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Oprema za varovanje dihal - Metode preskušanja - 2. del: Praktični preskusi delovanja

Respiratory protective devices - Methods of test - Part 2: Practical performance tests

Atemschutzgeräte - Prüfverfahren - Teil 2: Praktische Leistungsprüfungen

Appareils de protection respiratoire - Méthodes d'essai - Partie 2: Essais pratiques de performance

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English Version

Respiratory protective devices - Methods of test - Part 2: Practical performance tests

Appareils de protection respiratoire - Méthodes d'essai - Partie 2: Essais pratiques de performance

Atemschutzgeräte - Prüfverfahren - Teil 2: Praktische Leistungsprüfungen

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.

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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 13274-2:2018) has been prepared by Technical Committee CEN/TC 79 “Respiratory protection devices”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13274-2:2001.

The following main technical changes have been made compared to EN 13274-2:2001:

a) Clause 4 amended to include relevant test conditions and the activity sequence;

b) Clause 5 amended regarding the estimation of uncertainty;

c) Data for test subjects added;

d) Assessment of practical performance amended;

e) Test report added;

f) Activities for practical performance tests more specified and amended.

Introduction

This document is intended as a supplement to the specific device standards for respiratory protective devices. Test methods are specified for complete or parts of devices. If deviations from the test method given in this document are necessary, these deviations will be specified in the relevant device standard.

1 Scope

This document specifies practical performance tests for respiratory protective devices, except for diving apparatus. The purpose of these tests is to subjectively assess certain properties, characteristics and functions of the device, when worn by test subjects in simulated practical use, which cannot be assessed by tests described in other standards.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

prEN ISO 16972:2018, *Respiratory protective devices — Definitions of terms and pictograms (ISO/DIS 16972:2018)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN ISO 16972:2018 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Pre-requisites

In order to implement this document, at least the following parameters need to be specified in the relevant device standard.

— Number of samples.

— Device preparation.

— Any prior conditioning or testing.

— Number and selection of test subjects.

— Deviations.

— Pass/fail criteria.

— Identification of activities (by number in Table 1), and times if different to those specified.

— Relevant test conditions for each activity e.g. ambient or low temperature.

— Activity sequence, if relevant.

5 Nominal values and tolerances

Unless otherwise specified, the values stated in this document are expressed as nominal values. Except for 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.

For each of the required measurements performed in accordance with this document, a corresponding estimate of the uncertainty of measurement should be evaluated [1]. This estimate of uncertainty should be applied and stated when reporting test results, in order to enable the user of the test report to assess the reliability of the result.

6 Test methods

6.1 Principle

Test subjects donning and wearing the device in accordance with the information supplied by the manufacturer perform activities in simulation of practical use. They are then asked to assess the device subjectively and comment accordingly.

6.2 Test subjects

Before performing any tests involving human subjects, account shall be taken of any national regulations concerning the medical history, examination or supervision of the test subjects.

Test subjects who are experienced in wearing the type of respiratory protective device being tested shall be used. The medical condition of the subjects shall be satisfactory for the tasks involved. The necessity for a medical examination before the tests and for medical supervision during them is at the discretion of the appropriate responsible person of the test house.

Prior to the tests the following data shall be recorded, but not reported, for each test subject:

— name;

— age;

— sex;

— height;

— weight.

6.3 Preparation of test samples

Before testing, examine the device to see that it is in good working condition and that it can be used without hazard.

Practical performance tests shall only be performed following satisfactory testing against the laboratory tests specified in the relevant document for the respiratory protective device.

6.4 Ambient conditions

The test shall be performed in a normally lit area with a temperature from 16 °C to 32 °C and relative humidity from 30 % to 80 %.

The actual conditions of temperature and humidity and noise level shall be recorded.

6.5 Low temperature conditions

The test shall be carried out at either -6 °C to -9 °C or -15 °C to -20 °C.

The actual temperature shall be recorded.

6.6 Assessments

The RPD shall be judged to have failed the practical performance test if the test subjects are unable to satisfactorily complete the required activities.

During the activities the RPD shall be subjectively assessed by each wearer, and after completing the test activities the subject shall be asked for comments. If the comments received indicate that there might be issues that affect the safe use of the RPD, these shall be confirmed by further observations and testing. It is permitted for the observer to add his own comments. Suggested areas for comments are:

a) ease of donning and doffing;

b) head harness (if fitted) - ie donning and doffing, adjustability, security and comfort;

c) comfort of facepiece;

d) compatibility with skin;

e) comfort of body harness, belt and breathing bag (if fitted);

f) comfort of wearing and balance of the device;

g) clarity of vision through the visor of the facepiece (if fitted), including misting, for example the visibility of a sign (e.g. an 'Exit' sign) consisting of letters 150 mm in height at a distance of 6 m;

h) field of vision, to be determined with the component normally to be used with the facepiece fitted to it;

i) speech transmission;

j) security of fastenings and couplings(if fitted);

k) accessibility of controls and pressure gauge (if fitted);

l) ease of operation and ease of interpretation of the checking facility for the manufacturer's minimum design flow rate (if fitted);

m) inadvertent operation of the on-off switch or of any means of changing flow rate or classification of the device (if fitted);

n) operation and effectiveness of warning device (if fitted);

o) manoeuverability / kinking of breathing hose, air supply hose or compressed air supply tube (if fitted);

p) freedom of head movement with respect to breathing hose (if fitted);

q) comfort of breathing (e.g. temperature, pressure, quantity);

r) any stress or discomfort caused by the flow rate or distribution of the air;

s) ease of operation of supplementary air supply (if fitted);

t) ease of obtaining ambient air or the use of any emergency system provided (if applicable);

u) effectiveness of saliva trap (if fitted);

v) any other comments regarding the design of the device or the materials used in its construction;

w) any comments regarding other characteristics specified within the device standard;

x) any other comments reported by the wearer.

Comments made by the test subjects shall be recorded.

6.7 Test Report

Report the following:

a) whether all test subjects completed all the assigned sequence of tasks;

b) whether only some of the test subjects completed all of the assigned tasks;

c) which of the assigned tasks were not completed by all of the test subjects;

d) the reason(s) why any of the assigned tasks could not be completed;

e) the actual conditions of temperature, humidity and noise level under which the tests were performed;

f) the number of correct answers reported during activity 19

g) whether the information supplied by the manufacturer is understandable and can be followed;

h) any other relevant comments or observations.

7 Activities

Each subject shall wear either clothing specified by the manufacturer's instructions for use with the device under test, or clothing appropriate to the conditions in the test house and the activities to be performed.

Ask the test subjects to read the manufacturer's fitting instructions and if necessary show them how to fit the device correctly in accordance with the fitting instructions. Ask the test subject to fit the device, selecting the correct size if appropriate.

Ask each test subject "Does the device fit?" If the answer is "Yes", continue the test. If the answer is "No", take the test subject off the panel and report this fact.

Before starting the test check visually whether the device has been fitted correctly.

Inform the test subjects that if they wish to adjust the device during the test they may do so. However, if this is done the relevant section of the test will be repeated having allowed the system to re-settle.

The sequence of activities shall be at the discretion of the appropriate responsible person from the test house, unless otherwise specified in the relevant device standard. The activities themselves are selected from those given in Table 1. The activities shall be continuous, without removal of the device.

Due regard should be given to ergonomic good practice and manual handling statutory requirements