

BOQ for Modification and Upgradation of 15 KLD Effluent Treatment Plant

Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
A	Design, supply, installation, testing & commissioning of 30 KLD capacity Effluent Treatment Plant based on MBR Technology complete with all Electro - Mechanical Equipments . for the following duty:						
	1) Make : To be specified						
	2) Nature of Waste - - Effluent from Kitchen & Sewage from Guest Rooms/ Toilets .						
	3) Designe Flow - 30 KLD						
a.	Sewage Parameters before treatment:						
	pH - 7.0 – 8.5						
	BOD 150 – 200 Mg/L						
	S. Solids - 200 – 250 Mg/L						
	COD - 400 – 600 Mg/L						
	Oil & Grease - 100-150 Mg / L						
b.	Treated discharge standard after MBR						
	pH - 7.0 – 8.5						
	BOD - Less than 10Mg/L						
	S. Solids - Less than 10 Mg/L						
	COD - Less than 50 Mg/L						
	Oil & Grease - Less than 1 Mg/L						

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	Make: Fabricated						
1	BAR SCREEN - (COARSE + FINE) Supply, installation, testing & commissioning of 2 Nos. MOC : SS 304 fabricated - Coarse screen spacing: 15 mm & Fine screen spacing : 6 mm, Size 400mm X 500 mm with suitable Cleaning arrangement. This is to slide in the fixed ss channels fixed on the side walls.	Fabricated	Nos	1		0	
2	Feed Pump (Raw Sewage Transfer Pump)						
	Supplying and fixing of submersible centrifugal sewage transfer pump, Pump for raw sewage transfer from equalization tank to Anoxic Tank. The pump shall have CI casing, CI impeller, induction motor suitable for 415+10%Vlt, 3 Phase, 50 Cycles AC Power supply, dry running protection, level controller complete with probs complete in all respect including delivery header & delivery pipe (interconnecting piping) with UPVC' class pipe of required dia, isolation valves, NRV on delivery side of Pumps.						
	Capacity/Flow rate - 2 m3/h						
	Pumping Head - 8-10 Mtr		Nos	2		0	
	Make - Wilo/Kirloskar						

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3	Dissolved Air Floatation Unit (DAF) Capacity 25 KLD - With Dosing System , Compressor, Saturation Pipe, Flocculation tank and MS FRP DAF Tank. The Dissolved Air Floatation unit shall comprise of a Flocculation Tank (MS FRP) and Scum removal section with all the required Dosing System. Air Compressor and Air Saturation unit and the control Panel for the auto operation of the DAF plant.	Krofta / Transcend / SBS / Equivalent	Set	1		0	Equivalent make to mention
4	Package ETP in MS FRP Tank - 5 mm thick with suitable stiffeners with 2mm FRP coating. The tanks shall have a warranty agaistn any leakage or damage for a period of 5 years.						Special Warranty of 5 years against manufacturing defect, leakage and damage of FRP coating
	The Tank shall have 3 zones for Anoxic chamber , Aeration Zone and Membrane Zone						
	Size- 4.5 m x 2.0 m x 2.5 m Ht		Set	1		0	
5	Fine Screen						
	Fine Screen - Perforation Size : 2mm MOC– Main Bofy MSEP + Screen MOC : SS 304) Qty – 1 nos	Auric/ Eqv	No.	1		0	Equivalent make to mention
6	Aeration system					0	
	Air diffusion system shall include the following:					0	

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6.1	Make: Everest / Akash Supply and fixing of 2 No. twin type rotary air blowers (1W + 1S) capable of delivering 50 cum/hr of free air at 0.35 kg/cm ² for Equalization, Aeration Tank, Membrane System & Sludge Holding Tank. driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles A/C supply with all accessories complete in all respects.	Everest/ Equivalent	Nos	2		0	Equivalent make to mention
6.2	Air piping shall comprise of pipes droppers/ laterals with MS (epoxy coated) Header & Transfer, UPVC complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges for Equalization tank, Aeration Tank, MBR Tank & sludge Holding tank etc cutting chases & making good. Contactor to submit detailed P & I indicating their proposal with all details complete in all respects.		Lot	1		0	
6.3	Disc type, EPDM Coarse Bubble Diffusers, non clog type air dispersion system capable of handling 3-5 cfm of air. The Diffusers shall be fixed to the UPVC pipe grid shall for uniform distribution of Air. (Coarse bubble diffusers for Equalisation tank & Sludge holding tank)	BI / Scogen	Lot	1		0	

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6.4	Tube type, Silicon Fine Bubble Diffusers, non clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired easily from plat form at the top. (Complete set of fine bubble diffusers for Aeration Tank)	Rehau/ Scogen	Lot	1		0	
7	Inter connecting Piping & Valves						
	Supply and fixing of all piping and control valves including all necessary fittings and clamps support, hangers as required.						Piping should include underground Sewage Tank to Plant
	Process Piping : All Piping UPVC		Lot	1		0	
8	MBR Module for 30 kld						
	Supply, installation, testing & commissioning of MBR modules membranes with SS – 304 skid for housing the membranes & air grid for scouring the sludge, permeate piping etc. complete as required.flux, Membranes shall be hollow fibre type capable of Cleaning with chemicals to minimize pore fouling.	Veolia /Dupont.	Lot	1		0	
	The Membrane Pore Size shall be 0.04 micron Membrane						
9	Membrane CIP system						

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
	Supply and fixing of dosing pump comprising of 100 Litres capacity HDPE tank with inlet / outlet connection, piping & valves along with metering (0-06 LPH) pump for membrane cleaning system complete in all respects.		Set	1		0	
	Tank Capacity - 100 ltrs: Pump capacity- 0-06 LPH						
9a	CIP Pump with Tank						
	Supplying and fixing of centrifugal back wash pump, Pump for CIP of MBR. The pump shall have SS Pump , induction motor suitable for 415+10%Volt, 3 Phase, 50 Cycles AC, Power supply,						
	Capacity/Flow rate - 2 m3/h						
	Pumping Head - 12 Mtr,						
	Nos. of Pump = 1 Nos.	CNP// Wilo	Nos	1		0	
	Make - Wilo/CNP						
	Tank Size :300 Ltr.,	Sintex/ Eqvt.					Equivalent make to mention
10	Permeate Pump						

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
	Supplying and fixing of centrifugal permeate pump, Pump for supply of treated water from MBR to Treated water tank. The pump shall have SS Pump, induction motor suitable for 415+10% Volt, 3 Phase, 50 Cycles AC Power supply, dry running protection, level controller complete with probs complete in all respect including delivery header & delivery pipe (interconnecting piping) with UPVC' class pipe of required dia, isolation valves, NRV on delivery side of Pumps.						
	Capacity/Flow rate - 2 m3/h						
	Pumping Head - 12-15 Mtr						
	Nos. of Pump = 2 Nos. (1 Working +1 standby)	CNP// Wilo	Nos	2		0	
11	RAS Pump						
	Supplying and fixing of submerssible RAS pump, Pump for supply of excess sludge from MBR tank to						
	Capacity/Flow rate - 6 m3/h						
	Pumping Head - 8 Mtr						
	Nos. of Pump = 2Nos. (1 Working +1 standby)	Wilo/Kirloskar	Nos	2		0	
12	Insrtumentation						
	Supply and fixing of following instrument for the auto						
12.1	Electro-magnetic flow meter cum totalizer at the sewage inlet and outlet of membrane suction pump of	Adept or Equi	Nos	2		0	Equivalent make to mention

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
12.2	pH Meter at membrane suction pump outlet for measurement	Aster/VATS	No	1		0	
12.3	Pressure switch transmitter and pressure alarm high and low with range (-1.0 to +1.0) Bar.	Danfoss/ eqvt.	Set	1		0	Equivalent make to mention
12.4	Level Transmitter for the MBR Tank with 4-20 m-A output.	Cirrus/ eqvt.	Set	1		0	Equivalent make to mention
12.5	Solenoid / Pneumatic Valves for auto operation of the Permeate pump and cleaning system.	Make : Aira/Uflow	Lot	1		0	
13	Pressure Gauge						
	Pressure Gauge range 0-4 Kg/cm2 MOC : SS, Glysrine Field	Make : H Guru / Eqvt	Nos	1		0	Equivalent make to mention
14	Treated Water Transfer Pumps						
14.1	Supplying and fixing of centrifugal treated water transfer						
	Capacity/Flow rate - 3 m3/h, Pumping Head - 25-30 Mtr	Wilo/CNP	Nos	2		0	
15	Control Panel for ETP						

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
	Supply and fixing of the following front operated out door panel totally enclosed sheet steel clad, free standing, dust and vermin proof, switchboards with IP 54 protection with hinged, gasketed and lockable doors for outdoor application. Panels shall be treated with all anticorrosive process before final painting as per specification. Including interconnections, copper crimping lugs, brass glands, suitable for use at 415 volts, 3 phase 4 wire 50 Hertz system, and complete as per specifications.						The Panel shall have at least spare - 2 Nos - Each - 3 Phase 4 Pole MCB of 63 amps and Single Phase 2 Pole
	All switchboards shall have provision for entry of cables from						
	INCOMING						
	1 No. 63 Amp 15 kA TPN MCCB with Thermal over load and magnetic short circuit release						
	Metering : Multifunction meter for Ampere, Voltage and Power						
	Make of component - Siemens/L&T/Schneider						
	BUSBAR						
	Electrolytic high conductivity aluminium three phase and						
	OUTGOING UNITS						

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
	Required Nos of suitable capacity TPN MPCB for direct on line starter/star delta starters and out going feeders to all the pumps/blowers etc. (including standbys). Each drive shall contain auto / manual selector switch and indicating lamp with MCB's for 'ON/OFF/TRIP' status of motor.	Eyecon Control Systems (CPRI Approved)	Set	1		0	
	The Switchboard shall be complete with all interconnections,		set	1		0	
15.1	Automation for MBR Module					0	
	Supply and fixing of the PLC based control panel with interlocking arrangement with supply		Each	1		0	
						0	
16	Cabling and Earthing		Lot	1		0	
16a	Electrical cabling laying, termination of each motor for STP						
16b	Supplying and laying 25 mm X 3 mm G.I strip, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required.						
17	Maintenance-free Chemical earthing for the structure with 80mm X 3 Meter GI Electrode with GI.Strip of size 25 X 3 mm along with necessary hygroscopic compound by digging up to 3 meter and refilling the same with soil and compound and covering with FRP Cover.For Panel		Lot	2		0	

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Sr. No.	Description of Items	Make	Unit	Qty	Rate	Amount (Rs.)	Remakrs
18	Supply, installation, testing & commissioning of Water Softener : Schedule of Tehnical details of MSRL Vessle Dia 550mm X1575 ht. Avg Flow Rate - 3 Cub Mtr Per Hour, Working Pr. MAx - 4 3.5 Kg/Sq. CM, Min Work ng Pressure - 2.0 Kg/ Sq. Cm, Salt Salt Regeneration - 30 Kg, Hardness - 50 PPM, Raw Water Hardness - 200 PPM. Resing qty - 200 Ltr, Resin - 200 Na Cation, Output Generation - 25 KL,		Lot	1			
18a	Other details - a. Mild steel pressure vessel, complete with internal distribution and collecting systems, painted externally with a coat of red-oxide primer and internally with rubber lining. b. Set of control valves, with all piping to inlet and outlet terminals. c. Sintex CV series brine tank (200 ltr), provided with brine suction piping with adjustable including clamp, hydraulic ejector and control valve. d. Charge of INDION 220 Na cation exchange resin with supporting underbid.						
19	Dismantling of tanks, piping and electro - mechanical equipment.		Job	1		0	
20	Salvage value of the Plant excluding Electro-Mechanical equipment		Lot	1		0	
			Total			0.00	
	GST					0.00	

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	Total with GST					0.00	