

Specification for

Active anaesthetic gas scavenging systems

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Committees responsible for this British Standard

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- Association of Anaesthetists of Great Britain and Ireland
- Association of Veterinary Anaesthetists of Great Britain and Ireland
- British Anaesthetic and Respiratory Equipment Manufacturers' Association
- British Health-care Trade and Industry Council
- British Rubber Manufacturers' Association
- Department of Health and Social Security
- Institution of Production Engineers
- Medical Sterile Products Association
- National Health Service Regional Engineers' Association

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Foreword

This British Standard has been prepared under the direction of the Health Care Standards Committee.

It has been recognized in the drafting of this standard that there are many factors affecting conditions within the working environment which are outside the control of manufacturers of scavenging systems. These include the room ventilation, leakage from equipment and the anaesthetic technique used, all of which are variable. Furthermore, the amount of pollutant taken up by personnel is affected by other factors such as the duration of exposure, and their position in relation to the sources of pollution.

Recommendations on permissible levels of atmospheric pollution by anaesthetic gases have not been included in this standard because they are the subject of considerable discussion, and opinions differ as to the limits which should be allowed in the working environment.

This standard is intended to ensure that, for all practical purposes, an anaesthetic gas scavenging system will remove all gases delivered to the receiving system and thereby reduce atmospheric pollution to a small fraction of the uncontrolled level.

The Technical Committee responsible for this standard has also been particularly concerned with limiting the risks to a patient which an anaesthetic gas scavenging system might introduce by altering the pressures in a patient's breathing system. The wide range of anaesthetic machines, lung ventilators and related equipment in use today has been taken into account. Some ventilators discharge, if only for a short period, greater amounts of gas at a higher flow than do spontaneously breathing patients, it was therefore decided to set the flow at levels higher than would be expected with patients breathing spontaneously.

The location and performance of devices to give positive pressure relief have been specified as they are essential for limiting the extent of pressure changes in the breathing system and for providing protection against excessive pressure in a fault condition such as inadvertent occlusion of a transfer system.

Experience has shown that any sub-atmospheric pressure at the patient end of the anaesthetic gas scavenging system may induce a gas flow from the breathing system under certain conditions. Such gas loss may be hazardous by reducing the gas available below the minimum required for the patient, by altering the composition of the inspired mixture, by affecting the proper functioning of disconnection alarms and other respiratory measuring equipment, or by a combination of these factors.

It is impractical to design a receiving system to prevent the generation of this flow under all conditions. Therefore the limits of this flow from the breathing system to the inlet of the anaesthetic gas scavenging system have been specified.

The performance requirements specified in this standard cover systems designed for use with the majority of equipment in use in the UK, including anaesthetic machines and ventilators not necessarily made by the same manufacturer.

Passive anaesthetic gas scavenging systems, i.e. those in which the air flow in the disposal system does not result from a powered device, have been excluded from this standard because they cannot meet the specified safety requirements under all conditions of use. This standard is thus restricted to active anaesthetic gas scavenging systems only and it is the responsibility of the user to ensure that any particular scavenging system is compatible with the anaesthetic equipment being used.

In order to promote compatibility between the receiving and disposal systems their performance has been specified and the dimensions of a probe for connecting receiving systems to disposal systems have also been specified.

No requirements have been included for the collecting system, i.e. the system which delivers gases from the sources of their emission to either the receiving system or the transfer system, as this is part of the equipment to which the anaesthetic gas scavenging system is attached and is therefore outside the control of the anaesthetic gas scavenging system manufacturer. However, in order to connect a breathing system to an anaesthetic gas scavenging system specified in this standard, the exhaust port of the breathing system has to be provided with a compatible 30 mm male conical connector.

Anaesthetic gas scavenging systems are in contact with the patient's expired breath and hence there is the potential for bacteriological contamination. The manufacturer is therefore required to recommend methods for cleaning, disinfection or sterilization which should be regularly carried out.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

