



TENDER SPECIFICATION

NO: BHE/PW/PUR/AMRT-CNI/946

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF CONTROL & INSTRUMENTATION WORKS FOR BOILER AND ITS AUXILIARIES, TURBOGENERATOR AND ITS AUXILIARIES, STATION C&I FOR **U#1 to 3 OF 5X270 MW THERMAL POWER PLANT, AMRAVATI.**

**ADDITIONAL AMRAVATI INDUSTRIAL AREA,
INDIABULLS POWER LTD
NANDGAONPETH, DIST- AMRAVATI
MAHARASHTRA**

VOLUME 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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THESE TENDER DOCUMENTS CONTAINING VOLUME-II PRICE BID IS ISSUED TO:

M/s.....

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(THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE)

FOR BHARAT HEAVY ELECTRICALS LIMITED

ADDL. GENERAL MANAGER (PURCHASE)

PLACE: NAGPUR

DATE :

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
I1.0	Cable tray and Accessories					
I1.0.1	Perforated cable tray and accessories (with or without cover) 50mm	Meter	7300			
I1.0.2	Perforated cable tray and accessories (with or without cover) 100mm	Meter	14250			
I1.0.3	Perforated cable tray and accessories (with or without cover) 150mm	Meter	11475			
I1.0.4	Perforated cable tray and accessories (with or without cover) 300mm	Meter	225			
I2.0	Cable laying including earthing wires					
I2.0.1	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	Meter	97800			
I2.0.2	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	Meter	246000			
I2.0.3	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured	Meter	294600			
I2.0.4	Screened Copper Cable 10P / 12P x 0.5 sqmm armoured / unarmoured	Meter	43200			
I2.0.5	Screened Copper Cable 16P x 0.5 sqmm armoured / unarmoured	Meter	1500			
I2.0.6	Screened Copper Cable 20P/24P x 0.5 sqmm armoured / unarmoured	Meter	16200			
I2.0.7	Screened Copper Cable 4P x 1.5 sqmm armoured / unarmoured	Meter	27000			
I2.0.8	Screened Copper Cable 2P/4C x 1.3 sqmm armoured / unarmoured	Meter	15000			
I2.0.9	Screened Copper Cable 2P/4C x 1.5 sqmm armoured / unarmoured	Meter	34800			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
I2.0.10	Screened Copper Cable 2C x 2.5 sqmm armoured / unarmoured	Meter	11400			
I2.0.11	Screened Copper Cable 3C x 2.5 sqmm armoured / unarmoured	Meter	128700			
I2.0.12	Screened Copper Cable 5C x 2.5 sqmm armoured / unarmoured	Meter	19500			
I2.0.13	Screened Copper Cable 7C x 2.5 sqmm armoured / unarmoured	Meter	35100			
I2.0.14	Screened Copper Cable 10C x 2.5 sqmm armoured / unarmoured	Meter	46500			
I2.0.15	Screened Copper Cable 16C x 2.5 sqmm armoured / unarmoured	Meter	9000			
I2.0.16	Screened Copper Cable 19C x 2.5 sqmm armoured / unarmoured	Meter	15900			
I2.0.17	Screened Copper Cable 3C x 6 sqmm armoured / unarmoured	Meter	5100			
I2.0.18	Copper Cable 2 or 3 triad, 0.5/1.5 sqmm armoured/unarmoured	Meter	3000			
I2.0.19	Compensating cable 1P/2P x 0.5 sq mm type Tx/Sx/Kx unarmoured/armoured	Meter	1500			
I2.0.20	Compensating cable 1P/2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	19500			
I2.0.21	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	15000			
I2.0.22	Compensating cable 6P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	24000			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
I2.0.23	Laying of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works	Meter	2400			
I2.0.24	Network UTP Cables (special termination using UTP connectors involved)	Meter	18300			
I2.0.25	GI earthing wire	Meter	1500			
I2.0.26	Cable duct 60 x 60 x 1000	Meter	603			
I2.0.27	Cable duct 180 x 100 x 1000	Meter	219			
I2.0.28	Cable duct 250 x 100 x 1000	Meter	189			
I2.0.29	Hoses-1/4", 1/2" , 1", SS/Teflon, Braided/unbraided, upto 5M length	Meter	198			
I2.0.30	Flexible pipe 1"	Meter	30			
I2.0.31	Flexible pipe 2"	Meter	6			
I4.0	Junction box/Push Button station					
I4.0.1	Junction boxes upto 48 way	No	1077			
I4.0.2	Junction boxes above 48 way	No	63			
I4.0.3	CJCB Junction boxes upto 48 way	No	3			
I4.0.4	CJCB Junction boxes above 48 way	No	57			
I4.0.5	2PB or 3PB Pushbutton box	No	9			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
I4.0.6	Fire protection switch in IP65 box	No	6			
I4.0.7	FSSS Local Oil Gun Maintenance Switch Box	No	36			
I5.0	Conduits/Impulse pipe/tubes					
I5.0.1	Impulse pipe CS ½" SCH 80 (D21.3 x 3.73 mm)	Meter	11100			
I5.0.2	Impulse pipe CS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	7200			
I5.0.3	Impulse pipe CS GR C 3/4" NB SCH 80	Meter	6300			
I5.0.4	Impulse pipe ASTM CS GR C 1" NB SCH 80	Meter	180			
I5.0.5	Impulse pipe SS ½" (D21.3 x 2.6 mm) Sch 40	Meter	1500			
I5.0.6	Impulse pipe SS 1/2" SCH 160	Meter	1875			
I5.0.7	Impulse pipe AS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	600			
I5.0.8	Impulse pipe ASTM A 335 P22 1/2 " Sch XXS	Meter	2250			
I5.0.9	GI Pipe (1/2", 1") Heavy grade	Meter	9420			
I5.0.10	Seamless CS tube 13.5 x 2.6 mm	Meter	744			
I5.0.11	Seamless CS tube 21.3 x 2.3 mm	Meter	1230			
I5.0.12	CS tube 33.7 x 3.38 mm	Meter	3			
I5.0.13	CS tube D16 x 2.6	Meter	5700			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
I5.0.14	CS tube DN 80	Meter	60			
I5.0.15	Seamless AS tube 13.5 x 2.6 mm	Meter	42			
I5.0.16	Seamless AS tube 21.3 x 2.3 mm	Meter	1200			
I5.0.17	Copper tube 3/8" (Sheathed / bare)	Meter	300			
I5.0.18	Copper tube 6mm/8mm / 1/4" (Sheathed / bare)	Meter	6450			
I5.0.19	Copper tube 1/2" to 1" (Sheathed / bare)	Meter	75			
I6.0	Miscellaneous Structural steel including frames for Panels/Racks/Instruments, supports for cable tray/pipes/tubes, Canopies etc					
I6.0.1	Structural steel for fabrication	Ton	50			
I6.0.2	Aluminium strip (25 x 3 mm)	Meter	2490			
I6.0.3	Assembly of JB mounting frames (approx. 1100 x 765 x 500 mm)	No	6			
I6.0.4	Assembly of JB mounting frames (approx. 1100 x 1515 x 500 mm)	No	6			
I6.0.5	Assembly of JB mounting frames (approx. 1700 x 1600 x 718 mm)	No	6			
I6.0.6	Assembly of JB mounting frames (approx. 1700 x 1600 x 850 mm)	No	6			
I6.0.7	Assembly of JB mounting frames (approx. 2600 x 1700 x 620 mm)	No	6			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
17.0	Panels/Cubicles/Racks/Enclosures/Monitors/Computer/Computer peripheral/PLCs/UPS/Batteries					
17.0.1	Assembly of local gauge board (approx. weight 650kg, 2200(L) x 300(B) x 1800(H) mm)	No	21			
17.0.2	Control Panel (approx. weight 400kg, 900(L) X 900(B) X 2500(H) mm) - one panel	No	27			
17.0.3	Control Panel (approx. weight 800kg, 1800(L) X 1000(B) X 2500(H) mm) - suit of two panels	No	81			
17.0.4	Control Panel (approx. weight 1200kg, 2700(L) X 1000(B) X 2500(H) mm) - suit of three panels	No	15			
17.0.5	Control Panel (approx. weight 1600kg, 3600(L) X 1000(B) X 2500(H) mm) - suit of four panels	No	3			
17.0.6	Control Panel (approx. weight 2000kg, 4500(L) X 1000(B) X 2500(H) mm) - suit of five panels	No	6			
17.0.7	HP dosing system (approx. weight 3000Kg, 1000(L) x 800(B) x 2000(H) mm)	No	3			
17.0.8	Gravimetric Coal feeder control panel(Approx weight 300 kg, approx. 1200 x 600 x 2315)	No	18			
17.0.9	Control panels for Centrifuges	No	6			
17.0.10	Transducer and AVT panel	No	3			
17.0.11	Unit Control panel (approx. 824(W) x 1000(D) x 2355 (H) mm.)	Set	3			
17.0.12	Electrical control panel (approx. 3080(L) x 1000(B) x 2355(H) mm)	Set	1			
17.0.13	NETWORK PANELS (approx. weight 400kg, 900 x 900 x 2500 mm)	No	10			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
17.0.14	Vibration monitoring system for Fans and Pulverisers	Set	3			
17.0.15	Vibration monitoring system for main turbine / generator	Set	3			
17.0.16	Vibration monitoring system for pumps	Set	3			
17.0.17	DC motor starter box for scanner fan (approx. weight 50kg, 375(L) x 900(B) x 1120(H) mm)	No	3			
17.0.18	Burner Tilt Shear Pin Failure Indication Box	No	12			
17.0.19	Air Heater Rotor Stoppage Alarm Box	Set	12			
17.0.20	Steam leak detection (STLD) system panel (approx weight 200kg, approx. 800(L) x 2315(B) x 800(H) mm)	Set	3			
17.0.21	Electronic Water Level Indicator (EWLI)	Set	12			
17.0.22	LP Dosing sysetm	Set	3			
17.0.23	Condenser vacuum pump system	Set	3			
17.0.24	Generator Instrumentation cabinet including annunciator (approx. weight 600 Kg, 1000 x 800 x 2200 mm)	No	3			
17.0.25	Positioner cabinets (approx. 380 x 380 x 210 mm) for LPBP CV1, LPBP CV2, Spray water CV	No	9			
17.0.26	Local Instrument racks (LIR)	No	162			
17.0.27	Local Instrument enclosures (LIE)	No	96			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
17.0.28	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	Set	46			
17.0.29	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	Set	16			
17.0.30	Computer furniture for all Servers, PCs, Printers	Set	3			
17.0.31	Plant Control Desk / CRT desk	Set	3			
17.0.32	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	Set	12			
17.0.33	2 X 120 KVA, 220/240 V UPS System and ACDB	Set	3			
17.0.34	Condenser online tube cleaning system	Set	3			
18.0	Instruments/Devices including sensors/Cells/Probes etc					
18.0.1	Latching relay 24V, 5A	No	6			
18.0.2	Furnace Temperature probe including local panel/box and all accessories	No	6			
18.0.3	Moisture Sensor probe and dew point monitor	Set	3			
18.0.4	Air filter regulators / Lubricators (1/2", 1", 0-6KG, 0-10 KG)	No	174			
18.0.5	Speed Regulators / Air lock valves in oil gun corner rack	No	36			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
18.0.6	Solenoid valves (3 way, AC/DC, 1/4", 1/2", 1", NPT/BSP, single/dual coil)	No	312			
18.0.7	CWP Butterfly valves	Set	9			
18.0.8	Pneumatic Pressure controller with accessories	No	9			
18.0.9	Pneumatic Temperature controller with accessories	No	12			
18.0.10	Heavy Duty Limit Switch	No	90			
18.0.11	Speed switch / Speed detector	No	18			
18.0.12	Pressure Switch / DP Switch / DP indicating switch	No	465			
18.0.13	Temperature Switch / Thermostat	No	21			
18.0.14	Float type Level Switch	No	84			
18.0.15	Electronic Level Switch (with amplifier, etc), Capacitance or conductivity type	No	8			
18.0.16	Vacuum switch	No	9			
18.0.17	Flow switch (Mechanical / Electronic)	No	3			
18.0.18	Pressure / DP / Flow (DP type) / Level -Transmitter	No	921			
18.0.19	Level Transmitter (displacer type)	No	9			

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE(in Rs)-IN FIGURES	UNIT RATE(in Rs)-IN WORDS	TOTAL AMOUNT
18.0.20	Flow Transmitter (Pulse / mass flow / target type) including flanges	No	9			
18.0.21	Speed transmitter	No	18			
18.0.22	Position Transmitters	No	9			
18.0.23	Electronic Level Transmitter (with amplifier, etc), Capacitance or conductivity type / Guided Wave Radar(GWR) transmitter	No	48			
18.0.24	Pressure Gauge / DP gauge/DP Indicator	No	1226			
18.0.25	Temperature Gauge (all types)	No	834			
18.0.26	Level Indicator / Level Gauge	No	66			
18.0.27	Direct Water Level Gauge (DWLG)	Set	6			
18.0.28	Flow indicator / Flow Gauge / Flow meter/Acoustic flow meter (coal)	No	18			
18.0.29	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable	No	1956			
18.0.30	MTM Thermocouple upto 17 M length	No	144			
18.0.31	MTM Thermocouple over 17 M upto 22 M length	No	222			
18.0.32	Purge meter for mill	No	36			
18.0.33	SADC Cylinders	No	168			
18.0.34	HEA Exciter system	Set	36			

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18.0.35	Flame Scanner Head Assembly	No	60			
18.0.36	Hydrogen Purity analyser	No	3			
18.0.37	O2 (OXYGEN) Analyzer	Set	18			
18.0.38	CO Analyzer (in situ type)	Set	3			
18.0.39	Flue Gas Analyzer (SOX/NOX/CO)	Set	3			
18.0.40	Dust emission monitor (Installation at around 88 M in chimney)	Set	3			
18.0.41	SWAS Sample handling system with racks & Sample conditioning panel with chiller	Set	3			
18.0.42	Console inserts (to be mounted on Backup desk)	Set	6			
18.0.43	SWAS Analyzer Panel including various analyzers	Set	3			
18.0.44	Vertical indicators (moving coil / bar graph)	No	6			
18.0.45	Digital / bargraph indicators	No	21			
18.0.46	Recorder 24 / 30 Channel	No	3			
18.0.47	Recorder 3 channel	No	3			
18.0.48	Rotor Earth fault Detector	No	3			
18.0.49	I/P converters	No	294			

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18.0.50	Reverse Rotation indication switch	No	9			
19.0	Commissioning and Testing activities for Equipments erected by other agencies, like control valves, on/off valves, electrical/pneumatic valves, actuators, solenoid valves, valves, limit switches, ERV controllers, power cylinders, Pressure & Temperature Guages/Transmitters,etc					
19.0.1	Rack mounted instruments commissioning	Set	9			
19.0.2	Coal Feeder local panel/ instruments commissioning	No	18			
19.0.3	Electrical regulating drives: (Valve, damper, scoop)	No	84			
19.0.4	Pneumatic regulating drives: (Valve, damper) incl Burner tilt	No	327			
19.0.5	Commissioning of Hydraulic actuators	No	42			
19.0.6	Corner nozzle valve/ Trip valves commissioning	No	132			
19.0.7	Open/Close type pneumatic gates / dampers / valves	No	147			
19.0.8	ERV Controller (approx. weight 25kg, 400 x 350 x 270 mm)	No	6			
19.0.9	Limit Switches (checking and adjusting only).	No	60			
19.0.10	Only healthiness checking of embedded RTD / T/C	No	600			
19.0.11	Fan Lube oil skid	Set	27			

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I9.0.12	Pulveriser Lube oil skid	Set	18			
I9.0.13	HEA advance	No	36			
I10.0	Power Cylinders					
I10.0.1	Mill Discharge Valve power cylinders (set of four)	Set	18			
I11.0	Miscellaneous items (items not covered under above heads)					
I11.0.1	Master and Slave Clock system	Set	1			
I11.0.2	HART MANAGEMENT SYSTEM including CABINET	Set	3			
TOTAL						