

Flame supervision devices for domestic, commercial and catering gas appliances —

Part 1: Specification for heat sensitive type

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Cooperating organizations

The Gas Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

- British Combustion Equipment Manufacturers' Association*
- British Gas Corporation*
- Chartered Institution of Building Services
- Department of Energy (Gas Standards)*
- Department of the Environment (Housing and Construction)
- Department of the Environment (PSA)
- Heating and Ventilating Contractors' Association
- Institution of Gas Engineers
- Liquefied Petroleum Gas Industry Technical Association (UK)
- National Association of Plumbing, Heating and Mechanical Services Contractors
- National Gas Consumers' Council
- Society of British Gas Industries
- Water-tube Boilermakers' Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

- Association of Control Manufacturers Tacma (BEAMA)
- British Industrial Measuring and Control Apparatus Manufacturers' Association
- British Non-ferrous Metals Federation
- Chief and Assistant Chief Fire Officers' Association
- National Brassfoundry Association

This British Standard, having been prepared under the direction of the Gas Standards Committee, was published under the authority of the Executive Board and comes into effect on 27 February 1981

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The following BSI references relate to the work on this standard:
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Foreword

This British Standard has been prepared under the direction of the Gas Standards Committee to meet the need for a standard covering the safety and performance of flame supervision devices of the heat sensitive type up to DN 25 connection size for non-automatic domestic, commercial and catering appliances burning 2nd and 3rd family gases.

During the last decade there has been a progressive change from 1st to 2nd family gas and hence 1st family gas is not referred to in this standard due to its greatly diminished use in the United Kingdom. However, present day appliances are often designed to burn 2nd and 3rd family gases and consequently the requirements appropriate to both these gases have been included.

In accordance with current practice, quantities given in this standard are expressed in metric (SI) units. Information on the SI system will be found in BS 3763.

This standard is not intended to prejudice the negotiation of a European standard and will be withdrawn in favour of such a standard as soon as one, acceptable to the UK, is approved.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies the requirements for flame supervision devices of the heat sensitive type, hereinafter referred to as flame supervision devices, up to R1 (DN 25) connection size inclusive for non-automatic domestic, commercial and catering appliances burning 2nd or 3rd family gases with an input rating up to 120 kW. It also applies to the flame supervision device used in conjunction with other control devices forming a control system on appliances.

A flame switch, i.e. a device in which the presence or absence of a flame makes or breaks an electrical circuit directly or indirectly, is not considered to be a flame supervision device for the purposes of this standard.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply. Definitions of other terms are to be found in BS 1179.

3.1

flame sensing element

the part of a flame supervision device on which the supervised flame acts directly, and which transmits the flame effect directly or indirectly on to a valve

3.2

flame sensor

the active part of the flame sensing element, as specified by the manufacturer

3.3

flame supervision burner

a burner the flame of which acts on the flame sensing element

3.4

flame supervision device

a device responsive to flame properties that detects the presence of flame and, in the event of ignition failure or subsequent loss of flame, causes safety shut-down

3.5

flame supervision device of heat sensitive type

a flame supervision device that responds to flame temperature, and directly causes safety shut-down

3.6

ignition interlock

that part of a flame supervision device which prevents the operation of the igniter as long as the main gasway is open

3.7

restart interlock

that part of a flame supervision device which prevents the re-opening of the valve during the closing time of the device

4 Design and construction

4.1 General

4.1.1 Notwithstanding the requirements specified in this standard, any new designs, materials and methods of assembly giving at least equivalent results may be considered as complying with this standard when approved by a representative and recognized authority.

4.1.2 Any new features incorporated for which no provision for testing is made in this standard shall be examined and approved by a recognized and representative authority in the light of the manufacturer's claims.

4.1.3 Flame supervision devices shall be so designed and constructed, and be of such materials, that in normal use they shall function reliably, cause no danger to persons or danger to the surroundings and be fail-safe.

4.1.4 Removal of the energizing source or failure of the flame sensing element shall result in the direct closure of the valve in the flame supervision device within the closing time declared by the manufacturer (see 5.8).

4.2 Materials for gas-carrying parts. Parts of the body which directly or indirectly separate a gas carrying chamber from the atmosphere shall be made of either

- a) metallic material; or
- b) non-metallic material provided that, upon removal or fracture of this non-metallic part, under no circumstances shall more than 30 dm³/h of air escape when tested with air at the declared maximum operating pressure.

Notwithstanding this requirement "O" ring seals complying with the requirements of BS 1806 or BS 4518 and jointing materials complying with the requirements of BS 5292 are permitted.

Solder that has a melting point below 450 °C after application shall not be used for gas-carrying parts.