business decisions.

- Maximum productivity
- Optimized quality assurance
- Operator guidance for key functionality
- The right information at the right time with customizable dashboards



13 Additional services. Processing of By-products.



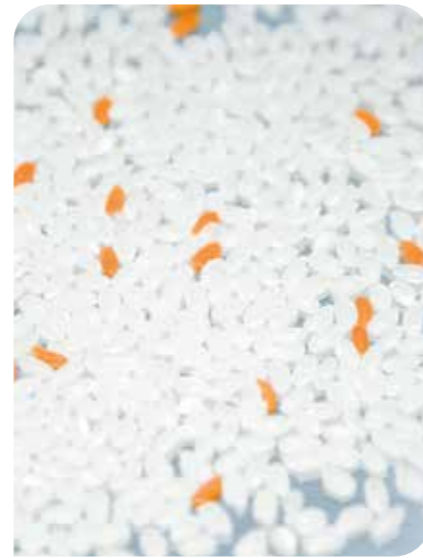
Rice flour

Bühler's unparalleled expertise in flour milling brings significant return on investment for processors. Our extensive research into mill grinding has enabled us to offer complete grinding solutions which include equipment, plants, processes and automation engineering to provide consistent product quality and precise granulation whilst maintaining maximum hygiene.



Bran stabilisation

Bühler delivers a full range of equipment and solutions to preserve rice bran, prolonging its shelf life to up to six months. The process involves deactivating the enzymes to prevent free fatty acids from decomposing. This Bühler process also makes bran and germ palatable and tastier.



Rice fortification: NutriRice™

Bühler's NutriRice™ is a reconstituted rice, fortified with vitamins and minerals with properties such as colour, form, size, texture, cooking characteristics and cooking time determined by individual requirements. It is a patented production process and technology used successfully in the rice processing industry all over the world.





14 Additional services. Professional education and training.



Engineering, technology and project execution

Providing a complete solution including equipment, technology, engineering services and execution is one of the key factors of our success. Our technologists and engineers have the process know-how and local in-depth knowledge to advise on how to fully utilise your processing plant to the fullest.

- Professional, process engineered plant design for continuous and trouble free operation
- Execution implementation in shortest time as planned
- Optimum routing of ducting, spouting and electrical cabling
- Plants designed to International standards with both food and employee safety in mind



Global education and training

By furthering your education and training, you will remain competitive to meet the challenges as they change and you can utilize the potential of your Bühler plant to the full. Specially trained Bühler experts pass on their know-how in our technology and training centres in Uzwil (Switzerland) as well as in our centres of competence worldwide. If required, we will also hold courses at any site anywhere in the world. In order to take advantage of the full potential of your Bühler plant by having your operators and maintenance crews trained. Bühler offers an extensive range of training and continuing education opportunities, either locally at your own site or at our training centres in Germany, UK, India, China and USA.



Application Center

Beyond education and training Bühler offers a state-of-the-art utility centre with facilities for conducting product trials, machine trials and to establish new findings and new operational parameters leading to newer applications. In addition, it is a dedicated venue for undergoing training for all levels including mill proprietors, mill managers and mill operators to enhance their skills and to acquire new operating techniques for profitable operation, maintenance and management of mills. The totally integrated application centre provides hands-on working and machine operation allowing operators to fully understand the complete processes of conveying, cleaning, weighing, grading and milling of paddy.

Several good reasons for rice processing with Bühler.

With over 150 years experience in grain milling we own a unique knowledge in rice processing and we have realised many successful projects in every major rice processing geography. Our comprehensive machine portfolio, supported by our turnkey capabilities ensures unprecedented levels of processing capacity and product quality.

Dedicated rice research and Competence Centres house some of the world's experts in rice processing, developing unique, value-added innovations and solutions to bring processors smarter, lower cost and more sustainable processing. With presence in over 140 countries, our global reach gives you unparalleled access to our wide range of capabilities, successfully delivering equipment, service and support locally.



The best references are satisfied customers.



Sri Krishna Metcom Ltd.

The company Sri Krishna Metcom Ltd. started out as rice traders and later entered the production business with two Bühler lines, with a capacity of eight metric tonnes per hour each. They asked Bühler to construct a new rice mill in the shortest possible time with a capacity of 16 metric tonnes per hour in a single line, to deliver super silky finish rice which should set a new quality benchmark in the market. The result is a rice mill equipped with state of the art processing technology that is engineered to perfection to maximize yield of rice, minimise product breakage and deliver consistent product quality.

- Capacity of 16 metric tonnes per hour in a single line
- 150,000 kernels per second are checked and sorted

Siam Indica Co. Limited

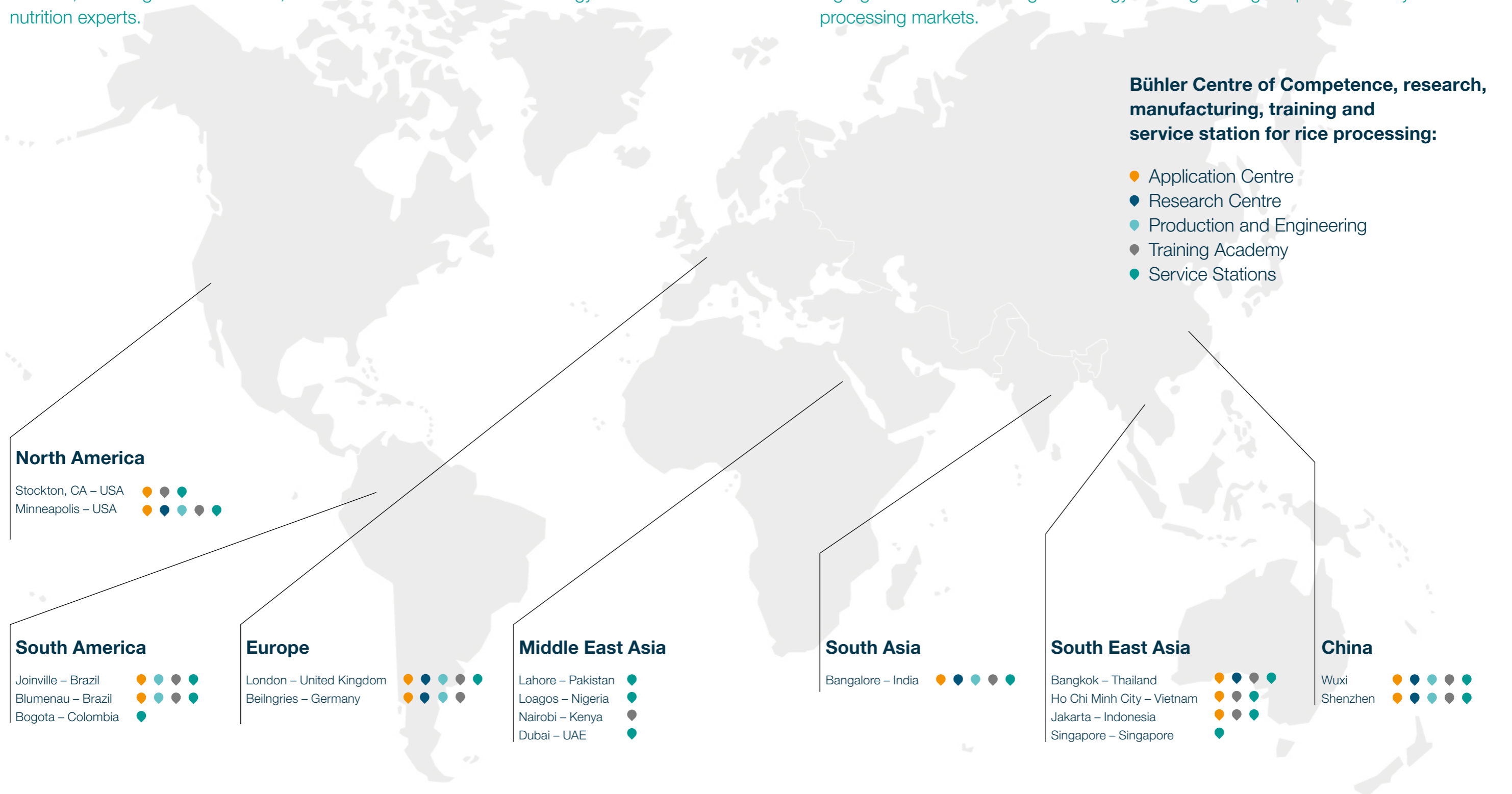
Siam Indica Co. Limited, Thailand's largest rice exporter, has sourced over 100 units of Bühler rice processing equipment, including 22 optical sorters. Since its formation in 2004, Siam Indica has invested in the most advanced technology, as it aims to become the premier player in its region. Khun Sorawit Chansakulporn, Siam Indica's director of production engineering, noted that, "The close working relationship we developed with the Bühler team and their willingness to share their process knowledge ensured our factory upgrade, layout configurations and delivery timescale exceeded all our expectations. We believe these upgrades will enhance our name in the international market and would like to recognise this in our future branding. We expect this will be the start of long lasting co-operation with Bühler to support further development of new projects and contribute to the growth of our company."

- Siam Indica Co. Limited invests in over 100 Bühler processing machines

In the region – for the region: Centres of competence, training and service.

With presences in over 140 countries, our global reach gives you unparalleled access to our wide range of capabilities, successfully delivering equipment, services and support locally. Furthermore, Centres of Competence located in major rice producing markets, including India and China, house the world's best rice technology and nutrition experts.

They are well placed to develop regional rice processing and added-value technology solutions that meet distinct local requirements in paddy handling, storage and milling. The success achieved in South East Asia is a perfect example of this formula and highlights Bühler's widening technology and engineering footprint in the key rice processing markets.



An integral part of the rice processing industry. **Bühler's famous history since 1860.**

There are plenty of good reasons for Bühler's success: Personal commitment, clever entrepreneurial decision-making, a high level of sensitivity to the changing needs of the market, and a core business that has become a byword for quality and consistency, founded on the distinct power to innovate.

Tackling the challenges of the period and of the market have always played a role in shaping the direction of the company. This is simply something that Bühler has always done, and when it comes to generating benefits and added value for our customers, we have always been a step ahead.



Our Brand Vision: "Innovations for a better world"

We want our customers to be successful and every human being to have access to healthy food. To achieve this, we develop the best food and feed processing solutions – focusing on food security and food/feed safety. And we develop the best material processing solutions – focusing on energy efficiency and optimal end-products. Our sustainable solutions offering maximum performance and best return on investment.

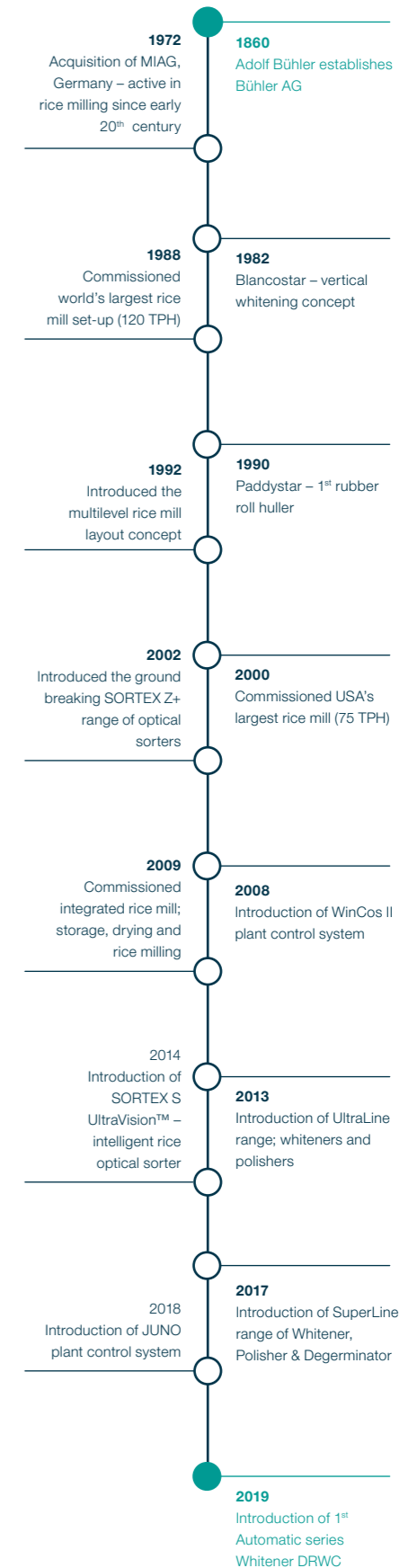
The Bühler Group today

Every day, billions of people come into contact with Bühler technologies to cover their basic needs for foods, mobility, or communication. With our industrial-scale process technologies and solutions, we contribute significantly to feeding the world's population, setting the focus on food security and food safety.

Bühler flour mills process around 65% of the wheat harvested worldwide into flour. Its contribution to processing rice and producing pasta, chocolate, or breakfast cereals is similarly important.

Moreover, Bühler is a leading solution provider of die casting, wet grinding, and surface coating technologies, with an emphasis on automotive, optics, electronics, printing and packaging inks, and glass applications. The solutions provided for these industries are distinguished by high energy efficiency and sustainable mobility.

As a leading technology group, Bühler invests up to 5% of its sales revenue in research and development. Bühler is proud of its Swiss roots, with 10,600 employees in some 140 countries generating sales of CHF 2.3 billion. The family-owned company Bühler is particularly committed to sustainability – today and in future.





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