**MINE FIELD MARKING EQUIPMENT MK-II (MFME MK-II)**

Research & Development Establishment (Engineers), Pune, a premier laboratory under Defence R&D Organisation invites Expressions of Interest (EOI) from Indian industries having sufficient experience, expertise and willing to undertake production work of MFME MK-II hereafter called as ‘system’. The industry should be technically & financially competent to manufacture and supply the ‘system’ with requisite quality standards.

**BRIEF DESCRIPTION:**

Mine field marking is an important activity of Indian army. It provides immediate warning/signs for people moving in or nearby hazardous area. Marking is done with the help of picket and tying ropes on the pickets. It provides a physical barrier and thus delineate between known danger area and those areas that is clear.

To perform this activity R&DE (E) had developed, Mine Field Marking Equipment MK-I, which is being used by Indian army.

The Mine Field Marking Equipment Mk-II is designed for marking the mine fields at faster rate, semi-automatically with minimal human intervention. It is designed to operate in plains of Punjab, semi desert and desert of Rajasthan. This equipment is designed to erect the pickets at any distance from 10 to 35 m (in the step of 5) on to the ground. It also rolls out the rope from the spools which are to be tied manually to the picket at two different heights. The system is based on TATRA 6x6.

**TECHNICAL DETAILS:**

Mine Field Marking Equipment Mk-II is built on TATRA 6x6. It consists of mechanical, electrical, electronic & pneumatic sub-systems.

**Mechanical sub-system** includes picket storage - (1 No.), Picket Holder Assembly (PHA) – (1No.), pneumatic system, buffer assembly, rope-spools with braking mechanism – (10 No.), container, platform, linear motor guide (1 No.) and operator’s seating facility – (2 No.).

**Electrical sub-system** includes Power Pack, Power Distribution Unit (PDU), linear motor, lights, fans etc. Hammering of the Picket to drive it in to the ground is done through linear motor. When hammer is not in operation it is rested on a hammer stopper. This stopper is actuated by an electrical actuator. Power requirement of the ‘system’ is met through a DG-set. To meet the different power needs of the ‘system’ there is a power distribution unit which takes the input from DG-set & conditions it to as per the requirement.

Electronics sub-systems includes Auto/Manual panel, main and field junction box, Distance Measuring Device (DMD), Driver’s display panel, linear motor controller and sensors. Electronic controls have been used mainly for automatic operation of the electrical & pneumatic linear actuators.

All these sub systems are integrated within a box type container which is welded to platform. Platform is secured to the vehicle chassis with the help of U bolts.

**SALIENT FEATURES**

- Designed to operate in plains of Punjab, desert & semi-desert of Rajasthan.

 - Can operate in a temperature range of 0-45°C.

 - Can be operated by 4 Nos. of crew – Driver + 3 operators

 - Can Place 500 Numbers of Pickets continuously in one go.

 - Average rate of perimeter fencing is minimum 1.2 km per hour at 15 meter picket spacing, depending upon soil condition and spacing between the pickets

- Nylon (Polypropylene) rope of yellow colour & 6 mm diameter for maximum fencing of 15 km is stored in rope spools. There are 10 rope spools & each spool carry rope of 1.5 km length. Rope rolls out automatically from the spools. A braking mechanism is provided to control the spool’s rotation.

 Interested industries may respond along with their company profile, financial & technical capabilities etc. as per the following format :

(a) Memorandum and Articles of Association (Should be incorporated as per Indian

Companies Act, 1956)

(b) Certificates 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. The company must adhere to the prevailing Govt. of India policies and regulations on Foreign Direct Investment (FDI).

(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.

(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 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.

Eligible industries will be invited to sign Non-Disclosure Agreement with R&DE (Engrs) and for technical discussion, following which they shall be evaluated for giving Transfer of Technology (TOT) on non-exclusive basis. Criteria for choosing industry partner will include manufacturing capability, assurance on quality and capacity of production apart from other terms and conditions.

Interested industry may write to Director, R&DE(Engrs), Pune on the following address –

Director, R&DE(Engrs). DRDO, Min. of Defence, Alandi Road, Dighi,

Pune – 411015

They may also contact on phone – (020) 27044520, (020) 27044544

Email: director@rde.drdo.in , akupadhyay@rde.drdo.in, akgupta@rde.drdo.in

 Or

Director, DIITM,DRDO HQ,

Min. of Defence, DRDO Bhawan, Room No. 447, B Block,

Rajaji Marg, New Delhi - 110011

Phone – 011 23013209

Email: mayank@hqr.drdo.in