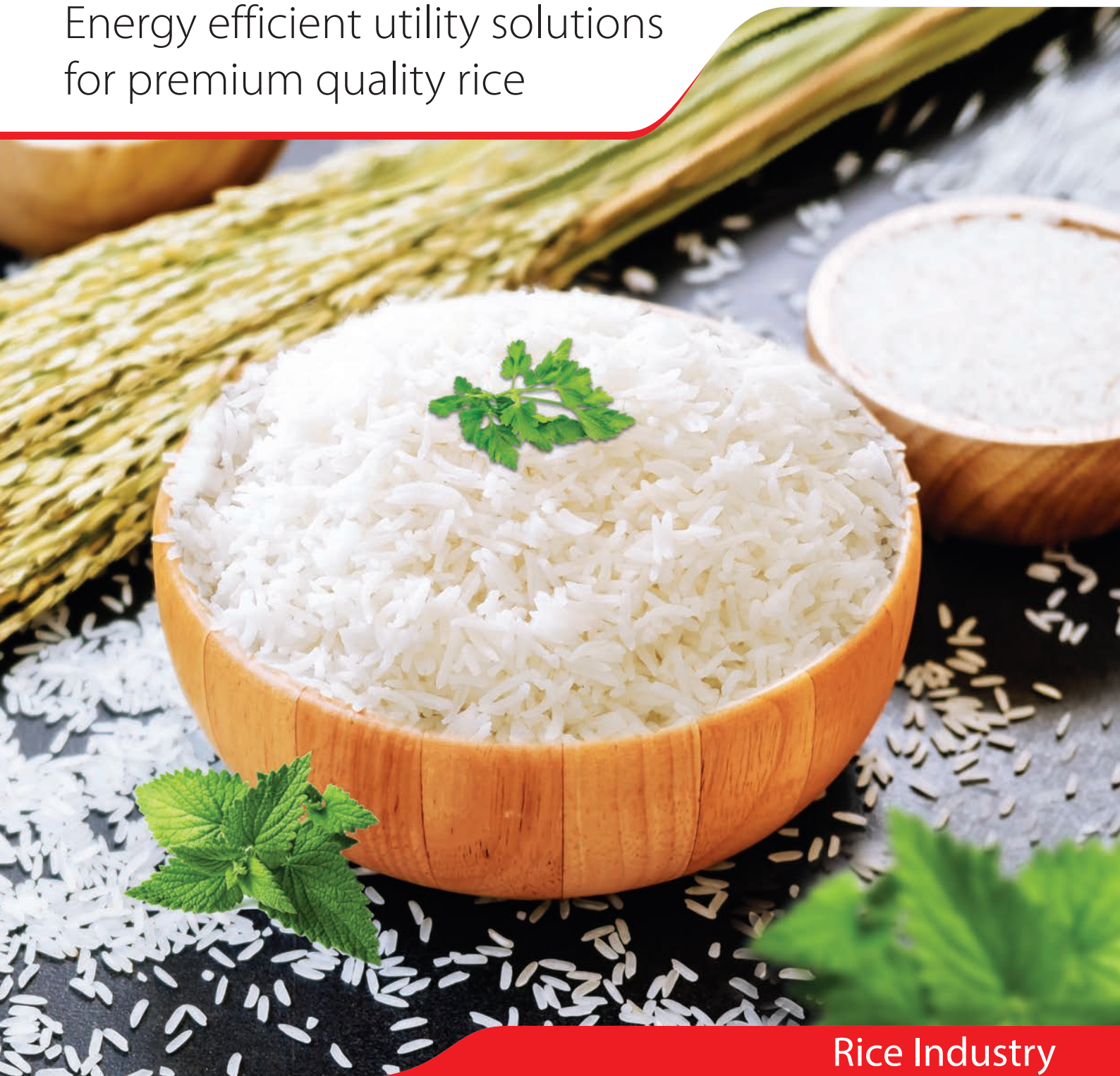


Energy efficient utility solutions
for premium quality rice



Rice Industry

Conserving resources. Preserving the future.

Thermax provides systems and solutions in the critical domains of energy and environment. The products and services developed by Thermax help industries achieve better resource productivity and improved bottom lines, while maintaining a cleaner environment. The company's vision for the future is firmly anchored in the belief that, to stay competitive, business houses need to adopt sustainable practices.

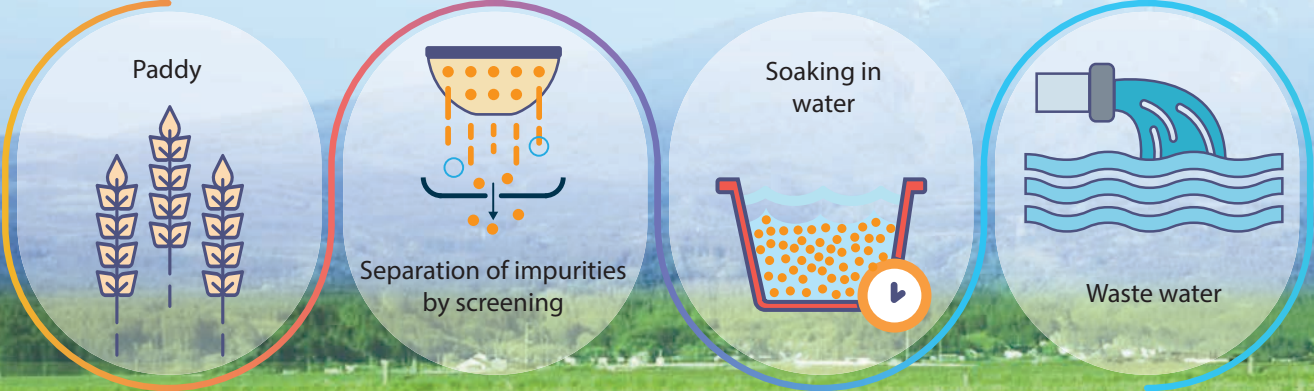
Thermax's product portfolio covers heating, cooling, water and waste management, and specialty chemicals. The company also designs, builds and commissions large boilers for steam and power generation, turnkey power plants, waste-to-energy systems and air pollution control projects.

Green solutions to maximise productivity

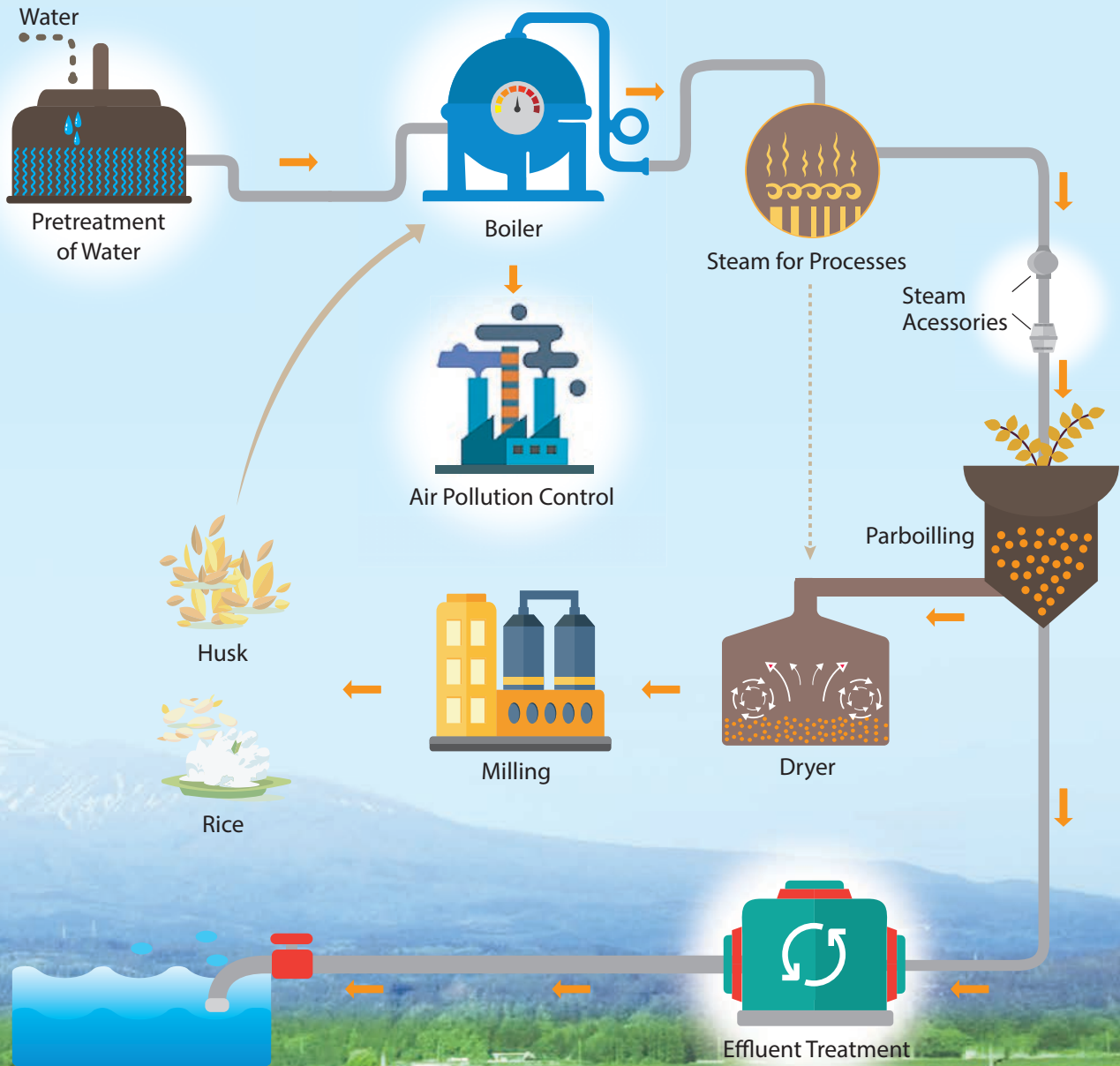
Thermax offers a comprehensive range of utilities for rice millers that provide an array of benefits

 <p>Rice husk fired boilers that convert waste emanating from your production process into energy, thereby bringing down fuel costs significantly.</p>	 <p>Steam accessories and solutions that ensures minimal maintenance.</p>	 <p>Water and waste solutions for recycling water efficiently to reduce fresh water consumption and treat effluents optimally.</p>	 <p>Air pollution control equipment that help customers meet stringent pollution norms and protect the environment.</p>
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Pre-process for rice



Our utilities in your process



Highlighted products in this process are manufactured and commissioned by Therman

We are a one-stop utility solutions provider with eco-friendly offerings that help you attain the desired quality, with minimal operating cost.



Pretreatment
of Water



Boiler



Steam Accessories



Parboiling



Milling



Waste Water
Treatment Solutions



Air Pollution Control

Boiler solutions

Thermax offers steam boilers with multi-fuel flexibility, ease of operation and minimal total cost of ownership.

Huskpac Ultra

- ▶ Three pass wet back, packaged boiler with integral furnace design
- ▶ Exclusively designed to fire rice husk
- ▶ Bubbling bed combustion to enhance output and efficiency
- ▶ Top loading design to avoid nozzle failure and bulging of reversal chamber
- ▶ Special ferrules to protect smoke tubes from abrasive husk ash

Capacity	2 to 6 TPH
Pressure	10.54 and 17.5 kgf/cm ² (g)
Fuel	Rice husk



Combipac

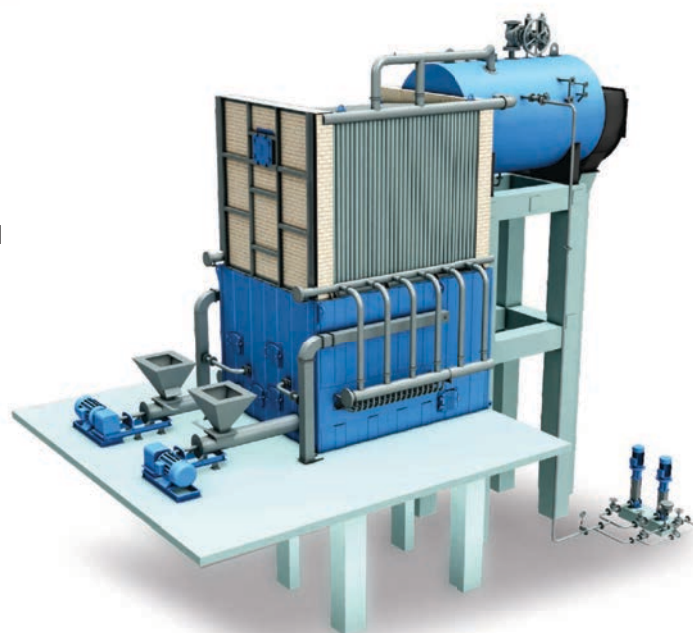
- ▶ Multi-fuel fired hybrid smoke and water tube design with fluidised bed combustion technology
- ▶ Semi-automatic operation ensuring minimal manual intervention
- ▶ Rapid response to fluctuating loads
- ▶ Uniform heat flux ensuring longer refractory life
- ▶ Best suited design for burning fine particles

Capacity	4 to 30 TPH
Pressure	10.54 and 17.5 kgf/cm ² (g)
Fuel	Rice husk, coal, lignite

Combloc

- ▶ Compact, skid mounted and modular design ensuring 40% reduction in footprint as compared to conventional design
- ▶ Pre-insulated and factory assembled design ensuring reduced site work
- ▶ Quick start up and better response to fluctuating loads
- ▶ Multi-pass hybrid construction with high combustion volume for better efficiency
- ▶ Easy ash removal and better accessibility for maintenance

Capacity	1.5 to 6 TPH
Pressure	10.54 and 17.5 kgf/cm ² (g)
Fuel	Rice husk, biomass pellets and briquettes, wood logs and wood chips



Steam accessories

Thermax offers a wide range of steam accessories and solutions which improve operational performance and minimises downtime.

Steam Traps

- ▶ Unique rotary slide valve design for float controlled steam traps
- ▶ Proportional control action – 45° of float ensures opening of the outlet port from 0% to 100%
- ▶ Single/three port design with only one moving part in thermodynamic steam traps ensuring very low maintenance
- ▶ Discharges condensate below saturated temperature
- ▶ No loss of live steam



Capacity

Condensate flow capacity upto 20 ton	
Operating Pressure	4.1 to 235 Bar
Operating Temperature	220°C to 550°C

Condensate recovery system



Condensate Pump (TACTS)

- ▶ Zero moving part ensures high reliability, low maintenance, low downtime, low wear and tear
- ▶ High Discharge per Stroke
- ▶ Microprocessor based control with flow totaliser
- ▶ Weatherproof with IP65 protection suitable for outdoor installation
- ▶ Packaged pump, easy to install
- ▶ Components designed for high cycle life
- ▶ Designed as per ASME Section VIII Div 1 - conformance to international standard ensures quality design and longer life

Capacity	Condensate pumping capacity upto 16500 kg/h.
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Flash Vessel (TAFS)

- ▶ Generates low pressure flash steam
- ▶ Adequately sized to minimise pressure drop
- ▶ Designed with optimum separation velocity to get good quality steam
- ▶ Suitable for high pressure steam condensate

Capacity

Flash Steam	200 – 1150 kg/h
Condensate	850 – 7000 kg/h



De-aerator Head with Immersion Tube (TADIT)

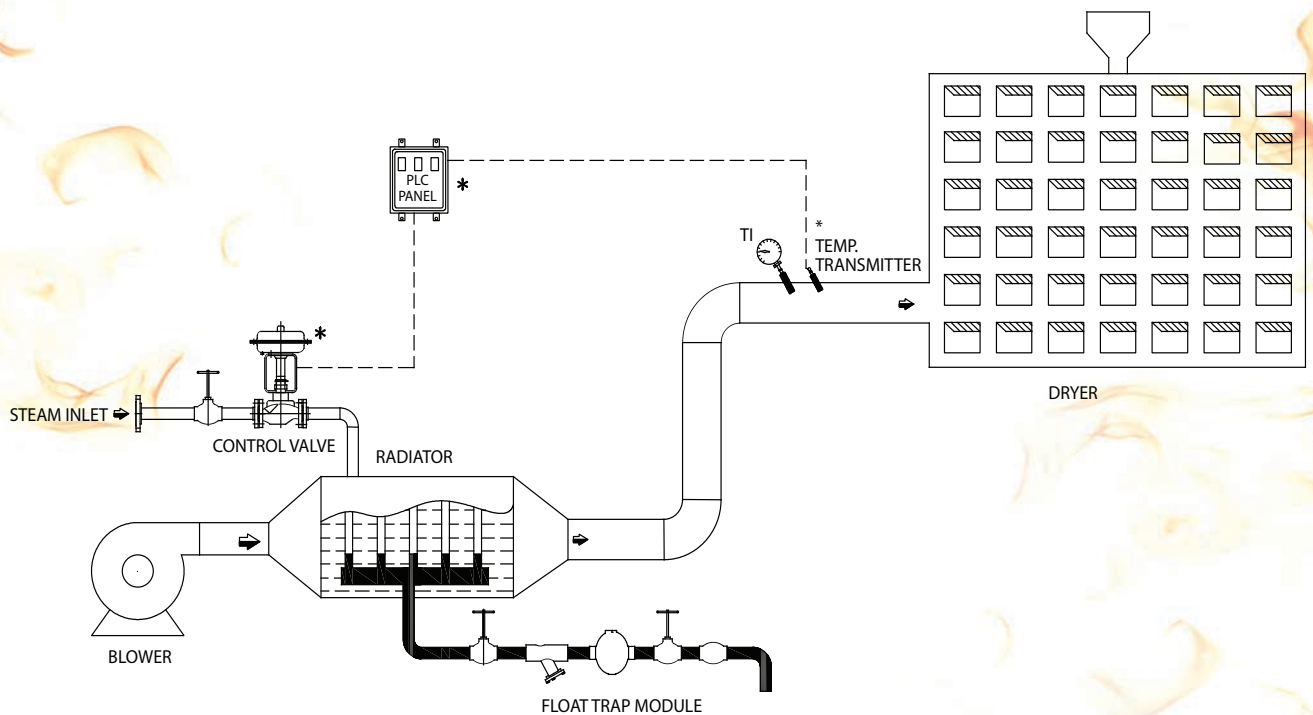
- ▶ SS De-aerator head with SS immersion tube prevents corrosion
- ▶ Efficient removal of dissolved oxygen and other gases from boiler feed water by thermal de-aeration
- ▶ Suitable for thermal de-aeration of boiler feed water

Capacity

Design Pressure	5 kg/cm ²
Design Temperature	185°C

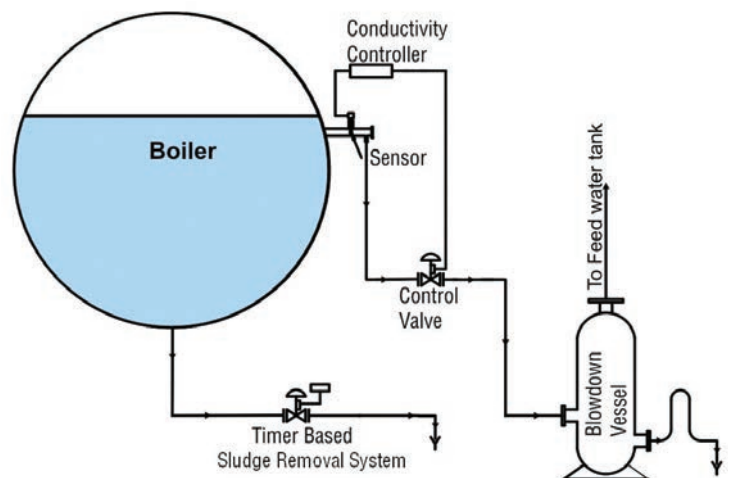
Rice Dryer Automation

- ▶ Precise air temperature control
- ▶ Changing predefined set points without operator interference
- ▶ Plug and play design of transmitter and controller
- ▶ Reliable and proven controller system
- ▶ System engineering by Thermax Ltd. – experience and know-how of years
- ▶ Excellent performance of system reduces rice brokerage
- ▶ Ease of operation
- ▶ Reduces maintenance and downtime and hence increases life of equipment



Surface Automatic Blow Down Control System

- ▶ Increases the boiler safety and efficiency
- ▶ Real time conductivity sensing and control avoids excessive blowdown of water from the boiler which has a very high heat value and excessive blowdown represents a loss
- ▶ Improved life of tubes and pressure vessel due to reduced scaling
- ▶ Enables accurate TDS control





Pretreatment
of Water



Boiler



Steam Accessories



Parboiling



Milling



Waste Water
Treatment Solutions



Air Pollution Control

Water treatment plant

Thermax offers a wide range of water treatment plants with versatility in flow, flexibility in resin quantities and ease in operation.



Filter

- ▶ Easy operation and maintenance
- ▶ Simpler distribution and collection systems
- ▶ Specially designed to remove iron from water

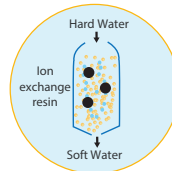
Capacity upto 300 m³/hr

Softener

- ▶ Reduces chances of membrane scaling and fouling
- ▶ Pump protection from dry running
- ▶ Available in FRP/ GRP vessels upto 42" diameter
- ▶ Sleek design in MS with single-valve operation

Capacity 0.1 m³/hr to 500 m³/hr

We also offer Ion Exchange Resins for softening



PuriSmart

- ▶ Removes hardness to commercial zero level
- ▶ Automated operation
- ▶ Compact; skid mounted

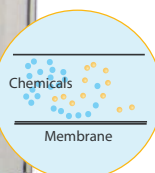
Capacity upto 2000 LPH



LO-FLO-RO

- ▶ Compact and modular RO blocks
- ▶ Easy installation, operation and servicing
- ▶ Online product water quality monitoring
- ▶ Automation options available

Capacity 200 to 3000 LPH



We also provide RO antiscalants and cleaning chemicals for membranes

SIRO

- ▶ Online product water quality monitoring
- ▶ Compact and modular
- ▶ Multistage centrifugal pump with appropriate MOC
- ▶ Membrane and pump protection system

Capacity 1.0 m³/hr to 200 m³/hr



Demineraliser

- ▶ User-friendly, low maintenance and easy to install
- ▶ Advanced software used for optimal selection and configuration

Capacity 0.1 m³/hr to 70 m³/hr

We also offer Resins with high resistance, longer life, high exchange capacities and lower chemical consumption for Demineraliser.

Waste water treatment

Thermax's extensive range of waste water treatment solutions treat variety of effluents to help industries in resource optimization.

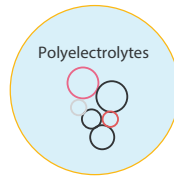
Rice Mill ETP

- ▶ Low chemical and power consumption
- ▶ Modular design
- ▶ Faster delivery
- ▶ Reusable treated water
- ▶ Efficient microbes for BOD/COD reduction
- ▶ Minimal maintenance

Capacity 25 KLD and above

We also provide:

- Polyelectrolytes for sedimentation, clarification, dewatering and flocculation of effluent.
- Efficient microbes for BOD & COD reduction



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Air Pollution Control



Pretreatment of Water



Boiler



Steam Accessories



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Milling



Waste Water Treatment Solutions



Air Pollution Control

Air pollution control products

Air Pollution control equipment that help customers meet stringent pollution norms and protect the environment.



Bag House (BH)

- ▶ Patented pulsing system
- ▶ Remote monitoring and control
- ▶ Low compressed air consumption
- ▶ Low range of operating pressure
- ▶ Varied bag length available from 1 to 12 meters
- ▶ Suit to site design
- ▶ Low initial set-up cost
- ▶ Multiple collection point de-dusting system
- ▶ Can handle critical dust; explosive / non-explosive, abrasive, hygroscopic, corrosive, sticky, coarse / fine

Capacity 1000 m³/hr onwards

Electrostatic Precipitator (ESP)

- ▶ Continuous operation with minimal maintenance requirement
- ▶ Fully automatic DSP based controller with power optimisation
- ▶ On-line maintenance
- ▶ Double spiked discharge electrodes
- ▶ Strong rolled profile of collecting electrodes
- ▶ Rapping system; top rapping (Thermax Impulse Gravity Impact – TIGI) system, tumbling hammer type design
- ▶ High efficiency and reliability
- ▶ Lower operating cost

Capacity 10000 m³/hr onwards



Reliable support for maximum value

Thermax's offerings in energy and the environment is backed by dedicated service teams to take care of spare parts, preventive and breakdown maintenance services. We also support our customers with specialised services like energy audits, O&M, retrofits, upgrades and many more.

Procurement of genuine parts from Thermax ensures

- ▶ Assurance of quality
- ▶ Assurance of correct specifications and compatibility to the original equipment
- ▶ Guaranteed performance
- ▶ Reduced risk of failure of parts leading to plant downtime and monetary losses
- ▶ Longer meantime between repairs , highly recommended by OEMs for performance enhancement
- ▶ Thermax support in the entire process from procurement to re-commissioning



Specialized products and solutions



Operation and maintenance



Energy audit services



Genuine spares for enhanced uptime

Solar power

Thermax can help you save power cost and go green by installing Solar PV plant on turnkey basis. We provide end to end support to our customers, from concept till commissioning, and O&M support thereafter.



Power plants

Thermax offers a range of solutions addressing the electrical power requirements. We offer captive power plants and cogeneration systems for rice industry and independent power plants in the utility space.





THERMAX

Sustainable Solutions in
Energy & Environment

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Thermax Business Portfolio

- Heating
- Cooling
- Power
- Air Pollution Control
- Chemicals
- Water and Wastewater Solutions
- Solar
- Specialised Services



This brochure presents only some of our products and we reserve the right to amend any product details without notice. The photographs used in the brochure are indicative and may not match the actual plant.

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