Media Release

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GF presents new PFAS-free semiconductor piping system SYGEF Ultra at customer event in Japan

To address the needs of atomic-scale semiconductor manufacturing, GF developed SYGEF Ultra, a High Purity PEEK piping system. SYGEF Ultra supports advanced semiconductor manufacturers by maximizing purity and minimizing rinsing times for hot and ambient ultrapure water systems. The innovative system was presented to the Asian market for the first time during a customer event in Tokyo, Japan.

Ångström-scale chips are pushing the boundaries of semiconductor technology. But in order to facilitate the production of these chips, manufacturers rely on cutting-edge technology, as even a single particle can have an impact on quality. Therefore, piping materials capable of ensuring the highest level of purity and maximizing yield are a priority.

GF developed SYGEF Ultra for hot and ambient ultrapure water systems serving next-generation semiconductor technologies. The system is made of a specific High Purity Polyether Ether Ketone (PEEK), a high-performance polymer that is well-known for its excellent performance in demanding industrial applications. It combines excellent mechanical strength at elevated temperatures as well as impact and chemical resistance with purity levels that exceed SEMI F57 by far. These properties facilitate significantly shorter rinsing times compared to current materials, speeding up SEMI F63 water quality compliance. SYGEF Ultra is also PFAS-free, which addresses increasingly stringent legislation around the world and the sustainability and environmental stewardship goals of end-user companies.

Andre Boxheimer, Portfolio Manager Microelectronics / UPW at GF Industry and Infrastructure Flow Solutions, comments on the event: “One of the most pressing challenges facing advanced semiconductor manufacturing is efficiency. By maximizing purity and minimizing rinsing times, SYGEF Ultra not only meets the needs of the Ångström era but also helps manufacturers stay ahead of sustainability legislation thanks to its PFAS-free design. It was a pleasure to introduce the system to customers in Japan.”

SYGEF Ultra is set to be launched in 2026. The high-performance system is bolstered by GF’s complete range of flow solution elements that include pipes, fittings, valves, and welding technology, engineered for ultrapure applications. Refined for the Ångström level, GF’s components for high purity piping systems guarantee the lowest possible particle levels, TOC, anionic and cationic leachout, as well as smooth surface finishes. Extensive jointing technologies that include QA/QC, safe packaging as well as global engineering and training support enable reliable installations for more than 25 years of safe operation.

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Corporate Profile

GF, with a rich history in industrial innovation since 1802, is actively reshaping itself to become the global leader in Flow Solutions for Buildings, Industry and Infrastructure. GF delivers Excellence in Flow through essential products and solutions that enable the safe and sustainable transport of fluids worldwide. As part of its strategic transformation, GF divested GF Machining Solutions on 30 June 2025 and has signed an agreement to divest its GF Casting Solutions division. Headquartered in Switzerland, GF employs about 15'700 professionals and is present in 46 countries. GF generated sales of CHF 4'776 million in 2024. GF is listed on the SIX Swiss Exchange.

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SYGEF Ultra is a welded plastic piping system made of PEEK that includes pipes, fittings and valves.

Source: GF