Contents

3.1 Introduction

This chapter provides an overview of terms and definitions for safety valves and other pressure relief devices according to the most important codes and standards.
Technical terms are not defined identically in different codes and standards. In some cases the same term is used for different meanings. The terms and definitions in this document are listed in alphabetical order and allow to see the differences between the standards.

3.2 List of Referenced Codes and Standards

The terms listed are based on the following codes and standards with edition.

Name	Edition	Title
ASME PTC 25	2001	Pressure Relief Devices Performance Test Codes
API 520 Part I	2008	Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries
API 526[1)]	2009	Flanged Steel Pressure Relief Valves
AD 2000 – A2 Merkblatt (English Edition)	2001	Safety devices against excess pressure - Safety valves -
ISO 4126 - Part 1	2004	Safety devices for protection against excessive pressure, Part 1: Safety Valves
ISO 4126 - Part 4	2004	Safety devices for protection against excessive pressure, Part 4: Pilot operated safety valves
ISO 4126 - Part 9	2008	Safety devices for protection against excessive pressure, Part 9: Application and installation of safety devices excluding stand-alone bursting disc safety devices

Table 3.2-1: List of referenced codes and standards

1): API 526 refers to API 520 Part I.

The following standards containing safety valve terminology have been withdrawn or will be withdrawn and are not considered:

Name	Edition	Title
ANSI B95.1	1977	Terminology for Pressure Relief Devices
DIN 3320-1	1984	Safety Valves; Safety Shut-Off Valves; Definitions, Sizing, Marking

Table 3.2-2: List of not referenced codes and standards

3.3 Overview Terms and Definitions

For the actual definition of the term see the page specified in the right hand column of the table below.

Term	Specified in						See page
	ASME PTC 25	API 520	ISO 4126 Part 1	ISO 4126 Part 4	ISO 4126 Part 9	AD 2000-A2	
Accumulated pressure					x		3.4-1
Accumulation		x					3.4-1
Actual discharge area	x	x					3.4-1
Adjusting ring	x						3.4-1
Adjustment screw	x						3.4-1
Assisted safety valve			x				3.4-1
Back pressure	x	x					3.4-1
Backflow preventer	x						3.4-1
Balanced bellows			x				3.4-2
Balanced direct spring loaded PRV	x						3.4-2
Balanced pressure relief valve		x					3.4-2
Bellows	x						3.4-2
Bench testing	x						3.4-2
Blowdown	x	x	x				3.4-2
Blowdown (of a pilot operated safety valve)				x			3.4-2
Blowdown pressure	x						3.4-2
Blowdown ring	x						3.4-3
Body	x						3.4-3
Bonnet	x						3.4-3
Bore area	x	x					3.4-3
Bore diameter	x						3.4-3
Breaking pin	x						3.4-3
Breaking pin device	x	x					3.4-3
Breaking pin housing	x						3.4-3
Breaking pressure	x						3.4-4
Buckling pin	x						3.4-4
Buckling pin device	x	x					3.4-4
Built-up backpressure	x	x	x	x			3.4-4
Burst pressure	x	x					3.4-4
Bursting disk device	x						3.4-4
Burst-pressure tolerance		x					3.4-4
Cap	x						3.4-5
Certified (discharge) capacity			x	x			3.4-5
Chatter	x						3.4-5
Closing pressure	x	x					3.4-5
Coefficient of discharge	x	x	x	x			3.4-5
Cold differential test pressure	x	x	x	x			3.4-6
Constant back pressure	x						3.4-6
Controlled safety valves						x	3.4-6
Conventional direct spring loaded PRV	x						3.4-6
Conventional Pressure Relief Valve		x					3.4-6
Cracking pressure	x						3.4-6
Curtain area	x	x					3.4-6
Design features	x						3.4-7
Design pressure		x					3.4-7
Developed lift	x						3.4-7
Diaphragm	x						3.4-7
Direct loaded safety valve			x				3.4-7
Direct spring-loaded device	x						3.4-7
Direct spring-loaded PRV	x						3.4-7

Term	Specified in						
	ASME PTC 25	API 520	ISO 4126 Part 1	ISO 4126 Part 4	ISO 4126 Part 9	AD 2000-A2	See page
Direct-acting safety valves						x	3.4-7
Discharge area	x						3.4-7
Disk	x						3.4-7
Disk holder	x						3.4-8
Dome	x						3.4-8
Dynamic blowdown	x						3.4-8
Effective coefficient of discharge		x					3.4-8
Effective discharge area	x	x					3.4-8
Fail-safe					x		3.4-8
Field test	x						3.4-8
Flow area			x	x			3.4-8
Flow capacity	x						3.4-9
Flow capacity testing	x						3.4-9
Flow diameter			x	x			3.4-9
Flowing pilot				x			3.4-9
Flow-rating pressure	x						3.4-9
Flow resistance	x						3.4-9
Flutter	x						3.4-9
Frangible disk device	x						3.4-9
Full bore device	x						3.4-9
Full bore PRV	x						3.4-9
Full lift device	x						3.4-10
Full lift PRV	x						3.4-10
Full Lift Safety Valve						x	3.4-10
Fusible plug	x						3.4-10
Gag	x						3.4-10
Guide	x						3.4-10
Huddling chamber	x	x					3.4-10
Inlet area	x						3.4-10
Inlet size	x	x					3.4-10
In-plate testing	x						3.4-11
In-service testing	x						3.4-11
Internal spring PRV	x						3.4-11
Knife blade	x						3.4-11
Leak pressure	x						3.4-11
Leak test pressure	x	x					3.4-11
Lift	x	x	x	x			3.4-11
Lift lever	x						3.4-11
Lot of rupture disks	x	x					3.4-12
Low lift device	x						3.4-12
Low lift PRV	x						3.4-12
Main relieving valve	x						3.4-12
Manufacturing design range		x					3.4-12
Marked breaking pressure	x						3.4-12
Marked burst pressure	x	x					3.4-12
Marked relieving capacity	x						3.4-12
Marked set pressure	x						3.4-12
Maximum allowable pressure, PS			x	x	x		3.4-13
Maximum allowable accumulated pressure, PSaccum					x		3.4-13
Maximum allowable working pressure (MAWP)		x					3.4-13
Maximum/minimum allowable temperature, TS					x		3.4-13
Maximum operating pressure		x					3.4-13
Measured relieving capacity	x						3.4-13
Modulating				x			3.4-13

Term	Specified in						See page
	ASME PTC 25	API 520	ISO 4126 Part 1	ISO 4126 Part 4	ISO 4126 Part 9	AD 2000-A2	
Net flow area	x	x					3.4-13
Non-flowing pilot				x			3.4-14
Non-fragmenting rupture disk		x					3.4-14
Non-reclosing pressure relief device	x	x					3.4-14
Nozzle	x						3.4-14
Nozzle area, nozzle throat area	x						3.4-14
Nozzle diameter	x						3.4-14
ON/OFF				x			3.4-14
Opening pressure	x	x					3.4-14
Opening sensing pressure				x			3.4-14
Operating ratio of a pressure relief valve		x					3.4-14
Operating ratio of a rupture disk		x					3.4-15
Orifice area	x						3.4-15
Outlet size	x	x					3.4-15
Overpressure	x	x	x				3.4-15
Overpressure (of a pilot operated safety valve)				x			3.4-15
Pilot	x						3.4-15
Pilot operated device	x						3.4-15
Pilot-operated pressure relief valve	x	x					3.4-16
Pilot operated safety valve			x	x			3.4-16
Pin-actuated device		x					3.4-16
Piston	x						3.4-16
Popping pressure	x						3.4-16
Power-actuated PRV	x						3.4-16
Pressure-containing member	x						3.4-16
Pressure relief device	x	x					3.4-17
Pressure relief valve (PRV)	x	x					3.4-17
Pressure-retaining member	x						3.4-17
Primary pressure	x						3.4-17
Proportional safety valves						x	3.4-17
Rated coefficient of discharge		x					3.4-17
Rated lift	x						3.4-17
Rated relieving capacity	x	x					3.4-18
Reduced bore device	x						3.4-18
Reduced bore PRV	x						3.4-18
Redundancy					x		3.4-18
Reference conditions	x						3.4-18
Relief valve	x	x					3.4-18
Relieving conditions	x	x					3.4-18
Relieving pressure	x		x	x			3.4-19
Resealing pressure	x						3.4-19
Reseating pressure	x		x				3.4-19
Reseating pressure (of a pilot operated safety valve)				x			3.4-19
Rupture disk	x	x					3.4-19
Rupture disk device	x	x					3.4-19
Rupture disk holder	x	x					3.4-20
Safety					x		3.4-20
Safety device					x		3.4-20
Safety relief valve	x	x					3.4-20
Safety system					x		3.4-20
Safety valve	x	x	x				3.4-20
Seal-off pressure	x						3.4-20
Seat	x						3.4-21
Seat angle	x						3.4-21

Term	Specified in						See page
	ASME PTC 25	API 520	ISO 4126 Part 1	ISO 4126 Part 4	ISO 4126 Part 9	AD 2000-A2	
Seat area	x						3.4-21
Seat diameter	x						3.4-21
Seat flow area	x						3.4-21
Secondary pressure	x						3.4-21
Set pressure	x	x	x	x			3.4-21
Shear pin	x						3.4-22
Shear pin device	x						3.4-22
Simmer	x	x					3.4-22
Specified burst pressure (of a rupture disk device)	x	x					3.4-22
Specified disk temperature		x					3.4-22
Spindle	x						3.4-22
Spring	x						3.4-22
Spring button	x						3.4-22
Spring step	x						3.4-23
Spring washer	x						3.4-23
Standard Safety Valve						x	3.4-23
Start-to-discharge pressure	x						3.4-23
Start-to-leak pressure	x						3.4-23
Static blowdown	x						3.4-23
Stem	x						3.4-23
Superimposed backpressure	x	x	x	x			3.4-23
Supplementary loaded safety valve			x				3.4-24
Temperature and PRV	x						3.4-24
Test pressure	x						3.4-24
Theoretical discharge capacity			x	x			3.4-24
Throat area	x						3.4-24
Throat diameter	x						3.4-24
Vacuum support	x						3.4-24
Vapor-tight pressure	x						3.4-24
Variable back pressure	x						3.4-24
Warn	x						3.4-24
Yield (melt) temperature	x						3.4-25
Yoke	x						3.4-25

Table 3.3-1: List of terms

3.4 Description Terms and Definitions

Accumulated pressure

ISO 4126-9, 2008, 3.17
Pressure in the equipment to be protected which can exceed maximum allowable pressure for a short duration during the operation of safety devices.

Accumulation

API 520, 2008, Part I, 3.1
The pressure increase over the maximum allowable working pressure of the vessel, expressed in pressure units or as a percentage of maximum allowable working pressure (MAWP) or design pressure. Maximum allowable accumulations are established by applicable codes for emergency operating and fire contingencies.

Actual discharge area

ASME PTC 25, 2001, 2.5 PRV
The measured minimum net area which determines the flow through a valve. The symbol is a_d.

API 520, 2008, Part I, 3.2
Actual orifice area
The area of a pressure relief valve (PRV) is the minimum net area that determines the flow through a valve.

Adjusting ring

ASME PTC 25, 2001, 2.4 Parts of PRD
A ring assembled to the nozzle or 'guide of a direct spring valve, used to control the opening characteristics and/or the reseat pressure.

Adjustment screw

ASME PTC 25, 2001, 2.4 Parts of PRD
A screw used to adjust the set pressure or the reseat pressure of a reclosing pressure relief device.

Assisted safety valve

ISO 4126-1, 2004, 3.1.1.2
Safety valve which, by means of a powered assistance mechanism, may additionally be lifted at a pressure lower than the set pressure and will, even in the event of failure of the assistance mechanism, comply with all the requirements for safety valves given in this standard.

Back pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The static pressure existing at the outlet of a pressure relief device due to pressure in the discharge system.

API 520, 2008, Part I, 3.3
The pressure that exists at the outlet of a pressure relief device as a result of the pressure in the discharge system. Backpressure is the sum of the superimposed and built-up backpressures. The symbol is P_2 or P_b.

Backflow preventer

ASME PTC 25, 2001, 2.4, Parts of PRD
A part or feature of a pilot operated pressure relief valve used to prevent the valve from opening and flowing backwards when the pressure at the valve outlet is greater than the pressure at the valve inlet.

Balanced bellows

ISO 4126-1, 2004, 3.2.9
Bellows device which minimizes the effect of superimposed back pressure on the set pressure of a safety valve.

Balanced direct spring loaded PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A direct spring-loaded pressure relief valve which incorporates means of minimizing the effect of back pressure on the operational characteristics (opening pressure, closing pressure, and relieving pressure).

Balanced pressure relief valve

API 520, 2008, Part I, 3.4
A spring loaded pressure relief valve that incorporates a bellows or other means for minimizing the effect of backpressure on the operational characteristics of the valve.

Bellows

ASME PTC 25, 2001, 2.4 Parts of PRD
A flexible pressure-containing component of a balance direct spring valve used to prevent changes in set pressure when the valve is subjected to a superimposed back pressure, or to prevent corrosion between the disk holder and guide.

Bench testing

ASME PTC 25, 2001, 2.2. General
Testing of a pressure relief device on a test stand sing an external pressure source with or without an auxiliary lift device to determine some or all of its operation characteristics.

Blowdown

ASME PTC 25, 2001, 2.7 OC of PRD
The difference between actual popping pressure of a pressure relief valve and actual reseating pressure expressed as a percentage of set pressure or in pressure units.

API 520, 2008, Part I, 3.5
The difference between the set pressure and the closing pressure of a pressure relief valve, expressed as a percentage of the set pressure or in pressure units.

ISO 4126-1, 2004, 3.2.10
Difference between set and reseating pressures, normally stated as a percentage of set pressure except for pressures of less than 3 bar when the blowdown is expressed in bar.

Blowdown (of a pilot operated safety valve)

ISO 4126-4, 2004, 3.4.10
Difference between set and reseating pressures, normally stated as a percentage of set pressure except for pressures of less than 3 bar when the blowdown is expressed in bar.

Blowdown pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The value of decreasing inlet static pressure at which no further discharge is detected at the outlet of a pressure relief valve after the valve has been subjected to a pressure equal to or above the popping pressure.

Blowdown ring

ASME PTC 25, 2001, 2.4 Parts of PRD
See adjusting ring.

Body

ASME PTC 25, 2001, 2.4 Parts of PRD
A pressure-retaining or containing member of a pressure relief device that supports the parts of the valve assembly and has provision(s) for connecting to the primary and/or secondary pressure source(s).

Bonnet

ASME PTC 25, 2001, 2.4 Parts of PRD
A component of a direct spring valve or of a pilot in a pilot-operated valve that supports the spring. It may or may not be pressure containing.

Bore area

ASME PTC 25, 2001, 2.5 PRV
The minimum cross- sectional flow area of a nozzle. See Fig. 1.

API 520, 2008, Part I, 3.6
Nozzle area
Nozzle throat area
Throat area
The minimum cross-sectional flow area of a nozzle in a pressure relief valve.

Bore diameter

ASME PTC 25, 2001, 2.5 PRV
The minimum diameter of a nozzle. The symbol is d_b.

Breaking pin

ASME PTC 25, 2001, 2.4 Parts of PRD
The load-carrying element of a breaking pin non-reclosing pressure relief device.

Breaking pin device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device actuated by static differential or static inlet pressure and designed to function by the breakage of a load-carrying section of a pin which supports a pressure-containing member.

API 520, 2008, Part I, 4.4.3.1
A breaking pin device is a non-reclosing pressure relief device with a movable disc held in the closed position by a pin loaded in tension. When pressure reaches the set pressure of the device, the pin breaks and the disc opens. Breaking pin devices are generally used in combination with a PRV where valve tightness is of concern, for example, in corrosive or vibrating environments such as on fluid transport vessels.

Breaking pin housing

ASME PTC 25, 2001, 2.4 Parts of PRD
A pressure-retaining component that supports the breaking pin in a non-reclosing pressure relief device.

Breaking pressure
ASME PTC 25, 2001, 2.4 Parts of PRD
The value of inlet static pressure at which a breaking pin or shear pin device functions.

Buckling pin

ASME PTC 25, 2001, 2.4 Parts of PRD
The load-carrying element of a buckling device.

Buckling pin device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device actuated by static differential or static inlet pressure and designed to function by the breakage of a load-carrying section of a pin which supports a pressure-containing member.

API 520, 2008, Part I, 4.4.2.1
Buckling pin devices, as shown in Figure 29, are compression-loaded, pin-actuated devices and are the most extensively used type of pin-actuated device. Compression-loaded buckling pin devices are very stable and well suited to applications that have both cyclic operating conditions, and an operating pressure to set pressure ratio greater than or equal to 90%.[...]

Built-up backpressure

ASME PTC 25, 2001, 2.7 OC of PRD
Pressure existing at the outlet of a pressure relief device caused by the flow through that particular device into a discharge system.

API 520, 2008, Part I, 3.7
The increase in pressure at the outlet of a pressure relief device that develops as a result of flow after the pressure relief device opens.

ISO 4126-1, 2004, 3.2.7
Pressure existing at the outlet of a safety valve caused by flow through the valve and the discharge system. The symbol is p_b.

ISO 4126-4, 2004, 3.4.8
Pressure existing at the outlet of the main valve caused by flow through the main valve and the discharge system. The symbol is p_b.

Burst pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The value of inlet static pressure at which a rupture disk device functions.

API 520, 2008, Part I, 3.8
The value of the upstream static pressure minus the value of the downstream static pressure just prior to when the disk bursts. When the downstream pressure is atmospheric, the burst pressure is the upstream static gauge pressure.

Bursting disk device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
See rupture disk device.

Burst-pressure tolerance

API 520, 2008, Part I, 3.9
The variation around the marked burst pressure at the specified disk temperature in which a rupture disk shall burst.

Cap

ASME PTC 25, 2001, 2.4 Parts of PRD

A component used to restrict access and/or protect the adjustment screw in a reclosing pressure relief device. It may or may not be a pressure-containing part.

Certified (discharge) capacity

ISO 4126-1, 2004, 3.6.3

That portion of the measured capacity permitted to be used as a basis for the application of a safety valve. NOTE: It may, for example, equal the:
a) measured capacity times the derating factor; or
b) theoretical capacity times the coefficient of discharge times the derating factor; or
c) theoretical capacity times the certified derated coefficient of discharge.

ISO 4126-4, 2004, 3.7.3

That portion of the measured capacity permitted to be used as a basis for the application of a pilot operated safety valve. NOTE: It may, for example, equal the :
a) measured flow rate times the derating factor; or
b) theoretical flow rate times the coefficient of discharge times the derating factor ; or
c) theoretical flow rate times the certified derated coefficient of discharge.

Chatter

ASME PTC 25, 2001, 2.7 OC of PRD

Abnormal rapid reciprocating motion of the movable parts of a pressure relief valve in which the disk contacts the seat.

Closing pressure

ASME PTC 25, 2001, 2.7 OC of PRD

The value of decreasing inlet static pressure at which the valve disk reestablishes contact with the seat or at which lift becomes zero.

API 520, 2008, Part I, 3.11

The value of decreasing inlet static pressure at which the valve disc reestablishes contact with the seat or at which lift becomes zero as determined by seeing, feeling or hearing.

Coefficient of discharge

ASME PTC 25, 2001, 2.7 OC of PRD

The ratio of the measured relieving capacity to the theoretical relieving capacity.

API 520, 2008, Part I, 3.12

The ratio of the mass flow rate in a valve to that of an ideal nozzle. The coefficient of discharge is used for calculating flow through a pressure relief device.

ISO 4126-1, 2004, 3.6.2

Value of actual flowing capacity (from tests) divided by the theoretical flowing capacity (from calculation). The symbol is $K_{d.}$

ISO 4126-4, 2004, 3.7.2

Value of actual flowing capacity (from tests) divided by the theoretical flowing capacity (from calculation). The symbol is $K_{d.}$

Cold differential test pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The inlet static pressure at which a pressure relief valve is adjusted to open on the test stand. This test pressure includes corrections for service conditions of superimposed back pressure and/ or temperature.

API 520, 2008, Part I, 3.13
The pressure at which a pressure relief valve is adjusted to open on the test stand. The cold differential test pressure includes corrections for the service conditions of backpressure or temperature or both.

ISO 4126-1, 2004, 3.2.5
The inlet static pressure at which a safety valve is set to commence to open on the test bench. NOTE: This test pressure includes corrections for service conditions, e.g. back pressure and/or temperature.

ISO 4126-4, 2004, 3.4.6
Inlet static pressure at which a pilot operated safety valve is set to commence to open on the test bench. NOTE: This test pressure includes corrections for service conditions, e.g. back pressure and/or temperature.

Constant back pressure

ASME PTC 25, 2001, 2.7 OC of PRD
A superimposed back pressure which is constant with time.

Controlled safety valves

AD 2000-A2, 2001, 3.2.2
Controlled safety valves consist of the main valve and a control device. They also include direct-acting safety valves with supplementary loading in which, until the response pressure is reached, an additional force increases the closing force. […]

Conventional direct spring loaded PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A direct spring-loaded pressure relief valve whose operational characteristics are directly affected by changes in the back pressure.

Conventional Pressure Relief Valve

API 520, 2008, Part I, 3.14
A spring-loaded pressure relief valve whose operational characteristics are directly affected by changes in the backpressure.

Cracking pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See opening pressure.

Curtain area

ASME PTC 25, 2001, 2.5 PRV
The area of the cylindrical or conical discharge opening between the seating surfaces created by the lift of the disk above the seat. See Fig.1.

API 520, 2008, Part I, 3.15
The area of the cylindrical or conical discharge opening between the seating surfaces above the nozzle seat created by the lift of the disc.

Design features

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
Non-reclosing pressure relief devices may include one or more of the following design features.

Design pressure

API 520, 2008, Part I, 3.16
Pressure, together with the design temperature, used to determine the minimum permissible thickness or physical characteristic of each vessel component as determined by the vessel design rules. The design pressure is selected by the user to provide a suitable margin above the most severe pressure expected during normal operation at a coincident temperature. It is the pressure specified on the purchase order. This pressure may be used in place of the maximum allowable working pressure (MAWP) in all cases where the MAWP has not been established. The design pressure is equal to or less than the MAWP.

Developed lift

ASME PTC 25, 2001, 2.5 PRV
The actual travel of the disk from closed position reached when the valve is at flow- rating pressure.

Diaphragm

ASME PTC 25, 2001, 2.4 Parts of PRD
A flexible metallic, plastic, or elastomer pressure-containing member of a reclosing pressure relief device used to sense pressure or to provide opening or closing force.

Direct loaded safety valve

ISO 4126-1, 2004, 3.1.1.1
Safety valve in which the loading due to the fluid pressure underneath the valve disc is opposed only by a direct mechanical loading device such as a weight, lever and weight, or a spring.

Direct spring-loaded device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device actuated by static differential pressure or static inlet pressure n which the disk is held closed by a spring. Upon actuation, the disk is held open by a latching mechanism.

Direct spring-loaded PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the disk is held closed by a spring.

Direct-acting safety valves

AD 2000-A2, 2001, 3.2.1
Direct-acting safety valves are safety valves in which a direct mechanical loading (a weight, a weight and lever or a spring) acts as a closing force against the opening force acting an the underside of the valve disc.

Discharge area

ASME PTC 25, 2001, 2.5 PRV
See actual discharge area.

Disk

ASME PTC 25, 2001, 2.4 Parts of PRD
A moveable component of a pressure relief device that contains the primary pressure when it rests against the nozzle.

Disk holder

ASME PTC 25, 2001, 2.4 Parts of PRD
A moveable component in a pressure relief device that contains the disk.

Dome

ASME PTC 25, 2001, 2.4 Parts of PRD
The volume on the side of the unbalanced moving member opposite the nozzle in the main relieving valve of a pilot- operated pressure relief device.

Dynamic blowdown

ASME PTC 25, 2001, 2.7 OC of PRD
The difference between the set pressure and closing pressure of a pressure relief valve when it is overpressured to the flow- rating pressure.

Effective coefficient of discharge

API 520, 2008, Part I, 3.17
A nominal value used with an effective discharge area to calculate the relieving capacity of a pressure relief valve per the preliminary sizing equations. The symbol is K_d.

Effective discharge area

ASME PTC 25, 2001, 2.5 PRV
A nominal or computed area of flow through a pressure relief valve, differing from the actual discharge area, for use in recognized flow formulas to determine the capacity of a pressure relief valve.

API 520, 2008, Part I, 3.18
A nominal area used with an effective discharge coefficient to calculate the relieving capacity of a pressure relief valve per the preliminary sizing equations. API 526 provides effective discharge areas for a range of sizes in terms of letter designations, “D” through “T”. The symbol is *A*.

Fail-safe

ISO 4126-9, 2008, 3.4
Status such that the pressure equipment remains in a safe condition in case of failure of any safety system component or energy source.

Field test

ASME PTC 25, 2001, 2.4 Parts of PRD
A device for in-service or bench testing of a pilot-operated pressure relief device to measure the set pressure.

Flow area

ISO 4126-1, 2004, 3.4
Minimum cross-sectional flow area (but not the curtain area) between inlet and seat which is used to calculate the theoretical flow capacity, with no deduction for any obstruction. NOTE: The symbol is *A*.

ISO 4126-4, 2004, 3.5
Minimum cross-sectional flow area (but not the curtain area) between inlet and seat which is used to calculate the theoretical flowing capacity of the main valve, with no deduction for any obstruction. NOTE: The symbol is *A*.

Flow capacity
ASME PTC 25, 2001, 2.7 OC of PRD
See measured relieving capacity.

Flow capacity testing

ASME PTC 25, 2001, 2.2., General
Testing of a pressure relief device to determine its operations characteristics including measured relieving capacity.

Flow diameter

ISO 4126-1, 2004, 3.5
Diameter corresponding to the flow area.

ISO 4126-4, 2004, 3.6
Diameter corresponding to the flow area.

Flowing pilot

ISO 4126-4, 2004, 3.1.1.1
Pilot which discharges the fluid throughout the relieving cycle of the pilot operated safety valve.

Flow-rating pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The inlet stagnation pressure at which the relieving capacity of a pressure relief device is measured.

Flow resistance

ASME PTC 25, 2001, 2.7, OC of PRD
A dimensionless term (such as used in para.5.5.7) which expresses the number of velocity heads lost due to flow through a rupture disk device (where velocity head is one-half the velocity squared divided by the acceleration of gravity.

Flutter

ASME PTC 25, 2001, 2.7, OC of PRD
Abnormal, rapid reciprocating motion of the movable parts of a pressure relief valve in which the disk does not contact the seat.

Frangible disk device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
See rupture disk device.

Full bore device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device in which the flow path area below the seat is equal to the flow path area of the inlet to the device.

Full bore PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the bore area is equal to the flow area at the inlet to the valve and there are no protrusion in the bore.

Full lift device
ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device in which the actual discharge area is independent of the lift of the disk.

Full lift PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the actual discharge area is the bore area.

Full Lift Safety Valve

AD 2000-A2, 2001, 3.1.2
Full lift safety valves, following response within the 5% pressure rise, open suddenly up to the full lift as limited by the design. The amount of lift up to the sudden opening (proportional range) shall not be more than 20% of the total lift.

Fusible plug

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device designed to function by the yielding or melting of a plug, at a predetermined temperature, which supports a pressure-containing member or contains pressure by itself.

Gag

ASME PTC 25, 2001, 2.4 Parts of PRD
A device used on reclosing pressure relief devices to prevent the device from opening.

Guide

ASME PTC 25, 2001, 2.4 Parts of PRD
A component in a direct spring or pilot-operated pressure relief device used to control the lateral movement of the disk or disk holder.

Huddling chamber

ASME PTC 25, 2001, 2.4 Parts of PRD
The annular pressure chamber between the nozzle exit and the disk or disk holder that produces the lifting force to obtain a pop action.

API 520, 2008, Part I, 3.19
An annular chamber located downstream of the seat of a pressure relief valve for the purpose of assisting the valve to achieve lift.

Inlet area

ASME PTC 25, 2001, 2.6 DC- NPRD
The cross-sectional flow area at the inlet opening of a pressure relief device.

Inlet size

ASME PTC 25, 2001, 2.5 PRV
The nominal pipe size of the inlet of a pressure relief valve, unless otherwise designated.

API 520, 2008, Part I, 3.20
The nominal pipe size (NPS) of the device at the inlet connection, unless otherwise designated.

ASME PTC 25, 2001, 2.6 DC- NPRD
The nominal pipe size of the inlet of a pressure relief device, unless otherwise designated.

In-plate testing

ASME PTC 25, 2001, 2.2., General
Testing of a pressure relief device installed on and protecting a system, using an external pressure source, with or without an auxiliary lift device to determine some or all of its operating characteristics.

In-service testing

ASME PTC 25, 2001, 2.2., General
Testing of a pressure relief device installed on and protecting a system, using system pressure or an external pressure source, with or without an auxiliary lift device to determine some or all of its operating characteristics.

Internal spring PRV

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A direct spring-loaded pressure relief valve whose spring and all or part of the operating mechanism is exposed to the system pressure when the valve is in the closed position.

Knife blade

ASME PTC 25, 2001, 2.4 Parts of PRD
A component with multiple blades used with reverse-acting rupture disks to cut the disk when it reverses.

Leak pressure

ASME PTC 25, 2001, 2.7, OC of PRD
See start-to-leak pressure.

Leak test pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The specified inlet static pressure at which a quantitative seat leakage test is performed in accordance with a standard procedure.

API 520, 2008, Part I, 3.21
The specified inlet static pressure at which a seat leak test is performed.

Lift

ASME PTC 25, 2001, 2.5 PRV
The actual travel of the disk away from closed position when a valve is relieving.

API 520, 2008, Part I, 3.22
The actual travel of the disc from the closed position when a valve is relieving.

ISO 4126-1, 2004, 3.4
Actual travel of the valve disc away from the closed position.

ISO 4126-4, 2004, 3.4
Actual travel of the main valve disc away from the closed position.

Lift lever

ASME PTC 25, 2001, 2.4 Parts of PRD
A device to apply an external force to the steam of a pressure relief valve to manually operate the valve at some pressure below the set pressure.

Lot of rupture disks

ASME PTC 25, 2001, 2.7, OC of PRD
Those disks manufactured of a material at the same time, and of the same size, thickness, type, heat, and manufacturing process, including heat treatment.

API 520, 2008, Part I, 3.23
Disks manufactured at the same time and of the same size, material, thickness, type, heat and manufacturing process, including heat treatment.

Low lift device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device in which the actual discharge area is dependent on the lift of the disk.

Low lift PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the actual discharge area is the curtain area.

Main relieving valve

ASME PTC 25, 2001, 2.4 Parts of PRD
That part of a pilot-operated pressure relief device through which the rated flow occurs during relief.

Manufacturing design range

API 520, 2008, Part I, 3.24
The pressure range in which the rupture disk shall be marked. Manufacturing design ranges are usually catalogued by the manufacturer as a percentage of the specified burst pressure. Catalogued manufacturing design ranges may be modified by agreement between the user and the manufacturer.

Marked breaking pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The value of pressure marked on a breaking pin or a shear pin device or its nameplate.

Marked burst pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The value of pressure marked on the rupture disk device or it's nameplate or on the tag of the rupture disk, indicating the burst pressure at the coincident disk temperature.

API 520, 2008, Part I, 3.25
Rated burst pressure
The burst pressure established by tests for the specified temperature and marked on the disk tag by the manufacturer. The marked burst pressure may be any pressure within the manufacturing design range unless otherwise specified by the customer. The marked burst pressure is applied to all of the rupture disks of the same lot.

Marked relieving capacity

ASME PTC 25, 2001, 2.7, OC of PRD
See rated relieving capacity.

Marked set pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The value or values of pressure marked on a pressure relief device.

Maximum allowable pressure, PS

ISO 4126-1, 2004, 3.2.2
The maximum pressure for which the equipment is designed as specified by the manufacturer.

ISO 4126-4, 2004, 3.4.2
Maximum pressure for which the equipment is designed as specified by the manufacturer.

ISO 4126-9, 2008, 3.15
Maximum pressure for which the equipment is designed as specified by the manufacturer.

Maximum allowable accumulated pressure, PSaccum

ISO 4126-9, 2008, 3.18
Maximum allowable value of the accumulated pressure in the equipment being protected which is fixed by national codes, regulations or directives.

Maximum allowable working pressure (MAWP)

API 520, 2008, Part I, 3.26
The maximum gauge pressure permissible at the top of a completed vessel in its normal operating position at the designated coincident temperature specified for that pressure.[…]

Maximum/minimum allowable temperature, TS

ISO 4126-9, 2008, 3.16
Maximum/minimum temperatures for which the equipment is designed, as specified by the manufacturer.

Maximum operating pressure

API 520, 2008, Part I, 3.27
The maximum pressure expected during normal system operation.

Measured relieving capacity

ASME PTC 25, 2001, 2.7, OC of PRD
The relieving capacity of a pressure relief device measured at the flow-rating pressure, expressed in gravimetric or volumetric units.

Modulating

ISO 4126-4, 2004, 3.1.2.2
Action characterised by a gradual opening and closing of the disc of the main valve which is a function of the pressure, proportional but not necessarily linear.

Net flow area

ASME PTC 25, 2001, 2.6 DC- NPRD
The area which determines the flow after a non-reclosing pressure relief device has operated. The (minimum) net flow area of a rupture disk is the calculated net area after a complete burst of the disk, with appropriate allowance for any structural members which may reduce the net flow area through the rupture disk device.

API 520, 2008, Part I, 3.28
Minimum net flow area: The calculated net area after a complete burst of a rupture disc with appropriate allowance for any structural members which may reduce the net flow area through the rupture disk device.

Non-flowing pilot

ISO 4126-4, 2004, 3.1.1.2
Pilot in which the fluid flows only during the opening and/or closing of the pilot operated safety valve.

Non-fragmenting rupture disk

API 520, 2008, Part I, 3.29
A rupture disk designed and manufactured to be installed upstream of other piping components. Non-fragmenting rupture disks do not impair the function of pressure relief valves when the disk ruptures.

Non-reclosing pressure relief device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A pressure relief device designed to actuate and remain open after operation. A manual resetting may be provided. Design types:

API 520, 2008, Part I, 3.30
A pressure relief device which remains open after operation. A manual resetting means may be provided.

Nozzle

ASME PTC 25, 2001, 2.4 Parts of PRD
A primary pressure-containing component in a pressure relief valve that forms a part or all of the inlet flow passage.

Nozzle area, nozzle throat area

ASME PTC 25, 2001, 2.5 PRV
See bore area.

Nozzle diameter

ASME PTC 25, 2001, 2.5 PRV
See bore diameter.

ON/OFF

ISO 4126-4, 2004, 3.1.2.1
Action characterized by stable operation resulting in fully open or fully closed main valve position.

Opening pressure

ASME PTC 25, 2001, 2.7, OC of PRD
The value of increasing inlet static pressure of a pressure relief valve at which there is a measurable lift, or at which the discharge becomes continuous as determined by seeing, feeling, or hearing.

API 520, 2008, Part I, 3.31
The value of increasing inlet static pressure at which there is a measurable lift of the disc or at which discharge of the fluid becomes continuous, as determined by seeing, feeling or hearing.

Opening sensing pressure

ISO 4126-4, 2004, 3.4.3
Pressure at which the pilot commences to open in order to achieve the set pressure.

Operating ratio of a pressure relief valve

API 520, 2008, Part I, 3.32
The ratio of maximum system operating pressure to the set pressure.

Operating ratio of a rupture disk

API 520, 2008, Part I, 3.33
The ratio of the maximum system operating pressure to a pressure associated with a rupture disk (see Figure 26 and 28). For marked burst pressures above 40 psi, the operating ratio is the ratio of maximum system operating pressure to the disk marked burst pressure. For marked burst pressures between 15 psi and 40 psi, the operating ratio is the ratio of maximum system operating pressure to the marked burst pressure minus 2 psi. For marked burst pressures less than 15 psi, the operating ratio should be determined by consulting the manufacturer.

Orifice area

ASME PTC 25, 2001, 2.5 PRV
See effective discharge area.

Outlet size

ASME PTC 25, 2001, 2.5 PRV
The nominal pipe size of the outlet of a pressure relief valve, unless otherwise designated.

ASME PTC 25, 2001, 2.6 DC- NPRD
The nominal pipe size of the outlet passage from a pressure relief device, unless otherwise designated.

API 520, 2008, Part I, 3.34
The nominal pipe size (NPS) of the device at the discharge connection, unless otherwise designated.

Overpressure

ASME PTC 25, 2001, 2.7 OC of PRD
A pressure increase over the set pressure of a pressure relief valve, usually expressed as a percentage of set pressure.

API 520, 2008, Part I, 3.35
The pressure increase over the set pressure of the relieving device. Overpressure is expressed in pressure units or as a percentage of set pressure. Overpressure is the same as accumulation only when the relieving device is set to open at the maximum allowable working pressure of the vessel.

ISO 4126-1, 2004, 3.2.3
Pressure increase over the set pressure, at which the safety valve attains the lift specified by the manufacturer, usually expressed as a percentage of the set pressure. NOTE: This is the overpressure used to certify the safety valve.

Overpressure (of a pilot operated safety valve)

ISO 4126-4, 2004, 3.4.4
Pressure increase over the set pressure, at which the main valve attains the lift specified by the manufacturer, usually expressed as a percentage of the set pressure. NOTE: This is the overpressure used to certify the pilot operated safety valve.

Pilot

ASME PTC 25, 2001, 2.4 Parts of PRD
The pressure- or vacuum-sensing component of a pilot-operated pressure relief valve that controls the opening and closing of the main relieving valve.

Pilot operated device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device in which the disk is held closed by system pressure and the holding pressure is controlled by a pilot actuated by system pressure. The pilot may consist of one of the devices listed above.

Pilot-operated pressure relief valve

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the disk is held closed by system pressure and the holding pressure is controlled by a pilot valve actuated by system pressure.

API 520, 2008, Part I, 3.36
A pressure relief valve in which the major relieving device or main valve is combined with and controlled by a self actuated auxiliary pressure relief valve (pilot).

Pilot operated safety valve

ISO 4126-1, 2004, 3.1.1.4
Safety valve, the operation of which is initiated and controlled by the fluid discharged from a pilot valve which is itself a direct loaded safety valve subject to the requirement of this standard. NOTE: Other types of pilot operated safety valves with flowing, non-flowing and modulating pilots are in Part 4 of this standard.

ISO 4126-4, 2004, 3.1
Self actuated device comprising a valve and an attached pilot. Note: The pilot responds to the pressure of the fluid without any other energy than the fluid itself and controls the operation of the valve. The valve opens when the fluid pressure that keeps it closed is removed or reduced. The valve re-closes when the pressure is re-applied.

Pin-actuated device

API 520, 2008, Part I, 3.37
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.

Piston

ASME PTC 25, 2001, 2.4 Parts of PRD
The moving element in the main relieving valve of a pilot-operated piston-type pressure relief valve which contains the seat that forms the primary pressure containment zone when in contact with the nozzle.

Popping pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The value of increasing inlet static pressure at which the disk moves in the opening direction at a faster rate as compared with corresponding movement at higher or lower pressures.

Power-actuated PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve actuated by an externally powered control device.

Pressure-containing member

ASME PTC 25, 2001, 2.4 Parts of PRD
A component which is exposed to and contains pressure.

Pressure relief device

ASME PTC 25, 2001, 2.2. General

A device designed to prevent pressure or vacuum from exceeding a predetermined value in a pressure vessel by the transfer of fluid during emergency or abnormal conditions.

API 520, 2008, Part I, 3.38

PRD

A device actuated by inlet static pressure and designed to open during emergency or abnormal conditions to prevent a rise of internal fluid pressure in excess of a specified design value. The device also may be designed to prevent excessive internal vacuum. The device may be a pressure relief valve, a non-reclosing pressure relief device or a vacuum relief valve.

Pressure relief valve (PRV)

ASME PTC 25, 2001, 2.3.1 Reclosing PRD

A pressure relief device designed to actuate on inlet static pressure and to reclose after normal conditions have been restored.

API 520, 2008, Part I, 3.39

A pressure relief device designed to open and relieve excess pressure and to reclose and prevent the further flow of fluid after normal conditions have been restored.

Pressure-retaining member

ASME PTC 25, 2001, 2.4 Parts of PRD

A component which holds one or more pressure-containing members together but is not exposed to the pressure.

Primary pressure

ASME PTC 25, 2001, 2.7 OC of PRD

The pressure at the inlet in a pressure relief device.

Proportional safety valves

AD 2000-A2, 2001, 3.1.3

Proportional safety valves open more or less steadily in relation to the increase in pressure . No sudden opening occurs unless the pressure increases beyond the range of more than 10% of the lift . Following response within a pressure increase of up to 10%, these safety valves achieve the lift necessary for the mass flow to be diverted (see 2.3 for exception).

Rated coefficient of discharge

API 520, 2008, Part I, 3.40

A value used with the actual discharge area to calculate the rated flow capacity of a pressure relief valve. The rated coefficient of discharge of a pressure relief valve is determined in accordance with the applicable code or regulation.

Rated lift

ASME PTC 25, 2001, 2.5 PRV

The design lift at which a valve attains it's rated relieving capacity.

Rated relieving capacity
ASME PTC 25, 2001, 2.7 OC of PRD
That portion of the measured relieving capacity permitted by the applicable code or regulation to be used as a basis for the application of a pressure relief device.

API 520, 2008, Part I, 3.41
The basis for the application of a pressure relief device. This capacity is determined in accordance with the applicable code or regulation and is provided by the manufacturer.

Reduced bore device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device in which the flow path area below the seat is less than the flow path area of the inlet to the device.

Reduced bore PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve in which the flow path area below the seat is less than the flow area at the inlet to the valve.

Redundancy

ISO 4126-9, 2008, 3.5
Provision of more than one device or system such that the necessary function will still be provided in case of failure of one or more of these devices.

Reference conditions

ASME PTC 25, 2001, 2.7 OC of PRD
Those conditions of test medium which are specified by either an applicable standard or an agreement between the parties to the test, which may be used for uniform reporting of measured flow test results.

Relief valve

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve characterized by gradual opening or closing, generally proportional to the increase or decrease in pressure. It is normally used for incompressible fluids.

API 520, 2008, Part I, 3.42
A spring-loaded pressure relief valve actuated by the static pressure upstream of the valve. The valve opens normally in proportion to the pressure increase over the opening pressure. A relief valve is used primarily with incompressible fluids.

Relieving conditions
ASME PTC 25, 2001, 2.7 OC of PRD
The inlet pressure and temperature on a pressure relief device during an overpressure condition. The relieving pressure is equal to the valve set pressure or burst (or the rupture disk burst pressure) plus the overpressure (The temperature of the flowing fluid at relieving conditions may be higher or lower than the operating temperature).

API 520, 2008, Part I, 3.43
The inlet pressure and temperature on a pressure relief device during an overpressure condition. The relieving pressure is equal to the valve set pressure (or rupture disk burst pressure) plus the overpressure. The temperature of the flowing fluid at relieving conditions may be higher or lower than the operating temperature.

Relieving pressure

ASME PTC 25, 2001, 2.7 OC of PRD
Set pressure plus overpressure.

ISO 4126-1, 2004, 3.2.6
Pressure used for the sizing of a safety valve which is greater than or equal to the set pressure plus overpressure. The symbol is p_o.

ISO 4126-4, 2004, 3.4.7
Pressure used for the sizing of a pilot operated safety valve which is greater than or equal to the set pressure plus overpressure. The symbol is p_o.

Resealing pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The value of decreasing inlet static pressure at which no further leakage is detected after closing. The method of detection may be a specified water seal on the outlet or other means appropriate for this application.

Reseating pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See closing pressure.

ISO 4126-1, 2004, 3.2.4
Value of the inlet static pressure at which the disc re-establishes contact with the seat or at which the lift becomes zero.

Reseating pressure (of a pilot operated safety valve)

ISO 4126-4, 2004, 3.4.5
Value of the inlet static pressure at which the disc re-establishes contact with the seat or at which the lift becomes zero.

Rupture disk

ASME PTC 25, 2001, 2.4 Parts of PRD
The pressure-containing element in a rupture disk device that is designed to burst at its rated pressure at a specified temperature.

API 520, 2008, Part I, 3.44
A pressure containing, pressure and temperature sensitive element of a rupture disk device.

Rupture disk device
ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device that contains a disk which ruptures when the static differential pressure between the upstream and downstream side of the disk reaches a predetermined value. A rupture disk device includes a rupture disk and may include rupture disk holder.

API 520, 2008, Part I, 3.45
A non-reclosing pressure relief device actuated by static differential pressure between the inlet and outlet of the device and designed to function by the bursting of a rupture disk. A rupture disk device includes a rupture disk and a rupture disk holder.

Rupture disk holder
ASME PTC 25, 2001, 2.4 Parts of PRD
The structure which clamps a rupture disk in position.

API 520, 2008, Part I, 3.46
The structure which encloses and clamps the rupture disk in position. Some disks are designed to be installed between standard flanges without holders.

Safety

ISO 4126-9, 2008, 3.14
Freedom from unacceptable risk. NOTE: See ISO/IEC Guide 51.

Safety device

ISO 4126-9, 2008, 3.1
Device that serves as the ultimate protection to ensure that the maximum allowable accumulated pressure is not exceeded. EXAMPLE: Safety valves, bursting disc safety devices, etc.

Safety relief valve

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve characterized by rapid opening or closing or by gradual opening or closing, generally proportional to the increase or decrease in pressure. It can be used for compressible or incompressible fluids.

API 520, 2008, Part I, 3.47
A spring-loaded pressure relief valve that may be used as either a safety or relief valve depending on the application.

Safety system

ISO 4126-9, 2008, 3.2
System including the safety devices and the interconnections between the equipment to be protected and any discharge connection to the nearest location of a safe disposal place. NOTE: This location can either be an atmospheric outlet or the connection into a safe collecting system or flare.

Safety valve
ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve characterized by rapid opening or closing and normally used to relieve compressible fluids.

API 520, 2008, Part I, 3.48
A spring-loaded pressure relief valve actuated by the static pressure upstream of the valve and characterized by rapid opening or pop action. A safety valve is normally used with compressible fluids.

ISO 4126-1, 2004, 3.1
Valve which automatically, without the assistance of any energy other than that of the fluid concerned, discharges a quantity of the fluid so as to prevent a predetermined safe pressure being exceeded, and which is designed to re-close and prevent further flow of fluid after normal pressure conditions of service have been restored. NOTE: The valve can be characterized either by pop action (rapid opening) or by opening in proportion (not necessarily linear) to the increase in pressure over the set pressure.

Seal-off pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See resealing pressure.

Seat

ASME PTC 25, 2001, 2.4 Parts of PRD
The pressure-sealing surfaces of the fixed and moving pressure-containing components.

Seat angle

ASME PTC 25, 2001, 2.5 PRV
The angle between the axis of a valve and the seating surface. A flat-seated valve has a seat angle of 90 deg.

Seat area

ASME PTC 25, 2001, 2.5 PRV
The area determined by the seat diameter.

Seat diameter

ASME PTC 25, 2001, 2.5 PRV
The smallest diameter of contact between the fixed and moving portions of the pressure-containing elements of a valve. The symbol is d_s.

Seat flow area

ASME PTC 25, 2001, 2.5 PRV
See curtain area.

Secondary pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The pressure existing in the passage between the actual discharge area and the valve outlet in a safety, safety relief, or relief valve.

Set pressure
ASME PTC 25, 2001, 2.7 OC of PRD
The value of increasing inlet static pressure at which a pressure relief device displays one of the operational characteristics as defined under opening pressure, popping pressure, start-to-leak pressure, burst pressure, or breaking pressure (The applicable operating characteristic for a specific device design is specified by the device manufacturer).

API 520, 2008, Part I, 3.49
The inlet gauge pressure at which the pressure relief device is set to open under service conditions. The symbol is *P*.

ISO 4126-1, 2004, 3.2.1
Predetermined pressure at which a safety valve under operating conditions commences to open.
Note: It is the gauge pressure measured at the valve inlet at which the pressure forces tending to open the valve for the specific service conditions are in equilibrium with the forces retaining the valve disc on its seat.

ISO 4126-4, 2004, 3.4.1
Predetermined pressure at which the valve of a pilot operated safety valve under operating conditions commences to open. Note: It is the gauge pressure measured at the valve inlet at which the pressure forces tending to open the valve for the specific service conditions are in equilibrium with the forces retaining the valve disc on its seat.

Shear pin
ASME PTC 25, 2001, 2.4 Parts of PRD
The load-carrying element of a shear pin device.

Shear pin device

ASME PTC 25, 2001, 2.3.2 Non-reclosing PRD
A device actuated by static differential or static inlet pressure and designed to function by the shearing of a load-carrying member which supports a pressure containing-member.

Simmer

ASME PTC 25, 2001, 2.7 OC of PRD
The audible or visible escape of fluid between the seat and disk at an inlet static pressure below the popping pressure and at no measurable capacity. It applies to safety or safety relief valves on compressible-fluid service.

API 520, 2008, Part I, 3.50
The audible or visible escape of compressible fluid between the seat and disc of a pressure relief valve which may occur at an inlet static pressure below the set pressure prior to opening.

Specified burst pressure (of a rupture disk device)

ASME PTC 25, 2001, 2.7 OC of PRD
The value of increasing inlet static pressure, at a specified temperature, at which a rupture disk is designed to function.

API 520, 2008, Part I, 3.51
The burst pressure specified by the user. The marked burst pressure may be greater than or less than the specified burst pressure but shall be within the manufacturing design range. The user is cautioned to consider manufacturing range, superimposed back pressure and specified temperature when determining a specified burst pressure.

Specified disk temperature

API 520, 2008, Part I, 3.52
The temperature of the disk when the disk is expected to burst. The specified disk temperature is the temperature the manufacturer uses to establish the marked burst pressure. The specified disk temperature is rarely ever the design temperature of the vessel and may not even be the operating temperature or relief temperature, depending on the relief system configuration.

Spindle

ASME PTC 25, 2001, 2.4 Parts of PRD
A part whose axial orientation is parallel to the travel of the disk. It may be used in one or more of the following functions: assist in alignment, guide disk travel, and transfer of internal or external forces to the seats.

Spring

ASME PTC 25, 2001, 2.4 Parts of PRD
The element in a pressure relief valve that provides the force to keep the disk on the nozzle.

Spring button

ASME PTC 25, 2001, 2.4 Parts of PRD
See spring step.

Spring step
ASME PTC 25, 2001, 2.4 Parts of PRD
A load-transferring component in a pressure relief valve that supports the spring.

Spring washer

ASME PTC 25, 2001, 2.4 Parts of PRD
See spring step.

Standard Safety Valve

AD 2000-A2, 2001, 3.1.1
These safety valves reach the degree of lift necessary for the mass flow to be diverted following response within a pressure rise of not more than 10% (see 2.3 for exception). No further requirements are made of the opening characteristics.

Start-to-discharge pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See opening pressure.

Start-to-leak pressure

ASME PTC 25, 2001, 2.7 OC of PRD
The value of increasing inlet static pressure at which the first bubble occurs when a pressure relief valve is tested by means of air under a specified water seal on the outlet.

Static blowdown

ASME PTC 25, 2001, 2.7 OC of PRD
The difference between the set pressure and the closing pressure of a pressure relief valve when it is not overpressured to the flow-rating pressure.

Stem
ASME PTC 25, 2001, 2.4 Parts of PRD
See spindle.

Superimposed backpressure

ASME PTC 25, 2001, 2.7 OC of PRD
The static pressure existing at the outlet of a pressure relief device at the time the device is required to operate. It is the result of pressure in the discharge system from other sources.

API 520, 2008, Part I, 3.53
The static pressure that exists at the outlet of a pressure relief device at the time the device is required to operate. Superimposed backpressure is the result of pressure in the discharge system coming from other sources and may be constant or variable.

ISO 4126-1, 2004, 3.2.8
Pressure existing at the outlet of a safety valve at the time when the device is required to operate. NOTE: It is the result of pressure in the discharge system from other sources.

ISO 4126-4, 2004, 3.4.9
Pressure existing at the outlet of the main valve at the time when the device is required to operate. NOTE: It is the result of pressure in the discharge system from other sources.

Supplementary loaded safety valve
ISO 4126-1, 2004, 3.1.1.3
Safety valve which has, until the pressure at the inlet to the safety valve reaches the set pressure, an additional force which increases the sealing force. NOTE 1: This additional force (supplementary load), which may be provided by means of an extraneous power source, is reliably released when the pressure at the inlet of the safety valve reaches the set pressure. The amount of supplementary loading is so arranged that if such supplementary loading is not released, the safety valve will attain its certified discharge capacity at a pressure not greater than 1,1 times the maximum allowable pressure of the equipment to be protected. NOTE 2: Other types of supplementary loaded safety devices are dealt with in Part 5 of this standard.

Temperature and PRV

ASME PTC 25, 2001, 2.3.1 Reclosing PRD
A pressure relief valve that may be actuated by pressure at the valve inlet or by temperature at the valve inlet.

Test pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See relieving pressure.

Theoretical discharge capacity

ISO 4126-1, 2004, 3.6.1
Calculated capacity expressed in mass or volumetric units of a theoretically perfect nozzle having a cross-sectional flow area equal to the flow area of a safety valve.

ISO 4126-4, 2004, 3.7.1
Calculated capacity expressed in mass or volumetric units of a theoretically perfect nozzle having a cross-sectional flow area equal to the flow area of a main valve.

Throat area
ASME PTC 25, 2001, 2.5 PRV
See bore area.

Throat diameter

ASME PTC 25, 2001, 2.5 PRV
See bore diameter.

Vacuum support

ASME PTC 25, 2001, 2.4 Parts of PRD
A component of a rupture disk to prevent flexing due to upstream vacuum or downstream back pressure.

Vapor-tight pressure

ASME PTC 25, 2001, 2.7 OC of PRD
See resealing pressure.

Variable back pressure

ASME PTC 25, 2001, 2.7 OC of PRD
A superimposed back pressure that will vary with time.

Warn

ASME PTC 25, 2001, 2.7 OC of PRD
See simmer.

Yield (melt) temperature

ASME PTC 25, 2001, 2.7 OC of PRD
The temperature at which the fusible material of a fusible plug device becomes sufficiently soft to extrude from its holder and relieve pressure.

Yoke

ASME PTC 25, 2001, 2.4 Parts of PRD
A pressure-retaining component in a pressure relief device that supports the spring in a pressure relief valve or pin in a non-reclosing device but does not enclose them from the surrounding ambient environment.