Media Release

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GF completes LiquidCore portfolio with intelligent Multi Control Valve to maximize direct liquid cooling efficiency

GF is expanding its data center liquid cooling infrastructure portfolio with the introduction of the Multi Control Valve, an all-in-one polymer flow optimization solution engineered to deliver dynamic hydraulic balancing, integrated sensing, and thermal energy metering to high-density Direct Liquid Cooling (DLC) architectures. Up to 70% lighter and 50% more compact than conventional metal assemblies, this intelligent valve integrates seamlessly into GF's LiquidCore system to balance cooling capacity and optimize pressure drop without adding deployment complexity.

With single-phase Direct-to-Chip Liquid Cooling (D2C) firmly established as the baseline for next-generation rack power densities exceeding 100 kW, the engineering challenge has shifted from basic coolant transport to active system optimization. Operating these complex liquid loops at peak efficiency under rapidly changing AI and high-performance computing (HPC) workloads dictates a shift from static flow networks to active circuit tuning. To deliver the critical final lever for loop performance, GF has introduced the Multi Control Valve into its Technology Cooling System (TCS) infrastructure offering.

The Multi Control Valve replaces complex multi-component instrumentation loops by integrating a valve with linear flow characteristics, an electronic actuator with a rapid 5-second fail-safe response, and five embedded sensors as standard: volumetric flow, pressure (2×), and temperature (2×). By leveraging advanced ultrasonic flow measurement and monolithic ceramic pressure sensors, the device calculates differential pressure (ΔP), temperature variance (ΔT), and total thermal energy distribution in real time. This centralized architecture delivers complete system transparency while eliminating the space requirements, installation labor, and potential leakage vulnerabilities associated with separate physical instruments.

Constructed entirely from premium, corrosion-free Polyphenylene Sulfide (PPS) and high-performance engineered polymers, the valve body completely bypasses the internal scaling, fluid contamination, and heavy structural mass inherent in stainless steel options. The resulting design is up to 70% lighter, significantly mitigating mechanical load and structural stress on plastic rack manifolds and distribution piping networks. Equipped with a simplified single-cable layout, a dust and water-tight IP68-rated housing, flexible process connections including PP-H spigots, stainless steel tri-clamps, and other options on request, and standard data bus communication interfaces (IO-Link, Modbus RTU, and BACnet MS/TP), the Multi Control Valve easily integrates into highly space-constrained server environments and automated building management systems.

Built for NextGen industry compliance frameworks

GF participates in the Open Compute Project (OCP) Community as an OCP Solution Provider. Driven by a commitment to support next-generation data center architectures, GF engineers its fluid management solutions in alignment with the latest industry frameworks and specifications. Built for mission-critical environments, the Multi Control Valve features an inert, polymer fluid pathway that mitigates cold plate fouling and supports current coolant integrity guidance. Furthermore, its digital telemetry and automated dynamic balancing enable operators to achieve the tight rack flow distribution required for standardized, highly scalable hyperscale deployments.

“With the launch of the Multi Control Valve, we are providing the means to connect individual rack precision to macro-level infrastructure efficiency,” says Charles Freda, Global Head of Data Centers at GF. “By enabling rapid, intelligent flow circuit modulation to instantly match thermal and hydronic load conditions, we empower data center operators to slash parasitic mechanical losses, maintain perfect chip-level thermal stability, and actively optimize their operational efficiency.”

The introduction of the Multi Control Valve serves as the vital active intelligence layer that completes GF’s single-source LiquidCore system offering. GF now delivers a fully integrated, future-ready fluid path from chiller to chip, seamlessly bridging proposal engineering, advanced off-site pre-fabrication, and high-performance PROGEF PP-H distribution piping with a complete lineup of advanced polymer Valve and Automation Solutions. The full portfolio is rounded out by custom-engineered In-rack manifolds made from SYGEF PVDF for uniform cooling capacity and the patented, full-polymer Quick Connect Valve 700 for fast, drop-free, and safe rack integration.

Find out more about the Multi Control Valve by GF: gfps.com/mcv

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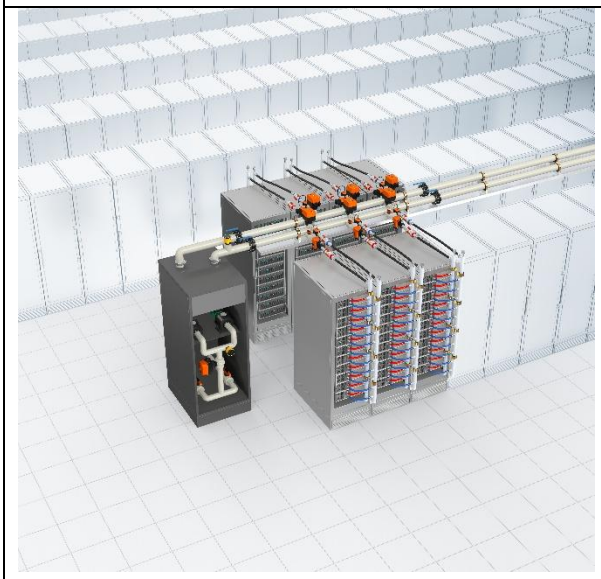
Corporate Profile With a rich history in industrial innovation since 1802, GF is reshaping the future of Flow Solutions by delivering Excellence in Flow through mission-critical products and solutions that enable the safe and sustainable transport of water and other fluids for Buildings, Industry and Infrastructure. Headquartered in Switzerland, GF employs around 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.**www.gfps.com**

Pictures



The new GF Multi Control Valve: A highly compact, IP68-protected polymer innovation that integrates a linear characterized valve, fast 5-second electronic actuation, thermal energy metering, and five embedded sensors as standard to deliver dynamic hydraulic balancing in direct liquid cooling environments.

Source: GF

	GF's single-source direct-to-chip solution LiquidCore is backed by tailored design, engineering, and off-site pre-fabrication. The hardware portfolio integrates robust PP-H distribution lines, custom in-rack manifolds (PVDF), thermoplastic valve and actuation solutions, the new smart Multi Control Valve, and the safe Quick Connect Valve 700. Operational reliability is secured through advanced infrared (IR) and electrofusion jointing technologies. *Source: GF*
	**Integrated flow excellence:** Functioning as the active intelligence layer, the Multi Control Valve balances dynamic AI workloads while dropping infrastructure pressure loss and system weight by up to 85%. *Source: GF*