



**Summary of Substantive Changes  
between the 2013 and the 2017 editions of  
ANSI Z21.93 • CSA 6.30 “Excess flow valves for natural gas and  
propane gas with pressures up to 5 psig”**

**Presented to the IAPMO Standards Review Committee on September 10, 2018**

**General:** The changes to this standard will have an impact on currently listed products. The significant changes are:

- Added requirements to include a new statement, and a new warning, in the product installation instructions (See Section 4.9)
- Clarified that the method of test for determining the trip flow and flow capacity, and revised the flow capacity and pressure drop calculations (see Section 5.5 and Annex A)

Section 2, Reference publications: Updated the referenced publications to the show current editions.

**CSA Group**

CSA B149.1-[10 \(R2015\)](#), International fuel gas code

CSA C22.2 No. 0.15-[15](#), Standard for adhesive labels

**American Society of Mechanical Engineers (ASME)**

ASME B.1-[2003](#), Unified inch screw threads (UN and UNR thread form)

ASME B1.20.1 NPT-[2013](#), Standard for pipe threads, general purpose (Inch)

ASME B1.20.3 NPTF-[1976](#), Standard for dryseal pipe threads (Inch)

American Society for Testing and Materials (ASTM)

B117-[11](#), Standard practice for operating salt spray (fog) apparatus

B858-[06 \(2012\)](#), Test method for ammonia vapor test for determination susceptibility to stress corrosion cracking in copper alloys

D471-[12a](#), Standard test method for rubber property effect of liquids

**International Association of Plumbing and Mechanical Officials (IAPMO)**

Uniform plumbing code — [2015](#)

**International Organization for Standardization (ISO)**

ISO 68:[1998](#), Standard for ISO general purpose screw threads-basic profile

ISO 261:[1998](#), Standard for ISO general purpose metric screw threads-general plan

ISO 1817:[2015](#), Rubber, vulcanized-determination of the effects of liquids

**National Fire Protection Association (NFPA)**

NFPA 54-[2015](#), Natural gas and propane installation code

Section 3, Definitions: A definition was deleted as follows:

~~“Do not reuse”—A term to describe that a device shall only be installed one time. Only new, unused devices shall be used for new installations. If an excess flow valve flare connection is ruptured or disconnected during repair or replacement of appliances or attached gas piping, the device shall be replaced with only a new, unused device.~~



Section 4.9 Instructions: Added a new statement and a new warning in 10-point font, that are required to be included in the installation instructions as follows:

#### **4.9.1 General instructions**

*Complete instructions covering installation and proper operation shall be furnished by the manufacturer. Included in these instructions shall be:*

- a) *Manufacturer's or dealer's name and address;*
- b) *Model number;*

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- m) *Appropriate sizing instructions for the installer;*

~~n) "DO NOT REUSE" (see Clause 3);~~

~~no) Must not be installed in a concealed location; and~~

~~op) Excess flow valve with bypass flow rates greater than 2.5 SCFH are not for residential use.~~

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#### **4.9.4**

*The instructions shall include the statement of compliance with this Standard, as follows:  
"ANSI Z21.93 • CSA 6.30, Excess Flow Gas Valves"*

#### **4.9.5**

*The following warning in a 10-point font:*

*"The excess flow valve shall be for use only in its original installation and location. DO NOT REUSE the excess flow valve for another installation or move it to a different location within the same piping system."*

Section 5.5, Trip flow and flow capacity: Clarified that the method of test for determining the trip flow and flow capacity is referenced to section 5.5.4, and revised the flow capacity and pressure drop calculations in Annex A as follows:

#### **5.5.2**

*An excess flow valve shall trip between 1 and 1.4 times the rated trip flow specified by the manufacturer when tested in accordance with the Method of Test under Clause 5.5.4. The pressure drop across the excess flow valve at trip shall not be greater than the manufacturer's specified maximum pressure drop at trip flow when tested in accordance with the Method of Test under Clause 5.5.4. After closure, the bypass flow rate for a bypass excess flow valve (see Clause 3, Definitions) shall not exceed that specified in Clause 5.6, Bypass flow rate.*

#### **5.5.3**

*The maximum flow capacity specified by the manufacturer shall not be greater than 90 percent of the rated trip flow. The pressure drop across the excess flow valve at maximum flow capacity shall not be greater than that specified by the manufacturer when tested in accordance with the Method of Test under Clause 5.5.4.*



#### 5.5.4

The flow capacity at 0.5 in wc (12 Pa) pressure drop shall be not greater than the capacity specified in Clause 5.5.3 according to the following Method of Test.

#### **Method of Test**

The gas flow rates and pressure drops referred to in this clause shall be calculated using the equations shown in Annex A.

These tests shall be conducted at an ambient temperature of  $77^{\circ}\text{F} \pm 10^{\circ}\text{F}$  ( $25^{\circ}\text{C} \pm 5.5^{\circ}\text{C}$ ) with the valve set at an inlet pressure of 5 in wc. This inlet pressure shall be maintained throughout the tests by adjusting the appropriate valves, regulators, or other system components. The valve shall be tested in each of the manufacturer's specified orientation(s). The capacity of the device shall be determined with the valve in the open position. No manual adjustments of the opening shall be made. The capacity shall be measured by means of a direct reading flow measuring device suitable for air, and selected so as to provide a reading of volumetric accuracy within plus or minus 1 percent of full scale, or with measurements taken from other suitable devices for measuring flow capacity. The pressure drop shall be measured to an accuracy of  $\pm 5$  percent of reading.

- a) Trip flow: Slowly adjust the outlet adjustment control valve to increase flow. The trip flow is the highest flow rate that can be obtained just before closing. Record the pressure drop and flow rate at this condition. After the valve has tripped, the trip condition shall be maintained for one minute. Spontaneous resetting or oscillating of the excess flow valve shall be considered non-compliant.
- b) Maximum flow capacity: Set the flow rate to the maximum flow capacity as specified by the manufacturer and record the pressure drop.
- c) Flow capacity at 0.5 in wc pressure drop: Set the pressure drop across the valve to 0.5 in wc (12 Pa). Record the flow rate, and calculate the flow capacity. For valves that trip at a pressure ~~differential~~ drop of less than 0.5 in wc (12 Pa) the flow capacity shall be specified as the maximum flow capacity. For valves that have a capacity at 0.5 in wc (12 pa) pressure differential that is between the maximum flow capacity and the rated trip flow, then only the maximum flow capacity shall be stated.

Annex A, Calculations: The flow capacity and pressure drop calculations were revised.