International Standard

ISO 18190

Second edition
2025-02

Anaesthetic and respiratory equipment — General requirements for airway devices and related equipment

Matériel d'anesthésie et de réanimation respiratoire — Exigences générales pour canules et équipement connexe

Reference number
ISO 18190:2025(en)

© ISO 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ... **iv**

Introduction ... **vi**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 General requirements ... **3**
4.1 Risk management ... 3
4.2 Alternative test methods ... 3
4.3 Usability ... 3
4.4 *Clinical evaluation* and *clinical investigations* ... 4
4.5 *Biophysical or modelling research* ... 4

5 Materials ... **4**
5.1 Environmental impact ... 4
5.2 Biological evaluation ... 4
5.3 Intended use and environmental conditions ... 5
5.4 Materials of concern ... 5
5.5 Gas compatibility ... 5
5.6 Magnetic resonance (MR) environment safety ... 5

6 Design requirements for *airway devices and related equipment* ... **5**
6.1 Mechanical safety ... 5
6.2 Medical electrical equipment safety ... 6
6.3 Prevention of electrostatic charges ... 6
6.4 Expected device lifetime ... 6
6.5 Shelf life ... 6
6.6 Transport and storage ... 6
6.7 Interoperability ... 7

7 Cleaning, disinfection and sterilization ... **7**
7.1 Cleaning and disinfection ... 7
7.2 Sterility assurance ... 7
7.3 Sterile packaging ... 7

8 Information to be supplied by the manufacturer ... **7**
8.1 General ... 7
8.2 Marking on the device ... 7
8.3 Instructions for use ... 8
8.3.1 General ... 8
8.3.2 Information to be provided ... 8
8.3.3 Materials compatibility information ... 8
8.3.4 Dismantling and reassembling information ... 9
8.3.5 Monitoring alarm and protection devices ... 9
8.3.6 Electromagnetic compatibility information ... 9
8.3.7 Device disposal information ... 9
8.3.8 Parts not integral to the *airway devices and related equipment* ... 9

Annex A (informative) **Rationale** ... **10**

Annex B (informative) **Hazard identification for risk assessment** ... **12**

Bibliography ... **16**

© ISO 2025 – All rights reserved

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 121, *Anaesthetic and respiratory equipment*, Subcommittee SC 2, *Airway devices and related equipment.*

This second edition cancels and replaces the first edition (ISO 18190:2016), which has been technically revised.

The main changes are as follows:

— Title altered from airways to airway devices.

— The introduction has been changed to clarify that this standard can be used in the absence of a device specific standard.

— Definitions for *clinical evaluation* and *clinical investigation* added.

— Risk management process and *clinical evaluation* now mandated.

— A new requirement recommending that manufacturers consider the environmental impact of their device and its packaging during its lifetime has been added.

— A requirement for the biological evaluation for devices with breathing gas pathways has been added.

— Information provided by the manufacturer, including marking, now refers to ISO 20417 for the common requirements and only lists those requirements specific to *airway devices and related equipment.*

— Devices that are safe, conditionally safe or unsafe to be used in an MR environment are now to be marked accordingly.

— The requirements for positioning of controls and protection against inadvertent adjustments have been deleted as they were deemed not applicable to airway devices.

— A new requirement for shelf life has been added.

— All requirements relating to sterility have been condensed into one clause.

© ISO 2025 – All rights reserved

— A new requirement has been added for cleanliness and disinfection and combined with sterility.

— A new requirement to disclose the transport and environmental conditions that the airway device can withstand has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2025 – All rights reserved

Introduction

This document provides the general requirements for basic safety and performance for the design, materials, packaging, marking and labelling that are generally applicable to all *airway devices and related equipment.*

This document is intended to consolidate the general requirements that are common among the set of standards within the category of *airway devices and related equipment* and serve as a reference for these common requirements, allowing each device-specific standard to focus on the unique safety and essential requirements more concisely for that device.

This document should be used in conjunction with device-specific *airway devices and related equipment* standards.

The requirements in a device-specific standard take priority over any conflicting requirements in this document.

If there is no airway device-specific standard, then this document can be referenced for all the applicable requirements.

NOTE The terms defined in Clause 3 are denoted throughout the document in *italic font.*

© ISO 2025 – All rights reserved

Anaesthetic and respiratory equipment — General requirements for airway devices and related equipment

1 Scope

This document specifies the general requirements common to *airway devices and related equipment.*

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 4135, *Anaesthetic and respiratory equipment — Vocabulary*

ISO 10993-1, *Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process*

ISO 11607-1, *Packaging for terminally sterilized medical devices — Part 1: Requirements for materials, sterile barrier systems and packaging systems*

ISO 11607-2, *Packaging for terminally sterilized medical devices — Part 2: Validation requirements for forming, sealing and assembly processes*

ISO 11135, *Sterilization of health-care products — Ethylene oxide — Requirements for the development, validation and routine control of a sterilization process for medical devices*

ISO 11137-1, *Sterilization of health care products — Radiation — Part 1: Requirements for the development, validation and routine control of a sterilization process for medical devices*

ISO 14155:2020, *Clinical investigation of medical devices for human subjects — Good clinical practice*

ISO 14971, *Medical devices — Application of risk management to medical devices*

ISO 15001:2010, *Anaesthetic and respiratory equipment — Compatibility with oxygen*

ISO 15223-1:2021, *Medical devices — Symbols to be used with information to be supplied by the manufacturer — Part 1: General requirements*

ISO 17664-1, *Processing of health care products — Information to be provided by the medical device manufacturer for the processing of medical devices — Part 1: Critical and semi-critical medical devices*

ISO 17664-2, *Processing of health care products — Information to be provided by the medical device manufacturer for the processing of medical devices — Part 2: Non-critical medical devices*

ISO 17665, *Sterilization of health care products — Moist heat — Requirements for the development, validation and routine control of a sterilization process for medical devices*

ISO 18562-1, *Biocompatibility evaluation of breathing gas pathways in healthcare applications — Part 1: Evaluation and testing within a risk management process*

ISO 18601, *Packaging and the environment — General requirements for the use of ISO standards in the field of packaging and the environment*

ISO 20417, *Medical devices — Information to be supplied by the manufacturer*

© ISO 2025 – All rights reserved

ISO 20857, *Sterilization of health care products — Dry heat — Requirements for the development, validation and routine control of a sterilization process for medical devices*

ISO 22441, *Sterilization of health care products — Low temperature vaporized hydrogen peroxide — Requirements for the development, validation and routine control of a sterilization process for medical devices*

ISO 25424, *Sterilization of health care products — Low temperature steam and formaldehyde — Requirements for development, validation and routine control of a sterilization process for medical devices*

ISO 80369-7, *Small-bore connectors for liquids and gases in healthcare applications — Part 7: Connectors for intravascular or hypodermic applications*

IEC 60601-1:2005+AMD1:2012+AMD2:2020, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance*

IEC 60601-1-2:2014+AMD1:2020, *Medical electrical equipment — Part 1-2: General requirements for basic safety and essential performance — Collateral standard: Electromagnetic disturbances — Requirements and tests*

IEC 60601-1-8:2006+AMD1:2012+AMD2:2020, *Medical electrical equipment — Part 1-8: General requirements for basic safety and essential performance — Collateral standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems*

IEC 62570:2014, *Standard practice for marking medical devices and other items for safety in the magnetic resonance environment*

ASTM F640, *Standard test methods for determining radiopacity for medical use*

EN 556-1, *Sterilization of medical devices — Requirements for medical devices to be designated "STERILE" — Part 1: Requirements for terminally sterilized medical devices*

EN 15986, *Symbol for use in the labelling of medical devices — Requirements for labelling of medical devices containing phthalates*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4135, ISO 14971, ISO 20417 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
airway devices and related equipment
devices that provide an interface to the patient's airways, either through direct contact, or as an intermediate component to other anaesthetic and respiratory equipment

3.2
clinical evaluation
assessment and analysis of clinical data pertaining to a medical device to verify the clinical safety and performance of the device when used as intended by the manufacturer

[SOURCE: ISO 13485:2016, 3.3]

© ISO 2025 – All rights reserved