



# Aquarius 1 - 16

## Direct-Contact Aerothermal Swimming Pool Heat Pump

- Genuine UK manufacture
- 'Direct Contact' pool water heating technology
- 20 year pool water heat exchanger anti-corrosion guarantee
- 20 year anodised aluminium chassis guarantee
- Robust hot-dipped galvanised steel casing with tough plastic-coated
- Ultra quiet 'low energy' digital air fan – can be 'ducted' if unit is inside
- 'Gold' epoxy coated air coil matrix to protect against air corrosion
- Fully automatic control panel with pool temperature display
- Inverter technologies
- Highest possible performance efficiency
- Unrivalled top quality European components
- Large commercial capacities and 3 phase electricity versions also available
- Colour options available – to visually blend into the environment
- Fully compliant Energy Related Product 'Eco-Design' Directive (ErPD)
- Genuine nationwide 'on-site' service support by Heatstar's own expert technicians

**Heatstar**  
Energy Technology Systems



Engineered with Excellence, Specified with Confidence.

# Aquarius

1 - 16

Direct-Contact Aerothermal Swimming Pool Heat Pump

**A self contained dependable pool water heating system utilising free renewable energy from the surrounding air – easy to install and simple to operate and maintain.**

## Aerothermal Heat Pump - How the Aquarius works

The Aquarius is based around proven and reliable refrigeration technology. The Aquarius incorporates an air fan and a large refrigeration circuit driven by a highly efficient electric compressor motor. Such a system is often referred to as a 'fresh air source heat pump' or reverse refrigerator.

Fresh air is drawn through the Aquarius by its own electric fan and brought into contact with the chilled refrigerated surface of the heat pump air coil matrix. Here, the very cold coil matrix will absorb heat naturally from the passing warmer fresh air.

The heat absorbed from the fresh air, together with all the electrical energy consumed in operating the refrigeration circuit, is then transferred via a special heat exchanger, using 'direct contact' technology, into the pool water as the water is passed through the Aquarius.

As only the electrical consumption of operating the electric air fan and compressor motor is paid for, all the additional heat absorbed from the fresh air is effectively completely free.

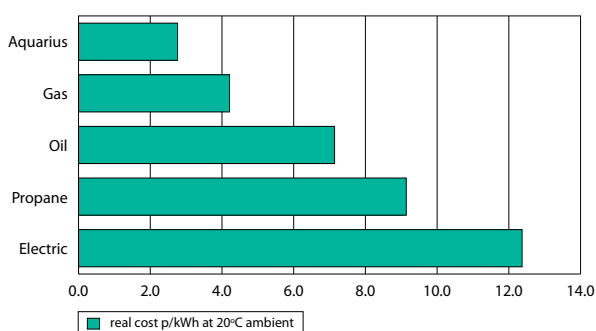
At typical operating conditions, for every kW of electrical energy which is paid for, the Aquarius can absorb more than a further four kW of free heat from the air, therefore easily outperforming any alternative fuel based method of heating.

A correctly applied Aquarius can easily maintain a normal pool water temperature without assistance from any other heat source. Heat pumps have been the proven heating method of choice for swimming pools for over 30 years and are used extensively in all World markets.

The Heatstar Aquarius Aerothermal Heat Pump is officially classified by the EU as a Renewable Energy Technology.



## Aquarius typical heating cost potential



## 'Super Boost' Auxiliary heating option

With the Super Boost option, an electric resistance heater is also incorporated in the Aquarius to quicken the initial warm-up time of the pool water from cold at the beginning of the season, even if the weather is unseasonably cold, and to provide flexibility to extend the swimming season if desired. The Super Boost option also enables the pool water temperature to be periodically increased if desired, for example, if young children are to use the pool.

A special 'optimiser' control system limits the electrical supply requirement and ensures that the high efficiency of the aerothermal heat pump principle continues to always be fully utilised.

## Engineered with excellence

For maximum strength and durability, the units are constructed from a 50mm thick anodised aluminium skeleton frame.

All exterior access panels are formed from robust galvanised steel, with a tough PVC coating to prevent corrosion, fixed via chrome latches.

All air heat exchange coils feature 'Gold' epoxy coating to protect against corrosion.

The heat pump utilises zero ozone depletion eco refrigerant and is completely hermetically sealed to guard against leakage.

## High efficiency 'Direct Contact' heating

The special titanium heat exchanger vessel within the Aquarius permits 'Direct Contact' heating of the pool water by the high temperature refrigerant. The efficiency of a heat pump is influenced by the temperature of the water being heated, the higher the temperature of the heated water circuit, the lower the efficiency possible. Using Direct Contact technology, the heat pump is able to transfer its heat into the pool efficiently benefiting from the normal temperature of the pool water.

## Broad operating fresh air temperature range

Generally, the amount of heat available in the fresh air for the Aquarius to absorb increases in line with the air temperature and humidity. However, even at very low winter temperatures, if appropriately specified, the Aquarius can still absorb sufficient heat to enable effective heating.

A characteristic of operation at low winter air temperatures is that the refrigerated air coil matrix will begin to incur ice formation which, if not frequently removed, will impede the passage of fresh air through the heat pump.

Therefore, for a heat pump to operate successfully at such temperatures, it must be equipped with appropriate active De-Icing technology.

Depending upon the probable requirement of the application, the Aquarius is available with different types of automatic digital De-Icing control, to cope with the coldest intended period of operation :

**SDF -** Typical summer season

**WDF -** All year and winter

Additionally, the Aquarius features a 'liquid refrigerant reservoir' to prevent potentially damaging liquid refrigerant from entering the compressor during cold weather operation.

## Ultra quiet operation

The Aquarius uses a special low energy German made 'Ziehl Abegg' axial digital fan to ensure that operational noise is reduced to an absolute minimum. The fan uses sickle blades with edge profiling derived by the design of the wings of owls.

## Easy to use automatic control panel with digital display

The Aquarius is fully automatic, incorporating an 'easy to set' digital controller which governs the operation depending upon the temperature of the pool water. An integral pool water flow sensor is also provided to enable operation in sequence with the pool filtration pump.

## High efficiency orbital scroll compressor

The refrigeration compressor which drives the heat pump uses a special 'orbital scroll' design, manufactured in the UK by Copeland, offering the best possible operating efficiency.



## Aquarius standard performance specifications

Type	1	2	3	4	6	8	16	
Air fan duty	M³/Hr.	2875	2875	3250	3250	6500	6500	13000
Max. external resistance	Pa	6	6	8	8	8	8	8
Fan type	Electronically commutated, brushless DC motor, sickle blades with owl wing edge profiling							
Unit power capacity								
Heat pump input	kW	1.9	2.4	3.2	4.0	6.5	8.1	16.1
‘Super boost’ option input	kW	6.0	6.0	9.0	9.0	-	-	-
Electrical requirements								
Single phase 230v / 50 Hz versions								
Compressor nominal running	Amps	7.8	10.0	13.5	17.0	27.0	33.9	67.8
Compressor RLA	Amps	11.4	14.5	17.3	23.1	34.6	46.2	92.4
Compressor LRA	Amps	47.0	61.0	76.0	100.0	89.5	117.0	151.0
Max. supply fusing (type C)	Amps	16	16	20	25	40	50	-
Min. supply capacity	Amps	20	25	30	40	45	63	-
With ‘Super boost’ option								
Max. supply fusing (type C)	Amps	40	40	63	63	-	-	-
Min. supply capacity	Amps	40	40	63	63	-	-	-
Three phase 400v / 50 Hz versions								
Compressor nominal running	Amps	2.6	3.3	4.5	5.7	9.0	11.3	22.6
Compressor RLA	Amps	4.2	5.1	6.3	7.0	12.6	14.0	28.0
Compressor LRA	Amps	24.0	32.0	40.0	46.0	45.0	52.0	64.0
Max. supply fusing (type C)	Amps	6	6	10	10	16	16	32
Min. supply capacity	Amps	8	9	11	13	16	20	30
With ‘Super boost’ option								
Max. supply fusing (type C)	Amps	16	16	20	25	-	-	-
Min. supply capacity	Amps	13	14	20	20	-	-	-

Rated conditions

Pool water: 26°C Ambient: 20°C/70% R.H.

Due to continuous development the right to alter specifications without notice is reserved. E&OE.

## Simple installation

The Aquarius is a fully self-contained unit, therefore installation could not be simpler. The Aquarius can be sited either outdoors or within a plant room, in direct sunlight, or in shade - all it needs is a free flow of fresh air, an electricity supply and pipe connection into the pool water filter circuit.

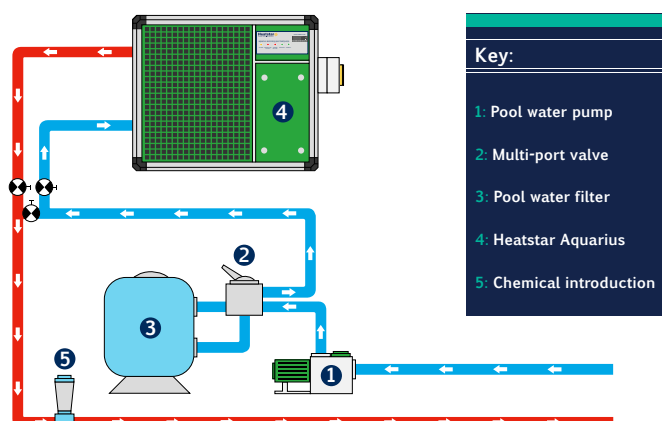
## Clean and environmentally friendly

Unlike fuel based heating methods, the Aquarius produces no smells, fumes or CO<sup>2</sup> at source and requires neither an unsightly fuel storage tank nor high capacity electricity supply.

As the amount of energy consumed to operate the Aquarius is small in relation to the overall heating requirement of the pool, or that consumed by alternative heating methods, the environment also benefits from your decision to heat your pool using an Aquarius.



## Aquarius installation





### Electronic 'Soft Start' option

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For applications where the available electricity supply is marginal, an option of an electronic soft start is offered, which automatically counteracts the electricity load peak on each occasion the compressor motor starts.

### Natural colour scheme

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The Aquarius enjoys attractive modern high quality styling and a placid colour scheme to blend in with the natural garden environment. Other colour options are available on request.

### Air filter

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To protect the air coil matrix from becoming obstructed by dust and leaves etc, the Aquarius has a cleanable filter fitted as standard on the fresh air intake.

### 'Ductable' air exhaust

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The use of a 'horizontal air exhaust' enables the discharged air to be channelled away to outside if the Aquarius is positioned within a plant room etc.

### Protected compressor motor

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The Aquarius is equipped with a cut-out device to automatically switch off the compressor motor in the event of abnormal refrigerant pressure. The compressor is also fitted with thermal overload protection.

### Uncomplicated routine servicing

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Unlike other heating methods, routine servicing for the Aquarius is comparatively simple and uncomplicated task and Heatstar are always on hand to offer help if required.

### Comprehensive selection service

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For a swimming pool heat pump installation to be successful, the correct capacity of model has to be expertly selected, taking into account the many relevant factors. Heatstar offer a free, computer-aided application assessment and Aquarius selection service for each individual project. Heatstar's highly experienced team are available for consultation on all related aspects without charge or obligation.

### Specified with confidence

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The Aquarius is unashamedly designed and constructed by Heatstar to be the best swimming pool heat pump product on the market and is still only manufactured in the UK using the highest quality European components. The Aquarius is a dedicated swimming pool heat pump design and not a modified air conditioning unit.

Heatstar are the renowned leading authority for the application of heat pump technology for swimming pools and are specified with confidence by the UK's leading pool builders.

For someone looking to make a risk-free investment in a product of known quality with proven heritage and genuine after-sales support, which will provide many years of dependable service, then the Aquarius is the clear and obvious choice.

### Energy Related Product Directive compliance (ERP)

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The European Union Directive for 'Energy Related Products' is now in force and encompasses sweeping legislation which impacts upon ventilation product engineering, efficiency and performance rating.

The Aquarius is so energy efficient that, not only does it comply with the new directive, but it actually even exceeds the more stringent regulations proposed for the future.

### Rigorous testing procedures

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Prior to every new Aquarius unit leaving the Heatstar factory, it is first subjected to a thorough procedure of testing and appraisal within Heatstar's own climatic chamber to ensure that all aspects meet the required quality and performance standards. Individual certificates of testing are provided.

### Genuine factory supported warranty and maintenance

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The Aquarius comes with the assurance and peace of mind of a comprehensive, on-site warranty within the UK, supported by Heatstar's own team of technicians. Service support is not sub-contracted to third parties and long term availability of spares parts is assured.

Extended warranty options are also available.

### Why chose Heatstar?

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Heatstar is a specialist British manufacturer and original pioneers in the field of swimming pool heat pump technology. A flag-bearer for energy efficiency for over three decades, Heatstar continue to play a huge part in making swimming pools role models for energy savings and reduced carbon emissions.

Since 1978, over 10,000 Heatstar systems have been supplied within the UK and also exported to numerous Countries.

Needless to say, the performance, quality and, very importantly, the long-term reliability and durability of Heatstar and their products have been demonstrated beyond question.

### Contact us

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Contact Heatstar for detailed specifications and a full analysis of your swimming pool heating or environmental control requirements.

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