

Modular Water Heating Systems

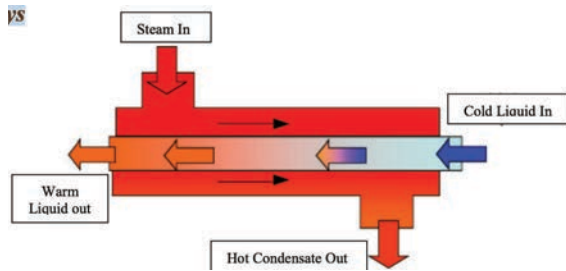
Compact Hot Water Solutions



Modular Water Heating Systems

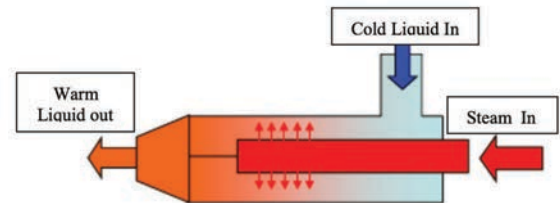
In industries low temperature hot water finds a wide range of usage. Hot water is used in general in all industries for AHUs, humidifications and for processes like bleaching, dying & washing in textile industries, gradual low temperature process heating, sterilization etc. in pharmaceuticals, washing and cooking, pasteurisation, CIP in food industries and a variety of other applications spread over a wide range of industries.

In an industry already using steam, hot water generation using steam proves to be the most economical option on the longer run from both the capital as well as running cost.



Indirect heating

The indirect steam heating method refers to processes where steam is not in direct contact with the product being heated.



Direct heating

The direct steam heating method refers to processes where steam is in direct contact with the product being heated.

Indirect Heating

As the name indicates, in this type of heating, the steam does not come in direct contact with the water to be heated.

This type of heating prevents contamination of the water due to steam mixing as in case of direct heating and is used widely in industries where process does not permit such contamination.

It is widely used in industry because it provides rapid, even heating. This method uses a heat exchanger, either PHE or shell & tube type, to heat the water.



MODULAR WATER HEATING SYSTEMS (MWHS) FOR INDIRECT HEATING.

Features.....

- Package consists of heat exchanger, interconnecting piping, control instrumentation, pumping traps & required valves and buffer tank.
- Total system is skid mounted and compact thereby requiring significantly lesser space than traditional tank based hot water systems.
- Buffer tank provided enables the system to be used online in recirculating type hot water circuits.
- Efficiently designed heat exchangers and temperature based control instrumentation including control valves enable the availability of hot water instantaneously, continuously and at accurate temperatures as required.
- Temperature based PID control enables variable temperature settings and stability of settings at variable loads.
- For non critical applications, economic versions with on/off control valves & thermodynamic steam trap at condensate outlet can also be provided.
- MWHS can be provided with both plate heat exchangers or shell & tube type heat exchangers based on customer preference.
- Package includes pumping trap provided at the condensate outlet of the heat exchanger thereby ensuring zero damage to the heat exchanger under stalling conditions and long working life of the heat exchangers.
- MWHS is a High energy efficient solution for hot water generation. 100% energy utilisation takes place as system is provided complete with steam operated condensate return pump.
- The MWHS - Modular Water Heating System comes to you with a backup of consolidated experience of more than 30 years in the field of heat transfer technology.

Direct Heating

Traditionally a Sparge pipe is used whenever steam is required to be directly purged into a water for heating. This gives rise to two kinds of challenges.

- High noise due to vibration as steam comes out from a number of small holes and at a high velocity.
- As steam comes out at high velocities, a sizeable percentage of this steam actually escapes and gets wasted

MODULAR WATER HEATING SYSTEMS (MWHS) FOR DIRECT HEATING.

Features.....

- Compact skid mounted system including tank, thermoject-steam injectors, all required inlet/outlet circulating nozzles utomated and automated with complete steam control instrumentation.
- Steam is injected using thermoject-steam injectors thereby ensuring zero steam losses, 100% energy utilisation and high energy efficiency due to utilisation of total heat of steam.
- Temperature based PID controlled steam control valve ensures instantaneous and continous hot water generation and supply with accurate required temperature
- In case of closed circuit heating systems steam operated water pumps is provided to pump back the water which may overflow due to addition of steam. Thereby preventing any water loss.
- Easy to install as system is supplied completely preassembled and skid mounted.





THERMOJECTS

Traditionally a sparge pipe is used whenever steam is required to be directly purged into a process fluid for heating. This process fluid may be water for hot water generation or any other chemicals, dyes, etc. This gives rise to two kinds of challenges.

- (1) High noise due to vibration as steam comes out from a number of small holes and at a high velocity.
- (2) As steam comes out at high velocities, a sizeable percentage of this steam actually escapes and gets wasted

THERMOJECT – The Indoanushka make steam injector is an apt substitute for such Sprage pipes.

- The **THERMOJECT** is a venturi type nozzle provided inside a concentric cylindrical housing with elliptical slots in the low pressure zone. When steam flows out at a high velocity through his convergent divergent nozzle, a differential pressure is created in the low pressure zone above the nozzle due to displacement of fluid by the steam velocity.
- As a result fresh cold process fluid is sucked in through the pre-designed slots and this gets mixed with the steam inside the mixing chamber provided in the injector housing. As a result what flows out of the injector is hot fluid and there is no scope of steam escaping without condensing.
- Also as the injector remains dipped inside the water, the water body itself acts as a silencer by hindering the flow of the high velocity steam coming out of the nozzle. This results into negligible or no sound during the mixing process.

THERMOJECT helps in reducing steam consumption in such applications by 100% utilisation of steam and zero loss due to escaping of un-condensed steam

THERMOJECT capacities in kg/h of injected steam when heating tanks vented to atmosphere

MODEL	STEAM INLET SIZE	O.D OF THERMOJECT	TOTAL LENGTH OF THERMOJECT
TJ15	15NB	28	205
TJ25	25NB	60	450
TJ40	40NB	90	550

THERMOJECT type	INJ15	INJ25	INJ40
Steam pressure at inlet of THERMOJECT, bar g	Capacities in kg/h of saturated steam		
2	40	205	540
3	62	275	725
4	80	340	900
5	100	410	1080
6	110	470	1250
7	130	540	1430
8	145	615	1610
9	170	685	1790
10	190	750	1950

Get In Touch

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