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

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GB/T 12241-2005

GB/T 12241-1989

Safety Valves – General Requirements

安全阀 一般要求

(ISO 4126-1: 1991, Safety Valves – Part 1: General requirements, MOD)

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Contents

Foreword	1
1 Scope	1
2 Normative References	1
3 Terms and Definitions	2
4 Design and Performance Requirements	5
4.1 Design, material and structural.....	5
4.2 Performance and discharge	6
5 Test	7
5.1 Factory test	7
5.2 Performance and discharge test	9
6 Determination of the Discharge	14
6.1 Determination of coefficient of discharge	14
6.2 Theoretical flowing (discharge) capacity using steam as the test medium.....	14
6.3 Theoretical flowing (discharge) capacity using air or any gas as the test medium	16
6.4 Capacity correction for the effect of back pressure	18
6.5 Theoretical flowing (discharge) capacity using a liquid as the test medium	18
6.6 Viscosity correction factors for liquids	18
6.7 Alternative method of calculation for the theoretical flowing capacity for any fluid	18
7 Equivalent Capacity	19
7.1 Valves for gas or vapour relief.....	19
7.2 Calculation of equivalent capacity	19
8 Marking and Sealing	22
8.1 Marking on the body of the safety valve.....	22
8.2 Marking on an identification plate.....	22
8.3 Sealing of a safety valve	22
9 Quality Assurance System	23
10 Installation of Safety Valves	23
10.1 Environmental conditions	23
10.2 Mounting	23
10.3 Inlet piping.....	24
10.4 Discharge piping	24
10.5 Access to safety valves.....	25
11 Adjustment, Maintenance and Repair of Safety Valves	25
Annex A (Informative) Derivation of superheat correction factor, K_{sh}	26
Annex B (Informative) Derivation of compressibility factor, Z	27
Annex C (Informative) Typical outline of subjects for inclusion in the quality assurance system .	30
Annex D (Informative) Viscosity correction factor for liquids	33
Annex E (Informative) Alternative method of calculation for the theoretical flowing capacity	34

Foreword

This Standard is revision of GB/T 12241-1989 *Safety valves-General requirements*.

This Standard will revise and adopt for ISO 4126-1: 1991 *Safety Valves – Part 1: General requirements* (English Version).

Comparison with ISO 4126-1: 1991, main changes of this Standard are as follows:

- The structural and writing guidelines of this Standard based on GB/T 1.1-2000;
- Added the normative references in this Standard according to GB/T 1.1-2000.;

Comparison with GB/T 12241—1989, main changes of this Standard are as follows:

- Cancelled the regulations on set-pressure upper limit in scope of application;
- Added the requirements of safety valve design, material and structural;
- Added the requirements of quality control system of manufacturer;
- Added the requirements of installation, adjustment, maintenance and repair of safety valve;
- Added three informative annexes such as annex C “Type Summary of Element in Quality Control System”, annex D “Viscosity Correction Factor to Liquid” and Annex E “Substitution Methods of Calculation of Theoretical Displacement”

Annex A to Annex E of this Standard is Informative Annex.

This Standard was proposed by China Machinery Industry Federation.

This Standard was under the jurisdiction of National Technical Committee (SAC/TC 188) on Valves of Standardization Administration of China

Chief draft units of this Standard: Shanghai Anderson Greenwood Crosby Valves Ltd and Hefei General Machinery Research Institute.

Main drafters of this Standard: Huang Guangyu, Wang Deping, Huang Mingya and Wang Xiaojun.

History editions replaced by this Standard are as follows:

- GB/T 12243-1989.

Safety Valves – General Requirements

1 Scope

This Standard specifies the general requirements of terms, design, performance requirements, test, determination of displacement, calculation of equivalent and displacement, mark, lead sealing, quality control system as well as installation, adjustment, maintenance and repair, and so on of safety valve.

This Standard is applicable to safety valves having a flow diameter of 8 mm and above which are for use at set pressures of 0,1 MPa gauge and above. No limitation is placed on temperature.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB/T 1047 Pipework components – Definition and selection of DN (nominal size) (GB/T 1047—2005, ISO 6708: 1995, MOD)

GB/T 1048 Pipework components – Definition and selection of PN (GB/T 1048—2005, ISO 7268: 1996, MOD)

GB/T 1239.6 Design of helical springs

GB/T 7306.1 Pipe threads with 55 degree thread angle where pressure-tight joints are made on the threads--Part 1: Parallel internal and taper external threads (GB/T 7306.1—2000, eqv ISO 7-1: 1994)

GB/T 7306.2 Pipe threads with 55 degree thread angle where pressure-tight joints are made on the threads--Part 2: Taper internal and external threads (GB/T 7306.2—2000, eqv ISO 7-1: 1994)

GB/T 9113 (All Parts) Integral steel pipe flanges

GB/T 9124 Specification for steel pipe flanges

GB/T 12224 General requirements for industrial steel valves

GB/T 17241.6 Integral cast iron pipe flanges

JB/T 79 (All Parts) Integral steel pipe flanges

JB/T 1752 Valve structural element-Dimension of connection end of external thread

JB/T 2769 PN16.0~32.0 MPa Threaded flange

3 Terms and Definitions

For the purpose of this Standard, the following terms and definitions shall apply.

3.1 Safety valve

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

3.1.1 Direct loaded safety valve

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

3.1.2 Assisted safety valve

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

3.1.3 Supplementary loaded safety valve

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. 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 derated discharge at a pressure not greater than the maximum allowable pressure of the equipment to be protected.

3.1.4 Pilot-operated safety valve

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.

3.2 Pressure

3.2.1 Set pressure

Predetermined pressure at which a safety valve under operating conditions commences to open. 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.

3.2.2 Overpressure

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.

3.2.3 Reseating pressure

Value of the inlet static pressure at which the disc re-establishes contact with the seat or at which the lift becomes zero.

3.2.4 Cold differential test pressure

Inlet static pressure at which a safety valve is set to commence to open on the test bench.



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