

TECHNICAL UPDATE - TU-6012

SUBJECT: Grounding Standards for Heated Hoses

The National Electric Code (NEC) details construction, installation and safety requirements for electrical power conductors and equipment used in residential and industrial applications.

In field fabricated pipe tracing applications, there is no problem interpreting the Code for each component used. The electric heater is covered under Article 427 titled, "Fixed Electric Heating Equipment for Pipelines and Vessels". Grounding requirements are detailed in section 427-23(a).

The problem in assessing NEC compliance for heated hoses comes from the fact that they fall outside the jurisdiction of the Code. Heated hoses are not a pipeline used to transport process or heat transfer fluids, nor are they a wiring method. Due to their construction and application, heated hoses are classified as "utilization equipment" under Article 100 of the NEC.

Utilization equipment is covered under various other standards, depending upon its construction, equipment classification, and the industry in which it is used. One of the more common standards used for heated hose products is NFPA Standard 79, "Electrical Standard for Industrial Machinery". This standard covers machine tools and fabricating equipment used in general industrial applications.

The purpose of this standard is to "...promote safety to life and property" by providing detailed information for the application of electrical and electronic equipment used in industry. It provides safety standards similar to the NEC, but is tailored to industrial equipment instead of electrical wiring.

Dekoron/Unitherm Heated Hose products conform to the requirements for "Safeguarding of Personnel" called out in NFPA Standard 79:

1. Live electrical components are completely covered by insulation that can only be removed by destroying the product per Article 4-2(a) of the standard.
2. Grounding conductors are sized per Article 17-2 of the Standard.
3. Equipment grounding requirements of Articles 17-3 through 17-6 are all met.

This provides the personnel safety required without compromising the design integrity of the product.