

Mercury Medical® Oxygen Sensors

CROSS REFERENCE WALL CHART

Methods of Use

During ventilation, the composition of the breathing gas needs to be measured precisely. In particular, the measurement of oxygen is most critical because of its importance in metabolism.

Mercury Medical® Oxygen Sensors address today's requirement for highly accurate measurement of the oxygen content of the breathing gas.

High Signal Stability

The breathing gas contains oxygen in varying concentrations up to 100%. Throughout anesthesia, the need for oxygen measurements may last for several hours. In an intensive care unit the need can be from several hours to days. This length of use demands high signal stability from a sensor. To maintain this precision at higher oxygen levels, a sensor signal shows a linear dependence on the oxygen partial pressure.

Water Condensation Resistance

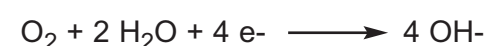
Usually, breathing gas contains large concentrations of water vapor. If a sensor is placed in a manner where the temperature of the sensor is lower than the temperature of the breathing gas, condensation of water vapor may occur. The sensor signal must not be affected by water condensation on the surface of the sensor. This is especially true during anesthesia, where the breathing gas contains high concentrations of volatile anesthetic agents such as halothane, enflurane, isoflurane, sevoflurane or desflurane and nitrous oxide (N₂O). An oxygen sensor signal should not be affected by these gases and a sensor should not be damaged or contaminated by these gases over its intended lifetime.

Whenever the oxygen concentration of the breathing gas changes, a sensor signal should register this shift in concentration accurately.

The Mercury Medical Oxygen Sensor addresses the issues of water condensation resistance and anesthetic agent contamination in the design.

Technical Description

The Mercury Medical Oxygen Sensor is based on the principal of galvanic cells. The ambient air, or the gas to be monitored, diffuses through a synthetic membrane and a thin electrolyte layer to a working electrode (cathode). Further, the sensor contains an anode consisting mainly of lead. The electrolyte, the material of the cathode and the composition of the anode are chosen so that any oxygen diffusing to the cathode is electrochemically reduced.



Simultaneously, the anode material is oxidized according to:



A current flows through the sensor when the cathode and the anode are electrically connected. The current can be measured via a resistor in series. This output is then translated by the application instrument on the equipment and an accurate level of oxygen partial pressure can be determined.



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The difference is quality.



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#10-103-01



#10-103-02



#10-103-11



#10-103-13



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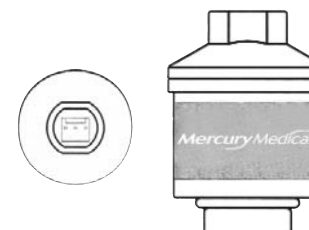
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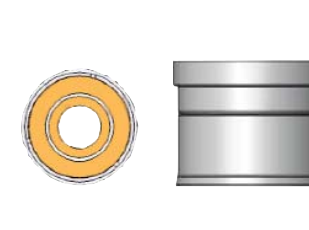
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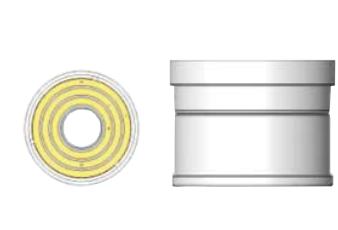
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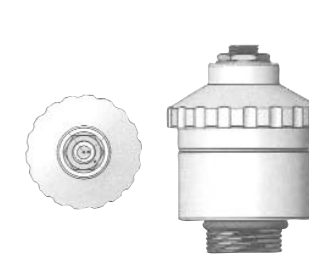
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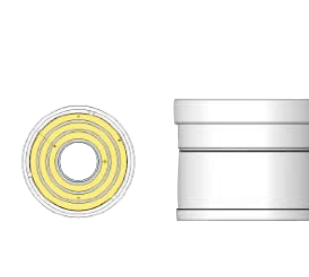
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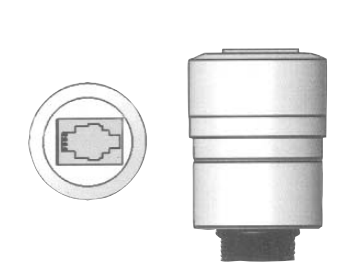
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