

# HT-406

## HIGH TEMP STEEL PIPING SYSTEM



### HT-406

THERMACOR'S HT-406 is a factory-fabricated, pre-insulated piping system for below ground distribution of steam, condensate return, and high temperature heating water. The system is designed with a steel carrier pipe (type and grade specified, as required), closed cell polyisocyanurate/polyurethane foam insulation, and a High Density Polyethylene (HDPE) jacket combined with molded or mitered HDPE fitting covers, incorporating electro-fusion welding, to create a seamless pressure testable jacket throughout the entire system.

### Carrier Pipe

- $d \geq 2"$  - A53 ERW Grade B, Std. Wt. Black Steel
- $d < 2"$  - A106 SML, Std. Wt. Black Steel
- Seamless & Schedule 80 pipe are available for all sizes.
- Std. Wt. is the same as Schedule 40 through 10".
- XS is the same as Schedule 80 through 8".

### Polyisocyanurate Insulation

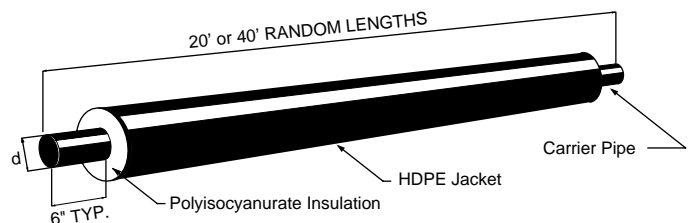
- |                        |                             |
|------------------------|-----------------------------|
| • Density              | > 2.4 lbs/ft <sup>3</sup>   |
| • "K" Factor           | 0.17 @ 75°F, ≤ 0.30 @ 366°F |
| • Compressive Strength | > 30 psi @ 75°F             |
| • Closed Cell Content  | ≥ 85%                       |
| • Minimum Thickness    | ≥ 2.5"                      |

### Jacket

- High Density Polyethylene (HDPE)

### ERM Leak Detection

All HT-406 systems are provided with an Electric Resistance Monitoring (ERM) leak detection system. This simple leak detection system should be used on all high temperature systems to ensure the longevity of the piping system. See Thermacor's ERM brochure for more information.



**SPECIFICATION GUIDE \*****GENERAL**

All underground and above ground piping materials transporting steam, condensate return, or high temperature heating water shall be **HT-406** as manufactured by **THERMACOR PROCESS, L.P.** All straight pipe, fittings, anchors, and other components shall be factory-fabricated and pre-insulated. No field insulation of fittings shall be allowed. All piping connections shall incorporate Pressure Testable closures to create a seamless pressure testable jacket throughout the entire system with the exception of anchors, whose water shed rings are sealed with a Raychem Dirax or Canusa GTS-65 wrap prohibiting the ingress of water. No PVC, FRP, HDUP, or tape allowed.

**SERVICE PIPE**

The carrier or service pipe shall be A-53, Grade B, ERW, Standard Weight for pipe sizes 2" and larger and A106/ A53, Grade B, seamless, standard weight for pipe sizes 1.5" and smaller. Condensate piping materials shall be extra strong. Pipe shall be butt-welded for sizes 2" and larger and socket-welded for 1.5" and smaller. Straight sections shall be supplied in 20 or 40 foot random lengths with cutbacks to allow for welding at the field joints.

**INSULATION**

Insulation of the service pipe shall be rigid polyisocyanurate foam with a minimum 2.4 lbs/ft<sup>3</sup> density, 85% minimum closed cell content, and a "K" factor of .17 at 75°F and .30 at 366°F per ASTM C518. The foam shall be CFC-free and not exceed a temperature of 366°F. The foam shall completely fill the annular space between the service pipe and jacket, and shall be bonded to both. Insulation shall be provided to the minimum insulation thickness specified, but not less than 2.5".

**JACKET**

The outer protective jacket shall be High Density Polyethylene (HDPE). The HDPE jacket shall be seamless and pressure-tested for watertight integrity. PVC, FRP, HDUP, or tape materials are not allowed.

**FITTINGS**

All straight sections, fittings, anchors, and other components shall be factory-fabricated and pre-insulated, and manufactured in accordance with ASME B31.1. Fitting covers shall be molded HDPE, extrusion welded, or butt-fusion welded. No gluing, taping, or hot air welding of the jacket allowed. Tangent footage shall be added to all pipe ends up to 24" pipe, so that all field joints are at straight sections of pipe. No field insulation of fittings allowed.

**ERM LEAK DETECTION**

The piping system shall be made Leak Detection Ready by means of installing a bare copper wire between the carrier pipe and the HDPE jacket. The piping system manufacturer shall install the wire in a manner that has the wire embedded in the foam insulation and incorporated into each piece of pre-insulated pipe and fittings. Connections of ERM wire shall be made by the Contractor prior to insulating joints.

**FIELD JOINTS**

Service pipe shall be hydrostatically tested as per the Engineer's specification with a factory recommendation of 1.5 times the specified pressure of the system. Straight joint sections shall be closed with a pressure testable joint closure, either an electro-fused split sleeve HDPE joint closure, Canusa SuperCase, or Raychem RayJoint. The joints will be field tested at 5 psi for five minutes while simultaneously soap testing the joint closure's seams for possible leaks. All joint closures and insulation shall occur at straight sections of pipe. ERM wire will be connected and tested at all field joints. No field insulation of fittings allowed. All insulation and jacketing materials shall be furnished by THERMACOR.

**INSTALLATION**

Installation of the piping system shall be in accordance with the manufacturer's instructions. Factory trained field technicians shall be provided for critical periods of installation, unloading, field joint instruction, and testing.

*\* For alternate specifications, please contact THERMACOR.*

**THERMACOR PROCESS, L.P.**

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