

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN ISO 10524-1:2019

Pressure regulators for use with medical gases - Part 1: Pressure regulators and pressure regulators with flow-metering devices (ISO

Détendeurs pour l'utilisation avec les gaz
médicaux- Partie 1: Détendeurs et
détendeurs-débitmètres (ISO
10524-1:2018)

Druckminderer zur Verwendung mit
medizinischen Gasen - Teil 1:
Druckminderer und Druckminderer mit
Durchflussmessgeräten (ISO

National Foreword

This European Standard EN ISO 10524-1:2019 was adopted as Luxembourgish Standard ILNAS-EN ISO 10524-1:2019.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

English Version

Pressure regulators for use with medical gases - Part 1:
Pressure regulators and pressure regulators with flow-
metering devices (ISO 10524-1:2018)

Détendeurs pour l'utilisation avec les gaz médicaux-
Partie 1: Détendeurs et détendeurs-débitmètres (ISO
10524-1:2018)

Druckminderer zur Verwendung mit medizinischen
Gasen - Teil 1: Druckminderer und Druckminderer mit
Durchflussmessgeräten (ISO 10524-1:2018)

This European Standard was approved by CEN on 13 December 2018.

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 CEN-CENELEC Management Centre 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 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

	Page
European foreword.....	3

European foreword

This document (EN ISO 10524-1:2019) 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 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 July 2019, and conflicting national standards shall be withdrawn at the latest by July 2019.

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

This document supersedes EN ISO 10524-1:2006.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 10524-1:2018 has been approved by CEN as EN ISO 10524-1:2019 without any modification.

Second edition
2018-01

Pressure regulators for use with medical gases —

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

Détendeurs pour l'utilisation avec les gaz médicaux —

Partie 1: Détendeurs et détendeurs-débitmètres





COPYRIGHT PROTECTED DOCUMENT

© ISO 2018, 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

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Nomenclature	4
5 General requirements	4
5.1 Safety	4
5.2 Usability	4
5.3 Alternative construction	4
5.4 Materials	4
6 Design requirements	5
6.1 General	5
6.2 Indicator for cylinder pressure or cylinder content	6
6.2.1 General	6
6.2.2 PRESSURE GAUGES, pressure indicators, and FLOWGAUGES	6
6.3 Integrated electronic device	6
6.4 Connections	6
6.4.1 Inlet connector	6
6.4.2 Outlet connectors	7
6.5 * Requirements for outlet pressure	7
6.5.1 PRESSURE OUTLET	7
6.5.2 FLOW OUTLET	8
6.6 Flow-metering device	8
6.7 Flow control and indication	8
6.8 Pressure-adjusting device	8
6.9 * Filtration	9
6.10 * PRESSURE-RELIEF DEVICE	9
6.11 Leakage	9
6.12 Mechanical strength	10
6.12.1 Resistance of the high-pressure side	10
6.12.2 Resistance of the low-pressure side to pneumatic pressure	10
6.12.3 Resistance of the low-pressure side to inlet pressure, P_1	10
6.13 * Resistance to ignition	10
6.14 Requirements for PRESSURE REGULATORS with FLOWMETERS	10
6.14.1 Calibration	10
6.14.2 ACCURACY OF FLOW	10
6.14.3 Stability of flow	11
6.14.4 Legibility	11
6.14.5 Flow control device	11
6.15 Requirements for PRESSURE REGULATORS fitted with FLOWGAUGES	11
6.15.1 Calibration	11
6.15.2 ACCURACY OF FLOW	11
6.15.3 Stability of flow	11
6.16 Requirements for PRESSURE REGULATORS fitted with fixed ORIFICES	12
6.16.1 Stability and ACCURACY OF FLOW	12
6.16.2 * Flow setting torque	12
6.16.3 Removal of a fixed ORIFICE	12
6.16.4 Legibility	12
6.17 Endurance	12
6.17.1 FLOW SELECTOR	12
6.17.2 PRESSURE REGULATOR	13