



# Insulon® Vacuum Jacketed Hose

## Product Catalog

### Features & Benefits

- Vacuum jacketed hoses engineered with Insulon technology
- Ultra-high performance thermal insulation
- Hyper-deep vacuum space requires no pump-down maintenance
- Improves thermal energy efficiency for cryogenic, cold, and high temperature fluid transfer
- Available with a variety of end configurations
- Wide operating temperature range (-270 to 815 degrees Celsius / -454 to 1500 degrees Fahrenheit)
- Inert, non-reactive materials (316L stainless steel)
- Option to include multi-layer insulation (MLI), also referred to as vacuum “super” insulation
- ASTM G93 oxygen cleanliness up to Level A
- available upon request

## Pressure Categories

### Low Pressure (LP)

Insulon Vacuum Jacketed Hose LP is engineered for low pressure applications up to 72 psi, depending on hose diameter and fluid temperature.

### High Pressure (HP)

Insulon Vacuum Jacketed Hose HP is engineered for high pressure applications up to 750 psi, depending on hose diameter and fluid temperature.

## Performance Levels

### Standard

Standard Insulon hose are engineered to be more compact, flexible, and lightweight than traditional vacuum jacketed hoses.

### Multi-Layer Insulation (MLI)

Insulon hose with MLI are engineered with proprietary, high-density multi-layer insulation for maximum thermal insulation performance.



## Sizes

Hose Diameters					
Hose Size ID [in]	DN (ISO 10380) [mm]	Inner Hose ID [in]	Standard or MLI	Outer Hose OD [in]	Min. Bend Radius, Static* [in]
1/4	6	0.236	STD	1.05	3.98
			MLI	1.27	5.00
3/8	10	0.394	STD	1.05	3.98
			MLI	1.62	6.15
1/2	12	0.472	STD	1.27	5.00
			MLI	1.62	6.15
3/4	20	0.787	STD	1.62	6.15
			MLI	2.38	9.41
1	25	0.984	STD	1.95	7.62
			MLI	2.38	9.41

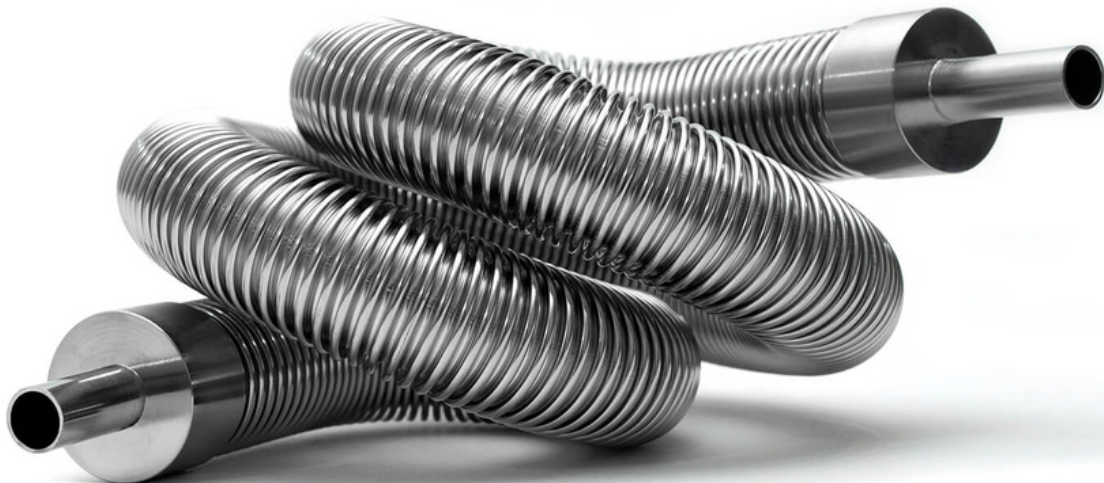
\*For dynamic applications, please contact us at <https://conceptgroupllc.com/contact/>

Hose lengths range from 1.5 to 65.6 feet (18 to 788 inches).

Hoses are measured from end to end, including the tube stubs and any end fittings integrated prior to shipment.

For hoses under 4 feet (48 inches) in length, the length tolerance is +/- 1.5 inches.

For hoses 4 feet (48 inches) in length or longer, the length tolerance is +/- 3%.



## Pressure Ratings

Maximum Allowable Working Pressure (MAWP)			
Hose Size ID [in]	DN (ISO 10380) [mm]	Pressure Category	MAWP [psi] -270 to 38C
1/4	6	LP	72
		HP	750
3/8	10	LP	72
		HP	750
1/2	12	LP	72
		HP	750
3/4	20	LP	43
		HP	600
1	25	LP	43
		HP	500

\*For applications with fluid temperatures greater than 38 degrees Celsius (100 degrees Fahrenheit), see pressure derating factor by temperature.

Contact sales engineering for assistance at <https://conceptgroupllc.com/contact/>

## End Fittings

All Insulon vacuum jacketed hoses are shipped with fully weldable, stainless steel 316 tube stubs.

Option to select from a variety of end fittings including compression unions and adapters (NPT, BSPT, etc.), flared swivel nuts (CGA-295, JIC, etc.), flanges, and more.

Tube Stub Dimensions						
Hose Size ID [in]	DN (ISO 10380) [mm]	Tube Stub OD [in]	Tube Stub Thickness [in]	Min. Tube Stub ID [in]	Min. Tube Stub Length [in]	Max. Tube Stub Length [in]
1/4	6	0.250	0.028	0.194	1.250	2.250
3/8	10	0.375	0.035	0.305	1.250	2.250
1/2	12	0.500	0.035	0.430	1.250	2.250
3/4	20	0.750	0.049	0.652	1.250	2.250
1	25	1.000	0.065	0.870	1.500	2.500

## Pressure Derating Factor by Temperature (Insulon Hose LP)

Maximum Fluid Temperature		Maximum Allowable Working Pressure (MAWP)				
Celsius	Fahrenheit	1/4" ID	3/8" ID	1/2" ID	3/4" ID	1" ID
38	100	72	72	72	43	43
93	200	65	65	65	39	39
149	300	61	61	61	36	36
204	400	56	56	56	33	33
260	500	55	55	55	33	33
316	600	54	54	54	32	32
371	700	53	53	53	31	31
427	800	52	52	52	31	31
482	900	48	48	48	29	29
538	1000	33	33	33	20	20
593	1100	21	21	21	13	13
649	1200	13	13	13	8	8
704	1300	9	9	9	5	5
760	1400	4	4	4	2	2
816	1500	3	3	3	2	2

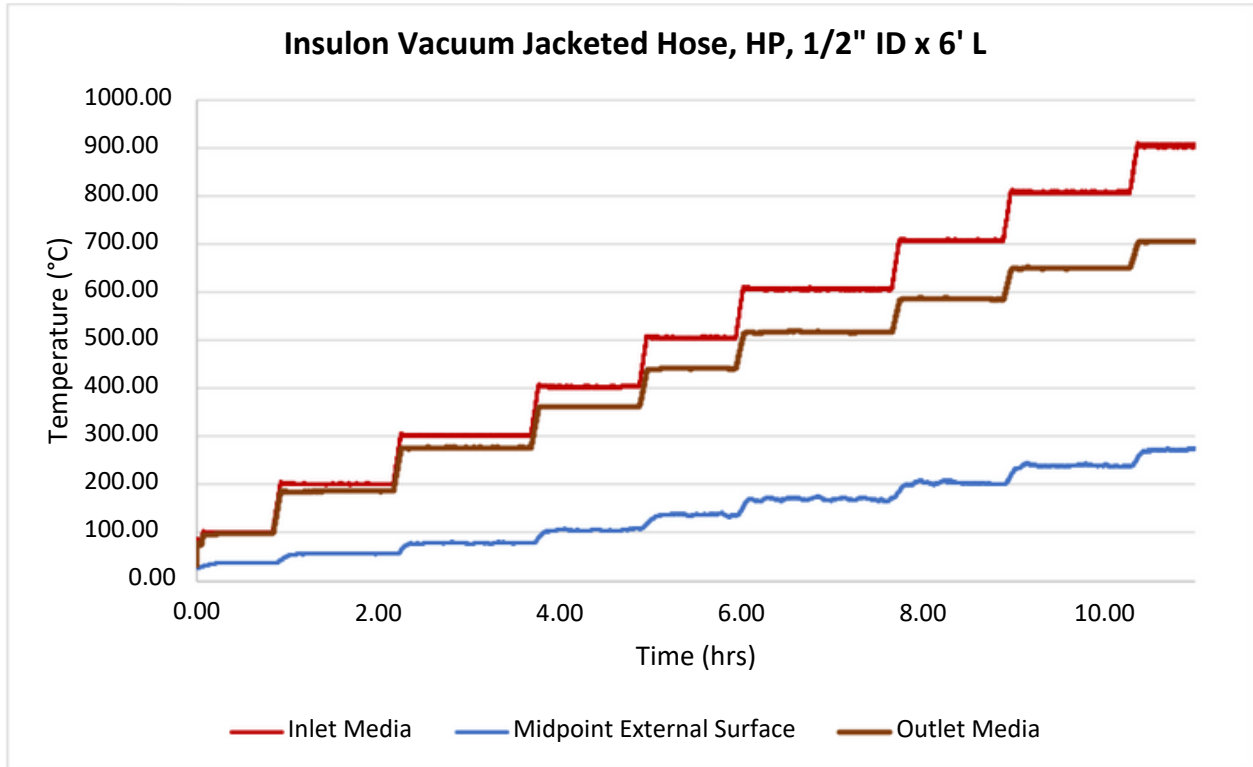
## Pressure Derating Factor by Temperature (Insulon Hose HP)

Maximum Fluid Temperature		Maximum Allowable Working Pressure (MAWP)				
Celsius	Fahrenheit	1/4" ID	3/8" ID	1/2" ID	3/4" ID	1" ID
38	100	750	750	750	600	500
93	200	682	682	682	546	455
149	300	637	637	637	510	425
204	400	585	585	585	468	390
260	500	577	577	577	462	385
316	600	570	570	570	456	380
371	700	555	555	555	444	370
427	800	547	547	547	438	365
482	900	510	510	510	408	340
538	1000	350	350	350	280	233
593	1100	228	228	228	183	152
649	1200	143	143	143	114	95
704	1300	93	93	93	75	62
760	1400	48	48	48	39	32
816	1500	39	39	39	31	26

## Thermal Insulation Performance, High Temperature

The empirical test below was conducted with high temperature air.

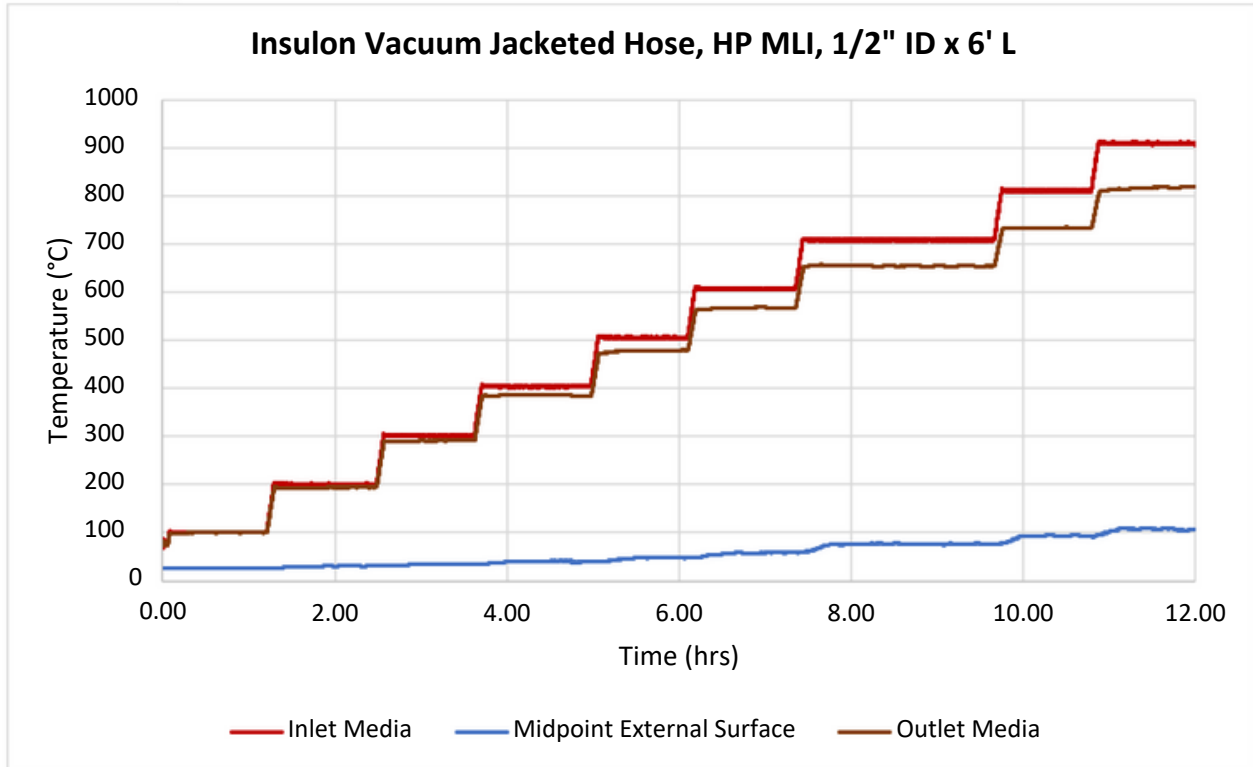
- **Inlet Media** refers to the temperature of the air as it enters the hose.
  - **Midpoint External Surface** refers to the touch temperature halfway along the length of the hose.
- **Outlet Media** refers to the temperature of the air as it exits the hose.



## Thermal Insulation Performance, High Temperature (cont'd)

The empirical test below was conducted with high temperature air.

- **Inlet Media** refers to the temperature of the air as it enters the hose.
  - **Midpoint External Surface** refers to the touch temperature halfway along the length of the hose.
- **Outlet Media** refers to the temperature of the air as it exits the hose.



## Thermal Insulation Performance, Cryogenic

The empirical test below was conducted with liquid nitrogen (LN2).

- **Midpoint External Surface** refers to the touch temperature halfway along the length of the hose.

