

SUSTAINABLE SOLUTIONS FOR THE  
**PHARMACEUTICAL  
INDUSTRY**



## CONSERVING RESOURCES, PRESERVING THE FUTURE.



Thermax is an engineering company providing sustainable solutions in energy and the environment. The company's vision for the future is firmly anchored in the belief that to stay competitive, companies need to adopt sustainable development practices. The systems, products, and services developed by Thermax enhance resource productivity, improve bottom lines, and maintain a clean environment. Even as we convert costs to profits, we help to protect the environment through our sustainability initiatives - a win-win for the industry and the society at large.

Thermax's business portfolio offers integrated solutions for **Clean Air, Clean Energy and Clean Water.**

### Business Solutions

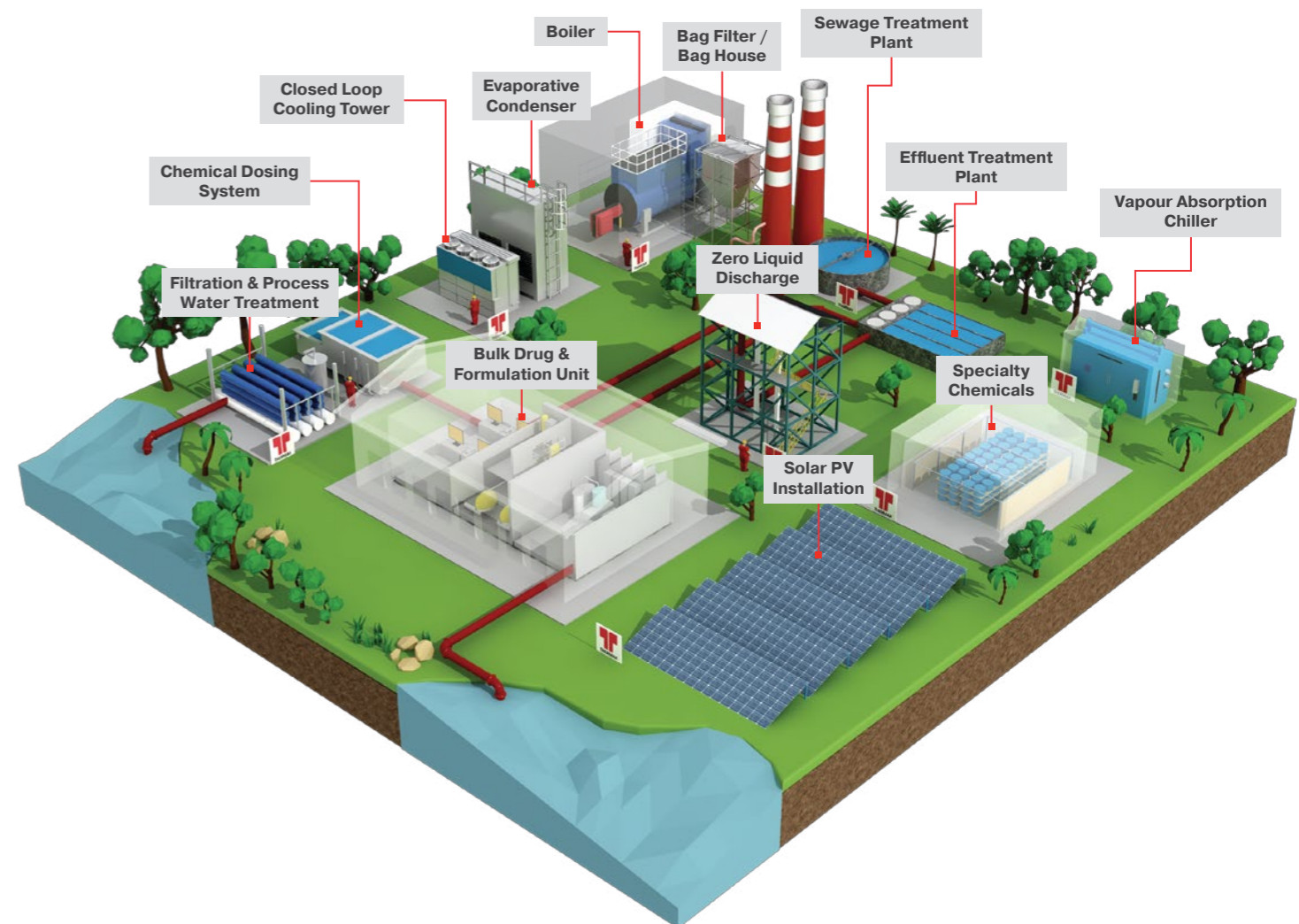


With its host of business solutions complemented with an array of specialised and digital services, Thermax is well poised to cater to the end-to-end needs of the industry.

## SECURING HEALTH, ENHANCING SUSTAINABILITY

### Thermax's solutions for the pharma industry

The pharmaceutical industry has grown exponentially over the years and gained a centre stage in the industrial landscape, spawning innovations that help in securing the health of humankind. Thermax's wide range of solutions and offerings help pharmaceutical companies meet their critical utility needs while complying with environmental norms.



### Safe and compliant solutions for the industry



#### O&M

Our experienced and trained team delivers comprehensive operations and maintenance services and deploys proprietary processes. Our services include operation and maintenance of power plants, utilities, plant improvement services, and maintenance solutions.



#### Digital Solutions

To provide value-added services to its customers, Thermax has introduced Thermax Edge – an all-inclusive customer portal to address all asset lifecycle needs, and Thermax Edge Live – an asset performance enhancement solution powered with AI, ML and Thermax engineered algorithms, enabling improved plant performance, enhanced uptime and knowledge management.

## Heating sustainably

Multi-fuel, fully automated heating systems, and customised steam generation solutions

We offer a wide range of heating systems, including highly efficient steam generation solutions that are designed to burn over 100 fuels, including biomass. Our heating products and steam solutions help the pharmaceutical industry in managing several challenges such as increasing energy and water costs, operational efficiency, and complying with stringent health, safety, and environmental norms.

We are the foremost boiler manufacturer in India. Our wholly-owned subsidiary, Thermax Babcock & Wilcox Energy Solutions (TBWES) provides customised large boilers and fired heaters, while our Process Heating division manufactures packaged solutions for smaller requirements up to 50 TPH. These offerings help the pharma industry meet its steam and power demand and adhere to stringent regulations.



## Applications

- Heating**
  - ▶ Tank/reactor vessel heating
  - ▶ Multi-effect evaporation applications and pure water generation
  - ▶ Ointment and syrup formulation
  - ▶ Hot water for rinsing/washing and HVAC applications
  - ▶ Blister packaging of medicinal products
- Steam**
  - ▶ Sterilising tanks, filters, and piping systems
  - ▶ Air moistening in cleanroom systems
  - ▶ Providing clean steam to prevent pharmaceutical products from contamination

## Thermax Offerings

- Process Heating**
  - ▶ Oil & gas fired shell and coil type boilers
  - ▶ Multi-fuel fired steam generators with options of fossil and biomass fuels
- Boiler and Heater**
  - ▶ Oil & gas fired water tube boilers
  - ▶ Solid fuel fired boilers
  - ▶ Waste heat recovery boilers
  - ▶ Plant improvement services
  - ▶ Life extension services, including condition assessment and remaining life analysis
- Steam Engineering**
  - ▶ Instaheat (hot water generator)
  - ▶ Flash steam and condensate recovery system
  - ▶ Efficiency monitoring system (Effimonitor) for monitoring 15+ parameters

## Benefits

### Heating

-  Operates on a wide range of fuels including coal, oil & gas, and biomass
-  Higher thermal efficiency lowers fuel consumption
-  Higher turndown ratio for better operational flexibility
-  Adherence to stringent environmental norms
-  Safe to operate in hazardous areas without electricity
-  Our design incorporates a flow divider for reduced noise levels
-  Reliable components result in increased productivity and reduction in product lifecycle cost

### Steam

-  Improves product quality, production output, efficiency, plant monitoring and profitability
-  Meets statutory rules/regulations, industry standards, and health and safety requirements
-  Reduces energy consumption and costs, water use, CO<sub>2</sub> emissions, and maintenance downtime

## Case Study

**Case:**  
A renowned pharmaceutical company based in northern India was dissatisfied with a locally manufactured boiler as its efficiency was only 65%.

**Solution:**  
Thermax proposed a high-efficiency natural gas-fired burner and boiler system with tried and tested heat recovery solutions to the customer.

**Result:**  
The solution improved efficiency by 30%. Increased energy savings resulted in handsome ROI. Emissions were brought down by more than 50%.



## Why choose Thermax solutions?


- ▶ Market-leading products with customised design for better combustion and reliability
- ▶ Plug and play solutions with innovative features to improve efficiency and automation
- ▶ Plant improvement through engineering studies and remote monitoring systems
- ▶ Strategic energy-efficient proposals in congruence with the client's present and future needs
- ▶ Proactive expert visits, advisory services and training
- ▶ Innovative steam engineering services and energy-efficient solutions
- ▶ 14 years of proven expertise in India and as well as international markets such as Germany, South East Asia , the Middle East and Africa



**38+**  
countries



**60+**  
years of expertise



**150+** solid, liquid and gaseous  
fuel firing options



**30k+**  
successful installations

# Cooling Solutions

## Keeping things cool

Energy-efficient, reliable, and customised cooling solutions

In light of the rising energy costs and need for sustainability, energy optimisation remains the priority of the pharmaceutical industry. Absorption cooling solutions are driven by non-electric heat sources that are the perfect alternative to conventional energy-intensive cooling utilities in pharma manufacturing units.

Thermax is an industry leader in designing and installing vapour absorption cooling systems driven by waste heat from steam, hot water, exhaust gases, and other sources.

Our high-quality process cooling solutions integrate compliance and meet the requirements of processes within the pharma industry. The wet and dry cooling solutions use air, water, or a combination of both to deliver high performance at the desired operating conditions.



## Applications

### Absorption Cooling

- ▶ Bulk drug production
- ▶ Reactor cooling
- ▶ HVAC/AHU applications
- ▶ Primary condenser of distillation column
- ▶ Secondary condenser of distillation column

### Process Cooling

- ▶ Refrigeration systems
- ▶ Vapour condensation
- ▶ Water treatment

## Thermax Offerings

### Absorption Cooling and Heating Solutions





- ▶ Absorption chillers
- ▶ Heat pumps capable of delivering hot water up to 90°C (194°F)
- ▶ Chiller-heaters offering simultaneous cooling and heating, saving up to 40% in energy cost

### Process Cooling Solutions





- ▶ Evaporative condensers that generate up to 30% power saving
- ▶ Closed-loop cooling towers that can reduce operational costs, when compared to conventional systems
- ▶ Air-cooled condensers with zero chemical usage

## Benefits

### Absorption Cooling

-  Improved process efficiency and production rate
-  Enhanced product quality
-  Reduced operational costs
-  Conservation of resources, leading to lower emissions

### Process Cooling

-  Low power consumption
-  Zero contamination
-  Low maintenance costs
-  Environment-friendly



## Why choose Thermax solutions?

### Absorption Cooling

- ▶ Electricity-free cooling
- ▶ Low steam consumption with no vibrating parts
- ▶ No harmful refrigerants and no requirement for lithium bromide / demineralised water top-up
- ▶ Crystallisation-free design with 24x7 IoT-based chiller monitoring

### Process Cooling

- ▶ Quick installation and effortless maintenance
- ▶ Easy to integrate into existing systems
- ▶ Ideal for different refrigeration systems

 **50+**  
industries served

 **90+**  
countries

 **100+**  
applications

 **6,300+**  
successful installations

## Case Study

### Case:

South India's leading pharmaceutical company required cooling solutions for the air handling unit in its manufacturing plant.

### Solution:

Thermax offered the company two double effect steam-driven vapour absorption chillers, each of 500 TR. The chillers cater to the cooling demands of the production area.

### Result:

Thermax's smart cooling solution resulted in saving 20 lakh units of electricity annually in comparison to the electrical chillers employed previously.

# ⚡ Projects and Energy Solutions

## More power to pharma

### Cost-efficient and state-of-the-art power generation solutions

As pharma companies look for energy efficiency, cogeneration and trigeneration plants have proved to be the ideal solutions. In a cogen plant, high temperature and pressure steam is first used for power generation and subsequently, the steam from the turbine can be used for process heating and cooling. Thus, the plant achieves higher efficiency by maximising its energy output, and becomes more sustainable by reducing its carbon footprint.

Our endeavour to partner with our customers in their productivity continues even after setting up the plant through comprehensive operations and maintenance services for plants and equipment.



## Applications





- Power Generation and Energy Management Solutions**
- ▶ Entire power/electricity requirement of the pharmaceutical plant

## Thermax Offerings

- Projects and Energy Solutions**
- ▶ EPC of captive, cogeneration and trigeneration plants
- Operations and Maintenance (O&M)**
- ▶ O&M support that ensures 24x7 assistance for power and utility requirements
  - ▶ Spares
- Energy Management Services**
- ▶ Annual maintenance contract of mechanical, electrical and C&I
  - ▶ Shutdown and annual overhauling services for turbine, boiler, ESP, CHP, AHP, fans, pumps, etc.
  - ▶ Optimised end-to-end solutions to improve energy efficiency of the plant

## Benefits

### EPC

-  EPC / turnkey offering
-  Reliable, economic and environment-friendly power
-  On-time performance, safe execution with least lifetime cost
-  Single point responsibility from concept to commissioning and thereafter

### Operations & Maintenance

-  Guaranteed plant availability
-  Only O&M company with EPC background
-  Energy savings
-  High uptime, reliability, and enhanced equipment life
-  Digital and IoT-enabled solutions

## Case Study

### EPC

**Case:** India's leading pharmaceutical company was looking for a reliable solution for process steam generation as well as cheaper electricity.

**Solution:** Thermax suggested the option of a 7.7 MW cogeneration plant, efficient in generating electricity and process steam with 45 TPH AFBC boiler.

**Result:** The cogen plant installed by us provided reliable power and required steam for the process, increasing the plant efficiency and profitability with cheaper electricity.




## Why choose Thermax solutions?

- ▶ Pioneer in EPC and O&M of captive cogen plants
- ▶ 25 years of comprehensive experience
- ▶ Installation and services across the Middle East, South East Asia and Africa
- ▶ ISO 45001 certified sites
- ▶ One-stop solution for operations and maintenance

 **150+** projects cumulating to over 3,500 MWe contracted on EPC basis

 **2,000+** MW cumulative O&M experience

 **100+** plants under O&M services

 **360°** approach in clean energy management



# Renewable Energy Solutions

## Aiding pharmaceutical companies with green power

### Capex and opex-based clean energy solutions

Leveraging its 50 years of leadership in the energy and environment segments, Thermax is diversifying its sustainable offerings through solar and solar hybrid farms, including power generation from batteries to provide renewable energy to its customers in the commercial and industrial space.

The Renewable Energy business is best placed to help your business make the switch to green energy, having an intimate understanding and experience across the entire ecosystem. We act as the energy manager, offering customised off-grid solutions helping customers go from behind the meter to beyond the meter in the long run.











### Applications

- Power requirement of the pharmaceutical plant
- Operation and maintenance of the solar PV plant

### Thermax Offerings

- Rooftop, ground mounted, carport solutions
- Developing renewable energy power projects
- Build and operate bespoke and flexible energy assets
- O&M**
- OHSAS 45001:2018 certified sites
- Dedicated O&M team and nationwide service support

### Benefits

-  Carbon footprint reduction
-  Customised off-grid and on-grid solutions
-  Innovative financing options
-  Enabling energy transition through capex and opex-based models
-  Energy manager for commercial and industrial processes
-  Round-the-clock renewable energy solutions
-  Facilitating transition from behind the meter to beyond the meter
-  Cost savings

### Case Study

#### Case:

A multinational pharmaceutical company in Aurangabad, Maharashtra, wanted to leverage a viable solar PV EPC solution.

#### Solution:

Thermax installed a rooftop solar PV system of 415 kWp, on an area of 5000 m<sup>2</sup>, generating more than 6.2 lakh units of electricity per annum.

#### Result:

The solution offered by us provided green power and reduced the CO<sub>2</sub> emissions by 500+ tonne/year.



### Why choose Thermax solutions?

- Installation of 135+ solar PV plants on an EPC basis, cumulating to more than 65 MW of green power generation
- Industry leading performance ratio for solar power plants
- Expertise in hybridising solar with multiple energy sources optimally
- Global presence and capabilities



**72+** MW capacity



**150+** delighted customers across geographies



**200k+** tonne of reduction in CO<sub>2</sub> emissions



**245+** million units of electricity generated

# Air Pollution Control Solutions

## A breath of fresh air

Helping the pharmaceutical industry meet stringent emission norms

Thermax is a recognised leader in India for its Air Pollution Control (APC) business, partnering with the nation in its pollution abatement journey since 1980. Thermax has supported numerous enterprises, predominantly in India and South East Asia, concerned with the control of particulate and gaseous emissions.

The APC business of Thermax has a broad experience of working with diverse industries and has delivered unmatched services to its clientele that includes the pharmaceutical industry as well.



## Applications

- ▶ Particulate emission control
- ▶ Gaseous emission control
- ▶ Experience in handling various fuel combinations in boiler/heater for pharma industry
- ▶ Concept to commissioning solutions
- ▶ Capability of augmenting existing systems for modernisation, renovation and upgradation

## Thermax Offerings

### Bag Filter/Bag House

- ▶ Laser-cut bag holding plate
- ▶ Special fabrics for stringent emission norms
- ▶ Hood design and duct engineering for effective dust capture

### Electrostatic Precipitators

- ▶ High efficiency and reliability
- ▶ Opticor: fully automatic DSP based controller with power optimisation

### ComboFilters

- ▶ Compliance with stringent emission norms

### Flue Gas Desulphurisation Systems

- ▶ Removal of SO<sub>2</sub>, HCl, and HF in compliance with stipulated emission norms

### Scrubbers

- ▶ High collection efficiency for small and submicronic particles

### Value-added Services

- ▶ O&M services
- ▶ Spare parts management
- ▶ Augmentation / modernisation
- ▶ Health check-up of APC equipment
- ▶ On-site training

## Benefits

-  Lower carbon footprint
-  Low operating costs
-  Optimally designed
-  High efficiency and longer product life
-  Concept to commissioning solutions
-  Compliance to global emission standards
-  On-site and remote services for all air pollution control equipment
-  Customised solutions
-  Spare parts for all air pollution control equipment - Thermax and non-Thermax make
-  Product recovery along with pollution control

## Case Study

### Case:

A multinational pharmaceutical company required SO<sub>2</sub> emission reduction from its process boiler at their plant situated in western India.

### Solution:

We supplied caustic based Flue Gas Desulphurisation (FGD) system for the process boiler. The specifics were:

Gas flow of the boiler: 28,099 AM<sup>3</sup>/h

Temperature of the boiler: 180°C

The inlet SO<sub>2</sub>: 310 PPM

### Result:

Our FGD system resulted in significant reduction of the SO<sub>2</sub> outlet to less than 50 PPM.



## Why choose Thermax solutions?

- ▶ Over four decades of experience and expertise in the area of air pollution control catering to both particulate and gaseous emissions
- ▶ **20,000+** bag filter installation base
- ▶ **2,500+** ESP installation base
- ▶ **160+** turnkey projects installation base
- ▶ **150+** scrubber installation base



**25+**

industries served



**40+**

years of expertise



**88+**

countries



**25k+**

successful installations



# Water & Waste Solutions

## Water - lifeline of the pharma industry

### Helping the industry reduce its fresh water consumption by reusing and recycling wastewater

Thermax has been one of the leading companies providing water and wastewater solutions to the pharmaceutical industry. The domain expertise and experience garnered over the past four decades gives us an edge in providing a one-stop solution to our customers to help them reduce, reuse or recycle water and wastewater. These solutions support the industry in its journey towards sustainability and help in meeting strict regulations. Comprehensive utility solutions by Thermax help to treat water for process requirements and clean sewage and effluents.



## Applications

- ▶ Purified water for syrups/tablets manufacturing
- ▶ Purified water for injectables
- ▶ Removal of contaminants
- ▶ Improved wastewater quality for reuse
- ▶ Zero liquid discharge

## Thermax Offerings

### Water Treatment Solutions

- ▶ Up to 95% water utilisation from purified water

### Sewage Recycle System

- ▶ Up to 90% water recovery from recycling

### Effluent Recycle System

- ▶ Up to 90% water reused through ETP recycling

## Zero Liquid Discharge Solutions

- ▶ Tailor-made solution for specific constituents to meet discharge norms

### Genmax

- ▶ Compliance with USP standards for high purity water

### Pure Water Generation, Storage and Distribution System

- ▶ Purified water as per US / European pharmacopoeias standards

### Water for Injection and Pure Steam Generation Unit

- ▶ MCDP (Multicolumn Distillation Plant)

### Water for Injectables Storage and Distribution System

- ▶ Operating temperature maintained at 85°C

### Pure Steam Distribution System

- ▶ Operating temperature maintained at 121°C

## Benefits



Modularised plug and play products



Lower carbon footprint



Higher water recovery



Customised systems and solutions



Lower operating costs



Maximum uptime and increased lifecycle of the plant



Integrated automation for solutions



## Why choose Thermax solutions?

- ▶ Integrated service play (O&M, audits, plant improvements, spare parts management and automation)
- ▶ In-house design and engineering team
- ▶ Innovation-led play in niche applications
- ▶ End-to-end project management and commissioning services



**5+**

decades of knowledge expertise



**600+**

large and 25,000 standard plants installed



**80k+**

m<sup>3</sup>/hour wastewater recycled



**180k+**

m<sup>3</sup>/hour successful installations

## Case Study

### Case:

The Serum Institute of India, the world's largest vaccine manufacturer required a 1,500 m<sup>3</sup> per day wastewater treatment plant so that the treated wastewater could be reused in non-potable and horticulture applications.

### Solution:

The treatment plant Thermax installed is based on the patented FAB technology. It is a proven solution, with a high degree of flexibility.

### Result:

By installing our wastewater treatment solution, the client was able to reduce dependency on fresh water supply, along with non-clogging, odourless operation, ensuring better oxygen transfer, efficiency, reduced power consumption, low maintenance and sludge control.



# Chemical Solutions

## Our versatile chemical solutions - a shot in the arm

### A leading player in water treatment technologies

Thermax is the leading manufacturer of Tulsion® brand of ion exchange resins for over 40 years. Ion exchange resins find a wide range of applications in the pharmaceutical industry as they help to improve processes and product performance for the industry. Thermax's viable construction chemicals serve the pharmaceutical industry with unique and customised solutions that have stood the test of time for over a decade.

Our products and monitoring techniques provide eco-friendly solutions to address the ever-growing concerns of water and energy savings, use of fossil fuels, pollution control, and adherence to environmental regulations.



## Applications

### Pharma Processes

- ▶ Overcoming problems like poor stability and deliquescence
- ▶ Desalting, isolation, purification, and separation
- ▶ Ultra-pure water generation
- ▶ Trace metal removal

### Pharma Infrastructure

- ▶ Maintaining hygienic and sterile conditions
- ▶ Durable industrial flooring and waterproofing solutions
- ▶ Joint-free, seamless flooring, protective coating solutions for walls, steel structures, water tanks and ETPs

### Water Treatment Chemicals

- ▶ Treatment of feedwater used in boiler, chiller and cooling tower
- ▶ Effluent treatment and water recycling, using chlorine dioxide and efficient microbes

## Thermax Offerings

### Tulsion® Ion Exchange Resins

- ▶ Cation / anion / mixed bed resins
- ▶ Ultra-pure / adsorbent / chelating resins

### Construction Chemicals




- ▶ Tecfloor range of industrial flooring
- ▶ T-Guard range of protective coatings
- ▶ Maxshield range of waterproofing solutions

### Water Treatment Chemicals

- ▶ Maxtreat series: High-efficiency polymers and biocides for contaminated water
- ▶ Maxgreen series: Biodegradable, free from heavy metals and volatile organic compounds
- ▶ Maxfloc series: Polyelectrolytes (coagulants and flocculants)
- ▶ Automated dosing and monitoring system

## Benefits





### Tulsion® Ion Exchange Resins

-  Higher operating capacity and regeneration efficiency
-  Superior physical stability and low leachable and colour throw
-  NSF certified and food-grade products compliant to US FDA CFR 173.25

### Construction Chemicals

-  CFTRI approved coatings for storage units
-  Abrasion, chemical, thermal and impact resistant
-  Durable and long-lasting waterproof structures

### Water Treatment Chemicals

-  Control of corrosion, scaling and fouling of utilities
-  Increase in uptime and longer life of equipment
-  Reduced water footprint
-  Assured technical service at doorstep within 24 hours

## Case Study

### Case:

One of India's leading generic pharmaceutical companies and largest producer of anti-retroviral drugs based in southern India was facing operational challenges in 120 cooling towers along with higher chemical treatment costs.

### Solution:

Thermax offered a single product - Maxtreat 2340 to be used in all 120 cooling towers against the competition using six products for the same treatment. This helped the customer improve operational efficiency, reduce treatment costs by a third, and the amount of manpower needed for feeding chemicals to cooling towers by half.

### Result:

Thermax's solution provided significant value to the customer with improved performance.



## Why choose Thermax solutions?

- ▶ More than 40 years of experience in chemicals across industries
- ▶ Chemicals are manufactured in three world class manufacturing units
- ▶ Customised solutions as per the customers' requirements
- ▶ Well-maintained, standardised R&D laboratories with experienced professionals and modern instruments
- ▶ Global presence backed by a strong dealer network



**40+**

years of experience



**40+**

industries served



**100+**

projects commissioned globally



**5,000+**

customers across the globe

# **TOESL Build-Own-Operate Solutions**

## **Utility delivery under the Build-Own-Operate model**

Enabling the pharmaceutical industry to optimise costs, reduce carbon footprint, reduce fresh water consumption, and remain focussed on their core business

Thermax’s subsidiary company, Thermax Onsite Energy Solutions Limited (TOESL), offers outsourced utilities to various industries including the pharmaceutical industry. Our utility solutions include steam, heat, chilled water, treated water, cogeneration power, and solar-based power on a Build-Own-Operate (BOO) business model. TOESL invests in and installs utility plants at the customer premises and provides comprehensive operations and maintenance, along with supply chain management of biomass fuels, chemicals, etc. This facilitates our pharmaceutical clients to focus on their core business.











### **Value proposition of Build-Own-Operate solution**

- ▶ Green utilities supplied based on renewable, recycling and recovery solutions
- ▶ Capital investment by TOESL frees up cash flow for core business
- ▶ Operational risk management
- ▶ Lifecycle maintenance and performance responsibility of the utility plant by TOESL
- ▶ Decarbonisation – reduces carbon footprint

### **Thermax Offerings**

- ▶ Steam and heat
- ▶ Chilled water and hot water
- ▶ Water treatment and recycling
- ▶ Solar power and cogeneration
- ▶ Waste heat recovery solutions
- ▶ Multi-utility supply


### **Benefits**


-  End-to-end utility delivery on consumption-based billing
-  Free up cash flow for core business
-  Avail expertise related to utility equipment
-  Eliminate energy and operational inefficiencies
-  Uninterrupted biomass fuel supply chain management
-  One stop solution for all plant utilities
-  Guaranteed performance and uptime of utility plant
-  Achieve sustainability goals in partnership with utility OEM





### **Why choose Thermax solutions?**

- ▶ Experience in providing BOO solutions
- ▶ Only OEM company to provide end-to-end sustainable utility services
- ▶ Partnering with 20+ large corporates and MNCs for utility supply globally
- ▶ Long term contracts under the BOO model
- ▶ Single point responsibility of the entire utility spectrum
- ▶ Capital investment by TOESL
- ▶ Established supply chain of 1,000+ tonne of biomass fuel per day

 **0.58+** million tonne per annum of CO<sub>2</sub> equivalent reduction across all sites

 **35+** installations in India; first installation in Indonesia under execution

 **60+** assets under management across sites

 **0.22+** million kilo litre of total water treated

### **Case Study**

**Case:**  
A global pharma company wanted biomass-based steam supply, with the boiler house and fuel storage set in an optimised layout to solve space constraints on site.

**Solution:**  
The company opted for our outsourced utility delivery solution for green steam supply to their plant. We installed three modular boilers in a customised layout along with a well-planned biomass fuel supply chain.

**Result:**  
The solution resolved the client’s space challenge along with a reduction in CO<sub>2</sub> emissions by 2,930 tonne per year.



# Case Study

## Thermax offers Energy-Efficient Solutions to Serum Institute of India

### Introduction

Thermax ensures green energy is used in their boilers for harnessing the power of steam. We delivered a 22 TPH biomass briquette fired boiler to the Serum Institute of India at their Hadapsar branch, located in Pune, Maharashtra. This 100% biomass boiler is used for saving fuel under guaranteed lower emissions.

### About the Company

The Serum Institute of India, Pune is an Indian biopharmaceutical and biotechnology company founded by Cyrus Poonawala in 1966. It is the world's largest producer of vaccines, which has been approved and used in various international vaccine programmes organised by healthcare organisations such as Pan American Health Organisation (PAHO), UNICEF, and

World Health Organisation (WHO). Estimates state that more than 65% of children in the world receive a minimum of one vaccine produced by the Serum Institute of India. The main reason why the Serum Institute of India chose Thermax for their energy and environment solutions and utility supplies was their trust and shift towards sustainability goals.



### Challenge

A key factor creating a major restraint for this project included the location proximity of the Serum Institute's vaccine plant and 22 TPH biomass briquette fired boiler plant installation. The impact of the biomass fuel dust on the vaccine plant was a cause of concern. The need for installing a boiler plant was due to space constraint and biomass fuel dust near the vaccine plant. Multiple companies had applied for this contract. However, Thermax bagged the contract owing to their expertise in the field of biomass combustion.

### Solution

The new plant layout customised and provided by Thermax was within the space constraint and adjusted as per the available area of operation. The project and management team of Thermax was successful in installing the 22 TPH boiler in the available space. An additional benefit of this solution is the fact that this boiler is operational with minimum manual interaction. The boiler generates

steam that is thoroughly utilised by the entire plant via the process of clean steam generation and sterilisation for advanced procedures in the plant. With an average of 2 lakh vaccines being manufactured per slot, an estimated 12 lakh vaccines are manufactured on a daily basis.

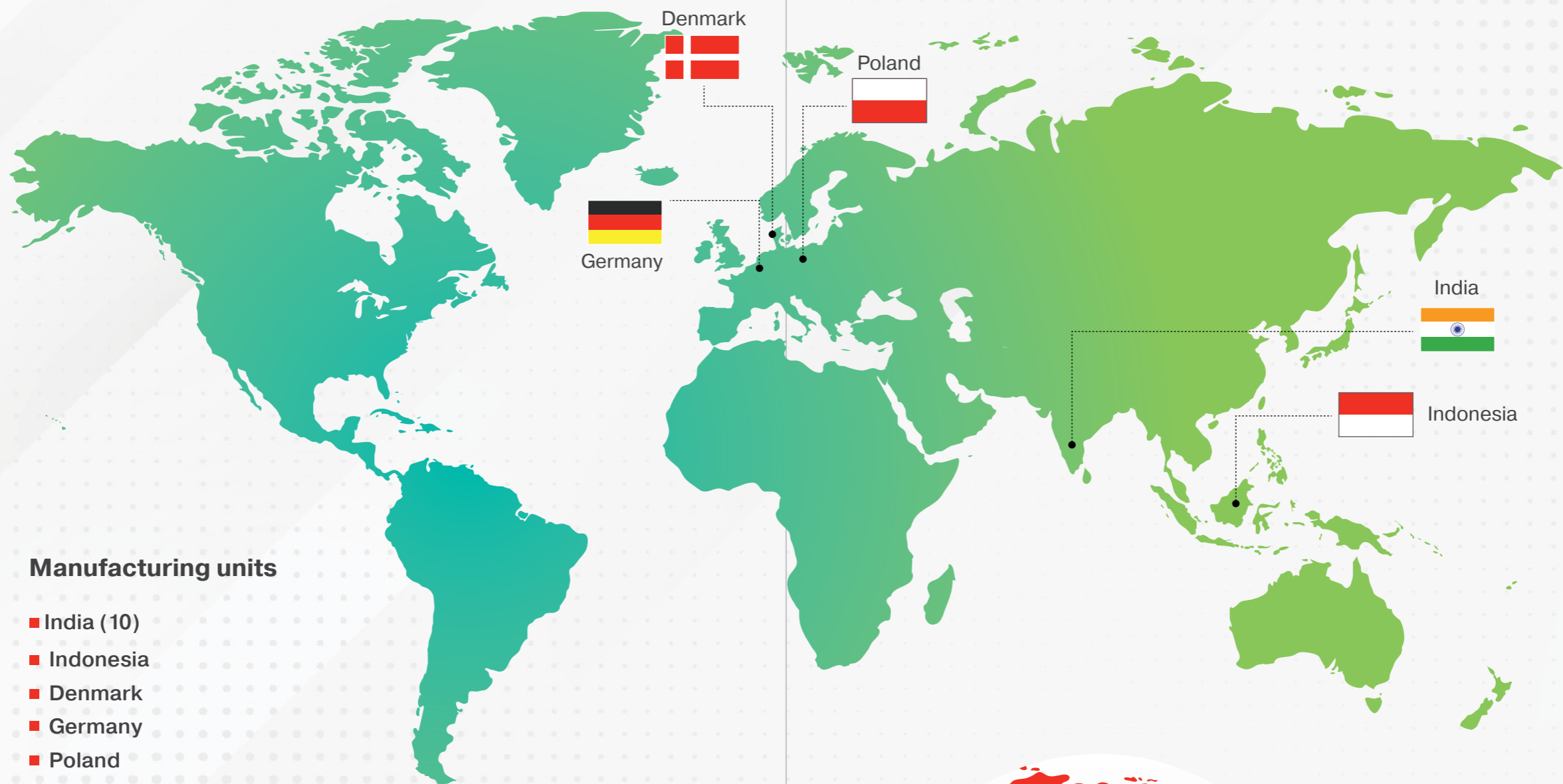


Scan for more details

### Result

The implementation of the solution offered to Serum Institute by Thermax brought about three main advantages. Firstly, the boiler installation was possible within the limited space constraint. Secondly, the use of 22 TPH boiler resulted in an average of 30-35% savings in fuel costs. Thirdly, this boiler can be operated with minimum manual intervention. A higher efficiency steam generation boiler will not only cut down fuel costs but also resolve space constraints.

**30-35%** savings in fuel costs



Head Office  
**India**

Manufacturing units

- India (10)
- Indonesia
- Denmark
- Germany
- Poland

International Subsidiaries, Sales & Service

- |              |               |                |           |
|--------------|---------------|----------------|-----------|
| ■ Bangladesh | ■ Kenya       | ■ Russia       | ■ U.K.    |
| ■ Brazil     | ■ Malaysia    | ■ Saudi Arabia | ■ U.S.A.  |
| ■ Canada     | ■ Mauritius   | ■ Senegal      | ■ UAE     |
| ■ Denmark    | ■ Myanmar     | ■ Singapore    | ■ Vietnam |
| ■ Egypt      | ■ Netherlands | ■ Sri Lanka    | ■ Zambia  |
| ■ Germany    | ■ Nigeria     | ■ Tanzania     |           |
| ■ Indonesia  | ■ Philippines | ■ Thailand     |           |
| ■ Italy      | ■ Poland      | ■ Turkey       |           |



**90+**  
Countries

**14**  
Facilities

# Industries Served



Agriculture &  
Allied Industries



Automobiles &  
Auto Components



Aviation



Cement



Chemical



Commercial &  
Construction



Engineering &  
Capital Goods



Food &  
Beverages



FMCG



Healthcare



Hospitality



Infrastructure



IT &  
Data Centre



Medical  
Devices



Metals



Oil & Gas



Paper & Pulp



Pharmaceutical



Power



Renewable  
Energy



Rubber



Telecommunication



Textiles



Wood

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thermaxglobal



thermax\_global



thermaxlimited



thermaxglobal



thermaxmedia



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