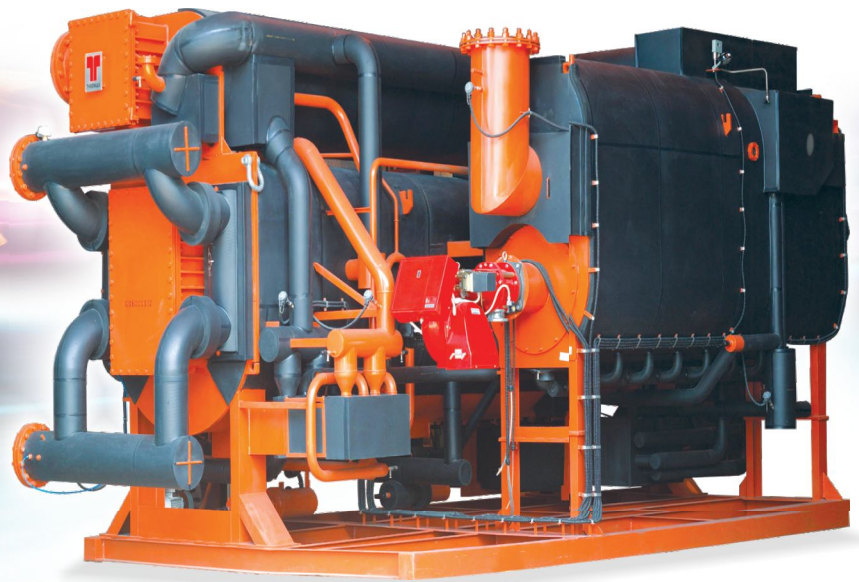


Cooling & Heating Division



Multi-energy
Vapour Absorption
Machines

40 TR - 4000 TR (140 kW to 14000 kW)



From the leader in innovative cooling and heating solutions



Vision

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

Sustainable Solutions

From Cooling to Heating, from Power Generation to Air Purification, from Water and Sewage Treatment to Speciality Chemicals, THERMAX Solutions are improving life at work in many ways.

Every year THERMAX helps generate 6,000 MW of Power, produce 100,000 tons of steam, provide 1 million tons of Cooling and treat 1,000 million litres/day of Water and Waste.

THERMAX today is a major Engineering and Environment company with revenues of USD 800 million and with market capitalization of over USD 1 billion.

THERMAX was one of 20 Indian companies in Forbes list of "Asia's Best Under a Billion Companies" in 2005 and 2006 and was ranked "No. 1 among the top 21 wealth creators" in India over the last 5 years by a leading investment journal.

THERMAX brings to customers enriched experience of industrial applications, and expertise through technological 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 full fledged ISO 9001:2000 and ISO 14000 accredited manufacturing setups.

Cooling & Heating Division - Cooling SBU

The Cooling SBU of THERMAX promotes Vapor Absorption Chillers as a cost effective and environment friendly alternative to electricity driven compression chillers.

It offers expert solutions in Process Chilling & Air Conditioning for industrial as well as commercial applications. Cooling SBU's strength lies in customized solutions as per the requirement of customers.

Unlike electrical chillers, Absorption Chillers are powered by heat. These machines can run on a variety of heat sources, e.g. steam, hot water, liquid/gaseous fuels, exhaust gases and/or a combination of above.

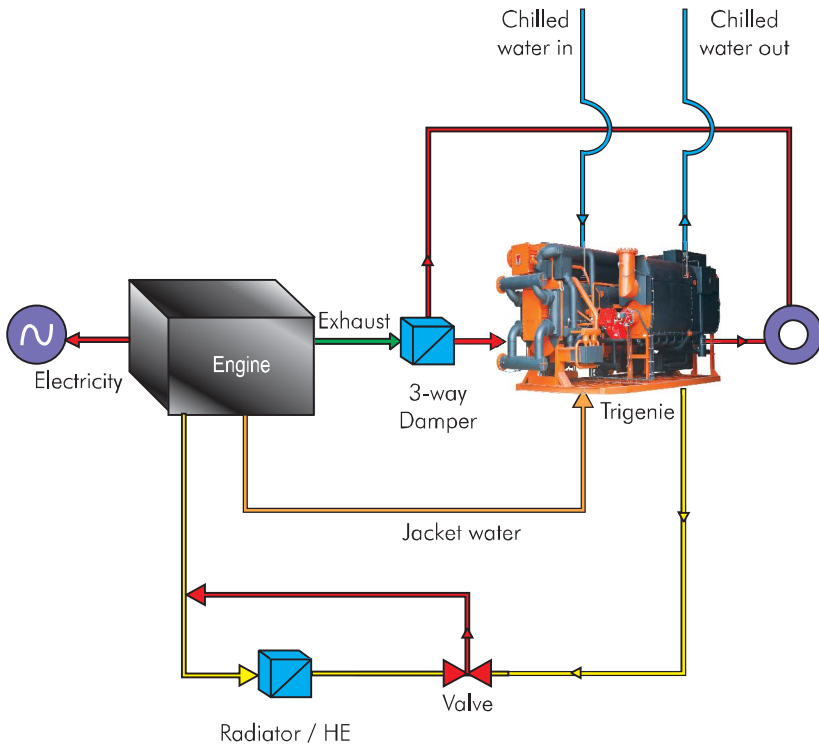
THERMAX - Conserving Energy, Preserving the Environment

Vapor Absorption Technology from Thermax is at work for clients in more than 50 industries including Pharmaceuticals, Chemicals, Fertilizers, Textiles, Petrochemicals, Food & Beverages and Automobile industries 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 machines in more than 70 countries including USA, Germany, Spain, UK, Italy, UAE, Saudi Arabia, India, China, Australia, Thailand, Philippines, Malaysia, Russia and 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 and Thermax (Zhejiang) Cooling and Heating Engg. Company Limited in China.

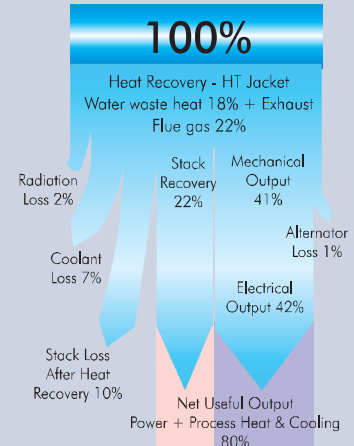
Thermax believes in efficient and responsive services to its clients and exhibits in its way of business, by giving optimal and quality solutions and achieving customer delight. Thermax has a worldwide sales, service and distribution network to fulfill the needs of its valuable customers.

The 'Trigeneration' concept



Get double the overall system efficiency!

Sankey Diagram* for IC engine
WITH HEAT RECOVERY 75 - 80%



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 recovery equipment to cater to heating/ cooling requirements.

Unique features of Trigenie

- Dump condenser - crystallisation prevention during shutdown of VAM
- Common chiller for up to 3 engines without mixing of gases - optimised capex as well as floor space
- Approximately 12 to 15% higher heat recovery from the same exhaust flow parameters with heat exchanger design - improved ROI
- Separate generator for hot water recovery - better recovery at engine part load conditions, higher COP of VAM at part load operations
- Customised exhaust gas inlet/ outlet connection to suit a site layout
- Maximising heat recovery - customised design to recover maximum heat from jacket hot water with outlet temperature as low as 70 to 75 °C
- Back pressure management - engine/ turbine always accorded first priority

Highest COP

Process design that ensures maximum internal heat recovery to give the lowest specific heat input benefit to the customer.

- Enlargement of heat transfer area - Done by all manufacturers
- Two stage evaporation - Feature unique to Thermax VAM
- Large temperature difference of chilled water - Thermax can offer ΔT as high as 30 °C
- Refrigerant heat exchanger - Feature unique to Thermax VAM
- Exhaust gas heat exchanger - Feature unique to Thermax VAM



Trigenie - designed and engineered to perform

Latest two stage evaporation technology



3500 NTR VAM

The unique two stage evaporation technology ensures the Lowest Specific Heat Input requirement resulting in lowest heat and water consumption.

Two stage evaporation also gives 5 to 7% higher COP than conventional single stage evaporation technology.

Advanced series flow

Parameter for HTG	Unit	Para Flow	Advanced Series Flow
HTG temperature	°C	162	155
LiBr concentration	%	64-65	60.5

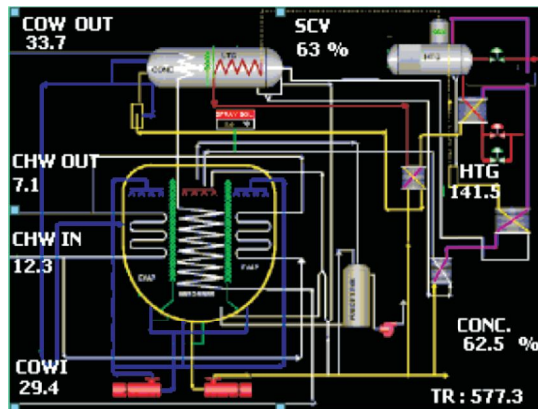
Parameter for LTG	Unit	Para Flow	Advanced Series Flow
LTG temperature	°C	88	90
LiBr concentration	%	62-64	63

Advanced series flow cycle to avoid simultaneous occurrence of high temperature and high concentration, thereby minimising the probability of corrosion.



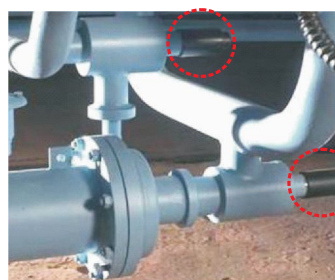
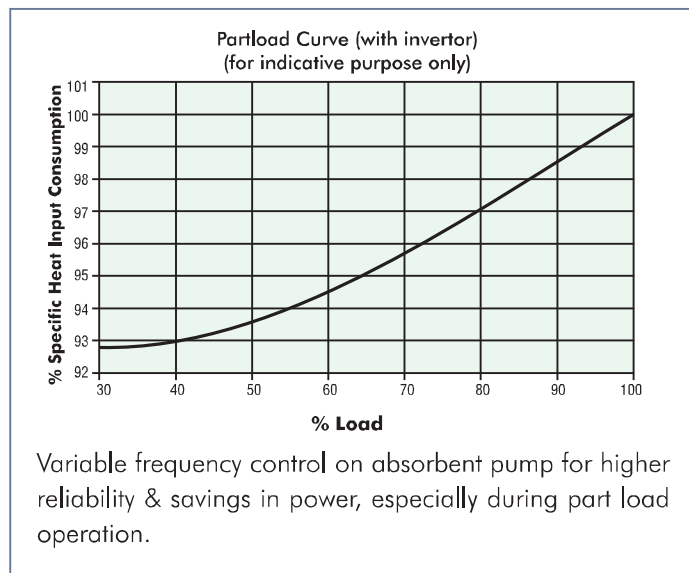
Winner of the "Bry Air Awards" in 2006, 2007 & 2010 in the "Most Innovative Product Design" category.

Zero crystallisation



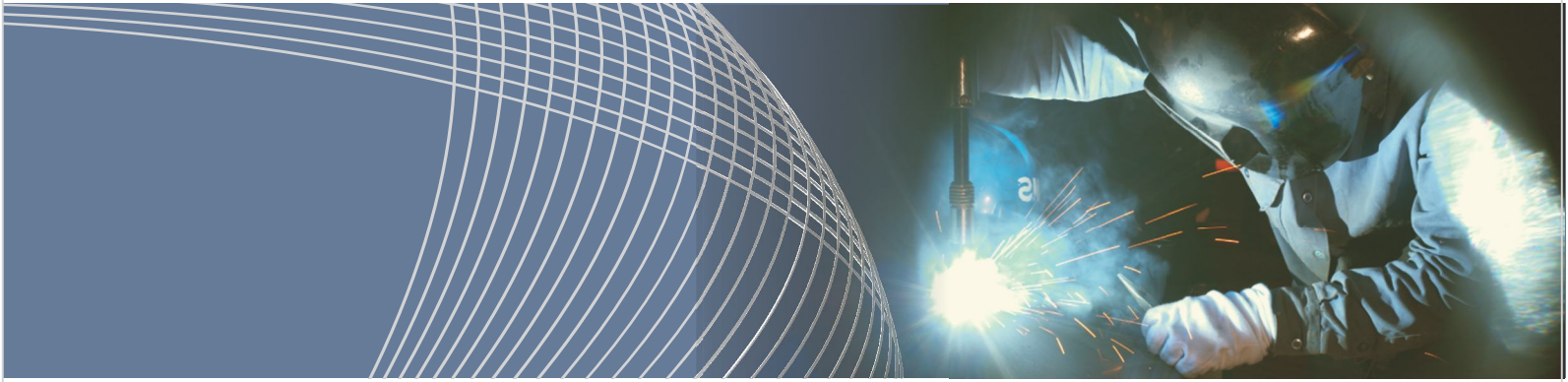
Unique state-of-the-art concentration control and display that virtually eliminates crystallisation and is distinctly different from the auto decrystallisation offered by other manufacturers. This permits the VAM to run smoothly even at 10 °C cooling water inlet temperature.

AC drives

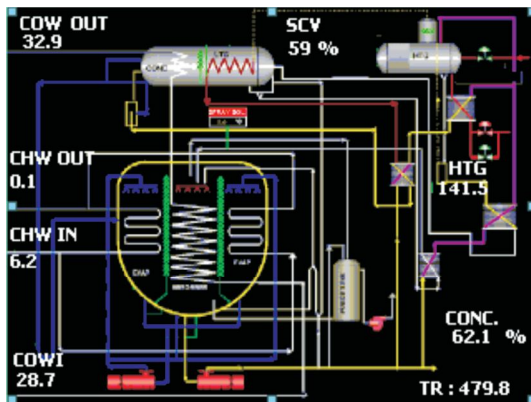


Isolation valves

Isolation valves with special seals for vacuum application and bolted pumps to facilitate machine mounted pump maintenance without any loss of vacuum in the system due to exposure to atmosphere.



Up to 0°C output



Chilled brine outlet temperature up to 0°C. In applications where temperature of less than 4 °C is critical, vapour absorption technology can now be put to use.

PLC control



PLC based control panel with display, user friendly interface and data logging system. Remote performance monitoring / DCS / BMS connectivity also possible.

Customised tube metallurgy



Special tube materials like Cupro Nickel, SS-316L, Titanium depending on water quality on site.

Corrosion inhibitor

Non-precipitating and non toxic Molybdenum based corrosion inhibitor that ensures smooth and stable performance.

Deoxidised Low Phosphorus copper tubes

These tubes conform to ASTM standards and presence of phosphorus is maintained at less than 0.005 ppm which protects the tubes from Hydrogen embrittlement in LiBr environment.

Multistage level control

Multistage level control provided in the three heat exchangers enable effective operation during part load and help avoid cavitation of solution pump.

Test bay



Thermax has a state-of-the-art test bay capable of testing various types of vapour absorption chillers - steam driven, hot water driven, fuel fired, exhaust driven and a combination of these up to a capacity of 3500 TR (12300 kW). The entire testing facility is centrally operated by sophisticated Distributed Control Systems (ABB make) and can be operated by the touch of a button.

- Steam : 50 - 3500 TR (175 kW to 12300 kW)
- Exhaust : 50 - 3500 TR (175 kW to 12300 kW)
- Hot Water : 10 - 1380 TR (30 kW to 4850 kW)
- Fuel Fired : 50 - 3000 TR (175 kW to 10540 kW)

Reference list of CHPC installations



ITPL, Bangalore
2400 TR (8438 kW)



California State University Fullerton, USA
2600 TR (9211 kW)



Berlin Airport
740 TR (2600 kW)



PTT, Thailand
236 TR (830 kW)



Pacific Mall, India
830 TR (2918 kW)



101, Miller Street, Australia
426 TR (1500 kW)



Moserbaer, India
4000 TR (14000 kW)



Grand Venezia, India
4800 TR (16877 kW)



T Systems, Germany
41 TR (144 kW)

Electronics

- Videocon Narmada Glass, Bharuch, India
- AT&S, Mysore (India), Shanghai (China)
- Moser Baer, Noida, India

Polyfibres/ Spinning Mills

- Gujarat Polyfilms, Surat, India
- Recron Synthetics, Allahabad, India
- United Weaving, Bangladesh

Shopping Malls/ Multiplexes

- Pacific Mall, New Delhi, India
- Cross River Mall, New Delhi, India
- Atlantis Mall, Allahabad, India
- Grand Venezia, Noida, India

Food Processing/ Packaging

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

Chemicals & Pharmaceuticals

- Bayer India Ltd., Ankleshwar, India
- Sunpharma, Panoli, India
- Cadila Pharma Ltd., Ankleshwar, India
- Astrazeneca UK and India

Glass, Plastics and others

- Neutral Glass, Ankleshwar, India
- PTT, Thailand
- Arashi Hitech, Coimbatore, India
- Murudeshwar Ceramics, Karaikal, India

Software Parks

- ITPL, Bangalore, India

Commercial/ Institution

- California State University, Fullerton, USA
- Rome Airport, Italy
- Berlin Airport, Germany

Data Centres

- T - Systems, Germany
- IBM Data Centre, Syracuse University, USA

Customized features to match your requirements



Online standby solution and refrigerant pumps

Thermax can offer machine mounted, standby absorbent and refrigerant pump.

Multi-sectional shipment arrangements

For convenient shipping and rigging, Thermax Vapor Absorption Machines can be shipped in two or more sections depending upon the site requirements.

Auto purging

Remote Performance Monitoring System (RPMS)

Holistic customer care

Thermax Absorption Cooling Division has a wide network of Service Centres across the globe to ensure quick response to customers. With a cumulative service experience of over 4000 VAMs operating for more than 25 years, Thermax service personnel are equipped to deliver the right solution to users.

In fact, in keeping with the company's proactive approach, Thermax has developed specific service modules for different types of users; depending on their usage pattern. For the benefit of its customers, Thermax offers various value-added services like:

- Preventive maintenance contract
- Operation & manning
- Localized customer training programs



Backed by quality assured manufacturing to international codes



Technical specification sheet

Double Effect Exhaust Fired Series

Model Number	UNIT	ED 10A HU/ ED 10A CU	ED 10B HU/ ED 10B CU	ED 10C HU/ ED 10C CU	ED 20A THU/ ED 20A TCU	ED 20B THU/ ED 20B TCU	ED 20C THU/ ED 20C TCU	ED 20D THU/ ED 20D TCU	ED 30A THU/ ED 30A TCU	ED 30B THU/ ED 30B TCU	
Cooling Capacity	TR	49	75	104	132	158	200	238	296	336	
	kW	172	264	366	464	556	703	837	1041	1182	
Chilled Water Circuit	Flow Rate	m ³ /hr	29.6	45.2	62.7	79.6	95.3	120.6	143.6	178.6	202.7
	Inlet/ Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7
	Friction loss	mWC (kPa)	2.9 (28.4)	4.7 (46.1)	5.0 (49.0)	1.7 (16.7)	2.1 (20.6)	5.0 (49.0)	6.0 (58.8)	5.4 (53.0)	6.0 (58.8)
	Connection Diameter	mmNB	80					125			150
Cooling Water Circuit	Flow Rate	m ³ /hr	49	75	104	132	158	200	235	296	336
	Inlet/ Outlet Temperature	°C	29.4 / 34.9	29.4 / 34.9	29.4 / 34.9	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.7	29.4 / 34.6	29.4 / 34.6
	Friction loss	mWC (kPa)	3.8 (37.3)	5.8 (56.9)	6.9 (67.7)	2.5 (24.5)	2.7 (26.5)	6.9 (67.7)	7.0 (68.6)	6.5 (63.7)	6.7 (65.7)
	Connection Diameter	mmNB	100					150			200
Exhaust Gas Circuit	Inlet Temperature Range	°C	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600
	Outlet Temperature Range	°C	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200
	Maximum Heat Input	kCal/hr	117600	180000	249600	287171	343735	435108	517778	643960	730981
		kW	137	209	290	334	400	506	602	749	850
Overall Dimensions	Length	mm	2600	2850		3100		4100		4400	
	Width	mm	1900	2050		2400		2600		2800	
	Height	mm	2000	2200		2700		2800		3000	
Operating Weight	Tons	5.1	5.3	5.4	7.8	8.1	9.8	10.2	12.6	13.0	
Connected Power	kVA	5.7	5.7	5.7	7.6	7.6	7.6	7.6	9.1	9.1	

Model Number	UNIT	ED 30C THU/ ED 30C TCU	ED 40A THU/ ED 40A TCU	ED 40B THU/ ED 40B TCU	ED 40C THU/ ED 40C TCU	ED 50A THU/ ED 50 A TCU	ED 50B THU/ ED 50B TCU	ED 60A THU/ ED 60A TCU	ED 60B THU/ ED 60B TCU	ED 60C THU/ ED 60C TCU	
Cooling Capacity	TR	395	440	501	557	610	676	786	870	950	
	kW	1389	1547	1762	1959	2145	2377	2764	3060	3341	
Chilled Water Circuit	Flow Rate	m ³ /hr	238.3	265.4	302.2	336	368	407.8	474.1	524.8	573.1
	Inlet/ Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7
	Friction loss	mWC (kPa)	9.4 (92.2)	8.2 (80.4)	8.5 (83.4)	9.2 (90.2)	9.1 (89.2)	9.4 (92.2)	6.2 (60.8)	6.6 (64.7)	7.1 (69.6)
	Connection Diameter	mmNB	150	200			200		250		
Cooling Water Circuit	Flow Rate	m ³ /hr	395	440	501	557	610	676	786	870	950
	Inlet / Outlet Temperature	°C	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6
	Friction loss	mWC (kPa)	4.6 (45.1)	3.8 (37.3)	4.0 (39.2)	4.2 (41.2)	3.7 (36.3)	3.8 (37.3)	5.6 (54.9)	5.7 (55.9)	6.3 (61.8)
	Connection Diameter	mmNB	200	250			300		350		
Exhaust Gas Circuit	Inlet Temperature Range	°C	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	
	Outlet Temperature Range	°C	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	
	Maximum Heat Input	kCal/hr	859338	957237	1089945	1211776	1327079	1470665	1709974	1892719	2066763
		kW	999	1113	1268	1409	1543	1710	1989	2201	2404
Overall Dimensions	Length	mm	5000	5100			5100		6400		7900
	Width	mm	3000	3100			3400		3400		3600
	Height	mm	3000	3400			3600		3600		3700
Operating Weight	Tons	14.8	17.7	18.3	19.0	21.4	23.0	28.4	29.5	40.6	
Connected Power	kVA	9.1	11.2	11.2	11.2	13.4	13.4	15.5	15.5	18.1	

Model Number	UNIT	ED 60D THU/ ED 60D TCU	ED 70A THU/ ED 70A TCU	ED 70B THU/ ED 70B TCU	ED 80A THU/ ED 80A TCU	ED 80B THU/ ED 80B TCU	ED 80C THU/ ED 80C TCU	ED 80D THU/ ED 80D TCU	
Cooling Capacity	TR	1052	1165	1300	1474	1622	1879	2042	
	kW	3700	4097	4572	5184	5704	6608	7182	
Chilled Water Circuit	Flow Rate	m ³ /hr	634.6	702.7	784.2	889.1	978.4	1133.4	1231.8
	Inlet/ Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7
	Friction loss	mWC (kPa)	7.6 (74.5)	6.0 (58.8)	6.4 (62.8)	5.4 (53.0)	5.9 (57.9)	9.7 (95.1)	10.2 (100.0)
	Connection Diameter	mmNB	250	300			350		
Cooling Water Circuit	Flow Rate	m ³ /hr	1052	1165	1300	1474	1622	1879	2042
	Inlet / Outlet Temperature	°C	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6	29.4 / 34.6
	Friction loss	mWC (kPa)	6.5 (63.7)	5.9 (57.9)	6.2 (60.8)	5.6 (54.9)	5.9 (57.9)	7.9 (77.5)	8.3 (81.4)
	Connection Diameter	mmNB	350	400			450		
Exhaust Gas Circuit	Inlet Temperature Range	°C	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	
	Outlet Temperature Range	°C	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	
	Maximum Heat Input	kCal/hr	2288668	2534504	2828201	3206745	3528725	4087839	4442452
		kW	2662	2948	3289	3729	4104	4754	5167
Overall Dimensions	Length	mm	7900	8200		8400		9600	
	Width	mm	3600	3900		4500		4500	
	Height	mm	3700	4200		4500		4500	
Operating Weight	Tons	42.1	51.6	52.9	67.4	68.6	76.3	77.8	
Connected Power	kVA	20.3	20.3	20.3	20.3	25.3	25.3	25.3	

Notes:

- 1) Model Nos. : ED XXX - HU/THU/CU/TCU Exhaust Gas driven Double Effect Chillers
- 2) Dimensions & weights are approximate and should be used for indicative purpose only.
- 3) These are custom built chillers, designed based on the engine and its loading condition.
- 4) Minimum Cooling water inlet temperature is 10°C
- 5) Ambient condition shall be between 5 to 45°C
- 6) Maximum Allowable pressure in Chilled / Cooling water system = 8 kg/cm²(g) {784.5 kPa(g)}
- 7) All Water Nozzle connections to suit ASME B16.5 Class 150
- 8) Control panel Electric Input = 1kVA
- 9) Power supply required is 415 V (±10%), 3 Phase, 50 Hz (±5%) + N
- 10) Above specifications are valid for insulated machine.
- 11) Technical specifications based on JIS B 8622 2002
- 12) Please contact Thermox for higher capacities

Technical specification sheet

Double Effect Exhaust + Jacket Water Fired Series

Model Number	UNIT	EJ 10A HU/ EJ 10A CU	EJ 10B HU/ EJ 10B CU	EJ 10C HU/ EJ 10C CU	EJ 20A THU/ EJ 20A TCU	EJ 20B THU/ EJ 20B TCU	EJ 20C THU/ EJ 20C TCU	EJ 20D THU/ EJ 20D TCU	EJ 30A THU/ EJ 30A TCU	EJ 30B THU/ EJ 30B TCU	
Cooling Capacity	TR	49	75	104	132	158	200	238	296	336	
	KW	172	264	366	464	556	703	837	1041	1182	
Chilled Water Circuit	Flow Rate	m ³ /hr	29.6	45.2	62.7	79.6	95.3	120.6	143.6	178.6	202.7
	Inlet/Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7
	Friction loss	mWC (kPa)	2.9 (28.4)	4.7 (46.1)	5.0 (49.0)	1.7 (16.7)	2.1 (20.6)	5.0 (49.0)	6.0 (58.8)	5.4 (53.0)	6.0 (58.8)
	Connection Diameter	mmNB	80			125			150		
Cooling Water Circuit	Flow Rate	m ³ /hr	49	75	104	132	158	200	235	296	336
	Inlet/Outlet Temperature	°C	29.4 / 35.6	29.4 / 35.6	29.4 / 35.6	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.5	29.4 / 35.4	29.4 / 35.4
	Friction loss	mWC (kPa)	3.8 (37.3)	5.8 (56.9)	6.9 (67.7)	2.5 (24.5)	2.7 (26.5)	6.9 (67.7)	7.0 (68.6)	6.5 (63.7)	6.7 (65.7)
	Connection Diameter	mmNB	100			150			200		
Exhaust Gas Circuit	Inlet Temperature Range	°C	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	
	Outlet Temperature Range	°C	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	
	Maximum Heat Input	kCal/hr	70560	108000	149760	172303	206241	261065	310667	386376	438589
Hot Water Circuit	Inlet Temperature range	°C	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	
	Outlet Temperature range	°C	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	
	Maximum Heat Input	kCal/hr	81192	124274	172327	218722	261804	331397	394363	490468	556747
Overall Dimensions	Length	mm	2600		2850		3100		4100		
	Width	mm	2100		2250		2600		2800		
	Height	mm	2200		2400		2900		3300		
Operating Weight	Tons	5.6	6.0	6.1	8.5	8.9	10.7	11.2	13.8	14.2	
Connected Power	kVA	8.2	8.2	8.2	10.1	10.1	11.2	11.2	14.8	14.8	

Model Number	UNIT	EJ 30C THU/ EJ 30C TCU	EJ 40A THU/ EJ 40A TCU	EJ 40B THU/ EJ 40B TCU	EJ 40C THU/ EJ 40C TCU	EJ 50A THU/ EJ 50A TCU	EJ 50B THU/ EJ 50B TCU	EJ 60A THU/ EJ 60A TCU	EJ 60B THU/ EJ 60B TCU	EJ 60C THU/ EJ 60C TCU	
Cooling Capacity	TR	395	440	501	557	610	676	786	870	950	
	KW	1389	1547	1762	1959	2145	2377	2764	3060	3341	
Chilled Water Circuit	Flow Rate	m ³ /hr	238.3	265.4	302.2	336	368	407.8	474.1	524.8	573.1
	Inlet/Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	
	Friction loss	mWC (kPa)	9.4 (92.2)	8.2 (80.4)	8.5 (83.4)	9.2 (90.2)	9.1 (89.2)	9.4 (92.2)	6.2 (60.8)	6.6 (64.7)	7.1 (69.6)
	Connection Diameter	mmNB	150			200			250		
Cooling Water Circuit	Flow Rate	m ³ /hr	395	440	501	557	610	676	786	870	950
	Inlet/Outlet Temperature	°C	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	
	Friction loss	mWC (kPa)	4.6 (45.1)	3.8 (37.3)	4.0 (39.2)	4.2 (41.2)	3.7 (36.3)	3.8 (37.3)	5.6 (54.9)	5.7 (55.9)	6.3 (61.8)
	Connection Diameter	mmNB	200			300			350		
Exhaust Gas Circuit	Inlet Temperature Range	°C	275-600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	
	Outlet Temperature Range	°C	170-200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	
	Maximum Heat Input	kCal/hr	515603	574342	653967	727065	796247	882399	1025984	1135632	1240058
Hot Water Circuit	Inlet Temperature range	°C	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	
	Outlet Temperature range	°C	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	
	Maximum Heat Input	kCal/hr	654510	729074	830150	922941	1010762	1120123	1302391	1441578	1574137
Overall Dimensions	Length	mm	5000			5100			5100		7900
	Width	mm	3300			3400			3700		4000
	Height	mm	3300			3700			3900		4100
Operating Weight	Tons	16.3	19.4	20.1	20.9	23.5	25.2	31.6	32.8	45.1	
Connected Power	kVA	14.8	19.1	19.1	19.1	21.3	21.3	25.6	25.6	30.3	

Model Number	UNIT	EJ 60D THU/ EJ 60D TCU	EJ 70A THU/ EJ 70A TCU	EJ 70B THU/ EJ 70B TCU	EJ 80A THU/ EJ 80A TCU	EJ 80B THU/ EJ 80B TCU	EJ 80C THU/ EJ 80C TCU	EJ 80D THU/ EJ 80D TCU	
Cooling Capacity	TR	1052	1165	1300	1474	1622	1879	2042	
	KW	3700	4097	4572	5184	5704	6608	7182	
Chilled Water Circuit	Flow Rate	m ³ /hr	634.6	702.7	784.2	889.1	978.4	1133.4	1231.8
	Inlet/Outlet Temperature	°C	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	12 / 7	
	Friction loss	mWC (kPa)	7.6 (74.5)	6.0 (58.8)	6.4 (62.8)	5.4 (53.0)	5.9 (57.9)	9.7 (95.1)	10.2 (100.0)
	Connection Diameter	mmNB	250			300			350
Cooling Water Circuit	Flow Rate	m ³ /hr	1052	1165	1300	1474	1622	1879	2042
	Inlet/Outlet Temperature	°C	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	29.4 / 35.4	
	Friction loss	mWC (kPa)	6.5 (63.7)	5.9 (57.9)	6.2 (60.8)	5.6 (54.9)	5.9 (57.9)	7.9 (77.5)	8.3 (81.4)
	Connection Diameter	mmNB	350			400			450
Exhaust Gas Circuit	Inlet Temperature Range	°C	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	275 - 600	
	Outlet Temperature Range	°C	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	170 - 200	
	Maximum Heat Input	kCal/hr	1373201	1520702	1696921	1924047	2117235	2452703	2665471
Hot Water Circuit	Inlet Temperature range	°C	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	80 - 120	
	Outlet Temperature range	°C	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	
	Maximum Heat Input	kCal/hr	1743150	1930389	2154082	2442398	2687632	3113477	3383566
Overall Dimensions	Length	mm	7900		8200		8400		9600
	Width	mm	4000		4300		5000		5000
	Height	mm	4100		4600		5000		5000
Operating Weight	Tons	46.8	57.4	58.9	75.1	76.5	85.2	86.9	
Connected Power	kVA	32.5	29.6	29.6	29.6	34.6	37.5	37.5	

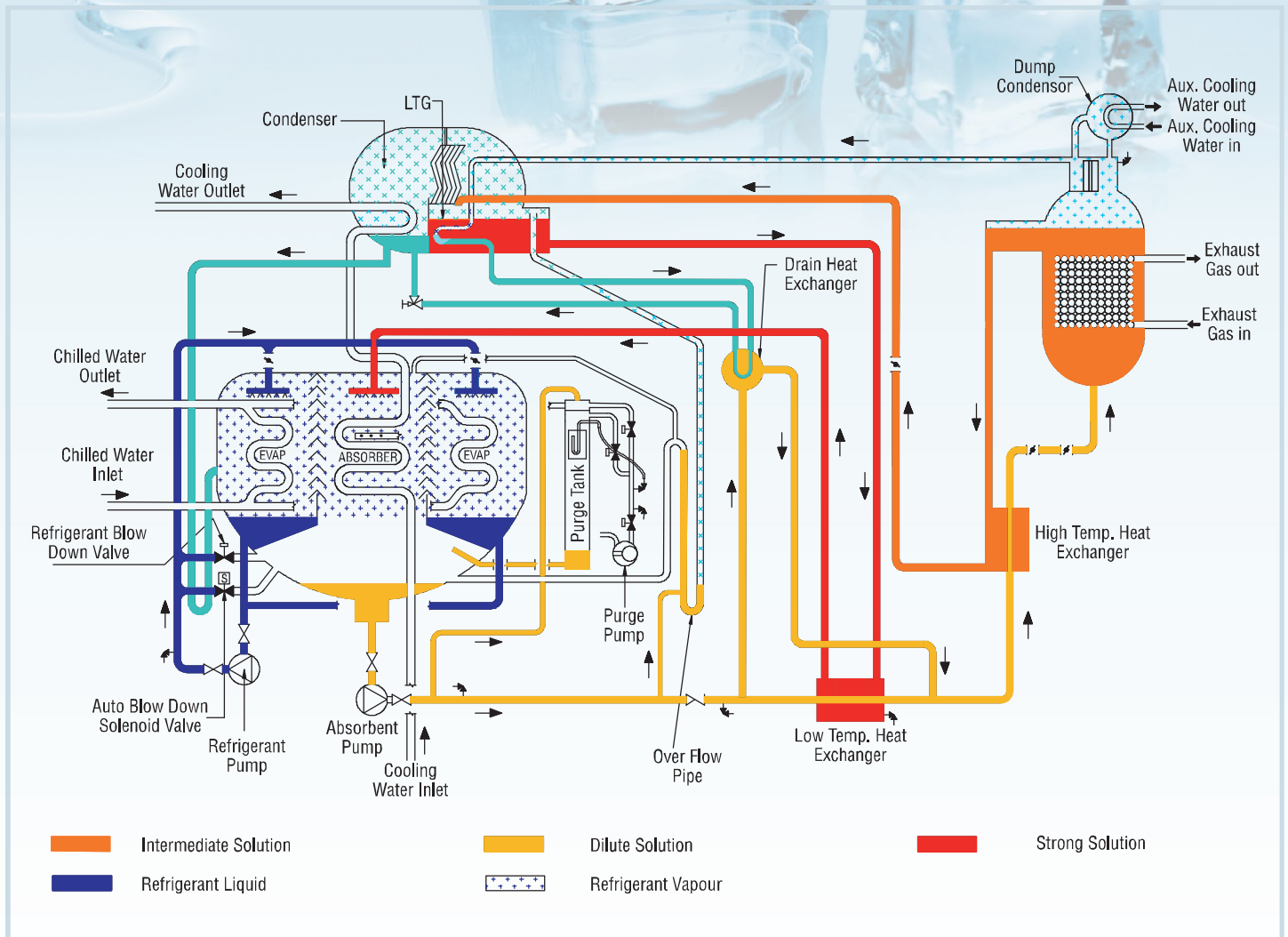
Notes:

- Model Nos. : EJ XXX - HU/THU/CU/TCU Exhaust Gas cum Hot water driven Multi Energy Chillers
- Dimensions & weights are approximate and should be used for indicative purpose only.
- These are custom built chillers, designed based on the engine and its loading condition.
- Minimum cooling water inlet temperature is 10°C
- Ambient condition shall be between 5 to 45°C
- Maximum allowable pressure in Chilled / Cooling / Hot water system = 8 kg/cm²(g) {784.5 kPa(g)}
- All water nozzle connections to suit ASME B16.5 Class 150
- Control panel electric input = 1kVA
- Power supply required is 415 V (±10%), 3 Phase, 50 Hz (±5%) + N
- Above specifications are valid for insulated machine.
- Technical specifications based on JIS B 8622 2002
- Please contact Thermax for higher capacities

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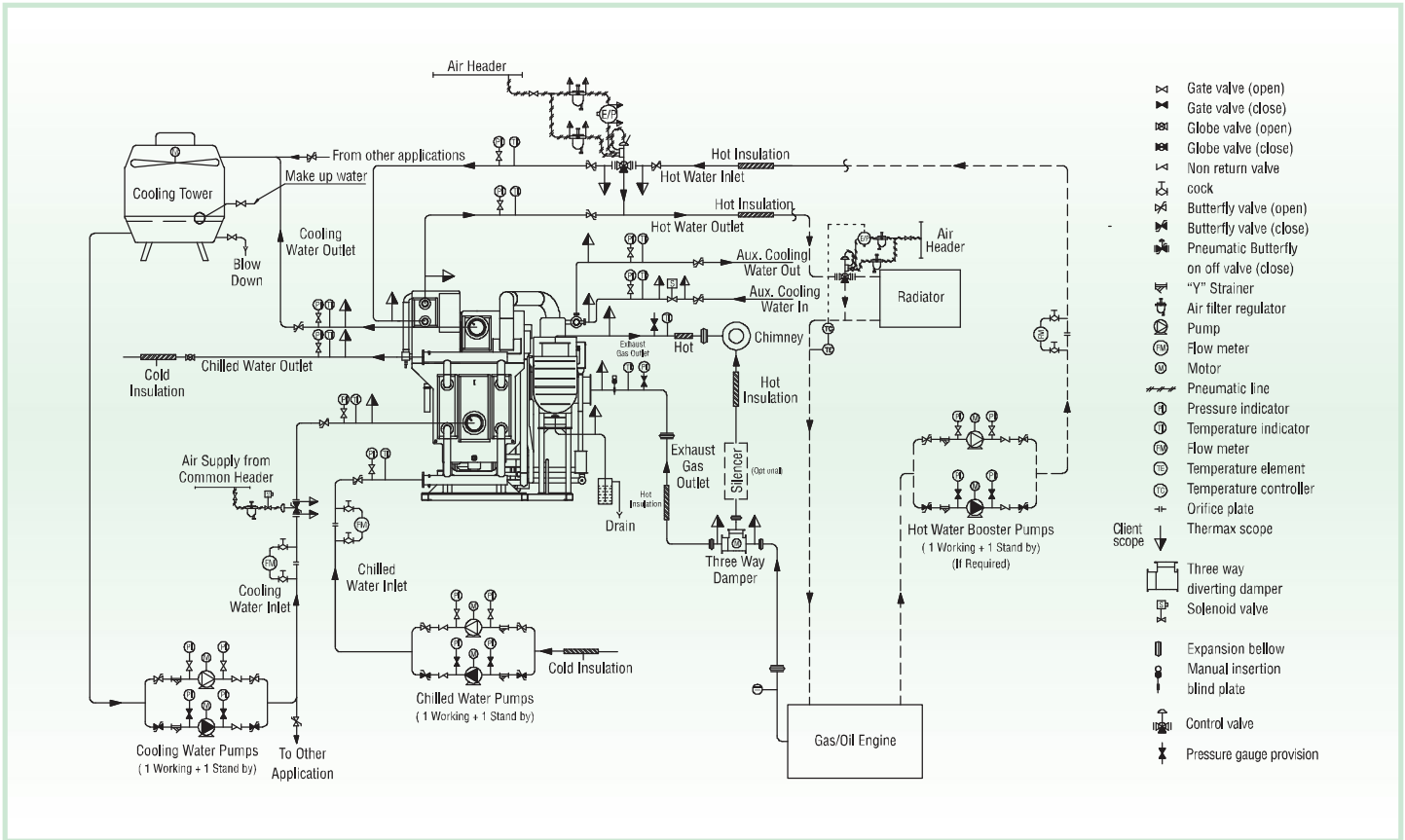


Exhaust Fired Cycle

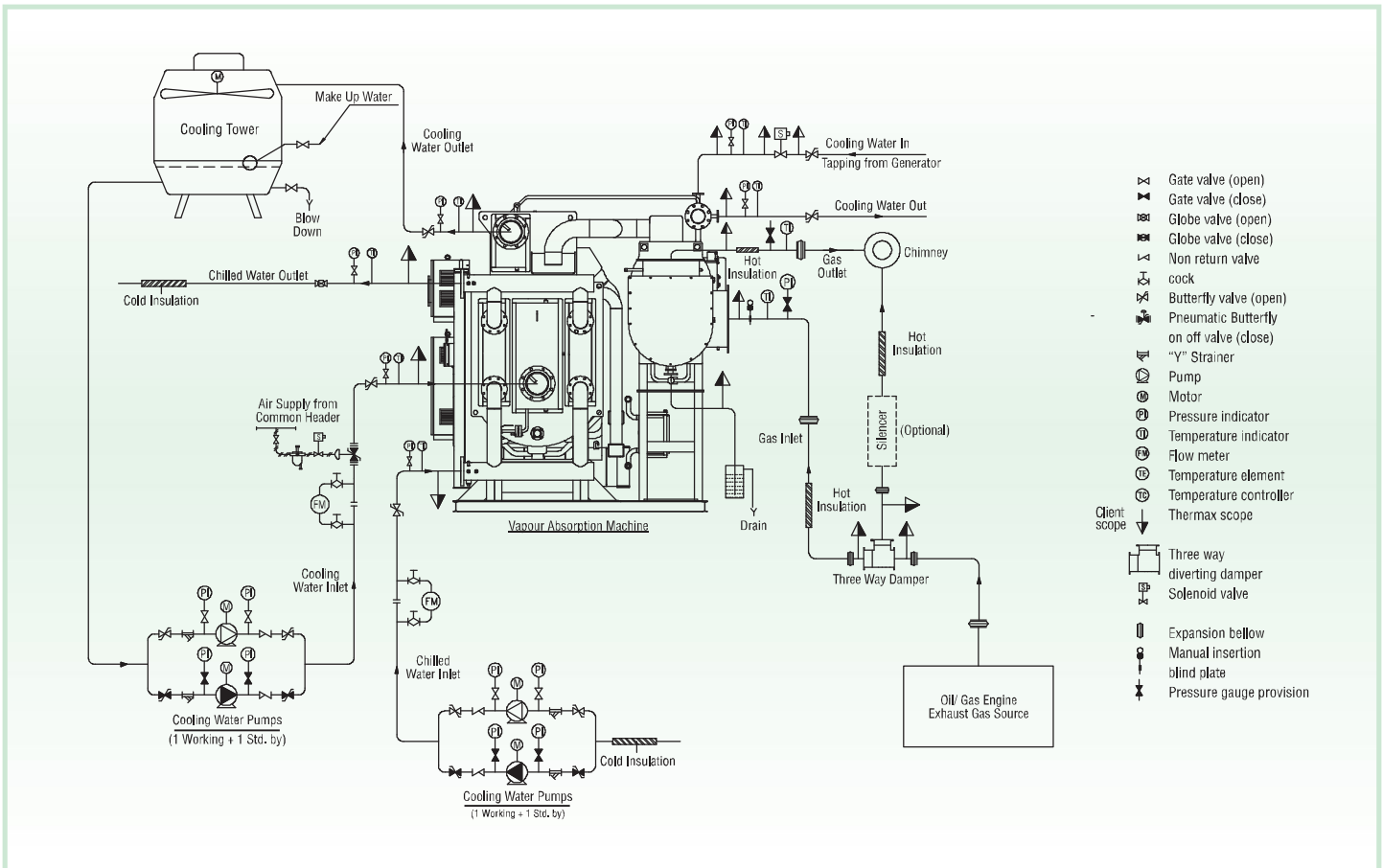


P & I Diagrams (Indicative)

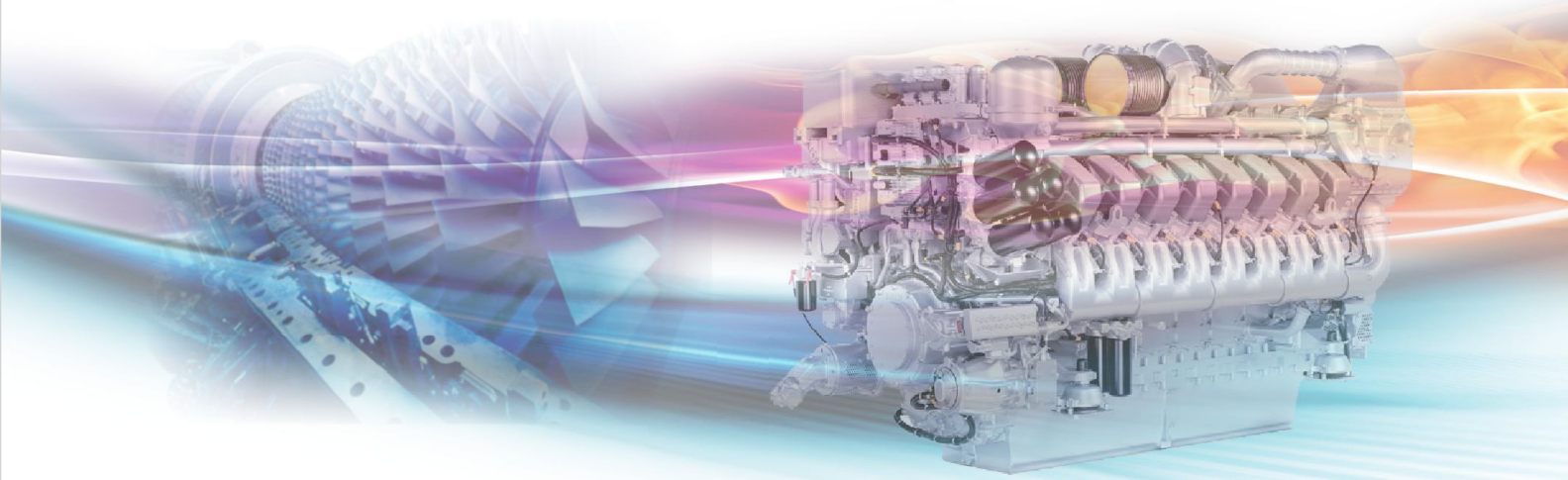
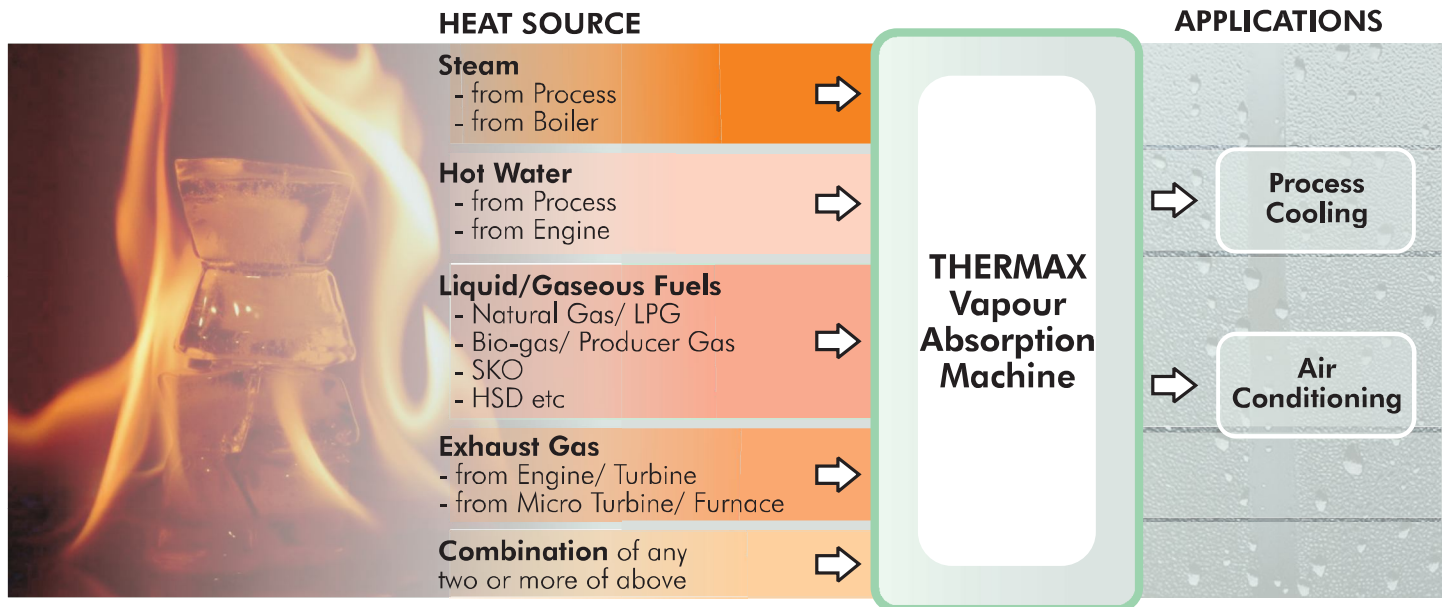
Exhaust + Jacket Water Fired Machine



Double Effect Exhaust Fired Machine



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