Laird THERMAL SYSTEMS

SuperCool Series
SAA-170-24-22-00-00
Thermoelectric Assemblies

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

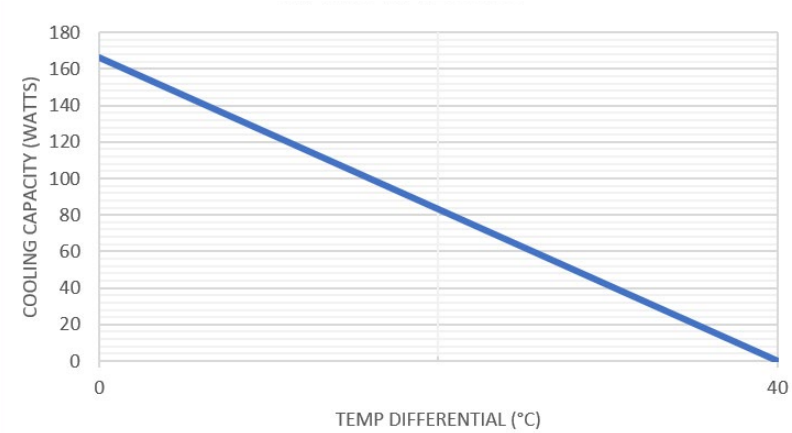
APPLICATIONS

- Analytical storage compartment temperature control
- Medical diagnostic chamber refrigeration

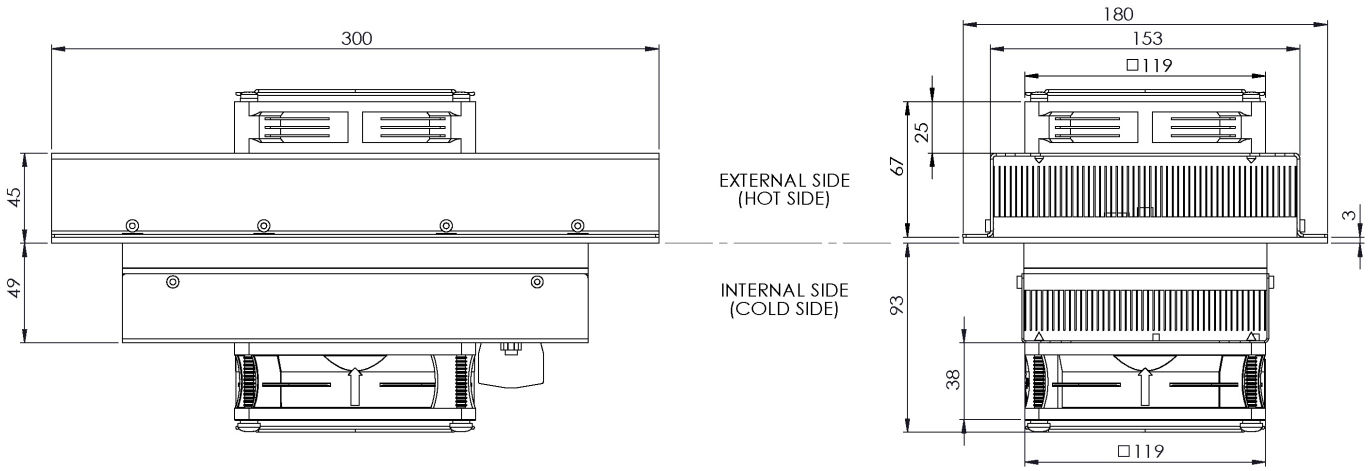
TECHNICAL SPECIFICATIONS	
TEA Model	SAA-170-24-22-00-00
Heat Transfer, Cold Side	Air
Heat Transfer, Hot Side	Air
Cooling Power at dT 0°C and Ta=35°C ±10% – W	166
TEM Input Power	
Voltage, nominal - VDC	24
Current, nominal / initial at dT 0°C ±10% – A	6.9/8.1
Fan Input Power	
Voltage, nominal – VDC	24
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

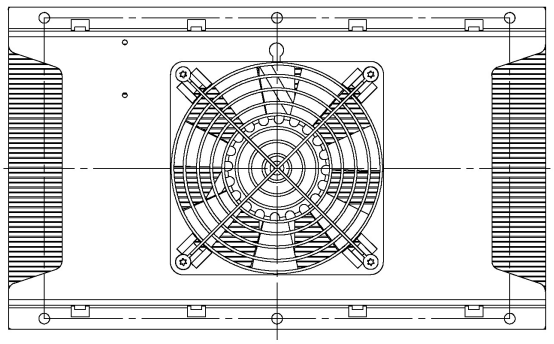
PERFORMANCE QC VS ΔT

Thermoelectric Assembly performance at Ta=35°C

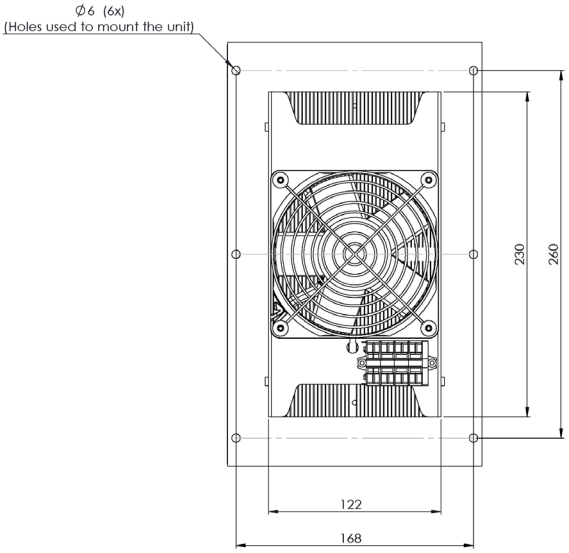


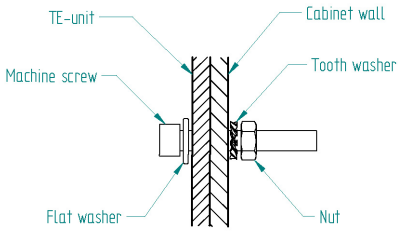
ISOMETRIC DRAWINGS





INSTALLATION INSTRUCTIONS

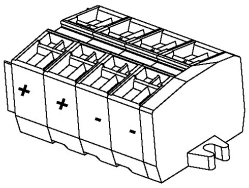




1. The TE assembly shall be mounted in a cabinet with “hot side” mounted externally.
2. Suitable cabinet cutout is **124x232** mm.
3. Recommended for general purposes the TE assembly should be fastened according to picture below so that the gasket material will seal off around the flange of the assembly.
4. The TE assembly can be positioned in any direction.
5. Note that condensation may occur. Standing water on the heat sink should be avoided and drip tray may be required.
6. The TE assembly must be protected from external force or violence.
7. The power line to the assembly needs to be protected by a fuse. The fuse rating should be of at least the nominal current of the assembly. It must withstand 150% of rated current for at least 60 seconds. This is valid at Ta=35°C. Fuse ratings for other ambient temperatures (x°C) can be calculated with the formula I[x°C]=I[35°C]/(1+0.005(x-35)). This is valid when regulating with an ON/OFF regulation. At rapid temperature cycling where this is applicable, there can be need for even higher fuse ratings.
8. Max ripple on supplied power =5%.
9. Switching power to TEMs at frequencies between 0.01 Hz to 5 kHz will render premature failure of modules and must be avoided.

Fan impellers and heat sinks must be cleaned on regular intervals to reduce risk for overheating and reduction of cooling function. The interval may vary depending on environment.

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.

RoHS