

Safe Cooling for High-Pressure Hydrogen Refueling:

Double-Walled Pipe System Protects Coolant at H_2 Filling Station

BRUGG
Pipes

Pioneers in Infrastructure





Project

With the expansion of hydrogen mobility, an increasing number of filling stations are being built where vehicles can be refueled with hydrogen at high pressures of up to 700 bar. For a safe and efficient refueling process, reliable cooling of the hydrogen dispensers is required, as the hydrogen heats up significantly during rapid filling of vehicle tanks.

At a hydrogen filling station in Germany, a special cooling system was installed to supply the dispensers with a suitable coolant. The coolant used is Dynalene HC, which is classified as hazardous to water. This resulted in increased requirements for the safety of the piping system. In order to ensure reliable operation of the system and to protect the environment and infrastructure, the cooling system had to be implemented using a double-walled pipeline.

Execution

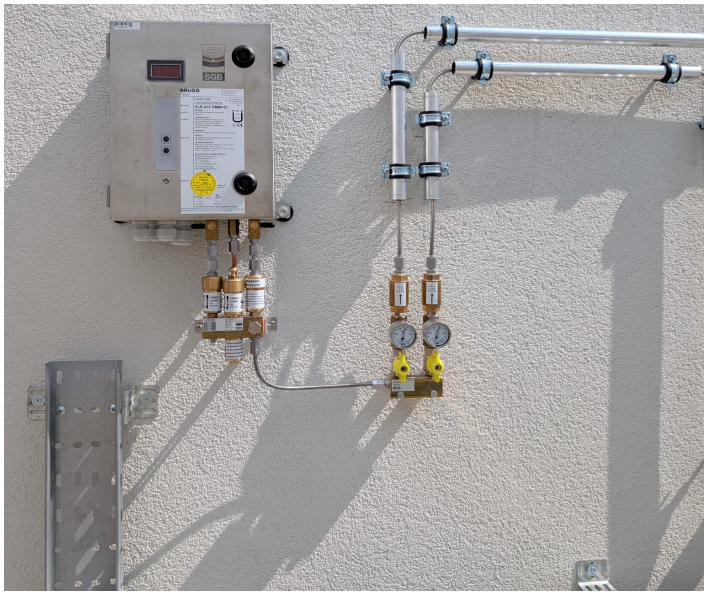
A FLEXWELL safety pipe (FSR) was used for the safe routing of the coolant. The double-walled pipe system enables the controlled and protected transport of water-hazardous media and thus meets the high safety requirements applicable to hydrogen infrastructures.

As part of the project, two pipeline sections of approximately 50 meters each were installed in the dimension FSR 48/71. The pipes were laid in a concrete channel, which provides additional mechanical protection and at the same time enables safe integration into the existing infrastructure of the filling station.

In addition to supplying the pipe system, BRUGG Pipes also carried out the laying and installation of the pipelines on site. In addition, post-insulation was implemented by a specialized subcontractor in order to ensure the thermal requirements of the cooling system over the long term.

The construction work was completed within a period of approximately three weeks.







Potential for Future Projects

With the increasing spread of hydrogen vehicles, the demand for reliable infrastructure for refueling systems with 350- and 700-bar technology is also growing. Safe cooling of the dispensers plays a central role here, as it enables a stable and efficient refueling process.

The project shows that double-walled safety pipe systems represent a suitable solution for reliably transporting cooling media under high safety requirements.

Especially when using water-hazardous media, the double pipe design offers additional protection and at the same time meets the regulatory requirements for modern energy infrastructures. This solution therefore offers great potential for future applications in hydrogen mobility, for example at additional filling stations, energy hubs or industrial hydrogen plants.

