



# Standard Terminology Relating to Anesthesia and Respiratory Equipment<sup>1</sup>

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## 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 Bronchoscopes<sup>2</sup>
- F 920 Specification for Minimum Performance and Safety Requirements for Resuscitators Intended for Use with Humans<sup>2</sup>
- F 927 Specification for Pediatric Tracheostomy Tubes<sup>2</sup>
- F 960 Specification for Medical and Surgical Suction and Drainage Systems<sup>2</sup>
- F 965 Specification for Rigid Laryngoscopes for Tracheal Intubation—Hook-on Fittings for Laryngoscope Handles and Blades with Lamps<sup>2</sup>
- F 984 Specification for Cutaneous Gas Monitoring Devices for Oxygen and Carbon Dioxide<sup>2</sup>
- F 1054 Specification for Conical Fittings of 15-mm and 22-mm Sizes<sup>2</sup>
- F 1100 Specification for Ventilators Intended for Use in Critical Care<sup>2</sup>
- F 1101 Specification for Ventilators Intended for Use During Anesthesia<sup>2</sup>
- F 1161 Specification for Minimum Performance and Safety Requirements for Components and Systems of Anesthesia Gas Machines<sup>2</sup>
- F 1195 Specification for Rigid Laryngoscopes for Tracheal

Intubation—Hook-on Fittings for Fiberilluminated Blades and Handles<sup>2</sup>

- F 1204 Specification for Anesthesia Reservoir Bags<sup>2</sup>
- F 1205 Specification for Anesthesia Breathing Tubes<sup>2</sup>
- F 1208 Specification for Minimum Performance and Safety Requirements for Anesthesia Breathing Systems<sup>2</sup>
- F 1218 Specification for Bronchoscopes (Rigid)<sup>2</sup>
- F 1242 Specification for Cuffed and Uncuffed Tracheal Tubes<sup>2</sup>
- F 1243 Specification for Tracheal Tube Connectors<sup>2</sup>
- F 1343 Specification for Anesthetic Equipment—Scavenging Systems for Anesthetic Gases<sup>2</sup>
- F 1415 Specification for Pulse Oximeters<sup>2</sup>
- F 1452 Specification for Minimum Performance and Safety Requirements for Components and Systems of Anesthetic Gas Monitors<sup>2</sup>
- F 1456 Specification for Capnometers<sup>2</sup>
- F 1462 Specification for Oxygen Analyzers<sup>2</sup>
- F 1463 Specification for Alarm Signals in Medical Equipment Used in Anesthesia and Respiratory Care<sup>2</sup>
- F 1464 Specification for Oxygen Concentrators for Domiciliary Use<sup>2</sup>
- F 1573 Specification for Anesthetic Equipment—Oropharyngeal and Nasopharyngeal Airways<sup>2</sup>
- F 1590 Specification for Tracheostomy Tube Connectors<sup>2</sup>
- F 1627 Specification for Tracheostomy Tubes—Pediatric Tracheostomy Tubes<sup>2</sup>
- F 1628 Specification for Labeling and Marking of Cuffed and Uncuffed Tracheal Tubes and Related Treatments Intended for Use During Laser Surgery<sup>2</sup>
- F 1666 Specification for Adult Tracheostomy Tubes<sup>2</sup>

#### 2.2 *Other Documents:*

- ISO 8835-2:1993 Inhalational anaesthesia systems—Part 2: Anaesthetic circle breathing systems<sup>3</sup>

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 13.01.

<sup>3</sup> Available from American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.

ISO 9703-1:1992 Anaesthetic and respiratory alarm signals—Part 1: Visual alarm signals<sup>3</sup>

ISO 9360:1992 Anaesthetic and respiratory equipment—Heat and moisture exchangers for use in humidifying respired gases in humans<sup>3</sup>

ISO /FDIS 9170-2 Terminal units for medical gas pipeline systems—Part 2: Terminal units for anaesthetic gas scavenging systems<sup>3</sup>

ISO Standards from TC 210 Quality Management and Corresponding General Aspects for Medical Devices<sup>3</sup>

ISO 4135:1995 Anaesthesiology—Vocabulary<sup>3</sup>

### 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 transformed from the liquid to the gaseous phase of controllable concentration.

**auxiliary oxygen flowmeter**, *n*—self-contained oxygen flowmeter with its own flow adjustment control, flow indicator, and outlet that is not an integral part of the anesthesia gas supply device.

DISCUSSION—The auxiliary oxygen flowmeter is sometimes called the courtesy oxygen flowmeter.

**backup**, *n*—retrievable copy of information.

**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.

**control center**, *n*—information system component of an anesthesia workstation mediating the centralized alarm prioritization and management strategy(ies).

**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 flowmeter.

**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.

**gas pressure reducing device/system**, *n*—single device or group of devices designed to provide a range of controlled delivered pressures over a specific range of inlet pressures.

**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.

**input device**, *n*—device used to enter data or control the anesthesia information system manually.

DISCUSSION—Examples include keywords, mice, trackballs, light pens, barcode scanners, and microphones.

**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.

**lung ventilator**, *n*—automatic device designed to augment or provide ventilation to a patient when connected to the patient's airway.

**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.

**network**, *n*—connection between two or more computers for the purpose of transferring data.

**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.

**operator input**, *n*—data provided by interactions of the operator with the equipment.

**positive end expiratory pressure (PEEP)**, *n*—positive airway pressure at the end of expiratory flow.

**primary data source**, *n*—monitoring device, delivery device, or operator input providing function or measured data via digital interfaces.

**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.

**recorded data**, *n*—captured data that is stored by a computer.

**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.

**secondary data source**, *n*—information system that transmits data collected from primary data sources and other secondary data sources. Note 1: a secondary data source may have

modular primary data sources as components. Note 2: digital data may be primary or secondary depending on whether it originates from within a multipoint communication device or another digital source.

**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

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