

SPASA FACT SHEET No 7

HEAT PUMPS.....

WHAT IS A HEAT PUMP?

Heat pumps are relatively new to the swimming pool market, however the technology incorporated in their operation has been used in the air conditioning and refrigeration industries for many years.

Heat pumps operate rather like a refrigerator in reverse - using the air surrounding it in order to gather heat for transfer.

Heat is gathered from air drawn through the unit, and transferred to the refrigerant carried in pipes through the Heat Pump, then the temperature is increased by compressing the refrigerant. The heat is then transferred to the pool water contained in adjacent piping.

ADVANTAGES

The major advantage of electric heat pumps is that they are extremely energy efficient. In simple terms, the heat pump consumes very little energy by way of electricity to operate, compared to the amount of energy it produces in the form of heat. For example, if a heat pump consumes 2 kW of electricity it will produce 6 to 10 kW of heat energy. This efficiency ratio is referred to as a C.O.P. (co-efficient of performance).

SIZING:

Heat Pumps can be obtained in a number of sizes ranging from 2 kW to 200 kW output. The one to suit your application will depend on careful consideration of the following factors;

Location - local climatic conditions largely influence selection

Temperature - your choice, however as a guide:-

exercise and/or fun pool	- 24 to 28 degrees C
therapeutic exercise	- 28 to 35 degrees C
spa pool	- 34 to 38 degrees C

Size of Pool - determine the pool volume by multiplying the surface area in sq. metres by the average depth (including wading areas and spa). Select the appropriate unit for the volume of the pool.

Shading & exposure to wind - these can effect the heat losses and gains of heated water

Pool position - indoor or outdoor

Swimming season - do you want to swim all year round or just extend the season?

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INSTALLATION

Heat Pumps can be installed indoors or outdoors. However, before deciding on the heaters position, consideration should be given to air flow and ventilation. The Heat Pump uses a fan to draw in air across a coil and then expels it. If positioned indoors, allow for this ventilation.

For outdoor installation the heater can be positioned at ground level (50mm plinth preferred), mounted on a wall or even sat on a roof.

Units can be included as part of the pump/filter network or plumbed as a separate heating circuit.

Average size domestic installations generally require a single phase electrical connection. Larger pools may require three phase power.

Where available off-peak connection is advantageous to further reduce running costs.

THINGS TO LOOK FOR :

All heat pumps should have some form of flow control device to prevent the unit operating without adequate water flow.

Heat Pumps are all thermostatically controlled. However these controllers may range from analogue dial type units to micro-processed digital devices. To the operator, all these types produce the same result, and that is to control the pool temperature to your desired setting. An advantage of the digital type is that the settings are displayed more clearly.

Naturally not all heat pumps are the same. Some may have features that others do not. Some manufacturers provide additional controls including time clock and/or pump interlock to ensure the most economical operation of the heat pump/pool pump.

Whatever your choice, make sure you deal with a SPASA member when the time comes to choose your swimming pool heat pump.

Warning: When heat pumps are used on salt chlorinated pools, care should be taken to ensure the production of chlorine is adjusted to suit either the spa or pool, as excessive salt and/or chlorine levels can damage internal components. This is particularly important when operating for extended periods during heat-up.

The addition of a pool blanket is strongly recommended. See SPASA Fact Sheet No 6. POOL BLANKETS.

For further information on building, renovating or maintaining a pool, contact;

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