



# SPIRAL-THERM HT-406

## Specification Guide

SPSG  
12.103

HIGH TEMPERATURE SPECIFICATION

3.14.07

*Pre-insulated Spiral Metal Jacketed Steel Piping Systems suitable for Above-Ground and Trench applications for Steam, Condensate Return, and High Temperature Heating Water.*

### **Part 1 - General**

**1.1 Pre-insulated Piping** - Furnish a complete system of factory pre-insulated steel piping for the specified service. All pre-insulated pipe, fittings, insulating materials, and technical support shall be provided by the Pre-insulated Piping System manufacturer.

**1.2 A complete layout of the system**, showing anchors, expansion provisions, and building entrance details, shall be provided by the pre-insulated pipe manufacturer. Means for expansion must be made in pipe off-sets or loops.

**1.3 The system** shall be **SPIRAL-THERM HT-406** manufactured by **Thermacor Process Inc.** of Fort Worth, Texas.

### **Part 2 - Products**

**2.1 Carrier pipe** shall be steel ASTM A-53, Grade B., ERW (Type E) or seamless (Type S), standard weight for sizes 2" and larger, and shall be ASTM A-106/A-53, seamless, standard weight for sizes 1-1/2" and smaller (Std. Wt. is the same as Sch. 40 through 10"). Condensate return piping shall be Extra Strong (XS is the same as Sch. 80 through 8"). When practical, piping shall be provided in 40-foot double-random lengths. All carbon steel pipe shall have ends cut square and beveled for butt-welding. Straight sections of factory insulated pipe shall have 6" of exposed pipe at each end for field joint fabrication.

**2.2 Insulation** shall be polyisocyanurate insulation bonded to both the jacketing and carrier pipe, and high pressure-injected with one shot into the annular space between carrier pipe and jacket with a minimum thickness of 2-1/2" for systems operating below 366°F. Insulation shall be rigid, 90% - 95% closed cell @ 70°F with not less than 2.4 pounds per cubic foot density, having a compressive strength of not less than 30 psi and a coefficient of thermal conductivity (K-Factor) of 0.14 @ 70°F and 0.24 @ 366°F. Maximum operating temperature of the polyisocyanurate system shall not exceed 366°F.

**2.3 Jacketing material** shall be internal lock seam 22 gauge, spiral wound, lock seam galvanized steel with a rubber "o" ring formed in the seams, formed into steel tubes. (*At the Engineer's option*, spiral wound, lock seamed aluminum jacket .032" thick stainless steel 24 gauge may be used.)

**2.4 Straight run joints** are insulated using sectional high temp foam to the thickness specified, covered with a metal sleeve, sealed with mastic, and held in place with two 1/2" stainless steel bands.

**2.5 Fittings** are factory pre-fabricated and pre-insulated jacketed with a metal fitting cover and insulated with polyisocyanurate to the specified thickness. Carrier pipe fittings shall be butt-welded, except sizes smaller than 2" shall be socket-welded. If required by project specifications, welds shall be radiographically inspected. Fittings include expansion loops, elbows, tees, reducers, and anchors.

**2.6 Expansion/contraction compensation** will be accomplished utilizing factory pre-fabricated and pre-insulated expansion elbows, Z-bends, expansion loops, and anchors specifically designed for the intended application.

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### **Part 3 - Execution**

**3.1 Pre-engineered systems** shall be provided with all straight pipe and fittings factory pre-insulated and pre-fabricated to job dimensions.

**3.2 A hydrostatic pressure test** of the carrier pipe shall be performed per the engineer's specification with a factory recommendation of one and one-half times the normal system operating pressure for not less than two hours. Care shall be taken to insure all trapped air is removed from the system prior to the test. *Appropriate safety precautions shall be taken to guard against possible injury to personnel in the event of a failure.*

**3.3 Field service**, if required by project specifications, will be provided by a certified manufacturer's representative or company field service technician. The technician will be available at the job to check unloading, storing, and handling of pipe, joint installation, pressure testing, and backfilling techniques.



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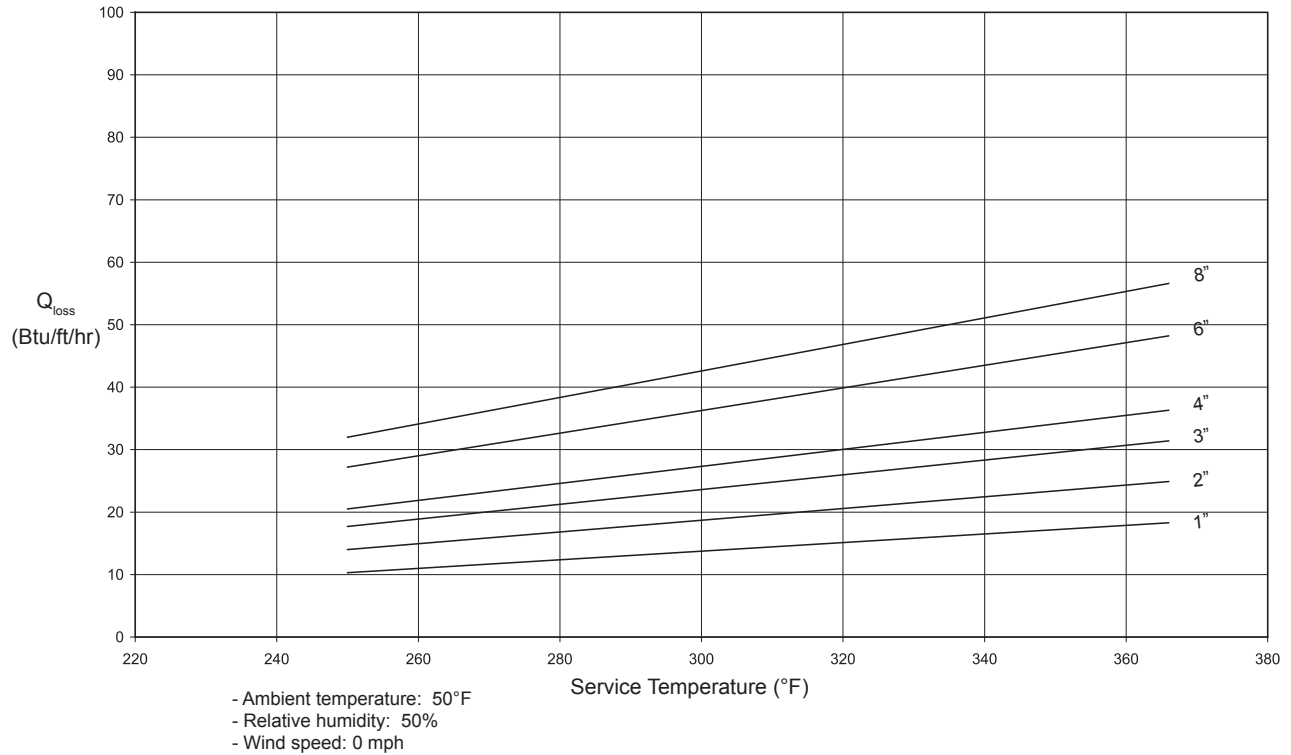
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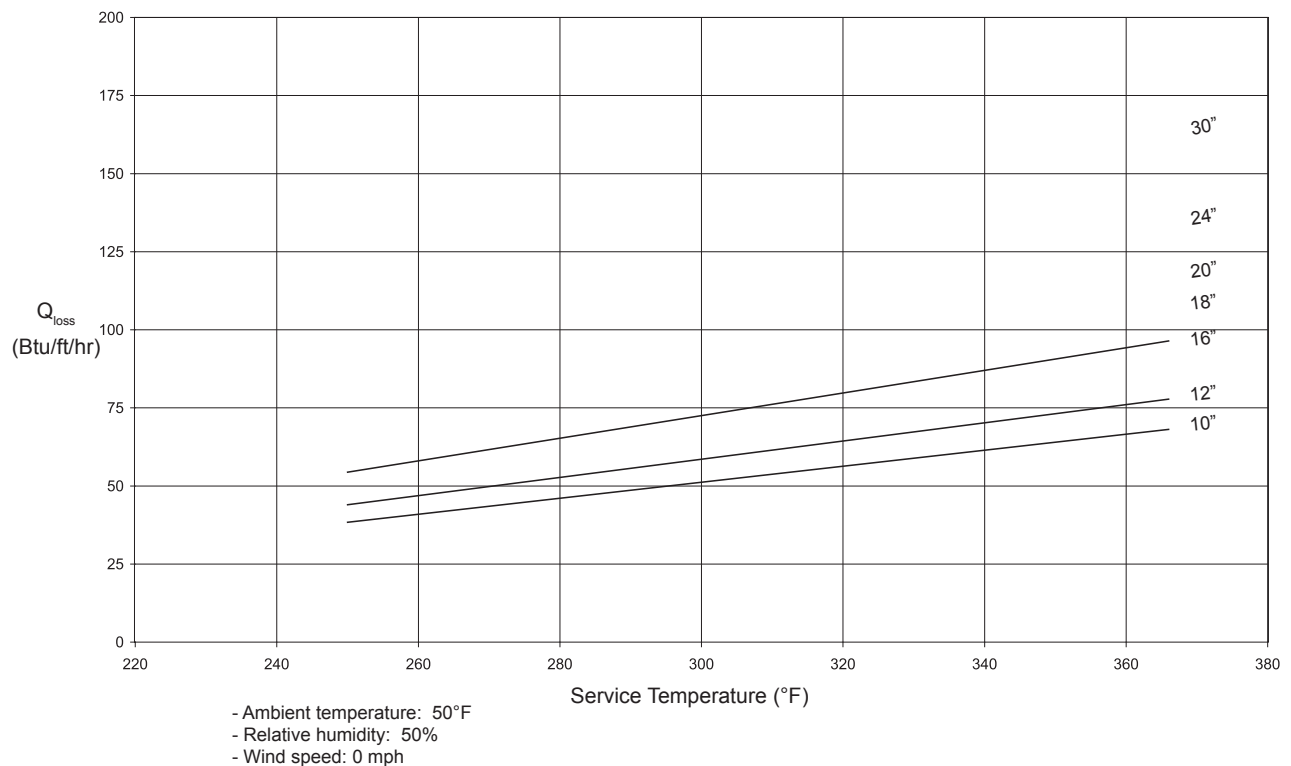
HEAT LOSS DIAGRAM (1" - 30" PIPE)

3.14.07

### HEAT LOSS FOR 3" OF POLYISOCYANURATE FOAM\*



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\* Values are calculated using 3E Plus in accordance with ASTM C680 and are subject to the terms and limitations stated in the software. Actual heat loss may vary.



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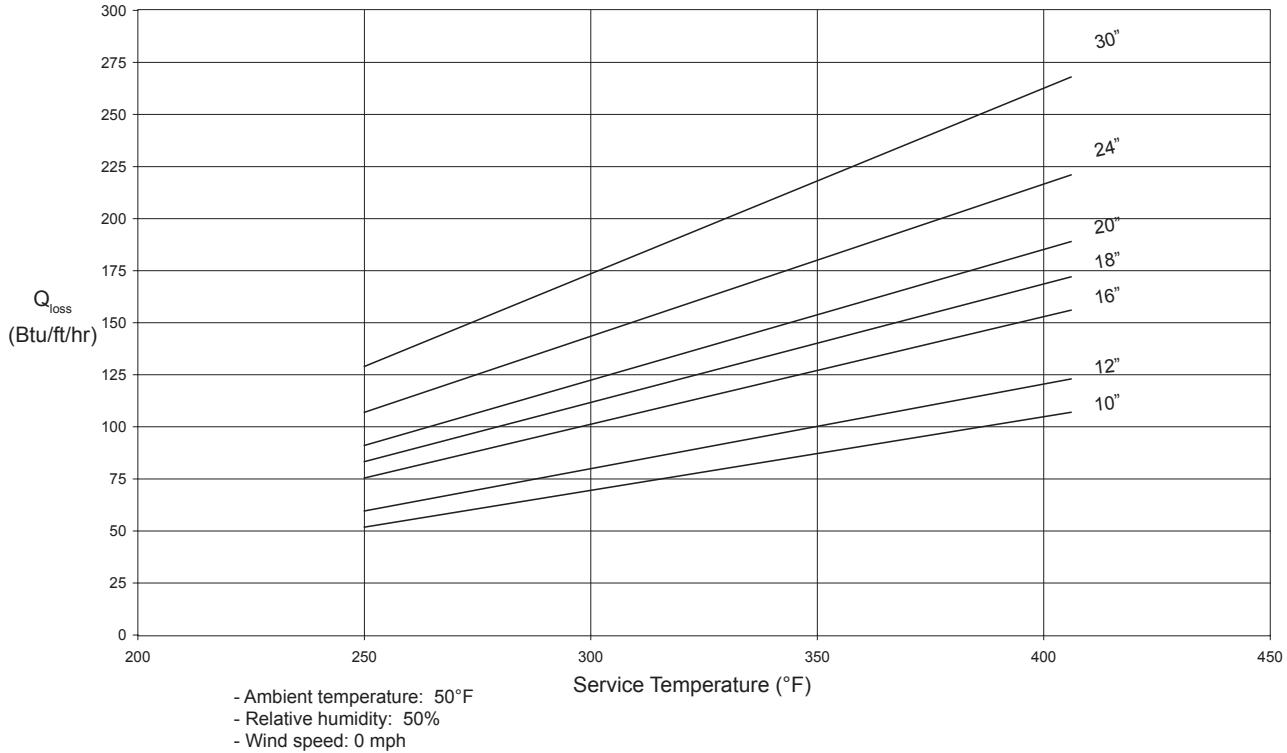
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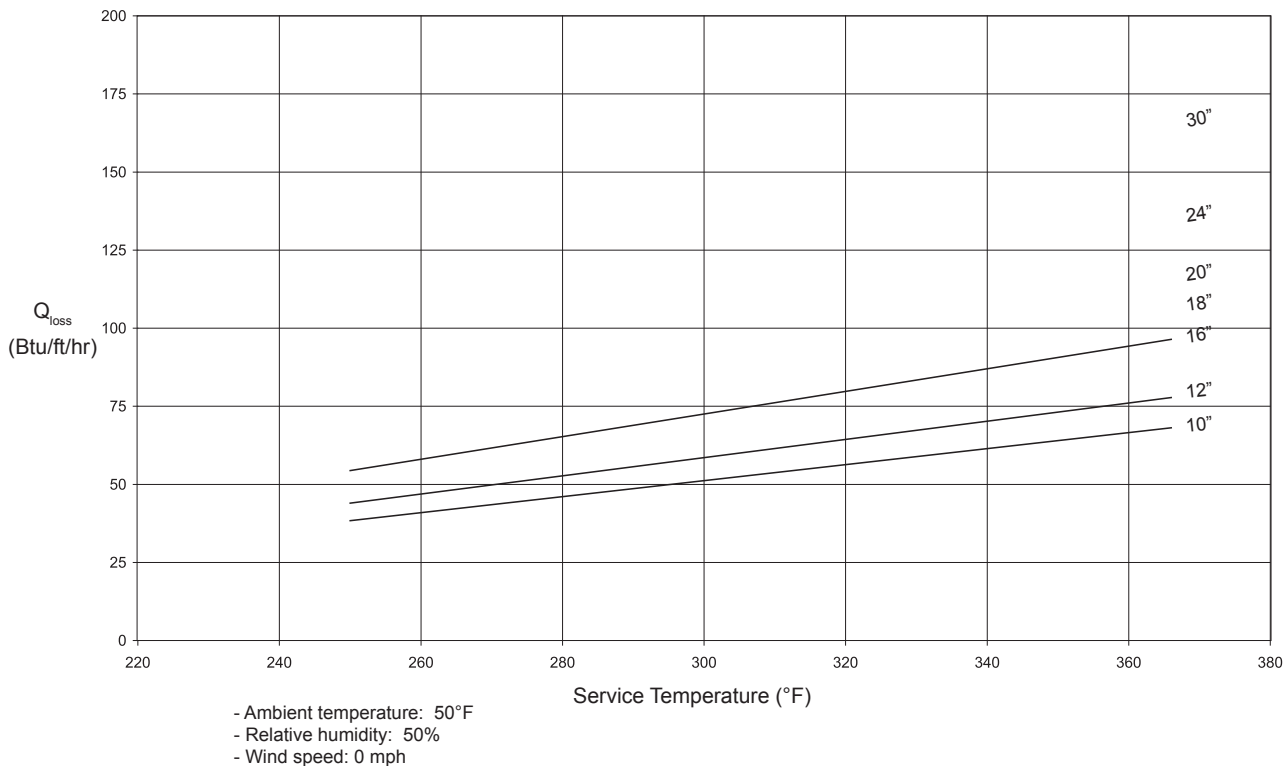
HEAT LOSS DIAGRAM (10" - 30" PIPE)

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### HEAT LOSS FOR 2" OF POLYISOCYANURATE FOAM\*



### HEAT LOSS FOR 3" OF POLYISOCYANURATE FOAM\*



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