

A photograph of several pieces of stainless steel SEMIFLEX piping. The pipes are coiled and feature various fittings, including elbows and straight connectors. Some fittings have blue and red markings. The background is a plain, light-colored surface.

Stainless SEMIFLEX®

U.S. PATENT NO. 3,490,496

VACUUM INSULATED FLEXIBLE LIQUID NITROGEN PIPE

Stainless SEMIFLEX is vacuum jacketed, flexible liquid nitrogen piping manufactured by Vacuum Barrier. Available in both sealed and dynamic styles, stainless SEMIFLEX provides the lowest cool down and steady-state heat loss. With this superior thermal performance, frost and moisture problems common in uninsulated or foam-insulated lines are eliminated. Combined with CobraFlex hoses, stainless SEMIFLEX provides an efficient and flexible connection to use points.

Quality and Craftsmanship

- Our cryogenic craftsmen have years of high-end welding experience and a demonstrated track record of quality.
- Combining chemical getters and insulation with a specialized bake-out and sealing process ensures a highly efficient piping system.
- Manufacturing quality is validated during cold-shock tests and helium leak detection.

Stainless SEMIFLEX Engineering Data

Size	S-5	FS-5	S-10	FS-10	ES-5	ES-10	ES-25	SR-20
Material	Austenitic Stainless Steel							
Inside Diameter								
Inches	0.66	0.62	1.40	1.00	0.76	1.05	2.5	2.25
Millimeters	17	16	36	25	19	25	64	57
Outside Diameter								
Inches	2.0	1.90	3.0	2.79	1.93	2.51	4.98	4.5
Millimeters	51	48	76	71	49	64	123	114
Steady State Heat Loss								
BTU per hour per foot	0.9	0.9	1.8	2.8	0.8	1.8	2.4	0.9
Watts per meter	0.9	0.9	1.7	2.7	0.8	1.7	2.3	0.9
Cool Down Heat Loss								
BTU per foot	4	6	9	16.5	4	9	24	53
Watt hours per meter	4	6	9	16	4	9	23	51
Bayonet Heat Loss								
BTU per hour	5	5	6	6	5	6	17	17
Watts	1.5	1.5	1.8	1.8	1.5	1.8	5	5
Design Pressure								
PSI	175	175	175	175	175	175	175	175
Bar	12	12	12	12	12	12	12	12
Weight								
Lbs. per foot	1.2	0.9	1.7	2.0	0.8	1.3	4.8	5.6
Kg per meter	1.8	1.3	2.5	3.0	1.2	1.9	7.2	8.3
Minimum Bend Radius								
Inches	12	8	18	10	12	18	40	rigid
Centimeters	30	20	46	25	30	46	102	rigid
Flow Rate	Consult factory							