

SUBMITTAL SHEET



JOB NAME:	ITEM TAG:
JOB LOCATION:	PART NUMBER:
CONTRACTOR:	DATE:
ENGINEER APPROVAL:	DATE:

VIPERT™ RADIANT Oxy Barrier Hydronic Radiant Heating Tubing

- Manufactured from Bimodal Polyethylene, also known as Polyethylene of Raised Temperature (PE-RT) with a Cell Classification of PE 223273A.
 - PE-RT Material is included in CSA B214-16 Installation code for hydronic heating systems.
 - 25 Year limited warranty.
 - Wrapped with UV-blocking clear plastic wrap to protect the tubing from UV-light oxidation*
 - Green colored and is available in nominal tubing sizes: 3/8, 1/2, 5/8, 3/4, 1, and 1-1/4 SDR-9 CTS.
 - Pressure Rated 160 psi (1.38 MPa) @ 73° F (23° C)
 - Pressure Rated 100 psi (0.69 MPa) @ 180° F (82° C)
 - Linear Expansion Rate: 1.1"/10° F/100 ft. (2.79 cm / 5.56° C / 30.48 m)
- *VIPERT™ RADIANT Oxy Barrier Hydronic Radiant Heating tubing must be stored indoors not exposed to direct sunlight.**

MARKINGS, SPECIFICATONS & CERTIFICATION:

VIPERT™ Radiant Oxy Barrier tubing is marked with the name CB Supplies as the manufacturer, nominal size, plastic tubing material designation code PE-RT PE 2708, cell classification PE223273A, manufacturing date and production code and the listing marks as identified in the table below.

Certification Marks

Listing Organization	Listing Standard	Mark
NSF International	ASTM F2623	cNSFus -rfh
International Code Council (ICC-ES PMG)	International Mechanical Code® (IMC)us	ICC-ES PMG
IAPMO	Uniform Mechanical Code® (UMC)	
ULC/UL (Underwriters Laboratory of Canada)	CAN/ULC-S101 Fire Endurance Tests of Building Construction and Materials	
ULC/UL (Underwriters Laboratory of Canada)	UL263 Standard For Fire Tests of Building Construction and Materials	
Warnock Hersey	CAN/ULC S102.2: Standard Method of Test for Surface Burning Characteristics of building Materials	
Warnock Hersey	ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials	

- ASTM F1807 - Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing.
- ASTM F2159 - Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing.
- ASTM F2023 - Standard Test Method for Evaluating the Oxidative Resistance of Crosslinked Polyethylene (PEX) Pipe, Tubing and Systems to Hot Chlorinated Water.
- ASTM F1960 - Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing

SDR-9 VIPERT™RADIANT Oxy Barrier Hydronic Radiant Heating TUBING

ASTM F2623/CTS-OD SDR-9

Stock Code	Nominal Tubing Size	O. D. (in.)	Wall Thickness	Nom. I.D.	Available Coil Lengths (ft.)	20' Length	Weight Per Ft. (lbs.)	Volume (Gal/100 ft.)
PRTOB2	3/8	0.500" ± 0.003"	0.070" + 0.010"	0.360"	100' & 200'	Special Order	0.04	0.50
PRTOB3	1/2	0.625" ± 0.004"	0.070" + 0.010"	0.485"	100', 250', 300', 500', 1000' & 1200'	Yes	0.0535	0.97
PRTOB58	5/8	0.750" ± 0.004"	0.083" + 0.010"	0.662"	250', 300', 400', 500' & 1000'	Yes	0.080	1.78
PRTOB4	3/4	0.875" ± 0.004"	0.097" + 0.010"	0.681"	100', 250', 300', 500; 1000' & 1200'	Yes	0.1023	1.90
PRTOB5	1	1.125" ± 0.005"	0.125" + 0.013"	0.875"	100', 300' & 500'	Yes	0.1689	3.13
PRTOB6	1-1/4	1.375" ± .005"	0.153" + 0.015"	1.069	(Special Order)	Special Order	0.256	4.52

TECHNICAL INFORMATION

MATERIAL PROPERTIES:

Property	Test Method	English Units	SI Units
Density	ASTM D792	–	0.933 g/cc
Melt Index (190° C/2.16 kg)	ISO 1133	–	0.7 g/10 min
Flexural Modulus ¹	ISO 178	79,800 psi	550 MPa
Tensile Modulus (0.0787 in, Compression Molded)	ISO 527-2	84,100 psi	579.8 MPa
Coefficient of Linear Thermal Expansion (20° - 70° C)	DIN 53752A	8x10 ⁻⁴ /° F	1.95 x10 ⁻⁴ /°K
Hydrostatic Design Basis @73° F (23° C)	ASTM F2837	1250 psi	8.6 MPa
Hydrostatic Design Basis @180° F (82° C)	ASTM F2837	630 psi	4.3 MPa
Vicat Softening Point	ASTM D1525	252° F	124° C
Thermal Conductivity	DIN 52612	2.8 Btu-in/(hr)(ft. ²)(°F)	0.39 Watts/(m ²)(°C)

1. 73°F

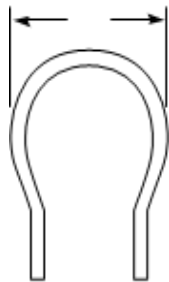
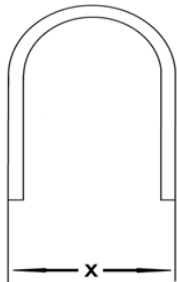
QUALITY ASSURANCE

When the product is marked with ASTM F2623 designations, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and it has been found to meet the specified requirements.

MINIMUM BURST PRESSURE (PSI)

Per ASTM F2623 CTS-OD SDR-9

Nominal Tubing Size	73.4 (23° C)	180 (82.2° C)
3/8	620	235
1/2	480	180
5/8 and larger	475	180



When spacing for the tube is less than minimum bend dimension

Dimension X For Loop End	
Nominal Tubing Size	Minimum Diameter of Bend
1/2	10"
5/8	12"
3/4	14"
1	18"
1-1/4	22"

VIPERT™ Radiant Oxy Barrier Oxygen Permeation: All sizes have less than 0.1 grams/m³/day.

NOTE: VIPERT™ Radiant Oxy Barrier Tubing meets DIN 4726 requirements for oxygen tight pipes.

Notes:

PRESSURE DROP TABLE

Expressed as PSI/FT. Pressure Drop (US Gallons / Minute and Nominal I. D. used for calculation)

GPM	Nominal Tubing Size					
	3/8	1/2	5/8	3/4	1	1-1/4
.5	.025					
.75	.049					
1	.080	.019				
1.5	.163	.038				
2.0	.269	.063	.026			
2.5	.399*	.093	.038			
3	.551	.128	.052	.025		
3.5	.724	.169	.068	.033		
4		.213	.087	.041		
5		.317*	.128	.061		
6		.439	.178	.084	.026	
7			.234*	.111	.033	
8			.297	.140*	.042	
9			.366	.173	.052	
10				.209	.063	.024
11				.248	.075	.029
12				.291	.087	.033
13				.336	.101	.039
14					.115*	.044
16					.147	.056
18					.181	.069
20					.219	.083
22					.261	.099*
24						.116
26						.134
28						.153
30						.174
32						.196

EXAMPLE: To calculate the pressure drop of a 1/2" line, 40 ft. long, with a 3 gpm flowrate, calculate .128 psi x 40 ft. = 5.12 psi pressure drop.

Most plumbing codes require 8 psi residual pressure at the fixture. Refer to your local code requirements.

*Indicates 8 fps maximum velocity allowed by some plumbing codes.

NOTE: Maximum flow for each size based on 12 fps velocity. PSI x 2.307 = headloss.



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