

## ***Section VII. Technical Specifications***

# Technical Specifications

Items	Specifications	Statement of Compliance	Annex
<p><i>Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. <b>Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence.</b> Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. <b>A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection.</b> A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.</i></p>			
<p><b>A. Replacement of Electro-Mechanical Equipment and Parts</b></p> <ol style="list-style-type: none"> <li>All Electro-Mechanical Works shall be done in accordance with the Standard Manufacturer’s recommendation for the material specification and workmanship execution.</li> <li>Bidders shall submit the brochure / material data sheet / manufacturer’s certification as proof of compliance for the following items 1 to 8:</li> </ol>			
1. Electromagnetic Flow Meter	3-inch diameter, Flange type, 220 VAC, 60 HZ, Accuracy: ±0.5%, ±2mm/s(flowrate<1m/s) Linear materials: PFA, F46, Neoprene, PTFE, FEP Two-way, fully isolated 0~10mA/4~20mA  Structure type: Tegral type or split type  Ingress protection: IP 65 / 68 (Optional)		
2. Submersible Pumps	2 HP, 220 VAC, 60 HZ. Non-clog, IP-68, direct couple, maximum head 7 meters.  160 liters/minute flow rate		
3. Fine bubble air diffusers	High quality EPDM membrane. Self-cleaning design prevents clogging and highly resistant to fouling.  Tensile strength 2000 PSI, Tear strength 110 Lb/linear inch, Ozone resistance Pass, UV resistance Pass, Durometer 60, Ultimate elongation 700%		
4. Automatic Dosing Pump Chlorinator	Solenoid dosing, solenoid-driven dosing pumps Flow rates: from 0.4 to 110 l/h Max back pressure: up to 20 bar Power supply: 100 - 240 Vac - 50/60 Hz Stroke rate: from 120 to 300 strokes/minute Pump head: PVDF Diaphragm: PTFE		

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5. Programmable Logic Controller System (PLC System)	16 inputs / 16 Outputs Relay, complete with PLC software including testing, commissioning and training		
6. Chlorinated Poly (Vinyl Chloride) (CPVC) thermoplastic pipe and fitting	Made with CPVC compounds meeting the requirements of ASTM Class 23447 as defined in ASTM Specification D1784.  Size: 2 /3 /4 inches X 20-feet long (various sizes)		
7. Grit Bar Screen	The bar screen may be coarse (2-4 inch openings) or fine (0.75-2.0 inch openings).  The bar screen may be manually cleaned or mechanically cleaned. Manual or mechanical cleaning		
8. Electrode Plate	300x600x3mm Thick Mild Steel Plates (360 pcs per set per semester) Complete with consumables.		
<b>B. Electrical Parts and Consumables</b>			
Bidders shall submit the brochure / material data sheet / manufacturer's certification as proof of compliance for the following items 1 to 28:			
1. Circuit Breaker	Tmax XT MCCB 3P 100A, Breaking Capacity 36 kA, Panel Mount		
2. Circuit Breaker	Acti 9 iC60H MCB, 3P Poles, 50A Curve D, 440V AC, 100 → 133V DC, 10 kA Breaking Capacity, MCB		
3. Circuit Breaker	3P Pole Isolator Switch - 100A Maximum Current		
4. Magnetic Contactor	TeSys LC1D Contactor, 110 V ac Coil, 3 Pole, 25 A, 5.5 kW, 3NO		
5. Overload Relay	- 1NO + 1NC, 23 → 32 A F.L.C, 32 A Contact Rating, 600 V, 3P, TeSys		
6. Illuminated Push Button	Green, 230V, 22mm		
7. Illuminated Push Button	Red, 230V, 22mm		
8. Selector Switch	2 Position Knob Selector Switch - (NO) 22mm Cutout Diameter		
9. Plastic Wire Duct	2" X 4"		
10. Terminal Blocks	for 3.5mm Cable		
11. TF wire	Blue, copper wire		
12. Level Probe	Electrode For Use with Conductive Level Controller		

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	Stainless Steel, Corrosion Resistant (SUS316)		
13. Conductive Level Controller	Number of Outputs: 1 Mounting Style : DIN Rail Probe Voltage : 8VAC Supply Voltage : 230VAC Dimensions (mm) : 49.4 L x 38 W x 80 D Min/Max Operating Temp.: -10 deg. / +55 deg.		
14. Socket for level controller	Voltage: 250VAC Mounting Type: DIN Rail Termination Type: Screw No. Of Contacts: 8 Current Rating: 10A		
15. THHN Wire	# 2 AWG		
16. Terminal Lugs	Y-Type		
17. Terminal Lugs	Pin Type		
18. Royal Cord	3 core, 5.5mm		
19. Control Wire	3 core, 2.0mm		
20. Interface Relay	Plug In Power Relay 230VAC Coil 8A Switching Current 4PDT 24 VAC, 4 PDT		
21. Socket (For Interface Relay)	6.2 mm PLC basic terminal block with screw connection, without relay or solid-state relay, for mounting on DIN rail NS 35/7,5, 1 changeover contact, input voltage 24 V D		
22. Analogue Volt Meter	96mm x 96mm cut-out Measurement input range: 0VAC to 300VAC Measurement frequency range: 15Hz to 100Hz		
23. Analogue Current Meter	68mm x 68mm cut-out AC Input range of 0A to 5A input 0A to 100A SC, CT Rating: 100/5A CT AC current frequency range : 15Hz to 400Hz.		
24. Current Transformer	Base Mounted Current Transformer, 100A Input Current Ratio100:5 5 A Output 30 x 10mm Bore		
25. DIN Rail	Steel For mounting industrial control equipment inside PCL racks and enclosures		

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26.     Wire Marker	Slide On Cable Markers Black on Yellow Pre-printed "0" 3.6 → 7.4mm Cable		
27.     Power Supply	230VAC 24VDC 10A,		
28.     Flat Bar	Steel 7" X 1/4" , For Fabrication		