



**Tender Notice No.  
HY/ES/LML MAULI/MECH/12**

**For**

**Mechanical jobs of Erection, Testing, Pre-commissioning  
and commissioning of 1X30MW STG at Lokmangal Mauli  
Industries, Osmanabad, Maharashtra**

**Tender Submission on or before 16 January, 2013 at  
11:00Hrs**

**Drop Box at Vendor Complex in BHEL Admin Block**

**Tender opening Date 16 January, 2013 at 13:30Hrs**

**Addl General Manager  
External Services Department  
02 Annexe, 02nd Floor,**

**Bharat Heavy Electricals Limited  
Ramachandrapuram, Hyderabad – 502 032  
Phone: 040-2318 3415/3416, 2318 3409**

**SPEC NO.201:PROJECT INFORMATION**

**One STG set of 1x30MW STG with auxiliaries and piping etc. are to be erected, tested and commissioned at Lokmangal Mauli, Osmanabad.**

**PROJECT DATA**

- 1. Project Authority : M/s Lokmangal Mauli Industries**
- 2. Name of the Project : Lokmangal Mauli Industries, Osmanabad.**
- 3. Location of Site : Osmanabad, Maharashtra**
- 4. Nearest Railway Station : Sholapur**
- 5. Nearest Air Port :**

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**SPEC NO. 202: SCOPE OF WORK**

1. It is not the intention in this specification to specify each and every activity in the scope of work. However broadly they are brought out in this section and specification nos. 101, 102 & 103 of this Tender Schedule. Bidder may kindly note the same. For the completeness of the job, bidder to note that all activities to complete the erection, testing and commissioning shall be deemed to have been included. Any minor modifications including strengthening by additional welding etc., if required on the equipment to be erected shall be considered as part of the erection and shall not call for any extra payment. Any rectification work on parting planes, machined surfaces shall also be deemed to have been included in the scope of work.

2. The bidder shall quote "FIRM" Prices only.

The following terms of payment will be operated

- a. **80 % payment against running bills.**
  - b. **5% on submission of Protocols.**
  - c. **10 % up on final commissioning and material reconciliation.**
  - d. **Balance 5% on completion of guarantee period of one year from commissioning or against bank guarantee.**
  - e. **Security deposit will be deducted as per rules and paid on completion of guarantee period.**
  - f. **Service Taxes will be paid extra as per the prevailing government rates on submission of necessary documents.**
3. For equipment erection the bidder shall quote a tonnage rate. The payment shall be on actual net weight of equipment erected. The terms of payment shall be strictly governed by specification No. 204. Any deviation to the terms of payment will be evaluated in terms of loading on the prices. The tonnage indicated is only approximate and may vary. Bidder shall agree to keep the rates valid for any variation of quantity.
  4. Erection, testing, pre-commissioning and commissioning of the equipment using contractor's own tools and tackles, consumables, including electrodes, skilled and unskilled manpower etc., as per the detailed description and nature of work as enumerated in tender schedule and this specification, includes all handling and transportation of materials from storage yard and site to pre-assembly area and place of erection and other incidental works required prior to and during pre-fabrication, pre-assembly, erection, testing, pre-commissioning and commissioning of entire system. The scope shall include necessary chipping and dressing of foundations up to a minimum of 50 mm till the required accuracy are obtained for blue matching with the packer plates.

DETAILS OF THE EQUIPMENTS TO BE ERECTED ARE INDICATED IN THE PRICE  
SCHEDULE SL. No. 1.01.00 SPEC NO 204

Unit rates quoted for metric ton includes the following activities of the works:

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- 1. ERECTION**
- 2. TESTING**
- 3. PRE-COMMISSIONING**
- 4. HYDRAULIC TESTING OF EQUIPMENT AND PIPING**
- 5. PAINTING (SUPPLY AND APPLICATION)**

5. During the erection, testing, pre-commissioning and commissioning works, some repairs, rectification and modifications etc. are likely to occur. Bidder shall note that they are part of scope of job. The bidder while quoting the rates shall take the above in consideration and no extra payment will be entertained on this account.

#### **NOTE:**

Examples for repairs, rectification, modifications etc.

1. Mismatching of exhaust hood flanges,
  2. Machine base plate hole enlarging for adjustments,
  3. Supports welding to equipment and rectification as per site condition,
  4. Matching of filter section,
  5. Additional chipping of foundation,
  6. Changing of parts when they fail during the tests etc.,
  7. Re-reaming of Coupling bolts holes etc.
  8. Any parting plane blue matching etc.,
  9. Providing of small opening on oil tanks & mounting of oil pumps. These points are only few examples, similar types of other works are also likely to come which are incidental to the nature of erection work.
6. For any extra equipment & structural the approved unit rates of erection only will be applicable, and this will not be treated as extra works for payment on man hour rates basis.
7. For piping, bidder shall quote a rate per joint / running length separately for:
- a. Fit up and welding,
  - b. Radiography

As given in the specification No. 204 (Price Tabulation). Pipe size, welding type details and no. Of joints (approximate) are given for pipe sizes above 48.3 mm Nb. Bidder shall agree to keep the rates valid for any quantity variation.

8. For piping erection, the contractor shall quote rate per meter length. The piping erection includes all types of piping hangers, supports, fittings (tapings points for instruments, vents and drains as applicable) and Hydraulic test of piping, painting etc. For pipe sizes 48.3 mm and less erection includes fit up and welding, radiography,

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Stress Relieving, etc also where ever required.( Size dia 48.3 mm and less pipes are site routed). Apart from this, the bidder is required to include the jobs of degreasing, mechanical cleaning, steam blowing, oil flushing, pickling and washing, Alkali flushing, cardboard blasting and sand blasting etc. including consumables in the Unit rates quoted and no separate payment will be considered for these jobs. All pipe sizes and corresponding lengths are indicated in tabular column of specification No. 204. Bidder should agree to keep the rates valid for any quantity variation.

The Bidder shall arrange to obtain all approval with reference to IBR and deal with IBR directorate / Local IBR authority for approval of drawings, qualification of welders field inspection of materials, joints, radiography and hydraulic test etc. The price offered by the bidder shall include the expenditure towards the above including incidentals of any kind. However the statutory fees shall be paid by BHEL.

**NOTE: The rates shall be quoted only in the format enclosed. Deviation in the form of addition / deletion / omission in the format is not acceptable and may result in rejection of bid.**

9. For thermal insulation (application only) bidder shall quote a unit rate per Sq. meter for equipment and per meter length for piping including pipe fittings like elbows, tees, reducers, flanges and Valves etc. The thermal insulation job shall be carried out as per the specification No. 51765, 56276 and 4-38101-01000 and includes aluminum cladding, fixing arrangements of thermal insulation etc including all consumables. Bidder shall agree for any variation of quantity without change of rate. Bidder to note that material shall be supplied by BHEL.
10. All piping will be supplied to site in commercial lengths. Fabrication and edge preparation of all piping including welding of stubs on piping for instrumentation tap off points, and providing drains, vents and any other connection points shall be included in the contractor's scope. The unit rates indicated in table 1.04.00 should include the complete scope.
11. Any changes, modifications, involving rerouting of piping, cutting, repairing and re-welding, the payment shall be on the joints basis only as per the approved rates and not at man-hour rates. No separate payments are envisaged for jobs involving cutting of already completed joints.
12. Bidder has to carry out mechanical cleaning, pickling, acid cleaning, alkali flushing, cardboard blasting, etc. as per the guidelines given in the documents enclosed. No separate payments are envisaged for these jobs. The Bidder shall include for these jobs in the unit rates quoted.

Bidder shall also carry out steam blowing in stages (approx. 4 to 5) as per the site requirements. Steam blowing is to be done by installing spool pieces,

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aluminum target plates elbows, necessary temporary supports, etc temporarily. After completion of steam blowing nozzles, orifices valves and other specialties, etc have to be (restoration work) installed by cutting / welding of pipes. The permanent supports shall be installed later. The contractor to note that the restoration of pipelines, valves & specialties, etc (upon completion of steam blowing activity ) shall form a part of the scope of work. No separate payments for these activities are earmarked. Bidder to note this aspect & accordingly bid for these B.O.Q, given in the Price Schedule.

13. The Bidder to note that they have to provide commissioning assistance as per the site requirement during commissioning. No separate payments are envisaged and the unit rates quoted for erection and commissioning are deemed to have taken care of this requirement. **Commissioning is deemed to be completed on successful run of the unit for 72 hours continuously.**
14. **PROTOCOL & DOCUMENTATION:**  
Bidder shall prepare all the necessary documents/ protocol in connection to equipment erection, testing, piping erection, radiography film, joints inspection reports, as built drawings, reports and other relevant document in the format approved by BHEL and/or Client/ Consultant.
15. **PAINTING:**  
The Bidder shall consider total five (5) coats (including the primer) of painting for the items to be erected i.e. equipment, piping and auxiliaries, etc for the purpose of quotation and the work is subject to inspection / approval by BHEL's client. Pipes are to be grid blasted before painting. Supply and Application of Paints are included in contractor scope. Expenditure towards this job shall be included in the unit rates quoted and no separate payments are envisaged.
16. **POWER POINT:**  
Bidder to kindly note that the construction power and water will be provided at single point at site within reasonable distance for the job. The successful bidder shall have to at his own cost provide necessary distribution cabling etc by him. The Bidder has to ensure that the statutory regulations are met with while executing the work.
17. **GROUTING MATERIAL:**  
The rate for equipment erection and commissioning shall include the cost of grout cement for the equipment and no separate payments are envisaged in the contract. For information of bidders the requirement of cement will be approximately 6.0 Tons for main equipment. All materials etc shall be

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**External Services Department**

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arranged by the bidder at his cost. Grouting material specification is included in the annexure.

- 18. Bidder to Note that:**  
**Turbine and Generator will be supplied loose. They are to be arranged at site. No extra payment is allowed for this.**
- 19. ACCEPTANCE OF THE TENDER**  
Acceptance of the tender will be intimated to the successful bidder through a letter of intent / Fax of intent. The bidder shall then be required to execute an agreement annexed at the end (Annexure I & II), within seven (7) days from the date of issue of the letter of Intent. In the event of failure on the part of the contractor to sign the agreement within the specified time, the earnest money deposit shall be forfeited and the acceptance of his tender shall be considered as withdrawn.
- 20. CONTENTS OF THE CONTRACT DOCUMENTS**  
The letter of submission of tender, notice inviting tender, scope of inquiry, Instruction to bidder, general conditions of contract, general and technical specifications, tender proposal forms, tender drawings, contract form between the bidder and BHEL, forms of different deeds (as applicable), amendments/ addenda / corrigenda and interpretations/ clarifications as issued by BHEL subsequent to issues of tender documents (if any), bidder's tender No. .... dated ..... all correspondences, minutes of meetings, agreed variations etc., between the bidder and BHEL till issue of the letter of intent by BHEL, agreed quality assurance programme and time schedule network together with the letter of intent issued by BHEL, all pertaining to this tender, agreed man power deployment together with their technical qualifications etc., shall form the contract.
- 21.** The contract document shall be containing, the scope of inquiry, general and technical specifications and amendments / addenda / corrigenda, interpretation / clarifications issued by BHEL on technical aspects, as well as all correspondences, minutes of meetings etc., between the bidder and BHEL on technical aspects, agreed quality assurance programme, time schedules network, and the rest of documents listed in clause 20 above.
- 22.** The Bidder shall prepare , one (1) original of Contract as described in clauses 19, 20 & 21 above within seven (7) days of signing the contract agreement and shall arrange six (6) true copies of the contract documents free of charge within 4 weeks from the date of signing the contract agreement. After retaining one copy with them for their use, the contractor shall hand over remaining 5 copies to BHEL for their use at site & headquarters including their finance department.

23. List of Documents enclosed:

- |                                  |                        |
|----------------------------------|------------------------|
| 1. Site Erection notes           | : 16 sheets            |
| 2. Plant Standard (Welding ends) | :HY 0620599 (6 Sheets) |
| 3. Specification for insulation  | : (5 Sheets)           |
| 4. Standard for Grouting         | :TC-9-1900 (3 Sheets)  |

**SAFETY:**

Safety during job execution is of paramount importance to us. Bidder's representatives shall adhere to the safety norms and requirements as mentioned in tender schedule which forms an integral part of our order. Also an annexure covering, engineering standards and practices prevalent in our works, is enclosed for reference. Since the erection work shall be done close to the operating plant, necessary safety /work permits shall be taken from our authorized engineers before commencement of any job. Bidder shall appoint and inform us the name, & qualification of the person, from your team, who shall be responsible for safety during job execution. For safety related issues, he will work in close coordination with Safety Officer authorized by customer.

**SAFETY REGULATIONS**

Bidder shall ensure trained men attend work in safe apparel and are provided with requisite safety appliances, safe tools/tackles etc. thereby ensuring safe working conditions. The work shall be carried out under bidder's competent supervision only and duly tested tools/tackles/appliances as per statutes in force shall be used and a copy of their test certificates shall be furnished to us on demand by our engineers. Bidder be solely responsible and shall ensure that all safety requirements under relevant statutes in force are complied with. In case of failure to observe the above regulations while undertaking the job safety officer/ engineer in charge can order for stopping of work.



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**SPEC NO. 203: ERECTION SCHEDULE**

Schedule for Erection and Commissioning of 1X30 MW TG Auxiliaries and piping shall be tentatively as follows:

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|--------------------------------------|----------|------------------------|
| <b>1. Site opening</b>               | <b>:</b> | <b>January'2013</b>    |
| <b>2. Commissioning of Turbine</b>   | <b>:</b> | <b>August' 2013</b>    |
| <b>3. Load run and stabilization</b> | <b>:</b> | <b>September' 2013</b> |

**For the purpose of contract, the period shall be taken as 9 months.** Completion of the work shall be as per BHEL Bar Charts revised from time to time. In order to expedite the work, the contractor has to deploy manpower on two-shift basis during erection and during pre-commissioning and commissioning period manpower should be provided round the clock basis as per site requirement without any extra cost to BHEL.

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**External Services Department**

**SPEC NO. 204**

**1.01.00 ERECTION, TESTING COMMISSIONING AND PAINTING**

S.NO	Description	QUANTITY		TOTAL WT (In kg)
		NO OF ITEMS/DES	WT (Kg)	
1.01.01	Turbine Assembly	1	50000	50000
1.01.02	Gear Box Assembly	1	14250	14250
1.01.03	Generator Assembly	1	58500	58500
1.01.04	Lube oil tank	1	5000	5000
1.01.05	Overhead Lube Oil tank	1	2200	2200
1.01.06	Duplex filters	1	220	220
1.01.07	Main / Aux. Lube Oil Pump Assembly	2	1400	2800
1.01.08	Emergency Oil Pump Assembly	1	1200	1200
1.01.09	Jacking Oil Pump Assembly	1	700	700
1.01.10	Lube Oil Accumulators	1 set	450	450
1.01.11	Oil Vapour Extn Fan	2	80	160
1.01.12	Lube Oil Centrifuge	1	1250	1250
1.01.13	Gov. Oil Console	1	660	660
1.01.14	Bed Plate Under Exhaust Hood	2	850	1700
1.01.15	Stop Valve Assembly	1	300	300
1.01.16	HP Servomotor Assembly	1	300	300
1.01.17	LP Servomotor Assembly	1	300	300
1.01.18	Lube Oil Cooler	2	3300	6600
1.01.19	Valves		6000	6000
1.01.20	Generator Air cooler	7	960	6720
1.01.21	Surface Condenser Assy.	1	52000	52000
a.	Main Assly	1		
b.	Hot Well	1		
c.	SS Bellow	1		
d.	Tubes	~5100		
e.	Connecting Piece	1		
f.	Stand Pipe Assy.	2		
g.	Surge Pipe assy.	1		
1.01.22	Gland Steam Condenser	1	1000	1000
1.01.23	Steam Jet Air Ejector	2	3550	7100

1.01.24	Flash Tank	1	3000	3000
1.01.25	H.P.Heater-1	1	8400	8400
1.01.26	H.P.Heater-2	1	8400	8400
1.01.27	QCNRV	4	4000	16000
1.01.28	Structural	1	5000	5000
Total Weight				260210
Rate per Kg				
1.01.00 Total Amount				

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

**Notes:**

1. The Turbine and Generator will be dispatched to site in assembled conditions. Bidders to note that turbine, Gear Box, Generator erection include the placement of turbine, Gear Box and generator at site in position, with proper foundation preparation and grouting wit Conbextra GP-2 Cement.
2. The surface condenser will be supplied loose at site and tube assembly and hot well welding will be done at site. The Surface condenser, HP heaters (2 nos), Gland Steam Condenser, Ejector, erection includes fabrication and welding of stand pipes, instruments isolation valves, flanges etc.

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**1.02.00 Pipe fit up and welding**

S.No	PIPE SIZE	MATL.	TYPE OF WELD	No. of Joints	Rate (Rs)	AMOUNT (Rs)
IBR PIPING						
1.02.01	1.5" Sch 80	A106GRB	TIG+SMAW	45		
1.02.02	1" Sch 80	A106GRB	TIG+SMAW	50		
1.02.03	0.5" Sch 80	A106GRB	TIG+SMAW	20		
NON- IBR PIPING						
1.02.04	12" Sch 20	A106GRB	TIG+SMAW	22		
1.02.05	10" Sch 20	A106GRB	TIG+SMAW	25		
1.02.06	8" Sch 20	A106GRB	TIG+SMAW	25		
1.02.07	6" Sch 40	A106GRB	TIG+SMAW	225		
1.02.08	4" Sch 40	A106GRB	TIG+SMAW	270		
1.02.09	3" Sch 40	A106GRB	TIG+SMAW	200		
1.02.10	2" Sch 40	A106GRB	TIG+SMAW	200		
1.02.11	1.5" Sch 80	A106GRB	TIG+SMAW	10		
1.02.12	1" Sch 80	A106GRB	TIG+SMAW	300		
1.02.13	0.75" Sch 80	A106GRB	TIG+SMAW	9		
1.02.14	0.5" Sch 80	A106GRB	TIG+SMAW	170		
1.02.15	4" Sch 10S	SS321	TIG	110		
1.02.16	3" Sch 10S	SS321	TIG	35		
1.02.17	2" Sch 20S	SS321	TIG	25		
1.02.18	1.5" Sch 40S	SS321	TIG	36		
1.02.19	1" Sch 40S	SS321	TIG	80		
1.02.20	1/2" Sch 40S	SS321	TIG	60		
1.02.00 TOTAL						

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

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**1.03.00 Radiography of piping**

S.No	PIPE SIZE	MATL.	TYPE OF WELD	No. of Joints	Rate (Rs)	AMOUNT (Rs)
IBR PIPING						
1.03.01	1.5" Sch 80	A106GRB	TIG+SMAW	9		
1.03.02	1" Sch 80	A106GRB	TIG+SMAW	10		
1.03.03	0.5" Sch 80	A106GRB	TIG+SMAW	4		
NON- IBR PIPING						
1.03.04	12" Sch 20	A106GRB	TIG+SMAW	3		
1.03.05	10" Sch 20	A106GRB	TIG+SMAW	3		
1.03.06	8" Sch 20	A106GRB	TIG+SMAW	3		
1.03.07	6" Sch 40	A106GRB	TIG+SMAW	23		
1.03.08	4" Sch 40	A106GRB	TIG+SMAW	27		
1.03.09	3" Sch 40	A106GRB	TIG+SMAW	20		
1.03.10	2" Sch 40	A106GRB	TIG+SMAW	20		
1.03.11	1.5" Sch 80	A106GRB	TIG+SMAW	1		
1.03.12	1" Sch 80	A106GRB	TIG+SMAW	30		
1.03.13	0.75" Sch 80	A106GRB	TIG+SMAW	1		
1.03.14	0.5" Sch 80	A106GRB	TIG+SMAW	17		
1.03.15	4" Sch 10S	SS321	TIG	11		
1.03.16	3" Sch 10S	SS321	TIG	4		
1.03.17	2" Sch 20S	SS321	TIG	3		
1.03.18	1.5" Sch 40S	SS321	TIG	4		
1.03.19	1" Sch 40S	SS321	TIG	8		
1.03.20	1/2" Sch 40S	SS321	TIG	6		
1.03.00 TOTAL						

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

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**External Services Department**

**1.04.00 PIPING ERECTION INCLUDING SPRING HANGERS, SUPPORTS, HYDRAULIC TESTING AND PAINTING**

SL.NO.	Pipe size	Matrl	Length Mtrs	Rate	Amount Rs.
IBR PIPING					
1.04.01	1.5" Sch 80	A106GRB	24		
1.04.02	1" Sch 80	A106GRB	36		
1.04.03	0.5" Sch 80	A106GRB	18		
NON IBR					
1.04.04	12" Sch 20	A106GRB	24		
1.04.05	10" Sch 20	A106GRB	24		
1.04.06	8" Sch 20	A106GRB	24		
1.04.07	6" Sch 40	A106GRB	200		
1.04.08	4" Sch 40	A106GRB	190		
1.04.09	3" Sch 40	A106GRB	120		
1.04.10	2" Sch 40	A106GRB	140		
1.04.11	1.5" Sch 80	A106GRB	12		
1.04.12	1" Sch 80	A106GRB	190		
1.04.13	0.75" Sch 80	A106GRB	12		
1.04.14	0.5" Sch 80	A106GRB	60		
1.04.15	4" Sch 10S	SS321	66		
1.04.16	3" Sch 10S	SS321	12		
1.04.17	2" Sch 20S	SS321	18		
1.04.18	1.5" Sch 40S	SS321	30		
1.04.19	1" Sch 40S	SS321	72		
1.04.20	1/2" Sch 40S	SS321	60		
1.04.00 TOTAL					

Erection rates of pipes sizes dia 48.3 and below includes fit up, welding, radiography wherever applicable and welding of instrument isolation valves, flanges for thermo wells, stubs etc. on all pipes and equipment. Alloy steel pipe weld joints rate to be quoted including Stress relieving

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

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**External Services Department**

**1.05.00 THERMAL INSULATION (APPLICATION) INCLUDING CLADDING, FIXING ARRANGEMENTS ETC.**

	Pipe OD in mm	Insulation th.in mm	Length - Mtrs	Unit Rate/ mtr	Amount Rs.
1.05.01	168.3	50	26		
1.05.02	88.9	40	18		
1.05.03	60.3	100	12		
1.05.04	33.4	60	24		
1.05.05	33.4	90	24		
1.05.06	21.3	65	12		
1.05.07	21.3	60	12		
1.05.08	21.3	75	18		
Sl. No.	EQUIPMENT		Area in Sq Mts	Unit Rate/Sq Mtr	
1.05.09	HE Equipment (Steam Jet Air Ejector, Gland steam condensor, H.P.Heater-1, H.P.Heater-2, Flash Tank etc.)		110 Sq.Mts 75 mm thickness		
1.05.00 Total					

Thermal insulation for valves elbows, Tees & fittings are already included in the length indicated The unit rate quoted for insulation of piping shall include for valves, Elbows, Tees & other fittings also and no separate payment shall be payable for these items. The bidders shall provide the insulation thickness as per IS specification.

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

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**1.06.00 MATERIAL UNLOADING AND STACKING**

DESCRIPTION		WEIGHT (Tons)	RATE RS/TON	TOTAL
1.06.01	MECHANICAL ITEMS	300		
1.06.02	INSTRUMENTSTION AND ELECTRICAL, PANELS. CABLE DRUMS ETC.	40		
<b>1.06.00 TOTAL</b>				

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

**1.07.00 CONDENSER TUBE INSERTION, EXPANSION AND TESTING**

Sl no	Description	Qty	Rate	Amount Rs
1.07.01	Tubes insertion 3/4"x18 Bwg	5100		
1.07.02	Expansion of Tubes	5100		
1.07.03	Cutting of Excess length of the tube	5100		
1.07.04	Expanding the other side	5100		
1.07.05	Hydraulic test on tube side and hydro filltest on shell side	Lumsum		
<b>1.07.00 Total</b>				

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**



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**SUMMARY**

<b>EQUIPMENT ERECTION INCLUDING COST OF GROUTING (1.01.01 TO 1.01.28 )</b>	
<b>PIPE FIT UP AND WELDING (1.02.01 TO 1.02.19)</b>	
<b>RADIOGRAPHY OF PIPING JOINTS ( 1.03.01 TO 1.03.19 )</b>	
<b>PIPING ERECTION INCLUDING SPRING HANGERS SUPPORTS &amp; PAINTING ( 1.04.01 TO 1.04.19)</b>	
<b>THERMAL INSULATION ( APPL) INCLUDING CLADDING, FIXING ARRANGEMENTS ETC (1.05.01 TO 1.05.09 )</b>	
<b>MATERTIAL HANDLING AND STAKING (1.06.01 TO 1.06.02)</b>	
<b>CONDENSER TUBE INSERTION, EXPANSION AND TESTING (1.07.01 TO 1.07.05)</b>	
<b>GRAND TOTAL</b>	

**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**

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**SPEC NO. 205 A**

**MAN HOUR RATES:**

Bidder shall consider the following single man-hour rate including cost of supervision and consumables for all categories of extra works that may arise during the course of contract. Bidder to note that these rates shall not be applicable for modification / rectification of works executed defectively contrary to the instruction of engineers and drawing. Bidder to note that same man hour rate shall be applicable for overtime working also.

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<b>SI.No.</b>	<b>DESCRIPTION</b>	<b>MAN HOUR RATE</b>
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<b>1.</b>	<b>SKILLED / UNSKILLED WORKMEN</b>	<b>Rs 25/-</b>

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**Note: The above rates are exclusive of govt. service taxes, which are to be paid extra.**