

### SuperCool X Series Thermoelectric Cooler Assembly

The SDAX-220-24-02 Direct-to-Air thermoelectric cooler 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 next-generation high-performance 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 thermoelectric module cavity. This unit operates at 24 VDC and is designed for indoor lab use environment. It has a maximum Qc of 220 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 41 °C at Qc = 0.

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

#### Granted Patents:

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

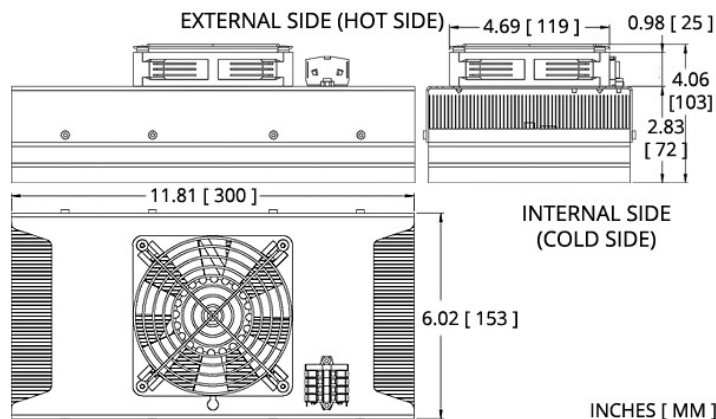


### Features

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

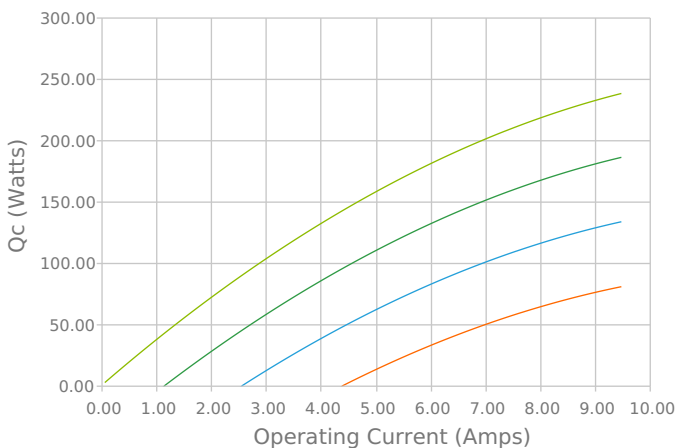
### Applications

- 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

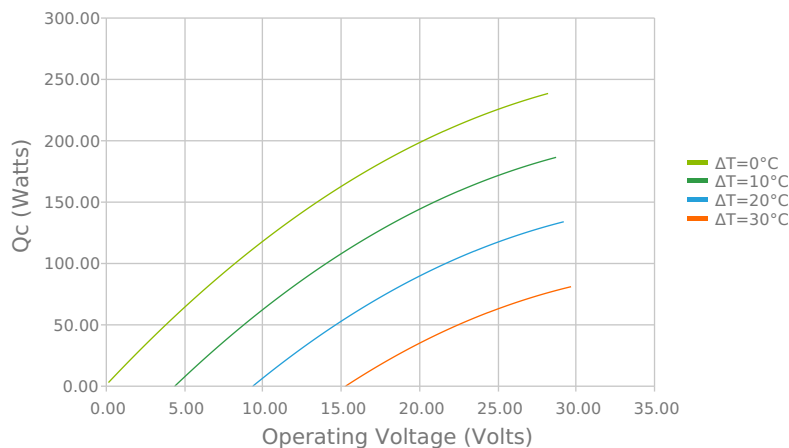


## ELECTRICAL AND THERMAL PERFORMANCE

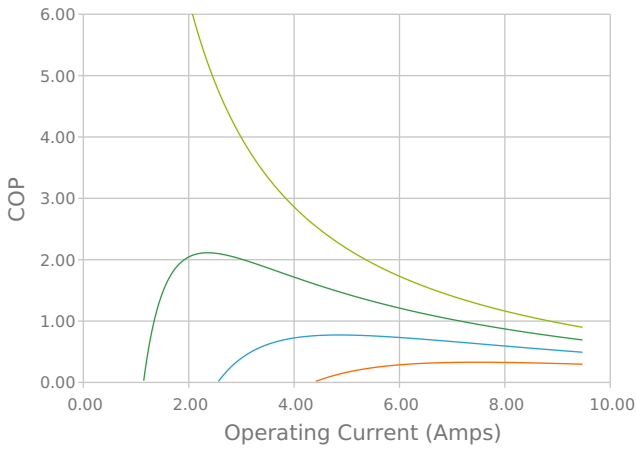
Heat Pumped at Cold Side (Qc)  
Tambient = 35°C



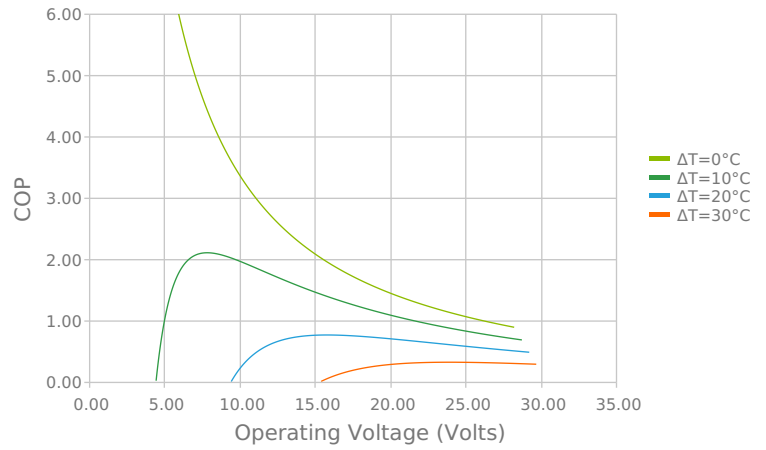
Heat Pumped at Cold Side (Qc)  
Tambient = 35°C



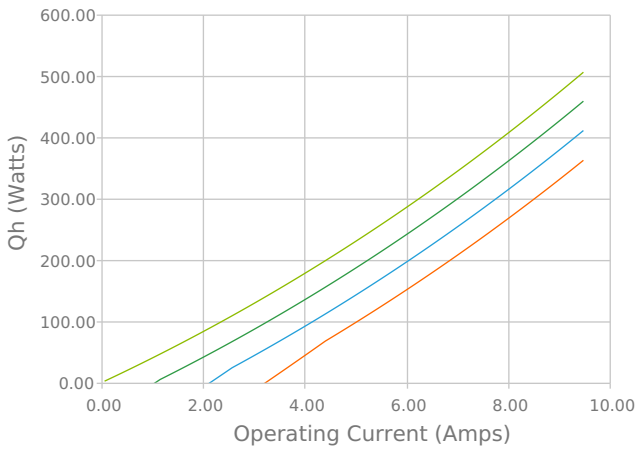
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
T<sub>ambient</sub> = 35°C



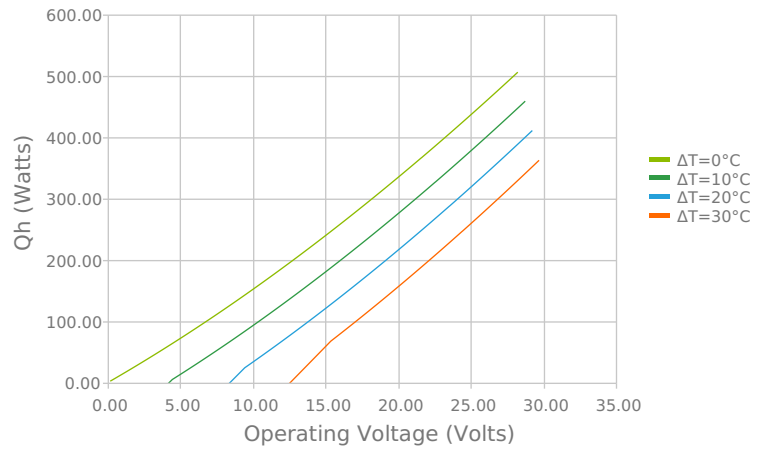
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
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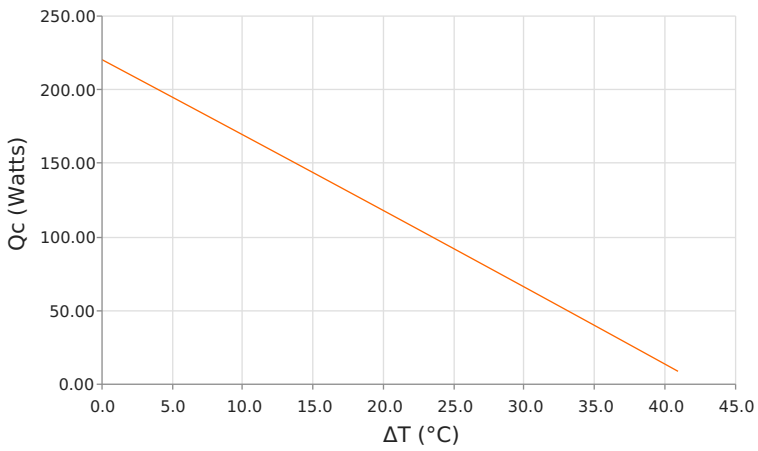
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
T<sub>ambient</sub> = 35°C



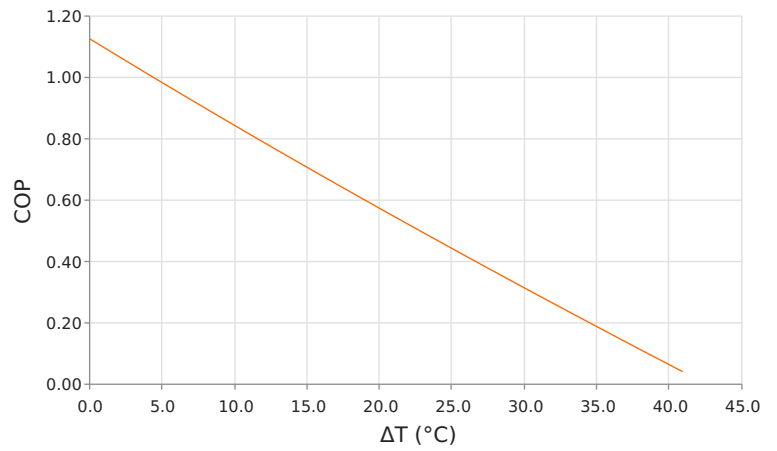
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
T<sub>ambient</sub> = 35°C



Heat Pumped at Cold Side ( $Q_c$ )  
V<sub>operating</sub> = 24 Volts | I<sub>operating</sub> = 8.14 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
V<sub>operating</sub> = 24 Volts | I<sub>operating</sub> = 8.14 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**

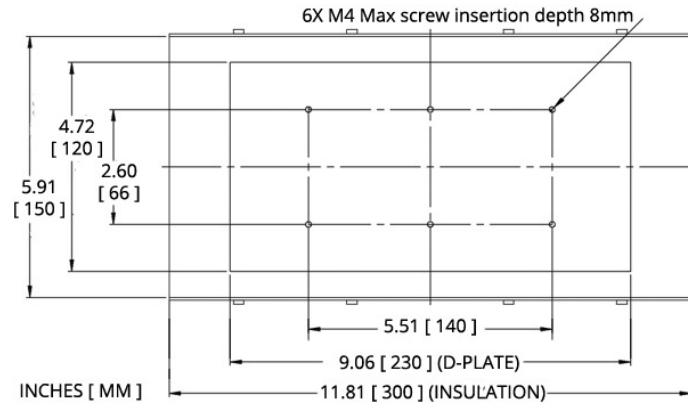
**Sound Level (1 m distance)**

**Weight**

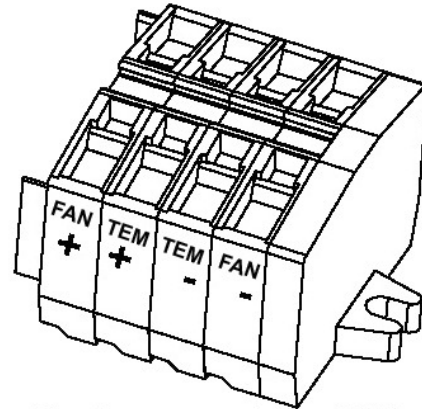
**Panel Mounting**

|                                     |
|-------------------------------------|
| Direct - Conduction                 |
| Air - Forced Convection             |
| -20°C to 60°C                       |
| 24.0 VDC nominal / 28.0 VDC maximum |
| 7.8 A running / 10.4 A startup      |
| 207.0 Watts                         |
| 10%                                 |
| 750 VDC                             |
| 60000 hours                         |
| 63 dBA                              |
| 4.10 kg                             |
| Flush Mount                         |

## MOUNTING HOLE LOCATION



## WIRING SCHEMATIC



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

## NOTES

<sup>1</sup>For indoor use only

<sup>2</sup>Units 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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