



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 01

Ref: PSER:SCT:KDM-I1102:TCN-01

Date: 17-05-2010

Sub	Tender change notice (TCN- 01).	
Job	Receipt from stores, handling/rehandling, transportation to the place of erection, testing, commissioning of complete C&I system including all max system & panels MMI system pertaining to Boiler & Aux, TG & Aux, Station C&I and C&I of balance system / item for 2x500mw unit# 1 & 2 at Koderma TPP ,Jharkhand.	
Ref	1.0	Tender no PSER:SCT:KDM-I1102:10
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:KDM-I1102 Dated 29/04/2010
	3.0	Other references (if any).

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting the offer.

- 1.0 **BOQ cum price schedule format VOL-III A PRICE SCHEDULE, REV-0** has been revised as **VOL-III A-PRICE SCHEDULE, REV-01** which is enclosed herewith. As such you are requested to consider the revised BOQ/price schedule only and quote your price accordingly. Offer from bidders in superseded price schedule (Vol-III A, REV-0) shall not be considered. Bidders are also requested to submit a declaration in techno-commercial offer that they have submitted their price bid in sealed envelope as per **REVISED price schedule format (VOL-III A, PRICE SCHEDULE , REV-01)**
- 2.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 3.0 Due date of submission of offer is extended from **20-05-2010** to **24-05-2010, 15-00 hrs**
- 4.0 BHEL clarifications to Bidder's query attached vide annexure-A to TCN-01.
- 5.0 Three no. of drawings are attached as per following.
 - a) Instrument Fitting Drawing (for Durgapur STPP- tender purpose only for Kodema TPP)
 - b) Instrument Installation Drawing (for Durgapur STPP -tender purpose only for Kodema TPP)
 - c) Control Room Layout Drawing.(for Durgapur STPP -tender purpose only for Kodema TPP)
- 6.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

ENGR (SCT)

Encl:

- 1.0 Revised BOQ cum price schedule format (**VOL-III A , PRICE SCHEDULE , REV-01**)
- 2.0 Revised format of 'No deviation certificate'- Annexure-2
- 3.0 BHEL's clarifications to bidder's query attached vide Annexure-A to TCN-01
- 4.0 Three no. of drawings (Instrument Fitting Drawing; Instrument Installation Drawing; Control Room Layout Drawing) .

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211798/ 1691

VOLUME-III A	
PRICE/RATE SCHEDULE, REV-01	
JOB : RECEIPT OF MATERIALS FROM STORES ETC ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.	
TENDER NO :- PSER:SCT:KDM-I1102:10	
PREAMBLE	
01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/culverts/bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains within thirty percent ($\pm 30\%$) of the contract price.
06	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
07	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English
08	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
09	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
10	For each rate schedule, the quoted overall price only should be considered for bid evaluation purpose & groupwise rates are being obtained only for facilitating pro-rata billing.
11	Summation of quoted prices all the price/rate schedules shall be considered for evaluation.
12	All works item wise shall be measured upon completion and paid for at the rates quoted & accepted.

VOL-IIIA (RATE SCHEDULE), REV-01

JOB: RECEIPT FROM STORES ETC, ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT , JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

Sl. No.	Item Description	TOTAL ALL INCLUSIVE PRICE
I	Receipt of materials from stores, storage sheds etc, Erection, Testing and commissioning of the complete C& I work as detailed in the tender specification for the total scope of work UNIT-I (ONE UNIT PRICE + COMMON SYSTEM) and UNIT-II	

VOL-IIIA (RATE SCHEDULE), REV-01

JOB: RECEIPT FROM STORES ETC, ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT , JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

Sl. No.	Item Description	TOTAL ALL INCLUSIVE PRICE
I	Total price for Receipt of materials from stores, storage sheds, Erection, Testing and commissioning of the complete C& I work as detailed in the tender specification for Unit-I (ONE UNIT PRICE + COMMON SYSTEM)	
II	Total price for Receipt of materials from stores, storage sheds, Erection, Testing and commissioning of the complete C& I work as detailed in the tender specification for Unit-II	
GRAND TOTAL PRICE		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
A	CABLE TRAYS (GI PERFORATED TYPE/Ladder type) (complete with all fixing accessories as applicable as per drawing, including site modifications required for all types of bends / turns or any profile, as required to suit site layout)				
1	CABLE TRAYS 50MM	2500	Mtrs		
2	CABLE TRAYS 100MM	6088	Mtrs		
3	CABLE TRAY 150MM	450	Mtrs		
4	CABLE TRAY 300MM	500	Mtrs		
5	CABLE DUCT SIZES UPTO 325 MM/185/125MM	400	Mtrs		
6	CABLE TRAY 450MM	50	Mtrs		
B	CABLING (POWER/CONTROL/SIGNAL) (Armoured/unarmoured, Individual Shielded/overall shielded/unshielded, Cu/Al)				
1	1P /2C upto 2.5 sqmm	1600	Mtrs		
2	2P/4C upto 2.5 sqmm	63750	Mtrs		
3	4P/7-8C upto 2.5 sqmm	137300	Mtrs		
4	10C-12C upto 2.5 sqmm	2000	Mtrs		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
5	8P/16C upto 2.5 sqmm	79000	Mtrs		
6	19CX1.5 SQMM CONTROL CABLE	1000	Mtrs		
7	10Px0.6sqmm PTFE probe cable	50	Mtrs		
8	12P/24C upto 2.5	20000	Mtrs		
9	16Px0.5sqmm shielded cable	350	Mtrs		
10	20P/24P upto 2.5 sqmm	11000	Mtrs		
11	2 TRIAD/ multitriad upto 2.5 sqmm	7500	Mtrs		
12	T/C Comp. Cable 2 Pair,16 AWG Kx/Rx/Sx type	10300	Mtrs		
13	4 PAIR/6 PAIR 16AWG, KX TYPE TC EXTENSION CABLE	10000	Mtrs		
14	4C/multicore Fibre Optic Cable (laying except termination)	44450	Mtrs		
15	4P UTP cable	6000	Mtrs		
16	Flame scanner double shield cable, core size upto 2.5 sqmm	3500	Mtrs		
17	RG 11 VIDEO CABLE	1000	Mtrs		
18	1CX16/25 SQMM	1000	Mtrs		
19	1CX95 SQMM	1000	Mtrs		
C	JUNCTION BOX (ELECTRICAL/FRP, MS/FIBRE/GI, Cold Junction Compensation Box ETC.) (with or without canopy erection)				

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
1	JUNCTION BOX 12 Way	28	Nos.		
2	JUNCTION BOX - 24 Way	118	Nos.		
3	JUNCTION BOX - 36 Way	14	Nos.		
4	JUNCTION BOX - 48 Way	31	Nos.		
5	JUNCTION BOX - 64 Way	25	Nos.		
6	JUNCTION BOX - 72 Way	3	Nos.		
7	JUNCTION BOX - 96 Way	4	Nos.		
8	JUNCTION BOXES 128 Ways	7	Nos.		
9	Junction boxes for VMS and TSI system	56	Nos.		
D	IMPULSE PIPE/ Cu TUBE/CONDUIT				
1	COPPER TUBE (6MM OD/8MM OD/10MM OD)	4000	Mtrs		
2	CS/AS Tube OD 13.5mm / 13.6mm/14.6 mm/ 17.5 mm	1360	Mtrs		
3	AS/ CS Impulse Pipe 1/2" NB UPTO 160 SCH	7600	Mtrs		
4	AS/ CS Impulse pipe , 16x2.6	1500	Mtrs		
5	AS/ CS Impulse Pipe 3/4" NB UPTO 160 SCH	5100	Mtrs		
6	AS/ CS Impulse Pipe 1" NB SCH 80	900	Mtrs		
7	CS/AS Impulse pipe , 60.3x3.91	120	Mtrs		
8	Cr. Al Pipe 21.3x3.73,	660	Mtrs		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
9	SS Tube/Pipe 12.7x2.1	350	Mtrs		
10	SS Tube 6x1.5	60	Mtrs		
11	SS tube/Pipe (above 1/2" to 1")	350	Mtrs		
12	AS/CS/SS Pipe (above 1" upto 1.75")	350	Mtrs		
13	AS/CS /SS Pipe 2"	100	Mtrs		
14	GI PIPE 15 to 20 NB	5000	Mtrs		
15	GI PIPE 25 to 40 NB	2500	Mtrs		
16	GI/PVC Conduit upto 1" (flexible & rigid)	1000	Mtrs		
17	GI / PVC Conduit above 1" (flexible & rigid)	1000	Mtrs		
E	FABRICATION & ERECTION				
1	Fab. & erection of Air header for SADC Power cylinder with 1/2" to 2" GI pipe, and valves etc. (1 I/L, 14 O/L, drain & vent).	5	NO.		
2	Fab. & erection of Air filter station for SADC Power cylinder with 1" GI pipe, and valves and air filter regulator	4	NO.		
3	Fab. & erection of dust collector / catch pot	50	NO.		
4	Fab. & erection of structural steel (Angle, Channel, flat, plate etc.)(Steel - free supply by BHEL)	30	MT		
F	PANELS & SYSTEMS AND PLANT MONITORING SYSTEM				

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
1	FSSS panels,SADC andAPRDS Panels,SBC panels, HP By Pass panels, TSC panels, EHTC panelfor Main turbine,LPBP & GSPC panels, Turbine Protection panels, ATT panels,ATRS panels, GAMP panels, EHTC for Boiler FeedTurbine, ATRS for Boiler Feed Turbine, Load shedding Relay and Sync Panel , Power Controller Pannel, TSI panel for main turbine and TDBFP, Functional Grup Control Panels for various aux etc				
a	Suite of single panel	9	Set		
b	Suite of two panel	32	Set		
c	Suite of three panel	17	Set		
d	Suite of four panel	1	Set		
2	Interposing Relay Panel - (Suite of 1 Panel) - non maxDNA	4	Set		
3	Electrical Control Panel (ECP) (Commissioning is excluded from the scope).	1	Set		
4	Unit Control Panel (UCP)	1	Set		
5	NETWORK PANEL DCS -LAN A	1	Set		
6	NETWORK PANEL DCS -LAN B	1	Set		
7	NETWORK PANEL HMI -LAN A&B	1	Set		
8	POWER DISTRIBUTION PANEL CUM LINKS	1	Set		
9	PROGRAMMER STATION	4	Nos.		
10	max OPERATOR STATION	14	Nos.		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
11	LVS WORKSTATION	5	Nos.		
12	MAX TSC STATION	1	Nos.		
13	DOT MATRIX PRINTER	2	Nos.		
14	COLOUR LASER PRINTER A3 SIZE	1	Nos.		
15	COLOUR LASERJET PRINTER - A4 SIZE	2	Nos.		
16	LASER PRINTER BLACK & WHITE A4	5	Nos.		
17	MAX LINK OPC SYSTEM	1	Nos.		
18	max OPERATOR STATION (common for U#1&2)	1	Nos.		
19	COLOUR LASERJET PRINTER - A4 SIZE (common for U#1&2)	1	Nos.		
20	SERVER STATION (common for U#1&2)	1	Nos.		
21	MAX STATION (common for U#1&2)	1	Nos.		
22	PC STATION (common for U#1&2)	20	Nos.		
23	LASER PRINTER BLACK & WHITE A4 (common for U#1&2)	2	Nos.		
24	COLOUR INKJET PRINTER A4 (common for U#1&2)	20	Nos.		
25	PROGRAMMER STATION (common for U#1&2)	1	Nos.		
26	DOT MATRIX PRINTER (common for U#1&2)	1	Nos.		
27	Computer Furniture - Details Below :				
27.1	Computer Table	18	Nos.		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
27.2	Printer Table	10	Nos.		
27.3	Computer Chair	26	Nos.		
28	Modular Operator Desk - Details Below :				
28.1	OPERATOR CONTROL DESK - 8 STATION	1	Set		
28.2	UNIT IN CHARGE DESK	1	No.		
29	Station LAN Items - Details Below (Common for U#1 &2) :	1	Set		
29.1	Computer Table	27	Nos.		
29.2	Computer Chair	27	Nos.		
29.3	INTELLIGENT ONLINE UPS,1KVA - 450W	22	Nos.		
30	Energy Management System (EMS) Hardware (common for U#1&2)				
30.1	Computer	4	Nos.		
30.2	Printer	2	Nos.		
30.3	EMS Panel	1	Nos.		
31	Microprocessor based Gravimetric Feeder Remote Power cabinet	10	Nos.		
32	BHELSONIC Tube steam leak detection system	1	No.		
33	BHEL VISION PRESSURE VESSEL	2	No.		
34	BHELVISION 20M (EWLI) ASCERTOR CABINET	2	Nos.		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
35	BHELVISION 20M (EWLI) DISPLAY UNIT	2	Nos.		
36	FURNACE CCTV MONITOR (19" MONITOR)	1	No.		
37	FURNACE CCTV MONITOR RETRACT CONTROL UNIT	2	Nos.		
38	ERV CONTROL STATION FOR SH/RH (INCLUDING CR DISPLAY UNIT)	4	No.		
39	MOISTURE MEASURING SYSTEM	1	Set		
40	H2 GAS ANALYSER CABINET	2	No.		
41	GENERATOR END WINDING VIBRATION MONITORING EQUIPMENT FOR TURBOGENERATOR WITH CABLE	1	Set		
42	GENERATOR INSTRUMENTATION CABINET	1	No.		
G	OTHER PANELS /RACKS				
1	SWAS Wet Rack	1	no.		
2	SWAS Dry Panel	1	no.		
3	SWAS Chiller with tank	1	no.		
4	SWAS Primary Rack 1	1	no.		
5	SWAS Primary Rack 2	1	no.		
6	Local Instrument Enclosures / Racks (LIE / LIR) - Details Below :				
6.1	LIE TYPE A	8	Nos.		
6.2	LIE TYPE B	17	Nos.		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
6.3	LIE TYPE C	5	Nos.		
6.4	LIR TYPE A	13	Nos.		
6.5	LIR TYPE B	16	Nos.		
6.6	LIR TYPE C	17	Nos.		
7	Turbine Instrument Racks	11	No.		
8	PW skid	1	No.		
9	H2 Gas Unit	2	Nos.		
10	Seal Oil Skid	2	Nos.		
11	TD BFP governing Skid	2	Nos.		
12	PW Instrumentation Rack	1	Nos.		
13	Lub Oil skid of mill	8	Nos.		
14	Vacuum Pump Instrumentation	2	Sets		
15	MD BFP Scoop Instruments	1	Sets		
16	Local gauge board assembly	11	Nos.		
17	Local Instrument Rack	2	Nos.		
18	LOCAL Instrument enclosure	12	Nos.		
19	TSI RACK	8	Nos.		
20	HART Management System Panel	1	No.		

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
21	LVS System - Details as below (Common for U#1 &2):				
21.1	1 No. 67"/70" SXGA+ LVS Cube & Accessories	1	Set		
21.2	6 Nos.(67"/70" SXGA+ LVS CUBES) & CONTROLLER	2	Set		
22	Network enclosure for CCTV sys (Common for U#1 &2)	25	Nos.		
23	Brackets for CCTV Camera (Common for U#1 &2)	80	Nos.		
24	Master Slave Clock System Panel (Common for U#1 &2)	1	Set		
H	FIELD INSTRUMENTS (ERECTION RATE TO BE QUOTED WITH OR WITHOUT CANOPY ERECTION)				
1	Electro-Pneumatic (E/P) Converter/ I/P Transducer	42	Nos.		
2	THERMOCOUPLE (K type/ T type / R type / J type, with or without integrated metallic extension cable)	159	Nos.		
3	MTM THERMOCOUPLE (EACH OF 10M,12M,14M,16M, 30M-LENGTH)	161	Nos.		
4	THERMOMETER / Temp. gauge (capillary as well as non capillary type)	233	Nos.		
5	RTD (PRT, CRT, MINIATURE RTD, ETC.)	447	Nos.		
6	Thermowells (Threaded/flanged/Tungsten carbide/ incoloy etc.)	372	Nos.		
7	Temperature Switch/ thermostat	3	Nos.		
8	Pressure Transmitter / Differential Pressure Transmitter/ Absolute Pr. Transmitter/vacuum Transmitters/Electronic transmitter	408	Nos.		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
9	Flow transmitter/switch	5	Nos.		
10	Pressure Switch/ DP switch/ vacuum switch	70	Nos.		
11	Pressure gauge/DP gauge/vacuum gauge	500	Nos.		
12	Level switch (Float type/capacitance type/ conductivity type)	53	Nos.		
13	LEVEL SWITCH UNIT WITH AMPLIFIER (LLD)	15	No.		
14	Level transmitters (capacitance type, top mounted, displacement type)	30	Nos.		
15	Limit switch	80	Nos.		
16	Solenoid valve	54	Nos.		
17	Position Transmitters	16	Nos.		
18	Air Filter Regulator	48	Nos.		
19	By Pass Rotameter	9	Nos.		
20	Electronic water Level Indicator	1	Nos.		
21	Speed measuring probes	24	Nos.		
22	Vib, Axial displacement probes/transducer	70	Nos.		
23	Proximity sensors	32	Nos.		
24	Piezoelectric Transducer including mounting pad	113	Nos.		
25	Phase Marker Sensors - 8 mm probe with 1 meter armour cable	21	Nos.		
26	Dual seismic Monitor	56	Nos.		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
27	Analyser Transducer	4	Nos.		
28	SOx/NOx Analyser	1	Set		
29	CO Analyser	2	Sets		
30	Oxygen Analyser	4	Sets		
31	Opacity Monitor / Smoke Density Analyser / Dust Analyser	2	Sets		
32	Conductivity Analyser	8	Nos.		
33	pH Analyser	9	Nos.		
34	Dissolved Oxygen Analyser	4	Nos.		
35	Silica Analyser	1	Nos.		
36	Sodium Analyser	3	Nos.		
37	Hydrazine Analyser	1	Nos.		
38	Conductivity analyser withdrawable type	2	Nos.		
39	Phosphate Analyser	2	Nos.		
40	Condensate Pots	128	Nos.		
41	Impact Type Head Element (Anu Bar)	2	No.		
42	Guided Wave Radar Type Level Transmitter	12	Nos.		
43	UCB mounted instruments/ indicator/ recorder / control station / integrator/controller	120	Nos.		
44	Flame Scanner Head Assembly	28	Nos.		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
45	Hea Ignitor	16	Nos.		
46	Excitor Box	16	Nos.		
I	CALIBRATION/ COMISSIONING (Erection excluded)				
1	Power Cylinder (on-off type)	90	Nos.		
2	Power Cylinder(Regulating type)	10	Nos.		
3	Control valves (ON-OFF)	80	NO.		
4	Control valves (Regulating)	27	NO.		
5	Governing system control rack	1	NO.		
6	LP bypass control rack	1	NO.		
7	Extraction NRV / Spray water control valve	5	NO.		
8	Gland steam control valve	2	NO.		
9	HPBP Pr. & Temp. control valve	4	NO.		
10	HPBP spray block valve	1	NO.		
11	Removal, calibration, re-mounting and commissioning of instruments for Skid. Each skid will have minimum of 05 no. instruments e.g. PG/PS/TG/DPI /DPS/TS/RPM meter with probe/LS/ LG/FS/FI etc. Dressing of capillary & cables if any, repair of Cu-tube / impulse pipe, if any, changing of terminals of JB. if any, is also included.	20	NO.		
J	POWER CYLINDERS				

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
1	Power cylinder (on-off type)	12	NO.		
2	Power cylinder (regulating type) including SADC cylinders	120	NO.		
K	UPS/BATTERY				
1	130KVA UPS System with ACDB	1	Set		
2	Battery for UPS with all accessories	2	Sets		
L	MISCELLANEOUS				
1	Supply of crimping lugs 0.5 to 2.5sqmm	20000	NO.		
2	Fabrication of canopy (structural matl. And GI sheet will be provided by BHEL free of cost)	2	MT		
M	PG TEST ITEMS				
1	1/2" Impulse Pipe	800	meter		
2	Compensating Cable (2C, Core size upto 2.5 sqmm) laying & termination	1350	meter		
3	2C, Core size upto 2.5 sqmm cable laying & termination	3000	meter		
4	4C, Core size upto 2.5 sqmm cable laying & termination	3000	meter		
5	Pre-fab cable from Data logger to computer	50	meter		
6	Junction Box	80	no.		
7	Thermocouple	45	no.		
8	Pr. / vacuum / DP Transmitters	70	no.		
9	Data logger	1	set		
10	Manometer	10	no.		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
11	Thermowell	100	no.		
12	PRT (Pt. Resistance thermometer)	90	no.		
13	Barometer	1	no.		
14	Power meter / transducer	10	no.		
N	Lab Items Mechanical & Electrical and Special Maintenance Tools and Tackles (Common for U#1 & U#2)				
1	Dead Weight Tester	2	Nos.		
2	Laboratory Test Pressure Gauges	3	Sets of each type		
3	Laboratory Type Manometer	2	Nos. of each type		
4	Inclined Tube Manometer	2	Nos.		
5	Pressure and Vacuum Air Pump	2	Nos.		
6	Pressure Gauge Comparator	2	Nos.		
7	Temperature Controlled Bath	1	No.		
8	Temperator Calibrator	3	Nos.		
9	Hot Air Blower	1	No.		
10	Barometer	1	No.		

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 1

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
11	Surface Pyrometer	1	No.		
12	Pneumatic Test Bench	1	No.		
13	Portable Vacuum Tester	2	Nos.		
14	Field Pressure Comparator	2	Nos.		
15	Portable Gas Analyzer (for CO & CO2)	1	Set		
16	Portable Gas Analyzer (for O2)	1	Set		
17	Furnace	1	No.		
18	Suppressed Range Mercury In Glass Thermometer	2	Set		
19	Tool Kit Box	12	Nos.		
GRAND TOTAL					

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty 'A'	Unit 'B'	Unit Rate (in Rs.) 'C'	Total Amount (in Rs.) 'D'='A'x'C'
A	CABLE TRAYS (GI PERFORATED TYPE/Ladder type) (complete with all fixing accessories as applicable as per drawing, including site modifications required for all types of bends / turns or any profile, as required to suit site layout)				
1	CABLE TRAYS 50MM	2500	Mtrs		
2	CABLE TRAYS 100MM	6088	Mtrs		
3	CABLE TRAY 150MM	450	Mtrs		
4	CABLE TRAY 300MM	500	Mtrs		
5	CABLE DUCT SIZES UPTO 325 MM/185/125MM	400	Mtrs		
6	CABLE TRAY 450MM	50	Mtrs		
B	CABLING (POWER/CONTROL/SIGNAL) (Armoured/ unarmoured, Individual Shielded/overall shielded/ unshielded, Cu/Al)				
1	1P /2C upto 2.5 sqmm	1600	Mtrs		
2	2P/4C upto 2.5 sqmm	63750	Mtrs		
3	4P/7-8C upto 2.5 sqmm	137300	Mtrs		
4	10C-12C upto 2.5 sqmm	2000	Mtrs		
5	8P/16C upto 2.5 sqmm	79000	Mtrs		

VOL-III(A)(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
6	19CX1.5 SQMM CONTROL CABLE	1000	Mtrs		
7	10Px0.6sqmm PTFE probe cable	50	Mtrs		
8	12P/24C upto 2.5	20000	Mtrs		
9	16Px0.5sqmm shielded cable	350	Mtrs		
10	20P/24P upto 2.5 sqmm	11000	Mtrs		
11	2 TRIAD/ multitriad upto 2.5 sqmm	7500	Mtrs		
12	T/C Comp. Cable 2 Pair,16 AWG Kx/Rx/Sx type	10300	Mtrs		
13	4 PAIR/6 PAIR 16AWG, KX TYPE TC EXTENSION CABLE	10000	Mtrs		
14	4C/multicore Fibre Optic Cable (laying except termination)	44450	Mtrs		
15	4P UTP cable	6000	Mtrs		
16	Flame scanner double shield cable, core size upto 2.5 sqmm	3500	Mtrs		
17	RG 11 VIDEO CABLE	1000	Mtrs		
18	1CX16/25 SQMM	1000	Mtrs		
19	1CX95 SQMM	1000	Mtrs		
C	JUNCTION BOX (ELECTRICAL/FRP, MS/FIBRE/GI, Cold Junction Compensation Box ETC.) (with or without canopy erection)				
1	JUNCTION BOX 12 Way	28	Nos.		

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
2	JUNCTION BOX - 24 Way	118	Nos.		
3	JUNCTION BOX - 36 Way	14	Nos.		
4	JUNCTION BOX - 48 Way	31	Nos.		
5	JUNCTION BOX - 64 Way	25	Nos.		
6	JUNCTION BOX - 72 Way	3	Nos.		
7	JUNCTION BOX - 96 Way	4	Nos.		
8	JUNCTION BOXES 128 Ways	7	Nos.		
9	Junction boxes for VMS and TSI system	56	Nos.		
D	IMPULSE PIPE/ Cu TUBE/CONDUIT				
1	COPPER TUBE (6MM OD/8MM OD/10MM OD)	4000	Mtrs		
2	CS/AS Tube OD 13.5mm / 13.6mm/14.6 mm/ 17.5 mm	1360	Mtrs		
3	AS/ CS Impulse Pipe 1/2" NB UPTO 160 SCH	7600	Mtrs		
4	AS/ CS Impulse pipe , 16x2.6	1500	Mtrs		
5	AS/ CS Impulse Pipe 3/4" NB UPTO 160 SCH	5100	Mtrs		
6	AS/ CS Impulse Pipe 1" NB SCH 80	900	Mtrs		
7	CS/AS Impulse pipe , 60.3x3.91	120	Mtrs		
8	Cr. Al Pipe 21.3x3.73,	660	Mtrs		
9	SS Tube/Pipe 12.7x2.1	350	Mtrs		

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
10	SS Tube 6x1.5	60	Mtrs		
11	SS tube/Pipe (above 1/2" to 1")	350	Mtrs		
12	AS/CS/SS Pipe (above 1" upto 1.75")	350	Mtrs		
13	AS/CS /SS Pipe 2"	100	Mtrs		
14	GI PIPE 15 to 20 NB	5000	Mtrs		
15	GI PIPE 25 to 40 NB	2500	Mtrs		
16	GI/PVC Conduit upto 1" (flexible & rigid)	1000	Mtrs		
17	GI / PVC Conduit above 1" (flexible & rigid)	1000	Mtrs		
E	FABRICATION & ERECTION				
1	Fab. & erection of Air header for SADC Power cylinder with 1/2" to 2" GI pipe, and valves etc. (1 I/L, 14 O/L, drain & vent).	5	NO.		
2	Fab. & erection of Air filter station for SADC Power cylinder with 1" GI pipe, and valves and air filter regulator	4	NO.		
3	Fab. & erection of dust collector / catch pot	50	NO.		
4	Fab. & erection of structural steel (Angle, Channel, flat, plate etc.)(Steel - free supply by BHEL)	30	MT		
F	PANELS & SYSTEMS AND PLANT MONITORING SYSTEM				

VOL-III A(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty 'A'	Unit 'B'	Unit Rate (in Rs.) 'C'	Total Amount (in Rs.) 'D'='A'x'C'
1	FSSS panels,SADC andAPRDS Panels,SBC panels, HP By Pass panels, TSC panels, EHTC panel for Main turbine,LPBP & GSPC panels, Turbine Protection panels, ATT panels,ATRS panels, GAMP panels, EHTC for Boiler FeedTurbine, ATRS for Boiler Feed Turbine, Load shedding Relay and Sync Panel, Power Controller Panel, TSI panel for main turbine and TDBFP, Functional Group Control Panels for various aux etc				
a	Suite of single panel	9	Set		
b	Suite of two panel	32	Set		
c	Suite of three panel	17	Set		
d	Suite of four panel	1	Set		
2	Interposing Relay Panel - (Suite of 1 Panel) - non maxDNA	4	Set		
3	Electrical Control Panel (ECP) (Commissioning is excluded from the scope).	1	Set		
4	Unit Control Panel (UCP)	1	Set		
5	NETWORK PANEL DCS -LAN A	1	Set		
6	NETWORK PANEL DCS -LAN B	1	Set		
7	NETWORK PANEL HMI -LAN A&B	1	Set		
8	POWER DISTRIBUTION PANEL CUM LINKS	1	Set		
9	PROGRAMMER STATION	4	Nos.		
10	max OPERATOR STATION	14	Nos.		
11	LVS WORKSTATION	5	Nos.		

VOL-IIIA(BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
12	MAX TSC STATION	1	Nos.		
13	DOT MATRIX PRINTER	2	Nos.		
14	COLOUR LASER PRINTER A3 SIZE	1	Nos.		
15	COLOUR LASERJET PRINTER - A4 SIZE	2	Nos.		
16	LASER PRINTER BLACK & WHITE A4	5	Nos.		
17	MAX LINK OPC SYSTEM	1	Nos.		
18	Computer Furniture - Details Below :				
18.1	Computer Table	18	Nos.		
18.2	Printer Table	10	Nos.		
18.3	Computer Chair	26	Nos.		
19	Modular Operator Desk - Details Below :				
19.1	OPERATOR CONTROL DESK - 8 STATION	1	Set		
19.2	UNIT IN CHARGE DESK	1	No.		
20	Microprocessor based Gravimetric Feeder Remote Power cabinet	10	Nos.		
21	BHELSONIC Tube steam leak detection system	1	No.		
22	BHEL VISION PRESSURE VESSEL	2	No.		
23	BHELVISION 20M (EWLI) ASCERTOR CABINET	2	Nos.		
24	BHELVISION 20M (EWLI) DISPLAY UNIT	2	Nos.		

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
25	FURNACE CCTV MONITOR (19" MONITOR)	1	No.		
26	FURNACE CCTV MONITOR RETRACT CONTROL UNIT	2	Nos.		
27	ERV CONTROL STATION FOR SH/RH (INCLUDING CR DISPLAY UNIT)	4	No.		
28	MOISTURE MEASURING SYSTEM	1	Set		
29	H2 GAS ANALYSER CABINET	2	No.		
30	GENERATOR END WINDING VIBRATION MONITORING EQUIPMENT FOR TURBOGENERATOR WITH CABLE	1	Set		
31	GENERATOR INSTRUMENTATION CABINET	1	No.		
G	OTHER PANELS /RACKS				
1	SWAS Wet Rack	1	no.		
2	SWAS Dry Panel	1	no.		
3	SWAS Chiller with tank	1	no.		
4	SWAS Primary Rack 1	1	no.		
5	SWAS Primary Rack 2	1	no.		
6	Local Instrument Enclosures / Racks (LIE / LIR) - Details Below :				
6.1	LIE TYPE A	8	Nos.		
6.2	LIE TYPE B	17	Nos.		
6.3	LIE TYPE C	5	Nos.		

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
6.4	LIR TYPE A	13	Nos.		
6.5	LIR TYPE B	16	Nos.		
6.6	LIR TYPE C	17	Nos.		
7	Turbine Instrument Racks	11	No.		
8	PW skid	1	No.		
9	H2 Gas Unit	2	Nos.		
10	Seal Oil Skid	2	Nos.		
11	TD BFP governing Skid	2	Nos.		
12	PW Instrumentation Rack	1	Nos.		
13	Lub Oil skid of mill	8	Nos.		
14	Vacuum Pump Instrumentation	2	Sets		
15	MD BFP Scoop Instruments	1	Sets		
16	Local gauge board assembly	11	Nos.		
17	Local Instrument Rack	2	Nos.		
18	LOCAL Instrument enclosure	12	Nos.		
19	TSI RACK	8	Nos.		
20	HART Management System Panel	1	No.		
H	FIELD INSTRUMENTS (ERECTION RATE TO BE QUOTED WITH OR WITHOUT CANOPY ERECTION)				

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
1	Electro-Pneumatic (E/P) Converter/ I/P Transducer	42	Nos.		
2	THERMOCOUPLE (K type/ T type / R type / J type, with or without integrated metallic extension cable)	159	Nos.		
3	MTM THERMOCOUPLE (EACH OF 10M,12M,14M,16M, 30M-LENGTH)	161	Nos.		
4	THERMOMETER / Temp. gauge (capillary as well as non capillary type)	233	Nos.		
5	RTD (PRT, CRT, MINIATURE RTD, ETC.)	447	Nos.		
6	Thermowells (Threaded/flanged/Tungsten carbide/ incoloy etc.)	372	Nos.		
7	Temperature Switch/ thermostat	3	Nos.		
8	Pressure Transmitter / Differential Pressure Transmitter/ Absolute Pr. Transmitter/vacuum Transmitters/Electronic transmitter	408	Nos.		
9	Flow transmitter/switch	5	Nos.		
10	Pressure Switch/ DP switch/ vacuum switch	70	Nos.		
11	Pressure gauge/DP gauge/vacuum gauge	500	Nos.		
12	Level switch (Float type/capacitance type/ conductivity type)	53	Nos.		
13	LEVEL SWITCH UNIT WITH AMPLIFIER (LLD)	15	No.		
14	Level transmitters (capacitance type, top mounted, displacement type)	30	Nos.		
15	Limit switch	80	Nos.		
16	Solenoid valve	54	Nos.		
17	Position Transmitters	16	Nos.		
18	Air Filter Regulator	48	Nos.		

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
19	By Pass Rotameter	9	Nos.		
20	Electronic water Level Indicator	1	Nos.		
21	Speed measuring probes	24	Nos.		
22	Vib, Axial displacement probes/transducer	70	Nos.		
23	Proximitors	32	Nos.		
24	Piezoelectric Transducer including mounting pad	113	Nos.		
25	Phase Marker Sensors - 8 mm probe with 1 meter armour cable	21	Nos.		
26	Dual seismic Monitor	56	Nos.		
27	Analyser Transducer	4	Nos.		
28	SOx/NOx Analyser	1	Set		
29	CO Analyser	2	Sets		
30	Oxygen Analyser	4	Sets		
31	Opacity Monitor / Smoke Density Analyser / Dust Analyser	2	Sets		
32	Conductivity Analyser	8	Nos.		
33	pH Analyser	9	Nos.		
34	Dissolved Oxygen Analyser	4	Nos.		
35	Silica Analyser	1	Nos.		
36	Sodium Analyser	3	Nos.		

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TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
37	Hydrazine Analyser	1	Nos.		
38	Conductivity analyser withdrawable type	2	Nos.		
39	Phosphate Analyser	2	Nos.		
40	Condensate Pots	128	Nos.		
41	Impact Type Head Element (Anu Bar)	2	No.		
42	Guided Wave Radar Type Level Transmitter	12	Nos.		
43	UCB mounted instruments/ indicator/ recorder / control station / integrator/controller	120	Nos.		
44	Flame Scanner Head Assembly	28	Nos.		
45	Hea Ignitor	16	Nos.		
46	Excitor Box	16	Nos.		
I	CALIBRATION/ COMISSIONING (Erection excluded)				
1	Power Cylinder (on-off type)	90	Nos.		
2	Power Cylinder(Regulating type)	10	Nos.		
3	Control valves (ON-OFF)	80	NO.		
4	Control valves (Regulating)	27	NO.		
5	Governing system control rack	1	NO.		
6	LP bypass control rack	1	NO.		
7	Extraction NRV / Spray water control valve	5	NO.		

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate (in Rs.)	Total Amount (in Rs.)
		'A'	'B'	'C'	'D'='A'x'C'
8	Gland steam control valve	2	NO.		
9	HPBP Pr. & Temp. control valve	4	NO.		
10	HPBP spray block valve	1	NO.		
11	Removal, calibration, re-mounting and commissioning of instruments for Skid. Each skid will have minimum of 05 no. instruments e.g. PG/PS/TG/DPI /DPS/TS/RPM meter with probe/LS/ LG/FS/FI etc. Dressing of capillary & cables if any, repair of Cu-tube / impulse pipe, if any, changing of terminals of JB. if any, is also included.	20	NO.		
J	POWER CYLINDERS				
1	Power cylinder (on-off type)	12	NO.		
2	Power cylinder (regulating type) including SADC cylinders	120	NO.		
K	UPS/BATTERY				
1	130KVA UPS System with ACDB	1	Set		
2	Battery for UPS with all accessories	2	Sets		
L	MISCELLANEOUS				
1	Supply of crimping lugs 0.5 to 2.5sqmm	20000	NO.		
2	Fabrication of canopy (structural matl. And GI sheet will be provided by BHEL free of cost)	2	MT		
M	PG TEST ITEMS				
1	1/2" Impulse Pipe	800	meter		
2	Compensating Cable (2C, Core size upto 2.5 sqmm) laying & termination	1350	meter		

VOL-III(A) (BOQ CUM RATE SCHEDULE), REV-01

JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM PERTAINING TO BOILER & AUX, TG & AUX AND STATION C&I, AND C&I OF BALANCE SYSTEM / ITEM FOR 2X500MW KODERMA PROJECT, JHARKHAND.

TENDER NO :- PSER:SCT:KDM-I1102:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty	Unit	Unit Rate	Total Amount
		'A'	'B'	(in Rs.) 'C'	(in Rs.) 'D'='A'x'C'
3	2C, Core size upto 2.5 sqmm cable laying & termination	3000	meter		
4	4C, Core size upto 2.5 sqmm cable laying & termination	3000	meter		
5	Pre-fab cable from Data logger to computer	50	meter		
6	Junction Box	80	no.		
7	Thermocouple	45	no.		
8	Pr. / vacuum / DP Transmitters	70	no.		
9	Data logger	1	set		
10	Manometer	10	no.		
11	Thermowell	100	no.		
12	PRT (Pt. Resistance thermometer)	90	no.		
13	Barometer	1	no.		
14	Power meter / transducer	10	no.		
GRAND TOTAL					

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Receipt from stores, handling/rehandling, transportation to the place of erection, testing, commissioning of complete C&I system including all max system & panels MMI system pertaining to Boiler & Aux, TG & Aux, Station C&I and C&I of balance system / item for 2x500mw unit# 1 & 2 at Koderma TPP ,Jharkhand.	
Ref	1.0	Tender no PSER:SCT:KDM-I1102:10.
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:KDM-I1102:10 Dated 29-04-2010
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KDM-I1102:TCN-01, dated 17-05-10.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

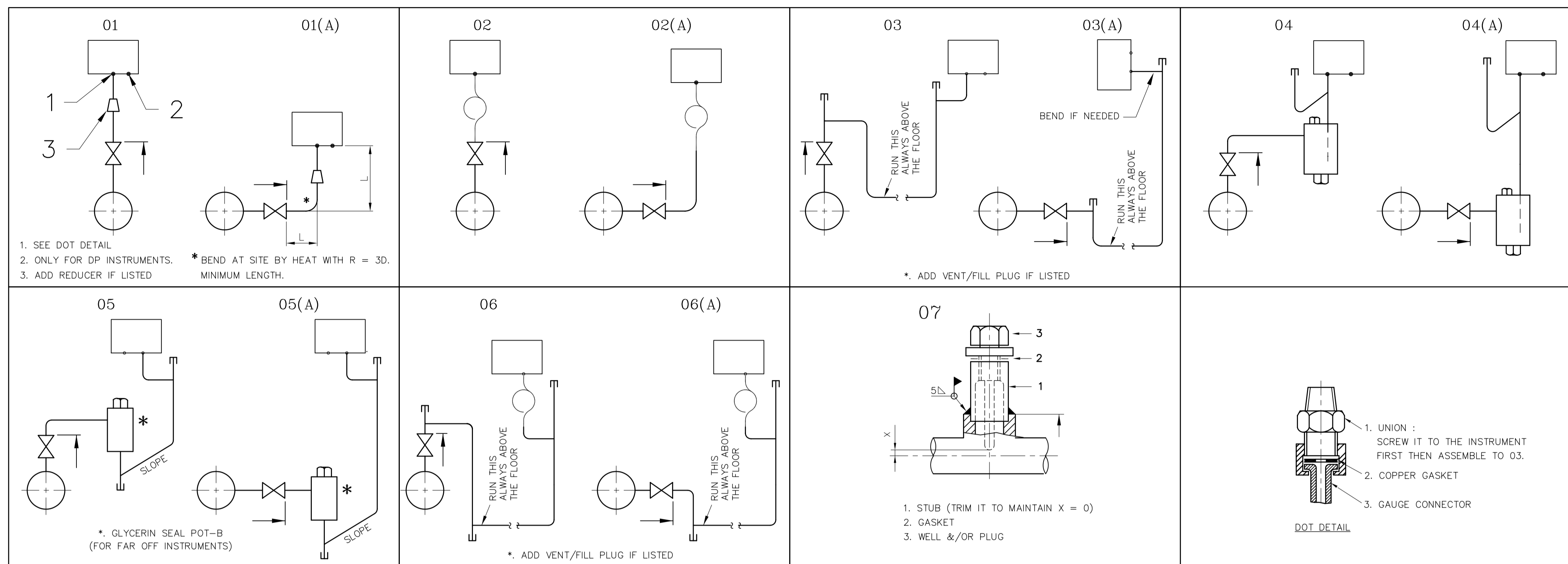
We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized representative of the bidder)

				ANNEXURE-A
Tender Document No. - PSER:SCT:KDM-I1102:10				
NOTE: All clarification as below shall be applicable for Koderma U#1 & U#2 project.				
SL.	Reference clause of Tender document	Existing provision	Bidder's Query	BHEL's clarification
1	E-1 Page No. 7 of 31 of Price schedule	Fab.& erection of Air header for SADC power cylinder with 1/2" to 2" GI pipe and valve etc. (1 I/L, 14 O/L, drain & vent	Kindly confirm wheather our supply includes only G.I fittings. Valve & pipes free issue by BHEL	All items shall be supplied by BHEL free of cost. Relevant item of the Vol-III is being revised. Please refer the revised price schedule (Rev 01).
2	E-2 Page No. 7 of 31 of Price schedule	Fab.& erection of Air filter station for SADC power cylinder with 1" GI pipe and valve and Air filter regulator.	Please provide a sketch or let us know the size & quantity of fittings. Also confirm valve, pipes & Air filter regulators are free issue by BHEL.	
3	F- 2,3,4,5,6,7 Page No. 8 of 31 of Price schedule	2) Electrical control panel. 3) Unit control panel. 4) Network panel DCS - LAN A. 5) Network panel DCS - LAN B. 6) Network panel HMI - LAN A & B. 7) Power distribution panel.	Kindly confirm dimensions of panels and items included in set.	Drawing of CCR/EER/Control room Layout for tendering purpose enclosed.
4	F- 31 Page No. 9 of 31 of Price schedule	Station LAN items	Please specify details of items.	Relevant item of Vol-III being revised. Please refer the revised price schedule (Rev 01).
5	G- 8,9,10,11,13,14,15 Page No. 11 of 31 of Price schedule	8) PW skid. 9) H2 Gas unit. 10) Seal oil skid. 11) TD BFP governing skid. 13) Lub oil skid of mill. 14) Vacuum pump instrumentation. 15) MD BFP scoop instruments.	Kindly confirm detail scope included in each skid.	PW skid is having 14 nos. transmitters. H2 gas skid is a panel. All other skids are having maximum 5 nos. of instruments.
6	Pg. 6 of 19	Impulse Pipe/ Cu Tube / Conduit)	1. Please provide the Instrument Installation Standard Drawings. 2. Just confirm average number of joints per meter in case of impulse piping.	Instrument Installation standard drawing encl. for reference and tendering purpose. No. of joints per meter shall be as per site Layout drawing.
7	Pg.8 of 19	Size of Panels	Please provide the Furniture Size of Panel	
8	Pg.11 & 12 of 19	Size of Racks	Please provide the Size of Racks.	



INSTRUMENTS	CONNECTION STYLE NO.	AREAWISE QUANTITY										TOTAL QUANTITY	REQUIRED ITEM NOS. IN SERIATIM									
		LFO PUMP SET	HFO PUMP SET	HFO HEATER SET-OIL & COOLER SET	HEATER - STEAM	LFO BOILER FRONT	HFO BOILER FRONT	AIR BOILER FRONT	STEAM BOILER FRONT	HFO BURNER(SKID)	STEAM BURNER(SKID)		DRAIN OIL SYSTEM BOILER FRONT	DRAIN OIL SYSTEM BOILER REAR	DRAIN OIL SYSTEM LFO PUMP HOUSE	06	09	07	09			
PRESSURE INDICATOR	01	6				3	1															
	02		8	5			6			3				2	2	23	07	09				
PI/PP	04				6						20					20	11	17	07	09		
	03	7				4		3								14	16	01	16	06	09	10
PT	05		10	8			6						2	2	28	12	16	01	16	07	09	10
	06								3						3	16	01	16	13	09	10	
PS/PSAL PSCL/PSCH	04		3												3	11	17	07	09	10		
TI/TE/TSAL TSCL/TSCH	07		1	17	3		7		3				3	3	37	14	08	15				
TW/TP	07		2				1		1						4	14	08	18	08	15		

NOTES :

01. MATERIALS UPTO ARROW MARK AND INSTRUMENTS ARE RELEASED IN OTHER PGMAs.

02. REQUIRED ITEMS ARE GIVEN IN SERIATIM IN THE CHART.

03. OVER HEAD WELDING TO BE AVOIDED. REFER TO LISTED STYLE : TRIAL ASSEMBLY BY TACK WELDING TO SUIT THE LAYOUT AND FULL WELD THE ASSY. ON THE FLOOR ; FINALLY WELD IN POSITION TO THE ISOLATING VALVE.

04. DO NOT USE EXTENSION PIPE UNLESS LISTED.

05. REFERENCE DRGS. : WELDING NOTES : 2-00-056-10106
SEAL POT ERECTION : 4-42-005-02589

06. ADOPT ALTERNATIVE STYLES, AS REQD. USE THE MATLS. RELEASED.

07. BEND AT SITE WITH R=3D, IF REQUIRED.

08. USE ITEM NOS. 19 TO 21, IF REQUIRED.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QTY	ZONE
	21	UNION M20X1.5-M 1/4" NPT (M)		3-42-000-00870	02	SA 105	C	NO	0.140		
		HEX.SCREW PLUG M 20 X 1.5		3-42-000-00877	01	SA 105	C	L	0.110		
	19	GASKET SH2 X D32 / D22		4-42-900-00073	01	COPPER		NO	0.030		
						16 011 245		L	3		
	18	THERMOMETER WELL		3-42-900-00558	02	SA 105	C	NO	0.400		
						15 339 142		L	6		
	17	FILL PIPE		3-42-005-01181	01	TO 04		NO	0.510		
						ASSY.		L	30		
	16	FILL/VENT/ DRAIN PLUG		3-42-005-01180	01	TO 04		NO	0.469		
						WELDMENT		L	110		
	15	METRIC PLUG M33 X 2		3-42-000-00877	04	SA 105	C	NO	0.450		
						15 339 143		L	50		
	14	THREADED STUB M33 X 2		4-42-005-02643	01	SA 105	C	NO	0.510		
						ASSY.		L	50		
	13	CONDENSING LOOP M 20 X 1.5		2-42-000-00352	01	TO 04		NO	1.360		
						WELDMENT		L	40		
	12	GLYCERIN SEALPOT-B		3-42-000-00832	01	TO 06		NO	1.520		
						WELDMENT		L	35		
	11	GLYCERIN SEALPOT-A		3-42-000-00831	01	TO 08		NO	1.700		
						WELDMENT		L	30		
	10	UNION M20X1.5-M 1/2" NPT (M)		3-42-000-00870	04	SA 105	C	NO	0.160		
						16 011 245		L	60		
	09	GASKET SH2 X D17 / D7		4-42-900-00073	03	COPPER		NO	0.010		
						16 011 245		L	156		
	08	GASKET SH2 X D46 / D34		4-42-900-00073	05	COPPER		NO	0.010		
						16 011 245		L	60		
	07	GAUGE CONNECTOR I		3-42-030-00849	02	WELDMENT		NO	0.350		
						01 TO 03		L	90		
	06	GAUGE CONNECTOR II		3-42-030-00850	01	TO 03		NO	0.220		
						WELDMENT		L	30		
	05	SW. ELL 1/2"				92 104 425	C	NO	0.239		
						SA 105		L	70		
	04	SW ELL 1"				92 104 426	C	NO	0.589		
						SA 105		L	70		
	03	TUBE 1" SCH40				15 182 010	C	MR	2.500		
						SA 106 GR.B		L	20		
	02	TUBE 1/2" SCH80				15 182 002	C	MR	1.620		
						SA 106 GR.B		L	125		
	01	TUBE D 14 X 2				15 186 005	C	MR	0.626		
						SA 210 GR.A1		L	60		

TOTAL WEIGHT (kg) : 674.640

CUSTOMER NO. : 0652 & 0653

DAMODAR VALLEY CORPORATION
DURGAPUR STEEL THERMAL POWER STATION
2 x 500 MW, UNITS-1 & 2

BHARAT HEAVY ELECTRICALS LTD
BOILER PLANT UNIT
TIRUCHIRAPALLI -- 620 014

NAME	SIGN	DATE
DRN S.Manivannan	-Sd-	23-03-2008
DESN S.Selvaraju	-Sd-	24-03-2008
CHD M.Thandapani	-Sd-	24-03-2008
APPD S.V.Sivaramulu	-Sd-	24-03-2008

TITLE: INSTRUMENT FITTINGS

DRAWING NO. 1-42-005-01522

SCALE : NTS

BHEL DRG NO. 1-42-005-01522

SHEET 01 OF 01 REV 01

REV.NO	DATE	ALTD	CHD & APPD
01	08.01.09	A.Rafique	S.Selvaraju

ITEM No.14 DWG No. 4-42-005-02643
WAS 4-42-005-03702.

ITEM No.15 DWG No.3-42-000-00877
WAS 4-42-005-03703.

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SH.NO	DESCRIPTION	DRAWING No.	REVISION NO				
			01				05
01.	LIST OF INSTRUMENT INSTALLATION DIAGRAM.	3-97-590-16943					
02.							
03.	PRESSURE GAUGE INSTALLATION (AIR/FLUE GAS DUCTS).	3-97-590-16944					
04.							
05.	DIFF. PRESSURE GAUGE INSTALLATION (AIR/FLUE GAS DUCTS).	3-97-590-16945	X				
06.							
07.	V O I D						

NOTES :

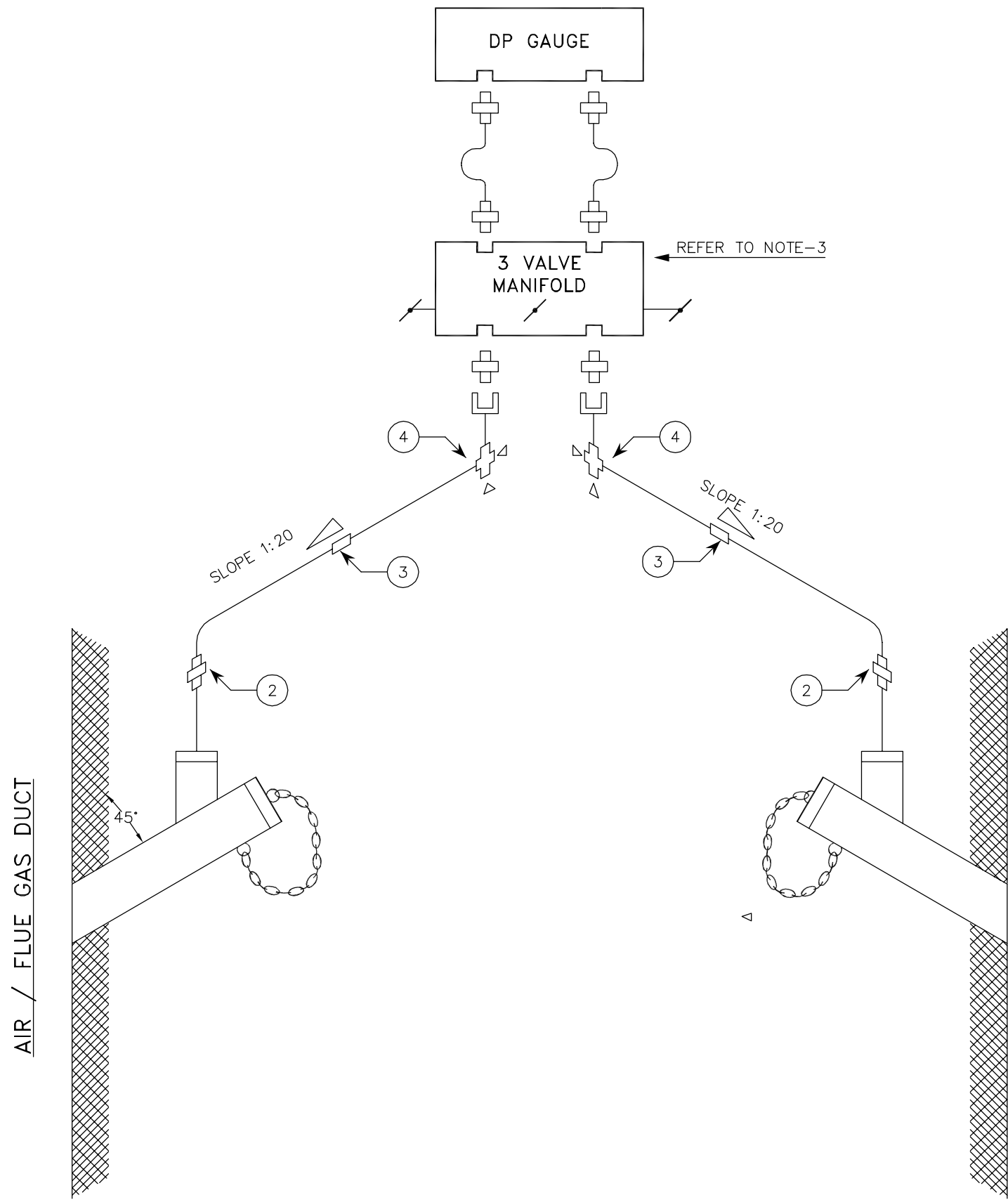
- FOR INSTRUMENTS PROVIDED ON AIR & FLUE GAS SYSTEM AND PULVERISER SYSTEM THE REQUIRED IMPULSE PIPES AND FITTINGS ARE COVERED IN PGMA 97-590. INSTRUMENTS ARE SUPPLIED IN PGMA 97-284 & 97-285.
- FOR INSTRUMENTS PROVIDED ON STEAM AND WATER LINES, THE REQUIRED IMPULSE PIPES AND FITTINGS ARE COVERED IN PGMA 21-600, 24-X00, 21-601 & 24-X01. INSTRUMENTS ARE SUPPLIED IN PGMA 97-284 & 97-285.
- FOR INSTRUMENTS PROVIDED ON FUEL OIL SYSTEM, THE REQUIRED IMPULSE PIPES AND FITTINGS ARE COVERED IN PGMA 42-005. THE INSTRUMENTS ARE SUPPLIED IN PGMA 97-284 & 97-285 AND REFER DRG. No. 1-42-005-01522.

LEGEND :

- CI - C&I / PE(B)
- BM - BOILER MOUNTING PE(B)
- FF - FUEL FIRING / PE(B)
- PC - PIPING CENTER / CHENNAI
- FAP - FIREMAN'S AISLE PANEL
- SW - SOCKET WELDABLE

REV	DATE	ALTERED :
		CHD./APPD. :
ZONE		

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPPALLI - 620014		DRN	NAME	SIGNATURE	DATE	NO. OF VAR
	DEPT. : C & I		ALL DIMENSIONS ARE IN MM	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	ITEM NO	No OF ITEMS	
	CODE : 392								
	TITLE		INSTALLATION DIAGRAM Sheet 01 of 07		CARD CODE	DRAWING NO :		REV	
				U 01	3-97-590-16943		00		



ITEM No.	DESCRIPTION	FLUE GAS INSTRUMENT	AIR PATH INSTRUMENT	AGENCY
1	1/2" SCH 80 IMPULSE PIPE CARBON STEEL	30M	20M	CI
2	1/2" FORGED CARBON STEEL UNION (SW)	2	2	CI
3	1/2" FORGED CARBON STEEL COUPLING (SW)	4	4	CI
4	1/2" FORGED CARBON STEEL CROSS WITH 2 Nos. PLUGS.	2	2	CI
6	1/2" NPT(M) X M20 X 1.5 (M) FORGED CARBON STEEL CONNECTOR	2	2	CI
7	1/2" HEAD & TAIL PIECE WITH COPPER WASHER	2	2	CI

NOTES:

1. (X) "X" DENOTES ITEM NO.
2. ALL FITTINGS ARE RATED FOR 3000 PSI.
3. 3 VALVE MANIFOLD WITH CONNECTOR (4 NOS. ADAPTORS AND 2 NOS. SS TUBES) PER INSTRUMENT IS SUPPLIED AS PART OF THE DP GAUGE UNDER PGMA 97-284.
4. CLAMPS ARE PROVIDED TO SUPPORT THE IMPULSE PIPE AT AN INTERVAL OF 1.5M (SUPPLIED BY THE AGENCY WHO RELEASE IMPULSE PIPE)

REV	DATE	ALTERED :
		CHD./APPD. :

 TIRUCHIRAPPALLI DEPT. : C&I CODE : 392	DAMODAR VALLEY CORPORATION DURGAPUR THERMAL POWER PROJECT 2X500 MW Cust. No. 0652 & 0653	DRN. NAME A.Thambu raj	SIGNATURE 	DATE 11-07-09	SCALE NTS
		CHD. K.Rathnasekar		11-07-09	
		APPD. S.Ramachandran		11-07-09	
	TITLE DIFF. PR. GAUGE INSTALLATION (AIR/FLUE GAS DUCTS)	SHEET NO. 05/07		DRAWING NO : 3-97-590-16945 00	REV 00

