



# Centennial

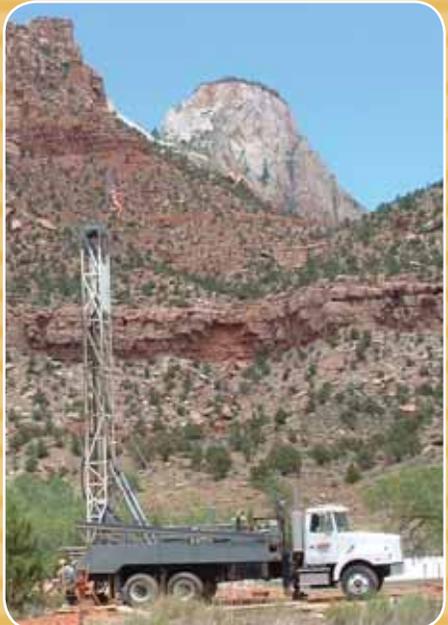
PLASTICS LLC

*Quality and Service That Soars*

# Geothermal Exchange Pipe



Featuring Our Exclusive  **earthLoops™**  
GEOTHERMAL EXCHANGE SYSTEM





Centennial Bullet™ U-Bend fittings are fused to the Cenfuse pipe prior to shipping.



Contractors can now eliminate the time-consuming chore of fusing pipe to fittings. Coils of geothermal Cenfuse pipe are securely fused to the Centennial Bullet™ U-Bend fittings in a climate controlled environment within the Centennial Plastics manufacturing facility. The result is the exclusive Centennial EarthLoop™, which is ready to install the moment it arrives at the job site.

- Centennial EarthLoops™ are produced by Centennial Plastics' state-of-the-art automated fusion equipment, assuring each joint is leak-free and identical.
- Centennial Cenfuse geothermal pipe and Bullet™ U-Bend fittings are manufactured from identical virgin HDPE 3408 polyethylene material to ensure proper fusion and dependable performance. In addition, Centennial Bullet™ U-Bend fittings are manufactured to SDR 9 specifications to cover 200 PSI installations.
- Centennial EarthLoops™ are manufactured as one continuous coil and are available in custom lengths.
- Coils are held securely together with plastic banding, stretch-wrapped and shipped on pallets for easier handling.

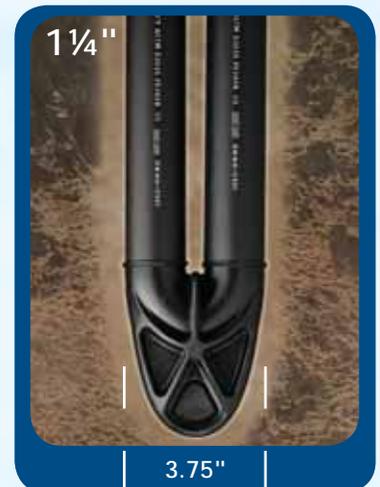
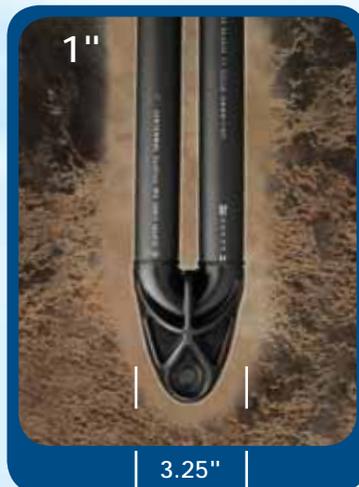
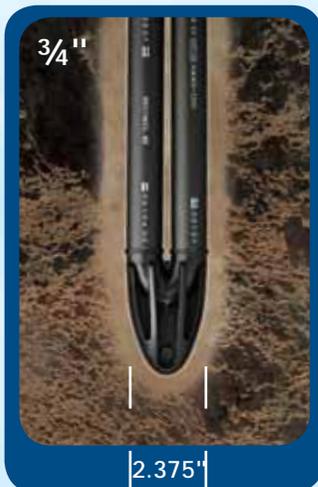
**The patented\* one-piece Centennial Bullet™ U-Bend fitting guides the EarthLoop™ down the bore hole with ease.**

Centennial Bullet™ U-Bend Fittings accommodate pipe in 1-1/4", 1" and 3/4" diameters and are the narrowest U-bend fittings on the market today. The smaller diameter of these fittings reduce installation costs in two significant ways:

- They allow for a narrower bore hole which requires less grout.
- The narrower bore holes require less annular space resulting in more efficient drilling.

In addition, Centennial Bullet™ U-Bend fittings allow for the easy insertion of Centennial Cenfuse Geothermal pipe into the bore hole:

- Fitting vents allow material to be displaced as the bullet fitting is inserted into the bore hole.
- Knockouts are provided for directional/horizontal boring applications.



\*3/4" Bullet™ U-Bend Fitting Patent #US D498, 7715 Issued 11/23/04  
 1" and 1 1/4" Bullet™ U-Bend Fitting Patent # US D488, 4865 Issued 4/13/04

# Centennial Geothermal Exchange Pipe



## *The Smart Choice for Closed-Loop Geothermal Heat Pump Systems*

It's no wonder geothermal heat pump systems are rapidly becoming the heating and cooling method of choice for residential and commercial buildings across the country. A geothermal system creates three to four times more cost savings than the most efficient conventional forced air system. Rather than burn fossil fuel to generate heat, it simply transfers heat to and from the earth to provide a more affordable and environmentally friendly method of heating and cooling.

Installed horizontally or vertically, underground or submerged

in lakes or ponds, it's easy to see why so many geothermal heat pump systems incorporate Centennial Plastics geothermal exchange pipe. Engineers and architects specify Centennial geothermal products because they are expressly engineered to withstand the working pressures and temperatures required of a geothermal heat pump system. Contractors prefer the ease and economy of installing Centennial geothermal exchange pipe. And customers across the country appreciate Centennial Plastics' prompt, professional customer service and unsurpassed warranties.



**Centennial Geothermal Cenfuse pipe is certified by NSF to meet its highest standard for polyethylene pipe, NSF standard 14.**

NSF International is an independent, third-party certification organization. Through rigorous onsite and laboratory tests, NSF has certified that the raw material used in Centennial geothermal Cenfuse pipe, as well the pipe's physical performance, meets its highest standard for polyethylene pipe, NSF-14. (NSF Standard 61 certifies that only the raw material meets minimum requirements.)

This certification assures engineers that the superior properties of Centennial Cenfuse pipe parallel those of pipe certified to safely transport water for human consumption. It also means that Centennial Cenfuse pipe provides ultimate protection to the environment by protecting the aquifer against contamination.



*Coils are stretch-wrapped in plastic and shipped on pallets.*

In addition, Centennial geothermal Cenfuse pipe meets these industry standards:

- ASTM D3035 and D3350 standards
- AWWA C901 and C906 requirements
- IGSHPA requirements as set forth in Section 1C of the Close Loop/Geothermal Heat Pump Systems Design and Installation Standards

**Centennial Geothermal Cenfuse pipe is easy to handle, provides dependable service.**

Whether used for vertical wells, a slinky configuration, or submerged lake or pond installations, Centennial geothermal Cenfuse pipe is a smart choice.



- Footage markings and product identification are clearly and permanently printed on the side of each coil.
- Centennial Geothermal Cenfuse pipe resists corrosion and abrasions, is flexible, and is thermally conductive.
- Coils are held securely together with plastic banding, stretch-wrapped and shipped on pallets for easier handling.
- Cenfuse pipe is available in multiple coil lengths, straight lengths and SDR's, and is designed for all types of fusion.



# Specifications for Geothermal Exchange Pipe

**Our exceptional customer service begins with an unsurpassed full 50-year non-prorated warranty.**

At Centennial Plastics, geothermal pipe is a major product category and we are dedicated to doing everything possible to ensure total customer satisfaction.

With a thorough understanding of the geothermal heat pump industry, advanced technical knowledge, and a commitment to exceed customer expectations, Centennial Plastics has become a leading supplier to the geothermal exchange industry. In fact, we're so confident of our Centennial geothermal pipe that we back it with a full 50-year non-prorated warranty, the best in the industry. (Please go to our website for more information.)

Here are just a few of the other ways we exceed customer expectations:

- Our fully equipped manufacturing plant, extensive inventory of geothermal exchange products, and the "can-do" attitude of our loyal staff, allows us to turn orders in a very timely manner.
- By being flexible in our scheduling and production, we can quickly fill most any custom order or special request for coil length, straight length or SDR.



## CenFuse Geothermal HDPE 3408 Pipe

ASTM D3035		3/4"	1"	1-1/4"	1-1/2"	2"
160 PSI SDR 11	O.D.	1.050"	1.315"	1.660"	1.900"	2.375"
	I.D.	.860"	1.077"	1.358"	1.554"	1.943"
	Wall	.095"	.120"	.151"	.173"	.216"
	Wt/ft	.122#	.191#	.306#	.402#	.627#
Coil Lengths in ft		100, 300, 400, 500, 600, 700, 800, 1000	100, 300, 500, 600	100, 150, 200, 300, 500	100, 200, 300, 500	100, 200, 300, 500
Straight Lengths		-	20'	20', 40'	20'	20', 40'
ASTM D3035		3"	4"	6"		
	O.D.	3.500"	4.500"	6.625"		
	I.D.	2.864"	3.682"	5.421"		
	Wall	.318"	.409"	.602"		
	Wt/ft	1.360#	2.249#	4.873#		
Coil Lengths in ft		500	500			
Straight Lengths		20', 40'	20', 40'	20', 40'		



### Standard Stock SDR 11

3/4"	1"	1-1/4"
310' (155' x 155')	410' (205' x 205')	610' (305' x 305')
350' (175' x 175')	510' (255' x 255')	810' (405' x 405')
410' (205' x 205')	610' (305' x 305')	
460' (230' x 230')		
510' (255' x 255')		

CenFuse Geothermal pipe and EarthLoops™ are available in other SDR's and special lengths. Contact your distributor or visit our website at [www.centennialplastics.com](http://www.centennialplastics.com).

CenFuse SDR 11 meets the applicable standards for AWWA C901 & C906.

## CenFuse HDPE Pipe and Bullet™ U-Bend Fitting Raw Material

PROPERTY	ASTM Test Method	Typical Values	
		English Units	SI Units
Density (Natural)	D 4883	-	0.944 g/cc
Density (Black)		-	0.955 g/cc
Melt Index <sup>1</sup>	D 1238	-	12.5 g/10 min
Tensile Strength			
@ Yield (2 in/min)	D 638	3300 psi	22.8 MPa
@ Break (2 in/min)	D 638	4500 psi	31.0 MPa
Elongation @ Break (2 in/min)	D 638	>600%	>600%
Flexural Modulus <sup>2</sup>	D 790	120,000 psi	827 MPa
Notched Izod Impact Strength	D 256	6 ft-lbf/in	0.32 kJ/m
Hardness (Shore D)	D 2240	68	68
Vicat Softening Point	D 1525	259°F	126°C
Brittleness Temperature	D 746	<-180°F	<-118°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 <sup>3</sup>	D 1693	>2000 hrs.	>2000 hrs.
Environmental Stress			
Crack Resistance <sup>4</sup>	D 1693	>5000 hrs.	>5000 hrs.
Pipe Ring ESCR <sup>5</sup>	F 1248	>5000 hrs.	>5000 hrs.
Notch Tensile (PENT)	F 1473	>100 hrs.	>100 hrs.
Carbon Black Concentration	D 1603	2.3%	2.3%
Cell Classification	D 3350	345464C	345464C

<sup>1</sup>190°C/21600 g <sup>2</sup>2% Secant-Method 1 <sup>3</sup>Condition B, 10% <sup>4</sup>Condition C <sup>5</sup>Two inch, SIDR 19



*Quality and Service That Soars*

At Centennial Plastics, total customer satisfaction is our only true measure of success. We are absolutely committed to making the very best polyethylene pipe products on the market and providing customer service that is second to none. Our management team has over 250 combined years of experience in manufacturing plastic pipe products and we are ready to prove to you that Centennial Plastics offers Quality and Service that Soars.



For information regarding Centennial Plastics and Centennial Geothermal Pipe, including the warranty and fusion manual, visit our website.

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[www.centennialplastics.com](http://www.centennialplastics.com)



CenFuse is  
NSF – 14 certified.

*For more information,  
contact the dealer nearest you:*