

Technical Specifications for Central Sterile Supply Department (CSSD) on Turnkey Basis

A. Wash area

A1. Washer Disinfector – Double Door with Drying

1. The Washer Disinfector should be a fully automatic frontal loading hinged door washer disinfector which offers complete washing and thermal disinfection treatment and should be equipped with a forced hot air drying system.
2. Country of origin of the washer disinfector should be in Europe or USA (No China manufactured equipment).
3. Chamber Capacity:
The Washer Disinfector should have Chamber Capacity of 200 to 280 litres and should be able to reprocess 8 to 10 DIN trays per cycle.
4. Equipment Construction: Frame & panels must be constructed from stainless steel AISI 304.
5. Washing Chamber Construction:
 - a. Washing chamber, washing arms, pre-heating tanks and water filters must be constructed in high quality stainless steel AISI 316L.
 - b. The washing chamber must be constructed without angles to prevent breeding of germs.
 - c. High quality thermal insulation to be provided to minimize energy consumption.
6. Door Construction & Operation:
 - a. Doors must be made of high visibility HST (High Soak Tested) tempered glass with inside frame made of stainless steel AISI 316L.
 - b. Should be hinged dropped down door acting as loading platforms for washing carts for a convenient loading & unloading job.
 - c. Should be fully insulated to reduce heat loss and noise.
7. Washing System:
 - a. Washing & hot air drying injection systems should be integrated in the same circuit.
 - b. Should provide 2 washing spray arms in the washing chamber, one on the bottom & one on the top, to grant efficient water and air distribution inside the chamber.
 - c. The available washing carts must incorporate up to 3 more washing arms.
 - d. The equipment must permit automatic and direct connection to the washing cart hydraulic circuit.
8. Thermal Disinfection:
Thermal-disinfection should be carried out by raising the DI water temperature up to 93°C and holding it for a selected time which can be set in accordance with end user specific requirement giving A0 value A0=3000.
9. Water consumption: The water consumption per cycle must not be more than 80 litres.
10. Circulation Pump:
The equipment should be provided with a 0.75 kW high performance water recirculation pump with a maximum flow rate of 600 lt/min.
11. Water Filtering System:
 - a. A three stage filtration system must be provided to help protect the recirculation & drain pumps from debris.
 - b. Filters must be easily removable for cleaning.
12. Chemical Dosing:
 - a. Should incorporate Two (2) peristaltic pumps to provide precise addition of liquid chemical agents.
 - b. Should provide large storage on the basement to allocate up to three 5 litres chemical containers.
13. Electric Heater:
 - a. Should incorporate 7.5kW electric heating elements providing heating up to 93°C.
 - b. Two independent PT1000 temperature probes must be provided; one dedicated to the

- machine cycle temperature control & the additional one dedicated for the disinfection phase control & documentation.
14. Forced Hot Air Drying System:
 - a. Should ensure air circulation in the chamber, through the chamber washing arms and through the wash carts injection system and washing arms.
 - b. F5 (EN 779) pre-filter to be provided.
 - c. Dryer blower flow rate must be atleast 250 m3/h.
 15. Steam Condenser:

Should incorporate a steam condenser to prevent vapors from entering into the washing area at a set temperature programmable from: 0°C - 93°C.
 16. Microprocessor Control System:
 - a. Should be provided with a microprocessor based control system for total checking & displaying of single cycle phase with process residual time highlight.
 - b. Should incorporate 40 storable programs; 20 standard programs and 20 user definable programs.
 - c. Should be provided with 3 level password protected programming.
 - d. Soft touch control panel with a TFT 3.5" - QVGA graphic colour display.
 17. System Monitoring:
 - a. Must have Audible and visual alarms to provide quality control for each wash cycle.
 - b. Water level sensors must be provided to control chamber water level to prevent overflow.
 - c. RS 232 Port for printer connection must be provided to monitor and validate washing cycle.
 18. Safety Features:
 - a. Locking Door must prevent interference with wash cycle once the machine is in operation.
 - b. Drop down doors must be present to eliminate the safety hazard associated with guillotine type doors.
 19. Reprocessing of Robotic Instruments:
 - a. Equipment should be certified to reprocess Da Vinci Robotic instruments, certificate to be attached.
 - b. The equipment should be capable to reprocess minimum 6 single instruments of maximum length in a single wash cycle.
 - c. The equipment should incorporate a dedicated robotic instruments wash cycle.
 20. Should be compliant with:

Equipment should be compliant with
European EN ISO 15883-1/2,
CEN ISO/TS 15883-5 requirements.
Classified CE Medical Device (Community rule
93/42/CEE)
European CE or FDA Certified.

A2. Ultrasonic Cleaner (45 litres)

1. The units should be a compact free-standing bench model, with a built-in tank manufactured from high-quality (304) stainless steel and a solid-state generator that sends ultrasonic (approx.. 40+/- 3 KHz) impulses through wash water containing detergent and electrical heating; microprocessor controlled display with memory time and temperature functions with variable frequency transducer.
2. The electrical energy should be transformed into sound waves by transducers, fixed to the bottom of the tank.
3. The tank should be made of solid stainless steel (304).
4. The ultrasonic cleaner should have a display and control which could be easily seen and placed above any liquid for safety and reliability.
5. It should have timer and temperature setting (temperature adjustable from 20 to 60 °C or 30 to 80 °C) monitoring/indication.
6. Capacity should be 45L (±5L)
7. Should work on 230V, 50 Hz AC Supply.
8. Ultrasonic cleaner should supply with Wire mesh basket of suitable size & Stainless

steel lid.

A3. Medical Graded Drying Cabinet (Single Door)

Must be a single door Drying cabinet with shelves dedicated to instruments, equipment and general items to mixed solutions for anaesthesia items and instruments.

Door System:

Should have HST temperate double glass hinged door reversible and configurable for right or left opening. Door must be provided with key lock.

Door Safety :

Open door sensors must be provided. The control panel must control door locking during operation.

Drying for General Instruments :

8 stainless steel half size removable shelves on adjustable height rails with a total capacity of up to 8 DIN 1/1 trays must be provided in the system.

Drying for Anesthesia Instruments :

6 removable cassettes for a capacity of 36 connections for anesthesia hoses must be provided in the system.

Equipment Construction :

External Frame, panels ,shelves and shelve guides must be made up of stainless steel AISI 304.

Chamber Construction :

Drying chamber coating must be in polished AISI 304 stainless steel.

Chamber thermal insulation must be made in mineral wool panels coating 50mm thick.

Drying Temperature :

Drying temperature should be settable from ambient to 80°C (176°F).

Password Protection :

Temperature and time settings must be password protected to prevent unauthorized changes.

Time Setting for Drying Operation :

Temperature setting from 1 up to 999 min or continuous should be provided. Once the selected temperature is attained, it should be controlled throughout within 5.5°C/10°F of the selected temperature.

Easy Maintenance :

Frontal maintenance of filters and components must be possible by easy direct access by lifting the superior panel (equipped with gas pistons).

Air Filtration System:

The filtration system must be composed by F5 class pre-filter and HEPA H14 filter.

HEPA Filter :

HEPA filtration should be provided on the drying circuit. Monitoring for HEPA filter and indicator on panel advising when replacement is required must be provided.

Drying circuit (Internal & External Drying) :

Drying circuit should be served by two blowers:

- a. One blower must be dedicated to the homogeneous heat distribution inside the drying chamber in order to prevent possible high temperature areas.
- b. The other blower must provide flow to the anesthesia hoses connections.

Circuits must be monitored by a temperature switch.

Heating Elements :

Air drying heating elements with power of 1500W must be provided.

System Monitoring :

- a. Equipment must be provided with a Control panel with 3 digit LED display.
- b. Equipment must be provided with LED display, programmable for °C and °F temperature display selection.

3. RS232 Serial connection for printer must be provided in the system.

Alarms :

1. Visual and acoustic alarm must be provided for minimum/maximum temperature.
2. Visual and acoustic alarm must be provided for HEPA filter maintenance.

3. Visual and acoustic alarm if the door remains open longer than a pre-set timing (configurable parameter).

Electrical Connection :

Standard electrical connection (International):-230V/~ /50Hz

Noise Level :

Noise level should be less than 40dB.

Equipment should be Compliant with :

I class, according to the annex IX 93/42/CEE Medical Device, designed and manufactured in conformity with the annex I of 93/42/CEE Medical Device, under the rules here below described: EN 61010-1 and EN61010-2-010; EN ISO 14971.

Country of origin of the washer disinfector should be in Europe.

A4. Wash Stations with 2 sinks Size (L x W x H) : 2300x750x850 mm

1. The worktop should be made of solid, bright-polished minimum sheet thickness of 1.5 mm stainless steel (304) to withstand heavy-duty work with wet instrument.
2. Designed with an integrated 15 mm high edge at the front and sides, and a 150 mm high edge (splash back) at the rear.
3. The front and side edges are reinforced and widened to 40 mm. Edges are welded together and polished at the corners.
4. The worktop should slope to the sink, and reinforced by a full-length support frame.
5. The support frame should be a complete assembly with the front, back and ends welded together at the corners.
6. The worktop and support frame should be bonded together with double-adhesive tape of a special, age-resistant quality to give rigidity and noise abatement.
7. The floor stand should be made of polished stainless steel.
8. The table should be available with double sink units preferably at one side or at both ends of the table, all with a smooth, polished inside finish made of stainless steel (304) top & should have dimensions (size) of (L x W x H), 2 400 x 750 x 850 mm.
9. The bottom should slope to the drain.
10. All standard sink units are of sizes that also allow processing of the large modular instrument trays (L450 x W340 x H70 mm) or (L550 x W350 x H200 mm)
11. Sink units are 650 mm wide and 900 mm high (adjustable ± 25 mm).
12. The legs should be able to provide strong support and hold to the entire unit securely.
13. The sink should include an overflow drainpipe and water trap. The table also includes a mixing faucet with swivel spout, for cold and hot water connection.
14. Delivered ready for assembly.

A5. Work Table with undershelf Size (LxWxH) : 1500x650x900 mm

- i. Table top and Frame should be made up of SS 304.
- ii. Top: 18g 304 grade SS, edges bent to form 255mm thick edge with 12 mm projection inside.
- iii. The under shelf should be made up of SS 304 with beaded edge all duly buffed and polished.
- iv. Approximate Dimension in mm: 1500 mm x600 mm X900 mm

A6. Spray Gun Rinser

1. Spray gun rinse unit should be designed for connection to water or compressed air, to use for assisted cleaning of pipettes, catheters, cannulas, syringes etc.
- a) The spray-gun should include tubing and different tips and nozzles for the various cleaning purposes, e.g.:
 - a. Syringes and cannulas with Record cone
 - b. Measuring and blood pipettes
 - c. Catheters and small pipes
 - d. Drainage tubing
 - e. Syringes and cannulas with Lure cone
 - f. Spray jet for rapid instrument cleaning
 - g. Bottles and Erlenmeyer flasks
 - h. Water jet pumps for suction cleaning
2. The gun grip is heat-insulated. The water/air pressure is released, regulated and fully controlled by the spray-gun trigger.

B. Processing area

B1. Horizontal Double Door Steam Sterilizer , Capacity 580 Liters or more (8 STU)

1. Should be fully automatic, double door high pressure steam sterilizer with Chamber capacity of 580 litres or more and can accommodate 8 STU baskets load in one cycle.
2. Country of origin of the steam sterilizer should be in Europe or USA(No China manufactured equipment)..
3. Control System:
Should be a PLC based Control System with an independent recording system equipped with a 7" coloured touch-screen HMI on the loading side of the sterilizer with an additional HMI on the unloading side for the operator to see the status of the sterilizer.
Thermal printer should be provided on loading side.
4. Equipment Construction:
Frame and External panels of the steam sterilizer must be made of AISI 304 stainless steel.
5. Chamber Construction:
 - a. Chamber should be made up of SS 316L made of single mould, not even a single joint. No corners must be present in the chamber.
 - b. Chamber insulation should be in non-toxic fiber glass fabric coat. The fabric coating must be removable easily for maintenance operations.
6. Steam Generator:
 - a. Sterilizer should have an integrated Steam Generator inbuilt made of AISI 316L quality.
 - b. Steam Generator should insulation in non-toxic fiber glass fabric coat.
7. Piping System:
The primary & secondary piping system should made up of SS 316L to facilitate better protection against corrosion ensuring long life & low maintenance costs.
8. Triclamps:
All process pipings must be provided with Tri-clamp fittings to facilitate easy service operations & aid in fast removal of small sections.
9. Valves:
Must have Pneumatic valves piston type installed with mechanical seal fittings.
Pressure vessels & Pressure relief valves should be PED marked.
10. Door Operation:
 - a. Should have Automatic Vertical Sliding Doors made of AISI 316L with Electrically operated motorized toothed belt system to guarantee silence & precision during phases of opening & closing.
 - b. Should have Teflon railing for smooth door operation, and no greasing must be required.
11. Gasket:
Should have Steam inflated high quality perimetral silicone seal gasket.
12. Inbuilt Water Saving System:
Water saving should be a standard feature, re-using the condensate and reducing water

consumption.

13. Water consumption:

Total water consumption should be less than 200 litres per cycle with water saving Feature inbuilt provided in the system.(Standard configuration).

14. Electricity consumption:

Electricity consumption per cycle should be less than 8 kW.

15. Water supply feeding lines:

Sterilizer must have application of separated water supply feeding lines for steam generator & vacuum pump.

16. Steam Injection:

Steam sterilizer must have Separate direct Injection of steam into the jacket & chamber for improved steam quality.

17. Vacuum Pump:

Sterilizer should have a Double stage liquid ring vacuum pump for 99.99% air removal to ensure faster processes.

18. Number of Cycles:

- a. Should incorporate 20 programs, 12 pre-defined and other 8 that can be set according to the customer needs.
- b. Process cycles according to EN285 must be factory programmed & available for the operator.
- c. The control system must include 3 pre-programmed & validated working sterilizing cycles, 5 factory set programs, 4 test/service cycles & 8 additional cycles to meet extra customer needs.

19. Heat Exchanger:

Heat exchanger must be provided for lowering temperature of steam condensate from chamber to enhance the life of the vacuum pump & provide cool water to the drain.

20. Heat Loss:

- a. Frontal Heat Loss should be less than 1200 W.
- b. Total Heat loss should be less than 5300 W.

21. Certifications:

Should be compliant with:

European Directive for Medical Devices:

- 93/42/EEC and its revised versions

Pressure Equipment Directive:

- 97/23/EC

Technical norms and standards:

- EN 285
- EN ISO 14971
- EN ISO 17665-1
- IEC EN 61010-1
- IEC EN 61010-2-040
- IEC EN 60601-1-6
- IEC EN 61326-1
- Execution of machine in compliance to EN 285 and HTM 2010
- AEO/C (Authorised Economic Operator — Customs simplifications) Certification.

B2. Low Temperature Vapourized H2o2 Plasma Sterilizer

1. Should provide simple and fast sterilization of surgical instruments in metals, alloys and non-metals, delicate microsurgical instruments, etc. at low temperature using vaporized Hydrogen Peroxide.
2. Country of origin of the Plasma Sterilizer should be in Europe or USA.
3. Chamber capacity:
Equipment should have a chamber volume of 140 litres or more with a usable chamber volume of 135 to 145 litres.
4. Equipment body construction:
Should be of High quality medical graded Stainless Steel (AISI 304).
5. Chamber construction:
 - a. Chamber must have rectangular section with rounded corners, made of 6 mm thick AISI 316L stainless steel, mirror polished ($R_a < 0.4 \mu\text{m}$).
 - b. The chamber must be extremely resistant to chemicals and must ensure ease of cleaning.
6. Door operation:
 - a. The automatic vertical sliding door must be made up of 12mm thick stainless steel AISI 316L without any welding.
 - b. The vertical movement of the door must be actuated through a toothed belt motorized system to guarantee silence & precision during the phases of opening & closing.
 - c. Door must be equipped with an electrical heating system to prevent potential condensation areas.
7. Sterilant used should be Vaporized Hydrogen Peroxide in an aqueous solution at 58% contained in a disposable single shot cartridge.
8. Hydrogen peroxide Residues (ppm):
 - a. Should be Less than 0.01 mg/m³ as per OSHA test method 1019.
 - b. No toxic residues must be present at the end of the cycle; H₂O and O₂ safely evaporated in the air
9. Cartridge details:
 - a. Cartridge should be a Single shot cartridge.
 - b. Hydrogen peroxide dosing quantity must be electronically controlled.
 - c. Cartridge should be able to dispose off in normal plastic waste.
10. Cartridge expiry period:
 - a. Cartridge expiry period should be minimum 12 months.
 - b. The cartridge must be equipped with RFID identifier to prevent reuse, incorrect re-filling or the use after the expiry date.
11. Cycle times:
 - a. Fast cycle - 28 min
Should sterilize generic reusable medical devices, rigid scopes without lumen and micro-surgery kits, with the exclusion of hollow instruments (surface sterilization).
Max load: 23 Kg
 - b. Flex cycle - 42 min
Should sterilize single and dual channel flexible lumens. Single Channel Flexible endoscope with diameter from 1mm and length up to 1050 mm.
Dual Channel Flexible endoscope with diameter from 1mm but a length up to 1000 mm for one channel and up to 850 mm for the other channel.
Max load: 11 Kg
 - c. Standard Cycle - 55 min
Should sterilize hollow rigid, semi-rigid and flexible instruments with diameter from 0.7 mm and length up to 750 mm.
Max load: 10 Kg
 - d. Intensive cycle - 65 min
Should sterilize hollow instrumentation single channel, dual channel and triple channel with diameter from 0.5 mm and length up to 2200 mm.

Max load: 10 Kg

12. Lumen claim in Intensive Cycle: Should be able to sterilize hollow instrumentation single channel, dual channel and triple channel with diameter from 0.5 mm and length up to 2200 mm.
13. Max load in single cycle: Should be able to reprocess load upto 23 kg in one cycle.
14. Utility connections:
 - a. Equipment must be a Plug and play model with only electric supply connection required.
 - b. No separate exhaust or ventilation must be required.
15. Position of plasma generator: Plasma generator should be placed outside the chamber giving increased usable volume.
16. Sterilization of Da Vinci Robotic Instruments: Should have Intuitive Surgical Recommendation for sterilization of Da Vinci Robotic Instruments.
17. Humidity Sensor: Humidity sensor must be provided which prevents cycle initiation in case of moist load, which prevents wastage of cartridge and other consumables.
18. Door seals:
 - a. The chamber tightness must be ensured by special silicone gasket disposed along the perimeter of the door hatchway.
 - b. The seal must be guaranteed by the mechanical pressure of the door mechanism on the gasket.
 - c. Pressure must be kept until the end of the sterilization process
19. Thermal Insulation: The insulation must be made of melamine and must guarantee a temperature of lower external surfaces to 40°C.
20. Vacuum pump: Should have Dual stage oil sealed vacuum pump. During the cycle the system must reach the vacuum value of 20mTorr.
The vacuum pump must be combined with an oil filtration and oil recovery system that drastically reduces the oil consumption and significantly extends the maintenance intervals.
21. Hydrogen peroxide neutralization system (Triple action for safety of residue emission) :
 - a. Plasma generation system: the transformation of the H₂O₂ gas in the plasma status must take place by means of the generator; a high voltage electric arc in contact with the gas must create the plasma cloud.
 - b. Catalytic converter and activated carbon filter must be provided in the system.
22. Air filtration: Vacuum breaker with filtration 99.999% test according to DOP must be provided.
23. Control system:
 - a. Sterilizer must be equipped with a PLC digital microprocessor with a colour touch screen and an independent recording system.
 - b. The user interface must be a 10" color touch-screen type control panel and alarms, alerts and status must be clearly displayed color coded.
24. Memory Storage : Should have Memory storage of up to 1000 executed cycles data.
25. Certifications :

Should be compliant with:

European Directive for Medical Devices:

 - 93/42/EEC and its revised versions

Machinery Directive

 - 2006/42/EC and its revised versions

Technical norms and standards:

 - EN ISO 14937 (ANSI/AAMI)
 - EN ISO 14971
 - IEC EN 61010-1
 - IEC EN 61010-2-040
 - IEC EN 60601-1-6
 - IEC EN 61326-1

B3. Heat Sealing Machine (Automatic Rotary Sealing Machine - printing)

1. Rotary heat sealers should provide validated sealing (as per DIN 58953T7 with manufacturing certificate) of sterilization bags and clear-view pouches (paper/plastic laminate).
2. These through feed-type sealers should be microprocessor-controlled for highest capacity and ease of operation.
3. The rotary heat sealer should give documentation of process parameters via an integrated printer and could be integrated with documentation system. There should be a provision of serial interface for PC (RS 232).
4. The ergonomically design should be tilted forward for increased user convenience and space- saving installation.
5. The sealers should be built and tested in accordance with EU safety norms and German/TÜV norms.
6. The sealer housing should be powder-coated and the control panel is of the flat-membrane type, for easy cleaning.
7. It should be operationally simple. When a bag is fed into one side of the machine, the machine should start automatically or by pushing a button, moving the bag through the machine, and applying pressure and heat to form a perfect seal.
8. The warm-up time should not exceed 30 seconds, and the feed speed should be approx. 10 m/min.
9. The temperature should be adjustable from 80 –220°C with a tolerance of 1% of the set value.
10. It should be regulated by a heating element that is highly sensitive to temperature fluctuations, assuring even temperature and perfect seals.
11. It should offer a number of additional features, including:
 - automatic start-up
 - reenergy-saving stand-by mode
 - pre-set temperatures
 - re-settable counter function
12. Rotary heat sealers come with a port and cable for connection of the sealer to a PC and printer, enabling monitoring and documentation of the entire process.
13. Should have a protection mechanism against overheating and start prevention at temperature deviations outside +/- 5° C tolerance.
14. Rotary heat sealer should be CE-marked.
15. Please provide detailed specifications, features and details of parameters (in technical compliance) like heating time (sec), Width of seal (mm), speed (m/min), Temperature settings (°C), seal-edge (mm),automatic start of drive-belt, accessories like external label printer with connection cable and paper guide, choice of English language and pressure control, automatic temperature reduction function and re-settable counter etc. of the model offered in the quotation.
16. The unit should be supplied with support made of S.S. during through-feed in the sealer.

B4. Control & Packing Table with two Shelves, Size (LxWxH) : 2000x1400x900 mm

1. This table should be specially designed for sorting, inspection, functional control and packing of various sets for wards, clinics etc. and for surgical instrument sets in trays. The work could be done comfortably, either sitting or standing.
2. The worktop should be made of S.S 304 grade 1.5mm thick. All edges should be smooth. The extended width of the worktop should be designed to facilitate thorough inspection of instrument trays and allow the use of large wrapping material.
3. The rigid frame is made of stainless steel (304).
4. There should be unobstructed access to the working space, since the only supports needed along the front of the table are the corner legs. This also facilitates cleaning of

floors.

5. The single workplace table should have 700 mm wide worktop and a double workplace should have 1400 mm worktop.
6. The table should include a two-shelf console, mounted on the worktop, for storage of packaging materials. The rigid supporting columns of the console include 3 electrical outlets.
7. There should be a free space of 450 mm between the lower shelf and the worktop, and 150 mm between the two shelves.
8. The table should have a drawer unit (both sides as double model) mounted under the worktop.
9. Each drawer unit should be 400 mm wide and includes a drawer and a sliding plate.

B5. Stainless Steel Storage racks with Five Shelves

- i. Shall be made of good quality Stainless Steel SS 304; Size: 1400mm L x 535mm W x 1830mm H
- ii. Floor mounted type, storage rack with five shelves to store the medical instruments /linen
- iii. Frame should be fabricated of 40mm square Stainless steel pipes, legs shall be provided with adjustable nylon Bullet feet; Frame thickness, 14SWG.
- iv. The shelves should be fabricated of 16 SWG Stainless Steel sheets ground polished to smooth surface
Edges should be welded together & polished at corners.

B6. Linen Fold Table , Size (LxWxH) : 2000x1400x900 mm

1. The table should be specially designed for sorting, inspection (each piece of linen can be moved over an illuminated inspection panel) and folding of surgical dressing sets and individually packaged towels/gowns. The extended width also facilitates work with large dressing sheets. Work can be carried out comfortably, either sitting or standing.
2. The worktop should be made of a SS 304 material that enhances the lighting for inspection of linen.
3. All edges of the worktop are smooth.
4. The top has a built-in opalescent (milky) plastic surface plate, 1000 x 600 mm, illuminated from underneath by two 25 W fluorescent tubes located beneath the top in a laminated recess.
5. The table has two electrical outlets (one on each side).
6. The rigid frame should be made of stainless steel (304).
7. There should be unobstructed access to the working space, since the only supports needed along the front of the table are the corner legs. This also facilitates cleaning of floors.

B7. Magnifying Lamp (+3) diopters magnification

1. The magnifying lamp should be suitable for the professional use, highly suitable for demanding work in CSSD for inspection of delicate instruments used in hospitals (surgical and medical).
2. The lamp should have minimum standard +3-diopter circular glass lens which can provide a viewing field of 127 mm diameter and magnifies 1.75 times.
3. The circular 22W energy-saving white led surrounds the magnifying lens and provides effective lighting without annoying heat.
4. The lamp should be easily available for replacement.
5. Lamp should be provided with a dust cover to be mounted on the magnifying lens to protect it from dust and dirt and to prevent it from inadvertently acting as a burning-glass.
6. The magnifying head should be made of ABS polymer, combining light weight with high impact strength.

7. The lamp could be operable with an electrical connection of 220/240 V.

B8. Stainless Steel Panelling for Sterilizer & Washer Disinfector Size : To be measured at site as per actual conditions

1. All the sterilizers should be recessed between the S.S. 304 quality panels.
2. The S.S. sheets should have 20 gauge thicknesses with superior finish to match it with equipment finish.
3. These Sheets should be mounted on SS 304 frame structure with adequate supports.
4. The panels should have the doors for service access from loading side
5. There should not be any gaps between panel & the equipment. Any small gaps should be sealed to ensure that it restricts the air movement.
6. The same should be followed for washer disinfector panelling.

C. Sterile storage area

C1. Free Standing basket rack (20 Baskets), Size (LxWxH) : 1835x480x1600 mm

1. Quotations should be offered for double basket storage racks to store 20 baskets each.
2. Wire baskets in sterile storage and/or as pre-storage of clean packed goods.
3. The rack should be designed as an open unit to promote aeration of sterilized goods and to make inspection of stored goods as easy as possible.
4. Baskets should be loaded and unloaded by conveniently sliding them on rigid, horizontal guide-rails, consisting of 50 x 25 mm steel profiles.
5. The guide-rails are welded to a robust support column mounted on a rigid floor stand.
6. The columns should be joined by support frames on top and below the base of the rack.
7. To facilitate cleaning of the floor, the base should have a rigid construction that minimizes the number of legs needed for support.
8. Each leg should have an adjustable foot (± 25 mm).

C2. Modular Sterilizing baskets, Size :585x395x195 mm

1. It should be modular design with standard SPRI sizes and high precision and should be designed for sterilizing / processing as well as easy handling and management of the supply, storage and distribution of re-circulated sterilized goods..
2. It should be self-drying after disinfection in hot water (min.+85°C)
3. Wire Baskets should be sturdy, jig-welded trays maintain their size and shape even if handled carelessly.
4. It should be both nestable and stackable There should be special wire support to help making baskets both stackable (when the supports are folded into the basket) and nestable (when the supports are folded out)
5. The top frame should be designed such that it should serve as a handle grip for easy carrying even when heavily loaded.
6. There should be no sharp edges or wires.
7. The surfaces should be smooth to assure easy cleaning in a washer-disinfector.
8. The baskets should be made of electro-polishes heavy-duty stainless steel (304) and should have a rigid bottom frame that gives space for airing between goods and work surfaces and allow use on roller belt and chain conveyors.
9. It should be designed and manufactured in accordance with high quality specifications to assure long lifetime.

C3. Modular Sterilizing baskets, Size :585x395x100 mm

1. It should be modular design with standard SPRI sizes and high precision and should be designed for sterilizing / processing as well as easy handling and management of the supply, storage and distribution of re-circulated sterilized goods..
2. It should be self-drying after disinfection in hot water (min.+85°C)
3. Wire Baskets should be sturdy, jig-welded trays maintain their size and shape even if handled carelessly.
4. It should be both nestable and stackable There should be special wire support to help making baskets both stackable (when the supports are folded into the basket) and nestable (when the supports are folded out)
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9. It should be designed and manufactured in accordance with high quality specifications to assure long lifetime.

C4. Closed Transport Trolley (LxWxH) 1400 x750x1250 mm

1. A trolley for sterile goods handling where higher than normal dust protection is required,
2. e.g. short transports between hospital buildings. Suitable for handling baskets or containers with a total capacity of 9 STU (1 STU = 600 x 300 x 300 mm) on three solid, removable shelves (3 x 3 STU).
3. Trolley should be fitted with large stainless steel wheels (\varnothing 160 mm) for easier manoeuvrability.
4. Two fixed wheels and two swivel wheels with brakes.
5. The fully welded stainless steel construction (minimum 18 gauges, 304) makes it suitable for cabinet washers. The doors open 270° for easy access and cleaning.
6. Trolley should have lockable doors and should include handlebars.

C5. Pass Box , Size : 600x600x600mm, internal

1. Pass-through chamber should have manually operated doors with mechanical locking system and should fit all types of standard racks.
2. Each door should have its own convenient push-button control to ensure that both doors cannot be opened at the same time.
3. The control should feature two modes of operation to open or close the door with a press button mechanism.
4. The door should also have a built-in safety feature.

C6. SS Table Trolley with shelves

- i. Should be able to use in the sterile zone when holding sterile goods for delivery and also for short internal transport.
- ii. Table top should be made up of SS 304.
- iii. Under shelf should be made up of SS 304 with beaded edge duly buffed.
- iv. The frame should be mounted on 4 nos. of heavy swiveling castors for easy movement.
- v. Corners should be smooth rounded to avoid any sharp edges.
- vi. Joints argon welded, fine finished and mirror polished.
- vii. Complete SS 304 construction
- viii. Approx. Dimension in mm:900 mm X 490 mm X 900 mm

C7. Instrument Tray, Size : 480x250x50 mm

1. It should be modular design with standard sizes and high precision and should be designed for use with modular wire baskets through all phases of instrument processing: washing and disinfection (both manual and in an automatic washer-disinfector), ultrasonic cleaning, inspection and packing, sterilization, storage, distribution and usage.
2. It should be self-drying after disinfection in hot water (min.+85°C)
3. Instrument trays should be sturdy, jig-welded trays maintain their size and shape even if handled carelessly.
4. All cross-points in the network and vertical wires to top and bottom frames should be point- welded. All free wire ends should be soft-polished to prevent injury when handled.
5. It should be electro-polished for smooth, clean surfaces and also suitable for ISO modular wire baskets.