AQUA MECH

B-309 Jai Industrial Estate Plot No, TS-6 MIDC, Phase I, Dombivli(E) 421203 Tel: +91 0251 2950089

REF :AM/12689/24-25

DT. 20TH DECEMBER 2024

TO,
ONCG MUMBAI

Kind Attn. : **Mr Parag Kshirsagar**
Mr Anshul Umredkar

Subject : **Offer for Sewage Treatment Plant 25 KLD (Prefabricated)**

Dear Sir,

This refers to the enquiry regarding the above subject, we take pleasure in submitting our Offer towards requirement of STP.

The following annexure form a part of our offer:

- Annexure I - Advantages
- Annexure II - Design Basis & Treatment Philosophy
- Annexure III - Technical Data & Scope of Supply
- Annexure IV - Price and Commercial Terms
- Annexure V - Schedule of Exclusions.

We trust you will find our offer in line with your requirements and look forward to receive your valued order. In case should you desire to have any further information / clarifications please feel free to contact us.

Yours Truly,
For AQUA MECH

Authorized Signature

ANNEXURE - I

ADVANTAGES OF FMR V/S CONVENTION SYSTEM

1. Lamella Clarifier increases contact area of sludge, hence producing better quality of Treated Water.

2. Process area required is less, compared to Conventional System.

3. Ease of Cleaning Lamella Plates, compared to Conventional Tube Settlers.

4. Stoppage of Plant is not required during Cleaning, as individual plates can be cleaned.

5. No Rotating Parts.

6. No sludge Recirculation.

7. Reduced Power and Operating Costs

8. Better Quality of Treated Water after Tertiary Treatment compared to Convention System.

ANNEXURE - II

DESIGN BASIS

Design Capacity	**25m3/day**
Operating Hours	**24**
Design flow rate	**1.04m3/hr**

WATER QUALITIES

Sewage Characteristics	**Inlet**	**Outlet (Before Tertiary)**	**Outlet (Post Tertiary)**
BOD (ppm)	250 -300	30	5
COD (ppm)	400-500	100	20
TSS (ppm)	150	< 30	< 5
Oil and Grease	< 20	< 10	< 10
Temperature (in degree Celsius)	25 – 30	25-30	25-30

The inlet quality indicated is typical of domestic sewage. Where the kitchen waste forms a substantial part, BOD and COD can be as much as 500 ppm and 900 ppm respectively. In such cases, please contact us for suitable design. Changes in the inlet sewage water will change the outlet water quality.

Use of treated water:

For low end purposes such as toilet flushing, gardening car washing etc,

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Process Details

Bar Screen:

Raw sewage from the source is usually received into the bar screen chamber by gravity. Screen provided will remove all floating and big size matter such as plastic bottles, polythene bags, glasses, stones, etc., which may otherwise choke the pipeline and pumps.

Oil and Grease Trap (Civil Construction)

If the sewage generated includes maximum quantity from kitchen and canteen, there is a possibility of higher concentrations of oil and grease in the raw sewage. It needs to be removed before biological treatment as it otherwise may cause problems for biological treatment. Usually, a small civil construction tank with a baffle wall and slotted oil pipe skimmer is provided. The oil and grease removed by gravity floats to the surface, which is removed by the oil skimmer (by client).

Equalization Tank (Civil Construction)

Usually, sewage generation is more during morning hours and evening hours. Visually no sewage is generated during night hours. Any biological system needs constant feed for bacteria to work efficiently. Hence, it is important to put an equalization tank to collect the excess flow during peak hours and feed sewage in lean hours. A typical equalization tank has a capacity of 4–6 hours of average flow rate. The tank is generally of civil construction by client. Provision of air grid is to be made for thoroughly mixing the sewage to make it of homogenous quality and to keep the suspended matter in suspension and to avoid septic conditions.

Transfer of Sewage

Our scope starts from transfer of sewage from Equalisation Tank to FMR tank. The distance of transfer should not exceed beyond 5 meter. The transfer pump can be either submersible or non-submersible type for this application. However we have considered centrifugal non-submersible type. The layout shall be as per IEI standard.

- The pump should not run dry and Client to ensure sufficient sewage is available in the Equalisation Tank.

Fluidised Media Reactor (FMR)

Fluidised Media Reactor (FMR) as the name indicates consists of floating media of various shapes and sizes. The main objective of adding this media is to make available more surface area for bacteria to grow on, thereby maintaining and retaining maximum possible bacterial population in a limited volume. The FMR media material allows biomass concentration of 20 – 40 Kgs/m3 material. Thus, FMR consists of combination of biomass in attached as well as suspended form. High concentration of biomass enables reduction of aeration tank and in turn reduction in overall cost. Volume of the media shall vary from 6 to 25 % based on the concentration of organic matter.

Another main feature of the FMR is its compactness. The FMR consists of biological system for removal of organic matter (BOD, COD), lamella for clarification and chlorine contact tank for disinfection. As all units are placed inside a single tank, it saves space and also increases operational ease. **Common Air Blower is provided for Equalization Tank & FMR Tank.**

In FMR, raw sewage enters at the top of the tank. Air is introduced at the bottom of the tank through fine bubble diffusers. Media will be in suspension because of the turbulence created by the air. The bacteria required for the oxidation of the organic matter is attached to the media and some part is suspended in the tank. After oxidation, the bacteria grow in number and need to be separated from the aeration tank liquor. The lamella section inside the FMR helps in clarification and separation of the bacteria (sludge) and clear overflow flows into chlorine contact tank. Lamella plates helps in increasing the settling area and removing the particles effectively in a smaller plan area. In chlorine contact tank, Sodium hypo Chlorite (NaOCl) is added for disinfecting the clarified sewage. Baffle plates are provided to make better contact. The chlorinated treated sewage then flows out of FMR either for further treatment or for disposal.

Treated Water Collection Tank:

The treated water collection tank can be of civil construction by client in case required. The treated water can be collected either from the chlorination chamber in Scheme I or from Activated Carbon Filter in Scheme II.

Sludge:

The sludge from the Clarifier to be removed from the bottom of the Clarifier once in a day by client and transferred to sludge drying bed either by gravity or through pump depending on site condition.

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ANNEXURE – III

Technical Data & Scope of Supply

Capacity	m^3/day	**25**
EQ Tank		Client Scope
Tank Capacity	m^3	22
Tank Size L* W * D	m^3	3.0 X 3.0 X 2.5 (Approx.)
Feed Pump	**Centrifugal Non-Submersible Type**	
Feed Pump (1W+1S)	No Off	2
Feed Pump capacity	m^3/hr	1.5
Head	mwc	10
Suction Head	mwc	2
Motor HP/RPM		3/2900
Bar screen Chamber (LxWxD)	mXmX m	To be placed at inlet of Equalization tank to match the inlet channel. Should have 10 mm screen
FMR Tank Pre-Fabricated (MS with Specialised Paint Coating)		
Capacity	m^3/day	25
SWD	M	1.9
FMR Tank Overall Dimensions	M	4 X 2.2 (approx.)
Total Height	M	2.2
Volume of FMR Media	m^3	1.5
Air required for EQT	Nm^3/hr	15
Air required for FMR	Nm^3/hr	58
Air required-Total	Nm^3/hr	73
Capacity of Air Blower	m^3/h	75
Head for Blower	Kg/cm2	0.37
Motor HP / RPM		3.0 / 1500
Diffusers for EQT	M	1 lot
Diffusers for FMR	M	1 lot
Total Diffusers	M	1 lot
No. of Lamella Plates	Nos.	1 lot
Chlorine Dosing System	10 – 20 ppm @ 100 % conc. of NaOCl	
Dosing Tank capacity	Lit	100
Dosing Pump cap	LPH	3.0
Additional Equipment for Scheme – II		
Capacity	M3/d	25
MGF feed pump	Centrifugal Non-Submersible Type	
Head	M	20
Motor HP/RPM		2 / 2900
NGMF-20	Mm	330 Dia X 1650 H.O.S
NGMA-20	Mm	330 Dia X 1650 H.O.S

Make & Material of Construction

Description	Make	MOC
Feed pump	JOHNSON / KIRLOSKAR	CI
Bar Screen	IEI	PP-FRP / PVC-FRP / MS - Epoxy
Aeration Tank	IEI	MS – FRP Coating
Diffuser (Tube Type)	EDI, USA / Eqvt	Rubber (EPDM)
Blower	EVEREST / Eqvt	CI
Lamella Clarifier	IEI	MSEP / MS FRP
NaOCl dosing tank	IEI	HDPE Tank / LDPE tank
MGF Feed Pump	KIRLOSKAR / JOHNSON	CI
MGF	IEI	MSEP
ACF	IEI	MSEP
Butterfly valve	CRANE / Eqvt	CI
Pressure gauge	H GURU / Eqvt	
Pipes	JINDAL / Eqvt	MS/HDPE
MCC Panel	SEI Scope	Powder Coated

Note: All the above makes are available at present however Ion Exchange (India) Ltd has the right to change the design /make without any prior permission.

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ANNEXURE - IV

PRICE & COMMERCIAL TERMS

Sr. No.	Description	Qty	Amount Rs.
1.	**FMR UNIT 25 KLD (Pre Fabricated)** **Bar Screen** **Sewage Transfer Pump** **Lamella Clarifier** **Chlorine Dosing** **Diffuser** **Blower** **(As per Scope of Supply)**	**1 Unit**	**32,35,000/-**
2.	**"INDION" SAND FILTER – NGMF-20**	**1 No.**	
3.	**"INDION" CARBON FILTER – NGMA-20**	**1 No.**	
4.	**FILTER FEED PUMP**	**2 Nos.**	
5.	**SLUDGE TRANSFER PUMP.**	**1 No.**	
6.	**FILTER PRESS FEED PUMP.**	**1 No.**	
7.	**FILTER PRESS**	**1 No.**	
8	**CONTROL PANEL**	**1 No.**	
9.	**INTER CONNECTION PIPE WOTRK**	**1 Lot.**	
10.	**UV SYSTEM FOR 25 KLD**	**1 No.**	
11.	**INSTALLATION & COMMISSIONING**		**1,80,000/-**
12.	**UFMATIC -FOR 25 KLD**		**8,90,000/-**
13.	**TRASNPORTATION**		**2,50,000/-**

The above prices are FOR HOSUR Exclusive of GST, Octroi, Insurance and other Statutory Levies.

SALES TAX : + 18% GST Extra.

PAYMENT: 40 % Advance along with your GST and balance against Performa Invoice.

DELIVERY : 10-12 Weeks from the date of receipt of your order along with advance and Technical and commercial clear order.

VALIDITY: - Our offer is valid for a period of 45 days from the date of this offer.

WARRANTEE : The units offered by us are warranted for a period of 12 months from the date of Commissioning of units or 15 months from the date of dispatch, whichever is earlier, provided the units are operated as per the recommended procedure in the operating / instruction manuals.

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ANNEXURE - V

SCHEDULE OF EXCLUSIONS

- Sewage supply at the required temperature and pressure at the inlet of the Equipment offered.
- After Battery Limit, Cabling, Cable tray and Earthing will be Client's Scope.
- All civil work including drains, drain sump, neutralization sump, supports of all types, platforms, drain channel, plant building. We shall provide load data.
- Laboratory facilities including necessary instruments, chemicals and staff.
- Lubricants, oils, grease wherever required including the first charge.
- Relevant connections from termination points given in our offer.
- Scope of supply and services not specifically mentioned as forming a part of our offer.

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