

Q-Seal™ Wellhead Hanger Sealant

What is Q-Seal Wellhead Hanger Seal?

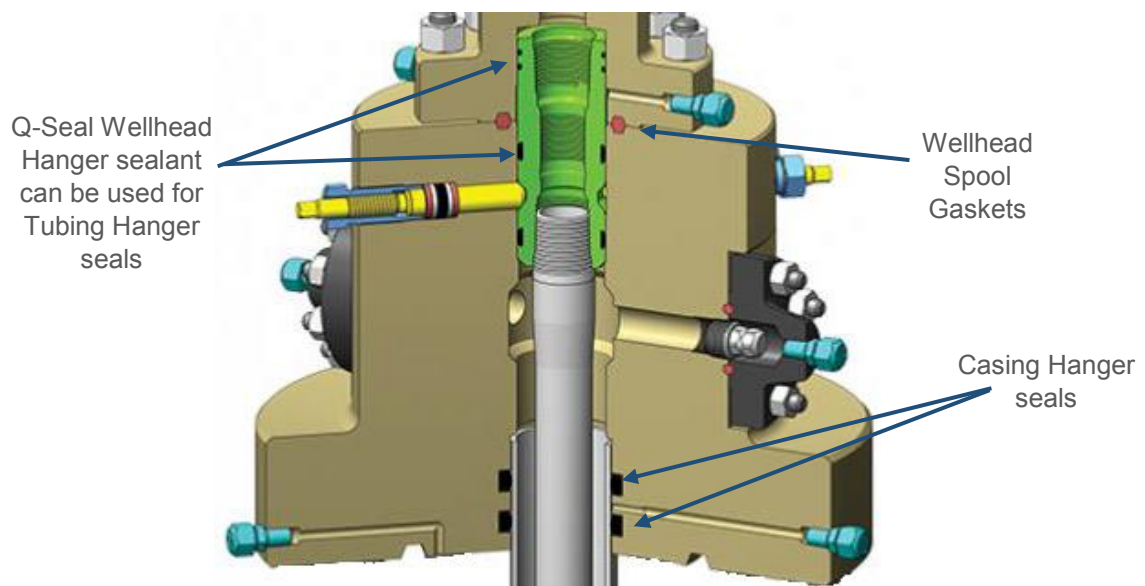
Q-Seal Wellhead Hanger Seal is an engineered solution to address the problem of tubing and casing hanger leaks, without requiring well intervention, and with no risk. Q-Seal Wellhead Hanger Sealant consists of a matrix of sealing micro-particles distributed within a viscous carrier gel. The product is injected into the hanger test cavity where it migrates to, and seals, the leak site. Q-Seal technology is the product of extensive development and testing. Each well application is individually investigated to ensure that the solution is appropriate to the leak mechanism, and delivered in the most effective manner.

How does Q-Seal work?

Q-Seal Wellhead Hanger Sealant does not cure or set-up to seal – it remains in its original state throughout the life of the wellhead, so does not negatively impact access to well test cavities, or future intervention options. The sealing mechanism is the result of mechanical pack-off of the independent sealing particles within the carrier gel. The product is injected into a suitable test cavity or port, and the void is then pressured up. The pressure differential across the leak then causes the carrier gel to migrate to the leak site. As the gel starts to squeeze through, the micro-particles within the matrix interlock and pack-off, creating a seal. As the body of the material remains in its original state, the excess particles remain in suspension behind the original leak site. Should the leak aperture increase, more material is carried into the new or reopened leak to reinforce the seal. As soon as the seal is effective, the carrier ceases to move, and remains ready to repeat the process as soon as a new leak path appears.

What are the applications for Q-Seal?

Q-Seal Wellhead Hanger Sealant can be used to fix any wellhead seal leak where an injection point exists on the high-pressure side of the leaking seal, and provides an interventionless solution for wellhead casing and tubing hanger seals. The product has even been used to successfully repair wellhead gaskets. It has restored integrity in production and injection wells, including gas lift producers. Gulf Core Completions' team of technical specialists will evaluate all types of wellhead leak challenges to determine where and how Q-Seal can be effectively deployed as a solution. Just request and complete a wellhead candidate review form to provide us with your specific wellhead details.



Q-Seal™ Wellhead Hanger Sealant

Why is Q-Seal Wellhead Hanger Sealant the smart choice?

- ✓ Simple, effective, and interventionless reinstatement of inter-annular wellhead integrity.
- ✓ Quickly and safely return wells to production.
- ✓ Q-Seal does not set-up or solidify, eliminating risk of permanent loss of testing and monitoring paths.
- ✓ Does not impede access or operation of wellhead jewellery, facilitating full intervention work-over at a later date if required.
- ✓ Repeatable application.
- ✓ Remains in original state, with self-healing capability, to accommodate thermal expansion/contraction and mechanical loading of wellhead during production operations.

Q-Seal reinstates wellhead integrity in a simple, 4-step process:

- ❖ Gulf Core Concepts (GCC) analyse the wellhead data provided by the client on the Q-Seal Candidate Review Form to confirm it is a suitable application for the technology
- ❖ GCC design the Q-Seal Wellhead Hanger Sealant solution and procedure for the specific scenario presented.
- ❖ GCC mobilise personnel and Q-Seal injector equipment to the well site.
- ❖ The Q-Seal solution is completed using the procedures generated by GCC and agreed with the Client. All that is required from the Client is access to the well.

Technical Information

- ❖ Provides a dynamic seal, with self-healing properties, in thin cracks and local defects in the OEM sealing
- ❖ Repairs all types of seals – elastomeric and metal-to-metal.
- ❖ Suitable for use in water, and hydrocarbon fluids and gas systems.
- ❖ Inert compound with excellent chemical resistance to most substances encountered in oilfield wellheads: crude, gas, treatment chemicals, water, and steam.
- ❖ Service rating for applications from -29°C to +120°C. Higher and lower temperature applications can be addressed on request.
- ❖ Pressure rating to 5000 psi (345 bar) repair across 0.5mm leak width
- ❖ Q-Seal is formulated for optimised sealing characteristics for varying leak severities:

