



Summary of Substantive Changes
between
the 2009 edition and the 2012 and 2013 addenda of
**ANSI Z21.15 • CSA 9.1, “Standard for Manually Operated Gas Valves for
Appliances, Appliance Connector Valves and Hose End Valves”**
(The addenda are designated ANSI Z21.15a • CSA 9.1a and ANSI Z21.15b • CSA 9.1b)

Presented to the IAPMO Standards Review Committee on January 12, 2015

General: The changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Added general, testing, performance, and marking requirements for universal gas burner valves.

Section 1.2, General: Added general specifications for universal gas burner valves as follows:

1.2.2

The manufacturer shall specify the following information:

- a. *Type of valve or device (see Part IV, Definitions);*
- b. *Maximum and minimum ambient temperature;*
- c. *Capacity (separate capacities may be furnished for both settings of a universal gas burner valve);*
- d. *Low-setting throughput, if applicable (separate throughputs may be furnished for both settings of a universal gas burner valve); and*
- e. *Whether or not the valve has a non-displaceable member.*

Section 1.6, Valve Stop and Latches: Added requirements for universal gas burner valves to indicate position as follows:

1.6.3

A valve having an intermediate “off” position between two “on” positions shall be so constructed that it will become latched in the “off” position. A universal gas burner valve shall have integral provisions to show that only one “off” position exists when the valve is adjusted for each of the selected gas settings.

1.6.4

Latching type valves shall be capable of withstanding the following torques applied against the latching means without damage, which could result in the unseating of the valve member, and on a universal gas burner valve, resulting in a change in gas setting.

New Section 1.8, Universal Gas Burner Valves: Added requirements for universal gas burner valves to be adjusted from one gas to another without need of additional parts and by the use of a tool as follows:

1.8 Universal Gas Burner Valves

A universal gas burner valve shall be designed so that it can be changed from one gas setting to another gas setting with no intermediate settings and without addition, deletion, or substitution of parts. Changing from one gas setting to another shall require the use of a tool.



Section ~~1.8~~ 1.9, *Strength*: Removed directions for alternative connections as follows:

~~1.8.1~~ 1.9.1

Bending Moment.

A valve shall be capable of operation without cracking, breaking, or leaking while being subjected to a bending moment using the weight specified in Table III, Load For Bending Moment Test, in accordance with the following Method of Test.

This test shall not apply to valves which have outlets threaded for orifice fittings.

Method of Test

This test shall be conducted at room temperature. A new sample shall be subjected to the specified test.

a. The inlet and outlet connections of the valve shall be assembled leak tight to the appropriate fittings as described below. The length of the inlet fitting shall be such that, after assembly, the dimension from the valve inlet to the end of the inlet fitting will be 13 in (330 mm) \pm 1/2 in (12.7 mm). The tightening torque for threaded pipe or tubing connections shall be one-half that shown in Table IV, Torques For Turning Effort Test.

- 1. Pipe threaded connections shall be assembled to Schedule 40 iron pipe, or pipe fitting, using non-Teflon type joint compound.*
- 2. Tubing connections shall be assembled to steel tubing which conforms to the Standard for Welded and Cold Drawn Low Carbon Steel Tubing Annealed for Bending and Flaring, ANSI/SAE J525, and has a minimum wall thickness of 0.028 in (0.71 mm), using the attachment means specified by the manufacturer.*
- 3. ~~Connections designed for other than threaded pipe or tubing shall be assembled to test fixture(s) representative of the intended connection means.~~*

Section 1.12, *Instruction*: Added installation instruction requirements for universal gas burner valves as follows:

For a universal gas burner valve, the manufacturer shall provide printed instructions and diagrams (intended for the OEM appliance manufacturer) for the proper method of switching the valve from one gas setting to the other.

Section ~~1.11~~ 1.13, *Marking*: Added marking requirements for universal gas burner valves as follows:

1.13.7

A universal gas burner valve shall be clearly marked at each position to indicate the gas that the valve is set to control. Abbreviations may be used: for example, "Nat" for natural gas and "LP" for propane gas. This marking shall be visible during the act of switching from one gas to the other and shall be incorporated on the valve.

Section 2.2 *Leakage*: Added an additional step for testing universal gas burner valves as follows:

A manual valve shall not leak in excess of 2.62 in³/hr (20 cm³/hr) of air corrected to 30 in Hg (101.3 kPa) pressure at 60°F (15.5°C).

Method of Test

This test shall be conducted at the manufacturer's specified maximum ambient temperature.



Valves incorporating a flow adjustment screw shall be tested for leakage with the adjustment screw in any normal adjustment position from completely closed to that permitting the maximum rate of gas flow, and with the cap, plug, lock nut, or other concealment or sealing means, if provided, tightly in place.

Five new samples of each type of valve shall be subjected to this test, all of which shall comply.

A valve incorporated in a control having a bypass around the valve shall be tested under this provision with the bypass sealed by any convenient means.

Each universal gas burner valve sample shall be tested for leakage when set to deliver each gas (i.e. Natural gas setting and LP gas setting).

The inlet of the valve under test shall be connected to a pneumatic system capable of supplying clean dry air at the test pressures and to a flow measuring device capable of accurately indicating the allowable flow. The flow measuring device shall be located between the air supply and the inlet of the valve...

Section 2.3, Capacity: Added performance requirements for universal gas burner valves as follows:

2.3.1

Pilot shut-off valves, pilot shut-off devices and pilot adjustment valves need not comply with this provision.

The capacity of a valve shall not be less than that specified by the manufacturer. For a universal gas burner valve, the valve shall comply with the requirements of this test with the valve set to deliver each of the applicable gases.

Capacity shall be determined by the quantity in Btu/hr (kW) of a 0.64 specific gravity, 1000 Btu/ft³ (37.3 MJ/m³) gas which can be passed with a pressure drop equal to 0.3 in wc (74.7 Pa).

Section 2.4, Continued Operation: Added performance requirements and an additional step for testing universal gas burner valves as follows:

Universal gas burner valve samples shall comply with these requirements with the samples set to deliver one of the applicable gases. At the conclusion of the test, if the wear pattern of the internal parts is different for each gas setting, the valve samples shall be switched to the other gas setting and the continued operation test shall be repeated.

2.4.1

The valve, as received and at the end of this test, shall comply with 2.2, Leakage, and shall completely open and close on application of a torque or force not to exceed that specified in Table IX, Torque Or Force Limits And Number Of Cycles For Continued Operation.

2.4.3

Valves having predetermined reproducible low settings shall be capable of maintaining the initial flow setting.

Method of Test

This test shall be conducted at room temperature.

One of the valves tested under 2.4.1 may be used for this test.

A valve having a fixed low setting shall be tested as received. If the low setting is adjustable, the valve shall be adjusted to provide a throughput at the low setting within ± 5 percent of the manufacturer's specified value using butane gas at 11.0 in wc (2.74 kPa) pressure.



A valve having adjustable stops for controlling the low setting shall have these stops set with a torque of 15 in/lb (1.69 N•m). Such a valve shall then be cycled 100 times at room temperature against the stops with a torque of 10 in/lb (1.12 N•m). The throughput at the low setting shall then be rechecked and shall be within ± 20 percent of the initial adjustment.

The valve shall then be cycled with the other valves as described under 2.4.1. After 2000 cycles, and at completion of the cycling test, the throughput at the “low” setting shall be rechecked and shall be within ± 20 percent of the initial adjustment. In each case the rotative position for checking the “low” setting shall be indicated by the particular valve construction, whether by an adjustable rotative stop, a “click,” detent or other indicating means.

The universal gas burner valve sample shall be tested for compliance with this provision when set to deliver each gas (i.e. Natural gas setting and LP gas setting). If the wear pattern of the internal parts is different for each gas setting and 2 cycle tests are required, then separate tests shall be performed with the valve set to deliver each gas (i.e. one complete cycle/low setting test with the valve set to Natural and one complete cycle/low setting test with the valve set to LP). If the wear patterns are the same for each setting and only one cycle test is needed, the “low” setting requirements shall be checked at both gas settings in the as received condition, after 2000 cycles and at the conclusion of cycling.

Section 3.2: Added requirement for manufacturer testing of universal gas burner valves as follows:

The manufacturer shall test each device covered by this standard for:

- a. Leakage to the atmosphere; and*
- b. Leakage through the valve.*

Each universal gas burner valve shall be tested for leakage when set to deliver each gas (i.e. Natural gas setting and Propane gas setting).

Part IV: Definitions: Added the definition of a universal gas burner valve as follows:

VALVE, MANUALLY OPERATED GAS. A valve that permits control of the flow of gas from an “off” to an “on” position by means of hand operations (manual control). Some specific types are:

3. Universal Gas Burner Valve. A gas burner valve for use in outdoor gas appliance applications with provisions for two gases having different heating values which can be changed from one gas setting to another gas setting with no intermediate selection settings and without the addition, deletion or substitution of parts. A universal gas burner valve requires no physical interaction with the appliance burner orifices to facilitate the changing from one gas setting to the other and has integral provisions to ensure only one “off” position exists when adjusted for each of the selected gas settings.

3.4. Appliance Connector Valve. A manually-operated gas valve having a non-displaceable valve member, a minimum specified capacity (code marked on the valve), an internal taper pipe thread inlet and an outlet for flared tubing connection. An appliance connector valve is intended to be used between the gas supply piping and the appliance connector attached to the appliance.