

# Inspection of Pressure-Relieving Devices

API RECOMMENDED PRACTICE 576  
SECOND EDITION, DECEMBER 2000



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**Downstream Segment**

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# Inspection of Pressure-Relieving Devices

## 1 Scope

This recommended practice describes the inspection and repair practices for automatic pressure-relieving devices commonly used in the oil and petrochemical industries. As a guide to the inspection and repair of these devices in the user's plant, it is intended to ensure their proper performance. This publication covers such automatic devices as pressure relief valves, pilot-operated pressure relief valves, rupture disks, and weight-loaded pressure vacuum vents.

The scope of this recommended practice includes the inspection and repair of automatic pressure-relieving devices commonly used in the oil and petrochemical industry.

The recommendations in this publication are not intended to supersede requirements established by regulatory bodies. This publication does not cover weak seams or sections in tanks, explosion doors, fusible plugs, control valves, and other devices that either depend on an external source of power for operation or are manually operated. Inspections and tests made at manufacturers' plants, which are usually covered by codes or purchase specifications, are not covered by this publication.

This publication does not cover training requirements for mechanics involved in the inspection and repair of pressure-relieving devices. Those seeking these requirements should see API 510, which gives the requirements for a quality control system and specifies that the repair organization maintain and document a training program ensuring that personnel are qualified.

## 2 References

The following standards and specifications are cited in this recommended practice:

API	
510	<i>Pressure Vessel Inspection Code: Inspection, Rating, Repair, and Alteration</i>
RP 520	<i>Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries</i> , Part I, "Sizing and Selection," and Part II, "Installation"
RP 521	<i>Guide for Pressure-Relieving and Depressuring Systems</i>
Std 522	<i>Flanged Steel Pressure Relief Valves</i>
Std 527	<i>Seat Tightness of Pressure Relief Valves</i>
Std 620	<i>Design and Construction of Large, Welded, Low-Pressure Storage Tanks</i>
Std 650	<i>Welded Steel Tanks for Oil Storage</i>
Std 2000	<i>Venting Atmospheric and Low-Pressure Storage Tanks (Nonrefrigerated and Refrigerated)</i>

Bull 2521 *Use of Pressure-Vacuum Vent Valves for Atmospheric Pressure Tanks to Reduce Evaporation Loss*

ASME<sup>1</sup>

PTC 25 *Pressure Relief Devices Boiler and Pressure Vessel Code*,  
Section I "Power Boilers"  
Section IV "Heating Boilers"  
Section VI "Recommended Rules for Care and Operation of Heating Boilers"  
Section VII "Recommended Guidelines for Care of Power Boilers"  
Section VIII "Pressure Vessels" Division 1

NACE<sup>2</sup>

Std MR0175 *Sulfide Stress Cracking Resistant-Metallic Materials for Oil Field Equipment*

NB<sup>3</sup>

NB-18 *Pressure Relief Device Certifications*  
NB-2 *National Board Inspection Code*

## 3 Definitions

### 3.1 GENERAL

**3.1.1 car seal:** A self-locking seal that when placed in position and closed, locks and must be cut with wire cutters or physically broken to be removed. Local jurisdictional requirements may specify the acceptable method(s) of sealing or locking block valves.

**3.1.2 non-reclosing pressure relief device:** A pressure relief device, which remains open after operation. A manual resetting means may be provided.

**3.1.3 pin-actuated device:** A non-reclosing pressure relief device actuated by static pressure and designed to function by buckling or breaking a pin which holds a piston or a plug in place. Upon buckling or breaking of the pin, the piston or plug instantly moves to the full open position.

### 3.2 DIMENSIONAL CHARACTERISTICS OF PRESSURE RELIEF VALVES

**3.2.1 effective discharge area:** A nominal or computed area used with an effective discharge coefficient to calculate

<sup>1</sup> ASME International, Three Park Avenue New York, New York 10016-5990, www.asme.org.

<sup>2</sup> NACE International, 440 South Creek Drive, Houston, Texas, 77084, www.nace.org.

<sup>3</sup> National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229, www.nationalboard.com.