List of equipments for the department of Neurosurgery

Sl. No.	Name of Equipments
1	High end Neurosurgical operating electro hydraulic OT Table with sliding top and Neuro attachment
2	Zero pressure suction machine
3	ICP monitor
4	Storage and sterilising containers
5	Ultrasonic fixation resorbable with complete set (for Craniotomy Bone Fixation)
6	Mobile C.T. Scanner
7	Modular and Integrated OT
8	Cubicle track system of ICU beds
9	Patient warming system
10	DVT prophylaxis device
11	Intra Operative Ultrasonography and colour doppler
12	Stereotatic system with surgiplan (for Neurosurgery)
13	Radio Frequency generator system (for Neurosurgery)
14	Ultrasonic Surgical Aspirator
15	Hi frequency C-ARM system
16	neuro navigation system
17	Mini plates and screws for fixation of Bone pieces and covering burr holes.
18	High end fully digital colour doppler compatible to computer assisted spinal and neuro navigation

Item No. 1.

High End Operating Electro hydraulic O.T. table with sliding top and Neuro attachment

1. Electro Hydraulic Operation Table should have adjustments controlled from outside the intervention area via corded hand control or optionally via Infra-Red remote control.
2. Should be capable of working on main power supply as well as battery back up.
3. The table should be provided with an over-ride control panel totally independent of the electronic system, for adjustments of Height up/down, Trendelenburg / Reverse Trendelenburg, lateral Tilts, back rest up/down, leg plates up/down, during emergencies.
4. It should be provided with two splash-protected socket connections for the simultaneous connection of the corded hand control device and foot switch.
5. The table should necessarily be provided with Special Foam Core (SFC) mattress, electrically discharging, which evenly distributes the patients' weight and prevents pressure points developing during long duration surgeries.
6. 6. The core part of the sandwich structure cushion should be covered by lying protection with visco-elastic and a two-way stretch, covering for excellent pressure distribution and reduction in shearing forces.
7. The mattress should be covered by electrically sealed joints so as to prevent ingress of liquids.
8. The table top should be C-Arm compatible and X-Ray translucent from head end to coccyx region, without having to move the patient Inter-operative, and be provided with guide rails under the table top for insertion of X-Ray cassette trays.
9. The table should be provided with a strong, solid base with least obstruction to the feet of the surgeons operating as well as during use of the C-Arm, microscopes etc. It should be provided with four double swivel castors for easy rnaneuvering of the operation table.
10. The base column head should be made up of Reinforced material which is resistant to impact, breakage and disinfectants.
11. The maximum permissible patient weight should be around 180Kgs.
12. The table top should be divided into 5 sections consisting of Head Rest, Back Extension Plate, Back Plate, Seat Plate and Leg plate.
13. It should necessarily be possible to shorten the table top in stages by back extension to 1300 mm, and a further 265 mm when the leg plate is lowered, for operating on infants to adolescents.
14. Patient Orientation should be possible on both sides of the Table Top, which can be locked into memory, in order to prevent any mishaps during surgery.
15. The following adjustments must be Electro-Hydraulically operated via corded hand control or infrared remote control:

- Height up/down (without padding) : 480 – 1000 mm
- Trendelenburg / Reverse Trendelenburg: 45/20 Deg
- Lateral Tilt (Left/Right): 30 Deg

- Back Section (Up/Down): 90/30 deg
- Leg Section (Up/Down): 90/90 Deg
- 'O' position (cancellation of Trendelenburg)/Reverse Trendelenburg/Lateral

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Tilts/Back Section/Leg Section)

- Base locking of the table via retractable castors

- Patient Orientation on both sides of the table top
-

The following adjustments are manually operated:

- Adjustment and removal of Head rest
- Removal of leg plate and back rest extensions.

The following accessories should be supplied along with the table:

1. Arm board with pad and clamp - 2 Nos.
2. Anesthesia Screen - 1 No.
3. Radial Setting Clamp - 1 No..
4. Body strap - 1 No.

Neuro Surgery Accessories:

1. Connecting bracket: 1 No
2. Basic Unit: 1 No.
3. Clamp.Adaptor: 1 No.
4. MAYFIELD Skull Clamp: 1 No.
5. Pin for Adults - 4 Nos.
6. Pin for Children - 4 Nos.
7. Horse Shoe Shaped head rest, 2 pc and adjustable: 1 No.
8. Connecting Fixture: 1 No.
9. Guide roller for head side traction: 1 No.
10. Special pad for spinal surgery - 10 pc and adjustable: 1 No.
11. Prone positioning Gel head rest: 1 No

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Item No.- 2

Zero pressure suction machine

SALIENT FEATURES: -

- Smallest digital system with integrated suction. No compromise on patient mobility and safety with full electronic monitoring which helps in reduction of treatment time.
- System: Diaphragm pump 2 canister sizes 2 tubing's
- Container Size: 0.8l/0.3l
- Tubing (material, length, diameter): PVC, single, double L: 1.5m
- Noise Level: 42.5dBA / 1L flow / 2.5kPa (internal meas.)
- Max. Flow: 5l/m
- Duration of battery: Min 4hrs Max 10 hrs
- Power:20W
- Classification: Class IIA
- Weight:1kg
- Size: 95 x 170 x 235 mm
- Monitoring Functions: Digital
- Internal memory of pump: Upto 4 weeks
- Data transfer to PC: Data Cable
- Integrated Alarm System

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Item No. -3

ICP Monitor Set

1. **Description:** Equipment is meant to monitor intracranial pressure in various compartment of brain digitally and in wave form on Multipara monitor.

2. Technical Specification:

2.1 Monitor should display mean systolic and diastolic intracranial pressure as digital display.

2.2 Micro sensor transducer having a strain guage pressure sensor mounted in a titanium case should monitor ICP directly at the source–subdural, intra parenchymal and intra ventricular.

2.3 The ICP should get relayed electronically and get displayed at digital data rather than through hydrostatic column or fiber optics.

2.4 One touches zero function of transducers.

2.5 Facility to drain out CSF while monitoring.

2.6 User friendly setting for alarm functions.

2.7 Battery back-up facility for 2-3 hours.

2.8 Facility to be used for both adult and children.

2.9 Desired cable to be provided for wave presentation of ICP on multipara monitor.

3. Accessories:

(1)30 Subdural/Intraparenchymal transducer

(2) 10 Invraventricular transducer.

(3) 5 Transducer cables

4. Environmental Factors:

The unit shall be capable of being stored continuously in ambient temperature of 0 – 50 deg. C and relative humidity of 15 – 90%

5. Power Supply:

Power input to be 180-270 VAC, 50 Hz Fitted with Indian plug.

6.The product should be both US FDA & European CE approved.

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Item No.- 4

STORAGE AND STERILISING CONTAINERS

- closed lid design with lateral openings for air-removal and steam-penetration
- high protection against external impact

Container lid made of high performance PPSU

- resistant to permanent deformation
- less sensitive to damages compared to metal lids
- scratch-proof and color-fast
- Light-weighted (handling/ergonomic safety)
- increased safety and cost reduction

Container box

- Rounded up edge of the box ensures stability and resistance against damages → important in the field of the gasket!
- Material: anodized aluminium alloy with a special CompCote® coating that makes aluminium more resistant to chemical influences
- Test results of stackability according to EN 868 part 8

Locking system

- Mechanism is maintenance free
- Safe and uniform fit just by pressing the lid in place on the box
- Simple opening of the container by pushing the red button
- No wear-out possible → trunk principle

Labels

- Integrated Red/Green status indicator → function of a seal → without follow-up costs!
- Optional: seal adapter above the pushbutton opener
- Universal accommodation field for log labels of different dimensions (different manufacturers, different printers)
- Coding labels are made of PPSU and can be laser marked, easy to interchange → quick change function!

The microbial barrier

- Should have highest possible safety with certified labyrinth principle
- Should have guaranteed lifetime function
- Should have no disposables for cost reduction
- 100% visual, fast and easy checkability in daily routine with visual indicator
- easily accessible during manual and mechanical cleaning

The silicone lip gasket with functional safety design

- hygienically perfect (smooth surface, no cavities for particles/germs)
- Facilitates visual inspection

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- leak-proof and hermetically sealed in case of external transportation of the container

The lock with opening button

- hinge-less opening button
- no wear-out possible
- permanent form fit (trunk principle) connected with the "Red/Green-Indicator"
- seal slot for optional sealing

Tamper evident System

- There should be a visual color indicator to indicate the opening of the lid
- There should be no disposables
- The sterilization container and accessories should be of the same parent company.
- The Sterilisation containers should meet the international standards and approved for steam sterilization procedures to EN 285 : 2008 and validated acc tp ISO 17665 Part 1 : 2006.
- The Sterilisation Containers should offer superior filtration efficiency of 99.99997%.
- It should have an indicator wherein colour green means the container is "sterile" and when the container is opened, the indicator should automatically change to red colour indicating "unsrerile".
- It should have reusable microbial barriers instead of disposable filters. The microbial barriers should be easy to remove and clean.
- It should have lateral flow ducts at the top for flow of air.
- The instruments should remain sterile in the container and the container should be capable of being brought into the Operation Room without any essential packaging.
- It should also consist of tray and silicon matt (for microinstruments).
- Container should open only be means of simultaneous pressing of buttons located on either side of container in order to prevent accidental opening.
- Should have tray for instrument and silicon pad for micro instrument.
- The Sterilisation containers should be imported and of CE or FDA certification.

Sizes Of Containers

Sterile Containers (Size : 545 mm x 260 mm x 100 mm)
Sterile Containers (Size : 410 mm x 250 mm x 100 mm)
Sterile Containers (Size : 240 mm x 250 mm x 100 mm)
Sterile Containers (Size : 545 mm x 260 mm x 75 mm)

- Each sterilization container should be quoted with the following accessories :
- Sterilisation Container - 1 Pc.
- Tray, Perforated - 1 Pc.
- Color Tab, Red - 2 Pcs.
- Coding Label with test without hole - 2 Pcs.
- Silicon Matt. - 2 Pcs.

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Item No.- 5
Ultrasonic Resorbable Fixation Device For Craniotomy Bone Fixation

1. The instruments quoted should be of high quality and ASTM F899 or of equivalent standard specifications for the material used.
2. Should be European CE / USFDA certified and must enclose the certificate
3. The instruments must be ISO/ EN ISO/BS-EN-ISO or of equivalent certification and copy to be enclosed
4. All the instruments should have been designed according to the guidelines/standards as specified by national/international recognized organizations dedicated for the purpose of quality control of the equipments through research and development.
5. All the instruments should be quoted along with autoclavable/sterilisable containers/trays which meets international standards and approved for steam sterilisation procedures to EN 285:2006+A1: 2008 and validated HCTP ISO 17665 part 1:2006. The standards mentioned herewith are the minimum required or equivalent of the same.
6. The sterilization containers should offer superior filtration efficiency of more than 99% and its preferable to have an indicator to show whether the instruments inside are sterile or unsterile.
7. Sterilization container and instruments should be preferably of the same parent company.
8. It is preferable to have reusable microbial barriers instead of disposable filters. The microbial barriers should be easy to remove and clean. It should have lateral flow ducts at the top for flow of air.
9. The instruments should remain sterile in the container and the container should be capable of being brought into the operation room without any essential packaging.
10. It should also consist of tray and silicon matt (for micro instruments).

1. Maxillofacial Trauma Instruments Specifications
   The Plating System should at least comprise of the below mentioned instruments.
   All the instruments and the container should comply with the specifications listed earlier.
   The bidder should give a complete details/list of each instrument quoted in the kit the quote with maximum instruments will also be considered for the bid.
   The Sizes of the Drill bits/implants can be of the sizes mentioned below or have nearest internationally accepted sizes.
   The Bidder should mention the individual price of all the instruments mentioned in the kit, the total instruments and the individual price would be taken in to consideration for deciding L1.

Sl No	Instrument	Quantity
01.	Reabsorbable Ultrasonic Push Instrumentation kit consist of: The instruments quoted should be of high quality. The ultrasonic generator should have micro vibrations generated by a define ultrasonic frequency which should cause the pins outer surface to melt. It should have various pre-program applications stages with optional manual adjustment and should be activated by footswitch. The hand piece should allow maximum safety to the operator and the handle should illuminate at the surgical side and it should be completely sterilisable. The Water bath should be consisting of heating unit, water container and cover. The instrumentation should be quoted with the following – Welder System ..... 1 No. Footswitch ..... 1 No. Hand Piece Incl. Cable For Sonicwelder ..... 1 No. *Tip F. Sonotrode Straight For Sonicwelder* ..... 2 Nos. Wrench For Sonotrode Tips..... ..... 1 No.	01

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Waterbath Complete Set..... 1 No.
Battery Operated Drill, Handle For Drilling, Only .... 1 No.
Power Cable..... 1 No.
Twist Drill 1.6x40x5mm, BOS-D F.Sonicweld .... 5 Nos.
Battery Pack, Sterile ..... 10 nos.
Small Parts Storage ..... 1 No.
Tray For Miniset, 277x171x54 mm ..... 1 No.

2. Reabsorbable Ultrasonic Push Implants 01

The implants quoted should be of high quality.
The Implants should be made of Poly-D and K-Lactic Acid (PDLLA) which is 100% amorphous. The implants should be easily compatible and tissue friendly and there should be no symptoms such as irritation, inflammation or foreign-body reactions. The implants degradation should take place through hydrolysis. The implants should be clinically certified and the system should be thoroughly tested in large scale test series. The pins must be driven using ultrasonic technology.
The ultrasonic vibration should cause the pin to melt on the surface and glide into the predrilled hole. Their should not be any thermal tissue damage and no bone damage. Temperature increase should be minimal & their should be no pain or traumatization. The pins should be available in 2.1mm. The plates should have thickness of 1.0 mm.
The meshes should be available in the thickness of 0.3mm , 0.6mm & 1.0 mm.
Matching, bending templates should be available for the plates.

The following Implants must be quoted –
PINS RX 2,1 x 4 MM ..... 20 Nos.
PINS RX 2,1 x 5 MM ..... 20 Nos.
RESORB-X PLATE STRAI.4-H.MEDIUM .... 2 Nos.
RESORB-X L-PLATE LEFT 6-H.LONG..... 2 Nos.
RESORB-X L-PLATE RIGHT,6-H.LONG..... 2 Nos.
RESORB-X ORBITAL PLATE,8-HOLE..... 2 Nos.
RESORB-X PLATE STRAIGHT 8-HOLE..... 2 Nos.
RESORB X-PLATE STRAIGHT 22-HOLES..... 5 Nos.
RESORB-X MESH PLATE 0.6 / 26X26MM..... 2 Nos.

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Item No. 6

MOBILE CT SCANNER SPECIFICATION:-

A COMPACT, PORTABLE, BATTERY & LINE POWERED MULTI-SLICE CT SCANNER IS REQUIRED FOR CRANIAL AND
CERVICAL SPINE APPLICATIONS IN NEUROSURGERY ICU AND OT. THE EQUIPMENT SHOULD BE FDA APPROVED.

I. X-RAY GENERATOR AND TUBE

1. SHOULD HAVE MULTI-SLICE CAPABILITY WITH MINIMUM OF 8 SLICES PER ROTATION.
2. THE TUBE VOLTAGE SHOULD VARY FROM 100-140 KV
3. X-RAY TUBE SHOULD BE FIXED ANODE OR BETTER.
4. SHOULD HAVE SOLID-STATE DETECTORS.

II. GEOMETRY

1. SHOULD HAVE A MINIMUM PATIENT OPENING OF 30 CM.
2. IMAGE FIELD OF VIEW SHOULD BE AT LEAST 250 MM.

III. IMAGE PROCESSING:

1. SHOULD HAVE CAPABILITY TO PERFORM NON CONTRAST CT (AXIAL), CT ANGIOGRAPHY (HELICAL), CT
PERFUSION (AXIAL) AND 3D CT RECONSTRUCTION.
2. SHOULD ALLOW VOLUMERIC DATA ACQUISITION.
3. SCAN TIME FOR CT ANGIOGRAPHY AND CT PERFUSION SHOULD BE LESS THAN 4 MINUTES.

IV. IMAGE QUALITY:

1. THE RECONSTRUCTION MATRIX SHOULD BE AT LEAST 512X512

V. CONNECTIVITY:

1. SHOULD HAVE DICOM FUNCTIONS AND FULL DICOM 3 COMPATIBILITY. GIGABIT ETHERNET CONNECTIVITY
IS ESSENTIAL AND WIRELESS CONNECTIVITY IS DESIRABLE. THE VENDOR HAS TO CONNECT THE
EQUIPMENT WITH THE EXISTING PACS NETWORK OF THE HOSPITAL COMPATIBLE WITH THE DEPARTMENT
OF NEURORADIOLOGY.

VI. ELECTRICAL SUPPLY:

1. SHOULD BE ABLE TO RUN ON SINGLE PHASE 220V AC
2. SHOULD HAVE AN INTERNAL AUTOMATIC VOLTAGE REGULATOR TO PROTECT AGAINST VOLTAGE
FLUCTUATIONS AND POWER SURGES.
3. SHOULD BE SUPPLIED WITH INDIAN PLUG.

VII. PORTABILITY:

1. SHOULD BE COMPACT AND PORTABLE WITH ABILITY TO MOVE WITHIN ELEVATORS AND THROUGH NORMAL
SIZED DOORS.
2. POWER DRIVE SYSTEM IF AVAILABLE SHOULD BE INCLUDED.
3. SHOULD HAVE BATTERY BACK UP FOR ATLEAST 2 SCANS

VIII. SAFETY:

1. SHOULD BE SAFE ENOUGH TO BE USED IN ENVIRONMENTS SUCH AS ICU AND OT
2. SHIELDING UPGRADE IF AVAILABLE SHOULD BE PROVIDED.
3. SHOULD SATISFY INTERNATIONAL RADIATION SAFETY REQUIREMENTS

IX. WORKSTATION:

A MOBILE WORKSTATION WITH ALL IMAGES PROCESSING SOFTWARE LOADED SHOULD BE PROVIDED.

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X. ESSENTIAL ACCESSORIES FOR USE IN OPERATION THEATER

1. SKULL CLAMP INCLUDING
- PARK BENCH BASE UNIT & SPINDLE ADAPTOR
- 150MM EXTENSION BARS
- 1 BOX OF TITNIUM PINS CONTAINING 50 PINS
- TORQUE WRENCHES -2

2. OT TABLE ADAPTOR
3. HORSE SHOE HEAD REST (ADULT & PEDIATRIC 1 EACH)
4. GEL PADS (ADULT & PEDIATRIC 1 EACH)
5. SILHOUETT SCAN BOARD (OR)
6. CERETOM SURGICAL DRAPER
7. NAVIGATION ADAPTOR

The cost of all individual item to be quoted separately otherwise bid will be rejected.

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ITEM NO. 7 SPECIFICATION OF THE MODULAR and INTEGRATED OT	
S.No.	**Description**
1	**OR WALL STRUCTURE**
	SUBSTRUCTURE • Sub-construction made of roll shaped galvanized and powder coated precision steel profiles, strength 2mm. Vertical columns separately height adjustable. Horizontal beams force- and form-fit with columns fixed by M8 threaded bolts. Decoupled guidance in floor- and ceiling profiles incl. special attachment profiles for decoupled connection of the ceiling. • Additional cross beams for wall installations of equipment, made of ST37-2, primed strength 2mm incl. installation material WALL SYSTEM • Wall paneling, made of stainless steel, material no. 1.4301 (AISI 304) 1mm, strengthened with fire proof gypsum board 12,5 mm, incl. adjustable bolts for quick attachment/detachment of panels to/from sub-construction allowing for 3.0mm joint between the panels. • Panel width should be 1200mm; below 1200mm could be variable depending on the floor plan. • Panels made of one piece from floor to suspended ceiling. • Wall coating with antibacterial coating as part of the powder coating process to enable high quality of the walls and not be painted at site • The wall color & colour schemes should be discussed with us before implementation • The vertical joints between the panels to be filled with liquid silicone or silicone profile.
2	**OR CEILING**
	• Dipling-type clamping cassette ceiling, galv. sheet steel, 0,6 mm, non-perforated, white powdercoated surface, coffered ceiling rid 1200 x 600 mm, incl. substructure and pendant, U-profile for wall fixation. • Connection to Laminar Air Flow ceiling and cut-outs for ceiling pendants and operating lights should be included
3	**LAMINAR FLOW**
	The Laminar flow system should be integrated into the ceiling and should have the following features The requirements of following standards Should be met: Field of application for medical purposes in accordance with EN ISO 14644-1, ONORM H6020-2007, DIN 1946 2008 and/or VDI 2083. Housing design: The housing combination consists of a top part (gray room area) in stainless steel and the lower part (clean rooms) in aluminum in high-density (densely welded without silicone or without similar encapsulants) and corrosion-resistant material with a disinfectant-resistant surface coating visible side in RAL 9010 running. An inbuilt shaft recess for the OT light should be provided Access to the tripod suspension and/or the tripod electronics is should be provided in the housing by removal of the partitioned inspection openings.

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	The crossbars present in the air current should have a width of up to 30 mm. Wider crossbar areas should to prevent incorrect air suction and negative current characteristics. Filter holder: The horizontal filter holder should be fitted in a stable profile frame directly in the housing. The differential pressure measurement port and the DEHS test port should be easily accessible after removal of the outlet unit and should be marked accordingly. The DEHS raw concentration measurement port should be placed directly at the air outlet side and should be marked accordingly. Supply air outlet - with horizontal filter plane Size 2.8 x 2.8 mtrs Material: ALUMINIUM welded seal-tight (without silicone or similar fillers) and stainless steel Coated on all sides in RAL 9010. Housing dimensions about : 2.8 x 2.8 x 420 mm Including HEPA filter Including fabric frame clamped on both sides Includind central tripod design Including frontal DEHS raw concentration measurement port Technical data: Feed air flow rate: 7.070 m³/h , Feed air speed: 0.25 m/s Filter housing: 8 pcs. Filter class: H13 Filter made of micro glass fibre with two sided Filter housing: Galvanised steel sheet Initial filter resistance: 105 PA (+/-10%)
4	**SPIRAL AIR SUPPLY OUTLET FOR CORRIDOR AND ROOMS**
	• Spiral air supply box and outlet with Hepa Filter H13, Dimension 624 x 624 x 417 mm, with aluminium frame and grip protection, supply air 450 m³/h (in accordance to the requirements and the room sizes). Sufficient number to be provided to ensure a high quality of ventilation. • The air ducts connectivity to the Spiral Supply box and outlets to the AHU's provided for each of the OR's should also be done in the Scope
5	**AIR DUCTS FOR RETURN AIR IN OPERATING ROOMS & CORRIDOR**
	Exhaust air cabinet installed in corner, made of stainless steel, standard channel cross section appr. 625 x 425 mm. Exhaust channel as cabinet with upper and lower inlet, for room height 3.000 mm. Incl. wall cut-outs, revision door, sealing frame, traverses and fixation elements.
6	**CEILING LIGHT IN OR**
	• Clean room light fixture 3 x 55 W, VLT 622 0/90/2 with electronic ballast, for flush integration into the clamping cassette ceiling, including tubes TC-L, 3 x 55W
7	**General Lights for OR & Corridor**
	Clean room lighting fixture 3 x 40 W, - non-dimmable, VLT 622 0/90/2 with electronic ballast, flush mounted into the ceiling with tube of approximate size 600 x 600 mm
8	**SLIDING DOOR HERMATICALLY SEALED LARGE SIZE**

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	OR sliding door, 1-door Frame dimensions (W X H) 1600 x 2100 mm Sliding door thightly closing on three sides, sliding rail made of anodized aluminium, abrasion resistant plastic reels with ball bearings, floor guides made of hard plastic, door frame made of stainless steel 1.4301 (AISI 304) brushed w. 280 grain, door leaf made of stainless steel 1.4301 (AISI 304) brushed w. 280 grain, outside door handle bow-shaped, made of stainless steel, inside door handle shell type, flush integrated graduated rod, integrated and prepared for Euro-standard locking cylinder, strength of door leaf 40 mm, core made of high-strength composite board, drive cover hinged, stainless steel. Door window, double glazing centrally in the door leaf 400 x 600 mm Microprocessor controlled automatic door drive. opening/closing speed 0,1 - 0,5 m/s, actuation by push-buttons inside and outside, pre-programmed for person, bed and permanent opening. - should include knee switch panel for automatic door, both sides - should include magic button for touch free door activation, both sides - should include foot switch for actuation of automatic door, both sidess
9	**SLIDING DOOR HERMATICALLY SEALED SMALL SIZE**
	OR sliding door, 1-door Frame dimensions (W X H) 1000 x 2100 mm Sliding door thightly closing on three sides, sliding rail made of anodized aluminium, abrasion resistant plastic reels with ball bearings, floor guides made of hard plastic, door frame made of stainless steel 1.4301 (AISI 304) brushed w. 280 grain, door leaf made of stainless steel 1.4301 (AISI 304) brushed w. 280 grain, outside door handle bow-shaped, made of stainless steel, inside door handle shell type, flush integrated graduated rod, integrated and prepared for Euro-standard locking cylinder, strength of door leaf 40 mm, core made of high-strength composite board, drive cover hinged, stainless steel. Door window, double glazing centrally in the door leaf 400 x 600 mm Microprocessor controlled automatic door drive. opening/closing speed 0,1 - 0,5 m/s, actuation by push-buttons inside and outside, pre-programmed for person, bed and permanent opening. - should include knee switch panel for automatic door, both sides - should include magic button for touch free door activation, both sides - should include foot switch for actuation of automatic door, both sidess
10	**HINGED DOORS**

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	Single leaf door, flush on both sides, clear dimensions: 1000 x 2100 mm two sealing levels with silicone hollow chamber seal, hinges and door handle fittings of stainless steel, mortise lock with stainless steel face plate, door leaf made of stainless steel surface according to DIN 1.4301 brushed, door frame made of stainless steel surface according to DIN 1.4301 brushed
11	**DOUBLE HINGED DOOR - AUTOMATIC**
	Hinged door door, two door leaf, with automatic door drive Frame stainless steel, grinded; material strength 1.5 mm Door leaf made of stainless steel, grinded; material strength 1.0 mm Door handles of stainless steel, Outer width of frame: 2000 x 2100 mm Opening width: 1800 x 2050 mm Usable clearance: 1800 x 2050 mm 5 operating buttons (opening for persons, opening for beds; permanent opening) 2 blow bars Positioning of buttons and blow bar can be selected individually
12	**INTERNAL WINDOW GLAZING WITH AUTOMATIC VENETIAN BLINDS**
	Installation of double glazing 2 x ESG 5.0mm, flush integrated in wall surface, above window sill, connection frame in wall color, depth approx. 100 mm, glazing incl. joint profiles, fixation parts and sealing. Size approx. 1800 x 1000 mm as per layout Venetian Blids Electrically Driven upto 60% black out Installed belween the double glazing
13	**MAIN CONTROL PANEL**
	○ **Control panel**
	Digital clock / Display of operation modes
	- Time of day
	- Elapsed time clock
	- Countdown
	Display of alarm and disturbance reports
	For example:
	- insulation monitoring
	- load monitoring
	- medical gases
	- UPS
	Air conditioning
	- System in use
	- Maintenance required
	- System malfunctioning
	- Operating mode of air conditioning system
	- Temperature
	- Display of actual temperature
	- Setting of set point temperature
	- Control of area lighting / Switching and dimming
	- Two groups of room lights

	- General dimming
14	**GLASS CABINET TO KEEP SUTURE MATERIAL ETC**
	Should be flushmounted integrated in the wall panel, frame and body made of stainless steel 1.4301, 2 glass doors with surrounding gasket, 2 shelves made of 8 mm security glass.
15	**EQUIPMENT CABINET**
	Wall cabinet for surgical instruments, flush integrated in panel wall, frame and body made of stainless steel 1.4301, 2 stainless steel doors with surrounding gasket, 5 shelves made of stainless steel, shelves adjustable in 50 mm steps. Dimensions H x W x D: 2000 x 900 x 670 mm
16	**X RAY VIEWER**
	X-ray viewer type 80 x 43: Wall integrated model, with shutters and brightness control, brightness control approx. 50%.
17	**FLAT MONITOR INSTALLATION**
	The wall should have a provision for installation of monitor of 42" (exact dimentions can be got from the client) should have a security glass in the top flushed to the wall
18	**WRITING BOARD**
	The writing board should be made of frosted tougned Glass which should be seemlessly part of the OR wall with a a magnetic strip behind it to hold the DUSTER AND PEN
19	**2 BAY Scrub SINKS**
	• The Surgical scrub sink should be designed for providing surgeons with a convenient sink for Pre Op scrub up. • The Scrub Station should be made of Solid Mineral Surface and should be moulded and designed as per the high aesthetics of the theatre complex • fresh water and waste water piping ready for connection. 2 x optoelectronic tap, 4 x soap- and disinfectant dispenser, 1 x brush dispenser
20	**3 BAY Scrub SINKS**
	The Surgical scrub sink should be designed for providing surgeons with a convenient sink for Pre Op scrub up. • The number of bays – double bay or three bay, will depend upon the actual requirements and may vary. • The Scrub Station should be made of Solid Mineral Surface and should be moulded and designed as per the high aesthetics of the theatre complex • fresh water and waste water piping ready for connection. with 3 x optoelectronic tap, 6 x soap- and disinfectant dispenser, 1 x brush dispenser
21	**OR FLOORING**

	• The flooring inside the OT should be done with medical grade viyl tiles/rolls having conductive properties inside the OT area and Anti-Static in the Central co-oridor of the OT • The area where the OT table is placed should have a separate colour coding • A substrate floor will be provided; having a flatness tolerance of ± 3mm over a one square meter area. • On to this sub-floor, a self-leveling compound of minimum thickness requirement of 3mm with the requisite primer should be applied to level the floor to true flatness. • Copper grounding strips of not less than 0.05mm thick, 50mm width, should be laid flat on the above floor and connected to copper wire of grounding / separate earth point. • The floor finish should be 2mm thick Anti-static conductive vinyl flooring, laid on a semi conductive adhesive base. • The vinyl flooring should be homogenous material incorporating carbon encapsulated granules throughout its full thickness and has a conductive backing. • It should have excellent resistance to static and rolling loads and be classified 34-43 in accordance to EN 649. • It should display excellent resistance to chemical products such as detergents, acids and alkaline products • It should have fungistatic and bacteriostatic treatment throughout the total thickness of the material. • It should be non-absorbent, impervious and non-porous.
22	**FLOORING IN COMMON AREA AND ROOMS**
	Flooring seamless with perfectly curved flash-covings,resistance to mechanical stress and dynamic loads and having ESD protection characteristics, 2mm thick,washable vinyl,with self-leveling compound & primer for proper installation.
23	**ELECTRICAL WIRING**
	The Structure should contain separate cable pathways for the routing of electrical services and a variety of openings and rear enclosures for the fixing of electrical components. Cable sizes for power sockets, earth and potential equalization wiring should be provided according to the specific requirements of the site. The Complete Electrical Wiring and installation of the Operation Theatre complex within the modular OT should be done as per high standards and should ensure connectivity to the individual Electrical Distribution Boxes (UPS backed) provided by us. Detailed electrical drawing should be provided. Special High Quality Electrical Distribution boxes controlling each OR individually should be provided from a central distribution panel. This should be of utmost high quality for use in an hospital envoirnment
24	**GAS PIPE LINE MEDICAL IN THE OT COMPLEX**
	Medical gas outlets should be connected to the wall panels & Pendants from pipes running within the substructure. The piping used should be medical grade copper tube. The modular wall panel should have outlets CE Certified for the medical gases as per the final drawings. The piping should be connected to the central gas systems of the hospital provided in the OT Complex. One wall of the OR should have a back-up gas connections (1 O2, 1 N20, 1 Vaccum, 1 Air) other than the ones installed in the pendants
25	**AC DUCTING**

	Ducting should be made of Aluminum (INSIDE OT ONLY), with curves & bends where indicated for easy flow of air and ensured to be air tight by applying silicon sealant after fabrication. Hangers should be provided to ducts & should be suspended by means of G.I. coated rods. Thermal insulation with fiber glass & with aluminum foil for supply & return air ducts. Joints will be lapped with Nitrile rubber tape for better insulation. The ducts should be connected to HVAC system provided by the Institution Outlets and Inlets would be brought upto the OT area from where the same is to be connected to the Laminar flow and return air system as weell as to the common area and rooms in the OR COMPLEX
26	**SURGICAL PENDANT**
	The Surgical Equipment Pendant should be a combination of: - A supply column, carried by 2 swivel arms of 800 mm length each, for holding the endoscopy equipment The pendant should not have any sharp edges or any construction that may be an obstacle for the surgical staff. The 2 swivel arms, carrying the supply column, should have the maximum degree of rotary motion in the horizontal plan and should be able to with hold a weight of not less than 115 kg. The supply column should be equipped with 5 height adjustable shelves of W X D X H : minimum 770 mm X 500 mm X40 mm and a drawer. The shelves size should be able to accommodate the requested endoscopy equipment. The supply column should have the following gas outlets: 2x Oxygen 2x Compressed Medical Air 1x Vaccum 1x CO2 Additionally, the supply column should have 12 electrical sockets with face plate. The pendant's ceiling fixture should also be provided and should take into account the distance between the true ceiling and the false ceiling. The Equipment should be having MDD & CE Certification
27	**ANESTHESIA PENDANT**
	The Anaesthesia Pendant should consist of one swivel arm of length 1000 mm with a gas supply column. The pendant should not have any sharp edges or any construction that may be an obstacle for the surgical staff. The arms should be made of a swivel unit having a maximum degree of rotary motion in the horizontal plan. The supply column should be equipped with one height adjustable shelf and a drawer.

	The supply column should have the following gas outlets: 1x Oxygen 2x Nitrous Oxide 1x Compressed Medical Air 1x Exhaust Anaesthetic Gas Scavenging 1x Vaccum The supply column should have 6 electrical sockets with face plates. The pendant's ceiling fixture should also be provided and should take into account the distance between the true ceiling and the false ceiling. The Equipment should be having MDD & CE Certification
28	**OPERATION THEATRE LIGHTS DOUBLE COMBINATION (OPTIONAL)**
	LED OPERATION THEATRE LIGHT DOUBLE COMBINATION WITH 2 MONITOR ARMS The LED OT LIGHT ASSEMBLY should consist of the following: - One spring arm carrying the Main Surgical Light. - One spring arm carrying Satellite Surgical Light with a built-in Surgical (Light) Camera - One spring arm for carrying a 19" Touch Screen. The assembly should not have any sharp edges or any construction that may be an obstacle for the surgical staff. The Main and Satellite Light should have the following specifications: Features: * Light mixing takes place right inside the LED engines. * Cool light in variable temperature * Space saving design * Light field adaptable * Intuitive operation * Compatible with laminar flow systems * Easy to position via the cardanic suspension * Optimized ergonomics * Variable Adjustable colour temperature – * The touch panelto control various functions like field , illumination , colour temp etc Specifications: Min. Illuminance : 160,000 lux + 120,000 Lux (+/- 10%) Light Field Diameter : 22 - 32 cm + 20 - 30 cm (+/- 5%) Color Temperature : 3,800 - 4,800 K, variable Color rendering index (CRI) : 95 Luminous efficacy : 280 lm/W

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	Illumination depth : >100 cm Dimming Range : 30 - 100% LED Service Life : 40,000 h Light Head Suspension : fully cardanic Dimming Range: 30-100% The spring arms carrying the 19" Touch Screen should be of type ACROBAT 3000 and should have the maximum degree of rotary motion in the horizontal plan. The Surgical Camera should be a built-inthe centre of light should be HD camera having the following specifications: - Electronic control of zoom and aperture size. - Automatic adjustment of the white balance.
	I. CENTRAL CONTROL MANAGEMENT SYSTEM
1	**19" TOUCH SCREEN (Spring arm mounted)**
	The Touch Screen should be a medical grade 19" flat screen with 1280x1024 (SXGA) resolution. It should communicate with the Management System via an RS-232 cable. The Touch Screen should be mounted on a pendant (as specified in section 2) and should be located within the sterile field for the doctor's control or his assistant. All medical devices, Archiving system, and Communication systems should be controlled from this touch screen.
2	**19" TOUCH SCREEN (Located at the Nurse Station)**
	The Nurse Station, located outside the sterile field within each operating room, should consist of: . A worktop . A 19" Touch Screen The circulating nurse will be able to assist the surgeon or his assistant by controlling the same functions , as those of the sterile area Touch Screen, The Touch Screen should be a medical grade 19" flat screen with 1280x1024 (SXGA) resolution. It should communicate with the Management System via an RS-232 cable.
	II. MONITORING & VISUALIZATION
1	**26" FULL 3D HD FLAT MEDICAL GRADE LCD SCREEN (Desktop mounted)**
	The surgical display screens should be medical grade 26" FULL HD (1080P) Medical Grade The system should have facility to display in 3D and 2D modes. It should have the following inputs: Ø DVI-D for 3D signal

	Ø *HD-SDI for 2D signal in HD* Ø *S-Video for 2D signal in standard resolution* The display screens should also have the following optical specifications: LCD Panel 26 inch (16:9 aspect ratio) Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D) Number of pixels 2,073,600 pixels (1,920 × 1,080) Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD) Contrast Contrast 1000:1 Luminance -350cd/m2 Reaction Time – 6-8ms Display mode Dual display mode Triple display mode PIP and POP mode Mirror image mode The display screens should comply the highest safety standards: Ø *Fanless cooling prevents the introduction of contaminants into the sterile field.* Ø *Low voltage (24 VDC) external power supply maybe located 30m away from the screen, removing any electrical concern.* Ø *Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress.*
2	**26" FULL 3D HD FLAT MEDICAL GRADE LCD SCREEN (Spring arm mounted)**
	The surgical display screens should be medical grade 26" FULL HD Medical Grade The system should have facility to display in 3D and 2D modes. It should have the following inputs: Ø DVI-D for 3D signal Ø *HD-SDI for 2D signal in HD* Ø *S-Video for 2D signal in standard resolution* The display screens should also have the following optical specifications: LCD Panel 26 inch (16:9 aspect ratio) Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D) Number of pixels 2,073,600 pixels (1,920 × 1,080) Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD) Contrast Contrast 1000:1 Luminance -350cd/m2 Reaction Time – 6-8ms Display mode Dual display mode Triple display mode PIP and POP mode

	Mirror image mode The display screens should comply the highest safety standards: Ø *Low voltage (24 VDC) external power supply maybe located 30m away from the screen, removing any electrical concern.* Ø *Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress.*
3	**FIBER OPTIC CABLE FOR THE FLAT SCREEN AND ENDOSCOPIC CAMERA / In Light Camera & connected Video Sources from Surgical Pendant**
	The fiber optic cable connecting the Flat Screen and Endoscopic Camera to the system should consist of: 6x color-coded strands transmitting the DVI-D signal The fiber optic cable should be flexible enough to sustain the spring arm's motion in the horizontal and vertical plane.
4	**32" Medical Grade FLAT SCREEN (Wall mounted)**
	At least 32" Large Screen should be mounted on a selected wall within the OR. The surgical display screens should be medical grade 32" FULL HD Medical Grade The system should have facility to display in 3D and 2D modes. It should have the following inputs: Ø DVI-D for 3D signal Ø *HD-SDI for 2D signal in HD* Ø *S-Video for 2D signal in standard resolution* The display screens should also have the following optical specifications: LCD Panel 26 inch (16:9 aspect ratio) Screen Dimensions- 643mm (W) × 396 mm (H) ×87mm(D) Number of pixels 2,073,600 pixels (1,920 × 1,080) Viewing angle- Horizontal: 178 degrees, Vertical: 178 degrees (3D : TBD) Contrast Contrast 1000:1 Luminance -350cd/m2 Reaction Time – 6-8ms Display mode Dual display mode Triple display mode PIP and POP mode Mirror image mode The display screens should comply the highest safety standards:

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	III. CENTRAL DEVICE CONTROL MANAGEMENT SYSTEM
1	**CENTRAL CONTROL UNIT**
	The main purpose for the implementation of the Integrated OR is the ability to provide full control for the Surgeon or his assistant of the OR equipment, and environment via a Touch Screen. The system should be simple, user friendly, secure and upgradeable. The successful bidder should design, construct and complete a seamless Management System consisting of a medical grade Central Control Unit that provides full flexibility to the Surgeon or his assistant and to the OR nurse for the control of all functions, systems and devices available in the operating room via a SINGLE Touch Screen located within the sterile field and simultaneously from mouse and keyboard located in the Nurse Station, which positioned outside the sterile field. The Central Control Unit should be able to manage the medical and non-medical devices inside the operating room. Therefore it should integrate the endoscopy equipment, Archiving and Communication Systems. In addition, it should be able to control 32 different Endoscopic units and to store up to 100 individual presets (by doctor and procedure, or both) for the endoscopy equipment that can be accessed for quick set up for individual physicians. The system should also provide an overview display of up to 12 units simultaneously. Furthermore, the Central Control Unit should be able to display on the Touch Screen an exact replica of the actual endoscopy devices' front panel. This is necessary for the ease of control and to ensure that any person familiar with the key functions of the medical devices will also be able to operate the device by using the Touch Screen. The Central Control Unit should also be able to display on the Touch Screen alert text messages, whenever a warning signal is emitted from a faulty device. The Management System's functions should include but not limited to: . The ability to integrate and to control the medical devices, Archiving and Communication systems from a SINGLE Touch Screen located inside the sterile field. . The ability to identify any errors or malfunctions of the connected device. . The ability to call up any type of endoscopic equipment on the Touch Screen menu and be able to control all its functions simultaneously on the Touch Screen or directly from the machine itself. . The ability to control all the motions of the operating table via the Touch Screen. . The ability to display an identical image of the actual device panel on the Touch Screen. . The ability to switch on or off the room lights. . The ability to switch on or off the room's green light (Endoscopy procedure). IF Providing RGB lighting . The ability to route any image source to any destination via the Touch Screen. . The ability to connect to a telephone system within the sterile field and control it via the Touch Screen.
	IV. Full HD IMAGE/VIDEO RECORDING AND DATA ARCHIVING SYSTEM
1	**Full HD IMAGE/VIDEO RECORDING AND DATA ARCHIVING SYSTEM**
	Ø Should be user friendly software designed specifically for medical purposes Ø Captures still Full HD (1080P) images, & Full HD (1080P) video sequences (from 3 sources), and audio files Ø Resolution of both still images & videos should be 1920x1080 p Ø Should Write multi-session and multi-patient CDs/DVDs

	Ø Controllable via Touch Screen, camera head buttons, footswitch mouse and keyboard Ø Fully controllable from inside and outside the sterile field Ø Should Support network storage on file servers Ø Should Support FTP storage Ø USB support for storage on USB drives Ø Customizable print-outs for the documented information Ø Should Print to any connected printer (local or network) Ø HIPAA compliant Ø Buffer system to insure reliability Ø Medical grade unit with CE mark Ø Chipset: Intel® 855GME + Intel® 6300ESB Embedded Chipset Ø Processor: Intel® Pentium® M 735 Ø Graphic: Intel® Extreme Graphics 2 Controller onboard Ø Grabber-card: DVI-D, SDI, S- Video, Composite; Ø Audio: AC97/DD5.1 onboard Ø RAM: 2GB Ø Harddisk: 500 GB SATA 3.5“ Ø Drive: Multiform Slim line DVD RW Ø PCI Slots: 3 x PCI Ø LAN: 3 x 10/100/1000 Mbps onboard Ø I/O Ports: 2 x PS/2, 2 x Serial, 3 x RJ45 (LAN), 4 x USB 2.0 (1 x Front), 3 x Audio (Line In, Line Out and Microphone), VGA; Ø DICOM and HL7 interface The DICOM 3 interface should be installed to the system in order to allow the surgeon to view all the DICOM 3 images stored in the PACS system on a digital light box within the operating rooms. Furthermore, all intra operative images recorded should be sent via the DICOM 3 interface to the PACS system for further processing. The HL7 interface system should be connected to the Image and Data Archiving system to allow the patients demographics to be downloaded directly to the patients data file.
	IV. AUDIO VISUAL COMMUNICATION
1	**AV RACK BASED LOCAL COMMUNICATION CENTER**

The Local Communication Center installed inside the OR should be rack-based and should house the following Control /Video/Audio equipment:

• Control equipment

. 1x RS232 control module

. 16x Relays control modules

• Video equipment

. Video Matrix

8x 8 DVI-D matrix

. Fiber optic-to-DVI-D transmitters and receivers for the transmission of the HD DVI-D signal over long distances:

. 4x Fiber optic-to-DVI-D transmitters to transmit the HD DVI-D signal in optical format to the Communication Center, the Surgical Displays and the Large Screen.

. 4x Fiber optic-to-DVI-D receivers to convert the HD DVI-D signal from optical format back to its original electrical format.

• Audio equipment

. Audio Mixer with 3 inputs and one output

. Audio Matrix switcher capable of integrating up to:

• 8x Audio Sources such as the Wireless Microphone.

• 8x Audio Destinations such as the OR's Active Speaker.

. Additional Audio Distributor and Audio Mixer.

. Fiber optic converters for optical isolation of any ingoing/outgoing audio/video signal to/from the OR

. Medical Isolation Transformer for isolating the AC input power supplying the Communication Center.

Audio/Video routing should be possible via the 19" Touch Screen (same Touch Screen that controls Medical and non-medical devices) located inside the sterile field and via Medical Grade Touch Screen available at the Nurse Station:

Video routing should make efficient use of the provided video matrix system to route any video source to any video destination in its optimal signal quality.

For instance, the digital DVI-D video matrix is intended to switch the HD digital signal from the HD Endoscopic camera to any of the Flat Screens without conversion to any lower level signal. The other video matrix should ensure the connection and routing of a variety of video sources such as the Overhead Camera, Room Camera, etc...

The OR should integrate at least the following Video Sources and Destinations:

Sources	Destinations
Endoscopic Camera	2x 26" Flat Screens
Surgical Camera	Large Screen
Room Camera	Touch Screen's video preview
Connection to one SD auxiliary Video Source	Archiving System

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	The OR should integrate at least the following Audio Sources and Destinations: Sources — Destinations Wireless Microphone — Loudspeaker Archiving System — Archiving System Telephone — Telephone The OR Communication Center should also include the required software and hardware components for integrating the following telemedicine features: • Patch Panels. • Telephone module. Patch Panels All relevant flush mounted video patch panels for integration of the various Video Sources should be installed
2	**ROOM CAMERA**
	A Room Camera should be installed on a selected wall in the OR. The Room Camera should have the following technical specifications: *Video Signal PAL* *Effective Pixels 768 (H), 492 (V), 752 (H) X 585 (V)* *Horizontal Resolution 460 TV lines 450 TV lines* *Vertical Resolution 350 TV lines 400 TV lines* *Lens ×12 Power Zoom, f=5.4 to 64.8 mm, F1.8 to F2.7* *Angle of View (H) 4.3 to 48.8 degrees* *Minimum Illumination 7 lx (F1.8)* *Illumination Range 7 to 100,000 lx* *Auto Exposure Auto Iris, AGC* *Shutter Speed 1/60 to 1/10,000* *Gain Auto/Manual* *White Balance ATW / One Push Hold, Indoor Preset, Outdoor Preset* *S / N Ratio >48 dB* *Pan / Tilt — Horizontal ±100° (Max speed 80° sec),* *Vertical ±25° (Max speed 50° / sec)* *Video Output RCA pin jack* *S Video Output 4 pin mini DIN* *Audio Output RCA pin jack* *Control Terminal — RS-232C, 8-pin mini DIN,* *9600 bps, Data 8 bit, Stop 1 bit.*
3	**BI-AMPLIFIED ACTIVE LOUDSPEAKER**
	A bi-amplified active Loudspeaker, dedicated for videoconferencing and audio playback, should be installed on a selected wall in the OR. The Loudspeaker should have the following technical specifications:

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	Input Signal *Analog* *Maximum short time sine wave acoustic output at 1 m on axis in half space, averaged from 100 Hz to 3 kHz* *≥ 100 dB SPL* *Maximum peak acoustic output per pair with music material* *≥ 108 dB SPL @ 1m* *Drivers* *Bass* *5"* *Treble* *3/4" metal dome* *Crossover frequencies* *3 kHz* *Free Field Frequency Response* *58 Hz - 20 kHz (± 2 dB)* *Amplifier power* *Bass* *40 W* *Treble* *40 W*
4	**WIRELESS HEADMIC**
	The Integrated Communication System should be provided with a Wireless Headmic to enable the user to initiate telephone calls,, recording audio comments on the archiving system, etc… The Wireless Headmic should be based a high-quality state-of-the-art RF transmission with a high level of operational reliability and ease of use. The Headmic Transmitter and Receiver should permit wireless transmission based on the use of: Ø further optimized PLL synthesizer and microprocessor technology, Ø the HDX noise reduction system, Ø the pilot tone squelch control, Ø the true diversity technology (rack-mount receiver only), Ø and the scan function for scanning the channel banks for free channels.
5	**TELEPHONE MODULE**
	An analogue Telephone module should be connected to the system and should allow the surgeon or his assistant to affect telephone calls from the Touch Screen or the Nurse Station. The system should also supply the ability to store telephone numbers for quick dialling via the Touch Screen located in the sterile field or via the Nurse Station outside the sterile field.
6	**1-WAY VIDEO 2-WAY AUDIO STREAMER**
	The Audio/Video Streamer should provide independent streaming channels offering real time image and sound that can be accessed from any networked station provided with authorisation key.

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	Therefore, an Audio/Video Encoder should be installed in the Communication Center. The Encoder should be capable of accepting S-video and Audio signals and should streams these signals over the hospital's LAN in MPEG4 compressed Data. Furthermore, the encoder should be capable of 1-way Audio communication between the OR and the remote location. Furthermore, the Streamer should be provided with an intuitive user interface that offers the user the capability to watch, from any networked station, the desired Video Source (i.e. HD Endoscopic Camera, Room Camera, etc...) from the selected OR. Provision of high speed multicast LAN with active LAN sockets and Remote PCs is responsibility of Hospital and shall be provided to the Integrating company for the purpose of streaming videos

All the items in Integration scope like patch panels,transmitters, recievers, etc should be from the integration company and company should be mentioned in their catalogue.

The bidders need to inspect the site and submit a detailed layout plan before submission of the tender.

The bidders need to mention the time frame for completion of the upgradation work

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Item No. 8

SPECIFICATIONS OF HOSPITAL CUBICLE TRACK SYSTEM

Providing, Fabricating and fixing of Hospital Cubicle Track System comprising of the following components and specifications:

1) **CUBICLE TRACK**
   Made of Aluminum Alloy of size 20 x25mm with 1.75 thickness having 50-60 microns powder coating in white color finish. Tracks are bendable to a radius of 300 mm at 90 degree to cover the whole bed.

2) **CURTAIN:**
   Made of hospital grade premium quality Stain Proof fabric with High quality Net of 18" and 24" on top.

3) **SUPPORTING SYSTEM OF TRACK CONSISTS OF THE FOLLOWING MATERIAL :**

   (a) Wall Braket:
   Made of CRC with white powder coating finish.

   (b) Bridge Clamp:
   Made of CRC steel with powder coating finish.

   (c) Roof Clamp:
   Made of aluminum pipe of 12.5 mm & 13.5mm inner & oiuter diameters. The Upper Circular Plate made of aluminum. These are with white powder coating (outer surface) finish & are of variable height fixed with ceiling with anchors, bolts, screws etc.

   (d) Curtain Removal Point:
   Made of CRC with SS finish for simple loading & unloading of curtain. (Also serves as an end hook retainer).

   (e) Runners:
   Roller wheel type runners made of Teflon for easy and smooth sliding of the curtain.

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ITEM NO. 9

SPECIFICATION FOR PATIENT WARMING SYSTEM

1. Should be suitable for intra-operative applications.
2. Should consist of active warming arm-cum-shoulder section, pair of leg segments and abdominal segment to cover the entire body.
3. Should be based on semiconductor polymer foil for precise warming of entire patient body during & after surgery.
4. Size
   - Abdominal Segment : (40-45) cm X (85-90) cm
   - Arm & shoulder Section: (170-175) cm X (30-35) cm
   - Leg Segment : (40-45) cm X (85-90) cm
5. Control unit should be cable of warming minimum four segments at a time.
6. Control unit should have Color TFT touch screen for easy operation.
7. Control unit should have touch screen display to select & display temperature of all segments at a time.
8. Control unit should automatically detect the number of segments which are connected to the unit and display the same on the screen.
9. Should offer precise digital temperature control with selectable temperature range of 37 to 40 degree in steps of 0.1°C
10. Arm cum shoulder segment should be divided in two sections capable of being switched ON or OFF independently depending upon the nature of surgery and condition of patient.
11. Should have facility to measure & display the real time core body temperature of the patient continuously on the screen.
12. Should also have on screen graphical display of patient body temperature for the entire duration of surgery.
13. Should have facility to independently adjust the temperature of individual segment.
14. Should have a provision to connect whole body blanket, pediatric size blanket, jelly based warming mattress / pad to the same control unit for future requirement.
15. Should have safety features such as Automatic check, Precise temperature control betwwn warming system and patient, auto stop on detecting any problem
16. Should have non-latex ant-bacterially coated, blood and fluid resistant, washable and replaceable covers
17. The control unit should be light weight and small in size, easily attachable to LV rod / OT table with fixing claw
18. Should have low energy consumption and noiseless operation

Item NO.10

Specification for sequential intermittent pneumatic compression system for DVT prophylaxis.

1. The controller should provide sequential, gradient & circumferential compression around the ankle, calf & thing.
2. Controller should provide the pressure of 45 mm/Hg at the ankle area, 40 mm/ Hg at the calf area & 30 mm/Hg at the thigh area.
3. Controller should have graphic user interface of 3.2 inch colour LCD & provide greater visibility.
4. Controller should have VRD (Vascular Refill Detection) technology with three ways tubing & 6-8 hrs battery backup.
5. Consumable sleeves should have three bladders for giving optimal compression in different areas of the leg.
6. The compression system should be USFDA/ISO/CE Mark certified quality product.
7. SHOULD BE QUOTED WITH 50 PAIRS OF CONSUMABLE SLEEVES
8. PRICE OF CONSUMABLES TO BE QUOTED SEPERATELY AS WELL

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ITEM NO. 11

Intraoperative Ultrasound and Color Doppler for Neurosurgery

Ergonomic Design
Portable design, be ready at anytime and anywhere • At least 15-inch high resolution LCD monitor with wide-view angle • Standard PC keyboard, easy input • Two probe sockets with probe holder, better protection for probes • Rechargeable lithium battery, at least 1 hour scanning without power supply • Abundant peripherals: DICOM3.0, VGA, video out, USB, S-Video, Footswitch etc.
Mounted on trolley or easy portability
Comprehensive Functions
Complete working modes, outstanding 2D performance, sensitive blood flow imaging,
Complete working modes:
• B Mode, Dual B, 4B • M Mode, Steer M, • Color Mode, DPI Mode • PW Mode, CW Mode (optional)
• Premium B/W trolley system with color option • 15 inch antiglare high resolution LCD monitor • Imaging mode: 2D, M, 2B, 4B, B/M, PW, and HPRF • Advanced imaging technologies: u-scan(speckle reduction imaging), THI, Trapezoid imaging,
Multiple Transducers Intraoperative for brain spine, burr hole probe transducer
Neuro Burr Hole Transducers
Multi Frequency Burr-Hole Transducer
Multi frequency (3-7.5 MHz) burr-hole transducer that is ideal for shunt placements and taking biopsy samples.
Main Specifications
Array Type: Phased Array Insertion diameter: 12mm Scan angle/width: 90°
Frequency range: 3-7.5 MHz Puncture adapter: Included as standard
Sterilization: Plasma, 2% Gluteraldehyde, Cidex, Perasafe
Neuro Microsurgery Transducers
Multi Frequency Micro Surgery Transducer
Multi frequency (5-13 MHz) micro-surgery transducer that is ideal for tight situations and is the choice transducer for cervical spine scanning
Main Specifications
Array Type: Linear Array Insertion diameter: 10mm Scan angle/width: 10mm
Frequency range: 5-13 MHz Handling tool: MP-2749 (T-type) & MP-2750 (I-type)
Sterilization: Sterrad, Plasma Gluteraldehyde, Cidex
Linear Transsphenoidal Transducer
Super High Density, multi frequency, linear transsphenoidal transducer for scanning the pituitary gland, cervical spine, and use during other neurosurgical procedures.
Main Specifications
Array Type: Linear Array Insertion diameter: 10mm Scan angle/width: 5mm
Frequency range: 5-13 MHz Sterilization: Plasma, 2% Gluteraldehyde, Cidex, Perasafe
Craniotomy Transducers
20mm Multi Frequency Neuro Convex Transducer
Multi frequency (3-7.5 MHz) transducer with a smaller footprint (20mm) that is ideal for scanning during craniotomies. Stronger penetration is ideal for scanning deep cavernous tumors and other neuron lesions. Super high density which provides superb near field resolution and detail for needle guidance.

Main Specifications
Array Type: Convex Array Scan angle/width: 65°/20mm Frequency range: 3-7.5 MHz Puncture adapter: MP-2458 Sterilization: Plasma, 2% Gluteraldehyde, Cidex, Perasafe
20mm Multi Frequency Neuro Convex Transducer
Multi frequency (3.75-10 MHz) transducer with a smaller footprint (20mm) that is ideal for scanning during craniotomies.
Main Specifications
Array Type: Convex Array Scan angle/width: 20mm / 70° Frequency range: 3.75-10 MHz Puncture adapter: MP-2458 Sterilization: Sterrad Plasma Gluteraldehyde, Cidex
20mm Multi Frequency Convex Transducer
Multi frequency (5-10 MHz) transducer with a smaller footprint (20mm) that is ideal for scanning during craniotomies with hemispheric sound thchnology which provides exceptional near field resolution and detail for needle guidance.
Main Specifications
Array Type: Convex Array Scan angle/width: 20mm / 65° Frequency range: 5-10 MHz Puncture adapter: MP-2458 Sterilization: Plasma, 2% Gluteraldehyde, Cidex
Specify Life of Equipment in standard operating condition from the date of Installation.

- **Each Item should be both US- FDA and European CE approved and Enclosed the Desired Documents mentioning the name of Item.**
- **Lot number and name of Company should be mentioned on each instrument.**
- **It Should also have mentioned country of origin manufacture on each instrument.**

Item No.12

Stereotactic System Specification
The stereotactic system should be arc centered with a 190 mm radius, and be based on cartesian coordinate system
The cartesian coordinate system shall conform to the X, Y and Z nomenclature used in CT and MR Scanning
There shall be sterilization trays tailored for the frame and arc system included in the delivery
The prinicipal componenets of the stereotactic system shall include a cartesian frame and a semicircular arc
Numeric coordinate values shall be engraved on the frame and the arc and be displayed in millimeters
The semi circular arc shall incorporate a sliding instrument carrier for use with instruments such as needles, electrodes, and other micro surgical instruments
There should be three options of lengths of the posterior post (long, medium and short)
The guide and stop inserts should be able to split into two parts to enable effective cleaning
The instrument carrier shall have separate adjustable instrument guide and stop so that the guide can be brought close to the skull opening in order to optimize accuracy
The stereotactic system should include CT and MR adapters to secure and support the patients head during scanning ensuring accurate imaging
The imaging adapters should be adjustable to ensure a parallel scan plan without involving manipulation of the gantry of the scanner
The total accuracy of the frame should be minimum 0.7 mm
The system (frame and arc) should be suitable for paediatric stereotaxy(for children over 2 years of age
The frame should be compatible with X ray, CT and 1.5T and 3T MRI
The system should allow for transoral or transnasal intubation at any time during the procedure
The stereotactic system should allow for an approach inferior to the frame for posterior fossa and transphenoidal trajectories
The stereotactic system should provide ear pins for utilization as positioners and stablizers for frame placement on the patient
The stereotactic system should allow for arc fixation to the frame in both the lateral as well as the sagittal orientation
The stereotactic system should be validated for gas sterilization (ETO), steam sterilization (autoclaving) and STERRAD (gas plasma sterilization)
The system should have a dedicated CT table fixation, Adaptor, indicator box and for MRI should have a dedicated adaptor and indicator box
The X-and /or Y coordinates should be set on both sides of the arc and frame to ensure the highest possible accuracy
The Stereotactic System should have an option for testing its accuracy of the complete frame and arc with the target stimulator

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The CT and MR Indicator box should not be a limitation for how low the frame may be mounted
The system should have the provision for three point fixation for high stability
The company should provide a tool that can be used to test the straightness of the needles and electrodes on request
The stereotactic system should provide tools for intraoperative image verification of the placement of clinical probes in relation to the target- Cross Hairs
The stereotactic frame should have a curved front piece which provides access to the patients airways. It can be fitted with the curve in the inferior or superior orientation
COMPULSORY ACCESSORIES
The system should have the vaccum and side-cutting principle of Sedan biopsy needle with a 10mm needle window with stop and guide of diameter 2.5mm
The coordinate frame should have an insertion cannula designed to obtain safe guidance of implants, electrodes or catheters using stereotactic technique.
The stereotactic frame should accompany a Haematoma Evacuator which allows evacuation of haematomas through a single burr hole
OPTIONAL ACCESSORIES
The Stereotactic Frame should offer a rigid and accurate fixation to the operation table headrest. The three point fixation allows for high stability even if the patient is shaking
The MicroDrive should be fully integrated with the Stereotactic Arc and provide exact positioning of electrodes in the brain when performing Micro Electrode Recording (MER), macro stimulation and DBS electrode implantation
The system should have the vaccum and side-cutting principle of Sedan biopsy needle with a 3mm needle window with stop and guide of diameter 2.1mm
The Stereotactic system should accompany with twist drills used to twist burr holes through the stereotactic arc of varying diameters of around 2 and 3 mm with a reducing tube for a smaller drill
The stereotactic system should provide instrument for safe puncturing of intracranial cavities with the insertion needle of diameter more than 2mm with accomodating catheters of more than 1.4mm diameters
The stereotactic system should provide instrument designed for the injection, as well as for diagnostic and therapeutic punctures, aspirations and evacuations

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The system should also provide a 5 channel connection cable for the micromacro electrodes as an accessory
The microdrive should provide a universal guide tube for micromacro or microelectrode DBS lead at 20/30mm and DBS guide tube 40mm,30mm before target point
PLANNING SOFTWARE SPECIFICATION
The system shall allow the user to virtually place the entry and target points directly within images of the patients brain acquired from CT, MR and Angiography
The system shall allow to interactively visualise and examine the tissue that the surgical pathway will effect
The system shall allow to avoid critical structures such as blood vessels, cranial nerves or other critical structures by adjusting the virtual surgical pathway prior to surgery. It shall be possible to simulate any number surgical pathway
The system shall have an intuitive and easy-to-use graphical interface and image handling
The system shall be able to import and display CT, MR, PET and Angiographic images. Images should be possible to directly import from CT, MR and PET scanners via hospital networks, CD or a USB key
The system shall automatically reconstruct images in directions other than that of the original tomographic image study that was imported
The system shall be able to fuse two image studies and have different fusion functions, including interactive blending in real time
Outlined targets and paths shall be possible to project onto all open image views and imaging modalities, including that targets outlined on angiographic images should be projected on to CT, MR and PET data sets
Targets should be possible to outline semi-automatically or manually, and non-continuous regions should be allowed
It shall be easy to simulate different surgical paths, and to manipulate them directly in the images
Localisation, planning and manipulation shall be possible across different images views(axial, coronal, sagittal) and modalities CT, MR, PET and Angios
Placement and visualisation of unlimited number of targets, entry-points and trajectories
The system must provide the user with stereotactic coordinates, including the ring and arc angle necessary to realise any virtual surgical pathways intraoperatively
Software must be able to recalculate new ring and arc coordinates for a predetermined surgical pathway if the surgeon desires to reorient the arc position for any of the following orientations.Right to left, left to right, anterior to posterior and posterior to anterior
It shall be possible to visualise planned trajectories along the probes eye view and parallel to the probe in both 2D and 3D format
The system shall have the ability to resue the entry point to plan any number of pathways

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The Planning software should have a pre-planning module which increases flexibility and saves time and resources by allowing the neurosurgeon to plan procedures days ahead of the surgery.
The system should enable co-registration of frame-based and frameless images
It should be possible to design a workspace that displays more than 4 image windows
The planning software should have ImageMerge facilities for better interpretation by enabling the co-registration of image studies with one other. It allows automatic and manual coregistration of any frameless image study with a frame based reference study.
Snapshots should be possible to take directly from the screen, allowing complete documentation of custom layouts and image sections
The system must have complete online help with advanced functions
The system should enable to combine different image modalities such as CT, MR and PET
It must be possible to have the planning system on a PC laptop
The system must be Linux based
The patient files should be organised in a true database that enables easy search, sorting and exporting of patient data
It must be possible for the user to design new workspace layouts which displays original or reconstructed images
OPTIONAL SOFTWARE LICENSES
It must be possible to define the AC-PC line whether or not it lies in a single image plane and also realign the patients image to the ac-pc plane
IT must be possible to realign the patients images to the AC-PC lines
It must be possible to localise functional targets defined by AC-PC line based formula
The software must offer a combination of sophisticated 3D matching, overlay of atlas countours on patient images, and interactive selection of displayed atlas countours to increase confidence and ease of use to identify correct targets
The software add on allows users to combine the physiological data of PET images with the anatomical data of CT and MR images using predefined color lookup tables

Item No. 13

Neuro R. F. Lesion Generator Specification
Should have automatic lesion temperature control
There should be online monitoring of lesion parameters
Should have a Bar graph to monitor temperature
Electrodes with integrated thermocouple temperature sensing should be available
There should be Monopolar, bipolar and dual monopolar for brain lesioning
should provide Pain electrodes for Facet Denervation, rhizotomy and partial rhizotomy
Should have customized pain electrode for treatment of pain due to injury of the dorsal roots
there should be curved and straight disposable cannulas with various tip length for pain electrodes
Choice of Blunt and sharp tip option on curved disposable cannulas for pain electrodes
pain treatment with either continuous or pulsed RF should be available
The machine should have a compact size and a maximum weight of 5 kg
should be Easy sterile draping and sterile operations of all controls
Remote control of stimulation parameters should be available
All electrodes must be sterizable in autoclave
Forceps coagulation option should be available
Technical Data to me entered in specification:
Should have continuous RF Lesion output of power 0-30w and waveform of 512 kHz sine and Time in sec and temp in C from 0-100
The Stimulator output range is 0-35V and frequency between 3-200 HZ with a square waveform
The Pulzed frequency of 512 khz , range 0-55V, 1-8 HZ, pulse duration 20,32,and time in sec 0-200
The Current in mA 0-15, impedance 20-1000, and temp C 0-100
The machine should have a Self test mode, protective circuits, and line power V AC 115/230
FDA/CE approval
OPTIONAL ACCESSORIES
Should have fine short electrodes with a length of more than 68 mm and diameter of 0.4mm and should include a cable and sterile tray with cannula tip 2mm (22G)
should have fine long electrodes with a length of more than 160mm and a diameter of 0.55mm and should include a cable and sterile tray with cannula tip 2mm(20G) and curved cannula tip 10mm (20G)
Should have a DREZ electrode to be used with the neurogenerator for lesioning preferably with tip L=2.0mm, D=.25mm with guide cannula and stainless steel guide cannula
Should have cannula tip 2mm(22G) and curved cannula tip 10mm(22G)sharp and blunt for electrode length more than 117mm and diameter 0.4mm
Should have monopolar lesion electordes of tip diameters 1x2mm, 1x3mm, 2x2mm
The system should provide a bipolar macro electrode for macro stimulation and bipolar lesioning using the lesion generator and microdrive

Item No.14

Ultrasonic Surgical Aspirator

Ultrasonic surgical aspirator should have fragmentation, irrigation and aspiration facilities even for fibrous and calcified lesions.
1.Console should be lightweight and portable on trolley with single foot switch.
2.Main voltage should be as per Indian standard with perfect class of protection.
3.Console and hand piece should be capable of working continuous without any cooling system.
4.Should have in build suction system with high vacuum 5.Irrigation rate should be up to 50ml/min.
6.Hand piece should be lightweight sterlizable by steam autoclave or plasma.
7.Hand piece micro and Macro offered should have choice of outside and inside irrigation; Tip of hand piece must be reusable; can be used for long time continuously without cooling and getting heated. Central activation should be through foot switch.
(a). Macro hand piece, short angled with connecting cable frequency: 25 kHz and 35 kHz app.200g, length approx.4 cmm, tip diameter outer 3mm while inner 2 mm.central activation foot switch (one each of both frequency)
(b). Micro pen hand piece, long angled with connecting cable; frequency: 25 kHz and 35 kHz weight approx.100g, length about 10 cm, diameter outer 2-2.5 and inner 1.5-2.0(one each of both frequencies)
(c). Micro-pen-hand piece of 35 kHz for bony lesion removal of adequate size and weight
8.Minimum 20 pcs of consumable accessories should be provided and should be eaily available thereafter.
9.Should be Magneto restrictive or piezoelectric technology based system.
10.Resonance frequency of tip should be in range of 20-45 kHz.
11.Should have original container for hand piece for storage and autoclaving.
12.Essential accessories are to be provided free of cost
13. Cost of consumable items should also be quoted separately.

Each Item should be both US- FDA and European CE approved and Enclosed the Desired Documents mentioning the name of Item.

All Instruments Should be highly heat resistance.

Lot number and name of Company should be mentioned on each instrument.

It should also have mentioned country of origin manufacture on each instrument.

The surface of the instruments should be non reflective.

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Item No.15
High Frequency C-Arm System

The System should be microprocessor controlled compact and Mobile offering excellent Image details.
Components:
A) IITV SYSTEM:
- 12" triple field Image Intensifier should be provided.
- CCD Camera with a progressive scan sensor of 2/3" of 1K x1K with square pixels should be provided. Acquisition should be made at 14 bits or better.
- Fluoro / Radiography and Angio acquisition should be possible and play upto 30 frames/sec.

- Two Nos. at least 22 inch diagonal " High Resolution, High Brightness, monochrome TFT Monitors should be provided.

B) C-ARM MOVEMENTS:
C-Arm should have following movements:
- Rotation: □ 90 Degrees.
- Motorized Up/Down: At least 400mm
- Horizontal Travel: At least 200 mm.
- Arc Orbital Movement: At least 90_0 + 25_0.
- Free space should be atleast 790mm.
- Source to image distance should be 950mm or more.
- Arc Depth should be more than 700mm.
- Following Safety feature should be available:
□ Locks for all the movements.
□ Control Stand foot lock.
□ Steering wheel for easy steering & movement

C) X-RAY GENERATOR:
- High Frequency X-Ray generator with power output of 20KWor more should be provided.

- Following modes should be provided:
□ Radiography
□ Fluoroscopy: Continuous & Pulse

- Unit should have following parameters:
□ KV range: 40 to 120KV (Rad./Fluoro)
□ Max mA: 200mA

D) X-RAY TUBE:
- Dual focus Rotating Anode X-Ray Tube of focal spot 0.6mm² (small) & 1.3mm² (large) to be provided.
- Anode heat storage capacity should be of 300KHU.
- Motorized IRIS and soft copper shutter collimator should be provided.

E) CONTROL: Control panel should have the following features:
- Modes: Continuous fluoro
: Pulsed Fluoro.
: Radiographic Mode.
- Digital Displays of KV, Fluoro Time, Fluoro mA should be provided.
- Radiographic timer to select Radiographic mAs.
- Fluoroscopic cumulative timer.
- X-Ray Tube head Temperature Sensor for Thermal Safety cut off should be provided.
- Following switches should be provided.
□ Mode Selector Switch.

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□ Collimator Control Switches.
□ I.I. Mode Selection Switches.
□ Exposure initiation Switches for Fluoro/ Radiography.
- X-Ray ON Indicator should be provided.

F) DIGITAL IMAGE ACQUISITION & PROCESSING SYSTEM

Digital Fluoroscopic Imaging (required features)

- Cine loop acquire up to 30 frame/ second
- Noise Reduction with Motion Correction
- Variable rate cine loop playback
- Multiband Image enhancement filters
- Digital automatic gain control
- Real time hold and save
- Pulsed fluoroscopy compatible
- Real time H and V flipping
- Dual monitor display
- Digital Spot Image Acquisition.
- Selectable acquisition rate
- Real time automatic optimum image enhancement
- Real time logarithmic correction and gain control
- Auto image storage in hard disc drive
- On-line image review and image processing

Digital Subtraction Imaging

- Real time edge enhancement
- Real time subtraction and road mapping
- Variable frame rate
- On-line mask subtraction
- Stenosis measurement
- Pixel Shifting

□ Clinical Image Processing features

- Adaptive optimum image enhancement
- Image zoom and multiple image display
- On-Screen image catalog
- Windows and level
- Electronic collimator
- Image flipping and rotation
- Annotation and pen draw
- Image measurement

Image Management Features (minimal requirements)

- Film printing and interface
- Large capacity of on-line image storage
- Image networking to other stations and department PACS systems
- Dicom 3.0 send and print
- Export image to BMP and AVI file
- Latest generation Macintosh based desktop computer system with video editing software for image processing and editing (dicom video handling - atleast 2 GB video harware) and one compatible latest generation laser multifunction printer to be provided separately.

G) STANDARD ACCESSORIES

□ **- Trolley to house the unit should be provided.**

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- 5 KVA servo Stabilizer and UPS of 1250VA for the system should be provided (atleast 45min Backup).
- Lead Aprons Light Weighted- 5 Nos
- Lead Jacket and Wrap Around Skirt pairs – 5 Nos
- Thyroid Shields- 10 Nos
- Lead Spectacles- 5 Set
- Sterilised Cover for C-Arm -05Nos

H) OTHER REQUIREMENTS:

- **Product to be ISO,US-FDA/CE approved.**
- The unit should be approved by AERB.
- The company should have proven track record in govt. Sector Bidders should have minimum experience of total 3 completed supply orders of HIGH FREQUENCY C-ARM SYSTEM FOR NEUROSURGERY OT in AIIMS New Delhi/PGI Chandigarh/JIPMER/ Govt./Semi-Govt. Hospitals/Corporate Hospitals related Organisations during the last 5 Years and duly certified documentary evidence of the same has to be produced by the concerned respective authorities,.

Item No.16

Neuro Navigation System (Image Guided System for Cranial & Spinal Applications)

1. The System should be easy to set up, user friendly, intuitive and should work under Linux / Unix/ Windows operating system environment.
2. The navigation system should have point as well as surface registration with accuracy prediction system.
3. The navigation system must have dynamic referencing so that registration is not lost even if camera or the patient moves.
4. Should have facility for marker less registration.
5. Should have user friendly application software.
6. The system should have facility of keeping optical camera and viewing system together or separately to allow optical use of O.T space. The system should have two monitors, one for the surgeon and the other for the OT/Technical staff.
7. The surgeon Monitor should be high resolution (at least 1920 x 1200, 60 Hz) with a viewable size of at least 24" widescreen.
8. It should have hybrid tracking system with active and passive instrument.
9. It should have universal instrument adapter tracking system with active & passive option.
10. The system should have image guided spinal instruments like short drill guide, Awl, Probe and Tap system with straight or T-handles option.
11. The system should include a frameless biopsy system with needles.
12. The system should interface with all major microscope systems available at.Hospital
13. The Microscope interface should be such that the navigation system can track microscope's focal point & trajectory plan.
14. The Microscope interface should give heads up display.
15. The navigation system should have hardware &software for stereotactic surgery including functional stereotactic procedures. The software should reorient the scan images along the AC-PC plane. The stereotactic system should be adaptable to major frames like Leksell and CRW.
16. Navigation system should have a Grid & Deformable Atlas for better navigation.
17. The system should have 3D graphics capability and software to merge CT & MRI images of machine present at Hospital
18. Look ahead view capability to show the images at 1mm to 20mm (increments of 1mm) in front of the probe.
19. All applications should have US FDA, CE or BIS approval.
20. The bidder shall provide all updates, software and hardware support for the systems and accessories during the warranty and CMC period.
21 The spine application should be a unified spine application which should comprise of 3D spine (Spine Navigation with Spine CT Data) and virtual fluoroscopy navigation for spine.
22. The application should be able to memorize multiple surgeon preferences for each procedure.
23. There should be a wireless control from the sterile field in form of surgeon mouse.
24. It should be able to do a customized setup and automated functional check. It should have universal instrument adaptor tracking system with active and passive option.
25. System should have facility of virtual fluoroscopic navigation for spinal applications compatible with 9"/12"C-Arm available at Hospital
26. The System should have Navigation instruments for Minimal invasive Spine Procedures.
27. 5 Years Warranty with spares and further 5 Years CMC with spares. Should have service centre in theEastern Region of India
28. Undertaking to stock an inventory of all spares for 10 years.
29. Man Power should be provided for supporting cases for 5 years.

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Item No. 17

1. Miniplate Fixation Set

Description: Miniplate fixation set is for cranial repair of craniotomy site and closure for burr hole site or craniectomy site by MRI compatable Titanium plate/screw/mesh for rigid fixation and protection. It should have US FDA / CE approved. The desired document should clearly indicate the name of instrument in FDA and CE certificate. All instruments should have name of company and code no. It should contain the following minimum components

Screw driver with blade for cross & square, twist drills with handle for screw with thread

Plate bending forcep
Plate holding forcep
Plate cutting forcep
Self drilling screw1-1.5 mm dia & 3mm long
Self drilling screw 1-1.5 mm dia & 4 mm
Self drilling screw 1-1.5 mm & 5 mm
2 holes titanium plate approx.. 15 mm
4 holes titanium plate
Long multihole titanium plate about 6 cm
Titanium mesh approx... 6x9 cm
Burr hole titanium cover 20 mm
Double Y titanium plate approx...15-20 mm
Container for storage and sterilization of same company

(18) **HIGH END, LATEST, PREMIUM FULLY DIGITAL COLOR DOPPLER COMPATIBLE TO COMPUTER ASSISTED SPINAL AND NEURO NAGIVATION**

- SHOULD BE OF LATEST TECHNOLOGY
- SHOULD HAVE AT LEAST 19" LCD/TFT COLOR DISPLAY
- SHOULD SUPPORT B,M,COLOR,PW,POWER DOPPLER MODES
- **Directional power Doppler and advance dynamic flow/e flow MUST BE PRESENT For small flow detection**
- SHOULD HAVE 3 ACTIVE AND ONE PARKING PORT
- **SHOULD HAVE HIGH FRAME RATES MORE THAN 700 FPS**
- SYSTEM DYNAMIC RANGE SHOULD BE MORE THAN 170DB
- **SHOULD HAVE TISSUE HARMONIC IMAGING CAPABILITY IN ALL PROBES**
- SHOULD HAVE REAL TIME COMPOUND IMAGING TECHNOLOGY
- BOTH REAL TIME AND FROZEN ZOOM UPTO 16 TIMES
- **SHOULD HAVE INTEGRATED TOUCH SCREEN/PLASMA TOUCH SCREEN FOR USER FRIENDLINESS**
- REAL TIME QUANTIFICATION OF DOPPLER PARAMETERS WITH SMART TRACE
- FACILITY OF PANAROMIC VIEW/EXTENDED FOV MUST BE PRESENT
- **SPECIAL SOFTWARE FOR INTIMA MEDIA THICKNESS CALC (IMT PACKAGE)**
- ALL PROBES SHOULD BE MULTIFREQUENCY WITH MINIMUM 5 FREQUENCY SELECTIONS
- **CINE LOOP MEMORY OF MORE THAN 15000 FRAMES AND 60 SEC M/D SCROLL**
- SCANNING DEPTH MINIMUM 24 CMS
- EXHAUSTIVE SOFTWARE FOR WHOLEBODY APPLICATIONS WITH REPORT FORMATS
- 1000 PATIENT DATA MEMORY SHOULD BE AVAILABLE

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- SHOULD HAVE INTEGRATED HARD DISK FOR IMAGE STORAGE/RECALL WITH COMPLETE IMAGE MANAGEMENT

- DIRECT COMPATIBILITY TO ATTACH INKJET/LASERJET PRINTER ALONG WITH A CD-RW MUST BE AVAILABLE

- THE SYSTEM MUST HAVE FACILITY FOR UPGRADATION TO REAL TIME 4D IMAGING USING ABDOMINAL & TRANSVAGINAL VOLUME PROBE(PRICES TO BE OFFERED OPTIONALLY)

- TISSUE DOPPLER IMAGING SHOULD BE AVAILABLE AS OPTION

- ANGULAR M-MODE/ANATOMICAL M-MODE OPTION SHOULD BE AVAILABLE

- THE UNIT SHOULD BE DICOM READY FOR CONNECTING TO REMOTE SERVER/LASER CAMERA

- **PROBES – (THREE PROBES)**

  THE SYSTEM SHOULD BE QUOTED WITH MULTI FREQUENCEY MICRO SURGERY TRANSDEUCERS FOR SURVICAL SPINE SCANNING (5 - 13 MHZ).

  ANOTHER PROBE (LINEAR) – SUPER HIGH DENSITY MULTI FREQUENCY LINEAR TRANSSPHENOIDAL TRANSDEUCERS FOR SCANNING THE PITUITRY GLAND, SURVICAL SPINE AND OTHER NEURO SURGICAL PROCEDURES.

  ANOTHER PROBE (MICRO SURGERY) – TINY TRANSDEUCERS TO HANDLE TIGHT SITUATIONS FOR SUVICAL SPINE SCANNING.

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