

# Aquatherm

## Pressurised Hot Water Generator



The low cost heating option for lower temperatures

# Aquatherm - the low cost, low temperature, eco - friendly heating option

Thermic fluid heating systems are excellent for high temperature applications - up to 360°C at near atmospheric pressure - but prove costly for low temperature requirements. Aquatherm is Thermax's unique answer to the industry's need for a low cost heating option for lower temperatures.

## The Aquatherm principle

In the Aquatherm, thermic fluid is substituted by water in the closed loop pressurised system.

Water boils when its vapour pressure equals the atmospheric pressure. When pressurised, water can boil at temperatures above 100°C. The Aquatherm uses this principle to heat water as high as 140°C or beyond, without changing its liquid state. This water is transferred in a pressurised closed loop system to the point of application.

Water is eco friendly and has a specific heat of one, which makes it the best medium as compared to other liquid industrial heat transfer media like thermic fluids.

## Designed for efficiency

**90%**  
EFFICIENCY

### Low fuel bills

The 3-pass thermally efficient design of the heater ensures an efficiency of 90% on NCV (Net Calorific Value) of any fuel used. This results in the lowest fuel bills when compared against any other industrial (liquid/gas) heater.

**140°C**  
**225°C**

### Wide range

Thermax offers a complete range of Aquatherm models to meet various customer needs.

The capacities range from 100,000 Kcal/hr to 2,000,000 Kcal/hr at standard outlet temperatures of 140°C. Systems with outlet temperature of upto 225°C can be custom-built on request.

**NON**  
**IBR**

### No boiler regulations

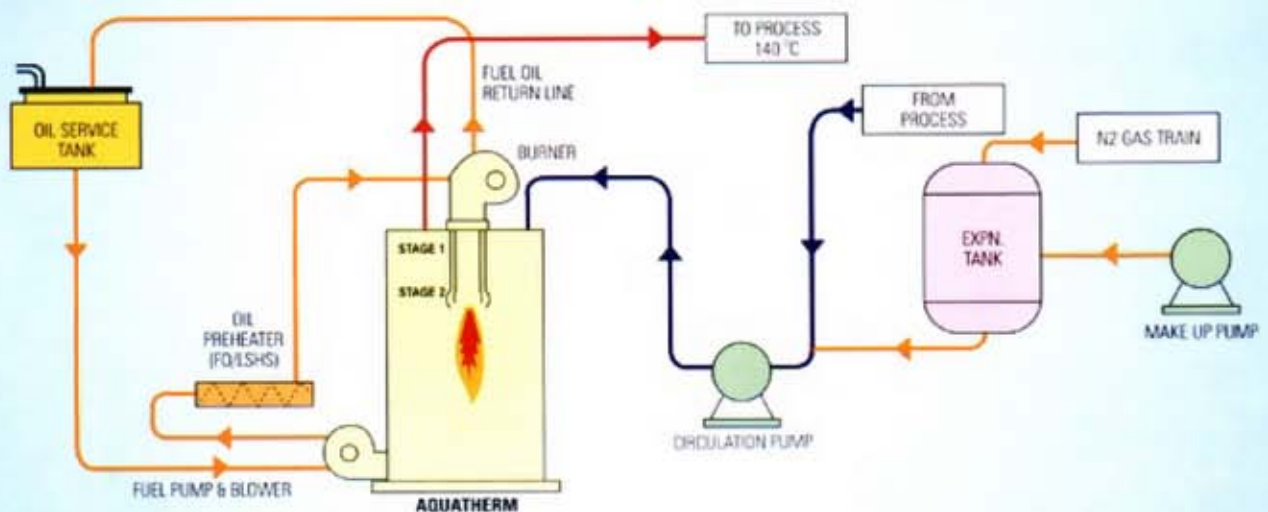
The technology innovation of Aquatherm lies in the use of water in its liquid phase to transfer heat to the process. This results in the entire system being outside the purview of the Indian Boiler Regulation, which is otherwise applicable for steam heating systems.

**LDO**  
**LSHS**  
**FO**  
**HSD**

### Multi-fuel options

The unique design of the heater enables use of any type of light oils / heavy oils / gases to run it, giving it multi-fuel flexibility.

## HOT WATER AT 140°C



# Complete solutions

## COST EFFECTIVENESS

### Low initial investment

Water being the heating medium, initial and topping-up costs are minimal.

### Lower power consumption

Water has lower viscosity than thermic fluid, resulting in lower pumping costs - thus slashing electricity bills.

### Piping sizes reduced

The high specific heat of water means lower flow rate, thus requiring smaller piping system dimensions. Smaller pipe sizes mean lower initial investment and reduced heat losses.

### Lower operations & maintenance costs

Aquatherm system uses treated water which is non-corrosive, assuring a longer product life. Also there is no recurring water treatment cost as in steam boilers.

Efficiency of 90% results in lower fuel bills and reduced maintenance costs which increases profitability and productivity automatically.

## SAFETY

### No fire hazard

Water, the medium of heat exchange, is the safest possible medium.

### Food grade

Water is the ideal medium for dairy and food industries. These industries can ensure their end-product to be food grade by using Aquatherm.

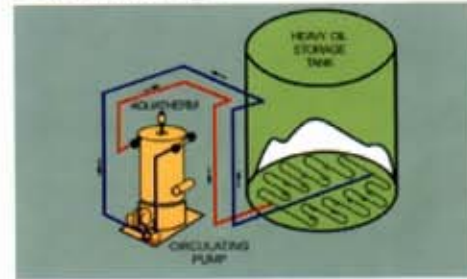
### No contamination hazard

In the drug, pharma, chemical, painting and pickling industries, leakage of thermic fluid can waste an entire batch of products - leading to system losses and loss of time. But in the Aquatherm, water being the medium of heat exchange, such leakages do not lead to wastage.

# Wide range of applications

Any form of industrial indirect heating can be achieved with Aquatherm. Some typical cases :

## Bulk oil storage

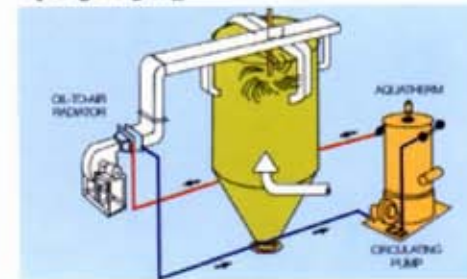


Petroleum oils remain in their liquid or solid state at a m b i e n t temperature depending on their chemical properties.

In order that these

oils can flow through pipelines for transportation, it needs to be heated. Large storage tanks have heating coils placed at the bottom of these tanks which heat up the entire bulk.

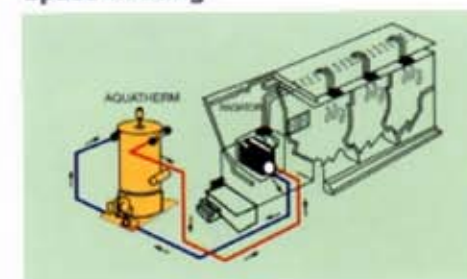
## Spray drying



The process involves hot air being blown into the spray dryer. Hot air can be generated by blowing air over a radiator circulating hot water from an

Aquatherm. This process of drying is used in dairies, dyes and some chemical industries.

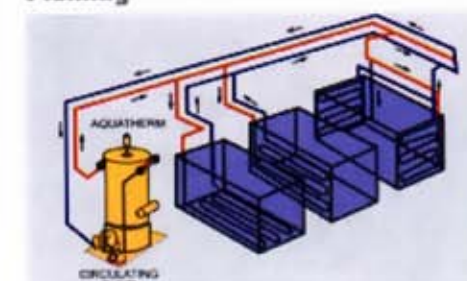
## Space heating



In order to maintain comfortable room temperature in cold regions, a radiator circuit containing hot water from an

Aquatherm can be used.

## Pickling



Any surface before being painted or stored needs to undergo a pickling (metal cleaning) process. The chemicals in various pickling tanks are

heated through coils circulating hot water from an Aquatherm.

# Technical specifications

	Unit	ATH-02	ATH-03	ATH-04	ATH-06	ATH-10	ATH-15
<b>OPERATING DATA</b>							
Heat Output	kcal/hr	2,00,000	3,00,000	4,00,000	6,00,000	10,00,000	15,00,000
Outlet temp. (max.)	°C	←————— 140 —————→			←—————→		
Max. head available at heater outlet	MLC	←————— 20 —————→			←—————→		
Burner Modulation		←————— ON / OFF —————→			←————— STEPLESS —————→		
<b>THERMAL DATA</b>							
Efficiency (as per BS 845 Part I method)	%	←————— 90 ± 2 —————→					
<b>RATED FUEL CONSUMPTION (ON NCV)</b>							
LDO : 10,050 kcal/kg	kg/hr	22.2	33.2	44.3	66.3	111	166
HSD : 10,800 kcal/kg	kg/hr	20.6	31.0	41.2	62.0	103	155
FO : 9650 kcal/kg	kg/hr	23.0	35.0	46.0	69.0	115	173
<b>ELECTRICAL DATA</b>							
Circulation pump	kW	2.2	3.7	3.7	5.5	7.5	9.3
Make-up pump	kW	1.1	1.1	1.1	1.1	1.1	1.1
Fuel pump	kW	←————— Common motor for Fan and Fuel Pump —————→			0.75		
Combustion air fan	kW	1.5	1.5	2.2	3.7	7.5	11.0
Oil preheater (for F.O. unit)	kW	N.A.	3.0	3.0	6.0	9.0	12.0
Control panel	kW	0.2	0.2	0.2	0.7	0.75	0.5
Total LDO/HSD	kW	5.0	6.5	7.2	11.0	17.6	31.0
FO	kW	N.A.	9.5	10.2	17.0	23.4	43.0
<b>OTHER DATA</b>							
<b>VERTICAL UNIT</b>							
Overall Dimensions							
Height	mm	2260	2335	2805	3260	3340	3950
Length	mm	1600	1595	1900	2140	2610	3015
Width	mm	1030	1175	1860	1975	1975	2255
Weight (approx.)	kgs	1125	1200	2325	2830	3000	4800
Flow rate	m <sup>3</sup> /hr	9	13	17	25	42	63
Power supply required		←————— 415 V ± 6%, 50 HZ ± 3%, 3 PHASE AC —————→					



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