



Heat Pump Chiller

Double Action. Single Solution.



Absorption Cooling and Heating Division

Absorption Cooling and Heating is a unit of Thermax Limited, a leading provider of energy and environment solutions based in Pune, India. We are a global leader in providing sustainable cooling and heating solutions for industrial refrigeration, air conditioning, and process cooling and heating and have over 6300 installed chillers across 96 countries. We offer an extensive range of solutions that use waste heat from steam, hot water, thermic fluid, exhaust gases and so on as an energy source and employ and operate on natural refrigerant, water.

Overview

Heating and cooling are two essential operational needs in many industries. Generally, Vapour Absorption Chillers are used for cooling whereas liquid/gaseous fuels are used for heating. It takes two separate machines to effectively meet both the requirements. However, the ongoing climate change issue and shortage in energy and resources have pushed the world to adopt innovative solutions that can meet multiple industrial demands singlehandedly. In this view, having a single equipment for both cooling and heating, offering excellent flexibility in terms of load and output first and foremost, is the need of hour. It can be great help for both your business and the environment.

Heat Pump Chiller

Thermax's one of the most promising innovations, **Heat Pump Chiller**, meets the new-age industrial demands by delivering the operations of both a chiller and boiler in a single solution. It cools, heats, or does both simultaneously by offering three unique modes of operations, viz. **Cooling, Heating, and Simultaneous.** The ability to change loads and mode of operations according to the operational needs allows businesses to achieve maximum flexibility and overall savings.

Having waste heat recovery and absorption techniques at its core, Heat Pump Chiller helps industries reduce energy usage and carbon emissions, thus becoming one of the crucial sustainable solutions to save our environment. On the operations side, it offers **32% overall energy savings and 60% water savings**. It delivers chilled water as low as 1°C and hot water as high as 90°C.



Driving heat source

Steam, Hot Water, Exhaust, Fuel firing, and Thermic fluid



Modes of operation

Cooling, Heating, Simultaneous



Hot water output

Up to 90°C



Overall energy savings Up to 32%



Chilled water output

Up to 1°C (without Glycol)



Water savings

Up to **60**%



Space optimizationSingle equipment for

cooling and heating needs



Patented technology

Heating



Hot Water Generator

Input: 2647 kg/hr [Steam] Output: 1760 kW [Heating]

Cooling

Absorption Chiller

Input: 686 kg/hr [Steam] Output: 196 TR [Cooling]



Total Input: 3333 kg/hr

Conventional System

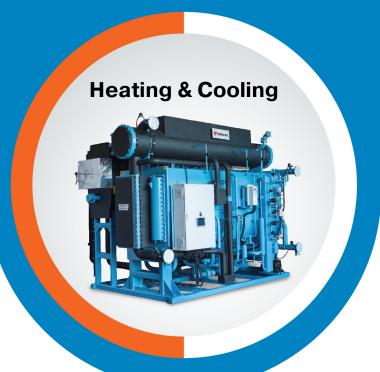


Thermax Heat Pump Chiller

Steam Driven Heat Pump Chiller

Input: 2267 kg/hr [Steam]
Output 1: 196 TR [Cooling]
Output 2: 1760 kW [Heating]

Single Input: 2267 kg/hr







Benefits

- 40% savings in heating energy (simultaneous mode)
- 60% water savings
- Cooling mode efficiency is equivalent to the double effect cycle
- Flexibility to operate either as a chiller or heater or both simultaneously
- Less dependence on grid power reduced CO₂ emissions
- Reduction in the scope of equipments to be maintained and monitored as it serves two purposes

Why Thermax

- Maximum uptime with 24x7 IIoT-based chiller monitoring
- Minimum maintenance and operational cost
- No requirement for LiBr/DM Water top-up
- Crystallization-free design
- No vibrating parts
- Fully automated operations
- No harmful refrigerants

Industries & Applications



Chemical

Reactor heating and cooling



Beverages

Syrup heating and cooling



Automobile

Paint booth

Dairy

Milk pasteurisation and cooling



Pharmaceuticals

Reactor heating and air conditioning



Refineries & Petrochemicals

Process cooling and heating

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