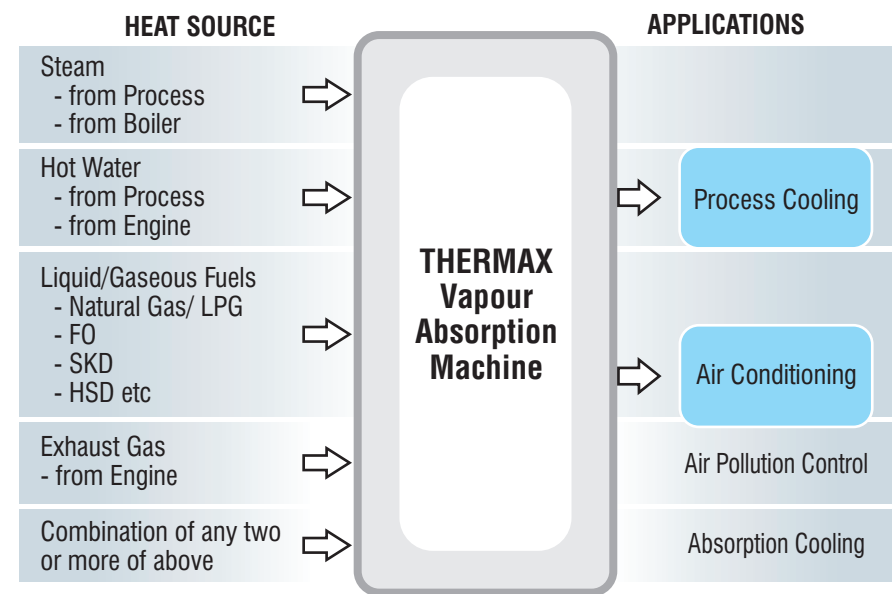


## Meet your cooling requirements from any heat source



## Global quality standards



*In view of our constant endeavour to improve the quality of our products, we reserve the right to alter or change specifications without prior notice. All photographs shown in this publication are representative in purpose, and to be used for reference only. For actual details and specifications, please refer to Therman offer document.*



**THERMAX**

Sustainable Solutions in Energy & Environment

### Cooling & Heating Division

D-13 MIDC, R.D.Aga Road,  
Chinchwad, Pune - 411 019, India.  
Tel.: +91 -20-2747 5941 Fax:+91-20-27475907

**Thermax Ltd, Bangladesh**  
Telefax : 008802-9885823 Mob : 0088011808001  
Email : madhav@worldnetbd.net

**Thermax do Brasil**  
Tel : +5521 -2516 9227 Fax : +5521 -2516 9226  
Email : rajesh.sinha@thermaxdobrasil.com.br  
www.thermaxdobrasil.com.br

**Thermax Europe Ltd, U.K.**  
Tel : 00-44-1582-727756 Fax : 00-44-1582-731538  
Email : dinesh@thermax-europe.com  
www.thermax-europe.com

**Thermax Hong Kong Ltd**  
Tel : (852) 2584 6199 Fax : (852) 2584 6133  
Email : vaishnav@thermax-china.com  
www.thermax-china.com

**Thermax Ltd. Kenya**  
Tel : 00-254-20-4440233 Fax : 00-254-20-4451919  
Email : milind@spenomatic.net

**Thermax Ltd. Malaysia**  
Tel : 00-60-3-2166 9801 Fax : 00-60-3-2166 9802  
Email : thermax@tm.net.my

**Thermax Ltd, Nigeria**  
Tel : 00-234-1-4924019 Fax : 00-234-1-4936187  
Email : thermax.ing@hyperia.com

**Thermax Rus Ltd. Russia**  
Tel : 00-7095-935049/91 Fax : 00-7095-1347410  
Email : thermax-moscow@concord.ru

**Thermax Ltd. Saudi Arabia**  
Tel : 00-966-3-857-5056 Fax : 00-966-3-857-5068  
Email : themax@saudionline.co.sa

**Thermax Ltd. Srilanka**  
Tel : 00-9411-4407969 Fax : 00-9411-2533217  
Email : radesh@dialogsl.net

**Thermax Ltd. Thailand**  
Tel : 00-66-02-381 5423 Fax : 00-66-02-381-8987  
Email : hexaacd@bkk3.loinfo.co.th

**Thermax Ltd, U.A.E.**  
Tel : 00-971-4-8816481 Fax : 00-971-4-8816039  
Email : thermax@emirates.net.ae

**Thermax Inc. USA**  
Tel : 00-1248-4743050 Fax : 00-1248-4745790  
Email : rnabar@thermax-usa.com  
www.thermax-usa.com

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

### Thermax Business Portfolio

Water & Waste Solutions

Air Pollution Control

Chemicals

Boilers & Heaters

Absorption Cooling

Captive Power



## Cooling & Heating



**TRIGENIE™**

40 TR - 2000 TR

**Multi-energy Vapour Absorption Machines**

*From the leader in innovative cooling and heating solutions*



**Improving your business is our business**

Thermax offers products, systems and solutions in energy and environment engineering to industrial and commercial establishments around the world. Its business expertise covers heating, cooling, waste heat recovery, captive power, water treatment & recycling, air pollution control & waste management and performance chemicals. Thermax brings to customers extensive experience in industrial applications, and expertise through technology partnerships and strategic alliances.

Operating from its headquarters in Pune (Western India), Thermax has built an international sales & service network spread over South East Asia, Middle East, Africa, Russia, UK and the US. It has a full fledged manufacturing set up that is certified for ISO 9001:2000, ISO 14001 and safety management according to OSHAS (ISO 18000).

**Cooling & Heating Division - Cooling SBU**

Cooling unit of C & H Division offers expert solutions in process chilling, air conditioning and refrigeration for industrial as well as commercial applications. We also provide customized solutions as per customer requirements.

Vapour Absorption technology from Thermax is at work for clients in the Pharma, Chemical, Fertilizer, Textile, Petrochemicals, Food Processing and Automobile industries, as well as in hotels, cinema halls, shopping complexes and office buildings, around the globe.

**THERMAX - Conserving Energy, Preserving the Environment**

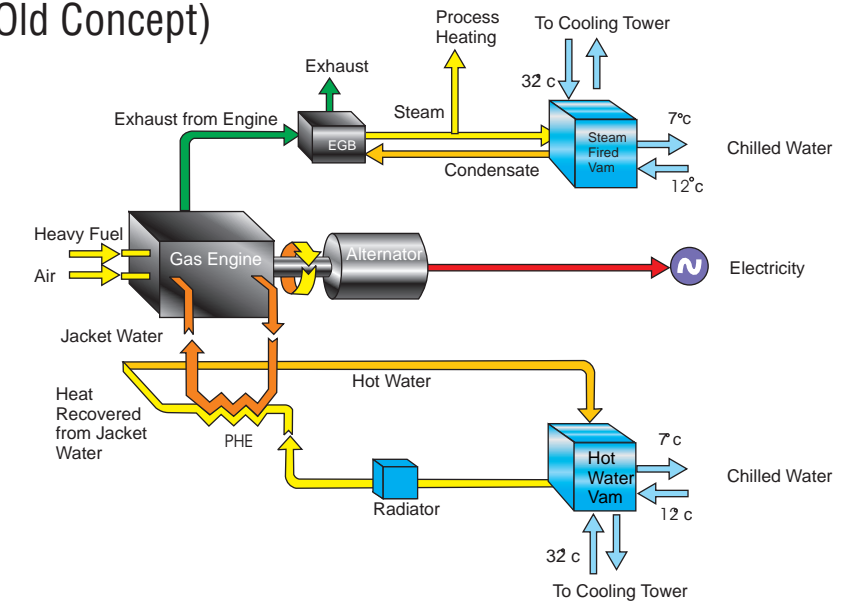
Vapor Absorption Technology and THERMAX is at work for Clients in more than 50 industries including Pharmaceuticals, Chemicals, Fertilizer, Textile, Petrochemicals, and Food & Beverages & Automobile industry as well as in hotels, Commercial Complexes, Shopping Complexes, Office Buildings, Educational Institutes, Airports and Cinema halls.

Manufacturing capabilities of THERMAX's Cooling SBU are confirmed by the fact that, over the years, THERMAX has installed numerous UK, ITALY, UAE, Saudi Arabia, India, China, Australia, Thailand, Philippines & Malaysia, Russia, Nigeria with the products conforming to the respective country standards like ETL, CE, TUV, DNV, ASME etc. THERMAX has its fully owned subsidiaries namely Thermax Inc. in USA, Thermax Europe Limited in UK, Thermax to Brasil in Brizil and Thermax (Zhejiang) Cooling and Heating Company Limited in China.

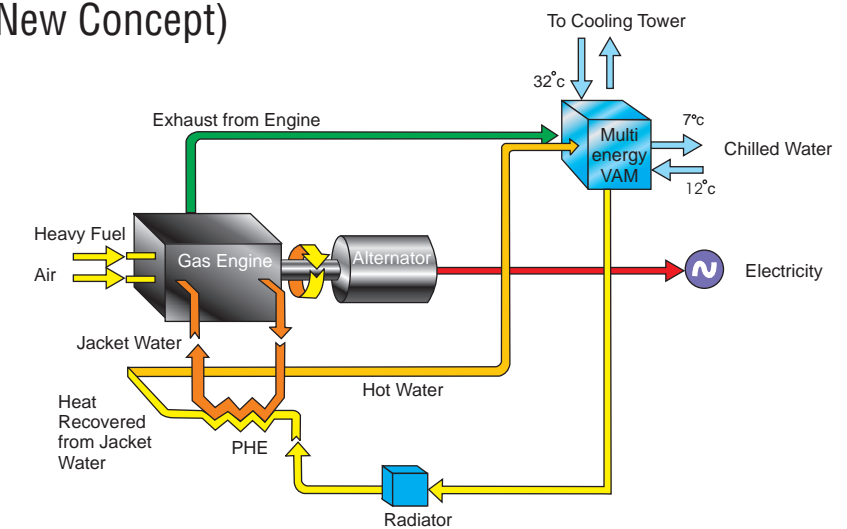
THERMAX believes in efficient and responsive services to it's clients and exhibits in it's way of business, by giving optimal and quality solutions and achieving customer delight. THERMAX has a worldwide sales, service and distribution network to fulfill the need of it's valuable customers.



**Trigenration (Old Concept)**

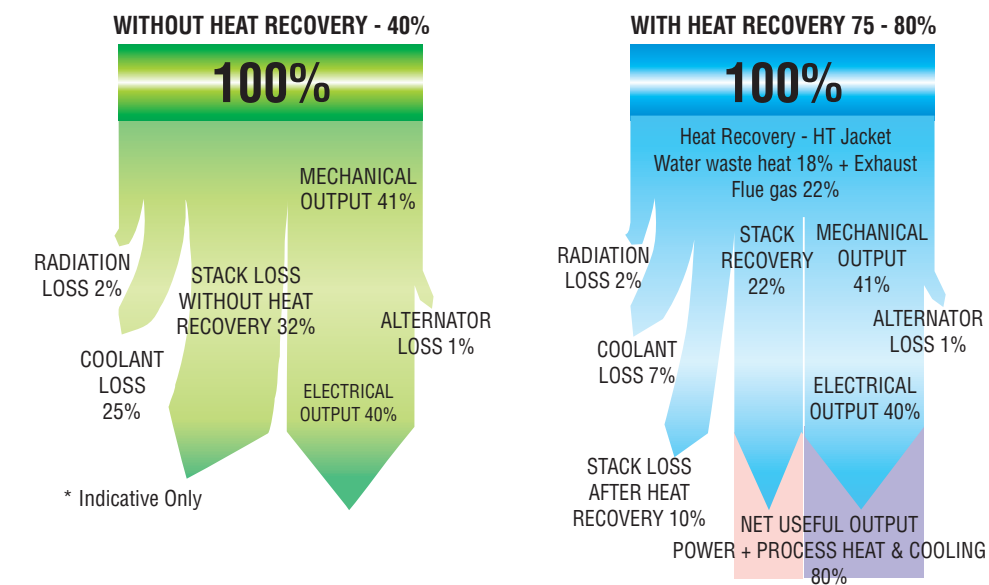


**Trigenration (New Concept)**



**Double the overall system efficiency!**

Sankey Diagram\* for IC engine



Engine gensets normally have about 40% overall electrical efficiency. The balance 60% is wasted to the atmosphere. The conventional method is to recover the waste heat through individual re recovery equipment to cater to Heating/ cooling requirements.





## ■ Salient features

## ■ All the regular features of vapour absorption technology



- Advance series flow Cycle to avoid simultaneous occurrence of High Temperature and High Concentration, thereby minimising the probability of corrosion.
- 2. Unique Technology for online measurement and control of actual (not derived) concentration for crystallisation free smooth operation by keeping it 10 deg C away from line of Crystallisation
- Optimal Solution with Multiple engines connected to single chiller without compromising on engine safety
- Customised design to recover maximum heat from jacket hot water with outlet temperature as low as 75 deg C

- Unique Feature for Chiller Safety During the long period Shut Down
- Approx. 10% higher heat recovery from the same exhaust flow parameters with heat exchanger design
- Additional features for engine safety
- Unique heat Exchanger design for Chillers running on diesel engine exhaust



*50% of machines exported to more than 70 countries*

- No CFC - Uses water as Refrigerant instead of ozone depleting Chloro Fluoro Carbons
- No Noise - No moving parts. No dynamic load. No vibration Totally silent operation
- Negligible Maintenance
- Negligible Power - Only for small pumps
- Modular design - Compact, on skid delivery



*Reduced carbon emission equivalent to plantation of millions of trees*

- Bolted Motor Pumps with advantages like replacement of parts. Only non moving parts are bolted ensuring excellent leak proof properties while offering maintainability simultaneously.
- Gravity, Feed System for refrigerant and absorbent to enhance heat transfer efficiency and to overcome the problems of wear & tear and clogging of nozzles, which use pressurized spraying techniques.
- Accessibility to all parts of machine to ensure minimal damage during repair or replacement of parts, thus arrest chances of corrosion due to exposure of internal parts to air.
- 10 to 100% step-less modulation based on chilled water flow.
- Capacity ranging from 50 TR to 4000 TR.
- Steam Pressure range from 4 bar (g) to 10 bar (g).





## ■ Customized features - to match your requirements



### Online standby Canned Motor Pumps

THERMAX can offer machine mounted standby absorbent and refrigerant pump.

### Special Material for Evaporator/ Absorber/ Condenser

The selection of tube material is done purely on the basis of the water quality available at the job site. Accordingly, THERMAX can offer a variety of special tube materials viz. Cupro-Nickel, SS-316L, Titanium.

### Multi-sectional Shipment Arrangements

For convenience of shipping and rigging, the Vapor Absorption Machines can be shipped in two or more section depending upon the site requirements.

### Auto Purging

Remote Performance Monitoring System (RPMS)

### Holistic Customer Care

THERMAX Absorption Cooling Division has a wide network to Service Centers throughout the globe to ensure quick response to customers. With the cumulative service experience of over 4000 VAMs operating for more than 25 years, THERMAX service personnel are equipped to deliver the right solution to the users. THERMAX has developed specific service modules for different types of users depending on their usage pattern, conforming to our proactive approach. For the benefit of its customers THERMAX offers various value-added services like:

- Preventive maintenance contract
- Operation & manning
- localized customer training programs.

## Technology leadership: our core competency

THERMAX nurtures innovation and encourages development at all levels which has contributed significantly in raising the performance and efficiency parameters of technology and it's products. Dedicated research and development group has achieved spectacular breakthroughs in absorption cooling technology over the years.

Thermax's Cogenie series of Hot Water Absorption Machines received the prestigious "Energy product of the Year" award in the UK. The Trigenie series of Multi-energy driven absorption machines and Zero Deg Machine capable of achieving outlet temperature as low as Zero Deg received the prestigious "Bry Air Award in Most Innovative product Design Category" in 2006 and 2007 respectively.

THERMAX absorption machines have created many delighted customers. Some of the most prestigious names in the world have chosen THERMAX absorption machines to meet their cooling requirements. It includes names like Mercedes-Germany, Bosch-Germany, Astra Zeneca-UK, Henry Ford Museum-USA, California State University and the like.

*First prize in "Bry Air Awards" in 2006 and 2007 in "most innovative product design" category.*

## ■ TRiGENiE can work with all leading engines



## ■ Reference list of installations



### Electronics

- Videocon Narmada Glass, Bharuch
- A T & S, Mysore-India, Shanghai-China
- Moser Baer, Noida



### Polyfibers / Spinning Mills

- Gujrat Polyfilms, Surat
- Recron Synthetics, Allahabd
- United Weaving, Bangladesh



### Shopping Mall / Multiplex

- Pacific Mall, New Delhi
- Cross River Mall, New Delhi
- Atlantis Mall, Allahabad



### Foods Processing/ Packing

- Perfetti Van Malle, Chennai
- Amul Dairy, Ahmedabad
- Mother Dairy, Ahmedabad
- Tetra Pak, Pune



### Chemicals & Pharmaceuticals

- Bayer India Ltd., Ankleshawer
- Sunpharma, Panoli
- Cadila Pharma Ltd., Ankleshawer



### Glass, Plastics and Others

- Neutral Glass, Ankleshawer
- SOTL, Aurangabad
- Arashi Hitech, Coimbatore
- Murudeshwar Ceramics, Karaikal



### Software Parks

- ITPL, Bangalore\*

\*Under execution