

T E N D E R S P E C I F I C A T I O N

Sl No	Tender Specification Number	Project
1	BHE/PW/PUR/WNT2-STR/1459	1X800 MW Wanakbori

Structural Work Package: All structural Fabrication & Erection works within the battery limits of Entire Plant up to final painting and handing over of all buildings/structures/sheds/access Ways/Platforms etc to civil/mechanical/electrical agencies **for Unit #08 at 1X800 MW Thermal Power Station, Wanakbori, Distt- Kheda, Gujarat.**

VOLUME- II **REVISED PRICE BID SPECIFICATION Rev-01 dated** **06/06/2015**

TENDER SPECIFICATIONS CONSISTS OF:

- **Notice Inviting Tender**
- **Volume 1 A - Technical Conditions of Contract,**
- **Volume 1 B - Special conditions of Contract,**
- **Volume 1 C - General conditions of Contract**
- **Volume 1 D - Forms & Procedures**
- **Volume 1 E- Technical Specification (Section C&D)**



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

Date
Seal and Signature
Place

T E N D E R S P E C I F I C A T I O N

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1	BHE/PW/PUR/WNT2-STR/1459	1X800 MW Wanakbori

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EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender
TENDER SUBMISSION .

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

M/s.

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PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

ADD. GENERAL MANAGER (Purchase)

Place: Nagpur

Date :

Date

Seal and Signature

Place

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PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price	2
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VOLUME- II

REVISED PRICE BID SPECIFICATION Rev-01 dated 06/06/2015

PACKAGE: T.S.No BHE/PW/PUR/WNT2-STR/1459

Part A: Instructions to the Bidders

1. **Bidders shall quote One Total Lumpsum Price for the entire scope of work in the format given in PART C in the price bid.** Any other entry elsewhere in the price bid shall be treated as Null and Void.
2. BHEL has fixed the % weightages for the amount of individual items of Schedule of Quantity w.r.t the total quoted price in PART B of Price Bid.
3. Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL. This amount shall not be rounded off.
4. Based on the quantities of individual item and the amount arrived in SI No 3 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off to two decimal places.
5. The item rates thus derived as in SI No 4 above, shall be multiplied with respective quantities to arrive at the amount and grand total amount which shall be considered for award of work.
6. For the convenience of bidders, BHEL has issued an excel sheet with all requisite formulae as detailed above. However this excel sheet shall not form part of contract document.

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Revised Vol-II Price Bid Specifications Rev-01 Dated 06/06/2015
BHEL PSWR

Structural Work Package: All structural Fabrication & Erection works within the battery limits of Entire Plant up to final painting and handing over of all buildings/structures/sheds/access Ways/Platforms etc to civil/mechanical/electrical agencies for Unit #08 at 1X800 MW Thermal Power Station, Wanakbori, Dist- Kheda, Gujarat.				
All Steel Structural work of Power Plant				
ST. NO	DESCRIPTION OF ITEM	UNIT	Quantity	Weightage in Percentage
2300 STRUCTURAL STEEL				
Structural steel works including all labour, material(other than BHEL supplied materials), equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.				
2301	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc. connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, peening, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons , inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for preparation/re submission of fabrication/erection drgs for final approval, in consultation with BHEL.			
2301A	Fabrication and erection of structural steel built up sections made of plated Girders/Columns composed of Structural plates only conforming to IS:2062, in columns, beams, portals, space frames, hangers, struts, monorails, galleries, stiffeners, brackets, stub columns, trestles etc. including straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, assembly, edge preparation, preheating / post heating(if required), inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons, protection against damage in transit etc all complete as per specification. Payment shall be made for net weight of finished structure along with gussets, stiffeners but not for Nuts & Bolts/washers. Nuts & Bolts/shall be paid under separate item.			
(i)	Fabrication	MT	6500	25.04677856
(ii)	Erection, alignment & welding <u>Payment Break up:</u> a) Erection :70% b) Alignment and Welding : 30 %	MT	6500	15.5124801
2301 B	Fabrication and erection of structural steel with mild steel rolled section ISMC,ISMB,ISA (angle, channel, beam) conforming to IS:2062, in stub columns, beams, portals etc. including straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, assembly, edge preparation, preheating / post heating(if required), splicing, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons, protection against damage in transit etc all complete as per specification. Payment shall be made for net weight of finished structure along with gussets, stiffeners but not for Nuts & Bolts/washers. Nuts & Bolts/washers shall be paid under separate item.			
(i)	Fabrication	MT	2640	3.271477284
(ii)	Erection, alignment,welding <u>Payment Break up:</u> a) Erection :70% b) Alignment and Welding : 30 %	MT	2640	6.300453455
2301C	Fabrication and Erection of structural steel built up section composed of rolled sections or rolled sections and plates conforming to IS:2062, in columns, beams, gantry girders, roof trusses, portals, frames, hangers, struts,brackets, bracings, base plates, ladders, stairs, stringers, treads, landings, hand-rails etc including straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, assembly, edge preparation, preheating / post heating (if required), inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons, protection against damage in transit etc all complete as per specification. Payment shall be made for net weight of finished structure along with gussets, stiffeners but not for Nuts & Bolts/washers. Nuts & Bolts/washers shall be paid under separate item.			
(i)	Fabrication	MT	1200	2.230552694
(ii)	Erection, alignment,welding <u>Payment Break up:</u> a) Erection :70% b) Alignment and Welding : 30 %	MT	1200	2.863842479
2301D	Fabrication and erection of Coal Bunkers (cylindrical shell & conical hopper) and ring beam at site with structural steel of grade E250 conforming to IS:2062, connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures.			
(i)	Fabrication	MT	1660	6.630559077
(ii)	Erection, alignment & welding <u>Payment Break up:</u> a) Erection :70% b) Alignment and Welding : 30 %	MT	1660	3.961648763
2302	Extra over ST NO. 2301 for shot blast cleaning of steel structures to near white metal surface(Sa 2 1/2) including epoxy based zinc phosphate primer in one coat of minimum 50 micron (DFT) at shop and one coat of 50 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	12000	12.93963202
2305	Providing and applying two coats of epoxy resin based paint (over primer coat already done) with intermediate coat pigmented with titanium dioxide of 100 micron dry film thickness (DFT) and top coat of approved colour and shade with glossy finish of 75 micron DFT and finish coat of polyurethane of 25 micron dry film thickness (DFT) to achieve an even shade over steel sections already having primer coats and keeping total DFT with primer not less than 300 microns including protection and cleaning, scaffolding etc. all complete.	MT	12000	8.984603857
2306	Laying and clamping of crane rails over the crane girder at all elevations as per IS 3443 including all fixtures, clamps, testings etc. all complete as per drawing and specification.	MT	150	1.052406651

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All Steel Structural work of Power Plant				
ST. NO	DESCRIPTION OF ITEM	UNIT	Quantity	Weightage in Percentage
2307	Supply, Fabrication, Erection and alignment of factory made electroformed galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Break up: a) Supply including fabrication : 70% (Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	MT	50	1.790710349
A2309	Extra over above ST NO. 2301 for finishing the grating units with hot dipped galvanisation @ 1000gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	300	1.640938066
2310	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. Payment Break up: a) Supply : 70% (Seventy Percent) b) Fixing in position : 30 % (Thirty Percent)	Quintal	25	0.067498627
2311	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Break up: a) Supply : 70% (Seventy Percent) b) Fixing in position : 30 % (Thirty Percent)	Quintal	35	0.225735861
2312	Dismantling of steel structure , lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	70	0.438530935
2313	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:			
a	In erected position	MT	70	0.375889435
b	In fabrication yard	MT	70	0.459438394
2314	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, re-welding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members (weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	35	0.156613858
2316A	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, fabrication and erection of minimum 3 mm thick stainless steel liner of grade AISI-316; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.			
(i)	Fabrication	MT	50	1.018509298
(ii)	Erection, alignment & welding	MT	50	0.548438082
2317	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.			
a	20 Tons	EACH	20	0.085958025
b	25 Tons	EACH	20	0.097893591
c	40 Tons	EACH	10	0.074048457
d	50 Tons	EACH	5	0.038731372
e	60 Tons	EACH	10	0.095045462
2319	Supply, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	5	0.24632269
A2320	Supply, fabrication, fixing and painting of Galvanised (610 gms/sqm as per IS 4736) MS pipe medium class conforming to IS: 277 hand railing (1000 mm high) of 40 mm dia (Medium Grade) including transportation, loading/unloading, etc. all complete as per technical specifications Payment Break up: a) Supply : 70% (Seventy Percent) b) Fabrication and Fixing : 30 % (Thirty Percent)	MT	25	0.620226234
B2320	Supply, fabrication and fixing of aluminium hand railing with 25 mm square MS bar balustrades with 30x6 MS flats including transportation, loading/unloading, painting etc. all complete.	MT	15	0.37213574
2321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	250	0.130563302
2322	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	1400	0.338482472
2323	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	2100	1.353323287
2324	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	280	0.050145551
2325	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	70	0.01043351
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	65	0.969952459
			Total Percentage	100.000000000

VOLUME- II

REVISED PRICE BID SPECIFICATION Rev-01 dated 06/06/2015

T.S. No: BHE/PW/PUR/WNT2-STR/1459

Part C: Format to quote total Lump sum Price

Structural Work Package: All structural Fabrication & Erection works within the battery limits of Entire Plant up to final painting and handing over of all buildings/structures/sheds/access Ways/Platforms etc to civil/mechanical/electrical agencies for Unit #08 at 1X800 MW Thermal Power Station, Wanakbori, Distt- Kheda, Gujarat.		
Sl No 1	Lump sum Total Price for entire Scope of Work as detailed in of T.S.No BHE/PW/PUR/WNT2-STR/1459	In figures:
		In Words
Note: Bidders to quote Total Lump sum Price in this format above which shall be taken into account for evaluation and awarding and hence, it shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.		

Date
Place

Seal and Signature