

MSS SP-105-2010

Instrument Valves for Code Applications



Standard Practice
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INSTRUMENT VALVES FOR CODE APPLICATIONS

1. SCOPE

1.1 This Standard Practice applies to small valves and manifold valves developed for and predominately used in instrument, control, and sampling piping systems. It covers steel and alloy valves of nominal pipe size (NPS) 1 and smaller, and pressure ratings of 15,000 psi and lower at 100°F.

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 are the responsibility of the purchaser and are outside the scope of this Standard Practice.

2. DEFINITIONS

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

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

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

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

2.5 **Sampling Piping** Piping used for the collection of samples (such as steam, water, oil, gas, and chemicals) from process systems.

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

2.7 **Cold Working Pressure Rating** The maximum allowable working pressure of a valve at ambient conditions (-20°F to 100°F), abbreviated CWP.

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

3. MATERIALS

3.1 **General** The pressure boundary parts of the valve shall be made of the materials specified herein.

3.2. Non-pressure boundary parts (such as the stem, glands, packing nut) shall be made of materials compatible with the pressure boundary parts materials. For compression packing systems, see MSS SP-132.

3.3 The following materials are acceptable for use as pressure boundary parts.

- a) Materials listed in ASME B16.34
- b) Materials listed in ASME B31.1
- c) Materials listed in ASME B31.3
- d) Materials listed in ASME Boiler and Pressure Vessel Code, Section III
- e) Materials listed in ASME B31.12