

Application Catalog

Thermal Management for
**Analytical
Applications**





Incubator Chambers

Incubator chambers create the ideal environment for cell and tissue cultivation by maintaining precise temperature control of 37°C. Excursions above and below the optimum mammalian body temperature will negatively impact cell health.

- Precise temperature control will ensure
- **proper cell growth**

Learn more about [Incubator Chambers](#)



Centrifuges

Centrifuges utilize high-speed centrifugal force to separate liquid mixtures used for analysis in research laboratories. Active cooling is required to remove heat generated by the spinning centrifuge and maintain samples at a constant temperature.

- Thermal management will ensure
- **proper reactions**
 - **sample viability**

Learn more about [Centrifuges](#)



Liquid Chromatography

Temperature control plays a major role in High-performance liquid chromatography (HPLC) by influencing the sample separation process. HPLC utilizes Peltier technology to cool or heat the sample tray and separation column for optimized performance.

- Thermoelectrics will ensure
- **Proper cell growth**

Learn more about [Liquid Chromatography](#)

Analytical Applications Cooling

Tark Thermal Solutions offers a broad range of thermal management solutions delivering precise temperature control for laboratory equipment. Our product portfolio ranges from solid-state thermoelectric coolers and assemblies, to integrated temperature controllers, ambient liquid cooling systems and recirculating chillers. We design and manufacture cooling components and systems for the top companies in laboratory industries. With unmatched thermal management expertise, our global engineering team uses advanced thermal modeling and management techniques to solve complex heat and temperature control problems in analytical applications including:

- Incubator Chambers
- Centrifuges
- Liquid Chromatography
- Electron Microscopes
- Digital Microscopes
- Mass Spectrometry
- Bath Cooling
- PCR Thermal Cycling

Learn about our thermal management capabilities for analytical applications [here](#).

Our products and solutions

Thermoelectric Coolers

- HiTemp ETX Series
- PowerCycling PCX Series

Thermoelectric Assemblies

- SuperCool X Series
- PowerCool Series
- Tunnel Series

Temperature Controllers

- PR-59
- SR-54

Custom Refrigeration Systems

Our products and solutions

Thermoelectric Coolers

- HiTemp ETX Series
- UltraTEC™ UTX Series
- CP Series

Custom Refrigeration Systems

Temperature Controllers

- PR-59
- SR-54

Our products and solutions

Thermoelectric Coolers

- HiTemp ETX Series
- SuperCool X Series

Thermoelectric Assemblies

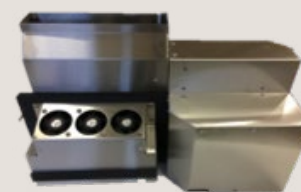
- PowerCool Series
- Tunnel Series

Temperature Controllers

- PR-59
- SR-54

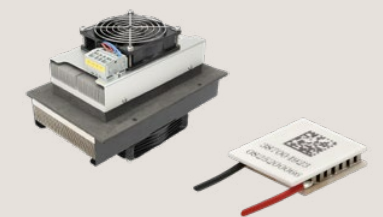
Why Refrigeration Systems?

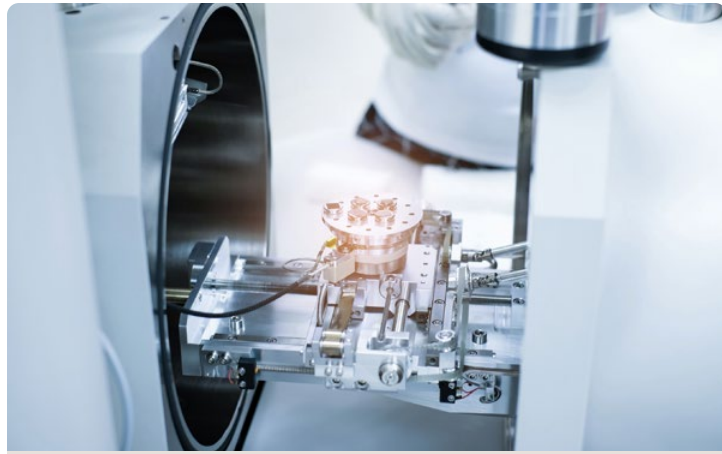
- High Coefficient of Performance (COP)
- High reliability
- Increased uptime



Why Thermoelectrics?

- Precise temperature control
- Compact form factor
- Solid-state construction providing long life and low maintenance





Electron Microscopes

Temperature control plays a dynamic role in ensuring the proper operation of advanced electron microscopes. Thermal fluctuations can deteriorate image quality and have a negative impact on samples during examination.

- Precise temperature control will ensure
- **Maximum image Quality**
 - **Proper operation**

Learn more about [Electron Microscopes](#)

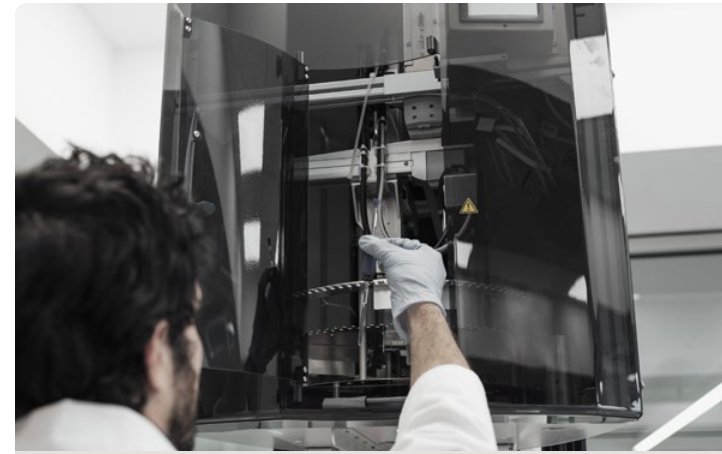


Digital Microscopes

Digital microscopes allow scientists to view and analyze cell cultures in real-time. Temperature and humidity must be kept under controlled conditions during imaging to obtain crisp images and avoid changes in the cells.

- Precise temperature control will ensure
- **Cell viability**
 - **Optimized image quality**

Learn more about [Digital Microscopes](#)



Mass Spectrometry

Mass spectrometry tools utilize an ion source, mass analyzer and detector to determine the chemical composition of a sample. The process of generating plasma and creating electron beams generate large amounts of heat that must be quickly dissipated.

- Temperature stabilization will ensure
- **System reliability**
 - **Accurate results**

Learn more about [Mass Spectrometry](#)



Bath Cooling

Cooling baths need to maintain a steady temperature as fluctuations can influence the chemical reactions. Chillers are used to quickly remove the large amount of heat caused by reactions and maintain precise temperature control below ambient.

- Thermal management will ensure
- **Proper reactions**

Learn more about [Bath Cooling](#)

Our products and solutions

[Recirculating Chillers](#)

Our products and solutions

[Recirculating Chillers](#)

Our products and solutions

[Recirculating Chillers](#)

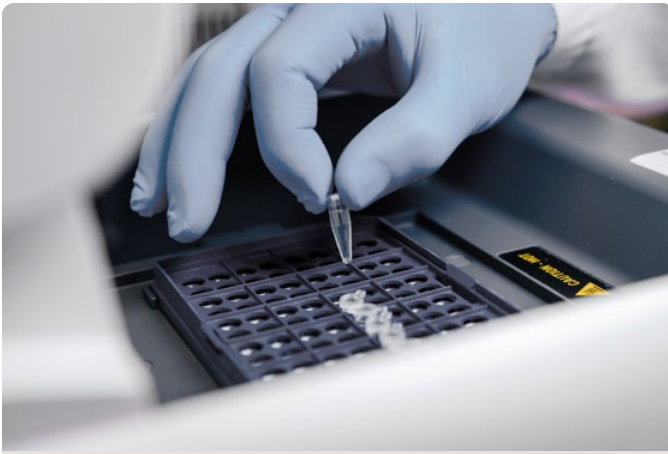
Our products and solutions

[Recirculating Chillers](#)

Why Liquid Cooling Systems?

- Precise temperature control
- No harmful refrigerants
- High reliability
- Low noise
- High Coefficient of Performance (COP)





PCR Thermal Cycling

PCR systems require a high number of thermal cycling steps to create thousands of strands of DNA sequencing for analysis. Rapid thermal cycling and precision temperature control is crucial to speed up DNA amplification.

Thermoelectric coolers will

- **Shorten time to obtain result**
- **Ensure reliability of PCR cyclers**

Learn more about [PCR Thermal Cycling](#)

Our products and solutions

Thermoelectric Coolers

- [PowerCycling PCX Series](#)

[Custom Thermoelectric Cooler Assemblies](#)

Why Thermoelectrics?

- Faster ramp rates
- Precise temperature control
- Compact form factor
- Solid-state construction for high reliability



About Tark Thermal Solutions

Tark Thermal Solutions designs, develops and manufactures thermal management solutions for demanding applications across global medical, industrial, transportation and telecommunications markets.

We manufacture one of the most diverse product portfolios in the industry ranging from active thermoelectric coolers and assemblies to temperature controllers and liquid cooling systems.

With unmatched thermal management expertise, our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. We have more than 50 years of experience in the design, manufacture and servicing of thermal management solutions with millions of installations in operation today.

[Contact us](#) for a solution to your next thermal management challenge.

Learn more by visiting www.tark-solutions.com

TTS-BRO-ANALYTICAL-APPLICATIONS

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