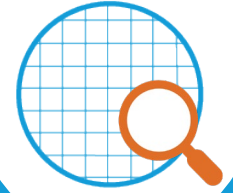


Thermoelectric Chillers for
**Semiconductor Metrology
& Inspection Systems**

Introduction



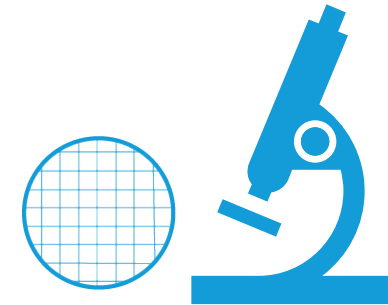
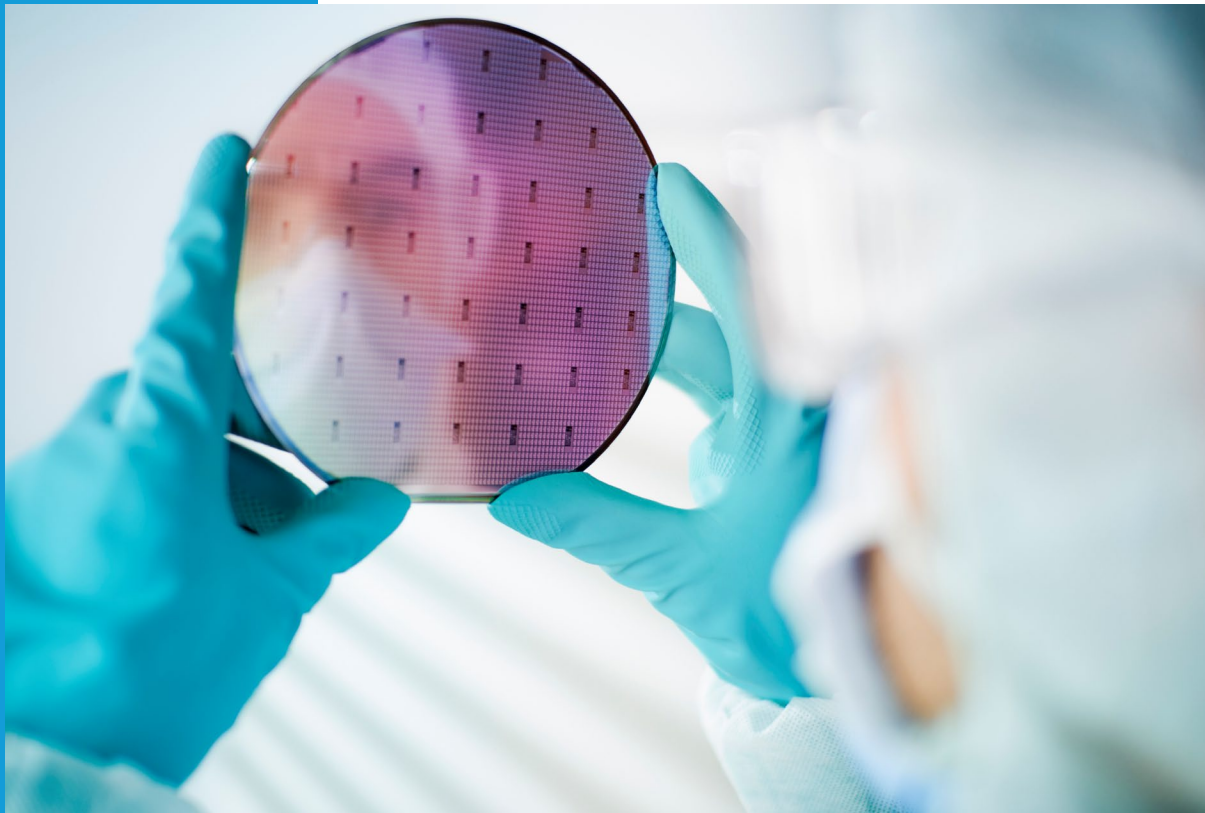
Automated metrology systems have enabled cost-effective production of semiconductor wafers



Semiconductor optical inspection systems require a **reliable thermal solution** providing high temperature stability for maximum uptime and image resolution

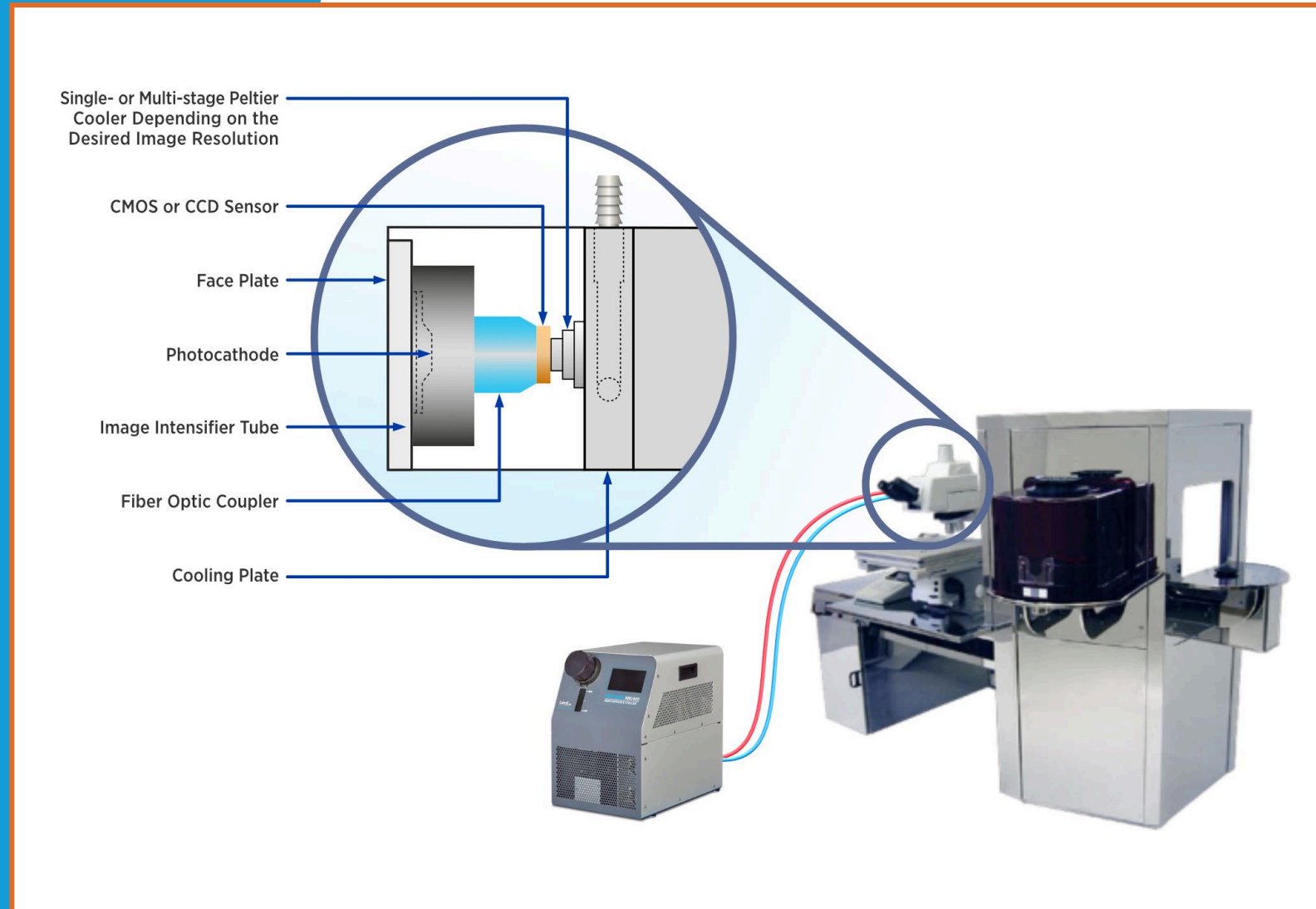
Application Overview

Optical inspection systems utilize imaging sensors to provide live feedback of the semiconductor manufacturing process

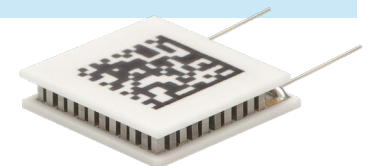


CCD or **CMOS** sensors must be cooled to well below ambient and maintain a temperature stability of $\pm 0.5^{\circ}\text{C}$ to ensure high image resolution

Thermoelectrics in Metrology Inspection Systems



Thermoelectrics offer **very precise temperature control** and cooling to **well below ambient temperatures**



Nextreme™ Performance Chiller NRC400

- Premium Components
- Temperature Stability of $\pm 0.05^{\circ}\text{C}$
- High Reliability
- High COP
- User-friendly LCD Display
- Environmentally Friendly

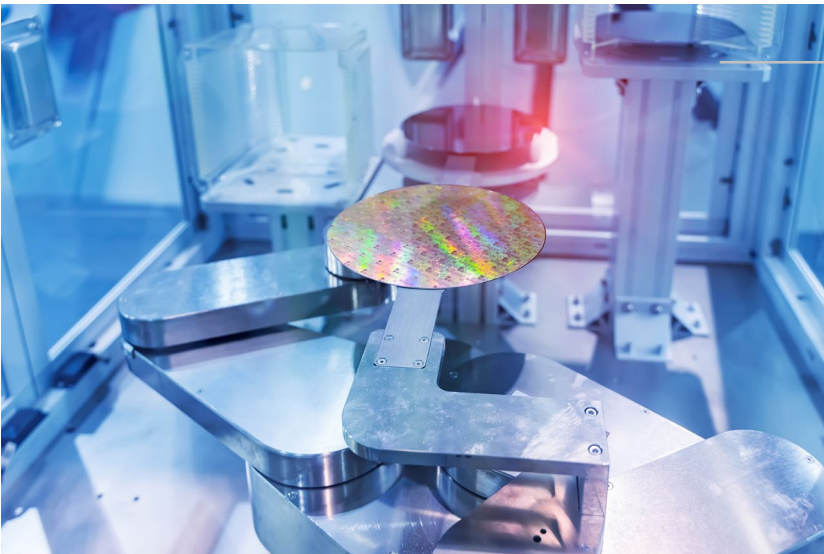
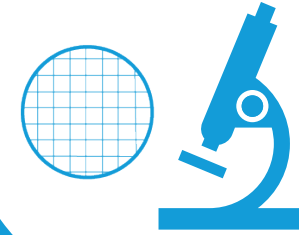


0
Global Warming
Potential

400
Watts of
Cooling Power



Conclusion



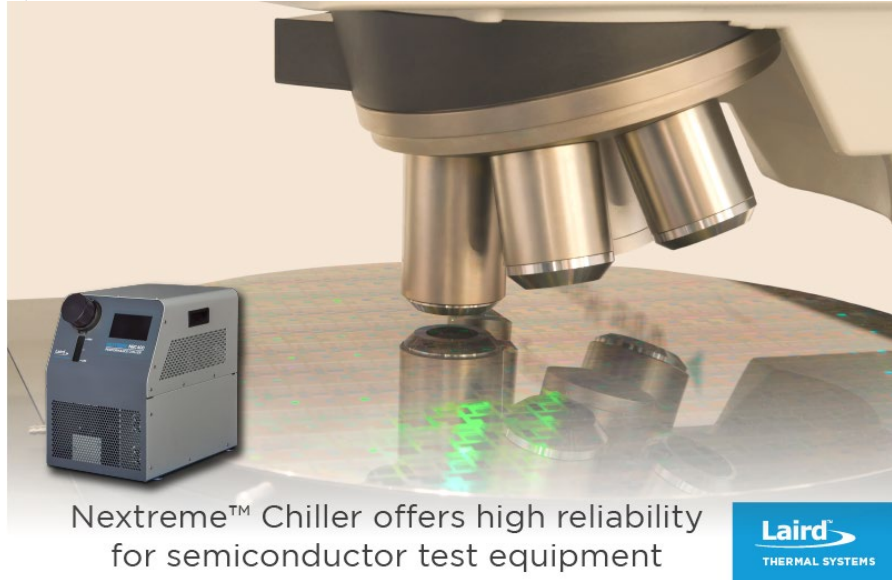
Semiconductor metrology inspection systems require a **thermal management solution** for maximum operation and imaging performance

Temperature fluctuations will **negatively impact image resolution** and **shorten lifetime** of optical components

Solid-state thermoelectric chillers offer **high reliability** while delivering very **precise temperature control** well below ambient temperatures

The high-performance NRC400 offers **400 Watts** of cooling capacity with a temperature stability to **±0.05°C**, ensuring high image resolution and maximum uptime

For More Information



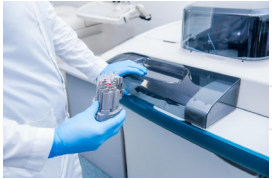
Nextreme™ Chiller offers high reliability
for semiconductor test equipment

More information on the Nextreme NRC400 Thermoelectric Chiller can be found on Laird Thermal Systems' [website](#)

Read more about cooling for [semiconductor inspection systems](#).

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





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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