



Standard Specification for Anesthetic Gas Scavenging Systems—Transfer and Receiving Systems¹

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1. Scope

1.1 This specification establishes requirements for transfer and receiving systems of active anesthetic gas scavenging systems (AGSS) intended to reduce the exposure of healthcare personnel to anesthetic gases and vapors. This specification also specifies requirements for AGSS in which the receiving system is integrated with the disposal system.

1.2 This specification does not specify requirements for non-active AGSS (passive AGSS), proximity gas extraction systems (see 3.1.17), and disposal systems (see 3.1.5).

NOTE 1—For requirements for “disposal systems” only, see NFPA 99, Standard for Healthcare Facilities.

2. Referenced Documents

2.1 ASTM Standards:

F 1054 Specification for Conical Fittings²

2.2 Other Documents:

CGA V-5: 2000 Diameter Index Safety System³

ISO 5356-2: 1987 Anaesthetic and Respiratory Equipment—Conical Connectors—Part 2: Screw-Threaded Weight-Bearing Connectors⁴

ISO 5359: 2000 Low-Pressure Hose Assemblies for Use with Medical Gases⁴

IEC 60601-1:1988 Medical Electrical Equipment—Part 1: General Requirements for Safety⁵

NFPA 99:1999 Standard for Healthcare Facilities⁶

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 active anesthetic gas scavenging system (AGSS),

n—AGSS in which the gas flow in the disposal system results from a power device.

3.1.2 *anesthetic gas, n*—vapor of a volatile agent or a gas used in anesthesia.

3.1.3 *anesthetic gas scavenging system (AGSS), n*—complete system which is connected to the exhaust port of a breathing system or to other equipment for the purpose of conveying expired or excess anesthetic gases, or both, to an appropriate place of discharge.

NOTE 2—Functionally, a complete system comprises three parts: a transfer system, a receiving system, and a disposal system (See Fig. 1). These three functionally discrete parts may be either separate or combined in part or in total. One or more parts of an AGSS may be combined with a breathing system component or other equipment.

3.1.4 *breathing system, n*—those inspiratory and expiratory pathways through which gas flows at respiratory pressures between the fresh gas inlet, the patient connection port and the exhaust valve or port.

NOTE 3—In practice, a breathing system usually extends from: (1) the point of supply of a gas mixture, for example, the fresh gas outlet of an anesthetic machine. In some situations, particularly in lung ventilators, this point may be inside a piece of equipment and should not be confused with a connection port fitted elsewhere, for example, on the casing of the ventilator; or (2) the fresh gas inlet of a circle system, lung ventilator, T-piece, and so forth; or (3) the fresh gas inlet of a manually operated resuscitator.

NOTE 4—The breathing system usually extends to the point at which the gas mixtures escapes to atmosphere or to an anesthetic gas scavenging system, for example, from an APL valve or the open end of a T-piece.

NOTE 5—The arrangement of any system and the method of use influences affect the composition of the inspired gas mixture.

NOTE 6—Gas pathways exclusively concerned with anesthetic gas scavenging systems are not regarded as a part of a breathing system.

NOTE 7—It is not possible to eliminate all ambiguity in defining the term “breathing system.” When this term is used in any standard or document, or other scientific publication, in which it could affect the precise interpretation thereof, the limits and configuration of any “breathing system” referred to therein should be clearly defined.

3.1.5 *disposal system, n*—that part of an AGSS by means of which the expired or excess anesthetic gases, or both, are conveyed from a receiving system to a point of discharge.

NOTE 8—In an active AGSS, the disposal system contains a power device which may either form part of a permanent disposal system installation or be installed within the operator’s working environment, either as a discrete device or integrated with the receiving system.

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² Annual Book of ASTM Standards, Vol 13.01

³ Available from Compressed Gas Association (CGA), 1725 Jefferson Davis Hwy., Suite 1004, Arlington, VA 22202-4102.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

⁵ Available from International Electrotechnical Commission (IEC), 3 rue de Varembe, P.O. Box 131, CH-1211, Geneva 20, Switzerland.

⁶ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.