

BHARAT HEAVY ELECTRICAL LIMITED

FABRICATION, STAMPING & INSULATOR PLANT JAGDISHPUR

Specification No.: FSIP/WEX-IP/Softener Plant/01

Date: October 10th, 2019

TECHNICAL SPECIFICATION FOR WATER SOFTENER PLANT

1. Scope of Supply:

- a. One complete set of Water Softener Plant which includes Brine tank, Pipes, Valves, Softener tank & other accessories
- b. Inlet, Outlet, interconnecting pipe works & Drain pipe line works (to be quoted in running meter)
- c. One set operation manual
- d. Erection & Commissioning
- e. Training to our personnel for operation & maintenance

2. Technical Specification:

a. Feed Water (at BHEL Jagdishpur) Parameter to Softener :-

Sl. No.	Water Parameter	Units	Value
01.	Source of Water	-	Bore well / Raw Water
02.	pH @25°C	-	7.6
03.	Total Suspended Solids	mg/l	<5
04.	Total Dissolved Solids	mg/l	428
05.	Total Hardness as CaCO ₃	mg/l	332
06.	Calcium as Ca	mg/l	60.8
07.	Magnesium as Mg	mg/l	43.7
08.	Sodium as Na	mg/l	21
09.	Chlorides as Cl	mg/l	20
10.	Total Alkalinity as CaCO ₃	mg/l	325

b. Required Treated Water Quality:

Sl. No.	Water Parameter	Units	Value
01.	Total Hardness (as CaCO ₃)	mg/l	<10
02.	pH	-	8.5 to 9.5

c. Required Technical Specification for Softener Plant:

Sl. No.	Description	Value
01.	Outer Casing Material	Mild Steel
02.	Flow Rate	10 m ³ /hr
03.	Min. Shell Thickness	4 mm
04.	Min. Dish Thickness	4 mm
05.	No. Required	01
06.	Media Type (Resin)	INDION 220 Na Resin
07.	Total output in one time regeneration (approx..)	150 m ³



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- d. **Equipments where this Water Softener Plant will be used:** Boiler Area
- e. **Electrical Items:** All electrical accessories / equipments should be suitable for $415 \pm 5\%$ volts, 3 Phase, 50 Hz. All the electrical component should be for maximum ambient temperature of 50°C and 95% humidity. Motors should be completed with starter and single phase preventers. Internal electrical wiring should be from stranded copper, PVC insulated, PVC sheathed cables of proper size, properly numbered and ferruled. BHEL will supply 415 V, 3 phase electric power at one point only, remaining cabling will be in the scope of supplier
- f. All components/materials/controls/dimensions shall be in metric system confirming to relevant Indian /International standards

3. Information to be Furnished along with the Technical Offer :

- a. Model, material & dimensions of Softener plant
- b. Resin (INDION 220 Na) volume
- c. Brine tank dimensions
- d. Salt required per regeneration in Kgs
- e. Types and details of various parts subject to fast wear and tear should be mentioned
- f. List of the optional accessories with item wise details
- g. Party has to quote spares for two years of normal operation along with offer
- h. List of supplies previously made of identical / similar equipment in past years
- i. Schematic drawing to be provided

4. General Terms & Conditions:

- a. Validity of offer: 06 months
- b. Machine should be supplied with all the standard accessories
- c. Erection & Commissioning is in the scope of party
- d. Unloading of Material at purchaser site will be in the scope of purchaser
- e. Civil work (if any) will be done by BHEL, Party has to submit foundation drawing after receipt of purchase order
- f. Delivery: Bidder to quote best delivery as well as time required for Erection and commissioning
- g. All the parts of machine should have easy accessibility for maintenance, lubrication, inspection and repair work. Any special tool required for maintenance and repair of machine should be supplied along with the machine
- h. Suitable electrical and mechanical interlocks and safety guards should be provided to prevent the machine from damage and for safety of the operator
- i. **Warranty/Guarantee :** The machine is to be guaranteed/warrantied in respect of material, construction, operation and against any manufacturing defects for a period of 18 months from the date of supply or 12 months from the date of commissioning whichever is later
- j. Free after sales-services is to be provided during guarantee/Warrantee period, and if found damaged or defective during this period have to the replaced free of cost.

(Shailendra Yadav)

Sr. Manager / WEX