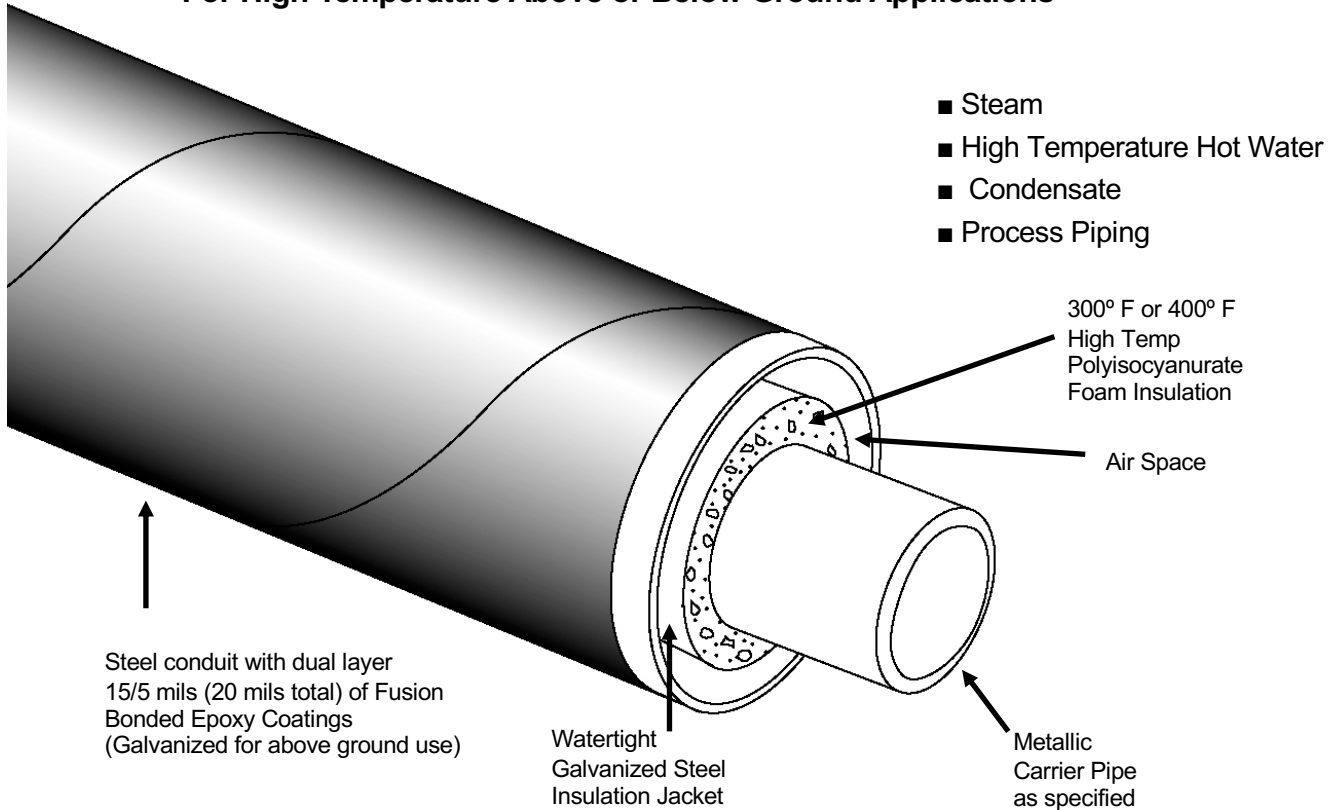


# Rovanco Rhinocoat™ High Temp Foam Conduit

For High Temperature Above or Below Ground Applications



Rovanco's HTF Conduit is designed for piping systems suitable for up to 300°F or 400°F applications. Polyisocyanurate insulation with watertight galvanized jacket covering the foam insulation, and a durable 10 gauge minimum thickness steel conduit supplied in 40' lengths, means an economical, high-quality system.

Rovanco's conduit is provided with spooled out, part numbered, cut-to-length pieces factory manufactured to field dimensions. All elbows and tees are manufactured at Rovanco's plant.

The outer conduit is coated with nominal 20 mil thick "state-of-the-art" Fusion Bonded Epoxy Rhinocoat™ applied in a dual 15/5 layer process.

For above ground the steel casing can be hot dipped galvanized coating.

The conduit comes complete with joint insulation and steel sleeves the same thickness as the jacket with a shrink sleeve to make the installation completely watertight – the best product for applications of high pressure steam, condensate, hi-temp hot water, etc.

Rovanco's HTF Conduit System can be used up to 400°F.

To find out more about Rovanco's HTF Conduit system, you can visit our factory, phone us (815)741-6700, fax us (815)741-4229, visit our website at [www.rovanco.com](http://www.rovanco.com) or email us at [marketing@rovanco.com](mailto:marketing@rovanco.com).

*This is a generic product datasheet and is not intended for submittal use.*

# Rhinocoat™ High Temp Foam Conduit GUIDE SPECIFICATION

High-Temperature Pre-Insulated Conduit Systems for Steam, High-Temperature Hot Water, Condensate, Etc.

## Carrier Pipe:

A53B Black Steel Pipe, Seamless or ERW, in pre-cut lengths. Pipe 10" and smaller shall be Schedule 40. Pipe 12" and larger shall be .375 wall. (Schedule 80 shall be used for condensate lines.)

Other metallic pipe available.

## Insulation (2 Temps):

### 300°F

Insulation thickness shall be a nominal 2", Hi-Temp polyisocyanurate foam insulation has an initial K factor of .14, density of 2.0, closed cell content of >90%, compressive strength of 30 psi, and service temperature of 300°F. Insulation must be capable of handling intermittent temperature spikes to 350°F. Conformance with ASTM Standards D1621, 1622, 1623, 2126, 2842, 2856, and C518-91. Completely filling the annular space between the carrier pipe and spiral metal jacketing. Provide written independent performance certification with submittals. Meets 25/50 Flame Smoke Rating ASTM E84.

### 400°F

Insulation thickness shall be a nominal 2" of Hi-Temp foam insulation has an initial K factor not higher than .145, density of 2.5, closed cell content of 87%, compressive strength of 30 psi, and continuous service temperature of 400°F. Insulation must be capable of handling intermittent temperature spikes to 450°F. Conformance with ASTM Standard D1621, 1622, 2126, 2842, 2856, C518 and E96. Completely filling the annular space between the the carrier pipe and spiral metal jacketing. Provide written performance certification with submittals.

## Insulation Jacket:

Spiral Seam Galvanized Steel jacket with impact and chemical resistance in accordance with ASTM A366/A526-G90 specification. 26 ga. Minimum thickness.

## Inner Pipe Supports:

All pipe shall be aligned and supported within the casing with galvanized steel supports spaced on centers approximately 10'0". The insulated inner pipe shall bear directly on the steel support. The support shall be designed as to permit drainage and free air passage. All pipe passing through supports shall be insulated. Concrete type pipe supports will not be allowed.

## Outer Conduit Casing:

Outer casing shall be black steel. Casing up through 24" shall be 10 gauge. Casing 26" and larger shall be 6 gauge. 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 adequate annular space between the outer surface of the insulation jacketing and the interior surface of the casing. The interior surface can be coated with epoxy for corrosion resistance. (optional)

The exterior surface will be coated with a dual layer Fusion Bonded Epoxy system. The first coat will be 15 mils green finish coat. No glasswrap or filler materials shall be used in the epoxy. All exterior conduit surfaces shall be shot-blasted prior to the coating being applied. The Fusion Bonded Epoxy shall conform to these ASTM Standards: ASTM D1763, ASTM G17, ASTM D1044, ASTM D2370, ASTM G14, ASTM G8, ASTM D968, ASTM D1002, ASTM D659, ASTM D257, ASTM D1000, ASTM G53 and ASTM B117.

The second layer will be 5 mils of black or brown compatible Fusion Bonded Epoxy coating that will provide mechanical protection to the first layer. The second layer of Fusion Bonded Epoxy will be applied no later than 5 seconds after the first layer has been applied so that is securely bonds to the first layer as both layers cure. The second layer must have an impact resistance of at least 160 lbs. per square inch as per ASTM G14-72. The Fusion Bonded Epoxy coating will be applied in a total thickness of no less than 20 mils. The coating system will be equal to Rovanco Piping Systems – Rhinocoat™. No asphalt, coal tar coating, FRP casing or any other type will be allowed. Conduit casing closures shall consist of 10 gauge steel suitably rust proofed and in cylindrical form with a single horizontal split and shall be field welded over adjacent units. After tests all exposed closures shall be covered in the field with a polyethylene heat shrink material with a minimum thickness of 60 mils.

## Expansion loops and Elbows:

Expansion loops or expansion elbows shall be furnished and enclosed in the same type of casing as those furnished for the standard section of the piping system. They will be of a size to permit the inner pipe or pipes to move without damage to the insulation material. All expansion loops or expansion elbows shall be pre-fabricated and shipped to the job site in as few pieces as possible (manufacturers' recommendation to govern). All inner pipe loops and expansion bends shall be cold sprung in the field by the contractor as required.

## Weld Fittings:

All changes in direction shall be made with bent or weld fittings. Where tee branches are smaller than the main they join, weld-o-lets may be used. All weld fittings shall be long radius and shall be the same wall thickness as adjacent piping.

## Anchors:

Anchors shall be pre-fabricated onto the piping units and shall be equipped with drainage and vent openings at the top and bottom of the anchor plate. Anchor plates shall be made of ½" steel plate.

## End Seals and Gland Seals:

Terminal ends of conduit inside manholes, pits or buildings walls shall be equipped with end seals consisting of a steel bulkhead plate welded to the pipe conduit. Where there is an anchor within five feet of the terminal end, conduits shall be equipped with gland seals consisting of a packed stuffing box and gland follower mounted on the steel plate welded to end of conduit.

End seals and gland seals shall be made of ½" steel plate with drain and vent openings located diametrically opposite on the vertical center line of the mounting plate and shall be shipped to the job site with plugs in place. Terminate all conduit 2 inches beyond the inside face of building wall to protect any exposed piping insulation from damp wall condensation

## Field Tests:

The inner pipes of this system shall be tested hydrostatically to 1-1/2 times the working pressure of the line. If a leak is found, it shall be repaired and the test repeated. The outer casing shall be tested with air at 15 psig and a soap solution shall be applied to the field joints to locate leaks. If leaks occur, they shall be repaired and the test repeated. After approved by test, all field joints shall be coated by the contractor. Before backfilling, the contractor shall test the conduit coating with an electric holiday detector. Any breaks in the coating system will be repaired and the test repeated by the contractor.

## Back Fill:

Should be tamped compactly in place so as to assure a stable surface. No rock should be used in the first foot of backfill. 24", top of the pipe to grade, of compacted fill shall meet the H-20 Highway loading.

## Installation:

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

## Approved Vendors:

Rhinocoat™ High Temp Foam Conduit System manufactured by Rovanco, Joliet, Illinois, 815-741-6700, or approved, ISO certified, equal. Any alternative supplier must submit their technical data to the engineer ten days prior to bid date to be approved in writing as an equal.

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**Contact Rovanco® for the name of your local Representative**

20535 S.E. Frontage Road • Joliet, Illinois 60431 • (815) 741-6700

Website: [www.rovanco.com](http://www.rovanco.com) • E-mail: [marketing@rovanco.com](mailto:marketing@rovanco.com)

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