HYDROGEN READY
THREAD SEALING SOLUTIONS

H_2ERE TO PERFORM UNDER PRESSURE

HIGH PRESSURE HYDROGEN LEAKS ELIMINATED *WITH HIGH PERFORMANCE, HIGH STRENGTH SEALANT*

SITUATION

A leading manufacturer of high pressure processing equipment was experiencing difficulties in finding a solution to seal the 1/4" and 1/2" AISI 316 stainless steel NPT fittings on a **hydrogen compressor** that needed to withstand pressures **up to 1,000 bar**. The previously evaluated sealants either failed their pressure requirements or required a long and complex curing process.

LOCTITE® SOLUTION

LOCTITE 638 High Strength Adhesive is a single-component, fast, room temperature curing adhesive that provides high shear strength.

Typically used to retain cylindrical components, such as bearings on shafts or in housings, **LOCTITE 638** is also ideal for thread sealing and/or threadlocking applications that operate in high pressures and other extreme environments. The anaerobic adhesive cures when confined in the absence of air between close-fitting metal surfaces and prevents loosening and leakage caused by shock and vibration. It cures on most metals without an activator or primer. The product offers high-temperature performance and good oil tolerance and tolerates minor surface contaminants.

- Hydrogen ready for use on metal fittings according to GASTEC QA AR 214 Class 8 – certifications are available in selected countries.
- NSF S5 Reg. No 123010
- DVGW Approval (EN 751-1): NG-5146AR0619

BENEFITS

Enhanced reliability due to elimination of all leaks in the field.

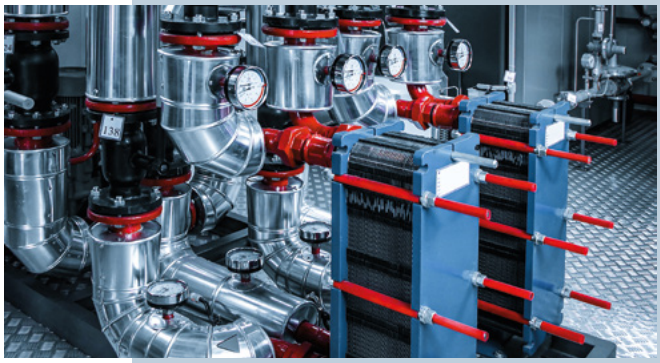
Increased productivity and process time savings due to fast adhesive curing.

Improved end-use equipment safety by eliminating risk of hydrogen leaks.

LOCTITE THREAD SEALANT PREVENTS HYDROGEN LEAKS FOR GAS BURNER MANUFACTURER

SITUATION

A company that specialises in the manufacture and installation of **industrial combustion equipment** for the commercial and industrial heating markets was experiencing challenges with their current process. They required a thread sealant for a hydrogen gas burner system that was capable of sealing various metal pipe fittings made of mild steel, brass and aluminum. The sealant needed to be DVGW EN751-1 certified and resistant to hydrogen gas as well as easy to apply and capable of preventing the pipes from loosening.



LOCTITE® SOLUTION

LOCTITE 577 Thread Sealant is used for securing and sealing pipes and fittings and other threaded metal connections. The product achieves an immediate sealing effect against low pressures in metal pipe connections. There is no creeping, shrinking or fraying. The resistance to chemical and thermal stress is excellent and the run-off of the liquid product after application is reduced.

- Excellent chemical resistance and easy to apply
- Medium-strength, vibration resistant thread sealant for metallic threads
- Immediate sealing effect against low pressures
- Curing on active and passive metals
- NSF S2 Reg. No. 123001
- DVGW approval (EN 751-1)
  DVGW Reg. No. NG-5146CQ0312
- Hydrogen ready for use on metal fittings according to GASTEC QA AR 214 Class 8 – certifications are available in selected countries.

BENEFITS

Improved reliability/reduced warranty costs due to elimination of leaks in the field.

Increased productivity due to ease of application and one product compatibility for all fitting types.

Improved safety for customers by eliminating risk of hydrogen leaks.

Enhanced quality through use of EN 751-1-certified thread sealant.

HIGH PRESSURE HYDROGEN THREAD SEALING FOR HYDROGEN FUELING STATION EQUIPMENT

SITUATION

A company specialising in innovative hydrogen fueling station technologies was experiencing challenges with a thread sealing application on one of their designs. They had been using PTFE tape on threaded connections **up to 1,000 bar**, but their assemblies were leaking. The challenge was to find a product which would prevent the hydrogen from leaking at the high pressure (1,000 bar) and extreme temperature conditions (-60°C up to 40°C).

LOCTITE® SOLUTION

LOCTITE 638 is a single-component, fast, room temperature curing adhesive that provides high shear strength.

Typically used to retain cylindrical components, such as bearings on shafts or in housings, **LOCTITE 638** is also ideal for thread sealing and/or threadlocking applications that operate in high pressures and other extreme environments. The anaerobic adhesive cures when confined in the absence of air between close-fitting metal surfaces and prevents loosening and leakage due to shock and vibration. It cures on most metals without an activator or primer. The product offers high-temperature performance and good oil tolerance and tolerates minor surface contaminants.

- Hydrogen ready for use on metal fittings according to GASTEC QA AR 214 Class 8 – certifications are available in selected countries.
- NSF S5 Reg. No 123010
- DVGW Approval (EN 751-1): NG-5146AR0619

BENEFITS

- **Improved reliability/reduced warranty costs** due to elimination of leaks.
- **Downtime reduction** due to increase in equipment reliability.
- **Improved safety** by eliminating risk of dangerous hydrogen leaks.
- **Energy cost savings** due to prevention of leaks.