

ICS 13.240

CCS J 74



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 567.1-2012

Replacing GB 567-1999

Bursting disc safety devices - Part 1: Basic requirement

爆破片安全装置 第1部分:基本要求

Issued on: May 11, 2012

Implemented on: March 1, 2013

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General	4
5 Materials	5
6 Design	5
7 Manufacture	7
8 Test methods	8
9 Inspection rules	12
10 Marking, identification and nameplate	12
11 Packaging, transport and storage	14
12 Documents issued with the product	14
Annex A (informative) Maximum allowable service temperature of materials commonly used for bursting discs and sealing linings	16
Annex B (informative) Relationship between minimum bursting pressure and vessel working pressure	17
Annex C (informative) Manufacturing range of bursting discs	18

1 Scope

1.1 This part of GB 567 lays down the technical requirements for the design, manufacture, inspection, testing, marking and identification, packaging and storage, and the documents issued with the product, of bursting disc safety devices.

1.2 It applies to the following bursting disc safety devices: those used on pressure vessels, pressure pipelines or other closed pressure-bearing equipment (pressure-bearing equipment for short) to prevent overpressure or excessive vacuum; and those in which the bursting pressure of the disc is not greater than 500 MPa and not less than 0.001 MPa.

1.3 It does not apply to the following bursting disc safety devices: those on pressure-bearing equipment where the pressure may rise sharply during operation and the reaction speed can reach detonation; and those with special requirements for national defence and military equipment.

Note: detonation - when the burning speed of a substance is extremely fast, reaching more than 1 000 m/s, a phenomenon fundamentally different from ordinary deflagration is

produced; that phenomenon is called detonation.

2 Normative references

Dated references apply in the edition cited; undated references apply in their latest edition, amendments included.

GB 567.2 Bursting disc safety devices - Part 2: Application, selection and installation; GB 567.3 Bursting disc safety devices - Part 3: Classification and installation dimensions; GB 567.4 Bursting disc safety devices - Part 4: Type test.

3 Terms and definitions

3.1 pressure - unless otherwise stated, pressure means gauge pressure.

3.2 bursting disc safety device - a non-reclosing pressure relief device made up of a bursting disc (or bursting disc assembly) and a holder (or supporting ring) and other parts. At the set bursting temperature, when the pressure difference across the two sides of the disc reaches the predetermined value, the disc acts at once (rupturing or falling out) and releases the fluid medium.

3.3 bursting disc - the pressure-sensitive element in a bursting disc safety device that acts rapidly because of overpressure.

3.4 bursting disc assembly - a combined part made up of two or more components among the bursting disc, back pressure support, stiffening ring, protective film and sealing lining; also called a composite bursting disc.

3.5 conventional domed bursting disc (also referred to as forward-acting) - the disc is domed, its concave face is on the high-pressure side of the pressure system, and it ruptures in tension when it acts.

3.6 reverse domed bursting disc (also referred to as reverse-acting) - the disc is domed, its convex face is on the high-pressure side of the pressure system, and when it acts it reverses under compressive instability and ruptures or falls out.

3.7 flat bursting disc - the disc is flat and ruptures in tension, shear or bending when it acts.

3.8 graphite bursting disc - the disc is made of a graphite-based material such as impregnated graphite, flexible graphite or composite graphite, and ruptures in shear or bending when it acts.

3.9 bursting disc holder - the independent clamping component in a bursting disc safety device that positions, supports and seals the disc, secures the relief area and guarantees that the disc acts accurately.

3.10 supporting ring - the ring-shaped part that fixes the position of the disc by mechanical

or welded means and has the function of supporting the disc and guaranteeing its accurate action, but cannot by itself perform the clamping duty.

3.11 differential back pressure - under normal operating conditions, when the pressure on the relief side of the bursting disc safety device is higher than that on the inlet side, the inlet side being at negative pressure (that is, vacuum) included, a pressure difference opposite in direction to the relief is formed across the disc; this pressure difference is called differential back pressure.

3.12 back pressure support - in a composite bursting disc, the supporting frame used to prevent accidental damage to the disc caused by differential back pressure. When differential back pressure occurs, a back pressure support assembled on the concave face of a conventional domed disc prevents instability of the convex face under pressure; where vacuum may occur in the system, such a support is also called a vacuum support. When differential back pressure occurs, a back pressure support assembled on the convex face of a reverse domed disc prevents the concave face from being pressurised and the disc from suffering accidental tensile deformation or rupture.

3.13 opening back pressure support - a back pressure support that ruptures when the bursting disc acts.

3.14 non-opening back pressure support - a back pressure support that does not rupture when the bursting disc acts.

3.15 stiffening ring - in a composite bursting disc, the annular ring closely bonded to the edge of the disc which stiffens that edge.

3.16 sealing lining - in a composite bursting disc, the thin film that seals a slotted-type bursting disc.

3.17 coating - a metallic or non-metallic layer of a certain thickness applied by spraying to the surface of the disc, the holder or other parts.

3.18 anticorrosion lining - a metallic or non-metallic thin film added to prevent corrosion damage when the bursting disc safety device is exposed to a corrosive medium.

3.19 plating - a metallic layer of a certain thickness deposited by electroplating or a similar method on the surface of the disc, the holder or other parts.

3.20 temperature shield - the device inside a bursting disc safety device used to protect the disc from being directly exposed to an excessively high or low temperature.

3.21 raw disc - the blank flat piece cut to a size given by the manufacturing process from metallic or non-metallic strip, plate or bar, used to make the bursting disc.

3.22 bursting pressure - at the set bursting temperature, the value of the pressure difference across the two sides of the disc when it acts.

3.23 specified bursting pressure - the value of the bursting pressure of the disc at the design bursting temperature, set by the designer of the protected pressure-bearing equipment according to its working conditions and the corresponding safety technical regulations.

3.24 specified maximum (minimum) bursting pressure - the algebraic sum of the specified bursting pressure, the manufacturing range and the bursting pressure tolerance.

3.25 allowable bursting pressure range - the bursting pressure range bounded by the maximum and minimum bursting pressures. That range is determined by the working conditions and the strength of the protected pressure-bearing equipment. When the actual bursting pressure of the disc lies inside the allowable range, the disc chosen will neither disturb normal operation through too low an actual bursting pressure nor threaten the safety of the vessel through too high a one.

3.26 test bursting pressure - the actual value of the bursting pressure at the instant of rupture during a bursting test of the disc.

Note Relationship to previous standards

The foreword states that GB 567 Bursting disc safety devices is divided into four parts: Part 1 Basic requirement, Part 2 Application, selection and installation, Part 3 Classification and installation dimensions, Part 4 Type test; the present document is Part 1. It was drafted under the rules of GB/T 1.1-2009 and replaces GB 567-1999 Bursting discs and bursting disc devices. The previous editions of the standard it replaces are listed as GB 567-1989 and GB 567-1999. The annexes of this part are recommended and the rest of it is mandatory. It was proposed by and is under the administration of the National Technical Committee on Boilers and Pressure Vessels of Standardization (SAC/TC 262).