VERSA*pipe*™ HD

Polyethylene pipes – **High density**

Manufactured from PE3408 high density polyethylene as per CSA C.448

SCOPE

This specification sheet designates the requirements for IPL Geothermal Conduit high density polyethylene products for use in ground source heat pump exchanger applications, in accordance with CSA448.1-02 standard. It describes the minimum requirements for the design and manufacture of all IPL Extrusion Geothermal Conduits. Our products also meet the main applicable standards such as ASTM D-3035, ASTM D-2447, CSA B-137.0, CSA B-137.1 and the ones related to IGSHPA (International Ground Source Heat Pump Association)

RAW MATERIAL

All IPL Geothermal Conduits are manufactured from PE3408 high density polyethylene resin meeting the cell classification 345434, or equivalent, as per ASTM D-3350. The raw material is filled with carbon black as an ultra violet inhibitor and can be stored outside. In addition, the raw material offers good protection against chemical products such as glycol and methanol.

MARKING

All IPL Geothermal Conduit are identified with permanent marking with the name IPL as manufacturer, dimensional ratio, the raw material class, reference standard, production date, raw material batch number, equipment used and decremental footage numbering every five (5) feet.

RECOMMENDED USES

IPL Geothermal Conduit is intended and recommended for use as the buried heat exchanger and transfer piping in open or close loop ground source heat pump applications. Design temperature rating for IPL Geothermal Conduit is 23°C (73.4°F), however intermittent exposure to temperature up to 50°C (120°F) is acceptable. For uses not listed here, refer to your IPL Extrusion representative.

HANDLING, INSTALLATION AND CONNECTIONS

IPL Geothermal Conduits are tough and flexible. Do not drag or roll IPL Geothermal Conduit coils across rocks or rough ground. Installation and backfill practices for IPL Geothermal Conduit in trenched, vertical bore or pond applications should comply with guidelines prepared by the International Ground Source Heat Pump Association (IGSHPA), Plastic Pipe Institute (PPI), and according to the installation recommendations found in CSA C448.1 and B137.1 standards. IPL Geothermal Conduit is connected by heat fusions. The fittings have to be made of the same type of polyethylene as the conduit itself.

RAW MATERIAL PROPERTIES

Property	ASTM Test Method	Typical Values	
		Imperial Units	*Imperial Units*
Density (natural)	D 1505	-	0.9445 g/c^3
Melt Index	D 1238	-	0,06 dg/min.
Tensile Strength at Yield	D 638	3200 psi	22.0 MPa
Tensile Strength at Break	D 638	4500 psi	31.0 MPa
Elongation at Break	D 638	> 800%	> 800%
Flexural Modulus	D 790	119 000 psi	820 MPa
IZOD Impact Strength	D 256	> 4.0 lb-pi./po	> 213 J/m
Brittleness Temperature	D 746	<-100°F	<-78°C
Hydrostatic Design Basis			
@ 23°C	D 2837	1600 psi	11.0 MPa
@ 60°C	D 2837	800 psi	5.5 MPa
Environmental Stress Crack Resistance	D 1693 (C Condition)	>2000 h	>2000 h
PENT Lifetime	D 3350	>100 h	>100 h
Carbon Black Concentration (by weight)	-	-	6,5%

REFER TO VERSO FOR AVAILABLE DIAMETERS

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Standard products

NOMINAL DIAMETER	Outside nominal diameter (OD)	SDR	Wall thickness	Approx. weight (lbs.) / 100ft	Coil / Reel length (ft)	PRODUCT CODE
¾ ''	1,050''	11	0,095'' min. + 0,020'' max.	12,8	500*	5124109922DD**
1 ¼''	1,660''	13.5	0,123'' min. + 0,020'' max.	26	500*	51030099XXDD**
1 ¼''	1,660''	11	0,151'' min. + 0,020'' max.	31	500*	51020099XXDD**

Options

* Product can be manufactured and packaged in order to meet your exact needs as far as coil lengths.

** XX digits replace the corresponding option code related to coil or reel length.

Available: high density couplings and heat fusion service upon demand.

Other products available upon request

NOMINAL DIAMETER	Outside nominal diameter (OD)	SDR					Coil / Reel length (ft)	PRODUCT CODE
		9	11	13,5	15,5	17		
¾ ''	1,050''	A	S	A	A	A	Please contact our customer service for more details	
1 ''	1,315''	A	A	A	A	A		
1 ¼ ''	1,660''	A	S	S	A	A		
1 ½ ''	1,900''	A	A	A	A	A		
2 ''	2,375	A	A	A	A	A		
3 ''	3,500''	NA	A	NA	NA	NA		

S : Standard product
A : Product available upon request
NA : Non available