

ICS 13.220.10
CCS C 84



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

GB 25972-2010

**Gas fire extinguishing systems and components
(English Translation)**

Issued on: January 10, 2011

Implemented on: June 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

Foreword...	5
1 Scope...	6
2 Normative references...	6
3 Terms and definitions...	7
4 Model preparation method...	9
5 Requirements...	10
6 Test methods...	41
7 Inspection rules...	71
8 Preparation requirements for instruction manual...	78
9 Fire extinguishing agent filling...	78
Appendix A (Informative) Part number preparation method...	80

1 Scope

This standard specifies the terms and definitions, the method of formulating the model, the requirements, the test method, the inspection rules, the requirements for the preparation of the operating instructions, and the fire extinguishing agent filling requirements of the gas fire extinguishing system and its components.

This standard applies to heptafluoropropane (HFC227ea) fire extinguishing system, trifluoromethane (HFC23) fire extinguishing system, inert gas fire extinguishing system [including IG01 (argon) fire extinguishing system, IG100 (nitrogen) fire extinguishing system, IG55 (argon, nitrogen) fire extinguishing system, IG541 (argon, nitrogen, and carbon dioxide) fire extinguishing system].

2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard;

however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable.

For undated references, the latest edition of the referenced document applies.

GB 150 Steel pressure vessels

GB 5099 Seamless steel gas cylinder (GB 5099-1994, neq ISO 4705.1983)

GB 5100 Welded steel gas cylinders (GB 5100-1994, neq ISO 4706.1989)

GB/T 8979 Pure nitrogen and high purity nitrogen and ultra-pure nitrogen

GB/T 9969 General principles for preparation of instructions for use of industrial products

GB 18614 Fire extinguishing agent - Heptafluoropropane (HFC227ea)

GB 20128 Inert fire extinguishing agent (GB 20128-2006, ISO 14520.2005, NEQ)

GA 61 General technical specifications of actuating and control devices of fixed extinguishing systems

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1

System working pressure

Pressure at the outlet of the fire extinguishing agent cylinder group container valve.

Note: If the container valve on the fire extinguishing agent cylinder group does not have a decompression function, the working pressure of the system is the working pressure of the cylinder group.

If the container valve on the fire extinguishing agent cylinder group has a decompression function, the working pressure of the system is the pressure at the outlet of the container valve after decompression.

3.2

Filling density

The ratio of the mass of the fire extinguishing agent in the storage container to the volume of the container, in kilograms per cubic meter (kg/m³).

3.3

Compressed inert gaseous fire extinguishing system

The fire extinguishing system in which the fire extinguishing agent in the extinguishing agent cylinder group is delivered by its own pressure.

3.4

Stored pressure gaseous fire extinguishing system

The fire extinguishing system in which the fire extinguishing agent is pressurized and stored in the cylinder group with inert gas, and the fire extinguishing agent in the cylinder group is delivered by the pressurized gas in the cylinder group when the system operates.

3.5

Storage pressure

For a compressed inert gaseous fire extinguishing system, it refers to the equilibrium pressure in an environment of +20 °C of the filled fire other components.

5.1.2.3 All parts of the same system shall be fixed firmly and connected reliably, the parts are installed in the correct position, the overall layout is reasonable, and it is easy to operate, check and maintain.

5.1.2.4 The specifications of the same functional components in the system

shall be the same (except for selection valves and nozzles). The volume, filling density or filling pressure of each fire extinguishing agent storage container shall be the same.

5.1.3 Appearance

5.1.3.1

The components of the system shall be free from obvious processing defects or mechanical damage. The external surfaces of the components shall be subject to anti-corrosion treatment. The anti-corrosion coating and plating shall be complete and uniform.

5.1.3.2

The name of the fire extinguishing agent shall be marked on the extinguishing agent storage container, the handwriting shall be clear and legible.

The name of the filling gas shall be marked on the driving gas storage container.

5.1.3.3

Each manually operated part of the system shall be marked with text and graphic symbols to indicate the operation method.

5.1.3.4

The system nameplate shall be firmly set on the obvious part of the system, indicating. system name, model specification, implemented standard code, fire extinguishing agent filling total mass, working temperature range, production unit, product number, exit-factory date, etc.

5.1.3.5

The system warning sign shall be firmly set in the obvious part of the system. The content of the warning sign for the inert gas fire extinguishing system is that "The nozzle will emit

high-pressure gas when the system is in operation"; for the heptafluoropropane fire extinguishing system and the trifluoromethane extinguishing system, the content of the warning sign is that

"The system will decompose and produce a certain amount of hydrogen fluoride gas when it extinguishes fire". The contents of the warning sign shall be clearly readable under the general lighting conditions at a distance of 3 m from the sign.

5.1.4 System quasi-working status

The working positions of the operating parts of the system, the control and monitoring functions of the control panel shall all be in the normal quasi-working state; the leak detection devices of each cylinder group shall be in normal working condition, and the filling mass of the medium in the cylinder group (filling pressure) shall be consistent with the nominal value on the cylinder group.

group shall not be loose, fall off or damaged. After the test, the air tightness of the fire extinguishing agent cylinder group shall comply with the provisions of

5.2.4, the container valve shall be able to open normally in case of automatic and manual startup.

5.2.9 Siphon

For fire extinguishing agent cylinder group with siphons, the siphon shall be made of a metal material that can resist corrosion by the fire extinguishing agent.

5.2.10 Incorrect discharge protection device

The fire extinguishing agent cylinder group shall have a protective device at the container valve outlet for preventing the accidental discharge of the fire extinguishing agent during the transportation, loading and unloading, and storage. The opening on the protective device shall enable the fire extinguishing agent to be uniformly sprayed without generating excessive recoil force. And shall not be charged out.

5.2.11 Gas sampling requirements

Fire extinguishing agent cylinder group (on container or container valve) shall be equipped with fire extinguishing agent sampling port, and the fire extinguishing agent shall be able to be drawn from the cylinder group without opening the container valve or fully opening the container valve (it can still be closed after the sampling of fire extinguishing agent).