

SuperCool X Series Thermoelectric Cooler Assembly

The SLA-400-24-02 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 next-generation high-performance 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 407 Watts when $\Delta T = 0$ and a maximum ΔT of 39 °C at $Q_c = 0$.

Pending U.S. Patent Publication No. US2020/0240717

Granted Patents:

- China: ZL2016800175855
- Japan: 6549721
- Switzerland: 3262909
- Germany: 6020160449986
- United Kingdom: 3262909

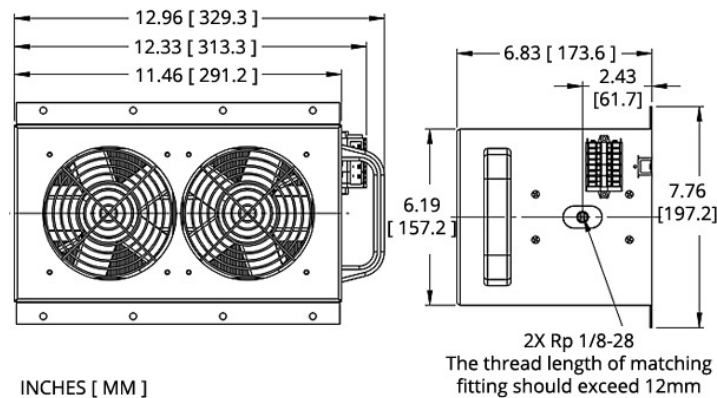


Features

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

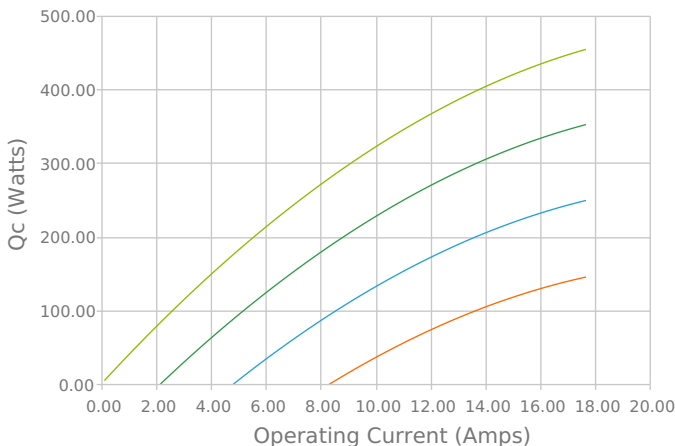
Applications

- 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

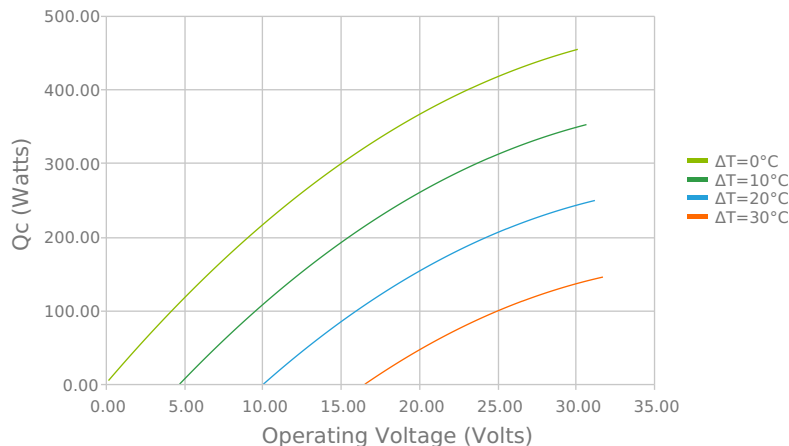


ELECTRICAL AND THERMAL PERFORMANCE

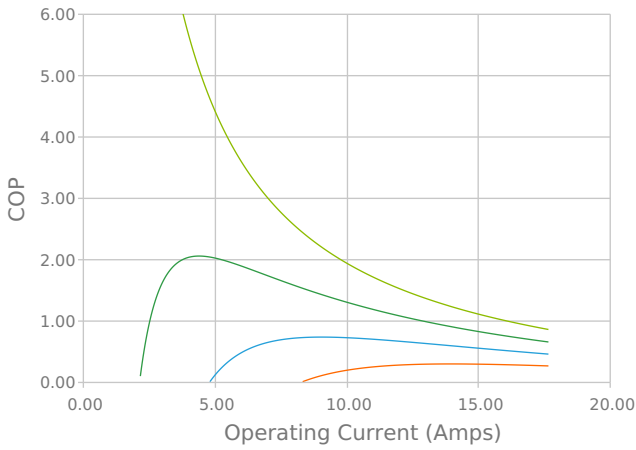
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



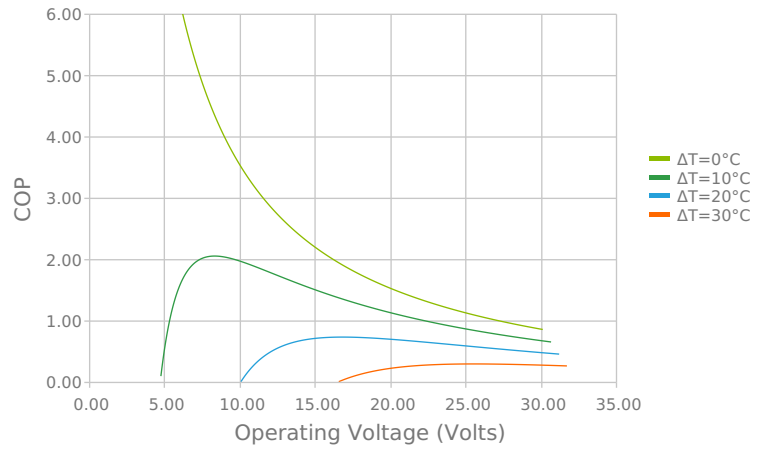
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



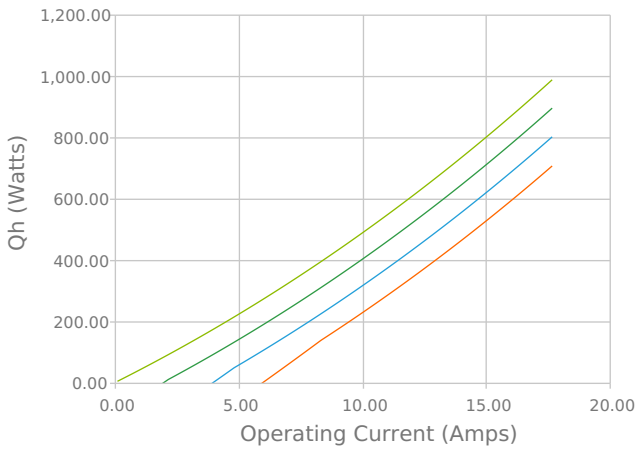
Coefficient of Performance (COP = Q_c/P_{in})
T_{ambient} = 35°C



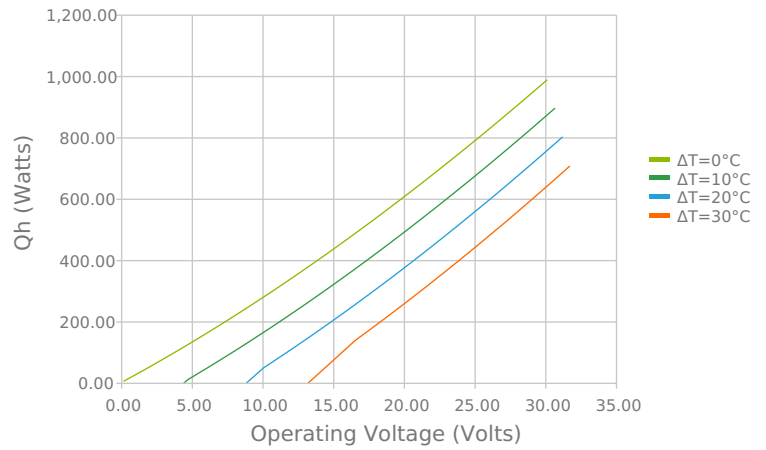
Coefficient of Performance (COP = Q_c/P_{in})
T_{ambient} = 35°C



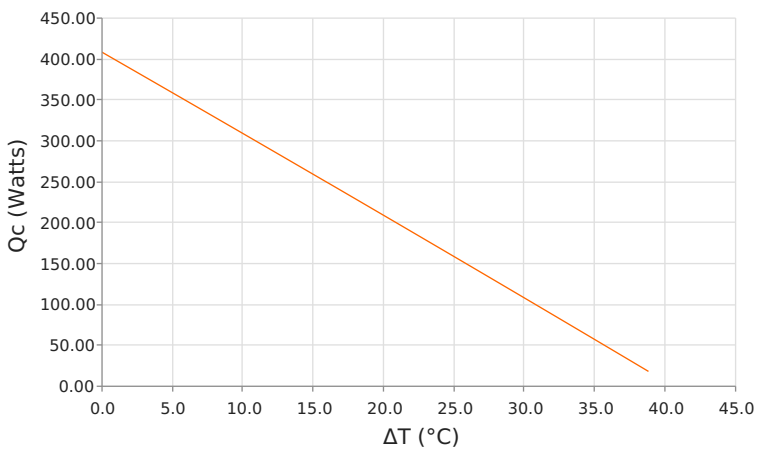
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
T_{ambient} = 35°C



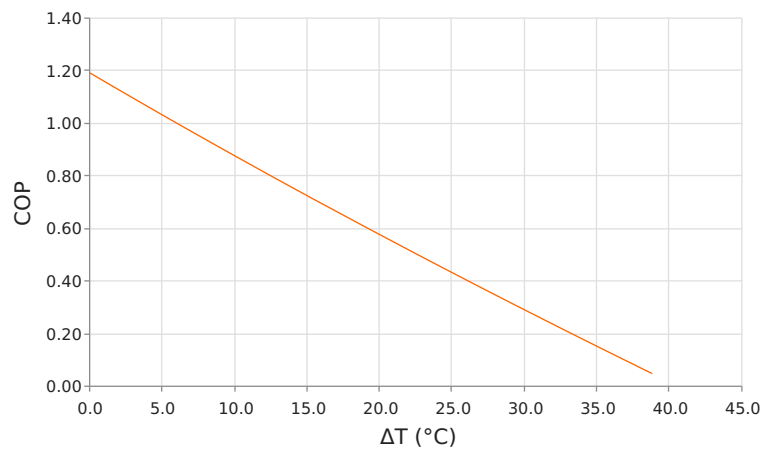
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
T_{ambient} = 35°C

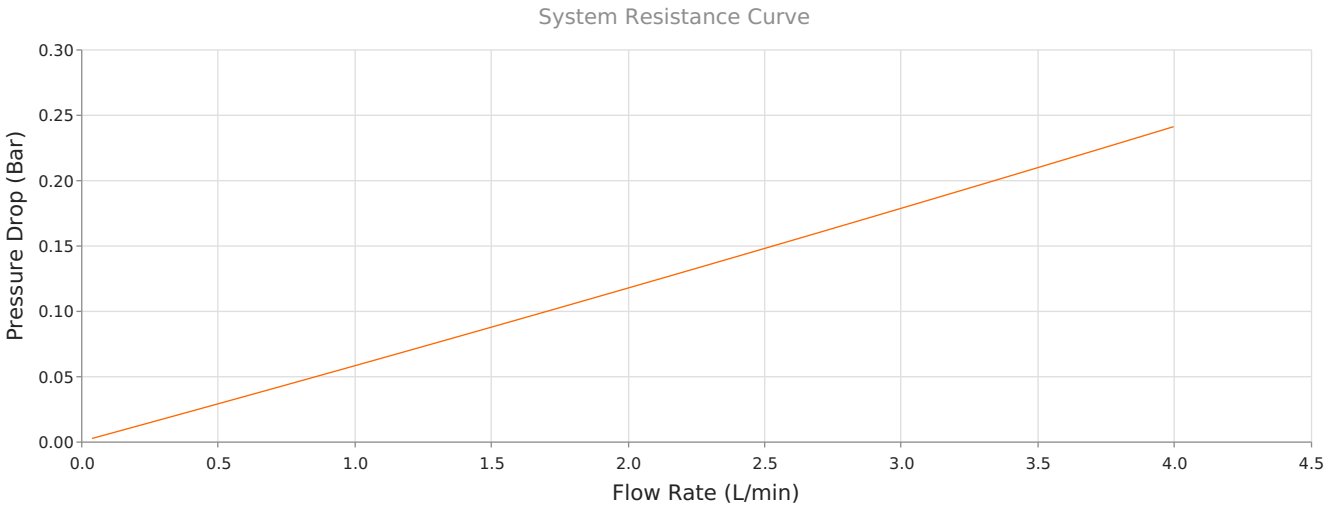


Heat Pumped at Cold Side (Q_c)
V_{operating} = 24 Volts | I_{operating} = 14.26 Amps



Coefficient of Performance (COP = Q_c/P_{in})
V_{operating} = 24 Volts | I_{operating} = 14.26 Amps



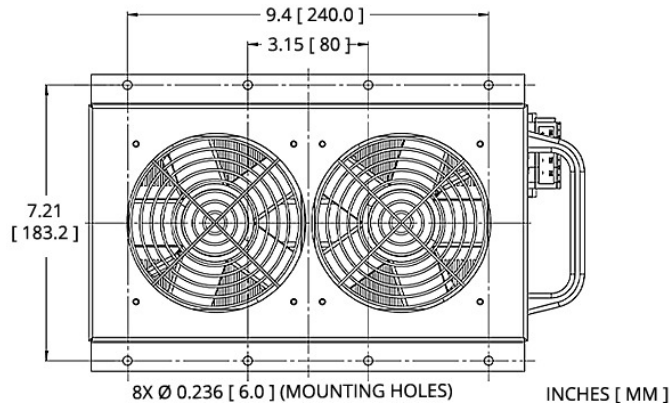


SPECIFICATIONS

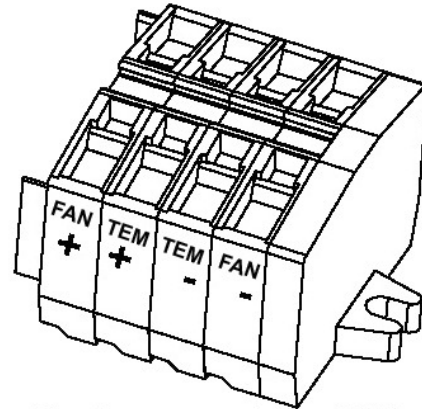
- Heat Transfer Mechanism, Cold Side
- Heat Transfer Mechanism, Hot Side
- Operating Temperature Range
- Supply Voltage
- Current Draw
- Power Supply
- Performance Tolerance
- Hi-Pot Testing
- Fan MTBF
- Over-Temp Thermostat (Hot and Cold Side Heat Sink)
- Sound Level (1 m distance)
- Weight
- Panel Mounting

Liquid - Forced Convection
Air - Forced Convection
-20°C to 60°C
24.0 VDC nominal / 30.0 VDC maximum
13.3 A running / 16.5 A startup
319.0 Watts
10%
750 VDC
60000 hours
without thermostat
63 dBA
9.15 kg
Through

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.

³Cooled liquid block needs to be isolated from humidity in the air to minimize condensation and thermally insulated for best performance.

Any information furnished by Laird and its agents, whether in specifications, data sheets, product catalogues or otherwise, is believed to be (but is not warranted as being) accurate and reliable, is provided for information only and does not form part of any contract with Laird. All specifications are subject to change without notice. Laird assumes no responsibility and disclaims all liability for losses or damages resulting from use of or reliance on this information. All Laird products are sold subject to the Laird Terms and Conditions of sale (including Laird's limited warranty) in effect from time to time, a copy of which will be furnished upon request.

© Copyright 2019-2025 Laird Thermal Systems, Inc. All rights reserved. Laird™, the Laird Ring Logo, and Laird Thermal Systems™ are trademarks or registered trademarks of Laird Limited or its subsidiaries.

Revision: 02 Date: 03-28-2025

Print Date: 03-28-2025

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Laird Thermal Systems:](#)

[387004253](#)