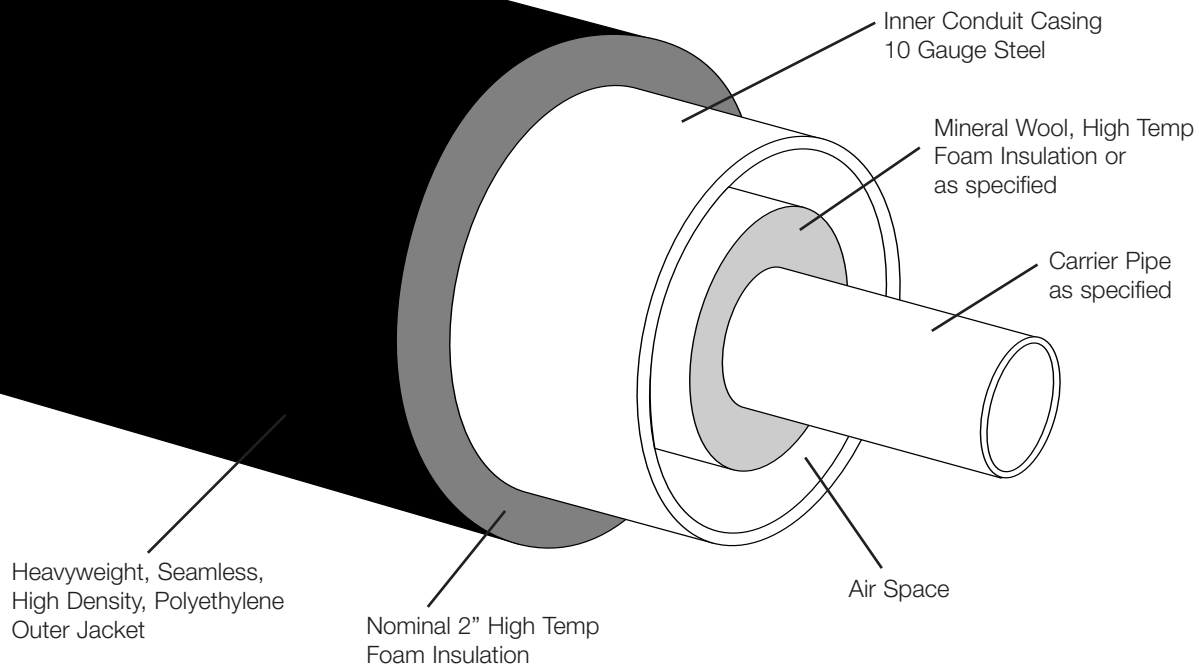


Insul-800 High Temp Conduit by Rovanco



Rovanco's Insul-800 High Temp Conduit is designed for below ground high temperature systems (210°F and above). It is Drainable, Dryable and Air Testable. The product is composed of a steel, copper or stainless steel carrier pipe, mineral wool or high temp foam insulation. The insulated pipe is enclosed in an inner conduit casing of a 10 gauge steel which is insulated with a high temperature foam insulation, rated for 400°F continuous service. The outer layer of foam insulation is protected by a heavyweight, seamless, high density polyethylene outer jacket. This combination results in an economical, high quality, high temp system, and the most energy efficient available. Since the system has a polyethylene outer jacket that is non-corrosive, the system does not require cathodic protection.

Rovanco's systems are engineered to the latest edition of ANSI B31.1.

Rovanco's Insul-800 High Temp Conduit is provided with part numbered cut-to-length pieces manufactured to verified field dimensions. All piping systems are spooled out with elbows, tees, anchors and end seals added to lengths of pipe at Rovanco's Joliet, Illinois factory.

The piping system comes complete with all accessories of steel sleeves, joint insulation, and polyethylene shrink sleeve to make the installation completely watertight.

To find out more about Rovanco's Insul-800 High Temp Conduit system, you can call your local representative, phone us at (815) 741-6700, fax us at (815) 741-4229, visit our web site at www.rovanco.com or e-mail us at marketing@rovanco.com.

STANDARD SPECIFICATIONS

INSUL-800 HIGH TEMP, PRE-INSULATED CONDUIT SYSTEM FOR STEAM, HIGH TEMP HOT WATER, CONDENSATE, ETC.

Carrier Pipe

All carrier pipe shall be carbon steel A-53-B ERW. Pipe 10" and smaller shall be Schedule 40. Pipe 12" and larger shall be .375 wall. Schedule 80 shall be used for condensate lines 10" and smaller, XH for 12" and larger.

Other pipe types also available. (copper, stainless steel, etc.)

Carrier Pipe Insulation

Shall be sectional mineral wool with K factor of .29 at 200°F. Sectional insulation shall be banded on pipe with stainless steel banding on 18" centers. Insulation thickness shall be as specified or recommended by system supplier.

Optional Carrier Pipe Insulation—High Temp polyisocyanurate. Same as specified below for Inner Conduit Casing Insulation.

Inner Pipe Supports

All pipe shall be aligned and supported within the inner conduit casing with galvanized steel supports spaced on 10' centers. The carrier pipe shall not bear directly on the steel support. The support shall be designed to permit drainage and free air passage. All pipe passing through supports shall be insulated.

Inner Conduit Casing

Casing shall be 10 gauge black steel. The interior surface shall be smooth to permit free moisture drainage and removability of the inner assembly. The outer casing shall be sized to provide an adequate annular space between the outer surface of the insulation material and the interior surface of the casing. Inner conduit casing field joint closures shall consist of 10 gauge steel and shall be field welded over adjacent units.

Inner Conduit Insulation

Insulation thickness shall be 1 3/4" minimum.

High-temp polyisocyanurate insulation applied to the inner conduit casing shall have the following properties:

Minimum Density:	2.0 pcf per ASTM D 1622
Closed Cell Content:	90% per ASTM D 2856
Compressive Strength:	30 PSI per ASTM D 1621

K factor

• Initial @ 75°F Mean Temperature	0.130
• @ 200°F Mean Temperature	0.235
• Aged @ 400°F for 28 days	0.220
• @ 400°F Service Temperature and 75° Amb	0.240

Dimensional Stability—% change per ASTM 2126

400°F Exposure of 2" cube foam sample

• 1 Day + 1.3% length	+0.1% Volume
• 7 Day + 2.3% length	-2.3% Volume

450°F Exposure of 2" cube foam sample

• 1 Day + 10.31% length	+14.6% Volume
• 7 Day + 7.1% length	+1.5% Volume

Insulation must be capable of handling intermittent temperature spikes to 450°F for 8-12 hours. Insulation must completely fill the annular space between the inner conduit casing and HDPE jacket. System supplier shall provide written temperature performance certification from foam insulation manufacturer and an Independent Testing Agency Report and Certification that the insulation to be provided meets the above referenced performance standards.

Outer Jacket

The exterior protective jacket shall be heavyweight, seamless, minimum .175 mil thickness, high impact, polyethylene conforming to ASTM D1248 & D3350. Field joints shall be insulated and covered with a polyethylene sleeve the same thickness as the outer jacket. The joint will then be sealed water tight with polyethylene heat shrink material.

Expansion Loops and Els

Expansion loops, expansion elbows and other fittings shall be pre-fabricated and furnished in the same types and thickness of insulation and casing as those for the straight section of the piping system. They will be of a size to permit the inner pipe or pipes to expand and contract without damage to the insulation material.

Fittings

All changes in direction of the carrier pipe shall be made with fittings. Mitering of pipe will not be permitted. When tee branches are smaller than the main they join, weld-o-lets may be used. All weld fittings shall be the same wall thickness as adjacent piping.

Anchors

Anchors shall be pre-fabricated onto the piping units and shall be equipped with drain and vent openings at the top and bottom of the anchor plate. Anchor plates shall be made of minimum 1/2" steel plate.

End Seals and Gland Seals

Terminal ends of conduits inside manholes, pits or buildings shall be equipped with end seals consisting of a steel bulkhead plate welded to the conduit and carrier pipe if there is an anchor within five feet of the end seal. Where there is no anchor within five feet of a terminal end, conduits shall be equipped with gland seals consisting of a high temp gasket and follower plate. End seals or gland seals shall be made of 1/2" steel plate with drain and vent openings on the vertical center line of the mounting plate.

Field Tests

The carrier pipe shall be field tested hydrostatically to 1 1/2 times the working pressure of the line or as specified. The 10 gauge steel inner conduit casing shall be tested with air at 15 psig. All leaks shall be repaired and the test repeated. After test, all field joints shall be insulated and sealed water tight.

Back Fill

Clean, granular backfill should be tamped in place so as to assure a stable surface. No rock should be used within 24" of the pipe. Top of pipe to grade shall not be less than 24" to meet H-20 Highway loading.

Installation

The installation shall be made in accordance with plans, specifications, and manufacturers' installation instructions. Pipe system supplier will provide an installation instructor on site to train the contractor in all phases of installation if required.

Approved Vendors

Insul-800 manufactured by Rovanco, Joliet, Illinois, 815-741-6700, or approved equal. Any alternative supplier wishing to be approved as an equal must submit their technical data, including HDPE outer jacket and insulation material test reports.

These reports must be certified by an independent Testing Agency that the high temperature polyisocyanurate insulation and the polyethylene jacketing material have been tested to and meet all ASTM standards listed in the "inner conduit insulation" and "outer jacket" section of the specifications. These reports must be submitted to the engineer ten days prior to bid date for an alternate supplier's product to be approved in writing as an equal to the specified products.

Copyright 2005 - Rovanco's products are covered by various U.S. patents, including but not limited to U.S. Patent #5,996,643 (Insul-800). Rovanco & Insul-8 are federally registered trademarks. Rovanco manufactures a complete line of Insul-8 engineered, pre-insulated piping systems for temperatures from -320°F to 700°F. For information on Rovanco and its Insul-8 piping systems, please contact us.

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