

Oxygen Flow Indicators

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SAE AS916 Revision B

1. SCOPE:

This SAE Aerospace Standard (AS) defines the overall requirements applicable to oxygen flow indicating devices intended to operate in conjunction with an oxygen regulator and mask system. Flow indicators covered by this document are for use with pressure demand, diluter-demand and continuous flow oxygen systems.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AIR825	Oxygen Equipment for Aircraft
AS861	Minimum General Standards for Oxygen Systems
AIR1176	Oxygen Systems and Components Cleaning and Packaging
AS8025	Passenger Oxygen Masks
AS8026	Crewmember Demand Oxygen Masks
AS8027	Crewmember Oxygen Regulator Demand

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-A-8625
MIL-C-5541

2.3 FAR Publications:

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591.

FAR 25.853 (b-3).

3. PERFORMANCE:

3.1 General Requirements:

Flow indicators are intended for use with either low pressure, constant flow oxygen systems or for use with pressure demand or diluter-demand oxygen systems. Their maximum working and proof pressure should be stated by the manufacturer. Design requirements as follows shall apply to each type.

3.2 Low Pressure Continuous Flow Type:

Flow indicators for low pressure, continuous flow systems shall positively indicate oxygen flow at all rated flows for the dispensing equipment. A flow rate of greater than 0.5 l/min, (NTPD), shall be indicated at all altitudes from sea level to 12,190 m (40,000 ft).

3.3 Pressure Demand Type:

Flow indicators for demand and pressure-demand systems shall positively indicate any momentary and/or continuous oxygen flow greater than 3.0 l/min, (NTPD), at all altitudes from sea level to 13,700 m (45,000 ft).

3.4 Flow Indication:

The design of the flow indicator shall be such as to show positively that oxygen is flowing, indicating flow by dynamic movement (e.g., blinker, float, rotating indicator or inflation of an inflatable indicator) or by a color change indication using contrasting colors (i.e., black and white, green and white, etc.).

3.5 Flow:

The flow indicator shall be designed such that it cannot cause oxygen flow blockage or excessive flow restriction in the oxygen delivery circuit from the regulator to the oxygen mask, or of flow to the regulator. The manufacturer should state the maximum flow resistance. The flow indicator shall meet the same temperature, performance, and other environmental standards as the oxygen regulator, mask or supply tube to which it is attached.

3.6 Dynamic Response:

The dynamic response of the flow indicator used with a demand type regulator shall be compatible with the breathing frequency. The dynamic response of the flow indicator should be quick enough so that there is no noticeable time lag or delay.

4. MATERIAL AND PRODUCTION PROCESS:

4.1 Materials:

- 4.1.1 Only materials having a physical and chemical properties compatible with an oxygen environment shall be used.
- 4.1.2 Any material which is subject to accelerated deterioration or is otherwise adversely affected by usage with oxygen shall not be used.
- 4.1.3 Materials which contaminate oxygen shall not be used.
- 4.1.4 Materials selected shall be free of objectionable odors, nonirritating, nonallergenic.
- 4.1.5 Materials selected shall permit cleaning and sterilization without adverse effects and without disassembly.
- 4.1.6 All materials, which are not inherently corrosion-resistant shall receive a protective treatment or coating.
- 4.1.7 Dissimilar metals shall not be used in direct contact with each other unless suitably protected against electrolytic corrosion.
- 4.1.8 It shall be possible to clean all visible external parts in their installed position with normally available approved cleaning agent without any adverse effect on operation and material properties.
- 4.1.9 Materials shall be flame resistant as defined by FAR 25.853 (b-3).
- 4.1.10 Use of asbestos is forbidden.

4.2 Finish:

- 4.2.1 Protective treatment or coatings subject to cracking, peeling or scaling with age or with extremes of atmospheric conditions or otherwise causing contamination to oxygen shall not be used.
- 4.2.2 Aluminum alloys must be protected per MIL-C-5541, anodized per MIL-A-8625 or equivalent; or the supplier has to verify that the alloys used have an equivalent inherent protection for the life of the equipment and that the equipment use will not be degraded with regard to function and appearance.
- 4.2.3 Cadmium and/or lead plating shall not be used in contact with oxygen.