

Energy and Environment Solutions for Sustainable Growth



CLEAN
AIR

CLEAN
ENERGY

CLEAN
WATER

Conserving Resources, Preserving the Future.

Sustainable solutions by Thermax



CLEAN AIR

- With climate change mitigation becoming an imperative for the sustenance of our planet, nations and organisations are rapidly developing and executing decarbonisation plans.
- Thermax is a key player in providing solutions for abating gaseous and particulate emissions that help enterprises manage the environmental impact of their business.



CLEAN ENERGY



CLEAN WATER

- As global emissions are reaching an alarming level, and in view of countries adopting the net zero pledge, making a shift to renewable and alternative sources of energy is inevitable.
- Thermax, being at the leading edge of technology and business practices, is focussed on creating a mark in the evolving sphere of energy transition.

- Recycling wastewater and utilising treated water is a necessity in today's world, where water scarcity is a pressing concern
- Thermax, with more than four decades of expertise, has been continuously developing and innovating products, systems and services for water and wastewater management.

A hand holding a globe with green leaves, symbolizing sustainability. The background is a blurred green forest. A large black diagonal shape covers the right side of the image, and a red diagonal shape is in the bottom left corner.


A partnership for profitable and responsible business

Sustainable solutions in energy and the environment

In an integrated global market, how can business be managed competitively and sustainably? How can energy costs be optimised to maximise profits, and at the same time, minimise the impact of business operations on the environment?

Everywhere, enterprises face this challenge of delivering high quality products and services while ensuring margins and, as a corporate citizen, contributing to the efforts of protecting the air we breathe and the water we drink.

Thermax's energy-efficient and eco-friendly technologies offer reliable business-to-business partnerships to respond to this critical challenge. They provide the competitive edge to enterprises to make their mark with superior offerings and community goodwill.



We heat, cool, power, clean and recycle

Welcome to Thermax - 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 help industry achieve better resource productivity and improve bottom lines, while maintaining a cleaner environment. Even as we convert costs to profits, we help to protect the environment in our own limited ways - a win-win for industry and the society at large.

Thermax's business portfolio includes products for 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, industrial and municipal wastewater treatment plants, waste heat recovery systems and air pollution control projects.

Systems to match a wide spectrum of fuels

Operating on a wide range of fuels, including biomass and waste from industrial processes, Thermax's heating systems help customers achieve higher levels of energy efficiency. Its eco-friendly vapour absorption chillers work on heat from any source and replace power guzzling cooling equipment. Thermax also integrates its expertise in diverse areas to create combined heating, power and cooling solutions.



Harnessing wealth from waste

Through its water and waste management solutions, the company supports industries and civic bodies to reduce pollution, recycle resources and to generate revenue from waste. Also on offer are value-added services for retrofits and rebuilds, design and implementation of optimal energy use in processes, and for managing utilities. Through its business of energy rental services, Thermax helps industry to receive uninterrupted supply of heat, steam and chilled water and pay for them at per unit cost without having to own and operate equipment at their premises.

More power for developmental initiatives

An established player in captive power plants, Thermax also builds utility power plants. It is one of the few Indian companies that has sourced supercritical technology to build boilers for mega power plants. Thermax also harnesses renewable energy to support its clients in their heating, cooling and power generation requirements.



Meher Pudumjee

Chairperson, Thermax Limited

"We are convinced that all businesses need to focus on growth and profit else they cannot exist. However, we also realise that if a business is run solely on growth and profit, it will die, since there is no purpose for its existence."

Thermax is built on the four pillars of defined values viz. respect, commitment, honesty and integrity, and concern for society and the environment. Thermax believes and lives by its Late Chairman Rohinton Aga's thought - 'Profit is not only a set of figures, but of values'. Thus, as we convert costs to profits, 'environmental consciousness' remains at the centre of our offerings.



Values

With an illustrious journey of over five decades in the engineering and technology sphere, Thermax has delivered excellence while adhering to its core values.

Traditionally, talent in Thermax has always had a unique dimension – of being ‘entrepreneurs from within’. The involvement of our employees is crucial for us to achieve our goals. We encourage an open culture where employees can ideate, innovate and collaborate to build new business models. With this thought in mind, we have formulated the ‘CLOCC’ behaviour, which implies putting the ‘C’ustomer first, ‘L’ead - by taking initiatives proactively, ‘O’wn and take responsibility for the commitments we make; ‘C’ollaborate as One Thermax; and ‘C’reate new products and processes that make us faster, better, more efficient and productive than before.

Thermax is driven by an employee-centric culture, and investing in our employees is a priority. Fostering collaboration and moving forward together as individuals and as teams is something we believe and practice.

Adding value to our customers is our paramount responsibility. Thermax, through its repertoire of offerings, provides sustainable solutions for a variety of applications - designed keeping the customer as the focal entity. Thermax is delighted to have a dedicated client base and remains consistent in giving its clientele customised services as per their requirement. Our new-age initiatives are curated around this thought.

As we tread our path to success, our concern for society and the environment has remained steadfast. Thermax Foundation has been supporting and contributing to the cause of education through its collaboration with the Akanksha Foundation and Teach For India. Acknowledging the plight of the migrant labourers that was brought to the surface during Covid-19, Thermax joined hands with like-minded corporates for the Social Compact (SoCo) initiative aimed to bring in equity, protect their rights, safeguard them against life-threatening incidents and provide them access to health care and insurance.

Moving forward, the Thermax of the future is one that is closely aligned with the needs of a cleaner, greener, and healthier world.



Respect

- Respect for human lives and human dignity
- Respect for what is right, and not who is right
- Respect for diversity – religion, caste, gender
- Respect for systems and processes
- Respect for performance, behaviour and discipline



Commitment

- Deliver what is promised to all our stakeholders
- A commitment to excellence in all that we do



Honesty and Integrity

- Being true to ourselves in our personal and professional dealings and doing what is right at all times
- Nobody will exploit the company for personal gain or gratification



Concern for Society and the Environment

- Encourage reuse, reduce and recycle, energy conservation
- A strong sense of giving back to society
- We must remember business cannot survive in a society that fails



Ashish Bhandari

MD & CEO, Thermax Limited

"With its technological prowess and industrial expertise, Thermax is all set to create a mark in the energy transition space."

Being committed to 'Conserving Resources and Preserving the Future,' Thermax has been a frontrunner in offering energy-efficient and environment-friendly solutions to a gamut of industries. The trend sweeping across the manufacturing sector today is that of green energy, and we are proud to say that majority of our projects have been green. Further, to expand its portfolio and umbrella of services, the company is all set to foray into new avenues, increasing its capabilities in solar opex, biomass fuels and managing process waste. For Thermax, the time is now to

be a champion in the energy transition space, helping customers across industries and diverse markets with solutions to move to a new energy mix, tailored to their needs. All our recent moves - the new organisational structure, creation of Energy Management Services (EMS) business and key account teams, business partnerships etc. – are directed towards this goal.

I am assertive that these endeavours will emerge as stepping stones towards the realisation of our commitment to increasing the scale of the company's green offering and reducing 25% of its carbon footprint by 2025.

Building on the legacy of being an environmentally conscious organisation, I believe Thermax is uniquely positioned to bridge the gap between energy availability and sustainability. Our dedicated team of engineers is consistently working towards this goal. Thermax's offerings are optimised to convert waste, including hazardous waste, wastewater, exhaust gases and effluents into energy.

When it comes to customer satisfaction, we believe their success is our success! The company's core strength in offering sustainable products and services has been the key driver for our achievements. Our success in securing orders for difficult applications, where efficiency and carbon footprint reduction are important considerations, underlines the company's trustworthiness in the eyes of our customers and stakeholders.

As work paradigms have drastically changed in recent times, digitalisation has gained momentum. To give further impetus to our business partnerships, Thermax has launched several digital initiatives fortifying our engagement with our clientele, dealers and sales personnel. Our digital solutions include Thermax Edge, which helps to manage all asset lifecycle needs, and Thermax Edge™ Live, an IIoT-enabled asset performance enhancement solution. Through this digital setup, we aim to get closer to our customers and take Thermax's services to the next level.

In addition to contributing to global sustainability, our solutions also empower our customers to trace the decarbonisation path. Our consistent efforts, backed by engineering capabilities, make Thermax a 'clean air, clean energy and clean water' company of the future.



Vision

To be a globally respected high performance organisation offering sustainable solutions in energy and the environment.



Mission

- We aspire to become a leading technology company with a global outlook delivering world-class products and services to customers.
- We exist to fulfil the needs of our customers – best understood through an enlightened partnership with him.
- Our challenge is to continually expand and define new markets by expanding the frontiers of research and engineering and customer applications in our chosen field of business.
- Our commitment is to create an organisation, which nurtures the talent and enterprise of our people, helping them to grow and find fulfilment, in an open culture.
- We seek dependable partnership with our suppliers – to generate a strong mutual interest in each other's welfare.
- We live by a high value of integrity and excellence in management.
- We strive to contribute substantially to the global priority areas of energy conservation, environment protection and enrichment of the society.

Solutions



Power



Heating



Cooling



Water Treatment



Chemical



Utilities



Raw
Material



Desired
Product



Waste

Hazardous
Waste
Treatment



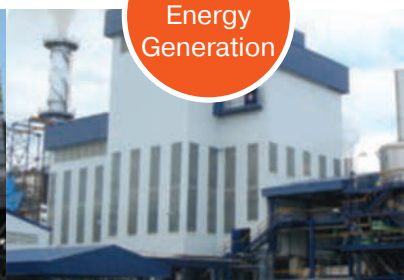
Wastewater
Treatment



Air
Pollution
Control



Waste to
Energy
Generation



Installations



Eco-friendly cooling



Wastewater management



Power generation from waste heat



Packaged boiler for international markets

Energy-efficient and eco-friendly solutions

World over, Thermax installations provide innovative support to industrial and commercial establishments. Some of the solutions that Thermax provides in the critical areas of energy and environment include:

Trigeneration - steam, power and chilling - from waste and unconventional fuels

Turnkey power plants on a wide variety of fuels

Product and metal recovery from processes

Water recycle and effluent treatment

Productivity boosting specialty chemicals

Specialised services - energy rentals, O&M of water and power installations, steam engineering



AIR POLLUTION CONTROL

Systems for environment protection

Thermax set up its Air Pollution Control (APC) business (Enviro division) with the conviction that pollutants are inevitable, but pollution is not. Today, Thermax Enviro is a key player in abating gaseous and particulate emissions. The company offers broad-based,

single-source expertise and flange-to-flange solutions in all areas of environment protection – from products and systems for air pollution control to retrofit and rebuild services. Extensive work with diverse industry sectors and tie-ups with technology majors enables Thermax to take up turnkey projects from concept to commissioning.

Industries are aided by clean technologies that recover pollutants, thus reducing

their hazardous impact on the environment and, in many cases, enabling resource recovery from processes. The division's operations are supported by well-trained field engineering personnel. It has a full-fledged in-house R&D set-up, including testing equipment, prototypes, pilot plants, and shop floor plant installation to validate product performance.

Value Proposition

- More than 40 years of experience in handling varied applications
- Concept to commissioning solutions for particulate and gaseous emission control
- In-house innovation and manufacturing facility for developing best in class APC products
- Performance guarantee with outlet emission well below permitted limits
- Handling gases in the range of 1,000 m³/hr to 35,00,000 m³/hr
- Special focus on retrofit and revamp jobs. Experience of over 20 years in retrofits, rebuilds and upgrades of any make APC equipment
- Spares and value-added services



SOLUTIONS

Products

- Electrostatic precipitators – dry and wet
- Bag filters – pulse jet bag filters and reverse air baghouses
- Particulate scrubbers – cyclonic, venturi type, impingement plate
- Gaseous scrubbers – packed bed, spray/tray towers
- Combofilters
- Thermax modular gas cooler

Systems

- De-dusting and fume extraction systems
- Flue Gas Desulphurisation (FGD) systems
- Gas cleaning plants for metallurgical applications
- Coal and pet coke preparation plants

- Coal injection and cast house de-dusting
- Systems for blast furnaces/smelters
- Pushing emission control systems for coke ovens

Specialised Services

- Conditional assessment/health check-up, troubleshooting of equipment
- Design engineering services including efficient gas distribution (CFD analysis)
- Annual service contract
- Annual maintenance contract
- Virtual technical support
- Optimisation studies and audits
- Overhauling and repairs

HIGHLIGHTS



25+
industries
served



40+
years of
expertise



50+
types of dust and
gaseous pollutants
handled



25k+
air pollution
control systems
installed globally



HEATING

Large boilers and fired heaters

TBWES, a wholly-owned subsidiary of Thermax Limited, provides equipment and solutions for generating steam for process and power needs through the combustion of various solid, liquid and gaseous fuels, as well as through heat recovery from

turbine/engine exhaust and (waste) heat recovery from industrial processes. TBWES also offers heaters for various applications in the chemical, petrochemical, and refinery segments. Its services arm offers renovation and modernisation solutions for old boilers and heaters.

The major industry segments served in India and across the world are steel, refinery, petrochemical, power, cement, sugar, distillery, fertiliser, paper,

chemical, non-ferrous metal, waste management and textile.

TBWES has a rich experience and engineering capability in handling various waste fuels along with other conventional fuels. We are leaders in waste heat recovery solutions for various industrial processes. We offer indigenised solutions to produce clean energy while ensuring the highest standards of quality and safety.

Value Proposition

- Pioneers in introducing waste heat recovery applications and waste fired boilers in India
- Strong competence in thermal and mechanical engineering
- Modularisation capability of assembling huge plug and play packages at Mundra assembly yard
- Three manufacturing facilities ensuring high quality of work
- High safety standards
- Providing steam capacity up to 1,000 TPH
- Handling steam pressure up to 200 kg/cm²
- Handling steam temperature up to 600°C



SOLUTIONS

OEM Offerings

- Solid fuel fired boilers (up to 1,000 TPH)
- Waste to energy boilers (up to 500 TPH)
- Lean gas fired boilers (up to 500 TPH)
- Oil & gas fired boilers (up to 500 TPH)
- Heat recovery boilers (up to 500 TPH)
- Fired heaters (up to 150 MM kcal/hr)
- Supercritical boilers

Specialised Services

- Plant improvement projects
- Plant services
- Spares
- Conditioning Assessment (CA)
- Remaining Life Assessment (RLA)
- Remote Performance Management System (RPMS)

HIGHLIGHTS



25+
industries
served



50+
countries



2.4k+
global
installation base



360°
approach in
offering sustainable
and clean energy

CLEAN AIR

CLEAN ENERGY

CLEAN WATER



HEATING

Process heating solutions

As leaders in heating solutions for over more than five decades, Thermax has been pioneering innovative solutions for a wide range of industrial and commercial process heating applications. Thermax offers an extensive range of process heating technologies

with the widest range of capacities to suit various process requirements. With a strong understanding of the requirements of process industries, the company has scripted several innovations to support its clients.

In addition to conventional fuel firing technologies, ongoing research and innovation at Thermax has resulted in the development of a multitude of biomass fired heating solutions to support its clients' initiatives to go green.

Today, with over 35,000 installations across the world, Thermax helps small and medium firms to Fortune 500 companies with process heating solutions to improve efficiency and reduce energy costs. On offer are packaged heating systems for process heating, space heating and engine heat recovery requirements. Modular in construction, these are available in standard packaged configurations, custom designed for specific requirements and also offered as a turnkey solution.

Value Proposition

- Innovative high thermal efficiency heating solutions
- Compact, requiring low installation costs
- Multi-fuel fired heating solutions for the process industry
- Consultative application engineering to maximise energy utilisation and slash fuel cost
- Assured product quality through state-of-the-art manufacturing facilities



SOLUTIONS

Heating Solutions Fired on Oil, Gas, Coal and Biomass

- Steam boilers up to 60 TPH capacity, up to 66 ata/bar pressure and 490°C temperature
- Thermal oil heaters and vapourisers up to 25 Gcal/h capacity, up to 380°C temperature, for indirect heating with thermal oil in liquid and vapour phase as the heating medium
- Hot water generators up to 17 Gcal/h capacity and 200°C temperature
- Hot air/gas generators up to 16 Mkal/h and 600°C
- Thermosyphon of up to 6 Gcal/h capacity and 302°C temperature with water as the heating medium
- High pressure boilers up to 180 bar for specific applications in the process and oil & gas industry
- Energy plants providing combined steam, hot water, thermal oil through a common source

Heat Recovery Solutions

- Heat recovery system on gas/oil engine, capacity up to 5 MW
- Waste heat recovery boilers on sponge iron exhaust flue gases and exhaust from carbon black industries

Value-added Services

- Revamp and retrofit of boilers and heaters
- Thermax branded services: Comprehensive check-up, safety, HAZOP and RLA studies, annual service contracts, repair and maintenance

HIGHLIGHTS



30+
industries served



38+
countries



30k+
installations worldwide



2k+
boilers and heaters manufactured each year

CLEAN AIR

CLEAN ENERGY

CLEAN WATER



STEAM ENGINEERING

Innovative
services and
products
for energy
efficiency

Thermax's comprehensive range of steam products and solutions coupled with high engineering expertise help industries combat

a variety of challenges such as increasing energy and water costs, reduced operating efficiency and stringent health, safety and environmental norms.

In large capital projects, our expert sales engineers work with end users, their design consultants, or their contractors to advise, design or supply complete new steam systems.

Detailed steam system audits, carried out by our sector specialist

steam engineers, identify opportunities for improved efficiency in our end users' processes, including energy and water savings. Audits can identify the cause of known problems or uncover unrecognised needs.

We supply the replacement products required to keep our end users' steam systems operating at an optimum level and also offer service contracts.

Value Proposition

- Improves production output and product quality
- Enhances plant monitoring and efficiency
- Meets statutory rules/regulations
- Complies with industry standards and H&S requirements



SOLUTIONS

Steam Engineering Products and Systems

- Steam traps and modules
- Bellow seal valves
- Pressure reducing station and desuperheating systems
- Condensate recovery systems
- Instaheat – hot water generator
- Monitoring devices

Specialised Services and Applications

- Energy audit
- Utility piping consultancy
- Process automation
 - Autoclave automation
 - Rice dryer automation
 - Ply automation
 - Blow through systems

HIGHLIGHTS



14+
industries served



20+
countries



14+
years of expertise



85k+
steam traps and modules installed

CLEAN AIR

CLEAN ENERGY

CLEAN WATER



COOLING

Absorption cooling and process cooling systems

Thermax's wide range of absorption cooling and heating solutions have been designed to help industries achieve 'profit from heat', which is a result of Thermax's continued commitment towards enhancing absorption technology. These

solutions enable customers to reduce their dependency on grid power and generate utilities like chilled water and hot water for process applications. This helps to reduce the overall carbon footprint and make operations cost-effective and sustainable.

A variety of heat sources power the entire offering of the Absorption Cooling and Heating businesses, helping industries minimise their operational expenses without causing harm to the environment by using water as the refrigerant.

By harnessing waste heat from various applications, the company's endeavour has improved productivity and operational excellence across multiple industries and processes.

The range of wet and dry cooling solutions uses air, water or a combination of both as the medium of heat rejection to keep the process fluid/refrigerant properly cooled and increases the efficiency of production processes and operation of equipment.

Value Proposition

- Using water as an eco-friendly refrigerant
- Handling process utility needs from -40°C to 160°C
- Catering to 100+ applications and 1,500+ trigeneration installations
- Very low or negligible electric power consumption
- Remote Online Service Support (ROSS) for providing instant solutions to customers across the globe.
- Real-time monitoring and control with proactive and predictive alerts and recommendations to customers



SOLUTIONS

Absorption Cooling and Heating

- Vapour absorption chillers
- Heat pumps
- Hybrid chillers
- Chiller-heaters
- Heat transformers

Process Cooling

Wet cooling solutions

- Evaporative condensers
- Closed loop cooling towers
- Adiabatic coolers

Dry cooling solutions

- Dry coolers
- Radiators
- Air cooled heat exchangers

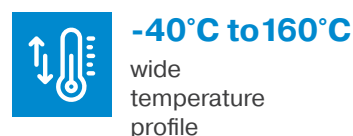
Value-added Services

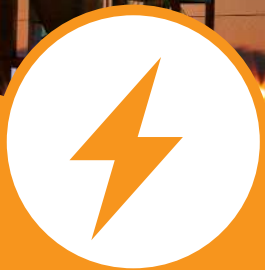
- Proactive services
- Preventive services
- Corrective services

Value-added Products

- Evaporative IIoT-based smart control panels
- LiBr filtration systems
- Automatic purging system
- Automatic/electric tube cleaning systems
- Miniature wireless BMS system
- Modernisation of old units

HIGHLIGHTS





PROJECTS AND ENERGY SOLUTIONS

Turnkey power plants

Thermax P&ES division is the flagship EPC arm of Thermax helping industrial customers set up a variety of projects on a turnkey basis.

The division has been a pioneer in bringing the concept of EPC (Engineering, Procurement and Construction) in industrial power generation. Spanning over 150

varied projects, P&ES division has contracted more than 3,500 MW of power plants. Further, the division is executing multiple EPC projects for bio-CNG plants, flue gas desulphurisation plants and refinery process units. P&ES's EPC offering frees clients from risks by guaranteeing on-time delivery, high performance and least lifetime cost.

It caters to a wide spectrum of industries and has a distinctive edge in designing, engineering and executing process and power plants

with guaranteed performance standards.

Thermax offers complete plant operations and maintenance services with guaranteed uptime.

With Thermax's engineering expertise, use of state-of-the-art software, global procurement capability, ERP-driven construction progress monitoring and digitally-enabled project management and control, the company is best placed to execute projects on a turnkey basis.

Value Proposition

- Single point responsibility for time, cost and performance
- Enables the customer to focus on their core business and minimises risks
- Technology-driven integrated project management
- Proprietary O&M processes and solutions for high uptime and reliability
- O&M solutions backed with EPC and OEM expertise
- End-to-end expertise in energy management and sustainability
- World-class safety standards



SOLUTIONS

Turnkey / EPC Solutions

- Power plants based on a variety of fuels like natural gas, coal, pet coke, washery rejects and various biomass
- Waste heat recovery power plants for cement, steel and iron industries
- Wet and dry flue gas desulphurisation units
- Bio-CNG plants
- Refinery process unit

Specialised Services

Operations and maintenance

- Power plants
- Multi-utilities including boilers, chillers, water and wastewater treatment plants, compressors, N2 units etc.
- Annual maintenance contract
- Shutdown maintenance

Energy Management Solutions

- Digital and IoT-based solutions
- Power cycle improvement
- Automation

Spares

- Genuine and reliable spare parts

HIGHLIGHTS



150+
power projects
cumulating to
over 3.5k MWe



100+
plants under
O&M services



2k+_{MW}
cumulative O&M
experience



Global footprint
for projects
and services



RENEWABLE ENERGY

Renewable 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 storage batteries to provide renewable energy to its customers

in the commercial and industrial space.

With this infrastructure, the Renewable Energy business will partner with large and small industries that want to transition to clean energy and help them navigate their energy switch journey over a long period with customised off-grid solutions.

The business provides end-to-end solutions, from concept to commissioning and Operations

and Maintenance (O&M) support thereafter.

Being a group company of Thermax, which carries over five decades of experience in the energy domain, First Energy Private Limited commands an edge in understanding the unique energy matrix and designing a solution that is custom-made to suit different industries, applications, and energy management goals.

Value Proposition

- Reliable, eco-friendly technology to reduce carbon footprint and establish green credentials.
- Customised off-grid and on-grid solutions
- Build and operate bespoke and flexible energy assets
- Innovative financing options
- Facilitates transition from behind the meter to beyond the meter
- High returns with attractive payback in 3-5 years



SOLUTIONS

Offerings

Solar rooftop

- Industrial rooftop solar PV installations
- Innovative solutions for complex roof types, including cantilever beams, curved roofs, elevated structures, carports, etc.

Solar ground mounted

- Most efficient angles to maximise power generation
- Better cooling of panels through efficient air circulation
- Easy maintenance

Solar hybrid farms

- Produces power in a continuous pattern

Storage batteries

- Cost savings with reduced dependency on the grid

Carport

- Serves a dual purpose of providing shade to cars while harnessing the power of the sun
- Ideal for large industrial campuses with covered ground level parking

Wind OPEX

- Experience in handling multiple energy sources, both conventional and non-conventional as well as hybrid solutions involving wind.

Specialised Services

- Round-the-clock renewable energy solutions
- OHSAS 45001:2018 certified sites
- 25-year contracts with capex investment
- Dedicated O&M team and nationwide service support

HIGHLIGHTS



72+_{MW}
capacity



200k+
tonne of
reduction in
CO₂ emissions



245+
million units
of electricity
generated



150+
delighted
customers across
geographies

CLEAN AIR

CLEAN ENERGY

CLEAN WATER



WATER AND WASTE SOLUTIONS

Turnkey installations and standard products

Thermax has more than 50 years of industry expertise in providing innovative solutions for meeting water and wastewater treatment needs. We have installed more than 600 industrial plants and 25,000 standard plants for various industrial and urban

sectors like food & beverages, pharmaceuticals, oil & gas, chemical & fertiliser, automobile, engineering, educational institutes, hotels, hospitals, residential complexes, commercial complexes, IT parks, railway stations, airports, fuel stations, etc.

Thermax's wastewater recycling technologies help industries to recycle and reuse the treated wastewater and to wisely contribute towards environmental sustainability. By achieving Zero Liquid Discharge (ZLD), industries are focussing on the safe disposal

of generated wastewater, adhering to stringent government disposal norms.

Thermax offers a range of products and solutions in water and wastewater treatment using optimum resources – to make businesses more rewarding and customer-friendly. These products can help industries meet the demands of regulators and, more importantly, the growing concerns of the new generation customers – sustainable, safe and healthy living and clean cities.

Value Proposition

- One stop solution for efficient plant management
- Over 90% of water can be recovered from effluents for reuse
- Zero discharge ensured for any liquid stream using ZLD
- Innovation-led play in niche applications (fluoride removal / heavy metal removal / tough to degrade effluents)
- Compact, modular and automated systems for urban sector
- Experienced and skilled O&M for maximum plant uptime



SOLUTIONS

Offerings

- Water treatment
- Sewage treatment and recycling
- Effluent treatment and recycling
- Zero liquid discharge solutions
- Desalination
- Solid waste management
- End-to-end customised services

Specialised Services

- Thermax differentiated services (customised service plans for industrial and urban segments)
- Plant improvement and upgrades
- Plant automation
- Plant audits and evaluation
- Spare parts management and support
- Characterisation and treatability test
- Membrane integrity autopsy
- On-site training

HIGHLIGHTS



2 lakh m³/hr
water treated



1 lakh m³/hr
wastewater
recycled



in India to install
a large-scale
desalination
plant



in India to
install an
effluent
recycle plant



CHEMICALS

Specialty chemicals

Thermax's specialty chemicals enable customers across a spectrum of industries to improve efficiency and performance.

As one of Asia's leading manufacturers and exporters of ion exchange resins and a pioneer in chemicals for fuel and water treatment, Thermax also supplies oil field chemicals and construction

chemicals. Backed by technological expertise and capabilities honed over more than four decades, the chemical business supports the entire spectrum of Thermax's energy and environment businesses.

Thermax Chemicals manufactures its world-class products in facilities equipped with automated process and instrumentation controls and with ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 accreditations.

Backed by a strong distribution network, Thermax Chemical division serves its customers in South East Asia, SAARC, Africa, the Middle East and the Far East.



Value Proposition

- Wide product range
- On-time technical services
- Products manufactured from three world-class manufacturing units
- Global reach with a strong dealer and distribution network
- In-house R&D and quality assurance labs
- Flexibility in product customisation
- Better quality at cost-effective value



SOLUTIONS

Ion Exchange Resins

- Offering ion exchange resins for aqueous and non-aqueous applications
- Tulsion® is a premium brand and enjoys a global reputation in the field of water and wastewater treatment and process application technologies.
- Tailor-made specialty applications in food, biotech, metal recovery, high purity water, heavy metal removal, catalysts, chemical processing and nuclear industry

Oil Field Chemicals

- Wide variety of in-house developed polymers to suit different crude characteristics
- One of the pioneers in providing customised Pour Point Depressants (PPD) used for flow enhancement to renowned oil field service providers
- Offering chemicals required mainly in primary and secondary recovery stages

Water and Fuel Treatment Chemicals

- Customised water treatment programmes to treat boiler water, cooling water and reverse osmosis membranes along with polyelectrolytes for raw water and effluent treatment
- Innovative automated monitoring and dosing systems for industrial and infrastructure segments
- Comprehensive fuel treatment chemicals for fireside along with a gamut of sugar process chemicals

Construction Chemicals

- Thermax's construction chemicals cater to the entire spectrum of construction needs.
- Providing sustainable construction solutions with an extensive range of offerings like concrete admixtures, repair and rehabilitation, industrial flooring, waterproofing systems, grouts and anchors, protective coatings and sealants and adhesives

HIGHLIGHTS



30+
industries served



40+
years of experience



100+
projects commissioned globally



5k+
customers across the globe

CLEAN AIR

CLEAN ENERGY

CLEAN WATER



BUILD-OWN- OPERATE (BOO)

Outsourced utility delivery services on Build-Own- Operate (BOO)

Thermax Onsite Energy Solutions Limited (TOESL), a wholly-owned subsidiary of Thermax, offers outsourced plant utilities through

the Build-Own-Operate (BOO) business model.

TOESL invests, installs and operates the utility plant in customer premises and undertakes its comprehensive operations & maintenance along with supply chain management of all consumables including biomass fuels. The customers are relieved from the burden of owning and running these utilities and hence, are able to focus more on their core manufacturing processes.

Established in 2009, as a reliable partner with proven expertise in energy and environment solutions, TOESL has established long-term outsourced utility delivery service contracts with leading corporate and multinational companies across various industrial segments such as food, drugs and pharmaceuticals, chemicals (paints, specialty chemicals), textile, tobacco products, metal, etc.

Value Proposition

- Green utilities supplied based on renewable, recycling and recovery solutions
- Capital investment by TOESL frees up cash flow for core business
- Operational risk management with guaranteed uptime of utility plant
- Lifecycle maintenance and performance responsibility of the utility plant by TOESL
- Achieve decarbonisation – reduce carbon footprint and freshwater consumption
- Achieve energy and operational efficiencies



SOLUTIONS

- Biomass based steam and heat
- Water treatment and recycling
- Biomass based cogeneration
- Chilled water and hot water
- Waste heat recovery solutions
- Multi-utility supply

Why Choose TOESL?

- 10+ years of experience in providing outsourced utility delivery solutions on Build-Own-Operate model
- Only OEM company to provide end-to-end utility services under a sustainability initiative
- End-to-end utility delivery on consumption based billing
- Long-term utility supply contracts assuring complete operations and maintenance of the utility plant
- Established supply chain of 1,000+ tonne of biomass fuel per day
- Achieve sustainability goals in partnership with utility OEM
- One stop solution for all plant utilities

HIGHLIGHTS



35+

installations in India;
first installation in Indonesia
commissioned



60+

assets under
management
across sites



0.58_{mn}

tonne per annum
of CO₂e reduction
across all sites (as
on March 2021)



0.22_{mn}

kilo litre total
water treated
(as on March
2021)

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Market-driven R&D

Nurturing an innovation ecosystem

Thermax has, over the years, introduced several products that have redefined industrial process efficiency. Its market-driven R&D effort in the product development process led to the success of Thermopac, a high temperature liquid phase heater that replaces electricity with oil or coal as the heating medium; triple effect absorption chillers that are 20% more efficient than earlier generation systems; fluid bed scrubbing for gaseous as well as particulate emissions; compact biomass fired boilers and heating systems with high efficiency combustion systems, new fuels and with reduced levels of pollutants like sulphur dioxide.

Thermax's focus on application oriented R&D led to the creation of Research, Technology, and Innovation Centre (RTIC). The centre supports business research teams and houses its own centres of excellence dedicated to material science, biotechnology, solar, advanced computation, combustion and heat transfer.

RTIC collaborates with leading scientific and academic institutions to bridge the gap between industry requirements and academic curriculum.

Thermax has institutionalised the N. D. Joshi Innovation awards through which it recognises and celebrates technological innovations of its employees that have resulted in significant business gains for the company.



Technology Partnerships

Tie-ups with technology champions

To make its offerings relevant for client businesses, Thermax upgrades its technology portfolio in the energy and environment space through tie-ups with global technology majors. Some of the recent partnerships are:



Babcock & Wilcox Power Generation Group, INC. (Utility boiler technologies)



Lambion Energy Solutions, Germany (Grate technologies)

**BALCKE
DÜRR**

Balcke Durr, Germany
(Dry electrostatic precipitators, regenerative air gas heaters and pulse jet bag filters)



Marsulex Environmental Technologies, USA
(Wet & semi dry flue gas desulphurisation technologies)



Steinmuller Babcock Environment
(Municipal solid waste fired waste to energy boilers)

Global Network



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 | |

Denmark



Poland



India



Indonesia



90+

Countries

14

Facilities

213

Channel Partners
in and around India

85

International
Channel Partners

Digital Solutions

Thermax Edge™

Taking cognisance of the need to improve our services and turnaround time, Thermax has pioneered a first-of-a-kind customer portal, Thermax Edge™, to solve all asset lifecycle needs of its customers. This all-inclusive platform caters to the complete spectrum of Thermax's clientele, ranging from MSMEs to corporates, who need information on purchasing a product and its related spares and services. It helps customers track completed and/or ongoing orders, as well as stay informed on the latest news from Thermax. The customer portal is a digital product that enables easy access to all business-related information from the comfort of customers' home and office.

Guidance

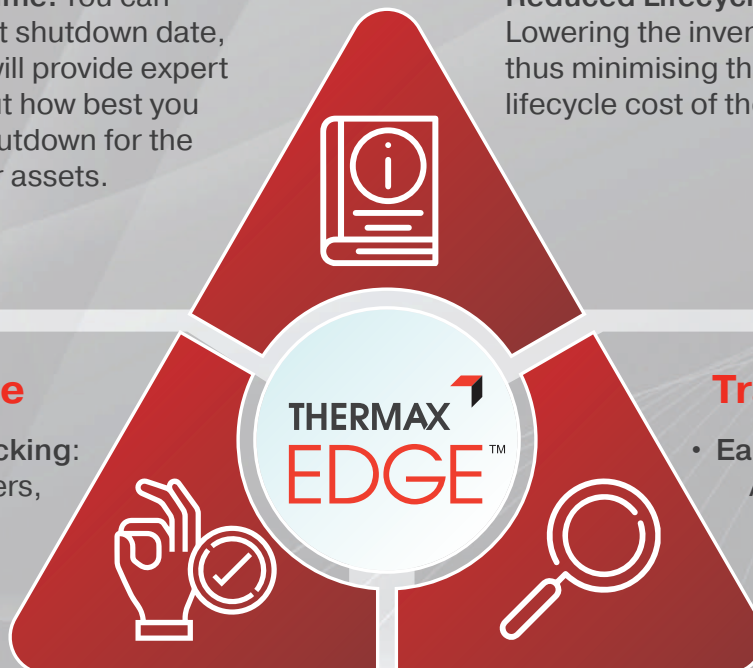
- **Higher Efficiency:** Based on the lifecycle of spares and services, Edge provides smart recommendations, helping you operate your plant efficiently and reliably.
- **Improved Uptime:** You can share your next shutdown date, and Thermax will provide expert guidance about how best you can use the shutdown for the upkeep of your assets.
- **Reduced Lifecycle Cost:** Lowering the inventory cost, thus minimising the overall lifecycle cost of the utilities.

Convenience

- **Real-Time Tracking:** Track your orders, inquiries, complaints and service requests in real-time.
- **Assured Assistance:** Reach out to a dedicated business manager of Thermax for specific asset needs.
- **Resource Availability:** Access to more than 100+ channel partners serving across geographies.

Transparency

- **Easy Accessibility:** Allows you to see all your installed assets in one place, helping you manage them efficiently.
- **Tracking your assets:** Helps you track asset history and life of spares in order to optimise your asset lifecycle.
 - **Hands-on Management:** Enables you to maintain your assets effectively.



Thermax Edge™ Live

Thermax Edge™ Live, an enterprise asset performance enhancement solution, integrates all your industrial assets across the globe and can perform data analytics at the click of a button. It is powered by advanced capabilities such as AI (Artificial Intelligence), ML (Machine Learning) and Thermax engineered algorithms. Besides serving as a digital solution, it leverages the company's longstanding experience in energy and the environment space, which translates seamlessly into expert guidance and service for customers.

Thermax Edge™ Live makes asset management both predictive and proactive, enabling improved plant performance, enhanced uptime and knowledge management.

Augment your business outcomes with Thermax Edge™ Live

Improved Plant Performance

Diagnosis and prevention of losses

- Provides recommendations to optimise energy consumption and reduce carbon footprint
- Facilitates expert guidance to improve efficiency and enhance decision making

Knowledge Management

Enhanced knowledge sharing and collaboration

- Improves asset performance by leveraging timely alerts and reports
- Empowers the workforce to leverage expert guidance
- Retains knowledge expertise

Enhanced Uptime

Minimise unplanned downtime

- Predicts issues and recommends actions
 - Automated detection leveraging the diagnostic library with 2,000+ failure modes
 - Predictive models - enables learning from the past and detecting issues early in order to minimise failures
- Facilitates safe operations



Manufacturing Facilities



Dahej, Gujarat (India)



Jhagadia, Gujarat (India)



Savli, Gujarat (India)



Mundra, Gujarat (India)



Chinchwad, Maharashtra (India)



Paudh, Maharashtra (India)



Solapur, Maharashtra (India)



Shirwal, Maharashtra (India)



Sri City, Andhra Pradesh (India)



Danstoker, Poland



Danstoker, Denmark



Rifox, Germany



Thermax International Indonesia (PT TII), Indonesia



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

Conserving Resources,
Preserving the Future.



Air Pollution
Control



Boiler and
Heater



Build-Own
-Operate



Chemical



Cooling



Projects and
Energy
Solutions



Process
Heating



Renewable
Energy



Water and Waste
Solutions

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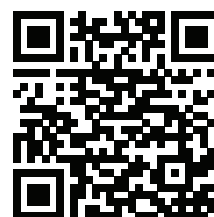
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This brochure presents only some of our products and we reserve the right to amend any product details without notice.
The photographs used in the brochure are indicative and may not match the actual plant.

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