

Oil & Gas INNOVATION

Autumn 2020

Business Information.
Industry Solutions.

THE FUTURE OF
WELDING

INDUSTRIAL INTERNET
OF THINGS:
FUTURE-PROOF

MEETING EUROPE'S
LNG DEMAND

THE BIG E&P ISSUE



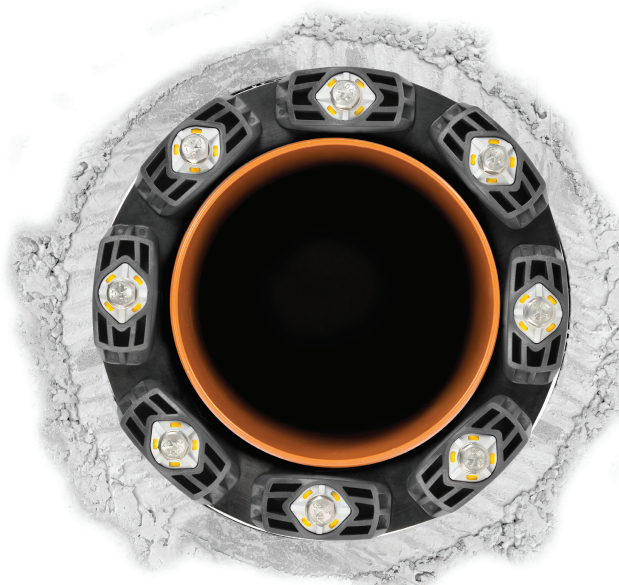
Hauff – Innovative Sealing Solutions for Pipelines

Pipelines form a crucial infrastructure for the transport of liquids and gases – water, waste water, oils, fuels and more. They are the backbones of the exchange network which makes the utilities available where they are required for further processing or for consumption – in industrial complexes, in commercial buildings and in homes. Pipelines traverse huge distances passing through different landscapes and climate zones, crossing roads and rivers and moving in and out of pump stations, storage tanks and buildings . At each section where a pipe passes through a barrier – moves into or leaves a building or a structure – the penetration must be sealed against ingress of water, gas, dust and vermin.

Most penetrations for pipes are circular, made with wall sleeves or core drill holes or formed as a recess while concreting. The ring-like space between a pipe and the circular opening in the wall is called annular space and results from the combination of outer pipe diameter and the inside diameter of the opening. There are different approaches to sealing a certain annular space. Mechanical seals being the most common and trusted choice.

The use of elastomers as a sealing material is well known. Among others, elastic properties and resistance to water are the two basic characteristics of rubber which make it suitable for creating a mechanical seal. The pressure plates on both sides of the rubber act as a boundary creating a defined space within which the rubber can flow and the compression is achieved with screws. The rubber when placed in the annular space and compressed mechanically flows in a defined way to fill out the space completely, thus creating a watertight and gas-tight seal.

A Modular Seal, as the name suggests, is a chain of same sized modules which can be closed to form a ring. Adjusting the number of modules used allows the same seal to be used over a certain range of annular space. Hence, most applications can be catered to only with a limited number of module sizes on stock. This flexibility makes the modular seal very practical and popular.



“Hauff-Technik owns the worldwide patent not only for the installation control but also for the caged nuts used in the Modular Seal GKD.”

Modular Seals have been around for many decades. The GKD is a leap into the next generation of innovative sealing solutions. It stands out because it is the only modular seal with an integrated installation control. For correct installation the seal needs to be tightened till the indication windows turn completely yellow. There is no torque wrench

required. Installation errors related to the incorrect torque application – be it due to missing or incorrect information about the required torque or due to a missing or faulty torque wrench at site – are eliminated. The visual indication is simple, practical and reliable method to ensure correct installation.

Hauff-Technik owns the worldwide patent



untightened... ...tightened

GKD with integrated installation control.

not only for the installation control but also for the caged nuts used in the Modular Seal GKD. Since, the nuts are moulded into the rear pressure plate, there are no loose parts and the nuts cannot fall off or be lost. This makes the installation, which is crucial for the functionality of a seal, easier and error free. Efficiency and cost reduction are further enhanced due to faster installation as the GKD does not require any retightening.

In spite of the numerous advantages, a modular seal also has certain limitations. It can only be used to seal one pipe through one penetration. When multiple pipes go through a single penetration, custom seals are the right choice. Likewise, an annular space which is not symmetric calls for a custom-made solution.

Choosing the right sealing system calls for a thorough assessment of the prevailing application conditions. Not only the dimensions and the required tightness against gas, water and vermin, but also practical aspects like handling and access must be considered. These factors can be broadly grouped into technical, commercial and handling aspects.

Geometry and size of the opening and the pipe will determine whether a modular or a custom seal is required. Environmental conditions – exposure to sunlight, oils/fuels, corrosive environment – require certain type of materials to be used. A seal exposed to oils/fuels, for example in an airport, should be made of NBR (acrylonitrile butadiene rubber) which has excellent chemical resistance to oils, types of grease and all commercially available fuels. EPDM (ethylene propylene diene monomer rubber) on the other hand has very good chemical resistance to almost all acids and alkaline solutions as well as salt water.

A trade-off between conflicting requirements is not uncommon. Custom seals greater than 500 mm in diameter can easily weigh 10 kg and more which makes handling and installation a challenge. Hence, for larger pipe diameters a modular seal is the first choice. But if the pipe is positioned eccentric, a custom seal is the only



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option. In this case proper arrangements for lifting and installation are required.

Last but not the least, a sealing solution has to be commercially viable. Features like the installation control of the GKD reduce error, thereby avoiding damage and save the cost of rework. Also, planning the penetration in advance with suitable wall sleeves allows the use of standard seals which are more cost effective than special made to measure solutions.

Whatever the need, standard or special, Hauff-Technik, with over 40 years of experience, has a suitable sealing solution. The innovative press seals from Hauff-Technik provide reliable sealing of single or multiple pipes and cables in core drills or wall sleeves.

These range from closed seal inserts for first-time installation to split seal inserts for retrofit sealing of cables and pipes that have already been laid.

Our portfolio of wall sleeve products provides the ideal solution for any type of wall and any load case. Combined with our press seals, these products create the optimum sealing solution between building and supply line. We can provide the ideal solution for every requirement and task, be it tailor-made to the millimetre or suitable for universal use on site, round, oval or even square. Quick and cost-effective. •

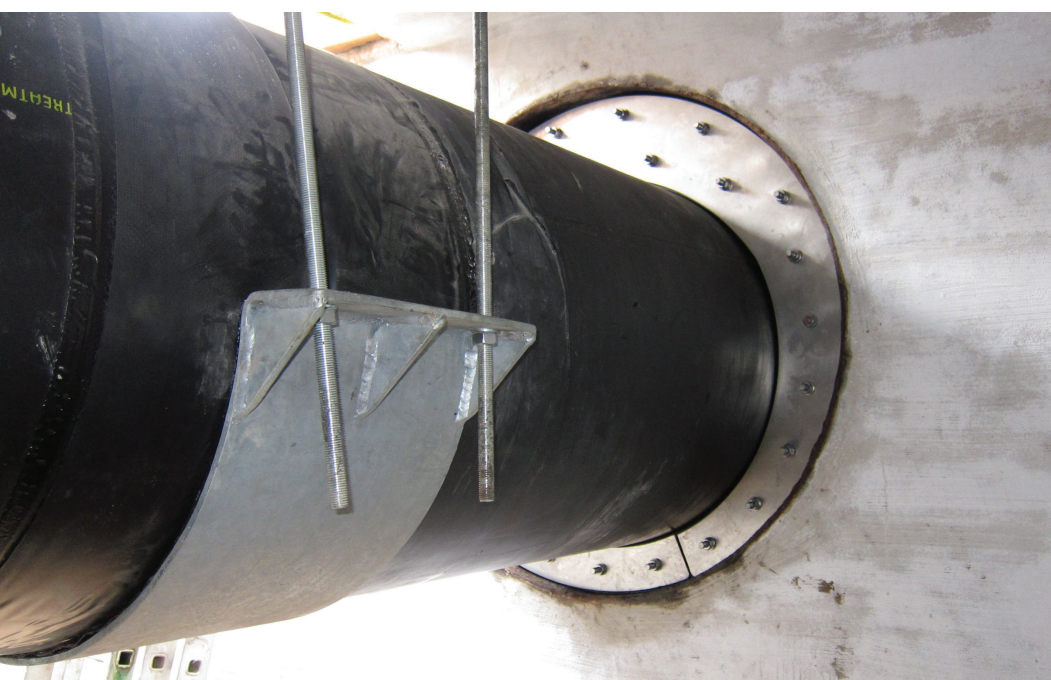
If you are interested in any of the solutions discussed in this article, please contact Hauff-Technik GmbH & Co. KG using the information below to discuss how they can help.

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HRD Individual Seal for eccentric pipe.