



SLOVENSKI STANDARD

SIST EN 142:1996

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Oprema za varovanje dihal - Ustniki - Zahteve, preskušanje, označevanje

Respiratory protective devices - Mouthpiece assemblies - Requirements, testing, marking

Atemschutzgeräte - Mundstückgarnituren - Anforderungen, Prüfung, Kennzeichnung

Appareils de protection respiratoire - Ensembles embouts buccaux - Exigences, essais, marquage

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ICS:

13.340.30	Varovalne dihalne naprave	Respiratory protective devices
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EUROPEAN STANDARD

EN 142

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EUROPAISCHE NORM

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Key words: Respiratory protective equipment, accident prevention, end pieces, specifications, tests, marking

English version

Respiratory protective devices;
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Requirements, testing, marking

Appareils de protection respiratoire;
Ensembles embouts buccaux; Exigences,
essais, marquage

Atenschutzgeräte;
Mundstückgarnituren; Anforderungen,
Prüfung, Kennzeichnung

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This European Standard was accepted by CEN on 1988-09-26. CEN members are bound to comply with the requirements of the CEN/CENELEC Common Rules 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 CEN Central Secretariat or to any CEN member.

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

CEN members are the national standards organizations of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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

Central Secretariat: rue Bréderode 2, B-1000 Brussels

Brief History

This Draft European Standard was drawn up by CEN/TC 79 „Respiratory Protective Devices“, the secretariat of which is held by DIN.

In 1975 the Sub-Group 3 "Facepieces" (SG 3) with DIN secretariat started work on this document.

At the plenary meeting of CEN/TC 79 in the Hague in November 1978 the draft proposal was presented to CEN/TC 79 and unanimously accepted. Following this it was submitted to the secretariat of CEN/TC 79 for publication as Draft European Standard.

In January 1981 the Draft European Standard prEN 142 was circulated by the CEN Central Secretariat in Brussels to all CEN Members for vote and comments. Within the voting period 9 Members approved and 3 Members disapproved the document.

The detailed comments received were discussed and decided on during the following meetings of SG 3.

Since almost all comments could be accommodated the present document was submitted to the CEN Members for formal vote in June 1988. The result was positive.

In accordance with the Common CEN/CENELEC Rules, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, 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 weight distribution are similar to those of the complete apparatus.

1 Object and field of application

This European Standard refers to mouthpiece assemblies for respiratory protective devices, except escape apparatus and diving apparatus.

It specifies minimum requirements for mouthpiece assemblies for use as part of respiratory protective devices. Laboratory and practical performance tests are included for the assessment of compliance with the requirements.

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2 References

- <https://standards.iteh.ai/catalog/standards/sist/dfbe4df5-5790-4b2e-ad11-07d274ac0302/sist-en-142-1996>
- 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

3 Definition and description

A mouthpiece assembly is a device (facepiece), held by the teeth, sealing against the lips, and through which air is inhaled and exhaled while the nose is blocked up by a clip. Air enters the mouthpiece and passes directly into the mouth. The exhaled air flows back either through the facepiece connector into the breathing apparatus (closed-circuit breathing apparatus, pendulum breathing) or directly to the ambient atmosphere, via the exhalation valve(s), in other types of respiratory protective devices.

4 Requirements

4.1 Material

Exposed parts i.e. those which may be subjected to impact during use of the apparatus shall not be made of aluminium, magnesium, titanium or alloys containing such proportions of these metals as will, on impact, give rise to frictional sparks capable of igniting flammable gas mixtures.

4.2 Cleaning and disinfecting

The materials used shall withstand the cleaning and disinfecting agents recommended by the manufacturer.

4.3 Replaceable components

It is desirable that the components of the mouthpiece assembly should be replaceable.

Testing according to 5.1

4.4 Practical performance test

The complete apparatus shall undergo practical performance tests under realistic conditions. These general practical performance tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described in other parts of this standard.

In addition to the tests described in this standard details of practical performance tests for breathing apparatus are given in the relevant European Standard. Where a mouthpiece assembly is to be used for filtering devices testing shall be in accordance with the requirements for full face masks. The tests described in other standards have to be run with the exemption of speaking.

Where in the opinion of the test station approval is not granted because practical performance tests show the apparatus has imperfections related to wearer's acceptance, the test station shall provide full details of those parts of the practical performance tests which revealed these imperfections. This will enable other test stations to duplicate the tests and assess the results thereof.

4.5 Inward leakage of facepiece

A mouthpiece shall be so designed that inward leakage between lips and mouthpiece is negligible.

In addition inward leakage may occur through exhalation valves (if fitted) and connections. The inward leakage through the exhalation valve(s) shall not exceed 0,01 %.

Testing according to 5.2

4.6 Compatibility with skin and mouth

Materials that may come into contact with the wearer's skin and mouth shall not be known to be likely to cause irritation or any adverse effect to health.

4.7 Head harness

4.7.1 The head harness shall be designed so that the mouthpiece assembly can be donned and removed easily.

Testing according to 5.1

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4.7.2 The head harness shall be adjustable and shall hold the mouthpiece assembly firmly and comfortably in position.

Testing according to 5.1

4.8 Connector

The connection between the rest of the apparatus and the mouthpiece assembly may be achieved by a permanent or special type of connection or by a standard thread connection.

Testing according to 5.1

4.8.1 Standard thread connection

This may be used as the mouthpiece assembly connection for all respiratory protective devices, except closed-circuit breathing apparatus and positive pressure demand breathing apparatus.

If a standard thread connection is used then the relevant requirements of EN 148-1:1987 shall be satisfied.

4.8.2 Centre thread connection

This may be used as the mouthpiece assembly connection for closed-circuit breathing apparatus.

If a centre thread connection is used then the relevant requirements of EN 148-2:1987 shall be satisfied.

4.8.3 The connection between mouthpiece and connector shall be gastight and sufficiently robust.

4.8.4 All demountable connections shall be readily connected and secured, where possible by hand. Any means of sealing used shall be retained in position when the connection is disconnected during normal maintenance.

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4.8.5 Correct and reliable connection between facepiece and other parts of the respiratory protective device shall be assured.

4.9 Inhalation and exhalation valves

Valve assemblies shall be such that they can be readily maintained and correctly replaced.

It shall not be possible to fit an exhalation valve assembly into the inspiratory circuit or an inhalation valve assembly into the expiratory circuit.

Normally a mouthpiece assembly with centre thread connection shall not have valves.

Testing according to 5.1

4.9.1 Inhalation valve(s)

4.9.1.1 A mouthpiece assembly except one with a centre thread connection should preferably be provided with one or more inhalation valve(s). If a standard thread type of connection is used an inhalation valve shall be incorporated in the mouthpiece assembly. If a mouthpiece assembly has to be used with filters it shall be provided with an integral inhalation valve, if there is no valve in the filter.

4.9.1.2 Inhalation valve(s) shall function correctly in all orientations.

4.9.2 Exhalation valve(s)

4.9.2.1 Exhalation valve(s) shall function correctly in all orientations.

4.9.2.2 A mouthpiece assembly with a standard thread connection shall have at least one exhalation valve to allow the escape of exhaled air and, where applicable, any excess air delivered by the air supply.

- 4.9.2.3 The exhalation valve(s) shall be protected against dirt and mechanical damage and shall be shrouded or shall include any other device that may be necessary to comply with 4.5.
- 4.9.2.4 The exhalation valve(s) shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 1 min.

4.10 Breathing resistance

Testing according to 5.3

- 4.10.1 The breathing resistance of a mouthpiece assembly shall not exceed the values given in 4.10.2 and 4.10.3 respectively.

4.10.2 With standard thread connection:

The breathing resistance shall not exceed 1,5 mbar ¹⁾ for inhalation and 3,0 mbar for exhalation (25 x 2 l/min with breathing machine or 160 l/min continuous flow).

The inhalation resistance shall not exceed 0,5 mbar at 30 l/min continuous flow and 1,0 mbar at 95 l/min continuous flow.

4.10.3 With centre thread connection:

The breathing resistance shall not exceed 0,6 mbar for inhalation or exhalation.

This requirement does not apply to mouthpiece assemblies which contain valves or other components as an integral part of the assembly when used with closed-circuit breathing apparatus.

1) 1 bar = 10^5 N/m² = 100 kPa

4.11 Restriction of air flow

The mouthpiece shall be so constructed that the air flow is not restricted unintentionally when the mouthpiece assembly is being worn.

Testing according to 5.1

4.12 Nose clip

The nose clip shall be designed to afford maximum security against accidental displacement. It shall not slip when the nose becomes moist with perspiration, and suitable means shall be provided for attaching it to the apparatus to prevent loss.

Testing according to 5.1

The parts of the nose clip shall be designed not to cause burns, when used in hot environments.

5

Testing

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5.1 Visual inspection

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The visual inspection is carried out where appropriate by the test station prior to laboratory or practical performance tests.

5.2 Exhalation valve leakage

5.2.1 Test equipment

This consists mainly of:

- a) a small volume (volume: 1 to 1,2 l) leak tight box attached to a tube, with opening(s) between the box and tube in which the valve assemblies are mounted in suitable adaptors of low dead space (figure 1). There are baffle plates in the box to promote smooth test gas flow (100 l/min continuous flow).
- b) a breathing machine delivering sinusoidal air flows corresponding to 20 strokes/min and 1,5 l/stroke.
- c) a supply of CO₂.