

1.0.0 SCOPE OF WORK, Tender No- BL/HR/ADM/WTPHO/LT/201920/0005 dated 14-05-2019

1.1.0 Scope of Supply:- Design, Supply, Installation, Testing & Commissioning of WTP at Head Office

BASIS OF DESIGN AND TREATMENT SCHEME

A) DESIGN INPUT: (Softener Inlet)

Total Hardness: 1026 ppm

Flow rate- : 6.0 m³/hr.

B) TREATED QUALITY (Softener Outlet):

Total Hardness: < 150.0 ppm

Flow rate: 6.0 m³/hr.

OBR/softener unit: 60.0 M3

Daily operation: 3 hrs. / Day

1.0 FEED WATER TRANSFER PUMP 2 Nos [01 stand by] with control panel and Starter & complete wiring.

1.1 Qty. offered: 02 No.

1.2 Type: Horizontal Centrifugal- monoblock

1.3 Material of construction: CI

1.4 Make: Kirloskar/CRI/Algo/Equiv.

1.5 Power Consumption: During detail engg.

1.6 Type of Drive: III phase

1.7 Capacity- (m³/hr): 6.0 m³/hr

1.8 Head / kg/cm²: 35 M /3.5 Kg /Cm²

1.9 Purpose: To feed raw water at required pressure to Softener

2.0 Coagulant dosing system to be done along with Mno₂ Oxidation Chamber (355mm X 1370mm) with Compressor (as per IS)

2.1 Qty. offered: 01 No.

2.2 Type of dosing pump: Electronic metering Diaphragm

2.3 Operating capacity: 0-6 ltr per hour

2.4 MOC of pump: PP head & Teflon diaphragm

2.5 Make of pump: Fluidose/Equiv.

2.6 Qty. of tank: One No.

2.7 Material of construction of tank: HDPE

2.8 Make of tank: Sintex/Equiv.

2.9 Head (kg/cm²): 2.0 - 2.5

2.10 Volume of tank (liters): 200

3.0 IRON REMOVAL FILTER (IRF): (6mm X 8mm X 8mm)

3.1 Quantity: 1 No.

3.2 Capacity: 6.0 m³/hr

3.3 Material of construction: MS with epoxy painting

3.4 Size of vessel: 24" Dia. X 72" [610 mm X 1820mm] Ht, Top-bottom opening

3.5 Piping: 40 NB (1.5")

3.6 Type of valve: Vertical with Multi Port Valve system or with frontal pipe line (MS)

3.7 Size of valve: 1.5"

3.8 No. of valve: 01 No.

3.9 Operating Pressure (Kg/cm²): 2.0- 3.5 Kg/cm²

3.10 Design Pressure (Kg/cm²): 5.0 Kg/cm²

3.11 Operating temp. in degree centigrade: Ambient

3.12 Backwashing facility: Included

3.13 Backwashing interval: Once in a day

3.14 Backwash time: 10-15 minutes or till effluent is clear

3.15 Pressure gauge: 2 nos. [0-10 kg/cm²] - Bottom entry- 2.5" dial size

3.16 Filter media: High rate media filter, iron removal filter

3.17 Attrition Loss of media/year: Filter media should be changed once in every 15 months

4.0 SOFTENER (SF): (6mm X 8mm X 8mm)

- 4.1 Quantity: 1 No.
- 4.2 Capacity: 6.0 m³/hr
- 4.3 Material of construction: MS with Epoxy Paint
- 4.4 Size of vessel: 42" Dia. X 72" [1060mm X 1820mm] Ht, Top-bottom opening with hand hole
- 4.5 Piping: 40 NB (1.5")
- 4.6 Type of valve: Vertical with Multi Port Valve system
- 4.7 Size of valve: 1.5"
- 4.8 No. of valve: 01 No.
- 4.9 Operating Pressure (Kg/cm²): 2.0- 3.5 Kg/cm²
- 4.10 Design Pressure (Kg/cm²): 5.0 Kg/cm²
- 4.11 Operating temp. In degree centigrade: Ambient
- 4.12 Backwashing facility: Included
- 4.13 Backwashing interval: Once in a day
- 4.14 Backwash time: 10-15 minutes or till effluent is clear
- 4.15 Pressure gauge: 2 nos. [0-10 kg/cm²]-Bottom entry- 2.5" dial size
- 4.17 Filter media: Softener Resin- 1200 Ltrs. And should have a base of Silex (coarse) or Silica
- 4.18 Attrition Loss of resin/year: 20-25%
- 4.19 Regeneration Duration: 1.5-2.0 hrs.
- 4.20 Regenerant quantity: 145.0 kgs.-100%

5.0 Regeneration System:

- 5.0 Brine Measuring Tank: 1000 Ltrs.
- 5.1 Ejector Ratio: 1:5
- 5.2 MOC-Ejector: ABS-In built with Valve with hand operated agitator with gear box
- 5.3 Regeneration tank-Make: Reno-Sintex
- 5.4 MOC of Tank: HDPE

Termination Point: RWP Inlet & Softener outlet

- 1.1.1 **AMC:** 05 year Comprehensive Annual Maintenance Contract to be carried out by the Vendor for the proposed plant after maintaining successful defect liability period of one year, will effect from date of taking of handover of the commissioning of the plant. Necessary spare parts and dosing chemicals to be provided in the AMC & the same to be provided during defect liability period at vendor's cost.
Resin to be replaced once in every two year & top up to be done once in every year.