

modular operating theatres



A leading name in turnkey medical engineering in GCC & India

We offer complete tailor made solution to address your specific needs. We work with various health care providers, offering the most efficient and cost effective medical engineering, electro-mechanical and interior fit out services.

15 years experience in the design, installation and commissioning of medical engineering works In hospitals & other specialized clinical department.

Modular Operating Theatres

The construction is done with readymade prefab panels with speedy construction and high quality finishes and flexible to future expansions & maintenance without interrupting other functioning departments.

We offer turnkey engineering solutions for modular operating rooms which includes site survey, design, supply, supervision, Installation, Testing & commissioning, Operation & Maintenance of the system.

High Pressure Laminated Walls



- High wear-resistance –fewer scuffs and scratches
- Impact resistance –no denting
- UV-resistant
- Easy to maintain, clean and disinfect
- Resistant to heat and light
- Insensitive to spots
- Resistant to water, steam, solvents and largely to chemicals
- HPL is fire inhibiting and can be finished as flame retardant
- Available thickness—from 0.8mm to 13mm
- Antimicrobial Wall surface
- Superior static load capacity –no dimpling

Solid Mineral Surface Walls



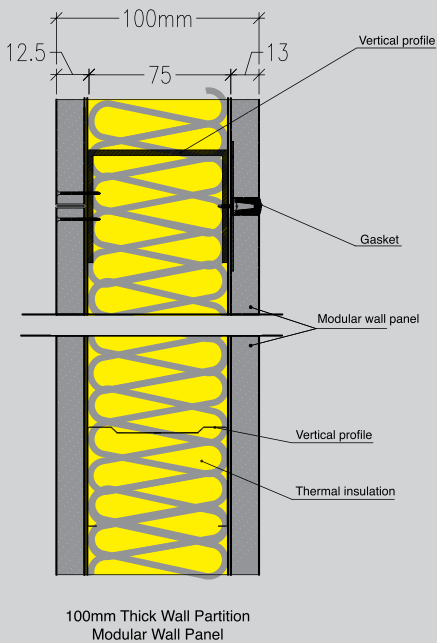
- Antibacterial Solid Mineral Surface
- Absolute flatness of the surfaces to facilitate cleaning and the achievement of conditions of aseptic hygiene
- Wide range of colours coordinated among the various material
- Joints between self-loading panels, manufactured in full height with no horizontal seams, offer a perfectly airtight sea

Glass Walls



- Mineral-acrylic material is a solid, non-porous, homogeneous surfacing
- Material composed of $\pm 1/3$ acrylic resin (also known as PolyMethyl, MethAcrylate or PMMA) and $\pm 2/3$ natural minerals

Typical Modular Wall Section



- The main mineral is Aluminium TriHydrate(ATH) derived from bauxite, an ore from which aluminium is produced
- Trademarks Corian or Staron

Painted Stainless Steel Walls



- High corrosion resistance
- High mechanical resistance
- Ease of cleaning –smooth, non-porous surface
- Maintaining initial features at very low and very high temperatures (cryogenic features)

Stainless Steel Walls



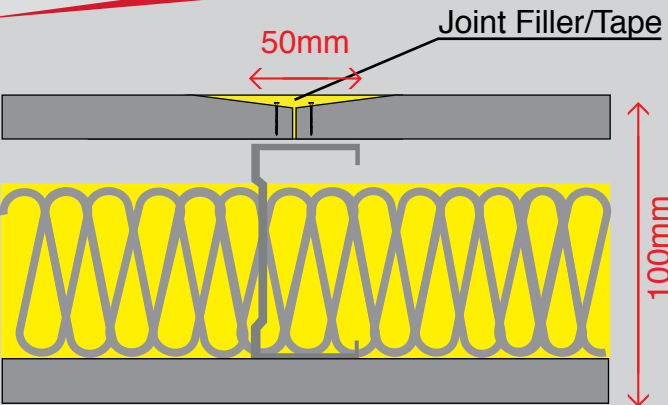
- Powder coated antimicrobial paint
- Variety of design and pattern –any colour of the RAL palette
- High aesthetics (modern, light, prestigious) Attractive total investment cost 100% recyclable

Gypsum Fiber Board Walls With Hygiene Coating, Anti Bacterial, Anti Fungal paint



- High Performance Gypsum fiber Board walls as per HTM standards for fire rating with acoustic, moisture, impact or load bearing performance

Seamless Wall Section



1 S 21 = F60 + 52dB upto 10m high
Steel Stud - 0.6 x 75mm
Severe Duty Impact Rating

- Hygiene Coating is a paint finish with anti bacterial & anti fungal properties , is done on the gypsum fiber board walls for OT to get a seamless finish on the walls

Ceiling Systems with
Peripheral Lights

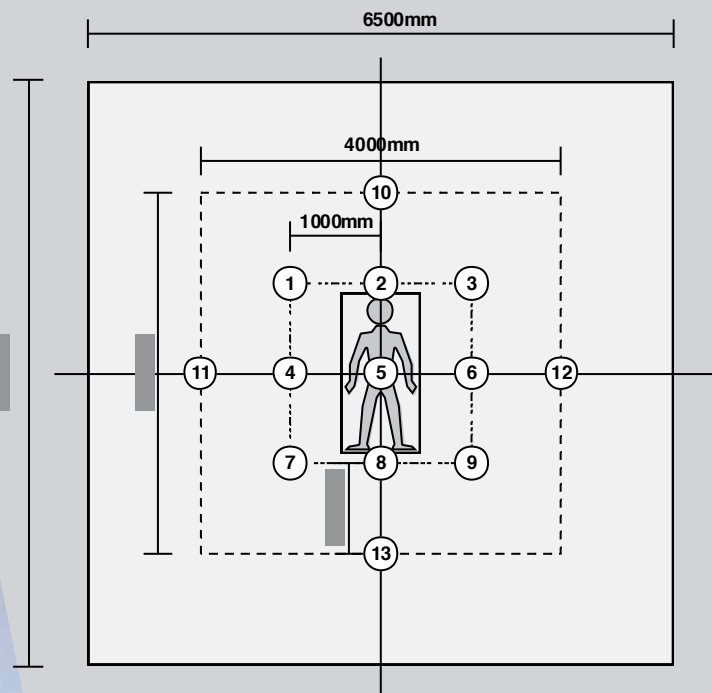


Ceilings Systems

Normal purity luminaire lamps with high frequency ballast and special coating – resistant to oil vapours, chemical attack, disinfectants and cleaning agents. Lights are installed as recessed luminaries in Operation Theatre ceiling with amounting frame in cutout recess openings.

Peripheral lights

System ceiling enable installation of peripheral devices in the ceiling. Without limiting access to them whenever maintenance service is needed. Types recommended: Stainless Steel Ceiling, Fiber Board Ceiling



Lighting Distribution Systems

01	1150
02	1245
03	1150
04	1245
05	1500
06	1245
07	1150
08	1245
09	1150
10	1000
11	1000
12	1000
13	1000

LED Surgical Light



- Operating lamp must be ceiling model LED surgical lights having Focusmatic property for room height 2.80m to 3.00 m.
- Made of aluminium and a module consisting of individual segments, it must be ideal for operating rooms with laminar flow systems.

The lamp yoke must have a controller with:

- Lighting level adjustment
- Endoscopic mode
- Selection of temperature colour
- Focal electronic lighting level
- Battery indicator
- Cupola selection
- On/off switch

The main arm and satellite arm must have the following property:

- Light intensity for main arm 160,000 Lux
- Light intensity satellite arm 100,000 Lux
- Colour temperature in °Kelvin 4500°K
- Colour Rendering Index, CRI (Ra) >95
- LED life time >40000 h
- Feeding unit 100 to 240 V
- Frequency 50 / 60



Hermetically Sealed Doors



Stainless Steel Doors



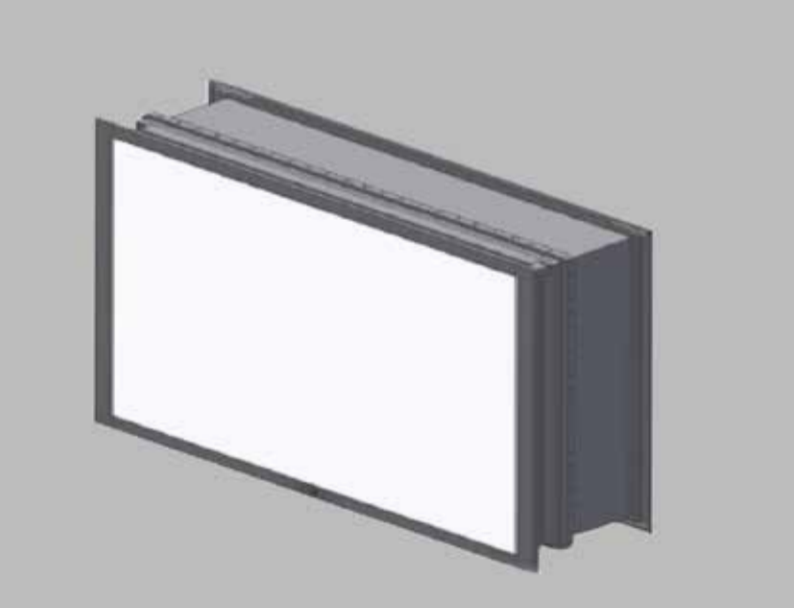
Hinged Doors

- Features**
- Stainless Steel & painted stainless steel Automated doors
 - Track system including all necessary running gear floor guidance
 - Hermetically sealed gaskets and handles
 - Various option to accommodate lead through rail system
 - Micro processor controlled electric automation
 - Fire rated, fully assembled door kits

Windows



Window – Regular Glass



Window – Electric Glass

Windows and glass elements are made from high quality painted stainless steel and are integral element

Static Conductive Flooring



Automatically Operated Doors

Sliding Doors

- Sliding door- offers a greatly reduced movement / turbulent of air.
- Hermetically closing is 99.999986% air tight at pressure of 50P.A.
- Door blade hangs by means of two hard plastic rollers with double bearing to provide smooth & silent running.
- Various options available like Micro processor controlled & regulated electromechanical sliding doors, switches & locks.



- Compacted floor covering for the better hygiene, maintenance & traffic resistance
- Available in 15 shades of colour
- Thickness 2mm, tile size 608*608*mm.
- Electrical resistance, point to ground – 2.5*100000 to 5*10000000 OHMS[Ω].
- This does not allow generation of charges over 100 volts
- Manufactured under hydraulic pressure result in no change in surface pattern, quality, smoothness even after heavy duty abrasion
- Due to lack of porosity, chemical spills rest on the surface & can be easily removed with conventional cleaning methods.
- All joints between tiles are welded & floor finish terminates the rum perimeter over a concealed cove former & continuing up the wall for 100mm to give continuous sealed surface.
- Confirms to NFPA 99, DIN51953 & EN 1081 standards.

Hygiene Air-conditioning



Designing and integration of purified HVAC system is the internal part of building modular operation theatre.

These systems are according to international standards of purified HVAC system

Tasks of Hygienic Air Conditioning

- To control the temperature and humidity of the space.
- To assist in the removal and dilution of waste anaesthetic gases.
- To dilute airborne bacterial contamination
- To control the movement of air within the department, such that the transfer of airborne bacteria from clean to sterile areas is minimised

Laminar Flow Unit



Air Handling Unit



Perfect Hygiene Air-conditioning for all Hospital Departments

We provide new generation compact air conditioning units which is been developed for universal use in all hospital departments and meets the requirements of International standards. Compact construction and innovative technology ensure operating cost benefits extending well into the future. The optimised arrangement of mechanical and dynamic-flow components ensure low speeds and internal pressure losses.

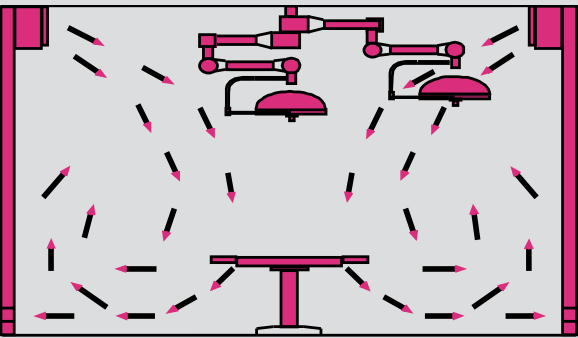
Use in the air-conditioning central unit

- Flexible duct connection
- 4-way hot gas switching for optimum energy use
- Built-in safeguard from a 100 % air capacity redundancy
- Outer air filter with anti-freeze protection
- Interior outer air damper
- Thermally insulated corner profiles
- Mirror image designs available
- Refrigeration circuit and heat recovery tested in the factory

Turnkey Design & Supply of HVAC System Including:

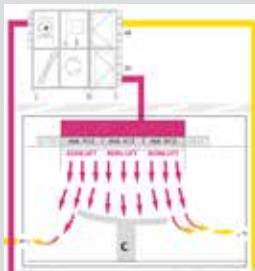
- Air Handling Unit
- Duct work
- Duct components
- Ultra clean ventilation canopy

Conventional Ventilation Systems



Traditional Turbulent Flow Air Distribution System

Air Conditioning Concept acc. DIN 1946-4 [Remote plant system acc. HTM 03-01]



Advantage:

- Service and Maintenance outside OT
- Better Control of the Sound level
- Better mixing possibilities of fresh air and return air

Disadvantage:

- Requires space for duct system
- Requires a large technical room

Ideal solution – from technical-hygienic view

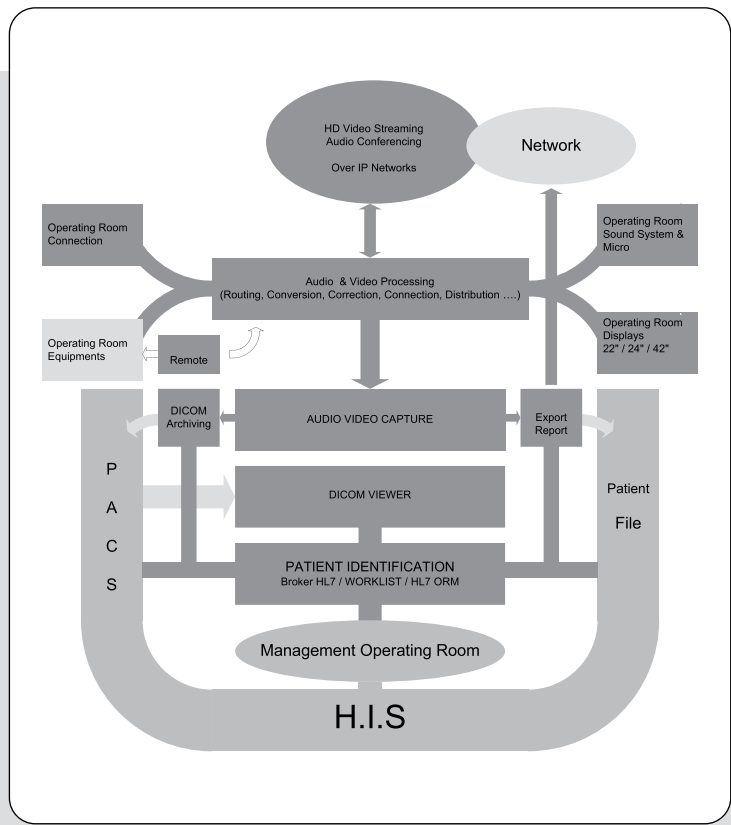
Digital OR



Surgical Multimedia System [SMS]
Imaging Station for Surgical Unit

The S.M.S system allows the review of exams of the patient, from a CD, in direct consultation of P.A.C.S. or postponed (by prior preparation) with an ergonomics adapted to the personnel and to the conditions of use in a surgical unit.

Integrated into your Information System, SMS is an intuitive application suite for capturing video sequences, creating operating reports and remotely checking numerous essential functions in the operating theatre. Thanks to its ease of use, its DICOM compatibility, simple setup and openness to other software applications, SMS is a central solution that combines reliability, efficiency and ease of use.



Surgical Medical System

- Excellent Full HD & SD audio/video capturing
- Multi- functional Image Preview & Display
- IP-Router managed video streaming
- Multi Functional DICOM Interface to optimize workflow in and outsid the OR
- Easy DICOM implementation thanks to Proprietary patient Data Management System Broker Interface
- OR Equipment Remote Control functions

Media Bridge



- Media Bridge is a medical supply unit & substitute for pendants.
- Trolley system is movable on an internal rail system along the entire width by providing 360 degree
- Large -sized air-supply system
- Complies with the latest air conditioning medical guideline and norms
- All-round air supply apron made of VSG-Glass
- Required care fed in through the feed-in column via the interim ceiling

Side facing away from the OT-area: Can be equipped on two levels
Side facing the OT-area: plain and vertical

Advantages | Features:

Disruption and turbulence-free Laminar-Air-Flow
from the ceiling air supply system up to a height of 2,100 mm from the floor

Options

- Movable on four sides thanks to rotating points
- Movable on an internal rail-systems along the entire width

Medical gas connection points incorporated
Nurse Call provisions and Electrical power sockets included
The ceiling pillars contain maintenance panels to allow for future expansions
Equipment trolleys for monitoring and infusion side designed project – related for Modular Design. This makes it possible to arrange the workstation Individually

- Also available as L or U Shaped unit

Lighting possibilities

- Non-glare, indirect room lighting
- Dimmable lighting [e.g. for minimal-invasive surgery]
- Dynamically controllable RGB-lights [e.g. for endoscopic use]

Pendant



Modular Concepts supplies & installs a complete range of clinical pendants /beams. These are ceiling mounted systems that provide simple and convenient access to multiple gas, electrical and data outlets at a safe height wherever they are needed. The range includes fully-flexible multi-movement pendants and beams specifically designed for use in critical care and operating theatres and rigid and retractable pendants designed for operating, anesthetic and ancillary rooms.

Pendant Arms are of various types consist of single arm, double arms & multi movement arms. The moveable pendant arms of the supply units offer an optimum in freedom of movement in the workplace and can have, depending on the requirements, one or two-arm, be height adjustable and also come in a wide range of sizes.

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".

Isolated Power System



Isolated Power System [IPS]

Isolated power provides two types of safety:

1. Continuity of supply i.e. the isolated supply removes the possibility of earth faults therefore there is no need to blow a fuse or trip a breaker to protect against earth leakage currents that could cause electrical shock.
2. Isolation from earth allows only negligible electrical current to flow though body –even an RCD will allow up to a 30mA-not sensitive enough for a medical environment.

A Typical System for an Operating Theatre will include Floor standing Enclosure Containing:

- 8 Kva Medical Grade Isolation Transformer
- Medical Grade Line Insulation Monitor
- X 16 Double Pole mcbs
- Earth Fault Detection System to (IEC615557-8/9)
- 1 Remote Alarm Unit
- UPS by- pass Switch
- 10 Kva UPS with a 10 minutes autonomy

Features

- Multi-bladed units, specifically designed control O.T room air pressures.
- Unit comprises of carbon steel housing with grade 304 stainless steel blades
- Balancing is carried out utilizing a proven balance weight assembly
- Accurate to range of 1 pascal over their working range of 5-35 Pa.
- Adjustment can easily be carried out on site, should the need arise.

Surgeons Control Panels



Surgeons Control Panels

Each Control Panel Will Contain:

- Time elapse clock
- Standard clock
- Control for temp/ Humi
- Touch screen
- Control for peripheral/O.T light
- IPS alarm
- Medical gas alarm & IPS alarm – Visual & Audio

Electronic touch screen panel [eTCP]

Wipe clean for excellent infection control
Flexibility to accommodate design changes with ease
Easy update to accommodate future services
Proven reliability
Compact size where operating romance is at a premium
Modern appearance complements today's high tech operating rooms
Ability to incorporate third party interfaces

Rigid & Retractable Pendants



Rigid and retractable pendants provide simple and convenient access to electrical and data services, medical gases and AGSS in the operating theatre, anesthetic or ancillary room.

Retractable pendant offers 300-400mm of vertical movement via a remote control, to bring services to the ideal height. A maximum of nine medical gas and 32 electrical / dat outlets can be mounted onto the retractable pendant.

Pressure Relief Dampers



Pressure Relief Dampers

PRD 's are Pressure Stabilizer fixed inside the OT to maintain a positive pressure inside the Operation Theatre

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Surgical Scrub Sink



- Stainless Steel/SMS Construction
- Removable Bay Panels
- Adjustable Thermostatic Mixing Valve
- Available in One, Two, or Three, Bay Sizes
- Automatic, Manual or Electronic Infra-Red
- Soap Dispenser, Digital Timer, Eyewash Options
- Pedestal Base or Chair Carrier mounting
- Custom Sizes Available
- Anti-Splash Tub

X-ray Viewer



X-ray Viewer

- Twin plate X-ray viewing screen
- High frequency fluorescent lamps controlled by dimming ballasts
- Control luminance without flicker
- Uniform level of illumination across the entire front panel
- Sealed flush with the inside face of the operating theatre wall
- Spring loaded clips to secure the X-ray

Operation Theatre Tables



Mechanical and hydraulic operating tables are designed for all surgical operations and treatments. They ensure ease and comfort of usage and safeness for patient and medical staff, the design is ergonomical and esthetic. They can be equipped in wide range of additional accessories, which supports safe placement of the patient in order to use exceptional technical parameters.

PROJECT REFERENCES



Burjeel Hospital, Abu Dhabi, UAE



Burjeel Hospital for Advance Surgery, Dubai, UAE



BR Suites Dubai Healthcare City, UAE



New Medical Center Daycare, Abu Dhabi, UAE

Zulekha Hospital, Sharjah, UAE





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