

# TENDER SPECIFICATION

**BHEL: PSSR: SCT: 1449**

**FOR**

Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Controls & Instrumentation

at

**PHASE-III, MRPL 122MW CO-GEN  
CPP, MANGALORE, KARNATAKA**

## VOLUME - I I

**RATE SCHEDULE**



**BHARAT HEAVY ELECTRICALS LIMITED**

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

**BHARAT HEAVY ELECTRICALS LIMITED**  
**(A Government of India Undertaking)**  
**Power Sector, Southern Region**  
**690, Anna Salai, Nandanam, Chennai – 35**

**Tender Specification No. BHEL: PSSR: SCT: 1449**

for

Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Controls & Instrumentation for the MRPL Phase-III 122MW Co-Generation CPP at Mangalore, Karnataka

One set of Tender documents consisting of

- 1) TECHNOCOMMERCIAL BID - 2 copies
- 2) PRICE BID (Vol II) - 2 copies

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For and on behalf of  
**BHARAT HEAVY ELECTRICALS LIMITED**

**ADDL GENERAL MANAGER / CONTRACTS**

Place: Chennai -35

Date:

**VOLUME 2-MRPL PHASE III REFINERY- 122 MW CO-GENERATION CPP**

**RATE SCHEDULE FOR ERECTION, TESTING AND COMMISSIONING OF C&I PACKAGE**

*Before filling the Rates, the bidder shall go through the detailed specification of all the items given in the Bill of Materials(BOM) as well as Scope of Work specified*

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
<b>ERECTION/ COMMISSIONING OF C&amp;I CONTROL PANELS</b>							
1.	A.1.2.8	Local Burner Panel for HRSG	4 Nos.				
2.	A.2.4.1	Flame Scanner Panel	4 Nos.				
3.	A.2.4.2	FSSS Local Burner Control Box	8 Nos.				
4.	A.2.4.3	BMS PLC System Cabinet	12 Nos.				
5.	A.2.4.4	BMS PLC Marshalling Cabinet & PDB	60 Nos.				
6.	A.2.4.5	BMS Hardwired Console (Common for 4 UBs)	1 No.				
7.	C.5.1	Supervisory Control Panel for Dosing System	4 Nos.				
8.	D.1.1	Mark VI Gas Turbine Control Panel along with accessories	2 sets*				
9.	E.1.1.1	CO2 Fire Fighting Panel for GTGs	2 Nos.				
10.	E.1.1.2	GT Auxiliary Panel	2 Nos.				
11.	E.1.1.3	Inlet Air Filter Panel- Field Control Box	2 Nos.				
12.	E.3.2.1	Auxiliary Cabinet for GBC	1 No.				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
13.	E.4.1.14	Vibration Monitoring System Panels	2 Nos.				
14.	A.2.4.6, D.1.2, D.3.1	Computer Stations	17 sets*				
<b>ERECTION/ COMMISSIONING OF DCS PANELS</b>							
15.	D.2.1.1, D.2.2.1, D.3.2	Single cubicle panels	5 Nos.				
16.	D.2.1.2, D.2.2.2	Suite of Two cubicles	4 Nos.				
17.	D.2.3.1	Suite of Three Cubicles	2 Nos.				
18.	D.2.1.3, D.2.2.3	Suite of Four cubicles	4 Nos.				
19.	D.3.3	Wall mounted Network Station	1 No.				
<b>ERECTION/ COMMISSIONING OF LOCAL/FIELD INSTRUMENTS</b>							
20.	A.2.1.1, E.4.1.1	Mass Flow Meters/ Vortex Flow Meters along with accessories	18 sets*				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
21.	A.1.1.1, A.2.1.2, A.2.3.1, B.1.1, C.1.1, E.2.1.1, E.3.1.1, E.4.1.2, E.2.1.2, E.3.1.2, E.4.1.3	Pressure/ DP Gauges	814 Nos.				
22.	A.1.1.2, A.2.1.3, C.1.2, E.2.1.3, E.4.1.4, B.2.2	Temperature Gauges with thermowell (stem/ capillary type)	410 Nos.				
23.	E.2.1.12, E.3.1.6	Level Gauges	10 Nos.				
24.	B.1.5	Thermocouple Assembly for APH	4 sets*				
25.	E.1.2.4, E.2.1.8	Pressure/ DP Switches	26 Nos.				
26.	E.1.2.5	Level Switches (float type)	10 Nos.				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
27.	A.2.2.5, A.2.1.7, A.2.3.2, B.1.4, B.2.1, E.2.1.9, E.3.1.12, E.4.1.5, A.2.2.6, A.1.1.5, A.2.3.3, C.1.6, E.2.1.10, E.3.1.11, E.4.1.6	RTDs/ Thermocouples along with thermowell	474 Nos.				
28.	A.1.1.6, A.2.3.4	MTM Thermocouples 10 Mtr to 20 Mtr	204 Nos.				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
29.	A.1.1.3, A.2.1.4, A.2.2.1, A.2.3.6, B.1.2, C.1.3, E.2.1.4, E.3.1.3, A.2.1.5, A.2.2.2, C.1.4, E.1.2.6, E.2.1.5, E.3.1.4, A.2.3.7, C.1.5, E.2.1.6, E.3.1.7, A.2.1.6, A.2.2.3, A.2.3.8, E.3.1.8, A.2.2.4, A.2.3.5, B.1.3, B.2.3, E.3.1.5, E.2.1.7, A.1.1.4, E.4.1.7, E.4.1.8	Pressure/ DP/ Temperature Transmitters (HART + Fieldbus)	1419 Nos.				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
30.	E.4.1.10	Temperature Transmitters/ Multiplexer (HART+ Fieldbus)	90 Nos.				
31.	E.4.1.11	Radar Level Instruments/ Level Transmitters (HART+ Fieldbus)	12 Nos.				
32.	E.4.1.9	Level transmitters (Displacement Type)	16 Nos.				
33.	E.3.1.9	Position Transmitters	6 Nos.				
34.	A.2.1.10, E.4.1.12	Air Filter Regulators	94 Nos.				
35.	E.2.1.13, E.3.1.10	I/P Converters	16 Nos.				
36.	A.2.1.9	Speed Regulators/ Air Lock Valves/Air sets	32 sets*				
37.	E.1.2.1, E.2.1.11	Solenoid valves	160 Nos.				
38.	A.1.1.7, A.2.1.8	Flame Scanners (UV/ IR Type) along with accessories	91 sets*				
39.	E.1.2.2	Vibration Sensors (seismic)	20 Nos.				
40.	E.1.2.3	Shaft Vibration Sensors	28 Nos.				
41.	E.1.2.7	Hazardous Gas Detectors	10 Nos.				
42.	E.1.2.8	UV Detectors	10 Nos.				
43.	B.1.6	Rotor Stoppage System with accessories	8 sets*				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
44.	B.1.7	ON/OFF Switch Box including light assembly	4 sets*				
45.	E.1.1.5	CO2 Fire Protection System along with accessories	2 sets*				
46.	E.2.1.14	Speed Measuring Loop with accessories	12 sets*				
47.	A.2.2.9	Vibration Monitoring System (VMS) for FD Fans	4 sets*				
48.	E.1.1.4	Vibration monitoring System for GTG	2 sets*				
49.	E.4.1.15	Vibration Monitoring System for Pumps	1 set*				
50.	E.2.1.15	TSI System for STG	2 sets*				
51.	E.3.2.2	TSI Monitoring System for GBC	2 sets*				
52.	E.4.1.16	Reverse Rotation Monitoring System for BFPs, along with accessories	1 set*				
53.	E.4.1.13	BOP SWAS Analyser, along with accessories	1 set*				
54.	A.1.2.1	EWLI for HRSG, along with accessories	4 sets*.				
55.	A.2.3.9	EWLI for Utility Boilers, along with accessories	8 sets*				
56.	A.1.2.2	Smoke Density Analyser, along with accessories (at a height of around 31 Mtrs on HRSG Stack)	2 Nos.				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
57.	A.1.2.3	Oxygen Analyser, along with accessories (at a height of around 31 Mtrs on HRSG Stack)	2 Nos.				
58.	A.1.2.4	SOX/NOX Analyser (dilution type), along with accessories	2 Nos.				
59.	A.1.2.5	UHC/CO Analyser, along with sample handling system and other accessories	2 Nos.				
60.	A.1.2.6	Analyser Shelter for Analysers	2 Nos.				
61.	A.1.2.7	SWAS Analyser, along with accessories for HRSG	2 sets*				
62.	A.2.3.10	SWAS Analyser, along with accessories for Utility Boiler	4 sets*				
63.	A.2.2.10	Oxygen Analyser, along with accessories	8 sets*				
64.	A.2.2.11	SPM Analyser, along with accessories (to be installed @ 18 Mtrs in chimney)	4 sets*				
65.	A.2.2.12	SOX/NOX Analyser, along with accessories (to be installed @ 18 Mtrs in chimney)	4 sets*				
66.	A.2.2.13	CO/HC Analyser, along with accessories (to be installed @ 18 Mtrs in chimney)	8 sets*				
67.	F.1	Plant Communication System	1 set*				
68.	F.2	Fire Alarm System	1 set*				

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
69.	D.2.4.2, D.2.4.3	24 point recorder/ 2 pen recorder	4 Nos.				
<b>REMOVAL, CALIBRATION AND RE-FIXING OF INSTRUMENTS</b>							
70.	E.1.3.12, E.1.3.13	Pressure/ DP Gauges	80 Nos.				
71.	B.2.4, E.1.3.11	Temperature Gauges	26 Nos.				
72.	E.1.3.5	Pressure/DP transmitters	8 Nos.				
73.	E.1.3.3	Pressure/ DP Switches	67 Nos.				
74.	E.1.3.2	Temperature Switches	27 Nos.				
75.	E.1.3.4	Limit Switches	30 Nos.				
76.	E.1.3.7	Thermocouples (including exhaust thermocouples)	100 Nos.				
77.	E.1.3.6	Magnetic Pickups	22 Nos.				
78.	E.1.3.8	Temperature-rise type fire detectors	23 Nos.				
79.	E.1.3.9	Fire Detectors (RTDs for generator)	26 Nos.				
80.	E.1.3.10	LVDTs	6 Nos.				
81.	E.1.3.14	Ignitor with Excitor probes	4 Nos.				

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
<b>ERECTION/ TESTING OF IMPULSE PIPES</b>							
82.	A.2.2.8, E.1.4.5, E.2.3.1, E.3.3.5, E.4.2.1	12.7 mm OD SS tubes	3900 Mtrs				
83.	E.3.3.1	SS Pipe, 21.3 x 2.8 mm	400 Mtrs				
84.	E.4.2.2	SS Pipe, 21.3 x 3.7 mm	3200 Mtrs				
85.	E.3.3.2, E.4.2.3	SS Pipe, 33.4 x 3.4 mm	2100 Mtrs				
86.	E.3.3.3	SS Pipe 60.3 x 2.8	100 Mtrs				
87.	A.1.4.1	½" SCH40 CS pipe	340 Mtrs				
88.	A.1.4.2, A.2.8.1, C.3.1, E.2.3.3	½" SCH 80 (21.3 x 3.73) CS pipe	4580 Mtrs				
89.	A.2.8.2, C.3.2, E.4.2.5	½" SCH 160/ 21.3 x 4.74 CS pipe	3300 Mtrs				
90.	A.1.4.3, E.2.3.4	½" SCH 80 (21.3 x 3.73) AS pipe	400 Mtrs				
91.	E.4.2.6, A.2.8.3	½" SCH 160/ 21.3 x 4.74 AS pipe	3000 Mtrs				

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
				In figures	In words	In figures	In words	
		<b>ERECTION/ TESTING OF INSTRUMENT RACKS/ LOCAL GAUGE BOARDS</b>						
92.	A.1.3.1	Transmitter Rack (LIR) of various sizes from 1800 x 650 x 2150 mm to 1000 x 650 x 2150 mm	16 Nos.					
93.	A.1.3.2, E.2.2.1	Local Gauge Board of sizes from 1100 x 650 x 1800 mm to 1700 x 650 x 2000 mm	14 Nos.					
		<b>ERECTION OF COPPER/ SS TUBES</b>						
94.	A.2.1.11	Copper Tube – 8 mm OD/ ¼”	280 Mtrs					
95.	A.2.2.7, A.1.5.3, E.1.4.4, E.2.3.2, E.3.3.4, E.4.2.4	6 mm/ ¼” OD SS tube	8820 Mtrs					
		<b>ERECTION/ TESTING OF INSTRUMENT AIR LINE - HEAVY DUTY GI PIPES / SS PIPES</b>						
96.	A.1.5.2, C.4.4	GI pipe, 1/2" / NB 15 x 3.25 mm	6300 Mtrs					
97.	A.1.5.1, C.4.3	GI pipe, 1" / NB 25 x 4.05 mm	2200 Mtrs					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
				In figures	In words	In figures	In words	
98.	C.4.2	GI pipe, NB 50 x 4.5 mm	1400 Mtrs					
99.	C.4.1	GI pipe, NB 80 x 4.85 mm	800 Mtrs					
100.	E.4.2.7	1" SS Pipe	2000 Mtrs					
		<b>ERECTION/ COMMISSIONING OF PNEUMATIC POWER CYLINDERS (REGULATING TYPE)</b>						
101.	A.2.2.15.1	Regenerative Air Heater Bypass Damper	4 Nos.					
102.	A.2.2.15.2	FD Fan Control Dampers	8 Nos.					
		<b>ERECTION/ COMMISSIONING OF PNEUMATIC POWER CYLINDERS (ON/ OFF TYPE)</b>						
103.	A.2.2.14	Scanner Air Fan Emergency Damper	4 Nos.					

SIGNATURE OF BIDDER

SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
<b>LAYING, TERMINATION &amp; TESTING OF CABLES</b>							
104.	A.1.6.1, A.2.5.2, E.1.5.1, E.3.6.1, E.4.3.1, E.4.3.2, A.2.5.5, E.1.5.7, E.4.3.7	1P x 1.5 sq. mm/ 1T x 1.5 sq. mm Cables	1,74,800 Mtrs				
105.	A.1.6.2, A.1.6.5, A.2.5.1, D.2.5.1, E.4.5.1	Flame Scanner Cable/ 2P x 0.5 sq. mm/ 1.5 sq. mm Cables	36,300 Mtrs				
106.	E.3.6.3, D.2.5.2, E.4.5.2	2T/ 4 P x 0.5 sq. mm/ 1.5 sq.mm cables	11,500 Mtrs				

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				In figures	In words	In figures	In words
107.	A.1.6.3, A.1.6.6, A.2.5.3, E.1.5.2, E.1.5.3, E.1.5.4, E.3.6.2, E.3.6.5, E.4.3.3, E.4.3.4	6P x 0.5 sq. mm/ 1.5 sq.mm cables	1,33,550 Mtrs				
108.	A.1.6.4, A.1.6.7, A.2.5.4, E.1.5.5, E.1.5.6, E.4.3.5, E.4.3.6, E.1.5.8, E.3.6.4, E.4.3.8	8T/ 12P x 0.5/ 1.5 sq. mm cable	1,71,500 Mtrs				
109.	E.4.5.3	20P x 0.5 sq. mm cable	4000 Mtrs				
110.		10 T x 0.5 sq. mm cable	500 Mtrs				
111.	D.2.5.3, D.3.5	4 C / 5 C x 1.5 sq. mm cables	950 Mtrs				
		<i>Compensating Cables</i>					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
112.	E.1.5.9, E.4.3.9	1P Thermocouple Extension Cables	12,700 Mtr				
113.	A.2.5.6, D.2.5.4	2P Thermocouple Extension Cables	6000 Mtrs				
114.	E.1.5.10	4P/ 6 P Thermocouple Extension Cable	2000 Mtrs				
115.	E.1.5.11, E.4.3.10	12 P Thermocouple Extension Cable	18,000 Mtrs				
		<i>Special Cables</i>					
116.	D.3.4, E.4.7.1	Ethernet cables	10,000 Mtrs				
117.	A.1.6.9, E.4.3.11	Fibre Optic Cables (laying only)	8,400 Mtrs				
		<i>Telephone Cables</i>					
118.	E.4.6.1	2 P x 0.9 sq. mm Non Intrinsic Safe	9000 Mtrs				
119.	E.4.6.2	4 P x 0.9 sq. mm Non Intrinsic Safe	5000 Mtrs				
120.	E.4.6.3	10 P x 0.9 sq. mm Non Intrinsic Safe	4000 Mtrs				
121.	E.4.6.4	20 P x 0.9 sq. mm Non Intrinsic Safe	4000 Mtrs				

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
				In figures	In words	In figures	In words	
		<b>INSTALLATION &amp; COMMISSIONING OF FIELDBUS DEVICES AND CABLES</b>						
122.	E.4.4.1	Field Bus Cables from Transmitter to JB :SPUR	40,000 Mtrs					
123.	E.4.4.2	Field Bus Cables from JB to DCS Panels	40,000 Mtrs					
124.	A.1.6.8	Type A 16 AWG Fieldbus Cable	7500 Mtrs					
125.	E.4.4.3	Field Bus- 8 way Mega Block	150 Nos.					
126.	E.4.4.4	Field Bus-12 way Mega Block (FF JB)	400 Nos.					
127.	E.4.4.5	Field Bus- 8 way temperature multiplexer	100 Nos.					
128.	E.4.4.6	Field Bus- Surge Protection Device with terminators	400 Nos.					
129.	E.4.8.2	Field bus Temperature multipoint transmitters (mux)	16 Nos.					
130.	E.4.8.3	Field bus Power Supply Units	250 Nos.					
		<b>ERECTION OF CABLE TRAYS ALONG WITH ACCESSORIES</b>						
131.	A.1.7.1, A.2.7.1, E.3.4.1, E.4.9.2	50 mm Perforated type Tray	4100 Mtrs					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
				In figures	In words	In figures	In words	
132.	A.1.7.2, A.2.7.2	100 mm Perforated type Tray	2200 Mtrs					
133.	A.1.7.3, A.2.7.3, E.3.4.2, E.4.9.1	150 mm Perforated type Tray	4025 Mtrs					
134.	A.1.7.4, E.3.4.3	300 mm Perforated type tray	965 Mtrs					
		<i>Cable Ducts with Covers (GI Solid Bottom)</i>						
135.	D.2.6.1	60 x 60 x 1000 mm	200 Nos.					
136.	D.2.6.2	180 x 100 x 1000 mm	200 Nos.					
137.	D.2.6.3	250 x 100 x 1000 mm	200 Nos.					
		<b>ERECTION OF JUNCTION BOXES/ PUSH BUTTON BOXES</b>						
138.	A.1.8.1, A.2.9.3	Push Button Boxes	24 Nos.					
139.	A.1.8.2, A.2.9.1, C.2.1, C.2.2, E.4.10.3	Junction Boxes: 12 way to 36 way (including CJCB)	410 Nos.					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
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140.	A.1.8.2, A.2.9.2, D.2.4.1	Junction Boxes: 48 way to 96 way	390 Nos.					
141.	A.1.8.3, E.4.8.1	Fieldbus Junction Boxes	277 Nos.					
		<b>FABRICATION/ ERECTION OF STRUCTURAL STEEL</b>						
142.	A.1.9.1, A.2.11.1, E.2.4.1, E.3.5.1, E.4.10.1	Structural Steel for fabrication (Angles, Channels etc.) of supports, racks etc.	45 MT					
		<b>ERECTION OF ABOVE GROUND EARTHING MATERIALS</b>						
143.	A.1.10.3, A.2.10.4	GI wire 8 SWG	4650 Mtrs					
144.	A.2.10.5	GI Wire, 6 sq.mm	8000 Mtrs					
145.	A.2.10.6	GI Wire, 3/8" Stranded	1600 Mtrs					
146.	A.1.10.2, A.2.10.1	GI Flat, 25 x 3 mm	5000 Mtrs					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
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147.	A.1.10.1, A.2.10.2	GI Flat, 50 x 6 mm	4550 Mtrs					
148.	A.2.10.3	GI Flat, 75 x 10 mm	6000 Mtrs					
		<b>MISCELLANEOUS WORKS</b>						
149.	E.4.10.2	GI Pipe, 2" for transmitter and JB mounting & support set up	2000 Mtrs					
150.	E.1.4.1	Conduits (1/2" / 1" / 1 1/2" / 2") along with PTFE Cable to be run in conduits between on-base instruments/ JB's to external JB's	475 Mtrs					
151.	E.1.4.2	1" / 1/2" conduits for wiring solenoids	100 Mtrs					
152.	E.1.4.3	Wiring in rigid GI conduit for solenoid valves to Junction Box and local panel with 1 C x 2.5 sq. mm wire	600 Mtrs					
153.	A.1.6.10	HDPE Conduit (for Fibre Optic Cables)	2400 Mtrs					
154.	E.1.4.6	Fixing of fire detectors (RTDs) in GT enclosure/ off base enclosures, running of approx. 20 Mtrs 1" GI pipe with supports, wiring with PTFE for fire detectors	25 Nos.					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT		
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155.	E.1.4.7	Fixing of 4 Nos. fire detectors in GT offbase enclosure, running of approx. 20 Mtrs 1" GI pipe with supports, wiring with PTFE for fire detectors	2 sets*					
		<b>COMMISSIONING OF THE FOLLOWING ERECTED AS PART OF MECHANICAL WORKS</b>						
156.	A.1.11.1, C.6.1	HP dosing skids	6 sets \$					
157.	A.2.12.2, E.1.6.1, E.2.5.1, E.3.7.1, E.4.11.1	Pneumatic Valves: Control Valves	174 Nos. \$					
158.	A.2.12.1, E.4.11.2	Pneumatic Valves: On/Off Type	220 Nos. \$					
159.	B.1.8.1, E.1.3.1, E.3.7.2	Solenoid Valves	42 Nos. \$					
160.	B.1.8.2, B.2.5.3	Lub Oil Skids for Air Preheater/ Fans	8 sets* <sup>\$</sup>					
161.	A.1.11.2, E.4.11.3, E.4.11.4	Flow Meters/ Annubars/ Rotameters	18 Nos. \$					

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SL. NO.	BOM REF.	DESCRIPTION	Quantity	UNIT RATE		TOTAL AMOUNT	
				In figures	In words	In figures	In words
162.	A.2.2.16.1, A.2.2.16.2	Pneumatic Dampers (On/Off Type)	72 Nos. \$				
163.	A.2.3.11	Direct Water Level Gauges	8 Nos. \$				
164.	A.2.12.3, E.3.7.3	Limit Switches (checking only)	52 Nos. \$				
165.	B.2.5.1, E.2.5.3	RTDs (Checking only)	96 Nos. \$				
166.	B.2.5.2	Temperature Transmitters (Checking only)	32 Nos. \$				
167.	E.2.5.2	Governing Console Board	2 Nos. \$				
168.	E.3.7.4	Lub Oil Heater/ Oil Centrifuge System	1 set*\$				
169.	E.3.7.5	Seal Gas Skids (Filter & Control) for GBC	2 sets*\$				
		<b>Total</b>					

Note.

The quantity indicated is approximate only and is liable for variation.

Payment will be released as per actual quantum of work executed.

\$ Rate is to be quoted only for checking/ commissioning

\* Lump sum rate is to be quoted per set

SIGNATURE OF BIDDER