

Energy efficient utilities for  
premium quality beer



Brewery 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 maximize profitability



### Boilers

Steam boilers with multi fuel flexibility, low operating cost



### Steam accessories

Steam accessories and solutions that ensures minimal maintenance



### Chiller heater

Chiller based on absorption cooling technology reducing power consumption by 90%



### Water and waste water solutions

Waste water solutions that optimize recycling of water to reduce fresh water consumption and treat effluent optimally



### Evaporative condensers

Modular, plug and play evaporative condensers ensuring low energy consumption and effort less maintenance

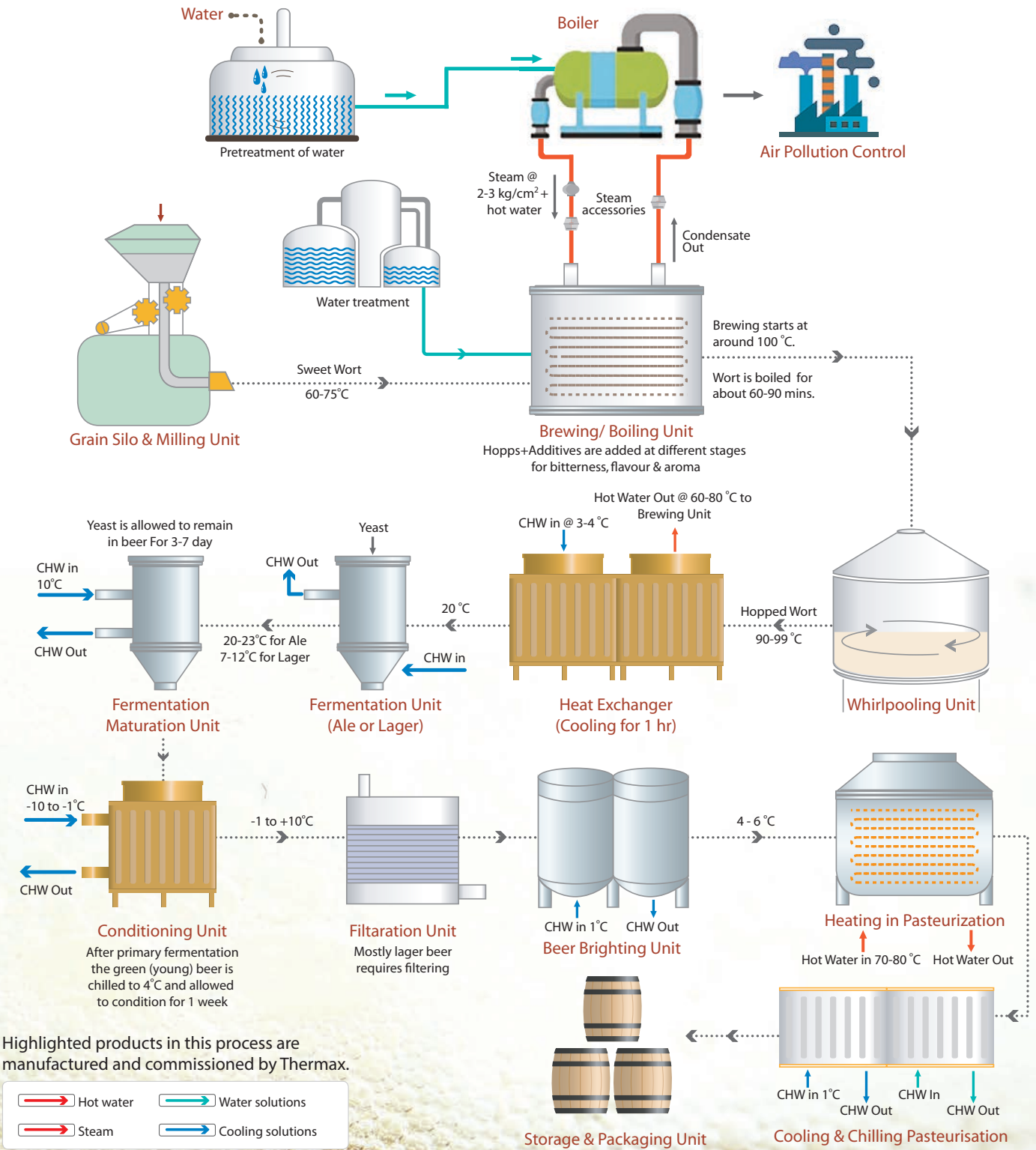


### Air Pollution Control

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



# Our utility in your process



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

# Boiler solutions

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

## Thermeon

- ▶ Completely paneled and ultra compact design with multi fuel flexibility
- ▶ Integrated heat recovery unit ensuring high fuel efficiency
- ▶ Large access ports for fuel charging and ash removal designed to reduce operator fatigue
- ▶ Balanced draft system ensuring no back firing and complete combustion

---

**Capacity** 0.3 to 1.5 TPH

---

**Pressure** 7 and 10.54 kgf/cm<sup>2</sup>(g)

---

**Fuel** Coal, wood logs, briquettes

---



## 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<sup>2</sup>(g)

---

**Fuel** Rice husk, biomass pellets and briquettes, wood logs and wood chips

---



## 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

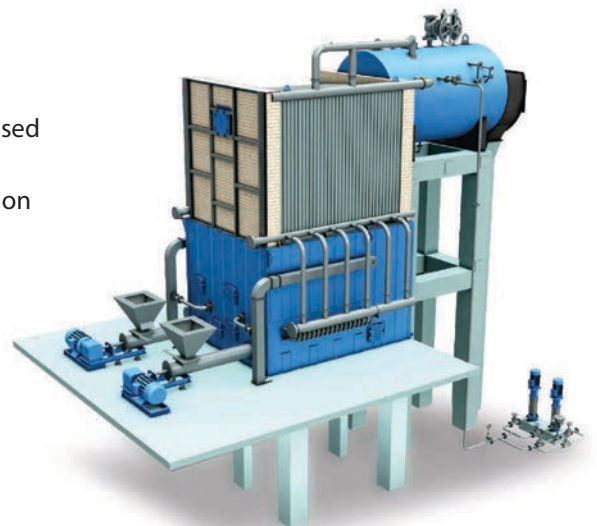
---

**Pressure** 10.54 and 17.5 kgf/cm<sup>2</sup>(g)

---

**Fuel** Rice husk, coal, lignite

---



## Steamatic

- ▶ Compact, plug and play unit with instant steam generation
- ▶ World class monobloc burner ensuring silent and efficient operation
- ▶ Best in class safety and control interlocks ensuring protection of unit and its components
- ▶ Aesthetically designed frame ensures easy access to all parts for quick maintenance

---

**Capacity** 50 Kg/hr and 100 Kg/hr

---

**Pressure** Up to 10.5 Kg/cm<sup>2</sup>(g)

---

**Fuel** HSD / NG / LPG

---



## Revomax

- ▶ Skid mounted, plug and play instant steam generator
- ▶ Unique patented membrane panel design ensuring uniform heat transfer leading to enhanced coil life
- ▶ Reverse flame technology helping in providing ample residence time to ensure complete combustion
- ▶ Built in heat recovery devise assuring best in class efficiency

---

**Capacity** 100 to 850 Kg/hr

---

**Pressure** 10.54 and 17.5 kg/cm<sup>2</sup>(g)

---

**Fuel** HSD, LDO, NG, LPG

---

## Shellmax Global

- ▶ Fully packaged, three-pass smoke tube with wet back boiler
- ▶ IOT enabled control panel with remote monitoring and control
- ▶ Integrated heat recovery solution saving 55% installation space and improved efficiency
- ▶ High dryness fraction steam

---

**Capacity** 1000 to 10000 kg/hr

---

**Pressure** 10.54 and 17.5 kg/cm<sup>2</sup>(g)

---

**Fuel** Rice husk, coal, lignite

---



# 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 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.



### 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

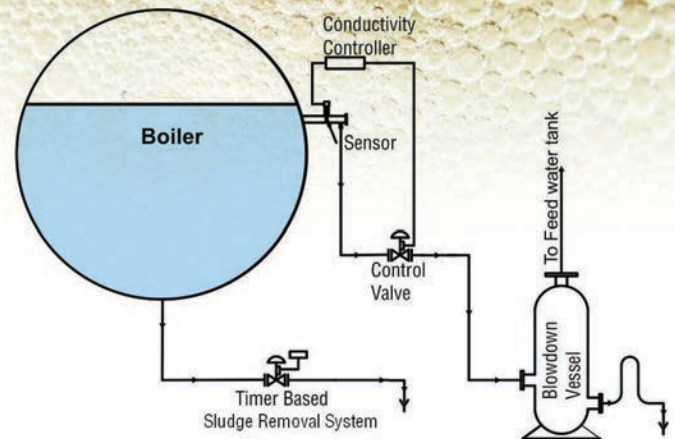
### Capacity

Design Pressure 5 kg/cm<sup>2</sup>

Design Temperature 185°C

## 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, since the TDS gets removed as it forms



## Pressure Reducing Station (PRS)



Thermax Pressure Reducing Station (TPRS) is a pre-fabricated assembly of pipeline components with end flanges and ready to install in steam pipeline.

- ▶ Uses of best quality components like Pressure Reducing Valve, Strainers, Moisture Separator with Thermodynamic trap module, Isolation and bypass valve and Safety Valve
- ▶ All valves in assembly are provided with Cast Steel body and SS internals ensuring better life of component
- ▶ Strainer and moisture separator ensures better conditioning of steam with foreign particle and moisture separation in steam if any
- ▶ Available with Self-acting valve as well as Control Valve. Self-acting valve does not require any other utility like electricity or compressed air for its functioning whereas control valve gives precise control for high steam flowrate
- ▶ Safety valve selected for higher relieving capacity than PRS. Suitable for saturated steam applications
- ▶ Designing and manufacturing as per best engineering practices i.e. use of eccentric reducers for control valves, bypass line expansions, etc.
- ▶ Best quality of Instruments and control panel provided for PRS with Control Valve

# Water solutions

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



## 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 m<sup>3</sup>/hr to 500 m<sup>3</sup>/hr

---

*We also offer Ion Exchange Resins for softening*



## 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*

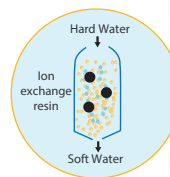
## Filter

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

---

**Capacity** upto 300 m<sup>3</sup>/hr

---



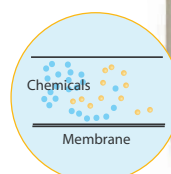
## PuriSmart

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

---

**Capacity** upto 2000 LPH

---





## SIRO

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

---

Capacity 1.0 m<sup>3</sup>/hr to 200 m<sup>3</sup>/hr

---



## Demineraliser

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

---

Capacity 0.1 m<sup>3</sup>/hr to 70 m<sup>3</sup>/hr

---

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

## Water Treatment Plant

- ▶ Thermax offers treatment systems for the removal of constituents as TOC, Silica, TTHMs which is required for the production of special products in breweries.
- ▶ RO system generates high treated product water quality
- ▶ Advanced membrane based system used for removal of all types of fine colloidal impurities along with organics.
- ▶ High hardness and silica treatment
- ▶ Efficient space utilization by compact installation
- ▶ Minimum operator attention for maintenance and service
- ▶ Reduced power consumption
- ▶ Low maintenance
- ▶ Customised design to achieve optimum operational and capital cost

---

Capacity 10 KLD and above

---



# Waste water management

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

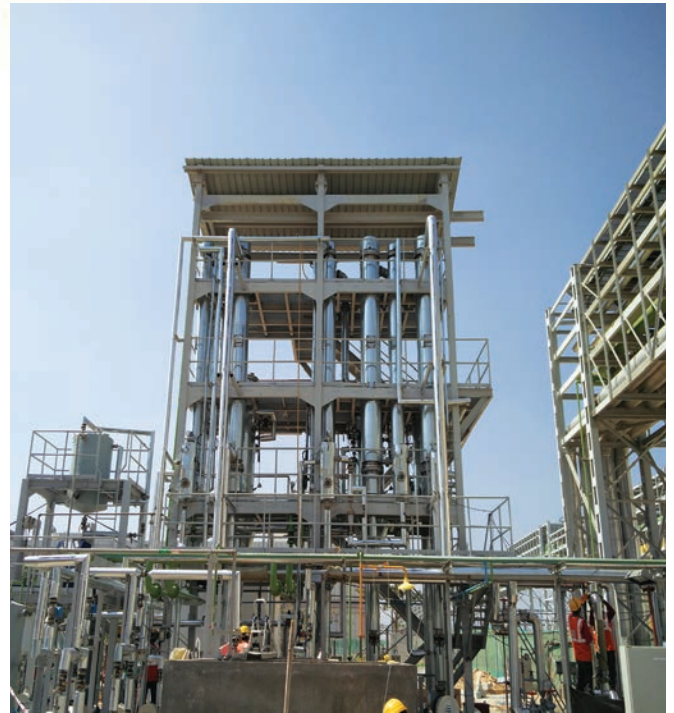
## Zero Liquid Discharge

- ▶ Thermax offers costs-effective and highly efficient ZLD systems
- ▶ ZLD reduced dependency on fresh water supply
- ▶ In-house treatment facility ensures continuous water supply
- ▶ High purity treated water can be recycled and reused in different process systems
- ▶ Saves wastewater disposal cost
- ▶ Helps in sustainable growth of industry while meeting most stringent regulatory norms

---

Capacity 10 KLD and above

---



## Effluent Treatment Plant

- ▶ Thermax offers advanced solutions as Anaerobic Reactors, MBBRS and Colour removal systems
- ▶ Advance biological treatment reduced the footprint and helped the customer in achieving economic operation
- ▶ Non clogging design and odorless operation
- ▶ More than 91 % of the generated effluent can be made reusable
- ▶ Better oxygen transfer efficiency, lowers the power consumption
- ▶ Low Sludge Production

---

Capacity 25 KLD and above

---

# Cooling solutions

Chiller-Heaters can be designed to generate cooling or heating as well as both simultaneously (SIM mode). Chiller-heaters can generate hot water temperature up to 95°C.

## Chiller Heater

- ▶ Simultaneous heating and cooling
- ▶ Wealth from waste
- ▶ Lowest operating cost
- ▶ 90% less power consumption
- ▶ Reduction in CO<sub>2</sub> emission
- ▶ 20% reduction in cooling tower water losses
- ▶ Hot water upto 90°C
- ▶ Pure chilled water upto 1°C

---

<b>Capacity</b>	Cooling : 100-3500 TR
	Heating : 100 Kw-9MW
	Lowest chilled water temperature with glycol:-5°C
	Lowest chilled water temperature : 1°C

---

Cooling COP in SIM Mode : 2.75



## Source

- ▶ Dry saturated steam : 3.0-10.0 Bar.g
- ▶ High temperature hot water : 145-180°C
- ▶ Direct fuel firing : Gas / Oil / LPG / Propane
- ▶ Exhaust Gas (275-600°C)

## Evaporative Condenser

Thermax's evaporative condensers are designed to handle ammonia, freon and latest refrigerants

- ▶ Customized material of construction option -SS/HG
- ▶ Modular construction allows plug and play installation
- ▶ Retrofit and Replacement - Easy to integrate into existing system
- ▶ Compact size compared to conventional systems

---

<b>Capacity</b>	30 TR onwards
-----------------	---------------

---

# 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.

## Thermax's innovative practices

- ▶ Help to utilize roof space even after installing a Solar PV plant
- ▶ Reduces implementation time by setting up a plant with zero civil works
- ▶ Simplifies maintenance with non-penetrating structures



# Build own operate (BOO) model

Thermax Onsite Energy Solutions Ltd. (TOESL), a wholly owned subsidiary of Thermax limited offers sustainable solutions by supplying utilities through outsourcing route. Customers are relieved from the burden of owning and running the utilities thus enabling them to focus on their core manufacturing processes.

## Benefits



### Green

Biomass fuel (carbon neutral) helps in reduction of CO<sub>2</sub> emissions



### Guaranteed Performance

Guaranteed boiler uptime and efficiency throughout product lifecycle



### Cost Effective

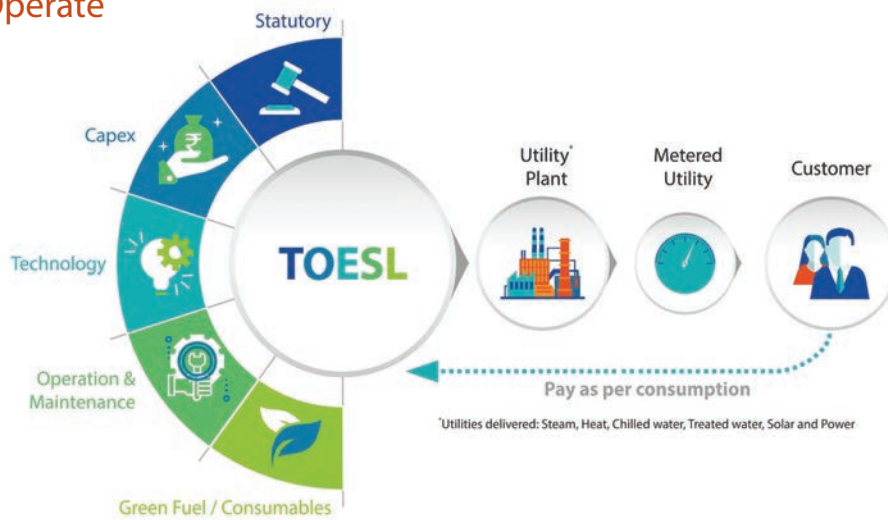
Operational Excellence  
Uptime and efficiency delivered higher than committed



### Asset Light

No investment in utility plant and machinery

## Build-Own-Operate



# 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 m<sup>3</sup>/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 m<sup>3</sup>/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
- ▶ Recommendation from the OEM towards performance enhancement with change-over-kits
- ▶ 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



**THERMAX**

Sustainable Solutions in  
Energy & Environment

[www.thermaxglobal.com](http://www.thermaxglobal.com)

**Registered Office**

D-13, MIDC Industrial Area, R D Aga Road,  
Chinchwad, Pune 411019, India.

[enquiry@thermaxglobal.com](mailto:enquiry@thermaxglobal.com)

Customer Care: 1800-209-0115

 @thermaxglobal

 @thermaxglobal

 @thermaxlimited

 @thermaxglobal

 @thermaxmedia

**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.

© Thermax Limited, October 2019