



Standard Practice for Installation, Inspection, and Maintenance of Valve-body Pressure-relief Methods for Geothermal and Other High- Temperature Liquid Applications¹

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1. Scope

1.1 This practice covers installation, inspection, and maintenance of valve body cavity pressure relief methods for valves used in geothermal and other high-temperature liquid service. The valve type covered by this practice is a design with an isolated body cavity such that when the valve is in either the open or closed position pressure is trapped in the isolated cavity, and there is no provision to relieve the excess pressure internally.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *API Standard:*²

6D—Specifications for Pipe Line Valves, End Closures, Connectors and Swivels

3. Terminology

3.1 *Definitions:*

3.1.1 *relief device*—a spring loaded valve or rupture disk that will relieve excessive pressure from the body cavity at a predetermined pressure.

4. Installation

4.1 Any valve conforming to the description in Section 1 of this practice shall have a body cavity pressure relief device installed in a manner to relieve excessive pressure from the body cavity. The relief pressure setting shall not exceed 700

kPa (101.5 psi) above the rated working pressure of the valve assembly at 40°C (104°F) as defined in the latest edition of API 6D.

4.2 The installation shall be such that direct access to the body cavity is maintained and that the pressure relief device may be periodically removed, cleaned, inspected, and reinstalled without endangering the operating personnel or removing the valve from its functional application.

4.2.1 The relief device may be mounted with an automatic shutoff, such as a check valve held in the open position by the relief device. An example of such an assembly is shown in Fig. 1. The shutoff device will not be rendered inoperative.

5. Cold-Weather Considerations

5.1 Temperatures below freezing are considered due to ice formation within the body cavity and the associated expansion.

5.2 The recommended procedures for winterizing (for example, for temperatures below freezing) valves of the type described in Section 1 of this recommended practice shall be as follows:

5.2.1 The valve must be fully closed or fully opened.

5.2.2 The body cavity should be purged with a nonreactive gas (for example, nitrogen) or filled with a fluid to produce a solution with a low freezing point (below -45°C (-49°F)).

6. Inspection

6.1 The pressure relief device shall be kept clean to ensure proper operation.

6.2 The relief device shall be removed, inspected, then cleaned, repaired, or replaced, and reinstalled on a schedule determined by the respective application. The recommended inspection period shall not exceed one year.

6.3 If removal of the relief device shall seal the valve body cavity, (for example, a spring loaded check valve as shown in Fig. 1) and the working temperature of the valve may change, then a substitute relief device shall be installed immediately.

6.4 The opening to the valve body cavity shall be inspected for blockage, and any blockage of scale or any other foreign material.

¹ This practice is under the jurisdiction of ASTM Committee E44 on Solar, Geothermal and Other Alternative Energy Sources and is the direct responsibility of Subcommittee E44.15 on Geothermal Field Development, Utilization and Materials.

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² Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, <http://www.api.org>.