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**Andningsskydd – Filtrerande halvmasker med ventiler mot
gaser eller gaser och partiklar – Fordringar, provning,
märkning**

**Respiratory protective devices – Valved filtering half masks to
protect against gases or gases and particles – Requirements,
testing, marking**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 405:2001+A1

May 2009

ICS 13.340.30

Supersedes EN 405:2001

English Version

Respiratory protective devices - Valved filtering half masks to protect against gases or gases and particles - Requirements, testing, marking

Appareils de protection respiratoire - Demi-masques filtrants à soupapes contre les gaz ou contre les gaz et les particules - Exigences, essais, marquage

Atemschutzgeräte - Filtrierende Halbmasken mit Ventilen zum Schutz gegen Gase oder Gase und Partikeln - Anforderungen, Prüfung, Kennzeichnung

This European Standard was approved by CEN on 8 November 2001 and includes Amendment 1 approved by CEN on 26 March 2009.

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Foreword

This document (EN 405:2001+A1:2009) has been prepared by Technical Committee CEN/TC 79 “Respiratory protective devices”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by November 2009, and conflicting national standards shall be withdrawn at the latest by November 2009.

This European Standard supersedes A1 EN 405:2001 A1.

This document includes Amendment 1, approved by CEN on 2009-03-26.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This draft European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 89/686/EEC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this standard.

The annexes A and ZA are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 successfully on 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 specifies the performance requirements, test methods and marking requirements for valved filtering half masks incorporating either gas or combined filters as respiratory protective devices except for escape purposes. It does not cover gas filtering half masks which do not have valves or are fitted only with exhalation valves. It does not cover devices designed for use in circumstances where there is or might be an oxygen deficiency (oxygen less than a volume fraction of 17 %).

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

2 Normative references

A1 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. **A1**

EN 132, *Respiratory protective devices - Definition of terms and pictograms*

EN 134, *Respiratory protective devices - Nomenclature of components*

A1 *deleted text* **A1**

EN 143, *Respiratory protective devices - Particle filters - Requirements, testing, marking*

A1 *deleted text* **A1**

A1 EN 13274-7, *Respiratory protective devices – Methods of test – Part 7: Determination of particle filter penetration*

EN 14387, *Respiratory protective devices – Gas filter(s) and combined filter(s) - Requirements, testing, marking* **A1**

3 Terms and definitions

For the purposes of this European Standard the terms and definitions in EN 132 and the nomenclature given in EN 134 apply **A1** together with the following:

3.1

re-usable particle filtering component for valved combined filtering half mask

particle filtering component which is intended to be used for more than a single shift **A1**

4 Description

A valved filtering half mask covers the nose and mouth and the chin and has both inhalation and exhalation valves and

- a) consists entirely or substantially of filter material or,
- b) comprises a facepiece in which the gas filter(s) form(s) an inseparable part of the device and where particle filters can be replaceable.

It provides adequate sealing for the intended use on the face of the wearer against the ambient atmosphere, when the skin is dry or moist and when the head is moved.

Inhaled air enters through the filter material and through an inhalation valve(s). Exhaled air passes through an exhalation valve(s) to the ambient atmosphere.

Since the devices are discarded on depletion of the gas filter, it is not expected that replaceable components will be provided, e.g. valves or head harness.

In addition to providing protection against gases and vapours these devices can be designed to also protect against solid and liquid aerosols.

Gas filters remove specified gases and vapours. Combined filters remove dispersed solid and liquid particles and specified gases and vapours.

5 Classification

5.1 General

Gas and combined valved filtering half masks are classified into types and classes according to their application and protection capacity.

5.2 Types of gas filtering half masks

5.2.1 Valved gas filtering half masks

Type FFA — for use against certain organic gases and vapours with a boiling point higher than 65 °C as specified by the manufacturer.

Type FFB — for use against certain inorganic gases and vapours as specified by the manufacturer (excluding carbon monoxide).

Type FFE — for use against sulfur dioxide and other acid gases and vapours as specified by the manufacturer.

Type FFK — for use against ammonia and organic ammonia derivatives as specified by the manufacturer.

Type FFAX — for use against certain low boiling organic compounds as specified by the manufacturer.

Type FFSX — for use against specific named gases and vapours.

5.2.2 Valved multi-type gas filtering half masks

Gas valved filtering half masks which are a combination of two or more of the above types and which meet the requirements of each type separately.

5.2.3 Valved combined filtering half masks

Gas or multi-type valved gas filtering half masks incorporating a particle filter. ^{A1} In addition, the particle filtering component of the half masks are classified as single shift use only or re-usable (more than one shift). ^{A1}

5.3 Designs of combined valved filtering half masks

There are two designs of valved combined filtering half masks described in this European Standard: one with integral particle filter(s), the second one with replaceable particle filter(s). Examples of classifications are:

^{A1} FFA1P1 NR D; FFA1P2 R D. ^{A1}

„D“ stands for optional clogging with dolomite.