GEOTHERMAL HEATING & COOLING

PE 100

Polyethylene Pipe

The Green Choice
for Geothermal
Installations.

ENVIRONMENT

GEOSMART ENERGY

THE GEOSMART ENERGY WAY

When it comes to installing efficient and effective geothermal loop systems, the most reliable pipe product on the market today is GeoSmart Energy's PE100 Polyethylene Pipe.

GeoSmart Energy draws on the passion, knowledge and experience of a seasoned team of Geothermal Specialists.

Made of 100% virgin high density polyethylene resin, its distinctive green colour is a first in the geothermal industry and a fitting reminder of the eco-friendly role it plays in preserving the integrity of the environment.

Backed by an unprecedented 55 year warranty, our geothermal pipe is setting the industry standard for product excellence in geothermal closed and open loop installation.

Homeowners and business owners alike will enjoy years of worry-free, year-round comfort, satisfied in the knowledge that buried beneath the ground is a sound investment in a relatively maintenance-free system.

GeoSmart PE100 pipe – the preferred choice

Made using one of the highest PE performance resins in the world, our PE100 geothermal pipe is the preferred choice of leading geothermal contractors thanks to its exceptional features:

ENVIRONMENTAL STRESS CRACK RESISTANT

Unlike some piping materials, including PVC and low grade HDPE, PE100 pipe is highly resistant to environmental stress cracking. It features an Environmental Stress Crack Resistance (ESCR) of zero percent failures in excess of 10,000 hours per ASTM D-1693, the highest resistance rating available. It is also completely immune to rapid crack growth propagation and carries an ESCR rating 100 times greater than the minimum required by CSA 448!

CORROSION AND CHEMICAL RESISTANT

PE100's superior resistance to corrosion and chemical attack means the pipe can be installed in all types of soil and lake/pond applications. It will not tuberculate, rust or support biological growth. Most chemicals, like glycols and methanol, have no affect on long-term performance.

FLEXIBLE AND LIGHT WEIGHT

Our PE100 pipe is so flexible that it requires fewer fittings at directional change points than other pipes, making it highly suitable for all geothermal loop applications. It retains its flexibility down to -118C (-180F), and due to its elasticity, water within the pipe can freeze solid without pipe damage. Its lightweight construction makes it easy to handle and install, contributing to reduced labour costs for installation.

LEAK TIGHT DUE TO EXCELLENT FUSIBILITY

GeoSmart PE100 pipe is an ideal material for thermal fusion. This fusion process creates a monolithic system offering installers and homeowners alike peace of mind once the pipe is buried beneath the ground.

LONG LIFE

Given its highly durable construction and minimum 100 year service life, PE100 pipe is a reliable, worry-free choice for geothermal installations, performing well in temperatures up to 60C (140F). It can also safely accommodate severe temperature swings created with extended range liquid source heat pumps. It carries a 10,000 hour PENT test listing compared with typical PE3608 pipes that perform in the 100 hour range.

PENT REQUIREMENTS	
NSF	10 hours
CSA	100 hours
PE4710	500 hours
PE100	10,000 hours

OPTIMUM HEAT TRANSFER

Owing to its sturdy construction, leak-proof joints, and thermal qualities, PE100 pipe acts as an ideal ground heat exchanger in geothermal loop systems, circulating liquid to and from the heat pump. It offers exceptional heat transfer capabilities with an average thermal conductivity of .225 BTUH/ft.

Selecting the right pipe size

GeoSmart Energy's PE100 geothermal pipe comes in three stocking sizes, in conveniently packaged coils or straight lengths to meet all your geothermal needs.

¾" Pipe

The ¾" pipe is the most commonly used size for geothermal installations. It is available in 600 foot coils.

1 ¼" Pipe

The 1 ¼" pipe can be used in the same types of geothermal installations as the ¾" pipe. It is available in 500 foot coils.

2" Pipe

The 2" pipe is most commonly used in header variations and commercial geothermal installations. It can be purchased in straight lengths as well as in 250 foot coils.

Custom lengths available upon request.

TECHNICAL INFORMATION	
Density	g/cm2 (0.959)
Melt Index	0.06 g/10 min
Flexural Modulus	Psi (150,000)
Tensile Strength at Yield	Psi (3,500 to <4,000)
PENT Test Hours	>10,000
Hydrostatic Strength Classification	MRS, 10Mpa @ 20C
Coloured with a UV Stabilizer	E

PE100 material

Our Canadian-made PE100 geothermal pipe is manufactured from DOW Continuum DGDA-2492 NT, a resin custom formulated for GeoSmart Energy.

The pipe's distinct green colour provides contractors and service technicians from other industries the ability to quickly identify the pipe as geothermal pipe when digging in the area.

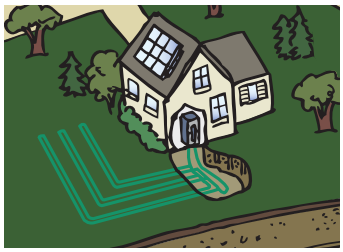
Our resin is listed by the Canadian Standard Association (CSA) and the Plastic Pipe Institute (PPI) as a PE4710/PE100 resin with a hydrostatic design basis (HDB) of 1000 psi for water at 60C (140F) and meets the cell classification of PE445574A as defined by ASTM D-3350-08.

Installing Geothermal Loops

When it comes to geothermal installation, no one knows more about how to do it right than GeoSmart's Geothermal Specialists. Backed by extensive training, our Geothermal Specialists are skilled in selecting and installing the geothermal loop system best suited for your home or business regardless of the weather and soil conditions in your area.

Each loop system uses GeoSmart's high density PE100 green geothermal pipe, the most resilient geothermal pipe available on the market today. Once inserted in the ground, the pipe leads into the foundation of your building through either a sleeve cemented into the wall or under the footings and connects directly to your heat pump, bringing you years of worry-free, high performance renewable heating and cooling using the earth as a natural energy source.

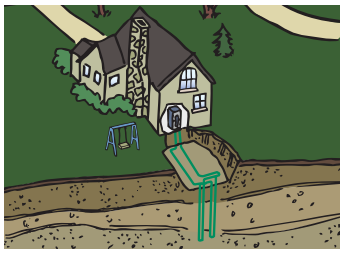
1



HORIZONTAL LOOPS

Horizontal loops are the most common type of loop system, and are commonly used in rural areas due to the land space needed for installation. An excavator will dig several trenches about six feet deep in the ground, each one up to 300 feet long. Our green geothermal pipe is placed in the trenches which are then backfilled with soil.

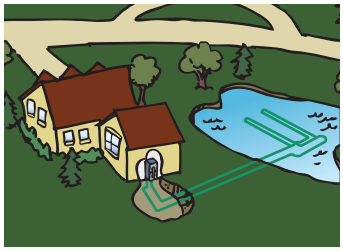
2



VERTICAL LOOPS

Vertical loops are primarily used in urban areas because they require little land space for installation. A specially designed geothermal drilling rig bores vertical holes into the ground each ranging from 180 to 540 feet deep. Our green geothermal pipe is inserted into each vertical bore and then the holes are filled with bentonite grout.

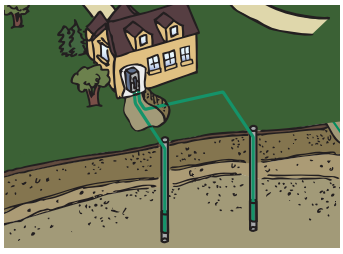
3



POND OR LAKE LOOPS

On properties that have a nearby lake or pond that is appropriate in size and eight feet deep, a loop system can be submerged at the bottom of the body of water. A single trench is excavated from the home to the water and typically two pipes are inserted into it. These two pipes connect to several green geothermal pipes that are submerged at the bottom of the lake or pond.

4



OPEN LOOPS

Open loops are most commonly used on rural properties that have existing high capacity water wells. Ground water is withdrawn from an aquifer through a supply well and pumped into the heat pump, while discharged water from the heat pump is redirected into a second well and back into the same aquifer.

For more information about **GeoSmart Energy's Green PE100** geothermal pipe, visit our website at **www.geosmartenergy.com**

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Geothermal SPECIALIST

MKG-BRO-P-0509-02