

**SPECIALIZED HEALTH
CARE AND MEDICAL
EDUCATION
DEPARTMENT**

**GOVERNMENT OF THE
PUNJAB**



Health Department

**PRODUCT VOCABULARY
MEDICAL STORE (PVMS)
OF
Neurology/Neurosurgery**

Volume - I , 2016

TABLE OF CONTENTS

1.	Diathermy Bipolar	1
2.	Neuro-Surgery (Image Intensifier)	2
3.	Cranial Endoscopy	3
4.	Neurosurgical Instruments set for Adult	6
5.	DBS /Baclofen Pump / Spinal Cord Stimulation	7
6.	ECT Machine	9
7.	EEG Machine	10
8.	ICP Monitor	12
9.	Facial Nerve Monitoring System	13
10.	Intra-Operative Ultrasound	15
11.	Micro Electrode Recording (MER) System	18
12.	Neuro-Surgery Operating Table with Carbon Accessories	20
13.	NCS/ EMG Machine.....	22
14.	Neuro-Navigation.....	24
15.	Operating Microscope	27
16.	Cranial Endoscopy.....	28
17.	Polysomnography	31
18.	Skull Base Endoscopy.....	33
19.	Spinal Endoscope	37
20.	Stereotactic Frame.....	41
21.	Neuro-Surgery Operating Table with Transferrable Table Top	43
22.	Ultrasonic Bone Cutter.....	46
23.	Ultrasonic Surgical Aspirator (CUSA)	47
24.	Aneurysm Clips and Appliers set.....	47
25.	Craniotomy Electric Drill System.....	51
26.	Shunt – Scope	51
27.	Radio Frequency Lesion Generator.....	54

Clinical Specialty	Neurosurgery
Generic Name	Diathermy Bipolar
Clinical Purpose	To be used in neurosurgical operations for securing hemostasis.

TECHNICAL SPECIFICATIONS

Features:

- Microprocessor based solid state electrosurgical unit for normal and under water cutting
- Separate controls for monopolar and bipolar coagulation
- RF power for monopolar cutting not below 300 watts
- Monopolar coagulation 120 watts or better
- At least 5 - 8 blend modes
- Bipolar coagulation not below 50 watts with floating output
- Spray coagulation
- Bipolar cutting power 120 W
- Earth free patient circuit
- Complete with following accessories
- Foot switch, reusable patient plate, monopolar handle with cord and surgical needles
- (Knife, ball electrode, loop electrode and needle 12
- Non-stick bipolar forceps with cord cable (Straight & bayonet & Angled shaped all
- electrosurgical unit to conform to IEC 601-1 standard
- Locally trolley with imported lockable wheels
- The system must have automatic self-test
- 220V 50Hz 1-Phase

Clinical Specialty	Neuro Surgery
Generic Name	Neuro-Surgery (Image Intensifier) With Neuro-Navigation Compatibility
Clinical Purpose	Neuro- Surgery
TECHNICAL SPECIFICATIONS	
<p>Features:</p> <ul style="list-style-type: none"> • The C-Arm Should be compatible with Neuro-Navigation System for real time image transferring during procedure. • Mobile Fluoroscopy System for Radiography and Fluoroscopy • High Frequency, power output of 15 KW or more • Image Intensifier Size: 9” • ± 270 Degree Clockwise Rotation of the C-Arm. • 90° & 45° Orbital Movement of the C for Spine Surgery • 40 to 120KV with one shot fluoroscopy facility of 7.5 mA or more • High Dose Pulse Fluoro Mode: ma range 0.2 ~ 2.0 or more • Minimum 20,000.00 Image Storage on HDD. • X-Ray Tube with rotating anode • Anode heat capacity: 3000,00 HU. • Automatic Fluoro dose control • Collimator: • TV Camera : High sensitivity, CCD camera, 1kx 1k pixels with last image hold • Display: Two (18” or more) LCD/LED/TFT monitors, medical quality • Laser pointing device • DICOM compatible • Noise reduction filter, last image hold, pulsed fluoroscopy • Edge enhancement, image inversion • Real time digital image rotation • Fluoroscopy footswitch: one cassette holder 35x35 cm • BNC composite image output for navigation system 	
<p>Accessories:</p> <ul style="list-style-type: none"> • Lead Aprons • Lead Neck Collar • Lead Goggles • Compatible UPS 	

Clinical Specialty	Neurosurgery
Generic Name	Cranial Endoscopy
Clinical Purpose	Used for Cranial Endoscopy
TECHNICAL SPECIFICATIONS	
<p>Features: (Numerical Values are approximate)</p> <ul style="list-style-type: none"> • Wide Angle Straight Forward • 6°, degree therapeutic stable version with angled eyepiece, outer diameter 6.1mm (approximate) • Instrument channel diameter 2.9mm with suction and irrigation channel 1.6mm length 18 cm (approximate) • Autoclavable fiber optic light transmission incorporated, • Operating Sheath rotatable, Outer diameter 6.8 mm, working length 13.3 cm, • Obturator • Puncture Needle diameter 1.7mm length 30cm • Grasping Forceps with teeth, single action jaws, diameter 2 mm • Working length 30 cm, • Biopsy Forceps, both jaw parts moveable size, 2mm working length 30 cm • Biopsy Forceps, double action jaws, semi flexible 1 mm, length 30 cm • Scissors, pointed single action jaws, diameter 2 mm, • Working length 30 cm, • Biopsy Forceps, single action jaws, diameter 2.7 mm length 30cm • Ventriculostomy Forceps, diameter 2 mm working length 30 cm • Ventriculostomy Forceps, diameter 1 mm flexible working length 30 cm • Coagulating Electrode, bipolar, 5 Fr. • Coagulating Electrode, unipolar, semiflexible working length 30 cm • Diameter 5 fr • Suction Satheter, flexible, for single use, diameter 2.5 mm, • working length 45 cm package of 10 • Suction and Irrigation Tube, autoclavable, with LUER lock connection • Balloon Catheter O.D. 1.0 mm, length 40 cm, volume 0.20 ml sterile, • Single use 10 pieces • Sterilization tray • Holding System with Complete set, • Bipolar HF Cord • Unipolar HF Cord • Digital FULL HD Camera module Camera Control Unit for use with Rigid endoscope, <p>Camera input:</p> <ul style="list-style-type: none"> • Maximal resolution: 1920 x 1080 pixels • Automatic Gain Control: Microprocessor controlled 	

- Connection: Module link cable to video processor module.

Features:

- Modular design: For use with a video processor module and a compatible 3-chip
- FULL HD camera head in combination with a compatible with 3-chip camera head
- Following modes to be activated without special light source or filter
- Color inversion by spectral color shift.
- Brightening of dark areas in the endoscopic image.
- Contrast enhancement.
- Compatible with special FULL HD microscopy camera head.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Progressive scan for an extremely smooth image without flickering and noise.
- Compatible camera heads. Changes in visualization modes, device control,
- digital zoom, brightness, video capture, still image capture and direct print
- Orders, picture-in-picture mode, image direction, white balance and setup setting
- Can be performed in sterile area via camera head buttons

Digital 3-chip Camera Head.

- programmable
- Image sensor: 3 x 1/3" CCD Chip
- Pixels: 1920 (H) x 1080 (V) pixels per chip
- CCD chip supports; 16:9 input format
- Minimum light sensitivity: 1.17 Lux

Features:

- 3-chip technology.
- Image acquisition in format 16:9, with 1920 x 1080 pixels and progressive scan.
- Freely programmable camera head buttons.
- Compatible with systems with integrated, innovative visualization technology for surgery by shifting the color spectrum and via homogeneous illumination and contrast enhancement
- Suitable light sources are controllable by camera head buttons.
- Suitable insufflators are controllable by camera head buttons.
- Suitable camera control units can store HD images and HD video clips to
- USB mass storage devices in conjunction with camera head.
- Suitable sterilization tray is available to safely store the camera head during sterilization

Digital FULL HD Videoprocessor Module with integrated documentation:

- function for image and video capturing for use with 3-chip-FULL HD
- camera heads,

Technical data:

- Connections: 2 x DVI-D output, 1 x 3G-SDI output, 3 x camera input,
- Max. resolution: 1920 x 1080 pixels

- Power supply: 100-120 VAC, 50/60HZ, 200 - 240 VAC, 50/60 Hz
- Optional: USB to ACC adapter for decide control

Features:

- Modular design: For use in combination with at least one camera module.
- Parallel live display of visualization modes besides white light mode (picture-in-picture).
- Up to three different camera modules can be connected to the FULL HD video processor module.
- Integrated picture-in-picture mode of two different camera modules in five different display sizes available.
- Primary and secondary signal source change in picture-in-picture mode can be performed easily via camera head button
- Integrated communication bus for device control and information display of connected devices.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Still image capturing in FULL HD quality.
- Still image capturing can be adjusted by 4 different, time wise variable image
- Freeze selection including picture-in-picture mode.
- Video capturing in FULL HD quality.
- Medical USB printer compatible (plug& play).
- Data capturing functions can be released.
- Automatic adjustment of light intensity of light source via communication bus.
- Control of complete camera system can be realized from camera head from sterile area.
- Grid and pointer can be displayed for improved orientation and communication during surgery.
- Grid and pointer can be displayed individually and together.

27" FULL HD Monitor, With LED Back Light For Low Energy:

- Picture-in-Picture (Pip) And Picture-by-Picture With Medical Grade from manufacturer
- Video inputs: DVI,VGA,S-video, Composite / FBAS
- Video outputs: DVI, S- Video, Composite / FABS

Light Source LED :

- With integrated , high-performance LED and one light outlet,
- Operating hours 30,000
- Power supply 110 - 240 VAC, 50/60 Hz

Optional:

USB foot switch

Clinical Specialty	Neurosurgery
Generic Name	Neurosurgical Instruments set for Adult
Clinical Purpose	To be used in all kind of Neurosurgical procedures.
TECHNICAL SPECIFICATIONS	
<ol style="list-style-type: none"> 1- Craniotomy Surgery Instruments set: 2- Laminectomy surgery instruments set: 3- Transphenoidal instruments set: 4- Basi Peripheral Nerves Anastomosis set: 5- Micro Dissection instruments sets: 6- Carotid Artery Ligation instruments sets: 7- Brain Retractor system: 8- Micro surgery instruments sets: 9- Skull Traction Instruments Set: 10- Chordotomy and Rhizotomy instruments sets: 11- Spine Retractor system: <p>Details to be defined by the End user / Procuring agency As per their actual technical and Clinical Requirement.</p>	
<p>Note: List and quality / quantity of surgical instruments of each type of set will be defined by the End user. The End user shall ensure that at least three to four references names of each instrument is defined for healthy competition.</p>	

Clinical Specialty	Neurosurgery
Generic Name	DBS /Baclofen Pump / Spinal Cord Stimulation
Clinical Purpose	To be used in Neurosurgery
TECHNICAL SPECIFICATIONS	
<p><u>Intrathecal Drug System including (Baclofen Pump):</u></p> <ul style="list-style-type: none"> • Programmable Pump - 20ml/40ml reservoir • InDura 2P Intrathecal Catheter • Catheter Passer - 60cm <p><u>Spinal Cord Stimulation System (Implant):</u></p> <ul style="list-style-type: none"> • Wireless communication • Recharge-free generator • MR Conditional within approved parameters • Low-profile implant for patient comfort • Improvement in pain relief in tonic responders • For reduction paresthesia • To recapture pain relief in patients who become unresponsive to tonic SCS over time <p><u>Deep Brain Stimulation System (Implant):</u></p> <p><u>1. Implantable pulse Generator (IPG):</u></p> <ul style="list-style-type: none"> • Implantable Pulse Generator (IPG) for Deep brain stimulation • Volume should be 30 -39cc • Adjustable frequency • Efficient and secure communication with the system • Continuous and cycle stimulation modes • The IPG should be compatible with other manufacturer 'Existing extensions • Patient Amp control • Current Delivery should be Constant current • Number of Channels should be 8 or better • Amplitude setting should be 0 -12mA or better • Frequency setting should be 2 – 350HZ or better • Upgradable software • Different frequencies on both electrodes <p><u>2. Leads and Extensions:</u></p> <p>4 electrodes for different stimulation site sector</p> <p>Supplied with complete package for single DBS case:</p>	

- Implantable Pulse Generator
- Burr Hole Cover System
- DBS lead Kit
- DBS Extension wire kit
- Cable /lead kit for Impedance and stimulation check for trial purposes
- Micro Macro Electrode
- Guide tube for Micro drive

3. Clinician programmer:

- Low battery indication
- Bluetooth communications with robust technology
- Touch screen
- Data Base for patient record print/ email

Optional:

Patient Programmer:

- large color intuitive interface

Clinical Specialty	Psychiatry
Generic Name	ECT Machine
Clinical Purpose	To be used in Psychiatry problem
TECHNICAL SPECIFICATIONS	
<ul style="list-style-type: none"> • Dosage Range: • 50 to 1000 Mill coulombs • Split Pulse Technology • Delivery Dosage Displayed • Static and Dynamic Impedance • Single Dial Dosage Control • Auto Crescendo: • Delivers an advanced 0.25 seconds Auto Crescendo on set to the treatment to gently ease the patient into ECT • Patient Impedance Display • Cerebral Stimulation (CS) Mode • Contract Current • EEG Monitor Link/Port • Including: • Two Hand Head-Piece/Head Set • C.S. Lead with 100 Disposable Electrodes for C.S. Treatment • 100 Disposable Mouth Gags • Removable Stand • ECT Output Tester 	

Clinical Specialty	Neurology
Generic Name	EEG Machine
Clinical Purpose	Used to detect various kind of Epilepsies
TECHNICAL SPECIFICATIONS	
<p><u>EEG MACHINE:</u></p> <ul style="list-style-type: none"> • Pre configured EEG machine with accessories kit. • PC based system with Windows operating system and inbuilt patient centric database. • Capable to acquire higher number of EEG channels for advanced EEG applications. • Predefined and user configurable montages. • Remote review and reporting capability of stored EEG exams via LAN. • Archival of recorded exams/ reports with EEG reviewer to CD/DVD. • Printing of reports on heavy duty HP laser printer. • Ethernet LAN connectivity. <p><u>EEG Amplifier:</u></p> <ul style="list-style-type: none"> • Number of Channels: 16/ 32/64(procuring agency to specify). • Input impedance: 100 MΩ • Internal noise level: Less than 1.5 μVp-p • CMRR: 100 dB or greater • Low-cut filter / notch filter • A/D conversion: • Sampling frequency: 100 - 2000Hz • AC interference filter: 50 or 60 Hz • Sensitivity: EEG INPUT: • Ethernet/ USB connectivity • Impedance check capability • Patient event switch interface. <p><u>Photic Stimulator:</u></p> <ul style="list-style-type: none"> • LED Photic Stimulator with adjustable arm. • Adjustable stimulation frequency (1-30HZ) in 1Hz steps <p><u>Standard Accessories:</u></p> <ul style="list-style-type: none"> • Flash lamp assembly • Collodion EEG electrode • Earlobe electrode • ECG lead wire • Clip on limb electrode • EEG Electrodes (10mm gold plated) 	

- Conductive Paste
- Abrasive cream
- Heavy Duty HP Laser Printer
- 1KVA or Compatible online UPS
- Original electrically isolated mobile cart
- 21 inches LCD display

OPTIONAL;

01. POLYSOMNOGRAPHY:

- ASSM Complaint automatic and manual sleep stage scoring.
- Simultaneous acquisition and review of sleep studies.
- Presentation of EEG, EMG, EOG, SpO₂, Snore, CO₂, PR Flow, BP etc.
- Input of PAP and supplemental O₂ levels.
- Time-base display for complete night recording.
- **02.** ASSM Complaint Advanced sleep accessory kit

NOTE:

Variation in specification according to the selected Numbers of the channels (as per manufacturer features) will be acceptable.

Clinical Specialty	Neurosurgery
Generic Name	ICP Monitor
Clinical Purpose	To be used in cranial problem to access intra cranial pressure

TECHNICAL SPECIFICATIONS

ICP Monitor:

- 3 Steps Operation ICP (Mean, Systolic and Diastolic), ICT and CPP
- Portable Unit, built in handle and IV pole Clamp
- Automatic in vivo recalibration, measuring range 10 to 125 mmHg
- Continuous monitoring of Cranial pressure and monitoring should be displayed on Monitor
- Screen size 6 inches or more

Accessories:

- Bolt Catheters
- Parenchymal Catheters
- Ventricular Catheters
- USB port (optional)

APPROVED PVMS

Clinical Specialty	Neurosurgery
Generic Name	Facial Nerve Monitoring System
Clinical Purpose	To be used in operation for Nerves
TECHNICAL SPECIFICATIONS	
<ul style="list-style-type: none"> • 4-8 Channel EMG. • LCD TFT Display 5-6 inch. • Independent Stimulator. • Clear and Loud EMG Signal Sound. • Glare free and clearly visible EMG Signals. • Disposable EMG Monitoring Electrodes and stimulator probes for minimum 25 surgeries. <p>For:</p> <ul style="list-style-type: none"> • Skull Base Surgeries. • Facial Nerve Surgery. • Minimal Invasive Surgeries. • Specialty Procedures. <p>Features:</p> <ul style="list-style-type: none"> • Audio / Visual EMG data • Touch-screen controls • Surgeon / Procedure Settings • Menu driven • Contextual trouble shooting • IGS Integration • Current Delivered Tone (CDT) • “Stimulus” Voice • Stimulus Value Voice • Event Threshold • Auto Event Threshold • Event Capture • “15S” & “60mS” screens • 200, 500, 2000uV scale • Print • Video Output • USB Output • Freeze • Measurement cursor • Largest/Last • Electrode Check 	

- Adjustable Muting
- Muting Indicator
- Volume Control
- Constant Current
- Constant Voltage
- Stim- Rate 1 and 4 per sec
- Stim- Dur 100 and 250 μ V
- Current Adjustable down to 0.01mA

APPROVED PVMS

Clinical Specialty	Neuro Surgery
Generic Name	Intra-Operative Ultrasound
Clinical Purpose	Neuro - Surgery

TECHNICAL SPECIFICATIONS

- High Resolution Digital Imaging of Cranial Spinal Structures including cervical spine with specialized transducers for neurosurgery
- Real Time Imaging
- Real time guidance for Shunt placement and burr hole biopsy etc.
- Instant tumor margin delineation
- Blood flow visualization
- Localization of relative anatomy and nuero navigation integration.
- Featuring Quantum Technology™,/equivalent or better
- An ideal solution for surgery, general imaging, high-end urology, and other clinical needs
- High resolution 19" LCD monitor
- Sensitive Color Doppler with superb spatial resolution and sensitivity
- Advanced Imaging Technologies
- Intuitive and Mobile
- Four hours plug-free imaging
- Advanced puncture guides
- Detailed images of the brain, spinal cord and neurovascular structures.
- **Real-time image guidance and convenient, sterile needle guides.**

APPLICATIONS:

- Neurosurgery

SPECIFICATION:

- | | |
|-----------------------------|--|
| • Imaging Modes: | B, M, Color Doppler, PW Doppler, Tissue Harmonic |
| • Display: | 19" LCD Flat screen |
| • Dimensions System height: | 1350-1602 mm / 53-63 in |
| • Console: | swivels and tilts |

OPERATING MODES:

- B-Mode
- Dual B-Mode
- M-Mode
- M-Mode and 2-D
- CFM Color Doppler
- Tissue Harmonic imaging
- Power Doppler
- Duplex

- PW Doppler
- Triplex
- Directional Power Doppler
- Pulse Doppler steering
- 3D Imaging (Optional)
- Spectral Doppler

2D IMAGING MODES:

- Max Depth (cm): 28 cm (Probe Dependent)
- Multi-frequency: yes (6)
- Gain: 0-100%
- Gray scale Levels: 256
- TGC: continuous touch screen
- Frame Rate: 600 Hz
- Focal Zones: 19
- Dynamic Range Total: 170 dB or better
- Reverse Left/ Right:
- Reverse Top/ Bottom:
- Image Magnification / Zoom:

COLOR IMAGING MODES:

- Doppler Steer Angels: 40° ±20°
- Duplex: Yes
- Triplex: Yes

M MODES

- Sweep Speed: 2 to 14sec/screen (1-9cm/sec.)

CINE:

- Cine Frame: 300
- Cine Doppler: 20min
- Loop Function

BIOPSY LINE (Built-In):

System Software & Hardware (upgradable for future options) Measurements:

- Digital Calipers
- Distance
- Area: ellipse/points/freehand
- Angle A/R Reduction Time
- Slope

- Heart Rate
- Velocity
- Acceleration
- Spectrum trace
- RI/ PI

CONNECTIVITY AND PERIPHERALS:

- High Res Display, DVD/ CD Recorder, USB Port, Ethernet Port
- 3 x Active Transducer Port (2 for Array Transducer / 1 for Single Element Transducer)
- Built-In Hard Disk Drive (500GB)
- Data Management and review facility with thumb nail, DICOM (Compatibility Optional)

Accessories:

- 1 x USB Foot Switch
- 1 X DVD/ CD Recorder
- 1 x Mobil Keyboard Dock with backpack and battery
- Multi Frequency Neurosurgery Transducer
- Frequency Range 10 - 3.8 MHz
- Transducer Categories Intra-operative, Neonatal, Neurosurgery, Pediatric
- Contact Surface 29 x 10 mm / 1.1 x 4 in
- Focal Range 5-68 mm / .2-2.6

Optional:

- Multi Frequency Neurosurgery Transducer

Clinical Specialty	Neurosurgery
Generic Name	Micro Electrode Recording (MER) System
Clinical Purpose	Used in Deep Brain Stimulation Procedure
TECHNICAL SPECIFICATIONS	
<p><u>Micro Electrode Recording (MER) system:</u></p> <ul style="list-style-type: none"> • CPU: At least Intel Core 2 Duo 2.8GHz • Memory: At least 4GB RAM • Hard Disc: 2 Hard discs each with at least 320GB, one for patient data, one for operating system • Graphic resolution: At least 1920x1080 • Interfaces: At least 14x USB at least 4 of them accessible from the front and at least 6 by separate USB • interface cards: 2x LAN, Audio In and Out, DVI, VGA, • 2x PS2 (mouse, keyboard), 1x RS232 • Video In – Capture cards (Chinch, S-Video) DVD R/W • Operating system Windows XP or Windows 7 • Network possibility via TCP/IP interface <p><u>System Component Amplifier:</u></p> <ul style="list-style-type: none"> • At least 5 channels for micro recordings, 5 channels for macro local field potential and up to 16 channels of any differential measurements. • Amplifier can be mounted directly on the operating table, so that the electrodes can be connected directly on the active amplifier and no extra adaptors are required. • Display range 0.005μV/DIV – 10V/DIV • Amplifier bandwidth At least 0.5Hz – 5kHz • Amplifier input impedance >100MΩ • Maximum input noise level <3.4μVpp • Resolution At least 16bit • Sampling rate At least 20kHz/channel • Blanking time programmable 1ms – 4ms • Impedance measurement Impedance measurement simultaneously on all input channels possible. • Trigger Input 3x TTL • Integrated / Non integrated module system. <p><u>System Component Stimulator:</u></p> <ul style="list-style-type: none"> • Stimulator Constant Current Stimulator • 5 Channel Direct Nerve Stimulator • Stimulation current 0.01mA to at least 6mA (max. 100V) • Stimulation frequency 2Hz – 1kHz • Stimulation mode Macro contact 	

- Polarity monophasic negative
- Pulse duration 60µs - 2000µs
- Current flow control display Continuous testing and displaying, if the desired current is delivered.
- Integrated / Non integrated module system.

Accessories:

- Connecting cable for electrodes is reusable and can connect between 1 and 5 channels. One connector for each channel.
- No changes for switching between recording and stimulation necessary.
- Torque meter for tightening fixations posts and pins are available.
- Biopsy needles and probes available as reusable and single use items.
- Supports additional tools for Brachytherapy.
- Complete range of accessories for stimulation and recording for nearly all applications.
- Individual adapter boxes for stimulation and recording with the possibility of flexible attachment at the bedside.
- Cable length at least 5 meter.
- Manual stimulation matrix for interconnection of at least 8 electrode contacts for cortical stimulation and at least 6 electrodes for Trans cranial electrical stimulation to a high-current stimulation channel.
- Connecting cable for electrodes is reusable and can connect between 1 and 5 channels. One connector for each channel.
- No changes for switching between recording and stimulation necessary.
- MER Software for windows-systems, MER Software Upgrade for windows-system
- Brain Stimulation software for windows-system
- Head box MER 5 channel amplifier MER, inclusive 5 channel simulator,
- inclusive position sensor USB, trigger in/out
- Connection cable U5S-MER for voltage supply, 2x USB connectors
- Recording cable 5 channels for Micro Macro electrodes
- Recording cable 5 channels for different Electrodes
- Microdrive manual with position sensor hand operated, range 40 mm, resolution 0.05 mm, autoclavable.
- Micro Gun for Microdrive bore hole 1.1 mm applicable for electrodes with depth marks
- Electrode holder for MicroDrive bore hole 1.9 mm applicable for electrodes with depth stop
- Electrode holder for DBS-electrode Screw set for MicroDrive 2 screws for MicroGun, 2 screws for electrode holder, screw for electrode holder slide Screw set for electrode holder applicable
- Ruler for DBS electrode Position.
- Brush for cleaning the microgun AD = 3 mm
- Hex wrench for MicroDrive Set screw
- Fixing screw long isolated tip, Fixing screw short isolated tip, Fixing screw for MicroGun, in MSV base plate
- Fixing screw short Fixing screw long Screw for electrode holder
- MicroMacro electrode 0,6 mm with depth stop

- MicroMacro electrode 0.8 mm with depth stop
- MicroMove electrode with depth mark MicroMove electrode with depth stop
- Macro electrode 0.8 mm with depth stop
- Guide Tubes for MicroMacro electrodes
- Guide Tubes for MicroMove electrodes
- Guide Tubes for MicroMove electrodes
- Guide Tubes for DBS electrode

Optional (If any):

- Displaying the monitor image in real time on an external PC or iPad via LAN/WLAN, using special software and galvanic
- Integration of measurement data of monitor
- Interface to operation microscope with the possibility for the surgeon to follow the monitoring in the eyepiece and control the display by himself.
- Possibility to record the whole screen inclusive operation video and audio signal with help of a VGA Frame Grabber and storage as avi-file to network.
- LFP Module for MER Recording of 5 Macro LFP channels
- Connection cable LFP MER to LFP module
- Connection cable LFP to LFP module
- Recording cable LFP module 5 channels for Micro Macro electrode

Clinical Specialty	Neuro Surgery
Generic Name	Neuro-Surgery Operating Table with Carbon Accessories
Clinical Purpose	Neuro- Surgery

TECHNICAL SPECIFICATIONS

NEUROSURGRY OPERATING TABLE:

- Table Top (Radiolucent) with antistatic mattress, Six sections including split sections and equipped with X-ray cassette holder. Sturdy table for minimum patient weight of 450kg or more in normal position.

Parameters:

- Base of the table stainless steel cover, 4 swivel castors
- 5th Motorized wheel for the movement of the table
- Mechanical/Electrical Locking Mechanism of the Table.
- Table top length 2100mm - 2200mm (approximate)
- Table top width 540mm - 580mm (approximate)
- Override panel for Table movements and locking
- X-ray cassette holder
- Oil Free Technology.

TABLE TOP IS ARRANGED AS:

- Head plate
- Back plate (Upper and Lower Back Section)
- Seat plate
- Two part Spreader leg section (one section).

MOVEMENT (REMOTE CONTROLLED):

- Position of the table should be operated Electro-Hydraulically / Electro-Mechanical (Oil Free)
- Up and down movement height range: 610-1100mm
- Trendelenburg/ Reverse Trendelenburg $\pm 35^{\circ}$
- lateral tilt 25°
- Back plate: up 80° /down 40°
- Leg plate $\pm 90^{\circ}$ - 70°
- Zero position: automatic
- Flex/ Reflex: 225° / 100°
- Operating Voltage: 220V, 50Hz with battery backup and manual override in case of electric supply failure.

Accessories:

- Crossbar attachment
- Adapter for head position
- Basic unit neuro
- Skull clamp adapter
- Multipurpose skull clamp
- Skull pin holders
- Head support
- Skull pins for adults & Children

HORSESHOE-SHAPED, HEAD REST:

- Head rest, horseshoe-shaped
- Adapter for head positioning
- Central holder for head rest system
- Connection holder with joint short
- Cross joint
- Head rest horseshoe-shaped two parts

SPINE SURGERY ACCESSORIES:

Spinal cord positioning device:

- To attach at foot end
- used to position Patient knees during spinal column surgeries
- with crank for height Adjustment
- motorized leg section joints drive up and down movements

- Radiolucent via C-arm; pad electrically conductive
- soft and detachable
- Velcro-fastened pad
- stainless steel load-bearing structure Height adjustment 300 mm
- Trolley for positioning and transport of spinal cord positioning devices
- during column or shuttle use;
- stainless steel
- Iliac Roll with Lateral Support Adjustable to table top width
- lateral supports can be adjusted to body width
- pads integrally foamed, electrically conductive and soft
- stainless steel frame Height adjustment: 400 mm
- Cushion To support the patient's thorax
- foam pad
- Spine Bridge Wilson Frame
- Adjustable flexion range; with crank for height adjustment; unrestricted radiolucency
- Pad for operation at in vertebral disc large Foam pad is electrically conductive
- Pad for Prone Positioning Device

Optional:

RADIOLUCENT ACCESSORIES FOR NEUROSURGERY

- Radiolucent Swivel adapter
- Radiolucent Retainer
- Radiolucent Coupling piece
- Radiolucent Adapter 3-joint narrow
- Radiolucent Head rest system

Clinical Specialty	Neurology
Generic Name	NCS/ EMG Machine
Clinical Purpose	To be used for detection of nerve and muscles abnormality

TECHNICAL SPECIFICATIONS

NCS/ EMG machine:

- Pre-configured machine with accessories kit.
- PC based system with Windows operating system and inbuilt patient centric database.
- Latest EMG/NCS acquisition and review software.
- Predefined and user configurable test protocols.
- Continues EMG recording up to 10 min.
- Storage to EMG with full acquisition resolution.
- Archival recorded exams/reports CD/DVD.
- Printing of reports on heavy duty HP laser printer
- Ether LAN connectivity.

- Upgradable to Intra Operative Monitoring System.

NERVE CONDUCTION STUDY:

- Motor Nerve Conduction Study
- Sensory Nerve Conduction Study
- Repetitive Stimulation
- F-wave
- H Reflex
- Blink Reflex

SOMATOSENSORY EVOKED POTENTIAL:

- SEP (Somatosensory Evoked Potential)
- SSEP (Short Latency SEP)
- ECG-SSEP (ECG-triggered SSEP)
- ESCP (Evoked Spinal Cord Potential)

AUDITORY EVOKED POTENTIALS:

- ABR (Auditory Brainstem Response)
- MLR (Middle Latency Response)
- SVR (Slow Vertex Response)
- EcochG (Electrocochleogram)

VISUAL EVOKED POTENTIALS:

- VEP (Visual Evoked Potentials) with pattern, flash, goggle and external stimulator
- ERG (Electroretinogram)
- EOG (Electrooculogram)

EMG/NCS Amplifier:

- No. of channels: 2/4/6/12 (procuring agency to specify).
- Input impedance: 1000 MOhm (Common Mode).
- CMRR:>106db (Balanced Mode).
- CMRR:>112db (Isolation Mode).
- Noise level: 0.6 uV RMS or better
- Low-cut filter
- Skin electrode contact impedance check
- A/D converter.

Constant Current Electrical Stimulator:

- Stim Current, 0- 100mA
- Stim Duration, 50us – 1ms
- Stim types, single, pair, train

Standard Accessories:

- Concentric needles electrode 20mm.
- Concentric needles electrode 50mm.
- Bi-polar needle electrode.
- Extension cable for concentric needle electrode.
- Extension cable for bi-polar needle electrode.
- NCS extension cable.
- NCS disposable electrode.
- Ground electrode.
- Finger electrode.
- Surface stimulation electrode.
- Conductive paste.
- Abrasive cream.
- Heavy Duty HP Laser Printer
- 1KVA or Compatible Online UPS
- Original electrically isolated mobile cart with Isolation Transformer and arm
- 21 inch Color LCD.

NOTE:

Variation in specification according to the selected Numbers of the channels (as per manufacturer features) will be acceptable.

Clinical Specialty	Neuro Navigation
Generic Name	Neuro-Navigation
Clinical Purpose	Used in cranial and spinal lesion accurate localization per operatively.

TECHNICAL SPECIFICATIONS

Latest &Advanced Neuro Navigation System along with complete Accessories or equivalent

- Two Carts
- on Caster
- Lockable system.
- To localize and operate on small lesion of brain with pin pointed accuracy.
- Vital role in placement of brain implants especially deep brain stimulation electrodes and implant
- To improves safety of the operations and reduces unnecessary bleeding.
- System must navigate with precise accuracy through Electromagnetic/Optical Navigation.

Surgeon Cart:

- Surgeon Monitor touch screen Resolution 1920 x 1200 dpi, 60Hz.

Staff Cart:

- Navigation visualization screen and camera with extended camera volume & equipped with built-in Laser Pointer for precise & hassle free centering of the camera on the field of surgery.
- Interface for transfer of exams via CD/USB

- Bug Free Operating system
- Computer 8 GB Ram
- 1 TB HD
- High Graphic Processor.
- DICOM query/retrieve compatible
- Staff Monitor Display: Resolution = 1440 x 900 dpi, 60 Hz

Application Software's:

Cranial Software:

- Planning & Navigation in a single Module & in Main Navigation Station.
- Software should support Planning
- Registration in prone or any required position of the patient
- Navigation, 3D and volumetric visualization engine (volume rendering) to check and avoid vessels and probable bleeding points during surgery.
- Procedure guided software (next/back buttons) with voice prompt, instruction window and task visualization.

System should be able to perform following procedures:

- Frameless Brain Biopsy
- Pin Less Procedures
- Tumor resection
- Shunt Placement
- Navigated Neuro Endoscopy
- Adult & Pediatric

Spine Software:

- Spine software to simplify and standardize the entire planning and navigation process. Views for each type of CT or Fluoro-Based procedures (Cervical, Thoracic, and Lumber)
- Seamless interface to a variety of C-arm Images from the C-arm should automatically be imported and be calibrated for navigation use. Real time tool positions overlaid onto previously acquired images.
- Compatible with Intra-operative O-Arm / C-arms.
- Capability to integrate with IONM

Image Merging Software for both Cranial & Spine:

- To merge CT, MRI (T1, T2, flare) and PET
- To merge & visualize multiple data sets on Navigation Station.
- Auto Merge.

DICOM Query / Retrieve Software:

To search, view and download patient exams directly from the hospital network to the Navigation System:

- Query of PACS systems for patient data
- Push and pull patient data from PACS or single scanner location, from the main Navigation Station.
- Conform to industry accepted DICOM standards
- DICOM receive from any DICOM storage class provider
- Patient data viewing capability within the navigation application

Accessories:

Cranial Instruments:

- Articulated Arm
- Passive Planar Blunt with minimum three ports of spheres
- MRI/CT Markers
- Passive Cranial Frame
- Sterile Spheres
- Cranial Navigation Tray
- Equipment Ref. Sheet
- Skull Model with pre-loaded exam

Spine Instruments:

- Compatible Interface for C-Arm / An interface for C-Arm 9" or 12".
- Open Spine Clamp
- Open Spine Clamp driver
- Thoracic Clamp
- Reference Frame
- Passive Planer Ball Tip with minimum three ports of spheres
- Awl, Probe and Tap with trackers.
- Spine model with holder & pre-loaded exam

Universal Instrument Adapter System:

- Small, Medium and Large Passive Trackers
- Small, Medium and Large Mounts
- Mount Driver
- Sterilization Tray

Cranial Biopsy Instrument Kit:

- Articulated Arm
- Mount, Double Star Adapter Mayfield
- Biopsy Guide
- Probe
- All Necessary Accessories

IGS Disposables: (procuring agency to specify).

- Disposable Reflective Markers / Spheres= 500pcs
- Registration Markers (compatible with CT / MRI) = 200pcs
- Biopsy Needles = 20

Electromagnetic Tracking System for Pain Less Cranial Navigation with All Necessary Accessories:

- Procedure Dedicated electromagnetic kits for tumor resection disposable or re useable 10 pcs. (procuring agency to specify)
- Procedure Dedicated electromagnetic Kits shunt replacements = 10 pcs. (procuring agency to specify)

OPTIONAL

Deep Brain Stimulation Software:

- Stereotactic Planning Software with Functional Brain Atlas.
- Advanced 3-D modelling capabilities and display of three orthogonal views
- Multiple surgical plans with automatic calculation of frame settings
- Alternatives for anatomical structures localization such as predefined and customizable formulas, interactive Schaltenbr and-Wahren Atlas and Talairach Grid.
- Image reformatting relative to AC-PC line, so that functional targets are displayed relative to AC-PC
- Enhanced target localization by audiovisual integration of physiological signal and simultaneous display of recording position
- Automatic frame detection and registration of stereotactic frames
- Support of all commonly used stereotactic frames (Leksell or Fischer Stereotactic Frames)
- Support Frameless DBS procedures, Depth Electrode and other stereotactic frame-based procedures
- Preoperative verification of the surgical plan by virtual “probe’s eye view”

Microscope Integration:

- Display of the microscope focal point on anatomical images
- Display of ROI and Navigation symbols in oculars

Clinical Specialty	Neurosurgery
Generic Name	Operating Microscope
Clinical Purpose	Used in all kind of micro neurosurgical procedures with good illumination and magnification
TECHNICAL SPECIFICATIONS	
<ul style="list-style-type: none"> • Microscope in swivable and tiltable suspension • Mobile floor stand with lock in provision equipped with electromagnetic brake system • Rotatable joint arms 	

- Overhead clearance
- Effortless positioning in all directions via gross focus handles for all movements for neurosurgery with hand controls for all functions
- Motorized XY adjustment
- Motorized fine focusing and continuously variable internal focusing system from 225 to 400mm via front lens
- Motorized zoom system 1:6
- Fiber optic illumination
- Tiltable eye piece head 0 to 180° with IPD adjustment
- Two wide angle oculars 10 / 12.5X with dioptic fixation
- Xenon light source 175 W with integrated back-up xenon lamp
- Foot switch with joystick, 12 functions, waterproof
- One set of sterilizable caps
- Dust covers
- Operate able on 220V AC, 50Hz
- Optional:
- Beam splitter for documentation
- Stereoscopic observer head with 3 axis inclination and image erection, straight eyepiece head, two oculars 10X / 12.5X with dioptic fixation for spectacle wears and one set of sterilizable caps
- Video camera attachment with original 1-Chip CCD high resolution color video camera (PAL) with 21" color TV DVD recorder

Clinical Specialty	Neuro Endoscopy
Generic Name	Cranial Endoscopy
Clinical Purpose	A rigid endoscope used in pediatric age groups for endoscopic procedures

TECHNICAL SPECIFICATIONS

Neuro-Endoscope, with detachable handle, for freehand operating maneuvers,

Consisting of:

- Operating sheath, graduated, size 2.6 mm x 4.0 mm, working length 15cm, with three working channels for irrigation/suction and for instruments size 1.3 mm, for use with telescope
- Handle, for operating sheath
- Mandrin for operating sheath
- Forward Oblique- Telescope 0°, enlarged view, diameter 2 mm, length 26 cm, autoclavable, fiber optic light transmission.
- Telescope 12°, enlarged view, diameter 2 mm, length 26 cm, autoclavable, fiber optic light, transmission incorporated.
- Scissors, single-action jaws, semi-rigid, diameter 1.3 mm, working length 30 cm
- Biopsy Forceps, double action jaws, diameter 1.3 mm, working length 30 cm
- Grasping Forceps, double-action jaws, semi-rigid, diameter 1.3 mm, working length 30 cm

- Unipolar Coagulating Electrode, semi-rigid, diameter 1.3 mm, working length 30 cm
- Bipolar Coagulation Electrode, diameter 1.3 mm, working length 30 cm
- Bipolar High Frequency Cord, Length 300 cm,
- Unipolar High Frequency Cord, with 5 mm plug, length 300 cm,
- Balloon Catheter, O.D. 0.7 mm, length 40 cm, sterile, single use, 10 pieces

OPTIONAL:

Camera input:

- Maximal resolution: 1920 x 1080 pixels
- Automatic Gain Control: Microprocessor controlled
- Connection: Module link cable to video processor module.

Features:

- Modular design: For use with a video processor module and a compatible 3-chip
- FULL HD camera head in combination with a compatible with 3-chip camera head
- Following modes to be activated without special light source or filter
- Color inversion by spectral color shift.
- Brightening of dark areas in the endoscopic image.
- Contrast enhancement.
- Compatible with special FULL HD microscopy camera head.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Progressive scan for an extremely smooth image without flickering and noise.
- Compatible camera heads. Changes in visualization modes, device control,
- digital zoom, brightness, video capture, still image capture and direct print
- orders, picture-in-picture mode, image direction, white balance and setup setting
- can be performed in sterile area via camera head buttons

Digital 3-chip Camera Head.

- programmable
- Image sensor: 3x 1/3" CCD Chip
- Pixels: 1920 (H) x 1080 (V) pixels per chip
- CCD chip supports; 16:9 input format
- Minimum light sensitivity: 1.17 Lux

Features:

- 3-chip technology.
- Image acquisition in format 16:9, with 1920 x 1080 pixels and progressive scan.
- Freely programmable camera head buttons.

- Compatible with systems with integrated, innovative visualization technology for surgery by shifting the color spectrum and via homogeneous illumination and contrast enhancement
- Suitable light sources are controllable by camera head buttons.
- Suitable insufflators are controllable by camera head buttons.
- Suitable camera control units can store HD images and HD video clips to
- USB mass storage devices in conjunction with camera head.
- Suitable sterilization tray is available to safely store the camera head during sterilization

Digital FULL HD Videoprocessor Module with integrated documentation:

- function for image and video capturing for use with 3-chip-FULL HD
- camera heads,

Technical data:

- Connections: 2 x DVI-D output, 1 x 3G-SDI output, 3 x camera input,
- Max. resolution: 1920 x 1080 pixels
- Power supply: 100-120 VAC, 50/60HZ, 200 - 240 VAC, 50/60 Hz
- Optional: USB to ACC adapter for decide control

Features:

- Modular design: For use in combination with at least one camera module.
- Parallel live display of visualization modes besides white light mode (picture-in-picture).
- Up to three different camera modules can be connected to the FULL HD video processor module.
- Integrated picture-in-picture mode of two different camera modules in five different display sizes available.
- Primary and secondary signal source change in picture-in-picture mode can be performed easily via camera head button
- Integrated communication bus for device control and information display of connected devices.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Still image capturing in FULL HD quality.
- Still image capturing can be adjusted by 4 different, time wise variable image
- Freeze selection including picture-in-picture mode.
- Video capturing in FULL HD quality.
- Medical USB printer compatible (plug& play).
- Data capturing functions can be released.
- Automatic adjustment of light intensity of light source via communication bus.

- Control of complete camera system can be realized from camera head from sterile area.
- Grid and pointer can be displayed for improved orientation and communication during surgery.
- Grid and pointer can be displayed individually and together.

27" FULL HD Monitor, With LED Back Light For Low Energy:

- Picture-in-Picture (Pip) And Picture-by-Picture With Medical Grade from manufacturer
- Video inputs: DVI,VGA,S-video, Composite / FBAS
- Video outputs: DVI, S- Video, Composite / FABS

Light Source LED :

- With integrated , high-performance LED and one light outlet,
- Operating hours 30,000
- Power supply 110 - 240 VAC, 50/60 Hz

Clinical Specialty	Polysomnography
Generic Name	Polysomnography
Clinical Purpose	A description of the essential clinical or other objective/s associated with the device's utilization, e.g. anesthesia units (allow the anesthetist to) dispense a mixture of gases and vapors and vary the proportions thereof to control a patient's level of consciousness and/or analgesia during surgical procedures.

TECHNICAL SPECIFICATIONS

ARCHITECTURE.

- PC based system architecture.
- Microsoft Window operating system.
- Microsoft SQL sever distributed patient centric database.
- Distributed or server base date storage
- Pre configured PC (HP/ IBM, i7, 1TB HD, 24"LCD) with licensed operating system software.
- HIPPA compliance.
- Integrated high resolution (HD) MPEG-4 Kit

ACCESSORIES

- IP PTZ Camera work without lagging, jerks etc. in picture
- LED photic stimulator with adjustable arm and roll stand.
- CPAP Paediatric with standard accessory set.
- 1 KVA Online UPS with 15minutes Battery backup (APC/ MGE).

CLINICAL FEATURES

- Calibration of ECG/ PSG wave forms.
- Predefined and user configurable montage presets.

- Remote review and reporting of stored EEG/ PSG exams via LAN (Any acquisition and review station should be to review any other station).
- Integrated spike and seizures event detection.
- Bio- Calibration.
- Event annotation.
- AASM compliant automatic and manual Sleep stage scoring.
- Simultaneous acquisition and review a EEG/ Sleep studies.
- Presentation of EEG, EMG, SpO2, PR, Flow, Effort, BP etc.
- Input of PAP and supplemental o2 levels.
- 5 Second time-base display for complete night recording.
- Trend graph display for slower frequency channels.
- Remote access capability to monitor a study being acquired on other networked system.
- Prefigured and user customizable report formats.
- Archival of recorded exams/ reports to CD/DVD with review software.
- Printing of reports on heavy duty laser printer (HP 20ppm).

EEG / PSG Amplifier Includes.

- 16/32/64 or more referential channels (procuring agency will specify).
- Integrated SpO2 kit.
- 200, 256 and 512 Hz sampling frequencies.
- Differential input impedance > 100 MΩ.
- Common mode rejection ratio > 1 @ 50Hz.
- TCP/IP and USB connectivity.
- Built in impedance check.
- Input impedance 100 MΩ or better.
- Sampling frequency up to 1000HZ
- Sampling resolution – EEG Channels .
- Frequency band width 1.1 – 300Hz.
- Impedance check capability.
- Patient event switch interface.
- Photic stimulator interfaces.

EEG ACCESSORIES KIT INCLUDES

- EEE electrodes (10mm gold plated) (64).
- AASM compliant.
- Advanced Sleep accessory kit.
- Conductive paste (03) tubes.
- Push button tape measure (01).
- Electrode claw (01).

Clinical Specialty	Neurosurgery
Generic Name	Skull Base Endoscopy
Clinical Purpose	Skull base Endoscopy

TECHNICAL SPECIFICATIONS

“The numerical values given are approximate”.

- Punch for resection of the Uncinate process with round movable tip, upside backward cutting, working length 10 cm
- Nasal Forceps, straight, working length 13 cm, size 0
- Nasal Forceps, through-cutting,
- tissue-sparing, extra delicate, working length 13 cm, straight, size 1, 8 mm x 3 mm
- Nasal Forceps, straight, through-cutting, tissue-sparing, , size 0, width 3 mm, working length 13cm
- Nasal Forceps with extra fine flat jaws, through cutting, tissue-sparing, bite 1.5 mm,
- working length 18cm, straight, sheath, jaws 45° Downturned
- Forceps, round cupped jaws, diameter 0.6 mm, extra delicate, straight, working length 18 cm
- Forceps, round cupped jaws, diameter 2.5 mm, straight, working length 18 cm
- Scissors, very delicate, straight, working length 18 cm
- Scissors, very delicate, curved right, working length 18 cm
- Scissors, very delicate, curved left, working length 18 cm
- Insulated Suction Cannula, nasal, length 10 cm
- Insulated Suction Cannula, working length 17 cm, O.D. 3.5 mm, angular
- Insulated Suction Cannula, for nose and epistaxis, angular,
- distal with non-insulated horn for coagulation, O.D. 3.5 mm,
- working length 12 cm, for use with unipolar high frequency cord
- Suction Tube, with cut-off hole and stylet ,
- with calibration markings, working length 15 cm, 3 mm ϕ , lateral opening right, curved right
- Suction Tube, with cut-off hole and stylet,
- with calibration markings, working length 15 cm, 3 mm ϕ , lateral opening left, curved left
- Coagulation Ball Electrode, diameter 2 mm, laterally curved, working length 13 cm
- Coagulation Ball Electrode, diameter 4 mm, laterally curved, working length 13 cm
- Sickle Knife, slightly curved, pointed, length 18 cm
- FREER Suction Elevator, with mandrin, length 19 cm
- Punch, circular cutting, for sphenoid, ethmoid and
- choanalatresia, diameter 3.5 mm, working length 18 cm
- Punch, circular cutting for sphenoid, ethmoid and choanalatresia, working length 18 cm, diameter 4.5 mm
- Curette, stirrup-shape, blunt, with round handle, length 25 cm
- Curette, round spoon, tip slightly angled, size 3 mm, with round handle, length 25 cm
- Curette, round spoon, tip slightly angled, size 2 mm, with round handle, length 25 cm
- Elevator, sharp, slightly curved spatula, tip angled 15°, size 2 mm,
- with round handle, length 25 cm
- Dissector, sharp, round spatula, tip angled 45°, size 3 mm, with round handle, length 25 cm
- Dissector, sharp, round spatula, tip angled 45°, size 2 mm, with round handle, length 25 cm

- Suction- Curette, with round wire, ID 7 mm, tip angled 45°, LUER, length 25 cm,
- Suction- Curette, with round wire, ID 5 mm, tip angled 45°, LUER, length 25 cm
- scalpel, with telescopic blade, Micro Knife pointed scalpel, with telescopic blade, Micro Knife sickle shaped
- Suction, Curette, basket-shape, round wire, size 6.5 mm, rotating tubing-connector, length 25 cm, with stylet
- Suction, Curette, basket-shape, round wire, size 5 mm, rotating tubing- connector, length 25 cm,
- Curette, hook-shaped to the left, width of hook 2.5 mm, thickness of hook 0.5 mm, round handle, length 25 cm
- Curette, hook-shaped to the right, width of hook 2.5 mm, thickness of hook 0.5 mm, round handle, length 25 cm
- Ring-Curette, round wire, ductile, ID 7 mm, tip angled 45°, with round handle, length 25 cm
- Ring-Curette, round wire, ductile, ID 5 mm, tip angled 45°, with round handle, length 25 cm
- Ring-Curette, round wire, ductile, ID 3 mm, tip angled 45°, with round handle, length 25 cm
- Curette, round wire, ID 7 mm, tip angled 45°, with round handle, length 25 cm
- Curette, round wire, ID 5 mm, tip angled 45°, with round handle, length 25 cm
- Curette, round wire, ID 3 mm, tip angled 45°, with round handle, length 25 cm
- Curette, round wire, ID 7 mm, tip angled 90°, with round handle, length 25 cm
- Curette, round wire, ID 5 mm, tip angled 90°, with round handle, length 25 cm
- Ring- Curette, round wire, ID 3 mm, tip angled 90°, with round handle, length 25 cm
- Ring- Curette, round wire, ID 7 mm, tip laterally angled 90°, with round handle, length 25 cm
- Curette, round wire, ID 5 mm, tip laterally angled 90°, with round handle, length 25 cm
- Ring- Curette, round wire, ID 3 mm, tip laterally angled 90°, with round handle, length 25 cm
- Curette, round wire, ID 7 mm, distally curved shaft, with round handle, length 25 cm
- Curette, round wire, ID 5 mm, distally curved shaft, with round handle, length 25 cm
- Curette, round wire, ID 3 mm, distally curved shaft, with round handle, length 25 cm
- Ring- Curette, vertical, round wire, ID 7 mm, long curved, with round handle, length 25 cm
- Ring- Curette, round wire, ID 5 mm, vertical long curved, with round handle, length 25 cm
- Ring- Curette, horizontal, round wire, ID 7 mm, long bended, with round handle, length 25 cm
- Ring- Curette, horizontal, round wire, ID 5 mm, long curved, with round handle, length 25 cm
- Take apart Bipolar Forceps, delicate jaws, width 1 mm, distally angled 45°, size 3 mm, working length 20 cm,
- Irrigation Sheath, O.D.5,0mm, working length 24cm, for use with Telescope 30 degree
- Forward-Oblique Telescope 30°, enlarged view,
- diameter 4 mm, length 18 cm, autoclavable, Fiber optic light, transmission incorporated,
- Irrigation Sheath, O.D.5,0mm, working length 24cm, for use with Telescope 0 degree
- Straight Forward Telescope 0°, enlarged view, diameter 4 mm,
- length 18 cm, autoclavable, Fiber optic light transmission incorporated,
- Unipolar HF cable universal end
- Bipolar HF cable universal end
- Holding System, autoclavable, with fastener: Lock,
- Lens clear Irrigation System for Telescopes,
- power supply:

- 100-240 VAC, 50/60 Hz

OPTIONAL:

Camera input:

- Maximal resolution: 1920 x 1080 pixels
- Automatic Gain Control: Microprocessor controlled
- Connection: Module link cable to video processor module.

Features:

- Modular design: For use with a video processor module and a compatible 3-chip
- FULL HD camera head in combination with a compatible with 3-chip camera head
- Following modes to be activated without special light source or filter
- Color inversion by spectral color shift.
- Brightening of dark areas in the endoscopic image.
- Contrast enhancement.
- Compatible with special FULL HD microscopy camera head.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Progressive scan for an extremely smooth image without flickering and noise.
- Compatible camera heads. Changes in visualization modes, device control,
- Digital zoom, brightness, video capture, still image capture and direct print
- Orders, picture-in-picture mode, image direction, white balance and setup setting
- Can be performed in sterile area via camera head buttons.

Digital 3-chip Camera Head.

- Programmable
- Image sensor: 3x 1/3" CCD Chip
- Pixels: 1920 (H) x 1080 (V) pixels per chip
- CCD chip supports; 16:9 input format
- Minimum light sensitivity: 1.17 Lux

Features:

- 3-chip technology.
- Image acquisition in format 16:9, with 1920 x 1080 pixels and progressive scan.
- Freely programmable camera head buttons.
- Compatible with systems with integrated, innovative visualization technology for surgery by shifting the color spectrum and via homogeneous illumination and contrast enhancement
- Suitable light sources are controllable by camera head buttons.
- Suitable insufflators are controllable by camera head buttons.

- Suitable camera control units can store HD images and HD video clips to
- USB mass storage devices in conjunction with camera head.
- Suitable sterilization tray is available to safely store the camera head during sterilization

Digital FULL HD Video processor Module with integrated documentation:

- Function for image and video capturing for use with 3-chip-FULL HD
- Camera heads,

Technical data:

- Connections: 2 x DVI-D output, 1 x 3G-SDI output, 3 x camera input,
- Max. resolution: 1920 x 1080 pixels
- Power supply: 100-120 VAC, 50/60HZ, 200 - 240 VAC, 50/60 Hz
- Optional: USB to ACC adapter for device control

Features:

- Modular design: For use in combination with at least one camera module.
- Parallel live display of visualization modes besides white light mode (picture-in-picture).
- Up to three different camera modules can be connected to the FULL HD video processor module.
- Integrated picture-in-picture mode of two different camera modules in five different display sizes available.
- Primary and secondary signal change in picture-in-picture mode can be performed easily via camera head button
- Integrated communication bus for device control and information display of connected devices.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Still image capturing in FULL HD quality.
- Still image capturing can be adjusted by 4 different, time wise variable image
- Freeze selection including picture-in-picture mode.
- Video capturing in FULL HD quality.
- Medical USB printer compatible (plug& play).
- Data capturing functions can be released.
- Automatic adjustment of light intensity of light source via communication bus.
- Control of complete camera system can be realized from camera head from sterile area.
- Grid and pointer can be displayed for improved orientation and communication during surgery.
- Grid and pointer can be displayed individually and together.

27" FULL HD Monitor, With LED Back Light For Low Energy:

- Picture-in-Picture (Pip) And Picture-by-Picture With Medical Grade from manufacturer

- Video inputs: DVI,VGA,S-video, Composite / FBAS
- Video outputs: DVI, S- Video, Composite / FABS

Light Source LED :

- With integrated , high-performance LED and one light outlet,
- Operating hours 30,000
- Power supply 110 - 240 VAC, 50/60 Hz

Clinical Specialty	Neurosurgery
Generic Name	Spinal Endoscope
Clinical Purpose	To be used all kind of spinal procedure

TECHNICAL SPECIFICATIONS

- Puncture Needle, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire
- Guide Wire, unsterile, diameter 1.2 mm, length 31 mm, package of 10
- Dilation Sleeve, OD5,2mm, ID 1.5 mm, graduated, length 23cm,
- Dilation Sleeve, OD8.9 mm, ID 5.3 mm, graduated, length 21 cm,
- Dilation Sleeve, graduated, inner diameter 9 mm, outer Diameter 12.7 mm, length 19 cm,
- Dilation Sleeve, OD14.9mm, ID12.9mm, graduated, length 17cm,
- Dilation Sleeve, OD16.9 mm, ID15.1 mm, graduated, length 15cm,
- Dilation Sleeve, OD18.9 mm, ID17.1 mm, graduated, length 14 cm,
- Dilation Sleeve, OD20.9 mm, ID19 mm, graduated, length 13 cm,
- Trocar, diameter 15 mm, working length 39mm.
- Trocar, diameter 19 mm, working length 40mm.
- Trocar, diameter 23 mm, working length 43 mm,
- Trocar Attachment, diameter 15 mm,
- Telescope Holder, diameter 15 mm,
- Trocar Attachment, diameter 23 mm,
- Telescope Holder, diameter 23 mm,
- Trocar Attachment, diameter 19 mm,
- Telescope Holder, diameter 19 mm,
- Trocar, diameter 23 mm, working length 94 mm, for use with Forward-Oblique Telescope 25° , 4 mm, 11 cm
- Trocar Attachment, diameter 23 mm,
- Telescope Holder, diameter 23 mm,
- Forward-Oblique Telescope25°, eyepiece angled 90° , diameter 4 mm, length 6 cm, autoclavable, fiber optic light transmission incorporated.
- Forward-Oblique Telescope 25°, eyepiece angled 90°, diameter 4 mm, length 11 cm, autoclavable,

fiber optic
light transmission incorporated.

- Fiber Optic Light Cable, with straight connector, diameter 3.5 mm, length 230 cm
- KERRISON Bone Punch, dismantling, 90° upbiting, not through-cutting, 2 mm, working length 24 cm
- KERRISON Bone Punch, dismantling, 90° upbiting, not through-cutting, 4 mm, working length 24 cm
- KERRISON Bone Punch, dismantling, 40° upbiting, not through-cutting, 2 mm, working length 24 cm
- KERRISON Bone Punch, dismantling, 40° upbiting, not through-cutting, 4 mm, working length 24 cm
- KERRISON Punch, dismantling, bayonet-shaped, fixed, downbiting 40° forward, 2 mm, working length 17 cm
- KERRISON Punch, dismantling, bayonet-shaped, fixed, upbiting 40° forward, 2 mm, working length 17 cm
- Hook Scissors, single action jaws, diameter 2.5 mm, working length 25 cm
- Spoon Forceps, dismantling, robust, oval, spoon size 3 x 10 mm, single action jaws, working length 20 cm
- Dissector MORTINI dead hand, bayonet shaped, 3 mm, curved upwards, with round handle, sharp, working length 16 cm
- Dissector, distal end tapered, bayonet-shaped, working length 15 cm
- Nerve Hook, distal width 3 mm, bayonet-shaped, working length 16 cm
- Nerve Hook, distal width 5 mm, bayonet-shaped, working length 16 cm
- scalpel, with telescopic blade,

Consisting of:

- Handle
- outer tube
- Micro-knife, pointed
- Suction Tube, with distal nerve retractor, with cut-off hole, diameter 2.7 mm, working length 15 cm
- Nerve Retractor, angled 30°, distal width 5 mm, working length 17 cm
- Dissector, sharp, tip angled 15°, with round handle, size 2 mm, length 25 cm
- Palpation Hook, straight, distally 10 mm long and angled 90°, with ball, working length 20 cm
- Nerve Retractor, hook length 2 mm, diameter 4 mm, angled sheath, working length 20 cm
- Bipolar Coagulating Forceps, insulated, bayonet-shaped, tip 0.7 mm, length 23 cm, for use with bipolar high frequency
- Bipolar Coagulating Forceps, insulated, bayonet-shaped, tip 1.2 mm, length 23 cm,
- Nasal Dressing Forceps, bayonet-shaped, length 20 cm
- Plastic Container for sterilizing, suitable for steam, gas, and hydrogen peroxide sterilization and storage, perforated,
- With lid, external dimensions (w x d x h): 321 x 90 x 45 mm for use with two rigid endoscopes up to max. 20 cm working length.
- Plastic Container for Sterilization and Storage of Variable Instrument Sets, perforated, with transparent lid, with silicone
- Mat, two-level storage, (1 additional insert), external dimensions (w x d x h): 545 x 260 x 115

mm consisting of: 2x 39360 AP Snap-inClip, package of 12 2x 39360 AS Silicone Tie-Downs, pack.

- Rotation Socket to clamp on the operating table with one already mounted butterfly , for use with European and United States standard rails, with lateral clamping element for height and angle adjustment of the articulated stand
- 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:
- Bipolar High Frequency Cord, Length 300 cm,

OPTIONAL:

Camera input:

- Maximal resolution: 1920 x 1080 pixels
- Automatic Gain Control: Microprocessor controlled
- Connection: Module link cable to video processor module.

Features:

- Modular design: For use with a video processor module and a compatible 3-chip
- FULL HD camera head in combination with a compatible with 3-chip camera head
- Following modes to be activated without special light source or filter
- Color inversion by spectral color shift.
- Brightening of dark areas in the endoscopic image.
- Contrast enhancement.
- Compatible with special FULL HD microscopy camera head.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Progressive scan for an extremely smooth image without flickering and noise.
- Compatible camera heads. Changes in visualization modes, device control,
- digital zoom, brightness, video capture, still image capture and direct print
- orders, picture-in-picture mode, image direction, white balance and setup setting
- can be performed in sterile area via camera head buttons

Digital 3-chip Camera Head.

- programmable
- Image sensor: 3x 1/3" CCD Chip
- Pixels: 1920 (H) x 1080 (V) pixels per chip
- CCD chip supports; 16:9 input format
- Minimum light sensitivity: 1.17 Lux

Features:

- 3-chip technology.
- Image acquisition in format 16:9, with 1920 x 1080 pixels and progressive scan.
- Freely programmable camera head buttons.
- Compatible with systems with integrated, innovative visualization technology for surgery by shifting the color spectrum and via homogeneous illumination and contrast enhancement
- Suitable light sources are controllable by camera head buttons.
- Suitable insufflators are controllable by camera head buttons.
- Suitable camera control units can store HD images and HD video clips to
- USB mass storage devices in conjunction with camera head.
- Suitable sterilization tray is available to safely store the camera head during sterilization

Digital FULL HD Videoprocessor Module with integrated documentation:

- function for image and video capturing for use with 3-chip-FULL HD
- camera heads,

Technical data:

- Connections: 2 x DVI-D output, 1 x 3G-SDI output, 3 x camera input,
- Max. resolution: 1920 x 1080 pixels
- Power supply: 100-120 VAC, 50/60HZ, 200 - 240 VAC, 50/60 Hz
- Optional: USB to ACC adapter for device control

Features:

- Modular design: For use in combination with at least one camera module.
- Parallel live display of visualization modes besides white light mode (picture-in-picture).
- Up to three different camera modules can be connected to the FULL HD video processor module.
- Integrated picture-in-picture mode of two different camera modules in five different display sizes available.
- Primary and secondary signal source change in picture-in-picture mode can be performed easily via camera head button
- Integrated communication bus for device control and information display of connected devices.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Still image capturing in FULL HD quality.
- Still image capturing can be adjusted by 4 different, time wise variable image
- Freeze selection including picture-in-picture mode.
- Video capturing in FULL HD quality.

- Medical USB printer compatible (plug & play).
- Data capturing functions can be released.
- Automatic adjustment of light intensity of light source via communication bus.
- Control of complete camera system can be realized from camera head from sterile area.
- Grid and pointer can be displayed for improved orientation and communication during surgery.
- Grid and pointer can be displayed individually and together.

27" FULL HD Monitor, With LED Back Light For Low Energy:

- Picture-in-Picture (Pip) And Picture-by-Picture With Medical Grade from manufacturer
- Video inputs: DVI,VGA,S-video, Composite / FBAS
- Video outputs: DVI, S- Video, Composite / FABS

Light Source LED :

- with integrated , high-performance LED and one light outlet,
- operating hours 30,000
- power supply 110 - 240 VAC, 50/60 Hz

Clinical Specialty	Neurosurgery
Generic Name	Stereotactic Frame
Clinical Purpose	To be used in Cranial Surgery with 1mm precision for use of Biopsy, lesion Generation and DBS

TECHNICAL SPECIFICATIONS

STEREOTACTIC FRAME CARTESIAN COORDINATE SYSTEM:

- The stereotactic system should be Centre of Arc/Arc centered with a 190mm more or less radius, and be based on a Cartesian coordinate system.
- Open Stereotactic system that can be used with CT and MRI scanners.
- The Cartesian coordinate system shall conform to the X-, Y-, and Z- nomenclature used in CT- and MR –scanning.
- The total accuracy of the system should be minimum 0.7mm or Less then (with accuracy certification)
- There shall be sterilization trays tailored for the frame and arc system included in the delivery.
- The principal components of the stereotactic system shall include a Cartesian coordinate frame and an arc with counter scale/ Target point verification tool.
- There should be three options of lengths of the posterior posts (long, medium, short)
- The guide and stop inserts should be able to split into two parts to enable effective cleaning.
- The stereotactic system should include CT and MR adapters/Localizer to secure and support the patient’s head during scanning ensuring accurate imaging.
- Should be supplied with all reusable instruments for biopsy,
- Hematoma evacuation and catheter placement and other functional neurosurgery accessories.

- The base frame of stereotactic system should have the capability to be utilized as a head holder for micro-surgical applications (adapter for Microsurgical Accessories, Fork and Clamp type.)
- Frame must have the ability for 3-point fixation to the patient to enable fixation even in cases where a bone flap is limiting a 4-point fixation to the skull (Slotted front piece.)
- The stereotactic system should provide the ability for rigid 3 or 4 fixation of the frame to the operating table (Frame Fixation)
- The CT and MR Indicator box should not be a limitation for how low the frame may be mounted (Open MR Indicator, Open CT Indicator).

SURGICAL PLANNING SYSTEM FOR USE IN STEREOTACTIC AND FUNCTIONAL NEUROSURGERY:

- The system shall allow the user to virtually place entry and target points directly within images of the patient's brain acquired from CT, MR and Angiography.
- The system shall allow to interactively visualize and examine the tissue that the surgical pathway will affect.
- The system shall allow to avoid critical structures such as blood vessels, cranial nerves or other critical structures by adjusting the virtual surgical pathway prior surgery.
- It shall be possible to simulate any number of surgical pathways.
- The system shall be able to import and display CT, MR, PET and Angiographic images.
- Images should be possible to import directly from CT, MR and PET scanners via hospital networks or CD.
- Imported images shall be automatically scaled and quality controlled.
- Target should be possible to outline semi-automatically or manually, and non-continuous regions should be allowed.
- 3D visualization of the images shall be possible using different 3D renderings, including open book and cut box, and with all defined objects displayed.
- It must be possible to define the AC-PC line whether or not it lies with a single image plane.
- The system should enable co-registration of frame-bases and frameless images.
- It should be possible to design a workspace that displays more than 4 image window.
- System with up gradation of software for fifteen years.

ACCESSORIES:

- Titanium /Aluminum Alloy head ring unit
- CT/MR Compatible, consisting of 3 head fixing posts, artifact free head ring holder for Mayfield, applicable for titanium ring or frame
- Head ring, target point adjusting unit for X. Y. Z axis
- Sterilization box
- CT/MR localization set for titanium and aluminum ring
- Screw set for CT and MR localizer
- Universal CT and MR adapters
- Aiming bow with carriage sled with micrometer advance, instrument holder and sterilization box.

MICRO DRIVE:

- Micro drive should have working distance channel of 40mm to integrate completely with the stereotactic frame with a mechanical resolution of 50µm and be designed for optimal.
- Positioning of electrodes in the brain when performing MER, macro stimulation and lead electrode implantation.
For the optimal accuracy, the system should have the guide and stop holders.
- The system should be able to hold up to five electrode(s) simultaneously and enable to record Multiple single tracks using any one of the five positions, without adjusting the arc.
- Should enable the surgeon to operates with micro electrodes, combined micro-macro electrodes, macro electrodes and lead electrodes.
- Should have manual control which allows continuous recording during movement of the electrode(s). The system should be compatible with all MER systems available in the market.
- System should be fully autoclavable and should be supplied with all necessary dedicated sterilization trays and components.
- All necessary universal Guide tubes, microdrive bipolar lesion electrode kit, and other DBS guide tubes should also be provided.

ACCESSORIES :

- Micro Drive
- Electrode Holder for DBS Electrodes
- Screw Set for Micro drive
- Hex Wrench for Micro drive
- Cleaning Brush
- Long and short fixing screw
- Screw for electrode holder
- Micro Macro electrode 0.6mm with depth stop,
- Macro electrodes 0.8mm with depth stop,
- Recording cable 5 channel for Micro Macro electrodes
- Guide tube for Micro Macro; electrodes
- Guide tube for DBS electrodes
- Universal guide tube Micro Drive

Clinical Specialty	Neuro Surgery
Generic Name	Neuro-Surgery Operating Table with Transferrable Table Top
Clinical Purpose	Neuro- Surgery

TECHNICAL SPECIFICATIONS

OPERATING TABLE COLUMN:

- To attach operating table tops.
- Electrical motor-driven adjustment of height,
- Lateral tilt and Trendelenburg/ anti-Trendelenburg.
- Wireless remote control operation,

- optional cable remote control or foot pedal control possible
- Additional operating panel on column.
- The maintenance-free batteries which are integrated in the column,
- ABS / Stainless-steel covers.

UNIVERSAL OPERATING TOP:

- Two-piece table top segment with 4 electrical motors for adjusting the segments,
- Consists of seat and lower back section;
- longitudinal shift with electrically motorized adjustment,
- plus manually adjustable coupling points for the lower back section (head end).
- Integrally foamed (bi-colored as well) or viscous elastic pads.
- Table top frame, coupling points and standard rails are resistant to disinfectant agents and constructed with stainless steel.

TABLE TOP IS CONSISTING OF FOLLOWING:

- Head Section (Double Joint Adjustable)
- Upper Back Section
- Lower Back Section
- Seat Section
- Two Part Leg Section

SHUTTLE (TRANSPORTER):

- Transporter for maneuvering the operating table tops either by themselves or together with the mobile operating table column
- Trendelenburg/ anti-Trendelenburg continuously adjustable by crank
- special stainless steel transfer unit is resistant to disinfectants
- The chassis is made of disinfection-resistant aluminum alloy / equivalent.

TECHNICAL DETAILS:

(APPROXIMATE)

- | | |
|--------------------------------------|--|
| • Length (coupling to coupling) | 995 mm |
| • Width over standard rails: | 600 mm |
| • Pad width: | 545 mm |
| • Adjustment range Height | 520mm to 1070mm |
| • Adjustment range Lift | 550mm |
| • Rotation | 330° |
| • Trendelenburg / Anti Trendelenburg | ±45° |
| • Tilt | +30° |
| • Leg section: | ± 90°, electrically motorized, individually and parallel |
| • Lower back section: | + 85° / -55°, electrically motorized |
| • Upper back section: | + 90° / -55°, manual |
| • Longitudinal shift: | 350 mm, electrically motorized |
| • Maximum patient weight: | 360 kg. |

Accessories:

- Crossbar attachment
- Adapter for head positioning
- Basic unit neuro
- Skull clamp adapter
- Multipurpose skull clamp
- Skull pin holders
- Head support
- Skull pins for adults & Children

HORSESHOE-SHAPED, HEAD REST:

- Head rest, horseshoe-shaped
- Adapter for head positioning
- Central holder for head rest system
- Connection holder with joint short
- Cross joint
- Head rest horseshoe-shaped two parts

SPINE SURGERY ACCESSORIES:**Spinal cord positioning device:**

- To attach at foot end;
- used to position Patient knees during spinal column surgeries;
- with crank for height Adjustment;
- motorized leg section joints drive up and down movements;
- Radiolucent via C-arm; pad electrically conductive,
- soft and detachable;
- Velcro-fastened pad;
- stainless steel load-bearing
- structure Height adjustment: 300 mm
- Trolley for positioning and transport of spinal cord positioning devices; during column or shuttle use; stainless steel
- Iliac Roll with Lateral Support Adjustable to table top width; lateral supports can be adjusted to body width; pads integrally foamed, electrically conductive and soft; stainless steel frame Height adjustment: 400 mm
- Cushion To support the patient's thorax; foam pad
- Spine Bridge Wilson Frame, Adjustable flexion range; with crank for height adjustment; unrestricted radiolucency
- Pad for operation at in vertebral disc large Foam pad is electrically conductive
- Pad for Prone Positioning Device

Optional:

Radiolucent Skull Clamp System For Neurosurgery

- Radiolucent Swivel adapter
- Radiolucent Retainer
- Radiolucent Coupling piece
- Radiolucent Adapter 3-joint narrow
- Radiolucent Head rest system
- (Any other head holding system to be specify by end user.)

Optional:

- Dedicated Carbon Table Top,
- One-part operating table top made of carbon fiber with electrically motorized adjustment of longitudinal and transversal shift; with coupling point at head end for attaching head positioning accessories; 360° radiolucent; with Velcro;
- Dimensions (L x W): 90.1 in x 22.0 in (2290 mm x 560 mm)
- Dimensions side rail: 0.89 in x 0.39 in (25 mm x 10 mm)

Clinical Specialty	Ultrasonic Bone Cutter
Generic Name	Ultrasonic Bone Cutter
Clinical Purpose	Laminectomy/ laminotomy for degenerative disease or other extradural pathology Laminectomy for intradural pathology Facetectomy with or without adjacent laminectomy for TLIF Anterior cervical corpectomy Anterior thoracolumbar corpectomy Cranial. Unique surgical device in that it offers a gentler osteotomy as compared to standard bone cutting tools it efficiently slices crystalline bone while leaving elastic soft tissues largely unaffected during incidental contact.

TECHNICAL SPECIFICATIONS

- Ultrasonic Console.
- Two handpieces with wrenches.
- Footswitch and system accessories.
- Console 200-240V, 50Hz.
- Autoclave able Probe cover.
- For hard tissue tips.
- Autoclave able Probe cover.
- For soft tissue tips.
- Irrigation Tube set.
- Ultrasonic OsteoSurgery.
- Ultrasonic Debridement and Cleansing.
- Ultrasonic Console.
- Two handpieces with wrenches.

<ul style="list-style-type: none"> Footswitch and system accessories. 	
Clinical Specialty	ULTRASONIC SURGICAL ASPIRATOR
Generic Name	Ultrasonic Surgical Aspirator (CUSA)
Clinical Purpose	Specifically used in brain and spinal tumors for their removal without giving traction on normal Nervous tissues
TECHNICAL SPECIFICATIONS	
ULTRASONIC SURGICAL ASPIRATOR (CUSA)	
<ul style="list-style-type: none"> For use in different brain and spinal operations. Electric Ultrasonic aspirating system should have 100 Watt output power or more. Irrigation flow maximum 25 ml to 50 ml/min. Suction pressure 0-0.6 bar or better. Steam autoclavable hand pieces. Ultrasonic Surgical Aspirator system on mobile trolley with 4 wheel castors. Variable energy and control aspiration. Tissue selection mode. Integrated cooling and suction facility. Compatible module for electrosurgical unit. Inclosing of the following accessories and hand pieces of : <ul style="list-style-type: none"> One Console Magnetostrictive Technology/ Piezo Electric and water cool hand pieces Ultrasonic Surgical Aspirator with foot switch control system. One Hand Piece straight with resonance frequency 23 kHz or more One Hand Piece angled with resonance frequency 23 kHz or more Sterilization case for each hand piece Ultrasonic bone sculpting saber tip Micro Tip for transphenoidal work Biopsy collection Trap Irrigation Built in 	
OPTIONAL:	
One Hand Piece Angled With Resonance Frequency 36 Khz (Procuring Agency To Specify)	
Clinical Specialty	Neurosurgery
Generic Name	Aneurysm Clips and Appliers set
Clinical Purpose	To be used in all kind of Procedures in Neurosurgery
TECHNICAL SPECIFICATIONS	
Aneurysm Clips and Appliers set:	
1	CASPAR APPLIER F/MINI TI-CLIPSSTR146MM
2	CASPAR APPLIER F/STD TI-CLIPSSTR146MM
3	YASARGIL APPLIER F/MINI TI-CLIPS170MM

- 4 YASARGIL CLIP APP. F/MINI TI-CLIPS205MM
- 5 YASARGIL CLIP APPL. F/MINI TI-CLIP225MM
- 6 YASARGIL CLIP APP. F/MINI TI 15DEG90MM
- 7 YASARGIL CLIP APP. F/MINI TI 15DEG 110MM
- 8 YASARGIL APPLIER F/STD TI-CLIPS 170MM
- 9 YASARGIL CLIP APP.R F/STD TI-CLIPS205MM
- 10 TITANIUM CLIP APPLIERF/STD254MM
- 11 YASARGIL CLIP APP. F/STD TI 15DEG90MM
- 12 YASARGIL CLIP APP. F/STD TI 15 DEG 110MM
- 13 XS MINI CLIP APPLYING FCPS TI 90MM
- 14 XS MINI CLIP APPLYING FCPS TI110MM
- 15 XS STD CLIP APPLYING FCPS TI 90MM
- 16 XS STD CLIP APPLYING FCPS TI110MM
- 17 YASARGIL TI PERM CLIP 3.5MM FEN 3/8.1
- 18 YASARGIL TI PERM CLIP 3.5MM FEN 4/9.1
- 19 YASARGIL TI PERM CLIP 3.5MM FEN 5/10.1
- 20 YASARGIL TI PERM STD-CLIP3.5FENSTR6MM
- 21 YASARGIL TIPERM STD-CLIP3.5FENFDANG5MM
- 22 YASARGIL TI PERM STD-CLIP FWD-ANG6.1MM
- 23 YASARGIL TIPERM STD-CLIP3.5FENFDANG5MM
- 24 YASARGIL TI PERM STD-CLIP3.5FENSTR9MM
- 25 YASARGIL CLIP STD.PERMANENT 9.0MM
- 26 YASARGIL TI PERM STD3.5FENFDANG 7.5MM
- 27 YASARGIL TI PERM STD-CLIP FWD-ANG 8MM
- 28 YASARGIL TIPERM STDCLIP3.5FENRTANG7.5MM
- 29 YASARGIL TIPERM STD-CLIP 3.5FENSTR 12MM
- 30 YASARGIL TIPERM STDCLIP3.5FENFDANG10MM
- 31 YASARGIL TI PERM STD-CLIPFWD-ANG10.6MM
- 32 YASARGIL CLIP STD.PERMANENT 10.6MM
- 33 YASARGIL TI PERM CLIP 5.0MM FEN 3/98
- 34 YASARGIL TI PERM CLIP 5.0MM FEN 4/10.8
- 35 YASARGIL TI PERM CLIP 5.0MM FEN 5/11.8
- 36 YASARGIL TI PERM STD-CLIP5.0FENSTR6MM
- 37 YASARGIL TI STD-CLIP 45DG 5.0FEN 5MM
- 38 YASARGIL TIPERM STDCLIP5.0FENRTANG 5MM
- 39 YASARGIL TI PERM STD-CLIP5.0FENSTR9MM
- 40 YASARGIL TIPERM STDCLIP5.0FENFDANG7.5MM
- 41 YASARGIL TIPERM STDCLIP5.0FENRTANG7.5MM
- 42 YASARGIL TIPERM STDCLIP5.0FENFDANG 10MM
- 43 YASARGIL TI PERM MINI-CLIP STRNARR3MM
- 44 YASARGIL TI PERM MINI-CLIPSLT-CVDNARR
- 45 YASARGIL TI PERM MINI-CLIP STRNARR5MM
- 46 YASARGIL TI PERM MINISLT-CVDNARR4.7MM
- 47 YASARGIL TI PERM MINI-CLIP CVDNARR4MM

- 48 YASARGIL TI PERM MINI-CLIP STR 3MM
- 49 YASARGIL TI PERM MINI-CLIP STR 5MM
- 50 YASARGIL TI PERM MINI-CLIP SLT-CVD 4MM
- 51 YASARGIL TI PERM MINI-CLIPSLT-CVD4.7MM
- 52 YASARGIL TI PERM MINI-CLIPLGT-CVD4.0MM
- 53 YASARGIL TI PERM MINI-CLIP CVD 3.9MM
- 54 YASARGIL TI PERM MINI-CLIP LAT-ANG 5MM
- 55 YASARGIL TI PERM MINI-CLIPLAT-CVD6.3MM
- 56 YASARGIL TI PERM MINI-CLIP STR 7MM
- 57 YASARGIL TI PERM MINI-CLIPLGT-CVD6.6MM
- 58 YASARGIL TI PERM MINI-CLIP CVD 5MM
- 59 YASARGIL TI PERM MINI-CLIPLGT-CVD5.2MM
- 60 YASARGIL TI PERM MINI-CLIP BAYO 4MM
- 61 YASARGIL TI PERM MINI-CLIP BAYO 7MM
- 62 YASARGIL TI PERM STD-CLIP STR 7MM
- 63 YASARGIL TI PERM STD-CLIPSLT-CVD 6.5MM
- 64 YASARGIL TI PERM STD-CLIP CVD 5.4MM
- 65 YASARGIL TI PERM STD-CLIP LAT-ANG 7MM
- 66 YASARGIL TI PERM STD-CLIPLAT-CVD 8.6MM
- 67 YASARGIL CLIP STD.PERMANENT 8.6MM
- 68 YASARGIL TI PERM STD-CLIP BAYO 7MM
- 69 YASARGIL TI PERM STD-CLIP STR 9MM
- 70 YASARGIL CLIP STD.PERMANENT 9.0MM
- 71 YASARGIL TI PERM STD-CLIPSLT-CVD 8.3MM
- 72 YASARGIL CLIP STD.PERMANENT 8.3MM
- 73 YASARGIL TI PERM STD-CLIP CVD 6.4MM
- 74 YASARGIL TI PERM STD-CLIP BAYO 9MM
- 75 YASARGIL TI PERM STD-CLIP BAYO 12MM
- 76 YASARGIL TI PERM STD-CLIP STR 11MM
- 77 YASARGIL TI PERM STD-CLIPLAT-ANG11.4MM
- 78 YASARGIL TI PERM STD-CLIPSLT-CVD10.2MM
- 79 YASARGIL TI PERM STD-CLIPFWD-ANG11.8MM
- 80 YASARGIL TI PERM STD-CLIP CVD 8MM
- 81 YASARGIL TI PERM STDRT ANG 2.5BAYO 5MM
- 82 YASARGIL TI PERM STDRT ANG 3.5BAYO 5MM
- 83 YASARGIL TI PERM STDRT ANG 4.5BAYO 5MM
- 84 YASARGIL TI PERM STE-CLIP LAT-ANG7.8MM
- 85 YASARGIL TI PERM STD-CLIP STR 15MM
- 86 YASARGIL TI PERM STD-CLIPSLT-CVD13.7MM
- 87 YASARGIL TI PERM STD-CLIP CVD 10.3MM
- 88 YASARGIL TI PERM STD-CLIPSLT-CVD15.3MM
- 89 YASARGIL TI PERM STD-CLIP STR 20MM
- 90 YASARGIL TI PERM STD-CLIP STR 17.5MM
- 91 YASARGIL TI PERM MINI-CLIP FWD-ANG 7MM

- 92 YASARGIL TI PERM MINI-CLIPLAT-ANG4.7MM
- 93 YASARGIL TI PERM STD-CLIPFWD-ANG 9MM
- 94 YASARGIL TI PERM STD-CLIP RT-ANG 5MM
- 95 YASARGIL TI PERM STD-CLIP RT-ANG 7MM
- 96 YASARGIL TI PERM STD-CLIP RT-ANG 10MM
- 97 YASARGIL TI PERM STD-CLIPSTRG-CVD7.4MM
- 98 YASARGIL TI PERM STD-CLIPSTRG-CVD8.4MM
- 99 YASARGIL TI PERM STD STRG-CVD 10.5MM
- 100 YASARGIL TI PERM STD-CLIP OVER-ANG 7MM
- 101 YASARGIL TI PERM STD-CLIP SPOON 9.3MM
- 102 YASARGIL TI PERM STD-CLIP SPOON 11.3MM
- 103 YASARGIL TI PERM STD-CLIP UP-ANG 6.7MM
- 104 YASARGIL TI PERM STD-CLIP UP-ANG 9MM
- 105 T-BAR CLIP STD.PERM.JAWS 5MM 45°
- 106 T-BAR CLIP STD.PERM.JAWS 9MM 45°
- 107 T-BAR CLIP STD.PERM.JAWS 5MM 90°
- 108 T-BAR CLIP STD.PERM.JAWS 9MM 90°
- 109 T-BAR CLIP STD.PERM.JAWS 13MM 90°
- 110 YASARGIL TI BOOSTER CLIP
- 111 YASARGIL CLIP STD.PERM.WINDOW 5/3MM
- 112 YASARGIL CLIP STD.PERM.FENESTRATED 3.0MM
- 113 YASARGIL CLIPS STD.PERMANENT 7.0MM
- 114 YASARGIL CLIP STD.PERM.WINDOW 5/3.0MM
- 115 YASARGIL CLIPS STD.PERMANENT 6.8MM
- 116 YASARGIL CLIPS STD.PERMANENT 9.0MM
- 117 YASARGIL CLIPS STD.PERMANENT 11.0MM
- 118 YASARGIL CLIPS STD.PERMANENT 15.0MM
- 119 YASARGIL CLIPS STD.PERMANENT 20.0MM
- 120 YASARGIL CLIPS STD.PERMANENT 17.5MM
- 121 YASARGIL CLIPS STD.PERMAN.7.0MM UPWARDS
- 122 STORAGE TRAY FOR APPLYING FORCEPS
- 123 CLIP TRAY

STERILIZATION CONTAINER SYSTEM:

- BOTTOM FOR CONTAINER, 592 x 274 x 120 OR BETTER
- PRIMELINE LID FOR CONTAINER BOTTOM
- STERILIZATION WIRE BASKET, 536X253X70MM OR BETTER
- LUBRICATION OIL SPRAY
- SILICONE PAD 470X230X30MM
- IDENTIFICATION LABEL FOR CONTAINER

Clinical Specialty	Neurosurgery
Generic Name	Craniotomy Electric Drill System
Clinical Purpose	To be used in all kind of Procedures in Neurosurgery
TECHNICAL SPECIFICATIONS	
<u>Craniotomy Electric Drill System:</u>	
1	MICRO SPEED ELECTRIC CONTROL UNIT BUTTON /TOUCH SCREEN WITH IRRIGATION PUMP
2	MAIN CABLE 5M LONG
3	DOUBLE PEDAL FOOT CONTROL
4	HIGH SPEED MOTOR 80 THOUSANDS RPM FOR ALL HANDPEICES
5	LOW SPEED MOTOR
6	MOTOR CABLE 3M
7	CRANIOTOME
8	DURA GUARD SMALL
9	DURA GUARD MEDIUM
10	ANGLE H/P SMALL
11	ANGLE H/P MEDIUM
12	ANGLE H/P LARGE
13	STRAIGHT H/P SMALL
14	STRAIGHT H/P MEDIUM
15	STRAIGHT H/P LARGE
16	HUDSON CHUCK
17	CRANIAL PERFORATOR 6/9 MM HUDSON SHANK
18	CRANIAL PERFORATOR 9/12 MM HUDSON SHANK
19	SPARE CUTTERS SMALL
20	SPARE CUTTERS LARGE
21	CRANIOTOME BURR SMALL
22	CRANIOTOME BURR LARGE
23	ROUDED BURRS
24	CONICAL BURRS
25	DIAMOND BURR
<u>STERILIZATION CONTAINER SYSTEM:</u>	
<ul style="list-style-type: none"> • BOTTOM FOR CONTAINER, 592 x 274 x 120 OR BETTER • PRIMELINE LID FOR CONTAINER BOTTOM • STERILIZATION WIRE BASKET, 536X253X70MM OR BETTER • LUBRICATION OIL SPRAY • SILICONE PAD 470X230X30MM • IDENTIFICATION LABEL FOR CONTAINER 	
Clinical Specialty	Neuro Surgery
Generic Name	Shunt – Scope

Clinical Purpose	Endoscopic – Assisted shunt placement
TECHNICAL SPECIFICATIONS	
<ul style="list-style-type: none"> • Endoscopic - Assisted placement of the ventricular chamber of shunts • For shunt surgery in the treatment of hydrocephalus under endoscopic control. • Miniature straight forward telescope 0 degree Diameter 1mm, length 16 cm with • remote eyepiece and light connection including protective tube. • Examination tube diameter 1.3mm working length 16 cm • Blunt Obturator • Mattel Tray for sterilization and storage of telescope. • Fiber Optic light cable diameter 2.8mm length 250 cm. • VITOM Straight Forward telescope 0 degree working distance 25cm dia 10mm working length 10cm • Mechanical holding system 	
<p>Optional:</p> <p>Camera input:</p> <ul style="list-style-type: none"> • Maximal resolution: 1920 x 1080 pixels • Automatic Gain Control: Microprocessor controlled • Connection: Module link cable to video processor module. <p>Features:</p> <ul style="list-style-type: none"> • Modular design: For use with a video processor module and a compatible 3-chip • FULL HD camera head in combination with a compatible with 3-chip camera head • Following modes to be activated without special light source or filter • Color inversion by spectral color shift. • Brightening of dark areas in the endoscopic image. • Contrast enhancement. • Compatible with special FULL HD microscopy camera head. • Highest possible FULL HD resolution of 1920 x 1080 pixels. • Progressive scan for an extremely smooth image without flickering and noise. • Compatible camera heads. Changes in visualization modes, device control, • digital zoom, brightness, video capture, still image capture and direct print • orders, picture-in-picture mode, image direction, white balance and setup setting • can be performed in sterile area via camera head buttons <p>Digital 3-chip Camera Head.</p> <ul style="list-style-type: none"> • programmable • Image sensor: 3 x 1/3" CCD Chip • Pixels: 1920 (H) x 1080 (V) pixels per chip 	

- CCD chip supports; 16:9 input format
- Minimum light sensitivity: 1.17 Lux

Features:

- 3-chip technology.
- Image acquisition in format 16:9, with 1920 x 1080 pixels and progressive scan.
- Freely programmable camera head buttons.
- Compatible with systems with integrated, innovative visualization technology for surgery by shifting the color spectrum and via homogeneous illumination and contrast enhancement
- Suitable light sources are controllable by camera head buttons.
- Suitable insufflators are controllable by camera head buttons.
- Suitable camera control units can store HD images and HD video clips to
- USB mass storage devices in conjunction with camera head.
- Suitable sterilization tray is available to safely store the camera head during sterilization

Digital FULL HD Videoprocessor Module with integrated documentation:

- function for image and video capturing for use with 3-chip-FULL HD
- camera heads,

Technical data:

- Connections: 2 x DVI-D output, 1 x 3G-SDI output, 3 x camera input,
- Max. resolution: 1920 x 1080 pixels
- Power supply: 100-120 VAC, 50/60HZ, 200 - 240 VAC, 50/60 Hz
- Optional: USB to ACC adapter for device control

Features:

- Modular design: For use in combination with at least one camera module.
- Parallel live display of visualization modes besides white light mode (picture-in-picture).
- Up to three different camera modules can be connected to the FULL HD video processor module.
- Integrated picture-in-picture mode of two different camera modules in five different display sizes available.
- Primary and secondary signal source change in picture-in-picture mode can be performed easily via camera head button
- Integrated communication bus for device control and information display of connected devices.
- Highest possible FULL HD resolution of 1920 x 1080 pixels.
- Still image capturing in FULL HD quality.

- Still image capturing can be adjusted by 4 different, time wise variable image
- Freeze selection including picture-in-picture mode.
- Video capturing in FULL HD quality.
- Medical USB printer compatible (plug& play).
- Data capturing functions can be released.
- Automatic adjustment of light intensity of light source via communication bus.
- Control of complete camera system can be realized from camera head from sterile area.
- Grid and pointer can be displayed for improved orientation and communication during surgery.
- Grid and pointer can be displayed individually and together.

27" FULL HD Monitor, With LED Back Light For Low Energy:

- Picture-in-Picture (Pip) And Picture-by-Picture With Medical Grade from manufacturer
- Video inputs: DVI,VGA,S-video, Composite / FBAS
- Video outputs: DVI, S- Video, Composite / FABS

Light Source LED :

- With integrated , high-performance LED and one light outlet,
- Operating hours 30,000
- Power supply 110 - 240 VAC, 50/60 Hz

Clinical Specialty	Neurosurgery
Generic Name:	Radio Frequency Lesion Generator
Clinical Purpose:	To be used in Radio Frequency Thermo Lesions in Neurosurgery and Pain Treatment.

TECHNICAL SPECIFICATIONS

- Constant Current or Constant Voltage Stimulator
- Thermal Lesion, Pulse or Pulse Dosed radio frequency capabilities.
- Impedance Measurement.
- Temperature Control.
- Temperature Adjustable from 20-105 Degrees centigrade or more.
- At least two independent RF Channels.
- Stimulation Frequency: 1-200Hz or more.
- Pulse Duration: 0.1-3ms or more.
- Constant Voltage: 0-10V or more.
- Constant Current: 0-8mA or more.
- Power Supply: Ac 110-240V, 50-60Hz
- Rated Power 100Watts or more.

Accessories:

- Complete Set of Monopolar and Bipolar electrodes.
- Pain Electrodes.
- Stimulation Cable.
- Disposable Cannulas.
- All other standard accessories.

APPROVED PVMS