



TENDER SPECIFICATION

No. BHE/PW/PUR/DBBDT-CNI/984

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 **2X600 MW DBPL RAIGARH PROJECT.**

AT

BARADARHA IN JANJGIR - CHAMPA DISTRICT IN CHHATTISGARH STATE

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 :

TENDER SPECIFICATION

No. BHE/PW/PUR/NST-CNI/948

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	4865			
I1.0.2	Perforated cable tray and accessories (with or without cover) 100mm	Meter	9500			
I1.0.3	Perforated cable tray and accessories (with or without cover) 150mm	Meter	7650			
I1.0.4	Perforated cable tray and accessories (with or without cover) 300mm	Meter	150			
I2.0	Cable laying including earthing wires					
I2.0.1	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	Meter	69200			
I2.0.2	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	Meter	160000			
I2.0.3	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured	Meter	196400			
I2.0.4	Screened Copper Cable 10P / 12P x 0.5 sqmm armoured / unarmoured	Meter	28800			
I2.0.5	Screened Copper Cable 16P x 0.5 sqmm armoured / unarmoured	Meter	1000			
I2.0.6	Screened Copper Cable 20P/24P x 0.5 sqmm armoured / unarmoured	Meter	10800			
I2.0.7	Screened Copper Cable 4P x 1.5 sqmm armoured / unarmoured	Meter	22000			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
I2.0.8	Screened Copper Cable 2P/4C x 1.3 sqmm armoured / unarmoured	Meter	10000			
I2.0.9	Screened Copper Cable 2P/4C x 1.5 sqmm armoured / unarmoured	Meter	23200			
I2.0.10	Screened Copper Cable 2C x 2.5 sqmm armoured / unarmoured	Meter	7600			
I2.0.11	Screened Copper Cable 3C x 2.5 sqmm armoured / unarmoured	Meter	85800			
I2.0.12	Screened Copper Cable 5C x 2.5 sqmm armoured / unarmoured	Meter	13000			
I2.0.13	Screened Copper Cable 7C x 2.5 sqmm armoured / unarmoured	Meter	23400			
I2.0.14	Screened Copper Cable 10C x 2.5 sqmm armoured / unarmoured	Meter	31000			
I2.0.15	Screened Copper Cable 16C x 2.5 sqmm armoured / unarmoured	Meter	6000			
I2.0.16	Screened Copper Cable 19C x 2.5 sqmm armoured / unarmoured	Meter	10600			
I2.0.17	Screened Copper Cable 3C x 6 sqmm armoured / unarmoured	Meter	3400			
I2.0.18	Copper Cable 2 or 3 triad, 0.5/1.5 sqmm armoured/unarmoured	Meter	2000			
I2.0.19	Compensating cable 1P/2P x 0.5 sq mm type Tx/Sx/Kx unarmoured/armoured	Meter	1000			
I2.0.20	Compensating cable 1P/2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	13000			
I2.0.21	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	10000			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
12.0.22	Compensating cable 6P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	16000			
12.0.23	Laying of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works	Meter	1600			
12.0.24	Network UTP Cables (special termination using UTP connectors involved)	Meter	12200			
12.0.25	GI earthing wire	Meter	1000			
12.0.26	Cable duct 60 x 60 x 1000	Meter	402			
12.0.27	Cable duct 180 x 100 x 1000	Meter	146			
12.0.28	Cable duct 250 x 100 x 1000	Meter	126			
12.0.29	Hoses-1/4", 1/2" , 1", SS/Teflon, Braided/unbraided, upto 5M length	Meter	132			
12.0.30	Flexible pipe 1"	Meter	20			
12.0.31	Flexible pipe 2"	Meter	4			
14.0	Junction box/Push Button station					
14.0.1	Junction boxes upto 48 way	No	718			
14.0.2	Junction boxes above 48 way	No	42			
14.0.3	CJCB Junction boxes upto 48 way	No	2			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
14.0.4	CJCB Junction boxes above 48 way	No	38			
14.0.5	2PB or 3PB Pushbutton box	No	6			
14.0.6	Fire protection switch in IP65 box	No	4			
14.0.7	FSSS Local Oil Gun Maintenance Switch Box	No	24			
15.0	Conduits/Impulse pipe/tubes					
15.0.1	Impulse pipe CS ½" SCH 80 (D21.3 x 3.73 mm)	Meter	7400			
15.0.2	Impulse pipe CS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	4800			
15.0.3	Impulse pipe CS GR C ¾" NB SCH 80	Meter	4200			
15.0.4	Impulse pipe ASTM CS GR C 1" NB SCH 80	Meter	120			
15.0.5	Impulse pipe SS ½" (D21.3 x 2.6 mm) Sch 40	Meter	1000			
15.0.6	Impulse pipe SS 1/2" SCH 160	Meter	1250			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
15.0.7	Impulse pipe AS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	400			
15.0.8	Impulse pipe ASTM A 335 P22 1/2 " Sch XXS	Meter	1500			
15.0.9	GI Pipe (1/2", 1") Heavy grade	Meter	6280			
15.0.10	Seamless CS tube 13.5 x 2.6 mm	Meter	496			
15.0.11	Seamless CS tube 21.3 x 2.3 mm	Meter	820			
15.0.12	CS tube 33.7 x 3.38 mm	Meter	2			
15.0.13	CS tube D16 x 2.6	Meter	3800			
15.0.14	CS tube DN 80	Meter	40			
15.0.15	Seamless AS tube 13.5 x 2.6 mm	Meter	28			
15.0.16	Seamless AS tube 21.3 x 2.3 mm	Meter	800			
15.0.17	Copper tube 3/8" (Sheathed / bare)	Meter	200			

SL. NO.	DESCRIPTION	UOM	QTY	Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
15.0.18	Copper tube 6mm/8mm / 1/4" (Sheathed / bare)	Meter	4300			
15.0.19	Copper tube 1/2" to 1" (Sheathed / bare)	Meter	50			
16.0	Miscellaneous Structural steel including frames for Panels/Racks/Instruments, supports for cable tray/pipes/tubes, Canopies etc					
16.0.1	Structural steel for fabrication	Ton	32			
16.0.2	Aluminium strip (25 x 3 mm)	Meter	1660			
16.0.3	Assembly of JB mounting frames (approx. 1100 x 765 x 500 mm)	No	4			
16.0.4	Assembly of JB mounting frames (approx. 1100 x 1515 x 500 mm)	No	4			
16.0.5	Assembly of JB mounting frames (approx. 1700 x 1600 x 718 mm)	No	4			
16.0.6	Assembly of JB mounting frames (approx. 1700 x 1600 x 850 mm)	No	4			
16.0.7	Assembly of JB mounting frames (approx. 2600 x 1700 x 620 mm)	No	4			
17.0	Panels/Cubicles/Racks/Enclosures/Monitors/Computer/Computer peripheral/PLCs/UPS/Batteries					

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
17.0.1	Assembly of local gauge board (approx. weight 650kg, 2200(L) x 300(B) x 1800(H) mm)	No	14			
17.0.2	Control Panel (approx. weight 400kg, 900(L) X 900(B) X 2500(H) mm) - one panel	No	18			
17.0.3	Control Panel (approx. weight 800kg, 1800(L) X 1000(B) X 2500(H) mm) - suit of two panels	No	54			
17.0.4	Control Panel (approx. weight 1200kg, 2700(L) X 1000(B) X 2500(H) mm) - suit of three panels	No	10			
17.0.5	Control Panel (approx. weight 1600kg, 3600(L) X 1000(B) X 2500(H) mm) - suit of four panels	No	2			
17.0.6	Control Panel (approx. weight 2000kg, 4500(L) X 1000(B) X 2500(H) mm) - suit of five panels	No	4			
17.0.7	HP dosing system (approx. weight 3000Kg, 1000(L) x 800(B) x 2000(H) mm)	No	2			
17.0.8	Gravemetric Coal feeder control panel(Approx weight 300 kg, approx. 1200 x 600 x 2315)	No	12			
17.0.9	Control panels for Centrifuges	No	4			
17.0.10	Transducer and AVT panel	No	2			
17.0.11	Unit Control panel approx. 824(W) x 1000(D) x 2355(H) mm.	Set	2			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
17.0.12	Generator control panel (approx. 3080(L) x 1000(B) x 2355(H) mm)	Set	2			
17.0.13	NETWORK PANELS (approx. weight 400kg, 900 x 900 x 2500 mm)	No	6			
17.0.14	Vibration monitoring system for Fans and Pulverisers	Set	2			
17.0.15	Vibration monitoring system for main turbine / generator	Set	2			
17.0.16	Vibration monitoring system for pumps	Set	2			
17.0.17	DC motor starter box for scanner fan (approx. weight 50kg, 375(L) x 900(B) x 1120(H) mm)	No	2			
17.0.18	Burner Tilt Shear Pin Failure Indication Box	No	8			
17.0.19	Air Heater Rotor Stoppage Alarm Box	Set	8			
17.0.20	Steam leak detection (STLD) system panel (approx weight 200kg, approx. 800(L) x 2315(B) x 800(H) mm)	Set	2			
17.0.21	Electronic Water Level Indicator (EWLI)	Set	8			
17.0.22	LP Dosing sysetm	Set	2			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
17.0.23	Condenser vacuum pump system	Set	2			
17.0.24	Generator Instrumentation cabinet including annunciator (approx. weight 600 Kg, 1000 x 800 x 2200 mm)	No	2			
17.0.25	Positioner cabinets (approx. 380 x 380 x 210 mm) for LPBP CV1, LPBP CV2, Spray water CV	No	6			
17.0.26	Local Instrument racks (LIR)	No	108			
17.0.27	Local Instrument enclosures (LIE)	No	64			
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	26			
17.0.29	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	Set	8			
17.0.30	Computer furniture for all Servers, PCs, Printers	Set	2			
17.0.31	Plant Control Desk / CRT desk	Set	2			
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	8			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
17.0.33	Laboratory Setup for Customer	Set	1			
17.0.34	2 X 120 KVA, 220/240 V UPS System and ACDB	Set	2			
17.0.35	Condenser online tube cleaning system	Set	2			
18.0	Instruments/Devices including sensors/Cells/Probes etc					
18.0.1	Latching relay 24V, 5A	No	4			
18.0.2	Furnace Temperature probe including local panel/box and all accessories	No	4			
18.0.3	Moisture Sensor probe and dew point monitor	Set	2			
18.0.4	Air filter regulators / Lubricators (1/2", 1", 0-6KG, 0-10 KG)	No	116			
18.0.5	Speed Regulators / Air lock valves in oil gun corner rack	No	24			
18.0.6	Solenoid valves (3 way, AC/DC, 1/4", 1/2", 1", NPT/BSP, single/dual coil)	No	208			
18.0.7	CWP Butterfly valves	Set	6			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
18.0.8	Pneumatic Pressure controller with accessories	No	6			
18.0.9	Pneumatic Temperature controller with accessories	No	8			
18.0.10	Heavy Duty Limit Switch	No	60			
18.0.11	Speed switch / Speed detector	No	12			
18.0.12	Pressure Switch / DP Switch / DP indicating switch	No	310			
18.0.13	Temperature Switch / Thermostat	No	14			
18.0.14	Float type Level Switch	No	56			
18.0.15	Electronic Level Switch (with amplifier, etc), Capacitance or conductivity type	No	4			
18.0.16	Vacuum switch	No	6			
18.0.17	Flow switch (Mechanical / Electronic)	No	2			
18.0.18	Pressure / DP / Flow (DP type) / Level - Transmitter	No	614			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
18.0.19	Level Transmitter (displacer type)	No	6			
18.0.20	Flow Transmitter (Pulse / mass flow / target type) including flanges	No	6			
18.0.21	Speed transmitter	No	12			
18.0.22	Position Transmitters	No	6			
18.0.23	Electronic Level Transmitter (with amplifier, etc), Capacitance or conductivity type / Guided Wave Radar(GWR) transmitter	No	32			
18.0.24	Pressure Gauge / DP gauge/DP Indicator	No	812			
18.0.25	Temperature Gauge (all types)	No	556			
18.0.26	Level Indicator / Level Gauge	No	44			
18.0.27	Direct Water Level Gauge (DWLG)	Set	4			
18.0.28	Flow indicator / Flow Gauge / Flow meter/Acoustic flow meter (coal)	No	12			
18.0.29	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable	No	1304			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
18.0.30	MTM Thermocouple upto 17 M length	No	96			
18.0.31	MTM Thermocouple over 17 M upto 22 M length	No	148			
18.0.32	Purge meter for mill	No	24			
18.0.33	SADC Cylinders	No	112			
18.0.34	HEA Exciter system	Set	24			
18.0.35	Flame Scanner Head Assembly	No	40			
18.0.36	Hydrogen Purity analyser	No	2			
18.0.37	O2 (OXYGEN) Analyzer	Set	12			
18.0.38	CO Analyzer (in situ type)	Set	2			
18.0.39	Flue Gas Analyzer (SOX/NOX/CO)	Set	2			
18.0.40	Dust emission monitor (Installation at around 88 M in chimney)	Set	2			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
18.0.41	SWAS Sample handling system with racks & Sample conditioning panel with chiller	Set	2			
18.0.42	SWAS Analyzer Panel including various analyzers	Set	2			
18.0.43	Console inserts (to be mounted on Backup desk)	Set	4			
18.0.44	Vertical indicators (moving coil / bar graph)	No	4			
18.0.45	Digital / bargraph indicators	No	14			
18.0.46	Recorder 24 / 30 Channel	No	2			
18.0.47	Recorder 3 channel	No	2			
18.0.48	Rotor Earth fault Detector	No	2			
18.0.49	I/P converters	No	196			
18.0.50	Reverse Rotation indication switch	No	6			

SL. NO.	DESCRIPTION	UOM	QTY			
				Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
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	6			
19.0.2	Coal Feeder local panel/ instruments commissioning	No	12			
19.0.3	Electrical regulating drives: (Valve, damper, scoop)	No	56			
19.0.4	Pneumatic regulating drives: (Valve, damper) incl Burner tilt	No	218			
19.0.5	Commissioning of Hydraulic actuators	No	28			
19.0.6	Corner nozzle valve/ Trip valves commissioning	No	88			
19.0.7	Open/Close type pneumatic gates / dampers / valves	No	98			
19.0.8	ERV Controller (approx. weight 25kg, 400 x 350 x 270 mm)	No	4			
19.0.9	Limit Switches (checking and adjusting only).	No	40			

SL. NO.	DESCRIPTION	UOM	QTY	Unit rate(in Rs)in figures	Unit Rate(in Rs)in words	TOTAL AMOUNT
19.0.10	Only healthiness checking of embedded RTD / T/C	No	400			
19.0.11	Fan Lube oil skid	Set	18			
19.0.12	Pulveriser Lube oil skid	Set	12			
19.0.13	HEA advance	No	24			
110.0	Power Cylinders					
110.0.1	Mill Discharge Valve power cylinders (set of four)	Set	12			
111.0	Miscellaneous items (items not covered under above heads)					
111.0.1	Master and Slave Clock system	Set	1			
111.0.2	HART MANAGEMENT SYSTEM including CABINET	Set	2			
TOTAL						