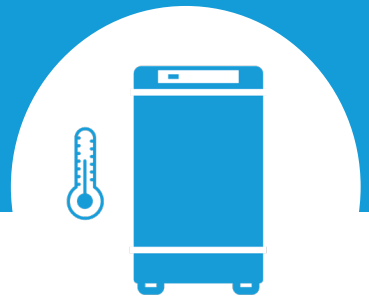
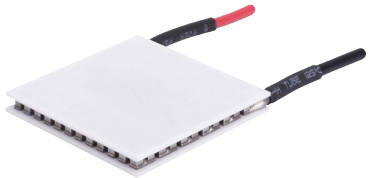
Laird™
THERMAL SYSTEMS

Heating and Cooling for **Incubator Chambers**

Introduction



Incubator chambers create optimum conditions for cell growth in research laboratories



Thermoelectrics offer both cooling or heating for **precise temperature control.**

Application Overview

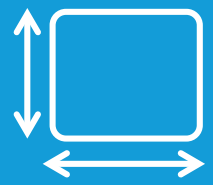
Incubator chambers provide stable conditions that mimic natural cell environments

- Stable temperature of 37°C
- Humidity levels: 95 to 98 percent
- CO2 concentrations: 0.3 to 19.9 percent

Application Challenges

TEMPERATURE CONTROL

Heating or cooling for precise temperature control

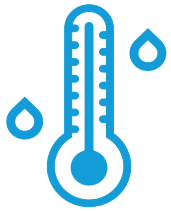


SPACE CONSTRAINTS

Higher capacities require larger cooling devices

AIRFLOW

Fans improve airflow throughout the chamber



CONDENSATION

Moisture protection is needed to prevent corrosion

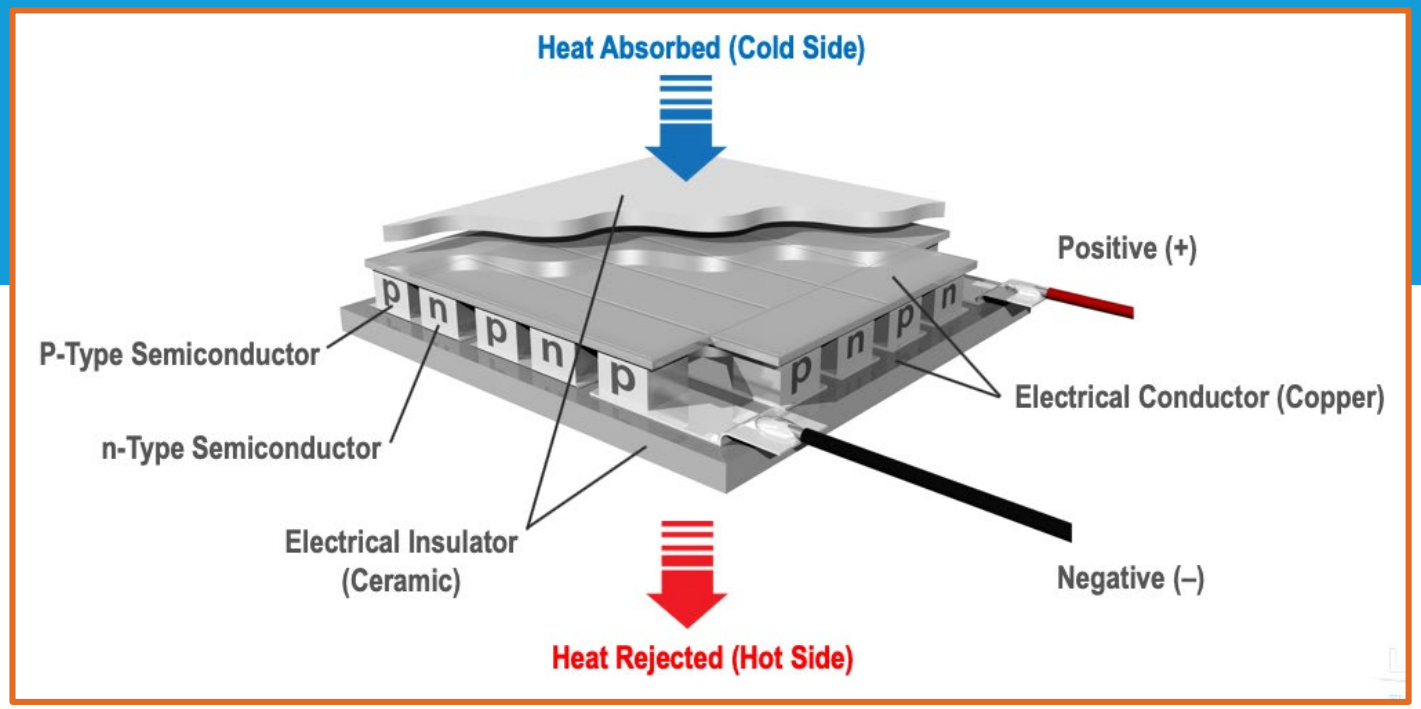
DUST

May increase thermal resistance over time

ENVIRONMENTAL RESTRICTIONS

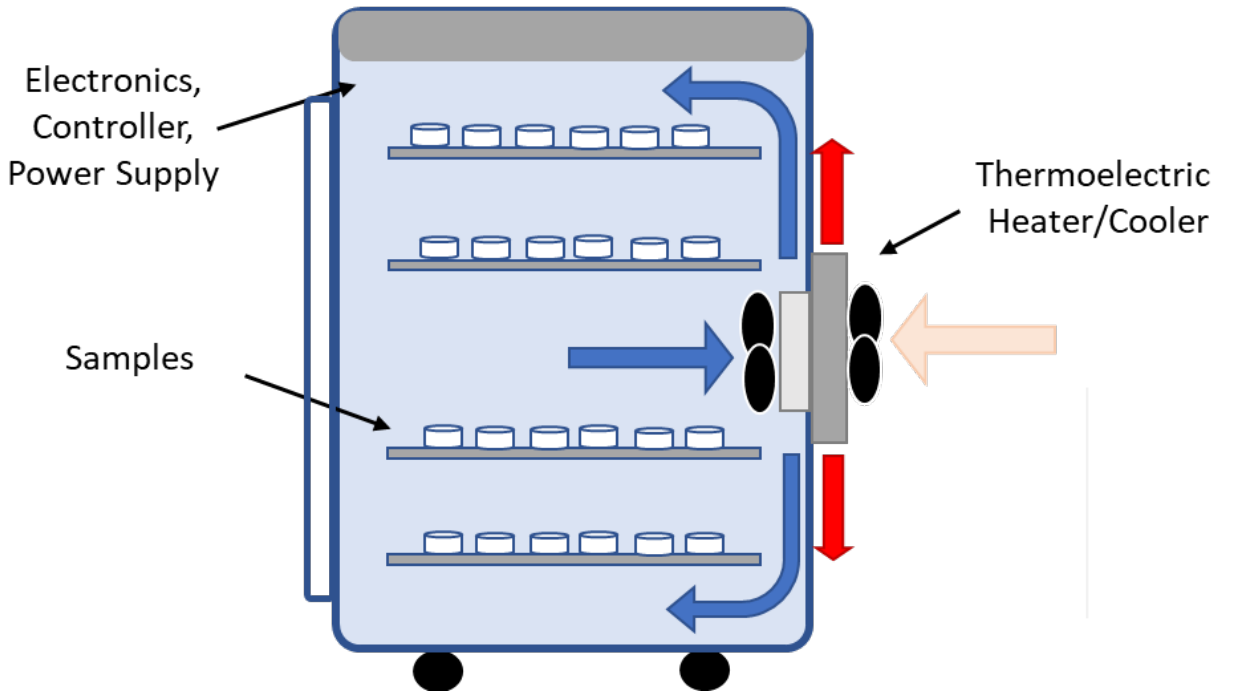
HFC refrigerants to be phased out

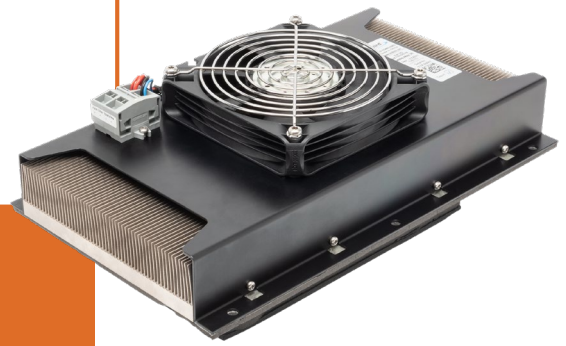
Peltier Effect



With the ability to both heat or cool, thermoelectrics provide precise temperature control

Thermoelectrics in Incubator Chambers





Thermoelectric cooler assemblies with integrated temperature control deliver precise thermal management for incubators

HiTemp ETX Series

High Temperature Operation (150°C)

10% Cooling Capacity Boost

Environmentally Friendly

(ΔT) up to 83°C

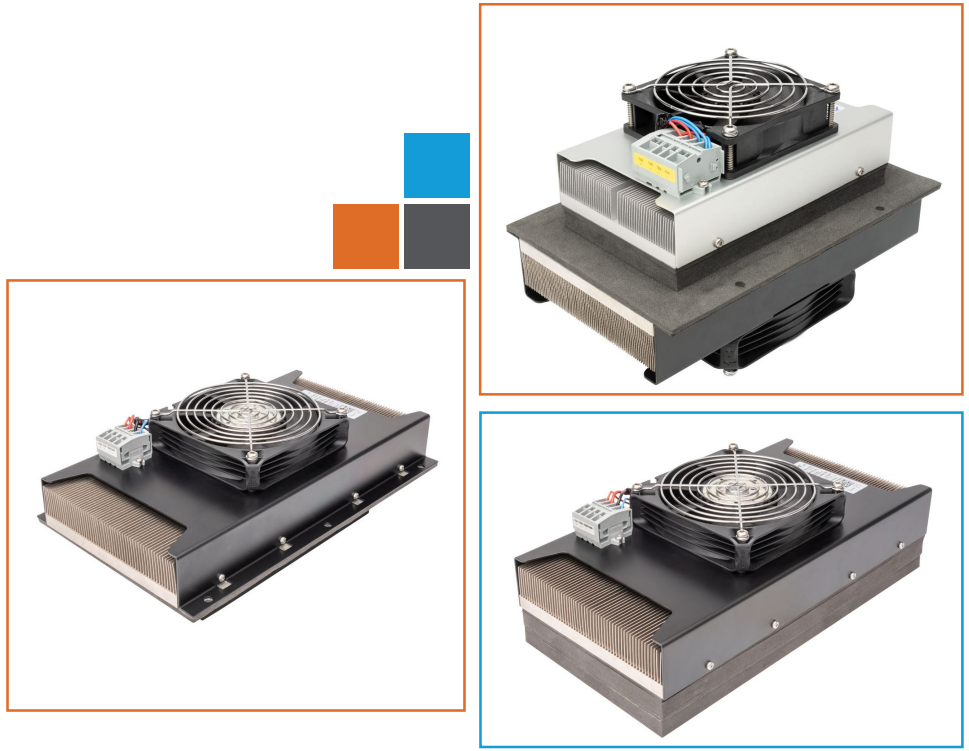
Compact Form Factor

High COP

Reliable Solid-State

SuperCool Series

- Up to 90% Enhanced Performance
- Efficient Heat Dissipation
- Patented Design
- Moisture-resistant



The SuperCool Series Thermoelectric Cooler Assemblies ranges from 110 to 407 Watts

Temperature Controllers

SR-54

- ± 0.5ºC Bi-Directional Controller
- Programmable temperature set points for heating and cooling
- Fan Control, Alarm Features

PR-59

- ± 0.05°C Precise Temperature Control
- Connect with PC for GUI to program and monitor in real time

Conclusion

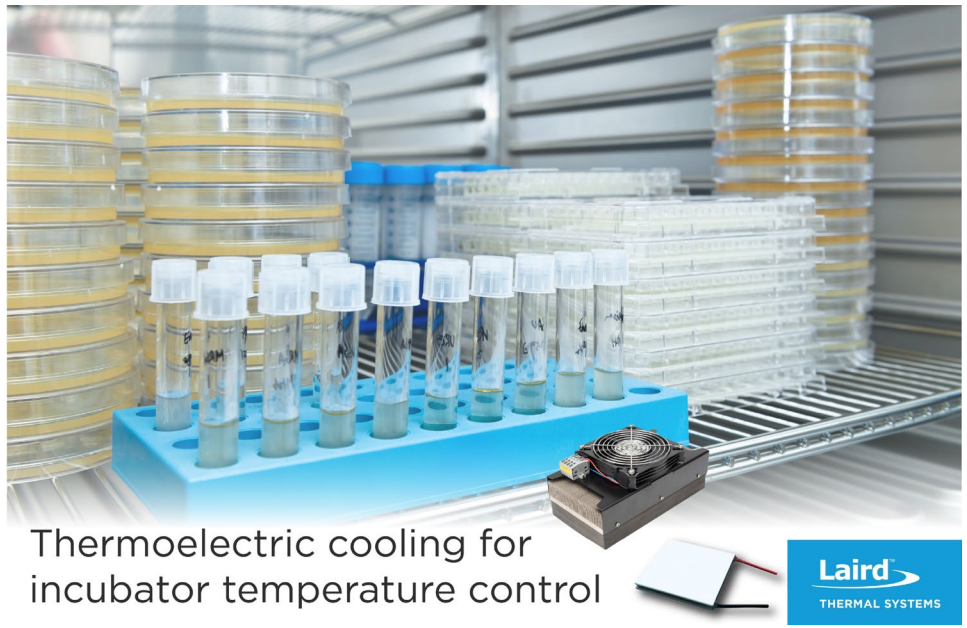
Incubators need to maintain **precise temperature control** to create optimum conditions for cell growth

Thermoelectrics offer **efficiency**, **reliability** and use no harmful refrigerants

The **HiTemp ETX** and **SuperCool Series** provide heating or cooling for incubator chambers

Combined with a **temperature controller**, the SuperCool Series can achieve temperature stability to ± 0.5°C

For More Information



LEARN MORE ABOUT OUR PRODUCTS

HiTemp ETX Series

SuperCool Series

Temperature Controllers

READ **APPNOTE** ON INCUBATOR CHAMBERS

About Laird Thermal Systems

Laird Thermal Systems develops thermal management solutions for demanding applications


Medical


Analytical


Industrial


Transportation


Telecom

DIVERSE PRODUCT PORTFOLIO
Thermoelectric Coolers, Thermoelectric Cooler Assemblies, Temperature controllers and Liquid Cooling Systems

SOLVING COMPLEX ISSUES
Our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems

ACCELERATING TIME-TO-MARKET
We partner closely with our customers across the entire product development lifecycle.

MAXIMIZING PERFORMANCE
Our global manufacturing and support resources help customers maximize productivity, uptime, performance and product quality

Laird Thermal Systems is the optimum choice for standard or custom thermal solutions

Learn more by visiting
www.lairdthermal.com

Laird™

THERMAL SYSTEMS

Have a question or need more information about
Laird Thermal Systems? Please contact us via the website at www.lairdthermal.com

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