

BS 8468-5:2011



BSI Standards Publication

**Respiratory protective devices  
for use against chemical,  
biological, radiological and  
nuclear (CBRN) agents –  
Part 5: Dual-mode apparatus – Specification**

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### Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 4, an inside back cover and a back cover.

## Foreword

### Publishing information

This British Standard was published by BSI and came into effect on 31 January 2011. It was prepared by Technical Committee PH/4, *Respiratory protection*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Relationship with other publications

BS 8468 will be issued in nine parts:

- *Part 1: Positive pressure, self-contained breathing apparatus – Specification;*
- *Part 2: Negative pressure air purifying devices with full face mask – Specification;*
- *Part 3.1: Self-contained open-circuit compressed air breathing apparatus incorporating a hood for escape – Specification;*
- *Part 3.2: Air-purifying devices incorporating a hood for escape – Specification;*
- *Part 4: Powered air-purifying respirators – Specification;*
- *Part 5: Dual-mode apparatus – Specification;*
- *Part 6.1: Positive-pressure compressed airline equipment – Specification;*
- *Part 6.2: Constant flow compressed airline equipment – Specification;*
- *Part 7: Closed-circuit breathing apparatus – Specification.*

*NOTE This standard may be used in conjunction with BS 8467, which gives categorization, requirements and test methods for personal protective ensembles against CBRN agents.*

### Information about this document

Increased threat to civilians, emergency and support agencies from chemical, biological, radiological and nuclear (CBRN) agents has led to a need for suitable personal protective equipment (PPE). The lack of coverage of combined CBRN protection in existing British Standards on PPE has recently been identified. This standard has been prepared to give requirements for such PPE.

### Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

### Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

## 1 Scope

This British Standard specifies requirements for dual-mode apparatus, combining two of the types of apparatus specified in BS 8468-1, BS 8468-2, BS 8468-4, BS 8468-6.1, or BS 8468-6.2, intended to be used during rescue, evacuation, escape, hazard containment and decontamination, and similar activities by emergency first responders (e.g. fire, ambulance, police, and associated civilian agencies and workers) in areas containing and contaminated by chemical, biological, radiological and nuclear (CBRN) agents.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

*BS 8468-1, Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents – Part 1: Positive pressure, self-contained breathing apparatus – Specification*

*BS 8468-2, Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents – Part 2: Negative pressure air purifying devices with full face mask – Specification*

*BS 8468-4, Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents – Part 4: Powered air-purifying respirators – Specification*

*BS 8468-6.1, Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents – Part 6.1: Positive-pressure compressed airline equipment – Specification*

*BS 8468-6.2, Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents – Part 6.2: Constant flow compressed airline equipment – Specification*

## 3 Terms and definitions

For the purpose of this British Standard the terms and definitions defined in BS EN 8468-1, BS 8468-2, BS 8468-4, BS 8468-6.1, and BS 8468-6.2 apply.

## 4 Description

Dual-mode apparatus, which enables the wearer to switch between two modes of use described in two of BS 8468-1, BS 8468-2, BS 8468-4, BS 8468-6.1 or BS 8468-6.2.

## 5 Requirements

### 5.1 General

The apparatus shall be dual mode apparatus conforming to two of the following when set to the relevant mode.

- 1) BS 8468-1 for positive pressure, self-contained breathing apparatus;
- 2) BS 8468-2 for negative pressure air purifying devices with full face mask;

- 3) BS 8468-4 for powered air-purifying respirators;
  - 4) BS 8468-6.1 for positive-pressure compressed airline equipment;
- OR
- 5) BS 8468-6.2 for constant flow compressed airline equipment.

The apparatus shall also meet the requirements of 5.2 and 5.3 for switchover devices and detachable supply connections.

## 5.2 Switchover devices

The apparatus shall be designed to allow the user to switch between modes, either automatically or manually, without compromising the overall performance in either mode. The switchover device shall isolate one mode from the other, i.e. only one mode shall be operational at any time. There shall be clear indication as to which mode the apparatus is operating in, and which modes the apparatus is capable of operating in.

Switchover shall not compromise the performance of the apparatus to a level lower than the lesser-performing mode. Conformity to this requirement shall be demonstrated by:

- a) operating the switchover from the lesser-performing mode to the higher-performing mode at the end of the test period of the lesser-performing mode for inward leakage; and
- b) running the inward leakage test for a further 2 min.

The inward leakage shall remain within acceptable levels for the mode under test.

## 5.3 Detachable supply connections

Any supply tubes and/or connectors that are designed to be connected or disconnected by the user while the apparatus is in use, shall be self-sealing when disconnected.

# 6 Marking

**6.1** Marking shall be in accordance with the relevant Parts of BS 8468 for the modes provided.

**6.2** In addition, each apparatus conforming to this standard shall be permanently marked with the standard identifier and year, i.e. BS 8468-5:2011<sup>1)</sup>.

# 7 Information supplied by the manufacturer

**7.1** The information supplied shall be in accordance with the relevant Parts of BS 8468 for the modes provided.

**7.2** The information shall describe precisely and comprehensibly which permissible combinations of components are to be used.

**7.3** The information shall describe suitable procedures for decontamination and disposal.

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<sup>1)</sup> Marking BS 8468-5:2011 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

## Annex A (informative) Relationship between this British Standard and the basic safety requirements of EU Directive 89/686/EEC Personal Protective Equipment

This standard is not mandated and therefore cannot be considered to offer automatic presumption of conformity.

It is a legal requirement in the EU that personal protective equipment (PPE) conforms to the PPE Directive [1]. The Personal Protective Equipment Regulations 2002 [2] enact the PPE Directive into UK legislation. The burden of proof that the product meets the basic safety requirements rests on the person affixing the CE marking (the producer, his authorized representative in the EU or the importer of the product).

Table A.1 provides a checklist of PPE Directive [1] requirements against requirements in this standard.

Table A.1 Essential requirements for PPE – Comparison between the PPE Directive, Annex II and BS 8468-5

PPE Directive, Annex II subclause	Requirement type	Relevant BS 8468-5 clause	By reference to other parts of BS 8468 (Y/N)
1	General requirements (design, innocuousness, comfort and efficiency, and information supplied)	5	Y
2.1	Adjustment systems	5	Y
2.2	Ventilation or perspiration absorption	5	Y
2.3	Face, eyes and respiratory tract	5	Y
2.4	Ageing	5	Y
2.8	Information for use in very dangerous situations	5	Y
2.9	Adjustability	5	Y
2.10	Connectivity to additional equipment	5	Y
2.11	Fluid circulation systems	5	Y
2.12	Health and safety identification marks	6	N
2.13	Visibility	5	Y
2.14	Multiple use	5	Y
3.1.1	Resistance to impact	5	Y
3.1.2.1	Prevention of falls due to slipping	5	Y
3.3	Protection against physical injury	5	Y
3.6.1	Protection against heat	5	Y
3.6.2	Prevention of overheating	5	Y
3.7.1	Protection against cold	5	Y
3.7.2	Insulation	5	Y
3.9.2.1	Protection against external radioactive contamination	5	N
3.10	Protection against dangerous substances and infective agents	5	N

## Bibliography

- [1] EUROPEAN COMMUNITIES. *89/686/EEC. Council directive on the approximation of the laws of the Member States relating to personal protective equipment*. Luxembourg: Office for Official Publications of the European Communities, 1989.
- [2] GREAT BRITAIN *The Personal Protective Equipment Regulations 2002: Statutory Instrument 2002/1144*. The Stationery Office. (<http://www.tsoshop.co.uk>)





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