

## USE OF HEAT TRACE TAPES WITH K-FLEX PE POLYETHYLENE INSULATION

Most heat trace tapes designed for residential use have a maximum operating temperature of 180°F and are acceptable for use with K-Flex PE polyethylene insulation. Only *self-regulating* heat trace tapes should be used with polyethylene insulation. Alternative insulation materials such as flexible closed cell elastomeric should be used if the maximum operating temperature exceeds 180°F.

### Sizing the Insulation's Inside Diameter to Prevent Seam Failures

The most common thickness for heat trace tape is 1/4" and will require that the insulation inside diameter is sized properly to fit over both pipe and tape. If this is not taken into consideration, the longitudinal seam could experience excessive stress, resulting in the failure of the longitudinal seams. Technical Bulletin TA 43 provides actual ODs for piping systems. Actual ID adjustment will also depend on whether the heat trace is installed in a linear or spiral configuration as this affects the OD.

### Designing the Insulation / Heat Trace System

The heat loss through the insulation wall must be balanced with the heat gain provided by the heat trace tape to prevent the system temperature from escalating beyond 200°F.

Typical heat trace tapes wattages (per lineal foot):

3 Watt  
5 Watt  
8 Watt  
10 Watt

where: 1 Watt = 3.4121 Btu/hr

Though the heat loss / heat gain calculations seem simple, they can be complicated by the pipe and ambient temperatures. This, in turn, can affect both the selected heat trace tape wattage and the thermal conductivity of the insulation. While basic calculations can be made using the IsoCalc program available for download from the K-Flex USA website ([www.kflexusa.com](http://www.kflexusa.com)), it is recommended that a qualified engineer perform the calculations for commercial heat trace systems applications.

The use of K-Flex polyethylene insulation over heat trace tape greatly improves the performance and efficiency of the heat trace tape system.