TSSU TECHNICAL SPECIFICATIONS FOR 100-150 BEDED HOSPITAL

1. HORIZONTAL RECTANGULAR HIGH PRESSURE DOUBLE DOOR STEAM AUTOCLAVE WITH HINGE DOOR.

- The sterilizer would have **sterilization at temperatures 121°C and 134°C.**

- The sterilizer is conforming to the following standards:

- ISO certified 9001 : 2008
- ISO certify 13485 : 2003
- EU-CE certified
- ISI MARK -3829(PART-I)

- **Fully automatic** and Microprocessor controlled, User friendly Alpha-numerical / Graphical /Digital type display and Display of Cycle status Fault/Error Indication with visual alarms.

- The normal working pressure would be 1.2 - 2.1 Kg/cm^2 corresponding to temperature 121 - 134°C.

- **Sterilize** Surgical instruments, textiles and hospital utensils.

- The **Jacket** of the sterilizer would be of the channel type for providing additional strength to the chamber and made of Boiler graded steel.

- The C**hamber** of **size - 600 x 600 x 1200mm approx. would** be constructed of AISI-316 Stainless steel and jacket would be constructed of boiler quality steel.

- The **structure** of the sterilizer would be made of stainless steel and would be adjustable for uneven floor surfaces.

- The Chamber and jacket would be **insulated** with Chloride free mineral wool which would be covered under rigid, removable steel housings.

- The Hinge **Doors** made of AISI-316 Stainless steel with shooting bolts.

- The **Safety features** as the Sterilizer operation cannot commence until the door is fully closed the door cannot be opened until the sterilizing cycle is fully completed and the chamber is effectively vented to atmosphere before the opening mechanism is fully released.

- All S**team Piping would** be made of stainless steel with TIG welding joint.

- **Alarm System** for:

1. Failure of Temperature and pressure sensor
2. Phase time out
3. Not properly closing of door
4. Power failure
5. Low water level
6. checking of all safety devices continuously

- Both the chamber and the jacket would be equipped with **Safety Valves.** If the pressure exceeds the allowable limit the safety valves would discharge steam.

- The Sterilizer would be equipped with liquid-ring **Vacuum Pump** to create vacuum for total evacuation of the air from the chamber in the shortest time.

- The Sterilizer would be provided with following mountings & fittings:

- Fully Automatic with pre-selected and variable programs
- Self sterilizing vacuum drier.
- Safety valve spring loaded and vacuum breaker.
- Pressure and compound gauge
- Screen plug for chamber discharge line.
- Chamber discharge line with steam trap and swing check valve.

- The **operation** of the sterilizer would be activated by means of **solenoid valve/Pneumatic valve system.**

- The Sterilizer would be fitted with **Control Panels** of Stainless steel construction where discharged steam from the autoclave on opening of the door cannot impinge on it. The Control Panel contains the control system and associated circuitry. Each circuit would be protected by a miniature circuit breaker. All electrical components in the control panel would be labeled. All wiring would be insulated and labeled to link with the circuit wiring diagrams and would be resistant to conditions of high humidity and heat, e.g. PVC and silicon insulated wires.

- The **controls** must be capable of controlling automatically the following:

    - P1-Wrapped instruments, textiles, porous load - 134°C
    - P2-Heat sanities material, rubber, plastic porous load - 121°C
    - P3Sterilization for open instruments - 134°C
    - P4-Bowie & Dick Test cycle - 134°C
    - P5-Automatic leak test

- The Sterilizer system is incorporated with PLC based microprocessor with the facility of Human- Machine-Interface. The technician can program the cycles with his choice of different settings of time, temperature and corresponding pressure, which can be used to sterilize various types of contents / materials.

- The **Micro-Processor based control Panel would** control entire cycle of sterilization and steam pulsing automatically through water ring vacuum pump. The control panel

would house the complete automatic process control arrangement including timers, relays, contactors etc.

- The digital display at front panel would show the following parameters:
    - Chamber Pressure
    - Chamber temperature
    - Cycle no.
    - Batch no.
    - Time & Date
    - Alarm indicator
    - Error display
    - Low water indicator

- **Printer** that would monitor and record dates, time of day, load, identification no. and operating parameters i.e. temperature, pressure and residence time automatically and continuously throughout the sterilization cycles

- A water level **Gauge glass** for inspection would be provided with Steam Generator. The unit Would be fitted with heating elements.

- Electrically heated

- The Chamber, Jacket and Steam Generator would be hydraulically tested at the pressure twice of the working pressure

1a) **Stainless steel 316 Carriage suitable for Rectangular**

1b) **Stainless Steel 304 Trolley suitable above carriage**

2. WASER DISINFECTOR

CAPACITY – 250 TO 275 LTRS.

- Washer Disinfector, Single flap type door suitable for **cleaning and disinfection** of surgical instruments, anesthetic equipment, suction bottles, cleaning buckets, general circulation goods, dental tray Feeding bottles, Kidney basins, Dressing bowls, Anesthesia tubing and glass would be with a fully closed process.

- **Fully automatic with advanced microprocessor based** which controls all services, programming and statistic functions. The service and programming functions WOULD be coded for safety reasons. The control system WOULD be housed in a cabinet attached on the main body of the machine.

- The salient features would be:

- **Microprocessor** controller with easy to use.

- **Preprogrammed** for simple use

- PROG 1 : Instruments
- PROG 2 : Kidney bowls/trays/basins.
- PROG 3 : Bottles
- PROG 4 : Tubing's
- PROG 5 : Vessel
- PROG 6 : Plastic/Rubber Goods

- The **door would** be provided with interlocking system and expansion type Silicon gasket seal.

- The **chamber would** be equipped with four spray arms which would ensure good water penetration from all directions. Other attachments would be provided to suit the load to be washed. Suitable dosage of detergent would be preset with the dosing pump.

- The **Circulating pump would** be driven by a TEFC, 3phase electric motor.

- The **Wash chamber**, the inside the door, the pipe work system and the circulations arms would be made entirely of AISI-304 Stainless steel.

- **Electrical load** -13KW.

- Electrically operated

3. DRYING/HEATING CABINET

CAPACITY – 250 TO 275 LTRS.

- **Digital time**r Controlled Drying Cabinet with single door suitable for easy and quick drying of instruments, utensils, glass and anesthetic accessories such as corrugated hoses, breathing masks, respiration bags and surgical instruments trays etc.

- The unit would be provided with **digital display** with countdown drying time and drying time selectors, temperature selector including indication of selected temperature.

- The drying cabinet would be provided with **a quick lock door** with heat resistant gasket expansion type Silicon.

- The chamber design would allow **uniform air circulation**. The air is circulated by a stainless steel impeller powered by a single-phase TEFC motor.

- The system would have **adjustable temperature** range of 60-90oC.

- The system would have **drying time** range of 0-90 minutes.

- **Timer would** be equipped with the system for Setting drying time.

- The **exhaust would** open to ensure complete removal of moisture

- The system would take air from the work would be clean it by appropriate **filter**. The air would be heated to an operator selected temperature by electric heating element. The system would also have an exhaust connection to vent outside.

- The unit would be provided with **Cassettes and protective shelves** for instruments, hoses, bladders and catheters as accessories.

4 . ULTRASONIC CLEANER

CAPACITY – 30 LTRS.

- Cleaning by ultrasonic would promote extremely high degree of soil removal at very fast rate comp would bed to other conventional methods of cleaning and penetrate into the most intricate and inaccessible would be as.

- The cleaning tank would be made of high grade stainless steel AISI-316.

- **Output frequency 35khz.**

- The unit would be complete with **single tank**, a **thermostat** and a **timer**, basket for tank and tank cover.

- Electrically operated

5 . GAUZE CUTTING MACHINE

SIZE- 1500 X 650 X 850 mm +_ 25MM

- The thickest of Cotton gauze material would be cut smoothly.

- This machine would be operated with a Single phase motor and a knife sharpening unit that gives a finely honed edge to the cutting blade on the touch of a control lever/button.

- The motor cooling fan would be equipped to dissipate heat build-up and direct the hot air-flow away from the operator.

- Blade would be sharpened by the automatic sharpening unit only when the lever is pressed down.

- Wash station with Single sink unit would be of AISI-304 Stainless steel for washing and cleaning.

- Spray Gun Rinser connections – for washing of instruments.
- Complete stainless steel body construction, with four leg supports made of stainless
- Steel AISI-304 and bullets for adjustment, Table Top would be of 16 swg Stainless steel
- The Unit Complete would be with hot water, cold water and air spray for rinse provisions.
- Sinks of 16 swg thick SS-304 would be designed in a way to minimize splash.
- Rounded corners all around

6. SINGLE DISTILLED WATER STILL

Generally as per the Barnstead type. The Still is guaranteed to produce pyrogen free and chemically pure water to comply with IP/BP Standards.
The Still will be manufactured as per IS : 3830 and it will also bear the Bureau of Indian Standard Certification Mark .

The evaporator, the multi – baffle and the condenser will be made out of stainless steel with the joints welded. The condenser will be provided with stainless steel tubes, water inlet and outlet connection.

The Water Still will be supplied in a ready to use condition mounted on a suitable stand. Water Still as above of capacity 20 Ltrs, per hour suitable for electric operation on 400 / 440 volts,s 3 phase AC supply, electrical load being 15KWS.

7. S.S.STORAGE TANK FOR DISTILLED WATER

Cap. 120 Ltrs., 6 KWS.

8. WASH STATION WITH DOUBLE SINK

SIZE-2400x900 x 650mm +_ 25MM

- Wash station with double sink unit would be of AISI-304 Stainless steel for washing and cleaning.

- Spray Gun Rinser connections – for washing of instruments.
- Complete stainless steel body construction, with four leg supports made of stainless
- Steel AISI-304 and bullets for adjustment, Table Top would be of 16 swg Stainless steel
- he Unit Complete would be with hot water, cold water and air spray for rinse provisions.
- Sinks of 16 swg thick SS-304 would be designed in a way to minimize splash.
- Rounded corners all around.
- One under shelf made of stainless steel SS304.

9 . S.S.PACKING AND CONTROL TABLE WITH TWO SHELVES AND DRAWER

Size – 2000x1400x1400mm+_ 25MM

- The height adjustable inspection and packaging table to be used for sorting, inspection and packing of various sets and for surgical instruments. The table top of the table is fabricated out of S.S. 304 and polished to a mat finish.

- The tabletop would be fixed on a Stainless steel AISI-304 squ would be/round tube frame. The frame would be provided with leveling lugs for suitable adjustment of height up to ±25 mm.

- Drawer : 2 nos drawers made of Stainless steel -304

10. STORAGE RACKS

SIZE-1830X535 X1835mm +_ 25MM

- Storage Rack of Stainless steel of AISI-304 with five shelves (Open type)
- Floor mounted
- Frames fabricated out of stainless steel.
- Shelves – made of stainless steel.
- Legs would be provided with adjustable nylon bulled feet.
- Five number 316 grade SS shelves dully reinforced and rounded off edges.

11 . STAINLESS STEEL WORK TABLE

Work table is used for wet goods with undershelf. The table top is fabricated out of 16 SWG SS 304 qlty. ground and polished to a smooth surface without high edge sections. The table top frame is a complete assembly with front, back and two ends welded together at corners.

SIZE-1500X610X890mm **+_ 25MM**

12. HEAT SEALER – ROTARY TYPE

- Suitable for hospital sterile packing
- Seals plastic film of various materials such as PE, PP, Aluminium foil etc.
- Emboss upto 15 interchangeable characters for batch recording, date etc
- Speed control mechanism
- Temperature control mechanism
- Height and width mechanism

  - Sealing speed : 1-12m/min
  - Temperature Range : 0-300deg.
  - Cutting size : 200 mm (8”)
  - Sealing width : 6 – 15 mm
  - Sealing film thickness : 0.02 –0.80mm
  - Conveyor loading : upto 5 kgs
  - Power Supply : 220-240 ‘Volts, 50 Hz, Single Phase

13. Spray Gun Rinser for Water

Spray Gun Rinser with 8 attachments is used for cleaning springs, catheters, endoscopes, cystoscopes and variety of other instruments and articles used in sterile services.

14. Spray Gun Rinser for Air

Spray Gun Rinser with 8 attachments is used for cleaning springs, catheters, endoscopes, cystoscopes and variety of other instruments and articles used in sterile services.

15. <u>Pass Box – Size : 600 x 600 x 600 mm</u>

Should be made up of SS 304 sheets with double wall construction.
UV light should automatically switch off when any one door is opened.
Pass through chamber should be sliding hatches and should fit all types of standard racks.

The control should feature two modes of operation to open or close the hatch with a press button mechanism.