

TENDER SPECIFICATION

NO: BHE/PW/PUR/KNT-CLE/623

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL AND CONTROL & INSTRUMENTATION WORKS FOR 1x 500 MW, UNIT# 7

AT

KORBA SUPER THERMAL POWER STATION,

NTPC LIMITED

KORBA, CHHATTISGARH STATE

PART II - PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

POWER SECTOR - WESTERN REGION

345, KINGS WAY - NAGPUR 440 001

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EARNEST MONEY DEPOSIT: Please refer Section 15

THESE TENDER DOCUMENTS CONTAINING PART-I TECHNICAL BID AND PART-II PRICE BID, ARE ISSUED TO:

M/s.....

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(THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE)

FOR BHARAT HEAVY ELECTRICALS LIMITED

Dy. GENERAL MANAGER (PURCHASE)

PLACE: NAGPUR

DATE :

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/KNT-CLE/623
Price Bid (Page 1 of 1)

NAME OF THE WORK: E, T, C of Electrical, C&I works of Boiler and its Auxl, Steam Turbine, Generator & their Auxl for 1X500MW Unit 7 Stage III at NTPC Korba STPS, Chattisgarh.

Description of Work	TOTAL LUMP SUM AMOUNT	
	In Figures (in Rupees)	In Words (in Rupees)
HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL AND CONTROL & INSTRUMENTATION WORKS FOR 1x 500 MW, UNIT# 7 AT KORBA SUPER THERMAL POWER STATION, NTPC LIMITED KORBA, CHHATTISGARH STATE BOQ attached as part of Price Bid		

Note:

1. Amount quoted shall be considered as the total lumpsum amount for the complete BOQ as given in Part-II: Price Bid.
2. Individual item rates shall be in proportion to the weightages specified in the BOQ.
3. Refer Clause 11.6.0 of tender specification for variation in quantity.

DATE

SIGNATURE & OFFICIAL SEAL OF BIDDER

BHARAT HEAVY ELECTRICALS LIMITED
PSWR - NAGPUR
T.S. NO. BHE/PW/PUR/KNT-CLE/623
BILL OF QUANTITIES

SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
A-1	ELECTROSTATIC PRECIPITATOR (ESP): TRANSPORTATION FROM STORES UPTO WORK SITE, PRE-ASSEMBLY, ERECTION, TESTING, COMMISSIONING, ETC. OF ELECTRICAL SYSTEMS AND EQUIPMENTS AS UNDER					
	A 1.1	AUXILIARY CONTROL PANEL (DOUBLE FRONT, DRAW OUT TYPE), 450 L x 150 D x 300 H IN MM	11000/PAN EL	4	No.	0.406%
	A 1.2	ELECTRONIC CONTROL PANEL, 700 L x 650W x 2450 H IN MM	300/PANEL	80	No.	1.161%
	A 1.3	ASH LEVEL INDICATOR, (HIGH & LOW), 900 L x 100 D x 100 H	15/ALI	320	No.	2.321%
	A 1.4	IOS PANEL, 1000 L x 650 W x 2000 H IN MM, along with loose accessories such as IOS PC with Colour Monitor (1220 L x 762 D IN MM), Computer Furniture, Data Logger PC with Colour Monitor (1220 L x 762 D IN MM), Printer (INKJET) (762 L x 610 W IN MM)-1 Nos. PC termination box, peripheral cables etc.	300/PANEL	1	No.	0.015%
	A 1.5	RAPPER CONTROL PANEL, 1000 L x 650 W x 2000 H IN MM	300/PANEL	8	No.	0.116%
	A 1.6	STATCON PANEL, , 1000 L x 650 W x 2000 H IN MM	300/PANEL	4	No.	0.058%
	A 1.7	INTERLOCKS	500/SET	4	SET	0.012%
	A 1.8	OPACITY MONITOR (OPM)	150/OPM	4	No.	0.070%
	A 1.9	LOCAL START STOP PUSH BUTTON FOR RAPPING MOTOR, 180 L x 100 D x 250 H IN MM	2.5/ PB	168	No.	0.244%
A-2		VFD SYSTEM - Dual Channel VARIABLE FREQUENCY DRIVE of ID FANS consists of Load Converter Inverter Panels, Control Panels, Reactors, Transformers, Vacuum Breakers and associated accessories as per tender specification.		1	SET	0.319%
A-3	DIGITAL STATIC EXCITATION SYSTEM TRANSPORTATION FROM STORES / STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION, TESTING, & COMMISSIONING OF DAVR EXCITATION SYSTEM					
	A 3.1	Digital AVR Excitation Equipments / System , System consist of Regulation , Thyristor , field suppression panels & Interpanel looping and associated cables upto Main Exciter / PMG and accessories as per tender specification.(REG., THY1,2, &FS) - 4 PANELS		1	SET	0.290%

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
A-4	SOOT BLOWER SYSTEM - TRANSPORTATION FROM STORES / STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION, TESTING, & COMMISSIONING OF 415 VOLT ELECTRICAL SYSTEMS OF SOOT BLOWERS COMPRISING OF SOOT BLOWER LT MCC WITH ACCESSORIES ALONG WITH COMMISSIONING OF THE SOOT BLOWERS (ERECTION OF THE SOOT BLOWERS EXCLUDED FROM THIS CONTRACT)					
	A 4.1	Soot Blower Motor Control Center, double front, overall dimension 152000(W)x2250(H)x1000(D), WT 12T, shall be supplied in eight to ten loose shipping sections	1500	1	Set	0.232%
	A 4.2	Testing & Commissioning of Wall, Long Retractable, Air Heater Soot Blower		132	No	1.072%
B-1	SG/TG CONTROLS & INSTRUMENTATION					
	B 1.1	Control Panel (approx L1000 X B1000 X H2500, 400 Kg) - one panel		6	SET	0.087%
	B 1.2	Control Panel (approx L1001 to 1500 X B1000 X H2500, 800 Kg) - suit of two panels		12	SET	0.244%
	B 1.3	Control Panel (approx L1501 to 2250 X B1000 X H2500, 1200 Kg) - suit of three panels		16	SET	0.464%
	B 1.4	Control Panel (approx L2251 to 3000 X B1000 X H2500, 1600 Kg) - suit of four panels		1	SET	0.044%
	B 1.5	Feeder Remote Power Cabinet, OD=1400X2365X610 MM	4000	10	Set	0.131%
	B 1.6	NETWORK PANELS (800x800x2100) & POWER DISTRIBUTION PANEL		4	No	0.052%
	B 1.7	Electronic Water level indicator(EWLI), OD=600X600X350 MM		4	Set	0.081%
	B 1.8	BURN. TILT SH. PIN FAIL. IND. BOX	48	4	No.	0.014%
	B 1.9	Scan Fan DC motor Starter box, OD=900X1120X375 MM	25	1	No.	0.015%
	B 1.10	CONDENSOR VACCUM PUMP SYSTEM		2	NO.	0.041%
	B 1.11	CCTV for stack viewing with cameras and controller, cables, PC, etc		4	Set	0.464%
	B 1.12	Steam tube leak detection sysetm		01	No.	0.058%
	B 1.13	Generator Instrumentation cabinet including annunciator (1230 x 1060 x 2550, 600 Kgs)		1	No	0.035%
	B 1.14	DC motor starter panel for DCSOP / DCEOP / DCJOP (1230x1060x2550, 450 Kgs each) including resistance box (approx 200Kg)		3	No	0.087%
	B 1.15	Vibration monitoring system for main turbine		1	SET	0.131%
	B 1.16	Vibration monitoring system for TDBFP		1	SET	0.087%

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PSWR - NAGPUR
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BILL OF QUANTITIES

SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	B 1.17	HEA EXCITER SYSETM		20	SET	0.087%
	B 1.18	Flame Scanner Head Assembly	281	46	No.	0.133%
	B 1.19	FURNACE TEMPERATURE PROBE		2	NO.	0.010%
	B 1.20	MODULAR RACK 6640MM(W) X 750MM(D) X 1500MM(H) (COMMON FOR SG & TG)		1	No.	0.110%
	B 1.21	Direct Water Level Gauge		2	No.	0.012%
C-1		SG/TG FIELD INSTRUMENTS/DEVICES				0.000%
	C 1.1	FSSS LGM Switch Box	80	20	No.	0.035%
	C 1.2	Coal flow Monitor	500	12	Set	0.063%
	C 1.3	MTM Thermocouple upto 34M length	4355	412	No.	1.554%
	C 1.4	PRESSURE GAUGE	592	195	No.	0.340%
	C 1.5	DRAFT GAUGE	96	32	No.	0.056%
	C 1.6	TEMP.GAUGES	125	25	No.	0.044%
	C 1.7	PRESSURE SWITCH	108	36	No.	0.073%
	C 1.8	LEVEL SWITCH(SUMP OIL)	6	2	No.	0.015%
	C 1.9	RF-LEVEL SWITCH-ASH	60	12	No.	0.104%
	C 1.10	WALL MOUNTED TYPE 240V AC,PDP,10AMPS	60	4	No.	0.023%
	C 1.11	PURGE METER	20	20	SET	0.012%
	C 1.12	Pressure / DP / Flow (DP type) / Level - Transmitter	360	102	No.	0.207%
	C 1.13	WATER DETECTOR		2	No.	0.009%
	C 1.14	LEVEL INDICATOR 0-1250 MM		4	No.	0.021%
	C 1.15	LEVEL SWITCH		2	No.	0.010%
	C 1.16	ELECTRONIC TRANSMITTERS. PT/DPT LEVEL/FLOW		172	No	0.898%
	C 1.17	SPEED SWITCH/SPEED DETECTOR		2	NO.	0.005%
	C 1.18	Power Distribution Box for Wall/LR/AH blower, OD=760X760X350	160	8	No.	0.028%
	C 1.19	2 Push button Box	20	4	No.	0.007%
	C 1.20	Vertical indicators (moving coil / bar graph)		20	Nos	0.041%

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	C 1.21	Digital / bargraph indicators		11	Nos	0.022%
	C 1.22	Recorder 24 / 30 Channel		2	Nos	0.009%
	C 1.23	Recorder 3 channel		2	Nos	0.006%
	C 1.24	SADC POWER CYLINDERS		72	NO.	0.376%
D-1	JUNCTION BOX					
	D 1.1	Junction boxes upto 48 way		335	No.	0.632%
	D 1.2	80 PT JUNCTION BOX		2	No.	0.004%
	D 1.3	48 PT JUNCTION BOX		2	No.	0.004%
	D 1.4	JUNCTION BOXES 64 WAY		220	No.	0.479%
	D 1.5	CJC BOXES K-12 / T-12		85	No.	0.197%
	D 1.6	JUNCTION BOX FOR OPACITY MONITOR / ALI - HIGH & LOW / HOPPER THERMOSTAT / START STOP PB, (WITHOUT CABLE GLAND), 250 L x 150 D x 400 H IN MM EACH	12 / JB	84	No	0.158%
	D 1.7	JUNCTION BOX FOR SHAFT INSULATOR HEATERS - VAR.01 / SUPPORT	12 /JB	40	No.	0.081%
	D 1.8	JUNCTION BOX FOR HOPPER HEATERS, 600 L x 278 D x 515 H IN MM	15/JB	160	No.	0.325%
	D 1.9	Miniature Junction Box	268	44	No.	0.083%
E-1	ELECTRICAL HOIST DSL CABLE TRAILING SYSTEM Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of misc. Electrically Operated Hoist for ID, FD, PA Fans, Coal Mills, ESP etc.					
	E 1.1	The hoist work comprises, erection, Testing Commissioning of Switch Fuse Unit, Cable Guide Trolley, Dog chain or Angle / I beam support arrangement, Real Insulators, Limit Switches , Trailing Cable, Testing of Control Panel, Motor and Assistance during Final Load test as described elsewhere in Tender.	1500/EOH	4	No.	0.174%
F-1	DC BATTERY SYSTEM (Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of BATTERY CHARGER, 24 VOLT BATTERY / BATTERY CHARGER FOR SG , TG&STATION C&I.FOPH,CWPH ETC.)					
	F 1.1	SG /TG C&I Parallel Redundant 24V DC supply and battery system consists of - 22/1040 AH Battery, Battery charger, battery racks (to be assembled), supplied in 4 nos (or two nos suite of 2) panels.		1	SET	0.435%
	F 1.2	240VUPS DISTRIBUTION BOARDS Dimension 500x500x200		14	No.	0.032%

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	F 1.3	150 KVA, UPS & Battery System with ACDB - for Main System (Total 5 Panels), Approx.Dimension of each panel 7000(w)x950(d)x2415(h) mm	25000	1	Set	0.276%
	F 1.4	25 KVA, UPS & Battery System with ACDB - for Offsite and Remote I/O system, Approx.Dimension of 3 panels 3000(w)x950(d)x2415(h) mm & Wt.2500kg approx of each panel.	10265	2	Set	0.290%
	F 1.5	20 KVA, UPS & BatterySystem with ACDB - for Offsite and Remote I/O system, Approx.Dimension of 3 panels 3000(w)x950(d)x2415(h) mm & Wt.2500kg approx of each panel..	10119	1	Set	0.131%
	F 1.6	15 KVA, UPS & Battery System with ACDB - for Offsite and Remote I/O system, Approx.Dimension of 3 panels 3000(w)x950(d)x2415(h) mm & Wt.2500kg approx of each panel..	9537	1	Set	0.102%
	F 1.7	10 KVA, UPS & Battery System with ACDB - for Offsite and Remote I/O system, Approx.Dimension of 3 panels 3000(w)x950(d)x2415(h) mm & Wt.2500kg approx of each panel..	8955	7	Set	0.508%
	F 1.8	24V DC power system, battery system with DCDB - for BOP consists of -1650/1700AH Battery, 1300 Amp Battery charger,l/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	5960	1	Set	0.435%
	F 1.9	24V DC power system, battery system with DCDB - for Offsite and Remote I/O system consists of -160/170AH Battery(2 sets), 130 Amp Battery charger,l/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	1900	7	Set	1.320%
	F 1.10	24V DC power system, battery system with DCDB - for Offsite and Remote I/O system consists of -245/255 AH Battery(2 sets), 200 Amp Battery charger,l/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	1960	4	Set	0.754%
	F 1.11	24V DC power system, battery system with DCDB - for Offsite and Remote I/O system consists of -365/375 AH Battery(2 sets), 280 Amp Battery charger,l/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	2260	5	Set	1.016%

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	F 1.12	24V DC power system, battery system with DCDB - for Offsite and Remote I/O system consists of -385/390 AH Battery(2 sets), 300 Amp Battery charger,I/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	2280	1	Set	0.203%
	F 1.13	24V DC power system, battery system with DCDB - for Offsite and Remote I/O system consists of -540 AH Battery(2 sets), 400 Amp Battery charger,I/p Isolation Transformer(4 panel), Rectifier(4 panels) ,DCDB (2 panels) as described in the Tender Specification.	2820	1	Set	0.218%
G-1	Power & Control Cables (Laying, glanding, dressing, clamping, termination & testing etc.)					
	G 1.1	LT POWER CABLES (UNARMOURED)				
	G 1.1.1	2C-120 SQ.MM AL		33250	M	1.737%
	G 1.1.2	3C-16 SQ.MM AL		1700	M	0.049%
	G 1.1.3	3C-25 SQ.MM AL		17650	M	0.615%
	G 1.1.4	3C-70 SQ.MM AL		2350	M	0.102%
	G 1.1.5	3C-2.5 SQ.MM CU		34300	M	1.095%
	G 1.1.6	2C-2.5 SQ.MM CU		12750	M	0.370%
	G 1.1.7	3C-6 SQ.MM CU		2000	M	0.087%
	G 1.1.8	2 CORE 10SQMM AL		1750	M	0.051%
	G 1.1.9	3 CORE 16 SQ.MM POWER CABLE		1900	M	0.088%
	G 1.1.10	3 CORE 2.5 SQ.MM POWER CABLE		11900	M	0.414%
	G 1.1.11	4CX2.5 SQ.MM COPPER POWER CABLE		1750	M	0.066%
	G 1.1.12	4CX1.5 SQ.MM COPPER POWER CABLE		4000	M	0.139%
	G 1.1.13	1Cx35mm		14000	M	0.366%
	G 1.1.14	1Cx120 mm		17000	M	0.592%
	G 1.1.15	1Cx630 mm		800	M	0.056%
	G 1.1.16	4CX2.5 mm		2000	M	0.087%
	G 1.2	LT CONTROL CABLES (ARMOURED/UN ARMOURED)				

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	G 1.2.1	2C-1.5 SQ .MM CU		2500	M	0.073%
	G 1.2.2	2 CORE 2.5 SQ.MM CONTROL CABLE		5600	M	0.162%
	G 1.2.3	3C-1.5 SQ.MM CU		42250	M	1.349%
	G 1.2.4	10C-1.5 SQ.MM CU		1700	M	0.059%
	G 1.2.5	12C-1.5 SQ.MM CU		28350	M	1.152%
	G 1.2.6	14C-1.5 SQ.MM CU		10900	M	0.474%
	G 1.2.7	4C-1.5 SQ.MM - LT SCREENED COPPER UNARMoured CABLE		53250	M	1.700%
	G 1.2.8	4 CORE X 1.5 SQMM CONTROL CABLE		250	M	0.008%
	G 1.2.9	5CX2.5 SQ.MM CU CONTROL CABLE		12500	M	0.508%
	G 1.2.10	5C X 1.5 SQMM CONTROL CABLE		3750	M	0.152%
	G 1.2.11	10 CORE X 2.5 SQ MM CONTROL CABLE		13250	M	0.461%
	G 1.2.12	19 CORE 1.5 SQ.MM CONTROL CABLE		3750	M	0.163%
	G 1.2.13	2PX1.5 SQ.MM - SHIELDED CABLES		18030	M	0.628%
	G 1.2.14	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured		8950	M	0.260%
	G 1.2.15	TEFLON CABLES 2X2X0.5 SQMM TYPE-1		6000	M	0.209%
	G 1.2.16	TEFLON CABLES 2X4X0.5 SQMM TYPE-2		2000	M	0.070%
	G 1.2.17	THERMOCOUPLE EXT CABLE, 2X2X1.3SQMM NICR/CUCU-NI		8700	M	0.303%
	G 1.2.18	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured		180000	M	6.268%
	G 1.2.19	SPECIAL CABLE 5X1.5 SQ.MM.		500	M	0.020%
	G 1.2.20	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured		50800	M	1.769%
	G 1.2.21	10 PAIR X 0.6SQ.MM PTFE CABLE		100	M	0.004%
	G 1.2.22	Screened Copper Cable 12P x 0.5 sqmm armoured / unarmoured		43000	M	1.747%
	G 1.2.23	16PAIR 0.5 SQ.MM SHIELDED CABLE		300	M	0.013%
	G 1.2.24	2PAIR/4CORE, ANSI Type-KX (0.5mm2/Stranded 7×0.3mm)T/C Extension cable. pair twisted .		6500	M	0.189%
	G 1.2.25	2PAIR/4CORE, ANSI Type-SX (0.5mm2/Stranded 7×0.3mm)T/C Extension cable.		1000	M	0.029%

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	G 1.2.26	FIBRE OPTIC CABLE		4000	M	0.186%
H-1	CABLE TRAYS AND ACCESSORIES					
	H 1.1	CABLE TRAYS (PERFORATED TYPE) WITH COUPLER PLATES				
	H 1.1.1	450 mm (W) x 120 mm (H)	16180	150	No	0.022%
	H 1.1.2	150mm (W) x120 mm (H)	17990	1590	No	0.208%
	H 1.1.3	100 MM	50650	4411	No	0.384%
	H 1.1.4	300MM	20000	1250	No	0.174%
	H 1.2	CABLE TRAYS (LADDER TYPE) WITH COUPLER PLATES				
	H 1.2.1	600 mm (W) x 120 mm (H)	19105	500	No	0.073%
	H 1.2.2	450 mm (W) x 120 mm (H)	4480	525	No	0.069%
	H 1.2.3	150 mm (W) x 120 mm (H)	19595	1800	No	0.183%
	H 1.3	CABLE DUCTS				
	H 1.3.1	Cable duct 60 x 60 x 1000 mm(Approx.)		225	Meters	0.039%
	H 1.3.2	Cable duct 100 x 100 x 1000mm(Approx.)		120	Meters	0.024%
	H 1.3.3	Cable duct 180 x 100 x 1000mm(Approx.)		125	Meters	0.031%
	H 1.3.4	Cable duct 250 x 100 x 1000mm(Approx.)		125	Meters	0.033%
H-2	FLEXIBLE CABLE TRAY SUPPORT					
	H 2.1	Base plate for double support channel	486	565	No.	0.082%
	H 2.2	Base plate for single support channel	1249	1350	No.	0.176%
	H 2.3	Double support channel	1600	1375	M	0.399%
	H 2.4	Single support channel	2940	1200	M	0.313%
	H 2.5	Canti lever arm (C/A) – 650 mm	2691	325	No.	0.057%
	H 2.6	C/A 500 mm	810	625	No.	0.091%
	H 2.7	C/A 200 mm	950	1700	No.	0.197%
	H 2.8	CANTILEVER ARM FOR 150 MM WIDE TRAY	3053	1110	SET	0.113%
	H 2.9	CANTILEVER ARM FOR 100 MM WIDE TRAY	2075	830	SET	0.060%

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I-1		EQUIPMENT EARTHING SYSTEM				
	I 1.1	GI FLAT 50 X 6	7743	3850	M	0.402%
	I 1.2	GI FLAT 30 X 5	5713	4850	M	0.394%
	I 1.3	GI WIRE 8 SWG	900	2500	M	0.073%
	I 1.4	SOFT GALVANIZED WIRE - 1.219	17	1700	M	0.049%
	I 1.5	FLAT 50X10,L=1634		1634	M	0.152%
J-1		Structural steel fabrication & installation		23	MT	1.001%
K-1		Impulse pipes, tubes,GI pipes & fittings (SS/CS/AS/Copper/GI), Conduits including siphons and condensing pots wherever required.				
	K 1.1	3/4"SCH 80 IMPULSE PIPE, MATL ASTM-A335		700	M	0.284%
	K 1.2	3/4"SCH 80 IMPULSE PIPE, MATL ASTM-A106		5250	M	1.980%
	K 1.3	GI PIPE NB15 X 3.25 (IS 1239 GAL)		1200	M	0.313%
	K 1.4	GI PIPE 1/2", 1" NB Heavy Grade		4600	M	1.068%
	K 1.5	GI PIPE 2" NB Heavy Grade		500	M	0.174%
	K 1.6	1/2"SCH 80 CS PIPE		900	M	0.313%
	K 1.7	1"SCH 80 CS PIPE		1750	M	0.711%
	K 1.8	1/2" SCH 160 AS PIPE		375	M	0.141%
	K 1.9	SEAMLESS S.S.TUBE D=21.3X2.6		320	M	0.121%
	K 1.10	SEAMLESS S.S.TUBE D=13.5X2.6		30	M	0.011%
	K 1.11	SEAMLESS CARBON STEEL TUBE D=13.5X2.6		329	M	0.057%
	K 1.12	SEAMLESS CARBON STEEL TUBE D=21.3X2.3		410	M	0.155%
	K 1.13	SEAMLESS ALLOY STEEL TUBE D=21.3X2.6		425	M	0.160%
	K 1.14	SEAMLESS ALLOY STEEL TUBE D=13.5X2.6		12	M	0.004%
	K 1.15	CARBON STEEL TUBE DN-80		20	M	0.006%
	K 1.16	CARBON STEEL TUBE D=33.7X3.88		2	M	0.001%
	K 1.17	ASTM A 106 Gr C 1" NB Sch 80		250	No	0.100%
	K 1.18	ASTM A 106 Gr C 1/2" NB Sch 160		1465	No	0.544%

DATE

SIGNATURE SEAL OF BIDDER

BHARAT HEAVY ELECTRICALS LIMITED
PSWR - NAGPUR
T.S. NO. BHE/PW/PUR/KNT-CLE/623
BILL OF QUANTITIES

SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	K 1.19	ASTM A 106 Gr C 1/2" NB Sch 80		5950	No	2.037%
	K 1.20	ASTM A 335 P22 1/2" NB XXS		620	No	0.252%
	K 1.21	ASTM A 335 P22 3/4" NB Sch 80		400	No	0.168%
	K 1.22	ASTM A 106 Gr B/C 1/2" NB Sch 40		950	No	0.372%
	K 1.23	ASTM A 335 P91 1/2" NB XXS		380	Meters	0.154%
	K 1.24	ASTM A 213 TP 316 H 3/4" NB Sch 80		1100	Meters	0.421%
	K 1.25	ASTM A 213 TP 316 H 3/4" NB Sch 160		600	Meters	0.252%
	K 1.26	ASSEMBLY OF JB MOUNTING FRAME(1100 X 424 X 700)		10	No.	0.052%
	K 1.27	ASSEMBLY OF JB MOUNTING FRAME(1100 TO 1600 X 718 X 1700)		8	No.	0.051%
	K 1.28	ASSEMBLY OF JB MOUNTING FRAME(2100 X 900 X 1700)		3	No.	0.021%
	K 1.29	PNEUMATIC TUBES- 1/4 inch x 16 swg.	1950	3900	M	0.396%
	K 1.30	EXTENSION PIPE WITH HEAD		8	No.	0.003%
L-1	ONLY TESTING & COMMISSIONING					
	L 1.1	Testing and Assistance for Commissioning of HT motors for pumps, fans, etc.		23	No.	0.400%
	L 1.2	HEATING ELEMENTS FOR HOPPER (PANEL TYPE)	30/SET	160	SET	0.116%
	L 1.3	HEATING ELEMENTS FOR SUPPORT/ SHAFT INSULATOR HEATER	4/ HE	400	No.	0.290%
	L 1.4	Thermostat (Calibration, Testing & Assistance for Commissioning Only.)	0.5/ TH	168	No.	0.122%
	L 1.5	HIGH VOLTAGE TRANSFORMER RECTIFIER – 70 kV, 1200 mA, 1400L x 1530 D x 2180 H IN MM, including oil filtration.	1450 / HVR	80	No.	1.346%
	L 1.6	Electrically (LT) Operated Valves, Dampers and Gates with Actuators, Limit Switches etc. (Regulating & ON/OFF Type).	312	6	No.	0.005%
	L 1.7	Testing and commissioning of 415 V LT motors including dry out		168	Nos.	2.194%
	L 1.8	Generator system testing. As per tender specification.		1	Set	0.116%
	L 1.9	ERV CONTROLLER WITH PR.SWITCH	90	9	No	0.063%
	L 1.10	Feeder Mounted C&I items commissioning	2186	10	Set	0.070%
	L 1.11	Pneumatic regulating drives: (Valve, damper)	700	30	No.	0.087%
	L 1.12	CONTROL VALVE		2	No.	0.005%

DATE

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	L 1.13	RACK MOUNTED INSTRUMENT COMMISSIONING		5	SET	0.070%
	L 1.14	FAN AND PULVERISER LUBE OIL SKID		16	SET	1.718%
M-1	STATION CONTROLS & INSTRUMENTATION					
	M 1.1	Control Panel (approx L1000 X B1000 X H2500, 400Kg) - one panel		33	Nos	0.479%
	M 1.2	Control Panel (approx L1000 to 1500 X B1000 X H2500, 800 Kg) - suit of two panels		10	Nos	0.203%
	M 1.3	Control Panel (approx L1500 to 2250 X B1000 X H2500, 1200 Kg) - suit of three panels		17	Nos	0.493%
	M 1.4	Control Panel (approx L2250 to 3000 X B1000 X H2500, 1600 Kg) - suit of four panels		10	Nos	0.435%
	M 1.5	Electrical control panel 3500x1000x2275 mm approx.		1	Set	0.058%
	M 1.6	Transducer Panel		1	Set	0.044%
	M 1.7	Master and Slave Clock system		1	Set	0.046%
	M 1.8	Vibration monitoring system for for Fans, Fans, BFP/CEP/ACWP/CWP/COAL MILLS		1	Set	0.116%
	M 1.9	Local Instrument racks (LIR)		51	Nos	0.474%
	M 1.10	Local Instrument enclosures (LIE)		67	Nos	0.972%
	M 1.11	HART MANAGEMENT SYSTEM CABINET		1	Set	0.035%
	M 1.12	SWAS Sample handling system with racks & Sample conditioning panel with chiller		1	Sets	0.186%
	M 1.13	Analyzer Panel inclduing various analyzers		1	Nos	0.116%
	M 1.14	Flue Gas Analyzer-SOX/NOX/CO2/CO2 with Panel(Installed at 88 mtrs. On flue chute/chimney)		1	set	0.073%
	M 1.15	Mini UPS-450/700 Watts		35	Nos.	0.051%
	M 1.16	Graphical Interface Unit		37	Nos.	0.215%
	M 1.17	WALL MOUNTED NETWORK ENCLOSURES (500x600x600)		4	Nos.	0.026%
M-2	STATION FIELD INSTRUMENTS/DEVICES					
	M 2.1	Air filter regulators / Lubricators (1/2", 1", 0-6KG, 0-10 KG)		45	Nos	0.065%

DATE

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SEC	SI No	DESCRIPTION	WT. (Kg.)	TOTAL QTY	UOM	WEITAGE IN %
	M 2.2	LVS (Large Video Screen) made up of 5X1 matrix. Each LVS of DLP/LCD type, Rear projection type, 67 inches diagonal size, with 1024x768 resolution non interlaced		13	Sets	0.377%
	M 2.3	CO Analyzer (in situ type)(Installed at 88 mtrs. On flue chute/chimney)		2	Nos	0.044%
	M 2.4	O2 (OXYGEN) Analyzer		16	Nos	0.232%
	M 2.5	Dust emission monitor (Installation at around 50 M in chimney)		1	No.	0.023%
	M 2.6	max Engineering / operator / storian / LAN / WAN / Shift in charge / stn in charge / gateway / interface PC / HART etc., PC/Server Station with ASCII Keyboard, Mouse & 21" Colour Monitor, individual UPS		42	Sets	0.341%
	M 2.7	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)		18	Nos	0.078%
	M 2.8	Laboratory Setup for Customer		1	Set	0.116%
M-3	STATION FIELD INSTRUMENTS/DEVICES					
	M 3.1	Pressure / DP / Flow (DP type) / Level - Transmitter		324	Nos	0.611%
	M 3.2	Level Transmitter (displacer type)		15	Nos	0.087%
	M 3.3	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable		450	Nos	0.653%
	M 3.4	I/P converters		30	Nos	0.044%
	M 3.5	Impact Head Type Element		2	SET	0.255%
	M 3.6	Coal Bunker level monitoring System		1	SET	0.017%
	M 3.7	Temperature Transmitter		1100	Nos	1.756%
	M 3.8	Moisture Sensor probe and dew point monitor		1	set	0.006%
M-4	Instrument Cables (Laying, glanding, dressing, clamping, termination & testing etc.) , Cable Trays and accessories.					
	M 4.1	Screened Copper Cable 4P,8C, x 0.5 sqmm armoured / unarmoured		217000	Meters	6.297%
	M 4.2	Screened Copper Cable 8P,16C, x 0.5 sqmm armoured / unarmoured		70000	Meters	2.437%
	M 4.3	Screened Copper Cable 12P,24C x 0.5 sqmm armoured / unarmoured		31000	Meters	1.259%
	M 4.4	Screened Copper Cable 16P x 0.5 sqmm armoured / unarmoured		10000	Meters	0.435%
	M 4.5	Screened Copper Cable 24P x 0.5 sqmm armoured / unarmoured		9000	Meters	0.418%
	M 4.6	Screened Copper Cable 48P x 0.5 sqmm armoured / unarmoured		5000	Meters	0.247%

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	M 4.7	Compensating cable 2P,4C x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured		103000	Meters	2.989%
	M 4.8	Laying, etc of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works		60000	Meters	2.786%
	M 4.9	Network UTP Cables (special termination using UTP connectors involved)		40000	Meters	1.625%
	M 4.10	Perforated cable tray and accessories (with or without cover) 50 mm		6000	Meters	0.871%
	M 4.11	Perforated cable tray and accessories (with or without cover) 100 mm		12000	Meters	2.089%
	M 4.12	Perforated cable tray and accessories (with or without cover) 150 mm		2000	Meters	0.406%
	M 4.13	1" & 1/4"SIZE TEFLON HOSE LENG.	52	92	No.	0.012%
	M 4.14	25 mm Rigid Condiut		16000	Meters	0.929%
	M 4.15	50 mm Rigid Condiut		4000	Meters	0.522%
	M 4.16	18 mm Flexible Conduit		21000	Meters	1.219%
	M 4.17	25 mm Flexible Conduit		4000	Meters	0.406%
M-5	MISC. ITEMS					
	M 5.1	Plant Control Desk / CRT desk		1	Sets	0.087%
	M 5.2	Computer furniture for all Servers, PCs, Printers		1	Sets	0.131%
		TOTAL				100.000%

DATE

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