Optimised rice processing.
Equipment and solutions.
Every day, billions of people come into contact with Bühler technologies to cover their basic needs for foods.

Rice is grown on every continent, apart from Antarctica, and is a staple food for more than half of the world’s population. In fact, one billion people globally are directly or indirectly reliant on rice – either for food or income, or both. With the world’s population predicted to reach 8.27 billion by 2030, demand for rice is expected to increase by approximately 100 million tonnes to 550 million tonnes in the same period.

The Bühler advantage

Overview rice processing solutions

1. Paddy reception and handling
2. Pre-cleaning
3. Paddy drying
4. Paddy storage systems
5. Cleaning
6. Hulling
7. Whitening and polishing
8. Grading
9. Optical sorting
10. Weighing, dosifying and bagging
11. Aspiration systems
12. Additional services

About Bühler

Bühler is well prepared to play a key role in processing these fast growing rice volumes. The company has taken the pole position in global industrialised rice processing, exceeding its closest competitor in terms of combined turnover in rice milling and logistics. As market leader in rice processing we understand the market and follow the megatrends in grain logistics, such as food safety and security, food loss, quality and efficiency.

Leading in optimised rice processing

Today, around 30 percent of the global rice harvest will be processed on systems from Bühler. The Bühler Group is continuing to strengthen its leadership in rice processing, handling and storage capabilities. With dedicated local services and solutions, built on thorough regional knowledge, it is able to meet the exact needs of customers across the world. Bühler’s commitment and success in delivering global expertise with local customer service and its ability to understand every step along the value chain.
Integrated solutions for optimised Rice processing.

Bühler offers optimised, integrated solutions for Grain Logistics and Rice Processing – from single products and technologies up to the complete process chain, including education and service.

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

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11. Automation Systems
12. Additional services
1 Efficient solutions for Paddy reception and handling.

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

Aspiration Channel
The MVSG/I aspiration channel accurately separates light particles such as dust and hull fragments from rice. Depending on the model, the MVSG/I can be used as a standalone machine or combined with a Separator MTRB/C.

- Available in three models with a capacity range of up to 50 tonnes/hour
- Controlled air flow for optimal separating performance
- Safety grid available as option

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
Innovative solutions for Paddy drying.

Drying systems: Eco Dry™

- Extremely gentle handling, significantly reduces thermal stresses to paddy.
- 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.
Paddy 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.

Paddy handling: storage systems

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

Separator MTRB/C with Aspiration Channel MVSH/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.
- Available in three models with a capacity range of up to 13 tonnes/hour
- Fast and easily changeable sieves, exchangeable wear parts and absence of lubrication points
- Closed machine design prevents dust and safeguards food safety

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.
- Available in three models with a capacity range of up to 14 tonnes/hour
- Magnets can be easily lifted out together with the separated iron parts without interrupting the product flow
- A dust-tight closed unit

Drum Magnet DFRT
Effective in removing ferrous metal or compounds for optimal food safety. The high capacity magnet is self-cleaning and requires minimal maintenance. The material detector can be cleaned automatically or manually by using an actuating lever.
- Available in seven models with a capacity range of up to 200 tonnes/hour
- Two lateral access doors for easier inspection
- Permanent magnets stored inside drums ensure that the magnetic force is retained at optimal level for maximum food safety

Destoner MTSC/D
Designed to meet food safety requirements, the MTSC/D efficiently removes stones and other high-density impurities such as metal and glass.
- Available in three models with a capacity range of up to 12 tonnes/hour
- 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 stones and glass removal
Efficient Hulling solutions.

Hulling: TopHusk™ Huller and Husk separator DRHE/DRSD

Efficient hulling and separating performance with a focus on delivering maximum yield of head rice for optimal profitability. Equipped with long roll life.

- Capacity of up to 5 tonnes/hour
- Automated pressure control
- Precise self-centering vibro feeding system for longer belt life

Width grading: Rotosort™ Drum grader DRGA

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.

- Modular design, with capacity of up to 2 tonnes/hour per drum (depending on application)
- 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

Hulling: Gravity paddy separator DRTA

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

- Capacity range of up to 8 tonnes/hour per machine (intake)
- Easy to operate and maintain
- Enclosed machine design for reduced dust emissions
- Sturdy drive system for for minimal maintenance

Technology feature: TopHusk™ Huller and Husk separator DRHE/DRSD

1. Positioned behind the machine, this high performance drive system with a hybrid belt lowers power consumption.
2. User friendly touch pad offers easier use and operation.
Wide range of Whitening and Polishing solutions.

Whitening solutions

Our range of whitening solutions are all designed to meet every requirement on rice finish and capacity. Delivering optimum whitening performance with maximum count of head rice and yield whilst offering a low processing cost per tonne.

- A range of solutions for capacities of up to 12 tonnes/hour
- Multiple aspiration points to optimise bran removal
- Easy access to milling chamber for cleaning and maintenance
- Multiple Bühler patented features reduces brokens, increases energy efficiency and delivers a hygienic operation for maximum food safety
- Low aspiration requirement

Polishing solutions

Bühler’s range of polishers delivers rice with a smooth, dust free and shiny surface with maximum count of head rice whilst offering an extremely low processing cost per tonne.

- A range of solutions for capacities of up to 12 tonnes/hour
- Accurate water-dosing system for precise control of water addition
- Highly effective aspiration keeps the working chamber clean
- Easy access to polishing chamber for swift cleaning and maintenance
- Hygienic and reliable operation

Polishing solutions: DRPI Rice pre-conditioner

An optional unit, our pre-conditioner is used to decrease bran streaks and improve polishing performance. Manufactured from stainless steel for hygienic processing.
High precision Grading solutions.

Tip Separator MTRB/C-DL
Engineered to operate with reduced dust emissions for a dust-free environment. The MTRB/C-DL also has a double-deck separator that removes tips from head rice and larger brokens.

- Capacity range of up to 7 tonnes/hour
- Enclosed machine design for dust-free plant environment
- Fast and easily changeable sieves, wear parts and absence of lubrication points

Supersift™ Plansifter DRAA
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.

- Capacity range of up to 7 tonnes/hour
- Three output fractions as standard
- Sturdy design for minimal maintenance and reduced wear

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

- Capacity range of up to 7 tonnes per drum per hour
- Most efficient Indent Cylinder available in the industry
- Pure fractions
Intelligent Optical sorting solutions.

Optical sorter: SORTEX S UltraVision™

The SORTEX S UltraVision™ is a revolution in rice sorting. Never before has so much capacity, precision, flexibility and simplicity been made available, with control over each individual defect. Incorporates our latest developments in every aspect of optical sorting: accuracy of detection, throughput, usability, stability and hygiene to deliver the best sorting performance available in the industry.

- 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 during 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
Advanced solutions for Weighing, Dosifying 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
Aspiration Modules and Systems.

Filter and aspiration components: Dedusting systems

Dedusting and aspiration systems are found throughout the value chain of rice processing and are crucial to operate the plant according to regulations (dust emission, explosion protection, operational safety). Be it at product reception, conveying or further processing stages – with Bühler dedusting solutions you keep dust under control at all times.

Example of use:
- At rice reception through hopper filter or central aspiration
- On conveying systems via spot filter or central aspiration
- Dedusting of cleaning machines through a round filter
- Bin top filter for silos

Further scope of supply and services:
- Low and high pressure filter
- Executions specially matched for the aspiration of rice bran
- Cyclone as total separator or as replacement of a filter for low dust loads or loose regulations concerning dust emission levels
- 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

Rice processing
Additional services.

Automation and Process control.

Electrical and automation solutions
Bühler Automation Systems deliver ease of operation in processing plants. Processors can opt to incorporate a modular or fully automated system to control and monitor production, improve plant processes including its efficiency and machine performance. This helps to control your business.

- Maximum flexibility – choice of modular or fully automated plant
- Choice of features include preventive maintenance and quick fault diagnosis for minimum downtime, product traceability and energy monitoring
- Easy-to understand system with alarm management and remote access
- Worldwide 24/7 service support with various choice of service packages

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

Research and development support
Bühler’s leadership in rice processing stems from our continuous research, development, equipment technology and consultation services. We invest in the future, developing the latest solutions from our world-class research facilities to give our customers the competitive edge.

- Worldwide food and nutrition technologists
- Bühler research facilities are located in major rice processing countries
- Bühler Competence Centres offer application trials and customer visits
- Research and Development in cutting-edge technologies
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.

Reconstituted rice

Reconstituted rice uses cutting-edge technology to transform by-products such as broken rice into new grains whose appearance is remarkably like that of natural rice. This process requires the know-how and state-of-the-art technology. Bühler’s renowned success in this field is delivered through patented processes and equipment, applied at every stage of the processing line; grinding, blending, conditioning, extrusion, drying and sifting.

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.

Additional services. Processing of By-products.
Additional services.

Professional 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.

Global education and training

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.

Application Center in Bangalore, India

Besides specific training and application support, Bühler offers also huge variety of global services, such as original spare parts, retrofit and reconditioning, maintenance, repairs, manufacturing and logistics – up to complete “rent a factory” concepts or of additional advanced services on request.

A broad range of global services
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.

**Timeline:**

- **1860**: Adolf Bühler establishes Bühler AG
- **1972**: Acquisition of MIAG, Germany – active in rice milling since early 20th century
- **1982**: Blancostar™ – vertical whitening concept
- **1990**: Paddock™ – 1st rubber roll huller
- **1992**: Introduced the multilevel rice mill layout concept
- **2000**: Commissioned USA’s largest rice mill (75 TPH)
- **2002**: Introduced the groundbreaking SORTEX Z+ range of optical sorters
- **2007**: Commissioned the world’s largest rice mill set-up (120 TPH)
- **2008**: Commissioned the world’s largest optimized integrated rice mill with storage, drying and milling
- **2013**: Introduced SORTEX S UltraVision™ – intelligent rice optical sorter
- **2014**: Commissioned the world’s largest rice mill (200 TPH)

Rice processing

Rice processing