FACT SHEET 8
ELECTRICAL POOL HEATING

Heat pumps are super efficient—just 2 kW of electricity can produce 6–10 kW of heat.

Heat pumps have been used for heating pools for many years, although mainly for commercial purposes. The lowering cost of the technology means that it is now playing a far more significant role for the home pool owner. For the technically minded, heat pumps gather heat from the surrounding atmosphere by drawing it through the unit. It is then transferred to the refrigerant where the temperature is increased by compressing the refrigerant, and that heat is then transferred to the pool water. In this way, heat pumps are a powered form of solar heating.

ENERGY EFFICIENCY IS THE KEY

Electric heat pumps are extremely energy efficient, consuming very little electrical energy to operate and producing much more in the form of heat. For example, if a heat pump consumes 2 kW of electricity it will produce 6–10 kW of heat energy.

SIZING

Pool heat pumps range from 6–300 kW output. The one that best suits your application will depend on careful consideration of the following factors:

- Location—local climatic conditions have a bearing on performance
- Target temperature—it's your choice; however, as a guide—exercise and/or fun, 24–28 degrees C; therapeutic exercise, 28–35 degrees C; spa pool, 34–38 degrees C
- Pool volume, that is, the amount of water to be heated, can be determined by multiplying the surface area in square metres by the average depth (including wading areas and spa)
- Shading and exposure to wind, which can cause heat loss
- Pool position—indoor or outdoor
- Swimming season—do you want to swim all year round or just extend the season?

INSTALLATION

Heat pumps are usually installed outdoors since they extract heat energy from the surrounding air. If installed indoors, they require large volumes of intake air, and the discharge of chilled air must be vented outside away from the unit. Positioning of the heat pump should be carefully considered so that noise levels create minimal disturbance.

Plumbing can be included as part of the pump/filter network, or 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, time-of-use or off-peak electricity tariff connection will further reduce running costs.

CONTROL

All heat pumps should have some form of flow control device to prevent the unit operating without adequate water flow. All are thermometrically controlled with analogue dial type units through to microprocessed digital devices. All types control the pool temperature to your desired setting, but the digital devices display the settings more clearly. Some manufacturers also provide additional controls, including a time clock and/or pump interlock to ensure the most economical operation of the heat pump/pool pump. The addition of a pool blanket is strongly recommended.