



Anesthesia Workstation

KIHT Technical Compendium

ANESTHESIA WORKSTATION

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Version 1.0

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ACRONYMS/ABBREVIATIONS

RA	Regional Anaesthesia
PI	Inspired Partial Pressure
PA	Partial Pressure
Pbr	Brain Partial Pressure
MAC	Minimum Alveolar Concentration
VCV	Volume Control Ventilation
PCV	Pressure Control Ventilation
SIMV/PSV	Synchronized Intermittent Mandatory Ventilation-pressure control (SIMV-PC)
CAGR	Compound Annual Growth Rate
PISS	Pin Index Safety System
DISS	Diameter Index Safety System
OFPD	Oxygen Failure Protection device
ORC	Oxygen Ratio Controller
NIST	Non-interchangeable Screw Thread
HME	Heat & Moisture Exchanger

EXECUTIVE SUMMARY

Anaesthesia machine is a device used to administer, either continuously or intermittently, a general inhalation anaesthetic, to a patient, in order to maintain ventilation while rendering the patient unconscious. The device usually includes a gas flowmeter, vaporizer, ventilator, breathing circuit with the bag, and emergency air supply.

Anaesthesia is a practice of controlling pain or other sensations during a surgery or other procedures with or without the loss of consciousness. In addition, it helps in controlling the breathing, blood flow, blood pressure, heart rate, and rhythm. Anaesthesia machines are used by the professionals to support the administration of anaesthesia. These are of four different types, namely, local, general, regional, and dissociative. These machines deliver precisely known, but variable, gas mixtures, which are subsequently delivered to the breathing systems. Patients are administered, *via* an oxygen mask, a mixture of oxygen, nitrous oxide, and other gases that are regulated by anaesthetic machines. Over the years, anaesthesia machines have evolved from a simple pneumatic device to a complex array of electrical, mechanical, and computer-controlled systems for patient safety and user convenience.

General anaesthesia is usually induced in a medical facility, most commonly in an operating theatre or a dedicated anaesthetic room adjacent to the theatre. However, anaesthesia may also be administered in other locations, such as an endoscopy suite, radiology or cardiology department, emergency department, ambulance, or at the site of a disaster where extrication of the patient may be impossible or impractical.

In 2017, the Indian market for anesthesia machines was estimated to be valued at \$394.3 million and is expected to grow at a Compound Annual Growth Rate (CAGR) of 11.88% from 2017 to 2025. Currently, North America is the major market in terms of market share, followed by Europe and the Asia-Pacific regions. The Asia-Pacific region is expected to show higher growth rates in the near future owing to the fact that these regions are expected to show increased per capita incomes and associated healthcare expenses.

The main objective of this product dossier is to give global industry insights, trends, outlook, and opportunity analysis, with a focus on the Indian market. In addition, it explains the clinical aspects, requirements, and principles to understand the need and working of the equipment. The detailed technical aspects shed light on the criticality of the product at the component level and provide a glimpse of the relevant standards and patents. This report is also equipped with market figures and EXIM analysis information, which will provide a good insight into the commercial aspects and demand of the product in the Indian scenario.

ABOUT:

Andhra Pradesh MedTech Zone (AMTZ) is an enterprise under the Government of Andhra Pradesh, a 270 Acre zone dedicated for medical device manufacturing with 200-250 manufacturing units. AMTZ provides the one-stop solution for all the manufacturers by providing, common scientific testing facilities (EMI/EMC, Electrical Safety, Radiation, Biomaterials Testing, 3D printing facilities), commercial facilities such as expo halls and warehouse.

Kalam Institute of Health Technology (KIHT) in the premises of AMTZ facilitates focused research on critical components pertaining to medical devices, technology transfer of innovative technologies through e-auction, market innovation, and access. These end to end solutions help to reduce the cost of manufacturing up to 40% and make health care products more affordable and accessible.

For Orders:

KALAM INSTITUTE OF HEALTH TECHNOLOGY

C/O AMTZ Campus, Pragati Maidan,
VM Steel Project S.O., Visakhapatnam,
Andhra Pradesh, India - 530031

Tel:+91-8885092122

Email: info@kiht.in, Website : www.kiht.in