OPERATION THEATRE

Under technical tie-up with AKCmed

Designed & Manufactured by :

workspace

Marketed by :

temflo

2006
Formation

2009
Dedicated Factory

2011 Formation
Workspace
Metal Solutions

124 Cr. Sales
in FY 2021-22

10,000+
Server Rack Delivered

10+
MOT'S Delivered

14500+
Kiosk Delivered

10+
International
Certifications

MODULAR OPERATION THEATRE TECHNICAL LITERATURE

Workspace metal solutions has done a manufacturing tie-up with ACK, a Czech Republic company for entering into the growing Modular Operation Theater and allied markets. AKC is a leading European company in this business since last 20 years. In this tie-up, Workspace Metal Solution will be getting complete technical knowhow from AKC to provide international quality to Indian customers at affordable price. AKC will provide all critical components from Europe. Remaining components will be manufactured under stick quality control process provided and approved by AKC.

BUILT-IN OPERATING THEATRES

AKCmed ideal solution for building of new operating theatres and their backgrounds reconstruction of existing spaces

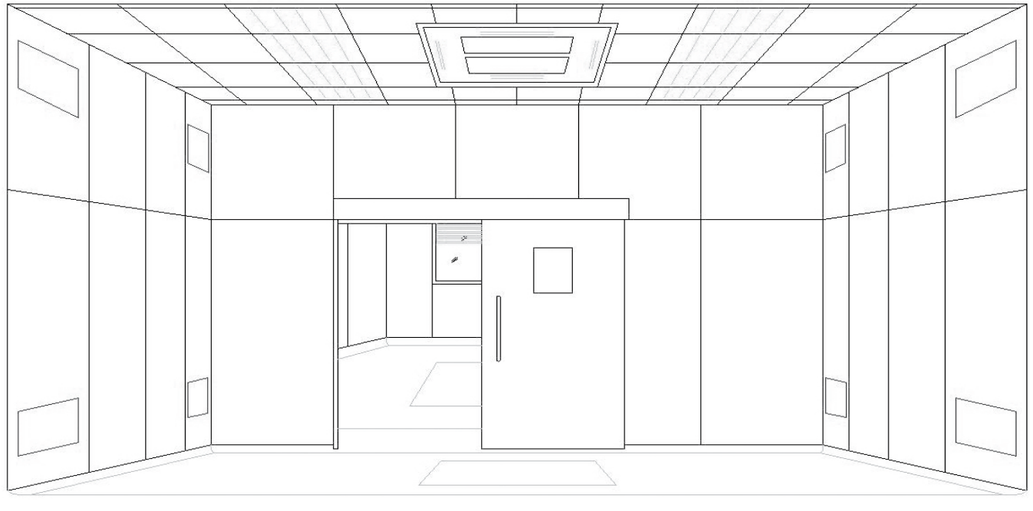
AKCmed advantages:

- flexibility for future
- resistant surface
- modern solution
- easy maintenance
- fully certified system
- worldwide experience
- conformity with EU standards

AKCmed system composition supporting structure made of galvanised steel facing panels made of stainless steel according to the standard DIN 1.4301 (AISI 304) varnished with powdery paint and consisting of socked plaster board lower ceilings made of metal panels with the integrated lighting system laminar field and air exhaust system.

WORKSPACE METAL SOLUTIONS BUILT-IN OPERATING THEATRES

Workspace Metal Solutions built-in operating theatres are assembled from unique (according to the project), factory-made components. This technological solution makes it possible to shorten the building time of operating theatres and mainly to ensure their high quality.
As early as during planning, the Workspace Metal Solutions operating theatres allow designers to design theatres which are not only modern but which also allow the use of medical technology from all the world manufacturers that are necessary for the work of doctors and health professionals.
The Workspace Metal Solutions operating theatres can be easily adapted to state-of-the-art medical technologies. Thanks to its modular composition costs on possible service and maintenance are minimized. While planning construction of operating theatres, you can always rely on our professionals who will help. While planning construction of operating theatres, you can always rely on our professionals who will help you with all steps of execution, beginning from project preparation up to the completed work handover to the user.



ADVANTAGES OF THE BUILT-IN OPERATION THEATRES

- modularity (possibility of changing, replacing and providing of built-in operation theatre components or technology at minimal costs and in the lowest-possible time whenever you need)
- hidden and easily accessible media installations
- emphasis on details and easy cleanability (all components are installed with maximal effort toward full embedding of a built-in component into a wall panel, thus enabling easy disinfection of the whole Workspace Metal Solutions operating theatres system)
- easy maintenance (thanks to the chemical resistance of the colour surfaces of the wall panels, as well as the compatibility of all other components of the Workspace Metal Solutions built-in theatres with disinfectants used in healthcare)

WALL SYSTEM

partition walls – steel structure + wall panels from both sides wall facing panels – steel structure + wall panels from one side

The Workspace Metal Solutions wall system used in the construction of operating theatres is designed The Workspace Metal Solutions wall system used in the construction of operating theatres is designed as a system of non-bearing partition walls and wall panels for interior use. With its structure, it meets all requirements imposed on quality, variability, physical properties and hygiene during construction of operating theatres and auxiliary rooms. The modular construction of wall system is based on a basic grid of 1,200 mm.

The Workspace Metal Solutions wall system can be built on both a concrete floor and in buildings using anhydride as a final layer under the flooring.

Wall thickness is variable with a double-sided wall panel mounted on a steel structure. Thickness is mainly subject to the requirements for the building-in and installation of all distribution systems as well as other built-in elements. While designing the wall thickness, it is appropriate to take future po-ssible needs which may occur as a result of a change to medical technology into account, thus allowing recessing of technology into partition walls with the correctly set thickness.

Partition wall thickness	Installation space
100 mm	62 mm, sockets, switches, elbow switches, etc.
150 mm	112mm, multi-functional panels, x-ray viewer, etc.
200 mm	162 mm, exhaust channels, etc.
<200 mm	<162 mm, built-in furniture, etc.

For a facing wall panels which are mounted onto a foundation structure fixed to a respective wall, the minimal distance from existing wall is 100 mm. The vertical installation space is 81 mm.

Standard heights of partition

Clearance height of the rooms	Recommended to be used in
3000 mm	Operating theatres
2700 mm	Preparation rooms, sterilization, Preparation rooms, sterilization, etc.
2400 mm	Corridors

The Parameters of the Wall System are Designed and Certified According to the Following Standards and Procedures:

Acoustic attenuation (ISO 140-3 ISO 717-1)

The weighted sound reduction index for a partition wall with a thickness of 200 mm is 48dB.
For increased acoustic attenuation, weighted sound reduction index is 57 dB

Fire resistance (EN 13501-2)

For a partition wall with a thickness of 200 mm, the fire resistance is 60 minutes.

Eccentric, horizontal load (ETAG 003:1998, ISO 7892-1988)

The wall system (200mm partition wall) is certified for an eccentric and horizontal load.

LASER RADIATION PROTECTION

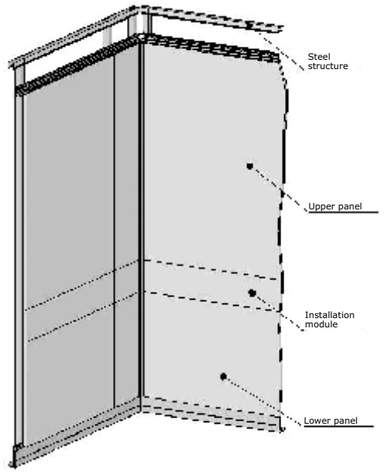
In order to minimize the consequences of a possible accident and for the maximum protection of staff, a colour ensuring the maximal absorption of an incident ray and diffusion of a reflected ray has been used. Simultaneously, two electrical blinds in all windows and an alarm at the door are always used. For the duration of laser operation, the door is always blocked (possibility of manual unlocking).

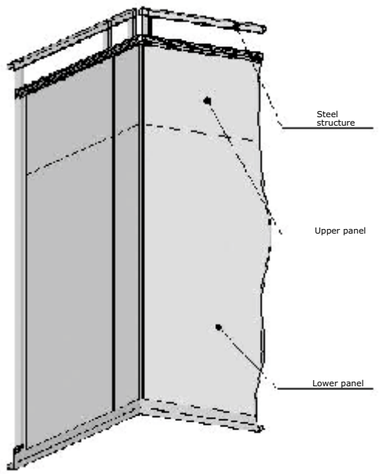
X-RAY RADIATION PROTECTION

Depending on the project, a lead sheet with the respective thickness is used in walls and doors based on the used facility or standards. All windows (as well as doors) are equipped with Pb-glass with the respective protection equivalent.

1. WALL PANEL

A stainless steel wall panel that is made of stainless sheet (DIN 1.4301, AISI 304) with a thickness of 0.8 mm. During production, after cutting of both the circumferential form and possible openings, this stainless sheet is bent to the form of a panel on a fully-automated line. Another step is the colour surface treatment of the panel by means of a powder burning method in a fully-automated burning kiln at a temperature of approx. 150 °C. Thanks to this special burn coating, the panel gains an antibacterial surface which is also resistant to disinfectants. The last production step is the insertion of an 18mm-thick plasterboard.The panels are made in the dimensions specified in the project documentation and every panel has its own unique labelling (panel number), according to which it is possible to identify a panel immediately in the future without any need to know its placement, size, etc.





Standard panel dimensions:

- Solution with one gap between bottom and upper panel

bottom - 2000x1200 mm
upper - 900x1200 mm

- Solution with two gaps - installation panel

bottom panel - 900x1200 mm
installation module - 200x1200 mm
upper panel - 1800x1200 mm

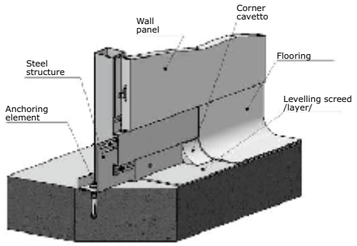
Typical panels always have various widths while keeping the same height of the panel - 2,000 mm or 900 mm and they are usually used as the last panels in, in the corners, at the doors, etc. for side assembly (no fastening elements from A vertical joint, /gap/ between panels intended the front side) is sealed by an inserted silicone profile (sealing) in the colour of the wall panels.

Colour style:
according to the NCS or RAL colour cards.

Graphic panels: stainless steel panels, on which any graphical symbols can be applied with a special printer. The symbols are then covered by an upper protective layer which provides the panel with the standard resistance. The symbol may be applied across multiple neighbouring panels as well.

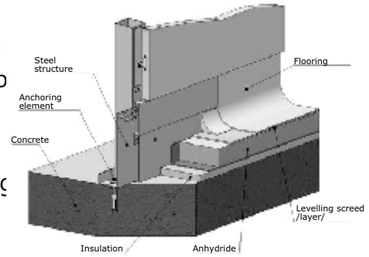
2. STEEL STRUCTURE

The concrete floor for assembling of the steel structure should conform to the standard DIN 18202, STN 744505.
Thanks to the composition of the innovative structure, it is possible, independently of any unevenness of underlying concrete, to ensure horizontal flatness of the bearing profile, which is necessary for later faultless assembling of the panels.



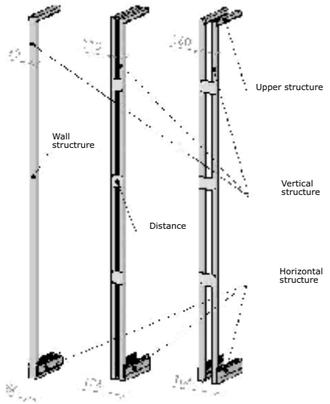
2.1 Horizontal Steel Structure

The Horizontal steel structure is made of galvanized steel. The height of the mounting base for wall panels is 100 mm. In order to ensure sp load on the floor, a J-piece lies with its surface on the floor and it is anchored lies with its surface on the floor and it is anchored into it. Both the closed steel profiles of the vertical structure and the "bearing profile" are fixed to this piece. The resultant space between the bearing profile and the concrete floor is closed by a C-piece. This system is even able to manage the possible unevenness of the bearing concrete floor. It is always finally evened with a self-levelling screed /layer/ used for the faultless installation of an antistatic floor. The system can also be used in connection with an anhydrite poured floor.



2.2 Vertical Steel Structure

The Vertical steel structure is made of galvanized steel closed profiles. These profiles are fixed into the horizontal structure on the bottom, and on the top they are bound by an upper structure. Spacing elements are always installed between the vertical elements are always installed between the vertical profiles. Their dimensions change on the basis of the necessary distance of the vertical profiles. The vertical steel structure is 200 mm higher than the clearance height of the room. Moreover, the vertical steel structure is, after precisely specified distances, anchored into the construction ceiling of the room by means of braces. The structure of these braces even allows the necessary dilatation of the steel structure of the operating theatres in the vertical direction.

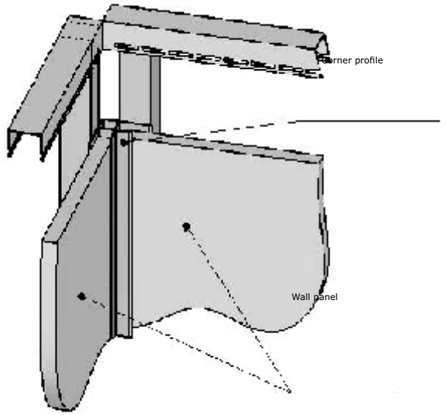


2.3 Supports

The supports in the installation points of most wall elements and door drives are mounted to the vertical steel structure of the galvanized steel transverse stiffener. They decrease wall panel load. The standard thickness of the material is 2 mm and 5 mm for door drives supports.

2.4 Corner Profile

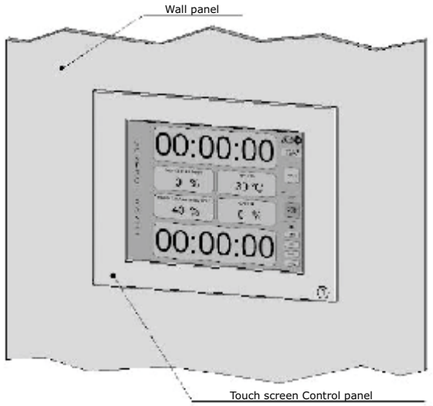
The Corner profile is made of precision extruded aluminium profile with a colour surface treatment matches the colour shade of the wall panels. The wall panels are inserted into this profile in the vertical direction and they are sealed with expansion sealing inserted into the corner profile.



3. WALL ELEMENTS

3.1 Colour Touch Screen Control Panel

Colour touch screen control panel is specially designed for operating theatres. It is installed by recessing it into a wall panel and its installation allows easy clean ability both in the place of installation and in the functional surface, while the materials used are chemical resistant to disinfectants and cleaning agents used in operating theatres (IP 65).
The main functions include, among others, time, stopwatch, temperature, humidity, etc. Further functions are always provided and programmed upon agreement with the customer and according to the specific requirements of every customer. The switchboard of the control panel is placed outside the operating theatre in order to be easily accessible.



3.2 X-ray Viewer

The X-ray viewer is one of the built-in wall elements which we are able to incorporate into our system of the Workspace Metal Solutions built-in operating theatres. The x-ray viewer is installed into a wall panel with the emphasis on easy cleanability and service. It is equipped with an electronic ballast for fluent change of lighting intensity. The x-ray viewer can be equipped with a fluent stop of pictures. The size and placement of the x-ray viewer is chosen upon consultation with the costumer.

3.3 PACS Display

The PACS display, according to its design, is installed into the wall panels, either behind anti-reflection glass if it is not an element intended for direct installation into walls, or directly. The PACS display is not a direct supply. Replacement of the display for the x-ray viewer is possible even later (upon necessary consultation).

3.4 Built-In Cabinets

The built-in cabinets are intended for various purposes in the operating theatre. The most frequent usage is the following cabinets for material transfer:

- for transfer of sterile material between an operating theatre and a sterile corridor cabinet for stitching material.
- for storing for doctors stitching material cabinet for operating tools.
- for keeping of operating tools cabinet for laser.
- a socket and other elements needed for laser functions is hidden in it.

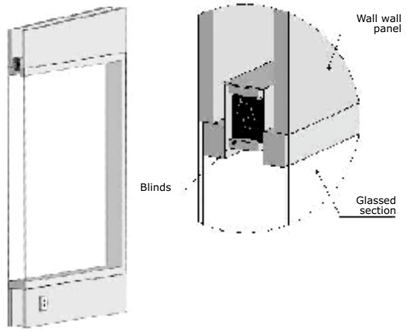
All built-in cabinets are installed into the system of the Workspace Metal Solutions wall panels with regard to details and easy access. The colour style can be the same as the shade of the wall panels or according to the requirements of the customer. The dimensions of all the cabinets are specific for every project and are customized according to the requirements and needs of the specific customer.

3.5 Clock

The clock for operating theatres is normally placed in the upper panel above the door. The clock is round and equipped with a second hand. If installed in multiple operating theatres, there is the possibility of connecting all clocks to a uniform time signal to get the same exact time in all operating theatres.

3.6 Glassed Wall Panel

The glassed wall panel is equipped with safety glass with a thickness of 6.3 mm. It allows the installation of inner electrically-controlled blinds and, radiation protection (e.g. for placement between the control room and the operating theatre). The thickness of the glassed panel is the same as the thickness of the partition wall in the installation place. The detail of connection of the glass to the wall panel is designed with regard for easy cleaning. The control buttons of the electrical blinds are placed under the window.

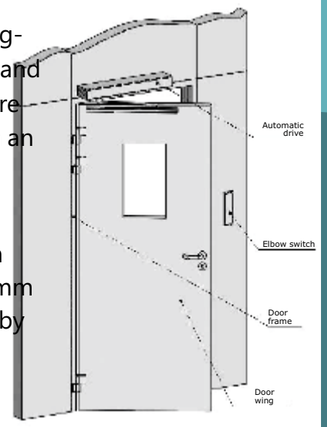


4. DOOR

The door frames for both hinged and sliding doors are always made of 1.5mm-thick brushed stainless sheet.
Door wings are always made of 1mm-thick stainless sheet.
Surface treatment – colour powder coating brushed stainless steel
The door wings are supplied either full or glassed.
The glassed ones can be equipped with magnetically or electrically-controlled blinds.
The door wings can be equipped with radiation protection – Pb sheet, Pb glass.
Door fittings are always from stainless steel.

4.1 Hinged Door

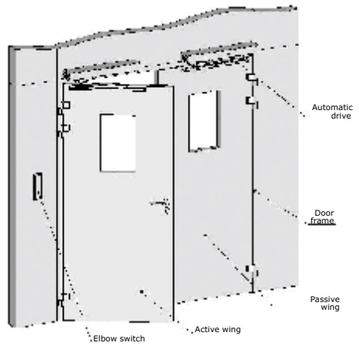
The hinged door can be single-wing or double wing. The standard passing-height is 2,100 mm above the floor level – the line of separation of lower and upper wall panels. While using an automatic door drive, elbow switches are installed on both sides of the door. The door wings can be equipped with an infrared safety sensor.



Single-wing door:

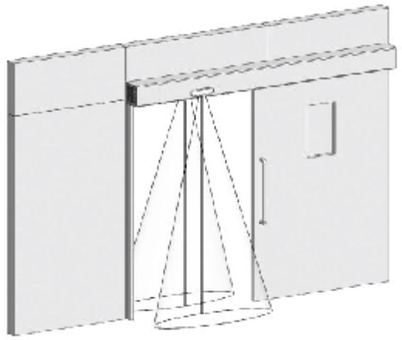
Dimensions of the door wing with an automatic drive: 700 mm -1100 mm
Dimensions of the door wing of the hand-opening door: 700 mm -1100 mm
The passing opening of the door is the width of the door wing deducted by 80 mm.
The maximum dimension of the door can be lowered on the basis of the required radiation protection (the door weight). If this is the case, consultation is necessary.

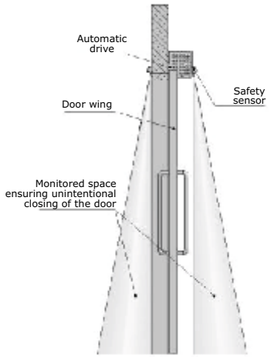
Double-wing door:
In places where it is not possible to use the sliding door due to the required space and where higher passing-width is needed, this solution can be used. The dimensions of individual door wings with an automatic drive: 700 mm -1,100 mm.
The passing opening of the door is the width of the sum of the door wings deducted by 80 mm.

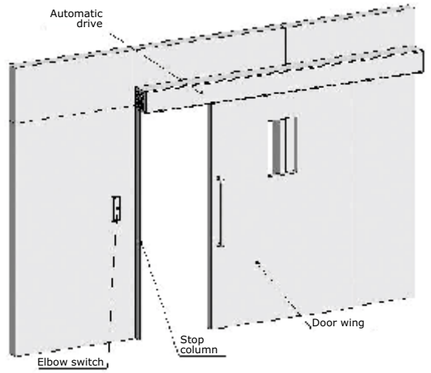


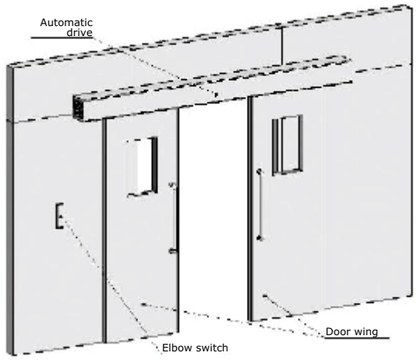
4.2 Sliding Door

It is the optimal option for operating theatres where door wings do not interfere with the room space. The sliding door is normally supplied with an automatic door drive which provides reliable, quiet and fully-automated operation. For possible manual opening, they are equipped with a robust double sided stainless handle. The standard passing height of the door is 2,045 mm. The upper edge of the door frame is at the height of 2,100 mm above the floor level – the line of the separation of the lower and upper wall panels.
The place of the door wing stop on the door frame is covered with a silicone profile. For automatic operation of the sliding door, some functions can be set – nurse/patient (full or partial opening of the door) and various additional functions. In order to secure the highest possible comfort, it is possible to use various setting options of the door as well as the ways of their opening. Since the safety of patients and staff is the priority, in addition to the standard safety functions, the door is always equipped with a pair of safety sensors which prevents unintentional closing of the door.







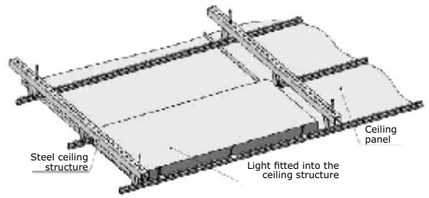


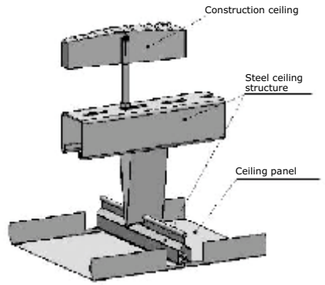
Single-wing door:
The maximal dimension of the door wing is 1,400 mm. The passing-hole of the door is the door wing width deducted by 150 mm.

Double-wing door:
The maximal dimension of each door wing is 1,400 mm. The passing-hole of the door is the sum of the door wing widths deducted by 300 mm.

5. LOWER CEILING

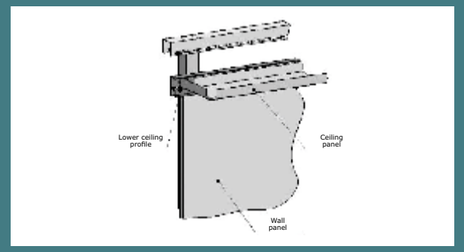
The lower suspended ceiling consist of galvanized steel ceiling structure and inserted ceiling panels made from 0.55mm-thick steel sheet in the RAL 9010 colour style. The dimensions of the ceiling panels are 1,200 × 600 mm, or 600 × 600 mm for smaller rooms, such as preparation rooms, washing and sterilization rooms, etc. Upon a customer's request, the lower ceiling can also be supplied from stainless steel with the surface.
In every operating theatre, there are approx. 2 inspection panels (placed near the technological treatment of the RAL 9010 powder coating arms), which serve for possible service interventions.





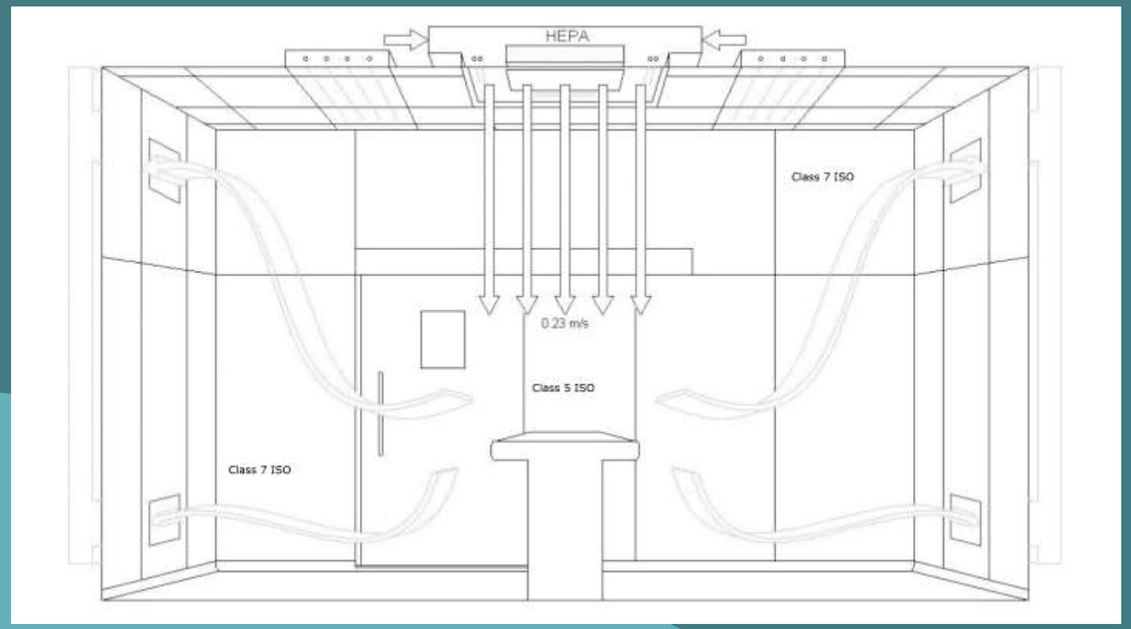
5.1 Lower Ceiling Profile

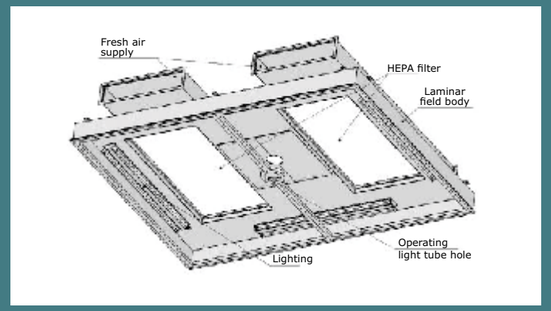
The Lower ceiling profile is made of a precision extruded aluminium profile with the RAL 9010 colour surface treatment. A metal lower ceiling panel is inserted into this profile in the horizontal direction, and the panel is sealed with a sealing profile inserted into the lower ceiling profile.



6. AIR-CONDITIONING

Operating theatre air-conditioning is dealt with in the air-conditioning project according to the respective standards (DIN 1946, part 4). The operating theatre installation supply includes only end elements of air-conditioning in accordance with the designed solution created by a professional air-conditioning designer.





6.1 Laminar Field

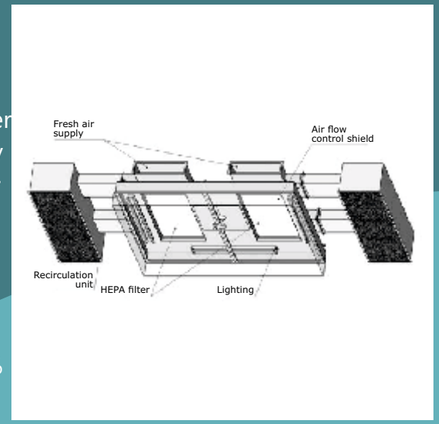
The Laminar field is normally installed in the middle of the operating theatre. The tube of the operating light usually goes through the centre of the laminar field. The laminar field is normally installed onto the existing construction ceiling, or onto the prepared auxiliary steel structure if the height is too great. The laminar field cannot be anchored onto the steel ceiling structure of the lower ceiling!

The laminar field's dimension is dependent on the type of the operating theatre, its dimensions, usage, or the respective standards and regulations, from which the execution of the project in the specific country arises and which must be met, or upon the explicitly specified wish of the customer. The laminar field consists of the corpus (the body) which is welded from aluminium and also of HEPA filters-class 13, lighting, and the frame where a laminarizer is installed.

The colour style of visible components of the laminar field is the same as the colour style of the ceiling panels (RAL 9010).For this laminar field type, it is necessary to provide 100% of the air supply into the operating theatre, the volume flow rate according to the selected laminar field type and the number of required exchanges of the air (20-35 exchanges per hour).

6.2 Laminar Field with Air Re-circulation

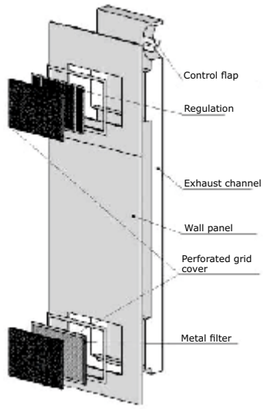
A Laminar field with air re-circulation is an alternative to the normally supplied laminar field without re-circulation. The disadvantage is a higher purchase cost and the advantage is lower operating costs as well as lower required volume of the air supply and lower required capacity of air-conditioning units. The laminar field dimensions depend on the size of a room, normally 3×3 m. The laminar field with the re-circulation units (fans) which recycle the air from the operating theatre through the HEPA filters of the laminar field.



Generally speaking, this laminar field uses approximately 15-50 % of fresh air and the rest of recycled air.

6.3 Air-Conditioning Exhaust Channels

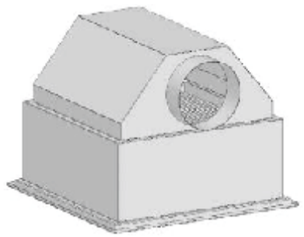
The air-conditioning exhaust channels are intended for air exhaust from the room and they are normally installed in the partition walls. The air-conditioning pipe is equipped with a control flap for easy control of all exhaust channels in the room. Perforated air-conditioning grids with a surface treatment of brushed stainless steel are installed in the exhaust channels. The lower grid (300 mm above the floor level) is equipped with a metal filter. The upper grid (300 mm under the lower ceiling) is equipped with a control system for uniform control of both the airconditioning units. The stainless grids are removable, which allows for the cleaning of the whole pipe.



6.4 Air Supply Outlets

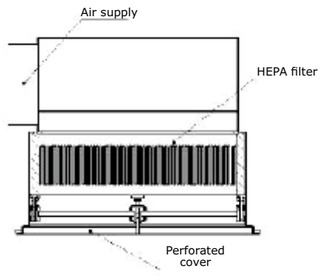
The air supply outlets are installed in the patient preparation rooms, washing and sterilization rooms, or in the operating theatres with lower demands for quality of air exchange (surgical intervention theatres).

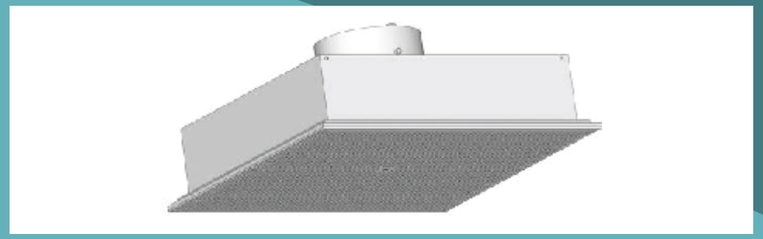
The supply outlets are always equipped with HEPA filters, which provide the third grade of filtration.



6.5 Air Exhaust Outlets

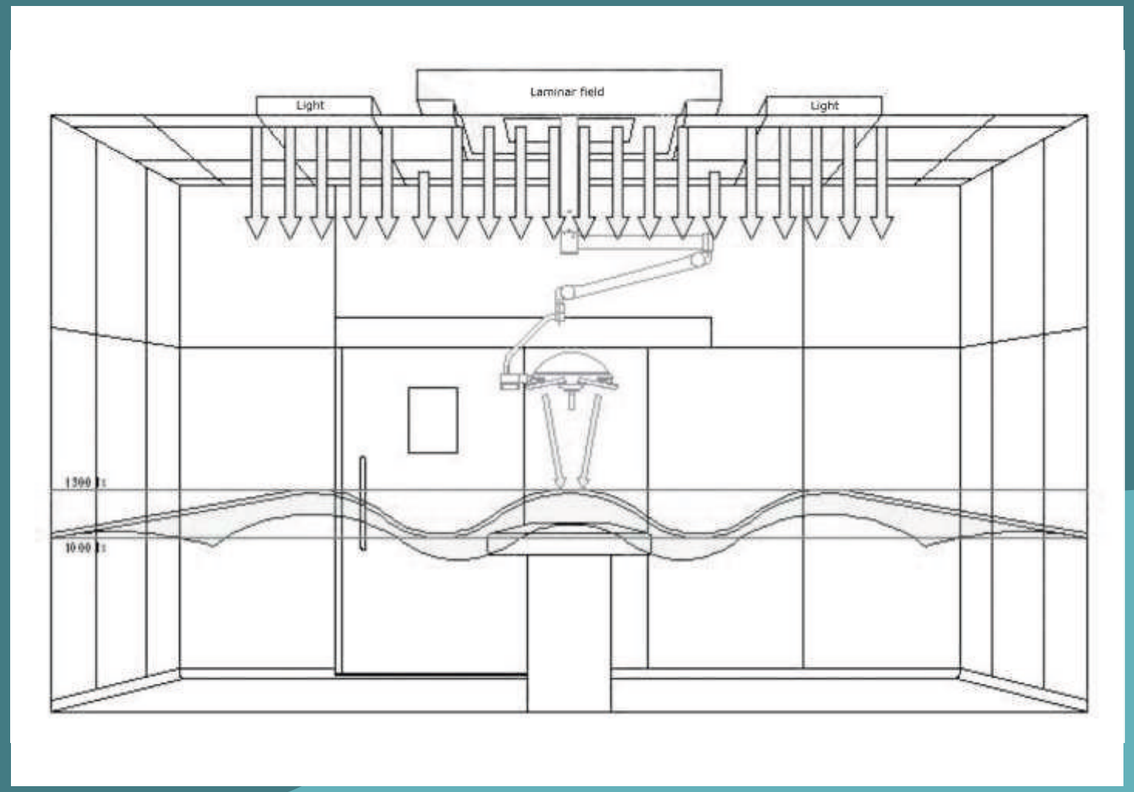
The air exhaust outlets are installed into the lower suspended ceilings in the rooms where they are used for air supplying of a supply outlet. The number of exhaust outlets is determined by the dimensions of the rooms and the requirement for the number of air exchanges in the room. Visible components (perforated or drall outlets) have the same colour as the lower suspended ceiling (RAL 9010).





7. Lighting

The lighting is designed in accordance with the EN 12464-1 standard.The lighting for the operating theatres is designed on the basis of calculation of the required minimal lighting in the operating theatre specified in the standard, and the layout of the lighting is designed on the basis of the equality of the lighting around the whole operating theatre.The designed lighting for operating theatres is a light sized 1,200 × 600 mm, or 600 × 600 in smaller rooms. It is equipped with chemically strengthened glass resistant to disinfectants. The lights are installed into the lower ceiling grid and they are dustproof with the protection of IP65.The lights are normally equipped with an electronic ballast with a dimming function (without dimming)



TOUCH SCREEN CONTROL PANEL

Intuitive control and monitoring of necessary functions needed for operating theater operation

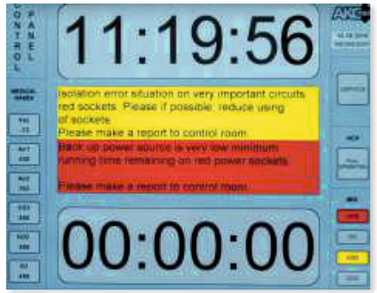
- clock
- date
- stop watch
- operating theater lighting intensity setting and on/off function
- laminar flow unit lighting intensity setting and on/off function
- main operating light on/off function /optional function/
- secondary operating light on/off function /optional function/
- other additional functions possible for operating light control based on type of the operating light selected /optional function/ - more information on website
- operating light operation on backup source
- operating theatre temperature indication
- operating theatre humidity indication
- pressure of gasses and vacuum indication /optional function/
- medical isolated system situation indication
- medical isolated system function test
- ventilation unit status indication /full or partial operation/
- alarms indication – error reports
- alarms history – error reports
- audio alarm function
- function to simulate alarms for personnel training
- possibility to connect to hospital computer system – remote situation control
- possibility to test status and errors through internet
- blue code - /optional function/
- additional function could be add based on the customer requirements

Touch screen control panel system thanks to its simple software modification enable to adjust

- all types of medical gases
- medical isolated system - very important circuits
- main and secondary operating light
- sound for alarm reports
- language
- touch screen panel color solution etc.

Sample situations shown on touch screen control panel Lighting intensity setting. By touching button room lighting intensity setting is possible to change lighting intensity. When required intensity is set, by leaving the screen without touching it for 3 seconds will store this setting.

Screen with error report. Once you read the error shown, it will disappear from screen by touching it, but monitored function still remain red. Error report is possible to re-call back to screen anytime, by touching red function button.



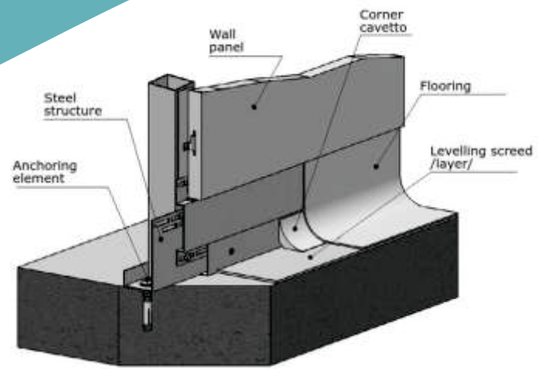
Simple monitoring function of medical gases – type, measured values, its position. This function is possible to activate in future. Access is only while using password. Complete screen options and all connections you will find in our technical documentation.

COMPARISON: CONVENTIONAL VS MODULAR OPERATION THEATER

Parameters	PUF Panel	Corian (SMS)	SS Panel
Fumes	Made up of Polyurethane, which emits fumes.	During Burning, it emits toxic fumes.	VOC Free (No Fumes)
Ease of Maintenance	Individual Panel can not be replaced/ removed.	Individual panel can be removed is of 3 mtr only.	Individual panel can be removed & Replaced. (Replacement in 10 min tested from UL)
Surface Finish	Spray Painting prone to scratches / surface erosion	Buffing Process	Antibacterial Powder Coating
Printability	Not possible	Retain for Short Time	Retain for long time
Flammability	Flammable (Class B2)	Flammable (Class C)	Fire Retardant (Class A)
Recyclability	No	No	90% recyclable
Scratch & Impact Resistant	No	No	Yes (Tested & Certified)

Parameters	Conventional OT	Advance OT
Sterility	Corners in conventional OT allows bacteria contamination.	Non-porus, seamless corners provide easily cleanable surfaces leading to 99.99% bacteria free zone.
Work-flow Management	Open Services (Electrical & Gas Lines) permits infected environment.	Concealed wiring & medical pipeline system with all equipment mounted on ceiling i.e. Pendants, OT Lights etc.
Down Time	Higher sterilization time required after each surgery	Comparatively 70% lesser cleaning time.
Built Time	Higher construction Lead Time	65% Less construction time (14 OT in 130 Days)
Economic	Lesser initial construction costs but higher running & maintenance costs.	Higher initial construction costs but lesser running & maintenance costs
Less Waste & More Recycling	Zero Recycling of conventional OT Leading more non-usable wastage	90% Recyclable material leading 10% wastage

WALL PANELING SYSTEM



Hermetic sealing is a type of sealing that makes a given object airtight, preventing the passage of air between the room.

ADVANTAGES OF THE MODULAR SYSTEMS

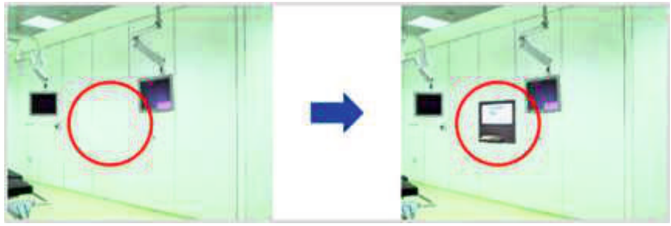
Modular Systems were developed along with the rapid technological advances in the Healthcare Clean room needs. The main advantages are:

- Hygienics : The room is assembled by panels formed from stainless steel, coated with powder paint. The room shell does not contribute to the creation of dust as the standard materials (brick, plasterboard, paint) are not used.
- Modularity : It is very easy to modify, or even expand the room. Simple upgrades such as the addition of a wall element (monitor, PACS, outlets) can be done in hours, thus minimizing the OR downtime.
- Low Running Costs : The room does not need any maintenance apart of the scheduled cleaning. No Plastering, painting, etc. are required.

FUTURE PROOF DESIGN

UPGRADATION

It is possible to upgrade the OT devices in the future in a very simple & efficient way with reduced costs.

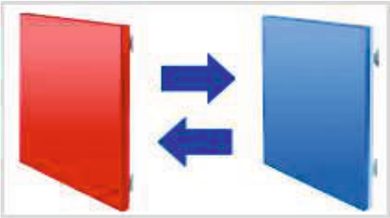


For example : it is possible to change an old-fashioned x-ray viewer with a modern PACS unit

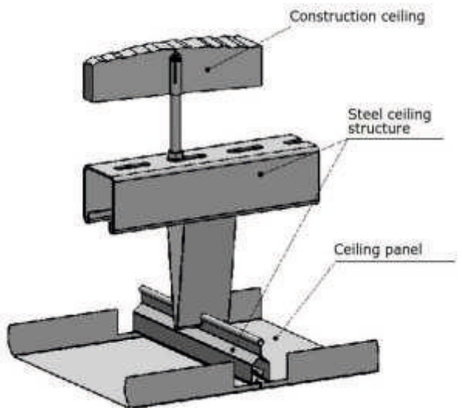
RETROFITTING

It is possible to change the panels' type and material to apply for future or new technical solutions offered by the market with minimum waste of time and cost.

For example : powder coated panels can be replaced with glass panels in quick and easy manner.



MODULAR CEILING SURFACE



Modular Ceiling

Our modular ceiling is airtight, made out of 0.8mm thick G.I. steel painted with powder coating to the color of your choice.

The ceiling panels are large 1.2m x 0.6m panels to allow easy access to the ceiling bulkhead for servicing or additional services.

MODULAR CLIP IN CEILING SYSTEMS

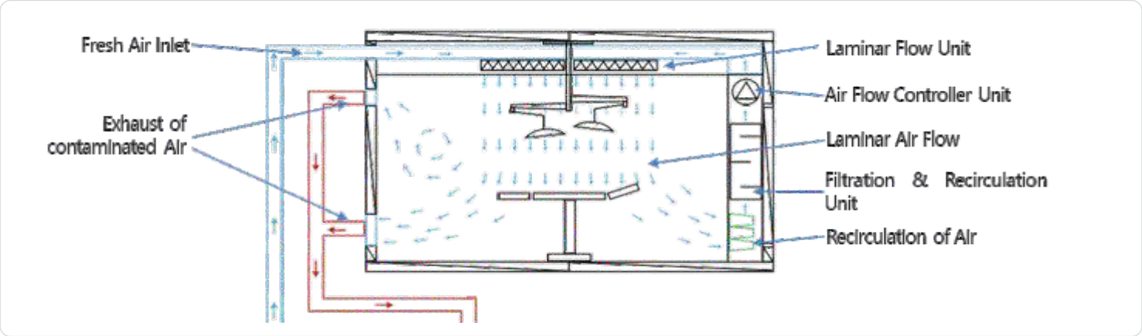
Advantages of the Modular Systems

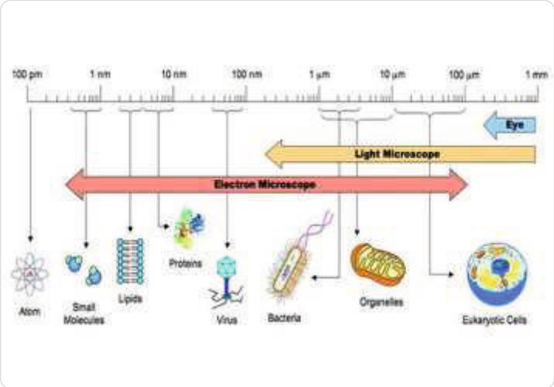
- Ceiling panels easily removable for inspection
- Large Ceiling Panels: Provide easy and quick access for maintenance and upgrades
- Sealable ceiling joints sealable to satisfy hygiene requirements
- Easy to clean and disinfect
- Flush-fitting system
- Lightweight

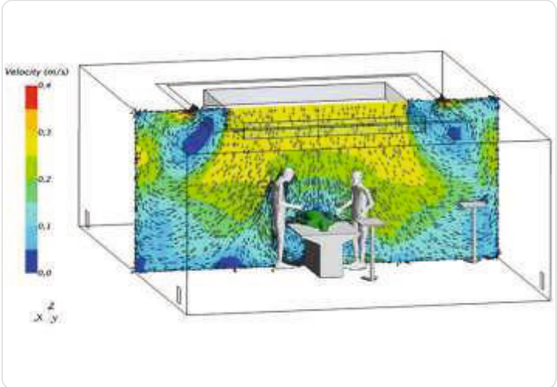
ADVANCE AIR FLOW MANAGEMENT

Key Features

- H14 HEPA Filter for limiting bacteria count to 10 cfu/ m3.
- 99.9% Efficient System to remove particles up to 0.3 microns.
- Maintain ideal airflow for surgery- 0.23 to 0.25 m/s.
- Smart Air flow management between exhaust to prevent turbulence.

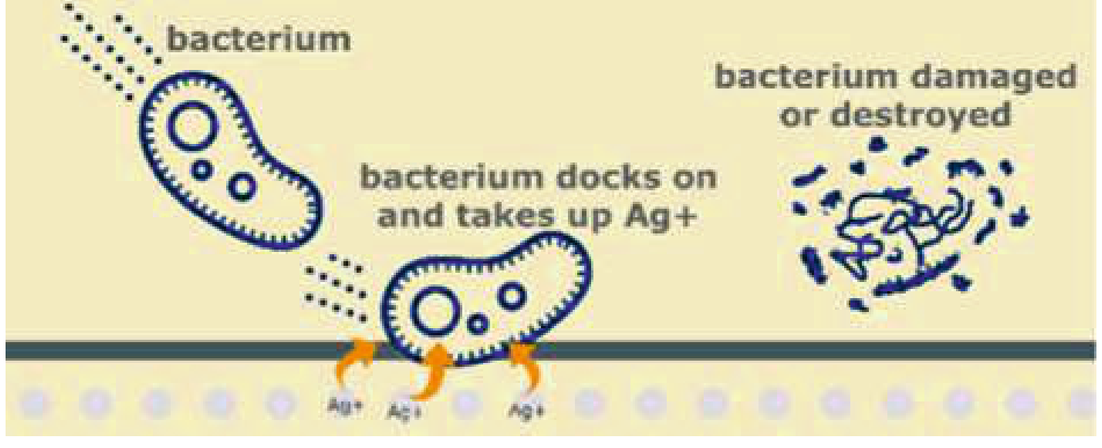




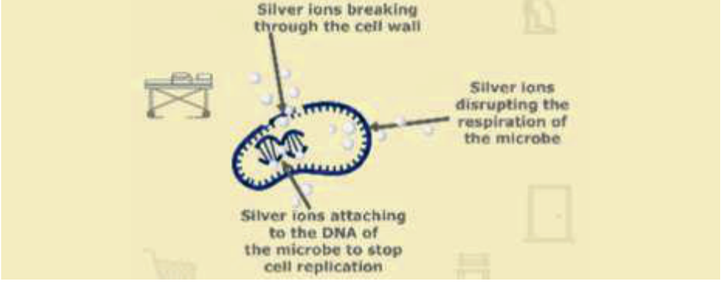


ANTI-BACTERIAL POWDER COATED SURFACE

HOW ANTI-MICROBIAL COATING WORK



HOW SILVER IONS WORK



Jotun Powder Coating - Anti Microbial

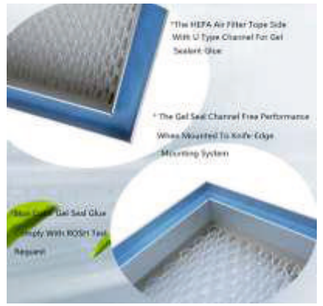
- Protects treated surfaces from microbial growth and degradation.
- Reduce up to 99.99% of these bacteria on a protected surface in 24h
- Expected durability of the antimicrobial effect 25+ years according to an accelerated test

HEPA H14 FILTER

ADVANCE FEATURES IN OPERATION THEATRE

HEPA air filter for clean and healthy air

HEPA filter (High Efficiency Particulate Air Filter) applies to any device capable of filtering. HEPA filters can capture at least 99.97% of particles with a diameter greater than or equal to 0.3 micron. They can filter out impurities and particles in the air, respirable dust, mites eggs and excretions, mold, dust, allergens, pollen, bacteria, dust mites or cigarette smoke, asbestos, various toxic dusts and aerosols from the air, dander, allergens from the fur of dogs or cats.



HEPA H14 FILTER

Here are the different levels of HEPA filters: (The higher the number following "HEPA", the higher the level of filtration is optimum.)

- HEPA H14 : pass up 0.005% of 0.1 micron particles per liter of air.
- HEPA H13 : pass up 0.05% of 0.1 micron particles per liter of air.
- HEPA H12 : pass more than 0.5% of 0.1 micron particles per liter of air.
- HEPA H11 : pass a maximum of 5% of 0.1 micron particles per liter of air.
- HEPA H10 : pass more than 15% of 0.1 micron particles per liter of air.

Luminaries

- Size 600x1200 mm, same as ceiling cassettes.
- Water & dust proof - IP 54 Protection.
- Dimming control from Touch Control Panels.
- Service access without using tools.

Touch Less Sensor For Door Systems

- Can be operated with Elbow – More Hygiene
- Noise level of Door Mechanism – less than 50 dB
- Adjustable door opening & closing start time between 0.5 to 20 seconds.

Pendant

- Made up of extruded Aluminum Profiles & die-casted ABS Plastic covering
- Rotation: 340 Degree
- Arm- Single & Double
- Services provision
- Additional shelves option

Scrub Sink

- Made up of Acrylic Solid Surface
- Antibacterial in Nature
- Easy cleanable
- High Impact Resistance & easily repairable

TECHNOLOGY OUTSOURCING WITH CZECH REPUBLIC

We Bring following advantages with European Technology

European Technology in Operation Theater

100% In-house Manufacturing

International Quality Norms & Standards

Modular construction certified from UL

SCOPE OF WORK IN ADVANCE OPERATIONS

- Design & Consultation
- 100% In-House Manufacturing
- Wall panels,
- Ceiling Cassettes
- Exhaust channels,
- Door systems,
- Glass partitions
- Built-in Cabinets
- End to End product Supply
- Installation and Commissioning

a) Technical Tie-up with Integrated Services / Suppliers

- Luminaires / Light Fittings
- Laminar Flow Unit
- Control panel, Clock, Audio & Video system
- Technological Pendants
- Operation Theater Lights
- Operation Theater Table
- Gas Pipelines & Electrical Wiring
- Hospital Furnitur

b) Warranty & Annual Maintenance Contract

QUALITY & SAFETY CERTIFICATIONS

MODULAR OPERATION THEATRES

Restriction of Hazardous Substances:
It restricts the use of lead, mercury, cadmium, chromium

UL Type Tests:
Load Bearing test
Modularity Test
Equipment Flush Mounted

Sound Transmission Class (STC):
STC is an integer rating of how well a building partition attenuates airborne sound.

Surface Burning Characteristics Rating :
A- Indicates lowest flame spread C- Indicates highest flame spread.

CE Compliance:
conformity with the health, safety & environmental protection for the products according to European market.

SALT SPRAY 1000 HOURS :
The salt spray test used to check corrosion resistance of materials and surface coatings

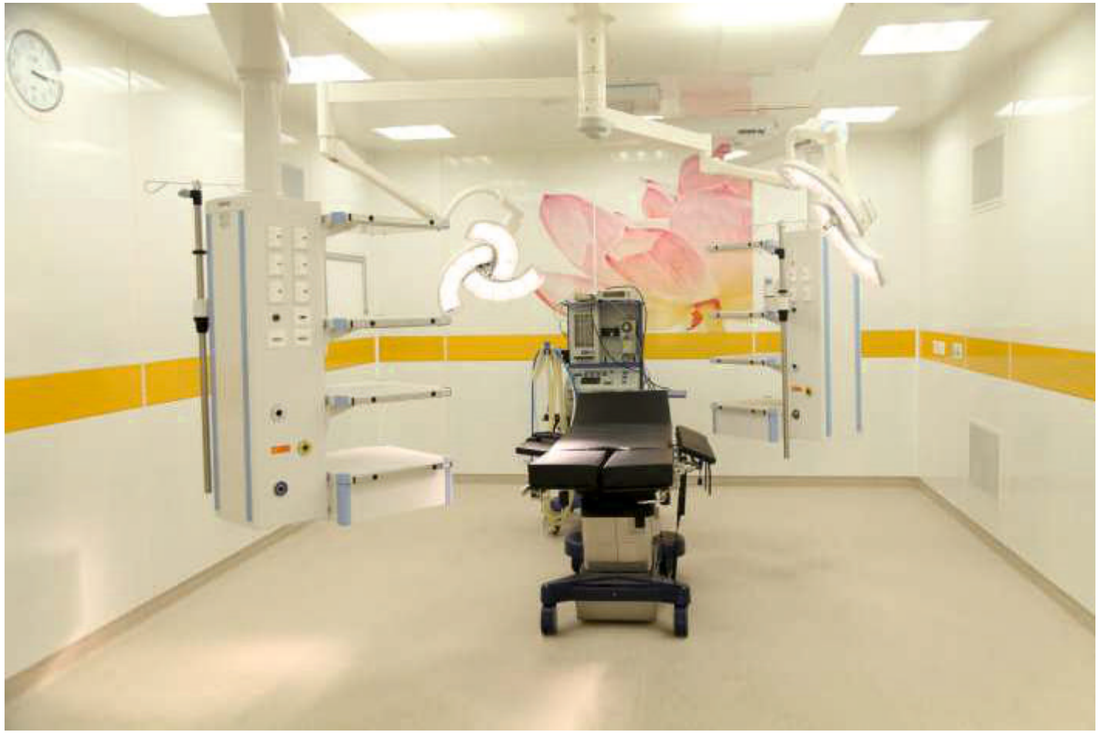
Seismic / Earthquake Test (Zone 5)
AOT Structure is tested for vibration and Earthquake as per Zone 5 condition.

UL ECVP 2789
AOT is certified and validated by UL USA that it contains 80% Recyclable contents.

MODULAR OPERATION THEATRE PROJECTS

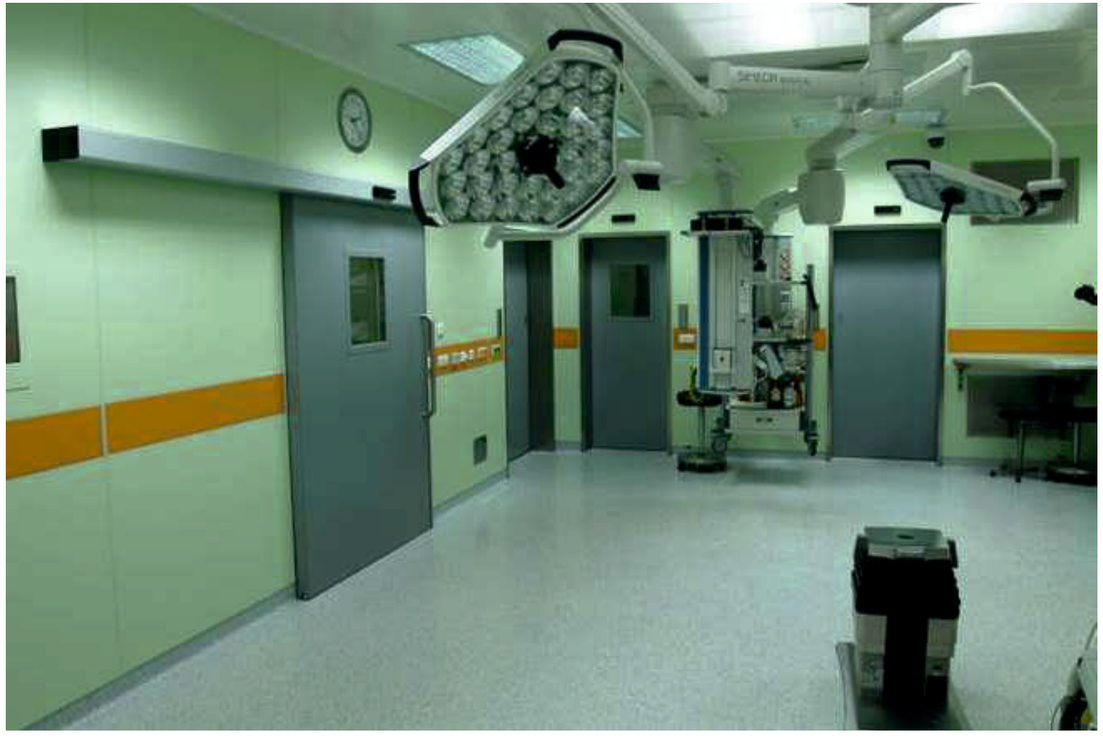
OMA HOSPITAL, MUMBAI

MODULAR OPERATION THEATRES



UNIVERSITY HOSPITAL OSTRAVA, CZECH REPUBLIC

MODULAR OPERATION THEATRES



Realization of 2 operating theatres and ICU including preparation rooms, scrub rooms, sub sterilizations, sterile storage rooms, steel furniture, changing rooms and sanitary facilities. 45 rooms all together.

MILITARY HOSPITAL BUDAPEST,HUNGARY

MODULAR OPERATION THEATRES

Construction of central operating theatres in re-constructed hospital. Total of 17 operating theatres and 36 auxiliary rooms /preparation rooms, wash rooms, sterile storage rooms . Theatres were installed with lead line protection.

Part of the delivery was also furniture for anesthesiology department for preparation rooms. Total financial volume of the project was over 3 mil. EUR.

SUSCCH HOSPITAL BANSKA BYSTRICA, SLOVAKIA

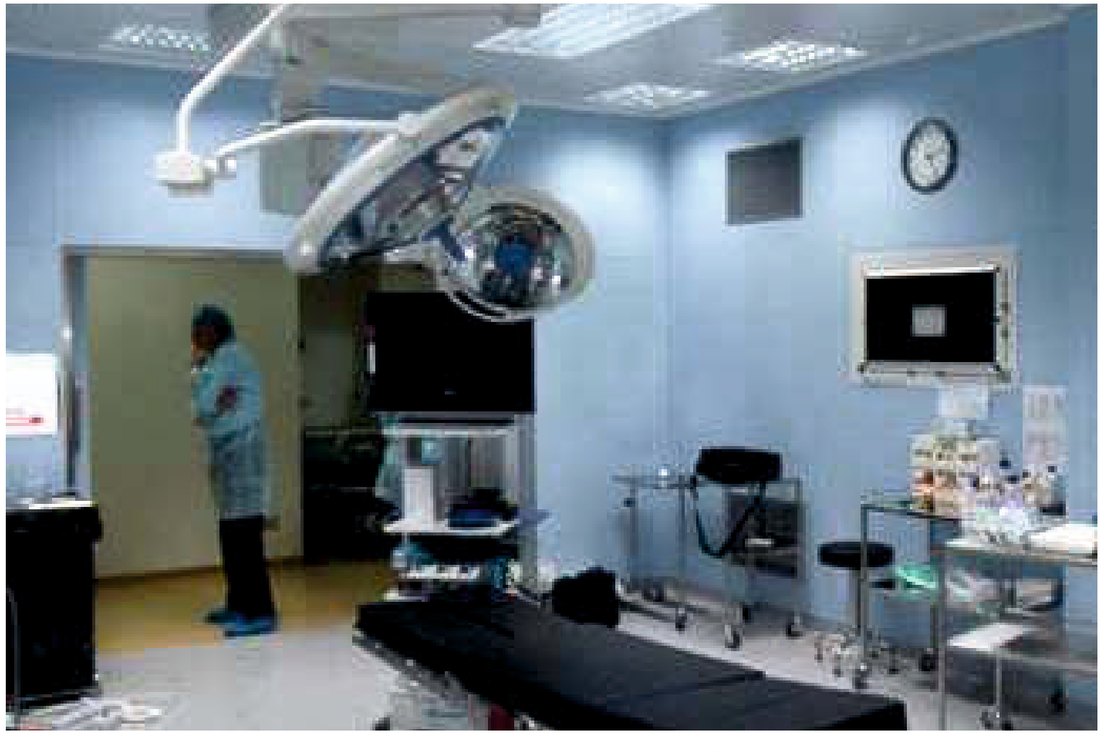
MODULAR OPERATION THEATRES

For newly built hospital have construction company selected built-in operating theatres as best solution from all tenderers. Total of 2 cardio operating theatres and one angio theatre.

Part of the supply were also preparation and wash rooms as well as sterile storage rooms. For storage of sterile material and drugs was supplied metal anaestheology furniture.

NOVENA MEDICAL CENTRE, SINGAPORE

MODULAR OPERATION THEATRES



For private investor we have in extremely short time constructed 3 operating rooms and control room. Also lead protection was installed in one of the operating theatres. Clinic is located in most modern health centre in Novena Square.

Realization of 3 operating theatres include control room.

UNIVERSITY HOSPITAL VFN PRAGUE, CZECH REPUBLIC

MODULAR OPERATION THEATRES

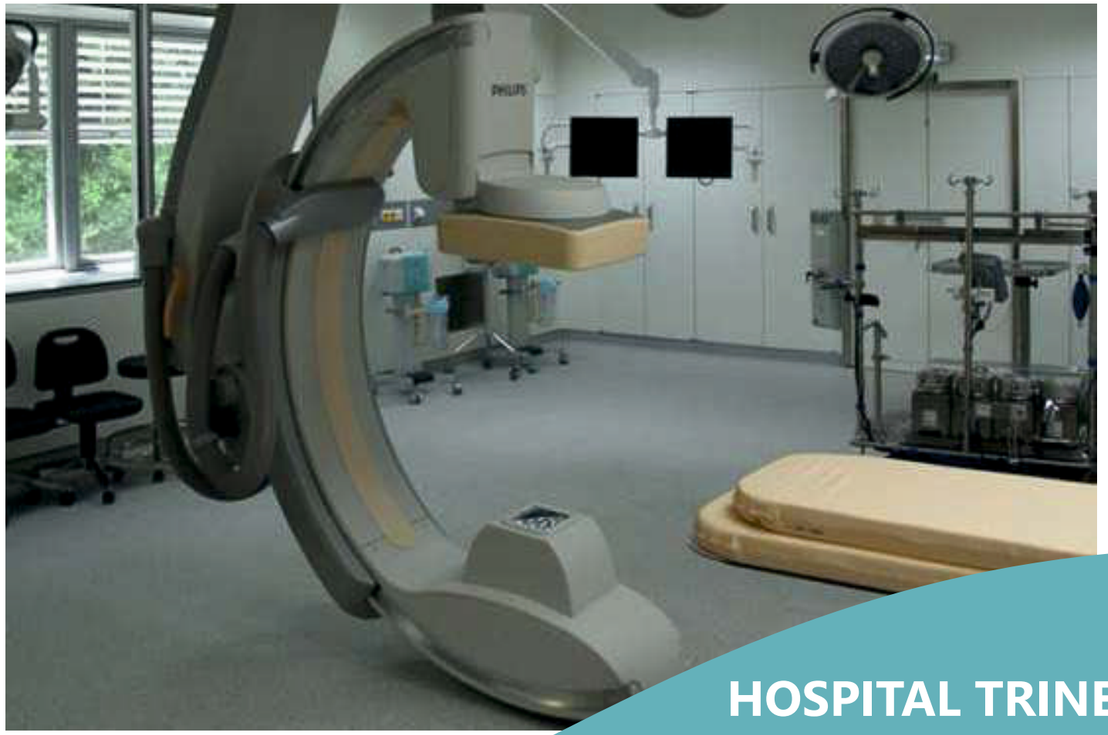
Construction of 3 central operating theatres including preparation rooms, sub sterilizations and sterile storage rooms. Construction of IVF operating theatre. Supply of metal furniture for operating theatre preparation rooms - anesthesiology department.

UNIVERSITY HOSPITAL BRNO, CZECH REPUBLIC

HOSPITAL AGEL PARDUBICE, CZECH REPUBLIC

MODULAR OPERATION THEATRES

Realization of 2 Hybrid operating theatres including steel furniture.



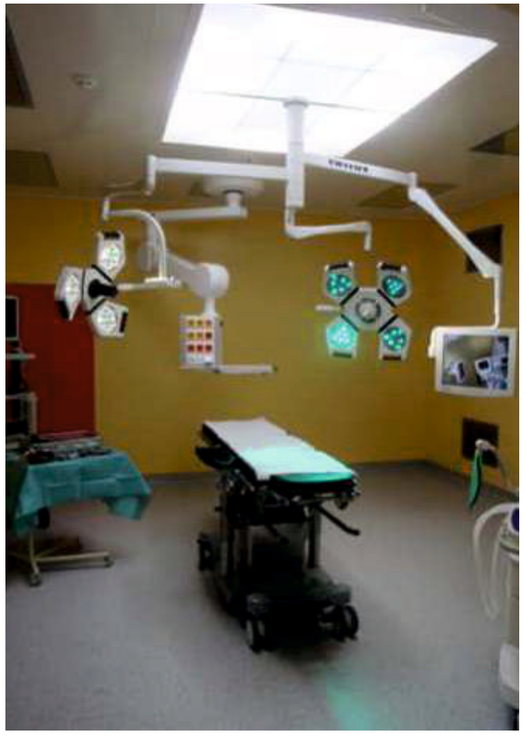
Realization of 1 Hybrid operating theatre including steel furniture.

HOSPITAL TRINEC PODLESI, CZECH REPUBLIC

MILITARY HOSPITAL RUZOMBEROK, SLOVAKIA

MODULAR OPERATION THEATRES

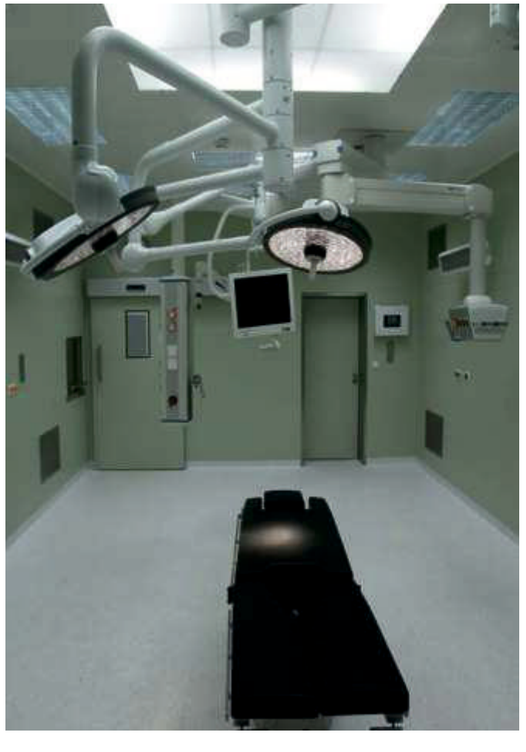
Realization of 5 operating theatres including preparation rooms, scrub rooms, sterile storage rooms and steel furniture.



5 operating theatres, preparation and wash rooms were installed in newly built military hospital. AKCmed operating theatre system unable easy upgrades on newly build health and information technology in future. On this project we have for the first time installed our new product - touch screen control panel for complete monitoring of all functions on the operating theatre.

MEDISSIMO HOSPITAL BRATISLAVA, SLOVAKIA

MODULAR OPERATION THEATRES



Realization of 2 operating theatres including preparation rooms, scrub rooms and steel furniture.

The most modern private clinic in Slovakia were equipped by AKCmed operating theatres. Total of 2 operating theatres and preparation rooms. For sterile material storing were supplied BLANCO metal cabinets.

KHOO TECK PUAT HOSPITAL, SINGAPORE

MODULAR OPERATION THEATRES

Realization of 14 operating theatres, including Singaporean standards for shock design. Complete system is resistant against unusual situations like earthquake, bomb attack etc.

Operating theatres were installed in accordance with tender documentation
DSOT - 6 Operating theatres
MOT - 8 Operating theatres
All built-in elements: walls, windows, ceiling, light fittings were tested, if they can fulfill CD shelter requirements and regulations as required for this project.

MOT- steel structure and ceiling standard solution

- All operating theatres are equipped with laminar field and exhaust channels
- One of the many drop tests was done in testing laboratory TUV SUD PSP PTE Ltd.
- DSOT - all details are done specially in accordance with CD shelter requirements.

BASIC COLOUR SHADES

MODULAR OPERATION THEATRES

RAL 1013 pearl white	AKC 5701 sea blue	AKC 6644 leaf green
RAL 1015 ivory	RAL 1034 pastel yellow	RAL 9010 pure white

Workspace Metal Solutions are offering you all support starting from consultations services through the project design and followed by delivery and installation. Once finished, putting into operation and personnel training is guaranteed as well as long-term service during and after warranty period.

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