



Ref. Enquiry No.: PE/PG/RTC/E-5587/2017

Dated: 17/04/2017

TENDER ENQUIRY THROUGH E-PROCUREMENT

DUE DATE
28/04/2017
BY 1400 HRS

SUBJECT: TENDER ENQUIRY FOR RATE CONTRACT OF FIRE TENDERS AS PER TECHNICAL SPECIFICATION NO. PE-TS-STD-550-A001

OUR REF: TENDER ENQUIRY NO: PE/PG/RTC/E-5587/2017, DTD-17/04/2017

Dear Sir/ Ma'am,

We are pleased to invite your offer for subject package in two parts strictly as per Clause-2.0 of the "Instructions to Bidders" of the General Conditions of Contract (GCC) Rev-06 available at following link:- <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf> . Please upload your best quotation/ offer on <https://bheleps.buyjunction.in> for the requirement strictly as per schedule of price format before above mentioned due date & time. The details of the tender enquiry are as mentioned below:

Sl. No	Description for which Rate Contract is desired	Tentative Quantity	Delivery required
1	FIRE TENDERS - Refer Technical specification no PE-TS-STD-550-A001 (Annexure-V) for detailed description.	As per BOQ cum price schedule (in Annexure-I) cumulative for the Prospective Projects (Annexure-III)	Delivery-"Four (04) months from drgs. /docs. approval in CAT-I issued by BHEL. Successful bidder to make 1st submission of drawing/docs as per list mentioned in Annexure-V" Master Drawing List with Schedule of Submission" of Technical Specification-PE-TS-STD-550-A001(Annexure-V) within 4 weeks from the date of P.O./LOA. Vendor to re-submit documents within 7 days, taking care of all the comments of BHEL. Any deficiency in documents submitted w.r.t. agreed specification/ comments from BHEL shall be treated as non-submission and no. of days delay in submission of complete documents during approval process, on account of this, would be reduced from the delivery. The vendor shall be responsible for getting approval from BHEL as early as possible and BHEL will support the process, in full, within above time frame and terms & conditions."

Your best quotation/offer for the above requirement, in line with our terms and conditions, should be submitted online via e-procurement system. It shall be the responsibility of the bidder to ensure that the Tender is submitted on or before the due date by 2 p.m. Part-I bids shall be opened at 3 p.m. on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Note:-

1. Documents and Credential as per Technical PQR, Techno Commercial Bids and Price Bids should be uploaded on the e-procurement portal.
2. Evaluation will be done on overall L1 (Total cost to BHEL) basis with necessary loading as applicable. Incomplete offer or offer for part of NIT BOM/BOQ shall be summarily rejected.

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Please refer GCC Rev-06 which is available on www.bhelpem.com. You are requested to kindly download the same.

1. Rate contract on firm price basis is proposed for 2 years from placement of Rate Contract PO with a provision for further extension after review on mutual consent.

Rate Contract is proposed to be done with 2 vendors in ratio of 60: 40, value wise at L1 FOR site price for subject package (% of splitting of RC between 2 vendors may be changed during ordering process, if L1 bidder is not customer approved); however, order for a project (only for the BOQ required as per specific project requirement) shall not be split and will be placed on single vendor.

Evaluation will be done on overall L1 (Total cost to BHEL) basis with necessary loading as applicable.

2. Prices shall be firm.
3. Bidders to note the following: -
 - a) Rate contract shall be decided on the basis of grand Total FOR site price of Total BOQ as listed in price format (Annexure-I)
 - b) Though evaluation is proposed on Grand Total FOR site, but there is % allocation weightage against BOQ quantity of each item which shall be used for arriving at price break up. Bidders need to give only their Ex Works price for given BOQ at S. No. 4[VALUE MARKED AS X] of Annexure I.
 - c) Bidders also require to mention % of taxes/ duties (against respective column for ED, CST & Service Tax) applicable for each item.
 - d) Bidder to note that the freight charges for fire tender have to be included in the Ex-works price.
 - e) Rest of the prices shall be derived by BHEL in line with % allocation fixed for each item.
 - f) For better clarity to the bidders where value is to be filled is noted as "to be quoted" and for other columns it will be noted as "derived" which denotes shall be derived by BHEL as per % allocation fixed against each item.
4. L1 rates shall be counter offered to vendors (L2, L3 & so on) in succession. If none accepts L1 rates, RC shall be done with L1 vendor for 100 % value. Vendors shall be asked to quote prices with CST against form C and same state ordering shall not be done to save VAT.
5. Vendor shall be informed that evaluation shall be done on CST basis, however in case, the entire business volume goes to one vendor (or volume of business shared between the vendors in line with enquiry) having manufacturing facility in the same state, then BHEL may do suitable amendment in PO on case to case basis for taking care the provision of VAT in case of project falling in the same State where manufacturing factory of the vendor is also located.

TERMS AND CONDITIONS

1. Procurement of the subject package shall be done through e-procurement.
2. Enquiry No., due date etc. must be legibly super scribed on the offers as per clause no. 2.0 of "Instructions to Bidders" of GCC-Rev 06.
3. Offers should be uploaded in two parts online at <https://bheleps.buyjunction.in> as follows:

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- a) Part-I Bid: - Documents and Credential as per Technical PQR and Techno-Commercial offer (along with un-priced copy of un-priced bid and un-priced schedule of Technical-Commercial Deviation, Annexure I & VI)
- b) Part II Bid: - Price Bid and Priced schedule of Technical-Commercial Deviation.
4. Terms and conditions: -
- a) Part I bid will be opened on date & time mentioned in the NIT or subsequent corrigenda/amendments, if any.
- b) **Techno-commercial offer of only those bidders shall be evaluated who will meet the Technical pre-qualifying requirement of the tender.**
5. Vendors shall quote in accordance with the requirements mentioned in the tender documents. In case of deviations (Technical/ Commercial), the same shall be highlighted separately giving Clause references along with the Cost of withdrawal of Deviations as per **Annexure-II to GCC Rev 06 of "DEVIATION SHEET (COST OF WITHDRAWAL)"** (attached here as ANNEXURE-VI-A) along with reasons for taking such deviations.
Bidder to note all the points mentioned in "Notes" of Annexure-II to GCC Rev 06.
6. **Please note the following:**
- a. **Price format is enclosed for compliance as Annexure-I.**
- b. **Special Conditions of Contract (SCC) enclosed for compliance as Annexure-II.**
- c. **GCC enclosed for compliance. As mentioned above, GCC Rev-06 is available at <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf>. You are requested to kindly download the same.**
7. Tenders shall be submitted strictly in accordance with the requirements of the above tender documents.
8. Standard pre-printed terms & conditions of the tenderers shall not be considered valid.
9. Validity of offer shall be as per **Clause No. 7.0, "Instructions to Bidders"** of GCC Rev 06.
10. Unsolicited fresh/revised Price Bids shall not be entertained.
11. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/all tender(s) in part or full without assigning any reason whatsoever.
12. Late tenders will be rejected.
13. Tenders and all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Mr. KUNAL GANDHI, Sr. Engr./CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301

Mr. I P SINGH, SR MANAGER, CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301

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Kind Attn: KUNAL GANDHI/ CMM
E-MAIL: kunalgandhi@bhelpem.co.in
Ph. No. 0120-4368574/ 9650183377

Kind Attn: I P SINGH/ CMM
E-MAIL: indra@bhelpem.co.in
Ph. No. 0120- 4218749, 09818989654

14. **PRE-QUALIFICATION REQUIREMENT:-**

Bidders is requested to submit the documents satisfying the "TECHNICAL PRE-QUALIFYING REQUIREMENT" as per the conditions mentioned in the PQR.

Bids of only those bidders shall be evaluated who meet the Technical pre-qualifying requirements (if applicable).

Pre-Qualifying requirement for Fire Tenders has been attached as Annexure-IV.

15. Bidders to note that their bid shall be conditional subject to qualify PQR by registered vendors & non-registered vendors have to qualify PQR & get registered with PEM for the package.

For registration in PEM "Bidders needs to apply & get registered for subject package with PEM before P-2 (price bid opening) & hence you need to apply online for registration on PEM web portal & have to enclose acknowledgement with this effect with the bid documents else your bid will not be considered for evaluation".

16. Bidders to note that the Ex-works price to be quoted for the Fire Tenders shall be inclusive of the freight charges.

17. Limit on quantity variation shall be plus 30% of Contract Value (Ex Works) till validity of RC. The Purchaser shall have the right to increase or decrease quantities and scope upto the above extent of value and Seller/ Contractor shall be bound to accept the same at the contracted prices without any escalation.

18. Project list attached in Annexure-III is indicative only, BHEL may ask for delivery anywhere in India for any of the project added in the prospective project/ existing projects during RC period.

19. Bidder has to submit "NO DEVIATION CERTIFICATE FOR COMMERCIAL TERMS AND CONDITIONS AS PER GCC (06), SCC AND NIT". In case of deviations, bidder to clearly mention the same with their techno-commercial offer as per Point No-5 of NIT.

20. All the above Tender Documents shall automatically become a part of the Order/Contract after its finalization.

21. The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com.

22. "The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."

BHEL Fraud prevention policy is also uploaded in vendor's section on www.bhhelpem.com.

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23. Bidders are requested to visit constantly our website to update them self for any technical or commercial change in the NIT.
24. All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on BHEL websites only (www.bhelpem.com, www.bhel.com & <https://bheleps.buyjunction.in>) under subject tender reference. Bidders are requested to visit our websites from time to time to keep themselves updated. **Bidders may go through the Sellers' manual & Help documents provided on E-Procurement Portal website & obtain required Digital Signature Certificate for participating in the subject Tender. For Bidders' convenience, the Helpdesk Nos. of E-Procurement Portal m-junction are also listed below:**
- MJUNCTION HELPDESK Nos. 033-6601 1717, 9163348283 / 9163348284 / 9163348285 / 9163348286 / 8584008116 / 8584008205, eps.customercare@mjunction.in**
- CRM Contact Details:**
- Mr. Santosh Kumar - Cell No. 09717149600, santosh.kumar@mjunction.in
- Ms. Rimi Ghosh - Cell No 09650044156, rimi.ghosh@mjunction.in
25. **CIF allocation is not applicable for this tender. Bidder to quote accordingly.**
26. Bidders to submit their offers strictly in line with the enclosed price format.
27. Inspection shall be done by BHEL/ END CUSTOMER/Third party Agency (finalized by BHEL).
28. Any other taxes & duties applicable on the date of bid but not quoted by the bidders shall be to bidder account.
29. Delivery terms for dispatches shall be FOR Dispatch Station.
30. This enquiry is subject to Conditions/ limits if any imposed in PMD / Vendor registration.
31. Bidders participating through open tender will necessarily have to but class III DSCs issued by the certifying authorities in India. Basic procedure/ checklist is uploaded on www.bhel.com.
32. Non- registered bidder to submit the credentials required for Registration in BHEL PEM: -
"Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com - vendor section - Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted."
33. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/ items with different bidders and also increase or decrease the quantity.
34. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-

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acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com)."

As a reminder to the bidders, system will flash following message (in RED Color) during the course of 'online sealed bid':

"Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL"

Detailed guidelines of reverse auction 2016 are available in "information section" of www.bhelpem.com, same are applicable for subject tender.

The Bidders has to quote the Single Price (i.e. Total Cost to BHEL) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form/VAT, Freight as applicable, insurance charges, etc. including loading (if any). De-loading (if any) shall be done in line with SCC.

IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION

The Bidders has to quote the Single Price (i.e. Total Cost to BHEL) in Reverse Auction i. e. Price mentioned in Column No. 19 for indigenous bidders with loading/de loading (if any). Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form/VAT, Freight as applicable, including loading (if any). De-loading (if any) shall be done in line with NIT terms.

Following Condition in Reverse Auction shall be treated as follows:

Case-I (Taxes & duties are identical in Reverse Auction & Conventional Price Bid)

Resolution: - Ordering shall be done on lower of the two bids (RA closing price & Conventional Price Bid). After successful completion of reverse auction L1 bidder shall be asked to submit break up in line with taxes & duties, freight quoted in their Conventional Price Bid.

Case-II (In case Bidder has quoted 'CST' in Conventional Price Bid and applicable Tax is 'VAT')

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Resolution: - "Total Cost to BHEL shall be maintained by reducing proportion amount in Ex-works quoted by Bidder".

Case-III (In case Bidder has quoted 'VAT' in Conventional Price Bid and applicable Tax is 'CST')

Resolution: - Conventional Bid/RA quoted Prices shall be reduced and CST will be allowed.

Statutory variation shall be applicable.

Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure.

Note: - Applicable taxes & duties shall be determined as per location of works of bidder.

Kindly consider the same while quoting the tender.

35. L1 bidder will have to submit Bank Guarantee for each POs (irrespective of value) which will be placed under the Rate Contract finalised through this tender considering RA as original contract as per format mentioned in Annexure VI to NIT instead of format mentioned in GCC Rev 06.
The PBG Format has been attached as Annexure-VI-B.
36. Bidder to note that all other terms and condition shall be strictly as per NIT, GCC Rev. 06 & SCC. In the event of any contradiction in the terms and conditions mentioned, the order of preference shall be NIT (this letter) / SCC / GCC Rev. 06.
37. "If any bidder uploads price bid in the unpriced section (techno-commercial attachment page) of the tender in e-procurement, in that case bidder(s) shall only be responsible for such mistake and any consequences thereof. Hence all bidders are requested to be more careful at the time of uploading the Unpriced and Price Bid for Part-I and Part-II respectively to avoid mismatch".

Note: Tenderer must submit UN-PRICED Price format duly filled mentioning the word "QUOTED" in place of actual price given in sealed price bid.

Thanking you,

Yours faithfully,

For and on behalf of BHEL

(Signature of official with Name & Designation)

Enclosures:

- NIT (this letter itself)
- Annexure-I: Price Format
- Annexure-II: Special Conditions of Rate Contract (SCC).
- Annexure-III: List of prospective projects
- Annexure-IV: PQR (Pre-qualifying Requirement)
- Annexure-V: Technical Specification No. PE-TS-020-100-M001
- Annexure-VI-A: Cost of Withdrawal sheet (Annexure-II of GCC Rev. 06)
- Annexure-VI-B: PBG Format

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PRICE FORMAT								ANNEXURE-I	
NAME OF PROJECT:				RATE CONTRACT					
NAME OF PACKAGE:				FIRE TENDER					
TECHNICAL SPECIFICATION:				PE-TS-STD-550-A001					
S. No.	DESCRIPTION	UNIT	QTY	%CONTRIBUTION OF QUANTITY W.R.T. TOTAL PRICE	AMOUNT (Ex-Works) (INCLUSIVE OF FREIGHT CHARGES)	ED @ % (Including cess) (Rs.)	CST @ % (Rs) against from C and form E	FREIGHT CHARGES @ % of Ex-work (Including Service Tax) (Rs.) (r)	TOTAL F.O.R. SITE PRICE (Rs.)
		1	2	3	4	5	6	7	8
1.0	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part comprising of design (i.e.preparation and submission of drawing /documents including “As Built” drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles , fill of lubricants & consumables alongwith spares for startup and commissioning as required, forwarding, proper packing of accessories, shipment and delivery at site and carrying out Performance guarantee / Functional / Demonstration tests at site training of customer/client O&M staff (if applicable), permanent registration and one year insurance of the vehicles in the name of end customer and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order.	Lot	1	100	TO BE QUOTED (VALUE=X)	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	BREAK-UP OF SUPPLY PRICES OF 1.0 above								
1.0.1	Total lump sum price for Fire water tender including chassis and as specified at Sl. no. 1.0 above.	Lot	1	37	Derived	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	Break up of prices given in clause 1.0.1								
a	Supply price for Fire water tender including 16 T vehicle chassis, Pump of Capacity (2000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (4500 Liter Capacity) along with complete accessories as per IS: 950	Nos.	4						
b	Supply price for the items to be supplied with Fire Water Tender as listed in enclosed Annexure-II of technical specification and Maintenance tools & tackles as per Annexure-III of technical specification.	Lot	4						
c	Price for performance demonstration of Fire water tender.	Lot	4						
d	Fill of chemicals & consumables & replenishment of consumables & chemical exhausted during performance demonstration at Works and site.	Lot	4						
1.0.2	Total lump sum price for Fire water tender including chassis and as specified at Sl. no. 1.0 above.	Lot	1	10	Derived	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	Break up of prices given in clause 1.0.2								
a	Supply price for Fire water tender including 16 T vehicle chassis, Pump of Capacity (3000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (6000 Liter Capacity) along with complete accessories as per IS: 950	Nos.	1						
b	Supply price for the items to be supplied with Fire Water Tender as listed in enclosed Annexure-II of technical specification and Maintenance tools & tackles as per Annexure-III of technical specification.	Lot	1						
c	Price for performance demonstration of Fire water tender.	Lot	1						
d	Fill of chemicals & consumables & replenishment of consumables & chemical exhausted during performance demonstration at Works and site.	Lot	1						
1.0.3	Total lump sum price for Fire water tender including chassis and as specified at Sl. no. 1.0 above.	Lot	1	13	Derived	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	Break up of prices given in clause 1.0.3								
a	Supply price for Fire water tender including 25 T vehicle chassis, Pump of Capacity (4000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (7000 Liter Capacity) along with complete accessories as per IS: 950	Nos.	1						
b	Supply price for the items to be supplied with Fire Water Tender as listed in enclosed Annexure-II of technical specification and Maintenance tools & tackles as per Annexure-III of technical specification.	Lot	1						
c	Price for performance demonstration of Fire water tender.	Lot	1						
d	Fill of chemicals & consumables & replenishment of consumables & chemical exhausted during performance demonstration at Works and site.	Lot	1						
1.0.4	Total lump sum price for Foam tender including chassis and as specified at Sl. no. 1.0 above.	Lot	1	10	Derived	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	Break up of prices given in clause 1.0.4								
a	Supply price for Foam tender including 16 T vehicle chassis, Pump of Capacity (1800 LPM @ 8.5 Kg/cm2 min.), Water Tank (4500 Liter Capacity) along with complete accessories as per IS: 10460	Nos.	1						
b	Supply price for the items to be supplied with Foam Tender as listed in enclosed Annexure-I of technical specification and Maintenance tools & tackles as per Annexure-III of technical specification.	Lot	1						
c	Price for performance demonstration of Foam tender.	Lot	1						
d	Fill of chemicals & consumables & replenishment of consumables & chemical exhausted during performance demonstration at Works and site.	Lot	1						
1.0.5	Total lump sum price for Foam tender including chassis and as specified at Sl. no. 1.0 above.	Lot	1	30	Derived	%TO BE QUOTED	%TO BE QUOTED	(TO BE INCLUDED IN 4)	Derived
	Break up of prices given in clause 1.0.5								
a	Supply price for Foam tender including 11 T vehicle chassis, Pump of Capacity (1800 LPM @ 8.5 Kg/cm2 min.), Water Tank (2000 Liter Capacity) along with complete accessories as per IS: 10460	Nos.	3						
b	Supply price for the items to be supplied with Foam Tender as listed in enclosed Annexure-I of technical specification and Maintenance tools & tackles as per Annexure-III of technical specification.	Lot	3						
c	Price for performance demonstration of Foam tender.	Lot	3						
d	Fill of chemicals & consumables & replenishment of consumables & chemical exhausted during performance demonstration at Works and site.	Lot	3						
Notes: 1.) PG to consider and suitably incorporate taxes, duties and other commercial aspects. 2) BHEL reserves the right to purchase any fire tender from amongs variants specified from Sl. No.1.0.1 to 1.0.5. 3) The chassis shall meet the prevailing emission norms and shall totally comply with the Central Motor Vehicle Rules.									
Particulars of bidder / authorised representative									
Name		Designation			Signature		Date		Company Seal

ANNEXURE-II

Special Condition of Rate Contract of Fire Tender

1. BHEL/PEM intends to enter into Rate Contract for Fire Tenders for a period of two years. The Rate Contract shall come into force from the date of issue of Purchase order for Rate Contract.
2. The items will be required against respective projects. Exact quantities and Project name shall be intimated while placing order for a specific project based on the Rate Contract.
3. The units rate for each item should be quoted inclusive of ex-works including packing & forwarding & freight (excepted sea worthy packing) for tendered specifications/sizes as per price schedule format. Other elements of prices such as Excise Duty, Sales Tax % of Ex-works are also to be indicated. Destination may be anywhere in India as per project requirement.
4. Vendor to note that Excise Duty is payable on self manufacturing item only as per clause no 4.1.2 of GCC Rev 06 & hence for their BOI may quote Excise Duty is inclusive or Nil.
5. The prices shall remain firm during the period of two years.
6. Inspection of materials shall be carried out by BHEL / CQA and or by Customer or by an authorized agency at manufacture's works before dispatch, if required. Dispatch of material to be done, only after receipt of BHEL/Customer MDCC. It is responsibility of vendor to for obtain Material Dispatch Clearance Certificate (MDCC) from BHEL or CUSTOMER as required before dispatch of material.
7. Items have to be manufactured as per specification and supplied strictly in accordance with the approved BHEL / Customer's Drawings & Quality Plan. The items/ test certificate of items, which for any reason are not acceptable to BHEL / Customer, shall be required to be retested. No extra charge shall be payable on those account by BHEL.
8. Mode dispatch shall be by road through Schedule Bank/BHEL (PEM) approved transporters.
9. Other terms and conditions shall be as per Standard Technical specification no. PE-TS-STD-550-A001 & GCC Rev 06, Enquiry letter.
10. Order shall be placed with CST for respective projects keeping FOR site price same, vendors to quote accordingly.
11. This enquiry is subject to Conditions/ limits if any imposed in PMD/ Vendor registration.
12. Tentative quantity is given in enquiry.
13. Bidders to submit offer for RC of said items ONLINE via e-Procurement System only. Complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
14. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL web site <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud as soon as it comes to their notice.



PROJECTED QUANTITIES FOR RATE CONTRACT OF FIRE TENDER PACKAGE

With reference to proposed execution of rate contract of FIRE TENDER package, the indicative list of required quantities as on date are listed below:

S.No	Project List	TYPE OF FIRE TENDERS	QUANTITY
1	2X660 MW ENNORE SEZ	WATER TENDER	1
		FOAM TENDER	1
2	4X250 MW BHADRADRI	WATER TENDER	1
		FOAM TENDER	1
3	5X800 MW YEDRADRI	WATER TENDER	4
		FOAM TENDER	2
	TOTAL	Total fire tender	10

It may be noted that actual ordering will be based on order to be executed by BHEL & technical requirement of Fire tender package as per the order. The quantity may vary from given tentative quantity to as needed during the rate contract period.

Also, the type & Qty. of particular water tender (3 variants) & Foam tender (2 variants) may vary based on customer requirements during the rate contract period.

	PACKAGE: FIRE TENDER PRE-QUALIFICATION REQUIREMENT- FIRE TENDER: WATER / CO₂ / FOAM / DRY CHEMICAL POWDER.	PE-PQ-999-551-A001	
		DATE	30/04/2016
		REV NO	00

1.0	Supplier should have capabilities for design/ manufacture and having in-house/ out-sourced facility for testing of Fire tenders: Water / CO ₂ / Foam / Dry Chemical Powder type.
2.0	The supplier has to submit either of following supporting documents meeting above mentioned pre-qualifying requirement a. Copy of minimum one (1) performance certificate in English from end user along with copy of related Purchase Order (PO) or letter of intent (LOI) or letter of award (LOA) or work order (WO) specifying that the product/ equipment is running successfully for one (1) year from date of commissioning meeting the minimum pre-qualifying requirement. OR b. Minimum two PO/ LOI /LOA/ WO placed with a minimum gap of six (6) months from same purchaser meeting the minimum pre-qualifying requirement. OR c. Minimum one PO/ LOI /LOA/ WO after commissioning of first order from same purchaser meeting the minimum pre-qualifying requirement. OR d. In case, vendor has executed contract (s) for BHEL-PEM, internal assessment by BHEL-PEM shall be followed for evaluation for satisfactory performance. For this, vendor to submit the request along-with relevant documents. OR e. Minimum three customer's/ third party's inspection reports/ test certificates/commissioning certificates meeting the minimum pre-qualifying requirement.
3.0	Minimum two (2) nos. Purchase orders, shall be submitted which should not be more than ten (10) years old as on date of bid submission, for establishing continuity in business.
4.0	Indian stockiest/ trader/ distributor/ dealer/ authorized agent/ channel partner/ Indian sales office or subsidiary of Principal - with aftersales service agreement with OEM/Principal are also acceptable provided OEM/Principal meets the minimum pre-qualification criteria stipulated above at pt no 1.

Supplier to comply general points of PQR available at

<http://bhelpem.com/vensection/pmd/pmd.aspx> in case supplier is not OEM, the offer shall be evaluated as per point no 1 of general PQR.

Amit
Prepared By

Karay
Reviewed By

Onishce
05/05/2016
Approved By

***TECHNICAL SPECIFICATION
OF FIRE TENDER
FOR
RATE CONTRACT***

SPECIFICATION NO.: PE-TS-STD-550-A001



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA (INDIA)**

INDEX

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**SECTION – I
SPECIFIC TECHNICAL REQUIREMENTS**



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SECTION – IA

SPECIFIC TECHNICAL REQUIREMENTS (Mechanical)



**TECHNICAL SPECIFICATION OF
FIRE TENDERS FOR RATE CONTRACT**

SPEC NO. PE-TS-STD-550-A001

SECTION-IA

REV.NO.0 | DATE:27.03.2017

1.0 INTENT OF SPECIFICATION

- 1.1 This specification covers the design (i.e. preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles, fill of lubricants & consumables along with spares for start-up and commissioning as required, forwarding, proper packing of accessories, shipment and delivery at site and carrying out Performance guarantee / Functional / Demonstration tests at site, training of customer/client O&M staff (if applicable), permanent registration and one year insurance of the vehicles in the name of end customer and handover in flawless condition of the package to the end customer complete with all accessories for the total scope defined as per tender technical specification, amendment & agreements till placement of order.

The bidder's scope shall also include any other services, etc. if called for in the succeeding sections of the specification.

- 1.2 It is not the intent to specify completely all details and construction of the equipment. However, all the equipment shall conform, in all respect, to high standard of engineering, design and workmanship and be capable of performing in continuous commercial operation up to desired period.
- 1.3 BIDDER's guarantee in a manner acceptable to the PURCHASER who will interpret the meaning of drawing and specification and shall have power to reject any work or material which, in his judgement, are not in full accordance with specified specification and technical parameter.
- 1.4 The extent of supply under the contract includes all items shown in the drawings, notwithstanding the fact that such items may have been omitted from the specification or schedules. Similarly, the extent of supply also includes all items mentioned in the specification and /or schedules, notwithstanding the fact that such items may have been omitted in the drawing.
- 1.5 Items though not specifically mentioned but needed to make the system complete as stipulated under these specifications are also to be furnished unless otherwise specifically excluded.
- 1.6 The general terms and conditions, instructions to tenderer and other attachment referred to elsewhere are hereby made part of the tender specifications. The equipment / material and works covered by this specification is subject to compliance to all the attachments referred in the specification. The tenderer shall be responsible for adherence to all requirements stipulated herein.
- 1.7 While all efforts have been made to make the specification requirement complete & unambiguous, it shall be bidders' responsibility to ask for missing information, ensure completeness of specification, to bring out any contradictory / conflicting requirement in different sections of the specification and within a section itself to the notice of BHEL and to seek any clarification on specification requirement in the format enclosed under Vol.-III of the specification within 10 days of receipt of tender documents. In absence of any such clarifications, in case of any contradictory requirement, the more stringent requirement as



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per interpretation of Purchaser/Customer shall prevail and shall be complied by the bidder without any commercial implication on account of the same. Further in case of any missing information in the specification not brought out by the prospective bidders as part of pre-bid clarification, the same shall be furnished by Purchaser/ Customer as and when brought to their notice either by the bidder or by purchaser/ customer themselves. However, such requirements shall be binding on the successful bidder without any commercial & delivery implication.

- 1.8 No deviation is permitted in normal case. Deviations, if any, should be very clearly brought out clause by clause in the enclosed schedule otherwise, it will be presumed that the vendor's offer is strictly in line with NIT specification.
- 1.9 In case all above requirements are not complied with, the offer may be considered as incomplete and would become liable for rejection.
- 1.10 Unless specified otherwise, all through the specification, the word contractor shall have same meaning as successful bidder/vendor and Customer/Purchaser/Employer will mean BHEL and/or Customer as interpreted by BHEL in the relevant context. Please refer GCC/SCC for better clarity.
- 1.11 In the event of conflict between requirements of two clauses of this specification/ documents or requirements of different codes/standard specified, the more stringent requirement as per interpretation of owner shall apply.
- 1.12 The equipment covered under this specification shall not be dispatched unless the same have been finally inspected, accepted and dispatch release issued by BHEL/Customer.
- 1.13 BHEL's Customer's representative shall be given full access to the shop in which the equipment's are being manufactured or tested and all test records shall be made available to him.
- 1.14 Various codes and standards to be used shall be as indicated in various parts of the specification. In case bidder uses any standard other than those indicated in the specification, the onus of establishing equivalence of the same with the specified standards will rest with the bidder and acceptance of the same shall be sole prerogative of customer. The bidder will also arrange for BHEL a copy of the standards in ENGLISH language. The cost of such service will be deemed to have been included by the bidder in the total cost of the package. BHEL will not entertain any additional cost on account of the same.
- 1.15 All text/ numeric in the document / drawings to be generated by the successful bidder will be in English language only.
- 1.16 The bidder's offer shall not carry any sections like clarification, interpretations and /or assumptions.
- 1.17 The inspection and testing of all the equipment shall be as per approved quality Plan/Inspection checklist.



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Note:

Bidder to note that BHEL reserves the right for drawing/document submission through web based Document Management System. Bidder would be provided access to the DMS for drawing/document approval and adequate training for the same. Detailed methodology would be finalized during the kick-off meeting. Bidder to ensure following at their end.

- Internet explorer version – Minimum Internet Explorer 7.
- Internet speed – 2 mbps (Minimum preferred).
- Pop ups from our external DMS IP (124.124.36.198) should not be blocked.
- Vendor's internal proxy setting should not block DMS application's link (<http://dmsserver.bhelpem.com/Wrench%20Web%20Access/Login.aspx>).



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PROJECT INFORMATION

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SECTION-IA

PROJECT INFORMATION

(VOID)

Note: Project information details shall be project specific and intimated to the bidder accordingly.

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1.0.0 SCOPE

1.1.0 SCOPE OF SUPPLY

1.1.1 SCOPE OF SUPPLY FOR FOAM TENDER

Variant-1:

- i) Foam tender { including 16 ton vehicle chassis, pump capacity ([1800LPM@8.5](#) Kg/cm² minimum), Water tank(4500 liter capacity)} conforming to IS: 10460, complete with all accessories and equipment's as specified herein & including those specified in **Annexure-I**, section-IA
- ii) First fill of chemicals & consumables during performance demonstration.
- iii) Replenishment of consumables & chemicals consumed during performance demonstration of tenders.

Variant-2:

- i) Foam tender { including 11 ton vehicle chassis, pump capacity ([1800LPM@8.5](#) Kg/cm² minimum), Water tank(2000 liter capacity)} conforming to IS: 10460, complete with all accessories and equipment's as specified herein & including those specified in **Annexure-I**, section-IA
- ii) First fill of chemicals & consumables during performance demonstration.
- iii) Replenishment of consumables & chemicals consumed during performance demonstration of tenders.

1.1.2 SCOPE OF SUPPLY FOR WATER TENDER

Variant-1:

- i) Water tender {including 16 T vehicle chassis, Pump of Capacity (2000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (4500 Liter Capacity)} conforming to IS: 950:2012, complete with all accessories and equipment's as specified herein & including those specified in **Annexure-II**, section-IA
- ii) First fill of chemicals & consumables during performance demonstration.
- iii) Replenishment of consumables & chemicals consumed during performance demonstration of tenders.

Variant-2:

- i) Water tender {including 16 T vehicle chassis, Pump of Capacity (3000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (6000 Liter Capacity)} conforming to IS: 950:2012, complete with all accessories and equipment's as specified herein & including those specified in **Annexure-II**, section-IA

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- ii) First fill of chemicals & consumables during performance demonstration.
- iii) Replenishment of consumables & chemicals consumed during performance demonstration of tenders.

Variant-3:

- i) Water tender {including 25 T vehicle chassis, Pump of Capacity (4000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), Water Tank (7000 Liter Capacity)} conforming to IS: 950:2012, complete with all accessories and equipment's as specified herein & including those specified in **Annexure-II**, section-IA
- ii) First fill of chemicals & consumables during performance demonstration.
- iii) Replenishment of consumables & chemicals consumed during performance demonstration of tenders

1.2.0 SCOPE OF SERVICES

Performance demonstration of fire water tender and foam tender at site and training of owner's personnel.

2.0.0 CODES AND STANDARDS

The design, material of construction, workmanship & finish, performance testing, accessories and equipment of fire water tender and foam tender specified herein shall comply with the requirements of codes/standard as follows:

IS: 10460 - Functional requirements for small foam tender for fire brigade use.

Latest IS: 950 Type-B - Functional requirements for fire water tender, Type-B for fire brigade use.

(A) DESCRIPTION ON FOAM TENDER

3.0.0 VEHICLE CHASSIS

The chassis for carrying out fabrication work of foam tender shall be of Make-TATA/Ashok Leyland/equivalent. The chassis shall be equipped with power assisted steering and power brake. Chassis shall be BS-IV compliant.

4.0.0 GENERAL REQUIREMENTS

- 4.1.0 The appliance shall incorporate a fire pump of 1800 L/min capacity, a water tank of 4500 ltr capacity for variant-1 and 2000 ltr. Capacity for variant-2 as per S.NO. 1.1.1), a foam tank of 500 ltr capacity, connected equipment for foam production and supplementary extinguishing agent (S.No. 10.0.0).

- a) Gross vehicle weight. Not less than 16000 Kg including crew, water and equipment (for variant-1 as

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per S.NO. 1.1.1)

Not less than 11000 Kg including crew, water and equipment (for variant-2 as per S.NO. 1.1.1)

- b) Maximum speed on level road fully laden. 72 Km / h.
- c) Acceleration from a standing start through the gears, fully laden. 64 Km/h in 55 seconds
- d) The appliance shall be capable of being started from rest on a gradient of 1 in 4
- e) When travelling at 48 km / h on a level dry surface the foot brake shall be capable of stopping the vehicle within a distance of 15 m from the point at which the brake is applied. The hand brake shall be capable of holding the fully laden appliance on a dry surface gradient of 1 in 4 when in neutral gear.
- f) The appliance shall have the following overall dimensions:
 - Wheel base not more than 4500 mm
 - Turning circle not more than 20 m
 - Road clearance not less than 260 mm
 - Overall width not more than 2.50 m

Note: - The chassis shall meet the prevailing emission norms and shall totally comply with the Central Motor Vehicle Rules.

- 4.2.0 The monitor shall employ the self-aspiration type of foam production system where aeration is done at the branch pipe. The expansion ratio of the foam produced shall not be less than eight times with the use of foam compound as prescribed in IS: 4989 (latest edition).
- 4.3.0 The foam induction shall be automatic if one branch is in operation, all further addition and removal of branches shall automatically adjust the rate of foam compound induction within variation of 0.5 percent, the induction ratio not exceeding 6 percent.
- 4.4.0 A hose reel service shall be provided on the appliance. In addition to water carried on it, it shall also be possible to use water from a hydrant/ a static supply.
- 4.5.0 The supplementary agent used for firefighting shall be dry chemical powder (2x75 Kg capacity).
- 4.6.0 The unit shall be designed to be as compact as possible, compatible with ease of accessibility to all service parts. The pump and foam making equipment controls shall be so arranged that one man can operate foam or water lines from the pump control panel.
- 4.7.0 Lever type valve controls shall be preferred throughout.

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4.8.0 All parts, which shall form waterways or come into contact with foam solution, shall be of corrosion resisting materials suitably treated with corrosion resistant compound. All metal parts exposed to atmosphere shall either be of corrosion resisting material or treated suitably to resist corrosion.

4.9.0 Lubricating nipples shall be provided wherever necessary.

5.0.0 DESIGN AND CONSTRUCTION

5.1.0 Engine

5.1.1 The engine shall be provided with cooling system to permit its continuous stationary running without overheating. Indirect cooling system shall be incorporated which shall be of the open circuit type discharging water to the waste.

5.1.2 The operating temperature of the engine cooling water shall preferably be thermostatically controlled.

5.1.3 The oil in the oil sump shall be prevented from overheating

5.1.4 Suitable gauge for cooling water and glow lamp for lubricating system shall be provided in the driver's cab and on the pump panel. This shall be marked with operating temperature.

5.1.5 External filter shall be provided for the lubricating system and a tubular dip-stick to gauge the level of oil in the oil sump shall be provided.

5.2.0 Electrical System

5.2.1 A sealed maintenance free battery of adequate capacity with a trickle type battery charger shall be provided for recharging the battery in situ. A red pilot lamp, indicating when the batteries are being charged from an external supply, shall be provided.

5.2.2 All important electrical circuits shall have separate fuses suitably indicated and shall be grouped into a common fuse box located in an accessible position in driver's cab and fitted with means for carrying spare fuses. The wiring shall be single pole and shall not be exposed to the atmosphere. Conduits shall be used wherever necessary.

5.3.0 Water Tank

5.3.1 A water tank of not less than 2000 litres capacity for variant-2 and 4500 litres capacity for variant-1 (as per SL.No.1.1.1) shall be mounted on the chassis. It shall be fabricated out of mild steel sheet of minimum 3.0 mm thickness. Bottom sheet shall be minimum 5 mm thick. The tank shall be treated for anti-corrosion with epoxy paint consisting of one coat of primer and two coats of finish paint after shot blasting of inside surface and shall be suitably baffled to prevent surge when the vehicle is braking, accelerating or concerning. The baffle shall be arranged in a manner to facilitate the passage of a man throughout the tank for cleaning purposes. Minimum thickness of baffle plate shall be 3.0 mm. It shall be mounted on the chassis in a manner keeping in view the proper load distribution on the axles and shall be so

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designed as to bring the centre of gravity as low as possible in the chassis. It shall be rectangular in shape and the mounting of the tank shall be flexible type to prevent the tank's distortion due to the chassis flexion. The mounting shall permit full contents of the tank to flow into the pump. The tank with its fitments shall withstand hydrostatic pressure of 0.3 bar. The tank shall be mounted on the vehicles using metacone mounting.

5.3.2 Suitable eyes shall be provided on the shell of the tank to enable the tank to be lifted off the vehicle for repairs or replacement as necessary.

5.3.3 The tank shall be fitted with two filling orifices, a drain cock, a manhole and a cleaning hole (at the bottom of the tank). The filling orifice shall be of not less than 250 mm diameter and shall be fitted with a manhole cover of 450 mm dia. minimum and a filler cap clearly marked 'water' preferably cast in metal. In addition, a 63 mm instantaneous hydrant connection, incorporating a strainer, shall be provided close to the pump pane control for filling the tank through 75 mm diameter pipe or feeding the hose reel equipment. A 100 mm dia. pipe line shall be taken from the tank to the suction inlet of the pump incorporating a 100 mm quick action spherical type valve. Separate valve (s) for performing different functions shall be provided to control the flow of water. Manhole shall be located at the top of the tank. Drain plugs or cocks shall be provided wherever necessary. Cleaning hole of not less than 250 mm diameter shall be provided at the bottom of the tank and it shall be fitted with bolted cover.

5.3.4 The tank shall be fitted with a 100 mm diameter overflow pipe. The discharge ends of the overflow pipe shall be taken down to a point well below the chassis without reducing the effective ground clearance when fully loaded and shall discharge away from the wheels.

5.3.5 Dial gauge water level indicator for the tank shall be provided preferably in the driver's cab or a visual level gauge of the glass tube shall be provided at the control panel calibrated $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full. (preferably calibrated in litres).

5.3.6 The tank shall be connected to the pump and hose reel in such a manner that pressurization of water tank or water tank-pump connection is not possible when pumping water from an outside source of supply.

5.3.7 The plumbing between the pump and the hose reel shall have a clear and unobstructed water way not less than 25 mm throughout without any obstruction.

5.4.0 Hose Reel

5.4.1 One hose reel conforming to IS: 884 shall be provided at the rear of the appliance with 60 m length of 20 mm bore hose connected by screw 'C' type quick release couplings and terminating with a control branch and 5 mm nozzle. The reel shall be fitted with over brake or locking device. Nozzle shall be dual purpose shut off type.

5.5.0 Pump

The pump shall preferably be made of any suitable alloy, compatible with all types of synthetic protein foam compound, with stainless steel shaft suitable for use with brackish water. The pumps be capable of delivering not less than 1800 l/min. of water at a pressure not less than 8.5 kg/cm². The pump shall preferably be of the single stage type. The pump

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shaft shall preferably be designed with two deep-groove ball bearings lubricated by oil both to ensure long trouble-free service. A mechanical seal shall be provided which shall be capable of running dry for long periods without damage.

5.5.1 PUMP TEST

- 5.5.1.1 The pump shall run for a period of 4 hours non-stop delivering the rated output at 7 kg/cm² with the lift of 3 m. During the test the water shall not be replenished for the cooling system as the temperature of the engine oil should not exceed 150 deg. C at highest ambient or the engine manufacturers rated temperature for continuous working whichever is less. The engine should show no sign of stress during the stress. The temperature of the cooling water (radiator water) shall not exceed 85 deg.C. The PTO sump oil temperature shall not exceed the manufacturers recommended temperature for the grade of oil used. The pump casing and impeller shall be subjected to a hydraulic pressure of 21 kgf/cm² to detect leakages, performance, etc.
- 5.5.1.2 The pump shall be preferably rear mounted. The pump control panel shall be located on the rear of the appliance.
- 5.5.1.3 The suction inlet and delivery outlets of the pump shall, as far as possible, be fitted on or near the pump control panel.
- 5.5.1.4 A removable strainer and blank cap shall be provided for the suction inlets(s) for the pump.
- 5.5.1.5 The suction inlet shall be fitted with a standard round thread connection of 100 mm size conforming to IS: 902.
- 5.5.1.6 The delivery outlets of the pumps shall terminate in 63 mm female instantaneous coupling incorporating a blank cap and means for relieving pressure between the valve and the cap. The 63 mm female instantaneous coupling shall be in accordance with IS: 903-1988.

5.6.0 Primer

The primer may be semi-automatic in action and it shall dis-engage automatically as soon as the pump is primed. It shall be integral with the pump. It shall be capable of lifting water at least through 7.0 m at a rate of not less than 30 cm per second.

5.7.0 Power take off

The gear ratio shall be suitable for continuous operation of engine at stationary condition.

5.8.0 Foam Equipment

- 5.8.1 Foam compound tank of 500 ltr capacity shall be mounted on the chassis in addition to the water tank and as a separate & distinct unit that can be removed separately for replacement.
- 5.8.1.1 The foam compound tank shall be of rigid type, and shall preferably be of stainless steel welded construction.

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- 5.8.1.2 The tank shall have a filling orifice not less than 150 mm diameter with a removable strainer fitted to it. The strainer shall be of such material so that it shall not be affected by constant contact with foam compound and its total screening area shall be adequate to permit quick filling of foam compound into the tank. The filler cap shall be clearly marked 'FOAM' preferably by pressing, casting or embossing.
- 5.8.1.3 The tank shall have its top dished tunnelling arrangement and a trough provided to enable easy filling from 20 litre drums. Suitable sharp-edged tin opener may also be provided at the foam tank so that the foam compound drum can be puncture easily for facilitating quick filling of the foam compound directly from the drums into the tank. The tank shall be suitably baffled to prevent surge while the vehicle is in motion or standing on uneven ground or brakes are applied to the moving appliance. The design of the tank shall incorporate a removable sump fitted with a drain valve. The foam compound draw off tube shall be positioned in the centre of the sump in such a manner that foreign matter or sludge shall not pass into the compound line. The draw-off tube shall be fitted with a gauge strainer of suitable material, mesh, size, and adequate staining area. The tank top shall be removable and it shall be ensured that the joint between the top and the body of the tank is leak proof.
- 5.8.1.4 Means shall be provided for automatic venting of the foam compound tank when the foam is being produced or the tank is being filled. This shall not be incorporated with the cap. The device employed shall be as simple as possible and shall not get clogged easily during normal use of the appliance.
- 5.8.1.5 The draw-off tube shall be connected to the foam compound proportionator / inductor and pump as necessary, and automatic flow control valve shall be incorporated in it so as to maintain a constant induction rate of not more than 6 percent with varying foam output. The plumbing for this purpose shall have a clear and unobstructed passage of not less than 50 mm throughout and shall:
- be as short as possible;
 - be capable of being easily dismantled for internal cleaning;
 - be provided with means of thorough flushing after use;
 - not form 'U' bend or abrupt angle at any portion and be capable of being drained easily without dismantling.
- 5.8.1.6 A suitable transfer pump shall be provided for transferring foam compound from drums to the foam compound tank without causing any frothing in the tank. Necessary connection shall also be provided for transferring the foam compound through this pump.
- 5.8.1.7 Provision shall also be made for drawing foam compound into the foam producing system from an external source through a pick-up tube while producing foam.
- 5.8.2** Foam compound proportionator or inductor automatic proportionating arrangement shall be provided where the induction ratio of foam compound /water solution and flow of water are automatically varied as desired merely by opening and closing the monitor. This shall be achieved without any complex system of linkage that may be susceptible to distortion due to

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chassis flexion. The system shall be reliable and shall not require frequent calibration checks.

5.8.3 Foam Monitor

5.8.3.1 Foam monitor shall be mounted on the top of the appliance in such a manner that it can be manually operated by a member of the crew. The monitor shall be capable of traversing through 360 deg. In a horizontal plane, elevating from horizontal to 45 deg. and depressing from horizontal to not less than 15 deg. and fully rotating in both directions.

5.8.3.2 The aggregate foam discharge shall be not less than 7000 L/min. through monitor.

5.8.3.3 The monitor shall be capable of projecting the foam discharge to an effective distance of not less than 35 m in still air when operated at the designed pressure in a straight jet pattern without dripping.

5.9.0 Control panels

5.9.1 One (1) No. adequately illuminated control panel shall be provided and shall be positioned at the rear of the appliance.

5.9.2 The control panel shall include the following:

- a) Throttle control for engine;
- b) Pressure gauge 0 to 2.0 N/mm² (20 Kg/cm²)
- c) Compound gauge calibrated as under;
 - (i) Vacuum - 0 to 75 cm Hg preferably in black
 - (ii) Pressure - 0 to 0.6 N/mm² (6 kgf / cm²); preferably in black
- d) Primer control (if the primer is not fully automatic);
- e) Gauge for cooling water and glow lamp for lubricating system;
- f) Cooling water circuit control.
- g) Control for using monitor.

5.9.3 The following shall also be provided at a convenient position near the control panel(s);

- a) Control for using monitor;
- b) Water level indicator;
- c) Hydrant connections;

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- d) Control for using auxiliary foam compound pic up tube;
- e) Control(s) for flushing out the foam making equipment and its plumbing;

5.10.0 Body Work and Stowage

- 5.10.1 Enclosed accommodation for six persons (1+1 at front, 1full seat at the rear which will accommodate 4 people) shall be provided in the driver cab-crew compartment including the driver and the in-charge of the crew. Two doors on each side shall be provided on the driver cab-cum-crew compartment. The doors shall be hinged opening outwards and shall be hung forward and shall have catch locks and flush type handles.
- 5.10.2 The cab and lockers shall be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible. Pressed sections of sufficient strength shall be used for the superstructure.
- 5.10.3 Two nos. of lockers on each side shall be provided for secure stowage of all equipment as detailed enclosed in **Annexure-I (Section IA)**. The height of the lockers from the bottom to the top of the opening shall be not less than 600 mm and the depth not less than 600 mm.
- 5.10.4 All lockers shall be provided with internal automatic lighting arrangement with the master switch in the cab. The doors of the side lockers shall not be hinged at the bottom.
- 5.10.5 Hose tunnels shall be provided to carry four 2.5 m lengths of suction hoses in convenient location. The tunnels shall be sloped in such a way so that these allow the water or contents left in the hose after use to flow out.
- 5.10.6 Ladder Gallows – Gallows shall be provided to carry a 10.5 m extension ladder at a suitable position in a manner that does not provide any obstruction to the working of monitor. The design shall be such that the ladder can be released without difficulty from a reasonably accessible position and shall embody rollers to permit easy withdrawal by one man. Means shall also be provided for locking the ladder when stowed.
- 5.10.7 Tool Kit Container – A specially fitted recessed tray for the normal kit of tools, carried on the appliance shall be provided.

- 5.11.0 **Stability** – The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew), if the surface on which the appliance stands is tilted to either side, the point at which overturning occurs, is not passed at an angle of 30 degrees from the horizontal.

6.0.0 WORKMANSHIP AND FINISH

- 6.1.0 All parts of the appliance shall be of good workmanship and shall have streamlined finish
- 6.2.0 The appliance shall be painted in fire red colour conforming to Shade No. 536 of IS: 5. The paint shall conform to IS: 2932-1974.

7.0.0 ACCESSORIES

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7.1.0 The following accessories shall be provided in addition to those normally fitted on modern commercial vehicles.

- a) Fire bell - A 250 mm diameter fire bell shall be mounted externally and shall be capable of being operated from within the driving compartment. The bell shall be the hand-operated type.
- b) Hand Lamps - Two
- c) Fog lamps - Two
- d) Reversing Light - Lamp suitably situated to assist reversing.
- e) Amber blinker lights - Situated on the head of the driving compartment.
- f) Trafficators - Illuminated with indicating lights on instrument panel or in any other prominent position in driving compartment.
- g) Wind screen wipers.
- h) Tools - All tools required for normal maintenance of the appliance that are not included in the kit for the chassis.
- i) Siren - Battery operated.
- j) Search light – Adjustable to give flood or beam light, mounted in a convenient position but capable of being readily disconnected and mounted on a tripod away from the appliance, complete with tripod and with not less than 30 m of TRS cable on a reel mounted on the appliance.
- k) Spot light - Adjustable, mounted in a convenient position on the near side of the driving compartment.
- l) Inspection lamp – Protected type on wander lead with plug. A socket shall be provided in the control panel in the driver's cab for plugging in the lamp.
- m) Tail lamps - Two of combined stop and tail.
- n) Rear reflectors
- o) Wind Screen-Washer-Fitted in a suitable location with controls in driving compartment.
- p) Cab, Instrument panel and locker, light.
- q) Public address system.

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8.0.0 MARKING

8.1.0 The appliance shall be clearly and permanently marked with the following information:

- a) Manufacturer's name, or trademark, if any.
- b) Capacity of the pump in litres/minute, capacity of the water tank and foam tank in litres;
- c) Year of manufacturer

9.0.0 ADDITIONAL ACCESSORIES (over and above accessories mentioned against CI 7.0.0)

The additional accessories that are normally required to assist in operation of appliance are detailed in enclosed **Annexure I (Section IA)**. Bidder to include these accessories in their scope of supply.

10.0.0 SUPPLEMENTARY EXTINGUISHING AGENT

10.1.0 The supplementary extinguishing agent shall be dry chemical powder.

10.2.0 The total quantity of supplementary agent shall be not less than 150 kg. Of dry powder and shall conform to IS: 4308.

10.3.0 The dry powder system shall comply with the following minimum requirement.

10.4.0 The dry powder system shall comprise of two self-contained units, each having a capacity of 75 kg of dry powder.

10.5.0 The expellant employed for the dry powder units shall be nitrogen. The capacity of the nitrogen cylinders employed for this purpose shall be adequate to ensure complete discharge of the dry powder contents at a rate of not less than 2.25 kg/s from each units. A **well-designed pressure control system** shall be provided to regulate the pressure of nitrogen gas and maintain a constant powder discharge pressure throughout operation of the unit.

10.6.0 The dry powder unit shall have a discharge outlet fitted with not less than 22 m of minimum 25 mm bore hose terminating in a trigger control shut-off nozzle, capable of producing either a straight jet or fan-spray pattern of discharge. The range of jet shall be not less than 12 m.

10.7.0 The hose and nozzle shall be stowed suitably in lockers on either side of the appliance to facilitate speedy run out on arrival at an accident.

11.0.0 ACCEPTANCE TESTS

The following acceptance tests on various equipment shall be conducted to meet guaranteed parameters and shall be carried out in accordance with relevant I S Code.

- a) Pump test
- b) Primer test

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- c) Road test
- d) Stability

(B) DESCRIPTION OF FIRE WATER TENDER

12.0.0 VEHICLE CHASSIS

The chassis for carrying out fabrication work of fire water tender shall be of Make-TATA/Ashok Leyland/equivalent. The chassis shall be equipped with power assisted steering and power brake. Chassis shall be BS-IV compliant.

13.0.0 GENERAL REQUIREMENTS

The vehicle shall be built conforming to IS 950: 2012

13.1.0 The appliance shall incorporate:

- a) For variant -1 as per S.NO. 1.1.2:
High and low pressure fire pump of capacity (2000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), The appliance shall carry a water tank of minimum 4500 Liter capacity.
- b) For variant -2 as per S.NO. 1.1.2:
High and low pressure fire pump of capacity (3000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), The appliance shall carry a water tank of minimum 6000 Liter capacity.
- c) For variant -3 as per S.NO. 1.1.2:
High and low pressure fire pump of capacity (4000 LPM @ 0.7 Mpa and 300 LPM @ 3.5 Mpa), The appliance shall carry a water tank of minimum 7000 Liter Capacity.

It shall carry an extension ladder and shall be capable of towing a trailer pump.

13.2.0 The water tender shall be fabricated in a manner so as to conform to the following characteristics:

- a) Gross vehicle weight
 - not less than **16000 kg including crew,**
water and equipment (for variant -1 and
variant -2 as per S.NO. 1.1.2)
 - not less than **25000 kg including crew,**
water and equipment (for variant-3 as per
S.NO. 1.1.2)
- b) Maximum speed on level road
fully laden 72 km/h
- c) Acceleration from a standing
start through the gears (fully laden) 64 km/h in 55 second

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- d) The appliance shall be capable of being started from rest on a gradient of 1 to 4.
- e) When travelling at 48 km/h on a level dry surface the foot brake shall be capable of stopping the vehicle within a distance of 15 m from the point at which the brake is applied. The hand brake shall be capable of holding the fully laden appliance on a dry surface gradient of 1 in 4 when in neutral gear.
- f) The appliance shall have the following overall dimensions:

Wheel base	Not more than 4500 mm
Turning circle	Not more than 20 m
Road clearance	Not less than 230mm
Overall width	Not more than 2.50 m

Note: - The chassis shall meet the prevailing emission norms and shall totally comply with the Central Motor Vehicle Rules.

- 13.3.0 All parts, which shall form waterways or come into contact with water shall be of corrosion-resisting material or should be made of material duly treated for anti-corrosion. All metal parts exposed to atmosphere shall either be of corrosion-resisting material or treated.
- 13.4.0 Lubricating nipples shall be provided wherever necessary.
- 14.0.0 **DESIGN AND CONSTRUCTION**
- 14.1.0 **Engine**
- 14.1.1 The engine shall be provided with cooling system to permit its continuous stationery running without overheating. Indirect cooling system shall be incorporated, if necessary, which shall be of the open circuit type discharging water to the waste. Arrangements shall be made to divert the cooling discharge water to water tank, if necessary.
- 14.1.2 The operating temperature of the engine cooling water shall preferably be thermostatically controlled.
- 14.1.3 The oil in the oil sump shall be prevented from overheating.
- 14.1.4 Suitable gauge for cooling water and glow lamp for lubricating system shall be provided in the driver's cab and on the pump panel. This shall be marked with operating temperature.
- 14.1.5 External filter shall be provided for the lubricating system and a tubular dip-stick to gauge the level of oil in the oil sump shall be provided.
- 14.1.6 The heat exchanger tank shall be made from minimum 1.22 mm thick mass sheet and the coil in the coolant tank shall be of copper for effective cooling. The design of the heat exchanger shall be such that the temperature of the engine shall not exceed for the operating temperature specified by the chassis manufacturer when the vehicle is being tested in stationary conditions.

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14.2.0 **Electrical System**

14.2.1 A trickle type battery charge shall be provided for recharging the battery *in situ*. A red pilot lamp, indicating when the batteries are being charged from an external supply, shall be provided.

14.2.2 All important electrical circuits shall have separate fuses suitably indicated and shall be grouped into a common fuse-box located in an accessible position from driver's cab and fitted with means for carrying spare fuses. The wiring shall be single pole and shall not be exposed to the atmosphere. Conduits shall be used wherever necessary.

14.3.0 **Water Tank** - It shall have minimum capacity of 4500 liters (for variant-1), 6000 liters (variant-2), 7000 liters (variant-3 as per Sl. No. 1.1.2) **as per latest IS-950.**

14.3.1 A single tank shall be used with a capacity indicated above. The tank body and baffles shall be of minimum 5 mm thick mild steel plates. The tank shall be mounted on the chassis and suitably baffled in a manner keeping in view the proper load distribution on the axles. The baffling provided in the tank shall be able to prevent surge when the vehicle is breaking, cornering or accelerating. The baffles shall be arranged in a manner to facilitate the passage of a man throughout the tank for cleaning purpose. The tank shall be mounted on minimum three cross members to counter act the stresses caused by chassis flexion and shall be so secured that it can be easily removed. The tank shall be mounted on the vehicles using metacone mounting. U-bolts shall not be used in the vehicle. Suitable eyes shall be provided on the shell of the tank to enable it to be lifted from the vehicle for repairs/ replacement as and when required.

14.3.2 The tank shall be fitted with a 50 mm bore overflow pipe. A 63 mm instantaneous hydrant connection, incorporating a strainer, shall be provided close to the pump panel control for filling the tank through 75 mm bore pipe work or feeding the hose reel equipment. Minimum 100 mm bore pipe line shall be taken from the tank to the suction inlet of the pump incorporating minimum 100 mm quick action spherical type valve. Separate valve(s) for performing the function given in 14.3.6 shall be provided to control the flow of water to the hose reel equipment. Drain plugs or drain cocks shall be provided, wherever necessary.

14.3.3 The tank shall be given adequate anti-corrosive epoxy treatment consisting of one coat of primer with two coats of finish paint after preparing the surface by sand blasting from inside and outside after fabrication if it is not galvanized. The open end of the overflow pipe should be taken down to a point well below the chassis without affecting the effective ground clearance when fully loaded and shall discharge away from the wheels.

14.3.4 Dial gauge water level indicator for the tank shall be provided preferably in the driver's cab or a visual level gauge of the glass tube shall be provided at the control panel calibrated 1/4, 1/2, 3/4 and full (preferably calibrated in liters).

14.3.5 The tank shall have a bolted manhole of 450 mm diameter minimum and shall have a threaded ring and cap of 300 mm diameter for filling the water tank from the top. The manhole cover shall be made from 5 mm thick mild steel plate and epoxy coated from inside and outside. A cleaning hole of at least 250 mm diameter shall also be provided at the bottom.

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14.3.6 The tank shall be connected with the pump and hose reel and valve (s) shall be provided in such a way that any of the following operation are possible

- a) Hydrant - tank,
- b) Hydrant - reel,
- c) Tank-pump-high and low pressure hose reel,
- d) Hydrant- pump- high and low pressure hose reel, and
- e) Tank-Pump-Monitor
- f) Off.

14.3.7 The tank shall be connected to the pump and hose reel in such a manner that pressurization of water tank or water tank pump connection is not possible when pumping water from an outside source of supply.

14.3.8 The plumbing between pump and hose reel shall have a clear and unobstructed water way of not less than 25 mm throughout without any obstruction.

14.4.0 **Hose Reel**

14.4.1 Two nos. hose reel (conforming to IS: 884) shall be provided at the rear of the appliance with 60 m lengths of 20 mm bore hose connected by screw 'C' type quick release couplings and terminating with a control branch and fog nozzle. The reel shall be fitted with over brake or locking device. The gun shall be of constant flow type and shall have a discharge capacity of 150 litre/min approximately. Provision shall be made in the gun controls to achieve combat mode (straight jet) or a fog shield in split second. The fog gun shall be made of stainless steel or aluminum alloy.

14.5.0 **Pump**

14.5.1 A centrifugal pump high and low pressure pump shall be mounted at rear side of the appliance. The low and high pressure sections of the pump may be either single-stage or multi stage type. Anti-friction bearings external to the casing be provided so as to avoid any bearings within the pump casing. The bearing used in the pump shall be of reputed make. The gland shall be of the mechanical self-adjusting type. The pump shall be provided with in-built filter assembly of easily removable type, which shall filter the water before entering into pressure stage impeller. A filter capable of filtering particle size up to 0.75 mm or less shall be used. This filter shall be of stainless steel and shall be easily accessible for cleaning.

The normal and high pressure impeller shall be mounted on a single shaft. The impeller(s) of the low pressure section shall be closed type and shall be dynamically balanced. The impeller(s) of the high pressure section shall be closed or regenerative type. A drain cock plug shall be provided at the bottom of the casing in a way to prevent the cock being

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opened due to vibrations. Studs, bolts etc., used in the pump casing coming in contact with the water shall be of stainless steel. The castings shall be without any blow holes, internal cracks, etc. The interior of the casting shall be smooth finished. The castings shall withstand the hydraulic pressure as specified against Cl. No. 14.5.5.

The bearing housing will be made of C.I. the delivery outlet, delivery valves and high pressure circuitry shall be made of Gun metal conforming to Gr.II of IS:318.

The pump shall be provided inbuilt (integrated in the pump outlet manifold) pressure relief valve which shall operate automatically and shall not allow the high pressure to increase beyond 45 Kg/cm².

- 14.5.2 The pump shall be completely covered. However, all the controls on the panel and the gauges shall be uncovered.

The pump shall be coupled to the prime-mover of the chassis through a power take-off (PTO) capable of transmitting full torque of the engine used for the appliance. All propeller shafts and all fittings used for coupling the PTO, pump, etc., shall be of the same size and type as used by the chassis manufacturer for the drive line.

The PTO shall have a step up gear ratio of not less than 1:1.27. A cooling coil made of copper pipe shall be provided in the bottom of the PTO casing.

A control lever for engaging and disengaging the pump, with suitable locking devices, shall be provided in the driver's cab.

- 14.5.3 The pump shall be designed to give its rated output with an engine and pump input at shaft speed safe enough to operate the engine. The pump shall give performance as detailed below when working with strainers (except basket strainer) at 27±2 °C.:

The pump shall be capable of delivering 2000/3000/4000 LPM @ 7 Kg/cm² and 300 LPM @ 35 Kg/cm² at 3 mtrs. suction lift at NTP condition.

The pump shall follow the following performance parameters:

Normal Pressure Output	:2000/3000/4000 LPM @ 7 Kg/cm ²
High pressure Output	: 300 LPM @ 35 Kg/cm ²
Maximum Pressure in Normal Pressure mode	: 14 Kg/cm ² (shut off pressure)
Maximum Pressure in High Pressure mode	: 45 Kg/cm ²
Deep Lifting Capacity of Pump	: 30 m ³ /sec max. up to 7 M in 30 Sec. at NTP conditions

The above performance data shall be considered when working through 2.45 m lengths of specified suction hose.

The design of pump shall be such that the normal pressure and high pressure stages can be operated simultaneously. Simple mechanism shall be provided to change over from normal pressure to high pressure, preferably a single lever operation. However, at any

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given pump/engine speed, the low pressure registered shall not exceed 1/4th (one quarter) of the registered high pressure.

A thermal relief valve (TRV) shall be fitted on the pump discharge side which will control the water temperature within the pump below 48°C (or 80°C – this version shall be used only when there is good operational reason) when the pump is operating in high rpm with closed discharge. The water discharged from the TRV shall be either taken back to water tank or safely piped away to waste with metallic pipe.

The pump housing shall have provision to connect normal pressure hose reel and cooling water line.

The efficiency of the pump shall be such that the power and the RPM required shall not be more than that available with the engine.

14.5.4 The material of construction for pump & its control panel shall be as follows:

- | | | |
|----|---------------------------------------|---|
| a) | Pump casing and low pressure impeller | Lead tin bronze (Grade LTB2 of IS:318) |
| b) | High pressure impeller | Phosphorous-bronze or stainless steel or aluminum bronze (IS 617) |
| c) | Impeller ring and impeller neck ring | Lead tin bronze (Grade LTB2 of IS: 318) |
| d) | Pump shaft | Stainless steel (Grade 04Cr18Ni10 of IS: 6603). |
| e) | Pump panel | Aluminum sheets/ chequered plates (IS 737) or mild steel sheets (IS: 513 ordinary grade) |

14.5.5 Pump Test

When tested in accordance with pump specification, the efficiency shall not deviate from the value specified by the pump manufacturer by more than $\pm 5\%$. However, in no case the efficiency of the pump shall be less than 60 percent. The pump shall run for a period of 3 hours non-stop delivering the rated output at 0.7MPa and for 1 hour at 3.5 MPa with a lift of 3 m.

The pump shall be run dry for a period of minimum two minutes at 2000 RPM to check the integrity of the mechanical carbon seal. After this test there shall not be any leakage of water through carbon seal.

During the test the water shall not be replenished for the cooling system and the temperature of the engine oil should not exceed 115°C or of the engine manufacturer rated temperature for continuous working whichever is less. The engine should show no sign of stress during the test. The temperature of the cooling water (radiator water) tank shall not exceed 85 °C. The PTO sump oil temperature shall not exceed 100 percent of

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the manufacturers recommended temperature for the grade of oil used. The pump casing and impeller shall be subjected to a hydraulic pressure of 2.1 MPa to detect leakage, perforation, etc. Foam induction test shall be done to check calibration of the metering valve.

14.6.0 **Suction inlet and Delivery Valves**

14.6.1 The pump shall have suction inlet(s) having 125 mm standard suction connection as per IS: 902 with internal strainer(s) and blank cap(s). The strainer(s) shall be retained firmly when in use but shall be easily removable. The mesh size of the pump inlet screen shall be smaller than the outlet size of the impeller.

14.6.2 The pump shall be provided with 2 delivery valves for the 2000 litres/min pump and 4 delivery valves for 3 000/4 000 litre/min pump having 63 mm standard hose couplings as per IS: 903 with screwed wheel type quick closing clack valve conforming to IS: 4928. Blank caps fastened with chains and incorporating means to relieve pressure between the valve and the cap shall be provided one for each delivery valve.

14.7.0 **Primer**

14.7.1 The primer shall be capable of lifting water at least 7.0 m (measured from water level to the center of pump) in not more than 24 seconds and shall preferably be fully automatic. The allowance shall be 30 cm for every 300 m elevation above sea level and 1 percent for 2.5°C rise in water temperature.

14.7.2 If case of the reciprocating type primer, means shall be provided to automatically limit the speed of engine while the primer is engaged.

14.7.3 The primer shall be constructed of gun metal/light alloy casting, shall have stainless steel shaft and shall be fitted with suitable lubricated bearing depending upon the type of primer. The caps of primer and springs shall be properly secured. The primer lever shall be easily accessible from the operator(s) position.

14.7.4 In the case of reciprocating type, the primer shall be preferably designed with a view to primer when the pump is running at speed of 1000 to 1500 rpm. The primer shall disengage automatically at pump pressure of 1.5 to 2.0 bars without manual intervention.

14.8.0 **Water/Foam Monitor**

One water-cum-foam monitor shall be provided on the top at suitable location. The monitor shall conform to IS 8442.

14.9.0 **Control Panels**

14.9.1 Adequately illuminated control panel shall be provided and positioned as follows:

a) Rear mounted pump - One control panel at the rear of the appliance.

14.9.2 The control panel(s) shall include the following:

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- a) Throttle control for engine;
- b) Pressure gauge -0 to 2 MPa
Pressure gauge – 0 to 5 MPa
- c) Compound gauge calibrated as under:
Vacuum - 0 to 75 cm Hg, preferably in black;
Pressure - 0 to 0.6 MPa preferably in black;
- d) Primer control (if the primer is not fully automatic)
- e) Gauge for cooling water and glow lamp for lubricating system;
- f) Cooling water circuit control.
- g) Control for using monitor.

14.9.3 The following shall also be provided at a convenient position near the control panel(s):

- a) Water level indicator as described under cl.no. 14.3.4
- b) Five way control valve as described under cl.no. 14.3.6
- c) Hydrant connections.

14.10.0 **Body Work and Stowage**

14.10.1 Cabin

14.10.1.1 Enclosed accommodation for six persons shall be provided in the driver cab-cum-crew compartment including the driver and the in-charge of the crew. Both the seats shall be independent. The driver's seat shall be adjustable and comfortable. The rear compartment of driver's cabin shall have one removable seat for full width of cab for 5 (five) crew members. The cab floor shall be covered with 3 mm thick aluminium chequered plate rigidly fixed to the frame cross members by means of nuts and bolts or riveting. Trap doors for topping up oil, etc, wherever necessary shall be provided.

One roof light shall be provided in the driver's cabin dwell vision and external rear view mirrors shall be fitted to the cab.

14.10.1.2 The driver-cum-crew cabin shall be provided with full four doors, one for driver, and one for officer and two at the crew compartment. The doors shall be generously sized for easy embarking/disembarking of crew members. All the doors shall be fitted on the super structural members, each hung upon three invisible coach type mild steel stout hinges and fitted with best quality handles.

14.10.1.3 The door handle on outside of driver seat shall have a locking arrangement. Other doors shall be lockable from inside. In addition to the door lock, aluminum tower bolt of 20 mm shall be provided for all the doors from inside, adequate grab rails shall be provided for

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easily boarding and alighting from the appliance. 5.11.1.5 The windscreen glass shall be provided in the two valves and shall be flat in shape. Each glass shall be fitted in E.P.D.M. rubber beading. The glasses shall be 5 mm thick toughened safety glass. The rubber beading used for fitting glasses and window frame shall be E.P.D.M. rubber.

14.10.2 Seats

14.10.2.1 The driver seat shall be adjustable type vertically, forward and backward. The officer seat shall be fixed type. Both the seats shall be rigidly fixed to the flooring by means of nuts and bolts. The seat cushion shall be of latex foam rubber 75 mm thick upholstered in good quality foam leather cloth. The back seat shall be of latex foam rubber 50 mm thick upholstered in good quality foam leather cloth.

14.10.2.2 Below the crew seat, two lockers shall be provided. One locker for battery box to accommodate two 12 V 13 plates batteries and another for keeping accessories. The extra length of battery cable shall be provided by manufacturer.

14.10.2.3 The crew seat shall be rigidly fixed to floor by means of nuts and bolts, running full width of the vehicle suitable for sitting five fireman, covered with 75 mm × 50 mm cushion latex foam rubber upholstered in good quality foam leather of approved shade.

14.10.2.4 Below the crew seat, two lockers shall be provided, one for storage of batteries and another for keeping accessories. The extra length of battery cable shall be provided, if required.

14.10.3 Rear Body

14.10.3.1 The rear body shall be fabricated in continuation and in line. The under frame crew members shall be fabricated from the rolled mild steel channel of 100 mm × 50 mm × 5 mm size. The mild steel runner of 100 mm × 50 mm × 5 mm size shall be provided over the chassis member for the uniform distribution of load over the chassis. Each cross members shall be secured to the chassis frame by 16 mm diameter 'U' clamps with aluminum packing block and self-locking unit. Balata packing of thickness 12 mm shall be provided in between the chassis frame and across members.

14.10.4 Super Structure

14.10.4.1 The super structural of the cabin shall be constructed out of 2 mm mild steel 45 mm × 45 mm × 20 mm pressed 'Top Hat' sections. The super structure shall be strengthened specifically on the members with the lockers doors frames are to be fitted and also the other members by providing brackets and gussets of 2 mm mild steel plate securely welded. The details of super structure are as follows: Under frame cross: 100 mm × 50 mm members × 5 mm Floor longitudinal : 50 mm × 50 mm members × 6 mm Vertical members on even : 45 mm × 45 mm side × 20 mm Skirt member : 45 mm × 45 mm × 20 mm Waist member : 45 mm × 45 mm × 20 mm Top deck longitudinal : 45 mm × 45 mm × 20 mm.

14.10.4.2 The cab and lockers shall be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible.

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- 14.10.4.3 The structure/frame work shall be of welded constructions and made from 2 mm thick mild steel pressed sections and square tubes. The angles and channels used shall be of minimum 3 mm thickness. The complete structure material shall be treated for anti-corrosion by zinc plating. The plating thickness shall not be less than 20 microns. Two coats of epoxy paint shall be applied to the completely welded structure.
- 14.10.4.4 The structure shall be so designed so as to avoid any vibration/ratting/deformation in the intended usage of the vehicle.
- 14.10.4.5 The interior paneling shall be done from 1.22 mm thick aluminium sheets and the exterior paneling shall be done from 1.60 mm thick aluminium sheets.
- 14.10.4.6 The entire roof of the vehicle, cabin floor and locker floor shall be covered with minimum 1.60 mm thick aluminium chequered plates. All the lockers sides and complete rear of the vehicle shall be covered with minimum 1.22 mm thick aluminium chequered plates.
- 14.10.4.7 Lockers shall be provided for secure stowage of all equipment given in Annex B. The height of the lockers from the bottom to the top of the opening shall be not less than 600 mm and the depth shall be not less than 600 mm. All lockers shall be provided with internal automatic lighting arrangement with the master switch in the cab.
- 14.10.4.8 All lockers above chassis floor shall be covered with aluminium roller shutters. The roller shutters shall be made from extruded aluminium sections with suitable roller, spring, guide channels, etc. All aluminium sections used shall be properly anodized. The roller shutters shall be rolled inwards underneath the roof giving unobstructed access to the equipment lockers and the fire fighting material. These roller shutters shall open in every position of the vehicle even in rough terrain. Guide rails shall support the shutters over entire length on both sides to make them absolutely torsion free. The roller shutters shall have a sturdy lock, preventing accidental opening during movement of vehicle. Roller shutters shall be made of hollow rectangular shaped aluminium links which shall be inter connected with rubber/plastic/PVC profiles sealing the roller shutter watertight when closed. These roller shutters shall be durable, maintenance free, weather and corrosion resistant.
- 14.10.4.9 Suitable storage space shall be provided to store four 2.5 m lengths of suction hoses in convenient location.
- 14.11.0 **Miscellaneous**
- 14.11.1 A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts, fabricated from 100 mm × 50 mm × 5 mm mild steel channel.
- 14.11.2 Two cat ladders made out of stainless steel round or square pipe of 25 mm diameter shall be provided.
- 14.11.3 Two numbers of 25 mm diameter aluminum pipe railing with sufficient number of aluminum double socket brackets shall be provided to the rear body over the deck.

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- 14.11.4 A heavy duty towing hook shall be provided and fitted the rear bumper by means of nuts and bolts.
- 14.11.5 Quick removable type wire mesh guard made from 25 mm × 25 mm size mild steel wire mesh of 1.6 mm covered in mild steel angle frame shall be provided to all the glasses of driver-cum-crew cabin.
- 14.11.6 Provision for Stowage of Equipments for all water fittings like branch pipes, etc, quick release type couplings are provided which enables the operator to locate the desired equipment instantly and thereby save valuable time at the time of fire. These couplings also ensure that none of the item damage the internal paneling and thereby increase the life of the vehicle. Suitable clamps, brackets, holders, etc. are provided for all other items.
- 14.11.7 **Cable Winch**
An electrically operated cable winch of 6 t capacity shall be provided. The winch unit shall be complete with minimum 5.5 HP 12 V dc series wound electric reversible motor for increased pulling power, rope drum, and 27 m heavy duty galvanized EIPS wire rope with replaceable self-locking clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports.
- 14.11.8 **Telescopic Light Mast or Inflatable Emergency Lighting System**
A compact, low profile, roof mounted lighting system, fitted with 4 × 1 000 W metal halide lamps, vertically elevated pneumatically up to 4.6 m shall be installed on the roof of the vehicle. Lighting shall be provided by a 12 V or 24 V dc with remote control, directional lighting system with rotation and tilt lamps to provide total coverage. The remote control unit shall allow a person to operate all the functions of the light mast or inflatable emergency lighting system and accurately aim for complete directional positioning. In addition, auto show, a one button command, automatically retracts, turns out the lights and stows the entire system to the compact transport position shall also be included in the remote controller. The complete unit shall comprise of hand held remote control with cable, rotation and tilt positioner, mounting frame with built-in tilt system.
- 14.11.9 **Alternator Unit**
A 6.5 kVA capacity portable diesel engine driven generator unit shall be mounted at suitable location with all necessary connections and control panel for providing power to the light mast as well as other electrically operated tools.
- 14.11.10 **Ladder Gallows**
Gallows shall be provided to carry a 10.5 m, aluminium trussed type extension ladder. The design shall be such that the ladder can be released without difficulty from a reasonably accessible position and shall embody rollers to permit easy withdrawal by one man. Means shall also be provided for locking the ladder when stowed.
- 14.11.11 **Tool-Kit Container**
A specially fitted recessed tray for the normal kit of tools, carried on the appliance, shall be provided.
- 14.11.12 **Stability**
The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew), if the surface on which the appliance stands is tilted to

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either side, the point at which overturning occurs is not passed at an angle of 30° from the horizontal.

15.0.0 WORKMANSHIP AND FINISH

15.1.0 All parts of the appliance shall be of good workmanship and shall have streamlined finish.

15.2.0 The appliance shall be painted fire red colour conforming to Shade No. 536 of IS:5. The paint shall conform to IS: 2932

16.0.0 ACCESSORIES

16.1.0 The following accessories shall be provided in addition to those normally fitted on modern commercial vehicles:

- a) Fire bells - 250 mm diameter fire bell shall be mounted externally and shall be capable of being operated from within the driving compartment. The bell shall be of the hand-operated type.
- b) Head lamps - Two.
- c) Fog lamps - Two.
- d) Reversing light - Lamp suitably situated to assist reversing.
- e) Amber blinkers lights - Situated on the head of the driving compartment.
- f) Trafficators - Illuminated with indicating lights on instrument panel or in any other prominent position in driving compartment.
- g) Wind screen wipers electrically operated.
- h) Tools - All tools required for normal routine maintenance of the appliance, which are not included in the kit for the chassis.
- j) Siren - Battery operated.
- k) Search light - Adjustable to give flood or beam light, mounted in a convenient position but capable of being readily disconnected and mounted on a tripod away from the appliance, complete with tripod and with not less than 30 mm of TRS cable on a reel mounted on the appliance.
- m) Spot light - Adjustable, mounted in a convenient position on the near side of the driving compartment.
- n) Inspection lamp - Protected type on wander lead with plug. A socket shall be provided in the control panel in the driver's cab for plugging in the lamp.
- p) Tail lamps - Two of combined stop and tail.

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- q) Rear reflectors
- r) Wind Screen Washer
- s) Cab, instrument panel and locker, light
- t) Public address system.

17.0.0 INSTRUCTION BOOK, ACCESSORIES AND EQUIPMENT

17.1.0 Instruction Book or Books

Instruction book(s) for the guidance of the user(s), including both operating and normal maintenance procedure shall be supplied. The book(s) shall include an itemized and illustrated spare parts list giving reference numbers of all the wearing parts. Further refer IS 950:2012.

18.0.0 MARKING

Each appliance shall be clearly and permanently marked with the following information:

- a) Manufacturer's name, or trade-mark, if any
- b) Serial number of the pump body and year of construction
- c) Capacity of pump, in l/min
- d) Capacity of water tank, in litre
- e) Nominal speed, in rev/min
- f) Transmission ratio of the pump gear
- g) Working pressure, in kg/cm²
- h) Direction of rotation of the pump shall be indicated by an arrow and this shall be permanently marked on the pump body
- i) Lubrication points, drainage devices, etc, shall be colour coded.

19.0.0 ADDITIONAL ACCESSORIES (over & above accessories mentioned against Cl.16.0.0)

The additional accessories that are normally required to assist in operation of appliance are detailed in enclosed **Annexure-II (refer Section IA)**. Bidder to include these accessories in their scope of supply.

20.0.0 ACCEPTANCE TESTS

The following acceptance tests on various equipment shall be conducted to meet guaranteed parameters and shall be carried out in accordance with relevant IS Code.

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- a) Pump test
- b) Primer test
- c) Road test
- d) Stability
- e) Any other test as specified in IS 950:2012 & latest.

Further to this, bidder to refer Annexure-IV for reference quality plan attached, for bare minimum test to be conducted during inspection in the present of BHEL and CUSTOMER. Also, bidder to submit the quality plan for tendered project for approval from BHEL and CUSTOMER, any additional test if required during document approval, to be accepted by bidder without any price implication to BHEL.



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ANNEXURE-I

SCHEDULE OF EQUIPMENTS TO BE SUPPLIED WITH FOAM TENDER



TITLE

SPECIFICATION FOR FIRE TENDERS

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ANNEXURE-I

List of equipments to be supplied with the foam tender

S.No.	Equipment / Item	Quantity
1.0	Extension ladder-10.5 meter (IS: 4571 or IS: 930)	1
2.0	Armoured suction hose complete with round thread couplings to suit the pump inlet-2.5 m long (IS: 2410 and IS: 902)	4 lengths
3.0	Delivery hose, 63 mm, rubber lined in 30 m lengths (type II of IS: 636) complete with instantaneous couplings (IS: 903)	10 lengths
4.0	Suction strainers for item 2.0 (IS: 907)	1
5.0	Basket strainers for item 2.0 (IS: 3582)	1
6.0	Dividing breaching made of light alloy (IS: 905)	2
7.0	Collecting breaching made out of light alloy (IS: 905)	2
8.0	Suction wrenches (IS: 4643)	1 pair
9.0	Long lines, 50 mm circumference, 30 m long (IS: 1084)	2 lengths
10.0	Short lines, 50 mm circumference, 15 m long (IS: 1084)	2 lengths
11.0	Hose, bandages, rubberised (IS: 5612)	12
12.0	Hose clamps (IS: 5612)	6
13.0	Hydrant valve key and bar (IS: 910)	1 set
14.0	Protective clothing for fire men complete with suitable face shield made out of material capable of reflecting at least 95% of radiant heat temperature around 1500 to 2000 degree C and afford some protection against direct flame. The suit will be of sufficient size to accommodate a breathing apparatus to users.	2 sets
15.0	Fog nozzle (IS: 952) with extension applicator to fog head.	1
16.0	Hand controlled branch for 63 mm size hose coupling.	1
17.0	Branch pipe universal (IS: 2871)	1
18.0	Branch with revolving head (IS: 906)	1
19.0	Branch pipes (IS: 903)	4
20.0	Nozzle of size 12 mm, 16 mm, 20 mm and 32 mm (two each) (IS: 903)	10
	a) Adaptor for 100 mm suction female screw coupling and 63 mm male instantaneous.	2
	b) Adaptor double female instantaneous pattern 63 mm.	2
	c) Adaptor double male instantaneous pattern 63 mm.	2
21.0	Nozzle spanners (IS: 903)	2
22.0	Portable electric box lamp with rechargeable accumulator.	2
23.0	Hand lamp (torch-4 cells)	2
24.0	Flameproof lamp (usable in the present of inflammable	2



TITLE

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	gases of vapours)	
25.0	Self-contained breathing apparatus (compressed air type) complete with spare cylinder and tool kit.	1 set
26.0	First aid box for ten persons.	1
27.0	Rubber gloves (in case) (IS: 4770)	1 pair
28.0	Asbestos gauntlets (in case)	1 pair
29.0	Axe, large (IS: 703)	1
30.0	Spade	1
31.0	Pick axe (IS: 273)	1
32.0	Crow bar (IS: 703)	1
33.0	Sledge hammer, 6.5 kg (IS: 841)	1
34.0	Carpenter's saw, 60 cm (IS: 5098)	1
35.0	Hydraulic jack-7.5 tonne.	1
36.0	Fire hook (IS: 927)	1
37.0	Tool kit	1



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ANNEXURE-II

SCHEDULE OF EQUIPMENTS TO BE SUPPLIED WITH FIRE WATER TENDER



TITLE

SPECIFICATION FOR FIRE TENDERS

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ANNEXURE-II

List of equipments to be supplied with the fire water tender

S.No.	Equipment / Item	Quantity
1.0	Aluminium Extension ladder –10.5 m (IS 4571)	01
2.0	a) Rubber lined delivery hose according to Type-II of IS : 636 in 22.5m or 15 m length fitted with 63 mm delivery hose couplings (IS: 903)	180 m
	b) Unlined flax canvas hose according to IS 4927 in 30m lengths fitted with delivery hose coupling (as per IS 903)	150 m
	c) Controlled percolating hose as per IS8423 in 30 m lengths fitted with delivery hose couplings (as per IS 903)	150 m
3.0	a) Hose clamps (IS: 5612, part-1)	25
	b) Hose bandages (IS: 5612, part-II)	25
	c) Hose slings	20
	d) Hose straps	20
4.0	Suction hose of rubber of 100 mm internal Diameter in 2.5 m length (IS: 2410) fitted with 100 mm suction hose couplings (as per IS 902).	10 m
5.0	3 way suction collecting head 100 mm size (IS: 904)	01
6.0	Suction wrenches for 100mm suction coupling (IS: 4643)	02
7.0	Suction Strainer 100 mm size (IS: 907)	01
8.0	Basket strainer, cylindrical type (IS: 3582)	01
9.0	Dividing breaching with control instantaneous Pattern 63 mm (IS 5131)	1
10.0	Collecting breaching with control instantaneous Pattern 63 mm (IS 905)	01
11.0	a) Hydrant-stand pipe-two way (IS: 5714)	01
	b) Double female coupling (IS: 901)	02
	c) Hydrant connection, 63mm female instantaneous pattern delivery coupling at both end. (IS: 901)	02
12.0	Combined key for hydrant, hydrant cover and lower valve (IS 910)	02
13.0	Fog nozzle with extension applicator with fog head (IS: 952)	01
14.0	Hand controlled branch for 63 mm size hose coupling	01
15.0	Branch pipe universal (IS: 2871)	02
16.0	Branch with revolving head (IS: 906)	01
17.0	Branch pipe (IS 903)	4
18.0	Nozzles of sizes 12 mm, 16 mm, 20 mm and 32 mm (two	10



TITLE

SPECIFICATION FOR FIRE TENDERS

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	each) (IS: 903)	
19.0	a) Adopter for 100 mm suction female screw Coupling and 63 mm male instantaneous b) Adopter double female instantaneous pattern 63 mm c) Adopter double male instantaneous pattern 63 mm	02 02 02
20.0	Nozzle spanners (IS: 903)	02
21.0	Portable electric box lamp with rechargeable accumulator.	02
22.0	Hand lamp (torch – 4 cells)	02
23.0	Flame proof lamp (useable in the presence of inflammable gases and vapours.	02
24.0	Self-contained breathing apparatus (compressed air type) complete with spare cylinder and tool kit. (IS 10245 Part 2)	1 set
25.0	Portable fire extinguisher, dry powder type, 2 kg (IS: 2171)	01
26.0	Foam making branch FB-4 with pick up tube (IS 2097)	01
27.0	Lowering Line: 50 mm hemp or terylene 40 m long having two ends spliced in and one end with a running noose (IS: 1084)	01
28.0	Long line, 50mm manila, 30 m long (IS 1084)	01
29.0	Short line, 50mm manila, 15 m long (IS 1084)	01
30.0	Canvas buckets	02
31.0	First aid box for 10 persons	01
32.0	Insulated plier (IS3650) with rubber gloves pair (IS4770) tested to 20000 volts	2 nos.
33.0	Asbestos gauntlets	1 pair
34.0	Axe large (IS: 703)	01
35.0	Spade	01
36.0	Pick Axe (IS: 273)	01
37.0	Crow Bar (IS: 704)	01
38.0	Sledge Hammer (IS: 841) –6.5 Kg	01
39.0	Carpenter saw 60 cm (IS: 5098)	01
40.0	Spanner – adjustable, 30 cm length handle (IS: 6149)	01
41.0	Door breaker	01



TITLE

SPECIFICATION FOR FIRE TENDERS

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42.0	Hydraulic jack –7.5 tonnes	01
43.0	Fire Hook (IS 927)	1
44.0	Tool kit	01
45.0	Grease gun	02
46.0	Oil feeder	01
47.0	Can oil – 2 litres	01
48.0	Oil can – 10 litres	01
49.0	Funnel for oil or fuel filling – 250 mm	01



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ANNEXURE-III

LIST OF MAINTENANCE TOOLS & TACKLES

ANNEXURE - III

MAINTENANCE TOOLS AND TACKLES

Sl. No	ITEM	QUANTITY
1.	DE spanner set 6.25 mm	1 set
2.	Ring spanner set 6.25	1 set
3.	Adjustable wrench 200 mm	1 No.
4.	Pliers cutting	1 No
5.	Pliers round nose 150 mm	1 No
6	Pipe wrench 300 mm	1 No
7	Screw driver 150 mm	1 No
8	Screw driver 250 mm.	1 No
9	File half round smooth 150 mm	1 No
10	Hammer ball pen ½ kg.	1 No
11	Grease gun.	1 No
12	Oil feeder.	1 No
13	Carpenter saw 450/500	1 No

Note: The above list is bare minimum, if any other maintenance tools & tackles required as per system requirement same shall be provided to BHEL without any additional cost.



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ANNEXURE-IV REFERENCE QAP

		MANUFACTURING QUALITY PLAN										
		ITEM	WATER TENDER	BHEL QAP. NO. PE-VO-374-550-A005								
		SUB SYSTEM PO NO DTD	FIRE FIGHTING VEHICLE	REV NO. 2	DATE :	PAGE NO. 1						
SR.NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASSIFICATION	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
									P	W	V	
1.0	MATERIAL AND COMPONENTS											
A	M.S. PLATE FOR WATER TANK	CHEMICAL PROPERTY	MINOR	CHEMICAL PROPERTY	LOT	IS : 2062	IS : 2062	T.C	—	2	1\3	
B	G.M. (PUMP CASIING)	CHEMICAL PROPERTY	MAJOR	CHEMICAL PROPERTY	LOT	IS : 318 GR.2	IS : 318 GR.2	T.C	—	2	1\3	
C	S.S. FOR PUMP SHAFT	CHEMICAL PROPERTY	MAJOR	CHEMICAL PROPERTY	LOT	SS 304	SS 304	T.C	—	2	1\3	
D	G.M. (IMPELLER)	CHEMICAL PROPERTY	MAJOR	CHEMICAL PROPERTY	LOT	IS: 318 GR. 2	IS: 318 GR. 2	T.C	—	2	1\3	
1.A	CHASSIS & ENGINE (ASHOK LEYLAND)	MAKE , TYPE	MINOR	CHASSIS DOCUMENT	LOT	CHASSIS DOCUMENT	CHASSIS DOCUMENT	CHASSIS DOCUMENT	—	2	1\3	
2.0	IN PROCESS INSPECTION											
A	(STRUCTURAL) FABRICATION OF WATER TANK	VISUAL & DIMENSION INCL. THICKNESS	MINOR	DIM. (VISUAL)	100%	AS PER GA/WT/FT DRAWING	AS PER GA/WT/FT DRAWING	AS PER GA/WT/FT DRAWING	2	—	1/3	
B	HYDRO TEST OF WATER TANK	HYDRO TEST	MAJOR	HYDRO TEST 0.3 BAR	100%	AS PER SPECIFICATION	NO LEAKAGE	I.R.	2	1/3	—	
C	PUMP CASING	HYDRO TEST	MAJOR	21KG/ CM. SQ.	100%	AT 21KG/CM SQ.	NO LEAKAGE	I.R.	2	—	1\3	
D	IMPELLER	DYNAMIC BALANCING	MAJOR	—	100%	BALANCING CERTIFICATE	BALANCING CERTIFICATE	T.C	2	—	1/3	
3.0	COMPLETE ASSEMBLY INSPECTION											
A	PUMP (PRIMER) ASSEMBLY	VISUAL CHECK	MAJOR	COMPLETENESS / VISUAL	100%	AS PER SPECIFICATION	AS PER SPECIFICATION	I.R.	2	—	1/3	
B	HOSE REEL ASSEMBLY	VISUAL CHECK	MINOR	-DO-	100%	AS PER SPECIFICATION	AS PER SPECIFICATION	I.R.	2	—	1/3	
4.0	FINAL INSPECTION OF COMPLETE WATER TENDER	PERFORMANCE TEST OF PUMP FOR 4 HOURS & DEEPLIFT TEST OF PRIMER, STABILITY TEST, ROAD TEST TILTING TEST	MAJOR	PERFORMANCE TEST AND VERIFICATION OF LIST OF EQUIPMENT AND ACCESSORIES AS PER DATA SHEET	100%	APPROVED DATASHEET, APPROVED DRAWING AS PER IS: 10460 AND PO NO.	APPROVED DATASHEET, APPROVED DRAWING AS PER IS: 950 AND PO NO.	I.R.	2	1/3	—	
MANUFACTURER SIGNATURE			LEGEND : **1. BHEL, 2 manufacturer .3 CUSTOMER W: WITNESS P: PERFORMAR V: VERIFIER I.R = INSPECTION REPORT T.C. = TEST CERTIFICATE									

			MANUFACTURING QUALITY PLAN							
			ITEM : FOAM TENDER SUB-SYSTEM: FIRE TENDERS		QP NO.:9464-108-01FS-PVM-Q028 REV.NO.: 02. DATE:- 29.11.2010 PAGE: 01 OF 03.		MAIN-SUPPLIER:BHEL			

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C / N				D*	M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.		** 10.			11.
1	Chassis	Make, Engine No. Chassis no.	Major	Correlation	100%		Vehicle Mfgr's Documents	Vehicle Mfgr's Documents			P	V	V	
2	<u>Raw Material</u>													
a)	MS plate for water tank.	Chemical & Mech property	Major	Chemical & Mech property	1/Lot		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460	T.C.	✓	P	V	V	
b)	SS plate for foam tank.	Chemical & Mech property	Major	Chemical & Mech property	1/Lot		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460	T.C.	✓	P	V	V	
c)	Raw material for pump casing, impeller and shaft	Chemical & Mechanical		Chemical & mechanical property	1/heat 1/batch for shaft		-----Approved drg./DS-----		T.C	✓	P	V	V	
3	<u>Inprocess Inspection</u>													
a	Fabrication of water and foam tank.	Visual & Dimension incl. Thickness.	Minor	Dimensional (visual)	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460	IR	✓	P	V	V	
b	Leak test of water and foam tank.	Leak test.	Major	Leak test (0.3 bar)	100%		Approved drg./DS/IS 10460	No Leakage	IR	✓	P	V	V	
c	Pump casing.	Hydro test.	Major	21 kg/cm.Sq	100%		at 21 kg/cm2 for 30 min	No leakage.	IR	✓	P	V	V	
d	Impeller	Dynamic balancing	Major		100%		ISO 1940 gr 6.3	ISO 1940 gr 6.3	balancing report	✓	P	V	V	
e	Ultrasonic test on shaft for dia > 50 mm	sub-surface defects		UT	100%		ASTM A 388	as per note 1	UT report	✓	P	V	V	

		LEGEND: * RECORDS, IDENTIFIED WITH “TICK” (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUM “N” AS ‘ W”		DOC. NO.:			REV..... CAT.....		
MANUFACTURER/ SUB-SUPPLIER	MAIN-SUPPLIER		FOR NTPC USE						
SIGNATURE					REVIEWED BY	APPROVED BY	APPROVAL SEAL		

FORMAT NO.: QS-01-QAI-P-09/F1-R1

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ENGG. DIV./QA&I

Note 1: when Back Wall Echo (BWE) set to 100% Full Screen Height (FSH) , a defect echo > 20% FSH is not acceptable. Also loss of BWE > 20% is not acceptable.

			MANUFACTURING QUALITY PLAN											
			ITEM : FOAM TENDER SUB-SYSTEM: FIRE TENDERS		QP NO.:9464-108-01FS-PVM-Q028 REV.NO.: 02. DATE:- 29.11.2010 PAGE: 01 OF 03.		MAIN-SUPPLIER:BHEL							
4	Final Inspection of Complete Fire Truck.	1. Leakage Test of Pipe Line & Valves.	Major	Visual	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460	IR	✓	P	V	V	
		2. Road test & Braking Test.	Major	Visual	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		3. Pump Running Test & Performance.	Major	4 hour run test as per IS 10460 Operational	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		4. Priming Performance Test.	Major	Operational as per IS 10460	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		5. Control panel operational check.	Major	Operational	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		6. Monitor Performance Test.	Major	Functional.	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		7. Water Hose Reel Testing.	Major	Functional.	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W	
		LEGEND:		* RECORDS, IDENTIFIED WITH "2ICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS 'W'			DOC. NO.:		REV..... CAT.....					
MANUFACTURER/ SUB-SUPPLIER		MAIN-SUPPLIER					FOR NTPC USE		REVIEWED BY		APPROVED BY		APPROVAL SEAL	
SIGNATURE														
FORMAT NO.: QS-01-QAI-P-09/F1-R1							1/3				ENG. DIV./QA&I			



MANUFACTURER'S NAME AND			MANUFACTURING QUALITY PLAN										
			ITEM : FOAM TENDER SUB-SYSTEM: FIRE TENDERS		QP NO.:9464-108-01FS-PVM-Q028 REV.NO.: 02. DATE:- 29.11.2010 PAGE: 01 OF 03.		MAIN-SUPPLIER:BHEL						
Page 95 of 107		8. Electrical Function Test.	Major	Functional	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W
		9. Determination of Actual pay load.	Major	Visual	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W
		10. Static Stability test.	Major	Visual	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W
		11. Completeness of Equipment.	Major	Verification of various accessories.	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	W	W
		12. Painting Quality (both internal & external)	Major	DFT, Paint Shade.	100%		Approved drg./DS/IS 10460	Approved drg./DS/IS 10460		✓	P	V	V

Notes:

- 1) Manufacturer TC for Foam Monitor, Foam Compound Proportioner, Foam Branch pipe and Hose shall be produced for Verification during final inspection.

/coupling/ nozzle

		LEGEND: * RECORDS, IDENTIFIED WITH “TICK” (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUM “N” AS ‘W”		DOC. NO.: REV..... CAT.....		
MANUFACTURER/ SUB-SUPPLIER	MAIN-SUPPLIER		FOR NTPC USE			
SIGNATURE				REVIEWED BY	APPROVED BY	APPROVAL SEAL

FORMAT NO.: QS-01-QAI-P-09/F1-R1

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ENG. DIV./QA&I





**TECHNICAL SPECIFICATION OF
FIRE TENDER FOR
RATE CONTRACT**

SPECIFICATION No: PE-TS-STD-550-A001

REV 00

DATE: 27.03.2017

SECTION - II

SHEET 1 OF 1

SUB-SECTION – II

STANDARD TECHNICAL REQUIREMENTS



**TECHNICAL SPECIFICATION OF
FIRE TENDER FOR
RATE CONTRACT**

SPECIFICATION No: PE-TS-STD-550-A001

REV 00

DATE: 27.03.2017

SECTION - II

SHEET 1 OF 1

SECTION – IIA
STANDARD TECHNICAL REQUIREMENTS (MECHANICAL)



**TECHNICAL SPECIFICATION FOR
FIRE TENDER**

SPECIFICATION No: PE-TS-STD-550-A001

SECTION : IIA

REV 00

DATE: 27.03.2017

ANNEXURE-V

**MASTER DRAWING LIST WITH SCHEDULE OF
SUBMISSION**

ANNEXURE-V					
MDL FOR FIRE TENDER					
S.N	DRWG NO	DRWG TITLE	CATEGORY	SCHEDULED SUBMISSION (NO. OF WEEKS FROM LOA DATE / PO DATE) or AS SPECIFIED IN NIT, WHICHEVER EARLIER.	RESUBMISSION AFTER COMMENTS INCORPORATION
1	PE-V0-XXX-550-A001	T.D.S ,GA & Flow DIAGRAM FOR WATER TENDER	A-CUST	4	WITHIN 1 WEEK
2	PE-V0-XXX-550-A002	T.D.S ,GA & Flow DIAGRAM FOR FOAM TENDER	A-CUST	4	WITHIN 1 WEEK
3	PE-V0-XXX-550-A006	MQP FOR WATER TENDER	A-CUST	4	WITHIN 1 WEEK
4	PE-V0-XXX-550-A007	MQP FOR FOAM TENDER	A-CUST	4	WITHIN 1 WEEK
5	PE-V0-XXX-550-A011	O & M MANUAL	A-CUST	8	WITHIN 1 WEEK

Note:

Drawing / Document shall be uploaded by the successful bidder on WRENCH /DMS. Procedure for the same will be informed after award of contract.

	TECHNICAL SPECIFICATION FOR FIRE TENDER	SPECIFICATION No: PE-TS-STD-550-A001	
		SECTION : IIA	
		REV 00	DATE:27.03.2017

ANNEXURE-VI

FORMAT FOR OPERATION AND MAINTENANCE MANUAL



TECHNICAL SPECIFICATION FOR FIRE TENDER

SPECIFICATION No: PE-TS-STD-550-A001

SECTION : IIA

REV 00

DATE: 27.03.2017

Project name :
Project number :
Package Name :
PO reference :
Document number :
Revision number :

Sl.no. & Sections	Description	Tick (√)if included in Manual			Remarks
		Yes	No	Not Applicable	
1.	COVER PAGE				
1.1	Project Name				
1.2	Customer/consultant Name				
1.3	Name of Package				
1.4	Supplier details with phone, FAX ,email address , Emergency Contact number				
1.5	Name and sign of prepared by , checked by & approved by				
1.6	Revision history with approval Details				
2.0	INDEX				
2.1	showing the sections & related page nos All the pages should be numbered section wise				
3.0	DESCRIPTION OF PLANT/SYSTEM				
3.1	Description /write up of operating principle of system equipment/ associated sub-systems & accessories/controls system , operating conditions, performance parameters under normal , start up and special cases				
3.2	Equipment list and basic parameter with Tag numbers				
3.3	Data sheets approved by Customer/for information and catalogues provided by original manufacturer				
3.4	Associated other packages and Interface /terminal points				
3.5	P&ID & Process Diagrams				
3.6	GA Layout drawings, As-built drawings , Actual photograph of items/system (Drawings of A2 & bigger sizes are to be attached in the last)				
3.7	Single line/wiring diagrams				
3.8	Control philosophy /control write-ups				



TECHNICAL SPECIFICATION FOR FIRE TENDER

SPECIFICATION No: PE-TS-STD-550-A001

SECTION : IIA

REV 00

DATE: 27.03.2017

Sl.no. & Sections	Description	Tick (√)if included in Manual			Remarks
		Yes	No	Not Applicable	
4.0	COMMISSIONING ACTIVITIES (IF NOT COVERED IN SEPARATE DOCUMENT I.E. ERECTION MANUAL, COMMISSIONING MANUAL)				
4.1	Pre-Commissioning Checks				
4.2	handling of items at site				
4.3	Storage at site				
4.4	Unpacking & Installation procedure				
5.0	OPERATION GUIDELINES FOR PLANT PERSONAL/USER/OPERATOR				
5.1	Interlock & Protection logic along with the limiting values of protection settings for the equipment along with brief philosophy behind the logic, drawings etc. to be provided.				
5.2	Start up, normal operation and shut down procedure for equipments along with the associated systems in step by step mode. Valve sequence chart, step list, interlocks etc. with Equipment isolating procedures to be mentioned.				
5.3	Do's & Don't of the equipments.				
5.4	Safety precautions to be taken during normal operation. Safety symbols, Emergency instructions on total power failure condition/lubrication failure/any other condition				
5.5	Parameters to be monitored with normal values and limiting values				
5.6	Trouble shooting with causes and remedial measures				
5.7	Routine operational checks, recommended logs & records				
5.8	Changeover schedule if more than one auxiliary for the same purpose is given				
5.9	Painting requirement and schedule				
5.10	Inspection, repair , Testing and calibration procedures				
6.0	MAINTENANCE GUIDELINES FOR PLANT				



TECHNICAL SPECIFICATION FOR FIRE TENDER

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SECTION : IIA

REV 00

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Sl.no. & Sections	Description	Tick (√)if included in Manual			Remarks
		Yes	No	Not Applicable	
	PERSONAL				
6.1	List of Special Tools and Tackles required for Overhaul/Trouble shooting including special testing equipment required for calibration etc.				
6.2	Stepwise dismantling and re-assembly procedure clearly specifying the tools to be used, checks to be made, records to be maintained, clearances etc. to be mentioned. Tolerances for fitment of various components to be given.				
6.3	Preventive Maintenance & Overhauling schedules linked with running hours/calendar period along with checks to be given				
6.4	Long term maintenance schedules especially for structural, foundations etc.				
6.5	Consumable list along with the estimated quantity required during commissioning, normal running and during maintenance like Preventive Maintenances and Overhaul. Storage/handling requirement of consumables/self-life.				
6.6	List of lubricants with their Indian equivalent, Lubrication Schedule, Quantity required for each equipment for complete replacement is to be given				
6.7	List of vendors & Sub-vendors with their latest addresses, service centres ,Telephone Nos., Fax Nos., Mobile Nos., e-mail IDs etc.				
6.8	List of mandatory and recommended spare parts list				
6.9	Tentative Lead time required for ordering of spares from the equipment supplier				
6.10	Guarantee and warranty clauses				
7.0	Statutory and other specific requirements considerations.				
8.0	List of reference documents				
9.0	Binding as per requirement				



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SECTION - III

SHEET 1 OF 1

SECTION: III

DOCUMENTS TO BE SUBMITTED BY BIDDER



**TECHNICAL SPECIFICATION FOR
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DATE: 27.03.2017

SECTION - III

SHEET 1 OF 1

SECTION: IIIA

LIST OF DOCUMENTS TO BE SUBMITTED WITH BID



**TECHNICAL SPECIFICATION OF
FIRE TENDER FOR
RATE CONTRACT**

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REV. 00

DATE: 27.03.2017

SECTION - IIIA

SHEET 1 OF 1

**BIDDER SHOULD SUBMIT THE SIGNED AND STAMPED COPY OF THE
FOLLOWING DOCUMENTS:**

1. Compliance cum confirmation certificate (Section-IIIB)
2. Pre bid clarification schedule (Section-IIIC)
3. No deviation certificate(Section-IIID)
4. Unpriced price bid indicating "QUOTED / NOT QUOTED" / "NOT APPLICABLE" as the case may be.
5. Equipments to be supplied with Foam tender (Annexure-I)
6. Equipments to be supplied with Water tender (Annexure-II)
7. List of Maintenance Tool & Tackles (Annexure-III)
8. List of Recommended Spares (Section-IIIE)

Please note that all the schedules shall be submitted even though they may not be applicable. Under such circumstances it shall be clearly mentioned across such schedules that these are not applicable. (E.g. in case of there are no technical deviation, it shall be mentioned in the deviation schedule that 'THERE ARE NO DEVIATIONES TO THE TECHNICAL SPECIFICATION').

Name:
Signature:
Designation:
Company:
Date:

BIDDER STAMP



**TECHNICAL SPECIFICATION OF
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SECTION - IIIB

SHEET 1 OF 1

SECTION: IIIB

COMPLIANCE CUM CONFIRMATION CERTIFICATE



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SPECIFICATION No: PE-TS-STD-550-A001

REV. NO. 00

DATE: 27.03.2017

SECTION - IIIB

SHEET: 1 OF 2

COMPLIANCE CUM CONFIRMATION CERTIFICATE

The bidder shall confirm compliance with following by signing / stamping this compliance certificate (every sheet) and furnish same with the offer.

- a) The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusions, other than those mentioned under "exclusion and those resolved as per 'Schedule of Deviations', with regard to same.
- b) There are no other deviations w.r.t. specifications other than those furnished in the 'Schedule of Deviations'. Any other deviation, stated or implied, taken elsewhere in the offer stands withdrawn unless specifically brought out in the 'Schedule of Deviations'
- c) Bidder shall submit QP in the event of order based on the guidelines given in the specification & QP enclosed therein. QP will be subject to BHEL / CUSTOMER approval & customer hold points for inspection / testing shall be marked in the QP at the contract stage. Inspection / testing shall be witnessed as per same apart from review of various test certificates/ Inspection records etc. This is within the contracted price without any extra implications to BHEL after award of the contract.
- d) All drawings/ data-sheets / calculations etc. submitted along with the offer shall not be taken cognizance off.
- e) The offered materials shall be either equivalent or superior to those specified in the specification & shall meet the specified / intended duty requirements. In case the material specified in the specifications is not compatible for intended duty requirements then same shall be resolved by the bidder with BHEL during the pre-bid discussions, otherwise BHEL / Customer's decision shall be binding on the bidder whenever the deficiency is pointed out.

For components where materials are not specified, same shall be suitable for intended duty, all materials shall be subject to approval in the event of order.

- f) The commissioning spares shall be supplied on 'As Required Basis' & prices for same included in the base price itself.
- g) All sub vendors shall be subject to BHEL / CUSTOMER approval in the event of order.
- h) Guarantee for plant/equipment shall be as per relevant clause of GCC / SCC / Other Commercial Terms & Conditions
- i) In the event of order, all the material required for completing the job at site shall be supplied by the bidder within the ordered price even if the same are additional to approved billing break up, approved drawing or approved Bill of quantities within the scope of work as tender specification. This clause will apply in case during site



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SECTION - IIIB

SHEET: 2 OF 2

commissioning, additional requirements emerges due to customer and / or consultant's comments. No extra claims shall be put on this account

- j) Schedule of drawings submissions, comment incorporations & approval shall be as stipulated in the specifications. The successful bidder shall depute his design personnel to BHEL's / Customer's / Consultant's office for across the table resolution of issues and to get documents approved in the stipulated time.
- k) As built drawings shall be submitted as and when required during the project execution.
- l) The bidder has not tempered with this compliance cum confirmation certificate and if at any stage any tempering in the signed copy of this document is noticed then same shall be treated as breach of contract and suitable actions shall be taken against the bidder.
- m) Successful bidder shall furnish detailed erection manual for each of the equipment supplied under this contract at least 3 months before the scheduled erection of the concerned equipment / component or along with supply of concerned equipment / component whichever is earlier.
- n) Document approval by customer under Approval category or information category shall not absolve the vendor of their contractual obligations of completing the work as per specification requirement. Any deviation from specified requirement shall be reported by the vendor in writing and require written approval. Unless any change in specified requirement has been brought out by the vendor during detail engineering in writing while submitting the document to customer for approval, approved document (with implicit deviation) will not be cited as a reason for not following the specification requirement.
- o) In case vendor submits revised drawing after approval of the corresponding drawing, any delay in approval of revised drawing shall be to vendor's account and shall not be used as a reason for extension in contract completion.



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SECTION IIIC

SHEET 1 OF 1

SECTION: IIIC

PRE BID CLARIFICATION SCHEDULE



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SECTION - IIIC

SHEET: 1 OF 1

PRE-BID CLARIFICATION SCHEDULE

S. NO.	SECTION/CLAUSE/PAGE NO.	STATEMENT OF THE REFERRED CLAUSE	CLARIFICATION REQUIRED

The bidder hereby clarifies that above mentioned are the only clarifications required on the technical specification for the subject package.

Signature: _____

Name: _____

Designation: _____

Company: _____

Date: _____

Company Seal



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SECTION IIID

SHEET 1 OF 1

SECTION-IIID
DEVIATION SHEET

DEVIATION SHEET (COST OF WITHDRAWAL)**RATE CONTRACT****PACKAGE:- FIRE TENDER****TENDER ENQUIRY REFERENCE:-****NAME OF VENDOR:-**

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	COST OF WITHDRAWAL OF DEVIATION	REFERENCE OF PRICE SCHEDULE ON WHICH COST OF WITHDRAWAL OF DEVIATION IS APPLICABLE	NATURE OF COST OF WITHDRAWAL OF DEVIATION (POSITIVE/ NEGATIVE)	REASON FOR QUOTING DEVIATION
-------	-----------------	----------	------------	--	-----------------------------------	---------------------------------	--	--	------------------------------

TECHNICAL DEVIATIONS

COMMERCIAL DEVIATIONS

PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE

NAME	DESIGNATIONS	SIGN & DATE	

NOTES:

1. For self manufactured items of bidder, cost of withdrawal of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.
2. For directly dispatchable items, cost of withdrawal of deviation will be applicable on the basic price including taxes, duties & freight.
3. All the bidders have to list out all their Technical & Commercial Deviations (if any) in detail in the above format.
4. Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.
5. Bidder shall submit duly filled unpriced copy of above format indicating "quoted" in "cost of withdrawal of deviation" column of the schedule above along with their Techno-commercial offer, wherever applicable.
6. Bidder shall furnish price copy of above format along with price bid.
7. The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.
8. Bidders to note that any deviation (technical/commercial) not listed in above and asked after Part-I opening shall not be considered.
9. For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.
10. Any deviation mentioned in priced copy of this format, but not mentioned in the un-priced copy, shall not be accepted.
11. All techno-commercial terms and conditions of NIT shall be deemed to have been accepted by the bidder, other than those listed in unpriced copy of this format.
12. Cost of withdrawal is to be given separately for each deviation. In no event bidder should club cost of withdrawal of more than one deviation else cost of withdrawal of such deviations which have been clubbed together shall be considered as NIL.
13. In case nature of cost of withdrawal (positive/negative) is not specified it shall be assumed as positive.
14. In case of discrepancy in the nature of impact (positive/ negative), positive will be considered for evaluation and negative for ordering.



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SECTION IIIE

SHEET 1 OF 1

SECTION-IIIE

LIST OF RECOMMENDED SPARES

[illegible]

NOTES

a)	Bidder shall provide a list of recommended spares giving unit prices and total prices for 2 years of normal operation of the plant for spares of indigenous origin, and for 5 years of normal operation for spares of non-indigenous origin. The list of recommended spares to be submitted along with the offer by the bidder.
b)	In case no recommended spares are applicable for the package, the same shall be clearly mentioned across the list as " NOT APPLICABLE".
c)	The price of recommended spares will not be used for the evaluation of bids.The price of these spares shall remain valid for a period of 2 years from the date of Award of the Contract.

ANNEXURE - VIA

ANNEXURE-II: DEVIATION SHEET (COST OF WITHDRAWAL)									
									
PROJECT:-									
PACKAGE:-									
TENDER ENQUIRY REFERENCE:-									
NAME OF VENDOR:-									
SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	COST OF WITHDRAWAL OF DEVIATION	REFERENCE OF PRICE SCHEDULE ON WHICH COST OF WITHDRAWAL OF DEVIATION IS APPLICABLE	NATURE OF COST OF WITHDRAWAL OF DEVIATION (POSITIVE/ NEGATIVE)	REASON FOR QUOTING DEVIATION
TECHNICAL DEVIATIONS									
COMMERCIAL DEVIATIONS									
PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE									
NAME				DESIGNATIONS			SIGN & DATE		
NOTES:									
1. For self manufactured items of bidder, cost of withdrawal of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.									
2. For directly dispatchable items, cost of withdrawal of deviation will be applicable on the basic price including taxes, duties & freight.									
3. All the bidders have to list out all their Technical & Commercial Deviations (if any) in detail in the above format.									
4. Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.									
5. Bidder shall submit duly filled unpriced copy of above format indicating "quoted" in "cost of withdrawal of deviation" column of the schedule above along with their Techno-commercial offer, wherever applicable.									
6. Bidder shall furnish price copy of above format along with price bid.									
7. The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.									
8. Bidders to note that any deviation (technical/commercial) not listed in above and asked after Part-I opening shall not be considered.									
9. For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.									
10. Any deviation mentioned in priced copy of this format, but not mentioned in the un-priced copy, shall not be accepted.									
11. All techno-commercial terms and conditions of NIT shall be deemed to have been accepted by the bidder, other than those listed in unpriced copy of this format.									
12. Cost of withdrawal is to be given separately for each deviation. In no event bidder should club cost of withdrawal of more than one deviation else cost of withdrawal of such deviations which have been clubbed together shall be considered as NIL.									
13. In case nature of cost of withdrawal (positive/negative) is not specified it shall be assumed as positive.									
14. In case of discrepancy in the nature of impact (positive/ negative), positive will be considered for evaluation and negative for ordering.									

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited ¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at _____ ² hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ----- (Rupees -----) without any demur, immediately on a demand from the Employer, .

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁷we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁸
- b) This Guarantee shall be valid up to⁹
- c) Unless the Bank is served a written claim or demand on or before¹⁰ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

⁸ BG AMOUNT IN FIGURES AND WORDS.

⁹ VALIDITY DATE

¹⁰ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 2/3 months after validity date.
2. In Case of Bank Guarantees submitted by Foreign Vendors-
 - a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
 - b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank** (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
 - b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.