

# PRODUCT SHEET

## VACUUM INSULATED - FLEXIBLE

### Transfer Lines

VI Piping

VI Flex

VI CO2

VI Pipe Industry

VI Multi Transfer

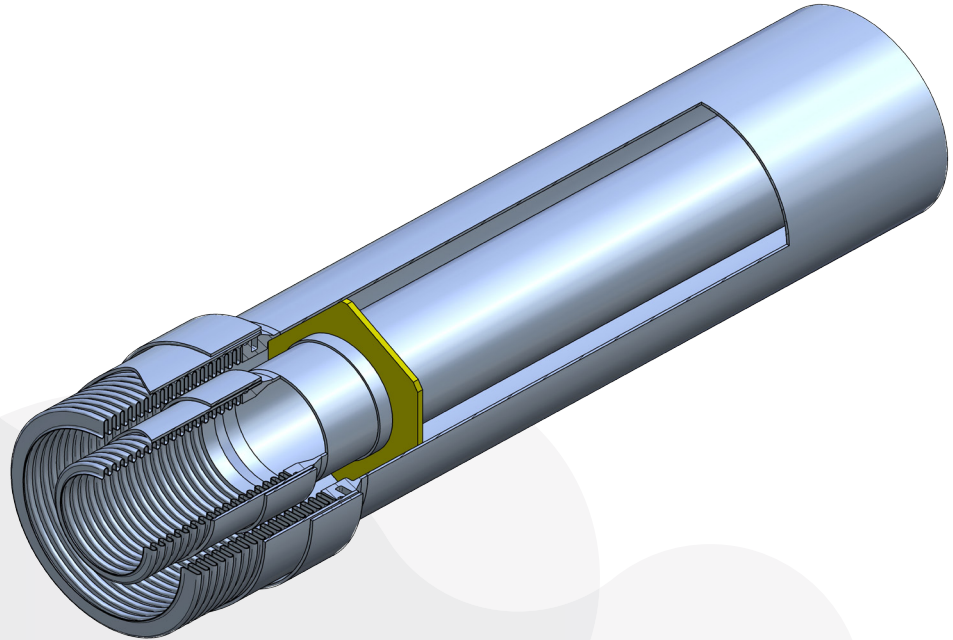
Conditioning  
Equipment

Components

Filling Stations

Controlling

The Vacuum Insulated Flexible (VIF) is used to transfer liquefied gasses at extreme low temperatures, keeping thermal heat losses to a minimum. The VIF is applied when prefabricated rigid vacuum insulated pipe spools are difficult to install, not preferred or not feasible. This flexibility in combination with a slim design, results in an ideal and attractive alternative for non-insulated or conventional insulated flexible hoses.



### BENEFITS

Due to outstanding insulation properties, thermal heat losses are kept to a minimum

Stainless steel basis therefore perfectly suitable for food, laboratory and pharmaceutical industries

Perfectly suitable where high quality liquid is required for the proper function of the application or machine

Maintenance free

### APPLICATION

Installations where frequent disconnection is required

Transfer lines from/to mobile storage and bulk tanks

Temporary connection between bulk storage and application

Flexible connection to vibrating equipment or moving applications

Degas lines for cryogenic conditioning equipment

When an accurate measurement is difficult or even impossible or where complex and/or dense pipe routing is at hand

### FEATURES

All stainless steel

High vacuum insulation

Qualified welding to the highest standards

Diameter process pipe; up to 2"

Pressure Rates; up to PN40

Suitable for: N<sub>2</sub>, O<sub>2</sub>, Ar, LNG, H<sub>2</sub>, He, CO<sub>2</sub>

Delivery according Pressure Equipment Directive (PED) and/or CE

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## VACUUM INSULATED - FLEXIBLE

PIPE SIZE	PROCESS LINE (mm)	VACUUM JACKET (mm)	CAPACITY INDICATION (L/h) <sup>(1)</sup>	FREQUENT BENDING	HEAT LOSS INDICATION (W/m)	WEIGHT INDICATION (kg/m)
DN8 HF	∅ 8	∅ 32	100	150	1.0	1.09
DN10 HF	∅ 10	∅ 32	175	150	1.1	1.09
DN15 HF	∅ 16	∅ 50	300	240	1.2	1.98
DN10 small	∅ 10	∅ 60.3	175	430	1.0	2.8
DN10	∅ 10	∅ 73.0	175	440	1.0	3.0
DN15	∅ 16	∅ 73.0	300	440	1.2	4.0
DN25	∅ 25	∅ 73.0	1200	440	1.6	4.4
1"	∅ 32	∅ 88.9	1800	460	1.7	5.3
1½"	∅ 40	∅ 104	2600	660	1.9	6.1
2"	∅ 50	∅ 127	3500	750	2.1	7.9

(1) Based on saturated boiling liquid at a flow speed of 1 meter/second

### INTERFACES

Johnston coupling (can be installed without welding)

Welded couplings with vacuum or perlite insulation (requires welding on-site)

Universal pipe end to allow welding to any fitting, flange or application

### MATERIALS

Process line (inner flex)

1.4404/1.4541/1.4571 ~316/316Ti/321

Vacuum Jacket (outer flex)

1.4404/1.4541/1.4571 ~316/316Ti/321

Braiding

1.4301 ~304 (others on request)

Multi-Layer Insulation

Glass paper and Aluminum foil

Supporting pipe clamps

Galvanized with rubber inlay  
Stainless steel on request

### DESIGN SPECIFICATIONS

Standard according Pressure Equipment Directive (PED)

Design according AD2000, EN13480 or ASME B31.3 (others on request)

Cleanliness level: oil and grease-free, inspected for pure Oxygen usage

Static vacuum with Multi-Layer Insulation

Standard testing for each individual VIP spool:

- Dimensional check
- Pressure testing
- NDE by X-ray or PT
- Helium leak test ( $<1 \times 10^{-9}$  mbarL/sec)
- Vacuum retention test after 24h at ambient temp (acceptance level  $<2 \times 10^{-4}$  mbar)

### DOCUMENTATION

Standard manufacturer data book record is part of each project and contains:

- As built isometrics
- Safety guidelines
- User manuals (if applicable)
- Declaration of conformity (if applicable)