



TENDER DOCUMENT FOR  
ENGINEERING, SUPPLY, ERECTION,  
COMMISSIONING, VALIDATION AND TESTING OF  
WATER GENERATION AND DISTRIBUTION SYSTEM

Project-2015  
GIA-003  
Version : 04  
Date : 11/09/2015

# INVITATION TO TENDER

## FOR

**Engineering, supply, erection,  
commissioning, validation and testing of  
water generation and distribution system**

Tender Document No.- Project-2015/GIA-003/Version : 04  
Tender Document Cost Rs. 500./-

11,Sep.- 2015



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RAJASTHAN DRUGS & PHARMACEUTICALS LIMITED  
Road no. 12, V.K. I Area, Jaipur- 302013 (Rajasthan) India

Ph: 0141-4107104, 4035468, Fax: 0141-4107101  
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**TENDER FOR ENGINEERING, SUPPLY, ERECTION,  
COMMISSIONING, VALIDATION AND TESTING OF WATER  
GENERATION AND DISTRIBUTION SYSTEM**

Sealed tenders are invited for Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system as per WHO-GMP/GLP Standard. Interested parties may obtain tender documents with detailed specifications and commercial terms and conditions from Manager (Materials) on any working day up to 03 PM on 05.10.2015 on payment of Rs. 500/- tender (Rs. Five hundred only) in cash/ Demand draft in favor of "Rajasthan Drugs & Pharmaceuticals Ltd." payable at Jaipur. Tender duly completed with requisite documents and earnest money of Rupee 40000/- (Forty Thousand only) as Demand draft in favor of "Rajasthan Drugs & Pharmaceuticals Ltd." payable at Jaipur must reach the undersigned up to 3 PM on 05.10.2015. The technical bid shall be opened at 4.00 PM on the same day in presence of representatives of the bidders if available. The date of opening of financial bid of the technically qualified bidders will be informed later on. The company reserves the rights to accept or reject any offer without assigning any reason. **For further details& download the tender, please visit our website : [www.rdpl-india.in](http://www.rdpl-india.in).**

Date -11/09/2015

Factory Manager



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## 1.0 SITE DATA

1. OWNERS / PURCHASERS : **M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD.**  
**Road No. 12, VKI Area,**  
**JAIPUR – 302 013**
2. PROJECT TITLE : Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system.
3. PROJECT SITE : JAIPUR
4. NEAREST RAILWAY STATION: JAIPUR
5. NEAREST AIRPORT : Sanganer, JAIPUR
6. CONDITIONS :
- TEMPERATURE
- SU : DB –110°F / WB- 75°F/RH 20%
- MO : DB –95°F / WB- 78°F/RH 48%
- WI : DB – 46°F / WB- 41°F/RH 65%



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# TENDER FORM



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## **2.0 TENDER FORM**

**M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD**  
**Road No. 12, VKI Area,**  
**JAIPUR- 302013**

**Subject: Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system**

Dear Sirs,

I / We the undersigned have carefully gone through and clearly understood the Tender Drawings and Tender Document comprising the Tender Form, Notice to Contractors, Condition of Contract, Specifications and Schedule of probable Quantities prepared by you.

I / We hereby undertake to execute and complete the whole work at the respective rates at which I / We have quoted for. I/We have quoted for all the items of the probable Bill of Quantities and at which rates the total value of the work specified amount to **Rs.**

—

I / We further agree to complete the work included in the said Schedule of Quantities within \_\_\_\_\_ months from the date of Letter of Intent issued to commence the same.

I / We agree not to employ any Sub- Contractors or procure items other than those that may be approved by you.

I / We agree to pay all Government (State and Central) Taxes and Duties, Insurance and any other statutory dues that may be prevailing and payable from time to time, on such items for which the same are leviable and rates quoted by me/ us are inclusive of the same.

NAME OF THE COMPANY

AUTHORISED SIGNATORY  
NAME AND SEAL OF THE COMPANY.

DATE: .....



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# **NOTICE INVITING** **TENDERS**



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### **3.0 NOTICE INVITING TENDERS.**

Sealed Items Rate tenders in two bids system are invited in the prescribed form by **RAJASTHAN DRUG & PHARMACEUTICALS LTD. JAIPUR**, for the work detailed below. Contractors, who have experience in carrying out Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system work of Pharmaceutical formulation unit.

Name of work	Estimated value of work (in lacs .)	Earnest Money (Rs.)	Time of completion	Tender Cost
Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system	Rs.40 Lacs	Rs. 40000/-	4 months	Rs. 500/-

The tender documents, Instructions to Tenders, Bill of quantities, Conditions of Contract, Technical Specifications can be collected from the office of **RAJASTHAN DRUG & PHARMACEUTICALS LTD. JAIPUR**, on payment of Cost of Tender Documents (Rs.500/- Rs. Five hundred only) in cash or demand draft drawn in favor of the Company payable at Jaipur.

The Tenderer is required to deposit Rs. 40000/- (Forty Thousand) as Earnest Money along with the tender in shape of Bank draft drawn in favor of M/s **RAJASTHAN DRUG & PHARMACEUTICALS LTD.** Payable at **JAIPUR**, (Branch of any Public Sector Bank) The earnest money will be refunded to the unsuccessful tenderers without any interest / Bank Commission/Collection charges subject to the relevant provisions in the tender Document.

Dear Sirs,

**M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD** propose to set up a new facility for manufacture of various pharmaceutical formulations to meet WHO GMP standards. The facility is located at: JAIPUR

The completed bid (Technical & Financial) in all respects with all its accompaniments shall be enclosed in two different sealed envelopes and hand delivered or sent by courier so as to reach on or before 05/10/2015 Up to 3.PM. Only the Technical bid shall be opened on 05/10/2015 at 4.PM. Bidders who qualify in the technical bid shall be intimated the date & time of opening the financial bid. The representatives of bidders may remain present at the time of opening of tenders.

The tender documents should be filled in English and all the entries must be made by hand and written in ink.





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Initials of tenderer must attest all erasures and alteration made while filling the tender. Overwriting of figures is not permitted.

The tenderer must obtain for himself on his own responsibility and at his own expense all the information which may be necessary for the purpose of filling this tender and for entering into a contract for execution of the same and must examine the drawings and inspect the site of the works and acquaint himself with all the local conditions and matters pertaining thereto.

In case where the same item of work is mentioned at one or more places in the Schedule of Quantities, the lowest of the rates quoted by the contractor for the item shall be taken for the payment of this item.

The quantities contained in the Schedule are only approximate. The work as actually carried out and measured from time to time will be considered for payments subject to the terms and conditions of the contract.

**Time being the essence of this Contract; the work should be completed in 4 months** from the date of the letter of the intent issued to the contractor to commence the work. The successful contractor will have to submit a bar chart for various items of work to be done so that the work gets completed within the stipulated time.

If the successful contractor fails to complete the work by the scheduled date of completion or within any sanctioned extension, liquidated damages at the rate of 0.5% per cent of the contract value per week of delay subject to a maximum of 5% of the total contract value shall be recovered from the contractors' bills.

The Company does not bind itself to accept the lowest bid and reserves the right to accept or reject any or all tenders either in whole or in part without assigning any reason for doing so. **The contract may be awarded either in part or full at the sole discretion of the Company.**

The offer should be valid for 90 days from the due date of submission.

**Factory Manager**



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# INSTRUCTIONS TO TENDERERS



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## **4.0 INSTRUCTIONS TO TENDERERS**

### **01. TENDERER TO BE CONVERSANT WITH THE DOCUMENTS**

The tenderer is expected to read all the documents hereof and be conversant with their contents and when tenders are signed it will be understood and inferred that all the documents have been read and understood. Any difficulty experienced in interpreting the documents may be communicated to the Company in writing, and, should any written clarification be required it will be made available to all tenderers. No extra cost will be entertained because of the tenderers mistakes, ignorance or misinterpretation of drawing and documents.

### **02. ADDENDA**

Addenda may be issued prior to the date set for submission of tenders to clarify the documents or to effect modifications in the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system contract terms or design of the project.

### **03. VISIT TO SITE**

The tenderers should visit the site and satisfy themselves as to the accessibility thereof, the local conditions, the construction and occupation of the building, the full extent and nature of the operations, the conditions affecting the supply of labor, carriage, carting, unloading, storage and safe custody of materials, scaffolding, tackle and tools, supply of light, power and water for the execution of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract generally. Claims on grounds of want of knowledge in such respects or otherwise shall not be entertained.

### **04. WORKING DRAWINGS**

The tenderer is to include for the preparation of all working drawings (shop drawings), which will be required for the proper execution of the works. All working drawings shall be submitted to the Company for approval before executing the work.

### **05. FINAL AS INSTALLED DRAWINGS**

After completion of the installation, the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor is to provide tracings and five copies each of drawings showing runs and locations of all the plant, equipment, controls, piping, electric wiring, etc. giving all necessary details of the works as actually installed.

### **06. INCLUSIONS AND INCIDENTALS**

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor will include for providing materials and incidentals, which may be inferred from drawings and / or specifications, in order to ensure a complete and perfect installation although, same may not be expressly indicated or mentioned.



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**07. ELIGIBILITY CRITERIA**

- Bidder should have minimum five project experience in executing Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system jobs in Pharmaceutical formulation unit.
- Bidder should have executed minimum 40 lacs (Single project) of Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system preferably in Pharmaceutical formulation unit during the last calendar year.

**Documents in relation eligibility criteria must be submitted along with technical bid. Non submission of any of above documents may lead to the rejection of the tender.**

**08. DOCUMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

- (a) Demand draft as earnest money (interest free) deposit of Rs. 40000 (Forty thousand only) through D.D. in favor of Rajasthan Drugs & Pharmaceutical Limited payable at Jaipur.
- (b) Last Three years balance sheet, income-tax returns of last three years.
- (c) BIO DATA of Proprietors or Directors and Key Persons of the Firm.
- (d) Number of projects executed during last 3 years, Monetary value of each project, Address of the companies or firms where these projects have been executed, name and contact telephone numbers of the dealing persons there of.
- (e) List of the performance testing equipment's available
- (f) Projects in hand and anticipated projects during current year.
- (g) Deviation sheet.
- (h) If the tender is download from web-site, please enclose Rs. 500/- DD along with technical bid as tender fees.

**Documents in relation of work must be submitted along with technical bid. Non submission of any of above documents may lead to the rejection of the tender.**

**09. Documents to be submitted along with financial bid:**

- (a) Tender form as per the format given in section 2
- (b) Bill of Quantities with rates (BOQ).

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor shall execute the works with materials in accordance with the specifications or if not specified, in accordance with the latest Indian /International Standards.

The specifications are to be read in conjunction with the latest relevant Indian / International Standards & Specifications. Where differences or contradictions appear to arise between the Indian & International specifications these differences or contradictions shall be referred to the Company.



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**10. Special Conditions:**

1. On award of tender the bidder has to submit the DQ document along with a complete program in the form of a bar chart indicating the time taken for various activities from award of the tender up to the final commissioning and validation of entire system.
2. The final water at outlet after treatment shall be tested as per current USP (US PharmaCopoeia). The bidder shall stand guarantee for one year from the date of validation & commissioning of the plant. The bidder shall give 1 years extended warranty for the servicing of the plant.
3. The sensors and the measuring devices should be provided with the calibration certificates with the traceability. Filters and membrane should be provided with integrity test certificate.
4. The pipes should be provided with grit rating certificate.
5. Welding material and welding machine should be provided with certificates and their traceability.
6. The complete installation should conform to good engineering practices and the quality of water should conform to current US pharmacopoeia/ WHO cGMP.
7. Our requirements are indicative key deliverables only. Supplier has to ensure the design, the system as per actual site condition to meet out required parameters like quality and output capacity etc.
8. In principles no water stagnation should be there, the system should be a close loop, sanitizable, sterlizable by steam, heat exchanger should be through jackets, welding quality(boroscopy should ensure for minimum 10 & then every 10<sup>th</sup>) etc.
9. The vendor should give the traceability of SS 316L and other wettable parts.
10. Above features are the key feature which has to comply minimum, which is not an exhaustive list.

**11. TRAINING OF COMPANY'S STAFF**

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor shall make suitable arrangements at his own cost to train the operational and maintenance staff of the Company during the installation and maintenance periods according to the conditions of the Up gradation of Purified Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract.

**12. INSPECTION**

The Company reserves the right to arrange inspection of all the items prior to their shipment through an inspector appointed by it. The inspection charges will be borne by the Company unless otherwise stated. The tenderer need not, unless otherwise stated, make any provision for the Inspector's fee in his tender. The Company shall, however, not pay anything extra to Contractor or his suppliers for any expense in connection with the inspection.



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**13. PRICES**

The Tenderer shall give a firm price for the supply of all materials (free delivery at site) and the cost of fabrication, installation, testing & validation etc. to complete the works in working order in all respects.

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor shall be responsible, without additional charge to the Company, for a maintenance period of 12 calendar months from the date of issue of completion certificate by the Company. The Contractor shall during the maintenance period, service the complete plant at the time of start-up and shut down. The Contractor shall also be responsible for rendering any special services during the maintenance period.

The Tenderer shall give a firm price for the supply of all materials (free delivery at site), construction and other cost for demolition & dismantling works wherever required, etc. indicated in the BOQ to complete the works in all respects.

**14. PAYMENTS**

20% advance against bank guarantee

20% against submission of DQ documents

50% against supply & Installation & commissioning

10% after successful validation & submission of complete documentation subject to submission of PBG valid for one year.

**15. TAXES & DUTIES**

The bidder has to quote for the price inclusive of all taxes & duties applicable as on date, including local & central sales tax (against C Form), Excise duty, any applicable Import duty, Service tax, etc. Company will furnish you necessary C Forms as per CST Act. However the break-up of such taxes & duty shall have to be furnished.

**16. INSURANCE AND INDEMNIFICATION**

Bidders shall take adequate comprehensive insurance to cover all Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system equipment's, materials, installation, personnel's, etc. till the completion of the project and indemnify RDPL against any damage, loss, claims or liabilities, 3<sup>rd</sup> party damages, etc. that may arise due to any cause whatsoever till the entire Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system on completion is taken over by the Company. Cost of insurance is to be inclusive in your order value. Thus, the bidder will hold RDPL free from any liability in this regard and also shall keep RDPL harmless and indemnified.

**17. ACCEPTANCE**

Promptly after receiving of all tenders, the Company will undertake a detailed study of the technical bids & only bidders who qualify in the technical bid, their financial bid shall be opened. The date of financial bid opening shall be communicated to the bidders who qualify in the technical bid. The bidders who fail to qualify in the technical bid, their financial bid shall not be opened. The Company does not bind itself to award the Engineering, supply, erection, commissioning, validation and testing of water



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generation and distribution system Contract to the lowest or to any tenderer but will take into careful consideration the tenderer's price and such other factors as are deemed to be applicable for awarding the contract.

### **18. RIGHTS**

The Company reserves the right to re-call the tender or, reject any or all tenders and to waive any formalities in the tenders received (such as deviation in the use and presentation of the specified tender documents and forms), if it appears to be in his best interest to do so.

The tender documents and drawings are the exclusive property of the issuing authority and are subject to be recalled and shall not be used, lent, copied or reproduced by anybody without their written permission.

### **19. EQUIPMENT AND MATERIAL**

The Contractor shall give written guarantee that all the equipment and material supplied under the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract shall be brand new from the manufacturer and that, the materials and workmanship will be of best class. It will further be guaranteed that these shall be installed in first class manner that it will be complete for operation and nothing shall be omitted by way of labor and material required to make it so, even though not specifically shown or mentioned in the specifications or in the drawings.

The Contractor shall execute the works with the materials in accordance with the specifications. All materials, which in the opinion of the Company are not sound or do not meet with the above conditions, shall be immediately dismantled and/or removed from site by the Contractor and replaced by appropriate approved materials without claim of any extra payment.

**Note:** -For any technical clarifications, bidders may e-mail- [mukesh.sharma@rdpl-india.in](mailto:mukesh.sharma@rdpl-india.in)

**For, Rajasthan Drugs & Pharmaceutical Ltd.,**

Factory Manager

ABOVE TERMS ARE ACCEPTED

(Signature of Tenderer /Supplier)  
with rubber stamp

Date: -



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# **CONTRACT CONDITIONS**





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## **5.0 CONTRACT CONDITIONS**

### **1. EXTENT OF CONTRACT**

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract comprises the design, manufacture, supply, fabrication, installation, completion, testing, commissioning, validation (DQ,IQ,OQ), documentation and maintenance of complete Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system works including supply of all materials, plant and equipment as per requirements of design contained in the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract, drawings, specifications and documents.

### **2. CONTRACT DOCUMENTS**

The Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract shall be read, construed and interpreted in English language and shall operate in conformity with the laws of India and within the jurisdiction of the courts in Jaipur.

Several documents forming the Contract shall be taken as self explanatory, but in case of ambiguities or discrepancies, the same shall be explained and interpreted by the Company who shall thereupon issue to the Contractor, instructions directing the manner, in which the works are to be carried out.

One set of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Design Drawings and two sets of the approved Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system shop drawings shall be kept by the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor on the site and the same shall at all reasonable times be available for inspection and use by the Company/Company's Representative and by any other person authorised by the Company.

The Contractor shall prepare at his own expense any shop drawing/s which will be required for the proper execution of the works.

None of the documents herein before mentioned shall be used by either of the parties hereto for any purpose other than this Contract and neither shall divulge or use, except for the purpose of this Contract, any information in the schedule of prices and rates.

The Contractor shall retain in his office all necessary drawings; data and calculations for the work in a methodical manner and shall produce them whenever required by the Company.



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### **3. GENERAL OBLIGATIONS**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender and the rates and prices shall cover all his obligations under the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract and all matters and things necessary for proper completion and maintenance of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system works.

### **4. PROGRAMME OF WORKS**

The Contractor shall, within ten days after the acceptance of Lol/Order, submit in writing, for approval of the Company, a program of works coordinated with the construction program, in the form of a bar chart showing the order of procedure and method in which he proposes to carry out the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system works along with design qualification (DQ) in soft and hard copy.

The program shall cover the full period of works from the date of the acceptance of the Lol/Order to the completion of installation, testing, and validation and handing over of the complete plant in working order. The program shall cover the sequence of work for all items showing separately in each case the time allowed for manufacturing, shipment, fabrication, delivery to site, installation, testing, commissioning and starting up.

The program submitted by the Contractor may be amended if any part of it is not to the satisfaction of the Company and it shall not be carried into effect until it has been approved (in an amended form, if necessary) by Company.

If the Company under the provision of this clause require the Contractor to amend his program of works, the Contractor shall not thereby be entitled to any adjustment in the Contract price or to any extension of time.

The submission to or approval by the Company of such program or the furnishing of such particulars or information shall not relieve the Contractor of any of his duties or responsibilities under the thisContract.

### **5. DELAYS AND EXTENSION OF TIME**

If in the opinion of the RDPL the works are delayed or are expected to be delayed because of any of the following reasons, the completion period may be extended by such period as may be mutually agreed upon:

- i. Force majeure (Including war, hostilities, invasion, act of foreign enemies, military or usurped power or civil war);
- ii. By reason of any exceptionally inclement weather (if acceptable to the Company), flood, tornadoes, earthquakes and landslides;
- iii. By reason of proceedings taken or threatened by or dispute with adjoining or neighboring owners or public authorities arising otherwise, through the Contractor's own default.



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- iv. By the work's or delays of other contractors or tradesman engaged or nominated by the owner and not referred to in the Schedule of Quantities and / or specifications.
- v. By reason of civil riot, commotion, local combination of workmen or strike or lockout affecting any of the works / trades.
- vi. By reason of owner instructions.

If and whenever it becomes reasonably apparent to the Contractor that the progress of work is being, or is likely to be delayed, due to reasons not attributable to them, he shall forthwith give written notice to the Owner explaining the circumstances including the cause or causes of such delay. Where the cause or causes of delay refers to any agency other than the Contractor, a copy of such notice shall be sent to them also.

#### **6. PENALTY / DAMAGES FOR DELAY**

If the Contractor fails to complete the works within the schedule agreed upon, or within such extensions that may be granted to him pursuant to Clause 05 above, then the Company will be at liberty to deduct from the Contractor's bills, by way of penalty a sum equivalent to 1/2 % of the value of the contract for each week's delay subject to a maximum of 5% of the value of the contract. The Company may without prejudice to any other method of recovery deduct the amount of such damages from moneys in his hands due to or which may become due to the Contractor from his obligation to complete the works or from any other of his obligation and liabilities under the Contract.

#### **7. CONTRACTOR' S SUPERINTENDENCE**

The Contractor shall give or provide all necessary superintendence for the proper fulfilling of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor's obligations under the Contract.

A competent and duly authorized representative of the Contractor and who shall have full authority to act for and bind the Contractor, is to be constantly at the site of works and shall give his whole time to the superintendence of the contract.

The representative shall receive on behalf of the Contractor directions and instructions from the Company.

The Contractor shall provide and employ on the site for the purpose or in connection with the Contract, only such Engineers, Supervisors, Technical Assistants as are skilled and experienced in their respective callings and are competent to give proper supervision to the work they are required to supervise, and, such skilled, semi – skilled and Un-skilled labor as are necessary for the proper and timely performance of the Contract.

The Company shall be at liberty to object to and require the Contractor to remove forthwith from the site any persons employed by the Contractor or any Sub – Contractor who in the opinion of the Company misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Company to be undesirable. Such person shall not be again employed for the



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purpose of or in connection with the Contract without the written permission of the Company. Any person so removed shall be replaced immediately by a competent substitute approved by the Company.

### **8. WATCH & CARE OF WORKS**

Except as otherwise specifically provided in Contract the Contractor shall make all arrangements for the security and protection of persons and property or for the safety or convenience of persons as is necessary or as required by the Company.

From the commencement to the completion of the works, the Contractor shall take full responsibility for the care of all temporary works, materials, constructional plant and other things on the site. In case any damage, loss or injury shall happen to the works or any such materials or constructional plant or other things from any cause whatsoever (save and except the excepted risks like out – break of war or act of invasion), he shall at his own cost, replace, repair and make good the same. It is to be ensured that at completion, the works shall be in good condition and in conformity in every respect with the requirements of the Contract.

The Contractor shall indemnify and keep indemnified the Company against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the performance of the Contract and against all claims, demands, proceedings, damages, costs, charges and expenses, whatsoever in respect of or in relation thereto.

### **9. COMPLIANCE WITH STATUTES, REGULATIONS, ETC.**

The Contractor shall conform in all respects with the provisions of all requirements, local laws, regulations or orders or other laws for the time being in force including all regulations and bylaws of local or other duly constituted authority which may be applicable during the pendency of the contract. He shall Indemnify RDPL against all penalties and liabilities of any kind and in any form.

### **10. SUPPLY OF PLANT, MATERIALS AND LABOUR**

Except where otherwise specified the Contractor shall at his own expense and risk, supply and provide all the constructional plant, temporary works, scaffolding materials both for temporary and for permanent work, labor (including the supervision thereof), transport to and from the site and in and about the site and other things of every kind required for the purpose of or in connection with the Contract.

### **11. CO – ORDINATION WITH OTHER CONTRACTORS**

The Contractor shall arrange and administer the Contract and the program of work incorporating the program of building construction and other services. He shall coordinate the work with other contractors.

### **12. WORKS NOT INCLUDED AND FACILITIES PROVIDED BY OTHERS**

The Company will not be under any obligation to provide equipment, stores, office, etc. to the Contractor for the installation works.



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However, Company shall at his own discretion arrange open space at site for Contractor to have his office, stores and workshop constructed by himself. The Company shall also arrange the following facilities or works to him for proper execution of works.

### **13. GENERAL**

The Company will provide at his cost temporary water and electrical points within a reasonable distance from the Contractors place of Work. The system Contractor shall arrange his own distribution of facilities for lighting, power for tools and welding equipment and water for testing from these points. The Company will provide temporary lighting for safety and security only.

The Contractor will be responsible for the provision and erection of all scaffolding, etc. required by him during the course of the works. However, the erected scaffolding, if not in use of any other contractor the same can be used by the Contractor with the written permission of the relevant contractor/ Company. The Contractor will be responsible for the removal and transport of all his rubbish, wrappings, waste and unused materials, etc. every day to a place to be designated by the Company.

The Contractor will be responsible for those safety regulations, which, are directly under his control. The Contractor will be held responsible for his own safety regulations. Limited First Aid facilities may be provided on site by the Company and can be made available to the Contractor at cost.

Any damage caused by the Contractor or his workmen to works of other trades, shall be the sole responsibility of the Contractor. He shall take full precautions to prevent such happenings.

### **14. LABOUR LAWS.**

The contractor shall, in relation to the works executed under this contract, strictly comply with the provisions of all current labor laws and statutory amendments or additions thereof and any regulation or orders made there under affecting the works. Any liability arising out of engagement of any persons to execute the works under this contract by the Contractor and falling on the Company later on shall be liable to be paid by the contractor to compensate the Company adequately.

### **15. CERTIFICATE OF COMPLETION**

The certificate of completion shall be given after validation of entire system and meeting all conditions and parameters as stated in the tender. No certificate of completion shall be given nor shall the work be considered to be complete until the Contractor shall have removed from the premises on which the work has been executed, all scaffolding, surplus materials and rubbish and cleaned off the dirt, from those parts of the building where the work has been executed or of which he may have had possession for the execution thereof, nor until the work shall have been measured and recorded by Company and checked by the Company which measurement shall be binding and conclusive for the Contractor. If the Contractor shall fail to comply with the requirements of this clause as to removal of scaffolding etc. and cleaning off the dirt on or before the date of completion of works, the Company may at the expense of the Contractor remove and dispose off such scaffolding, etc. and clean off such dirt as aforesaid and the Contractor shall forthwith pay to the Company the amount of all expenses so incurred and the said amount shall be adjusted from the amount due to the Contractor from the



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Company and the Contractor shall have no claim in respect of such scaffolding and surplus materials as aforesaid.

### **16.(A) VARIATIONS**

The Contractor shall not make any variation in the works except in accordance with a written variation order.

The Company may make any variation of the form, quality or any part thereof as he may think necessary and for that purposes, by a written variation order, may order the Contractor to do and the Contractor shall do any of the following :-

Increase or decrease the quantity of any items included in the Contract.

Omit any such items in works.

Change the character or quality or kind of any item of works.

Execute additional or substituted work of any kind necessary for the completion of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Works.

No variation order shall in any way vitiate or invalidate the Contract but shall be taken into account in ascertaining the Contract price.

For the removal of doubt, it is declared that any increase or decrease of the estimate quantities set out in the schedule of prices ascertained by measurement is not a variation within the meaning of this clause.

The Company shall determine what adjustment (if any) in the Contract price shall be made in respect of work done or omitted pursuant to a variation order. All such work shall be valued at the rates and prices set out in the schedules of prices and item rates if in the opinion of the Company the same shall be applicable. If the schedule of prices and item rates do not contain any rate or price applicable to such work, then suitable rates and prices based upon the rates and prices contained in the schedules of prices and item rates and based on the then prevailing market rates shall be agreed upon between the Company and the Contractor.

### **17.PERFORMANCE BANK GUARANTEE**

The Contractor shall submit a performance bank guarantee issued by a PSU Bank in favor of company for a value equivalent to 10% of the aggregate value of contract before the date of completion of the entire works as per contract awarded, to enable the company to have smooth and trouble free operation and running of the whole of systems installations as agreed upon to its entire satisfaction with validity for at least one year from the date of certification of commissioning of the system.

### **18.General:**

At the time of submission of invoices following documents need to be submitted for settlement of any claim as per the payment terms

- 18.1 Invoices to be submitted in original plus two extra copies.
- 18.2 Excise Gate passes for RDPL to be able to claim cenvat benefit as per cenvat rules.
- 18.3 Copies of Chillan's of materials received at site by the Officer-in-charge of RDPL duly certified as approved.
- 18.4 **Special Conditions**



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18.4.1 For all the excisable goods, RDPL will claim the Cenvat benefit. All the gate passes required under the provisions of Central Excise Rules and Cenvat Credit rules for the relevant items should be in the name of RDPL. In absence of any documents required for Cenvatcredit, no excise payments against the bills submitted by Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor shall be made.

18.4.2 The rate of excise duty and its value for each item should be indicated separately & will be one of the criteria for evaluating the tender.

18.4.3 The rates of service tax wherever applicable & quantum included in the tender should be indicated separately. The quantum of VAT on item-wise basis, along with its rate should be indicated separately.

### **18.5 BATTERY LIMITS**

<b>Sr.</b>	<b>Description</b>
1	All Civil works including foundation required for the above equipment will be provided by the RDPL at site. But vendor will submit the civil foundation drawing for the above equipment for our reference
3	All interconnecting piping and isolation valves outside the terminal points shall be in RDPL scope
4	Provision of oil & moisture free air @ 5 kg/cm <sup>2</sup> at required points shall be in RDPL scope.
5	RDPL shall provide instrument air @ 5 kg/cm <sup>2</sup> (moisture free and lubricated) at required point.
6	Acid / alkali proof lining of required areas like chemical handling and storage areas shall be in RDPL scope.
7	All chemicals and consumables including the first charge shall be provided by the vender.
8	Laboratory equipments and services required for startup shall be, RDPL scope .
9	Power supply by RDPL shall be provided up to control panel. Distribution of the same to the field instruments and equipments shall be in vendor scope.
10	Loading Unloading at site shall be in RDPL scope under supervision of vendor.
11	Plant Illumination and Earthing shall be in RDPL scope.
12	Skilled and un- skilled labours required for unloading and positioning of equipments at site by RDPL.
13	All connections to Drain headers/Drain trench shall be provided by RDPL as per the design suggested by vendor.
14	Separate Instrument Earthing and panel earthing shall be provided by RDPL.
15	Any Testing (chemical or microbiological) shall be in RDPL& Scope.
16	Utilities shall be made available at termination point as indicated in the



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	drawings.
17	Vendor shall provide man power for operation and maintenance of the plant for 03 months from the date of commissioning. Rates for this item may be quoted separately.

**19. TRAINING OF COMPANY'S PERSONNEL**

The Contractor shall make suitable arrangements at his own cost to train the operational and maintenance staff of the Company during the installation and maintenance period. The Contractor shall if so desired by the Company, also arrange training facilities at his manufacturers / supplier's offices and factories from whom the equipment and materials for the works are procured without any charge to the Company for the training facilities, except for salaries, traveling and living expenses of the Company's personnel which expenses shall be borne by the Company.

**20. GUARANTEE**

The Contractor shall give a guarantee for the complete installation against defective materials and faulty workmanship for a period of one year from the date of issue of certificate of virtual completion by the Company. The contractor should also offer comprehensive warranty on annual maintenance contract basis for an extended period of one year including calibration. All defects of material or workmanship found in the installation during the period of guarantee/ maintenance shall be removed and defective items replaced or repaired by the Contractor without any additional cost to the Company. In the event of any defect of material or workmanship occurring or being discovered during the period of guarantee / maintenance, the period shall continue until the cause of the defect has been discovered and remedied to the satisfaction of the Company.

**21. DRAWINGS & INFORMATION TO BE SUPPLIED.**

The contractor when preparing any detailed working drawing shall carefully check for all clearances, field conditions, and avoidance of any hindrance with architectural features and proper co-ordination with all other services of the project. Each working drawing submitted by the bidder shall include a certificate by the bidder that all related conditions on the site relevant to that particular installation have been checked and that no conflict exists. The Company may not approve any working drawing submitted by the Contractor without such a certificate.

Manufacturer's performance data, test certificates and shop drawings of all main items of the plant giving complete information regarding dimensions, materials and other details regarding the adequacy of the equipment to be supplied shall be submitted to the Company for approval along with DQ document .

All working drawings prepared in the required scale, correct and conforming with the Contract requirements, shall be submitted to the Company sufficiently in advance of actual requirements to allow ample time for checking and approval and no claim for extension of the Contract time will be considered by reasons of the Contractor failure to submit the correct drawings in time. The Contractor will submit 5 copies of final corrected drawings for approval out of which 2 duly approved copies would be returned to him.





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The Contractor shall clearly point out the difference, if any between the details submitted and the requirements of the Contract in covering letters sent with the submitted documents and drawings. He should also give reasons for his request for substitution so that if substitutions are acceptable, necessary action may be taken for proper adjustment. The Contractor will not otherwise be relieved of his responsibility for executing the works in accordance with the terms of the Contract.

The Contractor shall supply five sets of, as fitted drawings and manufacturer's installation, commissioning, operation, services and maintenance manuals, technical catalogues and detail spare part manuals for the guidance of the Company's operators in operation, servicing and maintenance of the plant. One set shall be supplied to the Company for scrutiny and approval.

The approval by the Company for any submitted data, working drawings, performance curves, test certificates for any item, arrangement or layout shall not relieve the Contractor from responsibility of error of any sort in the submitted data and working drawings.

## **22. NOTICES**

Notices for the Company or the Contractor may be served personally or being left at or sent through courier to the last known address of the party to whom the same is to be given or in the case of the Contractor by being handed over to his representative at the works site.

## **23. TERMINATION OF CONTRACT BY THE COMPANY**

If the contractor be adjudged as Insolvent or shall have an order for compulsory winding up made against it and if the Contractor is unable to show to the reasonable satisfaction of the Company that he is able to carry out and fulfil the contract and to give security thereof or has failed to commence the works, or has without sufficient and lawful excuse suspended the progress of work for 14 days after receiving written notice from the Company to proceed or has persistently neglected or defied Company instructions then the Company reserves his right to terminate the contract out rightly & protect all its interests.

## **24. SETTLEMENT OF DISPUTE (ARBITRATION)**

All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works, whether during the progress of the works or after their completion and whether before or after the determination or breach of the contract, shall be referred to INTERNATIONAL CENTRE FOR ALTERNATIVE DISPUTE RESOLUTION having its office at plot no.6 ,vasantkunj institutional area , phase –ii ,New Delhi-110070 and its decision/ award shall be binding on both the parties.

## **25. DEFINITION & INTERPRETATION**

In constructing the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract, these conditions, Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract agreement and the interpretations of the following words



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and expressions shall have the meaning herein assigned to them except where the subject or context otherwise requires.

**“Company** means **M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD** and includes their administrative and legal representative, assigns or successors.

**“Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contractor”** means the tenderer whose tender has been accepted and who has been nominated by the Company and shall include his legal and personal representative (s), successors and permitted assigns.

**“Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract”** means the agreement contained in the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution system Contract agreement and the documents set out in the Contract agreement as forming part thereof.

**“SITE”** means the site for the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution systemworks and the lands, otherwise places buildings and erections thereon, under, in or through where the works are to be executed or carried out and any other land (inclusively) as aforesaid allotted by the Company to the Contractor’s use.

**“APPROVED FOR CONSTRUCTION”** means approved in writing including subsequent written confirmation of previous oral approval.

**“MONTH”** means a Calendar month.

The singular includes the plural and vice versa. The masculine includes the feminine and vice versa. Words importing persons include firms, companies or other bodies corporate.

**“TEMPORARY WORKS”** means all temporary works of every kind required in or about the execution, completion or maintenance of Engineering, supply, erection, commissioning, validation and testing of water generation and distribution systemworks.

**“Engineering, supply, erection, commissioning, validation and testing of water generation and distribution systemDRAWINGS”** means the drawing & referred to in these specifications and any modification of such Engineering, supply, erection, commissioning, validation and testing of water generation and distribution systemdrawings approved in writing by the Company and such other drawings as may from time to time be furnished or approved by the Company.

**“CONSTRUCTIONAL PLANT“** means all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the Engineering, supply, erection, commissioning, validation and testing of water generation and distribution systemworks or Temporary works but does not include materials or other things intended to form or forming part of the permanent works.



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# DESIGN BASIS



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**DESIGN BASIS**

<b>Design flow rates</b>		
<b>MGF, Softener</b>	<b>m3/hr</b>	<b>1.4</b>
<b>Permeate of CSRO System</b>	<b>m3/hr</b>	<b>0.9</b>
<b>Permeate of HSRO - EDI System</b>	<b>m3/hr</b>	<b>0.66</b>
<b>UV System</b>	<b>m3/hr</b>	<b>0.6</b>

<b>Sr. No</b>	<b>Parameters</b>	<b>Unit</b>	<b>Design data (Analysis report of raw water)</b>
1	Source of feed water	NA	Borewell
2	Appearance	NA	Clear Colourless Liquid
3	Turbidity	NTU	Not Specified
4	Conductivity	µs/cm	526
5	Total dissolved solids	ppm	367
6	pH	NA	8.05
6	Total Suspended Solids	Mg/Lit	6
<b>Dissolved Impurities - Cations</b>			
7	Calcium as Ca	ppm	38.7
8	Magnesium as CaCO3	ppm	33.9
9	Total hardness, as CaCO3	ppm	236
<b>Dissolved Impurities - Anions</b>			
10	M. Alkalinity as CaCO3	ppm	120
11	P. Alkalinity as CaCO3	ppm	30
12	Chloride as Cl	ppm	29.03
13	Sulphate as SO4	ppm	10
14	Reactive Silica	ppm	Not Specified
<b>Dissolved Impurities - Others</b>			
15	Iron as Fe	ppm	0.022



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<b>Microbial / Biological Impurities</b>			
16	Total organic carbon	ppb	<1660
17	Number of bacteria present per ml of sample at 37deg.C.	cfu/ml	2890
18	Number of bacteria present per ml of sample at 20-22 deg.C.	cfu/ml	4520
19	Most probable coli form bacilli per 100 ml of sample (MPN)	cfu/100 ml	Absent
20	Most probable pseudomonas present per 100 ml of sample (MPN)	cfu/ml	Absent
21	Most probable E COLI present per 100 ml of sample (MPN)	cfu/100 ml	Absent
22	salmonella spp		Absent
23	staphylococcus aureus		Absent



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# **BILL OF QUANTITIES**

## **&**

# **PRICE SCHEDULE**



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**DESIGN BASIS for distribution loops**

<b>S.N.</b>	<b>Description</b>	<b>P.W. Loop (Mother)</b>
1	Storage Tank	3000 Ltrs, jacketed& Insulated Storage Tank. Contact Parts SS316L Non Contact Parts SS304 Internally Finish < 0.4 Microns Ra Externally &Pharma finish
2	Tank Inlet flow	600 LPH
3	User point	8 Manual
4	PeaK Load	2m3/hr
5	Line size	1" OD
6	Length of piping	300 Mtrs
7	Total piping elevation	15 mwc
8	Return line velocity	1.2 M/Sec
9	Return line Head	15 MWC.
10	Pump Capacity	Vendor to decide
11	Loop Temp working	Ambient
12	Loop Temp Sanitisation	85 <sup>0</sup> c



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## TREATMENT SCHEME

	EQUIPMENT	PURPOSE
<b>A</b>	<b>Purified Water Generation System</b>	
<b>I</b>	<b>Pretreatment System</b>	
1	Raw Water storage tank	<b>RDPL scope</b>
2	MGF	
3	Softener	
4	Reverse Osmosis (Chemical Sanitizable)	
<b>II</b>	<b>PW Generation System</b>	
1	Reverse Osmosis - EDI System (Hot water Sanitizable)	
2	Ultraviolet System	
3	Chemical Cleaning System	
4	Common control panel SS304 for generation and mother loop with PLC and HMI 5.5" touch screen.	
<b>Distribution System</b>		
>>	<b>PW Storage &amp; Distribution skid</b>	
<b>I</b>	<b>Mother loop</b>	
1	Purified Water Storage Tank	
2	Distribution / Circulating Pump	
3	UV Sterilizer Unit	





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Sr.	Component	Size / Capacity	Tag No.	Specification	Qty.	Unit
<b>II</b>	<b>Purified Water Distribution System (3 KL Storage Tank System) Peak Load : 2 m3/hr</b>					
<b>A</b>	<b>Storage Tank Assembly</b>					
<b>1</b>	Storage tank	3000 Ltrs		Jacketed & Insulated Storage Tank. Contact Parts SS316L Non Contact Parts SS304 Internally Finish < 0.4 Microns Ra Externally Pharmafinish. (Design Pr.,Shell side -Internal 1 kg/cm2 g & External 3 kg/cm2 , Jacket side-3 Kg/cm2	1	No
<b>2</b>	Spray ball Assembly	3/4" NB		Rotary Capsule Type, MOC SS 316L,BSP (F)	1	No.
<b>3</b>	Float type level Transmitter			MOC - SS 316L,with TC End Connector,Power supply 24 VDC,operating temp.-50° C To 70° C,IP 65,Accuracy 0.1 %	1	No
<b>4</b>	Temperature Sensor ( Top mounted )			PT 100, 3 Wire, Contact - MOC SS 316, Top Mounted, Range - 0 -150°C	1	No
<b>5</b>	Temperature Transmitter			PT100 to 4-20 ma head mounted transmitter	1	No
<b>6</b>	Compound pressure gauge	(-1 To + 9) Bar		Diaphragm Type, Glycerin Filled, 4" Dial Size, Wetted Part Material SS 316L, Case MOC- SS 304	1	No
<b>7</b>	Vent filter cartridge	0.2 Micron		10" Long , Polypropylene , Hydro phobic, PTFE cartridge, code 7 sanitary type	1	No.
<b>8</b>	Vent Filter Housing			MOC - SS 316L,Electrical Vent Filter Stat.	1	No.
<b>11</b>	Steam Safety valve For Steam jacket	1/2" NB		MOC - CS , BSPT End Connection	1	No.



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<b>13</b>	Vent Valve	1/2" NB		Manual Ball Valve, SS304 Construction, Threaded end connection	1	No.
<b>14</b>	On/off Steam valve	1"NB		Pneumatically Angular Piston, Single Acting Actuated With Air TO Open ,PTFE Seal, MOC - SS304,Flange End ASA # 150, 24 vdc solenoid 3/2,	1	Nos.
<b>15</b>	Steam Trap	1/2" NB		Manual Ball Float type, MOC - CI, Operating Pressure-10.5Kg/cm2 And Operating Temperature - 180°C	1	No.
<b>16</b>	Manual Ball Valve	1/2" NB		Manual Ball Valve, SS304 Construction, Threaded end connection	3	Nos.
<b>17</b>	Manual Diaphragm Valve for Tank Drain	1" OD		SS 316L Body, Plastic bonnet, Plastic Hand Wheel ,EPDM Diaphragm TC End Connection. (Invest Casting)	1	No.
<b>B</b>	<b>Distribution Skid</b>					
<b>18</b>	Distribution pump	3 m3/hr @ 73 mwc		Centrifugal Monoblock pump , SS 316L Impeller and Casing, Mechanical Seal : <b>CAR V/S SC</b>	2	Nos.
<b>19</b>	Pump casing drain valve	1/2" OD		SS 316L Body, Plastic bonnet, Plastic Hand Wheel, EPDM Diaphragm TC End Connection. (Invest Casting)	2	Nos.
<b>20</b>	UV Sterilizer	5 m3/hr		With Intensity Monitor & Hour Meter. , SS316L Housing & UV Tube, TC End	1	No.
	<b>Instruments</b>					
<b>21</b>	Pressure gauge	0 To 10 Kg/cm2		Glycerin Filled, Diaphragm Type, Contact MOC SS 316, 4" Dial, Bourdon Type , TC End Connection.	1	No.
<b>22</b>	Temperature Sensor	0 TO 150°C		RTD Sensor, 50 mm Long TC end.	1	No.
<b>23</b>	Temperature Transmitter			PT100 to 4-20 ma head mounted transmitter.	1	No
<b>24</b>	Conductivity Transmitter	0.01 Cell constant, Range - 0 To 10µ		4-20 mA Loop Powered Transmitter, Field Mounted, Sensor MOC SS316L, TC End.	1	No



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		S/cm				
<b>25</b>	Flow transmitter	For 1" OD Line (1/2" NB)		Vortex Type, SS 316, 4-20 mA Loop Powered, 1" NB, Wafer end connection with TC convertor	1	No
	<b>Valves</b>					
<b>26</b>	Manual Diaphragm valve For Pump suction valve	2" OD		SS 316L Body, SS bonnet , SS Hand Wheel ,EPDM Diaphragm TC End Connection. (Invest Casting)	1	No.
<b>27</b>	Manual Diaphragm valve For Pump discharge valve	1" OD		SS 316L Body, Plastic bonnet, Plastic Hand Wheel ,EPDM Diaphragm TC End Connection. (Invest Casting)	1	No.
<b>28</b>	Flow divertor valve	1.0" OD		Pneumatically Actuated Divertor Valve With Air TO Open Contact Parts SS 316, TC end Connection, PTFE Seat, 3/2 Solenoid With 1/4" Pneumatic fitting min. 3 Nos., Electric Coil - 24VDC, Single Acting Actuator.	1	No.
<b>29</b>	Sampling Valve	8 mm		MOC - SS 316 , TC end connection.	2	Nos.
<b>30</b>	Sampling Valve	8 mm		MOC - SS 316 , TC end connection.	1	No.
<b>31</b>	Back Pressure Valve	1" OD		Self Actuated, MOC SS 316, Silicon Seal Material, Max Temp - 120°C, Set Pressure 1 To 3 kg/cm <sup>2</sup> ,TC End Connection , Spring to be Electro polished.	1	No.
	Manual Diaphragm Valve for Tank Return line	1.0" OD		SS 316L Body, Plastic bonnet , Plastic Hand Wheel ,EPDM Diaphragm TC End Connection. (Invest Casting)	1	No.



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<b>32</b>	<b>Interconnected skid piping</b>	- - -		Interconnected Piping comprising of Tank outlet line to Pump suction & Pump discharge to Loop with Instrument, Bend, Elbow. Eg. Tees, Reducing Tees, Reducers, TC Unions and Pipe Holding Clamp Assembly etc.	1	Lot
<b>33</b>	<b>Base frame</b>			MOC SS 304	1	No.
<b>34</b>	<b>Control Panel &amp; wiring</b>			Common with Generation system	1	No
<b>35</b>	<b>VFD of PW Loop</b>			<b>Suitable for Pump</b>	1	No



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**LIST OF MOC**

Sr.	Description	MOC
<b>Pre-treatment Section</b>		
1	Skid Frame	SS 304
2	Skid Piping	SS 304
3	Interconnecting Piping	SS 304
4	Centrifugal Horizontal Pump	SS 304 impeller with CI Casing
5	Valves	SS 304
6	Storage / Dosing / Tanks	HDPE
<b>Generation System (RO-EDI - UV)</b>		
1	Skid Frame	SS 304
2	Skid / Interconnecting Piping	SS 316L
3	Centrifugal Vertical /Horizontal Pumps	SS 316
4	Instruments	SS 316
5	Cartridge Housing	SS 316
6	Cartridge	PP Pleated
7	Valves	SS 316
8	Multipurpose Tank	SS 316
9	RO Pressure Tubes	SS 316
10	RO Membranes	CPA
11	UV Chamber	SS 316L
12	Control Panel for PW Generation & Dist. System	SS 304
<b>For Distribution System</b>		
1	Skid Frame	SS 304
2	Interconnecting Piping and fittings	SS 316L



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3	Pumps	SS 316L
4	Instruments	SS 316 / SS316L
5	Valves	SS 316L
6	Storage Tanks	
	Contact Parts	SS 316L
	Non Contact Parts	SS 304



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<b>LIST OF MAKE</b>		
<b>Sr. No.</b>	<b>Item</b>	<b>Manufacturer</b>
	<b>Purified Water Generation System</b>	
1	MGF / Softener FRP vessel	Structural
2	SS Tank	As per vendor
3	MCF Housing	As per vendor
4	Dosing Pumps	Prominent or equivalent
5	pH Transmitter	Forbes /Emerson / GF
6	Vertical Centrifugal Pumps	Grundfoss
7	Micron Cartridge	Pall / Meissner / Sartorius / Millipore/Parker
8	RO membranes	Dow / Hydranautics / GE (Osmonics) / Toray
9	RO Pressure Tube	As per vendor
10	EDI	Ionpure
11	SS Diaphragm Valves	Make of international repute
12	Float type Level Switch	Mahalakshmi/Pune Techtrol
13	Capacitance Type Level Transmitter	Toshbro / Spinks / Pune Techtrol
14	Flow Transmitter	Burkert / E&H / Emerson
15	Pressure Gauges	Waree /Wika / Mass / GI
16	Pressure Switch	Indfoss / Switzer / Waree / Orion / GI / Mass
17	Flow Indicator	Krohne Marshall
18	Conductivity Transmitter	Forbes /Emerson / Metler Toledo / E&H
19	Temperature Transmitter	Radix / E&H
20	UV System	Alfa/Equivalent
21	PLC & MMI	ABB / AB/Siemens
22	Control Box	As per vendor
	<b>For Distribution System</b>	
24	UV Sterilizer	Alfa/eq.



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25	Centrifugal Pump	Alfa Laval / IDMC
26	Cartridges	Meissner / Pall / Millipore / Sartorius
27	SS Tank	As per vendor
28	SS Diaphragm Valves	Make of international repute
29	Pressure Gauges	Waree /Wika / Mass / GI
30	Flow Transmitter	Emerson / Krohne Marshall / E&H
31	Conductivity Transmitters	Forbes Marshall / Emerson / Metler Toledo / E&H
32	Temperature sensor	Radix
33	Level Transmitter	Toshbro / Pune Techtrol /E&H
34	VFD	ABB / AB / Siemens





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## PRICE

Sr.	Module	Item Description	Total Amount in INR
<b><u>For Supply</u></b>			
<b>I</b>	<b>System as per 700ppm TDS and sdi&gt;3</b>	<b>Purified water Generation System (MGF- SF - CSRO - HSRO-UV, Capacity – 0.6m3/hr)</b>	
<b>II</b>		<b>Purified water Storage &amp; Distribution system (MOTHER LOOP</b>	
A		Purified water Storage Tank & Assembly	
B		Purified water Distribution Skid	
C		Purified water Piping Variable (Scope as per Annexure – (P)	

Sr.	Description	Total Amount
<b><u>For Installation</u></b>		
<b>IV</b>	<b>Installa tion Charges</b>	Breakup as per attached Annexure - E
<b>Total Installation</b>		-
<b>Total - Supply + Installation</b>		-



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<b>Annexure – E</b>							
Sr.	Item Description	Size in Inch	Qty.	Unit	Rate per unit	Amount	
<b>A</b>	<b>Installation Charges</b>						
	<b>For Generation System</b>						
			1	No.			
<b>B</b>	<b>For Purified Water Distribution System (Mother loop)</b>						
1	Laying of Pipes	1.0"	300	Mtrs.			
2	Orbital Welding		300	Dia.			
3	Supporting of Pipe( Supports only with Anchor Bolt )		110	Nos.			
4	Hydro Testing & Passivation		300	Mtrs.			
	<b>10% Boroscopy ( For Total no's of Piping Mentioned above )</b>	---	1	Time			
5	Engineering Charges	---	1	Time			
6	Documentation Charges: along with DQ, IQ, OQ, SOP, Test Certificate and with as Built drawing.	---	1	Set			
7	Commissioning & Training	---	1	Time			



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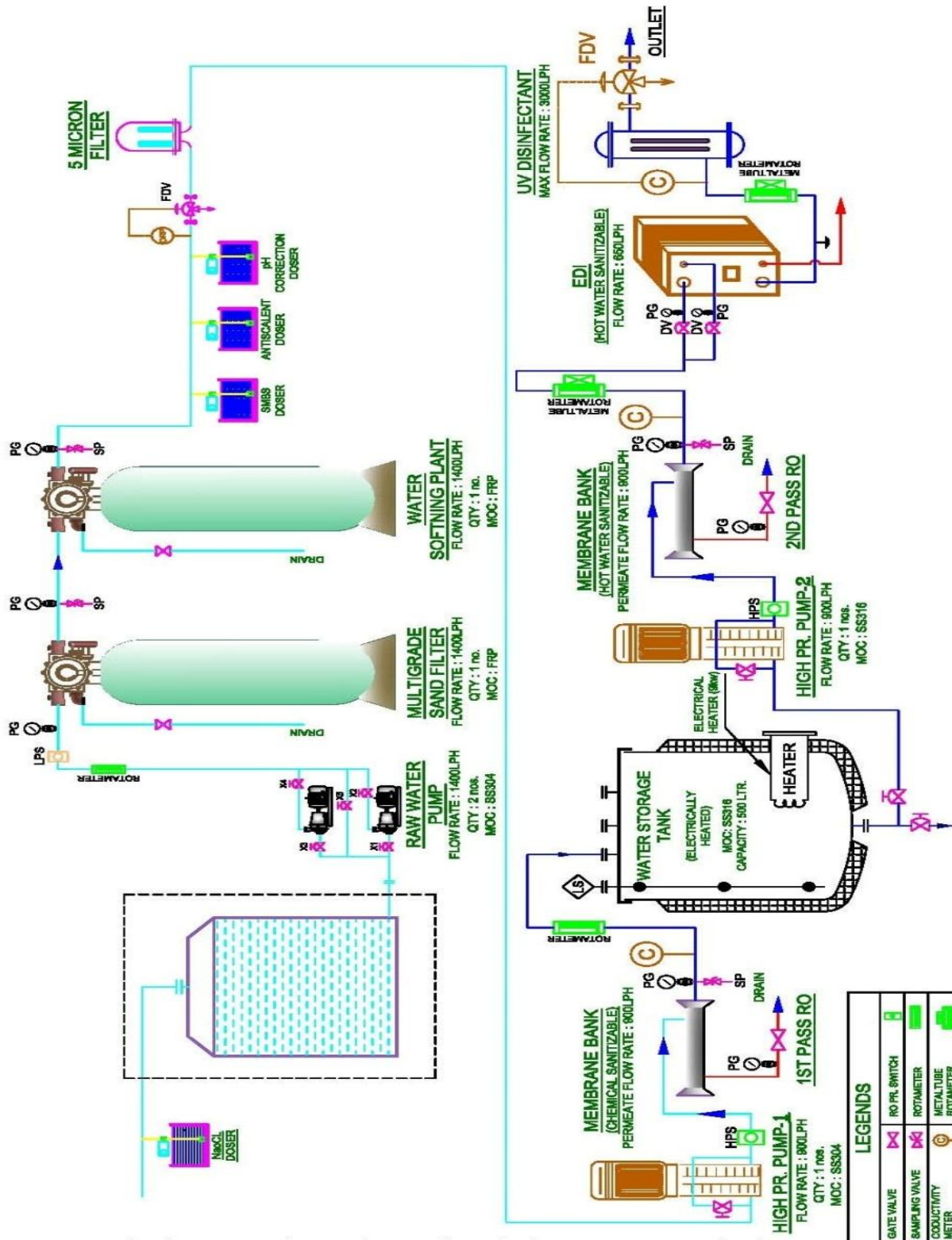
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<b>ANEXXURE - P</b>								
Sr.	Component	Size / Capacity	Specification	Qty.	Unit	Rate (Rs.)	Amount(Rs.)	
<b>I</b>	<b>Water Distribution System Mother Loop - Variable Piping</b>							
<b>1</b>	SS Tube	1.0 " OD	SS 316L Internal EP , External Matt Finished , 16SWG Sanitary tube	300	Mtrs.			
<b>2</b>	Bend	1.0 " OD	MOC - SS316L Plain End	120	Nos.			
<b>3</b>	Pipe holding Clamp Assembly	1.0 " OD	Pipe Holding Clamp, Hexagonal Nut with Anchor bolt and Support plate, MOC SS 304.	240	Nos.			
<b>4</b>	TC clamp	1.0 " OD	MOC - SS304	120	Nos.			
<b>5</b>	TC liner	1.0 " OD	MOC - SS316L	120	Nos.			
<b>6</b>	TC gasket	1.0 " OD	MOC - Silicon	120	Nos.			
<b>7</b>	Manual Zero Dead Leg Valve	1.0 " OD	SS 316L Body, Plastic bonnet , Plastic Hand Wheel , EPDM Diaphragm TC End Connection. (Invest Casting)	8	Nos.			
			<b>Total Amount</b>					



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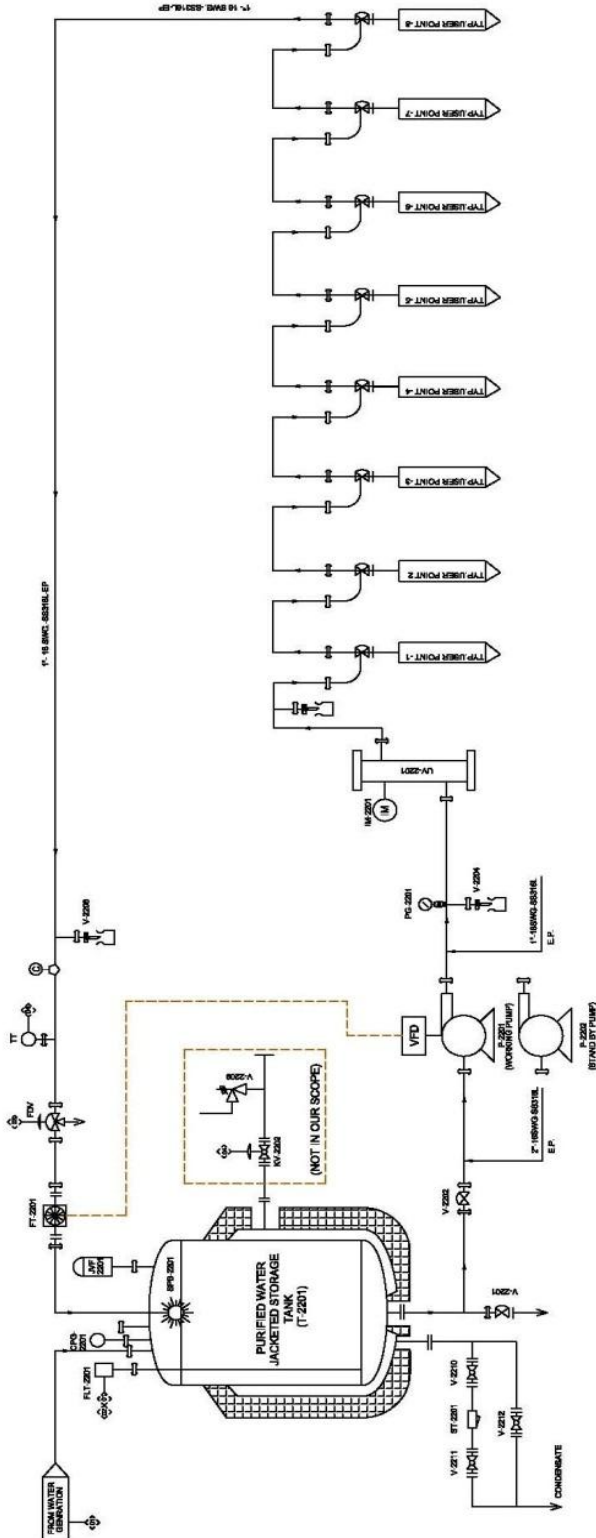
**LEGENDS**

GATE VALVE	RO PR. SWITCH
SAMPLING VALVE	ROTAMETER
CONDUCTIVITY METER	METAL TUBE ROTAMETER
PR. GAUGE	PAC VALVE
DIAPHRAM VALVE	BALL VALVE



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	MANUAL DIAPHRAM VALVE		CONDUCTIVITY METER
	MANUAL BALL VALVE		COMPOUND PRESSURE GAUGE
	SAMPLING VALVE		JACKETED VENT FILTER
	FLOW DIVERTOR VALVE		FLOAT TYPE LEVEL TRANSMITTER
	STEAM ON / OFF VALVE		TEMPERATURE TRANSMITTER
	PRESSURE SAFETY VALVE		FLOW TRANSMITTER
	STEAM TRAP		PRESSURE GAUGE

SR. NO.	TAG	DESCRIPTION	SIZE
1	T-2201	P.W. STORAGE TANK (1/3 JACKETED)	2000 LTRS.
2	JVF-2201	JACKETED VENT FILTER	0.2 MICRON
3	P-2201	CENTRIFUGAL PUMP	2.5 M <sup>3</sup> /HR
4	P-2202	CENTRIFUGAL PUMP (STAND BY) (OPTIONAL)	40 MWC

SR. NO.	TAG	DESCRIPTION
1	CPG-2201	COMPOUND PRESSURE GAUGE
2	FLT-2201	FLOAT TYPE LEVEL TRANSMITTER
3	TT-2201/02	TEMPERATURE TRANSMITTER
4	PG-2201	PRESSURE INDICATOR
5	CT-2201	CONDUCTIVITY TRANSMITTER
6	FT-2201	FLOW TRANSMITTER