Engineered to take the data center heat
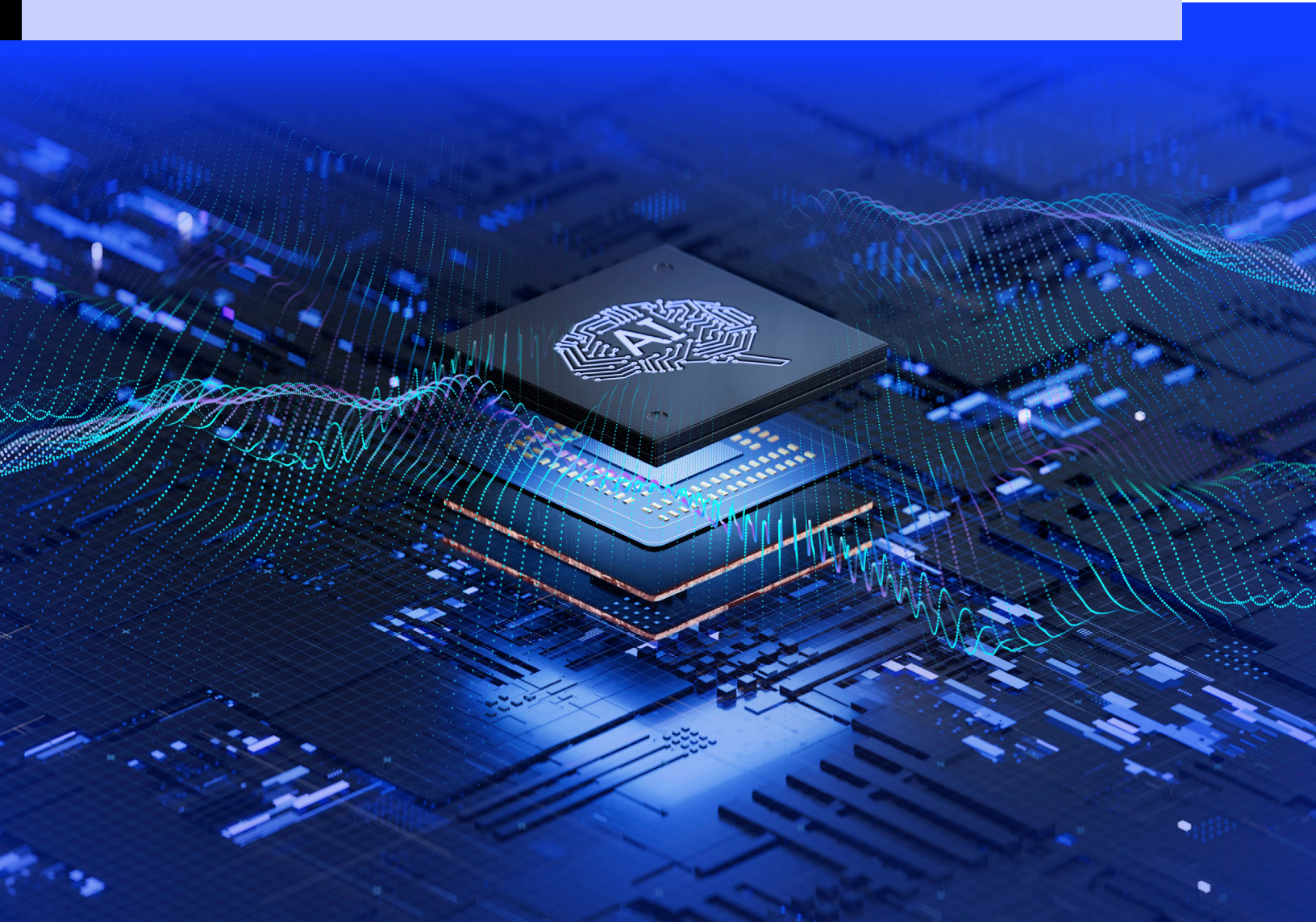
Copeland delivers reliable, efficient and sustainable cooling — from edge to hyperscale.

COPELAND

Engineered to take the data center heat

Data center cooling demands are escalating rapidly to match the growth of artificial intelligence (AI). As processing requirements and computing densities increase, stakeholders need cooling strategies that can address both traditional and emerging cooling challenges.

- Maximize air- and water-cooled chiller capacities and efficiencies.
- Absorb the heat generated by high-density AI computing and graphics processing units (GPUs).
- Successfully implement the next generation of liquid-cooling technologies.
- Lower facility carbon footprints with energy-efficient, eco-friendly technologies

This must all be done without sacrificing reliability, uptime rates and business continuity. It's an increasingly complex equation that will require the development of innovative, robust and efficient cooling solutions.

Driving the next innovation in data center cooling

Copeland has made — and will continue to make — significant investments in the future of data center cooling. We're developing breakthrough compression technologies, intelligent controls and robust data analytics empowered by AI and machine-learning (ML) algorithms. Our extensive product development resources serve as proving grounds for tomorrow's innovations.

From edge to hyperscale, Copeland offers cooling solutions that increase data center resiliency. For colocation and hyperscale data centers, we're providing the most reliable and efficient compression technologies for chiller applications — helping them to optimize cooling and HVAC systems to leverage economies of scale.

Copeland oil-free centrifugal compressor with Aero-lift™ bearing technology

A breakthrough in data center cooling reliability and efficiency, the Copeland oil-free centrifugal compressor increases the capacity of mission-critical chiller applications.

- Enables high-lift capacity in full-load, high-ambient conditions
- Extends operating envelope, improving reliability during part-load turndown
- Delivers increased efficiency in integrated part-load value (IPLV) and full-load conditions
- Minimizes redundancy concerns during power disruptions
- Optimized for use with lower-GWP refrigerants

Copeland variable-speed scroll compression and valve technologies

Copeland offers a breadth of variable-speed scroll compression and drive solutions that are engineered to provide optimized operating envelopes for data center cooling. The recent launch of the Copeland ZDV variable-speed scroll compressor and matched drive was targeted for data center environments — improving

performance with increased internal air temperatures and optimizing pressure ratios for seasonal transitions. Copeland variable-speed benefits include:

- Deliver precise cooling and energy optimization via a wide spectrum of modulation ranges

- Support air-cooled chiller and next-gen, liquid-cooling scenarios

- Achieve improved efficiency, lower power usage effectiveness (PUE) in split-system, indoor CRACs and chillers

- Lower applied costs via potential elimination of pumps and/or economizer loops

Copeland's electronic expansion valve (EEV) technologies are designed to improve chiller system efficiencies while reducing energy consumption. EEVs support maximum performance, reliability, temperature precision and optimized efficiencies under full- and part-load conditions — which is essential for operating with lower condensing pressures.

Data analytics — leveraging 100 years of Copeland's refrigeration expertise

Copeland's data scientists combine decades of compressor history and live data to develop AI and ML algorithms that can unleash the power of data-driven performance and maintenance optimization.

- Ensures that compressors and systems are running at their optimal states

- Identifies when performance is out of tolerance ranges

- Helps to improve/lower PUE

- Enables predictive or conditioned-based maintenance (CBM)

- Provides built-in diagnostics and fault protection to prevent faults and help technicians

Partner with proven cooling experts

Balancing today's cooling loads with a future driven by AI processing demands will require a resourceful product development partner. You'll need one that has built its reputation on delivering the industry's most innovative — and proven — cooling technologies.

With more than a century of cooling-specific domain expertise and inventiveness, Copeland is leveraging its vast engineering resources and experience to solve the data center market's most pressing cooling challenges.

By partnering with Copeland, you can quickly turn your data center cooling concept into a prototype. We're committed to helping the data center industry identify new cooling opportunities and create the standard for next-gen data center cooling technologies.

Ready to take the next steps in your data center cooling product development? Consult with our application experts.

About Copeland

Copeland, a global provider of sustainable climate solutions, combines category-leading brands in compression, controls, software and monitoring for heating, cooling and refrigeration. With best-in-class engineering and design and the broadest portfolio of modulated solutions, we're not just setting the standard for compressor leadership; we're pioneering its evolution. Combining our technology with our smart energy management solutions, we can regulate, track and optimize conditions to help protect temperature-sensitive goods over land and sea, while delivering comfort in any space. Through energy-efficient products, regulation-ready solutions and expertise, we're revolutionizing the next generation of climate technology for the better. For more information, visit copeland.com.

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