



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 01

Ref: PSER:SCT:DGP-I1103:TCN-01

Date: 17-05-2010

Sub	Tender change notice (TCN- 01).	
Job	Erection, testing, commissioning etc of control & instrumentation (C&I) package for 2x500 MW unit # 1 & 2 at Durgapur Thermal Power Station, West Bengal.	
Ref	1.0	Tender no PSER:SCT:DGP-I1103:10.
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:DGP-I1103:10 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 Due date of submission of offer is extended from **20-05-2010** to **24-05-2010, 15-00 hrs**
- 2.0 Technical clarifications attached vide annexure-A to TCN-01.
- 3.0 Three no. of drawings are attached as per following.
 - a) Control Room Layout Drawing
 - b) Standard Instrument Fitting Drawing.
 - c) Standard Instrument Installation Drawing.
- 4.0 **BOQ cum price schedule format VOL-III PRICE SCHEDULE, REV-0** has been revised as **VOL-III-PRICE SCHEDULE, REV-1** 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are requested to consider the revised BOQ/price schedule only and quote your price accordingly.** Offer from bidders in superseded price schedule (Vol-III, REV-0) shall not be considered.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 , PRICE SCHEDULE , REV-1)**
- 5.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 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 , PRICE SCHEDULE , REV-1**)
- 2.0 Three no. of drawings (Control Room Layout Drawing; Standard Instrument Fitting Drawing; Standard Instrument Installation Drawing) .
- 3.0 Technical clarifications attached vide annexure-A to TCN-01.
- 4.0 Revised format of 'No deviation certificate'.

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

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	Erection, testing, commissioning etc of control & instrumentation (C&I) package for 2x500 MW unit # 1 & 2 at Durgapur Thermal Power Station, West Bengal.	
Ref	1.0	Tender no PSER:SCT:DGP-I1103:10.
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:DGP-I1103:10 Dated 29-04-2010
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:DGP-I1103: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)

	<u>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 DURGAPUR THERMAL POWER STATION WEST-BENGAL .</u>
	<u>TENDER DOCUMENT NO: PSER:SCT:DGP-I1103:10</u>
	<u>VOLUME – III (Rev-01)</u>
	<u>PREAMBLE</u>
1	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 Volume-IB, IE , Volume – II and other tender sections as applicable.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	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(except service tax), 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 complete tender document and this schedule.
5	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 awarded price as per LOI .
6	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures 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.
7	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 language.
8	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
9	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.
10	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
11	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.
12	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
	Note : Bidders to note the following for quoting their rates.
	1) Only authorised persons of bidder having power should sign in the price bid. All the pages must be signed.
	2) Quoted rates shall be inclusive of all taxes, duties etc., except service tax as per tender terms. Service tax(as applicable) shall be payable/reimbursable extra as per tender terms.

VOL-IIIA (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 DURGAPUR THERMAL POWER STATION WEST-BENGAL .

TENDER NO. PSER:SCT:DGP-I1103:10

SUMMARY PRICE SCHEDULE

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

VOL-IIIA (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 DURGAPUR THERMAL POWER STATION WEST-BENGAL .

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP OF SUMMARY SCHEDULE

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

**VOL-III , REV-01
PRICE SCHEDULE**

**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 DURGAPUR
THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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		
6	19CX1.5 SQMM CONTROL CABLE	1000	Mtrs		
7	10Px0.6sqmm PTFE probe cable	50	Mtrs		

**VOL-III , REV-01
PRICE SCHEDULE**

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THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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.		

**VOL-III , REV-01
PRICE SCHEDULE**

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THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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		
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		

**VOL-III , REV-01
PRICE SCHEDULE**

**JOB: ERECTION, TESTING, COMMISSIONING OF COMPLETE C&I SYSTEM INCLUDING ALL MAX SYSTEM & PANELS MMI SYSTEM
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THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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				
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		

**VOL-III , REV-01
PRICE SCHEDULE**

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THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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.		

**VOL-III , REV-01
PRICE SCHEDULE**

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THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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 -(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.		

**VOL-III , REV-01
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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
34	BHELVISION 20M (EWLI) ASCERTOR CABINET	2	Nos.		
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-III , REV-01
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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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 , REV-01
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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
9	Flow transmitter/switch	5	Nos.		

**VOL-III , REV-01
PRICE SCHEDULE**

**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 DURGAPUR
THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
27	Analyser Transducer	4	Nos.		
28	SOx/NOx Analyser	1	Set		
29	CO Analyser	2	Sets		
30	Oxygen Analyser	4	Sets		

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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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.		

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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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/Fl 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		

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BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		

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BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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		

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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT #1

Sl. No.	Item Description	Qty for unit # 1	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 1 (in Rs.)
		A	B	C	D= AXC
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.		
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					

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TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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		
6	19CX1.5 SQMM CONTROL CABLE	1000	Mtrs		
7	10Px0.6sqmm PTFE probe cable	50	Mtrs		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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.		
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.		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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		
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		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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				
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 planel	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		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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.		
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.		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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.		
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 :				

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
6.1	LIE TYPE A	8	Nos.		
6.2	LIE TYPE B	17	Nos.		
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.		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
20	HART Management System Panel	1	No.		
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.		
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.		

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BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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	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.		

**VOL-III , REV-01
PRICE SCHEDULE**

**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 DURGAPUR
THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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.		
8	Gland steam control valve	2	NO.		

**VOL-III , REV-01
PRICE SCHEDULE**

**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 DURGAPUR
THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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/Fl 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		

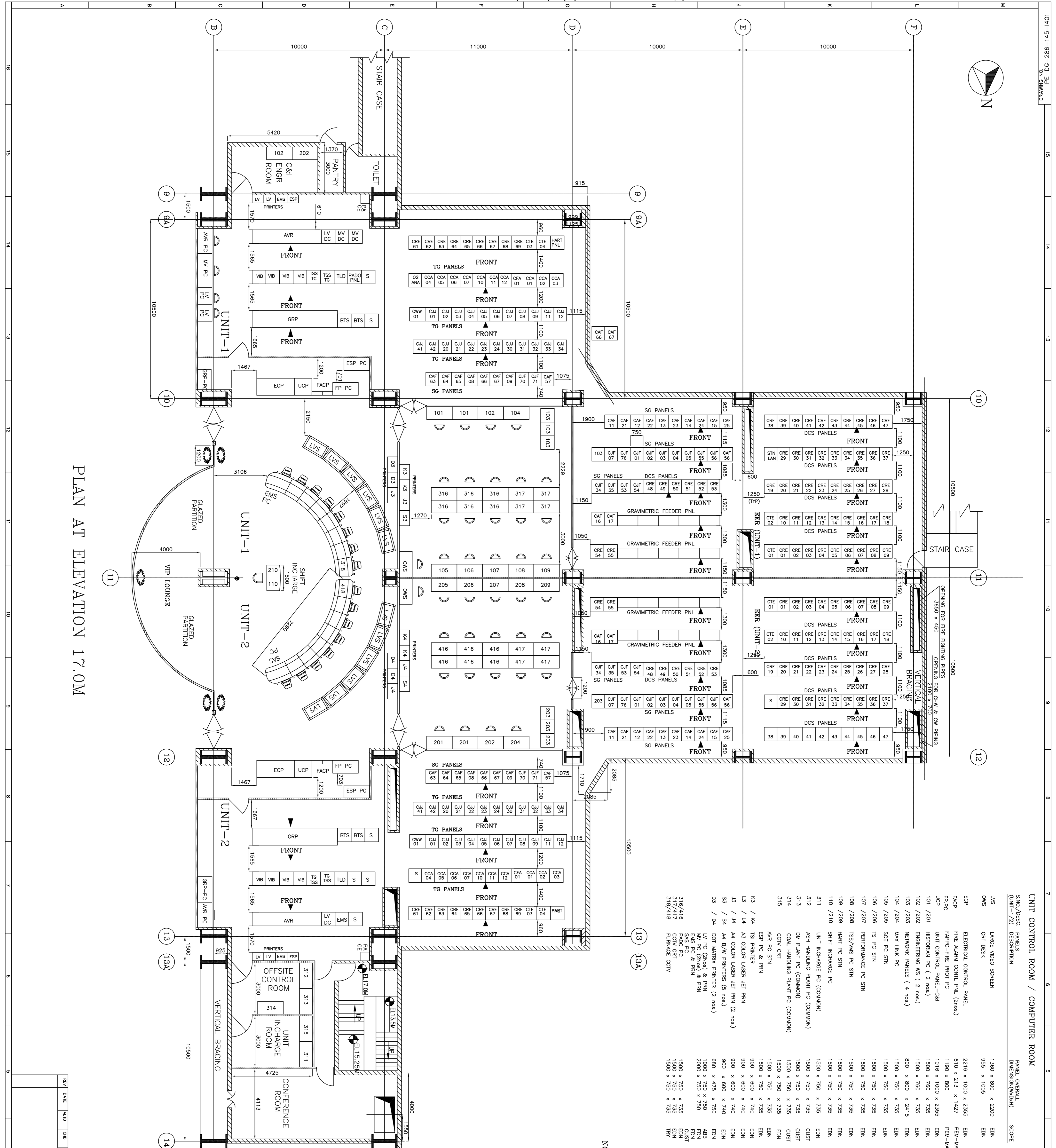
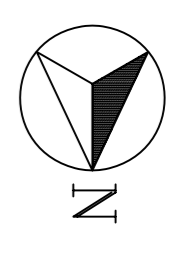
**VOL-III , REV-01
PRICE SCHEDULE**

**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 DURGAPUR
THERMAL POWER STATION WEST-BENGAL .**

TENDER NO. PSER:SCT:DGP-I1103:10

BREAK UP PRICE FOR UNIT # 2

Sl. No.	Item Description	Qty for Unit # 2	Unit	Unit Rate (in Rs.)	Total Amount For Unit # 2 (in Rs.)
		A	B	C	D= AXC
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.		
11	Thermowell	100	no.		
12	PRT (Pt. Resistance thermometer)	90	no.		
13	Barometer	1	no.		
14	Power meter / transducer	10	no.		
GRAND TOTAL					



PLAN AT ELEVATION 17.0M

UNIT CONTROL ROOM / COMPUTER ROOM

S.NO./DESC. (UNIT-1/2)	PANELS DESCRIPTION	OVERALL DIMENSION(WxH)	SCOPE
L/S	LARGE VIDEO SCREEN	1560 x 800 x 2200	EN
OWS	CRT DESK	955 x 1005	EN
ECP	ELECTRICAL CONTROL PANEL	2218 x 1000 x 2355	EN
FACP	FIRE ALARM CONTROL PNL (2nos)	610 x 213 x 1427	EN
FP/PC	FRAPC-FIRE PROT PC	1190 x 800	PEN-MAX
UCP	UNIT CONTROL PANEL-C&I	1016 x 1000 x 2395	EN
101 / 201	HISTORIAN PC (2 nos.)	1500 x 780 x 735	EN
102 / 202	ENGINEERING WS (2 nos.)	1500 x 780 x 735	EN
103 / 203	NETWORK PANELS (4 nos.)	800 x 800 x 2415	EN
104 / 204	MAX LINK PC	1500 x 750 x 735	EN
105 / 205	SOE PC STN	1500 x 750 x 735	EN
106 / 206	TSI PC STN	1500 x 750 x 735	EN
107 / 207	PERFORMANCE PC STN	1500 x 750 x 735	EN
108 / 208	TSI/MS PC STN	1500 x 750 x 735	EN
109 / 209	HART PC STN	1500 x 750 x 735	EN
110 / 210	SHIFT INCHARGE PC (COMMON)	1500 x 750 x 735	EN
311	UNIT INCHARGE PC (COMMON)	1500 x 750 x 735	EN
312	ASH HANDLING PLANT PC (COMMON)	1500 x 750 x 735	CUST
313	DM PLANT PC (COMMON)	1500 x 750 x 735	CUST
314	COAL HANDLING PLANT PC (COMMON)	1500 x 750 x 735	CUST
315	CCVY CRT	1500 x 750 x 735	EN
	ARR PC & PRN	1500 x 750 x 735	EN
K3 / K4	TSI PRINTER	900 x 600 x 740	EN
L3 / L4	A3 COLOR LASER JET PRN (2 nos.)	900 x 600 x 740	EN
J3 / J4	A4 COLOR LASER JET PRN (2 nos.)	900 x 600 x 740	EN
WS / S4	A4 B/W PRINTERS (5 nos.)	800 x 800 x 2415	EN
D3 / D4	DOT MATRIX PRINTER (2 nos.)	680 x 475 x 750	EN
	LV PC (2nos) & PRN	1000 x 750 x 750	ABR
	MS PC & PRN	2000 x 750 x 750	ABR
	PAPO PC	1500 x 750 x 735	CUST
	317/417 CCVY CRT	1500 x 750 x 735	EN
	318/418 FRAMING CCVY	1500 x 750 x 735	EN

ELECTRONIC EQPT ROOM

PANELS DESCRIPTION	OVERALL DIMENSION (WxH)	SCOPE
DCS PANELS (6 nos.)	750 x 800 x 2415	EN
EAST. AIRS PANELS (18 nos.)	750 x 800 x 2415	EN
GRP-1, GRP-2, GRP-3, GRP-4, GRP-5, GRP-6, GRP-7, GRP-8, GRP-9, GRP-10, GRP-11, GRP-12, GRP-13, GRP-14, GRP-15, GRP-16, GRP-17, GRP-18	750 x 800 x 2415	EN
TSI TO BFPs	950 x 800 x 2415	EN
FSSS (28 nos.)	750 x 800 x 2415	EN
SRP-300T BLOWER CONTROL (7 nos.)	750 x 800 x 2415	EN
HHP (2 nos.)	750 x 800 x 2415	EN
SMC. APPOS (2 nos.)	750 x 800 x 2415	EN
QAR16.17	750 x 800 x 2415	EN
FLAME SCANNER (2 nos.)	750 x 800 x 2415	EN
TRNSDUCER & AIR PANEL	750 x 800 x 2415	EN
RELAT PANELS (4 nos.)	750 x 800 x 2415	EN
VIBRATION PANEL (4 nos.)	800 x 800 x 2415	EN/H/O
TSI FOR TO VIBRATION (2 nos.)	800 x 800 x 2415	EN
GRAMMETRIC FOR PANELS (10 nos.)	1200 x 600 x 2355	EN
MC-MASTER CLOCK PANEL (COMMON FOR BOTH UNITS)	900 x 600 x 2415	EN
PA SYSTEM CENTRAL EXCHANGE (PA/CE COMMON)	545 x 545 x 1215	ELECT
GRP (GEN/ST/PRN. PANELS)	5000 x 1000 x 2295	BPL
HART PANEL (5)	1200 x 800 x 2415	EN
SPARE PANEL (5)	750 x 800 x 2415	EN
TSI FOR TUBE	750 x 1000 x 2415	EN
EMS PANEL (COMMON)	800 x 800 x 2415	EN
BUS TRANSFER PANEL (2 nos.)	800 x 800 x 2415	BPL
DATA CONCENTRATOR PNL (ZNO. COMMON) W/ DC	800 x 800 x 2415	EN
DATA CONCENTRATOR PNL (1 NO./UNIT)	800 x 1000 x 2200	ABR
ARR PANEL	4056 x 800 x 2415	EN
SONIC TUBE LEAK DETECTION SYSTEM	800 x 800 x 2315	TRY
SNM LNA	800 x 800 x 2315	EN
OZ LNA	800 x 800 x 2315	EN
PAPO PNL	800 x 800 x 2315	EN

NOTES:-

- THE DDCMS PANEL DIMENSIONS AND QUANTITIES ARE TENTATIVE.
- COLUMN SIZES CONSIDERED:
 - (a) 'B' ROW IS 1600X800.
 - (b) 'C' ROW IS 1500X800, EXCEPT COL. 12 IS 800X750.
 - (c) 'D', 'E', 'F' ROW IS 1000X700.
- WALL THICKNESS IS CONSIDERED TO BE 250MM, INNER WALLS ARE CONSIDERED TO BE 125MM.
- BRICK WALL WITH SINGLE SKIN CLADDING(250MM THK)
- AL FRAMED PARTIAL GLAZED (1000mm)
- PARTITION WALL ABOVE FALSE CEILING BETWEEN EER-1, EER-2 & UCR TO BE PROVIDED BY CIVIL, AS PER NFPA-2001 FOR FIRE PROTECTION BY INERT GAS SYSTEM.
- ONE KEY BOARD SHALL BE USED FOR OWS/LVS WITH KBM SWITCH
- 100MM DIA HOLES TO BE PROVIDED BELOW THE CRT TABLE & PRN FOR CABLING
- ONE NO. CCVY SHALL BE PLACED IN CHIEF ENGINEER'S ROOM

REF. DRGS.
1. TG EQUIPT PLAN AT 17.0M (UNIT-1 & 2) PE-DG-280-100-M005, BETWEEN COL. NO. 1 - 22

JOB NO.	2866				
STATUS	CONTRACT				
DAMODAR VALLEY CORPORATION KOLKATA					
2x500 MW - DURGAPUR STEEL TPS					
BHARAT HEAVY ELECTRICALS LTD.					
PROJECT ENGINEER					
NEW DELHI					
REV'T	DATE	BY	CHKD	APPD	TITLE
1.	20.02.10	CCR / EER / COMPUTER ROOM LAYOUT

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 :

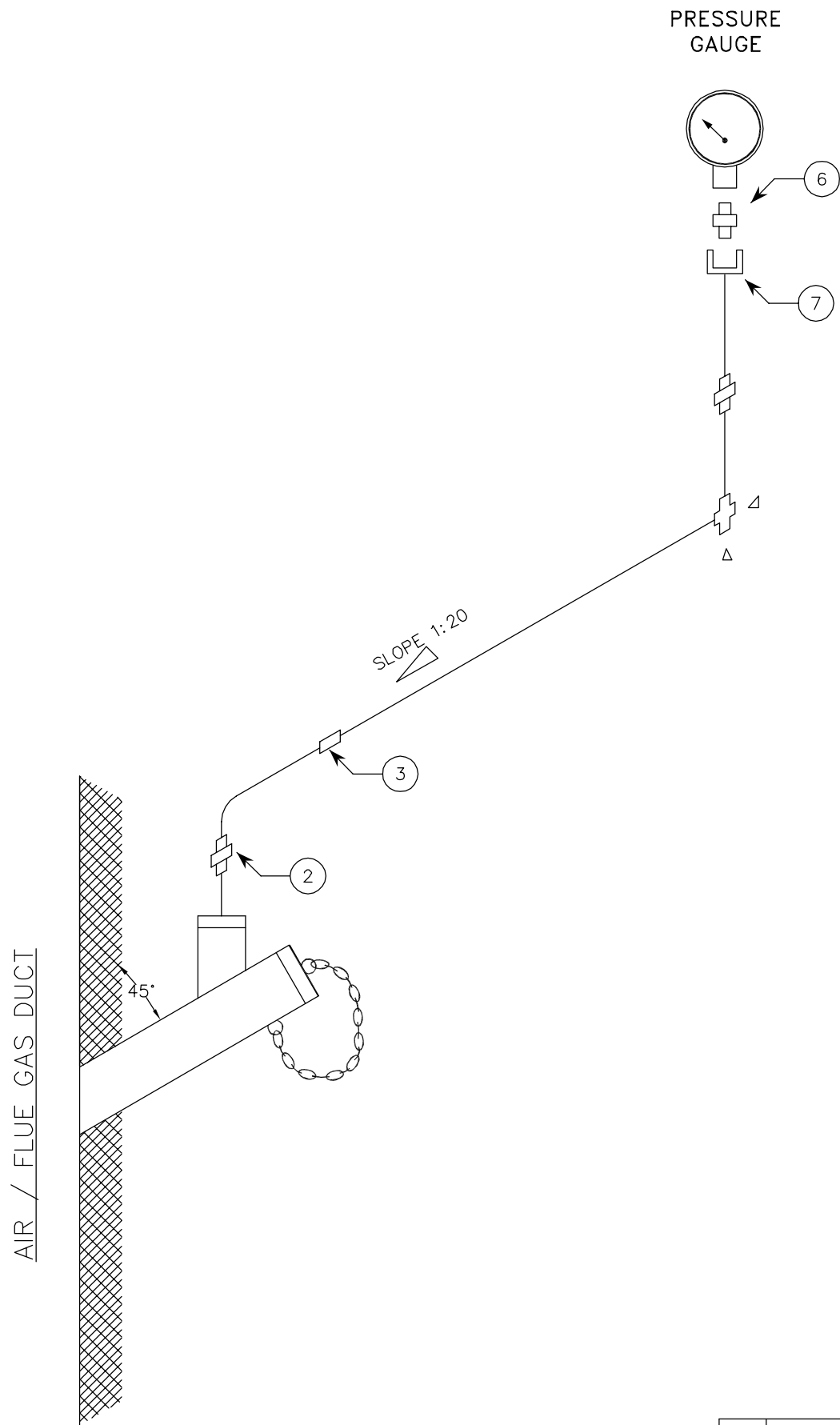
- FOR INSTRUMENTS PROVIDED ON AIR & FLUE GAS SYSTEM AND PULVERISER SYSTEM THE REQUIRED IMPULSE PIPES AND FITTINGS ARE COVERED IN PGMA 97-590. INSTRUMENTS ARE SUPPLIED IN PGMA 97-284 & 97-285.
- FOR INSTRUMENTS PROVIDED ON STEAM AND WATER LINES, THE REQUIRED IMPULSE PIPES AND FITTINGS ARE COVERED IN PGMA 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

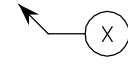
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		CHD./APPD. :
ZONE		


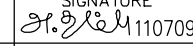
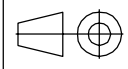
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPPALLI - 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		

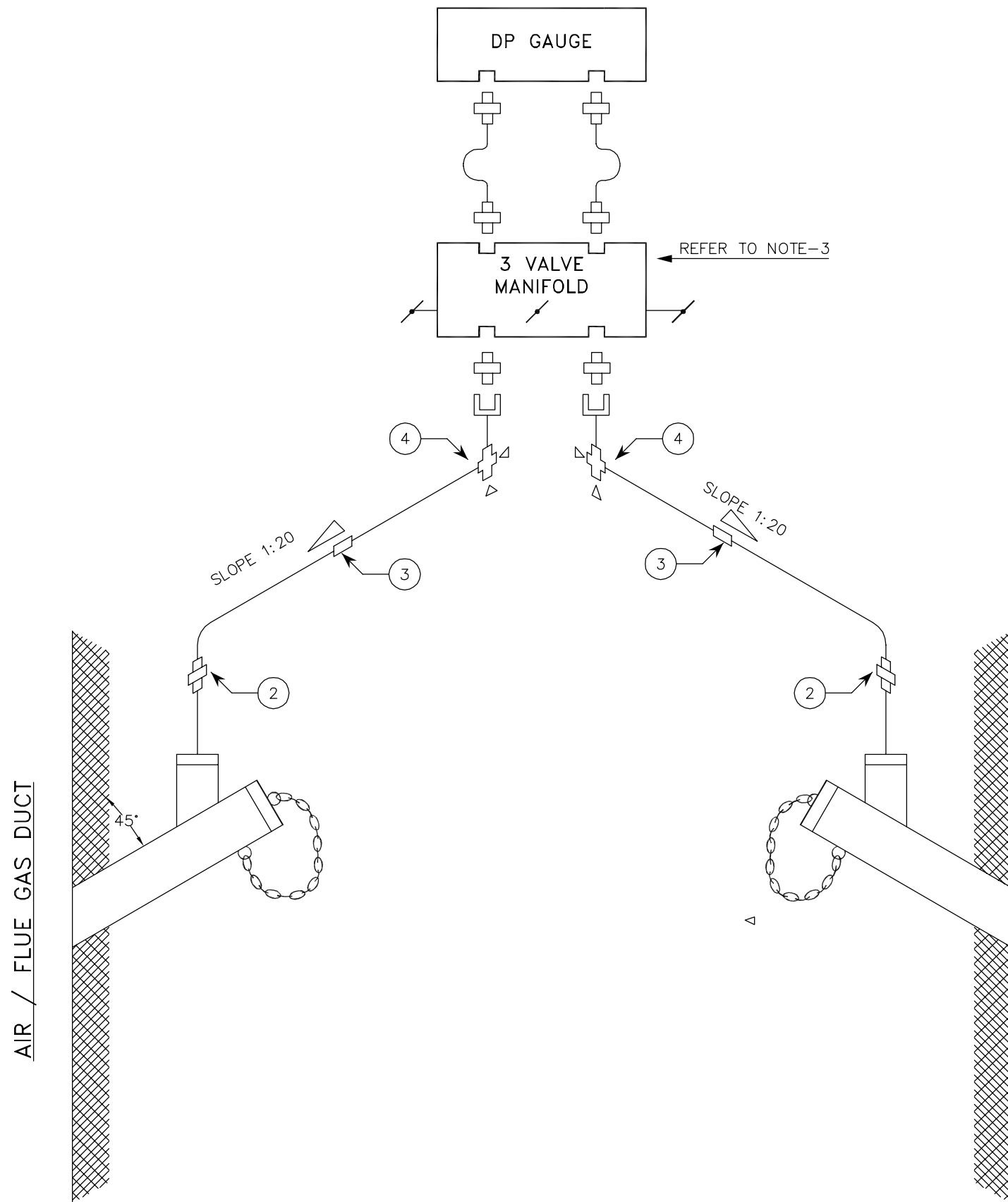


ITEM No.	DESCRIPTION	FLUE GAS INSTRUMENT	AIR PATH INSTRUMENT	AGENCY
1	1/2" SCH 80 IMPULSE PIPE CARBON STEEL	15M	10M	CI
2	1/2" FORGED CARBON STEEL UNION (SW)	2	2	CI
3	1/2" FORGED CARBON STEEL COUPLING (SW)	4	4	CI
4	1/2" FORGED CARBON STEEL CROSS WITH 2 Nos. PLUGS.	1	1	CI
6	1/2" NPT(M) X M20 X 1.5(M) CARBON STEEL CONNECTOR	1	1	CI
7	1/2" HEAD & TAIL PIECE WITH COPPER WASHER	1	1	CI

NOTES:

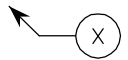
1.  "X" DENOTES ITEM NO.
2. ALL FITTINGS ARE RATED FOR 3000 PSI.
3. CLAMPS ARE PROVIDED TO SUPPORT THE IMPULSE PIPE AT AN INTERVAL OF 1.5M (SUPPLIED BY THE AGENCY WHO RELEASE IMPULSE PIPE)

REV	DATE	ALTERED :	 TIRUCHIRAPPALLI	DAMODAR VALLEY CORPORATION DURGAPUR THERMAL POWER PROJECT 2X500 MW Cust. No. 0652 & 0653	DRN.	NAME	SIGNATURE	DATE	SCALE
		CHD./APPD. :			APPD.	A.Thambu raj		11-07-09	
			DEPT. : C&I	TITLE	SHEET NO.	DRAWING NO. :		REV	
			CODE : 392	PRESSURE GAUGE INSTALLATION (AIR/FLUE GAS DUCTS)	03/07		3-97-590-16944	00	


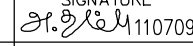
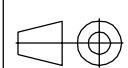


ITEM No.	DESCRIPTION	FLUE GAS INSTRUMENT	AIR PATH INSTRUMENT	AGENCY
1	1/2" SCH 80 IMPULSE PIPE CARBON STEEL	30M	20M	CI
2	1/2" FORGED CARBON STEEL UNION (SW)	2	2	CI
3	1/2" FORGED CARBON STEEL COUPLING (SW)	4	4	CI
4	1/2" FORGED CARBON STEEL CROSS WITH 2 Nos. PLUGS.	2	2	CI
6	1/2" NPT(M) X M20 X 1.5 (M)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

NOTES:

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

ANNEXURE-A TO TCN-01

Erection, testing, commissioning etc of control & instrumentation (C&I) package for 2x500 MW unit # 1 & 2 at Durgapur Thermal Power Station, West Bengal.				
TENDER NO. PSER:SCT:DGP-I1103:10				
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. 11of 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	Standard Drawing enclosed for reference and tendering purpose.
8	Pg.11 & 12 of 19	Size of Racks	Please provide the Size of Racks.	
9	PANELS AT SL. NO. F.1.a to d, F.2, F.3, F.5, F.6 & F.7 OF VOL-III OF UNIT#1 AT DSTPS PROJECT SITE, HAVE ALREADY BEEN SHIFTED FROM STORAGE YARD TO TURBINE FLOOR.			