

BRUGG

Pipes

FLEXWELL® LNG All-in-One

Pipe system for LNG fuel stations –
efficient, safe and flexible

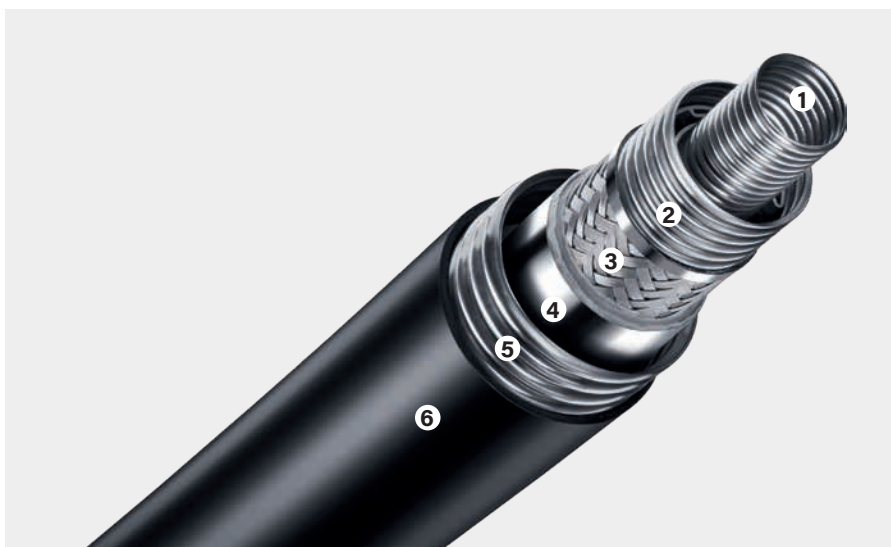
**PIONEERS IN
INFRASTRUCTURE**

A close-up, low-angle shot of a corrugated metal pipe, likely made of stainless steel, showing its characteristic wavy ridges. The pipe is set against a vibrant blue background that features a bokeh effect of out-of-focus light spots in various colors, including white, yellow, and pink. The lighting highlights the metallic texture and the three-dimensional quality of the corrugations.



**FLEXWELL® LNG All-in-One –
the Vacuum Insulated Pipe,
insulation at a High End**

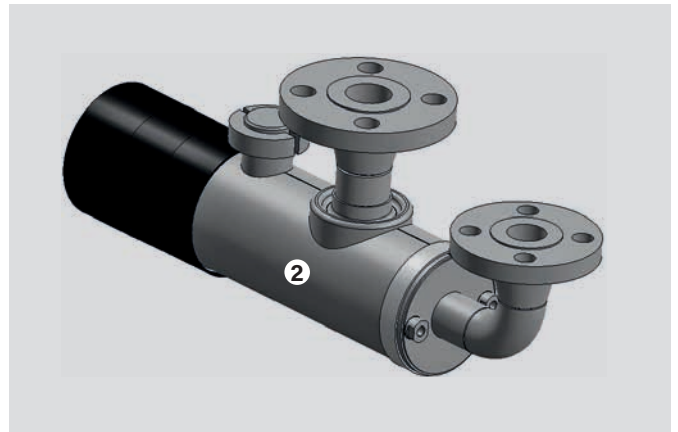
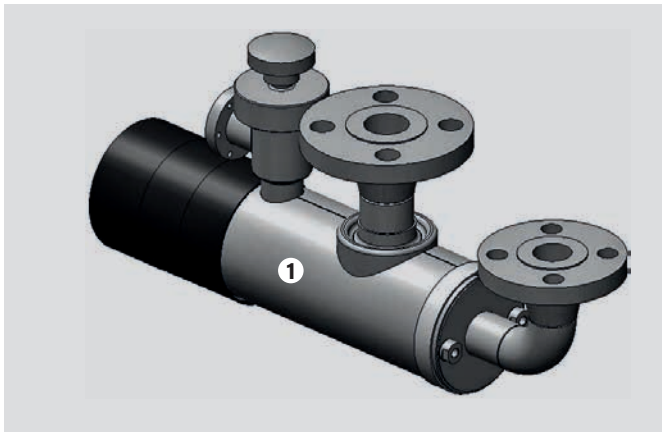
- 1 corrugated pipe, stainless steel (Fluid 1)
- 2 corrugated pipe, stainless steel (Fluid 2)
- 3 armoring, stainless steel
- 4 vacuum superinsulation incl. spacer
- 5 corrugated pipe, stainless steel
- 6 protective jacket, PE-LD



Technical data FLEXWELL® LNG All-in-One

Material:	corrugated pipes armoring corrosion protection	AISI 316 L AISI 304 protective jacket, PE-LD
Operating pressure:	max. 30 bar	
Operating temperature:	-200 °C up to +50 °C	

Type	Fluid 1 corrugated carrier pipe	Fluid 2 annular interstitial	Outer diameter inch/mm	Bending radius inch/mm	Material corrugated pipe	Material braiding
AiO 39/64	1 ¼" DN 32	1 ½" DN 40	4.7/120	39/1000	1.4404/316 L	1.4301/304
AiO 48/83	1 ½" DN 40	2" DN 50	6.0/152	47/1200	1.4404/316 L	1.4301/304



The connecting fittings for the FLEXWELL® LNG All-in-One are available in different variants.

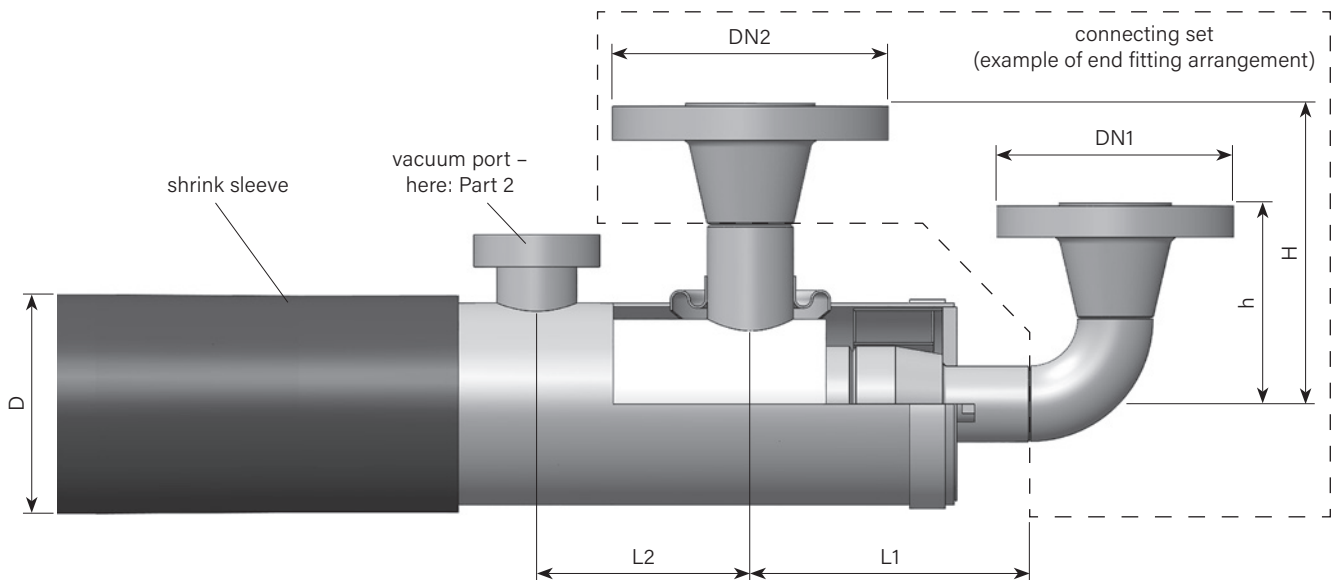
The connecting fittings are made of stainless steel (1.4404/AISI 316L or 1.4571/AISI 316Ti) and are welded and tested in the factory.

High quality getter materials and ad-sorption materials inside of the long

connecting fitting are used inside the vacuum to ensure a long-lasting good vacuum insulation.

By standard the connecting fittings ends with a welding end, which can be adapted to any common pipe interface (for example flange).

- 1** All-in-One connecting fitting – Part 1 with vacuum valve (connection to leak detection)
- 2** All-in-One connecting fitting – Part 2 with vacuum port



Type	Nominal diameter DN1	Nominal diameter DN2	Pressure level PN	Outer diameter D	Length L1	Length L2 vacuum valve	Length L2 vacuum port
				mm	mm	mm	mm
AiO 39/64	DN 32/1 ¼"	DN 40/1 ½"	30	117	158	130	120
AiO 48/83	DN 40/1 ½"	DN 50/2"	30	152	224	130	130



Good reasons to chose FLEXWELL® LNG All-in-One

Infinite length

- Time savings through easy installation
- No hot works on site
- No need to insulate joints on site

Self-compensation

- No need for costly compensation elements
- Corrugated pipe works as a bellow
- Each single corrugation compensates thermal expansion

Efficiency

- Integrated return recovery saves costs
- Cooling down of BOG automatically during operation, less energy input for re-liquefaction
- No need to insulate joints on site

Safe

- Possibility of leakage detection system

Flexible

- No prefabricated elbow fittings necessary
- Uninterrupted factory corrosion proofing jacket



Flexible

- Fast installation and self-compensation



Efficient

- Flow and return line in one
- Low heat leak



Easy

- Fast installation
- Pre-installed connecting fittings



Reliable

- 100 % tested in factory

All-in-One

Simply BRUGG - All-in-One



FLEXWELL® All-in-One is a unique and cost efficient LNG pipe which applies at LNG fuel stations as endless transportation, re-circulation and BOG recovery line: All-in-One!

General description

Because of a continuous manufacturing technology of the corrugated pipes, FLEXWELL® LNG All-in-One comes in an infinite length, which enables the installation without any need of welded joints.

The multi-layer-construction of the FLEXWELL® LNG All-in-One is able to combine

- LNG flow
- LNG return
- BOG return
- vacuum superinsulation in one pipe.

Construction

The FLEXWELL® LNG All-in-One is a flexible, multi layer, vacuum-insulated pipe system for the transport of cryogenic liquefied gases.

The pipe consists of three hellically-corrugated stainless steel pipes and cryogenic insulation in between second and third layer. The insulation consists of highly reflective polymer foil and spacers in a vacuum chamber to minimize the total heat inleak into the pipe system. Stainless steel reinforcing armoring is additionally applied to the pipe in order to provide pressure stability of the pipe system and to increase the tensile strength of the pipe for the installation. The final layer is a PE protective coating.

Application

Developed as LNG transportation line at LNG fuelling stations, FLEXWELL® LNG All-in-One can be used for the transport of cryogenic liquefiedgases such as

- liquefied natural gas LNG
- liquid nitrogen

Cost efficiency

The corrugated pipe technology enables the FLEXWELL® LNG All-in-One to be endless and flexible. And flexibility leads to self-compensation.

Due to the huge temperature differences regular rigid pipe needs expansion bends (either U or Z shaped) after a certain pipe run. With FLEXWELL® LNG All-in-One no special expansion bends are required with a pipe run which is still straight.

Safety first!

With FLEXWELL® LNG All-in-One safety is never a problem! Thanks to its integrated leakage detection system, unlikely leakages will be detected immediately and the whole system can be shut down within seconds.

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