

# PYTHON® VIP

## HIGH PRESSURE VACUUM INSULATED PIPE

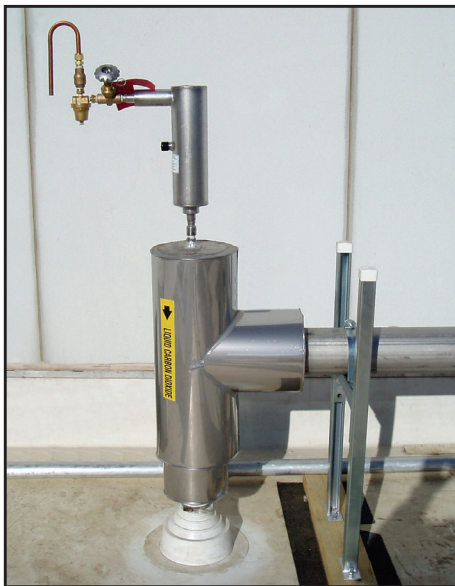
Python® Vacuum Insulated Pipe products provide thermal performance that far exceeds conventional foam insulation materials, take only a fraction as much space, and require no additional protection against moisture. Python piping is adaptable, reusable and easy to install. Available in 1", 2" and 3" Nominal Pipe Sizes (NPS) – Inner Pipe.

Installed costs are comparable to most conventional mechanical insulation systems. Typical delivery on small projects is next day from stock materials. Installation service can be provided from one of our many locations worldwide.

Python piping is designed for temperatures down to -320° F and pressures up to 400 psi. Python systems can be modified and adapted to many applications such as liquid nitrogen, liquid argon, liquefied natural gas (LNG) and liquid carbon dioxide. Python piping is ideal for highly temperature-sensitive piping systems found in the petrochemical, energy, manufacturing, and food and beverage industries around the world.



Python 1", 2" or 3" Pipe



Python® VIP Cryovent Installation –  
CO<sub>2</sub> Service

### RIGID BENEFITS

- Python rigid pipe is durable (stainless steel construction), easy to install and practically maintenance free
- Excellent flow characteristics make Python rigid ideal for pipe mains
- Python rigid pipe can mate to Python flex's bendable pipe for inside drops
- Multilayer superinsulation and chemical gettering assures long-term vacuum integrity
- Fabricated in accordance with ASME B31.3
- Rigid sections are less expensive, have better heat leak and less pressure drop than flexible vacuum insulated pipe
- Rigid section will not dip between hangers and will minimize gas traps
- Rigid sections have a long life and have been known to last as long as 30 years
- Excellent value for liquid CO<sub>2</sub> service

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## HIGH PRESSURE VACUUM INSULATED PIPE

### Technical Specifications – Straight & Flex Modules

Inner Pipe Size	Nominal Outside Jacket Diameter*	Actual Flow Diameter	Standard Overall Lengths**	Hole Required to Accommodate Pump Out	Outer Diameter with Braid	Weight / Length	MAWP (psi)
1" NPS	2" NPS	1.185"	2' - 20' in 1' increments	4"	2 9/16"	3.0 lb/ft	400
2" NPS	3" NPS	2.245"		5"	5"	5.0 lb/ft	400
3" NPS	5" NPS	3.334"		7"	7 1/8"	11.0 lb/ft	400

\* Not including pump out.

\*\* Flex Section Lengths: 1" – 8' 6"; 2" – 9'; 3" – 9'

ODT: Outer Diameter Tube; NPS: Nominal Pipe Size

### Performance Data – LN<sub>2</sub>

Inner Pipe Size	Vacuum Insulated Pipe					Insulation Kits					
	Cool Down			Static Heat Leak		Straight		Elbow		Tee	
	kJ/m	kg/m*	lb of LN <sub>2</sub> /ft	BTU/hr/ft	Watt/m	BTU/hr	Watt	BTU/hr	Watt	BTU/hr	Watt
1" NPS	58	0.29	0.19	0.48	0.46	13	3.8	25	7.3	25	7.3
2" NPS	107	0.54	0.36	0.79	0.76	25	7.3	50	14.6	50	14.6
3" NPS	203	1.02	0.68	1.08	1.04	35	10.2	65	19.0	65	19.0

\* LN<sub>2</sub> at one bar.

### LN<sub>2</sub> & CO<sub>2</sub> Flow Guideline

Inner Pipe Size	Maximum Recommended Flow Rate*			
	gpm	lpm	kg/hr (LN <sub>2</sub> )	kg/hr (CO <sub>2</sub> )
1" NPS	18	68.1	3283	4169
2" NPS	95	360	17,328	22,006
3" NPS	255	965	46,512	59,070

\* Flow rate values are for a system with: 100 feet of pipe, 3 elbows, and 2 tees.

Chart recommends pressure drop be kept to 5 psi or less.

### Pressure Drop – LN<sub>2</sub> (psi/ft)\*

Inner Pipe Size	Flow (gal/min)							
	2	5	10	25	50	75	100	150
1" NPS		0.003	0.011	0.063	0.262	0.570	1.014	
2" NPS				0.002	0.009	0.193	0.034	0.077
3" NPS					0.001	0.003	0.005	0.011

\* Pressure drop numbers listed do not account for elevation changes. Chart recommends pressure drop be kept to 5 psi or less.

See VIP Product Catalog PN 20661575 for more details.

## Your Local Representative



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Chart Inc.  
U.S.: 1-888-877-3093  
Worldwide: 1-952-243-8800  
www.chartindustries.com

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