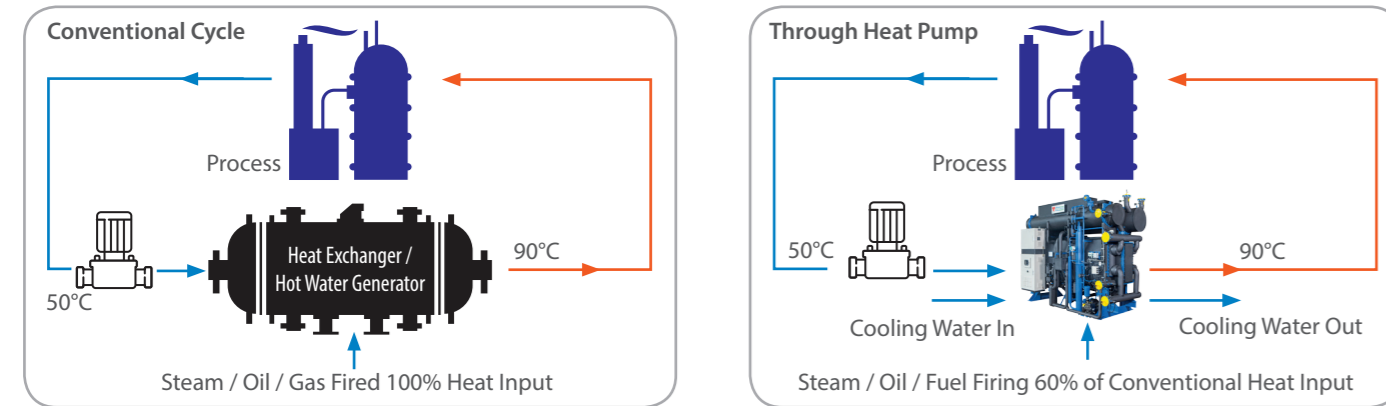


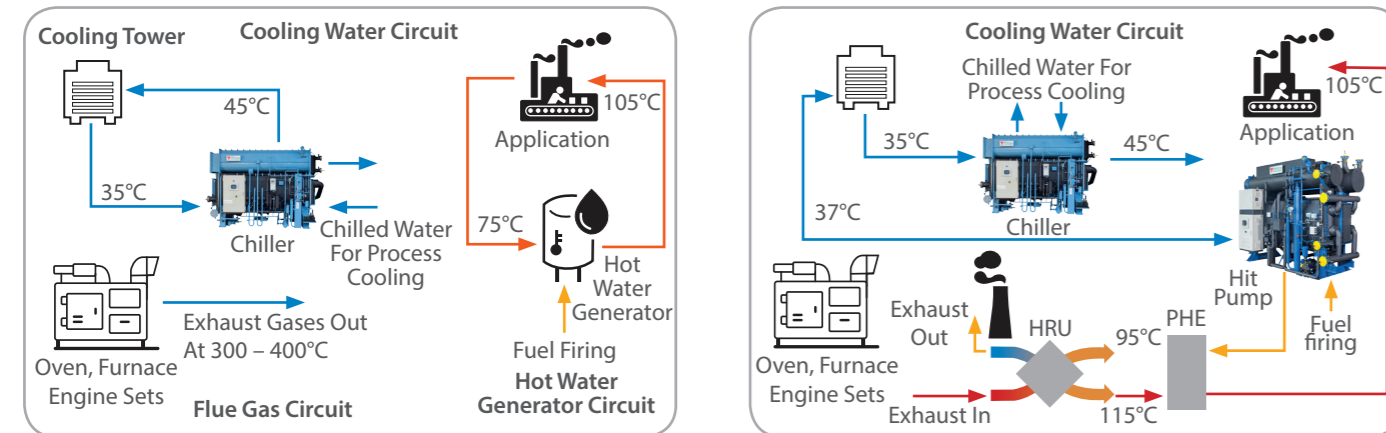
Applications

Process Industries



In process industries, hot water at 90°C is required for process heating. They usually have cooling water at about 35°C. In an Absorption Heat Pump this 35°C water passes through the evaporator and the temperature of the water can be reduced upto 30°C. This heat can be pumped upto 90°C by using steam in the generator of an Absorption Heat Pump. Usually 40% of the heat can be picked up from the evaporator and 60% can be given by the steam.

Automobile industry



In Automobile industries hot water at 105°C is required in paint booth. They also have cooling tower and exhaust gases are generated in ovens, furnaces or DG sets. The integration of all waste heat resources using a heat pump to generate hot water is shown through the schematic diagram above. Integration of Thermax Heat Pumps with existing system helps in savings in the form of reduced fuel firing, reduction in cooling tower size and utilization of exhaust gases.

Notes

References

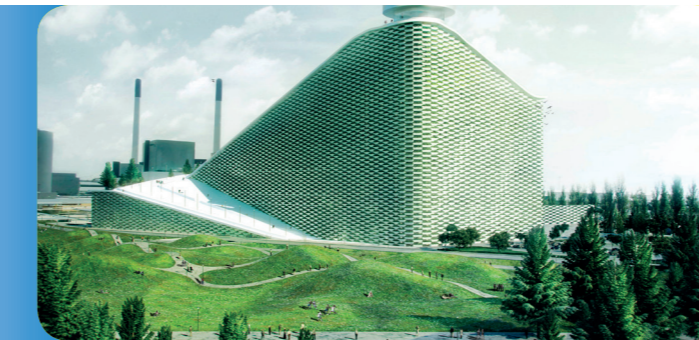


Hero Motocorp Ltd.

Machine model- GS 40B P / GS 40C TP
 Heating Capacity- 1394 kW / 1360 kW
 No. of Machine- 2
 Total Installed Capacity- 2754 kW
 Type- Gas Fired
 Industry- Automobile

Amager

Machine model- SS 80D P
 Heating Capacity- 4345 kW
 No. of Machine- 8
 Total Installed Capacity- 33960 kW
 Type- Steam Fired
 Industry- District Heating



The Malt Company (India) Private Limited

Machine model- SS 60D P X 2 / SS 60A P
 Heating Capacity- 15992 kW / 6149 kW
 No. of Machine- 3
 Total Installed Capacity- 22141 kW
 Type- Steam Fired
 Industry- Brewery



THERMAX

Sustainable Solutions in Energy & Environment

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design@synergydesign.in



Absorption Heat Pump



Absorption Cooling & Heating Solutions

Sustainable Solutions in Energy & Environment

With over 50 years of expertise in the field of Thermodynamics, Thermax helps extract even the last calorie available at your facility. Solutions in the form of absorption chillers, heat pump, chiller-heaters, composite chillers, ultralow pressure vapour chiller & multi energy chillers are used in more than 100 applications and over 50 industrial segments for air conditioning, industrial cooling and heating.

Thermax has helped clients with Eco-friendly air conditioning and process cooling to reduce their carbon footprints. Thermax has a global foot print in 90+ countries across Asia Pacific, Africa, Middle East to CIS countries, USA and South America.

Solutions offered by Thermax are differentiated by

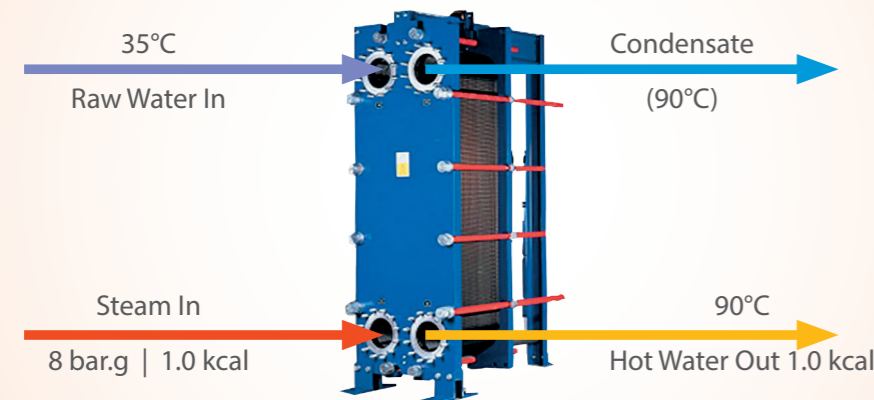
- Reduction of operational cost
- Reduction in electricity consumption
- Reduction in the GHG emissions, zero ozone depletion potential

Thermax's unique heating & cooling solutions accommodate a wide range of industrial & commercial applications across the globe. These solutions deliver high efficiency, cost effectiveness & are environment friendly.

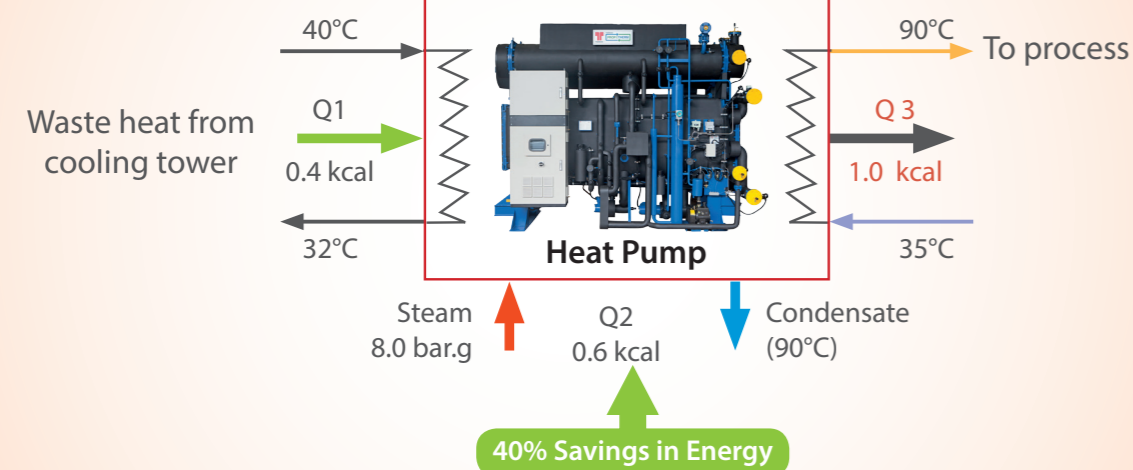
Why Heat Pump

In comparison to conventional PHE based system, Thermax's Absorption Heat Pump provides direct savings on the live energy consumption up to 40%. The low grade heat recovery from cooling tower water and evaporative losses also can be brought down using heat pumps, reducing water consumption.

Conventional System

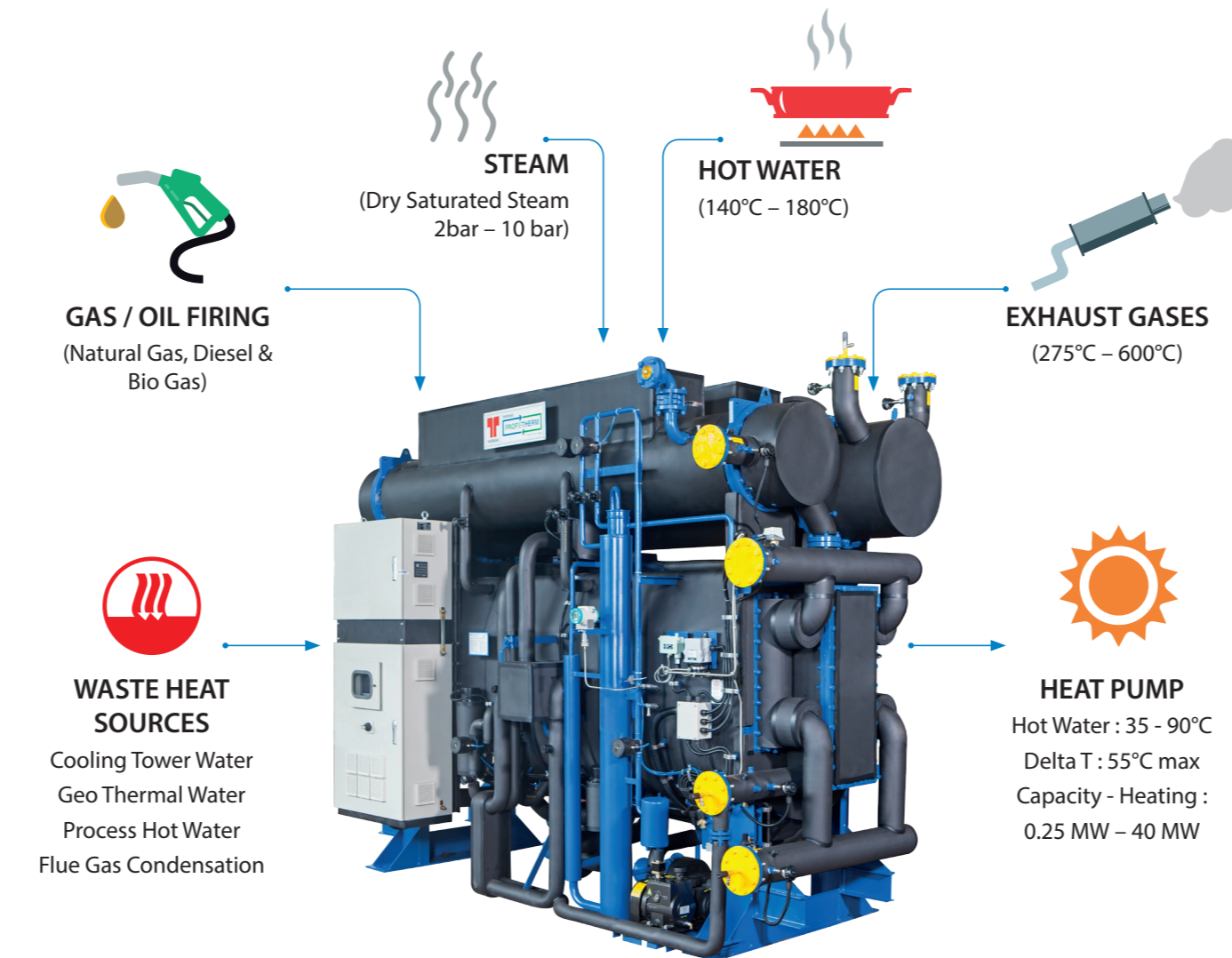


System with Heat Pump

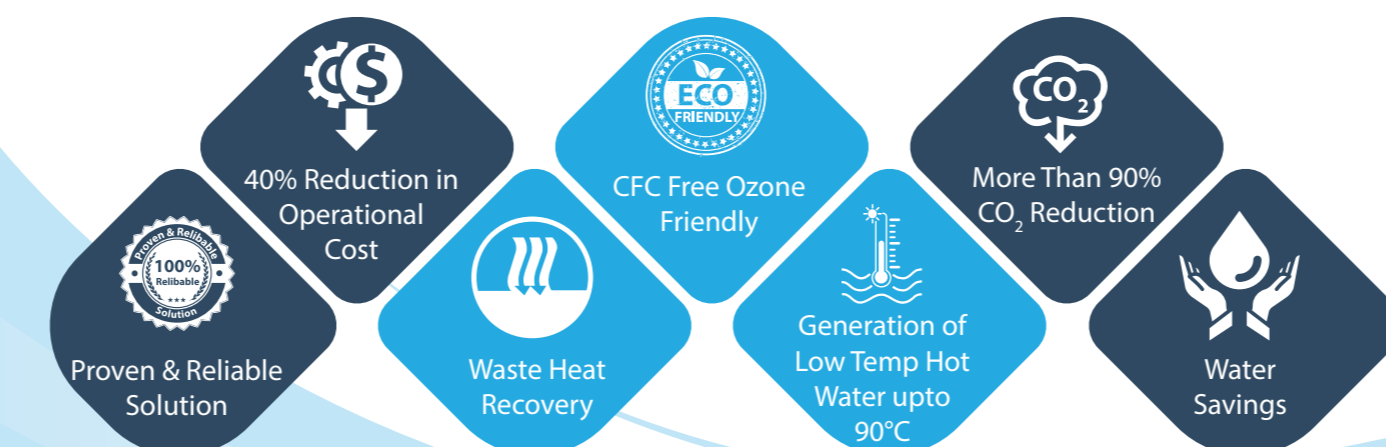


Thermax's Absorption Heat Pump

Thermax's Absorption Heat Pump is considered as a sustainable solution for generating medium temperature hot water from low temperature hot water using high grade energy. This high grade energy can be taken from dry saturated steam, high temperature hot water, exhaust / flue gases or using conventional fuels (Natural gas, LPG, Diesel etc.)



Features of Heat Pump



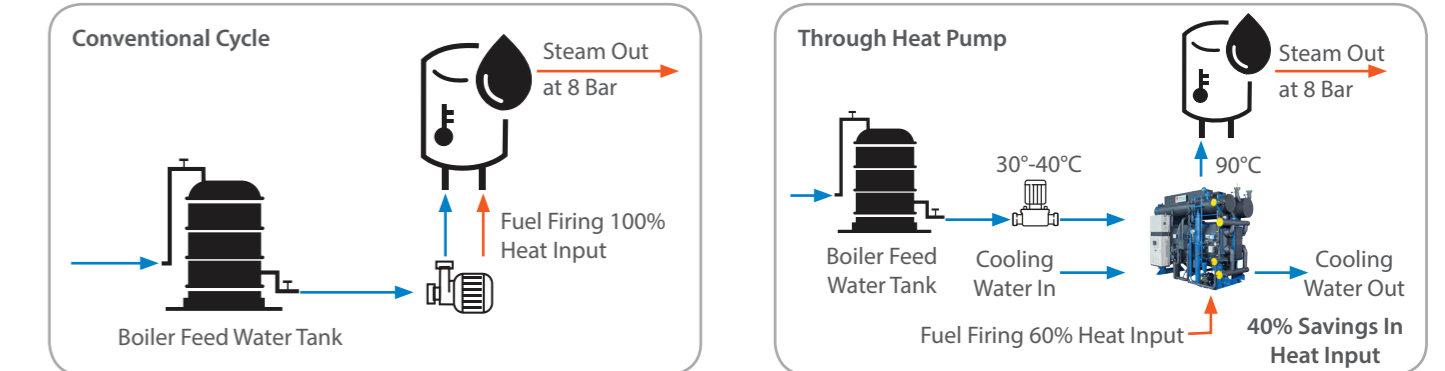
Why Thermax

At Thermax we have successfully developed & commercialized Absorption Heat Pump for the utilization in multiple industries & applications. Having more than 150 Installations working successfully across the globe, Thermax Heat pump is majorly into Automobiles, Textiles, Pharmaceutical, District Heating, Paint and White Good Industries

- Proven and reliable absorption cooling & heating technology
- Reduced load on system and power/fuel saving up to 40%
- Optimum utilization of waste heat
- Lower fuel consumption for hot water generation as compared to hot water generators
- Reduction in CO₂ emissions by 90% due to lower fuel consumption
- Reduction in the scope of utilities to be handled daily as single product is used in place of two systems, thus reducing operating costs by 40%

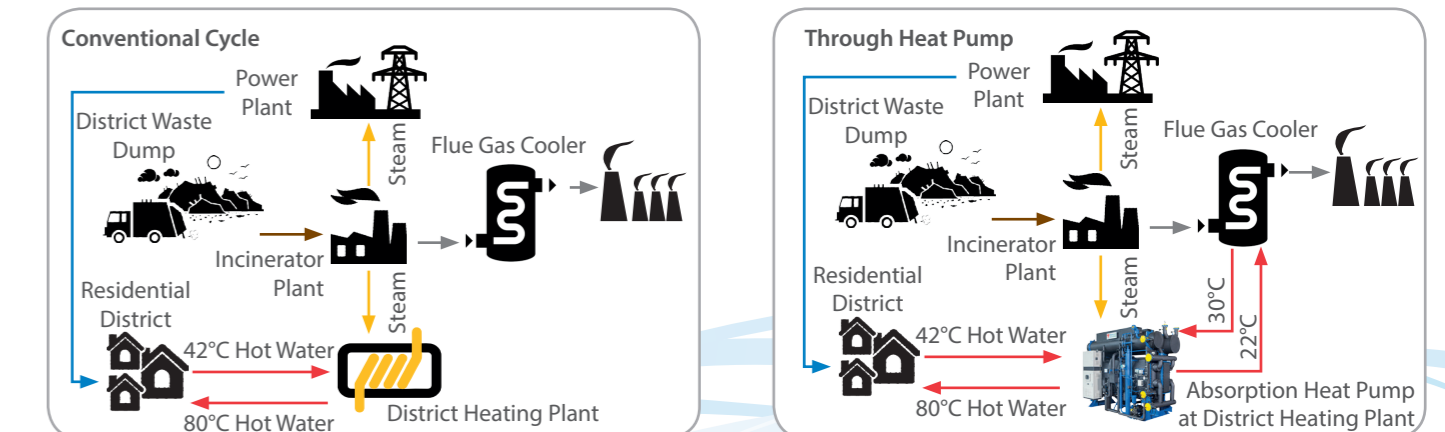
Applications

Feed Water Heating



Conventionally in a boiler, water needs to be heated from ambient temperature to its saturated steam pressure and temperature. In a furnace oil fired boiler, the water needs to be heated upto 90-105°C temperature before it enters the boiler. Such heating is required to drive out oxygen from the water to avoid oxygen attack in the boiler tubes. In a shell type boiler, normally this heating is done by means of steam sparging in the feed water tank. By using an Absorption Heat Pump, savings of up to 40% in fuel firing can be achieved as 40% of heat is utilized from low grade heat source like cooling water.

District Heating



Conventionally in cold countries, for district/community heating projects, hot water used is generated using the steam produced at mass incinerator plants. By burning the municipal waste, the steam is supplied to power plants for power generation and release flue gas in the atmosphere. With the integration of Thermax's Absorption Heat Pump in the existing system, hot water generation increases by 40% utilising the heat energy from flue gases as lower grade heat input to generate hot water upto 90°C.