

REGD
From

Supply Order

The Director General, Supplies & Disposals,
Haryana, S.C.O No. 9, 1st & 2nd Floor, Sector -16, Panchkula.

M/s Rochem Separation Systems (India) Pvt. Ltd.
101, HDIL Towers, Anant Kanekar Marg, Bandra (E),
Mumbai-400051, E-mail:- rochem@rochemindia.com, sales@rochem.in

Memo No. 91/HR/E-2/2023-24/

Dated Panchkula the :-

Subject:- Supply & Installation of Reverse osmosis Desalination unit of capacity 10 m3/hour with 90% efficiency required by the Horticulture Department, Haryana.

With reference to your offer No. NIL opened on 05.06.2023 and letter dated 30.10.2023, this office acceptance letter no.19231 dated 19.12.2023 and your letter no. RSS/LTR/0258/2023 dated 17.02.2024, on the subject noted above.

2. Please supply the material within the delivery period in any case from the date of issue of order, the following material under the terms and conditions already accepted by you in the tender to the consignees to be intimated by the Engineer in Chief, Irrigation and WR Department, Haryana.

3. The material may please be sent directly to the -do- -do-
for the payment and bill of the cost in triplicate to the -do- -do-
under advice to this office.

a. Store Details & Rates :-

Sr. No.	Description	Quantity (in Nos.)	Rates in Rs. per unit inclusive of Operation and Maintenance for one year inclusive of GST @ 18%, FOR consignee stores etc.
1.	Supply & Installation of Desalination Unit with reverse osmosis technology 10cum/hour	01 Nos.	1,00,00,000/-

Technical Specifications of Desalination Unit :-

Sr.	Name of the Systems / Equipments	Major Specification with tentative dimensions (indicative)	Quantity (nos.)
1.	Feed Pump	Specifications of Pump Make: ISI & BIS approved Type: Multi stage centrifugal Pump	1

		<p>Material: SS 316 internal parts Designed capacity max: 10000 (lph) Pump pressure: 3.0 - 3.5 (bar) Rotation: 2900 (RPM) Motor: ISI & BIS approved</p> <p>Specification Drive Type: Three Phase A.C. motor Voltage / Frequency: (V/Hz)415 / 50 Output: (kW) 2.2 Speed: (RPM) 2900 Insulation: class F Class of protection: IP 55</p>	
2.	Filter pump	<p>The filter pump is designed to supply the filter system and high pressure pump with sufficient pre-pressure and consists of a multi-stage centrifugal pump. Min 3.0 bar suction pressure is required for the pump.</p> <p>Specification Pump Make: ISI & BIS approved Type: Multi stage centrifugal Pump Material: SS 316 internal parts Designed capacity max: (lph) 10000 Pump pressure: (bar) 4.0 - 5.0 Rotation: (RPM) 2900 Motor: ISI & BIS approved</p> <p>Specification Drive Type: Three Phase A.C. motor Voltage / Frequency: (V/Hz)415 / 50 Output: (kW) 3 Speed: (RPM) 2900 Insulation: class F Class of protection: IP 55</p>	1
3.	Sand filter	<p>The sand filter pump is designed to supply the filter system and high pressure pump with sufficient pre-pressure and consists of a multi-stage centrifugal pump. Min 3.0 bar suction pressure is required for the pump.</p> <p>Specifications:- Make: ISI & BIS approved Material Vessel: FRP Designed flow rate:(lph) 10000 Operating pressure designed: (bar) 4.0 - 6.0 Operating pressure max.: (bar) 8</p>	1
4.	Cartridge filter	<p>The cartridge filter is designed to remove any suspended matter to reduce organic or inorganic fouling on the membranes. The cartridge filter is supplied with sufficient pre-pressure from the filter pump.</p> <p>Specifications: Make: ISI & BIS approved</p>	1

		Material Filter Element: PP Material Housing: PPFRP Type of Element: Wound Type 10 micron Size of Housing: 30" suitable	
5.	Anti-scalant Dosing System	The RO membrane is susceptible to fouling due to precipitation of sparingly soluble salts present in the feed water. Anti-scalant is dosed upstream of the RO membrane to control scale formation. Specifications: Tank Capacity: 100 Lit HDPE Dosing by: Pumping Pump Make : Prominent Pump Capacity: 0-5 LPH at 6 bar Power Supply: 230 V /50 HZ /1 phase	1
6.	Acid Dosing	This system should ensure the fine tuning of the pH of the feed to 6.0-6.5 pH. Acid (HCl) required shall be provided by the firm/contractor. Specifications: Make: ISI & BIS approved Dosing by: Injector system Tank Capacity: 200 Lit Tank MOC: HDPE	1
7.	High pressure pump system	The high pressure pump system should consist of a multistage centrifugal pump supplied with a T.E.F.C. Motor. The pump system should be designed for reliable 24 hours operation with corrosion resistant material of latest standard for use on high TDS water applications. Specifications of Pump: Make: ISI & BIS approved Type: pump Material: SS 316 wetted parted Designed capacity max:(lph) 10000 Pump pressure max:(bar) 60 Specifications of Drive: Type: Three Phase A.C. motor Voltage / Frequency:(V/Hz) 415 / 50 Power: (kW) 22 Speed: (RPM)2900 Insulation: class F Class of protection: IP 55	1
8.	Servo motor valve	This valve should control recovery of system by operating pressure of Module. It should be placed on the reject discharge line. Bushing connection Female: 1" NPT Nominal Pressure: (Bar) 70 Bar Material Housing: SS316	1

		Material of inner Parts: SS316 Electrical Actuator Voltage: (V) 220 Frequency: (Hz)50/60 Limit Switch Pos. Open/Closed: One Set Way Switch Pos. Open/closed: One Set	
9.	Membrane modules	Specifications of Module: Material of module plates: Advanced Thermoplastic with high co-efficient of Thermal expansion End flanges: Stainless Steel Tie rod: Stainless Steel Feed flow nominal: (lph) 750 - 800 Operating pressure max.: (bar) 60 - 65 Hydraulic connection: flexible hose Membrane Type: TFC - Polyamide - RO	35 Nos. (+/- 10 %)
10.	Inline Booster Pump	Specifications of Pump: Make: ISI & BIS approved Type: Centrifugal Pump Material: SS 316 Pump pressure max.: (bar) 8.0 /suitable	1
11.	Degasser system	The output water (permeate) should contain a concentration of free carbon dioxide CO ₂ due to destabilized hardness salts like Ca(HCO ₃) ₂ . To prevent the corrosion of coated iron pipes a degasser system should be installed. The degasser strips the CO ₂ in the permeate resulting in neutral pH of permeate from the system. The system should consist of a degasser tower and storage tank (RCC tank to be supplied by firm) with level indicator and high and low level switches for signaling to PLC. Specifications: Quantity: 1 Set Tower MOC: FRP/PP/PVC Tower Quantity: 1 Set Blower Quantity: 1 Set Blower MOC: FRP Degasser Tank Tank Capacity: 1 No. 20 KL Tank MOC: RCC	1
12.	Product water pump	The product water pump should be designed to supply the permeate water tank filling system with sufficient pressure and consists of a centrifugal pump. The pump should take the suction from the Permeate water Tank. Specifications of Pump: Quantity: 1 No. Make: ISI & BIS approved Type: Centrifugal pump	1

		Material: Stainless steel internal parts Designed capacity max: (lph) 9000 Pump pressure max.: (bar) 2.0-3.0 Output: (kW) 1.5	
13.	Cleaning system	The system should be fitted with process controls to enable efficient flushing and cleaning of membranes as required for efficient operation of system and maintenance of membrane conditions. The same should be enabled by PLC operations in the control system loops.	1 job
14.	Control System & Instrumentation	Processor control system The process controller is the microprocessor (PLC) which should control and operate the following functions: - Operation of filter pump Operation of high pressure pump and other system drives sequentially based on operating mode Operation of control valves to regulate operating pressure / flow based on mode of operation between Normal, Flushing, Cleaning Overall system failsafe control by flow, pressure monitoring. Make-Schneider- Telemechanique/ Allen Bradley MCC Panel (Maybe common for all RO's depend on site conditions) Non-compartmentalize MCC panel as per ISI Standards Panel Make: Rittal/ Bartakke Switch gear: Siemens/ Schneider/ Equivalent Cable All electrical cable: Aluminium armoured All instrument cable: copper armoured Make: Polycab/ Havells/ Finolex/ Equivalent	1 job
15.	Electrical items	Motor from pumps & agitators cable termination at motor end. Operation from MCC panel during the commissioning run is included in the contract. Complete in all respect.	1 Job
16.	Measuring system	The measuring system should consist of Pressure gauges, switches, Flow indicators, etc, enable efficient and simple desired parameter logging, and support control system by feedback to PLC. Make: ISI & BIS approved Pressure gauges, Transmitter: Wika /Equivalent Pressure Switch: Orion/Equivalent Flow indicators: George Fischer	1 Job

		/Equivalent Conductivity: Eutech / Equivalent pH meter: George Fischer /Equivalent Flow Totalizer: George Fischer/Equivalent	
17.	Piping	<p>Low pressure piping The low pressure valves and piping system should be corrosion proof and fabricated of PVC/Rubber/ PU with a pressure stage of 6 bar at 40⁰ C and test pressure of 9 bar max. Make - ISI & BIS approved</p> <p>High pressure piping The high pressure piping and fittings should be fabricated of special stainless steel & piping of wire braided rubber with highest standard corrosion resistance suitable for operation in water with a high salt content. The pressure in high pressure stage should be up to 60 bar max. (Reject piping SS316)</p>	1 Job
18.	Associated interconnecting plant piping with valves, fittings, etc	Connectivity of all tanks feed storage, permeate storage & brine storage should be considered in the scope of this tender by the contractor. Complete in all respect	1 Job
19.	Construction of equipment foundations on finished floor & underground tank top	Included in the contract.	1 Job (for all equipments)
20.	Commissioning chemicals & first charge materials (filter media, limestone, cartridges, lube oil, etc)	As required till satisfactory handling-over demonstration run, acceptable to indenting department	1 Job
21.	Erection & commissioning	<p>All the job regarding E & C should be included in the contract (Piping, Chemicals)</p> <p>i). Tube well to Desalination Unit ii). Desalination Unit to permeate tank iii). Desalination Unit to Reject/concentrate tank</p> <p>All the piping fittings & accessories should be included in the contract & should be done as per the complete satisfaction of Site In charge at CoE, Munimpur, Jhajjar</p>	<p>1 Job</p> <p>up to 50 m piping & pump up to 50 m piping & pump up to 100 m piping & pump</p>
22.	Operational charges	The successful bidder should provide a Engineer/Expert well qualified in the respective field for the smooth functioning	1 Job

		of Desalination Unit at site for the period of 1 year from the date of successful installation of the desalination unit.	
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Scope of Work:-

a) Plant Capacity

Tube well to Desalination Unit : 10 cum/hour

b) Feed water analysis

pH : 6.96
Electrical conductivity : 4000-6000 micromhos/cm
Carbonate : Nil
Bicarbonate : 6.0-7.0
Chloride : 34.0-41.5
Calcium & Magnesium : 21.6-22.0
Sodium : 32.5 me/l
Potassium : 0.23 me/l
Sodium Adsorption Ratio : 9.88
Residual Sodium Carbonate : -14.6
Chemical Oxygen Demand (mg/l) : 8
Biochemical Oxygen Demand (mg/l) : Not Detected
Sulphate (SO₄), mg/l : 620
Silica (SiO₂) : 23

c) Treated water quality

pH : 6.0
Electrical Conductivity : less than 500micromhos/cm
Suspended solids (ppm) : less than 1.0
TDS : less than 200 ppm
All the parameters should be under permissible limits

b. TERMS AND CONDITONS.

- Place of Delivery:** - At consignee Godowns i.e Munimpur, Distt: Jhajjar, Haryana at supplier's risk as detailed below:-
- Unloading charges at destination:-** Inclusive.
- GST on the ORDERED/CONTRACTED ITEM** will be paid as applicable. In case, the supplies are delayed by the firm beyond the stipulated delivery period and there has been any upward revision in the rates of GST on the CONTRACTED ITEM, no such increase will be allowed but if there has been any reduction in GST, the same will be availed. No variation in GST on inputs viz raw material/ freight etc. will be applicable.
- Delivery Period:-** The time is the essence of the contract. The work shall be completed within 90 days from issuing of supply order. The work shall be reckoned 10 days after the date of issue of supply order by indenting department.
- Completion Certificate:**
 - On physical completion of work as per NIT condition, successful bidder shall inform in the writing to this effect and inspection committee constituted by the indenting department will inspect the work according to specification of NIT. The discrepancies/

defects noticed by inspection committee will be informed to the successful bidder and completion certificate will be issued to the successful bidder only after the rectification of defects/ discrepancies so pointed out. The successful bidder shall remove these defect/ discrepancies within 15 days from the date of receipt of notice/ letter from the indenting department to this effect.

- ii. If your firm fails to rectify/complete the discrepancies/defect within this period the completion certificate will not be issued to the contractor & penalty as per condition of contract will be charge from the successful bidder and work will be got executed at his risk & cost.
6. **Time Delay & Extension of Time:** The completion time is specified in NIT and work shall be completed within the specified period. Extension of time shall be granted by the indenting department for a specific period if found reasonable.
7. **Payment terms:-** Final installment of 100% shall be released on installation of complete system and satisfactory report of physical inspection and after a successful trial of the unit/plant for a week by a committee constituted for this purpose by the Indenting Department.

Delay in payments to the suppliers beyond the stipulated credit period indicated in the supply order, unless supported by cogent reasons and approved by a higher authority, will attract penal interest on the defaulting amount @ Rs. 25/- per rupees one lakh per day of delay beyond the stipulated credit period. Non provision of adequate budget will be no ground for delay in payments to the supplier. This is as per provisions contained at Para 17 of G.O. No.2/2/2010-4I-BII of dated 28.05.2010 (or as amended from time to time in this regard).

8. Penalty Clause:

- i. If your firm fails to complete the work within stipulated period from the date commencement as prescribed in the NIT, then the amount of liquidated damage for the whole work is 2% per week of the contract value, subject to the maximum of 10% of total value of contract.
- ii. When the delay is not a full week or in multiplies of a week but involves a fraction of a week the penalty/compensation payable for that fraction shall be proportional to the number of days in involved.

9. Performance Security Deposits:

- i. The Performance Security Deposits of the successful bidder is 5% of the total order value which will be retained in the form of bank guarantee and which will be released after 3 years after satisfactory service.
- ii. In case there is fundamental breach of contract/ agreement by the contractor as per contract condition the security deposited with the department will be forfeited.
- iii. In case contractor fails to rectify the defects noticed during defect liability period even after issue of notice by the competent authority within specified time intimated by site engineer/ in charge, the security deposited within the department will be forfeited.

10. Warranty: 12 months Comprehensive warranty (CMS) with spares from the date of installation of the desalination unit.

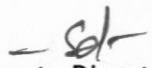
- i. The successful bidder will be responsible for the comprehensive maintenance of the supplied desalination unit and its related accessories free of charge and including freight charges during the comprehensive warranty period of 12 months. The said comprehensive warranty shall be deemed to commence from the date of issue of the letter for successful installation of the desalination unit by the indenting department.

- ii. It shall be the responsibility of the successful bidder to keep the desalination unit in good working condition for proper functioning of the desalination unit by providing timely service/repairs/maintenance during the comprehensive warranty period and 5 years after comprehensive warranty period; otherwise it shall be treated as a non-performance on the part of the vendor for penalty.
- iii. The comprehensive warranty shall cover repair/replacement of all defective part, if any, with the same or equivalent make for any part removed. Maintenance will not be accepted. The successful bidder will provide after sale service during the comprehensive warranty period.
- iv. The comprehensive warranty of 12 months also applies to consumable items such as filter elements, lubricants, pulsation damper, hp-pump valves and seals, or chemicals etc. used in the operation or maintenance of the unit.
- 11. **Operational charges:** Your firm should provide a Engineer/Expert well qualified in the respective field for the smooth functioning of Desalination Unit at site for the period of 1 year from the date of successful installation of the desalination unit.
- 12. **Operation and Maintenance:** Your firm shall provide the Operation & Maintenance services for next four years to Horticulture Department, Haryana on the rate of Rs. 5 lakhs per year. The O & M may be got by the Horticulture Department, Haryana as per their requirement.
- 13. **Training:** Your firm will be required to provide training for the functioning of desalination unit on site/CoE to the officers/officials designated by the indenting department with technical support for the period of 1 year.
- 14. **Complaint Attending Mechanism:** In case of any complaint in the working of the desalination unit during the warranty period and post warranty period the firm shall attend the same within 96 hours from the time of logging of the first complaint call by the consignee and the instruments must be repaired within 10 days thereafter. The complaints would be logged by the Department/any officers/ officials of the Indenting Department by e-mail in order to keep the proper delivery record. Further, in case of failure to do so, penalty @ Rs. 1,000/- per day per component will be applicable. If, equipment is not repaired within 40 days, the firm/bidder will be required to refund the entire cost of the component. This without prejudice to all other rights and remedies permissible to the Government under the term & conditions of the contract.
- 15. All jobs until the complete installation of desalination unit are inclusive in this contract/tender. Minor jobs which cannot be anticipated now and not mentioned in this technical document, if come during the execution of work at site are to be taken care by the successful bidder.
- 16. **Relevant literature of items:** Your firm shall submit literature clearly indicating the specifications & operation, along with all the relevant drawings of equipment/ sub-systems/ systems and piping layout of the desalination unit.
- 17. No electricity and water will be supplied by the indenting department at site to the successful bidder and shall make his own arrangement.
- 18. Your firm shall at his cost take an Accident Insurance Policy for his personal engaged at site during erecting as well as during maintenance period. The policy shall cover workman compensation act.
- 19. Your firm shall comply with all the labour laws and other statutory requirements during the project completion phase.
- 20. **Price Fall Clause:-**The price quoted in the tender/quotation or approved in the Supply order for the stores shall not exceed in any way the lowest price at which the tenderer quote for the supply the stores of identical description to GeM, State Government Institutions/Undertakings/any other person during the delivery period/

currency period of the supply order. If, at any time during the delivery period/ currency period, your firm reduces the rates/sale price of the quoted stores to any person at the price lower than the price chargeable under the supply order/rate contract, your firm should forthwith notify such reduction and inform this office and the price payable under the supply order for the stores supplied after the date of coming into force of such reduction of the rates shall stand correspondingly reduced to that level. Your firm shall promptly notify the reduction of rates to this office as well as to the concerned Indenting Officer/ Consignees. Your firm shall also give a certificate on their bills that the rates charged by them are not in any way higher to those quoted by them to the GeM and other State Government etc., during the corresponding period. The Indenting Officer shall be required to ensure that requisite certificate is given by the concerned firm on the bills before releasing their payments.

21. **SCHEDULE "B"**:- One copy of the Schedule "B" i.e. conditions of contract applicable is sent herewith duly signed on behalf of Governor of Haryana.

Other terms & conditions including Delivery period & Fall Clause will be as per NIT/Schedule-A/B.


Deputy Director

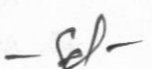
Supplies & Disposals, Haryana,
For & on behalf of Governor of Haryana.

Endst No. 91/HR/E-2/2023-24/

Dated

A copy of the above is forwarded to the Director General, Horticulture Deptt., Haryana w.r.t. their indent No. Hort./MIDH/CoE/Munimpur/1/8068 dated 28.03.2023 for information and necessary action. Payment may please be made to the supplier strictly as per approved payment terms.

He is also requested to issue consignee wise dispatch instructions direct to the firm immediately under intimation to this office.


Deputy Director

For Director General, Supplies & Disposals,
Haryana, Panchkula

Endst. No. 91/HR/E-2/2023-24 

Dated : 11/5/24

A copy is forwarded to the following for information and necessary action:-

1. The Accountant General (Audit) Haryana, Sector-33, Chandigarh.
2. The Excise & Taxation Commissioner, Mumbai
3. St.Section.
4. Programmer O/o DS&D, Haryana.
5. Department Processing Charges branch DS&D, Haryana.


Deputy Director

For Director General, Supplies & Disposals, Haryana.