

Explosive Reactive Armour (ERA) Mk-II

Explosive Reactive Armour (ERA) is used for protection of Tanks against anti-tank threats namely, High Explosive Anti Tank (HEAT) and Kinetic Energy ammunition.

High Energy Materials Research Laboratory (HEMRL) in association with Defence Metallurgical Research Laboratory (DMRL) and Combat vehicles Research & Development Establishment (CVRDE) has developed ERA Mk-II for adaptation to Tank T-72 and Arjun MBT Mk-II.

ERA Mk-II consists of mainly two subsystems, reactive elements and armour panels. Different size panels are fitted on Tank with a provision for positioning of reactive elements inside the panels. The panels are fitted on tank by welding fixtures and mounting structures. The number of reactive elements in panels on different locations is different, but size of reactive elements is same. Explosive in sheet form is used in ERA.

Thus, ERA technology involves:

- i) Preparation of reactive elements
- ii) Preparation of armour plates of different thicknesses using DMRL developed armour material
- iii) Fabrication of metallic panels
- iv) Proof testing of reactive elements along with panels
- v) Fabrication of various mountings/ fixtures
- vi) Preparation of Tank surface for welding of mountings/fixtures, which involves relocation of certain components
- vii) Welding of mountings/ fixtures on tank
- viii) Fitment of panels on tank

ERA Mk-II has been proven against designated ammunition during the user trials and it is likely to be productionised soon.

Infrastructure required for manufacture of ERA Mk-II

➤ **Reactive elements**

- i) Sigma Mixer
- ii) Rolling Machine
- iii) General fabrication equipments like shearing machine, Die & punch, marking & measurement tools
- iv) Crimping machine

➤ **Armour panels**

- i) Armour steel plates as per CDA 99 specifications
- ii) Fabrication machines/ equipment for shearing/cutting, welding etc. as per drawings and specifications

Only those firms which are having expertise in handling, processing and storage of explosives and are having the **requisite license to handle the explosive** from the appropriate authorities will be eligible for TOT of the above item.

Interested parties may respond along with their company profile, financial and technical capabilities as per the following format:

- a) Memorandum and Articles of Association (should be incorporated as per Indian Companies Act, 1956)
- b) Certificate of registration as a manufacturing unit, if any
- c) 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
- f) Annual budget for R&D during last three years
- g) Numbers and details of IPR or patents etc held by the company
- h) Numbers of technically or professionally qualified personnel
- i) Record of past performance (e.g. supply orders executed against 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 equipments
- l) ISO/ISI certification or any other certification
- m) Relevant clearances from the authorities/ ministries (if any)
- n) Capacity and capability to undertake development 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.

Eligible parties will have to sign Confidentiality and Non-Disclosure Agreement (CNDA) with DRDO. Interested industries for TOT may write to The Director, HEMRL Pune on following address:

**The Director
HEMRL, DRDO, Ministry of Defence
Sutarwadi, Pashan
Pune-411021**