NAUTILUS ®
DATA TECHNOLOGIES

Case Study

Start Campus Implements Large-Scale Liquid Cooling Solution Using EcoCore COOL CDU for AI and HPC Workloads

Company Profile

- **Company:** Start Campus
- **Industry:** Data Center
- **Location:** Sines, Portugal
- **IT Power Requirement:** 6.8 MW
- **Project Focus:** AI deployment, liquid-to-air cooling upgrade

Challenge

Start Campus, a pioneer in the development of next-generation, AI-scale data centers, recognized the growing demand for liquid cooling solutions, driven by the rise of AI and high-performance computing. At their SINES DC campus in Portugal, one of their customers required advanced cooling solutions capable of managing **50+ kW per rack** to support intensive AI and HPC workloads for a large, multi-MW deployment.

Due to the high rack density, a liquid-to-air cooling solution at the rack level was essential to meet this demand. While the base design of SINES DC featured fan walls and concrete floor slabbing, the building's power and cooling infrastructure had thoughtfully been designed to support future industry needs, ensuring possible integration of liquid cooling solutions at the rack level,

Solution

Nautilus partnered with Start Campus to deploy a cutting-edge cooling solution using **EcoCore COOL Cooling Distribution Units (CDUs)**. Key components of the solution included:

- **Two 3.4MW cooling loops**, perfectly suited for the **6.8 MW data hall.**
- **12 EcoCore COOL CDUs**, arranged in **two groups of six**, each providing **1 MW of cooling**, for a total of **12MWs of CDU cooling capacity.**
- Liquid-to-air cooling directly at the rack level

To ensure efficiency, Nautilus also designed a custom **water distribution system** and sourced **rear door coolers** to provide targeted cooling at the rack.

Result

The project was successfully completed **on time**, with the integrator starting work and delivering the solution to the site within **12 weeks**. Nautilus collaborated with a **regional integrator**, ensuring a swift and efficient implementation process tailored to local needs. During installation, the Nautilus team provided hands-on support throughout, guaranteeing a **smooth commissioning** and start-up process, from delivery through to operation. This approach allowed Start Campus to meet their customer's cooling requirements for AI workloads efficiently, resulting in a seamless integration of liquid-to-air cooling into the SINES DC infrastructure.

The key outcomes include:

- **Advanced Cooling Performance:** The solution efficiently manages 50+ kW per rack, meeting the needs of AI and high-performance computing.
- **On-Time Delivery:** The project was completed in a short timeframe and within the planned schedule, aligning seamlessly with Start Campus' operational timeline.
- **Scalability:** The cooling infrastructure now provides flexibility for future rack capacity growth, enabling Start Campus to stay ahead of evolving industry demands.
- **Seamless Transition:** The Nautilus team was on-site to ensure flawless integration and system activation, providing full support for a smooth operational handover.

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The Nautilus team was responsive and proactive, always communicating and addressing challenges. Their commitment to ensuring smooth installation and startup set them apart. They went above and beyond to deliver a seamless experience and were invaluable partners throughout the project.

Alberto Petermann, Head of Design and Delivery, Start Campus

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