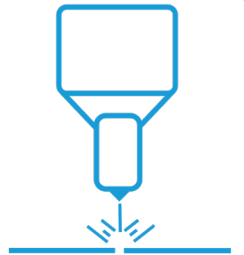


Nextreme™ Chillers for
Low-Power Lasers

Introduction



Temperature stability maximize laser performance and ensure long life operation of optoelectronic components



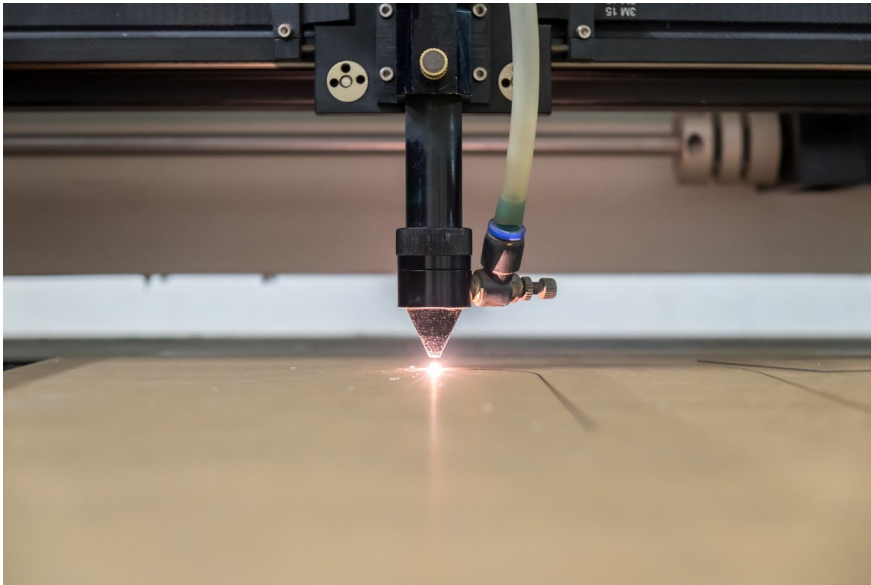
The NRC400 efficiently cools lower power laser systems with a **+0.05°C** accuracy



Application Overview



Industrial laser systems ranging from 10 to hundreds of Watts typically require a chiller to pump away heat from sensitive laser components



Low Power Laser Applications

- Printing
- Marking
- Soldering
- Laser Powder Remelting
- Plastic Welding

Application Challenges



TEMPERATURE CONTROL

Maintain stable temperature between 20 to 35°C with $\pm 0.1^\circ\text{C}$ stability



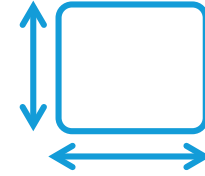
NOISE

Thermoelectric chillers offer quieter operation



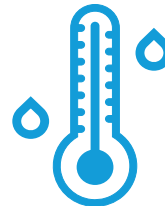
PORTABILITY

Thermoelectric-based chillers can be moved with ease



SPACE CONSTRAINTS

Miniaturization of equipment increases heat flux density



CONDENSATION

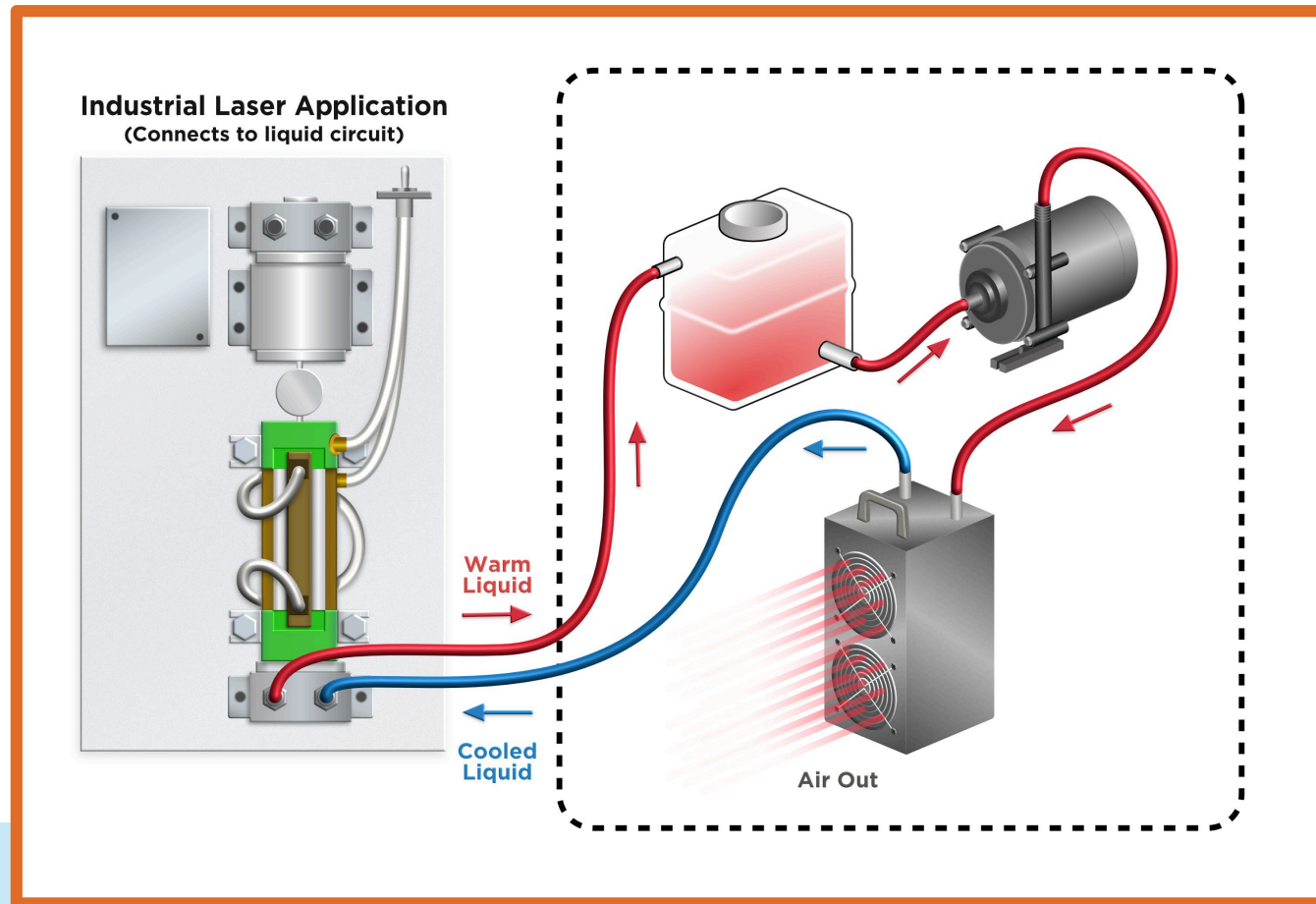
Surfaces that go below dew point require sealants with good thermal insulation properties



ENVIRONMENTAL RESTRICTIONS

HFC refrigerants to be phased out

Thermoelectric Cooling Solutions



Thermoelectric-based chillers offer **high reliability** and **superior temperature stability** for industrial laser applications

Nextreme™ Performance Chiller NRC400

- Premium Components
- Temperature Stability of $\pm 0.05^{\circ}\text{C}$
- High Coefficient of Performance (COP)
- Low Maintenance
- User-friendly LCD Display
- Environmentally Friendly



0
Global Warming
Potential

400
Watts of
Cooling Power



Conclusion



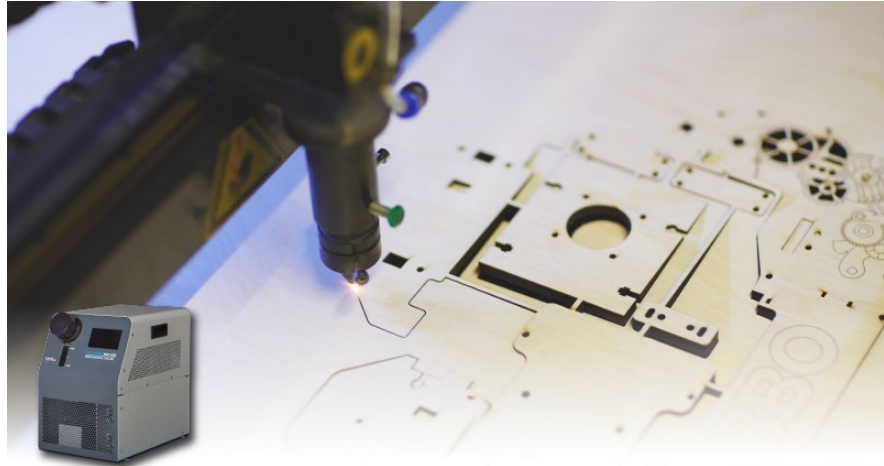
Industrial laser systems require active cooling to **maximize performance** and extend **operational life of components**

Temperature instability distort laser wavelength and beam quality, heat must be dissipated to **protect sensitive electronics**

Modern thermoelectric-based chillers offer **high reliability, precise temperature control** and **low maintenance**

The high-performance NRC400 delivers **400 Watts** of cooling capacity, a temperature accuracy of **±0.05°C** – all in a **compact form factor**.

For More Information



Nextreme™ Thermoelectric Chiller
efficiently cools industrial lasers

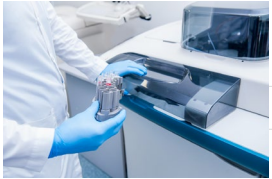


Find the Nextreme NRC400 Chiller on the
Laird Thermal Systems [website](#)

Read more about cooling solutions for
[laser applications](#)

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





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