# Tunnel Series AAT-032-12-22
# MFG Part Number: 387000840

## Tunnel Series Thermoelectric Cooler Assembly

The AAT-032-12-22 is a thermoelectric based air conditioner designed to temperature control small chambers used in analytical and medical diagnostic instruments. The unique design offers premium fans pushing air across-high density heat sinks to minimize the number of air flow paths required to operate. The design utilizes custom thermoelectric modules to maximize cooling capacity with a high coefficient of performance. Moisture resistant insulation is used to keep condensation from penetrating the thermoelectric module cavity. The unit operates on DC and is designed for an indoor lab use environment. It has a maximum Qc of 32 Watts when ΔT = 0 and a maximum ΔT of 27 °C at Qc = 0.

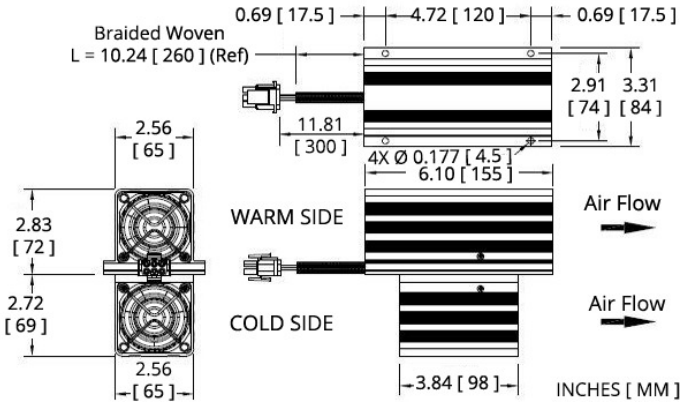
## Features

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

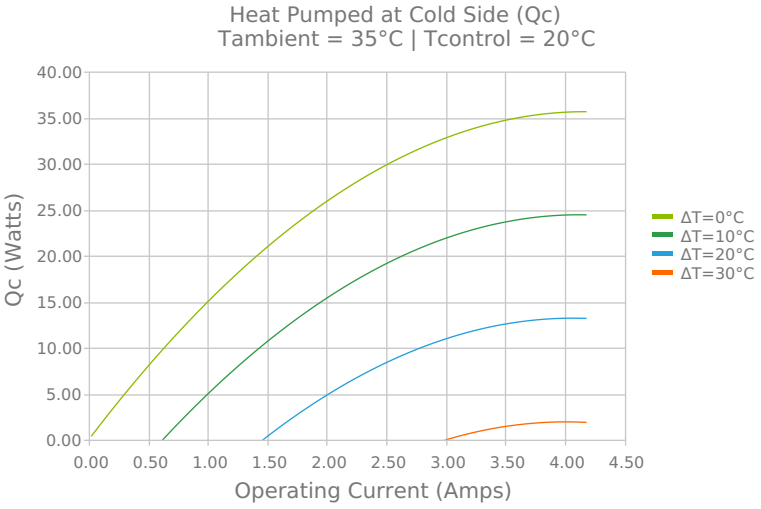
## Applications

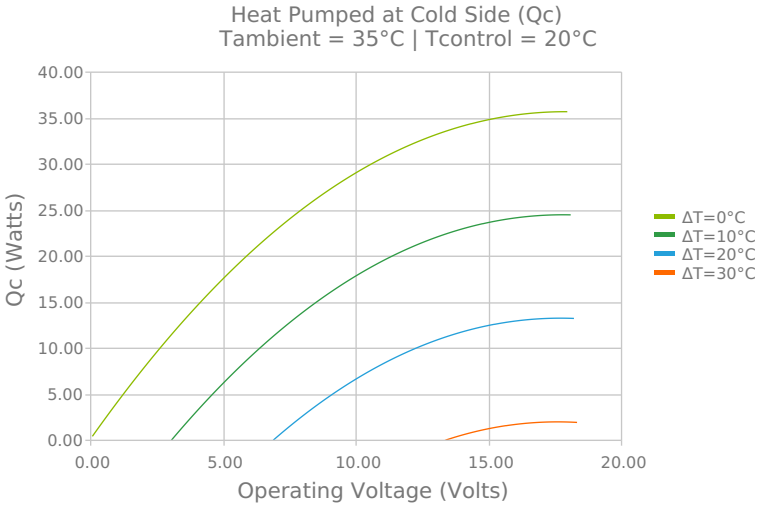
- Thermoelectric Coolers and Assemblies for Medical Applications
- Liquid Cooling Options for PET and SPECT Scanners
- Peltier Cooling for Refrigerated Centrifuges
- High-Performance Liquid Chromatography (HPLC)
- Thermal Management Solutions for Beverage Cooling
- Heating and Cooling for Liquid Chromatography Systems



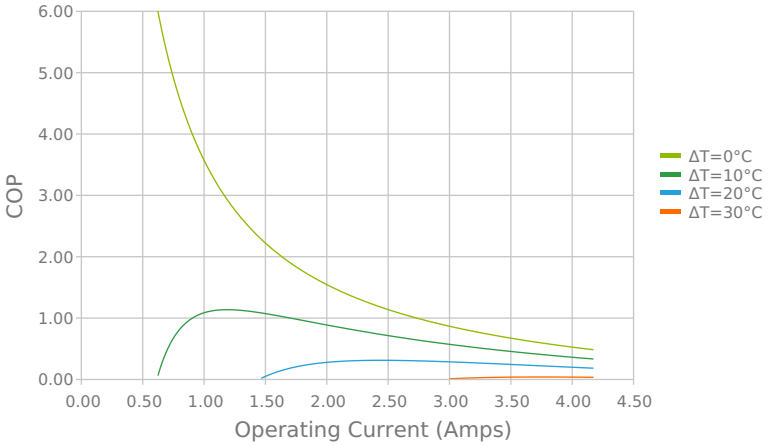



## ELECTRICAL AND THERMAL PERFORMANCE

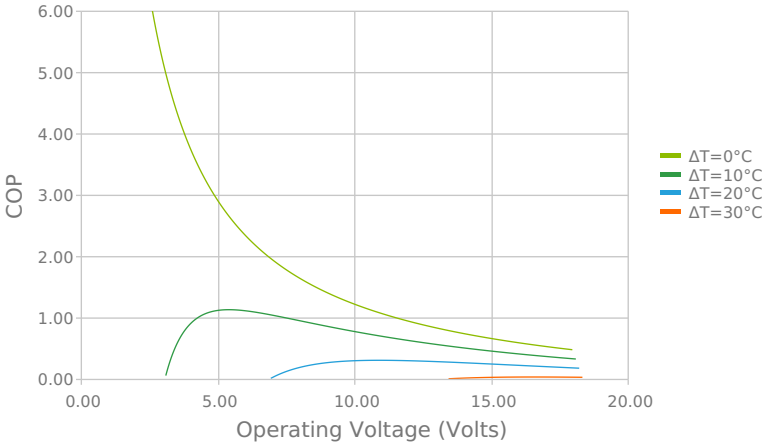


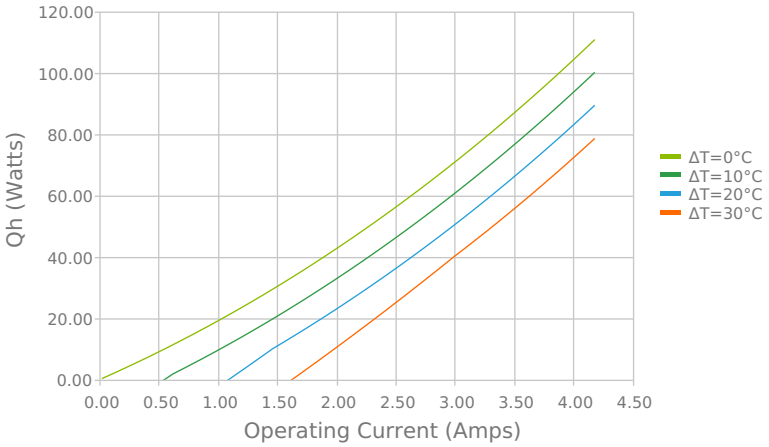
Coefficient of Performance (COP = Qc/Pin)
Tambient = 35°C | Tcontrol = 20°C



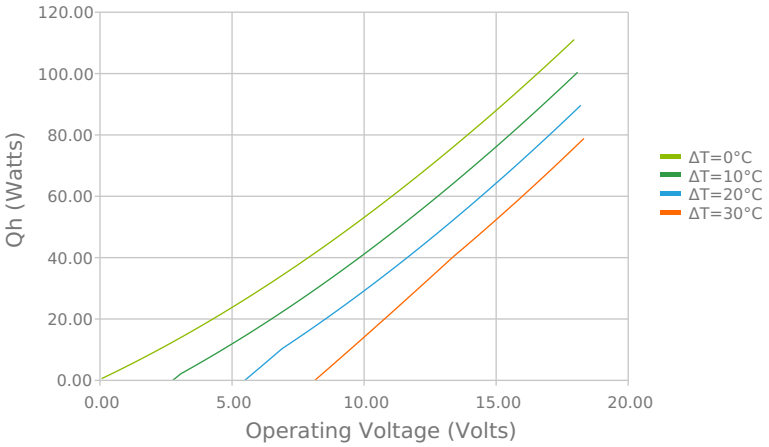

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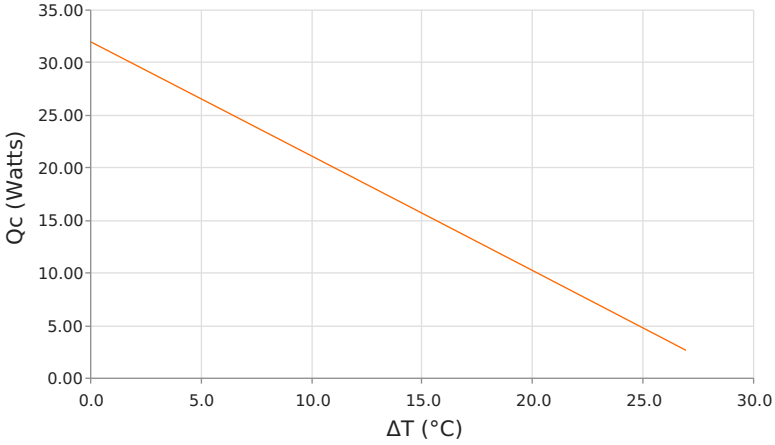

Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Tambient = 35°C | Tcontrol = 20°C



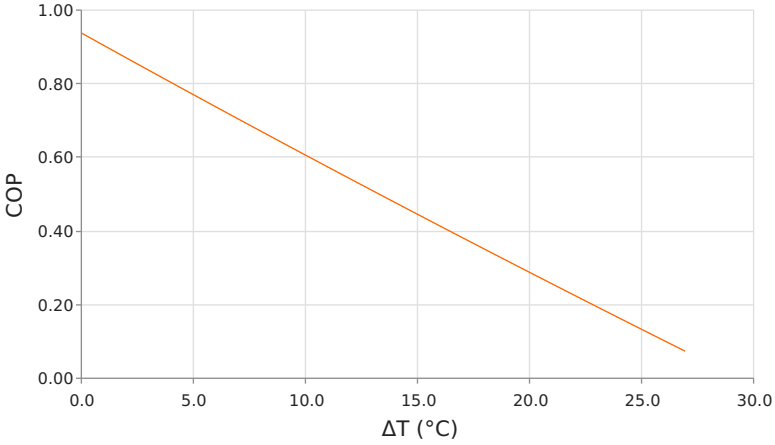

Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Tambient = 35°C | Tcontrol = 20°C




Heat Pumped at Cold Side (Qc)
Voperating = 12 Volts | Ioperating = 2.84 Amps



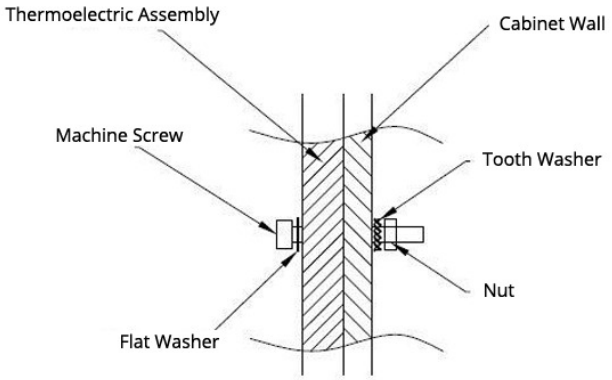

Coefficient of Performance (COP = Qc/Pin)
Voperating = 12 Volts | Ioperating = 2.84 Amps



## SPECIFICATIONS

| | |
|---|---|
| **Heat Transfer Mechanism, Cold Side** | Air - Forced Convection |
| **Heat Transfer Mechanism, Hot Side** | Air - Forced Convection |
| **Operating Temperature Range** | -10°C to 50°C |
| **Supply Voltage** | 12.0 VDC nominal / 15.0 VDC maximum |
| **Current Draw** | 3.7 A running / 4.0 A startup |
| **Power Supply** | 44.4 Watts |
| **Performance Tolerance** | 10% |
| **Hi-Pot Testing** | 750 VDC |
| **Fan MTBF** | 40,000 hours |
| **Weight** | 1.20 kg |
| **Panel Mounting** | 4 through holes on hot side tunnel cover |

## MOUNTING HOLE LOCATION




## WIRING SCHEMATIC

| PIN # | OBJECT | WIRE SIZE | COLOR | SUPPLIED CONNECTOR PLUG | SUPPLIED CONNECTOR PIN | MATING CONNECTOR RECEPTACLE | MATING CONNECTOR SOCKET |
|---|---|---|---|---|---|---|---|
| 1 | TEM + | AWG #20 | Red |  |  |  |  |
| 2 | TEM - | | Black | | | | |
| 3 | FAN COLD SIDE + | | Purple | | | | |
| 4 | FAN COLD SIDE - | | Blue | TE Connectivity 1-480704-0 | TE Connectivity 350547-1 | TE Connectivity 1-480705-0 | TE Connectivity 350550-1 |
| 5 | FAN HOT SIDE + | | White | | | | |
| 6 | FAN HOT SIDE - | | Green | | | | |

## NOTES

[1]For indoor use only

[2]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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