

# **TENDER SPECIFICATION**

**No. BHE/PW/PUR/AMRT-CNI/1047**

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#4 AND #5 OF 5X270 MW THERMAL POWER PLANT, AMRAVATI.**

**AT**

**ADDITIONAL AMRAVATI INDUSTRIAL AREA,**

**INDIABULLS POWER LTD**

**NANDGAONPETH, DIST- AMRAVATI**

**MAHARASHTRA**

**VOLUME :II – PRICE BID**

**BOOK NO.**

**BHARAT HEAVY ELECTRICALS LIMITED  
(A GOVERNMENT OF INDIA UNDERTAKING)**

**POWER SECTOR - WESTERN REGION**

**SHREEMOHINI COMPLEX**

**345, KINGSWAY - NAGPUR 440 001**

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EARNEST MONEY DEPOSIT:

Please see Notice Inviting Tender.

LAST DATE FOR:

Please see Notice Inviting Tender.

TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING **VOLUME-I** , **VOLUME- II** AND VOLUME-IBCD ARE ISSUED TO:

M/s. ....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

**BHEL : PS WR**  
**TS : BHE/PW/PUR/AMRT-CNI/1047 (RATE SCHEDULE)**  
**VOLUME-II- PRICE BID-1047**

**BHEL:PSWR:NAGPUR**

**RATE SCHEDULE, SECTION - A**

**NAME OF WORK:** 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 & ITS AUXILIARIES, TURBOGENERATOR & ITS AUXILIARIES, STATION C&I FOR U#4 AND #5 OF 5X270 MW THERMAL POWER PLANT, AMRAVATI

SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
<b>11.0</b>	<b>Cable tray and Accessories</b>						<b>11.0</b>
<b>11.0.1</b>	Perforated cable tray and accessories (with or without cover) 50mm	Meter	4865				
<b>11.0.2</b>	Perforated cable tray and accessories (with or without cover) 100mm	Meter	9500				
<b>11.0.3</b>	Perforated cable tray and accessories (with or without cover) 150mm	Meter	7650				
<b>11.0.4</b>	Perforated cable tray and accessories (with or without cover) 300mm	Meter	150				
<b>11.0.5</b>	Perforated cable tray and accessories (with or without cover) 600mm	Meter	4800				
<b>11.0.6</b>	Ladder cable tray and accessories (with or without cover) 450mm	Meter	540				
<b>11.0.7</b>	Ladder cable tray and accessories (with or without cover) 600mm	Meter	800				
<b>11.0.8</b>	Cable Tray support structure, Single Channel SC1	Meter	3000				
<b>11.0.9</b>	Cantiliver Arms for 450mm cable trays	No	3200				
<b>11.0.10</b>	Cantiliver Arms for 600mm cable trays	No	1680				
<b>12.0</b>	<b>Cable laying including earthing wires</b>						<b>13.0</b>
<b>12.0.1</b>	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	Meter	65200				
<b>12.0.2</b>	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	Meter	164000				

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SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
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	18000				
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				

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**VOLUME-II- PRICE BID-1047**

SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
12.0.19	Compensating cable 1P/2P x 0.5 sq mm type Tx/Sx/Kx unarmoured/armoured	Meter	1000				
12.0.20	Compensating cable 1P/2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	13000				
12.0.21	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	10000				
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				
<b>14.0</b>	<b>Junction box/Push Button station</b>						<b>14.0</b>
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				
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				
<b>15.0</b>	<b>Conduits/Impulse pipe/tubes</b>						<b>15.0</b>
15.0.1	Impulse pipe CS ½" SCH 80 (D21.3 x 3.73 mm)	Meter	7400				

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SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
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 3/4" 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				
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				
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	<b>Miscellaneous Structural steel including frames for Panels/Racks/Instruments, supports for cable tray/pipes/tubes, Canopies etc</b>						<b>16.0</b>
16.0.1	Structural steel for fabrication	Ton	33.36				
16.0.2	Aluminium strip (25 x 3 mm)	Meter	1660				
16.0.3	Earthing flat 50x6mm	Meter	2000				
16.0.4	Earthing flat 25x6mm	Meter	3000				
16.0.5	Assembly of JB mounting frames (approx. 1100 x 765 x 500 mm)	No	4				
16.0.6	Assembly of JB mounting frames (approx. 1100 x 1515 x 500 mm)	No	4				
16.0.7	Assembly of JB mounting frames (approx. 1700 x 1600 x 718 mm)	No	4				

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16.0.8	Assembly of JB mounting frames (approx. 1700 x 1600 x 850 mm)	No	4				
16.0.9	Assembly of JB mounting frames (approx. 2600 x 1700 x 620 mm)	No	4				
17.0	<b>Panels/Cubicles/Racks/Enclosures/Monitors/Computer/Computer peripheral/PLCs/UPS/Batteries</b>						<b>17.0</b>
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	Gravimetric 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	Set	2				
17.0.12	NETWORK PANELS (approx. weight 400kg, 900 x 900 x 2500 mm)	No	6				
17.0.13	Vibration monitoring system for Fans and Pulverisers	Set	2				
17.0.14	Vibration monitoring system for main turbine / generator	Set	2				
17.0.15	Vibration monitoring system for pumps	Set	2				

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17.0.16	DC motor starter box for scanner fan (approx. weight 50kg, 375(L) x 900(B) x 1120(H) mm)	No	2				
17.0.17	Burner Tilt Shear Pin Failure Indication Box	No	8				
17.0.18	Air Heater Rotor Stoppage Alarm Box	Set	8				
17.0.19	Steam leak detection (STLD) system panel (approx weight 200kg, approx. 800(L) x 2315(B) x 800(H) mm)	Set	2				
17.0.20	Electronic Water Level Indicator (EWLI)	Set	8				
17.0.21	LP Dosing sysetm	Set	2				
17.0.22	Condenser vacuum pump system	Set	2				
17.0.23	Generator Instrumentation cabinet including annunciator (approx. weight 600 Kg, 1000 x 800 x 2200 mm)	No	2				
17.0.24	Positioner cabinets (approx. 380 x 380 x 210 mm) for LPBP CV1, LPBP CV2, Spray water CV	No	6				
17.0.25	Local Instrument racks (LIR)	No	108				
17.0.26	Local Instrument enclosures (LIE)	No	64				
17.0.27	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				
17.0.28	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	Set	8				
17.0.29	Computer furniture for all Servers, PCs, Printers	Set	2				
17.0.30	Plant Control Desk / CRT desk	Set	2				
17.0.31	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				
17.0.32	Laboratory Setup for Customer	Set	1				
17.0.33	2 X 120 KVA, 220/240 V UPS System and ACDB	Set	2				
17.0.34	Condenser online tube cleaning system	Set	3				
18.0	<b>Instruments/Devices including sensors/Cells/Probes etc</b>						<b>18.0</b>

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SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
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				
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				
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 ( <b>all types</b> )	No	556				

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SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
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				
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				
18.0.41	SWAS Sample handling system with racks & Sample conditioning panel with chiller	Set	2				
18.0.42	Console inserts (to be mounted on Backup desk)	Set	4				
18.0.43	SWAS Analyzer Panel including various analyzers	Set	2				
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				

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SL. NO.	DESCRIPTION	UOM	QTY	RATE IN RS. (IN	RATE IN WORDS	AMOUNT	APPLICABLE TERM OF PAYMENT
<b>19.0</b>	<b>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 &amp; Temperature Guages/Transmitters,etc</b>						<b>19.0</b>
<b>19.0.1</b>	Rack mounted instruments commissioning	Set	6				
<b>19.0.2</b>	Coal Feeder local panel/ instruments commissioning	No	12				
<b>19.0.3</b>	Electrical regulating drives: (Valve, damper, scoop)	No	56				
<b>19.0.4</b>	Pneumatic regulating drives: (Valve, damper) incl Burner	No	218				
<b>19.0.5</b>	Commissioning of Hydraulic actuators	No	28				
<b>19.0.6</b>	Corner nozzle valve/ Trip valves commissioning	No	88				
<b>19.0.7</b>	Open/Close type pneumatic gates / dampers / valves	No	98				
<b>19.0.8</b>	ERV Controller (approx. weight 25kg, 400 x 350 x 270 mm)	No	4				
<b>19.0.9</b>	Limit Switches (checking and adjusting only).	No	40				
<b>19.0.10</b>	Only healthiness checking of embedded RTD / T/C	No	400				
<b>19.0.11</b>	Fan Lube oil skid	Set	18				
<b>19.0.12</b>	Pulveriser Lube oil skid	Set	12				
<b>19.0.13</b>	HEA advance	No	24				
<b>110.0</b>	<b>Power Cylinders</b>						<b>110.0</b>
<b>110.0.1</b>	Mill Discharge Valve power cylinders (set of four)	Set	12				
<b>111.0</b>	<b>Miscellaneous items (items not covered under above heads)</b>						<b>111.0</b>
<b>111.0.1</b>	Master and Slave Clock system	Set	1				
<b>111.0.2</b>	HART MANAGEMENT SYSTEM including CABINET	Set	2				
<b>Grand Total in figures (In Rs)</b>							
<b>Grand Total in Words</b>							
Rs.....							

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