

Specification for

Anaesthetic and analgesic machines —

**Part 1: Anaesthetic machines of the
on-demand type supplied with nitrous
oxide and oxygen from separate
containers**

Co-operating organizations

The Surgical Instruments and Medical Appliances Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and professional and industrial organizations:

- Association of Hospital Matrons
- British Dental Association
- British Medical Association
- British Surgical Trades Association, Inc.*
- Federation of British Rubber and Allied Manufacturers*
- Institute of British Surgical Technicians
- Medical Defence Union*
- Medical and Dental Defence Union of Scotland*
- Medical Protection Society
- Ministry of Agriculture, Fisheries and Food
- Ministry of Defence, Air Force Department*
- Ministry of Defence, Army Department*
- Ministry of Defence, Navy Department*
- Ministry of Health*
- Queen’s Institute of District Nursing
- Royal College of Midwives
- Royal College of Nursing*
- Royal College of Obstetricians and Gynaecologists
- Royal College of Physicians and Surgeons of Glasgow
- Royal College of Physicians of London
- Royal College of Surgeons of Edinburgh
- Royal College of Surgeons of England*
- Royal College of Veterinary Surgeons
- Royal Institute of Public Health & Hygiene

The Government departments and professional and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Association of Anaesthetists of Great Britain & Ireland
- British Mechanical Rubber Manufacturers’ Association
- British Plastics Federation
- Central Midwives Board
- Faculty of Anaesthetists of The Royal College of Surgeons
- World Federation of Societies of Anaesthesiologists
- Individual manufacturers

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Foreword

This standard makes reference to the following British Standards:

BS 1319, *Medical gas cylinders and anaesthetic apparatus.*

BS 2050, *Electrical resistance of conductive and antistatic products made from flexible polymeric material.*

BS 3849, *Breathing attachments for anaesthetic apparatus.*

The preparation of Part 1 of this British Standard was requested by the Ministry of Health, and authorized by the Surgical Instruments and Medical Appliances Industry Standards Committee of the BSI.

The specification covers the design and performance requirements for an apparatus operating on the “patient demand” principle for use primarily in dentistry and midwifery. It is confined to apparatus for supplying mixtures of nitrous oxide and oxygen wherein the two gases are supplied independently from separate cylinders or pipelines and mixing takes place within the apparatus.

Depending upon the application, apparatus of this type may be required in a form to give one mixture which cannot be altered by the user. Alternatively it may be required in a form capable of permitting the operator to vary the composition of the mixture over the range of 100 % oxygen to 100 % nitrous oxide, or over a predetermined portion of this range.

For some applications, especially in dentistry, it is necessary to supply the gas to the patient at atmospheric pressure (intermittent flow) or positive pressure (intermittent or continuous flow). In such cases, it is necessary also to be able to vary this pressure between zero (“patient demand”) and a maximum, usually about 30 cmH₂O.

The specified performance of the machine applies at the normal outlet of the machine and takes no account of accessories such as vaporizers and breathing attachments, including the expiratory valve.

Other British Standards dealing with anaesthetic and related equipment include the following:

BS 1263, *Hypodermic syringes for use in medical and surgical practice.*

BS 1319, *Medical gas cylinders and anaesthetic apparatus.*

BS 2463, *Transfusion equipment for medical use.*

BS 2743, *Sphygmomanometers. Aneroid type.*

BS 2744, *Sphygmomanometers. Mercury type.*

BS 2927, *Anaesthetic airways.*

BS 3353, *Anaesthetic breathing bags made of anti-static rubber.*

BS 3487, *Endotracheal tubes.*

BS 3522, *Hypodermic surgical mounted needles (Luer fitting).*

BS 3806, *Breathing machines for medical use.*

BS 3849, *Breathing attachments for anaesthetic apparatus.*

BS 3930, *Conical fitting with 6 per cent (Luer) taper for hypodermic and other surgical equipment.*

BS 4272, *Anaesthetic and analgesic machines — Part 2: Analgesic machines of the on-demand type supplied with pre-mixed nitrous oxide-oxygen from a single container.*