This is a free page sample. Access the full version online.

NSAI Standards

Irish Standard
I.S. EN ISO 10524-3:2006

Pressure regulators for use with medical gases - Part 3: Pressure regulators integrated with cylinder valves (ISO 10524 -3:2005)

© CEN 2006 No copying without NSAI permission except as permitted by copyright law.

This is a free page sample. Access the full version online.

I.S. EN ISO 10524-3:2006

Incorporating amendments/corrigenda/National Annexes issued since publication:
EN ISO 10524-3:2006/A1:2013

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:	*This document is based on:*	*Published:*
EN 738-3:1998	EN ISO 10524-3:2006 EN 738-3:1998	26 April, 2006 9 April, 1999

This document was published under the authority of the NSAI and comes into effect on: 7 July, 2006	ICS number: 11.040.10

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

I.S. EN ISO 10524-3:2006

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10524-3:2006/A1

March 2013

ICS 11.040.10

English Version

Pressure regulators for use with medical gases - Part 3: Pressure regulators integrated with cylinder valves - Amendment 1: Filtration and information to be supplied by the manufacturer (ISO 10524-3:2005/Amd 1:2013)

Détendeurs pour l'utilisation avec les gaz médicaux - Partie 3: Détendeurs intégrés dans les robinets des bouteilles de gaz - Amendement 1: Filtrage et informations à fournir par le fabricant (ISO 10524-3:2005/Amd 1:2013)

Druckminderer zur Verwendung mit medizinischen Gasen - Teil 3: Druckminderer in Flaschenventilen (ISO 10524-3:2005/Amd 1:2013)

This amendment A1 modifies the European Standard EN ISO 10524-3:2006; it was approved by CEN on 1 March 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This amendment exists 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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2013 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 10524-3:2006/A1:2013: E

This is a free page sample. Access the full version online.

Contents

Page

Foreword 3

Annex ZA (informative) **Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC** 4

This is a free page sample. Access the full version online.

Foreword

This document (EN ISO 10524-3:2006/A1:2013) has been prepared by Technical Committee ISO/TC 121 "Anaesthetic and respiratory equipment" in collaboration with Technical Committee CEN/TC 215 “Respiratory and anaesthetic equipment” the secretariat of which is held by BSI.

This Amendment to the European Standard EN ISO 10524:2006 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by March 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 10524-3: 2005/Amd 1:2013 has been approved by CEN as EN ISO 10524-3:2006/A1:2013 without any modification.

This is a free page sample. Access the full version online.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10524-3

April 2006

ICS 11.040.10

Supersedes EN 738-3:1998

English Version

Pressure regulators for use with medical gases - Part 3: Pressure regulators integrated with cylinder valves (ISO 10524-3:2005)

Détendeurs pour l'utilisation avec les gaz médicaux - Partie 3: Détendeurs intégrés dans les robinets des bouteilles de gaz (ISO 10524-3:2005)

Druckminderer zur Verwendung mit medizinischen Gasen - Teil 3: Druckminderer in Flaschenventilen (ISO 10524-3:2005)

This European Standard was approved by CEN on 20 March 2006.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2006 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 10524-3:2006: E

This is a free page sample. Access the full version online.

Contents

Page

Foreword.....3

Annex ZA (informative) **Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC Medical Devices**.....4

This is a free page sample. Access the full version online.

Foreword

The text of ISO 10524-3:2005 has been prepared by Technical Committee ISO/TC 121 "Anaesthetic and respiratory equipment" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10524-3:2006 by Technical Committee CEN/TC 215 "Respiratory and anaesthetic equipment", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

This document supersedes EN 738-3:1998.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 10524-3:2005 has been approved by CEN as EN ISO 10524-3:2006 without any modifications.

This is a free page sample. Access the full version online.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC Medical Devices

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 93/42/EEC Medical devices.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in table ZA confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

Table ZA — Correspondence between this European Standard and Directive 93/42/EEC Medical devices

Clause(s)/sub-clause(s) of this EN	Essential requirements (ERs) of EU Directive 93/42/EEC	Qualifying remarks/Notes
5	1	
5.1	2, 6	
5.2	2	
5.3	2	
5.3.1	7.1, 7.3, 9.3	
5.3.2	4, 7.1, 9.2	
5.3.3	3, 5	
5.3.4	7.1, 7.2	
5.4	2, 3, 4	
5.4.1.1	10	
5.4.1.3	10.2	
5.4.1.4	10.1	
5.4.2	9.1, 12.7.4	
5.4.3	9.1, 12.7.4	
5.4.4	9.1, 12.7.4	
5.4.5	12.2	
5.4.6	12.8.1	
5.4.7	12.8.1	
5.4.8	12.7.1	
5.4.9	7.2, 7.6	
5.4.12	7.5, 9.2, 12.7.1	
5.4.13	7.5	
5.4.14	9.2	

This is a free page sample. Access the full version online.

Clause(s)/sub-clause(s) of this EN	Essential requirements (ERs) of EU Directive 93/42/EEC	Qualifying remarks/Notes
5.4.15	7.3, 9.3	
5.4.16.1	10.3, 12.8.2	
5.4.16.2	10.2	
5.4.16.3	10.1, 12.8.1, 12.8.2	
5.4.16.4	10.1, 12.8.1, 12.8.2	
5.4.17.1	12.8.1, 12.8.2	
5.4.17.2	10.1, 12.8.1, 12.8.2	
5.4.17.3	10.1, 12.8.1, 12.8.2	
5.4.18.1	10.1, 12.8.1, 12.8.2	
5.4.18.2	10.2	
5.5.1	7.2, 9.3	
5.5.2	7.3, 9.3	
6	3, 7.5, 9.2, 9.3, 12.7.1, 12.8.1, 12.8.2	
7.1	13.1, 13.2	
7.1.2 a)	13.1, 13.3 a)	
7.1.2 b)	13.3 b)	
7.1.2 c)	13.3 d), 13.5	
7.1.2 d)	9.1, 12.7.4	
7.1.4, a)	13.1, 13.3 a)	
7.1.5	12.9	
7.2	13.2	
7.3	3, 5	
7.3.1	5, 7.2, 7.6	
7.3.2	13. 13.3 b)	
8.1	13.1, 13.3 a), 13.4, 13.6 a)	
8.2	13.6 b)	
8.3	13.6 b)	
8.5	13.6 c), 13.6 d)	
8.6	9.1, 9.3, 13.1, 13.6 c), 13.6 d)	

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

This is a free page sample. Access the full version online.

This is a free page sample. Access the full version online.

I.S. EN ISO 10524-3:2006

INTERNATIONAL STANDARD

ISO 10524-3

First edition
2005-05-01

Pressure regulators for use with medical gases —

Part 3: Pressure regulators integrated with cylinder valves

Détendeurs pour l'utilisation avec les gaz médicaux —

Partie 3: Détendeurs intégrés aux valves des bouteilles de gaz

Reference number
ISO 10524-3:2005(E)

© ISO 2005

This is a free page sample. Access the full version online.

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a free page sample. Access the full version online.

Contents

Page

Foreword ... iv

Introduction ... v

1 Scope ... 1

2 Normative references ... 1

3 Terms and definitions ... 2

4 Symbols ... 4

5 General requirements ... 4
5.1 Safety ... 4
5.2 Alternative construction ... 4
5.3 Materials ... 4
5.4 Design requirements ... 5
5.5 Constructional requirements ... 12

6 Test methods ... 13
6.1 Conditions ... 13
6.2 Test methods for outlet pressure ... 14
6.3 Test method for pressure-relief valve ... 15
6.4 Test methods for leakage ... 15
6.5 Test method for mechanical strength ... 16
6.6 Test method for resistance to ignition ... 17
6.7 Test method for accuracy of flow of pressure regulators integrated with cylinder valves fitted with flowmeters or flowgauges ... 20
6.8 Test method for the stability of flow of pressure regulators integrated with cylinder valves fitted with flowmeters or flowgauges ... 20
6.9 Test method for stability and accuracy of flow of pressure regulators integrated with cylinder valves fitted with fixed orifices ... 20
6.10 Test method for flow setting and loosening torques ... 20
6.11 Drop test ... 21
6.12 Impact test ... 21
6.13 Test method for means of gas shut-off ... 22
6.14 Test method for non-return valve of filling port ... 22
6.15 Test method for durability of markings and colour coding ... 22

7 Marking, colour coding, packaging ... 22
7.1 Marking ... 22
7.2 Colour coding ... 23
7.3 Packaging ... 23

8 * Information to be supplied by the manufacturer ... 24

Annex A (informative) **Examples of pressure regulators integrated with cylinder valves** ... 26

Annex B (normative) **Rationale** ... 29

Annex C (informative) **Reported regional and national deviations of colour coding and nomenclature for medical gases** ... 31

Bibliography ... 33

© ISO 2005 – All rights reserved

This is a free page sample. Access the full version online.

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 10524-3 was prepared by Technical Committee ISO/TC 121, *Anaesthetic and respiratory equipment*, Subcommittee SC 6, *Medical gas systems*.

ISO 10524 consists of the following parts, under the general title *Pressure regulators for use with medical gases*:

— *Part 1: Pressure regulators and pressure regulators with flow-metering devices*

— *Part 2: Manifold and line pressure regulators*

— *Part 3: Pressure regulators integrated with cylinder valves*

— *Part 4: Low-pressure regulators*

© ISO 2005 – All rights reserved

This is a free page sample. Access the full version online.

Introduction

Pressure regulators integrated with cylinder valves are used to reduce high cylinder pressure to a lower pressure suitable for use with medical equipment or for delivery of gas directly to a patient.

These functions cover a wide range of inlet and outlet pressures and flows which require specific design characteristics. It is important that the operating characteristics of pressure regulators integrated with cylinder valves be specified and tested in a defined manner.

A pressure regulator normally has coupled to it a device which controls the flow, such as a flow control valve or a fixed orifice. The flow can be indicated by a flowmeter or by a flowgauge.

It is essential that regular inspection and maintenance be undertaken to ensure that the pressure regulators continue to meet the requirements of this part of ISO 10524.

This part of ISO 10524 pays particular attention to:

— use of suitable materials;

— safety (mechanical strength, leakage, safe relief of excess pressure and resistance to ignition);

— gas specificity;

— cleanliness;

— type testing;

— marking;

— information supplied by the manufacturer.

Annex B contains rationale statements for some of the requirements of this part of ISO 10524. The clauses and subclauses marked with an asterisk (*) after their number have corresponding rationale included to provide additional insight into the reasoning that led to the requirements and recommendations that have been incorporated into this part of ISO 10524. It is considered that knowledge of the reasons for the requirements will not only facilitate the proper application of this part of ISO 10524, but will expedite any subsequent revisions.

© ISO 2005 – All rights reserved

This is a free page sample. Access the full version online.

This is a free page sample. Access the full version online.

Pressure regulators for use with medical gases —

Part 3: Pressure regulators integrated with cylinder valves

1 Scope

1.1 This part of ISO 10524 applies to pressure regulators integrated with cylinder valves (as defined in 3.16) intended for the administration of medical gases in the treatment, management, diagnostic evaluation and care of patients for use with the following medical gases:

— oxygen;

— nitrous oxide;

— air for breathing;

— helium;

— carbon dioxide;

— xenon;

— specified mixtures of the gases listed above;

— air for driving surgical tools;

— nitrogen for driving surgical tools.

1.2 * These pressure regulators integrated with cylinder valves are intended to be fitted to cylinders with nominal filling pressures up to 25 000 kPa at 15 °C and can be provided with devices that control and measure the flow of the medical gas delivered.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 32:1977, *Gas cylinders for medical use — Marking for identification of content*

ISO 407:2004, *Small medical gas cylinders — Pin-index yoke-type valve connections*

ISO 5145, *Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning*

ISO 5359:2000, *Low-pressure hose assemblies for use with medical gases*

ISO 7396-1:2002, *Medical gas pipeline systems — Part 1: Pipelines for compressed medical gases and vacuum*

© ISO 2005 – All rights reserved

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation