

**Specifications for High Definition Laparoscopy Surgery System/4K
Laparoscopy Surgery equipment**

4K telescope/Laparoscope

1. 4K compatible telescope/laparoscope with wide field of vision having 5.0 mm outer diameter with 290 mm or more working length for white light and near infrared application.
Direction of view: 30degree 1 scope
2. 4K compatible telescope/laparoscope having 10 mm outer diameter with 310 mm or more working length for white light and near Infrared applications.
Direction of view: 0 and 30 degree: 1 scope each -Laparoscope/telescope should be fully autoclavable
Optimized glass fibre arrangements to ensure a uniform image brightness of highest quality.
3. Field of view 70-90 degree or more for 5.0 mm & 10 mm laparoscope. - Compatible with all camera heads/couplers.
4. Scope should be of same make as the camera.
5. Should have high resolution and less chromatic aberration
6. Completely distortion free
7. Able to provide 4k white light and ICG images
8. Homogeneous light distribution in the peripheral region
9. Eyepiece type connection for universal compatibility

VIDEO PROCESSOR

1. System should have resolution of 3840x2160 for 2D/3D i.e 3D in 4k resolution(3840x2160) and 2D in 4k resolution(3840x2160) and aspect ratio of 16:9 for 3D and 4k video processing (Institution can opt for 2D in 4K resolution or 3D in 4K resolution upgradable system as per their requirement)
2. Should have optical image enhancement for visualization of capillary vessels and fine patterns in the superficial layer of mucosa
3. System should be compatible for both white light and ICG/IR visualization and should have multiple modes of ICG/IR visualization like overlay mode, monochromatic imaging and intensity gain

4. Picture in picture of visualization modes with Standard and Optical Contrast Differentiation.
5. Automatic adjustment of light intensity of light source and controlled from Camera head/console
6. Outputs: All compatible outputs should be there for 4K resolution and DVI for HD resolution.
7. It should have chip on tip technology.
8. It should be focus free.
9. Should have a touch panel control/button press control
10. Should have facility for color customization such to support a range of procedures.
11. Should have digital signal outputs for 4k and HD
12. Should have electronic zoom options upto 2.0x and more in 4k.

LED Light source with fibreoptic cable

1. Should be powerful LED light source able to provide white light & ICG light visualization in full color overlay mode
2. Should have lumen > 2000
3. Lamp life of minimum 5 years or 30,000 or more working hours
4. 4-5 mm fibreoptic cable and 300 cm long
5. Should have facility to select various fluorescence/IR modes such as ICG only ICG, Full color overlay ICG Mode

4K Camera Head

1. Should be CMOS true 4K Camera Head
2. Should have 2 or more programmable head buttons with facility to assign more than 2 functions on single button
3. Should provide 3840x2160 and above ,4k and overlay ICG image.
4. Should be autoclavable/ETO/PLASMA Sterilizer compatible
5. Should have focal length of 18.0 mm or more.

6. Should be compatible with all size of telescopes.
7. Should have automatic shutter & microprocessor controlled automatic gain control
8. Camera head should be able to perform both white light and near infrared applications.
9. Camera Control Function – should be able to change camera setting by console and Camera Head.
10. Camera head cable should be minimum 12 feet long.
11. Camera system should be certified by USFDA / European CE / ICMED 9001 & 13485 (Indian Certification for Medical Devices)/BIS.

4K Medical grade Monitor (55 inch or more)

1. Should have LCD/LED Backlit monitor with capability to show UHD definition resolution of 3840x2160 or more capable of displaying 2D in 4K resolution and 2D in full HD resolution
2. Should have 16:9 aspect ratio
3. Should have multi format display format-picture in picture and picture -out picture and flip pattern to rotate the image.
4. Should have various 4k & HD input/output terminals including 3G/HD/SD SDI,DVI-D,BNC(x5)/HDMI/DP
5. Monitor should be providing a higher contrast image and less color blurring
6. Must be medical grade monitor
7. Monitor should support picture size (Diagonal) 55 inches or more

Image Management System (Recorder)

1. A high definition / 4k video recorder system with single channel Simultaneous recording facility(medical grade 4k recording with CE/BIS/FDA certificate).
2. Preferably should have a LCD Touch panel Display.
3. Should be able to record a full HD imaging recording
4. Should have internal/external hard disk drive of 1TB or more + 2 TB external.
5. The recorder should have two inputs of DVI, HD-SDI, Composite video & S-Video for recording.

6. It Should have a feature of real time in-procedure recording capability besides at the end procedure DVD burning.
7. Such a system should also offer a simple video editing capability for easy separation, slicing & deletion of un-necessary parts with in a stored video sequence from the on console touch screen itself.
8. Should be capable of offering an easy way to input patient data viz demographic, clinical & diagnostic details and in turned linking the same to the stills & video sequences planned to be archived into a folder format for efficient information management from the touch screen.
9. Should support file format for
 - a) Images – Bitmap (BMP), JPEG, Tagged Image Files format (TIFF)
 - b) Videos-MPEG4, AVC/H.264
 - c) Network Integration- System should be capable of integration to the FTP/CIFS/DICOM (C-STORE) Servers

Co2 Insufflator

1. Co2 insufflator should be high flow insufflator which have inbuilt high pressure regulator & heater.
2. It should maintain abdominal pressure during laparoscopic surgery even in case of suction.
3. Warm gas should be supplied by unit to prevent fogging.
4. Maximum flow should be 40 Litre per Minute (LPM) or more.
5. It should be able to show remanent and consumed cylinder status
6. It should have alarm for over pressure, tube obstruction, insufficient supply of gas.
7. Unit should be advance microcontroller microprocessor based
8. It should have display of set pressure, actual pressure, flow rate & volume and delivered pressure.
9. It should be supplied with connecting tube to cylinder & Camera system
10. It should have Power cable -1 (length 3 metre or more)
11. System should be certified with USFDA/European CE /ICMED 9001 & 13485/BIS

General Terms & Conditions

1. System should be supplied with trolley
2. Core equipment like 4K laproscope, Camera Control Unit, Camera Head, Monitor, light source, 4K scopes, insufflator should be from same make.
3. Cost of consumables not covered under warranty/CMC should also be quoted separately

4. System should have 05 years Warranty followed by 05 years CMC for all components including camera Head.
5. Any upgradation of software within warranty and CMC period of equipment will be done free of cost by OEM/Vendor.

Laparoscopy instruments (compatible with the system):

S.No	Name	Qty (As per require ment)
1	VERESS Pneumoperitoneum Needle with spring loaded blunt stylet, LUER-lock, length 13 cm & 15 cm	
2	Reusable Trocar, size 11 mm, consisting of Trocar only, with pyramidal tip Cannula without valve, with insufflation stop- cock, length 10.5 cm Multifunctional Valve, three part dismantle. With Washers pack of 10pcs	
3	Reusable Trocar, size 11 mm, consisting of: Trocar only, with blunt tip. Cannula without valve, with insufflation stop- cock, length 10.5 cm Multifunctional valve, size 11 mm	
4	Trocar, size 11 mm, consisting of Trocar only with blunt tip Cannula without valve with insufflation stopcock, with 2 flanges for fixation of sutures length 13 cm Automatic valve Sliding Cone	
5	Trocar, size 6 mm, consisting of Trocar only, with pyramidal tip Cannula without valve, with insufflation stop- cock, length 10.5 cm Multifunctional Valve, Three part dismantle. With washers pack of 10pcs	
6	Trocar 6 mm diameter with thread and rotating insufflations, should have multifunctional valve to prevent damage of sharp instruments and tip lens while passing through the cannula valve. It should have stopcock for CO ₂ insufflation. The working length of the cannula should be 105 mm. Telescope Stopper	
7	Reducer 11/5mm	
8	Reduction Sleeve, 11/5mm	
9	Injection Needle, LUER-lock, diameter 1.2 mm, size 5 mm, length 36 cm	
10	Three piece laparoscopic KELLY Dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, double action jaws short, consisting of: Plastic Handle, without ratchet, Outer Tube insulated, Forceps Insert, Three part dismantle	

11	Three-piece laparoscopic KELLY Dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, double action jaws long, consisting of: Plastic Handle, without ratchet, with larger contact area. Outer Tube insulated, Forceps Insert, Three part dismantle	
12	Three-piece laparoscopic Dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 em, right angled, double action jaws, consisting of: Plastic Handle, without ratchet, with larger contact area, Outer Tube insulated, Forceps Insert, Three part dismantle	
13	Three piece laparoscopic Dissecting- and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 em, alligator jaws, double action jaws, consisting of: Plastic Handle without ratchet, with larger contact area, Outer Tube insulated, Forceps Insert, Three part dismantle	
14	Three piece laparoscopic REDDICK-OLSEN dissecting and Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 em, heavy, double action jaws, consisting of: Plastic Handle, with ratchet Outer Tube insulated, Forceps Insert, Three part dismantle-03	
15	Three piece laparoscopic CROCE-OLMI Grasping Forceps, rotating, dismantling, insulated, with connector pin for unipolar coagulation, with LUER-Lock connector for cleaning, single action jaws, atraumatic, fenestrated, curved, size 5 mm, length 36 cm consisting of: Plastic Handle, without ratchet, Metal Outer Sheath insulated Forceps Insert, Three part dismantle	
16	Three piece laparoscopic BABCOCK Grasping Forceps, size 5 mm, length 36 cm, with connector pin for unipolar coagulation, atraumatic, jaws with multiple teeth, fenestrated jaws, consisting of: , Plastic Handle, without ratchet, with larger contact area. Outer Tube insulated, Forceps Insert, Three part dismantle	
17	Three piece laparoscopic Grasping Forceps, 2 x 4 teeth, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, double action jaws, consisting of: • Plastic Handle with ratchet Outer Tube insulated, Forceps Insert, Three part dismantle	
18	18 Three-piece laparoscopic Bowel Grasper, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 em, double action jaws, consisting of: Plastic Handle, without ratchet, with larger contact area Outer Tube insulated., Forceps Insert, Three part dismantle	
19	Three piece laparoscopic Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 em, atraumatic, fenestrated,	

	single action jaws, consisting of: , Plastic Handle, without ratchet, with larger contact area, Outer Tube insulated, Forceps Insert, Three part dismantle	
20	20 BLAKESLEY dissecting and biopsy forceps, 5mm, single action jaws, plastic handle without rachet and insulated forcep insert	
21	21 RoBi KELLY Dissecting and grasping forceps, with connector pin for BIPOLAR coagulation, size 5mm length 36 cm, double action jaws, with ring handle, outer sheath, forcep insert	
22	22 METZENBAUM Scissors, rotating, dismantling, insulated, with connector pin for unipolar coagulation, with LUER-Lock connector for cleaning, double action jaws, curved, length of blades 15 mm, size 5 mm, length 36 cm consisting of: Plastic Handle,insulated, without ratchet Metal Outer Sheath insulated, Scissors Insert, Three part dismantle	
23	single use scissor insert Pack of 10 (IXI0)	
24	Three piece laparoscopic Hook Scissors, rotating, size 5 mm, length 36 cm, jaws not crossing with connector pin for unipolar coagulation, single action jaws, consisting of: Plastic Handle, without ratchet, with larger contact area Outer Tube insulate, Forceps Insert, Three part dismantle	
25	Suction and Irrigation Tube, anti-reflex surface with two-way stopcock, for single hand control, size 5 mm, length 36 cm	
26	Suction or Irrigation Tube, with protection basket, with trumpet valve, size 10 mm length 36 cm	
27	silicone tubing set for use with suction irrigation with trumpet valve	
28	Coagulating and Dissecting Electrode, spatula-shaped, blunt with connector pin for unipolar coagulation, size 5 mm, working length 36 cm	
29	Coagulating and Dissecting Electrode, L-shaped, blunt with connector pin for unipolar coagulation, size 5 mm, working length 36 cm	
30	Three-piece laparoscopic needle holder, ergonomic pistol grip with disengageable ratchet, ratchet release on the left side, straight jaws, with tungsten carbide insert 5 mm, length 33 cm	
31	Unipolar HF Cord with 4mm Banana plug and length' 300 cm	
32	Clip Applicator, for use with Titanium-Clips LT-300 (medium large), dismantling, rotating, with ratchet to lock the jaw part holding the clip, size 10 mm, length 36 cm, consisting of: Metal Handle, with ratchet. Metal Outer Tube Insert, Three parts dismantle	
33	Clip Applicator, for use with Titanium-Clips LT-400 (-large), dismantling, rotating, with ratchet to lock the jaw part holding the clip, size 10 mm, length	

	36 cm, consisting of: Metal Handle, with ratchet. Metal Outer Tube Insert, Three parts dismantle	
34	Claw Forceps, rotating, size 10 mm, length 36 cm, 2 x 3 teeth, single action jaws, consisting of: Metal Handle, with MANHES style ratchet Outer tube insulated, Forceps Insert, three part dismantle	
35	Three piece laparoscopic autoclavable forceps for retrieving gallstones , double action 1 jaws with 360 degree rotational sheath, size 10 mm, length 36 cm long, ergonomic metal handle with plastic finger rings with larger contact area at the finger ring to avoid pressure sores, can be dismantled with the press of a button	
36	Bipolar HF Connecting Cable length 300 cm, compatible with all standard cauteries	
37	Fascial Closure Instrument for sub cutaneous ligature of trocar incisions	
38	Tray for sterilization of laparoscopic instruments	
39	Formalin chamber for keeping laparoscopic instruments	
40	Knot pusher, 5 mm	
41	Reusable Endoscopic polymer clip applier, Large size with shaft size 33 cm and shaft diameter 10 mm	
42	Polymer clips- Large size 30 cartridges	