



Bharat Heavy Electricals Limited, Jhansi

Locomotive Manufacturing Department

Tender Enquiry No: **LMM/TW/PIPING/0/0001**

TENDER DOCUMENT

For Works Contract

Against Tender Enquiry No : LMM/TW/PIPING/0/0001

For

Complete Piping (SS/Copper Tube) Work of WAG 9HC
Locomotives

Contact Person :

Name : Anshuman Sharma

Designation : Deputy Manager (CMM)

Email : anshuman.sharma@bhel.in

PH : 0510 – 241 – 2784

Tender Due Date : 15.12.2020 at 13 :15 Hrs

Tender Opening Date : 15.12.2020 at 14 :00 Hrs

Material Management Department
BHEL, PO : BHEL, Jhansi 284120 (UP)



DETAILS OF TENDER DOCUMENT

L	M	M /	TW	/	PIPING	/0/	0	0	0	1
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Nature of work: Piping of WAG-9H Locomotives

1. BHEL, Jhansi is in the process of finalizing the Works Contract for "Piping of WAG – 9H Locomotives"
2. The tender document has been detailed as follows:
 - a. Notice Inviting Tender (Schedule - A)
 - b. Work Specifications (Schedule - B)
 - c. Qualifying Requirements (Schedule - C)
 - d. Technical Bid Application (Schedule – D)
 - e. Price/ Rate Bid (JS-146)
 - f. General Terms and Condition

The duly filled in Technical and Price/ Rate bids (Schedule 'D' and JS-146 separately) along with the General Terms and Conditions with the signature of the bidder on all the pages and complete in all respects superscribed as "Quotation for Tender No. should be submitted to BHEL in a sealed cover on or before / within due date (13.15 hours) by the bidder or his authorised agent /representative only. Offer from any other sources shall be considered unsolicited and shall be summarily rejected. The tender has to be dropped in the tender box available at the following address:

To
Tender Box
CISF Control Room/Office
Administrative Building
Bharat Heavy Electricals Limited
Jhansi-284 120 (U.P.)

Note: (i) *Dropping of tender in the Tender Box within schedule time and date is the responsibility of the bidder.*
(ii) *Technical bid and price bid should be submitted in separate sealed envelopes, in case the bids founds in one single envelope then the "bids" are liable to be rejected.*
(iii) *Incomplete offers are liable for rejection.*



TENDER DOCUMENTS: PIPING WORK OF WAG-9H LOCOMOTIVES

CONTENTS

Sl. No.	Description	Document No.
1.	Notice Inviting Tender	A
2.	Work Specifications/ Scope of Work	B
3.	Qualifying Requirements	C
4.	Technical Bid Application	D
5.	Price/ Rate Bid	JS-146
6.	General Terms & Conditions	JHS 2055B R00

Note : All the Forms and Annexures referred in General Terms and Conditions can be downloaded from the portal of 'Central Contract Cell' available under 'Supplier Information Portal' of BHEL, Jhansi at <https://www.bheljhs.co.in/apps/sip/index.php>.



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Schedule - A

NOTICE FOR INVITING TENDER

S. No	Particulars	Details
1	Brief Description of work	Piping of WAG – 9HC Locomotives
2	Tender Evaluation Criteria	As per General Terms and Condition And Schedule B
3	Duration of Contract	15 months from the date of award.
4	Last date of receipt of the Tender	Up to 13:15 hrs on 15.12.2020
5	Date of opening of Techno – Commercial Bid	14:00 hrs on 15.12.2020
6	Address for submitting the Tender	(as on Page# 2)
7	Earnest Money Deposit (EMD)	Rs. 2.36 lakhs (acceptable through Electronic Fund Transfer credited in BHEL account (before tender opening)) <u>BHEL account details:</u> Bank Name:- SBI; A/c No. :- 10670828866 ; IFS Code:- SBIN0003807 ; A/c Holder Name:- BHARAT HEAVY ELECTRICALS LIMITED
8	Cost of Tender	Rs 1000/- Plus GST (@18%) = Total Rs 1180/- <i>(Payable through Electronic Fund Transfer credited in BHEL account (A/C details mentioned above at Sl. No. 7) or through POS machine installed in Cash office of BHEL Jhansi.</i>
9	Validity of Offer	90 Days
10	Security Deposit	The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit. Refer Schedule-C for more details.
11	Reverse Auction (RA)	RA shall be done as per latest applicable RA Guide Lines.

The contractors may physically visit the work place before quoting their rates. For relevant details and updates please visit website "www.bhel.com"



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BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."



Schedule - B

WORK SPECIFICATION

1. SCOPE OF WORK FOR PIPING OF WAG: – 9HC LOCOMOTIVES:

- a. The work includes complete pipe layout of WAG-9H type 3-phase locomotives. This work includes the complete piping work of shell and bogie of WAG-9H loco including underframe, machine room, Panto, Converter, Filter cubicle, driver's cab and bogie piping work. Normal working pressure is 10 Kg/cm² and operating air pressure may be as high as 11.5 Kg/cm² or as per latest applicable drawing.
- b. The work has to be carried out in work premises of BHEL Jhansi.
- c. Loco Brake Equipment Interface (Header Bar), Air Dryer, Wiper, Horns, Valves, all Pipes, Pipe fittings, Filters, Cocks, Hoses, Clamps, etc. will be provided to the contractor by BHEL. The fitment of these equipment and pneumatic connection is in the scope of the contractor
- d. Party has to get cleared the pipe layout from BHEL, Jhansi Quality Control & from RDSO.

2. GENERAL CONDITION:

- a. **BHEL will provide the following infrastructure & material for the work: -**
 - i. Suitable place/ shed.
 - ii. Required electric power connection.
 - iii. Lifting facility like OHE crane for lifting and placement of shell on stools.
 - iv. All Brake equipment, Air dryer, horn, Wiper, isolating cocks, brake valves, pressure switches, pipe and pneumatic fittings, brackets, hoses, clamps, saddle light stuff, plugs etc. required for pipe layout work.
 - v. Gate pass for men/ material movement inside BHEL premises related to work.
 - vi. Welding machine and gas cylinder.
 - vii. Reservoir and compressor for testing of piping work or operation of tools if any
 - viii. Cabling from main distributing to work for work process (not more than 200 meters).
- b. **The tenderer/ contractor will arrange the following: -**
 - i. Swaging Machine
 - ii. Pipe Cutting Machine
 - iii. Pipe Bending Machine.
 - iv. Brazing Machine including consumables like Brazing electrodes.
 - v. Testing racks(Pneumatic) for Leakage Test.
 - vi. Storage and security of BHEL material & tools and plants.
 - vii. Security of material
 - viii. Skilled Manpower along with expert Supervision staff/ Engineers

3. CLIMATIC AND ENVIRONMENTAL CONDITION OF LOCOMOTIVES:

(a)	Max. Atmospheric Temperature	Under Sun 70 deg. Cel. In Shade 50 deg. Cel.
(b)	Humidity	100% saturation during rainy season.
(c)	Rainfall	Very heavy in certain areas
(d)	Atmosphere during hot weather	Extremely dusty
(e)	Coastal Area	Locomotive and equipment is designed to work in coastal areas in humid and salt laden atmosphere.
(f)	Vibration	Vibration as specified in the corresponding IEC publication unless otherwise specified.

4. GENERAL AND TECHNICAL DATA:

- a. Complete piping work (shell and bogie) has to be done as per brake schematic Drawing. No. SCH B 1684 and pipe layout drawings as mentioned in Annexure- 'B (ii)'. If bidder needs any drawings, it can be provided on receipt of intimation on amitesh@bhel.in, kunal@bhel.in or gssachan@bhel.in.
- b. All items required for completion of pipe layout shall be provided as per Annexure – 'B (i)'.

5. INSPECTION AND ACCEPTANCE:

The entire pipe layout must be tested individually as per Annexure – 'B (iii)' by the contractor. However, Underframe pipe layout, Machine room pipe layout (including Panto, Converter piping etc.), Cab pipe layout and Bogie pipe layout should be treated as separate units. Testing of these units should be done in assembled condition. All the pipe and pipe joints should be leak proof.

6. TESTING:

- a. Each unit should be offered for inspection at the work premises after completing the underframe pipe layout, machine room pipe layout, cab pipe layout and bogie pipe layout. These are to be witnessed by representatives of BHEL.
The pipe layout offered for inspection shall have the capability to withstand the following test: -
 - i. **Visual/ Dimensional Checking:** Pipe layout shall be as per brake schematic drawing and pipe layout drawings indicated in Annexure – 'B (ii)'. Overall finish, workmanship shall be of the highest quality.
 - ii. **Pneumatic Pressure Test:** The assembly consisting of underframe pipe layout, machine room pipe layout, cab pipe layout and bogie pipe layout (including pipe and joints) are to be tested at a pressure of 11.5 Kg/cm² (Pneumatic Pressure) and to be held at that pressure for 15 minutes. No leakage is permitted.
 - iii. The **stage inspection** will be generally as per Annexure- 'B (iii)'. The work shall be as per CLW drawings mentioned in Annexure- 'B (ii)'.
- b. Party has to get cleared the pipe layout from BHEL, Jhansi Quality Control & from RDSO in all respect related to pneumatics/ pipe works.



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c. After completion of pipe layout, final testing of complete brake system shall be carried out by BHEL QC & witnessed by RDSO. Contractor to associate during final testing & inspection by RDSO. In case any defect is found in the pipe layout or leakage is found through pipe joints during inspection and testing, the same shall be rectified by the contractor free of cost.

7. MARKING AND PAINTING OF FINISHED PIPING WORK:

a. For complete piping work, the name of the contractor and month/year of manufacture shall be marked in the manner jointly decided between BHEL and the firm.

8. GUARANTEE/DEFECT LIABILITY:

a. The contractor is required to guarantee for the satisfactorily performance of pipe layout and workmanship for a period of two (2) years after commissioning of loco at site.

9. **Measurement of Work:** Work will be measured in terms of '**Nos of Locomotive**'. And respective bill will be cleared after clearance by RDSO/ BHEL - QC.

10. **LD/Penalty:** Supplier has to complete the piping work within 20 days from the date of offer of Loco. Any delay will lead to penalty on supplier as per clause X.4 and X.5 of general terms and condition.

11. **Splitting Of Work:** Due to large quantity requirement, we may finalized the tender quantities among more than one bidder (after acceptance of L1 price by the other bidders) Indicated your committed capacity for the item/ works/ services tendered and confirm the capacity offered by you against our tender shall be available for us during the entire period of contract/ Purchase order.

Where the numbers of qualified responses (N) are three or more, the distribution shall be limited to N-1 responses. The manner and distribution proportion shall be as under:

L1	60% Work = 24 Locomotives
L2	40% Work = 16 Locomotives

The distribution shall be based on acceptance given by bidder to the L1 price counter offered to them. In case of any or all the bidders do not accept the counter offer, and a situation arises wherein bidder(s) who have agreed to the counter offer may have to be more quantity may be allotted, what he have proposed he has been proposed earlier, then the same shall be done limited to quoted capacity by the bidders.

Wherever numbers of Techno-commercially qualified bidder is two, then BHEL reserved the rights whether or not distribute the quantity more than one bidder.



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ANNEXURE- 'B (i)'

(List of relevant specification applicable for E-70 Brake System provided by BHEL for piping work)

SL NO.	DESCRIPTION	SPEC/DRG NO.
1	E-70 Brake Control Equipment	CLW/MS/3/001, Alt-16
2	Twin-tower heatless regenerative type Air Dryer	MP-0.01.00.06 Alt-5
3	Wiper Assembly with water spraying system	CLW/MS/3/050 Alt-6
4	Stainless Steel Tube	CLW/MS/3/029, Alt-9
5	Copper Tube	CLW/MS/3/030, Alt-12
6	Nylon Tube	CLW/MS/3/079, Alt-5
7	Stainless Steel Pipe Fittings	CLW/MS/3/053, Alt-20
8	Brass Pipe Fitting	CLW/TS/99/CF/5, Alt-8
9	Copper Pipe Fitting	CLW/MS/3/067, Alt-4
10	Steel Pipe Fittings	CLW/MS/3/068, Alt-14
11	Clamps	CLW/MS/3/059, Alt-6
12	Plugs	CLW/MS/3/064, Alt-5
13	Flexible Hose Assembly	CLW/MS/3/033 Alt-5
14	P. P. Components	CLW/MS/3/065, Alt-10



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ANNEXURE- 'B (ii)'

(List of relevant Pipe Layout drawings with E-70 Brake System)

SL NO.	DESCRIPTION	DRG NO.
1	Shell Piping	
1.1	Underframe piping	
1.1.1	Underframe Pipe Layout for WAG-9H Loco (E-70 Brake System)	1209-07.129-081, Alt-1 (3 Sheets)
1.2	Machine Room Piping	
1.2.1	Pipe arrangement machine room for WAG-9H Loco (E-70 Brake System)	1209-07.032-121, Alt-1 (6 sheets)
1.2.2	Pneumatic connection for Pantograph cylinder and throttle valve.	1209-07.250-002, Alt-6 (1 Sheet)
1.2.3	Pneumatic piping convertor roof hatch	1209-07.150-006, Alt-0 (1 Sheet)
1.3	Cab Piping	
1.3.1	Pipe arrangement cab for WAG-9H Loco (E-70 Brake System)	1209-08.032-123, Alt-1 (4 Sheets)
2	Bogie Piping	
2.1	Pipe arrangement Co-Co Bogie for WAG-9H Loco	1209-12.017-028, Alt-0 (2 Sheets)

Annexure-B (III)

(Testing scheme of component pipe lines of WAG-9H Loco with E-70 Brake System)

1. Line BC-1 to both cab.
2. Line BC-2 to both cab.
3. Line M to both cab.
4. Line W to both cab.
5. Line H to both cab.
6. Line O to Direct Brake Controller of Cab-1.
7. Line Y to Direct Brake Controller of Cab-2.
8. Line FP to gauge both cab.
9. Line C from Header Bar to back of Cab-1 up to underframe.
10. Line D from Header Bar to back of Cab-2 up to underframe.
11. Line E from Header Bar to back of Cab-1 up to underframe.
12. Line F from Header Bar to back of Cab-2 up to underframe.
13. Line T from Header Bar to Cab-1 up to unloader and Auto Drain Valve.
14. Line X from header Bar to underframe both end cock 1" MR equalizing pipe.
15. Line Y from header Bar to direct brake controller cab-2 end.
16. Line V from Header Bar to double check valve Both bogie.
17. Line L from Header Bar to Direct Brake Pipe in both cab.
18. Line O from Header Bar to underframe both end 1-1/4" (FP)
19. Line B from Header Bar to U/f both cab end angle cock.
20. Line W from Header Bar to U/f connecting MR.
21. Line W from Header Bar to both cab and pressure switch 35, 36, 37.
22. Line BC-1 Machine room to U/f Cab-1 & 2.
23. Line BC-2 Machine room to U/f Cab-1 & 2.
24. Line M from Header Bar to Flow meter gauge in both cab.
25. Line U from Header Bar to reservoir isolating cock 94.
26. Line J from Header Bar to Auxiliary reservoir 51.
27. Line K from Header bar to BP line.
28. Line H from Header bar to direct brake controller in both cabs.
29. Line A from Header bar to Auto Brake Line double check valve.
30. Line N from Header Bar to Parking Brake Line.
31. Line AA from Header bar to underframe both end 1.25" Angle Cock.
32. Assistant driver emergency line BP in both cab.
33. 3/8" BP gauge line in both cab.
34. Line S from Header bar to Panto-1.
35. Line R from Header Bar to Panto-2.
36. Line Q up to VCB.
37. Line BB from Header Bar to SR-2.
38. Line CC from Header Bar Filter cubicle.
39. Line DD from Header bar to SR-1.
40. All Bogie pipe lines.
41. Any other pipe line apart from above mentioned lines is also to be tested.



Schedule - C

PRE-QUALIFYING REQUIREMENTS (PQR)

For eligibility of tender, the bidder should submit the following documents:

Financial Strength & Experience:

- I. **Average Annual Turnover:** Financial Turnover during last three years, ending on 31/03/2020 should be at least Rs 35.4 Lakhs. If all balance sheet / Financial Statements not available for all three years, the average shall be dividing the sum of turnover of submitted balance sheet / certificate from CA/ Financial Statement by three.

- II. **Experience:** Experience of having successfully completed similar works during last 7 years ending last day of month previous (i.e.31/10/2020) to the one in which applications are invited should be either of the following: -
 - a. Three similar completed works costing not less than the amount Rs 47.2 Lakhs.
or
 - b. Two similar completed works costing not less than the amount Rs 59.00 Lakhs.
or
 - c. One similar completed work costing not less than the amount Rs. 94.4 Lakhs

- III. **Definition of "similar work" :** Should be experience of having successful completion of Piping Work (Stainless Steel Pipe & Copper Pipe) WAG 7, WAG 9, WAG 9H, WAP, WAM Locomotives for Indian railway/ BHEL/ Metro Coaches / PSU/ Other Agencies.

In Case of Experience in Government Organization / PSU/ Semi Government Following Documents shall be required along with offer.

- a) Certified Copy of WORK Order/ Purchase Order
- b) Certified Copy of Completion Certificates

In Case of Experience in Private Sector flowing Documents shall be required along with offer.

- a) Certified Copy of WORK Order/ Purchase Order
- b) Certified Copy of Completion Certificates
- c) TDS Certificates

- IV. **Self-Certificate / Declaration:** Self-Certificate / Declaration that the bidder is not suspended by BHEL Jhansi or any other Government organization and bidder is not guilty by a Court of Law for any offence involving fraud, dishonesty and moral turpitude
- V. **Valid PAN & GSTN:** Bidder must have valid PAN & GSTN and copy of same to be provided.
- VI. **Positive Net Worth:** Bidder should have positive net worth & duly certified by Chartered Accountant (CA) {CA certificates for net worth}.



Schedule - D

TECHNICAL BID:

(ESSENTIAL DOCUMENTS/ INFORMATION REQUIRED ALONG WITH OFFER)

1. The documents required for legal entities under whose name & style contractor has participated in the tender are as follows:
 - (i) **Partnership Firm:** Partnership Deed registered at the office of Registrar of Firms.
 - (ii) **Company:** Certified copy of Memorandum of Association, Article of Association and Incorporation Certificate.
 - (iii) **Society:** Registration certificate issued by Registrar of Society.
 - (iv) **Sole Proprietorship Firm:** Undertaking on oath (Rs. 100 Stamp Paper) that Proprietor is solely responsible for all rights and liabilities while working under the name and style of Proprietorship firm namely (____) _____)
2. Copy of ESI registration certificate issued by ESI authority.
3. Copy of PAN of bidder.
4. Copy of GST certificate.
5. Self-Declaration on Stamp Paper of Rs. 100/- in line with Clause –II (Q) of General Terms and Conditions.
6. Blank Price Bid as per JS-146.
7. Copy of payment receipt of EMD and Tender cost.



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PROFORMA FOR SUBMITTING TECHNICAL BID FOR “PIPING WORK ON WAG-9HC LOCOMOTIVES”

(A) Essential Documents Required

1. Name of the firm : _____
(Documents as per Clause-1 of Schedule-C to be attached)
2. Name of the Proprietor/ Partners : _____
3. Address and Contact Numbers : _____
4. Registration Number : _____
Copy of the Certificate : _____ Enclosed / Not Enclosed
5. PAN Number : _____
Copy of PAN : _____ Enclosed / Not Enclosed
6. GST Number : _____
(Attach Copy of the GST certificate)
7. Audited financial statement/
Balance Sheet/ CA Certificate
as per tender : _____ Enclosed / Not Enclosed
8. Experience Certificate : _____
(Along with necessary enclosures
as per tender to be submitted)
9. No. of Workers including Supervisors
on the rolls of the firm : _____
10. Earnest Money Deposit : _____ Rs. _____
 - a) EFT transaction no. : _____ Date _____
 - b) Bank Name & Branch : _____
11. Any other relevant information : _____



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12. Tender Cost : Rs _____
a) EFT transaction no. : _____ Date _____
b) Bank Name & Branch : _____

13. Validity of offer : _____
(At least 90 days from the
Date of tender Opening)

14. Blank Price bid format : Enclosed/ Not Enclosed

15. PF registration certificate
(if exempted submit exemption proof)
PF registration code : _____
(Attach Copy of the PF registration)

16. ESI registration certificate:
(if exempted submit exemption proof)
ESI registration : _____
(Attach Copy of ESI registration)

(B) Desirable:

17. Income Tax return last 3 yrs. : Enclosed / Not Enclosed

18. Acceptance of RA : Accepted/Not accepted

19. Labour License Number : _____
Copy of the License : Enclosed / Not Enclosed

We hereby confirm that, all the obligations will fulfil all the obligations of the contractor and abide by the Terms & Conditions mentioned in the enquiry.

Signature with Name & Office Seal

NOTE (1): TECHNICAL BID AND PRICE BID SHOULD BE SUBMITTED IN SEPARATE SEALED ENVELOPS. IN CASE THE BIDS ARE FOUND IN ONE SINGAL ENVELOPE THEN THE "BIDS" ARE LIABLE TO BE REJECTED.



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JS- 146

Price Bid Sheet For Works Contract					
Sl. No.	Description of Work	Unit of Measurement	Quantum of Work	Rate per Unit (in Rs.)	Amount (in Rs.)
(A)	(B)	(C)	(D)	(E)	(F=D*E)
1	Complete Piping Work of WAG – 9HC Locomotive (Shell & Bogies) as described in Scope / Specification of work (Schedule – B of Tender Document)	No of Locomotives	40 Locomotives		
	TOTAL				
	Total price in words:	-			

- i) GST will be paid extra as applicable. Current rate of GST is 18%.
- ii) In case of credit is not available as denied by GST portal due to improper documentation or with interest ,if any.

Date:

(Signature and Seal of Contractor)

NOTE (1): TECHNICAL BID AND PRICE BID SHOULD BE SUBMITTED IN SEPARATE SEALED ENVELOPS. IN CASE THE BIDS ARE FOUND IN ONE SINGAL ENVELOPE THEN THE “BIDS” ARE LIABLE TO BE REJECTED.