

GOVERNMENT OF MAHARASHTRA



**CIVIL SURGEON, GENERAL HOSPITAL
GADCHIROLI**

Medical Complex, Gadchiroli - 442605

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**Quotation for Hospital Equipment & Instrument
Year 2026-27**

रुग्णालयीन उपकरणे व साहित्यसामग्रीचे
दरनिश्चिती करण्याकरीता दरपत्रके सादर करण्याबाबत
सन २०२६-२७

Quotation No. CSGH/Base rate/ Hospital Equip. & Instru./ 6340/26/ Dt.

Date of Release Quotation Documents : 28/09/2025
Last date of submission of (Envelope No.1) : 06/10/2026

महाराष्ट्र शासन सामान्य रुग्णालय, गडचिरोली		
दुरध्वनी क्रमांक (०७१३२) २२२३२०	टेलिफॅक्स क्रमांक (०७१३२) २२२६४४	जिल्हा प्रत्येचिकीत्सक, सामान्य रुग्णालय, चंद्रपूर रोड, मेडाकल कॉम्प्लेक्स, गडचिरोली - ४४२६०५ यांचे कार्यालय. ई-मेल आय.डी. : csghgadchiroli33@gmail.com
आरोग्य सेवा	जा.क्र.सारुगड/ओ.भा./Hospital Equip.& Instru./दरपत्रक पुरविणे/ 6340/२६ दिनांक : 25 SEP 2026	

प्रति,

विषय : रुग्णालयीन उपकरणे व साहित्यसामुग्रीची दरनिश्चिती करण्याकरीता दरपत्रके सादर करण्याबाबत...

संदर्भ : मंजूर कार्यालयीन टिपणी दि. 24/09/2026 नुसार

आपणस कळविण्यात येते कि, सन २०२६-२७ या आर्थिक वर्षात जिल्हा सामान्य रुग्णालय / महिला रुग्णालय / उपजिल्हा रुग्णालय / ग्रामिण रुग्णालयासाठी सोबत जोडलेल्या परिशिष्ट अ मध्ये नमुद केलेल्या यादीतील रुग्णालयीन उपकरणे व साहित्यसामुग्रीच्या दरनिश्चिती करण्याकरीता खाली दिलेल्या तांत्रिक विनिर्देश तसेच अटी व शर्तीनुसार दरपत्रके मागविण्यात येत आहेत.

सदर दरपत्रके खाली दिलेल्या नमुन्यामध्ये सिलबंद लिफाफ्यात दिनांक 6/10/2026 रोजीपर्यंत पोहचतील अशा रितीने पाठवावीत.

सहपत्र:- परिशिष्ट अ



जिल्हा प्रत्येचिकीत्सक
सामान्य रुग्णालय, गडचिरोली

अटी व शर्ती :-

- १) दरपत्रकाच्या लिफाफ्यावर Quotation for Hospital Equipment & Instrument असा स्पष्ट उल्लेख असावा.
- २) दरपत्रके पुरवठादाराच्या लेटर हेडवरच स्वाक्षरी त्रिकोनासह सादर करावी.
- ३) दर नमुद करताना सर्व करसह संपष्टपणे दाखवावी. या व्यतीरीक्त इतर कोणतेही खर्च अदा केले जाणार नाही.
- ४) दरपत्रकावर जीएसटी क्रमांक व पॅन क्रमांक याचा उल्लेख असावा.
- ५) दरपत्रकासोबत पॅनकार्ड व जीएसटी नोंदणी प्रमाणपत्राच्या स्वसाक्षात्कृत छायांकित प्रति Self Attested सादर केल्या असतील तरच दरपत्रक वैध मानल्यात येईल.
- ६) ईमेल द्वारे सादर केलेले दरपत्रकांचा स्वीकार केला जाणार नाही.
- ७) पुरवठादार संस्थेचे नोंदणी प्रमाणपत्र सादर करणे बंधनकारक राहिल.
- ८) पुरवठादाराने मागील ३ वर्षांचे आयकर भरणा केल्याचे प्रमाणपत्र जोडणे बंधनकारक राहिल.
- ९) दरपत्रक स्विकारणे अथवा नाकारणे तसेच सदर खरेदी प्रक्रिया पूर्णपणे रद्द करण्याचे अधिकार मा.जिल्हा समिती अध्यक्ष, गडचिरोली यांनी राखून ठेवले आहेत.
- १०) दर सादर करण्यात येणाऱ्या वापरण्याची मुदत (Expiray Date) जास्त काळावधीची असावी.

ANNEXURE I

FORMAT FOR QUOTATION
(TO BE TYPE ON SUPPLIER LETTER HEAD)

Date :

To,
The Civil Surgeon,
Civil Hospital, Gadchiroli

**Subject: Submission of Quotation for Base Rate of Hospital Equipment & Instrument
for Year 2026-27**

Ref : Web site quotation Notice No. CSGH/Base rate/Hospital Equip. & Instru./ /26
Date : 10.09.2026

With Reference Above subject, We are have submitting following Items Rate with Technical Specification for Base Rate Process

Sr. No.	Name of Equipment & Instrument	Unit	Rate (without Taxes & Transportation)	Taxable Amount	Total Rate (with Tax)
1	Finger Pulse Oximeter				
2	Horizontal Autoclave Machine 4 Drum				
3	Structure on Trolley Stainless Steel [GS129]				
4	Cauty Machine (Diathermy Electrosurgery)				
5	Electric Weight Machine Baby				
6	OT Shadow less Mobile Lamp LED				
7	Electric Suction Machine [OBG34]				
8	Medicine Trolley [GS127]				
9	Syringe Pump				
10	Digital Thermometer				
11	White Puncture Proof Box				
12	Vein Detector / Finder				
13	Digital Fetal Doppler (CTG) Wireless Fetoscope				
14	Stadiometer				
15	Stethoscope Paediatric/Neonatal				
16	LED Torch (Philips)				
17	Phototherapy Unit Double Surface				
18	Phototherapy Unit Single Surface				
19	Radiant Warmer				
20	Autoclave Stainless Steel Drum (12x15)				
21	CBC Machine 5 Part				
22	CBC Machine 3 Part				
23	Ventilator (Neonatal)				
24	Laryngoscope No. 0 (Neonatal)				
25	Room Thermometer				

26	ILR Thermometer				
27	Autoclave Vertical 220 Ltr				
28	Puncture Proof Container Blue				
29	Elisa Reader & Washer				
30	Digital BP Apparatus ISO [MS8]				
31	Centrifuge Machine 16 Hole				
32	Digital Hemoglobin Meter				
33	Blood Bag Tube Sealer Stand By				
34	Digital Weighing Machine				
35	PM kit (Post Mortem)				
36	Suture Tray				
37	Ice Lined Refrigerator (ILR)				
38	Deep Freezer				
39	Multi Para Monitor				
40	Foot Operated Suction Machine				
41	Fogger Machine				
42	Emergency Crash Cart Trolley with Wheel				
43	Examination Couch				
44	Venesection Set				
45	Allies Forceps No. 8 & 6				
46	Stainless steel Basin				
47	Fowler Bed				
48	ECG Machine 12 Channel				
49	CO2 Insufflator				
50	Atraumatic Grasper (Bobcock Grasper)				
51	Margland Dissector				
52	Clip Applicator				
53	Tan Retractor / Liver Retractor Set				
54	Pulse Oximeter Tabletop With Prob (Pead) NIBP				
55	Oxygen Hood				
56	Foot Step 2 Stair				
57	Hub Cutter				
58	BMW Bucket With Stand				
59	MVA Set (Aspirator)				
60	Hysterectomy Set				
61	Laboratory Refrigerator 450 Ltr				
62	Weighing Machine for Measurement BMW				
63	Eye Washer Foot Operated				
64	X Ray View Box LED				
65	Instrument Trolley Stainless Steel [GS124]				
66	Kellys Pad				
67	Automatic Blood Pressure Monitor				
68	Episiotomy Set				
69	BMW Mop Three Bucket System				
70	Linen Trolley Stainless Steel				
71	OT Table for Casualty (Ordinary)				

72	Blood Bag Stripper Cum Cutter				
73	Air Rotar for Dental				
74	Mayo Trolley				
75	Cataract Set With Box				
76	Biometric Scan Machine				
77	Bone Nebular				
78	Dental X Ray and RVG With Desktop				
79	Elevator Set				
80	Luxator Set				
81	UV Chamber				
82	Apex Locator				
83	UV Light cure Gun				
84	Micrometer with Contra angle handpiece				
85	Dental Cautery Machine				
86	IV Stand with Stainless Steel Rod & Castor [GS33]				
87	Attendance Stool Stainless Still				
88	Electric Weight Machine Adult				
89	Defibrillator with Monitor				
90	Binocular Microscope				
91	Welghing Machine for Blood Bag (Blood Collection Monitor)				
92	X ray Protective Coller				
93	X RAY Protective Cap				
94	Oxygen Conversion unit Double Meter				
95	Laboure Table Stainless Steel with Mattress & All Attachments				
96	Two Body Mourchury Cabinet				
97	Hernia Set (Adult)				
98	Hernia Set (Pead)				
99	Bedside Locker Stainless Steel				
100	Transport Monitor				
101	Infantometer				
102	Dental Chair With All The Probes (Air Rotar, Ultrasonic Scaler with Four Tips, Compressor Oil Free Medical Grade)				
103	Suction Machine Fitted In The Dental Chair Medium and High Vacuum				
104	Dental X-ray IOP/OPG X ray Viewer With LED Light				
105	Lumber Cervical Traction Unit				
106	Diathermy for Physiotherapy 250W				
107	Shoulder Pully				
108	TENS (Trans Electrical Nerve Stimulation)				
109	IFT (Interferential Therapy)				
110	Muscle Stimulator				
111	Oxygen Trolley [GS131]				
112	Mercury BP Apparatus [GS26]				

113	Hystroctomy Set (Abdominal & vaginal) [OBG40]				
114	BP Appratus Stand Model [GS22]				
115	Dressing Trolley with bowl & bucket = frame made of square tube mounted on four swivel 4inch dia castors Two fixed ss stop compete ss/powder coated [GS125]				
116	Single Puncture Laparoscope Accessories include: 1) LED Light Source with fiber optic cable 2) Verses Needle 3) Ring Applicator and Multifunction SS trocar				
117	Data Logger				
118	Blood Bank Refrigerator 300 Ltr				
119	C Arm Machines Flat Panel				
120	Dental X Ray Machine [DN24]				
121	Mangoll's Clamp (Maingot Clamp)				
122	Vascular Clamp				
123	Ventouse for Delivery				
124	ET CO2 Monitor				
125	OT Patient Warmer				
126	Sterile Skin Marker with Sterile (Romposis) Sterile Skin				
127	Kellys Forceps				
128	MVA Syringe				
129	Medicine Steel Rack				
130	Patient Bed (Steel Cot)				
131	Semi Fowler Hospital Bed				
132	ICU Bed				
133	Wallmount Bracket Monitor				
134	Wallmount Stand for Multipara Monitor				
135	Wheel Chair				
136	Bed Side Screen				
137	Hand Card Trolley				
138	BMW Vehicle EV				
139	Medicine Vehicle EV				
140	Organic Waste Composting Machine (100Kg-150Kg Capacity)				
141	Adult Weight Machine				
142	Air Curtain Machine				
143	Air purifier				
144	Anaesthesia Work Station				
145	Celling Type O.T. Light Double Dom LED				
146	Electrical Vertical Autoclave 2 Drum				
147	Hand Driyer Machine				
148	Hydrolic Delivery Bed				
149	Insect Killer				
150	Multipara Monitor Infant/Neonatal				
151	Nebuliser Machine				

152	OT Table Hydraulic				
153	Serum Bilirubinometer				
154	Stethoscope Adult				
155	Vaccum Machine				
156	Ventilator Adult				
157	Wall Clock With Humidity Detector				
158	Digital Standing Weight Machine				
159	Clinical Thermometer				
160	Needle Destroyer				
161	Handy Doppler				
162	SPO2 Probe				
163	BP Cuff				

Your Faithfully

Supplier Stamp & Sign

TSP
MT (01)

9/55

Technical Specification --Finger Pulse Oximeter	
Sr.no	Technical Specification
1	Display type - LED
2	Displays SpO2 and pulse rate
3	Low power consumption, Auto-off function
4	Approximately 30 hours of normal operation
5	Accommodates a wide range of finger sizes from pediatric to adult, <u>Strap like sensor for neonatal use.</u>
6	Power requirement - two AAA batteries.
7	Instrument should CE (should be from notified body) or USFDA approved.

Dr. Jyoti
Senior Registrar
Dep of Cardiology
KEM Hospital

Dr. Anil Wadgaonkar
Biomedical Engineer
R R SH, Amravati

Dr. Anjali
Multi
Specialist Physician
Civil Hospital, Thane

Dr. Nagesh Waghmare
Associate Professor
KEM BEIR SH

Dr. Chandan Anand
Physician (CH4-3)

03

TECHNICAL SPECIFICATIONS "Autoclave Horizontal"

GMDN name		Autoclave High Pressure Horizontal
1	Clinical purpose	An airtight vessel for heating and sometimes agitating its contents under high steam pressure, used for sterilizing, with moist or dry heat at high temperatures.
2	Used by clinical department/ward	CSSD & All wards
3	Technical characteristics (specific to this type of device)	
	1) High Grade strong stainless steel, Triple walled construction. 2) Positive radial self-locking safety doors. 3) Hydrostatically tested to withstand 2.5 times the working pressure. 4) Sealed with Neoprene/Silicon long-lasting and durable gasket. 5) Digital display for Jacket and Chamber pressure and temperature. 6) Outer jacket insulated to prevent heat loss with a high grade insulation material. 7) Mounted on 304 stainless steel frame with ground leveling flanges. 8) Temperature and pressure cut-off device. 9) Auto cut-off at low water level. 10) Rust-proof 304 grade stainless steel. 11) Cylindrical construction for four (12"x15") drums. 12) Equipment should have separate steam release valve and drainage system. 13) Minimum of two safety valves with auto-release at 10 and 20. 14) Operating temperature 121° C to 134° C. 15) Operating pressure 1.2 to 2.1 Kg / cm² , 10-20 psi.	
4	User's interface	Manual
5	Dimensions (metric)	20" x 48" Chamber Size 150Ltr to 250Ltr.
6	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be dispersed through a cooling mechanism.
7	Mobility, portability	Portable
8	Power Requirements	Recharging unit. Input voltage - 440V AC, 50Hz, 3 - Phase.
9	Protection	Should have over-charging cut-off with visual symbol.
10	Power consumption	Up to 15kW
11	Accessories (mandatory) Spare parts	
	1) Automatic Pressure Control Switch - 2 No. 2) Automatic Water Cut-off Device - 2 No. 3) Micro Processor PID Controller with Timer & Auto Stop Facility. 4) Digital Pressure Indicator- 2 No. 5) Perforate basket(rust-free stainless steel) 6) Cord-plug- 4 No. 7) Biological and chemical indicators-1 set	

(Mr. Manish Magre)
Bio Medical Engineer
H.E.M.R.O/o DDHS
Aurangabad

(Mr. Madhav Katre)
Bio Medical Engineer
Regional Referral
Hospital Nashik

(Dr. Dnyanesh Motipavale)
SURGEON
Medical Supdt
Rural Hospital Bhokardan,
Dist. Jalga

(Dr. Govardhan Gekawad)
SURGEON
Civil Surgeon
District Hospital
Aurangabad

DEPARTMENT OF GENERAL SURGERY
DR. R. N. COOPER HOSPITAL &
H. B. T. MEDICAL COLLEGE
MUMBAI-400 056.

ASSOCIATE PROFESSOR
Department of General Surgery
Seth. G. S. Medical College &
K. E. M. Hospital, Parel,
Mumbai - 400 012.

Technical Specification of Stretcher Trolley

1	Overall Size :-	2100mm (L) X 560mm(W) X 820mm(H) Height from Ground level to top.
2	Frame of the Trolley :	a) Trolley frame work, S.S tubular deep fully argon welded with vertical upright 31.75mm OD, 18SWG tubes. Tube should be reinforced at the bottom with 35mm OD, 18SWG tube for fitting the wheels. b) All horizontal stay shall be of 25.4mm OD, 18SWG. c) Supported with non-rusted 200mm x 50mm OD, noiseless smooth moving PU Wheels (04No) with double bearing & double lock arrangement to each wheel.
3	Removable Stretcher Top :	a) Stretcher should be removable from trolley. b) Top - S.S. 18SWG Sheet, dished horizontally in middle. c) Stretcher dished sheet should be fitted on 25mm OD, 16SWG SS. Tube. d) Three Additional 31.7 x 6 mm S.S. stiffeners should be fully argon welded to main frame, to support S.S. dished top from underneath widthwise. e) Four legs - S.S. 25mm OD, 16SWG SS. tube having 190mm height fitted rubber bush. f) Push Handle at both ends 25mm OD, 16SWG SS. Tube & covered with PVC Sleeves.
4		Govt. of Maharashtra Public Health Dept. & Mfg date" must be embossed at visible sight of frame & removable stretcher, must be easily readable
5	Finish :	a) All S.S. should be deep fully argon seamless welded and polished finished. b) Tow section tops should be smooth edges and burr free and corners should be round off so that there should be no sharp corners.
6	General Requirements:	a) All stainless steel sheet & stainless steel tubes/pipes used in manufacturing shall be of 304 S2 grade confirming to IS 6911 of 1992 or latest. b) All dimensions will be considered — Length, Width, Height in millimeter(mm), thickness in gauge (SWG — Standard Wide Gauge), Diameter should consider as Outer Diameter (OD). c) The stretcher trolley must be sturdy, vibration free and self balance. d) The stretcher trolley shall be properly constructed with all welded joints grounded, cleaned and well-formed. Unless otherwise specified, the vertical members shall be perpendiculars to the wheel base and parallel to each other and the horizontal members shall be at right angles to the vertical members. e) The stretcher trolley shall stand on all the legs at the same time on a level surface. All the surfaces shall be smooth and

Prashant
18/6/19
Ketan Hegde
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P. N. Lokade
18/6/19
The Civil Hosp

Dr. B. R. R. S. H.
Biomedical Engg.
R.R.S.H. Approved
A. P. Khatke

Vandana
Bhimnagar
Mumbai

		free from pitting. Welding shall fully penetrate and shall be sound in every detail and it shall be finished flush. In the finished stage, there shall be no exposed sharp edges in the frame-work or other unsealed formations which may harbor dirt or foreign matter. f) The sketch shown in the specification is only indicative for the bidder. g) should attached inbuilt small cylinder trolley h) Tender committee has reserved rights to change dimensions & sketch at any stage of tender.
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Member
Dr. V. K. N. N. N.
A. S. M. C. member

Dr. N. W. Wadkar
Thane Civil Hosp
13/6/19.

Amol Wadkar
Biomedical Engg.
RRSH, Amravati

13/6/19
K. S. K. K. K.
member

		4. Collective electric bulb: 2pcs switch 5. Trolley, Foot switch 6. Reusable electrode handle with cutting/coagulation switch 7. Disposable REM plate 8. Cable for electrode handle 9. Neutral plate for adults and pediatric
14	Atmosphere / Ambiance (air conditioning, humidity, dust)	1. Operating condition: Capable of operating continuously in ambient temperature of 10 to 40° C and relative humidity of 15 to 90% in ideal circumstances. 2. Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50° C and relative humidity of 15 to 90%.
15	User's care, Cleaning, Disinfection & Sterility issues	1. Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2. Sterilization not required.
16	Certificates	1) Should be FDA/CE/BIS approved product. 2) Manufacturer and Supplier should have ISO certification for quality standards. 3) Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent BIS Standard)
17	Local and/or International	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
18	Pre-installation requirements: nature, values, quality, tolerance	1. Availability of 5 amp socket. 2. Safety and operation check before handover.
19	Requirements for sign-off	Certificate of calibration and inspection from the manufacturer
20	Training of staff (medical, paramedical, technicians)	1. Training of users on operation and basic maintenance. 2. Advanced maintenance tasks required shall be documented
21	Warranty	1) Three year on site with free servicing (min.03/year) during warranty & provide technical support and required spares and consumable for 7 yrs after warranty period. 2) In warranty period — for the repair if required more than 24 hours, provide stand by same cautery machine.
22	Maintenance tasks	1. Maintenance manual detailing. 2. Complete maintenance schedule.
23	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.
24	Operating manuals, service manuals, other	Should provide 2 sets (hardcopy and soft-copy) of:- 1. User, technical and maintenance manuals to be supplied in English/Marathi Hindi language along with machine

13/6/19
 (from hospital
 number)

2. N. K. Kulkarni
 Thane Civil Hosp
 12/6/19.

13/6/19
 A
 R.M.E.
 P.D.S.H. Amravati

P. P. P. P.

	manuals	diagrams. 2. List of equipment and procedures required for local calibration and routine maintenance. 3. Service and operation manuals (original and copy) to be provided. 4. Advanced maintenance tasks documentation. 5. Certificate of calibration and inspection
25	Other accompanying documents	List of important spares and accessories, with their part numbers and cost.
26	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	Contact details of manufacturer, supplier and local service agent to be provided. Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer
27	Recommendations or warnings	Any warning signs would be adequately display

Pranav
2/6/19
ICMR Noida
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Dr. Nikhilesh
Civil Hospital
15/6/19

Amol
Amol Wadekar
Biomedical Engineer
RRSH, Amroli

Dr. Vinay
Dr. Vinay & Amlesh
Q&MC, Mumbai

Rohit
डॉ. राहुल पाटील
मुंबई विकास, अहमदाबाद सहा
विभागीय सर्विस सेवा समन्वयक
अहमदाबाद

6

TECHNICAL SPECIFICATIONS :- Electronic Baby Weighing machine/
Infant weight machine.

1	Equipment	Electronic Baby Weighing Scale with Tray
2	Capacity	Minimum 20 kg
3	Graduation	5 g or better
4	Accuracy	± 5 g or better
5	Display	Large LCD/LED digital display
6	Tray	Detachable, ABS plastic, easy to clean
7	Function	Zero, Tare, Hold, Auto-lock
8	Units	kg/lb selectable
9	Power	AA batteries and/or AC adapter
10	Auto Off	Yes
11	Overload Indicator	Yes
12	Low Battery Indicator	Yes
13	Construction	Sturdy, corrosion-resistant
14	Standards	CE/FDA/BIS or equivalent
15	Warranty	Minimum 2 years

Technical Specification of Mobile O.T.Light

1	Clinical purpose	Luminescence shadow less lamp adopts light sources different positions for focus to eliminate shadows of different parts of medical workers.
2	Used by clinical department/ward	Operation theatre
3	Technical characteristics specific to this type of device)	01. Dome Head : 515mm Dia 02. LED lights - 2 Nos 03. Lockable castor stand with minor dome 04. Light intensity at 1 mt. : 1,00,000 Lux 05. Intensity Control: Continuous 06. Height Adjustment : 600 mm approx 07. Action Radius : 1250mm 08. Possible Movements : Radial, Angular & Axial 09. Color Temperature : 4500K or above 10. Temp. Rise in field: 3°-6° c from Amb. Temp 11. Control Panel at the dome 12. CR± 95000 13. Lamp life: 40,000 hours 14. Battery back-up: 1 hour 15. Auto-power off and over-charging cut-off:
4	User's interface	Manual
5	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism
6	Mobility, portability	Portable
7	Power Requirements	Input voltage- 220V-240V AC, 50Hz
8	Battery operated	Yes, Rechargeable battery at the base with the frame.
9	Protection	Should have over-charging cut-off with visual symbol
10	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	1. Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 ° C and relative humidity of 15 to 90 % in ideal circumstances. 2. Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 ° C and relative humidity of 15 to 90%.
11	User's care, Cleaning, Disinfection & Sterility issues	1. Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2. Sterilization not required.
12	Certificates (pre-market, sanitary,) Performance and safety standards (specific to the device type) Local and/or international	1. Should be FDA/CE/BIS and ISO approved product. 2. Electrical safety conforms to the standards for electrical safety IEC 60601-1 General requirements (or equivalent BIS Standard) 3. Shall meet internationally recognized for Electromagnetic Compatibility (EMC) and Electromagnetic Interference (EMI) for electro medical equipment: IEC 60601-1-2 4. Certified to be compliant with IEC 60601-2-4 for usability.

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Amol Wadkar
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R.B.H. Amravati

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महाराष्ट्र

13	Pre-installation requirements: nature, values, quality, tolerance	Safety and operation check before handover.
14	Requirements for sign-off	Certificate of calibration and inspection from the manufacturer
15	Training of staff (medical, paramedical, technicians)	1. Training of users on operation and basic maintenance. 2. Advanced maintenance tasks required shall be documented
16	Warranty	Three Years
17	Maintenance tasks	1. Maintenance manual detailing. 2. Complete maintenance schedule.
18	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.
19	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1 User, technical and maintenance manuals to be supplied in English/Marathi/Hindi language along with machine diagrams. 2. List of equipment and procedures required for local calibration and routine maintenance. 3. Service and operation manuals (original and copy) to be provided. 4. Advanced maintenance tasks documentation. 5. Certificate of calibration and inspection
20	Other accompanying documents	List of important spares and accessories, with their part numbers and cost.
21	Service Support Contact details (Hierarchy Wise, including a toll free/ landline number)	Contact details of manufacturer, supplier and local service agent to be provided.
22	Recommendations or warnings	Any warning signs would be adequately displayed

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127

TECHNICAL SPECIFICATIONS :- Electrical Suction Machine

1	Equipment	Portable Suction Machine (Electrically Operated)
2	Type	Portable, electrically operated medical suction unit
3	Application	Airway, surgical and emergency suction
4	vacume gauge Size	6.25 cm dia, 0 to 760 mmHg
5	Vacuum Range	0 to -600 mmHg or better
6	suction capacity Ltr/min	≥20 L/min
7	Jar Capacity	2000 ML
8	Collection Jar	1-2 L autoclavable, overflow protection
9	Pump	Oil-free, maintenance-free piston/diaphragm
10	Power Supply	220-240 V AC, 50 Hz
11	Battery Backup	Optional/Preferred: ≥30 minutes
12	Noise Level	≤65 dB
13	Controls	Adjustable vacuum regulator with gauge
14	Safety	Overflow protection and antibacterial filter
15	Cabinet	ABS/plastic, easy to clean
16	Accessories	Suction tubing, catheter, power cord, bacterial filter extra Set Bottles
17	Compliance	CE/FDA/BIS as applicable, IEC 60601-1

Technical Specification :- medicine Trolley

Equipment	Medicine Trolley
Type	Hospital Medicine Trolley with 2 Drawers & 2 Shelves
Application	Storage and transportation of medicines and medical consumables in hospital wards and OPDs
Construction Material	Medical Grade Stainless Steel (SS 304)
Frame	Heavy-duty SS 304 tubular frame (minimum 25 x 25 mm, 18 SWG)
Shelves	Two SS shelves with raised edges; top shelf with three-side railing
Drawers	Minimum two smooth sliding lockable drawers
Drawer Slides	Heavy-duty telescopic ball-bearing channels
Shelf Finish	Matt finish
Overall Dimensions	Approx. 750 x 450 x 850 mm ($\pm 5\%$)
Load Capacity	Minimum 50 kg
Castors	Four heavy-duty 100-125 mm swivel castors
Brakes	At least two locking brakes
Handle	SS push handle
Edges	Rounded corners and burr-free finish
Welding	Seamless TIG welded construction
Corrosion Resistance	Rust-proof
Cleaning	Easy to clean and disinfect
Accessories	Optional removable medicine tray/dividers
Standards	ISO 9001:2015, ISO 13485; CDSCO registered where applicable
Warranty	Minimum 2 years
Installation	Ready to use
Documentation	User manual, warranty certificate, service manual

TECHNICAL SPECIFICATIONS " Syringe Pump "

GMDN name		Syringe pump
GMDN code		CT111
1	Clinical purpose	Designed to precisely drive the plunger of a syringe down its barrel to infuse a solution when it must be administered with a high degree of volume accuracy and rate consistency
2	Used by clinical department/ward	Intensive care unit (ICU), radiology department, orthopedics, emergencies, ...)
3	Technical characteristics (specific to this type of device)	1) A device designed to precisely drive the plunger of a syringe down its barrel to infuse a solution when it must be administered with a high degree of volume accuracy and rate consistency. Because of the lower flow settings and flow resolution, it is especially appropriate for neonatal, infant, and critical care applications in which small volumes of concentrated drugs are to be delivered over an extended period. It can also be used to administer epidural analgesia. 2) Flow rate programmable range at least from 0.1 to 200 ml/hr, in steps of 0.1 ml/hr, and at least from 100 to 1200 ml/hr in steps of 1 ml/hr. Saves last infusion rate even when the AC power is switched off. Bolus rate should be programmable, with infused volume display. Selectable occlusion pressure trigger levels: selectable from 300, 500 and 800 mmHg. Must work on or better. Maximum pressure generated ≤ 20 psi. Automatic detection of syringe size and proper fixing. Must provide alarm for wrong loading of syringe. Anti-bolus system to reduce pressure on sudden release of occlusion. Pause infusion facility required. Self-check carried out on powering on. Comprehensive alarm package required including: occlusion alarm, near end of infusion pre-alarm and alarm, volume limit pre-alarm and alarm, low battery pre-alarm and alarm, AC power failure, drive disengaged, syringe loading error, maintenance required.
4	Setting User's interface	Double loadable with one syringe of minimum 20ml Automatic
5	Software and/or Standard of Communication (Where ever required)	Inbuilt
6	Dimensions (metric)	Max spec. 120 x 100 x 40mm.
7	Weight (lbs, kg)	< 600gm < 1 kg.

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TECHNICAL SPECIFICATIONS "Thermometer digital"

TECHNICAL SPECIFICATIONS "Thermometer digital"			
GMDN name		Electronic Patient Thermometers	
GMDN code		CT1954	
1	Clinical purpose		
2	Used by clinical department/ward	to measure body temperature	
3	Technical characteristics (specific to this type of device)		
1) Range of temperature measurement 320C- 420 (89.60F-109.40F). 2) Can be calibrated in both centigrade and Fahrenheit, but if only one option is available, then Fahrenheit is preferable. 3) Buzzer signal function. 4) Takes 60-90 seconds to measure temperature. 5) Can be used in the armpit/maxilla, orally and rectally. 6) Accuracy of temperature $\pm 0.1 \text{ degC}$ and $\pm 0.2 \text{ F}$.			
4	User's interface	LCD display	
5	Software and/or Standard of Communication (Where ever required)	Inbuilt	
6	Mobility, portability	Portable	
7	Battery operated	Yes	
8	Tolerance (to variations, shutdowns)	$\pm 0.1 \text{ deg C}$	
9	Accessories (mandatory)	Batteries 2 Nos	
10	Certificates	CE OR US FDA approved product: Manufacturer should have ISO certificate for quality standard. Certificate of Calibration and inspection from the factory.	
11	Training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided	
12	Warranty	One Years	
1 Specification Done by :			
Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016			
End user Specialist Meeting Date :			
07/09/2017			
Panel Specialist Meeting Date :			
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Technical Specification:-Puncture Proof Container (Sharps Container)

Equipment Name	Puncture Proof Container (Sharps Container)
Application	Collection and disposal of contaminated sharps
Material	Virgin Polypropylene (PP) or HDPE, medical grade
Construction	Rigid, puncture-proof, leak-proof, tamper-proof, impact-resistant
Capacity	3-5 Litres (preferred 5 Litres)
Color	White/Translucent with color-coded lid
Wall Thickness	Minimum 2.5 mm or equivalent
Lid	Snap-fit or screw type with temporary and permanent lock
Closure System	Two-stage locking
Opening	Wide opening with needle remover notch
Fill Indicator	75% fill line
Handle	Integrated carrying handle
Leak Proof	Yes
Puncture Resistance	Resistant to needles and sharps
Stability	Wide stable base
Reusability	Single-use
Labeling	Biohazard symbol and 'Sharps Waste Only'
Compliance	BMW Rules 2016 (as amended), CPCB guidelines
Markings	Manufacturer, batch, date, capacity
Safety Features	Spill-proof, odor-resistant, child-resistant lock
Chemical Resistance	Hospital disinfectant resistant
Packaging	Individually packed
Certification	ISO 9001:2015 and ISO 13485 (preferred)
Warranty	Manufacturer standard warranty
Accessories	Integrated needle remover (preferred), wall bracket (optional)

Technical Specification:-Portable Vein Viewing Device (Vein Finder)

Equipment Name	Portable Vein Viewing Device (Vein Finder)
Type	Portable, non-contact, handheld or stand-mounted infrared vein visualization device
Technology	Near Infrared (NIR) vein imaging technology with real-time projection
Application	Visualization of superficial veins for venipuncture, IV cannulation, blood collection, and vascular access
Display Method	Real-time vein image projected directly onto patient's skin
Imaging Mode	Real-time dynamic imaging with no perceptible delay
Light Source	Near Infrared LED/Laser
Wavelength	740-940 nm
Vein Detection Depth	Up to 8-10 mm
Vein Diameter Detection	0.5-1 mm
Image Modes	Normal, Inverse, Enhanced, Fine Detail
Brightness Adjustment	Multiple levels
Color Modes	3-5 selectable colors
Image Size	Adjustable
Focus	Automatic or manual
Frame Rate	Minimum 20 fps
Patient Compatibility	Neonates to adults
Battery	Rechargeable Li-Ion, 3-5 h backup
Power Supply	100-240 V AC, 50/60 Hz
Safety	Non-ionizing infrared
Weight	<1 kg
Housing	Medical-grade ABS
Certifications	CE/FDA, ISO 13485
Electrical Safety	IEC 60601-1
EMC	IEC 60601-1-2
Warranty	Minimum 2 years
Installation	On-site installation and training
Service	Spare parts support for 5 years

TECHNICAL SPECIFICATIONS

No.	Technical specifications
1	The system should be Microprocessor based Foetal Monitor providing continuous monitoring of foetal heart rate (FUR) along with maternally sensed foetal activity during antepartum testing for NST (Non-Stress Test) and for intensive monitoring of active labor, with twin foetal monitoring facility at the same time.
2	Transducer
	Type: Multicrystal wide —beam transducer
	Technique: Autocorrelation
	Quantity: 2 nos (FHR 1, FUR 2)
	Frequency : 1MHz to 2 MHz
	Intensity - Less than 10m W/Sq cm
	Resolution: 1 BPM.
	Heart Rate counting Range: 30 to 250BPM
3	Printer : Facility to print on Inbuilt thermal printer (On thermal paper) as well as on plain paper via any Deskjet/Laser printer.
	Paper : Z —fold Pre-printed chart scale.
	Speeds: 1/3cm/ minute
4	Features:
	1. Twin fetal monitoring with TOCO transducers.
	2. It should have clinical event marker.
	3. It should have monitoring of Bradycardia & Tachycardia alarm events.
	4. It should have facility to control the volume of FHR sound.
	5. It should have battery back up of 4-6 hours.
	6. Power Supply: 230Vae, 50/60Hz
5	Accessories :
	1. Should provide rechargeable battery along with recharging unit (Charger/ Adaptor).
	2. Should provide a pre-cut non-fray elasticized belt with buckle shall enable easy transducer positioning for more accurate traces.
	3. Vibroacoustic stimulator — 01 No.
6	Display:
	1. Display Minimum 5.6'
	2. Actual FHR1 & FHR2 in BPM.
	3. Uterine Contraction/Activity in %.
	4. High / Low FEIR limits.
	5. Alarm Message Display.
	6. Battery charging and Low indication.
	7. Blinking corresponding to each beat

No.	Technical specifications
7	Patient Database: It should store more than 10 hours, memory to store all the data. In case the printer goes out of order, machine should continue monitoring and then download to printer afterwards for printing or be viewed.
8	Computer interface through RS232 connection.
9	System should be Virus Protecting
10	System Should be upgradeable features like internet connectivity, wireless central monitoring upto 4 bed.
11	Unit quoted should have unique model number
12	Units supplied should hold a unique Serial/Identification number.
13	Three years comprehensive warranty and next 5 years CMC / AMC should be quoted.
14	Should be CE or USFDA Approved
15	Should quote along with all standard Accessories.
16	Should Provide Extra Ultrasound Transducer-01 No. & TOCO Transducer - 01 No.
17	Demonstration is compulsory.
18	Should Provide Training to the end user.
19	Tropicalisation :
	1. Operating room temp. 40 deg. C
	2. Storage room temp. 60 deg. C
	3. Relative Humidity 90% Non-condensing.

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Technical Specification:-Stadiometer (Height Measuring Scale)

Equipment Name	Stadiometer (Height Measuring Scale)
Type	Wall-mounted or portable mechanical stadiometer
Application	Measurement of human height
Measuring Range	60 cm to 210 cm
Graduation	1 mm (0.1 cm)
Accuracy	±2 mm or better
Material	Aluminium alloy/ABS
Headpiece	Horizontal sliding, lockable
Base	Stable non-slip base (portable type)
Scale	Clear, permanent metric markings
Cleaning	Disinfectant resistant
Compliance	ISO 13485 / CE preferred
Warranty	Minimum 1 year

Technical Specification:-Neonatal Stethoscope

Equipment Name	Neonatal Stethoscope
Type	Binaural Acoustic Stethoscope for Neonatal Use
Intended Use	Auscultation of heart, lungs, and bowel sounds in neonates and premature infants
Chest Piece	Dual-head or single-head neonatal chest piece made of stainless steel or anodized aluminum
Chest Piece Diameter	Approximately 20–25 mm
Diaphragm	High-sensitivity tunable or fixed diaphragm suitable for neonatal examination
Bell	Soft non-chill bell (if dual-head design)
Acoustic Performance	High acoustic sensitivity for accurate detection of low and high-frequency body sounds
Ear Tubes	Stainless steel binaural ear tubes with internal spring
Ear Tips	Soft-sealing, replaceable silicone ear tips
Tubing	Single/dual lumen, latex-free PVC
Tubing Length	55–75 cm
Tubing Material	Flexible, kink-resistant, latex-free
Weight	Less than 150 g
Finish	Corrosion-resistant
Latex Free	Yes
Cleaning	Compatible with hospital disinfectants
Color	Standard black/blue/red
Standards	CE and/or US FDA; ISO 13485 manufacturer
Accessories	Extra ear tips, spare diaphragm (if applicable), user manual
Warranty	Minimum 1 year
Documentation	User manual, warranty certificate, CE/FDA certificate, product brochure

Technical Specification:-LED Torch with Replaceable Dry Cell Battery

Equipment Name	LED Torch with Replaceable Dry Cell Battery
Type	Handheld LED Flashlight
Application	General examination, emergency, ward rounds, ambulance, and field use
Light Source	High-Intensity White LED
LED Life	Minimum 50,000 hours
Illumination	Minimum 100 lumens
Beam Distance	Minimum 100 meters
Lighting Modes	High / Low / Flash (preferred)
Body Material	High-strength Aluminum Alloy or ABS Plastic
Finish	Corrosion-resistant, non-slip grip
Lens	Clear, impact-resistant polycarbonate lens
Power Source	Replaceable Dry Cell Batteries
Battery Type	2 x AA or 3 x AAA alkaline batteries
Battery Life	Minimum 8-10 hours (continuous use)
Battery Replacement	Tool-free battery replacement
Switch Type	Push-button ON/OFF (tail or side mounted)
Water Resistance	IPX4 or better
Shock Resistance	Drop resistant from minimum 1 meter
Weight	Maximum 250 g (without batteries)
Dimensions	Compact handheld design
Operating Temperature	0°C to 50°C
Storage Temperature	-10°C to 60°C
Color	Black or Dark Grey
Accessories	Wrist strap, batteries (if supplied), user manual
Safety	No exposed electrical contacts during operation
Standards	CE/FDA/BIS or equivalent quality certification
Warranty	Minimum 1 Year

TECHNICAL SPECIFICATIONS "Phototherapy Unit"

GMDN name		Phototherapy units/systems
GMDN code		CT 2005
1		Emits in the main radiation spectrum in the range between 400 nm and 550 nm for reducing the concentration of Bilirubin
2		Clinical purpose
3		Used by clinical department/ward
4		Technical characteristics (specific to this type of device)
5		New born stabilization unit, SNCU
6		- Provides filtered light using radiant electric lights, not fiberoptics. - Infant supported securely in bassinette below bulbs. - Monitors hours of radiant light exposure. - Phototherapy should be based on LED technology, which after filtering should provide, a light of wavelength approximately 450 to 470 nm with peak wavelength of 450-460nm range. - Irradiance to be minimum 35 $\mu\text{W}/\text{cm}^2/\text{nm}$ at 40 cm height and UV should not exceed 10-4 W/m^2 in 180nm to 400nm. - Digital Hour meter showing total exposure time for current patient to be clearly visible by operator. - Effective light field >700 cm^2. - Lamp life should be minimum 20000 hours for LED and should have timer to indicate its usage. - Over temperature safety cut out to be included. - Up, down and tilting of head should be possible. - The unit should be mounted with castor wheels with brakes. - Variation in intensity over 5-6 hours < 10%. - The irradiance ratio (min to max) shall be greater than 40 % on mattress. - Green indicator light shall be provided to indicate that equipment is ready for normal use. - Interruption and a restoration of the power supply do not change preset values. LED heat can be reduced by natural cooling. - LED should be protected from free fall. - It should not topple on 10 deg inclined angle. - The temperature of baby bed and metal surfaces should not exceed 40deg C and 43 deg C for other accessible surfaces. - There should be intuitive method to indicate the light surface is at the appropriate treatment distance. - Mobile stand with movable castors and height adjustment facility along with easy swiveling of source box. Unit can be used along with infant care trolley, Radiant Warmer and incubator.

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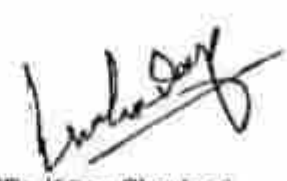
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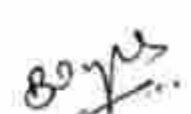
TECHNICAL SPECIFICATIONS "Phototherapy Unit"

GMDN name		Phototherapy units/systems
GMDN code		CT 2066
4	User's interface Setting	Manual UP/DOWN adjustment of Over Head Unit. The phototherapy unit should be able to provide effective treatment for beds and incubators of varying heights (generally 1.0 to 1.6m). Adjustment of light intensity may be provided.
5	Software and/or Standard of Communication (Where ever required)	LED Display and inbuilt software
6	Dimensions (metric)	minimum spec: 1650mm Height X 750mm Width X 500mm Length
7	Weight (lbs, kg)	<20 kg
8	Configuration	Clear cabinet for observation of infant. Infant bassinet to be an integral unit which should be detachable. Unit to provide shielding of infant in the event of bulb breakage. Bulb mount to have angle adjustment of at least 30 degrees. All surfaces to be made of corrosion resistant materials. Light unit tilting facility and height adjustment facility.
9	Noise (in dBA)	<60dBA
10	Heat dissipation	The temperature of baby bed and metal surfaces should not exceed 40deg C and 43 deg C for other accessible surfaces.
11	Mobility, portability	Minimum 3 castors and at least 2 with brakes
12	Power Requirements	220 to 240V, 50 Hz
13	Battery operated	Not Applicable
14	Tolerance (to variations, shutdowns)	$\pm 10\%$ of input AC
15	Protection	Electrical protection by resettable overcurrent breakers or replaceable fuses, fitted in both live and neutral lines.
16	Power consumption	Should not be more than 160 W


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TECHNICAL SPECIFICATIONS "Phototherapy Unit"

GMDN name		Phototherapy units/systems
GMDN code		CT 2066
17	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)	Mains cable to be at least 2.5m length Complete set of replacement tubes to allow 3 months' continuous operation. Two replacement sets of fuses, if replaceable type used. Total 500 nos. Infant eye masks of both available sizes (term and pre term babies).
18	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances.
19	User's care, Cleaning, Disinfection & Sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
20	Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	Should be FDA / CE approved product Shall meet IEC-60601-1-2:2007 Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests (Or Equivalent BIS) Should meet IEC 60601-1:2005 standard requirements Shall meet IEC 60601-2-50: 2009 Medical Electrical Equipment - Part 2-50: Particular Requirement for the basic safety and essential performance of infant phototherapy equipment; Manufacturer should be ISO 13485 certified
21	Local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
22	Pre-installation requirements: nature, values, quality, tolerance	Supplier to perform installation, safety and operation checks before handover.
23	Requirements for sign-off	Certificate of Calibration and inspection from the factory.
24	Training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided
25	Warranty	3 years for the machine and 20,000 hours for LEDs
26	Maintenance tasks	Maintenance manual detailing complete maintaining schedule

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TECHNICAL SPECIFICATIONS "Phototherapy Unit"

GMDN name		Phototherapy units/systems
GMDN code		CT 2066
27	Service contract clauses, including prices	Local clinical staff to affirm completion of installation
28	Operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English & Marathi language. List to be provided of equipment and procedures required for local calibration and routine maintenance
29	Other accompanying documents	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
30	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	Contact details of manufacturer, supplier and local service agent to be provided
31	Recommendations or warnings	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
Specification Done by :		Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016
End user Specialist Meeting Date:		07/09/2017
Panel Specialist Meeting Date :		/09/2017

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TECHNICAL SPECIFICATIONS " Radiant Warmer"

GMDN name		Infant warmer
GMDN code		CT1452
1	Clinical purpose	Infant Radiant warmer is an electrically powered device with a radiant heating source intended to maintain the thermal balance of an infant by direct radiant of energy in the infrared region of the electromagnetic spectrum.
2	Used by clinical department/ward	Neonatal ICU/ SNCU
3	Technical characteristics (specific to this type of device)	1) It should be microcontroller based radiant warmer with manual and servo options. 2) It should have facility to display skin set, skin observed temperature in degree C and heat power separately 3) Should have user friendly touch panel control. 4) It should have ceramic or quartz infrared or calrod heater. 5) It should have audiovisual alarm facility for overheating beyond set temperature range. 6) It should have alarm facility for patient temperature less than or greater than the required temperature i.e. above or below the set range. Machine should sense the skin probe failure and cut off the heater. 7) Warmer head should be rotatable in different direction, so as to allow taking X-ray. 8) It should have alarm for probe failure, power failure, system failure and heater failure. 9) Observation light of 90 to 100 foot candles or 1000 Lux (color temperature range 3700K to 5100K) should be provided for inspection 10) Battery back up for Power failure indication during power fail. 11) The desired temperature range from 29 to 40 degree C and settable temperature can be from 32 to 38 degC. 12) The resolution should be 0.1 degree C and accuracy should be 0.2 °C. 13) Should have a facility to lock the keyboard to avoid unwanted user modification of the set parameters. 14) The height of the warmer should be adjustable for different types of bed. 15) It should have separate bassinet trolley, bed should be tiltable and have provision for x-ray cassette holder, Mattress foam density should be minimum 25 kg/cm3, transparent collapsible side walls easily detachable for cleaning. Mattress size should be minimum 20"X30" 16) Should have a Feather Touch operation with large digital display and comprehensive alarms. Control Panel should be liquid proof and allow easy and hygienic disinfection.

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TECHNICAL SPECIFICATIONS "Radiant Warmer"

GMDN name Infant warmer

- 17) Manual Mode can adjust Heater Output 10 - 100 %, with 10% increment, an auditory and visual alarm shall be given at least every 15 min.
- 18) In manual mode, heater cut off / switch off , if the maximum irradiance at any point of the mattress area exceeds a total irradiance level of 10 mW/cm² (between 10 to 30 minutes).
- 19) Bed should be about 50 - 100 cms from the Floor and 80-90cms from the heat source.
- 20) Should have lockable castor wheels.
- 21) Green indicator light shall be provided to indicate that warmer is ready for normal use.
- 22) Markings on the bassinet and X-Ray cassette holder is mandatory to enable proper positioning of the baby while doing the X-Ray.
- 23) The size of the drop down sides should be such that it is 5" above the mattress surface and should be atleast 6mm thick; clear and transparent.
- 24) If there is more than 60% heater output for 10 minutes it should cutoff with alarm.
- 25) For the purpose of cable management there should be at least two number of tubing ports (edges covered by silicon rings) on the side walls. The height of the side walls should be minimum 110mm over the mattress.
- 26) X-Ray cassette tray should be at least 750X350mm and should adopt up to 20mm thick X-Ray cassette.
- 27) The baby bed should be cradle free for ease of cleaning, infection control.
- 28) The mattress used should be of biocompatible material.
- 29) Thermistor based skin temperature probe should be small in size not more than 10mm diameter and 3-4mm thick to fix the probe firmly on the infant. Baby contact material should be biocompatible as per ISO 10993 standard requirement. It should be insulated on one side and have well conducting, non-rusting, non reacting, metallic surface on the other side. Probe wire should be pliable, thin and soft. The attachment side of the probe with the wire should also be pliable and non stiff.

4 User's interface Setting

- Manual and Servo controlled temperature regulation.
1. Should have Manual mode and Baby (Servo) mode settings
 2. Mode of operation should be clearly displayed.
 3. In servo mode baby set temperature should be 32 to 38 deg C.

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TECHNICAL SPECIFICATIONS " Radiant Warmer"

3

GMDN name		Infant warmer
5	Software and/or Standard of Communication (Where ever required)	LED Display and Inbuilt software; Interruption and restoration of the power supply does not change the preset values.
6	Dimensions (metric)	specifications upto: 2000 mm (Height) X 900mm (Width) X 1100 mm (Length)
7	Weight (lbs, kg)	maximum spec: 150kg.
8	Configuration	At least 60 degree angle adjustment must be possible in the heat source and it should provide shielding to the infant in case of breakage of tubes/bulbs. All surfaces to be made of corrosion resistant material.
9	Noise (in dBA)	Auditory alarm shall have a sound level of at least 65 dBA at a distance of 3 m from the front of the infant radiant warmer, and the sound level of the alarm shall not exceed 80 dBA on the mattress.
10	Heat dissipation	Should maintain upto 38.5 deg temp and the heat disbursed through a exhaust fan , so that effect of UV light is not disturbed.
11	Mobility, portability	Yes, on castors (2 of the castors should have breaks, castors size can be at least 4inch).
12	Power Requirements	220 to 240V, 50 Hz
13	Battery operated	Power failure indication during power fail.
14	Tolerance (to variations, shutdowns)	± 10% of input
15	Protection	OVP, earth leakage protection.
16	Power consumption	maximum 800 Watt
17	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)	Should have standard IV pole(sturdy ;non rusting, medical grade stainless steel ;adjustable to a max height of 6 feet from the ground level), monitor tray(12X10 inches;270 deg swivel ,fixed at level of warmer display) and storage trays Skin temperature probes ,Thermal reflector to fix the skin probe on baby. Spare 2 Nos of the castors having breaks and spare two Nos without brake castor size can be at least 4inch

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TECHNICAL SPECIFICATIONS " Radiant Warmer"

	GMDN name	Infant warmer
18	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Operating condition: Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances. - an ambient air velocity is less than 0.3 m/s.
19	User's care, Cleaning, Disinfection & Sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
20	Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	Should be FDA / (CE of class IIb) approved product. Shall meet IEC-60601-1-2:2007 Medical electrical equipment -- Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests (Or Equivalent BIS). Shall meet IEC 60601-2-21: 2009 Medical Electrical Equipment - Part 2-21: Particular Requirement for the basic safety and essential performance of infant radiant warmers. should meet IEC 60601-1:2005 standard requirements. Baby contact material should be biocompatible as per ISO 10993 standard requirement. Manufacturer should be ISO 13485 certified.
21	Local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
22	Pre-installation requirements: nature, values, quality, tolerance	Availability of 5 amp/15 Amp. Electrical socket (2 nos) for each warmer.
23	Requirements for sign-off	Certificate of Calibration and inspection from the factory.
24	Training of staff (medical, paramedical, technicians)	user training manual required
25	Warranty	Nickel chrome wire filament and tube of quartz should have a life time or minimum - 3 years.
26	Maintenance tasks	Maintenance manual detailing complete maintaining schedule The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.
27	Service contract clauses, including prices	warranty of one year with free servicing (min. 3) during warranty

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TECHNICAL SPECIFICATIONS " Radiant Warmer"

5

GMDN name		Infant warmer
28	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy) of:- 1) User, technical, maintenance and service manuals to be supplied along with machine diagrams, 2) List of equipment and procedures required for routine calibration and routine maintenance, 3) Certificate of calibration to be provided by the manufacture, User/Technical/Maintenance manuals to be supplied in English
29	Other accompanying documents	
30	Service Support Contact details (Hierarchy Wise, including a toll free/landline number)	should provide complete contact details of sales and service departments.
31	Recommendations or warnings	Any warning/ precautions to be declared
Specification Done by:		Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016
End user Specialist Meeting Date		07/09/2017
Panel Specialist Meeting Date:		10/9/2017

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TECHNICAL SPECIFICATIONS "Cell Counter 5 Parts"

GMON name		Automated 5-part differential hematology analyzer
1	Clinical purpose	Automated differential blood count: Automated hematology analyzers using multiple parameters and methods (such as fluorescence, flow cytometry and impedance) are used to count and identify the 5 major white blood cell types in blood (so-called 5-part differential count): neutrophils, lymphocytes, monocytes, eosinophil and basophils.
2	Used by clinical department/ward	Analytical laboratories.
3	Technical characteristics (specific to this type of device)	
	- Five-part differential. 24 parameters, all different WBC's should be measured directly. - Advanced, integrated self-cleaning system. - On-screen patient results trending. - Stores 5,000 test results with histograms and scatter grams. - Integrates with common practice management systems. - maximum sample required 100 µL sample size permits whole blood analysis from venous collections. - Parameters Total Leukocytes (White Blood Cells) and Differential (in absolute numbers and %) for: Neutrophils, Lymphocytes, Monocytes, Eosinophil, Basophils. - Sample Maternal Capillary or venous (EDTA) whole blood. - Linearity of all parameters. (Hematocrit, platelet, WBC, RBC, Hb, MCV, MCH, MCHC, etc) - Measuring Time Within 60 Sec. - System must have throughput of at least 80 samples per hour in all discrete modes. - Manual mode. - Stat mode. - Pre-diluted mode and whole blood mode.	
4	User's interface	Printer, keyboard, barcode reader, PC, optional.
5	Software	Inbuilt.
6	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism.
7	Mobility, portability	Stationary lab installation
8	Power Requirements	Recharging unit: Input voltage- single/3-phase
9	Tolerance (to variations, shutdowns)	±10%

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TECHNICAL SPECIFICATIONS " Cell Counter 5 Parts"

GMDN name		Automated 5-part differential hematology analyzer
10	Power consumption	Up to 500VA
11	Accessories (mandatory)	1. 2D-Barcode Scanner. 2. Reagents: All the reagents required for 1000 tests should be supplied with the equipment along with one set of tri level control. 3. Closed System rates to be closed for all test. 4. Online UPS System for 30 minutes back up.
12	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Analyser: 4-50 °C (39-122 °F). Capillary samples from finger stick: 18-25 °C (67-77 °F). 1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 50° C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50° C and relative humidity of 15 to 90%.
13	User's care, Cleaning, Disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
14	Certificates	CE or US FDA approved product. Manufacturer should have ISO certificate for quality standard. Certificates of calibration and inspection.
15	Local and/or international	Manufacturer/supplier should have ISO certificate for quality standard
16	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of ⁵/₁₅ amp socket. 2) Safety and operation check before handover,
17	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented,
18	Warranty	Three year with free servicing (min 03/year) during warranty & provide technical support and required spares and consumable for 7 yrs after warranty period.

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TECHNICAL SPECIFICATIONS " Cell Counter 5 Parts "

GMDN name		Automated 5-part differential hematology analyzer
19	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of: 1) User, technical and maintenance manuals to be supplied in English / Marathi language along with machine diagrams. 2) List of equipment and procedures required for local calibration and routine maintenance. 3) Service and operation manuals (original and copy) to be provided. 4) Advanced maintenance tasks documentation. 5) Certificate of calibration and inspection.
20	Recommendations or warnings	Any warning signs would be adequately displayed.
	Specification Done by :	Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016
	End user Specialist Meeting Date :	07/09/2017
	Panel Specialist Meeting Date :	/09/2017

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Technical Specification:-Complete Blood Count (CBC) with 3-part	
Equipment Type	Fully Automated 3-Part Differential Hematology (CBC) Analyzer
Application	Complete Blood Count (CBC) with 3-part WBC differential
Technology	Electrical Impedance for WBC/RBC/PLT; Cyanide-free Hb
WBC Differential	3-Part (Lymphocytes, MID, Granulocytes)
Reportable Parameters	Minimum 20 parameters including WBC, RBC, HGB, HCT, MCV, MCH, MCHC, RDW, PLT, MPV, PDW, PCT, P-LCR
Histograms	WBC, RBC & Platelet
Sample Modes	Whole Blood, Prediluted, Capillary (preferred)
Sample Volume	≤20 µL
Throughput	Minimum 60 samples/hour
Display	Minimum 8-inch Color LCD/Touch Screen
Data Storage	Minimum 50,000 results with histograms
Printer	Built-in Thermal Printer
Connectivity	USB, LAN, RS-232, LIS compatible, Barcode support
QC Programs	Levey-Jennings, X-B
Calibration	Manufacturer recommended
Precision	WBC ≤2%, RBC ≤1.5%, HGB ≤1.5%, PLT ≤5%
Carryover	WBC/RBC/HGB ≤0.5%; PLT ≤1.0%
Power	100-240 VAC, 50/60 Hz
Certifications	CE and/or US FDA; ISO 13485
Warranty	Minimum 3 years comprehensive
Installation	Installation, commissioning, user training
Service	Preventive maintenance during warranty

24

Specifications of neonatal ventilator with high frequency oscillator ventilator with standard accessories

Microprocessor Controlled Time Cycled Pressure Limited Ventilator

1. Mode of Operation: Electrical
2. Application: Neonatal
3. Driving Gas:
 - Air source as in built or external compressor with facility for connecting to central compressed air pipeline. Should have automatic switch over between ventilator's inbuilt or external air source and compressed air source with priority to central compressed air source.
 - High pressure tubing for both central oxygen and compressed air. Adaptors to fit hospital connection of compressed air and oxygen to be provided.

4. Humidifier:

- a) Thermotatically servo controlled with probe to monitor proximal airway temperature with alarm facility.
- b) Having reusable heated wire adaptor suitable for ^{reusable} disposable and-disposable circuits.
- c) Includes neonatal humidifier jar : 2 nos with each unit
- d) Facility for selecting active/ passive humidification.

5. Ventilatory Modes And Functions:

- Assist control.
- SIMV
- SIMV +Pressure support.
- Nasal CPAP mode
- PSV (with adjustable cycle %, rise and insp. Time).
- Inspiratory volume limit & volume guarantee / PRVC or equivalent
- HFOV and HFOV +CMV mode
- Adjustable flow cycled ventilation for all modes
- User adjustable, automatic and interactive apnea back-up ventilation
- PEEP.
- Flow sensor placement - at proximal (patient) end
- Adjustable I:E ratio
- Apnea back-up ventilation
- Manual breath
- Adjustable bias (expiratory) flow preferable
- Trigger sensitivity: both flow and pressure adjustable.
- FIO2: adjustable (21 - 100%) and monitored.
- User adjustable FIO2 increment during oxygen flush for neonatal patients.
- Synchronised nebuliser for providing in line nebulisation

6. Alarms/ Indicators: Audio &/Or Visual With Adjustable Alarm Volume:

- Power failure
- Mode of operation: mains/battery
- Battery: fully charged/low.
- Unusual / incorrect settings message
- Gas supply failure for: oxygen and air.
- Insp. Time limit & i:e ratio limit
- Pressure/flow transducer [sensor] failure.
- Triggered breath indicator.
- Apnea.
- High peak pressure
- Tidal volume: high/ low
- Fio2: high/low
- Minute volume: high/ low

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- Airway pressure: high/low peak pressure
- PEEP/PAP: high/low
- Breath rate: high
- Auto-CP indicator

7. Displays For Monitoring:

- Driving gas supply pressure (air & oxygen)
- PPR & PPR
- PO₂
- EtCO₂
- Resp. Rate: ventilator & patient
- Time: inspiratory, expiratory, I:E ratio
- Inspired tidal volume: ventilator - total & or per /kg, patient - total & or per /kg.
- Expired tidal volume: ventilator - total & or per /kg, patient - total & or per /kg.
- Minute volume: ventilator - total & or per /kg, patient - total & or per /kg.
- Airway pressures: Pmax, Pmean & Pplateau, PEEP
- % leak
- Auto PEEP
- Minimum 10" colour graphics display with adjustable scales, sweep speed & movable cursor facility and touch screen
- Waveforms: flow, volume & pressure - airway(paw), coloured & freeze facility
- Loops: flow/volume, paw/volume with memory, coloured & freeze facility
- Trend of all monitored parameters for last 24 hrs.
- Compliance: dynamic
- Resistance
- Work of breathing (WOB)

8. Range Or Pattern For Settings:

- FiO₂ : 21 to 100%.
- Inspiratory Flow rate : 1 to 50 l/min
- Inspiratory Flow waveform : user selectable square, decelerating
- Resp. Rate : 1 to 130 /min.
- Insp. time : 0.15 - 3 sec
- Inspiratory pause time : 0.1-3 sec
- Expiratory time : min 250 msec onwards.
- I : E ratio : 1:1 to 1:4
- Insp. Tidal volume limit : 3 ml to 500 ml
- PEEP : 0 - 35 cms of H₂O.
- Pressure support : 0 - 40 cms of H₂O.
- Flow cycle : 0 to 45% of peak flow
- SIMV rate : 1 to 120 B. P. M.
- Apnea time adjustable : 10 to 40 sec.
- Apnea backup rate : 12 B. P. M. Onwards
- Pressure trigger : 0.1 to 10 cm H₂O
- Flow trigger : 0.1 - 10 L.P.M.
- Bias flow/base flow : 0.4 to 5 L.P.M.
- Volume Limit : 2ml to 500 ml

For HFOV

frequency 3-20 Hz
Amplitude 4-180 mbar
MAP 0-45 mbar
I:E ratio 1:1 to 1:3

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9. Standard Accessories:

- 1) Reusable, autoclavable, dual limb (preferable) neonatal heated breathing circuit with water trap- 2 with each ventilator.
- 2) Stand with support arm for breathing circuit- 1 no each
- 3) Test lung - 1 nos each for neonatal ventilator
- 4) Patient Circuit Arm - 1
- 5) Oxygen & Air Hose Set - 1
- 6) Disposable circuit and chamber for neonatal application, including its adaptors: 75 pieces per ventilator.
- 7) Nasal CPAP prongs: 2 different sizes (5 nos each size) supply with each unit
- 8) Compressor - 1 (230V/50 Hz) optional

10. Flow sensor: If reusable -- 4 / machine or if disposable 60/ machine

11. Ventilator Trolley- should be sturdy, robust having anticorrosive coating.
- with support arm

12. CMC Should Include Following for neonatal ventilator

- Reusable breathing circuits : two no each per ventilator per year
- Disposable breathing circuits with chambers: 60 per ventilator per year
- Flow sensors if reusable -- two each per ventilator per year
- Humidifier jar reusable :- 2 each per ventilator per year

13. Ventilator & Compressor- should be from same manufacturer /OEM.

14. All Software Upgrades shall be provided free of cost.

15. All Standard Accessories should be provided with the machine.

16. Power Supply:

- a) 230 v +/- 15%; 50 Hz +/- 3%.
- b) Built in facility to work over a wide range of voltage fluctuations. Each unit to be supplied with true online UPS with rechargeable battery backup upto minimum one hour (internal or external) for complete system including air source (compressor).

17. Consumables: Rates will be frozen for 8 years

- a) Reusable autoclavable dual limb neonatal breathing circuit with water trap.

- b) Test Lung
- c) Disposable circuits
- d) Flow sensor
- e) Humidifier jar reusable
- f) Sample tubing with adaptors
- g) Nasal prongs

18. Training of hospital engineers & staff

19. Warranty of 3 years and CMC for 5 years after completion of warranty period.

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TECHNICAL SPECIFICATIONS "LARYNGOSCOPE - NEONATAL"

Laryngoscopes	
GMDN name	GMDN code
	CT1723
1 Clinical purpose	For viewing vocal folds and glottis. Surgical and mechanical ventilation/intubation.
2 Used by clinical department/ward	O.T / ICU / NICU/ Casualty.
3 Technical characteristics (specific to this type of device)	1) A non-sterile, portable, battery-powered device intended to provide the light source for a laryngoscope (i.e. rigid intubation type) when fitted into the laryngoscope handle. It typically consists of a removable cylindrical cell that produces light which is emitted from the laryngoscope handle via a fiberoptic laryngoscope blade for airway illumination. The device may be kinetically or electrically recharged. This is a reusable device. 2) A light source on or via the blade illuminates the larynx to allow viewing and tube passage. The unit is handheld with internal batteries and has interchangeable, rigid, straight blades of different neonatal sizes (00 & 0) 3) Fiber optic Laryngoscope- preferably should be reusable using the latest LED technology. The main body of the handle should incorporate an excellent grip & should feel even wearing a gloves. There should be a freely moving light intensifier of light from the light source through to the tip of the fiber optic blade to prevent any possibility of cross contamination. The unit should allow the blade to be inserted easily & should provide a positive locking mechanism when moved in to the closed position.
4 User's interface	Manual
5 Software and/or Standard of Communication (Where ever required)	Not Applicable
6 Dimensions (metric)	Not Applicable
7 Weight (lbs, kg)	Light weight (up to 500 gms)
8 Configuration	Handheld unit, single piece when in use; On/off switch to be robust and easy to use; External material to be non-ferrous; Blades to be surgical grade stainless steel. Supplied in protective, re-closable container.
9 Noise (in dBA)	Not Applicable
10 Heat dissipation	Not Applicable
11 Mobility, portability	Yes, storage box should be provided

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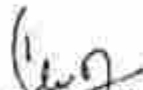
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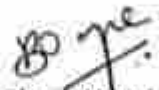
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TECHNICAL SPECIFICATIONS "LARYNGOSCOPE - NEONATAL"

GMDN name		Laryngoscopes
GMDN code		CT1723
12	Power Requirements	Independent of external source.
13	Battery operated	Internal batteries, rechargeable preferred Battery charger (if rechargeable), Battery compartment (if reusable) to be sealed against liquid ingress, yet easily opened.
14	Tolerance (to variations, shutdowns)	Not Applicable
15	Protection	TO be declared by the supplier
16	Power consumption	3V lithium battery, 2 Nos.
17	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)	1. Rechargeable Batteries-02 sets, appropriate charger, blades of neonatal sizes (00 & 0 Qty -02 No Each Size) 2. Spare Handle 3. 3 bulbs / 3LED should be given as spare
18	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%. Liquid splash resistant. Blades should be autoclavable.
19	User's care, Cleaning, Disinfection & Sterility issues	Should be autoclavable.
20	Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	FDA/CE; ISO 7376:2009 gives general requirements for laryngoscopes used for intubation, and specifies critical dimensions for the handle and lamp of hook-on type laryngoscopes. It also addresses the interchangeability of blades and handles.
21	Local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
22	Pre-installation requirements: nature, values, quality, tolerance	Not Applicable
23	Requirements for sign-off	Certificate of Calibration and inspection from the factory.
24	Training of staff (medical, paramedical, technicians)	Not Applicable
25	Warranty	3 years ; LED up to 6 months
26	Maintenance tasks	Autoclave
27	Service contact No, including detail Address	Manufacturer, Sole Distributors, Local dealer.


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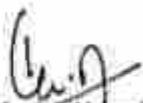

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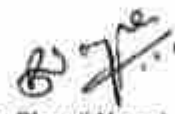
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TECHNICAL SPECIFICATIONS "LARYNGOSCOPE - NEONATAL"

GMDN name		Laryngoscopes
GMDN code		CT1723
28	Operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English, Marathi language, along with machine diagrams. List to be provided for procedures required for routine maintenance.
29	Other accompanying documents	Not Applicable
30	Service Support Contact details (Hierarchy Wise, including a toll free/tandline number)	Not Applicable
31	Recommendations or warnings	Any recommendations for best use and supplementary warning for safety should be declared.
Specification Done by :		Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016
End user Specialist Meeting Date :		07/09/2017
Panel Specialist Meeting Date :		/09/2017

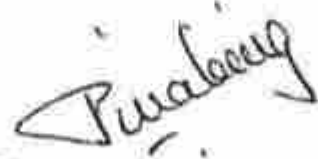

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Technical Specification:-Room Thermometer

Equipment Name	Room Thermometer for Laboratory (Plastic Body)
Type	Analog, wall-mounted laboratory room thermometer Monitoring ambient room temperature in laboratories, pharmacies, hospitals and stores
Application	
Body Material	High-quality ABS plastic housing
Temperature	
Measuring Range	-20°C to +50°C (minimum) or wider
Scale	Dual scale [°C and °F]
Graduation	1°C or finer
Accuracy	±1°C or better
Sensing Element	Mercury-free colored spirit/liquid-filled glass capillary
Display	Large, easy-to-read analog scale
Mounting	Wall mounting with hanging provision
Reading Distance	Minimum 2 meters with clear visibility
Dimensions	Approx. 200-300 mm length
Construction	Impact-resistant plastic frame with protective transparent cover
Calibration	Factory calibrated
Power Requirement	Not required (non-electrical)
Maintenance	Maintenance-free
Operating Environment	Indoor laboratory use, 10-90% RH (non-condensing)
Compliance	CE/ISO certified manufacturer preferred
Accessories	Wall mounting hook/screws (if applicable)
Warranty	Minimum 12 months

Technical Specification:- ILR Thermometer

Equipment Name	ILR Thermometer (Ice Lined Refrigerator Thermometer)
Application	Temperature monitoring of vaccine ILR
Type	Digital min/max thermometer with external probe
Temperature Range	-50°C to +70°C or better
Display Resolution	0.1°C
Accuracy	±0.5°C or better
Sensor	Waterproof external probe
Cable Length	Minimum 2 m
Display	LCD with current/min/max
Alarm	High/Low temperature alarm
Power	1.5V battery
Battery Life	Minimum 1 year
Mounting	Wall/Surface mount
Compliance	WHO PQS preferred / CE
Accessories	Battery, probe, user manual
Warranty	Minimum 12 months

Technical Specification:-Vertical Autoclave

Equipment	Vertical Autoclave
Capacity	220 Litres
Type	Vertical, top loading, steam sterilizer
Chamber Material	SS304/SS316 stainless steel
Outer Body	Powder-coated MS or SS304
Working Pressure	15-20 psi adjustable
Working Temperature	121°C to 134°C
Timer	0-99 min or continuous
Controller	Digital PID microprocessor
Display	LED/LCD for temp, pressure, time
Heating	Electric immersion heaters Pressure relief valve, safety valve, low water cut-off, door interlock, over-temperature protection
Safety	Analog/Digital
Pressure Gauge	2 or more SS baskets
Basket	230 V AC, 50 Hz, Single Phase (or equivalent suitable load)
Power Supply	Drain valve, water level Indicator, gasket, power cord
Accessories	ISO/CE/BIS where applicable
Compliance	Minimum 2 years
Warranty	

TECHNICAL SPECIFICATIONS" Sharp Waste Containers"

S.No	GMDN Name	Sharp Waste Containers
1	Clinical Purpose	To Collect & Dispose Contaminated Needles & other Sharp Waste
2	Used by clinical Department/ Ward	All Departments & wards
3	Technical Characteristics (Specific to this type of device)	Capacity: 1.5Ltrs/3.5 Ltrs /5 Ltrs The container should be compatible with the above specified needle cum hub cutter. The container should be made of virgin polypropylene and should be white & translucent. The container should be made of virgin polypropylene and should be white & translucent. It should be puncture proof, tamper proof and leak proof for sharp medical wastes with appropriate label as per provisions of Bio Medical waste Management Rules, 2016. Should be a locking snap-top cap to ensure permanent safe locking before disposal, and should have temporary locking facility for safety till the container is full. The puncture proof, tamper proof sharp container should be able to fit snugly with the cutter and should be so aligned with the cutter that the cut hub and needle should drop directly into the container. Should be rectangular & compatible to the above cutter size. Should be autoclavable, and recyclable. Containers should be stackable and compact for easy storage and transportation Maximum fill level must be marked on the container
4	User's Interface	Manual
5	Dimensions	1161mm x W150 mm x H 131 mm (compatible to needle cutter)
6	Capacity	1500 ml /3500 ml/5000ml;
9	Mobility, Portability	Portable
12	Protection	Puncture resistant
14	Quality Certifications	CE European and ISO 13485:2013 certified & Manufacturer must be ISO 9001:2015 & WHO GMP Certified

Addl. Civil Surgeon
(Clinical)
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TECHNICAL SPECIFICATION ELISA READER & WASHER

1. Should be 8-channel optical measuring system.
2. Should work with a keypad on 20 keys.
3. Should be able to read U-, V-, or flat bottom 96-well plate.
4. Should be filter wheel based, halogen lamp with lamp-saver feature.
5. Should have capability for Mono chromatic, Bi chromatic measurement mode.
6. Measurement time 12 seconds in the Monochromatic measurement mode.
7. The Results i.e. Abs, Sample No. and interpretation must be seen on the screen in matrix form. Graphs should be displayed on the screen and printable.
8. Should be provided with 405nm, 450nm, 492nm, 578 nm, 630nm and 700nm filters.
9. Should have facility for up to 100 user defined test protocols.
10. Should have large LCD display, with user friendly, for software operation.
11. Should have variable speed linear shaking facility for the Microwell plates for removal of microbubbles and mixing of the well solution.
12. The Microwell plate position should have aerosol cover facility to prevent external contaminants and stray light.
13. Should have photometric range 0.0 - 4.0 O.D
14. The On-board software should have capability of storing the calibration curve data for at least 8 standards in all the test programs.
15. Report storage for last 5000 sample test results.
16. The Curve should be displayed on screen & printable.
17. The system should have 1cut-off equations per qualitative test and gray zone in percentage with upper and lower limit.
18. It should have facility for plate mapping. Plate mapping must allow positioning of control, calibrators, blanks and samples at any location on the plate with tab custom Patient IDs.
19. The system must have internal printer & accept external dot matrix printer and must print results in preformatted matrix form giving details such as Sample No., Value, Abs and interpretation, with cut-off equation for qualitative results.
20. Should have ports for external printer and even for transmission of data to the host computer.
21. Should have host computer software for extensive data management capability with QC function such as Levey Jennings graph.

Computer Link software -- ELI-LIMS

ELISA WASHER

1. Should have 8 channel manifold or 12 channel manifold supplied with the instrument.
2. Should have a LCD Screen for operation.
3. Should have 4 bottles, one Rinse bottle, 2 Wash buffer bottle and One Waste bottle.
4. The Waste bottle should have sensors.
5. The system should have 50 wash protocols.
6. Able to set wash volume of 50ul to 3000ul
7. The system should have < 3ul residual volume after washing
8. It should have wash head adjustment & precision < 2% C.V.
9. It should have soak facility for 24hrs.
10. The system must have Aerosol Cover to prevent particulate matter during wash cycle.
11. Standard accessories must contain pin for cleaning manifolds, 1 power cord.
12. Easy decontamination of plate carrier should be possible.


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Medical Director
Sri J.J. Mahanagar Raktapedi




Drg. Mahesh
C-1 pathologist


Dr. Punit Desai
Chief BTO, NRIK
RRH, Washik

Technical specification of centrifuge machine.

Specifications for table-top centrifuges

1. Capacity 16-24 tubes each
2. Total number: 2 centrifuges
3. Volume: EACH CUVETTE upto 10 ml
4. Samples: blood, urine
5. RPM maximum- 4000-6000
6. RCF (g) maximum- 2750-5000 g
7. Machine should be portable and table-top.
8. Biosafety- It should be closed lid type with safety door lock to prevent cover opening during centrifugation.
9. Power supply- 220-240 volts; 50 Hz; single phase
10. Dimension of tube holder: Volume 5 ml to 10 ml (for tubes of size 100 mm x 12 mm)
11. It should have rubber cushions or bumpers at the bottom to protect glassware.
12. It should have non refrigerated, quiet operation.
13. It should have digital countdown timer 0-60 minute with alarm system.
14. It should have digital speed indicator.
15. It should have imbalance detector
16. It should have Quick deceleration with dynamic brake
17. It should have fixed angle rotor
18. The company should provide 3 years warranty for the machine from the date installation starts. The company should also quote for CMC for 7 years (breakdown into cost per 1 year each) after the end of warranty period
19. Manual to be provided and demonstration to be given to technical staff.
20. The machine should incorporate safety device for the working motor.
21. The company should have a service centre within Mumbai/Navi Mumbai.
22. The company should provide a preventive services in the warranty/CMC period.
23. The company should provide unlimited breakdown calls during the warranty/CMC period.
24. Any of the breakdown calls should be attended to within one working day.
25. The company should maintain enough required spares in stock so as to have a downtime on not more than two working days.
26. All the services should be provided preferably between the working hours of this office. Breakdown calls should be attended at anytime of the day, 24 x 7, whenever required.

17-1 Noise levels < 50 Db

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DR SATISH SHIMPALE
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Class. I pathologist
RRH Amravati

Technical Specifications of Invasive Digital Hemoglobinometer

Sr.No.	Technical Specification	Comments
1	Name	Digital Hemoglobinometer
2	Clinical Purpose	Direct hand held battery operated device used for hemoglobin testing clinical setting/ population based screening. The device is intended to be used for quantitative measurement of haemoglobin in capillary, venous or arterial whole blood samples taken from forearm, upper arm, hand thigh, calf or fingers.
3	Should be used by	Medical Officer/Laboratory Technician/ Staff Nurse/ANMs/Mid-level health providers at HWCs.
Technical Characteristics		
1	Working principle	Reflectance Photometry/Absorbance Photometry
2	Parameter	Blood Haemoglobin level
3	Range of Hb estimation	0-25 gm/dl
4	On-screen patients result display	Yes (LCD Display)
5	Maximum volume of sample required	Not more than 50 ul (One full blood drop)
6	Sample Material	Capillary, venous or arterial whole blood
7	Measuring time	Less than one minute
8	Auto-calibration	Auto/Self calibration
9	Sensitivity	More than 80%
10	Specificity	More than 80%
11	Bias (Limits of agreement)	0.5 gm/dl (± 1 gm/dl)
Findings should be published in two peer reviewed indexed journals. The studies should be done in two different Indian settings by two independent teams of investigators.		
Users Interface		
1	Memory to store data	Desirable - upto 500 tests with date and time
2	Bluetooth connectivity	Desirable
3	Data transfer	Desirable - provision for data transfer to printer and PC
Physical Characteristics		
1	Dimensions (metric)	Not more than 15 cm X 10 cm X 20 cm
2	Weight (grams)	Should not be more than 500 grams
3	Mobility/Portability	Should be mobile and portable
Energy Source		
1	Power requirements	Perferably battery operated Should also be able to work on direct connection with electricity source (AC). The manufacturer must provide the charger and the cable for electricity power connection, whenever required by the equipment
2	Battery	3.7 volt Lithium-polymer rechargeable battery/1.5 volt 4 AA batteries/ etc. Should be able to perform up to 500 tests when full charged.
3	Automatic shutdown	On battery power the device should turn off after approximately of 5 minutes of no use.

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(Dr. Vijay Khandekar)
Jt. Director,
Health Services
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Technical Specifications of Invasive Digital Hemoglobinometer

Environmental Consideration	
1 Working temperature	Should be able to perform in the temperature range of 10-50 °c
2 Working Humidity	5-95%
3 user's care/ Cleaning	The part of the equipment which comes in contact with blood should be easily cleanable. The factors which affect the hemoglobin estimation (ex.haziness of lens) after repeated use should be clearly mentioned in the manual. The cleaning material for the lens and cuvette/strip should be easily available.
Accessories	
1 Cuvette/Strip (Working environment)	Disposable and stable at specified environmental (Working temperature - 10-50 °c, Working humidity - 5-95%) condition.
2 Cuvette/Strip (Storage environment)	Should be stable at temperature of 10-50 °c and humidity of 5-95%. Shelf life for storage should be at least one year.
Quality Control	
1 Intra-sample variation (Accuracy)	Should be less than 5%
2 Control solution to check quality	Should be available for low, normal and high haemoglobin values. Calibration facility should be available
3 Certification	USA FDA/European CE/Any other equivalent certification Preferable : ISO 9001:2008 certification
Service Support	
1 Service support contact details	Contact details of manufacturer, supplier and local service agent to be provided
2 Training	Free onsite training should be provided for the doctors, ANM and ASHA. At least, two trainings (one training at the time of installation and another training after six months i.e. refresher training)
3 Warranty and on-site AMC	should be 3 years each

AGK
29.19

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3rd

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JL Director,
Health Services
PHC/SCD/Sp, Mumbai

(24)

Technical Specification of Dielectric Tube sealer

1. Blood Bag Tube Sealer is a compact equipment to seal the blood Bag pilot tubing.
2. The System should be heavy and be able to seal the blood bag etc quickly and effectively.
3. Should be simple to handle.
4. System should gently seal the tubing with no hemolysis using radio frequency.
5. Should be capable of making wide seal of 4 mm thickness.
6. Should be for bench-top use.
7. The sealing time should not be more than 2 seconds.
8. Sealing trigger should be automatic.
9. Should also have extended portable hand unit Sealing hand should be with coaxial cable of 1.5-2.0 meter.
10. Should have indication lamps for "Sealing Process" on handle as well as main unit.
11. No warm-up time should be required.
12. Should ensure easy separation of tube segments after the sealing.
13. System should run on both mains and battery (more than 10 hrs. back up and charger)
14. Back up battery should seal more than 500 seals on PCV-tube in continuous mode.
15. The units shall be capable of operating continuously in ambient temperature of 10-40°C. and relative humidity of 15-90%
16. Power input : 220-240V/50 Hz AC Single phase or 380-400V AC 50 Hz Three phase fitted with appropriate Indian plugs and sockets.
17. Suitable Autovoltage corrector with spick protector should be available.
18. Electrodes should be well protected by a cover.
19. Certification:
 - Product certification : CE or US FDA certified
 - Quality Certification : ISO certified
 - Electrical safety : Equipment meets electrical safety specification such as that of IEC (Class I) or Class II type-B device to protect against electric shock.
 - Shall meet IEC -60601-1-2 :2001(Or Equivalent BIS)General Requirements of safety for Electromagnetic Compatibility.

Hitesh

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Dr. H. K. Katoe
Sr. BME, RPH Nandik

Technical Specification of P.M.Set

Sr. No.	Specification
1	Amputating and resection saw Charriere 35 cm, 14" SS- 01 No.
2	Operating Knife SS handle, 17 cm/2" SS - 01 No.
3	Operating Knife SS handle, 17 cm/1", SS - 01 No.
4	Collin amputating knife SS blade 19 cm. SS - 01 No.
5	Esmarch Bandage Scissors 20 cm heavy duty SS - 02 Nos.
6	Standard Operating Scissors 14 cm, BL/SH STR.SS - 02 Nos.
7	Dressing forceps 20 cm STR serrated SS - 02 Nos.
8	Dressing forceps 18 cm STR serrated SS - 02 Nos.
9	Probe Grooved directors 14 cm, SS - 01 No.
10	Partsch mallets 18 cm, 22 mm dia, SS, 400 gm.- 01 No.
11	Probe 14 cm.- 01 No.
12	Lucas Chisel 16 cm, Chisel 1" width.- 01 No.
13	Spare blade for Saw - 01 No.
14	Aluminium Case - 01 No.
15	Measuring folding tape 5 feet.- 01 no.
16	Rachitome.- 01 no.
17	Measuring glass of 500 ml. capacity with calibration of 50 ml.- 01 No.
18	Dissecting forceps 2 x 3 teeth length 144 mm - 02 Nos.
19	Magnifying glass of 10D with Led light - 01 No.
20	Double curved PM needle - 10 Nos.
21	Post-mortem threads M-88 two bundle - 02 Nos.
22	Scalpels with mental handle no-4 with detachable blade no-20 & 23 - 02 Nos. each
23	Organ/baby digital weighing machine (Table Top) capacity 5 kg.- 01 No.
24	It should be CE or USFDA Approved.

Prate

MGKatre

Sr. BME, RPH Nishik

ABU
21/5/19

Prate
21/02/19

Prate
CIVIL SURGEON
General Hospital,
Gadchiboli

Technical Specification:-Suture Tray

Item	Suture Tray
Material	Medical grade stainless steel SS304
Construction	Seamless, rust-proof, reusable
Shape	Rectangular with rounded corners
Size	Approx. 250 x 150 x 50 mm (or equivalent)
Finish	Smooth satin/mirror finish with burr-free edges
Sterilization	Autoclavable at 121-134°C
Corrosion Resistance	High resistance to corrosion and staining
Cleaning	Easy to clean and disinfect
Application	Holding sutures and surgical instruments during procedures
Compliance	ISO 7153-1 / CE or equivalent
Warranty	Minimum 1 year against manufacturing defects

Technical Specification Of Ice Lined Refrigerator

Ice-lined refrigerators (ILRs) are specialized medical units designed for vaccine storage (typically $+2^{\circ}\text{C}$ positive 2 raised to the composed with power cap C $+2^{\circ}\text{C}$ to $+8^{\circ}\text{C}$ positive 8 raised to the composed with power cap C $+8^{\circ}\text{C}$), featuring built-in ice banks that provide 20–60 hours of holdover time during power failures. They operate efficiently in high ambient temperatures (up to $+43^{\circ}\text{C}$ positive 43 raised to the composed with power cap C $+43^{\circ}\text{C}$), featuring, CFC-free refrigeration, corrosion-resistant, chest-type construction, and vaccine storage baskets. Common capacities range from 50 to 350+ liters, often designed for 24-hour operation with only 8 hours of power required.

Key Technical Specifications:

- **Temperature Range:** $+2^{\circ}\text{C}$ positive 2 raised to the composed with power cap C $+2^{\circ}\text{C}$ to $+8^{\circ}\text{C}$ positive 8 raised to the composed with power cap $+8^{\circ}\text{C}$.
- **Holdover Time:** 20–25 hours, with some models extending over 50 hours.
- **Construction:** Chest-type with interior ice lining; often stainless steel or galvanized steel.
- **Storage Capacity:** Common sizes are 90–110 liters, with larger units up to 350+ liters.
- **Power Requirements:** Usually 220V–230V, 50Hz, designed to operate in tropical climates with low voltage fluctuation handling (e.g., starting at 172V).
- **Temperature Monitoring:** External digital display with alarms (battery-powered for, say, 24–48 hours).
- **Defrosting:** Manual.
- **Storage Baskets:** Multiple wire baskets (4–6) for organized vaccine storage.
- **Certification:** Commonly WHO/UNICEF approved, ISO, and CE certified.

Environmental & Operational Specs:

- **Ambient Operating Temperature:** Up to $+43^{\circ}\text{C}$ positive 43 raised to the composed with power cap C $+43^{\circ}\text{C}$ or higher (tropicalized).
- **Voltage:** 172V to 250V (AC).
- **Insulation:** High-density PUF (polyurethane foam).

45

Technical Specification of Deep Freezer-40 °C

1. **Purpose of Equipment :** To freeze and store plasma.
2. **Type of Equipment :** Compression freezer with CFC-free refrigerant
3. **Capacity :** 600 Ltrs 3.00
4. **Construction :**
 - Internal : Stainless steel (min. 22g) (S.S.V2 A-1.4301)
 - External: Solid outer cabinet Corrosion Resistant (at least 1mm thickness)
 - CFC- free insulation.
 - Design : upright Type
 - Door : Solid door, automatic closing of the front door below opening angle of 90 and opening angle limited to 110°
 - Insulation and gasket should be silicone
 - Separate inner doors to prevent cold loss
 - Drawers : Roll out type
 - Heating device on frame to avoid condensation.
5. **Electrical Characteristics :**
 - Input voltage : 220/240V 50 HZ
 - A line voltage corrector of appropriate rating should form part of configuration.
6. **Minimum Compressor Stating Voltage :** 22% below nominal Voltage
7. **Internal Temperature Control :**
 - Electronic Temperature Control.
 - operating Temperature reachable lowest up to -45 °C with setting accuracy of $\pm 1^{\circ}\text{C}$ whatever the load
 - Fan air cooling
 - Automatic defrost within safe temperature range
 - Casing & door should have insulation panel with polyurethane foam > 80mm thickness
8. **Refrigeration :**

Heavy duty hermetically sealed seated compressor air cooled cascade refrigeration system, maintains inner temperature below -40°C.

 - Option for duct from equipment to connect to common main duct to throw hot air out of the room.
 - Refrigerant CFC free/ green gas.
 - Optional : access port for CO₂ backup system for refrigeration.
9. **External Ambient Temperature :** Performs in an ambient temperature of

+10 to +40 °C

dr  

10. Hold over time : 2 hrs at ambient temperature

11. Cooling Down Time :

- A full load of plasma packs at $+25^{\circ}\text{C}$ takes a maximum of 5 hrs for all the packs to reach below -5°C
- A full load of plasma packs at $+25^{\circ}\text{C}$ takes a maximum of 30 hrs for all the packs to reach below -20°C

12. Temperature Monitoring :

- Digital temperature (LED) display with 0.1°C graduation
- Temperature recording device
- Microprocessor control for operation with integrated audio visual temperature alarm functional with digital monitoring display. There should be a method to check alarm system.
- Seven days inkless graphic temperature recorder with range of 0°C to 50°C with data logger with supply of free charts for a period of warranty.
- Battery backup for alarm and temperature recording device.
- Provision to connect with central (temperature) monitoring system.
- Mounted on lockable castor wheels.
- Alarm history : temperature maximum and minimum, average temperature during alarm period, time of duration alarm.
- Desirable :
 - > Noise factor should not exceed 60 decibels
 - > Should have compressor running time < 60 to 70%

13. Certification :

- > Product Certification : CE or US FDA Certified



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Sir J.J. Mahanagar Raktapedhi


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DR. P.V. PURIL P.V.
Chief B.T.O.
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R.R.H. Nashik


M.G. Katar
S. BME, R.R.H. Nashik

Details of Tender Specifications

Specifications for Multipara Monitor without EtCO2

Specifications for Supply, Installation, Testing and Commissioning of Multipara Monitor without EtCO2

A) Basic Monitor Unit should have

- a) It should have a minimum fifteen (15) inches TFT/LED/LCD colour display.
- b) Should be capable of displaying 24 hours Trends for the monitored parameters.
- c) User should be able to set alarms for all parameters.
- d) Should be able to display at least four Waveforms.

B) Should have Following Parameters:-

- 1) ECG + Respiration
- 2) SpO2 (Oxygen saturation)
- 3) Non-invasive Blood pressure
- 4) Temperatures.

1) E.C.G.

- 1) Numeric display of Heart Rate
- 2) Range: @ 20 to 300 beats per minute.
- 3) Accuracy: ± 2 beat per minute.
- 4) ECG with arrhythmia capability and ST details with 7 lead information.
- 5) 3 lead ECG cable – 2 Nos. should be provided with each monitor with sufficient cable length shall be provided.
- 6) 5 lead ECG cable – 2 Nos. should be provided with each monitor with sufficient cable length shall be provided.

Respiration part of ECG:

- 1) Range: 0 to 150 breaths per minute.
- 2) Resolution : 1 breath / minute
- 3) Accuracy : ± 2 breaths / min
- 4) Apnoea Alarm: Selectable.

2) SpO2 (Oxygen saturation) Pulse Oximeter :

- 1) O2 Saturation range : 0 to 100%
- 2) Accuracy: $\pm 3\%$ between ranges 50 to 99%
- 3) Motion artifacts should not affect the readings.

For Dev
19/02/19

S. S. Lele
Dr. Smita Lele
19/2/19

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M. G. Katre
Sr. BME, PRH NCH

4) Display of pulse strength, Plethysmography & SpO2 values.

5) Reusable SpO2 Probe for Adult of Masimo/Nellcor/Equivalent Technology - 2 Nos. should be provided with each monitor with minimum 3m probe length (with/without extension cable) shall be provided.

6) Reusable SpO2 Probe for Pediatric of Masimo/Nellcor/Equivalent Technology - 2 Nos. should be provided with each monitor with minimum 3m probe length (with/without extension cable) shall be provided.

7) Reusable SpO2 Flex Probe or Y probe for Neonatal - 2 Nos. should be provided with each monitor with minimum 3m probe length (with/without extension cable) shall be provided.

3) Non-invasive Blood pressure (N.I.B.P.):

1) Should measure & display Systolic, Diastolic & Mean pressure.

2) Mode: Automatic, Manual and stat.

3) Cuff inflation/deflation automatic.

4) Inflation pressure shall be automatically released if error.

5) Measurement range-20-250 mm Hg.

6) Measurement interval: 2,3,5,10,15,30 minutes, up to 2 hours.

7) Reusable NIBP cuff for Adult - 10 Nos. should be provided with each monitor.

8) Reusable NIBP cuff for Pediatric - 2 Nos. should be provided with each monitor.

9) Reusable NIBP cuff for Neonatal - 2 Nos. should be provided with each monitor.

4) Temperature:

1) Simultaneous monitoring of two channels.

2) Range: 10 to 45°C

3) Resolution: 0.1°C

4) Accuracy 0.1°C or 0.2°F

5) Skin probe for Temperature - 1 No. should be provided with each monitor.

6) Rectal probe for Temperature - 1 No. Should be provided with each monitor.

5) Should Provide Laser Printer Black & white and True online UPS back up for 1hr.

GENERAL REQUIREMENTS:

A. All the above equipments shall be new and manufactured from virgin materials. All the requirements of this supply shall be necessary sourced from the original equipment manufacturer of the model quoted except UPS, Printer etc which shall not be necessary sourced from the original equipment manufacturer of the model quoted but should be compatible with the quoted model. In case the

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3.	machine is imported one, no import substitution is permitted neither before the award nor after the award for any part or accessory. "Third party inspection certificate should be applied from the port of origin of shipping of equipment (from the parent companies country of origin). Equipment shall operate on 230 V, single phase, 50 Hz electric supply. The necessary protective relaying / circuitry shall be there with the machines. The mains supply voltage variation may be max. $\pm 15\%$ and frequency variation maximum $\pm 3\%$.
2.	The equipments shall have CE mark with valid CE certificate from (European Conformity) EC notified bodies issued from European address and valid US FDA approval and documentary evidence to that effect shall be uploaded as per CE/USFDA policy attached.
D.	The equipments shall be having warranty of three years. The warranty and CMC shall cover the list of the spare parts and the rate of which valid for total 8 years (warranty 3 years and CMC 5 years) irrespective of whether those are treated as consumables or otherwise. The manufacturer shall supply of spares, consumables for at least two years after the contract period of eight years is over.
E.	The equipments should be provided with one hard copy in original of the detailed service manual and operation manual. Further, a soft copy is also required.
F.	The equipment must be tropicalized as below: Operating room temperature: upto 20°C Storage room temperature: upto 60°C Relative Humidity: upto 90% Non-condensing
G.	Among the other things, the responsiveness of the bid will be based on successful demonstration of the offered model of the equipments to DHS officials as mentioned elsewhere in the tender specifications. (If required "Live Demonstration shall be arranged by lowest bidder.")
H.	The bidder has to submit users list with address & contact telephone number/s.
I.	Prospective tenderers should have a full-fledged and well-established service centre in Maharashtra with engineers qualified in servicing the Monitors.

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TECHNICAL SPECIFICATIONS " SUCTION PUMP FOOT OPERATED "

TECHNICAL SPECIFICATIONS " SUCTION PUMP FOOT OPERATED "		
GMDN name		Emergency suction systems
1	Clinical purpose	To aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction.
2	Used by clinical department/ward	All Wards
3	Technical characteristics (specific to this type of device)	
	1) A portable assembly of devices primarily intended to be used by emergency medical services (EMS) to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction. It typically consists of a manually-powered (hand or foot-operated) mechanism to drive the suction pump, tubing, a collection container, a vacuum gauge and control knob, and a microbial filter. The pump creates a vacuum in the suction tubing, which is used for the removal of materials into the collection container. This system is typically used during patient transport or for emergency situations. 2) 0-600 mm Hg $\pm$ 10 mm reusable, flutter free vacuum control knob.	
4	User's interface	Manual
5	Dimensions (metric)	Max spec: 32 x 17 x 30 cms
6	Weight (lbs, kg)	2.5kg max
7	Noise (in dBA)	50 dB A $\pm$ 3
8	Mobility, portability	Yes
9	Accessories (mandatory)	Collection bottles, a vacuum gauge. Microbial filter, tubing.
10	Atmosphere / Ambiance (air conditioning, humidity, dust)	Capable of being stored continuously in ambient temperature of 0 to 50 °C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40° C and relative humidity of 15 to 90%.
11	User's care, Cleaning, Disinfection & Sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agent.
12	Certificates	1) Should be FDA/CE/BIS approved product. 2) Manufacturer should have ISO certificate for quality standard.
13	Requirements for sign-off	Certificate of Calibration and inspection from the factory.
14	Warranty	Three year on site with free servicing (min.03/year) during warranty & provide technical support and required spares and consumable for 7 yrs after warranty period.

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TECHNICAL SPECIFICATIONS :- Fogger Machine for Fumigation

1	Equipment Name	OT Fumigation Stainless Steel Unit
2	Type	Portable, electrically operated OT fumigation machine
3	Construction Material	Complete body made of SS 304 grade stainless steel with corrosion-resistant finish
4	Capacity	Minimum 5-10 Litres chemical tank
5	Tank Material	SS 304 seamless stainless steel tank
6	Chemical Compatibility	Suitable for Hydrogen Peroxide (H ₂ O ₂), Silver Ion, or other approved OT disinfectants
7	Fumigation Method	ULV (Ultra Low Volume) fogging / Cold Fogging technology
8	Particle Size	Adjustable, 5-30 microns
9	Fog Output	Minimum 300-500 ml/hour or higher
10	Coverage Area	Suitable for OT up to 150-250 m ²
11	Pump Type	Heavy-duty corrosion-resistant electric pump
12	Flow Control	Adjustable flow rate
13	Timer	Digital timer with automatic shut-off
14	Nozzle	SS or chemical-resistant adjustable fogging nozzle
15	Mobility	Mounted on wheels with locking mechanism
16	Handle	Ergonomic stainless steel handle for easy movement
17	Power Supply	220-240 V AC, 50 Hz
18	Power Consumption	Maximum 1000 W
19	Safety Features	Overheat protection, dry-run protection, overload protection
20	Control Panel	ON/OFF switch with power indicator and timer controls
21	Noise Level	Less than 70 dB
22	Operating Temperature	10°C to 40°C
23	Protection Class	IPX4 or better
24	Accessories	Power cord, user manual, spare nozzle, funnel, measuring cup
25	Cleaning	Easy-to-clean SS tank with drain outlet
26	Compliance	CE/FDA/ISO 13485 or equivalent certification
27	Electrical Safety	IEC 60601-1 or equivalent electrical safety standards
28	Warranty	Minimum 2 years comprehensive warranty
29	Service Support	Installation, commissioning, operator training, and after-sales service
30	Documentation	User manual, calibration certificate (if applicable), warranty card

TECHNICAL SPECIFICATIONS " Crash Cart "

	GMDN name	Crash Cart
1	Clinical purpose	A trolley it could be carry material required to handle emergency situation to treat the patients
2	Used by clinical department/ward	All wards
3	Technical characteristics (specific to this type of device)	
	- Overall Size :- 525mm (L) X 950mm(W) X 1500mm(H) Height from Ground level to top. - Frame & Shelves of the Trolley : - Top & vertical frame, tubular S.S. 25.4mm OD, 18SWG. - Top shelf of S.S. sheet 18SWG. with raised edges upto 25mm, at each side & having with protective railings on each sides of tubular S.S. pipe 19mm OD, 18SWG. - Below the top two modular storage system of three drawers each one with lock S.S. (three separate compartments horizontally divided by one sheet to convert into six sections) - On long vertical frame on top side in single plate, symmetrical five coloured plastic (heavy duty) beans should attach horizontally. - Bottom shelf of S.S. sheet 18SWG. with raised edges upto 25mm, at each side & having with protective railings on each sides of tubular S.S. pipe 19mm OD, 18SWG. - Supported with non-rusted 100mm x 25mm OD, PU Wheels with double bearing & double lock arrangement, nut for mounting of wheels should be fitted inside vertically in tubular bar. - Oxygen cylinder cage shall be provided for oxygen cylinder at one side, another side should have dual push handle. "Govt. of Maharashtra Public Health Dept. & Mfg date" must be embossed at visible sight, must be easily readable. - Finish : - All S.S. should be deep fully argon seamless welded and polished finished. - Tow section tops should be smooth edges and burr free and corners should be round off so that there should be no sharp corners. - General Requirements: - All stainless steel sheet & stainless steel tubes/pipes used in manufacturing shall be of <u>304 S2</u> grade confirming to IS 6911 of 1992 or latest. - All dimensions will be considered - Length, Width, Height in millimeter(mm), thickness in gauge (SWG - Standard Wide Gauge), Diameter should consider as Outer Diameter (OD). - The crash cart must be sturdy, vibration free and self balance.	

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Technical Specification:-Venesection Set (Venous Cut-down Set)

Equipment	Venesection Set (Venous Cut-down Set)
Application	Minor surgical venous cut-down procedures
Material	Medical grade stainless steel AISI 410/420 or equivalent
Finish	Satin/matte, corrosion resistant
Sterilization	Autoclavable at 121–134°C
Tray	SS instrument tray with lid
Contents	Scalpel handle No.3 (1), Artery forceps straight 15cm (2), Artery forceps curved 15cm (2), Mosquito forceps (2), Plain dissecting forceps 15cm (1), Toothed dissecting forceps 15cm (1), Mayo scissors 15cm (1), Metzenbaum scissors 15cm (1), Needle holder 16cm (1), Langenbeck retractor (1), Sinus forceps (1), Dressing forceps (1), Kidney tray (1)
Reusable	Yes
Compliance	ISO 7153-1, ISO 13485, CE marked where applicable
Warranty	Minimum 1 year against manufacturing defects

Technical Specification:-Allis Tissue Forceps

Equipment	Allis Tissue Forceps
Type	Reusable surgical grasping forceps
Material	Medical grade stainless steel (AISI 410/420)
Length	15 cm (6 in) standard; other sizes optional
Jaw	Multiple interlocking teeth (4x5 or 5x6), atraumatic grip
Handle	Ring handle with ratchet lock
Finish	Matt/satin, corrosion resistant
Sterilization	Autoclavable 121–134°C
Application	Grasping fascia and tough tissue during surgery
Compliance	ISO 7153-1, ISO 13485, CE where applicable
Warranty	Minimum 1 year

Technical Specification:-Stainless Steel Wash Basin

Item Name	Stainless Steel Wash Basin
Application	Hospital/Clinical hand washing
Material	AISI 304 stainless steel
Construction	Seamless deep drawn bowl
Thickness	Minimum 0.8 mm
Finish	Mirror/Satin polished
Dimensions	Approx. 500 x 400 x 200 mm or equivalent
Mounting	Wall mounted with brackets
Drain	Stainless steel waste coupling with strainer
Edges	Rounded, smooth, burr-free
Corrosion Resistance	High resistance to rust and chemicals
Cleaning	Easy to clean and disinfect
Standards	ISO 13485 manufacturer preferred; suitable for hospital use
Warranty	Minimum 1 year

Technical Specification for Fowler Bed

Sr. No.	Technical Specification
1.	Overall size 2090mm L x 910mm W x 600mm H mattress size 1980mm L x 910mm W x 100mm thick. The main frame should be made from 60mm x 30mm x 18G rectangular tubes. Four sections top should be made from 18G C.R.C. sheet uniformly perforated and should be suitably fitted to the main frame.
2.	Back-rest and Knee rest should be manoeured by 2 separate screw system provided with thrust ball bearing. Additionally, the leg-rest section should be adjust on three different inclinations on ratchet being supported on ratchet.
3.	Detachable head and leg Bows: shall be made from 31.7mm dia. X 18G SS tubes at both the end of each bows for inserting into welded tube socked on four corners of bed frame.
4.	Wheels: The base frame shall be fitted with non-rusting swivel castor wheel 125mm dia. 2 with brake, 2 without brakes.
5.	Four IV Rod Locations.
6.	A mattress suitable for the bed made of 100mm thick high density.
7.	Foam covered with good quality rexine.
8.	The company should have ISO 9001:2008 & ISO 13485 certification.
9.	The product should be 'CE' certified.
10.	S.S. Collapsible railing of approximate 1320mm length.
11.	Only Back rest & knee rest adjustable by screw mechanism.
12.	Load capacity of 135kg.
13.	Top must be burr free and have no sharp edges.

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16/6/14

Dr. D. B. Bhagale
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Dr. V. Vinayak
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Amrute

Amruta
Amruta Bhogale
Biomedical Engineer
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Specifications for ECG Machine

- The ECG Machine should be able to acquire all 12 Leads simultaneously and interpret them (Reporting).
- Should acquire simultaneous 12 lead ECG for both adult and pediatric patients.
- Should have Real Time Color Display of ECG waveforms with signal quality indication for each lead.
- Should have Artifact, AC and low and high pass frequency filters.
- Should have storage memory of at least 600 ECGs with easy transfer by optional modem and data card.
- Should have full screen preview of ECG report for quality assessment checks prior to print.
- Should have interpretation facility of the amplitudes, durations and morphologies of ECG waveforms and associated rhythm for adult and pediatric patients.
- Should have alphanumeric /qwerty Keyboard for patient data entry on main unit
- It should have function of paper less recording and reanalysis for saving papers.
- Machine should have inbuilt algorithm for interpretation in main unit ,it should not be on patient cables.
- Should have High Resolution inbuilt thermal A4 size printer
- Should have report format of 3 x 4, 6 x 2; 12X1 Rhythm for up to 12 selected leads; 12 lead extended measurements, 1 minute of continuous waveform data for 1 selected lead.
- Should have battery capacity of at least 400 ECG reports or 1 hour of continuous paper recording or hours of paper less recording on single charge.
- It should measure and display vent rate, PR interval, QRS duration, QT/QtC interval, P/QRS/T axes on report.
- Should be able to connect to HIS / LAN / Wireless LAN .
- Should display ECG on LCD / TFT Display of 8inch with 800 x 480 pixel resolution(optional touch screen)
- It should have USB output for taking out patient ECG reports on external printer.
- Machine should be light weight with less than 5kg weight including main unit, battery and recorder.
- **System Configuration Accessories, Spares and Consumables :**
- ECG Machine 12 Leads with Interpretation - 01.

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*12 leads
in 12 sec
print - 1 min*

Technical Specification CO2 Insufflator High Pressure Pipe

Item Name	CO2 Insufflator High Pressure Pipe
Application	Connection between medical CO2 cylinder and laparoscopic CO2 insufflator
Material	Medical-grade high-pressure flexible hose with stainless steel braided reinforcement
Working Pressure	Minimum 200 bar
Burst Pressure	Minimum 800 bar
Length	2-3 m
End Connectors	Standard CO2 cylinder connector and Insufflator connector, leak-proof
Compatibility	Compatible with standard laparoscopic CO2 insufflators
Gas	Medical Carbon Dioxide (CO2)
Leakage	Leak-proof under operating pressure
Cleaning	External surface compatible with hospital disinfectants
Standards	ISO 5359 or equivalent; CE and ISO 13485 manufacturer preferred
Warranty	Minimum 1 year against manufacturing defects

Technical Specification:-Laparoscopic Atraumatic Grasper

Item Name	Laparoscopic Atraumatic Grasper
Application	Atraumatic tissue grasping during laparoscopic surgery
Type	Reusable
Material	Medical-grade stainless steel with insulated shaft
Working Length	330 mm $\pm$ 20 mm
Shaft Diameter	5 mm
Jaw Type	Fenestrated atraumatic jaws
Handle	Ergonomic with 360° rotation
Sterilization	Autoclavable up to 134°C
Disassembly	Fully dismantlable
Standards	CE, ISO 13485, ISO 7153-1 or equivalent
Warranty	Minimum 1 year

Technical Specification:-Laparoscopic Maryland Dissector

Equipment Name	Laparoscopic Maryland Dissector
Type	Reusable laparoscopic dissecting and grasping instrument
Application	Blunt tissue dissection, grasping, tissue manipulation, and electrosurgical procedures during minimally invasive surgery
Instrument Type	Maryland curved jaw, double-action
Shaft Diameter	5 mm
Working Length	330-360 mm
Jaw Type	Fine curved Maryland jaws with atraumatic serrations
Jaw Action	Double action
Rotation	360° rotatable shaft
Handle	Ergonomic insulated handle
Locking Mechanism	With or without ratchet
Electrosurgical Compatibility	Monopolar HF compatible
Shaft Material	Medical grade stainless steel
Jaw Material	Hardened surgical stainless steel
Insulation	High-quality non-conductive insulation
Finish	Satin/matte
Sterilization	Steam autoclavable at 134°C
Reusability	Minimum 500 sterilization cycles
Latex Content	Latex-free
Corrosion Resistance	Rust and corrosion resistant
Cleaning	Fully dismantlable or easy to clean
Compliance	CE/FDA, ISO 13485 manufacturer
Accessories	Monopolar cable connection and cleaning brush
Warranty	Minimum 2 years
Documentation	User manual, service manual, certificates

Technical Specification:-Laparoscopic Clip Applicator

Equipment Name	Laparoscopic Clip Applicator
Type	Reusable laparoscopic ligating clip applicator
Application	Application of titanium/polymer ligating clips during MIS
Shaft Diameter	10 mm
Working Length	330 mm
Compatible Clips	Medium-Large or Large as specified
Jaw	Precise alignment with secure clip retention
Rotation	360° rotatable
Handle	Ergonomic
Material	Medical grade stainless steel
Sterilization	Autoclavable 134°C
Compliance	CE/FDA, ISO 13485 manufacturer
Warranty	2 years
Documentation	User manual and certificates

Technical Specification:-Laparoscopic Liver Retractor

Equipment Name	Laparoscopic Liver Retractor
Type	Reusable laparoscopic liver retractor
Application	Liver retraction during laparoscopic upper GI and hepatobiliary surgery
Shaft Diameter	5 mm
Working Length	330-360 mm
Tip Design	Fan/Nathanson type atraumatic blade
Rotation	360° rotatable if applicable
Material	Medical grade stainless steel
Finish	Matte
Sterilization	Autoclavable 134°C
Compliance	CE/FDA; ISO 13485 manufacturer
Warranty	2 years
Documentation	Manual and certificates

Technical specification: Tabletop pulse oximeter (pediatric)

Parameter	Specification
Item	Tabletop pulse oximeter (pediatric)
Type	Tabletop / bedside pulse oximeter with continuous monitoring
Application	Continuous monitoring of SpO ₂ and pulse rate in neonates, infants, and pediatric patients
Patient category	Neonatal, infant, and pediatric
Display	Minimum 5-inch color TFT/LCD display with large numeric display
Display parameters	SpO ₂ , pulse rate (PR), plethysmographic waveform, perfusion index (PI), alarm status, battery status
SpO ₂ measurement range	Minimum 0–100%
SpO ₂ accuracy	±2% in the range 70–100%
Pulse rate range	Minimum 20–300 bpm
Pulse rate accuracy	±2 bpm or ±2% of reading
Perfusion index	Display of perfusion index (PI)
Waveform display	Real-time pleth waveform with adjustable sweep speed
Signal processing	Motion artifact rejection and low perfusion measurement capability
Trend memory	Minimum 72 hours graphical and tabular trend storage
Alarms	Audible and visual alarms for SpO ₂ high/low, pulse rate high/low, sensor off, low battery, and system fault
Alarm adjustment	User-adjustable alarm limits and alarm mute/silence function
Probe type	Reusable neonatal wrap sensor and reusable pediatric finger/soft sensor
Accessories	One neonatal sensor, one pediatric sensor, extension cable, power cord, rechargeable battery
Battery	Built-in rechargeable battery with minimum 6–8 hours backup
Power supply	220–240 V AC, 50 Hz with automatic switch-over to battery during power failure
Data interface	USB and/or RS-232/Ethernet for data transfer and printer/HIS connectivity
Mounting	Tabletop use with optional pole-mount or wall-mount provision
Construction	Compact, shock-resistant medical-grade housing
Standards	ISO 80601-2-61 compliant; IEC 60601-1 electrical safety; CE/FDA certified
Operating conditions	10–40°C, 15–95% RH (non-condensing)
Warranty	Minimum 3 years comprehensive warranty

Technical Specification:-Neonatal Oxygen Hood

Equipment	Neonatal Oxygen Hood
Application	Oxygen therapy for neonates/infants
Material	Transparent, medical-grade, non-toxic polycarbonate/acrylic
Design	Clear dome with smooth edges and access ports
Size	Suitable for neonates up to approx. 5 kg
Oxygen Concentration	21% to 100% with external blender
Inlet Port	Standard 15/22 mm connector
Humidity	Compatible with humidified oxygen
Temperature	Compatible with warmed gases
Noise Level	Low internal noise design
Access	Side access ports for care
Cleaning	Reusable; autoclavable if specified by manufacturer or compatible with hospital disinfectants
Safety	Latex-free, BPA-free where applicable
Compliance	ISO 13485, CE/FDA (where applicable)
Accessories	Tubing connector, oxygen inlet adapter, user manual
Warranty	Minimum 1 year

Technical Specification:-Two Step Foot Step (Hospital)

Equipment	Two Step Foot Step (Hospital)
Type	Double step stool
Material	Stainless Steel SS304 frame
Construction	Welded tubular frame, rust resistant
Steps	2 anti-skid steps
Top Surface	Chequered stainless steel or anti-slip rubber mat
Load Capacity	Minimum 150 kg
Dimensions	Approx. 45-50 cm L x 45-50 cm W x 40-45 cm H
Legs	Non-slip PVC/rubber shoes
Edges	Rounded and smooth
Cleaning	Corrosion resistant, easy to disinfect
Application	Patient examination and access
Warranty	Minimum 1 year

TECHNICAL SPECIFICATIONS* Needle Cum Syringe Destroyer*

S.No	GMDN Name	Needle Cum Syringe Destroyer
1	Clinical Purpose	To destroy needle & syringe in single action and collect sharp waste in sharp container as per BMW rule 2016
2	Used by clinical Department/ Ward	All Departments & Wards
3	Technical Characteristics (Specific to this type of device)	Should be able to cut both the hub and needle in a single stroke without the use of any electricity or battery. The cutter should be made of Stainless steel or alloy to be effective for at least 1,00,000 cuts with ergonomic design for easy cuts. The complete unit must have facility to mount on wall or table (Flat Surface). The cutter should be able to fit snugly over the puncture proof, tamper proof sharp container and should be so aligned with the container that the cut hub and needle should drop directly into the container. Should be rectangular in shape & compatible to the sharp container of relevant sizes. The needle and syringe hub destroyer as well as the compatible Sharp containers must be quoted.
4	User's Interface	Manual
5	Dimensions (Minimum)	L165mm x W160mm x H180mm (Excluding Handle)
6	Expected Life	1,00,000 Cuts
7	Material	Body Stainless Steel & Alloy Steel
8	Sharp Container capacity	1500ml compatible to cutter
9	Mobility, Portability	Portable
10	Power Requirements	Nil
11	Accessories (Mandatory)	Sharp Containers
15	Quality Certificates	CE European and ISO 13485:2013 certified & Manufacturer ISO 9001:2015

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 College of Engineering, Thane.

A. Details Specification of Bio Medical Waste Management Bucket

1. Item Description:

Bio Medical Waste Management Bucket (3 colours set)

30 ltr. & 60 ltr. Bucket:

- Foot operated pedal bin or bucket for bio-medical waste collection
- Capacity of 30 L for sub-centre (quantity 8082 nos.), 60 L for PHC (quantity 2204 nos.) and 60 L for U-HWC (quantity 766 nos.)
- Usage: hospital clinic laboratory
- Structure: heavy duty foot pedal mechanism.
- Material: HDPE (High Density Polyethylene), Non-PVC and Non-Chlorinated virgin plastic material. The material should be Eco-friendly bucket & sieve material meeting CPCB norms of Plastic Waste Management Rules as amended till date.
- Dimension: a) 330(D) X360(W) X480(H) mm (for 30 ltr), b) 430(D) X445(W) X660(H) mm (for 60 ltr).
- Outer bucket shape: Rectangular, corners round.
- Construction: Lid of the Outer bucket-Foot operated pedal, top open, MS frame enclosing the outer bucket with vertical iron shaft attached to the foot operated pedal to open the lid, All iron parts are rust free, powder coated, and locking system for the lid should be available.
- Colour of container body: 3(three) colours will be Yellow, Red and White (puncture proof container).
- MARKING: Conformity to ISO Standard, Non-washable and non-removable label, Name of the Healthcare Facility in bold (CAPITAL LETTERS) along with caption "HOSPITAL SUPPLY NOT FOR SALE" or as required by Health Care Facility in addition to (i) Bio-hazard symbol in red.
- Individually wrapped in polythene film and placed into carton box.
- Warranty: 3 years

Technical Specification – Manual Vacuum Aspiration (MVA) Set

Sr. No.	Parameter	Technical Specification
1	Equipment name	Manual Vacuum Aspiration (MVA) Set
2	Application	Uterine evacuation for incomplete abortion, miscarriage management, endometrial sampling, and MTP as per applicable guidelines
3	Type	Reusable manual vacuum aspiration system with handheld aspirator and cannulae
4	Vacuum aspirator	Hand-operated aspirator capable of generating high vacuum
5	Vacuum capacity	Minimum 60–70 cm Hg (600–700 mm Hg)
6	Aspirator capacity	Minimum 60 ml
7	Vacuum retention	Should retain vacuum for at least 5–10 minutes without significant leakage
8	Material of aspirator	Medical-grade high-impact plastic/polycarbonate/polypropylene
9	Cannula type	Flexible Karman-type cannulae
10	Cannula sizes	6 mm, 7 mm, 8 mm, 9 mm, 10 mm, and 12 mm (minimum set)
11	Cannula material	Medical-grade flexible plastic
12	Cannula compatibility	Compatible with the supplied aspirator
13	Valve mechanism	Double-valve or equivalent non-return valve system
14	Locking mechanism	Reliable vacuum locking and release mechanism
15	Tubing	Autoclavable flexible tubing with leak-proof connectors
16	Sterilization	Autoclavable at 121°C (minimum) for reusable components
17	Leak-proof performance	System should maintain vacuum without leakage during procedure
18	Ergonomics	Lightweight handheld design suitable for one-hand operation
19	Accessories	Adaptor(s), connectors, tubing, cleaning brush, spare O-rings/gaskets, and carrying/storage case
20	Reusability	Aspirator and reusable accessories suitable for repeated sterilization cycles
21	Biocompatibility	Materials should be non-toxic and biocompatible
22	Standards	CE/FDA or equivalent quality certification; ISO 13485 compliant manufacturer preferred
23	Documentation	User manual, cleaning and sterilization instructions, and service information
24	Warranty	Minimum 1 year against manufacturing defects

Technical Specification :- Hysterectomy Set

Sr. No.	Parameter	Specification
1	Material grade	AISI 420 stainless steel (SS 420) for all cutting and non-cutting surgical instruments unless otherwise specified
2	Equivalent grade	ASTM A276 Type 420 / EN 1.4021 / X20Cr13 (minimum)
3	Hardness	48-58 HRC after heat treatment (cutting instruments: 52-58 HRC; forceps/holders: 48-55 HRC)
4	Corrosion resistance	Suitable for repeated autoclaving and hospital sterilization
5	Surface finish	Mirror polished or satin finish with matte anti-glare option
6	Passivation	Mandatory chemical passivation as per ASTM A967 or equivalent
7	Manufacturing standard	ISO 7153-1 (Materials for surgical instruments)
8	Quality management	ISO 13485 certified manufacturer
9	Product compliance	CE marking / EU MDR compliant or US FDA registered, where applicable
10	Reusable sterilization	Autoclavable at 121-134°C
11	Construction and finish	All instruments shall be fully forged from AISI SS 420 stainless steel, precision machined, heat treated, rust-free, corrosion-resistant, seamless in construction, with smooth rounded edges and joints, and individually finished with a mirror polish for durability and repeated sterilization.

Technical Specification – Laboratory Refrigerator (200 Ltr Capacity)

Sr. No.	Parameter	Technical Specification
1	Equipment name	Laboratory refrigerator
2	Type	Vertical laboratory refrigerator
3	Capacity	200 litres (±10% acceptable)
4	Temperature range	+2°C to +8°C adjustable
5	Temperature accuracy	±1°C or better
6	Temperature uniformity	±2°C or better throughout the chamber
7	Cooling system	Forced air circulation / fan-assisted cooling
8	Defrost system	Automatic defrost
9	Cabinet construction	Double-walled insulated cabinet with PUF insulation
10	Inner chamber	Stainless steel (SS 304 preferred) or corrosion-resistant coated steel
11	Outer body	Powder-coated steel with anti-corrosion finish
12	Door	Lockable solid door with magnetic gasket
13	Shelves	Minimum 3 adjustable shelves
14	Display	Digital LED/LCD temperature display
15	Temperature controller	Microprocessor-based digital controller
16	High temperature alarm	Audio-visual alarm
17	Low temperature alarm	Audio-visual alarm
18	Door open alarm	Audio-visual alarm
19	Power failure alarm	Audio-visual alarm with battery backup for alarm system preferred
20	Sensor type	Digital temperature sensor
21	Power supply	220–240 V AC, 50 Hz
22	Compressor	Hermetically sealed, energy-efficient compressor
23	Refrigerant	CFC-free / eco-friendly refrigerant (R600a or equivalent)
24	Energy efficiency	Low power consumption design
25	Interior lighting	LED interior light
26	Lock and key	Yes
27	Mobility	Castor wheels with front locking arrangement preferred
28	Ambient operating temp.	10°C to 43°C
29	Noise level	Less than 55 dB preferred
30	Standards	CE / ISO 13485 / IEC electrical safety compliance preferred
31	Accessories	Power cord, user manual, shelf clips, keys
32	Warranty	Minimum 3 years comprehensive warranty
33	Installation	Installation, commissioning, and demonstration at site

Technical Specification – Weighing Scale for Measurement of Biomedical Waste (BMW)

Sr. No.	Parameter	Technical Specification
1	Equipment name	Electronic platform type weighing scale for biomedical waste (BMW) measurement
2	Application	Accurate weighing of biomedical waste bags, bins, containers, and trolleys in hospitals and healthcare facilities
3	Type	Electronic digital platform weighing scale
4	Weighing capacity	Minimum 300 kg
5	Graduation (least count)	50 g or 100 g
6	Accuracy	±0.1% of full scale or better
7	Platform size	Minimum 600 x 600 mm
8	Platform material	Stainless steel SS 304 platform
9	Load cell	High precision stainless steel load cell
10	Display	Bright LED/LCD digital display
11	Display resolution	Minimum 1/3000 or better
12	Functions	Zero, tare, gross/net weight, hold, and unit selection
13	Overload protection	Minimum 120% of rated capacity
14	Power supply	220-240 V AC, 50 Hz
15	Battery backup	Built-in rechargeable battery with minimum 8-10 hours backup
16	Construction	Heavy-duty powder-coated steel frame with SS platform
17	Ingress protection	Moisture-resistant design; IP54 or better preferred
18	Operating temperature	0°C to 45°C
19	Indicator	Wall/table mountable weight indicator with connecting cable
20	Calibration	Factory calibrated; external calibration facility available
21	Mobility	Non-slip adjustable feet; wheels optional
22	Safety	Stable anti-skid platform with overload indication
23	Compliance	Legal Metrology stamped and verified; CE/ISO certified manufacturer preferred
24	Accessories	Power adapter, rechargeable battery, indicator cable, and user manual
25	Warranty	Minimum 2 years comprehensive warranty
26	Installation	Supply, installation, calibration, and demonstration at site

Technical Specification – Foot Operated Eye Washer

Sr. No.	Parameter	Technical Specification
1	Equipment name	Foot Operated Eye Washer
2	Type	Floor mounted foot-operated emergency eye wash unit
3	Application	Emergency eye irrigation for laboratories, hospitals, CSSD, and hazardous work areas
4	Operation	Foot pedal operated, hands-free activation
5	Eye wash heads	Twin aerated spray heads with soft flow and dust covers
6	Flow control	Automatic stay-open valve with gentle, continuous water flow
7	Flow rate	Minimum 1.5 L/min at recommended operating pressure
8	Operating pressure	30–80 psi (2–5.5 bar)
9	Material	SS 304 stainless steel construction
10	Finish	Mirror polished or satin finish
11	Pedal material	Heavy-duty stainless steel foot pedal
12	Piping	SS 304 tubing and fittings
13	Valve	Corrosion-resistant brass or stainless steel valve
14	Water supply connection	1/2 inch BSP inlet connection
15	Drain connection	Suitable drain outlet for continuous flushing
16	Mounting	Floor mounted with base plate for secure installation
17	Dust covers	Automatic flip-open dust covers on eye wash nozzles
18	Performance	Uniform, non-injurious aerated water stream ANSI Z358.1 compliant or equivalent emergency eyewash standard preferred
19	Compliance	High-visibility eye wash identification sign
20	Safety signage	Inlet hose, fittings, mounting hardware, and user manual
21	Accessories	Minimum 1 year comprehensive warranty
22	Warranty	Supply, installation, testing, and demonstration at site
23	Installation	

Technical Specification – LED X-Ray View Box

Sr. No.	Parameter	Technical Specification
1	Equipment name	LED X-Ray View Box
2	Type	Single-screen LED X-ray film illuminator
3	Application	Viewing and interpretation of X-ray films in radiology, OPD, OT, emergency, and clinical departments
4	Illumination source	High-brightness white LED light source
5	Number of viewing panels	Single panel
6	Viewing area	Minimum 14 in x 17 in (35 cm x 43 cm)
7	Brightness	Minimum 3000 cd/m ² (nits)
8	Brightness uniformity	More than 90% across the viewing surface
9	Colour temperature	6500 K ± 500 K
10	Diffuser panel	High-transmission acrylic / opal PMMA diffuser for uniform illumination
11	Front panel	Scratch-resistant acrylic viewing surface
12	Film holding mechanism	Roller clamp / spring-loaded film retaining clips
13	Brightness control	Adjustable dimmer control (continuous or multi-step)
14	Power supply	220–240 V AC, 50 Hz
15	Power consumption	Less than 30 W
16	Switching	Individual on/off switch
17	Frame material	Powder-coated aluminium or CRCA steel frame
18	Mounting	Wall-mountable with mounting accessories
19	LED life	Minimum 50,000 hours
20	Flicker	Flicker-free illumination
21	Heat generation	Low heat emission LED technology
22	Operating temperature	10°C to 40°C
23	Safety	Over-voltage and short-circuit protection
24	Standards	IEC electrical safety standards; CE / ISO certified manufacturer preferred
25	Accessories	Power cord, wall mounting kit, user manual
26	Warranty	Minimum 2 years comprehensive warranty
27	Installation	Supply, installation, testing, and demonstration at site

Technical Specification Instrument Trolley (Hospital/Operation Theatre)

Name of Equipment	Instrument Trolley (Hospital/Operation Theatre)
Type	Mobile stainless steel instrument trolley with two shelves
Application	Operation theatre, labour room, ICU, emergency, procedure room, CSSD
Material	Complete trolley made of SS 304 grade stainless steel
Construction	Welded tubular frame with seamless joints and reinforced support structure
Shelves	Minimum 2 stainless steel shelves made of heavy-gauge SS sheet
Shelf Edge	Raised edges/guard rails on three sides (minimum 25 mm height)
Dimensions	Approx. 760 mm (L) × 450 mm (W) × 850 mm (H) (±5%)
Load Capacity	Minimum 40 kg uniformly distributed load
Castors	4 swivel castors, 75–100 mm diameter, non-marking and noiseless
Brakes	Minimum 2 castors with locking brakes
Mobility	Smooth 360° movement with anti-vibration operation
Surface Finish	Matt/satin polished stainless steel finish
Corrosion Resistance	Rust-proof and resistant to hospital disinfectants and cleaning agents
Edges and Corners	Rounded, smooth, and burr-free for safety
Cleaning	Easy to clean and disinfect; suitable for OT infection-control protocols
Stability	Trolley should remain stable under full load without wobbling
Accessories	Integrated push handle and protective corner finish
Standards	Manufactured from medical-grade SS 304; workmanship suitable for hospital use
Warranty	Minimum 2 years comprehensive warranty

Technical Specification:-Kelly's Pad (Waterproof Rubber Mackintosh Pad)	
Name of Equipment	Kelly's Pad (Waterproof Rubber Mackintosh Pad)
Type	Reusable waterproof protective bed pad
Application	Used in operation theatre, labour room, ward, ICU, and patient care areas to protect mattresses and beds from fluid contamination
Material	High-quality natural rubber or synthetic waterproof rubber with cotton fabric reinforcement
Construction	Multi-layer waterproof construction with fabric backing for strength and durability
Size	Approximately 90 cm x 60 cm (or equivalent standard hospital size)
Thickness	Minimum 0.4-0.6 mm
Surface	Smooth, waterproof, non-sticky, and easy-to-clean finish
Colour	Green or dark hospital-grade colour
Waterproof Performance	Completely impermeable to water, blood, urine, and other body fluids
Flexibility	Soft and flexible, allowing easy folding and placement under the patient
Tear Resistance	High tear and puncture resistance for repeated hospital use
Edge Finish	Properly finished and sealed edges to prevent delamination and tearing
Cleaning	Compatible with hospital disinfectants and routine cleaning procedures
Reusability	Suitable for repeated use after cleaning and disinfection
Odour	Free from offensive rubber odour
Latex Safety	Preferably low-allergen/medical-grade material
Standards	Hospital-grade reusable waterproof sheet suitable for medical use
Warranty	Minimum 1 year against manufacturing defects

Specification:-Automatic digital upper arm blood pressure monitor

Item	digital blood pressure monitor
Type	Automatic digital upper arm blood pressure monitor
Application	Non-invasive measurement of systolic blood pressure, diastolic blood pressure, and pulse rate
Measurement method	Oscillometric method
Display	Large LCD digital display with clear readings
Blood pressure measurement range	Minimum 20 to 280 mmHg
Pulse measurement range	Minimum 40 to 180 beats per minute
Accuracy (blood pressure)	±3 mmHg or better
Accuracy (pulse)	±5% of reading or better
Cuff type	Adult upper arm cuff, latex-free
Cuff circumference	Approximately 22–42 cm
Memory function	Minimum 60 readings with date and time
User memory	Minimum single user; dual user preferred
Irregular heartbeat detection	Should detect and indicate irregular pulse/arrhythmia
Hypertension indicator	WHO blood pressure classification indicator
Average reading function	Average of last 3 readings
Power source	4 × AA batteries and AC adapter compatibility
Auto power off	Automatic shut-off after inactivity
Operation	One-touch automatic operation
Inflation system	Fully automatic inflation and deflation
Battery life indicator	Low battery indication
Operating environment	10°C to 40°C, relative humidity up to 85%
Accessories	Main unit, adult cuff, batteries, instruction manual, carrying/storage case
Compliance	ISO 81060-2 / IEC 60601-1 / IEC 60601-1-2 or equivalent
Certification	CE / BIS / equivalent regulatory approval
Warranty	Minimum 3 years

Technical Specification: Episiotomy Set

Parameter	Specification
Item	Episiotomy Set
Application	For performing episiotomy and repair during normal vaginal delivery
Set type	Complete reusable obstetric surgical instrument set
Material	Medical grade stainless steel, corrosion-resistant
Steel grade	AISI 410 / AISI 420 stainless steel for instruments; bowls and trays may be AISI 304
Finish	Matt / satin finish to minimise glare under OT light
Sterilisation compatibility	Suitable for steam sterilisation (autoclave) at 121–134°C
Reusable	Yes
Latex free	Yes
Edges and joints	Smooth finished edges; precision aligned joints; no sharp burrs
Rust resistance	High resistance to corrosion, staining, and repeated sterilisation cycles
Identification	Each instrument permanently marked with manufacturer identification
Standard instrument	
Instrument	Quantity
Episiotomy scissors (angled)	1
Mayo scissors straight 6 in	1
Mayo scissors curved 6 in	1
Artery forceps straight 6 in	4
Artery forceps curved 6 in	4
Sponge holding forceps 9–10 in	1
Toothed dissecting forceps 6 in	1
Non-toothed dissecting forceps 6 in	1
Needle holder 6–8 in	1
Kocher forceps 8 in	2
Kidney tray medium	1
Gallipot	2
Dressing bowl	1
Instrument tray with lid	1

TECHNICAL DATA SHEET

Optimum Cleanroom Mop System including Mop Trolley

DESCRIPTION

The Optimum Cleanroom Mop System includes the stainless steel trolley and triple colour-coded bucket system for hygienic separation of clean and dirty. The trolley is supplied with three easy-to-remove buckets. Autoclavable triple bucket mop trolley system for cleanroom use. Manufactured from 304 stainless steel with autoclavable plastic castors (1x braked). Each trolley comes with 3 x 15L polypropylene buckets and a stainless steel flat mop wringer, plus 4x 6L buckets for general storage. Colour coded to keep clean and dirty water separated. As standard, this trolley is supplied with 1x Black, 1x Red and 1x Blue bucket.

TECHNICAL SPECIFICATION

Manufacture	Optimum Protection
Material	Stainless Steel, Autoclavable Plastic and Polypropylene
Irradiation Standard	Non-sterile
Colour	Blue bucket- for clean water/disinfectant or detergent Red bucket- for wringing excess water/ disinfectant or detergent Black bucket- for rinsing solution
Sizes	3 x 15L buckets and 4 x 6L buckets

51



FEATURES

- 3x 15L Buckets and Stainless Steel Flat Mop Wringer
- 4x 6L Buckets for general storage
- 304 Stainless Steel Frame
- Autoclavable frame
- Colour Coded Buckets for Clean and Dirty Water, and Rinsing Solution
- Customisable
- Comes complete with handle for ease of movement

Technical Specification of Linen Trolley

1	Overall Size :-	1066mm (L) x 508mm(W) x 838 mm(H) Height from Ground level to top.
2	Frame & Shelves of the Trolley :	a) Vertical & horizontal frame CRCA tube 25.4mm OD, 18SWG, curved banded at top side. Lengthwise half side structure have Two shelves & other side bottom have tubular horizontal five supports at equal distance, 19mm OD, 18SWG. For detail please refer given sketch. b) Two Shelves CRCA sheet 18SWG internally fitted at bottom & top in half side. c) Provide detachable square plastic bean suitable at half side structure. / d) Supported with smooth moving & non-rusted 100mm x25mm OD, PU Wheels, double bearing with brake facility, should be fitted at bottom. e) "Govt. of Maharashtra Public Health Dept. & Mfg date" must be embossed at visible sight, must be easily readable.
3	Finish :	a) All components shall be thoroughly pre-treated chemically to remove rust and foreign matter like grease, oil etc by dip tank processes, including separate Degreasing, De-rusting, Phosphating each followed by water rinsing, passivating and hot air drying to give phosphate coating confirming IS 3618 of 1966 Class 'C' or latest. b) The treated metal surface should then be coated with epoxy polyester powder with film thickness of minimum 60 microns and oven baked at 180 -200°C . c) Tow section tops should be smooth edges and burr free and corners should be round off so that there should be no sharp corners. d) Powder coating shall be of grade A & shall pass requirement specified in Table 1 of IS 13871 of 1993. This finish should exclude stainless steel parts and hardware if any. e) All mild steel shall be of CRCA and as per IS 513 of 2008 or latest.
4	General Requirements:	a) All dimensions will be considered — Length, Width, Height in millimeter(mm), thickness in gauge (SWG — Standard Wide Gauge), Diameter should consider as Outer Diameter (OD). b) The linen trolley must be sturdy, vibration free and self balance. c) The linen trolley shall be properly constructed with all welded joints grounded, cleaned and well-formed. Unless otherwise specified, the vertical members shall be perpendiculars to the wheel base and parallel to each other and the horizontal members shall be at right angles to the vertical members. d) The linen trolley shall stand on all the legs at the same time on a level surface. All the surfaces shall be smooth and free from pitting. Welding shall fully penetrate and shall be sound

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Handwritten signature:
 Biomedical Engineer
 R.R. M. Ammal

Handwritten signature:
 Dr. G.S. Khotbargi
 No. 224, Ammal

	in every detail and it shall be finished flush. In the finished stage, there shall be no exposed sharp edges in the frame-work or other unsealed formations which may harbor dirt or foreign matter. e) The sketch shown in the specification is only indicative for the bidder. f) Tender committee has reserved rights to change dimensions & sketch at any stage of tender.
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7. The sketch shown in the specification is only indicative for the bidder.

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is involved at any stage of tender.

Due
12/05/19

Dr. Charles
H. Spence
Kaiser Hospital
Portland

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Technical Specification of Simple Operation Table / Ordinary Operation Table

1	Clinical purpose	An operating table, sometimes called operating room table, is the table on which the patient lies during a surgical operation. This surgical equipment is usually found inside the surgery room of a hospital.
2	Used by clinical department/ward	Operation theatre
3	Technical characteristics specific to this type of device)	01) Should have Stainless steel top 18 SWG, SS 304 grade. 02) Over all Size 1830mm x 560mm x 760mm (with variation of 50mm) 03) Kidney Bridge. 04) Removable & folding foot end with S.S. drainage tray. 05) Height adjustable & head low / up (T & TR) position bt screw & lever mechanism. 06) Lateral tilt position with belts to hold the position. 07) Lithotomy Crutches. 08) Gear up type angular arrangement for lithotomy bars. 09) Suitable mattress 25 mm thick should be tear proof covered with non pinching Rexine, seamless joint, washable and water-proof, having welcrown for fixing on table top. 10) Aluminium top antiskid step stool having two steps. & Arm Boards with cushion. 11) Stainless steel removable side railings. 12) Should have Castor wheel for easy mobility, foot lock to floor.
4	User's interface	Manual
5	Weight (lbs, kg)	Should be able to bear patient having weight up to 180 kg
6	Accessories (mandatory)	1) Side rail clamp.- 01 No 2) Shoulder support. 3) Arm support (Qty 2 Nos) 4) I V pole 5) Body restraining belt 6) Leg supports :(Qty 2 Nos) 7) Lateral supports
7	Atmosphere / Ambiance (air conditioning, humidity, dust...)	1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40° C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50° C and relative humidity of 15 to 90%.
8	User's care, Cleaning, Disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.

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9	Certificates	1) Should be FDA/ CE approved product. 2) Manufacturer should have ISO certificate for quality standard.
10	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance. 2) Advanced maintenance tasks required shall be documented
11	Warranty	Three Years
12	Operating manuals, service manuals, other manuals	Should provide 2 set of User, technical and maintenance manuals to be supplied in English/Marathi language along with diagrams.
13	Recommendations or warnings	Any warning signs would be adequately displayed

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Technical specification: blood bag tube stripper

Parameter

Item

Application

Specification

Blood Bag Tube Stripper (Manual)

For stripping donor blood from blood bag tubing into the collection bag and ensuring proper mixing with anticoagulant before segment preparation

Type

Compatibility

Manual handheld blood bag tube stripper
Compatible with all standard blood collection bags (single, double, triple, and quadruple bags)

Tube size compatibility

Suitable for blood bag tubing with outer diameter 2–6.5 mm

Body material

Medical-grade stainless steel (AISI 304 or equivalent corrosion-resistant stainless steel)
PTFE (Teflon) or equivalent low-friction, wear-resistant rollers

Roller material

Roller mechanism

Smooth dual-roller or equivalent stripping mechanism ensuring complete and uniform stripping of tubing

Operation

Performance

Single-hand operation with ergonomic grip
Complete stripping of blood bag tubing without damaging the tubing

Purpose

Facilitates anticoagulation of blood in donor tubing prior to preparing pilot segments
Compact handheld design,

Dimensions

approximately 150–200 mm length
Approximately 200–400 g

Weight

Surface finish

Smooth polished finish with rounded edges for easy cleaning and operator safety
Easy to clean and disinfect; resistant to routine blood bank disinfectants

Cleaning

Corrosion resistance

Rust-proof and corrosion-resistant under routine blood bank conditions

Maintenance

Maintenance-free or minimal maintenance design

Portability

Lightweight and portable

Quality standards

Manufactured under ISO 13485 quality management system

Regulatory compliance

CE certified / BIS compliant where applicable
Protective storage box or pouch

Accessories

Documentation

User manual, cleaning instructions, warranty certificate

Warranty

Minimum 1 year against manufacturing defects

Technical specification: Air rotor (high-speed dental handpiece)

Parameter		Specification
Item		Air Rotor (Airtor) High-Speed Dental Handpiece
Type		Air-driven high-speed turbine handpiece
Application		Cavity preparation, crown cutting, restorative and operative dental procedures
Speed		300,000-400,000 RPM minimum
Head type		Standard or mini head
Bur type		Friction grip (FG) bur, 1.6 mm diameter
Bur retention		Push-button chuck system
Spray system		Single or triple water spray
Coupling		Compatible with 2-hole (Borden) or 4-hole (Midwest) dental unit connection
Working air pressure		0.20-0.30 MPa (2.0-3.0 bar)
Water pressure		0.20-0.25 MPa
Noise level		Less than 70 dB
Bearing type		Ceramic ball bearings preferred
Body material		Medical-grade stainless steel
Finish		Corrosion-resistant, satin or chrome finish
Autoclavable		Up to 134-135°C
Illumination		LED/fiber-optic or non-LED version
Torque		High torque / super torque preferred
Balance		Lightweight, ergonomically balanced design
Sterilization compatibility		Repeated steam autoclave cycles without performance deterioration
Standards		ISO 14457 and ISO 9168 compliant
Warranty		Minimum 12 months

Technical specification: Mayo trolley

Parameter	Specification
Item	Mayo Instrument Trolley
Application	For holding and transferring surgical instruments and supplies during operative procedures
Type	Height-adjustable stainless steel Mayo trolley with removable tray
Frame material	AISI 304 medical-grade stainless steel
Tray material	AISI 304 stainless steel, seamless construction
Tray size	Approximately 600 × 400 mm (24" × 16") or larger
Tray depth	Minimum 20-25 mm raised edges on all sides
Tray type	Removable and autoclavable stainless steel tray
Height adjustment	Mechanical or hydraulic height adjustment
Height range	Approximately 850 mm to 1300 mm
Adjustment mechanism	Smooth hand-operated knob, lever, or foot-operated hydraulic mechanism
Base design	Stable four-leg or H-shaped base for use under operating tables
Mobility	Four heavy-duty swivel castors, minimum 50-75 mm diameter
Castors	Non-marking, corrosion-resistant castors; at least two with brakes
Load capacity	Minimum 10-15 kg uniformly distributed
Finish	Mirror polished or satin matte stainless steel finish
Construction	Seamless welded joints with rounded corners and burr-free edges
Corrosion resistance	Resistant to rust, disinfectants, and hospital cleaning agents
Cleaning	Easy to clean and disinfect with smooth surfaces
Standards	Conforming to ISO 13485 and relevant hospital furniture standards
Warranty	Minimum 12 months

Technical specification: Cataract and IOL set

Parameter	Specification
Item	Cataract and IOL (Intraocular Lens) Surgical Instrument Set
Application	For extracapsular cataract extraction (ECCE), small incision cataract surgery (SICS), and IOL implantation procedures
Set type	Complete reusable ophthalmic microsurgical instrument set
Material	Medical-grade stainless steel
Steel grade	AISI 420 stainless steel for cutting and microsurgical instruments; AISI 304 stainless steel for trays and bowls
Finish	Non-reflective matte or satin finish to reduce glare under operating microscope
Sterilization compatibility	Steam autoclave compatible up to 134°C
Corrosion resistance	Highly resistant to corrosion, pitting, and repeated sterilization cycles
Instrument quality	Precision ophthalmic microsurgical instruments with fine tips and atraumatic design
Tray	SS 304 perforated sterilization tray with lid
Reusable	Yes
Standards	ISO 7153-1, ISO 13485, CE/FDA compliant instruments

Standard instrument composition

Castroviejo Needle Holder	1	Lacrimal Cannula	1
Vannas Scissors (Straight/Curved)	1 each	Eye Speculum (Barraguer)	1
Westcott Scissors	1	Superior Rectus Forceps	1
Capsulorhexis Forceps	1	Conjunctival Scissors	1
McPherson Forceps	1	Sterilization Tray with Lid	1
Colibri Forceps (0.12 mm)	1		
Fixation Forceps	1		
Lens Holding Forceps	1		
IOL Holding Forceps	1		
IOL Manipulator / Dialer	2		
Sinsky Hook	1		
Cystotome	1		
Lens Expressor	1		
Wire Vectis	1		
Irrigating Cannula	1		
Sincoe Irrigation Aspiration Cannula	1		
Anterior Chamber Maintainer	1		
Keratome 2.8-3.2 mm	1		
Crescent Knife	1		
Side Port Knife	1		

Technical specification: A-scan (Biometric)

Parameter	Specification
Item	A-Scan Biometric Ophthalmic Ultrasound Scanner
Brand / Model	Appasamy Appascan Max or equivalent
Application	Measurement of axial length, anterior chamber depth, lens thickness, and IOL power calculation for cataract surgery
Technology	Ophthalmic A-scan ultrasound biometry
Probe frequency	10 MHz
Measurement method	Contact and immersion techniques
Measurement modes	Auto and manual
Axial length measurement range	14.0 mm to 40.0 mm
Anterior chamber depth (ACD)	2.0 mm to 6.0 mm
Lens thickness range	2.0 mm to 7.5 mm
Measurement accuracy	± 0.1 mm or better
Fixation target	Internal LED fixation
Display	Minimum 8-inch high-resolution colour touchscreen display
Gain control	Auto and manual gain adjustment
Measurement averaging	Automatic calculation of average axial length and standard deviation from multiple measurements
IOL calculation formulas	SRK-T, SRK II, Holladay, Hoffer-Q, Haigis, Binkhorst, and post-refractive formulas
Lens types supported	Normal, cataract, dense cataract, aphakic, pseudophakic (PMMA, silicone, and other IOL types), and silicone oil
IOL calculation display	Simultaneous display of at least three IOL power calculations
Patient database	Minimum 100 patient records
User presets	Minimum 10 user presets
IOL configuration storage	Minimum 25 IOL configurations
Print facility	Built-in thermal printer with auto cutter
Connectivity	USB and/or data export facility for patient records and printouts
Real-time clock	Built-in RTC for date and time stamping
Power supply	230 V AC $\pm 10\%$, 50 Hz
Accessories	10 MHz A-scan probe, immersion shell, power cable, thermal printer paper, user manual, dust cover
Standards	ISO 13485, IEC 60601-1, and CE/FDA compliant
Warranty	Minimum 2 year comprehensive warranty

Technical specification: Bone Nibbler

Parameter	Specification
Item	Bone Nibbler
Application	For nibbling, cutting, and trimming bone during orthopedic, neurosurgical, maxillofacial, and general surgical procedures
Type	Reusable surgical bone nibbler
Material	Medical-grade stainless steel
Steel grade	AISI 420 stainless steel or equivalent surgical-grade stainless steel
Finish	Satin/matte finish to reduce glare, corrosion-resistant
Design	Double-action bone nibbler with spring-loaded handle
Jaw type	Straight or slightly curved jaws with sharp precision-cutting edges
Jaw width	Approximately 4–8 mm
Jaw opening	Minimum 8–12 mm
Overall length	180–220 mm (7–9 inches)
Handle	Ergonomic ring handle with non-slip grip and smooth operation
Cutting performance	Capable of cleanly nibbling cortical and cancellous bone without excessive force
Joint	Box joint construction for strength, alignment, and durability
Reusability	Fully reusable and autoclavable
Sterilization compatibility	Steam sterilization (autoclave) at 121–134°C
Hardness	Appropriate surgical instrument hardness for cutting edge durability
Corrosion resistance	Resistant to rust, pitting, staining, and repeated sterilization cycles
Standards	ISO 7153-1, ISO 13485, CE marked, and BIS compliant where applicable
Marking	Manufacturer's name/logo and size permanently laser marked
Warranty	Minimum 1 year against manufacturing defects
Accessories	Supplied in protective packing suitable for sterilization and storage

Rectified Specifications of Dental XRay with RVG DHS COPY.

Sr. No.	Specifications
1	Operations should be conventional as well as automatic.
2	Completely microcontroller based digital timer assuring the accuracy
3	Ease of operation as all the functions can be selected from the remote control
4	Feather touch keypad
5	Digital timer with accuracy of 0.01 sec (0.01-4.0 sec)
6	Patient selection switches (child and adult)
7	Film speed selection switches (3 speed)
8	RVG mode for RVG sensor
9	High voltage protection for x-ray tube
10	An excellent output of 65-70 kvp, 8-10 mA
11	Audible and visible indication of "X RAY ON" (Radiation indications)
12	Built in digitally controlled voltage stabilizer (190Vac-250 Vac)
13	Excellent mechanical manoeuvrability, long reach and balanced arms
14	Available in wall mounted/ pedestal scissor arm
15	Unit should be CE/ FDA/ AERB Approved
16	A lead partition and lead apron (1 each) for operator's safety
17	Tube warranty 2 years with AMC of 5 years after warranty period
18	The spares should be available for next 7 years

SPECIFICATIONS FOR RVG

1	CCD/ Super CMOS Technology
2	Sensor size :- range :- 24 x 37 x 5mm - 28 x 38.2x 6.3mm/ size universal no. 1
	Active areas :- range :- 30 x 20mm - 31.5mm x 23mm
3	Maximum gray level 3333
4	No. of pixels 20 lp/mm (true resolution) * 1 lacks/pixel (2 million)
5	Pixel size 18.5 x 18.5um - 20 x 20um
6	Exposure life should be minimum 4 lakhs
7	Should provide TWAIN compatible software such as IOC, scanner and digital camera
8	Sensor cable length upto 3 meter extendable Reinforce for durability and reliability (fibre optic and scintillator tech) Preferably detachable cable from sensor
9	warranty 2 years with AMC of 5 years after warranty period
10	Compatible computer (desktop) with latest operating version along with suitable printer

Signature

Approved - Dr. H. J. Jeyaraj

Dr. H. J. Jeyaraj

Nagar

Dr. H. J. Jeyaraj

Software :-

	Easy interface, Compatible
	User friendly
	Image storage format in DICOM convertible to JPEG or TIF
	Automatic storage
	Should be able to transfer images.
	The software should have various image enhancing tools.
	The software should be able to store every image against the name of the patient and should provide the information about the region of radiograph
	The images can be reviewed easily

Patre

Rutshi

Pantale

Star

Shas

Aditya

HP

Q

Archan

Shruti

TECHNICAL SPECIFICATIONS *Gen Copy*

Technical specifications for RVG System with PC unit and Portable X-Ray Unit

1. Description of Function.

1.1 RVG or Intra Oral X-Ray Sensor is an imaging technique in dentistry with the minimal radiation exposure of the patient and numerous possibilities to process the images has many advantages over classic radiography.

2. Operational Requirements:

2.1 RVG system required for taking radiography images with operational tools in the viewing software for diagnosis of Intra Oral Discases.

3. Sensor Requirement and Specifications:

3.1. Sensor should have ECD or CMOS Sensor Technology.

3.2. Sensor Cable Length Has to be between 2.5m and 4m.

3.3. Sensor should be provided in a set of 1 Adult Size Sensor and relevant Accessories.

3.4. Should come strengthened twisted wire Fibre Optic Cable.

3.5. Should have rounded edges on all sides.

3.6. Should have a sensor thickness of up to 7mm $\pm$ 0.3mm

3.7. RVG sensor dimensions should not be more than 37.7mm x 27.6mm

3.8. should be compatible with all types of Dental X-Ray machine.

3.9. Should have detailed software that is easy to use and operate.

3.10. Sensor Software should have lifetime licensing and the supplier shall ensure that the sensor software can be reinstalled and licensed even after multiple formatting of the PC during the duration of warranty and CMC. No additional charges or requests will be allowed for Re-Installation of Software or license during the set of installed period.

3.11. Sensor Software should be compatible with the existing set of RVGs or should have a ~~4/4/1~~ module / DICOM Module to include the existing set of RVGs present at GDC Raipur without any reduction in operational characteristics.

3.12. The Sensor Software should have the following Features.

- A. Updated Diagnostic System Utilities like Pseudo 3D Mode, Relief Filter, Iso-Density, Densitometric Analysis and Measurement with Calibration
- B. Should come with image filters like Perio, Endo, Dentin to Enamel Junction, Negative, Color, Etc.

3.13. Sensor software should be such that it can be installed on Existing PC Units (Compatible with All) and must have a dedicated future for Database Management and Networking so that in future if any centralized data storage is required, the software can add and collect data from one single database.

3.14. Sensor should have true measured resolution of 23 lp/mm to 30lp/mm.

Mr. Anand Kumar
22/10/24

- 3.15. Sensors should come with a wall bracket that can be fixed on the wall for positioning the RVG.
- 3.16. Sensors should come with intra-oral positioners with both horizontal and vertical alignment.
- 3.17. Sensor should come with a set of 5000 Sleeves which are smoothened and not cause any discomfort to the patient. Sample needs to be submitted at the time of bidding.

4. Portable X-ray Requirement and Specifications:

- 4.1 Generator - full wave rectified or constant potential.
- 4.2 Generator Voltage kVp Range- 65kVp to 70kVp and Generator Current mA range 2-3.5mA.
- 4.3 Focal spot should be 0.4mm IEC.
- 4.4 Portable Xray unit shall be completely portable and must have exposure time range from Exposure Time - 0.01 s – 1.0 s.
- 4.5 Should either be Battery based or Capacitor Based DC portable X-Ray unit.
- 4.6 AERB Type approval for the X-Ray unit shall be provided along with other necessary certifications.
- 4.7 X-Ray shall be compatible with Digital Sensor, PSP Film and IOPA film.
- 4.8 Should Come with a circular collimator.
- 4.9 Total Filtration should be more than 1.5mm Al equivalent.
- 4.10 Must come with a Lead Apron of 0.5mm Lead Equivalent thickness and a thyroid collar.
- 4.11 Appropriate Training Shall be Provided for understanding the use of the Xray system.
Supplier should provide Escalation Matrix for Service of provided equipment.

5. Standards, Safety and Training

- 5.1 Should be FDA/ CE /ISO/BIS approved product.
- 5.2 Manufacturer/Supplier should have ISO certification for quality standards.
- 5.3 Electrical safety conforms to standards for electrical safety IEC-60601 /IS-13450.
- 5.4 It should have 5 years of warranty on the supplied unit.
- 5.5 Appropriate Training Shall be Provided for understanding the use of the RVG and its associated software.
- 5.6 Supplier should provide Escalation Matrix for Service of provided equipment.

6. PC unit to be Supplied with Each RVG:

- 6.1 PC with 24" High Definition FHD screen, wireless Keyboard and Mouse. Win 10 / 11 Pro with Original license. MS Office Original with License.
- 6.2 Processor intel i5 12th GEN or above, SSD - 1 TB or above, RAM - 8GB Above 3200MHz DDR4 / DDR5 or above, UPS system with 15min Backup and 600VA Capacity or above,
- 6.3 Laser Monochrome printer to be provided with each unit.

(Signature)
22/01/24

H.O.D. (Dental)
Central Hospital, IB Valley Area

Technical specification: Dental Elevator Set

Parameter	Specification
Item	Dental Elevator Set
Application	For luxation, elevation, and extraction of teeth and retained root fragments during dental and oral surgical procedures
Set type	Complete reusable dental elevator set
Material	Medical-grade stainless steel
Steel grade	AISI 410 / AISI 420 stainless steel or equivalent surgical grade stainless steel
Finish	Satin/matte finish, corrosion-resistant, non-reflective
Construction	Precision-forged and fully autoclavable instruments
Handle design	Ergonomic solid stainless steel handle with non-slip grip
Tip design	Sharp precision tips with straight, left, right, and root elevator configurations.
Instrument types	Straight elevators, Coupland elevators, Cryer (East-West) elevators left and right, Warwick-James elevators left, right and straight, root tip elevators
Minimum set contents	At least 8–10 elevators including straight, left, right, and root elevators
Working end	Hardened and precision-ground tips for effective tooth and root elevation
Surface finish	Smooth edges, burr-free finish, and easy-to-clean surface
Sterilization compatibility	Steam sterilization (autoclave) at 121–134°C
Reusability	Reusable and suitable for repeated sterilization cycles
Corrosion resistance	Resistant to rust, pitting, staining, and disinfectants
Standards	ISO 7153-1, ISO 13485, CE marked, and BIS compliant where applicable
Marking	Manufacturer's name/logo and instrument identification permanently laser marked
Packing	Supplied in a stainless steel instrument tray or sterilizable storage case
Warranty	Minimum 1 year against manufacturing defects

Technical specification: Majestic Luxator Set

Parameter

Specification

Item	Majestic Luxator Set
Application	For atraumatic tooth extraction, periodontal ligament severing, and controlled tooth luxation during dental and oral surgical procedures
Set type	Complete reusable dental luxator instrument set
Material	Medical grade stainless steel
Steel grade	AISI 420 stainless steel or equivalent surgical-grade stainless steel
Finish	Satin/matte finish, corrosion-resistant, non-reflective
Construction	Precision-forged, hardened, and fully autoclavable instruments
Handle design	Ergonomic lightweight handle with anti-slip grip and balanced design
Blade design	Thin, sharp, tapered blades for atraumatic periodontal ligament separation
Blade types	Straight, curved, left, right, narrow, medium, and wide luxator blades
Minimum set contents	At least 7–9 luxators including straight, curved, left, right, narrow, and wide blade configurations
Blade width	Approximately 2 mm, 3 mm, 4 mm, 5 mm, and 6 mm
Working end	Hardened and precision-ground cutting edges for efficient ligament separation
Surface finish	Smooth edges, burr-free finish, and easy-to-clean surface
Sterilization compatibility	Steam sterilization (autoclave) at 121–134°C
Reusability	Reusable and suitable for repeated sterilization cycles
Corrosion resistance	Resistant to rust, pitting, staining, and disinfectants
Standards	ISO 7153-1, ISO 13485, CE marked, and BIS compliant where applicable
Marking	Manufacturer's name/logo and instrument identification permanently laser marked
Packing	Supplied in a stainless steel instrument tray or sterilizable storage case
Warranty	Minimum 1 year against manufacturing defects

Technical specification: UV Chamber for Dental Practice

Parameter	Specification
Item	UV Chamber for Dental Practice
Application	UV disinfection and storage of sterilized dental instruments and accessories
Type	Table-top ultraviolet instrument chamber
Construction	Stainless steel body with corrosion-resistant finish
Material	AISI 304 stainless steel inner chamber and outer body
Chamber capacity	Minimum 10–20 litres
UV light source	UV-C germicidal lamp, 254 nm wavelength
Number of UV lamps	Minimum 1–2 UV-C lamps
UV lamp power	Minimum 8–15 W per lamp
Chamber design	Reflective stainless steel interior for uniform UV exposure
Door	Front-opening UV-resistant transparent door with magnetic closure
Safety feature	Automatic UV lamp cut-off when door is opened
Timer	Adjustable timer from 0–60 minutes or continuous mode
Control panel	Digital or electromechanical timer with power and UV indicator lamps
Instrument tray	Removable stainless steel perforated tray
Power supply	220–240 V AC, 50 Hz
Power consumption	Maximum 40 W
Operation	Continuous duty suitable for dental clinics and hospitals
UV intensity	Adequate germicidal intensity for effective surface disinfection
Sterilization compatibility	For UV disinfection and storage only; instruments must be autoclaved before storage
Cleaning	Easy-to-clean stainless steel interior and removable tray
Compliance	BIS/CE compliant electrical and safety standards
Warranty	Minimum 1 year comprehensive warranty

Technical specification: Apex Locator

Parameter	Specification
Item	Apex Locator
Application	Electronic determination of root canal working length during endodontic treatment
Type	Digital electronic apex locator
Display	High-resolution LCD/OLED color display
Measurement method	Multi-frequency impedance measurement technology
Measurement accuracy	±0.5 mm or better
Detection range	From canal orifice to apical foramen
Measurement indication	Real-time graphical and numerical display of file position
Apical indication	Clear visual and audible indication of apical constriction and apex
Calibration	Automatic self-calibration
Response time	Real-time continuous measurement
Operating modes	Dry, wet, and blood-filled canal compatibility
File compatibility	Compatible with stainless steel and NITI endodontic files
Accessories	File clip, lip hook, measuring probe, test cable, charger, and carrying case
Power source	Rechargeable lithium-ion battery
Battery backup	Minimum 6-8 hours continuous operation
Charging	USB or dedicated charging adapter
Safety features	Auto power-off, low battery indication, and overvoltage protection
Portability	Lightweight portable unit suitable for chairside use
Sterilization compatibility	Autoclavable file clip and lip hook at 121-134°C
Infection control	Detachable autoclavable patient-contact accessories
Standards	ISO 13485, IEC 60601-1, CE marked, and BIS compliant where applicable
Warranty	Minimum 1 year comprehensive warranty

Technical specification: UV Light Cure Gun Dental LED Light Curing Unit

Parameter	Specification
Item	UV Light Cure Gun (Dental LED Light Curing Unit)
Application	Polymerization of light-cured dental composite resins, bonding agents, sealants, and restorative materials
Type	Cordless LED light curing unit
Light source	High-intensity blue LED
Wavelength range	420–480 nm
Light intensity	Minimum 1000–2000 mW/cm ²
Curing modes	Full power, ramp, pulse, and soft-start modes
Timer settings	5, 10, 15, 20, and 40 seconds minimum
Display	Digital LCD/OLED display
Guide tip	360° rotatable fiber optic or high-transmission light guide
Tip diameter	Approximately 8–10 mm
Power source	Rechargeable lithium-ion battery
Battery backup	Minimum 300 curing cycles per full charge
Charging	Charging base with AC adapter
Auto shut-off	Automatic power-off after inactivity
Heat control	Low heat generation with thermal protection
Operation	Single-button or touch control with audible indication
Sterilization compatibility	Autoclavable light guide tip at 121–134°C
Infection control	Removable light guide and disposable protective sleeves
Construction	Lightweight ergonomic handpiece with anti-slip grip
Standards	ISO 13485, IEC 60601-1, CE marked, and BIS compliant where applicable
Accessories	Handpiece, light guide tip, charging base, power adapter, protective shield, disposable sleeves, and user manual
Warranty	Minimum 1 year comprehensive warranty

Technical specification: Micromotor with Contra Angle Handpiece

Parameter	Specification
Item	Micromotor with Contra Angle Handpiece
Application	For operative dentistry, endodontics, prophylaxis, polishing, and general dental procedures
Type	Electric dental micromotor with contra angle handpiece
Motor type	Brushless DC electric micromotor
Speed range	1,000–40,000 rpm minimum
Speed control	Variable electronic speed control with forward and reverse rotation
Torque	Minimum 2.5 Ncm or higher
Display	Digital LCD/OLED display for speed and direction
Handpiece type	1:1 straight handpiece and 1:1 contra angle handpiece
Contra angle ratio	Standard 1:1 gear ratio
Bur compatibility	ISO standard latch-type (RA) burs
Chuck type	Push-button chuck mechanism
Head size	Standard or mini head with smooth operation
Cooling	Air-cooled motor system
Noise level	Low noise and low vibration operation
Control system	Foot control and hand control operation
Power supply	220–240 V AC, 50 Hz
Power output	Minimum 50 W
Sterilization compatibility	Contra angle handpiece autoclavable at 121–134°C
Infection control	Detachable autoclavable handpiece components
Construction	Lightweight ergonomic design with corrosion-resistant finish
Safety features	Overload protection, motor stall protection, overheat protection, and automatic shut-off
Accessories	Micromotor control unit, motor handpiece, contra angle handpiece, foot pedal, power adapter, lubrication accessories, and user manual
Standards	ISO 13485, IEC 60601-1, CE marked, and BIS compliant where applicable
Warranty	Minimum 1 year comprehensive warranty

Technical specification: Dental cautery machine

(Dental Electrosurgery Unit)

Parameter	Specification
Item	Dental Cautery Machine (Dental Electrosurgery Unit)
Application	Soft tissue cutting, coagulation, gingivectomy, frenectomy, crown lengthening, and oral surgical procedures
Type	High-frequency dental electrosurgical cautery unit
Output modes	Cutting, coagulation, blend, and fulguration
Operating frequency	Approximately 1.5–4.0 MHz
Output power	Adjustable from 5–50 W minimum
Power adjustment	Continuous variable electronic power control
Display	Digital LED/LCD display for power setting and mode selection
Handpiece	Lightweight insulated electrosurgical handpiece
Electrodes	Interchangeable electrodes including loop, needle, ball, and knife electrodes
Foot control	Foot-operated activation pedal
Power supply	220–240 V AC, 50 Hz
Safety features	Patient isolation, overcurrent protection, overheat protection, and automatic output monitoring
Audible indicators	Activation tone and power status indicators
Cooling	Internal cooling system for continuous operation
Sterilization compatibility	Autoclavable handpiece and electrode accessories where applicable
Infection control	Detachable and sterilizable patient-contact components
Construction	Compact table-top unit with corrosion-resistant housing
Accessories	Electrosurgical handpiece, foot switch, electrode holder, assorted electrodes, power cable, and user manual
Standards	ISO 13485, IEC 60601-1, IEC 60601-2-2, CE marked, and BIS compliant where applicable
Warranty	Minimum 1 year comprehensive warranty

Technical specification: I.V. Stand with SS Rod & Castors

Parameter	Specification
Item	I.V. Stand with SS Rod & Castor's
Application	For holding intravenous fluid bottles, infusion bags, and transfusion sets in hospital wards, operation theatres, ICUs, and emergency areas
Type	Mobile floor-standing intravenous stand
Rod material	Stainless steel (SS 304 grade preferred)
Rod construction	Telescopic height-adjustable stainless steel rod
Height adjustment	Approximately 1200-2100 mm
Locking mechanism	Screw knob or cam-lock mechanism for secure height adjustment
Hooks	Minimum 4 stainless steel hooks at the top
Hook design	Smooth rounded hooks suitable for IV bottles and infusion bags
Base material	Heavy-duty stainless steel or epoxy-coated mild steel base
Base design	Five-leg (pentagonal) stable base
Castors	Five swivel castors
Castor size	Minimum 50 mm diameter
Castor material	Non-marking synthetic or nylon castors
Mobility	Smooth movement with 360° swivel action
Stability	Anti-tip design with low center of gravity
Surface finish	Satin/mirror finish with corrosion-resistant polish
Load capacity	Minimum 8-10 kg
Corrosion resistance	Resistant to rust, pitting, staining, and hospital disinfectants
Sterilization / cleaning	Easy-to-clean smooth surfaces compatible with hospital disinfectants
Standards	ISO 13485 and BIS compliant where applicable
Warranty	Minimum 1 year against manufacturing defects

Technical specification: Attendance Stool SS

Parameter	Specification
Item	Attendance Stool (Stainless Steel)
Application	Seating for doctors, nurses, technicians, attendants, and support staff in hospitals, clinics, laboratories, and operation theatres
Type	Stainless steel attendance stool
Frame material	Stainless steel
Steel grade	AISI 304 stainless steel
Construction	Heavy-duty welded tubular frame with reinforced support
Seat material	Stainless steel top with smooth polished finish
Seat diameter	Approximately 300–350 mm
Seat height	Approximately 450–500 mm
Frame design	Four-leg stable design with circular footrest support ring
Footrest	Integrated circular stainless steel footrest ring
Load capacity	Minimum 120 kg
Surface finish	Satin/mirror finish with corrosion-resistant polish
Edges	Smooth rounded edges for safety
Stability	Anti-skid rubber or PVC leg shoes
Corrosion resistance	Resistant to rust, pitting, staining, and hospital disinfectants
Cleaning	Easy-to-clean seamless stainless steel surfaces
Reusability	Suitable for long-term hospital use
Standards	ISO 13485 and BIS compliant where applicable
Warranty	Minimum 1 year against manufacturing defects

Technical specification: Adult digital weight machine

Parameter	Specification
Item	Adult digital weight machine (electronic patient weighing scale)
Application	Measurement of body weight of adult patients in hospitals, PHCs, CHCs, OPDs, and clinics
Type	Electronic digital platform weighing scale
Weighing capacity	Minimum 200 kg
Minimum weight	Not more than 2 kg
Graduation / readability	100 g (0.1 kg) or better
Accuracy	± 100 g or better across the weighing range
Display	Large backlit LCD/LED digital display with minimum 20 mm digit height
Platform size	Minimum 350 mm $\times$ 300 mm
Platform material	Heavy-duty ABS / mild steel with anti-skid surface
Load sensing	Minimum four high-precision load cells
Functions	Auto zero, auto calibration, tare, hold, overload indication, low battery indication, and auto power-off
Power supply	Rechargeable battery with AC mains adaptor
Battery backup	Minimum 40 hours of continuous operation
Construction	Robust, corrosion-resistant body suitable for hospital use
Safety	Non-slip platform with stable base suitable for elderly and pregnant patients
Operating temperature	10°C to 40°C
Calibration	Factory calibrated with provision for periodic calibration
Compliance	Legal Metrology approved model; CE / ISO 13485 certified manufacturer
Accessories	AC adaptor, rechargeable battery, user manual, calibration certificate
Warranty	Minimum 3 years comprehensive warranty

TECHNICAL SPECIFICATIONS " Defibrillator with Monitor "

TECHNICAL SPECIFICATIONS " Defibrillator with Monitor "		
GMDN name		Automated external defibrillators
GMDN code		CT 269
1	Clinical purpose	To detect cardiac arrhythmias in a sudden cardiac arrest patient, and then audibly/visually instructs an operator to enable it to activate defibrillation of the heart through application of electrical shocks to the chest surface.
2	Used by clinical department/ward	Emergency/ICU/Cardiac care
3	Technical characteristics (specific to this type of device)	
1) A portable electronic device designed to automatically detect cardiac arrhythmias (ventricular fibrillation/pulseless ventricular tachycardia) in a sudden cardiac arrest (SCA) patient, after which it audibly/visually instructs an operator to enable it to activate defibrillation of the heart through application of electrical shocks to the chest surface. The device is intended to be operated by healthcare professionals (e.g., paramedics, medical staff) in healthcare settings. It consists of an external pulse generator (EPG) and a pair of skin-adhesive electrodes to monitor the rhythm and deliver the shocks; it also includes internal rechargeable batteries that must be charged when not in use. 2) Unit should be lightweight compact and portable. 3) Unit should have facility for Automatic External Defibrillation and manual defibrillation. 4) Should be able to deliver shock from 50-200 joules in biphasic mode via metal chest pads. 5) Should having design protection to avoid passage of current to the user. 6) The whole system should have an inbuilt recorder, TELEMETRY NOT RECOMMENDED. 7) Monitor :- A. Display - monitor should have high resolution (320 x 240 pixels) color TFT display 5" or more in size. B. Should display selected energy & delivered energy. C. Sweep speed - 25mm/Sec D. Sensitivity / Amplitude Size - 0.5, 1 & 2 E. Frequency response - 0.5 Hz - 4 Hz F. Heart Rate Indicator- 0 - 300 BPM G. High / Low Alarm with indicator & adjustable bopper. H. Monitor should display at least two waves forms channel. I. ECG Should be also available through paddles. J. Audio-visual indication should be there for R wave's detection.		

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TECHNICAL SPECIFICATIONS " Defibrillator with Monitor "

GMDN name		Automated external defibrillators
GMDN code		CT 269
4	Setting User's Interface	Manual & Automatic. The monitor should have a TFT color display with a three channel display.
5	Software	Inbuilt.
6	Dimensions (metric)	Compact
7	Weight (lbs, kg)	< 10 kg
8	Configuration	Compact
9	Noise (in dBA)	< 80dBA; adjustable heart rate alarm as well as paddles & ECG cable disconnection alarms.
10	Heat dissipation	
11	Mobility, portability	Yes.
12	Power Requirements	220 to 240V, 50 Hz.
13	Battery operated	Rechargeable battery backup of approximately 5 hours.
14	Tolerance (to variations, shutdowns)	± 10% of input AC.
15	Protection	Electrical protection by resettable overcurrent breakers or replaceable fuses fitted in both live and neutral lines.
16	Power consumption	Should not be more than 160 W.
17	Accessories (mandatory)	Chest Paddles ECG cable, Recording paper rolls, Disposable pads.
18	Atmosphere / Ambiance (air conditioning, humidity, dust)	Capable of being stored continuously in ambient temperature of 0 to 50°C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40°C and relative humidity of 15 to 90%.
18	Certificates	CE OR US FDA approved product. Manufacturer should have ISO certificate for quality standard. Certificate of Calibration and inspection from the factory.
20	Pre-installation requirements: nature, values, quality, tolerance	Supplier to perform installation, safety and operation checks before handover.

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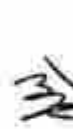
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3 TECHNICAL SPECIFICATIONS " Defibrillator with Monitor "

GMDN name		Automated external defibrillators
GMDN code		CT 269
21	Training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided
22	Warranty	Three year with free servicing (min.03/year) during warranty & provide technical support and required spares and consumable for 7 yrs after warranty period.
23	Operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English, Marathi language. List to be provided of equipment and procedures required for local calibration and routine maintenance.
24	Recommendations or warnings	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
Specification Done by :		Technical Specification Committee established, as per Govt of Maharashtra, Public Health Department G.R. Dated 11 March 2016
End user Specialist Meeting Date :		07/09/2017
Panel Specialist Meeting Date :		10/9/2017


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Specification of Binocular Microscope

Sr. No.	Technical specifications
1	Microscope should have colour corrected infinity Optical system.
2	Ergonomic Binocular Eyepiece tube siedentopf type 30 degree inclined.
3	Ergonomic Binocular Eyepiece should be 360 degree rotatable with interpapillary distance of 48 mm to 75 mm
4	Wide field plan should be 5X for all numbers & additional 10X is required for all numbers.
5	Field of view number for 5X is 14 & for 10X should be 18.
6	Dioptric adjustment should be on binocular head.
7	Reversed Qmdrupe nosepiece.
8	Colour corrected infinity system should be plan Achromat.
9	Nose peace should be Quadruple.
10	The standard 4x, 10x, 40x & 100x III Plan Objectives should be supplied.
11	The Microscope stand should have coaxial fine and Coarse focusing mechanism with tension adjustable.
12	The mechanical stage dimension should be for travel range 75 mm X 50 mm with hard coated surface of 142 mm X133 mm & it should be double plate moving on ball bearings.
13	The mechanical stage should resistant against routine usage abrasion and most lab chemicals
14	The Abbe Condenser should be fixed & Lockable with 1.25 Numerical Aperture with Iris diaphragm and slot slider for phase / Dark field.
15	The bases unit should have 45 mm diameter Blue Filter.
16	The microscope illumination should be working on LED (3watts) illumination with intensity control.
17	The microscope should be work on universal power supply 220v-240v, 50Hz.
18	The microscope should be supplied with the power cord and Dust cover.
19	The Microscope should be up gradable to light emitting diode (LED) fluorescence system with at least one filter.
20	The microscope should be supplied with LED light with one more extra LED as spare.

Sr. No.	Technical specifications
21	Microscope should be either ISI marked to Is:4381:1967 or CE marked from notified body.
22	Environmental Factors:- Packing & Packaging should be as per procedures in IS-5204-1969 with latest amendments.
23	Warranty & Preventive Maintenance: 1. Comprehensive warranty including preventive maintenance of three years from the date of supply. The comprehensive warranty must include replacement of lens also if needed. The bidder must also enter into an agreement with the buyer for providing an annual maintenance contract for a further period of five years. For any malfunction, the supplier shall replace the parts or repair the same at the user site free of cost within 15 days of the receipt of the complaints. During warranty period all services/ replacement ensuring smooth functioning of the Microscopes must be done free of cost by the supplier.

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Technical specification: Blood bag weighing machine / blood collection monitor

Parameter	Specification
Item	Blood Bag Weighing Machine / Blood Collection Monitor
Type	Microprocessor controlled blood collection monitor with weighing and mixing mechanism
Application	Accurate blood collection, continuous weighing, mixing of blood with anticoagulant, and automatic termination of collection
Weighing capacity	Minimum 0–1200 mL (or equivalent weight capacity up to 1200 g)
Volume setting range	1–999 mL, programmable
Preset collection volumes	350 mL and 450 mL standard presets with user programmable settings
Measurement accuracy	$\pm 1\%$ of programmed volume or better
Display accuracy	1 mL
Weighing sensor	High precision electronic load cell
Display	Large backlit LCD / LED display showing set volume, collected volume, weight, flow rate, collection time, and operating status
Mixing mechanism	Motor driven oscillating blood bag tray
Mixing speed	Adjustable, typically 10–50 RPM
Oscillation frequency	Approximately 12–32 cycles/min
Oscillation angle	Approximately $13^\circ \pm 2^\circ$
Auto tare	Automatic zeroing of blood bag weight before collection
Calibration	Automatic and manual calibration facility
Tube clamping	Automatic tube clamping at completion of preset volume with manual override facility
Pause function	Available with retention of programmed volume and collection data
Flow monitoring	Continuous monitoring of blood flow rate
Low / high flow alarm	Adjustable audio-visual alarm for abnormal flow conditions
End of collection alarm	Audio-visual alarm with automatic stoppage of mixing
Battery backup	Minimum 8–10 hours; preferably up to 24–50 hours
Battery type	Rechargeable maintenance-free battery
Power supply	220–240 V AC, 50 Hz
Power consumption	Maximum 40 W
Tray	Non-slip removable blood bag tray compatible with standard blood

Parameter	Specification
	bags
Collection time display	Continuous display during collection and final display after completion
Data retention	Storage of previous set volume and last collection parameters
Communication port	RS-232 / USB or equivalent data interface (preferred)
Dimensions	Compact tabletop design (approximately 250-300 mm width)
Weight	Approximately 4.5-5.5 kg
Operating temperature	0°C to 50°C
Relative humidity	Up to 95% non-condensing
Safety features	Overload protection, battery low indication, automatic stop on bag removal, and fault indication
Standards	IEC 60601-1 and IEC 60601-1-2 compliance; CE and/or ISO certification preferred
Accessories	Power cord, rechargeable battery, calibration weight, user manual, and carrying case (preferred)
Warranty	Minimum 2 years comprehensive warranty

Technical specification: X-ray protective collar / thyroid shield

Parameter	Specification
Item	X-Ray Protective Collar / Thyroid Shield
Application	Radiation protection of the thyroid gland during diagnostic X-ray, fluoroscopy, CT, and interventional radiology procedures
Type	Wrap-around thyroid shield with adjustable closure
Lead equivalence	Minimum 0.50 mm Pb equivalent
Protective material	Lead-free, lightweight composite radiation shielding material or lead composite with equivalent attenuation
Radiation attenuation	Complying with IEC / ASTM standards for diagnostic X-ray protection
Outer covering	Medical-grade polyurethane (PU), nylon-coated fabric, or vinyl-coated fabric
Inner lining	Soft, sweat-resistant, and skin-friendly fabric
Closure system	Adjustable Velcro hook-and-loop fastening
Design	Ergonomic contoured wrap-around design providing full anterior and lateral thyroid coverage
Size	Universal adult size; neck circumference adjustable approximately 30-50 cm
Weight	Lightweight design, preferably less than 0.8 kg
Flexibility	Flexible construction allowing comfortable movement during procedures
Seam construction	Double-stitched reinforced seams for durability
Edge finish	Smooth rounded edges to prevent discomfort
Cleaning	Wipe-clean surface compatible with hospital disinfectants
Crack resistance	Shielding material should resist cracking, creasing, and delamination during normal use
Hanging provision	Integrated loop or hanger for proper storage
Identification	Permanent marking indicating lead equivalence, manufacturer, model, and serial number
Quality assurance	Each shield should be tested for radiation attenuation and free from defects
Standards	IEC 61331-1 / IEC 61331-3 or equivalent international standard; CE and ISO 13485 certification preferred
Warranty	Minimum 2 years against manufacturing defects and shielding material failure

Technical specification: X-ray protective cap

Parameter	Specification
Item	X-Ray Protective Cap
Application	Radiation protection of the head and scalp during diagnostic X-ray, fluoroscopy, interventional radiology, and cath lab procedures
Type	Full head protective radiation cap
Lead equivalence	Minimum 0.35 mm Pb equivalent
Protective material	Lead-free lightweight composite shielding material or lead composite with equivalent attenuation
Radiation attenuation	Complying with IEC / ASTM standards for diagnostic radiation protection
Coverage	Crown, frontal, temporal, and parietal regions of the head
Outer material	Medical-grade polyurethane (PU), nylon-coated fabric, or vinyl-coated fabric
Inner lining	Soft, breathable, sweat-resistant, and skin-friendly fabric
Design	Ergonomic lightweight design with uniform radiation shielding distribution
Size	Universal adult size with adjustable fitting mechanism
Adjustment	Adjustable Velcro strap, buckle, or elastic fitting system
Weight	Preferably less than 1.2 kg
Flexibility	Flexible and comfortable for prolonged clinical use
Seam construction	Double-stitched reinforced seams for durability
Edge finish	Smooth rounded edges to prevent discomfort
Cleaning	Wipe-clean surface compatible with hospital disinfectants
Crack resistance	Shielding material should resist cracking, creasing, and delamination during normal use
Storage	Suitable for hanging or flat storage without damage to shielding material
Identification	Permanent marking indicating lead equivalence, manufacturer, model, and serial number
Quality assurance	Each cap should be tested for radiation attenuation uniformity and free from shielding defects
Standards	IEC 61331-1 / IEC 61331-3 or equivalent international standards; CE and ISO 13485 certification preferred
Warranty	Minimum 2 years against manufacturing defects and shielding material failure

Technical specification: Oxygen conversion unit double meter

Parameter	Specification
Item	Oxygen Conversion Unit Double Meter (Double Flowmeter Oxygen Regulator Unit)
Application	Simultaneous delivery of oxygen to two patients or two oxygen devices from a single oxygen source.
Type	Double outlet oxygen flowmeter with integrated pressure regulator and humidifier compatibility.
Gas type	Medical oxygen.
Flowmeter configuration	Two independent flowmeters with separate control valves.
Flow range	0–15 LPM minimum for each flowmeter.
Flow control	Individual precision needle valve for each outlet.
Flow indication	Transparent graduated flow tubes with floating ball indicator.
Graduation accuracy	Clearly marked increments with accuracy of $\pm 5\%$ or better.
Pressure regulator	Integrated oxygen pressure regulator with cylinder pressure reduction.
Inlet pressure	Suitable for oxygen cylinder pressure up to 150–200 bar.
Outlet pressure	Approximately 4–5 bar regulated pressure.
Pressure gauge	One high-pressure gauge indicating cylinder pressure.
Gauge size	Minimum 50 mm diameter.
Humidifier compatibility	Both outlets compatible with standard oxygen humidifier bottles.
Outlet connectors	Standard oxygen hose connector / DISS / BS / compatible hospital oxygen outlet fittings.
Body material	Chrome-plated brass or anodized aluminum with corrosion-resistant finish.
Flow tube material	Transparent impact-resistant polycarbonate or equivalent.
Safety features	Pressure relief valve and leak-resistant sealing system.
Leakage	Negligible leakage under normal operating pressure.
Mounting	Suitable for oxygen cylinder mounting or wall-mounted oxygen outlet use (as applicable).
Operating temperature	10°C to 40°C minimum.
Standards	CE / ISO compliant medical oxygen flowmeter and regulator system.
Accessories	Oxygen regulator, double flowmeter assembly, pressure gauge, outlet connectors, washers/seals, and user manual.
Warranty	Minimum 2 years comprehensive warranty.

Technical specification: Labour Table (Obstetric delivery table)

Parameter	Specification
Item	Labour Table (Obstetric Delivery Table)
Application	For conducting normal vaginal deliveries, obstetric examinations, and minor Gynecological procedures
Type	Manual / mechanical obstetric labour table with adjustable sections
Construction	Heavy duty mild steel (MS) frame with epoxy powder coated finish or SS
Tabletop sections	Minimum three sections (back section, seat section, and leg section)
Overall dimensions	Approx. length 1800-1900 mm; width 600-700 mm; height 750-850 mm
Height	Fixed or adjustable within the specified range
Backrest adjustment	Adjustable from 0° to at least 70° by screw mechanism or gas spring
Trendelenburg	If provided, minimum $\pm 10^\circ$
Leg section	Detachable, sliding, or foldable for delivery position
Mattress	High-density foam mattress, minimum 50 mm thick, waterproof, seamless, and washable
Upholstery	Antibacterial, stain-resistant, and easy-to-clean synthetic cover
Lithotomy poles	Pair of adjustable SS lithotomy crutches with padded supports
Hand grips	Pair of SS hand grips for patient support during delivery
Foot support	Adjustable footrests / heel supports where applicable
Side rails	Pair of SS side rails, foldable type
Collection tray	Removable stainless steel bowl / tray for collection of fluids
Drainage arrangement	Provision for drainage and easy cleaning
Mobility	Four heavy-duty castor wheels, minimum 100 mm diameter
Wheel locking	At least two wheels with brakes
Load capacity	Minimum 150 kg safe working load
Finish	Smooth, corrosion-resistant, hospital grade finish
Accessories	Pair of lithotomy crutches, pair of hand grips, SS tray, waterproof mattress
Safety features	Stable base, rounded corners, secure locking mechanisms, anti-slip supports
Cleaning	Compatible with standard hospital disinfectants
Standards	CE / ISO certified manufacturer, product compliant with applicable medical device and hospital furniture standards
Warranty	Minimum 2 years comprehensive warranty
Installation	Supply, installation, testing, and demonstration at site
Documentation	User manual, warranty certificate, and service support details

Technical Specification of Two Body Mortuary Cabinet

Sr. No.	Specification
1	Length or Depth (mm) : 2400 mm
2	Width (mm) : 800 mm
3	Height (mm) : 1600 mm
4	Height with cooling unit and PCC platform (mm) : 2000 or compact size
5	Refrigeration system : Unitary type - RTU type -06, 15I marked, Hermetically sealed CFC free compressor & forced air circulation. Refrigerant Used - R134a.
6	Temp. Range : 2 ^o to 8 ^o C.
7	Power Supply : 230 +/- 10 % / Single phase / 50 hr.
8	Height of cooling unit above mortuary cabinet : 400 mm or compact size
9	Material & Insulation : Fornt finish in stainless steel (SS type 314 grade with 24 gauge) and Antirust prepainted coating on high quality Stainless steel material with sandwiched polyurethane foam 75 mm thickness.
10	Doors : Hinged doors with locking facility and also provide slot for label on door
11	Vapor proof incandescent lamp in each cabinet.
12	Electronic temperature indicator (for Cabinet temp.) cum controller with display. One more temperature indicator for room temp. (Surrounding area) Display & Control panel must be on Top-front.
13	One piece stainless steel tray (SS type 314 grade with 16 gauge). Telescopic with Three piece carriage assembly with smooth sliding polymer wheel on rust proof track and auto lock arrangement.
14	Cadaver Tray in each cabinet must be of rust proof stainless steel with rounded edges & handles.
15	In built one spare refrigeration system.
16	Should provide Internal Drainage with locking system.
17	AMC and warranty as per norms.
18	Two sets of module and catalogue.
19	System compatible UPS must provide Power backup of minimum 4 hrs for refrigeration system.
20	It should be CE or USFDA Approved.

Special Note :- All the units must be supplied in dismantled state & all parts, panels, frames and cooling unit must assembled at the exact site of installation.

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Sr. BME, RVH, AGR

Hernia instrument set (open hernia surgery set) – technical specification

Parameter	Specification
Item	Hernia instrument set (open hernia surgery set)
Application	Open inguinal, femoral, ventral, and incisional hernia repair surgeries
Material	High-quality stainless steel, AISI 410/420 or equivalent surgical grade
Finish	Matt/satin finish to reduce glare under OT lights
Sterilization compatibility	Autoclave sterilizable at 121–134°C
Corrosion resistance	Rust-proof and corrosion-resistant
Compliance	CE/FDA/BIS compliant where applicable

Standard instrument composition

Instrument	Qty.
Scalpel handle No. 3	1
Scalpel handle No. 4	1
Mayo scissors straight 6–7 in	1
Mayo scissors curved 6–7 in	1
Metzenbaum scissors curved 7 in	1
Artery forceps straight 6 in	6
Artery forceps curved 6 in	6
Mosquito forceps curved 5 in	4
Kocher forceps straight 6 in	4
Allis tissue forceps 6 in	4
Babcock tissue forceps 6–8 in	4
Lane tissue forceps 6 in	2
Toothed dissecting forceps 5–6 in	2
Plain dissecting forceps 5–6 in	2
Needle holder Mayo-Hegar 6–7 in	2
Langenbeck retractors (small/medium)	2
Czerny double-ended retractors	2
Morris retractors	2
Self-retaining retractor (Weitlaner)	1
Skin hooks	2
Sponge holding forceps 9–10 in	2
Towel clips Backhaus	4
Sinus forceps	1
Director with tongue tie	1
Stainless steel instrument tray with lid	1

Technical Specification of Bed Side Locker

1	Overall Size :-	405mm(L) X 405mm(W) X 820mm(H) Height from Ground level to top
2	Top & Frame, legs :-	a) Top S.S. sheet 185WG, with raised edges upto 25mm, at three side, double bend on front side. b) Top must be fitted to the frame. c) Frame S.S. tubular 25mm x 25mm, 185WG. d) Four legs S.S. tubular 25mm x 25mm, 185WG, at the bottom nylon shoes.
3	Locker :-	a) Five Side of locker should be covered by S.S. Sheet 20SWG, three side must be machine pressed by single S.S. Sheet. Fitted internally on vertical legs. b) Door — S.S. sheet 20SWG, double bended, having 100mm "D" Shape S.S. handle must be welded & have hinges to freely open with magnetic lock. c) "Govt. of Maharashtra Public Health Dept & Mfg date" must be bussed at visible sight, must be easily readable
4	Finish :-	a) All S.S. should be deep fully argon seamless welded and polished finished. b) Tow section tops should be smooth edges and burr free and corners should be round off so that there should be no sharp corners.
5	General Requirements:-	a) All stainless steel sheet & stainless steel tubes/pipes used in manufacturing shall be of 304 S2 grade conforming to IS 6911 of 1992 or latest. b) All dimensions will be considered — Length, Width, Height in millimeter(mm), thickness in gauge (SWG — Standard Wide Gauge). c) The bed side locker must be sturdy, vibration free and self balance. d) The bed side locker shall be properly constructed with all welded joints grounded, cleaned and well-formed. Unless otherwise specified, the vertical members shall be perpendiculars to the wheel base and parallel to each other and the horizontal members shall be at right angles to the vertical members. e) The bed side locker shall stand on all the legs at the same time on a level surface. All the surfaces shall be smooth and free from pitting. Welding shall fully penetrate and shall be sound in every detail and it shall be finished flush. In the finished stage, there shall be no exposed sharp edges in the frame-work or other unsealed formations which may harbor dirt or foreign matter. f) The sketch shown in the specification is only indicative for the bidder. g) Tender committee has reserved rights to change dimensions & sketch at any stage of tender

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Technical specification – transport patient monitor

Parameter	Technical specification
Type	Portable multi-parameter transport patient monitor suitable for adult, pediatric, and neonatal
Display	Minimum 12.1-inch color TFT LCD display with high brightness and wide viewing angle
Screen resolution	Minimum 800 × 600 pixels
Waveform display	Minimum 8 waveforms simultaneously
Parameters displayed	ECG, HR, RESp, SpO ₂ , NIBP, TEMP (2 channels), PR, and optional IBP, EtCO ₂
ECG	3-lead/5-lead monitoring with arrhythmia analysis and ST segment analysis
Heart rate range	15–300 bpm or better
Respiration	Impedance respiration with apnea detection
Respiration range	0–150 breaths/min
SpO ₂	Motion-tolerant SpO ₂ technology with perfusion indication
SpO ₂ range	0–100%
NIBP modes	Manual, Auto, and STAT modes
NIBP measurement	Systolic, Diastolic, Mean pressure; adult, pediatric, and neonatal modes
Temperature	Dual-channel temperature monitoring
Temperature range	25–45°C or better
Optional parameters	2-channel IBP, sidestream/mainstream EtCO ₂ , dual IBP, cardiac output (optional)
Alarm system	Audio-visual alarms with user-adjustable high and low limits for all monitored parameters
Alarm priority	Minimum 3-level alarm priority (high, medium, low)
Trends	Graphical and tabular trends for at least 120 hours
Event storage	Minimum 1000 alarm events, 1000 NIBP records, and waveform/event review
Battery	Rechargeable lithium-ion battery with minimum 4 hours operating time
Charging	Automatic charging when connected to AC power
Power supply	100–240 V AC, 50/60 Hz with built-in power adapter
Portability	Compact, lightweight design with integrated carrying handle
Weight	Preferably <4.5 kg including battery
Protection	Suitable for transport use with shock-resistant construction and minimum IPX1/IPX2 protection
Connectivity	USB port, Ethernet/LAN, nurse call interface, and central monitoring connectivity
Data export	USB memory export and patient data transfer capability
User interface	Touchscreen and/or rotary knob operation with multilingual interface
Operating modes	Bedside, transport, and ambulance-compatible operation
Standards	IEC 60601-1, IEC 60601-1-2, IEC 60601-2-27, IEC 60601-2-30, IEC 60601-2-49 compliant
Regulatory approval	CE certified and U.S. FDA approved or BIS/Indian regulatory compliance where applicable
Accessories	ECG cable (3/5 lead), reusable SpO ₂ sensor (adult), NIBP hose and cuffs (adult, pediatric, neonatal), temperature probes, rechargeable battery, power cord, user manual
Warranty	Minimum 3 years comprehensive warranty with preventive maintenance support

Technical specification – infantometer

Parameter	Technical specification
Type	Infantometer for measuring recumbent length of infants and young children
Construction	Rigid, durable, lightweight, and portable design
Material	High-quality ABS plastic, acrylic, aluminum, or laminated wooden board with smooth finish
Measuring range	Minimum 10 cm to 100 cm
Graduation	1 mm (0.1 cm) graduation
Accuracy	± 1 mm or better
Scale	Clearly engraved or printed metric scale in centimeters and millimeters
Headpiece	Fixed headpiece positioned at a right angle (90°) to the measuring surface
Footpiece	Smooth sliding footpiece that moves freely and locks securely for accurate measurement
Measuring surface	Flat, smooth, and easy to clean
Reading	Easy-to-read scale with clear pointer or indicator on sliding footpiece
Dimensions	Approximate overall length 100–110 cm
Weight	Preferably ≤ 3 kg
Portability	Easy to carry and suitable for field and hospital use
Cleaning	Compatible with routine hospital disinfectants and cleaning agents
Safety	Rounded edges and non-toxic, child-safe materials
Calibration	Factory calibrated with provision for periodic verification
Standards	Conforming to WHO/UNICEF recommendations for infant anthropometric measurement
Accessories	User manual and calibration certificate
Warranty	Minimum 1 year warranty against manufacturing defects

119

SPECIFICATIONS FOR DENTAL CHAIR UNIT AND DENTAL UNIT AND ALL ACCESSORIES & ATTACHMENTS

- Body contoured electrically operated dental chair unit, having up/down, back/front movement with linear actuators having 'feather' touch controls (doctor's tray, foot control, and assistant side) and manually operated switches (at the side of patient's backrest for up/down, back/front). Switches for tumbler and spittoon (Doctor's tray as well as assistant side).
- Shockproof gargle and also control by foot for chair movement with synchronized movements. Microprocessor control with safety systems.
- Chair can be tilted for head low (trendelenberg) position (Pre-programmed trendelenberg and zero position).
- Moulded cushion, laminated artificial leather upholstery with smooth euro moulded
- Wide doctor's tray with removable stainless steel tray.
- Right arm should have rotation/collapsible for easy access for patient.
- Chair side ceramic spittoon and tumbler, time controlled with bio system.

Operating light- dual control sensor and electronic switch, variable intensity control while LED Light with 15000-25000 lux. Switches should be at foot control, doctor's tray and touch free sensor at the light.

- Chair mount modular delivery system with straight tubing for two injector connection, one micro motor connection, one scaler point, three way syringe unit at doctor's tray as well as assistant side with hanging below the tray system, chair mounted LED Xray View
- Chair should be rigid and sturdy. It should have pneumatic doctor's tray which should be stabilized at any position.
- Chair should be ergonomically designed.
- Pneumatic Doctor's stool with wheels
 - With up and down movement - back rest tilt
 - Stool should be ergonomically designed.
- Motorized high and low suction with auto flushing system, auto drain and auto on/off system.
- Air compressor- 2 HP noiseless, with 50-75 litre capacity, dust and oil free pressure regulator with outlet pressure gauge, pressure indicator with safety valve, outdoor free air, automatic cut off and protective epoxy paint internally to avoid internal corrosion.
- Air Rotor Handpiece- three super torque with ceramic bearing single spray high quality, high torque short head with one spare cartridge for each hand-piece. It should also have quick change coupling, non-retraction valve. Lubricant spray should be provided.

✓
Npar

Effective 11/09/2017
Dr. S. S. S. S.
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- Chair side clinical micro motor- with 30000 RPM, along with electronic speed control, forward/backward rotation and hand and foot control. With one straight and one contra angle hand-piece with one lubricant spray for each handpiece.
- Piezoelectric ultrasonic scaler- hand-piece with two sets of autoclavable titanium tips (3 surface + 3 interdental + 1 endo tip), power selection control.
- Pulp tester- with digital display, preset speed mode (high-mid-low speed)
 - A gentle, pulsed stimulus begins to increase at a rate easy to operate
 - Should have patient comfort, convenient to operate
 - Maximum stimulus- 80
 - Standard battery : 9 volt batteries
- Cordless 5 W LED light cure
 - Battery type rechargeable lithium ion (1400-2500Mah) with charger.
 - Optics parameter, wave length 470nm to 600 luminous intensity >1500mW/cm², 800mW/cm² (3W)
 - Working voltage 100-220V AC, 50-60Hz with timer/ modes
- Apex locator
 - Precision digital apex locator, should ensure great accuracy in wet or dry canal and superior to other apex locators
 - Instant accurate measurement of canal length
 - Automatic Calibration
 - Audible warning system
 - No Zero Adjustment
 - Auto power shut off
 - With reference point for measurement or enlargement and memory.
- Endo motor (rotary root canal instruments) 2 nos.
 - Fits all standard/universal rotary files
 - Variable torque control, variable speed, auto reverse function
 - Programmable memory.
 - Push type ultra-miniature head, on/off switch on hand piece.
 - Two sets of rotary files. (Sx, S1, S2, F1, F2, F3)
- Autoclave
 - Table top front loading autoclave
 - Fully automatic micro-processor control based
 - Temperature select 121°- 134°C
 - Wet and dry cycle
 - Specifications
 - Chamber size : 18-28L
 - Accessories to be provided
 - 4-6 nos. SS Trays, 1 tray stand, tray holder
 - Standard Distillizer Min. 5L Capacity

Niger

Dr. J. M. Nigam

Dr. J. M. Nigam

- Ultra violet cabinet
 - Specifications
 - Body - overall size : 590*206*200mm
 - Small trays : 9
 - Deep trays : 3
 - Magnetic door latch
 - Door actuated switch
 - Mains switch :
 - Ultrasonic cleaner
 - A high quality deep drawn stainless steel vessel housed in high grade elegant fibreglass scuffing
 - Mesh basket made of stainless steel is provided to place instruments for cleaning
 - Specifications: tank capacity: UP TO 12 litres
 - Glass bead sterilizer
 - Micro sized glass beads, temperature selection mode, variable time control from 10sec-5min

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Technical specification – suction machine fitted in the dental chair (medium and high vacuum)

Parameter	Specification
Type	Integrated dental chair suction unit with medium and high vacuum
Configuration	Dual suction system (Saliva Ejector – Medium Vacuum and High Volume Evacuator – High Vacuum)
Vacuum System	Wet line or dry line compatible dental suction system
Medium Vacuum (Saliva Ejector)	Vacuum level: 80–180 mbar (approx.)
High Vacuum (HVE)	Vacuum level: 180–300 mbar (approx.)
Suction Flow Rate	Minimum 250–350 L/min combined flow
Suction Motor	Continuous-duty electric suction motor
Motor Power	0.5–1.0 HP (approximately 370–750 W)
Operating Voltage	220–240 V AC, 50 Hz
Noise Level	≤65 dB during operation
Suction Handpieces	One medium vacuum saliva ejector and one high vacuum suction handpiece
Handpiece Holders	Integrated autoclavable holders with automatic suction activation/deactivation
Tubing	Medical-grade flexible suction tubing resistant to disinfectants
Filters	Removable and cleanable debris filter and solid separator
Separator	Amalgam/debris separator provision or integrated separator system
Collection System	Anti-foaming and anti-backflow design
Control	Automatic or foot-controlled suction activation
Hygiene System	Easy flushing and disinfection facility for suction lines
Anti-Retraction	Non-return valve/anti-suck-back protection to prevent contamination
Chair Integration	Fully compatible with dental chair unit and assistant console
Safety Features	Overload protection, thermal motor protection, and moisture-resistant electrical components
Housing	Corrosion-resistant ABS or powder-coated metal enclosure
Maintenance	Easy access for filter cleaning and routine maintenance
Standards	Should comply with ISO 7494 (Dental units) and IEC 60601-1 electrical safety standards or equivalent
Accessories	Saliva ejector tips, HVE tips, suction tubing set, filters, connectors, and installation accessories

Technical specification – OPG LED X-ray viewer

Parameter	Specification
Type	LED illuminated OPG (Orthopantomogram) X-ray film viewer
Application	Viewing and interpretation of panoramic dental X-ray films (OPG)
Light source	High-intensity LED backlight technology
Viewing area	Minimum 490 × 210 mm (suitable for standard OPG films)
Overall dimensions	Approximately 575 × 260 × 20–25 mm
Brightness	Minimum 7,500 lux, uniformly illuminated
Brightness uniformity	Greater than 90% across the viewing surface
Color temperature	Daylight white LED (approximately 6,000–7,000 K)
Power consumption	Maximum 10–15 W
Power supply	100–240 V AC, 50/60 Hz
Film holding system	Integrated clip or magnetic film holder for panoramic films
Mounting	Wall-mounted and/or tabletop compatible
Front panel	Scratch-resistant opti acrylic viewing screen
Frame	Slim aluminum or powder-coated metal frame
Thickness	Ultra-slim design, not more than 25 mm
LED life	Minimum 100,000 hours
Heat generation	Low heat emission during continuous operation
Switch	Touch switch or membrane switch with instant illumination
Weight	Maximum 3 kg
Safety	Shock-proof insulated power supply with overload protection
Cleaning	Smooth disinfectant-resistant surface for easy cleaning
Standards	Should comply with IEC 60601-1 electrical safety standards or equivalent
Accessories	Power adapter/power cord, wall mounting kit, user manual

Technical specification :- Lumbar & cervical traction machine -

Parameter	Specification
Type	Dual-purpose electronic traction unit for cervical and lumbar traction
Application	Cervical and lumbar spine traction therapy
Traction mode	Continuous, intermittent, and static traction
Traction force (cervical)	Approximately 0-30 kg
Traction force (lumbar)	Approximately 0-90 kg
Force adjustment	Digital or microprocessor-controlled
Display	LCD/LED digital display
Timer range	1-99 minutes
Hold time	1-99 seconds
Rest time	1-99 seconds
Traction pattern	Adjustable hold/rest cycle
Safety features	Emergency stop switch, patient safety switch, overload protection, auto-release after treatment
Control system	Microcontroller-based electronic control
Power supply	220-240 V AC, 50 Hz
Accessories	Cervical halter, lumbar traction belt, spreader bar, patient safety switch, power cord
Construction	Powder-coated metal body with durable traction mechanism
Mobility	Mounted on lockable castor wheels
Noise level	Low-noise operation
Compliance	IEC 60601-1 medical electrical safety standards; CE/ISO certification preferred
Warranty	Minimum 2 years

Short Wave Diathermy Machine – 250 Watt

Parameter	Technical Specification
Equipment	Short Wave Diathermy Machine
Maximum RF Output Power	250 to 500 Watt, Continuous Mode
Operating Frequency	27.12 MHz
Wavelength	Approx. 11 metres
Operating Mode	Continuous, Pulsed mode if provided
Power Control	Adjustable, minimum 5-step intensity control
Treatment Timer	0–30 minutes with automatic shut-off and audible alarm
Tuning Control	Patient/body-load tuning with visual indication
RF Power Source	Solid-state RF generator preferred
Mains Supply	220–240 V AC, 50 Hz, Single Phase
Cooling	Built-in forced-air cooling fan
Display	Digital/LED display for treatment time and operating parameters
Electrodes	Condenser pad electrodes, minimum 1 pair
Electrode Cables	1 pair, suitable for supplied electrodes
Safety	Overload/short-circuit protection, automatic output cut-off and proper RF shielding
Mobility	Trolley/table-mounted with castor wheels, as applicable
Construction	Robust, powder-coated/metal body suitable for hospital use
Accessories	Pair of electrodes with pads/felts/covers, electrode cables, mains cord, spare fuses, dust cover and user manual
Warranty	Minimum 3 year comprehensive warranty
Compliance	Applicable electrical safety and medical-device standards/certifications

Technical Specification :- Shoulder Pulley

Parameter	Technical Specification
Equipment	Shoulder Pulley / Shoulder Exercise Pulley
Purpose	Physiotherapy exercise for shoulder joint ROM and strengthening
Construction	Heavy-duty, durable and corrosion-resistant material
Pulley	Smooth-running, low-friction pulley system
Rope/Cord	Strong, non-stretch, durable nylon/polyester cord
Handles	Ergonomic, non-slip handles, suitable for comfortable grip
Mounting	Wall/door-mounted with secure mounting arrangement
Exercise	Suitable for shoulder flexion, extension, abduction and ROM exercises
Adjustment	Adjustable rope length/handle position
Safety	Secure fixing, smooth operation and rounded edges
Accessories	Pulley, rope, 2 handles, mounting hardware
Finish	Smooth, easy-to-clean finish
Warranty	Minimum 2 year
Intended Use	Hospital, physiotherapy department and rehabilitation centre

Technical Specification:- TENS (Transcutaneous Electrical Nerve Stimulation)

Parameter	Recommended Specification
Type	TENS – Transcutaneous Electrical Nerve Stimulation
Application	Pain relief / physiotherapy
Display	Digital LCD/LED display
Channels	Dual channel, preferably 2 independent channels
Waveform	Biphasic, asymmetrical/symmetrical pulsed waveform
Pulse Frequency	Approximately 1–150 Hz, adjustable
Pulse Width	Approximately 50–400 μ s, adjustable
Intensity	Adjustable independently for each channel
Output	Constant-current, isolated output
Modes	Conventional, Burst and Modulation TENS modes
Timer	Adjustable treatment timer, preferably 1–60 minutes
Electrodes	Reusable/replaceable adhesive electrode pads
Controls	Digital/electronic intensity and parameter controls
Safety	Output protection, overload/short-circuit protection
Power Supply	Rechargeable battery or suitable AC adapter
Accessories	Electrode pads, lead wires, battery/adapter and user manual
Operating Mode	Portable/desktop
Warranty	Minimum 1 year comprehensive warranty
Standards	Applicable BIS/IEC/medical electrical equipment safety standards.
Purpose	Management of acute and chronic musculoskeletal and neuropathic pain under professional guidance

Technical Specification :- Computerized Interferential Therapy (IFT) Machine —

Parameter	Technical Specification
Equipment	Computerized Interferential Therapy (IFT) Unit
Therapy	Interferential Current Therapy
Channels	Minimum 2 Independent channels
Waveform	Sinusoidal medium-frequency current
Carrier Frequency	Approximately 2–5 kHz, adjustable
Beat Frequency	Adjustable, typically 1–200 Hz or better
Modes	2-pole and 4-pole Interferential modes
Intensity Control	Independent Intensity control for each channel
Treatment Timer	Adjustable, preferably 1–60 minutes
Display	Digital LCD/LED display
Preset Programs	Built-in programs for pain relief, muscle stimulation, edema management, etc.
Manual Mode	Available
Sweep/AMF	Adjustable sweep/AMF frequency
Vector Control	Automatic/manual vector control, preferably
Output	Stable, regulated and patient-safe output
Electrodes	Compatible with reusable rubber/carbon electrodes and electrode pads
Patient Safety	Overload/short-circuit protection and output isolation
Controls	Microprocessor-controlled operation
Accessories	Electrodes, lead wires, power cord and required accessories
Power Supply	220–240 V AC, 50 Hz
Construction	Compact, robust and suitable for physiotherapy department use
Safety	Electrical safety as per applicable medical electrical equipment standards
Warranty	Minimum 1 year comprehensive warranty
Installation	Installation, demonstration and user training to be provided by supplier

Diagnostic Muscle Stimulator – Technical Specification

Parameter	Recommended Technical Specification
Equipment Name	Diagnostic Muscle Stimulator
Type	Microprocessor-controlled electrical muscle/nerve stimulator
Application	Diagnostic assessment and stimulation of peripheral nerves and muscles.
Display	Digital LCD/LED display for all parameters
Modes	Continuous, Single, Repetitive and Triggered stimulation
Stimulus Waveform	Monophasic / Biphasic square wave pulses.
Pulse Duration	Adjustable, approximately 0.05–1.0 ms or better
Pulse Frequency	Adjustable, approximately 0.5–100 Hz or better
Output Intensity	Adjustable constant-current output, preferably up to at least 100 mA
Stimulation Voltage	Suitable adjustable output for diagnostic nerve/muscle stimulation
Rise/Fall Time	Adjustable/programmable where applicable
Trigger Input	External trigger input for synchronized stimulation, if available
Electrodes	Reusable surface electrodes with patient connection cables
Controls	Independent adjustment of intensity, pulse width and frequency
Safety	Patient isolation, current limitation and over-current protection
Memory	Storage of commonly used stimulation protocols, preferably
Power Supply	220–240 V AC, 50 Hz
Construction	Compact tabletop unit with durable medical-grade enclosure
Accessories	Patient cables, stimulation electrodes, foot/hand trigger if applicable, power cord and user manual
Standards	Should comply with applicable IEC 60601-1 and relevant medical electrical equipment safety standards
Warranty	Minimum 2 years comprehensive warranty
Installation	Installation, commissioning and user training by supplier

Technical Specification – Oxygen Cylinder Trolley for B-Type Cylinder

Parameter	Specification
Product	Oxygen Cylinder Trolley – B-Type Cylinder
Cylinder compatibility	Suitable for standard B-Type medical oxygen cylinder, approximately 10 L water capacity / 1.5 m ³ gas capacity
Construction	Heavy-duty tubular steel construction
Material	Mild Steel (MS), corrosion-resistant and suitable for hospital use
Finish	Epoxy powder-coated / baked enamel finish, smooth and chip-resistant
Cylinder support	Circular/semicircular cradle or suitable retaining arrangement to securely hold the cylinder
Safety belt/chain	Heavy-duty adjustable safety chain/strap for securing cylinder during movement
Base	Anti-slip platform/base with raised edge or suitable cylinder-retaining provision
Wheels	3 or 4 nos. heavy-duty swivel/caster wheels, as applicable
Caster size	Minimum 75 mm (3 inch) diameter, preferably medical-grade castors
Handle	Ergonomically designed push/pull handle, integral with frame
Load capacity	Minimum 50 kg
Mobility	Smooth movement on hospital floors and corridors
Welding	Continuous, strong and neat welding; free from sharp edges
Corrosion protection	Pretreatment followed by powder coating or equivalent corrosion-resistant treatment
Dimensions	To accommodate B-Type cylinder securely; approximately 300–350 mm width × 300–350 mm depth × 900–1100 mm height, suitably designed by manufacturer
Cylinder retention	Cylinder shall remain stable and upright during movement and shall not slip or fall from trolley
Edges	All exposed edges and corners shall be rounded/smooth and free from burrs
Usage	Suitable for use in hospital wards, OPD, emergency department, ICU and patient transport areas
Warranty	Minimum 1 year against manufacturing defects
Compliance	Product shall comply with applicable Indian standards and hospital safety requirements, wh

BP Apparatus – Stand Model (Mercurial)

Sr. No.	Parameter	Technical Specification
1	Item	B.P. Apparatus – Stand Model
2	Type	Mercurial Sphygmomanometer, Floor/Stand Model
3	Measurement range	0-300 mmHg
4	Accuracy	±3 mmHg or better
5	Mercury column	Clear, easy-to-read glass column
6	Mercury purity	99.99% pure mercury, where applicable
7	Mercury lock	Provided for safe transport/storage
8	Scale graduation	Clearly marked, preferably 2 mmHg increments
9	Cuff	Adult cuff, washable/reusable, suitable for approximately 22-42 cm arm circumference
10	Bladder	Durable two-tube bladder system
11	Inflation bulb	Soft rubber/latex or latex-free bulb with inflation valve
12	Air-release valve	Precision screw-type/line-control valve
13	Tubing	Flexible, kink-resistant and leak-proof
14	Stand	Heavy-duty, stable, height-adjustable stand
15	Stand height	Approximately 105-146 cm adjustable , or equivalent ergonomic range
16	Base	Stable 5-leg base
17	Wheels	5 castor wheels with brakes
18	Frame finish	Powder-coated/corrosion-resistant metal construction
19	Stability	Stand shall remain stable during BP measurement
20	Accessories	Adult cuff, bladder, bulb, valve and connecting tubing
21	Calibration	Supplied calibrated and ready for clinical use
22	Standard	IS 3390:1988 or latest applicable BIS standard , wherever applicable
23	Warranty	Minimum 1 year against manufacturing defects
24	Intended use	Government hospital, OPD, ward, ICU, emergency and clinical examination areas

Technical Specification :- Hysterectomy Set – Abdominal & Vaginal

Sr. No.	Instrument	Suggested Specification / Requirement	Qty.
1	Scalpel Handle No. 3	Stainless steel, surgical grade	1
2	Scalpel Handle No. 4	Stainless steel, surgical grade	1
3	Mayo Scissors, Straight	Approx. 15-17 cm, stainless steel	1
4	Mayo Scissors, Curved	Approx. 17 cm, stainless steel	1
5	Metzenbaum Scissors, Curved	Approx. 18-20 cm, stainless steel	1
6	Metzenbaum Scissors, Long Curved	Approx. 23-25 cm	1
7	Artery Forceps, Straight	Mosquito, approx. 12-13 cm	4
8	Artery Forceps, Curved	Mosquito, approx. 12-13 cm	4
9	Artery Forceps, Straight	Kelly/Pean, approx. 14-16 cm	6
10	Artery Forceps, Curved	Kelly/Pean, approx. 14-16 cm	6
11	Kocher Forceps	Straight, with teeth, approx. 14-16 cm	4
12	Allis Tissue Forceps	Approx. 15-20 cm, 4x5 teeth or equivalent	4
13	Babcock Tissue Forceps	Approx. 20-23 cm	2
14	Sponge Holding Forceps	Approx. 20-25 cm	2
15	Foerster Sponge Holding Forceps	Straight/curved, approx. 24-25 cm	2
16	Towel Clamp	Backhaus type, approx. 13-14 cm	4
17	Needle Holder	Mayo-Hegar type, approx. 18-20 cm	2
18	Long Needle Holder	Approx. 25-30 cm	1

Sr. No.	Instrument	Suggested Specification / Requirement	Qty.
19	Tissue Forceps	Plain, approx. 15-20 cm	2
20	Toothed Tissue Forceps	Approx. 15-20 cm	2
21	Right Angle Forceps	Mixer type, approx. 18-23 cm	2
22	Heaney Hysterectomy Clamp	Straight/curved, suitable for pedicles	4
23	Heaney-Ballantine Clamp	Suitable for uterine pedicles	2
24	Long Curved Artery Forceps	Approx. 20-25 cm	4
25	Uterine Artery Forceps	Long, curved, suitable for hysterectomy	2
26	Hysterectomy Clamp	Long curved, atraumatic/serrated jaws	2
27	Vaginal Hysterectomy Clamp	Suitable for vaginal hysterectomy	2
28	Uterine Tenaculum	Single/double tooth, suitable for vaginal procedure	1
29	Vulsellum Forceps	2/3 or 4 tooth, suitable for cervical grasping	2
30	Uterine Sound	Stainless steel, graduated	1
31	Vaginal Retractor	Award or equivalent, stainless steel	1
32	Sims Vaginal Speculum	Stainless steel, suitable adult size	2
33	Sims Vaginal Retractor	Stainless steel, suitable adult size	2
34	Deaver Retractor	Various sizes, suitable for abdominal surgery	2
35	Doyen Retractor	Abdominal, broad blade, stainless steel	2
36	Self-Retaining Retractor	Balfour/Bookwalter type or equivalent	1
37	Richardson Retractor	Suitable size for abdominal surgery	2
38	Langenbeck Retractor	Suitable size	2
39	Volkmann Retractor	3/4 prong, blunt, suitable size	2

Sr. No.	Instrument	Suggested Specification / Requirement	Qty.
40	Sponge/Ring Forceps	Stainless steel	2
41	Kidney Tray	Stainless steel, suitable size	2
42	Instrument Tray	Stainless steel, perforated, suitable for complete set	1
43	Instrument Container	Stainless steel, with lid, suitable for sterilization	1

Technical Specification:- Dressing Trolley with Bowl & Bucket

Sr. No.	Parameter	Technical Specification
1	Item	Dressing Trolley with Bowl & Bucket
2	Type	Hospital-grade, mobile dressing trolley
3	Construction	Heavy-duty tubular stainless-steel frame
4	Material	SS 304 stainless steel preferred
5	Shelves	Minimum 2 shelves
6	Shelf construction	Smooth, seamless/pressed stainless-steel shelves with raised edges
7	Bowl	1 No. stainless-steel bowl, removable
8	Bowl capacity	Approximately 3-5 litre, suitable for dressing procedures
9	Bucket	1 No. stainless-steel bucket, removable
10	Bucket capacity	Approximately 10-12 litre
11	Bucket arrangement	Bucket holder/support provided below or at side of trolley
12	Wheels	4 nos. heavy-duty castor wheels
13	Castor size	Approximately 75-100 mm
14	Brakes	Minimum 2 castors with brakes
15	Handle	Push handle provided for easy movement
16	Dimensions	Approx. 750-900 mm L x 450-550 mm W x 800-1000 mm H
17	Load capacity	Minimum 50 kg uniformly distributed
18	Finish	Smooth, polished, corrosion-resistant stainless-steel finish
19	Hygiene	Easy to clean and disinfect; resistant to routine hospital cleaning agents
20	Safety	No sharp edges, corners or exposed burrs
21	Mobility	Stable and easy movement on hospital floors
22	Accessories	SS bowl, SS bucket and bucket holder/support included
23	Usage	Suitable for dressing room, wards, OPD, emergency and procedure areas
24	Warranty	Minimum 1 year against manufacturing defects

Detailed Technical Specifications :- Single-Puncture Laparoscopic Accessories

1. LED Light Source with Fiber-Optic Cable

- 1.1** Type: Medical-grade LED cold-light source suitable for laparoscopic/endoscopic surgery.
- 1.2** Illumination: High-intensity, uniform white illumination suitable for clear visualization of the operative field.
- 1.3** Color temperature: **5,000–6,500 K** or better.
- 1.4** Brightness control: Continuous or electronic/manual intensity adjustment, preferably with minimum 5-step or continuous control.
- 1.5** LED life: **Minimum 20,000 hours** or better.
- 1.6** Light output: Adequate illumination for laparoscopic procedures through a standard laparoscope; manufacturer shall specify light output.
- 1.7** Heat generation: Low-heat illumination technology to minimize heating of the fiber-optic cable and laparoscopic telescope.
- 1.8** Display: Digital/LED indication of illumination intensity and operating status.
- 1.9** Safety: Over-temperature and overload protection with automatic protection against abnormal operating conditions.
- 1.10** Power supply: **220–240 V AC, 50 Hz**, suitable for Indian hospital electrical supply.
- 1.11** Fiber-optic cable: Medical-grade, high-transmission fiber-optic light cable.
- 1.12** Cable length: Approximately **2.5–3.0 metres**.
- 1.13** Cable compatibility: Cable shall be fully compatible with the offered LED light source and laparoscopic telescope.
- 1.14** Sterilization: Fiber-optic cable shall be reusable and autoclavable, where applicable, as per the manufacturer's validated instructions.
- 1.15** Construction: Durable and kink-resistant outer covering suitable for repeated operating-room use.
- 1.16** Connectors: Appropriate standard connectors/adapters shall be supplied for connection to both the light source and laparoscope.
- 1.17** Accessories: Light cable, required adapters, connector caps and all accessories necessary for immediate operation shall be supplied.
- 1.18** Documentation: Original manufacturer's technical catalogue/datasheet shall be submitted along with the technical bid.

2. Veress Needle

- 2.1** Application: For safe creation of pneumoperitoneum during laparoscopic surgery.
- 2.2** Type: Safety-type Veress pneumoperitoneum needle.

2.3 Construction: Medical-grade stainless steel or equivalent biocompatible surgical-grade material.	
2.4 Needle length: Approximately 120–150 mm , suitable for adult laparoscopic procedures.	
2.5 Outer diameter: Approximately 2.1–2.2 mm or equivalent standard size.	
2.6 Tip design: Sharp beveled outer needle with spring-loaded blunt inner stylet.	
2.7 Safety mechanism: Inner blunt stylet shall automatically advance beyond the sharp needle tip after penetration into the peritoneal cavity.	
2.8 Stylet mechanism: Spring-loaded, smooth functioning, with clear tactile and/or visual indication of deployment.	
2.9 Insufflation connection: Standard Luer-lock or CO ₂ tubing-compatible connector.	
2.10 CO₂ compatibility: Shall permit connection to a standard laparoscopic CO ₂ insufflator.	
2.11 Stopcock/valve: Integrated stopcock or valve for control of CO ₂ gas flow, where applicable.	
2.12 Ergonomics: Secure and comfortable handle/grip allowing controlled insertion.	
2.13 Sterilization: Reusable autoclavable type or sterile single-use type.	
2.14 Reusability: If reusable, the needle shall withstand repeated validated steam sterilization without deterioration of safety or functional performance.	
2.15 Packaging: Disposable type shall be supplied in individual sterile packaging.	
2.16 Size identification: Needle size and length shall be clearly marked on the device and/or packaging.	
2.17 Accessories: Protective cap and all required connectors/accessories shall be supplied.	
3. Multifunctional / Multichannel Stainless-Steel Trocar for Single-Puncture Laparoscopy	
3.1 Application: Suitable for single-puncture/single-incision laparoscopic surgery.	
3.2 Type: Multifunctional/multichannel single-access laparoscopic trocar system.	
3.3 Material: Medical-grade stainless steel or equivalent biocompatible surgical-grade material.	
3.4 Main access diameter: Approximately 10–12 mm , or equivalent configuration suitable for the intended laparoscopic system.	
3.5 Instrument channels: Minimum two working channels in addition to the camera/access channel, or equivalent configuration.	
3.6 Instrument compatibility: Shall accommodate standard 5 mm laparoscopic instruments .	
3.7 Telescope compatibility: Shall be compatible with a standard laparoscopic telescope/camera system appropriate to the offered port configuration.	

3.8 Seal system: Gas-tight silicone/polymer sealing system to minimize CO ₂ leakage during insertion, withdrawal and manipulation of instruments.	
3.9 Seal size: Suitable for 5 mm laparoscopic instruments and telescope/camera, as applicable.	
3.10 CO ₂ insufflation: Integrated CO ₂ insufflation port shall be provided.	
3.11 Insufflation valve: Stopcock/valve permitting secure connection to standard CO ₂ insufflation tubing.	
3.12 Pneumoperitoneum maintenance: System shall maintain pneumoperitoneum during insertion, withdrawal and manipulation of laparoscopic instruments.	
3.13 Obturator: Matching trocar obturator shall be supplied.	
3.14 Tip design: Safety, atraumatic or shielded tip design suitable for laparoscopic access.	
3.15 Fixation: Cannula shall provide secure placement and minimize accidental displacement during surgery.	
3.16 Instrument movement: Channels shall permit simultaneous manipulation of laparoscopic instruments with minimal interference.	
3.17 Ergonomics: Design shall minimize external instrument clashing and facilitate triangulation during single-incision laparoscopic procedures.	
3.18 Cannula: Smooth internal and external surfaces for easy instrument passage, cleaning and reprocessing.	
3.19 Reprocessing: Reusable components shall be compatible with validated cleaning, disinfection and sterilization procedures.	
3.20 Autoclaving: Reusable components shall withstand steam sterilization at the manufacturer's validated parameters.	
3.21 Identification: Size/model and channel configuration shall be permanently or clearly identifiable.	
3.22 Accessories: Obturator, seals, adapters, insufflation connector and all other accessories required for complete functioning shall be supplied.	
4. Recommended Complete Tender Description	
4.1 The offered system shall comprise a single-puncture/single-incision laparoscopic access system consisting of a multifunctional/multichannel stainless-steel trocar with compatible obturator and seals, suitable for 5 mm laparoscopic instruments and appropriate telescope/camera, along with a medical-grade LED cold-light source with compatible fiber-optic light cable and a safety-type Veress needle for CO ₂ pneumoperitoneum.	
4.2 All components shall be compatible with each other and suitable for use in routine laparoscopic surgical procedures.	

5. Additional Technical and Procurement Conditions

- 5.1** The offered product shall be **brand and model neutral** and shall meet or exceed the specified minimum technical requirements.
- 5.2** All components and accessories necessary for complete and functional operation shall be included in the quoted price.
- 5.3** Reusable instruments shall be supplied with the manufacturer's validated instructions for cleaning, disinfection and sterilization.
- 5.4** The bidder shall submit the **original manufacturer's technical catalogue/datasheet** clearly indicating the specifications of the offered model.
- 5.5** The offered equipment/accessories shall be compatible with the offered model, laparoscopic equipment available in the hospital, subject to technical evaluation.
- 5.6** The supplier shall provide warranty and after-sales/service support as specified in the tender document.
- 5.7** Any adapters, connectors or accessories required for compatibility and proper functioning shall be supplied by the successful bidder without additional cost.
- 5.8** The purchaser/technical evaluation committee may require a physical demonstration or sample evaluation before final technical acceptance.
- 5.9** The bidder shall submit applicable **regulatory, quality and statutory documentation required for medical devices in India**, as applicable to the offered product.
- 5.10** The supplied products shall be new, unused and of current/valid manufacturing status and shall conform to the manufacturer's declared specifications.
- 5.11** The supplier shall provide user manuals, technical documentation and sterilization/reprocessing instructions along with the supplied products.
- 5.12** The final acceptance of the offered products shall be subject to satisfactory technical evaluation and demonstration, wherever required by the hospital.

Technical Specification – Mangolf's Clamp / Laparoscopic Clamp

Sr. No.	Parameter	Specification
1	Instrument type	Laparoscopic atraumatic clamp/grasping forceps
2	Application	Suitable for atraumatic grasping, holding and manipulation of tissue/tubular structures during laparoscopic procedures
3	Construction	Medical-grade surgical stainless steel
4	Shaft diameter	Approximately 5 mm
5	Shaft length	Approximately 330–450 mm, suitable for adult laparoscopic procedures
6	Jaw design	Atraumatic jaw designed for secure grasping with minimal tissue trauma
7	Jaw profile	Appropriate serrated/fenestrated atraumatic profile as per standard surgical design
8	Jaw action	Smooth and precise opening and closing
9	Jaw closure	Accurate and uniform jaw alignment without excessive lateral movement
10	Handle	Ergonomic handle for secure grip and precise control
11	Ratchet/locking	Locking/ratchet mechanism, where applicable, for maintaining grasp
12	Rotation	360° rotatable shaft/jaw , preferably with controlled rotation
13	Insulation	High-quality insulated shaft where required for electrosurgical
14	Surface finish	Smooth, polished, corrosion-resistant surgical finish
15	Shaft strength	Rigid shaft suitable for controlled laparoscopic manipulation without deformation
16	Cleaning	Design should permit effective cleaning of shaft, jaws, joint and handle
17	Sterilization	Suitable for validated steam sterilization/autoclaving
18	Reusability	Reusable and capable of repeated sterilization without deterioration of function
19	Trocar compatibility	Suitable for use through a standard 5 mm laparoscopic trocar
20	Tip safety	Atraumatic tip configuration to minimize inadvertent tissue injury
21	Mechanical performance	Smooth operation without sticking, excessive play or difficulty in jaw movement
22	Material quality	Surgical-grade, corrosion-resistant and biocompatible material
23	Accessories	Protective cap/tip protector and other accessories, if applicable
24	Documentation	Original manufacturer's catalogue/technical datasheet to be submitted
25	Condition	Instrument shall be new, unused and suitable for routine laparoscopic surgery

Technical Specification – Laparoscopic Vascular Clamp

Sr. No.	Parameter	Specification
1	Instrument type	Laparoscopic atraumatic vascular clamp
2	Application	Temporary occlusion/clamping of blood vessels during laparoscopic vascular and general surgical procedures
3	Construction	Medical-grade surgical stainless steel
4	Shaft diameter	5 mm
5	Working length	Approximately 330–450 mm , suitable for adult laparoscopic procedures
6	Jaw type	Atraumatic vascular clamp jaws designed for secure vessel occlusion while minimizing endothelial and vessel-wall trauma
7	Jaw profile	Smooth/atraumatic serrated or appropriate vascular occlusion profile
8	Jaw length	Approximately 15–30 mm , or as per standard vascular clamp design
9	Jaw closure	Precise and uniform closure along the complete working surface
10	Occlusion	Should provide reliable temporary vascular occlusion without unnecessary tissue trauma
11	Handle	Ergonomic handle providing controlled application and release
12	Locking mechanism	Ratchet/locking mechanism for maintaining the required clamping pressure
13	Pressure control	Clamp should provide controlled and consistent pressure appropriate for temporary vascular occlusion
14	Rotation	360° rotatable shaft preferred for precise positioning of the jaws
15	Shaft insulation	Insulated shaft, where required for compatibility with electrosurgical procedures
16	Tip alignment	Jaws should align accurately without excessive lateral movement
17	Surface finish	Smooth, polished and corrosion-resistant surgical finish
18	Shaft strength	Rigid and adequately strong for controlled laparoscopic manipulation
19	Trocar compatibility	Suitable for introduction through a standard 5 mm laparoscopic trocar
20	Cleaning	Design should permit thorough cleaning of jaws, joint, shaft and handle
21	Sterilization	Suitable for validated steam sterilization/autoclaving
22	Reusability	Reusable and suitable for repeated sterilization without deterioration of mechanical performance
23	Corrosion resistance	Resistant to corrosion and staining under routine surgical cleaning and sterilization conditions
24	Biocompatibility	Materials suitable for surgical use and tissue contact

Sr. No.	Parameter	Specification
25	Accessories	Tip protector and other accessories required for safe storage/use, where applicable
26	Documentation	Manufacturer's original technical catalogue/datasheet shall be submitted
27	Quality	Instrument shall be new, unused, free from manufacturing defects and suitable for laparoscopic vascular procedures
28	Compliance	Offered instrument shall meet applicable medical-device quality and regulatory requirements

Technical Specification – ETCO₂ Monitor / Capnograph

Sr. No.	Parameter	Specification
1	Equipment	End-Tidal CO ₂ (ETCO ₂) Monitor / Capnograph
2	Application	Continuous monitoring of end-tidal CO ₂ and respiratory parameters during anesthesia, surgery, ICU and emergency care
3	Measurement principle	Infrared (IR) CO ₂ measurement using mainstream or sidestream technology
4	ETCO ₂ measurement range	Minimum 0–100 mmHg or equivalent
5	ETCO ₂ accuracy	±2 mmHg or ±5% of reading, whichever is greater, or better
6	Respiratory rate range	Minimum 0–150 breaths/min
7	Respiratory rate accuracy	±2 breaths/min or better
8	Display	Color TFT/LCD display, minimum 5 inch preferred
9	Waveform	Real-time CO ₂ waveform/capnogram display
10	Parameters displayed	ETCO ₂ , inspired CO ₂ (FiCO ₂), respiratory rate and capnogram
11	Units	mmHg and/or kPa; user-selectable where applicable
12	Sampling rate	Continuous real-time sampling suitable for clinical monitoring
13	Apnea alarm	Audible and visual apnea alarm with adjustable alarm limits
14	ETCO ₂ alarm	High and low ETCO ₂ alarm limits, user adjustable
15	Respiratory rate alarm	High and low respiratory-rate alarm limits
16	Alarm system	Audible and visual alarms with adjustable limits and alarm priority indication
17	Trend facility	Storage/display of parameter trends for minimum 24 hours , preferably longer
18	Data storage	Internal memory for patient data/events, preferably with USB/data-transfer facility
19	Sampling system	Sidestream sampling with appropriate sampling line/filter, or equivalent mainstream configuration
20	Moisture protection	Water trap/moisture management system to protect the sampling system
21	Sampling line	Disposable/reusable sampling lines compatible with adult, pediatric and/or neonatal applications as applicable
22	Response time	Rapid response suitable for real-time detection of changes in ventilation
23	Calibration	Automatic/self-calibration or manufacturer-recommended calibration facility
24	Sensor	Long-life CO ₂ sensor suitable for continuous clinical monitoring

No. _____
Instrument _____
Parameter _____
Specification _____

Marker

Sr. No.	Parameter	Specification
25	Patient connection	Compatible with standard breathing circuits, airway adapters and anesthesia/Ventilator systems.
26	Battery	Rechargeable internal battery with minimum 2-4 hours operation or better.
27	Battery indicator	Battery status/remaining charge indication on display.
28	Power supply	220-240 V AC, 50 Hz, with suitable medical-grade power supply.
29	Protection	Electrical safety and protection against overvoltage/overload as applicable.
30	Portability	Compact bedside/portable design with provision for secure placement.
31	Accessories	Sampling lines, water trap, airway adapters, power cable and all standard accessories required for operation.
32	Consumables	Details of required consumables and their estimated life/cost shall be provided.
33	Cleaning	External surfaces should permit cleaning and disinfection using hospital-approved procedures.
34	Operating conditions	Suitable for operation in a hospital/OT/ICU environment.
35	Serviceability	Local/authorized service support with availability of spare parts.
36	Documentation	Original manufacturer's technical catalogue/datasheet and user manual shall be submitted.
37	Warranty	Minimum 2 years comprehensive warranty or as specified by the purchaser.
38	Regulatory compliance	Shall comply with applicable medical-device regulatory and electrical safety requirements in India.
39	Demonstration	Bidder shall provide product demonstration, if required by the technical evaluation committee.
40	Equipment condition	Equipment shall be new, unused and current production model at its

Operating Theatre (OT) Patient Warmer / Forced-Air Patient Warming System

Sr. No.	Parameter	Specification
1	Equipment	Operating Theatre (OT) Patient Warmer / Forced-Air Patient Warming System
2	Application	Prevention and treatment of perioperative hypothermia in adult and pediatric patients during surgery and recovery
3	Type	Forced-air convection patient warming system suitable for OT use
4	Heating technology	Microprocessor-controlled forced-air warming with uniform distribution of warm air
5	Temperature control	Multiple selectable temperature settings with automatic temperature regulation
6	Temperature range	Approximately 32°C to 43°C or wider, with manufacturer-specified accuracy
7	Temperature settings	Minimum 3 selectable warming levels , including ambient/low, medium and high warming
8	Temperature accuracy	Controlled within approximately ±1°C or better
9	Airflow	Adjustable and uniformly distributed airflow suitable for patient warming
10	Warm-up time	Rapid warm-up to the selected temperature
11	Patient coverage	Suitable for full-body, upper-body and/or lower-body warming blankets, as applicable
12	Blanket compatibility	Compatible with disposable or reusable warming blankets supplied by the manufacturer
13	Blanket material	Soft, non-irritant, skin-safe and flame-retardant material suitable for clinical use
14	Air outlet	Multiple/distributed air outlets to provide uniform warming over the covered body area
15	Temperature monitoring	Continuous monitoring of delivered air temperature
16	Over-temperature protection	Independent safety mechanism to prevent excessive temperature delivery to the patient

Sr. No.	Parameter	Specification
17	Safety cut-off	Automatic thermal cut-off in case of abnormal temperature rise, blocked airflow or system malfunction
18	Alarm system	Audible and visual alarms for over-temperature, under-temperature, airflow obstruction and system fault, as applicable
19	Filter	Integrated bacterial/particulate air filter suitable for OT use
20	Filter efficiency	High-efficiency disposable/replacement filter as specified by manufacturer
21	Filter replacement	Filter replacement indication or maintenance reminder preferred
22	Display	Digital display/LED indication of selected and/or actual operating temperature and system status
23	Controls	Easy-to-use control panel with clearly identified temperature and operating controls
24	Noise level	Low-noise operation suitable for the operating theatre environment
25	Hose	Flexible, durable, heat-resistant hose with secure connection to the warming blanket
26	Hose length	Approximately 1.5–2.5 m or suitable for OT operating-table configuration
27	Mobility	Compact system suitable for mounting on an IV pole/trolley or supplied with a mobile stand
28	Stand	Mobile stand with sturdy base and castors, if stand-mounted configuration is offered
29	Castors	Smooth-rolling castors with locking facility, where mobile stand is provided
30	Electrical supply	220–240 V AC, 50 Hz , suitable for Indian hospital electrical supply
31	Electrical safety	Suitable electrical protection against over-current, over-temperature and abnormal operating conditions
32	Power consumption	Manufacturer to specify; energy-efficient operation preferred
33	Patient safety	Design shall minimize risk of thermal injury, pressure injury and uneven heating

Sr. No.	Parameter	Specification
34	Infection control	Smooth external surfaces suitable for cleaning and hospital-grade disinfection
35	Blanket connection	Secure and leak-resistant connection between warmer hose and warming blanket
36	Accessories	Warming blankets, hose, air filter, stand/trolley and all standard accessories required for operation, as specified in BOQ
37	Consumables	Bidder shall provide details of disposable/reusable blankets, filters and other consumables, including estimated consumption and cost
38	Adult application	Suitable warming blankets/configuration for adult patients
39	Pediatric application	Pediatric/neonatal accessories, if required, shall be quoted separately
40	Operating environment	Suitable for continuous use in OT, anesthesia and PACU/recovery areas
41	Maintenance	Routine maintenance and preventive-maintenance requirements shall be clearly specified
42	Service support	Authorized service support and availability of spare parts in India
43	Documentation	Original manufacturer's technical datasheet, user manual and service manual shall be provided
44	Regulatory compliance	Shall comply with applicable medical-device and electrical-safety requirements in India
45	Warranty	Minimum 2 years comprehensive warranty or as specified by the purchaser
46	Demonstration	Product demonstration shall be provided, if required by the hospital technical evaluation committee
47	Equipment condition	Equipment shall be new, unused and current production model at the time of supply

Technical Specifications :- Sterile Skin Marker

Sr. No.	Parameter	Specification
1	Product	Sterile Surgical Skin Marker Pen
2	Application	For pre-operative marking of surgical site, incision line and anatomical landmarks on intact skin
3	Sterility	Supplied sterile and individually packed
4	Marker type	Single-use, disposable surgical skin marking pen
5	Ink	Medical-grade, non-toxic, non-irritant, biocompatible marking ink
6	Ink color	Violet/blue or other high-contrast surgical marking color
7	Marking quality	Should provide clear, sharp and easily visible markings on skin
8	Persistence	Marking should remain visible throughout the required surgical procedure and should be resistant to routine skin preparation solutions
9	Drying time	Rapid drying to minimize smudging after application
10	Tip	Fine/medium surgical marking tip suitable for precise incision-line marking
11	Tip design	Smooth tip that permits controlled marking without causing skin injury
12	Skin compatibility	Suitable for use on intact human skin without causing undue irritation under normal intended use
13	Applicator	Easy-grip body suitable for accurate pre-operative marking
14	Single use	Intended for single-patient/single-use application
15	Packaging	Individually sealed sterile pouch
16	Sterilization	Sterilized by a validated method suitable for the product
17	Shelf life	Minimum 24 months or as specified by manufacturer at the time of supply
18	Expiry	Batch number, manufacturing date and expiry date clearly printed on individual/outer packaging
19	Latex	Latex-free preferred/where applicable

Sr. No.	Parameter	Specification
20	Skin preparation compatibility	Marking should remain adequately visible after application of commonly used pre-operative skin antiseptic solutions
21	Skin preparation component	If supplied as a kit, shall include sterile skin-preparation applicator/swab containing appropriate antiseptic solution
22	Skin preparation applicator	Sterile, single-use, ready-to-use applicator suitable for pre-operative skin preparation
23	Antiseptic solution	Appropriate hospital-approved antiseptic preparation, concentration and active ingredient shall be clearly declared by manufacturer
24	Applicator packaging	Individually sterile packed and leak-proof
25	Intended use	For use in operating theatre/pre-operative surgical site preparation
26	Instructions	Manufacturer's instructions for use shall be supplied
27	Regulatory compliance	Shall comply with applicable medical-device/medical-product regulatory requirements in India, as applicable
28	Quality	Product shall be new, sterile, unused and free from visible defects
29	Documentation	Manufacturer's catalogue/datasheet, sterility information and product specifications shall be submitted
30	Supply	Product shall be supplied with adequate remaining shelf life as specified in the tender

Specification:- Kelly Forceps

Sr. No.	Parameter	Specification
1	Instrument	Kelly Hemostatic Forceps
2	Type	Straight or curved, as specified by purchaser
3	Application	For clamping blood vessels and controlling bleeding during surgical procedures
4	Construction	High-quality medical-grade surgical stainless steel
5	Overall length	Approximately 14–16 cm (5½–6¼ inch) or equivalent
6	Jaw design	Serrated jaws for secure grasping and hemostatic clamping
7	Serrations	Transverse serrations extending along the appropriate portion of the jaw
8	Jaw alignment	Jaws shall align accurately and close uniformly without excessive lateral movement
9	Working end	Blunt, atraumatic profile suitable for controlled vessel/tissue clamping
10	Handle	Ergonomically designed finger rings for comfortable and controlled manipulation
11	Ratchet	3-position ratchet locking mechanism for controlled clamping pressure
12	Locking action	Smooth engagement and release of ratchet without excessive force
13	Box lock	Precision box-lock joint for smooth operation and durability
14	Hinge/joint	Smooth-functioning joint with minimal play
15	Surface finish	Smooth, polished, matte/satin or equivalent surgical finish
16	Corrosion resistance	Resistant to corrosion and staining under routine surgical cleaning and sterilization
17	Material hardness	Suitable mechanical strength and hardness for repeated surgical use
18	Cleaning	Design shall permit thorough cleaning of jaws, serrations, box lock and ratchet
19	Sterilization	Suitable for validated steam sterilization/autoclaving
20	Reusability	Reusable and capable of repeated sterilization without deterioration of mechanical performance

Sr. No.	Parameter	Specification
21	Tissue handling	Should provide secure clamping without unintended slipping
22	Ratchet release	Easy and controlled release of the locking mechanism
23	Marking	Instrument size/type or manufacturer's identification should be permanently marked
24	Packaging	Individually protected/packed to prevent damage during transportation and storage
25	Quality	Surgical-grade, corrosion-resistant, reusable instrument suitable for routine OT use
26	Documentation	Manufacturer's technical datasheet/catalogue shall be submitted, where required
27	Condition	Instrument shall be new, unused and free from manufacturing defects
28	Regulatory compliance	Shall comply with applicable medical-device and quality requirements in India

Manual Vacuum Aspiration (MVA) Syringe

Sr. No.	Parameter	Specification
1	Product	Manual Vacuum Aspiration (MVA) Syringe / Aspirator
2	Application	Manual vacuum aspiration for uterine evacuation/uterine aspiration as clinically indicated
3	Type	Reusable manual vacuum aspirator/syringe with manually generated negative pressure
4	Capacity	Approximately 60 mL
5	Vacuum generation	Shall generate and maintain adequate negative pressure manually without requiring electrical power
6	Vacuum	Should provide approximately -60 to -70 kPa (about -450 to -525 mmHg) or as specified by the manufacturer
7	Vacuum retention	Syringe should maintain the generated vacuum during the procedure without significant loss
8	Barrel	Transparent medical-grade, autoclavable material permitting visualization of aspirated contents
9	Plunger	Smooth-moving plunger capable of generating consistent vacuum
10	Plunger seal	High-quality, leak-resistant seal/gasket to maintain vacuum
11	Handle	Ergonomic handle allowing easy one-/two-hand operation and controlled aspiration
12	Valve mechanism	Reliable valve mechanism for creation, maintenance and controlled release of vacuum
13	Connection	Secure connector compatible with standard MVA cannulae
14	Cannula compatibility	Compatible with appropriate sizes of MVA cannulae used for uterine aspiration
15	Cannula connection	Leak-proof connection between syringe/aspirator and cannula
16	Operation	Easy to assemble, operate and disassemble for cleaning/reprocessing
17	Reusability	Reusable design suitable for repeated clinical use, where applicable
18	Sterilization	Components shall be suitable for validated steam sterilization/autoclaving , where reusable

Sr. No.	Parameter	Specification
19	Cleaning	Design should permit complete cleaning of barrel, plunger, valve and connector
20	Material	Medical-grade, biocompatible and corrosion-resistant materials
21	Graduations	Clearly visible volume markings on the syringe/barrel
22	Graduations accuracy	Graduations shall permit easy estimation of aspirated volume
23	Vacuum indicator	Vacuum status/pressure indication, where provided by manufacturer
24	Safety	System should minimize risk of accidental vacuum loss and unintended disconnection
25	Accessories	Compatible cannulae, adapters, seals and other required accessories to be supplied as per BOQ
26	Maintenance	Replacement seals/gaskets and other serviceable components should be available
27	Documentation	Manufacturer's technical datasheet, instructions for use and reprocessing instructions shall be provided
28	Regulatory compliance	Shall comply with applicable medical-device regulatory requirements in India
29	Condition	Product shall be new, unused and free from manufacturing defects
30	Warranty	Warranty/replacement terms shall be as specified by the purchaser

Technical Specification – Single Puncture Laparoscope Accessories Set

Sr. No.	Component	Detailed Technical Specification
1	LED Light Source with Fiber Optic Cable	Medical-grade LED light source , suitable for laparoscopic/endoscopic procedures. LED illumination with colour temperature 5500–6500 K . Light intensity continuously adjustable from 0–100% . LED operating life ≥30,000 hours . Power supply 220–240 V AC, 50 Hz . Digital/analog intensity control with standby/on-off function. Over-temperature and overload protection. Fiber optic light cable shall be medical-grade, flexible and autoclavable , minimum 2.5 m length , with standard laparoscopic light-source connector. Cable shall withstand repeated steam sterilization at 134°C or as per manufacturer validated cycle.
2	Veress Needle	Reusable laparoscopic Veress needle , made of surgical-grade stainless steel (SS 304/316) . Needle length 120–150 mm suitable for adult laparoscopic procedures. Outer needle diameter approximately 2.1–2.2 mm . Spring-loaded blunt inner stylet with automatic return mechanism. Safety mechanism shall provide clear tactile/visual indication of stylet position. Integrated CO₂ insufflation connector with Luer-lock/standard fitting . Needle shall be completely dismantlable for cleaning and sterilization and autoclavable at 134°C .
3	Ring Applicator	Reusable laparoscopic tubal ring applicator , manufactured from surgical-grade stainless steel SS 304/316 . Suitable for laparoscopic female sterilization/tubal ring application. Overall length approximately 330–360 mm . Shaft diameter approximately 5 mm or compatible with standard laparoscopic access system. Ergonomic reusable handle with smooth and precise ring application mechanism. Jaw mechanism shall securely hold and release the tubal ring without slippage. Corrosion-resistant, reusable and autoclavable at 134°C .
4	Multifunction SS Trocar	Reusable multifunction laparoscopic trocar , manufactured from surgical-grade stainless steel SS 304/316 . Cannula size 10/12 mm , with working length approximately 100–150 mm . Cannula shall have a gas-tight valve/seal system suitable for CO ₂ pneumoperitoneum and a CO₂ insufflation stopcock/port . Obturator shall have a suitable sharp/blunt safety tip design. Cannula shall have secure fixation/anti-slip arrangement to prevent inadvertent displacement. Universal valve/sealing system shall accommodate laparoscopic instruments of appropriate diameter. Completely reusable, corrosion-resistant and autoclavable at 134°C .

Set Configuration

Single Puncture Laparoscope Accessories – 01 Complete Set, comprising:

1. LED Light Source – 01 No.
2. Fiber Optic Light Cable, ≥2.5 m – 01 No.
3. Veress Needle – 01 No.
4. Laparoscopic Tubal Ring Applicator – 01 No.
5. Multifunction Stainless Steel Trocar 10/12 mm – 01 No.

Mandatory Compliance Requirements

- All reusable instruments shall be **surgical-grade stainless steel**, corrosion-resistant and autoclavable.
- All components shall be **new, unused and of current production**.
- Equipment shall be compatible with **standard laparoscopic systems**.

- The bidder shall submit **OEM technical datasheet/catalogue** with the offer.
- The bidder shall provide **make, model, country of origin and warranty details**.
- Applicable **CDSCO/Medical Device Rules, ISO 13485 and other statutory regulatory requirements** shall be complied with.
- Minimum **2 years warranty** from date of installation/supply may be specified for the complete set.
- The supplier shall provide all necessary **connectors/adapters and accessories required for operational use**.

Technical Specification – Data Logger

Sr. No.	Parameter	Technical Specification
1	Type	Digital Electronic Data Logger
2	Application	Temperature and/or Humidity monitoring and recording for medical refrigerators, vaccine storage, laboratory, pharmacy, blood bank, cold-chain equipment etc.
3	Temperature Range	Minimum -30°C to +70°C or better
4	Temperature Accuracy	±0.5°C or better
5	Resolution	0.1°C or better
6	Humidity Range	10% to 95% RH or better, if applicable
7	Humidity Accuracy	±3% RH or better
8	Memory Capacity	Minimum 10,000 readings or more
9	Logging Interval	User selectable, preferably 10 seconds to 24 hours
10	Display	LCD/LED digital display showing current temperature, minimum/maximum values and status
11	Alarm	High/Low temperature alarm with visual indication and/or audible alarm
12	Date & Time	Built-in real-time clock with date and time stamp for every recorded reading
13	Data Download	USB Interface / USB Type-C or equivalent for downloading recorded data
14	Software	PC-compatible software for data downloading, analysis, graph generation and report generation
15	Data Format	Data export facility in PDF/CSV/Excel or equivalent format
16	Sensor	Internal temperature sensor; external probe preferred where required
17	Battery	Replaceable or rechargeable battery with minimum 6 months operational backup under normal logging conditions
18	Data Retention	Recorded data shall remain محفوظ /available during battery replacement or power interruption
19	Calibration	Supplied with valid calibration certificate traceable to NABL/ISO 17025 accredited laboratory
20	Mounting	Wall/table mounting facility with suitable stand/bracket
21	Protection	Suitable protective enclosure for hospital/laboratory use
22	Operating Conditions	Suitable for normal indoor hospital/laboratory environment
23	Accessories	Battery, USB cable/interface, software, sensor/probe, mounting accessories and user manual
24	Warranty	Minimum 2 years comprehensive warranty from date of installation/supply
25	Compliance	Manufacturer shall comply with applicable ISO/CE or equivalent quality and safety standards
26	Calibration	Calibration certificate to be provided at the time of supply; recalibration facility/service support should be available

Sr. No.	Parameter	Technical Specification
27	User Manual	Detailed user and software operation manual in English
28	Service Support	Supplier shall provide installation, demonstration and basic user training at the installation site

Blood Bank Refrigerator – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Equipment	Blood Bank Refrigerator
2	Type	Upright, floor-mounted, purpose-built blood bank refrigerator
3	Capacity	300–400 Litres or as per requirement
4	Temperature Range	+2°C to +8°C
5	Temperature Set Point	+4°C
6	Temperature Uniformity	±1°C or better throughout storage chamber
7	Temperature Accuracy	±0.5°C or better
8	Controller	Microprocessor / digital temperature controller
9	Display	Digital LED/LCD display showing actual chamber temperature
10	Alarm	Audible and visual High/Low temperature alarm
11	Alarm Settings	High and low temperature limits shall be programmable
12	Power Failure Alarm	Facility for power failure / mains failure alarm
13	Door Open Alarm	Audible alarm for prolonged door opening
14	Data Logger	Built-in / compatible digital data logger for continuous temperature recording
15	Temperature Recording	Minimum/Maximum temperature recording with date and time
16	Data Storage	Minimum 30 days temperature data storage or better
17	Data Download	USB / suitable digital interface for downloading temperature data
18	Refrigeration	CFC-free / eco-friendly refrigerant
19	Cooling System	Forced-air circulation for uniform temperature distribution
20	Defrost	Automatic / controlled defrost system without compromising blood storage temperature
21	Cabinet	High-quality corrosion-resistant insulated cabinet
22	Inner Chamber	Stainless steel / corrosion-resistant material, easy to clean
23	Door	Double-glass / toughened glass door with magnetic gasket
24	Door Lock	Lockable door with key
25	Shelves	Adjustable, corrosion-resistant shelves suitable for blood bags
26	Shelves Capacity	Shelves shall be designed to permit adequate air circulation and easy retrieval of blood bags
27	Insulation	High-density polyurethane / equivalent thermal insulation
28	Compressor	Heavy-duty, suitable for continuous hospital operation
29	Power Supply	230 V ±10%, 50 Hz, Single Phase
30	Backup	Provision for connection to hospital UPS / emergency power supply
31	Internal Light	LED interior illumination
32	Safety	Electrical and compressor overload protection

क्र.	Parameter	Technical Specification
33	Temperature Recovery	Rapid recovery of chamber temperature after door opening
34	Calibration	Supplied with valid temperature calibration certificate traceable to NABL/ISO 17025 laboratory
35	Standards	Shall comply with applicable blood bank refrigerator / medical refrigeration safety standards
36	Accessories	Shelves, temperature sensor/probe, data logger, power cable, keys, user manual and all standard accessories
37	Installation	Installation and commissioning at site by authorized service engineer
38	Demonstration	User training regarding operation, alarm, temperature monitoring and data download
39	Warranty	Minimum 2 years comprehensive warranty from date of installation
40	Service Support	Availability of authorized service support and spare parts in Maharashtra/India

C-Arm Machine with Flat Panel Detector – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Equipment	Mobile Digital C-Arm X-Ray System with Flat Panel Detector
2	Type	Mobile C-arm with digital flat panel detector and pulsed fluoroscopy
3	Generator	High-frequency X-ray generator
4	Generator Power	Minimum 2.5 kW , preferably 3.0 kW or higher
5	Tube Voltage	40–110 kV or wider
6	Tube Current	Minimum 1–20 mA or better
7	Fluoroscopy	Continuous and pulsed fluoroscopy modes
8	Pulse Rate	Variable pulse rate, preferably 1–15 pulses/sec or better
9	X-Ray Tube	Stationary / rotating anode X-ray tube suitable for prolonged fluoroscopic procedures
10	Focal Spot	Small focal spot ≤0.6 mm preferred
11	Flat Panel Detector	Digital flat panel detector, amorphous silicon / equivalent technology
12	Detector Size	Minimum 20 cm × 20 cm or equivalent
13	Detector Resolution	≥2.5 lp/mm preferred
14	Image Matrix	Minimum 1024 × 1024 pixels
15	Image Acquisition	Digital radiography and fluoroscopy image acquisition
16	Image Display	High-resolution medical-grade monitor
17	Monitor	Minimum 19 inch LCD/LED , preferably 21 inch or larger
18	Image Processing	Real-time digital image processing, edge enhancement, noise reduction and contrast enhancement
19	DICOM	DICOM 3.0 compatible
20	Image Storage	Minimum 10,000 images or equivalent storage capacity
21	Image Export	USB / network / DICOM export facility
22	C-Arm Movement	Motorized / manually adjustable C-arm with orbital and horizontal movement
23	Orbital Movement	Minimum approximately ±90°
24	Horizontal Movement	Minimum 20 cm or better
25	Vertical Movement	Minimum 40 cm or better
26	C-Arm Depth	Minimum 60 cm or better
27	SID	Suitable SID for orthopedic, surgical and interventional procedures
28	Collimation	Adjustable / automatic collimation
29	Radiation Dose	Dose display and dose reduction technology
30	Dose Reduction	Pulsed fluoroscopy, low-dose mode and last-image-hold facility
31	Last Image Hold	Mandatory
32	Roadmap / Fluoro Store	Fluoro store / roadmap facility preferred

Sr. No.	Parameter	Technical Specification
33	Foot Switch	Wired/wireless foot switch for fluoroscopy and image acquisition
34	Controls	Controls available on C-arm and/or separate operating console
35	Mobility	Heavy-duty mobile base with lockable wheels
36	Brakes	Electromagnetic / mechanical wheel locking system
37	Image Quality	High-contrast, low-noise digital images suitable for orthopedic and surgical procedures
38	Applications	Orthopedic surgery, trauma, spine surgery, urology, general surgery, pain procedures and other fluoroscopic procedures
39	Electrical Supply	230 V $\pm$10%, 50 Hz, Single Phase
40	Safety	Overload protection, tube protection and radiation safety features
41	Radiation Protection	Equipment shall comply with applicable AERB requirements in India
42	Regulatory Compliance	Applicable CDSCO / Medical Device Rules requirements and relevant IEC standards
43	Accessories	Foot switch, monitor, workstation, image storage system, DICOM interface, user manual and standard accessories
44	Installation	Installation, commissioning and calibration at site
45	Training	Comprehensive user training for radiology/OT staff
46	Warranty	Minimum 2 years comprehensive warranty from date of installation
47	Service Support	Authorized service support with availability of spare parts in India
48	Calibration	Calibration and performance certificate to be provided at installation

Disposable Plastic Ventouse / Vacuum Cup for Delivery
Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Disposable Obstetric Vacuum Extractor / Ventouse Cup
2	Type	Single-use, sterile, disposable vacuum-assisted delivery cup
3	Material	Medical-grade, non-toxic, biocompatible plastic/polymer
4	Cup Size	50 mm ± 5 mm preferred; size to be suitable for obstetric use
5	Cup Design	Flexible/atraumatic cup designed for secure application on fetal scalp
6	Vacuum Connection	Standard compatible connector for obstetric vacuum extraction system
7	Tubing	Sterile, flexible, kink-resistant medical-grade suction tubing, if supplied as complete set
8	Vacuum Holding	Leak-proof design capable of maintaining required negative pressure during procedure
9	Vacuum Indicator	Compatible with standard vacuum gauge/pump; calibrated indicator preferred
10	Handle	Ergonomic handle for controlled traction, if applicable to the design
11	Sterility	Sterile and supplied in individual sterile packaging
12	Single Use	For single use only; shall not be reused or resterilized
13	Latex	Latex-free preferred
14	Packaging	Individually packed, tamper-proof sterile pack
15	Identification	Batch/Lot No., manufacturing date, expiry date and manufacturer details shall be printed on pack
16	Shelf Life	Minimum 2 years from date of supply or as per manufacturer specification
17	Regulatory Compliance	Shall comply with applicable Indian Medical Device Rules/CDSCO requirements
18	Accessories	Vacuum tubing/connector and adapter, if required for compatibility with the hospital's vacuum system
19	Application	Obstetric vacuum-assisted vaginal delivery under supervision of trained obstetric personnel
20	Warranty	Manufacturing defects to be covered as per manufacturer/supplier terms

ETCO₂ Monitor – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Equipment	ETCO₂ Monitor / Capnograph
2	Type	Microstream / mainstream / sidestream capnography system
3	Measurement	Continuous measurement of EtCO₂, FiCO₂ and respiratory rate
4	ETCO ₂ Range	0–150 mmHg or wider
5	Accuracy	±2 mmHg or ±5% of reading, whichever is greater
6	Resolution	1 mmHg
7	Respiratory Rate	0–150 breaths/min or wider
8	RR Accuracy	±2 breaths/min or better
9	Display	Colour TFT/LCD display, minimum 5 inch preferred
10	Waveform	Real-time CO₂ waveform / capnogram display
11	Monitoring Parameters	ETCO ₂ , FiCO ₂ , respiratory rate and capnogram
12	Sampling Rate	Suitable for continuous clinical monitoring; sidestream sampling preferred
13	Alarm	Adjustable high/low ETCO ₂ and respiratory rate alarms
14	Apnea Alarm	Adjustable apnea alarm with visual and audible indication
15	Trend	24-hour trend data storage/display preferred
16	Patient Connection	Compatible with adult, pediatric and neonatal airway circuits
17	Sampling Accessories	Nasal cannula / airway adapter / sampling line as applicable
18	Data Storage	Internal memory for recorded/trend data
19	Connectivity	USB / RS-232 / network connectivity preferred
20	Battery	Built-in rechargeable battery; minimum 4 hours backup preferred
21	Power Supply	100–240 V AC, 50/60 Hz , with rechargeable battery
22	Alarm Indication	Visual and audible alarm with adjustable limits
23	Portability	Compact, lightweight and suitable for bedside/transport monitoring
24	Protection	Suitable for continuous hospital/ICU/OT use
25	Accessories	Power cord, rechargeable battery, sampling line, airway adapters, nasal cannulae and all standard accessories
26	Calibration	Calibration facility as per manufacturer recommendations
27	Standards	Applicable IEC/ISO medical electrical equipment safety standards
28	Regulatory	Applicable CDSCO/Medical Device Rules requirements
29	Installation	Installation, commissioning and demonstration at site
30	Training	User training for doctors/nurses/technical staff
31	Warranty	Minimum 2 years comprehensive warranty
32	Service Support	Authorized service support and availability of consumables/spares in India

Medicine Steel Rack – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Medicine Storage Steel Rack
2	Type	Heavy-duty, free-standing steel storage rack
3	Material	High-quality CRCA / MS steel sheet
4	Overall Size	Approx. 1980 H × 900 W × 450 D mm
5	Shelves	Minimum 5 adjustable shelves
6	Shelf Load Capacity	Minimum 80–100 kg per shelf uniformly distributed
7	Shelf Adjustment	Shelves shall be height adjustable with suitable locking/support mechanism
8	Sheet Thickness	Minimum 0.8 mm for body/shelves; heavier gauge preferred for load-bearing components
9	Construction	Welded/bolted rigid construction without sharp edges
10	Surface Treatment	Pre-treated, anti-corrosion coated surface
11	Finish	Epoxy powder-coated finish , smooth and washable
12	Colour	Light grey / off-white or as specified by purchaser
13	Base	Heavy-duty base with adequate load-bearing capacity
14	Stability	Rack shall be stable and suitable for continuous hospital/store use
15	Hygiene	Smooth, dust-resistant and easy-to-clean surfaces
16	Edges	All edges shall be properly folded/finished to avoid injury
17	Mobility	Stationary type; adjustable levelling feet preferred
18	Identification	Provision for shelf/item identification labels
19	Application	Suitable for storage of medicines, surgical consumables, medical supplies and pharmacy stock
20	Assembly	Supplied fully assembled or with proper installation/assembly by supplier
21	Warranty	Minimum 2 years against manufacturing defects

Patient Bed (Steel Cot) – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Patient Bed – Steel Cot
2	Type	Hospital patient bed, fixed type, single crank/manual or fixed design
3	Overall Size	Approx. 1980–2100 mm (L) × 900–1000 mm (W)
4	Bed Height	Approx. 450–550 mm from floor to mattress platform
5	Frame Material	Heavy-duty CRCA/MS steel
6	Mattress Platform	Perforated / tubular steel sheet or suitable steel mesh platform
7	Mattress Platform Size	Minimum approx. 1900 × 850 mm
8	Load Capacity	Minimum 150–180 kg safe working load
9	Frame Construction	Robust welded construction with adequate reinforcement
10	Head & Foot Board	Steel head and foot panels/boards, securely fixed
11	Side Rails	Tubular steel side rails, preferably foldable/removable
12	Mattress Support	Suitable for standard hospital mattress
13	Surface Treatment	Pre-treated for corrosion resistance
14	Finish	Durable epoxy/polyester powder-coated finish
15	Colour	White / light grey or as specified by purchaser
16	Castors	125 mm or larger heavy-duty castors, if mobile model is offered
17	Braking	At least two castors with effective locking/braking mechanism
18	Legs	Heavy-duty tubular steel legs with anti-skid/rubber foot caps
19	Safety	Rounded corners and edges; no sharp projections
20	Cleaning	Smooth, washable and easy-to-disinfect surfaces
21	IV Pole Provision	Provision for IV pole attachment preferred
22	Utility	Suitable for General Ward, IPD and patient care areas
23	Mattress	Mattress may be supplied separately as per purchaser requirement
24	Assembly	Supplier shall provide complete assembly and installation
25	Warranty	Minimum 2 years against manufacturing defects

Semi-Fowler Hospital Bed – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Semi-Fowler Hospital Bed
2	Type	Manual, 2-function Semi-Fowler hospital bed
3	Functions	Backrest adjustment + Knee/Leg-rest adjustment
4	Backrest Angle	Minimum 0° to 70°
5	Leg/Knee Rest	Adjustable, minimum 0° to 40°
6	Operation	Manual operation using 2 crank handles
7	Crank	Foldable/removable crank handles with smooth operation
8	Overall Size	Approx. 2100 L × 900 W × 500 H mm
9	Mattress Platform	Approx. 1900 × 850 mm or suitable standard hospital mattress
10	Frame Material	Heavy-duty CRCA/MS steel
11	Mattress Platform	Perforated steel sheet / tubular steel or equivalent strong platform
12	Load Capacity	Minimum 180 kg safe working load
13	Head & Foot Board	Detachable/fixed steel or durable polymer head and foot boards
14	Side Rails	Foldable/removable tubular steel side rails on both sides
15	Castors	Minimum 125 mm heavy-duty castors
16	Castor Brakes	Minimum two castors with effective locking/braking mechanism
17	IV Pole	Provision for IV pole; detachable IV pole preferred
18	IV Pole Material	Stainless steel / chrome-plated steel, adjustable height
19	Surface Treatment	Anti-corrosion pre-treatment
20	Finish	Durable epoxy/polyester powder coating
21	Safety	Rounded corners and edges; no sharp projections
22	Mattress Compatibility	Suitable for standard hospital mattress
23	Cleaning	Smooth, washable and easy-to-disinfect surfaces
24	Accessories	IV pole, side rails, drainage bag hooks and standard accessories
25	Assembly	Complete assembly and installation by supplier
26	Warranty	Minimum 2 years comprehensive warranty
27	Standards	Shall comply with applicable hospital bed safety/quality standards

ICU Bed – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Electric ICU Bed – 5 Function / 5 Motor
2	Type	Motorized, electrically operated, multi-functional ICU bed
3	Functions	Backrest, knee/leg rest, height adjustment, Trendelenburg & reverse Trendelenburg
4	Backrest Adjustment	Minimum 0°–70°
5	Knee Rest	Minimum 0°–40°
6	Height Adjustment	Approx. 450–800 mm or wider
7	Trendelenburg	Minimum ±12°
8	Backrest/Knee Operation	Electric motor operated through hand-held controller
9	Height Operation	Electric motor operated
10	Motors	Minimum 5 independent electric actuators/motors
11	Load Capacity	Minimum 200 kg safe working load , preferably 220 kg or more
12	Mattress Platform	Minimum approx. 1950 × 850 mm
13	Platform	Four-section / multi-section platform suitable for ICU use
14	Frame	Heavy-duty CRCA/MS steel with corrosion-resistant treatment
15	Side Rails	Full-length split/foldable side rails on both sides
16	Side Rail Material	ABS / HDPE / equivalent durable medical-grade material
17	Head & Foot Board	Removable, impact-resistant ABS/polymer boards
18	Castors	Minimum 125–150 mm heavy-duty twin castors
19	Central Locking	Central locking/braking system for all castors
20	CPR Function	Mechanical/electric quick-release CPR for backrest
21	CPR Handle	Easily accessible CPR release handle on both sides
22	Emergency Position	Rapid conversion to CPR/emergency position
23	X-Ray Facility	X-ray permeable backrest with provision for cassette/image receptor
24	Radiolucent Area	Suitable radiolucent section for chest/upper body imaging
25	5th Wheel	Directional fifth wheel preferred for easy manoeuvrability
26	IV Pole	Height-adjustable, removable 4-hook IV pole
27	Drainage Hooks	Bilateral urine/drainage bag hooks
28	Oxygen Cylinder Holder	Provision for oxygen cylinder holder
29	Monitor/Equipment Provision	Accessory mounting provision for monitor, infusion pump and other ICU accessories
30	Bumpers	Four corner protective bumpers
31	Mattress	ICU mattress compatible; pressure-relieving mattress preferred
32	Battery Backup	Rechargeable battery backup for operation during power failure
33	Hand Controller	Lockable hand controller with easy-to-read function buttons
34	Nurse Control Panel	Nurse control panel with facility to lock selected functions preferred
35	Electrical Supply	220–240 V AC, 50 Hz
36	Electrical Safety	Electrical overload protection and safe low-voltage actuator system

Sl. No.	Parameter	Technical Specification
37	Surface Finish	Smooth, washable and disinfectant-resistant finish
38	Cleaning	Bed design shall facilitate cleaning and infection-control practices
39	Accessories	IV pole, mattress, drainage hooks, oxygen cylinder holder and standard accessories
40	Installation	Installation and commissioning at site
41	Training	Demonstration and training to ICU/nursing staff
42	Warranty	Minimum 2 years comprehensive warranty
43	Service	Authorized service support and availability of spare parts in India
44	Standards	Applicable medical electrical equipment and hospital bed safety standards

Wall Mount Bracket for Multipara Monitor – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Wall Mount Bracket for Multipara Patient Monitor
2	Type	Heavy-duty adjustable wall-mounted monitor arm/bracket
3	Compatibility	Compatible with multipara patient monitors of 12–24 inch display size or as per monitor model
4	Load Capacity	Minimum 15 kg , preferably 20 kg or higher
5	Material	High-strength MS steel / aluminium alloy construction
6	Finish	Durable epoxy powder-coated / medical-grade finish
7	VESA Compatibility	Minimum 75 × 75 mm and 100 × 100 mm VESA mounting pattern or compatible mounting interface
8	Horizontal Movement	Minimum ±90° swivel or as applicable
9	Vertical Adjustment	Adjustable tilt, minimum ±15° preferred
10	Arm Extension	Minimum 300 mm or as required for convenient bedside viewing
11	Tilt	Monitor tilt adjustment facility for optimal viewing angle
12	Rotation	360° rotation preferred, with suitable locking mechanism
13	Locking	Secure locking mechanism to prevent unwanted movement
14	Cable Management	Integrated cable management facility
15	Mounting Plate	Universal mounting plate / suitable adapter for monitor
16	Wall Fixing	Heavy-duty wall mounting plate with suitable anchor fasteners
17	Safety	Bracket shall safely support the monitor without vibration or excessive movement
18	Installation	Complete installation on RCC/brick wall by supplier
19	Accessories	Mounting screws, anchor fasteners, VESA adapter and cable management accessories
20	Application	Suitable for ICU, HDU, OT, Emergency and general patient-care areas
21	Warranty	Minimum 2 years against manufacturing defects

Wheelchair – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Hospital Wheelchair – Standard Adult
2	Type	Foldable, self-propelled manual wheelchair
3	Frame Material	Heavy-duty MS steel / CRCA steel
4	Frame Construction	Strong, rigid and corrosion-resistant welded construction
5	Seat Width	450 mm (18 inch)
6	Seat Depth	Approx. 400–450 mm
7	Seat Height	Approx. 480–520 mm
8	Overall Width	Approx. 650–700 mm
9	Seat & Backrest	Durable, washable and easy-to-clean upholstery
10	Upholstery Material	PVC/PU-coated synthetic leather or equivalent medical-grade material
11	Large Rear Wheels	Minimum 600 mm (24 inch) self-propelling wheels
12	Front Castors	Minimum 200 mm (8 inch) solid/swivel castors
13	Hand Rims	Ergonomic hand rims on both rear wheels
14	Tyres	Solid / puncture-proof tyres preferred
15	Brakes	User-operated parking brakes on both rear wheels
16	Footrests	Detachable / swing-away footrests with foot plates
17	Armrests	Padded, fixed or detachable armrests
18	Push Handles	Ergonomic rear push handles with hand grips
19	Folding	Wheelchair shall be easily foldable for storage and transport
20	Load Capacity	Minimum 120 kg , preferably 150 kg or higher
21	Safety	Anti-tip arrangement preferred
22	Finish	Anti-corrosion treatment with durable epoxy/polyester powder coating
23	Colour	As specified by purchaser
24	Mobility	Smooth movement and easy manoeuvrability inside hospital premises
25	Cleaning	Easy-to-clean and disinfectant-resistant surfaces
26	Accessories	Seat belt/safety belt and calf/heel strap preferred
27	Assembly	Supplied fully assembled and ready for use
28	Warranty	Minimum 2 years against manufacturing defects

Bedside Screen / Hospital Privacy Screen – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Hospital Bedside Privacy Screen
2	Type	Portable / foldable hospital privacy screen
3	Panels	Minimum 3 panels , preferably 4 panels
4	Overall Size	Approx. 1800 H × 1800–2400 W mm when fully extended
5	Panel Size	Approx. 600 mm W × 1800 mm H per panel
6	Frame Material	CRCA/MS tubular steel
7	Frame Construction	Strong, lightweight and rigid construction
8	Screen Material	Medical-grade PVC-coated fabric / washable synthetic curtain
9	Fabric	Opaque, non-transparent, washable and disinfectant-resistant
10	Privacy	Shall provide complete visual privacy to the patient
11	Hinges	Heavy-duty corrosion-resistant hinges for smooth folding
12	Wheels	Heavy-duty swivel castors, preferably 50–75 mm
13	Castor Brakes	At least two castors with locking mechanism
14	Base	Stable base to prevent accidental tipping
15	Surface Finish	Epoxy/polyester powder-coated steel frame
16	Curtain Fixing	Secure and replaceable curtain/fabric arrangement
17	Cleaning	Easy to clean and suitable for routine hospital disinfection
18	Infection Control	Fabric shall be moisture-resistant and suitable for hospital environment
19	Mobility	Easy to move and fold for storage
20	Height	Minimum 1800 mm to ensure adequate patient privacy
21	Safety	Rounded edges and no sharp projections
22	Application	Suitable for wards, ICU, labour room, emergency and examination areas
23	Accessories	All required hinges, castors, fasteners and curtain/fabric
24	Assembly	Supplied fully assembled and ready for use
25	Warranty	Minimum 2 years against manufacturing defects

Hand Cart Trolley – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Hand Cart Trolley / Material Transport Trolley
2	Type	Heavy-duty, manually operated platform/hand cart trolley
3	Material	MS/CRCA steel with robust construction
4	Platform Size	Approx. 900 × 600 mm or larger
5	Load Capacity	Minimum 250 kg
6	Platform	Heavy-duty chequered / plain steel platform
7	Handle	Ergonomic tubular steel push/pull handle
8	Handle Height	Approx. 900–1100 mm from ground
9	Wheels	Minimum 4 heavy-duty wheels/castors
10	Wheel Size	Minimum 150–200 mm diameter
11	Wheel Type	PU / rubber / solid wheels suitable for hospital flooring
12	Wheel Arrangement	Two fixed + two swivel castors preferred
13	Braking	At least two swivel castors with locking brakes
14	Frame	Heavy-duty welded steel frame with adequate reinforcement
15	Surface Treatment	Anti-corrosion pre-treatment
16	Finish	Durable epoxy/polyester powder coating
17	Safety	Rounded edges, no sharp projections
18	Mobility	Smooth and easy movement with minimum noise
19	Platform Edge	Raised edge/side guard preferred to prevent material falling
20	Cleaning	Smooth, washable and easy-to-clean surface
21	Application	Suitable for transportation of medicines, linen, supplies and general hospital materials
22	Assembly	Supplied fully assembled and ready for use
23	Warranty	Minimum 2 years against manufacturing defects

Bio-Medical Waste (BMW) EV Vehicle – Technical Specification

क्र.	Parameter	Technical Specification
1	Item	Electric Bio-Medical Waste Collection & Transportation Vehicle
2	Type	Battery-operated, enclosed electric waste collection vehicle
3	Application	Collection and transportation of segregated biomedical waste within/among hospital premises
4	Vehicle Type	3-wheeler / 4-wheeler electric utility vehicle
5	Payload Capacity	Minimum 500 kg
6	Cargo Body	Fully enclosed, leak-proof and washable waste collection compartment
7	Cargo Capacity	Minimum 1.5–2.0 m³ or suitable for required BMW bins/bags
8	Body Material	Corrosion-resistant SS 304 / FRP / HDPE lined or equivalent washable material
9	Waste Segregation	Separate compartments for different categories of biomedical waste
10	Internal Surface	Smooth, non-porous, leak-proof and easy to disinfect
11	Doors	Rear/side doors with secure locking arrangement
12	Floor	Leak-proof floor with raised edges to prevent spillage
13	Drainage	Provision for controlled cleaning/drainage of cargo compartment
14	Battery	Maintenance-free rechargeable lithium-ion battery preferred
15	Battery Capacity	Adequate for minimum 80 km operational range per charge
16	Range	Minimum 80 km/charge under rated operating conditions
17	Charging	Standard AC charging system, 230 V, 50 Hz
18	Charging Time	Preferably ≤6–8 hours with standard charger
19	Motor	High-efficiency BLDC / PMSM electric motor
20	Maximum Speed	Approximately 40–50 km/h , as permitted by vehicle category
21	Braking	Hydraulic/mechanical braking system suitable for rated load
22	Suspension	Suitable heavy-duty suspension for hospital road conditions
23	Tyres	Tubeless tyres preferred
24	Driver Cabin	Enclosed/semi-enclosed driver cabin with adequate weather protection
25	Safety	Headlamp, tail lamp, indicators, brake light, horn and reverse warning
26	Reverse Facility	Reverse gear with audible/visual reverse warning
27	GPS	GPS tracking facility preferred
28	Identification	"BIO-MEDICAL WASTE – जैव वैद्यकीय कचरा" marking on vehicle
29	Colour/Marking	As per applicable BMW transportation requirements
30	Cleaning	Vehicle body shall withstand routine washing and disinfection
31	Fire Safety	Suitable fire extinguisher shall be provided
32	Registration	Vehicle shall be registered with competent transport authority, wherever applicable
33	Compliance	Shall comply with applicable Bio-Medical Waste Management Rules, 2016 , amendments and applicable Motor Vehicle/Electric Vehicle requirements
34	Documentation	Registration, insurance, warranty, battery warranty and user/service manuals

क्र.	Parameter	Technical Specification
35	Warranty	Minimum 2 years vehicle warranty
36	Battery Warranty	Minimum 3 years preferred
37	Training	Driver/operator training for safe BMW handling and vehicle operation
38	Service	Authorized service support and availability of spare parts

Medicine EV Vehicle – Technical Specification

क्र.	Parameter	Technical Specification
1	Item	Electric Medicine Transport Vehicle
2	Type	Battery-operated enclosed electric goods/utility vehicle
3	Application	Transportation of medicines, vaccines, medical consumables and hospital supplies
4	Vehicle Type	3-wheeler / 4-wheeler electric cargo vehicle
5	Payload Capacity	Minimum 500 kg
6	Cargo Body	Fully enclosed, lockable and weatherproof cargo compartment
7	Cargo Volume	Minimum 1.5–2.0 m³
8	Body Material	Corrosion-resistant MS/Aluminium/FRP construction
9	Internal Lining	Smooth, washable and easy-to-clean food/medical-grade lining preferred
10	Shelving	Adjustable shelves/racks for medicines and medical consumables
11	Compartments	Separate compartments for organized storage of different medicines/materials
12	Temperature Control	Insulated cargo compartment preferred
13	Cold Chain Provision	Provision for portable medical refrigerator/cold box for temperature-sensitive medicines/vaccines
14	Battery	Rechargeable Lithium-ion battery preferred
15	Range	Minimum 80 km per charge
16	Motor	High-efficiency BLDC/PMSM electric motor
17	Maximum Speed	Approximately 40–50 km/h , subject to applicable vehicle regulations
18	Charging	230 V AC, 50 Hz standard charging facility
19	Charging Time	Preferably ≤6–8 hours
20	Braking	Hydraulic/mechanical braking system suitable for rated load
21	Suspension	Heavy-duty suspension suitable for rural/uneven roads
22	Tyres	Tubeless tyres preferred
23	Driver Cabin	Weather-protected cabin with adequate seating
24	Security	Lockable cargo compartment with secure locking system
25	Safety	Headlamps, tail lamps, indicators, brake lights, horn and reverse warning
26	GPS	GPS tracking facility preferred
27	Vehicle Identification	“MEDICINE TRANSPORT VEHICLE / औषध वाहतूक वाहन” marking
28	Hygiene	Cargo area shall be dust-free, moisture-resistant and suitable for routine cleaning/disinfection
29	Temperature Monitoring	Digital temperature display/data logger if insulated/cold-chain compartment is provided
30	Fire Safety	Suitable fire extinguisher
31	Registration	Registration and statutory documentation as applicable
32	Compliance	Applicable CMVR/ARAI/BIS and EV-related regulatory requirements
33	Battery Safety	Battery management system (BMS), over-charge, over-discharge and short-circuit protection

क्र.	Parameter	Technical Specification
34	Documents	Registration, insurance, warranty, battery warranty, manuals and service documents
35	Vehicle Warranty	Minimum 3 years
36	Battery Warranty	Minimum 2 years preferred
37	Training	Driver/operator training
38	Service	Authorized service support and spare-parts availability

Organic Waste Composting Machine – 100–150 Kg/Day Capacity

Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Organic Waste Composting Machine
2	Application	Conversion of segregated biodegradable organic waste into compost
3	Capacity	100–150 kg/day
4	Waste Type	Food waste, vegetable waste, fruit waste and other biodegradable organic waste
5	Processing Method	Mechanical shredding/mixing followed by controlled composting/dehydration process
6	Input Waste	Segregated organic waste, free from plastic, metal, glass and other non-biodegradable material
7	Processing Time	Preferably 24–48 hours for primary processing, depending on technology
8	Shredder	Integrated heavy-duty shredding/cutting mechanism
9	Mixing	Automatic/mechanical mixing system for uniform processing
10	Chamber Material	SS 304 / equivalent corrosion-resistant material
11	Body Material	Heavy-duty MS/SS construction with anti-corrosion treatment
12	Heating System	Controlled electric heating system, if required by the offered technology
13	Temperature Control	Digital temperature monitoring and automatic temperature control
14	Temperature Range	Typically controllable up to approximately 60–80°C , as required by the composting process
15	Moisture Control	Provision for moisture management / drainage as applicable
16	Odour Control	Integrated odour-control system such as bio-filter / activated carbon filter
17	Exhaust	Controlled exhaust/ventilation arrangement
18	Control Panel	Digital/electronic control panel with automatic operation and fault indication
19	Automation	Automatic cycle control for mixing, heating and processing, as applicable
20	Safety	Overload, over-temperature and electrical safety protection
21	Power Supply	230 V $\pm$10%, 50 Hz, Single Phase or 3-phase as required by machine capacity
22	Power Consumption	Supplier shall specify rated power consumption and energy consumption per kg of waste processed
23	Noise Level	Preferably ≤ 70 dB(A) during normal operation
24	Compost Output	Processed organic material suitable for further curing/use as compost, subject to applicable standards
25	Collection Tray	Removable collection/output tray for processed material
26	Cleaning	Easy-to-clean internal and external surfaces
27	Mobility	Heavy-duty castors/wheels preferred for ease of movement
28	Installation	Complete installation and commissioning at site
29	Demonstration	Live demonstration and operational training to hospital staff
30	Accessories	All standard tools, trays, filters, electrical connections and accessories required for operation
31	Documentation	Operation, maintenance and troubleshooting manual

Sl. No.	Parameter	Technical Specification
32	Compliance	Applicable electrical safety and environmental requirements
33	Warranty	Minimum 3 years comprehensive warranty
34	Service Support	Minimum 3 years availability of spare parts and after-sales service preferred

Adult Weight Machine – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Item	Adult Digital Weighing Machine / Weighing Scale
2	Type	Electronic digital floor-standing weighing scale
3	Capacity	Minimum 200 kg
4	Accuracy	±100 g or better
5	Resolution	100 g
6	Display	Large, easy-to-read LCD/LED digital display
7	Units	kg, with user-selectable unit facility if applicable
8	Platform Size	Minimum approximately 300 × 300 mm
9	Platform Material	Strong, non-slip and easy-to-clean platform
10	Construction	Heavy-duty, suitable for continuous hospital use
11	Tare/Zero	Automatic zero setting / tare facility
12	Auto Function	Auto ON/OFF facility preferred
13	Overload Indication	Overload warning/indication facility
14	Low Battery	Low-battery indication
15	Power Supply	Battery operated and/or rechargeable power supply
16	Battery	Long-life battery; replaceable/rechargeable preferred
17	Stabilization	Stable reading within a few seconds
18	Calibration	Factory calibrated and supplied with calibration certificate
19	Surface	Corrosion-resistant, washable and easy to disinfect
20	Safety	Non-slip platform and stable anti-skid feet
21	Operating Environment	Suitable for normal hospital/indoor conditions
22	Accessories	Batteries, adapter (if applicable), user manual
23	Standards	Applicable BIS / legal metrology requirements, wherever applicable
24	Warranty	Minimum 2 years against manufacturing defects

Air Curtain Machine -Technical Specification

Sl. No.	Parameter	Technical Specification
1	Type	Heavy-duty commercial/industrial Air Curtain , suitable for hospital main entrance, OT/ICU/service areas as applicable
2	Mounting	Wall/door-top mounted, horizontal installation
3	Door Width Coverage	Minimum 1200 mm ; suitable for the specified door width. 1500/1800 mm models may be supplied as per site requirement
4	Air Flow	High-velocity uniform air curtain covering complete door opening; minimum 1500–2500 m³/hr for 1.2 m unit or better
5	Air Velocity	Minimum 12–18 m/sec at outlet, or better
6	Fan Type	High-efficiency centrifugal/axial fan, dynamically balanced, low-vibration
7	Motor	Heavy-duty, energy-efficient electric motor; continuous-duty operation
8	Motor Power	Approx. 0.25–1.0 HP , suitable for selected air curtain capacity
9	Noise Level	≤65 dB(A) at 1 m preferred
10	Air Outlet	Full-width discharge nozzle with uniform air distribution and adjustable air direction
11	Casing	Corrosion-resistant CRCA/MS with powder coating or SS/Aluminium construction
12	Control	On/Off control with fan speed control where applicable; remote control preferred
13	Door Sensor	Provision for automatic ON/OFF through door sensor/limit switch preferred
14	Heating	Non-heating type preferred for normal hospital entrances. If heated model is required, heating element shall have independent safety control and over-temperature protection
15	Air Filtration	Washable/reusable pre-filter or provision for suitable air filter preferred
16	Safety	Motor overload/thermal protection, electrical short-circuit protection and proper earthing
17	Electrical Supply	230 V ±10%, 50 Hz, single phase AC , suitable for Indian power supply
18	Energy Efficiency	Energy-efficient motor with minimum power consumption for specified airflow
19	Operating Temperature	Suitable for continuous operation under normal indoor ambient conditions
20	Installation	Complete wall/ceiling mounting brackets, fasteners and accessories shall be supplied
21	Application	Suitable for hospital entrances, OPD, emergency entrance, pharmacy/store and other areas requiring control of dust, insects and outside air infiltration
22	Accessories	Mounting brackets, electrical connection accessories, remote/control switch, door sensor where applicable and user manual
23	Documentation	Technical catalogue, operation & maintenance manual and test/performance certificate
24	Compliance	Equipment shall comply with applicable BIS/IEC electrical safety requirements and applicable Indian regulations

Sl. No.	Parameter	Technical Specification
25	Warranty	Minimum 2 years comprehensive warranty from date of successful installation/commissioning
26	Installation & Training	Supplier shall provide installation, testing, commissioning and basic operating/maintenance training at site
27	After-Sales Service	Availability of service support and spare parts for minimum 5 years from supply

Air Purifier –Technical Specification

Sl. No.	Parameter	Technical Specification
1	Type	Medical/Commercial grade portable air purifier suitable for continuous indoor hospital use
2	Application Area	OPD, waiting area, ICU, wards, cabins, laboratory and other enclosed hospital areas
3	Coverage Area	Minimum 500–800 sq.ft. per unit, or as per manufacturer-rated CADR
4	Air Delivery	CADR $\geq$ 400 m³/hr , preferably $\geq$ 500 m ³ /hr
5	Filtration	Multi-stage filtration system with Pre-filter + True HEPA filter + Activated Carbon filter
6	HEPA Filter	True HEPA H13 or better , capable of high-efficiency removal of fine particulate matter
7	PM Filtration	Effective filtration of PM2.5 and PM10 ; suitable for reduction of airborne particulate matter
8	Pre-filter	Washable/reusable pre-filter for removal of dust, hair and larger particles
9	Activated Carbon	Activated carbon filter for reduction of odour and gaseous pollutants
10	UV-C	UV-C disinfection module may be provided as an additional feature; if provided, it shall be enclosed within the unit to prevent user exposure
11	Ionizer/Ozone	Ozone generation shall not be permitted during normal operation. Ionizer, if provided, shall be independently switchable and shall not produce harmful ozone levels
12	Air Quality Sensor	Built-in PM2.5/air-quality sensor with real-time air quality indication preferred
13	Display	Digital LED/LCD display showing PM2.5/air-quality status, operating mode and filter replacement indication
14	Fan Speed	Minimum 3–4 fan speed levels , including Auto/Sleep/Turbo mode
15	Noise Level	$\leq$55 dB(A) at normal operating speed; Sleep mode preferably $\leq$ 35 dB(A)
16	Filter Life Indicator	Automatic filter replacement/service indicator based on operating hours or filter condition
17	Control	Touch/physical control panel with remote control; automatic mode preferred
18	Timer	Programmable timer, preferably 1–12 hours or continuous operation
19	Airflow	360°/multi-directional air intake preferred with effective clean-air discharge
20	Electrical Supply	230 V $\pm$10%, 50 Hz, single phase AC
21	Power Consumption	Energy-efficient operation; supplier shall specify rated power consumption in watts
22	Safety	Overheating protection, electrical protection, proper earthing and automatic restart after power failure preferred
23	Construction	Durable ABS/engineering polymer or equivalent, smooth and easy-to-clean exterior suitable for hospital environment
24	Mobility	Compact floor-standing design with carrying handle/castors as applicable
25	Maintenance	Filters shall be easily removable and replaceable without special tools
26	Accessories	Complete filter set, power cord, remote control, user manual and all standard accessories

क्र.	Parameter	Technical Specification
27	Documentation	Technical catalogue, operating & maintenance manual and filter replacement schedule
28	Compliance	Shall comply with applicable BIS/IEC electrical safety requirements and applicable Indian regulations
29	Warranty	Minimum 2 years comprehensive warranty from date of installation/commissioning
30	Installation & Training	Supplier shall provide installation, demonstration and basic user training at site
31	Spare Parts	Availability of replacement HEPA, carbon and pre-filters for minimum 5 years

Anesthesia Workstation – Technical Specification

Sl. No.	Parameter	Technical Specification
1	Type	Integrated anesthesia workstation suitable for adult, pediatric and neonatal patients
2	Workstation	Floor-standing mobile workstation with integrated anesthesia gas delivery system, ventilator, breathing system and monitoring interface
3	Gas Supply	O ₂ , N ₂ O and Air with pipeline supply and cylinder backup provision
4	Flowmeters	Electronic/digital or dual-tube flowmeters for O ₂ , N ₂ O and Air
5	Oxygen Flow Range	0.1–10 L/min or wider
6	N ₂ O Flow Range	0.1–10 L/min or wider
7	Air Flow Range	0.1–10 L/min or wider
8	Oxygen Flush	35–75 L/min
9	Hypoxic Guard	O ₂ /N ₂ O proportioning system to prevent hypoxic gas mixture delivery
10	Vapourizer	Provision for 2 vapourizers with interlocking system; suitable for Sevoflurane/Isoflurane
11	Vapourizer Mount	Selectatec type or equivalent
12	Breathing System	Integrated circle breathing system suitable for low-flow anesthesia
13	CO ₂ Absorber	Integrated absorber, capacity 1–1.5 L or higher
14	APL Valve	Adjustable Pressure Limiting valve with clearly marked pressure scale
15	Ventilator	Microprocessor-controlled electronically or pneumatically driven anesthesia ventilator
16	Ventilation Modes	VCV, PCV, Manual/Spontaneous, SIMV/PSV
17	Tidal Volume	20–1500 mL or wider
18	Respiratory Rate	4–60 breaths/min or wider
19	I:E Ratio	Adjustable from 1:1 to 1:4 or wider
20	PEEP	Adjustable 0–20 cmH ₂ O
21	Inspiratory Flow	Adjustable up to 100 L/min or higher
22	Display	Colour TFT/LCD display, 10–12 inch or larger
23	Parameters	Vt, minute volume, respiratory rate, airway pressure, PEEP, FiO ₂ and related parameters
24	Waveforms	Pressure-time and flow-time waveforms; volume waveform where available
25	Monitoring	SpO ₂ , ECG, NIBP, EtCO ₂ and respiratory rate
26	Capnography	Sidestream or mainstream EtCO ₂ monitoring with real-time capnogram
27	Gas Monitoring	Inspired/expired O ₂ and anesthetic agent monitoring provision
28	Alarms	High/low airway pressure, apnea, low minute volume, high/low FiO ₂ , gas supply failure, power failure and ventilator malfunction
29	Scavenging	Integrated/provision for waste anesthetic gas scavenging system

Sl. No.	Parameter	Technical Specification
30	Battery Backup	Rechargeable battery backup providing 60–90 minutes operation
31	Electrical Supply	220–240 V AC, 50 Hz, single phase
32	Mobility	Heavy-duty castors with locking/braking mechanism
33	Cylinder Provision	Standard medical gas cylinder mounting provision with safety chain/holder
34	Storage	Integrated work surface, drawers/shelves for accessories
35	Data Connectivity	USB/Ethernet/RS-232 or equivalent; data export/network connectivity
36	Construction	Robust corrosion-resistant construction with smooth, easy-to-clean surfaces
37	Accessories	Adult and pediatric breathing circuits, reservoir bags, test lung, water trap, O ₂ sensor where applicable, connectors, power cable and standard accessories
38	Safety	Electrical protection, oxygen safety system, pressure protection and appropriate audiovisual alarms
39	Calibration	Calibration and performance testing of sensors and monitoring parameters with certificate
40	Compliance	Applicable BIS/IEC/ISO medical electrical and anesthesia workstation safety requirements and CDSCO/Medical Device Rules
41	Installation	Installation, testing and commissioning at site
42	Training	Operational and basic maintenance training for medical, nursing and technical staff
43	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
44	Service Support	Availability of genuine spare parts and technical service support for 5 years

Ceiling Type OT Light – Double Dome LED Technical Specification

Sl. No.	Parameter	Technical Specification
1	Type	Ceiling-mounted Double Dome LED Operating Theatre Light suitable for major and minor surgical procedures
2	Configuration	Two independent LED light heads/domes mounted on a balanced ceiling suspension system
3	Light Head	Two circular/symmetrical LED light heads with shadow-reduction optical system
4	Illumination	160,000 Lux or higher at 1 m for each main dome
5	Colour Temperature	4000–5000 K , adjustable preferred
6	Colour Rendering Index	CRI ≥95 , with R9 ≥90 preferred
7	LED Life	50,000 hours or higher
8	Light Field Diameter	Approx. 180–300 mm , adjustable
9	Illumination Adjustment	Intensity adjustment through touch/sterilizable handle and/or control panel
10	Intensity Control	10–100% continuous or multi-level intensity control
11	Shadow Management	Multi-faceted LED optical arrangement providing shadow reduction during surgical procedures
12	Focus Adjustment	Adjustable light field/focus from sterile handle
13	Sterilizable Handle	Removable/autoclavable central sterile handle for positioning and focusing
14	Dome Movement	360° rotation with multi-axis movement and smooth positioning
15	Vertical Movement	Height-adjustable suspension arm suitable for OT ceiling height
16	Suspension System	Balanced spring-arm/counterbalanced arm mechanism with smooth movement and stable positioning
17	Colour Temperature Control	Electronic adjustment preferred to provide different colour temperature settings
18	Endoscopic Mode	Endoscopic/low-intensity mode preferred
19	Heat Management	Low radiant heat at surgical field with efficient LED thermal management
20	LED Arrangement	Multiple high-quality medical-grade LEDs with independent/segmented LED operation
21	Control Panel	Separate wall-mounted or integrated control panel for ON/OFF and illumination adjustment
22	Power Supply	220–240 V AC, 50 Hz, single phase
23	Battery Backup	Rechargeable emergency battery backup providing 60 minutes or more operation preferred
24	Electrical Safety	Electrical protection, proper earthing and protection against voltage fluctuation
25	Dome Housing	Lightweight, corrosion-resistant aluminium/engineering polymer housing with smooth surfaces
26	Infection Control	Smooth, sealed and easy-to-clean dome surface; suitable for routine OT disinfection
27	Sterile Operation	Controls shall permit operation and positioning without compromising sterile field

Sl. No.	Parameter	Technical Specification
28	Mounting	Complete ceiling mounting arrangement including ceiling plate, suspension arms, counterbalance mechanism and all installation hardware
29	Weight Balance	Self-balancing mechanism allowing precise positioning and stable operation
30	Accessories	Sterilizable handles, spare handle covers, control panel, mounting accessories and necessary electrical accessories
31	Documentation	Operation manual, service manual, technical catalogue and preventive maintenance schedule
32	Compliance	Applicable BIS/IEC/ISO requirements for surgical/operating theatre luminaires and applicable CDSCO/Medical Device Rules
33	Installation	Complete ceiling installation, electrical connection, testing, balancing and commissioning at site
34	Training	Demonstration and operational training for OT medical, nursing and technical staff
35	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
36	Service Support	Availability of LED modules, electronic components and genuine spare parts with technical service support for 5 years
37	LUX	2000 lux

Electrical Vertical Autoclave – 2 Drum Technical Specification

Sl. No.	Parameter	Technical Specification
1	Type	Electrical Vertical Steam Sterilizer/Autoclave , double-drum type, floor-mounted
2	Chamber	Vertical cylindrical sterilization chamber manufactured from SS 304/SS 316 or equivalent corrosion-resistant material
3	Capacity	Suitable for 2 drums , with total chamber capacity approximately 50–75 litres
4	Drum Capacity	Two stainless-steel sterilization drums, each approximately 20–30 litres , suitable for dressing material, linen, instruments and laboratory articles
5	Chamber Construction	Heavy-gauge stainless-steel inner chamber with robust outer body and thermal insulation
6	Lid	Heavy-duty stainless-steel lid with quick-opening/closing arrangement
7	Lid Locking	Safety locking system preventing lid opening while chamber is pressurized
8	Heating	Built-in electrical immersion/heating element with corrosion-resistant construction
9	Operating Pressure	1.1–1.2 kg/cm² or equivalent
10	Sterilization Temperature	121°C at operating pressure; higher temperature cycle where supported
11	Temperature Range	Approximately 105–134°C , adjustable as per sterilization cycle
12	Pressure Range	0–2.1 kg/cm² or wider
13	Sterilization Cycle	Automatic/semi-automatic sterilization cycle with selectable exposure time
14	Timer	Digital timer, adjustable approximately 1–99 minutes
15	Temperature Control	Digital microprocessor/PID temperature controller
16	Display	Digital display for chamber temperature, pressure and sterilization cycle/time
17	Pressure Gauge	Analogue/digital pressure gauge with clear pressure indication
18	Safety Valve	Automatic pressure release/safety valve to prevent over-pressure
19	Low Water Protection	Automatic cut-off/indicator in case of insufficient water level
20	Steam Release	Controlled/manual steam release arrangement
21	Air Removal	Suitable arrangement for effective air removal and steam penetration
22	Drainage	Chamber drain/condensate outlet with suitable drain valve
23	Insulation	High-quality thermal insulation to reduce heat loss and protect operator
24	Body	Stainless steel/CRCA outer body with corrosion-resistant finish
25	Sterilization Baskets	Two SS sterilization drums/baskets with perforations for effective steam circulation
26	Electrical Supply	220–240 V AC, 50 Hz, single phase
27	Power	Approximately 3–6 kW , suitable for chamber capacity
28	Controls	Digital control panel with power, heating, sterilization, completion and fault indications

Sl. No.	Parameter	Technical Specification
29	Alarms	Audible/visual indication for cycle completion, over-temperature, over-pressure and low-water condition
30	Safety Features	Pressure safety valve, lid interlock, thermal overload protection, low-water cut-off and electrical protection
31	Mobility	Sturdy floor-mounted construction with suitable legs/levelling arrangement
32	Accessories	Two SS drums, drum stand/basket, lid, drain arrangement, power cable and all standard accessories
33	Documentation	User manual, service manual, sterilization cycle instructions and maintenance schedule
34	Validation	Temperature/pressure performance testing and calibration certificate at installation
35	Compliance	Applicable BIS/IEC requirements for electrical steam sterilizers/autoclaves and applicable regulatory requirements
36	Installation	Complete installation, testing, commissioning and demonstration at site
37	Training	Training to operating staff regarding operation, loading, sterilization cycle and routine maintenance
38	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
39	Service Support	Availability of spare parts and technical service support for 5 years

Hand Dryer Machine – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Automatic touchless wall-mounted electric hand dryer suitable for hospital/healthcare use
2	Operation	Infrared/proximity sensor operated, hands-free operation
3	Activation	Automatic ON/OFF when hands are placed in the sensing zone
4	Air Flow	High-speed warm/cold air flow suitable for rapid hand drying
5	Air Velocity	Approximately 80–100 m/s for high-speed type or suitable for rapid drying
6	Drying Time	Approximately 10–15 seconds or better
7	Motor	High-speed, energy-efficient brushless/induction motor
8	Motor Protection	Thermal overload protection and automatic cut-off
9	Heating Element	PTC/other safe heating element with over-temperature protection; cold-air operation preferred
10	Temperature	Controlled warm air, suitable for comfortable hand drying
11	Noise Level	≤75 dB(A) preferred during operation
12	Filter	Replaceable/washable air filter; HEPA filtration preferred for hospital application
13	Housing	ABS/engineering polymer or stainless-steel body, corrosion-resistant and durable
14	Hygiene	Touch-free operation with smooth, easy-to-clean and disinfectant-resistant surface
15	Water Resistance	Suitable protection against water splash for washroom installation
16	Mounting	Wall-mounted with complete mounting bracket and fixing accessories
17	Electrical Supply	220–240 V AC, 50 Hz, single phase
18	Power Consumption	Energy-efficient operation; supplier shall specify rated power consumption
19	Safety	Electrical insulation, proper earthing, short-circuit and over-temperature protection
20	Indicator	LED/power and sensor operation indicator
21	Maintenance	Easy access for cleaning and filter replacement
22	Application	Suitable for hospitals, OPD, wards, OT support areas, laboratories and public washrooms
23	Accessories	Mounting hardware, power cable, user manual and standard accessories
24	Compliance	Applicable BIS/IEC electrical safety requirements and applicable Indian regulations
25	Installation	Complete installation, testing and commissioning at site
26	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
27	Service Support	Availability of spare parts and technical service support for 5 years

Hydraulic Delivery Bed – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Hydraulic Obstetric/Delivery Bed suitable for labour, delivery, examination and obstetric procedures
2	Construction	Heavy-duty CRCA/MS tubular frame with corrosion-resistant treatment and epoxy/polyester powder coating
3	Bed Dimensions	Approx. 1900–2100 mm length × 850–950 mm width
4	Height Adjustment	Hydraulic height adjustment approximately 550–850 mm
5	Backrest	Manually/pneumatically adjustable backrest, approximately 0–70°
6	Leg Section	Adjustable/removable leg section for lithotomy position
7	Trendelenburg	Provision for Trendelenburg/reclining position as required for obstetric procedures
8	Hydraulic System	Foot-operated hydraulic pump with smooth and controlled height adjustment
9	Positioning	Suitable for supine, semi-sitting and lithotomy positions
10	Mattress Platform	Multi-section mattress platform with suitable gap/opening for delivery and examination
11	Delivery Cut-out	Ergonomically designed perineal/delivery cut-out with removable collection tray
12	Leg Supports	Pair of adjustable lithotomy/leg supports with padded cushions and locking mechanism
13	Side Rails	Foldable/removable stainless-steel or coated tubular side rails on both sides
14	Head/Foot Board	Removable head and foot boards made of durable polymer/ABS or coated metal
15	Patient Capacity	Safe working load 180–200 kg or higher
16	Castors	Heavy-duty castors, approximately 125 mm diameter, with central/individual locking
17	Braking	Reliable braking system for stable positioning during delivery
18	Mattress	High-density medical-grade foam mattress, seamless/waterproof, disinfectant-resistant and suitable for obstetric use
19	Mattress Thickness	Approx. 75–100 mm
20	Upholstery	Medical-grade PU/PVC, waterproof, tear-resistant and easy to clean/disinfect
21	Drainage/Collection	Removable stainless-steel/plastic collection tray with easy cleaning and removal
22	IV Pole	Adjustable/removable IV pole with hook provision
23	Accessory Rails	Provision for attaching obstetric accessories and instrument trays
24	Footrest	Adjustable/removable footrest suitable for lithotomy position
25	Emergency Features	Quick and easy positioning of backrest/leg section during emergency procedures
26	Surface Finish	Smooth, rounded edges and crevice-minimized design for infection control

Sr. No.	Parameter	Technical Specification
27	Hydraulic Safety	Hydraulic system with controlled movement and mechanical safety/locking arrangement
28	Electrical Requirement	No electrical power required for basic hydraulic operation
29	Accessories	Leg supports, collection tray, IV pole, mattress, side rails and standard mounting accessories
30	Documentation	User manual, maintenance instructions and technical catalogue
31	Compliance	Applicable BIS/IEC requirements and applicable medical device regulatory requirements
32	Installation	Assembly, installation, testing and demonstration at site
33	Training	Basic operation and maintenance training for nursing/technical staff
34	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
35	Service Support	Availability of spare parts and technical service support for 5 years

Insect Killer – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Electric UV/LED insect killer suitable for hospital, laboratory, kitchen, stores and other indoor areas
2	Operating Principle	UV-A/LED light attraction with high-voltage electric grid for killing flying insects
3	Coverage Area	Suitable for indoor area of approximately 80–120 m² or as specified by manufacturer
4	UV-A/LED Light	High-efficiency UV-A/LED tubes with wavelength approximately 365–395 nm
5	Light Source	Replaceable UV-A tubes/LED modules with long operating life
6	Electric Grid	High-voltage grid with effective insect-killing performance
7	Grid Safety	Protective outer grille preventing accidental contact with high-voltage grid
8	Collection Tray	Removable insect collection tray for easy cleaning and disposal
9	Body	Aluminium/SS/ABS or equivalent corrosion-resistant construction
10	Mounting	Wall-mounted, ceiling-mounted or freestanding installation
11	Electrical Supply	220–240 V AC, 50 Hz, single phase
12	Power Consumption	Energy-efficient operation; rated power shall be specified by supplier
13	Noise	Low-noise operation; no fan preferred unless specifically required
14	Chemical Free	Operation without insecticide, pesticide, aerosol or chemical attractant
15	Hygiene	Easy-to-clean design suitable for hospital environment
16	Cleaning	Removable tray and accessible grid/light assembly for routine cleaning
17	Indicator	Power ON indicator and operational status indication
18	Safety	Electrical insulation, proper earthing, overload/short-circuit protection and safe enclosure
19	Construction	Robust, durable and suitable for continuous indoor operation
20	Application	Suitable for wards, OPD, stores, kitchen, pantry, laboratory and other non-sterile indoor areas
21	Accessories	Mounting brackets, fixing hardware, power cable and user manual
22	Installation	Complete installation, testing and commissioning at site
23	Compliance	Applicable BIS/IEC electrical safety requirements and applicable Indian regulations
24	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
25	Service Support	Availability of replacement UV tubes/LED modules and other spare parts for 5 years

Multipara Monitor – Infant / Neonatal Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Multi-parameter patient monitor designed specifically for neonatal and infant patients
2	Display	Colour TFT/LCD display, 10–12 inch or larger , high-resolution display
3	ECG	3-lead/5-lead ECG monitoring with real-time waveform display
4	ECG Heart Rate	Range approximately 30–300 bpm or wider
5	ECG Accuracy	$\pm 1\%$ or ± 1 bpm, as applicable
6	SpO ₂	Neonatal/infant compatible pulse oximetry with continuous SpO ₂ and pulse rate monitoring
7	SpO ₂ Range	0–100%
8	SpO ₂ Accuracy	$\pm 2\%$ in the applicable measurement range
9	NIBP	Non-Invasive blood pressure monitoring with neonatal, infant and pediatric cuffs
10	NIBP Modes	Manual, automatic and STAT modes
11	NIBP Parameters	Systolic, diastolic and mean arterial pressure
12	NIBP Range	Suitable for neonatal and infant blood pressure measurement
13	Temperature	Dual-channel temperature monitoring preferred
14	Temperature Range	Approximately 25–45°C
15	Respiratory Rate	Continuous respiratory rate monitoring from ECG impedance
16	Respiration Range	Approximately 0–150 breaths/min or wider
17	EtCO ₂	Sidestream/mainstream EtCO ₂ monitoring suitable for neonatal/infant use
18	EtCO ₂ Range	0–150 mmHg or wider
19	Capnography	Real-time EtCO ₂ waveform with inspired CO ₂ display
20	IBP	Provision for 2-channel invasive blood pressure (IBP) monitoring preferred
21	Additional Parameters	SpO ₂ , ECG, NIBP, RESP, temperature and EtCO ₂ ; additional modules as specified
22	Waveforms	Simultaneous display of multiple waveforms including ECG, SpO ₂ , RESP and EtCO ₂
23	Trends	Numerical and graphical trends for at least 72 hours
24	Alarms	Visual and audible alarms for high/low HR, SpO ₂ , NIBP, temperature, RR, EtCO ₂ and apnea
25	Alarm System	Adjustable high/low alarm limits with alarm priority and alarm silence function
26	Arrhythmia	Basic arrhythmia detection and ST-segment analysis preferred
27	Apnea Alarm	Adjustable apnea detection and alarm
28	Neonatal Accessories	Neonatal ECG electrodes/leads, neonatal SpO ₂ sensor, neonatal NIBP cuffs of different sizes, temperature probe and EtCO ₂ sampling accessories
29	Data Storage	Internal memory for patient data, trends and alarm events

Sr. No.	Parameter	Technical Specification
30	Connectivity	USB/Ethernet/RS-232 or equivalent; central monitoring/network connectivity preferred
31	Battery	Rechargeable battery providing at least 4 hours operation
32	Electrical Supply	220–240 V AC, 50 Hz , single phase
33	Mounting	Tabletop, trolley or wall-mounting compatible
34	Trolley	Mobile trolley with locking castors, if supplied with trolley
35	Safety	Electrical isolation, proper earthing and protection against electrical/measurement-related hazards
36	Infection Control	Smooth, easy-to-clean and disinfectant-resistant housing suitable for neonatal areas
37	Accessories	Power cable, battery, neonatal/infant sensors, cuffs, probes, cables and all standard accessories
38	Documentation	User manual, service manual and preventive maintenance schedule
39	Calibration	Calibration/performance verification certificate at installation
40	Compliance	Applicable BIS/IEC/ISO requirements for patient monitoring equipment and applicable CDSCO/Medical Device Rules
41	Installation	Installation, testing, commissioning and demonstration at site
42	Training	Training for doctors, nurses and technical staff on operation and routine maintenance
43	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
44	Service Support	Availability of genuine spare parts, sensors and technical service support for 5 years

Nebulizer Machine – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Electric compressor nebulizer suitable for hospital, OPD, emergency and ward use
2	Operating Principle	Compressor-based pneumatic nebulization
3	Application	Suitable for adult, pediatric and infant patients
4	Compressor	Oil-free, piston-type compressor suitable for continuous/repeated clinical use
5	Air Flow	6–10 L/min
6	Operating Pressure	Approximately 1.5–3.0 bar
7	Nebulization Rate	≥0.2 mL/min or as specified by manufacturer
8	Particle Size	MMAD approximately 3–5 µm , suitable for respiratory tract delivery
9	Medication Capacity	Nebulizer cup capacity approximately 5–10 mL
10	Residual Volume	Low residual medication volume, preferably ≤0.5 mL
11	Medication Cup	Medical-grade, transparent, detachable and easy to clean
12	Patient Interface	Adult mask, pediatric mask and infant mask
13	Mouthpiece	Reusable/medical-grade mouthpiece suitable for nebulization
14	Tubing	Flexible, kink-resistant medical-grade tubing
15	Noise Level	≤60 dB(A) preferred
16	Operation	Simple one-touch ON/OFF operation
17	Continuous Operation	Suitable for repeated/continuous nebulization sessions without overheating
18	Thermal Protection	Automatic thermal overload protection with motor safety cut-off
19	Air Filter	Replaceable air intake filter
20	Housing	Durable ABS/engineering polymer body, easy to clean and disinfect
21	Electrical Supply	220–240 V AC, 50 Hz, single phase
22	Power Consumption	Energy-efficient motor; rated power shall be specified by supplier
23	Portability	Compact tabletop design with carrying handle
24	Accessories	Nebulizer cup, tubing, adult mask, pediatric mask, infant mask, mouthpiece, spare air filter and power cable
25	Safety	Electrical insulation, proper earthing, thermal overload and short-circuit protection
26	Maintenance	Easy access for cleaning, disinfection and filter replacement
27	Documentation	User manual, cleaning instructions and maintenance schedule
28	Compliance	Applicable BIS/IEC requirements for medical electrical equipment and applicable CDSCO/Medical Device Rules
29	Installation	Testing and demonstration at site
30	Warranty	Comprehensive warranty for 2 years from date of supply/commissioning
31	Service Support	Availability of spare parts and technical service support for 5 years

Hydraulic OT Table – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Hydraulic Operating Theatre Table suitable for general surgery, gynecology, urology, orthopedics and other surgical procedures
2	Construction	Heavy-duty stainless steel/CRCA/MS frame with corrosion-resistant treatment and durable finish
3	Table Top	Multi-section radiolucent tabletop suitable for use with C-arm
4	Table Dimensions	Approx. 1900–2100 mm L × 500–550 mm W
5	Height Adjustment	Hydraulic height adjustment approximately 650–1000 mm
6	Hydraulic System	Foot-operated hydraulic pump with smooth and controlled height adjustment
7	Backrest Adjustment	Approximately +70° to -40° or wider
8	Leg Section	Split/removable leg sections with independent adjustment
9	Trendelenburg	Approximately 25–30°
10	Reverse Trendelenburg	Approximately 20–25°
11	Lateral Tilt	Approximately ±15°
12	Head Section	Adjustable/removable head section
13	Leg Section Adjustment	Adjustable/removable for gynecological and lithotomy procedures
14	Longitudinal Slide	Provision for longitudinal tabletop movement for C-arm access
15	Tabletop Material	Radiolucent material such as high-quality laminate/phenolic/appropriate composite
16	Mattress	Antistatic, high-density medical-grade foam mattress with waterproof, seamless and disinfectant-resistant cover
17	Mattress Thickness	Approx. 50–75 mm
18	Patient Capacity	Safe working load 200–250 kg or higher
19	Base	Heavy-duty stainless steel/metal base with stable construction
20	Castors	Heavy-duty castors with central locking/braking system
21	Floor Lock	Central locking mechanism for stable positioning during surgery
22	Side Rails	Stainless-steel accessory rails on both sides
23	Accessory Mounting	Standard clamps/rails for attaching surgical accessories
24	Safety	Mechanical locking and anti-drift mechanism for all major positions
25	Finish	Smooth, corrosion-resistant and easy-to-clean surfaces
26	Infection Control	Seamless mattress and crevice-minimized design suitable for OT cleaning and disinfection
27	Electrical Requirement	Basic table positioning shall operate hydraulically without dependence on electrical power
28	Accessories	Arm boards, shoulder supports, knee crutches, lithotomy/leg supports, anaesthesia screen, straps, clamps and standard accessories

Sr. No.	Parameter	Technical Specification
29	C-Arm Compatibility	Radiolucent tabletop and adequate clearance for C-arm imaging
30	Documentation	User manual, service manual, technical catalogue and maintenance schedule
31	Compliance	Applicable BIS/IEC/ISO requirements for operating tables and applicable CDSCO/Medical Device Rules
32	Installation	Complete assembly, installation, testing and commissioning at site
33	Training	Operational and basic maintenance training for OT staff
34	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
35	Service Support	Availability of spare parts and technical service support for 5 years

Serum Bilirubinometer – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Digital Total Serum Bilirubin Analyzer/Bilirubinometer suitable for clinical laboratory use
2	Application	Quantitative estimation of total bilirubin in serum/plasma, suitable for neonatal and paediatric samples
3	Measurement Principle	Photometric/colorimetric measurement using appropriate bilirubin assay methodology
4	Sample Type	Serum/plasma as specified by the validated reagent methodology
5	Measurement Range	0–30 mg/dL or wider
6	Resolution	0.1 mg/dL or better
7	Accuracy	Within ±5% or as specified by the validated analytical method
8	Precision	CV ≤5% or better under stated operating conditions
9	Wavelength	Appropriate wavelength for bilirubin measurement, typically around 450–550 nm , as per analytical method
10	Display	Digital LCD/LED display showing bilirubin concentration and operational status
11	Sample Volume	Low sample volume, preferably ≤100 µL
12	Test Time	Rapid measurement, preferably ≤60 seconds per test
13	Calibration	User-accessible calibration facility with calibrator/standard supplied by manufacturer
14	Quality Control	Internal QC facility with provision for normal and abnormal control materials
15	Memory	Storage of test results and calibration/QC data preferred
16	Interface	USB/RS-232 or equivalent data output; LIS connectivity preferred
17	Printer	Built-in/compatible thermal printer for test result printing preferred
18	Reagent System	Compatible with manufacturer-recommended bilirubin reagent/calibrator/control system
19	Reagent Stability	Reagents suitable for routine laboratory use with clearly specified storage and stability conditions
20	Operation	Microprocessor-controlled, simple menu-driven operation
21	Power Supply	220–240 V AC, 50 Hz , single phase
22	Battery/Backup	UPS/battery backup compatibility preferred
23	Construction	Compact tabletop design with durable, easy-to-clean housing
24	Safety	Electrical protection, proper earthing and protection against voltage fluctuation
25	Accessories	Reagents for initial testing, calibrator, QC controls, cuvettes/sample accessories, power cable and user manual
26	Documentation	Operation manual, service manual, calibration procedure and maintenance schedule
27	Calibration Certificate	Calibration/performance verification certificate at installation

Sr. No.	Parameter	Technical Specification
28	Compliance	Applicable BIS/IEC requirements and applicable CDSCO/Medical Device Rules, wherever applicable
29	Installation	Installation, testing, calibration and commissioning at site
30	Training	Training for laboratory staff on operation, calibration, QC and routine maintenance
31	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
32	Service Support	Availability of spare parts, reagents and technical service support for 5 years

Stethoscope – Adult Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Professional Adult Dual-Head Acoustic Stethoscope suitable for clinical examination
2	Chest Piece	Dual-head chest piece with diaphragm and bell
3	Material	Stainless steel/brass or equivalent high-quality acoustic metal construction
4	Diaphragm	High-sensitivity, tunable/standard diaphragm suitable for low and high-frequency sounds
5	Bell	Open or enclosed bell suitable for low-frequency sounds
6	Diaphragm Diameter	Approximately 45–50 mm
7	Acoustic Performance	Clear and high-fidelity transmission of heart, lung, vascular and Korotkoff sounds
8	Frequency Response	Broad frequency response suitable for cardiac, pulmonary and blood-pressure auscultation
9	Tubing	Dual-lumen or equivalent acoustic tubing, flexible and resistant to cracking
10	Tubing Length	Approximately 65–75 cm
11	Eartips	Soft, comfortable, interchangeable silicone/rubber eartips providing good acoustic seal
12	Headset	Stainless-steel/aluminium binaural headset with adjustable spring tension
13	Ear Tubes	Angled binaural tubes for comfortable positioning in ears
14	Diaphragm Rim	Non-chill/soft rim for patient comfort
15	Weight	Lightweight design, preferably ≤180 g excluding packaging
16	Finish	Corrosion-resistant, smooth and easy-to-clean surface
17	Cleaning	Suitable for routine cleaning and disinfection with commonly used hospital disinfectants
18	Accessories	Spare eartips, spare diaphragm if applicable and storage/protective pouch
19	Application	Suitable for physicians, medical officers, nurses and clinical examination
20	Documentation	Manufacturer's user instructions and product information
21	Compliance	Applicable quality and safety requirements for medical stethoscopes
22	Warranty	Comprehensive warranty for 2 years from date of supply

Vacuum Suction Machine – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Electric Medical Suction/Vacuum Machine suitable for OT, ICU, emergency, wards and bedside use
2	Pump Type	Oil-free, maintenance-free piston/diaphragm vacuum pump
3	Vacuum Range	0 to -700 mmHg or wider
4	Maximum Vacuum	Approximately -700 to -760 mmHg
5	Air Flow	30–40 L/min or higher
6	Vacuum Regulation	Continuously adjustable vacuum regulator
7	Vacuum Gauge	Analogue/digital vacuum gauge with clear pressure indication
8	Collection Jar	Two collection bottles/jars, each 2–3 litres capacity
9	Collection Jar Material	Transparent, autoclavable polycarbonate or equivalent medical-grade material
10	Overflow Protection	Float-operated automatic overflow shut-off system
11	Bacterial Filter	Hydrophobic/antibacterial filter between collection jar and pump
12	Tubing	Medical-grade, flexible, kink-resistant suction tubing
13	Patient Connector	Standard suction catheter connector suitable for adult/pediatric applications
14	Suction Control	Foot switch and/or panel-mounted ON/OFF switch; foot switch preferred
15	Continuous Operation	Suitable for continuous/repeated suction operation without overheating
16	Noise Level	≤60 dB(A) preferred
17	Motor Protection	Thermal overload protection with automatic cut-off
18	Mobility	Heavy-duty trolley/castors with locking mechanism
19	Body	Robust powder-coated CRCA/MS or stainless-steel construction
20	Electrical Supply	220–240 V AC, 50 Hz, single phase
21	Power Consumption	Energy-efficient motor; rated power shall be specified by supplier
22	Vacuum Release	Quick vacuum release/venting facility
23	Jar Arrangement	Independent jar mounting with secure holder/bracket
24	Safety	Proper earthing, electrical insulation, overload and short-circuit protection
25	Accessories	Collection jars, lids, bacterial filters, suction tubing, connectors, catheter/adaptor, foot switch and power cable
26	Cleaning	Components in contact with aspirated fluids shall be easily removable and suitable for cleaning/disinfection/sterilization as applicable
27	Documentation	User manual, service manual and cleaning/maintenance instructions
28	Compliance	Applicable BIS/IEC requirements for medical suction equipment and applicable CDSCO/Medical Device Rules
29	Installation	Installation, testing and demonstration at site

Sr. No.	Parameter	Technical Specification
30	Training	Training of nursing/technical staff on operation and routine maintenance
31	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
32	Service Support	Availability of spare parts, filters, jars and technical service support for 5 years

Ventilator – Adult – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Equipment Type	ICU Ventilator suitable for adult patients; suitable for invasive and non-invasive ventilation
2	Patient Category	Adult; provision for pediatric use preferred
3	Ventilation Modes	Volume Controlled Ventilation (VCV), Pressure Controlled Ventilation (PCV), Pressure Support Ventilation (PSV), SIMV-VC, SIMV-PC, CPAP, BiPAP/NIV and other standard ICU modes
4	Tidal Volume	Approximately 20–2000 mL or wider range
5	Respiratory Rate	Approximately 4–80 breaths/min or wider
6	Inspiratory Pressure	Adjustable up to approximately 60 cmH ₂ O or higher
7	PEEP	0–30 cmH ₂ O or wider
8	Pressure Support	Adjustable approximately 0–40 cmH ₂ O or wider
9	FiO ₂	21–100%, continuously adjustable
10	Flow	Adjustable inspiratory flow, approximately 0–120 L/min or higher
11	Trigger Sensitivity	Adjustable flow and/or pressure trigger with sensitive patient triggering
12	Inspiratory Time	Adjustable approximately 0.2–5 seconds or wider
13	I:E Ratio	Adjustable over a suitable clinical range
14	Rise Time	Adjustable rise-time/flow acceleration facility
15	Monitoring Display	Colour TFT/LCD display, preferably 12 inch or larger, showing real-time respiratory parameters
16	Waveforms	Real-time Pressure-Time, Flow-Time and Volume-Time waveforms
17	Loops	Pressure-Volume and Flow-Volume loops
18	Monitoring Parameters	Tidal volume, minute ventilation, respiratory rate, PEEP, peak pressure, mean airway pressure, FiO ₂ , I:E ratio and other relevant parameters
19	Capnography	EtCO ₂ monitoring facility, built-in or provision for external module, preferred
20	Oxygen Concentration	Continuous FiO ₂ monitoring with high/low FiO ₂ alarm
21	Alarms	High/low airway pressure, high/low minute volume, high/low respiratory rate, apnea, low PEEP, high FiO ₂ , low oxygen supply, power failure and technical fault alarms
22	Apnea Backup	Automatic apnea detection with backup ventilation facility
23	NIV Facility	Dedicated non-invasive ventilation mode with leak compensation
24	Leak Compensation	Automatic compensation for circuit and mask leakage
25	Humidification	Compatible with heated humidifier and HME filters
26	Nebulization	Provision for nebulizer connection without significant interruption of ventilation
27	Oxygen Supply	Compatible with central pipeline oxygen and/or medical oxygen cylinder
28	Air Supply	Built-in turbine/blower preferred; alternatively compatible with medical air pipeline

Sr. No.	Parameter	Technical Specification
29	Patient Circuit	Adult reusable/disposable breathing circuit compatibility with standard connectors
30	Expiratory Valve	Detachable/reusable or autoclavable expiratory valve assembly, as applicable
31	Power Supply	220–240 V AC, 50 Hz, single phase
32	Battery Backup	Rechargeable internal battery with backup operation of approximately 60 minutes or higher
33	Safety	Electrical protection, over-temperature protection and appropriate patient safety mechanisms
34	Mobility	Mobile unit with sturdy trolley, locking castors and adjustable equipment mounting provision
35	Accessories	Adult breathing circuit, humidifier connection accessories, oxygen tubing, bacterial/viral filters, test lung, power cable and all standard accessories required for operation
36	Construction	Robust hospital-grade construction suitable for continuous ICU operation
37	Documentation	User manual, service manual, technical specifications and calibration/service documentation to be supplied
38	Regulatory Compliance	Shall comply with applicable CDSCO/Medical Device Rules and relevant IEC/ISO/BIS requirements applicable to the equipment
39	Installation	Installation, commissioning, calibration and demonstration at the user site shall be included
40	Training	Comprehensive training for doctors, nurses and technical staff shall be provided
41	Warranty	Comprehensive warranty for 2 years from successful installation and commissioning
42	Service Support	Availability of service support, spare parts and preventive maintenance for at least 5 years

Wall Clock with Humidity Detector – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Digital wall-mounted clock with integrated humidity detector/hygrometer
2	Display	Large, clear, high-visibility digital LED/LCD display
3	Time Display	12-hour / 24-hour selectable format
4	Time Accuracy	Quartz/digital timekeeping with accuracy suitable for institutional use
5	Humidity Measurement	Integrated digital relative humidity sensor
6	Humidity Range	Approximately 20–95% RH or wider
7	Humidity Accuracy	±3 to ±5% RH or better under normal operating conditions
8	Temperature Display	Integrated room temperature display, preferred
9	Temperature Range	Approximately 0–50°C or wider
10	Temperature Accuracy	±1°C or better
11	Display Information	Time, relative humidity and room temperature shall be simultaneously or sequentially displayed
12	Calendar	Date and day display, preferred
13	Alarm	Built-in alarm/alert function, if provided
14	Display Visibility	Clearly readable from a reasonable distance in hospital/office environment
15	Sensor	Built-in digital humidity sensor with stable and reliable measurement
16	Mounting	Wall mounting facility with required mounting accessories
17	Housing	Durable ABS plastic or equivalent, suitable for indoor institutional use
18	Power Supply	Battery operated and/or AC adapter operated
19	Battery	Long-life battery operation with low-battery indication, if applicable
20	Operating Environment	Suitable for indoor temperature and humidity monitoring
21	Controls	Easy-to-use buttons for time/date/alarm and display settings
22	Accessories	Battery/adapter, wall-mounting hardware and all standard accessories required for operation
23	Documentation	User manual and operating instructions shall be supplied
24	Warranty	Comprehensive warranty for 1 year from date of installation/supply

Digital Standing Weight Machine – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Equipment Type	Digital electronic standing weighing scale suitable for adult and pediatric/general hospital use
2	Weighing Capacity	200 kg or higher
3	Resolution	100 g or better
4	Accuracy	±100 g or better within the specified weighing range
5	Display	Large, clear digital LCD/LED display with easily readable weight indication
6	Display Size	Large display suitable for viewing by patient and healthcare staff
7	Weighing Platform	Robust, non-slip platform suitable for repeated hospital use
8	Platform Material	Stainless steel, powder-coated steel or durable ABS construction
9	Platform Size	Approximately 300 × 300 mm or larger
10	Tare Function	Tare/zero function shall be provided
11	Auto Zero	Automatic zero-setting facility
12	Hold Function	Weight hold/data-lock function preferred for unstable patients
13	Unit Selection	Kg display; other units may be provided but kg shall be available
14	Auto Power Off	Automatic power-off facility for battery-operated models
15	Overload Protection	Electronic overload indication/protection
16	Low Battery Indication	Low-battery indication shall be provided
17	Power Supply	Battery operated and/or AC adapter, suitable for hospital use
18	Construction	Strong, stable and durable body suitable for continuous institutional use
19	Mobility	Lightweight/easily movable design; carrying facility preferred
20	Safety	Anti-skid rubber feet and stable base to prevent movement during weighing
21	Operating Environment	Suitable for normal indoor hospital/clinical environment
22	Calibration	Calibration facility with provision for verification as applicable
23	Accessories	Batteries/AC adapter, user manual and all standard accessories required for operation
24	Regulatory Compliance	Shall comply with applicable Legal Metrology requirements for weighing instruments, wherever applicable
25	Warranty	Comprehensive warranty for 1 year from date of supply/installation

Clinical Thermometer – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Digital clinical thermometer suitable for oral, axillary and/or rectal temperature measurement
2	Temperature Range	32.0°C to 42.0°C or wider
3	Resolution	0.1°C
4	Accuracy	±0.1°C or better within the specified measurement range
5	Display	Clear digital LCD display with easily readable temperature indication
6	Measurement Time	Fast temperature measurement, preferably within 60 seconds
7	Sensor	High-sensitivity electronic temperature sensor
8	Measurement Modes	Oral and axillary measurement; rectal measurement where applicable
9	Memory Function	Last reading memory facility preferred
10	Fever Alert	Audible fever indication/alarm facility preferred
11	Unit Selection	°C display; °F selection may also be provided
12	Auto Power Off	Automatic power-off after a period of inactivity
13	Battery	Replaceable long-life button-cell battery
14	Low Battery Indication	Low-battery indication on display
15	Waterproofing	Water-resistant/washable probe suitable for routine clinical cleaning
16	Probe	Flexible or rigid clinical probe with smooth patient-contact surface
17	Construction	Durable, lightweight and suitable for repeated hospital use
18	Cleaning	Probe suitable for disinfection using commonly used hospital disinfectants, as applicable
19	Operating Environment	Suitable for normal indoor clinical/hospital environment
20	Accessories	Battery, protective storage case/probe cover and user manual
21	Regulatory Compliance	Shall comply with applicable medical device and safety requirements
22	Warranty	Comprehensive warranty for 1 year from date of supply

Handheld Fetal Doppler – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Equipment Type	Portable handheld fetal Doppler for non-invasive detection and monitoring of fetal heart rate
2	Application	Antenatal fetal heart rate assessment in obstetric/clinical settings
3	Fetal Heart Rate Range	50-240 BPM or wider
4	FHR Accuracy	±2 BPM or better
5	Probe Type	Waterproof/clinical-grade ultrasound probe suitable for obstetric examination
6	Probe Frequency	2 MHz or 3 MHz interchangeable/available probe; 2 MHz suitable for routine fetal heart rate detection
7	Display	Clear digital LCD/TFT display for real-time fetal heart rate
8	Audio Output	Built-in speaker with clear fetal heart sound output
9	Volume Control	Adjustable audio volume
10	Signal Indication	Visual signal/heart rate indication with signal quality or fetal heart detection indicator
11	Measurement	Non-invasive continuous fetal heart rate monitoring
12	Probe Cable	Flexible, durable cable with adequate length for convenient examination
13	Battery	Rechargeable battery or replaceable batteries with adequate operating time
14	Battery Indication	Low-battery indication
15	Auto Power Off	Automatic power-off facility after inactivity
16	Recording/Memory	FHR recording or memory facility preferred
17	Charging	AC adapter/charger supplied where rechargeable battery is provided
18	Construction	Lightweight, compact, ergonomic handheld design suitable for regular hospital use
19	Cleaning	Probe and external surfaces suitable for routine clinical cleaning and disinfection as per manufacturer instructions
20	Accessories	Fetal Doppler probe, ultrasound gel, battery/rechargeable battery, charger/adapter, probe holder/carrying case and user manual
21	Electrical Safety	Shall comply with applicable electrical and medical equipment safety requirements
22	Regulatory Compliance	Shall comply with applicable CDSCO/Medical Device Rules and relevant applicable standards
23	Warranty	Comprehensive warranty for 1 year from date of supply

SpO₂ Probe – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Reusable pulse oximeter SpO ₂ sensor/probe suitable for continuous non-invasive monitoring
2	Application	Adult patient monitoring in ICU, OT, emergency, wards and other clinical areas
3	Patient Type	Adult finger probe; compatible with specified pulse oximeter/monitor
4	Measurement	Non-invasive measurement of arterial oxygen saturation (SpO ₂) and pulse rate
5	SpO ₂ Range	70–100% or wider
6	SpO ₂ Accuracy	±2% in the applicable 70–100% range or better
7	Pulse Rate Range	Approximately 30–250 BPM or wider
8	Pulse Rate Accuracy	±2 BPM or ±2%, whichever is applicable, or better
9	Sensor Technology	Dual-wavelength red/infrared LED sensor with photodetector
10	Probe Design	Spring-loaded/reusable finger clip design providing secure and comfortable finger placement
11	Patient Comfort	Soft, smooth patient-contact surfaces with suitable pressure to avoid discomfort during prolonged monitoring
12	Cable Length	Approximately 1.5–3 metres or as required for monitor connection
13	Connector	Compatible with the specified make/model of multipara monitor or pulse oximeter
14	Signal Performance	Reliable signal acquisition during normal patient movement and adequate peripheral perfusion
15	Cable Construction	Flexible, durable, medical-grade cable with strain relief at sensor and connector ends
16	Cleaning	Probe shall be suitable for cleaning and disinfection using manufacturer-recommended hospital disinfectants
17	Durability	Suitable for repeated clinical use and routine hospital handling
18	Accessories	Protective packaging and all required connection accessories
19	Compatibility	Bidder shall clearly specify compatible equipment make/model and connector type
20	Regulatory Compliance	Shall comply with applicable medical device and electrical safety requirements
21	Warranty	Comprehensive warranty for 1 year from date of supply

BP Cuff – Technical Specification

Sr. No.	Parameter	Technical Specification
1	Type	Reusable non-invasive blood pressure (NIBP) cuff suitable for manual sphygmomanometer and/or compatible NIBP monitor
2	Patient Category	Adult
3	Cuff Size	Adult standard size; suitable for arm circumference approximately 22–42 cm
4	Cuff Material	Durable, soft, skin-friendly, latex-free medical-grade fabric
5	Bladder	High-quality inflatable bladder with uniform pressure distribution
6	Bladder Material	Medical-grade latex-free TPU/PVC or equivalent material
7	Closure	Strong hook-and-loop fastening system for secure positioning
8	Air Hose	Flexible, kink-resistant medical-grade tubing
9	Hose Connection	Standard connector compatible with the specified BP apparatus/NIBP monitor
10	Pressure Performance	Suitable for repeated inflation/deflation during routine clinical use
11	Markings	Clear size indication, artery position marking and correct placement guide
12	Construction	Robust construction suitable for hospital, ICU, ward and OPD use
13	Cleaning	Cuff surface suitable for routine cleaning and disinfection as per manufacturer instructions
14	Reusability	Reusable and suitable for repeated clinical use
15	Comfort	Designed to provide uniform compression without unnecessary discomfort
16	Compatibility	Bidder shall specify compatible monitor/machine make and connector type
17	Accessories	Appropriate connector/adaptor, where required
18	Regulatory Compliance	Shall comply with applicable medical device and safety requirements
19	Warranty	Comprehensive warranty for 1 year from date of supply