INTERNATIONAL STANDARD

ISO 16900-13

First edition
2015-10-01

Respiratory protective devices — Methods of test and test equipment —

Part 13: RPD using regenerated breathable gas and special application mining escape RPD: Consolidated test for gas concentration, temperature, humidity, work of breathing, breathing resistance, elastance and duration

Appareils de protection respiratoire — Méthodes d'essai et équipement d'essai —

Partie 13: Appareils de protection respiratoire utilisant du gaz respirable et appareils de protection respiratoire pour application spéciale d'échappatoire minière: essai de consolidation pour concentration de gaz, température, humidité, travail respiratoire, résistance respiratoire et durée

Reference number
ISO 16900-13:2015(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 15, *Respiratory protective devices*.

ISO 16900 consists of the following parts, under the general title *Respiratory protective devices — Methods of test and test equipment*:

— *Part 1: Determination of inward leakage*

— *Part 2: Determination of breathing resistance*

— *Part 3: Determination of particle filter penetration*

— *Part 4: Determination of gas filter capacity and migration, desorption and carbon monoxide dynamic testing*

— *Part 5: Breathing machine, metabolic simulator, RPD headforms and torso, tools and verification tools*

— *Part 6: Mechanical resistance/strength of components and connections*

— *Part 7: Practical performance tests methods*

— *Part 8: Measurement of RPD air flow rates of assisted filtering RPD*

— *Part 9: Determination of carbon dioxide content of the inhaled air*

— *Part 10: Resistance to ignition, flame, radiant heat and heat*

— *Part 11: Determination of field of vision*

— *Part 12: Determination of volume-averaged work of breathing and peak respiratory pressures*

— *Part 13: RPD using regenerated breathable gas and special application mining escape RPD: Consolidated test for gas concentration, temperature, humidity, work of breathing, breathing resistance, elastance and duration*

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— *Part 14: Measurement of sound level*

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Introduction

This part of ISO 16900 is intended as a supplement to the respiratory protective devices (RPD) performance standards. Test methods are specified for complete devices or parts of devices that are intended to comply with the performance standards.

The following definitions apply in understanding how to implement an ISO International Standard and other normative ISO deliverables (TS, PAS, IWA):

— "shall" indicates a requirement;

— "should" indicates a recommendation;

— "may" is used to indicate that something is permitted;

— "can" is used to indicate that something is possible, for example, that an organization or individual is able to do something.

3.3.1 of the ISO/IEC Directives, Part 2 (sixth edition, 2011) defines a requirement as an "expression in the content of a document conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted."

3.3.2 of the ISO/IEC Directives, Part 2 (sixth edition, 2011) defines a recommendation as an "expression in the content of a document conveying that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited."

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Respiratory protective devices — Methods of test and test equipment —

Part 13:
RPD using regenerated breathable gas and special application mining escape RPD: Consolidated test for gas concentration, temperature, humidity, work of breathing, breathing resistance, elastance and duration

1 Scope

This part of ISO 16900 specifies tests which are specific to RPDs using regenerated breathable gas, compressed breathable gas with class L respiratory interfaces, and special application mining escape RPD.

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.

ISO 16900-12, *Respiratory protective devices — Methods of test and test equipment — Part 12: Determination of volume-averaged work of breathing and peak respiratory pressures*

ISO 16972, *Respiratory protective devices — Terms, definitions, graphical symbols and units of measurement*

3 Terms and definitions

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

3.1
class Sxxxx RPD
supplied breathable gas RPD, where Sxxxx equals the amount of breathable gas available for respiration in litres

3.2
body temperature pressure saturated
BTPS
standard condition for the expression of ventilation parameters

Note 1 to entry: Body temperature (37 °C), atmospheric pressure 101,3 kPa (760 mmHg), and water vapour pressure (6,27 kPa) in saturated air.

3.3
standard temperature pressure dry
STPD
standard conditions for expression of oxygen consumption

Note 1 to entry: Standard temperature (0 °C) and pressure (101,3 kPa, 760 mmHg), dry air (0 % relative humidity).

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