



Standard Terminology Relating to Anesthesia and Respiratory Equipment¹

This standard is issued under the fixed designation F 2002; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

Consistent use of terminology contributes to improved safety and performance of anesthetic and respiratory care equipment by helping manufacturers, operators, and users communicate more effectively. It is expected that this terminology will be used on labels and markings on equipment and documents that accompany equipment. If other terminology is used on labels or markings on equipment or documents that accompany equipment, or both, that terminology should be defined in the accompanying documents.

1. Scope

1.1 This terminology covers terms, symbols, and abbreviations associated with anesthesia and respiratory care equipment.

2. Referenced Documents

2.1 ASTM Standards:

- F 896 Specification for Flexible Fiberoptic Bronchoscopes²
- F 920 Specification for Minimum Performance and Safety Requirements for Resuscitators Intended for Use with Humans²
- F 927 Specification for Pediatric Tracheostomy Tubes²
- F 960 Specification for Medical and Surgical Suction and Drainage Systems²
- F 965 Specification for Rigid Laryngoscopes for Tracheal Intubation—Hook-on Fittings for Laryngoscope Handles and Blades with Lamps²
- F 984 Specification for Cutaneous Gas Monitoring Devices for Oxygen and Carbon Dioxide²
- F 1054 Specification for Conical Fittings of 15-mm and 22-mm Sizes²
- F 1100 Specification for Ventilators Intended for Use in Critical Care²
- F 1101 Specification for Ventilators Intended for Use During Anesthesia²
- F 1161 Specification for Minimum Performance and Safety Requirements for Components and Systems of Anesthesia Gas Machines²
- F 1195 Specification for Rigid Laryngoscopes for Tracheal

Intubation—Hook-on Fittings for Fiberilluminated Blades and Handles²

- F 1204 Specification for Anesthesia Reservoir Bags²
- F 1205 Specification for Anesthesia Breathing Tubes²
- F 1208 Specification for Minimum Performance and Safety Requirements for Anesthesia Breathing Systems²
- F 1218 Specification for Bronchoscopes (Rigid)²
- F 1242 Specification for Cuffed and Uncuffed Tracheal Tubes²
- F 1243 Specification for Tracheal Tube Connectors²
- F 1343 Specification for Anesthetic Equipment—Scavenging Systems for Anesthetic Gases²
- F 1415 Specification for Pulse Oximeters²
- F 1452 Specification for Minimum Performance and Safety Requirements for Components and Systems of Anesthetic Gas Monitors²
- F 1456 Specification for Capnometers²
- F 1462 Specification for Oxygen Analyzers²
- F 1463 Specification for Alarm Signals in Medical Equipment Used in Anesthesia and Respiratory Care²
- F 1464 Specification for Oxygen Concentrators for Domiciliary Use²
- F 1573 Specification for Anesthetic Equipment—Oropharyngeal and Nasopharyngeal Airways²
- F 1590 Specification for Tracheostomy Tube Connectors²
- F 1627 Specification for Tracheostomy Tubes—Pediatric Tracheostomy Tubes²
- F 1628 Specification for Labeling and Marking of Cuffed and Uncuffed Tracheal Tubes and Related Treatments Intended for Use During Laser Surgery²
- F 1666 Specification for Adult Tracheostomy Tubes²

2.2 Other Documents:

ISO 8835-2:1993 Inhalational anaesthesia systems—Part 2: Anaesthetic circle breathing systems³

¹ This terminology is under the jurisdiction of ASTM Committee F29 on Anesthetic and Respiratory Equipment and is the direct responsibility of Subcommittee F29.16 on Terminology.

Current edition approved Jan. 10, 2001. Published March 2001.

Originally published as F2002-00. Last previous edition F2002-00.

² *Annual Book of ASTM Standards*, Vol 13.01.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

ISO 9703-1:1992 Anaesthetic and respiratory alarm signals—Part 1: Visual alarm signals³

ISO 9360:1992 Anaesthetic and respiratory equipment—Heat and moisture exchangers for use in humidifying respired gases in humans³

ISO/FDIS 9170-2 Terminal units for medical gas pipeline systems—Part 2: Terminal units for anaesthetic gas scavenging systems³

ISO Standards from TC 210 Quality Management and Corresponding General Aspects for Medical Devices³

ISO 4135:1995 Anaesthesiology—Vocabulary³

3. Terminology

3.1 Definitions:

adjustable pressure limiting valve (APL), *n*—operator-adjustable device intended to limit the maximum pressure in an anesthesia breathing system when it is part of the flow pathway of the breathing system, by controlling the rate of escape of gases from the system.

anesthesia 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.

anesthesia gas supply device, *n*—assembly of components that controls and delivers all gas flows and agent concentrations in the fresh gas into the anesthesia breathing system. Note: it may include a flow adjustment control(s), a gas mixing system, and an anesthetic vapor delivery device(s).

anesthesia gas supply piping, *n*—all pipe work, including unions, from the unidirectional valve(s) in the pipeline inlet(s), the piping connecting the high pressure supply to the gas pressure-reducing device/system, and from the gas pressure-reducing device/system outlet to the flow adjustment control(s) and auxiliary gas outlet. It includes piping leading to and from pneumatic alarm device(s), pressure indicator(s), oxygen flush, anesthetic vapor delivery device(s), and piping leading to the common gas outlet.

anesthesia ventilator, *n*—ventilator designed to be used with or integral to an anesthesia breathing system. **F 1101**

anesthesia workstation, *n*—system for administration of anesthesia to patients. It consists of the anesthesia gas supply device, anesthesia ventilator, and associated monitoring, alarm, and protection device(s).

anesthetic-gas scavenging systems, *n*—complete systems that collect and remove the excess gases released from equipment used in administering anesthesia or exhaled by the patient during anesthesia for the purpose of conveying these gases to an appropriate place of discharge.

anesthetic vapor delivery device, *n*—device in which anesthetic agent is transferred from the liquid to the gaseous phase of controllable concentration.

circle breathing system, *n*—breathing system in which the direction of gas flow is through separate inspiratory and expiratory pathways that form a circle.

common gas outlet (fresh gas outlet), *n*—that port through which the dispensed mixture from the anesthesia gas supply device is delivered to the anesthesia breathing system.

decision support system, *n*—information system that provides

output information intended to facilitate decision making by the operator.

editing, *v*—changing a recorded value, comment, annotation, event, or other information at any time after it has been made part of the record.

flow adjustment control, *n*—device or assembly that controls the flow of gas(es) or gas mixtures. Note: the flow adjustment control is often called the flow control valve.

flow indicator, *n*—device that indicates the volume of a specific gas or gas mixture passing through it in a unit of time. Note: the flow indicator is sometimes called a flow-meter.

gas mixing system, *n*—device or assembly that receives oxygen and other medical gas(es) and delivers a mixture of these gases in concentrations controllable by the operator.

information system, *n*—digital system collecting, displaying, or processing information from primary or secondary data sources or both. Note: examples includes AARKs and decision support systems.

infusion device, *n*—mechanical or electromechanical device regulating the flow of liquids to the patient under positive pressure. Note: the positive pressure may be generated either by a pump or by gravitational force.

legible, *adj*—discernible or identifiable to an operator with 6–6 (20/20) vision (corrected if necessary) from a distance of 1 m at a light level of 215 lux when viewing displayed qualitative or quantitative information, values, functions, or markings perpendicular to and including 15° above, below, left, and right of the normal line of sight of the operator.

medical gas pipeline system, *n*—complete system that comprises a supply system, a monitoring and alarm system, a pipeline distribution system, and terminal units at the points where medical gases or vacuum may be required.

medium priority alarm, *n*—signal(s) indicating that prompt operator action is required.

monitoring device, *n*—device that measures and indicates the value of a variable. Note: examples of such devices are the airway pressure monitor and the exhaled volume monitor.

nonvolatile, *adj*—stored electronically in such a way that loss of all electrical power (normal and reserve) to the system or storage device will not alter the stored data.

operator, *n*—person handling the equipment.

protection device, *n*—device that, without intervention of the operator, protects the patient from incorrect delivery of energy or substances. Note: such devices include the oxygen supply failure device and maximum pressure limitation device.

reserve electrical power supply, *n*—that portion of the equipment that supplies temporary electrical power in the event of interruption of the normal electrical supply.

selector valve, *n*—device that permits the switching of the route taken by a fluid.

selector valve, *n*—*in anesthesia breathing systems*, device that is used to direct gases to an anesthesia reservoir bag or a ventilator intended for use during anesthesia.

selector valve, *n*—device that permits the switching of the route taken by a fluid.

sensor, *n*—part of the monitor that is sensitive to the variable being measured.

transducer, *n*—device for converting energy from one form to another. In measurements applications, a transducer senses energy related to a property of a substance and transforms it into a form that can be observed and interpreted as information about the substance, for example into an electrical signal for monitoring or recording.

user, *n*—authority responsible for the use and maintenance of equipment.

4. Keywords

4.1 anesthesia; anesthesia delivery; breathing systems; monitors; respiratory care equipment; respiratory equipment

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).