

SuperCool Series Thermoelectric Cooler Assembly

The SDA-130-24-02 Direct-to-Air thermoelectric assembly is a high performance thermoelectric based heat pump. It is designed to temperature control small chambers used in medical diagnostics 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 reduce noise. Moisture resistant insulation is used to keep condensation from penetrating into the TEM cavity. This unit operates at 24 VDC and is designed for indoor lab use environment. It has a maximum Q_c of 126 Watts when $\Delta T = 0$ and a maximum ΔT of 41 °C at $Q_c = 0$.

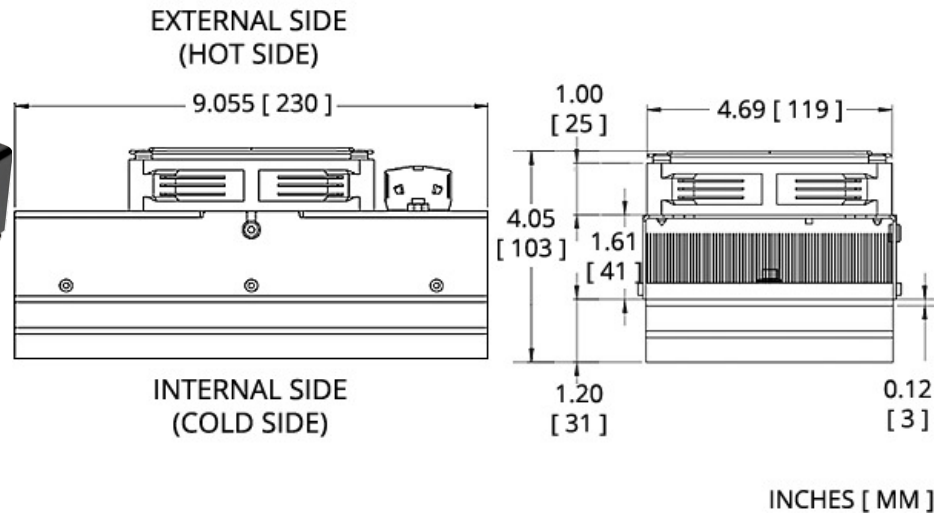
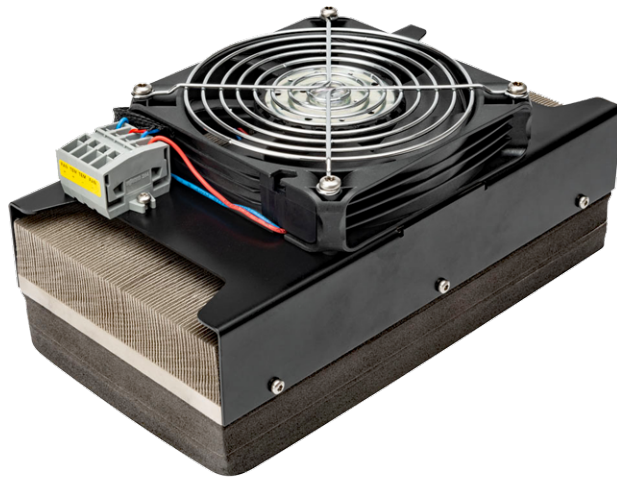
US Patent US2016/0255746 A1

Features

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

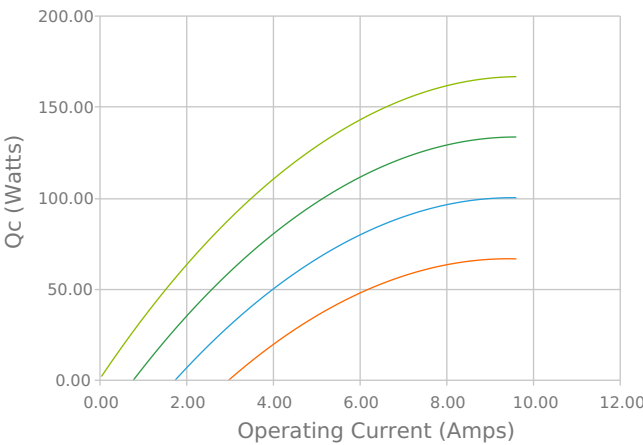
Applications

- 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

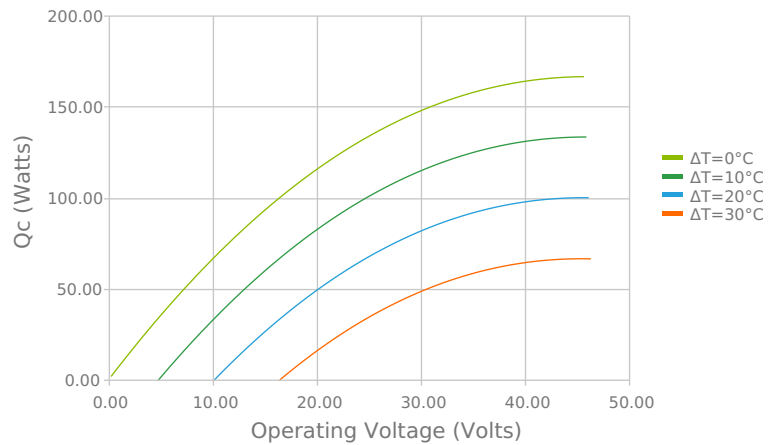


ELECTRICAL AND THERMAL PERFORMANCE

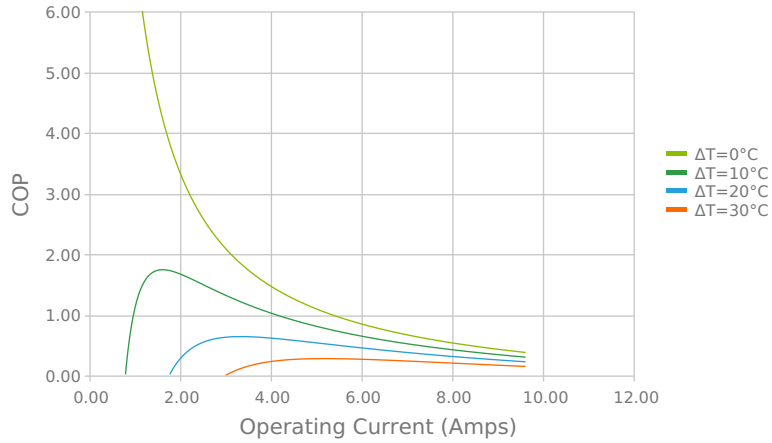
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ C$ | $T_{control} = 20^\circ C$



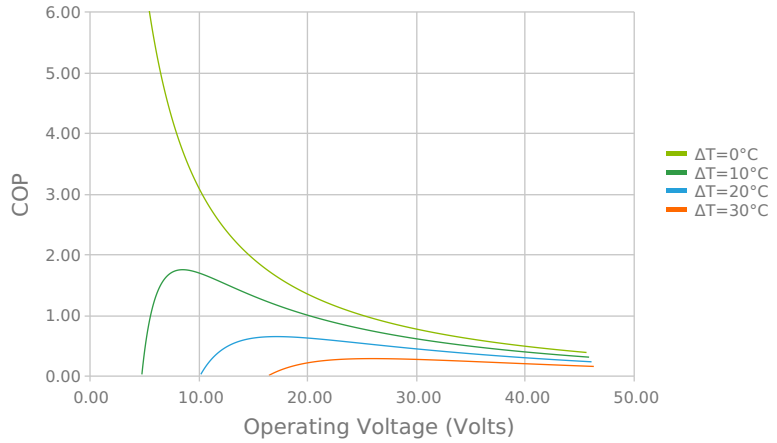
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ C$ | $T_{control} = 20^\circ C$



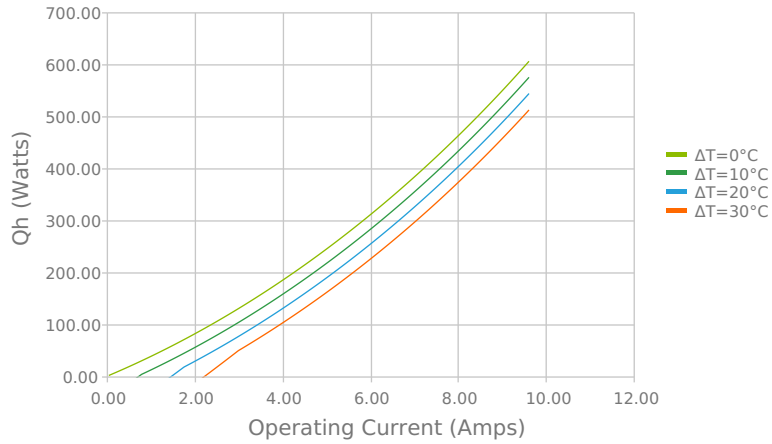
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



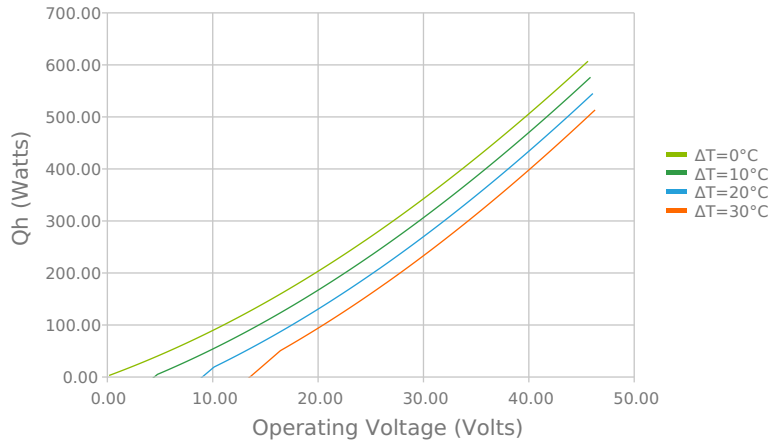
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



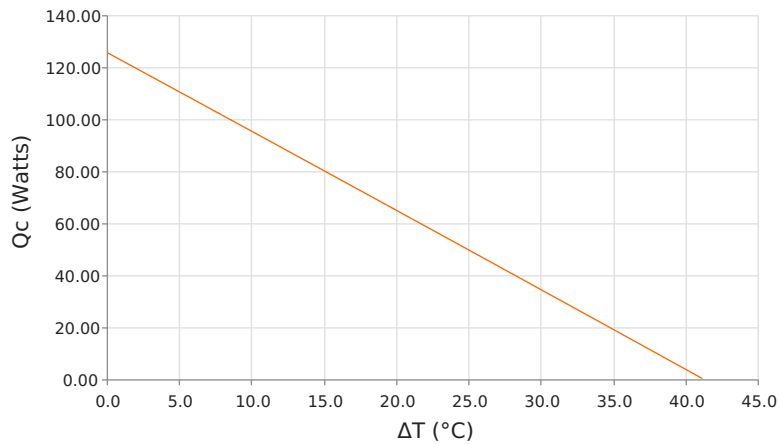
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



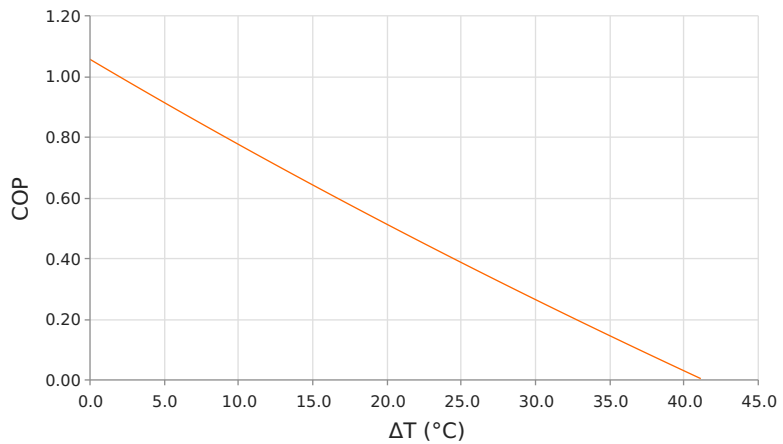
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



Heat Pumped at Cold Side (Qc)
 Voperating = 24.1 Volts | Ioperating = 5.2 Amps



Coefficient of Performance (COP = Qc/Pin)
 Voperating = 24.1 Volts | Ioperating = 5.2 Amps



SPECIFICATIONS

Operating Temperature Range

Supply Voltage

Current Draw

Power Supply

Performance Tolerance

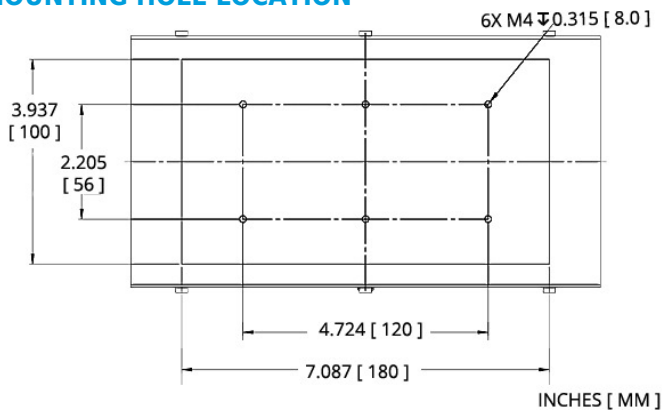
Fan MTBF

Sound Level (1 m distance)

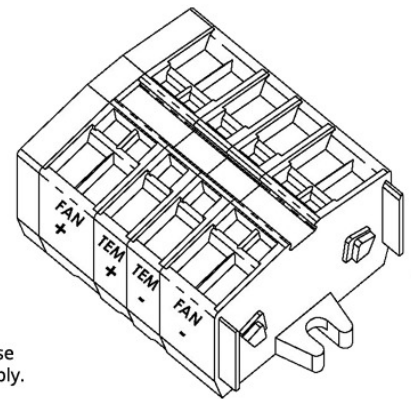
Weight

-20 °C to 60°C
24.0 VDC nominal / 30.0 VDC maximum
5.0 A running / 6.4 A startup
120.0 Watts
10%
50,000 hours
61 hours
2.30 kg

MOUNTING HOLE LOCATION



WIRING SCHEMATIC



Warning:
 Do not reverse current or use PWM-regulation 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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Date: 04/24/2020