



**KRS Healthcare Pvt. Ltd.**

## **MODULAR HEALTHCARE DELIVERY SYSTEMS**

**Helping you treat your patients better!**





## About Us:

KRS HEALTHCARE PVT. LTD is one of the leading manufacturers & suppliers of Modular Operation Theatre. We undertake design, developments and making of precision engineered array of Modular operation Theatre products for specialized application in Medical & Healthcare Division. We employ latest technology to make high performance systems that ensure precision, consistency in the result and ruggedness in use. It is our advance R & D division that has been continuously contributing to developing & offering best quality Modular Operation Theatre products. The entire manufacturing processes at our facility are executed by engineers and managers of the company who have an experience of over last two decades.

## Vision & Mission:

To be the best performing and leading manufacturer, supplier, service provider and technology consultant of Modular Operation Theatre Company in the world as determine by our customers, employees, suppliers and the communities in which we operate.

Making well equipped innovative medical equipment to enhance the utmost needed care to each patient more homely. We develop our products with update technology which help for sustaining and by giving support to Doctor's to give better care to patients with latest equipment. We are committed in continuous improvement related to quality performance so as to reach our mission and goal.

## Treat Your Patients better...

Modular Operating room is a controlled environment with a low level of environmental pollutants such as dust, airborne microbes, aerosol particles and chemical vapors. Eliminating Sub-micron contamination is really a process of control. They must be continually removed from the air. The level to which these particles need to be removed depends upon the standards required. So that before starting the projects we have to study the contaminants which are generated by people, process, facilities and equipment. The only way to control contamination is to control the total environment Air Flow rates and direction, pressurization , temperature, humidity and specialized filtration to be tightly controlled and the source of these particles need to be controlled or eliminated whenever possible..

## KRS HEALTHCARE PVT. LTD follows NABH guidelines for building Modular Operation Theatres:

The recent guidelines for Air-Conditioning system for Modular Operation Theatres for client's reference:

The air-condition requirements for Operation Theatre in an HCO have been deliberated at length with manufacturers, engineers, technical committee members and other stake holders and the following guidelines have been finalized.

Brief description is mentioned below:

- Standard OT size of 20'X20'X10' (height below the false ceiling level considered).
- Standard occupancy of 5-8 persons at any given point of time inside the OT is considered.
- Standard equipment load of 5-7 kW considered per OT.
- Ambient temperature & humidity at each location to be considered while designing the system.

Modular Operation Theatres have been divided into two distinct groups:

Super- Specialty OT: It involves operations of Neurosciences, Orthopedics, Cardiothoracic and Transplant Surgery.

- Air Change per Hour – Minimum total air changes should be 30 based on international guidelines although the same will vary with biological load and the location. The fresh air component of the air change is required to be minimum 5 air changes out of total minimum 30 air changes. If the HCO choose to have 100% fresh air system than appropriate energy saving devices like heat recovery wheel, Run around pipes etc. should be installed.



## WALL PANELS SYSTEMS:

The partition wall system design facilitation the dismantling of any individual panels, to provide easy access for late installations, alteration or repair work. The Panels are installed to the wall on substructure made of galvanized steel. All internal corner wall panels are curved and easy to clean , special silicon gaskets is used as a sealing between panels, frames windows. Panels can be power coated with antibacterial paint.

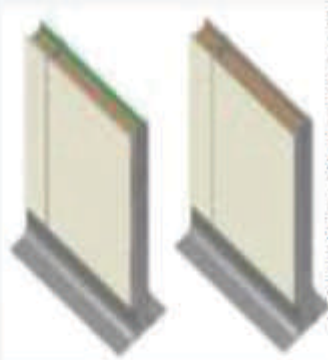
### KEY COMPONENTS are manufactured to exacting standards in a variety of options

Wall & Ceiling Panels: Insulated Sandwich Panels with PUF infill made with:

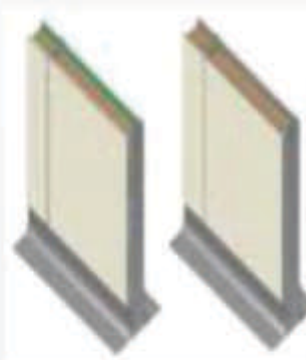


**Metal:** Our panels use Stainless Steel Sheets or GI Sheets of highest quality offering corrosion resistant non-porous hygienic surface which is easy to clean. Powder coating is available as an option.

**Glass:** Apart from its hygienic advantages, light transmission helps bringing in more daylight. Is Plain, smooth, easy to clean. Resistant to chemicals, and modern. Available in solid colours or graphic prints.



**High Pressure Laminate:** High impact strength, surface hardness, high resistance to bending, high tearing strength; High chemical & biological resistance, Resistant to rot; Easy to clean & sterilize; Easy to machine & assemble; Insensitive to water & steam.



**Solid Mineral Surface:** Durable, resistant to impact, stains & fading; Non-flammable; Easy to clean, maintain & repair; Seamless with invisible joints; Hygienic: resistant against fluids, dirt, bacteria, mold, germs; Non-toxic; Thermo-formable & Environment friendly.

**Lead Lined Panels** for Angiography Suites or Orthopedic OTs with C Arm.

**Ceiling Panels** clip-in together with the wall panels to create a complete system for the Modular Room.

**Hygienic Paint** for wall and ceiling panels is VOC free water based.



### Flooring

Antistatic seamless Flooring with perfectly curved flush-covings, resistant to mechanical stress and dynamic loads, is 2mm thick, washable vinyl imported from Europe.

**CEILING SUPPLY SYSTEMS** are critical in an Operating Rooms. They ensure sterile envelope in the core operating area and provides for clutter free delivery of Gases, Power, and Communication



We offer customized supply unit, conforming to the highest standards in hygiene, meeting the needs of the operating theatre and specific spatial requirements. Our personnel are available to help you with planning from the outset of the project. Carefully planned installation procedures are executed according to plans approved by the technical planners and the users.

**Laminar Air Supply System** - A disruption and turbulence-free Laminar-Air-Flow from a height of 2,100 mm from the floor can be realised with the Planair unit designed for these purposes. Apart from the four-sided standard version, L- or U-shaped supply unit can also be designed.

**Features include:**

- Class 5 and Class 100 as per ISO 14644-1 and Fed Std 209E respectively
- As per NABH Guidelines
- Protective Grills
- Low noise levels - below 55 db
- Made from 2mm thick Aluminium sheet with rigid damped frame and anodized aluminium profiles
- With or without dimmable illumination (Fluorescent or LED)
- Two layer mono filament precision woven polyester difuser for "LAMINAR FLOW" of filtered air.
- HEPA Filter which eliminates 99.999% of all particles down to 0.3 microns.



## OTHER KEY ACCESSORIES:



**Windows** made from insulated fixed glazing with not less than 5 mm thick toughened glass.

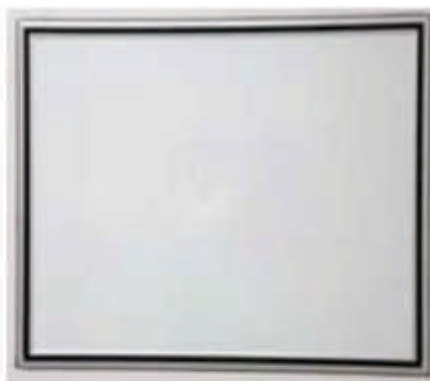
Optional: Motorized blinds with wired or wireless remote.



**Pass Box** for safe removal of material from OT without breaking sterile atmosphere inside. Pass box or Hatch Box is Microprocessor controlled. Only one door can open at a time. Automatic UV light in the box sterilizes the air inside



**Pressure Relief Damper** Cascade type Pressure relief damper made from SS 304 steel blades with adjustable ballast control room air pressure. Placed strategically so that its functioning is not affected by opening of the door.



**Writing Board** - The board is made of ceramic with magnetic properties. Optionally the board can be made from High Pressure Laminate board. The board is flushed with the wall of operating room.



**X-Ray Viewer** - Twin Plate X-ray viewing screen is designed to provide a high level of flicker free luminance control at various levels of illumination. LEDs used provide natural daylight illumination. Option; Three Plate viewer available.



**Peripheral Light** - Recess mounted IP54 Protocol, Non-hygroscopic peripheral lights are available with LED lamp and are either Non-dimmable or Dimmable type controlled from TCP. Optional UV Lamps can be integrated.



**Storage Cabinets** - made from 1 mm SS304 sheet or 19 mm MDF with 1 mm high pressure laminate on both the sides. The exterior glass shutters are lockable with magnetic push-button for easy opening. Removable toughened glass shelves of 6 mm thickness provided.

**OPERATING ROOM CONTROL PANEL** is the nerve centre for controlling most appliances in a modular operation theatre. We have designed two types of Control Panels:

- 1) Hardwired Fixed Key Membrane Type Panel, and
- 2) Touch Screen Icon based Type Panel



1. The Membrane type panel has all the controls of the modular operation theatre. It is a microprocessor based electronic control panel flush mounted in the operating room wall.

The fascia is made with superior quality UV resistance film with sterilization feature. The control panel can have either 6 modules or 9 modules depending on functions.

- Real Time Clock and Elapsed Time Clock
- Temperature and Humidity Display control
- Lighting Control/ Dimming and AC switch
- Medical Gas Alarm Systems and
- HEPA Filter Status Indicator
- Hands Free Telephone and Music Control



- 2) The Touch Screen type panel is customizable and is easily upgradable for additional functions whenever designed as per requirements.

- This type of Theatre Control Panel is programmable allowing maximum customization and personalized menus. Is flush mounted in the theatre wall, with easy removal for maintenance & repairs.
- Touch screen Control Panel can be configured with the following functions:
  - Analogue watch, digital stopwatch and date;
  - Dirty filter alarm of the laminar flow,
  - Laminar flow malfunction alarm;
  - UPS / IPS alarm;
  - Medical gas alarm (5 gas lines, vacuum and evacuation of anesthetic gas);
  - Operating Room overpressure display;
  - Operating Room overpressure alarm;
  - Temperature display / control;
  - Relative humidity display / control;
  - UCV control, when applicable;
  - Power supply information
  - Report of environmental values;
  - Alarms report;
  - General lighting (on / off and dimmer);
  - Day / night mode;
  - Doors opening / closing cycle counting;
  - Customizable graphical interface.



**Pendent System** Depending on the project, pendent can either have a vertical or horizontal basic support heads. Other Designs like fixed pendent, single arm movable pendent also available.

The moveable pendant arms of the supply units offer an optimum freedom of orientation. Depending on the requirements, one or two-arm, be height adjustable and come in a wide range of sizes.

By combining a cross arm with a height-adjustable motor arm, e.g. of 1,200 mm and 1,000 mm arm length, a large working radius of up to 2,200 mm is possible.

The pendant arm system can be positioned correctly using just a small amount of hand strength. This can then be secured in position using pneumatic brakes. Cushioned end-stops prevent "hard impacts".

Designed to deliver Power, Gases (Air 7 & Air 4, Oxygen, Vacuum, Nitrous Oxide, etc), Communication, music, etc. close to operating table without cluttering



## SCRUB STATION

- Infection control begins with proper Hand Hygiene. Our Scrub Sink is the key for Clean, Germ-free hands for secure surgery.
- We design and manufacture Scrub Sinks to exacting international standards.
- We can make custom sizes to perfectly fit the niche provided for Scrub Sink for aesthetics and easy maintenance.
- We can provide wall mounted or floor standing models.
- Stainless Steel Scrub Sinks are made from 16 gauge SS 304 with Scotch-Brite finishing.
- The sink has a specially designed slope allowing waste water to flow completely into the centrally located drain outlet.
- Upstand panel made of 18 gauge SS 304 with Scotch-Brite finish, prearranged to accept tapware and all the necessary accessories.

## SURGICAL SCRUB SINK

•Surgical scrub sinks are made of 16 gauge stainless steel 304 with Scotch-Brite finishing.

Surgical scrub sinks with wall panel:

Types of dimensions:

- 1 bay, 845x600x1240 mm
- 2 bays, 1600x600x1240 mm
- 3 bays, 2355x600x1240 mm

Surgical scrub sinks with knee operated water:

Types of dimensions:

- 1 bay, 845x600x1240 mm
- 2 bays, 1600x600x1240 mm
- 3 bays, 2355x600x1240 mm

Surgical scrub sinks with infrared operated water:

Types of dimensions:

- 1 bay, 845x600x1240 mm
- 2 bays, 1600x600x1240 mm
- 3 bays, 2355x600x1240 mm





## HOSPITAL DOORS

Door designed especially for modular operating theatres and hospitals are required to meet high demands. That is why we design and develop high-quality, robust doors which meet the required hygiene standards and satisfy the fire safety, smoke control and sound insulation requirements.

**We cater to wide range of products including:**

- Hermetic and Non-Hermetic Doors
- Sliding and Hinge doors
- Manual and Automatic Doors
- Standard and Customized Doors
- Special and Specific Application Doors
- Wide range of doors for medical industry

**Hermetically sealed sliding doors:**

Hermetically sealed sliding doors are specially designed to control the air pressure in the room which is most importance at a hospital. These doors can be installed inside or outside of the room with manual and automatic operation.

**Used for:**

- Modular Operation theatre/ICU

**Clean room hinge doors:**

These doors are specially designed for clean rooms in hospitals to ensure sterility and to maintain correct air pressure in the room. These doors come with single and double leaf with various color schemes.

**Used for:**

- Clean rooms
- Wards
- Sterile rooms



DOOR SHADE CARD



SKY BLUE (HM01)



ISLAND BLUE (HM02)



INK BLUE (HM03)



OLIVE GREEN (HM04)



KIVI GREEN (HM05)



CHAMPAGNE (HM06)



PEACH (HM07)



GREY (HM08)



CREAM YELLOW (HM09)

KRS HEALTHCARE PVT. LTD manufactures a variety of Doors for a variety of applications. These doors can be Manual or Automatic, Regular or Hermetically Sealing type, Sliding or Swing type, Single Leaf or Double Leaf and are made from a variety of materials like GI, SS or HPL. The doors can be Lead Lined for Radiology applications.





## SALES, SERVICES & AMC

We offer complex solutions for operating theatres including following elements:

- Wall and ceiling panels systems
- Laminar ceiling supply system
- Motorized windows
- Pass box
- Pressure relief damper
- Writing board
- X-ray viewers
- Peripheral light
- Storage cabinets
- Flooring
- Surgeons control panel (membrane & touch screen)
- OT/ICU Pendants
- Hermitically sealed doors & windows
- Surgical scrub sink
- Turnkey solutions

## Our Customers





Vision for the future  
– an eye for detail



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