

ICS 13.220.10

CCS C 84



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

**GB/Z 34603-2017**

---

**Gaseous-media fire-extinguishing systems -- Engineered  
extinguishing systems -- Flow calculation implementation  
method and flow verification and testing for approval**

**Issued on: October 14, 2017**

**Implemented on: May 1, 2018**

---

**Issued by: General Administration of Quality Supervision, Inspection and  
Quarantine of the People's Republic of China, Standardization  
Administration of the People's Republic of China**

## Table of Contents

|                                                        |  |
|--------------------------------------------------------|--|
| Foreword                                               |  |
| Introduction                                           |  |
| 1 Scope                                                |  |
| 2 Normative references                                 |  |
| 3 Terms and definitions                                |  |
| 4 flow calculation method (software) design parameters |  |

### Foreword

This instructional document has been drafted in accordance with the rules given in GB/T 1.1-2009.

This guidance document uses the redrafted Law Amendment adopted ISO /T S13075.2009 "Pre-designed gas fire extinguishing system flow

Calculation method and verification test ".

This Guidance Document is structurally modified compared to ISO /T S13075.2009 and Appendix A lists the Guidance Document

And ISO /T S13075.2009 reg number control list.

The technical differences between this guidance document and ISO /T S13075.2009 and their causes are as follows.

--- Increasing the scope of application, its application has been clearly defined (see Chapter 1);

--- On the normative references, the guidance of technical documents made a technical adjustment to adapt to China's technical

The adjustments and adjustments are mainly reflected in Chapter 2, "Normative References," as follows.

\* Removed ISO 14520-1;

\* Increased reference to GB 16669, GB 25972, GB 50193, GB 50370 (see Chapter 3);

--- In order to adapt to the technical conditions in our country, revised Chapter 3 terms and definitions;

--- In order to facilitate the understanding and use of the guidance of technical documents, the use of validation procedures to increase the provisions of the principle (see 6.1.1);

--- In order to ensure that the content of this Guidance Document is in accordance with the provisions of the relevant mandatory standards in our country, in Item 6.1.2 h), i)

In the design temperature with "20 degrees C" instead of "21 degrees C."

The following editorial changes have been made to this technical document.

--- Added information Appendix B, provides a flow calculation method (software) verification test procedures.

This instructional technical document was submitted by the Ministry of Public Security of the People's Republic of China.

The guidance of technical documents by the National Fire Standardization Technical Committee (SAC/TC113) centralized.

The guidance of technical documents responsible for the drafting unit. Ministry of Public Security Tianjin Fire Institute.

The guidance of technical documents to participate in the drafting unit. Zhejiang Cinda can fire Industrial Co., Ltd., Shenzhen Internet Security Technology Co., Ltd.

Division, Hangzhou New Era Fire Protection Technology Co., Ltd., Ai Sai Fu Fire Technology (Tianjin) Co., Ltd.

## Introduction

Gas fire extinguishing system fire extinguishing agent flow in the pipeline is more complex, belong to the gas, liquid high-pressure high-speed two-phase flow or single-phase flow, and

Injection time is short, so the calculation method of flow or software requirements are relatively high. In gas fire extinguishing system pre-design, use the correct flow rate

Calculation method or software, through the pipe network pipe diameter and pipe layout, the choice of pipe network along the loss, equivalent loss of parts and other parameters

Calculate the correct design pressure relief orifice hole size and (or) nozzle hole size to control the nozzle pressure, extinguishing agent injection time and fire

Agent release and other parameters, can make it to meet the requirements of the specification to ensure the reliability and effectiveness of gas fire extinguishing system work.

In order to guide China's gas fire extinguishing system pre-designed flow calculation method or software development and verification, the guidance of technical documents on the flow

The design parameters that need to be considered during the calculation of the method and its limitations are given, and the calculation method of flow (software)

Design ability to test the method of validation and evaluation criteria.

Gas fire extinguishing system pre-designed flow calculation method

And verification test

## 1 Scope

The design parameters and their limitations to be considered in the pre-design flow calculation method (software) for the development of gas fire extinguishing systems in this guidance document

This paper also provides some suggestions and methods for the verification of flow calculation method (software).

This Guidance Document is applicable to gas fire extinguishing systems that can be consulted without a design specification. The flow calculation method or soft

Verification of pieces.

## 2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB 16669 carbon dioxide fire extinguishing systems and components of general technical conditions

GB 25972 gas fire extinguishing systems and components

Code for design of carbon dioxide fire extinguishing system

GB 50370 gas fire extinguishing system design specifications

## 3 Terms and definitions

GB 16669, GB 25972, GB 50193 and GB 50370 as defined by the following terms and definitions apply to this document.

### 3.1

Pre-engineered engineered

In accordance with the actual situation of the protected areas and design specifications, the fire extinguishing agent storage devices, storage, pipe fittings of the type and size, spray

The number and type of nozzles, the installation position of the nozzles, and the like.

### 3.2

Verification test verification and testing for approval

Under the set test conditions, repeat the test according to different design schemes to determine the accuracy of the flow calculation method (software)

And draw conclusions based on the criteria.

## 4 flow calculation method (software) design parameters

For gas fire suppression systems, the following design parameters should be considered when developing their pre-design flow calculation method (software).

- a) Percentage of fire extinguishing agent in pipe network;
- b) minimum and maximum injection time;
- c) the minimum and maximum flow in the pipe network;
- d) the minimum and maximum flow rate of extinguishing agent in the pipe network;
- e) the difference in tube volume to each nozzle;
- f) The maximum nozzle pressure difference in the pipe network;