

ACTIVITY / PRICE SCHEDULE

Activity schedule for the supply and delivery of material, repair, testing, and commission of the dipping tank system.

Item No.	Description	Qty	Unit Cost	Total Cost
1	Tank modification which includes cutting, welding, NDT of critical welds and leak testing.	1		
2	Hot-Dip Galvanizing of External Tank Surfaces	1		

3. Control System Restoration					
Item	Description	Specification Number	Qty	Unit Cost	Total Cost
Main Incoming Power Distribution					
3.1	Supply and install one (1) 400A, 3-pole, 415 VAC, Rotary Main Isolator, IP65 panel-mounted	26AC3040	1		
3.2	Supply and install three (3) Analog Ammeter, 0–1000A CT operated, AC, 96×96 mm, panel mount.	BEA05AT9/1000	3		
3.3	Supply and install three (3) 1000/5 A Current Transformers.	IBPI/10	3		
Heating Control System					
3.4	Supply and install one (1) SCR Power Controller.	DSH6-400	1		
3.5	Supply and install thirty-one (31) Circuit Breaker (MCB), 40 A, 1P, Type C Curve, 400 V AC, 6 kA Breaking Capacity	NF140A	31		
3.6	Supply and install thirty (30) Over-the-Side Heating Element, Stainless Steel, 1500 mm Length, 7 kW, 240 V AC	-	30		
Pump Motor Control and Protection					
3.7	Supply and install one (1) Motor contactor, 3-pole, AC-3, rated 9 A @ 400 V, coil 230 VAC	BF0910A230	1		

3.8	Supply and install one (1) Thermal overload relay, adjustment range ref 2.6A, trip class 10, manual/auto reset	RF380400	1		
3.9	Supply and install one (1) Motor contactor, 3-pole, AC-3, rated 9 A @ 400 V, coil 230 VAC.	BF0910A230	1		
3.10	Supply and install one (1) Sump Pump thermal overload relay, adjustment range ref 2.6A, trip class 10A, manual/auto res	RF380400	1		
Temperature Measurement and Control					
3.11	Supply and install one (1) Ramp/Soak PID Temperature Controller, Thermocouple/RTD Input, Analog + Relay Outputs, 230 V AC Supply, ≤10 Programs, ≤100 Seg	TTM-205-Q-GR-RRRYU	1		
3.12	Supply and install one (1) Type K Thermocouple, Stainless Steel Sheath, 200 mm Length, Threaded Mounting, Ø20 mm.	SJ105/K520B3	1		
3.13	Supply and install one (1) Temperature Transmitter Module, PID Temp Controller, Input (Thermocouple / RTD), Supply Voltage up to 260 V AC, SPDT Relay Control Output	TTM-04SP-B-AB	1		
3.14	Supply and install one (1) Main Tank RTD, PT100 RTD Temperature Sensor, 3-Wire, Stainless Steel Probe, 0–100 °C Range, 150 mm Length, 4–6 mm Diameter	-	1		
Level Measurement and Control					
3.15	Supply and install three (3) Liquid Level Controller, 230 VAC, Filling Control Logic, SPDT Relay Output, DIN Rail Mount.	LV1230A	3		
3.16	Supply and install one (1) Heating Tank Conductive Electrode Probe, 2-Rod Configuration, Stainless Steel, Threaded Mount male, Ø70 mm	-	1		
3.17	Supply and install one (1) Main Tank Conductive Level Probe, Conductive Electrode Probe, 5-Rod Configuration, Stainless Steel, Threaded Mount male, Ø70 mm	-	1		

Pressure Measurement					
3.18	Supply and install one (1) Circulation Line Pressure Transmitter, Universal Transmitter, mA/V/RTD Inputs, SPDT Relay Output, Auxillary supply 25 V DC	PR4116	1		
3.19	Supply and install one (1) Circulation Line Pressure Sensor Gauge Pressure Transmitter, 0–1 bar Range, Current/Voltage Output, 24 V DC Supply, Stainless Steel, Threaded Mount, Ø30 mm.	-	1		
Control Relays and Monitoring					
3.20	Supply and install five (5) Control Relay, 230 V AC Coil, 3 Changeover Contacts (3PDT / 3-Form C)	-	5		
3.21	Supply and install one (1) Single-Phase Current Load Monitor, Window Comparator Type, 5 A AC CT Input, SPDT Relay Output.	SP-120/SP-123	1		
3.22	Supply and install one (1) Current Transformer (CT), Ratio 20/5 A, Accuracy Class 1.	IBNP/20	1		
Process Control Equipment					
3.23	Supply and install one (1) Water Fill Solenoid Valve, (NC) Pilot-Operated Solenoid Valve, 230 V AC Coil, DN40, Stainless Steel	-	1		
Operator Indication					
3.3.24	Supply and install five (5) Green Panel Indicator Lights, 230 VAC panel indicator light approx. 60 cd/m ² brightness, and IP40 protection.	AD22-22DSG22	5		
3.25	Supply and install three (3) Yellow Panel Indicator Lights, 230 VAC panel indicator light approx. 60 cd/m ² brightness, and IP40 protection.	AD22-22DSY22	3		
3.26	Supply and install two (2) Red Panel Indicator Lights, 230 VAC panel indicator light approx. 60 cd/m ² brightness, and IP40 protection	AD22-22DSR22	2		
Panel Accessories					

3.27	Supply and install two (2) Axial Panel Cooling Fan, 230 V AC, 172 mm Diameter, Screw-fixed.	FF15A230UF	2		
3.28	Supply and install six (6) 10 m cable 1C x 95 mm ² flexible Cu XLPE (panel flex).	-	6		

4. Mechanical Piping					
Circulation Piping					
Item	Description	Qty			
4.1	Circulation Pump Supply and install one (1) Centrifugal Pump, 22.5 m³/h @ 5 m Head, DN65 Suction / DN50 Discharge, NPSHr<6.5, 0.55 kW Motor, Horizontal Close-Coupled, for Alkaline Solution.	1			
4.2	Pump Strainer Supply and install one (1) Basket-type strainer, DN65, PN10, flanged connection, stainless steel, fitted with a 3 mm perforated screen	1			
4.3	Suction Line connection flanges - Supply and install ASME B16.5 flanges, DN65, Class 150, Slip-On (SO) type, Raised Face (RF), 316L stainless steel. - This includes set connections between piping and the following components: - Pump - Pump strainer - Isolation valve - Isolation valve	12			
4.4	Gasket Supply and install ASME B16.21 ring gasket for ASME B16.5 Raised Face (RF) flanges, NPS 2½" (DN65), Class 150, PTFE material.	12			

	- This includes set connections between piping and the following components: - Pump - Pump strainer - Isolation valve - Isolation valve			
4.5	Buttweld elbows Supply and install 90° Long Radius Elbow, DN65 (NPS 2½"), buttweld ends, ASTM A312 TP316L SS, Sch 40 to accommodate the change of direction of the piping.	4		
4.6	Shutoff valve Supply and install two (2) Gate valve, NPS 2½" (DN65), ASME Class 150, RF flanged ends to ASME B16.5, body, bonnet and trim material 316L stainless steel.	2		
4.7	Isolation valve Supply and install full-port ball valve, NPS 2½" (DN65), ASME Class 150, RF flanged ends to ASME B16.5, body, ball and stem in 316L stainless steel, with PTFE seats.	2		
4.8	Pipes Supply and install approximately nine (9) metres of DN65 (NPS 2½"), Schedule 40 stainless steel pipe manufactured in accordance with ASTM A312 TP316L and ASME B36.19M, with plain ends	9 meter s		
4.9	Bolts Supply and install bolt set, stud bolt to ASTM A193, B7 / 2x hex. Nut to ASTM A194, GR 8, 2x washer to ASTM F436 (5/8" × 90)	48 set		
Sump Drain Piping				
Item	Description	Qty		
4.10	Sump pump	1		

	Supply and install submersible Pump, 7 m³/h @ 4 m Head, DN 50 Discharge flanged, 0.37 kW Motor, for Alkaline Corrosive Solution.			
4.11	Buttweld elbows Supply and install 90° Long Radius Elbow, DN50, buttweld ends, ASTM A312 TP316L SS, Sch 10s to accommodate the change of direction of the piping.	5		
4.12	Pipes Supply and install pipe, DN50, Sch 10s, ASTM A312 TP316L SS, ASME B36.19M, plain ends.	6 meter s		
4.13	Non-return valve Supply and install spring-assisted axial (silent) check valve, DN50, ASME Class 150, RF flanged ends to ASME B16.5, 316L stainless steel.	1		
4.14	Isolation valve Supply and install full-port ball valve, DN50, ASME Class 150, RF flanged ends to ASME B16.5, body, ball and stem in 316L stainless steel, with PTFE seats.	1		
4.15	Flanges Supply and install ASME B16.5 flanges, DN50, Class 150, Slip-On (SO) type, Raised Face (RF), 316L stainless steel.	6		
4.16	Gaskets Supply and install ASME B16.21 ring gasket for ASME B16.5 Raised Face (RF) flanges, DN50, Class 150, PTFE material.	4		
4.17	Bolts Supply and install bolt set, bolt set, stud bolt to ASTM A193, B7 / 2x hex. Nut to ASTM A194, GR 8, 2x washer to ASTM F436 (5/8" × 85)	24		

Item No.	Description	Qty	Unit Cost	Total Cost
5.	Supply and install 12 galvanised steel grating panels around the Dipping Tank pit.	12		
6.	Supply, fabricate, deliver and install twenty-two (22) L-support bracket assemblies in accordance with the fabrication Drawing No. DNR688D005.	22		
7.	Supply, fabricate, deliver and install eight (8) support angles in accordance with the fabrication Drawing No. DNR668D014	8		
8.	Supply, fabricate, deliver and install six (6) straight support brackets, in accordance with the fabrication Drawing No. DNR668D013.	6		
9.	Supply, deliver and install industrial extraction fan for the dipping Tank degreasing system	1		

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