

PowerCool Series Thermoelectric Cooler Assembly

The AA-024-12-22 is an Air-to-Air Thermoelectric Cooler Assembly that uses impingement flow to transfer heat. It offers dependable, compact performance by cooling objects via convection. Heat is absorbed and dissipated through high density heat exchangers equipped with air ducted shrouds and brand name fans. The heat pumping action is created by thermoelectric modules, which are custom designed to achieve a high coefficient of performance (COP). It has a maximum Q_c of 24 Watts when $\Delta T = 0$ and a maximum ΔT of 35 °C at $Q_c = 0$.

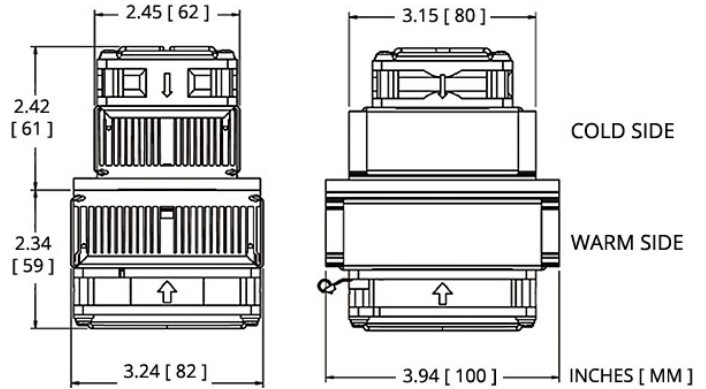


Features

- Compact design
- Precise temperature control
- Reliable solid-state operation
- Low noise
- RoHS-compliant

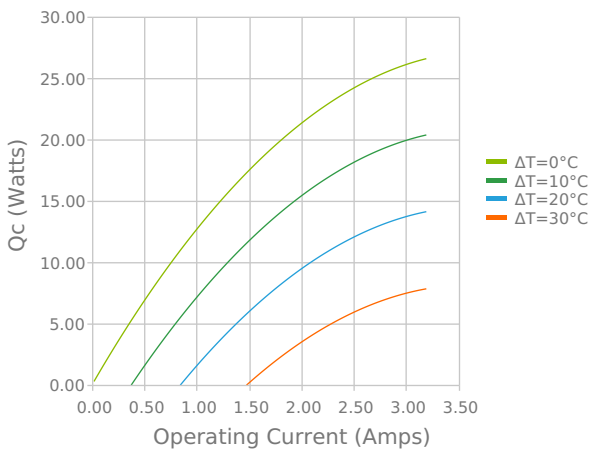
Applications

- Medical Diagnostic and Analytical Instrumentation
- Thermoelectric Coolers and Assemblies for Medical Applications
- Liquid Cooling Options for PET and SPECT Scanners
- Cooling for Centrifuges
- High-Performance Liquid Chromatography (HPLC)
- Heating and Cooling for Liquid Chromatography Systems

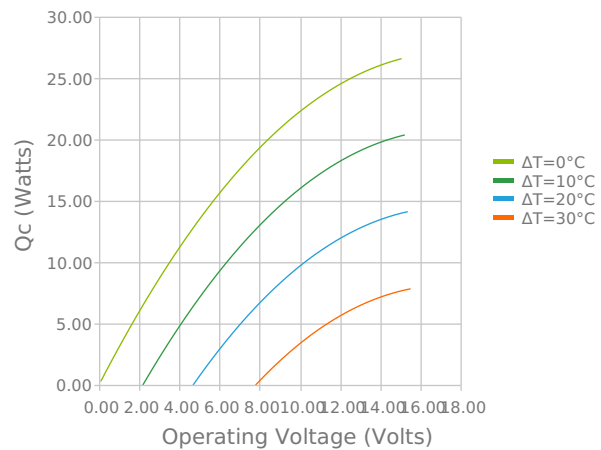


Electrical and Thermal Performance

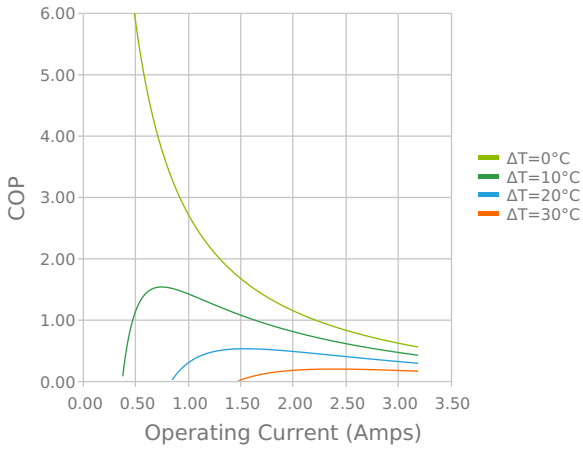
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



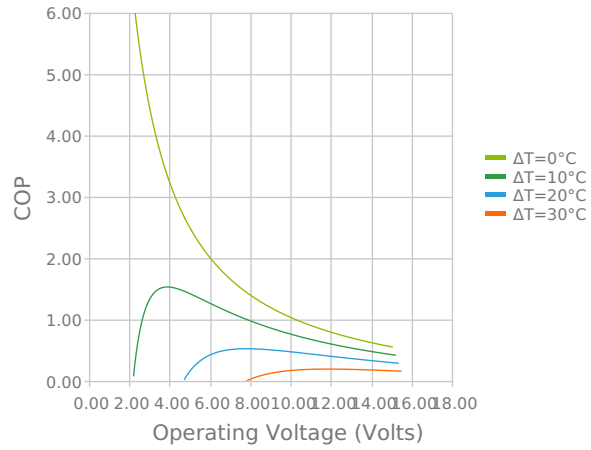
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



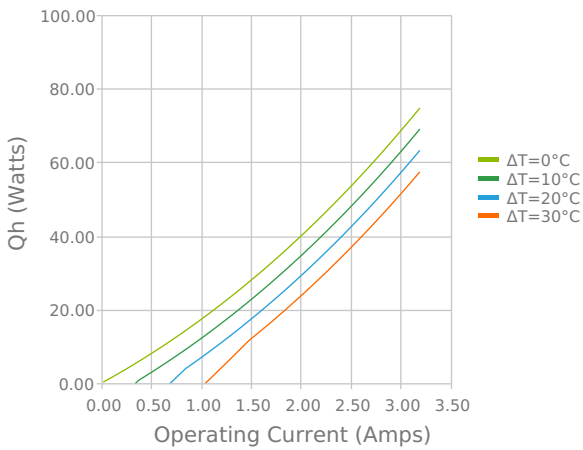
Coefficient of Performance (COP = Q_c/P_{in})
Tambient = 35°C



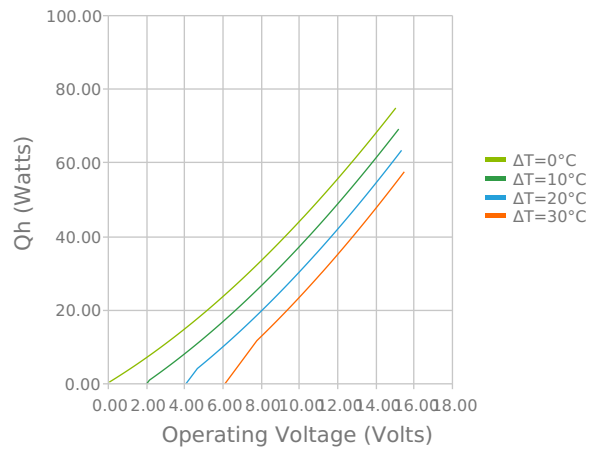
Coefficient of Performance (COP = Q_c/P_{in})
Tambient = 35°C



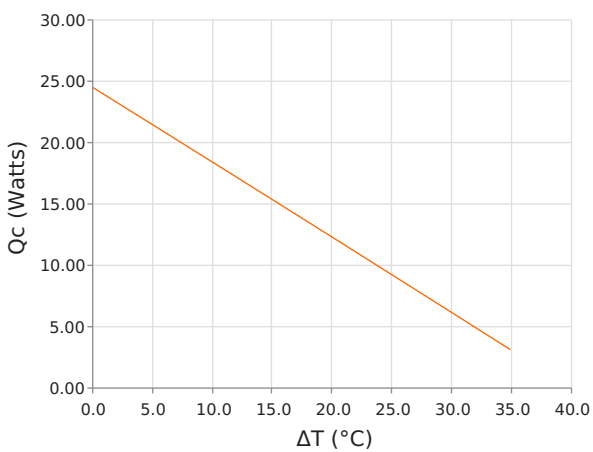
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
Tambient = 35°C



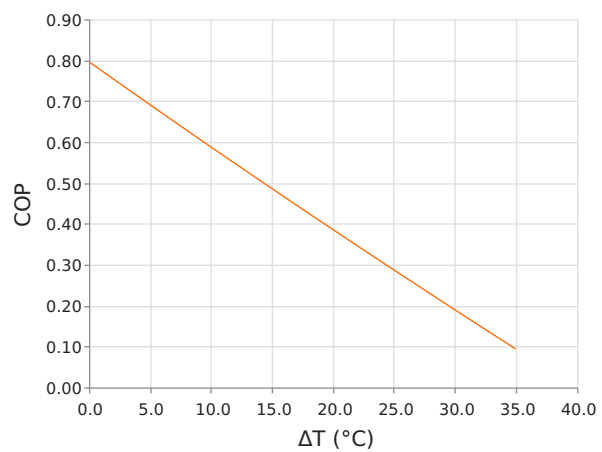
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
Tambient = 35°C



Heat Pumped at Cold Side (Q_c)
Voperating = 12 Volts | Ioperating = 2.57 Amps



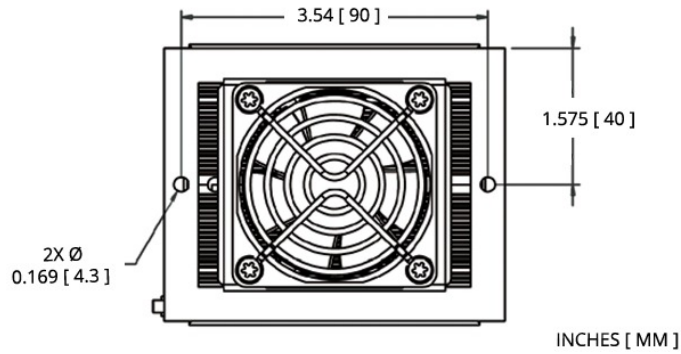
Coefficient of Performance (COP = Q_c/P_{in})
Voperating = 12 Volts | Ioperating = 2.57 Amps



Specifications

| | |
|------------------------------------|-------------------------------------|
| Heat Transfer Mechanism, Cold Side | Air - Forced Convection |
| Heat Transfer Mechanism, Hot Side | Air - Forced Convection |
| Operating Temperature Range | -10°C to 51°C |
| Supply Voltage | 12.0 VDC nominal / 15.0 VDC maximum |
| Current Draw | 2.4 A running / 2.7 A startup |
| Power Supply | 29.0 Watts |
| Performance Tolerance | 10% |
| Hi-Pot Testing | No Testing |
| Fan MTBF | 40000 hours |
| Weight | 0.60 kg |
| Panel Mounting | Through |

Mounting Hole Location



Wiring Schematic

ELECTRICAL CONNECTIONS:

TEM+ : Pink
TEM - : Green
FAN+ : Purple
FAN - : Blue

Warning: Single supply not applicable
in heating mode or with PWM-
regulation.

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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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