BS ISO 16900-13:2015

BSI Standards Publication

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

bsi.

...making excellence a habit.™

Document Sharing Hub

Full document details: BS ISO 16900-13:2015

National foreword

This British Standard is the UK implementation of ISO 16900-13:2015.

The UK participation in its preparation was entrusted to Technical Committee PH/4, Respiratory protection.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015.
Published by BSI Standards Limited 2015

ISBN 978 0 580 80494 6

ICS 13.340.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2015.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: BS ISO 16900-13:2015

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)

Documents
Document Sharing Hub

© ISO 2015

Full document details: BS ISO 16900-13:2015

COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

© ISO 2015 – All rights reserved

Documents
Document Sharing Hub

Full document details: BS ISO 16900-13:2015

Contents

Page

Foreword ... **iv**
Introduction ... **vi**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Prerequisites ... **2**
5 General test requirements ... **2**
6 Test of RPD performance at work rate ... **2**
6.1 General ... 2
6.2 Test regimes ... 3
6.2.1 General ... 3
6.2.2 Regime for RPD of class W1 ... 3
6.2.3 Regime for RPD of class W2 ... 3
6.2.4 Regime for RPD of class W3 ... 4
6.2.5 Regime for RPD of class W4 ... 4
6.3 Determination of capacity of class Sxxxx RPD ... 4
6.3.1 Class Sxxxx RPD — having class L respiratory interfaces using compressed breathable gas ... 4
6.3.2 Class Sxxxx RPD — not using compressed breathable gas ... 5
6.4 Volume averaged work of breathing, pressures and elastance ... 5
6.4.1 Work of breathing/breathing resistance (peak pressures) ... 5
6.4.2 Elastance ... 5
6.5 Gas concentrations ... 6
6.5.1 General ... 6
6.5.2 CO_2 concentration limits ... 6
6.5.3 Oxygen content ... 6
6.6 Temperature and humidity ... 6
6.7 CO content of inspired gas ... 6
7 Apparatus ... **7**
8 Test report ... **9**
Annex A (normative) **Application of uncertainty of measurement** ... **11**

© ISO 2015 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 16900-13:2015

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*

© ISO 2015 – All rights reserved
Documents
Document Sharing Hub
Full document details: BS ISO 16900-13:2015

— *Part 14: Measurement of sound level*

© ISO 2015 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 16900-13:2015

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."

© ISO 2015 – All rights reserved
Documents
Document Sharing Hub
Full document details: BS ISO 16900-13:2015