

# Technical Specification

## Modular Operation Theater



### Our Products

Anaesthesia Equipments.  
Medical Gas pipe line System.  
Modular Operation Theater.  
Analytical Equipments



**Sigma Meditech Services Private Limited**  
[An ISO 9001:2008 Certified Company]

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## About Company

Sigma meditech Services pvt. Ltd. was incorporated as private limited company in 2004 and began its operation from Delhi as a health care service company specializing in the area of **Medical Gas Pipeline Management**.

Sigma meditech is actively involved in the preparation of International Medical Gas and Operation Theatre Standards. It provides full technical support and design services, understanding the customer's needs and providing a complete, safe, maintainable and cost effective system.

Sigma meditech provide solution nationwide hospitals. We have expert team of sufficient people to provide timely delivery of services. Synergy of our company is to provide fair accurate and timely service to our customer. Sigma prides itself in providing the most technologically advanced products in the market place at very cost-effective price.

Company expand very much in a short span of time. In the last 6 years, the company has created a niche for itself in its field of specialization. Manned by a core team of technically qualified and committed workforce, the company has adopted modern management practices to remain at an edge in the competitive market. For all its work competence and adherence to modern management practices, the company has been awarded an **ISO 9001 - 2008 Certification**.

We believe that "growth of company starts with satisfaction of customer". We concentrate more on satisfying of necessity rather than requirement of our customer. The company has also diversified into the business of medical equipment and providing specialized medical support services like Anaesthesia Equipment, Ceiling Pendants, Scientific Analytical equipment.

## M.O.T. Solutions for Hospitals

Sigma Meditech offers precisely designed Modular Operation Theatre equipment enriched with state-of-the-art technologies. Two types of Modular OT solutions are provided i.e. one with free standing structure while the other one with wall mounted design to suit different applications.

The most integrated functions and features are incorporated in our Modular Operating Theatres. We have designed it in such a way so as to maintain the highest standard of cleanliness and safety. It is a true modular design that makes modification, shifting and maintenance easy.

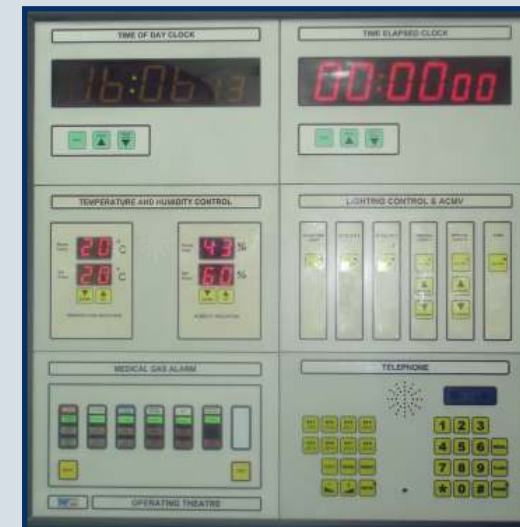
We use Steel Construction which is more robust, less fragile and durable against climatic changes over a long period of time. We ensure that the operating room and the surgical area along with the instrument table which is supposed to be the cleanest area remains so with our infection control efforts done through appropriate ventilation control.

## Quality Standards

Sigma Meditech OTs meet with all international guidelines and standards for operation theatres i.e. HTM 2025, HTM 2020 / 2021 / 2022 & IEE Regulation etc. and all major components / equipments are CE marked.

## O.T. Control Panel

Sigma Meditech uses the latest technology to provide hospitals the flexibility and functionality. The choice and arrangement of components can vary considerably from project to project however most panels include some or all of the following:



- Time of Day clock (Analogue or Digital)
- Elapsed Time clock (Analogue or Digital)
- X-Ray Viewer 2, 3 or 4 plates with or without intensifiers.
- Operating table lighting controls.
- Theatre lighting controls / dimmers.
- Temperature Indicator / adjustment controls.
- Humidity Indicator / adjustment controls.
- Air sampling duct with Temperature / Humidity sensing.
- Medical Gas Alarm Indicator.
- Inter command /or telephone facilities.
- 13A Sockets for Isolated Power.
- Isolated Power Alarm unit.

Sigma Meditech offers a modular or "tiled" surgeons panel. There are different configuration i.e. 6tiles, 8tiles, 12tiles etc. available as per different requirements.

## Pre-Fabricated Modular O.T.

Sigma Modular Operation Theatres are delivered to the hospital site in pre-finished state which can be assembled onsite very fast and as a large majority of the internal fit out are carried out Off site eliminating major on site disturbance. Off site construction is faster, more efficient and allows a higher quality of construction and workmanship.

SIGMA OTs are designed with smooth surfaces (no visible joints) with no sharp edges in preventing any chances of stagnant air and contamination build up.





Sigma Modular Pre-fabricated Operation Theatres may be provided with:

- Laminar Air Flow - Theatre Control Panel - Hermetically Sealing Sliding door
- X- Ray Viewing Screen - Scrub Station - Pressure Stabilizer
- Ceiling Mounted Pendants - Seamless Flooring - O. T. List Board
- Isolation Panel - O.T. Table & Lights - Electronic Touch Panel

Various other similar equipments may be offered as per client requirement. SIGMA provides different types of Modular OT solutions i.e. one with free standing structure while the other one with wall mounted design to suit different applications.

## Hermetically Sealing Sliding Door

Sigma Meditech uses hermetically sealed sliding door which requires much less valuable space than hinged door and once operated on the guided track system produce far less air disturbance as they slice through the air. The door once operated on guided track system move down/in under its own weight and in conjunction with a continuous gasket which seals it perfectly against the floor and frame. The efficiency of the seal has been officially tested and results show it to be over 99% effective thus reducing cross contamination, dirty entering the operation theatre/ clean room and reducing expensive air handling costs.

Hermetically sealed sliding doors can be automated with the safe reliable electrical /electronic automation unit which has got several unique features. The door may be opened or closed by using Elbow, foot, Steel Rods witches thus prevent surgeons/ staff workers touching the door handle. The intelligent automation senses if an obstruction is present and prevents the door from closing thus eliminating the need for a dirty safety strip leaving the leading edge clean and ledge free. Additional safety is provided by means of a photo-cell fitted across the door opening. The opening and closing speeds and the time delay closing are easy to adjust and a self-diagnostic coded system makes fault finding simple reducing expensive downtime. Doors can be locked or interlocked to suit individual client requirements.



## Vertical Laminar Air Flow

Reducing airborne bacteria in the operating theatre is a vital key to successful surgery. Sigma Meditech Vertical laminar flow system is the most effective way to control Microbe levels in the entire Operating Theatre.

In Vertical laminar airflow, the entire air mass circulates in one direction and displaces the existing air in the operating area. The first crucial step in vertical laminar flow takes place when incoming air is blown straight down through micro filters (HEPA) above the operating table. The downward air flow prevents air masses from mixing in the work area. Compared to conventional turbulent ventilation, vertical laminar flow decreases the number of post-operative infections significantly.

Major components of Laminar air flow system:

- Laminar ceiling with HEPA filters
- Exhaust low grills with dampers & optional high grills.
- Air handling unit (by HVAC Supplier)
- Ducting arrangement (by HVAC Supplier)

Laminar characteristic ensures the desired air flow velocity at the wound site and eliminates chances of back flow (turbulence) & thus ensures highest standards of infection control.



## Scrub Station

SIGMA Scrub is made of high grade stainless steel 304 with stain polish finish. All the HV electrical components are housed in a junction box and the fasica is 24 VAC operated and complies with LV requirement.

The bowl is constructed in a way that will eliminate back splash of water and the drainage is carefully designed to avoid any overflow with its timeout control. Scrub sink is able to provide the convenience to the user and also as a part of water saving concept.

Scrub sink made with following features:

- Thermostatic mixing valve that controls the temperature of hot / cold water.
- Foot / knee panel using foot / knee operation.
- Bypass system during power failure or maintenance period.

Available in single, double and triple bay.



## Pressure Stabiliser

Sigma Meditech Stabiliser regulates the air pressure of an Operating Room by utilising a finely-balanced blade mounted in an aperture. When the differential pressure between two different pressurized areas reaches to a given value the blade opens, allowing air to flow from the room of higher pressure (Operating Room) to the lower pressure Area (Corridor/Else). If the Operating Room pressure falls below its given value, the pressure Stabiliser blades will immediately close. The Stabiliser blades will also close if back pressure is encountered.



The followings are the salient features of pressure stabiliser.

- The body of the pressure Stabiliser is manufactured from either 304-grade, brushed, stainless steel or white, polyester, powder-coated aluminium/EGP Sheet.
- Alternative Colours are available on request.
- The Stabiliser blades are manufactured from SS 304-grade brushed and are supported on stainless steel, sealed-for-life, ball bearings.
- With the balancing mechanism located off the blade, there are no protrusions on the blade.
- This significantly reduces the risk of contaminants collecting on the blade.
- Stabilisers can be provided as single or multi-bladed units.
- Stabiliser is designed to operate within a differential total pressure range of between 5 and 100 Pascal
- Each pressure Stabiliser is factory calibrated, installation is straightforward.
- In the unlikely event that a pressure Stabiliser needs recalibration, this can be easily achieved on site with the tented balancing mechanism.
- Maintenance is equally trouble free requiring nothing more than occasional wiping.

## Hatch Box

A hatch box will be provided in each operation theater to remove waste material from the operation theater to dirty linen area just adjacent to Operation Theater.

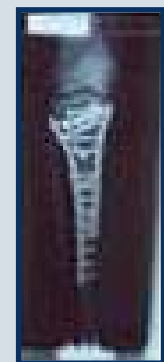
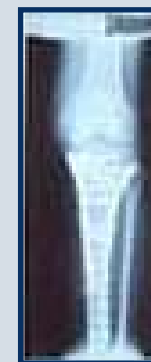
Each hatch box will be equipped with two doors and the door will be operated electronically. The hatch will be designed in such a way that only one door will be opened at one time.

The UV light will be installed in a way that it is kept 'on' while both the doors are closed and light has to be automatically turned 'off' in case of opening either of the doors. There shall be indicators on both sides of the OT so that door open/close status can be monitored from both ends.



## X-Ray Viewer

Sigma Meditech's range of x-ray viewers are available in Single & Double as standard panel models suitable for flush mounting, surface wall fixing or free standing desktop use. Standard models are fitted with on/off push buttons for each panel.



- Constructed in rust free steel, with white exterior finish
- Also offering Triple and quadruple viewing screens as option.
- Optional High efficiency electronic ballast with dimming PCB for controlling the intensity of light and also maintaining flicker-free for individual panels.
- The intensity of light may be adjusted by pressing/rotating the buttons on the Fascia.
- Single piece White Colour Opaque Acrylic sheet is used as light diffuser.
- Offering individual operation of each viewing panel.
- Standard unit supplied for Flush wall mounting or surface wall mounted on request.
- Clear plastic film clip allow easy gripping of X-Ray film without obstruction.