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## **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*



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Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
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## 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

## 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*

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## 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.