



# SemiFlex

## Hygienic

Pre-engineered modular SemiFlex Vacuum Insulated (VI) hose has added advantage over the traditional rigid VJP, especially when system upgrade is frequently done.

This option is cost saving as the flexibility of the pipe reduces the necessity for precise system layout measurements. It allows the whole system to be easily reused if use-point locations and plant layout are changed. SemiFlex can be added if required to the existing system without major rework expenses.

*SemiFlex facilitate users to design and construct their own LN<sub>2</sub> delivery system with minimum piping engineering experience or knowledge.*



All SemiFlex products come with CSM renowned customer service, from conceptual design to implementation, and are backed by a 5-years Vacuum Warranty, & 1-year Defect Warranty.

### Hygienic SemiFlex VI Hose

**Hygienic SemiFlex (HSF)** provides a superior alternative to conventional stainless steel braided hoses. Featuring a specialized polyolefin protective sheath, HSF offers a smooth, abrasion-resistant surface that ensures full hygienic compliance and effortless cleaning. Unlike traditional wire braids, the polyolefin exterior is highly resistant to flexing fatigue and eliminates the risk of "broken wire" injuries to installers and operators.

Available in continuous lengths of up to **80 m**, HSF is the ideal solution for long-distance cryogenic piping. By significantly reducing the number of bayonet joints required compared to standard 6m rigid VI pipes, HSF minimizes potential heat leaks and optimizes overall system thermal efficiency.

### Features and Benefits

- **Flexible and Safe Operation:** Balanced semi-rigid design offers optimal flexibility with excellent flame retardancy and electrical insulation
- **Reduced Logistics Cost:** Coilable design enables air freight shipment, eliminating the need for oversized or specialized transport
- **Customizable System Integration:** Compatible with tees, elbows, bayonets, and valves for fully customized LN<sub>2</sub> piping configurations
- **Long-Term Vacuum Performance:** Super insulation combined with proprietary chemical getters ensures lasting vacuum integrity
- **Verified Leak-Tight Quality:** Helium leak tested to  $1 \times 10^{-9}$  std cc/sec and liquid nitrogen cold-shocked prior to delivery
- **Frost-Free and Safer Operation:** Vacuum insulation eliminates condensation, ice formation, and associated safety hazards
- **Superior Hygiene:** Smooth polyolefin outer sheath provides an easy-to-clean surface, meeting strict hygienic requirements
- **Enhanced Handling Safety:** Eliminates puncture risks from exposed braided wires and resists damage from repeated flexing
- **Optimized Thermal Performance:** Available in lengths up to 80m to minimize bayonet joints, reducing heat leak points common in 6 m rigid piping systems
- **High Durability:** Engineered for excellent abrasion resistance in demanding industrial environments

# Hygienic SemiFlex Static / Dynamic Specifications

Model	HSF05		HSF10	HSF15
Inner Diameter	DN20 (20.7 mm)		DN32 (34.6 mm)	DN50 (50.8 mm)
Outer Diameter	DN50 (60.2 mm)	DN40 (49.5 mm)	DN65 (77.7 mm)	DN100 (115.0 mm)
Steady State Heat Leak	1.5 BTU/hr/ft (1.3 W/m)		1.6 BTU/hr/ft (1.4 W/m)	1.7 BTU/hr/ft (1.6 W/m)
Bayonet Heat Leak	4.0 BTU/hr (1.2 W)		8.1 BTU/hr (2.4 W)	11.3 BTU/hr (3.3 W)
Max. Operating Pressure (Bayonet)	200 psi (13.8 bar)			
Weight (exclude Bayonet)	1.0 lb/ft (1.4 kg/m)		3.0 lb/ft (4.5 kg/m)	5.5 lb/ft (8.2 kg/m)
Min. Bend Radius	15" (39 cm)		23" (58 cm)	36" (93 cm)
Max. Length	Single Spool 262 ft (80.00 m) <sup>[1]</sup>			
Vacuum Insulation Type	Static or Dynamic Vacuum			
Material Construction	Stainless Steel Series 300			
Protective Outer Covering	Polyolefin Heat Shrink			
Standard Testing	Dimensional Check He Leak Test at $1.0 \times 10^{-9}$ cc/s			
Optional	Pneumatic pressure test, Vacuum retention testing, LN2 cold shock, pre-material certs., X-ray, ASME B31.3 certification, CFOS cleaning for O2 services, RPTSTD-8070-0001			

<sup>[1]</sup> Higher length is available upon request.

## SemiFlex Static, Pre-engineered Modular Piping System

