HSCC/SJH/Med.Eqpt./2016 Date: 11.4.2016

Amendment-XV

Ref.: Tender No. HSCC/SJH/Med.Eqpt./2015/10 dt.30.10.2015 (Item No. 1- 11).

Sub.: Procurement of Medical Equipment for New Emergency Block & Super-Specialty Block at Safderjung Hospital, New Delhi.

The amendments as approved by DGHS Experts Committee are enclosed for issue of the amendments.

The revised bid submission date is extended from 11.4.2016 to 21.4.2016.

All other tender terms and conditions remain unchanged.

Amendment to be issued will be uploaded on websites www.tenderwizard.com/HSCC & www.hsccltd.com.

Submitted for approval please.

Sr. Manager (BME)

GM (Proc.)

CGM :

HSCC/SJH/Med.Eqpt./2016 Date: 11.4.2016

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Medical Superintendent
Safderjung Hospital & VMMC,
New Delhi.

Item No. 2

1. FLAT PANEL DSA LAB		
Sr.No.	**Tender Specification**	**Modification/Changes**
	The system should be the state of the art model to be quoted with feature equivalent to the latest model launched at RSNA 2013 or later.	Unchanged
A.	**Gantry:**	
	1. The system should have two gantries : one floor mounted and one ceiling suspended providing full body coverage. The lateral plane should have motorized longitudinal C-arm movement.	Unchanged
	2. It should be possible to pre-program the gantries for multiple examination positions.	Unchanged
	3. All movements of the gantries should be controlled from the joystick on the table side as well as from the control.	Unchanged
	4. The system should have adequate collision protection for the safety of the patient.	Unchanged
	5. Both gantries should have fast speed for angulations and positioning. The frontal system should have a speed of at least 15 degree/sec. for all positions and lateral plane should have a speed of at least 8 degree/sec.	Unchanged
	6. Gantry angulations in both planes frontal and lateral should be freely user selectable to satisfy clinical imaging needs.	Unchanged
	7. Both the gantries should have an automatic positioning capability dependent on the reference image being selected and possibility to select reference image depending on the gantry position.	Unchanged
B.	Patient Table :	
	1. The table should have motorized longitudinal, horizontal and vertical travel.	Unchanged
	2. It should have the facility for automatic bolus chase for peripheral angiography.	Unchanged

	3. The table with trendelenburg tilt facility would be preferred.	Unchanged
	4. It should be possible to swivel the table in case of emergencies.	Unchanged
C.	**X-Ray Generator:**	
	1. Generator should be multi-pulse/high frequency for constant output.	Unchanged
	2. Output should be 100 KW or more.	Unchanged
	3. Radiography KVP range should be 40KV – 125 KV or more.	Unchanged
	4. Output at 100 KV should be 1000 MA or more	Unchanged
	5. It should have automatic exposure control device for radiographic fluoroscopy and angio mode	Unchanged
	6. It should have digital display or KVP & MAs.	Unchanged
	7. Anatomical programming radiography should be possible.	Unchanged
	8. It should have over loading protection.	Unchanged
	9. It should have the facility for pulsed fluoroscopy at variable rates for reducing the x-ray dose to the patient during intervention procedure.	Unchanged
D.	**X-Ray Tubes:**	
	1. Both planes should be provided with rotting node high speed tubes.	Unchanged
	2. Anode heat storage capacity should be 2.0 MHU or more having liquid bearing technology or metal lubricant. (Price to be quoted separately)	2.**Amended as :-** .:-Anode heat storage capacity should be 2.0 MHU or more having liquid bearing technology or metal lubricant.
	The focal spot should have the following sizes :	Unchanged

	i) 1.0 mm or less with load 80 KW or more in minimum one plane.	Unchanged
	ii) 0.5 mm or less with load 15 KW or more in minimum one plane.	Unchanged
	3. The system should have adequate cooling facility for the x-ray tubes for uninterrupted performance during procedure.	**Amended as** :-The system should have adequate cooling facility for the x-ray tubes for uninterrupted performance during procedure should be ≥1an to.8000w
	1. One collimator for each plane is to be provided.	Unchanged
	2. The collimator should have facility for automatic copper pre-filtration for reducing the x-ray dose.	Unchanged
	3. The collimator leaf should have IRIS type arrangement.	Not to be Change
	4. The collimator should have the facility for the dose measurement chamber in order to display the skin dose on the monitors in the lab.	Unchanged
F.	**Biplane Digital System:**	
	1. Dynamic flat detector system with high spatial and with Frontal detector of 16 bit and lateral 14 bit contrast resolution with DQE of minimum 70%	**Amended as** :-1. .:-Dynamic flat detector system with high spatial and with Frontal detector of ≥16 bit and lateral ≥ 14 bit contrast resolution with DQE of minimum 70%.
	2. Size of frontal plane should be at least 40cm diagonal.	**Amended as :**-.Size of both frontal and **lateral** plane should be at least 40cm diagonal
	3. The collimator leaf should have IRIS/rectangular type arrangement.	unchanged
	4. It should provide multiple formats/fields at least of 4 sizes.	unchanged

	5. Spatial resolution should be at least 3.0 LP/mm in frontal plane and 2.5 IP/mm in the lateral plane.	**Amended as :**-Spatial resolution should be at least 2.5LP/mm in frontal plane and 2.5 IP/mm in the lateral plane.
	6. Three monitors of at least 19 size TFT/LCD for each plant display of live, reference and subtracted image with high resolution flicker free display should be provided. Monitors should have anti-glare provisions.	unchanged
	7. Similarly 4 monitors, two for each plane (live & reference image) with high resolution display in the control room should be provided.	unchanged
	➢ console monitor for patient registration	unchanged
	➢ Physiology monitor in examination room and in console with the requisite computer system for NIBP, IBP, SpO2 measurement, display and analysis.	Unchanged
G.	**Digital Imaging System and essential softwares:**	unchanged
	1. Road mapping facility (Real time 2D & 3D) should be available with possibility of superimposing of fluoro image ion reference image. Facilities for unlimited subtracted high resolution fluoroscopy should be available.	Unchanged
	2. It should have the capability to acquire images in 1024 x 1024 matrix with a maximum speed of 6 frames or more per second on-line subtraction. Specify the maximum image acquisition rate without subtraction.	**Amended as :-**it should have the capability to acquire images in 1024 x 1024/**12 bit or mo**re. Matrix with a maximum speed of 6 frames or more per second on-line subtraction. Specify the maximum image acquisition rate without subtraction
	3. Post processing software facilities with real time edge enhancement, positive/negative image display windowing, electronic shuttering, roaming, image reversal, zooming and magnifying with text and annotation junctions.	unchanged

	4. a. rotational angiography facility (2D & 3D) at speed of at least 30 degree/sec. with acquisition frame rate of at least 25 frames/sec. in 1k matrix with facility for online display of subtracted images should be available. Specify if the rotational angiography is with on-line subtraction in 1024 matrix.	Unchanged
	4. b. Rotation data acquisition with an output of cross sectional CT like images should be possible.	Unchanged
	5. Last image hold or reference image toggling with fluoro should be available.	Unchanged
	6. It should have minimum image storage capacity of 1,00,000 images in the 1024 x 1024/12 bit.	**Amended as :-It should have minimum image storage capacity of 75,000 or more images in the 1024 x 1024/12 bit**.
	7. Digital subtraction angiography software of automatic pixel shift enhancement for iodine and CO2 contrast should be possible.	Unchanged
	8. A separate workstation for 3D reconstruction of the rotational angiography images should be provided. The 3D image measurement and slicing should be possible. Facility to display reconstructed images in the procedure room should be provided.	Unchanged
	9. The complete digital system along with workstation should be networked and connected to a DICOM compatible laser system	Unchanged
	10. The digital system should have software for vascular analysis and quantification including stenosis %. All measurement should be possible from the patient table side.	Unchanged
	11. Archiving on a CD/DVD recorder should be provided. Juke box/RAID (4TB) and 5000 CD's R/W or 1000 DVD should be supplied with the unit.	Unchanged
	12. An additional workstation for processing of the DSA images and their documentation should be provided in addition to 3D workstation.	unchanged
	This workstation should have the facility to reconstruct the long leg view for peripheral images.	Unchanged
	13. The system should be able to receive /display on reference monitor, DICOM format images form other modalities like CT & MR. DICOM print facility should be available.	Unchanged

	14. Bolus chase software should be provided.	Unchanged
	15. it should have facility to measure dose during the procedures.	Unchanged
	16. Specify the time limit minimum 30 seconds for uninterrupted acquisition of on-line subtracted images at 1024 x 1024 matrix with maximum frame rate.	Unchanged
H.	Essential accessories:	
	The following essential accessories to be provided with the unit:-	Unchanged
	1. On line UPS for the complete system excluding the x-ray system for both planes with 30 min. back up. (Prices to be quoted separately)	**Amended as :**-On line UPS for the complete system excluding the x-ray system for both planes with 30 min. back up.
	2. Pressure injector of reputed make along with 500 disposable syringes sets.	Unchanged
	3. Dry Chemistry Laser Imager with resolution of 600 DPI or more. DICOM ready and online for film size of 14x17 (Prices to be quoted separately)	Unchanged
	4. Ceiling suspended radiation protection system and table side protection system.	Unchanged
	5. Focused ceiling mounted light with a handle for positioning the light.	Unchanged
	6. Lead gown as per the following specifications : 8 Nos.	Unchanged
	i) It should have lead equivalent of 0.5 mm.	Unchanged
	ii) It should be double sided type lead apron	Unchanged
	iii) it should be light in weight.	Unchanged
		Unchanged
	7. Thyroid Guard – 6 Nos.	Unchanged
	8. Lead spectacles – 6 Nos.	Unchanged
	9. Foot switch for fluoro/acquisition control	Unchanged

	10. Multichannel monitor (with essential accessories) for monitoring physiology. It should be able to record and print the pressures in general and also for stenosis analysis (catheter gradient). It should have a pulse oximeter module, ECG module, SpO2 Module, etc.	Unchanged
	11. Lead protected viewing glss (Size : 200cm x 100cm)	Unchanged
	12. Anaesthesia workstation with ventilator.	**Amended as** High end Aneasthesia workstation with ventilator
	13. Bi Phasic Defibrillator.	**.Amended as** Reputed make Bi Phasic Defibrillator
	14.New Point added	. **Multiparameter monitor** having a least 21 inch screen displaying spo2, pulse rate , NIBP, & having two invasive ports for recording arterial pressure & CVP. Separate Spo2 probes for children to be provided also. Monitor should have UPS/battery back-up with minimum 2 hrs backup
	The turnkey Scope of Work – Biplane D.S.A.	
	1. TheSupplier should inspect the proposed site offered by the Consignee Institute in which the DR system has to be installed and they are required to submit the plant for the complete DR Centre on a turnkey basis. The scope of work includes complete Civil work, Electrical, Plumbing, Furnishing, Air-conditioning and Fire fighting for the construction of DR Centre.	Unchanged
	2. While preparing the plan, the following aspects have to be addressed.	Unchanged
	a) Care should be taken to provide easy negotiation of the patient stretchers / trolleys through corridors and doors.	Unchanged
	b) Radiation shielding for doors, walls, windows etc.	Unchanged
	c) Furniture like desk, chairs, shelves etc.	Unchanged
		Unchanged

	3. The cost of Turnkey for the area of 1500 sq.ft and air-conditioning of Tonnage 15 TR will be considered for Ranking / Evaluation purpose	Unchanged
		Unchanged
	4. Moreover Bidders will have to quote the Unit Rates of the following components of turnkey work.	Unchanged
		Unchanged
	a. Civil works	Unchanged
	b. Electrical work	Unchanged
	c. Public health (plumbing and sanitary fittings)	Unchanged
	d. Air Conditioning (HVAC)	Unchanged
	e. Interior Furnishing & Furniture	Unchanged
	f. Miscellaneous	Unchanged
	Scope of work for turnkey Biplane D.S.A system:	Unchanged
	The supplier should inspect the proposed site and submit all the detailed structural and architectural drawings and BOQ for the proposed DR Centres along with technical bid of the tender.	Unchanged
	The Biplane D.S.A site shall consist of the following rooms:	Unchanged
	a. Biplane D.S.A Room	Unchanged
	b. Console room	Unchanged
	c. Equipment room	Unchanged
	d. Patient preparation room	Unchanged
	e. Change room	Unchanged
	f. Patient waiting area	Unchanged
	g. Radiologist room	Unchanged
	The actual area of turnkey works done will be considered for payment, based on the site measurements.	Unchanged
	Civil work	Unchanged

	a) Civil construction work including construction of brick wall if any, plastering, flooring as per the approved plan and equipment layout plan.	Unchanged
	b) Concrete bed at Biplane DSA equipment area.	Unchanged
	c) Platform for unloading and shifting the Biplane DSA should be provided if necessary.	Unchanged
	d) Cable tray, trench & channel – necessary trenches, cable tray and channels at required location would be provided.	Unchanged
	e) All the construction work to be done as per the final plan approved by the Consignee.	Unchanged
	a) Flooring	Unchanged
	1. 600 x 600 mm vitrified tiles with 100mm tile skirting to match in console room lobby and patient preparation areas, Radiologist room etc.	Unchanged
	2. 50 mm thick cement concrete flooring with Vinyl flooring in Biplane DSA equipment /UPS room.	Unchanged
		Unchanged
	b) Painting	Unchanged
	1. Two coats Plastic Emulsion Paint over 2 Coats of wall putty including primer in patient preparation area, Lobby area, console room, Biplane DSA room & Equipment room etc.	Unchanged
		Unchanged
	c) False Ceiling	Unchanged
	1. Acoustical tile for ceiling with light weight insulating material of high quality supported on grid or finished seamless with support above ceiling. Finished with white painting or powder coated with white paint, if metallic. Ceiling height to suit the equipment mount and clearances.	Unchanged
		Unchanged
	Plumbing work	Unchanged

	3. All water pipes and fittings shall be of high density polythene of approved and standard make the grating shall be brass chrome plated. All plumbing accessories should be of standard make.	Unchanged
		Unchanged
	Electrical work	Unchanged
	4. The supplier shall be required to specify the total load requirements for the Biplane DSA centre including the load of air conditioning, room lighting and for the accessories if any. The supply line will be provided by the institute up to one point within the Biplane DSA centre. The distribution panel shall be provided by the vendor. Few lights in each room shall be connected to the UPS to provide emergency lighting.	Unchanged
		Unchanged
	5. The electrical work shall include the following:	Unchanged
	a. Wiring – All interior electrical wiring – with main distribution panel board, necessary MCBs, DB, joint box, switch box etc. the wires shall be of copper of different capacity as per the load and should be renowned make as listed below.	Unchanged
	b. Switches light and power points should be of modular type and of standard make as listed below.	Unchanged
	c. General lights – Mirror optical type 1x25 W or 2x28 W/CFL fittings 2x36, 3x36 W with electronic ballasts.	Unchanged
		Unchanged
	6. AIR CONDITIONING:	Unchanged
	Ductable package air conditioners and split AC units may be used according to room requirement and suitability. Humidity control should be effective to eliminate moisture condensation on equipment surface. The Air Conditioning should be designed with standby provision to function 24 hours a day.	Unchanged
	The outdoor units of AC should have grill coverings to prevent theft and damage.	Unchanged
	Ventilation is required in toilet.	Unchanged
		Unchanged
	2. Environment specifications:	Unchanged

	a) Humidity range : Relative humidity 60% and 80% in all areas except equipment room which shall be as per requirement of the equipment.	Unchanged
	b) Temperature ranges : 22 + 2^{o}C in all areas except equipment room which shall be as per requirement of the equipment.	Unchanged
	c) Air conditioning load : The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of the bidder.	Unchanged
		Unchanged
	Furniture:	Unchanged
	a) Revolving Chairs height adjustable, medium-back with hand-rest in the control room and radiologist room and viewing area – 4 Nos.	Unchanged
	b) Chairs for patient waiting area – Three seater (chrome plated) : 10 Nos.	Unchanged
	c) Wall mounted shelves for catheter and other procedural hardware – 4 Nos.	Unchanged
	d) Cupboard with laminate door shutters for storage of spare parts and accessories and records as per requirement. – 3 Nos.	Unchanged
	e) Drug trolley 1 numbers for patient preparation area.	Unchanged
	f) Patient trolley with rubber foam mattress to be kept in the patient preparation room.	Unchanged
	g) Name boards for all rooms	Unchanged
	h) Tables for Workstation and Radiologist in reporting room – 2 Nos.	Unchanged
	i) Charging rooms should have change lockers and dressing table.	Unchanged
	j) Dustbins (plastic with lid) to be provided as required.	Unchanged
	k) Any other furniture item as per requirement.	Unchanged

	All furniture items should be of standard make as mentioned in the table below:	Unchanged
		Unchanged
	Miscellaneous :	Unchanged
	i. Knee controlled hand free two station scrub unit with disinfectant /soap dispenser.	Unchanged
	ii. Reporting room should have LED X-ray Film viewer with adjustable brightness; capable of holding 3 films of 14”x17” size-2 nos.	Unchanged
	iii. Cabling of Network (LAN) connectivity for camera system, console system, workstation and computers etc.	Unchanged
	iv. Broadband connection : for REMOTE SERVICE of Biplane DSA system	Unchanged
	v. Fire extinguisher Dry CO2 type as required for the building safety.	Unchanged
	New Point added Below :-	
i.	**Two weeks training to be provided to the doctors, nurses, & two other staff at the site, other high volume centre in India/ Abroad.**	
ii.	**For 10 patients angiography catheter including micro catheters to be provided**	
iii.	**At the end of commissioning of the system, it should be able to do angiography on the patients.**	
	WARANTEE	**5 years warantee with 95% uptime maintenance**

Item No. 3

BRAINSUITE INTRAOPERATTIVE MRI 1.5T		
Sr.No.	**Tender Specification**	**Modification/Changes**
	New Point to be added:- MRI manufacturer will be the main vendor and he will be responsible for coordinating with other companies to hand over it in the functional state. This will be executed on the turnkey basis.	
	The Operating Room Theater/Suite should have	
1	1.5 Tesla MRI for Intraoperative Imaging including installation and RF shielding	Unchanged
2	Ceiling Mounted Intraoperative neuro Image guidance system with automatic patient registration	Unchanged
3	Fully Integrated Digital OT with Data Management system & Integration with intra-operative simulation of follow-up SRS/SRT planning	3.**Amended as:-** Fully integrated digital OT with data management system and integration with intra-operative **data Management for gamma knife surgery.**
4	. Ceiling mounted OR lights with integrated light camera & OR room camera	
5	Compatible Microscope	Unchanged
6	Compatible OR equipment	Unchanged
6.a	OT table	Point added
7	Trainings	
	It should have the following features:	Unchanged
	Definition (Schematic Drawing attached):	Unchanged
	- DR : Diagnostic Intraoperative Room	Unchanged

	- OR : Intraoperative Neurosurgical Room	Unchanged
1	**1.5 Tesla MRI for Intraoperative Imaging (DR):**	Unchanged
a.	a. Stable ultra-short length (150cm or less) whole body superconductive magnet strength of 1.5 Tesla magnet with active shielding.	Unchanged
b.	b. High Performance gradient system with minimum gradient strength of 30mT/M or better.	**Amended as** : High Performance gradient system with minimum gradient strength of 33mT/M or better with slew rate 120 Mt/m/ms.
c.	c. MR –compatible OR table with dockable /detachable table top and compatible head holder for stabilizing patients head during the procedures.	Deleted
d.	d. Patient table should be able to take at least 150 kg patient load. Patient table should be usable as the operating table & should easily swivel or slide out for operating position. It should be incorporated with operating MR compatible head holder so as to allow imaging during surgery in supine, prone and lateral position.	**Amended as:-**Patient table should be able to take at least **300** kg patient load. Patient table should be usable as the operating table & should easily swivel or slide out for operating position. It should be incorporated with operating MR compatible head holder so as to allow imaging during surgery in supine, prone and lateral position.

e.	e. It should include a tried and tested effective patient transfer / transportation system to shift the patient from the OR to the MRI scanner for intra-operative scanning and back to the OR in a safe and practical manner.	**Amended as:-**It should include a tried and tested effective patient transfer / transportation system to shift the patient from the OR to the MRI scanner for intra-operative scanning and back to the OR in a safe and practical manner. **A MRI compatible trolley for shifting to MRI room should be provided**
f.	f. Magnet bore to be sufficiently wide (70cm or more) after positioning of gradient shim and RF antennae to allow positioning the patient during surgery with head frame / head holder for imaging.	**Amended as:-**Magnet bore to be sufficiently wide (70cm or more) after positioning of gradient shim and RF antennae to allow positioning the patient during surgery with head frame / head holder for imaging. **Separate MRI table should be provided**
g.	g. Digital RF Transmit and Receive System with 16 independent RF channels to permit PAT factors up to 4 (one direction) or more to help increase speed acquisitions.	Unchanged
h.	h. Minimum 6 channel Head Coil that can be used for image acquisition and intra-operative applications in Prone, supine & lateral positions.	**Amended as** : Head Coil with frame should be minimum 16 Channels and should have minimum 3 fixation points, can be used for image acquisition and intra-operative applications in Prone, spine & lateral positions.

i.	i. Should be adequate for comprehensive examinations	Unchanged
j.	j. It should have Image acquisition forT1, T2, Flair, DTI, BOLD & volumetric 3D sequences	**Amended as** : It should have Image acquisition forT1, T2, Flair, DTI, BOLD, SWI, DW, PW, PR & volumetric 3D sequences.
k.	k. Should have all the necessary coils & supports systems	**Amended as** :Should have all the necessary coils & supports systems for imaging brain, spine & rest of body.
l.	l. The MRI Vendor should be responsible for the end to end installation of the MRI machine including interior finish of the DR and the OR, RF shielding and any required turnkey work	Unchanged
2	**2. Ceiling mounted Intraoperative neuro image guidance system with automatic patient registration (OR):**	
	Hardware	
a.	a. The system should be wireless with passive marker technology.	Unchanged
b.	b. It should have a Zero OR footprint concept provided through ceiling-mounted camera and touch display.	Unchanged
c.	c. The system should be fully integrated with the Intra-operative MRI and both preoperative & Intraoperative patient data should be automatically registered without any manual registration steps required.	Unchanged
d.	d. The system should allow automatic patient registration in any patient position i.e separate lateral & prone position with –	Unchanged
.	Pre-operative patient registration allowing patient to be registered automatically immediately as the scan is done using the MRI.	Unchanged

.	• It should again automatically recognize and automatically register the patient during intra-operative scan compensating for craniotomy and brain shift by deformity correction and provide an exact visualization for the 'Brainshift'.	Unchanged
.	• All necessary hardware should as registration matrix along with the sterilization tray and specialized MR compatible Cranial reference unit should be included.	Unchanged
e	. It should also included option of manual pre-operative patient registration with skin sensitive touch device for maximum accuracy in prone position & Laser guided registration device for markerless/touch free & fast registration while performing manual patient registration.	Unchanged
f.	It should have flexible positioning of cameras and monitor with multi articulated arms allowing adjustment to virtually any position.	Unchanged
g.	It should have a Ceiling mounted touch screen monitor (min 26") with brilliant display quality & resolutions beyond full HD (1920x1200pixels per display). Image quality entirely preserved, no visualization limitations from the touch interface (surface acoustic wave technology).	Unchanged
h.	Interface Box for connectivity i.e. with surgical microscopes, fluoroscopes, endoscopes, ultrasound etc. via state-of-the-art digital and analog video inputs supporting up to full HD resolution. HD/SD-SDI up to 1080i/29.9fps, composite (CVBS, NTSC/PAL), S-video (NTSC/PAL),1x SDI HD (In), 1x S- Video (In), 1x Composite (In), 1x Microscope Connector (with : 1x USB 2.0, 1x RS232, 1x SXGA, 1x SDI HD (In), 1x Composite (In).	Unchanged
i.	System should be operable without keyboard & mouse.	Unchanged
j.	It should have high-end Infrared camera with Optical, laser guided and advanced wireless passive marker tracking technology.	Unchanged

k.	The system should display of a predefined trajectory pathway, inline and probe eye views.	Unchanged
l.	The probe should have capability to show images at 0mm – 180mm in from of it (Tool Tip Extension). The virtual tip should be also have the accuracy verification/ predication system in-built in the system.	Unchanged
m.	The system should have sub-millimetric patient accuracy ideal for deep sealed cranial biopsies, at the same time the system should also have the accuracy verification / prediction system in-built in the system.	Unchanged
n.	The system should have screenshot storage function for documentation purpose.	Unchanged
o.	Fine-adjustment for navigated frameless biopsies, shunt placements & endoscopic examination guided by the navigation system. Allows precise online tracking according to the pre-planned trajectory; Adapts to fit cylindric instruments of 1.8mm - 8.0mm and up to 300g, Holds instruments with length of up to 35 cm and should have the adapter for connecting it to the MRI compatible head holder.	Unchanged
	Software	
p.	The Advance Cranial applicable software should have a separate workstation with TFT motor for advanced cranial surgery planning enabled with transfer of preoperative data from CT, MRI, DTI, BOLD, SPECT, PET etc in DICOM format from any sources.	Unchanged

q.	. Both the Planning and navigation software should have the functionality of doing advanced 3D Visualization allowing display to bone-vessel, skin overlay. Maximum-intensity-Projection, Digital Radiography (DRR etc) view options with flexibility to superimpose 3D data images on the surgical plan and cut and crop functionality to adjust 3D images.	Unchanged
r.	Software should offer Automatic segmentation of anatomical cranial organs for the fat delineation of the anatomical structures. All anatomical objects such as Brainstem, Cerebrum, Cerebellum, CSF, Edema, gray matter, Hippocampus, Hypothalamus, Putamen, resection cavity, ventricles, thalamus, vessels, white matter, whole brain, eyes, optic apparatus etc should be automatically contoured by the system.	Unchanged
s.	Software should offer automatic Image fusion of the CT, MR, DTI, BOLD, PET & SPECT images.	Unchanged
t.	The software should have the capability to paint the targets and adapt to the complex 3D structure of the lesion/ object /landmark using the HU value sot that it becomes quick & time saving to outline the object during pre-operative & intra-operative planning.	Unchanged
u.	Software should offer Conversion of fiber tracts to 3D structures for visualization & interactive selection of Fiber tracks. It should provide automatic Fibretracking base on point to-point, point-to-location/region, and also drawn contoured object showing different color code for the direction of hydrogen atom in Fibretracking (display of fibers in original red-green-blue color code for detailed functional information.	Unchanged

v.	Software should allow anatomical images to be merged with functional maps to visualize perceptual, motoric & cognitive areas of the brain using the Blood Oxygen level dependent (BOLD) mapping & localization of functional areas. It should include Pre-processing of data including motion correction, since time correction and smoothing, flexible definition of different functional paradigms and should support of block-designed paradigms for motoric and speech areas with automatic detection of functional activations in the time series view for verification of signal to paradigm correlation. It should include Interactive selection and display of functional areas and regions of interest with possibility to Convert into 3D objects for use in navigation.	Unchanged
w.	Software for Frameless Biopsy system	Unchanged
x.	Microscope interface software should have advanced image guided microscope: Tracking of spatial orientation, viewing, direction, and associated focal point of the microscope, Superposition of 3D projections and reformatted contours of pre-planned anatomical structures, targets, and trajectories Injection of such 3D information (contours, trajectories, targets) into the optical pathway of the microscope Injection of non-correlated video images (e.g. endoscope) or diagnostic images (reformatted 2D/3D images) into optical pathway Continuous "smart" auto focus to the instrument or pointer tip.	Unchanged
	• The System should provide additional navigation information like "distance to target", "tumor extension" and "target/trajectory" information.	Unchanged
	• The microscope integration should deliver Heads up display and image injection module into the microscope eyepiece provided the microscope itself has those features.	Unchanged
	• The system should have the entire kit for microscope integration.	Unchanged

3	**3. Fully Integrated Digital OT with Data Management System & Integration with follow-up Radiosurgery /Radiotherapy**	
a.	a. It should include IP based Digital OR with seamless integration with Intra-operative iMRI & the Navigation platform:	Unchanged
	• Minimum 42" wide Full HD (1920x1080 pixel) ON-wall Touchscreen display (2 units required in the OT). Both units should seamlessly integrate with each other and pair with each other.	**Amended as**:- Minimum 42" wide Full HD (1920x1080 pixel) ON-wall Touchscreen display (2 units required in the OT). Both units should seamlessly integrate with each other and pair with each other. Control of video signal and routing rom 19" or more touch screen located inside the Sterile area for surgeon
	• In-built high performance workstation (min. 4GB RAM & 250 GB storage) allowing connection with upto Six video signals and routing contents with pre-designed expandable capabilities/ connection point on the surgical pendant for future addition of Intra-operative devices.	· **Amended as:**- • In-built high performance workstation (min. 8GB RAM & 2 TB storage) allowing connection with up to 12 video signals and routing contents with pre-designed expandable capabilities/ connection point on the surgical pendant for future addition of Intra-operative devices
	• In-built communication controls such as video conferencing, Recording and Live Streaming should be possible using the touchscreen.	Unchanged
	• Full integration with the Hospital Network and should be able to configure the IP series as provided by the hospital.	unchanged
	• Full DICOM Import of patient data from Hospital Network / PACS	unchanged
	• Analog/ Digital import of any modalities such as MRI, CT, X-Ray, PET, SPECT, Ultrasound etc.	unchanged
	• Transfer of DATA using USB, CD or DVD.	unchanged
	• In-built patient data privacy & HIPPA compliant with user log-in and auto log-off	unchanged

	• Possibility to route images, patient data, Intra-operative video sources through touchscreen without the use of keyboard or mouse.	unchanged
	• The system should include all transfer lines/ cables connection within the OR	unchanged
	• It should include Intra-operative Device management & Integration including.	unchanged
	• Video inputs with Full HD with SDI (OT light camera & OT Room Camera) should be integrated.	unchanged
	• Different input formats such as S-video (Ultrasound), Composite (C-arm), DVI (Endoscope/ Microscope) & also standard RGB/VGA should be supported for integration	unchanged
	• Special provision of additional input signals on the surgical pendant	unchanged
b.	Interactive DICOM viewer capabilities should include:	unchanged
	• Capability on Interactive DICOM capabilities including Zoom-in/out, panning, scrolling, add/subtract slices, flipping, Rotating, Adjusting contrast/ brightness	unchanged
	• Capability of Measurement functionalities for distance, angles and circles should be possible on the modalities.	unchanged
	• The system should allow instantaneous 3D visualization for analysis	unchanged
	• 3D volume rendering of CT, MR, PET, SPECT datasets with presets for visualization of skin, bone, vessel, DRR and MIP should be included.	unchanged
	• Superimposition of 3D dataset visualization and surgical planning data such as 3D contours, trajectories and annotation should be visualized instantaneously.	unchanged

	• It should allow crop functionality to cut through the planes in 3D along any direction and should allow to manipulate the threshold of the relevant anatomy.	unchanged
	• The system should allow quick and easy volumetric outlining of pathologies and anatomical structures with instant volumetric contouring and calculation of outlined structure in just two orthogonal slices.	unchanged
	• It should allow automatic creation of volumetric report defining the geometrical measurements like volume, PECIST & Macdonald criteria	unchanged
	• It should allow automatic fusion of multiple data CT, MRI, MRA, PET, SPECT, DTI & BOLD	unchanged
	• The system should also allow planning for multiple trajectories for different Neurosurgical workflow with interactive touchscreen control for target and entry point definition	unchanged
	• Option for flexible scaling of trajectory diameter should be included in the system	unchanged
c.	It should include Live Streaming of OR procedure capabilities as-	unchanged
	• Live streaming should be possible using the touchscreen which can be viewed suing the hospital network or web browser from anywhere.	unchanged
	• It should be possible to live stream video signal from HD camera (Room & OT camera), endoscope, Microscope, Ultrasound etc whichever is being used intra-operatively.	unchanged
d.	Digital Recording capabilities as –	unchanged
	• It should be able to locally record the procedure in digital HD quality on the in-built computer on the wall itself using the touchscreen.	unchanged

	• The system should allow storing of all recording to the USD or Hard disk once the procedure in finished.	unchanged
	• It should also allow taking screenshot of the live procedures on the display using the touchscreen. All screenshots taken on the live streaming /videos during the procedures should also be stored on the in-built computer platform on the wall which can later be transferred to USD/Hard disk once the procedure is finished.	unchanged
	• It should also have the provision of configuring to save of recordings, screenshots etc on the hospital network.	unchanged
e.	Audio-Video conferencing capabilities should include-	unchanged
	• Web-based/VOiP based audio video conferencing should be provided	unchanged
	• The system should have built-in camera and microphone for conferencing	unchanged
	• It should also have the capabilities to configure Bluetooth microphone for conferencing in sterile environment.	unchanged
	• It should also allow network based remote consulting, viewing and communication form Surgeon's office, Doctor's lounge, Seminar room/ hall, Auditorium room through the network.	unchanged
f.	f. The system should allow integration with the existing Hospital HIS platform HL7, DICOM3, IHE standard.	unchanged
g.	The system should also include display of Surgical checklist for improved patient safety-	unchanged
	• The Electronic checklist should be based on WHO principles	unchanged
	• Checklist should guide through different questions to make sure that e.g. the correct patient is operated at the correct site, the OR team prepares for risk of high blood loss, the OR team will avoid inducing an allergic drug reaction for which the patient is known to be at risk, etc.\	unchanged
	• The Checklist should be available in English language.	unchanged

	• It should have Full integration of checklist in Hospital Information System (HIS). It should create document providing evidence that all steps in the checklist were completed and is sent to HIS and embedded in the electronic medical record of the patient.	unchanged
	h. Intra-operative simulation of follow-up SRS/SRT planning	unchanged
	• It should allow automated analysis of follow-up Stereotactive Radiosurgery/Radiotherapy simulation plant for residual benign brain tumors during surgery.	unchanged
	• SRS/SRT plan feasibility should allow reducing surgery time and decreasing morbidity by providing criteria for concluding subtotal resection.	unchanged
	• It should be have automatic intra-operative plan simulation of follow-up SRS/SRT based on initial or updated tumor volume.	unchanged
	• It should include Automatic simulation and intuitive side-by-side comparison of single fractionated, hypo-fractionated, and conventional fractionated treatment plans	unchanged
	• It should have comprehensive visualization of the simulated plan results like dose volume histogram, including dose conformity and constraints and visualization of the dose distribution.	unchanged
	4. Compatible ceiling mounted OR lights with integrated camera & OR Room Camera:	**Amended as :** Compatible ceiling mounted OR lights .
a.	. Operating Room should have high-end surgical OR lights with 4-arm system with High illumination intensity, low heat radiation and easy-to-operate swivel arms and integrated video camera	**Amended as:-**Operating Room should have high-end surgical OR lights with 2-arm system with single /multi bulb technology with High illumination intensity at least 130000 lux. For attachment to roof Part should be provided

b.	The other tow arm system should hold the navigation camera & display screen	**Deleted**
c.	The PTZ HD room camera should also be included.	**Deleted**
5	**5. Compatible Microscope:**	
a.	Compatible high-end surgical microscope which ahs the required softwares for making it navigation ready.	**Amended as:**High end 300 w xenon light source having contravas stand, able to incorporate images guidance. should have binocular surgeon eye pieces, binocular Assistant diploscope, high definition recording system with at least 24 " medical grade monitor to be fixed on wall panel. Recording system should have 4 GB RAM, 2 TB HDD storage memory. A side binocular tube for assistant should also be provided. The microscope should have ICG and ALA Facilities. Necessary Software & hardware should be provided.
b.	The microscope should offer autofocus and advance 'Image Injection' capabilities	DELETED
c.	The microscope should have advanced Digital Video System with 3CCD camera.	DELETED
	6. Compatible OR equipment:	
a.	**OT Table New Point added i**	OT Table: OT Table high end, top of which to should be MR Compatible and top should be slide on to trolley to be taken to MRI room. MR compatible 3 pin head fixation system. Should be supplied with 6 spare pins set and table attachments.
a. (I)	. Set of boom and spring arms to be installed in the OR to hold monitors, surgical and anesthesia equipment.	unchanged
b.	MRI Compatible Anesthesia Ventilation System with MR compatible respiratory cylinders – Qty 01	**Amended as:-**.: - Anaesthesia workstation: MRI Compatible anaesthesia workstation having with digital display having facility for ETCO2, bispectral index inbuilt ventilator. It should be on wheels with brakes and total machine should be transportable to MRI Room.
c.	MRI safe I.V Pole 4 hook system – Qty. 04	unchanged

d.	MRI Compatible Patient Monitoring System with ECG, NiBP, iBP, SpO2, EtCO2, Respiration and Temperature options should be included – Qty. 01	**Amended as:-**Two Multi parameter monitors MRI Compatible which should display SPO2, Heart RATE, ECG, and NIBP. It should have 2 invasive ports for lines like intra arterial pressure and central venous pressure. One will be mounted on wall & one to be transportable.
e.	. Drug administration system/ pump for exact medication dosage – Qty. 02	unchanged
f.	OT Chair – Qty 04	**Amended as**:- Surgeons Chairs and one assistant chair should be provided, which should have height adjustment**.**
7	**7. Installations & Trainings:**	
a.	a. Training for surgeons, Radiographers, Nurses & Technicians should be done onsite from the supplier for Two continuous weeks followed by repeat trainings of One weeks each at 6 months & 12 months from the day of going clinical.	**Amended as:**. Training by the supplier for surgeons, Radiographers, Nurses & Technicians should be done onsite & other centres where brain suit exist by the supplier for two continuous weeks followed by repeat trainings of one weeks, each at 6 months & 12 months from the day of going clinical
	All interior and finishing with the Brainsuite intra-operative MRI area shall be done by supplier to make it clinically functional as per the standard.	**Amended as**:All interior and finishing of the Brain suite intra-operative MRI area shall be done by supplier. Finishing should be like other modular O.T. in super specialty block of Safderjung Hospital
	WARANTEE	**5 years Warantee with 95% uptime maintenance**
	At the end of Assembly of intraoperative MRI Neuro Navigation and other things needed for the Brain suit should be complete and system should be able to perform the surgery on the patient in the brain suite.	

Item No. 4

Sr.No.	**Tender Specification**	**Modification/Changes**
	1. **MOBILE CT SCANNER FOR NEUROSURGERY / TRAUMA**	
	A COMPACT, PROTABLE, BATTERY & LINE POWERED MULTI-SLICE CT SCANNER IS REQUIRED FOR CRANIAL AND CERVICAL SPINE APPLICATIONS IN NEUROSURGERY ICU, OT & TRAUMA.	
	THE EQUIPMENT SHOULD BE FDA APPROVED.	
	X-RAY GENERATOR AND TUBE	
	1. SHOULD HAVE MULTI-SLICE CAPABILITY WITH MINIMUM OF 8 SLICES PER ROTATION.	Unchanged
	2. THE TUBE VOLTAGE SHOULD VARY FROM 100-140 KV	Unchanged
	3. TUBE COOLING SHOULD OCCUR IN LESS THAN 15 MINUTES	Unchanged
	4. X-RAY TUBE SHOULD BE FIXED ANODE OR BETTER.	Unchanged
	5. SHOULD HAVE SOLID-STATE DETECTORS.	Unchanged
	GEOMETRY	Unchanged
	1. SHOULD HAVE A MINIMUM PATIENT OPENING OF 30 CM.	Unchanged
	2. IMAGE FIELD OF VIEW SHOULD BE AT LEAST 250 MM.	Unchanged
	IMAGE PROCESSING:	Unchanged
	1. SHOULD HAVE CAPABILITY TO PERFORM NON CONTRAST CT (AXIAL), CT ANGIOGRAPHY (HELICAL), CT PERFUSION (AXIAL) AND 3D CT RECONSTRUCTION.	Unchanged
	2. SHOULD ALLOW VOLUMETRIC DATA ACQUISITION	Unchanged
	3. SCAN TIME FOR CT ANGIOGRAPHY AND CT PERFUSION SHOULD BE LESS THAN 4 MINUTES.	Unchanged
	IMAGE QUALITY :	Unchanged
	1. THE RECONSTRUCTION MATRIX SHOULD BE AT LEAST 512 X 512	Unchanged
	CONNECTIVITY:	Unchanged
	1. SHOULD HAVE DICOM FUNCTIONS AND FULL DICOM 3 COMPATIBILITY. GIGABIT ETHERNET CONNECTIVITY IS ESSENTIAL ANDWIRELESS CONNECTIVITY IS DESIRABLE. THE VENDOR HAS TO CONNECT THE EQUIPMENT WITH THE EXISTING PACS NETWORK OF THE HOSPITAL	Unchanged

	COMPATIBLE WITH THE DEPARTMENT OF NEURORADIOLOGY.	
	ELECTRICAL SUPPLY:	Unchanged
	1. SHOULD BE ABLE TO RUN ON SINGLE PHASE 220V AC	Unchanged
	2. SHOULD HAVE AN INTERNAL AUTOMATIC VOLTAGE REGULATOR TO PROJECT AGAINST VOLTAGE FLUCTUATIONS AND POWER SURGES.	Unchanged
	3. SHOULD BE SUPPLIED WITH INDIAN PLUG	Unchanged
	PORTABILITY:	Unchanged
	1. SHOULD BE COMPACT AND PORTABLE WITH ABILITY TO MOVE WITHIN ELEVATORS AND THROUGH NORMAL SIZED DOORS.	Unchanged
	2. SHOULD HAVE BATTERY BACK UP FOR ATLEAST 2 SCANS.	Unchanged
	SAFETY:	Unchanged
	1. SHOULD BE SAFE ENOUGH TO BE USED ENVIRONMENTS SUCH AS ICU AND OT	Unchanged
	2. SHIELDING UPGRADE IF AVAILABLE SHOULD BE PROVIDED.	Unchanged
	3. SHOULD SATISFY INTERNATIONAL RADIATION SAFETY REQUIREMENT.	Unchanged
	WORKSTATION:	Unchanged
	A MOBILE WORKSTATION WITH ALL IMAGE PROCESSING SUPPLYING/LOADED SHOULD BE PROVIDED.	Unchanged
	PACS COMPATIABILITY, MACHINE SHOULD BE COMPATIBLE WITH ALL PACS SOLUTION AND SHOULD INTERFACE DIRECTLY WITH ANY PACS SOLUTIONS IN THE HOSPITAL.	Unchanged
	OPTIONAL ACCESSORIES FOR USE IN OPERATION THEATER & FOR GENERAL USE	
	1. SKULL CLAMP INCLUDING	**Point Deleted**
	. PARK BENCH BASE UNIT & SPINDLE ADAPTOR	**Point Deleted**
	. 150MM EXTENSION BARS	**Point Deleted**
	. 1 BOX OF TITANIUM PINS CONTAINING 50 PINS	**Point Deleted**
	. TORQUE WRENCHES -2	**Point Deleted**
	2. OT TABLE ADAPTOR	Unchanged
	3. GEL PADS (ADULT & PEDIATRIC 1 EACH)	Unchanged
	4. SILHOUETTE SCAN BOARD	Unchanged
	5. CERETOM SURGICAL DRAPER	Unchanged

	6. NAVIGATION ADAPTOR	Unchanged
	7. PRESSURE INJECTOR	Unchanged
	8. LEAD APRON -6 NOS	Unchanged
	9. THYROID LEAD SHIELD – 6 NOS	Unchanged
	10. X-RAY FIELD DIGITIZER	Unchanged
	11. HORSE SHOE HEAD REST (ADULT & PAEDIOTRIC EACH)	Unchanged

Item No. 5

SURGICAL OPERATING MICROSCOPE FOR NEUOROSURGERY

Sr. No.	Tender Specification	Modification/Changes
1		
	MICROSCOPE BODY and OPTICS:-	
	Should have Motorized zoom magnification system with apochromatic optics, zoom magnification factors to be around the range of 0.4x to 2.4x.	Unchanged
	All activation should be by handgrip, Stand mounted LCD control panel and foot control panel, with manual override. Total magnification range 2X- 18X or higher. Internal motorized fine focusing system. All activation should be by handgrip, Stand Mounted LCD control panel and foot control panel, and with manual override. These should be continuously adjustable with working distance from about 200 mm to 500 mm without exchange of objective lens. There should be integrated continuously variable illumination field from 60mm – 15mm or less. Beam Splitter should preferably be integrated in the microscope body, without any external attachment with face to face attachment with rotatable dovetail mount for fatigue free surgeries.	Unchanged
	BINOCULAR TUBE : 0-180 degree range tiltable binocular tube with focal length =170 mm or higher. Should Graduated knob for continuous adjustment of interpupillary distance from 55 mm to 75 mm	Unchanged
	Auto balance and Auto Drape – System should be capable of auto-balancing the microscope intraoperatively. Autobalance should be fully computerized and should not involve any manual rotation of knobs (automatic self balancing).	Unchanged
	EYEPIECES : Pair of high eyepoint widefield push-in eyepieces 10x magnification with magnetic locks, with diopter setting range from -8D to +5D for spectacles wearers. The lenses should have rubberized cuffs for comfort and should preferably have antifogging coating.	Unchanged

	Face to face attachment for spinal surgery. Stereo Co Observation attachment with two joints with side changer. Optics and eyepiece similar to main surgeon unit.	Unchanged
	ILLUMINATION SYSTEM : Coaxial xenon illumination of about 300W with back up similar rating xenon with quick-action lamp changer in case of failure of main lamp should be integrated within the microscope stand. In case of electronic system failure the light should continue to work with manual overdrive for optics adjustment.	**Amended AS : ILLUMINATION SYSTEM** - 300 w. xenon bulb good stand which can balance in all position & one spare 300 w xenon bulb should be supplied in case of failure of main lamp should be integrated with in the microscope stand. In case of electronic system failure the light should continue to work with manual overdrive for optics adjustment. The microscope magnification should be as per standard in high end Microscope.
	Should have automated illumination Brightness control linked to working distance and magnification.	Unchanged
	Should have automatic zoom-synchronized illumination field diameter, with manual override and reset feature.	Unchanged
	HANDGRIPS : Easily maneuverable handgrips with adjustable keys for zoom and focus, Illumination & Magnetic brakes. Programming for magnetic brake for control of stand & Microscope body brakes. Camera controls for video and still images should be programmable on handgrips.	:Amended as:- **the control should be in the hand grips. The microscope should have automatic balance. Just pressing the switch off on the hand grip microscope should be free** Easily maneuverable handgrips with adjustable keys for zoom and focus, Illumination & Magnetic brakes. Programming for magnetic brake for control of stand & Microscope body brakes. Camera controls for video and still images should be programmable on handgrips.
	FLOOR STAND : Rollable floor stand on base with lockable castors, carrier and swivel arms with large reach of 1.30m or higher, Weight caring capacity at least 18 Kg. Should have free float magnetic system with Multiple magnetic brakes for Microscope body & Stand with, release of magnetic brakes by handgrips with contrives stand.	**Amended as:FLOOR STAND :** Rollable floor stand on base with lockable castors, carrier and swivel arms with large reach of 1.30m or higher, Weight caring capacity at least 18 Kg. Should have free float magnetic system with Multiple magnetic brakes for Microscope body & Stand with, release of magnetic brakes by handgrips .

	Touch screen Liquid crystal display (LCD) with user prompts, quick set up of different parameters and their activation at press of a button such as automatic speed adjustment or automatic brightness setting depending on magnification.	Unchanged
	System may preferably have overhead LCD display for showing important parameters to operating surgeon.	Unchanged
	INTEGRATED DIGITAL VIDEO CAMERA SYSTEM : Advanced digital 3CCD HD Video camera should be attached to supply output to the stand mounted colour LCD screen. In addition there should be ports for connection to PC via USB/FireWire ports, 15 pin VGA port for color monitor, HDMI port +/- DVI port and preferably LAN connectivity.	Unchanged
	Should be capable of doing video speed focus for impendent focusing apart from microscopic focus. All imaging to be DICOM compatible.	Unchanged
	USER PROGRAMMING : Programming for starting illumination, magnification working distance, Zoom speed & Focus speed for at least 8-9 different users.	Unchanged
	VIDEO/IMAGE DATA MANAGEMENT SYSTEM : should have attached video recording system & still photo in the microscope stand with internal HDD of at least 1 TB, and high speed DVD writer. Latest generation macintosh based desktop computer system with video editing software for image processing and editing (video handling – atleast 2 GB hardware) and auto duplex printing laser multifunction printer to be provided separately. Original display adapters for 15 pin VGA and HDMI output also to be provided with the desktop along with a 1 KVA UPS.	Unchanged
	VIDEO MONITOR : medical grade 19" Touch screen Colour LCD display should be mounted on Microscope stand.	**Amended AS:-** Medical grade 19" monitor should be provided to view the ongoing surgery. The monitor should be mounted on the wall. In case of electricity failure a manual control should be provide.
	Fluorescence and ICG – system should be upgradeable to Intraoperative Fluorescence as well as ICG. Systems without this upgradability will not be considered.	Deleted

	Image guidance –	Deleted
	Microscope should be fully ready for image guidance system integration.	Deleted

Item No. 6

	CUSA/ ULTRASOUNIC DISSECTOR / ASPIRATORS NEUROSURGERY	
Sr. No.	**Tender Specification**	**Modification/Changes**
	Description of function: Ultrasonic aspirators use mechanical ultrasonic vibration and irrigation to fragment and remove soft tissue and high water content growths from the body.	
1. a	Unit should be light weight and portable on trolley with US FDA approval certificate to be enclosed. Should have single foot switch.	
b.	Unit and handpieces should not get heated while using continuously. No cooling system should be required to keep unit and handpieces for getting heated.	Unit and hand pieces should not get heated while using continuously. Cooling system should be required to keep unit and hand pieces for getting heated
c.	Should have inbuilt suction system with vacuum – 0.0 to 0.9 bar.	unchanged
d.	Irrigation capacity of 0 – 160 ml/minute.	Irrigation capacity of 0 – 10ml/min or more and Fast Flush 0-25ml/min or more .
e.	Power Input to be 220 – 240 VAC.	unchanged
2	**Handpieces** (choice of out side & insude irrigation)	**Amended as** (choice of out side OR inside irrigation)
1	Hand piece should be light weight with detachable cable intraoperative exchange of handpieces. The handpieces shot	**Amended as -**Hand piece should be light weight with detachable cable intraoperative exchange of handpieces/**tips**
2	Should be magnetorestrictive or piezoelectric technology based system	unchanged
3	Resonance frequency of tip should be in range of 20 – 36 khz:	unchanged
	Short Angled Macro handpiece 23 -25 khz, Tip Dia outside 2.0 to 2.2 mm, inside : 1.4 to 1.7 mm.	**One Short Angled Macro handpiece or Tips-10 Nos. 23 -36 khz, Tip Diainside : 1.4 to 1.7 mm.**
	Short Angled macro Handpiece 23 – 25 khz, Tip Dia. Outside 3.0 to 3.5 mm, inside : 2.0 to 2.2 mm.	**1 Amend as: One Angled macro Handpiece or Tips-5 Nos 23 – 36 khz, Tip Dia. inside : 2.0 to 2.2 mm**
	Long Angled Micro Handpiece 34 – 36 kHz, Total length 250 to 300MM, Working length : 100 to 110 MM, Weight: 80 to 85 g tip diameter Out side : 2.0 to 2.3 MM, Inside 1.5 to 1.7 MM.	**One Long Angled Micro Handpiece or Tips -5 Nos. 23 – 36 kHz, Total length 250 to 300mm Tip Dia inside : 1.5 to 1.9 MM**

	NOTE :If Disposable Handpiece's tips are being offered then 50 tip : diameter to be quoted with the main offer as asked in the specification.	**If Disposable Handpiece's tips are being offered then 20 tip : to be quoted with the main offer.**
3	**Accessories**	
a.	Sterilization tray	unchanged
b	Suction bottle with suction lid	unchanged
c	Hose system disposable	unchanged
d	Foot switch	unchanged
e	Suction refill bags	unchanged
f	Cleaning brush for handpieces	unchanged
g	Trolley for main console	unchanged
h	Gallows for irrigation bottle	unchanged
i	Power cable	unchanged
j	Bacteria filter disposable	unchanged
k	Service manual	unchanged
4	Essential consumables should be freely available. The firm should clearly indicate in the technical bid itself that the prices of all standard accessories / disposables as well as the other terms & accessories specifically mentioned in the above specifications are included in the quoted price.	unchanged
5	. Compliance report to be submitted in a tabulated and point wise manner clearly.	unchanged
6	The after sales service must be available in Delhi/ NCR. Bidders must attach certificates from users for satisfactory after sales services and the list of users.	unchanged
7	Power input to be 220 -240 VAC, 50Hz fitted with Indian plug.	unchanged
8	Suitable UPS with maintenance free batteries for minimum two-hour back-up should be supplied with the system.	Deleted
9	Manufactures/Supplier should have ISO or equivalent certificate to Quality Standard.	unchanged

10	Should be compliant with IEC 61010-1: (or any international equivalent e.g. EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use.	unchanged
11	. Should be US – FDA/ European CE approved product.	unchanged
12	Comprehensive training for 2 surgeon and 2 assistant at site, till familiarity with the supplied system.	unchanged
13	User / Technical/Maintenance manuals to be supplied in English.	unchanged
14	Certificate of calibration and inspection.	unchanged
15	. List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.	unchanged
16	List of important spare parts and accessories with their part number and costing.	unchanged
17	Comprehensive Warranty 5 Years and CMS 5 Years to be quoted.	unchanged
18	. Institute reserves the right to have a LIVE demonstration at Sadarjung Hospital, in addition to DRY demo/ catalogue, if required.	unchanged

Item No. 7

Transcranial Doppler

1. Four channels transcranial Doppler system required.
2. Should be capable of intra0operative Microvascular Doppler and Transcranial Doppler.
3. Should be supplied with 16-20 MHz probes for Intraoperative Doppler and 1.6-2.0 MHz probes for Transcranial Doppler.
4. Should have multigating, multi frequency operation and automatic emboli detection.
5. Should have user definable defaults for individual blood vessel.
6. Should have summery screen which displays all studies performed on a patient on a single screen.
7. Should have long term monitoring with trending of selected programs.
8. Should have manual control of gain.
9. Should have user definable alarms.
10. Should have remote control operation.
11. Should be supplied with latest intel Pentium Processor with minimum specifications of 128 MB RAM, 40 GB HDD & 15”-17” colour monitor.
12. Compatibility of probes with our existing Doppler is preferred.
13. Warranty 5 years + 5 years CMC with spares.

Item No. 8

S. No.	CRANIOTOMY SET & NEURO SURGERY HAND INSTRUMENTS LIST	Qty. Per Set	Modification/Changes
LAMINECTORMY SET-2 sets to be ordered			
1.	BACKHAUS TOWEL CLAMP 90MM	4	Unchanged
2.	BACKHAUS TOWER CLAMP 135MM	4	Unchanged
3.	SCALPEL HANDLE #3 125MM	1	Unchanged
4.	SCALPEL HANDLE #4 135MM	1	Unchanged
5.	TC MAYO SCISSORS STR 170MM	1	Unchanged
6.	TC MAYO SCISSORS CVD 170MM	1	Unchanged
7.	TC METZENBAUM SCISSORS STR 145MM	1	Unchanged
8.	TC METZENBAUM SCISSORS CVD 145MM	1	Unchanged
9.	TC METZENBAUM SCISSORS CVD 180MM	1	Unchanged
10.	TC METZENBAUM SCISSORS DEL CVD 230	1	Unchanged
11.	SUCTION CANNULA BARRON 1MM	1	Unchanged
12.	SUCTION CANNULA BARRON 2MM	1	Unchanged
13.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
14.	WAUGH DEL TISSUE FORCEPS 1X2 200MM	1	Unchanged
15.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
16.	WAUGH DEL TISSUE FORCEPS 1X2 180MM	1	Unchanged
17.	FORCEPS BAYO SMOOTH 185MM	1	Unchanged
18.	ADSON FORCEPS BAY SHAPED 175MM	1	Unchanged
19.	FORCEPS RAMSEY 175MM	1	Unchanged
20.	ADSON ELEVATOR SHARP FLAT 8MM	1	Unchanged
21.	ADSON RASPATORY CVD. 7MM WI.	1	Unchanged
22.	ADSON RASPATORY CVD. 7MM WI.	1	Unchanged
23.	ADSON RASPATORY STR. 7MM WI.	1	Unchanged
24.	SELF-RETAINING RETR 3X4T. BLUNT 195MM	2	Unchanged

25.	LANGENBECK RETRACTOR SOLID 40X10MM 230MM	1	Unchanged
26.	LANGENBECK RETRACTOR SOLID 43X13MM 229MM	1	Unchanged
27.	LANGENBECK RETRACTOR 64X20MM 210MM	1	Unchanged
28.	BECKMANN-ADSON RETR 4X4 SEMI-S 305MM	2	Unchanged
29.	ADSON BABY RECTRACTOR 3X4 BLUNT 140MM	2	Unchanged
30.	ADSON RETRACTOR SEMI-SHARP 4X4T.210MM	`2	Unchanged
31.	ADSON DISSECT. FORCEPS W/O T.180MM	1	Unchanged
32.	LUER-STILLE BONE RONGEUR STR 225 MM	1	Unchanged
33.	STILLE-RUSKIN BONE RONGEUR 240MM	1	Unchanged
34.	RUSKIN BONE RONGEUR CVD 190MM	1	Unchanged
35.	ECHLIN BONE RONGEUR JAW 3X10MM 230MM	1	Unchanged
36.	LEMKPERT BONE RONGEUR STR 2MM 165MM	1	Unchanged
37.	LUER BONE RONGEUR STR 175MM	1	Unchanged
38.	LUER BONE RONGEUR CVD 175MM	1	Unchanged
39.	BEYER BONE BONGEUR CVD 175MM	1	Unchanged
40.	JANSEN BONE RONGEUR CVD 175MM	1	Unchanged
41.	DAHLGREN SKULL PUNCH W/2 X-HOOKS210MM	1	Unchanged
42.	ECHLIN BONE RONGEURJAW 2X10MM 230MM	1	Unchanged
43.	ECHLIN BONE RONGEURJAW 3X10MM 230MM	1	Unchanged
44.	ECHLIN BONE RONGEURJAW 3X10MM 230MM	1	Unchanged
45.	ZAUFAL-JANSEN BONE RONGEUR CVD 180MM	1	Unchanged
46.	ECHLIN BONE RONGEUR JAW 3X10MM 230MM	1	Unchanged
47.	STILLE BONE RONGEUR 230MM	1	Unchanged
48.	LEKSELL RONG FCPSDBACT CVD 5X16MM 245MM	1	Unchanged
49.	FRYKHOLM BONE RONGEUR 240MM	1	Unchanged
50.	STILLE-RUSKIN BONE RONGEUR240MM	1	Unchanged
51.	RUSKIN BONE RONGEUR CVD 190MM	1	Unchanged
52.	LUER BONE RONGEUR STR 175MM	1	Unchanged
53.	LISTON BONE-CUTTING FORCEPS STR 280MM	1	Unchanged
54.	LISTON BONE-CUTTING FORCEPS CVD 280MM	1	Unchanged

55.	LISTON-KEY-HORSLEY BNE-CUTTING FCP254MM	1	Unchanged
56.	LISTON BONE-CUTTING FORCEPS STR140MM	1	Unchanged
57.	ADSON RETRACTOR 3X4 SHARP 265MM	2	Unchanged
58.	SELF-RETAINING RETR 3X4T. SHARP 195MM	2	Unchanged
59.	ANDERSON-ADSON RETR 4X4 SHARP 190MM	2	Unchanged
60.	SELF-RETAINING RETR 3X4T. BLUNT 195MM	2	Unchanged
61.	ANDERSON-ADSON RETR 4X4 SHARP 190MM	1	Unchanged
62.	ADSON-BABY RETRACTOR 3X4 BLUNT 140MM	2	Unchanged
63.	ADSON RETRACTOR SEMI-SHARP 4X4T. 210MM	2	Unchanged
64.	JANSEN RETRACTOR 3X3 BLUNT 100MM	2	Unchanged
65.	ALM RETRACTOR 4X4T. SHARP 70MM	1	Unchanged
66.	ALM RETRACTOR 4X4T. SHARP 100MM	1	Unchanged
67.	WEITLANER RECTRACTOR 3X4T. BL. 130MM	1	Unchanged
68.	BECKMANN-ADSON RETR 4X4 SHARP 305MM	2	Unchanged
69.	BECKMANN-ADSON RETR 4X4 SEMI-S 305MM	2	Unchanged
70.	DE'BAKEY FEMUR RETRACTOR F/ADULT 145MM	2	Unchanged
71.	JACKSON-BURROWS RETRACTORBLUNT 180MM	1	Unchanged
72.	GELPI VAGINAL RETRACTOR 135MM	1	Unchanged
73.	GELPI SKIN/VAGINAL RETRACTOR 175MM	1	Unchanged
74.	DE'BAKEY FEMUR RETRACTOR F/ADULT 145MM	1	Unchanged
75.	CLOWARD LAMINA SPREADER 135MM	1	Unchanged
76.	INGE LAMINA RETRACTOR 170MM	1	Unchanged
77.	CLOWARD LAMINA SPREADER 135MM	1	Unchanged
78.	CLOWARD LAMINA SPREADER 155MM	1	Unchanged
79.	INGE LAMINA RETRACTOR 275MM	1	Unchanged
80.	INGE LAMINA RETRACTOR 170MM	1	Unchanged
			Unchanged
STANDARD KERRISON PUNCH-1 SET TO BE ORDERED			Unchanged
1.	KERRISON 90DG-UP 2MM 180MM	1	Unchanged
2.	KERRISON 90DG-DWN 2MM 180MM	1	Unchanged

3.	KERRISON 90DG-UP 3MM 180MM	1	Unchanged
4.	KERRISON 90DG-DWN 3MM 180MM	1	Unchanged
5.	KERRISON 90DG-UP 4MM 180MM	1	Unchanged
6.	KERRISON 90DG-DWN 4MM 180MM	1	Unchanged
			Unchanged
KERRISON, IVD AND BONE RONGEUR SET, BLACK CERAMI COATED			Unchanged
NONE REFLECTING DETACHABLE KERRISON PUNCH 1 SET TO BE ORDERED			Unchanged
1.	KERRISON BLK COATED 130 UP 180X1MM REG	1	Unchanged
2.	KERRISON BLK COATED 130 UP 180X2MM REG	1	Unchanged
3.	KERRISON BLK COATED 130 UP 180X3MM REG	1	Unchanged
4.	KERRISON BLK COATED 130 UP 180X4MM REG	1	Unchanged
5.	KERRISON BLK COATED 130 UP 180X5MM REG	1	Unchanged
6.	KERRISON BLK COATED 130 UP 180X1MM THIN	1	Unchanged
7.	KERRISON BLK COATED 130 UP 180X2MM THIN	1	Unchanged
8.	KERRISON BLK COATED 130 UP 180X3MM THIN	1	Unchanged
9.	KERRISON BLK COATED 130 UP 200X2MM REG	1	Unchanged
10.	KERRISON BLK COATED 130 UP 200X3MM REG	1	Unchanged
			Unchanged
CURVED KERRISON PUNCH 1 set to be ordered			Unchanged
1.	KERRISON CVD.UP 200MM 2MM	1	Unchanged
2.	KERRISON CVD.UP 200MM 3MM	1	Unchanged
3.	KERRISON CVD.UP 200MM 4MM	1	Unchanged
			Unchanged
BEYONET KERRISON PUNCH 1 set to be ordered			Unchanged
1.	KERRISON BAY.SHAPED 130DEG UP 240MM 2MM	1	Unchanged
2.	KERRISON BAY.SHAPED 130DEG UP 240MM 3MM	1	Unchanged
3.	KERRISON BAY.SHAPED 130DEG UP 240MM 4MM	1	Unchanged
DISC FORCEPS 1 set to be ordered			Unchanged
1.	SPURLING RONGEUR STR 4X10MM 180MM	1	Unchanged
2.	SPURLING RONGCVDUP-BITE 4X10MM 180MM	1	Unchanged

3.	SPURLING RONGEUR DWN-BITE 4X10MM 180MM	1	Unchanged
ANTERIOR CERVICAL SET - 1 set to be ordered			Unchanged
1.	BACKHAUS TOWEL CLAMP 90MM	4	Unchanged
2.	BACKHAUS TOWEL CLAMP 135MM	4	Unchanged
3.	SCALPEL HANDLE #3 125MM	1	Unchanged
4.	SCALPEL HANDLE #4 135MM	1	Unchanged
5.	TC MAYO SCISSORS STR 140MM	1	Unchanged
6.	TC MAYO SCISSORS CVD 140MM	1	Unchanged
7.	TC METZENBAUM SCISSORS STR 145MM	1	Unchanged
8.	TC METZENBAUM SCISSORS STR 180MM	1	Unchanged
9.	TC METZENBAUM SCISSORS CVD 145MM	1	Unchanged
10.	TC METZENBAUM SCISSORS CVD 180MM	1	Unchanged
11.	ALLIS FORCEPS 4X5 155MM	4	Unchanged
12.	CRILE FORCEPS STR 140 MM	6	Unchanged
13.	CRILE FORCEPS CVD 140MM	6	Unchanged
14.	CRILE FORCEPS STR 160MM	1	Unchanged
15.	CRILE FORCEPS CVD 160MM	6	Unchanged
16.	FORCEPS BAYO SMOOTH 185MM	1	Unchanged
17.	GERALD FORCEPS DEL STR 175MM	1	Unchanged
18.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
19.	WAUGH DEL. TISSUE FORCEPS 1X2 180MM	1	Unchanged
20.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
21.	WAUGH DEL. TISSUE FORCEPS 1X2 200MM	1	Unchanged
22.	LANGENBECK RETYRACTORSOLID40X10MM 230MM	2	Unchanged
23.	KOCHER-LENGENBECK RETR 55X11MM 216MM	2	Unchanged
24.	LANGENBECK RETRACTOR 64X20MM 210MM	2	Unchanged
25.	KOCHER-LANGENBECK RETR 70X14MM 216MM	2	Unchanged
26.	CLOWARD TYPE RETRACTOR W/S BLADES 250MM	1	Unchanged
27.	FRAZIER SUCT X-SM 7FR 108MM WRK-LGTH	1	Unchanged
28.	FRAZIER SUCT MED10FR 108MM WRK-LGTH	1	Unchanged

29.	FRAZIER SUCT LRG 12FR 108MM WRK-LGTH	1	Unchanged
30.	FRAZIER SUCT X-SM 7FR 108MM WRK-LGTH	1	Unchanged
31.	FRAZIER SUCT SM 8FR 108MM WRK-LGTH	1	Unchanged
32.	WULLSTEIN RETRACTOR 3X3 BLUNT130MM	1	Unchanged
33.	#2 PENFIELD DISSECTOR 195MM	1	Unchanged
34.	#3 PENFIELD DISSECTOR 195MM	1	Unchanged
35.	#4 PENFIELD DISSECTOR 205MM	1	Unchanged
36.	VOLKMANN BONE CURETTE #0003.6MM 172MM	1	Unchanged
37.	VOLKMANN BONE CURETTE #00 4.4MM 172MM	1	Unchanged
38.	VOLKMANN BONE CURETTE #0 5.2MM 172MM	1	Unchanged
39.	VOLKMANN BONE CURETTE #1 6.8MM 172MM	1	Unchanged
40.	VOLKMANN BONE CURETTE #2 8.5MM 172MM	1	Unchanged
41.	COTTLE PERIOSTEAL ELEVATORCVD 197MM	1	Unchanged
42.	ADSON NERVE HOOK SHARP	1	Unchanged
43.	ADSON NERVE HOOKBLUNT	1	Unchanged
44.	CUSHING RONGEUR STR 2X10MM 180MM	1	Unchanged
45.	CASPAR RONGEUR UP-BITE 2MM 155MM	1	Unchanged
46.	CASPAR RONGEUR DWN-BITE 2MM 155MM	1	Unchanged
47.	CLOWARD LAMINA SPREADER 135MM	1	Unchanged
48.	INGE LAMINA RETRACTOR 170MM	1	Unchanged
49.	STILLE-RUSKIN BONE RONGEUR 240MM	1	Unchanged
50.	LEKSELL-STILLE BONERONGEUR 240MM	1	Unchanged
51.	LEXER GOUGE PEEK-HDL 7MM 225MM	1	Unchanged
52.	SPONG GOUGE PEEK-HDLCVD10MM254MM	1	Unchanged
53.	CAPENER LAMINA GOUGE 6MM WIDE 235MM	1	Unchanged
54.	TC RYDER NEEDLE HOLDERDELSERR 175MM	1	Unchanged
55.	TC MAYO-HEGAR NDLHOLDERHVYSERR150MM	1	Unchanged
56.	TC MAYO-HEGAR NDLHOLDERHVYSERR185MM	1	Unchanged
57.	TC MAYO-HEGAR NDLHOLDERHVYSERR205MM	1	Unchanged
58.	LISTON-KEY-HORSLEY BNE-CUTTING FCP254MM	1	Unchanged

FULL CRANIOTOMY SET-2 sets to be ordered			Unchanged
1.	BACKHAUS TOWEL CLAMP 90MM	4	Unchanged
2.	BACKHAUS TOWEL CLAMP 135MM	4	Unchanged
3.	SCALPEL HANDLE #3 125MM	1	Unchanged
4.	SCALPEL HANDLE #7 ENGLISH NO.5 160MM	1	Unchanged
5.	RANEY APPLY/REMOVING FCPS F/FF002FF015P	2	Unchanged
6.	RANEY SCALP HEMOST.CLIP PACK OF 25PCS.	4	Unchanged
7.	DANDY DELICATE FORCEPS CVD140MM	10	Unchanged
8.	DANDY DEL FCPS LAT-CVD 1X2 140MM	10	Unchanged
9.	KOCHER FORCEPS STR 1X2 140MM	1	Unchanged
10.	KOCHER FORCEPS CVD 1X2 140MM	1	Unchanged
11.	RIGHT ANGLE CLAMP 140MM	1	Unchanged
12.	RIGHT ANGLE CLAMP 183MM	1	Unchanged
13.	TC MAYO SCISSORS STR 140MM	1	Unchanged
14.	TC MAYO SCISSORS CVD 140MM	1	Unchanged
15.	TC METZENBAUM SCISSORS STR 145MM	1	Unchanged
16.	TC METZENBAUM SCISSORS CVD 145MM	1	Unchanged
17.	TC METZENBAUM SCISSORS CVD 180MM	1	Unchanged
18.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
19.	CUSHING TISSUE FORCEPS 1X2 178MM	1	Unchanged
20.	WAUGH DEL. TISSUE FORCEPS 1X2 200MM	1	Unchanged
21.	FORCEPS RAMSEY 175MM	1	Unchanged
22.	ALLIS FORCEKPS 4X5 155MM	4	Unchanged
23.	WULLSTEIN RETRACTOR 3X3 BLUNT 130MM	1	Unchanged
24.	SENN-MILLER RECTOR. SH. 8X7/18X5.5MM	1	Unchanged
25.	BABY-SENN-MILLER RECTOR.BL.8X7/22X7MM	1	Unchanged
26.	VOLKMANN RETR4-PRGSHARP9X19MM 222MM	1	Unchanged
27.	VOLKMANN RETR4-PRGBLUNT8X19MM 222MM	1	Unchanged
28.	FRAZIER SUCT X-SM 7FR 108MM WRK-LGTH	2	Unchanged
29.	FRAZIER SUCT MED 10FR 108MM WRK-LGTH	2	Unchanged

30.	BENDING RESIST. MICRO SUCTION 4FR 100MM	1	Unchanged
31.	BENDING RESIST. MICRO SUCTION 6FR 100MM	1	Unchanged
32.	BENDING RESIST. MICRO SUCTION 6FR 140MM	1	Unchanged
33.	BENDING RESIST. MICRO SUCTION 8FR 140MM	1	Unchanged
34.	ADSON ELEVATOR SHARP FLAT 8MM	1	Unchanged
35.	ADSON ELEVATOR BLUNT CVD 7MM	1	Unchanged
36.	ADSON RASPATORY CVD. 7MM WI.	1	Unchanged
37.	ADSON RASPATORY STR. 7MM WI.	1	Unchanged
38.	ADSON FORCEPS BAY SHAPED 175MM	1	Unchanged
39.	FORCEPS BAYO SMOOTH 185MM	1	Unchanged
40.	KEY ELEVATOR 180MM 6.4MM BLADE STR	1	Unchanged
41.	VOLKMANN BONE CURETTE #0003.6MM 172MM	1	Unchanged
42.	ECHLIN BONE RONGEURJAW 2X10MM 230MM	1	Unchanged
43.	ECHLIN BONE RONGEUR JAW 3X10MM 230MM	1	Unchanged
44.	ZAUFAL-JANSEN BONE RONGEUR CVD 180MM	1	Unchanged
45.	TROTTER BONE RONGEUR LAT-VCD 205MM	1	Unchanged
46.	KERRISON THIN-FT 130DG-UP 3MM 180MM	1	Unchanged
47.	KERRISON THIN-FT 130DG-UP 4MM 180MM	1	Unchanged
48.	KERRISON THIN-FT 130DG-UP 5MM 180MM	1	Unchanged
49.	SCALPEL HANDLE #7 ENGLISH NO.5 160MM	1	Unchanged
50.	WOODSON PLASTIC FILLING INST 3.2MM 180MM	1	Unchanged
51.	COTTLE HOOK SHARP HVY-CVD 159MM DG 180	1	Unchanged
52.	NERVE SCISSORS CVD S/S 150MM	1	Unchanged
53.	SCHMIEDEN-TAYLOR DURA SCISSORS 155MM	1	Unchanged
54.	BRAIN SPATULA MOD. AACHEN MALL 7/8MM	1	Unchanged
55.	BRAIN SPATULA MOD.AACHEN MALL 10/11MM	1	Unchanged
56.	BRAIN SPATULA MOD.AACHEN MALL 13/14MM	1	Unchanged
57.	BRAIN SPATULA MOD.AACHEN MALL 16/17MM	1	Unchanged
58.	BRAIN SPATULA MOD.AACHEN MALL 19/20MM	1	Unchanged
59.	BRAIN SPATULA MOD.AACHEN MALL 22/25MM	1	Unchanged

60.	ABDOMINAL BLD. RETRACTOR MALEAB. 17X200MM	1	Unchanged
61.	ABDOMINAL BLD. RETRACTOR MALEAB.25X250MM	1	Unchanged
62.	BRAIN SPATULA FLAT MALL 11 &13MM 178MM	1	Unchanged
63.	BRAIN SPATULA FLAT MALL 18 &22MM 178MM	1	Unchanged
64.	VENTRICULAR CANNULA DANDY	1	Unchanged
65.	TC MAYO-HEGAR NDLHOLDERHVYSERR150MM	1	Unchanged
66.	TC MAYO-HEGAR NDLHOLDERHVYSERR205MM	1	Unchanged
67.	HEGAR NEEDLE HOLDER HVY-SERR 150MM	1	Unchanged
68.	ADSON NEEDLE HOLDER FEN-SERR 180MM	1	Unchanged
69.	SCALPEL HANDLE OFFSET 210MM NO. 3	1	Unchanged
70.	SCALPEL HANDLE OFFSET 210MM NO. 3	1	Unchanged
71.	SAMII KNIFEF/TUMOR TISSUE1.5MM 230MM	1	Unchanged
72.	SAMII KNIFEF/TUMOR TISSRND1.5MM 230MM	1	Unchanged
73.	SAMII LANCET KNIFE TISSUE 1.8MM 230MM	1	Unchanged
74.	HARDY-FAHLBUSCH DISS DWN SHARP 245MM	1	Unchanged
75.	HARDY-FAHLBUSCH DISS DWN SHARP 245MM	1	Unchanged
76.	YASARGIL TUMOR FCPS SERR 3MM 220MM	1	Unchanged
77.	MICROFORM TUMOR FORCEPS 3MM 240MM	1	Unchanged
78.	TREND CUR. HARDY BAYO.D6 130MM 90DG LE-LO	1	Unchanged
79.	HARDY CURETTE MALL D:6/260MM	1	Unchanged
80.	NICOLA CURETTE MALL RT-CUT 260MM	1	Unchanged
81.	HUDSON SPHERICAL BURR 22MM DIA	1	Unchanged
82.	ADSON KPERFORATING BURR 15MM DIA	1	Unchanged
83.	NICOLA CURETTE MALL LFT-CUT 260MM	1	Unchanged
84.	TREND CUR. HARDY BAYO.D4 130MM 90DG LE-LO	1	Unchanged
85.	HARDY CURETTE MAL D:4/260MM	1	Unchanged
86.	TREND CUR.HARDY BAYON.D4 130MM 45DEG LE	1	Unchanged
87.	YAS.MICRO SCISSDELBAYOSTS/S225MM	1	Unchanged
88.	YAS.MICRO SCISS BAYOUP-CVDS/S225MM	1	Unchanged
89.	YASARGIL MICRO SCISS.BAYOSTS/225MM	1	Unchanged

90.	YAS.MICRO SCISBAYOUP-CVDS/S225MM	1	Unchanged
91.	YAS.MICRO SCISS BAYOUP-CVDS/S225MM	1	Unchanged
92.	CASPAR RONGEURSTRSERR 2X12MM 140MM	1	Unchanged
HUDSON CRANIAL DRILL SET- 2 Sets to be ordered			Unchanged
1.	HUDSON DRILL BRACE F/FFO55R	1	Unchanged
2.	HUDSON CEREBELLAR ATTACHMENT F/FFO55R	1	Unchanged
3.	HUDSON BURR 9MM DIA	1	Unchanged
4.	HUDSON BURR 14MM DIA	1	Unchanged
5.	HUDSON SPHERICAL BURR 16MM DIA	1	Unchanged
6.	HUDSON SPHERICAL BURR 22MM DIA	1	Unchanged
7.	HARTMANN MOSQUITO FCPSDELCVD 100MM	1	Unchanged
8.	CUSHING FLAT DRILL 14MM DIA	1	Unchanged
9.	CUSHING FLAT DRILL 14MM DIA	1	Unchanged
10.	HARTMANN MOSQUITO FCPSDELCVD100MM	1	Unchanged
11.	GIGLI WIRE SAW FINE 6-WIRE5500MM	2	Unchanged
12.	DEMARTEL CONDF/WIRE SAWFLEX350MM	4	Unchanged
13.	HOOK HANDLE F/WIRE SAWS	2	Unchanged
TRANSPHENOIDAL PITUITARY SET 1 set to be ordered			Unchanged
1.	BIPOLAR FRCP W/IRRIG CHANNEL .7MM205MM	1	Unchanged
2.	KILLIAN SEPTUM SPECULUM SCREW 56X7MM	1	Unchanged
3.	KILLIAN SEPTUM SPECULUM SCREW 70X7MM	1	Unchanged
4.	HARDY DISSECTOR BLUNT/RIGHT 245MM	1	Unchanged
5.	HARDY DISSECTOR SHARP/RIGHT 245MM	1	Unchanged
6.	SCALPEL HANDLE OFFSET 210MM NO.3	1	Unchanged
7.	SCALPEL HANDLE OFFSET 210MM NO.3	1	Unchanged
8.	HARDY-FAHLBUSCH DISS DWN SHARP 245MM	1	Unchanged
9.	HARDY-FAHLBUSCH DISS DWN SHARP 245MM	1	Unchanged
10.	HARDY DISSECTOR BLUNT/RIGHT 245MM	1	Unchanged
11.	HARDY DISSECTOR BLUNT/RIGHT 245MM	1	Unchanged
12.	LANDOLT CURETTE MALL RND-TIP 260MM	1	Unchanged

13.	HARDY IMPLANT FORKF/HYPOPHSEC 245MM	1	Unchanged
14.	HARDY DISSECTOR BLUNT/RIGHT 245MM	1	Unchanged
15.	TREND CUR.HARDY BAYO.D6 130MM 90DG LE-LO	1	Unchanged
16.	HARDY DISSECTOR SHARP/RIGHT 245MM	1	Unchanged
17.	NICOLA CURETTE MALL RT-CUT 260MM	1	Unchanged
18.	HUDSON SPHERICAL BURR 22MM DIA	1	Unchanged
19.	ADSON PERFORATING BURR 15MM DIA	1	Unchanged
20.	NICOLA CURETTE MALL LFT-CUT 260MM	1	Unchanged
21.	LANDOLT CURETTE MAL RND-TIP260MM	1	Unchanged
22.	TREND CUR.HARDY BAYO.D4 130MM 90DG LE-LO	1	Unchanged
23.	HARDY CURETTE MAL D:4/260MM	1	Unchanged
24.	TREND CUR.HARDY BAYON.D4 130MM 45DEG LE	1	Unchanged
25.	TREND CUR.HARDY BAYO.D4 130MM 90DG LE-SH	1	Unchanged
26.	CUSHING LANDOLT SPECULUM 70X15MM	1	Unchanged
27.	CUSHING LANDOLT SPECULUM 110X15MM	1	Unchanged
28.	CUSHING-LANDOLT SPECULUM 110X15MM	1	Unchanged
MICRONEUROSURGERY SET 1 set to be ordered			Unchanged
1.	KRAYENBUEHL NERV HKSHRTBALL-TIP185MM	1	Unchanged
2.	KRAYENBUEHL NERVE HOOK SMOOTH SM.185MM	1	Unchanged
3.	JACOBSON PROBE W/BALL-TIP185MM	1	Unchanged
4.	CASPAR MICRO-DISSDWN-CVD2.0MM230MM	1	Unchanged
5.	BENNETT BONE LEVER 235MM	1	Unchanged
6.	IRIS FORCEPS X-FINE 1X2 STR 100MM	1	Unchanged
7.	IRIS FORCEPS X-FINE 1X2HALF-CVD100MM	1	Unchanged
8.	YAS.MICRO SCISSDELBAYOSTS/S225MM	1	Unchanged
9.	YAS.MICRO SCISS BAYOUP.CVDS/S225MM	1	Unchanged
10.	YAS.MICRO SCISSDELBAYOSTS/S225MM	1	Unchanged
11.	YASARGIL MICRO SCISSORS UP-CVD245MM	1	Unchanged
12.	MICRO-NEEDLE HLDR STR FLAT-HDL184MM	1	Unchanged
13.	MICRO-NEEDLE HLDR CVD FLAT-HDL184MM	1	Unchanged

14.	YAS.MICRO SCISS BAYOUP-CVDS/S225MM	1	Unchanged
15.	YASARGIL MICROFORM BAYO FCPS.6MM240MM	1	Unchanged
16.	YASARGIL MICROFORM BAYO FCPS.9MM240MM	1	Unchanged
17.	MICROFORM TUMOR FORCEPS 3MM 240MM	1	Unchanged
18.	YASARGIL TUMOR FORCEPS 5MM220MM	1	Unchanged
19.	NICOLA FCPS SCOOP-SHP2.5MM DIA165MM	1	Unchanged
20.	MICRO-ADSON FORCEPS SERR 120MM	1	Unchanged
21.	SCISSORS STR.LENGTH OF SHAFT 165MM	1	Unchanged
22.	SAMII KNIFEF/TUMOR TISSUE1.5MM 230MM	1	Unchanged
23.	SUCTION CANNULA BARRON 1MM	2	Unchanged
24.	SUCTION CANNULA BARRON 2MM	2	Unchanged
25.	MICRO-NEEDLE HLDR CVD RND-HDL 185MM	1	Unchanged
26.	YASARGIL MICRO SCISSORS STR 185MM	1	Unchanged
27.	JACOBSON MICRO SCISSORS CVD185MM	1	Unchanged
28.	MICRO SCISSORS 60DG FINE 165MM	1	Unchanged
29.	RND BODY SUTURE FORCEPTSCVD0.6MM180MM	1	Unchanged
30.	ALM RETRACTOR 4X4T SHARP 70MM	1	Unchanged
31.	ALM RETRACTOR 4X4T.SHARP 100MM	1	Unchanged
ANEURYSM SET-1 set to be ordered			Unchanged
1.	DOUBL.BAY.APPLFCPS.STD.TI.110/245MM	1	Unchanged
2.	YASARGIL VARIO A.FCPS.MINI TI.90/220MM	1	Unchanged
3.	DOUBL.BAY.APPL.FCPS.MINI TITAL 110/245MM	1	Unchanged
4.	YASARGIL VARIO A.FCPS.STD.TI.90/220MM	1	Unchanged
5.	YASARGIL REMOVER FCPS.MINI.TI.90/220MM	1	Unchanged
6.	YASARGIL REMOVER FCPS.STD.TI.90/220MM	1	Unchanged
SCHEDULE 02, HIGH SPEED ELECTRICAL DRILL SYSTEM			**Deleted**
1.	MICROSPEED UNI CONTROL UNIT/WCOOL.UNIT	1	**Deleted**
2.	MICROSPEED UNI FOOT CONTROL ONE PEDAL	1	**Deleted**
3.	MICROSPEED UNI PERFORATOR DRIVER	1	**Deleted**
4.	CRANIAL PERFORATOR 9/12MM HUDSON SHANK	1	**Deleted**

5.	SPARE CUTTER F/GB302R/GB303R/GB307R	9	**Deleted**
6.	CRANIAL PERFORATOR 6/9MM HUDSON SHANK	1	**Deleted**
7.	SPARE CUTTER F/GB300R/GB303R/GB307R	9	**Deleted**
8.	MICROSPEED UNI XS HIGHSPEED MOTOR	1	**Deleted**
9.	HI-LINE XS CRANIOTOME HANDPIECE	1	**Deleted**
10.	HI-LINE XS FIXED DURAGUARD I	1	**Deleted**
11.	HI-LINE XS FIXED DURAGUARD II	1	**Deleted**
12.	HI-LINE XS FIXED DURAGUARD III	1	**Deleted**
13.	HI-LINE XS DISP.CRANIOTOME CUTTER II	30	**Deleted**
14.	HI-LINE XS DISP.CRANIOTOME CUTTER I	10	**Deleted**
15.	HI-LINE XS DISP.CRANIOTOME CUTTER III	5	**Deleted**
16.	HI-LINE XS DISP.SPRAY NOZZLE I	1	**Deleted**
17.	HI-LINE XS DISP.SPRAY NOZZLE II	1	**Deleted**
18.	HI-LINE XS DISP.SPRAY NOZZLE III	1	**Deleted**
19.	MICROSPEED UNI MOTOR CABLE F/FOOT CTRL	1	**Deleted**
20.	MICROSPEED UNI MICRO 150 MOTOR	1	**Deleted**
21.	HI-LINE XS PIN POINT CUTTER II D1.0MM	10	**Deleted**
22.	HI-LINE XS STRAIGHT HANDPIECE I	1	**Deleted**
23.	HI-LINE XS STRAIGHT HANDPIECE III	1	**Deleted**
24.	HI-LINE XS ANGLED HANDPIECE I	1	**Deleted**
25.	HI-LINE XS ANGLED HANDPIECE III	1	**Deleted**
26.	HI-LINE XS DISP.ROSEN BURR I D2.3MM	10	**Deleted**
27.	HI-LINE XS DISP.ROSEN BURR I D4.0MM	10	**Deleted**
28.	HI-LINE XS DISP.ROSEN BURR I D6.0MM	10	**Deleted**
29.	HI-LINE XS DISP.DIAMOND BURR III D2.3MM	5	**Deleted**
30.	HI-LINE XS DISP.DIAMOND BURR III D4.0MM	5	**Deleted**
31.	HI-LINE XS DISP.DIAMOND BURR III D6.0MM	5	**Deleted**
32.	HI-LINE XS DISP.ROSEN BURR I D1.0MM	5	**Deleted**
33.	HI-LINE XS DISP.ROSEN BURR I D2.3MM	5	**Deleted**
34.	HI-LINE XS DISP.ROSEN BURR I D4.0MM	5	**Deleted**

35.	HI-LINE XS DISP.DIAMOND BURR I D1.0MM	5	**Deleted**
36.	HI-LINE XS DISP.DIAMOND BURR I D2.3MM	5	**Deleted**
37.	HI-LINE XS DISP.DIAMOND BURR I D4.0MM	5	**Deleted**
38.	HI-LINE XS DISP.DIAMOND BURR I D6.0MM	5	**Deleted**
39.	ECCOS FIXATION F/HI-LINE XS HANDKPIECE	4	**Deleted**
40.	ECCOS FIXATION F/GD675	1	**Deleted**
41.	ECCOS FIXATION F/GD685	1	**Deleted**
42.	ECCOS FIXATION F/MICROSPEED MOTOR CABLE	1	**Deleted**
43.	ECCOS FIXATION F/HI-LINE XS DURAGUARDS	1	**Deleted**

Item No. 9

Sr. No.	Tender Specification	Modification/Changes
	1. Drill System (High Speed) for Neurosurgery & Spiral Surgery	
a.	a. Electrically Controlled High Speed Drill System	Unchanged
b.	b. Motor speed should be adjustable.	Unchanged
c.	c. Speed selection up to 100,000 rpm for select handpieces	Ameneded as :-Speed selection **70,000 or more** rpm for select handpieces
d.	d. Motor should be in hand piece. Two motor attachment at same time.	Unchanged
e.	e. Console should have a digital display of speed, direction of rotation, irrigation and switch.	Unchanged
f.	f. Built in Irrigation system with irrigation speed controlled by foot switch.	Unchanged
g.	g. Two Motor system with variety of handpieces.	Unchanged
h.	h. Forward & Reverse, speed control via foot switch (single)	Unchanged
i.	i. The system must comprise of 1 Qty. of each of the following	Unchanged
	Toper design.	Unchanged
	Short straight hand piece (40MM)	Ameneded as:-Short straight hand piece (40MM to 80 mm)
	Extra long curved hand piece (100MM)	Ameneded as:-Extra long curved hand piece (100MM to 130MM)
	Long straight hand piece (70MM)	Ameneded as:-Long straight hand piece (70MM to 80 MM)
	Short curved hand piece (70MM)	Ameneded as:-Short curved hand piece (70MM TO 80MM),
	Craniotomy handpiece with duraguard	Unchanged
	Perforator handpiece (with low speed motor if needed)	Unchanged
	Irrigation spray nozzle with all handpiece attachment.	Unchanged

j.	j. Accessories to be supplied with drill:	Unchanged
	2 adult and 2 paediatric size perforators	Unchanged
	10 drill bits of different sizes to be supplied with drill machine.	Unchanged
	10 craniotomy blades should be supplied	Unchanged
	4 saws to be supplied which fit in hand piece motor	Unchanged
	2 autoclavable cords to be supplied	Unchanged
	Sterilization tray made of stainless steel for better durability sterilization	Unchanged
k.	k. Should be FDA/CE approved.	Unchanged
l.	l. Five years warranty with spares and five years additional AMC to be quoted.	Unchanged
m.	m. Service center should be present in Delhi or surrounding area.	Unchanged
n.	n. CVT to be supplied with drill machine.	Unchanged
o.	o. Touch screen display panel with display for motor type, maximum rpm, current rpm level. Console should be allow visible display & setting of maximum speed limit.	Unchanged
p.	p. Motor housing should be made of titanium.	Unchanged
q.	q. Should have customizable setting like acceleration & tapping characteristics for individual motors oscillation angle.	Deleted
r.	r. System should give audible beeps/ alerts while in reverse action.	Unchanged
s.	s. Should have quick release & touch system	Unchanged
t.	t. Motor, Motor cable & hand piece should auto cleavable.	Unchanged

Item No. 10

Neuro Endoscope with Spinal Endoscopy & Attachments

S. No.	Specification – Neuro & Spine Endoscopy	QTY.	Modification/Changes
	HD – Endovision system		
1)	**Full High Definition Digital Camera**		
	The system should be truly Digital HDTV endoscopic video camera.		Unchanged
	The system should have the Resolution of		Unchanged
	1920 x 1080 pixels.		Unchanged
	Progressive scan		Unchanged
	The consistent use of 16:9 format for Input & Output to guarantee genuine HDTV.		Unchanged
	Optimizes to any Size : The system should have Optical Zoom to enhance the quality of Image size & cross specialty standardization of the camera system, regardless of the telescope used.		Unchanged
	White balance control and two peripheral controls on camera head		Unchanged
	Video output:		Unchanged
	Composite signal to BNC SOCKET		Unchanged
	Y/C signal to S-VHS SOCKET		Unchanged
	RGB SIGNAL to D-SUB SOCKET		Unchanged
	HDTV SIGNAL TO DVI D SOCKET		Unchanged
	Plug and Go: The system should automatically optimize all settings. The system should be ready-to-use as soon as it is connected to the camera control unit.		Unchanged

	The system should be Menu driven thus allowing the surgeon to program the camera head functions as per the surgical needs & requirement.		Unchanged
			Unchanged
	Any Head – Any Time : The system should have the facility to use a single camera control unit for all camera heads (either single chip or three chip) thus minimizing preparation & maximizes inter speciality standardization.		Unchanged
	Should have patient safety :enhanced light sentivity of Endovision to the light source to run at lower power levels that can reduce the risk of patient/drape burns while still providing premium optical performance.		Unchanged
	Visibly Improved Imaging : CCD sensing chip should optimizes image quality & Digital source Sampling thus maximizing hi-fidelity image transmission		Unchanged
	Camera System should be compatible with communication bus system for remote controlled operation of the various.		Unchanged
	Optical Zoom coupler provides dynamic zoom range with no compromise in image clarity.		Unchanged
2)	**Technical Specifications:**		Unchanged
	Chip set : 3x1/3" CCD-Chip (3 chip camera)		Unchanged
	Image system : 1/3" progressive scan CCD		Unchanged
	Pixels 1920 x 1080P PIXELS		Unchanged
	AGC : Microprocessor controlled		Unchanged
	Lens: Integrated Zoom Lens		Unchanged
	Video output:		Unchanged
	Composite signal to BNC socket.		Unchanged
	Y/C signal to S-VHS socket (2 x)		Unchanged
	RGB signal to D-sub socket		Unchanged
	HDTV signal to DVI-d socket		Unchanged

	Power supply :- 100-240 VAC 50/60 Hz		Unchanged
	INPUT : KEYBOARD INPUT FOR CHARACTER GENERATOR		Unchanged
	5 POLE DIN SOCKET		Unchanged
	Control Output/Input		Unchanged
	3.5mm Stereo Jack Plug (ACC1, ACC2)		Unchanged
	Serial Port at RJ-11		Unchanged
	USB Port with ICM (2x)		Unchanged
	Mains Cord		Unchanged
	BNC/BNC Video Cable Length 180 cm		Unchanged
	S-Video (Y/C) connecting Cable Length 180 cm		Unchanged
	Special RGB Connecting Cable length 180 cm		Unchanged
	Connecting Cable for controlling peripheral units length 180 cm (2)		Unchanged
	DVI-D Connecting Cable length 300 cm		Unchanged
	Keyboard with US English Character		Unchanged
	Certified to : IEC 601-1, 601-2-18, CSA 22.2 No. 601, UL 2601 and		Unchanged
	CE according to MDD, protection class1/CF		Unchanged
	CAMERA HEAD WEIGHT-150-250 GMS		Unchanged
			Unchanged
	HIGH RESOLUTION MONITOR		Unchanged
	The system should have :		Unchanged
	High Definition Colored Monitor 26’ Flat Panel Monitor		Unchanged
	Video Inputs: S-video Signal to 4 pol. Mini DIN Socket		Unchanged
	RGB signal to 5 x 8NC socket. Composite to stoic socket		Unchanged
	HO-SOI sign”, 1 t6 8NC socket		Unchanged
	OVI signal to DVI-D socket		Unchanged
	SDI signal to BNC socket		Unchanged
	Compact & Lightweight design		Unchanged

	HDTV led Display 16:10 HDIY Format 1080p/50 and 1 D80p/SO display possible		Unchanged
	On Screen Menu for Monitor setting (Possible in several Languages)		Unchanged
	Liquid Crystal Display Resolution H)20/1200		Unchanged
	Anti Reflection coaled front glass		Unchanged
	Easy to access control buttons on the housing franl Drip water protected dustproof housing		Unchanged
	Low voltage Protection via external 24VDC Main power supply		Unchanged
	Picture in Picture display (PIP)		Unchanged
	Mirror imaging kPossible		Unchanged
	Upto 5 different users profile can be stored		Unchanged
	Medical grade FDA, UL and CE Approval		Unchanged
	PAL system compartible		Unchanged
3)	**Technical Specifications**		Unchanged
			Unchanged
	HD TFT Flat Screen Monitor with stand size 26”		Unchanged
	Ratio 16:10 HD FORMAT		Unchanged
	BRIGHTNESS :500 CD/M2		Unchanged
	Resolution over 1100 lines		Unchanged
	Max Resolution Pixels : 1920/1200 pixels		Unchanged
	16 Million Display colors.		Unchanged
	Maximum viewing angle: 178” vertical		Unchanged
	The monitor should support direct fiber Input		Unchanged
	Contrast ratio: 800:1		Unchanged
	Rated power : 115 watts		Unchanged
	Power Supply 100-240 VAC		Unchanged
	Screen dimensions : 627 x 427 x 100mm		Unchanged
	Video inputs : S-Video signal to 4 pol. Mini DIN Socket		Unchanged

	RGB signal to 5 x BNC socket		Unchanged
	Composite to BNC socket		Unchanged
	HD-SDI signal to BNC socket		Unchanged
	DVI signal to DVI-D socket		Unchanged
	SOI signal to 13NC socket		Unchanged
	Accessories External 24VOC Power supply, Mains Cord, pedestal.		Unchanged
	Certified to : EN 60601-1, protection class 1PX 1		Unchanged
	The system should have :-		Unchanged
	Increased patient safety & added protection in OR with safelight technology.		Unchanged
	Instuitive simple user interface with LCD touch screen Standby mode.		Unchanged
	Single port Universal Jaw Assembly to adapt any make of fiber Optic Cable.		Unchanged
	More than 25000 hours bulb life.		Unchanged
	Quite operation : NO noise During Operation.		Unchanged
	Should have stand by button with memory function.		Unchanged
	Light Intensity control from feather touch / Camera Head Buttons.		Unchanged
	Ready for OR integration.		Unchanged
	Increased patient safety & added protection in or with safe light technology.		Unchanged
	Intuitive simple user interface with LCD touch screen standby mode.		Unchanged
	Single port universal jaw assembly.		Unchanged
	Technical Specification:		Unchanged
	Light Outlet 1		Unchanged
	Light intensity adjustment continuously adjustable from 0 to 100% manually.		Unchanged

	Lamp Type : LED		Unchanged
	Universal power supply : 100-240 VAC, 50 ISO Hz.		Unchanged
	Operating Temperature :- 10-40C.		Unchanged
	Light Weight : 5 Kg.		Unchanged
	Dimensions 305' '110'233 mm (W"h"d.)		Unchanged
	Color Temp. of 64000k		Unchanged
	IEC 60601 – 1 – 20001		Unchanged
	Size should be diameter 5.5 mm, length > 160 cm.		Unchanged
	200 volts, 300 Watts		Unchanged
	Fiber Optic Light Cable Qty. -1		Unchanged
	Size should be diameter > 5.5mm, length > 160em.		Unchanged
	Patient Data Management System HO:-		Unchanged
	It should have 1 terabyte hard drive.		Unchanged
	It should have dual channel recording capability.		Unchanged
	It should have Recording format of MPEG 1.2 and 2HD.		Unchanged
	It should have Capable to archive videos.		Unchanged
	It should have, Capable to archive upto approx 500 cases.		Unchanged
	It should have capable to record native HD image.		Unchanged
	It should have capable to record 16:9.		Unchanged
	It should have in built Dual Rotated Integrated Touch Screen so that no side screen is required.		Unchanged
	It should have DVD video formatting with At-the end burring.		Unchanged
	It should have expandable USB port.		Unchanged
	It should be Able to pre load, patient surgical lists making it easier and more efficient for or Staff. It should be able to captures 1m ges and video independently on two separate video channels, synchronized mode, or in PIP-format.		Unchanged

	Allows for the recording of all surgical footage in crisp, high definition video supports 4:3 and 16:9 which makes it backwards compatible with all camera systems.		Unchanged
	It should have ability to Import / Export via use external devise.		Unchanged
	It should have landscape and portrait printing layout capabilities, which utilizes more space on each printout.		Unchanged
	It should be DIcom or PACS compatible for any future up gradation.		Unchanged
			Unchanged
	Endocart Trolley:-		Unchanged
			Unchanged
	Maximum shelf load 16 kg (35 lbs) per Shelf.		Unchanged
	It should have extendible arm for Monitor Mount.		Unchanged
	Total loading capacity 17 kg (170 tbs).		Unchanged
	Endo Cart Position heavier components towards to bottom of the trolley Endo Cart for optimum stabillity. It should have isolation Transformer.		Unchanged
	Should have Extendible Video Arm to Mount Medical Grade LCO Monitor.		Unchanged
	It should have high Quality Casterter wheels.		Unchanged
	It should have Inbuilt Electric Switches channeled through isolation Transformer.		Unchanged
	Voltage Rating : Input : 240V – 5QHz 2AKVA		Unchanged
	Output : 220/240V -50Hz 2.4KVA MAX.		Unchanged
	Should be fully autoclavable.		Unchanged
	Should be in both 0 and 30 degree		Unchanged
	Should be wide angled distortion free view.		Unchanged
	Must be equipped with Universal Adaptor for other Light Soruces.		Unchanged

	Should have yellow Sapphire Glass Tip Index for Optimum Evenness of Focus & Contrast.		Unchanged
			Unchanged
	Instrumentation Set for Percutaneous Lumbar Interlaminar and Transforaminal Endoscopic surgery without GA (General Anaesthesia)		Unchanged
	Telescope & Sheath		Unchanged
1.	Wide Angle Telescope 25” oblique view, outer diameter 6.6 mm, working channels diameter 3.6 mm, length 18 cm, autoclavable, fiber optic light transmission incorporated	1	Unchanged
2.	Operating Sheath, distal 45” oblique, integrated irrigation adaptor, outer diameter 7.5 mm, inner diameter 6.8mm, length 17 cm.	1	Unchanged
3.	Dilation Sleeve, with two ports, outer diameter 6.5 mm, inner diameter 1.4 mm, length 22 cm, color code : red	1	Unchanged
4.	Punch Sleeve, for use with operating sheaths	1	Unchanged
5.	Fixation Handle, for adjustment of dilation sleeves with outer diameter 2.5 – 6.5 mm	1	Unchanged
	Hand Instruments		Unchanged
6.	Purcture Needle, including stylet, diameter, diameter 1.2 mm, working length 25 cm, with 0.8 mm opening for guide wire	1	Unchanged
7.	Guide wire, blunt on both sides, ∅ 0.7 mm, working length 41 cm, package of 5 pc.	1	Unchanged
8.	X-ray Ruler, with special marking for midline and 2 mm and cm-slots for radiologic measurement, total length 30 cm	1	Unchanged
9.	Mallet, with Nylon replacement, length 22.5 cm	1	Unchanged

10.	Palpation Hook, rotating, dismantling, not insulated, without connector pin for unipolar coagulation, with LUER-Lock irrigation connector for cleaning, with distal ball, bendable to 90°, diameter 2.7 mm, working length 36 cm consisting of: Metal handle, without ratchet, with plastic rings with larger contact area Outer Sheath with Palpation Hook Working Insert.	1	Unchanged
11.	Palpation Hook, with distal ball, bendable to 90°, with irrigation connector for cleaning, diameter 3.5mm, working length 36cm, consisting of: metal Handle, without ratchet, Outer Sheath with palpation Hook Working Insert.	1	Unchanged
12.	Palpation Hook, distally angled 45 °, diameter 2 mm, working length 34 cm.	1	Unchanged
13.	Dissector, ∅ 2.6mm, working length 36 cm, distally 45 ° bended.	1	Unchanged
14.	Forceps with distal hook, rotatable, single action jaws, size 3.5mm, working length 36cm, consisting : Plastic Handle, without ratchet with connector pin for unipolar coagulation, Biopsy forceps insert with distal hook, working length 36 cm, diameter 3.5 mm	1	Unchanged
15.	Grasping forceps with 90 ° opening, single action jaws, ∅ 3.5mm, working length 36mm	1	Unchanged
16.	Grasping Forceps, double action jaws, diameter 2.7 mm, length 36 cm.	1	Unchanged
17.	Grasping Forceps, rotating, dismantling, insulated, with connector pin for unipolar coagulation, with-Lock-adaptor for cleaning, single action jaws, fenestrated, size 3 mm, length 36 cm consisting of: Plastic Handle, without ratchet, Outer Sheath, with forceps insert	1	Unchanged

18.	Deflectable punch, ∅3.5mm, working length 360mm.	1	Unchanged
19.	Trephine, inner diameter 1.6 mm, outer diameter 2.7mm, working length 30 cm with edged handle.	1	Unchanged
	Bipolar & cords		Unchanged
20.	Angled bipolar probe, ∅2.5 mm, working length 36 cm consisting of Bipolar probe insert, Sheath for probe, Bipolar Spring Handle.	1	Unchanged
21.	Bipolar High Frequency Cord with 2 x 4 mm banana-plug, length 300 cm.	1	Unchanged
22.	Bipolar High Frequency Cord, Length 300 cm.	1	Unchanged
	Containers for Sterilization		Unchanged
23.	Plastic Container for Sterilizing and Storage, perforated, with transparent lid, with insert for two angled rigid telescopes, external dimensions (w x d x h): 515 x 240 x 84 mm	1	Unchanged
24.	Plastic container for Sterlizing and storage, perforated, with lid, for two-level storage, for use with 30 cm and 36 cm Click Line – instruments, external dimensions (w x d x h): 600 mm x 145 mm x 260 mm	1	Unchanged
	Endoscopic Lumber Disectomy & Root decompression for all types if disc herniation from Central to Far – lateral disc and for treatment of Lumber stenosis along with bi – lateral decompression using Unilateral Approach		Unchanged
	Telescope		Unchanged
1.	Forward-Oblique Telescope 30^{o}, eyepiece angled 45^{o}, diameter 4mm, length 9.5 cm, autoclavable, fiber optic light transmission incorporated.	1	Unchanged
	Localizer		Unchanged

2.	Puncture Needle, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire.	1	Unchanged
3.	Guide wire, not sterile, diameter 1.2 mm, length 31 cm, package of 10	1	Unchanged
	Dilation sleeves		Unchanged
4.	Dilation Sleeve, OD5.2mm, ID 1.5mm, graduated, length 23 cm, colour code white.	1	Unchanged
5.	Dilation Sleeve, OD 8.9mm, ID 5.3 mm, graduated, length 21 cm, colour code yellow	1	Unchanged
6.	Dilation Sleeve, graduated, inner diameter 9 mm, outer diameter 12.7 mm, length 19 cm, color code : orange	1	Unchanged
7.	Dilation Sleeve, OD 14.9mm, ID 12.9 mm, graduated, length 17 cm, colour code red	1	Unchanged
8.	Dilation Sleeve, OD 16.9mm, ID 15.1mm, graduated, length 15 cm, colour code green	1	Unchanged
9.	Dilation Sleeve, OD 18.9mm, ID 17.1mm, graduated, length 14cm, colour code blue	1	Unchanged
10.	Dilation Sleeve, OD 20.9mm, ID 19 mm, graduated, length 13 cm, colour code black	1	Unchanged
	Trocar & Attachments diameter 15 cm		Unchanged
11.	Trocar, diameter 15 mm, working length 70 mm, for use with Attachment and Telescope 30^{o}.	1	Unchanged
12.	Attachment diameter 15 mm for use with Trocar and telescope	1	Unchanged
13.	Telescope sheath, movable, for use with Telescope 30^{o} and attachments.	1	Unchanged
14.	Telescope Sheath	1	Unchanged
	Trocar & Attachments diameter 19 mm		Unchanged
15.	Trocar, diameter 19 mm, working length 74 mm, for use with Attachment and Telescope	1	Unchanged

16.	Trocar, diameter 19 mm, working length 97 mm, for use with Attachment and Telescope 30°.	1	Unchanged
17.	Attachment, diameter 19 mm, for use with Trocars and Telescopes 30°.	1	Unchanged
	Trocar & Attachments diameter 23 mm		Unchanged
18.	Trocar, diameter 23mm, working length 76 mm, color code : black, for use with Attachment.	1	Unchanged
19.	Trocar, diameter 23 mm, working length 99 mm, color code : black, for use with Attachment and Telescope 30°.	1	Unchanged
20.	Attachment, diameter 23 mm, for use with Trocars, and Telescopes 30°.	1	Unchanged
	Bone Puches		Unchanged
21.	Bone Punch, dismantling, 90° upbiting, not through-cutting, 2 mm, working length 24 cm	1	Unchanged
22.	Bone Punch 40° upbiting forward, size 2 mm, working length 24cm	1	Unchanged
23.	Punch, dismantling, bayonet-shaped, fixed, downbiting 40° forward, 2 mm, working length 17 cm.	1	Unchanged
24.	Punch, dismantling, bayonet-shaped, fixed, upbiting 40° forward, 2mm, working length 17 cm	1	Unchanged
	Hand Instruments		Unchanged
25.	Spoon Forceps, dismantling, robust, oval, spoon size 3 x10mm, single action jaws, working length 20 cm	1	Unchanged
26.	Spoon Forceps, dismantling, curved 30°, robust, oval, spoon size 3 x 10 mm, single action jaws, working length 20 cm.	1	Unchanged
27.	Surgical handle, bayonet-shaped with working length 15 cm for blades	1	Unchanged

28.	Suction tube, with cut-off hole and stylet, LUER, working length 15 cm, 2.5 mm	1	Unchanged
29.	Suction tube, with distal nerve retractor, with cut-off hole, LUER-Lock connector, diameter 2.7 mm, working length 15 cm	1	Unchanged
30.	Tube, with cut-off hole and stylet, LUER, diameter 4 mm, working length 15 cm	1	Unchanged
31.	Palpation Hook, bayonet-shaped, distally angled 90^{o}, with ball end, with round handle, working length 20 cm.	1	Unchanged
32.	Dissector dead hand, bayonet shaped, 3 mm, curved upwards, with round handle, sharp, working length 16 cm	1	Unchanged
33.	Nerve Hook, distal width 3 mm, bayonet-shaped, working length 16cm	1	Unchanged
34.	Nerve Retractor, hook length 2 mm, diameter 4 mm, angled sheath, working length 20cm	1	Unchanged
35.	Nerve Retractor, angled 30^{o}, distal width 5 mm, working length 17 cm	1	Unchanged
36.	Curette, small, curette size (l x w) :2.7 x 4 mm, bajonet-shaped, distal angled 45^{o}, working length 20 cm	1	Unchanged
	Bipolar & Cords		Unchanged
37.	Take-apart Bipolar Forceps, width 1 mm delicate jaws, distally angled 45^{o}, horizontal closing, outer diameter 3.4 mm, working length 20 cm, consisting of: handle, Outer Tube, Inner tube, Bipolar Insert.	1	Unchanged
38.	Bipor High Frequency Cord, Length 300 cm	1	Unchanged
	Accessories to perform Spinal endoscopy		Unchanged
39.	Articulated Stand, reinforced version, only, L-shaped, with one mechanical central clamp for all live joint functions, height 48 cm, operating range 52 cm, with fastene.	1	Unchanged

40.	Socket to clamp on the operating table, for use with European and United States standard rails, also suited for rails from 25 x 10 up to 35 x 8 mm, with lateral clamping element for height adjustment of the articulated stand.	1	Unchanged
			Unchanged
	Exoscope – Telescope for visualization magnification and broadcasting of all neuro and spine surgical procedures		Unchanged
	Telescope		Unchanged
1.	Exoscope with Integrated Illuminator, working distance 25-75 cm, length 11 cm, autoclavable, with fiber optic light transmission incorporated and condenser lenses.	1	Unchanged
2.	Fiber Optic Light Cable, size 4.8 cm, length 300 cm, heat-resistant	1	Unchanged
3.	Clamping Cylinder, folding, for flexible mounting of 10 mm telescopes to telescope sheath, autoclavable. The clamping cylinder allows vertical movement and rotation of the telescope. For use Clamping Jaw.	1	Unchanged
	Retractor System		Unchanged
4.	Spine Rectractor, complete, with retractor frame, 2 retractor arms, X-ray transparent blades in 3 different lengths, light carrier with corresponding tools, consisting of : retractor Frame, Retractor Arm, Drive Screw, Retractor Arm, extra Retractor Blade, 70mm, Retractor blade, 50 mm Retractor Blade, 30mm Holder, for blades, Light Carrier, Holder.	1	Unchanged
	Holding device		Unchanged
5.	Articulated Stand, reinforced version, only, L-shaped, with one mechanical central clamp for all five joint functions, height 48 cm, operating range 52 cm.	1	Unchanged

6.	Socket to clamp on the operating table, for use with European and United States standard rails, also suited for rails from 25 x10 up to 35x8 mm, with lateral clamping element for height adjustment of the articulated stand	1	Unchanged
7.	Clamping jaw, metal, for use with all square headed Telescopes, clamping range 16.5 up to 23 mm.	1	Unchanged
			Unchanged
	Endoscopic Lumbar Disectomy & Root Decompression for all types of Disc Herniation		Unchanged
Sr.No.	**Product Description**	**Quantity**	Unchanged
1.	Localization Device, for fluoroscopic determination of the point of incision		Unchanged
2.	Straight Forward Telescope 0^{o}, enlarged view, diameter 4 mm, length 18 cm, autoclavable. Fiber optic light transmission incorporated.		Unchanged
3.	Obturator, blunt, for use with operating tube		Unchanged
4.	Operating Tube, oval, with obturator, for use with working insert		Unchanged
5.	Working Insert with positioning detend, for use with operating tube working channel diameter 8 mm, with irrigation channel		Unchanged
6.	Nerve Protector, adjustable, width 5 mm, length 112 mm, for use with working Insert		Unchanged
7.	Suction Tube, angled, with cut-off hole, diameter 3.7 mm, working length 11 cm		Unchanged
8.	Chisel, flat, straight, with handle, distal width 15 mm, working length 9 cm		Unchanged
9.	Spoon Forceps, dismountable, robust, oval, single action jaws, spoon size 3 x 10 mm, working length 15 cm		Unchanged

10.	Bone Punch 45 degree, upbiting, 3 mm, working length 18 cm		Unchanged
11.	Bone Punch, 90 degree, upbiting, 3 mm, working length 18 cn		Unchanged
12.	Take-apart Bipolar Coagulating Forceps, width of jaws 1 mm, diameter 5 mm, working length 20 cm, consisting of: Ring Handle, Outer tube, insert Forceps.		Unchanged
13.	Trephine, diameter 3mm, working length 22 cm		Unchanged
14.	Elevator, spatual slightly curved, distal width 5 mm, working length 13 cm		Unchanged
15.	Palpation Hook, blunt, distally angled 90^{o}, hook length 5.5 mm, working length 13 cm		Unchanged
16.	Bipolar High Frequency Cord with 2 x 4 mm banana-plug to coagulator, length 300 cm		Unchanged
17.	Sterilization tray		Unchanged
Sr.No.	**Specification**	**Quantity**	
	Neuro Endoscopy Set for the Treatment of Obstructive Hydrocephalus, Marsupilization of thr Archanoid Cysts, Colloid Cyst, Verticular Biopsy		Unchanged
	Telescope & Sheath		Unchanged
1.	Venticuloscope with Wide Angle Straight Forward Telescope 6^{o}, angled eyepiece, outer diameter 6.1 mm, length 18 cm, working channel diameter 2.9 mm, irrigation/suction channel diameter 1.6, autoclavable, fiber optic light transmission incorporated.	1	Unchanged
2.	Forward Oblique- telescope 0^{o}, enlarged view, diameter 2 mm, length 26 cm, autoclavable, fiber optic light transmission incorporated.	1	Unchanged
3.	Telescope 45^{o}, enlarged view, ∅ 3.3 mm, length 25 cm, autoclavable, fiber optic light transmission incorporated.	1	Unchanged

4.	Operating Sheath, graduated, rotating, outer diameter 6.8 mm, working length 13 cm for use with Ventriculoscope.	1	Unchanged
5.	Obturator for use with Operating Sheath	1	Unchanged
6.	Obturator for use with optic.	1	Unchanged
	Hand Instruments		Unchanged
7.	Scissors, pointed, rotating , dismantling, with LUER-Lock irrigation connector for cleaning, single action jaws, diameter 2 mm, working length 30 cm consisting of: Metal handle, without ratchet, Outer Sheath, with scissors insert.	1	Unchanged
8.	Biopsy Forceps, rotating, dismantling, with LUER-Lock irrigation connector for cleaning, double action jaws, diameter 2 mm, working length 30 cm consisting of: Metal Handle, without ratcher Outer Sheath, with forceps insert.	1	Unchanged
9.	Ventriculostomy Forceps, rotating, dismantling, with LUER-Lock irrigation connector for cleaning, single action jaws, diameter 2mm, working length 30 cm consisting of: Metal handle, without ratchet Outer Sheath, with forceps insert	1	Unchanged
10.	Grasping Forceps, rotating, dismantling, with LUER-Lock irrigation connector for cleaning, single action jaws, diameter 2mm, working length 30 cm consisting of: Metal handle, without ratchet Outer Sheath, with grasping forceps insert	1	Unchanged
11.	Biopsy Forceps, rotating, dismantling, with LUER-Lock irrigation connector for cleaning, single action jaws, diameter 2.7mm, working length 30 cm consisting of: Metal handle, without ratchet Outer Sheath, with forceps insert	1	Unchanged
12.	Ventriculostomy Forceps, diameter 1.7 mm, working length 30 cm	1	Unchanged
13.	Forceps, for ventriculostomuy, flexible, double action jaws, diameter 1 mm, working length 30cm	1	Unchanged

14.	Biopsy Forceps, double action jaws, flexible, diameter 1 mm, working length 30 cm	1	Unchanged
15.	Scissors, pointed, lightly curved jaws, double action jaws, diameter 1.7 mm, length 30 cm	1	Unchanged
16.	Ventriculostomy Forceps, diameter 1.7 mm, working length 30 cm	1	Unchanged
17.	Scissors, single action jaws, pointed, diameter 1.3 mm, length 30 cm	1	Unchanged
18.	Puncture Needle	1	Unchanged
	Monopolar, Bipolar & cords		Unchanged
19.	Spatula Electrode, unipolar, flexible, diameter 1mm, working length 45 cm	1	Unchanged
20.	Bipolar Coagulation Electrode, diameter 1.7 mm, working length 30 cm	1	Unchanged
21.	Bipolar Forceps, long, flat jaws, outer diameter 2.4 mm, consisting of Bipolar Ring handle, Outer Sheath, Bipolar Insert, for single use, package of 5.	1	Unchanged
22.	Unipolar High Frequency Cord, with 4 mm plug, length 300 cm. For use with HF units.	1	Unchanged
23.	Bipolar High Frequency Cord, with 2 x 4 mm banana-plug to Coagulator, length 300 cm	1	Unchanged
24.	Bipolar High Frequency Cord, length 300cm.	1	Unchanged
	Accessories to perform Cranial endoscopy		Unchanged
25.	Articulated Stand, reinforced version, only, L-shaped, with one mechanical central clamp for all five joint functions, height 48 cm, operating range 52 cm, with fastene.	1	Unchanged
26.	Socket to clamp on the operating table, for use with European and United States standard rails, also suited for rails from 25x10 up to 35x8 mm, with lateral clamping element for height adjustment of the articulated stand.	1	Unchanged

27.	Clamping Jaw, metal, for use with instrument and telescope sheaths, clamping range 4.8 up to 12.5 mm, with fastener.	1	Unchanged
28.	Adaptor autoclavable, permits telescope changing under sterile conditions	1	Unchanged
	Container for Sterilization		Unchanged
29.	Plastic Container for Sterlizing and Storage, perforated, with lid, for two-level storage, for use with 30 cm and 36 cm Click Line-instruments, external dimensions (w x d x h) 600 mm x 145 mm x 260 mm	1	Unchanged
Sr.No.	**Specification**	**Quantity**	Unchanged
	Neuro Endoscopy Set for the Treatment of Obstructive Hydrocephalus, Marsupilization of thr Archanoid Cysts, Colloid Cyst, Verticular Biopsy		Unchanged
	Telescope & Sheath		Unchanged
1.	Venticuloscope small, Wide Angle Straight Forward Telescope 6^{o}, angled eyepiece, outer diameter 3.6 mm, length 18 cm, working channel diameter 1.6 mm, with suction and irrigation channel diameter 0.8 mm, autoclavable, with irrigation adapter, fiber optic light transmission incorporated, for use with : small operating sheath.	1	Unchanged
2.	Forward Oblique- Telescope 0^{o}, enlarged view, diameter 2 mm, length 26 cm, autoclavable, fiber optic light transmission incorporated.	1	Unchanged
3.	Obturator, for use with operating sheath.	1	Unchanged
4.	Obturator, for use with operating sheath and optic	1	Unchanged
5.	Operating Sheath, small, outer diameter 4.5 mm, working length 13.3 cm.	1	Unchanged
	Hand Instruments		Unchanged

6.	Biopsy Forceps, double action jaws, diameter 1.3 mm, working length 30 cm	1	Unchanged
7.	Scissors, single-action jaws, semi-rigid, diameter 1.3 mm, working length 30 cm	1	Unchanged
8.	Unipolar Coagulating electrode, semi-rigid, diameter 1.3 mm, working length 30 cm	1	Unchanged
9.	Bipolar Coagulation Electrode, diameter 1.3 mm, working length 30 cm	1	Unchanged
10.	Grasping Forceps, double-action jaws, semi-rigid, diameter 1.3 mm, working length 30 cm	1	Unchanged
11.	Forceps, for ventriculostomy, flexible, double action jaws, diameter 1 mm, working length 30 cm	1	Unchanged
	Monopolar, Bipolar & cords		Unchanged
12.	Bipolar Coagulation Electrode, semi-rigd, O.D. 1.3 mm.	1	Unchanged
13.	Spatula Electrode, unipolar, flexible, diameter 1mm, working length 45 cm	1	Unchanged
14.	Unipolar High Frequency Cord, with 4 mm plug, length 300 cm.	1	Unchanged
15.	Bipolar High Frequency Cord, with 2 x 4 mm banana-plug, length 300 cm	1	Unchanged
16.	Bipolar High Frequency Cord, Length 300cm.	1	Unchanged
	Accessories to perform Cranial endoscopy		Unchanged
17.	Articulated Stand, reinforced version, only, L-shaped, with one mechanical central clamp for all five joint functions, height 48 cm, operating range 52 cm, with fastener.	1	Unchanged
18.	Socket to clamp on the operating table, for use with European and United States standard rails, also suited for rails from 25x10 up to 35x8 mm, with lateral clamping element for height adjustment of the articulated stand.	1	Unchanged

19.	Clamping Jaw, metal, for use with instrument and telescope sheaths, clamping range 4.8 up to 12.5 mm, with fastener.	1	Unchanged
20.	Adaptor autoclavable, permits telescope changing under sterile conditions	1	Unchanged
	Container for Sterilization		Unchanged
21.	Plastic Container for Sterlizing and Storage, perforated, with transparent lid, with insert for two angled rigid telescopes, external dimensions (w x d x h) 515 x 240 x 84 mm	1	Unchanged
22.	Plastic Container for Sterlizing and Storage, perforated, with lid, for two-level storage, for use with 30 cm and 36 cm Click Line-instruments, external dimensions (w x d x h) 600 mm x 145 mm x 260 mm	1	Unchanged
			Unchanged
			Unchanged
	Scope		Unchanged
1.	Video Neuro-Endoscope, steerable, direction of view 0^{o}, angle of view 90^{o}, working channel 3.6 Fr., sheath size 8.5 Fr., working length 70 cm. Following accessories are included : Case, Pressure compensation Cap, Leakage Tester, Cleaning Brush, Adaptor, with seal	1	Unchanged
	Hand Instruments		Unchanged
2.	Biopsy Forceps, double action jaws, flexible, 1.0mm, length 110 cm	1	Unchanged
3.	Grasping Forceps, double actions jaws, flexible, 1.0mm, length 110 cm	1	Unchanged
	Monopolar & cords		Unchanged
4.	Coagulating Electrode, unipolar, flexible 1.0 mm, length 73 cm	1	Unchanged

5.	Unipolar High Frequency Cord, with 4 mm plug, length 300 cm	1	Unchanged
	Containers for Sterilization		Unchanged
6.	Plastic Container for flexible endoscopes, suitable for gas and hydrogen peroxide sterilization as well as storage, external dimensions (w x d x h): 550 x 260 x 90 mm, for use with one flexible endoscope	1	Unchanged
	Shunt Scope – For the Optical Placement of shunt for the treatment of Hydrocephalous		Unchanged
	Scope		Unchanged
1.	Shunt- Scope : Miniature Straight Forward Telescope 0^{o}, diameter 1 mm, length 16 cm, semi-rigid, with remote eyepiece and light connection, LUER-Lock adaptor, fiber optic light transmission incorporated	1	Unchanged
2.	Examination Sheath, O.D. 1.3 mm, working length 16 cm, with blunt obturator, 1 LUER-lock adaptor, for use with miniature endoscope.	1	Unchanged
	Containers for Sterilization		Unchanged
3.	Metal Tray, for sterilization and storage of Miniature Straight Forward Telescope, perforated, lid with silicone bridges, external dimensions (w x d x h): 373 x 178 x 35 mm.	1	Unchanged
	Endoscopic management of CSF rhinorea, Optic Nerve decompression, pituitary macro and micro adenomas, transclival cordomas and for extended approaches for all lesions from Ciste gliae to CVJ junction using transclival, transplanum transcribriform & transspenoidal approach		Unchanged
	Telescope & Sheath		Unchanged

1.	Straight Forward Telescope 0^o, enlarged view, diameter 4 mm, length 18 cm, autoclavable. Fiber optic light transmission incorporated.	1	Unchanged
2.	Suction and Irrigation Sheath 0^o for endoscopic diagnosis and surgery of the paranasal sinuses and anterior skull base, vertical oval, diameter 4.8 mm x 6 mm, with separate channel for suction and irrigation, for use with Irrigation and Suction Handles	1	Unchanged
3.	Forward-Oblique Telescope 45^o, enlarged view, diameter 4 mm, length 18 cm, autoclable, Fiber optic light transmission incorporated.	1	Unchanged
4.	Suction and Irrigation Sheath 45^o, for endoscopic diagnosis and surgery of the paranasal sinuses and skull base, oval, O.D. 4.8 mm x 6 mm, with separate channel for suction and irrigation, for use with handles.	1	Unchanged
5.	Straight Forward Telescope 0^o, enlarged view, diameter 4mm, length 30 cm, autoclavable, Fiber optic light transmission incorporated.	1	Unchanged
6.	Suction and Irrigation Sheath 0^o, for endoscopic diagnosis and surgery of the paranasal sinuses and anterior skull base, vertical oval, diameter 4.8 mm x 6 mm, with separate channel for suction and irrigation, for use with irrigation and Suction handles 28161 TD/TT/JD/JT, 723630, Cleaning Accessories 28160 TK – TLL and HOPKINS® II Telescope 28164 AA	1	Unchanged
7.	Forward-Oblique Telescope 30^o, enlarged view, diameter 4 mm, length 30 cm, autoclavable, Fiber optic light, transmission incorporated.	1	Unchanged

8.	Suction and Irrigation Sheath 30°, for endoscopic diagnosis and surgery of the paranasal sinuses and anterior skull base, vertical oval, diameter 4.8 mm x 6 mm, with separate channel for suction and irrigation, for use with Irrigation and Suction handle.	1	Unchanged
9.	Irrigation and Suction handle, with push button valve consisting of : handle, with ergonomic ring handle and finger grip plate, for use with Irrigation and Suction Sheaths	1	Unchanged
	Hand Instrument		Unchanged
10.	Cleaning adaptor for irrigation channel of suction and irrigation sheath, length 3.5 cm	1	Unchanged
11.	Cleaning tube for suction/telescope channel of suction and irrigation sheath, length 23 cm	1	Unchanged
12.	Nasal Scissors, medium,)standard model), working length 9.5 cm	1	Unchanged
13.	Nucleus Cutting Forceps single action jaws, movable jaw opening upwards, diameter 3.5 mm, working length 20 cm	1	Unchanged
14.	WILDE Nasal Forceps 45°, upturned, size 1, working length 11 cm	1	Unchanged
15.	Nasal Forceps, straight, size 1, working length 11 cm	1	Unchanged
	Round Knife		Unchanged
16.	Round Knife 0°, width1 mm, working length 10 cm, total length 20 cm	1	Unchanged
17.	Round Knife 0°, width 1 mm, working length 13 cm, total length 23 cm	1	Unchanged
18.	Round Knife 45°, width 1 mm, working length 10 cm, total length 20 cm	1	Unchanged
19.	Round Knife 45°, width 1 mm, working length 13 cm, total length 23 cm	1	Unchanged

20.	Round Knife 90°, width 1 mm, working length 10 cm, total length 20 cm	1	Unchanged
21.	Round Knife 90°, width 1 mm, working length 13 cm, total length 23 cm	1	Unchanged
22.	Round Knife 0°, width 2 mm, working length 0 cm, total length 20 cm	1	Unchanged
23.	Round Knife 0°, width 2 mm, working length 13 cm, total length 23 cm	1	Unchanged
24.	Round Knife 5°, width 2 mm, working length 10 cm, total length 20 cm	1	Unchanged
25.	Round Knife 45°, width 2 mm, working length 13 cm, total length 23 cm	1	Unchanged
26.	Round Knife 90°, width 2 mm, working length 10 cm, total length 20 cm	1	Unchanged
27.	Round Knife 90°, width 2 mm, working length 13 cm, total length 23 cm	1	Unchanged
	Dissector		Unchanged
28.	Dissector, tip 45°, width 1 mm, working length 13 cm, total length 23 cm	1	Unchanged
29.	Dissector, tip 90°, width 1 mm, working length 10 cm, total length 20 cm	1	Unchanged
30.	Dissector, sharp, round spatula, tip angled 45°, size 2 mm, with round handle, length 25 cm	1	Unchanged
31.	Dissector, sharp, round spatula, tip angled 45°, size 3 mm, with round handle, length 25 cm	1	Unchanged
32.	Elevator, sharp, slightly curved spatula, straight, size 3 mm, with round handle, length 25 cm	1	Unchanged
33.	Hook, 90°, blunt, length 25 cm, with round handle	1	Unchanged

34.	Seeker, 90^{o}, with ball end, diameter 1 mm, length 25 cm	1	Unchanged
35.	Micro Raspajtory, single curved to right, width 2 mm, length 25 cm	1	Unchanged
36.	Elevator, sharp, flat long spatula, tip angled 15^{o} downwards, size 1.5mm, with round handle, length 25 cm	1	Unchanged
37.	Dissector, bayonet-shaped, sharp, curved to left, length 24 cm	1	Unchanged
38.	Dissector, bayonet-shaped, sharp, curved to right, length 24 cm	1	Unchanged
	Scissor		Unchanged
39.	Scissors, straight, with small handle, with cleaning connector, working length 18 cm	1	Unchanged
40.	Scissors, curved to right, with small handle, with cleaning connector, working length 18 cm	1	Unchanged
41.	Scissors, curved to left, with small handle, with cleaning connector, working length 18 cm	1	Unchanged
42.	Scissors, curved upwards, with small handle, with cleaning connector, working length 18 cm	1	Unchanged
43.	Scissors, upturned 45^{o}, delicate, sheath 360^{o} rotatable, with cleaning connector, working length 18 cm	1	Unchanged
	Forceps		Unchanged
44.	Forceps, round cupped jaws, diameter 0.6mm, extra delicate, straight, working length 18 cm	1	Unchanged
45.	Forceps, oval cupped jaws, 0.6 mm, extra delicate, curved to right, working length 18 cm	1	Unchanged
46.	Spoon Forceps, spoon size 3 x10 mm, single action jaws, working length 17 cm	1	Unchanged
47.	Miniature Grasping Forceps, serrated, straight, working length 18 cm	1	Unchanged

48.	Miniature Forceps, through-cutting, with fine flat jaws, bite 1 mm, curved up, working length 18 cm	1	Unchanged
49.	Nasal forceps, with extra line flat jaws, through-cutting, tissue sparing, width of cut 1.5 mm, straight sheath, jaws angled upwards 45^{o}, with cleaning connector, working length 18 cm	1	Unchanged
	Curette		Unchanged
50.	Curette, round spoon, tip slightly angled, size 2 mm, with round handle, length 25 cm	1	Unchanged
51.	Curette, round spoon, tip angled, size 2 mm with round handle, length 25 cm	1	Unchanged
52.	Curette, round wire, ID 3 mm, tip angled 45^{o}, with round handle, length 25 cm	1	Unchanged
53.	Ring-curette, round wire, ductile, ID 3 mm, tip angled 45^{o}, with round handle, length 25 cm	1	Unchanged
54.	Currette, round wire, ID 3 mm, distally curved shaft, with round handle, length 25 cm	1	Unchanged
55.	Curette, stirrup-shape, blunt, with round handle, length 25 cm	1	Unchanged
	Monopolar, Bipolar & Cord		Unchanged
56.	Take-apart Bipolar Forceps, width 1mm delicate jaws, distally angled 45^{o}, horizontal closing, outer diameter 3.4 mm, working length 20 cm, consisting of: handle, Outer Tube, Inner Tube, Bipolar Insert.	1	Unchanged
57.	Bipolar Insert	1	Unchanged
58.	Bipolar high Frequency Cord with 2 x 4 mm banana-plug to, length 300 cm	1	Unchanged
	Suction Tube		Unchanged

59.	Suction Tube, with cut-off hole, drop-shaped, with distance markings, LUER, conical distal end, 6 Fr., working length 15 cm	1	Unchanged
60.	Suction Tube, with cut-off hole, drop-shaped, with distance markings, LUER, conical distal end,8 Fr., working length 15 cm	1	Unchanged
61.	Suction Tube, with cut-off hole, drop-shaped, with distance markings, LUER, conical distal end, tip curved upwards, ball end, 2.4 mm, working length 15 cm	1	Unchanged
62.	Suction Tube, with cut-off hole, drop-shaped, with distance markings, LUER, conical distal end, malleable, 6 Fr., working length 15 cm	1	Unchanged
63.	Suction Tube, with cut-off hole, drop-shaped, with distance markings, LUER, conical distal end, malleable, 8 Fr., working length 15 cm	1	Unchanged
64.	Insulated Cannula for suction and coagulation, O.D :3mm, 90^{o} curved, working length 16 cm	1	Unchanged
	Punch		Unchanged
65.	Bone Punch, detachable, rigid, upbiting 60^{o} forward, size 1 mm, working length 17 cm	1	Unchanged
66.	Bone Punch, detachable, rigid, upbiting 60^{o} forward, size 2 mm, working length 17 cm	1	Unchanged
67.	Bone Punch, detachable, rigid, downbiting 60^{o} forward, size 1 mm, working length 17 cm	1	Unchanged
68.	Bone Punch, detachable, rigid, downbiting 60^{o} forward, size 2 mm, working length 17 cm	1	Unchanged
	Micro Neuro Surgery Insturments		Unchanged
	Needle Holder		Unchanged

1.	Micro Needle Holder, bayonet-shaped, straight jaws, 2 x 6 mm, working length 10 cm	1	Unchanged
2.	Micro Needle Holder, bayonet-shaped, jaws curved to left, 1 x 6 mm, working length 10 cm222	1	Unchanged
	Forceps		Unchanged
3.	Micro Grasping Forceps, bayonet-shaped, straight jaws, smooth, 0.5 mm, working length 10 cm	1	Unchanged
4.	Forceps, bayonet-shaped, spoon, 2 mm, working length 10 cm	1	Unchanged
5.	Micro Grasping forceps, bayonet-shaped, straight jaws, serrated, 3 mm, working length 10 cm	1	Unchanged
6.	Micro Grasping forceps, bayonet-shaped, jaws curved to left, 0.75 mm, working length 10 cm	1	Unchanged
7.	Forceps, bayonet shaped, 4 mm, spoon, working length 10 cm	1	Unchanged
8.	Forceps, bayonet shaped, 6 mm, spoon, working length 10 cm	1	Unchanged
9.	Forceps, bayonet shaped, 2 mm, spoon horizontal, working length 10 cm	1	Unchanged
10.	Forceps, bayonet shaped, 4 mm, spoon horizontal, working length 10 cm	1	Unchanged
11.	Forceps, bayonet shaped, 6 mm, spoon horizontal, working length 10 cm	1	Unchanged
12.	Micro Scissors, bayonet-shaped, sharp/sharp, cutting edges straight, working length 10 cm	1	Unchanged
13.	Micro Applying Forceps, Yasargil-Clips, working length 10 cm	1	Unchanged
14.	Micro Applying Forceps, Yasargil-Mini Clips, working length 10 cm	1	Unchanged

15.	Micro Grasping Forceps, straight jaws, smooth, diameter 1 mm, working length 11 cm	1	Unchanged
16.	Micro Grasping Forceps, jaws curved upwards 45^{O}, smooth, diameter 1 mm, working length 11 cm	1	Unchanged
17.	Micro Grasping Forceps, straight jaws, serrated, diameter 1 mm, working length 11 cm	1	Unchanged
18.	Micro Grasping Forceps, straight with smooth jaws, diameter 2.2 mm, working length 11 cm	1	Unchanged
19.	Micro Grasping Forceps, 45^{o} angled, with smooth jaws, diameter 2.2 mm, working length 11 cm	1	Unchanged
20.	Micro Grasping Forceps, straight, with serrated jaws, diameter 2.2 mm	1	Unchanged
	Scissor		Unchanged
21.	Micro Scissors, bayonet-shaped, sharp/sharp, cutting edges curved to left, working length 10 cm	1	Unchanged
22.	Micro Scissors, bayonet-shaped, blunt/blunt, cutting edges straight, working length 10 cm	1	Unchanged
23.	Micro Scissors, bayonet-shaped, sharp/sharp, cutting edges curlved to right, working length 10 cm	1	Unchanged
24.	Micro scissors, bayonet-shaped, sharp/sharp, cutting edges horizontal, working length 10 cm	1	Unchanged
25.	Micro Scissors, cutting edges straight, diameter 1 mm, working length 11 cm	1	Unchanged
26.	Micro Scissors, cutting edges angled 30^{o}, diameter 1 mm, working length 11 cm	1	Unchanged
27.	Micro Scissors, cutting edges angled 60^{o}, diameter 1 mm, working length 11 cm	1	Unchanged
28.	Micro Scissors, straight, diameter 2.2 mm, working length 11 cm	1	Unchanged

29.	Micro Scissors, 30^{o} angled, diameter 2.2 mm, working length 11 cm	1	Unchanged
30.	Micro Scissors, 60^{o} angled , diameter 2.2 mm, working length 11 cm	1	Unchanged
			Unchanged
	Endoscopy assisted micro Neuro Surgery Instruments		Unchanged
	Telescope & Sheath		Unchanged
1.	Straight Forward Telescope 0^{o}, diameter 2.7 mm, length 15 cm, autoclavable, proximally angled eyepiece and light connection, fiber optic light transmission incorporated.	1	Unchanged
2.	Forward-Oblique Telescope 30^{o}, diameter 2.7mm, working length 15 cm, with viewing direction 6 o'clock , autoclavable, proximally angled eyepiece, fiber optic light transmission incorporated.	1	Unchanged
3.	Forward-Oblique Telescope 30^{o}, diameter 2.7 mm, working length 15 cm, with viewing direction 12 o'clock , autoclavable, proximally angled eyepiece, fiber optic light transmission incorporated.	1	Unchanged
4.	Clearvision sheath 0^{o}, 3.5 x 4.7 mm, working length 12 cm, for use with Hopkins optic	1	Unchanged
5.	Clearvision sheath 30^{o}, 3.5 x 4.7 mm, working length 12 cm, for use with Hopkins optic	1	Unchanged
6.	Clearvision sheath 30^{o}, 3.5 x 4.7 mm, working length 12 cm, for use with Hopkins optic	1	Unchanged
	Hand Instruments		Unchanged
7.	Dissector, bajonet-shaped, curved downwards, working length 13.5 cm	1	Unchanged
8.	Dissector, bajonet-shaped, curved downwards, working length 11.5 cm	1	Unchanged

9.	Dissector, bajonet-shaped, curved upwards, working length 13.5 cm	1	Unchanged
10.	Dissector, bajonet-shaped, curved upwards, working length 11.5 cm	1	Unchanged
11.	Micro Hook, bajonet-shaped, smooth, working length 11.5 cm	1	Unchanged
12.	Micro Hook, bajonet-shaped, smooth, working length 13.5 cm	1	Unchanged
13.	Suction Tube, with grip plate, elongated out-off hole, LUER, with distal lateral holes, O.D. 3 mm, length 15 cm	1	Unchanged
14.	Suction Tube, with grip plate, elongated out-off hole, LUER, with distal lateral holes, O.D. 1.7 mm, length 15 cm	1	Unchanged
15.	Suction Tube, with grip plate, elongated out-off hole, LUER, with distal lateral holes, O.D. 2.5 mm, length 15 cm	1	Unchanged
	Bipolar & Cord		Unchanged
16.	Bipolar Forceps, insulated, bayonet shape, blunt, tips 0.7 mm, working length 12 cm, total length 23 cm	1	Unchanged
17.	Bipolar Forceps, insulated, bayonet shape, blunt, tips 0.7 mm, working length 14 cm, total length 25 cm	1	Unchanged
18.	Bipolar Forceps, insulated, bayonet shape, blunt, tips 0.3 mm, working length 12 cm, total length 23 cm	1	Unchanged
	Holding System		Unchanged
19.	Articulated Stand, reinforced version, only, L-shaped, with one mechanical central clamp for all five joint functions, height 48cm, operating range 52 cm, with fastener	1	Unchanged
20.	Rotation Socket to clamp on the operating table with one already mounted butterfly nut, for use with European and United States standard rails, with lateral clamping element for height and angle adjustment of the articulated stand	1	Unchanged

21.	Clamping jaw, metal, for use with instrument and telescope sheaths, clamping range 4.8 up to 12.5 mm, with fastener.	1	Unchanged
			Unchanged
	Telescope with multiple angles of view		Unchanged
1.	Telescope, diameter 4 mm, length 18 cm, autoclavable, variable direction of view from 15^{o} – 90^{o}, adjustment knob for selecting the desired direction of view, fiber optic light transmission incorporated.	1	Unchanged
Sr. No.	**Specification**	**Quantity**	
	Motor System		
1.	Motor system with color display, touch screen, two motor outputs, integrated irrigation pump and integrated SCB module, 100-240 VAC, 50/60 Hz consisting of: Mains Cord, Irrigator rod, Two-Pedal Footswitch, two-stage, with proportional function Silicone tubing Set, for irrigation, sterilizable, Clip Set, for use with Tubing Set , Connecting Cable, length 100 cm, Single Use tubing Set, sterile	1	Deleted
2.	High-speed Micro-Motor, max. speed 60,000 rpm, including connecting cable.	1	Deleted
	Perforator		
3.	Perforator Handpiece, max. speed 1200 rpm, without perforator blade, Hudson connector, for use with High-Speed Micro-Motor	1	Unchanged
	Craniotome		Unchanged
4.	Craniotome Handpiece, maximum speed 60,000 rpm, including medium dura protector for use with High-Speed Micro-Motor as well as 3.17 mm Craniotome Burrs and Dura Protector	1	Unchanged
5.	Pediatric Dura Protector, for use with Craniotome Handpiece	1	Unchanged

6.	High-Speed Craniotome Burr, pediatric, shaft diameter 3.17 mm, for single use, sterile, package of 5, for use with 60,000 rpm Craniotome Handpiece and Pediatric Dura Protector	1	Unchanged
7.	Medium Dura Protector, for use with Craniotome Handpiece	1	Unchanged
8.	High-Speed Craniotome Burr, medium, shaft diameter 3.17 mm, for single use, sterile, package of 5, for use with 60,000 rpm Craniotome Handpiece and Medium Dura Protector	1	Unchanged
9.	Long Dura Protector, for use with Craniotome Handpiece	1	Unchanged
10.	High-Speed Craniotome Burr, long, shaft diameter 3.17 mm, sterile, package of 5 for use with 60,000 rpm Craniotome Handpiece and Long Dura Protector	1	Unchanged
	Shaver Handpiece & Suction burr		Unchanged
11.	Spine Handpiece	1	Unchanged
12.	Shaver Handpiece	1	Unchanged
13.	Handle for Shaver Handpiece	1	Unchanged
14.	Suction Burr, with integrated irrigation, straight, sterilizable, cylindrical cutter head with lateral and distal protection, shaft diameter 3.5 mm, length 30 cm for use with Drill	1	Unchanged
	High Speed Handpiece – 100000rpm & Burrs		Unchanged
15.	High-Speed Handpiece, long, angled 100,000 rpm, for sue with High –Speed Micro-Motor.	1	Unchanged
16.	High-Speed Standard Burr, long, diameter 3 mm, shaft diameter 3.17mm, package of 5, for use with 100,000 rpm High-Speed Handpiece	1	Unchanged
17.	High- Speed Diamond Burr, long, diameter 3mm, shaft diameter 3.17mm, sterile, package of 5, for use with 100,000 rpm High-Speed Handpiece	1	Unchanged

18.	High- Speed Coarse Diamond Burr, long, diameter 3mm, shaft diameter 3.17mm, sterile, package of 5, for use with 100,000 rpm High-Speed Handpiece	1	Unchanged
19.	High-Speed Handpiece, medium, angled, 100,000 rpm, for use with High-Speed Micro-Motor	1	Unchanged
20.	High- Speed Acom, medium, diameter 7.5 mm, shaft diameter 3.17mm, sterile, package of 5, for use with 100,000 rpm High-Speed Handpiece	1	Unchanged
21.	High- Speed Barrel Burr, medium, diameter 6 mm, shaft diameter 3.17mm, sterile, package of 5, for use with 100,000 rpm High-Speed Handpiece	1	Unchanged
22.	High- Speed Neuro Fluted Burr, medium, diameter 1.8 mm, shaft diameter 3.17mm, sterile, package of 5, for use with 100,000 rpm High-Speed Handpiece		Unchanged
	High Speed Straight & Angled Handpiece – 60000 rpm & Burrs		Unchanged
23.	High-Speed Handpiece, medium, angled, 60,000 rpm, for use with High-Speed Micro-Motor.	1	Unchanged
24.	High-Speed Handpiece, medium, straight, 60,000 rpm, for use with High-Speed Micro-Motor.	1	Unchanged
25.	High-Speed Standard Burr, medium, diameter 2 mm, shaft diameter 2.35 mm, sterile, package of 5, for use with 60,000 rpm High-Speed Handpiece.	1	Unchanged
26.	High-Speed Diamond Burr, medium, diameter 3 mm, shaft diameter 2.35 mm, sterile, package of 5, for use with 60,000 rpm High-Speed Handpiece.	1	Unchanged
27.	High-Speed Coarse Diamond Burr, medium, diameter 3 mm, shaft diameter 2.35 mm, sterile, package of 5, for use with 60,000 rpm High-Speed Handpiece.	1	Unchanged
	High Speed Malleable Handpiece & Burr		Unchanged

28.	High-Speed Handpiece, super long, malleable, slim, angled, 60,000 rpm, for use with High-Speed Micro-Motor.	1	Unchanged
29.	High-Speed Diamond Burr, super long, diameter 3 mm, shaft diameter 1 mm, sterile, package of 5, for use with 60,000 rpm High-Speed Handpiece.	1	Unchanged
30.	High-Speed Coarse Diamond Burr, super long, diameter 3 mm, shaft diameter 1 mm, sterile, package of 5, for use with 60,000 rpm High-Speed Handpiece.		Unchanged
	Pneumatic Holding Arm		Unchanged
1.	Pneumatic holding arm set, consisting of : Arm , Table Adaptor, Adaptor, for clamping jaws, Clamping Jaw large, clamping Jaw small, Clamping Jaw for fiberscopes, Pressure Regulator, Drape.	1	Unchanged
2.	Air Compressor, power supply 230 VAC, 50/60 Hz, Dimensions (w x d x h): ca. 500 x 320 x 340 mm, weight appr. 22 kg, consisting of: Air compressor, Fabric Reinforced tube for connecting, Connecting Tube, length 600 cm, for use with holding system, required pressure setting min. 6 to max. 8 bar	1	Unchanged

Item No. 11

***Revised / amended*Technical Specifications for Dual Head Gamma Camera with integrated Multislice CT (SPECT/CT) for Nuclear Medicine Department, Super Specialty Block, Safdarjung Hospital, New Delhi**

1.	**General Features**:
	Latest model of Dual Head Gamma Camera with Multi slice CT for CT attenuation and CT scan Fusion capability,Spect Imaging Capability with high resolution possible Whole Body Imaging Capability **i.** The system should have capability for simultaneous data acquisition, processing, image reconstruction & analysis and fusion of SPECT with CT images. The acquisition & processing software should be of latest version. **ii.** The system should operate on 220 (± 10) V A/C, 50HZ or 440V (± 20) A/C 50HZ **iii.** Should be FDA & European CE approved product. FDA and CE approval certificate &Type approval certificate for CT from AERB, Mumbai for the quoted model must be attached with the technical bid or else the bid will be summarily rejected. **iv.** For acceptance of the equipment and to fulfill the AERB requirements, all the QA tests as per NEMA guidelines will be done and demonstrated by the company engineer(s) and all the required phantoms will need to be arranged by the vendor and submit a detailed report in stipulated time frame. The company will also arrange such phantoms during periodical QA tests. **v.** All the Application, Operating and Service manuals in English language in duplicates should be provided by the vendor at the time of handing over the machine.

	vi. Any options or added facilities not indicated in the specifications may also be given. Any improved modifications or updated versions of the system can be included in the quotations. **v.**For acceptance of the equipment and to fulfil the AERB require**ment**s, all the QA test as per AERB requirementshall be done and demonstrated by the company engineer(s) and all the required phantoms will need to be arranged by the vendor and detailed report as per AERB format to be submitted in stipulated time frame. The company will also arrange such phantoms during periodical QA/QC test**s**.
2	**Detector**
2.1	Dimension: Rectangular , Large FOV (UFOV 50 x 38cm or more) for adequate patient breadth coverage
2.2	Detector Crystal Thickness 3/8 " (9.5mm)
2.3	Detector Type : True Digital (1 ADC per PMT)
2.4	Number of PMTs : 50 or more with 3/8''
2.5	Detector performance parameters as per NEMA standard :
2.6	Intrinsic Energy Resolution (FWHM) < 10% (for Tc-99m at 20 kcps)

2.7	Intrinsic Spatial Resolution CFOV : FWHM 4.0mm UFOV : FWHM < 4.5 mm
2.8	Intrinsic Flood Field Uniformity: CFOV Differential <2.5%, Integral <3.5% UFOV Differential < 3.0%, Integral < 4.0%
2.9	Intrinsic Count Rate Performance Maximum > or =300Kcps (For Tc - 99m at 20% window)
3.	**Gantry**
3.1	Wide open gantry design for non- Claustrophobic Imaging gamma camera for both CW and CCW rotation with preferable unlimited rotation angle Gantry orientations.
3.2	Should have a gantry display unit which shows the current positions of the gantry's moving parts and positions of the patient table
4.	**Data Acquisition System**
4.1	It should have data acquisition system with features for data acquisition, system control and quality control check and automatic image fusion capabilities. Separate processing system if required should be quoted.
4.2	On the Fly digital uniformity & isotope decay and COR Corrections

4.3	The acquisition console should have hard Disk drive of 500GB or more, RAM 1GB or more and should be latestprocessor .
4.4	Predefined and user configurable protocols for standard studies for rapid recall and image.
4.5	Ability to pause and resume all types of acquisitions
4.6	Zoom and rotate features
4.7	Cinematic display of dynamic, MUGA & all multi frame studies
4.8	Live display of acquired data and imaging parameters during acquisition.
4.9	Console should have at least 19" flat display Color Monitor
4.10	Dual or Multiple Isotope /Multiple Energies simultaneous acquisition facilities should be available.
4.11	Should be able to network to both local as well as wide area networks via DICOM 3.0 / INTERFILE

	3.3 TCP/IP based protocols
5.	**Acquisition Software**
5.1	Should be able to acquire data in the following modes: Static, Dynamic, List mode,Multigated, Whole Body Scanning, SPECT, Gated SPECT, and preferable Whole Body Spect & Dynamic SPECT.
5.2	Should be able to acquire data from 64x64 or less to 512x512 matrix size and 256x1024 for whole body imaging
5.3	For MUGA, there should be ECG display during acquisition and R-TO-R Histogram display
5.4	Real time irregular beat rejection for GATED planar and SPECT Studies.
5.5	At least 8,16,24 & 32 frames per R-R interval
5.6	Auto-start by predefined count rate setting
5.7	Multitasking even during acquisition
5.8	Acquisition software should include camera quality control activities including:

	Center of rotation (COR) correction, Uniformity correction maps, Energy Sensitivity and Linearity maps, Daily / Weekly QC including Gantry calibration, Energy spectrum histogram (PHA) display, QC for Whole Body Acquisition, QC for balancing sensitivity of both Detector heads.
6.	**Imaging Table**
6.1	Single table for all type of studies i.e. Planar, Whole Body, and Cardiac & Tomography applications
6.2	Should have table top composed of least attenuation material (less than 10% for 140 KeV)
6.3	Should have load capacity of at least 180 Kg
6.4	Tabletop should have motorized translation for whole body scans
6.5	Preferable table should be movable to permit imaging of Stretcher patient.
7.	**Multimodality (Processing) workstation. (This is in addition to the acquisition system)** (for processing of SPECT /and CT images, automatic image fusion capabilities) . Two Multimodality (Processing) workstations are to be provided (Both should have licensed copies of all the softwares). One will be installed in the console room and second in another room of the department. Both will be in network.
7.1	Should have latestprocessor with 4GB or more RAM , at least 1 GB graphic card, Hard Disk at least 1TB. CD/DVD-RW and DVD drive preferably writing capability.
7.2	Operating System: Latest.

7.3	Large Flat panel colour monitor (at least 19")
7.4	There should be provision for data transfer to external storage device (CD/DVD/ External Hard Disk) for mass data storage and achieving.
7.5	Both processed data (reports etc) as well as raw (acquired images) should be amenable to such data transfer and storage.
7.6	One additional image viewing station should be provided: **Osirix WS iMac with Retina Display, 4.0GHz Quad core Intel core i7 or better processor, 16GB 1600MHz DDR3 SDRAM or more, 1TB Flash storage, Apple Magic Mouse, Magic Trackpad, Apple wireless Keyboard & user guide, Accessory kit, Apple care with Osirix MD with free upgrades during warranty period**
7.7	Communications - Ethernet with TCP/IP protocols and DICOM-3 or latest networking of all possible equipments in the facility with their peripherals and PACS available in the department
8.	**Processing Software**

8.1	All standard planar and SPECT clinical software including gated studies, cardiac first pass, renogram (Including GFR& ERPF), cerebral blood flow processing, Myocardial perfusion analysis (Including QGS & QPS)
8.1.1	Cardiac first pass studies.
8.1.2	Gated Cardiac Studies (Automated / manual)
8.1.3	Quantitative Gated tomography
8.1.4	Cardiac SPECT studies
8.1.5	Ventilation / perfusion studies
8.1.6	Clinical cerebral studies including HMPAO-SPECT. **Neurogram software** with normal data base with quantitative Brain SPECT evaluation.
8.1.7	Renal Q F Analysis and MAG-3 protocol, DTPA protocol
8.1.8	Cardiac shunt studies
8.1.9	3D interactive display function
8.1.10	Bull's eye GFP analysis
8.1.11	Liver / Abdominal studies including gall bladder ejection fraction.
8.1.12	Whole body studies – dual intensity
8.1.13	Dedicated licensed latest version of Emory Cardiac Toolbox including optional software (3.05 suite / latest version)/ corridor4DM cardiac quantitative SPECT package
8.1.14	Motion correction

8.1.15	Transmission / Emission attenuation correction
8.2	Time activity Curves, Histogram analysis and ROI Statistical analysis
8.3	Back projection, Iterative Reconstruction & Volume rendering Software for SPECT studies
8.4	Software for Scatter correction with different scatter correction algorithms and filters
8.5	CT based attenuation correction
8.6	Patient motion correction preferable for SPECT
8.7	Connectivity solutions: Include Dicom 3.0 / Interfile 3.3 Supports
8.8	Clinical software programming as per user requirement
8.9	User setup of image size for hard copy (depending on paper size used)
8.10	Automatic image fusion capabilities between CT and SPECT.
9.	**MULTISLICE CT AND CT DATA ACQUISITION SYSTEM**
9.1	Complete x-ray system with detector for acquiring at least 16 slices / images of diagnostic quality simultaneously. X-ray system should have an x-ray tube of high performance and Anode storage capacity of 5MHU or more with Generator power of 40kW or more.
9.2	Hardware and software for ECG gating should be provided with SPECT &CT.
10.	**COLLIMATORS**
	The following collimators with carts should be included: a) Low Energy high Resolution (LEHR) - One pair b) High Energy General Purpose (HEGP-364keV) - One pair

	c) Pin hole - One no.
11.	**Accessories**
11.1	Three phase Modular Uninterrupted power supply (UPS) of reputed firm for the whole system (SPECT and CT including accessories), with maintenance free batteries of reputed make, having at least one hour back-up time. One extra set of batteries of reputed make (for the UPS) to be supplied after 2-3 years.
11.2	One stainless steel trolley in injection room with a provision to mount L-bench for SPECT radionuclides and placing dose calibrator in it
11.3	High resolution color laser printer for color hardcopy on paper with 5 sets of all cartridges- two no.
11.4	Low attenuation Adjustable head holder for brain scans.
11.5	Butterfly arms support for optimized cardiac SPECT studies.
11.6	A complete computerized treadmill system (GE CASE Cardiac assessment system for exercise testing with T2100 treadmill or equivalent) with non-invasive BP monitoring. 100 rolls of ECG paper with boxes.
11.7	Resuscitation trolley with defibrillator& vital signs monitor.

11.8	Automatic syringe infusion pump (with facility for 20ml, 50ml and 60ml syringes) with stand.
12	**Hot Lab & Monitoring Equipments**
12.1	Dose Calibrators (Atomlab 400 Dose Calibrator / Capintec CRC 25 R) including radioactive reference/ quality control sources and Dose calibrator shielding rings (2.25" thick lead) (FDA approved)
12.2	Two digital µSv/hr range GM based survey-cum-contamination monitors (FDA approved)
12.3	Four pocket digital pocket dosimeters.- Gamma & Beta. (FDA approved)
12.4	Lead syringe shield for 2ml and 5ml syringes- 2 each.
12.5	Shielded syringe carrier (lead shielding 3mm or more) - Two
12.6	Table top L-bench for safe dispensing of radioactive material (standard size& lead shielding).

12.7	Co-57 rectangular flood source of 10mCi strength (Date of source strength should be specified after the possible date of installation).
12.8	Fume hood (standard size with 6mm lead on all sides) with sliding lead shield with lead window for radio pharmacy room. Interlocking lead bricks(with at least 2" lead thickness) 12"h x 48"w
12.9	Interlocking painted lead bricks (for making 3 walled cave of 15"w x 17"d x 15"h or more with at least 2" lead thickness).
12.10	Three Stainless steelfoot operated lead lined waste bins with minimum 4mm lead on all sides.
12.11	Two Lead lined decay drums with minimum 6mm lead on all sides.
12.12	One decontamination kitincluding Niptong & forceps.
12.13	Injection chair(designed for injections & blood drawing, chromed steel upright for stability, with detachable armrest, adjustable arm height)- one no.
13	**Optional Software(s)** Any software(s) for quality control, image improvement, processing etc. not mentioned above

	may be offered as optional software and its price quoted separately. Price of optional items will not be considered for deciding L-1. The price would be valid for two years after the installation and handing over of the equipment.
14.	**Turnkey (**The supplier shall be required to undertake all the interior work in the SPECT/CT rooms and PET laboratory area as per the regulatory requirements) **(Copy of AERB approved Map in annexure-A)** **i. Civil work: In the civil work following works are to be undertaken.** a. The walls should be finished with acrylic / plastic emulsion as per AERB requirement. The walls in the patient's waiting area should be finished with vitrified tiles up to 6 feet level. b. The flooring in the SPECT/CT room and SPECT radio chemistry should be as per AERB regulations. Flooring of other rooms shall be of vitrified tiles of 60 x 60 cm size of reputed make like Johnson / Kajaria / Naveen. c. Demarcated SPECT/CT area shall be finished with fire resistant metallic false ceiling (Armstrong/Lindner/Dexume) (ISI/BIS) d. All the doors (with lead sheet wherever required as per AERB approved map) should be provided with necessary fittings, hydraulic type door closures (DORMA / equivalent Make) and with Mortised locks of Godrej / equivalent reputed make. e. Lead Glass window between console room and SPECT CT room (refer to S.No.:9(xiii)). Proper signage both external and internal **ii. Plumbing work has to be carried out as per requirement.** The waste pipes and accessories should be of centrifugally cast iron of ISI make and the connection of existing main hole in the public health shafts shall be done. All water pipes shall be Galvanized iron of TATA / equivalent make and filling shall be SUW / UF/ UNIK make. The grating shall be chrome plated. All CP fittings shall be of EBONY / Jaguar / ESSCO. **iii. Electrical work:** a. The firm is required to specify load requirement i.e., required for the SPECT/CT, air conditioning, room lighting and for the accessories, if any. b. Only ducting of central air conditioning to be done in all rooms of SPECT/CT facility. c. Suitable air conditioner(s) (carrier/ Hitachi/ voltas/ Daikin / Ogeneral/ Emerson/ Bluebox/

Stulz/ Hiross) to be provided in PET/CT equipment room and console room to maintain ambient temperature and humidity as per equipment(s) requirements. Extra air conditioner(s) of same strength as above to be provided as back up for SPECT/CT equipment room and console room.

d. Earthing with copper plates/ strip is to be provided for the main equipment as per requirements.
e. A distribution panel of standard make and appropriate capacity shall be provided for main equipment with complete cabling, terminal, earthing etc. and any other items to complete the work.
d. The switch gears (MCBs / ACBs / MCCBs) should be of Siemens / Hager (L&T) / ABB make. L.T. distribution board for MCBs etc. should be of Siemens / Hager (L&T)/ ABB make

f. Electrical wires (ISI/BIS approved) should be of copper of different capacity as per the international load requirement and should be of Finolex / polycab / L&T make.
g. Modular range Switches / Sockets of MK / North West / Ancor (wood) should be provided and fixed as per requirement (ISI/BIS).
h. General lights (in adequate number for providing LUX as per NBC) should be of LED mirror optic reflector type of Philips / wipro / Cromptom make. Light dimmers (down lighters) should also be fixed in the SPECT/CT equipment room. (ISI/BIS)
i. CCTV system (Honeywell/Seimens/Scheider electric/Bosch)for patient waiting areas with control in console room. Music and Public Address system(Sony/Philips/Harmon/Bosch)for calling / informing the patients in the patients in the waiting areas.

iv. Miscellaneous (The vendor should also include the following in the scope of work)

a. Ultrasonic Pest repellents to be provided and installed.
b. Furniture and fixtures for all the area should be provided as per requirement. Furniture and other items, mentioned should be of Godrej / equivalent reputed make.

v. Room Layout

A typical layout plan (with dimensions) showing the placement of all specified hardware, including SPECT /CT, consoles, data acquisition / processing workstations, any imaging table(s) and rails along with details of computer furniture, conduiting and earthing etc. would have to be provided to the hospital /appropriate authority. Renovation of room(s) would have to be done as

	mentioned above after the obtaining the approval of the plan by the hospital / appropriate authorities **vi.. Defect liabilityof turnkey works** a. The turnkey work including installation / commissioning of all the turnkey items should be completed within 3months. b. Certification to the effect that the work has been executed as per the specifications incorporated in the above document will be by the HSCC Ltd. / and Safdarjang Hospital. c. The turnkey works shall be guaranteed for a period of 5yrears from the date of commissioning against any defective material / workmanship. The warranty and AMC of the air Conditioners will form part of main equipment. Comprehensive maintenance contract for whole system for a period of FIVE years after the expiry of warranty period at S.No.:12(ii) should include CMC of turnkey also
15	**Training** The company shall organize on-site operator training post-installation by trained engineers and application specialists for acquisition and processing software application, QC etc for a period of two weeks once immediately after installation (one week) and second (one week) after 2-3months of commissioning.
16	**Maintenance & Reliability**
a. b.	On site remote service diagnostic facility. The guaranteed up-time of the system with in a normal working week, excluding any planned preventive maintenance, provided the system is on a maintenance contract should be > 95% or 346 days (24x7) per year.

c.	The performance parameters at the time of acceptance testing should be with in ±5% of the specified values in the tender. Beyond 5% and with in 10% the company will be asked to rectify. Beyond ±10% will not accepted.
d.	If the specified uptime mentioned aboveis not achieved, the warranty period will be extended by double the number of days for which guaranteed up-time period criteria was not met/ penalty may be levied as per discretion of the hospital.
17.	**Warranty & CMC**
A.	Five years comprehensive warranty for the whole system with spares including SPECT gamma camera (including crystal), multislice CT (including detectors and x-ray tube), computer systems (including monitors and CPU), UPS (including batteries), printers, accessories (with spares), calibration of radiation safety / measuring equipments (as & when required by AERB). The comprehensive warranty will include regular preventive maintenance of the equipment (SPECT/CT).
B.	The company should quote Comprehensive Maintenance Contract (CMC) price including equipment (SPECT-CT), accessories with spares, calibration of radiation safety / measuring equipments (as & when required by AERB).. The above mentioned CMC price will be taken into consideration for arriving at L-I. The company must ensure spares of the whole system for a period of 10years from the date of installation.