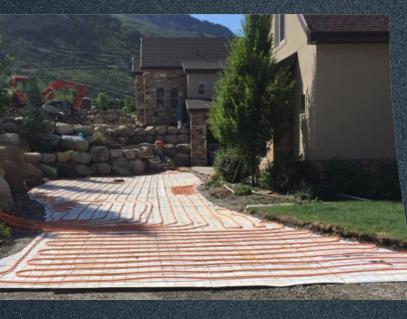


## **X-PERT S5® TUBING**

**5-Layer PERT Pipe with Oxygen Barrier** 

An evolution in polymer technology for hydronic heating





Living full of energy



PE-RT is to PEX what PEX was to copper 20 years ago. X-PERT S5<sup>®</sup> is the next evolution in polymer technology for hydronic heating.

#### X-PERT S5<sup>®</sup> 5-LAYER PE-RT PIPE WITH OXYGEN BARRIER

- Polyethylene of raised temperature (PE-RT)
- No cross-linking required, no waste, no chemicals
- Pioneered in Europe and actively used for over 20 years
- DOWLEX<sup>™</sup> 2344 Polyethylene Copolymer Resin
- SDR-9 tubing, compatible with any fitting (including cold-expansion fitting systems)
- 100% recyclable material
- Made in the USA

#### PIPES CAN BE USED FOR NON-POTABLE HOT AND COLD WATER SYSTEMS, INCLUDING:

- radiant floor heating systems
- radiator connections
- baseboard hot water connections
- heating/cooling applications
- snow melt applications

# Roth X-PERT S5<sup>®</sup> pipe is the ideal choice for domestic and industrial radiant heating systems in North America.

Environmentally-friendly products that produce, distribute and store energy for the finest homes.

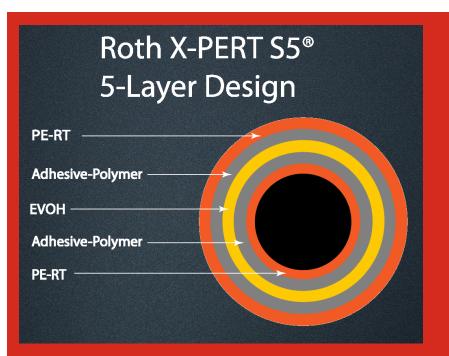


#### **PROVEN HISTORY**

PE-RT pipes have been used in European markets for more than twenty years with exceptional results. Roth X-PERT S5<sup>®</sup> pipe is made with DOWLEX<sup>™</sup> 2344 Polyethylene Copolymer Resin, which offers the traditional benefits of polyethylene resin along with excellent high temperature resistance. The result is the next generation of radiant heating pipe.

Roth X-PERT S5® pipe delivers excellent long-term hydrostatic design strength, without the need for cross-linking. This increases flexibility, resulting in potential installation savings. Roth X-PERT S5® also has excellent surface smoothness for improved flow properties and is produced using state of the art equipment.

The five-layer pipe consists of a layer of ethylene vinyl alcohol polymer (EVOH) sandwiched between two layers of Polyethylene Copolymer Resin and two layers of adhesive. This structure provides the outstanding long-term hydrostatic design strength demanded by hydronic heating applications. The outer layer of Roth X-PERT S5® also provides a protective shield for the oxygen barrier. This ensures that the radiant heating system has the best protection available against oxidation due to oxygen permeation of the piping system.



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## **Material Properties**

Physical Properties	Values	Unit	Test Method
Density	58.745	lb/ft3	ASTM D-792
Thermal Conductivity @ 140° F	2.7734	BTU (h.ft2F/ in)	DIN 52612-1
Thermal Expansion Coefficient °F (680 °F to 158°F)	0.0000394		DIN 5375
Oxygen Diffusion Rate with O2 Barrier at 100°F	Better than .0002	Mg/in2x24h	DIN 4726
Oxygen Diffusion Rate with O2 Barrier at 180°F	Better than .00004	Mg/in2x24h	DIN 4726
Mechanical Properties	Values	Unit	Test Method
Tensile Yield	2,988	Psi	ISO 527-2
Ultimate Tensile	5,221	Psi	ISO 527-2
Percentage fo Elongation	760	%	ISO 527-2
Modulus of Elasticity	138,511	Psi	ISO 178

## Size Specifications

Tube	0.D.	W.T.	I.D.	Weight (lb./ft.)	Water Content (gal/ft.)
5/16"	.430	.064	.292	.034	.0340
3/8"	.500	.070	.360	.042	.0053
1/2"	.625	.070	.485	.054	.0096
5/8"	.750	.083	.584	.076	.0139
3/4"	.875	.097	.681	.103	.0189
1"	1.125	.125	.875	.167	.0312



### Benefits of using Roth X-PERT S5<sup>®</sup>

#### Limited Lifetime Warranty

The five-layer design ensures that the EVOH oxygen barrier is protected and remains intact, safeguarding your radiant heating system. X-PERT S5<sup>\*</sup> comes with a limited lifetime warranty.

#### Unsurpassed Flexibility

X-PERT S5<sup>®</sup> saves you time and money even at low temperatures, which improves installation efficiencies.

#### Reduce pressure loss & deposit formation

Roth X-PERT S5<sup>®</sup> pipe has excellent smoothness.

#### **Environmentally Friendly**

Unlike any other heat pipe, X-PERT S5<sup>°</sup> is fully recyclable.



Roth Industries, Inc. Roth North America Corporate Office PO Box 245 Syracuse, NY 13211 P: 888.266.7684 F: 315-475-0200 www.roth-usa.com

Generation > Solar Storage > Septic

- > Cistern
- > Rainwater Collection
- > Oil Storage Tanks

#### Distribution

- > Radiant Floor Heating
- > Plumbing Systems

Product Testing Specifications and Standards

#### Pipe Testing Specifications

X-PERT S5° PE-RT pipe is manufactured and tested according to the guidelines set forth in:

ASTM F2623 (Standard Specification for Polyethylene of Raised Temperature (PE-RT) SDR 9 Tubing )

ASTM E84 (Standard Test Method for Surface Burning Characteristics of Building Materials)

ULC CAN-S102-2 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

ICC-ES PMG-1129 - Compliance to IRC, IMC and IAPMO UMC codes.

Compliance to NSF 14-2010a standards

#### Joining

X-PERT S5° PE-RT may be joined using insert fittings and clamps certified to ASTM F-877, F-1807, or F-2159. It may also be joined using thermal fusion methods eliminating the need for midloop mechanical fittings. SDR-9 tubing, compatible with any fitting (including cold-expansion fitting systems) Maximum Operating Temperature and Pressure 200 PSI at 73°F

100 PSI at 180°F

#### PPI TR-3 Standard Grade Hydrostatic Ratings

180°F @ 100psig; 73°F @ 200psig 82°C @ 6.89 bar; 23°C @ 13.79 bar

#### Superior Material

X-PERT S5° Polyethylene Copolymer Resin is an ethylene/octane-1 copolymer. It has a unique molecular structure with a controlled side chain distribution, which provides a combination of excellent stress crack resistance and Long Term Hydrostatic Strength properties.

Oxygen Diffusion Standard DIN 4726

Chemical Tubing Resistance Chart DIN 8075 Standard

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