

Instrument Valves

NOTICE:

This 2016a Edition Replaces the Original 2016 Edition.

Standard Practice
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Substantive changes contained in this 2016a edition include those changes from the superseded 2016 edition. All substantive changes are “flagged” by parallel bars as shown on the margins of this paragraph. The specific detail of the 2016a changes may be determined by comparing the material flagged with that in the previous 2010 edition.

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INSTRUMENT VALVES

1. SCOPE

1.1 This Standard Practice applies to small valves and manifold valves developed for and predominantly used in instrument, control, and sampling piping systems. It covers steel and alloy valves of nominal pipe size (NPS) 2 and smaller, and pressure ratings of 15,000 psi (103.4 MPa) and lower at 100 °F (38 °C). See MSS SP-105 for instrument valves involving code applications.

1.2 This Standard Practice applies to instrument valve designs including, but not limited to, needle valves, packless valves, ball valves, plug valves, check valves and manifold valves. Instrument valves are generally of proprietary design. This Standard Practice is not intended to define or limit designs, construction, performance, envelope dimensions, or valve types.

1.3 The application of valve type, size, rating, materials of construction, and suitability for the service is the responsibility of the purchaser and is outside the scope of this Standard Practice.

1.4 The manufacturer shall provide pressure ratings for temperatures above 100 °F (38 °C). This temperature is the temperature of the pressure-containing shell of the component. In general, this temperature is the same as that of the contained fluid. Use of a pressure rating corresponding to a temperature other than that of the contained fluid is the responsibility of the user, subject to the requirements of applicable codes and regulations.

2. DEFINITIONS

2.1 **General** Definitions given in MSS SP-96 apply to this Standard Practice.

2.2 **Cold Working Pressure Rating (CWP)** The maximum allowable working pressure of a valve at ambient conditions, i.e., -20 °F to 100 °F (-29 °C to 38 °C).

2.3 **Control Piping** Piping used to interconnect pneumatically or hydraulically operated control apparatuses, or to signal control systems.

2.4 **Instrument Piping** Piping used to connect instruments to main piping or other instruments.

2.5 **Instrument Valves** Valves designed for use in instrument, control, and sampling piping systems, (e.g., see ASME B31.1, Article 122.3).

2.6 **Manifold Valve** Two or more instrument valves fabricated into a single valve body.

2.7 **Packless Valve** A valve with a diaphragm or bellows stem seal instead of a packing or O-ring seal at the stem.

2.8 **Pressure Boundary Parts** The following items are defined to be pressure boundary parts. Each item may not apply to all valve designs.

- a) Body
- b) Bonnet
- c) Union Nut
- d) Body-to-Bonnet Bolting
- e) Body Bolting

2.9 **Sampling Piping** Piping used for the collection of samples (e.g., steam, water, oil, gas, and chemicals) from process systems.