



Media Release

Schaffhausen

3 April 2025

Keeping the ELT's Vision Clear: The Automation behind the Precision Maintenance for the World's Largest Telescope

The ELT (Extremely Large Telescope) by ESO, currently under construction in Chile's Atacama Desert, features a 39-meter diameter primary mirror. Solutions for Process Automation by GF Piping Systems enable the continuous surface treatment of its 798 segments.

The mirror segments, designed to collect tens of millions of times as much light as the human eye, are made of a glass-ceramic material with very low thermal expansion. In order to achieve the highest possible sensitivity, they need to be recoated every 18 months, which means removing, recoating, and reinstalling two segments every day throughout the ELT's lifespan. When Fagerström Industriekonsult AB was tasked with designing a washing and stripping plant, the Swedish company selected solutions for Process Automation by GF Piping Systems.

To dissolve the reflective layer, which is primarily made of silver, the washing and stripping plant uses sulfuric acid and cerium sulfate. The segments are then cleaned with ultrapure water and an air knife prior to recoating. After extensive material testing, GF Piping Systems supplied a complete solution consisting of manual and automated valves from the PROGEF product family as well as accessories such as LED position feedback sensors and spring return units. In addition, the company provided measurement sensors for critical parameters including level, pressure, and temperature.

PROGEF is a polypropylene welded piping system designed for durability and high chemical resistance, and therefore contributes to a long-lasting and reliable operation for Fagerström's washing and stripping plant. At the same time, GF Piping Systems' measurement sensors optimize compatibility while providing the operators with precise data for this essential process. When the ELT becomes operational at the end of the decade, the washing and stripping plant will play a role in advancing astrophysical knowledge, enabling a deeper exploration of the Universe and providing sharper images of cosmic objects than ever before.

Carl Johan Fagerström, CEO of Fagerström Industriekonsult AB, comments: "When developing and designing one-of-a-kind machines, it is important to understand both the project and the components we are selecting. The collaboration between GF Piping Systems and Fagerström was crucial for success."

Peter Ernström, one of the Process Automation Specialists at GF Piping Systems who accompanied the entire project, comments: "Fagerström is pushing the boundaries of innovation with its unique solution for the world's biggest optical telescope. Our extensive experience with process automation for chemical applications allowed us to support Fagerström throughout every project phase and supply a bespoke solution to turn their vision into reality."

[Find out more about this reference case.](#)

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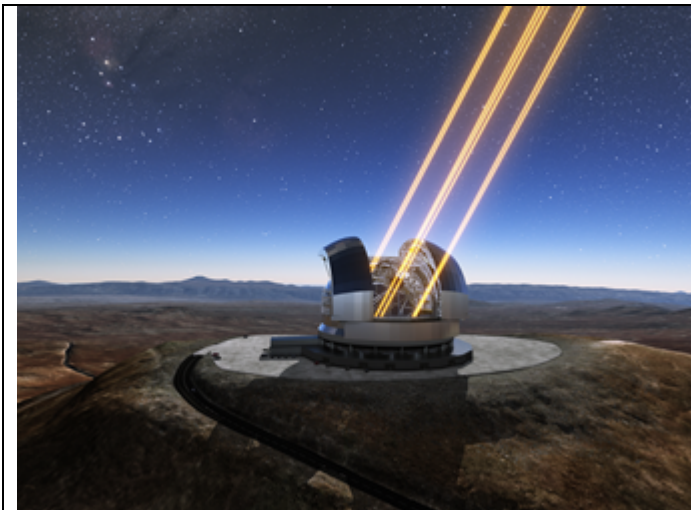
About GF Piping Systems

GF Piping Systems creates connections for life as the superior water and flow solutions provider for industries and infrastructure, enabling the safe and sustainable transport of fluids.

The division focuses on industry-leading leak-free piping solutions and engineering services for numerous demanding end-market segments. Its global sales, engineering, and manufacturing footprint reflects its strong focus on customer-centricity and innovation, and its award-winning portfolio includes fittings, valves, pipes, vaults, chambers, automation, fabrication, and jointing technologies.

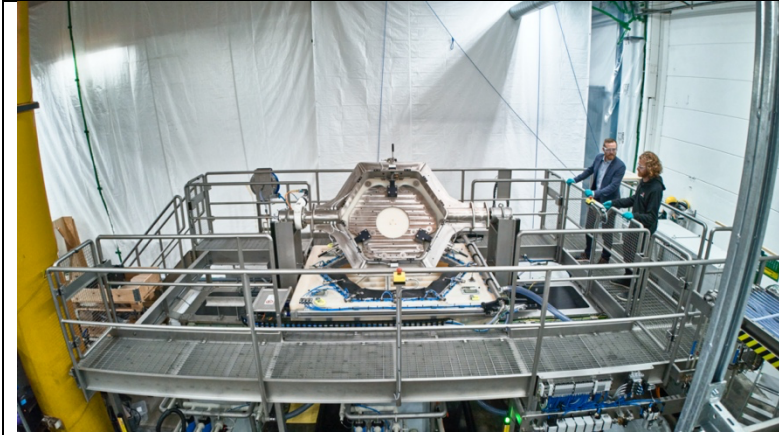
GF Piping Systems has its own sales companies in 33 countries and fabrication hubs in 15 countries, which means it is always by its customers' side. Production sites in 40 locations in the Americas, Europe, the Middle East, and Asia ensure sufficient availability and quick, reliable delivery. In 2024, GF Piping Systems generated sales of CHF 1'971 million and employed 8'309 people. GF Piping Systems is a division of Georg Fischer AG (GF), founded in 1802 and headquartered in Schaffhausen (Switzerland).

www.gfps.com

Pictures

When it becomes operational, the ELT will advance astrophysical knowledge by providing sharper images of cosmic objects than ever before.

Artist's rendering of ESO's ELT,
Source: ESO/L. Calçada



The washing and stripping plant uses Process Automation by GF Piping Systems to clean the ELT's 798 mirror segments.

Source: GF Piping Systems



After extensive material testing, GF Piping Systems supplied a complete solution consisting of valves and sensors.

Source: GF Piping Systems