

EXPRESSION OF INTEREST (EOI)

INVITATION FOR EXPRESSION OF INTEREST (EOI) TO MANUFACTURE 40 MM SEMI-AUTOMATIC GRENADE LAUNCHER (SAGL) GRENADE PRODUCTION LINE IN BANGLADESH ORDNANCE FACTORIES (BOF)

1. **Scope of Technology Transfer.**

a. **Definition of Technology.** Clearly define what is being transferred, including patents, know-how, trade secrets, technical documentation, software, and technical expertise and any associated intellectual property (patents, trademarks, copyrights, trade secrets). Clearly the manufacturer/OEM to be named from whom the ToT to be handed over to BOF. ToT to mention whether the manufacturer is government or private organization. It should include but not limited to all machines and equipment, raw materials, explosives, jigs/fixtures/tool, detailed drawing, design, software, programs, blueprints and know-how to produce, Technical Data Package (TDP) of all components, all types of test facilities and associated technical data. The SAGL Grenade production line should be able to produce all the components of SAGL Grenade. This should include metallic and non-metallic components including explosive components. Manufacturers should be able to indicate the number of components and their corresponding design.

b. **Scope of Rights.** Specify who is handing over the technology, whether the transfer is exclusive, non-exclusive, or limited to a specific field, territory, duration and clarify whether the transfer includes sublicensing rights.

c. **Improvements and Modifications.** Address ownership and rights to any improvements, modifications, or derivative works made by either party during or after the transfer.

2. **Technical Considerations.** Complete and accurate technical drawings, specifications, and design documents for the SAGL Grenade to be handed over. Manufacturers should submit following with the EOI:

a. **Technical Data Package (TDP) of SAGL Grenade.** Complete TDP (drawing, design, composition and associated technical data) of SAGL Grenade must be provided with the EOI to ensure that the correct specification of corresponding SAGL Grenade can be ascertained by the buyer. Bangladesh army intends to produce 40x46 mm and 40x51 mm caliber grenade. This SAGL Grenade must be compatible with all types of 40 mm Semi-Automatic Grenade Launcher.

b. **Production Capacity.** A minimum of 2,00,000 (2 Lac) SAGL Grenade per year are expected to be produced in a single shift on the proposed production line. The type of grenade should be High Explosive (HE) and High Explosive Dual Purpose (HEDP). The production line should be capable of producing both HE and HEDP grenade.



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c. **Design Specifications.** Detailed technical documentation of the SAGL Grenade design, including materials, dimensions, tolerances, and performance criterion. Understanding the operating principles should be enumerated.

d. **Manufacturing Process.** Transfer of know-how for precision machining, assembly, and testing. Specific processes such as casting, molding etc. Manufacturing process of explosive mixture and energetic material to be separately highlighted.

(1) Name, drawing, design, composition and detailed technical specifications of all the metal components used in SAGL Grenade must be provided and to be manufactured in the same production line.

(2) All parts containing explosive must be specified as per their name and to be manufactured in the line.

(3) Composition, design, drawing and associated technical data of all the explosive's parts of the SAGL Grenade must be provided.

e. **Raw Material Selection.** Raw materials that will be required for producing grenade to be included in proposal. A list of raw materials with its likely sources and vendors needs to be mentioned. The list of raw materials to include detail specification, quantity and ratio of various specialized raw material to manufacture grenade. Sourcing of raw materials to be ensured by the vendor. Costing and possibilities of rate running contract (RRC) to be negotiated during the time of the contract. Compliance with material standards and certificate to be ensured.

f. **Machines and Plants.**

(1) **Machinery and Plant Requirements:** The EOI must include detailed specifications of all required machines and plant equipment. Vendors must clearly state whether they are original manufacturers of these items. If not, they should identify the source from which these machines and plant items will be procured. Furthermore, vendors must express a commitment to facilitate communication and coordination with the original equipment manufacturers (OEMs) by sharing relevant contact information. The name, country of origin, and manufacturer details for each machine and plant item required for production must be explicitly stated. Provisions for ongoing support, servicing, and maintenance must also be addressed.

(2) **Production Workflow and Machinery Details:** Vendors are to provide a comprehensive description of the production process, including a workflow diagram and a list of all machines required at each stage.

(3) **Manpower Requirements:** The EOI should specify the total manpower required for the operation of the production line, detailing roles and skill sets as applicable.

(4) **Working Hours and Shifts:** Information regarding the duration of each shift, total number of working days per week, and the total working hours per week must be mentioned.



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(5) **Warranty Provisions:** Vendors must specify the warranty period for all machines and plant equipment included in the offer.

(6) **After-Sales Service Support:** The offer must detail the scope and duration of after-sales service support, clearly indicating the period for which service assistance will be available post-commissioning.

(7) **Tools, Jigs, Fixtures, and Spares:** A complete list of all required tools, jigs, fixtures, and spare parts must be included in the offer, along with technical specifications and associated costs. The vendor must also confirm that these items will remain in production and available from the OEM for a minimum of 10 years.

(8) **Shipment and Delivery Information:** Shipment details, including the designated port of shipment, preferred transportation route, and logistics plan, must be clearly outlined.

g. **Quality Control.**

(1) Establishment of quality assurance protocols to ensure consistency and reliability to be mentioned.

(2) Testing procedures for environmental conditions i.e. temperature, shock, and vibration to be mentioned.

h. **Safety Mechanisms.**

(1) Must ensure fail-safe mechanisms and inbuilt firefighting system to prevent accidental explosion and confirm accordingly.

(2) Compliance with safety standards for handling explosives and sensitive components must be included.

3. **Engineering Considerations.**

a. **Production Line Setup.**

(1) Design and layout of manufacturing facilities to accommodate specialized equipment to be included.

(2) Integration of automation and robotics for precision tasks to be emphasized and mentioned specifically.

(3) Detail drawing, design and plant layout of utility service (required electric power, steam, water, compressed air, etc.) to be provided.

b. **Tooling and Equipment.**

(1) Transfer of specialized tooling, jigs, and fixtures must be specified and listed. List should include any associated equipment, power source or ancillary requirement including tools-cutter, die-punches, jigs-fixtures etc including their quantity. ToT should include all know-how to manufacture required tools, jigs, fixtures at buyer's premises once the supplied tool, jigs, fixtures are exhausted.



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(2) Procedure for calibration and maintenance of equipment to ensure accuracy should be specified separately.

c. **Testing and Validation.**

(1) Provision of development of test rigs and facilities for performance validation should be mentioned.

(2) Option for simulation of real-world conditions should be specified.

4. **Logistical Considerations.**

a. **Supply Chain Management.**

(1) Establishing reliable supply chains for raw materials and components must be included in the offer. Costing and sourcing to be negotiated during the time of the contract. Name, composition and associated technical data of all the raw materials to be used in SAGL Grenade must be provided including prospective sources.

(2) Fast-moving spare parts to be provided with technical data as per specification and drawing including their consumption rate.

(3) Associated information to manage lead times and inventory for critical parts should be specified.

b. **Infrastructure.**

(1) The infrastructure facilities to be suitable to comply with the requirements of modern machineries and plants. Adaptation of processes to local conditions by setting up required infrastructure and allied facilities like power, gas, and water sources, and other utility services are to be mentioned.

(2) Total area requirement and number of sheds, rooms required including their designs & layout and construction cost to be mentioned.

(3) Costing of infrastructure to be shown separately and will be included in the contract. Cost and management to be negotiated during the contract.

5. **Contractual Agreements.** Highlight obligations of seller which are to be negotiated during contract.

a. **Technology Transfer Agreement.** Proposal for a detailed contract outlining the terms and condition of technology transfer, including timelines, milestones, and deliverables.

b. **Production Agreement.** Likely terms of production, including volume, quality standards, and delivery schedules which are to be finalized during contract formulation.

c. **Raw Materials and Other Accessories Agreement.** Raw material and accessories required for the production of the quantity of SAGL Grenade as agreed should be included in the contract.



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d. **Infrastructure Development Agreement.** Development of infrastructure should be included in the separate contract, but the cost to be included in the total cost of the project.

f. **Dispute Resolution.** The response should include clauses for dispute resolution, arbitration, and termination of the contract.

6. **Regulatory and Compliance Considerations.**

a. **Export Controls.** Seller must confirm adherence to international regulations International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR) governing the transfer of military technology for export purpose.

b. **Safety and Environmental Regulations.**

(1) Compliance with local and international safety standards for handling explosives and hazardous materials must be specified.

(2) Environmental impact assessments for production facilities to be mentioned.

c. **Certification.** The response should specify the list and provide specimen of necessary ISO certifications for production processes and final products.

7. **Human Resource Considerations.**

a. **Training.**

(1) Comprehensive training programs for engineers, technicians, and operators should be included.

(2) Knowledge transfer through hands-on workshops and documentation to be confirmed.

b. **Skill Development.** Options to build local expertise in precision engineering, electronics, and explosives handling should be mentioned.

8. **Economic and Strategic Considerations.**

a. **Cost Analysis.**

(1) Approximate cost of the project with detail breakdown to be mentioned.

(2) Cost of various machines/plants, tools/jigs/fixtures/spares, raw materials, ToT, infrastructure, training, maintenance and/or as required to be shown separately.

(3) Any other costing as deemed necessary to be shown separately.

b. **Payment Terms.** The production line will be established as a Turn-key project according to the procurement policy of Bangladesh Armed Forces. The payment terms (in detailed) to be mentioned accordingly.

c. **Financial Capability.** Evidence of financial strength and stability. Creditworthiness and capacity for capital investment. Availability of financing and sources of capital.



- d. **Joint Venture/Buy Back.** Joint venture and buy back option should be offered with specific terms and condition.
 - e. **Localization.** Adapting designs to use locally available materials and components where possible must be emphasized and indicated.
9. **Legal and Contractual Considerations.**
- a. **Licensing Agreements.** Defining the scope of technology transfer, including rights and restrictions from domestic and international legal point of view must be specified.
 - b. **Liability.** Clarifying responsibilities for defects, accidents, or misuse of technology must be indicated.
10. **Performance Obligations and Milestones.**
- a. **Implementation Timeline.** Clear timelines for technology transfer, including key milestones such as time for establishment including installation, trial run, training (from opening of LC) to be mentioned specifically.
 - b. **Performance Guarantees.** Performance guarantees or benchmarks (e.g., production capacity, quality standards) to be specified.
 - c. **Acceptance Criteria.** The response should specify the criteria for the licensee to accept the technology as successfully transferred.
11. **Exit and Contingency Planning.**
- a. **Technology Obsolescence.** A guarantee from OEM regarding continuous production of all associated spares/jigs/fixtures for next 10 years to be provided.
 - b. **Contingency Plans.** Suggest mitigation strategies and provisions for risk management and unforeseen events, such as operational, security, changes in market conditions or technological advancements.
12. **Experience and Credentials.** Experience of setting up a similar production line in domestic/other countries with examples to be mentioned.
13. **Requirement of Evaluation Visit.** Manufacturers are welcome to visit BOF facility to finalize the offer.
14. **Minimum Yearly Requirement:** 2,00,000 rounds.
15. **Miscellaneous.** Any other Suggestion/opinion may be mentioned separately.

