

# Extreem Heatlock Insulation

## BENEFITS OF EXTREEM HEATLOCK INSULATION OVER FOAM ON SHELL INSULATION

The Extreem Heatlock Insulation system has two features that make it a superior to the 'foam on shell' system >

### 1. Energy Efficiency

Heat can be retained using two methods. Thermal insulation and radiant barrier. Thermal insulators are materials specifically designed to reduce the flow of heat by limiting conduction, convection, or both. Radiant barriers are materials that reflect heat radiation and therefore reduce the flow of heat from radiant sources. The Extreem Heatlock Insulation system uses both methods. A Dacron blanket provides the thermal insulation and reflective foil provides the radiant barrier. Spas using the 'foam on shell' system only use one method – thermal insulation.

The Extreem Heatlock Insulation system differs from 'foam on shell' insulation in that the inside of the spa's cabinet is insulated, instead of the shell of the spa. This is done for very good reason. When heat generated from the spa's pumps is trapped using the insulating blanket, reflective foil and ABS base of the Heatlock system, it creates a pocket of warm air around the spa shell. If the temperature of this trapped air is

at a higher temperature than the spa water, heat will be passed back into the water through the shell, reducing the use of the heater and saving you money. In spas using the 'foam on shell' method, heat from the pumps is wasted into the outside environment.

Here is a basic principle of thermodynamics: "If one form of matter; solid, liquid, or gas, is in contact with another form of matter, the heat from the warmer matter is transferred to the cooler matter". Heat only transfers from hot to cold is a simpler way of putting it.

This is the big "secret" of the Extreem Heatlock insulation system. By insulating the cabinet to trap the heat of the pumps around the spa, you do not need to insulate the spa's shell. As the pumps run, the heat they generate heats the air chamber contained between the shell and the outer insulated wall. When the air inside the chamber becomes as warm as the water, heat loss from the spa water stops.

An excellent example of this principle is to compare cooking a casserole in the oven as opposed to on the stove top. When cooking in an oven, once the oven is up to temperature, the element only comes on when the oven temperature drops below the level necessary for the casserole to cook. The better insulated the oven, the less

the element needs to come on. When cooking on the stove top, the element must stay on 100% of the time as there is constant heat loss from the casserole dish to the outside environment.

### 2. Quiet Operation

Insulation is not only designed for stopping heat transfer, it will also lower noise transfer. Because the Extreem Heatlock insulation is between the pumps and the outside environment, noise emission is dramatically reduced. With the alternative 'foam on shell' system, the insulation is between the pumps and the shell. The only thing between the pumps and the outside environment is a thin layer of timber – a particularly poor insulator. So, if you enjoy a quiet spa and happy neighbours, the Heatlock system is the obvious choice!

"Maximum energy efficiency"

