

SuperCool Series Thermoelectric Cooler Assembly

The SLA-205-24-02 Liquid-to-Air thermoelectric cooler assembly is a high performance thermoelectric based liquid cooler. It is designed to temperature control small chambers used in medical diagnostics, lasers, imaging systems or sample storage compartments in analytical instrumentation. This unique, **patented** design offers a high performance hot side heat dissipation mechanism that convects heat more efficiently than conventional heat exchanger technologies. The design utilizes custom thermoelectric modules to maximize cooling capacity and premium grade fans to keep the noise down. Moisture resistant insulation is used to keep condensation from penetrating into the thermoelectric module cavity. This unit operates at 24 VDC and is designed for indoor lab use environment. It has a maximum Q_c of 202 Watts when $\Delta T = 0$ and a maximum ΔT of 40 °C at $Q_c = 0$.

US Patent US2016/0255746 A1

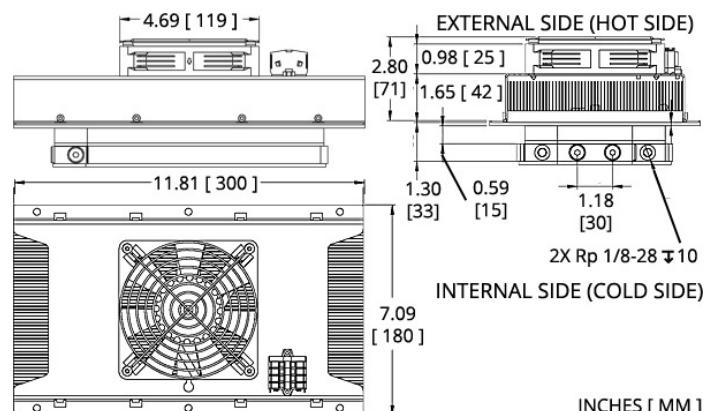


Features

- High performance
- Compact form factor
- Reliable solid-state operation
- RoHS-compliant

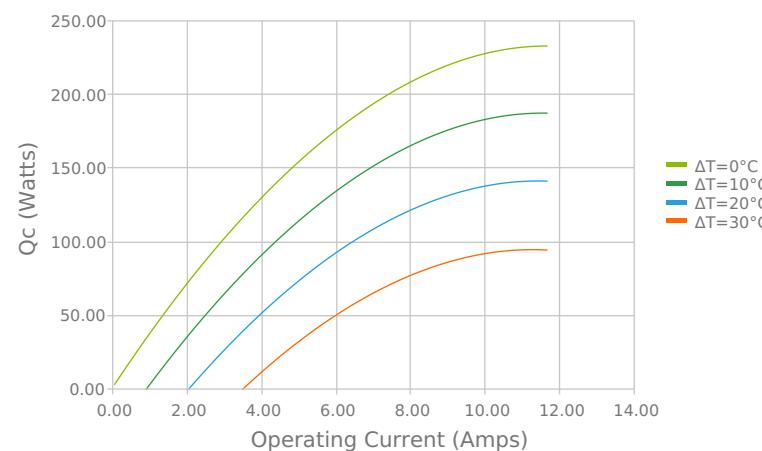
Applications

- Liquid Cooling Options for PET and SPECT Scanners
- Peltier Cooling for Refrigerated Centrifuges
- Heating and Cooling of Incubator Chambers
- Thermal Management Solutions for Beverage Cooling

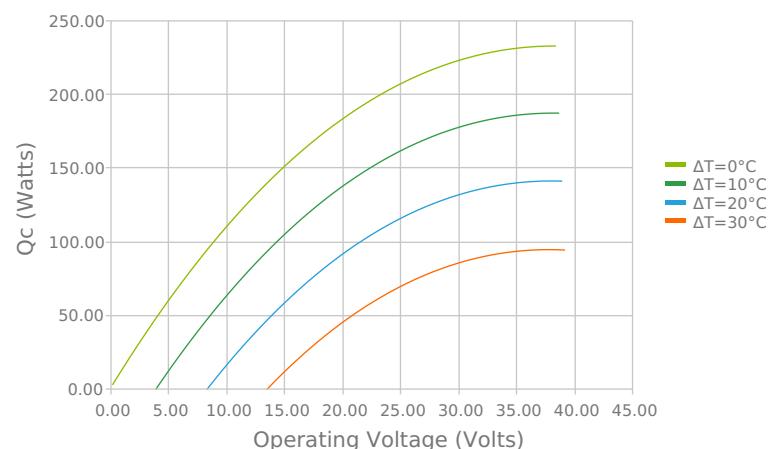


ELECTRICAL AND THERMAL PERFORMANCE

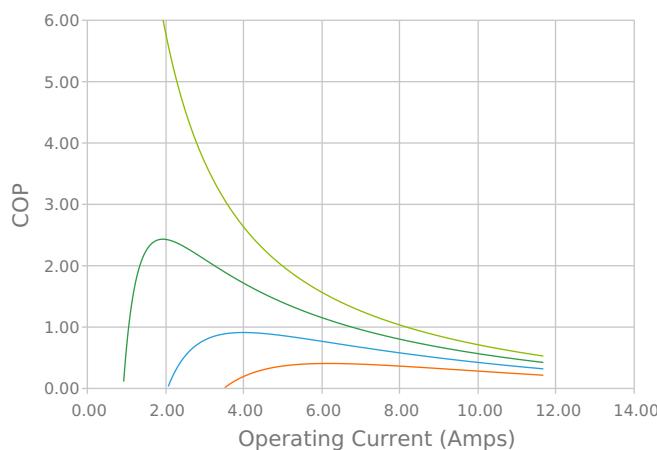
Heat Pumped at Cold Side (Q_c)
T_{ambient} = 35°C | T_{control} = 20°C



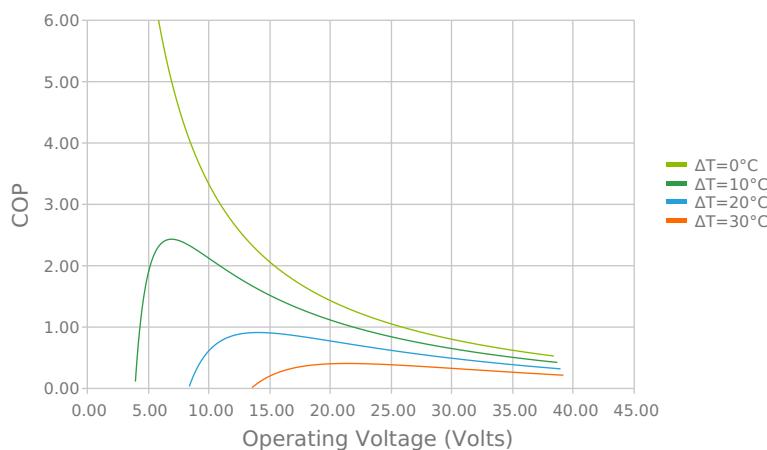
Heat Pumped at Cold Side (Q_c)
T_{ambient} = 35°C | T_{control} = 20°C



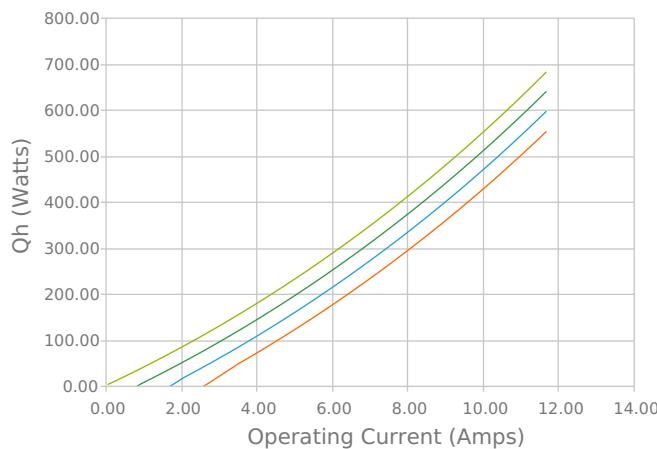
Coefficient of Performance (COP = Q_c/P_{in})
T_{ambient} = 35°C | T_{control} = 20°C



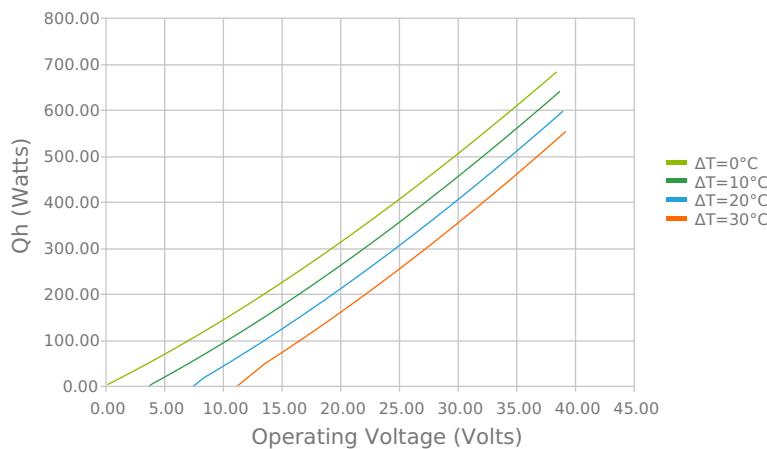
Coefficient of Performance (COP = Q_c/P_{in})
T_{ambient} = 35°C | T_{control} = 20°C



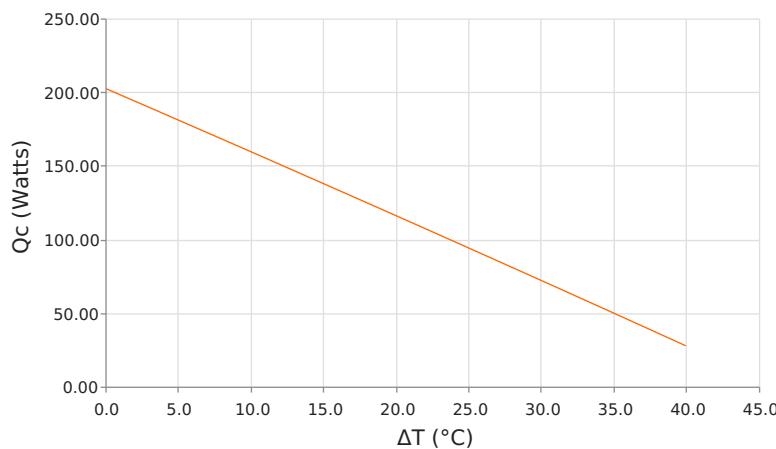
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
T_{ambient} = 35°C | T_{control} = 20°C



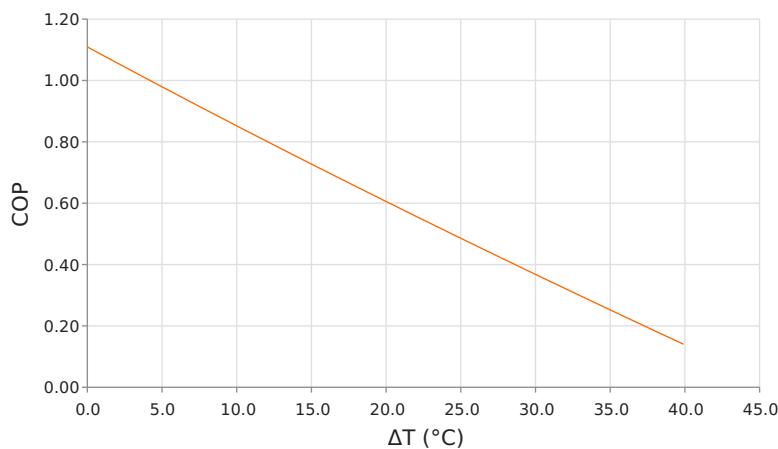
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
T_{ambient} = 35°C | T_{control} = 20°C

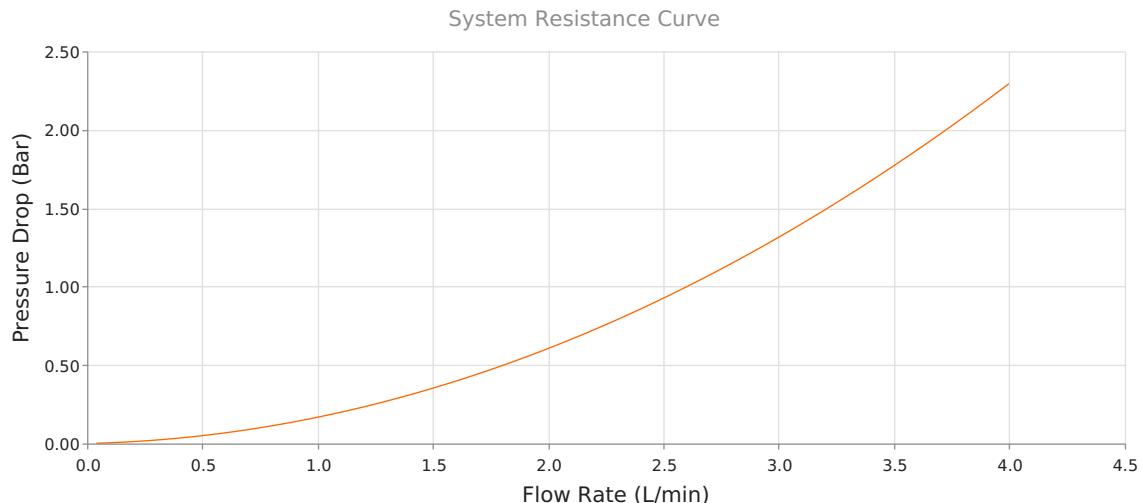


Heat Pumped at Cold Side (Q_c)
V_{operating} = 24 Volts | I_{operating} = 7.61 Amps



Coefficient of Performance (COP = Q_c/P_{in})
V_{operating} = 24 Volts | I_{operating} = 7.61 Amps





SPECIFICATIONS

Operating Temperature Range

-20°C to 60°C

Supply Voltage

24.0 VDC nominal / 28.0 VDC maximum

Current Draw

7.4 A running / 8.6 A startup

Power Supply

206.0 Watts

Performance Tolerance

10%

Fan MTBF

50,000 hours

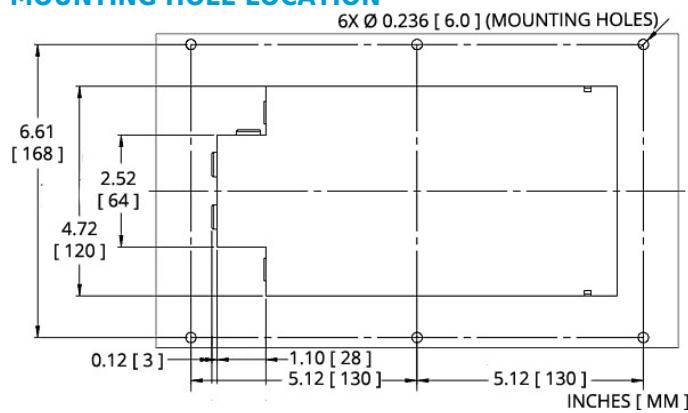
Sound Level (1 m distance)

63 dBA

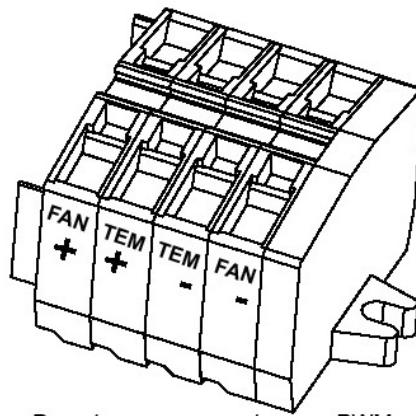
Weight

4.10 kg

MOUNTING HOLE LOCATION



WIRING SCHEMATIC



Warning: Do not reverse current or use PWM on fan supply.

NOTES

¹For indoor use only

²Units are generally maintenance free, however occasionally it is recommended to clean the heat sinks and fans of debris. This is best done with compressed air.

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