Laird™
THERMAL SYSTEMS

Nextreme™ Chillers for **Biotech Research**

Introduction

Modern Microscopy equipment provide high-resolution images of cells, tissues, and other biological specimens

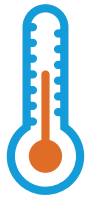
Digital Microscopes require **active cooling** of optoelectronic components to provide maximum image resolution and long-life operation

Application Overview

Optical microscopes use one or a series of lenses to magnify images of samples with visible light

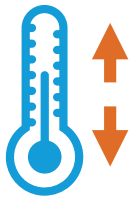
Digital microscopes utilize **CCD** or **CMOS** sensor cameras to display sample images on a computer screen

Application Challenges



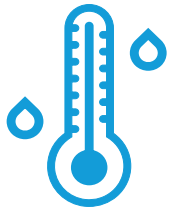
INTERNAL HEAT

Sensitive camera components require temperatures below 18ºC



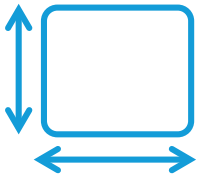
TEMPERATURE STABILITY

Imaging sensors require temperature stability of ±0.5°C



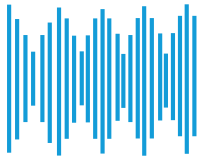
CONDENSATION

Sensitive optoelectronics need condensation protection



SPACE CONSTRAINTS

Miniaturization of equipment increases heat flux density



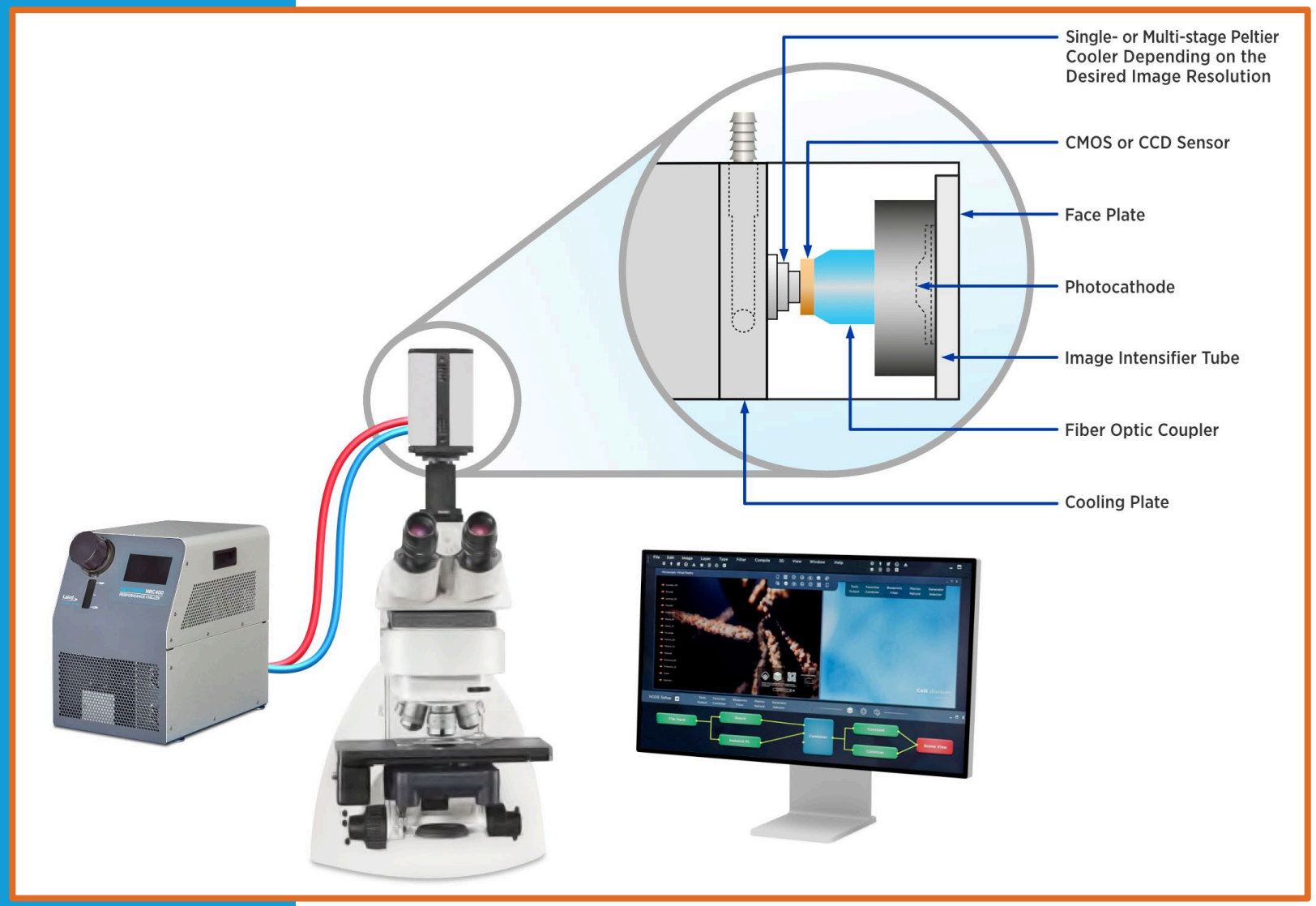
NOISE & VIBRATION

Cooling systems must provide quiet operation

ENVIRONMENTAL RESTRICTIONS

HFC refrigerants to be phased out

Thermoelectrics in Digital Microscopes



Thermoelectric-based chillers offer **very precise temperature control** and cool to **well below ambient temperatures**

Nextreme™ Performance Chiller NRC400

- Premium Components
- Temperature Stability ±0.05°C
- High COP
- Low Maintenance
- User-friendly LCD Display
- Environmentally Friendly

400
Watts of Cooling Power

0
Global Warming Potential

c UL us LISTED

CE

RoHS COMPLIANT

Conclusion

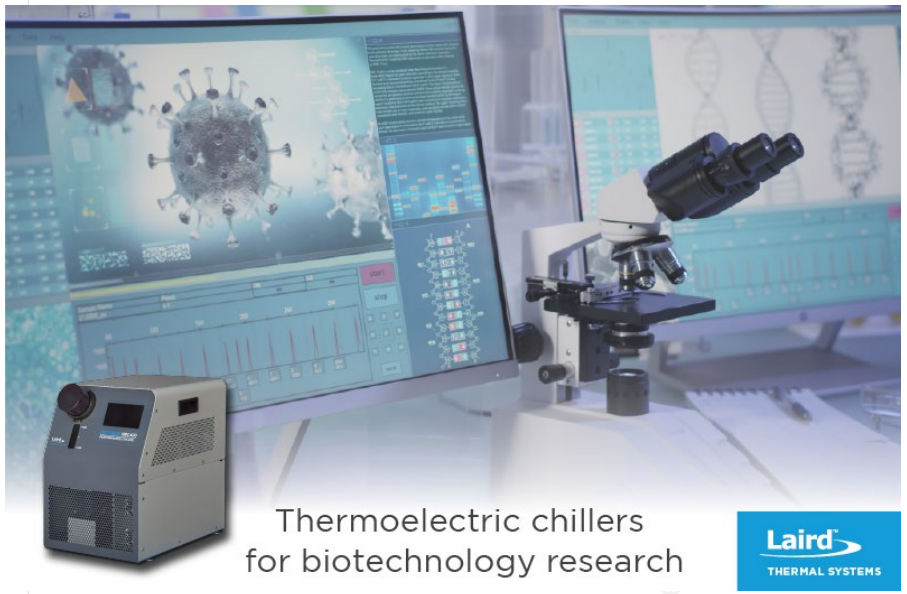
Digital microscopes featuring imaging sensors **provide detailed images** of microorganisms to laboratory technicians

A **thermal solution** is required to maintain **very stable temperature** of imaging sensors

Thermoelectric-based chillers and **thermoelectric coolers** minimize thermal noise to **ensure high image resolution**

The NRC400 cools to well below ambient temperatures, offering a **temperature stability of ±0.05°C** – all in a **compact form factor**.

For More Information



More information on the NRC400 Nextreme™ Chiller can be found by visiting Laird Thermal Systems' **website**.

Read more about **thermal management solutions for biotechnology research**.

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

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Laird Thermal Systems? Please contact us via the website at www.lairdthermal.com

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