DEPARTMENT OF ENT , RIMS

Requirement of medical instruments and machines for financial year 14-15

Sl. No.	Name of the equipment and Specification	Quantity
1	Coblator: Coblator for ENT operations with all types of wands. (Quantity of wands- EVAC-80pcs, MAX- 40pcs,45-20pcs,55-10pcs,LW-20pcs,MLW-15pcs,SP-10pcs, Head & Neck-5pcs.) (Nasal, oral, laryngeal etc)and Articulating thru- cutting & grasping forceps – with vertical jaw.	1
2	Operative Microscope:	1
3	Video Stroboscope:	1
4	Temporal Bone Lab:	2
5	Cryoset with all ENT probes	1
6	Work Station: ENT OPD set with Desktop terminal, Documentation set (for patient examination)	1
7	Navigation system for Skull Base and Endoscopic Sinus Surgery system should be usable for ENT surgery. It should cover the following procedures FESS, Endoscopic skull Base surgery. Lateral skull Base and Temporal Bone Surgery, cochlear Implant, Rhinoplasty etc	1
8	Modular and Integrated ENT OT	1 OT
9	Thyroplasty Set	1
10	Cochlear Implant instruments	1
11	Transport Stretcher	1
12	Sialendoscopy Set with instruments and accessories	1
13	ABR with ASSR	1
14	Impedance Audiometry	1
15	OAE	1
16	Pure tone Audiometry	1
17	ENT OT Table	4
18	Modular OPD	1
19	Nerve Integrity Monitoring System	1
20	CUBICLE TRACK SYSTEM	6
21	Ultra Sonic Nebulizer	3
22	Nurse Call System	1

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TECHNICAL SPECIFICATIONS OF COCHLEAR IMPLANT INSTRUMENT SET	
SL. NO.	**DESCRIPTION OF ITEM**
1	Surgical Handle, Fig. 3, length 12.5 cm, for Blades 208010-15, 208210-15
2	PLESTER Retractor, 2 x 2 prongs, length 11 cm
3	WULLSTEIN Retractor, 3 x 3 prongs, length 11 cm
4	ANDERSON-ADSON Retractor, 4 x 4 prongs, sharp, curved, length 20 cm
5	OLIVECRONA Brain Spatula, angled on both sides, concave, elastic, width 11 and 13 mm, length 18 cm
6	OLIVECRONA Brain Spatula, angled on both sides, concave, elastic, width 7 and 9 mm, length 18 cm
7	PLESTER Suction Tube, with grip plate, cut-off hole and stylet, LUER, 5 Fr., length 20 cm
8	PLESTER Suction Tube, with grip plate, cut-off hole and stylet, LUER, 7 Fr., length 20 cm
9	PLESTER Suction Tube, with grip plate, cut-off hole and stylet, LUER, 9 Fr., length 20 cm
10	Suction Tube, angular, LUER-Lock, outer diameter 0.5 mm, working length 6 cm
11	Suction Tube, angular, LUER-Lock, outer diameter 0.7 mm, working length 6 cm
12	WULLSTEIN suction handle with cut off hole, LUER cone, length 10 cm for use with different suction tubes
13	Octogonal handle with LUER-cone, straight, length 17 cm
14	Diamond Burr, barrel-shaped, diameter 5 mm, length 10 mm, for creating a flat bone edge during cochlea implantation surgery, blunt tip for protection of the dura, with smooth shaft diameter 2.35 mm, length 44 mm
15	Diamond Burr, shaft diameter 2.35 mm, diameter 0.6 mm, length 70 mm
16	Diamond Burr, shaft diameter 2.35 mm, diameter 1 mm, length 70 mm
17	Diamond Burr, shaft diameter 2.35 mm, diameter 1.4 mm, length 70 mm
18	Seeker, extra delicate, angled 25°, with ball end diameter 1 mm, length 16 cm
19	Seeker, extra delicate, angled 25°, with ball end diameter 1.5 mm, length 16 cm
20	Forceps, for insertion of cochlear electrodes, nucleus 24 contour, curved to left, working length 6 cm
21	Forceps, for insertion of cochlear electrodes, nucleus 24 contour, curved to right, working length 6 cm
22	Micro Guiding Instrument, for electrodes array, claw-shaped, tip angled downwards, length 16 cm
23	Micro Guiding Instrument, for electrodes array, claw-shaped, tip angled upwards, length 16 cm
24	Footplate Hook, 0.2 mm, length 16 cm
25	PLESTER Footplate Hook, 0.6 mm, length 16 cm
26	LENARZ Retractor, 43 x 11 mm, slim and flat blade with integrated suction tube, length 21.5 cm
27	SCHÖNBORN Thymus Retractor, width 5 mm, length 20.5 cm
28	RANEY Applying and Removing Forceps for scalp haemostasis clips, length 16 cm
29	Needle Holder tungsten carbide inserts, length 15 cm
30	Dissecting and Ligature Forceps, straight, smooth jaws, length 9.5 cm
31	FREER Elevator, double-ended, semisharp and blunt, length 20 cm
32	PLESTER Raspatory, width 8 mm, length 18 cm

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33	ALLIS Forceps, with fine teeth, length 20 cm
34	WULLSTEIN Forceps, serrated, length 15 cm
35	Dressing Forceps, narrow, length 14.5 cm
36	ADSON-BROWN Tissue Forceps, atraumatic, fine side grasping teeth, length 12 cm
37	Bipolar Coagulating Forceps, insulated, bayonet-shaped, slim shaft, tip 0.5 mm, length 19 cm, for use with bipolar high frequency cord
38	Preparation Plate, glass, 10 x 8 cm
39	Bipolar High Frequency Cord, length 300 cm
40	DALCHOW-O'DONOGHUE retractor for cochlear implant operation consisting of: retractor with ergonomic handle , cold light illumination suction channel with cut-off hole, LUER concave blade 20X30 mm length 19.5 cm Fiber Optic light carrier with suction tube length 18.5 cm
41	ISSING Retractor, 43 x 11 mm, slim and flat blade with integrated suction tube, length 21.5 cm
42	BTE template (made from SS)
43	Array exit marking template (made from SS)
44	Implant template (made from SS)
45	Bone recess template (made from SS)
46	Recess checking gauge (made from SS)
47	Jewelers forceps
	Should be CE/ FDA approved

19.8.

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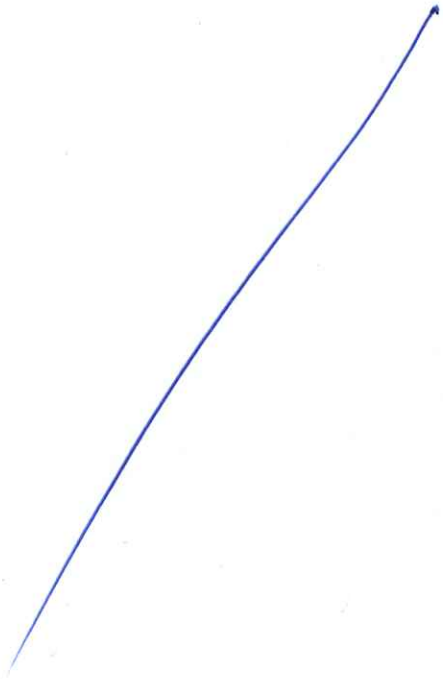

ENT Operating Electro hydraulic O.T. table with sliding top and attachments

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 Tilts/Back Section/Leg Section)
- Base locking of the table via retractable castors

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- 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.

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

Should be CE/FDA approved

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Tender Technical Specifications for Image Guided System for ENT :

1. Navigation System for ENT :

* The system should be computer based on standard software based operating system.
* It should be ergonomic, protable, light weight, space saving and with high performance.
* It should have mobile cart with camera stand for flexible positioning / Emitter.
* The system should be plug n play with user friendly system software to control set up, registration and navigation.
* It should be capable of performing registration in less than three minutes.
* The system must have dynamic referencing so that registration is not lost even if camera or patient moves.
* It should have total surgical control in sterile field on a fingertip with a touch screen monitor / or optical mouse.
* It should have provision of Rapid data transfer directly to the navigation station with the option of CD-RW / DVD-ROM combo-drive and USB 2.0 port for direct data import as well.
* Should be connectable with OT monitor with appropriate cable.
* The navigation system should be operable with or without keyboard and mouse
* The ENT Software should be versatile and should support Functional Endoscopic Sinus Surgery (FESS) procedure, complex cases such as Coronal flaps and Lateral Skull base procedures.
* The system should be supplied with patient tracker and Custom sterilization tray, which should be autoclavable / reusable.

2. General Software / Application Specifications :

a. The system should have complete ENT and skull base surgery, navigation and its application package.

b. Display of a predefined trajectory pathway in inline and probe views. The software fuses axial, coronal and sagital image sets of different modalities (CT & MRI). The fusion of CT and MRI should be inbuilt with the system. Any upgradation of software to be done on FOC for a period of 5 years onsite at the Hospital. The treatment planning software should have functions to outline structures. It should have universal instrument adapters with markers to allow tracking of any existing hospital instruments like drills, bipolar, knife, probe, microdebrider and endoscope. Calibration of existing instruments should be done automatically.

c. All the instruments, tracker / marker should preferably be Autoclavable.

1. Registration probe.
2. Straight probe.
3. Straight suction.
4. 70 degree curved suction.
5. 90 degree curved suction.
6. Osteum Seeker
7. Sterilisation tray.

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8. Head frame-kit tracker, pad, adhesive, FESS tractor, head frame / equivalent technology.
9. The virtual tip should be differentiated from real tip by color.
10. The system should have registration with accuracy prediction system.
11. The system should warn the surgeon by colour change / audible signal when approaching the critical areas.
12. The system should have dynamic visualization of distance to target point and intra-operative landmarks.
13. The system should have still photograph storage function as well as continuous video recording for documentation purpose. With appropriate cables / adopter and connections for laptop and existing medical monitor.

3. Endoscopes 0 Degree, 45 Degree and 70 Degree :

Rigid Endoscopes.

Diameter 4.00 mm.

Length 18 cm.

Fiberoptic Light Transmission.

Autoclavable.

4. Microdebrider :

a. Control Unit ~

Should be a versatile powered ENT System, that can choose the power required for various ENT related surgeries.

The system should be suitable for variety of ENT procedures ranging from Rhinology, other transnasal procedures, Otology, Neurotology, Nasopharyngeal / Laryngeal, tracheal and bronchial.

Should have built in user friendly interactive menu and illustrative help guide.

The various parameters should be able to adjust either from touch screen panel or from the multifunction foot switch.

Should be able to connect multiple hand pieces at a time like debrider hand pieces (upto 5000 RPM in Oscillating Mode and 12000 RPM in Forward Mode), Low Speed Otologic Drills (upto 16000 RPM) and High Speed Otologic Drills (upto 80,000 RPM).

Console should recognize the various hand pieces and automatically adjust the setting accordingly.

b. Irrigation ~

Should have inbuilt pumps each for irrigation (5Cc/Min to 10 Cc/Min) and Cooling.

Should have option for remote control irrigation to operate from sterile area.

Should have in built lens cleaning system.

Should have provision to connect facial nerve monitor with the otologic drill.

Should have the provision to mount the console on various sizes of IV Pole.

10

c. **Foot Control ~**

Should have multifuction ergonomically designed foot control with light emission for easy identification.

Should be able to control Speed / Mode – Forward / Reverse Toggle Active Hand Piece change from the foot control itself.

Light Weight.

Smooth Operaton, switch over to high and low speed.

Water Proof.

d. **Shaver Hand Piece ~**

Light weight and sleek

Well balanced to give good feel and reducing hand fatigue.

Easy and rapid blade engagement.

Variable speed (approx. range 1500-12000 rpm) with forward / reverse and oscillating mode.

Integrated suction channel, easy cleanable, flash autoclavable.

Should not get heated.

e. **High Speed Drill with > 70,000 RPM for Endoscopic Skull Base Surgery ~**

Hand piece (angled) minimum 14 cm.

Cutting and Diamond burrs of size 3 mm & 2.5.

Curved endoscopic attachment with Cutting and Diamond burrs of size 3 mm & 2.

5. **Cart / Movable Trolley for housing the whole equipment.**

7. **UPS 2 KVA with 30 minutes back up for whole equipment.**

8. There should be facilities to upgrade the system to be compatible with PACS System.

9. Proper training OT technical staff by the company person.

15. **CE Certification:** All the tenders to be supported by original brochure containing the details of the technical specification of the product.

16. **Standard and Safety :** Should be CE and FDA approved produce.

17. **Consumables required for proper functioning of equipment to be provided alongwith their price during CMC and warranty period.** The prices of these spares / accessories / consumables should be freezed for a period of 10 years and will taken into consideration for evaluation.

18. **List of Consumables / Accessories required for trial period :**

(i) Patient tracker

(ii) Instrument Tracker

(iii) Skull mounted patient tracker for skull base surgery

(iv) Adhesive Pad Head Tracker

(v) Silicon Pad Head Tracker

(vi) 4 mm EM Navigated Blade

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(vii) Blades (straight & angled) for Microdebrider

(viii) Battery and mask

(ix) Curved drill for skull base.

Cost of consumables should be quoted seperately @ 150 cases in a year fixed for a period of 10 years which will be taken for the purpose of price evaluation.

ALL THE ITEMS SHOULD FROM A SINGLE MANUFACTURER FOR SYTEM COMPATIBILITY.

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SPECIFICATIONS OF MODULAR OPD WITHENT WORKSTATION AND OTHER EQUIPMENTS

ENT Medical Control Center Finish in HPL compact board 13 mm, black with white coating; Lockable cover with rounded corners in hinge-back design for inspection purposes; Holder for camera head; Fixed bling on the left with mounted standard rail with adaptor and quiver set for flexible scopes; Lockable lower front door on the left for inspection purposes; Right body half with adjustable shelf; 6 leveling pedestal feet; Plinth h = 150 mm, ventilation holes as required; Open back, fittings for attachment to the OF1 back wall; Power and water connections, power supply 220 - 240V/50-60 Hz, power consumption max. 1.500 W; Connecting cable U = 24 V for instrument heating; Integrated water separation unit with free outlet (DIN/EN 1717:2000), booster pump, outside mounted stainless steel case with autoclavable water tank; Integrated suction system, finely adjustable from 0 to -0.8 bar via manometer, suction capacity 70 l/min, automatic on/off switching via handpiece, automatic retracting hose with snap-in lock, secretion glass 1,5 l with automatic draining and rinsing, automatic suction tube rinsing; Integrated water system, electronic temperature control of rinsing water (37 °C), finely adjustable via handpiece with detachable cannula and splash guard, ear rinsing funnel with automatic suction of rinsing water, silicon tube lip for irrigation of maxillary sinus; Integrated compressed air system, pressure adjustable between 0 and 2.5 bar via manometer, finely adjustable via handpiece, automatic retracting hose, 3 medical vaporizers (2 x liquid, 1 x powder), basic supply of Politzer olives; Technology package with 4 integrated cold light sources with KARL STORZ connector on the front, automatic on/off switching, illumination 3700 - 5000 K, luminosity adjustable, free from maintenance and wear; 3 holders for rigid scopes with adjustable heating, 3 tubes for antiseptic solution, 1 tube for neutralizing solution; Socket 3,6 V for Nystagmus lenses, socket 6 V for headlight warmlight; Holder with automatic on/off switching for 1 lightsource, mounted in the cover; Should have Installation Kit , Camera Holder, Adaptor for standard equipment rails, Quiver for flexible

Instrument Rack ; Finish in HPL compact board 13 mm, black with white coating; Roller shutter with white laminated surface; 6 leveling pedestal feet; Plinth h = 150 mm; Rear open, fittings for attachment to the back wall; 1 fixed upper instrument tray with heating, different banded instrument pans; 1 extendable lower instrument tray, different banded instrument pans; 2 extendable instrument shelfs with end-locking; 1 pull damped drawer h = 120 mm for taking of celluloses through the front panel with associated inlay; 3 pull damped drawers h = 120 mm; 1 pull damped drawer with tray inside for the deposit of used instruments; 1 foot operated pull damped drawer h = 243 mm with separated bin for the deposit of packing materials etc.; Dimensions (H x W x D) 1001 x 720 x 571 mm

Computer Cabinet Finish in HPL compact board 13 mm, black with white coating; upper open rack, adjustable shelf with upstand; Lower closed compartment, front door, adjustable shelf; Vents according to requirement; 4 leveling pedestal feet; Plinth h = 150 mm, ventilation holes as required; Open back, fittings for attachment to the back wall; Dimensions (H x W x D) 1001 x 360 x 571 mm

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Back Wall Finish in HPL compact board 13 mm, black with white coating, faced on both sides; Support frame in aluminium profiles; Built-in system rails; Built-in LED edge-lit in blue colour; For mounting to Medical Center and Instrument Rack; Dimensions

Back Wall ; Finish in HPL compact board 13 mm, black with white coating, faced on both sides; Support frame in aluminum profiles; Prepared for mounting of a monitor support arm off center left, built in additional aluminum stiffener; 1 built-in cable outlet d = 60 mm; Built-in LED edge-lit in blue color; Free-standing;

Hang-on Tray KK; Finish in compact HPL board 13 mm, black with white coating; To hook in the system rail in the Back Wall

ENT-Examination microskope , Wall mounting plate; Swivel and suspension arm; Integrated light source; Microscope carrier; Magnification unit with 3-step changer; Straight binocular tube, f = 125 mm; Stationary pistol grip; Dust cover –

Module Patient Chair, ENT examination chair with legrest and headrest, about approx. 270° swivable, electrical height adjustment, electrical synchronous adjustment of the laying size, operated by integrated function control, up to 36 presets for 9 different users, headrest with pneumatic system height adjustment, single key for Trendelenburg Position, backrest with automatic height adjustment during change of inclination Connection 110 - 240 V / 50 - 60 Hz Seat height 53 - 91 cm

DOCTORS EXAMINATION CHAIR
Wide base, should have rolling casters for easy movement
Should have back rest
Easy height adjustment of hydraulic nature
Comfortably cushioned seat

RIGID ENDOSCOPES
4mm/0 & 30 degree nasal endoscope-1 in number
2.7mm/0 & 30 degree nasal endoscope-1 in number
Magnifying 90 degree Laryngoscope with facility to focus manually - 1 in number
Ear telescope [aural endoscope]: 3mm-diameter/ 6cm length/ 0 degree-1 in number
Ear telescope [aural endoscope]: 3mm-diameter/ 6cm length/ 30 degree-1 in number
All above endoscopes should be autoclavable

FULL HD IMAGE /VIDEO RECORDING & DATA ARCHIVING SYSTEM & PATIENT SAFETY CHECKLISTS

- User friendly software designed specifically for medical purposes
- Captures still Full HD (1080P) Video sequences (from3 sources), and audio files
- Resolution of both still images & videos should be 1920x1080 p
- Writes multi-session and multi-patient CDs/DVDs

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- Controllable via Touch Screen, camera head buttons, footswitch mouse and keyboard
- Fully controllable from inside and outside the sterile field
- Supports network storage on file servers
- Supports FTP storage
- USB support for storage on USB drives
- Customizable print-outs for the documented information
- Prints to any connected printer (local or network)
- HIPAA complaint
- Buffer system to insure reliability
- Medical grade unit with CE mark
- Chipset : Intel® 855GME + Intel® 6300ESB Embedded Chipset
- Processor: Intel® Pentium® M735
- Graphic: Intel® Extreme Graphics 2 Controller onboard
- Grabber-card DVI-D, SDI, S-Video, Composite
- Audio: AC97/DD5 onboard
- RAM: 2 GB
- Harddisk: 500 GB SATA 3.5"
- Drive: Multifor Slim line DVD RW
- PCI Slots: 3 x PCI
- LAN: 3 x 10/100/1000 Mbps onboard
- 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;
- DICOM and HL7 interface

The HL7 interface system shall be connected to the Image and Data Archiving system to allow the patients demographics to be downloaded directly to the patients data file.

26" FULL HD FLAT LED SCREEN (Spring arm / Wall mounted)

The surgical display screens shall be medical grade 26" FULL HD (1080P) LED Screens with the following video inputs :

- DVI-D (digital)
- SDI (digital)
- VGA, RGBS
- S-Video
- Composite
- SOG input

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The display screens should comply the highest safety standards:

- Fanless cooling prevents the introduction of contaminants into the sterile field.
- Low voltage (24 VDC) external power supply may be located 30 m away from the screen, removing any electrical concern.
- Front sealed, anti-glare overlay guarantees the highest level of defence against liquid ingress.

VIDEO STROBOSCOPE SET

The Integrated system should be compact and portable suitable for a variety of endoscopic applications from physician's offices to operating rooms in a variety of specialties.
The powerful all-in-one unit should consist of everything needed for endoscopic imaging, Video recording, and viewing of saved Videos, the monitor, camera, and light source.
IT should have USB ports and a SD card slot for documentation purpose.
Stroboscope for larynx examination a modern device that generates light with a high performance LED
• For stroboscopic examination (stroboscope-mode)
• For normal viewing (continuous light-mode = pulsating light with high frequency)

Suitable for larynx examination, Consisting of:
Mains Cord
Microphone set
One USB pedal footswitch with integrated activation for Stroboscopy function

DISPLAY:
Crystal clear display
15" LCD display
LED backlight display technology for extended service life, enhanced image brightness and reduced power consumption
Image rotation
24 bit color depth for lifelike color display
DVI video output for brilliant transmission quality
LED Light Source:
High-performance LED light source: Light output similar to Power LED
Color temperature of 6000 K - similar to daylight - guarantees color fidelity
Long lamp life - with an average lamp life of 30,000 hours - Cost Effective
Flexible storage options:
SD slot for high storage capacity
USB ports for external hard drives and USB sticks
Easy, extremely reliable control:
Membrane keyboard included, suitable for wipe-down disinfection
Hot keys for rapid and direct manipulation
Arrow buttons for intuitive control
Connection socket for pedal control without lag time
Stroboscopy mode can be activated via a special footswitch
Technical Specification of Camera Head:

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19-8.

Image sensor:	1/4" CCD-Chip.
Resolution:	> 450 lines (horizontal).
Pixels	752(H) x 582(V)
Signal-to-noise ratio:	>= 60 dB.
AGC:	Microprocessor controlled
LENSE	Integrated optical zoom lens system 25-50mm
Min. sensitivity:	3 Lux (f 1.4).

Tele Laryngoscope

Tele-Laryngo- Pharyngoscope with integrated lateral telescope 90 deg, 4 X magnification focusing device diameter 10 mm, length 15 cm, autoclavable, fiber optic light transmission incorporated.

Strobo-Laryngoscope with integrated lateral telescope 70 deg, oval sheath, 7.2 x 9.3mm diameter, length 17 cm, autoclavable, fiber optic light transmission incorporated.

Following items are optional

- Compatible System for easy recording of images and videos in HD digital formats. Easily transferable to External hard drives and USB pendrives/storage cards without losing resolution.
- Fibreoptic Otoscope with all size speculums including Seigel's pneumatic Speculum.
- Otoscope with fibreoptic illumination
- 3.5, volts Halogen bulb with 5 spare bulbs.
- Magnification, 3 or 4 times.
- Pneumatic bag for Sieglisation of tympanic membrane
- 8Reusable and autoclavable speculum set of 4 or 5—2 sets for each Otoscope
- Heavy duty handles with charger and chargeable long life battery with spare battery.

ALL MAJOR EQUIPMENTS SHOULD BE EUROPEAN CE/FDA APPROVED.

19.8.14

Pure Tone Audiometer

Advanced Two Channel Clinical Audiometer with High Frequency upto 20 KHz

1. Air , Bone and Speech

2. Free Field ,Speech and Pure Tone

3. 2 Channel Binaural Speech

4. Automatic Threshold (Hughson Westlake)

5. Bekesy test

6. Automatic Speech Scoring

7. 2 Channel Master Hearing Aid

8. Tones : Pure, Warble and Pulsed Tones

9. Masking : WN, NB and SN Masking

Special Test: ,

SISI Free Field (Option) Stenger and ABLB Test

Loudness Balancing: 250 Hz, 500 Hz, 2kHz, 4kHz,

6kHz NB noise with direct comparison to standard curves.

Ttdecay:

Masking Limen Difference (MLD):

Monaural Loudness Balanceing (MLB):

Number of Channels : Two Independent Oscillators

Frequency Range : 125 Hz – 20kHz Intensity Range : -

10dB – 120dB (Air Conduction) -10dB – 80dB (Bone

Conduction) 5dB and 1 dB Attenuators

Frequency Resolution: Multi frequency, Medical CEmark.

CE/ FDA approved

19.8

Impedance Audiometer / Tympanometer

Audiometer impedance with contra ear testing facilities

· Multifrequency

· Probe Frequency- 226Hz, 678Hz,800Hz,1000Hz

· Pressure Range- +200 to – 400 dapa

· Volume Range - 0.1 ml to 6.0 ml

· Accuracy - ±5% to ±10 dapa

· Test Time- < 3 Seconds

· Reflex Mode

· Test Frequencies- 500, 1000, 2000, 4000 Hz ± 2%

· Test Method- IPSI Lateral, Contralateral

· Noise (Band) - WN/HP/LP

· Intensities IPSI Lateral-70 to 110 dbHz

· Intensities Contra Lateral- 70 to 120 dbHz (with TDH39)

· Intensity Setting- Automatic or Manual

· Eustachian Tube Function - Intact and Perforated mode

· ETF Pressure Range-+ 300 to – 400 dapa

· Test -IPSI Lateral Reflex Test with AGC, Reflex Delay

· Test Programme- Reflex Test selectable

· Memory- Test Result of both ears

· Probe - Light weight, adjustable, Hand Held , With Built in control light & switch

· Printer- Silent Thermal Printer , (with paper printer facility)

· Display-Graphic LCD with adjustable contrast

· Power Supply- Mains 100-240 Volts, 50/60 Hz 25 VA

· PC Interface- USB Cable· Automatic self calibration

CE/FDA approved

19.8

Oto Acoustic Emission (Screening unit) OAE (DP and TE)

TEOAE

1.5 to 4 kHz
Sample Rate - 16 kHz
Stimulus Level- ca. 80 dB SPL peak
Stimulus Type- Nonlinear click
Statistical stop criterion (TE Quick) or user defined
stop criterion (SNR: 3, 6 or 9 dB) in 3, 4, or 5 out of
5 frequency bands (1, 1.5, 2, 3, 4 kHz) (TE Diag)
Window of analysis- 5-13 ms post stimulus

DPOAE

DP 2 to 5 kHz
Sample Rate - 24kHz
Frequency Ratio f2/f1- 1.2
Level Ratio L12/L1- Scissor Paradigm
Measurement Interval- 512 samples
Frequencies f2- 1.5, 2, 3, 4, 6, 8, kHz (single & multiple selections possible)
Stimulus Levels L2- 35 to 65 dB HL (in steps of 5dB)
Also battery operated
Multiple test methods
Database for at least 1000 tests
Data transfer to PC via USB or wireless
Printing via PC/ Printer
Stimulus intensity: 40 to 70 dB SPL (DPOAE). 83 dB

SPL (TEOAE).

Maximum output (Protection): 90 dB SPL.
Microphone system noise: -20 dB SPL @ 2 kHz (1 Hz
bandwidth).
-13 dB SPL @ 1 kHz (1 Hz bandwidth).
Power supply: (4) AA/UM-3/R6 - alkaline (6V total)
Battery life: Approximately 300 tests.
Display: LCD-display 4 line x 10 character.

CE/FDA approved

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Brainstem Evoked Response Audiometer with ASSR

Special key features of BERA

CE CHIRP

Fmp- incorporating multiple point of recorded wave form

Bayesion Weighting (More significant to responses received with less noise.)

Features

2 channels.

Windows based.

Bone Conduction.

Integrated database.

Pre-programmed auto tests.

Waveform reproducibility indication.

Split left/right recordings.

Simultaneous recording of condensation rarefaction stimuli.

Normative data indication.

Soft attenuator.

Wave editing during testing

Digital filter application (during and after test).

Add, subtract curves

Low noise amplifier

Upgraded with OAE, ASSR and VNG, NCT

Medical CE-mark

Easy portability

EcochG recordings with markers

Middle Latency

Late Latecy (P300, MMN etc.)

Cochlear Implant Stimulator Control

ASSR:

PreAmplifier

2 channels

Gain 80 dB

Frequency Response upto 8000Hz

Noise 6.0 nV Hz

CMR Ratio > 115 dB at any frequency between 0.1Hz & 10Hz.

Input Impedance > 10M

Accepted electrode offset > 300mV.

Power from main unit.

Impedance Check

Measuring Current 25uA.

Ranges 0.5k – 25k.

CE/FDA approved

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Sialendoscopy Specification

- Miniature Straight Telescope with 0 degree view, diameter not to exceed 1mm with length approx. 10cm, telescope should be semi-rigid with rotating eye-piece with attached Luer-Lock adaptor, transmission for fibre optic light cable should be incorporated.
- Sheath for examination of the submandibular duct with one blunt obturator and one with conical tip along with lateral luer-lock for irrigation to be fit with the miniature scope, diameter should not exceed 1.3mm with length approx 8cm.
- Operating Sheath with two different channel, along two blunt obturators & two luer-lock adaptors in built, one channel upto for instrument 3 Fr. with O.D. not exceeding 1.3mm, and second channel can be used with miniature straight telescope, irrigation channel should be lateral with luer-lock adaptor with O.D. approx. 1.3mm, working length not exceeding 4mm & the overall length of the sheath should be between 10.5 & 11 cm.
- Grasping forceps to extract fragmented stone with both jaws moving, length approx. 11cm & diameter not to exceed 1mm.
- Grasping forceps to extract fragmented stone with both jaws moving, length approx. 19cm & diameter not to exceed 1mm.
- Biopsy forceps with the jaws working should be flexible with diameter not to exceed 1mm; working length should be approx. 22cms.
- Dual action jaw, flexible grasper with diameter not to exceed 1mm, working length 22cm approx.
- Stone extractor basket, outer diameter 0.6mm with 3 wires should be sterilable Qty. 10
- Stone extractor basket, outer diameter 0.6mm with 6 wire should be sterilable Qty. 10
- Atraumatic mosquito forceps should be curved with length approx. 12cm Qty 2
- Should be CE/FDA approved

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Specification for ENT microscope.

- Binocular tubes – Straight and ergonomic head tiltable from 180^0. Objective - F-200/F-250, F-300, F-400.
- Eye Piece-12.5 X wide field high eye point.
- Light source- cold light through fiber optic light guide bulb LED. Illumination field around 50mm & illumination intensity around 80,000 lux.
- Built in heat absorbing filter (blue and green).
- Coaxial zoom , Motorized fine focusing
- Beam splitter with "c" mount. (Endoport type beam splitter preferred) (optional)
- Integrated digital camera with video recording and video playing facility with high quality resolution.
- High resolution wide field optical system.
- Penta arm adjustment 400mm, Penta arm rotation 0-250, head swivel 0-90.
- Movable on Castor wheels (preferable 4 wheels).
- CE/FDA approved.

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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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	Nerve Stimulator for Monitoring Facial, Vestibular & Peripheral Nerves.
STIMULATOR	
Current	0.00mA to 30mA
Pulse width	S/W selectable 50,100,150,200,250 Micro sec
Pulse off time	Software Selectable
Pulse frequency	Software Selectable 1, 4 ,7 or 10 Hz
Output Display	Graduated Touch Screen control with LCD. **Type**: High contrast, digital, graphic color, visible in complete darkness. **Dedicated Function Event Touch Screen Controls:** For Amplitude, Time display & capture.
Stimulating Forceps	Mono polar or Bipolar probes
Monitor	
Number of Channels	Eight
Preamplifier gain	107 +/- 4 dB
Frequency Response	100-2000Hz
Input sensitivity	5 – 10,000 micro volts
Output display	Wave form display
Audio Output	Transducers: Built in speaker. EMG & Event Tone Signals: Continuously processed EMG and/or activity-level dependant event tones for each channel. Volume Preset & Limiter: Volume power up Pre-set Default & a Low volume limiter. Current Delivered Tone signals: Selectable options include continuous & brief warble tone, voice & voice settings. Signal occurs when 80% of the set current is measured over range of 0.5 – 30mA. Connection: RCA phone Jack Headphones:
System requirements	Cable-free method of speaker muting
Power Supply	230 V / 50 Hz

Features:

- Channels: 1-8: Individually & simultaneously selectable.
- Input Sensitivities: 5-10,000 microVolt peak to peak AC coupled.
- Dedicated function touch pads for independent channel control
- Adjustable event threshold control
- Sensitivity Selection: Automatically zeroed.
- Artifact detection & rejection
- Artifact detection feature to distinguish between artifact and EMG signals
- Monitors simultaneously during bipolar cautery
- Has sub dermal electrode – checking features

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- Multiple USB ports for connection with mass storage devices including compact flash drives, along with provision to connect external Printer

- Option of Incrementing probe to adjust stimulus level and print or save by the surgeon from the sterile area
- Possibility to use two stimulators at once
- Software selectable stimulus characteristics.
- Wide range of Stimulators consisting of malleable tip Monopolar probe and Bipolar probe with optional dissecting tool stimulators
- Electrode placement screen: Display of a range of electrode placement graphics
- All patient probes & electrodes should be Type BF applied parts. Class I Medical Device per EN 606011:1988/A1:1992/A2:1995/A:13:1995
- Logs EMG activity throughout a procedure for records
- Optional Surgeon mini screen to display monitoring information on small screen with a provision to mount on a IV pole
- Provision to connect external keyboard

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SPECIFICATION OF THE MODULAR and INTEGRATED OT

S.No.	Description
1	**OT 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 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 panelling, made of stainless steel, material no. 1.4301 (AISI 304) 1mm, strengthened with fire proof gypsum board 12.5 mm, including 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 and not be painted at site • The wall colour & 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	**OT CEILING**
	• Dipling-type clamping cassette ceiling, galv. sheet steel, 0,6 mm, non-perforated, white powder coated 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 aluminium 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 Including 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 OT'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 OT**
	• 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 OT & 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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	OT sliding door, 1-door Frame dimensions (W X H) 1600 x 2100 mm Sliding door tightly 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 sides
9	**SLIDING DOOR HERMATICALLY SEALED SMALL SIZE**
	OT sliding door, 1-door Frame dimensions (W X H) 1000 x 2100 mm Sliding door tightly 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, 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 colour, depth approx. 100 mm, glazing incl. joint profiles, fixation parts and sealing. Size approx. 1800 x 1000 mm as per layout Venetian Blinds Electrically Driven up to 60% black out Installed between the double glazing
13	**MAIN CONTROL PANEL**
	o **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 flush mounted 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 32" (exact dimensions 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 toughened Glass which should be seamlessly part of the OR wall with a a magnetic strip behind it to hold the DUSTER AND PEN
19	**NURSERS WORKSTATION INSIDE THE OT**
	Nurses work station, with keyboard shelf as built-in element in wall niche approx. 300mm deep, incl preparation for monitor fixation of the workstation
20	**NURSERS MANGERS DESK**
	Nurses work station, with keyboard shelf as per the drawing in the OT layout approx. 400 * 200mm
21	**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
22	**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

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23	**OT FLOORING**
	• The flooring inside the OT should be done with medical grade vinyl tiles/rolls having conductive properties inside the OT area and Anti-Static in the Central co-corridor 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.
24	**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.
25	**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 . Detailed electrical drawing should be provided. Special High Quality Electrical Distribution boxes controlling each OT individually should be provided from a central distribution panel. This should be of utmost high quality for use in an hospital environment
25	**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 Vacum, 1 Air) other than the ones installed in the pendants
26	**AC DUCTING**

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	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 well as to the common area and rooms in the OR COMPLEX
27	**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
28	**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.

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	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
29	**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

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	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

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	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:
	III. CENTRAL DEVICE CONTROL MANAGEMENT SYSTEM
1	**CENTRAL CONTROL UNIT**

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	The main purpose for the implementation of the Integrated OT is the ability to provide full control for the Surgeon or his assistant of the OT 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 OT 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. <u>Full HD IMAGE/VIDEO RECORDING AND DATA ARCHIVING SYSTEM</u>
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

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	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® M 735, latest version Ø Graphic: Intel® Graphics 2 Controller onboard, latest version 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**

19.8.

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 OT 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 SHOULD BE MENTIONED IN THEIR CATALOGUE.

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SPECIFICATIONS OF EQUIPMENTS MENTIONED IN SCHEDULE OF REQUIREMENTS

TECHNICAL SPECIFICATIONS E.N.T. WORKSTATION (ENT TREATMENT UNIT)

Main Unit

- Durable steel casing, non rusting, long lasting
- Large instrument surface made of stainless steel with dividers and heating system to heat the instruments, laryngeal mirrors and endoscopes.
- Device to Heat the laryngeal mirrors
- Compressed air system continuously adjustable from 0.1 to 4 bars for spray and politzering, spray liquid with autoclavable nozzle for cleaning
- Handle for compressed air should be having a regulation valve
- Medication reservoir be made of stainless steel, should be detachable and suitable for all type of medications.
- Stainless steel tank for compressed air of capacity of 1.5 or more
- Compressor unit should be completely separate from suction unit
- Inbuilt motor suction unit with capacity of 35 liters per minute with maximum 92% vacuum.
- Should have a vacuum gauge, bacterial filters, 1.5 liters liquid container and effective device to prevent overflow.
- Suction tube should have automatic on off switch and small ear rinse funnel
- Warm water rinsing Device with autoclavable stainless steel handle with snap closure system and fine spray regulation valve
- Separate stainless steel tank to prevent mineral build up and heat up to 38 degree temp
- Cold water irrigation through existing water connection
- Automatic liquid container discharge system should be provided
- Suction tube cleaner with exchangeable re-usable adapter.
- X-ray viewer integrated in a writing draw with automatic on /off switch(Optional)
- Dispenser for cotton and paper
- provision for attachment of microscope
- Equip with waste container
- Endoscopy centre with cold light source with two outlets with 300 LED/XENON/HALOGEN light bulb
- Head light with fibro-optic cable to be used with above light source for examination
- Head light rest made of stainless steel
- Two warming quivers for rigid endoscope- should be removable for autoclaving and cleaning
- automatic on/off switch for single light outlet with light barrier
- Large writing surface
- Draw for computer key board along with swivel support for computer monitor(Optional)
- Power supply 220-240 volts/50 Hz
- Integrated Mono and Bipolar cautery system with all cables & probes/forceps.

ENT EXAMINATION MICROSCOPE:

The ENT examination microscope with integrated, fanless high transmission, high performance LED illumination in the microscope head.

- Integrated, fanless high performance white-light-LED Luminescence: min. 120 klux (200 mm), 30 klux (400 mm)

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- Color temperature: 5.500 K
- Optimized stereo effect by 24 mm stereo basis
- In built LED light source with SD camera OR HD camera with a facility to take images, video & transfer the same to any smart phone via the wi fi card.
- Mechanical support arm for the microscope
- Expandable with scale projection at the image plane with a option of green filter Objective: 200 mm, (fine focusing)
- Objectives with manual fine focusing Visualization:
- HD-camera with facility to record, take images and trramsmit the same through the wi-fi card to smart phone/ PC/ Laptop.

wide-field eyepiece 16x magnification

- Colour filter green, with pivot mechanism
- The ENT microscope should be on castors with locking system-
- Monitor holder,HD monitor,lateral double hand grip

ENT PATIENT EXAMINATION CHAIR

- Should be motorized and ergonomically designed examination and treatment chair facilitating the posture of both doctor and patient
- Heavy base casing
- All elements of chair should be anatomically shaped
- Seat should have motorized lifting device
- Seat should have height adjustment for children
- Integrated foot switch for easy adjustment of height
- Should have complete rotation 360 degree with locking device
- Should be comfortably padded and folded back for enabling easy sitting of overweight and handicapped patient
- Head rest-15cm with adjustable height.
- Backrest adjustable and can be made to incline 10 degree forward to vertical position and backward completely to a horizontal position and can be rolled back
- Movement of armrest and footrest should be synchronized with backrest movement
- Chair should confirm to CE mark
- Power supply:220-240Volts/ 50Hz

DOCTORS EXAMINATION CHAIR

- Wide base, should have rolling casters for easy movement
- Should have back rest
- Easy height adjustment of hydraulic nature
- Comfortably cushioned seat

RIGID ENDOSCOPES

- 4mm/0 & 30 degree nasal endoscope-1 in number
- 2.7mm/0 & 30 degree nasal endoscope-1 in number
- Magnifying 90 degree Laryngoscope with facility to focus manually - 1 in number
- Ear telescope [aural endoscope]: 3mm-diameter/ 6cm length/ 0 degree-1 in number
- Ear telescope [aural endoscope]: 3mm-diameter/ 6cm length/ 30 degree-1 in number
- All above endoscopes should be wide angle & autoclavable
- Co-axial fibro-optic light cable/2.5mm diameter-1 in number.

STROBOSCOPY (INTEGRATED)

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- The LED stroboscope should be noiseless with flash light & pilot light for vocal cord diagnostics based on LED technology
- The LED stroboscope should have the variable phasing & slow motion mode, adjustablewith the footswitch.
- Should display voice frequency, sound pressure level, audio output for archiving the voice signal including attachable laryngoscope microphone also should have a body sound adapter for voice asthenic patient (stethoscope adapter for clip microphone for a better connection of the microphone signal to the stroboscope control .
- The flash frequency should be 70 -1000 Hz, without reduction, sound level metering range 70-125 dB + / - 1 dB, operating modes , continuous light, slow motion 0.5 – 2 Hz, frozen image 0 degree – 400 degree, hunting over the footswitch adjustable, light durable approx.., 50,000 hrs.
- The system should have a integrated LED light source, light durable approx., 50,000 hrs, brightness 220 kLux / 175 Lumen, length of the cable 1.9m
- The system should indicate the status of light- pilot light, flicker & slow motion.

Display and recording system

- High resolving 1/3" CCD camera with high light sensitivity with HD-LED monitor (min. 32").

Following items are optional

- Compatible System for easy recording of images and videos in HD digital formats. Easily transferable to External hard drives and USB pendrives/storage cards without losing resolution.
- Fibreoptic Otoscope with all size speculums including Seigel's pneumatic Speculum.
- Otoscope with fibreoptic illumination
- 3.5, volts Halogen bulb with 5 spare bulbs.
- Magnification, 3 or 4 times.
- Pneumatic bag for Sieglisation of tympanic membrane
- 8Reusable and autoclavable speculum set of 4 or 5—2 sets for each Otoscope
- Heavy duty handles with charger and chargeable long life battery with spare battery.

SOFTWARE:

- 1 no. Acoustic analysis/Recording of the voice signal (Multi Dimensional Voice Profile (MDVP)voice software, archiving and recording the voice, and taking report.
- 1 no. P.C.(Personal Computer) should consist of a CPU, Keyboard and Mouse for installation for software.

- **The item should have CE/ FDA approval**

19.3

SPECIFICATIONS OF VIDEO STROBOSCOPE SET

The system should be compact and portable suitable for a variety of endoscopic applications from physician's offices to operating rooms in a variety of specialties.

The powerful all-in-one unit should consist of everything needed for endoscopic imaging, Video recording, and viewing of saved Videos, the monitor, camera, and light source.

IT should have USB ports and a SD card slot for documentation purpose.

Stroboscope for larynx examination a modern device that generates light with a high performance LED
• For stroboscopic examination (stroboscope-mode)
• For normal viewing (continuous light-mode = pulsating light with high frequency)

Suitable for larynx examination, Consisting of:
Mains Cord
Microphone set
One USB pedal footswitch with integrated activation for Stroboscopy function

DISPLAY:

Crystal clear display

- 15" LCD display
- LED backlight display technology for extended service life, enhanced image brightness and reduced power consumption
- Image rotation
- 24 bit color depth for lifelike color display
- DVI video output for brilliant transmission quality

LED Light Source:

- High-performance LED light source: Light output similar to Power LED
- Color temperature of 6000 K - similar to daylight - guarantees color fidelity
- Long lamp life - with an average lamp life of 30,000 hours - Cost Effective

Flexible storage options:

- SD slot for high storage capacity
- USB ports for external hard drives and USB sticks

Easy, extremely reliable control:

- Membrane keyboard included, suitable for wipe-down disinfection

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- Hot keys for rapid and direct manipulation
- Arrow buttons for intuitive control
- Connection socket for pedal control without lag time
- Stroboscopy mode can be activated via a special footswitch

Technical Specification of Camera Head:

Image sensor:	1/4" CCD-Chip.
Resolution:	> 450 lines (horizontal).
Pixels	752(H) x 582(V)
Signal-to-noise ratio:	>= 60 dB.
AGC:	Microprocessor controlled
LENSE	Integrated optical zoom lens system 25-50mm
Min. sensitivity:	3 Lux (f 1.4).

Tele Laryngoscope

Tele-Laryngo- Pharyngoscope with integrated lateral telescope 90 deg, 4 X magnification focusing device diameter 10 mm, length 15 cm, autoclavable, fiber optic light transmission incorporated.

Strobo-Laryngoscope with integrated lateral telescope 70 deg, oval sheath, 7.2 x 9.3mm diameter, length 17 cm, autoclavable, fiber optic light transmission incorporated.

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TECHNICAL SPECIFICATION FOR CRYO SET FOR ENT

CRYOGEN	CO2 or N2O
Pressure signal	Yes
Vessel	20 lb cylinder
Pressure gauge, psi	0-1,000
Max. volume	7 kg
POWER CONSUMPTION	
VAC	230
CONSOLE	Console with case and cart
Power, w	30 VA
FORMAT	Stand-alone, portable console
OPERATING TEMP, Â°C	-89 (-128.2) N2O
OPERATING TIME, min	150 continuous
OPERATING PRESSURE, psi	600-800
DEFROSTING	Active
Kind	Back pressure
SCAVENGEABLE	Yes
PROBES	
Kinds of tips	otolaryngology, dermatology, N2O spray probes; all probes should be stainless steel coated with 24 K gold
Cryometer range, Â°c	0 to -100 (-32 to -148)
Shaft insulation	Yes
Probe-tip cryometer	Yes
Number supported	~80 standard shapes
Sterilization	Autoclave, EtO, 180
USES	General purpose
OTHER ATTRIBUTES	Flow meter; electronic freeze period timer; automatic freezing and defrost; indicator pressure; regulator pressure; mobile console; spray tip; freezing needle (0.8 mm); purge filter.

Cont.....

19.8

ACCESSORIES FOR CRYO SET

Laryngological probes
cryo adenotomy – pre
cryo adenotomy – after
large adenotomy
nasal and throat
cryo tonsillectomy
nasal
multipurpose
nasal needle
Bronchoscopy probes
Contact probe 10 mm & 5mm

Spray type probes

Dermatological spray type probe

SHOULD BE SUPPLIED WITH THE FOLLOWING ACCESSORIES

Stardard hose, 1.6 m Typical connector for cryo probes

Sterile plastic cover for probe and pipe

Silicone plug.

SHOULD BE CE/FDA CERTIFIED

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Technical specification of Coblation system for ENT Surgery

- Controlled ablation of tissues based on low temperature bipolar radiofrequency technology in electrolytic solution like normal saline. The machine should have no need for secondary patient earthing pad.
- FDA approved
- Operating temperature –between 40-70 degree .There should integrated saline pump for continuous irrigation .
- The Generator should have facility for food switch.
- There should be facility for coblation and coagulation.
- The generator should be able to take old different probes for open and minimal invasive ENT procedure probes like ; probes for tonsillectomy turbinate reduction, adenoid , soft palate, laryngeal , tongue and related applications.
- The coblation probe should have multiple electrode technology to allow uniform production of plasma. The probe should have integrated cable.
- Should have tungsten electrode.
- Probe should have malleable shaft. Bending tool should be available for bending the probe.
- Suction probe should have integrated IV tubing.
- Probes with dual function of coblation and shrinkage should have depth identification marks on the shaft.
- Laryngeal probes should have at least six inches of working length and the tip diameter less than 4mm.
- Articulating instruments (forceps) for ENT

  Can be used for surgical procedure for examination and treatment of nasal , paranasal, ear, nose and throat tissues.

  Articulating though cutting forceps vertical jaws and articulating grasping forceps vertical jaws should have more than 200 degrees of articulation with many distinct locking positions should have multiple tip configurations.

19.8.14

TEMPORAL BONE DISSECTION UNIT

Consisting:

- **Microscope (LED) with Beam Splitter & Camera**
- **Suction**
- **Micromotor (35000rpm) with Straight & Contra Angled Hand Piece**
- **Temporal Bone Holder**
- **Basin**
- **Medical Grade Monitor (19")**
- **Instrument Tray**
- **Set of Instrument for dissection**
- **Cutting Burrs (10 nos.)**
- **Polishing Burrs (3 Nos.)**
- **LED Light Source (120watt) with Fibre Optic Cable**
- **Refrigerator (for storing dissecting bones)**
- **Saline Stand**

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THYROPLASTY SET

Sr. No.	Description of Item
1	Silicone Strip holder
2	Measuring Probe
3	Thyroplasty window template
4	Thyroid Periosteum elevator
5	Long Elevator
6	Microlaryngeal Fat Injection
7	Piston
8	1mm straight needle
9	1mm right bayonet needle
10	1mm left bayonet needle
11	Heart shaped microforceps (R), (L), centre
12	Knot pusher
13	Double ended elevator
14	Instrument tray
15	Silicone strip of different dimensions
16	Silicone block - Right, Left & Wedge
17	High Pressure Syringe Gun Action for injecting Fat should be CE/FDA approved

19.8.14

TRANSPORT STRETCHER

General Device Requirements
Overall Dimensions and Load Capacity
Overall dimension for stretchers--excluding those intended for patients over 200--kgshall be less than 32 inches x 84 inches to fit through doorways and onto elevators.
The stretcher for general patients shall have a mattress surface of at least 26 × 73 inches. Bariatric stretchers shall have a mattress surface of at least 28 x 73 inches.
Stretchers for general patient shall be able to withstand patient weighing at least 150 kglbs. The stretcher for bariatric patients shall be able to withstand a patient weighting at least 200 kgs.
A 135 kg static load on any corner of the stretcher shall not permanently deform any part of the stretcher
Stretcher Height
It should have an adjustable height
Minimum height possible should be atleast 25 inches from the floor
Stretcher positions
Platform shall permit the following 5 positions: Trendelenburg (minimum 10 degrees), Reverse Trendelenburg, Fowler, leg lift, and knee flex.
Trendelenburg position tilt from the horizontal sould be atleast18 degrees
Fowler position elevation for the head should be atleast 90 degrees
The positioning and brake controls shall be operable from the foot end or from both sides of the stretcher.
The patient positioning mechanism shall have locking ability; that is, the mechanism shall automatically lock stretcher position in place even when operator accidentally releases his/her hold to prevent the patient from falling back to a lower position.
Mattress
Mattress cover and core material shall resist combustion and shall not ignite when exposed to an open flame or a burning cigarette, even in the presence of other combustibles such as a bed sheet.
The mattress shall be non-absorbent.
The mattress cover shall be securely attached to the stretcher to prevent sliding, but shall be removable for cleaning.
The stretcher surface shall be easy to clean. The mattress cover shall not be degraded by common cleaning agents or fluids normally encountered at the scene of an accident or in a hospital.
Side Rails and Patient Restraints
The stretchers shall have restraint straps to secure the patient during transport. Restraint straps shall be easy to adjust and shall not interfere with other functions of the stretcher when they are either in use or being stored. Strap material and closures shall be strong enough to withstand stresses such as the efforts of disoriented or violent patients to free themselves.
Side rails shall be provided on the stretcher to prevent patient falls. Side rails shall fold down or tuck-away and be positively latched in the up position. The side rail locks shall not be readily accessible to the patient. The rails shall be designed to permit raising and lowering without pinching or cutting the patient or operator.
Other features and options
Battery Operation and Power-assisted transportation
Accessories
The stretcher shall have an oxygen tank holder.
The stretcher shall have a utility shelf for transporting the patient's belongings, pertinent patient information, and medical equipment.

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Imaging ability
ICU and trauma stretchers shall have a radiolucent window in head and/torso section for in stretcher x-ray and fluoroscopic procedures.
IV Pole Receptacles and Drainage Bag Hooks
All stretchers shall be equipped with at least one mountable IV pole at each corner. The mounting IV pole receptacles shall not be covered by the mattress.
Construction Quality and Ease of Use
The stretcher shall have no sharp edges. The unit shall be well constructed with durable materials to withstand typical abuse and cleaning. Switches, knobs, and other controls shall be designed for conditions of heavy use.
Wiring and tubing shall be neatly arranged and bundled, if appropriate.
The casters for mobile stretchers shall be at least 8 inches in diameter so that they can cross elevator and door thresholds smoothly.
Should have dual locking four wheel brakes
If the casters are equipped with locks, they shall be able to maintain the device loaded to capacity stationary on a 10 degree incline.
The casters shall be conductive and swivel.
Maneuvering the unit shall require minimal physical effort.
The unit shall have abbreviated operating instructions included on or with the stretcher (e.g., on a laminated card attached to the stretcher).
The stretcher shall be easy to clean, disinfect, and/or sterilize, as appropriate.
The unit shall be designed for easy access to serviceable parts.
Sould have side rail facility

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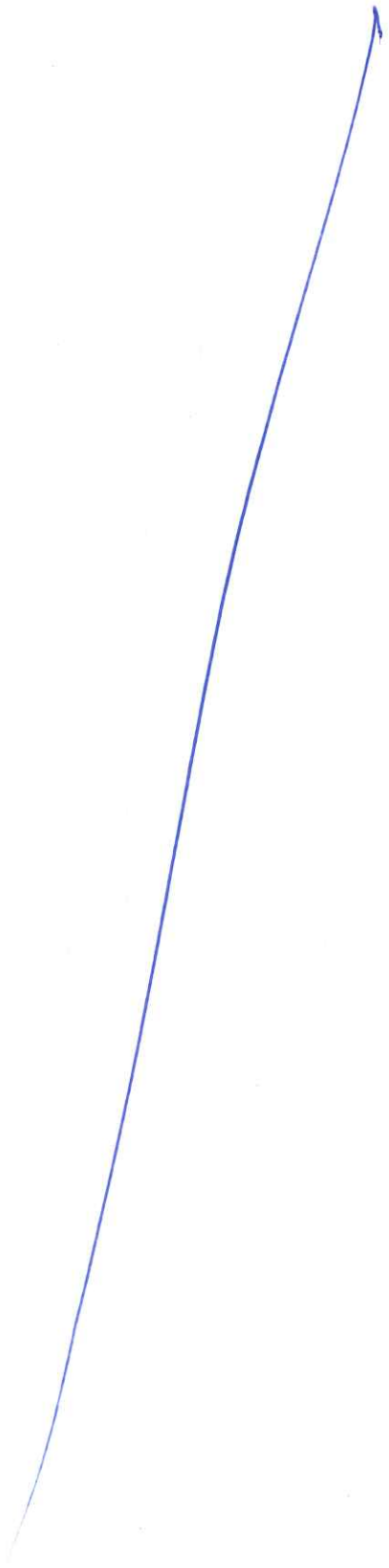

Technical Specifications for Ultra Sonic Nebulizer

Ultrasonic Nebulizers and not atomizers, should not use pump air to atomize the medicine. Ultrasound should be energy source for nebulization of liquids for inhalation therapy. The working mechanism should involve ultrasound waves to touch to the surface of the liquid(e.g. medicine, water) and merge the liquid into micron size sub particles. To increase therapy efficiency, because of the even distribution of the particle sizes. Doctors should be able of plan nebulisation as treatment with machine. Latest generation Ultra Sonic nebulizer with following added features

1 Intensity Controller to control intensity of mist

2 controled volume of mist& Jet Nebulization in trauma cases

3 Timer for 1hour so treatment can be planned with continuous mode also

4 Facility to attach Oxygen Cylinder

5 Big medicine cups of 350ml to treat multiple patients on same drug

6 Can work from 3 µl with practically no wastage

7 should be connected to ventilators

8 Unit should be table top as well as portable working on multiple power sources like Electricity, Solar power, Ambulance Battery, Car Battery

9 Unit should be supplied with manual with circuit diagram , Mask ,mouth connector for nebulization by mouth , nasal connector for nebulization through nostrils ,extension non latex pipes, spare fuses

10 Noise less level less than 30db

11 Ultrasonic and not piston or diaphragm Ultra sonic Frequency 1.7 MHz

12 Droplet/micron size should be less than 1.5µl Weight Not more than 3Kg

13 Nebulization 2ml/min.with facility for Jet Nebulization under high intensity to acute and Trauma cases

14 ISO,ETDC (Govt. Of India)CE /FDA certified trademarked product for authenticity of supply

15 Guarantee /Warrantee for two years with service and spares available for next 6years

16 Should be supplied with circuit so as to connect Oxygen Cylender to Nebulizer so controlled Nebulizaion and controlled Oxygen can be given at the same time

17 Rates for Nebulization Kit (2 Nos Latex Pipes with Connector,Mask adult & pediatric, and mouth connector for nebulization by mouth) ,Ultrasonic Crystal ,Medicine cup should be separately quoted

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Specifications for Nurse Call System

Display & Control Unit:	
Product Spec	Dimensions in mm: Control Unit - 340(L) × 222(W) × 52(H) (mm) Display Unit - 255(L) x 198(W) x 32(H) (mm)
Capacity	Up to 24 Bed Units
Display	7 Seg LED Display Max. 3 Digits for One Bed.
Power Requirements	AC 230 V 5 Amp 50 Hz Power Supply Operating Temp 0°C - 50°C (32°F - 122°F) Operating Humidity 10% - 90% without congealment
Power Consumption	Operating Voltage: DC12V Operating Current: <200mA Standby < 30Ma Full Load < 35mA Startup Current: <200mA Speaker(Full duplex) Impedance: 8Ω±15% Max Output Power: 0.5W Distortion Rate: 5%MAX Max dB: 89 ±3dB Frequency Range: 50Hz ~10KHz
Packing Contents	Display & Control Unit DC12V 1A Power Adaptor
Bedside Calling Unit	
Product Spec	Dimension: 85(L) ×85(W) × 15(D)(mm)
Handset	2 Meter Wired Handset With Jack
Door Unit	
Product Specification	Dimension: 85(L) ×85(W) × 30(D)(mm)
Light Indicator	Blue LED – Continuously ON Red LED – When Patient Call
Packing Contents	Door Unit , Bed Unit, Handset Fasteners

19.8.14