SLOVENSKI STANDARD
oSIST prEN 137:2025

01-april-2025

Oprema za varovanje dihal - Avtonomni dihalni aparat na stisnjen zrak z odprtim krogom in obrazno masko - Zahteve, preskušanje, označevanje

Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking

Atemschutzgeräte - Behältergeräte mit Druckluft (Pressluftatmer) mit Vollmaske - Anforderungen, Prüfung, Kennzeichnung

Appareils de protection respiratoire - Appareils de protection respiratoire autonomes à circuit ouvert, à air comprimé avec masque complet - Exigences, essais, marquage

Ta slovenski standard je istoveten z: **prEN 137**

ICS:

13.340.30	Varovalne dihalne naprave	Respiratory protective devices

oSIST prEN 137:2025 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 137

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ICS 13.340.30

Will supersede EN 137:2006

English Version

Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 79.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 137:2025) has been prepared by Technical Committee CEN/TC 79 “Respiratory protective devices”, the secretariat of which is held by DIN.

This document is a working document.

This document will supersede EN 137:2006.

prEN 137:2025 includes the following significant technical changes with respect to EN 137:2006:

a) risk assessment, required in specific clauses;

b) tolerance of ±5 % on temperature limits not otherwise specified and of ±1 °C on those specified;

c) reference to EU Directive 2014/68 on dimensions of pressurized parts;

d) test on corrosion resistance according to EN ISO 9227:2022;

e) flame engulfment according to ISO 16900-10:2015, 6.2.5;

f) elevated heat test;

g) drop test for multiple cylinder devices (Annex C);

h) use IN potentially explosive atmospheres;

i) optional requirements regarding interchangeability of cylinders (Annex D);

j) optional requirements regarding the Personal Alert Safet System (3.1.11).

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

1 Scope

This document specifies minimum performance requirements for self-contained breathing apparatus (SCBA), except escape device and diving device.

This document specifies in the Annex D optional requirements regarding the interchangeability of the cylinder for single-cylinder SCBA.

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

2 Normative references

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

EN 136:1998[1], *Respiratory protective devices — Full face masks — Requirements, testing, marking*

EN 144-1:2018, *Respiratory protective devices — Gas cylinder valves — Part 1: Inlet connections*

EN 144-2:2018, *Respiratory protective devices — Gas cylinder valves — Part 2: Outlet connections*

EN 148-1:2018, *Respiratory protective devices — Threads for facepieces — Standard thread connexion*

EN 148-2:1999, *Respiratory protective devices — Threads for facepieces — Centre thread connection*

EN 148-3:1999, *Respiratory protective devices — Threads for facepieces — Part 3: Thread connexion M 45 x 3*

EN 837-1:1996[2], *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

EN 12245:2022, *Transportable gas cylinders — Fully wrapped composite cylinders*

EN 12257:2002, *Transportable gas cylinders — Seamless, hoop-wrapped composite cylinders*

EN 13274-2:2019, *Respiratory protective devices — Methods of test — Part 2: Practical performance tests*

EN 13274-3:2001, *Respiratory protective devices — Methods of test — Part 3: Determination of breathing resistance*

EN 13274-4:2020, *Respiratory protective devices — Methods of test — Part 4: Flame test*

EN ISO 9227:2022[3], *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227:2022)*

EN ISO 9809-2:2019, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 2: Quenched and tempered steel cylinders and tubes with tensile strength greater than or equal to 1 100 MP (ISO 9809-2:2019)*

EN ISO 10297:2024, *Gas cylinders — Cylinder valves — Specification and type testing (ISO 10297:2024, Corrected version 2024-05)*

[1] This normative reference is impacted by a corrigendum: EN 136:1998/AC:2003.
[2] This normative reference is impacted by a corrigendum: EN 837-1:1996/AC:1998.
[3] This normative reference is impacted by an amendment : EN ISO 9227:2022/A1:2024.

ISO 16900-10:2015, *Respiratory protective devices — Methods of test and test equipment — Part 10: Resistance to ignition, flame, radiant heat and heat*

EN ISO 80079-36:2016[4], *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements*

EN IEC 60079-0:2018[5], *Electrical apparatus for explosive gas atmospheres — Part 0: General requirements (IEC 60079-0:2017)*

EN IEC 61000-6-2:2019, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity standard for industrial environments (IEC 61000-6-2:2016)*

ISO 11119-2:2020, *Gas cylinders — Design, construction and testing of refillable composite gas cylinders and tubes — Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners*

ISO 11119-3:2020, *Gas cylinders — Design, construction and testing of refillable composite gas cylinders and tubes — Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load-sharing metallic or non-metallic liners or without liners*

3 Terms, definitions and symbols

For the purposes of this document, the terms and definitions given in EN ISO 16972:2020 and EN 134:2024 and the following apply.

3.1 Terms and definitions

3.1.1
basic part of SCBA
SCBA without mask nor cylinder

3.1.2
self-contained breathing apparatus
SCBA
self-contained open-circuit compressed air breathing apparatus with full face mask

3.1.3
cylinder
sub-assembly of SCBA generally comprising:

— cylinder shell;

— cylinder valve;

— label or other means of identifying the manufacturer of the cylinder body and of the cylinder-valve-assembly;

— optional: pressure indicator, excess flow device, bursting disc, cylinder protection device, dip tube or filter with the dip tube or other

[4] This normative reference is impacted by a corrigendum: EN ISO 80079-36:2016/AC:2019.

[5] This normative reference is amended by: EN IEC 60079-0:2018/A11:2024; by an EN IEC 60079-0:2018/prAB; And is impacted by a corrigendum: EN IEC 60079-0:2018/AC:2020-0.

3.1.4
rated working pressure
maximum allowable pressure (PS) for which the equipment is designed, as specified by the manufacturer

3.1.5
working pressure
settled pressure of compressed air at a uniform reference temperature of 15 °C in a fully charged cylinder, in bar

3.1.6
bursting disc
device intended to protect pressurised cylinders against overpressure

3.1.7
excess flow device
EFV
device that limits, in the event of rupture of the valve or unwanted opening, the flow of air exiting from the cylinder

3.1.8
pressure indicator
device indicating the presence or absence of pressure

3.1.9
cylinder valve
device which, when closed, prevents the flow of compressed air from cylinder

3.1.10
cylinder shell
recipient without valve designed to contain pressurized air

3.1.11
Personal Alert Safety System
(PASS)
device that continually senses for lack of movement of the wearer and automatically activates the alarm signal, indicating the wearer needs assistance, but can also be manually activated to trigger the alarm

Note 1 to entry: PASS can be an integrated device with dispersed components, incorporated into the construction or assembly of SCBA.

Note 2 to entry: PASS can have key(s) device(s) that activate(s) and/or de-activate(s) it. Different methods exist.

Note 3 to entry: The activation key can be e.g. removable, a smart card, a pressure activation, a push button or an electronic signal.

Note 4 to entry: For de-activation, an intentional action via a removable key, smart card, push button or electronic signal might be applied.

Note 5 to entry: See BS 10999:2010.

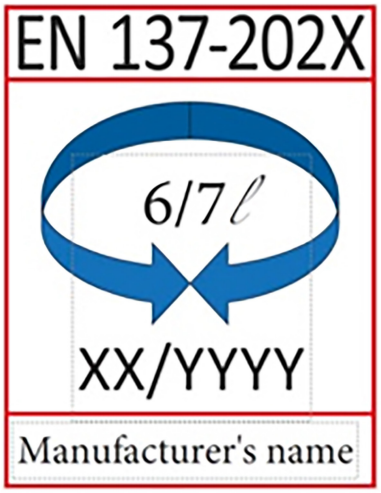
3.1.12
alarm signal
PASS-audible warning that is identifiable as an indication that a person needs assistance

3.1.13
pre-alarm signal
PASS-audible warning that is identifiable as an indication that a PASS is about to sound the alarm signal

3.2 Symbols

3.2.1

basic parts and cylinders both showing the following symbols are compatible to one another and can be interchanged



Cylinder

50 mm × 65 mm

Minimum

Backplate

10,8 mm × 15 mm

4 Description

This SCBA comprises cylinder(s) and typically *body harness, lung governed demand valve, pressure reducer, pressure indicator or gauge, warning device(s), connecting hoses or tubes and full face mask.*

It may include *pressure reducer relief valve, supplementary air supply, secondary medium pressure connector(s), ambient air bypass device,* a PASS device *or* other accessories.

The SCBA functions by enabling the wearer to breathe air on demand supplied from compressed air cylinder(s). The exhaled air from the wearer then passes without re-circulation to the ambient atmosphere.

5 Classification

Self-contained open-circuit compressed air breathing SCBA are classified as follows;

— Type 1: SCBA meeting basic requirements;

— Type 2: SCBA meeting higher requirements.

Type 1 is intended for use for planned activities not in high temperature environments where the exposure to flames or radiant heat is not expected.

Type 2 is intended for use by fire and rescue services and considers the tactical procedures including internal attacks (structural firefighting) of European fire services and established training methods.

The requirements of Type 2 include those provided by Type 1.

6 Requirements

6.1 General

For all SCBA being tested, pre-conditioning in accordance with 6.25 shall be performed.

All test samples specified in the related test clauses shall meet the relevant requirements.

Table 1 gives the requirement, number of samples, pre-conditioning and test clause numbers.

Table 1 — Test schedule

Requirement	Title	Number of test samples [a]		Conditioning	Test clause	Associated requirements
		Type 1	Type 2			
6.5.2	Corrosion resistance	1	1	EN ISO 9227:2022	7.2, 7.8	
6.6	Submersion	1	1	6.25	7.9	
6.8 Connections						
6.8.1	General	2	2	6.25	7.2, 7.12	
6.8.2	Air supply couplings (if fitted)	2	2	6.25	7.2, 7.12	
6.8.4	Strength of connections to full face mask, demand valve and breathing hose (if fitted)	1 mask, 1 LDV [b]	1 mask, 1 LDV [b]	6.25	7.10	
6.10	Body harness	2	2	6.25	7.12	
6.11	Practical performance	2	2	7.3.2.1.1	7.3.2	
6.12.2 Flammability						
6.12.2.1	Components	1	1	6.25	7.2, 7.3.1.3, 7.7	
6.12.2.2	Flame engulfment	X	1	6.25	ISO 16900-10:2015, 6.2.5, 7.2	6.22
6.12.2.3	Elevated heat test	X	1	6.25	ISO 16900-10:2015, 6.2.5, 7.2	6.22

Requirement	Title	Number of test samples [a]		Conditioning	Test clause	Associated requirements
		Type 1	Type 2			
6.12.3	Resistance to radiant heat	X	1	6.25	EN 136:1998, 8.6	6.22
6.17 Pressure reducer						
6.17	Reducer relief valve	1	1	6.25	7.2, 7.5.1 and 7.5.2	
6.18	Pressure gauge and tube	1	1	6.25	7.2 m), 7.9, 7.12	EN 837-1:1996, Clause 6
6.19	Warning device	1	1	6.25	7.2 m), 7.6	
6.21	Lung governed demand valve	2	2	6.25	7.2 m)	
6.22.1 Inhalation resistance						
6.22.1.2	Negative pressure SCBA	2	2	6.25	EN 13274-3:2001, method 2, settings E and H	
6.22.1.3	Positive pressure SCBA	2	2	6.25	EN 13274-3:2001, method 2, settings E and H	
6.22.1.4.1	Low temperatures	2	2	6.25	7.3.1.1	
6.22.1.4.2	High temperatures	2	2	6.25	7.3.1.2	
6.22.2 Exhalation resistance						
6.22.2.3	Negative pressure SCBA	2	2	6.25	EN 13274-3:2001, method 2, settings E and H	
6.22.2.4	Positive pressure SCBA	2	2	6.25	EN 13274-3:2001, method 2, settings E and H	
6.22.2.5.1	Low temperatures	2	2	6.25	7.3.1.1	
6.22.2.5.2	High temperatures	2	2	6.25	7.3.1.2	
6.23 Static pressure						
6.23	**Static pressure**	**2**	**2**	**6.25**	**7.2**	
6.24 Leak-tightness						
6.24.2	Low pressure	1	1	6.25	7.7.1	
6.24.3	High pressure	1	1	6.25	7.7.2	

Requirement	Title	Number of test samples [a]		Conditioning	Test clause	Associated requirements
		Type 1	Type 2			
a Samples can be used for more than one test.						
b LDV is the abbreviation for lung governed demand valve.						

Where it is required in a specific clause a declaration that a risk assessment, e.g. a Failure Modes and Effect Analysis (FMEA) concerning these specific requirements has been conducted, shall be supplied.

NOTE Further information is given in EN IEC 60812:2018 [1].

Where fitted, auxiliary equipment identified in Annexes A, B and D shall in addition meet the requirements listed in those annexes.

To ensure the interchangeability of cylinder-valve-assemblies optional requirements are specified. This applies to single cylinder SCBA which comply with the requirements of this document.

Interchangeability can only be claimed on components which have passed the tests as a complete SCBA.

6.2 Values and tolerances

Temperature limits, values which are not stated as maxima or minima shall be subject to a tolerance of ±5 %. Unless otherwise specified, the ambient conditions for testing shall be between 16 °C and 32 °C and (50 ± 30) % relative humidity.

Any temperature limits specified shall be subject to an accuracy of ±1 °C.

6.3 Ergonomics

The requirements of this document are intended to take account of the interaction between the wearer, the SCBA, and where possible the working environment in which the SCBA is likely to be used. The SCBA shall meet the requirements specified in 6.4, 6.10 and 6.11.

6.4 Design

6.4.1 The design of the SCBA shall be such as to allow the inspections to be performed in accordance with the information supplied by the manufacturer.

Check in accordance with 7.2.

6.4.2 The diameter of pressurized parts with a pressure greater than 0,5 bar downstream of the cylinder valve(s) shall not exceed DN 32 mm to ensure safe use evaluated as per the sound engineering practice. (See EU Directive 2014/68)

Check compliance to this in the technical file.

The SCBA shall be robust to withstand the rough usage it is likely to receive in service.

Testing shall be performed in accordance with 7.12.

6.4.3 Any part of the SCBA likely to be in contact with the wearer shall be free from sharp edges and burrs.

The SCBA shall not have protruding parts that can be caught on projections in narrow passages or by moving parts.