



An India-Russia Joint Venture

BrahMos Aerospace Private Limited

BrahMos Complex, Adj. to DRDL Rear Gate, Kanchanbagh,
Hyderabad – 500 058, INDIA, Email: purchasehyd@brahmos.com
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RFP No: BM(H)/CMM/RFP/25-26/2094, Date: 22nd Dec 2025

Procurement of **Fire- Engine (Water & Foam) for Fire fighting Services (02 Unit)**

Dear Sir/ Madam,

1. BrahMos Aerospace Private Limited, hereinafter referred to as **Buyer**, intends to procure **Fire-Engine (Water & Foam) for Fire Fighting Services** and seek participation of the procurement process from prospective Bidders subject to requirements of succeeding paragraphs.
2. This RFP is divided into 7 Parts as follows:

PART I	:	General Information & Instructions for the Bidders
PART II	:	Scope of Work
PART III	:	Evaluation Criteria of Bids
PART IV	:	Special Terms & Conditions of RFP
PART V	:	Standard Terms & Conditions of RFP
PART VI	:	Format for Price Bids
PART VII	:	Compliance Statement
3. This RFP is neither an agreement and nor an offer by Buyer to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in submitting their proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by Buyer in relation to the Project. This RFP document and any assumptions, assessments and statements made herein do not purport to contain all the information that each Bidder may require. The Bidder shall bear all its costs associated with or relating to the preparation and submission of proposal pursuant to this RFP. Wherever necessary, Buyer reserves the right to amend or supplement the information, assessment or assumptions contained in this RFP. Buyer reserves the right to withdraw the RFP or foreclose the procurement case at any stage. The issuance of this RFP does not imply that Buyer is bound to shortlist a Bidder for the Project. Buyer also reserves the right to disqualify any Bidder should it be so necessary at any stage on grounds of National Security.
4. The receipt of the RFP may please be acknowledged.

Thanking you.

FOR BrahMos Aerospace Private Limited

22/12
General Manager (CMM)
(Authorized Signatory)

S Srinivasa Rao
General Manager (CMM)
BrahMos Aerospace Pvt.Ltd.
Near DRDL Rear Gate
Kanchanbagh, Hyderabad-500058.



Head Office: 16, Carriappa Marg, Kirby Place, Delhi Cantt – 110 010, India. Ph : 011 33 123 000.
Fax: 011 2568 4827. Website: www.brahmos.com

CIN: U74899DL1995PTC074334

RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

PART-I: GENERAL INFORMATION AND INSTRUCTIONS FOR THE BIDDERS

5. The salient aspects and timelines of the acquisition are tabulated below. In case of any variation in the details furnished below or in any Annexures(s) with that mentioned in the RFP, information furnished in the main body of the RFP at referred Paragraph is to be followed.

(a) The address and contact numbers for sending Bids is given below:

Bids to be addressed to:	General Manager (CMM) Kind Attn.: Bibish Thomas Sr. Systems Manager (CMM)
Postal address for sending the Bids	BrahMos Aerospace BrahMos Complex Near DRDL Complex Rear Gate Kanchanbagh PO Hyderabad – 500058
Contact Nos. & E-mail	Tel.No: 040-24087239 Email: purchasehyd@brahmos.com bibishthomas@brahmos.com

(a) **LAST DATE AND TIME FOR DEPOSITING THE BIDS:** The sealed Bids under ***Two-Bid system (separate Techno-Commercial Bid & Price Bid)*** should reach at the above given address through post/in person latest by (2 weeks)**dt: 14-Jan-2026, 11.00hr** The responsibility to ensure this lies with the Bidder. **Early submission of the Bids is acceptable to the Buyer. E-mail quotes shall not be entertained and rejected.**

(b) **FORWARDING OF BIDS:** Bids shall be forwarded by the Bidder under their original memo/letter pad inter alia furnishing details like GST number, Bank address with EFT Account, if applicable, etc. and complete postal & e-mail address of their office. The Techno-Commercial and the Price Bids should be put in two separate envelopes and then be put in a single envelope with the '**Bidder Details, RFP No., Last Submission Date**' pasted on top.

(c) **PRE-BID CLARIFICATION:**

(i) Prior to preparation of the Techno-Commercial Bid, clarifications, if any, regarding the technical terms & conditions be obtained from the **Mr. Digvijay Thakur (DGM), 011- 42285229 within 06** working days from the date of RFP.

(ii) Prior to preparation of the Techno-Commercial Bid and Price Bid, clarifications regarding the commercial terms be obtained from **Mr Bibish Thomas SSM at purchasehyd@brahmos.com/ bibishthomas@brahmos.com, Land No. 040-24087239 within 06** working days from the date of RFP.

(iii) Un-willingness of the Bidder to participate in Bid may be communicated to **at purchasehyd@brahmos.com/ bibishthomas@brahmos.com within 06** working days of receipt of RFP.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- (d) CLARIFICATION REGARDING CONTENTS OF THE BIDS:** During evaluation and comparison of Bids, the Buyer may, at its discretion, ask the Bidder for clarification of his Bids. The request for clarification will be given in writing and no change in prices or substance of the Bids will be sought, offered or permitted. No post-Bid clarification on the initiative of the Bidder will be entertained.
- (e) CONDITIONS UNDER WHICH THIS RFP IS ISSUED:** This RFP is being issued with no financial commitment. The Buyer reserves the right to withdraw the RFP and change or vary any part thereof or foreclose the procurement case at any stage. The Buyer also reserves the right to disqualify the Bidder, should it be so necessary at any stage.
- (f) VALIDITY OF BIDS:** The Bids should remain valid till 120 Days from the last date of submission of the Bids.

PART-II: SCOPE OF WORK

6. This section will include the following:

(a) Detailed list of items with quantities is given below:

Sl. No.	Item Code	Item Description	Qty	UO M	Delivery Period
i.	101090200501	Truck Fire Fighting Large MK-VI (Defense Specification/(IND/CQAFE/0195 (c) (Annexure-1)	02	No	On or before 30-12-2026
ii.		Standard Tool Set	02	No	
iii.		Manufacturer's Recommended List of Spares (MRLS)	02	No	
iv.		Technical/ operational/ Maintenance Manual	02	No	

- (b)** Technical Specification and detail Scope of Work is placed at Annexure I
- (c)** Delivery location will be FOR OTR TP INS Tunir, Naval station Karanja, Navi Mumbai- 400704.
- (d)** Delivery Schedule: as per scope of work.
- (e)** Vehicle would be utilized for Defence application and therefore vehicle registration no. will be allotted at site as per Defence Establishment registration process. The insurance of vehicle during transit would be under scope of vendor.
- (f)** Certificate of Acceptance should be obtained from the initiating officer by the Firm.
- (g) Pre-Bid Meeting** will be conducted with vendors within 06 working days from the date of RFP



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

PART-III: EVALUATION CRITERIA OF BIDS

7. The Bidder is required to submit detailed Techno-Commercial Bid containing all Terms & Conditions as enumerated at **Part II, Part III, Part IV, Part V, Part VI** and **Part VII** of this RFP and give confirmation of their acceptance of all Terms & Conditions which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e., Seller in the Contract) as selected by the Buyer. The deviations, if any, may be clearly indicated in the Techno-Commercial Bid along with the Compliance Statement in the format enclosed at **Part-VII**. Failure to do so may result in rejection of Bid submitted by the Bidder.
8. Only those Bids will be evaluated, which are found to be fulfilling all the eligibility and qualifying requirements of the RFP, both technically and commercially. The bidder, whose price is arrived as lowest as per Evaluation criteria given in this **Appendix-B**, will be declared as L-1 bidder by Buyer.
9. **EVALUATION OF TECHNO-COMMERCIAL BID:** The Techno-Commercial Bid forwarded by the Bidders will be evaluated by a Techno-Commercial Evaluation Committee (TCEC) to confirm that the items being offered meet the requirement. The TCEC will examine the extent of variations/differences, if any, in the technical characteristics of the items offered by Bidder. The Bidder, if required, may also be called for the TCEC meeting for clarification on the Techno-Commercial Bid submitted by them.
10. **EVALUATION OF PRICE BID:**
 - (a) The Price Bids of only those Bidders will be opened and evaluated, whose technical bids have been cleared by TCEC. The unopened Price Bids will be returned back to the Bidders by the Buyer on request by the Bidders. The Price Bids will be evaluated on the basis of complete scope and not individual line-item wise basis.
 - (b) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.
 - (c) If there is a discrepancy between words and figures, the amount mentioned in words shall prevail.
 - (d) Discounted Cash Flow technique may be used, if required, to arrive at L1 bidder.
11. **PROCEDURE FOR COST COMPARISON:** The basis for comparison of cost in different situations would be as follows:
 - (a) The financial bids of the qualified bidders will be compared on the basis of price quoted in the price bid format of the RFP/Bid document.
 - (b) If the competition is only among Indian bidders, the financial comparison should be considered on the basis of FOR destination prices excluding statutory levies, taxes and duties payable on final product.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- (c) If the competition is among Indian and foreign bidders, the CIP/CIF cost quoted by the foreign bidders at destination port will be basis of comparison with the basic cost (FOR destination basis) offered by Indian bidders excluding statutory levies, taxes and duties payable on final product.
- (d) If competition is only among foreign bidders, the basis for comparison should be the CIF/CIP price (designated port). If CIF/CIP price is not available, additional 10% of FCA/FOB cost over and above quoted FCA/FOB cost to be loaded for comparison purpose only.
- (e) In import cases, all the foreign quotes will be brought to a common denomination in Indian Rupees by adopting the exchange rate as BC selling rate of the State Bank of India on the date of the opening of Price Bids.

PART-IV: SPECIAL TERMS & CONDITIONS OF RFP

The Bidder is required to give confirmation of their acceptance of Special Terms and Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder as selected by the Buyer. Failure to do so may result in rejection of Bid submitted by the Bidder.

12. APPORTIONMENT OF QUANTITY: Not Applicable.

13. BANK GUARANTEE / INDEMNITY BOND:

- (a) Bank Guarantee (BG) for Advance: A BG from an Indian nationalized bank OR Axis/HDFC/ICICI/Kotak Bank for 110% value of advance amount is to be submitted with the invoice for claiming advance. The BG should be valid till the advance is fully adjusted, plus 03 (Three) months of claim period.
- (b) Bank Guarantee for Performance: A BG from an Indian nationalized bank OR Axis/HDFC/ICICI/Kotak Bank for 3 % of the P.O value valid up to the entire delivery period plus claim period of 03 (Three) months is to be submitted along with the invoice for claiming advance. Company's Indemnity Bond shall be submitted by the Public Sector Units in lieu of BG.
- (c) Bank Guarantee for Warranty: A BG from an Indian nationalized bank OR Axis/HDFC/ICICI/Kotak Bank for 10 % of the P.O value valid up to the entire warranty period plus claim period of 03 (Three) months is to be submitted along with the invoice post-delivery of the items. Company's Indemnity Bond shall be submitted by the Public Sector Units in lieu of BG.

14. OPTION CLAUSE: The Contract will have an Option Clause, wherein the Buyer can exercise an option to procure an additional quantity upto 100% of the original contracted quantity in accordance with the same terms and conditions of the Contract. This will be applicable within the currency of the Contract or as decided during commercial negotiations. It will be entirely the discretion of the Buyer to exercise this option or not.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- 15. REPEAT ORDER CLAUSE:** The Contract will have a Repeat Order Clause, wherein the Buyer can order for additional quantity up to a maximum of up to 100%, including order placed under Option Clause, of the original contracted quantity under the Contract within six months from the date of successful supply. Successful completion of this contract. The Repeat Order will have rates on not exceeding basis (excluding taxes and duties) while the terms and conditions will remain unchanged. It will be entirely the discretion of the Buyer to exercise the Repeat order or not.
- 16. INTELLECTUAL PROPERTY RIGHT (IPR):** The rights of Intellectual Property developed under the Contract will be either the property of the Buyer or jointly owned by Buyer and the Seller. The holding of rights of intellectual property will be decided by the Buyer based on the merits of the case. Even where the IPR is jointly held, Buyer will have the marching rights on IPR i.e. the Seller will have to give technical know-how/ design data for production of the item to the designated Agency nominated by Buyer. The Seller will, however, be entitled to license fee/ royalty from the Agency as per agreed terms and conditions. The Seller will also be entitled to use these intellectual properties for their own purpose, which specifically excludes sale or licensing to any third party.
- 17. PURCHASE PREFERENCE CLAUSE:** Purchase preference will be granted as per Public Procurement (Preference to Make in India), Order – 2017 as amended, issued by DPIIT/Ministry of Commerce and Industry.
- 18. PERMISSIBLE TIME FRAME FOR SUBMISSION OF INVOICE:** To claim payment (part or full), the Supplier shall submit the bill(s) along with the relevant documents within 90 days from the completion of the activity/ supply.
- 19. PAYMENT TERMS:** 100% payment on prorated basis 01 lot against delivery, inspection and acceptance of stores.

The payment terms should be in accordance with the RFP as any change of payment terms specified in the RFP can alter L-1 determination. In case where the payment terms offered by the bidders differ from the options given in the RFP, DCF technique may be utilized for L-1 determination.

- 20. INVOICE PREPARATION:** All original documents for payments including invoices are to be raised on and submitted to the Buyer's location at **Hyderabad**. GSTIN No. for the unit is **36AABCR8269E1Z6** and the same shall be mentioned in all invoices as applicable.
- 21. PRICE BENCHMARKING CLAUSE:** The Supplier shall agree that the prices finalized for the development phase of the items shall serve as the reference ceiling for determining the cost of subsequent serial production. The Supplier shall guarantee that unless agreed otherwise in writing by the Buyer, the prices for serial production of the items, including any sub-assembly or components developed shall not exceed the development price on a per unit basis by more than the percentage to be decided during the price negotiation meeting. Any finalized escalation must be fully justified based on audited cost data and subject to negotiation and approval by the Buyer. In no event shall such escalation exceed the agreed percentage unless necessitated by Government directed changes or Force Majeure conditions. This clause shall remain



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

valid for the period of years as mutually agreed from the completion of acceptance of the items under consideration.

- 22. TERMS OF DELIVERY:** The delivery of goods shall be on FOR OTR TP INS Tunir.
- 23. TRANSPORTATION & TRANSIT INSURANCE:** The equipment(s) / material(s) will pack, loaded onto transportation vehicle(s) as per the classification of category & class of goods and transported to the designated site location. Necessary transportation & transit insurance to the destination shall be the responsibility of Seller.
- 24. PACKING AND MARKING INSTRUCTIONS:** The Supplier shall provide packing and preservation of the equipment and spares/goods contracted so as to ensure their safety against damage in the conditions of land, sea and air transportation, transshipment, storage and weather hazards during transportation, subject to proper cargo handling. The Supplier shall ensure that the stores are packed in containers, which are made sufficiently strong **wood and transport worthy packing condition for easy in handling and storage**. The packing cases should have provisions for lifting by crane/fork lift truck. Tags with proper marking shall be fastened to the special equipment, which cannot be packed. The packing of the equipment and spares/goods shall conform to the requirements of specifications and standards in force in the territory of the Supplier's country. **Item code and item description along with other technical details are to be engraved/stickered/tallied on all type of items/materials as per PO being delivered by the vendor.**
- 25. QUALITY & INSPECTION CLAUSE:**
- (a) **YEAR OF PRODUCTION:** The items should be of the latest manufacture and conform to the current production standards. The equipment shall have a minimum service life of **15** years at the time of acceptance.
- (b) **QUALITY:** The quality of the items shall correspond to the technical conditions and standards enumerated in the RFP.
- (c) **QUALITY ASSURANCE:** The quality assurance procedure that will be applicable from the date of Order till completion of deliveries for items will be as per the applicable Technical Documents to be defined in Technical Bid. The documents may be amended, if required, by mutual consent of the Buyer and the Supplier.
- (d) **QA DOCUMENTATION:**
- i) The Supplier shall submit all the QA records mentioned in the QAP/TS Documents, Standard of Preparation (SoP) and Technical Drawings in digital form (DVD) & in hard copies along with each Item Passport.
- ii) **FOR VETTED & APPROVED QAP/TS DOCUMENT:** Inspection at production/acceptance stage will be carried out as per BAPL approved QAP/TS document. The manufacturer shall submit draft QA plan/Acceptance test procedure for approval within 30 days of signing of contract



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

(e) INSPECTION & ACCEPTANCE:

BY BAPL: Inspection at production/acceptance stage will be carried out by BAPL representatives. The Inspection Agency or their nominated agency shall have the right to conduct quality trials during the production/ acceptance of the items or at any later stage. Stores rejected will be collected and replaced by the Supplier at his own cost.

(f) TESTING: Carrying out all the tests (including Destructive Testing) as specified in the Technical Specification/ ATP documents shall be the responsibility of the Supplier.

26. WARRANTY: The Supplier will declare that the goods, stores articles sold/ supplied shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specifications and particulars contained/ mentioned in the contract. The Supplier will guarantee that the said goods/ stores/ articles would continue to conform to the description and quality for a period of 24 months from the date of acceptance/ installation of the said goods stores/ articles. If during the aforesaid period of 24 months, the said goods/ stores are discovered not to conform to the description and quality aforesaid, not giving satisfactory performance or have deteriorated, the Buyer shall be entitled to call upon the Supplier to rectify the goods/ stores/ articles or such portion thereof as is found to be defective by the Buyer within a reasonable period without any financial implication to the Buyer. In cases of procurement of software, Supplier shall issue/provide upgrades of the software free of cost during the warranty period.

27. PRODUCT SUPPORT: The Supplier agrees to provide product support for the stores, assemblies/ subassemblies, fitment items, spares and consumables, Special Maintenance Tools (SMT)/Special Test Equipment (STE) for a minimum period of **15 years including 02 years** of warranty period after the delivery. In the event of any obsolescence during the said period of product support in respect of any component or sub-system, mutual consultation between the Seller and Buyer will be undertaken to arrive at an acceptable solution including additional cost, if any.

28. ANNUAL MAINTENANCE CONTRACT (AMC): Not Applicable

In case of AMC or where AMC is also required along with the procurement of goods, a clause to cover such maintenance contract may be incorporated in the RFP.

29. TECHNICAL DOCUMENTATION: 02 Set each of finalized Documents for each item/equipment in soft & hard copies will be provided along with the first item/equipment of each type. The draft documents will also be submitted 02 months in advance for pre vetting by Buyer. The improvements/changes suggested by Buyer will be duly incorporated and the final copies will be made.

30. JOINT RECEIPT INSPECTION (JRI) / PRE-DELIVERY INSPECTION (PRI):

- a) Joint receipt inspection will be carried out jointly by M/s BAPL, supplier and rep of OTP Tunir at INS Tunir.
- b) Pre-Delivery Inspection (PRI): Pre delivery inspection will be carried out by M/s BAPL at vendor premises.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- c) Training: The work includes training of Navy nominated officers for duration of 10 working days.

31. PROGRESS REVIEW COMMITTEE (PRC): The status/ progress of production and supply will be monitored by a PRC, consisting of specialists and representatives nominated by Brahmos Aerospace and Firm's representatives. The PRC will be constituted by the competent authority of the Buyer.

32. MODIFICATIONS (CHANGE IN SCOPE OF WORK), IF ANY:

- (a) Should Buyer desire any modifications or improvements, additions or alterations to the design, drawings, specifications, place of delivery etc., the same shall be carried out by the firm.

(i) Without additional payments: If the modifications or improvements are of minor in nature and are intimated before undertaking of the job as per existing specifications has been carried out.

(ii) On payment of additional Expenses and extension of delivery schedule on mutual agreement, if modifications or improvements are major in nature.

- (b) The recommendations of Committee / PRC will be considered as the basis for both Minor and Major modifications and for determining the requirements of additions/reduction in expenditure and time for the contractor.

33. AMENDMENTS: No provision of the Contract shall be changed or modified in any way (including this provision) either in whole or in part except when both the parties are in written agreement for amending the Contract.

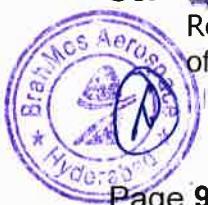
34. RISK AND EXPENSE PURCHASE: In case Seller fails to honor the contractual obligations within the stipulated delivery period and as amended, Buyer may procure the said contracted goods/services through a fresh supply order/contract and the defaulting Seller has to bear the excess cost incurred, if any.

PART-V: STANDARD TERMS & CONDITIONS OF RFP

The Bidder is required to give confirmation of their acceptance of the Standard Terms and Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder as selected by the Buyer. Failure to do so may result in rejection of the Bid.

35. EFFECTIVE DATE OF THE CONTRACT: The Date of this PO will be the Effective Date of Contract. The performance of the Supply Order shall commence from the Effective Date

36. LAW: The Contract shall be considered and made in accordance with the laws of the Republic of India and shall be governed by and interpreted in accordance with the laws of the Republic of India.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- 37. DISPUTES:** All disputes or differences arising out of or in connection with the present Contract including the ones connected with the validity of the present contract or any part thereof, shall be settled by bilateral discussions. Both, Buyer and Seller, will make every effort to resolve the dispute if any, in a mutually acceptable manner.
- 38. ARBITRATION:** In the event of any controversy, disputes or differences arising out of or in the interpretation of any of the terms and conditions of this agreement or on breach by any of the parties shall bring the said reason to the notice of each other, and shall amicably try to settle any such issues within 30 days of such notice. In the event of the parties' failure to reach amicable settlement as mentioned herein, all unresolved controversies, disputes or arbitration in accordance with Indian arbitration and conciliation Act, 1996 and the venue of arbitration shall be Hyderabad, India.
- 39. PENALTY FOR USE OF UNDUE INFLUENCE:** The Seller undertakes that he has not given, offered or promised to give, directly or indirectly, any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of the Buyer or otherwise in procuring the Contract or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the Contract or any other contract with the Government of India for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other contract with the Government of India. Any breach of the aforesaid undertaking by the Seller or anyone employed by him or acting on his behalf (whether with or without the knowledge of the Seller) or the commission of any offers by the Seller or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1986 or any other Act enacted for the prevention of corruption shall entitle the Buyer to cancel the contract and all or any other contracts with the Seller and recover from the Seller the amount of any loss arising from such cancellation. A decision of the Buyer or his nominee to the effect that a breach of the undertaking had been committed shall be final and binding on the Seller. Giving or offering of any gift, bribe or inducement or any attempt at any such act on behalf of the Seller towards any officer/ employee of the Buyer or to any other person in a position to influence any officer/ employee of the Buyer for showing any favour in relation to this or any other contract, shall render the Seller to such liability/ penalty as the Buyer may deem proper, including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the Buyer.
- 40. ACCESS TO BOOKS OF ACCOUNTS:** In case it is found to the satisfaction of the Buyer that the Bidder/ Supplier has violated the provisions of use of undue influence and/ or employment of agent to obtain the Contract, the Bidder/ Supplier, on a specific request of the Buyer, shall provide necessary information/ inspection to the relevant financial documents/ information/ Books of Accounts.
- 41. AGENTS / AGENCY COMMISSION:** The Seller confirms and declares to the Buyer that the Seller has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries, whether officially or unofficially, to the award of the contract to the Seller; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is established at any time to the satisfaction of the Buyer that the present declaration is in any way incorrect or if at a later stage it is discovered by the Buyer that the Seller has engaged any such individual/firm, and paid



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from entering into any contract with the Government of India for a minimum period of five years. The Buyer will also have a right to consider cancellation of the Contract either wholly or in part, without any entitlement or compensation to the Seller who shall in such an event be liable to refund all payments made by the Buyer in terms of the Contract along with interest at the rate of 2% per annum above (i) Prime Lending Rate of State Bank of India for Indian bidders, and (ii) London Inter Bank Offered Rate (LIBOR) for the foreign bidders. The applicable rates on the date of opening of tender shall be considered for this. The Buyer will also have the right to recover any such amount from any contracts in vogue with the Government of India.

OR

The Seller confirms and declares in the Techno-Commercial bid that they have engaged an Agent, individual or firm, for promotion of their product. In such case, following details are to be submitted in the Techno-Commercial bid:

- (a) Name of the Agent
- (b) Agency Agreement between the seller and the Agent giving details of their contractual obligation
- (c) PAN Number, name and address of bankers in India and abroad in respect of Indian Agent
- (d) The nature of services to be rendered by the Agent and
- (e) Percentage of Commission payable to the Agent

42. WITHHOLDING OF PAYMENT: In the event of the Seller's failure to submit the Bonds, Guarantees and Documents, supply the stores/goods and conduct trials, installation of equipment, training, etc. as specified in the Contract, the Buyer may, at his discretion, withhold any payment until the completion of the Contract.

43. FORCE MAJEURE CLAUSE: Should any Force Majeure circumstances arise, each of the contracting party shall be excused for the non-fulfilment or for the delayed fulfilment of any of its contractual obligations, if the affected party within 30 (Thirty) days of its occurrence informs in a written form the other party. Force Majeure shall mean fires, floods, natural disasters or other acts, that are unanticipated or unforeseeable, and not brought about at the instance of, the party claiming to be affected by such event, or which, if anticipated or foreseeable, could not be avoided or provided for, and which has caused the non-performance or delay in performance, such as war, turmoil, strikes, sabotage, explosions, quarantine restriction beyond the control of either party. A party claiming Force Majeure shall exercise reasonable diligence to seek to overcome the Force Majeure event and to mitigate the effects thereof on the performance of its obligations under this contract.

44. LIQUIDATED DAMAGES: The Buyer may deduct from the Seller, as agreed, liquidated damages at the rate of 0.5% per week/part thereof, of value basic cost (excluding taxes



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

and duties on final product) of the delayed stores which the seller has failed to deliver within the period agreed for delivery in the contract subject to maximum of 10% of the total order value (excluding taxes and duties on final product). In cases where partial delivery does not help in achieving the objective of the contract, LD shall also be levied on the total cost (excluding taxes and duties on final product) of the ordered quantity delivered by the vendor. This will also include the store(s) supplied within the delivery period that could not be put to use due to late delivery subject to a maximum of 5% of the total order value (inclusive of taxes and duty) of the Contract.

45. TERMINATION OF CONTRACT: The Buyer shall have the right to terminate the Contract in part or in full in any of the following cases:

- (a) The store/service is not received/rendered as per the contracted schedule(s) and the same has not been extended by the Buyer.

OR

The delivery of the store/service is delayed for causes not attributable to Force Majeure for more than 01 months after the scheduled date of delivery and the delivery period has not been extended by the Buyer.

- (b) The delivery of store/service is delayed due to causes of Force Majeure by more than 06 months provided Force Majeure clause is included in the contract and the delivery period has not been extended by the Buyer.
- (c) The Seller is declared bankrupt or becomes insolvent.
- (d) The Buyer has noticed that the Seller has violated the provisions of Para 47 (Use of Undue Influence) and/or Para 49 (Employment of Agent) above to obtain the Contract.
- (e) As per decision of the Arbitration Tribunal.

46. NOTICES/ CORRESPONDENCES: Any notice/correspondence required or permitted by the Contract shall be written in English language and may be delivered personally or may be sent by FAX/email or registered pre-paid mail/ airmail, addressed to the last known address of the party to whom it is sent.

47. TRANSFER AND SUB-LETTING: The Seller has no right to give, bargain, sell, assign or sublet or otherwise dispose of the Contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the Contract or any part thereof without written consent of the Buyer.

48. COMPETENCE OF PERSONNEL: Bidder to ensure the following:

- (a) Necessary Competence of personnel, who involving in the execution of work
- (b) Their Contribution to product / service conformity & importance towards ethical behaviour.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- (c) Competence to detect or prevent the counterfeit parts, monitoring and reporting of the same during execution of contract.

49. CURRENT MANUFACTURE: The equipment supplied will be of latest manufacture and will confirm to current production standards including the specified material and its equivalent.

50. COUNTERFEIT PARTS:

- (a) Seller shall evolve necessary verification and test methodologies to detect the counterfeit Parts.
- (b) Seller to ensure to prevention of counterfeit parts / products including from their sub-vendors, if any.
- (c) Seller to ensure that only non-counterfeit parts / products shall be delivered to Buyer.
- (d) Further to prevent inadvertent use of counterfeit parts, Seller shall only procure directly from the OEM (Original Equipment Manufacturer) or their authorized distribution chain unless approved by Buyer in writing.
- (e) Seller also to ensure the necessary traceability of parts / components belonging to OEM and the same shall be provided to Buyer to eliminate the delivery of counterfeit parts.
- (f) Seller to obtain the approval of Buyer in writing to source the inputs from Non-Franchised Distributors and also to ensure parts that were procured are legitimate, authentic, non-counterfeit parts, if applicable.
- (g) In case of detection of counterfeit parts / products upon inspection, same will not be accepted by Buyer and returned to Seller as they are and will be handled as per the policies of Buyer.

51. SECRECY: Any Information of classified nature obtained, acquired during the manufacture, test and trails is not to be passed on to any Third party by you or your subcontractor(s). This clause shall survive on termination or completion of this order.

52. USE OF PATENTS AND OTHER INDUSTRIAL PROPERTY RIGHTS: The prices stated in the Contract shall be deemed to include all amounts payable for the use of patents, copyrights, registered charges, trademarks and payments for any other Industrial Property Rights. The Seller shall indemnify the Buyer against all claims from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use. The Seller shall be responsible for the completion of the supplies including spares, tools, technical literature and training aggregates irrespective of the fact of infringement of the supplies or any or all the rights mentioned above.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

53. TAXES AND DUTIES:

- (a) Bidders are required to indicate statutory taxes and duties correctly as per the price bid format and no column of taxes and duties has to be left blank. Rate (%) of taxes as applicable are to be filled up with '0' (Zero), 'positive numerical values' or 'Not applicable' in the price bid as asked for in the RFP. If any column of taxes and duties as reflected in RFP is not applicable and intentionally left blank, the reason for the same has to be clearly indicated in the remarks column.
- (b) Only GST will be paid extra by the Buyer. The Bidders are required to indicate the unit & total costs of the items/services with and without GST, GST % with HSN/SAC separately as per the format enclosed. GST claimed by the Supplier shall be released by the Buyer only after it appears in the Buyer's GST Input Credit Register of GSTIN Online Portal.

54. DENIAL CLAUSE: Denial clause informs Seller that the Buyer reserves the right to admit additional payment due to upward revision of statutory levies beyond the original delivery schedule in case Seller fails to deliver the goods as per schedule. Variations in the rates of statutory levies within the original delivery schedule will be allowed if taxes are explicitly mentioned in the contract/supply order and delivery has not been made till the revision of the statutory levies. Buyer reserves the right not to reimburse the enhancement of cost due to increase in statutory levies beyond the original delivery period of the supply order/contract even if such extension is granted without imposition of LD.

55. UNDERTAKING FROM THE BIDDERS: Bidder/firm/company/vendor will submit an undertaking that in the past they have never been banned/debarred for doing business dealings with Ministry of Defence/Govt. of India/any other Govt. organization and that there is no enquiry going on by CBI/ED/any other Govt. agency against them.

56. DOCUMENTS TO BE FURNISHED FOR CLAIMING PAYMENT: The payment of bills will be made on submission of the following documents by the Seller to the Buyer:

- (a) Ink-signed copy of Invoice.
- (b) Performance Warranty Bond and FIM Bank Guarantee.
- (c) Warranty Certificate
- (d) Details for electronic payment viz. Bank name, Branch name and address, Account Number, IFS Code, MICR Number (if these details are not already incorporated in the Contract).
- (e) Copy of the Contract and amendments thereon, if any.
- (f) Any other document/ certificate that may be provided for in the Contract.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

57. FRANKING CLAUSE:

- (a) **IN CASE OF ACCEPTANCE OF STORE(S):** The fact that the goods have been inspected after the delivery period and passed by the Inspecting Officer will not have the effect of keeping the contract alive. The goods are being passed without prejudice to the rights of the Buyer under the terms and conditions of the Contract.
- (b) **IN CASE OF REJECTION OF STORE(S):** The fact that the goods have been inspected after the delivery period and rejected by the Inspecting Officer will not bind the Buyer in any manner. The goods are being rejected without prejudice to the rights of the Buyer under the terms and conditions of the contract.

58. CLAIMS:

- (a) The quantity claims for deficiency of quantity and/ or the quality claims for defects or deficiencies in quality noticed during the inspection shall be presented within 45 days of completion of inspection.
- (b) The Seller shall collect the defective or rejected goods from the location nominated by the Buyer and deliver the repaired or replaced goods at the same location, within mutually agreed period, under Seller's arrangement without any financial implication on the Buyer.

59. LIABILITY CLAUSE:

- (a) Any damage caused to the property or suffered by the personnel of Buyer during the execution of Contract shall remain the liability of the Buyer. Such liability shall be fixed on Seller in case of grossly negligent act or omission on the part of Seller.
- (b) This provision is limited to the relations between the Parties. It is without prejudice to the rights and actions to which the victims of damage, or any Social Security Organizations could prevail themselves legally.
- (c) Either party would provide reasonable assistance to resolve the claim of other Party to mitigate loss or damage.
- (d) Neither, the Seller shall be liable to the Buyer, nor shall the Buyer be liable to the Seller for any immaterial, punitive, indirect, special, incidental, or consequential loss or damage. This will hold good irrespective of whether such liability is based or claimed to be based on any breach of a Party's obligation under the Contract, or any negligent act or omission of a Party, its employees, servants, appointed representatives, sub-contractor or professional consultants, or such liability arises otherwise out of or in connection with the Contract.
- (e) The Buyer shall not be liable for any compensation in any manner to the Seller for whatsoever reason.
- (f) The Seller shall be liable to the Buyer for any compensation in any manner for whatsoever reasons for a sum not exceeding value of the Contract.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- 60. FALL CLAUSE:** The prices charged for the stores supplied under the agreement by the Supplier shall in no event exceed the lowest price at which the Supplier sells the items of identical description to any other person/organization during the period till performance of all supply orders placed during the currency of the agreement is completed. If, at any time, during the said period, the Supplier reduces the sale price of such stores or sells stores to any other person/organization at a price lower than the price chargeable under the agreement, he shall forthwith notify such reduction or sale to the authority which has concluded the RC/PA; and the price payable under the agreement for the stores supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.
- 61. NON-DISCLOSURE:** The Bidding documents, including this RFP and all attached documents provided by Buyer, are and shall remain or become the property of Buyer. These are transmitted to the Bidders solely for the purpose of preparation and the submission of a proposal in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their proposal. The provisions of this Para shall also apply mutatis mutandis to Bids and all other documents submitted by the Bidders, and Buyer will not return to the Bidders any proposal, document or any information provided along therewith (except unopened Commercial Bid as relevant). Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process, or concerning the Bidding Process. Buyer will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. Buyer may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or Buyer or as may be required by law or in connection with any legal process.
- 62. ACCESS TO CLASSIFIED DOCUMENTS/ SYSTEMS:** The Supplier will be allowed to access pertinent classified details/documentation in the interest of execution of task. Association of the Supplier will be desirable for effective rectification of design defects, if any, during trials of systems/ sub-systems, being developed as part of the contract. In all such cases, the Supplier and his employees, connected with the assigned task, will be subject to the provisions contained in the Indian Official Secrets Act and required to render certificate to that effect.
- 63. ACQUIRING MANUFACTURING DRAWINGS AND ASSOCIATED HARDWARE:** The manufacturing drawings & other documents prepared during the development phase shall be the property of the BAPL and will be handed over to BAPL whenever required. Further, these will also not be used by the Supplier for any purpose other than stated in the contract, without the written consent of BAPL. All dies/ tools/die sets/ jigs/ fixtures/ moulds fabricated under the contract which are charged separately will be returned to BAPL unless specified otherwise in the contract.
- 64. RETURN OF DOCUMENTS:** Documents, specifications, drawings, CD in encrypted format issued to Supplier or prepared by them are "RESTRICTED" in nature and property of BAPL. In the interest of National Security these will be returned in as issued condition without any duplication and / or photocopying. A certificate to the effect that required documents have been received in BAPL would be furnished by the Project Team. Any loss or damage to these documents shall be recovered from the Supplier.

RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

- 65. CONFIDENTIALITY OF INFORMATION:** No party shall disclose any information to any 'Third Party' concerning the matters under this RFP generally. In particular, any information identified as 'Proprietary' in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisors or the employees engaged by a party with equal force.
- 66. UNDERTAKING BY BIDDERS:** The Bidder will submit an undertaking that they are currently not banned/ debarred / suspended from doing business dealings with Government of India / any other government organization and that there is no investigation going on by MoD against them. In case of ever having been banned / debarred / suspended from doing business dealings with MoD/any other government organization, in the past, the Bidder will furnish details of such ban / debarment along with copy of government letter under which this ban / debarment / suspension was lifted / revoked. The Bidder shall also declare that their sub-contractor(s)/supplier(s)/technology partner(s) are not Suspended or Debarred by Ministry of Defence. In case the sub-contractor(s)/supplier(s)/ technology partner(s) of the Bidder are Suspended or Debarred by Ministry of Defence, the Bidder shall indicate the same with justification for participation of such sub-contractor(s)/ supplier(s)/ technology partner(s) in the procurement case. Subsequent to submission of bids if any sub-contractor(s)/supplier(s)/ technology partner(s) of the Bidder is Suspended or Debarred by Ministry of Defence, the Bidder shall intimate the Ministry of Defence regarding Suspension or Debarment of its sub-contractor(s)/ supplier(s)/ technology partner(s) within two weeks of such order being made public.
- 67. GOVERNMENT REGULATIONS:** It may be confirmed that there are no Government restrictions or limitations in the country of the Bidder or countries from which subcomponents are being procured and/or for the export of any part of the deliverables being supplied.
- 68. PATENT RIGHTS:** The Bidder should confirm that there are no infringements of any Patent Rights in accordance with the laws prevailing in their respective countries.
- 69. RECORD OF QUALITY RELATED DOCUMENTS:** To be maintained for a minimum period of 15 yrs.
- 70. AUDIT OF STORES:** All products and records are subjected to audit by Brahmos Aerospace at any juncture during production at vendor's premises or after receipt at BrahMos Aerospace, Hyderabad.



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

PART-VI: FORMAT FOR PRICE BID

Sl. No.	Description	Qty.	Unit Cost	Total Cost	Rate of GST	Total Cost (incl. GST)	Remarks
A	Cost of Basic Item/Service . Full break-up details may be given.						
B	Cost of Installation/Commissioning/ Integration (where applicable)						
C	Cost of Buyer Nominated Equipment (if applicable)						
D	Cost of Transfer of Technology (where applicable).						
E	Cost of Manufacturer's Recommended List of Spares						
F	Cost of Special Maintenance Tools and Special Test Equipment						
G	Cost of Operator's Manual and Technical Literature (in English Language) including ISPL						
H	Cost of Training Aids recommended by the supplier						
I	Cost of recommended period of Training						
J	Any other cost (to be specified).						
K	Freight and Transit Insurance Cost (where applicable).						
L	AMC/CMC Cost giving year-wise break-up (where applicable).						
M	Total Cost (Total of Serial A to L)	# This will be used in determining L-1 Supplier					
N	Foreign Exchange component of the proposal (for Indian Suppliers only)						



RFP No: BM(H)/CMM/RFP/25-26/2094, Dated: 22nd Dec 2025

PART-VII: COMPLIANCE STATEMENT

The Bidder is required to submit detailed Compliance Statement containing all Terms & Conditions as enumerated at Part II, Part III, Part IV, Part V, Part VI and Part VII of this RFP and give confirmation of their acceptance of all Terms & Conditions. The deviations, if any, may be clearly indicated

COMPLIANCE STATEMENT			
Sl. No.	Clause	RFP Requirement	Comments by Bidder
	Part-I	GENERAL INFORMATION AND INSTRUCTIONS	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details
	Part-II	SCOPE OF WORK	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details
	PART-III	EVALUATION CRITERIA OF BIDS	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details
	Part-IV	SPECIAL TERMS & CONDITIONS	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details
	Part-V	STANDARD TERMS & CONDITIONS	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details
	PART-VI	PRICE BID FORMAT	
	Sl. No. of Clause as per RFP	Terms & Conditions as per RFP	Complied (Yes / No) If No, give details

- **There should be no discrepancy between the details mentioned in the Techno-Commercial Bid and the Compliance Statement.**
- **In case of any such discrepancies, the terms & conditions mentioned in the RFP and their compliances as mentioned in either of the two documents shall prevail.**



General Manager (CMM)
(Authorized Signatory)

S Srinivasa Rao
General Manager (CMM)
BrahMos Aerospace Pvt.Ltd.
Near DRDL Rear Gate
Kanchanbagh, Hyderabad-500058.



**TECHNICAL SPECIFICATIONS
FOR PROCUREMENT OF FIRE-ENGINE (WATER & FOAM) FOR FIRE-FIGHTING
SERVICES**

1. **Refer to:** RFP No: BM(H)/CMM/RFP/25-26/2094, Date:22/12/2025
2. **Scope of work:** The Firm shall fabricate Fire tender as per Truck Fire Fighting CQAE (FE) /Defense specifications assembled with standard fitting. The major scope of work is as follows:
 - A. The truck for fire-tender should be as per Defense specification (IND/CQAFE/0195 (c)) i.e. TATA LPT 1615 /TC-42, 4X2 or Ashok Leyland 1616i4x2 or any equivalent chassis (para 4.2.3 of IND/CQAFE/0195 (c)).
 - B. The truck shall be capable of delivering 2100lpm of water foam solution converted into foam through combination of monitor and two side lines working at 7kg/cm² and not less than 1400lpm of water foam solution converted into foam at 9kg/cm².
 - C. It should be possible for truck to use water from hydrant of static tank.
 - D. The truck shall be capable of towing 01 tonne trailer.
 - E. The water tank shall be capable of carrying minimum 3500 ltr capacity fabricated with mild steel grade 'A' IS 2062 /thickness not less than 05mm at the bottom and side panels with IS:1079/ thickness not less than 3.15mm. The pump output shall be 2250 lpm with discharge pressure of 7kg/cm² and 1600lpm with 9kg/cm². The pump shall adhere to BIS standard centrifugal type. The foam tank should be minimum 450litre capacity.
 - F. The plumbing shall be accessible for maintenance purpose.
 - G. The appliance shall be capable of delivery not less than 2250 LPM of water foam solution converted into a foam through a combination of monitoring and side line and not less than 900 ltrs/ min of water foam solution converted onto foam through the side line also when the monitor is not in use or not less than 900 ltrs/ min of water converted into foam through monitor alone.
 - H. The foam induction system should be capable of delivery to multiple branches (0, 1, 2, 3&4).
 - I. The supplementary agent used for firefighting shall be dry chemical powder.
 - J. Unit should be as compact as possible and components used should be compatible with available parts. The pump and foam making unit and control could be operated by a single man.



K. Valve control to be wheel type.

L. Following specifications are mandatory: -

- Water Tank Capacity 3500 lts
- Foam Tank Capacity 450 litre
- Fire Pump Capacity 2250 LPM @ 7 Bar
- DCP Extinguisher 2x 75 kgs
- CO₂ Gas Extinguisher 2x 23 kgs
- Foam Monitoring facility to be provided
- Carbon Dioxide equipment as per IS 7285-1988.
- Provision of dry chemical powder
- Extension ladder (Mini 11 M)
- Separate control Panel
- Communication system (siren/ Horn)

A) The production quality / acceptance and testing / painting specification should be as per approved Quality Assurance Plan (QAP). The details of QAP will be worked out jointly between vendor and BAPL. The paint of equipment shall be carried out as per Indian Naval Standard to withstand seashore climatic conditions /marine environment. (Paint Color: Red Color)

M. Vendor should provide warranty for 02 years only.

3. List of deliverables

The vendor has to supply the following as part of the order:

Sl. No.	Item Description	Reference Drawing no.	Item code	Quantity
1	Fire- Engine	Defense specification/ (IND/CQAFE/0195 (c) ()	101090200501	02 no.
2	Standard tool set	-	-	02 set (Details to be shared by Vendor)
3	MRLS			02 set (Details to be shared by Vendor)
4	Technical/ operational/Maintenance Manual	-	-	02 set (Hard/Soft copies)

Table 1: List of deliverables



Note: All consumables including oil and lubricants for testing, inspection and operationalization of the vehicle shall be provided by the firm.

4. Acceptance testing

BAPL will be the QA agency for manufacturing/acceptance of deliverables and any deviation is not recommended post finalization of schematics/drawings.

5. PDI/ JRI and Training

- A. Pre-Delivery Inspection (PDI) will be carried out by M/s BAPL at vendor premises.
- B. Joint Receipt Inspection (JRI) will be carried out jointly by M/s BAPL, supplier and Rep of OTP Tunir at INS Tunir.
- C. The work includes training of Indian Navy nominated officers for duration of 10 working days.

6. Marking and Packing

The deliverables shall be packed in wooden boxes/suitable container with supports for storage and transportation as per Def. standard norms, if required.

7. Delivery schedule and location

- A. The item to be supplied within **12 months** from the date of issue of purchase order (Tentatively by 30 Dec 2026)
- B. Deliverables to be packed/ preserved and transported by the supplier to OTP Tunir.



Enclosure

SPECIFICATION NO. IND/CQAFE/0195 (c): Issue 2018

सत्यमेव जयते

CQAFE PUNE



भारत सरकार
रक्षा मंत्रालय
(गुणता आश्वासन महानिदेशालय)

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
(DGQA ORGANISATION)

Specification No. IND/CQAFE/0195(c) : Issue 2018
(Supersedes Specification No. IND/CQAFE/PROV/0195(b): Issue 2011)

FOR

TRUCK FIRE FIGHTING LARGE MK-VI

Supplier	DCAN	NSN
M/s Tata Motors Ltd	4210003071	4210720102404

ISSUED BY

गुणता आश्वासन नियंत्रणालय (एफ एफ ई)

रक्षा उत्पादन विभाग

रक्षा मंत्रालय

औद्योगिक कैंप, पुणे 411027

CONTROLLERATE OF QUALITY ASSURANCE (FFE)
DEPARTMENT OF DEFENCE PRODUCTION
MINISTRY OF DEFENCE
AUNDH CAMP, PUNE-411 027

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G S KONDHARE / सी एस कोन्डरे
SSO-1/स.ई.अ.-1
ASST/DY CONTROLLER / सहायक नियंत्रक
FOR CONTROLLER / कृते नियंत्रक

2 JAN 2019

SPECIFICATION NO. IND/CQAFE/0195 (c): Issue 2018

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Specification No. IND/CQAFE/0195(c) Issue

G.S. KONDHARE / जी एस कोन्डरे
2018 / प.बी.क. -1

RECORD OF AMENDMENTS

ASSTDY CONTROLLER / सहायक नियंत्रक
FOR CONTROLLER / कृते नियंत्रक

Amend- ment Ser. No.	Date	Details of Amendment	Amendment carried out by (Name, Designation, Signature with date)

JAN 2019

INDEX

Ser No.	CONTENT	
1	Foreword	
2	Scope	2
3	Related specification	2
4	Details of Truck Fire Fighting	4
5	General description - Truck Fire Fighting	5
6	Material Selection & treatment	6
7	Design and construction	6
8	Water tank	6
9	First Aid Hose Reel	8
10	Pump	9
11	Foam Tank	11
12	Foam Monitor	12
13	Hand Lines	13
14	Supplementary Extinguishing Agent	13
15	Body Work & Stowage	15
16	Workman ship and finish	17
17	Accessories Fitted on the Vehicle	17
18	Accessories supplied with the Truck	18
19	Tools	18
20	Pre-inspection	18
21	Quality Assurance	19
22	Marking	20
23	Training	20
24	Criteria for Conformity	
25	Technical Literature	21
26	Dis Cat Part No./ Standardisation	
27	Suggestions for Improvement	
28	Test Schedule	22
29	Appendix 'A' - List of Accessories provided with the Truck	27
30	Appendix 'B' - Extinguisher Fire DCP 75 Kg Capacity	30
31	Appendix 'C' - Extinguisher Fire, CO2, 22.5 Kg Capacity	31
32	Annexure - 1: First Aid Box Contents	33

DEFENCE SPECIFICATION

FOR

TRUCK FIRE FIGHTING LARGE MK-VI

12/11/18
G. S. KUMHARE / श्री एस कोरडे
SSO-1/व.वै.अ.-1
ASSTDT CONTROLLER/सह/उपनिर्देशक
FOR CONTROLLER/प्रति निदेशक

I. FORWARD

- 1.1. This specification contains 33 pages including Test Schedule.
- 1.2. This specification holds good only for the Supply order/ AT Contract for which it is issued.
- 1.3. This Specification with accompaniments must be returned on submission of Tender / Completion of order.
- 1.4. Responsibility: Nothing shall relieve the manufacturer of his responsibility for the intended performance & safety of operation of equipment supplied.
- 1.5. Unless otherwise stated, Authority Holding Sealed Particulars (AHSP) i.e. The Controller, Controlierate of Quality Assurance Fire Fighting Equipment, Aundh Camp, Pune 411 027 or an officer deputed by him will be the Inspection Authority. AHSP for chassis will be CQA(V), Ahmednagar / CQA (OFV) Jabalpur.
- 1.6. The supplier shall extend to the AHSP or his authorised representative, free of cost, all reasonable facilities including inspection gauges for satisfying himself that the stores are in accordance with the specification. For this purpose, AHSP or his authorised representative must have free access to the supplier's works at all times during the currency of contract. The supplier is required to notify the AHSP of all sub-contracts placed by him and provide quality assurance facilities for all stores so sub-contracted.
- 1.7. No deviation will be accepted from governing design /specification without concurrence, in writing, of this AHSP. No request for any deviation will be entertained from the sub-contractor. The main supplier shall remain responsible for quantity and quality of work done by the sub-contractor. He will also ensure standardisation of design and interchangeability of assemblies and spares.
- 1.8. The supplier shall give clause-by-clause confirmation, or otherwise, to specific requirements referred herein for evaluation & scrutiny of quotation by AHSP.
- 1.9. The Supplier shall provide the details of following particulars alongwith tender/quotation so that AHSP may examine the fabrication of equipment as per standard engineering practice:-
 - 1.9.1. General assembly drawing showing the location of subassemblies e.g., PTO, pump, primer and its linkages with main gear box, DCP cylinders and its system, hose reel, CO₂ cylinders with hose reel and applicator.
 - 1.9.2. Details of critical raw material used in the fabrication of superstructure, Components, sub-assemblies and their relevant

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FOR CONTROLLER/बहा/उपनिर्देशक

1.9.3. national standards.

1.9.4. Technical details of bought out items with their brand names and characteristics.

1.9.5. Pump out-put with performance characteristic curves, duly supported by certificates from approved laboratory..

NOTE : Non submission of above details alongwith tender/quotation will amount to incapability of supplier and may result in rejection of tender/quotation.

1.10. Three complete sets of drawings showing technical specification of material, dimension & all relevant details of General Assembly, super structure, water tank, foam tank, sub frame, monitor Assy, proportionator Assy, First Aid Hose Reel Assy, Pump Assy, Primer Assy, Heat exchanger, Layout of accessories, Pipe lines, valves, shaft from PTO to pump, CO₂ and DCP Extinguisher mountings, flow diagram etc will be submitted by the Supplier to CQA(FFE) within 30 days of the receipt of S/O

1.11. The supply orders will be placed only on CQA(FFE) Registered suppliers.

2. SCOPE

2.1. This specification lays down the requirements regarding material, construction, workmanship, performance, quality standard, quality assurance of "Truck Fire Fighting Large MK-VI" fabricated on TATA/ Ashok Leyland or equivalent chassis. This specification also holds good for subject equipment fabricated on other introduced chassis having equivalent performance and dimensional parameters.

2.2. The Truck Fire Fighting Large MK-VI is used to extinguish fires of carbonaceous materials such as paper, wood, textiles etc and inflammable liquids; it also has supplementary fire extinguishing agents viz. DCP and CO₂ systems.

NOTE: User trials of TFI have to be conducted before introduction if not already introduced into service.

3. RELATED SPECIFICATIONS

3.1. Departmental specifications - Reference to be made to latest version of these specifications.

- | | | |
|-----|-----------------------------------|---|
| (a) | JSS 4210-26 : 2013 | Fire Proximity Suit |
| (b) | IND/CQAFE/PROV
/056(a)-2016 | Hose assembly, polyester fabric Reinforced Rubber Lined (RRL) delivery, complete with instantaneous couplings (GM) one end male & other end female, of size 70 mm ID x 30 m length with non ferrous wire binding. |
| (c) | JSS:4210-20:2010
Rev-1 | Hose Assembly Rubber Suction, Armoured complete with screw coupling size 100 mm x 2.5 m long. |
| (d) | IND/CQAFE
/Prov/0025(b) : 2016 | Suction Strainer for 100mm Suction Hose |

- G S KUMHARE / जी एस कुम्हारे
 SSO-1 / व.ई.स.-1
 ASST/DY CONTROLLER / सहा/ उपनिर्वाहक
 FOR CONTROLLER / कले निर्वहक

(i) Specification listed at (a) to (k) above can be obtained from the Controller, CQATE, Pune 411 027.

(ii) Specification listed at (I) above can be obtained from the CQA (Engg. Eqt), Aundh Camp, Pune-411027

(iii) Specification for Tata chassis and Ashok Leyland chassis can be obtained from CQA(V) Ahmednagar and CQA(O/V) Jabalpur respectively.

3.2. Indian Standards(Reference to be made to the latest editions).

IS: 272	Picks and Beaters
IS: 318	Leaded Tin Bronze ingots & castings
IS: 444	General Purpose Rubber water hose
IS: 636	Non percolating flexible Fire Fighting delivery hose
IS: 704	Crow bars & claw bars
IS: 737	Wrought Aluminium & Aluminium Alloy strip
IS: 841	Steel Hammers
IS: 884	First Aid Hose Reel for Fire Fighting
IS: 901	Couplings double male & double female, instantaneous pattern for fire fighting
IS: 902	Suction hose couplings
IS: 903	Fire Hose Delivery couplings
IS: 927	Fire Hooks
IS: 952	Fog nozzle for Fire Brigade use
IS: 1084	Manila Ropes
IS: 1570	Schedule for Wrought Stainless Steel – Heat Resisting Steels

(Part 5)	
IS: 2062	Structural steel
IS: 2097	Foam Making Branch Pipe
IS: 2871	Branch pipe, universal for fire fighting purposes
IS: 3224	Valve fittings for Compressed Gas cylinders excluding liquefied petroleum gas
IS: 3582	Basket strainers
IS: 4571	Extension Ladder Fire
IS: 4643	Suction wrenches
IS: 4770	Rubber gloves for electrical purposes
IS: 4927	Unlined Flax Canvas Hose for Fire Fighting
IS: 4989	Foam concentrate (compound) for fire fighting
IS: 5120	Technical requirements for roto-dynamic special purpose pumps
IS: 5131	Breaching dividing with control
IS: 5612	Hose clamps & hose bandages
IS: 6603	Stainless steel bars & flats
IS: 6912	Copper and copper alloy forging stock and forging
IS: 7794	Manual portable grease guns
IS: 8149	Functional requirements of twin CO ₂ fire extinguisher
IS: 8423	Controlled Percolating Hoses
IS: 12585	Thermoplastic Hoses

GS KORDHARE / जी का कोर्डहारे
SSO-1/स.क.स.-1
ASSISTANT CONTROLLER/सहायक नियंत्रक
FCI CONTROLLER/फ़ायर नियंत्रक

4. DETAILS OF TRUCK FIRE FIGHTING

4.1. The Truck Fire Fighting Large MK-VI shall be fabricated on TATA LPT 1615 / TC-42, 4x2 or Ashok Leyland 1616i4x2 (any equivalent chassis introduced into service. CQA(V), Ahmednagar and CQA (OFV) Jabalpur respectively will be the AHSP for chassis portion and will be responsible for all its QA activities

4.2. Main characteristics of chassis / vehicle

4.2.1. The chassis is to be so selected that it is able to take the static load of superstructure 11000 kg and dynamic load of $\pm 10\%$ and adheres to the latest emission norms.

4.2.2. If any chassis other than AL 1616 ii and Tata 1615 chassis is offered, it should have been trial evaluated for the same load (min) by AHSP responsible for chassis and should meet the following parameters comparable to these chassis:

- (i) Engine power
- (ii) PTO ratio
- (iii) TCD
- (iv) Wheel base distance, road clearance, and angle of approach

4.2.3. Characteristics of Truck Fire Fighting Large MK-VI

Characteristics	Value
(a) Overall length max:	8470 mm
(b) Overall width max:	2500 mm
(c) Overall height max:	3440 mm
(d) Angle of approach:	22° Degree
(e) Angle of departure:	13° Degree
(f) Turning Circle radius (max)	9250 mm
(g) Pollution Norms	Latest pollution norms applicable as per Government of India directives.
(h) Tyres	10.00 x 20 : 16 PR

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FOR CONTROLLER/कृते निरीक्षक

4.3. The Truck Fire-fighting Large shall be fabricated conforming to the following characteristics:-

4.3.1. GVW : 16200 Kg (including crew, water, foam & other equipment)

FAW : 6000 kg

RAW : 10200 kg

4.3.2. When travelling at 32 km/h on level dry surface, the foot brake shall be capable of stopping the vehicle within a distance of 9 m from the point at which the brake is applied. The hand brake shall be capable of holding the fully laden truck on a dry surface, gradient of 1:4, when in neutral gear

5. GENERAL DESCRIPTION - TRUCK FIRE FIGHTING

- 5.1. The Truck shall be capable of delivering not less than 2100 lpm of water foam solution converted into foam through a combination of monitor and two side lines while working at 7.0 kg / cm sq. and not less than 1400 lpm of water foam solution converted into foam through the monitor alone while working at 9.0 kg/cm².
- 5.2. The monitor and hand lines must employ the self aspirating type of foam production system where foam generation is done at the branch pipe. The expansion ratio of the foam produced shall not be less than 8 times with the use of foam compound conforming to IS:4989 to give the performance indicated in 5.1 at induction ratio not exceeding 6%.
- 5.3. A First Aid Hose Reel service shall be provided on the Truck. In addition to the water carried, it shall also be possible for the Truck to use water from a hydrant or a static tank.
- 5.4. The Truck shall be capable of towing a one tonne trailer. A commercial heavy duty tow hook capable of towing a one tonne trailer shall be fitted at the rear of the Truck.
- 5.5. All hexagonal set screws / bolts above size M6 are to be of 8.8 grade, to have sufficient core strength to withstand loosening torque in service without shearing. They must be Zinc plated and yellow passivated, particularly for exposed fitment. The fasteners should be of reputed make.

- 5.6. Suction air inlet for the engine pipe shall be fitted in such a manner that it will not obstruct the air required for Engine during continuous running, monitor rotation and also to ensure leak proof fitment to avoid leakage inside the through and through locker.
- 5.7. All super-structure, electrical connections/wiring/light shall work on 12 V / 24V capacity of batteries. Wiring shall be concealed in PVC conduit pipes.
- 5.8. The propeller shaft for connecting the pump shall be dynamically balanced as per the requirement of chassis manufacturer.
- 5.9. There shall not be any leakage in the pneumatic system. However, an audible alarming system is to be installed in the vehicle to indicate drop in the air pressure in the brake system if pressure falls below specified pressure stipulated by chassis manufacturer.
- 5.10. Suitable opening for manual operation of PTO shall be provided as per approved drawing.

6. MATERIAL SELECTION AND TREATMENT

- 6.1. The choice of material used in the construction of the Truck shall be made considering the characteristics of light weight, strength and durability essential for its application.
- 6.2. Timber shall not be used in body construction.
- 6.3. Unless otherwise specified, all parts which form waterways or come in contact with foam compound shall be of corrosion resistant material or suitably treated with corrosion resistant compound. All metal pipe lines shall be made of stainless steel conforming to ERW Schedule 20 of IS:1570 (Part-5). All metal parts exposed to atmosphere shall either be of corrosion resistant material or treated suitably to resist corrosion. Pipes used shall withstand two times the maximum working pressure.

7. DESIGN AND CONSTRUCTION

- 7.1. The superstructure shall be designed on modular concept ensuring easy accessibility to each of the sub assemblies and to lubrication points for regular maintenance and repairs.

7.2. Water tank:

- 7.2.1. The water tank mounted on the chassis shall be capable of carrying minimum 3500 litres water. It shall be of welded construction and fabricated out of mild steel sheets. The thickness of the sheets at the bottom, conforming to grade 'A' of IS:2062, shall not be less than 5.0 mm and the sides and baffles, conforming to grade 'D' of IS:1079, not less than 3.15 mm. The tank shall be suitably baffled in both the directions to prevent surge while the vehicle is accelerating, turning at corners and braking. The baffles shall be of bolted panel type. The bolting shall be done with stainless steel nuts and bolts. The tank shall be so designed and mounted as to bring the centre of gravity of the Truck as low as possible. The mounting shall permit full rated contents of the tank to flow into the pump. Suitable compensation shall be provided to avoid bulging.

- 7.2.2. Four Nos. folding type lifting eyes shall be provided on the shell of the tank to enable the tank to be lifted off the vehicle for repairs/replacement as necessary. The water tank with all its fitments shall withstand hydrostatic pressure of 0.3 kg/cm^2 .
- 7.2.3. The tank shall be fitted with a man hole of dia 45 cm on the top and also a removable strainer. The manhole shall have a hinged cover (convex type) so as to act as a filling orifice. The man-hole cover shall be clearly marked "WATER" using Aluminum casting plate/ engraved SS plate, duly riveted. The drain cock with a ball valve of dia 75 mm, and pipe of dia not less than 75 mm water - way throughout shall be provided. The drain pipe shall be taken down to a point well below the chassis, without reducing effective ground clearance when fully loaded and shall discharge water away from the wheels.
- 7.2.4. One overflow pipe of dome type of not less than 100 mm internal dia shall be fitted to the tank. The overflow shall be taken down to a point well below the chassis without reducing effective ground clearance of the equipment when fully loaded and shall discharge away from the wheels. The pipe shall be so designed and located to ensure that water will overflow through the pipe only while filling the tank, but no water shall overflow through this pipe when the Truck is in motion or negotiating a gradient and/ or when brakes are applied. The dome shall be of bolted type with SS nuts/ bolts.
- 7.2.5. Two filling pipes (hydrant connections), each with an internal diameter of not less than 50 mm shall be fitted to the tank. Each of these shall be fitted with a 63 mm instantaneous male coupling incorporating a strainer. The inlet of the filling pipes shall be fitted at the pump control panel. The hydrant connection shall also feed hose reel equipment. Foolproof arrangement shall be made to prevent pressurisation of the water tank while refilling through the filling pipes. Suitable arrangement should be provided to ensure that the water from the tank does not leak through the filling pipes.
- 7.2.6. Water level indicator made of thick acrylic tube shall be provided for the water tank and calibrated for various levels as empty, 1/4, 1/2, 3/4, and full, marked on a SS plate. A gun metal / Stainless Steel three way drain cock shall be fitted at the lower end of the tube. Coloured floats shall be used in level indicator for easy identification of levels. The acrylic tube shall be supported by a protective bracket of Aluminium sheet of 1 mm thick with distinct visibility of water levels.
- 7.2.7. Suitable arrangement should be provided for self filling of water tank directly from the pump using a 50 mm plumbing line.
- 7.2.8. The plumbing between water tank and pump shall have a clear and unobstructed waterway of not less than 100 mm throughout. The draw off shall be protected by Stainless Steel wire screen filter.
- 7.2.9. The plumbing between the pump and hose reel shall have a clear waterway of not less than 25 mm throughout.

7.2.10. One isolating butterfly valve of 100 mm I.D. shall be fitted in between pump and outside suction source.

7.2.11. All plumbing shall be reasonably accessible for maintenance purposes. Drain cocks shall be provided where necessary and controls for these shall be readily accessible and so arranged as to prevent the cocks from being opened by vibration. The direction in which the valve/cock opens/closes shall be clearly marked near each valve/cock.

7.2.12. Primer coating of surface of water tank : Blast cleaned surface shall be coated with a primer within 4 hours of sand blasting. Steel may be given primer coat before or after fabrication. In either case, primer coat to a dry film of minimum thickness of 25 microns shall be applied. Touch up with primer shall be done again to welds, burnt and cut edges, after fabrication. The water tank shall be given epoxy treatment inside and outside which shall consist of two coats of primer with two coats of epoxy finish.

7.2.13. The tank shall be connected to the pump and hose reel. A provision shall also be made to run pump from hydrant through adaptors 100 mm x 65 mm. Control valves shall be provided in such a way that all the following connections are possible:-

- (a) Hydrant to tank
- (b) Hydrant to reel
- (c) Tank-pump-reel
- (d) Pump to tank

7.2.14. A reinforced rubber beading shall be fixed around the opening of tank

7.2.15. All plumbing shall be of SS pipe line conforming to ERW schedule 20 to IS:1570 (Pt-5).

7.3. First Aid Hose Reel

7.3.1. One First Aid Hose Reel shall be provided and mounted at the rear of the Truck as per IS : 884.

7.3.2. The reel shall be provided with not less than 60 meters of 20 mm bore tubing terminating in a shut off nozzle with an outlet of 7 mm. The working pressure of the tubing shall be not less than 1372.92 kPa (14 kg/cm²). Range of throw from the hose reel nozzle shall be 10 meters minimum. The hose shall conform to Type 3A of IS: 444. In case rubber hose is not available, Thermoplastic Hose may be used as alternative conforming to IS:12585 (Type-III).

7.3.3. The reel shall be provided with bevel gear and pinion arrangement, to prevent over-run of tubing without affecting easy run of the reel, either while pulling out for use or during fast motion of the Truck. It shall be possible to disengage the brake for rewinding. Design shall be reliable to suit the end use. Hose reel shall deliver water with a discharge capability of approximately 84 lpm at 7 kg/cm² and 95 lpm at 9 kg/cm².

- 7.3.4. Flow to the reels shall be controlled by manually operated ball type valves located on the control panel for ease of operation. Hose reel should be fitted with guide rollers so that the hose does not get snarled during use.

7.4. Pump

- 7.4.1. A single/double stage pump shall be mounted at the rear of the Truck. The pump conforming to the BIS specifications shall be of centrifugal type and so designed to provide easy access to the impeller. The pump casing and impeller shall be made of Gun-metal conforming to Gde 2 of IS 318. The pump shaft shall be of Stainless Steel conforming to 04 Cr 18 Ni 10 of IS 6603/ SS 304. The shaft shall be supported by anti-friction bearing external to the casing. The mechanical Carbon seal self adjusting type or radial seal shall be provided. The impeller neck-ring in the pump casing shall be renewable and manufactured from high quality Bronze. The impeller must be dynamically balanced within 0.91 gm cm imbalance. A Stainless Steel drain-plug shall be provided at the bottom of casing.
- 7.4.2. Pump casing shall not show any leakage when subjected to the hydraulic test pressure of 21 kg/cm².
- 7.4.3. The Gun metal suction eye will be provided with a standard 100 mm suction hose connection with internal strainer and Stainless Steel blank cap fastened with Stainless Steel wire of dia 2 mm. The strainer shall be retained firmly when in use but shall be readily removable.
- 7.4.4. Pump shall be provided with two delivery valves at the panel having 63 mm delivery hose couplings with screwed type quick closing check valves with standard hose connection.
- 7.4.5. Stainless Steel blank caps fastened with Stainless Steel wire of dia 2 mm (min.) shall be provided incorporating means to relieve pressure between valve and cap by means of three vent holes at 120° apart.
- 7.4.6. The pump shall be coupled to the prime mover through a suitable Power Take Off (PTO) unit. A pneumatic switch for engaging & disengaging the pump shall be provided in the driver's cabin. The PTO shall be provided with an oil level indicator & cooling circuit.
- 7.4.7. Manual arrangement shall be provided to engage the PTO in case of failure of pneumatic system. The manual and pneumatic PTO operation shall be independent of each other. There shall be a locking device for the manual PTO lever.

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7.4.8. Pump duty point & Performance**TABLE FOR PUMP OUTPUT**

SL. No.	Pump out-put (lpm)	Discharge pressure (kg/cm ²)	Suction Lift (Measured vertically from water level to suction eye centre)	Remarks
(i)	2250	7	3 m	When working through 2 Nos of specified suction hose of 2.5 m length
(ii)	1600	9	3 m	- do -

Allowances(a) Output

- (i) One percent for every 2.8°C rise in water temperature
- (ii) Four percent for every 300 m elevation above mean sea level.
- (iii) No allowance shall be made for humidity upto 75%. Suitable allowance shall be made for humidity greater than 75%.

(b) Lift : One percent for every 300 m elevation above mean sea level.

7.4.9. The pump being used by the super-structure fabricators shall be interchangeable with respect to the mountings / assemblies / sub assemblies / components for the same chassis.

7.5. Primer

7.5.1. The primer shall be capable of lifting water from a depth of 7m at a rate not less than 30 cm/second and shall be of exhaust ejector or reciprocating or water ring type.

7.5.2. If reciprocating type is used, primer shall be made from gunmetal and means shall be provided to automatically limit the speed of engine when primer is engaged.

7.5.3. In case water ring primer is used, means shall be provided to automatically disengage the primer, when pump is primed.

7.5.4. The primer being used by the super-structure fabricators should be interchangeable with respect to the mountings / assemblies / sub assemblies / components for the same chassis.

7.6. Cooling System

7.6.1. In addition to radiator cooling, an indirect cooling system of the open circuit type shall be provided for discharging water to the waste. This system shall consist of

inter cooler tank of suitable capacity fabricated out of brass sheet of 1.5 mm thickness and fitted near the engine without affecting angle of approach and ground clearance. This shall enable full power output required for the pump to be maintained during continuous stationary running of the engine without overheating.

- 7.6.2. The oil in the sump shall be prevented from overheating and the pump characteristics shall be chosen in such a manner that the engine does not run at its maximum speed while giving maximum output.
- 7.6.3. Suitable temperature gauge for cooling water and glow lamp of lubricating system shall be provided in the driver's cab and on the pump panel. This shall be marked with operating temperature.
- 7.6.4. The cooling water outlet pipe from PTO & additional cooling tank shall be connected through a Stainless Steel tube of 15 mm OD & 2 mm thick and brought back near the pump panel. A flexible rubber hose of at least 5 meters long shall be connected to the open end of the pipe through a threaded adapter so that waste cooling water could be discharged away from the Truck.

7.7. Foam Tank

- 7.7.1 A foam compound tank of minimum 450 litres capacity shall be mounted on the chassis. The foam tank shall be a separate and distinct unit which can be removed for replacement. The tank shall be of rigid type and made of stainless steel Grade 02CR19Ni10 as per IS 1570 (Part-5) / SS 304, welded in construction. Sheet thickness shall be min 2.5 mm all around. It shall withstand a hydrostatic pressure of 0.3 kg/cm^2 .
- 7.7.2 Manhole of 450 mm diameter on top of tank shall be used for foam filling with a removable strainer fitted to it. The strainer shall be of stainless steel 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' on an Aluminum cast plate / Stainless Steel plate and yellow painted. The tank shall be fitted with two foldable lifting eyes placed diagonally.
- 7.7.3 The top of the foam tank shall be dished/funnelled to enable easy filling from 20 litre drums. Suitable sharp edged puncturing device shall be provided at the foam tank filling orifice for puncturing the foam compound drums for facilitating quick filling of the foam compound directly from the drum into the tank without spillage. 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 such a manner that foreign matter or sludge shall not pass into the pipe line. The draw-off tube shall be fitted with a gauze strainer of brass material of mesh size ensuring adequate straining area.
- 7.7.4 To vent out the air during filling of foam in the tank, vent shall be provided. This shall not be provided on the manhole cover. The device employed shall be as simple as possible and shall not get clogged easily during normal use of the Truck.

7.7.5 The draw-off tube shall be connected to the foam compound proportionator/ inductor and pump, as necessary. The plumbing for this purpose shall have a clear passage of not less than 32mm dia throughout without any obstruction and shall:-

- (a) be as short as possible
- (b) be capable of being easily dismantled for internal cleaning.
- (c) be provided with means for thorough flushing after use.
- (d) not form 'U' bend or abrupt angle at any portion and be capable of being drained easily without dismantling. Provision shall also be made for drawing foam compound into the foam producing system from an external source placed at ground level through a pick up tube without interrupting the fire fighting operation using foam solution.

7.7.6 Hand operated foam transfer pump made of Cast Iron having discharge of 20 lpm (min) should be fitted in a locker for filling the foam alongwith Stainless Steel plumbing with ball valve arrangement. Hose shall be made of PVC spiral type capable of withstanding pressure and weather conditions.

7.7.7 The pick up tube connection shall be at the pump control panel. Tube type foam level indicator of acrylic tube shall also be provided at the pump control panel and calibrated for various levels as empty, 1/4, 1/2, 3/4 and full, marked on SS plate. The acrylic tube shall be supported by a protective bracket of Aluminium sheet of 1 mm thick with distinct visibility of foam levels.

7.7.8 The plumbing from foam tank to proportionator and pump shall be of stainless steel conforming to ERW Schedule 10 as per IS:1570 (Part 5). Plumbing from foam transfer pump to foam tank and from auxiliary pick up tube connection to proportionator shall be of Stainless Steel.

7.7.9 A reinforced rubber bedding shall be fixed around opening of tank.

7.8 Foam Compound Porportionator Foam / Inductor

7.8.1 Around the pump, a proportionator shall be fitted between the suction and the delivery of the pump which will induct foam compound into the water stream with no loss in delivery pressure from the pump. The proportionator shall comprise of an inductor and selector valve which shall have five ports calibrated to ensure the correct intake of the foam liquid at the rate of 5 to 6% to supply solution for the operation with various combinations of monitor and sidelines, with slotted locking arrangement. In addition to this, there shall be "off" position so as to use the equipment as water tenders.

7.9 Foam Monitor

7.9.1 A foam Monitor shall be mounted on the roof of locker just behind the cab 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° in the horizontal plane & elevating from

horizontal to 60° in the vertical plane. The monitor shall be of self aspirating type with a flow rate of at least 1400 lpm at 9 kg/cm^2 . It shall have an expansion ratio of not less than eight times, using AFFF as per specification No. IS 4989 at an induction rate not exceeding 6% as given in clause 5.2.

- 7.9.2 The aggregate foam discharge shall not be less than 16800 lpm through a combination of Monitor and two side lines at 7 kg/cm^2 pressure, or 11200 lpm through Monitor alone at 9 kg/cm^2 pressure.
- 7.9.3 The Monitor shall be capable of projecting the foam discharge to an effective distance of not less than 40 m in still air when operated at 9 kg/cm^2 pressure in straight jet pattern. The Monitor shall have spray and jet type arrangement.
- 7.9.4 Monitor assembly shall be fabricated out of light Aluminum alloy. The Monitor should have means for locking both in vertical as well as horizontal moving positions. Telescopic / collapsible stay rod / stand shall be provided for holding Monitor during transit.

7.10 Hand Lines

- 7.10.1 Provision shall be made for two delivery connections, one each on either side of the Truck inside rear lockers. The handlines connected to these shall terminate in foam making branch pipes fitted with spray/jet attachment, with hand control. Each foam making branch pipe shall be capable of delivering not less than 450 lpm of water foam solution at a pressure of 7 kg/sq. cm with an expansion ratio of not less than 8 times & minimum effective throw of 20 m, when both are used simultaneously.
- 7.10.2 The hoses for the handlines shall have an internal diameter of 70 mm. These shall be Reinforced Rubber Lined (RRL) / Controlled Percolating (CPL) hoses in length of 30 m each and conforming to IS: 636 Type A/IS: 8423 respectively. The hoses shall be kept in flaccid condition in rear lockers.
- 7.10.3 The control for the hand lines outlet shall be of ball valve type with standard hose connections. These controls shall be operated from Rear Control Panel.

7.11 Supplementary Extinguishing Agent

- 7.11.1 The supplementary extinguishing agents shall be DCP of 150 kg (2x75 kg) capacity and CO_2 extinguishers of 45 kg (2x 22.5 kg) capacity.
- 7.11.2 Extinguisher fire DCP 75 kg capacity with 400 to 410mm OD shall be located at RHS and LHS of rear locker of the vehicle or at suitable place so that centre of gravity is not disturbed. The extinguisher Fire DCP 75 Kg capacity shall be as per Appendix 'B' attached to this specification.
- 7.11.3 CO_2 gas extinguishing system shall be located at LHS rear locker of the vehicle. The CO_2 gas extinguishing system consists of two CO_2 gas cylinders each of 22.5 kg

capacity and 232 mm dia. The CO₂ gas extinguishing system shall be as per Appendix 'C' attached to this specification.

7.12 Instruments & Controls

7.12.1 The following shall be provided at the pump operating control/ at the rear of The Truck panel:-

- (a) Glycerin filled pressure gauge calibrated from 0 to 21 kg/ cm²
- (b) Glycerin filled compound gauge calibrated as follows :
 - (i) Pressure from 0 to 10.5 kg/ cm²
 - (ii) Vacuum from 0 to (-) 1 kg/ cm²
- (c) Screw (Square thread) type Engine throttle control with locking device on rear control panel.
- (d) Foam Selector Valve
- (e) Control valve for auxiliary foam connection.
- (f) Butterfly valve from tank to pump.
- (g) Valve for engine cooling.
- (h) Foam tank to inductor and pump to inductor isolating ball valves.
- (i) Valve for hose reel control.
- (k) Valve for direct filling of tank.
- (l) Ball valve for monitor operation.
- (m) Two x 63 mm male instantaneous hydrant connections fitted with Non-Return Valve with strainer. A ball valve shall also be fitted before NRV.
- (n) Suction inlet of pump with isolating valve control.
- (o) Two 63 mm female instantaneous delivery out lets of pump with wheel type quick closing clack valve.
- (p) Control for flushing out the foam making equipment and its plumbing.
- (q) Glow lamp for engine lubricating system.
- (r) Temperature gauge for engine radiator. (Temp gauge on dash board and Control Panel should give same readings when operated independently).
- (s) Engine rpm meter on dash board in driver's cabin.
- (t) Pump hour meter (for recording total hour run)
- (u) Control valve for water tank to primer. (Applicable for water ring primer only)
- (v) Electric bell switch to send signal from rear pump panel to driver's cabin with bell in driver's cabin.
- (w) Indicator lamp in driver's cabin to indicate that PTO is engaged to pump.
- (x) Adequate number of lights on control panel at rear side for night operation.

7.12.2 The control panel shall be fully / partially open type for easy access for maintenance of pump and other controls/ levers

7.12.3 Ball valves used shall be of CF-8 Grade, SS investment castings of, with 3 piece design. The gauges, valves and other instruments used by the super-structure manufacturers for the same chassis are to be interchangeable. The Supplier should

submit the drawing showing the layout of the Control Panel to the AHSP before fabrication.

7.12.4 A caution plate in the driver's cabin to be provided with the write up "PUMP ON HAND BREAK ON", in red colour.

7.13 Body Work and Stowage

7.13.1 Enclosed accommodation with single or double compartment for driver and Commander in the front and crew of five at the rear shall be provided. The design of the cab shall be such that it shall afford maximum possible vision for the crew and shall ensure adequate ventilation. Hinged doors shall be provided on both sides of the driver's and crew cabin giving ready access to driver and crew. Heavy duty hinges are to be used, 3 Nos. each for crew side and 2 Nos. each for driver's side doors. The doors should open outward; these shall hang forward and have locks with double catch striking plates. Non slip steps of Stainless Steel grab rails shall be provided to assist the driver and crew to get in and out. Crew seat should be fitted with 100 mm thick foam cushion and back rest of 50 mm thick cushion. Driver's seat should be of adjustable type. All glasses fitted to the door windows shall have winding type regulator and shall be of splinter proof safety type. Two Nos. sun visors one on each side shall be provided. The construction of the cabin shall be such that the roof shall support the weight of four men without damage.

7.13.2 The interior of Driver & crew cabins shall be PVC coated on Aluminum sheet of 1.2 mm thick (min). PVC coating shall be of grey colour with ten microns thickness. Cabin flooring shall be covered with 2mm (18 gauges) thick Aluminum chequered sheet.

7.13.3 Suitable arrangement shall be made to avoid entry of hot air from engine inside the cabin. (applicable if there is a gap between driver cabin & crew cabin).

7.13.4 Wire mesh guards to protect the glasses of windscreen, windows and doors shall be provided and powder coated in black colour. The wire mesh guard will be externally mounted in a steel frame, that can be quickly dismantled with provision of proper wing screws.

7.13.5 Provision should be made to have access to check the fuel level with the dip stick.

7.13.6 The door handles for cabin and lockers shall be of Aluminum cast.

7.14 Stowage

7.14.1 The cabin and the lockers shall be of composite construction with sufficient rigidity, reinforcement and are to be as light as possible. 32 mm MS Square section of 1.6 mm thick conforming to Grade-4 of IS:10748, shall be used for super structure building duty. Zinc passivated after cleaning the surface. Exterior paneling work shall be made of 16 Gauge Aluminum sheets of Grade 64430 as per IS 737. Aluminum chequered sheet of 2mm thickness conforming to IS 737 shall be used for

inside of lockers, cabin floor and top of cabin roof. One full width locker shall be provided between crew cabin and foam tank for storage of various equipment.

7.14.2 Lockers, with hinged type doors, shall be provided for stowage of all the accessories as per the list in Appendix 'A'. Suitable arrangement shall be provided for securely clamping all the accessories in the lockers. These shall be quick release type, standard, instantaneous coupling as per IS-901, duly powder coated. Shadow markings shall be done for indicating location of accessories carried in lockers. The locker shall contain a list of articles kept in it for easy identification. All lockers shall be provided with internal automatic lighting arrangement with a switch inside with master switch in the cabin. The lockers shall be weather proof and self draining to release all water following a wash down etc. The lockers shall be easily accessible from ground level by a person of average height (1.67m). The lockers shall have efficient means for holding the doors open and flush fitting locks. A common key of standard design in duplicate for all lockers is to be provided for each Truck.

7.14.3 Four Nos. of suction hoses of 100 mm dia X 2.5 m length shall be conveniently placed on top of the vehicle on the starboard side.

7.14.4 The grab rails of about 200 mm height with two bars of 25 mm dia x 1.6 mm thick of Stainless Steel shall be provided on top left and right of the appliance.

7.14.5 A socket for inspection lamp shall be provided on control panel in the driver's cabin for plugging the inspection lamp.

7.15 Gallows for Ladder : Gallows shall be provided to carry 10.5 m Aluminium 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 be provided for locking the ladder when stowed.

7.16 Tools Kit Container : A suitable box shall be provided for carrying all normal tools.

7.17 An electric bell : A bell shall be provided in the driver's cabin to send signals to the driver by pressing a switch from rear control panel.

7.18 Foot Board : One Foot board with chequered Aluminium plate shall be provided at the rear of The Truck. Suitable grab rails of Stainless Steel pipes of 25 mm dia x 1.6 mm thick and non skid steps shall be provided to give access to the roof also.

7.19 Stability : The stability of the Truck shall be such that when under fully equipped & loaded conditions (equivalent weight of crew to be loaded in lieu of the crew), if the surface on which the appliance stands is tilted to either side, the point at which over turning occurs is beyond 27° from the horizontal. It will be ensured that the chassis parameters, particularly ground clearance and angle of departure, are not altered by the body-work fabrication.

- 7.20 **Articulation :** The articulation of the Truck shall be tested by raising diagonally opposite wheels to a height of 200 mm when the vehicle is in fully loaded condition to verify the suspension capability.

8 WORKMANSHIP AND FINISH

- 8.1 The standard of workmanship and finish of all mechanical and other parts shall be such that the parts that are normally required to be replaced can be supplied and will fit correctly.
- 8.2 The Truck shall be externally painted in 'Post Office Red' of shade No. 538 to IS:5. Above it, external body to be painted with one coat of Polyurethane clear paint. The driver's compartment shall be gray colour PVC coated on Aluminium sheet. Fire Service insignia shall be self adhesive Radium stickers on both sides of the Truck as "Truck Fire Fighting Large MK-VI", Ministry of Defence." in golden yellow paint with black colour shading with letter of size 140 mm x 100mm leaving a gap of 50mm from top and with a 100mm gap between the two lines. Under chassis shall be painted black. Necessary anticorrosion and priming coat shall be applied before painting.
- 8.3 All switches, controls, gauges shall be identified with embossed/engraved name plates on Stainless Steel plates.

9 ACCESSORIES FITTED ON THE VEHICLE

- 9.1 The following accessories shall be provided in addition to those normally fitted on modern commercial vehicles:-
- 9.1.1 **Fire Bell :** A 252 mm diameter (Natural Tone Carillon) Fire Bell shall be mounted externally and shall be capable of being operated from within the crew compartment. The bell shall be hand operated type and mounted on RHS.
- 9.1.2 **Light bars with PA system-cum-siren :** Rotary red and blue light bar with PA system cum siren of 75 W with overriding mike, amplifier and electrical loud speaker mounted on the driver's cabin roof. The system shall be operated from driver's cabin.
- 9.1.3 **Fog Lamps Two Nos :** Low mounted on front bumper of chassis.
- 9.1.4 **Reversing Light Two Nos :** Situated at the rear to assist reversing along with reversing horn.
- 9.1.5 **Trafficators - one set :** Illuminated with indicating light on instrument panel or in any other prominent position in driver's compartment.
- 9.1.6 **Search Light one No. :** Adjustable to give flood or beam light, mounted in a convenient position but capable of being readily disconnected and mounted on a tripod stand, away from the Truck. This shall comprise of tripod stand of 1500 mm height with 15 mm dia, 2 mm (min) thickness and with not less than 30 m TRS cable on a reel mounted on the Truck. The search light and cable reel shall be

provided independent protective covering of 1.6mm thick Aluminium sheet against weather.

9.1.7 **Connection for Tail Light for Trailer** : An efficient twin wire socket and plug of 15 Amp capacity, for connecting the cable for the tail light of a Trailer.

9.1.8 **Industrial grade trickle battery charger** 6 Amp (minimum) provided with 3 pin non breakable plug/socket to 250 V AC supply with 10 m mains cable (1.5 mm sq.) with suitable charging cable (6 mm sq.) directly connected to batteries for charging 12 volts / 24 volts battery set. The battery charger shall have multi voltage selector switch, a red pilot lamp, indicating when the batteries are being charged from an external supply. The Battery Charger, mounted under the crew seat shall have provision for auto-cut off when the Battery is fully charged.

9.1.9 **Cabin and instrument panel** shall be as per chassis manufacturer's drawing.

9.1.10 **Towing Hook** : A commercial heavy duty towing hook capable of towing a one tonne Trailer shall be fitted at the rear of the Truck.

9.2 **ACCESSORIES TO BE SUPPLIED WITH THE TRUCK**

9.2.1 The Truck shall be supplied complete with accessories as per details at Appendix 'A'.

9.2.2 The accessories are to be mounted or stored in respective lockers. Suitable curvilinear bracket with leather / rubber washer shall be provided.

10 **TOOLS** : The following tools carried in a suitable box shall be supplied with each Truck:-

(a)	DE Spanner Set 6-25 mm	1 set
(b)	Ring spanner set 6-25 mm	1 set
(c)	Adjustable wrench 200 mm	1 No.
(d)	Pliers side Cutting 200 mm	1 No.
(e)	Pipe Wrench 450 mm	1 No.
(f)	Screw driver 150 mm	1 No.
(g)	Screw driver 250 mm	1 No.
(h)	File half round smooth 300 mm with wooden handle	1 No.
(i)	Hammer Ball Pein half kg with wooden handle	1 No.
(k)	Spanner Of 30x32 mm	1 No.
(l)	Allen key 4 mm	1 No.

11 **PRE-INSPECTION**

11.1 Manufacturers must satisfy themselves that the stores manufactured are in accordance with the contract and fully conform to the specification by carrying out thorough pre-inspection, before tendering the same for inspection to the Quality Assurance Officer nominated under the terms and conditions of the contract.

provided independent protective covering of 1.6mm thick Aluminium sheet against weather.

9.1.7 **Connection for Tail Light for Trailer** : An efficient twin wire socket and plug of 15 Amp capacity, for connecting the cable for the tail light of a Trailer.

9.1.8 **Industrial grade trickle battery charger** 6 Amp (minimum) provided with 3 pin non breakable plug/socket to 250 V AC supply with 10 m mains cable (1.5 mm sq.) with suitable charging cable (6 mm sq.) directly connected to batteries for charging 12 volts / 24 volts battery set. The battery charger shall have multi voltage selector switch, a red pilot lamp, indicating when the batteries are being charged from an external supply. The Battery Charger, mounted under the crew seat shall have provision for auto-cut off when the Battery is fully charged.

9.1.9 **Cabin and instrument panel** shall be as per chassis manufacturer's drawing.

9.1.10 **Towing Hook** : A commercial heavy duty towing hook capable of towing a one tonne Trailer shall be fitted at the rear of the Truck.

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(d)	Pliers side Cutting 200 mm	1 No.
(e)	Pipe Wrench 450 mm	1 No.
(f)	Screw driver 150 mm	1 No.
(g)	Screw driver 250 mm	1 No.
(h)	File half round smooth 300 mm with wooden handle	1 No.
(i)	Hammer Ball Pein half kg with wooden handle	1 No.
(k)	Spanner OJ 30x32 mm	1 No.
(l)	Allen key 4 mm	1 No.

11 **PRE INSPECTION**

11.1 Manufacturers must satisfy themselves that the stores manufactured are in accordance with the contract and fully conform to the specification by carrying out thorough pre-inspection, before tendering the same for inspection to the Quality Assurance Officer nominated under the terms and conditions of the contract.

11.2 A declaration shall be rendered alongwith the Delivery challan by the Supplier that necessary pre-inspection has been carried out on the stores tendered and the same are conforming to the specification requirements. The declaration shall include the method followed in pre inspection showing features checked and the observed values and the delivery challan will be accompanied by the QA reports.

11.3 If the SQAO finds that pre inspection of the consignment as required above has not been carried out, the consignment is liable for rejection.

12 QUALITY ASSURANCE

12.1 The Supplier shall extend to Sr. Quality Assurance Officer or AHSP or his authorized representative, all reasonable facilities for inspection, including gauges, free of cost, for satisfying themselves that the stores are manufactured in accordance with this specification. For this purpose he shall have free access to the Supplier's & sub-contractors' premises at any time during the currency of contract. The Supplier shall notify all the sub-contracts placed to the AHSP and SQAO.

12.2 No deviation shall be accepted from the governing design and specification without concurrence in writing from AHSP.

12.3 Advance Sample

12.3.1 The Advance sample shall be inspected to check the fulfillment of various clauses of specification. It shall be subjected to performance tests after due running in as recommended by manufacturer, followed by pump endurance test of 100 hrs duration in, continuous, 4 hrs cycles of operations. Break between two cycles should not exceed 30 minutes. The pump shall be run at first duty point for three hours and thereafter one hour at the second duty point in each four hour cycle. Strip examination of pump assembly shall be carried out after completion of 80 hours of operation. A further 20 hours shall be run after satisfactory result. Any major modification would call for re-testing. Other sub assemblies, accessories, shall be tested as per Test Schedule and relevant specification to verify the quality. The Truck shall undergo a running test for total 300 km. The Truck shall be run for first 250 km on tarroad road followed by cross country running for 50 km. After mobility trials, the Truck shall be examined visually for any damage & pump performance shall be checked for 4 hrs running. Any major breakdown during mobility/ performance tests shall call for retesting. During road test, braking efficiency at different speeds, stability, articulation & load distributions of total weight shall be checked.

12.3.2 The points noticed by the AHSP during Advance sample evaluation are to be implemented.

12.3.3 Advance Sample evaluation is not required if the superstructure fabricator has supplied the Truck on the same chassis within the past three years from the date of supply order.

12.3.4 Auxiliary fire fighting system & Accessories : These systems /accessories if not manufactured in house shall be procured only from CQAFE Registered sources of supply. The firms whose Advance Sample have not been approved earlier shall have their Advance Sample approved by CQAFE, prior to commencement of bulk. The bulk supply shall be duly inspected and cleared by the concerned area SQAH(E) / QAE(E) under Internal Inspection Certificate, for being supplied with the main equipment.

12.4 Bulk Inspection : Each equipment shall be inspected as per test schedule. After due running-in as recommended by manufacturer, each equipment shall be subjected to a total road test of 50 km including 10 km cross country. During road test, brake efficiency as per clause 4.2(b), total weight, load distribution on front & rear and sturdiness of mounting arrangements for accessories shall be checked.

13 MARKING

13.1 Each Truck shall be clearly and permanently marked with the following on a Stainless Steel plate, in the driver's cabin and at the rear LHS, at a suitable location:-

- (a) Manufacturer's name or trade mark.
- (b) Year of manufacture, Name of eqpt, Srl. No.
- (c) NSN/DS Cat Part No. :

Supplier	DCAN	NSN
M/s Ashok Leyland Ltd	—	4210720461388
M/s Tata Motors Ltd	4210003071	4210720102404
Or as applicable		

- (d) Capacity of pump (in lpm), water tank and foam tank (in litres)
- (e) Engine and Chassis number
- (f) Pump number
- (g) Super-structure manufacturer's name

13.2 Stainless Steel plates with operating/maintenance instructions & flow diagram suitably engraved on them shall be provided on the rear LHS & RHS respectively, for easy reference of the operator.

14 TRAINING - Manufacturer is responsible for imparting training, free of charge, to the User Unit of the Truck. This training will be imparted to atleast two operators per Unit for a period of one week or till the operators are satisfied, whichever is earlier. The training program will be prepared by Line Dte in consultation with the Supplier so that it is conducted just before the collection of equipment by User Units. This will ensure that the individuals who come to collect the Truck are trained by the Supplier. The training will cover following areas:-

- (a) Operation of Truck

- (b) Assembly / dismantling of pump and primer
- (c) Trouble shooting
- (d) Any other subject desired by the operator (Assembly/dismantling will be done at least five times with complete identification of all components of pump for a duration of minimum one week).

15 **CRITERIA FOR CONFORMITY** Each Truck offered for inspection shall be checked in accordance with this specification & the test schedule. The Truck is liable for rejection for any non conformity noticed during inspection. Truck fully meeting the requirements of this specification & Test Schedule shall be accepted.

16 **TECHNICAL LITERATURE**

16.1 The Supplier shall submit the following draft literatures in defence format along with the Advance Sample to the AHSP, in triplicate, for approval :-

16.1.1 Illustrated Part List (IPL) with price of each item, giving details such as material, dimensions, exploded illustration & No as per Defence format.

16.1.2 Bi-lingial (Hindi & English) User Hand Book (UHB) covering operation & maintenance instructions of Truck as per Defence format.

16.1.3 Workshop Repair & Maintenance manual, also containing process of removal and re-fitting of components in detail.

16.1.4 All technical literature should be supplied in printed copy as well as on CD Rom.

16.1.5 Computer Based Training package (CBT) on maintenance and repair of equipment, one per equipment.

16.1.6 Charts containing exploded view of Sub-assemblies.

16.2 Two sets of approved literatures mentioned above shall be supplied along with each Truck. In addition to this, literature shall be supplied as follows :-

- | | | |
|-----|---------------------------------|----------|
| (a) | CQAFE, Aundh Camp, Pune-411 027 | - 3 sets |
| (b) | SQAE, concerned | - 1 set |

17 **DS CAT PART NO./ STANDARDISATION** Before dispatch, the accepted Truck shall be marked with Defence Stores Cat Part No on identification plate. It is also the responsibility of the Supplier to provide details of design, drawings, material of items given in the IPL as and when tasked by SQAQ or AHSP.

18 **SUGGESTIONS FOR IMPROVEMENT:** Any suggestions for improvement in this document may be forwarded to:-

The Controller,

Controllorate of Quality Assurance (Fire Fighting Equipment)

Aundh Camp, Pune 411 027.

TEST SCHEDULE FOR TFF LARGE MK-VI**1. Raw material Inspection:**

Ser No	Assembly	Part	Spec Cl Ref	Standard	Sampling Plan	Remarks
(a)	Water Tank	Bottom Sheet	7.2.1	Grade 'A' of IS:2062	One number per lot	For advance sample, raw material check will be done by concerned SQAE(EE) and report submitted to AHSP.
(b)	Water Tank	Side & Baffle Sheet	7.2.1	Grade 'O' of IS:1079		
(c)	Foam Tank	SS Sheet	7.7.1	Grade 02CR19Ni10 as per IS 1570 (Part-5) / SS of 304		
(d)	Pump	Casing & Impeller	7.4.1	Grade 2 of IS 318.		
(e)	Pump	Shaft	7.4.1	04 Cr 18 Ni 10 of IS 6603 / SS 304		
(f)	Stowage	Square tube	7.14.1	Grade-4 of IS:10748		
(g)	First Aid Hose Reel	Hose	7.3.2	(Type 3A of IS: 444) or (IS:12585, Type-III)	Conformity certificate from manufacturer will be accepted.	

2. **Stage Inspection:** (For Advance sample, stage QA will be carried by concerned SQAE(EE) and will forward the stage inspection to AHSP.)

Ser. No.	Assembly	Spec Cl Ref	Nature of Tests	Sampling Plan
(1)	(2)	(3)	(4)	(5)
(a)	Water Tank	7.2	(i) Dimensions check as per drawing.	10% , (min One No per lot)
		7.2.2	(ii) Hydraulic Pressure test at 0.3 bar, (No leakage, warpage, bulging allowed)	100 %
		7.2.12	(iii) Witness of Sand blasting, followed by Epoxy treatment . (2 coats of primer followed 2 coats of epoxy finish)	10 % , (min One No per lot)
(b)	Foam Tank	7.7	(i) Dimensions check as per drawing.	10% , (min One No per lot)
		7.7.1	(ii) Hydraulic pressure at 0.3 bar. (All plumbing provisions including removable sump shall be ensured as per specification before doing hydro test.)	100 %

(1)	(2)	(3)	(4)	(5)
(c)	Valves, Plumbing work	--	(i) To check pipe lines and valves for hydro pressure test at 24 kg/cm^2 .	100 %
(d)	Pump	7.4	(i) Dimensions check as per drawing.	10% , (min One No per lot)
		7.4.6	(ii) Visual check for casting defects. (No cracks, blow holes, inclusions allowed)	
		7.4.2	(iii) Hydraulic pressure test for entire assembly at 21 kg/cm^2 for ten minutes.	100 %
(e)	Primer	7.5	Dimensions check as per drawing.	10% , (min One No per lot)
(f)	Super-structure	7.13.2	Dimensions check as per drawing. (Note : Driver / crew cabin fabricated by chassis manufacturer, will be checked by QA Officer for chassis; if fabricated alongwith superstructure, the same will be checked by QA Officer for superstructure.)	10% , (min One No per lot)
(g)	First Aid Hose Reel	7.3	(i) Dimensions check as per drawing.	10% , (min One No per lot)
		7.3.2	(ii) Hose reel for hydro pressure test at 14 kg/cm^2 .	100%
(h)	Sub-frame	--	Dimensions check as per drawing.	10% , (min One No per lot)
(j)	Monitor assembly	7.9	Dimensions check as per drawing.	10% , (min One No per lot)
(k)	Proportionator assembly	7.8	Dimensions check as per drawing.	10% , (min One No per lot)
(l)	Accessories, DCP & CO ₂ Extinguisher tools and fitting items shall be checked as per their relevant specifications.			

3. Tests on complete equipment

Ser No.	Type of Tests	Specn. Cl No.	Nature of Tests	Sampling Plan
(1)	(2)	(3)	(4)	(5)
(a)	Visual check	All clauses	(a) Completeness of equipment (b) Operation of various levers, locks, caps, fitting of water tank, foam tank, Linkages.	100%

			markings, plumbing work, painting, workmanship & finish etc. (c) Layout of accessories, tools and supplementary extinguishers. (checked by laying out indicated in the drawing)	
		7.12.1	(d) Calibration of Instruments & Gauges. (Based on Calibration Certificate)	100 %
(b)	Performance Test			
(i) Pump performance	7.4.8	(a) Pump endurance Test :- The pump shall be run continuously for 100 hrs in case of Advance Sample and 4 hrs Bulk with 3 m suction lift :- (i) <u>First duty point</u> with 2250 lpm at 7 kg/cm ² for 3 hrs (ii) <u>Second duty point</u> With 1600 lpm at 9 kg/cm ² for one hour. (iii) OFF duty cycle – half an hour (Not applicable for Bulk)	100 %	
	12.3	(iv) Strip Examination of Pump Assembly Pump shall be opened and checked for the following after completion of 80 hours of endurance run: (aa) Rubbing mark on the pump impeller and body (ab) Rubbing marks on one side of bush bearing (ac) Appreciable play of impeller assembly with the bearing assembled (ad) Casting defects like pin holes, blow holes, cracks and improper machining. (ae) Partial shearing of key ways, enlargement of key ways in shafting of the impeller bosses.	For Advance Sample only	
(ii) Monitor performance	7.9.1	(i) Rated output of 1400 lpm at 9 kg/cm ² .	100 %	
		(ii) Free rotation 360° in Horizontal plane and 60° in vertical plane.	100 %	
		(iii) Foam expansion and throw.	10% , (min One No per lot)	

(1)	(2)	(3)	(4)	(5)
	(iii) Foam compound proportionator / Inductor test	7.8	Discharge and induction at following conditions: (i) Monitor at 9 kg/cm ² (ii) Monitor + 2 side lines at 7 kg/cm ² . (iii) Monitor + 1 side line at 7 kg/cm ² . (iv) 2 side lines at 7 kg/cm ² . (v) One side line at 7 kg/cm ² . (vi) Foam pick up test.	100 %
	(iv) Primer performance	7.5.1	Water lift from 7 m. depth @ 30 cm/sec.	100 %
	(v) Foam transfer pump	7.7.6	Discharge rate and fitment of Transfer Pump	100 %
	(vi) Rain Test	—	The equipment is to be subjected to rain test for 150 minutes a per IS:11865 (There shall be no water entry of any type into cabin for driver/crew and lockers.	100 %
	(vii) Road test	12.4 & 12.3.1	(i) 50 km road test including 10 km cross country. (For Advance Sample : 250 km road test and 50 km cross country run) (ii) Maximum speed. (iii) Check braking efficiency (iv) Turning circle diameter (v) Leakages of fuel, coolant, oils and air from various units and joints / connections. (vi) Damage of any part of Truck. Loosening of fasteners, joints, pipe connections, hose connections, linkages and other fastening members (vii) Undue overheating of brake drums (by touch) (viii) Working of shock absorbers (feel for heating of shock absorbers) and any rubbing between top and lower bodies of shock absorbers and oil linkages	100% 10% . (min One No per lot)
	(vii) Gradeability Test	4.3	Fully laden vehicle will be checked for gradability on a gradient of 25% (approx 14o) applying hand brake.	100 %
	(viii) Stability	7.19	As per clause 7.19	One No per lot

APPENDIX 'A'

(Refers to para 9.2 of specn)

LIST OF ACCESSORIES PROVIDED WITH THE TRUCK

<u>Ser. No.</u>	<u>Description</u>	<u>Qty</u>
1.	Hose Assembly, Rubber suction, Armoured, heavy duty, complete with Screw couplings size 100 mm x 2.5 m as per JSS-4210 : 2016 (Rev 2).	4 Nos
2.	Metal strainer for use with 100 mm suction hose IS:318 (IND/CQAFE/PROV/0025(b) : 2016)	1 No.
3.	Basket strainer as per IS:3582	1 No.
4.	Suction wrench as per IS:4643	1 Pair
5.	Aluminium extension ladder 10.5 meters length Specification No. JSS:4210-29:2013	1 No.
6.	GM 100 mm x 63 mm Hydrant to suction adapter	1 No
7.	Hose assembly, textile fiber, unlined controlled percolating (CPL) delivery, complete with instantaneous couplings (GM) one end male & other end female size: 70 mm ID x30 m length with non ferrous wire binding. (Specification No IND/CQAFE/PROV/0198 :2016)	5 Nos
8.	Hose assembly, polyester fabric Reinforced Rubber Lined (RRL) delivery, complete with instantaneous couplings (GM) one end male & other end female, of size 70 mm ID x30 m length with non ferrous wire binding. (Specification No IND/CQAFE/PROV/056(a) :2016	5 Nos.
9.	GM branch pipe conforming to IS:903	4 Nos
10.	Fog Nozzle with applicator conforming to IS : 952	2 Nos.
11.	FB10X foam making branch pipe as per IS: 2097, with jet & spray arrangement	4 Nos.
12.	Hose strap 40 mm x 860 mm (minimum)	10 Nos
13.	Branch pipe hand controlled for 63 mm hose couplings as per Specification No. IND/CQAFE/PROV/0014(a) with Drawing No. FE/GA:0003	1 No.
14.	Branch diffuser for 63 mm size hose coupling IS:2871	1 No.
15.	GM Adapter 63 mm double male instantaneous IS:901	2 Nos

Ser. No.	Description	Qty
16	GM Adapter 63 mm double female instantaneous as per IS:901	2 Nos
17	Nozzles as per IS:903 (a) 6 mm 2 Nos. (b) 12 mm 2 Nos. (c) 16 mm 2 Nos. (d) 20 mm 2 Nos. (e) 25 mm 2 Nos	01 Set
18	Nozzle spanner for above nozzles as per IS:903	2 Nos.
19	Rechargeable LED Torch with 12 LED bank, discharge time approx. 8 hrs, Battery recharge cycle 250 minimum	2 Nos.
20	Hand lamp 230 V, 60 W bulb with glass cover and Al wire with 10 m wire and two pin plug	2 Nos.
21	Torch Hand Safety No.2 for use in petroleum installations and explosives installation with flammable vapour risk as per specn No CQAF/6230/1400/b	3 Nos
22	Breathing apparatus complete with tools & (compressed air normal air type) with spare cylinder as per JSS -4240-01 : 2012 (Rev 1)	2 Sets.
23	Fire Proximity suits with bag as per JSS 4210-26 : 2013 in water proof bag of neoprene quoted nylon fabric of suitable size	2 Nos.
24	Lowering line (hawser-laid) 16 mm dia X 30 m long as per IS 1084 (Gde 2)	2 No.
25	Short line (hawser-laid) 16 mm dia x 15 m Long as per IS : 1084 (Gde 2)	1 No
26	Hose bandages rubberised as per IS:5612 Part II	4 Nos.
27	Hose slings	2 Nos.
28	First aid box for 10 persons. (Contents as per Annexure-I, in steel box)	1 No.
29	Rubber gloves type 3 with proof test voltage 17000V in polythene bag of 100 micron thick as per IS:4770	2 Pairs
30	Asbestos Gauntlet in polythene bag of 100 micron thick	2 Pairs
31	Round Nose Shovel (Size 330mm X 270mm) as per IS :274 (Part I) with handle 685mm length as per IS: 2897	1 No.

21/2/2019
G S KONDHARE/ जी एस काँडरे
SSO-1/ब.व.अ.नं-1
ASSTDY CONTROLLER/सहा/उपनिर्देशक
FOR CONTROLLER/कृते नियंत्रक

Ser. No.	Description	Qty
32	Pick axe chisel (wide) and point end nominal mass 3.0 kg fitted with wooden handle as per IS : 273	1 No
33	Crow bar with chisel and claws as per IS: 704, Table-1, 11 kg nominal mass	1 No.
34	Sledge hammer Double face 6 kg as per IS:841	1 No
35	Door Breaker as per drg No FESK ...0306	1 No.
36	Fire Hook as per specification No. JSS:4210-33:2015	1 No
37	Breaching Dividing with Control as per IS:5131	1 No.
38	Breaching Collecting as per Specification No. IND/CQA/FE/PROV/0027(b) : 2016	1 No.
39	Hose rubber armoured 63 mm coupled with female coupling (GM) at both ends 1m long for hydrant connection.(To be tested as per JSS 4210-20:2016)	1 No
40	Blanket Fire 1.8 m x 1.8 m without container as per specification No. JSS:4210-2 : 2017 (Rev No.3)	2 Nos
41	Axe Fire man with insulated handle as per specification No.IND/CQA/FE/PROV/024(b) : 2014	1 No
42	Inspection Lamp with 21 W bulb : Protective type with 10 m wire wander lead type with bracket, unbreakable handle, complete with plug.	1 No.

Note: Items at Ser No 12,19,20,27,28 & 42.

Specifications for these items are not available. For such items, samples as supplied with Advance Sample of TFF MK-VI will be sealed and retained with the firm for reference during bulk QA. One set of sealed samples of these items will be supplied to CQA(EFE), free of cost, for retention and reference in future.

21/12/2018
G S KONDHARE / जी एस कॉन्डरे
 SSO-1/ब.प.अ.-1
 ASSISTANT CONTROLLER/सहायक नियंत्रक
 FOR CONTROLLER/कृते नियंत्रक

APPENDIX 'B'

(Refers to para 7.11.2 of specn)

EXTINGUISHER FIRE DCP 75 KG CAPACITY

- B.1** Scope : Extinguishers Fire Dry Chemical Powder 75 Kg capacity fitted in TFF large MK-VI as additional fire fighting agent to be used to extinguish B & C class Fires and electrical fires.
- B.2** Extinguisher Fire DCP 75 Kg capacity shall generally conform to Defence specification No. IND/CQAFE/PROV/0192 (a)-2005. (except for trolley & wheeled carriage).
- B.3** The discharge hose of 20 mm bore X 10 m length with fittings to be supplied.
- B.4** Workmanship and finish : As per clause 7 of Defence specification mentioned above.
- B.5** Supplier will submit the detailed drawings to the AHSP for approval before fabrication.

21/2/2019
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ASST/DY CONTROLLER/सहा/उपनिर्वाहक
FOR CONTROLLER/कृते निबंधक

20 JAN 2019

APPENDIX 'C'

(Refers to para 7.11.3 of Specn)

EXTINGUISHER FIRE, CO₂, 22.5 KG CAPACITY

C.1 Scope : CO₂ gas extinguishing system fitted in the TFF large MK-VI is an additional fire fighting agent for class B, C and Electrical fires. The Ext. fire CO₂, 22.5 kg shall generally conform to Defence specification No. IND/CQAF/PROV/0183(a) : 2005 (except trolley & carrying handle)

C.2 Material for discharge hose and Manifold :

The additional materials for construction of this system are given in table below :-

Sr. No.	Component	Material	Specification
(i)	Discharge Hose	Rubber hose min. 10 mm Nominal bore x 15 m length	Type I of IS:7651(Min.) bursting pressure shall be 275 kg/cm ²
(ii)	Manifold	Forged Copper alloy	Grade FLB of IS 6912
(iii)	Grip valve	- do -	- do -
(iv)	Discharge nozzle	- do -	- do -
(v)	Applicator tube	Aluminium alloy	IS:738
(vi)	Deflector plate	Aluminium	IS:736

C.3 Construction of manifold applicator tube & Nozzle :

The cylinder shall be connected to a common manifold. One discharge outlet shall be provided on the manifold for connecting the hose assembly. The manifold inlet connection with cylinders shall be fitted with non-return ball valve with a Copper tubing of 2 mm thick. The manifold shall be subjected to a hydrostatic test pressure of 320 kgf/cm² without leakage, distortion or failure. A suitable hose reel to accommodate hose shall be provided inside the rear locker for ease of operation. A suitable over run brake shall also be provided for reel.

31/2/2018
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- C.4 The applicator tube shall comprise of telescopic tube complete with lever type grip valve at the inlet end. At the discharge end, the applicator should be connected to elbow and discharge horn with nozzle. The construction of the whole assembly shall be given sufficient rigidity when coupled. When extended, the applicator shall be 1.5 metres approximately overall from centre of discharge nozzle to the base of the grip control valve. The base of applicator tube should be screwed to the grip valve. The closing of telescopic action shall be by hand. Insulating grips shall be provided at convenient points on the outer tube. The valve shall be operated by spring loaded lever. Pressure on the lever against the spring shall open the valve. On release of the pressure, valve shall automatically close. The valve shall operate and show no sign of leakage when subject to hydrostatic pressure of 320 kg/cm^2 . A safety vent shall be provided in the base sealed with suitable gauge and Copper bursting disc in accordance with IS 3224 or Phosphor Bronze. The operating lever grip shall be on the outlet side of the lever type grip valve.
- C.5 Nozzle fitted at the discharge end of applicator tube shall be of $75 \pm 5 \text{ mm}$ overall length, $19 \pm 1 \text{ mm}$ internal diameter with a closed spherical end with six discharge orifices, with $2 \pm 0.1 \text{ mm}$ wide and $25 \pm 5 \text{ mm}$ long to give forceful discharge of contents of one cylinder. The inlet to the nozzle shall be screwed for a minimum length of 14 mm and shall be hexagonal externally. The nozzle shall be capable of discharging CO_2 gas of single cylinder, not less than 95% of the content in 20 to 60 seconds.
- C.6 Supplier will submit the detailed drawings to AHSP for approval before fabrication.

21/2/19
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JAN 2019

Annexure-I
(Refers to Ser No. 28
of Appendix 'A' to specn)

FIRST AID BOX : CONTENTS

Ser No.	Nomenclature	Qty.														
1.	Centamide Cream (Antiseptic cream) tube of 25 gms	01 No.														
2.	Band aid Packet (Johnson & Johnson)	01 No.														
3.	Bandage loose woven compressed 500 mm x 4 m	04 Nos.														
4.	Pouch Armsling (adjustable type) Dx	01 No.														
5.	Gauge surgical sterile packet	01 No.														
6.	Wool cotton absorbent packet of 50 gms	02 Rolls														
7.	Scissors 180 mm stainless steel	01 Pair														
8.	Burnol 50 gms tube	01 No.														
9.	Pure Savlon 100 ml Bottle	01 No.														
10.	Adhesive Plaster 7.5 cm width Roll	01 No.														
11.	Spirit 100 ml Bottle	01 No.														
12.	Betadine lotion 100 ml tube	01 No.														
13.	Disprin (Dissolved) tablet	20 Nos.														
14.	Paracetamol tablets	20 Nos.														
15.	Avil tablets	20 Nos.														
16.	Snake bite Kit consists of	01 Kit														
	<table><tr><th>Description</th><th>Qty</th></tr><tr><td>PP Extractor Pump</td><td>01 No</td></tr><tr><td>ABS Suction cup</td><td>02 Nos</td></tr><tr><td>ABS Disposable small tourniquet</td><td>01 No</td></tr><tr><td>Rubber antiseptic pad</td><td>02 Nos</td></tr><tr><td>Alcohol prep pads</td><td>02 Nos</td></tr><tr><td>Storage box</td><td>01 No</td></tr></table>		Description	Qty	PP Extractor Pump	01 No	ABS Suction cup	02 Nos	ABS Disposable small tourniquet	01 No	Rubber antiseptic pad	02 Nos	Alcohol prep pads	02 Nos	Storage box	01 No
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