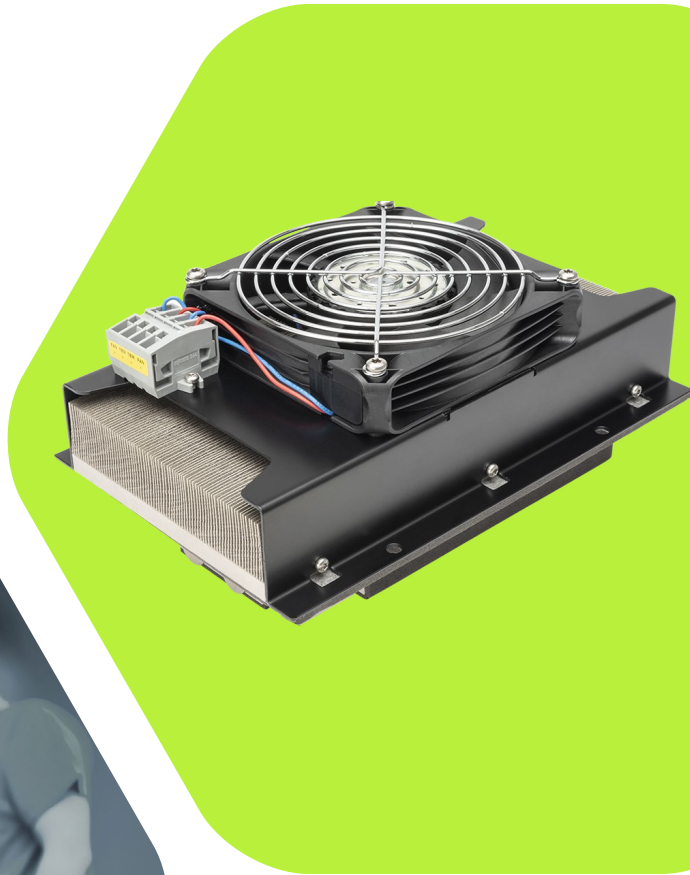


Application Catalog

Thermal Management for
Medical Applications



Medical Applications Cooling

Tark Thermal Solutions offers a broad range of thermal management solutions for the medical industry to address bulk heat removal of x-ray systems, precise temperature control of detector plates and refrigeration of medical diagnostic chambers.

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 the healthcare industry. 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 medical applications including:

- Computerized Tomography (CT)
- Positron Emission Tomography (PET)
- Cardiovascular Medical Imaging (CV)
- Magnetic Resonance Imaging (MRI)
- Radiation Therapy (RT)
- Reagent Cooling
- Medical Centrifuges
- Point of Care (POC) Test Devices
- Medical & Cosmetic Lasers

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



Computerized Tomography

In computed tomography (CT) X-Ray systems, the tube and detector are both rotating at fast speeds around the patient to produce a detailed 3D image. A reliable cooling solution that withstands high g-forces is critical for bulk heat removal and precisetemperature control.

- Temperature stability will ensure
- **High image quality**
 - **Long life operation**

Learn more about [CT Scanning Solutions](#)



Reagent Cooling

Reagents used in medical diagnostics require precise cooling to well below ambient temperatures. Without proper refrigeration, reagents may deteriorate or become contaminated by microbial growth, affecting test integrity.

- A thermal solution will
- **Ensure reliable test results**
 - **Extend life of reagents**
 - **Lower costs**

Learn more about [Reagent Cooling Solutions](#)



Medical Centrifuges

Centrifuges utilize high-speed centrifugal force to separate liquid mixtures used for analysis in medical research. Active cooling is required to dissipate heat away generated by the spinning centrifuge and maintain a steady temperature of samples.

- Thermal management will
- **Ensure proper reaction**
 - **Reasure viability**

Learn more about [Medical Centrifuge Solutions](#)

Our products and solutions

Custom Liquid Cooling Systems

Custom Refrigeration Systems

Our products and solutions

Thermoelectric Coolers

- [UltraTEC™ UTX Series](#)
- [HiTemp ETX Series](#)
- [CP Series](#)

Thermoelectric Cooler Assemblies

- [PowerCool Series](#)
- [SuperCool X Series](#)
- [Tunnel Series](#)

Our products and solutions

Thermoelectric Coolers

- [UltraTEC™ UTX Series](#)
- [HiTemp ETX Series](#)
- [CP Series](#)

Temperature Controllers

- [PR-59](#)
- [SR-54](#)

Why Liquid Cooling Systems?

- High reliability
- Superior heat routing
- Higher efficiencies than air-based heat transfer mechanisms



Why Refrigeration Systems?

- High reliability
- Increased uptime
- High Coefficient of Performance (COP)
- Environmentally friendly refrigerants



Why Thermoelectrics?

- Compact form factor
- No vibration
- Low noise operation
- No refrigerants
- High reliability
- Low maintenance





Positron Emission Tomography

PET is a gamma-based imaging technique that allows doctors to check for diseases in the body. The scan uses a special dye that contains radioactive tracers. The gantry system consists of a number of detectors requiring precise temperature control.

- Temperature stabilization will enhance
- **Image quality**
 - **System reliability**

Learn more about [PET Scanning Solutions](#)



Cardiovascular Imaging

CV technology enables the capturing of real time x-ray images during surgery. A liquid cooling system is required to enhance imaging performance during procedures to address heart diseases or diseases of the blood vessels.

- Precise temperature control reassures
- **Maximum imaging performance**

Learn more about [CV Scanning Solutions](#)



Magnetic Resonance Imaging

MRI uses strong magnetic fields and radio waves to create detailed images of organs in the body. An enormous amount of energy is required to create the magnetic fields for the imaging process, which place high demands on the cooling system.

- Proper cooling will
- **Enhance image performance**
 - **Prevent disruptions during examination**

Learn more about [MRI Solutions](#)



Radiation Therapy

Radiation therapy utilizes ionized radiation to treat cancer by controlling and eliminating malignant tumors. Temperature control of system devices is critical to optimize radiation beam and destroy as few healthy cells as possible.

- Temperature stabilization will
- **Ensure high precision treatment**
 - **Minimize damage of healthy tissues**

Learn more about [Radiation Therapy Solutions](#)

Our products and solutions

[Liquid Cooling Systems](#)
[Performance Chillers](#)

Our products and solutions

[Custom Liquid Cooling Systems](#)
[Liquid Heat Exchangers](#)

Our products and solutions

[Custom Liquid Cooling Systems](#)

Our products and solutions

[Custom Liquid Cooling Systems](#)



Bulkheat removal



High heat capacity

Why Liquid Cooling Systems?

High Reliability



Superior Heat Routing



Higher efficiencies than air-based heat transfer mechanisms



Point of Care Testing

Point of Care testing allows medical staff to perform real-time testing in the doctor's office or at home. Because conductivity varies when blood temperature changes, temperature of blood samples must be accurately controlled

Temperature stabilization reassures

- **Reliable test results**

[Learn more about POC Testing Solutions](#)



Medical Lasers

Lasers used in medical and cosmetic surgery offer several benefits such as minimal damage to the body and improved recovery time. However, heat generated by the laser must be efficiently dissipated to protect the patient, and the laser electronics.

Active cooling helps

- **Maintain peak performance**
- **Reduce pain for patient**

[Learn more about Medical Laser Solutions](#)

Our products and solutions

Thermoelectric Coolers

- [PowerCycling PCX Series](#)
- [HiTemp ETX Series](#)
- [CP Series](#)

Thermoelectric Cooler Assemblies

- [Tunnel Series](#)

Our products and solutions

Thermoelectric Coolers

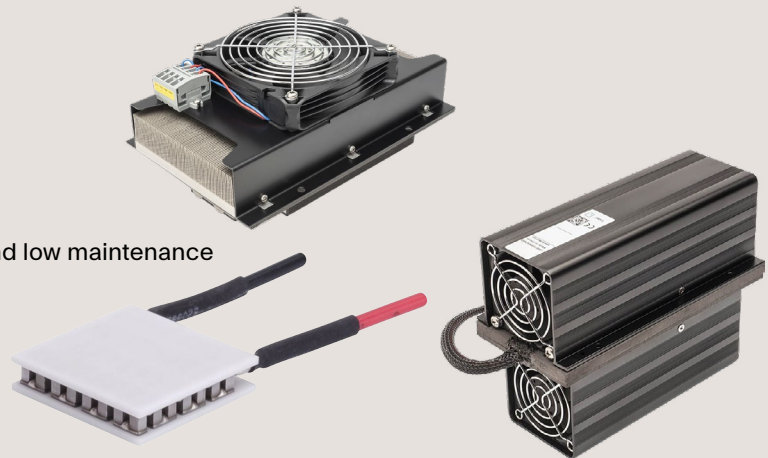
- [UltraTEC™ UTX Series](#)
- [CP Series](#)

Thermoelectric Cooler Assemblies

- [SuperCool X Series](#)
- [MRC Series](#)

Why Thermoelectrics?

- Compact form factor and low weight
- Mountable in any orientation
- No vibration
- DC operation which is readily available on instrument
- Solid-state construction providing long life and low maintenance



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-MEDICAL-APPLICATIONS

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