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Providing Steam Isolation & Temperature Protection

A. Steam Isolation

All pressure transducers installed on steam lines should be isolated from the steam to protect them from damage. A steam pigtail syphon (such as the MODEL PT) may be used for this purpose.



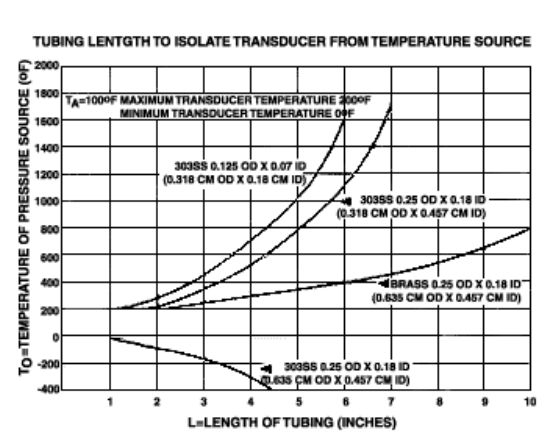
B. Temperature Protection

Frequently it is necessary to measure the pressure of fluids that are at temperatures either above or below the operating range of available transducers. The expense of a special transducer can often be avoided if the pressure transducer is isolated from the pressure source by a short length of pipe or tubing.

The curves on the chart below show how you can limit the temperature at the transducer to a range of 0°F (-17.8°C) to 200°F (93.3°C) for fluid temperatures between -400°F (-204.4°C) and 1700°F (926°C). The chart shows the various tubing lengths, sizes, and materials you can use.

Deviation from these conditions will require some slight adjustments in the length of tubing selected, or if there is any doubt, a TM99A Hand Held Thermometer on the transducer will readily verify proper operating conditions.

Note that a 6" (15.2 cm) length of 1/4" (0.64 cm) stainless steel tubing will effectively protect a transducer from a 1000°F (537.8°C) pressure source. Thus, pressure transducers capable of operating at 200°F (93.3°C) can measure the pressure of fluids having much higher temperatures.



The curves shown on the chart are based on the following assumptions:

1. The pressure vessel is insulated to limit radiant heat transfer to the transducer. Thus, the major source of thermal input is via the connecting tube.
2. The pressure medium has a coefficient of thermal conductivity less than *0.4 Btu/hr/ft²/ft/°F (6 cal/hr/cm²/cm/°C). This figure encompasses a wide range of liquids and gases.
3. The ambient temperature around the transducer is 100°F (37.8°C)
4. The heat transfer rate (convection) from the tubing to still air is *1.44 Btu/ft²/hr °F (1 cal/cm²/hr°C).
- 5.

From Data Instruments "Reference"

* This equation contains subscripts or superscripts which may not be supported by all web browsers. Contact your Kele Sales

Representative if there are any questions about this formula.