



* LIQUID-TO-LIQUID * ACTIVE REFRIGERATION * LIQUID-TO-AIR *

LIQUID
POWER
COOLING
SUBSYSTEMS
FOR
SYSTEMS
INTEGRATORS

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LIQUID POWER COOLING SUBSYSTEMS



35 kW Liquid-to-Air Heat Exchanger

ETM has been supplying customers with heat exchangers for over 20 years. Drawing from a toolbox of standard modules, ETM is able to offer tailored heat exchangers quickly and at the lowest possible cost. Because ETM uses standard design methodology, our customers have found ETM heat exchangers to be a cost-effective solution to their cooling requirements.

ETM heat exchangers are used worldwide in a variety of applications:

- Radar, Threat Simulation and Jamming
- Medical and Industrial
- Instrumentation
- Satellite Component Testing
- Deep Space Communication
- Satellite and Troposcatter Communications
- Automated Testing: TWT, Microwave Components, Power Supplies



LIQUID POWER COOLING SUBSYSTEMS

ETM heat exchangers range in capacity from 3 kW to over 200 kW, and provide coolant flow from 3 GPM to 60 GPM (10 Liters Per Minute to 230 LPM). They use various technologies: liquid-to-air, liquid-to-liquid and active refrigeration.

ETM can use any cooling medium including:

- Low conductivity deionized (DI) water
- Coolanol
- PAO
- Glycol Mixes

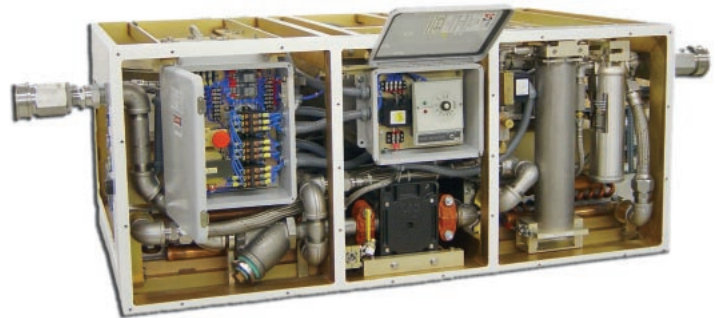
In addition to the basic job of removing heat from high power electronics, heat exchangers almost always have to meet additional requirements driven by the customers' applications.

Some of the requirements our heat exchangers have met include:

- Closed loop coolant temperature control
- Redundancy and on-line repair
- Nitrogen blanketing
- Active control of resistivity
- Pump speed control to set outlet pressure
- Packaging for outdoor or mobile use
- Extended operating temperature ranges
- Full-flow filtration
- Coolant preheating
- Precision temperature and flow monitoring
- Economizer coils to eliminate dependence on mechanical refrigeration in cool weather



160 kW Liquid-to-Liquid Heat Exchanger



25 kW Liquid-to-Air Heat Exchanger



80 kW Liquid-to-Liquid Heat Exchanger