Trade Media Release

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From chiller to chip: GF and Rittal deliver full-scope polymer cooling infrastructure for next-generation data centers

As data center operators push rack densities higher and accelerate the adoption of direct liquid cooling (DLC), the demands on cooling infrastructure are fundamentally changing. Unlike traditional air-based systems, DLC allows data centers to operate higher coolant temperatures, significantly improving overall energy efficiency by reducing chiller workload and enabling more effective heat rejection. The International Energy Agency and the World Economic Forum emphasize that cooling systems, power, water, materials, and workload management must all be addressed holistically to improve sustainability[1]. In response, GF and Rittal have collaborated to deliver a fully integrated cooling solution for NETMOUNTAINS' new co-location data center in Velbert, Germany.

With more than 30 years of experience in Facility Water Systems (FWS) and room cooling (HVAC), GF supplied the entire polymer-based cooling loop in this project – from the chiller and dry-cooler all the way to the rack and chip – covering the FWS, Technology Cooling System (TCS), and HVAC. Rittal acts as the complete solution provider for IT infrastructure and cooling equipment, integrating the complete cooling ecosystem, while GF delivers design, engineering, pre-fabrication, and all polymer components for the piping system, including the peripherals.

Full-scope cooling, designed for expansion
NETMOUNTAINS' latest data center is designed for maximum project flexibility, offering seamless, multi-megawatt scalability to grow alongside customer requirements. The cooling infrastructure is engineered for these future demands, supporting rack densities of 66 kW, flow rates of approximately 1.2 l/s per server, and operating temperatures of 45/55°C in the TCS and 45/35°C in the FWS. "Our role is to bring all elements of the cooling ecosystem together into one reliable, integrated solution," explains Felix Kremelic, IT Projects Lead at Rittal. "By combining our IT infrastructure and cooling expertise with GF's engineered polymer Flow Solutions, we were able to deliver a scalable, high-performance system that meets today's requirements and is ready for tomorrow's workloads." Rittal, international provider of hardware, automation, and software, has developed a novel cooling solution and NETMOUNTAINS is one of the first to make this technology available to its customers for practical use. The cooling distribution unit delivers a cooling output of over one megawatt in compact rack format. Through its modular construction, it can be more easily integrated into data centers in practical operations.

GF supplied Flow Solutions for:

- **FWS:** ecoFIT PE100 piping from dry-cooler to CDU
- **TCS:** LiquidCore engineered Flow Solution, including the PROGF PP-H distribution system from CDU into the white space, in-rack manifolds, and Quick Connect Valve 700.
- **HVAC:** COOL-FIT pre-insulated piping system

All systems were engineered, pre-fabricated, and quality-checked by GF to ensure fast installation on site and leak-free operation.

[1] https://www.weforum.org/stories/2025/12/data-centres-and-energy-demand (2 Dec 2025)

Why polymers matter in modern data centers
As DLC gains wider adoption, polymers are increasingly replacing metal in mission-critical cooling loops. Unlike metal piping, engineered thermoplastics are inherently corrosion-free and do not release particles into the coolant, helping maintain coolant purity and significantly reducing system rinsing. In addition, polymer systems offer lower weight, high chemical resistance, and lower thermal conductivity, supporting stable and efficient cooling performance. Welded polymer connections further ensure long-term leak tightness and reliable operation, making them well suited for modern CDUs and high-performance computing (HPC) environments.

“Increasing rack densities and the wider adoption of direct-to-chip liquid cooling are fundamentally changing the requirements for data center cooling infrastructure,” says Ergin Sarac, Data Center Specialist at GF. “Instead of isolated systems, operators need fully integrated cooling loops. This project shows how combining IT infrastructure, cooling technology, and polymer Flow Solutions reduces complexity, accelerates installation, and improves long-term operational stability,” explains Ergin Sarac.

“For us as an operator, reliability and scalability were key,” says Stephan Reugels, Co-Founder and CEO, NETMOUNTAINS. “The integrated cooling concept and the use of GF’s engineered piping systems give us confidence that the infrastructure will perform consistently as rack densities increase and the data center expands over time.”

The German project demonstrates how engineered polymer Flow Solutions are not only viable but essential for scalable, high-density data center cooling.

Experience you can build on
With decades of experience in mission-critical environments – from semiconductor manufacturing to industrial process cooling and data centers – GF brings global expertise, standardized processes, and local project support. Combined with Rittal’s leadership in IT infrastructure and cooling integration, the cooperation offers data center planners and operators a single, reliable path from concept to operation.

Find out more on this data center case study and our Flow Solutions.

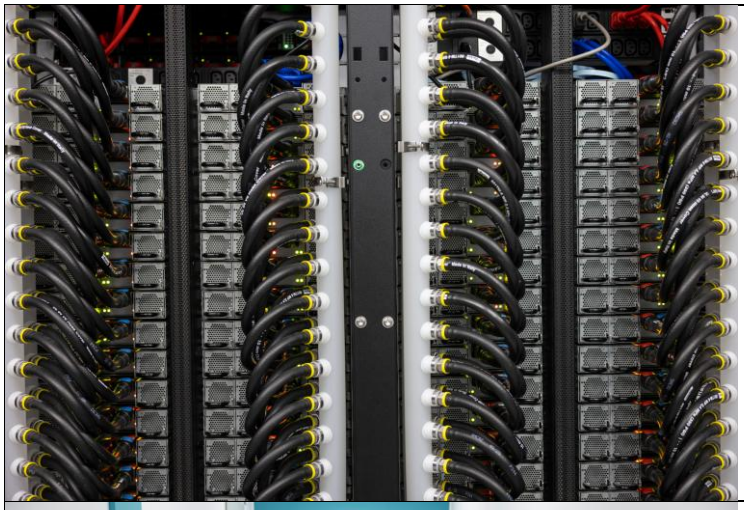
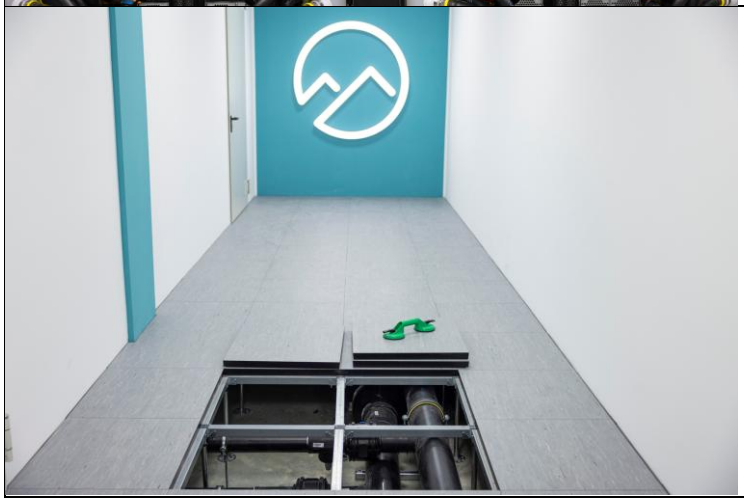
Meet GF at Data Centre World London, stand E70, from 4-5 March to learn how full-scope polymer cooling solutions can future-proof your next data center project.

For further information please contact
Constanze Werdermann
Senior Communications Manager, Industry & Infrastructure Flow Solutions, Global Communications
constanze.werdermann@georgfischer.com, +41 76 33 99 218

Corporate Profile
With a rich history in industrial innovation since 1802, GF is reshaping the future of Flow Solutions by delivering Excellence in Flow through mission-critical products and solutions that enable the safe and sustainable transport of water and other fluids for Buildings, Industry and Infrastructure. Headquartered in Switzerland, GF employs about 13’300 professionals across 46 countries. In 2025 GF’s Flow Solutions business generated sales of CHF 3 billion. GF is listed on the SIX Swiss Exchange.

Pictures

	Pre-fabricated PROGEF PP-H distribution system as part of GF's LiquidCore engineered polymer Flow Solution, enabling fast integration and transporting coolant from the CDU into the white space. Source: GF
	By combining Rittal's end-to-end IT and cooling infrastructure with GF's engineered polymer Flow Solutions, the partners delivered a fully integrated cooling ecosystem for the NETMOUNTAINS data center. Source: GF
	The Quick Connect Valve 700 is a patented dual-ball valve built from polyvinylidene fluoride (PVDF). The lightweight valve is engineered specifically for direct-to-chip liquid cooling requiring highest purity standards and it is enabling fast, safe, and reliable rack integration into the main pipe distribution system. Source: GF

	Custom-designed in-rack manifolds ensure consistent coolant distribution across every outlet port to maintain thermal stability under high computational loads. Source: GF
	NETMOUNTAINS uses polymer Flow Solutions across both gray and white space, benefiting from corrosion resistance, low thermal conductivity, and reliable long-term operation. Source: GF