

**Hingamisteede kaitsevahendid.  
Poolmaskiga, üksnes positiivse rõhuga  
kasutamiseks mõeldud autonoomsed  
suletud kontuuriga hingamisaparaadid.  
Nõuded, katsetamine, tähistamine**

Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with half mask designed to be used with positive pressure only - Requirements, testing, marking

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Käesolev Eesti standard EVS-EN 14435:2004 sisaldab Euroopa standardi EN 14435:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 26.10.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 14435:2004 consists of the English text of the European standard EN 14435:2004.</p> <p>This document is endorsed on 26.10.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Käsitlusala:</b><br/>This European Standard specifies minimum performance requirements for self-contained open-circuit compressed air breathing apparatus with half mask designed to be used with positive pressure only. This European Standard does not apply to escape apparatus, diving apparatus and apparatus used for fire fighting. Laboratory and practical performance tests are included for the assessment of compliance with the requirements.</p> | <p><b>Scope:</b><br/>This European Standard specifies minimum performance requirements for self-contained open-circuit compressed air breathing apparatus with half mask designed to be used with positive pressure only. This European Standard does not apply to escape apparatus, diving apparatus and apparatus used for fire fighting. Laboratory and practical performance tests are included for the assessment of compliance with the requirements.</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

ICS 13.340.30

**Võtmesõnad:** air, artificial breathing apparatus, containers, electrology apparatus, respirators, safety, safety devices, safety engineering, self containing boxes, specification (approval), specifications, supplied air breathing apparatus, tanks, testing, user information

ICS 13.340.30

English version

**Respiratory protective devices - Self-contained open-circuit  
compressed air breathing apparatus with half mask designed to  
be used with positive pressure only - Requirements, testing,  
marking**

Appareils de protection respiratoire - Appareils de  
protection respiratoire isolants autonomes à circuit ouvert,  
à air comprimé avec un demi-masque conçus  
exclusivement pour une utilisation en pression positive -  
Exigences, essais, marquage

Atemschutzgeräte - Behältergeräte mit Druckluft  
(Pressluftatmer) mit Halbmaske zum Gebrauch für  
Überdruck - Anforderungen, Prüfung, Kennzeichnung

This European Standard was approved by CEN on 19 May 2004.

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.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

|                                                                                               | page |
|-----------------------------------------------------------------------------------------------|------|
| Foreword.....                                                                                 | 5    |
| Introduction .....                                                                            | 6    |
| 1 Scope .....                                                                                 | 7    |
| 2 Normative References .....                                                                  | 7    |
| 3 Terms and definitions .....                                                                 | 7    |
| 4 Description .....                                                                           | 7    |
| 5 Requirements .....                                                                          | 8    |
| 5.1 General.....                                                                              | 8    |
| 5.2 Ergonomics .....                                                                          | 8    |
| 5.3 Design .....                                                                              | 8    |
| 5.4 Materials .....                                                                           | 9    |
| 5.5 Cleaning and disinfecting .....                                                           | 9    |
| 5.6 Mass .....                                                                                | 9    |
| 5.7 Connections .....                                                                         | 9    |
| 5.7.1 General.....                                                                            | 9    |
| 5.7.2 Couplings (if fitted).....                                                              | 9    |
| 5.7.3 Strength of connections to half mask, demand valve and breathing hose (if fitted) ..... | 10   |
| 5.7.4 Connection between apparatus and half mask .....                                        | 10   |
| 5.7.5 High, medium and low pressure connections .....                                         | 10   |
| 5.8 Half mask .....                                                                           | 10   |
| 5.9 Body harness .....                                                                        | 10   |
| 5.10 Practical performance .....                                                              | 10   |
| 5.11 Resistance to temperature and flammability .....                                         | 11   |
| 5.11.1 Temperature performance .....                                                          | 11   |
| 5.11.2 Flammability .....                                                                     | 11   |
| 5.12 Protection against particulate matter .....                                              | 11   |
| 5.13 High and medium pressure parts.....                                                      | 12   |
| 5.14 Pressure vessel.....                                                                     | 12   |
| 5.15 Pressure vessel valve(s) .....                                                           | 12   |
| 5.16 Pressure reducer .....                                                                   | 12   |
| 5.16.1 General.....                                                                           | 12   |
| 5.16.2 Apparatus with a pressure reducer safety valve.....                                    | 12   |
| 5.16.3 Apparatus without a pressure reducer safety valve .....                                | 13   |
| 5.17 Pressure indicator and tube .....                                                        | 13   |
| 5.17.1 General.....                                                                           | 13   |
| 5.17.2 Pressure indicator of the pointer type.....                                            | 13   |

|        |                                                                                         |    |
|--------|-----------------------------------------------------------------------------------------|----|
| 5.17.3 | Pressure indicator of the tactile type .....                                            | 13 |
| 5.17.4 | Electronic pressure indicator .....                                                     | 14 |
| 5.18   | Warning device .....                                                                    | 14 |
| 5.18.1 | General.....                                                                            | 14 |
| 5.18.2 | Pneumatic warning device.....                                                           | 14 |
| 5.18.3 | Electronic warning device .....                                                         | 14 |
| 5.19   | Flexible hoses and tubes .....                                                          | 15 |
| 5.19.1 | Breathing hose.....                                                                     | 15 |
| 5.19.2 | Medium pressure connecting tube .....                                                   | 15 |
| 5.20   | Lung governed demand valve.....                                                         | 15 |
| 5.20.1 | General.....                                                                            | 15 |
| 5.20.2 | Leaktightness.....                                                                      | 15 |
| 5.21   | Breathing resistance .....                                                              | 15 |
| 5.21.1 | Inhalation resistance .....                                                             | 15 |
| 5.21.2 | Exhalation resistance.....                                                              | 16 |
| 5.22   | Static pressure .....                                                                   | 16 |
| 6      | Testing .....                                                                           | 16 |
| 6.1    | General.....                                                                            | 16 |
| 6.2    | Nominal values and tolerances .....                                                     | 16 |
| 6.3    | Visual inspection .....                                                                 | 16 |
| 6.4    | Resistance to temperature and flammability .....                                        | 16 |
| 6.4.1  | Laboratory tests with a breathing machine .....                                         | 16 |
| 6.4.2  | Practical performance test .....                                                        | 17 |
| 6.5    | Pressure reducer .....                                                                  | 18 |
| 6.5.1  | General.....                                                                            | 18 |
| 6.5.2  | Apparatus with a pressure reducer safety valve.....                                     | 18 |
| 6.5.3  | Apparatus without a pressure reducer safety valve .....                                 | 18 |
| 6.6    | Warning device .....                                                                    | 18 |
| 6.7    | Leaktightness.....                                                                      | 18 |
| 6.7.1  | Low pressure test .....                                                                 | 18 |
| 6.7.2  | High pressure test .....                                                                | 18 |
| 6.8    | Water immersion.....                                                                    | 19 |
| 6.9    | Strength of connections to half mask, demand valve and breathing hose (if fitted) ..... | 19 |
| 6.10   | Resistance to collapse of breathing hose.....                                           | 19 |
| 6.10.1 | Principle.....                                                                          | 19 |
| 6.10.2 | Apparatus .....                                                                         | 19 |
| 6.10.3 | Procedure .....                                                                         | 19 |
| 6.11   | Practical performance .....                                                             | 19 |
| 6.11.1 | General.....                                                                            | 19 |
| 6.11.2 | Walking test.....                                                                       | 20 |
| 6.11.3 | Work simulation test .....                                                              | 20 |
| 6.12   | Breathing resistance .....                                                              | 20 |

|                        |                                                                                                                   |    |
|------------------------|-------------------------------------------------------------------------------------------------------------------|----|
| 6.12.1                 | Inhalation resistance .....                                                                                       | 20 |
| 6.12.2                 | Exhalation resistance .....                                                                                       | 20 |
| 7                      | Marking .....                                                                                                     | 20 |
| 8                      | Information supplied by the manufacturer .....                                                                    | 21 |
| Annex A (informative)  | Marking.....                                                                                                      | 25 |
| Annex ZA (informative) | Clauses of this European Standard addressing essential requirements or<br>other provisions of EU Directives. .... | 26 |
| Bibliography           | .....                                                                                                             | 27 |

## Foreword

This document (EN 14435:2004) 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 February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

This document 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(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 successfully on complete apparatus where specified in the appropriate standard. If for a particular reason a complete apparatus is not tested then simulation of the apparatus is permitted provided the respiratory characteristics and mass distribution are similar to those of the complete apparatus.

## 1 Scope

This European Standard specifies minimum performance requirements for self-contained open-circuit compressed air breathing apparatus with half mask designed to be used with positive pressure only.

This European Standard does not apply to escape apparatus, diving apparatus and apparatus used for fire fighting.

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

## 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.

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

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

EN 140:1998, *Respiratory protective devices - Half masks and quarter masks - Requirements, testing, marking*

EN 144-1, *Respiratory protective devices - Gas cylinder valves - Part 1: Thread connections for insert connector*

EN 144-2, *Respiratory protective devices - Gas cylinder valves - Part 2: Outlet connections*

EN 837-1:1996, *Pressure gauges - Part 1: Bourdon tube pressure gauges - Dimensions, metrology, requirements and testing*

EN 12021, *Respiratory protective devices - Compressed air for breathing apparatus*

EN 13274-2, *Respiratory protective devices - Methods of test - Part 2: Practical performance tests*

EN 13274-3, *Respiratory protective devices - Methods of test - Part 3: Determination of breathing resistance*

EN 13274-4, *Respiratory protective devices - Methods of test - Part 4: Flame tests*

EN 13274-5, *Respiratory protective devices - Methods of test - Part 5: Climatic conditions*

EN 50014, *Electrical apparatus for potentially explosive atmospheres - General requirements*

EN 50020, *Electrical apparatus for potentially explosive atmospheres - Intrinsic safety "i"*

EN 61000-6-2, *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards; Immunity for industrial environments (IEC 61000-6-2:1999, modified)*

## 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 132 and EN 134 apply.

## 4 Description

This apparatus typically comprises pressure vessel(s), body harness, lung governed demand valve, pressure indicator(s), warning device(s), connecting hoses and tubes and half masks.

It may include a pressure reducer, pressure reducer safety valve, supplementary air supply, or other components and parts.