Seat Tightness of Pressure Relief Valves

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Seat Tightness of Pressure Relief Valves

1 Scope

This standard describes methods of determining the seat tightness of metal- and soft-seated pressure relief valves, including those of conventional, bellows, and pilot-operated designs.

The maximum acceptable leakage rates are defined for pressure relief valves with set pressures from 103 kPa gauge (15 psig) to 41,379 kPa gauge (6000 psig). If greater seat tightness is required, the purchaser shall specify it in the purchase order.

The test medium for determining the seat tightness—air, steam, or water—shall be the same as that used for determining the set pressure of the valve.

For dual-service valves, the test medium—air, steam, or water—shall be the same as the primary relieving medium.

To ensure safety, the procedures outlined in this standard shall be performed by persons experienced in the use and functions of pressure relief valves.

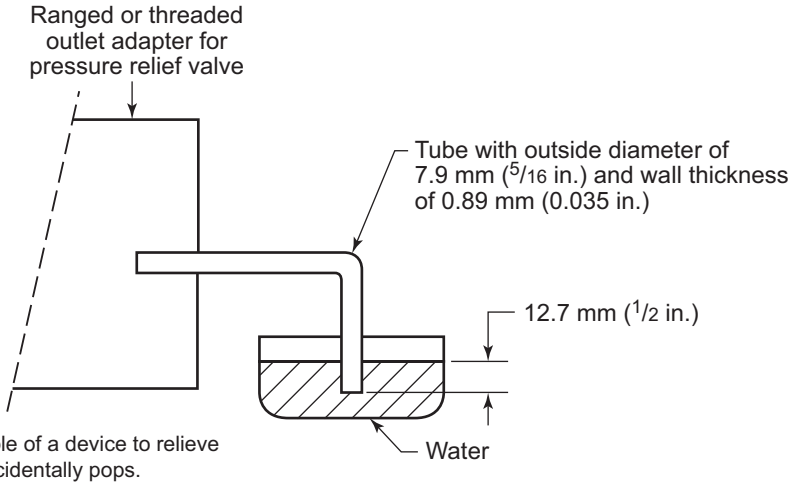
Caution—When looking for leakage, the observer shall use a mirror or some other indirect means of observation so that the observer's face is not in line with the outlet of the valve, in case the valve accidentally pops.

2 Testing with Air

2.1 Test Apparatus

A test arrangement for determining seat tightness with air is shown in Figure 1. Leakage shall be measured using a tube with an outside diameter of 7.9 mm ($^5/_{16}$ in.) and a wall thickness of 0.89 mm (0.035 in.). The tube end shall be cut square and smooth. The tube opening shall be 12.7 mm ($^1/_2$ in.) below the surface of the water. The tube shall be perpendicular to the surface of the water.

Arrangement shall be made to safely relieve or contain body pressure in case the valve accidentally pops (see Figure 2).



NOTE See Figure 2 for an example of a device to relieve body pressure in case the valve accidentally pops.

Figure 1—Apparatus to Test Seat Tightness with Air