

TECHNICAL UPDATE - TU-5010

SUBJECT: Features and Benefits - Dekoron/Unitherm Preinsulated and Steam Traced Products

There are a number of features and benefits that should be communicated to the customer when discussing Dekoron/Unitherm Preinsulated and Steam Traced tubing bundles. We have listed some of the more notable in this update.

1. Improved Moisture Resistant, Non-Wicking, Inorganic Fibrous Glass Thermal Insulation - All heat tracing manufacturers use a non-wicking fibrous glass thermal insulation in their products. The non-wicking glass retards water migration along the bundle that can result from incorrectly sealed ends, splices, or jacket tears. Non-wicking does not mean that no water can reach the inner core tube. These materials will absorb water from a jacket tear or unsealed end, and hold it like a sponge. Furthermore, since the glass is non-wicking, the water cannot escape, so that glass never dries out. This can lead to corrosion of the core tubes and premature failure. Dekoron/Unitherm has improved on the non-wicking glass, reformulating it so that the glass will neither wick or absorb water. This provides a second layer of protection from corrosion. And, since the fibrous glass insulation loses most of its thermal insulation properties when it absorbs water, the new glass prevents loss of bundle performance.
2. Cabled Tube Design - Dekoron/Unitherm cables multi-tube bundles rather than running them parallel. This provides a number of benefits. First, the tube spacing and contact is consistent throughout the bundle. This is extremely important since the distance between the process tube and the tracer affects the amount of heat transferred, which affects the temperature maintained in the process tube. Second, it allows the bundle to be bent in any direction without regard for the position of the tubes. A parallel bundle can only be bent at right angles to the plane of the tubes. In order to bend the bundle out of this plane, the bundle and the tubes must be twisted. This twisting shifts the tubes, changing the distance between them and altering the heat transfer. Multiple bends in a short distance can be difficult since the twisting requires a certain amount of bundle length. Third, connections to the instrument and supply can be easier to accomplish with the cabled bundle. Tube orientation can be a problem in a parallel bundle. If the process and tracer inlets do not line up with the bundle, the entire bundle must be twisted. This could be very difficult if the bundle was bent just before it reached the inlet. With a cabled bundle, the tracer tube can be easily moved around to provide correct alignment with the instrument or inlet. And, if an instrument housing is being used, the cabled bundle does not need a special seal to allow the tubes to be lined up with the instrument.

3. Jacket Material Selection - Dekoron/Unitherm can provide a number of different outer jackets based on the customer's application. The jacket material is not tied to the bundle construction so we can tailor the jacket material to the need. We can provide different jackets on the same bundle for different areas in the customer's site. This provides the customer with the best value, since high cost materials are only used where needed. Jacket thickness and hardness can be adjusted to meet heavy duty or extra rugged requirements. All Dekoron/Unitherm jacket materials are flame retardant grades. Many have passed the stringent IEEE-383 cable tray ribbon burner test used to qualify cables for use in nuclear power plants. This is added safety for the customer. Jacket materials can be selected for low temperatures to -60°C and high temperature to 125°C. Temperature ratings are based on established industry standards, not subjective internal tests. If needed, fabric or metal overjackets can be supplied for extreme situations.

4. Design Backup - Dekoron/Unitherm backs up its designs with testing programs to insure that the bundle meets the customer specifications. Our design lab can test bundles under actual conditions to determine heat loss, steam usage, temperature maintenance, jacket surface temperature, handling characteristics, and other functional or installation characteristics that may be important to the customer. Product lengths of 100 feet or greater can be subjected to extremes of temperature and wind. Steam, electric or fluid heat can be provided to test the bundle's characteristics. This gives an added measure of confidence in operation that no calculated value can provide.