

Medical Equipment Specification

1. Bag mask Device Adult –Silicon

Adult bag:

1. Material
 - a. Bag and mask – Silicone rubber
 - b. Valves and membranes – Silicone rubber
 - c. Connectors and housing – Polysulfone
 - d. Reservoir – Poly Vinyl Chloride
2. Ventilator bag volume – 1600 ml
3. Reservoir bag volume – 2600 ml
4. Deliverable volume – 800 ml
5. Mask number 3-4 and 4-5 to be supplied
6. Oxygen connector tubing
7. All enclosed in bag

2. Bag mask Device Bag Child- Silicon

Child bag:

1. Material
 - a. Bag and mask – Silicone rubber
 - b. Valves and membranes – Silicone rubber
 - c. Connectors and housing – Polysulfone
 - d. Reservoir – Poly Vinyl Chloride
2. Ventilator bag volume – 500 ml
3. Reservoir bag volume – 600 ml
4. Deliverable volume – 320 ml
5. Mask number 3-4 to be supplied
6. Relief valve should be present
 - a. The spring should be of stainless steel
7. Oxygen connector tubing
8. All enclosed in a bag

3. Suction Apparatus AC / D.C & Manual

- 1 Should be $\leq 5\text{kg}$
- 2 Canister
 - 2.1 Single jar
 - 2.2 capacity minimum 500 mL
 - 2.3 Overflow protection mechanism
 - 2.4 Bacteria filter
 - 2.5 Auto-clavable
 - 2.6 Spare canister
 - 2.7 Polycarbonate or ABS plastic
- 3 Vacuum range:
 - 3.1 Minimum not more than 50 mmHg
 - 3.2 Maximum not less than 500 and not more than 600 mm of Hg
 - 3.3 Desirable to have vacuum range indicators for pediatric
- 4 Flow rate:
 - 4.1 25-30L/min
- 5 Noise level: Not more than 60db
- 6 Power:
 - 6.1 Should run on AC (120-240 V; 50/60Hz) and DC (12V)
 - 6.2 Rechargeable battery (preferably Li ion)
 - 6.3 Battery backup 4 hr
- 7 Wall mountable with option to detach and carry
- 8 Oil free diaphragm pump
- 9 Suction tubing should be compatible to be attached to yankauer catheter

4. Suction Apparatus – Hand Held

1. Not more than 400 gm (Suction handle + empty container + catheters)
2. Canister volume 250 - 400 ml; made of Polycarbonate; non breakable.
3. Maximum suction pressure at least 300 mm of Hg
4. Flow rate at least be 20L/min
5. Should be supplied with adult and pediatric/neonatal suction catheters

5. Monitor- Multi channel monitor

1. US FDA approved for use on pre-hospital care ambulance
2. Wall mount and pole mount option
3. Should not be more than 5Kgs with battery
4. Operational temperature range from 0-50 degree C
5. Should measure adult, pediatric and neonatal parameters
6. Battery
 - a. Rechargeable lithium ion battery
 - b. Should be able to last for minimum of 3 hours of continuous monitoring
 - c. Should give replacement guarantee for the battery for 4 years
 - d. Damages/penalties out of battery related accidents in the form of explosion/fire should be borne by the supplier/manufacturer.
 - e. Chargeable with 220V AC 50Hz and DC 12 V as well
7. **At least 48 hours of trend memory**
8. **Alarms**
 - a. Audio as well as visual
 - b. Adjustable and default
 - c. Should be for low and high heart and respiratory rates
 - d. For low saturation (Dynamic sound variation)
 - e. Low and high blood pressures
 - f. Low battery alarms
 - g. Arrhythmia alarms
9. **Display**
 - a. Multicolor display
 - b. Minimum 7 inch and maximum 12.5 inch
 - c. Minimum 640X480 resolution
 - d. Touch screen desirable
 - e. Wide viewing angle
10. Data
 - a. LAN/Wireless (not infrared) port for networking
 - b. Should be able to connect with Telemetry transceiver
 - c. Desirable that it follows HL7 standards for data transfer
11. ECG
 - a. Printer
 - i. 48 to 50 mm paper
 - ii. 25 mm/sec
 - b. Should be able to all 12 leads
 - c. Number of leads

- i. 12 lead ECG cable for ALS with telemetry capability/IFT regular ambulance
- ii. Not mandatory for neonatal ambulance
- iii. 3 lead ECG cable for BLS regular and ALS regular ambulance without telemetry.
- d. Heart rate ranges 30-300 bpm. This is the minimum range, a range wider than this is also acceptable
- e. Variation in accuracy within +/- 1%
- f. ST segment elevation detection is desirable
- g. Arrhythmia detection is mandatory

12. Respiration

- a. Range 0-120 rpm. This is the minimum range, a range wider than this is also acceptable
- b. Resolution +/- 1rpm

13. NIBP

- a. Oscillometric method
- b. Manual automatic and stat modes should be available
- c. Range 10-260 mm Hg; Measurement should be mmHg

14. Temperature

- a. C & F selectable
- b. 25 to 45 degree C

15. SpO2

- a. Range 0-100%
- b. Masimo or Nelcor or proved equivalent

16. ETCO2 up gradation (Side stream/mainstream) capability is mandatory

- a. Should agree to upgrade if asked for at any time in the coming 5 years
- b. Cost of upgrading any time in the next 5 years to be disclosed and agreed to now.
- c. The cost for ETCO2 sensor should also be a part of upgrade

17. Accessories to be supplied along with the Monitor

- a. ECG cable
- b. SPO2 adult pediatric and Neonatal sensors
- c. NIBP cuffs – adult pediatric neonatal cuffs
- d. Temperature probe
- e. Electrodes
- f. Power cables
- g. Wall mounting solution that is compatible with the ambulance interior

18. Replacement guarantee for Monitor 4 years

19. Replacement Guarantee for Cable/probes – 4 years

6. Ventilator-Transport

1. FDA or CE approved or both
2. Wall mountable
3. Weight < 6kg including battery and if any accessories not including mounting latches not attached to the ventilator body
4. Adult/ pediatric/ Neonatal (<5 Kg)
5. Modes: ACV, CMV, CPAP; Other modes optional
6. Invasive and Noninvasive mode
7. Should run on oxygen cylinder without need of power source
8. If any battery requirements for display or alarms should be rechargeable
9. FiO₂:- options
 - a. 100% O₂ option must
 - b. Air mix option must
 - c. 21% Oxygen optional
10. Breath rate and tidal volume or minute volume adjustment using buttons for either
 - a. Tidal volume and breath rate or
 - b. Minute volume and breath rate or
 - c. Inspiratory time, Expiratory time and flow rate or I:E ratio and flow rate
 - d. Should have minimal buttons and user friendly
11. Alarms
 - a. Apnea alarm
 - b. High pressure alarm
 - c. Disconnect alarm
12. Pressure gauze

7. Kidney Tray Plastic

1. Made of plastic
2. 20*15*4 cm approximately
3. 500 ml Capacity



Figure 1:Kidney tray plastic

8. **Artery Forceps 6 in**

1. Non-corrosive stainless steel
2. Non-corrosive material at joints



Figure 2: 6 inch Artery forceps

9. **Surgical Scissors**

1. Made of stainless steel
2. Non-corrosive joints
3. One end sharp and the other rounded.



Figure 3: Surgical scissors

10. Toothed Forceps-Dissecting

1. 6 inch
2. Made of stainless steel
3. Toothed tips

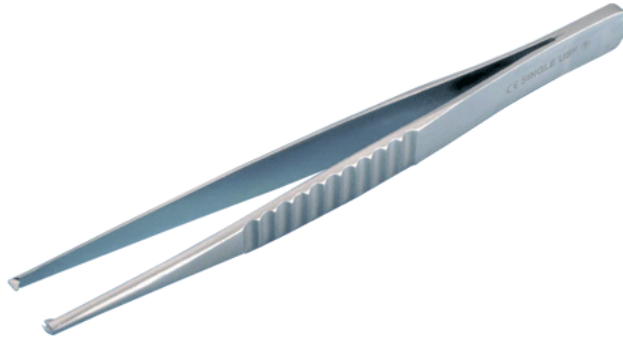


Figure 4: Toothed dissecting forceps

11. **EMT Shears**

1. Also called trauma shears
2. Should be able cut through 1 mm sheet, belts, denims car seat belts etc
3. Thermoplastic handles.
4. High grade Stainless steel body
5. Bent 150°
6. 7 1/2 inch



Figure 5: EMT shears/Trauma Shears

12. BP Apparatus (Dial)

1. BP cuff:
 - a. Small adult
 - b. Adult
 - c. Thigh
 - d. Velcro bag for the bladder
 - e. Chrome plated metal/ stainless steel pressure control valve
 - f. Bulb, tubing's and bladder made of rubber
2. 2 years replacement guarantee
3. As per standard specification

13. Pupillary Torch with batteries

1. Body made of Stainless steel or aluminum or ABS plastic
2. Run on AAA or AA batteries (2 batteries)
3. Push button start
4. Lens end Lamp

14. Stethoscope Adult

1. Stain less steel Chest piece
2. Dual head rotatable with diaphragm on one side and bell on the other
3. Non-chill diaphragm and retaining ring
4. Non-chill lining for the bell
5. Soft sealing ear tips.
6. Head set anodized aluminum or stainless steel
7. Tube length 20 to 30 inches
8. Epoxy fiber glass diaphragm is desirable
9. Diaphragm diameter is an inch to 1 ½ inch
10. An extra set of ear piece/ diaphragm and retainers should be provided.

15. Thermometer (Digital)

1. Sleek design
2. Flexible tip
3. Washable
4. Centigrade and Fahrenheit Measurement option
5. Memory of the last event
6. Temperature range must include 32 to 42°C
7. Auto power off
8. Fever alarm (100°F)
9. Should include a storage case

16. Scoop Stretcher

1. Should be made of aluminum alloy
 - a. Made of or covered by thermal resistant composite materials when being procured for colder climates
2. Clutch enabled detachable interlocking between right and left halves. Clutch design – center or lateralized.
3. Adjustable length
4. Minimum two pairs of quick release belts
5. Net weight not more than 9 Kg
6. Minimum length not more than 170 cm
7. Maximum length not less than 200 cm
8. Width 40- 45 cm
9. Weight bearing up to 159 Kg

17. Spine board with straps and head blocks (Rigid Block)

- High Density Poly ethylene - Single piece
- Rigid , Light & Floatable
- Resistant to bumps and corrosion
- Non absorbent, immune to infiltrations
- Easy to clean- water & soap should be enough.
- X ray & MRI compatible
- Net weight: Not more than 9 Kgs
- Load Capacity maximum not less than 159 Kgs
- L*W*H:(180-195) * (40-45) * (3-6)
- Rigid Head Blocks with straps
- Straps 4 pairs with easily detachable latches/clips
- Manufacturer should provide list of disinfectants and cleansing agents for clean and disinfection

18. Splints:-Inflatable splints (4 sizes)

1. Made of Poly Vinyl Chloride
2. Good zipper seal
3. Half arm – 25 ±1 inches
4. Full arm - 32±1 inches
5. Half leg - 25 ±1 inches
6. Full leg- 32±1 inches
7. Should be supplied in a bag

19. Roller splints

1. Light weight
2. Radiolucent
3. Made of foam and alloy
4. Flexible and malleable, high indentation
5. Reusable, washable
6. 110 mm * 760 mm – 2 numbers
7. 110 mm * 460 mm – 2 numbers



20. Simple Malleable splints (Padded aluminum splints)

1. Supplied as four different sizes
2. Short arm
3. long arm
4. short leg
- 5.** long leg
- 6.** Radiolucent; MRI compatible
- 7.** Medical grade non absorbent closed cell foam padding on one side and high quality open cell foam padding on the other side.



21. Oxygen Cylinder D

	D-type
Shell	Chrome Molybdenum Alloy 34 Cr OR Manganese steel
Capacity:	46.7 Ltr water capacity.
Working pressure (Minimum)	150kg/cm ² at 15° c
Test Pressure (minimum)	250kg/cm ² at 15° c
Wall thickness (minimum)	5.5 mm minimum
Gas (O2):	Around 7000 ltr of O2
Standard:	IS 7825 part II
Valve:	IS 3224
Statutory certifications:	ISI Standards, BMP Certification WHO & Certified by Dept Explosives -GOI
Matching Key cum Spanner to release oxygen	Matching Key cum Spanner to release oxygen
Hoses used from cylinder to the regulator if at all any	Should withstand a pressure of not less than 160 Kg/cm ² or 2250 psi

22. Portable Oxygen Cylinder with dial type flow meter

1. Made of Aluminum
2. Dial type flow meter with regulator
3. Minimum 350 liters of oxygen
4. Water capacity of 2-3 L
5. Height around 1 ½ foot
6. Diameter not more than 4 ½ inches
7. Sufficiently small to be carried in back pack (not more than 3 Kg)
8. Should be able to withstand 139 bar

23. Oxygen Hood

1. Made of acrylic
2. An oxygen port with a diverting mechanism to disperse oxygen within the hood rather than directing it on to the patient
3. Detachable lid
4. Small size

24. Auto Loader – Collapsible stretcher

1. Made of aluminum alloy.
2. Collapsible. Wheeled to slide into the ambulance with ease without damaging the ambulance floor.
3. One person should be able to raise and lower it into an ambulance easily.
4. Provision for head end elevation. Position adjustable backrest for breathless patients from 0 to at least 60 degrees.
 - a. The raising the backrest is either by telescopic mechanism or any safe mechanism but should not come apart while the head end is raised.
5. Swing down or push down side Railings on either side. Strong enough to prevent patient falls
6. IV fluid holding rod to go with the Stretcher
7. Levers to control front and hind legs to fold while loading the stretcher in to the ambulance
8. Lever to lock & unlock the legs to prevent collapse of the stretcher while standing
9. The wheels should have 150mm diameter with ball bearings to ensure smooth rolling and ensure maximum comfort to the patient.
10. Locks for the wheels
11. Straps 3 in number to restrain the patient
12. Fixing devices to secure the stretcher in place on the ambulance floor/platform not allowing side to side or vertical movements while on run.
13. 50 mm thick high density foam mattress with Head rest -up holstered with water proof and fire proof rexin
14. Net weight : 40 Kgs Gross Weight 50kgs
15. Bearing Pressure or maximum load not less than 159Kgs.
16. Product dimensions:
 - a. length Minimum not more than 185 to a maximum 200cms;
 - b. width minimum not more than 50 to a maximum 60 cms; height 85 to 95cms
17. Loading height should match the ambulance floor height.
18. Manufacturer should provide list of disinfectants and cleansing agents for clean and disinfection.
19. Stretcher should have front and back small sliding wheels.

25. Wheel chair with 4 wheels

1. Should be light, safe and reliable
2. Made of aluminum alloy
3. With 4 wheels
4. Folded size: 93*51*16
5. Back Height: 91 cms Width: 50cms
6. Seat height: 49 cms Width : 50 cms
7. Net weight: 8 Kgs
8. Pull through, telescoping long handles built in to lift patients & carry them through narrow passages.
9. Two handles on the top to facilitate the lifting of patients , working in harmony with telescoping handles
10. Loading Weight : up to 159 kgs
- 11.** Manufacturer should provide list of disinfectants and cleansing agents for clean and disinfection.

26. Goggles

1. Scratch resistant clear lenses
2. Protective covering on the sides too so as to offer protection on the sides too.



Figure 6 EMT safety goggles

27. Bed Pan

1. Made of light weight polyethylene
2. Resistant to stains & cracks
3. Contoured design molded plastic for adults with wide seat
4. Can be boiled or autoclaved up to 275 degrees F
5. 350-pound weight capacity
6. 'pontoons' on sides to aid stability
7. Recessed tailbone area for comfort

28. Needle & Syringe Destroyer

1. Electric or Non-electric
2. Power source 220-240 V AC (12 V DC is desirable)
3. Burn/Damage the needle and cut the syringe tip.
4. Should not cause injuries
5. The damaged needles should automatically collect in a container which can be transferred to sharps container without direct handling of needles.
6. Electric needle and syringe destroyers should be shock proof and made of ABS plastic or steel



Figure 7: Needle and Syringe destroyer- Non electric



Figure 8: Needle destroyer Electric

29. Urine Pan Plastic

1. Clear plastic translucent finish;
2. Stain resistant plastic,
3. Graduated 1000 ml capacity male and 800 ml female;
4. Autoclavable
5. Universal pan OR one male and one female pans as unit



Figure 9: Male Urine pan



Figure 10: Female Urine pan

Disposable medical Equipment:

30. Cervical Collar Hard

1. Adjustable size
 - a. Polypropylene hard sheet lined by polyethylene foam inside.
 - b. Single piece
 - c. 4 or more adjustable sizes in the same collar
 - d. Velcro strap for fixing
 - e. Tracheal and back panel openings enough for neck exam and ongoing back of the neck exam
 - f. Radiolucent, MRI, CT compatible
2. Fixed size:
 - a. Single piece hard plastic lined by foam inside.
 - b. Velcro strap for fixing
 - c. Tracheal and back panel openings enough for neck exam and ongoing back of the neck exam
 - d. Radiolucent, MRI, CT compatible
 - e. Large, medium and small sizes

EXTRICATION TOOLS:

31. 12" WRENCH ADJUSTABLE OPEN END:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



32. 12" SCREW DRIVER STANDARD SQUARE BAR:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



33. 8" SCREW DRIVER PHILIPS HEAD # 2:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



34. HACKSAW WITH 12" CARBIDE WIRE BLADE:

Shall be able to withstand the rugged condition of the emergency usages

Shall be durable , even after repeated use



35. VISE GRIP PLIERS 10":

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



36. 5LB HAMMER WITH 15" HANDLE:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



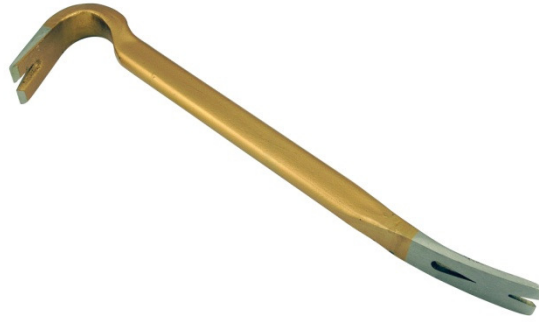
37. FIRE AXE BUTT 24" HANDLE:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



38. WRECKING BAR WITH 24" HANDLE:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



39. 51" CROWBAR PINCH POINT:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



40. BOLT CUTTER WITH 1" TO 1/4" JAW OPENING:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



41. SHOVEL POINTED BLADE:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



42. TIN SNIPS, DOUBLE ACTION 8" MINIMUM

1. Shall be able to withstand the rugged condition of the emergency usages

Shall be durable , even after repeated use



43. GAUNTLETS:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



44. ROPES 5400LB TENSILE STRENGTH IN 50':

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



45. MASTIC KNIFE

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use

46. SPRING LOAD CENTER PUNCH:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



47. PRUNING SAW:

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use



48. FIRE EXTINGUISHER - 5KGS WITH FIXING STAND:

1. Stored Pressure Type
2. 5 Kg capacity
3. Dry Chemical Powder ABC Based
4. Shall be able to withstand the rugged condition of the emergency usages
5. Shall be durable , even after repeated use



49. LUMINOUS SEARCH LIGHT (RECHARGEABLE):

1. Shall be able to withstand the rugged condition of the emergency usages
2. Shall be durable , even after repeated use

