

Addenda to
ANSI Z21.22-1999 • CSA 4.4-M99 and
Z21.22a-2000 • CSA 4.4a-2000

AMERICAN NATIONAL STANDARD/CSA STANDARD

FOR

RELIEF VALVES FOR HOT WATER SUPPLY SYSTEMS



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PREFACE

The standards set forth herein apply to the first edition of the Standard for Relief Valves for Hot Water Supply Systems, ANSI Z21.22-1999 · CSA 4.4-M99, and Addenda ANSI Z21.22a-2000 · CSA 4.4a-2000, and supersede corresponding standards therein. Following their preparation by the supervising subcommittee, they were accepted by ANSI and the Interprovincial Gas Advisory Council, and subsequently approved.

NOTE: Changes, other than editorial, are denoted by a vertical line in the margin.



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Addenda to
AMERICAN NATIONAL STANDARD/CSA STANDARD FOR
RELIEF VALVES FOR HOT WATER SUPPLY SYSTEMS

PART I
CONSTRUCTION

1.1 SCOPE

1.1.1 This standard applies to the following types of relief valves constructed entirely of new, unused parts and materials:

- a. Combination temperature and pressure relief valves for use on storage tanks of hot water supply systems without heater input limitation, hereinafter called “T&P” valves.
- b. Valves having only pressure relief features for use on storage tanks of hot water supply systems without heater input limitation.
- c. Vacuum relief valves.

1.1.2 A T&P valve shall operate when the temperature sensing element is at 210°F (99°C) or less. A device with a higher operating temperature is not acceptable under this standard.

1.2 GENERAL

1.2.2 The temperature relief element of a T&P valve shall be of the automatic reseating type.

1.2.5 When the inlet of a relief valve includes a special purpose adapter, the adapter shall be a permanent part of the relief valve body and the relief valve shall comply with this standard with the adapter in place.

1.2.6 The maximum diameter of any part of a temperature sensing element external to the relief valve body shall not exceed $\frac{19}{32}$ inch (15.1 mm) on valves of $\frac{3}{4}$ inch nominal pipe size.

1.2.7 A device incorporating a pressure relief feature shall be provided with a means for manually unseating the relief valve disc a distance of at least $\frac{1}{16}$ inch (1.6 mm).

1.3 CONNECTIONS AND FLOW AREAS

1.3.1 Tappings and threadings for connecting the device to tanks, water pipes or drains shall be provided with cleanly cut taper pipe threads in accordance with the Standard for *Pipe Threads, General Purpose (Inch)*, ANSI/ASME B1.20.1, except a relief valve having a special purpose

adapter (see 1.2.5) shall not employ threads on the inlet connection of the adapter which are capable of being assembled to standard taper pipe threads.

Inlet and outlet connections shall be designed so that when a pipe which is threaded two threads beyond standard (for the size in question) is run into the threaded portion of a relief valve body, it will not materially reduce the capacity of the valve, distort any portion of the relief valve body, or adversely affect the operation of the relief valve.

1.3.3 Inlet and discharge connections of a relief valve shall have internal diameters throughout their full length of not less than that shown in Table I for the nominal size of the valve.

The inlet and discharge connections shall be unobstructed except for the portion of the thermostatic element within the inlet of a T & P valve. The section of the element within the inlet shall not have a diameter exceeding the limit shown in Table I for the nominal size of the valve.

1.3.5 The smallest cross-sectional dimension of any flow way shall not be less than $\frac{3}{16}$ inch (4.8 mm) except:

- a. The flow way between the relief valve body wall and the valve disc holder may be less than $\frac{3}{16}$ inch (4.8 mm) but not less than $\frac{1}{16}$ inch (1.6 mm) providing the minimum dimension of the flow area below the lip of the disc holder is at least $\frac{3}{16}$ inch (4.8 mm);
- b. The flow way between the walls of the orifice and any part of a temperature element extending through the orifice may be less than $\frac{3}{16}$ inch (4.8 mm) but not less than $\frac{1}{8}$ inch (3.2 mm). The minimum dimension between any part of a temperature element below the orifice, which is larger than that part extending through the orifice, and the lower edges of the orifice shall be $\frac{3}{16}$ inch (4.8 mm); and
- c. As otherwise permitted by Table I.

1.3.6 A relief valve shall not have an orifice less than $\frac{7}{16}$ inch (11.1 mm) in diameter.

1.3.7 All connections (inlet, outlet, drain, etc.) shall be permanently marked to aid in correct installation of the device. Only markings which are stamped, etched, or cast on the relief valve shall be considered as complying with this provision.

1.3.8 The body flow way between the seat and the discharge connection of pressure and T & P valves shall be constructed so that the bottom of the flow way and inside surface of the discharge pipe are at least $\frac{3}{32}$ inch (2.4 mm) below the face of the seat or the lowest part of the relief valve disc holder, whichever is lower.

1.5 ADJUSTMENTS

Relief valves covered by this standard shall have no means for field adjustment of the temperature or pressure settings.

1.7 CORROSION

Parts of a relief valve which are constantly in contact with water shall possess a resistance to corrosion equivalent to that of brass containing at least 60 percent copper.

1.9 ASSEMBLY

The construction of pressure and T&P relief valves shall be such that operating parts are not capable of field disassembly. Use of tamper-resistant fastenings is acceptable.

1.10 INSTRUCTIONS

1.10.3 The instructions for pressure and T&P relief valves shall specify that:

- a. No valve is to be placed between the relief valve and the tank;
- b. A discharge line shall be connected to the outlet of the valve. This line shall discharge downward with a 6 inch (152 mm) air gap from an approved location or building drain. In no case may a discharge line be directly connected to a sewer line;
- c. No reducing coupling or other restriction shall be installed in the discharge line;
- d. The discharge line shall be installed to allow complete drainage of both the valve and the line;
- e. The maximum allowable length of discharge line as specified by the manufacturer;
- f. The end of the discharge line shall be plain, not threaded; and
- g. The discharge line must be suitable for the purpose up to the temperature rating shown on the valve.

1.10.5 Instructions for T&P valves shall specify that the valve be mounted directly in a tank tapping located within the top 6 inches (152 mm) of the tank and shall be adequately insulated and located so as to be isolated from flue gas heat or other ambient conditions that are not indicative of stored water temperature.

Sketches or diagrams showing recommended methods of installation shall be provided.

1.11 MARKING

1.11.3 T&P valves of the immersion type having extended elements shall be marked with the length in inches, to the nearest full inch, of the extension element beyond the inlet of the valve. This marking may be included as a suffix to the manufacturer's model or type number.

1.11.4 Relief Valves

- a. The marking specified in 1.11.1 through 1.11.3 and “-b” through “-e” in this provision shall be plainly stamped, cast or etched on the relief valve or on a permanent name plate