

TENDER SPECIFICATION

BHEL:PSSR:SCT: 1181

FOR

Handling at Site Stores / Storage yard,
Transportation to site of Work, Erection,
Testing and Commissioning of HT and LT
Electrical Package for Units IV & V of 2 x
500 MW set

at

Sipat Thermal Power Project

(for M/s NTPC) , Stage- II ,
Bilaspur District , Chattisgarh State

PART – I 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:1181

NAME OF WORK

Handling at Site Stores / Storage yard,
Transportation to site of Work, Erection, Testing
and Commissioning of HT and LT Electrical
Package for Units IV & V of 500 MW set at
Sipat Thermal Power Project (For M/s NTPC),
Stage –II Bilaspur District, Chattisgarh state.

(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:

SIPAT : 2 X 500 MW (UNIT 4 & 5) - RATE SCHEDULE FOR HT / LT ELECTRICAL WORKS - SECTION VII - APPENDIX - IV B

Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
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						
		LOW VOLTAGE SWITCH GEAR/ CONTROL PANELS				
1	A.7.1	Auxiliary Boiler MCC	Nos	1		
2	E.1.1	LV switch gear (MCC, ACDB) for H2 plant	Nos	1		
3	C.2.1	Digital Automatic Voltage Regulator	Set	2		
4	A.1.1	SB Local Starter Box	Nos	264		
5	A.1.2	SB Local Distribution Board	Nos	16		
6	A.1.3	SB Central Distribution Board	Nos	2		
7	A.1.4	FTP Local Starter Panel	Nos	4		
8	A.1.5	DC Scan Air fan starter Panel	Nos	2		
9	B.1.1	Auxiliary Control Panel	Nos	8		
10	B.1.2	Electronic Control Panel with BAPCON controller	Nos	160		
11	B.1.3	IOS panel with stand alone PC with monitor, printers and other accessories etc.	Nos	2		

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12	B.1.4	Rapper Control Panel- with 2 Nos Rapcon controllers	Nos	16		
13	B.1.5	Statcon Panel- with Statcon controllers	Nos	8		
14	D.1.1	D.C. Starter Cabinet with Resistance box for DC Seal Oil Motor	Set	4		
15	D.1.2	D.C. Starter Panels with Resistance Box For EOPs , JOP	Set	8		
16	D.1.3	Lub Oil Purification Equipment Panel	Set	2		
17	F.1.1	D.C Starter Cabinet with Resistance box for DC seal oil motor	Set	264		
18	F.1.2	DC Jacking oil pump starter panel	Nos	2		
19	F.1.3	DC Emergency Lub oil pump starter panel	Nos	4		
20	F.1.4	Starter Panel for Central oil purification	Nos	2		
21	B.1.6	Ash level indicator (HIGH & LOW),	Set	640		
		PC WITH COLOUR MONITOR				
22	B.7.1	Data Logger PC with Colour Monitor, Printers	Nos	2		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		VFD FOR ID FANS				
23	C.1.1.1	DC Air Core Reactor	Nos	8		
24	C.1.1.2	LCI Drive Panel	Nos	8		
25	C.1.1.3	Common Control Panel	Nos	4		
26	C.1.1.4	Adaptor Panel	Nos	8		
27	C.1.1.5	O&M Panel	Nos	2		
28	C.1.1.6	CLC Panel	Nos	8		
29	C.1.1.7	MMI for VFD	Set	2		
30	C.1.1.8	VFD Transformer	Nos	8		
31	C.1.1.9	6.6 KV ,1250A Vacuum circuit Breaker	Nos	8		

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IV B**

Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		LIGHTING PANELS				
32	E.5.1	ACLDB (12 O/G CKTS)	Nos	1		
33	E.5.2	LP-A(12) (12 O/G CKTS)	Nos	1		
		LT POWER CABLES				
34	B.4.6	2 C X 2.5 sq. mm, Copper	Mtr	13200		
35	A.2.1, A.9.5, B.4.5	3C x 2.5 sqmm, Cu	Mtr	109500		
36	A.2.2	4C x 2.5 sqmm, Cu	Mtr	3500		
37	C.2.2.1	3 x 50 sqmm. Cu	Mtr	600		
38	B.4.1	2 C X 120 sq. mm, Al	Mtr	78000		
39	A.9.4	3C x 6 sqmm, Al	Mtr	500		
40	B.4.2, A.9.3	3 C X 16 sq. mm, Al	Mtr	4900		
41	B.4.3, C.1.2.1	3 C X 25 sq. mm, Al	Mtr	44400		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
42	B.4.4	3 C X 70 sq. mm, Al	Mtr	5000		
43	C.1.2.2	3 C X120 sq. mm	Mtr	1080		
44	E.2.1	3.5C X 95 sqmm, Al	Mtr	20		
45	A.9.1	3C x 240 sqmm, Al	Mtr	500		
46	A.9.2	3C x 150 sqmm, Al	Mtr	500		
		LT CONTROL CABLES				
47	A.10.1	5C x 1.5 sqmm , Cu	Mtr	1000		
48	A.3.1, E.3.1	5C x 2.5 sqmm, Cu	Mtr	5000		
49	C.1.3.2	2 C X2.5 sq mm CU cable unarmoured	Mtr	1800		
50	C.1.3.1	2 C X1.5 sq mm CU cable unarmoured	Mtr	6800		
51	B.5.1	3 C X 1.5 sq.mm, Cu	Mtr	54000		
52	B.5.4, C.1.3.3	4C x 1.5 sqmm.	Mtr	88640		
53	B.5.2	12 C X 1.5 sq.mm, Cu	Mtr	63000		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
54	B.5.3, C.1.3.4	14 C X 1.5 sq.mm, Cu	Mtr	28640		
55	E.3.2	14C X 2.5 sqmm, Cu	Mtr	1500		
56	C.1.4.1,C .1.5.1	2 Pair- 0.5 sq.mm	Mtr	3600		
57	C.1.4.2,E .4.1,A.10 .2	4 Pair- 0.5 sq.mm	Mtr	3300		
58	C.1.4.3	12 Pair- 0.5 sq.mm	Mtr	1200		
59	C.1.5.2 E.4.2	8 Pair- 0.5 sq.mm	Mtr	3920		
		TERMINATION OF POWER CABLES				
60	A.4.1, A.11.5,B. 6.2	3C x 2.5 sqmm	Nos	2152		
61	A.4.2	4C x 2.5 sqmm	Nos	180		
62	A.11.4	3C x 6 sqmm	Nos	8		
63	A.11.3, B.6.3	3C x 16 sqmm	Nos	36		
64	B.6.4, C.1.6.1	3C x 25 sqmm, Al	Nos	664		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
65	C.2.3.1	3 x 50 sqmm. Cu	Nos	8		
66	B.6.5	3C x 70sqm, Al	Nos	48		
67	C.1.6.2	3 C X120 sq. mm	Nos	16		
68	A.11.2	3C x 150 sqmm	Nos	4		
69	A.11.1	3C x 240 sqmm	Nos	4		
70	B.6.1	2 C X 120 sq. mm, Al	Nos	640		
71	E.2.2	3.5C X 95 sqmm, Al	Nos	4		
		GALVANISED CABLE TRAYS complete with coupler plates, fastners				
72	B.9.1, E.14.1	Ladder type 600 mm wide 120mm height	Mtr	4700		
73	B.9.2	Ladder type 450 mm wide 120mm height	Mtr	1500		
74	B.9.3, E.14.2	Ladder type 300 mm wide 120mm height	Mtr	2950		
75	B.9.4	Ladder type 150 mm wide 120mm height	Mtr	6250		
76	A.5.1	Perforated type 100 mm wide	Nos	2000		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
77	A.5.2, E.14.4	Perforated type 300 mm wide	Nos	1150		
78	E.14.3	Perforated Type, 600 mm wide	Mtr	100		
79	B.9.5	Perforated Type, 450 mm wide	Mtr	2500		
80	A.8.1	Perforated Type, 150 mm wide	Mtr	250		
		CABLE TRAY SUPPORT & ACCESSORIES				
81	B.8.1	Base plate for double support	Nos	1800		
82	B.8.2	Base plate for single support channel	Nos	5400		
83	B.8.3	Double channel support	Mtr	3600		
84	B.8.4	Single channel support	Mtr	3800		
85	B.8.5	CANTILEVER ARM of length 650 mm	Nos	1800		
86	B.8.6	CANTILEVER ARM of length 500 mm.	Nos	1700		
87	B.8.7	CANTILEVER ARM of length 200 mm.	Nos	2800		
		HEATING ELEMENTS				
88	B.2.1	Testing and Termination and dressing of Heating Elements for Hopper (Panel Type)	Set	320		
89	B.2.2	Testing Heating elements for support insulator	Nos	640		
90	B.2.3	Testing Heating elements for shaft insulator h	Nos	160		
91	B.2.4	Testing Thermostats for hopper heaters.	Nos	320		
92	B.2.5	Testing Thermostat for support insulators	Nos	16		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		JUNCTION BOXES/ LOCAL START STOP PBS/ SWITCH BOXES/ MARSHALLING BOXES				
93	E.1.2	Local Push Button stations	Nos	15		
94	B.3.1	Local Start Stop Push Buttons	Nos	336		
95	B.3.2	Junction Boxes for hopper heaters	Nos	320		
96	B.3.3	Junction Boxes for support insulator heaters,& shaft insulator heaters.	Nos	80		
97	B.3.4	Junction Boxes for start stop PB ,hopper thermostat, ALI .	Nos	192		
98	E.8.1	SWB1	Nos	7		
99	E.9.1	JB-F	Nos	20		
100	E.16.1	6 WAY	Nos	2		
101	E.16.2	24 WAY	Nos	2		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		EARTHING MATERIALS				
102	B.10.1, E.17.1	GI Flat 50 x 6 mm	Mtr	6100		
103	B.10.2	GI Flat 30 x 5 mm	Mtr	9700		
104	B.10.3, E.17.4	GI wire 8 SWG	Kg	1800		
105	E.17.2	GS FLAT 35 X 6 mm	Mtr	100		
106	E.17.3	GS FLAT 25 X 3 mm	Mtr	100		
107	B10.4	STRUCTURAL STEEL FOR SUPPORT FIXTURES	MT	20		
108	E.6.1	FC06	Nos	9		
109	E.6.2	FC02	Nos	2		
110	E.6.3	FC26	Nos	9		
111	E6.4	MW98	Nos	34		
112	E.6.5	FC62	Nos	4		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		RECEPTACLES				
113	E.7.1	RA(20A)	Nos	6		
114	E.7.2	RB(5/15A)	Nos	3		
115	E7.3	RC(63A)	Nos	1		
		CONDUITS				
116	E.10.1, E.11.1	20mm, GI conduit, rigid	Mtr	400		
117	E.15.1	Galv. MS rigid ,(75/ 50/ 25 mm dia)	Mtr	800		
118	E.15.2	PVC various dia,(19/ 25/ 40/ 75/ 100/ 125/ 150 mm dia)	Mtr	300		
119	E.12.1	20mm, GI conduit, flexible	Mtr	50		
		WIRES				
120	E.13.1, E.13.2	2.5/ 4.0 sqmm, Cu	Mtr	825		

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Sno	BOM Ref No	Description	Unit	Total Qty for both Units	Unit Rate (Rs)	Total Rate (Rs)
		COMMISSIONING of the following erected by Mechanical Contractor				
121	F.2.1	500 MW Generator	Nos	2		
122	A.6.1.1, D.2.1	HT Motors , 11 KV Motors	Nos	16		
123	A.6.1.2	HT Motors , 3.3.kV Motors	Nos	30		
124	A.6.2, A.6.3, A.12.1, B.11.2, D.2.2, F.2.5	LT Motors	Nos	588		
125	A.6.4, B.11.3	Hoists	Nos	84		
126	B.11.1	ESP Transformer	Nos	160		
127	F.2.2	Exciter dryer/ heater	Nos	2		
128	F.2.3	Generator Air Dryer	Nos	2		
129	F.2.4	Exciter Lighting	Nos	2		
TOTAL CONTRACT VALUE						
IN WORDS						

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Sl No	Description	Qty	Unit Rate
	OPTIONAL RATE		
	Supply of Cable Glands: <i>Double Compression type, Nickel Plated, Weatherproof, Brass Cables glands, conforming to IS12943:1990. of following sizes</i>		
1.	Upto 12 sq mm	Per No.	
2.	12.1 – 16.5 sq mm	Per No.	
3.	16.6 – 18 sq mm	Per No.	
4.	18.1 – 20 sqmm	Per No	
5.	20.1 – 23 sq mm	Per No.	
6.	23.1 – 26 sq mm	Per No.	
7.	26.1 – 30 sq mm	Per No.	
8.	30.1 – 33 sq mm	Per No.	
9.	33.1 – 37 sq mm	Per No.	
10.	37.1 – 41 sq mm	Per No.	
11.	41.1 – 46 sq mm	Per No.	
12.	46.1 – 52 sq mm	Per No.	
13.	52.1 – 60 sq mm	Per No.	
14.	60.1 – 67 sq mm	Per No.	
15.	67.1 – 72 sq mm	Per No.	
16.	72.1 – 78 sq mm	Per No.	
17.	78.1 – 84 sq mm	Per No.	
18.	84.1 – 94 sq mm	Per No.	
19.	94.1 – 105 sq mm	Per No	

Sl No	Description	Qty	Unit Rate
	SUPPLY OF CABLE LUGS		
	<i>Tinned Copper Crimping Type Ring Type Aluminum Lugs for Power and Control Cables of following sizes</i>		
20.	0.5 sq.mm	200 Nos.	
21.	1.5 sq mm	100 Nos.	
22.	2.5 sq mm	100 Nos.	
23.	16 sq. mm	100 Nos.	
24.	25 sq. mm	100 Nos.	
25.	70 sq. mm	Per No.	
26.	120 sq. mm	Per No.	

NOTE TO RATE SCHEDULE

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. Dimension 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.

SIGNATURE OF THE TENDERER