

**TECHNICAL SPECIFICATIONS**  
**Water Softening Plant**  
**( Tender Notice No: CT-10/2014-15 )**

**The water softening plant shall consist of multi-grade sand & gravel filter and high exchange capacity resin based water softening plant with a by-pass arrangement.**

**A) SOFTENING PLANT :-**

1. Treatment Capacity : Ten (10) CuM / Hour
2. Total Hardness of Water :
  - a) Source of Water Supply : Borewell / Municipal Supply Water
  - b) Total Hardness of Supply / Inlet Water : 300 ppm (max.)
  - c) Outlet Water Hardness After Treatment : Less than Five (5) ppm
3. Water Inlet Pressure : 10 to 15 MWC
4. Type of Installation : Suitable for Out-door Installation
5. Shape : Cylindrical & Vertical
6. Duration of Operation : Continuous Operation, 24 x 7 Hours / Week
7. Resin Regeneration : Through Brine Solution
8. Frequency of Regeneration : Once in Twelve (12) Hours
9. Material of Construction : Mild Steel, IS: 2026
  - a) Cylinder Wall Thickness : Eight (8) mm (min.)
  - b) Cylinder Dished Ends : Eight (8) mm (min.)
  - c) Bed Plate : Ten (10) mm (min.)
  - d) Supports : Mild Steel Structural Legs with Base Plate
10. Painting :
  - a) External : Two(2) coats Resin Based Epoxy Paint of Approved Shade
11. Maintenance / Inspection Hole :
  - a) Number of Holes : One (1)
  - b) Shape : Circular, with Flanged End
  - c) Diameter : 450 mm
  - d) Cover Plate : MS, IS:2062, Blank Flange with Gasket & Bolted
12. Under Bed Draw-off System (Lower Bed) :
  - a) Type : Strainers on Plate
  - b) Materials : MS perforated plate with PVC strainer

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13. Filling Media :
  - a) Resin : 900 mm (minimum depth)
  - b) Gravel : 300 mm (minimum depth)
14. Brine Dosing System :
  - a) Brine Solution Tank : PVC Tank of minimum capacity 200 Litres
  - b) Brine Solution Dosing System : Ejector System
15. Accessories :
  - a) Sampling Cocks : Two(2) nos.
  - b) Pressure Gauges : Two (2) nos., 50mm Dial Size
16. Piping & Valves :
  - a) Piping Material : MS (medium), IS:1239 of Tata / Jindal make
  - b) Valves Material : Cast Iron, IS: 778
  - c) Size : 50 or 65 mm
  - d) Brine Solution Tank, Piping, Valves, Flanges etc. shall be of PVC material of construction ( preferably Sintex make )

**B) MULTI GRADE SAND & GRAVEL FILTER :-**

1. Supply Water Pressure (Inlet) : 10 to 15 MWC
2. Type of Installation : Suitable for out-door installation
3. Shape : Cylindrical & Vertical
4. Turbidity of Supply / Inlet Water : < 60 ppm (for design purpose)
5. Turbidity of Outlet / After Treatment : < 10 ppm
6. Material of Construction : Mild Steel, IS: 2026
7. Cylinder Wall Thickness : Eight (8) mm (min.)
8. Cylinder Dished Ends : Eight (8) mm (min.)
9. Bed Plate : Ten (10) mm (min.)
10. Supports : Mild Steel Structural Legs with Base Plate
11. Painting :
  - a) External: Two(2) coats Resin Based Epoxy Paint of approved shade
12. Maintenance / Inspection Hole :
  - a) Number of Holes : One (1)
  - b) Shape : Circular, with Flanged End
  - c) Diameter : 450 mm
  - d) Cover Plate : MS, IS:2062, Blank Flange with Gasket & Bolted

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13. Under Bed Draw-off System (Lower Bed) :
    - a) Type : Strainers on Plate
    - b) Materials : MS perforated plate with PVC strainer
  14. Filling Media : Treated Sand & Graded Gravel
- C)** Water Filtration & Softening Plant shall be suitable for outdoor installation, complete with full charge of Sand & Gravel Media, High Exchange Capacity Resin, Piping work, Valves, Flanges, Gaskets, Inlet/Outlet Pressure Gauges, all accessories etc. and designed for minimum pressure drop.
- D)** Tenderer to submit General Arrangement, Overall Dimension and Schematic Drawings and Data Sheet with complete technical specification for Water Filtration & Softening Plant alongwith the Tender document for including followings for evaluation purpose :-

**Data Sheet for Water Filtration Plant to be submitted by Tenderer :-**

- a) Treatment Capacity – Cum/Hour
- b) Requirement of Water Pressure at Inlet Flange of Plant –
- c) Pressure Drop Across Filtration Plant – in MWC
- d) Designed Inlet Turbidity -
- e) Designed Outlet Turbidity After Treatment -
- f) Overall Size of the Filtration Tank (enclose drawing) -
- g) Thickness of Wall & Dished Ends -
- h) Type of Installation -
- i) Type & Frequency of Back Wash -
- j) Details of Filter Media Provided -
- k) Type & Size of Piping Materials etc. -
- l) Type & Size of Valves –
- m) No. of Pressure Gauges & Dial Size -
- n) Accessories –
- o) Battery Limit –
- p) Exclusion of Scope of Work (if any) -

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**Data Sheet for Water Softening Plant to be submitted by Tenderer :-**

- a) Treatment Capacity – Cum/Hour
- b) Requirement of Water Pressure at Inlet Flange of Plant –
- c) Pressure Drop Across Softening Plant –
- d) Designed Inlet Hardness before Treatment –
- e) Designed Outlet Hardness after Treatment –
- f) Overall Size of the Softener Tank (enclose drawing) –
- g) Thickness of Wall & Dished Ends –
- h) Type of Installation –
- i) Frequency of Regeneration –
- j) Type of Brine Dosing System –
- k) Type & Size of Brine Solution Tank –
- l) Type & Size of Piping Materials etc. –
- m) Type & Size of Valves –
- n) No. of Pressure Gauges & Dial Size –
- o) Accessories –
- p) Battery Limit –
- q) Exclusion of Scope of Work (if any) -

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