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Nextreme™ Recirculating Chillers from Laird Thermal Systems Keep Industrial Lasers Cool

Nextreme Chillers provide precise temperature control and low-noise operation in a smaller footprint compared to previous models…

September 30, 2020 – Industrial lasers used for cutting, welding, micro-machining or drilling generate a significant amount of heat which needs to be managed and quickly dissipated. If the thermal stability of the laser beam is not held constant, it will lose focus and create a rougher, less precise cut or engraving. Laird Thermal Systems™ Nextreme™ Chiller Platform efficiently cools the power source and laser optics to achieve maximum performance and long-life operation. Offering a high Coefficient of Performance (COP) at a reduced power consumption, the Nextreme Chiller features premium components at a lower cost and environmentally friendly refrigerants in a user-friendly design.

Cooling industrial laser applications can be challenging. Ideally, laser optics should be kept at an operating temperature of 20°C ± 0.1°C. The trend to pack more functionality into smaller footprints increases the heat flux density and makes an efficient cooling solution even more important. In addition, room temperatures in these environments can vary between 20°C to 35°C. To eliminate system downtime, cooling systems need to be highly reliable and require low maintenance.

With the ability to heat and cool to maintain a temperature setpoint with an accuracy of ±0.1°C, the Nextreme Chiller Platform offers great flexibility. Utilizing high-performance variable speed motors, it delivers a high COP at lower noise and reduced energy consumption compared to conventional compressor-based technologies. High-quality components increase reliability and the optional “hot swappable” 5-micron water filter, allow the unit to run during maintenance, which maximize system uptime.

“Today’s compressor-based systems are much more efficient than one decade ago,” said Greg Ducharme, Liquid Cooling Systems Product Director at Laird Thermal Systems. “The Nextreme Chiller not only offers higher COP but also 50 percent lower energy consumption over the product’s life compared to conventional compressor-based systems.”

By using R513A refrigerants, the Nextreme Chiller Platform is also environmentally friendly, delivering similar performance with half the Global Warming Potential (GWP) compared to traditional hydrofluorocarbons (HFC) refrigerants. Users can easily control temperature setpoints, coolant type, as well as flow and alarm settings via the LCD touchscreen display on the front panel.

The Nextreme Chiller Series comes in three standard cooling capacities including 1800W, 2800W and 5000W models. All these models can be configured to meet unique application requirements.

Find our Nextreme Chiller Platform or read more in our application note Recirculating Chillers for Industrial Lasers

About Laird Thermal Systems

Laird Thermal Systems develops 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. Our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. By offering a broad range of design, prototyping and in-house testing capabilities, we partner closely with our customers across the entire product development lifecycle to reduce risk and accelerate their time-to-market. 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.

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