

Unitherm™ 2A53 / 2A63 Composite Steam Transport and Analyzer Bundle - Application and Installation

Application

This product is designed for provide transport of a high temperature superheated steam sample from the line tap to the analyzer station. The steam sample is allowed to cool and condense along the length of the line. This bundle is heated to provide freeze protection of the condensed steam during shut-downs.

Construction

This product has two distinct zones. The first zone (Superheat Zone) has a high temperature composite insulation, reinforced outer jacket and stainless steel braid. Freeze protection is provided using a Mineral Insulated heating cable. The second zone (Saturated Zone) is constructed from standard materials and uses a buffered self-regulating heating tape to provide freeze protection. The two zones are joined and sealed. There is no splice in the sample tube.

Installation

Begin installation at the root valve. This end of the bundle is typically finished and sealed at the factory. The root valve can be traced using the MI heater cable extending from the end. (See Figure 2) The installer should provide suitable insulation over the valve and heater.

Dual tube bundles can provide freeze protection for two root valves as shown in Figure 3.

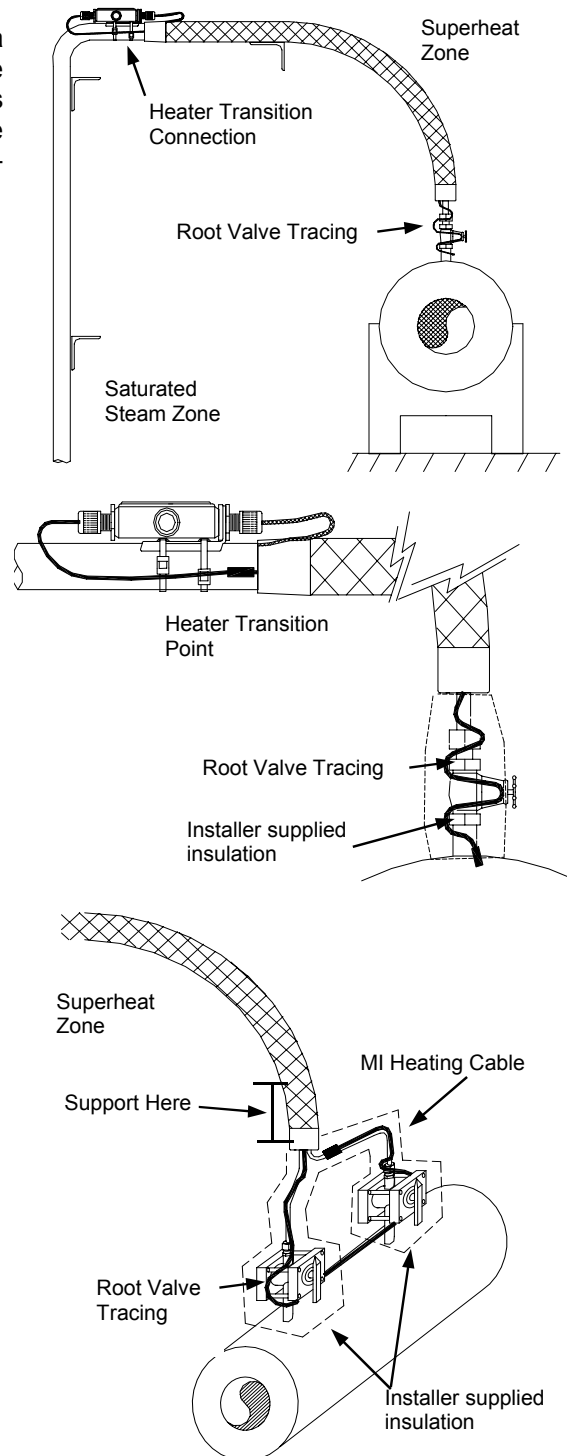
Secure the bundle within 12 inches (305 mm) of the connection, using wide bearing clamps. The insulation should not be compressed more than 1/8" (3 mm).

Route the Superheat Zone of the bundle using wide, sweeping bends and existing supports where possible. The sweeping bends will allow the bundle to expand when heated, lessening or eliminating the need for expansion joints.

The outer jacket temperature of this section of the bundle will exceed 140°F (60°C) during normal operation, so proper guarding must be installed.

Secure the bundle at the zone transition point.

Follow normal routing and installation procedures for the Saturated Zone of the bundle. Further installation guidelines for this section of the bundle can be found on Dekoron/Unitherm drawing 0419-17000.



Technical Information

Unitherm™

Product Characteristics

Maximum Operating Temperature - 1100°F (593°C) at 120°F (49°C) ambient
 Maximum Operating Pressure - 2500 psig (172 Barg)
 Design Maintenance Temperature - Freeze protection at ambient temperature to -40°F (-40°C)
 Outer Jacket Temperature; Superheat Section - 210°F (99°C), Saturated Section - 140°F (60°C)
 Superheat zone length - 20 ft (6 m) (for 1100°F, 2500 psig operation)
 Minimum Bend Radius; Superheat Section—18 inches (450 mm) or less
 Saturated Section— 12 inches (305 mm) or less

Electrical Specifications		Tubing Design Pressures - ASME B31.1-2004	Tube OD / Wall	400F	800F	1100F
Self-Limiting Heater	RSCC 2000 / 2300 Series or Tyco Thermal XTV Series	Type 316 Seamless Stainless Steel Tubing to ASTM A-213	1/4" x .035	3595	2964	2865
			1/4" x .049	5300	4370	4291
Power	5 wt/ft thru 20 w/ft 120 to 277 VAC		3/8" x .049	3327	2743	2645
MI Heater	2-wire High Temp 300 Volt Rated		3/8" x .065	4588	3873	3690
			1/2" x .049	2424	1999	1912
			1/2" x .065	3308	2728	2630
Max Circuit Length	Varies based on heater used for saturated zone.		6mm x 1mm	4342	3580	3484
			10mm x 1.5mm	3890	3208	3109
			10mm x 2mm	5379	4436	4358

Dimensional Data	Nominal OD
Superheat Zone:	1 - 3/8" Tube - 2.25" (57 mm) 2 - 1/2" Tubes - 2.5" (64 mm)
Saturated Steam Zone:	1 - 3/8" Tube - 1.8" (46 mm) 2 - 1/2" Tubes - 2.0" (51 mm)

Installation Recommendations

Support Centers: Superheat Zone

Horizontal - 10 ft (3 m)
 Vertical - 15 ft (4.5 m)
 Support close to root valve, allow free movement in bend for thermal expansion.

Saturated Steam Zone

Horizontal - 6 ft (2 m)
 Vertical - 15 ft (4.5 m)

Minimum Installation Temperature:

FRPVC Jacket: +15°F (-9.4°C)
 FRTPE Jacket: -30°F (-34°C)
 FRTPU Jacket: -58°F (-50°C)

Root Valve Tracing:

Bundles can be ordered with MI heater extending from the end to trace the root valve(s). The installer should insure that sound installation practices are used and that all local and national safety codes are followed.

This document contains empirical and theoretical information from the Dekoron-Unitherm Engineering Library and does not constitute or imply a warranty. All values represent typical performance data for the condition given. Actual results may vary.