

Liquid Series Thermoelectric Cooler Assembly

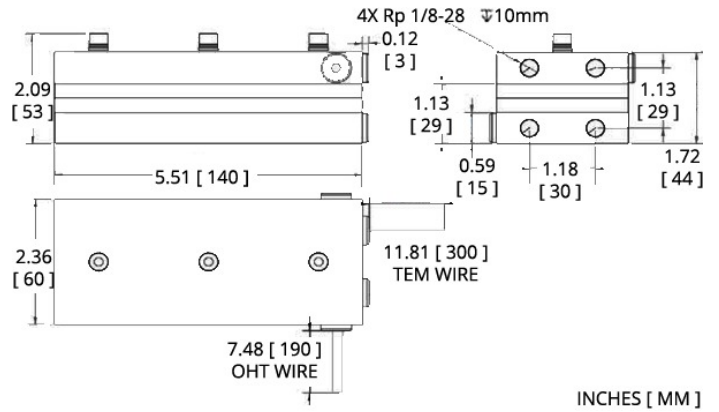
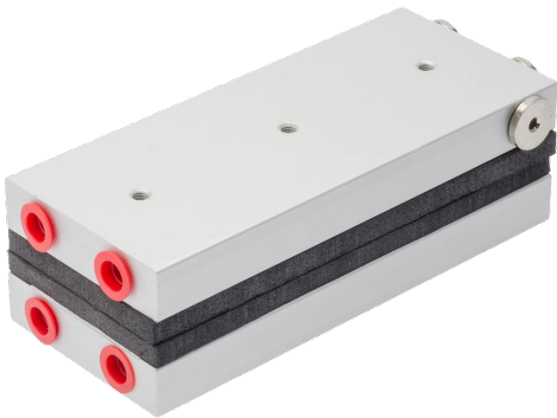
The LL-120-24-00 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through one liquid heat exchanger and dissipated thru a second liquid heat exchanger. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. It has a maximum Q_c of 122 Watts when $\Delta T = 0$ and a maximum ΔT of 42 °C at $Q_c = 0$. Heat exchangers are designed to accommodate distilled water with glycol. Corrosion resistant turbulators are enclosed inside channels to increase heat transfer. Mating port adaptors are sold separately.

Features

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

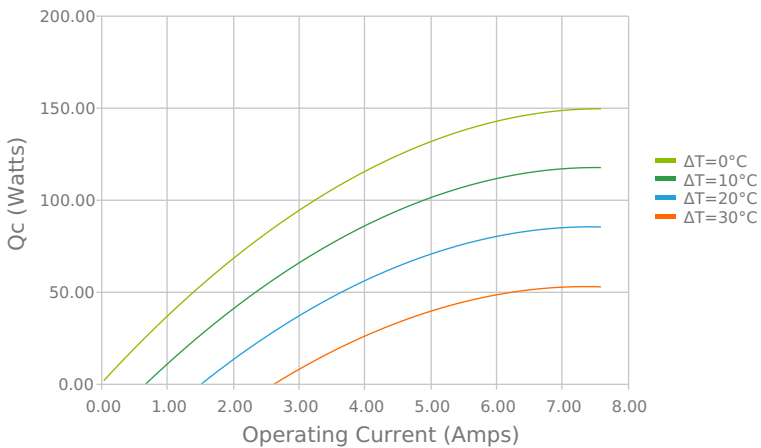
Applications

- Medical Diagnostics
- Industrial Lasers
- Medical Lasers
- Analytical Instrumentation

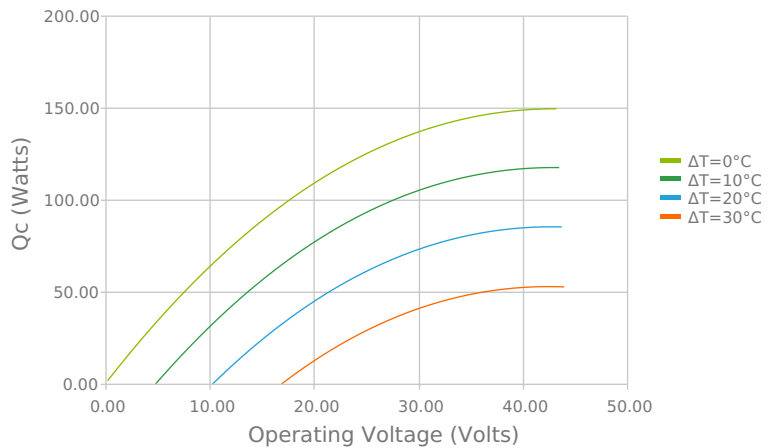


ELECTRICAL AND THERMAL PERFORMANCE

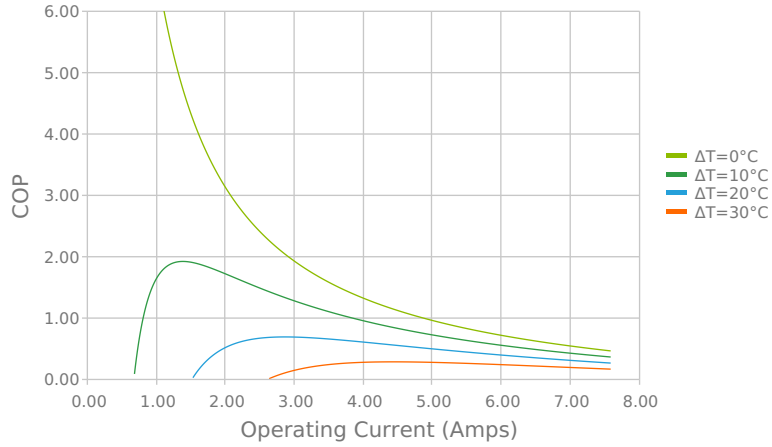
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ\text{C}$ | $T_{control} = 20^\circ\text{C}$



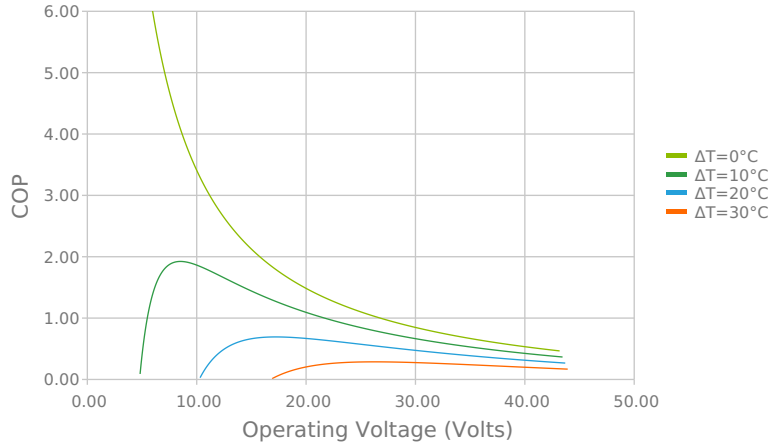
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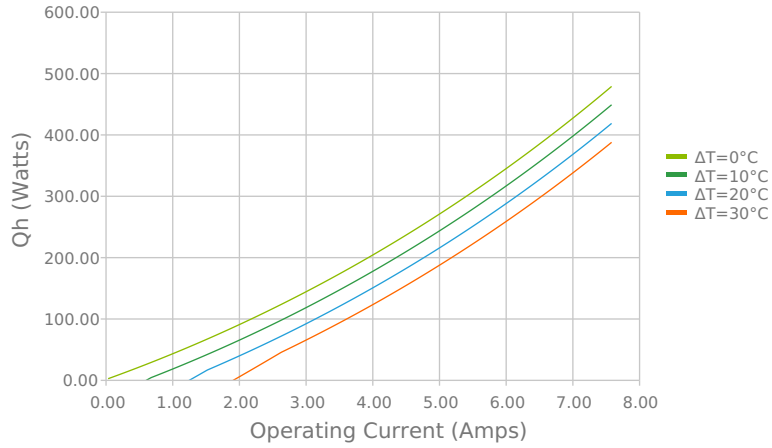
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



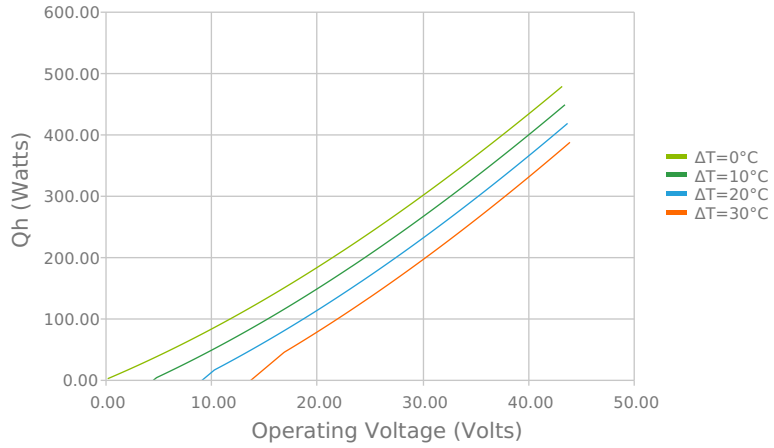
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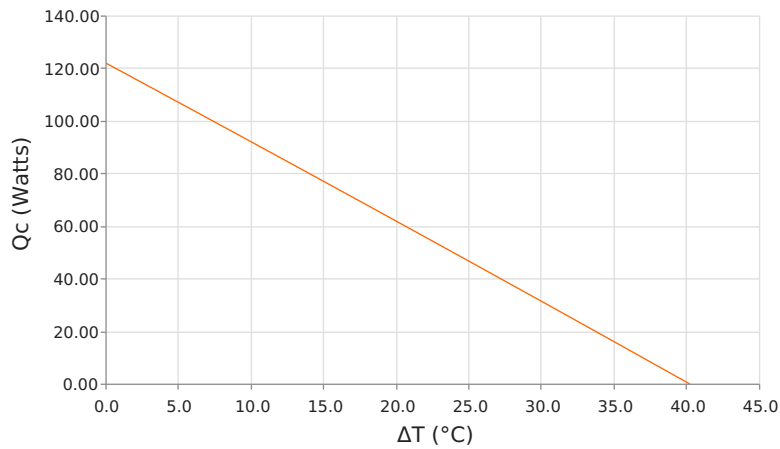
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



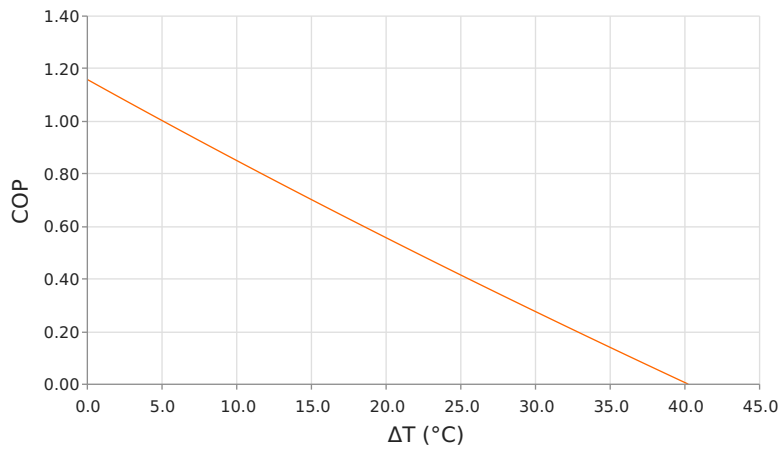
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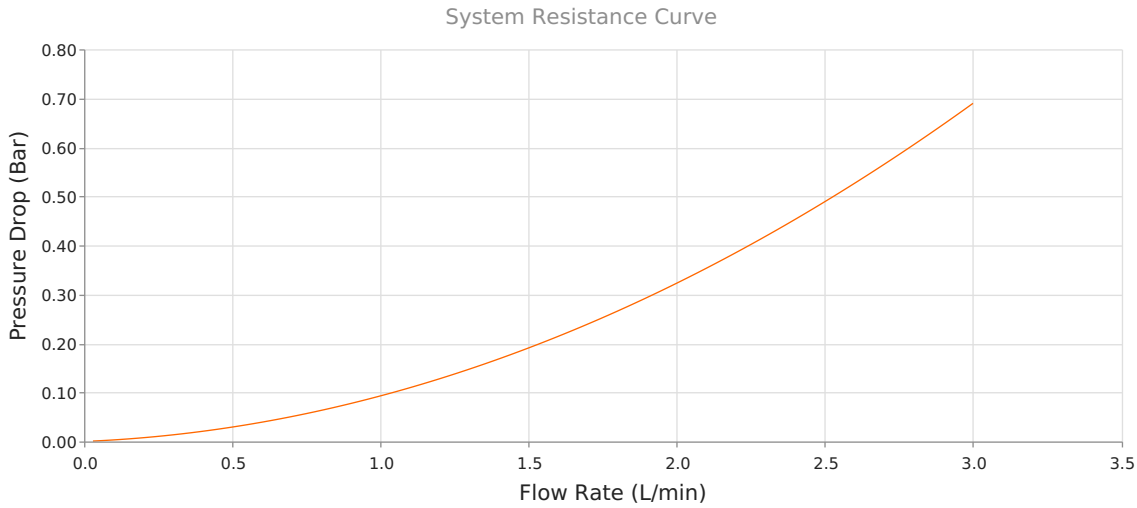


Heat Pumped at Cold Side (Qc)
 Voperating = 24.01 Volts | Ioperating = 4.39 Amps



Coefficient of Performance (COP = Qc/Pin)
 Voperating = 24.01 Volts | Ioperating = 4.39 Amps





SPECIFICATIONS

Heat Transfer Mechanism, Cold Side

Heat Transfer Mechanism, Hot Side

Operating Temperature Range

Supply Voltage

Current Draw

Power Supply

Performance Tolerance

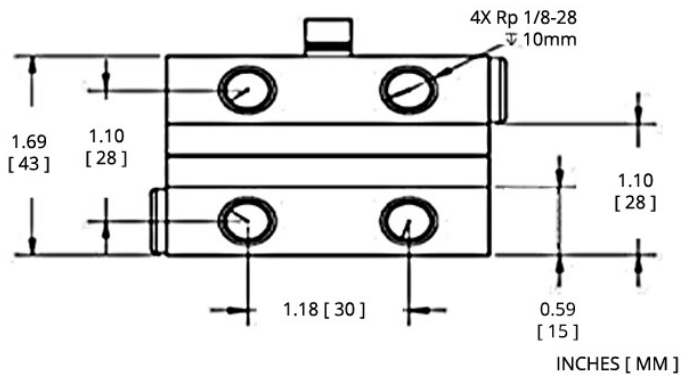
Hi-Pot Testing

Over-Temp Thermostat (Hot and Cold Side Heat Sink)

Weight

Liquid - Forced Convection
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-40°C to 62°C
24.0 VDC nominal / 28.0 VDC maximum
4.2 A running / 4.7 A startup
98.4 Watts
10%
750 VDC
75°C ±5°C (hot side heat sink)
0.80 kg

MOUNTING HOLE LOCATION



ELECTRICAL CONNECTIONS

TEM+ : Red
TEM - : Black

Wire Size: 18 AWG

The overheat protection (OHT) bimetal thermostat has a maximum current of 8 Amps. For systems 8 Amps or less, the thermostat can be connected directly in series with thermoelectric modules (TEMs). Otherwise connect the TEMs to the power source through a relay of suitable rating which state is controlled with the bimetal thermostat.

NOTES

¹For indoor use only

²Turbulators are mounted inside liquid channels to create turbulent flow

³Cold block requires insulation to minimize moisture buildup under dew point conditions.

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