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® is the next evolution in polymer technology for hydronic heating.

X-PERT S5® 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™ 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® pipe is the ideal choice for domestic and industrial radiant heating systems in North America.

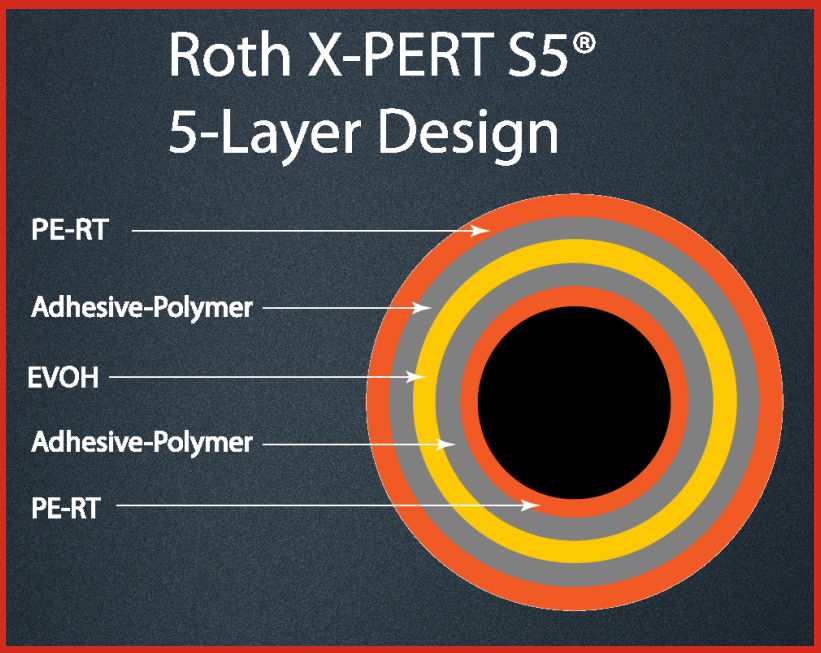
Environmentally-friendly products that produce, distribute and store energy for the finest homes.

PROVEN HISTORY

PE-RT pipes have been used in European markets for more than twenty years with exceptional results. Roth X-PERT S5® pipe is made with DOWLEX™ 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	O.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

Generation
> Solar

Storage
> Septic
> Cistern
> Rainwater Collection
> Oil Storage Tanks

Distribution
> Radiant Floor Heating
> Plumbing Systems

Benefits of using Roth X-PERT S5®

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® comes with a limited lifetime warranty.

Unsurpassed Flexibility

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

Reduce pressure loss & deposit formation

Roth X-PERT S5® pipe has excellent smoothness.

Environmentally Friendly

Unlike any other heat pipe, X-PERT S5® is fully recyclable.

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 mid-loop 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

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

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