Self-contained closed-circuit breathing apparatus, compressed oxygen or compressed oxygen/nitrogen type

Requirements, testing and marking
(includes Amendment A1 : 2000)
English version of DIN EN 145 : 1997 + A1 : 2000

DIN
EN 145

ICS 13.340.30

Supersedes
September 1997 edition.

Atemschutzgeräte – Regenerationsgeräte mit Drucksauerstoff oder Drucksauerstoff/-stickstoff – Anforderungen, Prüfung, Kennzeichnung (enthält Änderung A1 : 2000)

European Standard EN 145 : 1997 + Amendment A1 : 2000 has the status of a DIN Standard.

A comma is used as the decimal marker.

This standard includes safety requirements within the meaning of the *Gerätesicherheitsgesetz* (German Equipment Safety Law).

National foreword

This standard has been prepared by CEN/TC 79.

The responsible German body involved in its preparation was the *Normenausschuss Feinmechanik und Optik* (Optics and Precision Mechanics Standards Committee).

Amendments

This standard differs from the September 1997 edition in that more detailed specifications have been given with regard to the carbon dioxide content of the inhaled gas (cf. subclause 6.28.6.2) and Annex B has been included.

Previous editions

DIN 58651-1: 1989-03; DIN EN 145-2: 1993-02; DIN EN 145: 1997-09.

EN comprises 43 pages.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 145
August 1997
+ A1
March 2000

ICS 13.340.30

Supersedes EN 145 : 1997.

English version

Respiratory protective devices

Self-contained closed-circuit breathing apparatus, compressed oxygen or compressed oxygen-nitrogen type

Requirements, testing, marking
(includes Amendment A1 : 2000)

Appareils de protection respiratoire – Appareils de protection respiratoire isolants autonomes à circuit fermé, du type à oxygène comprimé ou à oxygène-azote comprimé – Exigences, essais, marquage (amendement A1 : 2000 inclus)

Atemschutzgeräte – Regenerationsgeräte mit Drucksauerstoff oder Drucksauerstoff/-stickstoff – Anforderungen, Prüfung, Kennzeichnung (enthält Änderung A1 : 2000)

This European Standard was approved by CEN on 1997-04-03 and Amendment A1 on 2000-01-24.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

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

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 145 : 1997 + A1 : 2000 E

Foreword to EN 145 : 1997

This European Standard has been prepared by Technical Committee CEN/TC 79 'Respiratory protective devices', the Secretariat of which is held by DIN.

The significant technical differences between this European Standard and the previous European Standards are:

– specifications for positive pressure devices;

– specifications for oxygen-nitrogen devices.

This 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 the relevant EU Directive.

For relationship with this directive, see Annex ZA.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by February 1998 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Foreword to EN 145 : 1997/A1 : 2000

This amendment to EN 145 : 1997 has been prepared by Technical Committee CEN/TC 79 'Respiratory protective devices', the Secretariat of which is held by DIN.

This amendment has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the relevant EU Directive.

For relationship with this directive, see Annex ZA.

This amendment shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by September 2000 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, 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 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 mass distribution are similar to those of the complete apparatus.

1 Scope

This European Standard specifies minimum requirements for self-contained closed-circuit breathing apparatus, compressed oxygen (O_2) and compressed oxygen-nitrogen (O_2 - N_2) types, used as respiratory protective devices, except escape apparatus and diving apparatus.

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 132:1990	Respiratory protective devices - Definitions
EN 134:1990	Respiratory protective devices - Nomenclature of components
EN 136:1997	Respiratory protective devices - Full face masks - Requirements, testing, marking
EN 142:1989	Respiratory protective devices - Mouthpiece assemblies - Requirements, testing, marking
EN 144-1:1991	Respiratory protective devices - Gas cylinder valves - Thread connection for insert connector
EN 148-1:1987	Respiratory protective devices - Threads for facepieces - Standard thread connection
EN 148-2:1987	Respiratory protective devices - Threads for facepieces - Centre thread connection
EN 148-3:1992	Respiratory protective devices - Threads for facepieces - Thread connection M 45 x 3
EN 50014:1992	Electrical apparatus for potentially explosive atmospheres - General requirements
EN 50020:1994	Electrical apparatus for potentially explosive atmospheres - Intrinsic safety "i"

3 Definition and description

For the purpose of this European Standard the definitions given in EN 132:1990 and the nomenclature given in EN 134:1990 apply together with the following description:

Self-contained closed-circuit breathing apparatus, compressed oxygen or compressed oxygen-nitrogen type, designed and constructed so that exhaled breathing gas is ducted from the facepiece into a circuit which contains a carbon dioxide absorption cartridge and a breathing bag where it is available for re-breathing. The carbon dioxide absorption cartridge contains chemicals which absorb exhaled carbon dioxide. Oxygen or oxygen-nitrogen are fed into the apparatus at a suitable point by means of a constant injected flow or by a lung governed flow or by a suitable combination of both. The gas flow may be of the pendulum or loop type and excess gas is ejected via a relief valve.

4 Designation

Designation of a self-contained closed-circuit compressed oxygen or compressed oxygen-nitrogen breathing apparatus meeting the requirements of this European Standard:

Self-contained closed-circuit breathing apparatus EN 145 / type / class

e. g. Self-contained closed-circuit breathing apparatus EN 145 / O_2 - N_2 / 2 N.

5 Classification

The apparatus are classified according to the nominal working duration. See table 1.

Table 1: Class of apparatus

Class of apparatus		Nominal working duration	Minute volume		
negative pressure	positive pressure	h	cycles/min	l/stroke	l/min
1 N	1 P	1	25	2,0	50,0
2 N	2 P	2	20	2,0	40,0
4 N	4 P	4	20	1,5	30,0