

TENDER SPECIFICATION

BHEL:PSSR:SCT: 1179

FOR

Handling at Site Stores / Storage yard,
Transportation to Site of Work, Erection,
Testing and Commissioning of Control &
Instrumentation package of Unit 3 & 4 of
2 X 210 MW set, Stage -II

at

RAYALASEEMA THERMAL POWER PROJECT

(Muddanur) V.V. Reddy Nagar
Kalamalla Post , Cuddapah District ,
Andhra Pradesh.

PART – II PRICE BID

BOOK NO :



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:1179

NAME OF WORK

Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Control & Instrumentation package of Unit 3 & 4 of 2 x 210 MW set Stage –II at Rayalaseema Thermal Power Project , Muddanur, V.V. Reddy Nagar, Kalamalla Post, Cuddapah District, Andhra Pradesh.

(PRICE BID)

PART II

Issued to
M/s.

For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

Senior Deputy General Manager/Contracts

(This tender document is not transferable)

Place: Chennai-600 035.

Date:

SECTION – VIII - APPENDIX – IV- B

RATE SCHEDULE

FOR CONTROLS & INSTRUMENTATION PACKAGE

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

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS							
1.	A.1.1	PD Type Flow meter	1 set*	1 set*	2 sets*		
2.	A.1.2, A.2.1, A.3.1, A.4.1, B.1.1, C.1.1, D.3.3.1, E.2.2, F.3.2, G.1.2.1, G.2.1.3, G.2.7.2, H.1.1	Pressure Gauges	320 Nos.	320 Nos.	640 Nos.		
3.	A.1.3, D.3.3.11, F.3.3	DP Gauges	13 Nos.	13 Nos.	26 Nos.		
4.	F.1.2	Flow Transmitter (Annubar type)	2 sets*	2 sets*	4 sets*		
5.	B.1.6	Thermocouple Assembly for APH	4 sets*	4 sets*	8 sets*		
6.	D.3.3.3, G.1.2.8, G.2.1.10	Thermocouples with thermowell	197 Nos.	197 Nos.	394 Nos.		
7.	A.4.3.1	MTM T/Cs of route length 10 to 12 Mtrs (6 mm OD)	32 Nos.	32 Nos.	64 Nos.		
8.	A.4.3.2	MTM T/Cs of route length 14 to 16 Mtrs (6 mm OD)	70 Nos.	70 Nos.	140 Nos.		
9.	A.4.3.3	MTM T/Cs of route length 18 Mtrs (6 mm OD)	12 Nos.	12 Nos.	24 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ERECTION/COMMISSIONING OF LOCAL/ FIELD MOUNTED INSTRUMENTS						
10.	A.1.4, B.1.2, B.2.2, C.1.2, D.3.3.4, E.2.3, G.1.2.2, G.2.1.4, G.2.7.3, G.2.7.4, H.1.2	Temperature Gauges with thermowell (stem/ capillary type)	269 Nos.	269 Nos.	538 Nos.		
11.	B.1.3, B.2.1, D.3.3.2, E.1.1.1, E.3.1, G.1.2.7, G.2.1.9	RTDs along with thermowell	270 Nos.	270 Nos.	540 Nos.		
12.	A.1.6, A.2.2, A.3.3, A.4.2, B.1.5, D.1.2.1, F.3.6, G.1.2.4, G.2.1.5	Pressure Switches	102 Nos.	102 Nos.	204 Nos.		
13.	A.1.5, A.2.3, A.3.2, D.1.2.2, F.3.5, G.2.1.6	DP Switches	33 Nos.	33 Nos.	66 Nos.		
14.	A.1.7, B.1.4, G.1.2.6	Temperature Switches	10 Nos.	10 Nos.	20 Nos.		
15.	C.1.3, D.3.3.7, E.2.1, E.3.3, G.2.7.1, H.1.3	Level Switches (float type)	78 Nos.	78 Nos.	156 Nos.		
16.	G.1.2.5	Level Switches (capacitance type)	10 Nos.	10 Nos.	20 Nos.		
17.	G.2.1.7	Level Switches with amplifier, bar probe including interconnecting cable	3 sets*	3 sets*	6 sets*		
18.	D.3.3.9, G.1.2.3, G.2.1.1	Pressure Transmitters	130 Nos.	130 Nos.	260 Nos.		
19.	D.3.3.10, F.3.4, G.2.1.2	DP Transmitters	125 Nos.	123 Nos.	248 Nos.		
20.	D.3.3.8	Displacer Type Level Transmitter	12 Nos.	12 Nos.	24 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
21.	G.2.1.8	Level transmitters with amplifier, bar probe	3 sets*	3 sets*	6 sets*		
	ERECTION/COMMISSIONING OF LOCAL/ FIELD MOUNTED INSTRUMENTS						
22.	G.2.1.13	Position Transmitters	6 Nos.	6 Nos.	12 Nos.		
23.	A.3.4	Pneumatic Pressure Controller including 1 No. Pneumatic Transmitter, 2 Nos. Air Filter Regulators etc.	1 set*	1 set*	2 sets*		
24.	G.2.1.11	Speed Sensors	4 Nos.	4 Nos.	8 Nos.		
25.	A.1.13	Speed Regulator/ Air Lock Valves	12 sets*	12 sets*	24 sets*		
26.	D.1.2.3, D.3.3.5	I/P Converter	46 Nos.	46 Nos.	92 Nos.		
27.	A.1.15, A.2.4, A.3.5, D.1.2.4, D.3.3.6	Air Filter Regulators	77 Nos.	77 Nos.	154 Nos.		
28.	A.1.12	Solenoid Valves, 3 way	47 Nos.	47 Nos.	94 Nos.		
29.	A.3.6	Purge Meters cum DP Regulators	12 Nos.	12 Nos.	24 Nos.		
30.	A.1.8	Flame Scanner Head Assembly	20 sets*	20 sets*	40 sets*		
31.	A.1.10	FSSS Local Oil Gun Maintenance Switch Box	12 Nos.	12 Nos.	24 Nos.		
32.	A.1.11	H.E.A. Excitor box Assembly with accessories	12 sets*	12 sets*	24 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
33.	A.2.8	Burner Tilt Shear Pin Failure Indication Box	4 Nos.	4 Nos.	8 Nos.		
34.	A.2.9	Heavy Duty Limit Switch (for Burner Tilt)	12 Nos.	12 Nos.	24 Nos.		
ERECTION/COMMISSIONING OF LOCAL/ FIELD MOUNTED INSTRUMENTS							
35.	A.4.6	Electronic Water Level Indicator along with Display Units, Ascetor Cabinet and other accessories	1 set*	1 set*	2 sets*		
36.	A.4.7	Steam leak detection system along with Panel and other accessories	1 set*	1 set*	2 sets*		
37.	A.4.5	ERV Controller with Pressure Switch	1 set*	1 set*	2 sets*		
38.	B.1.7	Rotor Stoppage Alarm System with accessories	2 sets*	2 sets*	4 sets*		
39.	B.1.8	ON/OFF Switch Box including light assembly	2 sets*	2 sets*	4 sets*		
40.	A.1.9	5 Nos. Flame scanner amplifier (19" Racks)	1 set*	1 set*	2 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
41.	A.2.10	Vibration Monitoring System for Fans & Mills, along with 64 sets of Horizontal/ vertical velocity type pick-ups, 2 Nos VMS Remote Cabinets and other accessories.	1 set*	1 set*	2 sets*		
42.	E.1.3	Vibration Monitoring System for BFPs & CEPs Along with 18 Nos. probes, monitor and other accessories.	1 set*	1 set*	2 sets*		
43.	D.3.5.1	Low temperature O2 Analyser along with Electronic Unit and other accessories	2 sets*	2 sets*	4 sets*		
	ERECTION/COMMISSIONING OF LOCAL/ FIELD MOUNTED INSTRUMENTS						
44.	D.3.5.2	High temperature application O2 analyser Along with ZIRCONIA probe and other accessories	2 sets*	2 sets*	4 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
45.	D.3.5.3	SO2/NOX/CO Analyzer system along with Sample Handling System Along with 1 No. local analyser panel and other accessories The analyzer is to be installed at 88 ML of chimney.	1 set*	1 set*	2 sets*		
46.	D.3.6.1	Steam and water analysis system consisting of: Primary Cooler Racks: 2 Nos. Chiller Unit : 1 No. Wet Panel: 1 No. Dry panel: 1 No. Sensors/ analysers and other accessories	1 set*	1 set*	2 sets*		
47.	A.4.8	Furnace CCTV System along with 1 No. Local Control Unit and other accessories	1 set*	1 set*	2 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ERECTION/ COMMISSIONING OF UCB/ CONTROL ROOM MOUNTED INSTRUMENTS						
48.	D.3.4.1, D.3.4.2, G.1.4.1	Digital Indicators / Bar Graph Indicators	14 Nos.	14 Nos.	28 Nos.		
	REMOVAL, CALIBRATION, REFIXING AND COMMISSIONING OF INSTRUMENTS						
49.	E.1.2.6, G.1.3.5	Level Switches	5 Nos.	5 Nos.	10 Nos.		
50.	E.1.4.7, G.1.3.4	Pressure Switches	4 Nos.	4 Nos.	8 Nos.		
51.	E.1.2.1, E.1.4.4, G.1.3.1	Pressure Gauges	53 Nos.	53 Nos.	106 Nos.		
52.	E.1.2.2, E.1.4.5	DP Gauges	9 Nos.	9 Nos.	18 Nos.		
53.	B.2.3, E.3.2, E.1.2.3, E.1.4.6, G.1.3.2	Temperature Gauges	97 Nos.	97 Nos.	194 Nos.		
54.	E.1.2.4, E.1.4.8, G.1.3.3	Pressure Transmitters	19 Nos.	19 Nos.	38 Nos.		
55.	E.1.2.6, E.1.4.9	DP Transmitter with Indicator	9 Nos.	9 Nos.	18 Nos.		
	ERECTION/COMMISSIONING OF PNEUMATIC POWER CYLINDERS (REGULATING TYPE)						
56.	A.2.11.1	FD Fan Blade Pitch Control Power Cylinder	2 Nos.	2 Nos.	4 Nos.		
57.	A.2.11.2	Power Cylinders for SADC / Over Fire Air Damper	56 Nos.	56 Nos.	112 Nos.		
58.	A.2.11.3	Burner Tilt Power Cylinders	4 Nos.	4 Nos.	8 Nos.		
59.	A.2.11.4	ID Fan Inlet Damper	2 Nos.	2 Nos.	4 Nos.		
60.	A.2.11.5	PA Fan Blade Pitch Control Damper	2 Nos.	2 Nos.	4 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
61.	A.2.11.6	Hot Primary Air Regulating Damper	6 Nos.	6 Nos.	12 Nos.		
62.	A.2.11.7	Cold Primary Air Regulating Damper	6 Nos.	6 Nos.	12 Nos.		
63.	A.2.11.8	Dynavane Filter Bleed Air Damper	1 No.	1 No.	2 Nos.		
ERECTION/COMMISSIONING OF PNEUMATIC ACTUATORS (ON/OFF TYPE)							
64.	A.2.12.1, A.2.12.2	Scanner Air Emergency Damper, Seal Air to Pulveriser Damper	7 Nos.	7 Nos.	14 Nos.		
ERECTION/COMMISSIONING OF MASTER SLAVE CLOCK SYSTEM							
65.	D.3.7.1	Master clock control panel	1 No.	--	1 No.		
66.	D.3.7.2	Slave clocks	2 Nos.	2 Nos.	4 Nos.		
ERECTION/COMMISSIONING OF MAIN UPS WITH ACDB AND BATTERY							
67.	D.3.8.1	2 x 40 KVA UPS with ACDB	2 sets*	2 sets*	4 sets*		
68.	D.3.8.2	UPS Battery	2 sets*	2 sets*	4 sets*		
ERECTION/COMMISSIONING OF 24 V DC BATTERY & CHARGER							
69.	D.3.9.1	26V DC Battery for SG/TG and BOP	4 sets*	4 sets*	8 sets*		
70.	D.3.9.2	24V DC Battery Charger with DCDB for SG/TG and BOP	4 sets*	4 sets*	8 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
71.	D.3.9.3	24V DC Battery for CW Pump	2 sets*	--	2 sets*		
72.	D.3.9.4	24V Battery Charger for CW Pump	2 sets*	--	2 sets*		
	ERECTION/COMMISSIONING OF PANELS						
73.	A.3.7	Gravimetric Feeder Panel	6 Nos.	6 Nos.	12 Nos.		
74.	C.2.1	Electrical Heat Tracer Panel	2 Nos.	1 No.	3 Nos.		
75.	F.1.1	PLC panel for Plant Water system, along with accessories	1 No.	--	1 No.		
	ERECTION/COMMISSIONING OF PANELS						
76.	F.3.1	PLC panel for Tube Cleaning system, along with accessories	1 No.	1 No.	2 Nos.		
77.	G.1.1.1	Generator Instrumentation Cabinet	1 No.	1 No.	2 Nos.		
78.	G.1.1.2	Gas Analyser Cabinet including sensors, analysers etc.	1 No.	1 No.	2 Nos.		
79.	G.1.1.3	Annunciation Cabinet	1 No.	1 No.	2 Nos.		
	ERECTION/COMMISSIONING OF MMIPIS (DCS System)						
80.	D.1.1.1, D.2.1.1, D.3.1.3	Single Cubicle	14 Nos.	14 Nos.	28 Nos.		
81.	D.1.1.2, D.2.1.2, D.3.1.1, D.3.1.2	Suite of Two Cubicles	25 Nos.	25 Nos.	50 Nos.		
82.	D.1.1.3, D.2.1.3	Suite of Three Cubicles	4 Nos.	4 Nos.	8 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
83.	D.1.1.4	Suite of Four Cubicles	1 No.	1 No.	2 Nos.		
84.	D.3.2.1, D.3.2.2	Unit Control Panel with mosaic tiles	2 Nos.	2 Nos.	4 Nos.		
85.	D.3.2.3	Generator Recorder Panel	1 No.	1 No.	2 Nos.		
86.	D.4.1	Unit Control Desk	1 set*	1 set*	2 sets*		
87.	D.4.2	67" Large Video Screen along with CPU and other loose supplied items	2 sets*	2 sets*	4 sets*		
ERECTION/COMMISSIONING OF MMIPIS (DCS System)							
88.	D.4.3	Computer Stations 'maxEngineer Stations cum Storian', 'maxOperator' Workstations, 'maxStorian' PC, 'maxLink' Station etc.	9 sets*	9 sets*	18 sets*		
		Note: Rates quoted for PCs should be inclusive of associated furniture including PC tables, operator chairs, printer tables/consoles etc.					
89.	D.4.4	Network Panels/ Power Distribution Panels	2 Nos.	2 Nos.	4 Nos.		
90.	D.4.5	Ethernet Cable	9,000 Mtrs	9,000 Mtrs	18,000 Mtrs		
91.	D.4.6	Power Cables: 3 C x 1.5 sq. mm cables	300 Mtrs	300 Mtrs	600 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
92.	D.4.7	Fibre Optic Cable, along with conduit	1500 Mtrs	--	1500 Mtrs		
	ERECTION/TESTING OF LOCAL INSTRUMENT ENCLOSURES/ RACKS (LIE/LIR)/GAUGE BOARDS						
93.	D.3.15.1	LIE of size: 2000 x 800 x 2300 mm; 350 kg each	2 Nos.	2 Nos.	4 Nos.		
94.	D.3.15.2	LIE of size: 1450 x 800 x 2300 mm; 350 kg each	8 Nos.	8 Nos.	16 Nos.		
95.	D.3.15.3	LIE of size: 1100 x 800 x 2300 mm; 250 kg each	11 Nos.	11 Nos.	22 Nos.		
96.	D.3.15.4	LIR of size 2000 x 350 x 2200 mm; 225 kg each	13 Nos.	13 Nos.	26 Nos.		
97.	D.3.15.5	LIR of size 1650 x 350 x 2200 mm; 220 kg each	6 Nos.	6 Nos.	12 Nos.		
	ERECTION/TESTING OF LOCAL INSTRUMENT ENCLOSURES/ RACKS (LIE/LIR)/GAUGE BOARDS						
98.	D.3.15.6	LIR of size 800 x 350 x 2200 mm; 175 kg each	2 Nos.	2 Nos.	4 Nos.		
99.	E.1.4.3	LIR of size 2000 x 650 x 2200 mm; 300 kg	1 No.	1 No.	2 Nos.		
100.	E.1.4.1	LGB of size 1720 x 450 x 1800 mm; 200 kg	7 Nos.	7 Nos.	14 Nos.		
101.	E.1.4.2	LGB of size 1400 x 450 x 1400 mm; 200 kg	1 No.	1 No.	2 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ASSEMBLY AND ERECTION OF JB MOUNTING FRAMES						
102.	D.2.6.1 to D.2.6.5	Assembly and installation of Mounting Frames with loose supplied prefabricated materials like slotted angles, channels etc.	10 Nos.	10 Nos.	20 Nos.		
	ASSEMBLY/WELDING/ERECTION OF INSTRUMENT RACKS (Assembly/welding and installation of Instrument Racks with loose supplied prefabricated materials like angles, channels etc.) Approx. Total wt. Of loose supplied items (for 7 Nos. racks): 2 Tonnes						
103.	G.2.3	Pressure Instruments Rack	7 Nos.	7 Nos.	14 Nos.		
	LAYING, TERMINATION & TESTING OF CABLES						
104.	A.5.1.1	Flame Scanner Cable	3,000 Mtrs	3,000 Mtrs	6,000 Mtrs		
105.	C.2.2	Electrical Heat Tracer Tape along with accessories	2400 Mtrs	1000 Mtrs	3400 Mtrs		
	LAYING, TERMINATION & TESTING OF CABLES						
		<i>PVC/FRLS, shielded, Cu cables, Armoured</i>					
106.	A.5.1.2, D.3.10.2, D.3.10.6, F.2.1	2 pair x 0.5 sq. mm cable	46,180 Mtrs	46,180 Mtrs	92,360 Mtrs		
107.	A.5.1.3, C.3.1, D.3.10.3, D.3.10.7, E.1.6.2, F.2.2	4 Pair x 0.5 sq. mm cable	75,080 Mtrs	75,080 Mtrs	1,50,160 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
108.	A.5.1.4, D.3.10.4, D.3.10.8, F.2.3	8 pair x 0.5 sq. mm cable	39,640 Mtrs	39,640 Mtrs	79,280 Mtrs		
109.	D.3.10.5, D.3.10.9	12 pair x 0.5 sq. mm cable	12,100 Mtrs	12,100 Mtrs	24,200 Mtrs		
110.	D.3.10.10	14 pair x 0.5 sq. mm cable	800 Mtrs	800 Mtrs	1,600 Mtrs		
111.	A.5.1.5, F.2.4	16 pair x 0.5 sq. mm cable	10,500 Mtrs	10,500 Mtrs	21,000 Mtrs		
112.	F.2.5	1 Pair x 1.5 sq. mm cable	2,500 Mtrs	2,500 Mtrs	5,000 Mtrs		
113.	D.3.10.1	2 P x 1.5 sq. mm cable	7000 Mtrs	7000 Mtrs	14000 Mtrs		
114.	F.2.6	4 Pair x 1.5 sq. mm cable	4,000 Mtrs	4,000 Mtrs	8,000 Mtrs		
115.	E.1.6.1	4 Triad, 0.5 sq. mm cable	500 Mtrs	500 Mtrs	1000 Mtrs		
116.	F.2.7, F.2.10	4 Core x 0.5 sq. mm cable	62,500 Mtrs	62,500 Mtrs	125,000 Mtrs		
117.	F.2.8	7 Core x 0.5 sq. mm cable	10,000 Mtrs	10,000 Mtrs	20,000 Mtrs		
	LAYING, TERMINATION & TESTING OF CABLES						
118.	F.2.9	16 Core x 0.5 sq. mm cable	8,000 Mtrs	8,000 Mtrs	16,000 Mtrs		
		PTFE insulated cables					
119.	A.5.1.6	10P x 0.6 sq. mm PTFE Probe Cable	60 Mtrs	60 Mtrs	120 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
120.	D.2.2.1	2 pair x 0.5 sq. mm PTFE cable	4000 Mtrs	4000 Mtrs	8000 Mtrs		
121.	D.2.2.2	4 pair x 0.5 sq. mm PTFE cable	1000 Mtrs	1000 Mtrs	2000 Mtrs		
122.	D.2.2.3	5 Core x 1.5 sq. mm PTFE cable	500 Mtrs	500 Mtrs	1000 Mtrs		
		Compensating Cables					
123.	D.2.2.4, D.2.2.5	2 Pair x 0.5 sq. compensating cable	2400 Mtrs	2400 Mtrs	4800 Mtrs		
124.	A.5.1.7, D.3.10.11, D.3.10.12	2 Pair x 1.3 sq. compensating cable	6000 Mtrs	6000 Mtrs	12000 Mtrs		
		PVC, FRLS, Armoured Control Cables					
125.	A.5.1.8	2 C X 1.5 sq. mm cable	600 Mtrs	600 Mtrs	1200 Mtrs		
126.	A.5.1.9	4C X 1.5 sq. mm cable	8,500 Mtrs	8,500 Mtrs	17,000 Mtrs		
127.	A.5.1.10	5 C X 1.5 sq. mm cable	2200 Mtrs	2200 Mtrs	4,400 Mtrs		
128.	A.5.1.11	7 C X 1.5 sq. mm cable	3700 Mtrs	3700 Mtrs	7,400 Mtrs		
129.	A.5.1.12	10C X 1.5 sq. mm cable	14800 Mtrs	14800 Mtrs	29,600 Mtrs		
130.	A.5.1.13	12 C X 1.5 sq. mm cable	250 Mtrs	250 Mtrs	500 Mtrs		
131.	A.5.1.14	19 C X 1.5 sq. mm cable	2000 Mtrs	2000 Mtrs	4,000 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ERECTION OF CABLE TRAYS & DUCTS						
		Perforated Type Cable Trays					
132.	A.5.2.1, D.3.11.1, E.1.6.3	50 mm wide Cable Tray	2,595 Mtrs	2,595 Mtrs	5,190 Mtrs		
133.	A.5.2.2, D.3.11.2	100 mm wide Cable Tray	4,160 Mtrs	4,160 Mtrs	8,320 Mtrs		
134.	A.5.2.3, E.1.6.4	150 mm wide Cable Tray	1095 Mtrs	1095 Mtrs	2190 Mtrs		
135.	A.5.2.4	300 mm wide Cable Tray	70 Mtrs	70 Mtrs	140 Mtrs		
		<i>Cable Ducts With Covers</i>					
136.	D.2.4.1	60 x 60 x 1000 mm	180 Nos.	180 Nos.	360 Nos.		
137.	D.2.4.2	180 x 100 x 1000 mm	60 Nos.	60 Nos.	120 Nos.		
138.	D.2.4.3	250 x 100 x 1000 mm	50 Nos.	50 Nos.	100 Nos.		
	ERECTION OF JUNCTION BOXES/ PB BOXES						
139.	A.5.3.1	Junction Box, 12 way	30 Nos.	30 Nos.	60 nos.		
140.	C.3.2	Junction Box, 18 way	1 No.	1 No.	2 Nos.		
141.	A.5.3.2, D.3.12.1	Junction Boxes, 24 way	85 Nos.	85 Nos.	170 Nos.		
142.	D.3.12.2, E.1.5.1	Junction Boxes, 36 way	8 Nos.	8 Nos.	16 Nos.		
143.	G.2.4.2	Junction Box, 40 way	4 Nos.	4 Nos.	8 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ERECTION OF JUNCTION BOXES/ PB BOXES						
144.	A.5.3.3, D.3.12.3	Junction Boxes, 48 way	18 Nos.	18 Nos.	36 Nos.		
145.	D.2.3.1, D.3.12.4	Junction Boxes, 64 way	35 Nos.	35 Nos.	70 Nos.		
146.	D.3.12.5	Junction Boxes, 72 way	2 Nos.	2 Nos.	4 Nos.		
147.	G.2.4.1	Junction Box, 80 way	2 Nos.	2 Nos.	4 Nos.		
148.	A.5.3.4, D.2.1.4	Push Button Boxes/ Fire Protection Switch Box	5 Nos.	5 Nos.	10 Nos.		
149.	A.4.4	MTM Junction Boxes Weight: 10 kg each	26 Nos.	26 Nos.	52 Nos.		
150.	D.2.3.2, D.2.3.3	Thermocouple Junction Boxes	24 Nos.	24 Nos.	48 Nos.		
151.	D.3.13.1, D.3.13.2	CJCB, 12 way/ 24 way	16 Nos.	16 Nos.	32 Nos.		
	ERECTION/TESTING OF IMPULSE PIPES						
152.	G.2.5.2	CS Tube, D=13.5 x 2.9	580 Mtrs	580 Mtrs	1160 Mtrs		
153.	E.1.7.1	CS Tube, Dia 16 x 2.6	600 Mtrs	600 Mtrs	1200 Mtrs		
154.	G.2.5.3	CS Tube, D=17.2 x 1.8	400 Mtrs	400 Mtrs	800 Mtrs		
155.	A.5.4.1	FCS Pipe, ½" SCH80	800 Mtrs	800 Mtrs	1600 Mtrs		
156.	C.5.1.	½" CS Sch 80 pipe	100 Mtrs	100 Mtrs	200 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
	ERECTION/TESTING OF IMPULSE PIPES						
157.	A.5.4.2, D.3.14.1	CS Pipe, 1" SCH80	450 Mtrs	450 Mtrs	900 Mtrs		
158.	D.3.14.2	CS Pipe, Gr B- ¾" NB SCH 80	1500 Mtrs	1500 Mtrs	3000 Mtrs		
159.	D.3.14.3	CS Pipe, Gr C- ½" NB SCH 160	875 Mtrs	875 Mtrs	1750 Mtrs		
160.	D.3.14.4	CS Pipe, Gr C- ½" NB SCH 80	1500 Mtrs	1500 Mtrs	3000 Mtrs		
161.	G.2.5.1	AS tube D=13.5 x 2.6	430 Mtrs	430 Mtrs	860 Mtrs		
162.	D.3.14.5	AS Pipe, P22- ½" NB XXS	625 Mtrs	625 Mtrs	1250 Mtrs		
163.	D.3.14.6	AS Pipe, P22-¾" NB SCH 80	350 Mtrs	350 Mtrs	700 Mtrs		
164.	D.3.14.7	A213 TP 316 – ½" NB SCH160 SS	750 Mtrs	750 Mtrs	1500 Mtrs		
165.	D.3.14.8	A213 TP 316 – ½" NB SCH80 SS	600 Mtrs	600 Mtrs	1200 Mtrs		
	ERECTION OF EARTHING MATERIALS, HOSES, TUBES, CLAMPING MATERIALS etc.						
166.	A.5.5.3	Soft Galvanised Wire-IS 280 comml	1000 Mtrs	1000 Mtrs	2000 Mtrs		
167.	A.5.5.4	GI Strips, 300mm x 25mm x 2mm	550 Nos.	550 Nos.	1100 Nos.		
168.	A.5.5.5	Al Strips, 300mm x 25mm x 2mm	550 Nos.	550 Nos.	1100 Nos.		
169.	A.5.5.2	GI Flat 50 x 6 mm	400 Mtrs	400 Mtrs	800 Mtrs		
170.	A.1.14	OD 8 mm Copper Tube	25 Mtrs	25 Mtrs	50 Mtrs		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
171.	A.2.5, D.3.16.4	¼" OD PVC Sheathed Copper Tube	2,250 Mtrs	2,250 Mtrs	4,500 Mtrs		
172.	A.2.6	¼" size Teflon Hose of 2M length	56 Nos.	56 Nos.	112 Nos.		
173.	A.2.7	1" size Teflon Hose of 3M length	4 Nos.	4 Nos.	8 Nos.		
	FABRICATION/ERECTION OF STRUCTURAL STEEL						
174.	A.5.5.1, D.3.16.1, E.1.8.1, G.2.6	Structural Steel for fabrication of supports	29.5 Tonnes	29.5 Tonnes	59 Tonnes		
	ERECTION/TESTING OF GI PIPE (HEAVY DUTY)						
175.	C.4.1, D.3.16.2	GI pipes NB 15 x 3.25/ ½" pipe	3200 Mtrs	3200 Mtrs	6400 Mtrs		
176.	C.4.2, D.3.16.3	GI pipes NB 25 x 4.05/ 1" pipe	2600 Mtrs	2600 Mtrs	5200 Mtrs		
177.	C.4.3	GI Pipes NB 40 x 4.5	200 Mtrs	200 Mtrs	400 Mtrs		
178.	C.4.4	GI Pipes NB 50 x 4.5	150 Mtrs	150 Mtrs	300 Mtrs		
179.	C.4.5	GI Pipes NB 65 x 4.5	200 Mtrs	200 Mtrs	400 Mtrs		
180.	C.4.6	GI Pipes NB 80 x 4.85	350 Mtrs	350 Mtrs	700 Mtrs		
	CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY OTHER AGENCY						
181.	E.3.4.4	Pulveriser Lub Oil Skids	6 sets*	6 sets*	12 sets*		
182.	B.2.5.1	Lub Oil Skids For FD/ ID/ PA Fans	6 sets*	6 sets*	12 sets*		
183.	B.1.9.2	Air Pre-heater Skids	4 sets*	4 sets*	8 sets*		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
184.	G.3.1	Condenser Vacuum Pump, including CVP PLC and related field instruments	1 set*	1 set*	2 sets*		
185.	G.3.2	Oil Centrifuge Unit	2 Nos.	2 Nos.	4 Nos.		
CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY OTHER AGENCY							
186.	A.3.8.1	Feeder Mounted C&I Equipment along with Feeder Integral Cabinet	6 sets*	6 sets*	12 sets*		
187.	A.4.9.2	Direct Water Level Gauges	2 Nos.	2 Nos.	4 Nos.		
188.	A.2.13.1, A.2.13.2, A.2.13.3, E.3.4.2, E.3.4.3	Pneumatic Actuators of ON/OFF Type	48 Nos.	48 Nos.	96 Nos.		
189.	A.1.16.2	Pneumatic Valves: Trip Valves	50 Nos.	50 Nos.	100 Nos.		
190.	A.1.16.3, C.6.2, F.4.1, G.1.5.1	Pneumatic Valves: Control Valves	49 Nos.	49 Nos.	98 Nos.		
191.	G.3.5	NRV Valves, Stop Valves, Control Valves, HP/LP Bypass Valves	30 Nos.	30 Nos.	60 Nos.		
192.	B.1.9.1, G.3.6	Solenoid Valves	30 Nos.	30 Nos.	60 Nos.		
193.	G.2.1.14	Position Transmitters	16 Nos.	16 Nos.	32 Nos.		
194.	A.4.9.1, C.6.1	Flow Switch/ Flow Indicators	41 No.	41 No.	82 Nos.		
195.	G.1.3.6	Flow Meters	4 Nos.	4 Nos.	8 Nos.		

SL. NO.	BOM REF.	DESCRIPTION	QTY UNIT 3	QTY UNIT 4	TOTAL QTY	UNIT RATE	TOTAL RATE
196.	A.1.16.1, A.3.8.2, G.2.1.12	Checking of Limit Switches	107 Nos.	107 Nos.	214 Nos.		
197.	B.2.4, E.1.1.2, E.1.2.7, E.3.4.1, G.1.3.8→15	Checking the healthiness of Temperature Elements (RTDs)	348 Nos.	348 Nos.	696 Nos.		
CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY OTHER AGENCY							
198.	G.1.3.7	Checking the healthiness of Temperature Elements (Thermocouples)	24 Nos.	24 Nos.	48 Nos.		
199.	A.2.13.4, F.4.2	Loop Checking of Electrical Actuators/ Soot Blower	269 Nos.	269 Nos.	538 Nos.		
		<i>Commissioning of Instrument Racks</i> <i>Removal, calibration and refixing of rack mounted instruments, checking solenoid valves, drives, including wiring on the rack etc.</i>					
200.	G.2.2.1	Governing Rack	1 set*	1 set*	2 sets*		
201.	G.2.2.2	LP Bypass Control Rack	1 set*	1 set*	2 sets*		

Total Contract Value : _____

(Rupees _____

SL.NO	DESCRIPTION	QTY	UNIT RATE
	PROVISIONAL RATES: Rate to be quoted for following optional items		
202.	Fabrication & installation of canopy	(per sq. m)	
203.	Erection of 25mm GI Conduit	(per m)	
204.	Erection of 8 SWG GI Wire	(per m)	
	Supply of Cable Glands: Double Compression type, Nickel Plated, Weatherproof, Brass Cables glands, conforming to <i>ISI2943:1990</i>. Size shall be equivalent to		
205.	Upto 12 sq mm	(per No.)	
206.	12.1 – 16.5 sq mm	(per No.)	
207.	16.6- 18 sq mm	(per No.)	
208.	18.1 – 20 sq mm	(per No.)	
209.	20.1 – 23 sq mm	(per No.)	
210.	23.1 – 26 sq mm	(per No.)	
211.	26.1 – 30 sq mm	(per No.)	
212.	30.1- 33 sq mm	(per No.)	
213.	33.1 – 37 sq mm	(per No.)	
214.	37.1 – 41 sq mm	(per No.)	
215.	41.1 – 46 sq mm	(per No.)	
216.	46.1 – 52 sq mm	(per No.)	
217.	52.1 – 60 sq mm	(per No.)	
218.	60.1 – 67 sq mm	(per No.)	
219.	67.1 – 72 sq mm	(per No.)	

SL.NO	DESCRIPTION	QTY	UNIT RATE
	PROVISIONAL RATES: Rate to be quoted for following optional items		
220.	78.1 – 84 sq mm	(per No.)	
221.	84.1 – 94 sq mm	(per No.)	
222.	94.1 – 105 sq mm	(per No.)	

NOTE TO RATE SCHEDULE – SCT 1179

- 1. The Quantities indicated in the Rate schedule are only approximate and are liable for variation. Payment shall be made to the actual quantity erected at the unit rate quoted / accepted.**
- 2. Dimensions and weight indicated in the Rate schedule are only approximate and given for guidance of the contractor.**
- 3. Rates include complete installation, testing , Commissioning and trial operation of equipments laying and dressing of cables, termination of cables etc.,**
- 4. Where the provisional rates / values are asked for , the successful contractor who has been awarded the work shall have to match their provisional rates for all categories of work, with the lowest provisional rates / value quoted by other qualified bidders. Only those rate / values will be paid for these works. However BHEL reserves its right to treat these provisional works as optional and get it done through others also as per our discretion. The above condition shall be binding on the contractor .**
- 5. Tenderers are requested to quote their rates, only in the price bid (Part –II) provided by BHEL. Quoting of rates in any other form / formats will not be entertained.**
- 6. The tenderer has to affix his office seal and signature in every page of the rate schedule.**

SIGNATURE OF THE TENDERER

