

BENEFITS:

- Provides active heating to diver reducing thermal stress
- Increases dive duration and diver comfort
- Mobile heating solution
- Easily integrated into existing dive systems

SPECIFICATIONS:

Heating Unit Size: 3.8" Diameter x 9.9" Length

Total Weight: 25lbs in air, -10 lbs buoyant

Heating: Up to 400W of heat in 35°F ambient water

Power: Lithium Ion Battery provides over 3 hours of runtime

Surface Supply: 12-24 VDC, 220W Max. Draw

Max. Depth: 300 feet

COMPONENTS:

- Diver Heating Unit & Mount
- Control Pendant
- Diver Power Pack
- Drysuit Penetrator & Quick-Disconnect
- Tubesuit
- Fill Kit & Tool Kit

Free-Swimming Diver Heating System

Free-swimming divers are often exposed to extreme conditions which can induce cold stress or even hypothermia; impairing diver performance, shortening dive duration and creating unnecessary health risks to divers.

Recognizing this need, RINI Technologies developed the Free-swimming Diver Heating System (FDHS). The FDHS utilizes efficient Miniature Heat Pump technology to yield impressive performance results. The FDHS operates in water as cold as 1 degree above freezing and provides heat via the Tubesuit worn near the diver's skin to provide full body heating. The Automated Thermostatic Control maintains the diver's selected supply water temperature (95-104°F) which also has over-temperature protection. Quick-Disconnect Interfaces for Drysuit, Semi-dry and Wetsuit configurations allow for emergency egress.

The FDHS has been Authorized for Military Use (AMU) and meets or exceeds all IMCA D045 requirements for Safe Use of Electricity Under Water



Diver Heating Unit (right) & Diver Power Pack (left)

Tubesuit

DIVER HEATING

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Portable Diver Power Pack



Control Pendant



Drysuit Penetrator & Quick-Disconnect

How the Heating System Works:

RINI's heat pump technology utilizes a miniature heat pump and circulates heated water through a tubesuit worn near the diver's skin. The miniature heat pump uses proven thermodynamic technology used in residential HVAC with an orientation independent compressor developed by RINI. The heat pump extracts heat from very cold sea water and provides that heat via closed loop water to the tubesuit. The heat pump is sized for the individual and is extremely energy efficient, requiring only 1 Watt of electrical power for every 2-3 Watts of heat delivered to the diver allowing for un-tethered diving with a portable battery. RINI's miniature heat pump technology can operate from a portable battery or continuously from surface supplied power, has no consumables, no gas venting, and no system recovery



About RINI Technologies:

RINI Technologies provides innovative solutions to the toughest thermal management challenges. RINI specializes in miniature refrigeration systems, advanced Evaporative Spray Cooling (ESC) and Thermal Energy Storage (TES) solutions. Applications include personal cooling, high and low power lasers, and power electronics. Contact RINI Technologies today to discuss how its engineers can address your cooling or heating concerns with a complete system solution.

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