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2018-01

Pressure regulators for use with medical gases —

Part 2: Manifold and line pressure regulators

*Détendeurs pour l'utilisation avec les gaz médicaux —
Partie 2: Détendeurs de rampes et de canalisations*



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

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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).

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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 10524-2:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the scope has been extended to include 30 000 kPa (300 bar) manifold pressure regulators;
- this document has been restructured according to the new ISO template and associated renumbering;
- the common requirements have been aligned with ISO 10524-1 and ISO 10524-3;
- all type tests have been reviewed;
- a complete schedule has been introduced;
- a pressure retention test of the low-pressure side for the line pressure regulators has been introduced.

A list of all parts in the ISO 10524 series can be found on the ISO website.

Introduction

MANIFOLD PRESSURE REGULATORS are used within the supply systems of medical gas pipeline systems to reduce high cylinder pressure to a lower pressure suitable for the supply of medical gases to the inlet of LINE PRESSURE REGULATORS.

LINE PRESSURE REGULATORS are used to reduce the pressure supplied by MANIFOLD PRESSURE REGULATORS or by cryogenic vessels to the lower pressure required at the terminal units of MEDICAL GAS PIPELINE SYSTEMS.

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 MANIFOLD and LINE PRESSURE REGULATORS are specified and tested in a defined manner.

It is essential that regular inspection and maintenance be undertaken to ensure that the PRESSURE REGULATORS continue to meet the requirements of this document.

This document pays particular attention to

- use of suitable materials,
- safety (mechanical strength, leakage, safe relief of excess pressure and resistance to ignition),
- cleanliness,
- type testing,
- marking, and
- information supplied by the manufacturer.

[Annex B](#) contains rationale statements for some of the requirements of this document. 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 document. It is considered that knowledge of the reasons for the requirements will not only facilitate the proper application of this document, but will expedite any subsequent revisions.

An asterisk (*) as the first character of a title or at the beginning of a paragraph or table title indicates that there is guidance or rationale related to that item in [Annex B](#).

In this document, the following print types are used:

- requirements and definitions: roman type.
- informative material appearing outside of tables, such as notes, examples and references: in smaller type. Normative text of tables is also in a smaller type;
- *test specifications: italic type;*
- TERMS DEFINED IN CLAUSE 3 OF THIS DOCUMENT OR AS NOTED: SMALL CAPITALS TYPE.