

# RhinoJoint™ by Rovanco®

ISO 9001:2015  
CERTIFIED COMPANY

 **PRI Registrar**  
PERFORMANCE REVIEW INSTITUTE

*Air-Testable*

*Patent Pending*

*Air-Testable, Water-Tight and  
EN489:2009 Certified makes  
RhinoJoint the ultimate solution  
for sealing field joints even  
under the harshest conditions.*

**Make the weakest part of a piping system rock solid!**

# RhinoJoint™

It is largely agreed field joints are the weakest part of the pre-insulated pipeline system.

With the Rhinojoint casing system, the field joints are made as strong and as much like the rest of the pipe run as they can possibly be. Once field joints are sealed using the RhinoJoint system, they will be much less susceptible to failure when compared to other field joint sealing options.

RhinoJoint's dual-sealing system ultimately produces a protective outer coating and water-tight seal around field joints. RhinoJoint's unique design, utilizing all the kit's components during the installation process will make field joints fully air-testable once completed.

## Why A RhinoJoint™?

- Optimal protection & sealing of pre-insulated pipeline field joints which maintains the integrity of the piping system
- Will not compromise the systems ability to minimize heat loss or its moisture resistant properties – seals field joints water-tight!
- No bulging joints; the OD of a RhinoJoint is designed so it aligns with the coating of the main line, minimizing soil stress on the field joint
- Air testing of the field joint is performed without drilling a hole in the outer jacket further maintaining system integrity and saving on hole plugging time
- High thermally-efficient polyisocyanurate half shell foam insulation included in RhinoJoint kit
- Totally shrinkable joint casing system promotes easy installation
- High strength adhesive used on shrink wrap film and end strips ensures adhesion of outer jacket covering and the edge sealing of the RhinoJoint system

### *EN489:2009 certified*

EN489 was designed to predict performance over 30 years of operation in the most severe pre-insulated, underground pipeline conditions. Testing parameters for certification include:

- 100 cycles for 24 hours in Sand Box
- Water impermeability test inside pressure vessel with pressurized water for 24 hours

# RhinoJoint™ Components

## Foam Insulation:

Pre-formed, rigid, polyisocyanurate foam insulation in half shells that you cut-to-fit with a hand saw and secure in place on the joint. This half shell foam insulation allows the process to be fully inspected prior to shrink sealing. The foam insulation is available in two types; a 300°F (350°F intermittent) and a 400°F (450°F intermittent) formula.

## Shrink Film:

A thick, adhesive backed polyolefin shrink wrap film that is applied over the foam insulation half shells. Once heated and shrunk down over the insulation, this shrink wrap film will serve as the initial layer of sealing system and provide a water-tight seal around the insulation.

## Outer Jacket Covering:

A cross-linked, high-density polyethylene (HDPE) material provides a rigid, protective outer cover to the field joint. This HDPE tube is seamless and once it is slid onto pipeline (prior to carrier pipe welding), is heated and shrunk down over shrink film layer. It offers an excellent resistance to mechanical forces such as impact and indentation as well as the effects associated with soil stresses.

A split version of this HDPE covering is available, but only recommended when the carrier pipe is accidentally welded before HDPE tube can be slide on.

## Other RhinoJoint Kit Components:

Two 6" strips of double sided adhesive which is wrapped around ends of shrink. This holds the HDPE jacket in place during heat shrinking and seals the ends of the HDPE outer covering. Also included is a copper tube and waffle board which are crucial components for the air testing of the field joint after sealing is complete.

## Super Seal (optional):

Two 4" highly-adhesive, heat shrinkable polyolefin strips to be applied to the edges of the RhinoJoint after it has been shrunk down, giving the system additional resistance to moisture infiltration and protection from environmental stresses.

Kit comes complete with all the components you will need to create an air & water tight joint in your pre-insulated piping system.\*



Rigid, pre-formed, polyisocyanurate foam half shell insulation. **Note:** Foam half shells can easily be cut-to-fit with hand saw.



Heat shrinkable wrap encases foam insulation in a durable & water-tight closure. The highly adhesive end strips hold the HDPE outer jacket sleeve in place during shrinking and help seal the ends.



Waffle board and pipe for air testing of the joint.



Heat shrinkable, HDPE full round rigid sleeve. **Note:** Sleeve must be slid on pipeline before welding the carrier pipe together.

\*Air pump, gauge and other tools required to install & test a RhinoJoint are not included.

## RhinoJoint™ Technical Specifications

**General:** Joint kits shall be RhinoJoints by Rovanco Piping Systems, Joliet, Illinois and be for pre-insulated piping, be air-testable, water-tight and have an EN489 Certification.

**Insulation:** Shall be a rigid, pre-formed polyisocyanurate foam cut into half shells, rated for 300°F continuous service, 350°F intermittently. 400°F continuous, 450°F intermittent also available. Foam type supplied will be based on project specifications.

**Air Testing Components:** (if applicable) shall consist of copper tubing and plastic waffle board for air testing the RhinoJoint. These components to be applied in accordance with installation instructions.

**Shrink Wrap:** Shall be a polyolefin wrap with a highly adhesive layer that is activated by an applied heat source and once shrunk down will create a water-tight seal around the foam insulation on the field joint.

**Adhesive End Strips:** Shall be a 6" wide polyolefin wrap with a highly adhesive layer on both sides of the material. These adhesive wraps are to be applied according to installation instructions and before the outer shrinkable HDPE casing is slide into place.

**Outer Jacket Casing:** Shall be a semi-rigid, heat shrinkable high-density polyethylene (HDPE) seamless tube to be applied as the outmost layer of protection and sealant within the RhinoJoint sealing system process.

**Super Seal (optional):** Shall be two 4" highly-adhesive, heat shrinkable polyolefin strips to be applied to the edges of the RhinoJoint after it has been shrunk down for additional sealing strength.

**Approved Vendors:** Air-testable, water-tight, EN489 Certified RhinoJoint kits for pre-insulated pipe by Rovanco, Joliet, Illinois or approved equal. Any alternate supplier must be ISO certified and submit their technical data to the engineer ten days prior to bid date to be approved in writing as an equal.

## RhinoJoint™ Component Properties

|  | Shrink Film | Casing     |
|--|-------------|------------|
| Softening Point per ASTM E28   | 248°F       | 176°F      |
| Tensile Strength per EN12068   | 20 MPa      | 30 MPa     |
| Elongation per ASTM D638   | 600%        | 600%       |
| Hardness per ASTM D2240  | 46 Shore D  | 60 Shore D |
| *Adhesion Strength per EN12068<br>Using 1 mm thick backing @ 74°F (23°C) | 46 N/in     | 191 N/in   |
| Water Absorption per ASTM D570   | <0.05%      | <0.05%     |
| Low Temp Flexibility per ASTM D2671                                      | -22°F       | 5°F        |
| Heat Aging @ 302°F, 14 days<br>(Tensile Strength) per ISO R57            | 95%         | 95%        |
| Heat Aging @ 302°F, 14 days<br>(Tensile Elongation) per ISO R57          | 95%         | 95%        |

### Rovanco Piping Systems, Inc.

20535 S.E. Frontage Road  
Joliet, IL 60431  
(815) 741-6700  
Fax (815) 741-4229  
www.rovanco.com  
marketing@rovanco.com

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