

**MINISTRY OF EXTERNAL AFFAIRS
(GOVT. OF INDIA)**

**DISTRICT GENERAL HOSPITAL, DIKOYA,
SRI LANKA**

Tender

for

**Supply, Installation, Testing & Commissioning of Laundry
Equipments at District General Hospital, Sri Lanka**

VOLUME – IV

TECHNICAL SPECIFICATION

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SPECIFICATION OF MECHANIZED LAUNDRY

Scope of Work : Supply, Installation, Testing, Commissioning including Turnkey work of Mechanized Laundry equipment and handover in satisfactory condition to the District hospital premises of Dickoya, Srilanka and services of Defect liability period as per contract.

1. SLUICING CUM WASHER EXTRACTOR

For removal of blood stains, faecal matter, vomit and other residue
Capacity -15 kg , Electrically Heated,
Front loading, Heavy duty, High Spin, Soft Mount, Suspended, Variable frequency drive & Auto reverse & forward, Open pocket & Front display.

- a. Control- Microprocessor/Computer controlled
- b. Dispenser - 4/5 compartment detergent dispensers
- c. Outer Drum - Made of Stainless steel AISI-304 with 2mm thickness
- d. Inner Drum - Made of Stainless steel AISI-304 with 2 mm thickness of basket, CNC Perforated
- e. Outer Cabinet - Made of Mild Steel sheet and channels, Welded structure, Finished with Powder Coating
- f. Door - Made of die pressed Stainless steel AISI 304 quality, 2 mm thickness, Toughened glass window , SS door latch/handle and interlock for safety
- g. Door Opening - 400 mm Ø (Minimum)
- h. Level Sensor - Highly sensitive auto water level sensor with PLC
- i. Basket Volume- 150 Ltrs. (Minimum)
- j. Seal - High quality seal to be used to prevent contact of water with the Bearings
- k. Bearing Housing- Roller bearings of reputed brand duly packed with grease & Lubricants
- l. Wash RPM - 35 (Minimum)
- m. Final Extract - 870 RPM(Minimum)
- n. G-Force - 340 (Minimum)
- o. Motor - Large capacity motor with variable frequency drive for wash, distribution, low, normal and high spin.
ABB/SIEMENS/CROMPTON/NGEF/KIRLOSKAR MAKE
- p. Electric Load - 9 Kw (Maximum)
- q. Electric supply- 415V, 3Ø,AC, 50hz.4P
- r. All wet materials and components must be of AISI-304 Stainless steel
- s. All Stainless steel components should be TIG welded and highly polished.
- t. In-built Control Panel and Motor

2. WASHER EXTRACTOR

For washing cleaning and extraction
Capacity -30 kg , Electrically Heated,
Front loading, Heavy duty, High Spin, Soft Mount, Suspended, Variable frequency drive & Auto reverse & forward, Open pocket & Front display.

- a. Control- Microprocessor/Computer controlled
- b. Dispenser - 3/4 compartment detergent dispensers
- c. Outer Drum - Made of Stainless steel AISI-304 with 2mm thickness
- d. Inner Drum - Made of Stainless steel AISI-304 with 2 mm thickness of basket, CNC Perforated
- e. Outer Cabinet - Made of Mild Steel sheet and channels, Welded structure, Finished with Powder Coating
- f. Door - Made of die pressed Stainless steel AISI 304 quality, 2 mm thickness, Toughened glass window , SS door latch/handle and interlock for safety
- g. Door Opening - 500 mm Ø (Minimum)
- h. Level Sensor - Highly sensitive auto water level sensor with PLC
- i. Basket Volume- 300 Ltrs. (Minimum)
- j. Seal - High quality seal to be used to prevent contact of water with the Bearings
- k. Bearing Housing- Roller bearings of reputed brand duly packed with grease & Lubricants
- l. Wash RPM - 35 (Minimum)
- m. Final Extract - 800 RPM(Minimum)
- n. G-Force - 340 (Minimum)
- o. Motor - Large capacity motor with variable frequency drive for wash, distribution, low, normal and high spin.
ABB/SIEMENS/CROMPTON/NGEF/KIRLOSKAR MAKE
- P. Electric Load - 18 Kw (Maximum)
- q. Electric supply- 415V, 3Ø,AC, 50hz. 4P
- r. All wet materials and components must be of AISI-304 Stainless steel
- s. All Stainless steel components should be TIG welded and highly polished.
- t. In-built Control Panel and Motor

3. DRYING TUMBLER

**Capacity – 15 kg Electrically Heated,
Heavy duty, Front Loading, Cool down Feature, Auto-timed, Auto-reversible, Auto
digital temperature control, Dual Motor drive, Open Pocket & Front display**

- a. Control- Microprocessor/PLC/Computer controlled
- b. Temperature - Auto digital control
Controller
- c. Time - Auto digital control for drying and cooling
Controller
- d. Inner Drum - Made of Stainless steel AISI-304 with 1.5 mm thickness of basket, CNC Perforated
- e. Outer Cabinet - Made of Steel sheet of 1.5 thickness, Welded structure, Finished with Powder Coating
- f. Door - Made of die pressed Stainless steel AISI 304 quality, 1.5 mm thickness, Toughened glass window , SS door latch/handle and interlock for safety

- g. Door Opening - 500 mm Ø (Minimum)
- h. Basket Volume- 295 Ltrs.(Minimum)
- i. Drive Motor - 0.37 Kw
- j. Blower Motor - 0.37 Kw
- k. Suction Blower- Heavy duty Centrifugal Suction Blower and dynamically balanced
- l. Insulation - Glass wool duly packed on all sides & front of the drier
to minimize the heat loss & saves energy
- m. Lint Screen - Self cleaning lint screen of Stainless Steel AISI-304. Facility of
cleaning should be through front door
- n. Electric Load - 12 Kw (Maximum)
- o. Electric supply- 415V, 3Ø, AC, 50hz.
- p. Air flow - Around 30 cu/m
- q. All wet materials and components must be of AISI-304 Stainless steel
- r. All Stainless steel components should be TIG welded and highly polished.
- s. In-built Control Panel and Motor

4. FLAT BED PRESS

Suitable for linen like uniform, room furnishing , personal garments, Bed sheets & Pillow Covers

**Head & Bed Size- 1500X750mm Electrically heated,
Auto-timed, Auto-temperature controlled, Double Switch operation, Built-in Suction Blower, Pneumatically controlled,**

- a. Head - Polished Stainless steel/High quality steel with Teflon coated/Nickel plated
- b. Main Body- Made of Mild Steel sheets of 1.5 mm thickness, Welded structure and finished with powder coating
- c. Blower - Heavy duty Suction Blower with powerful suction
- d. Safety - Emergency Stop of the machine with emergency switch. Automatic stopping of the machine for Finger guard for operator safety
- e. Control - Push Button for raising and lowering of the head pneumatically
- f. Temperature- Digital temperature control controller
- g. Electric Load- 18 Kw (Maximum)
- h. Electric supply- 415V, 3Ø, AC, 50hz.

5. VACUUM FINISHING TABLE WITH IRON

Adjustable height.

Table Top Size -1300mm X 800mm

- a. Table top - Mild Steel sheet of 2.5 thickness padding with heat resistant material like Silicon etc. Perforated flat top padded with high porosity
- b. Main Body- Made of Mild steel sheets/plates and finished with powder coating
- c. Blower - Heavy duty Powerful suction through Centrifugal blower of 0.5hp Motor

activated by spring loaded full length foot pedal working in combination with heavy duty micro switch

- d. Heater - In-built Thermostatically controlled stainless steel heater
- e. Electric Steam-Iron Die cast sole plate, Teflon shoe and thermostatically controlled heating element with moisture trap, Rubberized handle
- f. Electric supply- 415 V/ 3 Ph / 50 Hz/ AC/4P

6. STEAM GENERATOR

The Steam Generator of steam capacity 10 Kg/hr Compatible to the Vacuum finishing Table-2 Nos. must be fully automatic and electrically operated. The Steam Generator shall be equipped with pressure vessel of heavy gauge AISI-316 Stainless Steel fitted with SS heating elements and built-in electric control panel, Pressure Regulator, High Pressure Water Injection Pump of 1hp, Pressure Gauge, Solenoid steam release Safety Valve, Highly sensitive Float Regulator, Blow down Valve, Built-in water storage tank, Inlet and Outlet connections, Solenoid valve with Flow Control Device and Drain lines. Pressure vessel should withstand double of working pressure hydraulically.

7. AIR COMPRESSOR

- a. The air compressor of Kirloskar/Elgi/Ingersolrand make shall be multistage stage, fully automatic suitable for delivering dry compressed air at pressure compatible to Ironer.
- b. Drive - Belt driven with pulleys, belts and belt guard.
- c. Motor - 3 hp. (Kirloskar/Siemens/NGEF/Crompton Greaves make)
- d. Electric supply- 415 V/ 3 Ph / 50 Hz/ AC/4P

8. WASH ROOM TROLLEY

Capacity -70Kg

The wash room trolley shall be fabricated out of Stainless Steel AISI-304 tubes and flats in all welded construction ground smooth & finished, supported on swiveling wheels.

9. DRY LINEN TROLLEY

Capacity-50 Kg

The dry linen trolley shall be designed in Stainless Steel construction with all welded joints ground & smooth finished out of Stainless Steel tubes and bars and foldable front. The base frame shall be supported on 4 Nos. castor wheels min. 75 mm size of swiveling type.

10. SHELF TROLLEY (Finished linen)

Capacity -70Kg

The linen trolley shall be designed in Stainless Steel AISI-304 construction with all welded joints ground & smooth finished out of Stainless Steel tubes and bars and foldable front. The trolley shall be fitted with at least 4 Nos. AISI-304 Stainless Steel shelves(2-shelves removable). The base frame shall be supported on swiveling wheels.

11. DIRTY LINEN CARRYING TROLLEY- 50Kg

Plastic container equipped with the trolley of sheet metal fabrication fitted with four swiveling castors and stoving painted. The base frame shall be supported on swiveling wheels. CRCA sheet metal welded with bars and tubes.

12. MOBILE TABLE

Table top size-1200mm x 750mm

The folding table shall be specially designed for carrying rolling and folding of linen in the laundry. The frame of the table shall be fabricated out of MS welded construction with one bottom shelf for storage. Complete with heavy duty ball bearing for swiveling wheels. The table top shall be of polished Stainless steel.

13. STORAGE RACK

Size - 1200mmx460mmx1800mm

4 shelves; Made of Mild Steel, Finished with Stoving paints

14. MENDING MACHINE

The Mending machine or motorized sewing machine shall be heavy duty type with all metallic shuttle, and moving parts. The machine shall be complete with mounting table with adequate space for placement and movement of garments to be stitched/mended. The machine shall have a table mounted drive motor foot pedal operated for convenience of operation with both hands free.

15. ELECTRIC DISTRIBUTION PANEL

Completed with all switchgears, wiring and controls etc . (Switch gears of L&T/ Siemens/ ABB/GE or Schneider make) for distribution of power supply to various load points in the Laundry Room from single point power supply(Provided by the hospital).

16. IN ADDITION TO THE ABOVE, FOLLOWING TURNKEY WORKS FOR INSTALLATION AND COMMISSIONING OF LAUNDRY AT DISTRICT HOSPITAL PREMISES OF DICKOYA, SRILANKA ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR :

(Bidder should visit to the site condition and assess the turnkey work for the Laundry.)

Additional work pertaining to Civil works, Electrical & Mechanical works and demolishing works, Furniture, Plumbing, Overhead Water Tank, Sanitary, Servo stabilizers/U.P.S etc. and any other protections relevant as per State/Central Govt. regulation/local authority/NDMC, required for successful installation testing and commissioning of the system and the offered price should include all such costs, each Schedule is to be considered a package in itself and contractor to execute the order in package on a “turnkey basis”.

- Laying of **GI water pipe line for Plumbing** with necessary taps, joints, elbows, Unions, Tees and valves of GI made and IS-1239 standard (Latest version) to various supply points in the Laundry Room from single point supply(Provided by the hospital). Contractor will be responsible for supply and installation of water storage tanks and Booster pumps. Individual plumbing lines with valves are required.
- Providing fixing of **Electrical Gadgets** like ELCB, MCB, Light Points, Power points, Cool air Fans, Exhaust fan etc in the Laundry room.
- Installation of MCB, ACB, ELCB & OCB of Havell/Siemens/L&T/Schneider etc **for Control Panel** for Laundry.
- Installation of all **Electrical cabling** must be of IS: 1554 (As per latest amendment) standard and wiring as per IS: 732 standard and proper **Earthing system** of all Laundry equipments and other electrical instrument and accessories in the Laundry room **as per standard guidelines of BIS(Latest edition)**. All cable trenches and railings should be made wherever required.
- Construction/laying of **Draining/Sewer system** from all the equipments/Sinks to the main drain line with **SS grating**, proper trap and flow system and tapping.
- **Ventilation** should be provided with necessary GI ducting for fresh air supply and exhaustion of hot air to create comfortable working condition within the Laundry Room for areas such as clean store, sterile stores, packing area and office room. Motors shall be of continuous duty S1 type of IS: 325 standard (Latest version)
- Contractor should provide effective **firefighting system including fire** extinguishers (It should be made as per the approved guideline of the local authority/Regulatory Body for Laundry room, The contractor shall be solely responsible to get permit/approval from the local authority/Regulatory Body in case it is required).
- Installation and commissioning of **Water Softener** (ION Exchange/Thermax make) for softening of available ground/supply water continuously at the hardness necessary for washing and other application required for laundry is at least “< 50 ppm” or as per suitability of the Steam Generators/equipment. The Water Softening System shall be installed in the capacity compatible to the requirement of Laundry equipments and system running for the assigned duration at fully loaded condition. The specimen of ground/supply water is available at the site of installation at Dickoya, Srilanka for design and selection of

Water Softening System.

In addition to the above mentioned equipment/appliances, if the contractor thinks it necessary to include any other equipment/appliances, accessories etc. for the Laundry then that may be provided after approval from Engineer in-charge.

The sizes are approximate. Minor variations in sizes shall be acceptable subject to prior approval of the Engineer.

APPROVED MAKES

1.	Air Blower	SWAM/ EVEREST/ KAY/Beta
2.	Blower/Suction Motor	KIRLOSKAR/ NGEF/ SIEMENS/CROMPTON/ABB
4.	Cable	SKYTONE/KEI/UNIVERSAL/NATIONAL/RR CABLE
6..	Control Panel	L & T/ SIEMENS/ SCHNEIDER
10.	Valve	LEADER/ ZOLOTO /CRI
11.	PVC Pipe Class III with Fitting	FINOLEX/ SUPREME/ PRINCE/ ORI-PLAST
12.	G.I. / M.S. Pipe Heavy Class	TATA/ JINDAL(HISSAR)/SAIL /SURYA PRAKASH
19.	MCCB/Contactor/Relay	L&T/ABB/SIEMENS/SCHNEIDER
20.	Pressure Gauges	H.GURU /FIEBIG
21.	StainlessSteel	TATA/SALEM/JINDAL/MUKUND/BHAYANDER/AMBICA

Note :

- **The bidder should attach Technical Compliance item wise with respect to the above technical specifications and turnkey work along with Printed catalogues**
- **The contractor shall be responsible for the complete works including submission of working drawing and walk through view.**
- **The contractor should provide complete List of Commonly used Spares, Operation manual, Equipment manual, Service manual and manuals for all systems and subsystems.**
- **Final electrical and pressure and other safety test, system test and calibration should be done by authorized person with test instruments.**
- **The contractor should provide all electrical accessories like cable wire, electrical outlets, switches etc, and they should be fire proof of reputed make, certified for electrical safety.**
- **Wherever makes have not been specified for certain items, the contractor should provide the same as per BIS and as per approval of HSCC.**
- **Training of personnel of the Institute should be 30 days at least by the contractor.**
- **The contractor should prepare and submit layout plan for Steam Pipeline, Electrical Wiring, Electrical Distributional Panel, Plumbing, Fire Fighting System, Air**

Washing and Ventilation and Drain line to HSCC for approval before beginning of supply and installation and As built drawing after installation.

- **The contractor should provide test certificate for all materials along with manufacturer's test certificate and equipments used for Laundry.**
- **The contractor should provide Third party quality certificate of the laundry equipment from SGS/TUV/Lloyds saying as “ Certifies that the laundry equipment meets the technical specification and BOQ of the Contract”.**