

Specification for

Respiratory protective devices for escape: Self-contained open-circuit compressed air breathing apparatus with full face mask or mouthpiece assembly

The European Standard EN 402:1993 has the status of a
British Standard

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This British Standard, having been prepared under the direction of the Personal Safety Equipment Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 May 1993

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National foreword

This British Standard has been prepared under the direction of the Personal Safety Equipment Standards Policy Committee and is the English language version of EN 402 *Respiratory protective devices for escape — Self-contained open-circuit compressed air breathing apparatus with full face mask or mouthpiece assembly — Requirements, testing, marking*, published by the European Committee for Standardization (CEN).

EN 402 was produced as a result of international discussions in which the United Kingdom took an active part.

BS 4667-4:1989 includes a specification for open-circuit escape breathing apparatus which also includes apparatus incorporating a hood. CEN/TC 79 is currently developing a European Standard for escape breathing apparatus incorporating a hood and when this is published BS 4667-4 will be withdrawn.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16, 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.

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English version

Respiratory protective devices for escape — Self-contained open-circuit compressed air breathing apparatus with full face mask or mouthpiece assembly — Requirements, testing, marking

Appareils de protection respiratoire pour l'évacuation — Appareils de protection respiratoire autonomes à circuit ouvert, à air comprimé avec masque complet ou ensemble embout buccal — Exigences, essais, marquage

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Anforderungen, Prüfung, Kennzeichnung

This European Standard was approved by CEN on 1993-02-25. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard was prepared by the Technical Committee CEN/TC 79 “Respiratory protective devices”, of which the secretariat is held by DIN.

This European Standard has been prepared under a mandate given to CEN by the Commission of the European Communities and the European Free Trade Association, and supports essential requirements of the EC Directive(s).

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 1993, and conflicting national standards shall be withdrawn at the latest by September 1993.

The standard was approved and in accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Introduction

A given respiratory protective device can only be approved when the individual components satisfy the requirements of the test specification which may be a complete standard or part of a standard and practical performance tests have been carried out on a complete apparatus where specified in the appropriate standard. If for any reason a complete apparatus is not tested then simulation of the apparatus is permitted provided the respiratory characteristics and weight distribution are similar to those of the complete apparatus.

1 Scope

This European Standard refers to self-contained open-circuit compressed air breathing apparatus with full face mask or mouthpiece assembly for escape (in short: compressed air escape apparatus). It specifies minimum requirements for compressed air escape apparatus.

This standard does not apply to apparatus for work and rescue or to diving devices.

Laboratory and practical performance tests are included for the assessment of compliance with the requirements.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 132, *Respiratory protective devices — Definitions.*

EN 134, *Respiratory protective devices — Nomenclature of components.*

EN 136, *Respiratory protective devices — Full face masks — Requirements, testing, marking.*

EN 148-1, *Respiratory protective devices — Threads for facepieces — Standard thread connection.*

3 Definition and description

The nomenclature and definitions of self-contained open-circuit compressed air escape apparatus, the subassemblies and the components are given in EN 132 and EN 134 together with the following.

A self-contained open-circuit compressed air escape apparatus is a respiratory protective device that is independent of the ambient atmosphere and has a portable supply of compressed air.

Compressed air escape apparatus are designed and constructed to enable the wearer to breathe air on demand from a high pressure air container (or containers) either via a pressure reducer and a lung governed demand valve or a lung governed demand valve connected to the facepiece. The exhaled air passes without recirculation from the facepiece via the exhalation valve to the ambient atmosphere.

4 Classification

Compressed air escape apparatus are classified according to the nominal duration which is defined by performing a breathing machine test in accordance with 6.4.5 with a minute volume of 35 l/min (20 cycles/min, 1,75 l/stroke).

Rated duration will be defined in steps of 5 min.

However, it should be recognized that the effective duration may vary according to the work rate.

5 Requirements

5.1 Design

The apparatus shall be of simple and reliable construction and as compact as possible.

The apparatus shall be so designed that there are no protruding parts or sharp edges likely to be caught on projections in narrow passages or that may hurt the wearer.

The apparatus shall be designed to ensure its full function in any orientation.

The ready-for-use state of the apparatus, i.e. the pressure of the cylinder(s) shall be identifiable at any time. In the ready-for-use state the facepiece shall be securely attached to the apparatus. The cylinder has to be opened either, e.g. by a quick-opening valve or an equivalent to this, and in the case of a permanent installation of the apparatus shall be opened automatically upon removal from the container or be locked in the open position against inadvertent shutting.

The apparatus shall not be fitted with a supplementary air supply control device which may reduce the duration of the apparatus.

If a breathing apparatus for working, e.g. "airline equipment" is used in connection with an escape apparatus, the escape apparatus design shall be such as to prevent airloss from the escape apparatus in the event of malfunction or disconnection of the breathing apparatus for working.

Testing according to 6.1 and 6.2.