

GOVERNMENT OF INDIA
INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (NAVY)

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The Directorate General of Naval Armament
West Block V, RK Puram
New Delhi-110066
India

File Ref No. AS/5188/SRGM Ammunition

17 Aug 21

To,

INVITATION OF BID FOR PROCUREMENT OF SRGM AMMUNITION

REQUEST FOR PROPOSAL (RFP) No. AS/5188/SRGM Ammn. Dated 17 Aug 21

1. Bids in **sealed cover** (Technical bid and Commercial bid in two separate sealed covers) for supply of **SRGM AMMUNITION** are invited as per as per schedule of requirement at part II of this RFP. Please super scribe the above mentioned Title, RFP number and date of opening of the Bids on the sealed cover to avoid the Bid being declared invalid.

2. The address and contact numbers for sending Bids or seeking clarifications regarding this RFP are given below:-

- | | |
|---|--|
| (a) Bids/queries to be addressed to: | The Director General of Naval Armament
Integrated Headquarters of Ministry of Defence (Navy)
West Block - V, Wing - 7, RK Puram,
New Delhi - 110066 |
| (b) Postal address for sending the Bids | As above |
| (c) Name/designation of the contact personnel: | Mr. BP Singh
Director of Naval Armament |
| (d) Telephone numbers of the contact personnel: | 011-26194540 |
| (e) E-mail ID of contact personnel: | dona@navy.gov.in |
| (f) Fax number: | 011-26108290 |

3. This RFP is divided into five parts as follows:-

Part I – Contains General Information and Instructions for the Bidders about the RFP such as the time, place of submission and opening of tenders, Validity period of tenders, etc.

Part II – Contains essential details of the items/services required, such as the Schedule of Requirements (SOR), Technical Specifications, Delivery Period, Mode of Delivery and Consignee details.

Part III – Contains Standard Conditions of RFP, which will form part of the Contract with the successful Bidder.

Part IV – Contains Special Conditions applicable to this RFP and which will also form part of the contract with the successful Bidder.

Part V – Contains Evaluation Criteria and Format for Price Bids.

4. This RFP is being issued with no financial commitment and the Buyer reserves the right to change or vary any part thereof at any stage. Buyer also reserves the right to withdraw the RFP, should it become necessary at any stage.




(BP Singh)
Director of Naval Armament
Integrated Headquarters,
Ministry of Defence (Navy)

Part I – General information

1. **Last date and time for depositing the Bid:** 25 Aug 21 at 1200 hrs.
The sealed Bids (**Technical Bid and Commercial Bid in two separate sealed covers**) should be deposited/reach by the due date and time. The responsibility to ensure this lies with the Bidder.

2. **Manner of depositing the Bids:** Sealed Bids should be dropped in the Tender Box marked as **IHQ MOD(N)/DGONA** or sent by registered post at the address given above so as to reach by the due date and time. The bid may be forwarded by fastest means of delivery i.e by Fax (011-26108290)/ e-mail (dona@navy.gov.in) / By Hand. Late tenders will not be considered. No responsibility will be taken for postal delay or non-delivery/ non-receipt of Bid documents.

3. **Time and date for opening of Bids:** Technical bid will be opened on **25 Aug 21 at 1500 hrs** in the O/o ACNS(SM), Sena Bhawan, New Delhi (If due to any exigency, the due date for opening of the Bids is declared a closed holiday, the Bids will be opened on the next working day at the same time or on any other day/time, as intimated by the Buyer). Bidders may depute their representatives, duly authorized in writing, to attend the opening of Bids on the due date and time. Important commercial/technical clauses quoted by all Bidders will be read out in the presence of the representatives of all the Bidders. This event will not be postponed due to non-presence of your representative.

4. **Location of the Tender Box:**

At Main Gate
West Block - V, Wing - 7
RK Puram, New Delhi – 110066, India

Only those Bids that are found in the tender box will be opened. Bids dropped in the wrong Tender Box will be rendered invalid.

5. **Two-Bid system:-** Only the Technical Bid would be opened on the time and date mentioned above. Date of opening of the Commercial Bid will be intimated after acceptance of the Technical Bids. Commercial Bids of only those firms will be opened, whose Technical Bids are found compliant/suitable after Technical evaluation is done by the Buyer.

6. **Forwarding of Bids** – Bid should be forwarded by Bidders under their original memo / letter pad inter alia furnishing details like TIN number, VAT/CST number, Bank address with EFT Account if applicable, etc and complete postal & e-mail address of their office.

7. **Clarification regarding contents of the RFP:** Any clarification regarding the contents of the bidding documents shall notify to the Buyer in writing about the clarifications sought not later than 14 (fourteen) days prior to the date of opening of the Bids.

8. **Modification and Withdrawal of Bids:** Bidder may modify or withdraw his bid after submission provided that the written notice of modification or withdrawal is received by the Buyer prior to deadline prescribed for submission of bids. A withdrawal notice may be sent by fax but it should be followed by a signed confirmation copy to be sent by post and such signed confirmation should reach the purchaser not later than the deadline for submission of bids. No bid shall be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and expiration of the period of bid validity specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of bid security.

9. **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 bid. The request for clarification will be given in writing and no change in prices or substance of the bid will be sought, offered or permitted. No post-bid clarification on the initiative of the bidder will be entertained.

10. **Rejection of Bids:** Canvassing by the Bidder in any form, unsolicited letter and post-tender correction may invoke summary rejection with forfeiture of EMD. Conditional tenders will be rejected.

11. **Unwillingness to quote:** Bidders unwilling to quote should ensure that intimation to this effect reaches before the due date and time of opening of the Bid, failing which the defaulting Bidder may be delisted for the given range of items as mentioned in this RFP.

12. **Validity of Bids:** The Bids should remain valid till 180 days from the last date of submission of the Bids.

13. **Earnest Money Deposit:**– Bidders are required to submit Earnest Money Deposit (EMD) for amount of **INR 3,50,00,000/- (Rupees Three Crores Fifty Lakhs Only)** along with their bids. The EMD may be submitted in the form of an Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the public sector banks or a private sector bank authorized to conduct government business as per Form DPM-16 (Available in MoD website and can be provided on request). EMD is to remain valid for a period of forty-five days beyond the final bid validity period. EMD of the unsuccessful bidders will be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract. The Bid Security of the successful bidder would be returned, without any interest whatsoever, after the receipt of Performance Security from them as called for in the contract. EMD is not required to be submitted by those Bidders who are registered with the Central Purchase Organization (e.g. DGS&D), National Small Industries Corporation (NSIC) or any Department of MoD or MoD itself. The EMD will be forfeited if the bidder withdraws or amends, impairs or derogates from the tender in any respect within the validity period of their tender.

PART II – ESSENTIAL DETAILS OF ITEMS REQUIRED

1. **Schedule of Requirements** – List of items required is indicated at Annexure-I to RFP.
2. **Technical Details: As per specification/part no. at Annexure-I to the RFP.**
3. **Two-Bid System** - Bidders are required to furnish clause by clause compliance of specifications bringing out clearly the deviations from specification, if any. The Bidders are advised to submit the compliance statement in the following format along with Technical Bid-

Para of RFP specifications item-wise	Specification of item offered	Compliance to RFP specification – whether Yes / No	In case of noncompliance, deviation from RFP to be specified in unambiguous terms

4. **Delivery Period** - Delivery period for supply of items would be **12 months** from the date of signing of contract or **30 Aug 22** whichever is earlier. Please note that Contract can be cancelled unilaterally by the Buyer in case items are not received within the contracted delivery period.

5. **INCOTERMS for Delivery and Transportation – (“E” / “F” / “C” / “D” Terms).**

Unless otherwise specifically agreed to by the Buyer and the Seller and incorporated in the contract, the applicable rules & regulations for transportation of goods from foreign countries will be as per the contemporary version of International Commercial Terms (INCOTERMS-2010) evolved by International Chamber of Commerce, Paris. Definition of Delivery Period is given below –

TERMS OF DELIVERY

C.I.F. Mumbai/JNPT Port

Or

CIF Cochin Port

DATE OF DELIVERY

12 months from the date of signing of contract or 30 Aug 22 whichever is earlier.

6. **Consignee details** - (a) The Commandant
Embarkation Headquarter
Nav Bhawan
2nd Floor
Ballard Estate
Mumbai: 400 001
Tel no: 022-2265259
(In Case of CIF, Mumbai/JNPT Port)

(B) The Chief General Manager
Naval Armament Depot
Alwaye, Cochin
Kerala , India
Tele: 0484-2839800
(In case of CIF Cochin Port)

(Ultimate consignee)

The Chief General Manager
Naval Armament Depot
Gun Gate, Naval Dockyard
Mumbai – 400 023 (India)
Fax No. : 022 -22670082

PART III – STANDARD CONDITIONS OF RFP

The Bidder is required to give confirmation of their acceptance of the Standard Conditions of the Request for Proposal mentioned below 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. Failure to do so may result in rejection of the Bid submitted by the Bidder.

1. **Law:** The Contract shall be considered and made in accordance with the laws of the Republic of India. The contract shall be governed by and interpreted in accordance with the laws of the Republic of India.
2. **Effective Date of the Contract:** Normally the contract shall come into effect on the date of signatures of both the parties on the contract except when some other effective date is mutually agreed to and specifically indicated / provided in the contract. The deliveries and supplies and performance of the services shall commence from the effective date of the contract.
3. **Arbitration:** All disputes or differences arising out of or in connection with the Contract shall be settled by bilateral discussions. Any dispute, disagreement or question arising out of or relating to the Contract or relating to construction or performance, which cannot be settled amicably, may be resolved through arbitration. The standard clause of arbitration is as per form DPM-8(Available in MoD website and can be provided on request) .
4. **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 Contracts or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the present 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 present Contract or any other Contract with the Government of India. Any breach of the aforesaid undertaking by the Seller or any one 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.
5. **Agents / Agency Commission:** The Seller confirms and declares to the Buyer that the Seller is the original manufacturer of the stores/provider of the services referred to in this Contract and 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 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 supply 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 LIBOR rate. The Buyer will also have the right to recover any such amount from any contracts concluded earlier with the Government of India.

6. **Access to Books of Accounts:** In case it is found to the satisfaction of the Buyer that the Seller has engaged an Agent or paid commission or influenced any person to obtain the contract as described in clauses relating to Agents/Agency Commission and penalty for use of undue influence, the Seller, on a specific request of the Buyer, shall provide necessary information/ inspection of the relevant financial documents/information.

7. **Non-disclosure of Contract documents:** Except with the written consent of the Buyer/ Seller, other party shall not disclose the contract or any provision, specification, plan, design, pattern, sample or information thereof to any third party.

8. **Liquidated Damages:** 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 this contract, the Buyer may, at his discretion, withhold any payment until the completion of the contract. The BUYER may also deduct from the SELLER as agreed, liquidated damages to the sum of 0.5% of the contract price of the delayed/undelivered stores/services mentioned above for every week of delay or part of a week, subject to the maximum value of the Liquidated Damages being not higher than 10% of the value of delayed stores.

9. **Termination of Contract:** The Buyer shall have the right to terminate this Contract in part or in full in any of the following cases:-

(a) The delivery of the material is delayed beyond 12 months from contract signing date.

(b) The Seller is declared bankrupt or becomes insolvent.

(c) The delivery of material is delayed due to causes of Force Majeure for more than **02 (Two) months** provided Force Majeure clause is included in the contract.

(d) The Buyer has noticed that the Seller has utilised the services of any Indian/Foreign agent in getting this contract and paid any commission to such individual/company etc.

(e) As per decision of the Arbitration Tribunal.

10. **Notices:** Any notice required or permitted by the contract shall be written in the English language and may be delivered personally or may be sent by FAX or registered pre-paid mail/airmail, addressed to the last known address of the party to whom it is sent.

11. **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 present Contract or any part thereof.
12. **Patents and other Industrial Property Rights**: The prices stated in the present 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, irrespective of the fact of infringement of any or all the rights mentioned above.
13. **Amendments**: No provision of present Contract shall be changed or modified in any way (including this provision) either in whole or in part except by an instrument in writing made after the date of this Contract and signed on behalf of both the parties and which expressly states to amend the present Contract.
14. **Taxes and Duties** : All taxes, duties, levies and charges which are to be paid for the delivery of goods, including advance samples, shall be paid by the parties under the present contract in their respective countries.
15. **Pre-Integrity Pact Clause**: An "Integrity Pact" would be signed between the Ministry of Defence/Buyer and the Bidder for purchases exceeding Rs.100 crores. This is a binding agreement between the Buyer and Bidders for specific contracts in which the Buyer promises that it will not accept bribes during the procurement process and Bidders promise that they will not offer bribes. Under this Pact, the Bidders for specific services or contracts agree with the Buyer to carry out the procurement in a specified manner. The Format of Pre-Integrity Clause will be as per Form DPM-10 (Available in MoD website, and can be provided on request). The essential elements of the Pact are as follows:
- a. A pact (contract) between the Government of India (Ministry of Defence) (the authority or the "principal") and those companies submitting a tender for this specific activity (the "Bidder");
 - b. An undertaking by the Principal that its officials will not demand or accept any bribes, gifts etc., with appropriate disciplinary or criminal sanctions in case of violation;
 - c. A statement by each Bidder that it has not paid, and will not pay, any bribes;
 - d. An undertaking by each Bidder to disclose all payments made in connection with the Contract in question to anybody (including agents and other middlemen as well as family members, etc., of officials); the disclosure would be made either at the time of submission of Bids or upon demand of the Principal, especially when a suspicion of a violation by that Bidder emerges;
 - e. The explicit acceptance by each Bidder that the no-bribery commitment and the disclosure obligation as well as the attendant sanctions remain in force for the winning Bidder until the contract has been fully executed.
 - f. Undertaking on behalf of a Bidding company will be made "in the name and on behalf of the company's Chief Executive Officer".

- g. The following set of sanctions shall be enforced for any violation by a Bidder of its commitments or undertakings:
- i. Denial or loss of contracts;
 - ii. Forfeiture of the Bid security and performance bond;
 - iii. Liability for damages to the principal and the competing Bidders; and
 - iv. Debarment of the violator by the Principal for an appropriate period of time.
- h. Bidders are also advised to have a company code of conduct (clearly rejecting the use of bribes and other unethical behaviour and compliance program for the implementation of the code of conduct throughout the company).

PART IV – SPECIAL CONDITIONS OF RFP

The Bidder is required to give confirmation of their acceptance of Special Conditions of the RFP mentioned below 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. Failure to do so may result in rejection of Bid submitted by the Bidder.

1. **Performance Guarantee:** The seller will be required to furnish a performance guarantee by way of a Bank Guarantee from the Seller's Bank through a bank of international repute (as per advise received from SBI, Foreign Division Branch regarding acceptability of the bank guarantee) in favour of the Govt of India/Ministry of Defence. **In case the advice of SBI is that the guarantee is not from a bank of international repute with satisfactory country rating and/or a confirmation of a reputed Indian bank is required to be obtained, then the guarantee will be got confirmed*** "by an Indian public sector bank or a private sector bank duly authorized by RBI to conduct government business (ICICI Bank Ltd., Axis Bank Ltd or HDFC Bank Ltd.)" **equal to three percent** of the total value of this contract i.e. _____ for _____ USD/Pound/Euro.....(USD/Pound/Euro) _____ in words) only). Performance Bank Guarantee should be valid up to 60 days beyond the date of warranty. The Performance Bank Guarantee shall be considered open upon receipt by the Buyer's Bank. In case any claims or any other contract obligations are outstanding, the Seller will extend the Performance Bank Guarantee as asked for by the Buyer till such time as the Seller settles all claims and completes all contract obligations. The Performance Bank Guarantee will be subject to encashment by the Buyer, in case the conditions regarding adherence to delivery schedule, settlement of claims and other provisions of the contract are not fulfilled by the Seller. The specimen of PBG is given in Form DPM-15 (Available in MoD website, and can be provided on request)
2. **Payment terms** The payment will be arranged through **Letter of Credit** from Reserve Bank of India / State bank of India/any other Public Sector bank as decided by the Buyer, to the Bank of the Foreign Seller. The Seller will give a notification within a specified period about the readiness of goods. Letter of Credit is to be opened by the Buyer within 45 days on receipt of notification of readiness from the firm. The Letter of Credit will be valid for 90 days from the date of its opening, on extendable basis by mutual consent of both the Seller and Buyer
3. **Advance Payments:** No advance payment(s) will be made.
4. **Paying Authority:** Principal Controller of Defence Accounts, G- Block , New Delhi – 110011 , Tel . +91-11-23013343. Paid shipping documents are to be provided to the Bank by the Seller as proof of dispatch of goods as per contractual terms so that the Seller gets payment from LC. The Bank will forward these documents to the Buyer for getting the goods/stores released from the Port/Airport. Documents will include:
 - i. Clean on Board /Bill of Lading
 - ii. Original Invoice
 - iii. Packing List
 - iv. Certificate of Origin from Seller's Chamber of Commerce, if any.
 - v. Certificate of Quality and current manufacture from OEM.

vi. Dangerous Cargo certificate, if any.

vii. Insurance policy of 110% if CIF contract

viii. Certificate of Conformity & Acceptance Test Certificate at Pre Dispatch Inspection signed by BUYER's and SELLER's quality assurance department. In case BUYER's reps do not attend the PDI, then the certificate issued by the BUYER that it does not wish to attend the PDI and the Certificate of Conformity Acceptance Test Certificate issued by the SELLER.

ix. Physio-sanitary / Fumigation Certificate, if any.

x. Performance Bond

xi. Warranty Certificate

5. **Fall clause** - The following Fall clause will form part of the contract placed on successful Bidder -

a. The price charged for the stores supplied under the contract by the Seller shall in no event exceed the lowest prices at which the Seller sells the stores or offer to sell stores of identical description to any persons/Organisation including the purchaser or any department of the Central government or any Department of state government or any statutory undertaking the central or state government as the case may be during the period till performance of all supply Orders placed during the currency of the rate contract is completed.

b. If at any time, during the said period the Seller reduces the sale price, sells or offer to sell such stores to any person/organisation including the Buyer or any Deptt, of central Govt. or any Department of the State Government or any Statutory undertaking of the Central or state Government as the case may be at a price lower than the price chargeable under the contract, the shall forthwith notify such reduction or sale or offer of sale to the Director general of Supplies & Disposals and the price payable under the contract for the stores of such reduction of sale or offer of the sale shall stand correspondingly reduced. The above stipulation will, however, not apply to:--

i. Exports by the Seller.

ii. Sale of goods as original equipment at price lower than the prices charged for normal replacement.

iii. Sale of goods such as drugs which have expiry dates.

iv. Sale of goods at lower price on or after the date of completion of sale/placement of the order of goods by the authority concerned under the existing or previous Rate Contracts as also under any previous contracts entered into with the Central or State Govt. Depts, including their undertakings excluding joint sector companies and/or private parties and bodies.

c. The Seller shall furnish the following certificate to the Paying Authority along with each bill for payment for supplies made against the Rate contract – "We certify that there has been no reduction in sale price of the stores of description identical to the stores supplied to the Government under the contract herein and such stores have not been offered/sold by me/us to any person/organisation including the purchaser or any department of Central Government or any Department of a state Government or any Statutory Undertaking of the Central or state Government as the case may be upto the date of bill/the date of completion of supplies against all supply orders placed during the currency of the Rate Contract at price lower than

the price charged to the government under the contract except for quantity of stores categories under sub-clauses (a),(b) and (c) of sub-para (ii) above details of which are given below -

6. **Risk & Expense clause** –

1. Should the stores or any installment thereof not be delivered within the time or times specified in the contract documents, or if defective delivery is made in respect of the stores or any installment thereof, the Buyer will declare the contract as cancelled either wholly or to the extent of such default.
2. Should the stores or any installment thereof not perform in accordance with the specifications / parameters provided by the SELLER during the check proof tests to be done in the BUYER's country, the BUYER shall be at liberty, without prejudice to any other remedies for breach of contract, to cancel the contract wholly or to the extent of such default.
3. In case of a material breach not remedied, the BUYER shall, having given the right of first refusal to the SELLER be at liberty to purchase, manufacture, or procure from any other source as he thinks fit, other stores of the same or similar description to make good:-
 - a. Such default.
 - b. In the event of the contract being wholly determined the balance of the stores remaining to be delivered thereunder.
4. Any excess of the purchase price, cost of manufacturer, or value of any stores procured from any other supplier as the case may be, over the contract price appropriate to such default or balance shall be recoverable from the SELLER. Such recoveries shall not exceed 100 % of the value of the contract."

7. **Force Majeure clause:**

- a) Neither party shall bear responsibility for the complete or partial nonperformance of any of its obligations (except for failure to pay any sum which has become due on account of receipt of goods under the provisions of the present contract), if the non-performance results from such Force Majeure circumstances as Flood, Fire, Earth Quake and other acts of God as well as War, Military operation, blockade, Acts or Actions of State Authorities or any other circumstances beyond the parties control that have arisen after the conclusion of the present contract.
- b) In such circumstances the time stipulated for the performance of an obligation under the present contract is extended correspondingly for the period of time of action of these circumstances and their consequences.
- c) The party for which it becomes impossible to meet obligations under this contract due to Force Majeure conditions, is to notify in written form the other party of the beginning and cessation of the above circumstances immediately, but in any case not later than 10 (Ten) days from the moment of their beginning.
- d) Certificate of a Chamber of Commerce (Commerce and Industry) or other competent authority or organization of the respective country shall be a sufficient proof of commencement and cessation of the above circumstances.
- e) If the impossibility of complete or partial performance of an obligation lasts for more than 2 (two) months, either party hereto reserves the right to terminate the contract totally or partially upon giving prior written notice of 30 (thirty) days to the other party of the intention to

terminate without any liability other than reimbursement on the terms provided in the agreement for the goods received.

8. **Specification:** The following Specification clause will form part of the contract placed on successful Bidder - The Seller guarantees to meet the specifications as per Part-II of RFP and to incorporate the modifications to the existing design configuration to meet the specific requirement of the Buyer Services as per modifications/requirements recommended after the Maintenance Evaluation Trials. All technical literature and drawings shall be amended as the modifications by the Seller before supply to the Buyer. The Seller, in consultation with the Buyer, may carry out technical up gradation/alterations in the design, drawings and specifications due to change in manufacturing procedures, indigenisation or obsolescence. This will, however, not in any way, adversely affect the end specifications of the equipment. Changes in technical details, drawings repair and maintenance techniques along with necessary tools as a result of up gradation/alterations will be provided to the Buyer free of cost within 60 days of affecting such up gradation/alterations.

9. **OEM Certificate:** In case the Bidder is not the OEM, the agreement certificate with the OEM for sourcing the spares shall be mandatory. However, where OEMs do not exist, minor aggregates and spares can be sourced from authorized vendors subject to quality certification.

10. **Export License:** The Bidders are to confirm that they have requisite export license from their Government and Authorization from the manufacturing plant, in case they are not the OEM, to export the military / non-military goods to India.

11. **Earliest Acceptable Year of Manufacture:** The explosive components manufactured and final assembly not earlier than one year from the date of supply/ PDI. The hardware items manufactured not earlier than two years from the date of supply/PDI, Quality/Life certificate will need to be enclosed with the Bill. The shelf life/service life of the ammunition to be stipulated in the offer. The relevant storage conditions shall be clearly specified.

12. **Transportation:** The following Transportation clause will form part of the contract placed on successful Bidder:

CIF – The stores shall be delivered CIF (Mumbai Port/ JNPT port) or CIF Cochin (Port of destination). Seller will bear the costs and freight necessary to bring the goods to the port of destination. The Seller also has to procure marine insurance against the Buyer's risk of loss of or damage to goods during the carriage. The Seller will contract for insurance and pay the insurance premium. Seller is also required to clear the goods for export. The stores shall be delivered to the Buyer by Indian ships only. The date of issue of the Bill of Lading shall be considered as the date of delivery. No part shipment of goods would be permitted. Trans-shipment of goods would not be permitted. In case it becomes inevitable to do so, the Seller shall not arrange part-shipments and/or trans-shipment without the express/prior written consent of the Buyer. Stores/goods should preferably be shipped by Indian flag vessels or by vessels belonging to the Conference Lines in which India is a member country. However, if an Indian flag vessel or vessels of the Conference Lines are scheduled to arrive at the specified port of loading later than 15 days of readiness of goods for shipment or in case the port is on a route where Indian vessels /Conference Lines vessels do not ply, the seller may arrange for shipment of the cargo by an alternative carrier with the prior written permission of the buyer. Seller will be required to communicate the following information invariably by telex/signed in case of import of Defence Stores being brought in commercial ships to Embarkation Head Quarters concerned well in advance before the Ship sails the port of loading:

- (i) Name of the Ship
- (ii) Port of Loading and name of Country.
- (iii) ETA at port of Discharge i.e. Bombay, Calcutta, Madras and Cochin.
- (iv) Number of Packages and weight.
- (v) Nomenclature and details of major equipment.
- (vi) Special instructions, if any stores of sensitive nature requiring special attention.

13. **Packing and Marking:** The following Packing and Marking clause will form part of the contract placed on successful Bidder –

(a) The Seller 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 Seller shall ensure that the stores are packed in containers, which are made sufficiently strong, and with seasoned wood. The packing cases should have hooks for lifting by crane/fork lift truck. Tags with proper marking shall be fastened to the special equipment, which cannot be packed.

(b) The packing of the equipment and spares/goods shall conform to the requirements of specifications and standards in force in the territory of the Seller's country.

(c) Each spare, tool and accessory shall be packed in separate cartons. A label in English shall be pasted on the carton indicating the under mentioned details of the item contained in the carton. A tag in English with said information shall also be attached to six samples of the item. If quantity contracted is less than six then tag shall be affixed to complete quantity contracted of the item. The cartons shall then be packed in packing cases as required.

- (i) Part Number :
- (ii) Nomenclature :
- (iii) Contract annex number:
- (iv) Annex serial number :
- (v) Quantity contracted :

(d) One copy of the packing list in English shall be inserted in each cargo package, and the full set of the packing lists shall be placed in Case No.1 painted in a yellow colour.

(e) The Seller shall mark each package with indelible paint in the English language as follows:-

- (i) EXPORT
- (ii) Contract No. -----
- (iii) Consignee -----
- (iv) Port / airport of destination -----
- (v) Ultimate consignee -----
- (vi) SELLER -----
- (vii) Package No. -----
- (viii) Gross/net weight : -----
- (ix) Overall dimensions/volume : -----
- (x) The Seller's marking.

(f) If necessary, each package shall be marked with warning inscriptions:

<Top>, "Do not turn over", category of cargo etc.

(g) Should any special equipment be returned to the Seller by the Buyer, the latter shall provide normal packing, which protects the equipment and spares/goods from the damage of deterioration during transportation by land, air or sea. In this case the Buyer shall finalize the marking with the Seller.

14. **Quality:** The quality of the stores delivered according to the present Contract shall correspond to the specifications enumerated as per RFP and shall also include therein modification to the stores suggested by the Buyer. Such modifications will be mutually agreed to. The Seller confirms that the stores to be supplied under this Contract shall be new as per Para 11 of part-IV, and shall incorporate all the latest improvements and modifications thereto and spares of improved and modified equipment are backward integrated and interchangeable with same equipment supplied by the Seller in the past if any. The Seller shall supply an inter-changeability certificate along with the changed part numbers wherein it should be mentioned that item would provide as much life as the original item. The item should be of latest manufacture, conforming to the current production standard and having 100% defined life at the time of delivery.

15. **Quality Assurance:** Seller would provide the Standard Acceptance Test Procedure (ATP) within one month of this date of contract. Buyer reserves the right to modify the ATP. Seller would be required to provide all test facilities at his premises for acceptance and inspection by Buyer. The details in this regard will be coordinated during the negotiation of the contract. The item should be of the latest manufacture as stipulated in para 11, conforming to the current production standard and having 100% defined life at the time of delivery. The testing/proof of ammunition shall be undertaken(as part of PDI if necessary) using serviceable guns and ammunition required for proof(including re-proof)/testing shall be provided by seller and latest manufacture at the vendor premises. Vendor shall provide all the technical details, specifications and operational characteristics of the ammunition, test/proof specifications required for ammunition.

16. **Inspection Authority:** The Inspection will be carried out by IHQ MOD (N)/DGNAI.

17. **Pre-Dispatch Inspection (PDI)** - The following Pre-dispatch Inspection clause will form part of the contract placed on successful Bidder –

(a) The Buyer's representatives will carry out Pre-Dispatch Inspection (PDI) of the stores/equipment in order to check their compliance with specifications in accordance with its usual standard procedures. Upon successful completion of such PDI, the Seller and Buyer will issue and sign a Certificate of Conformity as per the specimen at Form DPM-21(Available in MoD website and can be provided on request)

(b) The Seller shall intimate the Buyer at least 75 days before the scheduled date of PDI. The time required for completing visa formalities by the Seller should not be included in this notice. The Buyer will send his authorised representative(s) to attend the PDI. The Seller must cater for at least 30 days after intimation of notice for PDI, for Buyer to intimate names/passport details of PDI team

(c) The list of Buyer's representatives together with their particulars including name, title, date and place of birth, passport numbers including date of issue and date

of expiry, address, etc. must be communicated by the Buyer at least 10 days in advance to apply for the necessary authorizations and clearances to be granted.

(d) The Buyer reserves the right not to attend the PDI or to request for postponement of the beginning of the PDI by a maximum of fifteen (15) days from the date fixed for such PDI in order to allow his representative(s) to attend such tests, in which cases he shall inform in writing the Seller within 15 days before the date of the beginning of the PDI. Should the Buyer request for such postponement, liquidated damages, if any, shall not apply. In case the Buyer informs the Seller within the period mentioned hereinabove that he cannot attend the PDI or in case the Buyer does not come at the postponed date requested by him for performance of the PDI as mentioned above, the Seller shall be entitled to carry out said tests alone as scheduled. The Certificate of Conformity and the Acceptance Test Report will be signed by the Seller's QA representative alone and such documents bearing the sole signature of the Seller's QA representative shall have the same value and effect as if they have been signed by both the parties. In case Buyer does not elect to attend the PDI, the Buyer shall intimate the Seller in writing that it does not wish to attend the PDI.

(e) The Seller shall provide all reasonable facilities, access and assistance to the Buyer's representative for safety and convenience in the performance of their duties in the Seller's country.

(f) All costs associated with the CUSTOMER's representatives stay in the country if Inspection including travel expenses, boarding and lodging, daily expenses etc. shall be born by the CUSTOMER for the PDI. However, in case of any failure during PDI, if the CUSTOMER's representatives are required to be deputed; the expenses of repeat PDI shall be governed by extant GoI/MoD policies and the same shall be recovered from the SUPPLIER by deductions from final payable amount.

(g) The Seller shall provide Acceptance Test Procedure (inclusive of proof firing in single and auto mode) to the Buyer's QA Agency within one month from the signing of the Contract.

(h) The CUSTOMER's representatives will carry out Pre Despatch Inspection (PDI) of ammunition in accordance with the mutually agreed ATP. The PDI team will comprise of 3-4 members from Indian Navy. The probable duration of PDI will be 05-10 working days. All physical and chemical test certificates for ctges case, propellant, shell, fuze, primer and other explosives used in the lot is to be provided by the Seller to PDI team.

(j) The ammunition to be used during PDI will be provided by the SUPPLIER. The SUPPLIER shall also provide all the facilities, access and assistance to the CUSTOMER's representatives for safety and convenience in the performance of their duties during PDI and the SUPPLIER's country. Upon successful completion of PDI, the SUPPLIER and CUSTOMER will sign a certificate of successful completion of PDI, the SUPPLIER and CUSTOMER will sign a certificate of conformity.

18. **Joint Receipt Inspection:** The following Joint Receipt Inspection clause will form part of the contract placed on successful Bidder –

(a) The Parties agree that the Joint Receipt Inspection (JRI) of delivered goods shall be conducted on arrival in India at location to be nominated by the Buyer. JRI shall be completed within 120 days of arrival of good at the Port Consignee. JRI will consist of

(i) Quantitative checking to verify that the quantities of the delivered goods correspond to the quantities defined in this contract and the invoices.

(ii) Complete functional checking of the stores/equipment as per specifications in the contract and as per procedures and tests laid down by Buyer but functional checking of spares shall not be done.

(b) JRI will be carried out by the Buyer's representative(s). The Buyer will invite the Seller with a prior notice of a minimum of fifteen (15) days to attend the JRI for the delivered goods. The Seller shall have the right not to attend the JRI. The bio data of the Seller's representative will need to be communicated fifteen (15) days prior to the dispatch of goods to the Buyer for obtaining necessary security clearance in accordance with the rules applicable in the Buyer's country.

(c) Upon completion of each JRI, JRI proceedings and Acceptance Certificate will be signed by both the parties. In case the Seller's representative is not present, the JRI proceedings and Acceptance Certificate shall be signed by the Buyer's representative only and the same shall be binding on the Seller. Copy of JRI proceedings and Acceptance Certificate shall be dispatched to the Seller within 30 days of completion of the JRI. In case of deficiencies in quantity and quality or defects, details of these shall be recorded in the JRI proceedings, Acceptance Certificate shall not be issued and claims raised as per the Article on Claims in the contract. In case of claims, Acceptance Certificate shall be issued by Buyer's representative after all claims raised during JRI are settled. If the Buyer does not perform the JRI as mentioned above for reasons exclusively attributable to him, the JRI in India shall be deemed to have been performed and the stores/equipment fully accepted.

19. **Franking clause** – The following Franking clause will form part of the contract placed on successful Bidder –

(a) **Franking Clause in the case of Acceptance of Goods** "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) **Franking Clause in the case of Rejection of Goods** "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."

20. **Claims:** The following Claims clause will form part of the contract placed on successful Bidder –

(a) The claims may be presented either: (a) on quantity of the stores, where the quantity does not correspond to the quantity shown in the Packing List/Insufficiency in packing, or (b) on quality of the stores, where quality does not correspond to the quality mentioned in the contract.

(b) The quantity claims for deficiency of quantity shall be presented within 45 days of completion of JRI and acceptance of goods. The quantity claim shall be submitted to the Seller. The quantity claim shall be submitted to the Seller as per Form DPM-22 (Available in MoD website and can be given on request)

(c) The quality claims for defects or deficiencies in quality noticed during the JRI shall be presented within 45 days of completion of JRI and acceptance of goods. Quality claims shall be presented for defects or deficiencies in quality noticed during warranty period earliest but not later than 45 days after expiry of the guarantee period. The quality claim shall be submitted to the Seller as per Form DPM-23 (Available in MoD website and can be given on request)

(d) The description and quantity of the stores are to be furnished to the Seller along with concrete reasons for making the claims. Copies of all the justifying documents shall be enclosed to the presented claim. The Seller will settle the claims within 45 days from the date of the receipt of the claim at the Seller's office, subject to acceptance of the claim by the Seller. In case no response is received during this period the claim will be deemed to have been accepted.

(e) 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 under Seller's arrangement.

(f) Claims may also be settled by reduction of cost of goods under claim from bonds submitted by the Seller or payment of claim amount by Seller through demand draft drawn on an Indian Bank, in favour of Principal Controller/Controller of Defence Accounts concerned.

(g) The quality claims will be raised solely by the Buyer and without any certification/ countersignature by the Seller's representative stationed in India.

21. **Warranty** – The following Warranty will form part of the contract placed on the successful Bidder –

(i) Except as otherwise provided in the invitation tender, the Seller hereby declares that the goods, stores articles sold/supplied to the Buyer under this contract shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specification and particulars contained/mentioned in contract. The Seller hereby guarantees that the said goods/stores/articles would continue to conform to the description and quality aforesaid for a period of 12 months from the date of delivery of the said goods stores/articles to the Buyer or 15 months from the date of shipment/despatch from the Seller's works whichever is earlier and that notwithstanding the fact that the Buyer may have inspected and/or approved the said goods/stores/articles, if during the aforesaid period of 12/15 months the said goods/stores/articles be discovered not to conform to the description and quality aforesaid not giving satisfactory performance or have deteriorated, and the decision of the Buyer in that behalf shall be final and binding on the Seller and the Buyer shall be entitled to call upon the Seller to rectify the goods/stores/articles or such portion thereof as is found to be defective by the Buyer within a reasonable period, or such specified period as may be allowed by the Buyer in his discretion on application made thereof by the Seller, and in such an event, the above period shall apply to the goods/stores/articles rectified from the date of rectification mentioned in warranty thereof, otherwise the Seller shall pay to the Buyer such compensation as may arise by reason of the breach of the warranty therein contained.

(ii) Guarantee that they will supply spare parts, if and when required on agreed basis for an agreed price. The agreed basis could be and including but without any limitation an agreed discount on the published catalogue or an agreed percentage of profit on the landed cost.

(iii) Warranty to the effect that before going out of production for the spare parts they will give adequate advance notice to the Buyer of the equipment so that the latter may undertake the balance of the lifetime requirements.

(iv) Warranty to the effect that they will make available the blue prints of drawings of the spares if and when required in connection with the main equipment.

PART V – EVALUATION CRITERIA & PRICE BID ISSUES

1. **Evaluation Criteria** - The broad guidelines for evaluation of Bids will be as follows:

(a) The Bids will be evaluated only if found to be fulfilling all the eligibility and qualifying requirements of the RFP, both technically and commercially.

(b) All the quotes will be bought 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 opening of the price bid.

(c) 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 will prevail and the total price will be corrected. If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.

(d) The lowest Acceptable Bid will be considered further for placement of contract/Supply order after complete clarification and price negotiation as decided by the Buyer. The Buyer will have the right to award contracts to different Bidders for being lowest in particular items. The Buyer also reserves the right to do Apportionment of Quantity, if it is convinced that Lowest Bidder is not in a position to supply the full quantity in stipulated time.

(e) Any other criteria as applicable to suit a particular case.

2. **Price Bid Format:** The price Bid Format in general is given below and Bidders are required to fill this up correctly with full details, as required under Part-II of RFP (The format indicated below is only as an illustration. This format should be filled up with items / requirements as mentioned in Part-II of RFP):-

Basic Price of-

(a)	<u>Item (S)</u>				
	Item	Unit Price	HSN Code	Qty in Nos	Total
(i)	SRGGM HEPFF			4000	
(ii)	SRGM HEDA			6385	
(iii)	SRGM TP			6528	
	SRGM TPT			1632	
(iv)	Total Price of items (s)				

Annexure-I to RFP No. AS/5188/SRGM Ammn.
Dated 17 Aug 21

SCHEDULE OF REQUIREMENT(SOR) FOR PROCUREMENT OF
SRGM AMMUNITION

SL. NO.	ITEM DESCRIPTION	QUANTITY REQUIRED (IN NOS.)
A.	76/62 MM SRGM HEPFF (Pre- Formed fragmentation with proximity fuze M8953A1 or equivalent)	4000
B.	76/62 MM SRGM HEDA (with direct action fuze PD M9030A1 or equivalent)	6385
C.	76/62 MM SRGM Target Practice (TP)	6528
D.	76/62 MM SRGM Target Practice Tracer (TPT)	1632

PACKING:-

For Cartridges:-

- (a) Approved twin FRP containers.
- (b) Maximum two rounds/container.

For Fuzes :-

- (a) Fuze should come in separate approved FRP packing (Maximum 20 nos in 01 box).
- (b) One appropriate tool for fixing the fuze in each box.

Notes:

- (a) The specifications of the items at the schedule of requirement is placed at **Appendix-A to this annexure-I.**
- (b) The above mentioned items when supplied should be fully compatible for SRGM Guns held in Indian Navy. Log book/certificate containing all relevant details should also accompany the items at the time of delivery.

SPECIFICATION FOR ROUND 76/62 HEPFF PLUGGED
(M9217A1 OR EQUIVALENT)

A. **Item Description** : The 76/62 mm HEPFF round should be compatible with Oto Melara 76/62 mm Naval Compact, Super Rapid Gun systems or equivalent systems. The Round should be compatible with standard NATO profile fuzes and should be having range of around 16000 meters :

B. Performance characteristics:			
	(a)	Muzzle velocity	: Mean Muzzle velocity of Round should be 905 m/s \pm 5 m/s and standard deviation for all rounds fired should not be more than 5 m/s.
	(b)	Pressure	: The maximum pressure of individual round should not exceed 3975 kg/cm ² at + 60° C \pm 3° C based on Muzzle velocity of 905 m/s \pm 5.
C Physical Characteristics:			
	(a)	Projectile Extraction	: The Cartridge case shall separate from the shell at a load of 2500 Kg \pm 700 Kg if the load is applied a rate of 3.3 mm per minute
	(b)	Charge Mass	: The charge mass shall be within 2.1 kg to 2.5 kg. The weight of propellant charge filled in each round shall be as such that as to comply with the required Muzzle Velocity. The weight of propellant charge in each round shall not deviate more than \pm 5g from the charge mass assessed for the lot being offered.
D. Round Data:			
(i) Complete Round:			
	(a)	Mass	: Approx. 12.0 Kg (Nominal)
	(b)	Length of plugged Round	: Approx. 820 mm (Nominal)
	(c)	Primer	: M7A3 / IM54/ equivalent, compatible with the supplied ammunition. Minimum shelf life 10 years.
(ii) Shell Plugged:			
	(a)	Mass	: Approx. 5.35 Kg (Nominal)
	(b)	Length	: Approx. 260 mm (Nominal)

E. Maintainability: The ammunition shall be maintenance free for a minimum period of 10 years while contained in the specified packing in naturally ventilated magazines.

F. Environmental condition

(a)	Temperature and Humidity	:	The Round packed or unpacked shall be unaffected by temperature ranging -20° C to + 60° C and Humidity upto 95% in storage and transportation. (Should confirm to MIL-STD-810E Method 507.3 or latest)
(b)	Salt Spray	:	The Round shall withstand the effects of moist, salt laden atmosphere (Should confirm to MIL-STD-810E Method 509.3 or latest)

G. Transportability: When packed the ammunition can be stored, transported by road, ship, rail or aircraft without any detrimental effect to its functional and safety characteristic.

(a)	Transportation vibration	:	Should conform to MIL-STD—810E Method 514.4 category 1, Basic Transportation Vibration or latest version.
(b)	Transportation Jolt	:	Performance and safety of packaged ammunition should be unaffected by subjecting to 10000 bumps at a rate of minimum 24 bumps per minute on jolting table (Acceleration not exceeding 200 m/s ²)

H. Safety

(a)	Drop during Handing (Round)	:	The round shall be safe to handle and to use after dropped from a height of 1.5 m onto a concrete or steel base (Should conform to MIL-STD-810E test 516.4 Procedure IV or latest MIL Spec.
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J. Shelf Life: When stored under specified conditions, the ammunition shall have a minimum shelf life of 10 years or higher (to be specified) without degradation in performance and 15 years without degradation in safety.

**SPECIFICATION FOR THE 76/62 MM PROXIMITY FUZE M8953A1
OR OTHER EQUIVALENT**

1. **Introduction.** The specification enumerates requirements of Proximity Fuze for 76/62 SRGM HEPFF ammunition.
2. **Design Features of the Fuze.** The fuze is to be designed for use in operation against sea skimming missiles as well as in an anti-aircraft role against aerial targets. The fuze is required to operate in two modes viz. Proximity and Direct Action. It should also be effective against surface targets or shore bombardment. The fuze is required to operate in the Ultra High Frequency (UHF) range. The antenna is to be optimised for maximum sensitivity in the required burst area when engaging small targets. Novel frequency modulation techniques are to be employed to enable the fuze to engage missiles skimming the sea surface heights of only a few meters, by reducing the unwanted sea clutter signal in conjunction with an optimised clutter rejection circuit.
3. **Salient Features of the Fuze.** The salient features of the proximity fuze are as follows:-
 - (a) Arming Data:-
 - (i) Spin : Non-Arming : 1000 rpm; Arming : 3000 rpm
 - (ii) Inertial Pin : Non- Arming : 500g(min) ; Arming : 800g (min)
 - (b) Muzzle Safety Distance : 60m (min)
4. **Modes of Operation.** The fuze shall be designed to operate in any of the two modes viz Proximity and Direct Action on sensing the target:-
 - (a) **Proximity Mode.** The fuze shall function on proximity against fast moving high performance aerial targets and sea skimming missiles where the characteristics of the target are within the following envelope:-
 - (i) Speed of the Target : up to 1.5 Mach
 - (ii) Minimum Attack Height : > 5m above the peak of waves.
 - (iii) Minimum Target Dia. : 0.3m
 - (iv) Height of Function:-
 - (aa) Surface Targets : 0.5 m to 30 m above the target.
 - (ab) Aerial Targets : 5 m around the target.
 - (v) Range of Functioning : 500m from muzzle to Max. Gun range.
 - (vi) Self-Destruction : 27 ± 2 Sec

(b) **Direct Action(DA) Mode.** DA function shall always serve as a backup in case of proximity failure. The following are the functional parameters:-

- (i) Range of Functioning : 100m from Muzzle to Max. Gun range.
- (ii) Conditions for Functioning : Between impact and 3m behind, if it hits a 2 mm steel or Aluminum plate, at a minimum distance of 100m from the muzzle, with an incidence angle of between 20° and 90°.

(c) **Self-Destruct Action.** The fuze should self destruct in absence of target after lapse of 27 ± 2 Sec.

5. **Paralyzing Action.** The fuze shall function in proximity mode at all times unless the proximity action is inhibited electronically by paralyzing. In the paralyzed mode, the fuze shall function on impact only. The fuze should have a capability to get paralyzed at 6V AC or 4.3V DC supplied by the gun.

6. **Environmental Conditions.** The fuzes would be stored in depots in their original packaging protected from humidity and with appropriate ventilation, until the moment they are ready to be used. The fuzes shall withstand the following combination of conditions without any adverse effects:-

- (a) Storage Conditions : 23 ± 5 °C with humidity 20-60 %
- (b) Operating Conditions: - 20°C to +55°C with humidity of 95%

7. **Battery Module.** A reserve type battery should be brought into action with setback and spin forces. Upon firing, the ampules must cut/break releasing the electrolyte into the cell stack generating a steady voltage.:-

- (a) Operating Parameters:
 - (i) Setback : 1200g-28000g
 - (ii) Spin : 2700 – 28000 rpm
 - (iii) Temperature : -46 °C to 63°C
- (b) Insulation Resistance: 200MΩ measured between 200 V DC
- (c) Shelf Life : 15 Years
- (d) Activation Time : 100- 450ms at 18-25V over the operating temperature range
- (e) Load resistance : 1000Ω discharge for 150 Sec.
- (f) Safety Feature : Encapsulated in a plastic mould using polyurethane foam and epoxy resin. As a safety feature, the battery must initiate only after the round has crossed the safety distance after firing.

8. **Firing Circuit.** It should be an integral part of the battery module mounted on a PCB comprising of a voltage regulation circuit and a firing circuit to generate the firing pulse for detonator either upon proximity, impact or after lapse of 27 ± 2 Sec (self destruct).
9. **Safety and Detonating Mechanism(SAD).** SAD is the mechanical safety device which would ensure safety against inadvertent initiation during handling, transportation and storage. The firing pulse would be transmitted to the booster pellet only on satisfactory sensing of launch and alignment of explosive train. The initiating chain comprising of initiating composition, intermediary/booster(CE Pellet) would be inline only on satisfactory sensing of launch by the SAD.
10. **Electromagnetic Environment.** Fuzes in their normal life cycle configurations, shall not inadvertently arm or function during or after exposure to electromagnetic radiation(EMR), electrostatic discharge(ESD), electromagnetic pulse(EMP) electromagnetic interference(EMI) in IN operating environment, lightening effects(LE) or power supply transients(PST). The fuzes shall not exhibit unsafe operation during and after exposure to the above environments.
11. **Safety.** The fuze should be safe during storage, handling, transportation as well as during loading/ramming/firing events. Towards this the following safety mechanisms are to be incorporated:-
 - (a) **Mechanical Safety.** A mechanical Safety and Arming Device (SAD) is required to be housed inside the fuze with out-of-line explosives to ensure safety during launch subject to sensing of actual environment (setback, spin and arming distance).
 - (b) **Electronic Safety.** Proximity functioning of the fuze shall be inhibited for a minimum of 350ms after battery arming. The Built in Safety Features of Fuze enumerated in MIL STD 1316E are placed at **Appendix** .
12. **Weight.** The weight of the fuze is to be maintained as 930 ± 15 gms
13. **Reliability.** The fuze should have 90% reliability at 90% confidence level.
14. **Shelf Life.** When stored under specified conditions, the fuze shall have a shelf life of 10 years without degradation in performance and 15 years without degradation in safety.
15. **Maintainability.** The fuze in its original packing and stored under specified conditions, shall not require any maintenance during the entire shelf life.
16. **Transportability.** The fuze in its original packing should withstand vibration, shocks and bumps encountered during transportation by road, rail, or sea.
17. **Interchangeability.** The fuze should be interchangeable between rounds.
18. **Qualification Standards for Fuze.** The fuze shall qualify the requirements laid out in the following standards/ or their equivalent:-
 - (a) **MIL-STD-331D.** Fuze and Fuze Components: Environmental and Performance Tests.
 - (b) **MIL-STD-461G.** Requirements for control of Electromagnetic Interference: Characteristics of subsystems and equipment (EMI/EMC)

- (c) DOD-STD-2169. High Altitude Electro Magnetic Pulse(HEMP)
- (d) MIL-STD-1316E. Design Criteria: Fuze Design Safety
- (e) MIL-HDBK-344A. ESS for Electronic Equipment
- (f) MIL-STD 464A. Electromagnetic Environment Effects
- (g) JSG 0102. Environmental Test of Armament Store.
- (h) JSS 55555 and JSS 50101. En Tests of Electronic Equipment.
- (j) MIL-STD-105E. Sampling procedures and tables for inspection by attributes.

19. **Packing and Marking**. The body of the fuze are to be marked with product reference number, lot number, manufacturers code and last two digits of the year. The fuzes are to be packed in a metal airtight box. Each box should house 8 fuzes. Desiccant bag to absorb moisture and dampeners to hold the fuzes in place and reduce the vibrations are to be used. The following markings are to be made on the box:-

- (a) No of Fuzes
- (b) Type of Ammunition
- (c) Serial Lot Number, Manufacturer Code and Year of Manufacture
- (d) Explosive Hazard Classification
- (e) Package Number, Gross/Net Weight and Volume

BUILT IN SAFETY FEATURES: MIL STD 1316E

1. The design of the safety features shall be robust enough to permit exposure of the fuze system to the environments and handling stresses anticipated in its life cycle with no deterioration or degradation of the fuze safety system. The fuze should have built in safety features as per MIL-STD-1316E: '**Safety Criteria for Fuze Design**' and are to include the following:-

- (a) **Functional Isolation.** The control and operation of safety features are to be functionally isolated from other processes within the munition system.
- (b) **Fuze Safety System.** Fuze shall comprise at least two independent safety features each of which shall prevent unintentional arming of the fuze and unintentional detonation of the ammunition due to the fuzes.
- (c) **Safety Redundancy.** Forces enabling a minimum of two safety features shall be derived from different environments (such as set-back, spin, rocket ignition command etc).
- (d) **Electronic Safety.** Electronic circuits should have 'g' switches, accelerometers and sensors to sense the environment (acceleration/ retardation and spin) to ascertain the launch.
- (e) **Arming Delay.** Safety feature of the fuze shall provide an arming delay and shall assure safe separation distance in all operating conditions before the arming of the explosive.
- (f) **Manual Arming.** The assembled fuze shall not be capable of being manually armed.
- (g) **Mechanical Safety.** Safety and Actuating Mechanism (SAM) should have at least one interrupter (barrier, shutter, rotor or slider). The effectiveness of the interrupter shall be tested as per MIL-STD- 331D.
- (h) **Safe or Armed Condition.** A positive means of determining safe and armed condition to be provisioned (visual observation) so as to ensure safe condition before assembly of fuze.
- (j) **Safety System Failure Rate.** The safety system failure rate of a fuze shall be calculated by performing a safety analysis and shall be verified to the extent practicable.
- (k) **Electronic Logic Functions.** Any electronic logic related to safety functions performed by the fuze shall be embedded as firmware or hardware. Firmware devices

shall not be erasable or alterable by credible environments which the fuze would otherwise survive.

(l) **Stored Energy**. Stored energy shall not be employed for enabling or arming. Environmentally derived energy, after initiation of the launch cycle, can be practically obtained.

(m) **Compatibility of Fuze Elements**. All fuze materials shall be chosen to be compatible so that under all life-cycle conditions none of the following shall occur in an unarmed fuze:-

- (i) Premature Arming
- (ii) Dangerous Ejection of Material
- (iii) Deflagration or detonation of lead or booster
- (iv) An increase in the sensitivity of explosive train components, beyond the level appropriate for service use.
- (v) Compromise of safety or sterilisation features
- (vi) Production of unacceptable levels of toxic or other hazardous materials.

(n) Inbuilt safety logic should prevent premature functioning during storage, transportation and onboard ships.

SPECIFICATION FOR ROUND 76/62 MM HE PLUGGED
(M 9402 A1 OR OTHER EQUIVALENT)

A. Item Description: The 76/62 mm HE round should be compatible with Oto Melara 76/62 mm Naval Compact, Super Rapid Gun systems or equivalent systems. The Round should be compatible with standard NATO profile fuzes and should be having range of around 16000 meters.

B. Performance characteristics:

(a)	Muzzle velocity	:	Mean Muzzle velocity of Round should be 905 m/s \pm 5 m/s and standard deviation for all rounds fired should not be more than 5 m/s.
(b)	Pressure	:	The maximum pressure of individual round should not exceed 3975 kg/cm ² at + 60° C \pm 3° C based on Muzzle velocity of 905 m/s \pm 5.

C. Physical characteristics:

(a)	Projectile Extraction	:	The Cartridges case shall separate from the shell at a load of 2500 Kg \pm 700 Kg if the load is applied a rate of 3.3 mm per minute.
(b)	Charge Mass	:	The charge mass shall be within 2.1 kg to 2.5 kg. The weight of propellant charge filled in each round shall be as such that as to comply with the required Muzzle Velocity. The weight of propellant charge in each round shall not deviate more than \pm 5g from the charge mass assessed for the lot being offered.

D. Round Data:

(i) Complete Round:

(a)	Mass	:	Approx. 12.0 Kg (Nominal)
(b)	Total Length of Plugged Round	:	820 mm (Nominal)
(c)	Primer	:	M7A3 / IM54/ equivalent, compatible with the supplied ammunition. Minimum shelf life 10 years.

(ii) Shell Plugged:

(a)	Mass	:	Approx. 5.35 Kg (Nominal)
(b)	Length	:	Approx 260 mm (Nominal)

E. Maintainability: The ammunition shall be maintenance free for a minimum period of 10 years while contained in the specified packing in naturally ventilated magazines.

F. Environmental condition

	(a)	Temperature and Humidity	:	The Round packed or unpacked shall be unaffected by temperature ranging -20° C to + 60° C and humidity upto 95% in storage and transportation. (Should conform to MIL-STD-810E Method 507.3 or latest)
	(b)	Salt Spray	:	The Round shall withstand the effects of moist, salt laden atmosphere (Should conform to MIL-STD-810E Method 509.3 or latest)
G. Transportability: When packed the ammunition can be stored, transported by road, ship, rail or aircraft without any detrimental effect to its functional and safety characteristics.				
	(a)	Transportation vibration	:	Should conform to MIL-STD-810E Method 514.4 category 1, Basic Transportation Vibration or latest version.
	(b)	Transportation Jolt	:	Performance and safety of packaged ammunition should be unaffected by subjecting to 10000 bumps at a rate of minimum 24 bumps per minute on jolting table (Acceleration not exceeding 200 m/s ²)
H. Safety:				
	(a)	Drop during Handling (Round)	:	The round shall be safe to handle and to use after dropped from a height of 1.5 m onto a concrete or steel base (Should conform to MIL-STD-810E test 516.4 Procedure IV or latest MIL Spec.
J. Shelf Life: When stored under specified conditions, the ammunition shall have a minimum shelf life of 10 years or higher (to be specified) without degradation in performance and 15 years without degradation in safety.				

SPECIFICATION FOR ROUND 76/62 MM DIRECT ACTION FUZE
PD M9030A1 OR OTHER EQUIVALENT

A. Item Description: The Direct Action fuze PD M9030A1 (or equivalent) should be a point detonating fuze with graze action back up designed to function on direct action or graze should be compatible to 76/62 mm Naval Compact and Super Rapid Gun systems and can be fitted to 76/62 mm HE, 76/62 mm HE PFF and 76/62 mm Prac AA Flash rounds.

B. Performance characteristics:

	(a)	Weapon Functioning	:	When Fired from a 76/62 mm Compact or Super Rapid Gun systems the fuze should not cause any malfunctioning of the Gun.
	(b)	Ballistic Levels	:	Should function satisfactorily where the following ballistic levels of ammunition are not exceeded: (i) Set Back : 30 000 g's (ii) Rotations : 2000- 30000 RPM (iii) Muzzle Velocity : 905 M/s to 930 M/s

C Static Arming Characteristic:

	(a)	Interrupter	:	Must arm by 2000 rpm but not at 1500 rpm
	(b)	Plunger Assy	:	Must arm by 2075 rpm but not at 1500 rpm
	(c)	SAD	:	The rotor must arm by 3000 RPM but not at 1000 rpm

D. Fuze Arming: The fuze should experience two forces i.e set back and centrifugal Simultaneously before initiation of arming sequencing.

E. Functioning: The fuze should function by Direct Impact with Target or Graze with Target.

F. Arming Distance: The fuze shall arm at a distance between 70 m to 100 m from the barrel

G. Graze action: The fuze shall function on graze with water or soft sand down to a minimum graze angle of 0.5°

H. Sensitivity : The fuze shall function on mild steel plate with a minimum thickness of 2 mm placed at 150m from the muzzle.

J. Physical Characteristic:

	(a)	Fuze Mass	:	The mass of filled fuze should be 910 g ± 15g
	(b)	Total Length (Nose to flange)	:	Approx. 96.5 mm Max
	(c)	Max outside dia	:	Approx 62 mm

K. Environmental Condition:

	(a)	Natural Environment	:	The fuze shall in its unpacked state, be unaffected by
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			<p>continuous and unlimited exposure to any combination or sequence of the following conditions:</p> <p>(i) Temperature : -20° C to + 60° C</p> <p>(ii) Relative Humidity : Up to max 95%</p> <p>(iv) Immersion : In sea water to depth of 1m for a period not exceeding 10 minutes.</p> <p>(v) Salt Fog : Moist salt laden atmos.</p> <p>(Should conform to MIL-STD-810E Method 503.3 and MIL-STD-331A test 107.1 or latest versions/ equivalent)</p>
(b)	Natural Environment	:	<p>The fuze shall withstand the following combinations of conditions without any adverse effect:</p> <p>(i) Maxm. Axial Acceleration : 30000 g's</p> <p>(ii) Maxm. Angular Accelern : 81 1000 rad/s²</p> <p>(iii) Maxm spin rate : 30 000 rpm</p>
L. <u>Safety</u>			
(a)	Transit and safe handling	:	Should conform to Jolt Test as per MIL-STD-331A test 101.2, procedure 1 or latest version & Should conform to Jumble Test as per MIL-STD-331A test 102.1, or latest Version
(b)	Transportation Vibration	:	Should conform to MIL-STD-810D Method 514.3 Category -1, Procedure 1 or latest version
(c)	Water proofness	:	Should conform to Jolt Test as per MIL-STD-331A test 108 or latest version
(d)	Drop Safety -1	:	The Fuze shall be safe to transport, handle and fire with round after a 1.5 m drop onto steel surface (Should conform to Jolt Test as per MIL-STD-331A test 111.1, procedure 1 or latest version
(e)	Drop Safety -2	:	The fuze shall be safe to transport and handle in packed condition after a 3.0 m drop onto steel surface
<p>M. <u>Shelf Life:</u> When stored under specified conditions, the ammunition shall have a shelf life of 10 years or higher (to be specified) without degradation in performance and 15 years without degradation in safety.</p>			

SPECIFICATION FOR ROUND 76/62 TP/TPT Rounds

A. **Item Description** : The 76/62 mm TP/TPT round should be compatible with Oto Melara 76/62 mm Naval Compact, Super Rapid Gun systems or equivalent systems. The Round should be compatible with standard NATO Rounds and should be having range of around 16000 meters:

B. Performance characteristics:				
	(a)	Muzzle velocity	:	Mean Muzzle velocity of Round should be 905 m/s \pm 5 m/s and standard deviation for all rounds fired should not be more than 5 m/s.
	(b)	Pressure	:	The maximum pressure of individual round should not exceed 3975 kg/cm ² at + 60° C \pm 3° C based on Muzzle velocity of 905 m/s \pm 5.

C. **Shelf Life:** When stored under specified conditions, the ammunition including primer shall have a minimum shelf life of 10 years or higher (to be specified) without degradation in performance and 15 years without degradation in safety.

