

ToT of Astra Mk-I Weapon System

Astra Mk-I is an Air-to-Air Missile system indigenously designed and developed by DRDL, Hyderabad in association with other DRDO laboratories.

1. Minimum facility/ capability required at the time of submission of EoI:

The industry seeking ToT should have following minimum capability at the time of submission of EoI and required to submit relevant proof for the same.

- a) It is essential that the firm's turn-over should be greater than 300.66 Cr for preceding three consecutive years.
- b) Previous and on-going experience of delivery of similar systems with clearance by CEMILAC and QA agencies like DGAQA/ MSQAA is essential.
- c) It is essential that the participating firm shall have ISO 9001:2015 and AS-9100D certification.
- d) The participating firm shall have in-house facilities as specified in **Para 2** at the time of absorption.
- e) It is essential that industry has experienced and skilled man-power for assembly, testing, integration, documentation and quality control.
- f) Prior experience in assembly, testing, evaluation and integration of the missile system.
- g) Electronic lab for realization, assembly and testing of electronic/ elect sub-systems.
- h) ESD safe soldering, assembly and sub-system testing bench with proper flooring.
- i) Proper storage facility for electronic items/ components/ PCBs.
- j) QA lab (Electronics/Electrical)
- k) Technical Manpower in subject domains of Electrical, electronics, Mechanical and Software.
- l) Trained Tech staff for assembly and integration.
- m) Environment test facility for Missile system (Climate & Dynamic).
- n) Experience in CEMILAC certification process.
- o) Holding a valid license for Indian Licensed Defence Company (ILDC) issued by DPIIT for ToT of subject technology for manufacturing/ production of missile system
- p) PESO license for explosive handling or a valid legal agreement to comply the requirement.
- q) For Evaluation criteria it is essential that the following documents are submitted by the industry:
 - Expertise in Defence/ Aerospace based systems: Relevant SO copies with technical specifications
 - Existing test facilities (In-house) and external dependency: Test facility specifications, photos and calibration certificates.

- Existing Manpower strength: Certificate by Industry to be submitted citing experience details duly signed by authorized signatory.
 - On-time delivery: Delivery of similar product executed / orders in time based on SO and delivery challan.
 - The applicant firm should not be banned/ blacklisted from any Central Govt./ State Govt. /UT organization or under insolvency resolution as per Indian Bankruptcy Code from submission of EoI to signing of agreement. Self certificate to this effect with duly signed by authorized signatory.
- r) ToT is only for production of the missiles, launchers and associated equipment, any firing requirements from platform towards certification to be taken up by industry in coordination with Indian Armed forces

2. Facility/ Capability required at the time of Technology Absorption (TA):

Apart from the above facilities as mentioned above in Para 1, the following are essential facilities/ infrastructure/ other requirements need to be complied for applying for issue of TA Certificate:

A) Non - Explosive Facility

- a. Kit preparation for sections (mechanical, electrical)
- b. Preparation of airframes and avionics systems
- c. Instrumentation of systems & airframes (if required)
- d. Integration of avionics systems and mechanical systems in sections
- e. Functional tests on integrated sections
- f. Section-level Vibration test facility on integrated sections
- g. Test facility for inward goods inspection of sub systems
- h. Integration & testing in clean room & strong room
- i. Integration and Testing of Launchers

B) Explosive Facility

- a. Propulsion System and Warhead Assembly facility
- b. Static Test facility for warhead/rocket motors/igniter/pyro etc.
- c. Functional tests on electrically integrated sections
- d. Full Missile integration
- e. Weight, Mol and CG measurement of integrated missile
- f. Post-integration functional tests fully integrated sections with sign-checks of sensors and actuators
- g. Integrated checks facility
- h. Painting facility
- i. Containerization and Packaging

The above activities can be carried out in approved Explosive facilities adhering to national/ international standard safety protocol certified by government authority

C) Infrastructure/ Equipment Requirements

S.No	Infrastructure/Equipment/Tools
1.	Checkout System with GUI with required digital interfaces like Ethernet, RS 422, 1553B for Missile and Launcher.
2.	Power Supplies with required current ratings
3.	20KVA Industrial Grade UPS
4.	32 Ch Digital Recorder
5.	Assembly Trolleys
6.	Work Benches, ESD Safe Work Benches & Anti-Static Tables
7.	Test Jigs for In-ward goods inspection
8.	Wings and FIN Alignment equipment
9.	Weight, Mol & C.G Measurement setup
10.	Three axes Rate Table with Thermal chamber for calibration of Navigation System
11.	RF Seeker Test and Control Equipment (TCE), 10000 class clean room
12.	A/c Integration hangar of minimum size 5m x 8m with 0.5 Tonne EOT Crane
13.	Suitable A/C Storage Facility for Electronic Equipment
14.	Load test facility for Shackle testing
15.	Alignment Inspection facility for measuring Wing, Fin and INS to Seeker misalignment
16.	Storage facility for explosives (warhead & Propulsion) with Temperature & Humidity control with Hazard Class H-1.1E certification .
17.	Must have capability to build explosive storage facility of minimum 2 tonne.
18.	Availability of skilled manpower for explosive handling, propellant casting and quality assurance functions
19.	Electrical integration tools, cables and simulators
20.	Mechanical integration tools, workshop, etc.
21.	EMA controller test equipment
22.	Handling equipment, Explosive Van
23.	Anechoic chamber for Seeker testing
24.	Demonstrated management expertise and a proven track record in

	executing large volume production orders
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- D)** Safety approval from CFEEES, DRDO or Govt Authority for explosive handling, integration and storage as per policy of Govt of India.
- E)** Firefighting system with trained personnel.
- F)** Critical Missile sub-system storage facility (sensors, detectors, ICs, PCB Assy, etc.).
- G)** Clean room facility for integration.
- H)** Applicable valid proofs to be duly submitted. TAC will physically assess and certify the compliances at relevant stages.

3. **Production of hardware:** The selected firms to prepare the following items of ASTRA Mk-I weapon System on NC-NC basis to obtain the TA Certificate:

S.No	Item	Qty (Nos)	Remarks
(i)	Astra Mk-I missile	02	ToT partner to supply these articles and to be validated upto Phase-V checks (Functionally) after integration with full QA coverage. Based on CEMILAC requirements, air-release trial to be conducted (if required).
(ii)	Captive training missile	01	
(iii)	Launcher	01	
(iv)	Simulator plug	02	

4. **Requirement to issue Technology Absorption (TA) Certificate:** Compliance of Para 1, 2 and 3 is the requirement for issuing Technology absorption certificate. TA certificate will be issued after successful qualification testing by MSQAA/ QA agency and certification by CEMILAC.
5. Selected firm to sign Non-Disclosure Agreement (NDA).
6. **The closing date for submission of EoI by the ToT seeking industry will be 21 days from the date of publication on DRDO website.**
7. Documents to be submitted with EoI: The firm must provide relevant supporting documents against each requirement to be complied for absorbing technology. Any additional documents as required by DRDO shall be sought based on request received from interested parties.
8. The other terms and conditions are as per “DRDO Policy for ToT” and “DRDO Procedures for ToT” for category ‘A’ technology, available on DRDO Website.

Interested Industries are requested to forward their Expression of Interest (EoI) to the following address within 21 days of publication:

Director,
Defence Research and Development Laboratory (DRDL)
Kanchanbagh PO, Hyderabad – 500 058
Phone 040-24583000
Fax: 040-24185109
Email: [director\[dot\]drdl\[at\]gov\[dot\]in](mailto:director[dot]drdl[at]gov[dot]in)

A copy of the interest may be sent to the following address without any attachment:

Director
Directorate of Industry Interface & Quality Management (DIIQM)
Room No. 447, DRDO Bhawan, DRDO HQrs,
Rajaji Marg, New Delhi-110011
Phone: 011-23013209/23015291
Fax: 011-23793008
Email: [director-diiqm-hqr\[at\]gov\[dot\]in](mailto:director-diiqm-hqr[at]gov[dot]in)

All industries are requested to fill the form given below and attach their response to Para 1 along with all supporting documents (as applicable). Document to be numbered and provide the reference of page no. of supporting document in the relevant field of form. The documents to be attached with application form are given in Annexure – I.

PART-1

General Information

(Please fill the form and enclose documents in support of information provided)

1.	Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)	Astra Mk-I Weapon System	Page no of enclosure
2.	Name of the industry/ organization		
3.	Complete Address and other details		
	Registered Office State Phone No Fax Email Website		
	Factory State Phone No Fax Email Website		
4.	Point of Contact Name Designation Address Mobile No Ph No Email ID		
5.	NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc Name Designation Address Mobile No Ph No Email ID		
6.	Date of Incorporation of company		
7.	Foreign Direct Investment in company (if any in %)		
8.	Shareholding pattern		
9.	Turn over as per Audited Balance Sheet for the preceding three years. Year _____ Year _____ Year _____		
10.	Annual budget for R&D during last three years (if any) Year _____ Year _____		

	Year _____		
11.	Income Tax returns for the preceding three years period Year _____ Year _____ Year _____		
12.	Nature of company DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit		
13.	Category of industry Large Scale, Medium Scale, Small Scale, Micro, Startup		
14.	MSME Registration No		
15.	Certificates of registration as a manufacturing unit, if any.		
16.	If Startup, DPIIT Registration No		
17.	UDYOG AADHAR No		
18.	PAN Number		
19.	Details of Industrial license for defence manufacturing issued by DPIIT (if any)		
20.	Details of PESO license (if any)		
21.	GST Number		
22.	Nature of business Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others		
23.	Details of current products and services Products and services Supplied (please specify Govt/ Domestic market/ Export)		
24.	Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).		
25.	Details of registration with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association (Attach relevant copies of registration letters)		
26.	Have you already taken any technology from DRDO (If yes, give details attaching separate sheet) Name of the Technology, Lab, Year, License number & Status		
27.	ISO/ ISI certification or any other certification (If yes, give details)		
28.	Relevant clearances form the authorities/		

	ministries (if any)		
29.	Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.		
30.	Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.		

PART-2

Infrastructure and other Information

1.	Total area of factory Covered (m ²), Uncovered (m ²), Bonded space available (m ²)	
2.	Ownership of factory Self-owned, partnership, rental	
3.	Electric power Sanctioned Installed Standby (if any)	
4.	Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise	
5.	Name of bank & A/c No Name of bank A/c type A/c no Address of the bank Phone: Email:	

6. Details of current products:

S.No	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years

7. Details of foreign collaboration, if any

S.No	Product	Name and address of collaborator	Year	Remarks

8. Details of products developed for services

S.No	Nomenclature of stores	Order No. and date	Remarks

9. Please give detail of important facilities & infrastructure as per following format for:

- (a) Production
- (b) Unconventional, special m/c
- (c) Testing & quality control facilities

S.No	Description of m/c	Make & model	Qty	Date of purchase	Remarks

10. Furnish the following details with relevant certificates and documents

- (a) R&D facilities available :
- (b) Inspection quality control of raw material components :
- (c) Assistance from central agency for testing/calibration etc. :
- (d) laboratory and drawing office facility :

11. Principal customers:

S. No	Name & address	S.O No and date	Date of last supply	Products supplied	Value

12. Future plans (if any) in respect of expansion programme/ installation of additional machines/test facilities etc.

13. Name of the technology requested for transfer

(give self-assessment of your capability to absorb the technology)

14. Details of employee as on date on firm's payroll

PERMANENT				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

TEMPORARY				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

DECLARATION:

I/we confirm that the information furnished in Part1 & 2 above is correct. In the event of any information given by me/us is found incorrect/false at anytime, I/we understand our EoI for ToT will be cancelled/rejected without notice, beside any other appropriate action against me/us.

Industry seal

Authorized signatory

Name(s) in capital

Designation and seal of authorized signatory

Date:

Place:

List of supporting documents to be attached with EoI:

- a. Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- b. Certificates of registration as a manufacturing unit, if any.
- c. Audited Balance Sheet for the preceding three years.
- d. Income Tax returns for the preceding three-year period
- e. Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- f. Annual budget for R&D during last three years.
- g. Numbers and details of IPR or patents, etc., held by the company.
- h. Number of technically or professionally qualified personnel employed.
- i. Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- j. Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- k. List of testing and support equipment.
- l. ISO/ ISI certification or any other certification.
- m. Relevant clearances from the authorities/ ministries (if any).
- n. Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- o. Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- p. Industrial license for defence manufacturing issued by DPIIT (if any).
- q. PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc. Any other special license compliance requirement to be specified by the lab.
- r. Undertaking from company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel is involved in any corrupt practices, unfair means/ illegal activities.