

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 1894**

FOR

Structural steel works (i.e. transporting from BHEL store, fabrication, erection, alignment including blast cleaning & painting and other allied works) of Ash Handling Plant, Lime Handling Plant, and Gypsum Handling Plant

at

**5x800 MW Yadadri Power project,
Veerlapalem village, Dameracherla
Mandal, Nalgonda District., Telangana
state.**

VOLUME-II

PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

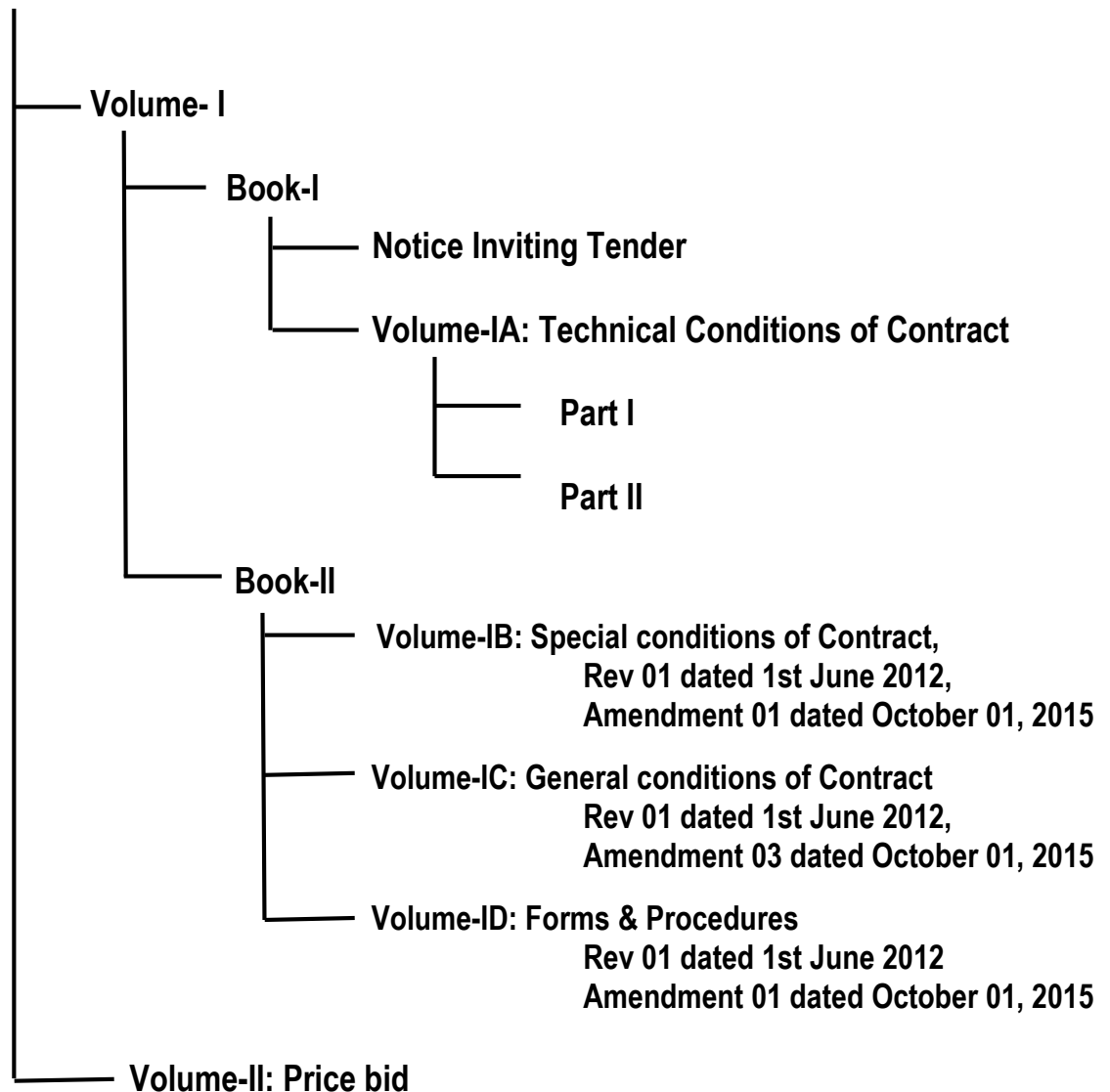
Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

PRICE BID

TENDER SPECIFICATION CONSISTS OF

Techno-Commercial Bid



PRICE BID

CONTENTS	
Description	No. of pages
Part A: Instructions to the Bidders	1
Part B: Format for total amount	1
Part C: Bill of quantities with weightage for amount of each items w.r.t. the total quoted price	14

PRICE BID

PART-A-INSTRUCTIONS TO BIDDERS:

1. Bidders shall quote 'Total Amount' in the "Price Bid Form" available in e-Procurement portal.
2. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
3. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
4. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
5. Based on the quantities of individual item and the amount arrived in SI No: 4 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
6. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.5 above.

Part B: Format to quote Total Amount

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Total Amount for the entire Bill of Quantities(BOQ) given in Part C

In Figures

In words

Note :

Bidders to quote Total Amount in this format given above, which shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.

Date

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
800.0	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge.	--		
803.0	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	20	.0008812
804.0	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 as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	50	.0052311
805.0	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 Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	10	.0017302
806.0	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	KG	70	.0003914
900.0	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
904.0	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	100	.0014763
A904	Providing and fixing single or double leaf steel door shutters. Door leaf should be 46 mm thick fully flush double skin door with or without vision lite. Door leaf shall be manufactured from 0.8mm (22 gauge) minimum thick galvanised steel sheet rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, aldrop, tower bolt, shop and final painting etc all complete.	SQM	50	.0007382
905.0	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	25	.0003805
A905	Providing and fixing sliding door shutters (single or double) with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, handle on both sides, guide channels & sliding arrangement, shop and final painting etc all complete.	SQM	10	.0001522
908.0	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)	--		
a	Openable type	SQM	1,000	.0043177
b	fixed type	SQM	450	.0012536

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works at 5 X 800 MW Yadadri TPS

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
ISG 908	Providing and fixing steel windows/ventilator with steel sections with necessary framework as per approved drawings, The window shutters shall be provided with M.S Louvers and as per IS:1038, IS:1361 & IS:7452 latest revision, including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. - louver blade shall be Z shaped and made out of 18G sheets in E27 steel frames all complete as per the directions of the Engineer in charge. Quoted rate shall be all inclusive.(Glazing shall be paid separately)	--		
a	Openable type	SQM	180	.0008264
b	fixed type	SQM	180	.0005625
A908	Providing and fixing M.S. grills in windows/ventilator as per approved design for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements.	KG	40	.0000066
B908	Providing and fixing anodised aluminium Grills in windows/ventilator of approved design.	KG	40	.0000413
C908	Extra over Item 908 for providing pre-coated (polyster painted) steel windows/ventilators	SQM	18	.0000027
912.0	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	KG	50	.000015
A912	Providing and fixing pressed steel door frames. Door frame shall be Single rebate profile of size 100 x 57 mm made out of 1.20 mm thick galvanised steel sheet (18 gauge) reinforced, drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications.	KG	200	.000062
B912	Providing and fixing pressed steel door frames for fire proof doors. Door frame shall be double rebate profile of size 143 x 57 mm made out of 1.60 mm (16 gauge) minimum thick galvanized steel sheet reinforced, drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications.	KG	75	.0000225

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
913.0	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).	--		
a	Hand Operated	SQM	5	.0000253
b	Mechanically Operated	SQM	37	.0002399
c	Electrically operated	SQM	200	.0013919
915.0	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	--		
d	6 mm thick wired glass	SQM	1,000	.0035224
918.0	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	500	.0029358
920.0	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealent, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	6	.0000413
A920	Providing & fixing of 4mm thick Compact Polycarbonate sheet, transparent or smoke tinted, of Lexan Polycarbonate or similar approved including proper sealing with sealent, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	10	.0000688

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1500.0	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		
1505.0	Designing, providing, Erection and fixing profiled External Cladding sheet manufactured out of 0.55 mm TCT(Total Coated Thickness) of permanently colour coated zincalume steel (150gsm. zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 300MPa yield strength. The colour coating shall comprise of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on reverse side.The sheet shall have 500 mm cover width, 47mm height crests at 250mm centres with special male/female side laps and anti-siphoning features to prevent leakage. The sheet shall be fixed with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fastners/screws 4.2 X 25mm long on to the sub-girts. The clips shall be concealed and no fastners are to penetrate the external sheeting, all complete as per specification.	--		
a)	final painting with Silicon Modified Polyester(SMP)	SQM	22,162	.0458439
1509.0	Designing, providing, erection and fixing profiled Internal Cladding sheet manufactured out of 0.6 mm TCT(Total Coated Thickness) of permanently colour coated zincalume steel (150/180 gsm. zinc-aluminium alloy coating mass total of both sides as per AS 1397:1993). The colour coating shall comprise of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on reverse side. The sheet shall have 980 mm cover width, 28mm height crests at 195mm centres with special male/female side laps and anti-siphoning features to prevent leakage. The sheet shall be fixed to the structure by means of self drilling fastners no. 12-24 X 25mm conforms to AS :3566 Class-3 long at valley.Sub- girts of size 50mm X 50mm X 50mm manufactured out of 16G GI (1.6mm GI) 'Z' shape would be fixed the inner sheeting on face side at runner locations all complete as per specification.	--		
a)	For final painting with Silicon Modified Polyester(SMP)	--		

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
i)	For zincalume sheet 150gsm. And having 550Mpa yield strength.	SQM	50	.0001233
ii)	For zincalume sheet 180gsm. And having 240Mpa yield strength.	SQM	50	.0001247
ISG1519	Providing and fixng polycarbonate translucent sheets, conforming to IS: 14443 for cladding / glazing / translucency purpose and shall have troughed profile to match with metal cladding profile. Sheet shall be minimum 2 mm thick fire retardant and UV resistant. Translucent sheet shall be installed along with metal cladding so as to have a water tight lapping. The sheets shall have min 80% translucency.	SQM	2,500	.0123066
ISG1520	Providing and fixing fire resistant and UV resistant polycarbonate translucent sheets of 4MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge	SQM	50	.0004453
1700.0	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.	--		
1707.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.	--		
b	150 mm Dia	RM	170	.0006618
1800.0	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.	--		
A1842	Marking, lettering on floor/ walls with synthetic enamel paint of design & size as per customers instruction, scope incl. cost of material, labour, scaffolding at all heights & all tools, etc. Method of measurement:area of each letter shall be measured equivalent to area of rectangle with sides equal to the letters width and height.	SQM	5	.0005854

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2300.0	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		
2301.0	Fabrication,erection and alignment 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/sag rods, monorails, stays, safety chains, ladders, MS grating(For hoppers) 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 including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, threadingwelding, 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 20degree Celcius for welding over 20 mm and upto 40 mm & 66 deree Celcius for welding over 40 mm and upto 63 mm & 110 degree Celcius for thickness over 63 mm) & use of low hydrogen electrodes for welding of steel (for all thickness), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, 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 seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost). Electrode E-6013 is not allowed for Fabrcaation & Erection works.	MT	8,968	.5283541

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2301	Supply, fabrication,erection and alignment 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/sag rods, monorails, stays, safety chains, ladders, MS grating(For hoppers) 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 including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, threadingwelding, 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 20degree Celcius for welding over 20 mm and upto 40 mm & 66 deree Celcius for welding over 40 mm and upto 63 mm & 110 degree Celcius for thickness over 63 mm) & use of low hydrogen electrodes for welding of steel (for all thickness), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, 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 seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. Electrode E-6013 is not allowed for Fabrcation & Erection works.	MT	45	.008496
2302.0	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2), providing and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	2	.0000248

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2302	Extra over ST NO. 2301 for surface preparation by Blast cleaning of steel structures as per specification, providing and applying epoxy resin based zinc rich primer as per IS 14589 in two coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch- up painting etc all complete.	MT	8,968	.1213473
2304.0	Extra over ST No. 2301 for providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	6	.0000343
A2305	Providing and applying two coats of high built epoxy finish of 90 micron each over two primer coats of zincsilicate 50 micron each including protection and cleaning, scaffolding etc. all complete.	MT	10	.0001608
ISG 2305	Providing and applying two or more coats of epoxy paint over primer coat so achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	8,968	.1078278
2306.0	Providing, 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	4	.0007978
2307.0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation 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.	--		
a	Minimum galvanisation of 610 g/sqm	MT	549	.1030817

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2308.0	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel 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 2 coats of redoxide zinc-chromate primer 25 micron each coat (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	4	.0005768
2309.0	Extra over above ST NO. 2301 for finishing the grating units/bolts/inserts with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	2	.0001103
2310.0	Extra over above ST NO. 2301 / 2308 for finishing the grating units/bolts/inserts with Cold galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of primer all complete.	MT	2	.0000628
2311.0	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.	KG	1,000	.0001488
2312.0	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.	KG	2,500	.0004025
2313.0	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, scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	20	.000399

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2314.0	Extra over item no. 2301, for 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, etc all complete for the following and as instructed by engineer in charge.	--		
a	In erected position	MT	20	.001022
b	In fabrication yard	MT	20	.0008446
2315.0	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, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members, scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	20	.0006491
2316.0	Supply, fabrication and erection of minimum 3.15 mm thick stainless steel liner of grade SS:409M 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, fabrication detailed drawing etc.all complete. (The measurement for the item of stainless steel liner in hopper shall be based on the actual finished weight of SS liner over hopper)	MT	2	.0012618

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2317.0	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner of grade AISI-304; 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, fabrication detailed drawing etc.all complete. (The measurement for the item of stainless steel liner in hopper shall be based on the actual finished weight of SS liner over hopper)	MT	2	.0012618
2318.0	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 $\hat{A}\pm 50$ mm including transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	2	.0000619
b	25 Tons	EACH	2	.0000694
c	40 Tons	EACH	2	.0000744
d	50 Tons	EACH	2	.0000793
e	60 Tons	EACH	2	.0000843
f	100 Tons	EACH	2	.0000943
A2318	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 $\hat{A}\pm 150$ mm including transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	2	.0000619
b	25 Tons	EACH	2	.0000694

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	40 Tons	EACH	2	.0000744
d	50 Tons	EACH	2	.0000793
e	60 Tons	EACH	2	.0000843
f	100 Tons	EACH	2	.0000943
2320.0	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	2	.0013193
ISG 2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 304 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	4	.0026385
2321.0	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	2	.0003967
2322.0	Supply, fabrication and fixing of GI pipe hand railing of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete spec.including galvanising of 610 g/sqm.	MT	136	.0303634
2323.0	Conducting radiography test on welds wherever specified by deploying necessary equipments, measuring devices, gauges, test report etc. all complete.	RM	52	.0001012
2324.0	Conducting ultasonic test on welds wherever specified by deploying necessary equipments, measuring devices, gauges, test report etc. all complete.	RM	52	.0000913
2325.0	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified by deploying necessary equipments, measuring devices, gauges, test report etc. all complete.	SQM	250	.0001994
2326.0	Conducting magnetic particle test on welds wherever specified by deploying necessary equipments, measuring devices, gauges, test report etc. all complete.	RM	250	.0003702

Part C : Bill of Quantities

**Tender Specification BHEL:PSSR:SCT:1894 for AHP, LHP & GHP - Structural Fabrication & Erection works
at 5 X 800 MW Yadadri TPS**

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2327.0	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	250	.0003214
TOTAL Weightage				1.0