



The SuperCool Series Air-to-Air thermoelectric assembly is a high performance thermoelectric based air conditioner. It is designed to temperature control small chambers used in medical diagnostics or sample storage compartments in analytical instrumentation. This unique design offers a high performance hot side heat dissipation mechanism that convects heat more efficiently than conventional heat exchanger technologies. The design utilizes custom 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. Custom configurations available upon request.

Laird Manufacturer Part Number: 387000612

Patent Pending

**FEATURES**

- High Performance
- Compact Form Factor
- Reliable solid-state operation
- RoHS compliant

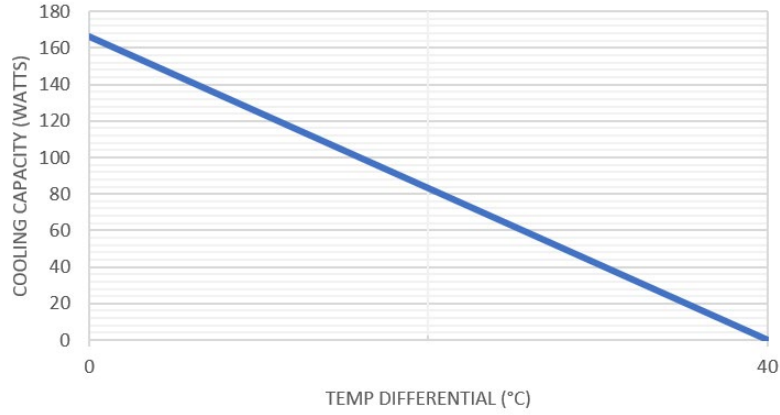
**APPLICATIONS**

- Analytical storage compartment temperature control
- Medical diagnostic chamber refrigeration

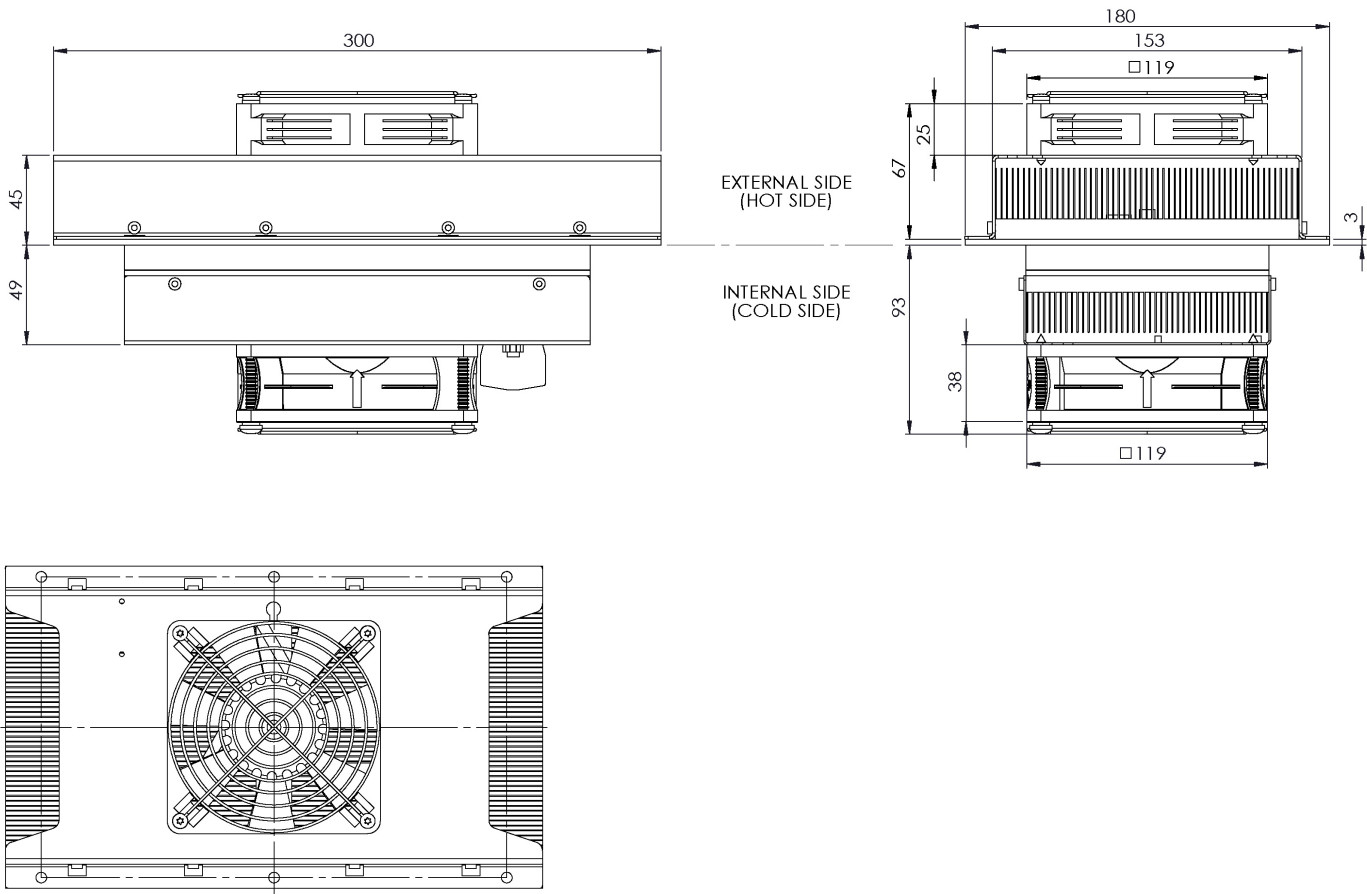
TECHNICAL SPECIFICATIONS	
TEA Model	SAA-170-24-22-00-00
Heat Transfer, Cold Side	Air
Heat Transfer, Hot Side	Air
Cooling Power at dT 0°C and Ta=35°C ±10% – W	166
TEM Input Power	
Voltage, nominal - VDC	24
Current, nominal / initial at dT 0°C ±10% – A	6.9/8.1
Fan Input Power	
Voltage, nominal – VDC	24
Current, nominal, Cold side – A	0.2
Current, nominal, Hot side – A	0.5
Fan Noise – dBA	62.6
Dimensions (L x W x H) – mm	300 x 180 x 163
Weight – kg	4.5
Operating Temperature – °C	-20 to +60
Packaging	Individual cardboard box

PERFORMANCE QC VS ΔT

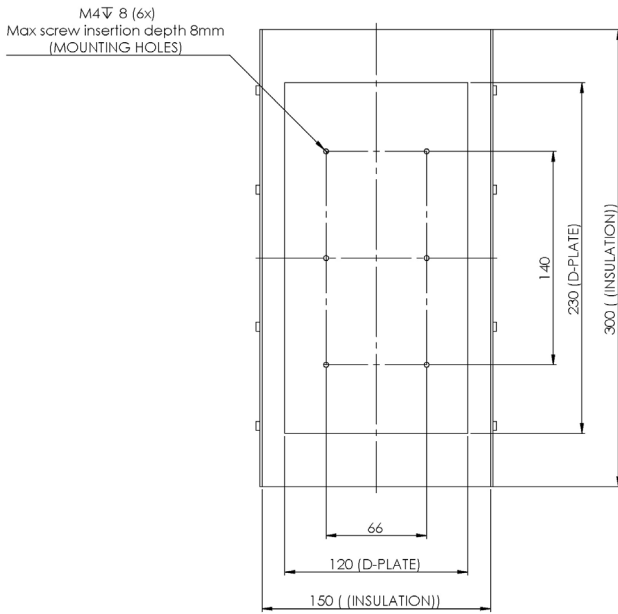
Thermoelectric Assembly performance at Ta=35°C



ISOMETRIC DRAWINGS



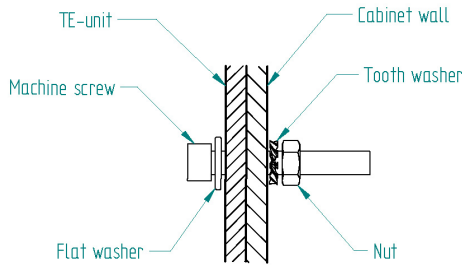
INSTALLATION INSTRUCTIONS



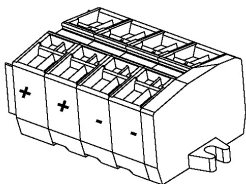
Installation

1. Mount with “hot side” external to chamber wall.
2. Cutout should be approximately 124 x 232 mm.
3. Unit should be fastened as shown in diagram with gasket material sealing around cutout.
4. For operation below dew point, recommend to position unit in vertical direction with wires facing down to allow for condensation run off. Drop tray may be required to collect moisture from surfaces at temperatures below dew point.
5. TEA should not be used as part of the structure and is recommended to be protected from external forces.
6. The input power to TEA should be protected with fuse. Fuse rating should withstand 150% of nominal current rating for 60 seconds. This is valid for  $T_a=26^{\circ}\text{C}$ . Fuse rating for alternate ambient temperatures can be calculated by  $T_a$ .
7. Max ripple current on supply power should be  $\leq 5\%$ .
8. Switching power to TEMs at frequencies between 0.01Hz to 5KHz may degrade reliability and shorten life.

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



WIRING SCHEMATIC



OBJECT	COLOR	POLE
TEM +	Red	1
TEM -	Black	2
FAN COLD SIDE +	Red	3
FAN COLD SIDE -	Black	4
FAN HOT SIDE +	Red	5
FAN COLD SIDE -	Black	6

Warning:

Do not reverse current or use PWM-regulation on fan supply.



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