Item No. 1.

(8) INFUSION PUMP

Configuration, performance and technical characteristics
STRUCTURE:
Weight: approximately 2.5 kg
MECHANNISM
PERISTALTIC SEMI-TRANSIT FINGER SYSTEM
CONSUMABLE
All general IV sets brands are compatible with the unit; and dedicated IV set brand is also matched the unit with special pump structure design
Pre-configured more than 20 infusion IV SET brands, user-defined configuration possible
GENERAL FEATURES
Operating Modes: Rate mode,Time mode,Body weight mode,Ramp up/ down mode, Sequential mode,Loading dose mode,Micro-infusion mode, Standby mode
Rate Mode: Rate Range: 0.1-2000ml/h (Mini. Increment0.01ml/h)
Time Mode: 00:01-99:59 hh:mm; step 1min;
Body Weight Mode: Weight : 0.1-300.0kg, step 0.1kg; Drug-Amount : 0.1-999.9, step 0.1, g/mg adjustable; Volume : 0.10-9999.99ml, step 0.01ml; Dose : 0.01-999.99, step 0.01, μg/kg/h, mg/kg/h, μg/kg/min., mg/kg/min. adjustable;
Ramp up/ down mode: VTBI : 0.10-9999.99ml Time range : 00:01-99:59 hh:mm
Sequential mode: VTBI : 0.10-9999.99ml, step 0.01ml/h; Rate : 0.10-2000ml/h; Time : 00:01-99:59 hh:mm, step 1min
Loading dose mode: Main parameter and first dose : VTBI : 0.10-9999.99ml, step 0.01ml/h; Rate : 0.10-2000ml/h; Time : 00:01-99:59 hh:mm, step 1min
Micro-infusion mode: VTBI : 0.10-1000.00ml, step 0.01ml/h, Rate : 0.10-100ml/h, step 0.01 ml/h;
Preset Volume(VTBI): 0.10-9999.99ml
Measure volumes in ml/hr
Delivery rate settings adjustable in 0.01ml/ 0.1ml/ 1ml increments
KVO Rate: 0.1-5.0ml/h adjustable, step 0.1ml/h
Purge is available with maximum rate at 2000ml/h
Bolus Rate: Maual bolus : 0.10-2000ml/h Automatic bolus : 0.10-2000ml/h

Configuration, performance and technical characteristics
Preset bolus volume: Automatic : 0.10-2000ml/h
Self-test system;
Have anti-bolus system
Titriation function: Available to change the delivery rate during infusion at minimum increment of 0.01ml/h
The bolus accumulation volume and bolus rate shall be displayed
Drug library with up to 2000 drugs , add or delete drugs available in user-defined drug list
Have up to 2000 history records, including information: infusion information, pump status, parameter changing, turn on/off, start/stop infusion, bolus, alarms, silence
History records data could be transmitted to PC
Have automatic bolus system, with bolus rate and preset volume adjustable
Start remider function: remember last infusion configuration when power off
Delivery Accuracy: ±3%
Mechanical Accuracy: ±1%
Data transmission is available with multi-function interface
7 languages selectable: English, Spanish, French, Russian, Turkish, Chinese
ALARMS
Visual & audible alarm
3 levels alarm: High level: occlusion, battery empty, VTBI done, air bubble, door-open, KVO finish, system error Middle level: reminder, battery low Low level: No battery inserted,VTBI near done,standby time expired
Occlusion alarm pressure: 11 levels: 150-975mmHg(±75mmHg)
Occlusion pressure unit: 4 units selectable(mmHg, kPa, psi, bar), automaticly calculate and display the conversion in 4 units
Air Bubble alarm level: 1-6 levels adjustable; Minimum air bubble detection lowest to 20 ul; Acculmulated air bubble in 15 min. reached setting size will alarm
Air-bubble detection mechanism: ultrasound sensor
Alarm sound 1-8 levels adjustable
Pre-alarms : 1-30 min. selectable infusion complete, 3 min.battery empty 30 min. as low battery
DISPLAY
Screen: no less than 3.5 inch color TFT LCD,16:9 format; Brightness 1-8 levels adjustable

Configuration, performance and technical characteristics
Delivery rate, current infusion ,VTBI, total volume, IV set brand, pressure limit, battery capacity, current drugs, remaining time, alarms, etc.
POWER SUPPLY:
AC100-240V, 50/60HZ
DC Voltage:10V-15V
Battery
Battery type: Rechargeble Lithium battery
Battery operating time: more than 9 hours@25ml/h
Battery charging time: less than 6 hours for 100%
SAFTY SPECIFICATION
Type of shock protection : Class I, Type CF, defibrillation-proof
Water-Proof Grade : IP23
CERTIFICATION:
CE & ISO
WARRANTY:
60 months

Item No 2.

Suction Machine

1. Air flow rate of pump: 55 l/min
2. Maintenance free membrane pump
3. Regulated Vacuum with Max of: -98 kPa (-980 mbar / -735 mmHg)
4. Power consumption: approx. 100 W
5. Voltage: 230 V~ 50-60 Hz;
6. Noise level: 46 dB (A) @ 1 m (acc. to ISO 7779)
7. Operating time: Continuous operation
8. Ambient conditions during operation:
   Temperature: 10 to 32 °C
   Humidity: 20…80 % without condensation;
9. Approximate dimensions (H x W x D): 940 x 500 x 390 mm
10. Weight: Around 30-35 kg
11. Mobile system mounted on anti static 4 lockable castors
12. Standard rail holder for mounting accessories
13. Provision for **one 3 liter & one 5 liter jars** with changeover lever.
14. Classification: degree of protection: type BF; protection category: IPX1;
    Protection class: I;

13. CE or EN certified product.

Accessories

1	Direct Docking System (DDS) collection container; Autoclavable, with hose holder, plastic, **5 liter & 3 liter:**	2 each
2	DDS collection lid complete set consisting of: o DDS jar lid with gasket o DDS jar handle o DDS splash protection o DDS hose adapter set, Ø 6 mm + Ø 10 mm o DDS bacterial filter / over -suction stop	2 Nos
3	Foot switch installation set.	1 No
4	Foot regulator set:	1 No.
5	Deposit tray of stainless steel:	1 No
6	Hose support of stainless steel:	1 No
	Consumables	
1	DDS disposable bacterial filter/over-suction stop	100 nos
2	Autoclavable, silicone suction hose, Ø 6 mm, L = 2 m, (136 °C)	3 nos
3	Autoclavable, silicone suction hose, Ø 10 mm, L = 2 m, (136 °C)	3 nos

HOD ortho.

(M.S.) (HOD Med.) HOD (Surgery)

(HOD Paed) HOD (OBG) i/c. ~~HOD (Ped Nursing)~~

Item No. 3

Enclosure 2

SPECIFICATIONS OF NASAL CPAP MACHINE

- Bubble CPAP machine with compressor (FDA/CE/ISO13485:2012approved).
- CPAP generator with pressure range from 3 to 10 cm of water.
- Capable of giving nasal/nasopharyngeal CPAP.
- Integrated pneumatic Air and oxygen blender calibrated with flow from 0-15 lit/min.
- Safety mechanism for relief of excessive pressure through pressure relief valve/regulator.
- Soft nasal prongs.
- Alarms for the device –
  - Low/high Temperature
  - Flow increase/decrease alarm
  - O2 pressure low alarm
  - Air pressure low alarm
- Flow meters: 02 with each piece.
- Power 220-230 volts 50 Hz.
- Power pack (UPS with battery back of minimum 1 hour).
- System should be quoted with pole assembly to incorporate the whole CPAP machine.
- Standard accessories with each equipment
  - Heated wire servo-controlled humidifier 01
  - 5 ml test lung 01
  - Disposable patient circuits 30
  - Disposable nasal prongs 30 (10 each of different neonatal sizes)

Should have –

- Input flow range ; 4-25 L/min
- Recommended Input flow : 6-8L/min
- Set CPAP pressure range : 3-10cm *H2O*
- Intended Patient population – premature nepnates & infants upto 10 kg
- Operating temperature range :18-26 °C
- Storage temperature range : -10 to 50 °C
- Usage period – single patient use maximum of 7 days
- Maximum pressure limit – 17 cm H2O @ 8L.min
- Oxygen analyzer port – 22mm Male or 15 mm Female
- Pressure monitoring port – Female luer

Warranty: For ~~2~~ 3 years for all parts excluding consumables.

CMC: CMC for ~~5~~ 3 years after warranty inclusive of spare parts/accessories used during maintenance. The price and catalogue No. of all the spares and flow sensor etc. likely to be changed during CMC should be quoted , the price quoted should be frozen for ~~5~~ 3 years. The company should give the certificate that the model quoted is the latest and not obsolete; & spares will be easily available for next ~~5~~ 3 years.

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Itm No.4 Radiant Warmer.

TECHANICAL SPECIFICATIONS OF RADIANT WARMER WITH BABY BASSINET

Description of function:

A radiant warmer is used to keep the patient's core temperature stable at 37° C.

Eligibility criteria:

- Should be FDA,/CE approved product
- Manufacturer should be ISO certified for quality standards.
- Certified to be complaint with IEC 60601-2-21, medical electrical equipment part-2-21 particular requirement for electric safety of Infant Radiant Warmers.
- Should have local service facility. The service provider should have the necessary equipment's recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.

Operational requirements:

It should be microprocessor controlled radiant warmer with manual and servo options.

Technical specifications:

1. It should have facility to display both skin and air (ambient) temperature separately.
2. Should have user friendly touch panel control.
3. It should have ceramic Infra Red heater.
4. It should have audiovisual alarm facility for overheating beyond set temperature range.
5. It should have alarm facility for patient temperature less than or greater than the required temperature i.e. above or below the set range.
6. It should rotate and swivel in different direction, so as to allow taking X-Ray.
7. The light should be dazzle free.
8. It should have alarm for power failure.
9. It should have alarm for heater failure.
10. It should have alarm for probe failure.
11. It should have time out alarm in manual mode.
12. It should have inbuilt or provided along rechargeable battery to run equipment in case of power failure for at least ½ hour.
13. It should have facility to Auto reset the system in case of hang up caused by power fluctuation.
14. It should have manual setting for high and low alarm setting.

[signature] 13/2/19 (Wangyangbang Gdowell) [signature] 13/2/19

15. In servo mode, the heater output should be controlled to maintain the baby at the required set temperature.
16. In manual mode, the heater output should be directly controlled by setting on the frontal panel
17. Should have a facility to lock the keyboard to avoid unwanted user.
18. The desired temperature range from 25 to 40 degree C.
19. The resolution should be 0.1 degree C
20. The height of the warmer should be adjustable for different types of bed.
21. Halogen based observation light should be provided for observing the baby.
22. It should be mounted on a pole with sturdy base with lockable castors.
23. It should have separate bassinet trolley.

ENVIRONMENTAL FACTOR:

Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General requirement of safety for electromagnetic compatibility. Or should comply with 89/366/EEC;EMC-directive.

The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15-90%.

Power supply:

Power input to be 220-240 VAC , 50 Hz fitted with Indian plug.

Warranty:

Comprehensive warranty for ~~5~~ 3 years and ~~5~~ 3 years AMC after warranty

Documentation:

User/ Technical/ Maintenance manuals to be supplied in English.

Certificate of calibration and inspection from the factory.

List of important spare parts and accessories with their part number and costing.

13/2/19 (Biomed)
(Sanjay Garg)

13/2/19

Item No. 5. Phototherapy machine Double

Technical specifications of DOUBLE SURFACE Phototherapy Machine (for jaundiced neonates)

Clinical purpose	:	Emits in the main radiation spectrum in the range between 400 nm and 550 nm for reducing the concentration of Bilirubin in jaundiced babies
For use in clinical department/ward	:	Neonatal Intensive Care Unit/New Born Stabilization Unit
Overview of functional Requirements	:	a) Provides filtered light using radiant electric lights, not fibreoptics b) Infant supported securely in bassinette below bulbs c) Monitors hours of radiant light exposure

Specifications :

1. Phototherapy should be based on CFL tube/LED technology, which after filtering should provide, a light of wavelength approximately 450 to 470 nm with peak wavelength of 450-460 nm range.
2. Irradiance to be minimum 35 µW/cm2/nm at 40 cm height and UV should not exceed 10^{-4} W/m^2 in 180nm to 400nm
3. Hour meter showing total exposure time for current patient to be clearly visible by operator.
4. Effective light field >700 cm2.
5. Lamp life should be minimum 20000 hours in case of LED and 1000 hours in case of CFL and should have timer to indicate the its usage.
6. Over temperature safety cut out to be included.
7. Up, down and tilting of head should be possible.
8. The unit should be mounted with castor wheels with brakes.
9. Variation in intensity over 5-6 hours < 10%.
10. The irradiance ratio (min to max) shall be greater than 40 % on mattress.
11. Green indicator light shall be provided to indicate that equipment is ready for normal use.
12. Interruption and a restoration of the power supply do not change preset values. CFL/LED heat can be reduced by natural cooling or by cooling fan,
13. CFL/LED should be protectred from free fall.
14. It should not topple on 10 deg inclined angle.
15. The temperature of baby bed and metal surfaces should not exceed 40deg C and 43 deg C for other accessible surfaces.
16. There should be intuitive method to indicate the light surface is at the appropriate treatment distance.

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Settings :

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.

User interface : Manual

Software and/or standard of communication : LED display or inbuilt software

Physical characteristics

Dimensions (metric) minimum spec : 1650mm Height X 750mm Width X 500mm Length

Weight (kg) : <20 kg

Configuration : Clear cabinet for observation of infant
Infant bassinette 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

Noise (in dBA) : <60dBA

Heat dissipation : The temperature of baby bed and metal surfaces should not exceed 40deg C and 43 deg C for other accessible surfaces.

Mobility,/portability : Minimum 3 castors and at least 2 with brakes

Energy source

Power Requirements : 220 to 240V, 50 Hz
Battery operated : NA
Tolerance (to variations) : ± 10% of input AC
Protection : Electrical protection by resettable overcurrent breakers or replaceable fuses, fitted in both live and neutral lines
Power consumption : Should not be more than 160 W
Other energy supplies : Mains cable to be at least 2.5m length

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PHOTOTHERAPY UNIT SINGLE SURFACE - TECHNICAL SPECIFICATIONS

Description of Function -

Phototherapy units are used to treat hyperbilirubinemia, a condition characterized by high bilirubin concentrations in the blood.

Operational Requirements -

The system should meet all the numerical values given in the technical specifications within a tolerance of +/- 10 %.

Technical Specifications -

1. Phototherapy should be based on advanced LED technology
2. It should be one way of phototherapy unit i.e. the phototherapy lamp should be from top (overhead).
3. Each lamp unit should be provided with 4 tubes emitting blue radiation between 420-480 nm wavelengths (the irradiance should cover the entire treatment area)
4. One each side of the panel of overhead tubes, day light tube should be provided to facilitate observation of baby and for performing practical procedures whenever required.
5. It should have height adjustment facility (adjustment range of 25 to 45 cm should be possible) with built-in non-resettable timer
6. It should allow easy swiveling of box to allow positioning of portable x-ray machine.
7. The unit should be mounted on stand having lockable wheels (castors) for easy transportation from one place to other.
8. At the baby's surface, the exposure (irradiance) should be 4-6 $\mu W/cm^2/nm$.

Environmental factors -

1. The unit shall be capable of being stored continuously in ambient temperature of 0-50°C and relative humidity of 15-90%
2. The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

Power Supply -

1. Power input to be 220-240VAC, 50Hz fitted with Indian plug
2. UPS of suitable rating shall be supplied for minimum 1 hour backup for the entire system

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Standards, Safety and Training -

1. Should be FDA , CE,UL or BIS approved product
2. Manufacturer should be ISO certified for quality standards
3. Comprehensive warranty for ~~2~~ 3 years and ~~5~~ 3 years CMC after warranty including UPS.
4. Shall CERTIFIED to be meeting Electrical Safety requirements as per IEC 60601-2-50 Medical Electrical Equipment part-2-50 Particular requirements for the safety of Infant Phototherapy Equipments

Documentation -

1. User/Technical/Maintenance manuals to be supplied in English.
2. Certificate of calibration and inspection
3. List of important spare parts and accessories with their part number and costing
4. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
5. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet.Any point ,if not substantiated with authenticated catalogue/manual, will not be considered

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