REQUEST FOR BUGETARY ESTIMATE

Ref.: HSCC-NBCC/Med. Eqpt./01 dt. 04.12.2020

HSCC (India) Ltd. intends to invites **On-line bids** from eligible bidders, in single stage two bid system for supply, installation, testing, commissioning & handing-over of various Medical Equipment for **a Reputed Hospital in New Delhi** for items Annexed at Annexure-I. The Technical Specifications are Annexed at Annexure-II.

It is requested to submit the Budgetary Quotation of the Equipments in Company Letter Head, as per the single page format enclosed at Annexure-III, in both Hard & Soft Copy within 10 days of issue of this Notice at following address:

Chief General Manager (Procurement)
HSCC (India) ltd.,
E-6(A), Sector-1,
NOIDA (U.P.) – 201 301.

Soft copy may please be send on following e-mail ID:

p_kumar@hsccltd.co.in &
hsccsic9@gmail.com

CGM (Proc), HSCC (I) Ltd

List of Equipment

ANNEXURE-I

Sl no.	Equipment/Instrument type	Qty(Nos)
	A. Arthroscopy	
IMAGING SYSTEM, RF, SHAVER, PUMP, SCOPE & Accessories		
CAMERA/IMAGING SYSTEM		
1	4K Integrated Camera System with LED Light Source, 3 Camera Head, 3 Light Guide cables, Documentation Tablet, Fully Integrated Advance Image Management System	10
2	32º - 4K Monitor	10
3	Equipment Cart with Articulating Arm for Artrocarts & Controlling Tablets	2
4	1 Shaver Console with 4 regular Handpiece, 3 Small Joint Handpiece & 3 Footswitch	15
5	1 Dual Wave Pump - Fluid Management System with 1 DualWave Wireless Remote	10
6	1 RF Coblation System with 3 Footswitch	8
7	4mm - 30 Degrees 4K Arthroscope with Sheath and Trocar	25
8	4mm - 70 Degrees 4K Arthroscope Sheath & Trocar	15
KNEE ARTHROSCOPY KNEE ARTHROSCOPY - INSTRUMENT SETS		
10	Comprehensive ACL Instrument Set	12
11	Comprehensive PCL Instrument Set	8
12	Collateral Ligament Reconstruction Set	4
13	Advanced Graft Prep Station	8
14	BTB Graft Harvest and Preparation Instruments	4
15	Graft Tubes Set	4
16	Hamstring Graft Harvest and Preparation Instruments (2 Closed, 1 Open)	12
17	Quad Tendon Harvest and Preparation Instrument System	4
18	Flexible Reamer Set - 8 Flexible Reamers with different sizes	15
19	Low Profile Reamer Set - 11 LP Reamers with different sizes	8
20	Probe, Rasps, Curettes & Osteotome Set for Knee Arthroscopy	8
MENISCAL REPAIR & MENISCTOMY - INSTRUMENT SET		
21	Arthroscopic Meniscectomy Instrument Sets with 20 Specialized Hand Instruments for Menisctomy	8
22	Fully Integrated Meniscal Repair Set for Inside-Out, Outside-In & All-Inside Meniscal Repair	8
MENISCAL REPAIR & MENISCTOMY - INSTRUMENT SET		
23	Microfracture Instrument Set – 5 Cartilage Pick with Sterlization Case	4
KNEE POSITIONING SYSTEM		
24	Low Profile Leg Holder	4
KNEE OSTEOTOMY & TROCHLEOPLASTY SYSTEM		
25	Trocheloplasty Instrument Set	1
26	Opening Wedge Osteotomy Instrument Set for proximal tibia	2
SHOULDER ARTHROSCOPY		
28	Advanced Shoulder Arthroscopy Set including General Instruments, Suture Passing and retrieval devices for Rotary Cuff	8
29	Advanced Shoulder Arthroscpy Set including General Instruments & Labral Suture Passing and retrieval devices for Shoulder Instability	8
30	AC-Joint Instrument Set for Acute AC Joint Reconstruction	2
31	Latarjet Instrument Set	2
32	Tissue Elevator and Bone Preparation System - Wide variety of Tissue Elevators, Rasps, Curettes, and Chondro Picks all come contained in one system	4
33	Modular Soft Tissue Retractor Sets	4

	SHOULDER LIMB POSITIONERS	
34	3D - Comprehensive Shoulder Limb Positioner System	1
35	3-Point Shoulder Distraction System	8
	HIP ARTHROSCOPY **HIP ARTHROSCOPY - INSTRUMENT SET**	
36	Comprehensive Hip Arthroscopy Instrument Set which includes Hand-held Instruments, Drill Guide System, Metal Cannulas, Chondral Pick, Currette and Rasps	1
37	Hip Arthroscope Set - 4mm 30 Degree Scope with Sheath & Obturator	2
38	Hip Arthroscope Set - 4mm 70 Degree Scope with Sheath & Obturator	2
	HIP ARTHROSCOPY - POSITIONERS	
	SMALL JOINT ARTHROSCOPY **WRIST ARTHROSCOPY - ARTHROSCOPE SET**	
40	Wrist Arthroscope Set - 2.4 mm 30 Degree Scope with Sheath & Obturator	3
41	Wrist Arthroscope Set - 1.9 mm 70 Degree Scope with Sheath & Obturator	3
42	Ankle Arthroscope Set - 2.7 mm 70 Degree Scope with Sheath & Obturator	3
	SMALL JOINT ARTHROSCOPY - INSTRUMENT SET	
43	Wrist Arthroscopy - Handheld Instrument Set	1
45	Elbow - Arthroscopy Set includes Retraction/Elevation with Arthroscopic Scissors and Punches, Loose body graspers, Osteotomes and Curettes	1
46	Elbow UCL Reconstruction Instrument Set	1
	SMALL JOINTS - DISTRACTION SYSTEM	
48	Ankle Distraction System	2
49	Wrist Traction Device Includes Wrist Traction Tower, Finger Distraction Attachment, Finger Traps and Atrometic Hand Holder Traction Attachment	2
	OTHER HAND-HELD INSTRUMENTS	
50	General Arthroscopy Hand Held Instruments Including Straight Punch, Rotary Punch, Angled Punch, Graspers, Scissors - Set of 25 Instruments	2
51	General Orthopaedic Instruments Set including Towel Clips, artery forceps, rongeurs, osteotomes, chisels, retractor sets, etc	8
	POWER SYSTEM	
55	Power System for Arthroplasty including Handpiece, Drill, Saw, Reamer, Wire Attachment, Lithium Ion Battery, Charging Station and Asceptic Transfer Kit	2
56	Power System for Small Joints/Bones Including Handpiece, Drill, Saw, Reamer, Wire Attachment, Lithium Ion Battery, Charging Station and Asceptic Transfer Kit	1
57	Power System for Sports Medicine Including Handpiece, Drill, Saw, Reamer, Wire Attachment, Lithium Ion Battery, Charging Station and Asceptic Transfer Kit	6

B. PHYSIOTHERAPY AND SPORTS MEDICINE

S. No	Modality	Qty(Nos)
1	Ultrasound Therapy	6
2	Interferential Therapy with Inbuilt Vaccuum	8
3	Short Wave Diathermy	2
4	Microwave Diathermy	5
6	Pneumatic Compression Therapy Unit	4
7	CPM For Knee	8
8	CPM For Shoulder, Elbow and Wrist	2
10	Infra Red Lamp	3
11	Digital Shoulder Wheel	5
12	Hydrocollateral Packs	3
14	Contrast Bath for Lower Limb	4
17	Contrast Bath for Upper Limb	2
18	Anti Gravity Treadmill for Sports	1
20	Portable Cryotherapy Unit (-60 Degree)	2
23	Underwater Tread Mill	1
28	Shockwave Therapy	4
30	Combination Microwave and Traction Therapy with Couch	2
31	Hot Magner	6
33	Combination Deep Oscillation With Electro, Ultrasound	2
36	Aerobic Testing Bike with Constant Power	2
37	Aerobic Testing Bike for lower limbs	2
38	Sprint Testing Bike	2
39	Wingate Anaerobic Testing Bike for Arm	2
40	Bobath Therapy Couch	4
42	Hi-Speed Functional Assessment And Training Device For Lower Extremities	1
43	Hi-Speed Functional Assessment And Training Device For Upper Extremities	1
44	Cardio Pulmonary Exercise Test System	2
45	Ergometer	2
46	Area Therapy LASER	1
47	System for the Functional Evaluation of Walking	1
48	Foot Pressure Measurement 2 meters	1
49	Static and Dynamic Balance System	1
50	Body Composition Equipment	2
51	Computerized Arthrometer	1
52	Computerized Spirometer	1
53	Hypotoxic Training System	1
55	LIPUS Unit	6
56	Heart Rate Monitors	10
57	Lactate Analyser	4
58	Strenth Gym (Stand Alone System)	1
59	Cardio Vascular Gym	1
60	Vacuusport for Upper Limp	1
61	Vacuusport for Lower Limp	1
62	DVT Pump	10
63	Physiotherapy Couches and Examination tables	40
67	CPM for Ankle	1
69	Free Excerise Apparatus	1
71	Muscle Stimulator	2
78	Biomechanical Lab	1
	Sports Psychology	
79	Telemetry Biofeedback and Neuro Feedback System	1
80	Computerized Sports Vision Training System	1
83	Viana Test System	1
86	Soundproof Meditation and Relaxation Room	1

C. Dry & Wet Lab		
1	Dry Lab	1
D. Surgical OT Equipment-Joint Replacement		
1	General OT Equipment Set (Special)	2
3	Cable System	1
10	Imapaction Grafting	1
12	Wire Insrumentation Set	3
16	Reduction Forceps Set	3
19	Chisel Set	2
E General OT Equipments		
1	OT Table main OT	6
2	OT Table Emergency	1
3	OT Light Camera Fitted	6
4	OT Light Without Camera	1
5	Noiseless Suction	20
6	Surgical Diathermy	12
7	C-Arm	4
9	Plasma Gas Stenilizer	2
10	ETC	2
11	Vacuum autoclave	7
12	Table-Top Vacuum autoclave	7
13	Tourniquet Automatic	10
14	OT Light Mobile	4
15	Plaster Cutting Saw	4
F. Anethesia Equipments		
1	Work Station Complete with Monitor	11
2	Suction Machine	3
3	USG Machine with 3 Probles	4
4	Adult Fiberoptic Bronchoscope Video laryngoscope & monitor	1
5	Peripheral Nerve Stimulator (Extra cost of Consumbles)	4
6	Defibrillator with Monitor	5
7	Transport Ventilator	2
8	Transport Monitor	2
9	Glucometer	8
10	Ventilator-ICU	4
11	Monitor for PR, BP, S/(O2)	6
12	Weighing Machine	3
13	Stethoscope	7
14	Radiofrequency ablation	1
15	ACU Laser	4
16	Multi Para Monitor	14
17	DVT Pump	4
18	ECG Machine	2
19	Blood Gas Analyzer	2

A-1

4K Integrated Camera System with LED Light

TECHNICAL SPECIFICATION
4K/UHD imaging System should have integrated unit of Camera Console, LED/XE Light Source & Imaging Management System. It should have intuitive tablet controller to control features of Imaging System. The Tablet should have provision to drape in a cover for use in a sterile field. Camera console, LED/XE light source & Image Management System should have following features **4K/UHD Camera Console** • The Console should combine the latest technology, 4Kvision (2160p), 4K 3-Chip CMOS camera with up to 10-bit for 1 billion colorizations • Should have Built in Wi-Fi router for wireless connectivity & transmission • Should have preferably One Console and One Unique Tablet Interface to simplify use, and programmable individual surgeon preferences to enhance the user experience. • Camera Rear Panel should have numerous Input & Display Port/DVI Outputs/3G SDI Outputs. • Camera should have resolution of 3840 X 2160 lines with Progressive Scan Technology. • The system should give Surgical display (Heads-up display) in the monitor showing current values for Pump, Shaver, RF settings

LED Light Source • The LED light source should have minimum 30,000-hour Life span (14 years at 40 hours per week). • XE light source should have at least 500-hour Life span. • Should have up to 7 Year warranty against LED Engine. • Power consumption: 100 W (light output equivalent to approx. 400 W Xenon) • Light output/light flux: minimum of 1,800 lumen or more (typical) • Should be Compatible with Light Cables of Different Manufactures • Should have Light guide port turret with ACMI™ Standard, Storz™, Wolf™, and Olympus™ light cable options	1		
Fibre-Optic Light Cable • Should have Light Guide Cable fused at proximal end to maximize light transmission having diameter of minimum 5 mm & length of 2.5-2.7 mm	5		
Integrated Image Management • Should have DICOM Capability -Pictures should be Exported to hospital PACS • Should have provision to Export data to Network (Shared Folder) • Export of Images/Video to USB, I-Pad, Desktop, Laptop through Networking/Wi-Fi connectivity. • Should have network based Live video streaming. • Should have minimum 128 GB Storage or more space in console. • Surgeons should review, edit, annotate and tag stills and video recordings, as well as create and instantly transmit images, videos and educational postoperative reports to patients with help of IPad/wireless tab through a pre-installed surgeon software	1		

UHD 4K Camera Head • The 4K Camera head should have resolution of minimum 3840 x 2160 Pixel (8.3 Million Pixels) • Camera Head should be of Titanium Housing and Hermetically Sealed for Autoclaving • Camera Head should have Programmable Buttons to Set Surgeon Preferences. • Titanium housing with 2 programmable buttons for 5 functions (4 individual presets + White Balance) • Inbuilt zoom facility should be available regardless of telescope used • The camera head should have minimum 1.5x digital zoom or more • Should be Waterproof and disinfectant-proof • Camera Head should have minimum 7 Years warranty against autoclaving	2	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-2, **UHD 4K Monitor**

TECHNICAL SPECIFICATION
• Should be minimum 32" to 55" 4K monitor with Resolution of 3840 x 2160 (4 times HD) • Should have Picture-in-Picture and Side-by-Side Display Modes • Monitor should support 10 bits (1.073 billion colors) • Should have Versatile Multi-Format Signal Support • Should have Wide Screen and aspect ratio of 16:9 • The Contrast Ratio should be 1400:1 or more • The Video Input should have 1 Display Port, 1 DVI port & 1 3G-SDI • Video Output: 1 DVI port & 1 3G-SDI

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-3, Equipment Cart with Articulating Arm for Arthro Carts and Controling Tablet

TECHNICAL SPECIFICATION
• The video Cart should have Shockproof powder-coating • Should have Anti-Static roller set with cable guards Ø 125mm • Should have Detachable cable guards • Should have minimum 4 lockable castors • Should have Isolating transformer 2000VA with earth leakage guard • Should have a minimum of 5 storage shelves • Should also have an option extendable storage shelf • Should have provision of Drawer with lock • Should allow Mounting position for central-monitor-mount • Should also allow Mounting position for articulation-monitor-arm • Should also have additional Mounting position for tablet-arm • Should have Cable winding aid • Should also have Foot Pedal Holder, Camera Holder & Fluid Bag Holder

- Demonstration of the equipment to be provided if needed

A-4 Arthroscopy Shaver System

TECHNICAL SPECIFICATION	Quantity
Shaver Console: • The system should have to 2 independent ports for Handpiece attachments and 2 independent ports for Foot Switch • The Motor should offer Forward, Reverse and Oscillation Mode for Resection • Should have different modes of Oscillation like Standard; Efficient; Aggressive. • Should have intuitive touchscreen control • Should be able to operate 2 handpieces simultaneously if required • The system should have automatic handpiece recognition • The system should be controlled via footswitch and/or touchscreen. • Should have an option of integration with arthroscopic pump if required	1
Shaver handpiece: • The handpiece should have variable RPM upto 8000 or more • The autoclavable shaver hand piece, which should be compact, lightweight and ergonomically designed, should be available with & without hand control options. • The connecting cable should be autoclavable and replaceable with length of approx. 10Ft or more • The shaver handpiece should be lightweight and should have detachable suction lever. • The shaver handpiece should be compatible with both shaver blade, burr and special blades (if any) • Handpiece should be compatible with microblades of minimum size 1.9mm or less • Input voltage of 100 to 240V, 50/60 Hz power consumption not more than 350VA	4

Shaver Footswitch: • Should be water resistant • The variable speed foot pedal should be sturdy with a long connecting cable. • The foot pedal controls should include three standard operating modes, i.e. Forward, Reverse and Oscillation. • Should have speed control & toggle options Shaver Blades and Burrs: • Soft tissue resection blades having précised machine thick wall inner and outer of various diameters. • Blades material should have high strength to bear high temperature.	3	

Demonstration to be provided if needed.

Equipment should be USFDA approved.

A-5

Fluid Management System

TECHNICAL SPECIFICATION	Quantity
• Pump System should have intuitive touchscreen control • Should have Presets for various joints like (Shoulder, Knee, Small Joint, Hip) • The Flowrate: ≥ 1500 ml/min should be automatically adjusted • The max flowrate setting should be adjustable from 50% to 100% (increments of 10%) • Flow rate should be change as per operating cannula connection • The pressure setting should be adjustable between 10 and 120. (Increments of 5). • Should have automatic Joint pressure maintenance up-to 120 mmHg • Should have the real time flow rate monitoring • The estimated fluid usage information should be available. • Should have interface with Shaver System if required • Should have shaver boost functionality: automated pressure increases when shaver is utilized; 0 to 50% (10% increment steps) • Should have Lavage mode – increases pressure when utilized • Should have 2 tubing options: One-piece tubing or 2-piece tubing (day tubing + patient-end tubing) • The overpressure control should be 300 mmHg ± 5 • System should wireless/wired remote Control function. • 100 tubings to be provided with each set.	—

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-6 Arthroscopy RF System

TECHNICAL SPECIFICATION	Quantity
Console • System should have intuitive touchscreen control • RF should be controlled via hand-control buttons on probes, foot pedal or touchscreen. • Should have hand control also available with foot pedal connected. • Should have optional foot pedal override functionality. • System should have 3 button controls with Ablation, Coagulation and Ablation-Power-Setting. • Should have Metal proximity detection should be available for Scope saver. • Probes can get unplugged and replugged during surgical time and system can therefore withstand power-interruptions • The System should work on low voltage 100 kHz square wave (~100- 240 V) and should produce only less temperature for more patient safety • The System should be based on low temperature Bi-Polar Radio frequency technology. They should not have any need for the secondary patient grounding pad. • The RF probe should have Multi Electrode Technology that will allow a uniform production of plasma • RF probe should have 90Degree/ various sizes tip configured/ designed to access confine anatomy and ablate tissue rapidly	1
Foot Pedal	3

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-7 **4K Arthroscopes – 30 Degree**

TECHNICAL SPECIFICATION	
• 4K Arthroscopes 30° should have diameter of 4mm to 5mm diameter with minimum of 152mm length with its corresponding sheath and obturator. • Scope Should be a Wide Angle, Direct View 4K Arthroscope • The scope should be fully Autoclavable. • The 4K scope should offer High depth of field focus with high resolution all the way to the edge of picture • Should have Anti-reflective coated, high-quality glass cone (insight light post) • Should be Scratch resistant sapphire lens on proximal and distal tip	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-8 4K Arthroscopes – 70 Degree

TECHNICAL SPECIFICATION	
• 4K Arthroscopes 70° should have 4mm to 5mm diameter and minimum 155mm length with its corresponding sheath and obturator • Scope Should be a Wide Angle, Direct View 4K Arthroscope • The scope should be fully Autoclavable • Should offer High depth of field focus with high resolution all the way to the edge of picture • Should have Anti-reflective coated, high-quality glass cone (insight light post) • Should be Scratch resistant sapphire lens on proximal and distal tip	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-10 Comprehensive ACL Instrument Set

TECHNICAL SPECIFICATION	Quantity	
One ACL system should consist of:		
• Universal handle with simple wheel locking mechanism & quick release button for one handed adjustment of marking hook at desired position	1	
• Drill sleeve for drill guide 3.5mm /Compatible with the set	1	
• Drill sleeve for drill guide 2.4mm/Compatible with the set	1	
• Drill sleeve, stepped	1	
• Drill tip guide pin, 2.4mm /Compatible with the set	1	
• Drill tip guide pin with suture eye 2.4mm /Compatible with the set	1	
• Transportal Femoral Offset Guide 5mm,6mm /Compatible with the set	1	
• Tibial ACL marking hook with 7-8mm /Compatible with the set wide tip with 8-9 mm /Compatible with the set pin exist from cross hair laser mark	1	
• Femoral foot print ACL marking hook to be used from lateral portal for making anatomic tunnel. It should have 7-8mm /Compatible with the set round tip to visualize socket before drilling. It should have laser lines at 2-3 mm /Compatible with the set increments to allow foot print & back wall measurements as well	1	
• Retro Spade Drill Pin for making 4.0 mm /Compatible with the set tunnel with shaft dia of 2.4mm /Compatible with the set & having marking on it to measure intraosseous length with eyelid on its proximal end	1	
• Multi-Use Marking Hook	1	
• Transportal ACL guide for antero-medial portal approach available in 4mm through 8mm sizes /Compatible with the set.	1	

• Reamers for femoral socket preparation should be low profile, extra thin shaft and 'two flute design'	1	
• Full thickness cannulated drills with calibrated depth marks for tibial tunnels	1	
• Hamstring tendon stripper has millimeter markings on the shaft for graft length determination during harvesting with closed and open-end options.	1	
• Tunnel Nocther for making perfectly sized key hole in the anterior wall of femoral tunnel to facilitate guide pin & interference screw	1	
• Tunnel Notch Plasty Rasp for notchplasty & chamfering of tibial & femoral tunnel rim	1	
• Low Profile Femoral headed reamers, cannulated-6mm,7mm, 8mm, 9mm, 10mm	1	
• Tibial Cannulated drills –6mm, 7mm, 8mm, 9mm, 10mm /Compatible with the set	1	
• Cannulated drill Bit 4.5 mm /Compatible with the set	1	
• Chondro Pick 20° and 40°	1	
• Chondro Curettte	1	
• Meniscal depth measuring probe	1	
• Meniscus Repair rasp	1	
• Drill stop for safe mechanical pin insertion	1	
• Drill Guide System Case.	1	
• Bio-interference Cannulated Screw Driver	1	
• Titanium Hex Cannulated Screw Driver	1	
• ACL sterilization case	1	
• The Equipment should be USFDA approved		
• Firm should provide warranty of 05 years for the equipment.		
• Firm should provide CMC of 05 years for the equipment.		
• Demonstration to be provided.		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-11 Comprehensive PCL Instrument Set

TECHNICAL SPECIFICATION	Quantity	SOURCE OF INFORMATION
Drill Guide System for PCL Reconstruction should have • The drill guide set should have different marking hook options for multiple indications all in one, small and easy to manage set. • The drill guide should have adjustable C ring in the handle allowing several drilling angles with accuracy • The drill guide system should accommodate multiple drill sleeves for retrograde reaming and antegrade reaming • The drill sleeve optionally can act as a depth stop for retrograde drilling.		Brochures of companies of repute attached
One PCL system should consist of: • Universal handle with simple wheel locking mechanism & quick release button for one handed adjustment of marking hook at desired position	1	
• Drill sleeve for drill guide 3.5mm /Compatible with the set	1	
• Drill sleeve for drill guide 2.4mm /Compatible with the set	1	
• Drill sleeve, stepped	1	
• Drill tip guide pin, 2.4mm /Compatible with the set	1	
• Drill tip guide pin with suture eye 2.4mm /Compatible with the set	1	
• Transportal Femoral Offset Guide 5mm,6mm /Compatible with the set	1	
• Tibial marking hook with 10-11mm /Compatible with the set dia tip to visualise PCL footprint & protect posterior structures from entering drill pin. It should have laser marks extend from the entrance point of pin at 2-3 mm /Compatible with the set interval	1	
• Femoral marking hook with 7-8mm /Compatible with the set	1	

dia tip to allow visualization of PCL Femoral tunnel before drilling. It should have laser marking extend from the pin at 2-3 mm /Compatible with the set interval to allow measurement from the cartilage border		
• Should have PCL popliteal protection cap	1	
• Should have PCL Curved Curette close end	1	
• Should have PCL Straight Curette close end	1	
• PCL Suture Pusher with two prong on distal end	1	
• Should have PCL Rasp Curved	1	
• Retro Spade Drill Pin for making 4.0 mm /Compatible with the set tunnel with shaft diameter of 2.4mm /Compatible with the set & having marking on it to measure intraosseous length with eyelid on its proximal end	1	
• Multi-Use Marking Hook	1	
• Reamers for femoral socket preparation should be low profile, extra thin shaft and 'two flute design'	1	
• Full thickness cannulated drills with calibrated depth marks for tibial tunnels	1	
• Hamstring tendon stripper has millimeter markings on the shaft for graft length determination during harvesting with closed and open-end options.	1	
• Tunnel Nocther for making perfectly sized key hole in the anterior wall of femoral tunnel to facilitate guide pin & interference screw	1	
• Tunnel Notch Plasty Rasp for notchplasty & chamfering of tibial & femoral tunnel rim	1	
• Low Profile Femoral headed reamers, cannulated-6mm,7mm, 8mm, 9mm, 10mm /Compatible with the set	1 each	
• Tibial Cannulated drills –7mm, 8mm, 9mm, 10mm /Compatible with the set	1 each	
• Cannulated drill Bit 4.5 mm /Compatible with the set	1	
• Chondro Pick 20° and 40° /Compatible with the set	1 each	
• Chondro Curettte	1	
• Meniscal depth measuring probe	1	
• Meniscus Repair rasp	1	
• Anatomically curved PCL Rasp	1	
• Drill stop for safe mechanical pin insertion	1	
• PCL suture pusher	1	
• Drill Guide System Case.	1	
• PCL Curving Suture Passer	1	

• Bio-interference Cannulated Screw Driver • Titanium Hex Cannulated Screw Driver • PCL sterilization case • The Equipment should be USFDA approved • Firm should provide warranty of 05 years for the equipment. • Firm should provide CMC of 05 years for the equipment. • Demonstartion to be provided.	1 1 1	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-12 Collateral Ligament Reconstruction Set

TECHNICAL SPECIFICATION	Quantity
Drill Guide System for Collateral Ligament Reconstruction should have	
• The drill guide set should have different marking hook options for multiple indications all in one, small and easy to manage set.	
• The drill guide should have adjustable C ring in the handle allowing several drilling angles with accuracy	
One Collateral Ligament system should consist of:	
• Universal handle with simple wheel locking mechanism & quick release button for one handed adjustment of marking hook at desired position	1
• Collateral Ligament Retractor	1
• Collateral Ligament Rasp	1
• Drill sleeve for drill guide 2.4mm /Compatible with the set	1
• Drill sleeve, stepped	1
• Drill tip guide pin, 2.4mm /Compatible with the set	1
• Drill tip guide pin with suture eye 2.4mm /Compatible with the set	1
• Fibular marking hook	1
• Tibial collateral marking hook	1
• Femoral Collateral Marking Hook	1
• Parallel Drill Guide	1
• Low Profile headed reamers, cannulated-6mm,7mm, 8mm, 9mm, 10mm /Compatible with the set	1
• Cannulated drill Bit 4.5 mm /Compatible with the set	1
• CL sterilization case	1
• The Equipment should be USFDA approved	
• Firm should provide warranty of 05 years for the equipment.	
• Firm should provide CMC of 05 years for the equipment.	

• Demonstration to be provided.		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-13 Graft Pro – Advanced Graft Prep Station

TECHNICAL SPECIFICATION	Quantity	Source of Information
The graft preparation system should have the features that simplify and accelerate graft preparation of soft tissue and BTB grafts • It should be Small, lightweight board with Nonslip feet • It should have Ratcheting sliders to allow automatic locking of attachments with squeeze release button • It should have Dual track for preparation of two grafts simultaneously • It should have Separate slot for BTB bone block		Brochures of companies of repute attached
Graft master Preparation Board should have		
• Button Holder with ruler	1	
• Graft Attachment with Tensiometer	1	
• GraftLink Attachment	1	
• Tissue Clamps 2 nos or more	1	
• Adjustable posts	1	
• Graft sizing block 6-10mm diameter holes in 0.5mm increments. /Compatible with the set	1	
• Graft Board Sterilization Case	1	
• The Equipment should be USFDA approved		
• Firm should provide warranty of 05 years for the equipment.		
• Firm should provide CMC of 05 years for the equipment.		
• Demonstration to be provided.		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-14 BTB GRAFT HARVEST AND PREPARATION INSTRUMENTS

TECHNICAL SPECIFICATION	Quantity
The system consist of:-	
• Parallel graft knife handle	1
• Parallel graft knife blades, 8 mm /Compatible with the set	1
• Parallel graft knife blades, 9 mm /Compatible with the set	1
• Parallel graft knife blades, 10 mm /Compatible with the set	1
• Parallel graft knife blades, 11 mm /Compatible with the set	1
• Graft harvesting cutting guide, 8.5 mm width /Compatible with the set	1
• Graft harvesting cutting guide, 9.5 mm width /Compatible with the set	1
• Graft harvesting cutting guide, 10.5 mm width /Compatible with the set	1
• Graft harvesting kit w/hall style sagittal saw blade and 2 each threaded fixation pins, short and long	1
• Hall style sagittal saw blade with 7 mm / /Compatible with the setdepth stop	1
• Notchplasty and graft harvesting osteotome, 8 mm /Compatible with the set	1
• Graft harvesting retractor	1
• A mechanical depth stop provides a secure depth control when used in conjunction with the graft harvesting cutting guide	
• The Equipment should be USFDA approved	
• Firm should provide warranty of 05 years for the equipment.	
• Firm should provide CMC of 05 years for the equipment.	
• Demonstration to be provided.	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-15 Graft Tubes Set

TECHNICAL SPECIFICATION	Quantity	

• The set should consist of
  ○ Graft Tube Flange
  ○ Graft Tube Tray
  ○ Graft Tubes should range between 5mm to 13mm /Compatible with the set on increment of 0.5mm /Compatible with the set
• Graft Tubes should be of full circumference, full length, clear tubes that facilitate graft compression, sizing and preparation. The tubes should be transparent with an etched ruler allow visualization of the graft during diameter and length sizing
• There should be a Funnelled entrance and attachable handle ease the entry of grafts into the sizer, allowing compression of up to 2 mm/ /Compatible with the set. There should be small holes in the Graft Tubes allow hydration of the graft or injection of biologics along the entire length.
• There should be a tapered tip allows delivery of the graft directly into the tibial tunnel or medial portal.
• Should come with Graft Tube Instrumentation Case
• The Equipment should be USFDA approved.
• Firm should provide warranty of 05 years for the equipment.
• Firm should provide CMC of 05 years for the equipment.
• Demonstration to be provided.
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- Demonstration of the equipment to be provided if needed

A-16 Hamstring Graft Harvest & Preparation Instruments

TECHNICAL SPECIFICATION	Quantity
The hamstring tendon strippers provide maximum tendon length with less soft-tissue trauma through a small incision just medial to the tibial tubercle. The set consist of following: - • Hamstring Tendon Stripper, Open End, 5mm, 6mm • Hamstring Tendon Stripper, Closed End 6 mm The Equipment should be USFDA approved. Firm should provide warranty of 05 years for the equipment. Firm should provide CMC of 05 years for the equipment. Demonstration to be provided.	 1 Each 1

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-17 Quads Tendon Harvester & Preparation and instruments system

TECHNICAL SPECIFICATION	Quantity
• It Should be Reproducible technique and should ensure safe subcutaneous tendon harvesting. • The Set should contain • Quad Tendon Graft Cutting Guide • Depth markings on the shaft allow visual confirmation of graft length • Quad Tendon Stripper/Cutter • Sharp leading-edge strips graft away from surrounding tissue • Quad Tendon Graft Cutting Blade 9 - 11mm /Compatible with the set • Instrument Case • The Equipment should be USFDA approved. • Firm should provide warranty of 05 years for the equipment. • Firm should provide CMC of 05 years for the equipment. • Demonstration to be provided.	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-18 Flexible Reamer set with different sizes

TECHNICAL SPECIFICATION	Quantity	
The set should contain • Flexible Reamers from 7mm to 11mm wit 0.mm increment /Compatible with the set • Flexible Screw Tap from 7mm to 10mm/Compatible with the set • Flexible Screwdriver Shaft Curved Guide for Flexible Pins • Pin Puller • Ratcheting Screwdriver Handle The Equipment should be USFDA approved. Firm should provide warranty of 05 years for the equipment. Firm should provide CMC of 05 years for the equipment. Demonstration to be provided.		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-19 Low Profile Reamer Sets - with different sizes.

TECHNICAL SPECIFICATION	Quantity	
• Low-profile reamers should facilitate femoral socket preparation through the medial portal and also allow greater flexibility in femoral socket placement for transtibial procedures. • The reamer's should have extra thin shaft and "2-flute" design provide a flat profile that easily passes through the portal and avoids damaging the femoral condyle and PCL. • The reduced length of the flutes should allow the drill to spin without contacting PCL fibers. • The set should contain reamers from Low-Profile Reamers, 5 mm-11 mm/Compatible with the set. • The Equipment should be USFDA approved. • Firm should provide warranty of 05 years for the equipment. • Firm should provide CMC of 05 years for the equipment. • Demonstration to be provided.		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-20 Probe, Rasps, Curette & Osteotomes for knee Arthroscopy

TECHNICAL SPECIFICATION	Quantity
• Arthroscopy Probes should be graduated probe for palpation of intra-articular structures. The hardened alloy should resists bending. It should have Lightweight, ergonomic handles with an orientation surface that provide optimum tactile feel. It should be graduated at 2mm intervals and approximately 18 cm long	
• Rasp: The curved tunnel/notchplasty rasp for completing the notchplasty and chamfering of the tibial and femoral tunnel rim.	
• Curettes should have Both modular and non-modular curette options are available to meet individual surgeon preferences This consist of following: -	
➢ Ring Curette, one side cut 10 deg, Length approx. 13 Cm	1
➢ Ring Curette, both side cut 10 Deg, Length Approx 13 Cm	1
• Osteotome: should be approx 8mm wide for harvesting of the patellar and tibial bone block from an inferior approach under the tendon after cortical bone resection.	1
• The Equipment should be USFDA approved. • Firm should provide warranty of 05 years for the equipment. • Firm should provide CMC of 05 years for the equipment. • Demonstration to be provided.	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-21 Arthroscopy Meniscectomy Instrument Set with specialised Hand Instruments for Meniscectomy

TECHNICAL SPECIFICATION	Quantity
Meniscectomy Instrument set should have:-	
• Probe, hook, 3.4 mm /Compatible with the set tip w/ 5 mm markings /Compatible with the set	2
• Punch, slender straight tip, 2.75 mm /Compatible with the set straight shaft	2
• Punch, large straight tip, 2.75 mm /Compatible with the set straight shaft	2
• Grasper, mini straight tip, 2.75 mm /Compatible with the set 15° up curved shaft, with Handle	2
• Punch, standard straight tip, 3.4 mm /Compatible with the set straight shaft	2
• Scissor, serrated tooth straight tip, 3.4 mm /Compatible with the set straight shaft	2
• Wide biter Punch, 15° up tip, 3.4 mm /Compatible with the set 15° up curved shaft	2
• Grasper, blunt straight tip, 3.4 mm /Compatible with the set straight shaft, w/ Handle	2
• Punch, medium reverse straight tip, 3.4 mm /Compatible with the set straight shaft	2
• Punch, medium 45° right angled tip, 3.4 mm /Compatible with the set straight shaft Punch, medium 45° left angled tip, 3.4 mm /Compatible with the set straight shaft	2
• Wide biter Punch, 90° right rotary tip, 3.4 mm /Compatible with the set straight shaft	2
• Wide biter Punch, 90° left rotary tip, 3.4 mm /Compatible with the set straight shaft	2
• Punch, rotary w/ scoop 90° right tip, 3.4 mm /Compatible with the set straight shaft Punch, rotary w/ scoop 90° left tip, 3.4 mm /Compatible with the set straight shaft	2
• Grasper, alligator hook tip, 4.2 mm /Compatible with the	

set, straight shaft, w/ Handle • Hand Instrument Case for minimum 20-25 slots	2 2	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-22 Fully Integrated Meniscal Repair Set

TECHNICAL SPECIFICATION	Quantity
The meniscal repair set should contain	
• Meniscal Root Marking Hook	1
• Locking Guide for Meniscal Root Marking Hook	1
• Mini Tissue Grasper and suture retriever/ passer	1
• Mini Suture Retriever, 2.75 mm /Compatible with the set, straight	1
• Hook Probe, 3.4 mm /Compatible with the set	1
• Meniscus Repair Rasp	1
• Drill Sleeve for Side-Release Handle, 2.4 mm /Compatible with the set, ratcheting	1
• Stepped Drill Sleeve for Side-Release Handle, ratcheting	1
• Guide Pin Sleeve for Stepped Drill Sleeve, 2.4 mm /Compatible with the set	1
• Single lumen canula for all angles	4
• Double lumen canula for all angles	6
Meniscus Repair and Resection Instrument Case	1

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-23 Chondral Pick Micro Fracture Instrument Set

TECHNICAL SPECIFICATION	Quantity
Micro Fracture Instrument Set	
• Pick for microfracture of subchondral bone, 20° /Compatible with the set	1
• Pick for microfracture of subchondral bone, 40° /Compatible with the set	1
• Pick for microfracture of subchondral bone, 60°/Compatible with the set	1
• Pick for microfracture of subchondral bone, 25°, curved tip /Compatible with the set	1
• Pick for microfracture of subchondral bone, 35°, curved tip/Compatible with the set	1
• Pick for microfracture of subchondral bone Instrument Case /Compatible with the set	1

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-24 Low Profile Leg Holder

TECHNICAL SPECIFICATION	
It should contain :- • The positioner should be designed with an internal Velcro lining to accommodate a pressure tourniquet or foam insert, • the Low Profile Leg Holder should provide secure control of the thigh during varus/ valgus manipulation or internal/ external lower leg rotation. • Low Profile Leg Holder • Replacement Buckle • Foam Cushion Insert for Leg Holder • Main Strap • Universal Limb Positioner Universal Limb Positioner Foam Cushions	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-26 Opening Wedge Osteotomy Instrument set

TECHNICAL SPECIFICATION	Quantity
The set should include for high tibial opening wedge osteotomy	1
• Osteotomy wedge and osteotome handle	1 each
• Osteotome blades, 10 mm, 25 mm and 35 mm /Compatible with the set	1
• Parallel guide sleeve body	1
• Parallel guide sleeve	1
• Osteotomy guide assembly	1
• Osteotomy cutting guide	1
• Osteotomy cutting guide pin	1
• Alignment rod Femoral osteotomy retractor	1
• Radiolucent retractor	1
• Universal handle extractor	1
• Cutting guide for High Tibial Osteotomy (HTO)	1
• Bone graft tamp	1
• Application bar for HTO plates	1
• Drill guide for HTO	1
• Drill guide for HTO titanium plates	1
• Universal bending irons	1
• Depth gauge for Osteotomy Jack	1
• Osteotomy Jack, 35 mm /Compatible with the set	1
• Osteotomy Jack w/screwdriver, 35 mm /Compatible with the set	1
• Wedge trial for HTO	1
• A/P sloped osteotomy wedge trial, small and large	1
• Screwdriver, 3.5 mm hex /Compatible with the set	1
• Screwdriver, 90°, 3.5 mm hex /Compatible with the set	1
• Locking guide for HTO titanium plates	1
• Depth gauge, large	1
• Opening wedge osteotomy system instrumentation case	1
• Storage case for HTO plates	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-28 Advance Shoulder Arthroscopy Set (Rotator Cuff)

TECHNICAL SPECIFICATION	Quantity
The shoulder set for rotator cuff should contain	
• Hook Probe, 5.4 mm / Compatible with the set	1
• Tissue penetrator & Suture Passer, 45° up tip, 2.75 mm / Compatible with the set	2
• Tissue penetrator & Suture Passer, 22° up tip, 2.75 mm / Compatible with the set	2
• Suture Retriever, 3.4 mm / Compatible with the set , straight	2
• Shoulder Debridement Rasp, 30º angle / Compatible with the set	1
• Knot Pusher, closed end	1
• Rasp for SLAP, 15º tip / Compatible with the set	1
• Glenoid Rasp, 20º tip / Compatible with the set	1
• Bankart Rasp, 90º tip / Compatible with the set	1
• Shoulder Tissue Elevator, 15° / Compatible with the set	1
• Shoulder Tissue Elevator, 30° / Compatible with the set	1
• Rotator Cuff Grasper	1
• Suture Retriever/Tissue Grasper	1
• Fiber wire grasper w/ SR Handle	1
• Ring Curette, 5.4 mm / Compatible with the set ring, both sides cut	1
• Penetrator & Suture Retriever, 15° up / Compatible with the set	2
• Extra-Long Switching Stick	1
• Suture Hook	1
• Reusable Obturator	1
• Instrument Cannula	1
• Shoulder Repair Set Instrumentation Case	1
• Suture Cutter, open ended, left notch	1
• Suture Cutter, 4.2 mm / Compatible with the set, straight, closed end	1
• Fiber wire / tape Cutter	1
• Fiber wire / Tape Retriever w/ SR handle	1
• Needle punch suture passer, 16 mm / Compatible with the set	1

• Suture Passer	1	
• Curved tissue penetrator & suture passers and mouth should open downwards	1	
• Labral Suture Passer	1	
• Punch for 4.5 mm Anchor / Compatible with the set	1	
• Punch for 3.5 mm / Compatible with the set Anchor	1	
• Punch	1	
• Spear, trocar and blunt tip obturator for 2.8 mm, 3 mm and 2.4 mm and 2.9 mm / Compatible with the set anchors	1	
• Offset Guide for 2.4 mm / Compatible with the set titanium and all suture anchors	1	
• Cannulated Guide 2.4 mm / Compatible with the set titanium and all suture anchors	1	
• Cannulated Guide for 2.8, 3 mm, 2.4 mm, 2.9 mm / Compatible with the set Anchors	1	
• Spear for PASTA repair for 3 mm / Compatible with the set Anchor	1	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-29 Advance Shoulder Arthroscopy Set (Instability)

TECHNICAL SPECIFICATION	Quantity
The shoulder set for Shoulder Instability should contain:-	
• Hook Probe, 5.4 mm / Compatible with the set	1
• Suture Passer, 45° up tip, 2.75 mm / Compatible with the set	2
• Suture Passer, 22° up tip, 2.75 mm / Compatible with the set	2
• Suture Retriever, 3.4 mm, straight	1
• Shoulder Debridement Rasp, 30º angle / Compatible with the set	1
• Knot Pusher, closed end	1
• SLAP Rasp, 15º tip / Compatible with the set	1
• Glenoid Rasp, 20º tip / Compatible with the set	1
• Bankart Rasp, 90º tip / Compatible with the set	1
• Shoulder Tissue Elevator, 15° / Compatible with the set	1
• Shoulder Tissue Elevator, 30° / Compatible with the set	1
• Suture Retriever/Tissue Grasper	1
• Fiber wire Grasper w/ SR Handle	1
• Ring Curette, 5.4 mm ring, both sides cut / Compatible with the set	1
• Tissue penetrator & suture retriever, 15° up / Compatible with the set	1
• Extra-Long Switching Stick	1
• Suture Hook	1
• Reusable Obturator	1
• Instrument Cannula	1
• Shoulder Repair Set Instrumentation Case	1
• Suture Cutter, open ended, left notch	1
• Suture Cutter, 4.2 mm, straight, closed end / Compatible with the set	1
• Fiber wire / tape Cutter	1
• Fiberwire / Tape Retriever w/ SR handle	1
• Needle punch suture passer, 16 mm / Compatible with the Suture Passer	1
• Curved tissue penetrator & suture passers and mouth	

should open downwards • Suture Passer which has trap to bring back suture after taking bite through labrum along with 50 needles compatible with the passer.	1 2	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved.

A-30 AC Joint Instrument Set

TECHNICAL SPECIFICATION	Quantity	
The set should contain the following		
• Cannulated Drill, 4 mm / Compatible with the set	1	
• Cannulated Drill, 4.5 mm / Compatible with the set	1	
• Cannulated Headed Reamer, 5 mm / Compatible with the set	1	
• Cannulated Headed Reamer, 5.5 mm / Compatible with the set	1	
• Cannulated Headed Reamer, 6 mm / Compatible with the set	1	
• Cannulated Headed Reamer, 6.5 mm / Compatible with the set	1	
• ACL Guide Frame Handle Assembly	1	
• AC Guide- Universal with adjustable angle	1	
• Fixed Guide	1	
• Guide Pin Sleeve, 2.4 mm / Compatible with the set	1	
• Clavicle Drill Positioner	1	
• Drill Stop	1	
• Drill Sleeve, 3 mm / Compatible with the set	1	
• AC Tenodesis Screw Driver	1	
• Coracoid Graft Passer, left	1	
• Coracoid Graft Passer, right	1	
• AC Graft Rope Graft Sizer	1	
• Forked Probe	1	
• AC Joint Instrumentation Case	1	
• Guide Arm, left	1	
• Guide Arm, right	1	
• AC Drill Guide Assembly	1	
	1	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-31 Latarjet Instrument Set

TECHNICAL SPECIFICATION	Quantity
The Glenoid Bone Loss Set should help address the complexity of shoulder instability caused by bony pathology such as anterior glenoid bone loss, bony Bankart lesions, glenoid fractures, and engaging Hill-Sachs lesions.	
Latarjet instruments set consist of:-	
• Osteotome Blade Shield	1
• Parallel Drill Guide, 4 mm / Compatible with the set offset	1
• Parallel Drill Guide, 6 mm / Compatible with the set offset	1
• Parallel Drill Guide, 8 mm / Compatible with the set offset	1
• Screw Length Sizer	1
• Coracoid Drill Guide	1
• Fukuda Retractor, small	1
• Kolbel Glenoid Retractor	1
• Nesting Guide Sleeves	1
• Cannulated Hex Driver, 2.5 mm / Compatible with the set	1
• Cannulated Drill, 2.75 mm / Compatible with the set	1
• "No Offset" Parallel Drill Guide	1
• Drill, 4 mm / Compatible with the set	1
• Osteotome Handle	1
• Drill Guide Handle	1
• Cannulated Driver Handle w/ AO Connection	1
• Gelpi Subscapularis Retractor	1
• Glenoid Bone Loss Instrument Case	1
• Screw Caddy, 3.75 mm / Compatible with the set, fully threaded screw	1
• Screw Caddy, 3.75 mm / Compatible with the set, partially threaded screw	1
• Angled Saw Blade	1
• Coracoid Drill Guide, shallow jaw	1
• Bony Bankart Drill Guide	1
• Modular Soft Tissue Retractor Body	1
• 20° Soft Tissue Atraumatic Paddle, 50 mm / Compatible with the set, left	1
• 20° Soft Tissue Atraumatic Paddle, 50 mm / Compatible with the set, right	1

• 20° Soft Tissue Atraumatic Paddle, 70 mm / Compatible with the set, left • 20° Soft Tissue Atraumatic Paddle, 70 mm / Compatible with the set, right • Mini-Open Shoulder Retractor • Demontration to be provided • It should be USFDA approved	1 1	

A-32 Tissue Elevator Bone Preparation System

TECHNICAL SPECIFICATION	Quantity
Tissue Elevator consist of:-	
• Quick Connect Handle, ¼ sq. non ratcheting	1
• Tissue Elevator Instrument Case	1
• Tissue Elevator, 15° down / Compatible with the set	1
• Tissue Elevator, 15° down, 30° / Compatible with the set left	1
• Tissue Elevator, 15° down, 30° / Compatible with the set right	1
• Tissue Elevator, 30° / Compatible with the set down	1
• Debridement Rasp	1
• D-curette, 5.4 mm / Compatible with the set	1
• Ball Tip Rasp, 40° / Compatible with the set	1
• Chondro Pick, angled	1
• Elevator, standard design, 15° / Compatible with the set	1
• Elevator, standard design, 30° / Compatible with the setCurette, round, double sided, 5.4 mm / Compatible with the system	1
• Demontration to be provided	
• It should be USFDA approved and/or Made in India	

A-33 Modular Soft Tissue Retractor Set

TECHNICAL SPECIFICATION	Quantity	
Modular soft tissue retractor system consist of:-		
Modular Soft-Tissue Retractor Body	1	
Modular Soft-Tissue Retractor Set	1	
Modular Soft-Tissue Retractor Atraumatic Set	1	
Modular Soft-Tissue Retractor Atraumatic Paddle Set, 75 mm / Compatible with the set	1	
Replacement paddles are available for all sets		
• 50 mm / Compatible with the set left	1	
• 50 mm / Compatible with the set, right	1	
• 75 mm / Compatible with the set, left	1	
• 75 mm / Compatible with the set, right	1	
Demontration to be provided It should be USFDA/BIS approved		

A-34 3D-Comprehensive shoulder Limb Positioner system

TECHNICAL SPECIFICATION	Quantity
3D-Comprehensive shoulder limb positioner system consist of:-	
• Beach chair kit	1
• Elbow kit	1
• Wrist positioner	1
• Replacement knob	1
• It should be preferably controlled by foot pedal and hand	1
• It shouls have multiple arms/units for positioning and giving traction to the upper limb joints for arthroscopic procedures	1
• It should deliver control of abduction/multi directional traction/ forward flexion to the limb	1
• Should allow unimpeded access to shoulder in both beach chair and lateral decubitus	1
• It should allow measured traction without weights	1
• Should allow secondary humeral lateral distraction	1
• Should be able to attach to surgical tables	1
Demontration to be provided It should be USFDA approved	

A-35 3-Point Shoulder Distraction System

TECHNICAL SPECIFICATION	Quantity
• 3- Point Shoulder Distraction System	1
• Traction Scale Attachment	1
• Atraumatic Hand Holder Traction attachment	1
• Slotted Disc Weight Indg. 1.5 kg/1 kg/.5 kg / Compatible with the set	1 set
• Demontration to be provided • It should be USFDA approved	

A-36 Hip Arthroscopy-Instrument Set

TECHNICAL SPECIFICATION	Quantity
Hip arthroscopy instrument set should consist of:-	
• Hip Length Metal Cannula 4.5mm / Compatible with the set, Fenestrated	1
• Hip Length Metal Cannula 5 mm / Compatible with the set, Fenestrated	1
• Hip Length Metal Cannula 5.5mm / Compatible with the set, Fenestrated	1
• Hip Length Metal Cannula 6.5mm / Compatible with the set, Fenestrated	1
• Hip Length Obturator Cannulated,4.5mm / Compatible with the set	1
• Hip Length Obturator Cannulated,5mm / Compatible with the set	1
• Hip Length Obturator Cannulated,5.5mm / Compatible with the set	1
• Hip Length Obturator Cannulated,6.5mm / Compatible with the set	1
• Hip Cannula Hub, quick Connect	1
• Switching stick Long Cannulated	1
• Inflow Cannula Adaptor with Stopcock	1
• Metal Open Cannula Tapered	1
• Metal Open Cannula, Blunt Tip	1
• Tear Drop Handle	1
• Obturator 4mm / Compatible with the set	1
• High Flow sheath 6mm / Compatible with the set, with two stop cock, fenestrated	1
• Obturator Blunt for 6mm/ Compatible with the set, sheath	1
• Hip Length 2 valve Bridge	1
• Hip Arthroscopy Instrument Case	1
• Hip Arthroscopy portal access guide	1
• Hip Arthroscopy portal access guide sleeve	1
The retractable cannulated Knife designed to provide the ultimate soft tissue protection when introducing and removing a cutting device in and out of the hip for soft tissue resection procedures, such as performing a	

capsulotomy or detaching the labrum. Its blunt tip should also facilitate capsular dilatation while inserting into joint.		
The blade having precision ground dual-sided edges for capsulotomies and to gain access to the central and peripheral compartments, it should be of following types :		
Banana Blade	1	
Hook Blade	1	
Hip arthroscopy instrument set for complete joint access, tissue resection, grasping, micro fracture and suture management with following instruments :		
Anatomically curved hip chondro picks to access central and peripheral portions of the acetabulum & the femoral head with various angled tips having following sizes :		
Pick 90 Deg Tip with 22cm Shaft / Compatible with the set	1	
Pick 60 Deg Tip with 22cm Shaft/ Compatible with the set	1	
Pick 40 Deg Tip with 22cm Shaft/ Compatible with the set	1	
Hook probe with marking having 4.8mm dia tip and 22cm length	1	
Curved Probe with 5mm marking and 22cm length / Compatible with the set	1	
Specialized Straight Curved Instruments to access the tightest recesses, when preparing the soft tissue repairs or resecting osteophytes with various types :		
5.4mm Ring Curette with cut on both side having 22cm shaft / Compatible with the set	1	
5.4mm D Curette with cut on both side having 22cm shaft / Compatible with the set	1	
Angled Tissue Elevator 15 Deg & 30 Deg with length 22cm / Compatible with the set	1	
Rasp with 22cm length / Compatible with the set	1	
Meniscus Repair Rasp with 22cm length / Compatible with the set	1	
Crochet Hook Push/ Pull with 22cm length / Compatible with the set	1	
Knot Pusher closed end with 22cm length / Compatible with the set	1	
Portal Dilation system should have atraumatically dilates for thick hip capsule using an ergonomic handle with interchangeable sleeves used sequentially over a guide wire.		
The Open Cannulas should be used to facilitate instrument and arthroscope insertion into the joint quickly, once capsular dilation is achieved with the following instruments :		
Portal Dilation Handle	1	
Portal Dilation Sleeve 4/ 6mm / Compatible with the set	1	
Hip arthroscopy hand instrument set should work well in either the supine or lateral decubitus position while reducing hand fatigue with following instruments :		
• Suture Passing Device having up tip like Birdbeak with 45 Deg angle with 22cm length / Compatible with the set	1	
• Suture Passing Device having up tip like Birdbeak with 22 Deg angle with 22cm length / Compatible with the set	1	

• Medium Punch with straight tip having 15 Deg up curved 3.4mm shaft with 22cm length / Compatible with the set	1	
• Medium Straight Punch with reverse tip having 3.4mm straight shaft with 22cm length / Compatible with the set	1	
• Medium Straight Punch with 45 deg right tip having 3.4mm straight shaft with 22cm length / Compatible with the set	1	
• Medium Straight Punch with 45 deg left tip having 3.4mm straight shaft with 22cm length / Compatible with the set	1	
• Suture Retriever having 10 Deg up curved shaft with 22cm length	1	
• Loose body grasper having 4.2mm straight shaft with 22cm length	1	
• Alligator Hook Tip grasper having 4.2mm straight shaft with 22cm length / Compatible with the set	1	
• KingFisher Suture Retriever/ Tissue Grasper with 22cm length	1	
• Sharp tip Suture Retriever having 15 Deg up curved shaft with 22cm length / Compatible with the set	1	
• Closed end Suture Cutter cum pusher having 4.2mm straight shaft with 22cm length / Compatible with the set	1	
• Open end & Left Notch Arthroscopic Suture Cutter having 4.2mm straight shaft with 22cm length / Compatible with the set	1	
• Hip Arthroscopy Instrument Case	1	
• Hip Arthroscopy Instrument Case with 12 slots	1	
• Drill Guide 3.0/ 3.5mm saddle tip with cannulated trocar/ Compatible with the set	1	
• Drill Guide 2.9/ 3.5mm Fork Tip / Compatible with the set	1	
• Drill for 3.5/ 2.9mm for anchors	1	
• ChondroGuard Drill Offset guide to facilitate acetabular rim drilling prior to suture anchor placing 4 & 6mm/ Compatible with the set	1	
• Demontration to be provided		
• It should be USFDA/BIS approved		

A-37 Hip Arthroscopy- 30° Arthroscope Set

TECHNICAL SPECIFICATION	Quantity
HD hip arthroscope 30° degree should have diameter of 4mm with its corresponding sheath and obturator. Length more than 160 mm The scope should be fully autoclavable. Offer high depth of field focus with high resolution all the way to the edge of picture. Anti-reflective coated, high quality glass cone (insight light post) Scratch resistant sapphire lens on proximal and distal tip • Demontration to be provided • It should be USFDA approved	2 set

A-38 Hip Arthroscopy- 70^0 Arthroscope Set

TECHNICAL SPECIFICATION	Quantity	
• High Definition hip Arthroscope 70^0 degree	2	
• Should have diameter of 4mm with its corresponding sheath and obturator.	2	
• The scope should be fully autoclavable.		
• Offer high depth of field focus with high resolution all the way to the edge of picture.		
• Anti-reflective coated, high quality glass cone (insight light post)		
• Scratch resistant sapphire lens on proximal and distal tip		

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-40 Wrist -Arthroscope Set 30°, 2.4mm

TECHNICAL SPECIFICATION	Quantity	
a) High definition & wide angled wrist arthroscope with Direction of view 30° diameter of 2.4mm & length 70 - 80mm	1	
b) Double Stopcock sheath system for 2.4mm scope	1	
c) Conical Obturator for Sheath	1	

- Demonstration of the equipment to be provided if needed
- It should be USFDA approved

A-41 Wrist - Arthroscope Set 70°, 1.9mm

TECHNICAL SPECIFICATION	Quantity	
a) High definition & wide angled wrist arthroscope with Direction of view 70°, diameter of 1.9mm & length 70 - 80mm	1	
b) Double Stopcock sheath system for 1.9mm scope	1	
c) Conical Obturator for Sheath	1	

- Demo to be provided
- USFDA approved

A-42 Ankle-Arthroscope Set 70^0, 2.7mm

TECHNICAL SPECIFICATION	Quantity
a) High definition & wide angled wrist arthroscope with Direction of view 70^0 diameter of 2.7mm & length 70 - 80mm	1
b) Double Stopcock sheath system for 2.7mm scope	1
c) Conical Obturator for Sheath	1-

- Demo to be provided
- USFDA approved

A-43 Wrist Arthroscopy Instrument Set

TECHNICAL SPECIFICATION	Quantity
All instruments should have shaft length of 65mm approx. with diameter of 2.75mm approx. It should be available in following sizes –	
• Hook Probe small joint with length 70 – 72 mm & tip of 3.4mm approx	1
• Small joint punch standard diameter of 2.75mm av straight shaft with straight tip.	1
• Small joint pointed grasper, non-ratchet, dia 2.75mm approx., straight shaft, straight tip.	1
• Small joint blunt grasper, non-ratchet, dia 2.75mm approx., straight shaft, straight tip.	1
• Small joint punch, 15° up, dia 2.75mm approx., straight shaft.	1
• Small joint punch, rotary dia 2.75mm approx. 90° right curved shaft, straight tip.	1
• Small joint Punch, rotary, dia 2.75mm approx., 90° left curved shaft, straight tip.	1
• Small joint punch, dia 2.75mm approx. straight shaft 45° right angled tip.	1
• Small joint punch, dia 2.75mm approx. straight shaft 45° left angled tip.	1
• Hand Instrument case.	1

- Demo to be provided if needed.
- USFDA approved.

A-45 Elbow Arthroscopy Set

TECHNICAL SPECIFICATION	Quantity
Elbow Arthroscopy set should have following :-	
• Small joint osteotome, angled up	1
• Small joint osteotome, straight	1
• Extra long switching stick, 4mm	1
• Probe, 2.5mm tip	1
• length Portal dilating set	1
• Articulating paddle elevator	1
• Articulating hook elevator Howarth elevator	1
• Cup curette, 45°	1
• Small joint osteotome, angled up, 5.5mm	1
• Small joint osteotome, straight, 5.5mm	1
• Ring curette, reverse angled	1
• Pick for microfracture, 30°	1
• Pick for microfracture, 60°	1
• Osteotome, curved	1
• Ring curette, angled	1
• Probe	1
• curette, curved shaft, 100mm long	1
• Cup curette, straight shaft, 100mm long	1
• Pick for microfracture, straight, 40°	1
• Obturator	1
• Probe, 5.4mm, tip with 5mm markings	1
• Articulating probe	1
• Grasper, mini, 2.75mm, straight shaft, straight jaw, with SR handle	1
• Scissors, 3.4mm, straight shaft, straight jaw	1
• Scissors, 3.4mm, right curved tip, straight shaft	1
• Scissors, 3.4mm, left curved tip, straight shaft	1
• Capsule punch, 3.4mm, inverted jaw	1
• Capsule punch, WideBiterTM, inverted jaw	1
• punch, 3.4mm, straight shaft Large	1
• punch, 3.4mm, 15° up curved shaft	1

• Suture retriever, 3.4mm, straight Grasper with handle • Grasper, atraumatic, 4.2mm, straight shaft, with handle • Grasper, alligator hook, 4.2mm, straight shaft, with handle • suture retriever • Elbow instrumentation case	1 1 1 1 1 1	

- Demo to be provided
- USFDA approved

A-46 Elbow UCL Reconstruction Instrument Set

TECHNICAL SPECIFICATION	Quantity
Elbow UCL Reconstruction Set should have following:-	
• Drill, 4.5mm, cannulated	1
• Drill, 4mm, cannulated	1
• Drill, 5mm, cannulated	1
• UCL humeral tunnel guide sleeve, 5mm x 15mm	1
• UCL humeral tunnel drill bit, 4.5mm	1
• UCL humeral tunnel drill bit, 5mm	1
• UCL reconstruction humeral socket drill guide, 4.5mm x 15mm	1
• Adjustable humeral guide, 4.5mm Humeral drill, 2mm	1
• Humeral drill, 3.5mm	1
• Humeral drill, 4mm	1
• UCL graft sizing block	1
• V-guide drill, 3.5mm	1
• Ulna V-guide drill, 55°	1
• Ulna partial V-guide, 55°	1
• Intersecting V-guide obturator	1
• Drill guide, 3.5mm	1
• Ulna offset guide, 7mm	1
• # 2 curette, 18 cm long, 45° curved tip	1
• # 3-0 curette, 18 cm long, 45° curved tip	1
• # 4 curette, 18 cm long, 45° curved tip	1
• Elbow UCL reconstruction case	1
• Humeral drill, 2.7mm	1
• Humeral drill, 3.2mm	1

- Demo to be provided if needed.
- USFDA approved.

A-48 Ankle Distraction system

TECHNICAL SPECIFICATION		
The non-invasive ankle distractor set is designed to provide ankle distraction in a simple and effective manner. The system should have large tensioning wheel, the surgeon can easily increase or decrease the desired tension during diagnostic or surgical arthroscopy procedures. The system should have a set-up which is achieved when used in conjunction with the small joint limb holder and ankle strap. Ankle Strap should be made of strong nylon strapping material with soft nonslip foam pads for patient comfort and secure hold. **Ankle Distraction system consist of :-** • Ankle straps • Distractor head • Distractor post Bed rail clamp • Ankle distractor case	 10 1 1 1	

- Demo to be provided if needed.
- It should be USFDA approved.

A-49 Wrist Traction Device

TECHNICAL SPECIFICATION		
The device should provide traction at the fingers. The device should have fully adjustable autoclavable hand stabilization boom & finger distraction attachment to provide multidirectional hand positioning. **Wrist traction Device should consist of following –** • Wrist traction Tower • Finger Distraction Attachment • Finger Traps, Sterile (various sizes) • Foam Hand Pads, Sterile • Foam Pad for counter traction Boom, sterile • Atraumatic hand holder traction attachment • Wrist traction device should have provision to attach with OT Table rail.	 1 1 1 1 1 1 1	

- Demo to be provided if needed.
- It should be USFDA approved.

A-50 General Arthroscopy Hand Held Instrument Set

TECHNICAL SPECIFICATION	Quantity
The instrument should have hinge less design to ensure durability.	
• 3.4mm shaft diameter, wide biter 15degree up curved shaft, straight tip	3
• Medium punch 3.4mm straight shaft, 15degree up tip	3
• Punch large 3.4mm diameter straight shaft and tip.	3
• Scissor with 3.4 mm shaft diameter, straight with serrated tooth	3
• Punch large 2.75mm straight shaft, 45 deg Right/Left Angled tip.	3
• Probe hook 220mm shaft 3.4mm tip with 5mm markings	3
• Punch-Rotary with 3.4mm straight shaft ,90 deg right tip	3
• Punch-Rotary with 3.4mm straight shaft ,90 deg left tip	3
• Grasper- Blunt with 4.2 mm diameter, straight shaft with hook tip	3
• Grasper-Alligator with 3.4mm diameter, straight shaft with hook tip	3
• Reverse Punch with 3.4mm diameter, straight shaft, Straight tip	2
• Reverse Punch with 3.4mm diameter, straight shaft,15 deg up tip	2
• Probe –hook,220mm,4.8mm tip with 5 mm marking	2
• Ring Curette,220mm,5.4mm, one side cutting	2
• Punch Medium with 3.4mm shaft diameter,220mm, straight tip	2
• Grasper Loose body with 4.2mm diameter,220mm, straight shaft straight tip	2
• probe hook, small joint	2
• Punch small joint,2.75mm diameter, straight shaft, straight tip	2
• Grasper small joint, Blunt with dia 2.75mm, straight shaft, straight tip	2
• Punch small joint with 2.75mm dia, straight shaft,45 deg right angled tip	2
• Punch small joint with 2.75mm dia, straight shaft,45 deg left angled tip	2
• Hand instruments sterilization case	1

- Demo to be provided if needed.
- It should be USFDA approved.

A-53 PRP (Platelet Rich Plasma)

TECHNICAL SPECIFICATION	USERS	
PRP system to treat chondromalacia, traumatic cartilage damage, post-op fracture re-fixation, tendinitis & for day surgery clinic & operating room with following system: Sterile Syringe to be used in PRP system with outer syringe to take out blood & inner syringe to separate out PRP to be used in cartilage defect/ tendinitis / rotator cuff tear.		
• Centrifuge system with rpm1500	1	
• Bucket with Screw Cap	1	
• Counterweight for the Centrifugation of PRP	1	
• Anticoagulant ACD-A, 4 mL (Sterile item)	200	
• PRP Syringe (Sterile item)	200	

- Demo to be provided.

. USFDA / made in India approved.

A-54 Bone Graft Harvesting system

TECHNICAL SPECIFICATION	Quantity
The Bone Graft Harvester should provide a safe, easy and quick way to obtain the adequate amount of bone graft needed.	
Bone Graft Harvester Set consist of:	
• Collared Pin, 6 mm	1
• Coring Reamer, cannulated, 6 mm	1
• Collared Pin, 8 mm	1
• Coring Reamer, cannulated, 8 mm	1
• Collared Pin, 10 mm	1
• Coring Reamer, cannulated, 10 mm	1
• Reamer Handle and Pin Puller	1
• Chuck Key	1

- Demo to be provided
- It should be USFDAapproved and/or Made In India.

A-55 Power System for Arthroplasty

TECHNICAL SPECIFICATION		
Battery Power System should have versatile functions and used in all applications require in large bones. The universal single trigger hand piece should have the feature of Drilling, Reaming & Oscillation through different attachments. The modular Hand piece preferably made of PEEK/Aluminium for make it light weight & durable. It should have adaptability to have variation in Speed and torque with different attachment to have different functions in drilling and reaming. The drill attachment with Jacob's Chuck with cannulation 0-7.4mm with drilling speed 900 – 950 rpm. The drill attachment style standard AO with drilling speed 900 – 950 rpm. The Pin Driver attachment with quick coupling for wire 0.8to 4mm The quick coupling Reaming attachments for AO type with RPM 180 – 250 The Reaming attachments with Jacob's chuck with cannulation 0-7.4mm with RPM 180 – 250 The oscillating saw attachment with 12500 – 13500 rpm The reciprocating saw attachment have 12000-13500 rpm The system should have Arthroplasty & reciprocating blades Dual battery Station charger Should have Lithium ion battery for long lasting usage Battery transfer kit (Autoclavable) Battery Pack Sterilization Tray for the complete system The system should be US FDA approved. Items should be of one make. Demonstration of the quoted item is mandatory.	10 10	

A-56 Power System for Small joints/Bones

TECHNICAL SPECIFICATION	USERS	
Battery operated Mini drill & Saw System – 01 Set • Battery Power System should have versatile functions and used in all applications require in Small bones. • The universal single trigger hand piece should have the feature of Drilling, Reaming & Oscillation through different attachments. • The modular universal Hand piece should preferably made of PEEK to make it light weight & durable or made of aluminium. It should have adaptability to have variation in Speed and torque with different attachment to have different functions in drilling and reaming. • The drill attachment style standard AO with connection drill dia up to 6mm with drilling speed 1200 – 1400 rpm. • The Pin Driver attachment with quick coupling for wire 1.3 to 2.4 mm • The quick coupling Reaming attachments for AO type with RPM 500 – 550 • The oscillating saw attachment with 15000 – 15500 rpm • The Drill Keyed Jacob Chuck with RPM 1300-1350 for drill up to 6mm • The system should have Arthroplasty blades • Dual /four battery Station charger • Battery unsterile Lithium Ion • Battery transfer kit (Autoclavable) • Battery Pack • Sterilization Tray for the complete system	 10 10 10	

- Demo to be provided
- It should be USFDA approved.

A-57 Power System for Sports Medicine

TECHNICAL SPECIFICATION		
Battery operated drill & Saw System – 01 Set • Battery operated Power System should have versatile functions and used in all applications require in large bones. • The universal single trigger hand piece should have the feature of Drilling, Reaming & Oscillation through different attachments. • The modular Hand piece preferably made of PEEK/Aluminium for make it light weight & durable. It should have adaptability to have variation in Speed and torque with different attachment to have different functions in drilling and reaming. • The drill attachment with Jacob's Chuck with cannulation 0-7.4mm with drilling speed 900 – 1330 rpm. • The drill attachment style standard AO with drilling speed 900 – 1330 rpm. • The Pin Driver attachment with quick coupling for wire 0.6 to 4mm. • The quick coupling Reaming attachments for AO type with RPM 180 – 330. • The Reaming attachments with Jacob's chuck with cannulation 0-7.4mm with rpm 180-130. • The oscillating saw attachment with 21300 – 23000 rpm • The reciprocating saw attachment have 213000-23000 rpm • Battery transfer kit (Autoclavable) • Battery Pack • Sterilization Tray for the complete system • Dual/four batteries Charging station	 10 10	

- Demo to be provided
- It should be USFDA approved.

E-1

SPECIFICATONS FOR OT table Main OT (Orthopaedic)- **Qty- 6 nos.**

A. General constructional characterstics.

1. Orthopaedic table must be equipped to perform the following procedures, Knee arthroscopy, Shoulder arthroscopic surgery, Hip & knee Arthroplasty, Supine and Lateral Positioning, Hand surgery, Hip arthroscopy procedures.
2. The table support carbon fibre accessories, to improve intraoperative diagnostics and imaging that are critical for assessing correct position of orthopaedic implants and instruments and patient safety.

B. Table must have the following standard features:

1. The table top should made up of scratch less X ray /C arm radiolucent material and should provide unhindered access for c arm to allow high quality intraoperative imaging.
2. Three or more radiolucent sectional back plate with two or more detachable shoulder segment.
3. Radiolucent Carbon fibre table top to enable clear imaging with a C-arm.
4. Radiolucent top and radiolucent perineal post for orthopaedic use.
5. Base (T base / U base/ rectangle) construction with heavy duty four double swivel castors for easy movement and multidirectional manoeuvring. They should be housed in corrosion resistant, disinfectant proof stainless steel and have central locking facility. Patient Safety provision should be there in case of failure of electrical locking facility.
6. Column casing should be made of stainless steel with acrylic capped ABS/high quality coating that should prevent the ingress of fluid in the system.
7. Detachable carbon fibre traction bars fixed beneath the seat plate with two adjustable pivot joints
8. Interfaces left/right to attach Carbon Fibre bars. Interface to carbon fibre extension plate. Entire table top should allow unhindered intraoperative fluoroscopy and be free of any crossbars.
9. Should have Flex/Reflex, and Beach Chair position.

10. Accessory should be on side rails.
11. Table top interfaces should support both normal and on reverse side.
12. The table should have chrome nickel steel base or stainless steel base (corrosion and rust proof). Cover for the override panel should be made of glass fiber reinforced composite plastic, resistant to impact, breakage and disinfectants/ placed such that it cannot be damaged easily.
13. Identical interfaces should be on normal and reverse side.
14. Table should be flexible enough to be used as a universal table
15. The Table should enable surgical teams and their patients to benefit by supporting a variety of positions for patients of various sizes.
16. The Table should be modular and should have mechanically encoded coupling joints.
17. Screw tension device with slider and hand gear to make it easy to safely adjust traction levels. Larger adjustments to be made possible by sliding the device to the end of the bar, the handle should allow fine tuning for precise and secure patient positioning, handle may be color coded.
18. The traction bar should have ball or similar joint, to mimic smooth multidirectional movement of the hip itself, up/down, inwards/ outwards to operate and flexible to allow positioning by releasing the handles at the end of the bar. As the control units are to be located at the end of the traction bars, full control to be allowed even after the table is fully draped.
19. Traction system should allow up/down, inwards/outwards, rotation of the foot.
20. The traction bar handles to allow the leg to be easily rotated into the correct position at time during the procedure. A degree indicator should identify the exact position of the limb to ensure accuracy.
21. Table should be designed to enable a strong traction of up to 70-90 kg with least effort for the surgical team.
22. Better image quality improves patient safety: The table should have carbon fiber sacral rest, a fully radiolucent pelvic area, and carbon fiber traction bars for better image quality.
23. The table should have a stable three-point/ four point stand/similar. The cast iron stand should provide excellent stability, preventing all movement if the table is bumped for patient safety.
24. Should have secure lock functions to eliminate accidental table movements, even when pushing the hand control buttons for patient safety.

25. Table should be supported by a sensor drive with speed regulation of the OR table by the degree of rotation. This frees the medical personnel to help the patients in critical situations.
26. Should have support/trolley/mechanism for height setting of traction bars and to simplify their bar detachment/ attachment .
27. Should have Automatic lock functions to improve patient safety in case of traction device malfunction.
28. Should have slider glides through whole bar for simple traction setup.
29. Star shaped or similar ergo metric handles, and degree indicator and fine tractions of 10-14mm per turn of the handle to optimize precision for maximum traction of up to 80 -100 kg.
30. Screw tension device rotation function should be with several locking positions.
31. Should have free floating rotations of screw tension device to increase positioning flexibility and ease-of-use.
32. The sliding clamp could be easily moved along the carbon fiber bars for precise positioning of accessories. It should attach to both bars, allowing you to deploy additional accessories during surgery.
33. The support plate should support the non-operative leg during surgery, improving patient comfort and preventing overstretching of the knee. It can be attached to the sliding clamp for flexible positioning anywhere along the bar.
34. Pads should be detachable and made of foam core & stitch free, approximately 60 - 70mm thick or more should be moulded and radiolucent.
35. The table must allow hyperextension, abduction, adduction and external rotation of the hip for femoral component placement.
36. The OT table should be fully compatible with future software integration/robotic at later date.
37. The table should have communication port for diagnostic and servicing or should be self-diagnostic. USB drive should be available for the purpose of diagnostic, software repair, up gradation & service.
38. It must be able to support heavy weighted parts up to 150kg.
39. The table should have a manual override function for all major positions (up, down, flex reflex, side tilt, slide etc) and movements with an additional control unit which can be operated manually without any requirement of power.

40. The table locking mechanism should not allow any inadvertent movement for patient safety during surgery.

Table measurement and control panel:

1. The table should provide minimum height excursion in the range of minimum 550-700 mm or more with maximum height of the table not less than 1100-1250mm
2. Trendelenburg/ Reverse Trendelenburg: 25-45 degree/25-45 degree.
3. Standard head plate +45°/-45° up/down.
4. Width of seat plate without side rails-500 and more
5. Width of seat plate including side rails- 550 mm or more.
6. Lateral Tilt left /Right: 20-25 degree.
7. Motorised back plate up and down- 90 degree/40 degree or more.
8. Hand control and Battery control for all and various table functions.
9. Battery capacity for approximately 01 week with average use or 50-80 operations approx.
10. Can be operated directly from the mains for all powered/ electro hydraulic movements
11. Patient weight capacity under full traction of 250 kgs or above.
12. Handset can be connected on either side of the table.
13. Extra remote control with each table.
14. Should have suitable port to allow for software upgradation

C. Accessories compatible and complete in all aspect for performing all above functions:

S.no.	Accessories to be supplied for all 6Nos. OT Tables comprising:	Qty
i)	Accessories for Hand Surgery (Hand Side Table).	1
ii)	a. Two sides support (Anterior and Posterior) for lateral position for the hip replacement. b. Traction aggregate (full system) up/down, inwards/outwards, rotation of the foot by 180°. c. Traction bars with ball joint up/down, inwards/outwards d. Traction bars inwards/outwards e. The table must allow hyperextension, abduction, adduction	1each

	and external rotation of the hip for femoral component placement. f. Separate attachments made of carbon fibre for direct anterior approach for Hip replacement. g. Fracture table attachment should be adjustable for pediatric hip procedure. h. Carbon fibre traction bars-02 nos. i. Total Knee Flexion and Support System for knee arthroscopy j. Leg Support system to support contra lateral leg. k. Traction boot small pair l. Traction boot large pair m. Arm Boards with Pad (2) n. Beach chair position system with helmet type head rest for position of the patient along with shoulder plates made of carbon fibre. o. Accessories for Hip arthroscopy including large perineal post and traction system p. Anaesthesia screen with clamp q. Trolley to store various accessories of the table and traction bars.	

D. Specialised Accessories to be supplied as per quantities mentioned:

S no.	Accessories comprising of:	Qty
a)	Support arm for Orthopedics, Trauma and general surgery. Support arm to be mounted to the side rail of the operating table top for intra-operative movement of the arm or the wrist as well as wound retractors. Suitable for patient arm of up to 250 kg. The system is released via a handle which enables it to be manoeuvred, the system is locked automatically. The support arm does not require compressed air	**1Nos.total of 2**

	connections or power supply. Anatomical design, Automatic locking.	
b)	Accessories for Hand Traction (weinberger type)	**1Nos. total of 2**
c)	Total Knee Flexion and Support System for knee arthroscopy	**1Nos. total of 6**
d)	Beach chair position system with helmet type head rest for position of the patient along with shoulder plates made of carbon fibre.	**1Nos. total of 3**
g)	Accessories for Hip arthroscopy including large perineal post.	**1Nos. total of 1**
h)	Gel support for lateral positioning, knee flexion , head and shoulder ergonomical positioning	

a) Suitable customized storage/sterilization cases for accessories/attachments, wherever applicable, should be supplied in adequate numbers, even when not separately asked for.

b) Trolley to store various accessories along with complete set of gel positioner for adult and pediatric patients including bolster and ring for patient positioning.

c) These should be from manufacturer of accessory only- non-customized cases from other manufacturers will not be accepted.

d) Tabulated Compliance statement should include your product's specific values/details for each point and not merely 'yes' or 'no'.

e) Institute reserves the right to have a live demo if required.

Certification, Warranty & CMC

a) It should be of international standards having European CE /US FDA certification.

b) Safety class II, Type B; the enclosure leakage current meets the requirements of the patient leakage current for CF conditions as per EN 60601-1

c) 5 year comprehensive onsite warranty of entire system (Spare and labour) including X-ray tube and all accessories and civil, electrical and air conditioning works followed by 5 year CMC.

d) Company should confirm the availability of spare parts for 10 years from the date of supply of the equipment.

e) Company should have 24 x 7 call support facility.

f) List of spare parts will cost must be provided.

g) Should conform to latest IEC standard for requirement of safety for electromagnetic compatability.

h) Physical Demonstration is essential;

i) Warranty 5 years + CMC 5 years in all other items of this committee;

j) L1 will include CMC cost also;
k) Preventive maintenance every 3 months with log book entry;
l) The quality of supplied of instrument / equipment should be strictly same as given for physical demonstration / inspection, failing that the company / dealer will be black listed for 5 years for participating in tender process of hospital.
m) Turnkey/installation wherever required to be done by company and included in cost.
n) Freeze rate of consumables for 10 years
o) Technical specifications to be kept on site for 21 days public domain for comments of stakeholders.
p) Prebid meeting to be held of all stakeholders and modifications if needed may be considered.
q) On site training for equipment usage to be done wherever needed.
r) Patient and user Safety and compensatory clause for all medical machinery of this committee. This should be besides the safety checks and mechanism already essential in every medical machinery.
s) Service centre authorized by manufacturer should be located in Delhi NCR and should provide service and repair as soon as possible to ensure patient safety.
t) All electrical equipment should conform to latest electromagnetic safety standards for medical equipment.
u) The equipment with all its components will have warranty for period of 5 years from the date of handling over the fully functional unit and all the accessories supplied to the institution. Every thing irrespective of nature that is supplied by the vendor will be under warranty.
v) During warranty period the desired uptime of 95% of 365 days (24hrs basis) will have to be ensured with maximum of 5 working days of downtime at a stretch. In case the downtime exceeds the 5%limit in a year or more than 5days at a stretch (whichever is applicable) extension of warranty period by double the excess down time period will be carried out.
w) CMC (Comprehensive Maintenance Contract) The post warranty (after 5 years) CMC should be comprehensive for all its components (everything irrespective of nature which is supplied by the vendor under guarantee) inclusive of X-Ray Tubes with 95% uptime and extension of CMC period by double the downtime in excess of 5%.

E-7, Technical Specification of Mobile C-Arm(ImageIntensifierFluoroscopy)system

A. C-Arm (4nos)

1. Mobile C-Arm image intensifier system for fluoroscopy and acquiring single images in orthopaedic surgery. It is designed for taking preoperative images of all orthopedics procedure which decreases surgical errors and ensures patient safety.
2. The C arm should have rotational movements and all the movements should be counter balanced.
3. The continuous fluoroscopy, digital pulsed fluoroscopy and digital radiography operating modes are to be supported.
4. The C arm should have the facility to produce instantaneous coronal, sagittal and axial images of the scanned parts as per case.
5. Should have technology to produce optimal high image even if the region of interest is not in the center of image intensifier i.e. multiple matrixes.
6. It should be possible to Display dose reporting also.
7. The camera system should be based on maintenance free CCD technology with a digital imaging system for fluoroscopy and radiography with TV matrix at least 1K x 1K & digital image rotation of 360 Degrees.
8. Image archiving on USB & DVD (DVD read/write) with its genuine viewer software and image storage of at least 200 or more images is mandatory –
9. It must be equipped with latest DICOM interface (view, store, print, work list)
10. System should be ready to connect with HIS/PACS.
11. Noise filter with on screen indicator.
12. Entire system should be computer controlled and software upgradable.
13. There should be programs to reduce dose during fluoroscopy, patient dose should be displayed on the monitor.
14. It should be possible to carry out continuous fluoroscopy for prolonged procedures.
15. Cassette exposures should also be possible

The C arm should have the following movements

a) Motorized Vertical Movement: 480 mm or more.
b) Horizontal travel: 200 mm or more.
c) Angulation: +90, -25 degrees or more.
d) Orbital movement: 170 degrees or more movement.
e) Source image distance 950 mm or more.
f) Vertical free space -750 mm or more.
g) Swivel range ±12.5° or more.
h) Depth of C arm 730 mm or more.

F. Patient data Management

It should be possible to maintain a complete data base of the patient with easy retrieval. It should be possible to make additions or make changes to the patient data at a later stage

G. Monitors:

Two Medical grade TFT monitors with diagonal size of 19 inch or more. The display should be of 1K matrix with 256 gray shades. Resolution of screen minimum 1280 x 1024 and Horizontal and vertical viewing angles of 170° each. Luminance max. 600cd/cm².

H. Image display:

It should be possible for having 2 nos. Screen displays. Last image hold should be standard. Simultaneous display of old and new reference images

I. Image processing

a) Manual contrast and brightness adjustment. Edge enhancement, zooming, digital image rotation, horizontal and vertical flips.
b) Alphanumeric keyboard for entering patient data and for image annotation etc.
c) Digital Shutters (Image cropping).
d) Digital measurement functions for distances & angle measurement (post processing).
e) Annotation should be possible.
f) Save and auto-save feature
g) Swap and auto-swap feature

J. Power requirement: Single phase 230V, ± 10%, 50HZ

K. Accessories to be supplied.

a) Lead free light-weighted aprons for radiation protection (all round protection) with 0.5 mm lead equivalence certified by BARC/AERB & ISO – Nos 5.
b) Thyroid shields – 08
c) Lead aprons hanger – 02
d) Lead Goggles- 08
e) Gonad Shield - 08
f) On line UPS for complete system with 15 min back up.

On site comprehensive training for staff for a period of three months from date of installation or till the time staff is trained in usage as well as maintenance of equipment

w) During warranty period the desired uptime of 95% of 365 days (24hrs basis) will have to be ensured with maximum of 5 working days of downtime at a stretch. In case the downtime exceeds the 5%limit in a year or more than 5days at a stretch (whichever is applicable) extension of warranty period by double the excess down time period will be carried out.

x) CMC (Comprehensive Maintenance Contract) The post warranty (after 5 years) CMC should be comprehensive for all its components (everything irrespective of nature which is supplied by the vendor under guarantee) inclusive of X-Ray Tubes with 95% uptime and extension of CMC period by double the downtime in excess of 5%.

E-9, **Specification for Procurement of Plasma Sterilizer,**

1. Should provide simple and fast sterilization of medical devices at low temperature using hydrogen peroxide Plasma Sterilization technology.
2. Sterilant (H_2O_2) should be in closed cassette/ cartridge only for better and accurate dispensing in the chamber.
3. Should be suitable for sterilization of metal & non-metal medical devices like Flexible Endoscope, rigid Endoscope, metal & plastic lumen items heat & moisture sensitive instruments etc.
4. Should sterilize lumens of internal diameter 1 mm or above steel lumens up to 60 cm length and plastic/Teflon lumens up to 40 cm length without use of any additional accessory/ consumables like boosters/ adaptors. These claims should be backed by clinical testing.
5. Should have touch screen interface.
6. Should have at least 120 litres of usable volume of chamber.
7. Shelf size should be atleast 64cms x 30 cm (25 x 12 inches).
8. Sterilization temperature should not be more than 55^0C.
9. Should have selectable pre- programmed sterilization cycles of different types/ quantity of load with maximum sterilization time less than 60 minutes.
10. Should use minimum quantity of sterilant to ensure safety of instruments. The unit should have no toxic residuals with primary by-products being water vapour and oxygen and it should be safe for patient staff and environment.
11. Should have inbuilt barcodes Scanner to verify the expiry & authenticity of sterilant.
12. Should detect excess moisture thus eliminating chances of contamination due to residual bio burden.
13. Should have a unit to automatically monitor its operations with audio-visual alarms.
14. Should have touch screen LCD display for controlling & monitoring sterilization process.
15. Should have storage facility for at least 50000 sterilization cycles for recall & printing may be on external hard drive.
16. Should have foot switch for convenient door operation.
17. Should have in-built thermal printer for printing cycle details.
18. Should be easy to install without civil/plumbing work and should be mobile on wheels or easy movements.
19. Should not have any need for an additional water supply source during operation.
20. Should be able to work on 1-3 phase / 5 wire/ 415 VAC/ 20A/ 220-240V/ 50-60 Hz.
21. Should be USFDA or European CE approved.
22. Should conform to international Safety & quality standards ISO 9001:2008, ISO 13485:2003 and ISO 14937:2000.
23. Consumables- chemical indicators, biological indicators, packing paper should conform to international quality & safety standard such as ISO 13485, ISO 14937 & CE.
24. Should have at least 5 working installation of plasma sterilizer in India.
25. Should be supplied with the following:

Appropriate UPS which can support atleast I back up cylce	01 nos.
Instruments tray/ appliance box	02 nos.

E-10, Specifications for ETO Sterilizer,

References:

1. E- Tender No. 11062/013/AIIMSBBSR/CSSD/2018-19/100 dated 02/01/2019.
2. Global e-tender enquiry document for purchase of Medical Equipment for six AIIMS, HLL/PCD/PMSSY/AIIMS-II/12/RT-01/14-15.
3. E-Tender Notice No. 15/2017-18 of Employees State Insurance Corporation Tender Enquiry No.: 799-D/28/2017-18/ETE-15 dated 07/03/2018.
4. Various specifications available online of reputed brands.

"Ethylene oxide sterilizer" is defined as equipment which uses ethylene oxide as a biocide to destroy bacteria, viruses, fungus and other unwanted organisms. Ethylene oxide is used in sterilization of items that are heat and moisture sensitive.

1. The ETO gas sterilizer should be fully automatic type for sterilization of heat sensitive goods such as anaesthesia tubing and other plastic disposable materials etc.
2. **Capacity:** Should have capacity of 240 liters or more.
3. The sterilization chamber should be double walled, corrosion and gas resistant of suitable alloy/ SS 316/304.
4. The inner surface should be smoothly finished to minimize gas deposits.
5. The chamber shall be insulated against heat emission.
6. There should be a minimum 25 cm colour display touch screen for operation. The touch screen should have 21 CFR with password protection.
7. Monitoring provision should be available with the ETO for proper operation and monitoring of sterilizing process – like display to show cycle status.
8. The sterilization door shall have a quick release locking arrangement with door opening. The door locking should be automatic. There should be provision of door push rather than a handle to lock the door and a touch screen to unlock the door.
9. Suitable safety interlocking arrangement shall be provided for the door so that the sterilization process does not start unless the door is properly locked in the position. During programme run it should not open unless the residual gas has been completely eliminated from the chamber.

Specifications for ETO Sterilizer,

10. The sterilizer shall be provided with suitable mechanism to separate and evacuate the gas. There should be a noise proof and vibration proof vacuum pump for evacuation of gas, air and aerate the load.
11. Should have different modes of operation to run single as well as multiple loads. The sterilizer shall be provided with an automatic programmable panel with memory for pre-set operating sequence of all programs of operation.
12. The ETO cartridge puncturing mechanism should be automatic and if the cartridge does not puncture inside the chamber then there should be an alarm and alert.
13. The ETO sterilizer should have the following cycles programmes:
    d. Sterilization cycle for heat sensitive objects that ensure temperature from 37-55^{0}C with subsequent aeration for protection of the operating personnel.
    e. Aeration cycle/program to extract residual gas out of the sterilized objects after each sterilization cycle.
    f. Automatic chamber evacuation cycle with subsequent venting before releasing the door lock for opening, thereby prohibiting exposure of the operating personnel by gas dissolving from chamber walls during shut down period.
14. Should have appropriate pollution control device for safe disposal of E. O. like catalytic converter or equivalent technology/ gas disposal management – as per local pollution control norms.

15. TECHNICAL DATA:

e. Sterilization gas: 100% Ethylene oxide in single – dose cartridge. USEPA approved.
f. Sterilization method: Cold sterilization of heat sensitive materials.
g. Operating Temp. Range: 37 to 55^{0}C
h. No. of doors: One.

16. ACCESSORIES:

g. Sterilization basket / tray of suitable size – 2 nos.
h. ETO gas cartridges – for 200 cycles.
i. Compressed Air Plant if required/ Humidity provision
j. Vent Hoods / Exhaust hoods, if required
k. Packing Material with Chemical Indicator of 3 sizes – suitable for 200 cycles
l. Sealing Machine Heavy Duty – suitable and compatible with model quoted – 3 Nos. with consumables lasting 200 cycles.

Specifications for ETO Sterilizer,

17. One complete sterilization cycle with all the phases should complete within 8-10 hours. All the time based parameters must be mentioned in printing.
18. Sterilization and aeration in same chamber as continuous process. Entire unit and gas cartridge should be EPA (Environmental Protection Agency) certified.
19. The unit shall be capable of being stored continuously in ambient temperature of 0 – 50^{0}C and relative humidity of 15-90% with required Power input to be 180-270 VAC, 50Hz.
20. **Standards, Safety and Training:**
    e. Shall meet International Organization for Standardization – ISO 13845. Certificate to be provided.
    f. Shall meet national/ international standard for ETO Safety and compliance to OSHA/ NIOSH/ OSHAS 45001 operator exposure norms.
    g. Should be US FDA/ European CE certified.
    h. Electrical safety – conform to standards for electrical safety as per IEC.
21. The required safety and clearance certificate from the concerned department if any should be the responsibility of the supplier.
22. Supplier should have local service facility
23. Firm should have installations in hospitals which are >500 bedded and satisfactory performance reports from the same to be attached.
24. User/ Technical/ Maintenance manuals to be supplied.
25. Attach original manufacturer's product catalogue and specification sheet.
26. List of important spare parts, accessories and consumables with their part number and costing to be provided and this should be valid for the warranty and the CMC period.
27. **Certificate of calibration** for pressure and temperature, of the particular equipment from certified factory should be provided.
28. An extended warranty of **5 years by the principal firm** with parts/spares must be included after which a CMC (labour and spares) for 5 year of the equipment, must be quoted by the firm.
29. The **warranty/ CMC should include annual calibration of the equipment by an accredited laboratory**.
30. Firm should have provision for demonstration of the equipment before approval, if needed.
31. The supplier has to undertake the Supply, Installation, Testing and commissioning of the ETO sterilizers and also undertake all associated civil, mechanical, electrical, air

conditioning and interior furnishing jobs the area allocated for ETO sterilizers (ETO sterilizer rooms). The cost of Turnkey for the area of 200 sq.ft and Air-conditioning of Tonnage 2 TR will be considered for Ranking / Evaluation purpose. The actual area of modification work done will be considered for payment, based on the site measurements. Moreover Bidders will have to quote the Unit Rates of the following components of work.a) Civil works b) Electrical work c) plumbing. d) Air Conditioning e) Interior Furnishing & Furniture

32. All regulatory requirements for installing ETO sterilizers should be incorporated within the site; including the safe disposal of exhaust gas from the sterilizer as per existing regulatory norms. All modifications to the build up space provided at the hospital site including Installation of Equipment, civil works, electrical works, plumbing works, interior decoration, air conditioning, furniture and other related work required for the smooth and efficient functioning of the ETO sterilizer. These works shall comply with all relevant safety and standard guidelines. The vendor is fully responsible for installation and commissioning of all equipment. Bidders are advised to visit the site. Equipment loaded site drawing with actual dimension should be submitted along with the technical bid.
33. The supplier shall obtain all necessary clearances for the commissioning of the ETO sterilizers in liaison with the consignee. ETO Sterilizer room should be provided with proper ventilation, degassing and other regulatory ethylene oxide disposal protection requirements. All regulatory requirements (including the safe disposal of exhausted gas from the machine) for the safe installation of ETO sterilizer should be incorporated within the site. The EO aeration line should be installed with copper pipe.

Specification for vacuum autoclave,

The vacuum autoclave should have:

1. Microprocessor process control.
2. Should have TFT touch screen with virtual pushbuttons with Graphical representation of real time process, Press indicator, Temperature indicator, running program parameters.
3. Automatic vacuum dry and purge pre-vacuum to allow the steam to penetrate porous areas of the load that couldn't otherwise be reached with simple gravity displacement.
4. Programmable temperature from 105 °c to 134 °c (0.3 to 2 bar).
5. Atleast 4 fixed and additional customizable cycle parameters to meet your need.
6. Vertical floor standing model with capacity not less than 135 litres.
7. Should have 304 or 316 Stainless steel exterior and top, Stainless steel lid (with at least five closure point system).
8. Pulsed vacuum system and atmosphere purge and in-corporated steam generator, connected to the main chamber.
9. Water reservoir for clean water for the steam generator boiler with external water connection.
10. A filter valve at air inlet.
11. A feature, so that the lid cannot not be opened if the chamber is under pressure for personnel safety.
12. A Safety valve to prevent over pressure above the maximum limit.
13. Safety pressure switch.
14. Lid should have insulated protection
15. Audible and visual alarm for over temperature and insufficient temperature.
16. RS 232 interface for PC parameters printing.
17. Printer output, USB output for data logging and computer connection. Should have Sterilization cycles data logging with capacity for over 400 cycles.
18. Upto 6 temperature and 4 pressure sensors.
19. EN 61010-1, EN 61010-2-040 and EN 61326 EMC certificate or European CE Certification.
20. Accessories:
    - Atleast 3 stainless steel baskets should be supplied with the autoclave
    - A Bag sealer with support upto 240mm width
    - 5 Rolls of paper of width 20 cm
21. User/ Technical/ Maintenance manuals to be supplied.
22. Attach original manufacturer's product catalogue and specification sheet.
23. List of important spare parts and accessories with their part number and costing to be provided.
24. **Certificate of calibration** for pressure and temperature, of the particular equipment from certified factory should be provided.

Specification for vacuum autoclave,

25. An extended warranty of **5 years by the principal firm** with parts/spares must be included after which a CMC (labour and spares) for 5 year of the equipment, to be quoted by the firm.
26. The **warranty/ CMC should include annual calibration of the equipment by an accredited laboratory**, 4 preventive maintenance visits and unlimited breakdown visits as and when needed.
27. Firm should have provision for demonstration of the equipment before approval, if needed.
28. Firm should have provision for installation of the equipment including the electrical and plumbing aspect.
29. Biological and chemical indicators must be supplied (100 nos.)
30. Any software up-gradation if needed must be carried out by the company free of cost during the lifetime of the equipment.

E-12 Specification Table Top vacuum autoclaves,

The table top vacuum autoclave should have:

1. Microprocessor process control.
2. Should have TFT touch screen with virtual pushbuttons with Graphical representation of real time process, Press indicator, Temperature indicator, running program parameters.
3. Automatic vacuum dry and purge pre-vacuum to allow the steam to penetrate porous areas of the load that couldn't otherwise be reached with simple gravity displacement.
4. Programmable temperature from 105 °c to 134 °c (0.3 to 2 bar).
5. Atleast 4 fixed and additional customizable cycle parameters to meet your need.
6. Horizontal floor standing model with capacity 25 litres or more.
7. Should have 304 or 316 Stainless steel exterior and top, Stainless steel lid (with at least five closure point system).
8. Pulsed vacuum system and atmosphere purge and in-corporated steam generator, connected to the main chamber.
9. Water reservoir for clean water for the steam generator boiler with external water connection.
10. A filter valve at air inlet.
11. A Safety valve to prevent over pressure above the maximum limit.
12. Safety pressure switch.
13. Lid should have insulated protection
14. Audible and visual alarm for over temperature and insufficient temperature.
15. RS 232 interface for PC parameters printing.
16. Printer output, USB output for data logging and computer connection. Should have Sterilization cycles data logging with capacity for over 400 cycles.
17. Upto 6 temperature and 4 pressure sensors.
18. EN 61010-1, EN 61010-2-040 and EN 61326 EMC certificate or European CE Certification.
19. Accessories:
    - A bag sealer with support upto 240mm width
    - 5 Rolls of paper of width 10 cm
20. User/ Technical/ Maintenance manuals to be supplied.
21. Attach original manufacturer's product catalogue and specification sheet.
22. List of important spare parts and accessories with their part number and costing to be provided.
23. **Certificate of calibration** for pressure and temperature, of the particular equipment from certified factory should be provided.
24. An extended warranty of **5 years by the principal firm** with parts/spares must be included after which a CMC (labour and spares) for 5 year of the equipment, to be quoted by the firm.

25. The **warranty/ CMC should include annual calibration of the equipment by an accredited laboratory**, 4 preventive maintenance visits and unlimited breakdown visits as and when needed.
26. Firm should have provision for demonstration of the equipment before approval, if needed.
27. Firm should have provision for installation of the equipment including the electrical and plumbing aspect.
28. Biological and chemical indicators must be supplied (100 nos.)
29. Any software up-gradation if needed must be carried out by the company free of cost during the lifetime of the equipment.

F-1

Para No.	Tender Specifications of Anaesthesia Workstation
	US FDA and European CE Approved
	Have a sturdy body structure, durable finish, modular design antistatic heavy frame with good quality castors with front brakes, with following feature:
	(Main machine)
1	Three gas model, vis Oxygen, Nitrous oxide and Air.
2	Should be compact, ergonomic, easy to use and easy to maintain
3	Should have separate fresh gas outlet for use in open circuit.
4	Machines should have Digital / Virtual flow meters for oxygen, nitrous oxide and air for wall supply as well as cylinder supply. Emergency oxygen flush should be available.
5	Machine should have autoclave-able dual flow sensors at inspiratory and expiratory port.
6	Should have paramagnetic cell oxygen sensors on machine/monitor. The firm should supply free sensors for the entire warranty of five years and ensure that there is no downtime during repair/replacement of these sensors (if necessary) and provide a standby alternative (complete 10 years).
7	Shall have back – up O2 control which provides an independent fresh gas sources and flow meter control in case of failure.
8	Pressure regulators shall be of modular design.
9	Electronic hypoxic guard to ensure minimum 25% O2 across all O2 , N2O mixtures and Oxygen failure warning.
	Vaporisers :
10	Facility of mounting minimum two vaporizers, latest technology, key filler / Bottle adapter, selectatec type/auto locking facility tool free installation, i.eany vaporizer can be mounted at will with interlocking facility. It should be of the same make as that of machine.
11	Temperature, pressure and flow compensated with high accuracy of delivered concentration of volatile anaesthetic agent and should be from the same manufacturer.Three vaporisers should be supplied – Isoflurane, Sevoflurane and Desflurane one each for every work station.
	Ventilator :
12	The machine should have an integrated Anaesthesia Ventilator system with integrated TFT screen of at least 15", facility to vary respiratory parameters and should be able to ventilate adult and paediatric patients including infants.
13	Ventilators shall have volume controlled and pressure controlled, SIMV PS & PC, pressure sport with Apnea backup and PC-VG/ Auto flow/ PRVC mode,Electronic PEEP, Manual, spontaneous modes.
14	Ventilators shall have a tidal volume compensation capability to adjust for losses due to compression, compliances and leaks, and compensation for fresh gas flow. Breathing system (circuit) shall be fully autoclavable at 134°C and natural rubber / Latex free.
15	Tidal volume (inspired and expired) respiratory rate, I:E ratio, minute volume, Airway pressure & FiO2 should be continuously displayed.
16	Audio visual alarms for high and low settings of pressure, volume and disconnection should be present.

17	Tidal volume (VT) 20-1400 ml (volume control) rate at least 4-80 BPM
18	Inspiratory :Expiratory ration 2:1To 1:6 and peak flow >120 L min
19	Positive and Expiratory pressure (PEEP), Integrated, electronically controlled, off 4 to 20 cm H2O preferably.
20	Should have target controlled settings for O2 and anaesthetic agents based on continuous monitoring of patients end tidal O2 and end tidal Anaesthetic agent values to reduce agent consumption or efficient display for total flow whether the flow is in efficient, surplus or deficient zone with agent uptake volume.
21	Machine should have loops for Pressure-Flow, Pressure – Volume and flow- volume along with lung compliance.
22	Ventilator should have at least 30 mins rechargeable battery backup for ventilator. The anaesthesia machine should keep working even after power breakdown including hypoxic guard.
23	Machine should have an integrated breathing circuit with circle absorber of good quality easy to clean autoclaveable with fewer parts to reduce leaks. Machine should have CO_2 Bypass facility.
24	Machine should have mounting capability of one O2 and one N2O pin indexed cylinders.
25	Should have Cardiac Bypass mode/Heart lung machine (HLM) mode.
26	Machine should be equipped with Active Scavenging system.
	Anesthesia Monitor
27	The monitor should be modular, have adult and neonatal applications and should be user friendly.
28	It should be capable of monitoring ECG, Two invasive pressures, noninvasive blood pressure (NIBP), oxygen saturation (masimo/nellcor) SpO_2, two temperatures, Measurements of anaesthetic gases and End Tidal carbon dioxide $EtCO_2$ via agent module (AGM) and Bispectral Index (BIS) / Entropy for measuring the levels of sedation. All these features are required to be present on each monitor.
29	Monitor should have integrated NMT.
30	Should have a Flat, colour screen of minimum 19" size. It should have touch screen capability and should be operational from both touch screen as well as the trim knob.
31	Display should be of medical grade and the colored waveforms as well as the numerical display should be bright and clearly visible from a distance of up to 6-10 feet.
32	The monitor should display at least 8 waveforms along with related numerical parameters at a given time.
33	The operator should be able to arrange curves, graphics and measure value fields and adjust their sizes as desired on the screen.
34	The operator should be able to freeze the waveforms at will.The colour of each individual curve should be freely selectable
35	It should have a facility of at least 48 hours graphical and numerical data storage of trended parameters.
36	It should have an battery backupof 60 minsthrough UPS.
37	It should be operational over a wide temperature range $10^{0}C$ -$40^{0}C$ and humidity 20% -90%
38	Should have a facility to deactivate all the alarms, if necessary
39	Should have facility to interchange all the modules between all the monitors, so that one or more optional module can be operable on all monitors at different point of time.

40	Monitor should be capable of connection to a central station and should use a single network for all kinds of networking with a central station or the other hospital systems.
41	It should be capable of up-gradation for connectivity to the other diagnostic and administrative systems of the hospital for displaying images and reports of the patient from these areas.
42	It should be possible to get remote access of the monitor via internet with linkage to a central station for all monitors with web based facility.
43	The monitor should have the facility of up gradation to incorporate additional newer modules or parameter without change of basic equipment. The upgradeability must be simple and inexpensive.
44	The machine should be upgradeable to run web based applications like HIS, PACS, X- RAY, DICOM images.
45	The monitor should be approved by USFDA and European CE.
	Recorder and Printer
46	Monitor should be equipped with a compact thermal recorder with a capacity to record up to all the displayed waveforms together or separately in different combinations as desired.
47	Facility to hook up a laser or inkjet printer, if desired.
48	All the components like Anaesthesia machine, monitor, AGM, vaporizers should be from the same manufacturer.
	Scope of supply for each system
I.	Anesthesia work station – 1#
II.	Isoflurane Vaporizer – 1#
III.	Sevoflurane Vaporizer – 1#
IV.	Desflurane Vaporizer – 1#
V.	Re-usable Adult breathing circuit – 2#
VI.	Re-usable RE-breathing bag 0.5, 1 Ltr and 2 Ltr – 2 Nos. each
VII.	Re-usable Pediatric breathing circuit – 2#
VIII.	Anesthesia Monitor with standard hemodynamic parameter module - 1
IX.	BIS / Entropy Module – 1#
X.	NMT Module – 1#
XI.	ECG Cables and lead Wire set – 5#
XII.	NIBP Hose – 2
XIII.	NIBP Cuff – Extra Large – 2#, Adult – 5#, Pediatric – 2#
XIV.	IBP Cable – 2
XV.	IBP Transducers – 10
XVI.	SpO_2Cable - 2
XVII.	SpO_2 Finger Probe – 5
XVIII.	SpO_2 Wrap Sensor – 5

XIX.	Temperature Probe General – 5 (Adult)
XX.	Temperature Probe Skin – 1
XXI.	Temperature Probe General Pediatric – 2
XXII.	Sample line – 100
XXIII.	Water trap – 100
XXIV.	NMT Cable with Sensor – 2
XXV.	Entropy Cable with 25 Sensors - 1
XXVI.	Flow Sensors – 4
XXVII.	Disposable Adult circuit – 10
XXVIII.	Disposable Pediatric Circuit – 5
XXIX.	HMEF – 100
XXX.	HMEF Pediatric – 50
XXXI.	BIS/Entropy Sensor with appropriate cable as required – 25 Nos. Adult and 15 Nos. Pediatric

F-2

Specification of Suction Machine

Machine should have the following features;

1. Oiless pump, maintenance free piston pump.
2. Should be able to be used continuously for at least 72 hours.
3. 2 autoclavable jars of 4-5 liters each
4. Should have a overflow protection device to avoid spilling of fluids from the jar.
5. Footswitch with intermittent or continuous use.
6. Electronic / Manual Change-over with single move from one jar to another.
7. Suction should be at least 60 1/per minute.
8. Maximum Vacuum 0.9 bar – 90kPa – 675mmHg or more.
9. Total Length of the tubing should be 3.0 meters.
10. Equipment should be European CE or USFDA certified.
11. Should be supplied with 1 pair of anti-bacterial filters.
12. Should be mounted on mobile stand with 4 wheels, 2 with brakes.
13. Outer Diameter (OD) of Tube in mm – 6.0 for Paediatric.
14. Inner Diameter (ID) of Tube in mm – 3.0 for Paediatric.
15. Should be equipped **WITH** vent control system.
16. Type of Tip should be standard tip.

F-3

Technical Specification for compact Ultrasound Machine for use in OT & ICU:

A state of art fully digital, compact Color Doppler Ultrasound machine is required with following technical features:

1. Unit should be able to give very high image quality with advance technologies like compound imaging for better contrast resolution, tissue differentiation and edge detection, equivalent to high end cart based systems. Please specify the technology.
2. Unit should be compact, durable & less than 5 kg in weight (including battery).
3. Imaging modes of real time 2D, Color Doppler, Power Doppler, and Pulsed wave Doppler continuous wave Doppler must be available.
4. System must have fast start up to scanning in less than in 30 seconds from off condition for use in ICU & emergency conditions.
5. System should support transducer technologies like phased array, convex, linear & TEE format.
6. The system should have a broadband architecture with an operating frequency of at least 1 to 15 MHz.
7. Cine memory of at least 250 frames should be available on all operating modes.
8. The system shall process a dynamic range i.e. at least 165 db. The system must display at a maximum depth of 35 cm.
9. The system musty have dedicated calculation packages for cardiac & vascular measurements.
10. The offered unit must have minimum flat LCD/TFT monitor of at least 12 inches with Anti-glare coating and wide viewing angle.
11. Alphanumeric soft keys backlit and splash resistant keypad with easy access scan controls, facility to sanitize the system keyboard to avoid cross contamination.
12. The system should have the ability to enhance tissue margins and improve contrast resolution by reducing artifacts and improving visualization of texture patterns and needle tip within the image on both linear & curvilinear probes for procedural guidance. The technology needs to be specified.
13. System should possess needle visualization software to track the needle clearly at steep angles during procedural guidance while maintaining striking image quality of the target structure and the surrounding anatomy with simple on/off functionality on both linear & curvilinear transducers.
14. The system must have ability to function by AC/DC or battery power with the same degree of functionality, the battery life(run time) shall be at least 2(Two) hours, this need to be demonstrated.
15. The system must have archive capability for storage & retrieval of images and clips. It should have at least 2 USB slots, which allow for direct sharing of images (JPEG) and clips (AVI) to a PC.
16. Unit of transducers must be rugged, drop safe on accidental fall/hit on hard surface so as to withstand busy hospital situations.
17. The system must have in built memory of at least 16 GB for storing patient data & studies.
18. It should be capable of supporting all DICOM functionality (storage, print, and work list), also shall be compatible to connect to PACS

F-4

Adult fiberoptic bronchoscope and Video Laryngoscope and Monitor

Laryngoscope and Flexible Intubation Video Endoscope required with video illumination to visualize and document the operational area on screen. It should have the following features:

- Macintosh blades with closed European Metal finish sizes 0, 2, 3 and 4 with integrated camera chip and LED light illumination for obtaining good brightness.
- One special adult blade for difficult intubation with device for introduction of suction catheter for size 16-18 Fr., angle of view should be approx 80 degree.
- One special pediatric blade for diificult intubation.
- Miller size 0 & 1 blades should be present in the set (one each).
- Screen at least 7 inches or more in size for display with feature control buttons on the screen with HDMI output for connecting to a big screen.
- It should be a chip based video laryngoscope and not a prism based device.
- Monitor should have the facility to connect flexible scope and video-laryngoscope blade at the same time.
- Automatic as well as manual white balance facility should be available.
- Integrated video as well as still picture recording should be possible on data card and USB drive with JPEG and MPEG4 format which can be easily transferred to the computer/laptop. Monitor should have two ports for SD card and USB drive. Facility for Video and still picture which can be retrieved on the screen. It should be a upgradable system.
- Special shaped adult and pediatric Magill's forceps for foreign body removal, assisting nasal intubation and introduction of ryles tube should be provided.
- Safety bag for screen to be provided with the facility to operate monitor from the bag.
- Unit should run on both A.C and battery with battery life of more than 100 minutes.
- Movable stand manufactured from the same company should be provided to hang the screen.
- Accessories like protection cap, tray for cleaning and sterilization of blades (at least two blades at a time) should be provided.
- Conventional hospital disinfectant solutions should be capable/ compatible (H_2O_2, ETO) for disinfection of blades.
- Blades and connection cable should be fully immersible in disinfecting solution.

Flexible Intubation Endoscope with CMOS chip on tip for digitally transferring the image to the screen(Adult & Pediatric)

- There should be "No" Optical Fiber bundles. Intubation Endoscope should display Full Frame 4:3 rectangular Imaging and not the circular image.
- ADULT SCOPE -Outer diameter of scope should be ranging 5.5 mm with working length of 65cm, total length 93cm. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be 2.1mm in diameter.It should take ETT from size 6mm inner diameter onwards.
- PEDIATRIC SCOPE- Outer diameter of scope should be ranging 4mm with working length of 65cm,total length 93cm. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be 1.5mm in diameter.It should take ETT from size 4.5mm inner diameter onwards.

- Flexible Intubation scope should display good quality images by connecting it with 7 inches or more TFT monitor.
- Documentation of Video & still images should be possible with operating buttons on the scope to be recorded on SD card and USB pen drive, present in the monitor.
- It should be light weight , high resolution & potable flexible scope.
- Bronchoscope insertion tube (cum Bite block) sizes 2 & 4 for Oral intubation should be provided with the set.
- ET tube holder must be a standard accessory.
- Set should include- Carrying case, Suction Valve(reusable) 20pcs.,Cleaning brush, tube holder, Leakage tester, pressure compensation cap, leaflet valve(20 pcs), irrigation adapter & protection cap as standard accessories.

  a)Grasping forceps – flexible, double action jaws, diameter 1mm, length 110 cms, for use with Pediatric scope

  b)Grasping forceps - flexible, alligator jaws double action, diameter 1.8 mm, working length 120 cms, for use with Adult scope.

  c)Magill's forceps 25 cms length for video laryngoscope sizes 2-4.

  d)Magill's forceps 20 cms length for video laryngoscope sizes 1-2.

- Container for sterilization and storage of scope should be provided.
- One imported Trolley to hang Scope as well monitor should be provided.

- Suitable for following applications-
  - Bronchoscopy
  - Endotracheal Intubation (for Difficult Airways in OTs, ICUs & emergency medicine department)
  - Foreign body removal
  - Bronchial Lavage
  - Inspection of the Airways
  - Percutaneous Dilatation Tracheotomy
  - Training of Anaesthesiologists and emergency medicine physicians

Both the flexible Intubation Video Endoscope and Video Laryngoscope should get connected with same 7 inches screen without any additional coupler.

Power Supply : 220 – 240 Volts AC ; 50 – 60 Hz.
Must be FDA and CE approved.

Preparative, operative and post- operative procedures are performed in the Anaesthesia Suite/Operating Room – the classical area for endotracheal intubation. A distinction is made between expected and unexpected difficult airways and solution approaches are defined according to an algorithm

Intensive Care Unit – an area of the hospital with the most number of patients on ventilators/respirators. Endotracheal intubation or extubation, and possibly reintubation, pose a major challenge for intensivists. Some patients are not in a suitable state for intubation and complications after area. Some patients may require on emergency tracheostomy or a cricothyrotomy. Video assisted monitoring for percutaneous tracheostomy is the norm.

Both within the hospital (OT/ICU) and especially in preclinical emergency treatment, difficulties in stabilizing the respiratory tract – be they expected or unexpected – are always situations which the anaesthetist or emergency physician would prefer to avoid, but which cannot always be avoided. The 'on call team' have little experience with emergency intubation. Considering patient safety this equipment could save the subject by providing rapid assistance. If intubation difficulties can be foreseen, an elective fiberoptic intubation, optimally under topical anaesthesia and mild sedation can thus be seen as the "Golden Standard"

If the scenarios "can't intubate" or even "can't ventilate, can't intubate" occur unexpectedly, speed and carefully considered actions are required to bring an acute life-threatening situation for the patient under control. Every individual who wishes to carry out an intubation must have an answer ready to the question "What do I do if the intubation is not successful?". This is because if the event has just occurred there is no time left for detailed consideration.

Rescue services provided by ground based rescuers may encounter unexpected difficult airways in upto 50% situations. These are more often due to adverse conditions than to anatomic constraints of the patients.

Endotracheal intubation with a laryngoscope remains the gold standard in airway management. This is an essential skill for all anaesthesiologists, Intensive Care / emergency physicians and other emergency personal. The video – laryngoscope offers a professional system to guarantee success in learing airway management.

It has been be used to verify tube position of the Endotracheal tube, Laryngeal Mask Airway ,other supraglottic airway devices, and Double Lumen Tube.

Video Laryngoscope along with Flexible Intubation Video Endoscope (FIVE) with single compatible screen (Proprietary purchase)

Laryngoscope and Flexible Intubation Video Endoscope required with video illumination to visualize and document the operational area on screen. It should have the following features:

- Macintosh blades with closed European Metal finish sizes 0, 2, 3 and 4 with integrated camera chip and LED light illumination for obtaining good brightness.
- One special Adult blade for difficult intubation with device for introduction of suction catheter for size 16-18 Fr., angle of view should be approx 80 degrees.
- One special Pediatric blade for difficult intubation.
- Miller size 0 & 1 blades should be present in the set (one each).
- Screen at least 7 inches or more in size for display with feature control buttons on the screen with HDMI output for connecting to a big screen.
- It should be a chip based video laryngoscope and not a prism based device.
- Monitor should have the facility to connect flexible scope and video-laryngoscope blade at the same time.
- Automatic as well as manual white balance facility should be available.
- Integrated video as well as still picture recording should be possible on data card and USB drive with JPEG and MPEG4 format which can be easily transferred to the computer/laptop. Monitor should have two ports for SD card and USB drive. Facility for Video and still picture which can be retrieved on the screen. It should be an upgradable system.
- Special shaped adult and pediatric Magill's forceps for foreign body removal, assisting nasal intubation and introduction of Ryle's tube should be provided.
- Safety bag for screen to be provided with the facility to operate monitor from the bag.
- Unit should run on both A.C and battery with battery life of more than 100 minutes.
- Movable stand manufactured from the same company should be provided to hang the screen.
- Accessories like protection cap, tray for cleaning and sterilization of blades (at least two blades at a time) should be provided.
- Conventional hospital disinfectant solutions should be capable/ compatible (H_2O_2, ETO) for disinfection of blades.
- Blades and connection cable should be fully immersible in disinfecting solution.

Flexible Intubation Endoscopes with CMOS chip on tip for digitally transferring the image to the screen (Adult & Pediatric).

- There should be "No" Optical Fiber bundles. Intubation Endoscope should display Full Frame 4:3 rectangular Imaging and not the circular image.
- ADULT SCOPE: Outer diameter of scope should be ranging 5.5 mm with working length of 65 cms, total length 93 cms. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be 2.1 mm in diameter. It should take ETT from size 6 mm inner diameter onwards.
- PEDIATRIC SCOPE: Outer diameter of scope should be ranging 4 mm with working length of 65 cms, total length 93 cms. Up and down tip deflection should be same ranging 130-140 degrees. Working channel should be at least 1.5 mm in diameter. It should take ETT from size 4. 5 mm inner diameter onwards.
- NEONATAL SCOPE: Outer diameter of scope should be ranging 2.85mm with working length of 52cm, total length 72 cms. Up and down tip deflection should be same ranging 130-140 degrees. It should take ETT from size 3. 5 mm inner diameter onwards.
- Flexible Intubation scope should display good quality images by connecting it with 7 inches or more TFT monitor.
- Documentation of Video & still images should be possible with operating buttons on the scope to be recorded on SD card or USB pen drive, present in the monitor.
- It should be light weight, high resolution & portable flexible scope.
- Bronchoscope [illegible] tube (cum bite block) sizes 2 and 4 for oral intubation should be provided with the

ASHISH GUPTA

- ET tube holder must be a standard accessory.
- Set should include- Carrying case, Suction Valves (Reusable) 20 pcs. Cleaning brush, tube holder, Leakage tester, Pressure compensation cap, leaflet valve (20 pcs), irrigation adapter and protection cap as standard accessories.

a. Grasping forceps – flexible, double action jaws, diameter 1mm, length 110 cms, for use with Pediatric scope

b. Grasping forceps - flexible, alligator jaws double action, diameter 1.8 mm, working length 120 cms, for use with Adult scope.

c. Magill's forceps 25 cms length for video laryngoscope sizes 2-4.

d. Magill's forceps 20 cms length for video laryngoscope sizes 1-2.

- Container for sterilization and storage of scope should be provided.
- One Trolley, to hang scope as well as monitor, manufactured by the same firm, should be provided.

- Suitable for following applications
  - Bronchoscopy
  - Endotracheal Intubation (for Difficult Airways in OTs, ICUs & emergency medicine department)
  - Foreign body removal
  - Bronchial Lavage
  - Inspection of the Airways
  - Percutaneous Dilatation Tracheotomy
  - Training of anesthesiologists and emergency medicine physicians

Both the flexible Intubation Video Endoscope and Video Laryngoscope should get connected with the same 7 inches screen without any additional coupler.

Power Supply : 220 – 240 Volts AC ; 50 – 60 Hz.
Must be FDA and CE approved.

JUSTIFICATION

Successful airway intubation and management can quite literally make the difference between life and death. Video assisted intubation gives the entire team of viewers a clear view of all important situations – anatomical and pathological deviations.

Preparative, operative and post- operative procedures are performed in the Anaesthesia Suite/Operating Room – the classical area for endotracheal intubation. A distinction is made between expected and unexpected difficult airways and solution approaches are defined according to an algorithm

Intensive Care Unit – an area of the hospital with the most number of patients on ventilators/respirators. Endotracheal intubation or extubation, and possibly reintubation, pose a major challenge for intensivists. Some patients are not in a suitable state for intubation and complications after area. Some patients may require on emergency tracheostomy or a cricothyrotomy. Video assisted monitoring for percutaneous tracheostomy is the norm.

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It has been be used to verify tube position of the Endotracheal tube, Laryngeal Mask Airway ,other supraglottic airway devices, and Double Lumen Tube

F-5

Specification for Nerve Stimulator

- Should be suitable to identify the peripheral nerves and giving percutaneous stimulation in neuro-muscular block.
- Should have a percutaneous monopolar / bipolar stimulating handle for localization of nerves without puncturing the nerve which should be autoclavable.
- Should have selectable stimulation intensity ranging from 0-60 mA in steps of 0.1mA and stimulation impulse width form 0.3ms, 0.5ms and 1.0ms.
- Should continuously measure & display actual current passing through the patient and selected current.
- Should have pause function to interrupt stimulation without delivering impulses, to test function.
- Should automatically switch of with an acoustic warning if not operated over a period of 20 mins.
- Should have LCD display for stimulation current, impulse pattern, pulse width, impulse amplitude.
- Should have analog and digital display of selected current and actual current.
- Should have membrane touch pads for choosing stimulation function .
- Should be small (pocket sized) & light weight.

Should be supplied complete with

- Adapter with extension cable
- Percutaneous Bipolar Stimulating Handle
- Switch- Box for switching between invasive and percutaneous nerve stimulations
- Plexus Graduated Needles with thin polymer insulation coating of the following gauges : 22, 24 & 25 – 50 nos. of each size, 50 mm in length
- 9 volt rechargeable battery along with charger

F-6

SPECIFICATION FOR DEFIBRILLATOR WITH PACING

1) Description of Function
- Defibrillator is required for reviving the heart functions by providing selected quantum of electrical shocks with facility for monitoring vital parameters.

2) Operational Requirements
- Should be compact, Light weight, easy to use, Bi-Phasic Defibrillator with Manual (with easy 1-2-3 operation) & AED mode (supported by Voice prompts and text messages on the display)
- Should monitor ECG and display them
- Should be able to print the ECG on thermal papers
- Should be capable of doing synchronized cardio version
- Can be operated from mains as well as battery

3) Technical Specifications
- Should be a Low Energy Biphasic defibrillator monitor with Recorder, having capability to deliver shocks from 2 Joules to 200 Joules.
- Should monitor ECG through paddles, pads and monitoring electrodes and Defibrillate through pads and paddles.
- Should compensate for body impedance for a range of 25 to 150 ohms
- Should have a built in 50 mm strip printer
- Should have charging time of less than 5 seconds for maximum energy.
- Should have High resolution more than 8 inch Colour display for viewing monitoring parameters like ECG, SpO2, NIBP and etCO2 with 4 waveform capabilities of 4 seconds.
- Should have external & internal paddles with paddles contact indicator – for good paddle contact. Both Adult and pediatric paddles should be available.
- Should have event summary facility for recording and printing at least 55 events.
- Should have a battery capable of usage for at least 5 hours of monitoring.
- Should be capable of printing Reports on Event summary, configuration, self test, battery capacity etc.
- Should have facility for self test/check before usage and set up function.
- Should have facility to monitor parameters like SpO2, NIBP and etCO2 along with non invasive pacing (Demand & Fixed mode) facility.
- Should be able to upgrade the defibrillator for 12 lead ECG monitoring and ECG transmission & IBP measurement.

4) System Configuration Accessories, spares and consumables
- Defibrillator with AED and External Pacemaker – 01
- Adult with Built in Paediatric External Paddles - 01
- Patient cables - 01
- ECG Rolls – 50
- Adult SpO2 reusable Sensor – 01
- Adult NIBP Cuff and Hose – 01
- etCO2 Tubing (box of 20) – 01 box
- AED Multifunction Pads for Adults - 10 pairs with Each unit

5) Environmental factors
- The unit shall be capable of operating continuously in ambient temperature of 5 – 45 deg C and relative humidity of up to 95%

- Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

6) Power Supply
- Power input to be 120-240VAC, 50-60 Hz
- Should have a battery capable of usage for at least five hours.

7) Certifications :
- Both US FDA & European CE Approved.

8) Warranty :
- Five Years Warranty as standard and further Five Years CMC prices to be quoted.

9) Demonstration is a must

10) The firm must have executed at least 5 similar orders in the last 5 years in major govt./private hospitals. The firm must also submit satisfactory performance certificates of the orders carried out

F-7 **Specification of Transport Ventilator**

1. Should have quick & easy access ventilation mode through entry of the patient's height, preset emergency mode for adults, children and infants up to 5 kg. for transporting patient for Pre-Hospital & intra hospital condition.
2. Should have a colour TFT display of minimum 5" size with option to change to night mode.
3. Should be compact & portable. Weight should not exceed 7 kgs
4. Minimum Battery Backup up to 5 hrs and should be supplied with one additional battery.
5. Charging time for battery should not be more than 5 hours for 0 to 100%.
6. Should have following Ventilation Modes:
   - Ventilation Modes: VCV, PCV, IPPV, S-IPPV, PSV + CPAP, Bipap, CPAP, NIV , apnea mode. Intergrated ETCo2 preferable, prices to be quoted separately
   - Apnea back up time ventilation setings from 10-60 seconds
   - Should have apnea backup function with possible mode VCV or PCV
7. Should have facility of leak compensation upto 6l/Min
8. Should be capable to show waveforms
9. Should have audiovisual color alarms on screen for High/low Inflation pressure, Tidal volume(inspired & expired) , Minute volume (inspired & expired) , total frequency, spontaneous frequency, FiO2.
10. Should have the measurement of P peak, P plat and P mean
11. Should have:
    - I:E :1:4 to 4:1
    - Respiratory frequency: 5 min-1 to 50 min-1
    - Tidal volume: 50 ml to 2000 ml
    - Pressure limit (Pmax): 10 mbar to 65 mbar
    - Pressure support : 0 to 30 mbar
    - Peak inspiratory flow: Upto 100l/min
    - Built in PEEP: 0 mbar to 20 mbar above Pinsp
    - Trigger: Flow and pressure
    - Fi02: 40 to 100%
12. Internal nebuliser Synchronised and volume compensated
13. The air/oxygen blender must be interna; that allows selection of oxygen from 21-100%FiO2with monitoring of the delivered oxygen with low/high FiO2.
14. Lung Mechanics to show Resistance and Compliance
15. Oxygen input : O2 High pressure as well as low flow/pressure port
16. Magnetic plugs at the device end of the power supply cable so as to avoid any electrical mishap under any circumstances including direct contact with an open plug under any unforeseen emergency situation
17. Ventilator should be user friendly
18. Should be able to fix on the rails of transport trolley and on stand with wheels
19. USFDA/European CE, EN 60601-1, EN 1789, EN 794-3. ISO 10651-3, RTCA DO-160 G & MIL-STD 810G certified

F-8 Specification of Transport Monitor

- **Transport Monitor** screen should be not more than 6 inches and color Touch Screen
- Transport monitor should integrated handle for easy transport (Should not be supplied with separate case with handle).
- Should measure parameters 5 lead ECG, Spo2 NIBP, HR, Resp, 1Temp & suitable for Adult, Paediatrics and Neonates
- Transport monitor should have Li-ion Battery with backup of at least 4 hours
- Transport monitor should IP44 Certification (protected against splashing water and solid foreign objects $\geq$ 1.0mm diameter)
- Transport module should Confirms EN 1789: 2007 even for Road ambulances
- Should have USFDA and European CE Certification for Quality standards

F-10

High End Ventilator for Pediatrics & Adults Ventilator Technical Specification

APPLICATION:

High end Ventilator system which incorporated with microprocessor system that provides various modes of ventilation to support **Pediatric & Adults** in intensive care unit.

FEATURES:

1. Ventilator should have more than 12 inch TFT/LCD
2. Waveforms and loops shall be color coded to denote inspiratory and expiratory breath phases.
3. Ventilator shall have integrated nebulizer port which is timed, delivers set Fi02, is volume compensated, and synchronized to inspiratory phase.
4. Ventilator only require single button to press for automatic measurement of high and low inflection point
5. The ventilator comes with STANDBY mode which allows the user to suspend the ventilator cycle.
6. The Tidal volume should be minimum 2 mL upto 2000ml.
7. The ventilator have three waveforms and at least two loops:
    - Pressure – Time Waveform
    - Volume – Time Waveform
    - Flow – Time Waveform
    - Pressure – Volume Loop
    - Flow – Volume Loop
8. The ventilator able to store up to at least two loops for reference.
9. The ventilator should only require 90 seconds for ventilator self test for circuit compliance, circuit resistant and oxygen sensor calibration.
10. Ventilator should have imported (same make) In-built/Integrated/no turbine /External Medical Air Compressor, it should automatically start in case of air loss from pipeline. The Compressor should USFDA and CE approved

11. **Should conform to the international standards of BOTH European CE and USFDA for ventilator and compressor.**
12. Ventilator should have internal battery standard, capable of powering ventilator and Compressor for minimum 30 minutes OR UPS powering the Unit (Ventilator and its compressor) for minimum 30 minutes.
13. Expiratory Flow sensor should be covered under warranty and two Expiratory Flow sensor should be provided.
14. Should have advance technology such as ASV/NAVA/TPP (to be quoted as optional)

MODES

1. **Modes of Ventilation:**
    - Assist Control with Pressure Control or Volume Control
    - SIMV with Pressure Control or Volume Control and Pressure Support
    - Nasal Continuous Positive Airway Pressure (nCPAP) with/without Pressure Support
    - Pressure Regulator Volume Control (PRVC)
    - Airway Pressure Release Ventilation (APRV) / BiPhasis / BiLevel
    - Time Cycle Pressure Limited (TCPL) Ventilation for Paediatrics
    - Artificial Airway Compensation (AAC) / Tube Compensation with Pressure Support in all the modes of ventilation
    - Non invasive ventilation for all the modes of ventilation
2. In Pressure Control mode, users are allows to adjust the minimum tidal volume and have volume limit to avoid barotrauma or volume trauma with reusable proximal flow sensor.
3. Apnea modes for ventilation shall include Pressure Controlled and Volume Controlled modes with user settable parameters
4. Artificial Airway Compensation (AAC) should able to adjust the diameter and length of the endotraecheal tube to provide accuracy of setting.
5. Ventilator shall have Synchronized Independent Lung Ventilation capability, preferred. (To be quoted as optional)

6. Should have facility to field upgrade for Spo2 monitoring with display on the ventilator screen, preferred (To be quoted as optional)
7. Volumetric Capnography (Main Stream) should be inbuilt feature and should be displayed on ventilator screen itself no external monitoring devices would be accepted.

ALARMS:-

Alarms shall be color coded to distinguish High, Medium, and Low priority alarms
Low and High Values of Respiratory, Oxygen Concentration, Power failure, High Pressure, leak, Apnea, Gas Supply Malfunction, Occlusion, Ventilator inoperability Alarms, Apnea alarm time delay shall be user adjustable.

Monitored Parameters:-

Airway pressure peak , Tidal Volume inspired and expired and expired, minute volume inspired and expired, spontaneous minute volume , total frequency , spontaneous frequency , FiO2, ETCO2, intrinsic PEEP, PEEP, Plateau pressure , Static and dynamic complaisance & resistance, total leak, RSBI, NIF, MIP/P100

Primary Settings

Rate:	1 to 120 bpm
Tidal Volume:	2.0 mL to 2000mL
Inspiratory Pressure:	0 to 80 cmH2O Neo,
Peak Flow:	0.5 to 140 L/min
Inspiratory Time:	0.2 to 5.0 sec
Pressure Support Ventilation (PSV):	0 to 80 cmH2O
PEEP:	0 to 50 cmH2O
Flow Trigger:	0.1 to 20 L/min
%O2:	21 to 100%

The Ventilator should be supplied with essential accessories

1) The equipment should come with a warranty of 5 years from the date of satisfactory installation and 5 years comprehensive maintenance contract after the end of the warranty. Warranty and CMC should include all parts - plastic, metallic, glass, electronic, electrical and rubber. Warranty and CMC should cover the ventilator, compressor, humidifier, stand and any other parts. Warranty and CMC would include the periodic calibration of all parameters strictly as per manufacturer's recommendations and any spares, gases or standards required for that.
2) Rates of the chargeable accessories should be quoted for the total period 10 years (warranty and CMC) and should be frozen for that duration
3) Essential accessories to be supplied with the initial equipment supply:
   a) Reusable ventilator circuits – 2 circuits each for pediatrics & adults

b) The unit should be supplied with stand alone heated humidifiers **servo controlled** (1 no.) US FDA approved **(MR 850 Fisher & Paykel preferred)** Control of the temperature based on the patient end temperature and gas flow rate in the circuit complete with all accessories to make it operational.

c) For each humidifier: Temperature probes (1 nos.), Humidifier chambers – reusable (2 nos.), heater wire adaptors suitable for both reusable and disposable circuits (1 nos.)

d) Test Lung for 1 each for pediatrics & adults

e) Reusable Proximal Flow Sensor 2 nos, if disposable then 10 nos should be provided.

f) Expiratory Flow sensor 2 nos and should be covered under warranty.

F-12, Weighing Machine

Conformity to Indian Standrad, IS:9281-3 (1981) part I,II, III & Part IV (latest)	: Yes
BIS Marked	: No
CE Certified	: Yes
Type of Electronic Weighing Machine	: electronic weighing scale
Rated Load/ Capacity(kg)	: 200 kg
Resolution(gms)	: 100 g
Class type	: Class-III

VIEW MORE

STANDARDS

Conformity to Indian Standrad, IS:9281-3 (1981) part I,II, III & Part IV (latest)	Yes
BIS Marked	No
CM/L No if Yes otherwise Put NA	NA
CE Certified	Yes
If CE certified then provide no and date, otherwise put NA	G3M180312163068 dated 10/05/2018

Type * Electronic Weighing Machine	electronic weighing scale
Rated Load/ Capacity(kg)	200 kg
Resolution(gms)	100 g
Class type	Class-III
Display	lcd
Number of Display	single
Speed of measurement	3 second
Internal calibration	No
Number of scale division	100g
Tare provision	Manual
Connectivity to Computer	No
Number of USB ports	NA
Number of RS232 ports	NA
Power Requirement	battery operated
Power Supply	Single Phase
DC Operating voltage in Volts	6 Volt
Battery Backup	Yes
Backup time(hour)	15
Battery type	Non-rechargeable
Battery rating	4 batteries of 1.5 volts each

Num' r of load cell/ EMFC	4
Class of Protection	IP 65
Warranty in Years	2

DIMENSIONAL & MATERIAL PARAMETERS

Material of platform	ABS Plastic
Pan/ Platform Shape	rectangular
Pan/ Platform Size	450 mm x 450 mm
Dimensions of weighing machine (L X W X H) in mm x mm x mm	433mm X 373mm X 47mm
Weight of Weighing Machine	2.6 kilogram

ADDITIONAL FEATURES

Overcharging protection	Yes
Alarm for overload & Malfunctioning	No
Operating Temperature Range	+10C to +40C
Relative Humidity	upto 90%
GPRS Module facility	No
RFID Module	No
RFID Wrist Band	No

PRODUCT COMPARE PRODUCT HISTORY

Blue[illegible]oth Module	No
Back Grill	No
Details of the optional Accessories provided with weighing scale	NA
Dust Proof Cover	Yes

REPORTS

Model approval certificate for each model from Director Legal Metrology	Yes
Model approval certificate No & Date for each model	WM-21(127)2012 dated 29/05/2012
Type Test Certificate including Environment conditions from Regional Reference and Standard Laboratory (RRSL)	No
Availability of test certificate from Government/ NABL/ ILAC acredited lab to prove confirmity of specification as per (IS: 9281-2 (1979)	Yes
Test Report No & date	Q1N170612163065
Name of Lab	TUV Rheinland
Address of Lab	Germany
Each weighing machine shall be supplied with calibration certificate under weights and measures act	Yes

F-16

Multiparameter Monitor Specifications

1. It should have modular & multi measurement.
2. It should have color coded modules to avoid inserting wrong cables, leads.
3. It should have bright, highly visible minimum 19 inch flat Touch screen color TFT medical grade display from the parent company having high resolution for easy viewing from a distance.
4. It should have the capability to display at least 8 real time waveforms along with related numerical parameters on a single screen. Capability to have simultaneous display of ≥ 6 parameters (including 2 invasive pressures, 2 or more configurable ECG leads), respiration, skin temperature, oxygen saturation monitoring, mainstream/ sidestream capnography, Neuro-muscular transmission, (NMT), Spirometry etc.
5. The size of the numerics and waveforms should be adjustable to become larger for viewing from very long distance.
6. It should have the capability to be operated through Touch screen. Trim Knob interface optional.
7. It should have continuous 12 lead ECG monitoring facilities through 5 or 10 lead cable including 12 lead ST segment analysis with 12 lead ST mapping facility.
8. It should have minimum 48 hours of Graphical, tabular and horizon trending facility.
9. It should have advanced multi-lead arrhythmia analysis capability.
10. It should have configurable screen configurations for various monitoring settings like emergency, general monitoring, 12 lead screen etc.
11. It should have drug, oxygenation, ventilation and hemodynamic calculation packages.
12. Should have facility to interchange all the modules / between all the monitors, so that one or more optional modules / can be operated on all monitors at different point of time.
13. The monitor should have proper valid US FDA approval.
14. Standard measurements to be provided with all the monitors are ECG, Heart Rate, Respiration Rate, SpO2, Non Invasive Blood Pressure, Temperature, 2 Invasive blood Pressures.
15. Additional parameters/modules required to be quoted with the monitors, which can be used in any of the monitor at any time.
    a. Capable to be upgraded with, Continuous cardiac output without any invasive equipment or sensors.

16. Accessories to be offered as standard.
    ECG/Respiration 5 lead cable – 02 no. with each monitor
    Non-Invasive Blood Pressure cuff adult – 05 no. with each monitor
    Non-Invasive Blood Pressure cuff paediatric – 05 no. with each monitor
    Pulse Oximetry finger adult sensor – 03 no. with each monitor
    Pulse Oximetry paediatric – 01 no. with each monitor
    EtCO2 MainStream/ sidestream module – 01 no. with each monitor
    (sidestream : 10 water trap & 50 disposable sampling tube: with each monitor)

Temperature probe general purpose Reusable – 2 nos. with each monitor
Temperature probe (Skin) Reusable – 1 nos.
Reusable IBP cable – 02 nos. with 10 disposable domes with each IBP transducer with each monitor.
Wall Mount for all the monitors

17. Demonstration: it is a must of actual quoted product or even for trial use.
18. Comprehensive maintenance contract: In addition to warranty for 5 years, the vendor should quote the price of comprehensive maintenance contract (labour +spares) for 5 years post warranty. The price quoted for the 5 years CMC would be considered for the comparison of the total price and to determine the inter-se ranking of the bids. However the CMC price will only be paid during the actual period of the service under contract.
19. **Training:** The necessary training of the personnel for the use of the equipment will have to be provided by the company/vendor. The vendor must mention the type of training i.e. on site or otherwise.
20. **Compliance statement:** The vendor must provide, in tabular form a comparative chart of the required technical specification and technical specification of the quoted product. The vendor must give the relevant page number and paragraph number, in their literature regarding that technical information in the technical bid. Merely stating "complies" or "meets requirement" will lead to assumption that the quoted product does not have the required feature.

Multimodular Monitor Specifications

1. It should have modular & multi measurement.
2. It should have color coded modules to avoid inserting wrong cables, leads.
3. It should have bright, highly visible minimum 19 inch flat Touch screen color TFT medical grade display from the parent company having high resolution for easy viewing from a distance.
4. It should have the capability to display at least 8 real time waveforms along with related numerical parameters on a single screen. Capability to have simultaneous display of ≥ 6 parameters (including 2 invasive pressures, 2 or more configurable ECG leads), respiration, skin temperature, oxygen saturation monitoring, mainstream/ sidestream capnography, Neuro-muscular transmission, (NMT), Spirometry etc.
5. The size of the numerics and waveforms should be adjustable to become larger for viewing from very long distance.
6. It should have the capability to be operated through Touch screen. Trim Knob interface optional.
7. It should have continuous 12 lead ECG monitoring facilities through 5 or 10 lead cable including 12 lead ST segment analysis with 12 lead ST mapping facility.
8. It should have minimum 48 hours of Graphical, tabular and horizon trending facility.
9. It should have advanced multi-lead arrhythmia analysis capability.
10. It should have configurable screen configurations for various monitoring settings like emergency, general monitoring, 12 lead screen etc.
11. It should have drug, oxygenation, ventilation and hemodynamic calculation packages.
12. Should have facility to interchange all the modules / between all the monitors, so that one or more optional modules / can be operated on all monitors at different point of time.
13. The monitor should have proper valid US FDA approval.
14. Standard measurements to be provided with all the monitors are ECG, Heart Rate, Respiration Rate, SpO2, Non Invasive Blood Pressure, Temperature, 2 Invasive blood Pressures.
15. Additional parameters/modules required to be quoted with the monitors, which can be used in any of the monitor at any time.
    a. Capable to be upgraded with, Continuous cardiac output without any invasive equipment or sensors.

16. Accessories to be offered as standard.

    ECG/Respiration 5 lead cable – 02 no. with each monitor
    Non-Invasive Blood Pressure cuff adult – 05 no. with each monitor
    Non-Invasive Blood Pressure cuff paediatric – 05 no. with each monitor
    Pulse Oximetry finger adult sensor – 03 no. with each monitor
    Pulse Oximetry paediatric – 01 no. with each monitor
    EtCO2 MainStream/ sidestream module – 01 no. with each monitor
    (sidestream : 10 water trap & 50 disposable sampling tube: with each monitor)

Temperature probe general purpose Reusable – 2 nos. with each monitor
Temperature probe (Skin) Reusable – 1 nos.
Reusable IBP cable – 02 nos. with 10 disposable domes with each IBP transducer with each monitor.
Wall Mount for all the monitors

17. Demonstration: it is a must of actual quoted product or even for trial use.
18. Comprehensive maintenance contract: In addition to warranty for 5 years, the vendor should quote the price of comprehensive maintenance contract (labour +spares) for 5 years post warranty. The price quoted for the 5 years CMC would be considered for the comparison of the total price and to determine the inter-se ranking of the bids. However the CMC price will only be paid during the actual period of the service under contract.
19. **Training:** The necessary training of the personnel for the use of the equipment will have to be provided by the company/vendor. The vendor must mention the type of training i.e. on site or otherwise.
20. **Compliance statement:** The vendor must provide, in tabular form a comparative chart of the required technical specification and technical specification of the quoted product. The vendor must give the relevant page number and paragraph number, in their literature regarding that technical information in the technical bid. Merely stating "complies" or "meets requirement" will lead to assumption that the quoted product does not have the required feature.

F-17 Specification for DVT Pump

1. Should be light Weight, portable and sturdy with a strong hanging hook which can fit on to the bed side/OT table railing.
2. Should be quiet and vibration free, Sequential Gradient.
3. The Screen should be minimum 4 inches diagonally.
4. Large, easy to read pressure display with feather touch switches.
5. Should have at least three air pockets in each Cuff for proper flow acceleration.
6. Should have electronic pressure regulator with pressure range adjustable between 30-140mm Hg. Should provide suggested pressure setting for calf and thigh of 40mm Hg. And 100mm Hg for foot.
7. The device should have appropriate connectors/tubings and should allow a single leg mode option also.
8. Should have appropriately designed garments for calf/thigh and foot compression.
9. It should have automatic and Manual Modes for quick functioning.
10. Garments;
    a) Should be made of poly foam with inside cotton lining with Velcro closure for easy patient compliance.
    b) Should have all the three tubings of each leg moulded into one.
    c) Should have full range of calf, thing and foot designs with standard adult sizes with options for various sizes with options for various sizes, small, medium, large, extra-large.
11. Pressure range 30mm Hg to 140 mm Hg.
12. The Display should graphically show which part of the Leg the Air is pressed into.
13. Interval should be selectable from 18-60 Seconds.
14. The Switches should be finger sensitive.
15. The Pump Should have Hook to Hang to the Bed Rail.
16. The screen should show Simultaneously Total Time, Pressure time, Interval, Pressure, Mode, Battery status & Graphical representation of Limb.
17. Each Unit should be accompanied by 50 Pair of full Garment & 50 Pair of Calf Garments.
18. ISO and EC / US FDA approved.
19. Demonstration of the equipment is a must.

F-18, ECG Machine

Confirmity to standards	:	US FDA
Purpose	:	ECG machine is primary equipment to record ECG signal with interpretation which is required for recording and analyzing the waveforms with software.
Number of channels	:	12
Number of ECGs which can be ~~WSW M986~~ Machine	:	100-150

Certificates

Confirmity to standards	US FDA
Certification number and date	K031557
Confirmity to safety of electromagnetic compatibility	IEC-60601-1-2:2001 (or equivalent BIS)
Confirmity to safety standard	IS - 13450 / IEC60601-1-2005

Performance Parameters

Purpose	ECG machine is primary equipment to record ECG signal with interpretation which is required for recording and analyzing the waveforms with software.

Operating modes of ECG Machine	Automatic, Manual and Rhythm
ECG machine should have ECG lead annotation facility	Yes
Leads which is in ECG machine should be able to acquire simultaneously and interpret them	12
Number of channels	12
ECG machine should acquire lead ECG for both adult and paediatric patients	Yes
The ECG machine should have facility to show lead fail indication	Yes
The ECG machine should have facility to show lead reversal indication	Yes
The ECG machine should have facility to show the impedance to quality check of connection	Yes
Acquisition time for ECG Machine in sec	10 sec
Digital sampling rate for Pacemaker spike detection	40000 s/sec/channel
Recording of digital sampling for pacemaker	1000 s/sec/channel
ECG machine should have real time colour backlit display of ECG waveforms with signal qualify indication for each lead	Yes

PRODUCT COMPARE PRODUCT HISTORY

ECG machine should have frequency filters	Artifact, AC and low and high pass frequency filters
Number of ECGs which can be store in ECG Machine	100-150
ECG machine should have full screen preview of ECG report for quality assessment checks prior to print	Yes
Type of inbuilt screen	LCD
Size of screen in inches	9
Display resolution of ECG machine in pixels	640 x 480
ECG machine should have interpretation facility of the amplitudes, duration and morphologies of ECG waveforms and associated rhythm for adult and pediatric patient	Yes
ECG machine should have alphanumeric keyboard for patient data entry	Hard keys
Size of printing paper	A4
Resolution of digital array printer using thermal sensitive paper in ECG Machine in dpi	200 dpi x 500 dpi on 25 mm/sec speed
ECG machine report format	Report formats of 3x4; 6x2, Rhythm for up to selected leads, 12 lead extended measurement, 1 minute of continuous waveform data for 1 selected lead
Provision of battery	Yes
Battery capacity	50 ECGs or 1 hour of continous rhythm recording on single charge

PRODUCT SOFTWARE PRODUCT HISTORY

Connectivity to ECG Machine	Wireless LAN
Storage on external portable memories	USB support
The individual patient lead should be change without replacing the whole patient cable assembly	Yes
Noise level in dba	2
Weight of ECG Machine in Kg	4.4
Frequency in Hz	300
Availability of latest interpretation software	Yes
Wireless acquisition module with RF technology	No
System should have the dedicated software to download the ECG form machine in PDF format	Yes
Warranty in years	3
User and service manual of ECG Machine	Yes

Environmental Parameters	
Operating temperature and humidity	temperature of 10-40 degree C and relative humidity of 15-90%

Provision of trolley	No
Material of Frame of trolley	No Trolley Provided
Material of Top of trolley	No Trolley Provided
Number of castors	No Trolley Provided
Number of brakes for castors	No Trolley Provided
Height of trolley in inch	No Trolley Provided
Provision of railing for top shelf	No Trolley Provided
Availability of suitable cable arm having holder for ECG cables when not in use	No Trolley Provided

Power Supply

Power input	220-240 V AC, 50 Hz fitted with Indian plug
Length of power cable in meter	3
Resettable over current breaker shall be fitted for protection	Yes

Accessories

ECG Machine 12 leads with interpretation	2
Patient Cable	4

Chest Electrodes Adult (set of Six)	2
Chest Electrodes Paediatric (set of Six)	2
Limb Electrodes	Not provided
Thermal paper for 500 patients	2 SET
Power cable for charging	Yes
Supplied with Clip electrode	Yes

Reports

Manufacturer shall be ISO certified	ISO 13485
ISO cetification deatils such as date and number	K031557,19-05-2006
Availability of test report from govt/ NABL/ILAC accredited lab covering all parameters	Yes
Test report number , Incase test reports not availabble , put NA	K031557
Test report date, Incase test reports not availabble , put NA	19-05-2006
Name of test lab , Incase test reports not availabble , put NA	Food and Drug Administration Rockville MD 20850
Address of test lab , Incase test reports not availabble , put NA	9200 Corporate BoulevardRockville MD 20850

F-19

Technical Specification

Blood Gas Analyzer

i) Analyzer must be handheld, light weight, battery powered and portable - suitable for use at patient bedside and remote healthcare settings.

ii) System must be capable of measuring PH, PCO2, P02, TCO2, Na+, K+, Cl, Ionized Calcium, Lactate, Hematocrit, Glucose, Urea, Creatinine, Troponin-i, CK-MB, BNP, PT/INR, ACT and Beta HCG on a single device. Analyzer must display calculated parameters including HCO3, Base Excess, S02, Anion Gap &Hemoglobin.

iii) System must be capable of electrochemical measurement using different modes such as amperometric, potentiometric and conductometric.

iv) System must be Cartridges based closed system.

v) Test results must be quantitative.

vi) The calibration procedure must be built-in and automatic with every patient sample.

vii) Test combinations must be available from different Cartridge types based on clinical requirement.

viii) Sample type must be Whole Blood from Arterial, Venous, Capillary and Cord Blood samples.

ix) System must be capable of using small whole blood samples, typically less than 100ul depending on cartridge type.

x) Analysis time: Must be less than 3 minutes for Blood gas, electrolytes, chemistries and less than 12 minutes for immunoassays like cardiac enzymes and Pregnancy test.

xi) The system must be capable of automatic measurement of Barometric Pressure.

xii) System must be battery operated using 9V NIMH rechargeable batteries.

xiii) System must be capable of using electronic quality assurance testing at programmable interval.

xiv) System must be inbuilt with barcode reader for easy identification of patient ID, operator ID, Cartridge and Control lot numbers.

xv) System must be capable of Liquid QC scheduling and lockout.

xvi) System must be capable of monitoring Operator competency and lockout.

xvii) System must be capable of capturing patient respiratory parameters electronically.

xviii) System must have option to adjust hematocrit results for patients on cardiopulmonary bypass pump.

xix) System must be provided with portable printer with IR Link for wireless printing.

xx) System must have capability to transmit the patient results to Hospital LIS or HIS using wireless/Wi-fi mode.

xxi) The analyzer must be USFDA and CE certified.

xxii) System should not be gas/Reagents based.

xxiii) Analyser should have LCD display.

xxiv) Analyser weight should not be more than 1 KG including battery.

xxv) Warranty should be 5 year for Analyser.

xxvi) **Analyzer must come with box having facility to fix equipment in the box and test can be performed.**

xxvii) **Anayzer must come with lock in facility.**

Cartridges

- Single use Cartridge using advanced biosensor chips & in built with auto calibration, individually packed.

- Cartridges Pack size should not be more than 25 cartridges per pack.
- Cartridge must be barcoded and individually packed for easy identification.
- The test cartridges must be self-contained with all reagents, sensors and calibrating solution required to run test.
- Cartridges must be disposable after each patient test.
- Cartridges must have the option to store in the refrigerator for longer shelf life and in room temperature for immediate use.

ANNEXURE-III

Ref.: HSCC-NBCC/Med. Eqpt./01 dt. 04.12.2020

BUGETARY QUOTATION

1)	**Sr. No. of Equipment:**		
2)	**Name of Item:**		
3)	**Model No.:**		
4)	**Name of manufacturer & Address:**		
5)	**Contact Details of the Firm submitting Budgetary Quotation:**		
6)	**Budgetary Cost of Equipment:**		
	The Budgetary Cost of Equipment includes the following:		
	1) All Taxes & Duties on FOR basis.		
	2) Insurance till installation.		
	3) Inclusive of 5 years Warranty.		
	4) Delivery - within 60 days from the date of issue of Purchase Order		
	5) Installation within 30 days from the date of Delivery		
	6) Cost inclusive of 3rd Party Inspection by reputed Agencies i.e. SGS / Llyod / TUV etc.		

NOTE:

1. **Please enclose a copy of Last Purchase Order for the same Model (preferably from a Govt. Institute).**
2. **Copy of Catalogue / Brochure / Product Data Sheet etc to be submitted.**

(Sign & Stamp of Firm)

Ref.: HSCC-NBCC/Med. Eqpt./01 dt. 04.12.2020

REQUEST FOR BUDGETARY ESTIMATE

HSCC (India) Ltd. intends to obtain Budgetary Estimates from eligible bidders for supply, installation, testing, commissioning & handing-over of various Medical Equipment for **Sports Injury Centre (SIC) Expansion Project, New Delhi being carried out by NBCC** for items Annexed at Annexure-I & the Technical Specifications are Annexed at Annexure-II.

Accordingly, it is suggested to upload the Request For Budgetary Estimate, List of items (Annexure-I), Technical Specifications (Annexure-II) & single page format enclosed at Annexure-III in HSCC tender Portal for obtaining Budgetary Estimate from probable / interested Firms.

Submitted for approval to upload the above in HSCC Tender Portal.

Dy. Manager (Proc./Pharma)

DGM (BME)

CGM (Proc) 15-12-2020

GM (IT)